

2024 New London-Waterford Speedbowl X-Car Rules

Last Updated: 1/15/24

1) Introduction:

Interpretations of the rules contained herein will be the sole responsibility of authorized officials of New London-Waterford Speedbowl. Their interpretations and judgments shall be final.

All equipment is subject to the approval of the New London-Waterford Speedbowl Officials.

It is the competitor's responsibility to become familiar with the X-Car Division Rules and the New London-Waterford Speedbowl General Rules.

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2) Driver Eligibility:

Drivers 16 years old and up are eligible to compete in the New London-Waterford Speedbowl X-Car division. In order to participate in any on-track activity all cars must complete a technical & safety inspection and all drivers must be signed in with all completed paperwork on file. This includes Driver Registration Form and Number Registration Form. By registering as an owner or driver you agree to be knowledgeable and bound by the contents found in these rules and in the New London-Waterford Speedbowl General Rules.

3) Safety:

Racing Seat

An aftermarket, aluminum fabricated racing seat, sized correctly for the driver, must be used. See General Rules for detailed requirements.

Seat Belts

A minimum 5-point safety harness is mandatory. Belts must be SFI rated and dated no older than 3 years from the date of manufacture. See General Rules for detailed requirements.

Window Net

A commercially manufactured, SFI rated, nylon window net must be installed in the driver's side door window opening **and dated no older than 3 years from the date of manufacture.** See General Rules for detailed requirements.

Fire Suppression

A fire extinguisher or fire bottle suppression system securely mounted in the car is mandatory. See General Rules for detailed requirements.

Safety Gear

A double-layered, full fire suit made of Nomex material is mandatory. SFI rated gloves and shoes are mandatory. Full-face SA2005 rated or newer helmets are mandatory. A head and neck restraint system (Ex: HANS, Hutchens, or similar) is mandatory. See General Rules for detailed requirements.

4) Transponders & Radios:

All cars must have functional transponders in order to participate in any on-track activity (see Figure 1 for mounting location).

Two-way radios are not permitted. Drivers must monitor the race control frequency (464.5000) through the use of a radio scanning device and comply with all requests from race control.

One (1) rear view mirror mounted at the top of the windshield is permitted. Maximum mirror size is 14" X 2". One 1-3" spot mirror is permitted.

5) Technical Rules:

In the following rules you will see the term "stock OEM" used. This means "original equipment manufacturer". These parts must come on a standard production car.

No carbon fiber or titanium parts allowed. None of the following will be allowed in or on any engine or driveline component or part: abrasive cleaning, acid dipping, chemical milling, coating, epoxying, finishing, grinding, painting, plating, polishing, porting, etc.

Outlook Notes:

Coil Springs

2024: The allowance of racing type springs to be investigated.

Tires

2024: Federal tires will not be permitted. Other options to be investigated.

6) Approved Models:

Open to most 4 cylinder front wheel drive cars. No rear wheel drive vehicles allowed. Additional vehicles not eligible for competition are: Mitsubishi MIVEC, Toyota VVTL, Porsche VarioCamPlus, Nissan VVL, Ford SVT, Mid-engine or rear engine cars, rotary engine cars, all-wheel drive cars, turbo/supercharged cars, cars with 4 wheel or all-wheel steering.

Only cars determined to meet the applicable specifications are eligible to compete in the X-Car division. If a car does not fit into the listed guidelines it is the competitor's responsibility to contact New London-Waterford Speedbowl officials to find out if a vehicle is eligible for competition.

7) Body, Appearance:

The Vehicle Identification Number (VIN) of the car being used must be on the dashboard and clearly visible. Any VIN that appears to be tampered with will be reviewed and penalties may occur including a car being declared ineligible to compete.

The car body must be stock OEM and retain all factory listed dimensions, lines, and angles. All body mounts must be in stock location and OEM dimension. All body panels, except the driver's side door, must have all of the interior panels left intact. Cars that have any gutting done to any panels other than the driver's side door and areas required for roll cage installation may be assessed a weight penalty.

Exterior

All bolt-on components and trim must be removed. Wheel openings may be trimmed for tire clearance. Nerf bars are not permitted.

Sun/moon roofs must be completely covered and welded with minimum 24 gauge (.024") magnetic sheet steel.

