

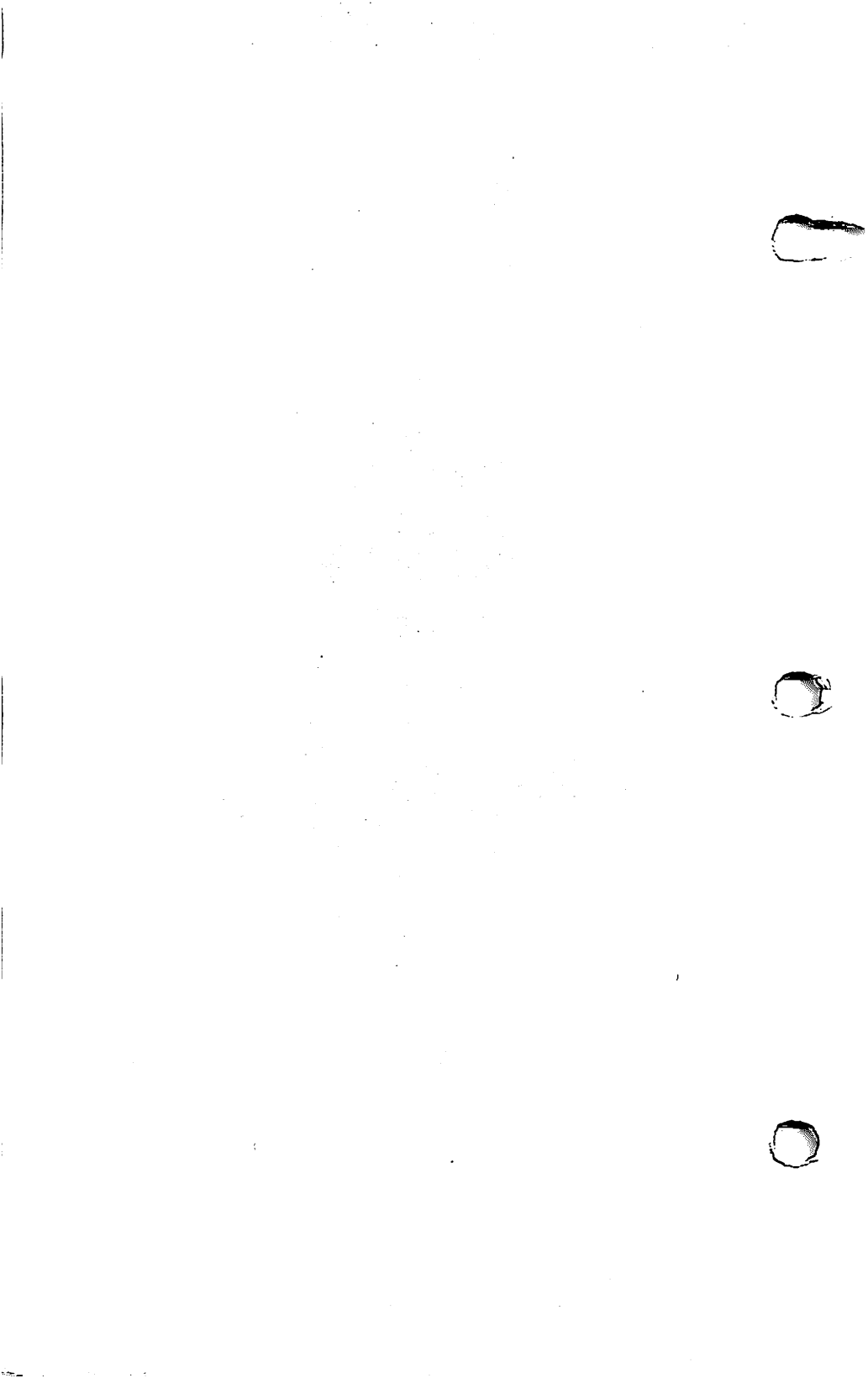


GENERAL COMPETITION RULES

1972 EDITION
1973 Revised



Revised 1/73



5. AUTOMOBILES

5.1 Classification of Automobiles

Organizers of SCCA Regional, National and Inter-divisional Championship events shall provide competitions for these classes:

| | |
|------------------------|---------------------|
| Production Category | Classes A through H |
| Sports Racing Category | Classes A through D |
| Sedan Category | Classes A through C |
| Formula SCCA | Classes A through C |
| Formula Vee | |
| Super Vee | |
| Formula F | |

Competitions for classes other than specified above shall not jeopardize a full schedule of competitions for the recognized classes. Organizers may also schedule extra competitions for other classes, provided specifications are clearly set forth in Supplementary Regulations, or otherwise made clear to entrants.

All automobiles shall run in one class/category only during an event, unless otherwise permitted in the Supplementary Regulations.

5.2 Regulations

General Regulations for all cars in SCCA-sanctioned events and the specific regulations for National Championship classes are contained in the GCR, Appendix A.

5.3 Vehicle Log Books

A standard SCCA vehicle log book will be used by all competitors in Regional and National events.

Only one log book will be issued for each vehicle (other than by way of extension or replacement) and the possession of two log books for one vehicle at one time shall be deemed an offense against these rules.

The log book shall be issued by the Regional Executive or his designated representative. Each vehicle will have an

identity number corresponding to that of its log book permanently stamped on its roll bar.

The first digit(s) corresponding to the Region's identity number shall be separated from the balance of the numbers by a dash(-). The vehicle number system beginning with (001) shall be issued consecutively as the vehicles are registered during a thorough inspection.

A complete description of the vehicle, its safety roll bar and the required photographs will be entered in the places provided. All changes of ownership of the vehicle must be recorded as provided.

At each event, this log book must be presented at Scrutineering with the signature of the driver/entrant for that event in the space provided. During Scrutineering all deviations regarding both safety and legality will be noted by the Scrutineer. If a waiver for the event is permitted the duration of the waiver must be noted and complied with by the competitor.

If a car is protested during an event, the results of this protest must be noted.

In the event the vehicle is involved in an accident or is damaged due to a mechanical failure, the damage shall be noted in the vehicle log book by the accident investigator or other designated official.

In the event the vehicle log book is not available at Scrutineering, the vehicle shall be accepted for competition only after a thorough inspection during which all details required for the issuance of a log book will be recorded.

APPENDIX A
AUTOMOBILES

1. GENERAL REGULATIONS

1.1 Eligibility

To compete in an SCCA-sanctioned event, cars shall meet the following requirements as well as the specifications of the class and category in which they are entered.

1.2 Fuel

All cars shall use pump fuel as defined in GCR 2.11 unless a specific exemption is made in the rules for a particular category of automobile.

1.3 Identification Marks

Each automobile shall carry identification numbers, class letters, or other marks required by the Supplementary Regulations. Numbers shall be placed on the front, rear and both sides of each automobile so that they are legible. Numbers used shall be restricted to one or two digits and shall meet the approval of the Chief Timer and Scorer.

The Supplementary Regulations shall ordinarily require all automobiles to carry numbers, at least eight to ten inches high with 1 1/2"-.2" stroke on a contrasting background. Each automobile competing in an SCCA-sanctioned speed event must prominently display the official SCCA emblem, 4" diameter size on both sides of the automobile.

1.4 Advertisements on Automobiles

Advertising, names and symbols may be displayed on cars provided they are in good taste and do not interfere with identification marks.

1.5 Mechanical Condition of Automobiles

The Chief Technical and Safety Inspector shall have the responsibility for inspecting and certifying every automobile before it is allowed to take part in a competition or practice. An automobile which is disapproved, or which

is driven in a competition or practice, or which is presented for recheck without the corrections specified by the the Chief Technical and Safety Inspector may be disqualified from the event.

Automobiles which have been altered or damaged after they have been approved at technical and safety inspection shall be subject to reinspection and approval.

All major body components such as front and rear hoods, fenders, doors and wind screen must be maintained in normal position throughout the competitions.

1.5.1 Technical and Safety Inspection

The points covered at technical and safety inspection shall be:

- a. Eligibility for class entered — compliance with the GCR.
- b. Suitability for competition.
- c. Appearance — neat and clean. Specifically, automobiles that are dirty either externally or in the engine and passenger compartments, or that show bodywork damage, or that are partially or totally in primer, or that do not bear the prescribed identification marks shall not be approved for competition.
- d. Racing Tires — designated as such by the manufacturer, or recaps on such racing tires shall be required.
- e. Brakes — shall be pedal-operated, working directly on each wheel, and in perfect working order. Rolling brake tests are prohibited.
- f. Fenders — shall be securely mounted. Fender skirts and hub caps shall be removed.
- g. Exhaust system — shall be directed away from the body and shall terminate behind the driver. Closed cars shall run with at least one window open, or provide other ventilation.
- h. Hood and engine compartment — all parts shall be securely fastened.

- i. Suspension and steering — shall be of suitable design and in proper order. All Heim type spherical rod ends used on major suspension and steering components of Formula and Sports Racing cars must be retained either by the design of the mounting brackets or by a larger area captive washer.
- j. Leakage and caps -- no leakage of any fluid shall be allowed. Monza (flip top) gas caps are prohibited.
- k. Brake lights — except for formula cars, all cars shall have two operating brake lights.
- l. Seats — shall be securely mounted.
- m. Seat belts and shoulder harness conforming to specifications of Appendix Y of the GCR.
- n. Passenger seat back — if a folding seat, it shall be securely bolted or strapped in place.
- o. Roll bars — each car shall be equipped with a roll bar to specification of Appendix Z of the GCR.
- p. Tonneau covers and boot covers are prohibited.
- q. Fire wall and floor — shall prevent the passage of flame and debris to the driver's compartment. Belly pans shall be vented to prevent the accumulation of liquids.
- r. Mirrors — shall provide driver visibility to the rear of both sides of the car.
- s. Fire Extinguisher — shall be dry chemical type, "Halon 1301 or 1211" type of the following minimum capacities.
 - a. Dry chemical: 2 pounds. (Potassium bicarbonate Purple K, or multipurpose ammonium phosphate and barium sulphate.)
 - b. Halon 1301 & 1211: 1 1/4 pounds for hand-held manual operation units.
2 1/2 pounds for in-car integrated installations (manual or automatic release.)

A minimum of 5 lbs. is recommended for all in-car integrated systems.

Except for in-car, integrated installations, fire extinguishers shall be securely mounted in the cockpit. On formula cars, fire extinguishers may be mounted in an accessible location outside of the cockpit. Positive indication must be provided that the fire extinguisher or system is adequately charged. Integrated systems are recommended in all cars.

- t. Flame resistant garments, crash helmets, goggles, or face shields — shall be approved at safety inspection and may also be checked upon the starting grid. (Ref.: GCR 4.8)
- u. Scattershields — The installation of scattershields or explosion-proof bell housings shall be required on all cars where the failure of the clutch or flywheel could create a hazard to the driver. Chain drive cars must be fitted with a protective case/shield to retain the chain in case of failure.
- v. Detachable hardtops and detachable doors (i.e. Lotus Seven) must be removed.
- w. Oil catch tanks — all engine crankcase breathers whether directly or indirectly ventilating the crankcase, and all transmission/transaxle breathers must be equipped with oil catch tanks. Minimum catch tank capacity shall be one U.S. quart, each for the engine and transmission/transaxle. If a single catch tank is used for both the engine and the transmission/transaxle, the minimum capacity shall be two U.S. quarts. Oil catch tanks may not be mounted in the driver/passenger compartment.
- x. **Master Switch**

All cars, except Showroom Sports Cars and Showroom Stock Sedans, must be equipped with a general circuit breaker (master switch) easily accessible from outside the car. This circuit breaker will cut all

electrical circuits (ignition, fuel pumps, lights, alternator, etc.) but not an on board fire extinguisher. It shall be clearly marked by the international marking (spark and blue triangle) (note: regions order from Denver) and mounted in a standard location. The standard locations will be as follows:

- A. Formula and Sports Racing Cars — In close proximity to the right hand upright member of the roll bar, but in a location so that it cannot be operated accidentally. It can be mounted on a bracket welded to the inside of the upright member or mounted so that the operating lever or knob is outside of the body panel immediately inboard of the upright member. This is the standard location on Formula cars built to the Constructors Association's requirements for Formula I.
 - B. Closed Sports Racers, Production Cars, Coupes and Sedans — In front of the windshield on either the cowl or on top of the fender, but close enough to the windshield to be accessible if the car is overturned. Alternatively it may be mounted below the center of the rear window.
 - C. Open Production Cars — May exercise a choice among the above locations.
- y. Steering wheel lock devices — shall be removed.
 - z. Wood rim steering wheels are prohibited.

1.5.2 Batteries

If the battery is located in the driver/passenger compartment, it must be in a leakproof container or be fitted with leakproof caps. The hot terminal must be insulated on all cars

2. PRODUCTION CATEGORY

2.1 Definition

- a. The purpose of the Production Category shall be to provide a Club-wide program of speed events for the benefit and pleasure of SCCA members who desire to compete in series-produced sports cars, generally available for purchase by the public, and suitable for both normal road use and speed events participation, and who additionally desire to improve the performance of these cars within specific and uniform preparation limitations.

The SCCA shall publish a list of sports cars eligible to compete in the Production Category during the current calendar year. After this list has been established, no changes or additions in classification shall be made.

- b. Production Category automobiles shall normally be those which are series-produced with normal road touring equipment in quantities of at least 1000 within a 12 month period and approved by E.P.A. and D.O.T. for sale in the United States. However, the SCCA may exclude any automobiles from the Production Category even if made in greater quantities, if such automobiles are not considered suitable.
- c. Production Category automobiles shall be recognized according to the manufacturers' complete designation, including the name, model, model number and engine displacement.
The SCCA shall publish the Production Car Specifications containing the official recognized specifications for each car eligible to compete in the Production Category during the calendar year.
- d. Production Category automobiles must be raced as they are normally delivered to the public through the manufacturers' sales outlets, except that they may be up-dated or back-dated within the specifications of a

recognized make and model, as listed on a single page of the SCCA Production Car Specifications and except for the modifications authorized by these Rules.

- e. The SCCA shall publish the specifications for each recognized Production Category model. This specification shall state the weight for each model, which weight shall normally correspond to the official weight listed on the model's recognition form, or else shall be obtained by taking the average of the actual weights of a number of examples of the same model, selected at random, and weighed under the following conditions: With the spare wheel and tire of the size normally provided by the manufacturer, with full oil sump (or tank), and with full water tank if one is used but without fuel, tools, luggage or anyone on board.

A weight tolerance of minus 5% as compared with the official weight will be granted Production Category automobiles, provided the reduced weight results from modifications permitted in these Rules. Cars must meet or exceed the official weight less 5% as raced, but without fuel and driver.

Track is to be measured as raced, at the hub center line, with the car at race ride height, without driver.

- f. Production Category automobiles shall be classified for racing purposes in groups of cars of similar performance.
- g. On closed Production Category cars, at least one main door window must be fully open during competition.

2.2 Authorized Modifications

The following modifications are authorized on all Production Category cars: (Modifications may not be made unless specifically authorized herein.)

A. Bodywork

1. Fitting all accessories, gauges and indicators, and all inside modifications for the purpose of improving the

comfort and convenience of the driver and to permit the installation of required safety equipment, provided they have no influence whatever on the mechanical performance and do not materially reduce the weight of the car. Floor mats may be removed. The removal of interior trim except door panels is permitted. The driver's seat may be replaced with any suitable seat. Passenger seats may be removed completely. Seat head rest may be removed. Seat mountings may be reinforced.

2. Raising hood for ventilation of engine compartment by use of hinge adjustment mechanism as installed by manufacturer. (Hood blocks or other modifications are not allowed.) Additional hood straps or fasteners may be used. It is specifically not authorized to alter or open any hood, deck, or other body panels for purposes of additional ventilation. Sealing or shrouding the air flow area between the normal grille opening and the water radiator is permitted. The radiator shroud may be altered.
3. The use of any gas cap, except Monza (flip type), is permitted. One-way, anti-surge caps are recommended. The filler cap may be relocated directly on the fuel tank. The filler neck/hose may be removed and resulting hole(s) may be covered.
4. The top may be removed from open cars or else must be folded and securely fastened.
5. The windshield on open cars may be folded or removed provided a suitable windscreen is fitted, not exceeding the height or width of the standard windshield and not extending rearward past a vertical plane at the rear most part of the standard windshield nor forward of the front most part of the standard windshield/windscreen frame. The windscreen must be made of transparent material. If the standard windshield is removed, the entire windshield (that is, both halves of a divided windshield) including all brackets and mounting fixtures must be re-

moved. The windshield wiper arms, motor(s) and mechanisms may be completely removed. On open cars, all window glass, channels, vent windows and window winding mechanisms may be removed. On closed cars, window glass, channels, vent windows and window winding mechanisms may be removed from the side doors.

6. Bumpers may be removed, except when it (they) are an integral part of the coachwork (example Porsche 911). If the bumper is removed, all projecting hardware such as brackets and fixtures must also be removed. No substitute bumpers are allowed. Hub caps and fender skirts must be removed. Grilles may not be removed.
7. Glass and/or plastic, headlight, front parking light, front signal light, lenses and bulbs must be removed. The resulting openings may be used for ducting of air to the engine, front brakes and/or oil coolers. The openings must be covered with wire mesh screen maximum weave 1/4" wire cloth. This screen must be of the same contour as the original lens and mounted so that the headlight bezel/rim remains in place and presents a stock appearance. Side marker light assemblies must be removed and the resulting openings covered with a plate not exceeding the dimensions of the original parts. If the headlight openings are not used for ducting air, they must be completely covered with a flat panel or panels conforming to the shape of the original lenses. These panels must be metal, fiberglass mat, cycolac or other approved material and must be mounted in the original location of the standard lenses. Other lighting parts and operating ancillaries may be removed. Resulting holes must be completely covered. Plastic or glass headlight covers must be removed and may be replaced with metal or fiberglass duplicates, mounted in the original location of the standard covers.

8. The fitting of a spoiler to the front of the car, provided that, no changes are made in the bodywork for this purpose, and that it does not extend, to the side, beyond the centerlines of the front wheels, nor more than three (3) inches below the lowest part of the front body panel, nor above a horizontal plane passing through the wheel hub centerlines, nor forward of the most forward part of the front body panel.
9. The addition of a bulkhead between the driver/passenger compartment and the compartment containing the fuel tank.

B. Tires, Wheels, Suspension

1. The make and size of tires provided they fit the rims without change or additions and do not interfere with the bodywork under any conditions of steering lock or rebound. In order to provide clearance for tires and wheels, the interior fender panels may be altered but not substituted with an alternate material. The authorized modifications may not result in any additional openings between the wheel well and the engine, passenger or luggage compartments. The exterior contour of the fenders may be altered only to provide for tire clearance, provided that the fender opening profile, viewed from the side of the automobile is not changed.

The tire tread may not extend beyond the fender opening at the highest point of the tire.

Spare tires may be removed, unless the Supplementary Rules for an event specify otherwise.

2. The use of any wheels of the same diameter and with a rim no more than 1.5 inches wider than the standard wheel listed by SCCA for the automobile. Changes in track resulting from use of the above wheels may not exceed plus or minus 2 inches from the track dimension listed by SCCA for the automobile, measured as raced, at the hub center line with the car at race ride height, without driver.

Furthermore, the track dimensions shall remain equally disposed from the center line of the automobile. Wheel spacers may be used within the above dimensional restrictions.

The use of center-lock wheels and hubs is permitted within this track restriction.

3. The make and type of shock absorbers, but not their numbers, or their system of operation (i.e., lever or telescopic), or their system and points of attachment.
4. The cooling of brakes by the ventilation of backing plates or fitting of air ducts provided no changes are made in the bodywork for this purpose. Disc brake dust shields may be altered or removed. Front mounted ducting and/or spoilers shall not extend, to the side, beyond the centerlines of the front wheels, no more than three (3) inches below the lowest part of the front body panel, nor above a plane passing through the wheel hub centerlines, nor forward of the most forward part of the front body panel. Rear brake ducts may extend in a forward direction only, and shall extend a maximum of 24 inches from the rear brake disc/drums.
5. The make of brake linings and the use of any brake lines. The fitting of any single or dual master cylinder(s). A servo assist may be added, if none is fitted as standard. The standard servo assist may be modified, removed, or replaced.
6. The modification or substitution of front spindles and/or rear axle shafts, and modifications or substitutions of hubs, bearings, bearing carriers, universal joints, and drive shafts. These changes may not result in any changes in tread dimensions as measured from the centerline of the car, or any changes in other suspension components, or the suspension geometry.
7. The use of alternate suspension bushings of the same type and size. Offset bushings are permitted.

8. The addition or substitution of any anti-roll bar, camber-compensating device and/or axle locating device provided there is no other change in the standard suspension or drive train components except as authorized elsewhere in these rules. Such devices may not pass through any interior or exterior body panel, or frame member.
9. Springs or torsion bars of any kind may be replaced by others of unrestricted origin, but without changing the number supplied by the manufacturer and on the condition they can be fitted without alteration to the original supports and points of attachment. On independent suspension systems utilizing a hub, located by a strut, incorporating a shock absorber surrounded by a coil spring, (i.e., MacPherson strut, Chapman strut, etc.) the spring mounting points on the strut/shock absorber may be modified and/or relocated on the strut/shock absorber provided that the strut/shock absorber remains inside the coil spring. The points of attachment of the strut/shock absorber unit to the chassis, may not be relocated. All components between the chassis and hub are considered to be part of the strut/shock absorber, unit, except for brake components. Spacers (lowering blocks) may be used between leaf springs and the points of attachment to the axle housing.
10. The removal of the handbrake and operating mechanism.
11. Nuts, bolts, studs, washers, etc., may be substituted.
12. The improvement of the effectiveness, for racing purposes, of energy-absorbing steering columns providing that the energy-absorbing characteristics are not reduced.

C. Electrical System

1. Make of spark plugs and ignition coil on condition that the system of ignition remains the one provided

by the manufacturer. Transistor ignition is permissible provided the original distributor equipment is utilized.

The standard generator or alternator may be replaced by either a generator or alternator of different make and capacity providing the location and driving method remains unchanged.

Internal modifications to the distributor are permitted. The vacuum actuating mechanism may be removed.

2. Make or size of battery provided its voltage and location remains unchanged.
3. The wiring harness may be altered or replaced.
4. Horns may be completely removed.

D. Engine and Drive-Train

1. Induction System

- a. Carbureted engines: Any alteration to the carburetors except changing the number, model, type, size (measured at the throttle butterfly) or butterfly location of the standard equipment and except that extensions or the addition of material to the exterior of the carburetor body is prohibited.
- b. Fuel injection engines: Any alteration to the standard fuel injection components except:
 - Changing the location, type, or number of the air throttles (butterfly, slide, etc.) or changing the inside dimensions of the air duct at the air throttle.
 - The addition of material to the intake manifold.
 - Changing the number or location of the injection nozzles.
 - Changing the make and model of the fuel metering and/or fuel distribution unit. The fuel metering and/or fuel distribution unit may be modified without restriction provided that it can

be positively identified as that fitted as standard equipment.

Velocity stacks (air intake horns) or cold air box(es) and air supply duct(s) may be used on any induction system provided no modifications are made to the body or frame of the car to accommodate their use. Air cleaners may be removed.

2. Additional fuel pumps may be used provided they are only for supplying fuel to the carburetors and not for cooling purposes. If the mechanical fuel pump is replaced, a blanking plate may be used to cover the original mounting point.
3. Any alternate fuel line may be used provided it does not pass through the driver/passenger compartment and provided the number of fuel lines remains unchanged between the tank and the firewall. In addition it is permitted to install a fuel pump in the fuel line between the fuel tank and the firewall.
4. It is permitted to lighten, balance, or modify in shape by tooling components of the engine and drive-train,

provided it is always possible to identify them positively as such. It is not permitted to add any material or mechanical extension unless authorized in these rules.

Mechanical (i.e., shot or glass peening) heat, chemical (including plating) treatment of these components is permitted, provided it is always possible to identify the components positively as the original equipment.

The engine fan may be completely removed.

5. Additional shims required for valve adjustment or for maintaining the geometry of a valve train after machining operations will be allowed.
6. The use of alternate engine and drive-train components which are normally expendable and considered replacement parts such as seals, bearings, valves, valve guides and valve seats, provided they are of the same type, quantity and dimensions. Bushings may be installed where none are fitted as standard provided that they are concentric and that the center line of the bushed part is not changed. Gaskets may be replaced with others of unrestricted origin, but not thicker than the standard gaskets.
7. The compression ratio may be increased by machining, using any head gasket or doing without one.
8. Nuts, bolts, studs, washers, etc., may be substituted.
9. Reboring the cylinders is authorized on condition that the greatest bore measurement specified for that make and model is not exceeded by more than 1.2 mm (.0472 in.)
10. Substitute pistons of any material or origin are authorized.
11. The substitution or addition of any valve springs of the same basic type (i.e., hairpin or helical) with which the car is normally equipped is authorized, and the substitution or addition of keepers and retainers.

12. The use of any exhaust manifold and exhaust pipe.
13. The use of any engine oil filter(s).
14. The ratios of the gear box and rear axle when listed by the SCCA. Addition of a device for locking out reverse gear.
15. Installation of any type of vent or breather on the engine, transmission, or differential to prevent loss of lubricant and the use of oil catch tanks on the transmission and differential.
16. Any modifications to the clutch except increasing the diameter of the unit originally specified for the model by the manufacturer. The number of discs may not be changed.
17. The use of any limited slip or locked differential except that no substitution of the differential housing is permitted.
18. Springs or torsion bars of any kind may be replaced by others of unrestricted origin, but without changing the number supplied by the manufacturer, and on condition they can be fitted without alteration to the original supports and points of attachment.
19. Use of any pushrods.
20. Use of any oil pan (sump) and/or any oil pump pickup.
21. Use of any water radiator provided the standard radiator mounts are retained and there are no changes in body, chassis, or internal structure of the car to accommodate its use. Separate expansion tank provided it is mounted within the engine compartment.
22. Thermostats may be modified, removed or replaced with blanking sleeves or restrictors.
23. Generator, crankshaft and water pump pulleys may be altered or replaced with others of unrestricted origin.

24. Use of any external crankshaft vibration dampener is allowed.
25. The use of any engine, transmission and/or differential oil cooler(s) provided it (they) are mounted completely within or under the coachwork but not within the driver/passenger compartment. Oil pump(s) may be added for the differential and/or transmission oil coolers.

Air ducts may be fitted to the oil cooler(s) provided they do not extend more than 12 inches in any direction from the cooler fins. Front mounted ducting and/or spoilers shall not extend, to the side, beyond the centerlines of the front wheels, nor more than three (3) inches below the lowest part of the front body panel, nor above a plane passing through the wheel hub centerlines, nor forward of the most forward part of the front body panel.

26. The use of any flywheel provided the diameter is the same as the unit originally specified for the model by the manufacturer and provided the crankshaft attachment points are not changed. Dowel pins may be added.
27. Exhaust emission control air pumps and associated lines and nozzles cannot be modified in any way except that they may be completely removed. When these air nozzles are removed from a cylinder head, the holes must be completely plugged.
28. Any camshaft(s) may be used. Any tappets (cam followers) of the same type and diameter may be used.

E. Safety Fuel Tanks

1. General

Fuel tanks in Production Category cars may be substituted with safety fuel tanks conforming to the

SCCA safety fuel tank standards as specified in Appendix X of the GCR.

2. Capacity

There shall be no restriction of fuel capacity when installing safety fuel tanks and the installation of more than one of the standard 22, 15 or 8 gallon tanks is permitted.

3. Location

Location of the safety fuel tank shall be as close as possible to the location of the standard tank(s) except when safety aspects or dimensional limitations make this unfeasible or impossible. In no case shall the location of the safety tank in the automobile be more than 12" from the standard tank(s), nor shall the tank be located in the driver/passenger compartment.

4. Installation. Fittings, Lines

Internal body panels may be modified to accommodate the installation of safety fuel tanks as long as modification serves no other purpose.

Filler caps, fuel pick-up openings and lines, breather vents and fuel filler lines shall be so designed and installed that if the car is partially or totally inverted, fuel shall not escape. If the fuel filler cap is located directly on the fuel tank, a check valve shall not be required provided the filler cap is of a positive locking type and does not incorporate an unchecked breather opening. If the fuel filler cap is not located directly on the fuel tank, a check valve must be incorporated in the fuel tank to prevent fuel escaping if the cap and filler neck is torn from the tank.

Fuel tank breathers must vent outside the car.

It is recommended that all lines and filler openings be incorporated in a single fitting located at the top of the fuel tank.

2.3 In 1973 production category automobiles shall be divided into classes based on relative performance as follows:

CLASS A

Abarth Simca 2000
Cobra 427
Corvette Sting Ray Roadster & Coupe 350, 1970, 1971
Corvette Sting Ray Roadster & Coupe 396, 427, 434 thru 1973
DeTomaso Pantera 351, 1972-73
Griffith 201
Porsche GT5/904

CLASS B

Alfa Romeo Montreal
AMX Sports Coupe 290 thru 1969
AMX Sports Coupe 343 thru 1969
Cobra 289
Corvette 203, 327 (1962)
Corvette Sting Ray Roadster 327, 350, 1963 thru 1973
Ferrari 365 GTB 4 Daytona
Jaguar Sebring 5 (V-12)
Porsche 911E Coupe/Targa Cabriolet 1969
Porsche 911S Coupe/Targa Cabriolet 1969
Porsche 911E Coupe/Targa Cabriolet, 1970-1971
Porsche 911S Coupe/Targa Cabriolet, 1970-1971
Shelby GT 350 thru 1966
Shelby GT 350 1-4V, 1967
Shelby Cobra GT 350 Coupe, 1969

CLASS C

Alfa Romeo TZ
Datsun SRL 311U (Mikano)
Datsun 202 Sports (Hitachi & Mikano) thru 1973
Ferrari Dino 246 GT
Jaguar FVR & FZ
Lotus Elan thru S 1 (Roadster, Coupe & Drophead)
Lotus Europa Twin Cam
Lotus Elan Plus Two
Lotus Seven Series Four
MG, M.G. GT
Porsche Carrera 1900 1600
Porsche 911 911S, 911L (Coupe) thru 1968
Porsche 911T Coupe/Targa Cabriolet 1969
Porsche 911T Coupe/Targa Cabriolet, 1970, 1971
Porsche 911 E, S Coupe/Targa Cabriolet 1972


Porsche 914/6 thru 1972
Sunbeam Tiger 260
Triumph T-210
Triumph TR-5
Triumph TR-6 thru 1972

CLASS D

Alfa Romeo Duetto 1750 thru 1971
Alfa Romeo 2000 Spider
Austin Healey 3000
Daimler SP-230
Datsun SRL 311U (Hitachi)
Elva Mk III 1800 & Mk IV 1800
Elva Mk IV T 1800
Jaguar XK 120, 140, 150
Jensen Healey
Lotus Super Seven
Lotus Europa Mk 46, 54 (65)
Porsche 914S
Triumph GT-6 & GT-6 Plus
Triumph GT-6 Mark III (2 cars) thru 1972
Triumph GT-6 Mark III (1973) Swing Aslet
Triumph TR-4
Triumph TR-4A IRS
TVR Mk III 1800
Venko Stinger


CLASS E

Alfa Romeo Duetto 1600
Alfa Romeo Giulia Spider Veloce 1600
Alfa Romeo Giulia GT & GTZ
Austin Healey 100-6
Elva Mark I, II, III, 1662
Elva Mark IV 1622
Fiat 124 Sport Spider 1600 (2 cars)
MG, MG GT
Morgan + 1
Opel GT 1900
Porsche 912 Coupe/Targa Cabriolet thru 1968
Porsche 912 Coupe/Targa Cabriolet 1969
Porsche 914 thru 1973
Porsche 356C/1600SC & 356B Super 90
Porsche 356 1500 1600 A II 5
Suh Sunnet V-3 thru III
Triumph TR-2 3 3A 3B
Triumph 1500



TVR Mk III 1622
TVR Vixen 1600 Ford
Volvo 1800 (1990 cc) 1969,
1800E, 1800ES thru 1973

CLASS F



Alfa Romeo Giulietta Super 1300
Alfa Romeo Sprint Speciale
Alfa Romeo Giulia Sprint & Super 1600
Alfa Romeo Spider 1300 Junior
Alfa Romeo Junior Z
Alpine A100 1100
Austin Healey 100-4, 100M
Austin Healey Sprite 1275
Datsun SPL 311 & SPL 3111/1
Fiat 124 Sport Spider thru 1970,
1600 - 1971-1973 (one cab)
Fiat Abarth OT 1300/124 Coupe
Lotus 7 & 7 America
MGA 1300, 1600, 1622
MGA Twin Cam
MG Midget 1275 thru 1973
Morgan 4/4 Mk V
Sunbeam Alpine
Triumph Spitfire Mk III thru 1970
Triumph Spitfire Mk IV thru 1972
Triumph Spitfire 1300
Volvo P 1800 S (1780 cc)

CLASS G

Alfa Romeo Sprint & Spider 1300
Austin Healey Sprite 1100, AN # (1100)
Datsun SPL 3101'
Fiat Abarth OTS 1000 Coupe
Fiat Abarth 1000 Pushrod
Fiat Abarth OT 1000 Spider
Honda S800
Matra
MG Midget AN2, AN3
Porsche 1300
Rene Bonnet CRB
Triumph Spitfire Mk I & II
Turner 950S

CLASS H

Austin Healey Sprite Sprite 940 Mk I & II
Fiat 850 Spider, Racer thru 1973
Fiat Abarth 850S, 750 GT, 750MM
Honda S600
MG Midget 94R
MGTC, TD, TF 1250
MG TF - 1300
Morgan 4/4 Mk IV
Opel GT 1100 thru 1971

3. SCCA SPORTS RACING CATEGORY

- 3.1** The SCCA Sports Racing Category shall be for automobiles which are designed and constructed for road racing competition, offering provisions for driver and a passenger, basically suitable for driving over normal roads. They shall conform to the following requirements.

Sports racing category cars built prior to Jan. 1, 1966 need not comply with the minimum door and cockpit width dimensions specified herein, but must comply with all other requirements.

- 3.2** Classification — Cars with reciprocating piston engines of two or four cycles shall be classified according to engine displacement as follows:

- A — Over 2000 cc
- B — Over 1300 cc and below or equal to 2000 cc
- C — Over 850 cc and below or equal to 1300 cc
- D — Below or equal to 850 cc

Supplementary regulations for an event or series of events may provide for combining any of these classes.

Supercharged cars shall be classified according to their displacement times a factor of 1.4.

Rotary Piston Engines:

Cars with rotary piston engines covered by the NSU-Wankel patents shall be classified on the basis of a piston displacement equivalent of twice the volume determined by the difference between the maximum and minimum capacity of the working chamber.

Other Designs:

Turbine and steam powered engines are prohibited.

- 3.3** Self Starter

Cars shall be equipped with an automatic self starter and on-board power supply.

- 3.4** Brakes

These cars shall be equipped with a dual braking system operated by a single control. In case of a leak or failure at

any point in the system, effective braking power shall be maintained on at least two wheels.

A separate hand brake (emergency brake) is not required.

3.5 Coachwork

All parts of the car lapped by the air stream and situated above a plane passing through the center of the wheel hubs.

All external parts of the car which extend above the highest point of either the front or rear wheels (with tires) with the exception of units definitely associated with the functioning of the engine or transmission and the roll bar.

Coachwork shall provide comfort and safety for driver and a passenger. All elements of the coachwork shall be completely and neatly designed and finished, with no temporary or makeshift elements. The body shall cover all mechanical components, except that the intake and exhaust may protrude.

Any specific part of the car which has an aerodynamic influence on the stability of the vehicle must be mounted on the entirely sprung part of the car and shall be firmly fixed while the car is in motion.

Neither the safety roll bar nor any of the units associated with the functioning of the engine or transmission shall have an aerodynamic effect by creating a vertical thrust.

All external projections swinging in a horizontal plane shall have a minimum radius of 1.5 cm. The leading edge of any aerofoil fixed to the front of the car shall not be sharp.

The highest point of any forward facing gap in the coachwork shall not be situated above a horizontal plane 80 cm above the lowest point of the entirely sprung structure of the car.

The maximum width of the coachwork shall not exceed by more than 20 cm. the maximum width measured between the two vertical planes tangent to the outer face of the front or rear wheels.

No element of the car shall extend more than 3.94 inches (10 cm) beyond a vertical plane tangent to the outersurface of the front and rear wheels.

a. Cockpit and Seats —

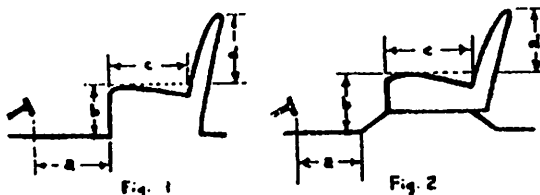
There shall be seats of equal dimension and comfort for the driver and a passenger equally disposed on each side of the longitudinal axis of the car. Seats shall be firmly attached in the car, but may provide for adjustment for the size of the occupant.

The windscreen and body surrounding the driver and passenger compartment shall be symmetrical about the longitudinal axis of the car.

The passenger's space and seat shall remain usable throughout the competition and shall not be encroached upon by any element of the car or equipment except as provided in these rules.

Driver and passenger space shall satisfy the following minimum dimensions:

— The inside minimum width of the compartment shall be 40 inches measured at the immediate rear of the steering wheel hub and at right angles to the longitudinal axis of the car, and must be unobstructed and maintained at least 10 inches in a vertical plane. Seats must fulfill the following minimum dimensions:



a is always measured horizontally and parallel to the longitudinal axis of the chassis, between two vertical

planes perpendicular to the longitudinal axis and defining from front to rear the open space on a level where such measurement is taken.

For the driver's seat, a is measured on the floor level, or at the bottom of any recess if need be, from the perpendicular of the furthest pedal in the position of rest.

For the passenger seat, the measurement is taken at a height of 8 inches above the floor, or at the bottom of the recesses, if need be.

In case of movable seats it is forbidden to alter the position of any seat while the car is being measured.

b is measured vertically from the rear of a to the horizontal plane tangent to the highest part of the cushion as shown on the drawings.

c is measured, in the horizontal plane defined above from the upper end of b, parallel to a, and tangent to the foremost point of back of seats.

The arrangement of the body must be such that:

$$a+b+c = 43 \text{ in. minimum}$$

The minimum width for the foot space for each person must be 10 inches measured at right angles to the longitudinal axis of the chassis.

b. Bulkheads and Tanks —

Fuel tanks shall be isolated by means of bulkheads and so vented that in case of spillage, leakage, or a failure of the tank, fuel and fumes will not pass into the driver or engine compartment or around any part of the exhaust system.

No part of any oil or water tank shall be exposed to any part of the driver and passenger compartment.

Safety fuel cells specifically approved by the SCCA (Ref.: Appendix X) are highly recommended in all cars, and are required equipment in Canadian-American Challenge Cup competitions.

c. Windshield —

All cars shall be equipped with a windscreen constructed of transparent material which shall provide equal and adequate protection for both the driver and passenger at all speeds. Windshield wipers are not required. The windscreen shall be symmetrical about the longitudinal axis of the car when viewed from above.

d. Visibility —

Coachwork shall provide visibility for driver and passenger forward and to both sides adequate to racing conditions. Rear view mirror(s) shall provide driver visibility to the rear of both sides of the car.

e. Doors —

Coachwork shall provide at least two rigid doors, thereby giving direct access to each of the seats. Each door shall accept a rectangle held in a vertical plane of at least 12 inches x 20 inches. These dimensions shall not include any area above the horizontal plane of the body and door panels. The door openings may not be obstructed in any way.

f. Fenders —

Fenders shall be firmly attached to the coachwork with no gap between body and fender.

Fenders shall be placed above the tires and shall cover them effectively by surrounding at least a third of their circumference. Expanded metal or screen is not considered to be an effective covering. The rear of each fender shall not be higher than a horizontal line passing through the axis of the wheel. The width of each fender shall extend beyond the side of the tires when the wheels are parallel to the longitudinal axis of the car.

In case the fenders constitute a part of the body, or are partly overhung by the structure of the body, the combination of fenders and body, or the body alone, shall meet the above requirements.

g. Loss of coachwork —

All major body components such as front and rear hoods, fenders, doors, and windscreen must be maintained in normal position throughout the event.

3.6 Wheels and Tires —

There shall be no restriction on the size of wheels except for a minimum diameter of ten (10) inches or tires provided they are identical for the right and left front axles, and identical for the right left rear axles.

3.7 Safety Equipment —

Shall comply with GCR Appendix A, Section 1.5.1.

In addition:

- a. Batteries shall be enclosed in a covered battery box to prevent leakage or spillage of fluid, and shall be firmly attached to the car.
- b. Glass headlight lenses and bulbs on the front of the car are prohibited.
- c. All Sports Racing category cars must provide protection for the lower torso and legs of the driver by means of tubing and/or monocoque structure.

4. FORMULA SCCA

A. General

1. A single seat, four open-wheeled racing car with firewall, floor, and safety equipment conforming to the GCR, Appendix A, 1.5.1.
2. Cars must be equipped with on-board self starter controlled by the driver in normal driving position.
3. The driver's seat must be capable of being entered without the removal or manipulation of any part or panel.
4. Cars shall be equipped with a dual braking system operated by a single control. In case of failure or leak at any point in the system, effective braking power shall be maintained on at least two wheels.
5. Superchargers are not permitted except 4.1 Section A.1 (under 3000 c.c. unrestricted engines).
6. Power may not be applied to more than two wheels.
7. The following aerodynamic restrictions will apply:
Coachwork: All external parts of the car which are in the air stream and situated above a plane passing through the center of the wheel hubs, with the exception of the units definitely associated with the functioning of the engine or transmission or the safety roll bar.
 - a. No part of the coachwork, with the exception of the safety roll bar, shall exceed in height a horizontal plane, 80 cm (31.5 inches) above the lowest point of the entirely sprung structure of the car.
 - b. Behind the front wheels, the coachwork shall not exceed a maximum width of 110 cm (43.307 inches) with the exception of lateral fuel tanks which cannot protrude beyond a vertical plane passing through the centerline of the tires.
 - c. The coachwork ahead of the front wheels may be extended to an overall maximum width of 150 cm

(59.055 inches) provided it does not extend beyond the outsides of the front tires.

- d. Any part of the coachwork ahead of the front wheels exceeding an overall width of 110 cm (43.307 inches) shall not extend above the height of the front wheel rims.
- e. Any specific part of the car which has an aerodynamic influence on the stability of the vehicle must be mounted on the entirely sprung part of the car and shall be firmly fixed while the car is in motion.
- f. Neither the safety roll bar nor any of the units associated with the functioning of the engine or transmission shall have an aerodynamic effect by creating a vertical thrust.
- g. The leading edge of an aerofoil fixed to the front of the car shall not be sharp. Minimum radius - 1.5 cm (.6").
- h. The fuel filler cap must be recessed within the coachwork line.

4.1 Class A

A. Engines

- 1. 3000 cc unrestricted.
 - a. Engines of unrestricted origin over 1100 cc below or equal to 3000 cc.
 - b. Superchargers permitted on engines below or equal to 1500 cc.
 - c. Rotary piston engines: cars with rotary piston engines covered by the NSU-Wankel patents will be admitted on the basis of a piston displacement equivalence. This equivalence is twice the volume determined by the difference between the maximum and minimum capacity of the working-chamber.

2. 5000 cc restricted.

- a. Engines approved by the SCCA, pushrod operated valve mechanism, and produced in quantities of at least 1000 per year.
- b. Engines may be modified or altered as desired except as follows:
 - (1) Maximum displacement shall be 5000 cc and may be obtained by alteration of bore and/or stroke as desired.
 - (2) Cylinder block and/or cylinder head(s) may not be substituted.
 - (3) The location of the camshaft may not be changed.
 - (4) The number of main bearings may not be changed.
- c. Engines approved for Formula SCCA. Class A are as follows:

| Manufacturer | Orig. Disp. (c.i.) |
|-----------------|--------------------|
| American Motors | 287 |
| American Motors | 290 |
| American Motors | 327 |
| American Motors | 343 |
| American Motors | 360 |
| American Motors | 390 |
| American Motors | 401 |
| Buick | 215 (Alum.) |
| Buick | 300 |
| Buick | 340 |
| Buick | 350 |
| Buick | 400 |
| Chevrolet | 283 |
| Chevrolet | 302 |
| Chevrolet | 307 |
| Chevrolet | 327 |
| Chevrolet | 350 |
| Chevrolet | 400 |
| Chrysler | 307 |

| Manufacturer | Orig. Disp. (c.i.) |
|--------------|-----------------------------|
| Chrysler | 318 |
| Chrysler | 340 |
| Dodge | 273 |
| Dodge | 318 |
| Dodge | 340 |
| Dodge | 361 |
| Ford | 260 |
| Ford | 289 |
| Ford | 302 (Boss, not tunnel port) |
| Ford | 351 (Windsor) |
| Ford | 351 (Cleveland) |
| Ford | 351 (Buss) |
| Ford | 352 |
| Ford | 390 |
| Holden | 308 |
| Kaiser Jeep | 327 |
| Mercury | 260 |
| Mercury | 302 (not tunnel port) |
| Mercury | 351 (same as Ford) |
| Mercury | 390 |
| Oldsmobile | 215 (Alum.) |
| Oldsmobile | 330 |
| Oldsmobile | 350 |
| Plymouth | 273 |
| Plymouth | 318 |
| Plymouth | 340 |
| Plymouth | 361 |
| Pontiac | 326 |
| Pontiac | 350 |
| Pontiac | 400 |

B. Minimum Weight

(Minimum weights include coolant and lubricants; do not include fuel and driver.)

3000 cc unrestricted engine cars 1105 lbs.

3000 cc restricted engine cars 1350 lbs.

C. Fuel Tank Capacity

3000 cc unrestricted engine cars 26 US gallons

5000 cc restricted engine cars 30 US gallons
(Note: SCCA approved safety fuel tanks are required.)
(See Appendix X.)

4.2 Class B

A. Engines

1. Displacement — over 1100 cc and below or equal to 1600 cc, Cars with rotary piston engines covered by the NSU-Wankel patents will be admitted on the basis of a piston displacement equivalence. This equivalence is twice the volume determined by the difference between the maximum and minimum capacity of the working-chamber.
2. Engines shall derive from automobiles recognized by FIA in Appendix J, Group 1 (series production touring), Group 2 (touring), or Group 3 (grand touring) approved by the SCCA, and shall conform to definitions and specifications shown on the FIA Recognition Form of the homologated car, except as permitted below.

The SCCA shall publish a list of approved engines at the beginning of the year. The following engines are approved for 1973: Lotus Ford 1600 Twin-Cam, Alfa Romeo 1600 Twin-Cam (incl. GTA), Porsche Pushrod 1582, Datsun 1600 SOHC, BMW 1600 SOHC, Ford 1500 Pushrod, Ford 1600 Pushrod, Fiat 124 DOHC 1438, Renault Gordini 1600, Ford Cortina 1600 SOHC, Toyota 1600 Pushrod, Fiat 1592 DOHC, Toyota 1588 DOHC.

3. The following modifications are permitted.
 - a. The use of any carburetor(s), fuel injection or intake manifold(s).
 - b. The use of any exhaust manifold(s).
 - c. The use of any oil sump.
 - d. The use of any oil pump(s).
 - e. The use of a dry sump lubrication system.

- f. The use of any crankshaft of the stroke specified in the homologation forms for the engine.
- g. Main bearing caps may be reinforced or substituted.
- h. The make and location of the ignition coil and condenser may be changed.
- i. Any distributor and/or transistor ignition may be used provided its installation does not require any modification of the engine.
- j. Any make or type of spark plug may be used.
- k. The use of any starter is permitted provided it can be fitted without any modification to the engine.
- l. Substitution of the clutch and flywheel is allowed provided there is no increase in clutch diameter. The use of dowel pins is permitted.
- m. Any pistons and piston pins may be used
- n. Any camshaft(s) may be used.
- o. Cam followers may be altered or substituted.
- p. It is permitted to lighten, balance or modify in shape by tooling, the standard or optional components of the engine, provided it is always possible to identify them positively as such.

It is not permitted to add any material to these components unless specifically authorized.

- q. Engines may be rebored a maximum of 1.2 mm (0.047") over the standard size provided the resulting increase in total displacement does not exceed 1600 cc.
- r. The use of any alternate engine components considered replacement parts such as seals, bearings, valve guides, nuts, bolts, studs, washers, and gaskets are allowed provided they are of the same type and dimension. Bushings may be added where none are fitted as standard provided that they are concentric and that the centerline of the bushed

part is not changed. Water and oil passages may be restricted or plugged.

The substitution of valve springs, valve spring retainers and keepers is permitted. Any pushrods may be used.

- s. Generator, crankshaft and water pump pulleys may be altered or replaced with others of unrestricted origin. The use of any crankshaft vibration dampener is permitted.
- t. The compression ratio may be increased by machining, using any head gasket(s) or eliminating of head gasket(s).
- u. The installation of any engine vent or breather is permitted.
- v. Generator or alternator is free, and optional.
- w. The use of any rocker arms or rocker arm supports.
- x. Use of any connecting rod of the same basic material.
- y. Valves are free in both size and material, provided the valve centerline is not altered.
- z. Exhaust emission control air pumps and associated lines and nozzles cannot be modified in any way except they may be completely removed. When these air nozzles are removed from a cylinder head, the holes must be completely plugged.

B. Transmission

No more than five forward speeds.

C. Minimum Weight

Minimum weight in running condition (i.e. includes coolant and lubricants; does not include fuel or driver). 930 lbs.

D. Fuel Tank Capacity

Maximum fuel tank capacity: 19 US gallons.

4.3 Class C

A. Engines

Engine displacement below or equal to 1100 cc. Cars with rotary piston engines covered by the NSU-Wankel patents will be admitted on the basis of a piston displacement equivalence.

This equivalence is twice the volume determined by the difference between the maximum and minimum capacity of the working-chamber.

B. Minimum Weight

Minimum weight in full running condition (i.e., includes coolant and lubricants; does not include fuel and driver): 750 lbs.

C. Fuel Tank Capacity

Maximum fuel tank capacity: 16 US gallons.

5. FORMULA VEE

5.1 Definition

A formula for single-seat, open-wheel racing cars based based on standard Volkswagen 1200 series type I, U.S. model sedan (imported by VW) components, and restrictive in specifications so as to emphasize driver ability rather than design and preparation of the car.

No component, of the engine, power train, front suspension or brakes may be altered, modified, or changed, nor be of other than VW manufacture, unless specifically authorized.

Engine components must be assembled in standard configuration. Exceeding the wear limits specified in the VW manual or other official VW guides is not prohibited provided that tolerances, dimensions and specifications stated in the GCR are met.

5.2 Weight and Dimensions

Minimum weight, without fuel or driver — 825 lbs.

Wheelbase, Minimum — 81.5"

Wheelbase, Maximum — 83.5"

Track, Front — Standard VW — 51.4"

Track, Rear — 49.8" $\pm 1/8"$ $\rightarrow 5/8"$

Overall length, Minimum — 123"

Overall length, Maximum — 127"

Body depth at firewall, Minimum — 25"

Body width at firewall, Minimum — 34"

5.3 Suspension

a. The front suspension and steering shall be standard VW sedan as defined herein. The following modifications are allowed

1. Removal of one torsion bar.
2. The use of any anti-sway bar(s) mounting hardware and trailing arm locating spacers.
3. The use of any shock absorber(s) which can be mounted directly on the standard mounts. Spring shocks are prohibited.

4. Relocation of the steering gear box to a central position, and replacement of the tie rods with others of a suitable length.
5. Steering column may be altered or replaced and any steering wheel may be used.
6. Use of any desired Pitman arm. Standard steering arms may be altered; however, no modification of the spindle is permitted.
7. Modification of the standard front torsion bar(s).
8. The rubber portion only of the hump stop may be altered or removed.
9. Caster and toe in/out settings are free.
- b. The rear axle assembly shall be standard VW sedan as defined herein with axle location provided by a single trailing arm on each axle. The rear axle tube may be rotated about its axis. Coil springs shall provide the primary springing, medium, with telescopic shock absorbers mounted inside the springs. Cables, straps, or other positive stops may be used to limit positive camber. An anti-roll bar or camber control device may also be used. When said anti-roll bar or camber control device is removed the required coil springs must continue to perform functionally.
- c. Wheels shall be standard 15" x 4J as used on the 1200 cc or 1300 cc VW sedan as defined herein.
- d. Any tire size may be fitted.

5.4 Brakes

- a. Brake drums, backing plates and wheel cylinders shall be standard VW sedan, as defined herein. Ribbed-type rear brake drums (part no. 113-501 615 D or F) may be used in place of the 1200 series rear brake drums.
- b. These cars shall be equipped with a dual braking system operated by a single control. In case of a leak or failure at any point in the system, effective braking power shall be maintained on at least two wheels. Any master cylinder(s) may be used.

- c. A separate hand brake (emergency brake) is not required. Removal of the hand brake and operating mechanism is permitted.

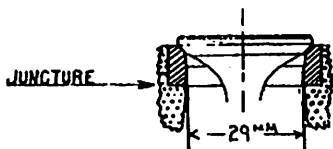
5.5 Engine

The engine shall be a standard VW powerplant, as normally fitted to VW sedans as defined herein. Any engine part(s), listed by the manufacturer (VW) as a current, superceding, replacement part for the standard VW 1200 series, type I, U.S. model sedan and interchangeable with the original part(s), may be used.

The engine/transmission shall be mounted in the chassis with the transmission to the rear.

Allowed:

- a. Removal of the carburetor air cleaner and choke mechanism.
- b. Replacement of standard exhaust system with any exhaust system terminating 1" to 3" behind the rear most part of the body.
- c. Lightening of the flywheel to a minimum of twelve pounds.
- d. Balancing of all moving parts of the engine, provided such balancing does not remove more material than is necessary to achieve the balance. The crankshaft may be ground and the case may be machined to accommodate the use of standard factory oversize/undersize crankshaft bearings, provided the crankshaft location is not changed.
- e. Polishing of the intake and exhaust ports, provided such polishing does not enlarge the exhaust port beyond 33 mm, inside diameter, and the intake port beyond 29 mm, inside diameter. The measurements are to be taken at the juncture of the seat insert and the aluminum port material, and at the manifold face. Valve seat angles must be machined as specified in the official VW Workshop Manual.



- f. Matching of manifold flanges is permitted.
- g. Complete or partial removal of any cooling duct component, except the fan housing. Fan belt origin is unrestricted. The use of a fan belt is optional.
- h. Fitting of any standard VW carburetor originally supplied on above specified engines (Solex 28 PCI or PICT) and the use of any jets or VW venturi which may be fitted without alteration to the carburetor body. The venturi must be fitted in the standard position, but its internal diameter may be machined. The carburetor may be rotated 180° about its vertical axis. A velocity stack may be fitted to the carburetor. Modification of the float is allowed as long as no change is made to the float chamber and/or float valve.
- i. Fitting of any standard VW distributor.
- j. Removal of the intake manifold heat riser tube. Removal of metal from the interior of the intake manifold, provided that the following dimensions are not exceeded:
 - downtube 1.132" O.D. at 2.5" below carb. flange.
 - horizontal tube 0.994" O.D.
- k. Removal of the armature, brushes, brush holders, and field coils from the generator.
- l. The installation of baffles housed completely within the original oil sump and crankcase.
- m. The use of oil temperature indicating device in the crankcase.
- n. The use of any standard VW oil pump.
- o. The use of valve spring shims.

- p. The following standard dimensions and tolerances of engine components are included as information and shall be observed:

Maximum bore: 3.040"

Stroke: 2.520" \pm 0.005"

Minimum capacity of one combustion chamber in head: 43.0 cc.

Minimum depth, top of cylinder barrel to top of piston: 0.039".

The above dimensions may be achieved by machining any previously machined surface, provided that the total surface is machined on the same plane as the previously machined surface.

- q. The use of any VW clutch of the same diameter as fitted to standard VW sedan as defined herein. The standard clutch operating arm may be modified to allow its attachment in any appropriate position.
- r. An oil sump extension may be fitted between the crankcase and the oil strainer cover plate, provided the extension does not extend horizontally beyond the edge of the oil strainer cover plate and the capacity does not exceed 250 cc. The oil pump pickup pipe may be extended into the sump extension.
- s. Replacement of oil galley plugs with threaded plugs.
- t. The following standard dimensions are included for information only and shall be observed:
Exhaust valve diameter: 1.102" or 1.18"
Intake valve diameter: 1.18" or 1.24"
- u. The crankcase may be machined to permit the use of standard VW camshaft bearing inserts, provided that camshaft location is not changed.
- v. A VW "D" camshaft, part nos. 113-109-015D, 113-109-017D, 113-109-019D, 113-109-021D, 113-109-023D, 113-109-025D, 113-109-027D must be used. The camshaft profile shall be checked using the official procedure published by SCCA. Cam timing \pm one (i) degree.

5.6 Transmission-Rear Axle

The transmission-rear axle assembly shall be standard VW sedan, as defined herein. The synchromesh components must be in place and operating on at least three gears. Reverse gear must be operable from the driver's seat.

Allowed:

- a. Installation of any standard VW gear set which can be fitted without modification of any component of the transmission or of the gear set itself and the transposing of the ring gear to provide proper axle rotation.

Fully synchromeshed transmission:

| Gear | Part No. | No. of Teeth | Ratio |
|---------------|--------------|--------------|-------|
| 1st | 113 311 251A | 10:38 | 3.80 |
| 2nd | 113 311 261 | 17:35 | 2.06 |
| 3rd | 113 311 275 | 22:29 | 1.32 |
| | 113 311 275B | 23:29 | 1.26 |
| | 113 311 275A | 23:28 | 1.22 |
| 4th | 211 311 341 | 28:23 | 0.82 |
| | 113 311 341 | 27:24 | 0.89 |
| Ring & Pinion | 211 517 143A | 8:35 | 4.375 |
| | 311 517 143B | 8:33 | 4.125 |

Partly synchromeshed transmission:

| Gear | Part No. | No. of Teeth | Ratio |
|---------------|--------------|--------------|-------|
| 1st | 113 309 251 | 10:36 | 3.60 |
| 2nd | 113 309 261A | 17:33 | 1.94 |
| | 113 309 261 | 17:32 | 1.88 |
| 3rd | 113 309 275 | 23:28 | 1.22 |
| | 113 309 275A | 22:27 | 1.23 |
| 4th | 113 309 341A | 28:23 | 0.82 |
| Ring & Pinion | 113 517 141B | 7:31 | 4.43 |

Part Numbers

There are different part numbers for various gears in addition to the ones listed here. This in general indicates changes on the parts such as:

| Gear | Part No. | Ratio | Difference |
|--------|--------------|-------|--------------|
| 4th | 113 311 341 | 0.82 | with Key Way |
| | 113 311 341A | 0.82 | with Splines |
| Ring & | 113 517 143 | 4.125 | 6 mtg. bolts |
| Pinion | 311 517 143 | 4.125 | 8 mtg. bolts |

However, there are no other standard ratios than the ones listed here. A gear removed out of a transmission can be identified by the number of teeth.

- b. Alteration of the shock absorber mounts.
- c. Transmission may not be installed in an inverted position.
- d. The use of a limited-slip differential device is prohibited.

5.7 Ballasting

Ballasting is not permitted.

5.8 Frame

The frame/chassis shall be constructed of steel tubing of a maximum diameter or width of four inches and be of a safe and suitable design.

There may be no frame/chassis rigidity or strength derived by means other than the frame tubes. Stressed skin, monocoque or semi-monocoque construction is not permitted, except that:

- a. The firewall panel may be rigidly attached to the frame tubes; and
- b. The undertray (belly pan) may be rigidly attached to the frame, provided that the curvature of the undertray, measured vertically from its lowest point to the highest point of its attachment to frame members at its sides, may not exceed one inch.

5.9 Body

The body must enclose the engine by surrounding it from a point no higher than the lower edge of each valve cover and extending from the front of the engine to its rear on each side. The top of the rear deck must extend from the back of the firewall to a point 16 inches to the rear of the centerline of the rear axles, but may have air intake openings.

The rear trailing arms, coil springs and shock absorbers may not be faired in by covering or shrouding them away from the airstream. Specifically, the front mounting point of radius pad may be inside the trailing edge of the side body panel so long as the panel does not extend back over the trailing arm itself.

The driver's seat must be capable of being entered without the removal or manipulation of any part or panel. Firewall, floor and safety equipment must conform to the General Competition Rules of the SCCA.

The front suspension uprights (shock absorber mounts), shock absorbers and/or trailing arms may not be faired in by covering or shrouding away from the airstream.

No part of the frame or body shall project beyond a plane connecting the vertical centerline of the front and rear tires.

Air ducting may be utilized, provided it is attached to the body or frame of the car. Ducting may not be made part of or attached in any way to the engine assembly. Wings (airfoils) are prohibited.

Fuel filler necks, caps or lids may not protrude beyond the bodywork of the car.

- 5.10 The use of the following non-standard replacement parts is permitted provided that no unauthorized modification of any other component results.

Allowed:

- a. Fasteners (nuts, bolts, screws, etc.)
- b. Wiring.

- c. Gaskets and seals.
- d. Brake lines and fuel line.
- e. Spark plugs.
- f. Piston rings.
- g. Wheel bearings.
- h. Connecting rod bearings and crankshaft main bearings of some type and size as standard VW.
- i. Brake shoes and brake-lining.
- j. Valve guides.

5.11 Battery

The use of any single 6 volt battery is permitted.

6. SCCA SEDANS

6.A Class A

6.A.1 Automobile Eligibility

Class A Sedans shall be those makes and models of cars of over 2500 cc displacement which are recognized and homologated as follows:

- a. Homologated by FIA in Group 1 or 2 prior to December 31, 1968 (Forms available from ACCUS-FIA).
- b. Recognized by SCCA in Sedan category prior to December 31, 1969 (Forms available from SCCA).
- c. Recognized by ACCUS-FIA as eligible for SCCA Sedan category after January 1, 1970 (Forms available from ACCUS-FIA or SCCA).
- d. Regardless of ACCUS-FIA or SCCA recognition as above, the following categories of cars shall not be eligible as SCCA Sedans:
 1. Cars with a wheelbase of more than 116".
 2. Convertibles or sun roofs.
 3. Independent rear suspension on cars with engine displacement of over 2500 cc.

6.A.2 Recognition Forms

All cars recognized by the FIA or the SCCA are described in detail on a Recognition Form, thereby enabling identification of make and model, its specifications, and approved optional equipment. In order to be valid, the Recognition Form must carry the approval of the FIA, ACCUS-FIA, or SCCA whichever is applicable.

Entrants of SCCA Sedans must have in their possession the Recognition Form for the make and model entered, and shall make these forms available to the Scrutineers on request. If the Recognition Form is not made available to the Scrutineers, the Race Officials may refuse to allow participation of that car.

In case of doubt involving specifications not adequately described on the Recognition Form the Scrutineers may

refer to maintenance books, spare parts books, general catalogs published by the manufacturer for that make and model, or other cars of the same make and model.

It is the responsibility of the competitor to obtain the complete Recognition Forms concerning his car.

ACCUS-FIA

330 Vanderbilt Motor Parkway
Hauppauge, Long Island,
New York 11787

SCCA

P. O. Box 22476
Denver,
Colorado 80222

6.A.3 Required Modifications

The following modifications are required on all cars.

- a. All cars must meet the requirements specified in Appendix A, Section 1.5.1 of the GCR. It is recommended that all Class A Sedans be equipped with a full roll cage as described in Appendix Z, Section H of the GCR.
- b. Fuel filler neck and cap must be of standard U.S. automotive production and must be located as provided by the manufacturer or as required in Trans-Am Competition.
- c. At least one main door window must be fully open during competition. An open vent window will not suffice.
- d. The minimum weight shall not be less than 3200 pounds with full fuel tank and without driver. Ballast is permitted, but if utilized must be securely mounted within the coachwork.
- e. There must be a metal bulkhead separating the driver/passenger compartment from the compartment containing the fuel tank. Such bulkhead must be added if the standard vehicle has none.
- f. Any steering system locking mechanism which is fitted by the manufacturer must be removed.
- g. Windshield safety clips 3" x 1" x 1/8" must be installed. 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 the bottom edge of the windshield. Clips must be spaced a minimum of 12" apart. Rear window must be secured with two straps 1" wide, 1/8" thick, bolted or riveted to the body both at the top and bottom of the rear glass.

- h. The headlight and parking/front signal light assemblies must be removed. The resulting openings may be used for ducting of air to the engine, front brakes and/or oil coolers. The openings must be covered with wire mesh screen, maximum weave 1/4" wire cloth. This screen must be of the same contour as the original lens and mounted so that the headlight bezel/rim remains in place and presents a stock appearance.

Side marker light assemblies must be removed and the resulting openings covered with a plate which does not exceed the dimensions of the original parts.

If the headlight openings are not used for ducting air, they must be completely covered with a plate whose dimensions do not exceed the dimensions of the original parts and mounted so that the headlight bezel/rim remains in place.

6.A.4 Authorized Modifications

A. General

1. It is not permitted to make any changes, alterations or modifications to the standard automobile, its coachwork and chassis or any component as produced by the manufacturer, unless such modifications are required under 6.A.3 above or specifically authorized by U.S. rules.
2. Any springs (including torsion bars) on the automobile such as clutch, suspension, etc., may be replaced by others of unrestricted origin, but with no change in the number provided by the manufacturer and on condition they can be fitted without alteration

of the original supports or attachments, except as specifically authorized by the rules.

B. Chassis and Coachwork

1. Bumpers may be removed providing all projecting hardware also is removed. In Trans-Am competition, all cars must be equipped with standard bumpers mounted in standard position.
2. Rear seat and seatback may be removed. The passenger seat may be removed. The driver seat may be replaced with any suitable seat. A racing type bucket seat providing lateral support for the torso is recommended. Seat mountings may be reinforced.
3. Doors may be bolted or pinned to prevent their opening in case of accident. Pins or straps may be added to engine hoods and trunk lids to supplement or replace the latches. Standard hinges may not be removed.
4. Floor mats may be removed.
5. In order to provide clearance for wheels, tires and install brake and oil cooler ducting, the interior of fenders may be altered except for the removal wholly or partially 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 original that provides the required separation. The exterior contour of the fenders may be altered to provide for tire clearance provided the fender opening profile, viewed from side of automobile and the material, are not changed. The tire tread shall not extend beyond the fender opening at the highest point of the tire.
6. The headliner may be removed.
7. Jacking points may be strengthened, their location may be changed or extra ones may be added.
8. The steering wheel may be replaced and the rake of the steering column may be altered. A collapsible

type of steering column equivalent to Federal Motor Vehicle Safety Standard No. 204 is strongly recommended.

9. Inside door handles, window cranks, window mechanism, and side glass may be removed. Door trim panels, and upholstery shall not be removed.

10. Front Spoiler:

- a. A standard front spoiler recognized as being produced in the required quantity may be used.
- b. Automobiles which are produced in standard form without a front spoiler may use a spoiler provided it meets the following requirements:
 - 1) It must be mounted to the front underside body panel below and to the rear of the front bumper location.
 - 2) The maximum front spoiler width shall be limited to the car's front wheel centerlines (the front track dimension).
 - 3) The vertical dimension from the lowest point on the front lower panel to the lowest point of the spoiler shall not exceed four inches.
 - 4) It shall not extend above a horizontal plane passing through the centerline of the wheel hubs.
- c. Standard front spoilers may be altered provided the dimensions specified above are not exceeded.
- d. Openings may be made in the front spoiler for the purpose of ducting air to the front brakes.
- e. Oil cooler and front brake ducting may not exceed the dimensions specified above.

Rear Spoilers

- a. A standard rear spoiler recognized as being produced in the required quantity may be used.

11. 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 on the mechanical performance of the car. Such modifications do not include the substitution or replacement of any element of the coachwork or chassis.
12. The windshield wiper mechanism must remain installed and functional as originally delivered, but the wiper arms may be removed.

C. Tires, Wheels, Suspension

1. Wheels

Substitute wheels of any type or material may be used provided that the following dimensions are met:

- a. Rim width -- maximum 8 inches.
 - b. Diameter -- 14 inch or 15 inch (all four wheels must be of the same diameter).
 - c. Track -- maximum 64 inches, front and rear measured at a horizontal plane through the hub centerline. The track dimension shall remain equally disposed from the centerline of the automobile.
 - d. Wheels must be attached with not less than 5 studs of equal dimension, equally spaced and equidistant from the rotating axis of the wheel.
2. Spare wheel and tire may be removed.
 3. The modification or substitution of front spindles and/or axle shafts, and modifications or substitutions of hubs and bearings is permitted.
 4. The addition or substitution of anti-sway bars is authorized. Torque arms, panhard rods and other similar axle location devices may be used. These devices may extend into the driver/passenger com-

- partment, but must be completely separated and sealed from the driver/passenger compartment by metal panels.
5. It is not permitted to alter the number of shock absorbers, or their systems of operation (i.e., lever or telescopic). The make of shock absorber and its points of attachment may be changed.
 6. Suspension bushings may be replaced by others of a different material provided they are the same type and size. Offset bushings are permitted, including adjustable type.
 7. Quick change/knock-off type wheels are not allowed. Spacers (lowering blocks) may be used between leaf springs and their points of attachment on the axle housing. The type and location of the axle mounting for the leaf spring is free.
 9. Rear spring mounting location on the chassis may be moved inboard to obtain tire clearance, provided chassis sub-frames are not altered. Mounts may not be relocated in a fore and aft direction. Both springs must be located an equal distance from the longitudinal centerline of the car.
 10. Production front suspension control arms must be used, but may be reinforced for safety. Length of control arms may not be changed. Control arm mounting location at the chassis may be changed.
 11. Steering arms, Pitman arms, steering linkage component parts may be reinforced or substituted.
 12. The wheelbase of the automobile may not be changed or relocated in a fore/aft direction.
 13. The improvement of the effectiveness, for racing purposes, of energy-absorbing steering columns provided that the energy-absorbing characteristics are not reduced.
12. Electrical Systems
- The standard battery may be replaced by one of

different make and capacity. The voltage of the battery and electrical system may not be changed. The battery may be relocated to the trunk, but if so, must be enclosed in a protective box (i.e., marine type) and securely mounted.

2. The standard generator or alternator may be replaced by either a generator or an alternator of different make and capacity, provided the driving method remains unchanged. Mounting brackets may be modified or replaced. Any voltage regulator may be used.
3. The make and location of the ignition coil and condenser may be changed.
4. Any distributor may be used provided its installation does not require any modification of the engine. Magneto ignition is prohibited unless listed on the recognition form of the automobile.
5. Transistor ignition is permitted provided its installation does not require any modification of the engine.
6. Any make or type of spark plugs may be used.
7. Additional relays and/or fuses may be installed.
8. The use of any starter is permitted provided it can be fitted without modification to the engine.
9. Wiring harness may be changed or modified.

E. Engine and Drive Train

1. Any exhaust manifold or exhaust 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. The exhaust system must terminate behind the driver's seat and must be directed away from the body.
2. Substitution or modification of the clutch and/or flywheel is permitted provided there is no change in the diameter of the flywheel.

The use of dowel pins is permitted.

3. Exhaust emission control air pumps and associated lines and nozzles cannot be modified in any way except that they may be completely removed. When these air nozzles are removed from the cylinder head, the holes must be completely plugged.
4. It is permitted to change bore and/or change stroke without limitation except that the resultant displacement may not exceed 305 cu. in.
5. Crankshaft main bearing caps may be substituted and additional main bearing caps may be used provided that no material is added to the block for their attachment. Additional main bearing cap bolts may be used provided that no material is added to the block for their attachment.
6. The connecting rods may be replaced with any steel or cast iron connecting rods.
7. Any crankshaft may be substituted provided the angles of the crank throws remain the same as the production crankshaft and the engine firing order remains unchanged.
8. The cooling fan may be modified, substituted or removed.
9. Any pistons and piston pins may be used.
10. Any camshaft(s) may be used.
11. Cam followers may be substituted, except that roller cam followers may not be used unless fitted in production.
12. Any rocker arms and rocker arm supports may be used.
13. It is permitted to lighten, balance or modify in shape by tooling, the standard or optional components of the engine and drive train provided it is always possible to identify them positively as such. Material may not be added to these components unless specifically authorized.

14. The use of alternate engine and drive train components considered replacement parts such as seals, bearings, valves, valve guides, valve seats, nuts, bolts, studs, washers and gaskets is permitted provided they are of the same type and dimension. Concentric bushings may be installed, excepting in the ports, where none are fitted as standard, but shall not alter the location of any engine or drive train component. Oil and water passages may be restricted or plugged.
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 pushrods may be used.
15. Generator, crankshaft, and water pump pulleys may be altered or replaced with others of unrestricted origin. The use of any crankshaft vibration dampener is allowed.
16. The compression ratio may be increased by machining, using any head gasket(s) or elimination of head gasket(s).
17. Any oil pan (sump), oil pump(s) or oil pick-up is allowed. Dry sump systems are permitted provided the oil tank is located forward of the engine compartment firewall.
18. The rear axle tube may be modified or replaced provided the manufacturer's system of suspension is retained. Any final drive housing, gear ratio, limited slip or locked differential may be used. Final drive units which permit ratio changes while the car is in motion are prohibited.
19. Any transmission ratios may be used in the standard or recognized optional transmission. The number of forward and reverse gears may not be changed.
20. Any modification may be made in the linkage between the clutch pedal and the clutch housing including the replacement of mechanical linkage with a hydraulic system.

21. A heavy duty propeller shaft (drive shaft) may be used in place of the standard shaft.
22. The installation of any vent or breather on the engine, transmission or differential is permitted.
23. Any engine oil filter(s) may be used.

F. Cooling System

1. The use of any engine, transmission and differential oil coolers is permitted provided it (they) are mounted completely within or under the coachwork, but not in the driver/passenger compartment. Associated oil cooler pumps and lines are permitted for the transmission and differential. Air ducts may be fitted to the oil cooler(s) provided they do not extend more than 12 inches in any direction from the oil cooler fins.
2. The use of any water radiator is allowed provided there are no changes in the coachwork of the automobile to accommodate its use. Separate expansion or header tanks are permitted, provided they are mounted in the engine compartment.
3. Sealing or shrouding the air flow area between the normal grille and the water radiator is permitted.
4. On water cooled cars, thermostats may be modified or replaced with blanking sleeves or restrictors

G. Fuel Induction System

1. Any intake manifold may be used.
2. A single SCA approved four barrel carburetor (Holley model 4150) with a throttle bore size at the butterfly no larger than 1-11/16" diameter must be used. Extensions or addition of material, except to throttle linkage to the exterior of the carburetor body is prohibited.
3. Any air filter may be used or the filter may be removed. Dynamic air intakes may be fitted on the carburetor. Air may be ducted to the carburetor

provided the ducting is contained within the engine compartment and the air is supplied through normal openings in the coachwork, or as specifically authorized in 6.A.3.h.

4. Any fuel pump(s) may be used and the location of the pump(s) may be changed. Fuel pumps shall not be located in the driver/passenger compartment.
5. Fuel lines are restricted to a maximum of 1/2" inside diameter. Only a single fuel supply line may be used between the engine firewall and the bulkhead separating the driver/passenger compartment and the compartment in which the fuel tank is mounted. Lines returning fuel from engine to tank are prohibited except where fitted as standard. These fuel lines may pass through the driver/passenger compartment if completely covered and protected by a supplemental metal cover or alternatively be of Aeroquip metal braided hose.

H. Brakes

1. The use of any dual master cylinders and/or pressure equalizing device is permitted.
2. Servo-assist systems are free.
3. Backing plates or dirt shields may be ventilated or removed and brake air ducts may be fitted provided they extend in a forward direction only and no changes are made in the bodywork. Rear brake ducts may extend a maximum of 24" from the disc or drum.
4. The handbrake may be partially or entirely removed.
5. Any brake lines may be used. They may be relocated and may be given additional protection.
6. Brake discs, calipers and/or drums are free provided they are mounted in the same location as the standard brakes.

I. Safety Fuel Cells

1. The use of safety fuel cells conforming to specifica-

tions detailed in Appendix X is recommended for the SCCA sedan category.

6.B Classes B and C

Class B — over 1300 cc and below or equal to 2500 cc

Class C — below or equal to 1300 cc

6.B.1 Recognition:

The SCCA will publish a list of those cars eligible to compete in the under-2.5-liter sedan category in the current GCR. No additional automobiles will be added during the current year.

The SCCA may, at any time, discontinue the eligibility of any previously recognized make and model or disapprove any specification or item of optional equipment.

6.B.2 Recognition Forms:

The SCCA will publish a recognition form for each eligible automobile. This form will be compiled from information supplied by the manufacturer through FIA homologation procedures, maintenance books, spare parts books and general catalogs. This form will be the official description of that make and model and it is the responsibility of the competitor to obtain and have in his possession the recognition form for his car. This recognition form must be made available to the Scrutineers and failure to do so may result in a refusal to permit participation in the event.

In case of doubt involving specifications not adequately described on the recognition form, the Scrutineers may refer to maintenance books, spare parts books, general catalogs, published by the manufacturer for that make and model, or other cars of the same make and model.

The recognition forms for all eligible cars in Classes B and C are available at \$5.00 each from:

SCCA
P. O. Box 22476
Denver, Colorado 80222

Cars must meet or exceed the minimum racing weight as listed on the SCCA Sedan Recognition Form. Weight on the car is as raced, but without fuel and driver. Minimum

racing weights are computed for the SCCA Sedan Recognition Form by means of the following formula:

Class B

| | |
|-------------------------|------------|
| Rotary Piston | 1.0 lb/cc |
| Push Rod, Non Crossflow | 1.0 lb/cc |
| Push Rod/Crossflow | 1.05 lb/cc |
| SOHC/Non Crossflow | 1.1 lb/cc |
| SOHC/Crossflow | 1.15 lb/cc |
| DOHC | 1.2 lb/cc |

Class C

| | |
|-------------------------|------------|
| Push Rod, Non Crossflow | 1.2 lb/cc |
| Push Rod/Crossflow | 1.25 lb/cc |
| SOHC/Non Crossflow | 1.3 lb/cc |
| SOHC/Crossflow | 1.35 lb/cc |
| DOHC | 1.4 lb/cc |

Additional 0.1 lb/cc factor is added to the above for each valve in excess of two per cylinder. Two stroke engines shall be computed on the same basis as pushrod/crossflow engines.

Cars with rotary piston engines covered by the NSU-Wankel patents shall be classified on the basis of a piston displacement equivalent of twice the volume determined by the difference between the maximum and minimum capacity of the working chamber.

Minimum weight for Class C: 1000 lbs.

Ballast may be added as required, but must be securely mounted. Component parts of the automobile such as hood, door, decklid may be lightened provided external appearance is not altered and structural rigidity is maintained. Alternate lightweight panels are permitted only when shown on recognition forms.

SCCA Under 2.5 Liter Sedans

Recognition forms are available for the following automobiles:

Form No.

- A1-2 Alfa Romeo Giulia 1300 and 1300TI
- A1-3 Alfa Romeo GT 1300 Junior

Form No.

- A1-4 Alfa Romeo GTA Junior 1300
- A1-6 Alfa Romeo 1600/1750/2000 GTV
- A2-2 Auto Union Audi 100
- B1-1 BMW 1600-2 and 1602
- B1-2 BMW 2000TI
- B1-3 BMW 2002 and 2002TI
- B1-4 BMW 2500
- B2-1 Austin/Morris 850
- B2-2 Mini Cooper 997
- B2-3 Mini Cooper 998
- B2-4 Mini Cooper "S" 1071
- B2-5 Mini Cooper "S" 1275
- B2-6 Austin America 1275
- B2-7 Austin/Morris Marina 1800
- B3-1 Triumph T2000
- B3-2 Triumph 2 Litre Vitesse
- B3-3 Triumph 2.5 P.I. Saloon
- C1-1 Chevrolet Vega
- C2-1 Chrysler Colt
- C2-2 Chrysler Cricket
- D1-1 Datsun B(L) 100 (1200)
- D1-2 Datsun PL510 (1600)
- D1-3 Datsun H(L) 510 (1800)
- D1-4 Datsun 610 (1800)
- F1-1 Ford Escort Super and 1300GT
- F1-2 Ford Cortina GT 1499/1598 1967
- F1-3 Ford Lotus Cortina TC 1964/65/66
- F1-4 Ford Lotus Cortina TC 1967
- F1-5 Ford Escort Mexico
- F1-6 Ford Capri 1600
- F1-7 Ford Capri 2000
- F1-8 Ford Pinto 1600
- F1-9 Ford Pinto 2000
- F1-10 Ford New Anglia 997 and
Ford 123/124E Anglia Super 1200
- F2-1 Fiat 600D
- F2-2 Fiat 1500 Sport Coupe

Form No.

F2-3 Fiat 124 1200
F2-4 Fiat 124 Sport Coupe 1438
F2-5 Fiat 124 Sport Coupe 1608
F2-6 Fiat 124 Special
F2-7 Fiat 128
F2-8 Fiat 128 SL Coupe 1300
F3-1 Subaru 1300
F3-2 Subaru 1400 Sedan and Coupe
N1-1 NSU-1000 (NSU-TTS)
N1-2 NSU TT1200
O1-2 Opel Rallye Kadett
O1-3 Opel 1900 Sport Coupe (57R)
O1-4 Opel 1900 Models 51 & 53
R1-1 Renault 8-R1130
R1-2 Renault R8 Major R1132
R1-3 Renault R8 Gordini R1135
R1-4 Renault 12
R1-5 Renault 17TS
R2-1 Sunbeam Imp/Singer Chamois
S1-1 Saab 96 Sedan
S1-2 Saab Sedan V4
S1-3 Saab Sedan V4 (1698cc)
S1-4 Saab 99E
S2-1 Simca 1000 Type SD
T1-1 Toyota Corolla 1100
T1-2 Toyota Corolla 1200
T1-3 Toyota Corolla 1600
T1-4 Toyota Corona MK II
T1-5 Toyota Celica
T1-6 Toyota Carina 1600
T2-1 Mazda RX-2
T2-2 Mazda S1Z4A RX-3
VW1-1 VW 1300 1955/56
VW1-2 VW 1300 1967
VW1-3 VW 1500/1600 1967/68/69
VW1-4 VW 1600 1970

- V2-1 Volvo P-544**
- V2-2 Volvo 122S**
- V2-3 Volvo 142S and 142E**

The F.M.V.S.S. certification plate riveted to the car on 1972 and subsequent model years shall not be removed.

6.B.3 Required Modifications:

The following modifications are required on all cars:

- a. All cars must meet the requirements specified in Appendix A, Section 1.5.1 of the GCR. It is recom-

- mended that all sedans be equipped with a roll cage as described in Appendix Z, Section H of the GCR.
- b. At least one main window must be fully open during competition. An open vent window does not suffice.
 - c. There must be a metal bulkhead separating the driver/passenger compartment from the compartment containing the fuel tank.
 - d. Any steering system lock mechanism which is fitted by the manufacturer must be removed.
 - e. Windshield safety clips 3" x 1" x 1/8" must be installed. 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 edge of the windshield. Clips must be spaced a minimum of 12" apart. Rear window must be secured with two straps 1" wide, 1/8" thick, bolted or riveted to the body both at the top and bottom of the rear glass.
 - f. The headlight and parking/front signal light assemblies must be removed. The resulting openings may be used for ducting air to the engine, front brakes and/or oil coolers. The openings must be covered with a wire mesh screen, maximum weave of 1/4" wire cloth. This screen must be of the same contour as the original lens and mounted so that the headlight bezel/rim remains in place and presents a stock appearance. Side marker light assemblies must be removed and the resulting openings covered with a plate which does not exceed the dimensions of the original parts. In cases where the headlight openings are not used for ducting air the opening must be covered with a plate whose dimensions do not exceed the dimensions of the original parts and mounted so that the headlight bezel/rim remains in place and presents a stock appearance.
 - g. The fuel filler neck and cap must be standard as provided by the manufacturer or of standard U.S. automotive product and material as required for Trans-Am 2.5 competition.

6.B.4 Authorized Modifications

A. General

1. It is not permitted to make any changes, alterations or modifications to the standard automobile, its coachwork and chassis or any component as produced by the manufacturer, unless such modifications are required under 6.3 above or specifically authorized by these rules.
2. Any springs (including torsion bars) such as clutch, suspension, etc., may be replaced by others of unrestricted origin, but with no change in the number provided by the manufacturer and on condition they can be fitted without alteration of the original supports or attachments, except as specifically authorized by these rules.

B. Chassis and Coachwork

1. Bumpers may be removed providing all projecting hardware also is removed. In *Trans-Am* competition, all cars must be equipped with standard bumpers mounted in standard position.
2. A front spoiler may be mounted provided it meets the following requirements:
 - a. It must be mounted to front underside body panel below and to the rear of the front bumper location.
 - b. Its width shall be limited to the front wheel track width centerline (front track dimension).
 - c. The vertical dimension from the lowest point on the front lower panel to the lowest point on the spoiler shall not exceed three inches.
 - d. Openings in the spoiler are permitted for the purpose of ducting air to the brakes and/or oil cooler(s).
 - e. It shall not extend above a horizontal plane passing through the centerline of the wheel hubs.

- f. Oil cooler and front brake ducting may not exceed the dimensions specified above.
3. Rear seat and seatback may be removed. The passenger seat may be removed. The driver seat may be replaced with any suitable seat. A racing type bucket seat providing lateral support for the torso is recommended. Seat mountings may be reinforced.
 4. Doors may be bolted or pinned to prevent their opening in case of accident. Pins or straps may be added to engine hoods and trunk lids to supplement or replace the latches. Standard hinges may not be removed.
 5. Floor mats may be removed.
 6. In order to provide clearance for wheels and tires, and install brake and oil cooler ducting, the interior of fenders may be altered, except for the removal wholly or partially 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 original that provides the required separation.

The exterior contour of the fenders may be altered to provide for tire clearance, but the fender opening profile, viewed from side of automobile may not be changed. Fender flares of additional and/or alternate material are permitted when shown on SCCA recognition form.

The tire tread shall not extend beyond the fender opening at the highest point of the tire.

7. The headliner may be removed.
8. Jacking points may be strengthened, their location may be changed, or extra ones added.
9. The steering wheel may be replaced and the rake of the steering column may be altered. A collapsible type of steering column equivalent to Federal Motor

Vehicle safety standard No. 201 is strongly recommended.

10. Inside door handles, window cranks, winding mechanism and side door glass may be removed. Door upholstery trim panels shall not be removed.
11. The replacement, addition or removal of accessories, gauges, 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 on the mechanical performance of the car. Such modifications do not include the substitution or replacement of any element of the coachwork or chassis.
12. The windshield wiper mechanism must remain installed and functional as originally delivered, but the wiper arms may be removed.

C. Tires, Wheels, Suspension

1. Wheels

Substitute wheels of any type or material may be used, provided their dimensions and the track they determine are within the limits specified on the SCCA Recognition Form for the automobile, however, all four wheels must be of the same diameter.

a. Rim width:

Class B — Maximum 7

Class C — Maximum 6

b. Diameter:

As listed on SCCA recognition form.

c. Track:

Maximum track as listed on SCCA recognition form measured at a horizontal plane through the hub centerline. The track dimension must remain equally disposed from the centerline of the automobile.

2. Spare wheel and tire may be removed.
3. The modification or substitution of front spindles and/or rear axle shafts, and modifications or substitution of hubs, bearings, bearing carriers and universal joints is permitted.
4. The addition or substitution of anti-sway bars is authorized. Traction master type torque rods, panhard rods and other similar rear axle location devices may be used, but shall not extend through body or chassis panels.
5. Any make or type of shock absorber may be used. It is not permitted to alter the number of shock absorbers or their systems of operation (i.e., lever or telescopic). The shock absorber points of attachment on the rear of the car may be changed.
6. On McPherson strut type of suspension, the spring mounting attachment to the housing may be modified or relocated provided that the strut/shock absorber remains inside the coil spring. The strut attachment point at the chassis may be changed.
7. Suspension bushings may be replaced by others of a different material provided they are the same type and size. Offset bushings are permitted, including adjustable type.
8. Quick change/knock-off type wheels are not allowed.
9. Spacers (lowering blocks) may be used between leaf springs and their point of attachment on the axle housing. The type and location of axle mounting for the leaf spring is free.
10. Production suspension control arms must be used, but may be reinforced for safety. Length of control arms may not be changed. Control arm mounting location at the chassis may be changed. Steering arms, Pitman arms, steering linkage component parts may be modified, reinforced or substituted.
11. The wheelbase of the auto vehicle shall not be changed or relocated in either direction.

D. Electrical Systems

1. The standard battery may be replaced by one of different make and capacity. The voltage of the battery and electrical system may not be changed. The battery may be located in the trunk, but if so, must be enclosed in a non-conductive protective box (i.e., marine type) and securely mounted.
2. The standard generator or alternator may be replaced by either a generator or an alternator of different make and capacity, provided the driving method remains unchanged. Mounting brackets may be modified or replaced. Any voltage regulator may be used.
3. The make and location of the ignition coil and condenser may be changed.
4. Any distributor may be used provided its installation does not require any modification of the engine. Magneto ignition is prohibited unless listed on the recognition form of the automobile.
5. Transistor ignition is permitted provided its installation does not require any modification to the engine.
6. Any make or type of spark plugs may be used.
7. Additional relays and/or fuses may be installed.
8. The use of any starter is permitted provided it can be fitted without modification to the engine.
9. Wiring harness may be changed or modified.

E. Engine, Reciprocating

1. Any exhaust manifold or exhaust headers may be used. Exhaust pipes and mufflers may be replaced with straight pipe(s). The exhaust system must terminate behind the driver seat and must be directed away from the body. The exhaust tail pipes may be partially recessed into the floor panel and lower rocker panel.
2. Substitution or modification of the clutch and/or flywheel is permitted provided no changes are made in the diameter of the flywheel.
The use of dowel pins is permitted.

3. Exhaust emission control air pumps and associated lines and nozzles cannot be modified in any way except that they may be completely removed. When these air nozzles are removed from a cylinder head, the holes must be completely plugged.
4. Engines may be rebored a maximum of 1.2 mm (0.047") over the standard bore size listed on the recognition form provided the resulting increase in displacement does not result in a total displacement exceeding the class limit.
5. The crankshaft may be replaced with another of the same basic material, but no changes in stroke or journal dimensions are permitted.
6. Substitution of main bearing caps is permitted.
7. The connecting rods may be replaced with any connecting rod of the same basic material.
8. The cooling fan may be modified, substituted or removed.
9. Any pistons and piston pins may be used.
10. Any camshaft(s) may be used.
11. Cam followers may be substituted, except that roller cam followers may not be used unless fitted in production.
12. Valves are free including size and material, but the valve center lines may not be altered.
13. It is permitted to lighten, balance or modify in shape by tooling the standard or optional components of the engine and drive train, provided it is always possible to identify them, positively as such. Material may not be added to these components unless specifically authorized.
14. The use of alternate engine and drive train components, considered replacement parts, such as seals, bearings, valve guides, nuts, bolts, studs, washers, and gaskets is permitted provided they are of the type and dimension. Concentric bushings may be installed, excepting on the nuts, where none are

fitted as standard but shall not alter the location of any engine or drive train component. Oil and water passages may be restricted or plugged.

The substitution of valve spring retainers and keepers is permitted. Valve springs are free (including number) as long as the type and location remains unchanged. Any pushrod may be used. Any rocker arm of the same basic material may be used.

15. Generator, crankshaft, and water pump pulleys may be altered or replaced with others of unrestricted origin. The use of any crankshaft vibration dampener is allowed.
16. The compression ratio may be increased by machining, using any head gasket(s) or elimination of head gasket(s).
17. Any oil pan (sump) may be used. The use of any oil pump pick-up is allowed provided there is no modification required to the oil pump. An alternate oil pump may be used if listed on the SCCA Recognition Form. Dry sump systems are prohibited unless fitted as standard production and listed on the recognition form.
18. Any oil filter(s) may be used.

F. Engine, Rotary Piston

1. Any exhaust manifold or exhaust headers may be used. Exhaust pipes and mufflers may be replaced with straight pipe(s). The exhaust system must terminate behind the driver seat. The exhaust tail pipes may be partially recessed into the floor panel and lower rocker panel.
2. Substitution or modification of the clutch and/or flywheel is permitted provided no changes are made in the diameter of the flywheel.
The use of dowel pins is permitted.
3. Exhaust emission control air pumps and associated lines and nozzles cannot be modified in any way except that they may be completely removed. When

- these air nozzles are removed from a cylinder head, the holes must be completely plugged.
4. Engines may not change the capacity of the working chamber(s).
 5. The eccentric shaft may be replaced with another of the same basic material, but no changes in eccentricity or journal dimensions are permitted.
 6. The rotor is free providing the number of lobes remains unchanged.
 7. The rotor housing is free providing no changes in the shape (epitrochoidal curve) of the working chamber is permitted.
 8. It is permitted to lighten, balance or modify in shape (except as restricted elsewhere) by tooling the standard or optional components of the engine and drive train, providing it always possible to identify them positively as such. Material may not be added to these components unless specifically authorized.
 9. The use of alternate engine and drive train components considered replacement parts such as seals, bearings, nuts, bolts, studs, washers and gaskets is permitted provided they are of the same type and dimensions. Concentric bushings may be installed where none are fitted as standard, excepting the ports, but shall not alter the location of any engine or drive train component. Oil and water passages may be restricted or plugged.
 10. Any oil pan (sump) may be used. The use of any oil pump pick-up is allowed provided there is no modification required to the oil pump. An alternate oil pump may be used if listed on the SCCA Recognition Form. The oil pump system is prohibited unless listed as standard production and listed on the recognition form.
 11. The cooling fan may be modified, substituted or removed.
 12. Generator, crankshaft, and water pump pullers may be altered or replaced with others of unrestricted origin.

G. Drive Line

1. The rear axle tube may be modified or replaced provided the manufacturer's system of suspension is retained. Any final drive housing, gear ratio, limited slip or locked differential may be used. Final drive units which permit ratio changes while the car is in motion are prohibited.
2. Any transmission ratios may be used in the standard or recognized optional transmission. The number and direction of gears shall not be changed.
3. Any modification may be made in the linkage between the clutch pedal and the clutch housing including the replacement of mechanical linkage with a hydraulic system.
4. Heavy-duty propeller shaft(s) drive shaft(s) may be used in place of standard shaft(s).
5. The installation of any vent or breather on the engine, transmission or differential is permitted.

H. Cooling System

1. The use of any engine, transmission and differential oil cooler(s) is permitted provided it (they) are mounted completely within or under the coachwork, but not in the driver/passenger compartment. Associated oil cooler pumps and lines are permitted for the transmission and differential. Air ducts may be fitted to the oil cooler(s) provided they do not extend more than 12 inches in any direction from the oil cooler fins.
2. The use of any water radiator is allowed provided there are no changes in the coachwork of the automobile to accommodate its use. Separate expansion or header tanks are permitted provided they are mounted in the engine compartment.
3. Sealing or shrouding the air flow area between the normal grille opening and the water radiator is permitted.
4. On water cooled cars, thermostats may be modified, removed, or replaced with blanking sleeves or restrictors.

I. Fuel Induction System

- 1. For reciprocating engines, carburetor(s) and intake manifold(s) are free provided the intake manifold(s) can be attached to the head(s) without modification of the head(s).**

For rotary engine, the carburetor(s) and intake manifold(s) are free provided the intake manifold(s) can be attached to the end covers without modification to the end covers. The freedom given to the rotor housing shall extend in regards the attachment of the intake manifold(s) thereto.

For both engine types, no portion of the intake manifold(s) may extend into the ports of the cylinder head. Supercharging is not permitted.

- 2. Automobiles recognized as being equipped with fuel injection in standard production may make any modification to that injection except changing the make and model of the fuel metering and/or fuel distribution unit.**
- 3. No changes may be made in the internal or external coachwork, chassis or firewall for the installation of the induction system.**
- 4. Any linkage may be used between the throttle(s) and the accelerator pedal.**
- 5. Any air filter may be used or the filter may be removed. Dynamic air intakes may be fitted on the carburetors. Air may be ducted to the carburetors provided the ducting is contained within the engine compartment and the air is supplied through normal openings in the coachwork.**

Any fuel pump(s) used, and the location of the pump(s) may be changed. Fuel pumps shall not be located in the driver/passenger compartment.

- 7. Fuel lines are restricted to a maximum of 1/2" inside diameter. Only a single fuel supply line may be used between the engine firewall and the bulkhead separating the driver/passenger compartment and the con-**

partment in which the fuel tank is mounted. Lines returning fuel from engine to the tank are prohibited except where fitted as standard. These fuel lines may pass through the driver/passenger compartment if completely covered and protected by a supplemental (aeroquip) line.

J. Brakes

1. The use of any dual master cylinder and/or pressure equalizing device is permitted.
2. Servo-assist systems are free.
3. Backing plates or dirt shields may be ventilated or removed. Brake air ducts may be fitted provided they extend in a forward direction only and no changes are made in the coachwork. Rear brake ducts may extend a maximum of 24" from disc or drum.
4. The handbrake may be partially or entirely removed.
5. Any brake lines may be used. They may be relocated and may be given additional protection.
6. Brake discs, calipers and/or drums are free provided they are mounted in the same location as the standard brakes.

K. Safety Fuel Cells

1. It is recommended that the fuel tanks in the sedan category be substituted with safety fuel cells conforming to the SCCA safety fuel cell standards as specified in Appendix X. Fuel cells shall be located in the same compartment as the standard fuel tank.

7. FORMULA F

7.1 Definition

A formula for single-seat, open-wheel racing cars using standard Ford 1600 "crossflow" pushrod engines and with firewall, floor and safety equipment conforming to the GCR.

7.2 Engine

A. General

The engine shall be standard Ford 1600 pushrod "crossflow" as installed in the following vehicles:

Original version: Cortina 1600 GT
(through 1970 model)

Upated version: Cortina 1600 GT (1971)

Components shall not be interchanged between the original and upated versions of the engine. Regulations contained herein apply to both versions of the engine unless specifically stated otherwise.

The engine may not be altered, modified or changed in any respect unless specifically authorized herein.

1. The gasket face of the cylinder head may be resurfaced provided the maximum compression ratio is not exceeded and the maximum depth of the combustion chamber is maintained.
2. Standard Ford replacement valve guides and standard Ford replacement valves, with oversize stems, may be used as normal repair/maintenance procedures. Specifications under F, "Valves", must be observed. It is permitted to recut or replace valve seats and/or lap valves to valve seats to standard Ford specifications.

Exhaust emission control, air pumps and associated lines and nozzles must be completely removed. When these air nozzles are removed from a cylinder head, the holes must be completely plugged.

Balancing of all moving parts of the engine is permitted provided that such balancing does not remove

more material than is necessary to achieve such balance. It is permitted to polish parts of the engine providing the contour of the part is not altered and can be recognized as the original part.

Maximum compression ratio:

10.1 to 1 -- Original engine

9.3 to 1 -- Up-rated engine

Minimum swept volume per cylinder:

44.4 cc (original engine with standard pistons)

45.1 cc (original engine with .030" o/s pistons)

48.2 cc (up-rated engine with standard pistons)

B. Block

Bore: May be enlarged for clearance between cylinder and piston.

Cylinder liners may be fitted. The top surface of the block may be milled or surface ground to obtain the maximum compression ratio specified above. Any steel center main bearing cap may be used.

C. Cylinder Head

Ports may be reshaped by the removal of metal as long as the port diameter at the manifold face of the head does not exceed the following dimensions:

Inlet: 1.42"

Exhaust: 1.16"

Combustion chamber (Original engine only):

Minimum depth: 0.115"

Maximum length: 3.15"

Minimum volume per cylinder: 7.8 cc

Reshaping is prohibited.

The standard head gasket shall be used. Head gaskets may be interchanged between the original and up-rated versions of the engine.

D. Inlet Manifold

The ports may be reshaped by the removal of metal as long as the following dimensions are maintained:

| | Original Engine | Up-rated Engine |
|---------------------------------------|--------------------|--|
| Maximum size at head face: | | |
| Cyl. 1 & 4: | 1.48" x 1.28" | 1.24" |
| Cyl. 2 & 3: | 1.25" | 1.25" |
| Maximum size at carburetor flange: | 3.060" x 1.389" | Max. length: 3.80" Primary choke end radius: .709" Secondary choke end radius: .787" |

The carburetor face of the inlet manifold may be machined to the horizontal to compensate for fore/aft tilt of the carburetor.

The water passages in the inlet manifold may be plugged.

E. Pistons

Standard 0.015" oversize or 0.030" oversize pistons may be used in the original engine. Only standard size pistons may be used in the up-rated engine.

| | Original Engine | Up-rated Engine |
|------------------|--------------------|--------------------|
| Maximum diameter | | |
| Standard: | 3.189" | 3.189" |
| 0.015" oversize: | 3.204" | not permitted |

| | | |
|--------------------------------------|----------------|----------------|
| 0.030" o/s: | 3.219" | Not permitted |
| Depth of bowl: (± .005") | 0.500" | "0.500" |
| Minimum volume of bowl: | 51.50 cc | |
| Maximum lip height of bowl: | 2.25 | |
| Centerline of wrist pin to crown: | 1.737" ± .002" | 1.737" ± .002" |
| Overall height: | 3.30" | 3.30" |
| Minimum weight w/rings & pin: | 573 grams | 555 grams |
| Weight of pin: | 115 ± 2 grams | |

Piston Rings are free provided that:

- (1) One oil control and two compression rings are used.
- (2) No modification is made to the piston for the installation of rings.

| F. Valves | Original Engine | Up-rated Engine |
|-------------------------------|--------------------|--------------------|
| Distance apart at centers: | 1.540" ± .020" | 1.540" ± .020" |
| Max. diameter: Inlet: | 1.502" | 1.560" |
| Exhaust: | 1.252" | 1.340" |
| Overall length: Inlet: | 4.280" ± .006" | 4.367" ± .020" |
| Exhaust: | 4.260" ± .006" | 4.355" ± .020" |

Reshaping of the valves is specifically prohibited.

G. Camshaft

The camshaft lobe profile shall not be altered. The following specifications are provided for checking purposes:

| | | |
|----------------------------|-----------------------|-------------------------|
| Lobes, heel to toe: | Inlet: 1.311" Maximum | Exhaust: 1.312" Maximum |
| Lobes, base circle radius: | Inlet: 0.540" | Exhaust: 0.545" |

Lift at top of pushrod: Inlet: 0.231" \pm .002" Maximum
Exhaust: 0.232" \pm .002" Maximum

Lift at spring cap: Inlet: 0.356" Maximum
(Zero tappet setting) Exhaust: 0.358" Maximum

Note: Recontouring of the valve stem contact pad of the rocker arm is permitted, provided the maximum lift at the spring cap is not exceeded.

Timing:

Inlet valve fully open: 109° ATDC \pm 3°

Exhaust valve fully open: 109° BTDC \pm 3°

Offset camshaft/sprocket dowels are permitted to achieve the required camshaft timing.

Camshaft timing and lobe centers shall be checked using the official procedure published by SCCA.

H. Valve Springs

Valve springs and valve spring shims are free except that:

- (1) No more than one spring may be used per valve.
- (2) The standard spring cap and retainers must be used.
(Cap diameter: 1.07")

I. Pushrods

| | Original Engine | Up-rated Engine |
|------------------------|-----------------|-----------------|
| Minimum stem diameter: | 0.25" | |
| Overall length: | 7.64" Minimum | |
| Minimum weight: | 10 grams | |

J. Connecting Rods

Minimum weight: Both engines: 6-10 grams
(Note: Weights include cap, bolts and small end bush, but not big end bearing shells.)

K. Crankshaft

Weight: Original engine: 23 lbs. 8 oz. Minimum

Updated engine: 21 lbs. 8 oz. Minimum

Stroke (at piston): 3.056" \pm .004"

Crankshaft pulley: free

Either crankshaft may be used in either engine.

L. Flywheel

Weight with ring gear and dowels:

Original Engine: 18 lbs. Minimum

Updated Engine: 20 lbs. Minimum

The flywheel can be machined to achieve the minimum allowed weight.

M. Carburetor

Original Engine:

Weber 32 DFM or DFD

Venturi diameter: Primary: 26 mm

Secondary: 27 mm

Updated (KENT) Engine:

Weber 32/36 DGV-FA

Venturi diameter: Primary: 26 mm

Secondary: 27 mm

Permitted modifications:

- a. The fitting of any jets (including accelerator pump discharge nozzle) which may be fitted without modification to the carburetor body.
- b. Modification or substitution of external throttle linkage.
- c. The fitting of external anti-surge pipes.
- d. The removal of the air cleaner.
- e. The fitting of a velocity stack (intake air horn).
- f. The removal of the choke butterflies and linkage.

N. Fuel Pump: Free

O. Exhaust Manifold: Free

P. Lubrication System

Oil pump and sump: Free

Dry sump system is permitted.

Q. Cooling System

Radiator, fan and water pump: Free

Pump/fan/generator drive belt: Free

R. Electrical Equipment

Distributor: Standard Autolite or Lucas. The vacuum advance mechanism may be removed. Transistorized ignition is prohibited. All other electrical components are free.

S. Miscellaneous

(1) The timing chain/sprocket cover may be altered or replaced.

(2) The use of the following non-standard replacement parts is permitted provided their use does not result in any unauthorized modification of any other component:

a. Fasteners (nuts, bolts, screws, studs, etc.)

b. Gaskets, except head gasket, carburetor to inlet manifold gasket and inlet manifold to head gasket.

c. Washers.

d. Seals.

e. Connecting rod, crankshaft and camshaft bearings of the same size and type as original. Normal oversize/undersize bearings are permitted.

f. Spark plugs.

(3) Mechanical tachometer drive is permitted.

(4) The crankcase breather may be altered or removed.

- (5) The rocker cover may be altered to provide for crankcase ventilation and the filler cap may be altered or replaced.
- (6) The crankshaft and main bearing caps may be treated with salt-bath nitriding covered under SAE specification AMS 2755A (Tufftriding etc.)
- (7) The use of any oil or lubricants
- (8) Valve or rocker covers may be substituted, provided that the replacement cover affords no additional function than that of the original stock cover.

7.3 Transmission

Any transmission may be used with not more than four forward gears and an operational reverse gear.

7.4 Final Drive

Any final drive unit may be used except:

- a. Drive shall be to rear wheels only.
- b. Limited slip and locked differentials are prohibited.

7.5 Clutch

The use of any single plate clutch is permitted provided no modification is made to the flywheel other than changing the points of attachment of the clutch to the flywheel.

7.6 Chassis

The chassis shall be of tubular steel construction with no stress bearing panels except the undertray and a single transverse bulkhead. The curvature of the undertray shall not exceed 1 inch. Tubes may transport liquid. Monocoque construction is prohibited.

7.7 Suspension and Running Gear

All components shall be of steel with the exception of springs, hub adaptors, rear hub carriers, bearings and bushings.

Wheel spacers shall not exceed 1.5".

Shock absorbers are free.

7.8 Body

- a. No part of the frame or body shall project beyond a plane connecting the vertical centerlines of the front and rear tires.
- b. The driver's seat must be capable of being entered without the removal or manipulation of any part or panel.
- c. Wings, dive planes and airfoils are prohibited.
- d. Fuel filler necks, caps or lids may not protrude beyond the bodywork of the car.
- e. Coach work, including fuel tanks, shall not exceed a maximum width of 93cm (37.4"), not including side mounted radiators, at any point.

7.9 Brakes

Free, except that disc brakes are restricted to cast iron calipers.

7.10 Wheels

Wheels shall be 13" pressed steel disc type with a maximum rim width of 5.5". Wheels must be of standard manufacture, but the offset of the center disc may be altered.

7.11 Minimum Weight

Minimum weight including coolant and lubricants, but not including fuel and driver:

Cars with original engine: 881.6 lbs.

Cars with uprated KENT engine: 930.0 lbs.

8. FORMULA SUPER VEE

8.1 Definition

A formula for single-seat, open wheel racing cars based on standard Volkswagen 1600 components.

No part of the required engine, drive line, brakes or suspension may be altered, modified, changed or be of other than VW manufacture unless specifically authorized herein.

8.2 Weight and Dimensions

- a. Minimum weight — 882 lbs., as raced, without fuel and driver. Ballast is not permitted.
- b. Wheel base — Free.
- c. Front track — Free.
- d. Rear track — Maximum 56" (measured with 0° camber).

8.3 Suspension

- a. Front suspension is free with the exception of the following standard VW Type 1, 2 or 3 parts:
 1. Steering knuckles (upright)
 2. Wheel hubs
 3. Brake drums, wheel cylinders and backing plates or brake discs and calipers. Splash shields may be removed from disc brakes.
- b. Rear suspension is free with the exception of the following standard VW Type 1, 2 or 3 parts:
 1. Axle shafts
 2. "U" joints
 3. Wheel hubs
 4. Brake drums, discs, calipers, wheel cylinders and backing plates. Backing plates may be altered for brake cooling. ATE caliper type FV/002 also permitted.

8.4 Wheels

- a. Wheels are free except that:
 1. Diameter shall be 13", 14" or 15"

2. Rim width shall not exceed 6 inches.
 3. The bolt pattern shall enable the wheel to be attached directly to the VW hub without the use of an intermediate adapter.
 4. Wheels shall be identical for the right and left front axles and identical for the right and left rear axles.
- b. Wheel spacers may be installed between the front wheels and hubs, but may not exceed 1/2 inch per wheel. Spacers are not permitted between the rear wheels and hubs.
 - c. Wheel attachment bolts may be replaced with studs.

8.5 Brakes

- a. Brake lining and/or brake pad material is free.
- b. Cars must be equipped with a dual braking system operated by a single control. In case of a leak or failure at any point in the system, effective braking power shall be maintained on at least 2 wheels. Brake master cylinders are free.

8.6 Engine

The engine shall be a standard VW 1600 from Volkswagen Type 1, 2 or 3 vehicles or a 1600 cc 127V (Type 4) industrial engine and shall be installed forward of the transmission. The following modifications are permitted:

- a. Induction system:
The induction system is free within the following restrictions:
 1. Maximum number of throats: 4
 2. Maximum throat diameter at the throttle butterfly: 40 mm (1.575")
 3. Fuel injection is prohibited
 4. Turbocharging and/or supercharging are prohibited.
- b. Exhaust system free, but pipes must terminate behind the driver and extend no more than 28 inches rearward

of the rear axle centerline. The last 4 inches must be horizontal and be between 12" and 24" from the ground.

- c. The flywheel may be lightened to a minimum weight of 12 lbs.
- d. It is permitted to lighten, balance, or modify in shape by tooling components of the engine, provided it is always possible to identify them positively as such. It is not permitted to add any material or mechanical extension unless authorized in these rules.
- e. The fan may be altered or removed. The fan housing may be altered or replaced. Cooling ducts may be altered, removed or replaced. The cooling fan may not direct air to the carburetor inlet.
- f. Any standard VW distributor may be used.
- g. Generator/alternator — free or may be removed.
- h. Any oil baffles housed within the original sump may be used. Oil capacity may be increased by sump extension or oil filter(s). Dry sump systems are permitted.
- i. The substitution of valve spring retainers and the use of any valve spring(s) of the same type is authorized.
- j. The following standard dimensions of engine components are included as information and shall be observed.
 - Bore (Max.): 3.375" (Type 1, 2, 3)
3.4528" (Type 127V)
 - Stroke: 2.720" ± .005" (Type 1, 2, 3)
2.598" ± .005" (Type 127V)
 - Intake Valve — 1.516" maximum diameter
 - Exhaust Valve — 1.299" maximum diameter
- k. Camshaft including timing gear — free.
- l. The use of any cam followers except for roller type.
- m. The use of any standard VW rocker arms.

- n. Any standard VW clutch. Any clutch lining may be used.
- o. Any oil cooler is permitted
- p. Any push rods.
- q. The use of alternate pulleys on the crankshaft, fan and generator.
- r. The use of alternate valve covers.
- s. The addition of dowel pins between the flywheel and crankshaft.

8.7 Transmission — Final Drive

Any transmission/final drive assembly utilizing a VW Type 1, 2 or 3 case with four forward speeds and an operational reverse gear may be used. The case may not be installed in an inverted position. Reverse gear must be operable from the driver's seat.

The final drive/differential unit is free except that limited slip and locked differentials are prohibited. The gear carrier and gearshift housing may be modified or replaced to permit the installation of a "quick-change" final drive assembly.

The final drive covers (side plates) may be modified or replaced.

8.8 Body

- a. No part of car body with the exception of the roll bar shall be higher than 80cm (31.5 inches) measured from the lowest point of completely sprung structure of the car.
- b. The cockpit opening must have the following minimum dimensions:
 - 1. Length: 60cm (23.622 inches)
 - 2. Width: 45cm (17.717 inches)

This width must extend over a length of 30cm (11.811 inches) measured from the

rearmost points of the seat backrest toward the front.

3. The driver's seat must be capable of being entered without the removal or manipulation of any part of panel.
- c. Bodywork in front of the front wheels and lower than the top of the front wheel rim shall not exceed a maximum width of 135cm (53.15 inches).
- d. Bodywork in front of the front wheels and higher than the top of the front wheel rim shall not exceed a maximum width of 110cm (43.307 inches).
- e. Bodywork behind the front wheels shall not extend beyond a plane connecting the vertical center lines of the front and rear tires.
- f. The material and shape of the bodywork are unrestricted, provided the body is symmetrical to the longitudinal axis of the vehicle and covers the entire length of the engine. The body shall not protrude beyond the rearmost point of the gearshift linkage. The carburetor may project outside of the bodywork.
- g. Wings and other airfoil devices which have the principal effect of creating aerodynamic downthrust are prohibited.

Airfoil: Any device or part of a car (excepting normal and conventionally styled bodywork) which has a principal effect of creating aerodynamic downthrust. Within this definition may be included forward facing gaps or openings in the bodywork, but shall not include spoilers in the form of raised surfaces, continuous with the body surface, and not wider than the body surface.

- h. Canards, diveplanes, and "sports car noses" are permitted within the dimensional restrictions of items c and d.
- i. Spoilers in the form of raised surfaces continuous with the body surface and complying with bodywork dimensional restrictions, are permitted.

8.9 Fuel Tank

Fuel tanks must be SCCA approved safety fuel cell(s). The total capacity shall not exceed 10 U.S. gallons. Fuel cells shall be separated from the engine compartment by the firewall and located to the rear of the front wheel centerline.

8.10 The use of the following non-standard VW parts is permitted:

- a. Fasteners (nuts, bolts, screws, etc.)
- b. Wiring
- c. Gaskets and seals
- d. Brake and fuel lines
- e. Spark plugs
- f. Piston rings
- g. Wheel bearings
- h. Rod and main bearings of the same type
- i. Fan belt
- j. Brake shoes, pads and linings
- k. Valves (std. valve head diameter must be maintained)
- l. Valve guides
- m. Valve seats
- n. Springs
- o. Battery
- p. Coil
- q. Fuel pump
- r. Oil pump(s)
- s. Ignition point set
- t. Oil and lubricants.

9. SHOWROOM STOCK SEDANS

9.1 Automobile Eligibility

Sedans selected by SCCA being standard models with no options, being less than \$5,000 P.O.E. and have been imported in the U.S.A. in a minimum quantity of 5,000 units in the previous 12 month period. Selected Sedans must be of the current or previous year's model and manufacture.

Automobiles may be added or deleted from the list of selected Sedans at any time at the sole discretion of SCCA.

Sedans selected for competition beginning January 1, 1973 are as follows:

| | |
|--------------------------------|--------------------|
| Austin Morris Marina | 1800 cc |
| Chevrolet Vega | 2300 cc |
| Datsun 510 (1972 only) | 1600 cc |
| Datsun 610 (4 door) | |
| Dodge Colt | 1600 cc |
| Fiat 124S | 1437 cc |
| Ford Pinto | 2000 cc |
| Opel 1900 Sedan (2 dr or 4 dr) | 1900 cc |
| Plymouth Cricket | |
| Renault R12 | 1565 cc |
| VW Super Beetle & Beetle | 1600 cc |
| SAAB 96 Sedan | |
| Subaru 1400 Sedan | |
| Toyota Corona | 1900 cc or 2000 cc |

9.2 Preparation

The only modifications permitted and required are as follows:

- Installation of SCCA approved roll bar as specified in Appendix Z of the GCR. Roll bars to be bolted, not welded.
- Installation of all required SCCA safety equipment, including safety harness, and fire extinguisher.
- Removal of hub caps, jack and tools. Spare wheel and tire must remain installed in its original position.
- Headlights to be taped.

- e. Any markings to be readily removable.
- f. Tires must be D.O.T. approved and the same size as standard equipment on the automobile, or D.O.T. approved radial tires having not more than 165 section designation or the following approved equivalents:

| | |
|------------|------------|
| C.00R - 13 | 5.60R - 15 |
| 165 - 13 | 165 - 15 |
| 165R - 13 | 165R - 15 |
| AR78 - 13 | AR78 - 15 |

Racing tires or recapped tires are prohibited. The same size tires must be used on all four wheels.

- g. Seat backs to be securely fastened.
- h. Items covered at technical inspection will include only those items mentioned in these rules, plus safety rules. Scattershields are not required.

NO OTHER MODIFICATIONS PERMITTED

9.3 Competition Rules

- a. Sedans will not compete for national points in 1973.
- b. They may not practice or compete with other categories or classes, except Showroom Sports Cars, at Drivers' Schools or Regionals unless approved by the Chief Steward of the event. They may not compete concurrently with any other class or category, except Showroom Sports Cars, at a National Championship event. They should normally run as the last event of the day in conjunction with Showroom Sports Cars.
- c. Driver Eligibility --- Drivers holding Novice Permits (school requirements completed), Regional or National Licenses may enter, regardless of the level of the event run in conjunction with.

9.4 Protests

- a. Protest against legality will be accepted as described in GCR Chapter 8. However, burden of proof of

stock condition is on the protesting driver. The protested driver shall have seven days to produce documented evidence to prove legality of his car specifications.

- b. Competing cars may be claimed within the result protest period for \$500 plus the official P.O.E. list price and applicable tax and license fees for the area in which the event is held. Claimant must be a driver in the race. In the event of one or more claimants, they shall draw lots as supervised by the Stewards of the Meeting.

10. SHOWROOM SPORTS CARS

10.1 Automobile Eligibility

Production sports cars selected by SCCA, being standard models, with no options, and imported in the U.S.A. in a minimum quantity of 5000 units. Selected sports cars must be of the current or previous year's model and manufacture.

Automobiles may be added or deleted from the list of selected sports cars, at any time, at the sole discretion of SCCA.

Sports cars selected for competition beginning January 1, 1973, are as follows:

| | |
|---|--------------------|
| Fiat 124 Spider | 1592 cc or 1608 cc |
| MGB and MGB-GT | 1800 cc |
| MG Midget | 1275 cc |
| Opel GT | 1900 cc |
| Porsche 914/4 | 1679 cc |
| Triumph GT-6 Mark III | 2000 cc |
| VW Karmann Ghia Coupe or Convertible | 1679 cc |

10.2 Preparation

The only modifications permitted and required are as follows:

- a. Installation of SCCA approved roll bar as specified in Appendix Z of the GCR. Roll bars to be bolted, not welded, into the automobile.
- b. Installation of all required SCCA safety equipment, including safety harness and fire extinguisher.
- c. Removal of hub caps, jack and tools. Spare wheel and tire must remain installed in its original position.
- d. Headlights to be taped.
- e. Any markings to be readily removable.
- f. Tires must be D.O.T. approved and the same size as standard equipment on the automobile, or D.O.T.

approved radial tires having not more than 165 section designation or the following approved equivalents:

| 13 INCH | | 15 INCH | |
|---------|------|---------|------|
| 6.00R | - 13 | 5.60R | - 13 |
| 615 | - 13 | 165 | - 15 |
| 10.00 | - 13 | 10.00 | - 15 |
| AR78 | - 13 | AR78 | - 15 |

Racing tires or recapped tires are prohibited. The same size tires must be used on all four wheels.

- g. Seat backs to be securely fastened.
- h. Cars with convertible tops must have them stowed, as provided for by the manufacturer and windows in the fully down position. Removable hardtops must be removed completely from the cars.
- i. Items covered at technical inspection will include only those items mentioned in these rules, in addition to safety rules.

Scattershields are not required.

NO OTHER MODIFICATIONS PERMITTED.

10.3 Competition Rules

- a. Sports cars will not compete for national points in 1973.
- b. They may not practice or compete with other categories or classes, except Showroom Stock Sedans, at Drivers' schools or regional events, unless approved by the Chief Steward of the event. They may not compete concurrently with any other class or category, except Showroom Stock Sedans, at a national championship event. They should normally run in conjunction with Showroom Stock Sedans at the last event of the day.
- c. Driver Eligibility — Drivers holding Novice Permits (school requirements completed), Regional or National Licenses may enter, regardless of the level of the event run in conjunction with.

10.4 Protests

- a. Protests against legality will be accepted as described in GCR, Chapter 8. However, the burden of proof of stock condition is on the protesting driver. The protested driver shall have seven days to produce documentary evidence to prove legality of his car specifications.
- b. Competing cars may be claimed, within the results protest period, for \$500.00 plus the official P.O.E. list price and applicable tax and license fees for the area in which the event is held. Claimant must be a driver in the race. In the event of one or more claimants, they shall draw lots, as supervised by the Stewards of the Meeting.

APPENDIX X

SAFETY FUEL CELL SPECIFICATIONS

1. Safety fuel cells shall consist of a fuel bladder enclosed in a container as follows:

A. Fuel Bladder

(1) Materials

Bladders shall be constructed of nylon or dacron woven fabric impregnated and coated with a fuel resistant elastomer.

(2) Physical Properties — Minimum Standards

| | | |
|------------------|----------|------------------------------------|
| Tensile Strength | 450 lbs. | Spec. CCC-T-191 b Method 5102 |
| Tear Strength | 50 lbs. | Spec. CCC-T-191 b Method 5134 |
| Puncture Test | 175 lbs. | Spec. Mil-T-6396 Article 4.5.17 |

These physical properties must be maintained throughout all areas of the finished bladder, including seams, joints and fittings.

(3) Fittings

All fittings shall be built into the bladder and bonded and cured as an integral part of the tank during vulcanization.

(4) Approval

Only those bladders produced by manufacturers specifically approved by SCCA shall be allowed. In order to gain SCCA approval, a manufacturer shall submit laboratory test documentation of physical properties and type of construction together with a finished bladder to the SCCA. SCCA may require additional data. The manufacturer shall be required to certify that bladders he produces shall conform to the test standards of construction of the sample bladder submitted. Manufacturers may be required to identify tanks produced to indicate SCCA approval. SCCA may withdraw its approval at any time at its sole discretion.

B. Container

(1) Sedan and Production Category

The bladder shall be installed in a container of 20-gauge steel, .059" aluminum or .125" Marlex, fully surrounding the bladder.

(2) Sports Racing Category and Formula Cars

The fuel bladder shall be completely surrounded by a container (which may also be a part of the structure or bodywork of the car) to insure rigid and secure mounting of the bladder and provide additional protection. A minimum of 20-gauge steel, .059" aluminum or an approved equivalent is required for all vehicles manufactured after January 1, 1972.

C. Foam

Foam internal baffling is required where safety fuel tanks are required in SCCA competition.

2. Other Designs

SCCA may at its discretion approve safety fuel tanks of other types and with basic specifications that differ from the bladder and container specifications above. In such cases, the manufacturer shall be required to demonstrate to the satisfaction of SCCA that such tanks meet or exceed the crash resistant properties of tanks meeting the standard specifications. SCCA may require independent laboratory analysis, comparative destructive testing, and such other tests it deems sufficient.

3. A positive locking fuel filler cap (no Monza/flip type) must be used and fuel pick-up openings and lines, breather vents and fuel filler lines shall be designed and installed that if the car is partially or totally inverted, fuel shall not escape. If the fuel filler cap is located directly on the fuel tank, a check valve shall not be required provided the filler cap is of a positive locking type and does not incorporate an unchecked breather opening. If the fuel filler cap is not located directly on the fuel tank, a check valve must be incorporated in the fuel tank to prevent fuel escaping if the cap and filler neck is torn from the tank.

Fuel tank breathers must vent outside the car.

The tank need not incorporate a drain fitting.

It is recommended that all lines, filler openings, and vents be incorporated in a single fitting located at the top of the fuel tank.

4. Where safety fuel tanks are allowed or required in Sedan and Production Category automobiles, they shall conform to standard tank dimensions and capacities specified below and utilize a container of 20-gauge steel, .059" aluminum or .125" Marlex.

The dimensions and capacities shall be:

| | Length | Width | Height |
|-----------|---------|-----------|-----------|
| 22 Gallon | 33-1/4" | x 17-1/4" | x 9-1/4" |
| | 31-1/4" | x 20-1/4" | x 8-3/8" |
| | 25-1/4" | x 25-1/4" | x 8-5/16" |
| | 40-1/4" | x 14-1/4" | x 9-1/4" |
| 15 Gallon | 24-1/4" | x 17-1/4" | x 9-1/4" |
| 8 Gallon | 20-1/4" | x 12-1/4" | x 8-1/4" |

The above dimensions are the maximum allowable outside dimensions of the container.

5. Safety fuel cells currently approved are as follows:

Aero Tec — Fluorathane, ATL 421D, ATL 426C

Goodyear — BTC 60-3

Donn Allen — Impregnated Ballistic Nylon

FPT Industries — Hycalam FPT/PF/507

Lifeline Products/Centaur Racing — Lifeline Safety Fuel Cell

Pyro-Guard — Safety Fuel Cell

Firestone — Rasafe

Fuel Safe — Impregnated Ballistic Nylon

In addition the following external coated tanks are permitted to be used on tube frame automobiles only:

Goodyear — Vitriane

Marnita — Safety Fuel Products

Aero Tec — ATL 100

APPENDIX Y

DRIVER'S RESTRAINT SYSTEM

All drivers in SCCA-sanctioned speed events must utilize either a five or six-point restraint harness meeting the following specifications. The restraint system installation is subject to approval of the Chief Technical and Safety Inspector.

1. A five-point system is recommended for use in automobiles where the driver is seated in an up-right position and consists of a 3" seat belt, 2" two strap over the shoulder type of shoulder harness and a 2" anti-submarine strap.
2. A six-point system is recommended for use in automobiles where the driver is seated in a semi-reclining position and consist of either a 2" or 3" seat belt, 2" two strap over the shoulder type of shoulder harness and (2) 2" leg or anti-submarine straps.
3. The material of all straps shall be nylon or dacron polyester and in new or perfect 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 harness straps.
4. The shoulder harness shall be the two-strap over-the-shoulder type. There must be a single release common to the seat belt and shoulder harness.

The shoulder harness shall be mounted behind the driver and above a line drawn downward from the shoulder point at an angle of 40° with the horizontal.

In cases where the driver is in a semi-reclining position, the shoulder harness shall be attached so that the angle between a line drawn through the driver's spine and the shoulder harness is 45° or greater.

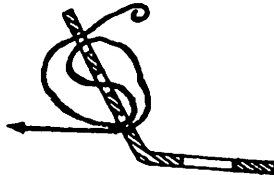
Either completely separate upper shoulder straps or a Y type harness is permitted. If a Y type harness is used, the junction point shall be at least 6" behind the back of the driver's neck.

In cars utilizing production type seats, the mounting point shall be at least 18" behind the front of the seat back. This distance may be reduced to 12" on installations utilizing an inertia reel.

Measurement of the above distances is along the shoulder strap and not the horizontal distance between the front of the seat back and the anchor point.

5. The single anti-submarine strap of the five-point system shall be attached to the floor structure of the car similar to the shoulder harness mounting and have a metal to metal connection with the single release common to the seat belt and shoulder harness.
6. The double leg straps of the six-point system may be attached to floor as above for the five-point system or be attached to the seat belt so that the driver sits on them, passing them 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 to the structure, passing under the driver and up between his legs to the seat belt release or shoulder harness straps.

SHOULDER HARNESS THREADING



APPENDIX Z

ROLL BARS

These specifications are mandatory and represent minimum requirements. Specific installations are subject to approval by the Technical and Safety Inspector at each event.

A. Basic Design Considerations

1. The basic purpose of the roll bar is to protect the driver if the car turns over or is involved in a serious accident. This purpose should not be forgotten.
2. The top of the roll bar must be a minimum of two inches above the top of the driver's helmet when the driver is sitting in normal driving position (as near the roof as possible on closed sedans) and shall not be more than 6 inches behind the driver.
3. The roll bar must be designed to withstand compression forces resulting from the weight of the car coming down on the roll structure, and to take fore-and-aft loads resulting from the car skidding along the ground on the roll structure.
4. The two vertical members forming the sides of the hoop shall not be less than fifteen inches apart inside dimension. It is recommended that the roll bar extend the full width of the cockpit to provide maximum bearing area.

The roll bar vertical members on formula cars must not be less than fifteen inches apart, inside dimension, at their attachment points to the uppermost main chassis member.

5. A system of head restraint to prevent whiplash and to prevent the driver's head from striking the underside of the roll bar must be installed on all vehicles. The head restraint should be capable of withstanding an impact of 200 lbs in any direction.

It is recommended that a headrest of approximately 36 square inch area with a resilient padding 2 inches thick be used.

It is recommended that any portion of the roll bar or hoop which could be contacted by the driver be padded.

B. Material

1. The roll bar hoop and all braces must be seamless, ERW or DOM mild steel tubing or chrome molybdenum alloy steel such as SAE 4125 or SAE 4130. It is recommended that mild steel tubing be used as chromium alloys present difficulties in welding and must be normalized to relieve stress. Proof of the use of alloy steel will be the responsibility of the entrant.
2. For the purpose of determining tubing sizes, the vehicle race weight is without fuel and driver. The size of the tubing shall be determined as follows:

| Vehicle Race Weight | ROLL BAR | | ROLL CAGE | |
|---------------------|------------|-------------|------------|-------------|
| | Mild Steel | Alloy Steel | Mild Steel | Alloy Steel |
| Under 1500/ | 1.5 x .120 | 1.375x .090 | 1.5 x .102 | 1.375x .090 |
| 1500-2500/ | 1.75x .120 | 1.625x .102 | 1.5 x .120 | 1.5 x .090 |
| Over 2500/ | 2.25x .120 | 2.00 x .102 | 1.75x .120 | 1.625x .090 |

Note: See alternate tubing sizes & diagrams at end of Appendix Z.

An inspection hole of at least 3/16 inch diameter must be drilled in a non-critical area of the roll bar hoop to facilitate verification of wall thickness.

Where bolts and nuts are used, the bolts shall be at least 3/8 inch diameter SAE Grade 5 or equivalent aircraft quality.

C. Fabrication

1. One continuous length of tubing must be used for the hoop member with smooth continuous bends and no evidence of crimping or wall failure. It is recommended that the radius of the roll bar hoop be such that the minimum outside width measured at a point 4 inches below the uppermost point is 12 inches.

Whenever possible the roll bar hoop should start from the floor of the car and, in the case of tube frame con-

struction, be attached to the chassis tubes by means of gussets or sheet metal webs in order to distribute the loads.

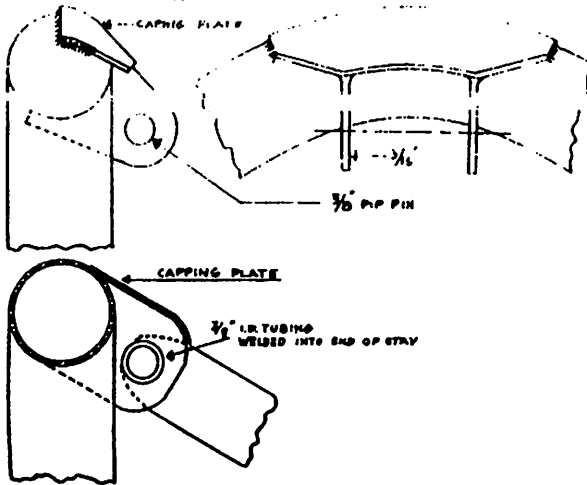
2. All welding must be of the highest possible quality with full penetration. Arc welding, particularly heliarc, should be used wherever possible. The welds should be inspected by magnaflux or dye penetrant after fabrication. Alloy steel must be normalized after welding.

D. Bracing

1. Full cockpit width (two seat) roll bar hoops must have two fore/aft braces with tubing of dimensions at least equal to that required for the hoop itself. Diagonal lateral bracing of equal dimension tubing must be installed to prevent lateral distortion of the hoop. (In most cases, a lateral brace from the bottom corner of the hoop on one side to the top corner of the hoop on the other side is sufficient.)
2. Partial cockpit width (single seat) roll bar hoops may have either one fore/aft brace with a minimum dimension equal to the tubing required for the main hoop or two fore/aft braces with a minimum dimension of 1.0" x .090" mild steel or alloy steel.
3. The bracing must be attached as near as possible to the top of hoop but not more than 6 inches below the top of the hoop and at an included angle of at least 30°. If a single brace is used, it must be attached at the top of the main hoop.
4. If the fore/aft bracing must be removable, the connection between the roll bar hoop and the brace-rod must be of the double lug type fabricated from material at least 3/16 inch thickness and welded through a doubler or gusset arrangement to avoid distortion or excessive strains caused by welding. (See diagrams below.)

It is recommended that the fore/aft brace be attached to a rear chassis member through a double lug connection. If attached to the engine, it must mount to a major component such as a head stud or combination of head studs.

PLAN VIEW OF ROLL BAR
ATTACHMENT DETAILS



E. Mounting Plates

1. Roll bars and braces must be attached to the frame of the car wherever possible. Mounting plates, regardless of whether welded or bolted to the frame, must be at least 3/16" thick.
2. In the case of cars with unitized or frameless construction, or cars with frames where frame-mounting of the roll bar is impractical, mounting plates must be used to secure the roll bar structure to the floor of the car. The important consideration is that the load be distributed over as large an area as possible.

Mounting plates bolted to the structure shall not be less than .1875 (3/16") thick with a back-up plate of equal size and thickness on the opposite side of the panel with the plates through-bolted together.

Mounting plates welded to the structure shall not be less than .080" thick. Whenever possible the mounting plate should extend onto a vertical section of the structure such as a door pillar.

F. Removable Roll Bars

Removable roll bars and braces must be very carefully designed and constructed to be at least as strong as a permanent installation. If one tube fits inside another tube to facilitate removal, the removable portion must fit tightly and must bottom on the permanent mounting, and at least two bolts must be used to secure each such joint. The telescope section must be at least eight inches in length.

G. Installation on Cars of Space Frame and Frameless Design

1. It is important that roll bar structures be attached to cars in such a way as to spread the loads over a wide area. It is not sufficient to simply attach the roll bar to a single tube or junction of tubes. The roll bar must be designed in such a way as to be an extension of the frame itself, not simply an attachment to the frame. Considerable care must be used to add as necessary to the frame structure itself in in such a way as to properly distribute the loads. It is not true that a roll bar can only be as strong as any single tube in the frame.
2. On cars of frameless construction, consideration should be given to using a vertical roll bar hoop of 360° completely around the inside of the car, and attached with suitable mounting plates. This type of roll bar then becomes a substitute for the frame.

H. Roll Cages

1. It is recommended, but not mandatory, except in Trans-Am competition, that all cars utilize a roll-cage type of construction.
2. The main roll bar hoop must extend the full width of the driver/passenger compartment and must be a minimum of two inches above the top of the driver's helmet with the driver sitting in normal position, or as near the roof as

possible in closed cars, and shall not be more than 6" behind the driver. The size and material of tubing shall be determined from chart B-2. The fabrication and bracing on this hoop must be as specified in C and D for roll bar hoops.

A similar hoop must be in front supporting the front pillars, with horizontal bars connecting the front hoop to the main hoop, at each side of the top. The material of this tubing shall be at least 1.5" x .102" and required bolts and nuts shall be as specified under roll bar requirements.

I. Other Roll Bar Designs

Roll bars and roll cages of alternate material or design may be accepted by the technical and safety inspector upon presentation of data verifying the installation is able to withstand three simultaneously applied loads:

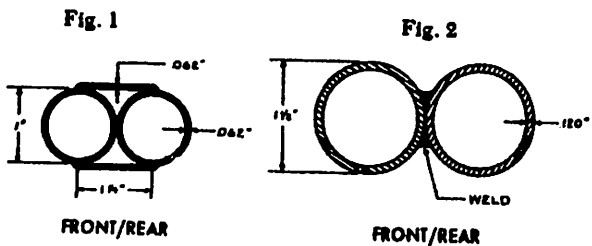
- 1.5 G Lateral
- 5.5 G. Fore-and-aft
- 7.5 G Vertical

The induced loads being carried over into the primary structure.

J. Alternate Tubing Sizes

Roll bar tubing of an alternate diameter and wall thickness equal to or exceeding the bending strength of those specified in Table B.2 may be used:

| Under 1500 lbs. | Under 2500 lbs. | Over 2500 lbs. |
|--------------------------------|-------------------|----------------|
| 1.375" x .187" | } Fig. 2 (2 each) | |
| 1.625" x .102" | | 1.50" x .120" |
| Fig. 1 (2 each) 1.00" x .062" | 1.50" x .250" | 2.125" x .162" |
| With (2) 1-1/4" x .062" strips | 1.625" x .160" | 2.50" x .085" |
| | 1.875" x .088" | |



CROSS-SECTIONAL
TOP VIEW OF ONE LEG