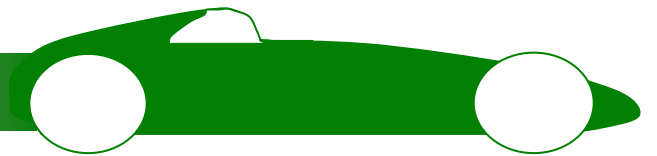


# ***MASTERS DIVISION*** **2011 Scottie Masters Car**



## **All-American Soap Box Derby**

**Please read plans completely before starting**

# MASTERS DIVISION PROGRAM

Welcome to this exciting experience known as Soap Box Derby Racing! The International Soap Box Derby, Inc. program is designed to be an enjoyable learning experience for both the adult *and* the child. The program provides an opportunity to develop mutual respect and trust while demonstrating the importance of individual pride and sportsmanship.

The Masters car is designed to be driven in a lay down position at all times for builders of a specific age range. The combined weight of the assembled car and the driver shall not exceed 255 pounds including the Z-Glas™ wheels. A combined weight of less than 255 pounds may be increased by the addition of owner provided weight.

The written rules, plans and regulations are designed for the participant to construct the car from a Masters Car Kit purchased from the International Soap Box Derby, Inc.

For rules and regulations, including eligibility and age range information, see the "Rule Book" available from the International Soap Box Derby, Inc. at <http://www.aasbd.org/about-us/rule-book.aspx>. The established rules, plans and regulations shall be applicable to all races and events and shall be taken into account as to all issues involving the construction of a car. By participating in these events, all participants are deemed to have consented to the rules and authority of person who shall enforce the rules.

**No expressed or implied warranties of any kind, including any warranty of safety, shall result from the publication or compliance with these rules, plans and regulations. In no event shall the International Soap Box Derby, Inc. be liable for any loss, indirect, special or consequential damages even if the International Soap Box Derby Inc. has notice of possibility of such damages. The International Soap Box Derby, Inc. makes no warranties, including any warranties of fitness for a particular purpose with respect to the publication or compliance with these rules, plans or regulations. In all situations, the rules and regulations promulgated by the International Soap Box Derby, Inc. shall govern and control over any conflicting provision in these plans.**

**Each participant understands and agrees that a prerequisite to competing in any Championship Race sanctioned by the International Soap Box Derby Inc. race in Akron, Ohio, that the racer and his or her car shall undergo and pass inspection conducted at Akron, Ohio by the International Soap Box Derby Inc. Each participant further understands and agrees that such inspection shall be conducted using the manner and methods deemed appropriate by the International Soap Box Derby Inc. in its sole discretion to determine compliance with the rules, plans, regulations, Spirit of the Rules and specifications applicable to that division and that the decisions of the International Soap Box Derby Inc. and its officials regarding qualifications and disqualification in compliance with the rules, Spirit, plans, regulations and specifications applicable to that division shall be final and binding upon all parties.**

## GENERAL ASSEMBLY GUIDELINES

A parent, guardian or mentor is expected to help in the construction of the car. The parent, guardian or mentor must *not* build the car for the child, but instead share this educational experience by being present and giving help only when and if necessary.

This plan booklet shall be followed when assembling your car. The hardware provided in the International Soap Box Derby, Inc. Masters Car Kit must be used and assembled as shown in the latest rules, plans and specifications. No changes, modifications or additions, other than the inclusion or omission of specified optional parts, shall be made to the car. All new and existing cars shall be updated to the latest set of rules and plans for the Masters division.

In the event there is any conflict between the written portions of this plan booklet and the pictures or diagrams, the written portions in all situations will control.

Replacement of all hardware, as well as optional parts, is available from the International Soap Box Derby, Inc. In general, replacement parts are sold in bags specified for each installation step of the car's construction and optional parts are available on a per item basis.

# HELP, GUIDANCE & SUPPORT

Questions or inquiries for clarification pertaining to the rules, plans and/or regulations shall be directed primarily to your Local Race or Regional Director. The International Soap Box Derby, Inc. also offers a web site at <http://aasbd.org> that provides additional assistance to the parent, guardian or mentor and child. The website contains links to useful information such as the latest rules and plans, ordering kits or parts online, race cities and their local directors, national and international regional directors, and frequently asked questions to name a few. In addition, this website allows you to join the mailing list to receive updates from the Derby Headquarters and/or participate in an online message board with other Derby enthusiasts!

If further explanation is needed, questions shall be directed to the International Soap Box Derby, Inc. **National Control Board**. All questions or inquiries for clarification shall be requested in writing, including the full name and contact information (address, phone number) of the participant, to:

Post Office Address: International Soap Box Derby, Inc.  
P.O. Box 7225  
Akron, Ohio 44306

Email Address: [SOAPBOX@AASBD.ORG](mailto:SOAPBOX@AASBD.ORG)

FAX: 330-733-1370

**Please note that a response to a specific participant's question may *not* apply to all other participants.**

**On the following pages please note bold type = change or clarification from previous plans**

## NOTES TO THE BUILDER:

1. It is the intent of the AASBD and National Control Board to establish standardized rules for this division. Do not read between the lines, that is where all the problems have appeared. If you cannot find the answer to your question in the following plans, send a letter, e-mail or fax to the AASBD office and **we** will answer your question promptly. Keep the AASBD response letter for future clarifications during inspection of your car.
2. Clarifications to any existing **rules** and specifications will be published on [www.aasbd.com](http://www.aasbd.com) and in the AASBD newsletter as they happen.

## SM-1.00 Body Dimensions:

- a. The minimum body circumference dimension of 36½" must be maintained. This measurement is taken directly in front of the hatch opening on the front portion of the shell from the bottom of the shell or floorboard on the left side over the top to the bottom of the shell or floorboard on the right side. Shell can not be dropped below the floorboard. (See Fig. 1.0)
- b. The AASBD Scottie floorboard original shape must be maintained without alterations.  
Exception: Cupping out the top of the floorboard for the driver's seat and or feet and the side notches may need lengthening to allow a proper fit of the shell to the floorboard.
- c. The height of the nose shall be 8 1/2" high and 4 ½" back from the front of the car - measurement is taken on the outside of the car (see figure 1.0). This verifies an unaltered shell. Notch your nose gauge for the screw in the nose of the shell. Do not include the screw and washer as part of the nose height measurement.

## SM-1.01 Length:

- a. Wheelbase must be a minimum 65" from kingpin to kingpin & spindle to spindle.

## SM-1.02 Driving Position

- a. The car body and floorboard must be built so that the driver has quick and easy operation of the steering wheel and brake and a clear view to the front. Your eyes must be on a level above the top of the cockpit hatch at all times. Your hips must be parallel to the ground. Your feet must be the forward most part of your body, when in a lay back position. You must steer with both hands on the steering wheel.

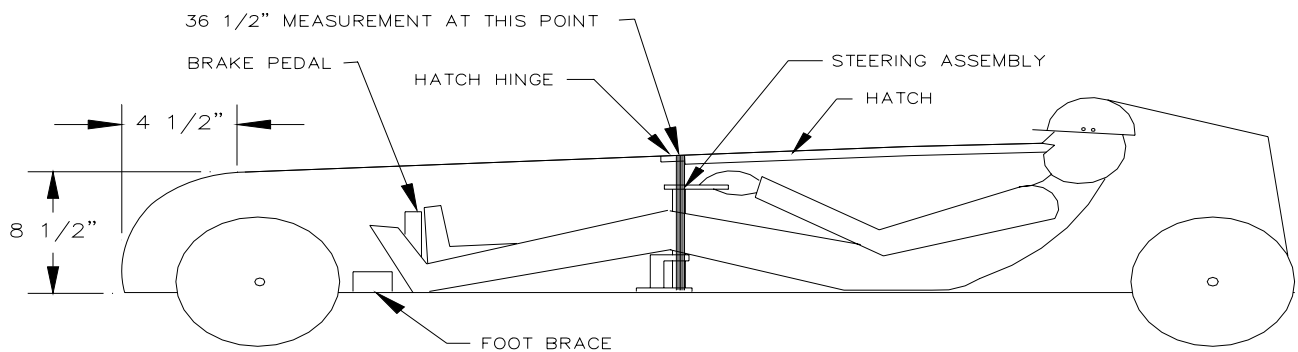
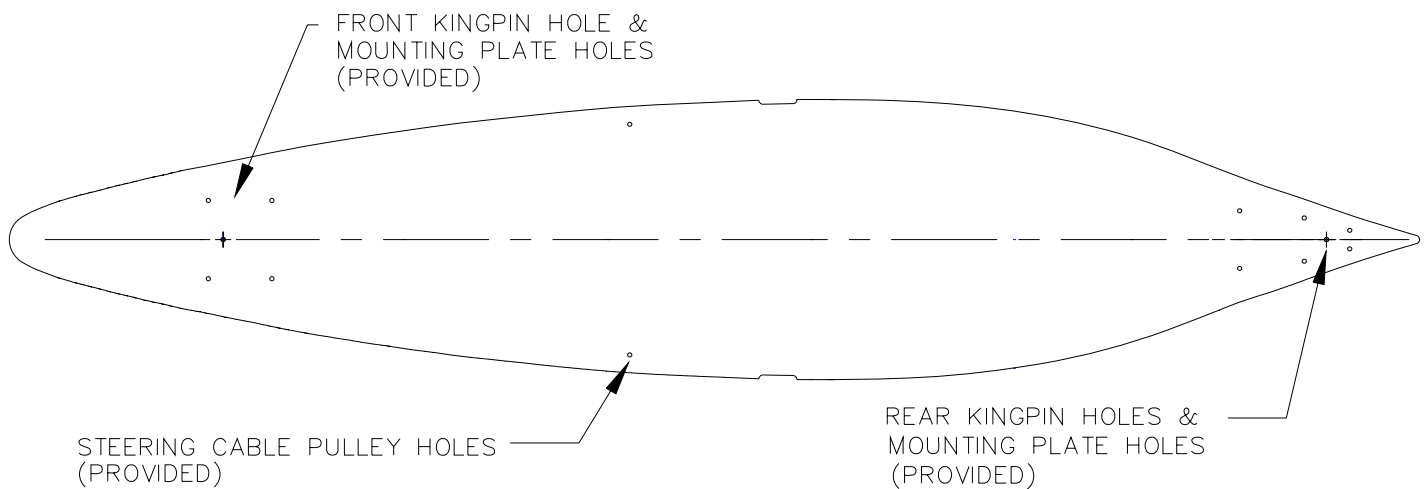


FIG. 1.0

## SM-2.00 Floorboard:

- b. AASBD masters floorboard provided with the kit will have the final shape, kingpin holes, steering pulley holes, and mounting plate holes drilled in the proper locations (see figure 2.0). **These holes can not be altered.**
- c. The **bottom** of the floorboard has a recess at the kingpins for the 1/4" N washer.
- d. The AASBD masters floorboard must be used without alterations. (Except for seat and feet area.)
- e. The top of the floorboard may be sanded or cupped out (maximum 3/4") for driver's seat and/or feet area.
- f. You cannot add to nor groove out bottom of the floorboard to incorporate wood, steel or other materials into the floorboard.
- g. No continuous plate is permitted in the car, steel or any other material.
- h. A nailer strip is NOT permitted.
- i. Rounding of the floorboard is NOT permitted.
- j. Holes for the weight plates and steering/brake assembly shall be drilled by the builder.
- k. The brake pad and plunger may be recessed into the bottom of the floorboard (see figure 6.1).
- l. **Floorboards purchased from 2010 on may only be coated with wax. Check the wax you use that it does not contain resins or oils.**

NOTE: Do not alter the profile of the floorboard as manufactured.

