2020 4-Cylinder Class Rules

Intent: These rules have been written with three goals in mind; promote driver as well as official and fans safety and to establish minimum acceptable requirements, to prevent the costs from getting out of hand, and ensure each individual has a fair and competitive chance. The 4 cylinder race car class is intended to be an entry level or hobby racing class. Aside from safety items and emissions control items, all aspects of the cars are to remain factory stock in function and appearance. Any changes to a car not explicitly listed below must be approved by the class rep (if applicable) and tech inspector. In the spirit of equalizing competition, adjustments to the rules made be made as they become necessary. No one set of rules can encompass all eventualities so there will be times when officials and drivers will have to work together to find an appropriate response to unforeseen developments. Officials reserve the right to amend any rules with prior (fair) notice to competitors. Regardless of all else, officials will have the final say of these rules and the equipment used to enforce them.

1. Cars: Any naturally aspirated passenger car with a wheelbase of 105" or less (measured at the track), with a combined factory horsepower and torque rating not to exceed 290 for FWD or 300 for RWD (ie 145hp/145tq or any combination not to exceed a combined total of 290). Car must be at least 5 years old. Front wheel drive or rear wheel drive (no 4x4). Automatic or manual transmission. No convertibles. No Mazda RX7's (rotary motors). All vehicle and component identification numbers (VIN, motor, trans, etc.) must remain intact and unaltered.

NOTE: For 2021, Horsepower/torque rule will be reviewed and revised. Limits have not been agreed upon at this time. If building for 2021, please contact the track via the contact form on the website at www.lakeofthewoodsspeedway.com

2. Maintenance/Repair: Interchange of parts between same make, model, and generation is allowed. "Generation" refers to the same make and model manufactured for a period of time between major styling or mechanical changes to the car. Interchange of parts between different sub-models (ie: LX, LS, GT, SE) of the same generation and same make and model is allowed, with the exception that it does not violate any of the other rules described herein. Examples: Swapping a 1.8L DOHC engine (or parts from the engine) from a 1992 Escort GT into a 1994 Escort LX that originally came with a

1. 9L SOHC engine *IS* allowed because the Escort GT engine falls below the class combined horsepower and torque limit and they are the same make, model, and generation. Swapping a Dodge Neon SRT-4 engine (or parts from the engine) into a Dodge Neon SE model is *NOT* allowed, the SRT-4 model is not allowed to race in the class because it is above the combined horsepower and torque limit. Swapping a 2003 (third generation) Chevrolet Cavalier
2. 2L Ecotec engine (or parts from the engine) into a 1990 Chevrolet Cavalier (second generation) is *NOT* allowed, the motor is allowed per the class horsepower and torque limit, but they are two different generations of the same car. This applies to swapping all other components/parts as well. The intent of the parts interchange rule is to allow for budget friendly repair and maintenance of the race car with readily available parts, NOT to enhance horsepower through parts swapping with different sub-models or reduce power-to-weight ratios using different car generations. If in doubt, contact the class rep prior to performing any maintenance with parts of a different year or sub-model.

3. Mandatory Safety Equipment:

- Full-face Snell-rated SA2010 helmet required. *(Sticker must not be removed)*
- Head/Neck Restraints (HANS or similar) are Mandatory for Drivers under the Age of 16.
- Flame Retardant Race Suit, 1pc or 2pc *(Both pieces must be worn),* single layer minimum *(3 layer or better recommended)*

- Race Shoes with NOMEX or Proban are highly recommended.
- Aluminum racing approved seat, mounted to the roll cage with minimum 4x 3/8" bolts. Minimum of two bolts in the lower seat mounts and two bolts mounted to the main roll cage hoop back bar. *(Full containment seat or head restraint recommended)*
- Window net, secured to the roll cage only (not car body).
- 5-Point racing harness, 3 years old or newer, secured to roll cage only.
- Drivers must have a neck protector, guard, brace or neck collar of some sort if no HANS or similar device is used.

