

# 2020 USRA MODIFIED RULES

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THE RULES AND/OR REGULATIONS SET FORTH HEREIN ARE DESIGNED TO PROVIDE FOR THE ORDERLY CONDUCT OF RACING EVENTS AND TO ESTABLISH MINIMUM ACCEPTABLE REQUIREMENTS FOR SUCH EVENTS. THESE RULES SHALL GOVERN THE CONDITION OF SPEEDWAY EVENTS AND, BY PARTICIPATING IN THESE EVENTS, ALL RACEWAY COMPETITORS ARE DEEMED TO HAVE COMPLIED WITH THESE RULES. NO EXPRESS OR IMPLIED WARRANTY OF SAFETY SHALL RESULT FROM PUBLICATION OF, OR COMPLIANCE WITH THESE RULES AND REGULATIONS. THEY ARE INTENDED AS A GUIDE FOR THE CONDUCT OF THE SPORT AND IN NO WAY ARE A GUARANTEE AGAINST INJURY OR DEATH TO PARTICIPANTS, SPECTATORS OR OTHERS.

References are made throughout these regulations requiring and/or recommending that particular products meet certain specifications. These products are manufactured to meet or exceed certain criteria and are labeled as such upon satisfying those criteria. Any change to these products voids that certification. Under no circumstances may any certified product be altered from the "as manufactured" condition or such certification is voided.

Changes and additions to the 2019 USRA Modified rules are underlined. Changes made for grammatical purposes or to improve clarity are not highlighted. All participants and officials are expected and required to additionally be familiar with the definitions and details in the USRA General Rules, Regulations & Procedures.

The United States Racing Association shall hereafter be simply referred to as the USRA throughout the rules description. USRA official(s) shall include all personnel employed as an official by the participating racetrack.

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## ARTICLE 1: BODY

- 1.1 An aluminum half-windshield may be used on driver's side of the front window opening only.
- 1.2 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.
- 1.3 A minimum window opening of twelve (12) inches must be maintained on all four (front, back, left and right) window openings.
- 1.4 Streamlining at top of windshield is not allowed. Bodies must have standard appearing windshield opening and corner post must follow standard configuration.

- 1.5 Original roof line of vehicle (parallel to deck, side to side) 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 one (1) inch roof lip is allowed on the left and right edges of the roof. A maximum of four (4) inch sides on roof allowed. Aluminum roofs are permitted but must remain flat and not concaved.
- 1.6 Sail panels must be solid and be of matching design with matching styles on both sides of racecar. Sail panels must extend from back of driver's seat to within a minimum of three inches from the spoiler support. Sail panels may have a maximum outward 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. Sail panel must be mounted within one inch of the outer edge of the deck and flush with the outer edge of roof. Sail Panels, measured from side to side, may not have more than four inches of variance in material length when measured from roof line to deck.
- 1.7 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. Hood must be flat from side to side (bowed or concave designs are not allowed).
- 1.8 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.
- 1.9 Engine covers/panels in front of the door next to the engine compartment are permitted but must maintain a left-to-right gap of six (6) inches from the door. One side must remain open for inspection of engine on the scales.
- 1.10 Bodies with excessive damage (as determined by an official) will not be allowed to compete.
- 1.11 Overall width of the racecar may not exceed seventy-eight (78) inches—NO TOLERANCE. Width shall be measured from the widest points on each side of the racecar.
- 1.12 Deck & Trunk Area:**
  - 1.12.1 Rear deck lid and/or trunk area must be covered.
  - 1.12.2 Deck length may be a maximum one hundred twenty (120) inches from rear of engine.
  - 1.12.3 Deck height may be a maximum thirty-nine (39) inches—NO TOLERANCE.
  - 1.12.4 Deck must remain parallel to the frame and the same width from front to back.
  - 1.12.5 Overall slope of deck may be a maximum eight (8) inches with a maximum four (4) inches slope from driver's seat to rear of deck.
- 1.13 Door and quarter panel height may be a maximum thirty-seven (37) inches of 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. All body panels must remain outside of outer frame rails.
- 1.14 Excluding hood and nose piece, 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.
- 1.15 Nose:**
  - 1.15.1 Maximum overall nose width is forty-two (42) inches.
  - 1.15.2 Two (2) inch nose fins are permitted along both sides of the nose.
  - 1.15.3 Nose fins may not pass the leading edge of radiator or continue past leading edge of hood.
  - 1.15.4 All aluminum of the nose (including the fins) must be completely inside the outer edges of the bumper.
  - 1.15.5 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.
  - 1.15.6 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.
  - 1.15.7 Aluminum or steel is not allowed outside the bumper.
  - 1.15.8 All nose piece components must be a minimum of five (5) inches above the ground.
- 1.16 Spoilers:**
  - 1.16.1 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 and One-Half (5.5) Inch Spoiler** – includes USMTS/USRA spec engine, 23-degree steel-headed flat tappet engine, GM CT525 crate engine and open engine option #4. The maximum rear spoiler height shall be five and one-half (5.5) inches.
  - b. **Option 2: Six (6) Inch Spoiler** – includes USMTS/USRA concept engine. The maximum rear spoiler height shall be six (6) inches.
  - c. **Option 3: Seven (7) Inch Spoiler** – includes GM 604 crate engine. The maximum rear spoiler height shall be seven (7) inches.
- 1.16.2 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 material must remain flat.
  - 1.16.3 Rear spoiler must remain separate from sail panels.
  - 1.16.4 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).
  - 1.16.5 Fins, wings, lips, deflectors or other air spoilers (except as noted above) are not allowed.
  - 1.16.6 Any fins, wings, lips, deflectors or other permitted air spoilers must match corresponding part on opposite side of racecar.
- 1.17 Bumpers:**
- 1.17.1 Center of bumpers (front and rear) must be a minimum sixteen (16) inches and a maximum twenty (20) inches from ground.
  - 1.17.2 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 diameter tubing with a minimum wall thickness of sixty-five one-thousandths (.065) inch and must be able to support the racecar if lifted by a tow vehicle. Top bar must be directly above bottom bar.
  - 1.17.3 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).
  - 1.17.4 Any aluminum of the nose may not extend outside of front bumper. 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 but all nose piece components must be a minimum of five (5) inches above the ground.
  - 1.17.5 Front bumper may be a maximum width of 44 inches from outside to outside.
- 1.18 Appearance:**
- 1.18.1 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.
  - 1.18.2 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 2: ROLL CAGES

