

2023 New London-Waterford Speedbowl Super X-Car Rules

Last Updated: **1/26/2023**

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 Super 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 Super 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. 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 10" X 2". One 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.

6) Approved Models:

Open to most American or Metric, 6 or 8 cylinder, 2 or 4-door, front or rear wheel drive cars.

Vehicles NOT eligible for competition include: Taxi cabs (including any heavy duty chassis vehicle), limousines (including any extended wheelbase vehicle), mid-engine or rear-engine cars, El Caminos, performance Trans-Ams or Camaros, 5.0 Mustang GTs, trucks & vans, Corvettes, all wheel drive cars, turbo/supercharged cars, sports cars such as, but not limited to: Alfa Romeo, BMW, Mercedes.

7) Body, Appearance:

All body panels, except those listed, must have all interior panels left intact. The only body parts that may be gutted are the hood, roof, trunk lid, area directly around the fuel cell, front fenders, and door panels. Cars that have gutting done beyond the listed panels and areas required for

roll cage installation may be assessed a weight penalty and/or required to make appropriate modifications as requested by New London-Waterford Speedbowl Officials.

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 dimensions. "Slab Sided" bodies are not permitted, the car must resemble factory appearance. All exterior bolt-on components and trim must be removed.

Bodies may be fabricated out of a minimum .024"/24-gauge magnetic sheet metal. Doors may be "skinned" starting 1" below the window opening. Rear quarter panels may be "skinned" starting 1" below the horizontal plane of the top of the quarter panel. Front fenders may be "skinned" starting 1" below the horizontal plane of the top of the fender or may be replaced with any commercially available steel fender.

Wheel openings may be trimmed for tire clearance. If the rear wheel wells have been removed they must be fabricated to resemble the stock ones.

Windows

All factory stock OEM glass must be removed. A full windshield made of polycarbonate material ($\frac{1}{8}$ " minimum thickness) is required. Windshield must be supported in center top to bottom and braced to the windshield bar. Side windows, quarter windows, and rear windows are not permitted.

Bumpers

The factory stock OEM bumper or an aftermarket tube bumper must be used. The front and rear bumpers must be securely mounted. Bumpers and bumper mounts may not be reinforced. Aftermarket poly bumper covers may be used but must match the body being used.

Interior

All bolt-on components and flammable material must be removed.

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-gauge magnetic steel sheet.

8) Weight:

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

The minimum total weight is 3,100 lbs.

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

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 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:

The frame and all its components must be stock OEM for the competing make/model car. The frame must retain all factory listed dimensions, lines, and angles. 2" x 3" x .125" wall rectangular steel tubing may be used to replace the frame rails from the aft side of the rear shock mounts to the rear bumper. The steel tubing may run straight back, angled downward, and be at the stock OEM bumper height at the ends. 2" x 3" tubing across the back of the rails, left to right, for fuel cell protection may also be used.

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.

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 5-1/2" (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 for the car being used.

A-Frames

Must be the unmodified, stock OEM components that came on the car. All mounting holes, locations, and hardware must remain stock OEM. Poly bushings are permitted. Offset bushings

are not permitted. Offset upper A-frame cross shafts are permitted. Upper a-frame bolts may be replaced to allow camber/caster adjustments.

Coil Springs

Springs must fit in the stock OEM spring pockets. Springs must be the same diameter and material thickness from side to side and must be within 1/2" in free height from side to side. 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 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. Bilstein or KYB Gas-a-Just shocks are not permitted. 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. Passenger's side sway bar link must be OEM equivalent, driver's side link may be adjustable.

Spindles/Hubs

Must be the unmodified, stock OEM components that came on the car. Spindle savers are permitted. The Coleman Heavy Duty Aftermarket Steel Hub and Rotor Assembly is permitted.

Trailing Arms

Must be the unmodified, stock OEM components that came on the car. All mounting holes, locations, and hardware must remain stock OEM. Poly bushings are permitted. Offset bushings are not permitted.

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 that came on the car. Idler arm mounting holes may be enlarged for bump steer correction. All other 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. Aftermarket brake pedal assembly may be used. All other brake components must be stock OEM mounted in their stock OEM location. No brake components may be altered for weight reduction.

16) Wheels:

Stock OEM steel wheels or equivalent aftermarket steel wheels may be used. Aftermarket wheels may be run, 14" or 15" x 7" wide. All 4 wheels must be zero offset. Backspacing for a zero offset wheel varies by manufacturer, consult with the manufacturer when purchasing wheels. Wheels may not stick out more than 1" from the wheel well and the body of the car may not be modified to conform. No wheel spacers may be used on the front of the car. A single wheel spacer, no larger than ½" is allowed on each rear wheel.

17) Tires:

The Hoosier 850 is the only approved tire for the Super-X Division. The approved sizes are 27x7x15 and 26.5x7x15. Tires must be considered identifiable.

18) Engine:

The engine rotating assembly, cylinder heads, carburetor or injection system, camshaft and valve train, and intake manifold must remain unmodified and completely stock OEM, unless otherwise noted.

The maximum engine block overbore is .040. Maximum compression ratio for all engines is 9:1.

Ford

Stock OEM 302 or 351 with a stock OEM Motorcraft carburetor.

Mopar

Stock OEM 318 or 340 with a stock OEM Carter carburetor.

Oldsmobile

Stock OEM 350 Olds engine with a stock OEM Rochester 2-barrel carburetor, or one of the Chevrolet 305/350 combinations.

Chevrolet and Pontiac

305 cui option: Stock OEM 305 engine with stock OEM cast iron 4-barrel intake and stock OEM 4 barrel Quadra-Jet carburetor.

350 cui option: Stock OEM 350 engine, large journal iron blocks only, with stock OEM cast iron 2-barrel intake and stock OEM 2-barrel Rochester carburetor.

Carburetors

Carburetors may be retapped to facilitate the use of Holley jets. Chokes may be wired open. Choke flaps and linkage may be removed. Carburetors must otherwise remain completely stock OEM with no alterations. No adapter plates or spacer plates may be used between the intake and carburetor. Only one (1) standard gasket between carburetor and intake manifold is permitted.

Fuel injection, if used, must be stock OEM and unaltered.

Intake Manifold

OEM, unaltered, cast iron, 2 barrel intake manifold must be used. No porting, polishing, acid dipping, or painting internal areas.

Crankshaft

OEM large journal crankshafts only. Standard resizing of the crank pins and main journals is the only modification. Maximum stroke 3.495".

Pistons

OEM replacement, unmodified, stock weight, cast aluminum, 4 valve relief, flat top pistons must be used. Piston part numbers must be visible. Wrist pins must be steel and stock weight. Piston ring packs must be OEM dimensions.

Connecting Rods

OEM 5.700" connecting rods only. The only modifications are replacement of the rod bolts and resizing of the bearing bore.

Cylinder Heads

OEM stock, pre-fuel injection, large chamber, 76 cc combustion chamber, iron heads only. Poly locks and screw-in rocker arm studs are permitted. No angle milling. Stock 1.940" diameter intake valves. Stock 1.500" exhaust valves. Standard valve seat preparation only. Multi-angle valve jobs are permitted. When cutting the valve seat angles, no stone or grinding marks are permitted above the bottom of the valve guide. All cutting, in reference to the valve job, must be centered off the centerline of the valve guide. The maximum angle of cutting and grinding on the bowl side of the intake and exhaust seats is 90 degrees. Upon completion of the valve job, the bowl area under the valve seat down to the bottom of the valve guide must still be the same configuration, shape, and finish as it was from the manufacturer. Surfaces and/or edges where the cutter or stone has touched must not be polished. No hand grinding or polishing is permitted on any part of the head. No work is permitted in the combustion chamber, it must remain as cast from the manufacturer. No modifying, cutting, spot-facing, or milling valve guide bosses in the port bowl area.

Camshaft lift may be measured at the valve, rocker arm, or directly on the camshaft. Camshaft lift may not exceed the gross valve lift divided by the factory stock OEM listed rocker ratio for the engine being used. Camshaft Maximum Gross Valve Lift (Intake/Exhaust):

Chevrolet 305 .420"/.420"

Chevrolet 350 .390"/.410"

Ford 302 .455"/.465"

Ford 351 W .427"/.465"

Ford 351 C .461"/.463"

Mopar 340 .450"/.460"

Mopar 360 .429"/.444"

Oldsmobile .450"/.450"

Pontiac .400"/.410"

Buick .402"/.418"

Oil pan and timing cover must remain unmodified and completely stock OEM for the engine/car being used. OEM, unmodified, cast iron harmonic balancer must be used. The valve covers may be replaced with aftermarket to allow better sealing of gaskets. The use of pinned or screw-in studs is allowed. Any items that are not stock must be approved by NLWS Officials.

