



2021 Lucas Oil Raceway Sprint Car & Midget Rule Book
March 8, 2021



2021 Lucas Oil Raceway Sprint Car & Midget Rules

Scope of Rulebook

New Rules and Rule Changes

Lucas Oil Raceway Sprint Car & Midget rules may be added, deleted, and/or amended from time to time and at any time by the organizer of the events. It is the participant's responsibility to stay abreast of all Lucas Oil Raceway rule changes that may affect the participant. Additions, deletions, or changes to the Rulebook (collectively referred to herein as "amendments") will be communicated by publication on Lucas Oil Raceway.com.

Amendments are effective and enforceable immediately upon publication on Lucas Oil Raceway.com. Racers are responsible to consult and stay up to date with any rules and related information published on LucasOilRaceway.com.

Age – Sprint Car & Midgets

Age – Driver must be at or over the age of sixteen (16) years to participate in the Sprint Car or Midget division at Lucas Oil Raceway.

- A copy of the participants birth certificate must be provided at registration if the participant is between the age of 16 to 17.
- All participants between the age of 16 to 17 are required to have a minor release form signed by both parents prior to competing in the event.

Sprint Car Rules (Follows Anderson Speedway's Little 500 Rules)

Cars – Only normal traditional sprint car bodies will be permitted. Supermodified or Roadster type bodies are not permitted. No rear-engine sprinters or wings. NO OFFSET CHASSIS ALLOWED. The nose assembly shall not be wider than the parallel lines of the body and may not exceed the width of the frame. Right-Side cockpit panels must be a maximum of thirty-six (36) inches high at the center of the opening as measured from the top of the bottom main frame tube at the engine plate. The opening must be parallel with the top frame tube until it reaches the seat back. Sun visors are limited to nine inches from the top to bottom. All cars shall be rear wheel drive only. The rear axle offset shall be determined by measuring from the farthest portion of the wheel to the centerline of the rear axle centerline assembly. The maximum distance allowed is forty-three inches. The total overall width is seventy-eight inches, front and rear. All cars must be equipped with roll cages. Cars must have full belly pan. Additionally, all cars must utilize a BLANKET underneath the belly pan. FUEL CELL WITH BLADDER IS MANDATORY. Fuel tanks may not protrude from the body of the car nor shall it cause lines of car to be altered out of shape or exposed outside the body and must be located in a standard, safe location. All cars must weigh a minimum of 1,450 lbs. with driver prior to, during and after qualifying/race. No starters, clutches, or airjacks are permitted on cars at any time. Methanol ONLY. Gasoline is prohibited.

Tires – Tires limited to 20-inch cross-section maximum (measured with hoop). All cars must start the Thursday Night Thunder Homecoming or Hoosier Classic on the same tires that were used to qualify their car. Cars in violation of this rule shall be moved to the rear of the field and penalized (1) one lap. Right Rear tire for qualifying/race must be purchased from Hoosier Tire at Lucas Oil Raceway during the

event. **Any solvents or chemicals applied to the tire that alter the chemical makeup of the compound or have the effect of altering tire durometer is prohibited.**

Safety - Seat belts are required to meet SFI 16.1, SFI 16.5, or SFI 16.6 standards, and must contain valid dates on manufacture production label. Helmets must conform to Snell Foundation standards of SA2010 SPEC Helmet or newer (Must be SA2015 or SA 2020 in 2022) and have confirmation sticker visible for inspection. Containment seats with head and shoulder support are required. No fluids, besides water or fuel, may be added to a car during the event without consent of a race official. All cars are subject to safety approval by race officials.

Participants – Car owners, drivers and pit persons must sign a liability release at pit gate and pay fees before entering the pit area. Any participant in pit area using abusive language or threatening or performing bodily harm to any official on or off the track will automatically disqualified and forfeit all monies due to them.

General Rules – One-way radio/raceceiver mandatory.

Midget Car Rules

Cars – all phases of design and construction are subject to the approval of the Technical Director. The Chief Steward and the Technical Director may exclude any car, design or construction, which they deem unsafe or not meeting specifications, the spirit and/or the intentions of the rules contained herein:

Dimensions and Weight

- A. Wheelbase – must be at least 66 inches and no more than 76 inches.
- B. Width – overall width will be a maximum of 65 inches.
- C. The maximum rear wheel offset, from center line, is three inches (6 inches overall) measured from inside bead seat to the centerline of the rear end center section.
- D. The right front tire cannot be farther out than the right rear tire when the right rear wheel is set at maximum offset. (as measured straight line along outside RR to outside RF)
- E. All cars must weigh a minimum of 1,050 lbs. including driver.
- F. Additional bolt on weight must be mounted and fastened to the frame and/or chassis in a secure manner. Weight must be mounted in an area between bottom frame rails, front and rear axles and no higher than mid rails at cockpit. All weight must be mounted within confines of frame. NO BALLAST/WEIGHT IN NERFS, BUMPERS, FRONT AXLE.

Car Construction/Body

- A. All cars shall be rear drive only. Engine offset is limited to a maximum of one (1) inch, (two inches overall), from the chassis centerline as measured at the centerline of the crankshaft. Engine inclination is limited to forty-five degrees from vertical as measured from the vertical centerline of the cylinder bore.
- B. Only torque tube type drivelines, utilizing only one u-joint, will be allowed. The torque tube must be bolted directly to the face of the rear axle center section without any interruptions; the torque tube must be one solid piece. Torque tube hoop and/or strap highly recommended. A driveline containment system utilizing steel shield bolt to engine plate or containment blanket to cover torque ball and u-joint is highly recommended.
- C. Radius rods may not be attached within the confines of the cockpit.
- D. The driver shall be seated directly behind the engine; centerline of top of seat at the driver's helmet can be no more than one (1") inch off centerline of roll cage.
- E. Only standard type Midge Car bodies, tail tanks and hoods will be permitted.
- F. The front part of the body, known as the nose assembly, shall not be wider than parallel lines of the body and may not exceed the width of the frame. The nose assembly may not extend forward beyond the confines of the front bumper. (See 408 for bumper rule)
- G. The engine must be covered with a cowling or hood secured in place. The hood or cowling need not enclose the sides of the engine.
- H. A forward-facing scoop, or ducting, supplying "forced air induction" to the injection inlets is not permitted. A hood scoop to allow air to the air filter is permitted, provided that it does not feed into a contained air box, which would be considered to be forced induction.
- I. Only steel, aluminum, or carbon fiber floor/belly pan are permitted. The floor/belly pan may not extend rearward past the leading edge of the rear axle and must be flat from side to side without any aerodynamic aids. Horizontal panels may not extend below the plane of the

floor/belly or fuel tank. It is recommended that a fireproof absorbent pad be used under the engine on pavement.

- J. An effective firewall must be installed between the engine compartment and the cockpit. It must be as leak proof as practical.
- K. The motor plate may not be made from carbon fiber, or any type of composite materials.
- L. Airfoils, wings, spoilers or other aerodynamic appendages will not be permitted. The Chief Steward or Technical Director may have any panel or part removed which in their opinion is not within the spirit or intent of this rule.
- M. All paneling must not extend past edge of frame rails more than thickness of material.
- N. Rear view mirrors are not permitted.

Roll Cage and Chassis

- A. Frame and/or chassis must be constructed of 4130 normalized tubing.
- B. All cars must have a roll cage that is integral with the frame and does not encroach upon an imaginary cylinder, 20 inches in diameter, extending through the top cockpit opening directly above the seat. The roll cage should extend four inches above the driver's helmet when seated in a driving position.
- C. Roll Cage Construction cars constructed after 1/1/98, main uprights forming the roll cage must be a minimum of 1-3/8 inches O.D. x .095 wall thickness 4130 normalized tubing.
- D. No water or oil coolers are to be placed above or beside the cockpit opening.

