



# **2015 Collegiate Design Series**

## **Epreuve Du Nord Rules**

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### Partial List of rule updates/changes

This introduction list to the 2015 Epreuve Du Nord rules is intended to highlight areas of the rules that have a change that has been made to a rule

**These are not the complete changes** – Caution – Neither this list of updates/changes nor any summary to the rules is a substitute for thoroughly reading and understanding the rules. You are responsible for knowing and following all the Epreuve Du Nord rules. We cannot stress it enough...

### **Read the Rules, thoroughly and repeatedly**

Please be sure to reference the Baja Forum... [http://forums.sae.org/access/dispatch.cgi/bajasae\\_pf](http://forums.sae.org/access/dispatch.cgi/bajasae_pf) for all updates.

Account Signup for Online Submission – Teams must comply with certain requirements when registering at <http://www.bajasae.net/login.aspx> and submitting documents online.

(Partial list of updates/changes)

B1.1.1

B2.5 Engine Requirement and Restrictions

ARTICLE 8: ROLL CAGE

B8.3.10.3

B8.3.10.4

B16.1 Helmet, Neck Support/Collar & Goggles

**D5.7.9 Endurance Event Enforcement (C)**

**These rules are just a wrap-up of the main points which we care about. The following lines are copy-pasted from the 2013 rules.**

## PART B: TECHNICAL REQUIRMENTS

### ARTICLE 1: GENERAL DESIGN REQUIREMENTS

#### B1.1 Vehicle Configuration

The vehicle must have four (4) or more wheels not in a straight line.

**B1.1.1** The vehicle may only use one Briggs & Stratton engine of a model specified below. The vehicle must be capable of carrying one (1) person 190cm (75 in) tall weighing 113kg (250lbs).

#### B1.1.2 Maximum Vehicle Dimensions

Width: 162 cm (64 in) at the widest point with the wheels pointing forward at static ride height.

### ARTICLE 2: REQUIRED ENGINE

#### B2.5 Engine Requirement and Restrictions

To provide a uniform basis for the performance events, all vehicles must use the same engine: a stock four cycle, air cooled, Briggs & Stratton OHV Intek Model. The following Briggs & Stratton engines are the only acceptable engines for the 2015 Epreuve du nord competition:

**20S232 0036-F1**  
**205432 0536-E9**  
**205332 0536-E9**  
**205332 0536-B1**

#### B2.5.14 Engine Governor

Each engine is equipped with a governor. Each governor will be set at competition to a 3,800 rpm or lower maximum speed. Random inspection of the governor may be conducted at any time. Any attempt to defeat the engine governor so as to increase the engine speed is grounds for immediate disqualification. Random inspection of the governor may be conducted at any time.

#### **GOVERNOR SETTING NOT TO EXCEED 3800 RPM.**

The governor operation must remain free of obstructions at all times. Governor area must be shielded from debris. The stock configuration of fuel tank mounted to the engine is acceptable for debris management. However, if the fuel tank is to be remote mounted, a debris shield covering the exposed governor area is required. Briggs & Stratton part number 697326 Control Cover may be used or some other part with equivalent features.

**NOTE: The governor spring must be placed in hole #6.**

## ARTICLE 3: ELECTRICAL SYSTEM

### B3.3 Kill Switches

Each vehicle must be equipped with two (2) easily accessible kill switches turning off the ignition. The Kill switch must not de-energize the Brake

#### B3.3.2 Kill Switch – Locations and Orientation

**A. Cockpit Switch** – The cockpit switch must be located in the front of the cockpit within easy reach of the driver with the safety harness tight. The switch may not be mounted on a removable steering wheel assembly.

**B. External Switch** – The external switch must be mounted on the driver's right side of the vehicle. The switch must be within easy reach of track workers, the switch must be mounted rigidly, with no sharp edges nearby.

