

2023 Open Wheel Showdown Midget Rule Book

2023 Rules and Regulations

Please make sure that every rule is read.

If you have any questions please feel free to contact us at openwheelshowdown@gmail.com

RULE BOOK DISCLAIMER:

These rules and/or regulations 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 all events, and by participating in these events, all participants are deemed to have complied with these rules. No expressed or implied warranty of safety shall result from the publication of or compliance with these rules and/or regulations. They are intended as a guide for the conduct of the sport and are in no way a guarantee against injury or death to a participant, spectator, or official. The Open Wheel Showdown Sprint Car Series will hereafter be referred to as OWS.

Conduct Policy:

1. General
 - a. All Competitors agree to act in a professional manner as determined by Open Wheel Showdown. The professional manner includes, but is not limited to verbal representation, written representation, any representation that may represent Open Wheel Showdown, the sport of racing and/or motorsports in general and/or any affiliates. All Competitors MUST conduct themselves in a manner not detrimental to Open Wheel Showdown the Event or Organizer.
 - b. Profanity in front of race fans, Officials, management, profane signs or writing on cars, etc., will not be tolerated and may subject the offending party to penalties.
 - c. Social Media content deemed detrimental to the Open Wheel Showdown Organizers, Officials, Events, Sponsors and Competitors will not be tolerated. Detrimental content will be subject to dismissal from the event or prevention of attending the event.
 - d. UNSPORTSMANLIKE CONDUCT AND/OR CONDUCT DETRIMENTAL TO THE SPORT OF AUTO RACING WILL NOT BE TOLERATED.
 - e. General appearance of Members and Competitors MUST be neat and clean looking.
 - f. No SPEEDING in the pits.
 - g. A competitor that stops his or her car on the track to argue or discuss an incident with the starter or other Officials will not be tolerated.
2. Abuse and Altercations
 - a. Verbal or physical abuse of Officials, including improper language or actions will result in sanctions from Open Wheel Showdown.
 - b. Fighting will not be tolerated. Drivers will be held responsible for the conduct of all persons connected with their car, and violations will be dealt with accordingly. Any person from a crew, including the driver, going to another pit area where any altercation erupts, will be considered at fault and will be subject to consequences.
 - c. A driver's pit is their domain.

d. Any driver who, in the judgment of Open Wheel Showdown Officials, engages in rough driving, deliberately running into, blocking or swerving in front of another car - may be subject to disqualification from the event. Any car intentionally blocking the track will subject the owner and driver to immediate and indefinite suspension from the event and future Open Wheel Showdown events.

Midget Car Rules

Cars – all phases of design and construction are subject to the approval of the Technical Director. The Race Director 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:

Car Construction/Body

1. All cars shall be rear drive only.
2. 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.
3. Engine inclination is limited to forty-five degrees from vertical as measured from the vertical centerline of the cylinder bore.
4. Only torque tube type drivelines, utilizing only one u-joint, will be allowed.
 - a. 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.
 - i. Torque tube hoop and/or strap highly recommended.
 - ii. A driveline containment system utilizing steel shield bolt to engine plate or containment blanket to cover torque ball and u-joint is highly recommended.
5. Radius rods may not be attached within the confines of the cockpit.
6. The driver shall be seated directly behind the engine.
7. Only standard type Midget Car bodies, tail tanks, and hoods will be permitted.
8. The front part of the body, known as the nose assembly, shall not be wider than the parallel lines of the body and may not exceed the width of the frame.
 - a. The nose assembly may not extend forward beyond the confines of the front bumper.
9. The engine must be covered with a cowling or hood secured in place.
 - a. The hood or cowling does not enclose the sides of the engine.
10. A forward-facing scoop, or ducting, supplying “forced air induction” to the injection inlets is not permitted.
 - a. 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.
11. Right-side cockpit body panels may be a maximum of thirty-six (36) inches high as measured from the bottom frame tube.
 - a. Opening must be 150 square inches and not distract drivers vision determined by Technical Director.
12. Left-side cockpit body panels may be a maximum of thirty-six (36) inches high as measured from the bottom frame tube.
 - a. Opening must be 150 square inches and not distract drivers vision determined by Technical Director.
13. Sun visors on the roll cage will be limited to eight (8) inches tall.
 - a. Visors that restrict the driver’s vision at the discretion of OWS officials will not be permitted.

- b. Sun visors must not extend forward more than seven (7) inches from the front of the forwardmost edge of the roll cage/halo tube and may not be wider than the width of the cage; sun visors must be flat on both sides.
 - c. For fan recognition, all teams are encouraged to place the drivers' names on their visors.
- 14. Only steel, aluminum, or carbon fiber floor/belly pan are permitted.
 - a. 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.
 - b. Horizontal panels may not extend below the plane of the floor/belly or fuel tank.
 - i. It is recommended that a fireproof absorbent pad be used under the engine.
- 15. An effective firewall must be installed between the engine compartment and the cockpit. It must be as leakproof as practical.
- 16. The motor plate may not be made from carbon fiber or any type of composite material.
- 17. Airfoils, wings, splitters, spoilers, or other aerodynamic appendages will not be permitted.
 - a. The Technical Director may have any panel or part removed which in their opinion is not within the spirit or intent of this rule.
- 18. One-Inch (1") turnout will be allowed on all body and sail panel edges.
- 19. All paneling including Floor Pans must not extend past the edge of frame rails more than the thickness of the material.
- 20. Rear-view mirrors are not permitted.

Roll Cage and Chassis

- 1. The frame and/or chassis must be constructed of 4130 normalized tubing.
- 2. All cars must have a roll cage that is integral to the frame and does not encroach upon an imaginary cylinder, 20 inches in diameter, extending through the top cockpit opening directly above the seat.
- 3. The roll cage should extend four inches above the driver's helmet when seated in a driving position.
- 4. 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.
- 5. No water or oil coolers are to be placed above or beside the cockpit opening.

Fuel System

- 1. A conventional tail tank, fuel cell, and fuel container must be carried on the centerline of the chassis and be located behind the driver.
 - a. All cars must be equipped with a fuel cell and tail tank meeting the requirements of SFI Specifications 28.2
- 2. All tail tanks must have a fuel bladder.
- 3. The minimum capacity of the tank must be 18 U.S. gallons.
- 4. All tanks must have a minimum of four mounts to the chassis.
- 5. 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.
- 6. The engine must be equipped with a fuel shut-off device located within easy reach of the driver and labeled On and Off.
- 7. 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.

Dimensions and Weight

1. Wheelbase – must be at least 66 inches and no more than 76 inches from the center of the rear axle to the center of the front axle.
2. Width – overall width will be a maximum of 65 inches measured from outside of tire to outside of tire.
3. The maximum rear wheel offset, from the center line, is three inches (6 inches overall) measured from the inside bead seat to the centerline of the rear end center section.
4. 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)
5. All cars must weigh a minimum of 1,085 lbs. including the driver.
6. Additional bolt-on weight must be mounted and fastened to the frame and/or chassis in a secure manner.
 - a. Weight must be mounted in an area between bottom frame rails, front and rear axles, and no higher than mid rails at the cockpit.
 - b. All weights must be mounted within the confines of the frame.
 - c. NO BALLAST/WEIGHT IN NERFS, BUMPERS, FRONT AXLE.

Bumper/Nerf Bars

1. The car must always be equipped with a rear bumper.
2. Front bumpers, rear bumpers, and nerf bars must be constructed of magnetic and or stainless-steel tubing with a minimum O.D. of 7/8 inch and a minimum wall thickness of .065 inch, and a maximum wall thickness of .120 inch.
 - a. No Titanium Nerf Bars or Bumpers are allowed.
 - b. A maximum of three horizontal and/or three vertical tubes are allowed in the construction of the nerf bars.
3. All cars must have a tubular front bumper extending forward no more than 21 inches from the leading edge of the front axle.
 - a. Bumpers must be constructed so as not to cause a safety hazard.
4. The right nerf bar cannot extend beyond the outside of the right rear tire.

Steering and Suspension

1. Removable steering wheels incorporating a quick-release mechanism conforming to SFI Specification 42.1 are mandatory.
 - a. Pip pin-type mechanisms are not allowed.
2. Welded aluminum or titanium suspension parts are prohibited except for the Jacobs ladder (Watts link)
3. Drag link straps are highly recommended.
4. 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).
 - a. For the avoidance of doubt, only one cockpit adjuster will be allowed in the cockpit for the suspension components.
 - i. 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).
 - ii. A brake bias adjuster does not count as a suspension adjuster.
5. No independent suspension.

Axles

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

Wheels & Tires

1. Bleeders are not permitted.
2. The number of allowable wheels is restricted to two (2) front wheels and two (2) rear wheels on each car.
3. The wheel diameter must be 13 inches.
4. The wheel width is limited to eight (8) inches for both front wheels and the left rear.
5. The right rear wheel may be a maximum of ten (10) inches in width for all entries with the following engine combinations: Esslinger BB7, TRD, Stanton SR-11/11x, Honda K-Series & Honda K24Z7 w/Turbocharger. The right rear wheel may be a maximum of twelve (12) inches in width for all entries with the following engine combinations: Fontana 174 CID & Fontana (Rhino) 200 CID Sealed, Gaerte 177 CID, Esslinger (161 CID) and Esslinger EST sealed spec engine.
6. Direct mount or spindle mount wheels are not allowed on the right front.
7. Splined front hubs/wheels will not be allowed.
8. The use of full-face brake scoops and/or wheel covers on the inside of wheels is not allowed.
9. All bolts are mandatory in bead lock and wheel centers.
10. The same right rear tire used in qualifications must be used to start the main event.
 - a. If the right rear tire is changed before the start of the main event the car must start at the back of the field.
11. If any tire is changed during the main event the car will incur a one (1) lap penalty except a tire that is flat when the car reaches the work area, in this event the car will restart at the tail of the field.
12. Any device(s) used for warming the tires before competition is prohibited.
13. Any solvents or chemicals applied to the tire that alters the chemical makeup of the compound or has the effect of altering the tire durometer is prohibited.

Throttle

1. Throttle toe straps are mandatory.
2. 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.
3. The throttle pedal must have a wide-open stop.

Brakes

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

Engine Size Limits/RPM Limits

1. Pushrod Type Engines

- a. Four cylinders 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 cylinders 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
2. 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.
3. Double Overhead Camshaft Type Engines
 - a. Honda K-Series four-cylinder in-line, water-cooled, four valves per cylinder, must use
4. Honda OEM cylinder block and cylinder head.
 - a. Maximum 154.6 CID (2533.5cc)
 - b. Maximum RPM 9600
 - c. Maximum Stroke 99 mm (3.898")
5. The preceding engine sizes are the maximum permitted. Five (5) percent clean-up is permitted.
6. 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...
7. 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. You 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 the 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 the 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.

8. OWS reserves the right to adjust rules or disallow any engine for competition, which in its judgment does not meet the spirit and intent of competitive racing, regarding cost and/or performance.
9. Any engines not covered by the preceding specifications must be submitted for approval before entering a competition.

Fuel

1. Pure Methanol is the only approved fuel.
 - a. No Additives
2. E85 may be approved in certain engine combinations. Approval from OWS officials must be obtained before the event.
3. All fuel is subject to testing at any time.
4. Any fuel that does not conform to OWS standards, as administered at the track, will be considered illegal.
 - a. The use of illegal fuel will result in disqualification from the event.

Ignition and Electronic Equipment

1. All cars must be equipped with an ignition switch or emergency shut-off located within easy reach of the driver and labeled On and Off
2. Electronically controlled fuel injection systems are not permitted.
 - a. Exception is Esslinger EST sealed spec and Honda K24Z7 engine.
3. Any ignition, other than magnetos, must be approved by OWS before their use in competition.
 - a. It is the responsibility of the participant, not the manufacturer, to obtain proper approval.
4. Current list of approved electronic ignitions:
 - a. MSD programmable 6214,
 - b. EFI R1i (Red or gold),
 - c. Electromotive,
 - d. Magnetos,
 - e. Electromotive on Esslinger EST.
5. All Ignition units must have a download cable on the LH cockpit side attached to the mid-rail by the seat or front cage upright.
 - a. Electromotive, magnetos, and sealed Rhino excluded.
6. Electronics that provide traction control are prohibited.
7. All electronic components may be inspected, sealed, or confiscated by OWS at any time.
8. 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.

9. The electromotive ECU unit on Esslinger EST sealed spec engine in addition to the above is permitted to control EFI (electronic fuel injection) with the following sensors.
 - a. TPS
 - b. Fuel pressure
 - c. MAP sensor
10. 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 with the exception of ignition.
11. Tachometers with water temperature and oil pressure collection capability are the only item approved for use to collect/record data other than an electronic ignition system. Specific device approval is at the discretion of the chief steward.
12. RPM limitation will be mandatory.
13. Ignition to all cylinders must be cut at or before the predetermined limit as established in the section: "Engine Size Limits/RPM Limits".

Safety Equipment

1. Approved aluminum and composite seats may be used.
 - a. No fiberglass.
2. Seats must be mounted with a minimum of four bolts 5/16 in diameter.
 - a. Seats must be installed and used following the manufacturer's instructions.
 - b. Approved full containment seats are strongly recommended.
3. 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.
4. Seat belts must meet SFI 16.5 or SFI 16.1 and be within the manufacturer's expiration label. (Must have a label)
5. Seat belts must be installed and used following the manufacturer's instructions.
6. Helmets – all participating drivers must wear safety helmets designed specifically for auto racing that meets or exceeds the SA 2015 or newer Snell Foundation or SFI Foundation 31.1 Specifications and are labeled as such. (Must be SA2015 or SA 2020) and have a confirmation sticker visible for inspection. Helmets will be subject to inspection at each event by the Technical and/or medical representative.
7. Uniforms – all drivers must wear fire-resistant underwear, socks, shoes, gloves, and a one-piece uniform fitted snugly around the neck, wrists, and ankles.
8. Arm Restraints – Arm restraints are mandatory and must be always worn during competition.
9. 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.
10. An SFI-approved head and neck restraint system is highly recommended.
11. One-way radio/raceceiver mandatory.
12. Wi-Fi, cellular, or satellite device (including cell phones and smart watches) in or attached to the
13. race vehicle or the driver will not be permitted.
14. All forms of vehicle position system (GPS) will not be permitted.

Mandatory items required include:

1. Fuel Bladder
2. Quick-release steering wheel
3. A dash or steering wheel mounted kill switch marked on and off is mandatory.
 - a. A throttle pedal kill switch is recommended to be installed and enabled in every car.
4. Nomex underwear must be worn when strapped in a racecar.
5. One-piece driving suit, with a minimum of two layers
6. Nomex gloves must be worn when strapped in a racecar.
7. All drivers MUST wear a full-face helmet with a MINIMUM safety rating of FIA 8859-2015, FIA 8860-2018, Snell SA2020, Snell EA2016, Snell SA2015.
8. Head and neck restraints must be used. The head and neck restraint MUST be SFI 38.1 approved and display a legible and valid SFI 38.1 label. Per SFI 38.1 head and neck devices should be recertified every 5 years, this will become mandatory in the near future.
9. A full containment seat with reinforcement around head and shoulder restraint sections is MANDATORY.
10. Five-point harness seat belts must be installed in the race car. Each car MUST be equipped with a minimum of an SFI 16.1, SFI 16.5, or SFI 16.6 approved restraint system. The restraint system will be eligible for use in competition until the expiration date or for 2 years from the date of manufacture. Seat belt restraint systems shall be installed and used in accordance with the manufacturer's instructions. Shoulder belts, lap belts, and crotch belts must be mounted to the frame of the race car.
11. One-way radios that enable the driver to hear the OWS officials must be used in all race cars. The Primary radio frequency is 454.000.
12. Roll bar padding and Side Head nets are highly recommended.
13. All competitors must reduce their speed to idle when entering the pit road.
14. Speeding in the pits will result in disqualification from the event.