

# **TREC**

## **Trail Racing Endurance Circuit 2023**

### **SXS / UTV Specifications Version 1**

#### **03.30.2022**

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##### **11.1 DEFINITION**

11.1.1 A SXS / UTV is defined as a standard production based side by side / UTV style vehicle, single seats included. 1000 CC or less motor with powersports based engine & drivetrain. Any non-production based vehicles must be approved prior to racing.

##### **11.2 SXS / UTV CLASSES**

11.2.1 1000cc Turbo. This class includes any Turbo SXS / UTV vehicle marketed as a 1000cc or higher machine. The Polaris Pro R machine is included in this class.

11.2.2 1000cc NA. This class includes any Naturally Aspirated / Non-Turbo SXS / UTV vehicle marketed as a 1000cc or higher machine.

11.2.3 900cc Turbo. This class includes any Turbo SXS / UTV vehicle marketed as a 900cc machine.

11.2.4 900cc NA. This class includes any naturally aspirated / Non-Turbo SXS / UTV vehicle marketed as a 900cc machine.

11.2.5 Limited. This class includes all other SXS / UTV vehicles that do not fit into the above classes and / or are marketed as 800cc machines or less.

11.2.6 Overboring and any other internal modifications of the engine **are NOT permitted** for any vehicle. Any vehicle with internal engine modifications will be included in the 1000cc turbo class.

### **11.3 PERSONAL SAFETY**

#### **11.3.1 PERSONAL SAFETY EQUIPMENT**

11.3.2 Fire suits are mandatory for all vehicles in all classes. Suits must cover from the neck to the ankles and to the wrists. The suits must not have any holes, rips, or, nor be worn thin. Suits must also be free from any petroleum-based contaminants. All suits must be made from fire-resistant material with the manufacturer's fire resistant rating label attached. A minimum of a two-layer fire suit, fire resistant gloves and footwear are very highly recommended. TREC highly recommends that each fire suit be labeled on the upper right chest with the wearer's full name, blood type, allergies, and any other important medical information. Do we

11.3.3 Helmets must be approved by, and bear the sticker of, one of the following: Snell M2000/SA2000/M2005/SA2005 DOT/ECE22-05/BSI or . Primary helmet fastening must be by means of straps using a D-ring buckle. No snaps or Velcro will be permitted as the primary means of securing the helmet. Snaps or Velcro may be present as a means of securing the loose ends of the helmet's straps. The interior and exterior of the helmet must be free from defects (i.e., the padding must be in good condition and the exterior of the helmet must not be damaged). TREC strongly recommends that entrants use helmets specifically designed for motor racing.

11.3.4 Shatter resistant eye protection is required for all competitors in a TREC event.

11.3.5 Neck braces are highly recommended for all competitors. Neck braces should provide adequate support and have a fire-resistant covering in good or like-new condition. It is highly recommended that a neck brace made by a recognized manufacturer be worn.

### **11.4 OCCUPANT RESTRAINT SYSTEMS**

11.4.1 All vehicles must have a minimum of a four-way / four -point H-style restraint system for each occupant. Restraint systems must use a latch-and-link style quick-release buckle (push button buckles are not permitted). Restraints must incorporate a lap belt and shoulder straps.

Five-point H-style restraint systems with the anti-submarine (crotch) belt are highly recommended. **STOCK STYLE RESTRAINTS THAT ARE NOT H-STYLE ARE NOT PERMITTED IN ANY CLASS.**

11.4.2 The restraint system shall consist of at least one 2" wide anti-submarine strap, one 2"

wide lap belt and two 2” wide shoulder straps. Sternum straps and chest buckles may be used. **A fifth, anti-submarine (crotch) belt is highly encouraged.**

11.4.3 Belt/strap material shall be nylon or Dacron polyester. The restraint system must be in new or perfect condition with no cuts, frayed layers, chemical stains, or excessive dirt and must be in flexible condition (i.e. material must not be stiff). All restraint systems must show the manufacturer’s name and the month and year of manufacture.

11.4.4 All restraint systems should be replaced after three (3) years from the date of manufacture. It is highly recommended that all driver restraint systems be replaced after one year from the date of manufacture.

11.4.5 No portion of the restraint system may be altered in any fashion from the manufacturer’s standard design.

11.4.6 No surplus restraint systems are permitted.

11.4.7 All restraint systems must be properly mounted in accordance with manufacturer’s directions and recommendations. Bolt-in, wrap-around, and snap-in mounting styles are permitted.

11.4.8 In addition to conforming to the manufacturer’s directions, restraint system installations must also conform to the following:

11.4.9 The restraint system must be mounted to structural members able to withstand the load the restraint system will place on them in a crash, without rupturing or failing.

11.4.10 Restraint must be matched to a properly constructed, fitted, and installed seat firmly mounted to the frame / chassis / roll-cage.

11.4.11 Restraint system must be used with a seat with the proper number of slots, in the proper locations, for the belts. Seats must not be modified to create belt slots.

11.4.12 All belts should be as short as possible to minimize the belt's stretch.

11.4.13 Belt routing must allow webbing to pull a straight line against an anchor point. Mounting brackets must be at an angle that is compatible with the direction of pull on the webbing.

11.4.14 Preferred anchor mount is a double-shear bracket.

11.4.15 Restraint systems must be mounted using high-quality hardware appropriate for the installation. 1/2" or 7/16" fine-thread Grade 8 bolts and Grade 8 deformed-thread locknuts (or better) are recommended.

11.4.16 Belts must not rub against any surface that will cause them to fray.

11.4.17 3-bar slides must be located as close as possible to the anchor plate, or if the belt is wrap-around style, to the bar around which they wrap.

11.4.18 Belts using non-sewn anchor plates must be wrapped back a fourth time through the 3-bar slide.

11.4.19 Wrap-around style mounting should be confined to shoulder belt installation and must include some method to prevent lateral movement of the belts.

11.4.20 Lap belt tilt-lock adjusters must not be positioned in, or too close to, the seat slots.

11.4.21 For events co-promoted with other series, alternate mounting styles may be required.

11.4.22 Restraint systems must be worn properly tightened, by all occupants, at any time the vehicle is in motion.

## **11.5 SAFETY NETS**

11.5.1 TREC approved safety nets are mandatory on all vehicles and must cover the complete open area of the cockpit on both sides of the vehicle to the extent that it is impossible for any limb or body part of any occupant to protrude from the vehicle at any time when the occupant is properly seated and strapped in in their normal driving / riding position.

11.5.2 Wind wing areas located behind the A pillar must be filled by safety net material if there is any chance that any limb or body part of any occupant could protrude from the vehicle at any time when the occupant is properly seated and strapped in in their normal driving / riding position. Lexan is not permitted.

11.5.3 Nets must be installed on the inside of the roll cage to prevent them from being damaged or coming off in a roll over or slide on the side.

11.5.4 Nets attached to door frames are permitted.

11.5.5 Nets must be installed so that the occupants can release the netting unassisted and exit the vehicle regardless of the position of the vehicle.

11.5.6 For vehicles using factory or factory-style doors, Lexan in the side windows can be substituted for nets as long as positive secondary latching devices are used on the doors. Lexan side windows must be mounted in such a fashion as to allow quick removal in the event the door will not open.

11.5.7 The net border or edge and the net attachment must be made of materials that are as strong as, or stronger than, the net itself. Net attachments must be at a minimum of every 6 inches. Acceptable attachments include, but are not limited to: steel hose clamps, snaps, lift-a-dot, metal hooks, and steel rods. Nets must be tight so that when subject to a pushing force of approximately 50lbs the net deflects no more than four inches.

11.5.8 Arm restraints may be used in addition to window nets.

## **11.6 SEATING**

11.6.1 All seats must be manufactured by a recognized manufacturer that specializes in seats suitable for vehicular use. Racing style seats are highly encouraged.

11.6.2 Stock (OEM) production seats are allowed in all classes. All seats regardless of style or manufacturer must be in good condition.

11.6.3 All seats must be securely and safely mounted to the frame of the vehicle and mounts must be properly reinforced to keep the seat from moving in relation to the frame. Mounting points must be free of damage of any kind, including rust, and must be structurally sound.

11.6.4 Adjustable track-type seat mounts must be securely mounted to the frame of the vehicle to allow no lateral or vertical movement between seat and frame or mounting track and frame.

11.6.5 Headrests constructed of at least 2" thick resilient padding and being approximately 36 square inches in area are required.

11.6.7 Seats must have appropriate slots to properly accommodate the restraint systems.

## **11.7 FIRE EXTINGUISHERS**

11.7.1 Each vehicle must carry a minimum of 2 portable UL approved 2.5 lb. or greater ABC-class dry chemical or equivalent Halon fire extinguishers. Fire extinguishers must have a gauge, be fully charged, and no more than 3 years old from the date of manufacture.

11.7.2 One Fire Extinguisher must be mounted within easy reach of the front seat vehicle occupants when restrained by the vehicle restraint systems.

11.7.3 One Fire Extinguisher must be mounted on the B Pillar of the vehicle on the passenger side and easily accessible by individuals outside the vehicle.

11.7.4 It is highly recommended that an additional 2.5 lb. or greater ABC-class, dry chemical or equivalent Halon fire extinguisher be carried and mounted in a position that is within easy reach of the front seat vehicle occupants when restrained by the vehicle restraint systems.

11.7.5 It is highly recommended that an additional 2.5 lb. or greater ABC-class, dry chemical or equivalent Halon fire extinguisher be carried and mounted in a position that is easily located and accessed from the exterior of the vehicle by persons not familiar with the vehicle.

11.7.6 All extinguishers must be mounted in a manner that permits their quick removal and use without the use of tools.

11.7.7 Integrated on-board fire extinguishing/suppression systems are highly recommended in addition to the portable fire extinguishers. In the event a vehicle is equipped with an on-board fire extinguishing/suppression system, the vehicle must still meet requirements of two 2.5 lb. or greater portable extinguishers. TREC highly recommends the use of 5 lb. portable extinguishers.

11.7.8 All fire extinguishing/suppression systems must have a current fire marshal's seal and / or

a tag or stamp showing the date of manufacture.

## **11.8 HORNS**

11.8.1 All vehicles must have a loud horn. Horn must be clearly audible from a distance of 100 feet in front of the vehicle.

11.8.2 The use of sirens in addition to a loud horn is permitted, during the actual on-course portion of the event.

11.8.3 Disposable air horns are not an acceptable method of meeting the primary horn requirement. Disposable air horns are acceptable as a backup or secondary horn.

## **11.9 REFLECTORS**

11.9.1 All vehicles must have two 2" wide x 8" long red reflective tapes or two 2" diameter round red reflectors (DOT stock tail light lenses satisfy this requirement) attached to the rearmost portion of the vehicle at each corner. The reflective tape or reflectors must be clearly visible from the rear.

## **11.10 BREAKDOWN SAFETY DEVICES**

11.10.1 Two battery-operated red-light flashing beacons or two long glow sticks or two red reflective devices must be carried in the vehicle as breakdown safety devices.

11.10.2 Two reflective devices must be carried in the vehicle as breakdown safety devices and be at least 12" high and 12" long and be free standing (similar to trucker's breakdown triangles).

11.10.3 Flares are **not** permitted.

## **11.11 FIRST AID KIT**

11.11.1 A weatherproof first aid kit must be carried in each vehicle at all times and must contain at least basic first aid items. The first aid kit must be easily accessible within the occupant's area without having to remove any body panels or equipment. Occupants with special medical needs should make those needs known in an obvious location on their firesuit or helmet.

## **11.12 VEHICLE IDENTIFICATION**

11.12.1 All vehicles in competition must be identified with the correct entrant number and be unique to that vehicle regardless of class. Numbers may not be duplicated.

11.12.2 Entrant numbers shall be composed of a combination of the digits 0 through 9 only.

11.12.3 Entrant numbers shall be assigned to Drivers of Record on a first-come first-served basis. In the event of a conflict, seniority based on the date on which the Driver of Record first competed in a TREC event will determine the outcome.

11.12.4 Vehicles must display entrant numbers on both sides as a minimum. Numbers on the front and back of the vehicle are recommended. Any number location that is deemed by TREC to be too hard to read will have to be changed before a vehicle competes in the event.

11.12.5 Size, color, and shape of numbers is at the discretion of the vehicle owner. Entrants are advised that checkpoint staff at each checkpoint will not allow vehicles to continue after stopping, until numbers can be verified.

11.12.6 TREC reserves the right to require race vehicle numbers and/or background colors be changed.

11.12.7 TREC assumes no responsibility for scoring vehicles with unrecognizable numbers. It is the vehicle driver's responsibility to maintain numbers in recognizable condition.

### **11.13 ROLL CAGES**

11.13.1 It is each competitor's responsibility to present a safe vehicle for pre-event technical inspection. Competitors must maintain their safety equipment including the roll cage integrity. TREC reserves the right to not allow any cage designs that, in the opinion of the Chief Technical Inspector, are not fit for competition. Competitors are ultimately responsible for their vehicle's safety features, including the design, fabrication, quality of execution, maintenance and repair of the roll cage structure. The roll cage is considered to be the main 6-point structure that surrounds and protects the vehicle's occupants.

**11.13.2 All vehicles competing in any SXS / UTV class must be equipped with an aftermarket roll cage suitable for racing. FACTORY PRODUCTION ROLL CAGES ARE NOT ALLOWED. Cage must be fabricated of 1020 mild steel mechanical tubing or better (higher carbon content or alloy steel).** Minimum mild steel tubing sizes for roll cage main structure, based on dry vehicle weight rating (DVWR) in race trim, not including occupants, are:

11.13.3 DVWR Under 2000 lb. - 1.5" diameter x .095" wall thickness.

11.13.4 DVWR 2000 lb. - 3200 lb. - 1.5" diameter x .120" wall thickness.

Note: See manufacturer's reference charts for alloy steel tubing equivalent strengths. No aluminum or other non-ferrous materials are permitted.

11.13.5 Roll Cage main structure material may be CREW, DOM, WHR, or WCR mild carbon steel or 4130 chromoly alloy steel. All welds must be of high quality and craftsmanship with good penetration and with no undercutting of parent material.

11.13.6 All roll cage components (hoops, braces, gussets, etc.) must have a minimum of 3” of clearance from any vehicle occupant’s helmet when the occupant is seated in a normal driving/riding position. All roll cage components that might come into contact with the vehicle occupants’ helmets must be padded.

11.13.7 Roll Cages must be securely mounted to the frame, chassis, or body. Rollcage terminal ends must be attached to a frame or body member that will support maximum impact and not shear or allow movement in the cage terminal end. Cab/body-mounted roll cages must sandwich the body structure using a minimum of two .1875” thick, dissimilar sized, doubler plates, one on each side of the body structure. Roll cage mounting fasteners must be at least .375” diameter S.A.E. Grade 8 or equivalent or better. Sandwich plates, if used, must be oriented only in the horizontal plane. No vertical or other non-horizontal sandwich plate orientations are permitted.

11.13.8 All vehicles including those with stock steel doors, must have at least one sidebar on each side of the vehicle that will protect occupants from side impact. The sidebars must be of the same tubing material and dimensions as the main frame of the roll cage. The sidebars should be as close to parallel to the ground as possible, must be located to provide maximum protection to the occupants, and must be securely welded to the front and rear hoops of the roll cage. The location of the sidebars must not cause difficulty in entering or exiting the vehicle.

11.13.9 Gussets must be installed at all major intersections, including diagonal and rear down braces, where single weld fractures can affect occupants’ safety. Gussets constructed of 3” x 3” x .125” flat plate or split, formed and welded corner-tubing, or tubing-gussets made of the same material and thickness as the rollcage may be used.

11.13.10 Six (6) point mounting cages are required over the occupants.

## **11.14 FUEL STORAGE**

11.14.1 Factory / OEM fuel tanks are permitted in all classes provided they remain mounted in the original manufacturer's location.

11.14.2 Safety fuel cells are permitted for all vehicles. Auxiliary fuel tanks may be added. Auxiliary fuel tanks must also be safety fuel cells.

11.14.3 There must be a substantial cross member and firewall between any aftermarket fuel cell and the occupants.

11.14.4 Fuel tanks shall be mounted in a fashion to protect the tank from damage due to a rear-end collision, impact from debris or rocks from below the vehicle, damage due to roll over, or the possibility of damage from chassis flex.

11.14.5 Any aftermarket fuel cell must be a safety type fuel cell and consist of a bladder enclosed in a smooth-skinned container. The container shall be constructed of 20 gauge steel,



0.060" aluminum or 0.125" Marlex. Magnesium is strictly prohibited. Container must be securely attached to the vehicle with bolts or steel straps. All fittings must be built into the container skin and bonded to the container skin as an integral part of the tank or mechanically sealed by a ring and counter-ring system by either flatjoint or an O-ring. Internal baffling is mandatory in all fuel cells. Foam is an acceptable form of internal baffling. Bladder construction shall be of nylon or Dacron woven fabric impregnated and coated with a fuel resistant elastomer. Rotary molded polymer cells are acceptable when encapsulated in a container constructed of 20 ga. Steel or 0.060" aluminum.

11.14.6 No jerry cans or other portable fuel containers shall be permitted in or on any entrant vehicle during the event. Use of jerry cans or other portable fuel containers will subject entrants to a time penalty or disqualification.

11.14.7 Alternative fuels (propane or natural gas) must use an approved fuel cell as determined by DOT standards and with the approval of TREC Forklift propane fuel tanks are permitted. Alternative fueled vehicles shall not use auxiliary fuel cells.

11.14.8 Substitute methods may be approved by TREC

11.14.9 All fuel cells or OEM tanks **MUST** be permanently mounted to the vehicle via an acceptable method. Use of any temporary mounting methods (i.e. ratchet straps) are not permitted.

## **11.15 BODY**

11.15.1 OEM / Stock body and all body panels are allowed in all classes. Custom built body or body panels are allowed providing they provide equal or better coverage than OEM / Stock body.

11.15.2 Full doors are required in all classes. Partial doors or doors that provide only a partial enclosure are not approved. If doors open, a mechanical secondary latch is required. (zip ties, velcro, tape, do not count as mechanical).

11.15.3 The vehicle occupants must be able to quickly and easily enter and exit unassisted with the vehicle in any position.

11.15.4 A minimum .040" expanded or flat sheet magnetic steel or .125" aluminum must cover the area immediately above the occupants' seats and be attached via welding or bolting to a steel tubing frame work.