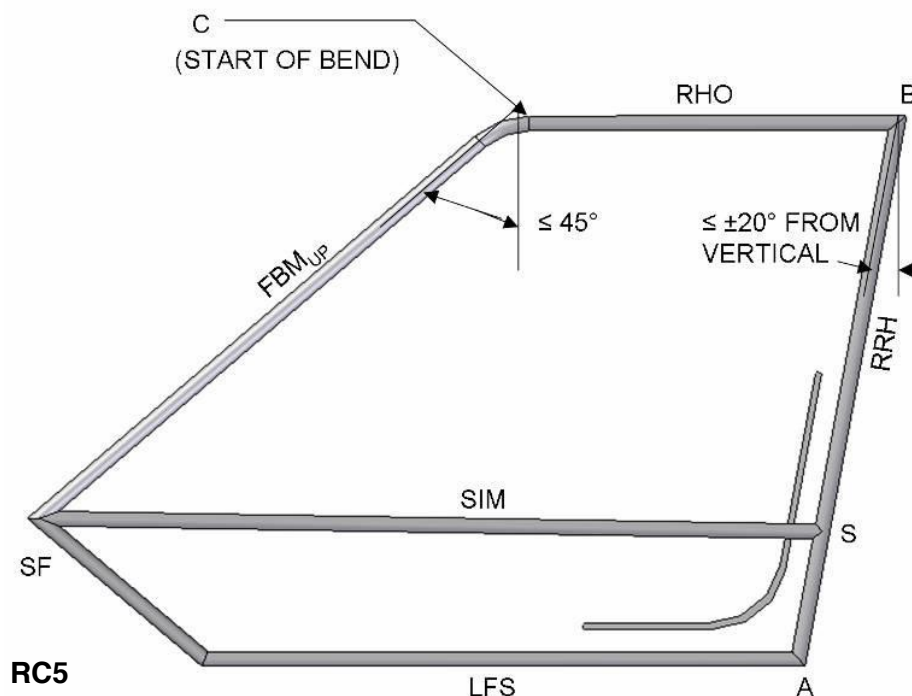
**B3.4.1** The vehicle must be equipped with a red brake light that is SAE "S" or "U" rated and must be clearly visible and **appear bright in daylight.**

### B3.6 Reverse Light and Alarm

Vehicles with reverse must be equipped with a backup light marked with an SAE "R" on the lens and be equal to, or exceed the SAE standard J759. Vehicles with reverse must also be equipped with a backup alarm.

## ARTICLE 8: ROLL CAGE

★ **Note: If your roll cage has any dent, pictures must be sent at least 1 month prior to the event. Decision will be given as soon as possible. Otherwise, see 2013 Baja SAE Rules for specifications.**



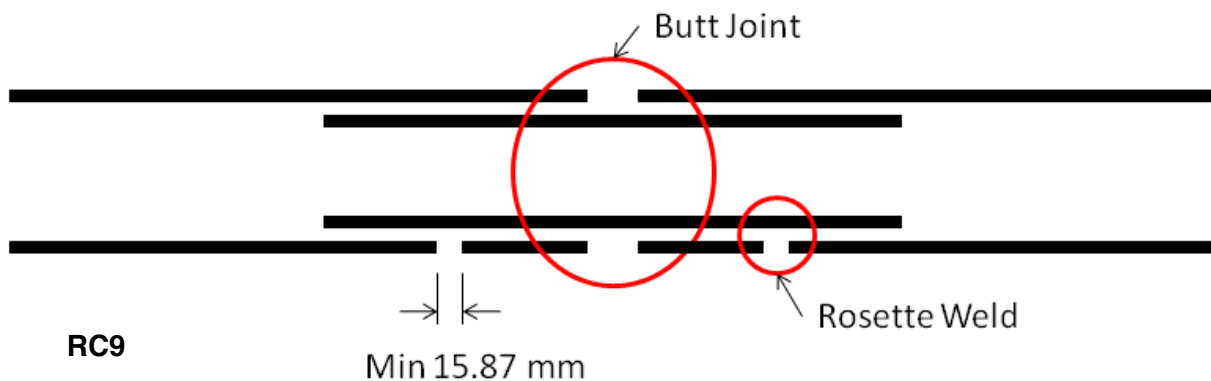
### B8.3.9 RHO/FBM Gusseting

If the RHO and FBM on one side of the vehicle are not comprised jointly of one tube, bent near point C, then a gusset is required at point C to support the joint between the RHO and the FBM.

★ **Note: For teams who's frame hasn't been inspected in an SAE event, please bring required documentation so we can check B8.3.11-B8.3.12. (Roll cage material and weld samples).**

**B8.3.10.3** The general arrangement of an acceptable sleeved joint is shown in Fig.RC9. A butt weld and four rosette welds (two on each tube piece, on holes of a minimum diameter of 16 mm (0.625 in.) are required.

**B8.3.10.4** A minimum of 4 linear inches of weld is required to secure the sleeve inside the joint, including the butt joint and the rosette welds.



### B8.4 Sharp Edges on Roll Cage

The roll cage must have no exposed sharp edges which might endanger the driver or people working around the vehicle while the vehicle is in any attitude (static, dynamic, inverted, etc.).

## ARTICLE 9: COCKPIT AND THROTTLE

### B9.3 Firewall

There must be a firewall between the cockpit and the engine and fuel tank compartment. It must cover the area between the lower and upper lateral cross members on the Rear Roll Hoop.

### B9.6 Front or Mid-engine vehicles

If the engine is not placed in the rear of the vehicle, then a firewall is not required to cover the area between the RRH lateral cross members. Instead, the firewall must meet the following standards:

- A. Fuel tank must be in a sealed container that prevents fuel from leaking in the event of fuel tank failure.
- B. Splash shields must prevent fuel from being poured anywhere in the cockpit area during fueling. (See rule B12.6 "Spill Prevention")

- C. Engine must be completely enclosed and protect the driver in the event of an engine failure. Shielding must meet guarding requirements. This shielding must be made of metal. . (See rule B15.1 “Powertrain Guards”).

#### **B9.7 Body Panels**

The cockpit must be fitted with body panels that cover the area between the lower frame side member and the side impact member. These panels must be made of plastic, fiberglass, metal or similar material. They must be designed to prevent debris and foreign object intrusion into the driver compartment. The panels must be mounted securely to the frame using sound engineering practices.

#### **B9.8 Belly Pan**

The cockpit must be fitted with a belly pan over the entire length of the cockpit, so that the driver cannot contact the ground and is protected from debris while seated normally. Belly pan material must be metal, fiberglass, plastic, or similar material. They must be designed to prevent debris and foreign object intrusion into the driver compartment. Expanded metal, fabric, or perforated panels are not allowed.

#### **B9.10 Fire Extinguisher – Size and Location**

Each vehicle must have two identical fire extinguishers with a minimum UL rating of 5 B-C. One must be mounted in the cockpit below the driver’s head, with the top half above the side impact member on the right side of the firewall and be easily accessible by course workers. The manufacturer mounts must be used; they must be metal and have a metal draw latch.

This mount must be securely fastened to the vehicle frame (RRH) and it must resist shaking loose over rough terrain, while allowing the course workers to remove it easily if necessary. The second must be brought to technical inspection with mounting accessories; it will be used as a replacement if needed. All fire extinguishers must be equipped with a manufacturer installed dial pressure gauge. The gauge must be readable.

### **ARTICLE 10: DRIVER RESTRAINT**

#### **B10.1 Minimum Five Strap System Required**

A safety harness system of at least 5 points must be worn by all drivers. The lap belt and shoulder belts must be approximately 76 mm (3 in.) wide. The fifth (“anti-submarine”) belt must be worn between the legs to prevent the lap belt from riding up along the driver’s torso. The safety harness must be installed using good engineering practice. The safety harness must be worn snugly (one finger width maximum gap).

As an alternative to a five point harness, a six or seven point safety harnesses may be used if properly installed and worn.

##### **B10.1.1 Release Mechanism**

All belts must join with a single metal-to-metal quick release lever type buckle. No camlock systems are allowed.

