



TIME TRIAL and RACING RULES

2021 Season



SAFETY

This guide is intended as nothing more than a guide. Each entrant and driver takes upon himself or herself the final responsibility of preparing a car properly, dressing properly, and acting properly when at the racetrack. Each driver should be aware of the dangers of time trialing. Each driver should be aware of the imminent danger when on the course with other drivers.

This guide was written to clarify event procedures and the minimum requirements for car preparation. By no means is this guide the final word. The specifications published in this guide are the minimum required by EMRA. They are based on currently available information, minimum standards required by other organizations, and the previous experiences of EMRA.

The following should be considered as a guideline of minimum standards. The car as presented to Tech must be suitable for time trial competition in the opinion of the Chief Of Tech.

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Racing with EMRA

About 50 years ago, several local car clubs joined together with the vision of building a better place to race in the Northeast. Since then, EMRA has grown and developed to become one of the premier sanctioning bodies on the east coast. Our goal is to provide top competition, with ease of entry, and maximum enjoyment.

EMRA sanctions competition Racing, Time Trials and HPDE, for sedan, GT, and Formula cars in the northeast region. The Formula Car Club of America (FRCCA) races with ERMA. No matter what spec Formula Car you drive, no matter what tires or horsepower, you can race with the FRCCA, in formula-only fields. The same principle applies to other racing series and sanctioning bodies.

Our guiding philosophy has always been inclusion and safety. As long as your car is safe, and as long as you behave in a safe manner on track, you can race with us. If any rules seem exclusionary to you or your car, please contact us and we'll figure out how to get you racing.

We sanction events at all of the major tracks in the area, including Lime Rock Park, NJMP Thunderbolt & Lightning, Palmer Motorsports Park, Pocono Raceway, Summit Point, Thompson Raceway, and Watkins Glen. We also founded the historic 4 hour twilight enduro at Summit Point Motorsports Park over 20 years ago, which we still run today.

Board of Directors

Chairman/ Chief Historian: Cory Canzone

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Race Chairman: Ed Bradley

Time Trial Chairman: Andrew Purvis

Chief of Tech: Jesse Echanique

Chief Steward: Terry Dunne

Rulebook Director: Mario Korf

Secretary: Dave Zipkin

Registrar: David Addiss

Rulebook Revisions

The rulebook has been heavily revised for 2021, with all rules and operating procedures in one document. The car list has been revised and updated, and there have been significant changes and additions to car modifications (exceptions). These changes are all in the spirit of fairness, and reducing operating costs. We welcome input on the new rules.

EMRA Street Stock

EMRA's Time Trial and Road Racing rules both use the Street Stock (ST) rules for classing cars. The Street Stock category is intended for cars offered for sale in the US, or cars imported into the country for legal road use. All cars are assigned a base class according to the Car List table in Appendix A. It's not always possible to keep up with every manufacturer and every possible option, especially now with 25-year old cars coming from overseas. Therefore, cars may be reclassified up or down at any time as we refine the list.

We allow modifications to enhance performance (called *exceptions*), which alter the class so that there is fair competition between different makes and models of cars, both stock and modified. We make every attempt to balance exception points, but in some cases (like turbos), the results can vary widely. Chief of Tech or Competition Directory may at any time re-class cars or modify exception points to balance performance.

While every attempt is made to properly class each car for an event, it is also the responsibility of the *competitors* to identify improperly classed cars. Every individual competitor can and should report what they feel is an incorrect classing or anything unsafe to the Stewards or Tech.

Unlisted Cars and Lbs/Hp

If your car is not on the list, and/or you have dynoed and weighed your car, you may class your car by providing a recent dyno plot of three runs, as well as weight from an official scale. Horsepower is assumed to be measured on a Dynojet. For dynos that measure lower (Mustang, Land and Sea) multiply horsepower by 1.12. For unmodified cars not on the list, you may use the manufacturer's listed weight and crank horsepower for lbs/hp, and then multiply by 0.8.

- STU - unlimited
- ST1 - 6 lbs/hp
- ST2 - 8 lbs/hp
- ST3 - 10 lbs/hp
- ST4 - 12 lbs/hp
- ST5 - 14 lbs/hp
- ST6 - 18 lbs/hp
- ST7 - 22 lbs/hp
- ST8 - 26 lbs/hp and greater

Crossing Over from Other Racing Series

Cars racing in other series and that have a recent log book may cross over to the appropriate EMRA Street Stock (ST) class using the following chart. All cars must pass tech inspection relevant to the event (race cars pass race tech, time trials cars must pass time trial tech).

EMRA	AER*	Champcar	COM	NASA	SCCA
ST-U	5	750 pts	Super U	SU/TTU	
ST-1	4 win	700 pts	T100	ST1/TT1, GTSU,	GTX, ITE
ST-2	4	650 pts	T90, Super A	ST2/TT2, HC1	STU, T2, GR3, GTL
ST-3	3 win	600 pts	T80, Super B	AI, ST3/TT3, HC2	EP, FP, ITR, T3
ST-4	3	550 pts	T70, Super C	ST4/TT4, Spec Z, SE46, Thunder Roadster	ITS, STL
ST-5	2 win	500 pts	T60, Super D	ST5/TT5, Boxster, Spec 3,	ITA, SM5
ST-6	2	450 pts	T50, Super E	ST6/TT6, SM, SE30, 944 Spec	GTP, SM, SMT
ST-7	1 win	400 pts	T40		ITB, SRX7, SSM
ST-8	1	350 pts	T30		B-spec, ITC, SSC

*If you race in AER and have ever won your class, you go up one class.

If you remove a restrictor plate, ballast, add aero, or similarly change the performance of your spec racing car, you must declare these changes at tech or be disqualified. Modifying your spec car slightly will most likely bump you up just one class. Similarly, all cars crossing over must use wheels that are legal for their spec class or they bump up a class. All tires are assumed to be UTQG 100 or greater. Tires lower than 100 treadwear (TW) bump one class.

