

GSR 4:11 ROLL CAGE

Roll Cage: All cage structures must be designed in an attempt to protect the driver from any angle, 360-degrees. All 4130 chrome moly tube welding must be done by approved TIG heliarc process; mild steel tube welding must be approved MIG wire feed or TIG heliarc process. Welding must be free of slag and porosity. Any grinding of welds prohibited. Additionally, roll cage must be padded any where the driver's helmet may contact it while in the driving position. In Competition eliminator where SFI Spec on chassis is required, Pro Modified, Top Methanol Funny Car, Top Methanol Dragster, Pro Stock, Funny Car and Top Fuel padding must meet SFI Spec. 45.1 See GSR 4:4 FRAMES for chassis certification procedures.

Open Bodied Cars

See illustrations (PIC. 21, 22, 23, 24, 25, 26, 27, 28 and 29).

When driver is in driving position in an open bodied car, roll cage must be at least 3-inches in front of helmet. Cars without cross member above driver's legs must have a strap or device to prevent legs from protruding outside chassis. On front-engine dragsters, seat uprights and back braces must be arranged such

that a flat surface passed over any two adjacent members will not contact the driver seat or containment. Additional uprights, max 30-degrees from vertical, must be added until this criteria is satisfied. When non-vertical uprights or "running W" side bay designs are used (diagonals installed at greater than 30-degrees from vertical), adjacent roll cage diagonals must be the same size as that required for the upright. Motor mount and/or rear end uprights (except rear engine dragster) may be rectangular tubing, 1 3/4-inch x 1-inch x 0.058-inch (44.5 x 25.4 x 1.5 mm) Chrome moly or steel minimum.

Full Bodied Cars

See illustrations (PIC. 19, 20)

On full bodied car, with driver in driving position, helmet must be in front of main hoop. If helmet is behind or under main hoop, additional tubing same size and thickness as roll cage must be added to protect driver. Main hoop may be laid back or forward but driver must be encapsulated within the required roll cage components

All cage structures must have in their construction a cross bar for seat bracing and as the shoulder harness attachment point; cross bar must be installed no more than 4-inches (102 mm) below, and not above, the driver's shoulders or to side bar. All required rear braces must be installed at a minimum angle of 30-degrees from vertical, and must be welded in. Side bar must pass the driver at a point midway between the shoulder and elbow.

Unless an O.E.M. frame rail is located below and outside of driver's legs (i.e. '55 Chevy, '65 corvette, etc.) a rocker or sill bar, minimum 1 5/8-inch (41.2 mm) x 0.083-inch (2.1 mm) chrome moly or 0.118-inch (3.0 mm) mild steel or 2-inch x 2-inch x 0.058-inch (50.8 x 50.8 x 1.5 mm) chrome moly or mild steel rectangular, is mandatory in any car with a modified floor or rocker box within the roll cage uprights (excluding six square feet (0.56 square meter) of transmission maintenance opening). Rocker bar must be installed below and outside of driver's legs, and must tie into the main hoop, the forward hoop, frame, frame extension or side diagonal. Rocker bar may not tie into swing out side bar support. If rocker bar ties into side diagonal more than 5-inches (127 mm) (edge to edge) from forward roll cage support or main hoop, a 1 5/8-inch (41.2 mm) x 0.083 (2.1mm) chrome moly or 0.118 (3.0 mm) mild steel brace/gusset is mandatory between the diagonal and forward roll cage support or main hoop.

Swing out bar permitted on O.E.M. full bodied car 7.50 seconds and slower.

- 1 5/8-inch (41.2 mm) O.D. x 0.083-inch (2.1 mm) (Chrome moly) or 0.118-inch (3.0 mm) (mild steel) minimum. Bolts/pins must be 3/8-inch (9.5 mm) diameter steel, minimum and in double shear at both ends.
- Male or female clevis(es) permitted. Male clevis must use two minimum 1/8-inch (3.2 mm) thick brackets (chrome moly or

mild steel) welded to each roll cage upright; female must use minimum 1/4-inch (5.4 mm) thick bracket (chrome moly or mild steel) welded to each roll cage upright. Pins must be within 8-inches (204 mm) of the vertical portion of both the forward and main hoops. A half cup backing device must be welded to the vertical portion of the main hoop (inward side) or the upper end of the swing out bar (outward side), minimum 0.118-inch (3.0 mm) wall (chrome moly or Mild steel) extending at least 1 5/8-inch (41.2 mm) past the centre of the pins. A clevis assembly utilising a minimum 0.350-inch (8.9 mm) thick male components and two minimum 0.175-inch (4.45 mm) thick female components may use a 1/2-inch (12.7 mm) diameter grade 5 bolt, and does not require a half cup backing device.

- Sliding sleeves of 1 3/8-inch (35 mm) x 0.083-inch (2.1 mm) chrome moly or 0.118 (3.0 mm) mild steel, with minimum 2-inch (51 mm) engagement, are permitted in lieu of the upper pin/cup.
- All bolt/pin holes in the swing out bar must have at least one hole diameter of material around the outside of the hole.

For all dragsters, funny cars and other cars requiring a funny car or dragster style roll cage, the upper roll cage members must be arranged such that a flat surface passes over any two adjacent members will not contact the driver's helmet while the helmet is held in contact with the inner side of the same roll cage members. If the roll cage members do not satisfy this criteria, head/helmet guards of 3/4 x 0.049-inch (19.1 x 1.24 mm) round tube or 3/4-inch (19.1 mm) by 0.090-inch (2.29 mm) flat strap must be added until the criteria is satisfied.

If O.E.M firewall has been modified (in excess of 1 square foot (929 cm2) for transmission removal, not including bolted in components) a lower windshield or dash bar of 1 1/4 x 0.058-inch (32 x 1.5 mm 4130 chrome moly or 1 1/4 x 0.118 (32 x 3.0 mm) mild steel is mandatory connecting the forward cage support.

Unless attaching to a OEM floor or frame, the minimum requirements for a fram member to which a roll cage member is attached are 1 5/8-inch x mild steel or .083-inch chrome moly round tubing, or 2-inch x 2-inch x 0.058-inch mild steel or chrome moly rectangular.

GSR 4.11.1 FULL BODIED CARS IN ET CARS, SST, SG, SC AND ALTERED CARS TYPE-2.

EXCEPT WHERE SFI SPEC. 26.1E IS MANDATORY (7.49 seconds and quicker).

Roll cage must be manufactured in steel or chrome moly tubing. Minimum dimensions as in table for PIC. 19 and 20 below or as per SFI Spec 25.4.

Tube	O.D.	Chrome moly	Mild Steel
A	42 mm (1 5/8 inch)	0.083 inch	3 mm (0.118 inch)

B-1	38 mm (1 1/2 inch)	0.058 inch	3 mm (0.118 inch)
B-2	35 mm (1 3/8 inch)	0.049 inch	3 mm (0.118 inch)
B-3	32 mm (1 1/4 inch)	0.049 inch	3 mm (0.118 inch)
C	32 mm (1 1/4 inch)	0.065 inch	3 mm (0.118 inch)
D	32 mm (1 1/4 inch)	0.058 inch	3 mm (0.118 inch)

All cars with an O.E.M. frame must have roll cage welded to frame.

- If A, two bars any length
If B1, 30° or less; must attach within 5-inches from top of main hoop.
If B2, minimum 4 bars. At least 2 bars must attach to horizontal portion of main hoop.
If B3, minimum 6 bars. At least 2 bars must attach to horizontal portion of main hoop.
- 32 mm (1 1/4") x 1.47 mm (0.058") 4130 chrome moly or 3mm (0.118") mild steel, mandatory when main hoop welded to plates on floor, must be connected to sub frame.
- May substitute an "X" brace of 38 mm (1 1/2") x 1.65 mm (0.065") 4130 chrome moly or 38 mm (1 1/2") x 3 mm (0.118") mild steel.

Alternative main frame

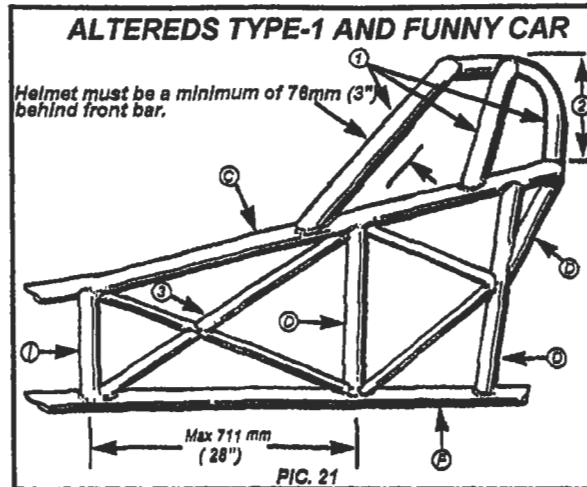
In SST, SG, SC(except dragster), ET cars slower than 7.50 seconds (except dragsters) and type 2 Altered cars in Competition Eliminator classes B to H and CC, DD, and DT; the main frame can be made of rectangular tubing minimum 60 x 40 x 3 mm (2 1/2" x 1 1/2" x 0.118")

GSR 4:11.2 ROLL CAGE ALL OTHER CARS 7.50 or slower, (EXCEPT WHERE SFI SPECS ARE MANDATORY (7.49 seconds and quicker)). Rear engine Dragsters 7.50 or slower can alternatively meet SFI spec 2.7.

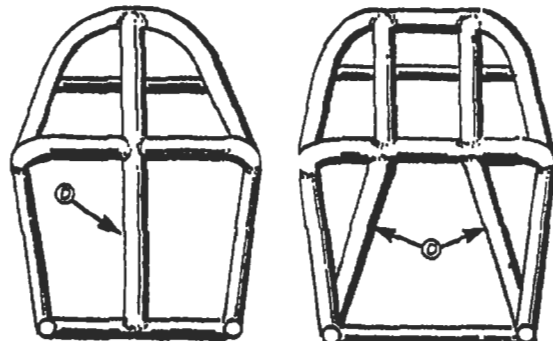
Tube	O.D.	Chrome moly	Steel
A	38 mm (1 1/2 inch)	0,065 inch	3 mm (0,118 inch)
A1	38 mm (1 1/2 inch)	0,058 inch	3 mm (0,118 inch)
B	42 mm (1 5/8 inch)	0,065 inch	3 mm (0,118 inch)
C	35 mm (1 3/8 inch)	0,058 inch	3 mm (0,118 inch)
D	32 mm (1 1/4 inch)	0,058 inch	3 mm (0,118 inch)
	29 mm (1 1/8 inch)	0,065 inch	3 mm (0,118 inch)
D1	26 mm (1 inch)	0,049 inch	3 mm (0,118 inch)
E	19 mm (3/4 inch)	0,058 inch	3 mm (0,118 inch)
	26 mm (1 inch)	0,049 inch	3 mm (0,118 inch)
E1	16 mm (5/8 inch)	0,058 inch	3 mm (0,118 inch)
F	32 mm (1 1/4 inch)	0,058 inch	3 mm (0,118 inch)
	35 mm (1 3/8 inch)	0,049 inch	3 mm (0,118 inch)
G	16 mm (5/8 inch)	0,058 inch	3 mm (0,118 inch)
H	26 mm (1 inch)	0,058 inch	3 mm (0,118 inch)
I	32 mm (1 1/4 inch)	0,049 inch	3 mm (0,118 inch)

Notes regarding numbers in illustrations PIC. 21-26:

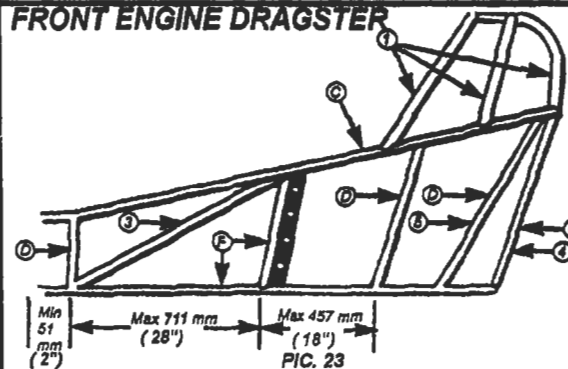
- #1. Rear engine dragster, 5 or 8 points attachment use tubing code A. Funny Car, Altered and Front engine Dragster with 6 points attachment use tubing code A, or with 5 points attachment use tubing code B. If using 5 points attachment upper frame rail must be tubing A1.
- #2. If over 457 mm (18 inches), dimension A becomes B, and C becomes A1.
- #3. If an X or K is used then E1, otherwise E.
- #4. If lower frame rails transition onto back brace uprights, must include a tubing code D1 crossmember between back brace uprights (rear seat crossmember), min. 127 mm (5 inches) max. 254 mm (10 inches) above upper frame falls.



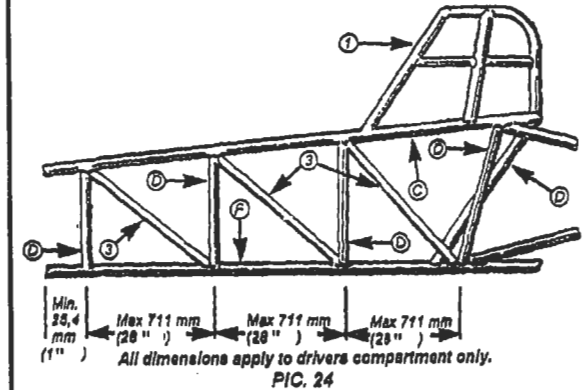
REAR VIEWS ALTERED TYPE-1, FUNNY CAR AND DRAGSTER



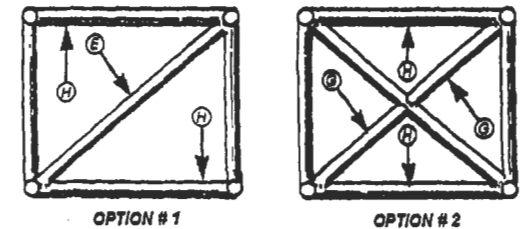
FRONT ENGINE DRAGSTER



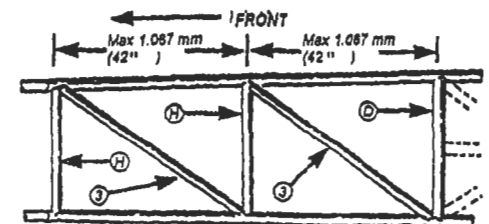
REAR ENGINE DRAGSTER



FRONT VIEWS REAR ENGINE DRAGSTER

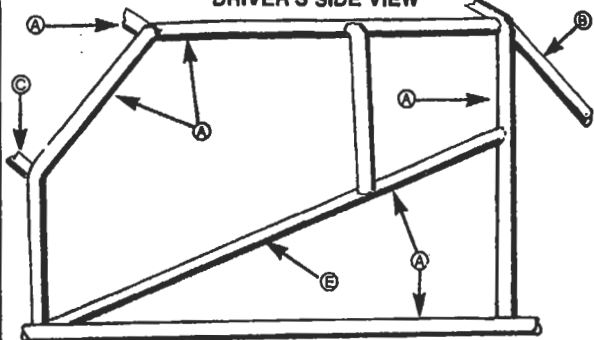


BOTTOM VIEW REAR ENGINE DRAGSTER



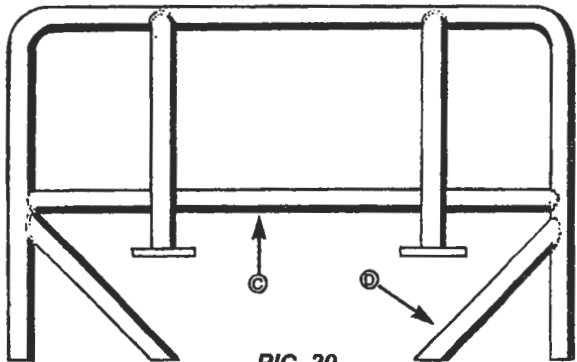
FULL-BODIED CARS

DRIVER'S SIDE VIEW



PIC. 19

REAR VIEW



PIC. 20