Air Filter/Housing

The stock OEM air filter housing with a paper filter, or an aftermarket steel/aluminum round air filter housing with a 14" diameter x 3" tall paper filter may be used.

19) Cooling System:

Water pump must be completely stock OEM for the engine being used. Any automotive style radiator is allowed. Aftermarket aluminum racing radiators are allowed. The radiator must be in the stock location. Water and "water wetter" brand additives are the only coolants allowed. A (1) gallon overflow can, mounted under the hood must be used. The stock cooling fan may be replaced with an electric cooling fan.

20) Electrical:

The alternator, starter, ignition system, computer chip, and engine management controls must remain unmodified and completely stock OEM for the engine/car being used. 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 be moved to the heater core/box area of the firewall or behind the roll cage cross bar in the rear seat area. If the battery is located in the front firewall it must be flush with the forward edge of the firewall. The battery must be encased in a metal or plastic box, completely sealed from the driver's compartment, and appropriately secured.

21) Exhaust:

The unmodified, stock OEM passenger car exhaust manifolds must be used. No center dump or "ram" style manifolds. For GM cars the only approved exhaust manifold is the over the top log style.

The maximum outside diameter of any exhaust tubing is 2 ½". Each pipe must run straight back on each side, to the muffler, and must extend rearward past the driver and exit towards the ground at a 90-degree angle. There may not be any merge, crossover, or "H" type equalizer pipes joining the two exhaust pipes. Each exhaust pipe must run to a single muffler. Two unmodified Lobak # RCM-25-12-25 or Moroso #94050 mufflers must be used. 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

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 gas 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 between the frame rails and behind the rear axle. 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 use of a commercially manufactured fuel cell is mandatory. The maximum fuel cell capacity, including the filler spout and overflow, is 24 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. The fuel cell must be a minimum of 10" off the ground. Gas caps must be tethered and be identified with the car number (XX) and division (SX).

23) Drivetrain:

Bellhousing

A commercially manufactured steel bell housing made from a minimum 1/4" magnetic steel must be used. It must enclose the flywheel and clutch completely, 360 degrees around. An opening no larger than 3-1/2" x 4" may be used for throw out bearing access.

Flywheel and Clutch

A stock OEM steel flywheel or a replacement steel billet flywheel with OEM stock dimensions must be used. Pressure plate must be stock OEM or a stock OEM replacement, with a minimum diameter of 10.4". Clutch disc must be stock OEM type, with a minimum diameter of 10.4". Flywheel (no bolts): 20 lbs minimum. Pressure plate (no bolts): 13 lbs minimum. Disc: 3 lbs minimum. Drilling or lightening of any part is not permitted. Steel bolts only. Flat surface machining is allowed only on the face of the flywheel, any cutting on the back side of the flywheel is not permitted. Stock OEM or aftermarket clutch pedal and master cylinder assembly is allowed. Stock type mechanical linkage or hydraulic slave or bearing is allowed.

Transmission

Stock OEM standard or automatic transmission is allowed. The driveline and all of its components must remain unmodified and completely stock OEM for the car. Modifications or machining to any part of the driveline or its components are not permitted. The only acceptable work is normal transmission rebuilding. The transmission mount may be stock or fabricated. The use of poly type transmission mounts is acceptable. No Powerglide transmissions.

Standard Transmissions

Only a stock OEM production 3 speed cast iron transmission or a stock OEM production 4 speed cast iron transmission may be used. A car that did not come with a standard transmission from the factory may convert from an automatic transmission to a standard transmission, using the options below. Maximum gear ratios for the following standard transmissions:

4 Speed GM Muncie 2nd gear of 1.64

4 Speed GM Saginaw 3rd gear of 1.65

3 Speed GM Saginaw 2nd gear of 1.68

Rear End

The rear end unit must be an open, single leg unit, allowing only one wheel to drive the vehicle. Both wheels must spin independently of each other at all times. The maximum numerical gear ratio allowed is 3.08. The only acceptable work allowed is normal rear end rebuilding.

Driveshaft

Rear wheel drive cars must use an OEM length and diameter magnetic steel driveshaft. The minimum GM G-Metric car driveshaft length is 52-3/8", measured u-joint centerline to u-joint center line. It is mandatory that two 360-degree solid steel brackets, no less than 2" wide and 1/4" thick, be placed around the drive shaft within 6" of the universal joints, securely fastened to the floor, frame, or cage. All driveshafts must be painted white.

24) Figures:

Figure 1:

