



# Vintage Competition Rulebook

1995 Edition

Sports Car Club of America, Inc.  
Club Racing Department  
Building 300 B Street  
Topeka, Kansas 66619

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The General Competition Rules of the Sports Car Club of America are intended to assist in the orderly conduct of race events. They are in no way a guarantee against injury or death to participants, spectators, or others. No express or implied warranties of safety or fitness for a particular purpose are intended or shall result from publication of or compliance with these rules.

**VINTAGE/HISTORIC**  
**2010 RULES AND REGULATIONS**

**GCR:** *References to "GCR" mean the current updated SCCA Club Racing General Competition Rules.*

**LICENSE:** An SCCA Novice Permit, Vintage, Regional, National or Pro Racing license is required to participate in an approved SCCA Vintage event. Other licenses may be approved in the Supplementary Regulations.

Holders of Novice Permits who are current SCCA regular or spouse members in good standing and who have satisfactorily completed the Driver School requirements may apply to the National Office for a Vintage license.

**RENEWAL:** In order to qualify for a vintage competition renewal, the license holder shall have completed at least two (2) vintage events within the preceding twelve (12) months.

**MEDICAL EXAM:** *All drivers are required to have completed a medical examination in accordance with GCR Appendix C.*

**LOG BOOKS:** Each car shall have a log book (properly filled in and maintained) to be presented at tech inspection for each event and retained with the car at all times.

**ROLL BARS:** Per Appendix Z.

**DRIVER RESTRAINT SYSTEM:** *must conform to GCR section 9.3.*

**DRIVER'S SAFETY EQUIPMENT:** *must conform to GCR 9.3.*

**FUEL CELLS:** *all new cars registered after 1/1/11 shall be equipped with a safety fuel cell that conforms to GCR 9.3. Cars with fuel cells that met the requirements of the now defunct Appendix X may continue to use them, but new bladders must conform to GCR 9.3.*

**MIRRORS:** At least one rear view mirror with a minimum area of 8 square inches is required.

**FIRE EXTINGUISHERS:** *All cars must be equipped with a fire extinguisher or fire system that conforms to GCR 9.3.23.*

**MASTER SWITCH:** *It is required that each car has a master switch that conforms to GCR 9.3.34.*

**BODY:** No modification from original, such as contemporary flares, spoilers or air dams are permitted. Paint schemes must be appropriate to the original period. Commercial advertising on cars is permitted if it is discreet and does not distract from the appearance of the car. Such lettering or graphics will not exceed 100 square inches per side, 200 square inches total. Historically significant markings are encouraged, preferred, and exempt from the 200 square inch rules.

**WHEELS:** Cars must run on wheels of the same appearance and size as were made available from the manufacturer at the time (magnesium wheels may replace steel for safety purposes). We refer specifically to rim width, diameter and off set as specified in the manufacturer's homologation statement. A rim width up to 1" larger may be used for safety purposes but 70 series or equivalent tires must also be used.

**TIRES:** Tires must approximate as closely as possible the original size homologated for the car. All tires must have a tread pattern with a minimum tread depth of 1/16". No slicks will be allowed except when originally used in that car's class (FIA and Can-Am). Racing re-caps are allowed, but must with the specified rules. Radial tires of 60 series or taller and appropriately rated may be used (except when non-standard wheels are used and 70 series tires are required).

**ENGINE:** The entrant must certify the correct engine displacement. Engine should be of original type and year of manufacture as originally fitted. However, the entrant shall have the option of fitting any substitute engine provided that engine was used in that car during the vehicles' vintage or historic competition history. In the spirit of historic preservation and fair play, participants will assume responsibility for keeping their equipment as close to original as possible.

**SUSPENSION:** All steering and suspension components will be properly fitted with no excessive wear or play. The system of suspension (spring type and number) must not be altered nor shall additional location or springing devices be added unless a factory option of the period for that model.

**BRAKES:** Braking system must be per the year of homologation for the vehicle model. Dual master cylinders may be used for safety purposes. Disc brakes are permitted when it can be shown they were available as a regular production option during the year of homologation. Brakes must be original size as raced.

**MODIFICATIONS:** Any modifications to engine, body, suspension or brakes update the vehicle eligibility date to the year that modification was available for that specific vehicle.

**GENERAL:** A securely fastened catch tank with a minimum capacity of 1 quart each is required for both engine and radiator (if used).

Each carburetor must have its own throttle return spring in addition to the single linkage spring.

A firewall must be provided between the cockpit, engine and fuel tank (except when a fuel cell is fitted). Selected Formula cars excepted.

Undertrays must have drain holes.

Wheels must be free of cracks and faults.

Wire Wheels: Spokes must be properly tensioned with no broken or missing spokes.

Bolt on Rudge Whitworth Spline adapters are not permitted.

Suspension Parts: It is strongly recommended that suspension parts and steering components be magnafluxed for cracks.

It is recommended that all cars have an eyebolt or equivalent both front and rear to attach a tow cable.

No oil, fuel, water or fluid leaks of any kind will be tolerated.

All cars must be fitted with at least one brake light in working order. (Formula cars excepted.)

All fuel filler caps must be securely fastened so as not to open on impact.

Monza type (quick release) caps must be wired shut.

All hoods and deck lids must be adequately fastened.

All drain plugs must be safety wired or paint striped.

Batteries must be securely fastened down. Those located in the cockpit must be covered or have leak proof caps.

Cars must be presented in a neat and finished condition. Engine compartment, suspension, chassis and drive line must be clean enough to facilitate inspection. Cables, wires and hoses must be taped or otherwise secured to prevent chafing, etc.

All cars must display legible numbers on both sides of the vehicle.

## **VINTAGE/HISTORIC CAR CLASSES**

### **Sports and Racing Cars**

#### **Pre-War**

- A-1 Pre 1931 Sports Cars
- B-1 (FIA – C) Racing Cars
- A-2 1931-Pre 1941 Sports Cars
- B-2 (FIA – D) Racing Cars

#### **Vintage**

- C-1 1941-Pre 1955 Sports Cars (Under 1200 cc)
- C-2 Sports Cars (1200 cc and over)
- C-3 Sports Racing Cars (2000 cc and under)
- C-4 Sports Racing Cars (over 2000 cc)
- D-1 1955-Pre 1963 Sports Cars (2000 cc and under)
- D-2 Sports Cars (over 2000 cc)
- D-3 1955-Pre 1960 Sports Racing Cars (2000 cc and under)
- D-4 Sports Racing Cars (over 2000 cc)

#### **Historic**

- E-1 1963-Pre 1968 Sports Cars (2000 cc and under)
- E-2 Sports Cars (over 2000 cc)
- F-1 1960-Pre 1966 Sports Racing Cars (2000 cc and under)
- F-2 Sports Racing Cars (over 2000 cc)
- G-1 1960-Pre 1973 GT Cars (2000 cc and under)
- G-2 GT Cars (over 2000 cc)
- G-3 1966-Pre 1973 Trans-Am (up to 2000 cc)
- G-4 Trans-Am (over 2000 cc)
- H-1 1966-Pre 1973 Can-Am Group 5-6
- H-2 FIA Makes Championship Cars

### **Formula Cars**

#### **Vintage**

J-1	1942-Pre 1961	Formula I (front engine)
J-2		Formula I (rear engine)
J-3		Formula II (front engine)
J-4		Formula II (rear engine)
J-5	All	Formula III (500 cc)
J-6	All	Formula Jr. (front engine)
J-7	All	Formula Jr. (rear engine)

#### Historic

K-1	1961-Pre 1966	Formula I
K-2	All	Formula 5000 and Formula A
K-3	1965-Pre 1973	Formula B and Formula Super Vee
K-4	1966-Pre 1973	Formula C
K-5	1966-Pre 1973	Formula Ford
K-6	1964-Pre 1966	Formula Vee
K-7	1966-Pre 1973	Formula Libre

#### REPRESENTATIVE VINTAGE/HISTORIC CARS

##### CLASS A-1: Pre 1931 Sports Cars

Alco	Chenard & Walcker	Lorraine	OM
Alfa-Romeo	Duesenberg	Mercer	Peugeot
Amilcar	Fiat	MercedesRenault	
Austin 7	Ford	Marmon	Sunbeam
Buick	Hispano-Suiza	MG	White
Bentley	Isotta-Franschini	Mogan MX	
Benz	Lancia	Opel	

##### CLASS A-2: 1931-Pre 1941 Sports Cars

Alfa-Romeo	Bugatti	Invicta	Riley
Amilcar	Chrysler	Jaguar SS	Stutz
Aston Martin	Delahaye	Lagonda	Salmson
Bentley	Delage	Mercedes-Benz	Talbot
BMW	HRG	MG	

##### CLASS B-1: Pre 1931 Racing Cars

Alfa-Romeo	Bugatti	Frazer-Nash
Alvis	Delage	Maserati

##### CLASS B-2: 1931-Pre 1941 Racing Cars

Alfa-Romeo	Delahaye	Maserati
Auto-Union	ERA	Mercedes-Benz
Bugatti	Frazer-Nash	Miller

**CLASS C-1: 1942-Pre 1955 Sports Cars under 1200 cc**

Bandini	Denzel	Lotus MK6	Porsche 1100
Cisitalia	Ermini	MG-TC, TD, TF	Siata
Crosely	Graur	Nardi	Simca Spl.
DB	Kieft	Panhard	

**CLASS C-2: 1942-Pre 1955 Sports Racing Cars 1200 cc and over**

Aston Martin DB2	Corvette	HRG	Porsche 1100
Alfa-Romeo 6C 2500S	Doretti	Healey Silverstone	Porsche 1300
Alfa-Romeo 2500S	Ferrari 212, 225	Jaguar XK-120	Siata 208SCS
Alfa-Romeo 1900S	Fiat 8V	Jaguar XK-120M	
Austin-Healey 100/M	Frazer-Nash LM	Lancia B-20	

**CLASS C-3: 1942-Pre 1955 Sports Racing Cars 2000 cc and under**

Abarth 207	Kieft-Climax	Lotus MK8, MK9	Porsche 550
AFM	Ferrari 166, 195	Maserati A6GCS	Veritas
Cooper Sports	Lester-MG	MG Specials	
DB	Lister-Bristol	O.S.C.A., MT-4	

**CLASS C-4: 1942-Pre 1955 Sports Racing Cars over 2000 cc**

Alfa-Romeo 6C 3000	Edwards Spl.	Hagerman Spl.
Allard	Ferrari 212, 250MM, 340	Jaguar C-Type
Aston Martin DB3, DB3S	Fitch-Whitmore	Kurtis
Austin-Healey 100-S	Gordini	Monza, 121
Cunningham	HWM-Chevrolet	Pegaso

**CLASS D-1: 1955-Pre 1963 Sports Cars 2000 cc and under**

AC-Bristol	Fiat 1100	Lancia GT	Peerless GT
Alfa-Romeo Guilietta	SS, SZ	Lotus Elite	Porsche 356
Arnolt-Bristol	Fiat-Abarth	Lotus MK7	Sunbeam Rapier
Austin Healey Sprite	Frazer-Nash MM	MGA	Triumph TR3, TR4
Deutsch-Bonnet	Ginetta	Morgan ± 4	Turner

**CLASS D-1: 1955-Pre 1963 Sports Cars over 2000 cc**

Aston Martin DB 2/4	Corvette 283	Ferrari 250 GT
Austin-Healey 100/6	Daimler SP 250	Jaguar XK-140, 140M, 150
Mercedes-Benz 300SL, 300SL Rdst.		

**CLASS D-3: 1955-Pre 1960 Sports Racing Cars 2000 cc and under**

Begra	Ferrari 500 TR, TRC	Maserati 150S	Porsche RSK
Cooper-Climax 1100	Lola MKI	Maserati 200S	Tanner SPL
Dolphin 850, 100	Lotus MKII	O.S.C.A. 2000	
Elva MKI-MK5	MK15 & MK17	Peerless LM	

**CLASS D-4: 1955-Pre 1960 Sports Racing Cars over 2000 cc**

Aston-Martin DBR1	Jaguar D-Type	Maserati 300S, 350S
Aston-Martin DBR2	Kurtis SXMaserati	450S, T-60/61
Cooper Monaco	Lister-Corvette	Ol' Yeller Specials
Devin SS	Lister-Jaguar	Scarab
Ferrari 290, 315, 212, 250TR		

**CLASS E-1: 1963-Pre 1968 Sports Car 2000 cc and under**

Austin Mini	Lotus 7A	Porsche 911
Elva Courier	Lotus Elan	Porsche 912, Carrera, Super 90
Fiat 1200, 1500, 1600	MGB	Sunbeam Alpine
Glas Isard	Marcos GT	Triumph TR4A, TR5

**CLASS E-2: 1963-Pre 1968 Sports Cars over 2000 cc**

AMC/AMX	Cobra 260, 289	Shelby GT 350
Aston Martin DB 4/5	Corvette 327	Sunbeam Tiger
Austin Healey 3000	Jaguar E Type	

**CLASS F-1: 1960-Pre 1965 Sports Racing Cars 2000 cc and under**

Brabham BT5-BT8	Crossle	Lotus 17 23 23B
Bobsey SR3	Elva MK6-MK8	Porsche RS60-61 (Porsche/BMW/Ford)

**CLASS F-2: 1960-Pre 1965 Sports Racing Cars over 2000 cc**

Chaparral	Echidna	Lotus 19-19B
Cheetah	Ferrari 250/330P	Lotus 30 and 40
Cooper King Cobra Genie	Webster Spl.	

**CLASS G-1: 1960-Pre 1973 GT Cars 2000 cc and under**

Abarth GT	Lotus Europa	Porsche 904
Alfa-Romeo GT2 GTA	Morgan SS	Porsche 914-6 GT
Ginetta	O.S.C.A. 1600 GT	

**CLASS G-2: 1960-Pre 1973 GT Cars over 2000 cc**

Bizzarini GT	Isso – Grifo GT	
Cobra Daytona & 427	Jaguar E Lightweight	
Corvette 327 GrandSport, 396, 427		
Dino 206 SP	Shelby R	
Ferrari 330LMB, 275 LMB, GTB, 250 GT, GTO		

**CLASS G-3: Trans-Am Up to 2000 cc**

Alfa-Romeo	Datsun 510	Saab
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Fiat 124 CP

Lotus Cortina

Volvo

**CLASS G-4: Trans-Am over 2000 cc**

AMC Javelin

Ford Mustang

Plymouth AAR-Cuda & Barracuda

Chevrolet Camaro

Mercury Cougar

Pontiac Trans-Am

Dodge Dart & Challenger

**CLASS H-1: 1966-Pre 1973 Can-Am, Group 5 & 6 Cars**

Alfa-Romeo T12 & T33

March

BRM 167

McLaren M1 and M20

Chevron B8, B16, B19, B21, B23

Porsche 917

Ferrari 612, 312 PB

Lola T-70, T-160, T-222, T-210, T-212, T-290, T-292

**CLASS H-2: 1966-Pre 1973 FIA Makes Championship Cars**

Abarth 3000

Ford GT-40, MKII, MKIV

McLaren M6B-GT

Alfa-Romeo T-33/33/3

Lola T-70 GT

Porsche 908, 910

Ferrari 330 P2, P3, P4, 312P, 512

**Appendix X**  
**Safety Fuel Cell Specifications**

*This appendix is retained for reference only. For new cars and replacement bladders see the requirements on page 3.*

Starting January 1, 1983, all new cars registered after 1/1/83 shall be equipped with a safety fuel cell per Appendix "X" specifications. 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 through 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 bladder during vulcanization.

4. Approval

All bladders shall comply with FIA FT-3 specifications.

**B. CONTAINER**

1. GT and Production Category

The bladder shall be installed in a container of 20-gauge steel, .059 inch aluminum or .125 inch 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 of bodywork of the car) to ensure rigid and secure mounting of the bladder and provide additional protection. A minimum of 20-gauge steel, .059 inch aluminum or an approved equivalent is required for all vehicles manufactured after January 1, 1972.

3. Fuel cells shall not be installed any closer to the ground than six (6) inches unless enclosed within the bodywork.

**C. FOAM**

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

1. Other Designs.

SCCA may, at its discretion, approve safety fuel cells 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 cells meet or exceed the crash resistant properties of cells meeting the standard specifications. SCCA may require independent laboratory analysis, comparative destructive testing, and such other tests it deems sufficient.

2. 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 bladder, 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 bladder, a check valve must be incorporated in the fuel bladder to prevent fuel escaping if the cap and filler neck are torn from the bladder. Fuel cell breathers must vent outside the car. The cell need not incorporate a drain fitting. Fuel filler location is unrestricted when SCCA approved safety fuel cells are installed in Production and GT Category cars.  
It is recommended that all lines, filler openings, and vents be incorporated in a single fitting located at the top of the fuel cell.
3. Where safety fuel cells are allowed or required in GT and Production Category automobiles, size and capacity shall be free.
4. The use of rotary molded fuel cells not having a bladder, or not contained in a metal can is allowable in those cars that do not require the use of a fuel cell, but where they are an allowed option. In those classes of cars requiring the use of a fuel cell, only the approved cells which have a bladder and are contained in a metal container are allowed to be used.

## APPENDIX Z

### ROLL CAGES

Roll cages are required in all *production cars model year 1973 or later*. There is no requirement for cars *from model year 1972 or earlier* to have roll cages; however, members are encouraged to install roll cages in "older" cars where satisfactory installation can be achieved. 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 cage is to protect the driver if the car turns over, runs into an obstacle such as a guardrail or catch fence or is struck by another car. It must be designed to withstand compression forces from the weight of the car coming down on the roll-over structure and to take fore/aft and lateral loads resulting from the car skidding along the ground on its roll-over structure.
2. A system of head restraint to prevent whiplash and prevent the driver's head from striking the underside of the main hoop must be installed on all vehicles. The head restraint must have a minimum area of 35 square inches and be padded with a non-resilient, material such as Ethafoam® or Ensolite® or other similar material with a minimum thickness of one (1) inch. The head restraint must be capable of withstanding a force of 200 lbs. in a rearward direction.
3. Forward braces and portions of the main hoop subject to contact by the driver's helmet (as seated normally and restrained by seat belt/shoulder harness) must be padded with non-resilient material such as Ethafoam® or Ensolite® or other similar material with a minimum thickness of one-half (1/2) inch.
4. No portion of the safety roll cage shall have an aerodynamic effect by creating a vertical thrust.
5. Roll cage or chassis design must prevent engine intrusion into the driver compartment.

#### B. MATERIAL

1. Seamless, or DOM (drawn over mandrel) mild steel tubing (SAE 1010, 1020, 1025) or equivalent or alloy steel tubing (SAE 4125, 4130) (T-45) must be used for all roll cage structures. Proof of use of alloy steel is the responsibility of the entrant. ERW Tubing may be used. (See minimum tubing size chart -Z.D.).
2. An inspection hole at least 3/16 inch diameter must be drilled in a non-critical area of the roll cage hoop to facilitate verification of wall thickness.

#### C. GENERAL CONSTRUCTION

1. One continuous length of tubing must be used for the main hoop member with smooth continuous bends and no evidence of crimping or wall failure. The radius of bends in the roll cage hoop (measured at centerline of tubing) shall not be less than 3 times the diameter of the tubing.

Whenever possible, the roll cage hoop should start from the floor of the car; and in the case of tube frame construction, be attached to the chassis tubes by means of gussets or sheet metal webs to distrib-

ute the loads. It is recommended that gussets be used at all joints.

2. All welding must be of the highest possible quality with full penetration and must be done according to A.S.T.M. specifications for the material used. Arc welding, particularly heliarc, should be used whenever possible. Welds should be inspected by magnaflux or dye penetrant after fabrication. Alloy steel must be normalized after welding.
3. Aluminum bronze or silicon bronze welding technique is permitted, but extreme care must be used in preparation of parts before bronze welding and in the design of the attaching joints.

D. MINIMUM TUBING SIZES – ALL CARS

1. Main and Front Hoops

VEHICLE RACE WEIGHT WITHOUT DRIVER	MATERIAL	
	MILD STEEL	ALLOY STEEL
700 lbs to 900 lbs	1.25" x .095"	1.25" x .080"
900 lbs to 1500 lbs	1.375" x .095"	1.375" x .080"
1500 lbs to 2500 lbs	1.50" x .095"	1.375" x .095"
Over 2500 lbs	1.50" x 1.20"	1.50" x .095"
	Or	1.75" x .095"

ERW tubing may be used in the following sizes only:

VEHICLE WEIGHT (WITHOUT DRIVER)	ERW TUBING SIZE (MINIMUM)
Up to 2500 lbs	1.50" x .120"
Over 2500 lbs	1.75" x .120"

"ERW tubing must have the weld to the inside of all bends."

For the purposes of determine tubing sizes, the vehicle race weight is as raced without fuel and driver. The minus tolerance for wall thickness should not be less than .010" below the nominal thickness.

E. MAIN HOOP

Main hoop (behind the driver) must be the full width of the cockpit for all closed cars, Formula and Sports Racing cars, and is recommended for open Production and GT Category cars. A partial width main hoop (only behind driver) may be used in open Production and GT Category cars. Vertical members of the main hoop must not be less than 15" apart (inside dimensions) at their attachment to the chassis (full or partial width hoops). Formula cars; 15" apart at the uppermost main chassis member.

On all closed cars, the main hoop must be as near the roof as possible. On open cars (Production, GT, Formula, and Sports Racers) a straight line drawn from the top of the main hoop to the top of the front hoop must pass over the driver's helmet when the driver is seated in the normal driving position. The top of the main hoop, however, must not be less than two (2) inches over the driver's helmet, with the driver seated normally and restrained by seat belt/shoulder harness.

## F. FRONT HOOP

1. Open cars (Production, GT, Formula and Sports Racers):  
The front hoop may be a low hoop (near the dashboard, but at least as high as the top of the steering wheel rim) or a high hoop, (similar to the rear hoop but without a lateral brace). On cars of full monocoque construction, a fabricated sheet metal structure may be approved as a substitute upon specific application to the SCCA. If a high front hoop is used, it should be of similar design as that required for closed cars.
2. Closed cars  
The front hoop must follow the line of the front pillars to the top of the windshield and be connected, by horizontal bars, to the top of the main hoop on each side (as close to the roof as possible). Alternatively, two side hoops following the line of the front pillars to the top of the main hoop. These two side hoops are to be connected by a horizontal bar over the top of the windshield. (See Figure 1)

## G. BRACING

Except for specific exceptions for single seater Formula and Sports Racer cars (see below), all required bracing must be of the same diameter and wall thickness as listed in Appendix Z.D.2. (Main and Front Hoops)

All full cockpit width main hoops (except Formula Cars) must incorporate a lateral brace (same diameter and wall thickness as main hoop) to prevent lateral distortion of the main hoop. (Figures 1, 2, 10)

1. Main Hoop Bracing
  - a. Closed cards; open Production and GT Category cars with full cockpit width main hoops must have two (2) braces extending to the rear, attaching to the frame or chassis. Braces must be attached as near as possible to the top of the main hoop (not more than six (6) inches below the top) and at an included angle of at least 30 degrees.
  - b. Formula and Sports Racers must have two (2) braces extending forward from the main hoop, attaching to the frame, monocoque or front hoop. This bracing may be supplemented by rear bracing. Forward and rear bracing must be attached as near as possible to the top of the main hoop (not more than six (6) inches below the top) and at an included angle of at least 30 degrees. The driver's shoulders and torso must be protected by this bracing.
  - c. Minimum dimensions for forward and rear bracing for single seater Formula and Sports Racer cars under 1500 lbs is: 1.0" diameter x .080" wall thickness alloy steel or mild steel of equal dimensions to that of the main and front hoops.
  - d. Open Production and GT Category cars with partial cockpit width main hoops must have two braces extending forward from the main hoop attaching to the frame or front hoop. Forward and rear bracing must be attached as near as possible to the top of the main hoop (not more than six (6) inches below the top) and at an included angle of at least 30 degrees. The driver's shoulders and torso must be protected by this bracing.

- e. Removable bracing must incorporate connectors of the double lug, tapered, or muff-type as shown in Figures 4, 5, 6. The double-lug type must include a doubler, gusset or capping arrangement so as to avoid distortion or excessive strain caused by welding.

## 2. Front Hoop Bracing

There must be two (2) braces extending forward from the front hoop to protect the driver's legs. (Formula F cars, see FF Chassis Construction Rules.) It is recommended that this bracing extend to the bulkhead in front of the driver's feet; but in any case, must be integrated into the frame or chassis to provide substantial support for the front hoop. For Formula and Sports Racing cars under 1500 lbs., may be a minimum of 1.0" diameter x .080" wall (alloy steel) or 1.0" x .080" wall thickness (mild steel).

## H. SIDE PROTECTION – open and closed Production and GT Category cars.

- 1. The minimum side protection must consist of a horizontal side tube connecting the front and rear hoops across the driver's door opening. Additionally, there must also be either a diagonal tube from the front hoop to the rear hoop bisecting the door opening below the horizontal side tube, or not less than two (2) horizontal side tubes. Additional tubing may be added. NASCAR-style door bars are recommended.
- 2. In cars with full roll cage installations include side bars, interior door panels may be altered, replaced, or removed. When door panels are removed, all sharp edges or projections must be protected.

## I. MOUNTING PLATES

The thickness of mounting plates bolted or riveted to the structure of the car shall not be less than the thickness of the roll hoop or brace that they attach and must be backed up with a plate of equal size (area) and thickness on the opposite side of the panel, with the plate through –bolted (riveted) together. A minimum of three (3) bolts per mounting plate is required for bolted mounting plates. All hardware (bolts) must be Grade 5 or better. Mounting plates welded to the structure of the car shall not be less than .080 thick. Whenever possible the mounting plates should extend onto a vertical section of the structure (such as door pillar). (See Section K, "Installation on Cars of Space Frame and Frameless Design.")

## J. REMOVABLE ROLL CAGES

Removable roll cages 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 by design, on the permanently mounted tube, and at least two bolts must be used to secure each such joint. The telescope section must be at least eight (8) inches in length. (See drawing No. 4) Removable bracing sections (compression loading only) may use 3 bolt flange design (minimum thickness 3/16").

## K. INSTALLATION ON CARS OF SPACE FRAME AND FRAMELESS DESIGN

- 1. It is important that roll cage structures be attached to cars in such a way as to spread the loads over a wide area. It is not sufficient to

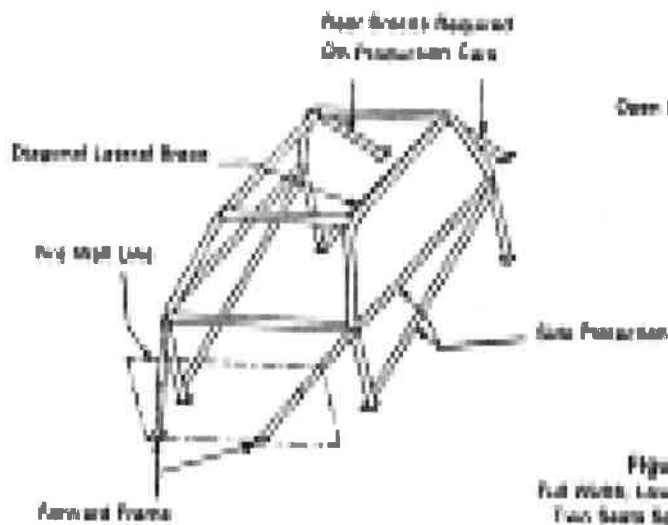
simply attach the roll cage to a single tube or junction of tubes. The roll cage must be designed in such a way as to be an extension of the frame itself, not simply an attachment to the frame. Considerable care must be used to add necessary strength to the frame structure itself in such a way as to properly distribute the loads. It is not true that a roll cage 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 hoop of 360 degrees completely around the inside of the car, and attached with suitable mounting plates. This type of roll hoop then becomes a substitute for the frame.

#### L. DRIVER'S SEAT

The driver's seat must be firmly mounted to the structure of the car. In cars where the seat back is upright (most common in GT and Production cars) the back of the seat must be firmly attached to the main roll hoop, or its cross bracing, so as to provide aft and lateral support. Bulkheads, firewalls, rear decks or similar structure of suitable strength may be used as a substitute for the main roll hoop or cross bracing to provide the required seat back support.

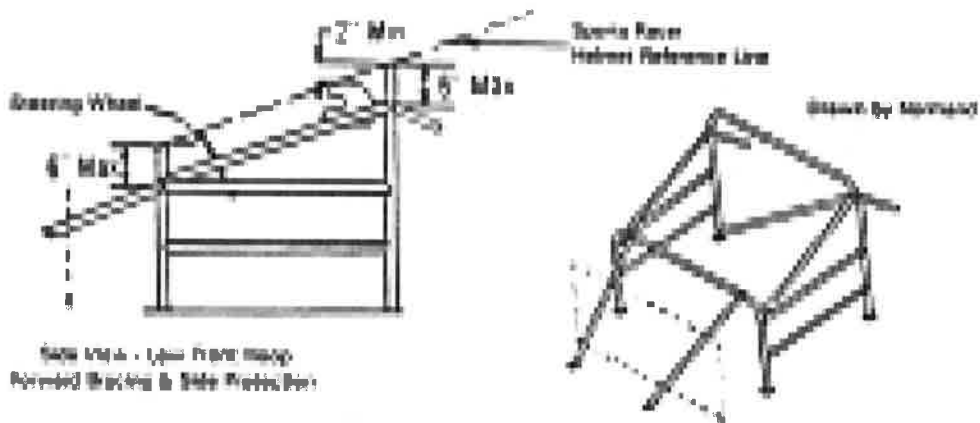




**Figure 1**  
Recommended Roll Case  
Open & Closed - OT & Production Cars

Drawn by Normand

**Figure 2**  
Full Width, Low Front Ramp  
Two Beam Spine Racer

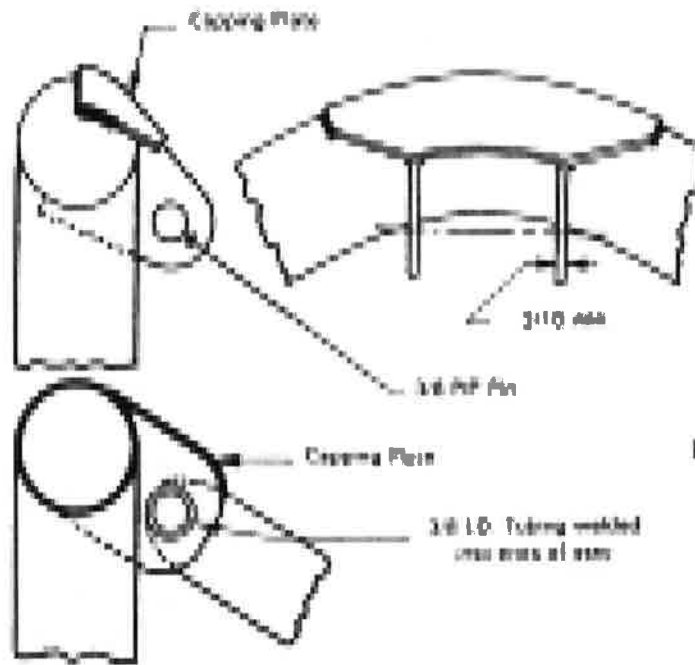


Side View - Low Front Ramp  
Powered Steering & Side Protection



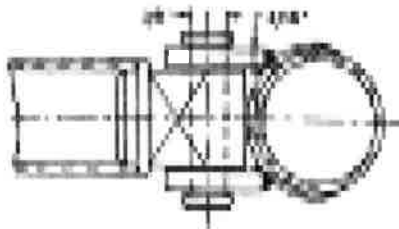
**Figure 3**  
Formula Cars

Removable Rail Bar Braces  
Attached Details

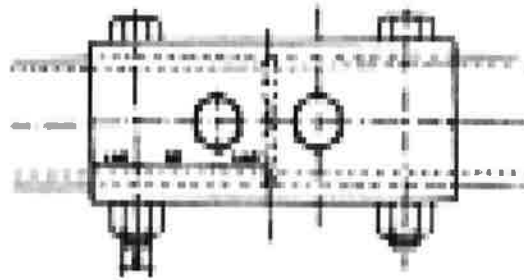


Drawing No. 1

Drawing No. 2

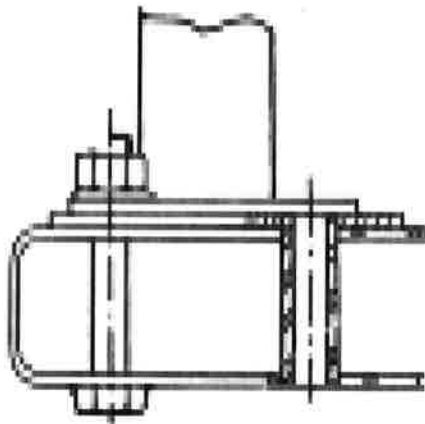


Drawing No. 3



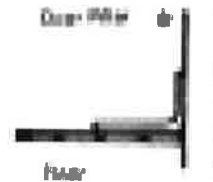
Drawing No. 4

12 mm (diam) x 40 mm (len) (P-1)  
 14 mm (diam) x 40 mm x 30 mm (diam) (ass. 1)  
 18 mm (diam) x 50 mm (diam) (ass. 1)

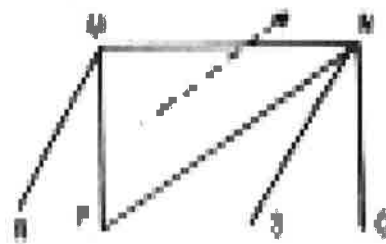


Drawing No. 6

Roll Bar Attachment to  
 Integral Chassis Type of Car



Drawing No. 8



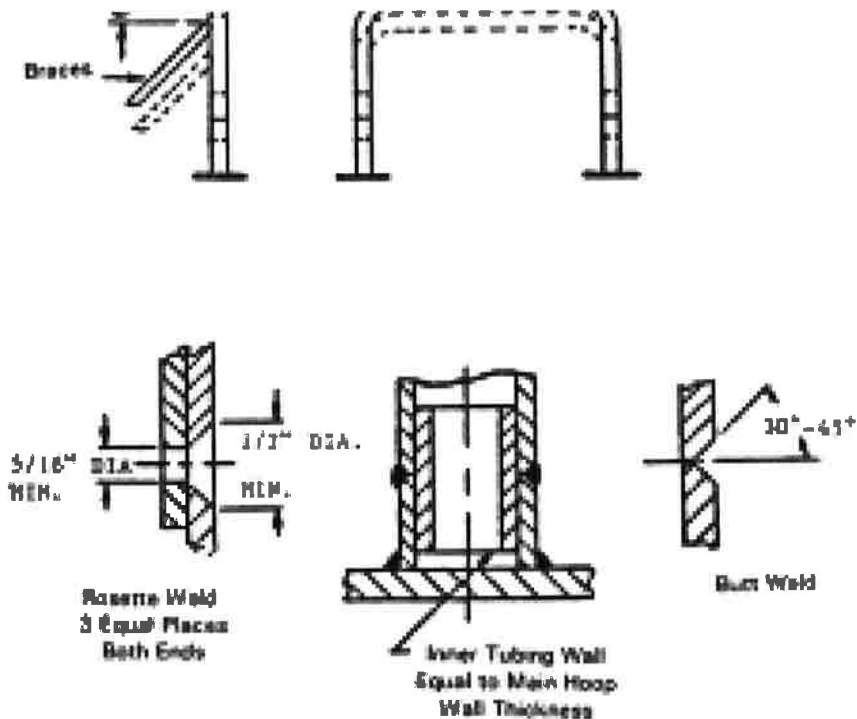
The lateral brace must be fixed  
 either front to Q door or to P,  
 or to T or R or S or T

Drawing No. 7

Appendages to Roll Bar/Cages: The following procedures are approved for modification to roll bars/cages that do not meet the 2-inch required minimum:

The old main hoop may be cut off near the chassis mounting and a new main hoop of equal tube size or a section of equal tubing size may be added, and inner tube(s) must be used to mate all sections together. All braces must be minimum distance from top of hoop per Appendix Z. All welding for this modification must be arc welded (min). The inner tube(s) must be rosette welded (3) places near top and bottom.

Refer to diagram below:



## ROLL BARS

THESE SPECIFICATIONS ARE FOR INSPECTING CARS REGISTERED PRIOR TO JANUARY 1, 1979 and 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 a normal driving position (as near the roof as possible on closed sedans) and shall not be more than six 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 15 inches apart inside dimensions. It is recommended that the roll bar extend the full width of the cockpit to provided maximum bearing area. The roll bar vertical members on Formula Cars must not be less than 15 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 restrained should be capable of withstanding a force of 200 lbs, in an aft direction. It is recommended that a headrest of approximately 36 square inch area with a non-resilient padding two inches thick be used. It is mandatory that any portion of the roll bar or bracing which might be contacted by the driver's helmet shall be covered with Styrofoam or other energy-absorbing material (high density) to a minimum thickness of one inch. The energy absorbing material must be covered by duct tape or similar protective wrapping. The padding need not be installed where side or forward vision is restricted.
6. No portion of the safety roll bar shall have an aerodynamic effect by creating a vertical thrust.

### 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 driver. The size of the tubing shall be determined as fol-

lows:

VEHICLE RACE WEIGHT	ROLL BAR	
	MILD STEEL	ALLOY STEEL
Under 1500 lbs	1.5" x .120"	1.375" x .090"
1500 lbs – 2500 lbs	1.75" x .120"	1.625" x .095"
Over 2500 lbs.	2.25" x .120"	2.00" x .095"

Note: See alternate tubing sizes and diagrams at the 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 four 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 construction, 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 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 seats) 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.) The following alternates are permitted: Although installing the diagonal lateral brace in the main hoop is the strongest (and hence most preferable) alternative, there may be instances where such an installation is not practical. In such situations, the installation of the diagonal brace as shown in the drawing below will be acceptable.
2. Partial cockpit (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 inches mild steel or alloy steel.
3. The bracing must be attached as near as possible to the top of hoop but not more than six inches below the top of the hoop and at an included angle of at least 30 degree. 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). 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 or head studs.

#### E. MOUNTING PLATES

1. Roll bars and braces must be attached to the frame of the car whenever possible. Mounting plates, regardless of whether welded or bolted to the frame, must be at least 3/16 inch 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 structures shall not be less than .1875 (3/16) inch 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 inch 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 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 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 degrees 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. OTHER ROLL BAR DESIGNS (Acceptable for cars built prior to 1/1/79)
- Roll bars 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

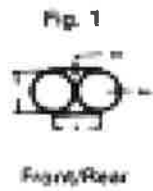
The induced loads being carried over into the primary structure. Royal Automobile Club (RAC) certification of alternate designs is acceptable for automobiles built prior to 1/1/79.

#### I. ALTERNATE TUBING SIZES

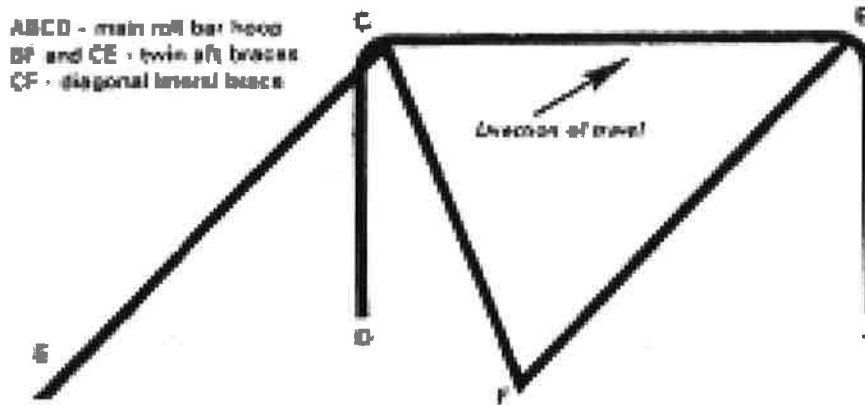
Roll bar tubing of an alternate diameter and wall thickness equal to or exceeding the bending strength of those specified in Table B.2 may be used:

Under 1500 lbs	Under 2500 lbs.	Over 2500 lbs.
	Fig. 2 (2 each)	
1.375" x .187"	1.50" x .120"	2.00" x .180"
1.625" x .120"	1.50" x .250"	2.125" x .162"
Fig. 1(2 each)1.00" x .062"	1.625" x .160"	2.50" x .085"
With (2) 1 ¼" x .062" strips	1.875" x .088"	





Cross-sectional  
Top View of One Lag



## RULES OF THE ROAD FOR VINTAGE RACING

Vintage racing IS NOT the same as competitions for current cars. Although competitive, the primary purpose is NOT winning, or cut and thrust competition, but driving under competitive track conditions in a safe and enjoyable environment for all participants. For those who seek all out competition, there are numerous more suitable outlets.

Vintage events include cars of many ages and great disparities in speed, cornering, and braking capabilities; and drivers of widely varied experience. This requires the exercise of great care, prudence, and courtesy in traffic and in passing. The slowest car and driver have as much right to be on track as the fastest, and all drivers must conduct themselves accordingly.

1. **FLAGS:** the following flag signals shall be obeyed without question:  
Green: (Ordinarily displayed at S/F only) The race is under way (started) and instant the green flag falls, and passing may begin.

Yellow: Motionless: Reduce speed, take care, danger. No passing until past the emergency area. Waved: Make large reduction of speed; great danger, course may be blocked, be prepared to stop. No passing until past the emergency area.

Red: (Ordinarily at S/F only) Stop immediately and safely, clear the circuit as well as circumstances permit.

Blue with Diagonal Yellow Stripe(s): Motionless: Another car is following you closely. Waved: Another car is closing, and trying to pass.

Yellow with Vertical Red Stripes: Take care: debris or slipper condition on track.

White: There is a slow moving vehicle (official or crippled race car) on the circuit. Take care.

Black: At S/F, or Black Flag Station: Complete the lap you are on. Then stop at your pit, or the designated "black flag area," for consultation. At S/F, furred – Warning: you are driving in an unsafe or improper manner. If continued, you will be given a full black flag. On corner – the race has been stopped, there is a red flag displayed at S/F. Stop racing, and proceed to your pit, exercising extreme caution and being prepared to stop.

Black with Orange Ball In Center (At S/F or black flag station only): There is something mechanically wrong with your car. Proceed to your pit at reduced speed.

Checkered: You have finished the race (or practice session, etc.). Complete one more lap cautiously, and retire to the paddock, or report to impound area as required.

2. **STARTER:** to be considered a starter, a car must receive the green flag at the start. Cars entering the race after the initial start are also considered starters.
3. **FINISHER:** to be considered a finisher, a car must complete one half of the race distance (or time) under its own power.

4. **RIGHT OF WAY:** the car in front of another has the right of way, and need not yield to the car behind. However, if the car ahead is clearly much slower than an overtaking car, as a matter of sportsmanship the slower car should yield right of way to the much faster car when it can be done safely.
5. **PASSING:** the responsibility for the decision to pass another car, and thus for the safety of the pass, lies with the overtaking driver. The overtaking car must leave racing room for the overtaken car, and the pass must be completed without requiring the overtaken driver to take evasive action to avoid contact with the overtaking car.  
It is the responsibility of the overtaken driver to maintain a consistent and predictable line or course of travel, so that an overtaking driver will not find himself committed to a passing line only to have the overtaken care suddenly swerve into that line, resulting in unavoidable car to car contact.
6. **CAR TO CAR CONTACT:** Is absolutely contrary to the spirit of vintage racing. The driver judged at fault in an involuntary contact situation **WILL** be penalized, up to and including removal from participation. A driver adjudged at fault for a deliberate contact, or for repeated contacts, or for an involuntary contact involving great carelessness or negligence. **SHALL BE** excluded from participation in that event and may be suspended from further participation for such period as adjudged appropriate.
7. A car which has left the course with all four wheels, or which has sustained damage during an event, **MUST** proceed directly to the pits to be inspected for damage by a designated official before being allowed to return to the track.
8. **HAND SIGNALS**
  - a. A driver shall signal by raising his arm before entering the pits from the circuit.
  - b. A driver overtaken by a clearly faster car should point to the side on which the overtaking car should pass.
9. It is forbidden to drive or tow a car during the course of an event on the circuit or in the pits in a direction opposite to that in which the event is being run. A car which overshoots its pit must be pushed back by hand, or continue for another lap.
10. If a driver is forced to stop his car on the circuit during an event, it is his first duty to insofar as possible place it in such a manner as to cause no danger or obstruction.