4. <u>Roll Cage:</u> Minimum requirement (entire cage, kickers, seat support, door bars, etc.) 1.500" (1-1/2") Diameter x .095" wall thickness structural tubing (DOM or HREW). No black pipe. 1.625" or 1.750" Diameter x .095" wall DOM recommended.

- Floor Plates; Cage must be tied into floor plates (minimum 4 plates, minimum .125" thick, minimum 36 square inches each, welded or bolted through floor or rear seat riser), or 2" square tubing welded to rocker panels/structural components.

- Main Hoop; one continuous hoop behind the driver, from the left side of the driver seat floor, up to the roof, across the top, and back down on the right side of the passenger seat. *Ensure that the main hoop is higher than your helmet when sitting in your seat*

- X-Brace; the main hoop requires an x-brace. One bar from the top left to the bottom right, and one bar from the top right to the bottom left.

- Roof/Down Bars; two bars running from the top of the main hoop, extending forward roughly horizontally along the roof, then down following the windshield pillar slope, then roughly vertically to the floor. One center roof bar is also required from the top center of the main hoop to the center of the top windshield cross bar. *Ensure that the roof bars are higher than your helmet when sitting in your seat*

- Windshield Cross Bars; one horizontal bar at the top of the windshield connecting to the roof/down bars on each side, and one horizontal bar at the bottom of the windshield connecting to the roof/down bars on each side.

- Heavy gauge screen or minimum four ¼" bars in front of driver (from top to bottom of windshield opening).

- Door Bars; minimum two horizontal door bars on the driver side, 12" apart, with five vertical connector bars between them equally spaced along the length. *Three or four horizontal door bars on the drivers side and more vertical connector bars recommended. Door bars not required on passenger side but recommended.*

- Crush Bars; driver side crush bar to run vertically from roof/down bar near the windshield to top horizontal door bar. Same on passenger side (if door bars are present on passenger side). If no door bars are present on the passenger side, run the crush bar from the roof/down bar near the windshield to the front passenger floor plate or lower bar.

- Seat Mount; seat structure and mounts must tie into the roll cage, NOT the car body.

- Subframe; Subframe connectors may be run under the car and welded/bolted to the floor plates, or inside the car near the floor between the main hoop and front down bar.

- Reasonable bracing outside the drivers compartment for safety and frame rigidity allowed, but must be inspected and approved by tech official or track rep. ***NO BULL BARS***

- Kickers; front kicker bars cannot go past the radiator cradle. Front kickers can tie into front strut towers. Rear kickers can only extend 6" past rear strut towers to allow for a crush zone. *Kicker bars are optional but recommended.*

- Bracing; bars or x-bracing is allowed between rear strut towers (no front strut tower cross bracing is allowed).

Additional roll cage bars/bracing are allowed. The above is the minimum requirement only.

4.1 Scrub Rails:

Absolutely no bars shall extend outside of the body panel including the grille and bumper, with the exception of side scrub rails. Scrub rails cannot extend any further forward than the rear of the front wheel opening, and no further rearward than the front of the rear wheel opening. Bars must be tight to the body and can not have any sharp edges. Maximum 1" x 2" welded or bolted to the roll cage. If bolting on the scrub rails, use carriage V type Lexan scrub rails preferred.

4.2 "Cage Swap":
If cage is being swapped to different car, it is not recommended to cut roof to do so. The preferred method would be with slip sleeves inside roll cage tubing and have cage seams re-welded, inspection holes required. If cutting the roof is done, seams require reinforcement and tech approval prior to racing.