- 2.1 The main roll cage must consist of continuous hoops of round steel tubing, and must be acceptable to officials. Acceptable tubing is as follows: minimum one and one-half (1.5) inches diameter by ninety-five one-thousandths (0.095) inch wall thickness for main four point roll cage. Any tubing measuring one and three-quarter (1.75) inches diameter will be allowed a tolerance on the wall thickness for tubing manufacturing imperfections. Any tubing under one and three-quarter (1.75) inches diameter will not be allowed any tolerance on wall thickness. A minimum of three (3) driver side door bars must be parallel to ground and located perpendicular to the driver 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. Driver side 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 wall thickness. Steel door plate, 18 gauge or 0.049 inch minimum thickness, must be securely welded to outside of driver side door bars and cover area from top door bar to bottom door bar and from rear hoop down-post to five inches in front of seat. Passenger side must have at least one cross door bar, horizontal or angled, minimum one and one-quarter (1.25) inch O.D. with eighty-three one thousandths (0.083) inch wall

- thickness, and one top horizontal door bar, minimum one and one-half (1.5) inch O.D. with eighty-three one thousandths (0.083) inch wall thickness.
- 2.2 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.
  - 2.3 Installation and workmanship must be acceptable to officials.
  - 2.4 Must be frame-mounted in at least six (6) places.
  - 2.5 Must consist of a configuration of front and rear hoops connected by tubing on the sides or side hoops.
  - 2.6 With helmet on and driver securely strapped into the racing seat, top of driver's head must not protrude above the roll cage. Must have a cross bar in halo.
  - 2.7 Must have a protective screen or bars in front window opening in front of driver's face.
  - 2.8 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.
  - 2.9 Brace bars forward of roll cage may not be higher than the stock hood height.
  - 2.10 Adjustable bars on the frame and/or roll cage are not allowed, Removable bars are permitted.