Examples:

- You race Spec Miata on Hoosier SM 7.5 or Toyo RR. You must bump a class and race in EMRA ST-5. You may also use a 100 TW or higher tire and race in ST-6. You may also change wheel widths, remove a restrictor plate, add aero, or other modification, but you must tell Tech so they can reclass you.
- You race Champcar in a 500-point car on Hankook RS4s. You can race in EMRA ST-5, or put on tires that would not be legal for your series and race in ST-4.

These crossover classing rules are new and experimental. We are inviting other cars to race with EMRA in the interest of fun, but if this unbalances competition, we may adjust the crossover classing rules at any time. If you feel your car is classed unfairly, you may petition to be moved to another class by providing Race Direction with evidence (10hz GPS data).

Street Stock Car Preparation

The following list pertains to both Time Trials and Racing. In general, any modifications that are structural, cosmetic, or for driver comfort are allowed, provided it's done safely. Anything that improves car performance costs exception points. For modifications not on this list, we will assign points based on other exceptions in the rulebook with similar performance.

1. Interior
 - 1.1. Fitting of any interior modifications for the purpose of improving the comfort and convenience of the driver is allowed, provided they have no influence on mechanical performance.
 - 1.2. Changes that materially reduce the weight of the car will be assessed exception points based on the amount of material removed. Roll cages and half cages in cars that don't require them may offset these exception points.
 - 1.3. Defrosters should be kept functional.
 - 1.4. All cars require at least two mirrors. Two side view mirrors and one panoramic or wink mirror is recommended.
2. Seats
 - 2.1. The driver's seat must have a headrest capable of withstanding a severe impact.
 - 2.2. Aftermarket aluminum seats must be mounted to the main hoop of a roll bar or roll cage. Seats homologated to FIA certification 8855-1999 or higher do not need this bracing/mounting.
 - 2.3. The rear seat and or seat back may be removed. If the stock seat is retained, the original headrest must also be retained.
 - 2.4. Front passenger's seat may be removed.
 - 2.5. Rear seats may be removed.
3. Electrical
 - 3.1. The battery may be relocated, provided it is mounted on a stock surface and cannot spill into the passenger compartment in an accident situation.
 - 3.2. All cars must have at least two operational brake lights.
 - 3.3. All vehicles shall have at least one (1) operating rearward facing light for use in rain or low visibility conditions. Standard tail lights are acceptable. The Chief Steward may require at his or her discretion that this light be on when vehicles are to be on course.
 - 3.4. Mounts for phones, cameras, and other equipment shall be of a safe and secure design. A tether of appropriate length is advised, so that the camera cannot come in contact with the driver.
4. Chassis
 - 4.1. Firewall and floor shall be sealed so as to prevent passage of flame and debris to the driver's compartment. There shall be a metal bulkhead between the driver's compartment and the fuel tank.
 - 4.2. All cars are recommended to have a front and rear tow hook or ring. If the tow point is enclosed (loop or ring) it must be a minimum of two (2) inches in diameter. Contrasting colors or the word TOW next to the hook is recommended.
 - 4.3. Bumpers with all attaching/projecting hardware may be removed.
 - 4.3.1. A substitute bumper may be fitted which is lighter and more fragile than the original provided its ends turn into the body (within 1 inch), has no projecting hardware, and is bolted on so that it can be removed should it be deemed unsatisfactory or unsafe by the Tech Inspector.
 - 4.3.2. Trailer balls must be removed. Trailer hitches are discouraged.
5. Bodywork

- 5.1. All body parts must be securely fastened. The use of alternate fasteners such as hood straps, nuts, bolts, studs, gaskets (except for hood gaskets), seals, washers is allowed, provided that they are of the same type and dimension as the original and do not improve performance. Hood pins allowed.
- 5.2. On closed cars, the driver's and passenger door windows must be fully lowered. In open cars or cars with removed roof panels, all movable windows must be lowered.
- 5.3. Tops
 - 5.3.1. Convertible tops must either be removed or folded and secured. Tonneau covers must be removed.
 - 5.3.2. Targa tops, or removable roof panels that are not glass may be retained if they are securely bolted, pinned or strapped in place. Factory latches are considered acceptable. Glass panels must be removed.
 - 5.3.3. Aftermarket tops that follow the factory roofline shape are allowed. Fastbacks and tops that increase performance cost exception points.
6. Aero
 - 6.1. Factory aero options such as side skirts, spoilers, and small spoilers and wings are generally allowed with no exceptions. In some cases, factory aero provides a significant advantage and will be assessed exception points.
 - 6.2. Any alteration or modification of the shape or contour of any exterior body panel that conveys a performance advantage will be assessed exception points. This includes anything molded into an aftermarket body panel.
 - 6.3. An airdam is allowed. It must not extend beyond the body perimeter.
 - 6.4. A front splitter may not extend further than 4", from a plumb line drawn from the forward most part of the bumper, and may not extend wider than the tires. The splitter undertray shall not extend further rearward than the center of the front wheel.
 - 6.5. Canards (dive planes), vortex generators, and other vortex-inducing devices are allowed, but cost exception points.
 - 6.6. Hood vents, fender vents and other miscellaneous vents are allowed.
 - 6.7. OE rear spoilers less than 1" are allowed for free. Rear spoilers taller than this cost exception points. The spoiler must not obstruct rear view, and can be no wider than the body.
 - 6.8. Aftermarket wings are allowed but can be no higher than the roof line and no wider than the body (mirrors don't count as part of the body). Hatchbacks may mount a wing up to 8" above the roofline.
 - 6.9. Diffusers are allowed, but cost exception points.
 - 6.10. Flat bottom floors are allowed, but will be given extra scrutiny in tech to make sure they are safely mounted.
7. Wheels and tires
 - 7.1. Tires must be DOT approved street type. Tire tread must be in good condition, with no large chunks missing or cords showing.
 - 7.1.1. Any tire UTQG 100 and above is allowed with no exceptions.

