

2021 Baja SAE KOREA Technical Inspectionn Sheet

School Name _____ **Vehicle #** _____

Drivers for this Car ONLY!

1. _____

2. _____

Faculty advisor _____

Team captain _____

Technical Inspector _____

Instructions:

- 1) Please fill out this form with all of the requested information.
- 2) The National Technical Board will keep this form. This form will be used to certify at anytime that a vehicle has the original components that it went through tech. inspection.
- 3) First Fail : 3points penalty.
- 4) Re-check : Shadow block must be passed or eliminated.
- 5) Total score (0 Maximum , -100 Minimum : Over -100 points = -100)

*** Please make sure to inspect your car completely before you bring the car to technical inspection. Make sure the team has inspected the car and checked all of the boxes (team checked column) as passing. Next, the faculty advisor and team captain must sign off that the team has inspected it. Finally, this completed packet needs to be submitted at the technical inspection with the car.***

Section	Number	Rule	O / X	Re-check	Point
Roll Cage					
B.8.2.1.1	1 - 1	The roll cage will be large enough to accommodate the largest driver. The driver's helmet will be at least 6 in. (152mm) away from a straight-edge applied to any two places on the structure of the car.			
B.8.2.1.1	1 - 2	The driver's torso, knees, shoulders, elbows, hands, and arms must have 3 in. (76mm) of clearance to the outside structure of the cockpit.			
B.8.2.2.1 B.8.2.2.1.1	1 - 3	1.Roll cage members must be steel tubes having a minimum wall thickness of 0.89 mm (.035 in) and a minimum outside diameter of 25.4 mm (1.0 in) or 2.Straight members may not extend longer than 1016mm (40 in.) between Named Points. 3.Bent members may not have a bend greater than 30° and may not extend longer than 838 mm (33 in.) between Named Points. 4.A bend that terminates at a Named Point implies the point lies between the tangents of the bend.			
B.8.2.2.3 B.8.2.2.3.1	1 - 4	1.Rear Roll Hoop (RRH) must be substantially Vertical (+/- 20 degrees from vertical) 2.Front bracing(FBM) max of 45 degrees between vertical and FBMup 3. Braced in the lateral direction (max 5 in. (127mm) from top and 5 in. (127mm) from bottom of roll cage) 4. The vertical angle between the RRH and the LDB must be no less than 20 degrees .			
B.8.2.2.3 B.8.2.2.4	1 - 5	1. RHO must be >41 in. (1041mm) above driver seat, LC must be >12 in. (305mm) forward of seat back, 2. RRH must be >29 in. (736mm) wide at 27 in. (686mm) above seat.			
B.8.2.2.4.1	1 - 6	A gusset is used brace the RHO and RRH to achieve the Lateral Clearance in Rule B8.2, the added tubes must be a primary member			
B.8.2.2.6	1 - 7	The side impact members shall run between 8 in. (203mm) and 14 in. (356mm) above the lowest point of the seat in contact with the driver.			
B.8.2.2.6 B.8.2.2.2	1 - 8	If the front LC connecting the two SIM members is below the driver's toes, an additional bar will be needed above the drivers toes. Lateral cross members(Connect the left and right points of AF, SF) cannot be less than 203.5 mm (8 in) long.			
B.8.2.2.7	1 - 9	1. The two LFS members must be joined by the USM. 2. The ALC and FLC members must be joined longitudinally by the Under Seat Member.			
B.8.2.2.11	1 - 10	1. Teams must conduct weld confirmation testing for each welder that welds their vehicle roll cage. 2. All weld samples be labeled by permanent means school name or initials, welder name or initials and date of construction of weld sample.			
Material					
B.8.2.2.1	2 - 1	1. Secondary members must be steel tubes having a minimum wall thickness of 0.89 mm (.035 in) and a minimum outside diameter of 25.4 mm (1.0 in) or . 2. Rectangular steel tubes having a minimum wall thickness of 0.89mm(0.035 in) and a minimum outside dimension of 25.4 mm (1.0 in) .			
B.8.2.2.12	2 - 2	1.Steel tubing with an outside diameter of 25.4 mm (1 in.) and a wall thickness of 3mm (0.120 in.) and a carbon content of at least 0.18% or equivalent stiffness(EI) and bending strength. (SI/c)			
B.8.3.1 B.8.3.5	2 - 3	1. Invoices, bills etc. of the materials used in the roll cage and bracing are required at technical inspection. 2. All teams must bring a roll cage specification sheet to technical inspection.			
Section	Number	Rule	O / X	Re-check	Point

