

CAR NUMBER:

SCHOOL:

PART 1, contd.

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TECHNICAL INSPECTION (Cont'd)

PRIMARY STRUCTURE

ALTERNATIVE TUBING & MATERIALS - If used, team must show an APPROVED Structural Equivalency Form.	OTHER SIDE TUBES - Design prevents driver's neck hitting bracing or other side tubes
INSPECTION HOLES - 0.18" (4.5 mm) inspection holes req'd in non-critical areas of front & main hoops. Inspectors may ask for holes in other tube(s).	SIDE IMPACT PROTECTION - Min. of two (2) tubes + diagonal must connect the main and front hoops. Upper tube must be between 300 mm and 350 mm (11.8" and 13.8") above the ground. Lower tube can be lower frame member. At least one diagonal per side must connect the upper and lower members between the main and front hoops. All tubes to be 1.0" OD x 0.065" wall or 25.0 mm OD x 1.75 mm wall steel or equivalent. Monocoques require signed SEF.
MAIN HOOP - MUST BE STEEL . 1.00" OD x 0.095" wall or 25.0 mm OD x 2.5 mm wall. Must be 1 piece & extend to lowest frame member. 380 mm (15 ins) apart (inside dim.) where attaches to the Major Structure. Above Major Structure, must be within 10 deg. of vertical. Smooth bends with no wrinkles.	FRONT BULKHEAD - 1.0" OD x 0.065" wall, or 25.0 mm x 1.75 mm wall, steel tube or equiv. No non-crushable objects forward of bulkhead.
MAIN HOOP BRACING - MUST BE STEEL . One brace each side, 1.00" x 0.065" or 25.0 mm x 1.75 mm min., attached within 16 cm (6.3 in.) of top. Min. 30 deg. included angle with hoop. If main hoop is not vertical, bracing must not be on same side of vertical as main hoop. No bends. No rod-ends. Proper construction for removable braces (capping etc.) on BOTH ENDS . Must attach to Major Structure of the Frame directly or thru' proper triangulation.	FRONT BULKHEAD SUPPORT - Support back to front roll hoop; 3 tubes per side, all 1.00" OD x 0.049" wall steel tube or equiv.. 1 bottom, 1 top within 50 mm (2") of top of bulkhead, 1 node-to-node diagonal (must form a triangle with Front BulkH'd and either top or bottom tube). (25.0 mm x 1.5 mm and 26.0 mm x 1.2 mm metric tubes OK)
SHOULDER HARNESS MOUNTING BAR/TUBE - 1.00" OD x 0.095" wall or 25.0 mm OD x 2.5 mm wall steel or equiv. Gussets or braces if not straight.	IMPACT ATTENUATOR - Need Impact Attenuator forward of bulkhead, 200 mm (7.8") long x 200 mm (7.8") wide x 100 mm (3.9") high.
FRONT HOOP- Must be closed section metal tube. 1.00" OD x 0.095" wall or 25.0 mm OD x 2.5 mm wall steel, or equiv. Can be multi-piece. Must extend down to lowest frame member. Max. 20 deg. to vertical. No lower than top of steering wheel. Max. 25 cms (10 ins) horizontal distance to steering wheel.	IMPACT ATTENUATOR MOUNTING - IA must be securely fastened directly to the bulkhead and capable of taking transverse and vertical loads (welded or min. four 8mm (5/16") bolts). No tape, etc. Foam or honeycomb IA needs 1.5 mm steel, 4 mm Al, or approved equiv. mounting plate, same size as Front Bulkh'd
FRONT HOOP BRACING - Two forward facing braces, 1.00" OD x 0.065" or 25.0 mm OD x 1.75 mm steel or equivalent, attached within 5 cm. (2 ins) of top. Extra rearward bracing required if Front Hoop leans backwards more than 10 deg.	SEAT - Lowest point no lower than bottom of side rails OR must have longitudinal 1.00" OD x 0.065" steel tube underneath.
MAIN HOOP & FRONT HOOP HEIGHTS - Helmet of 95th percentile male (PERCY) to be 50 mm (2.0 ins) below the lines between top of front and main roll hoops and between top of main hoop to rear attachment point of main hoop bracing.	CONFORMS TO SEF?

