



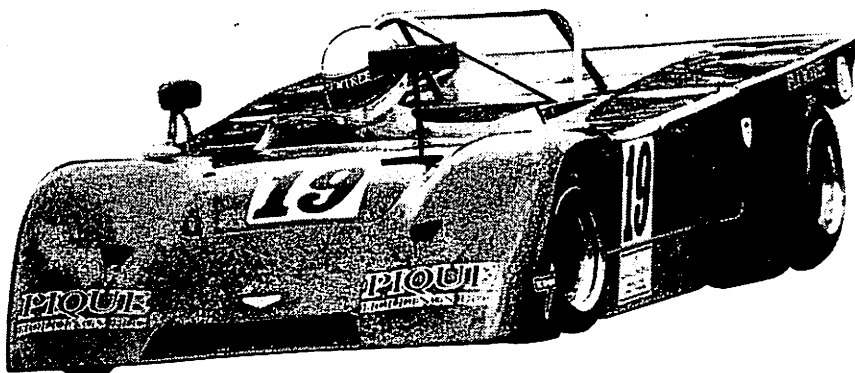
# CASC

## NATIONAL RACE

### GENERAL COMPETITION RULES

#### AND

### COMPETITION REGULATIONS 1989



#### GT

#### 1.0 DEFINITION AND GENERAL REQUIREMENTS

The purpose of GT category shall be to provide a category of racing cars for CASC members who desire to compete in series-produced automobiles generally available for purchase by the public, and who additionally desire to improve the performance of these cars within specific and uniform preparation limitations.

- 1.1 All vehicles must comply with the relevant rules in these race G.C.R.'s as well as these regulations.
- 1.2 Only automobiles having a current recognition form are eligible to compete in CASC G.T. classes with the exception that cars complying with current SCCA Trans Am rules may compete as G.T.1. cars.
- 1.3 The official specifications of eligible G.T. category automobiles are those found on CASC recognition forms for the category.
- 1.4 G.T. cars are classified for racing purposes in groups of similar performance.
- 1.5 The standard vehicle may not be altered, modified or changed in any respect unless specifically authorized or required by these rules.
- 1.6 Tube frame cars are permitted and a standard maximum track dimension for tube frame cars is as follows:

SCCA GT1	68" front and rear
SCCA GT2	61" front and rear
SCCA GT3	60" front and rear
SCCA GT4	60" front and rear
SCCA GT5	56" front and rear
- 1.7 Tube frame cars should be prepared to the above appropriate SCCA class track dimensions and in all other respects to the CASC regulations.
- 1.8 A non tube frame car has a stock floor pan, firewall, door pillars, sills, windshield and window frames.
- 1.9 Open cars will not be permitted to run a tube frame.
- 1.10 Automobiles first raced prior to January 1984, as evidenced by a CASC issued or SCCA issued vehicle log book issued prior to that date must be fitted with a main roll over bar conforming to CASC G.C.R. Appendix "Z".

- 1.11 All other automobiles must be fitted with a roll cage conforming to CASC race G.C.R. Appendix "Z".
- 1.12 Windshield safety clips (3" x 1" x 1/8") must be installed on all closed cars. Three clips must be bolted or riveted to the body at the top of the windshield and must extend over the edge of the windshield. Two clips must be bolted or riveted to the cowl and extend over the bottom of the windshield. Clips must be spaced a minimum of twelve inches apart. Rear windows must be secured with two straps (1" x 1/8") bolted or riveted to the body both above and below the rear glass. Hatchback, frameless windows exempt from this rule.
- 1.13 Cars must meet or exceed the minimum racing weight as listed on the CASC recognition form for that make and model. Weight of the car is as raced or qualified with the driver aboard.
- 1.13.1 Ballast may be added but must be securely mounted within the coachwork in such a fashion that a tool is required for its removal.
- 1.14 Component parts of the automobile may be lightened, provided the external appearance is not altered and structural rigidity is maintained, except that the chassis/frame/tub may not be lightened by chemical removal of metal. Parts made of an alternate material may be substituted for the component parts of the body work, i.e., hood, doors, fenders, rear deck lid, rocker panels, etc. provided that the shape is identical to the original or approved alternate panel. The original roof, windshield pillars and angle of the windshield must be maintained.
- 1.15 It is recommended that standard fuel tanks be substituted with safety fuel cells conforming to CASC safety fuel cell specifications as in Appendix 'X'.
- 1.16 There must be a bulkhead separating the driver/passenger compartment from the compartment(s) containing the fuel tank and the engine. Such a bulkhead must be added if the standard vehicle has none.
- 1.17 At least one main door window must be fully open during competition. An open vent window does not suffice.

- 1.18 If glass and/or plastic headlights, light covers, front parking lights and front signal light lenses and bulbs are removed, the openings must be covered with a wire mesh screen or panels made of metal, fiberglass or other approved material. Side marker light assemblies must be removed and the resulting openings covered with a plate whose dimensions do not exceed those of the original parts. Other lighting parts and operating ancillaries may be removed. In the case of pop-up headlights, the entire assembly may be removed and the opening covered with a screen or plate (as above). Headlight, front parking light, front signal light and similar standard openings in the front of the car may be used for ducting air to the engine, front brakes and/or oil coolers may pass through interior panels for this purpose. The cross sectional area of a single duct shall not exceed the cross sectional area of the original (single) headlight lens.
- 1.19 It is recommended that a drive shaft safety hoop be used on all front-engined, rear wheel drive vehicles.

- 2. Engine and drive line.
- 2.1 Induction system.
  - 2.1.1 V-8 engines must use a single CASC-approved 4V carburetor (Holley Model 4150) with a throttle bore size no larger than 1-11/16 inches in diameter or such carburetor(s) as listed on the CASC recognition form for the make and model of car.
  - 2.1.2 Except for V-8 engines and unless otherwise specified on the recognition form for that make and model of car, carburetors and intake manifolds are free, provided the intake manifold can be attached to the cylinder head or end cover without modification to the cylinder head or end cover.
  - 2.1.3 No portion of the intake manifold may extend into the ports of the cylinder head or end cover.
  - 2.1.4 Extensions or addition of material, except for throttle linkage, to the exterior of the carburetor body is prohibited.
  - 2.1.5 Fuel injection may only be used if listed on the CASC recognition form for that make and model. If fuel injection is permitted, any modifications may be made to that fuel injection system except changing the make and model of the fuel metering and/or distribution system. Any intake manifold may be used.
  - 2.1.6 Velocity stacks (air intake horns) or cold air box(es) may be used on any induction system, provided no modifications are made to the body or frame of the car to accommodate their use.
  - 2.1.7 No changes (unless specified in CASC recognition forms) may be made in the internal or external coachwork, chassis or firewall for the installation of the induction system.
  - 2.1.8 All turbocharged engines must have an inlet restrictor as per Appendix 'A' Section 1.8. The specified diameter for this restrictor for all turbocharger engines is 54 mm.
  - 2.1.9 Any air filter may be used or the filter may be removed. Dynamic air intakes may be fitted to the carburetor(s) or fuel injection air intake(s). Air may be ducted to the carburetor(s) or fuel injection air intake, provided the ducting is contained within the engine compartment and the air is supplied through the normal openings in the coachwork.

- 2.2 Any linkage may be used between the throttle and the accelerator pedal.
- 2.3 Any exhaust manifold or headers may be used. Exhaust pipes and mufflers may be replaced with straight pipe(s). The exhaust tail pipes may be partially recessed into the floor panel and lower rocker panel. Cross members to the rear of the engine may be modified (but not relocated) for the purpose of exhaust system installation only.
- 2.4 Exhaust system emission control air pumps, associated lines and nozzles, and EGR devices cannot be modified in any way except that they may be completely removed. When these nozzles are removed from an engine, cylinder head or end cover, the resulting holes must be completely plugged.
- 2.5 Thermostats may be modified, removed or replaced with blanking sleeves or restrictors.
- 2.6 The cooling fan may be modified, substituted or removed.
- 2.7 Generator, crankshaft, waterpump pulleys and power steering pumps may be altered or replaced with others of unrestricted origin. The use of any crankshaft vibration dampener is allowed.
- 2.8 The use of any starter is permitted, provided it can be fitted without modification to the engine.
- 2.9 Ignition systems are free. Magneto ignition is prohibited unless shown on the CASC recognition form for the automobile.
- 2.10 Any make or type of spark plug may be used.
- 2.11 Reboring the cylinders is authorized on the condition that the bore measurement specified for that make and model on the CASC recognition form is not exceeded by more than 1.20 mm.
- 2.12 The crankshaft may be replaced with another of the same basic material, but no changes in stroke, journal diameter, angle of crank throws or engine firing order is permitted.
- 2.13 Crankshaft main bearing caps may be substituted.
- 2.14 Additional main bearing caps and/or bolts may be used, provided that no material is added to the cylinder block for their attachment.

- 2.15 Connecting rods may be replaced with any connecting rods of the same basic material (ferrous/non-ferrous).
- 2.16 Any pistons, piston rings and piston pins may be used.
- 2.17 Any camshaft(s) may be used. Cam followers may be substituted, except that roller cam followers may not be used unless fitted as standard.
- 2.18 Valves are free in both size and material, but the valve centrelines may not be altered.
- 2.19 The substitution of valve spring retainers and keepers is permitted. Valve springs are free (including number) as long as the type and location remain unchanged. Any push rods may be used. Alternate rocker arms may be used.
- 2.20 The compression ratio may be increased by machining, using any head gasket(s), or the elimination of head gasket(s).
- 2.21 The use of any oil pan (sump) and/or pick-up is permitted. The use of any oil pump(s) is permitted, provided it is (they are) mechanically driven; electrically driven oil pumps are specifically prohibited. Dry sump systems are permitted, provided the oil reservoir is located within the coachwork. The oil reservoir must be located so that in case of spillage, leakage or tank failure, oil cannot reach the driver.
- 2.22 Mechanical (i.e. shot or glass peening), heat or chemical (including plating) treatment of engine components is permitted, provided it is always possible to identify the components as original or authorized parts.
- 2.23 It is permitted to lighten, balance or modify in shape the components of the engine and drive train, provided it is always possible to identify them as original or authorized parts. It is not permitted to add any material or mechanical extension unless specifically authorized by these rules.
- 2.24 Additional fuel pumps may be used, provided they are only for supplying fuel to the carburetors or fuel injection system and are not used for cooling purposes. If the mechanical fuel pump is replaced, a blanking plate may be used to cover the original mounting point.
- 2.25 Any fuel line(s) may be used. Fuel lines passing through the driver/passenger compartment (including lines to fuel pressure gauges) must be metal braided (e.g. Aeroquip) line or be completely covered and protected by a supplemental metal cover.

- 2.26 An engine torque suppressor (steady rod) may be fitted. If one is fitted as standard, it may altered or replaced.
- 2.27 The wiring harness may be changed or modified.
- 2.28 Additional relays and/or fuses may be installed.
- 2.29 The installation of any type of vent or breather on the engine, transmission, or differential to prevent loss of lubricant, and the use of catch tanks on the transmission and differential are permitted as in Appendix 'A' 1.7.W.
- 2.30 The use of any engine, transmission and differential oil cooler(s) is permitted, provided they are mounted completely within or under the coachwork, but not in the driver/passenger compartment. Associated lines and pumps are permitted for transmission and differential oil coolers. Air ducts may be fitted to the oil cooler(s).
- 2.31 The use of any water radiator is allowed, provided there are no changes in the coachwork, chassis or internal structure of the automobile to accommodate its use. Separate expansion or header tanks are permitted, provided they are mounted in the engine compartment. Engine cooling radiators may not be located in the driver/passenger compartment.
- 2.32 Substitution or modification of the clutch and/or flywheel is allowed, provided there is no change in the diameter of the flywheel. The use of dowel pins is permitted.
- 2.33 Any modification may be made in the linkage between the clutch pedal and housing, including replacement of mechanical linkage with a hydraulic system.
- 2.34 In addition to those modifications listed above, rotary engines may also be modified as follows:
  - 2.34.1 The eccentric shaft may be replaced with another of the same basic material, but no changes in eccentricity or journal dimensions are permitted.
  - 2.34.2 The rotor is free, provided the number of lobes remains unchanged.
  - 2.34.3 The capacity of the working chamber(s) of the engine may not be changed.
  - 2.34.4 The rotor housing may be modified.
- 2.35 Any transmission and transmission ratios may be used.

- 2.36 The rear axle tube may be modified or replaced. Any final drive housing, gear ratios, limited slip or locked differential may be used. Final drive units which permit ratio changes while the car is in motion are prohibited.
- 2.37 Heavy duty propeller shaft(s) [drive shaft(s)] may be used in place of the standard shaft(s).
- 2.38 The use of any limited slip or locked differential is allowed.
- 3. Tires, wheels and suspension
  - 3.1 Alternate wheels of any type, material, or diameter may be used, provided the wheel rim width is within the limits specified on the CASC recognition form for that make and model, and provided that the track dimensions are equal to or less than the maximums listed on the recognition form. All four wheels must be the same diameter.
  - 3.2 The make and size of tire is free, provided they fit the rims without change or additions and do not interfere with the body work under any conditions of lock or rebound.
  - 3.3 The spare tire and wheel must be removed.
  - 3.4 Wheel spacers may be used within the above dimensional limitations. The use of center-lock wheels and hubs is permitted within the specified track restrictions.
  - 3.5 Steering, arms, Pitman arms and steering linkage component parts may be reinforced, modified or substituted. The manufacturer's original system of operation (e.g. rack and pinion, worm and sector, etc.) may not be changed. The steering gearbox may be relocated. Power steering may be installed if the vehicle is not originally so-equipped.
  - 3.6 Suspension components may be reinforced, modified or replaced. Cars in classes other than GT1 must retain the manufacturer's original type front suspension i.e. Macpherson strut, unequal length A arms, etc. Alternate components for GT1 cars must be specifically approved by CASC.
  - 3.7 The modification to front spindles and/or rear axle shafts, and modifications to or substitutions of hubs, bearings, bearing carriers, universal joints and drive shafts is permitted. These changes may not result in any changes in track dimension.
  - 3.8 Where alternate suspension and drive train equipment is authorized on the CASC recognition form, modifications to the car/chassis are permitted to install such authorized equipment, provided the modifications serve no other purpose.

- 3.9 The addition or substitution of any anti-roll bar, chamber compensating device, and/or axle locating device (except suspension members) is permitted, provided there is no other change in the standard suspension or drive train components unless otherwise authorized by these rules.
- 3.10 The make and type of shock absorbers and their points of attachment, but not their number, may be changed. Shock absorbers may have load bearing capacity (e.g., coil over or gas filled).
- 3.11 On McPherson strut type suspension systems, the spring mounting attachment on the strut housing may be modified or relocated, provided that the strut/shock absorber remains in its original positional relationship to the spring. The strut attachment points at the chassis may be changed.
- 3.12 Suspension bushings and joints may be replaced with others of different material and/or design. Offset bushings and spherical bearings are permitted, including the adjustable type.
- 3.13 The Manufacturer's system of rear suspension must be retained, i.e., Beam(live) axle, Chapman strut, Independent, trailing arm, etc.
- 3.14 Rear spring mounting location on the chassis may be changed.
  - 3.14.1 Spacers (lowering blocks) may be used between leaf springs and their points of attachment on the axle housing. The type and location of axle mounting for leaf springs are free.
  - 3.14.2 Coll-over type spring-shock absorbers may be used to replace leaf springs.
- 4. Brakes
  - 4.1 All cars must have dual master cylinders and a dual circuit braking system so that in the event of leakage at any point in the system, effective braking is maintained on at least two wheels.
  - 4.2 The use of any dual master cylinder and/or pressure equalizing device is permitted.
  - 4.3 Servo assist systems are free.

- 1.4 Backing plates or dirt shields may be ventilated or removed, and brake ducts may be fitted, provided they extend in a forward direction only and no changes are made in the bodywork to accommodate their use. Rear brake ducts may extend a maximum of twenty-four inches from the brake disc or drum.
- 1.5 Any suitable brake lines may be used. They may be relocated and may be given additional protection.
- 1.6 Brake discs, calipers and/or drums are free, provided they are mounted in the same location as the standard drums or discs.
- 1.7 The removal of the handbrake and operating mechanism is permitted.
5. Chassis and Coachwork
- 5.1 Bumpers may be removed, except when they are an integral part of the coachwork (e.g., Porsche 911), in which case they may be replaced with replicas of a different material. If the bumper is removed, all projecting hardware, such as brackets and fixtures must also be removed.
- 5.2 Grilles may not be removed.
- 5.3 Floor mats must be removed.
- 5.4 Rear seat and seatback may be removed. The passenger seat may be removed. The drivers seat may be replaced with any suitable seat; a racing type bucket seat providing lateral support for the driver's torso is recommended.
- 5.5 Doors may be bolted or pinned to prevent their opening in case of accident. Pins or straps must be added to the engine hoods and trunk lids to supplement or replace the latches. Standard hinges may be removed.
- 5.6 The top and frame must be removed from all open (convertible) cars.
- 5.7 Alterations to, or additions of sealing to or shrouding the air flow area between the normal grille opening and the water radiator is permitted. The radiator shroud may be altered.

- 5.8 In order to provide clearance for wheels, tires and the installation of brake and oil cooler ducting, the interior of the fenders may be altered, except for the removal of panels separating the wheel wells from the engine, passenger, and/or luggage compartments. The inner fender panels may be replaced with any panel of the same material and thickness as the original, provided that the replacement provides the required separation.
- 5.9 The exterior contour of the fenders may be altered to provide for tire clearance, provided that the fender opening profile, viewed from the side of the automobile, is not dramatically changed. Flares may be of any material.
- 5.10 The tire tread shall not extend beyond the fender opening at the highest point of the tire.
- 5.11 It is recommended that all interior trim be removed. Interior door panels must be substituted with panels of a non-flammable material. Cars with full roll cage installations may have their interior door panels altered, replaced or removed completely to facilitate the installation of multiple side bars (driver intrusion protection). When interior door panels are removed, all sharp edges or projections must be protected.
- 5.12 Jacking points may be strengthened, their location may be changed, or extra ones added.
- 5.13 Automobiles may use a front spoiler, provided it complies with the following.
  - 5.13.1 The front spoiler shall not be visible when viewed from above with the stock bumper in place. The entrant of the vehicle shall be responsible for providing and installing the front bumper, should it be required by the officials of the event, in order that this may be verified.
  - 5.13.2 The front spoiler shall not extend aft of the most forward part of the front fender opening.
  - 5.13.3 Openings in the spoiler are permitted for the purpose of ducting air to the brakes and/or the oil coolers.
- 5.14 Rear spoilers may be fitted as shown on the CASC recognition form for that make and model of car.
- 5.15 The steering wheel may be replaced and the rake of the steering column may be altered. A collapsible steering column is strongly recommended.

- 5.16 The windshield on open cars may be folded or removed, provided a suitable windshield is fitted not exceeding the height or width of the standard windshield and not extending rearward past a vertical plane at the rearmost part of the standard windshield/windshield frame. The windshield must be made of transparent material. If the standard windshield is removed, the entire windshield (both halves of a divided windshield), including all brackets and mounting fixtures must be removed.
- 5.17 The windshield wiper arms, motors and mechanism may be removed.
- 5.18 On open cars, all window glass, glass channels, vent windows, and window winding mechanisms may be removed. On closed cars, window glass, glass channels, vent windows and window winding mechanisms may be removed from the side doors. On closed cars, the replacement of window glass with plexiglass, lexan or other transparent plastic material is permitted, with the exception of the front windshield.
- 5.19 Inside door handles, latching mechanisms, window cranks, winding mechanisms, etc., may be removed on all vehicles.
- 5.20 The replacement, addition, or removal of accessories, gauges, switches, indicators and other interior modifications for the convenience of the driver and to permit the installation of required safety equipment is authorized, provided such modifications have no influence whatever of the mechanical performance of the car.
- 6. Electrical System
  - 6.1 Horns may be completely removed.
  - 6.2 The standard battery may be replaced by one of a different make and capacity, but the voltage of the battery and electrical system may not be changed. The battery may be relocated, but if so must be enclosed in a protective box (marine type) and be securely fastened and vented.
  - 6.3 The standard generator or alternator may be replaced with either a generator or alternator of different make and capacity, provided the driving method remains unchanged. The generator or alternator may also be removed entirely. Alternator/generator mounting brackets may be modified or replaced. Any voltage regulator may be used. Pulleys and belts may be modified or replaced.

- 7. Miscellaneous
  - 7.1 Any springs (including torsion bars) on the automobile may be replaced with others of unrestricted origin, but with no changes in number provided by the manufacturer and on condition that they can be fitted without alteration to the original supports or attachments, except as specifically authorized by these rules.
  - 7.2 Nuts, bolts, studs, gaskets, seals, bearings and other engine and car component parts normally considered replacement parts may be replaced with others of unrestricted origin.