

# TIMBERLINE SPEEDWAY 2017 OPEN WHEEL MODIFIED

## “RACE RECIEVERS MANDATORY”

### RULES & SPECIFICATIONS

**5" spoiler. 8000 RPM chip. 2,350# after the race with the driver (whether steel or alum. head).  
See body and frame diagrams at <http://www.usraracing.com/rules/>**

#### **ARTICLE 4: BODY**

- 4.1** 1970 or newer American compact passenger car only. Panel vans or station wagons are not allowed.
- 4.2** An aluminum half-windshield may be used on driver's side of the front window opening only.
- 4.3** Stock appearing front window support units must be used (painted roll bars are not acceptable substitutes). Front window may have a support of no more than twenty (20) inches at bottom, going straight up to top.
- 4.4** A minimum window opening of twelve (12) inches must be maintained on all four (front, back, left and right) window openings.
- 4.5** Streamlining at top of windshield is not allowed. Bodies must have standard appearing windshield opening and corner post must follow standard configuration.
- 4.6** Original roof line of vehicle must be maintained with a maximum of five (5) inches of slope from rear to front. Two (2) inch maximum roll, turned downward, is permitted along the front edge of the roof. No more than one-half (0.5) inch stiffener allowed at the rear of the roof and must turn down perpendicular to the ground. A maximum of one (1) inch roof lips allowed **on the left and right edges of the roof**. A maximum of four (4) inch sides on roof allowed. OEM Gremlin roofs are not allowed. Aluminum roofs are permitted but must remain flat and not concaved.
- 4.7** Sail panels must be of matching design with matching styles on both sides of racecar. Sail panels may have a maximum bow of four (4) inches top to bottom, maximum bow of three (3) inches front to back and may be no more than eight (8) inches above the back edge of deck.
- 4.8** Reverse hood rake is not allowed. Hood must be level or slope forward toward nose of racecar. Back of hood may be no more than two (2) inches above decking and sealed off completely. Lips on the sides of hood are not allowed.
- 4.9** Belly pans are not allowed. A belly pan will be defined as any object or material that alters the airflow under the racecar. A rock shield may be installed to protect the oil pan and the bottom of the motor, from the front cross member no further back than the rear engine mount (mid-plate/mid-mount) no wider than the radiator front to back.
- 4.10** Panel(s) (engine covers) in front of the door next to the engine compartment are permitted, but must maintain a six (6) inch gap from the door. One side must remain open for inspection of engine on the scales.
- 4.11** Bodies with excessive damage (as determined by an official) will not be allowed to compete.
- 4.12** Overall width of the racecar may not exceed 78 inches. Width shall be measured from the widest points on each side of the racecar.
- 4.13** The rear deck lid and/or trunk area must be covered.
- 4.14** Nose:

**4.14.1** Maximum overall nose width is forty-two (42) inches. Two (2) inch nose fins are permitted along both sides of the nose. Nose fins may not pass the leading edge of radiator or continue past leading edge of hood. All aluminum of the nose (including the fins) must be completely inside the outer edges of the bumper. Nose fins must match side to side. If it is between nose fins, it is the nose; if it separates from the hood, it is the nose.

**4.14.2** Plastic valances and/or plastic nose pieces are permitted but no plastic may extend in front of the bumper. Plastic may flare past the sides of the bumper. Aluminum or steel is not allowed outside the bumper.

**4.14.3** All nose piece components must be a minimum of five (5) inches above the ground.

**4.15** Maximum door and quarter panel height permitted is thirty-seven (37) inches total material. Doors and quarter panels may be mounted a maximum of one (1) inch above the deck, and must match side to side –NO TOLERANCE. A maximum five (5) inch plastic skirt on bottom of doors and quarter panels and nose piece is permitted.

**4.16** Excluding hood and nosepiece, the top of the body should extend no further forward than the back of the engine block. The bottom of the body may extend up to eight (8) inches forward of the back of the engine block.

**4.17** A maximum five (5) inch plastic skirt on bottom of doors and quarter panels and nose piece is permitted.

#### **4.17 Spoilers:**

**4.17.1** All spoilers shall be measured as complete material height including hinge and all hardware associated with connecting the spoiler to the decking.

- a. **Option 1: Five (5) Inch Spoiler** – includes USMTS/USRA spec engine, 23-degree steel-headed flat tappet engine and GM CT525 crate engine. The maximum rear spoiler height shall be five (5) inches.
- b. **Option 2: Six (6) Inch Spoiler** – includes USMTS/USRA concept engine or GM #88958604 or #19318604 crate engine (GM 604). The maximum rear spoiler height shall be six (6) inches.
- c. **Option 3: Three (3) Inch Spoiler** – includes open engine. The maximum rear spoiler height shall be three (3) inches.

**4.17.2** Rear spoiler may not exceed the width of the rear deck lid, must be flush to the deck and must extend from right edge of deck to left edge of deck. Spoiler must remain flat.

**4.17.3** Rear spoiler must remain separate from sail panels.

**4.17.4** A maximum of two (2) center supports and a maximum of two (2) side supports may be attached to the front of the rear spoiler (see body diagram for dimensions).

**4.17.5** Fins, wings, lips, deflectors or other air spoilers (except as noted above) are not allowed.

**4.17.6** Any fins, wings, lips, deflectors or other permitted air spoilers must match corresponding part on opposite side of racecar.

#### **4.18 Bumpers:**

**4.18.1** Center of bumpers (front and rear) must be a minimum sixteen (16) inches and a maximum twenty (20) inches from ground.

**4.18.2** Both front and rear bumpers must be used, and may not have any sharp edges. Any inappropriate bumper may be disallowed at the discretion of an official. Front bumper should be mounted from frame-end to frame-end with the bottom loop parallel to ground. Bumpers must be made of a minimum of one and one-quarter (1.25) inch tubing and must be able to support the racecar if lifted by a tow vehicle. Top bar must be directly above bottom bar.

**4.18.3** Rear bumpers may be constructed of tubing or flat stock, and must protect the fuel cell. Rear bumpers may be no more than two (2) inches wider than the body on each side and may not be open-ended (must wrap around and be connected to side rail bars).

**4.18.4** Nose may not extend past front bumper and must be a minimum of five (5) inches above the ground. Nose must be completely within the bumper.

**4.18.5** Front bumper may be a maximum width of 44 inches from outside to outside. Nose must be completely inside of bumper. Nose tin may have a maximum width of 42 inches at bottom. Note: If it is

between nose fins, it is considered to be the nose; if it separates from the hood, it is considered to be the nose.

#### **4.19 Appearance:**

**4.19.1** All racecars must be numbered with large legible numbers on both sides, on top and on the nose and rear panels. Numbers on the sides of the racecar should be in contrasting color from the body and be at least four (4) inches thick and at least eighteen (18) inches high. Top numbers should be at least four (4) inches thick and twenty-four (24) inches high.

**4.19.2** Officials reserve the right, in the public image of the sport and/or the USRA, to assign, approve or disapprove any advertising, sponsorship or similar agreement in connection with any event. All cars must be neat appearing and are subject to approval of officials to compete. By competing in an event, all drivers agree to comply with the decisions of officials in this regard.

### **ARTICLE 5: ROLL CAGES**

**5.1** Round steel tubing, seamless roll-over bars are required for the basic roll cage, and must be acceptable to officials. Acceptable tubing is as follows: minimum one and one-half (1.5) inches by ninety-five one-thousandths (0.095) inch for mild steel and DOM tubing.

**5.2** Roll bars within the driver's reach must be padded with an accepted material as determined by an official. Fire retardant material is highly recommended.

**5.3** Installation and workmanship must be acceptable to officials.

**5.4** Must be frame-mounted in at least six (6) places.

**5.5** Must consist of a configuration of front and rear hoops connected by tubing on the sides or side hoops.

**5.6** With helmet on and driver securely strapped into the racing seat, top of driver's head must not protrude above the roll cage.

**5.7** Must have a protective screen or bars in front window opening in front of driver's face.

**5.8** Protection of driver's feet utilizing a bar across the back of the engine with vertical bars and rub rails or similar protection is mandatory.

**5.9** Brace bars forward of roll cage may not be higher than the stock hood height.

**5.10** A minimum of three (3) driver side door bars must be parallel to ground and located perpendicular to the driver so as to provide maximum protection for the driver, but without causing undue difficulty in getting in or out of the racecar. Side bars must be welded to the front and the rear of the roll cage members. Door bars and uprights must be at least one and one-half (1.5) inches in diameter at a minimum of eighty-three one-thousandths (0.083) of an inch thickness and be gusseted in place. The door bars must have four (4) vertical studs per side and must be equally spaced.

### **ARTICLE 6: FRAME**

**6.1** Factory production complete full 1960 or newer parallel American passenger car frames only. Frames may be cut in rear only at a point not further than thirty-six (36) inches from center of rear end housing.

**6.2** May only be altered for the installation of springs and shocks.

**6.3** All components must be made of steel and be properly welded.

**6.4** Must be full and complete on both sides, may not be widened or narrowed and must be able to support roll cage on both sides. All factory holes must be present for inspection. All measurements must meet the frame diagram tolerances listed or be within one-half (0.5) inch (either way) of OEM measurements on any measurement not listed on frame diagram – NO TOLERANCE.

**6.5** Minimum height from ground is four (4) inches. Exception: front cross member may be notched for radiator clearance only. Right front frame rail must be a maximum of seven and one-quarter (7.25) inches above the ground.

**6.6** Jeep, Bronco or similar four-wheel drive frames are not allowed. Sports car frames are not allowed. Front-wheel-drives are not allowed.

**6.7** Rear of frame may be altered to accept leaf or coil springs.

**6.8** Hydraulic, ratchet or electric weight jacks are not allowed anywhere on the racecar. Aluminum jack bolts are not allowed.

**6.9** Wheelbase must be a minimum of one-hundred eight (108) inches on both sides (no tolerance).

**6.10** Tubular front clips are not allowed.

**6.11** Maximum overall width of car (at front or rear) shall not exceed seventy-eight (78) inches from outside of tread to outside of tread – NO TOLERANCE.

## **ARTICLE 7: COCKPIT, STEERING & SEAT**

**7.1** Loose objects and/or weights are not allowed.

**7.2** Air bags are not allowed.

**7.3** Rear view mirrors are not allowed.

**7.4** Floor and firewall must be complete in the driver's compartment. Minimum 0.125 inch aluminum, or 0.060 inch steel, complete floor pan required. No interior sheet metal can be higher than or enclose a standard window opening. Sheet metal in the driver's compartment must be horizontal from the top of the driver shaft tunnel to the right side door bars or angle from the top of the drive shaft tunnel upwards to the top of the right side door bars. Driver must be able to exit the racecar from both sides.

### **7.5 Steering:**

**7.5.1** Must be OEM and remain within original bolt pattern for type of frame used. Center link must match frame. Inner and outer tie rod end and adjustment sleeve may be replaced with a heim end and steel tube.

**7.5.2** Rack and pinion is not allowed.

**7.5.4** May be modified to suit driver, but must remain on left side of cockpit (no center steering).

**7.5.5** Quick-release metal coupling on steering wheel is mandatory. Plastic couplings are not allowed.

### **7.6 Seat:**

**7.6.1** Factory-manufactured racing seats are mandatory, and must be acceptable to officials.

**7.6.2** Homemade aluminum, plastic or fiberglass seats are not allowed.

**7.6.3** Must be properly installed and seat back cannot be moved back further than rear edge of quarter post.

**7.6.4** High-back aluminum seats only. Full containment racing seats are strongly recommended.

## **ARTICLE 8: SUSPENSION**

**8.1** Front suspension must remain stock-type for the type of frame being used. Steel aftermarket parts may be used as stock components as long as they mount in the stock location and are the same size as the OEM parts. This includes lower tubular A-frames. If using lower tubular A-frames, must match factory specs. All parts must meet OE specs and match side to side. GM 1978-1988 metric "G" body frames are permitted to use the Nova lower "A" frames.

**8.2** Aluminum and/or titanium components are strictly forbidden. Magnet must stick to all components.

**8.3** Steel tube-type upper A-frames are permitted and may be moved. Steel or aluminum cross shafts are permitted.

**8.4** Coil-over springs are not allowed on the front.

**8.5** Stock passenger car spindles only. Fabricated spindles are not allowed. Bottom A-frames may not be altered, lightened or moved and must match side to side.

**8.6** Front sway bars may be used. Front sway bars must be made of steel and may be attached to the bottom A-frame using steel heim joints. Must be solid full-length OEM.

### **8.7 Rear Suspension:**

**8.7.1** All rear suspension radius rods and lift arms must be of a fixed solid steel design. Hydraulic cylinders, torsion bars, bump rods, spring rods, slider rods and/or shock-type radius rods to locate the rear end are strictly forbidden.

**8.7.2** Radius rod must be a minimum thirteen-sixteenths (0.8125) inch outside diameter; may be round, hex or square shape; and must be a minimum ninety-five one-thousandths (.095) inch steel thickness.

**8.7.3** Only two (2) radius rods per side are permitted. All rods must be of solid design. Spring and/or trick-type rods are not allowed. One additional rod per side for brake floater only is allowed.

**8.7.4 Axle Housing Mount (Birdcages)**

- a) Only one (1) birdcage per side is permitted. Birdcage may consist of multiple barrels but must bolt or be welded together to act as a single unit containing both the top and bottom radius rod connectors.
- b) All bearings pertaining to birdcages must freely spin forward and backward.
- c) Shock, radius rods and spring must mount to birdcage. If one rod is floated, the other rod must also be floated; If one rod is locked up, the other rod must also be locked up (one bracket). Exceptions:
  - 1) Swing arm type suspension where shock, spring or shock-spring combination is connected directly to one of the radius rods.
  - 2) Shock is mounted solidly to rear end axle tube.
  - 3) Spring is mounted solidly to rear end axle tube

In Exceptions 2 and 3, mounts may be no more than seven (7) inches from center of axle tube to center of lower heim of shock or slider with bracket welded or securely bolted solid to axle tube.

- d) One additional floated birdcage-style bracket is permitted per side to accommodate floated brake system only (one additional radius rod is permitted to control this bracket).
- e) Floating, pivoting and/or rotating mounts and/or brackets of any sort on the birdcage are not allowed. All brackets or mounts must be welded or bolted solid. Cleaves-style rotating mounts will be permitted on birdcage only for mounting of shock and slider.

**8.7.5** Only one (1) mechanical traction device is permitted. Only one (1) pull bar or one (1) lift arm is permitted. All other options are not allowed. Covers of any sort in any relation to the lift arm or pull bar are strictly forbidden. Rubber bushings and/or biscuits are permitted on both lift arm and pull bar applications, but must be directly connected and functioning in relation to corresponding part only.

**8.7.6** Floating, pivoting and/or rotating mounts and/or brackets of any sort (connected to and/or associated with the pull bar or lift arm) are not allowed.

**8.7.7** Lift arm is defined as a solid steel triangulated bar that is connected at the top (with one heim) and bottom (with one heim) of the rear end housing, extending forward where it is connected to a shock (that may utilize only the heim directly related to that one shock (ONE ON EACH END), shock-spring coilover combination (that may utilize only the heims directly related to that one shock (ONE ON EACH END)) and a limiting chain (with or without a biscuit for cushion). One heim only is permitted in this configuration. One stabilizer bar is permitted to locate the front of the lift arm from left to right in the car.

**8.7.8** Pull bar is defined as a continuous assembly (that may or may not contain a spring or biscuit assembly located in-line to absorb torque) that is connected to the top of the rear end with one heim and extends forward to a solid mounting point located on the chassis where it is connected with one heim. The mounting location at both the front and rear of the pull bar may be adjustable but must remain constant during competition (cannot be adjustable from the cockpit).

**8.7.9** Steel coil-over eliminators and/or steel-aluminum coil-over kits are permitted on the rear only, but must conform to shock and spring rules.

**8.7.10** Rear panhard bars are permitted, but must be made of steel and may be attached by using a minimum three-quarter (0.75) inch i.d. steel heim joint.

**8.8 Shocks:**

**8.8.1** Any new design of components pertaining to and/or containing shock absorber(s) must be submitted to, and approved by, the USRA for approval before these designs will be permitted for use in competition. The manufacturer and/or competitor may be required to disassemble any part or assembly for inspection before in-statement of new part is permitted.

**8.8.2** Only one shock per wheel is permitted (five total). Shocks must be mounted vertically and no more than twenty (20) degrees from vertical (ninety (90) degrees) in any direction (only exception is fifth shock may be mounted horizontally over pull bar). Dummy shocks in relation to functioning shock absorbers are not allowed (i.e. no dummy shocks to replace slider). Fifth shock is permitted only in relation to pull bar or lift arm

(example: 90/10 mounted in line with the pull bar, this shock must run in same direction as the pull bar, shock on lift arm must be mounted as referred to in the lift arm summary in Rule 8.7.7). Shock may not be connected directly to the pull bar in any way.

**8.8.3** All shocks must be made of steel (magnet must stick). Aluminum heims on shocks are not allowed (steel caps only).

**8.8.4** Only conventional-type (closed on one end) shock absorbers are permitted. Only single-shaft shocks are permitted.

**8.8.5** Air shocks and/or canister shocks are not allowed.

**8.8.6** Inerter shocks, J-damper shocks, active mass damper shocks and/or through-rod-designed shocks are not allowed.

**8.8.7** Bump stops (rubber and/or spring-type), spring rubbers or any other limiting devices are not allowed on any suspension component including, but not limited in relation to: shocks, springs, upper or lower "A" frames (Exception; bump stops and/or various rubber biscuits are permitted in conjunction with the pull bar or lift arm assemblies only, limiting chains or blocks from rear-end housing to chassis, and one (1) rubber bushing on front shock is allowed no more than one-half (0.5) inch in total rubber thickness, plastic or steel shims and or cups only.

**8.8.8** Electronically-controlled and/or monitored shocks by any means or methods is strictly forbidden. Cockpit adjustable shocks are not allowed.

**8.8.9** Shocks shall be subject to claim, as outlined in Claim Procedures (Article 19).

### **8.9 Springs:**

**8.9.1** One spring per wheel is permitted (five total). One additional spring is permitted in the center of the car pertaining to the traction device (i.e. spring on the pull bar or lift arm).

**8.9.2** All coil springs must be at least four and one-half (4.5) inches outside diameter. Springs must be made of steel. Torsion bars in the rear are not allowed.

**8.9.3** Progressive, stacked and/or welded springs are not allowed.

**8.9.4** Spring wire diameter and coil spread must remain consistent from one end to the other (Exception: last coil on each end may be closed and shaved off to create flat surfaces for mounting).

**8.9.5** Only conventional spring mounting devices are permitted. Widgets, trick and/or spring-altering mounting devices are not allowed.

## **ARTICLE 9: ELECTRICAL SYSTEM**

### **9.1 Battery:**

**9.1.1** Must be securely mounted inside frame rails and covered. If mounted outside of frame rail, a nerf bar (minimum one and one-quarter (1.25) outside diameter by ninety-three one hundredths (.093) thickness tubing) must be installed around battery box for protection.

**9.1.2** One (1) 12-volt or 16-volt battery is permitted. One (1) additional 9-volt battery is permitted to run digital tachometer only.

**9.1.3** Voltage converters are not allowed.

**9.1.4** All battery posts must be securely covered.

### **9.2 Ignition:**

**9.2.1** One (1) unaltered ignition system is allowed (no secondary or back-up systems). Recommended: MSD 6CT #PN6427.

**9.2.2** Crank-triggered ignitions are permitted only on racecars utilizing a GM CT525 crate engine. Must utilize MSD LS Series #PN6014CT set to the GM recommended preset.

**9.2.3** One (1) coil only is permitted.

**9.2.4** Kill switch required within easy reach of the driver. The switch must be clearly marked "OFF" and "ON". Cameras pointing to any moving or suspension parts are not allowed. Except for memory recall tachometer, electronic monitoring computer devices capable of storing and/or transmitting information are not allowed.

**9.2.5** Ignition boxes shall be subject to claim, as outlined in Claim Procedures (Article 19).

**9.2.6** Must utilize a maximum RPM rev-limiter for the following engine combinations: 375 cubic inch displacement engines or larger is 7,800; 374 cubic inch displacement engines or smaller is 8,400; USMTS/USRA concept engine is 8,000; CT525 crate engine is 7,300; GM 604 crate engine is 6,800. Revlimiter may not be within reach of the driver while in cockpit and must be easily accessible to officials at any time.

**9.2.7** Wiring elements must be accessible for technical inspection. Any racecar advancing spots and missing will be subject to disqualification.

**9.2.8** Cameras pointing to any moving or suspension parts are not allowed.

## **ARTICLE 10: FUEL SYSTEM**

### **10.1 Fuel:**

**10.1.1** Must be automotive gasoline or alcohol only. Additives of any kind are not allowed. E85 ethanol or racing fuel is permitted. Penalty for illegal fuel is loss of points, cash and awards earned for that event.

**10.1.2** May not be blended with ethers or other oxygenates, and may not be blended with aniline or its derivatives, nitro compounds or other nitro containing compounds. Oxygenated fuel is not allowed.

**10.2** Electric fuel pumps are not allowed.

### **10.3 Carburetor:**

**10.3.1** One (1) two-barrel, four-barrel or Predator carburetor properly installed is permitted.

**10.3.2** Must be naturally aspirated.

**10.3.3** Fuel injection is not allowed.

**10.3.4** An adapter with gasket is permitted. Adapter and gasket combined may be no more than two and onequarter (2.25) inches.

### **10.4 Fuel Cell:**

**10.4.1** Must be commercially manufactured and must be mounted utilizing at least two (2) steel straps. Straps must be two (2) inches wide at all measuring points.

**10.4.2** Must be enclosed in a steel container and must be protected in rear of axle by roll cage tubing mounted securely.

**10.4.3** No part may be lower than protective tubing. Protective tubing must be no wider than six (6) inches on both sides. Fuel cell may be no lower than ten (10) inches from the ground.

**10.4.4** Must have check valves.

**10.4.5** Limited to a maximum capacity of thirty-two (32) gallons.

**10.4.6** Must have check valves. A ball-type, flapper or spring or filler rollover valve is mandatory for fuel cells without a positive seal filler neck/cap system.

## **ARTICLE 11: TIRES & WHEELS**

### **11.1 Wheels:**

**11.1.1** Must be fifteen (15) inches in diameter and eight (8) inches in width.

**11.1.2** Stickers are not required.

**11.1.3** Must be reinforced steel only.

**11.1.4** A steel or aluminum bead lock may be used on the right front and right rear wheels only, and may be mounted on the outside of the wheel so long as it does not add over three-quarters (0.75) of an inch to the overall width of the wheel.

**11.1.5** Homemade mud caps are not allowed.

**11.1.6** Wheel covers are permitted on right side wheels only. Inner mud plugs are permitted. All mud covers must display car number on at least one side.

**11.1.7** Wide five wheel adaptors are not allowed.

**11.1.8** Steel or aluminum spacer between hub and wheel is permitted, but overall width of racecar cannot exceed 78 inches (see Rule 4.19).

**11.1.9** Aluminum or steel lug nuts are permitted.

### **11.2 Tires:**

**11.2.1** The only tire permitted is the American Racer G60-15 KK704 (Short, Tall or X-Tall). Tires should durometer 50 or harder after any race

**11.2.2** Softening is not allowed. Solvents of any kind are not allowed. Altering tires with any components or chemicals which alter the manufacturer's baseline-settings of the tire is not allowed.

**11.2.3** Grooving and/or siping is permitted.

**11.2.4** All sidewall markings must remain visible at all times. Buffing or removing of the compound designations is not allowed.

## **ARTICLE 12: BRAKING SYSTEM**

**12.1** Must be operating on all four wheels and must lock up all four wheels during inspection.

**12.2** Must have caliper and rotor on all four wheels. Vented rotors are required on front wheels.

**12.3** Electronic brake actuators are not allowed.

**12.4** Calipers and/or pads may not be lightened and must be OEM

**12.5** Steel or aluminum single-piston OEM-type calipers are permitted. Piston diameter must be the same on all calipers.

**12.6** Rotors must be steel and may not be lightened, scalloped or drilled but may be slotted. Rotors may be re-drilled for different bolt patterns or larger studs.

**12.7** Front-to-rear brake bias is permitted (no left to right).

**12.8** Brake shut-offs are not allowed.

**12.9** Brake lines must be visible.

**12.10** Must maintain minimum OEM dimensions for hubs, rotors and calipers.

## **ARTICLE 13: DRIVE SHAFT**

**13.1** A loop is required and must be constructed of at least one-quarter (0.25) inch by two (2) inch solid steel. Loop must be mounted no more than six (6) inches from the front of the drive shaft tube. Alternatively, two (2) loops of one-quarter (0.25) inch by one (1) inch solid steel fastened to cross member are permitted.

**13.2** Must be painted white. Aluminum drive shafts are not allowed.

**13.3** Aluminum drive shafts are not allowed. Steel or carbon fiber drive shafts only (carbon fiber may have aluminum yokes).

## **ARTICLE 14: TRANSMISSION**

**14.1** OEM three-, four- and five-speed and automatic production-type transmissions are permitted. Approved aftermarket transmissions are permitted.

**14.2** "In and out" boxes are not allowed.

**14.3** Must all be clutch-operated.

**14.4** Approved aftermarket transmissions are Bert, Brinn, Falcon, RaceGator and Mitchell Machine Bullet Tranny with internal clutch.

**14.5** Clutch must be inside of bell housing for OEM production-type transmissions (except as noted in Rule 14.4).

**14.6** Clutch-type transmissions must be equipped with an explosion-proof steel bell housing. Aluminum must be SFI-approved (Note: GM bell housing is not SFI approved).

**14.7** Automatic and aftermarket transmissions must have a guard two-hundred seventy (270) degrees around flex plate or flywheel, and must be constructed of at least one-eighth (1/8) inch. Alternatively, automatic transmissions may utilize an SFI-certified aftermarket guard. All flex plates must be SFI-certified.

**14.8** With engine running and racecar in stationary position, driver must be able to engage racecar in gear and then move forward and then backward at time of inspection.

## **ARTICLE 15: REAR-END**

**15.1** Any passenger car or truck type is permitted. Aluminum is not allowed except lowering blocks, axle cap and drive plate.



**15.2** Quick change rear-ends are permitted: Steel tubes only; ten (10) inch ring gear only; pinion and carrier bearings must be tapered; titanium is not allowed; wide-five wheel patterns are not allowed; aluminum spools are permitted. Magnesium will be permitted until such date that the cost increases, at which time only magnesium rear-ends purchased prior to that date will be permitted and must have original serial number.

**15.3** Cambered rear-ends are not allowed. One-piece drive flange only.

**15.4** Traction devices are not allowed (includes Gold Track, True Track or similar type components).

## **ARTICLE 16: ENGINE**

**16.1 General Engine Rules: Unless otherwise noted, the following general engine rules apply to all engine options.**

**16.1.1** Engine type shall determine the overall weight of the racecar (see Rule 17.3), spoiler height (see Rule 4.12.1) and RPM limits of the rev-limiters (see Rule 9.2.5).

**16.1.2** Must be able to be used in conventional passenger car without alteration. Motor mounts may not be removed or altered. Castings (includes block, heads and intake) and fittings may not be changed. Machine work on outside of engine, or on front or rear of camshaft, is not allowed. If utilizing lightened blocks (removal of material from inside and/or outside), an additional twenty-five (25) pounds of weight must be added in front of the mid-plate.

**16.1.3** "Dry sump" systems are not allowed. "Wet sump" oil system only. Internal or external oil pumps are permitted; however, single pickup must remain in pan with a maximum one (1) pickup and one (1) return line. External remote oil tanks (dry sump tanks) are not allowed. Oil coolers and remote filters are permitted.

**16.1.4** Modification of cooling system is permitted. Radiators and oil coolers may not protrude above interior.

**16.1.5** Any American make may be used. Rear of engine (bell housing flange) must be mounted at least seventy-two (72) inches forward from the center line of the rear axle – NO TOLERANCE. **16.1.6** Offset must be within two (2) inches of centerline of front cross member.

**16.1.7** Must be a minimum of eleven (11) inches from ground to front center of crankshaft.

**16.1.8** Steel blocks only –aluminum and/or titanium are not allowed.

**16.1.9** Overflow tubes must be directed toward the ground and inside the frame rails.

**16.1.10** Radiator must be mounted in front of engine.

**16.1.11** Exhaust system and/or mufflers must be mounted in such a way as to direct spent gases away from the cockpit and away from areas of possible fuel spillage. Mufflers may be required at track's discretion.

**16.1.12** Roller cams are permitted, unless otherwise noted.

**16.1.13** Intake manifolds must be made of cast iron or cast aluminum. External modifications to cast aluminum intakes are not allowed. Internal modifications are permitted.

**16.1.14** Tri-Y headers are permitted, but cannot contain stainless steel. (Note: Beginning January 1, 2018, Tri-Y headers will not be allowed).

**16.1.15** Stud girdles and shaft rockers are permitted.

**16.1.16** Engine components must be of matching manufacturers (i.e. Chevy for Chevy).

**16.1.17** Heads may be angle milled, but valve angle must remain within one (1) degree of original manufactured specification.

**16.1.18** Engine components must be of matching manufacturers (i.e. Chevy for Chevy).

**16.1.19** Oil drain back and cooling lines are permitted.

**16.2 BRODIX Spec Head Rules: Unless otherwise noted, the following BRODIX spec head rules apply to both Engine Options #1 and Engine Option #2 below.**

**16.2.1** Approved product numbers for the BRODIX aluminum spec head are SPCH (Chevrolet), SPFO (Ford) and SPMO (Mopar) for USMTS/USRA. Call 479-394-1075 or visit [www.brodix.com](http://www.brodix.com) for more information.

**16.2.2** Removing, relocating, grinding, polishing or defacing of any cast letters and/or numbers is strictly forbidden.

**16.2.3** Valve guides must retain original angle and spacing as manufactured. Valve guides may not be tapered, thinned or shortened whatsoever. Minimum valve stem diameter must be five-sixteenths (.310) inch.

**16.2.4** Absolutely no welding or adding material of any kind.

- 16.2.5 Absolutely no enlarging, relocating or other altering of any bolt hole, dowel hole or threaded hole, except to spot face bolt holes after angle milling.
- 16.2.6 Heli coils are permitted for repairs.
- 16.2.7 Absolutely no grinding or polishing of any kind anywhere on the casting, except for pushrod clearance. Factory CNC chamber may not be altered in any way.
- 16.2.8 Internally-repaired BRODIX aluminum spec head must be recertified by BRODIX.
- 16.2.9 BRODIX aluminum spec head checking fixtures may be used by tech officials to check specifications and dimensions.
- 16.3** Engine Option #1: USMTS/USRA Spec Engine (2,450 lbs., 5" spoiler):
- 16.3.1 Roller cam or flat tappet cam is permitted.
- 16.3.2 All other BRODIX Spec Head Rules apply (see Rule 16.2).
- 16.3.3 Flat tappet 23-degree steel-headed engine and GM CT525 crate engine (see 17.5 for complete details) will also fall under this option.
- 16.4** Engine Option #2: USMTS/USRA Concept Engine (2,400 lbs., 6" spoiler):
- 16.4.1 Any cast iron block is permitted. Unnecessary machine work inside or outside of block is not allowed. Lightening, coating, painting or any other work to inside of intake manifolds, heads and/or block lifter galley is not allowed.
- 16.4.2 Maximum 14:1 compression is permitted.
- 16.4.3 Steel oil pan only is permitted. Wet sump system only is permitted. Cast iron oil pump must be in stock location. Oil pan must have inspection hole.
- 16.4.4 Unaltered aluminum intake is permitted. Must be seven and one-quarter (7.25) inches from bottom of intake to base of carburetor, including spacer and gaskets.
- 16.4.5 Stud mount rocker arms only are permitted. Maximum 1.6 ratio. Stud girdle is permitted. Shaft rockers are not allowed.
- 16.4.6 Steel valves and valve spring retainers/locks only. Hollow stem and/or titanium valves are not allowed.
- 16.4.7 Cast iron flat tappet cam with stock diameter journal, stock firing order, in stock location, with stock diameter. Cast iron lifters only. Mushroom lifters are not allowed.
- 16.4.8 Timing chain only is permitted. Gear or belt drive is not allowed.
- 16.4.9 Stock diameter "Babbitt" cam bearing only is permitted.
- 16.4.10 8,000 maximum RPM chip is required.
- 16.4.11 Steel crankshaft only is permitted. Gun-drilled mains are not allowed. Undercutting of counterweights is not allowed.
- 16.4.12 Steel balancer only is permitted.
- 16.4.13 Tri-Y headers are not allowed.
- 16.4.14 Aluminum valve covers are permitted.
- 16.4.15 All other BRODIX Spec Head Rules apply (see Rule 16.2).
- 16.4.16 Use of a sealed GM 604 crate engine will also fall under this option. 16.5 Engine Option #3: Open Engine (2,500 or 2,550 lbs., 3" spoiler): 16.5.1 Includes all other engines not specified in Engine Option #1 or Engine Option #2.

## **ARTICLE 17: WEIGHT**

- 17.1 The overall weight of the racecar shall be measured after an event with the driver in the cockpit, wearing complete racing apparel. A "burn off" allowance may be offered at specific events where the number of laps will exceed normal conditions. This allowance, if any, shall be determined by USRA officials before the event begins.
- 17.2 All racecars must display weight at which it will compete on left side windshield post. Must be two (2) inches tall and in contrasting color to the racecar. Any racecar not displaying their weight will be required to weigh the maximum weight for this class and required to add any weight in any location required in this class.
- 17.3 Overall Weight:
- 17.3.1 If utilizing Engine Option #1 (USMTS/USRA spec engine, 23-degree steel-headed flat tappet or GM CT525 crate engine (see 17.5 for details), the overall weight of the racecar must be a minimum of two-thousand four-hundred fifty (2,450) pounds.

17.3.2 If utilizing Engine Option #2 (USMTS/USRA Concept Engine), the overall weight of the racecar must be a minimum of two-thousand four-hundred (2,400) pounds.

17.3.3 If utilizing Engine Option #3 (Open Engine), the overall weight of the racecar must be a minimum of (a) two-thousand five-hundred (2,500) pounds if using 23-degree steel or aluminum heads and roller cam, or (b) two-thousand five-hundred fifty (2,550) pounds with less than 23-degree heads.

17.4 If utilizing aluminum heads other than the BRODIX Aluminum Spec Heads, racecar must have a minimum fifty (50) pounds of weight in front of mid-plate.

17.5 If utilizing the CT525 crate engine, must use one of the two following track options: 1. Track Option 1 – Minimum of fifty (50) total pounds (twenty-five (25) pounds on each side of the engine) at or ahead of front motor mounts, at or above the spark plugs height. 2. Track Option 2 – Front axle weight of at least one thousand fifty (1,050) pounds combined total of the front two wheels. If racetrack utilizes one single-pad scale, racecar shall be pulled onto scale to a point where rear motor plate (mid-mount) is just over the scales. If racetrack uses individual wheel scales, front two wheel weights will be added together to get front axle weight while car is on all four scales.

17.6 If utilizing lightened blocks (removal of material from inside and/or outside), an additional twenty-five (25) pounds of weight must be added in front of the mid-plate (see Rule 16.1).

17.7 Ballast: 1

17.7.1 May not be mounted in cockpit, or outside of body or hood area.

17.7.2 Must be securely mounted, painted white and clearly marked with the car number.

17.7.3 Must be attached with at least two (2) one-half (0.5) inch bolts.

17.7.4 May not be attached to rear bumper.

## **ARTICLE 18: SAFETY**

**18.1** It is recommended that each racecar have built-in fire extinguishing equipment, but cannot be of the dry powder type (must be Halon 1211 or equivalent).

**18.2** Drivers should have in their pit area as part of their equipment, at all times, a fully charged dry chemical, Halon (or its equivalent) fire extinguisher. Ten- or thirteen-pound fire extinguishers are recommended.

**18.3** Driver must wear required helmet, fire suit and five-point safety harness whenever the racecar is on the racetrack. This includes during track packing, warm ups, hot laps and races.

**18.4** Helmets are mandatory and must be certified SA2005, SA2010 or SA2015.

**18.5** Helmet must accompany driver and racecar at time of inspection.

**18.6** Complete one- or two-piece fire suits of a flame retardant nature are mandatory.

**18.7** Fire-resistant gloves and shoes are mandatory. Fire-resistant socks are recommended.

**18.8** The use of a five- six- or seven-point driver restraint system (safety belts, sub-belt and shoulder harness) is required. Factory-type shoulder belts or straps are not allowed. The use of a seven-point driver restraint system is recommended. Shoulder harness must be mounted to main cage and not the tail section of car.

**18.9** Metal to metal buckles are required on shoulder and seat belts.

**18.10** Shoulder harness must be mounted securely to the roll cage.

**18.11** Where the belt passes through the seat edges, a grommet must be installed, rolled and/or padded to prevent cutting of the belt.

**18.12** Driver restraint system must be less than three (3) years of age past the date of manufacture. It is recommended that the driver restraint system be no more than two (2) years past the date of manufacture.

**18.13** Full-size window net mounted in the left side driver's window opening is required. Window net mounts must be welded or securely bolted to the roll cage. All bars around the driver must have approved roll bar padding.

Approved racing arm restraints are recommended. Window net mounts are highly recommended to be

securely welded or bolted to the inside of the main roll cage on top.

**18.14** Fire-resistant safety neck collars are mandatory.

**18.15** Absolutely no plastic except from edge of firewall to body skin and inner wheel tub to body skin.

**PROTEST RULE: See General Rules**