POWRi IMRA Midget Specifications

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Design & Construction

a. All phases of design and construction are subject to the approval of the Technical Director. The Series Director and the Technical Director may exclude any car, design, or construction, which they deem unsafe or not meeting the specifications, the spirit and/or the intentions of the rules contained herein.

Engine Size Limits

a. All engines must be inline, normally aspirated, internal combustion, four-cycle, reciprocating piston type, Incorporating a maximum of four (4) cylinders and a maximum of four (4) valves per cylinder. Engines must be a production engine from a passenger vehicle and reasonably available in the United States.
b. No engines may be used by passenger vehicles that have not been sold by an officially authorized manufacturer dealership.
c. All engines are allowed a maximum displacement of 148.820 CID.
d. All engines must use an OEM block, OEM cylinder head, and OEM crankshaft combination from the same manufacturer.
e. Lightening the engine block or cylinder head is limited to removing material for the purpose of fitting the engine into the chassis. Removal or addition of material to improve oiling or cooling will be permitted.
f. Lightening of the crankshaft, beyond minimal material removal for balancing, is PROHIBITED. Offset grinding of the crankshaft journals is PROHIBITED. Gears may be removed.
g. Titanium and aluminum connecting rods are PROHIBITED.
h. Titanium valves and valve springs are PROHIBITED.
i. Cylinder head ports MUST remain stock as cast. No alterations from original OEM specifications are allowed.
j. Operational variable valve timing (VVT) is PROHIBITED

Fuel & Fuel Systems

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 standards, as administered at the track, will be considered illegal. The use of illegal fuel could result in disqualification for the event and/or the entire program.
c. A conventional tail tank, fuel cell and the 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 and SFI Specifications 28.2
d. Fuel tanks must be constructed and supported in a manner that will ensure every possible precaution has been taken to avoid rupture or breakage.
e. Electronically controlled or mechanical fuel injection systems are permitted.

Exhaust, Muffler, & Sound Reduction Devices

a. Exhaust systems must be designed to create a minimum fire hazard and a minimum hazard to other competitors. Cars having exhaust pipes passing the cockpit near the Driver must have raised metal pipes adjacent to the cockpit to afford protection to the Drivers and Mechanics.
b. The car may be required to have a muffler if local conditions warrant. If so, this will be properly communicated to all competitors and teams. The technical director may disallow a muffler that in their opinion is not within the spirit or intent of this rule.

Traction Control Devices

a. Traction control devices of any type are not permitted at any time, during any event.
b. Any team found with a traction control device in pre- and/or post-race inspection shall be subject to fines and/or suspensions, left at the discretion of the series and technical directors.
c. From time-to-time random inspections will occur and various components may be impounded for further analysis and inspection including, but not limited to ignition systems, ignition boxes, wiring looms and/or tachometers.

Roll Cage

a. All cars must be equipped with a roll cage that cannot encroach upon the imaginary cylinder extending upward from the cockpit opening. The roll cage must be secured and attached to a strong component of the car and adequately braced fore and aft to secure in an upright position. The roll cage should extend 2” above the top of the Driver’s helmet when the Driver is sitting in an upright 5 position. It is recommended that on all new cars, the roll cage should extend 4” above the top of the Driver’s helmet. The normal height is 36” measured on a line equivalent to the Driver’s spine when seated in the car. All cars constructed after January 1, 1997, should have roll cages and uprights constructed of 4130 1-3/8” 0.095 minimum specifications. All roll bars and/or cages must be designed to permit the lifting of the car in case of an accident. SFI roll cage padding is highly recommended.

Dimensions & Weight

a. The wheelbase must be at least 66 inches and no more than 76 inches.
b. All cars must weigh a minimum of 1,100 pounds, including the driver.
c. 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 the cockpit. All weight must be mounted within the confines of the frame. NO BALLAST/WEIGHT IN NERFS, BUMPERS, FRONT AXLE.

Car Construction & Body

a. Only standard type Midget Car bodies, tail tanks and hoods will be permitted.

b. 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. The nose assembly may not extend forward beyond the confines of the front bumper.
c. Any item added to resemble imitate and/or specifically designed to deflect, trap and/or form a pattern for air to travel in a directed manner, except for those used to cool and/or protect engine and brake system will not be permitted.
d. 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.
e. A forward-facing scoop, or ducting, supplying “forced air induction” to the injection inlets is not permitted.
f. Any wicker or turnout may not extend past the frame rail vertical of downtubes or cage, rearward of back of cage, or below bottom of lower frame rails.
g. Right side cockpit body panels may be a maximum of thirty-six (36) inches high as measured from the bottom of the bottom frame rail. The opening must be 150 square inches and not distract drivers' vision determined by the Series Director. The right-side panel cannot extend out any further than four (4”) inches. This includes turnouts from the frame uprights (cage post).
h. Left side cockpit body panels may be a maximum of thirty-four (34) inches high as measured from the bottom of the bottom frame rail. Opening must be at least ten (10) inches vertically and twenty (20) inches horizontally, and not distract drivers' vision determined by the Series Director.
i. Side visors on the roll cage will be limited to eight (8) inches tall. Visors that restrict driver’s vision at the discretion of officials will not be permitted.
j. 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.
k. Panels attached to nerf bars will not be permitted.
l. An effective firewall must be installed between the engine compartment and the cockpit. It must be as leak proof as practical.
m. The motor plate may not be made from carbon fiber, or any type of composite materials.
n. Airfoils, wings, spoilers, or other aerodynamic appendages will not be permitted. The Series Director or Technical Director may have any panel or part removed which in their opinion is not within the spirit or intent of this rule.
o. All paneling must not extend past the edge of frame rails more than thickness of material.
p. One (1”) inch turnout allowed on all body and sail panel edges, except sun visor.
q. With the exception of suspension components, induction and/or exhaust systems and nerf bars, no accessory or component of the car may extend more than 6 inches from the main frame tubes. Cylindrical oil tanks mounted outside the frame, behind the engine must be mounted as close to the frame as practical.
r. Rear view mirrors are not permitted.

Bumpers & 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 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.
e. With the exception of the exhaust system, no components or accessories may be attached to the nerf bar assembly.

Steering & 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. All highly stressed steering parts must be made of SAE 4130 steel or an alloy, specified by the manufacturer of the alloy as equivalent in physical properties. All such parts must be heat treated (including stress relieving, normalizing, annealing, and hardening when applicable) after forming and/or welding as recommended by the manufacturer of the alloy being used.
c. Parts may not be joined by brazing, soldering, or by dissimilar metals.
d. All steering parts that are electroplated should be oven-baked at a temperature of 375 degrees Fahrenheit, plus or minus 25 degrees, for a period of not less than 3 hours after plating.
e. Shot pining is recommended for all highly stressed parts. Authorized facilities should be used.

Axles

a. The car’s axles connecting the wheels must be of one-piece tubular construction without the capability of camber or independent castor adjustment to the wheel assembly. Offset kingpin bushings are allowed on the front axle.
b. Any other construction will be considered as independent suspension.
c. 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

a. The number of allowable wheels is restricted to two (2) front wheels and two (2) rear wheels on each car.
b. The wheel diameter must be 13 inches.
c. The wheel width is limited to eight (8) inches for both front wheels and the left rear.
d. The right rear wheel may be a maximum of ten (10) inches in width.
e. An approved tire bead locking device must be used on the outer bead seat of the right rear tire and wheel assembly.
f. The use of full-face brake scoops and/or wheel covers on the inside of wheels is not allowed.
g. All bolts are mandatory in bead lock and wheel centers.

h. Digital bleeders are allowed. Air may not be introduced to the tire. Bleeders may not be controlled remotely.
i. Any wheel cover dislodging under racing conditions will be subject to a fine. Wheel cover must utilize 3 bolts.

Tires

a. Hoosier Tires are required on all four corners; the right rear must be an SP3. Left rear must be a D-12 or harder.
b. Tire Prep
    i. The altering of any tire compound, by any means will not be permitted. Chemical alteration of the tread carcass and/or tread compound, such as tire 'soaking' and/or the introduction of tread 'softener' and/or physical defacement (removal, altering and/or covering) of tire sidewall markings in any manner will not be permitted. If any competitor is found to have altered their tire(s), they will be fined one thousand dollars ($1,000.00) and will be suspended from the next two (2) completed events.
    ii. Any tire may be inspected and/or analyzed for alteration at any time. This will consist of a process as determined by the independent laboratory that performs the analysis. The analysis process will require a sample shipment of the tire to the selected laboratory.
    iii. Additional race event(s) may be completed before a determination is made. If a penalty is issued, the event(s) that fell into the analysis time period while the tire(s) were being analyzed will be considered as part of the penalty time period.
    iv. Money won in an event may be held until the final determination is made by the independent laboratory.

Clutch

a. Clutch must be rendered inoperative but can be left on the car.

Brakes

a. No electronic controlled brake bias adjuster. (Manual adjustment only)
b. Master cylinders not fixed to the frame must have flexible lines.
c. Carbon fiber or carbon composite brake discs or components are not allowed.
d. If at any time during competition it becomes evident that a car is without brakes, the necessary repairs must be completed before the car can continue in competition.

Ignition & Electronic Equipment

a. The kill switch must work and be within easy reach to the Driver.
b. The use of electronic logic processors to record continuous data from the race car is limited to functions of approved ignition systems and wireless systems housed in a single unit, independent of any other device, and unable to transmit to or from any other device while on-track. All

electronic logic processors, connectors, and com ports must remain as supplied by the manufacturer.

c. Approved electronic ignition and fuel delivery systems: MSD 6214 Midget, Performance Electronics PE3-IG2, Electromotive XDI, TECs, and TECs200, EFI Technology R1i, and the Microsquirt AMP'd & V-3.0. The Fuel Tech FT450 v5.02 and the Link G4X AtomX will be on a one-year trial basis for 2025. The Electromotive XDI, TECs, and TECs200, will be outlawed AFTER the 2027 season. Approved electronic systems are limited to functions as supplied by the manufacturer. No modifications to the ECU case or connectors.
d. The following sensors are the only sensors permitted: crankshaft position, camshaft position, water temperature, oil pressure, tachometer, wide or narrow band air-fuel ratio meter, throttle position (TPS), fuel pressure, and manifold absolute pressure (MAP) sensors.

Car Appearance

a. All cars must pass a technical inspection by the Series Director before being allowed to race.
b. Car numbers must be displayed in three (3) areas one (1) each side of the tail and one (1) on the front section of the hood.
c. After a number is assigned to a particular car and owner, it will remain with the owner until the end of the racing season.

Electronics

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

Miscellaneous

a. The use of in-car radio transmitting devices is prohibited.
b. Only one-way communication from POWRi Race Control will be allowed and is mandatory.
    i. Frequency: 464.5500
c. Any part that may appear illegal is subject to confiscation at any time without notice for evaluation. If deemed necessary by series officials, any confiscated part may not be returned.

Disclaimer

a. Unlisted specifications and guidelines will fall under those of the POWRi National and West Midgets at the discretion of the Series and/or Technical Director.

Addendum for Chain Drive Cars

a. All chain-driven cars must weigh a minimum of 950 lbs., including the driver, and run on ALCOHOL.
b. All production motorcycle engines must use the original manufacturer's OEM 1003cc. engine crankcase, cylinder jugs and/or engine block, OEM cylinder head, and OEM crankshaft. Crankcase, cylinder jugs and/or engine blocks, cylinder heads, and crankshafts must be from the same manufacturer.
c. Cylinder head ports must remain stock as cast. Porting the cylinder head including intake matching is NOT permitted. Machining, grinding, sanding, etching of any kind of the intake or exhaust ports is STRICTLY PROHIBITED. No altering of the shape and/or size of the intake or exhaust ports from the original manufacturer specifications.
d. Lightening the engine block or cylinder head is limited to removing material for the express purpose of fitting the engine into the chassis.
e. Lightening of the crankshaft beyond minimal material removal for balancing is NOT permitted.
f. Welding on the cylinder head beneath the valve cover or inside the ports is NOT permitted.
g. No titanium connecting rods allowed.
h. The transmission must be in stock configuration. The engine must be able to be turned over in and shifted through all gears. All production motorcycle engines must have a clutch in place, and it must be operational. The clutch basket and clutch spring tension can be changed
i. Variable valve timing is NOT permitted.
j. Ignition Systems must be one of the following ignition/ECU systems Stock OEM (flashing allowed), Dynojet Power Commander, Odum Specialties IG, or Dyna 2000.
k. Cars utilizing a chain-driven rear axle must have the engine sit directly in front of the driver. The engine may be offset to a maximum of six (6) inches as measured from the center of the engine to the center of the chassis.
l. Chains must be located within the frame rails. Chain guards must be designed in a manner to completely shield and protect the driver and fuel tank from the chain. The chain guard must be made out of stainless, mild steel, or aluminum.
m. Chain guards must extend from the firewall to the rear of the sprocket on top and from the top of the chain to the floor pan. The guard must also extend from the firewall to the back of the seat on the side of the driver. Chain guards must be designed to not allow chains to damage or puncture the fuel tank in the event they become loose from the sprocket or engine.
n. nMain uprights forming the roll cage must be a minimum of 1 3/8 inches O.D. x.095 wall thickness 4130 normalized tubing.
o. A conventional tail tank, fuel cell, and fuel containment must be carried on the centerline of the chassis and be located behind the driver. All cars must be equipped with a fuel tank meeting SFI Specification 28.2.
p. If there is any question on a rule, the Midget rule book will take precedence, i.e. wheels, overall width, fuel.