Roll Cage Diagrams Can Be Found On The Last Page

5. Body/Interior:
-Vehicle ID number (VIN) must remain in at least one stock location & will be used to determine stock OEM parts.
- All upholstery, carpet, glass, emblems, air bags, and plastic trim must be removed.
- Dash may remain or aftermarket gauges may be used.
- Only one aftermarket tachometer, oil pressure and water temperature gauge(s) will be permitted. Tach must read accurate and have factory red line clearly marked- will be tested against factory specs.
- No removal (gutting) of metal is allowed of any kind with the exception of the interior door structure to fit the roll cage door bars (factory door plate must remain).
- NO aluminum or lightened body panels (homemade or aftermarket) allowed.
- Doors are to be welded shut. Trunks and hatches need to be secured (weld, chain, bolt, or hood pins).
- Hoods are to be secured with hood pins. Hoods require a 10" hole above the engine in case of an engine fire.
- Cover any holes in the front and rear firewalls and floor.
- Bumper covers are to be OEM stock, or similar in appearance to stock, and must be on the car at the start of the race. Bumpers may be repaired with no greater than 3" x 3" x .125" wall square tube and need to fit completely under the bumper cover with no sharp edges.
- Enlarging or pounding out fenders to allow for larger tires is allowed.
- Driver side and passenger side door plates allowed. No grader blades. Must extend 6" past the door in either direction and be bolted through in at least 4 spots (one on fender, two on door, one on rear door or quarter panel) with ½" hardware. Hardware should not protrude any more than necessary.

6. <u>Engine:</u> Top of engine to bottom of oil pan, must be stock for year, make and model of car and engine. You must be able to show tech official the engine and head casting numbers to verify that the engine/head combinations are stock for your application. OEM STOCK 4cyl or 3cyl engines only, specific to the make, model, and generation of car used, and at least 5 years old. Carburation or fuel injection OK. SOHC or DOHC OK. Must be below maximum horsepower/torque limit in section 1.
-On cars equipped with a timing BELT either one 2" diameter hole between cam gears or two 3/4" holes off center must be cut in the timing belt cover to allow for cam gear inspection. Holes may have plugs or covers but must be able to remove without tools for inspection. On cars with a timing CHAIN, a hole is NOT required, but the cam/valve cover MUST be removable for inspection when requested by tec.
- No aftermarket performance parts, modified parts, or otherwise enhanced parts (ie: non-OEM spec cams or other valve train parts, cam modification/grinding, head work to improve performance, non-OEM spec pistons, etc.)
- No interchange of parts with models or trim levels that exceed the class combined maximum horsepower and torque rating.
- No rotary engines, turbos, or superchargers (engine must be naturally aspirated).
- STOCK compression rule on all engines. Motor compression must be within 20psi of factory spec.
- Removal of air conditioning system and power steering system is OK.
- Aftermarket radiators/fans OK, but must be mounted in the OEM location and of similar dimensional size.

6.1 Computer:

- Engine management computer must remain in OEM stock and be the only direct source of engine control. No computer chips or program alterations (ie: increasing rev limiter, altering air fuel ratio, etc.). No standalone aftermarket engine control units or piggyback control units).
- The vehicle computer (ECU) must be mounted in a visible location providing ease of inspection.
- OBD II equipped cars must have a functioning diagnostics port accessible to tech officials at all times.
- Computer must be stock with no modifications, no tuning, removing or modifying of rev limiter, etc.
- ECM can be claimed by the track at any time.
- If ECM is modified, reprogrammed or claim refused, car/driver will be disqualified and loss of points for that event.

7. Drivetrain: OEM STOCK drivetrain only, specific to the make, model, and generation of car used, and at least 5 years old.

- No aftermarket performance parts, modified parts, or otherwise enhanced parts (ie: aluminum flywheels, performance clutches, etc.).
- No gutting of transmission internals allowed (must function in all gears). *Min ¾" inspection hole required for tech to scope flywheel/clutch*
- Locked/welded differentials are permitted.
- Solid engine and transmission mounts are permitted.
- No brake bias or proportioning valves allowed. All four wheels must lock up.
- Larger wheel studs and/or wheel bearings/hubs on right side of car may be allowed in certain instances for safety reasons. Contact the class rep.

8. Chassis/Suspension: OEM STOCK suspension only, specific to the make, model, and generation of car used, and at least 5 years old.

- No aftermarket performance parts, modified parts, or otherwise enhanced parts (ie: lightened components)
- Aftermarket bushings allowed but must be a direct replacement for stock bushings. Must not alter stock suspension geometry.
- Battery must be secure. No bungee cords or ratchet straps. Battery may be relocated or remain in OEM position. If it is relocated, it must be mounted securely in an enclosed battery box.
- Stock fuel tank OK (factory fuel cutoff switch must remain and be functional). Aftermarket racing fuel cells are allowed. Aftermarket racing fuel cell must be secured with approved tank straps and completely closed off from the driver compartment with a firewall. Fuel line running through car must be steel, maximum 3/8" diameter.