Windows

All factory stock OEM glass must be removed. The glass windshield must be replaced with 1/8" thick, clear polycarbonate. The windshield must be bolted or riveted along all four sides and supported in the center, top to bottom, and braced to the windshield bar. Rear windows are not permitted. Quarter windows must be clear polycarbonate material.

Bumpers

The factory stock OEM bumpers made for the car or a constructed front and rear bumper using 1-3/4" .095 round tubing may be used. Fabricated bumpers must follow the contour of the bumper cover and be firmly attached using two round head bolts on each tube. Bumpers must be a double (stacked) round tube across the entire width of the front of the car. Bumpers must be securely and mechanically fastened. Excessive bracing/reinforcing of the bumpers is not permitted.

Interior

All bolt-on components and flammable material must be removed. The left interior door steel support panel may be removed.

Firewalls

The front firewall must completely seal the driver's compartment from the engine compartment. The rear firewall must completely seal the driver's compartment from the fuel cell/trunk area. All holes in either firewall must be suitably covered with a minimum of .024" (24 ga) magnetic steel sheet.

8) Weight:

All specified weight requirements are driver included. Car horsepower and minimum weight must be labeled on the right A-pillar of the car.

Base minimum weight is 2,250 lbs.

The below chart shows the total minimum weight for each car (with driver) determined by the advertised horsepower for the engine code on the VIN number:

<125 horsepower	2,250
125-134 horsepower	2,280 lbs
135-144 horsepower	2,320 lbs
145-154 horsepower	2,360 lbs
155-164 horsepower	2,400 lbs
165-174 horsepower	2,450 lbs
175-184 horsepower	2,500 lbs
185-194 horsepower	2,550 lbs
195-204 horsepower	2,600 lbs
205-214 horsepower	2,650 lbs
>215 horsepower	2,700 lbs

The maximum left side is 53.0% of the total weight.

25 lbs of additional total weight will be required after a competitor's second feature win. An additional 25 lbs will be added for each feature win thereafter. Each time a competitor refuses pre- or post-race tech a 100 lbs weight penalty and a loss of handicap for the next two attended events will be assessed.

Any car found to be under the minimum overall car weight allowance will be penalized one position for every pound under the minimum total weight.

All penalty and competitive dominance weight must be mounted in minimum of 25 lbs. blocks, securely mounted in a position designated by New London-Waterford Speedbowl Officials. Added weight must be positioned halfway between the front and rear axles. If the weight is bolted to the sheet metal part of the floor then minimum 3" x 3" x 1/4" plates must be used as backing washers. **No lead or ballast weight is permitted on the rear axle. All lead mounting must meet officials approval.**

Weights may be adjusted for safety and/or competitive dominance at the discretion of the New London-Waterford Speedbowl Officials.

All ballast weight must be magnetic steel or lead only, in block form, weighing no less than 5 lbs per block. Pellet weight is not permitted. Weight must be welded in a box or attached with (2) or more 7/16" minimum diameter, grade-8 bolts and locking nuts. Added weight may be mounted under the car, securely bolted or welded as high as possible, and painted white with the car number labeled in black. No added weight will be permitted inside the driver's compartment.

9) Frame & Chassis:

Roll Cage

1-3/4 diameter x .095 HREW or DOM steel tubing is mandatory for all roll cage bars. A magnetic steel anti-intrusion plate made from a minimum thickness of .080 must be securely welded to the outside of the left side door bars. All cars must have a foot protection bar located at or in front of the pedal assembly. All roll cage, foot protection bar, and anti-intrusion plate joints must be suitably and appropriately welded by competent craftsmen. See General Rules for roll cage, foot protection bar, and anti-intrusion plate detailed requirements.

If the vehicle does not have a frame to attach the roll cage to then 2" x 3" rectangular tubing extending as far forward and rearward as possible inside the passenger's compartment may be used. All bars must land inside the driver's compartment. Roll bars must not extend forward or rearward from the front and rear firewalls.

Commercially manufactured roll bar padding must be used on all bars within driver's reach.

10) Ground Clearance:

Minimum ground clearance for chassis, body, and nose piece is 4-1/2" (driver included).

12) Wheelbase:

Factory stock OEM wheelbase must be maintained (+/- 1/2").

13) Suspension:

All the front & rear suspension components must be the unmodified, stock OEM components per VIN code. All mounting holes, locations, and hardware must remain stock OEM. Hard bushings or unapproved poly type bushings are not permitted.

The only modifications of the suspension allowed are the strut towers may be slotted and the rear toe adjusters may be altered. The upper A-frame bolts may be replaced to allow caster/camber adjustments. The maximum camber allowance is +/-6 degrees front and +/-3 degrees rear. The maximum rear toe allowance is +/- 1/2".

Coil Springs

Springs must fit in the stock OEM spring pockets. Springs from side to side must be identical in diameter, material thickness, number of coils, and be within 1/2" in free height. One spring rubber per spring is allowed and must be fully encased between the coils of the spring. No rubbers, insulators, etc. are allowed on the tops or bottoms of the springs. A single, 1" maximum, fabricated steel spring spacer is permitted at each coil spring to assist with achieving the minimum frame/chassis height.

Leaf Springs

Springs must fit in the stock location and use stock mounting hardware. Springs must be identical from side to side.

Torsion Bars

Torsion bars must fit into stock locations and use stock mounting hardware. Bars must be identical from side to side.

Shocks

All shocks must be unmodified, stock OEM or direct replacement. Racing or adjustable shocks are not permitted. The shocks must match from side to side. All mounting holes, locations, and hardware must remain stock OEM.

Sway Bar

Must be stock OEM for the car being used. Maximum front sway bar diameter is 1-1/4". A rear sway bar is permitted if the competing car was originally equipped with one. Stock sway bar links must be used, no adjustable links.

14) Steering:

Steering box/rack, power steering pump and reservoir, pitman arm, center link, idler arm, tie-rods and sleeves must be the unmodified, stock OEM components per VIN code. All mounting holes, locations, and hardware must remain stock OEM.

15) Brakes:

The fully operational stock OEM 4-wheel hydraulic disc/drum brake system must be used. All brake components must be stock OEM mounted in their stock OEM location. No brake components may be altered for weight reduction.

16) Wheels:

The stock OEM steel wheels or equivalent aftermarket steel wheels may be used. Wheels must be steel, 13" or 14" diameter, and a maximum of 7" wide. All four wheels must be the same width and backspace. Minimum 2.5" backspace allowed. The tires cannot extend outward beyond the fenders and quarter panels. The shape of the fenders and quarter panels may not

be altered to meet this rule. If the tires stick out beyond the fenders or quarter panels a 100 lbs weight penalty may be assessed.

17) Tires:

Any DOT street legal, 60 series or numerically higher "H" rated (or less) with a UTOGwear rating of 350 or higher may be run. Radial tires only, no racing, bias-ply, or tube type tires allowed. All four tires must match in tire manufacture size.

Legend Car Tire Option

The tires must be sets of 4 "INEX" marked Federal tires as delivered by U.S. Legend Cars International. Federal Tires must be mounted and used in the direction indicated on the sidewall. Tires may not be soaked, softened, siped (razor cuts), needled, grooved, or recapped. If any federal tire is softer than 58 points on the New London-Waterford Speedbowl inspector's durometer the driver will face penalties. When the tire corner/sidewall wears into the two triangle indicators in a row between the tread and Federal striped band around the sidewall or the tire shows cords (belts) at any point on the tire, that tire will be confiscated and destroyed by the technical inspector. If the wear bar is cut out or tampered with that tire shall be destroyed.

For 2024, an alternative to the Legend Car Tire Option is being explored and will be made available to teams before the start of the 2024 season.

18) Engine:

The engine and all of its components must remain unmodified and completely stock OEM per VIN code. The engine must be the one that either comes with, or is available in, that vehicle's year, make, and model. Modifications or machining to any part of the engine or its components is not permitted. The only acceptable work allowed is standard overhauling, including rings, bearings, and other parts without milling and over-boring, etc.

The block, rotating assembly, cylinder head, carburetor or injection system, camshafts and valve train, and intake manifold must remain unmodified and completely stock OEM. The stock OEM compression ratio must be maintained for the car make/model/year.

The pulleys, oil pan, valve covers, and timing cover must remain unmodified and completely stock OEM for the engine/car. The use of poly type engine mounts is acceptable.

Fuel injectors will be inspected and must match factory stock OEM for the make/model car.

Air Filter/Housing

The stock OEM air filter housing with a paper filter must be used. An aftermarket cold air box is permitted. Maximum price for the filter and all components is \$75.00. No other aftermarket components are allowed. Air boxes located behind the engine in its stock location may be relocated within the engine compartment, however, no added duct work will be permitted for that air intake system.

19) Cooling System;

Water pump and fan must be completely stock OEM for the engine per VIN code. The radiator must be stock OEM for the car or may be an aftermarket racing type radiator that mounts in the stock location. Water and "water wetter" brand additives are the only coolants allowed. A one gallon overflow can mounted under the hood must be used.

20) Electrical:

The alternator, starter, ignition system, computer chip, and engine management controls must remain unmodified and completely stock OEM per VIN code. All electrical switches must be located on the dash panel or within easy reach of the driver.

Battery

A master battery switch must be installed within reach of the driver and clearly marked "ON" & "OFF". The battery may either be placed in the stock location or be moved behind the driver's seat. If placed behind the driver the battery must be encased in a metal or plastic box and secured appropriately. The battery must be completely sealed from the driver's compartment. Gel Batteries are permitted and recommended.

21) Exhaust:

The unmodified, stock OEM cast exhaust manifold must be used. OEM factory headers will be allowed. Aftermarket headers are not allowed. All headers must be a direct fit factory replacement. The stock OEM exhaust pipe must be used back to the muffler. An unmodified Lobak #RCM-25-12-25, or Moroso #94050, **Dynomax (Part# 24215), or Summit (Part# SUM-630853)** muffler must be used. Exhaust system must extend rearward past the driver and exit towards the ground at a 90-degree angle. The mufflers must be installed so they are removable for tech inspection processes. The life expectancy for all mufflers is (2) years. Race teams are responsible for the condition of their mufflers. Mufflers found to have deteriorated baffles due to rust/rot will be treated the same as if modified.

22) Fuel System:

Fuel Pump

The stock OEM electric or mechanical fuel pump must be used. All electric fuel pumps must be wired through the oil pressure switch so when the engine stops running the fuel pump stops running.

Fuel Shut-off Valve

A ¼ turn fuel shutoff valve is required in the fuel line with ON and OFF positions clearly labeled. The valve must be open when the handle is aiming front to back and must be closed when the handle is aiming left to right. Fuel shut-off valves must be on the passenger's side and easily accessible to emergency workers.

Fuel Specifications

Pump gasoline must be used, no racing fuel. The use of additives, catalysts, or fuel-altering devices are not permitted. Nothing may be placed in the fuel line except a standard fuel filter. Only one fuel line is permitted from fuel cell to fuel pump and one fuel line permitted from fuel pump to carb/injection unit. The fuel line can be no larger than 1/2" ID. The fuel line from the cell to pump must remain under the floor of the car. Icing or cooling of the fuel system is not permitted.

Fuel Cell

The fuel cell and fuel cell container must be installed as far forward as possible, centered in the chassis, behind the rear wheel centerline. The floor of the trunk must be removed in the area directly below the fuel cell to allow any spilled fuel to escape the car. The area being removed can be no larger than the fuel cell itself.

The use of a commercially manufactured fuel cell is mandatory. The maximum fuel cell capacity, including the filler spout and overflow, is 16 gallons. Fuel cell vent check valves are mandatory. A 1" maximum ID vent to the outside of the body at the left rear corner must be used. Fuel cell must be mounted using 1" x 1" x 0.083" square tubing. See General Rules for detailed requirements. Fuel cell containers are mandatory and must be made of 22-gauge (0.031") magnetic steel. Gas caps must be tethered and be identified with the car number (XX) and division (XC). **Fuel Cell MUST vent out the rear of the tail panel.**

23) Drivetrain:

The driveline and all of its components must remain unmodified and completely stock OEM per VIN code. The driveline unit must be an "open", "single leg" unit, allowing only one wheel to drive the vehicle. Modifications or machining to any part of the driveline or its components are not permitted. The only acceptable work allowed is normal rear end, transaxle, transmission, driveshaft and CVJ rebuilding. Transmissions must remain unmodified and stock OEM per VIN. All clutch, pressure plate, and flywheel components must remain unmodified and stock OEM per VIN. The use of poly type transmission mounts are permitted.

24) Figures:

Figure 1:

