

California Sports Car Club 2009 Pro 7 Rules

***PRO7™***

**2009 Class Rules & Specifications**

**California Sports Car Club**

**Region of SCCA**

# California Sports Car Club 2009 Pro 7 Rules

## INTRODUCTION

These rules represent a comprehensive listing of allowed and required modifications. Modifications other than those covered in this publication, or as specifically required by the current SCCA General Competition Rules (GCR), i.e., window net, battery kill switch, fire extinguisher, etc., are prohibited

### 1. INTENT

The intent of the Pro7 racing class is to provide an affordable racing series by allowing limited modifications and requiring specified components in order to provide close competition.

### 2. ELIGIBLE BODY STYLES

All 1979-1985 Mazda RX-7 cars are eligible except the GSL-SE. Vehicle must have a minimum of two unaltered matching Vehicle Identification Numbers (VIN) present on the chassis.

### 3. ALLOWED MODIFICATIONS

These rules specify the only parts or components that may be modified, removed or disabled. If there are any questions regarding modifications, you should contact Cal Club for clarification. All cars, engines and OEM parts must be, or must have been, offered for sale in the United States by Mazda. Replacement parts must be OEM or equivalent to the OEM specifications for RX7s sold by Mazda in the US. No parts or components that were made exclusively for the RX7 GSL-SE model are allowed

### 4. SAFETY REQUIREMENTS

4.1 All cars and drivers must conform to **SCCA's General Competition Rules (GCR)**. Where different, the information in this publication supersedes the preceding publications. The Chief Scrutineer has final decision on any item that may be determined to be unsafe and/or illegal.

4.2 **Steering wheel locks** must be removed.

4.3 **Drive shaft loops** are required to hold the drive shaft in the event of a front U-joint failure.

4.4 **Sunroofs/moon roofs** - Glass sunroofs or moon roofs must be removed and replaced with a sheet metal piece covering the opening and securely fastened. Metal sunroofs may be retained

### 5. RULES/PROCEDURES

#### 5.1. Data Acquisition Systems

*Any system that logs and/or downloads any sensor data other than time is prohibited.*

#### 5.2. Non-compliance/Cheating

Cheating and non-compliance are not sanctioned and will be dealt with according to regulations set forth in the SCCA GCR.

#### 5.3. Non-conforming equipment

Because the intention of this class is to minimize the cost of competing, prior written approval must be obtained from Cal Club for any equipment which does not conform to the rules.

### 6. MODIFICATIONS

#### 6.1. Allowed components

Except as specifically authorized by these rules, limited production components and/or prototypes are not allowed.

#### 6.2. Appearance requirements

Cars must meet the appearance requirements in keeping with the GCR.

#### 6.3. Body

6.3.1. Stock body panels must be used, but interior lips can be rolled for tire clearance. Plastic interior wheel opening panels may be removed.

6.3.2. A front spoiler may be added provided it is not lower than the lowest part of the rim. Spoiler may not extend beyond the overall car body outline when viewed from above perpendicular to the ground. This outline includes bumpers or bumper mounts. Spoiler may not extend any higher than four inches above the horizontal centerline of the front hubs. It shall not cover the grill opening below the bumper. Openings in the front spoiler are permitted to duct air to the brakes, radiator, cooler, etc.

6.3.3. Windshield clips are allowed and recommended.

6.3.4. Hood and trunk pins may be fitted. Stock hood latches may be replaced with clips. The car must be run with hood, doors and hatch completely closed and securely latched.

6.3.5. All chassis and structure repair must be completed as closely as possible to the original factory specifications. No additional frame/chassis/structural strengthening is allowed. Body repairs must maintain stock contours.

## California Sports Car Club 2009 Pro 7 Rules

6.3.6. The stock engine under-tray may be removed.

6.3.7. Openings to duct air to the brakes, radiator, cooler, etc. may be cut in the lower valance (the plastic panel below the front bumper) with a maximum cut-out area of 18 square inches total, not counting any stock openings.

6.3.8. Undercoating may be removed.

6.3.9. All side marker lights & related parts may be removed. Turn indicators & their related assemblies may be removed. All holes created by removal may remain open, be covered or be used for air ducting as long as nothing protrudes beyond the body or outer portion of the bumper.

6.3.10. Headlight bulbs, headlight motors, lifting mechanisms and their mounting brackets may be removed.

6.3.11. Passenger and driver's side door glass and all passenger window operating mechanisms may be removed.

6.3.12. Rear wings and/or rear spoilers are prohibited.

6.3.13. All cars shall have a functional side view mirror on each side of the car in either the stock mirror location or mounted on the front fenders.

### 6.4. Interior

6.4.1. The driver's seat shall be replaced with any other seat suitable for competition that meets the SCCA GCR specifications for Improved Touring.

6.4.2. Any steering wheel may be used with the exception of wooden units.

6.4.3. Any shift knob may be used.

6.4.4. Gauges may be replaced or added.

6.4.5. The dashboard pad must remain intact.

6.4.6. Any functional interior or exterior mirrors may be used.

6.4.7. Rear seats, sun visors & their hardware, carpeting, insulation, headliner, interior lamp and mounts, radio and speakers, rear side panels that cover rear shocks and straps that hold sunroof may be removed.

6.4.8. Floor mats, spare tire, tools, floor jack, etc. must be removed.

6.4.9. Rear storage bins and supports, rear carpet support behind front seats on the 1979-1980 RX7 models and rear plastic piece covering the tail lights may be removed.

6.4.10. The following pieces may be removed and if removed they must be removed completely: interior door panels, center console, heater controls, knobs, switches. The center console is the section between the two seats attached to the floor.

6.4.11. The stock wiring harness may be replaced or modified provided it serves its original purpose.

### 6.5. Ballast

Ballast is allowed. It must be placed no further rearward than the stock bolt holes of the driver's seat base. Each ballast piece may not be taller than three inches nor stacked higher than three inches. Ballast may be placed in the passenger side rocker panel provided it is no further rearward than the stock bolt holes of the driver's seat base. If ballast is mounted in the passenger floor well, it must be secured per SCCA GCR.

### 6.6. Wheel studs

Wheel studs and lug nuts are unrestricted, but must be made of steel and may not be smaller than the stock size.

### 6.7. Alternators

Alternator must be working and must be charging according to the manufacturer's specifications. Cut out switches of any kind for the alternator is prohibited, other than the main master switch.

### 6.8. Required parts for 79-80 cars

The following parts are required to be used from 1981-1985 cars:

Intake manifold, carburetor, and exhaust manifold. Complete front MacPherson strut assembly including, but not limited to, the brake rotors and calipers.

### 6.9. Weight

Minimum weight of cars shall be 2,300 lbs., with driver, at all times.

### 6.10. Engine

The engines used in the Cal Club Pro7 series cars shall be Mazda 12A rotary engines. The engine must be from a 1979-1985 US model RX7. No internal engine modifications are allowed. No pinned rotors will be allowed. Stock apex and/or carbon apex seals may be used.

## California Sports Car Club 2009 Pro 7 Rules

6.11. **Solid motor mounts** may be used.

### 6.12. **V-belt pulleys**

All pulleys, such as water pump and alternators, must be stock Mazda 12A units. The crankshaft pulley may be optionally changed to Mazda Comp's part #0000-01-7201.

### 6.13. **Balance/Blueprint**

Balancing and blueprinting are allowed. Lightening of parts beyond the minimum required to balance is prohibited.

### 6.14. **Lubrication**

Oil pans, windage trays, oil lines, and filters are unrestricted. A pressure accumulator such as an Accusump may be used. Any lines that pass through the passenger compartment must be metal or metal braided (see GCR). All lines must be securely fastened and safely routed. No dry sump systems may be used.

### 6.15. **Catch tanks**

All engine breathers and coolant overflow lines must vent to a catch tank of at least one liter capacity.

### 6.16. **Carburetors**

6.16.1. The stock 4 barrel carburetor from a 1981-1985 must be used. Only carburetor fuel jets may be changed, and the air correctors may be modified. A float bowl baffle may be added. All carburetor air correctors must be Mazda OEM parts. The spring for the vacuum secondary is unrestricted but must be used to open the secondary throttle blades in the conventional manner. Choke mechanisms, plates, rods, and actuating cables and/or rods may be removed. No venturi shall be modified in anyway, but they may be aligned. Booster venturies (a.k.a. secondary venturies, diffusers) must sit flush within the carburetor base. Raising the booster venturies is not allowed. No removal or alteration of the air horn is allowed. Throttle linkage maybe modified or changed. The carburetor insulator and gasket assembly may not be modified, except that the vacuum inlets may be capped and the heat shield may be cut off. All air entering the intake manifold must pass through the carburetor air inlet only. The oil metering pump and associated lines may be removed.

6.16.2. No fuel injection shall be allowed.

### 6.17. **Fuel**

Type of fuel used is governed by the SCCA GCR as it applies to Improved Touring cars.

### 6.18. **Fuel system**

Fuel pumps, filters, and lines and hoses are unrestricted except maximum I.D. of fuel lines/hoses is 3/8 inch. Any fuel lines that pass through the interior must be metal or metal braided.

Carburetor fuel inlet fitting may be modified only for the addition of an AN fitting. Pumps may be not be mounted inside the passenger compartment. All lines must be securely fastened and safely routed. The stock fuel tank may be replaced with and SCCA-approved fuel cell installed per SCCA GCR specification.

### 6.19. **Intake manifold**

6.19.1. The intake manifold must be a Mazda factory carburetor unit with no modifications.

Vacuum fittings may be plugged. Only 81-85 are units allowed.

6.19.2. The 3/4" water passages from the rotor housings to the intake manifold may be plugged.

6.19.3. The 1-3/16" x 9/16" rectangular emissions exhaust port between the center housing of the motor and the intake manifold may be plugged at either the manifold or the center housing.

### 6.20. **Smog equipment**

All smog equipment may be removed including the catalytic converter. Any equipment not removed must either be disabled or left to function as originally intended by the manufacturer. All disconnected ports and holes must be plugged. The shutter valve may be wired open, but may not be modified in any other way. The external shutter valve actuator assembly may be removed.

### 6.21. **Air cleaner**

The stock air cleaner housing lid may have round holes drilled within the outer two inches for greater air flow and the element may be replaced with an aftermarket unit matching the exact dimensions of a stock filter. The outer two inches is measured from the outermost part of the lid. The holes that are drilled into the air cleaner lid must be round, and must be made with a drill or round punch. No torches, grinders, or other type of cutting devices will be allowed. All unused holes in the base must be plugged. No stub stacks may be used. A fresh air intake hose may be

## California Sports Car Club 2009 Pro 7 Rules

routed to the air cleaner horn, provided that no holes are cut in the body or firewall. A hole may be cut in the right side of the radiator support for the fresh air intake.

### 6.22. Ignition

All ignition components must be stock, except that any coil that fits in the stock bracket may be used. Any spark plugs and ignition wires may be used.

### 6.23. Battery

Battery may be located in the stock location or in the designated location in the passenger side storage compartment well no further rearward than 26" from the passenger side rear seat mount. If the battery is located in the driver/passenger compartment, wet cell batteries shall be in a nonconductive marine-type container or equivalent. All batteries shall be attached securely, independent of the marine-type container. The battery must be a commonly produced 12-volt automotive battery and may not be modified. The battery must be securely held with a metal battery hold down. The positive battery terminal shall be covered.

### 6.24. Exhaust

The catalytic converter may be removed and the exhaust pipe aft of the exhaust manifold may be replaced with a single pipe, 2.5" O.D. maximum. The exhaust must exit behind the driver, directed away from the car. A muffler may be required to meet sound regulations. The stock 1981-1985 Mazda exhaust manifold must be used.

### 6.25. Cooling

6.25.1. Any radiator may be used provided it fits in the stock location and requires no body or structure modifications to install. Fans may be removed or added. Thermostats are unrestricted. A/C systems may be removed. Oil coolers may be added or substituted. Location within the bodywork is unrestricted, provided that it/they are not mounted within the driver/passenger compartment.

6.25.2. The heater core, blower fan and motor and all associated hoses may be removed, but none may be modified.

### 6.26 Clutch

Any clutch disc and an all steel pressure plate of the stock diameter may be used provided that they bolt directly to an unmodified flywheel. Multiple disc clutches are prohibited.

### 6.27 Flywheel

Any Mazda OEM 12A steel flywheel must be used. Flywheel may not be modified.

### 6.28. Transmission

6.28.1. Any stock four or five speed transmission from a 1979-1985 RX-7 12A may be used. No automatics or semi-automatics are allowed. Transmissions may not be modified except for the removal of the stock speedometer cable and worm gear. Shifters may be modified or may be replaced by installing short throw shifters.

6.28.2. **Solid transmission mounts** may be used.

### 6.29. Differential

The differential must be the stock unit. Optionally, all cars may use the GSL rear axle. Gear ratios must be 3.909:1 or 3.93:1. Differentials may be fully locked (welded) or use the stock Mazda limited slip. Stock

Mazda limited slip differentials may be re-shimmed using any shims solely for the purpose of preloading the clutch discs. Electronically controlled traction control devices are prohibited.

### 6.30. Wheels/Tires

6.30.1 Either Toyo 185/60R-13 RA1 Proxies RA1 or Toyo 205/60-13 RA1 Proxies may be used in combination with the stock wheel or any 13" x 7" wheel. Tires may be shaved.

6.30.2. Wheels must have a backspace between 3-3/4" to 4". Minimum weight for each wheel shall be 13 lbs. Cars may run wheels weighing less than 13 lbs, but they must carry a weight penalty as specified in

6.30.3 and 6.30.4. No wheel weighing less than 9.0 lbs. shall be eligible for competition.

6.30.3. There shall be a weight penalty assessed for any wheel not meeting the 13 lb. minimum.

The penalty will be equal to two pounds of additional weight for each pound of difference between the specified wheel weight and the actual wheel weight.

6.30.4. Weight penalties shall be assessed as follows:

Wheel Weight (lbs) Weight Penalty per Wheel (lbs)

9.0 lbs to 9.15.99999 oz 8 lbs per wheel

## California Sports Car Club 2009 Pro 7 Rules

10.0 lbs to 10.1599999 oz 6 lbs per wheel

11.0 lbs to 11.1599999 oz 4 lbs per wheel

12.0 lbs to 12.1599999 oz 2 lbs per wheel

6.30.5. For example, a car with four (4) wheels weighing nine (9) lbs each shall carry a total penalty of 32 lbs which means that the minimum weight of the car shall be 2,332 with driver; a car with four (4) wheels weighing ten (10) lbs. each shall carry a total penalty of 24 lbs which means that the minimum weight of the car shall be 2,324; and so on. Competitors are responsible to know the weight of their wheels and shall post their weight penalty on the lower right corner of their windshield in white, one-inch numbering.

### **6.31. Brakes**

6.31.1 All cars must use the 1981-1985 model rotors and calipers in front. Brake pads, linings, and fluid are open. Brake lines may be replaced with metal braided lines. Backing plates may be removed or modified. An adjustable proportioning valve may be used to limit pressure. The master cylinder and brake booster must be stock and unmodified. The vacuum booster vacuum line may be disconnected. Parking brakes may be removed along with the appropriate mechanisms. Air ducts may be directed at the brakes provided that they extend in the forward direction only. Duct openings must conform to body rule 6.3.7. and front spoiler rule 6.3.2. ABS braking systems are prohibited. Solid rear discs from a GSL model may be fitted.

6.31.2 Aftermarket brackets used to adapt a non-disc rear end to a disc brake rear end are allowed. The brackets only use and intent is to hang a rear caliper on a drum brake rear end.

6.31.3 Adapter kits allowing the use of large bearing (1984-1985) front rotors on small spindles (1981-1983) are permitted providing they serve no other purpose.

6.31.4 A water brake cooling system may be designed using only stock Mazda RX-7, originally sold in the U.S., windshield wiper system parts. Any hose lines & nozzles may be used. This section does not allow for modification of any parts except the windshield washer bottle, pump motor and associated assemblies. No modifications may be made to any brake part or caliper.

### **6.32. Suspension**

6.32.1. MacPherson struts may be modified to fit a 2.5 inch I.D spring and threaded adjuster. Bump stops are unrestricted but must have a maximum height of 2 inches. Camber/caster plates are allowed. They must be mounted under the existing sheet metal and no modifications are allowed other than to mount the plate and allow clearance under the center hole. This rule also allows for stock mounts to be used as camber plates.

6.32.2. Maximum front camber is not specified. However, no modifications or repairs are allowed that provide the competitor with the opportunity to gain more front camber than is possible to attain by the afforded legal adjustments.

6.32.3. Front lower control arm and strut rod bushings may be replaced by concentric urethane bushings only.

6.32.4. *Rear Watts linkage may not be modified except for the addition of a support device (such as MazdaTrix MZ-1-WATT) so long as this device provides for no other purpose than to support the Watts link attachment studs.*

6.32.5. The leading mount of the rear trailing arms from the 84-85 models may be relocated 19mm (center to center) higher to emulate the 79-83 models.

6.32.6. Up to 1 "dead coil" may be cut off the "dummy coil" springs in the right rear only, for the purposes of leveling the car. No modifications that affect the spring rates are allowed. No cutting of non "dummy coil" type springs allowed.

6.32.7. No modifications of the rear axle housing are allowed. However, up to 1.0 degrees negative camber in the rear axle housing is allowed. If a competitor is found to have more than 1.0 degrees of negative camber on a rear wheel, his/her qualifying and/or race finish position shall be disallowed. Measurements taken in Impound will be official; therefore, competitors are urged to have their cars checked with Tech's measuring device prior to competition.

### **6.32.8. The following components shall be fitted:**

#### **Component Mfg Part Number**

Front sway bar Ground Control RX7118F

Rear adj sway bar (optional) Eibach TBA

4 adjustable shocks Tokico F BZ1069 or BZ1086 or TZ1069\*

4 non-adj shocks Tokico F HZ1069 or HZ1086

## California Sports Car Club 2009 Pro 7 Rules

Camber plates Ground Control RX7CCP  
Front springs Eibach 700.250.0275 or 700.250.300 or  
700.250.0325 or 700.250.0350  
Rear springs Eibach 900.500.0175  
Front bushings Energy Suspension 11-3101G, 11-7101G  
Front coil over spring kit Ground Control RX7CO

### 6.33. Fasteners

Fasteners are unrestricted provided they serve the same function as originally intended. Gaskets are unrestricted provided they serve the same function as originally intended. Any fastener that secures any butterfly plate in the carburetor or manifold must meet OEM specifications for length, size, thread, and type. Bolts holding the front sway bars end links may not be lengthened or shortened, however washers may be added and spacers may be lengthened or shortened.

### 7. UPDATING / BACKDATING

7.1 Cars may update/backdate components (i.e. a 1979 car may use 1984 body panels). Switching of components is only permitted within cars of the same make, model, body type, and engine size (i.e. no parts from a GSL-SE).

### 8. ROLL CAGE

8.1 Cages shall comply with SCCA GCR, for Showroom Stock, Touring and Improved Touring except as printed in these rules.

8.2 The basic purpose of the roll cage is to protect the occupant in case of a roll over or a collision. It must be able to withstand the weight of the car landing on the roof.

8.3 Intent: Chassis stiffening is a side benefit of a good roll cage system, but it is not the intent of these rules. Petty bars are not allowed.

8.4 All roll cage surfaces that may come in contact with the driver must be padded with high density padding such as Ethafoam or Ensolite.

8.5 At least one diagonal brace must be used in the same plane as the main hoop. The diagonal brace shall attach to the main hoop above the driver's head and the other end shall attach to the mounting plate (or to the main hoop as close to the mounting plate as practically possible) diagonally opposed to the driver's head (passenger floor).

8.6 The front hoops extend from the main hoop to the floor by following the roof and the "A" pillar of the car. There must be a bar connecting the two front hoops at the top of the windshield mounted as close to the roof as possible without violating GCR.

8.7 NASCAR-style door bars may extend to the outer skin of the door.

8.8 Arc welding should be used whenever possible. All welds should be inspected for quality by the welder using magnaflux.

8.9 All attachment points must be welded 360 degrees around the tube.

8.10 All welds, except those mounted to plates on the floor, must be accessible for inspection.

8.11 All bars must be of the same size, thickness and material.

8.12 Tubes may touch the body in any place (not to violate rule 8.7), but shall not be attached anywhere

except as permitted by GCR. No deformation of the interior body panels is permitted, except that the horizontal part of the sheet metal between the main hoop and the top of the "A" pillar (next

to the driver's and/or passenger's head) may be pushed in to accommodate the roll cage. The intent of

this allowed deformation is strictly to allow for more head room for the driver and/or passenger.

8.13 All hardware must be SAE grade 5 or better with 5/16" diameter minimum. All nuts must be held by safety

wire or a locking system, such as lock washer, Nylox or jam-nuts.

8.14 The cage may be removable.

8.15 Any number of additional reinforcing bars are permitted within the structure of the cage provided they are

installed strictly for safety and do not violate the intent of rule 8.2.

## California Sports Car Club 2009 Pro 7 Rules

Pro 7's in full and legal Pro 7 configuration may run in ITA. No modification from Pro 7 is legal in this double dipping. Cars of this model must be fully ITA legal, or full Pro 7 legal to double dip in both classes. ITA legal models may not run in Pro 7. Cars double dipping from Pro 7 to ITA may not be awarded ITA trophies or points regardless of their finish.