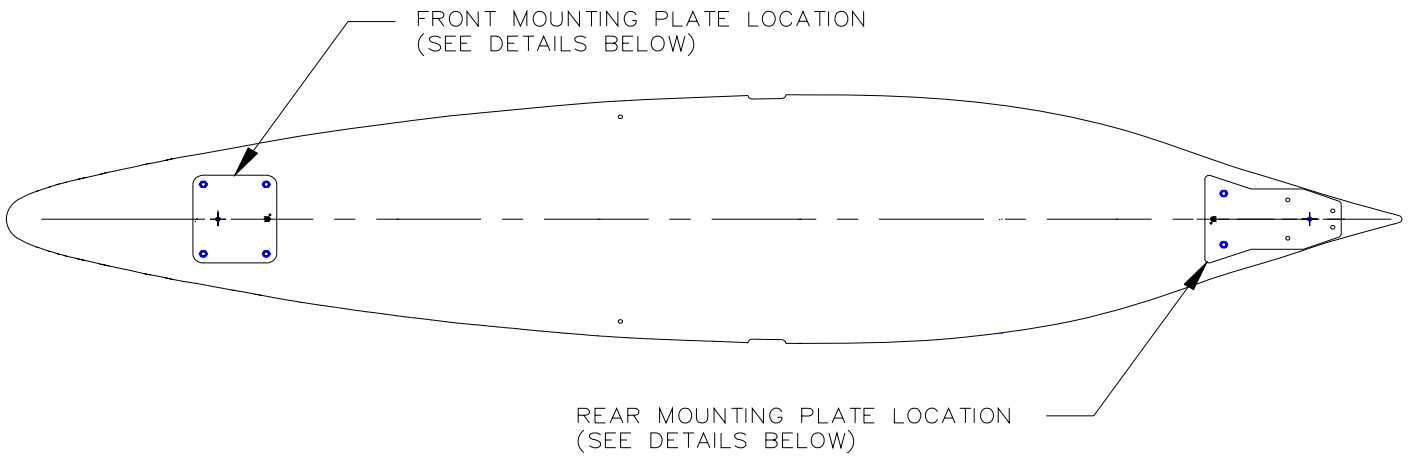


## MASTERS FLOORBOARD

FIG. 2.0

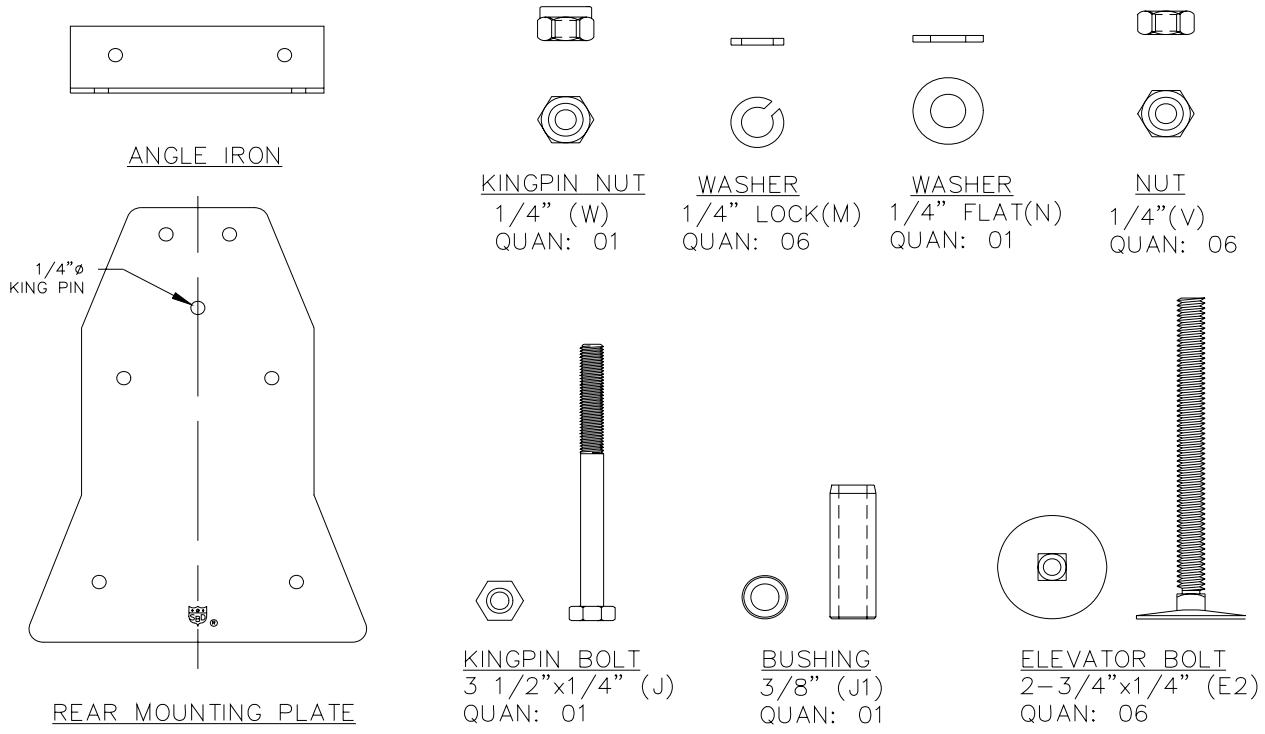
### **SM-3.00 Axle Mounting Plates:**

- a. Only AASBD issued axle mounting plates, angle iron bracket, alternate tubular brackets, bushings, kingpins, washers and hardware **shall** be used. ( see fig's 3.0, 3.1, 3.2, 3.3 & 3.4)
- b. The bottom plate **only** can be epoxied to the top side of the floorboard.
- c. One additional mounting plate may be added to the top of the first required mounting plate, in both front and rear locations. No more than 2 plates (one required and one optional) will be permitted at each axle. **AASBD logo must be visible on top plate and bottom plate when top plate is removed.**
- d. No drilling of holes in mounting plates will be allowed.
- e. No painting, **polishing or surfacing** of the plates is allowed.
- f. The foot rest, axle stops, or brake pedal can be mounted on the front plate using only the 4 mounting bolts. No additional bolts can be used to secure additional parts to the front plate.
- g. Builder may use the washer stack of choice on both axles. AASBD issued nut, bolts and washers shall be used.
- h. Washer stack is limited by the length of the 3 ½" required king pin and a mandatory N washer is required between the head of the king pin bolt and the bushing.
- i. The front king pin must have two lock nuts, the threads must be through or flush with the top lock nut, AASBD issued hardware including king pins, lock nuts and washers. The builder may need to purchase additional parts from AASBD.
- j. Builder must provide axle stops. See SM-5.02 for details
- k. Elevator bolts shall not be mechanically countersunk into the floorboard. They can be pulled flush by normal tightening of the bolt.
- l. **Clear** tape is only permitted to cover un-used holes on the bottom of the floorboard. (No fillers in holes.)
- m. Painting is not allowed on any AASBD issued part or surface on the inside of the car. Exception is weights!!



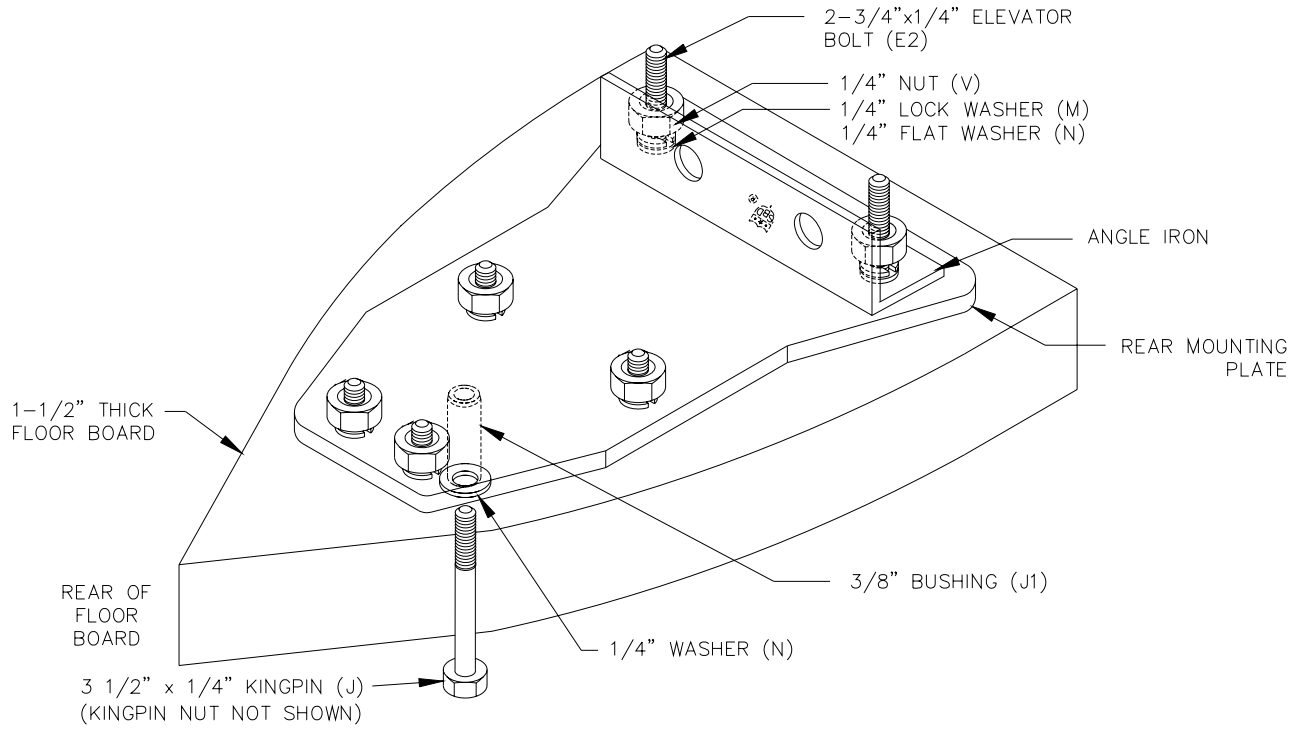
FRONT & REAR AXLE MOUNTING PLATE LOCATIONS

FIG. 3.0

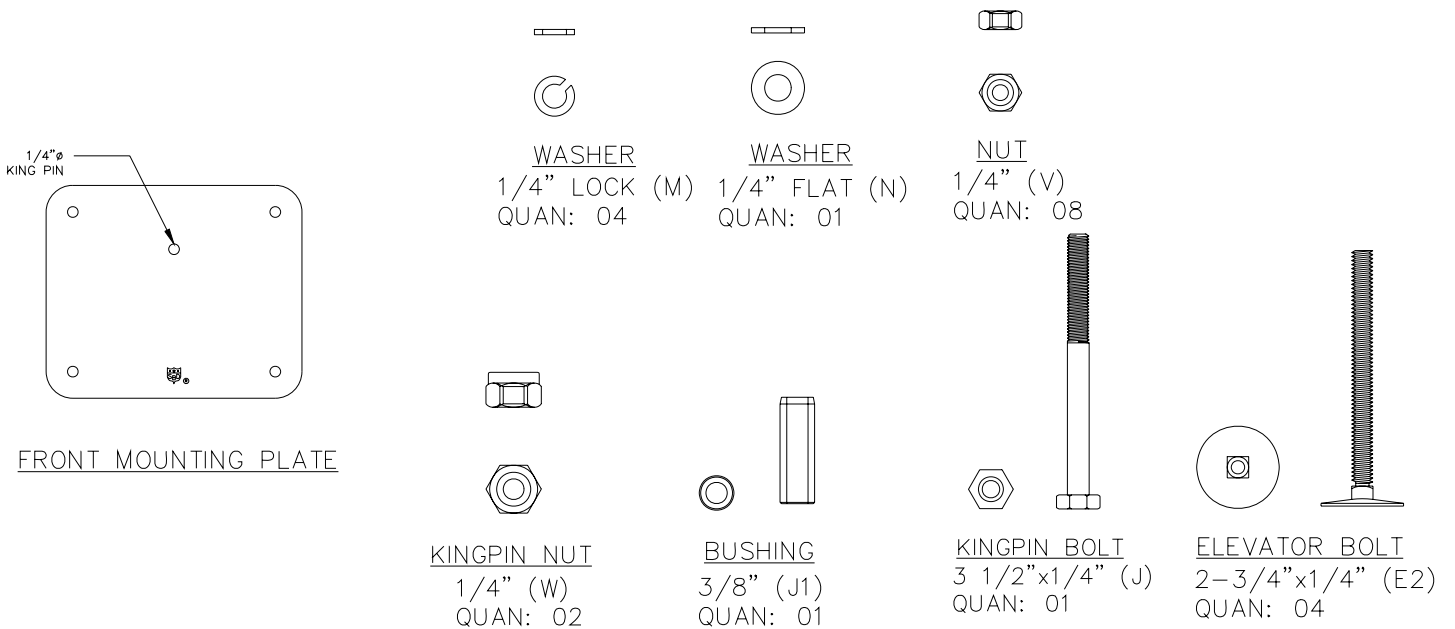


FRONT AXLE MOUNTING PLATE HARDWARE PACKAGE

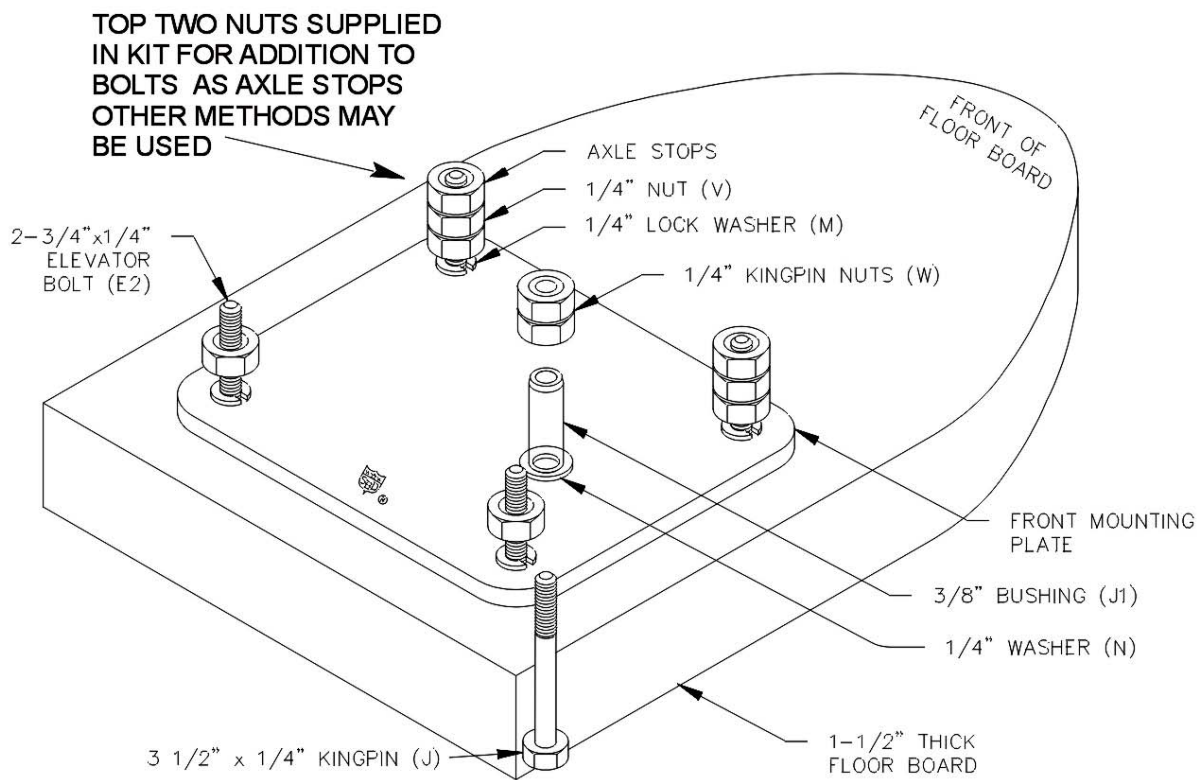
FIG. 3.1



REAR RUNNING GEAR DETAIL  
FIG. 3.2



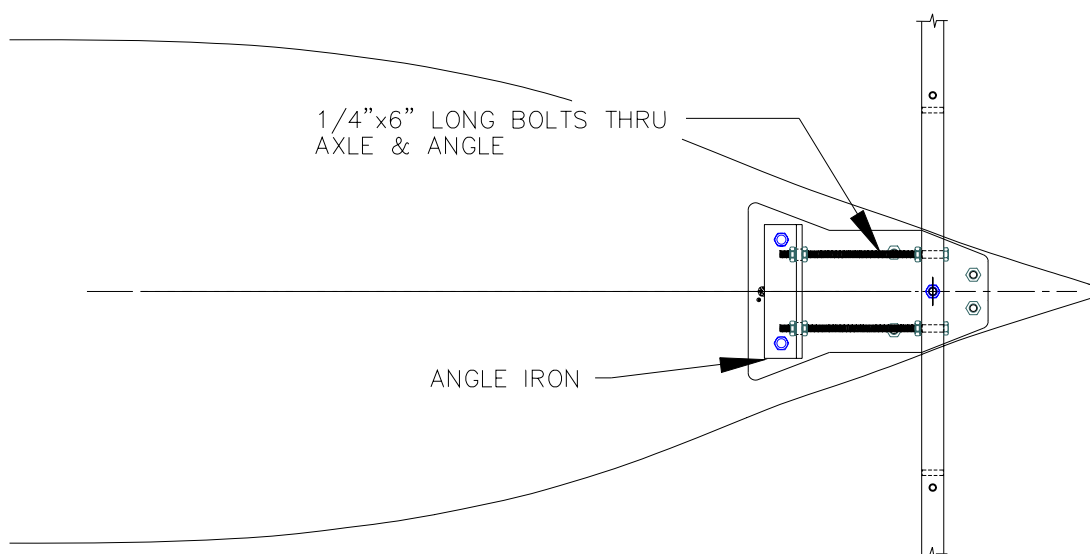
FRONT AXLE MOUNTING PLATE HARDWARE PACKAGE  
FIG. 3.3



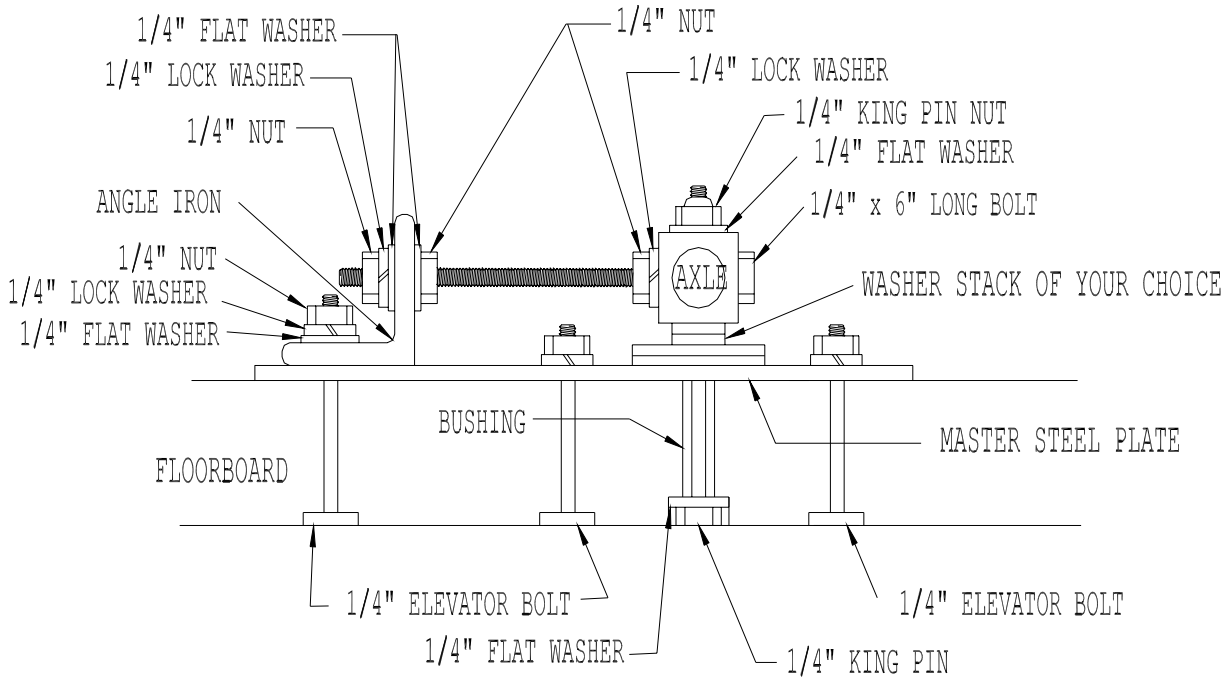
FRONT RUNNING GEAR  
FIG. 3.4

### **SM-3.01 Rear Axle Mounting Assembly:**

- Install the AASBD issued angle iron with (2) 1/4" x 6" long bolts, washers and nuts as shown, See fig's 3.5 & 3.6.
- You may place AASBD washers under the angle iron and alternate tube assembly, to keep adjusters in line with elevated axles. The tube assembly is limited in height by the length of the bolts.**
- Builder must use all existing holes in the masters rear plate and angle iron.
- The 1/4" x 6" bolts must be installed with the bolts heads against the axle and the threaded part of the bolt facing the front of the car.
- Axle mounting plate shall be installed per SM-3.0.



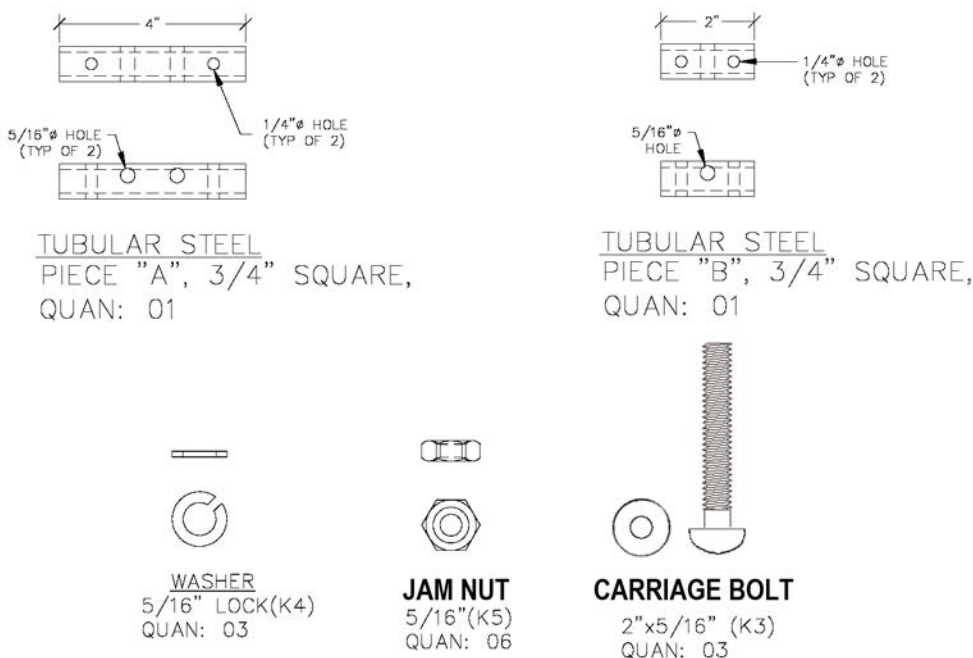
REAR AXLE MOUNTING  
FIG. 3.5



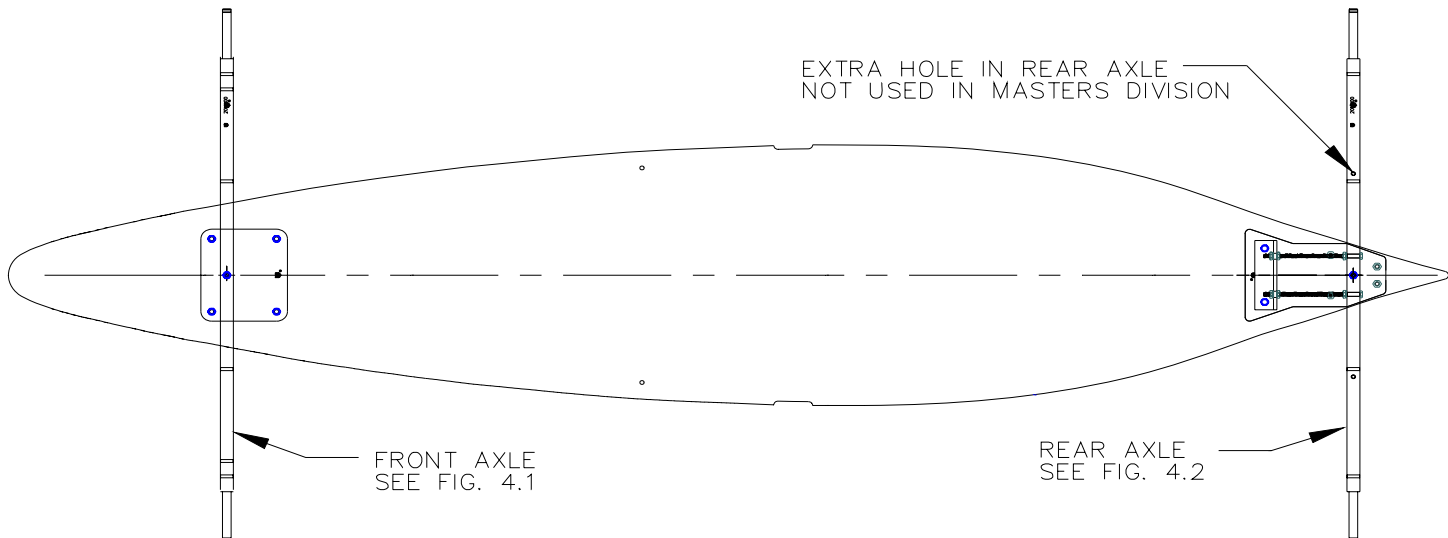
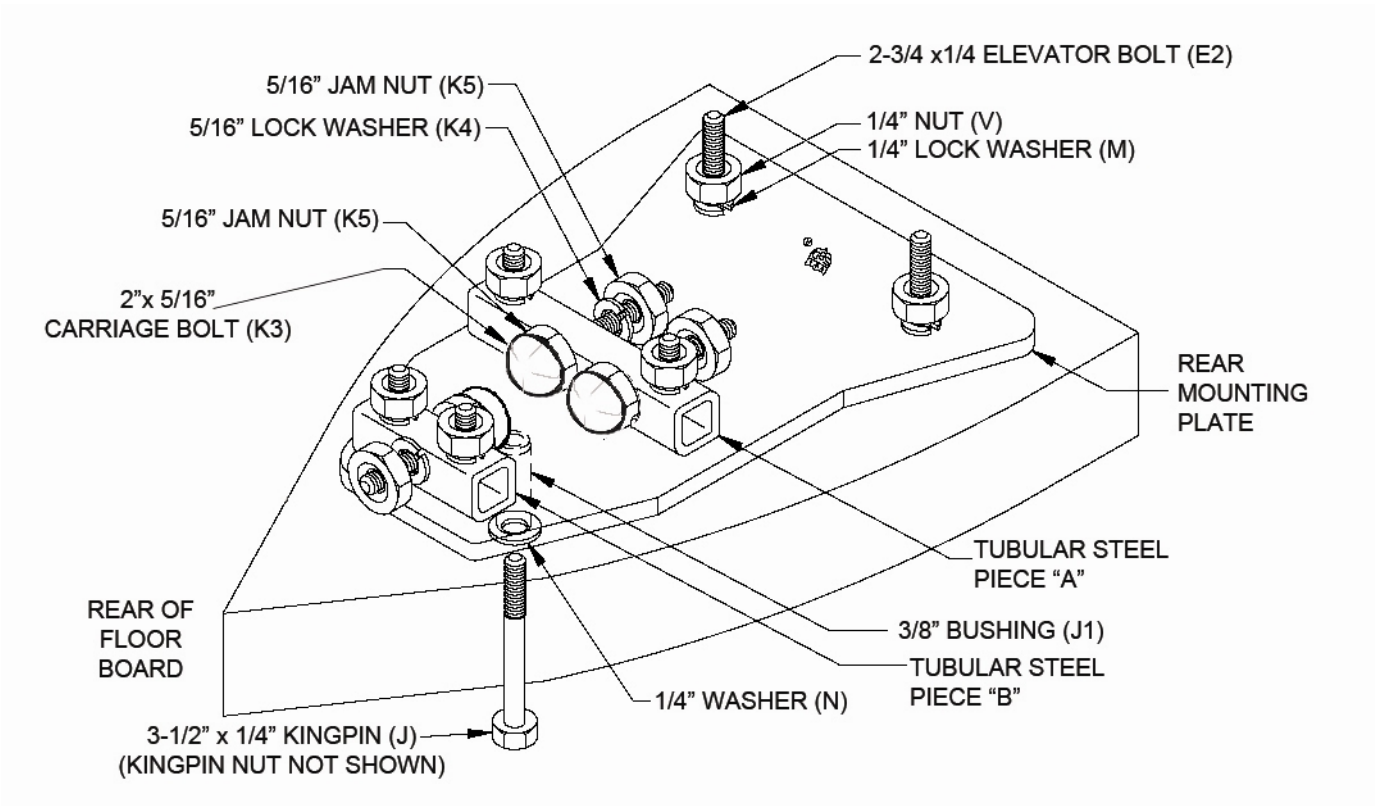
REAR AXLE MOUNTING  
FIG 3.6

**SM-3.02 Alternate Rear Axle Mounting Plate Assembly:**

- a. Builder may use the AASBD alternate tubular steel rear axle mounting set-up, bolts, washers and nuts in place of the masters angle iron. See fig's 3.7 & 3.8. The tubular steel pieces, bolts, washers and nuts are not included in the kit. The tubular steel rear axle mounting kit must be purchased from the AASBD.
- b. Builder must use all existing holes in the masters rear plate.
- c. The (3) 5/16" carriage bolts in contact with the rear axle may not be altered.
- d. Axle mounting plate shall be installed per SM-3.0.
- e. Hex head bolts may still be used till further notice, you may still only remove the grade markings, do not round the heads.



ALTERNATE REAR AXLE MOUNTING HARDWARE  
FIG. 3.7



AXLE LOCATIONS  
FIG. 4.0

**SM-4.00 Axles:**

- a. See figure 4.0, 4.1 & 4.2 to determine front and rear axle location.
- b. The front axle will have two horizontal holes closest to the wheel spindles. (see figures 4.1)
- c. The rear axle will have two horizontal holes next to the kingpin. (see figures 4.2)

- d. Mount both axles with the bushing, washers, kingpins and nuts supplied in this kit (see figures 3.3 & 3.4).
- e. AASBD axle logo must be visible on both axles for inspection.

### **SM-4.01 Axles Dimensions:**

- a. Axles shall not be older than 8 years. **Starting with the current race year count back eight years to find the acceptable year.**
- b. Only official unaltered 3/4" Soap Box Derby pre-drilled axles supplied by the AASBD with the official logo and date stamp may be used in the racer.

### **SM-4.02 Alterations:**

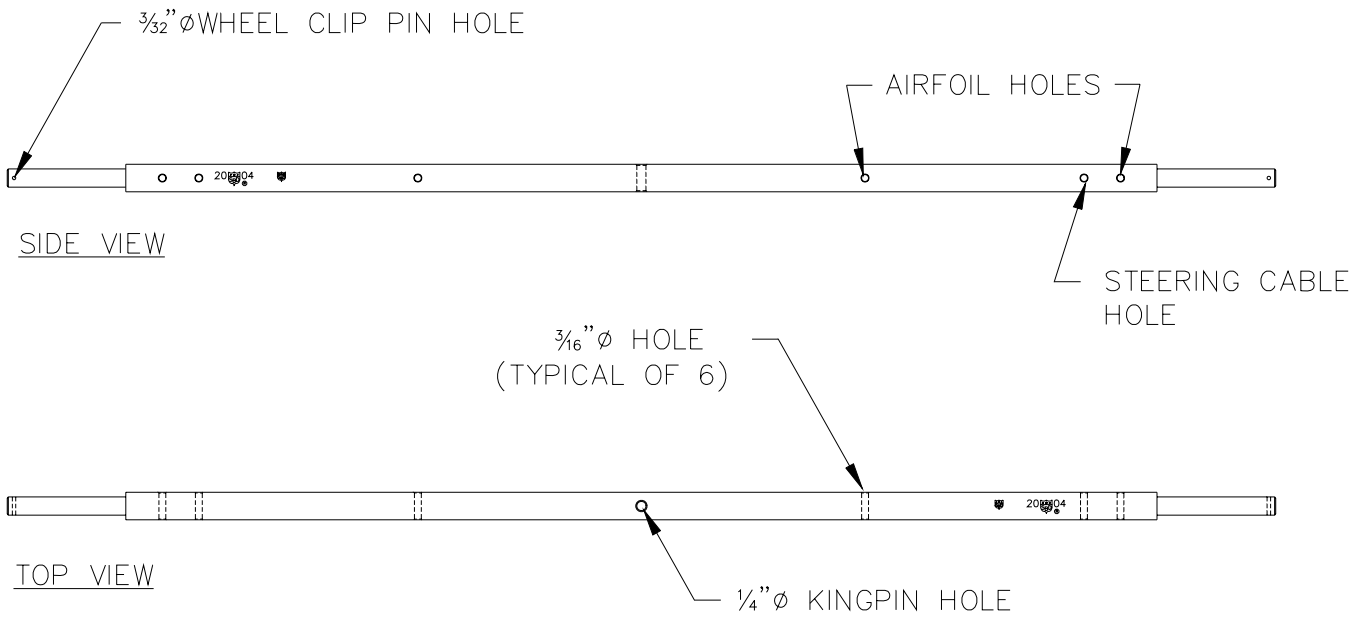
- a. Axles may not be altered in any way. Sanding, filing, shaving, peening, plating, coating, polishing, bluing, or rusting, etc. of axles is not permitted unless otherwise specified. A coat of auto type wax or oil is permitted to prevent rusting.

### **SM-4.03 Prebowing:**

- a. Prebowing is allowed. Pre-bowing is the arching of the axle to compensate for vertical loading. Under full load (car and driver) the axles are allowed to have a maximum 1/8" arch in the vertical dimension. Arch will not be allowed in the horizontal direction. Axles must be pre-bowed by bending only. Other methods such as a peening, heating, etc, are not permitted.

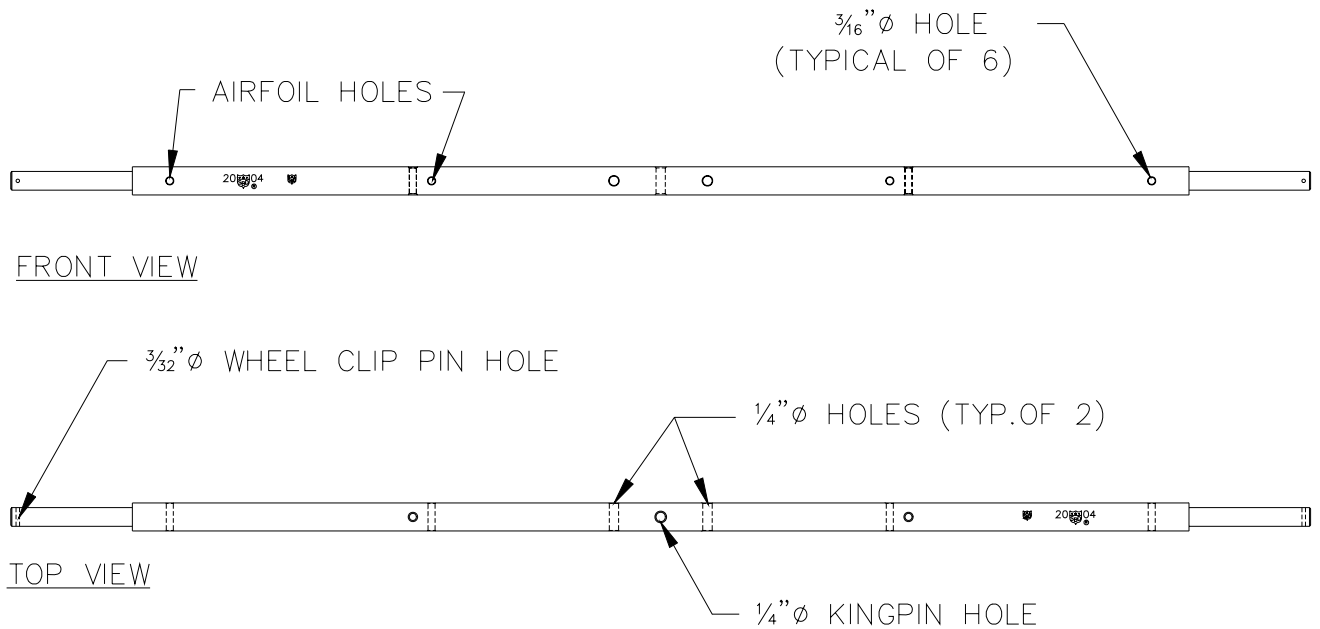
### **SM-4.04 Axle Kingpins:**

- a. Kingpins must be 1/4" x 3 1/2" long grade 8 with AASBD standard markings.
- b. The AASBD issued kingpin nuts must be used - 2 on the front kingpin, 1 on the rear kingpin.
- c. Only one washer stack can be shimmed for cross bind. Front or rear, not both.
- d. King pin must be through or flush with the top lock nut.



### FRONT AXLES

FIG. 4.1



### REAR AXLES

FIG. 4.2

## **SM-5.00 Steering:**

- a. **Only** AASBD steering assembly, cables, eyebolts, and cable clamps shall be used.
- b. AASBD issued cable adjuster should be used (See Fig. 6.4), other cable adjusters are acceptable, **as long as they are similar in design and function as the AASBD adjusters, builder must submit drawing to the Control Board for approval.**
- c. No modifications and/or additions are permitted to the All-American steering wheel, steering shaft, or mounting assembly. You may need to bend the steering wheel down slightly to avoid hitting the side of the car
- d. **The bow-tie wheel in the Stock and Super Stock may replace the triangle wheel in the masters .**
- e. **Eyebolts and cable clamp attachments at the axle must be visible without removing the airfoil, wheel or tape**

## **SM-5.01 Axle Movement:**

- a. Movement is limited so that the front wheels cannot be moved more than 1" nor less than 3/8" off center (straight-ahead position) in either direction, forward or back. Measure at the end of the axle spindle.

## **SM-5.02 Axle Stops:**

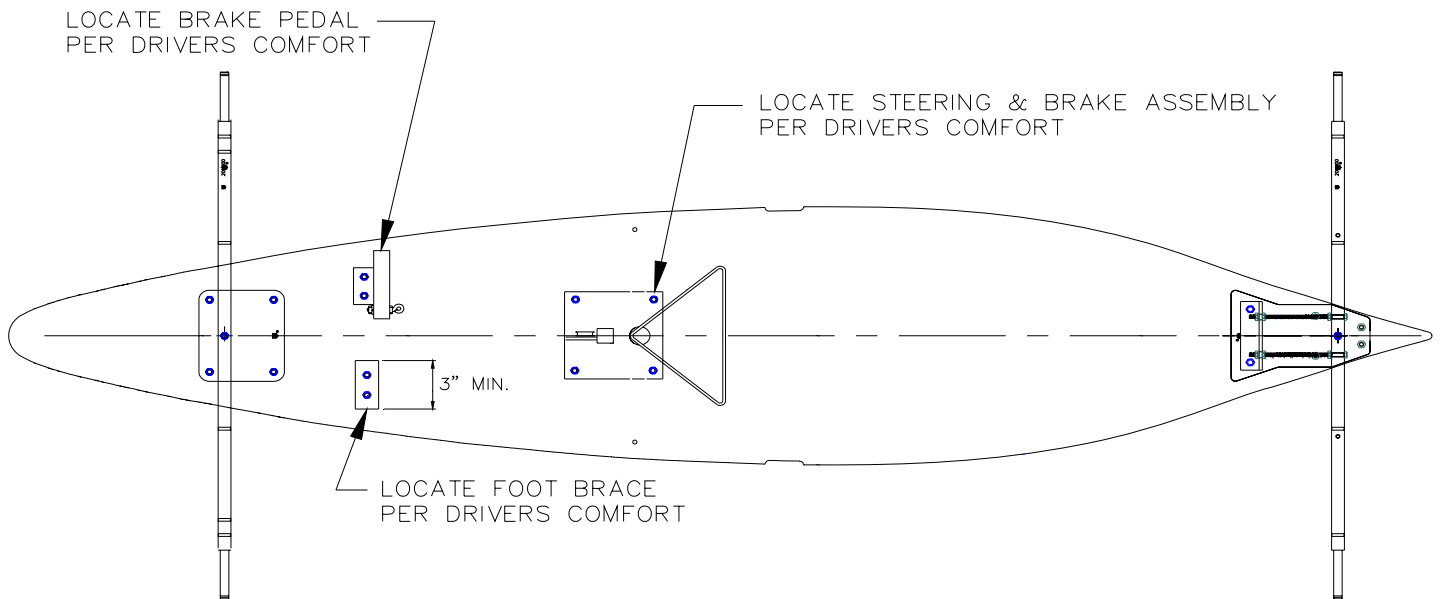
- a. Axle stops are required to limit the movement in the front axle.
- b. Builder may use the axle stops supplied in the kit or add your own axle stops.
- c. Axle stops may be added to the mounting plate **bolts** or directly to the floorboard.
- d. **A slice of one inch dowell rod added to the front plate bolts works to control axle movement or a 1-1/4 , 1/4 washer flattened on one edge and added to the nut stack will work.**

## **SM-5.03 Foot Brace and Bridge:**

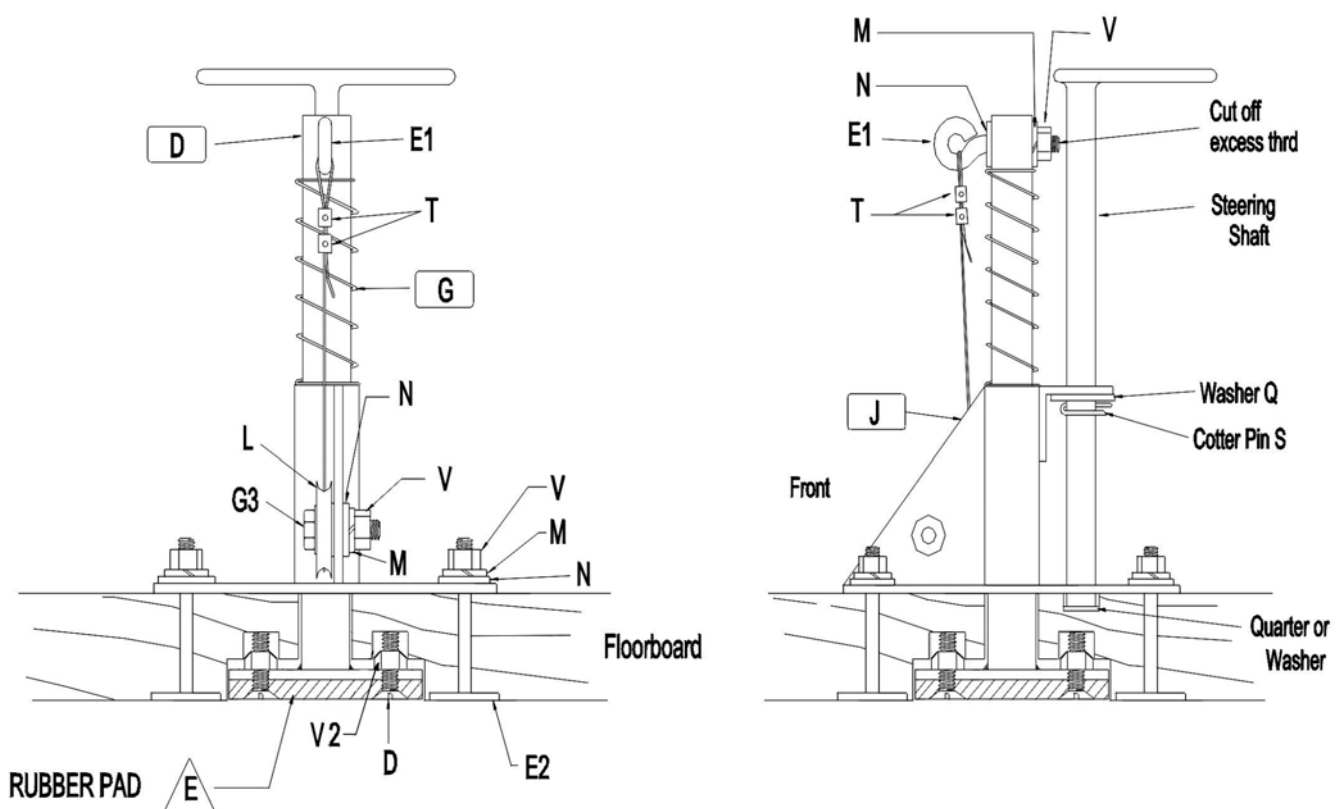
- a. **A functional foot brace must be installed.**
- b. Builder may install the foot brace supplied with the kit or make their own of steel, wood, or aluminum.
- c. Builder may also install their own 3/4" height x 3/4" width x 3" length (minimum measurements) foot brace in the car. The 3" length must be parallel to the axle.
- d. You may NOT install the foot brace under the wood brake pedal hinge.
- e. The brake pedal is NOT considered a foot brace.
- f. **You may make a bridge over the front axle to keep your feet off the axle. It may be wood, metal or plastic. It may use either the front or rear mounting bolts of the front plate, or you may mount it to the floorboard. It may only be attached on one side of the axle. If the unattached side rests on the floorboard it must be flexible and not add support to the floorboard. Make holes in the bridge so the kingpin and plate logo can be seen.**

## **SM-6.00 Positioning of the Steering & Brake Assembly:**

- a. The driver should lay on the floorboard with steering assembly, brake pedal, and foot brace as shown in Fig. 1.0.
- b. Move the steering assembly until the driver can reach the steering wheel comfortably.
- c. Drill (4) four 1/4 inch holes as shown in Fig. 6.0.
- d. Mark floorboard for the brake plunger. Drill a 1" hole through the floorboard.
- e. Drill a 3/4" steering shaft hole into the floorboard 3/8" deep: (NOT all the way through).
- f. Place a 3/4" washer or a quarter in the hole for a wear surface.
- g. Brake plunger and pad may be countersunk into the floorboard as shown in figure 6.1.
- h. Mount steering & brake assembly per figure 6.1.

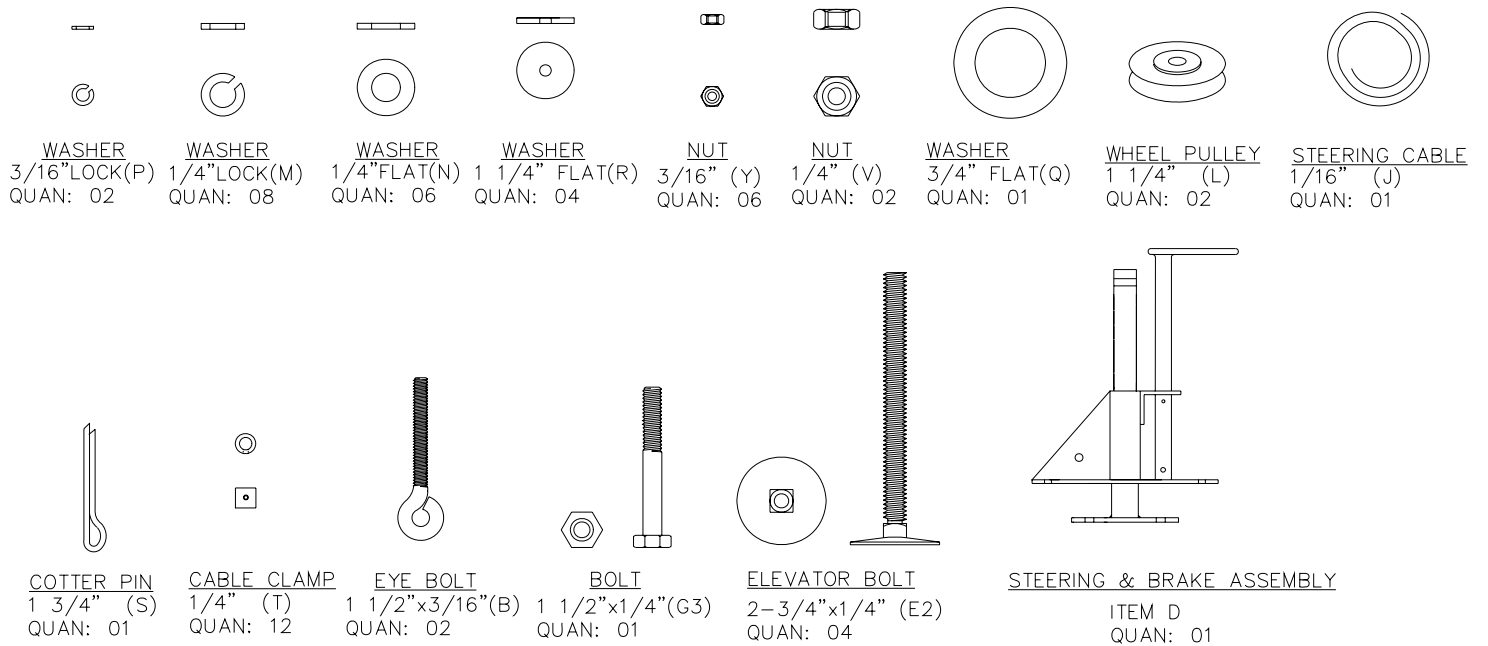


STEERING & BRAKE MOUNTING LOCATIONS  
FIG. 6.0



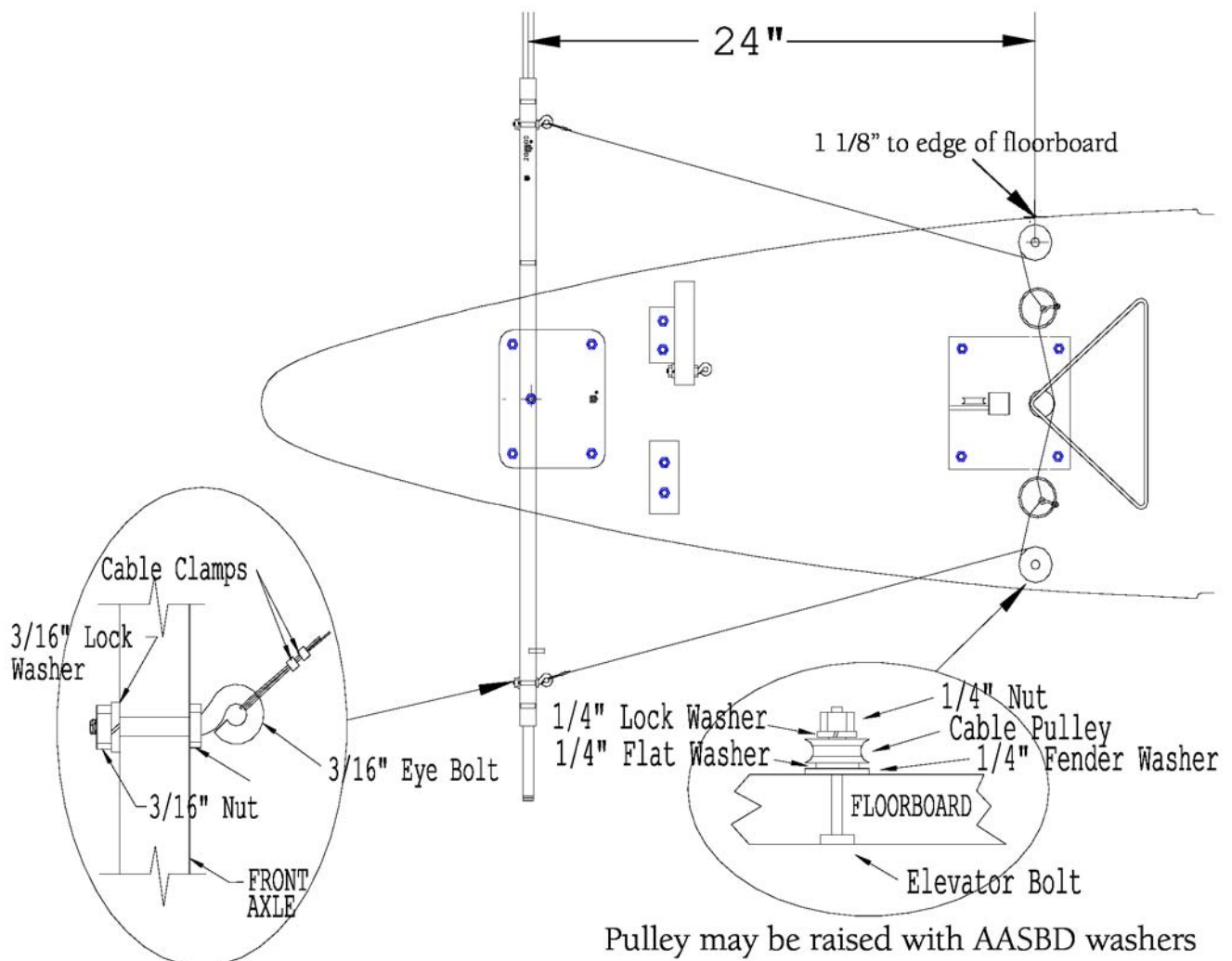
STEERING & BRAKE ASSEMBLY

FIG. 6.1



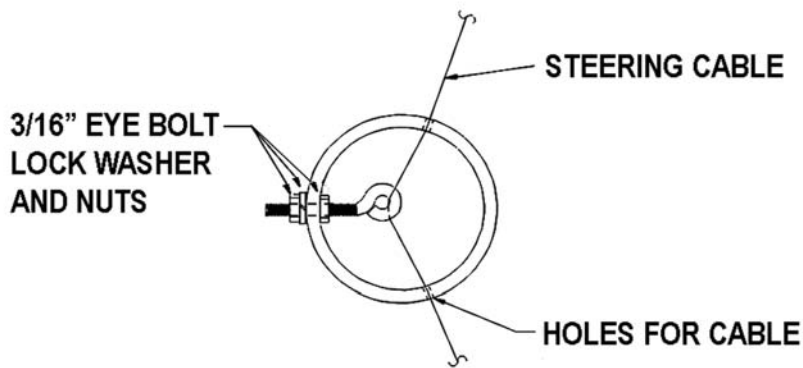
## STEERING HARDWARE

FIG. 6.2

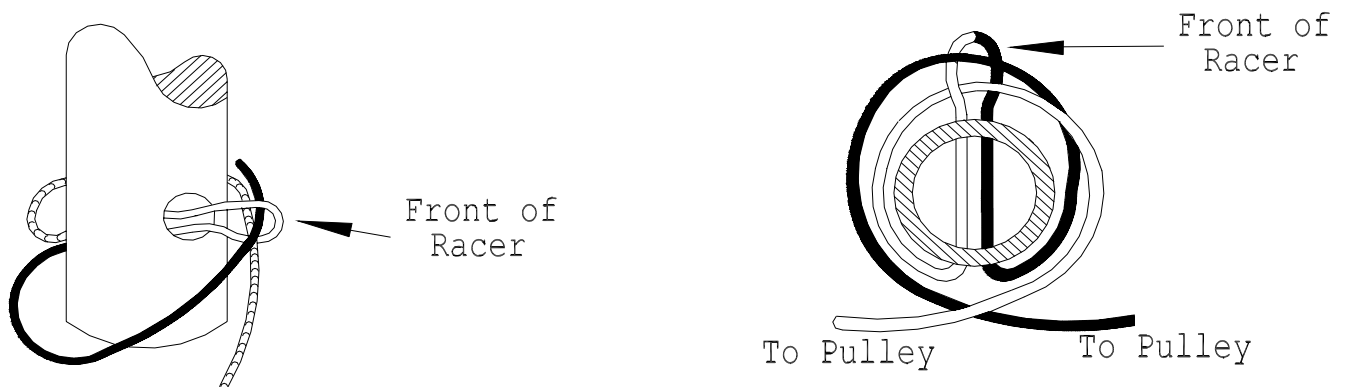


## STEERING ADJUSTERS & CABLE ROUTING

FIG. 6.3



## STEERING CABLE ADJUSTER



## STEERING SHAFT CABLE THREADING

FIG. 6.5

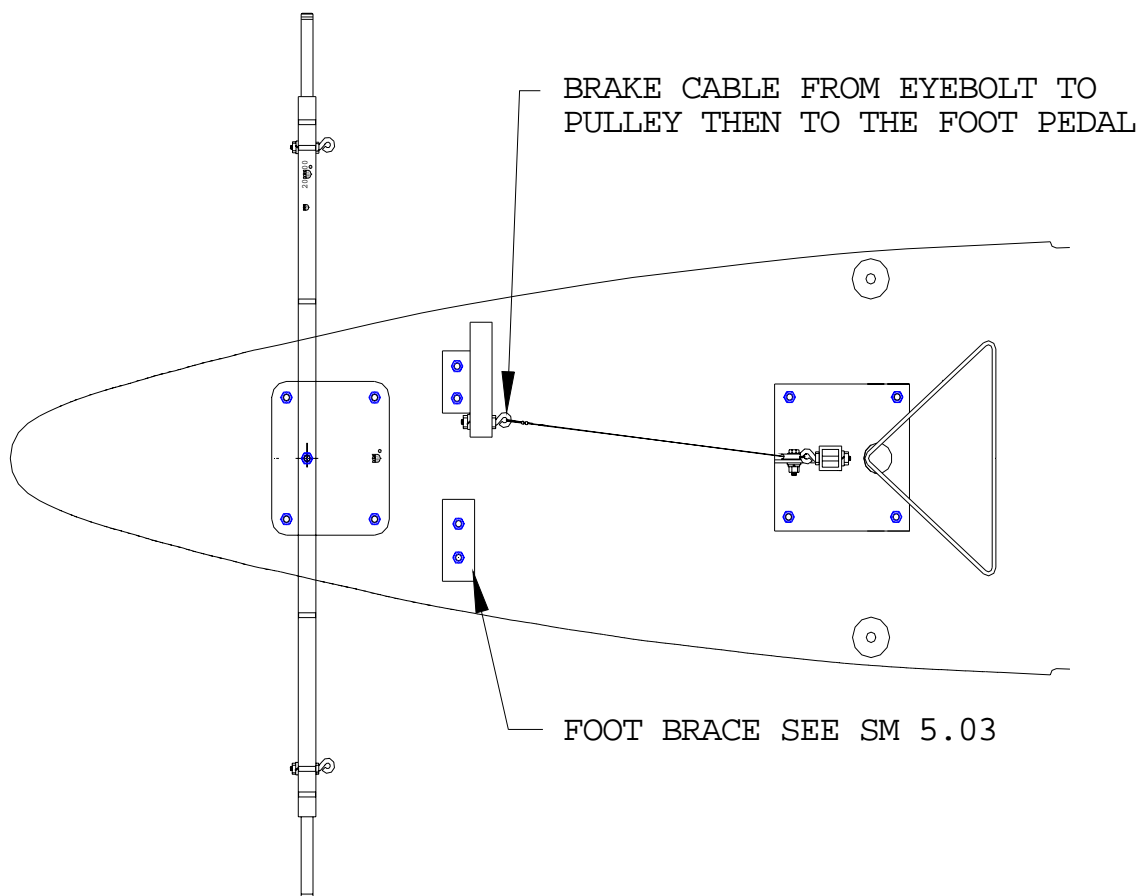
### **SM-6.01 Steering Assembly:**

- a. Insert the two loose cable ends through the steering shaft making a loop, then run the two ends around the shaft and through the loop. Pull cable ends so the loop pulls snug to the cable passing through it. See Fig. 6.5.
- b. Run cable to the pulley, wrap around the pulley, then to the axle as shown in Fig. 6.3. You must use the AASBD predrilled pulley hole in the floorboard. For cars purchased before the steering cable pulley holes were provided in the floorboard, pulley must be 24" from the front center of the axle to the center of pulley and 1-1/8" from the edge of the floorboard.

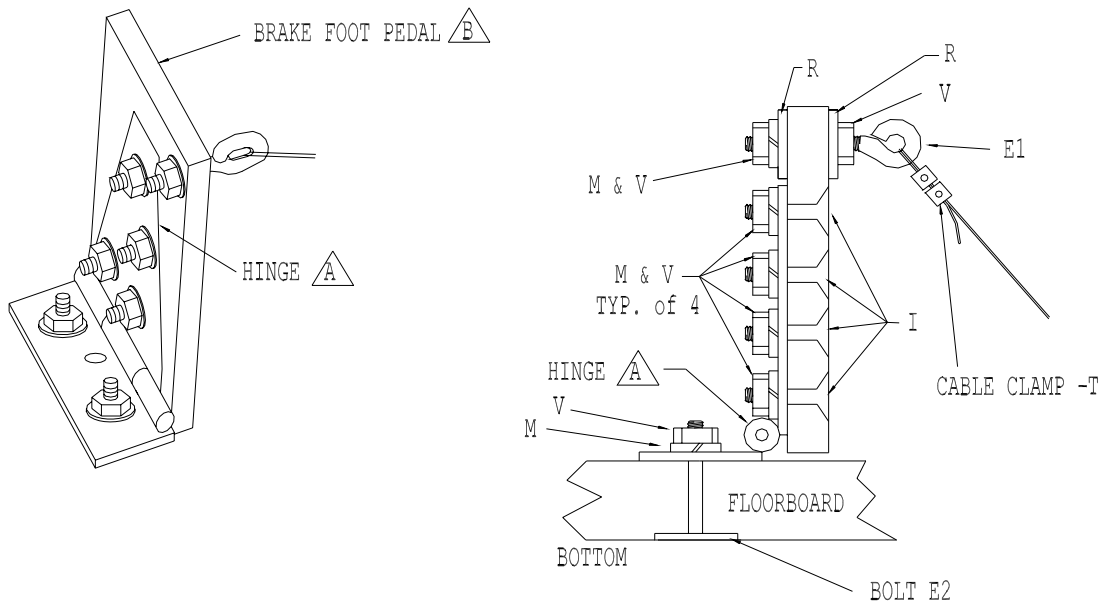
- c. Mark the floorboard where the front cables and axles exit the car. Use a square to extend that line down the side of the floorboard. Mark the rear axle exit points in the same manner. Add ½" in front and behind the front axle for minimum steering swing.
- d. Install axle stop blocks after you have determined your 3/8" swing in both directions. You may install blocks of your choice as long as you use **one bolt** per block and at least two blocks in front or behind the front axle. These blocks must be as high or higher than the axle.
- e. Optional brake pedal parts may not be mounted on to the steering & brake assembly. Cables may still be attached.

### **SM-6.02 Brake Pedal:**

- a. Builder may use the AASBD wood foot pedal, hinge and nut and bolts supplied in the kit or follow the alternate instructions (figure 6.9).
- b. Mark the position of the brake pedal.
- c. Drill the holes for the brake pedal.
- d. Install the brake pedal and hinge as shown in figure 6.7.
- e. Any other methods submit drawing to the Control Board for approval.



**BRAKE ASSEMBLY  
FIG. 6.6**



WOOD BRAKE PEDAL DETAIL  
FIG. 6.7

- |  |  |   |   |  |   |  |  |
|--|--|---|---|--|---|--|--|
|  |  |   |   |  |   |  |  |
| <u>WASHER</u><br>1/4" LOCK(M)<br>QUAN: 13              | <u>WASHER</u><br>1/4" FLAT(N)<br>QUAN: 02          | <u>FENDER WASHER</u><br>1 1/4" FLAT (R)<br>QUAN: 02 | <u>NUT</u><br>1/4" (V)<br>QUAN: 10          | <u>LOCKNUT</u><br>1/4" (V2)<br>QUAN: 04              | <u>CABLE CLAMP</u><br>1/4" CLAMP (T)<br>QUAN: 04    | <u>STEERING CABLE</u><br>1/16" CABLE (J)<br>QUAN: 01 | <u>WHEEL PULLEY</u><br>1 1/4" PULLEY (L)<br>QUAN: 02 |
|  |  |   |   |  |   |  |  |
| <u>BRAKE PEDAL BOLT</u><br>1 1/4"x1/4" (I)<br>QUAN: 04 | <u>BRAKE PAD BOLT</u><br>3/4"x1/4" (D)<br>QUAN: 04 | <u>EYE BOLT</u><br>2"x1/4" (E1)<br>QUAN: 02         | <u>BOLT</u><br>1 3/4"x1/4" (G3)<br>QUAN: 01 | <u>ELEVATOR BOLT</u><br>2-3/4"x1/4" (E2)<br>QUAN: 02 | <u>8" COIL BRAKE SPRING</u><br>ITEM (G)<br>QUAN: 01 |  |  |

- |  |   |   |
|--|---|---|
|  |   |   |
| <u>BRAKE PEDAL HINGE</u><br>ITEM (A)<br>QUAN: 01 | <u>RUBBER BRAKE PAD</u><br>ITEM (E)<br>QUAN: 01 | <u>WOOD BRAKE PEDAL</u><br>ITEM (B)<br>QUAN: 01 |

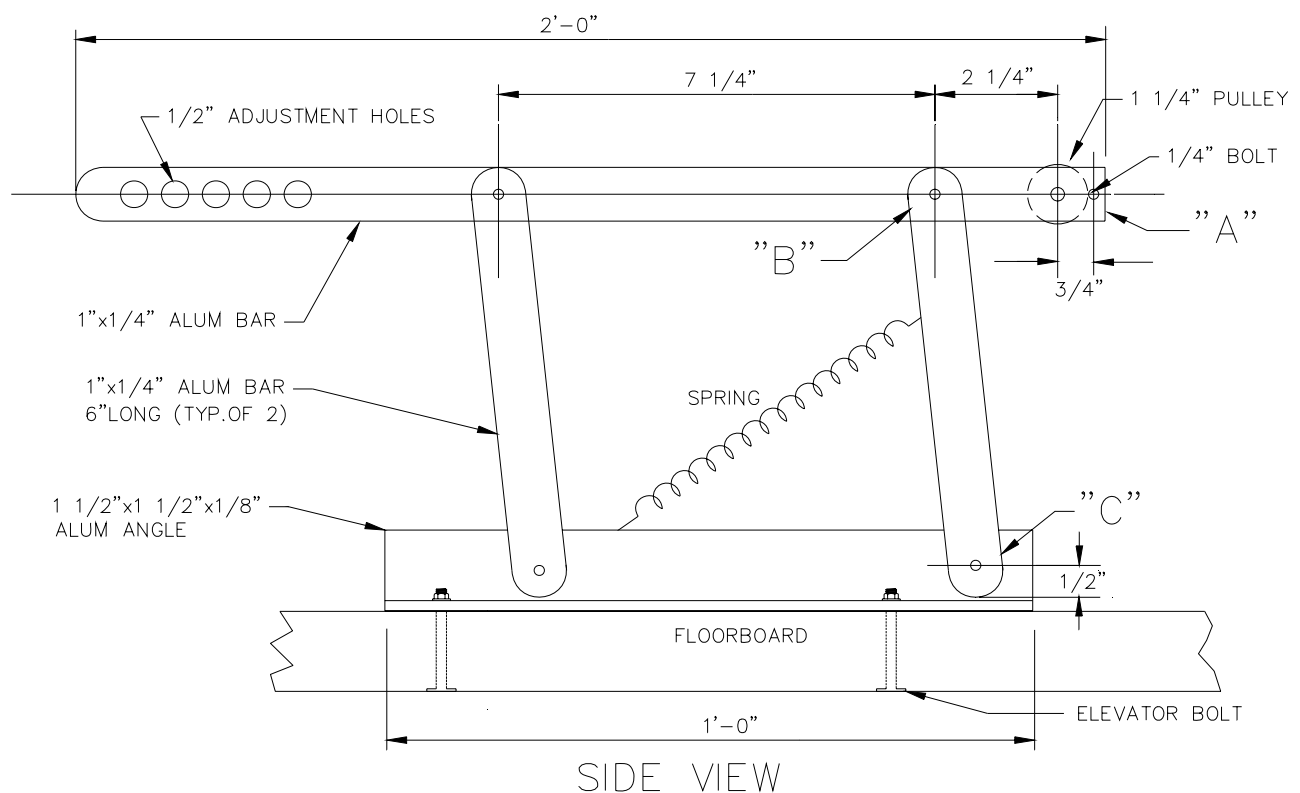
BRAKE HARDWARE  
FIG. 6.8

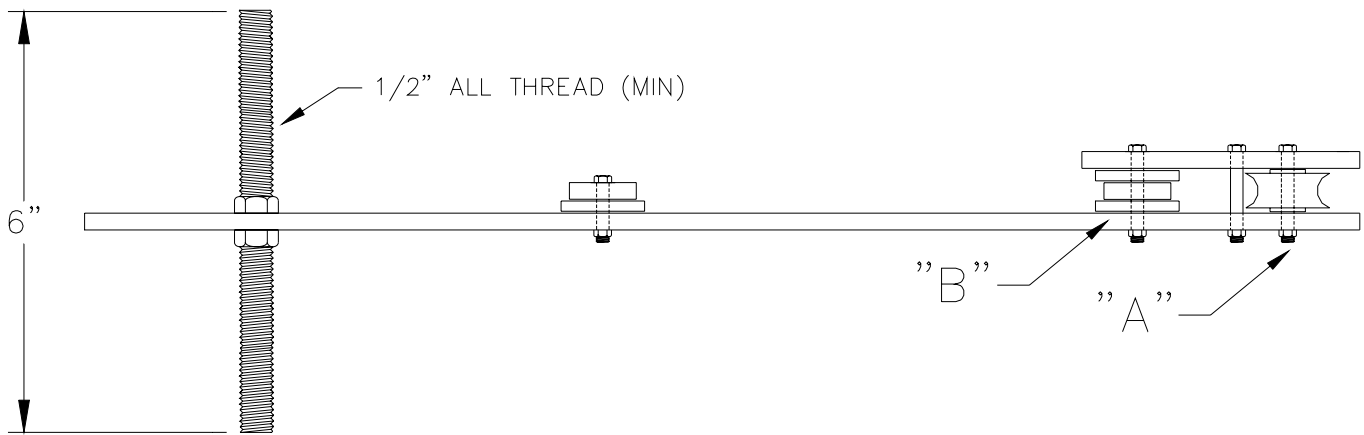
## SM-6.03 Brake Assembly:

- Use Bolts I, Lock washers M, and Nuts V to install Brake Foot Pedal B to Hinge A as in Fig. 6.7.
- Bolt Hinge and Foot Pedal to Floorboard.
- Insert Eyebolt E1 in the Brake Foot Pedal as in Fig. 6.7.
- Bolt Rubber Pad E to the bottom of the brake plunger using **Bolt D & lock nuts. You may use lock washers & regular nuts for your brake pad**
- Bolt assembly D to the floorboard.
- Insert the Brake Plunger into the assembly from the bottom and install Coil Spring G. Insert Eyebolt E1 in place as in Fig. 6.1.
- Insert Steering Shaft as shown in Fig. 6.1 using Cotter Pin S and Washer Q.
- Route the Brake Cable J to Center pulley then to the Brake Pedal as in Fig. 6.6. (Cable may be cut & taped)

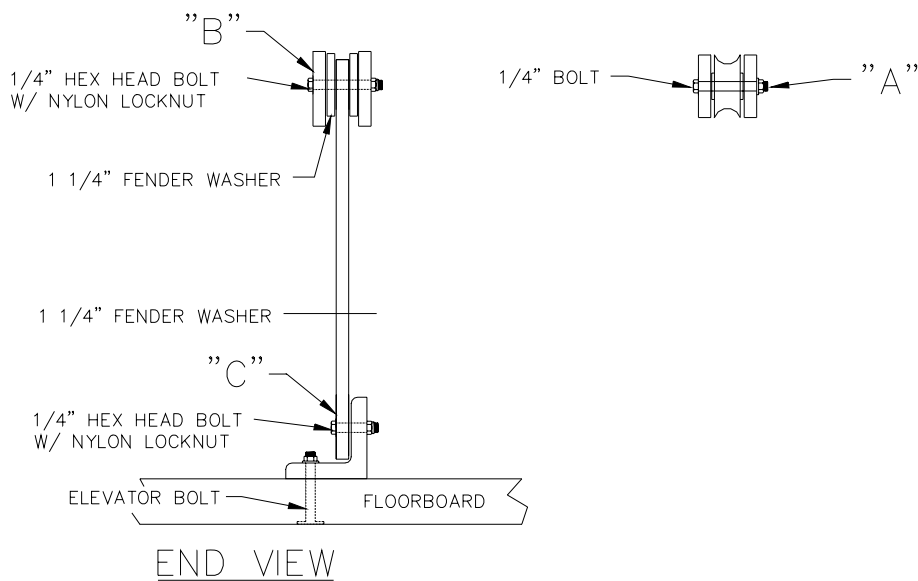
## SM-6.04 Alternate Brake Pedal:

- Builder may also supply the materials needed to make the aluminum or steel pivot brake pedal assembly as Fig 6.9.
- You are allowed some modifications as long as the base is  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " x **no more than 12"** in length and works by the same method.
- Any other braking design other than described in these plans, builder must submit a drawing to the Control Board for approval.**





TOP VIEW



OPTIONAL PIVOT BRAKE ASSEMBLY  
FIG. 6.9

**SM-7.00 Weight:**

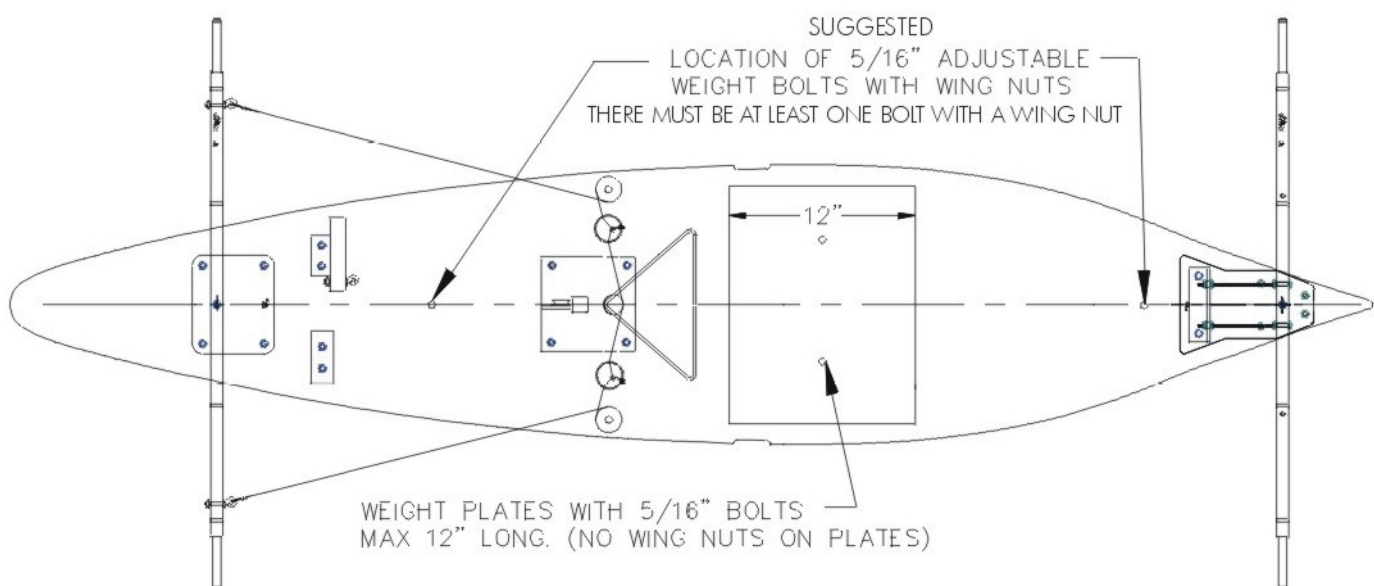
- a. Combined weight of the car and driver shall not exceed 255 pounds with z-glas wheels.
- b. The maximum length for weight plates shall not exceed 12" long.
- c. The weight plates must be removable without removing any running gear, steering or brake components.
- d. No more than (2) 5/16" bolts per plate are permitted to secure weight.
- e. A 1/8" gap must be maintained between weights. Weight may not touch sides of the car or any assemblies.
- f. All weight used in the car must be painted and the weight of each piece must be marked on it
- g. T nuts are permitted for **all weights**, if installed from the bottom of the floorboard.

## **SM-7.01 Adjustable Weight:**

- a. Each car must have at least one anchoring bolt or threaded rod with a wing nut safely installed in the car body for quick adjustment of weight.
- b. The recommended amount of adjustment weight is ten pounds (suggested increments of (3) two-pounds, (3) one-pound and (2) eight-ounces) mounted securely by a 5/16" diameter bolt, held by a wing nut and installed within reach of the cockpit area for easy adjustment.
- c. If bar bell style weights are used, the large center hole must be filled with a dowel rod until the weights fit securely on the 5/16" weight bolt. Shifting or any type of movement in the weights is prohibited.
- d. No adjustable weight with the height more than 1 ½" will be allowed between the legs of the driver and steering shaft.
- e. **Cut the excess adjustable weight bolt behind the driver's head. This bolt must be cut off and padded for safety.**
- f. **Stack adjustable weights from largest (footprint) on bottom to smallest on top.**

## **SM-7.02 Prohibited Weight:**

- a. Pouring of melted metal into the car floorboard or body is prohibited. Within the interior of the car all weight must be removable.
- b. Welding of weights together will not be permitted.
- c. Wing nuts are not permitted on weights under driver's body.
- d. Weight is not permitted in a seating or heel area which has been recessed.
- e. **Chained weight is not allowed, that is weights which overlap to create more than 12" support to the floorboard.**
- f. Suspended weight is illegal. No cushion (sponge, rubber, springs, etc) may be used between the weights or the weight and the floorboard.
- g. Threaded inserts in the floorboard are not allowed to secure weights.



WEIGHT LOCATION & MOUNTING  
FIG. 7.0

## SM-8.00 Shell:

- AASBD (Scottie) fiberglass shell only. No cutting of the shell other than the axle openings, cable openings, optional inspection access hole, hatch and head rest areas.
- Fiberglass, carbon fiber, or other **similar materials** are NOT permitted to be used on the inside or outside of the car. **Fiberglass may be used for National Control Board authorized repairs.**
- "Bondo" automotive type body filler can only be used on the outside of the car at the following areas. Body side seam, hatch and headrest and optional access hole. It cannot be used to cover the hatch hinge or added to make the required nose height, the 36 ½" mid point measurement or to sharpen the tail. Automotive body filler with ground up fiber glass is permitted.
- An inspection/repair access hole is optional but recommended. If an access hole is provided, it must be located at the top center of the car and must be large enough to put your arm in to make any repairs to brake or axle mounting components (3" x 3" min. opening) (see fig 8.0).

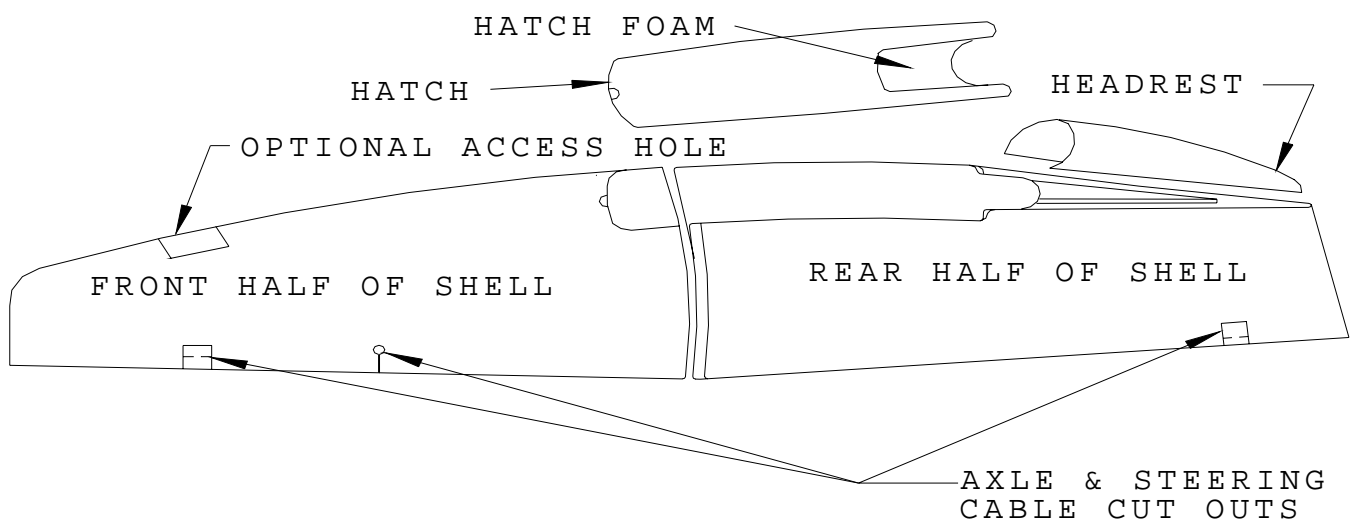


FIG. 8.0

## SM-8.01 Shell Assembly:

- Inspect all fiberglass sections of your racer for excessive flashing (can be sealed with car wax only). Rough up the white gel coat finish where the body parts overlap with rough sand paper.
- Place the two main body halves together on floorboard and then attach the hatch to the front half with hatch hinge K. Builder may use a 2" x 3" x ¾" wood backer plate for additional support for the hinge inside of car.
- With the hatch installed to the front half, slide the back half into position until the hatch is totally closed and in proper alignment. Now mark the sides of the shell along the overlap. Permanently attach the two shell halves together by aligning the marks that you previously marked. It is suggested that the builder use a two-part epoxy to join the two halves. (PC-7, PC-11 or similar epoxy) Builder may screw, bolt, or rivet the sides together. After the epoxy has dried, the fasteners may be removed. The excess fasteners inside of car must be trimmed and the fasteners on the outside of car must be sanded smooth.
- The body dimension of **36 ½" must be maintained**. The measured is taken over the hinge recessed area where the shell meets the hatch opening. The measurement from the bottom of the shell on the left over the top of the shell to the bottom of the shell on the right side. If your car does not measure **36 ½"** the shell must be raised on the floorboard to meet the required measurement.
- The shell must be installed flush to the nose of the floorboard (**No gap**). The shell may be raised or raked a maximum of ½" to allow for a larger driver.
- The shell must be secured with a **minimum** of 48 screws. **You may have more**. These screws must be 1 ¼" drywall screws with finish washers. **If you use a piece of the shell under your axle or cable openings you must use a drywall screw and finish washer drilled through it, to hold it in place .It may be one of the 48 screws.**
- One screw with a finish washer must be in the nose of the car.

## SM-8.02 Headrest:

- a. With the shell in place, have the driver get into the car with their helmet on. Adjust the headrest to the helmet. It will probably be necessary to trim the headrest length and height, as all drivers are not the same size. After appropriate adjustments are made, secure the headrest in place using the body screws and the adjustment bolt (see figure 8.8).
- b. The official helmet must not be recessed into the headrest so as to restrict the driver's vision. Driver must have the line of sight plus be able to view the race course at an angle over the front wheels.
- c. The line of sight is defined as no part of the car, this includes the hatch foam, may be higher than the first rivet on the helmet, when helmet is in race position. The first rivet must be visible at all times.
- d. Builder may raise, lower, shorten or lengthen the headrest.
- e. Make sure there is a minimum of 7" wide opening from the cockpit hatch all the way back to the first rivet of the helmet (see figure 8.4).
- f. With the helmet in position in the headrest, it shall not be distorted or crushed.
- g. **With the helmet in position, it shall measure a minimum of 7 1/4" on the outside across the width at the center. This can be obtained by notching the helmet opening in the rear of the shell when positioning the helmet. The notches will allow the helmet to expand to the 7 1/4 measurement and give it a surface to rest on. See fig.8.8**
- h. The helmet shall fit into the headrest and stay in position without the use of tape during the race. The helmet must be strapped to the driver's head before entering the car.
- i. Builder shall trim the headrest to fit the helmet. The front contour of the headrest is the most important
- j. The first helmet rivet must be visible at all times.

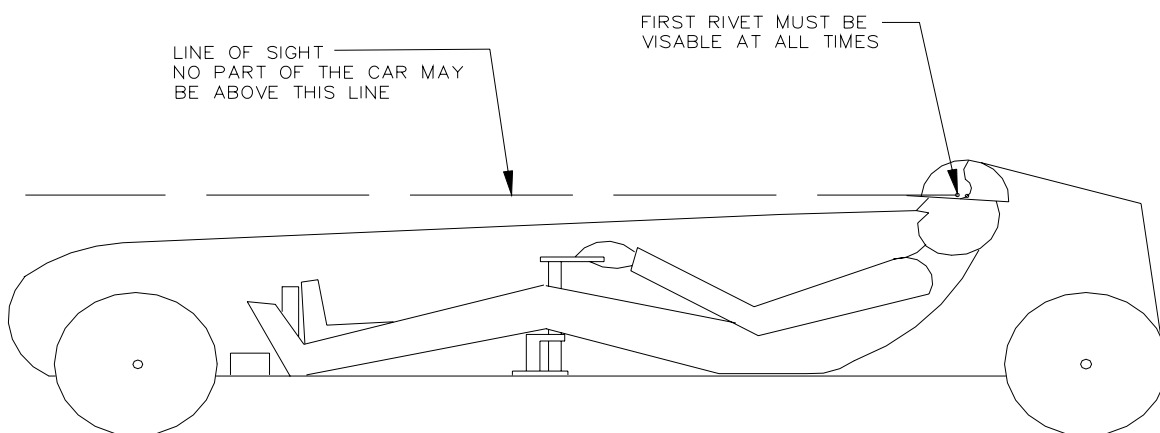


FIG. 8.2

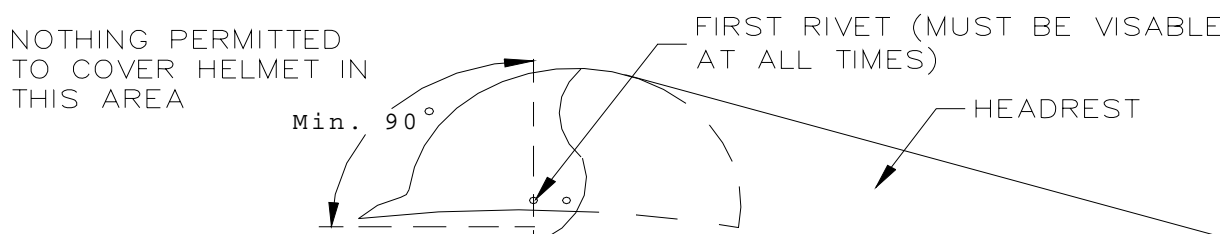


FIG. 8.3

### **SM-8.03 Face Protection:**

- a. **Builder must add 3/8" wide foam between the helmet cutout area and the shell. Foam may be larger. AASBD hatch foam works well and can be shaped to support the helmet.**
- b. **There must be 7" clearance between the shell and wood helmet cutout bracket from the first rivet on the helmet all the way to the hatch. Nothing may extend into the 7" area with the exception of foam (see figure 8.4).**

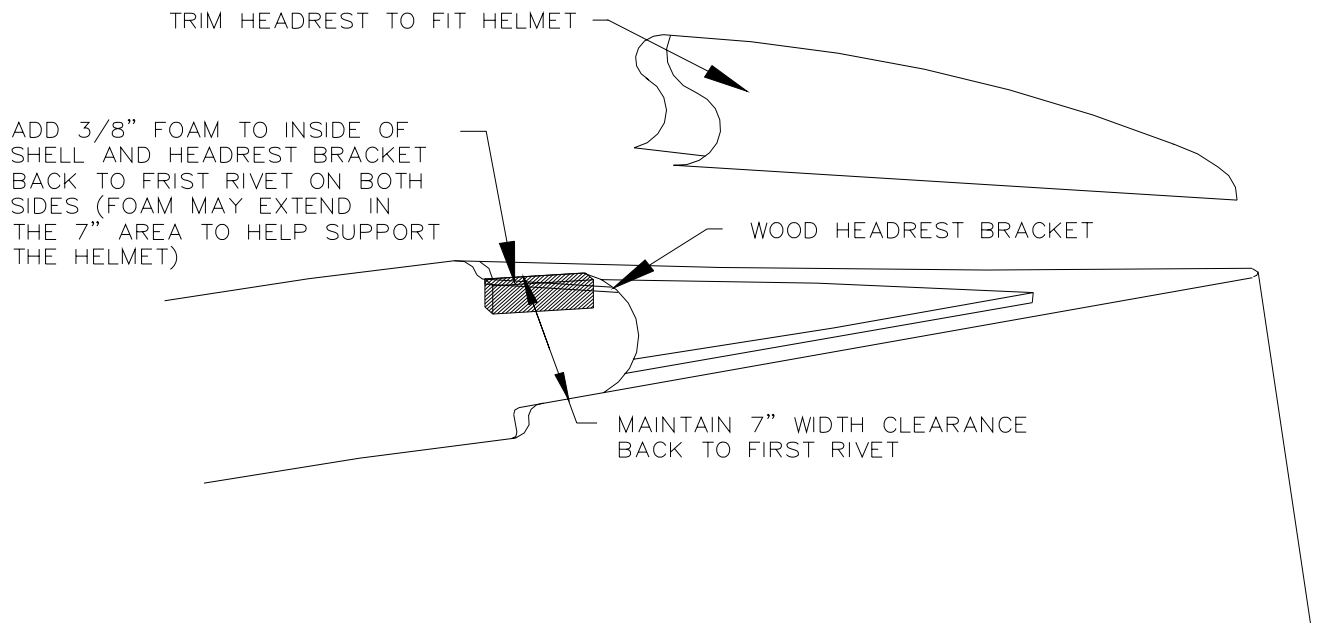
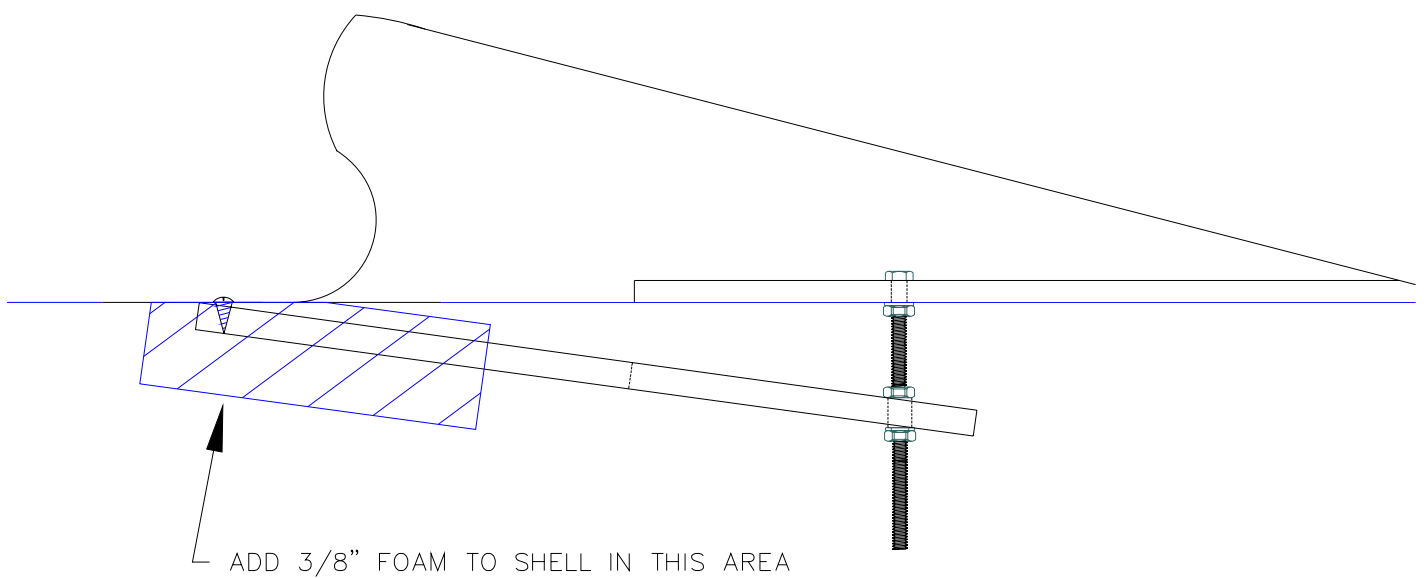
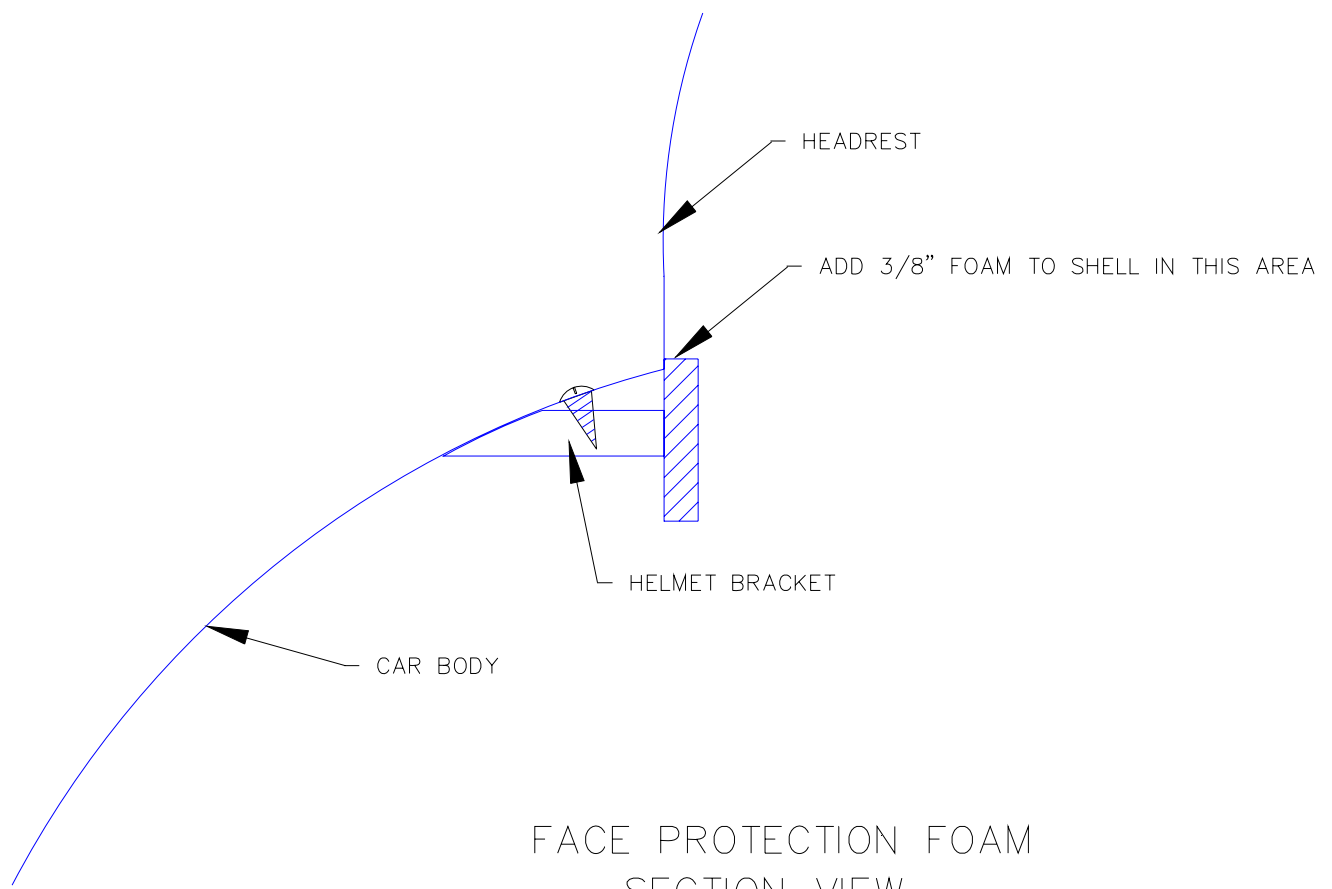