Aftermarket electric fuel pumps are allowed (not to exceed factory fuel pump flow rate). Aftermarket pump must have a clearly marked shutoff switch within the drivers reach while strapped in.

- Pump gas only, maximum 93 octane (no E85, no aviation gas, no race gas, no methanol, no alcohol, no fuel additives, etc.)

9. Emissions: Removal of emission control components is allowed (air pump, EGR, etc.).

- Factory header (any trim level) or aftermarket headers allowed.
- Removal of factory exhaust system (catalytic converter, muffler, etc.) is allowed.
- Exhaust must be directed under car (no open headers), maximum 3" diameter.

- Stock throttle body must remain unaltered. Air intake system can be stock or replaced with an aftermarket tube and cone filter. Stock MAF sensor must be used as close as possible to stock location. Aftermarket air filter needs to be in the stock air filter location.

10. Tires: D.O.T approved passenger car tires or non-D.O.T. racing tires allowed.

- M&S and winter only rating acceptable, but no aggressive mud/truck tires. Racing tires must be "hard" compound (no "soft" or "med" compound tires).
- Known ("approved") race tires: Hoosier Stockers P/N 36975 & 36980. Other "hard" compound race tires are allowed, but to be voted in or out at the end of each season. Submit tire info and part numbers to track if you will be running a different race tire and is approved beforehand by track.
- Maximum 8" tread width (street or race tires) as measured at the track (at the base of the tread pattern), any aspect ratio (sidewall height), any rim size.
- OEM style steel or aluminum rims only (no steel or aluminum racing rims, no bead locks).
- No altering of tires (ie: softening), no grooving, no siping, no narrowing the tread width, etc. is allowed.
- Tire grinding is allowed, but no alteration to the profile (tread must remain flat – no cambering of tires allowed).
- Minimum tire pressure on right side of car must be 30 PSI before the race starts for D.O.T street tires, and minimum 25 PSI for race tires.
- Wheel spacers are allowed, maximum 1" thick.

11. Misc:

- Drivers must be 14 years of age or older at the start of the race.
- Points go to the car number.
- A repair/maintenance manual for the year, make, and model of your car is mandatory in your car (Chilton, Hayes, etc., are acceptable) or in your pits, but MUST be at the track on race day.

12. Protest Rule: $150CAD or $100USD.

-A driver in the same race as the car/driver to be protested must submit it in writing accompanied with the fee in the form of cash only. The protest and fee will be held by the track.

-The protest must be made prior to the start of the A-main feature. The protestor will remain anonymous.

-The protestor is required to pick one only item for protest (motor top end, motor bottom end, transmission. chassis). Be specific and clear.

-If protested car is found legal, the said car will receive $100 and the track will retain $50. If US, $75 to car and $25 to track.

-If the protested car is found illegal, the protest fee will be returned to the individual lodging the protest.

-A protested car may not leave the Pit Area and will be impounded for later examination.

-The official's inspection and decision will be final

13. **Claim Rule:**

- A claim rule is currently not in effect but may be added in the future.

14. **Tech:**

- Tech inspection centres on the pre-race formal check; however, the car is subject to inspection at any time from the start to finish of an event. Although the pre-race check often focuses on a specific theme at each race to ensure all items get checked in the course of a season, there is no restriction on what is checked on a given car, nor is it required that the same item be checked on every car. The same is true of post-race inspections.