Fuel System

- A. A conventional tail tank, fuel cell and fuel contained must be carried on the centerline of the chassis and be located behind the driver. All cars must be equipped with a fuel cell and tail tank meeting the requirements of USAC and SFI Specifications 28.2
- B. The minimum capacity of the tank must be 18 U.S. gallons.
- C. All tanks must have a minimum of four mounts to the chassis.
- D. Fuel tanks may not be mounted to the chassis utilizing any portion of the access plates or the nut plates bonded into the fuel bladder.
- E. The engine must be equipped with a fuel shut-off device located within easy reach of the driver.
- F. It is highly recommended that the fuel tank has an adequate supporting structure under the forward section of the lowest portion of the tank. The structure should follow the contour of the tank and be welded securely attached to the frame of the car on each side.

Bumper/Nerf Bars

- A. The car must be equipped with a rear bumper at all times.
- B. Front and rear bumpers and nerf bars must be constructed of magnetic and or stainless steel (NO TITANIUM) tubing with a minimum O.D. of 7/8 inch and having a minimum wall thickness of .065 inch and a maximum wall thickness of .120 inch. A maximum of three horizontal and/or three vertical tubes are allowed in the construction of the nerf bars.
- C. All cars must have a tubular front bumper extending forward no more than 21 inches from the leading edge of the front axle. Bumpers must be constructed so as not to cause a safety hazard.
- D. The right nerf bar cannot extend beyond the outside of the right rear tire.

Steering and Suspension

- A. Removable steering wheels incorporating a quick release mechanism conforming to SFI Specification 42.1 are mandatory. Pip pin type mechanisms are not allowed.
- B. Welded aluminum or titanium suspension parts are prohibited exception of Jacobs ladder (Watts link)
- C. Drag link straps are highly recommended.
- D. A maximum of one cockpit adjustable suspension component will be allowed (including but not limited to shocks, sway bars, springs, roll bars, pan hard bars, ladders and any adjustments that can affect chassis handling). For the avoidance of doubt, only one cockpit adjuster will be allowed in the cockpit for the aforementioned suspension components (i.e., you cannot have a weight jacker and a shock adjuster knob/cable - even if one of them is disconnected, or two roll bar adjuster handles even if ones of them is disconnected). A brake bias adjuster does not count as a suspension adjuster.
- E. No independent suspension.

Axles

- A. All front axles must be constructed of SAE 4130 steel or a steel alloy equivalent in structural strength. Titanium front or rear axles are not permitted.

Wheels & Tires

- A. Bleeders are NOT permitted.
- B. The number allowable wheels are restricted to two (2) front wheels and two (2) rear wheels on each car.
- C. The wheel diameter must be 13 inches.
- D. The wheel width is limited to eight (8) inches for both front wheels and the left rear.
- E. The right rear wheel may be a maximum of ten (10) inches in width.
- F. Direct mount or spindle mount wheels are not allowed on the right front.
- G. Splined front hubs/wheels will not be allowed.
- H. The use of full-face brake scoops and/or wheel covers on the inside of wheels is not allowed.
- I. All bolts are mandatory in bead lock and wheel centers.
- J. The Right Rear tire for qualifying/race must be purchased from Hoosier Tire at Lucas Oil Raceway during the event.
- K. Any device(s) used for warming the tires prior to competition is prohibited.
- L. Any solvents or chemicals applied to the tire that alter the chemical makeup of the compound or have the effect of altering tire durometer is prohibited.
 - a. First Offense – Entrant/Driver: Forfeit of purse for the event, \$2,500.00 fine.
 - b. Second Offense – Entrant/Driver: One (1) year suspension, forfeit of purse for the event and \$10,000.00 fine.
- M. Tire Protest is a \$500.00 fee to be paid to the competition director before the event. If tire sample is found illegal, protest fee is returned. If tire sample is found legal, the protested entrant will receive a new tire replacement.

Throttle

- Throttle toe straps are mandatory. A minimum of two (2) return springs must be connected to the throttle and at least one of these must be connected to the butterfly shaft.
- The throttle pedal must have a wide-open stop.

Brakes

- A. No electronic controlled brake bias adjuster (manual adjustment only)
- B. If at any time during competition it becomes evident that a car is without brakes, the necessary repairs must be completed before car can continue in competition.

