



## Full-Size Rising Stars Division Car Building Rules

Sanctioned by D.E.M.O.

[www.demo-motorsports.com/](http://www.demo-motorsports.com/)

### Competition Format

(15) Two-man teams in 1 heat.

### Car Choice

Any American made RWD sedan or station wagon, including imperials. (All cars must be fresh)

### General

All welds on the car can be a maximum width of ½ inch wide single pass only. No clipping or re-stubbing of frames will be permitted.

### Front Frame

No frame shaping will be permitted. Front frame rails may be shortened to the front of the core support mounting hole unless otherwise stated. The entire hole must be visible and cannot be cut into in any way. Chryslers/Cadillac's cannot be shortened at all. The Y's can be closed by pulling the outside part of the frame in applicable cars.

Upper frame seams (exterior only) can be welded from firewall forward. (1) single bead that is maximum of ½ inch width. Seam welding is limited to main frame seam only. Do not weld brackets for suspension or engine saddle seams. Engine saddle can be plated with (9) inch by (9) inch by (¼) inch thick plate where engine mounts on the top of the saddle. This plate must be 1 inch away from all side rails. All cars get 1 tilt in 1 direction. Frame rails cannot be cut apart and narrowed and then re-welded in any section of the rail. Frame locators that locate the two halves must be visible. Width measurements will also be taken and compared to factory dimensions. A-arm brackets and a-arms cannot be moved from factory locations.

### Center Frame

No frame shaping will be permitted. No modifications on center rails beyond what is allowed to mount crossmember and seam welding stated in front frame section will be permitted.

### Rear Frame

No frame shaping will be permitted unless otherwise stated. No welding of frame seams anywhere. Rails cannot be squeezed together or narrowed. Rails will be measured from side to side and compared to factory measurements. The top of the rails can be dimpled or cut for bending purposes only and cannot be re-welded.

## **Front Suspension**

A-arms must be OEM factory from passenger car origin. A-arms are interchangeable but must be a direct bolt on to factory configuration with no modifications. No aftermarket coil springs, or coil spring spacers allowed. Only 1 coil spring allowed per pocket.

One inch all thread can replace the factory shock. (1) piece of all thread per shock. (4) nuts and (3) washers per all-thread piece. Nut and washer on lower a-arm can be welded. Measurement for lower a-arm washer is 5 inches by 5 inches by  $\frac{1}{4}$  inch thick (or 5-inch round). Top nut and standard or  $\frac{1}{8}$ " equivalent, store bought (1) inch washer with (3) inch diameter can be welded. No welding on bottom a-arm other than nut and washer for all thread shock, ball joint rings, and bump stops for spindles. Bump stops can be no larger than (2) inches by (2) inches by  $\frac{1}{4}$  inch thick box tubing and cannot be longer than (2) inches. Upper a-arm can have strapping to weld arm down. You are permitted (4) A-arm straps. (2) per lower and (2) per upper. On the upper you are permitted to have one strap on front side toward bumper and one strap on back side of a-arm toward driver. Measurement of flat strap can be (2) inch wide,  $\frac{1}{4}$  inch thick, and (4) inches long. No parallelograms. Upper A-arm strapping must follow contour of arm on front and back sides going down to ball joint. A-arms cannot be moved from factory location. Towers and brackets cannot be moved, welded, or altered.

## **Steering**

Unless stated in rules, steering components must be of factory car origin, remain stock and mount in factory location. You may use an adapter plate, but it cannot strengthen the car in any way. No aftermarket spindles are allowed. Spindles must be stock OEM car spindle. The spindles may be reinforced with (1) piece of 1.5-inch-wide x  $\frac{1}{4}$  inch thick plate from stem to stem. Aftermarket hubs and spindle nuts are permitted. Aftermarket ball joints and rings or Heim joints are allowed and can be welded to upper and lower a-arms. King pin set ups will not be permitted. Ball joint rings only are permitted. Rings can be a maximum of 3 inches tall, 3 inches in diameter  $\frac{3}{8}$  inch thick. These cannot be welded to the spring pocket. Aftermarket tie rods are allowed but must mount in factory manner. No big chief tie rods. Idler arms may be welded with (2) 1-inch welds. Sway bars must be located in factory position on the frame and bolted only. You can heat and bend the sway bar and connect it to the lower a-arm using 1 bolt per lower a-arm ( $\frac{1}{2}$  inch bolt max) with 2 standard  $\frac{1}{2}$  washers and nuts.

## **Rear Suspension**

Coil spring cars – any OEM automotive car coil spring is permitted. Coils springs can be wired or chained to rear end and package tray (nothing excessive). Factory shock can be replaced with 1 inch all thread. (1) piece of all thread per shock permitted. All thread can run through the body and act as a body mount, but all thread must run through coil spring and exit through factory hole on package tray. Coil spring must line up with axle tubes. All-thread may only extend 6 inches above the package tray. Rear-end must mount in factory 4-link configuration. Control arms can be replaced with maximum 2-inch wide by 3 inches tall by  $\frac{1}{4}$  inch thick box tubing. Watts link conversion is allowed for any coil sprung sedan. Upper brackets must be no larger than 6-inch-tall and (12) inch wide by  $\frac{3}{8}$  inches thick material and must be two separate brackets. Each bracket can be attached with (4)  $\frac{5}{8}$ -inch bolts max. Lower arm be located in the factory location (You may reinforce this bracket with  $\frac{1}{8}$  inch plate), or you can use a female box and relocate the box to the inside of the box (towards the drive shaft) and bolt it using (4)  $\frac{5}{8}$ -inch bolts max. This female box can be a maximum of 3x4 inches and  $\frac{1}{4}$  thick plate. Control

arms must be no longer than factory length but may be shortened. No leaf spring conversions for coil sprung cars permitted.

Leaf spring cars – leaf's must remain factory springs. Springs can be a maximum of 5/16 inch thick and no wider than 2 ¼ inches; all springs having (1) inch stairstep down. Maximum of (7) total springs total permitted, with main leaf being on top of spring pack. Eyelets on the main spring must be factory configuration. Leaf springs must mount as they did from factory and cannot be re-located. Shackles can be replaced with ¼ inch replica but must remain as a factory working shackle. Rear-end must be on top of main spring. A total of (4) clamps per side can be used. (Plates or weld on clamps) If using plates for clamps, the plates cannot exceed 3 inches by 4 inches by 1/4 inch thick and can only have a maximum of (2) bolts per clamp. The plates cannot connect to frame in any way before and/or after show. Only one center pin maximum ½ inch is permitted. Shocks can be replaced with 1 inch all thread and can run through frame / body in factory location. (1) piece of all thread per shock location permitted. Rear-end mounting pads not to exceed 12 inches in length.

### **Wheels and Tires**

Any tire and wheel combo permitted. Outside/Inside bead locks rings cannot be wider than 2 inches. Solids are permitted. No foam filled tires permitted on the rear of any car. Bead lips and valve stem protection is permitted. (Wheel and Tires combo subject to change depending on if we run on asphalt or dirt)

### **Front Bumper**

**(Only)** Factory OEM front car bumpers allowed. No aftermarket or homemade bumpers will be permitted. These bumpers are not permitted to have any embellish points or slants period. The bumper may be seam welded only with the outer skin being beat down to the inner skin only. No sharp or jagged edges allowed anywhere on bumper for safety reasons.

See below for mounting:

Remove factory shock and/or bracket completely and replace with a contoured or flat plate welded to one side of the frame only. Measurements for plate are to be maximum (3/8) inch thick by 4 inches wide and 14 inches long. Plate cannot be folded over to sides of frame and must touch backside of bumper. Plate can be cut to follow contour of frame. Also, a (2) inch wide by (¼) inch thick by (8) inch long flat strap can be welded to bottom of frame. These plates must touch the bumper and run straight back. Core support bolt can run through this strap if applicable. No part of the front bumper can be behind the front of frame toward driver. May use a 6x6 inch x ¼ inch plate to make a flat mounting surface on the back of the front bumper, where it would be welded to the frame.

Maximum height will be (20) inches from ground to bottom of the bumper.

### **Rear Bumper**

**(Only)** Factory OEM automotive rear car bumpers allowed. (Must be 5 inches tall). The bumper may be seam welded only with the outer skin being beat down to the inner skin only. Bumpers are to be hardnosed to the frame only. No aftermarket brackets may be used.

No sharp or jagged edges allowed anywhere on bumper for safety reasons.

See below for mounting:

Bumpers must be mounted in the factory location on all makes and models. Wagons are not permitted to relocate rear bumper to the frame. If you choose to run the factory bracket, it must remain in the factory location and you can weld up 8 inches (continuous) to the frame. The 8 inches is measured from the bumper going towards the hump. Remove all factory brackets and/or shocks and hardnose rear bumper to frame. A maximum (4) inch wide, by (3/8) inch thick, by (14) inch long flat plate can be welded on any side of the frame. This plate can be welded to 1 side of the frame only. The (8) inch strap must connect to the rear bumper. You can also add two additional (2) inch wide, by (3/4) inch thick, by (4) inch long straps (2 per mounting location). Sheet metal can be moved to hardnose bumper but cannot be rewelded beyond rules stated in the trunk. Quarter panels cannot be shortened beyond what is necessary to mount bumper. No part of rear bumper can be in front of the back of frame toward driver. No frame rails can be shortened at all.

The minimum height from ground to bottom of bumper will be (14) inches. Wagons will be measured 14 inches to the frame at the very end of the frame rail behind the shackles.

### **Body Mounts**

You may weld (1) 3-inch round by 1/8 inch thick washer with a 1-inch center hole for your body bolt per factory body bolt hole. (Maximum 1/8" thick) Maximum bolt size is (5/8) inch diameter and (6) inches in length. Washers for body bolts can be no larger than (4) inches by (4) inches by (1/4) thick. Body bolts cannot be moved from the factory location for any reason. Bolts must start in the factory location on frame and can be run through the body and be secured on top with a washer and nut. No extra body mounts permitted for any reason. The body bolt directly behind the rear humps can be threaded rod and may run all the way through the trunk. Fire wall body bolts can only stick up a 1/2 out of a single nut. Core support mounts can run from bottom of frame through the core support and can act as (2) of the 8 hood mount locations. Maximum of (4) nuts and washers per core support mount permitted. Nuts and washers can be welded if desired on core support body mount only. Washers on core support body mount are 3 inch round washer by 3/4 thick. -A maximum of (2) nuts and washers for all other body mounts permitted and must be free floating. All body mounts with the exception of the core support locations, must have a 1-inch-tall spacer between the frame and body. The maximum size for the spacer is 3-inch diameter or 3 inch by 3-inch square and must be free floating. Body spacers are allowed to be threaded.

### **Cage/Gas Tank Protector/Halo Bar**

No cage component, including halo bar, can be larger than 4-inch material (round or box tubing) with the exception of your (2) side bars which can be 2x6-inch max. Side bars can be 68 inches max length and are not permitted to be any closer than 4 inches to the wheel tubs. If you stack cage material it must conform to all cage specifications and when stacked cannot exceed the max allowed measurement when added together. No cage component can be contoured or rounded. A 4-point cage surrounding the driver consisting of (1) dash bar, (2) side bars and (1) rear seat bar is permitted. The dash bar must be minimum 5 inches away from the firewall and 5 inches above the topside of the transmission tunnel.

The only connecting point for cage can be a-pillar, b pillar, and down legs. You are permitted up to 2 down legs (1) per side. Down legs can have a maximum size of 2x3 inch  $\frac{1}{4}$  material. These down legs must be vertical and must run off of the side bars and can only be welded to the top side of the frame. Your down legs cannot go any further forward than the front interior door seam or must remain entirely in front of the rear body bolt before the hump. A 10 by 10 inch by  $\frac{1}{4}$  inch thick plate can be added to the b- pillar only to assist with attaching cage to body (no added metal to a-pillar mount permitted). The bar behind the seat must be no farther back than the kick panel. You may have a center bar connecting the rear bar and dash bar. The center bar cannot extend behind the rear bar or in front of the dash bar and must be at least 4 inches above the topside of the transmission tunnel.

A 32-inch-wide gas tank protector may be added and must be centered in the car. Must be 3 inches off the floor measured from the body bolt height. The gas tank protector cannot attach to package tray in any way. Sheet metal in-between the gas tank protector and package tray cannot be removed.

A Halo bar is mandatory but must attach to the top of side bars only. The halo bar may be max 4-inch material. The halo bar has to be vertical coming up from side bars and must run straight across roof side to side. Extensions to bolt halo to roof can be no longer than 2x2 inch by 6 inch long by  $\frac{1}{4}$  inch max. Maximum of (3). Cage, gas tank protector, and halo bar can have (1) gusset per corner; maximum length 30 inches. Gussets are considered a cage component and must adhere to the size limitations. Any material protecting the gas tank must be vertical and cannot extend upward more than 5-inches above the tank. No cage component can be farther back than where the gas tank protector meets package tray on coil spring cars. Gas tank protector cannot be beyond the body centerline of the rearend for leaf spring cars.

### **Interior Bolt Ins**

Aftermarket components for controlling the car are allowed. However, no interior component including pedals, battery box, and steering column may strengthen the car in any way. Mounting of these components may not attach to, or be within 2 inches of the frame, crossmember, and/or body bolts. Transmission coolers are allowed but cannot be mounted in a way that strengthens the car. Fuel cells and batteries must be safely mounted (2 batteries max). All bolt ins cannot extend beyond the floor where your feet are or under the seat.

### **Doors**

Shaping of sheet metal on doors is allowed but sheet metal cannot be doubled over and / or welded. Doors can be welded 5-inches on and 5 inches off, on the outside of car only by using 3x5 inch wide by 1/8-inch-thick strapping. Both front doors can be reinforced with 3/16-inch-thick metal on the outside and inside. Driver's door reinforcement is mandatory. The outside door skin cannot extend more than 3 inches from the front factory door seam or rear door seam in any direction. The inner door skin can be welded from the rocker to the top of the door. Driver and front passenger door only is permitted. Inner and outer door can be welded together on topside only on all doors. Metal to achieve this must be 3 inch wide by  $\frac{1}{4}$  inch thick strap maximum.

## **Quarter Panels**

Quarter panels can be bolted together using (5) 3/8-inch bolts with 1 inch diameter washers. Front and rear quarter panels can be creased. Shaping of sheet metal on quarter panels is allowed but sheet metal cannot be doubled over and / or welded. Absolutely no metal may be added to quarter panels. Bottoms of quarter panels may be folded up to trunk pan and can be attached in (3) locations by using 3/8-inch bolts and 1-inch outer diameter washers or 1-inch-long welds. Quarter panels must remain vertical. It is understood the shaping of sheet metal affects the vertical appearance. The top quarter panels cannot be pushed any farther than the inner edge of frame rail on the same side of car. The top of the quarter panel must measure 10-inches tall from the body bolt elevation. This measurement will be taken at the top of the quarter panel above taillight area. You will be permitted to completely remove quarter panel sheet metal (all except the floor pan) if you desire. This would resemble the half trunks on a Cadillac. The remaining upper portion of the quarter panel must slope upward toward base of c-pillar. The bottom of the quarter panel can be pushed in until it meets the trunk floor. The trunk floor cannot be narrowed, squeezed, or cut and rewelded. Trunk floor is defined by the entire width of the horizontal floor in trunk area. (Call if you are uncertain)

## **Trunk**

Speaker decks can be removed. The trunk lid must be from the same make of the car and must be trunk lid. No metal may be added to trunk lid or rain channel. (2) 8 by 8-inch holes must be cut in the trunk lid for inspection purposes. Holes must be over body mount area behind humps. The backside of the rear wheel tubs and all body mounts inside trunk must be accessible and visible during inspection. The Trunk lid must mount in factory location but can be contoured down toward top of the package tray without exceeding quarter panel rule. Bolts for hinges must be factory size but can run through the top layer of trunk lid and be secured with washers/nuts with the washer being no larger than 1-inch outer diameter. Trunk can be attached to car by welding 5 by 5 inch by 1/8-inch-thick plates on exterior trunk seams only. The 5 inch on, 5 inch off, method will be utilized. Station wagon tailgates must remain in the factory location but can be lowered into the box if applicable. Attaching tailgate to car must be done in the same manner as a trunk lid; 5 inch on and 5 inch off on the exterior only. Trunk floor cannot be narrowed, squeezed or cut and rewelded. Trunk floor is defined by the entire width of the horizontal floor in the trunk area.

Coil spring cars can have one extra body mount per rail in trunk area. A maximum of one inch diameter for all thread may be used. All thread can weld to frame but must be in-between trunk body mounts and remain straight up and down. Four standard nuts and four 3-inch washers may be used per side. Nuts and washers can be welded. Nuts and washers must be standard size and located on all thread as intended. All thread cannot be sleeved with any additional material. The maximum length on all thread is 30 inches long.

## **Hood**

Hood must be off for inspection but will be a part of the inspection process. No metal may be added to hood for any reason, except (8) 3-inch round by 1/8 thick washers welded on top of hood for hood bolts. Access holes and/or exhaust holes may be bolted back together in a total of (12) locations by using 3/8-inch bolts and 1-inch outer diameter washers or 1-inch-long welds. Hoods can be secured to the car in (8) locations. Your core support bolts will be considered (2) of the (8) locations. Factory hinges will be

considered (2) of the (8) locations if used. Bolts to secure hood cannot exceed 1-inch diameter and 6 inches tall. Bolts can be welded to fender and/or firewall. A 5x5 inch by ¼ inch thick plate can be added to each bolt location to assist with welding bolts to fender or firewall. Plate may be folded into an angle if desired. Washers to secure hood cannot exceed 5x5 inches by ¼ inch thick. All hood bolts must be outside of the exhaust tube width.

### **Firewall**

No modifications other cutting a section out for distributor clearance and/or welding hood bolts on to secure hood per the rules. No rewelding factory firewall seams or adding metal allowed.

### **Drivetrain**

Any automotive engine and transmission are allowed. Aftermarket driveshafts are allowed. Any rear-end is allowed. Bracing for the rear-end cannot extend more than 13 inches in any direction from center line of rear-end. Bracing cannot extend more than 5 inches from the center line of rear-end on the last 12 inches on ends of rear toward tires. Rearend/Pinion brake protectors cannot be tied in the frame or gas tank protector in any way. Crossmember can be factory or a 2x2 inch tube. Cross member must mount in factory location and must be straight across. Angle iron to mount cross member can be no larger than 3x3 inch by (¼) inch thick angle iron and no longer than 6 inches. Cross-member must touch angle iron.

The engine and transmission mounting are addressed below.

A lower engine cradle with a front plate, pulley protector and carb protector will be permitted. Carb protector must be inside of the heads and may not extend any further back (towards driver) than the back of the carb. Factory style aftermarket rubber motor mounts are permitted. The pully protector may be a maximum of 14 inches and not encounter the sway bar or be used to strengthen the car in any way before or during the event. Aftermarket steel bells and steel tail housings are permitted.

The mount on crossmember can be no wider than 10 inches and must be centered on crossmember.

### **Window Bars**

Front Window Bar – You are permitted (1) 2x2 inch by ¼ inch wall tubing that must attach to the top side of the dash bar and your halo bar only. No part of the tubing may extend past front or rear of the dash bar.

Back window Bar – You are permitted (1) 2x2 inch by ¼ inch wall tubing attached from the roof to the top of the trunk lid at the trunk and speaker deck seam.

The tube in the back window can only be attached 6 inches onto roof (the first 6 inches of the roof line) and 6 inches on trunk lid. You may use a 6x6 inch by ¼ plate to assist with welding your bar on the roof and trunk lid. These two pieces must touch. The 5 inches connected trunk lid must start at trunk seam by speaker deck and can run back toward rear bumper. The tubing cannot extend beyond what is welded. The back bar cannot come within 4 inches of the gas tank protector in any way.

## **Core Support**

Core support cannot be moved from factory location and must line up with factory body mount hole on frame. (Neither can be moved) Expanded metal (1/8 Inch max) or radiator guard (1/8-inch max) can be as tall as core support and as wide as the core support mounts. Expanded metal/radiator guard must be mounted directly in front of radiator. Expanded metal/radiator guard can be attached to core support in (8) spots with 1-inch welds or 3/8-inch bolts and 1-inch outer diameter washers. The radiator must mount in factory core support tray and can have only (4) mounting locations top and bottom. You can use a maximum of (4) ½ inch diameter pieces of threaded rod to mount radiator. You can also use 2-inch-wide strapping 8 inches long to assist with mounting. The mounts for radiators cannot strengthen core support in any way. Core support seam welding will be limited to a total of 16 inches. Seam welds can be placed anywhere on the core support including welding fenders to the core support. Core support spacers can go to the bottom of the core support, only. Spacer material cannot exceed 3 inches by 3 inches by ¼ inch thick square tubing. Tubing can be welded to the top side of frame or factory bracket (depending on make/model of car) and core support only. 1 inch all-thread can be used within the core support spacer to then extend from the spacer through the hood and act as 2 of your hood bolts. If your all-thread does not come up directly through the core support, then you can use (1) 3x6 inch by 1/8 thick flat plate to be welded to the top of the core support. Maximum 3 inches of the strap can be welded to the top of the core support.

## **Rust Repair**

Rust repair is limited to the top side of the body including pans/window lips/vinyl tops. Rust cannot be removed, and any rust repair must be the same thickness and have a maximum 1-inch overlap. No seam welding will be permitted. No rust repair on frames will be permitted. If you have any questions, you must contact the head inspector first.

## **03 and Newer**

You must use the factory rack and pinion with no steering box conversions. You may use a bolt in steel cradle, examples are a Grey Area or a Budde Cradle to mount your engine. This cannot replace your factory aluminum cradle, as it must stay. You also must use the factory-style rubber mounts. The cradles must attach with one bolt through each aluminum tower and must remain ½ away from the side rail. You may use aftermarket tie rods. Struts, spindles and A-arms may be swapped out for direct bolt-ons.

## **Patch-It Plates/#9 Wire**

All plates allowed after inspection must be purchased from D.E.M.O. at the event. Each car will be permitted (4) 6x6 inch by 1/8" plates prior to the show. Consi cars will be permitted (2) more plates. Feature cars will be permitted to have a total of (8) plates for all cars going into the feature. You can shape these plates. Anything you cut off you will lose. You will not be permitted to use these plates to touch or connect to the driveline or protector in any car. These plates cannot be removed once they have been welded on the car. Unlimited #9 wire may be used after the heat.