- 7.1.2. Non-DOT racing slicks and tires under UTQG 100 are allowed, but cost exception points.
 - 7.1.3. Tires must be enclosed within the bodywork when viewed from above. Fender flares are permitted.
 - 7.2. Wheels that are wider than stock costs exception points.
 - 7.2.1. An increase in track dimensions may not exceed 2", with spacers no thicker than 1/2".
- 8. Brakes
 - 8.1. Any brake pads and discs are allowed, provided they are the same dimensions as the factory parts.
 - 8.2. Aftermarket brake lines and brake ducts are allowed with no exceptions.
 - 8.3. Upgraded brakes using parts from the same factory model and different trim level are 1 exception. Aftermarket big brake kits are 2 exception points.
- 9. Suspension.
 - 9.1. Any shock absorber may be used, providing it is of the same type as the original equipment and its mounting points are unchanged. Lever shocks may be replaced with tubular shocks where this type of conversion is demonstrably less expensive than maintaining the original equipment.
 - 9.2. Any sway bars may be used.
 - 9.3. Additional locating links (e.g. traction bars, Panhard rods) may be added to solid axles.
 - 9.4. Any springs may be used, provided they are of the same type as OEM and their mounting points are unchanged.
 - 9.5. The minimum ride height is 4" at the rocker panel behind the front wheels.
 - 9.6. Alternate bushing material or spherical rod ends may be used in original locations.
 - 9.7. Camber plates may be used.
 - 9.8. Suspension braces, strut braces, front and/or rear, upper and/or lower are permitted.
 - 9.8.1. Rear bracing must be bolt in only (no welding) and must be on a horizontal plane only.
 - 9.8.2. There must be no connection between the upper and lower chassis and/or strut braces.
- 10. Identification and Markings
 - 10.1. The "EMRA" logo must be clearly displayed on both sides of the car. A third EMRA decal must be placed on a forward facing surface on the front of the car (i.e. top of windshield, front bumper, hood.)
 - 10.2. Each car shall carry identification numbers and class letters in contrasting color.
 - 10.2.1. Class designation insignia will be the class number or letter preceded by the letters "ST" displayed on both sides of the car.
 - 10.2.2. Car number on the front and both sides, at least eight (8) inches high.
 - 10.2.3. Car number on the rear, at least four (4) inches high.

Time Trials Rules

Time Trial racing (Time Attack) is a form of contactless racing with less danger and easier vehicle preparation than wheel-to-wheel racing. Virtually any street-legal car that has high-temperature brake fluid and racing style brake pads can compete in time trials. EMRA's North East Time Attack Series is similar to a HPDE track day, but with cars spaced out evenly, and using transponders for lap times.

As with all forms of motorsports, there is always some element of risk. In order to minimize that risk, EMRA Time Trials are held under tightly controlled conditions with limited passing and with a zero tolerance policy on risky or dangerous behavior. We strive to keep everyone and their vehicles safe. For those of you who want that extra peace of mind, Lockton Insurance offers track day insurance at all EMRA events. Visit the Lockton Motorsports website to find out more.

Time Trial Driver Eligibility

EMRA welcomes new and experienced drivers to all of our events.

- If you have a racing license from an accredited sanctioning organization, you can start competing right away.
- If you have HPDE experience and are in a point-by passing group *and* have experience at the track where the event is taking place, you may compete.
- If you have HPDE experience, but not at this track, you should join the Driver Education group (Novice/Student, Red group).

For first timers, EMRA hosts a Time Attack and High Performance Driving Education school at each event. Students receive both classroom and in-car instruction from EMRA's instructors. We will teach you everything you need to be safe and fast, from proper driving technique and car control, to track awareness and vehicle dynamics. Once you successfully complete our school, you will receive your Time Trial license and be able to compete.

Event Procedure

Time Attack is broken down into three groups. Every group receives an allotted amount of track time, typically 3-6 sessions of 15 to 30 minutes each.

- Red and Student – for Novices, and those just starting out or learning a new track.
- White – for those with experience who still have room to improve.
- Blue – for our most experienced drivers.

Timing and Scoring

Timing is done by transponder, which registers every lap around the track. If you have a MyLaps (AMB) transponder, simply provide EMRA with your transponder number. EMRA has transponders available for rent through the event registration page.

Drivers compete against the clock, battling for their fastest time of the day. At the end of the day the results are compiled and broken down by vehicle class. Awards are given at the end of each day and points go towards the season championship.

Passing

Time trial racing is *not* wheel-to-wheel racing, and all passing is by point-by only. Point-bys are allowed only in designated passing zones. Passing zone size and locations vary from track to track. The driver giving the point-by acknowledges the presence of the passing car and tells them which side to pass on. The passing car may choose to pass or not, but *may never pass without receiving a point-by*.

If you are the faster driver and you do not receive a point-by signal within a reasonable length of time, inform the corner workers with a closed fist extended outside the driver's window for at least two corners. Corner workers will inform Race Control and then contact corner workers for a Blue Flag or Black Flag decision, possibly directing the unyielding driver into the pits for consultation.

Disqualifications

Your timed run may be disqualified under the following conditions:

- Failing to appear at pre-grid in a timely manner when your group is called.
- Making a driving error that causes another driver to catch you from behind.
- Causing a yellow flag situation, or causing the time trial to be stopped.
- Exceeding the maximum decibel limit of the track where the time trial is taking place.
- Any car that is found to be misclassified, either before or after the event begins.

Time Trial Driver and Vehicle Safety

The following rules are specific to Time Trial racing.

1. Long sleeve shirt and pants, shoes with no perforations (preferably racing shoes).
2. Full-face Type SA helmet, Snell SA2015 or newer, or FIA 8860-2000 required. Complete, closable, working visors must be intact and in place.
 - 2.1. Closed visors are not required in closed cockpit cars.
 - 2.2. Drivers of open cars must wear the visor in the closed position when on track.
 - 2.3. No open-face, rally, or hybrid allowed.
 - 2.4. Snell M (motorcycle) helmets will be allowed in 2021, but not after.
3. Driver restraints must be in good working condition, with no frays or damage.

- 3.1. Three-point harness with metal to metal mounting required as a minimum. OEM seatbelts or equivalent are acceptable, but must be in good working condition.
- 3.2. A five or six point racing belt is acceptable, but not required. See the Racing rules for complete details.
- 3.3. Four-point harnesses are not legal.
- 3.4. If you use a racing harness, a SFI 38.1-rated or FIA 8858-rated head-and-neck protection is required (HANS device, for example). Foam collars (and all other non-SFI- or FIA-rated devices) are not allowed
- 3.5. Arm restraints are recommended for open-top cars and are required in ALL open-wheel vehicles.
4. Roll bars are required for vehicles without an OE factory roof.
 - 4.1. Cars with T-tops, large roof openings, and vintage cars may require a rollbar, and will be reviewed on a case-by-case basis.
 - 4.2. Open-top vehicles, and cars sold as convertibles with a non-structural hard top (Miata, S2000, Z3, etc) require a minimum four-point roll bar. Material and construction shall be by a reputable manufacturer (Hard Dog, Blackbird Fabworx, etc), or per the requirements of the Racing rules, Roll Cage section.
 - 4.3. Factory installed roll hoops (i.e. Porsche Boxster, Honda S2000) are not acceptable. The Chief Steward may make allowances on a case-by-case basis.
5. Cars that have structural, impact-reducing material removed for weight savings, must be braced safely in accordance with minimum safety rules. This includes gutting doors and replacing body panels with lightweight materials.
 - 5.1. If your car was not originally a convertible and you made it into one, you must install a roll cage per the Racing Rules.
 - 5.2. If you gutted your doors and reduced them to skins, you must install door bars.
6. If a car competes in either the Production or GT category, the car and driver must be equipped per the Road Racing Rules.

Road Racing Rules

EMRA's wheel to wheel racing series is designed to deliver close, competitive racing for cars of all makes and models. Our goal is to deliver exciting races in a way that makes racing less work and more fun. EMRA's flexible classing system allows for cars of all types to compete on a level field. Cars built for other race series are all welcome to run with EMRA!

It is EMRA's policy to provide a class for any car meeting EMRA race safety standards, whether listed in the rulebook or not. Any car not conforming to the restrictions of any other category may be classified, subject to the ruling of the EMRA Board.

In general, EMRA safety regulations are the same as those in most other sanctioned racing organizations in North America. Differences are as specifically stated. The following should be considered as a guideline of minimum standards. The car as presented to Tech, must be suitable for competition in the opinion of the Chief Of Tech. Cars racing with other sanctioning bodies must have the current logbook(s) for that organization and must meet the specifications for that particular group.

Our most popular class are the Street Stock (ST) series, primarily for production based cars with bolt-on modifications and DOT R-compound tires. Formula cars of all shapes and sizes race with us too, thanks to our partnership with the Formula Race Car Club of America.

Many nationally recognized classes also run with us, including Spec Miata, Spec Racer Ford, Showroom Stock, and Grand Touring. Any car that meets our safety requirements is welcome in our series.

Road Racing Driver Eligibility

EMRA welcomes experienced drivers to all of our events. If you have a racing license with a nationally accredited sanctioning organization, you can start competing right away. This includes competition racing licenses from AER, BMW, NASA, PCA, and SCCA, as well as regional racing series such as Monticello and Waterford. If you have a wheel-to-wheel racing license that is not listed here, please contact us and we'll work with you.

If you've been endurance racing with AER, Champcar, 24 Hours of Lemons, WRL, or other series that don't require a racing license, you may race with EMRA on a probationary status. You must have raced in at least five (5) events, and send us a racing resume. The resume must include tracks driven on (raced or HPDE), in-car video, endorsements from other drivers and coaches, and anything else that you think furthers your cause. You'll start at the back of the grid in your class until your probationary status is lifted. After you complete at least one race weekend (4 races) with no incidents, you will be granted an EMRA racing license.

Drivers who are not yet racing wheel-to-wheel racing may begin that journey with EMRA. Start by advancing through our HPDE and Time Trial program, and after you are solidly in the Blue group, we'll assign you a racing Mentor and get you started wheel-to-wheel racing. This process may happen quickly or take years depending on student dedication, skill level, awareness, and number of events attended.

Event Procedure

Races are run in 30- to 40-minute super-sprints, in run groups categorized by class and car type. With multiple practice sessions and races per events weekend, the EMRA sprint series is sure to deliver exciting on-track action at a great value.

Timing and Scoring

Timing is accomplished by using an electronic transponder system which registers every lap around the track. If you have a MyLaps (AMB) transponder, simply provide EMRA with your transponder number. EMRA has transponders available for rent through the event registration page.

Driver placement is compiled and broken down by vehicle class. Awards are given at the end of each day and points go towards the season championship.

Road Racing Driver and Vehicle Safety

The following rules are specific to Road Racing or any Time Trial car that is required to conform to Road Racing safety standards.

1. Driver's safety equipment
 - 1.1. SFI 3.2A-; SFI 3.4-; or FIA 8856-2000-certified fire-retardant driving suits that cover the body from the neck to the ankles and wrists are required. Must be in good condition, with no rips or tears. Single-layer SFI 3.2A/1 or 3.2A/3 suits are acceptable if the driver also wears fire-retardant SFI- or FIA-certified long underwear. Multilayer suits rated SFI 3.2A/5 or higher (including SFI 3.4/5) are recommended and may be worn without long underwear. Fire-retardant FIA- or SFI-rated racing gloves and shoes are required.
 - 1.2. Socks, shirts, and other undergarments made of synthetic material (including nylon, orlon, Spandex, etc.) will melt to the skin in a fire and are forbidden.
 - 1.3. Those with protruding hair or facial hair must wear a Nomex balaclava.
 - 1.4. Full-face Type SA helmet, Snell SA2015 or newer, or FIA 8860-2000 required. Complete, closable, working visors must be intact and in place. Drivers of open cars must wear the visor in the closed position when on track. Closed visors are not required in closed cockpit cars. No open-face, hybrid, or motorcycle helmets allowed.
 - 1.5. SFI 38.1-rated or FIA 8858-rated head-and-neck protection required. All head-and-neck system bodies, tethers, and other components must be in sound, undamaged, un-frayed condition and must be inspected, re-certified, and/or replaced on their manufacturers' recommended schedule. Foam collars (and all other non-SFI- or FIA-rated devices) are not allowed.
2. Seat belts and harnesses
 - 2.1. All drivers in EMRA sanctioned races must utilize a harness with five or more anchor points, including anti-submarine belt. All restraint systems are subject to the approval of the Chief of Technical and Safety Inspection.
 - 2.2. All harnesses must be in excellent condition, properly mounted, and carry SFI or FIA approval tags.
 - 2.3. Harnesses with expiration dates are not valid after the expiration date. Harnesses with a manufacture date but no expiration date are acceptable for five years after manufacture.
 - 2.4. Shoulder harnesses must be two totally separate belts with separate mounting points (ie, single-point Y-belts are not allowed). When viewed from above, shoulder harnesses should be closer at their mounting points than at their seat-entry points. All lap belts must be standard 2-inch or 3-inch width.
 - 2.5. Harness belts should be routed and threaded with at least a 4-inch tail. All sliders should be snugged up to their mounting plates or harness bars as much as possible. Belts should be neatly and evenly folded when passing through narrower hardware, such as 3-inch belts passing through 2-inch mounting plates.

- 2.6. For any aftermarket harness the mounting point for shoulder mounts shall be mounted behind the driver and supported above a line drawn downward from the shoulder at an angle of twenty degrees with the horizontal.
- 2.7. Anti-submarine belt(s) should be mounted vertically or behind the buckle, not ahead of the belt buckle.
- 2.8. Where possible, seat belt, shoulder harness, and anti-submarine straps should be mounted to the roll cage structure or frame of the car. Grade 8 or better hardware and 2.5-inch or larger load washers are required when mounting to sheet metal.
- 2.9. On snap-end-type belt mounts, restrain the snap arm with a cotter pin or safety wire through the hole in the arm.
- 2.10. The double leg straps of the six point system may be attached to the floor as above for the five point system or be attached to the seat belt so that the driver sits on them, passing up between his legs and attaching either to the single release common to the seat belt and shoulder harness or attaching to the shoulder harness straps. It is also permissible for the leg straps to be secured at a point common to the seat belt attachment structure, passing under the driver and up between the legs to the seat belt release or shoulder harness straps. All straps must be free to run through intermediate hoops or clamps/buckles.
- 2.11. Arm restraints required in all open cars and all open wheel vehicles.
3. Window net attached must be attached to the roll cage. The window net may not be attached to the door of the car.
4. All race cars are required to have fire suppression systems, either a 2-lb hand-held or 5 lb 10BC or Novec, two nozzles minimum. Hand-held fire extinguishers must be securely mounted with a quick release bracket and in easy reach of the driver. We strongly recommend a fire suppression system over hand-held.
5. Fuel cells. GT category cars must have a fuel cell. All cars except SS, ST, IT, or Formula must be equipped with a fuel cell as specified in the SCCA GCR or molded polycarbonate type with foam and check valves on all remote fittings.
 - 5.1. Fuel cells are optional on ST cars, but if used must meet foam and check valve requirements per above, and must be mounted as closely as possible to the original tank location. If a cell is used, the original fuel tank must be removed
6. All cars must have a master kill switch easily accessible from the outside of the car. Installation of a master kill switch must kill all electrical circuits in the vehicle, with the exception of an electrically operated fire suppression system, if so equipped.
7. Mounts for video/photographic cameras shall be of a safe and secure design. The body of the camera (recording unit) shall be secured at a minimum of two (2) mounting points on different sides of the camera body, neither of the attachments being plastic or elastic. If a tether is used to restrain the camera, the tether length shall be limited so that the camera cannot come in contact with the driver. These rules of attachment do not apply to the remote lens of "lipstick" cameras that weigh approximately two ounces. The remote lenses of these cameras may be secured with items such as cable ties and/or racer's tape.

Roll Cages

Roll cages are required in all wheel-to-wheel racing cars to protect the driver if the car turns over, runs into an obstacle or is struck by another car. Roll cages shall be designed to withstand compression forces from the weight of the car coming down on the rollover structure and to take fore/aft and lateral loads resulting from the car sliding on its rollover structure.

Seamless or DOM (Drawn Over Mandrel) mild steel tubing (SAE 1010, 1020, 1025) or equivalent, or alloy steel tubing (SAE 4130) shall be used for all roll cage structures. Proof of the use of proper material is the responsibility of the entrant. ERW tubing is not permitted.

Roll cages for Formula, Sports Racing, GT and Production category cars may be mild steel or alloy steel. An inspection hole of 3/16-inch diameter must be drilled into a noncritical area of the main hoop for verification of wall thickness.

<i>Vehicle Weight (without driver)</i>	<i>Mild Steel</i>	<i>Alloy Steel</i>
Up to 1500 lbs.	1.375 x 0.095	1.375 x 0.080
1501 to 2500 lbs.	1.500 x 0.095	1.375 x 0.095
2501 lbs. and over	1.500 x 0.120 1.625 x 0.120 1.750 x 0.095	1.500 x 0.095

Minimum tubing sizes for Formula, Sports Racing, GT, and Production Category vehicles.

Roll cages for EMRA Street Stock and other similar category cars may use DOM, seamless, or alloy tubing. The diameter and wall thickness is determined by the weight of the car.

<i>Vehicle Weight (without driver)</i>	<i>Size</i>
Up to 1500 lbs.	1.375 x 0.095
1501 to 2500 lbs.	1.500 x 0.095
2501 to 3000 lbs.	1.500 x 0.120 1.625 x 0.120 1.750 x 0.095
2501 to 3000 lbs.	1.750 x 0.120
2501 to 3000 lbs.	2.000 x 0.120

Minimum tubing sizes for Street Stock and other classes. DOM, seamless or alloy tubing required.

For the purpose of determining tubing sizes, the vehicle weight is as raced without fuel and driver. The tolerance for wall thickness should be not less than 0.010 inches below the nominal thickness. Spec classes that use a competition weight (with driver and fuel) will be calculated based on the documented vehicle weight minus 180 lbs.

Roll Cage Construction

1. If any of the following bend requirements can not be met, all components listed for the cage shall be fabricated from the tubing size(s) listed for the next heavier category of automobile.
 - 1.1. Main Hoop - four (4) bends maximum, totaling 180 degrees, +/- 10 degrees.
 - 1.2. Front Hoop - four (4) bends maximum, or front down tubes, two (2) bends maximum.
 - 1.3. Rear Hoop Supports – no bends.
2. All closed vehicles shall have full height (top of windshield) front hoops. Open cars without front windshields may have a low front hoop.
3. One (1) continuous length of tubing shall be used for the main hoop member with smooth continuous bends and no evidence of crimping and/or wall failure. The radius of bends in the roll cage hoop (as measured at the centerline of the tubing) shall be not less than three (3) times the diameter of the tubing. Whenever possible, the cage hoop should start from the floor of the car, and in the case of tube frame construction, be attached to the main chassis tubes by means of gussets or sheet metal webs with support tubes beneath the joint to distribute the loads. It is recommended that gussets be used.
4. The top of the main hoop must be a minimum of two (2) inches above the top of the driver's helmet or as near the roof as possible in closed sedans, and shall be no more than six inches behind the driver. Low hoops shall be cowl height, or at a minimum, a straight line drawn from the top of the main hoop to the top of the front hoop shall pass over the top of the driver's helmet.
5. The front hoop shall follow the line of the front pillars to the top of the windshield and be connected by horizontal bars to the top of the main hoop on each side as close to the roof as possible.
6. Main hoops shall have two (2) braces extending to the rear, attaching to the frame or the chassis. Braces shall be attached as near as possible to the top of the main hoop (not more than six inches below the top) and at an included angle of not more than thirty degrees.
 - 6.1. On cars where the rear window bulkhead prohibits the installation of rear braces (e.g. Toyota MR-2, Fiat X1/9), the main hoop may either be attached to the body by plates welded to the cage and bolted to the shoulder harness mounting points.
 - 6.2. Alternatively, the braces can extend through the plane of the rear window to a point on the frame behind the driver. In this case ONLY, the rear window may be replaced by clear Lexan or equivalent material, modified to allow the braces to pass through.
7. Front structure may be reinforced with unlimited number of members, welded or bolted, behind front axle centerline, triangulation allowed, provided no original structure or panels are removed. Such structure may be attached to the roll cage.
8. Roll cage structure within the passenger compartment/trunk is free with respect to number of attachment points to the car and number of tubes.

9. A side tube connecting the front and rear hoops across the driver's side door opening is mandatory, and across the passenger's side door opening is recommended.
 - 9.1. Door gutting is not allowed unless NASCAR-style door bars are installed.
 - 9.2. NASCAR style door bars may be installed on the driver's side and on the passenger side, and shall extend into the door area. Such bars must be the same size and wall thickness as the main cage hoop and must consist of a minimum of two horizontal bars with a minimum of three vertical reinforcements.
10. All mounting plates must be at least 0.080 inches thick if welded, and 3/16 inches thick (with appropriate backing plates) if bolted.
 - 10.1. There shall be a minimum of three (3) bolts per mounting plate if bolted.
 - 10.2. Each mounting plate shall not be more than 100 square inches and shall be no greater than twelve (12) inches nor less than two (2) inches on a side.
11. Seatbacks must be mounted to the main hoop of the roll cage. Seats homologated to FIA certification 8855-1999 or higher do not need this bracing/mounting.

Appendix A: Car List

If your car isn't listed here we will assess it and place it in a preliminary class with cars of similar performance, or alternately, class it temporarily by lbs/hp.

Car	Class
Acura Integra GSR VTEC	6
Acura Integra Non-VTEC	7
Acura Integra Type R	5
Acura NSX Gen 1	3
Acura NSX Gen 1 Type R	2
Acura NSX Gen 2	1
Acura RSX	5
Acura RSX Type S	4
Alfa Romeo V6 N/A	6
American pushrod V-8 w/2 bbl OEM	6
Audi A3T	5
Audi A4 2.8	5
Audi S4 V6 TT	4
Audi S4 V8	2
Audi S6	4
BMW 128i	5
BMW 318i	8
BMW 318i 16v	7
BMW 325e and 325es with ETA engine	7
BMW 8 Series	4
BMW E30 M3	5
BMW E36 325 and smaller	6
BMW E36 328	5
BMW E36 M3	4
BMW E46 325 & smaller	5
BMW E46 328-330	4
BMW E46 M3	3
BMW M coupe (Z4)	3
BMW M3 V8	2
BMW M5 (97 and up)	3
BMW N54/ N55 powered (135, 335, etc.)	3
BMW V8 (not M3)	4

BMW Z3 4Cyl	7
BMW Z3 M Coupe S52	4
BMW Z3 M Coupe S54	3
BMW Z4	5
Cadillac CTS-V 1st G	4
Cadillac CTS-V 2nd Gen	3
Camaro V6 2010 on	5
Camaro V6 up to 4th Gen	8
Camaro V8 305, 350 Gen3 and 4	5
Camaro Z-28 / SS LS1 4th Gen	4
Camaro ZL1	1
Chrysler 2.5 N/A	7
Chrysler 4 cyl Turbo 8V	6
Consulier 2.5T	4
Consulier/ Mosler V-8	1
Corvette C2, C3	5
Corvette C4	4
Corvette C5	3
Corvette C5 Z06 and C6	2
Corvette C6 Z06 and C7	1
Corvette C7 Z06 & ZR1	0
Corvette C8	1
Datsun 240Z, 260Z, 280Z, 280ZX FI	5
Datsun 260Z, 280ZX N/A	7
Dodge 16V 4 cyl Turbo (not neon)	5
Dodge Challenger V8 2008 on	4
Dodge Neon DOHC	7
Dodge Neon R/T	6
Dodge Neon SOHC	8
Dodge Neon SRT4	4
Dodge Stealth/Mitsubishi 3000N/A24V	6
Dodge Viper 2013+	0
Dodge Viper RT-10	2
Dodge Viper up to 2012 excluding RT-10	1
Factory 5 Cobra 302	5
Ferrari V8 2000 and older	4
Ferrari V8 2001 on	1
Fiat 128 Spider	6
Fiat 500 (not Abarth)	7

Fiat 500 Abarth	6
Ford 2.0 & 2.3LN/A (Pinto e.g.)	8a
Ford Escort GT 16v	7
Ford Focus non SVT	7
Ford Focus RS	3
Ford Focus ST	4
Ford Focus SVT	5
Ford GT	0
Ford Mustang Boss 302	2
Ford Mustang Cobra 2003 only	3
Ford Mustang Cobra 94 (5.8L)	4
Ford Mustang Cobra R 1993 Only	5
Ford Mustang Factory SC	2
Ford Mustang GT 05-10	4
Ford Mustang GT 2011+	3
Ford Mustang GT up to 2004	6
Ford Mustang V6	8
Ford Mustang V6 2011 on & SVO	5
Ford Probe Turbo & V6	6
Ford Taurus SHO 2010 on	4
Ford Taurus SHO gen 1,2,3 4 cyl FI no intercooler	7
Ford Thunderbird SC	6
Honda B20 swap*	6
Honda Civic Si to 1987	8a
Honda Civic Si to 1998-1991	8
Honda Civic Si to 1992-1995	7
Honda Civic Si to 1996-2000	6
Honda Civic Si 2001-2005	6
Honda Civic Si to 2006-2015	6
Honda Civic Si 2016 +	5
Honda CRX 16v Si	6
Honda CRX/ Civic with TBI	7
Honda Del Sol Si & VTEC	6
Honda LS vtec swap	5
Honda Prelude & Accord 4 cyl	8
Honda Prelude Si 1992 on	6
Honda S2000	4
Hyundai Genesis V6 and 4T	4
Hyundai Sonata V6	7

Lamborghini Diablo	1
Lamborghini Gallardo	0
Lexus IS250	6
Lexus IS300	5
Lotus 7 (inc. Caterham)	6
Lotus Catherham 7 (pushrod ford)	8
Lotus Elan RWD	7
Lotus Elise (all) & Exige N/A	4
Lotus Esprit 4Cyl FI	4
Lotus Esprit N/A	6
Lotus Esprit V8	2
Lotus Exige SC	3
Maserati 8 cyl and up , '99 and prev	4
Mazda 323 16V	7
Mazda Miata NB	7
Mazda MX6 & 626 4cyl N/A	8
Mazda MX6 Turbo	6
Mazda RX-7 13b engine	6
Mazda RX7 Twin Turbo 1993 on	4
Mazda RX8	5
MazdaSpeed Miata Turbo	5
MazdaSpeed Protégé Turbo	5
Mercedes 190e 2.3 16	6
Mercedes 63 Series	2
Mercedes C220/230 Kompressor	6
Miata 1.6	8
Miata NC	6
Mini Cooper JCW/GP 2006-on	4
Mini Cooper NA 2000 on	9
Mini Cooper S	5
Mitsubishi 3000 GT VR4	4
Mitsubishi Evo	3
Mitsubishi Starion IC Turbo	5
Mitsubishi Turbo 2WD	6
Mustang Cobra Thru 2002	4
Nissan 200SX T	6
Nissan 240 SX – sohc	8
Nissan 240 sx twin cam	7
Nissan 300 ZX 89 on, T 88 & older	5

Nissan 300ZX T '90 on	4
Nissan 350Z 370Z	4
Nissan GTR	1
Nissan Maxima SE 24v 1992+	6
Nissan NX	8
Nissan Sentra, all except SE-R	8b
Nissan SR20de*	5
Nissan SR20det/ swap*	4
Pontiac Firebird V6 up to 4 Gen	8
Pontiac Firebird V8 305 & 350	5
Pontiac G8 6 cyl	6
Pontiac G8 V8 2007 on	4
Pontiac GTO 2003-2007	4
Pontiac Solstice GXP Turbo	4
Pontiac Solstice N/A	6
Porsche 911 3.0 Liter N/A	4
Porsche 911 3.8 Carrera S 05+	2
Porsche 911 993/ 996/ 997 up to 3.6	3
Porsche 911 GT 3 Cup Car	0
Porsche 911 GT-2	1
Porsche 911 GT-3	1
Porsche 911 N/A 2.7 Litres & smaller	5
Porsche 911 Turbo 07+	1
Porsche 911 Turbo up to 05	2
Porsche 928S4, 944 16v	4
Porsche 944 8V	6
Porsche 968	4
Porsche Boxster	4
Porsche Cayman	4
Porsche Cayman S	3
Saab 900 16	8
Saab 9000T 16v	5
Saab 9-3, 9-5, 9-6	8
Saturn Sky N/A	6
Saturn Sky Redline Turbo	4
Saturn to 2400cc 2-3 valve N/A	7
Subaru all NA cars	7
Subaru BRZ	6
Subaru Impreza	7

Subaru Legacy & 6cyl N/A pre-2005	7
Subaru Legacy N/A	8a
Subaru WRX	3
Toyota 1.9, 2.0 & 2.3 N/A	8
Toyota Celica 16v	7
Toyota Celica GTS and all 2ZZ-GE	6
Toyota Corolla 16V, FX16	7
Toyota FR-S	6
Toyota MR2 N/A (2nd generation)	7
Toyota MR2 N/A (3rd gen)	7
Toyota MR2 SC	6
Toyota MR2 Turbo (second gen)	4
Toyota Supra GT 4 cyl	4
Toyota Supra GT 6 cyl	2
Toyota Supra N/A	6
Toyota Supra Twin Turbo	4
Volvo S60R	3
Volvo Turbo Intercooled 2wd	5
Volvo Turbo no intercooler	7
VW 8v cars 1.7L up incl. GTI	8
VW Corrado, Golf	6
VW Golf & Scirocco 16v	7
VW Golf R32	3
VW Jetta VR6	6

Appendix B: Exception Points

Owners may modify their cars for comfort or appearance with no penalty to classing. However, exception points will be assessed for any modifications that enhance a car's performance.

Every three (3) exception points bumps you into the next class.

- 1-2 points: stay in class.
- 3-5 points: bump one class.
- 6-8 points: bump two classes. etc.

We do our best to balance exception points, but In some cases, especially forced induction, it's very difficult to assign exception points that hold true for all cars. It's also difficult to enforce some modifications, like reflashing an ECU, or headwork. The fact is, we aren't going to tear down an engine, and so we expect everyone to be honest about their modifications.

EMRA has the final say on car classing and may class a car up or down to balance performance with other cars. *EMRA also reserves the right to place a GPS device on any car at any time to ascertain its performance.*

Area	Exception	Pts
Engine	All intake components up until the throttle body	0
Engine	Plenum spacer and/or non-OE throttle body	1
Engine	Non-OE intake manifold	2
Engine	Positive displacement SC	3
Engine	Centrifugal SC	4
Engine	Turbo	4
Engine	Intercooler or water/meth injection	2
Engine	Factory cam with same lift, more duration	1
Engine	Non-OE cam	2
Engine	Adjustable camshaft timing pulleys	1
Engine	Compression increase of .5 or less	0
Engine	Compression increase over .5	1
Engine	Maintenance bore (.040", 1mm)	0
Engine	Overbore (greater than .040" or 1mm)	1
Engine	Header	1
Engine	Aftermarket exhaust, after header	0
Engine	Muffler and/or catalytic converter	0
Engine	Aftermarket ECU	1

Engine	Reflash ECU	2
Engine	Ignition systems	0
Engine	E85 and fuels above 93 octane	1
Engine	Engine swap - Ask Tech	*
Drivetrain	Non OE-clutch and/or flywheel	1
Drivetrain	Limited slip or welded differential	1
Drivetrain	Sequential Trans (Non Factory)	1
Drivetrain	Ring and pinion change	0
Brakes	Upgrade factory brakes, same model, different trim	1
Brakes	Aftermarket upgraded brakes	2
Brakes	Aftermarket ABS	1
Suspension	Lowering springs on stock dampers	0
Suspension	Height adjustable coil springs, leaf springs, or torsion bars	1
Suspension	Torsion bar to coil spring conversion	0
Suspension	Any non-adjustable shocks, struts, dampers	0
Suspension	1-way adjustable shocks, struts, dampers	1
Suspension	2-way adjustable shocks, struts, dampers	2
Suspension	3-way (or more) adjustable shocks, struts, dampers	3
Suspension	Bracing, including strut/shock tower brace, chassis brace	0
Suspension	Camber plates, bolts, or ball joints	0
Suspension	Non-OE sway bar and/or endlinks	0
Aero	Non-factory hardtop, OE shape	0
Aero	Non-factory hardtop, non-OE shape	1
Aero	Vortex generators	1
Aero	Airdam or aftermarket front fascia	1
Aero	Splitter, over 4"	2
Aero	Splitter or aftermarket lip up to 4"	1
Aero	Canards, dive planes, or similar molded fascia	1
Aero	Hood vents, OE undertray	0
Aero	Hood vents when combined with non-OE undertray	1
Aero	Aftermarket side skirts	1
Aero	Modified flat bottom	2
Aero	Rear diffuser, OE or aftermarket	1
Aero	Rear spoiler, more than 1" tall	1
Aero	Rear wing, single element	2

Aero	Rear wing, multi-element	3
Aero	Rear wing higher or wider than body (add)	1
Aero	Factory active aero (rear)	1
Weight	Remove < 100 lbs	1
Weight	Remove 100-200 lbs	2
Weight	Remove > 200 lbs - Tech inspection	*
Weight	Gutting interior, added oll cage	1
Wheels	Wider than OE trim	2
Wheels	TT tires 100+ UTQG	0
Wheels	TT tires < 100 UTQG	3
Wheels	Racing tires 40+ UTQG (Race class only)	3
Wheels	Racing tires < 40 UTQG (Race class only)	3

EMRA Tech Inspection Worksheet

First:	Last:	Member #:	
Phone:	Emergency Ph:	Transponder #:	
Make and Model:		Car #:	Class:
Event:	Date:	Group:	
Modifications:			

Helmet Snell Rating _____ Long Sleeve Shirt Race Suit

- Interior** Clear and empty including the glove box, all cubby bins, coin boxes, luggage bins, map pockets, etc. GPS/EZPass and floor mats removed.
- Auxiliary Equipment** Cameras, data loggers, lap timers, etc, must be mechanically fastened to the car. Tape or velcro are not sufficient. Suction cup mounts must be tethered.
- Driver Restraints** OEM, No chafing, ripping or tears including all of inertial reel type, securely mounted, HANS compliant if 5+ point harnesses
- Engine Compartment** Coolant system is leak free, hoses and belts are crack free, radiator and aftermarket items securely mounted. Master cylinder full. No visible engine oil leaks, engine mounts are sound. No evidence of structural failure or unrepaired crash damage. All wiring and plumbing is secured and visible steering/suspension components are secure.
- Wheels/Tires/Brakes** Tires have adequate tread, no sidewall cracking or bulging, No chords showing. Wheels unbent and uncracked. Hubcaps removed. Wheel bearings, ball joints and tie rod ends pass a "shake test". Brake pads adequate if visible, No structural cracking or excessive wear on discs, brake hoses undamaged
- Battery** Must be securely mounted (no bungies), and the hot terminal must be fully insulated
- External Bodywork** No interference with tires. All panels secure. Aerodynamic parts solidly mounted. Front windows retract fully. Glass front lights taped over. Car numbers visible from all directions.
- Brake Lights** At least one brake light must work. No exceptions.
- Mirrors** Must be securely mounted. Proper field of view to see overtaking vehicles.
- Exhaust System** Must exit behind and away from the driver. Must be securely mounted. Lime Rock only, must pass 90dB sound check
- Roll Bar** Open top time trial vehicles must have aftermarket roll protection with a minimum 4 points of attachment, fore and aft as well as transverse diagonal brace and must extend above the drivers helmet.
- Race Cars** Must meet EMRA "Racing Guide" minimums

Examined by: _____ Date examined: _____