### **ARTICLE 3: FRAME**

- 3.1 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.
- 3.2 May only be altered for the installation of springs and shocks.
- 3.3 All components must be made of steel and be properly welded.
- 3.4 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.
- 3.5 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 at factory height and may not be raised.
- 3.6 Rear of frame may be altered to accept leaf or coil springs.
- 3.7 Hydraulic, ratchet or electric weight jacks are not allowed anywhere on the racecar. Aluminum jack bolts are not allowed.
- 3.8 Wheelbase must be a minimum of one-hundred eight (108) inches on both sides (no tolerance).
- 3.9 Tubular front clips are not allowed.
- 3.10 Maximum overall width of car (at front or rear) shall not exceed seventy-eight (78) inches—NO TOLERANCE.
- 3.11 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.

### **ARTICLE 4: COCKPIT, STEERING & SEAT**

- 4.1 Loose objects and/or weights are not allowed.
- 4.2 Air bags are not allowed.
- 4.3 Rear view mirrors are not allowed.
- 4.4 Floor and firewall must be complete in the driver's compartment. Minimum one eighth (0.125) inch aluminum, or six one hundredth (0.06) 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.
- 4.5 Steering:**
  - 4.5.1 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.
  - 4.5.2 Rack and pinion is not allowed.
  - 4.5.3 The 600 Power Steering Gear Box is not allowed.
  - 4.5.4 May be modified to suit driver, but must remain on left side of cockpit (no center steering).
  - 4.5.5 Quick-release metal coupling on steering wheel is mandatory. Plastic couplings are not allowed.
- 4.6 Seat:**

- 4.6.1 Factory-manufactured racing seats are mandatory, and must be acceptable to officials.
- 4.6.2 Homemade aluminum, plastic or fiberglass seats are not allowed.
- 4.6.3 Must be properly installed and seat back cannot be moved back further than rear edge of quarter post.
- 4.6.4 High-back aluminum seats only. Full containment racing seats are strongly recommended.

## **ARTICLE 5: SUSPENSION**

- 5.1 Packers, bumps stops, biscuits, chains or any other material meant to limit suspension travel is not allowed unless noted below (*Exception: Bump stops and/or various rubber biscuits are permitted in conjunction with the pull bar, rear limiting chains, lift arm chain, right front shock or blocks from rear-end housing to chassis*).
- 5.2 Suspension and/or rear end parts must be made of steel. Aluminum and/or titanium components are strictly forbidden. Aluminum J-bar brackets (chassis and pinion), upper A-frame cross shafts and limiter chain brackets are allowed.
- 5.3 Vertically mounted steel limiting chains, with or without rubber bump stops, may be utilized in the rear of the race car. Chain may be mounted to floating or bearing type brackets on the rear end.
- 5.4 All chassis brackets and/or mounts must be welded or securely bolted to the chassis. Floating, pivoting and/or rotating mounts and/or brackets of any sort are not strictly forbidden. Gun-drilled, tubular or hollow bolts or studs are not allowed anywhere on the racecar.
- 5.5 Suspension covers are not allowed. Tarps or covers are not allowed on racecar outside of your pit area.

### **5.6 Front Suspension:**

- 5.6.1 Front suspension must remain stock type for the type of frame being used. Steel aftermarket parts may be used as stock components but must mount in the stock location and be the same size as the OEM parts. This includes lower tubular A-frames. If using lower tubular A-frames, they 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. Bottom A-frames may not be altered, lightened or moved and must match side to side.
- 5.6.2 Steel tube-type upper A-frames are permitted and may be moved. Steel or aluminum cross shafts are permitted.
- 5.6.3 Only stock passenger car spindles are permitted. Fabricated spindles are not allowed.
- 5.6.4 Front sway bars may be utilized. 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).
- 5.6.5 Coil-over springs are not allowed on the front.
- 5.6.6 Front chains are permitted but must remain loose at ride height.

### **5.7 Rear Suspension:**

- 5.7.1 All rear suspension radius rods must be of a fixed solid steel design.
- 5.7.2 Only two (2) radius rods per side are permitted. One additional rod per side for brake floater only is allowed.
- 5.7.3 Only one (1) single unit birdcage per side is permitted. Birdcage must spin freely forward and backward. Radius rods must mount to birdcage or solid on rear end housing. If one radius rod is on a bird cage then all rods must be on birdcages. One additional floated birdcage-style bracket and radius rod is permitted per side to accommodate floated brake system only.
- 5.7.4 Springs and /or shocks may be mounted to birdcage or lower radius rod or solid on rear end housing. If mounted on housing, it may be no more than seven (7) inches from center of axle tube and mounted solid.
- 5.7.5 Only one (1) mechanical traction device is permitted. Only one (1) pull bar or one lift arm is permitted.
- 5.7.6 Pull bar is defined as a continuous assembly that is connected to the top of the rear end and extends forward to a solid mounting point located on the chassis. 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). A lift arm is defined as a solid steel triangulated bar that is connected at the top and bottom of the rear end housing and extends forward where it is connected to a shock or shock-spring coil-over combination and a limiting chain (with or without a biscuit for cushion). One stabilizer bar is permitted.
- 5.7.7 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.
- 5.7.8 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.

## **5.8 Shocks:**

- 5.8.1 Any shock may be confiscated by a USRA official at any time and sent in to be disassembled for inspection. If found legal, shock will be returned.
- 5.8.2 Only one shock per wheel is permitted. (*Exception: Fifth shock may be mounted horizontally directly over pull bar or vertically on front of lift arm*). Shocks must be mounted vertically and rear shocks may be no more than twenty-five (25) degrees from vertical. Dummy shocks in relation to functioning shock absorbers are not allowed (i.e. no dummy shocks to replace slider).
- 5.8.3 All shocks must be made of steel (magnet must stick). Aluminum heims on shocks are not allowed (steel caps only).
- 5.8.4 Only conventional-type (closed on one end) shock absorbers are permitted. Only single-shaft shocks are permitted.
- 5.8.5 Air shocks and/or canister shocks are not allowed.
- 5.8.6 Inerter shocks, J-damper shocks, active mass damper shocks and/or through-rod-designed shocks are not allowed.
- 5.8.7 Bump stops, spring rubbers or any other limiting devices are not allowed on any suspension component. (*Exception: Bump stops and/or various rubber biscuits are permitted in conjunction with the pull bar, rear limiting chains, lift arm chain 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.*)
- 5.8.8 Electronically-controlled and/or monitored shocks by any means or methods is strictly forbidden. Cockpit-adjustable shocks are not allowed.
- 5.8.9 Shock covers are permitted but may cover only front half of shock and must be mounted directly to shock.
- 5.8.10 Shocks shall be subject to claim, as outlined in Claim Procedures (Article 16).

## **5.9 Springs:**

- 5.9.1 One spring per wheel is permitted. One additional spring is permitted in the center of the car pertaining to the pull bar or lift arm.
- 5.9.2 All coil springs must be at least four and one-half (4.5) inches outside diameter (except pull bar and lift arm).
- 5.9.3 Springs must be made of steel.
- 5.9.4 Torsion bars in the rear are not allowed.
- 5.9.5 Stacked, tapered and/or welded springs are not allowed.
- 5.9.6 Progressive springs are not allowed (except on pull bar or lift arm).
- 5.9.7 Spring wire diameter and coil spread must remain consistent from one end to the other.
- 5.9.8 Only conventional spring mounting devices are permitted. Widgets, trick and/or spring-altering mounting devices are not allowed.

# **ARTICLE 6: ELECTRICAL SYSTEM**

## **6.1 Battery:**

- 6.1.1 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.
- 6.1.2 One (1) 12-volt or 16-volt battery is permitted. One (1) additional 9-volt battery is permitted to run digital tachometer only.
- 6.1.3 Voltage converters are not allowed.
- 6.1.4 All battery posts must be securely covered.

## **6.2 Ignition:**

- 6.2.1 One (1) unaltered ignition system is permitted—secondary and/or back-up systems are not allowed. MSD 6CT #PN6427 is recommended and will be mandatory in 2021.
- 6.2.2 Magnetos are not allowed.
- 6.2.3 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.
- 6.2.4 One (1) coil only is permitted.
- 6.2.5 Kill switch within easy reach of the driver is required. The switch must be clearly marked "OFF" and "ON".
- 6.2.6 Except for memory recall tachometer, electronic monitoring computer devices capable of storing and/or transmitting information are not allowed.

- 6.2.7 Ignition boxes shall be subject to claim, as outlined in Claim Procedures (Article 16).
- 6.2.8 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 7,800.
  - CT525 Crate Engine is 7,000.
  - GM 604 Crate Engine is 6,800.
- Any racecar utilizing Engine Option #1 and using a maximum RPM rev-limiter of 7,200 may utilize a six (6) inch spoiler. Any driver caught cheating this rule will be fined \$1,000 and never be allowed to utilize a six (6) inch spoiler in future events. RPM rev-limiter may not be within reach of the driver while in cockpit and must be easily accessible to officials at any time. Any driver caught altering the RPM rev-limiter or ignition system in any way to defeat the RPM rev-limiter rule shall receive a thirty (30) day suspension, loss of all points for the night and a \$1,000 fine for the first offense. Second offense shall be one (1) year suspension, loss of all points for the season and a \$2,000 fine.
- 6.2.9 Wiring elements must be accessible for technical inspection. Any racecar advancing spots and missing will be subject to disqualification.
- 6.2.10 Cameras pointing to any moving and/or suspension parts are not allowed.