Cockpit							
B.9.2	2 - 4	Maximum time for a driver to egress the vehicle is 5 seconds .					
B.9.3 B.9.4	2 - 5	1. A firewall must completely separate the engine compartment and fuel tank from the cockpit. Extend from the lowest point of the cockpit to the top of the roll cage(rear mounted engines). 2. This firewall must be metal , at least 0.5mm (0.020 in.) thick.					
B.9.8	2 - 6	1. 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. Expended metal, fabric, or perforated panels are not allowed. 2. Belly pan must extend the entire length of the cockpit. The belly pan must protect the driver form debris.					
B.9.9	2 - 7	1. All steering or suspension links exposed in the cockpit shall be shielded with a sturdy, robust, metal cover. 2. The shielding prevent the driver's legs and feet from coming in contact, or becoming entangled during operation or a failure.					
Throttle Pedal							
B.9.11	2 - 8	1.Only foot operated throttle controls are allowed. A wide-open throttle stop must be mounted at the pedal. 2.All throttle controls must return to idle-stop in the event of a failure.					
Steering , Suspension							
B.13.1	3 - 1	All vehicles must be equipped with positive wheel lock-to-lock stops. These stops must be located at the wheel kingpins and behind the centerline of the wheel . Wheel stops must function at full jounce, full rebound and all points in between. No straps or cables will be allowed.					
B.13.2	3 - 2	Tie rods must be protected from frontal impact.					
Fasteners							
B.14.1 B.14.3	3 - 3	1.All fasteners in the following sub systems must be captive requiring Nylon lock nuts, cotter pins or safety wire. 2.On all bolts in the following sub systems using lock nuts, at least 2 threads must extend beyond all lock nuts.					
Braking System							
B.11.1	3 - 4	The braking system must be capable of stopping the vehicle within a distance of 15m higher than speed 20km/h . (under 45 degree) (Dynamic event)					
B.11.2	3 - 5	Independent brake circuits, system must two separate reservoirs. (Do not allow tandom master cylinder)					
B.11.1 B.11.3	3 - 6	1. All vehicles must incorporate a foot-operated braking system capable of locking the front and rear statically and dynamically on pavement and unpaved surface. (statically checked during tech) (All four wheels). 2.The brakes on the driven axle must operate through the final drive axle.					
B.11.5	3 - 7	All brake lines must be securely mounted and not fall below any portion of the vehicle(frame, swing arm, A-arms, etc) Ensure they do not rub on any sharp edges.					
B.4.5	3 - 8	All brake light switches must use a pressure switch in the brake line. Push style or momentary switches will not be allowed.					

B.4.4 B.4.5	3 - 9	1. Brake Light MUST have a SAE rating for a motorcycle or a passenger car(Example "S" or "U" rating) (visible and securely mounted) Independent of kill switch. 2. Each independent brake hydraulic circuit must be equipped with a hydraulic pressure switches to activate the brake light switch Minimum of two (2) hydraulic pressure switches.			
Guards					
B.15.1	3 - 10	All belts, chains, sprockets, etc. must have shields adequate to prevent injury from flying components.			
B.15.1 B.15.2	3 - 11	1. Material shall be 1010 steel plate at least 1.5 mm (0.06 in.) thick or 6061-T6 aluminum plate at least 3.0mm(0.12in) thick or have an equivalent energy bsorption at rupture, per unit width of shield. Any material other than steel must have documentation to prove equivalency to steel. (No lexan) 2. All moving powertrain parts must be guarded so that a finger cannot be inserted into them. U-Joints, axle shafts, brake rotors and hubs are exempt.			
Fuel System and Spill Prevention					
B.12.1	4 - 1	1. Entire fuel system must be contained within the roll envelope such that it is protected from impact (<i>either from another car or in the event of a rollover</i>). 2. Cantilever mounts are specifically prohibited. a rollover). 3. Lightening holes or cutouts other than the bolt hole are explicitly prohibited.			
B.12.2.1	4 - 2	1. A check valve in the fuel cap that prevents fuel from leaking at any angle Or A vent line routed above the tank assembly and extend beyond the lateral edges of the tank before extending down to the bottom of the car.			
B.12.3	4 - 3	All fuel lines must be located away from sharp edges and prevented from chafing.			
B.12.4 B.12.4.2	4 - 4	1. The drip pan cannot be mounted straight to the tank around the fuel cap. 2. A drip pan that is at least 8 in. (203.2mm) in diameter or equivalent area and have sides of at least 1.5 in. (38mm) 3. The fuel must drain from the drip pan through a tube to the bottom of the car. Fuel may not be released onto the belly pan, flotation, or any other part of the vehicle. 4. The minimum inside diameter of the drain line is 12.7 mm (.5 in.) and minimum inside diameter of fittings is 9.5mm (.375 in.)			
Max Dimensions					
B.1.2 B.1.2.1	4 - 5	Max width 1620mm (64inch) with wheels pointing forward (4 wheels Minimum) or more wheels not in a straight line.			
Towing Hitch					
Section	Number	Rule	O / X	Re-check	Point
B.5.2 B.5.4	4 - 6	Towing hitch on front and rear. Front hitch and Rear hitch point height must be no higher than the SIM and no lower than the LFS.			
B.5.2.1 B.5.4	4 - 7	1. Front hitch point has Maximum 31.75mm(1.25in) Minimum diameter 25.4mm (1in.) and Minimum wall thickness of 0.89 mm (.035 in.) . The hitch gauge must be able to pass completely. 2. Rear hitch point is the thickness of 3.18 mm(0.125 in) at least 9.5 mm(0.375 in) , hole diameter has between 25.4 mm (1.0 in) and 31.75 mm (1.25 in) . hitch plate Minimum width : 76.2 mm(3.0 in)			

Kill Switches					
B.4.3 B.4.3.2	4 - 8	Two Positive Kill switches effecting ignition and all electrical systems. (except the brake light.) 1.One switch must be located on the driver's right side of the vehicle, on a panel perpendicular to the firewall, no more than 7 in. (180mm) from the top of the roll cage. 2.Cockpit kill switch within in easy reach of the restrained drivers.			
Driver Restraint					
B.10.1 B.10.2	5 - 1	Minimum 5 point seat belt (2 lap & 2 over shoulder & 1 anti-submarine belts). Y-type shoulder straps are not allowed. (camlock type not allow).			
B.10.2.1	5 - 2	All belts must be mounted forward of the fire wall. Shoulder belt mounts must be entirely on the cockpit side of the firewall, and be protected by the firewall.			
B.10.2.1 B.10.5	5 - 3	Shoulder belts must be mounted below the drivers shoulders and no more than 4 in. (102mm) below the perpendicular from the spine to the seat back at the shoulder level. Both the largest and smallest drivers on a team must meet these restraint requirements.			
B.10.2.2	5 - 4	1. The shoulder belts mounting points shall be 8 in. (203.2mm) ± 1 in. (25.4mm) center to center of the mounting bolts. 2. The straps shall not pass through anything that will cause the center distance to not be 8 in. (203.2mm) ± 1 in. (25.4mm)			
B.10.3	5 - 5	1. Eye bolt lap belt connections are specifically prohibited. 2. The lap belt tabs and anti-submarine belt tabs must be mounted in double-shear.			
B.10.5	5 - 6	1. When adjusted, no portion of the belt may project beyond the cockpit and must not come into contact with any rotating components of the chassis or terrain features. 2. Loose ends must be restrained, but not be wrapped around the buckle.			
Arm Restraints					
B.10.6.1	5 - 7	Must prevent arms from extending beyond the plane of the roll cage (plane is defined by RHO and SIM) and drivers must be able to reach the cockpit kill switch and steering wheel.			