STEERING, SUSPENSION, BRAKES

GROUND CLEARANCE - Enough to prevent any part of the car from touching ground during track events. 25 mm (1 inch) min. static clearance with heaviest driver.	STEERING - On at least two wheels with positive stops to prevent linkage lock up or tires contacting any part of the car. 7 degrees max. freeplay at the steering wheel. NO STEER-BY-WIRE on front wheels. Rear steer limited to + or - 3 deg. with mechanical stops.
SUSPENSION - Fully operational with dampers front and rear; 50mm (2.0 in) minimum wheel travel with driver in vehicle.	FASTENERS - Steering, braking, harness and suspension systems must use SAE Grade 5 or Metric Grade M8.8 or higher specs (AN/MS) with visible positive locking mechanisms, no Loctite or lock washers. Minimum of 2 exposed threads . Rod ends in single shear must be captured by a washer larger than the ball diameter. Adjustable rod ends must have jam nuts to prevent loosening.
SUSPENSION PICK-UP POINTS - Inspected thoroughly for integrity.	VISIBLE ACCESS - To all components on Tech form.
BRAKES - Dual hydraulic system & reservoirs, operating on all four wheels, (one brake on limited slip is OK). System must be protected by structure or shields from d/train failure or minor collisions. No plastic brake lines. No brake-by-wire. Regen with 1st 50% pedal travel OK.	
STEERING WHEEL - Continuous perimeter, near round with driver operable quick disconnect. 25 cm (9.8 ins) max. from Front Hoop.	

TECHNICAL INSPECTION (Cont'd)

INTERIOR

<p>DRIVER RESTRAINT HARNESS - 5, 6 or 7 point with single metal quick release to SFI/16.1 or FIA specs and be labeled. Lap belt 76 mm (3in.) wide. Shoulder belts 76 mm (3 in.) wide; 50 mm (2") wide OK with HANS. 50 mm (2 in.) anti-sub strap(s). All attached securely to primary structure - 1.00" OD x 0.065" steel tube min. FIA 50 mm (2 in.) lap belts OK, SFI not OK.</p>	<p>DRIVER'S LEG PROTECTION - Covers inside cockpit over sharp parts or moving suspension and steering components.</p>
<p>LAP BELT MOUNTING - Must pass over pelvic area at between 45 deg. and 65 deg. to horizontal. Pivoting mounting with eye bolts or shoulder bolts attached securely to Primary Structure - 1.00" OD x 0.065" steel tube min.</p>	<p>MAIN HOOP & FRONT HOOP HEIGHTS - Helmet of tallest driver to be 50 mm (2.0 ins) below lines between top of front and main roll hoops and between top of main hoop to rear attachment point of main hoop bracing..</p>
<p>SHOULDER HARNESS MOUNTING - Mounting points 7"- 9" (178-229 mm) apart. Angle from shoulder between 10 deg. up and 20 deg. down to horizontal. Attach to Primary Structure. Not to put bending loads into Main Hoop Bracing W/O extra bracing.</p>	<p>HEAD RESTRAINT - Min. 1.5 in thick, & 36 sq.ins, energy absorbing padding. Max. 1.0" from helmet. Near vertical. Contact point 2 ins min. from any edge. Must take 200 lbs.f load.</p>
<p>FIREWALL - Fire resistant material; must separate driver compartment from fuel supply, cooling & oil systems. Pass-throughs OK with grommets. Multiple panels OK but gaps should be sealed. Must protect (line-of-sight up to mid-height of driver's helmet) from cooling, oil and fuel systems.</p>	<p>ROLL BAR PADDING - Rollbar or bracing that could be hit by driver's helmet must be covered with 12.7 mm (0.5 in) thick, SFI or FIA (hard) padding. Pipe insulation or foam not OK.</p>
<p>FLOOR CLOSEOUT PANEL - Required from foot area to firewall; solid, non-brittle material; multiple panels are OK if gaps less than 3.18 mm (1/8 in).</p>	<p>VISIBILITY - 100 deg. min. field either side. Head rotation OK or mirrors. If mirrors, must be firmly installed and adjusted.</p>
<p>EGRESS - 5 seconds max. to exit to side of vehicle from fully seated position with all safety equipment; wings must remain fixed in position.</p>	<p>VEHICLE CONTROLS - All controls, including shifter, must be inside cockpit. No hands, arms or elbows outside side impact system to actuate.</p>
<p>DRIVER'S FOOT PROTECTION - Feet must be rearward of the Front Bulkhead and no part of shoes above or outside the Major Structure in side or front views.</p>	<p>DRIVER'S FOOT PROTECTION - Feet must be rearward of the Front Bulkhead and no part of shoes above or outside the Major Structure in side or front views.</p>