Engine Size Limits/RPM Limits

- A. Pushrod Type Engines
 - a. Four cylinder in-line, two valves per cylinder, water cooled, with intake and exhaust ports on the same side of the head using an aluminum block and approved non-cross flow aluminum "Fontana" cylinder head.
 - i. Maximum of 174 CID (2852cc)
 - ii. Maximum RPM 8800
 - b. Fontana (Rhino) sealed spec engine
 - i. Maximum of 200 CID (3278cc)
 - ii. Maximum RPM (factory set and sealed) 7800.
 - c. Four cylinder in-line, two valves per cylinder, water cooled, utilizing an aluminum block and/or head.
 - i. Maximum 166 CID (2721 cc)
 1. Maximum RPM 8700
 - ii. Gaerte Block – 177 CID (2900 cc)
 1. Maximum RPM 8700
- B. Single Overhead Camshaft Type Engines
 - a. Four cylinders in line, aluminum block and head, 2 valves per cylinder.
 - i. Maximum 161 CID (2639cc)
 - ii. Maximum RPM 10300 (Esslinger)
 - iii. Maximum RPM 9800 (Esslinger BB7)
 - iv. Maximum RPM 9800 (MOPAR – SR-11)
 - b. Esslinger EST sealed spec engine
 - i. Maximum 161 CID (2639cc) engine.
 - ii. Maximum RPM (factory set and sealed) 9400.
- C. Double Overhead Camshaft Type Engines
 - a. Honda K-Series four cylinder in-line, water-cooled, four valves per cylinder, must use Honda OEM cylinder block and cylinder head.
 - i. Maximum 154.6 CID (2533.5cc)
 - ii. Maximum RPM 9600
 - iii. Maximum Stroke 99 mm (3.898")
- D. The preceding engine sizes are the maximum permitted. Five (5) percent clean-up is permitted.
- E. Must be normally aspirated, internal combustion, four cycle, reciprocating piston type, incorporating a maximum of four (4) cylinders. Only one spark plug per cylinder is allowed.

Camshaft timing must be fixed. Any device used to alter camshaft timing during engine operation is prohibited. Or...

- F. Production based Honda K24Z7 with unmodified OEM block and cylinder head. Cylinder head modifications are not allowed. Stock bore and stroke shall be retained (+0.010" bore allowed for re-bored blocks). OEM connecting rods shall be used. The connecting rods may retrofit with aftermarket fasteners. The OEM crankshaft shall be used and may only be modified to facilitate balancing. The OEM counter-balance shaft is optional and may be removed. Aftermarket pistons are allowed. Their installed static compression ratio shall not exceed 12.5:1. Valves shall be OEM. Valve train components shall be OEM but, valve springs, retainers, retainer locks and camshafts are unrestricted. The intake manifold must be an "as cast" HPD Forward Facing Manifold Kit (part #HK010702) and must utilize an unmodified K24Z7 OEM throttle body. The ECU (engine control unit), ignition coils, and engine sensors shall be OEM and as provided with the production motor. The fuel injector nozzles are unrestricted. Only a Hondata Flashpro unit and Flashpro software shall be used to adjust ECU engine parameters. Production based variable cam timing using OEM parts may be used. Only an unmodified reverse-rotation Garrett G25-550 turbocharger may be used. The hot side A/R ratio shall be 0.92 maximum. An approved containment shroud must be installed around turbocharger. An SFI 4.1 ballistic blanket is acceptable. The turbocharger boost pressure shall be regulated using an unmodified Tial 44mm wastegate fitted with a Tial supplied 0.4 bar (5.8 psi) spring. The wastegate shall discharge directly to atmosphere through a 1.75" dia. or larger dump tube. The compressor discharge to throttle body piping shall be fabricated from aluminum or stainless tubing and shall not utilize an intercooler. A vacuum actuated blow off valve is permitted.
- G. Lucas Oil Raceway reserves the right to adjust rules or disallow any engine for competition, which in its judgement does not meet the spirit and intent of competitive racing, in regard to cost and/or performance. Any engines not covered by the preceding specifications must be submitted for approval prior to entering a competition.

Fuel

- A. Pure Methanol is the only approved fuel. (NO ADDITIVES)
- B. All fuel is subject to testing at any time. Any fuel that does not conform to Lucas Oil Raceway standards, as administered at the track, will be considered illegal. The use of illegal fuel could result in disqualification from the event.

Ignition and Electronic Equipment

- A. All cars must be equipped with ignition switch or emergency shut-off located within easy reach of the driver.
- B. Electronically controlled fuel injection systems are not permitted. Exception is Esslinger EST sealed spec and Honda K24Z7 engine.
- C. Any ignition, other than magnetos, must be approved by Lucas Oil Raceway prior to their use in competition. It is the responsibility of the participant, not the manufacturer, to obtain proper approval.
 - a. Current list of approved electronic ignitions for national events:
 - i. MSD programmable 6214, EFI R1i (Red or gold), Electromotive, Magnetos, Electromotive on Esslinger EST.

- D. All Ignition units must have download cable on LH cockpit side attached to mid-rail by seat or front cage upright. Electromotive, magnetos and sealed Rhino excluded.
- E. Electronics that provide traction control are prohibited. All electronic components may be inspected, sealed or confiscated by Lucas Oil Raceway at any time.
- F. Electronic ignition systems may only be used to control and collect data for ignition; coil(s), trigger(s), spark curve(s), battery voltage, and maximum RPM limits. The electromotive ECU unit on Esslinger EST sealed spec engine in addition to above is permitted to control EFI (electronic fuel injection) with following sensors. TPS, fuel pressure, and MAP sensor.
- G. The use of electronic logic processors of any type to control any function of the race car and/or any system for gathering continuous data from any function of the race car is strictly prohibited for exception of ignition.
- H. Tachometer with water temperature and oil pressure collection capability are the only item approved for use to collect/record data other than electronic ignition system. Specific device approval is at the discretion of the chief steward.
- I. RPM limitation will be mandatory at all national events. Ignition to all cylinders must be cut at or before the predetermined limit as established in section Engine Size Limits/RPM Limits.

Safety Equipment

- A. Approved aluminum and composite seats may be used. No fiberglass. Seats must be mounted with a minimum of four bolts 5/16 diameter. Seats must be installed and used in accordance with manufacturer's instructions. Approved full containment seats are strongly recommended.
- B. It is mandatory that all cars have a headrest of high-impact, shock-absorbing material meeting SFI Specification 45.2 behind the driver's head with a minimum thickness of one (1) inch.
- C. Seat belts must meet SFI 16.5 or SFI 16.1, be within manufacturer expiration label. (must have label) Seat belts must be installed and used in accordance with manufacturer's instructions.
- D. Helmets – all participating drivers must wear safety helmets designed specifically for auto racing that meet or exceeds the SA 2010 or newer Snell Foundation or SFI Foundation 31.1 Specifications and are labeled as such. (Must be SA2015 or SA 2020 in 2022) and have confirmation sticker visible for inspection. Helmets will be subject to inspection at each event by the Technical and/or medical representative.
- E. Uniforms – all drivers must wear fire resistant underwear, socks, shoes, gloves and a one-piece uniform fitted snugly around the neck, wrists and ankles.
- F. Arm Restraints – Arm restraints are mandatory and must be worn at all times during competition.
- G. Roll Cage Nets – Roll cage nets are not required with full containment seats. If a car is not equipped with a full containment seat, the car is required to be fitted with roll cage nets on both the left and right sides of the roll cage. All roll cage nets must conform to SFI Specification 37.1, which specifies a functional quick release opening mechanism. Caution should be used when positioning head restraining nets to be certain that the driver's head cannot get under the net in case of an accident. The bottom of the roll cage net should be as close to the top of the shoulder as possible.
- H. An SFI approved head and neck restraint system is highly recommended.
- I. One-way radio/raceceiver mandatory.

- J. Wi-Fi, cellular, or satellite device (including cell phones and smart watches) in or attached to the race vehicle or the driver will not be permitted.
- K. All forms of vehicle position system (GPS) will not be permitted.