Fire Extinguisher					
Section	Number	Rule	O / X	Re-check	Point
B.9.10	6 - 1	Fire extinguisher for automobile with agent weight no less than 500 grams MUST be used.(A,B,C or B,C). It 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. 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.			
Driver Equipment Requirements					
B.16.1	6 - 2	All drivers must wear a well-fitting Motocross style helmet with an integrated (one-piece composite shell) chin/face guard and a Snell(SA2005, SA2010, M2005, M2010), Austral industrial standard AS(1609, 1698), European Standard(ECE), Japanese Industrial Standards(JIS, SG), Korea Standard(KC, KS). (Do not allow full face helmet)			
B.16.2	6 - 3	Drivers must wear long pants(cotton/Nomex), socks, shoes, gloves and a long sleeved upper garment.			
General Rules					
Part B Article 2	6 - 4	1. All vehicles must use gasoline engine, less than 125cc displacement one cylinder with four strokes. Any kind of engine tuning is PROHIBITED . -Except for mapping 2. RESTRICTOR-Must be circular; max. diam. 25.0 mm (0.98 in) for Water-Cooled Type engines. 3. Only original parts will be permitted.			
B.3.1	6 - 5	Noise level must NOT exceed 95dB at 6,000 rpm when it is measured at 2 meters from the exhaust.			
B.3.5	6 - 6	Instrument panel MUST include tachometer to indicate engine rpm.			
B.6.6	6 - 7	A whip-mounted blaze orange warning flag (size 250mm) located a Minimum of 2.134 m (7 feet) and a Maximum of 2.438 m (8 feet) above the ground is mandatory. The top must have a blunt end and 50.8 mm (2 in.) diameter is recommended.			
B.6.2 B.6.3	6 - 8	1. Three primary numbers are required to be securely affixed to the car. One on both of the upper sides of the frame behind the roll hoop, clearly visible in a side view. One must also be visible from a front view. Each vehicle must have numbers where the outer face is a minimum of (one half inch) .5 inches from the backing panel. 2. All vehicles must display their assigned number in block numerals on the front and both sides. These numbers must be at least 203.2 mm (8 in.) high, have a Minimum line width of 25.4 mm (1 in.) and 102 mm (4 in) wide. The numbers must strongly contrast with the background color.			

B.8.1.1.2 C.1.1	6 - 9	The technical inspectors can require any modification at their discretion.			
Electric Vehicle ONLY					
B.7.1	E-1	Motor nominal power 10kW, maximum power 22kW.			
B.7.2	E-2	Battery capacity must not exceed 4kWh.			
B.7.3	E-3	Electrical Throttle Actuation must be of fail-safe design and use commercially available electrical throttle actuation system.			
B.7.4.1	E-4	HV Isolation no connection between the frame of the vehicle.			
B.7.4.1.1	E-5	All vehicles shall be equipped with an on board Ground Fault detector and test this system.			
B.7.4.1.3	E-6	Rain certification must survive a 30 second water spray with all systems energized without tripping the Ground Fault Detector.			
B.7.4.2	E-7	NO HV connections may be exposed.			
B.7.4.4	E-8	All electrical systems (both low and high voltage) must be appropriately fused.			
B.7.4.3	E-9	Insulated wires must be commercially marked with a wire gauge, temperature rating and insulation voltage rating. Other insulation materials must be documentsd.			
B.7.4.6	E-10	The Energy storage container electrical configuration and mechanical configuragion.			