

# *2017 Stafford Speedway Late Model Division*

## *X-Y-G Tube Frame Rules*

The 2017 SMS Late Model Metric rule book will be enforced, with the following changes and/or additions for the XYG mandrel bent aftermarket chassis.

**20F- 1 COMPETING CHASSIS-** The only approved frame will be the mandrel bent X-Y-G tube frames, as manufactured, with no modifications, by Johnson Chassis (Part # JCI 09-011) or Hamm's Welding (Part **REQUIREMENTS#** GHC-08).

### **20H – 11.2 FRAME**

The only approved front clip assemblies are the Johnson or Hamm manufactured mandrel bent sub-frames. Johnson or Hamm mandrel bent rear clips, or conforming mitered rear clips are permitted.

**All vertical measurements are taken on 5" ride height blocks.**

#### **A. Main Frame**

(1) A tubular magnetic steel frame must be used. Offset frames will not be permitted. The main frame side rails must be parallel and be an equal distance from the centerline of the frame. The main frame side rails must be the same size (left and right, height and width), constructed using a single tube, and must be magnetic steel box tubing three (3) inches in width by four (4) inches in height with a minimum wall thickness of not less than 1/8 inch meeting ASTM A-500 specification. The main frame side rails start at a distance of 20 inches forward of the rear axle centerline and extend forward a length of 66 inches. When measured from the outside of the left frame rail to the outside of the right frame rail, a width of 54 inches, plus or minus (+/-) 1/2 inch, must be maintained. The distance from the outside edge of the main frame side rails, left and right, must be the same, measured from the centerline of the tread width, front and rear.

(2) Sub-frame kick outs must be constructed using a single tube and must be magnetic steel box tubing three (3) inches in width by four (4) inches in height with a minimum wall thickness of 1/8 inch meeting the ASTM A-500 specification. The sub-frame kick-outs must turn in 90 degrees to the main frame side rails and be welded to the inside ends of the main frame rails. The open ends of the sub-frame kick-outs must be closed by welding caps on the ends or bolting weight containment caps. The distance from the front of the front kick-out to the rear of the rear kick-out must be 66 inches. The front kick-out must measure 86 inches from the rear axle centerline.

(3) A crossmember constructed of magnetic steel box tubing, two (2) inches by two (2) inches with a minimum wall thickness of 0.083 inch meeting the ASTM A-500 specification, must be welded between the main frame side rails at a distance of 48 inches from the rear axle centerline.

(4) All frames must have diagonal cross bracing constructed of a minimum one (1) inch by one (1) inch by 0.065 wall thickness tubing.

(5) All crossmembers and diagonal bracing must be installed flush to the top of the main frame side rails. Center of crossmembers a maximum width of 12 inches may be dropped for driveline clearance. No part of the crossmembers or diagonal bracing will be permitted to extend lower than the main frame side rails.

(7) If the optional tubular metric frame is used, the center to center dimension of the main roll bar #1 and the rear axle must be a minimum of 23-1/2 inches.

#### **Rear Sub-Frame**

(1) The rear sub-frame rails must be configured and attached in the same location on the left side and right side to the sub-frame kick-outs four (4) inches in from the outside edge of the main frame rails.

The rear sub-frame when measured from the outside edge of the left sub-frame rail to the outside edge of the right sub-frame rail must measure 46 inches, and this width must be maintained for the entire length of the sub-frame. The rear sub-frame must angle rearward and upward at an angle between 45 degrees and 50 degrees to a maximum height of 22 inches from the ground (on five (5) inch blocks), then angle rearward parallel to the main frame rails a maximum distance of 16 inches, then angle down to a minimum height of 11 inches and a maximum height of 14 inches from the ground. The rear sub-frame must be constructed using magnetic steel box tubing, two (2) inches in width by three (3) inches in height, with a minimum wall thickness of 1/8 inch and must be similar in design and configuration to standard OEM automotive rear kick-ups.

(2) The rear sub-frame tail section must extend rearward at a minimum height of 11 inches and a maximum height of 14 inches, to a maximum length of 38 inches from the centerline of the rear axle. The rear sub-frame tail section side rails must be parallel to the main frame side rails and have a minimum length of 24 inches. The rear sub-frame tail section must be constructed using magnetic steel box tubing two (2) inches in width by three (3) inches in height with a minimum wall thickness of 0.083 inches.

(3) The rear sub-frame must incorporate the mounting locations for the rear springs, shock absorbers, panhard bar, and fuel cell, ending with a crossmember constructed of magnetic steel box tubing two (2) inches in width by three (3) inches in height with a minimum wall thickness of 0.083 inches a maximum length of 38 inches from the centerline of the rear axle.

(4) A reinforcement bar, made from round magnetic steel tubing, minimum 1-1/2 inches in diameter with a minimum wall thickness of 0.083 inches, must extend below the rear sub-frame section behind the fuel cell. This reinforcement bar must be as wide as the rear sub-frame rails and extend as low as the bottom of the fuel cell with two (2) vertical uprights evenly spaced between the sub-frame rails and attached to the rear crossmember. Two (2) support bars, one (1) located on each corner, must angle upwards and be welded to the rear sub-frame side rails. (See the Construction Guidelines in the rear pages of the Rule Book)

(5) Weight containers, if used, must only be attached to the inside of the frame rails and must not be lower than the bottom of the frame rails.

(6) The back of the rear sub frame from the center line of the rear end may be mitered to conform to the rules stated above. (This will be the only mitered section allowed, excluding the front radiator support.) After the car is built, if the rear sub-frame has to be repaired, a mitered section will be allowed.

## **FRONT SUB-FRAME**

The front sub-frame must be constructed by the following guidelines:

All vertical measurements are taken on 5" ride height blocks.

Many Dimensions will come from a front frame kick-out that is eighty six (86) inches from the rear axle centerline constructed of three (3) inches wide by four (4) inches magnetic steel tubing with a minimum wall thickness of 0.125 inch meeting ASTM A-500 specifications. The GM-METRIC TUBULAR mainframe width will be an O.E.M. dimension of fifty four (54) inches from the outside of the left frame rail to the outside of the right frame rail and a length of sixty six (66) inches starting at a point eighty six (86) inches forward from the rear axle centerline constructed using three (3) inch wide by four (4) inch high magnetic steel tubing with a minimum wall thickness of 0.125 inches.

(1) A GM-METRIC type front steer tubular front sub-frame must be constructed using two (2) inch wide by four (4) inch high magnetic steel tubing with a wall thickness of 0.125-inch meeting ASTM A-500 specifications. The front sub-frame rails must be parallel to each other both vertically and horizontally. The front sub-frame rails must be parallel both vertically and horizontally to the mainframe rails from the jack bolts forward. All front steer assemblies must maintain a dimension of 31 inches from the center of the left side frame rail to the center of the right side frame rail at a point from the jack bolt extending forward in front of the steering assemblies. Spring bucket and jack bolts may be

cut into left side and right side frame rails. Top of spring buckets will maintain a vertical height of 15-1/4 (+/-) 1/2 inch. Jack bolts will maintain a centerline distance of 33- 1/2 (+/-) 1/2 inch measured at top of spring bucket from left side to right side and be located equal distance from centerline left and right. A distance of 21 inches (+/-) 1/4 inch must be maintained from the front frame kick-outs forward to the jack bolts centerline. Jack bolts will be allowed a maximum angle of five (5) degrees from vertical. The front sub frame rails may angle outwards and downwards from the jack bolts to the front frame kick-out to a maximum distance of 41 inches. If frame rails are angled outward a wishbone made from round magnetic steel seamless tubing 1-1/2 inch by .083 minimum wall thickness meeting ASTM A-519 specification must extend from dash bar #8 to an area at the rear lower a-frame mount and continue to connect at an intersection of roof support bar #12 and diagonal bar # 7A. The front frame extensions using two (2) inch wide by three (3) inch high minimum wall thickness of 0.083 inch magnetic steel tubing meeting ASTM A-500 specifications must angle out and forward and extend a distance of twelve (12) inches forward of the forward most top steering box bolt to a minimum distance of 33 inches from the center of the left side frame rail extension to the center of the right side frame extension. This forward top steering box bolt will be a horizontal distance of 39 inches from the front frame kick-out and a vertical height of 15 inches (+/-) 1/2 inch. (Steering box bolt location will be inspected with a fixture that will read zero (0) degrees with the frame on five (5) inch ride height blocks). At a point four (4) inches in front of the top steering box bolt a two (2) inch wide by four (4) inch high magnetic steel tubing with a minimum wall thickness of 0.125 inch meeting ASTM A-500 specification must extend rearward a distance of 34 inches then angle down 30 degrees to the front frame kick-out. A distance of 24 1/2 (+/-) 1/8 inch must be maintained from the front of the sub-frame kick-outs to the center of an O.E.M. three quarter (3/4) inch pin boss located on the mainframe centerline at the front of the front sub-frame crossmember. O.E.M. pin boss will be used for locating inspection fixtures. The front sub-frame crossmember must be mounted at the centerline of the front sub-frame at a 90 degree angle to the main frame side rails against the back of the 3/4 inch pin boss and be constructed using two (2) inch high by four (4) inch wide magnetic steel tubing with a minimum wall thickness of 0.125 inches meeting the ASTM A-500 specifications. A minimum thickness of one hundred thousandths (0.100) 12ga. magnetic steel must be used to construct the remainder of the front sub-frame crossmember. The front mounting points for the front lower a-frames must be constructed using a minimum 3/16 inch thickness magnetic steel. The front mounting points for the front lower A-frames must be 9- 3/8 inches, measured from the centerline of the front sub-frame to the centerline of the mounting bolt at the front side of the mount and a vertical height of seven (7) inches (+/-) 1/4 inch. The rear mounting points for the lower A-frames must be constructed using a minimum 3/16 inch thickness magnetic steel. The rear mounting points for the lower A-frame must be 13 inches (+/-) 1/4 inch measured from the centerline of the front sub-frame to the centerline of the mounting bolt at the rear side of the mount and the vertical height will be 6- 7/8 inches (+/-) 1/4 inch. Adjustable insert slugs may be used on the rear mounting bolt to maintain a distance of 22 inches (+/-) 1/2 inch from the center of the lower ball joint to the leading edge of the mainframe side rail and kick-out. A 1/2 inch round by 15 inch long solid steel pin must pass freely through these points during inspection. When measuring either the right side or left side the distance from the centerline of the bottom ball joint to the centerline of the sub-frame must be equal. The mounting plates for the upper A-frames must be welded to the top of the sub-frame rails and be parallel with the centerline of the sub frame rails. A distance of 37 inches will be maintained from the top idler arm bolt centerline to the front frame kick-out with a vertical height of 14 inches (+/-) 1/4 inches. The GM-METRIC tubular replacement mandrel bent front clip subframe must weigh a minimum of 95 lbs. A bare front sub-frame must be submitted to SMS Officials for weigh in and approval. Front sub-frame must be acceptable to SMS Officials before it can be used in competition.

**(2)** The only approved Front-sub frames are Johnson Chassis Part # JCI 09-011 and Hamms Welding Part # GHC-54108.

**NOTICE** - Competitors are solely and directly responsible for the safety of their race cars and racing equipment and are obligated to perform their duties (whether as a car owner, driver or crew members) in a manner designed to minimize to the degree possible the risk of injury to themselves and others.