## **ARTICLE 7: FUEL SYSTEM**

### **7.1 Fuel:**

- 7.1.1 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.
- 7.1.2 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.
- 7.2 Electric fuel pumps are not allowed.

### **7.3 Carburetor:**

- 7.3.1 One (1) two-barrel, four-barrel or Predator carburetor properly installed is permitted.
- 7.3.2 Must be naturally aspirated.
- 7.3.3 Fuel injection is not allowed.
- 7.3.4 An adapter with gasket is permitted. Adapter and gasket combined may be no more than two and one-quarter (2.25) inches.

### **7.4 Fuel Cell:**

- 7.4.1 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.
- 7.4.2 Must be enclosed in a steel container and must be protected in rear of axle by roll cage tubing mounted securely.
- 7.4.3 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.
- 7.4.4 Must have check valves.
- 7.4.5 Limited to a maximum capacity of thirty-two (32) gallons.
- 7.4.6 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 8: TIRES & WHEELS**

### **8.1 Wheels:**

- 8.1.1 Must be fifteen (15) inches in diameter and eight (8) inches in width.
- 8.1.2 Stickers are not required.
- 8.1.3 Must be reinforced steel only. Added ballast to wheels is not allowed.
- 8.1.4 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.
- 8.1.5 Homemade mud caps are not allowed.
- 8.1.6 Wheel covers are permitted on right side wheels only (5 fastener type recommended). Inner mud plugs are permitted. All mud covers must display car number on at least one side.
- 8.1.7 Wide five wheel adaptors are not allowed.

- 8.1.8 Spacer between hub and wheel is permitted but must be made of aluminum only and overall width of racecar cannot exceed 78 inches (see Rule 1.11).
- 8.1.9 Aluminum or steel lug nuts are permitted.
- 8.2 Tires:**
- 8.2.1 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. Any tire not meeting this durometer reading is subject to having a tire sample sent in for chemical testing.
- 8.2.2 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.
- 8.2.3 Grooving and/or siping is permitted.
- 8.2.4 All sidewall markings must remain visible always. Buffing or removing of the compound designations is not allowed.
- 8.2.5 Adding ballast to the inside of the tire is not allowed.
- 8.3 Tire Testing Procedures:**
- 8.3.1 Random lab testing will be conducted at the convenience of the USRA. Three (3) samples will be taken with at least three (3) slivers of tire per sample container. All three containers will be sealed, labeled and numbered in presence of driver and/or team member and at least one USRA official. One sample will atomically be selected to be sent directly to the lab for testing, one sample will be given to the team to dispute in event of an issue and one will be kept by USRA. If problems arise, the race teams' sample will be sent to the original lab for comparison to the benchmark. If second sample confirms the issue, immediate action will be taken as outlined in Section 2.16.4 of the USRA General Rules, Regulations & Procedures. Second offenses may be met with up to a lifetime ban. If the first and second samples vary in results, the third sample will be sent to the lab for analysis. Majority (2 out of 3) wins. In addition to penalties and fines, the competitor will be responsible for all costs related to tire testing from their racecar at that event.
- 8.3.2 Traces of chemicals and/or excessive quantities of chemicals found to be outside the baseline on any test shall result in the penalties declared in Rule 2.16.4 plus an additional indefinite financial penalty and indefinite length of suspension. This penalty also applies to driver refusal of a tire test. Refusal of tire test shall be treated the same as an infraction. Official(s) may inspect any tire on the racecar and/or any tire in possession of the driver in his/her pit area and/or hauler (in other words, if you have "doped" tires then do not even bring them to the track).
- 8.3.3 It is strongly recommended that all drivers use only soap and water. Baking tires will not eliminate traces of illegal substances. The USRA will aggressively test for illegal substances and will levy severe punishment for infractions.

## **ARTICLE 9: BRAKING SYSTEM**

- 9.1 Must be operating on all four wheels and must lock up all four wheels during inspection.
- 9.2 Must have caliper and rotor on all four wheels. Vented rotors are required on front and rear wheels.
- 9.3 Electronic brake actuators are not allowed.
- 9.4 Calipers and/or pads may not be lightened and must be OEM. Brake pads may not be altered.
- 9.5 Steel or aluminum single-piston OEM-type calipers are permitted. Piston diameter must be the same on all calipers.
- 9.6 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.
- 9.7 Front-to-rear brake bias is permitted (no left to right). Anything prohibiting the right front brake to function is not allowed.
- 9.8 Brake shut-offs are not allowed.
- 9.9 Brake lines must be visible.
- 9.10 Must maintain minimum OEM dimensions for hubs, rotors, pads and calipers, and the same side to side.

## **ARTICLE 10: DRIVE SHAFT**

- 10.1 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.



- 10.2 Drive shafts must be painted white.
- 10.3 Aluminum drive shafts are not allowed. Steel or carbon fiber drive shafts only (carbon fiber may have aluminum yokes).

## **ARTICLE 11: TRANSMISSION**

- 11.1 OEM automatic, three-, four- and five-speed production-type transmissions are permitted. Approved aftermarket transmissions are permitted.
- 11.2 "In and out" boxes are not allowed.
- 11.3 Must all be clutch-operated.
- 11.4 Approved aftermarket transmissions are Bert, Brinn, Falcon, RaceGator and Mitchell Machine Bullet Tranny with internal clutch.
- 11.5 Clutch must be inside of bell housing for OEM production-type transmissions (except as noted in Rule 14.4).
- 11.6 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).
- 11.7 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 (0.125) inch. Alternatively, automatic transmissions may utilize an SFI-certified aftermarket guard. All flex plates must be SFI-certified.
- 11.8 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 12: REAR-END**

- 12.1 Any passenger car or truck type is permitted. Aluminum is not allowed except lowering blocks, axle cap and drive plate.
- 12.2 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.
- 12.3 Cambered rear-ends are not allowed. One-piece drive flange only.
- 12.4 Traction devices are not allowed (includes Gold Track, True Track or similar type components).
- 12.5 Hub and/or drive flange assembly may not be oversized and entire hub assembly must match both in material and dimensions from side to side. Maximum drive flange diameter is seven (7) inches across, maximum thickness is one half (0.5) inch.

## **ARTICLE 13: ENGINE**

- 13.1 General Engine Rules:** Unless otherwise noted, the following general engine rules apply to all engine options.
  - 13.1.1 Engine type shall determine the overall weight of the racecar (see Rule 14.3), spoiler height (see Rule 1.12.1) and RPM limits of the rev-limiters (see Rule 6.2.5).
  - 13.1.2 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.
  - 13.1.3 "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.
  - 13.1.4 Modification of cooling system is permitted. Radiators and oil coolers may not protrude above interior.
  - 13.1.5 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.
  - 13.1.6 Offset must be within two (2) inches of centerline of front cross member.
  - 13.1.7 Must be a minimum of eleven (11) inches from ground to front center of crankshaft.

- 13.1.8 Steel blocks only –aluminum and/or titanium are not allowed.
- 13.1.9 Overflow tubes must be directed toward the ground and inside the frame rails.
- 13.1.10 Radiator must be mounted in front of engine.
- 13.1.11 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. Exhaust through body panels or fenders is not allowed. Mufflers may be required at track's discretion.
- 13.1.12 Roller cams are permitted, unless otherwise noted.
- 13.1.13 Intake manifolds must be made of cast iron or cast aluminum. External modifications to cast aluminum intakes are not allowed. Internal modifications are permitted.
- 13.1.14 Tri-Y headers are permitted, but cannot contain stainless steel.
- 13.1.15 Stud girdles and shaft rockers are permitted.
- 13.1.16 Engine components must be of matching manufacturers (i.e. Chevy for Chevy).
- 13.1.17 Heads may be angle milled, but valve angle must remain within one (1) degree of original manufactured specification.
- 13.1.18 Engine components must be of matching manufacturers (i.e. Chevy for Chevy).
- 13.1.19 Oil drain back and cooling lines are permitted.
- 13.2 BRODIX Spec Head Rules:** Unless otherwise noted, the following BRODIX spec head rules apply to both Engine Option #1 and Engine Option #2 below.
- 13.2.1 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 brodix.com for more information.
- 13.2.2 Removing, relocating, grinding, polishing or defacing of any cast letters and/or numbers is strictly forbidden.
- 13.2.3 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.
- 13.2.4 Absolutely no welding or adding material of any kind.
- 13.2.5 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.
- 13.2.6 Heli coils are permitted for repairs.
- 13.2.7 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.
- 13.2.8 Internally-repaired BRODIX aluminum spec head must be recertified by BRODIX.
- 13.2.9 BRODIX aluminum spec head checking fixtures may be used by tech officials to check specifications and dimensions.
- 13.3 Engine Option #1: USMTS/USRA Spec Engine (2,450 pounds, 5½-inch spoiler):**
- 13.3.1 Roller cam or flat tappet cam is permitted.
- 13.3.2 All other BRODIX Spec Head Rules apply (see Rule 13.2).
- 13.3.3 Flat tappet 23-degree steel-headed engine and GM CT525 crate engine (see 14.5 for complete details) will also fall under this option.
- 13.4 Engine Option #2: USMTS/USRA Concept Engine (2,400 pounds, 6-inch spoiler):**
- 13.4.1 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.
- 13.4.2 Maximum 14:1 compression is permitted.
- 13.4.3 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.
- 13.4.4 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. Intake may be port matched, maximum one (1) inch from gasket flange.
- 13.4.5 Stud mount rocker arms or shaft rocker arms are permitted. Maximum 1:6 ratio. Stud girdle is permitted.
- 13.4.6 Steel valves and valve spring retainers/locks only. Hollow stem and/or titanium valves are not allowed.
- 13.4.7 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.
- 13.4.8 Timing chain only is permitted. Gear or belt drive is not allowed.
- 13.4.9 Stock diameter "Babbitt" cam bearing only is permitted.
- 13.4.10 7,800 maximum RPM chip is required.

- 13.4.11 Steel crankshaft only is permitted. Gun-drilled mains are not allowed. Undercutting of counterweights is not allowed.
- 13.4.12 Steel balancer only is permitted.
- 13.4.13 Tri-Y headers are not allowed.
- 13.4.14 Aluminum valve covers are permitted.
- 13.4.15 All other BRODIX Spec Head Rules apply (see Rule 13.2).
- 13.4.16 Titanium parts are not allowed with this engine option.
- 13.5 Engine Option #3: GM Crate Engine (604 = 2,400 pounds, CT525 = 2,450 pounds)**
- 13.5.1 The properly-sealed GM 604 crate engine may be used and may utilize a seven (7) inch spoiler.
- 13.5.2 The properly-sealed GM CT525 crate engine may be used and may utilize a five and one-half (5.5) inch spoiler
- 13.6 Engine Option #4: Open Engine (2,500 pounds, 5½-inch spoiler)**
- 13.6.1 Any engine not listed in the above options will be included in this engine option.
- 13.6.2 Must have twenty-five (25) pounds of weight in front of mid-plate if utilizing aluminum heads.

## **ARTICLE 14: WEIGHT**

- 14.1 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.
- 14.2 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.
- 14.3 Overall Weight:**
- 14.3.1 If utilizing Engine Option #1 (USMTS/USRA Spec Engine, 23-degree steel-headed flat tappet or GM CT525 Crate Engine (see 14.5 for details), the overall weight of the racecar must be a minimum of two thousand four hundred fifty (2,450) pounds.
- 14.3.2 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.
- 14.3.3 If utilizing Engine Option #3 (Crate Engine) the overall weight of the race car must be a minimum of two thousand four hundred (2,400) pounds for the GM 604 Crate Engine or two thousand four hundred fifty (2,450) pounds for the CT525 Crate Engine.
- 14.3.4 If utilizing Engine Option #4 (Open Engine), the overall weight of the racecar must be a minimum of two thousand five hundred (2,500) pounds, and must have a minimum of twenty five (25) pounds of weight in front of mid-plate.
- 14.4 If utilizing the CT525 Crate Engine, racecar must have a minimum of twenty five (25) pounds of weight mounted in front of the mid-plate.
- 14.5 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 13.1).
- 14.6 Ballast:**
- 14.6.1 May not be mounted in cockpit, or outside of body or hood area or on any rotating parts.
- 14.6.2 Must be securely mounted, painted white and clearly marked with the car number.
- 14.6.3 Must be attached with at least two (2) one-half (0.5) inch bolts per a maximum one hundred (100) pounds of ballast. Any ballast weighing twenty-five (25) pounds or less may be mounted with a single one-half (0.5) inch bolt.
- 14.6.4 May not be attached to rear bumper.

