

SAE INTERNATIONAL

# BAJA SAE 2023

Technical Inspection Bulletin  
#2

# Introduction

- **It is your responsibility to read the rules and prepare your car accordingly. This document provides supplemental information.**
- **Be sure to read all the technical bulletins.**
- This document will cover issues encountered at Wisconsin.
- This bulletin will also offer guidance on how certain rules will be enforced.
- If you are unsure about a rule, you can make use of the Rules Question feature on BajaSAE.net.
- Many rule changes were implemented to simplify the technical inspection process and reduce time spent in technical inspection while maintaining a sharp focus on competitor safety.

# Outline

- 2023 Rule Changes
- Paperwork
- Seats
- Roll Cage
- Engine
- Driver Restraint
- Fuel
- Cockpit
- Guards
- Vehicle Identification

# 2023 Rule Changes

## **New Engine**

- The Kohler CH440 engine is the only approved engine.

## **4-Wheel Drive/All-Wheel Drive**

- 4WD/AWD is required. Teams without a working 4WD/AWD system will be assessed a penalty.

## **Powertrain Guarding**

- The guarding section was completely fully reviewed and restructured.

## **Tow Points**

- Added clarity on requirements for swivel tow points.

The changes listed above are notable significant rule changes from prior years and are not an exhaustive list. You are responsible for reviewing the rule book in its entirety and complying with all rules.

# Paperwork

- Tech Sheets
  - ***Do not show up with blank tech sheets***
  - Make sure your faculty advisor ***signs and dates*** the tech sheets.
  - Make sure your captain ***signs and dates*** the tech sheets.
  - Make sure you write your car number on each page in the space provided
  - Do not resize, scale, and do not print double sided.
  - Initial each box when you inspect your car.
- Roll Cage Spec Sheet
  - Make sure it's signed
  - Make sure you have it at tech

# Seats

- ***Seats continue to be a challenge for BSAE***
- The seat must work with the driver harness to secure the driver within the roll cage
- **Design Issues**
  - Insufficient rigidity and strength
  - Poor fit-up and coordination with driver harness
- **Manufacturing Issues**
  - Manufacturing defects reducing strength
  - Modifications reducing strength
- **Mounting Issues**
  - Mounting bottom to stub tubes in bending
  - Point loading causing cracking or break-through

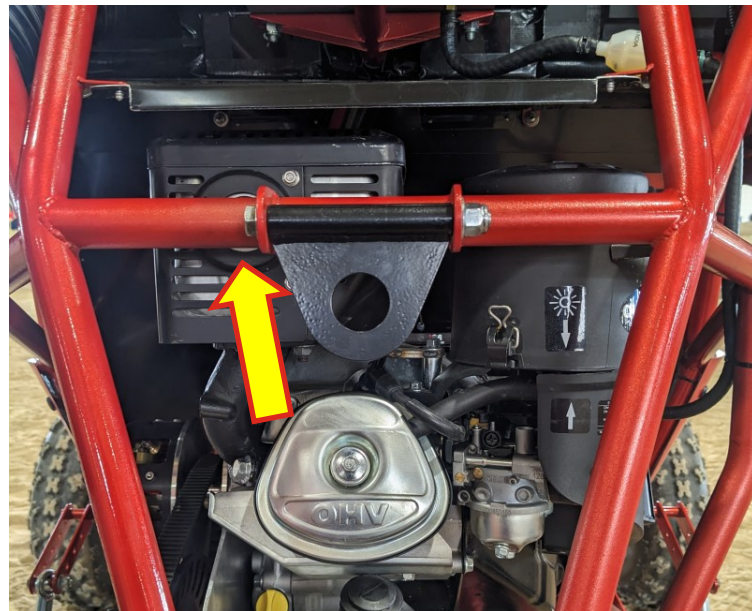
# Roll Cage

## The most common items with frame inspection include:

- Check your tube lengths!
- Unsupported bends in the RRH
  - >33 inches between Point B and Point S
- FBM\_up
  - Extending longer than 40 inches between named points Point C and Point D
- Weld Samples:
  - Are not processed by NTI, they are only inspected and evaluated
  - Must be cut and sectioned by the team
  - Must be broken by the team

# Kohler Engines

- Exhaust
  - Do not let the exhaust exit the muffler directly onto a tube
  - Be sure to use the Kohler exhaust deflector
- High speed screw adjustment
  - Please make sure that you are complying with the requirements for high-speed screw adjustment laid out in B.2.7.12
- Throttle Adjustment
  - There will be no hard stops on the engine to be checked during technical inspection
  - Throttle setup will be completed by Kohler during engine check
- A Kohler in line fuel filter will be required
  - Filter must be located above the splash shield





# Driver Restraint

- Driver restraint problems were observed in three ways:
  - **Mounting**: Frame tabs mismatched to fastener size, mounting tubes cantilevered or not meeting secondary member requirements, and tabs with weight reduction cutouts.
  - **Geometry**: Shoulder belts mounted too high or too low, lap belt angles too high, anti submarine belts mounts not fitting smallest drivers, insufficient adjustment capacity, adjuster/buckle with insufficient slack, off-center anti-submarine belt mount (consider 6 point harness to clear driveshaft)

# Fuel System

- Fuel System problems centered around these items:
  - **Tank Mounting**
    - Over torquing of the tank mounting hardware leads to excessive deformation of the rubber washers
    - With the above mentioned over torquing there were many teams that didn't fully tighten the tank bolts and there were able to be rotated by hand.
    - **Note the new requirement around metallic washer diameter in B.6.5.1**
  - **Splash Shields**
    - The splash shield must protect from fuel being poured on the engine, and the shield must divert fuel away from the engine and **away** from hot exhaust components.
    - Splash shields must be mounted with sufficient clearance to the muffler.
    - Teams are encouraged to construct broad, full width splash shields
  - **Fuel Lines**
    - Teams may use ¼ inch or 3/16 inch fuel line from the tank to the filter, then must use 3/16 inch fuel line down to the carburetor.

- **Fire Extinguisher**

- The use of the fuel tank “C” brackets will be acceptable for mounting the fire extinguisher (Refer to B.6.5.1 for tab requirements)
- Hose clamps should be positioned close to the driver as not to interfere with a track worker reaching for the extinguisher pull knob release.
- Be sure your fire extinguisher has the factory seal/tag that retains the pin. **Fire extinguishers without the factory seal will not be accepted.** The use of zip ties to retain the pin is not acceptable.
- The gauge must face out to the right or towards the firewall.
- Nozzle must be pointed in one of the directions:
  - 1) Pointed directly at the firewall
  - 2) Pointed to the right side, away from the driver

# Guards

- **Guards**

- Guards should be durable, and securely attached to the vehicle.

Technical inspectors will try to shake or move guards when they are installed on the vehicle.

- Finger guarding should prevent a searching finger from contacting rotating equipment.
- There are specific guarding requirements for 4WD/AWD vehicles with driveshafts passing through the cockpit. Section B.9 has been reorganized in the rules to help with clarity regarding 4WD/AWD. As always please submit a rules question if you are still unclear about something.

# Vehicle Numbers

- **Tech inspectors will be giving extra scrutiny to the vehicle numbers.**
- **Numbers must be:**
  - Required font and weight
  - Minimum height of 6 inches
  - Minimum edge clearance of 1 inch on a single color contrasting background
  - One color
  - Horizontal (+/- 3 degrees)
- **If your numbers are not readable during the race you will be black flagged!**