ENGINE COMPARTMENT

<p>ENGINE - Four cycle piston engine, maximum swept displacement 250 cc SI (gas) or 310 cc CI (diesel).</p>	<p>EXHAUST OUTLET - Outlet 60 cm (23.6") max. behind rear axle centerline and 60 cm (23.6") max. above the ground.</p>
<p>COMPRESSORS - Turbo or super chargers allowed if not OEM to engine; must be between restrictor and engine. Moves engine to "Mod"</p>	<p>EXHAUST SHIELDING - Exhaust components outside the body forward of main hoop must be shielded from people approaching the car.</p>
<p>AIR INTAKE SYSTEM ROLL OVER PROTECTION - All parts of the engine air and fuel control systems, (including throttle body or carburetor, air intake ducting, air cleaner & air box), must lie within a surface defined by the top of the roll bar and the outside top edge of the tires.</p>	<p>SCATTERSHIELDS GENERAL - Required for clutches, chains, belts, etc. No holes. 6mm diam M8.8 or 1/4" diam Grade 5 fasteners minimum.</p>
<p>AIR INTAKE SYSTEM - Any portion less than 350 mm (13.8") above ground must have Side Impact protection to Rule 3.3.8.</p>	<p>SCATTERSHIELD MATERIALS-For chains, 2.7mm (0.105") min. thick STEEL, 3 x chain width. For belts, 3mm (0.120") min. thick aluminum 6061-T6, 1.7 x belt width.</p>
<p>ETC - fail safe design. Commercial system recommended.</p>	<p>CATCH TANKS - Any coolant overflow, crankcase breather or lube system vents must have separate catch tanks. One quart minimum each. 100 deg. C mat'l. Behind firewall, below shoulder level. 3 mm min. dia. vent away from driver. PCV OK if routed to the intake system upstream of restrictor.</p>
<p>THROTTLE PEDAL - Must have positive stop to prevent oversteering cable.</p>	<p>COOLANT - Only water or water with 1.5% corrosion inhibitor; no glycol or water pump lubricants added.</p>
<p>THROTTLE - Cable must be at least 50.8 mm (2 in) from any exhaust component and out of exhaust stream; must have smooth operation with no possibility of binding or sticking; must have minimum of 2 springs at the TB, each capable of closing the throttle independently. TPS not acceptable as a return spring. Push-pull cable recommended but optional.</p>	<p>GAS CYLINDERS - Proprietary manufacture & labeled, nonflammable gas, regulator on tank, securely mounted within the Major Structure, but not in cockpit, axis not pointed at driver, insulated from exhaust, appropriate lines & fittings.</p>
<p>RESTRICTOR - Must be circular; max. diam. 12.9 mm (0.508 in) for gasoline fueled cars and 12.3 mm (0.483 in) for E85 fueled cars. Cannot be movable. Not required for "Stock" SI or "Diesel".</p>	<p>ON-BOARD STARTER - Required</p>
<p>INTAKE MANIFOLD - Securely attached to block or head with brackets & mechanical fasteners. OEM type rubber bushings acceptable only if complete system is used.</p>	<p>FLUID LEAKS - Oil, coolant, fuel - none permitted.</p>
<p>FUEL RAIL - Securely attached to block, head or int. manifold with brackets & mechanical fasteners.</p>	<p>VISIBLE ACCESS - To all items on Tech Sheet</p>

2009 FORMULA HYBRID INSPECTION SHEET

CAR NUMBER:
SCHOOL:
ENGINE MODEL:
ENGINE BORE X STROKE:
ABS? YES/NO

IMPORTANT

THIS FORM MUST STAY WITH THE CAR UNTIL THESE PARTS OF INSPECTION HAVE BEEN COMPLETED

PART 2	
FUEL SYSTEM & TILT TABLE INSPECTION	
FUEL SPILLAGE - No fuel spill permitted when car is tilted to 45 degrees in the direction most likely to create spillage; Tanks must be filled to scribe line	VEHICLE STABILITY - All wheels in contact with tilt table when tilted to 60 degrees to the horizontal.
FUEL STICKER - Fuel sticker in place adjacent to F/T filler. MARK TYPE OF FUEL USED (e.g. 93, E-85, B100 diesel) ON THIS FORM	FUEL TYPE
NON-COMPLIANCE / COMMENTS:	
APPROVED BY:	DATE:

PART 3	
NOISE LEVEL & BRAKING PERFORMANCE INSPECTION	
NOISE LEVEL - 110 dB (A) ("A" scale) maximum during a static test, gearbox in neutral, engine at specified rpm (see Rule 3.5.5.3.A). Microphone level with the exhaust outlet(s), 0.5 m (19.7") from the outlet(s), at 45 degrees to the outlet. If multiple outlets, all to be checked.	BRAKING PERFORMANCE - Must lock-up all four wheels on dry asphalt at any speed. If adjustments are made to the vehicle after three failed attempts before retest, the car may run on the Practice Track without the final Brake Performance Tech Sticker.
MASTER SWITCHES - Master switches must cause engine to stop when actuated. (Perform at end of noise test)	ATTEMPTS:
NOISE LEVEL:	ATTEMPTS:
NON-COMPLIANCE / COMMENTS:	
APPROVED BY:	DATE: