



CAR PREPARATION RULES

EMRA CAR PREP GUIDE VER 2019



IMPORTANT READING

Racing and Time Trialing are exciting, rewarding, and fun. They do however, by their nature, involve risk. 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 racing or time trialing. Each driver should be aware of the imminent danger when on the course with other drivers.

This guide was written to clarify 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.

Contents

SECTION A – GENERAL VEHICLE AND DRIVER SAFETY	4
1.0 Driver Safety	4
2.0 Vehicle Safety	7
3.0 Roll Cage	8
SECTION B – CLASS PREPARATION RULES	11
1.0 Street Stock – General	11
2.0 Chassis and Coachwork	12
3.0 Wheels, Tires, and Suspension	15
4.0 Engine and Drive Train	16
5.0 Brakes	18
6.0 Allowable Exceptions	18

It is EMRA's policy to provide a class for any car meeting EMRA race safety standards, whether listed in the GCR or not. In the case of Production or GT cars formerly listed by SCCA and subsequently dropped, they shall be classified as last listed, or in the most nearly equivalent current class. Any car not conforming to the restrictions of any other category may be classified in Sports/Racing, subject to the ruling of the EMRA Board.

In general, EMRA safety regulations are the same as those in the SCCA GCR. 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.

SECTION A – GENERAL VEHICLE AND DRIVER SAFETY

1.0 DRIVER SAFETY

1.1 Driver's safety equipment shall also include the following:

- 1.1.1 Race Only - driving suit with two layers Nomex or equivalent. A driving suit will be defined as a garment that effectively covers the body from the neck to the ankles and wrists. Such garment will be in good condition, with no rips or tears. Time Trial - long sleeve shirt and pants required.
- 1.1.2 Race Only - Fireproof gloves and socks. Shoe uppers of leather and/or non- flammable material. There should be no holes in the shoes other than for laces.
- 1.1.3 Race and Time Trial - Shoes with no perforations (preferably racing shoes)
- 1.1.4 Race Only - Nomex balaclava to cover any protruding hair.
- 1.1.5 Race Only - Gloves made of leather and/or a fire resistant material with no holes.
NOTE: In a fire, leather will shrink and can develop enough force in a hand, even though it is fire resistant.
- 1.1.6 It is recommended that any corrective eyeglass material used be of the safety type and meet US Government standards.

1.2 Helmet

- 1.2.1 Helmets shall be Snell 2010 minimum
- 1.2.2 Helmets accepted include Snell M2010, M2015 and SA2010 and SA2015.

- 1.2.3 Drivers of open cars shall wear full-face helmets with the visor in the closed position when on track.
- 1.2.4 NJMP requires a full face helmet (visor not required in closed cockpit cars), and EMRA recommends all competitors have one.

1.3 Seat Belts and Harnesses

- 1.3.1 All drivers in EMRA sanctioned races, and Time Trial GT, Production, Formula and Sports Racers must utilize either a five (5) or six (6) point harness meeting the following specifications. (The restraint system is subject to the approval of the Chief of Technical and Safety Inspection).
- 1.3.2 A five point system consists of a three-inch seat belt, approximately two-inch strap over the shoulder type of shoulder harness and approximately two-inch anti-submarine strap.
- 1.3.3 A six point system is recommended for use in all automobiles and shall consist of either a two or three inch seat belt, approximately two inch strap over the shoulder type of shoulder harness and approximately two inch leg or anti-submarine strap.
- 1.3.4 The material of all straps shall be nylon or Dacron polyester and in good condition. The buckles must be of metal-to-metal quick release type except in the case of leg straps of the six point system where they attach to the seat belt or shoulder straps.
- 1.3.4a It is MANDATORY for Racing that Drivers utilize a head and neck support device (R3, HANS, or better).
- 1.3.4b It is HIGHLY recommended for all TT groups to use a neck brace or better. Blue Extreme run group must use a neck brace at minimum.
- 1.3.5 The single anti-submarine strap of the five-point harness system shall be attached to the floor structure of the car similar to the shoulder harness mounting and shall have a metal-to-metal connection with the single release common to the seat belt and shoulder straps.
- 1.3.6 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.

- 1.3.7 The minimum acceptable bolts used for mounting all belts and harnesses is SAE Grade 5. Where possible, seat belt, shoulder harness, and anti-submarine straps should be mounted to the roll cage structure or frame of the car. Where this is not possible, large diameter mounting washers or equivalent should be used to spread the load. Bolting through aluminum floor panels is not acceptable.
- 1.3.8 Race Only - Five point harness minimum. Only separate shoulder mounts are permitted. The "Y" type shoulder straps are not allowed. "H" type configuration is permitted. Effective 1 January 2004 all driver restraint systems shall meet SFI specifications 16.1 and shall bear a 'SFI Spec 16.1' label. The certification indicated by this label shall expire on December 31st of the second year after the date of manufacture indicated on the label.
 - 1.3.8.1 Harnesses with FIA certification 8853/1985 including amendment 1/92 shall be no more than five (5) years old.
 - 1.3.8.2 Restraint systems with FIA certification 8853/98 and 8854/98 will not have a date of manufacture label. Instead, they will have a label containing the manufacturer's name, type of harness designation, and date of expiration, which is the last date of the year marked.
- 1.3.9 Time Trial – 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. A racing five, or six point racing belt is acceptable, but not required.
- 1.3.10 Must be in good condition - not frayed, stretched, or weathered
- 1.3.11 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.
- 1.3.12 Race Only - Arm restraints required in all open cars. They are recommended for Time Trial. Arm restraints are required in ALL open wheel vehicles, Race or Time Trial.
- 1.3.13 Race Only - Window net attached to roll cage in sedans. The window net may not be attached to the door of the car.

2.0 VEHICLE SAFETY

The requirements of section 2.0 apply to vehicles seeking to be eligible for wheel-to-wheel racing, except where otherwise noted.

2.1 Roll Cage

- 2.1.1 Race Only – Street Stock Cars must have a minimum of six-point Roll Cage at least A Drivers side intrusion bar. Material & construction shall be per the requirements of Section 3.0 Roll Cage.
- 2.1.2 Time Trial – four (4) point or better roll bar with at least one (1) diagonal are required for open vehicles only. Material and construction shall be per the requirements of section 6.0, Roll Cage. Roll bars are NOT required for sedans. Factory installed roll hoops (i.e. Porsche Boxster, Honda S2000) are not acceptable.

The Chief Steward will make allowances on a case-by-case basis.

2.2 Roll Cage (Race Only)

All racecars must have a hand held fire extinguisher, 2 lb. Halon 1301 or 1211, or 10BC fire extinguisher or fire system minimum. This must be securely mounted with a quick release bracket within easy reach of the driver. On board fire suppression systems are strongly recommended.

2.3 Race Only (GT Category Cars)

Must have forward braces on the cage and minimum of two (2) side intrusion bars on each side. Material and construction shall be per the requirements of section 3.0 Roll Cage.

2.4 Fuel Cells

- 2.4.1 Race Only - GT category cars must have a fuel cell
- 2.4.2 Time Trial Only – If a car competes in the Production or GT categories it must have a roll bar, race specification harnesses, and fire extinguisher or it may not compete.
- 2.4.3 Effective 1 January 1989 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. 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.

2.5 Kill Switch

All cars except SS, ST, and IT must have a master kill switch easily accessible from the outside of the car. A kill switch is strongly recommended for ST and IT cars. Installation of a master kill switch must be per SCCA guidelines, and must kill all electrical circuits in the vehicle, with the exception of a electrically operated fire suppression system, if so equipped.

2.6 Camera and Video Mounts

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 restraint 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.

3.0 ROLL CAGE

3.0 These general specifications are for all automobiles. Roll cages are required in all automobiles as defined in section 2.0.

The basic purpose of the roll cage is to protect the driver if the car turns over, runs into an obstacle or is struck by another car. It 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.

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.

3.1 Roll cage structure within the passenger compartment/trunk is free with respect to number of attachment points to the car and number of tubes.

3.2 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.

3.3 Material

3.3.1 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.

Note: ERW tubing is not permitted for any automobile registered with EMRA after January 2004.

3.3.2 Minimum tubing sizes (all Formula, Sports Racing, GT, and Production Category vehicles, and for all automobiles registered after January 2004) for all required cage elements:

<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	1.500 x 0.095
	1.625 x 0.120	
	1.750 x 0.095	

3.3.3 Minimum tubing sizes (for all Street Stock, Showroom Stock, Touring, and Improved Touring Category automobiles registered after January 2004) for all required cage elements:

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

		Alloy
3001 – 4000 lbs.	1.750 x 0.120	DOM, Seamless, Alloy
4001 lbs. and over	2.000 x 0.120	DOM, Seamless, Alloy

For the purpose of determining tubing sizes, the vehicle weight is as raced without fuel and driver. The minus tolerance for wall thickness should be not less than 0.010 inches below the nominal thickness. ST and IT roll cage tubing sizes are to be calculated based on the published vehicle weight minus 180 lbs.

- 3.3.4 An inspection hole of 3/16-inch diameter must be drilled into a noncritical area of the main hoop for verification of wall thickness.

3.4 Construction

- 3.4.1 Full width roll cages are required in all GT, ST, IT, and SS class automobiles. Open cars without front windshields may have low front hoop. All closed vehicles shall have full height (top of windshield) front hoops.
- 3.4.2 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.

Main Hoop - four (4) bends maximum, totaling 180 degrees, +/- 10 degrees.

Front Hoop - four (4) bends maximum, or front down tubes, two (2) bends maximum.

Rear Hoop Supports – no bends.

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.

- 3.4.3 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.

- 3.4.4 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.
- 3.4.5 Main Hoop Bracing - 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. 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.

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.

- 3.4.6 Side Protection – 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.

NASCAR style protection may be installed on the driver's side and on the passenger side. The driver's window safety net may be mounted to this side protection and the top cage tube NASCAR-style protection tube shall extend into the door.

- 3.4.7 Doors may be gutted, including glass, to provide room for the installation of NASCAR style door bars. Such bars must be same size and wall thickness as main cage hoop and must consist of minimum two horizontal bars with minimum of three vertical reinforcements. Door gutting is not allowed unless these door bars are installed
- 3.4.8 The window glass, window regulator, inner door trim panel, and inside door latch/lock mechanism may be removed only if it interferes with the installation these side protection tubes.
- 3.4.9 Mounting Plates – Each mounting plate must be at least 0.080 inches thick if welded, and 3/16 inches thick (with appropriate backing plates) if bolted. There shall be a minimum of three (3) bolts per mounting plate if bolted.
- 3.4.10 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.

SECTION B – CLASS PREPARATION RULES

STREET STOCK CATEGORY

1.0 STREET STOCK – GENERAL

Important Note: UNLESS IT IS SPECIFICALLY STATED THAT EQUIPMENT OR A MODIFICATION IS PERMITTED, IT CANNOT BE DONE, WHEN IN DOUBT, DON'T DO IT

- 1.1 It is the intent of EMRA that this category is for cars with essentially stock bodies, drive trains and chassis having appropriate modifications to allow competitive, safe racing. The automobiles in the category will be cars as offered for sale in the U.S. by the factory. The entrant must provide a shop manual to document stock specifications. The entrant of a street-driven ST car is responsible for applicable state and federal safety and smog compliance. Non-performance comfort and decor options are allowed.
- 1.2 Cars may be updated or backdated within a model as offered for sale in the U.S. by authorized dealers except:
 - 1.2.1 The engine displacement must match body, chassis and vintage with respect to model and generation.
 - 1.2.2 NO equipment from a version of the model existing in a 'higher' class is eligible as an update/backdate on the 'lower' class version unless specifically allowed. (Example - GTI or Si parts not allowed on non - GTI or Si cars). A model listed separately is 'as is' and separate.
- 1.3 All cars must conform to the safety regulations outlined in the SCCA General Competition Rules (GCR) under "Automobiles - General Regulations", except as modified by the EMRA Racing Guide.
- 1.4 Although every attempt is made to properly class each car for an event, it is really the responsibility of the competitors to police and identify improperly classed cars. EMRA wants to be sure that an individual racer or time trialist knows he/she can and should report what he/she feels is an incorrect classing to the Chief Steward, Stewards, or Tech.
- 1.5 EMRA shall continue to inspect cars at impound and Stewards may issue penalties for infractions found.

2.0 CHASSIS AND COACHWORK

- 2.1 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 and encouraged.
 - 2.1.1 All body parts must be securely fastened.

- 2.2 Fitting of all accessories, gauges, and indicators in the original stock dashboard, and any inside modifications for the purpose of improving the comfort and convenience of the driver and to permit the installation of the required safety equipment is allowed, provided they have no influence whatever on the mechanical performance and do not materially, reduce the weight of the car.
- 2.3 All flammable material in the immediate area of the gas tank or fuel filler (i.e. trunk or rear of hatchback) should be removed. Any floor covering and sound deadening material may be removed.
- 2.4 Removal of interior trim (gutting) is not permitted.
- 2.5 Front seats may be changed. Front passenger's seat may be removed.
- 2.6 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.
- 2.7 Seat headrests may be removed and seat mounts may be reinforced.
 - 2.7.1 The driver's seat must have a headrest capable of withstanding a severe impact. If the stock seat is retained, the original headrest must be also be retained.
- 2.8 The rear seat and or seat back may be removed.
- 2.9 Headliners may be removed.
- 2.10 The radio may be removed.
- 2.11 The windshield wiper blades and arms only may be removed.
- 2.12 The heater may be bypassed, but may not be removed if it was original standard equipment. Defrosters should be kept functional.
- 2.13 Bumpers with all attaching/projecting hardware may be removed.
 - 2.13.1 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.
- 2.14 Trailer balls must be removed. Trailer hitches are discouraged.
- 2.15 Any alteration or modification of the shape or contour of any interior or exterior body panel is prohibited unless specifically allowed.
- 2.16 Fender flares are permitted.
- 2.17 On closed cars, the driver's and passenger door windows must be fully lowered.
- 2.18 In open cars or cars with removed roof panels, all movable windows must be lowered.

- 2.19 Tops must either be removed from open cars or folded and secured. Tonneau covers must be removed.
- 2.20 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.
- 2.21 Identification and Markings
 - 2.21.1 Race Only -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.)
 - 2.21.2 Each car shall carry identification numbers and class letters. Such markings shall be placed on the front and on both sides of the car so that they are clearly legible. Such numbers and markings shall also be mounted on a rearward-facing surface, minimum four inches in height. Door and front numbers shall be at least eight (8) inches high on a contrasting background.
 - 2.21.3 Class designation insignia will be the class number or letter preceded by the letters "ST" displayed on both sides of the car.
- 2.22 All racecars are required to have a front and rear tow hook or ring to facilitate flat towing. If the tow point is enclosed (loop or ring) it must be a minimum of two (2) inches in diameter. It is recommended that Time Trial cars be similarly equipped.
 - 2.22.1 To facilitate quick retrieval it is recommended that such tow point be painted in a contrasting color and that some sort of identification for the location of same be present on the bodywork of the vehicle.
- 2.23 A front spoiler or air dam must be no lower than the bottom of the wheel rim, must not extend beyond the body perimeter, and whenever possible must be mounted to the car at a point no higher than the wheel centerline.
- 2.24 Spoilers and Wings
 - 2.24.1 A rear spoiler may be added, with a maximum height of 6 inches. It must be no wider than the body and there must be no overhang. No wings are allowed unless stock.
 - 2.24.2 Time Trial Only – aftermarket wings are allowed with no bump in class. Wing can be no higher than the roof line and no more than 54" wide including end plates.
- 2.25 Lights

- 2.25.1 Headlight bulb/lens assemblies (but not bucket/mounts) may be replaced with suitable covers.
- 2.25.2 Headlights remaining in place must be taped.
- 2.25.3 All cars except Formula, SR, and SRF cars shall have two operating brake lights. SR and SRF cars shall have the SR brake light in operating condition.
- 2.25.4 All vehicles shall have at least one (1) operating rearward facing light for use in rain or low visibility conditions. The Chief Steward may require at his or her discretion that this light be on when vehicles are to be on course.
- 2.26 Any chassis structural modification required to repair an existing failure is permitted, provided it does not significantly improve the vehicle performance beyond original factory specifications.
- 2.27 The battery may be relocated, provided it is mounted on a stock surface and cannot spill into the passenger compartment in an accident situation.
- 2.28 Firewall and floor shall be sealed so as to prevent passage of flame and debris to the driver's compartment.
- 2.29 There shall be a metal bulkhead between the driver's compartment and the fuel tank.
- 2.30 Fiat X1/9, and 1985 - 1989 Toyota MR-2 may add additional vents to front deck lid to augment cooling.
- 2.31 Steering Wheels
 - 2.31.1 Race Only - Steering lock mechanisms shall be disabled for SS class vehicles.
 - 2.31.2 Wooden steering wheels are forbidden, even if original equipment.
- 2.32 Mirrors shall provide visibility to the rear of both sides of the vehicle.
- 2.33 Use of a drive shaft loop is recommended. Allowable exceptions: see "STREET STOCK EXCEPTIONS".

3.0 WHEELS, TIRES, AND SUSPENSION

- 3.1 Tires must be DOT approved street type (see 3.12 concerning ride height).
- 3.2 The complete width of the tire tread must be visible at tech inspection.
- 3.3 Tires on a given axle must be the same size.

3.4 When viewed from above, the entire width of the tread, at the vertical centerline of the tire must be enclosed within the bodywork.

3.5 Wheel Rims - Diameter

3.5.1 Steel or alloy wheels may be used.

3.5.2 Cars with stock 10 to 12 inch diameter wheels may use 13-inch wheels.

3.5.3 Cars originally equipped with metric 390 mm wheels may use 15inch diameter wheels. All other cars must use stock diameter wheels.

3.5.4 A car may use a wheel SMALLER in diameter than stock without taking a class bump.

3.6 Wheel Rims – Width

3.6.1 Maximum wheel width is stock. May run options offered as OEM unless only offered on a model that exists in a higher class. (i.e. GTI vs. non-GTI, Z06 vs. non Z06)

3.7 Camber compensators or limit straps must be used on cars with swing axles; in this case any change in ride height due to de-cambering will be permitted.

3.8 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.

3.9 Any sway bars may be used.

3.10 Additional locating links (e.g. traction bars, Panhard rods) may be added to solid axles.

3.11 Any springs may be used, provided they are of the same type as OEM and their mounting points are unchanged.

3.12 The minimum ride height is 4" at the rocker panel behind the front wheels.

3.13 An increase in track dimensions may not exceed 2" with spacers no thicker than 1/2".

3.14 Alternate bushing material or spherical rod ends may be used in original locations.

3.15 Camber plates may be used.

3.16 Braces

3.16.1 Strut braces, front and/or rear, upper and/or lower are permitted.

3.16.2 Rear bracing must be bolt in only (no welding) and must be on a horizontal plane only.

3.16.3 There must be no connection between the upper and lower chassis and/or strut braces. See "ROLL CAGE"

Allowable exceptions: see "STREET STOCK EXCEPTIONS".

4.0 ENGINE AND DRIVE TRAIN

- 4.1 Ignition systems are free. However, the spark must be triggered and distributed by an engine driven distributor, unless OEM ignition uses a DIS or crank triggered unit. Note: A two distributor Mazda RX-2 is permitted to run a Mazda single distributor system.
- 4.2 A maximum of .040" wear limit is allowed on cylinders, and .060" over 25 years old.
- 4.3 Air cleaners are free, but no horns, tubes, or extensions, other than OEM may be attached to the inlet system.
 - 4.3.1 Cold air boxes, designed to keep hot under hood air from entering the engine intake, are allowed, provided they do not use any sort of "ram-air" effect to pressurize the intake tract.
- 4.4 Jetting, needles, or injectors may be changed.
- 4.5 Carburetor throttle springs and injector throttle body return springs may be changed or altered.
- 4.6 Cars with single barrel carburetors can run double barrel carburetors on the stock manifold with the appropriate adaptor, unless noted otherwise.
- 4.7 A minimum of two return springs is required.
- 4.8 The maximum allowable compression ratio is 10.5:1 or stock, if stock is higher.
- 4.8 Any head gasket may be used.
- 4.9 The oil system is free. An oil filter may be added, removed, or relocated.
- 4.10 The muffler and/or catalytic converter may be removed or replaced.
- 4.11 Exhaust system routing may be changed, provided that the exhaust exits behind a point halfway between the axle centerlines. Under all circumstances the exhaust must exit behind the driver.
- 4.12 For carbureted cars only, the use of an aftermarket header and an aftermarket bolt on carburetor is permitted. A bolt on carburetor is defined as being the same type (down or side draft), same number of barrels/venturis, and mounted to the stock intake manifold using a suitable adaptor.

- 4.13 For fuel-injected cars only, use of an aftermarket exhaust header or an aftermarket airflow meter/throttle body, BUT NOT BOTH, is permitted.
 - 4.14 Sensor readings to computer, or computer, may be modified for the purpose of timing and/or mixture adjustments. This specifically EXCLUDES those alterations that affect boost levels. See section 6.2.12.
 - 4.15 Injectors may be changed.
 - 4.16 Adjustable fuel pressure regulators are permitted.
 - 4.17 Any radiator is permitted in the original location.
 - 4.18 The cooling fan may be removed or replaced.
 - 4.19 The fuel pump is free, provided it is mounted and plumbed safely.
 - 4.20 Manifold/cylinder head port matching is permitted providing that no material is removed further than 1" from the manifold mounting face. No other porting/polishing is allowed.
 - 4.20.1 Porting/polishing/matching is prohibited on rotary engines.
 - 4.21 Adjustable camshaft timing pulleys are permitted.
 - 4.22 Updating/Backdating of cylinder heads (same number and size of valves, same number of ports, cams, and belts, from same or lower class) from the same manufacturer, which will bolt in/on with no machining, is permitted
 - 4.23 Alternate engine pulleys are permitted.
 - 4.24 Updating/Backdating of final drive ratios (ring and pinion gears only), is permitted
 - 4.25 Limited slip or welded differentials are allowed.
- Allowable exceptions: see "STREET STOCK EXCEPTIONS".

5.0 BRAKES

- 5.1 Any brake lining material may be used.
- 5.2 Dual master cylinders may be fitted.
- 5.3 Safety brakes may be added.
- 5.4 Backing plates and dust shields may be modified or removed.

5.5 Race Only - Rotors, drums, and calipers must be stock.

Time Trial - Slotted or grooved rotors are allowed without class bump. Must be OEM size and type.

5.6 Brake ducting is permitted, but the inlet opening must not penetrate any original exterior body panel above the axle centerline, nor replace any original lighting equipment.

Allowable exceptions: see "STREET STOCK EXCEPTIONS".

6.0 ALLOWABLE EXCEPTIONS

NOTE: ST Class exceptions are designed to allow modification to the car within the limits of car preparation.

An "exception" is any deviation from the class car preparation rules, as defined. Only the below deviations, or bumps, are allowed.

6.1 Class moves

6.1.1 ST1 category cars having one (1) but not more than five (5) of the following exceptions will be moved to the ST-U Class.

6.1.2 ST2, ST3, ST4, ST5 ST6 & ST7 cars having one (1) but not more than three (3) of the following exceptions can remain in ST category, but will be reclassified one class higher. ST8 cars will be classified on a case by case basis.

6.1.3 TIME TRIAL: If a car competes in either the Production or GT category it must have a competition roll bar, a five point harness, and a fire extinguisher, or it may not compete.

6.1.4 TIME TRIAL BLUE EXTREME ONLY: If a car competes in this class it must have at minimum a harness bar (roll bar highly recommended), 5/6 point harness, Blue X on front and rear of car, and a minimum of four (4) years of time trial experience.

6.2 Allowable exceptions. Each item counts as one (1) exception unless otherwise noted.

6.2.1 Wheels of a larger diameter and/or width than stock counts as two (2) exceptions.

6.2.2 Track more than 2" wider than stock.

6.2.3 Removal of a bolt on windshield.

6.2.4 For fuel-injected cars only, use of an aftermarket exhaust header and an aftermarket air flow meter or throttle body counts as one exception.

- 6.2.5 An engine and/or transmission swap from the same manufacturer, provided the number of cylinders or rotor chambers, valves, cams and cam configuration and type of induction remains the same and the number of gear ratios remains the same will bump one or more classes with two more exceptions allowed at the discretion of Tech. Such bumps will be reviewed on a case-by-case basis.
- 6.2.6 A car fitted with an aftermarket turbocharger or supercharger will move up two classes. The car may also take up to two more allowable exceptions, unless it is equipped with an intercooler. Intercooled cars may not take any more exceptions. Forced induction is a displacement modifier of 1.5 times stock displacement for the engine.
- 6.2.7 Non-stock brakes, front and/or rear. Counts as two exceptions.
- 6.2.8 Aftermarket/Alternate camshaft(s). Counts as three exceptions. May use standard ratio roller rockers.
- 6.2.9 Standard ratio roller rockers count as one exception.
- 6.2.10 Aftermarket/Alternate intake manifold. Counts as two exceptions.
- 6.2.11 Multiple carburetors on a car which had only one carburetor OEM is a two class bump with two further exceptions allowed to be taken in the new class.
- 6.2.12 A factory turbocharged or supercharged car equipped with a non-OEM intercooler or adjustable boost or aftermarket /modified waste gate. Each One of these items counts as one exception.
- 6.2.13 TIME TRIAL CARS ONLY; IF A CAR COMPETES IN PRODUCTION OR GT CATEGORY, IT MUST HAVE A COMPETITION ROLL BAR, A FIVE POINT HARNESS, AND A FIRE EXTINGUISHER, OR IT MAY NOT COMPETE.
- 6.2.13 Gutted interior counts as one exception. Gutted is defined as: does not have original equipment dashboard and/or heater removed and/or interior panels removed beyond what is required for installation of roll cage.
- 6.2.14 Aftermarket boost controller counts as two exceptions

SCCA American Sedan, World Challenge, Escort, and other professional series, fully meeting their respective rules exclusively, will be allowed to run in EMRA as ST class cars, but one class higher at the discretion of Tech. Cars prepared to American Sedan and entered as such will be allowed to run that class in EMRA without current SCCA logbooks provided they meet EMRA safety specs.

EMRA recognizes all SCCA classes.