## **ARTICLE 15: SAFETY**

- 15.1 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).
- 15.2 Drivers should have in their pit area as part of their equipment, always, a fully charged dry chemical, Halon (or its equivalent) fire extinguisher. Ten- or thirteen-pound fire extinguishers are recommended.
- 15.3 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.

- 15.4 Helmets are mandatory and must be certified SA2010 or SA2015.
- 15.5 Helmet must accompany driver and racecar at time of inspection.
- 15.6 Complete one- or two-piece fire suits of a flame-retardant nature are mandatory.
- 15.7 Fire-resistant gloves and shoes are mandatory. Fire-resistant socks are recommended.
- 15.8 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.
- 15.9 Metal to metal buckles are required on shoulder and seat belts.
- 15.10 Shoulder harness must be mounted securely to the roll cage.
- 15.11 Where the belt passes through the seat edges, a grommet must be installed, rolled and/or padded to prevent cutting of the belt.
- 15.12 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.
- 15.13 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.
- 15.14 Fire-resistant safety neck collars are mandatory.
- 15.15 Absolutely no plastic except from edge of firewall to body skin and inner wheel tub to body skin.

## **ARTICLE 16: CLAIMING PROCEDURES**

- 16.1 Any driver possessing a valid USRA license may have the opportunity to execute a claim. All drivers, licensed or not, are subject to being claimed.
- 16.2 Any driver in the "A" Main is eligible to claim the shocks or ignition box of another racecar in the "A" Main.
- 16.3 Claims must be made within five (5) minutes of the completion of the "A" Main. Claimed items must be removed at the racetrack and within one (1) hour after claimed driver accepts the claim.
- 16.4 Immediately following the conclusion of the "A" Main, without returning to his/her pit location, driver making claim must drive racecar, under its own power, directly to the designated claim area. Claiming driver shall select from eligible racecars in the "A" Main, and must declare that choice to the official overseeing the claim area. If the claiming driver decides at that time that he/she does not wish to execute the claim, he/she will nonetheless be charged one claim on his/her claim card. If multiple drivers declare an intention to claim, the driver finishing farthest back in the "A" Main will select first.
- 16.5 Claiming driver must present cash to official overseeing the claim area at the time the driver declares intention to claim. The cash price of the claim shall be \$200 each for shocks or \$250 for ignition boxes. Drivers claiming shocks may claim one (1) or more shocks during a single claim.
- 16.6 Driver is permitted one (1) claim per event, regardless of the outcome of that claim.
- 16.7 Only drivers and officials are permitted in the designated claim area. Any other participants associated with that racecar that enter the claim area will be subject to disqualification, fine and/or suspension.
- 16.8 Only a driver may claim, and only the claimed driver may agree to accept or refuse the claim. The first statement of acceptance or rejection of the claim by the claimed driver is binding.
- 16.9 Any driver refusing to accept a claim will forfeit all cash winnings and contingency awards for that event. Any driver refusing to accept a claim will forfeit all USRA points (national and track) accumulated up to, and including, the event at which the claim was made. Furthermore, driver will forfeit the privilege to make a claim for a period of one (1) year from the date on which the claim was refused.
- 16.10 Sabotage of claimed parts will result in driver being suspended from all USRA events for fourteen (14) days and until a \$1,000 fine is paid and received by the USRA. Driver will also forfeit all USRA points (national and track) accumulated up to, and including, the event at which the sabotage occurred. Furthermore, driver will forfeit the privilege to make a claim for a period of one (1) year from the date on which the sabotage occurred.
- 16.11 Driver must compete in three (3) consecutive USRA events prior to executing a claim. Driver may claim a maximum of three (3) times during the calendar year.
- 16.12 The USRA reserves the right to disallow any claim at their discretion.

- 16.13 At their discretion, officials reserve the option to claim the shocks or ignition box of any racecar. Officials may exchange ignition boxes at any time.
- 16.14 Disqualification shall not affect a legal claim. Claimed parts will be removed and transferred prior to any penalties being assessed.

## **AMENDMENTS**

None.

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