**B10.5.1** In the event of a rollover, the driver's arms must be kept within the limits of the roll cage space (B8.2) by use of arm restraints. Arm restraints must be securely fastened to the driver restraint system. Only commercially available arm restraints meeting SFI 3.3 are allowed. The arm restraints must independently connect to the safety belts.

**B10.5.2 Arm Restraint – Installation**

Arm restraints must be installed such that the driver can release them and exit the vehicle unassisted, regardless of the vehicle's position. The arm restraint must be worn by the driver on the forearm just below the elbow. The driver must be able to reach the cockpit kill switch and steering wheel, but not allow their arms to exit the cockpit.

**ARTICLE 12: FUEL SYSTEM AND FUEL**

**B12.6 Spill Prevention**

The fuel tank must be mounted so that if fuel spills it will not come in contact with the driver or the engine. Complying with this rule requires a drip pan that is at least 203.2 mm (8 in) in diameter (or equivalent area) and has sides at least 38 mm (1.5 in) high above the top edge of the tank.

**B12.6.1 Drip Pan Mounting**

Drip pans must be mounted using sound engineering practices. A drip pan mounting comprised only of fastening to the fuel tank filler neck is insufficient, and is not allowed. Drip pans must be graded or inclined such that all spilled fuel drains from the drip pan – fuel must not pool anywhere in the pan.

**B12.7 Splash Shields**

Splash shields are required to prevent fuel from accidentally being poured directly on the engine or exhaust while refueling or preparing to refuel the vehicle.

**B12.8.1** The addition of nitrogen bearing additives, or additives designed to liberate oxygen is strictly prohibited.

**ARTICLE 15: GUARDS**

**B15.1 Powertrain Guards**

All rotating parts such as belts, chains, and sprockets that rotate at the rate of the drive axle(s) or faster, must be shielded to prevent injury to the driver or bystanders should the component fly apart due to centrifugal force. These guards/shields must extend around the periphery of the belt or chain and must be wider than the rotating part they are protecting. They must be mounted with sound engineering practice, in order to resist vibration.

They must use:

Made of at least AISI 1010 strength steel at least 1.5 mm (0.06 in) thick – 16 Gauge is allowed.

Or

Made of at least 6061-T6 strength aluminum at least 3.0 mm (0.12 in) thick

Or

Equivalent material as allowed by the rules on the year the car last passed tech.

### **B15.2 Finger Guards**

Rotating parts must also be guarded all around, in addition to the guard around the periphery. All around guarding (finger guards) must prevent small, searching fingers from getting caught in any rotating part. A complete cover around the engine and drivetrain is an acceptable shield

### **B15.3 Factory Stock Guards**

Factory stock guards must meet the requirements in B15.1. OEM Polaris CVT covers that are not modified are exempt to rule B15.1. OEM Polaris CVT covers must meet the requirements of B15.2 in way of the vent.

## **ARTICLE 16: DRIVER EQUIPMENT**

### **B16.1 Helmet, Neck Support/Collar & Goggles**

All drivers must wear a well-fitting Motocross style helmet with an integrated (one piece composite shell) chin/face guard and a rating of: *Snell M2005 SA 2005*, British Standards Institution BS 6658-85 types A or A/FR.

All drivers must wear a neck support/collar. The neck support must be a full circle (360°) and SFI 3.3 rated. Horseshoe collars are not allowed (see figure).

Neck Support Permitted



Neck Support Not Permitted



## **PART D: DYNAMIC EVENTS - (Epreuve Du Nord)**

### **ARTICLE 5: ENDURANCE**

#### **D5.4.1 Green Flag**

1. At a starting line or when reentering the course: Your run or session has started; enter the course under the direction of the starter.  
(NOTE: If you stall the vehicle, restart and await another green flag as the opening in traffic may have closed.)
2. While running on the course: Course is clear, proceed.

#### **D5.4.2 Yellow Flag, Steady**

Danger, SLOW DOWN, be prepared to take evasive action, something has happened beyond the flag station. NO PASSING, unless directed by the course workers.



#### **D5.4.3 Yellow Flag, Waved**

Great danger, SLOW DOWN, evasive action is likely to be required, BE PREPARED TO STOP, something has happened beyond the flag station. NO PASSING, unless directed by the course workers.

#### **D5.4.4 Red Flag**

Come to an immediate safe and controlled stop on the course. Pull to the side of the course as much as possible to keep the course open. Follow course worker directions. NO PASSING.

#### **D5.4.5 Black Flag, Furled and Pointed**

Warning, the officials are watching this vehicle's driving – obey the event rules.

#### **D5.4.6 Black Flag, Displayed**

1. Pull into the penalty box for a discussion with the Director of Operations or other official concerning an incident. A time penalty may be assessed for the incident.
2. Pull into the penalty box for a mechanical inspection of the car; something has been observed that needs closer inspection.

#### **D5.4.7 White Flag**

In specified-distance endurance events, the white flag will be displayed to the leader as the leader begins the final lap.

#### **D5.4.8 Checkered Flag**

The run or session has been completed. Exit the course at the first opportunity.

#### **D5.6 Endurance – Repairs**

The organizer will announce the rules governing repairs that are permitted to be made during the endurance event.

**D5.6.1** Repairs along the course are permitted, vehicles under repair must be removed well off the course, away from the outside of turns and away from any natural run-off areas.

#### **D5.7 Endurance Event – Penalty Default Values**

<b>D5.7.2</b> Passing under a Yellow Flag	First time = warning Subsequent times = discretionary penalties
<b>D5.7.3</b> Failure to stop for Black Flag	10 minutes
<b>D5.7.4</b> Leaving course and advancing	5 minutes
<b>D5.7.5</b> Speeding in pit area	First time = 5 minutes Second time = 20 minutes
<b>D5.7.6</b> Running out of fuel on the track	5 minutes
<b>D5.7.7</b> Aggressive driving	First time = 10 minutes Second time = Disqualification
<b>D5.7.8</b> Refueling on the track	First time = Disqualification

#### **D5.7.9 Endurance Event Enforcement**

- A.** All cars must remain in the as-approved condition in order to compete; any condition that is deemed to not meet this requirement will be flagged to make necessary repairs.
- B.** Any driver that is not using all of the approved and required drivers' equipment will be flagged.
- C.** Certain areas of the track have been identified as difficult obstacles. If your team is assisted or if the vehicle rolls over 3 times on the same obstacle you will be black flagged and warned that one more assist will result in removal for the rest of the event.

#### **D5.8 Fueling**

Fueling will not be allowed until the engine is turned off, the driver is out of the vehicle, and a fire extinguisher is ready.

**D5.8.1** No work will be done on the vehicle while fueling.

### **ARTICLE 7: PADDOCK RULES**

#### **D7.1 Vehicle Movement – Walking Pace Required**

When a vehicle is driven anywhere except within the practice area or on event courses it must move at walking speed with a team member walking along side at a normal pace. During the performance events when the excitement is high, it is particularly important that vehicles move at a walking pace in the paddocks. The walking speed rule will be strictly enforced and point penalties will be assessed for violations.

Under no circumstances may anyone other than the driver, ride on a vehicle.

### **ARTICLE 8: DRIVING RESTRICTIONS**

**D8.1** During the competition, Baja SAE vehicles may only be driven between the paddocks and an event site, during official practice or in the events themselves and only after

**DRIVING OFF-SITE IS ABSOLUTELY PROHIBITED. TEAMS FOUND TO HAVE DRIVEN THEIR VEHICLE AT AN OFF-SITE LOCATION MAY BE EXPELLED FROM THE COMPETITION.**

### **ARTICLE 11: MISCELLANEOUS**

#### **D11.1 Driver Equipment**

Drivers must wear all of the equipment specified in "Driver Equipment Requirements" and a properly fastened restraint system at all times when the vehicle is running in any event.