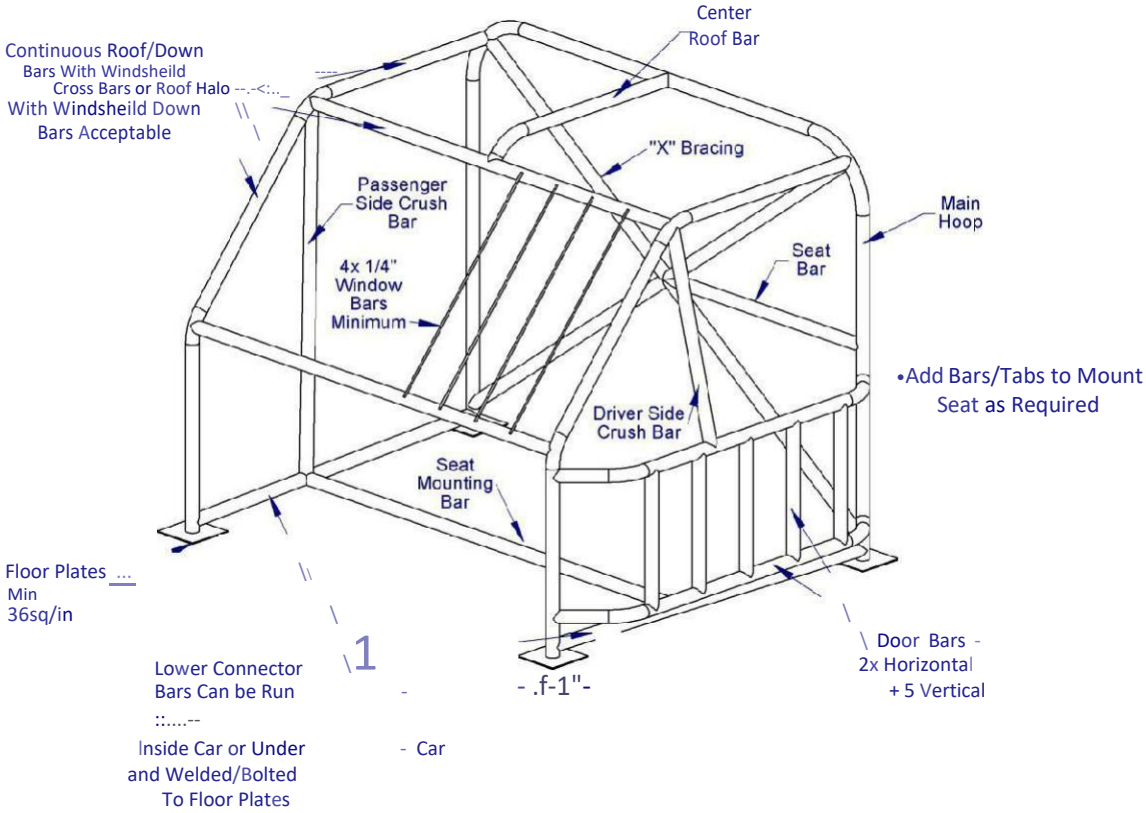
15. **Penalties:**

-Car with frequent or multiple compliance issues may be considered evidence of interntional cheating. In that case, the Tech Director will determine if a penalty if in order.
-Cars found non-compliant post-race, could be subject to penalties up to and including, but not limited to, disqualification, fines, and/or suspensions.
-The penalty for first offence or refusal to tech is disqualification along with loss of any and all points and moneys from that event.
-If being found illegal a second time in the same season, the car and driver will lose all accumulated points for the season, fined up to $1,000CDN and be suspended for 4 events. Both car and driver will not be allowed to race until fine is paid. And official suspension will start from the day said fine is paid.
-If found illegal the 3rd time, the driver will be suspended for ONE FULL CALENDAR YEAR and the CAR WILL BE SEIZED BY THE TRACK. If driver refuses to forfeit car, driver and car will be BANNED from racing in any class for a period decided by track officials.

Those found in violation* of *the rules will be disqualified,* face *a fine up* to *$1000 and/or suspension up* to *one year, and lose all points (YTD)

If these rules don't say you can, then you can't! Class Reps (if applicable) and track officials are to be treated with the utmost respect during the tech process as they are trying to keep this class fun and safe! Failure to follow these rules can result in loss of points, prize money, and possibly suspension. Overly rough driving will not be tolerated! Remember to build it legal, keep it legal and have fun!

Minimum Cage Requirement:



Recommended Cage: