

FORMULA STUDENT SCRUTINEERING CHASSIS INSPECTION

PART 2 TEMPLATES & AERO DEVICES

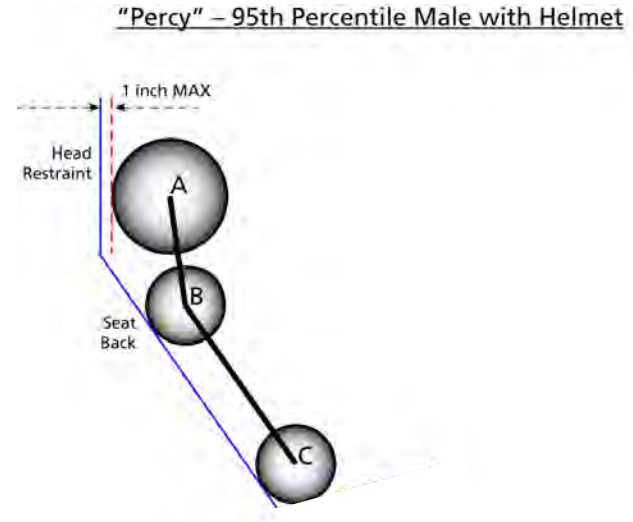
by

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with material from
Jeff Lovell**

T3.10.4 Main & Front Hoops-General Requirements - Percy

The 95th percentile male template will be positioned as follows: (See Figure 2.)

- The seat will be adjusted to the rearmost position,
- The bottom 200 mm circle will be placed **when the 915mm “leg” is in contact with the rearmost foot pedal (next slide)**
- The middle 200 mm circle, representing the shoulders, will be positioned on the seat back.
- The upper 300 mm circle will be positioned no more than 25.4 mm (1 inch) away from the head restraint (i.e. where the driver’s helmet would normally be located while driving).

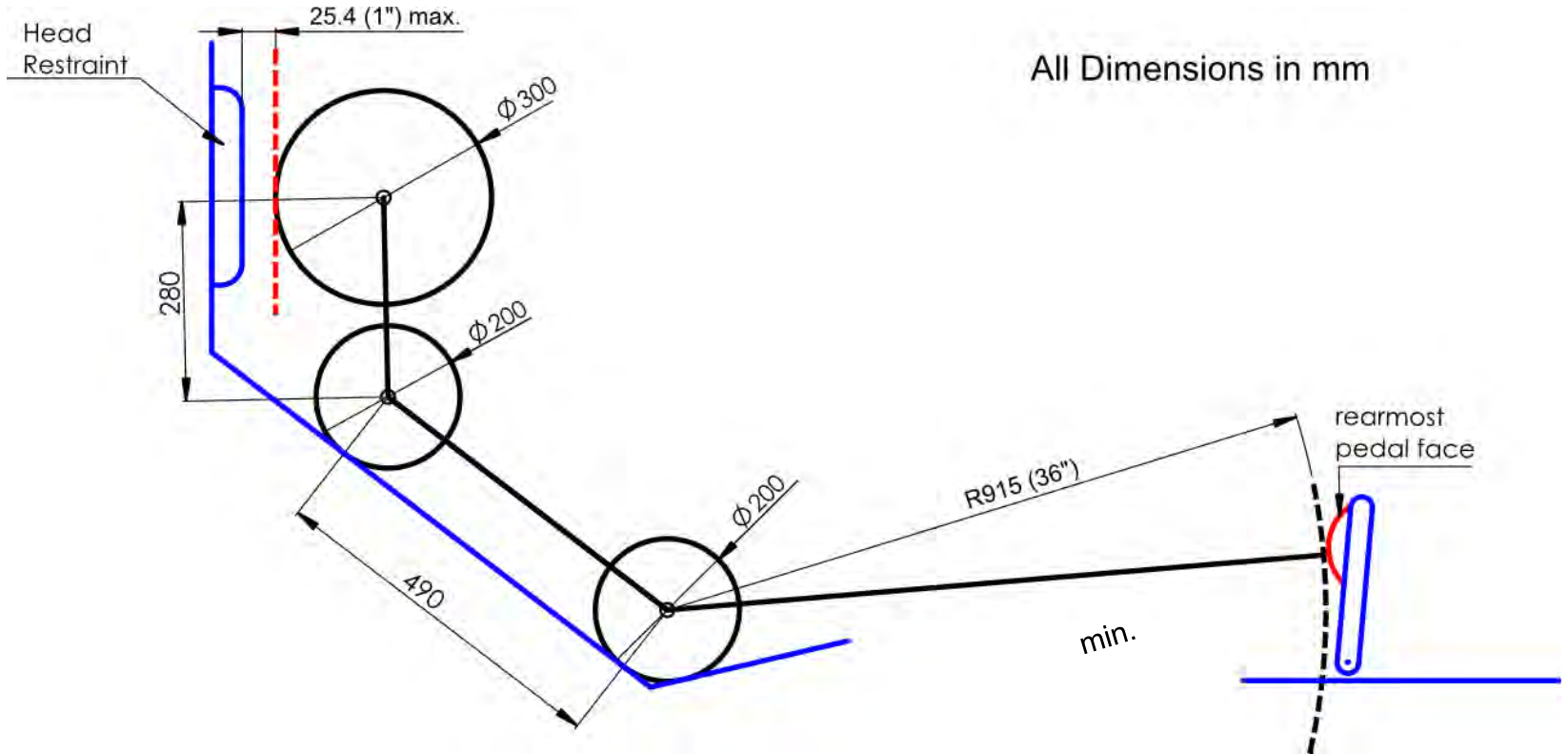


Circle A = Head with helmet – 300 mm diameter
Circle B = Shoulders – 200 mm diameter
Circle C = Hips and buttocks – 200 mm diameter

Line A-B = 280 mm from centerpoint to centerpoint
Line B-C = 490 mm from centerpoint to centerpoint

FIGURE 2

T3.10.4 Main & Front Hoops-General Requirements - Percy



T4.1 Cockpit Opening

- In order to ensure that the opening giving access to the cockpit is of adequate size, a template shown in Figure 8 will be inserted into the cockpit opening.
- The template will be held horizontally, parallel to the ground, and inserted vertically **from a height above any Primary Structure or bodywork** until it has passed below the top bar of the Side Impact Structure (or until it is 350 mm above the ground for monocoque cars). *Fore and aft translation of the template is permitted during insertion.*
- During this test, the steering wheel, steering column, seat and all padding may be removed. The firewall may **not** be moved or removed.

Presenter's note: Only those things mentioned above may be removed, nothing else. The shifter must remain in place (it is a common question.)

Cockpit Opening - cont' d

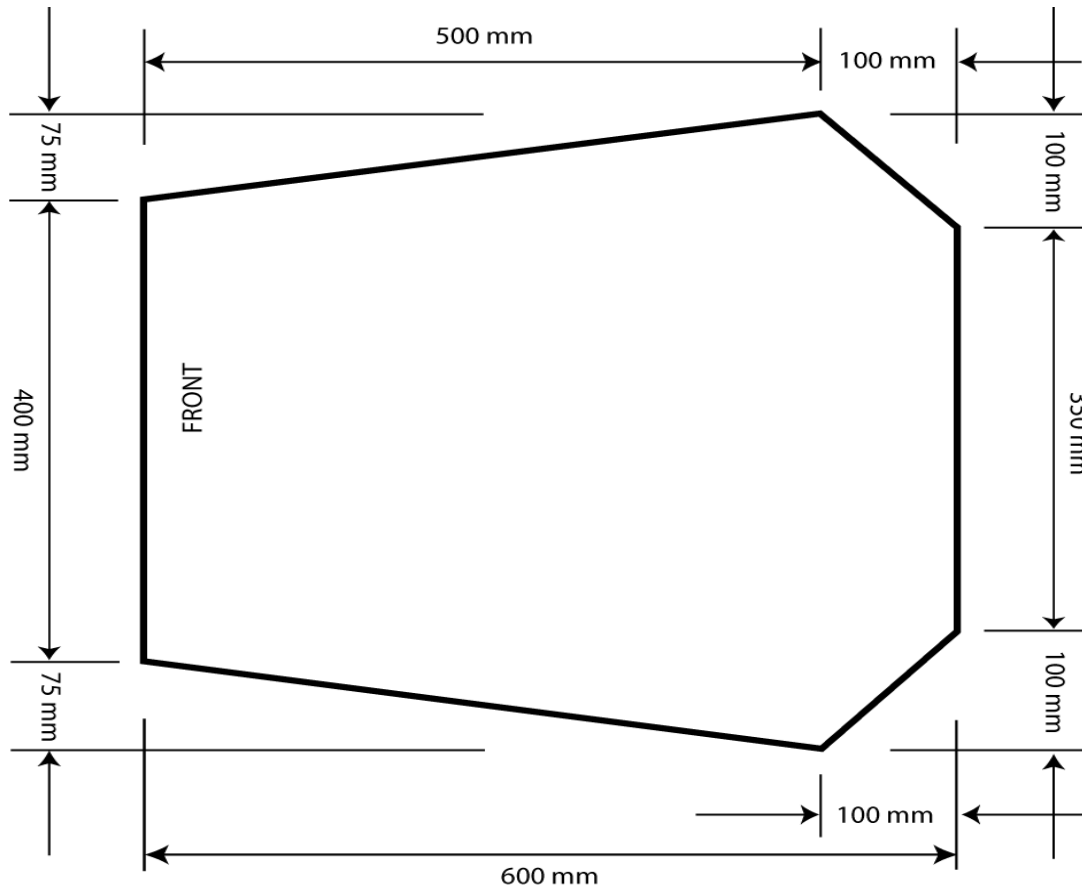


FIGURE 8

T4.2 Cockpit Internal Cross Section

- A free vertical cross section, which allows the template shown in Figure 9 to be passed horizontally through the cockpit to a point 100 mm (4 inches) rearwards of the face of the rearmost pedal when in the inoperative position, must be maintained over its entire length. If the pedals are adjustable, they will be put in their most forward position.
- The template, with maximum thickness of 7mm (0.275 inch), will be held vertically and inserted into **the cockpit opening rearward of the rear-most position of the steering column.**
- The only items that may be removed for this test are the steering wheel, and any padding required by Rule T5.8, Driver's Leg Protection that can be easily removed **without the use of tools with the driver in the seat.** The seat may NOT be removed.

Note: Cables, wires, hoses, tubes, etc. must not impede the passage of the templates required by T4.1 or T4.2.

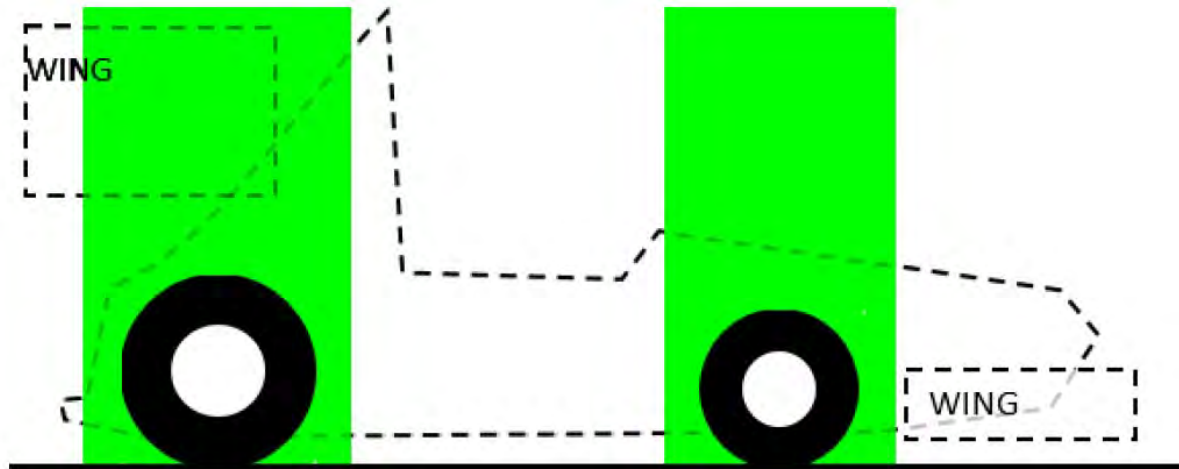
Cockpit Templates & “Percy”

- Teams whose cars do not comply with T4.1 and T4.2 Cockpit Templates, or with “Percy” will not be given a Technical Inspection Sticker and will NOT be allowed to compete in the dynamic events.

T2.1: “Open Wheel” keep out areas

2014 ‘Tennis-ball test’ goes away, new larger keep out areas. Nothing, including wings, can be in these areas, which extend vertically, infinitely.

i.e. wings, end plates, or bodywork can never be vertically above the tire.

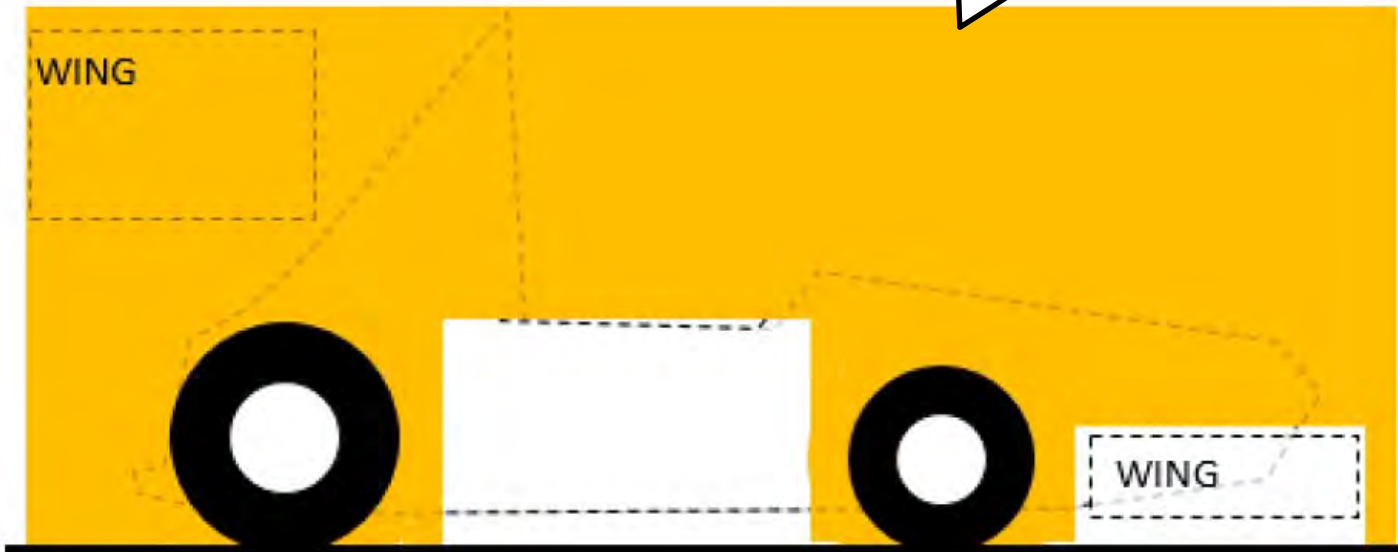


T9: Aero Device Locations

New restrictions on wing positions,
diagrams below.

See rules or tech sheet for dimensions.

No aero devices in
colored areas! (Includes
Open Wheel keep outs
from previous slide)



T9: Aero Device Locations

New restrictions on wing positions, diagrams below.
See rules or tech sheet for dimensions.

No undertrays
behind rear tire



No wings over
rear tire



T9.5.1: Minimum Radii of Edges of Aerodynamic Devices

Only *forward facing* edges need the round edge radius (5mm for horizontal edges, 3mm for vertical edges)



Trailing edges: no requirements

Horizontal, forward-facing (min radius 5mm)

Vertical, forward-facing (min radius 3mm)

T9.7.1 Aero Device Stability & Strength

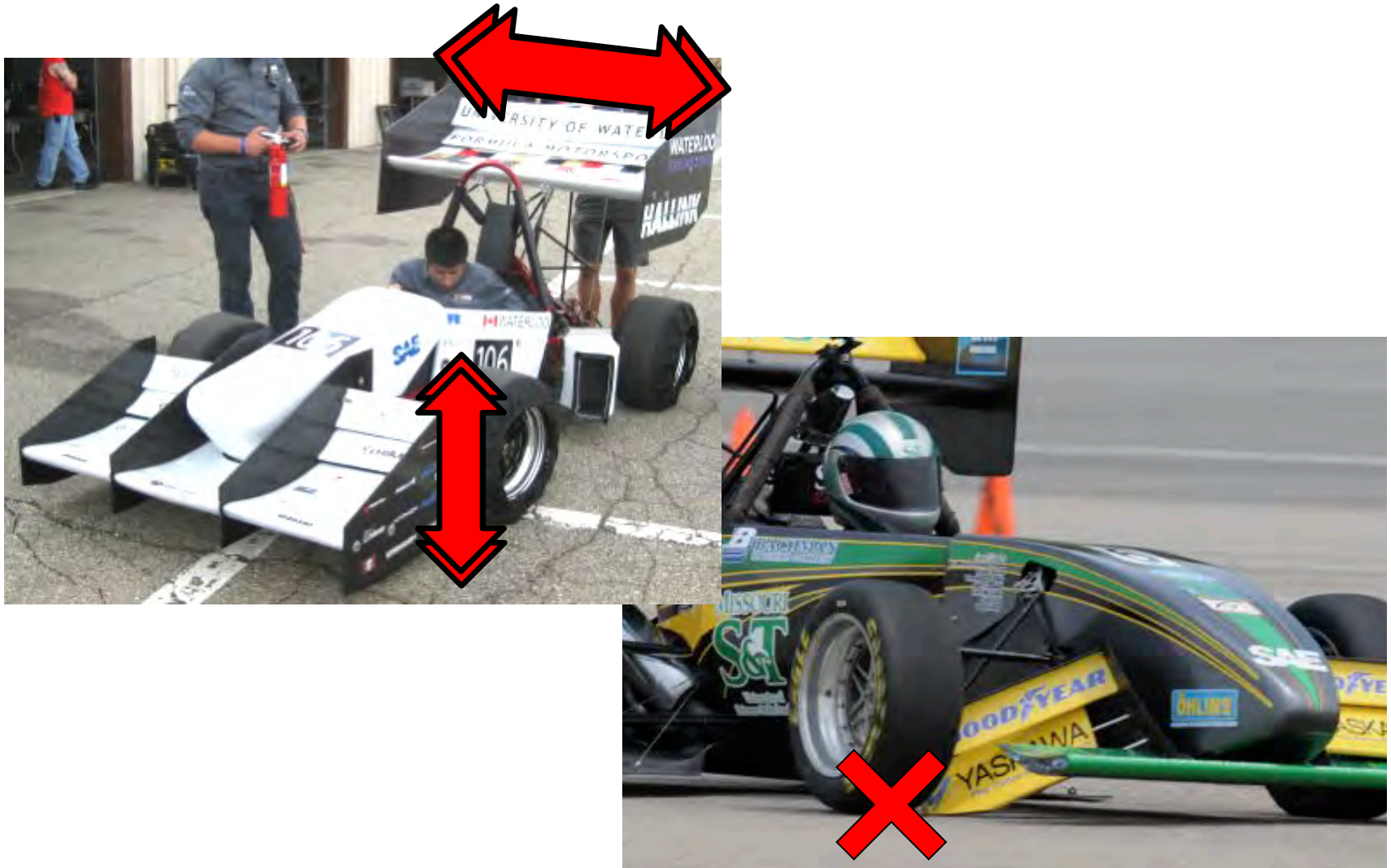
- All aerodynamic devices must be designed such that the mounting system provides adequate rigidity in the static condition and such that the aerodynamic devices do not oscillate or move excessively when the vehicle is moving. In Technical Inspection this will be checked by pushing on the aerodynamic devices in any direction and at any point.

NOTE: The following is guidance as to how this rule will be applied but actual conformance will be up to technical inspectors at the respective competitions. The intent is to reduce the likelihood of wings detaching from cars.

1. If any deflection is significant, then a force of approximately 200N may be applied and the resulting deflection should not be more than 25mm and any permanent deflection less than 5mm.
2. If any vehicle on track is observed to have large, uncontrolled movements of aerodynamic devices, then officials may Black Flag the car for inspection and the car may be excluded from that run and until any issue identified is rectified.

T9.7.1: Aerodynamic Device Stability – Cont'd

Wings must not wobble around. If wobbly in Tech, call chief scrutineer over for a formal evaluation.



T9.7.1 Aero Device Stability & Strength – Cont'd

T9.7.1: Aerodynamic Device Stability

If any deflection is significant, a force of approximately 200N (45-50 lbs.f) can be applied and the resulting deflection should not be more than 25mm and any permanent deflection less than 5mm.

This was a new requirement for 2015, intended to reduce the occurrence of wings coming loose during dynamic events.

Non-structural parts of the wings (end plates, outermost edges) single-finger-type forces can certainly damage the vehicle. But this is not what we are interested in - instead we want to evaluate the robustness of the mounting system between the wing and the frame.

If the wing mounting system seem too flexible, get the chief scrutineer before using the above test.

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