FIG. 8.4



FACE PROTECTION FOAM  
FIG. 8.5



FACE PROTECTION FOAM  
SECTION VIEW  
FIG. 8.6

### **SM-8.04 Helmet Bracket:**

- a. A helmet bracket and 1/4" bolt will be supplied in the Masters kits.
- b. The back of the bracket is adjustable up and down with the 1/4" bolt.
- c. The helmet bracket can be altered to fit into the back half of the shell. It may need to be shortened in the front and rounded at the outside edges to make it fit.
- d. A 1/4" lip of body filler may be added to the helmet bracket to help hold the helmet in place.
- e. **Two inches of body filler may be used at the front ends of the helmet bracket to help attach it to the shell. See fig. 8.8**

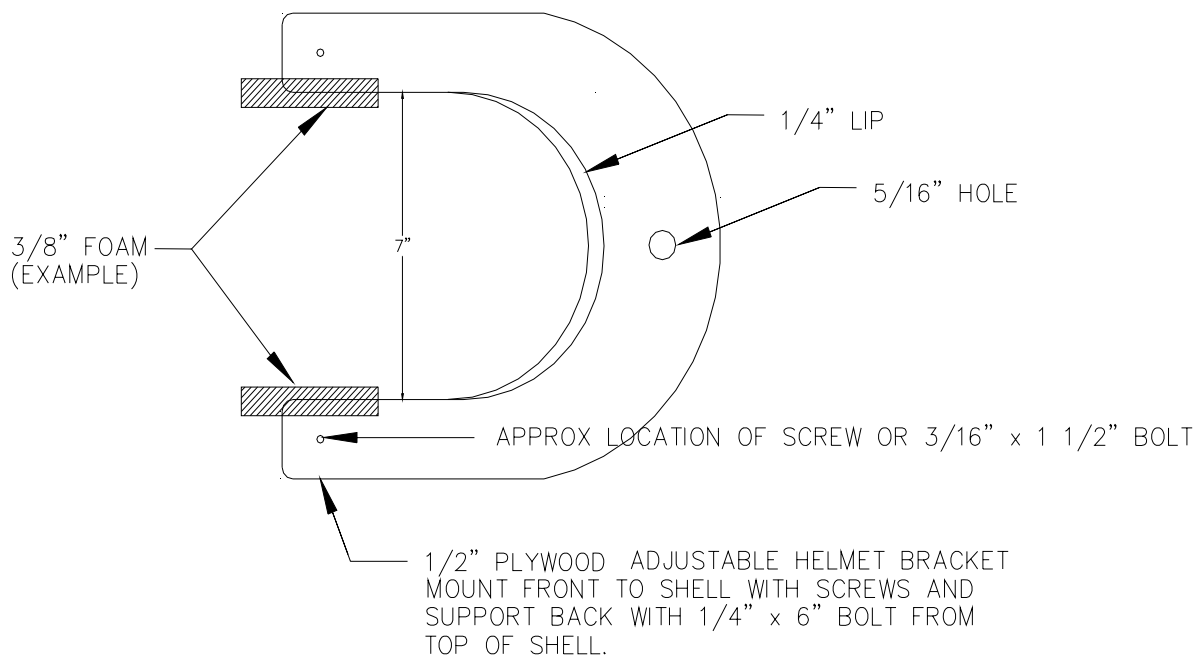
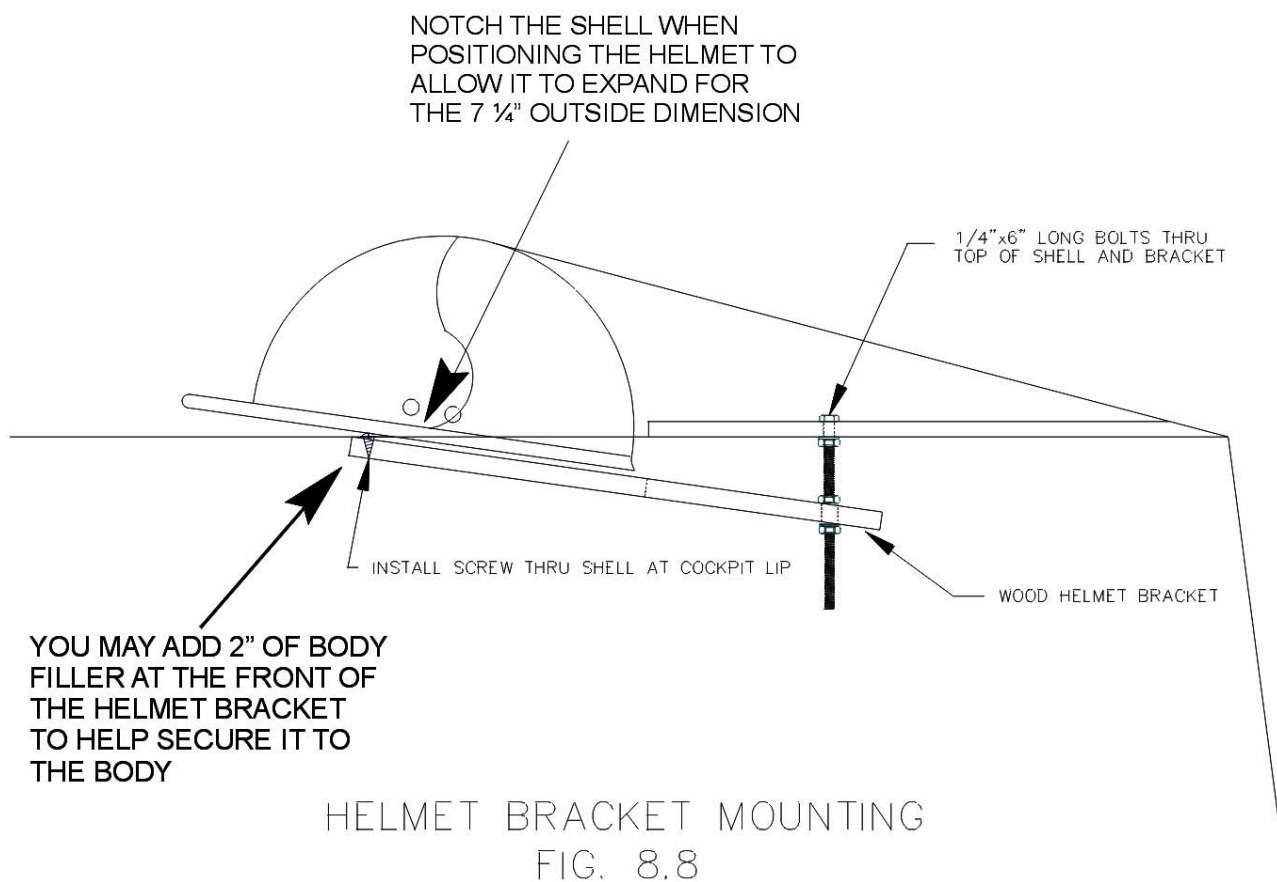
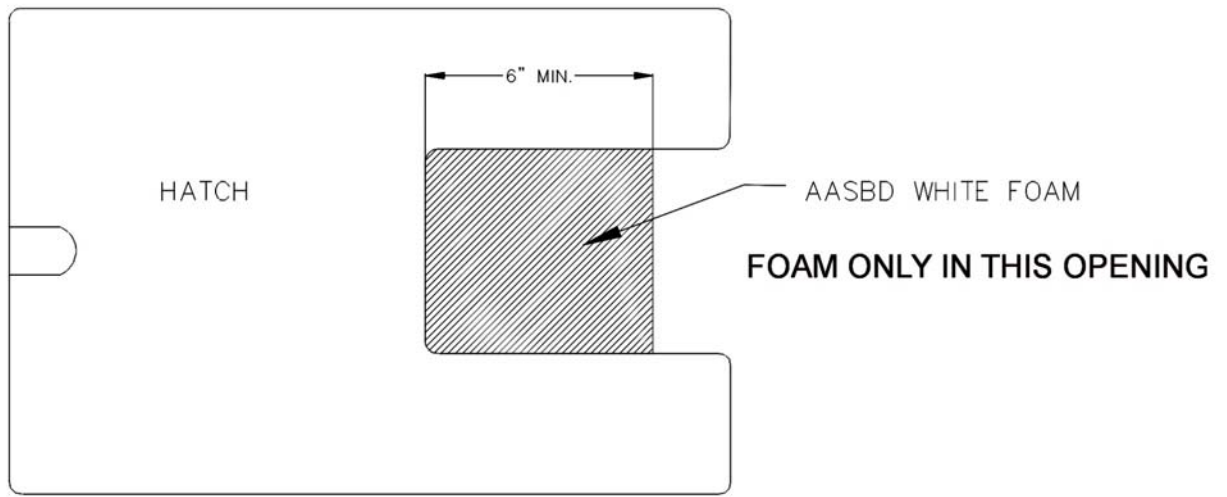


FIG. 8.7

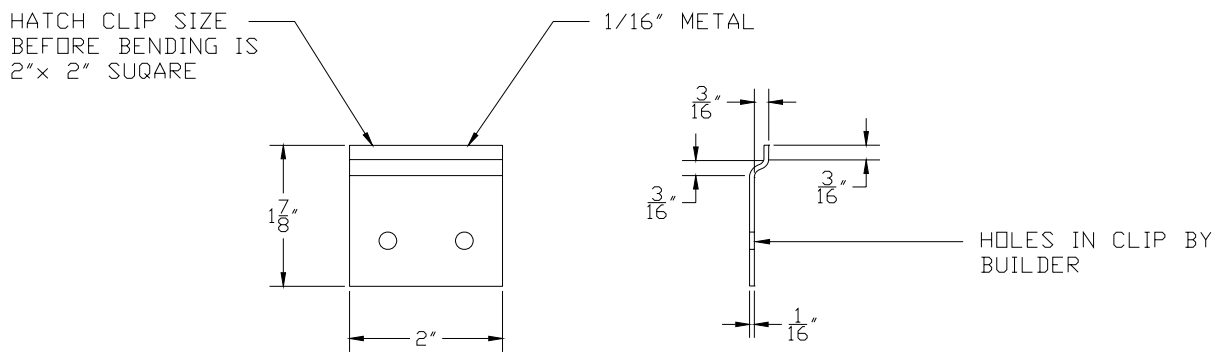


### **SM-8.05 Hatch:**

- a. The minimum opening in the car must be 12" wide and 21 1/2" long all the way to the floorboard.
- b. No side reinforcement of the cockpit opening is permitted.
- c. You must use the AASBD supplied single pin hinge for the cockpit hatch. The hatch and body may be reinforced with a block of wood, max size 2" x 3" x 3/4" (**MAX**), where the hinge bolts are attached to the hatch or body. Velcro, magnets, or a button pin may hold down the hatch. No sharp objects will be allowed. **All hinge bolts must be trimmed and filed smooth on the inside of the car for safety. You may use bolts & nuts of your choice for the hinge or AASBD issued bolts & nuts.**
- d. The area in front of the helmet must be padded with dense foam. AASBD has supplied a dense white sandable foam in the kit to ease installation. **Do not put anything but foam in this area. Glue two pieces of foam together if you need longer foam . NO BODY FILLER.**
- e. AASBD issued foam must be used.
- f. You must be able to open and shut the hatch with the helmet in driving position. No painting over foam will be permitted. **It may be dyed or colored with markers.**
- g. There must be a minimum of 6", of AASBD white foam installed in the hatch cutout area, in front of the drivers face. See fig. 8.9.
- h. If a sight groove in the foam is used, it must be a min. of 5" wide by 1/4" deep.
- i. A 2" x 2" clip will be allowed on both inside edge of the hatch opening to keep the body from spreading. This will be the only object allowed to intrude in the 12" wide cockpit opening area.



HATCH TOP VIEW  
FIG. 8.9



ONE CLIP ON EACH SIDE OF THE COCKPIT OPENING LOCATED APPROX IN CENTER OF COCKPIT OPENING FROM FRONT TO BACK

COCKPIT HATCH CLIP

## **SM-9.00 Airfoils:**

- a. Unaltered AASBD issued airfoils are permitted on the leading and trailing edges of the front and rear axles.
- b. Airfoils may be mounted flush to the axles.
- c. Airfoils may not extend beyond the square stock of the axle.
- d. Airfoils may be painted **or wrapped**.
- e. Airfoils must be installed with the smaller fairing as the leading edge.
- f. Airfoils may not extend into the body of the car. Trim the airfoils to match the body shape.
- g. AASBD axle logo must be visible on both axles for inspection.
- h. Foam may be used to fill the gap between the airfoils and the car body. Foam must be installed on the end of the airfoil and must conform to the same profile as the airfoil.
- i. Leading edge airfoils must be screwed, bolted or pinned to axle using the two predrilled holes in the axle. The trailing edge may be fastened with screws, pins, bolt or combinations.
- j. If tape is used to help secure the air foil to the axle, only two pieces of 2" wide clear tape, per airfoil may be used.
- k. Tape alone to secure the air foil to the axle will not be allowed.

## **SM-10.00 Wheels:**

- a. Four wheels must be run on the car; two front and two rear. **ALL FOUR WHEELS MUST BE TOUCHING THE GROUND AT ALL TIMES.**
- b. Only official unaltered Soap Box Derby wheels can be used.
- c. Tampering with or altering in any way, any part of the wheels, bearings or tires is prohibited and may be cause for disqualification.

## **SM-11.00 Lettering and Decorations:**

1. AASBD National Sponsor Decals, Size and Placement
  - a. Decals will be placed in the area located 2" above the bottom of the floorboard, not covering any screws attachment and continue up 10" toward the top of the race car. This area will begin at the front of the hatch and continue forward for 24". See Figure 11.0 for diagram.
2. Local sponsor and city decals
  - a. The car sponsor, local sponsor, race city, and driver's name can be placed on the left and right side of the racer. This area will be 30" in length and placed below the hatch opening. The car sponsor, local sponsor, race city, and driver's name are not mandatory decals; however, if you wish to have them on the car and would not like them covered in any way by mandatory decals, the cockpit area is the guaranteed free space. Race city name is mandatory at the AA race on championship cars. See Figure 11.0 for diagram.
3. AASBD Logo
  - a. The AASBD (3"x3") decal will be placed on the top of the shell directly behind the headrest area. See figure 11.0 for diagram.
4. **ALL DECALS MUST BE ON ALL RACE CARS DURING ANY LOCAL RACE, RALLY RACE, AND THE ALL-AMERICAN RACE. THIS RULING MAY NOT BE WAIVED BY LOCAL OFFICIALS. ALL DECALS MUST REMAIN IN THEIR ORIGINAL CONDITION – ALTERATIONS OR COATINGS ARE NOT PERMITTED.**
6. Shell may be painted on the outside only – overspray on inside of shell is not permitted. Floorboard may be treated with a light coating of wax. Painting is not permitted on any side of the floorboard.
7. **Shell may be covered with wrap material instead of paint. If wrapped an area on the nose must be left clear of wrap material. It is a one inch wide strip running from the bottom of the shell to where the curve of the nose starts, this area may be painted.**
8. **No decals, tape or other adhesive material may be placed on the nose where starting paddles may rest.**

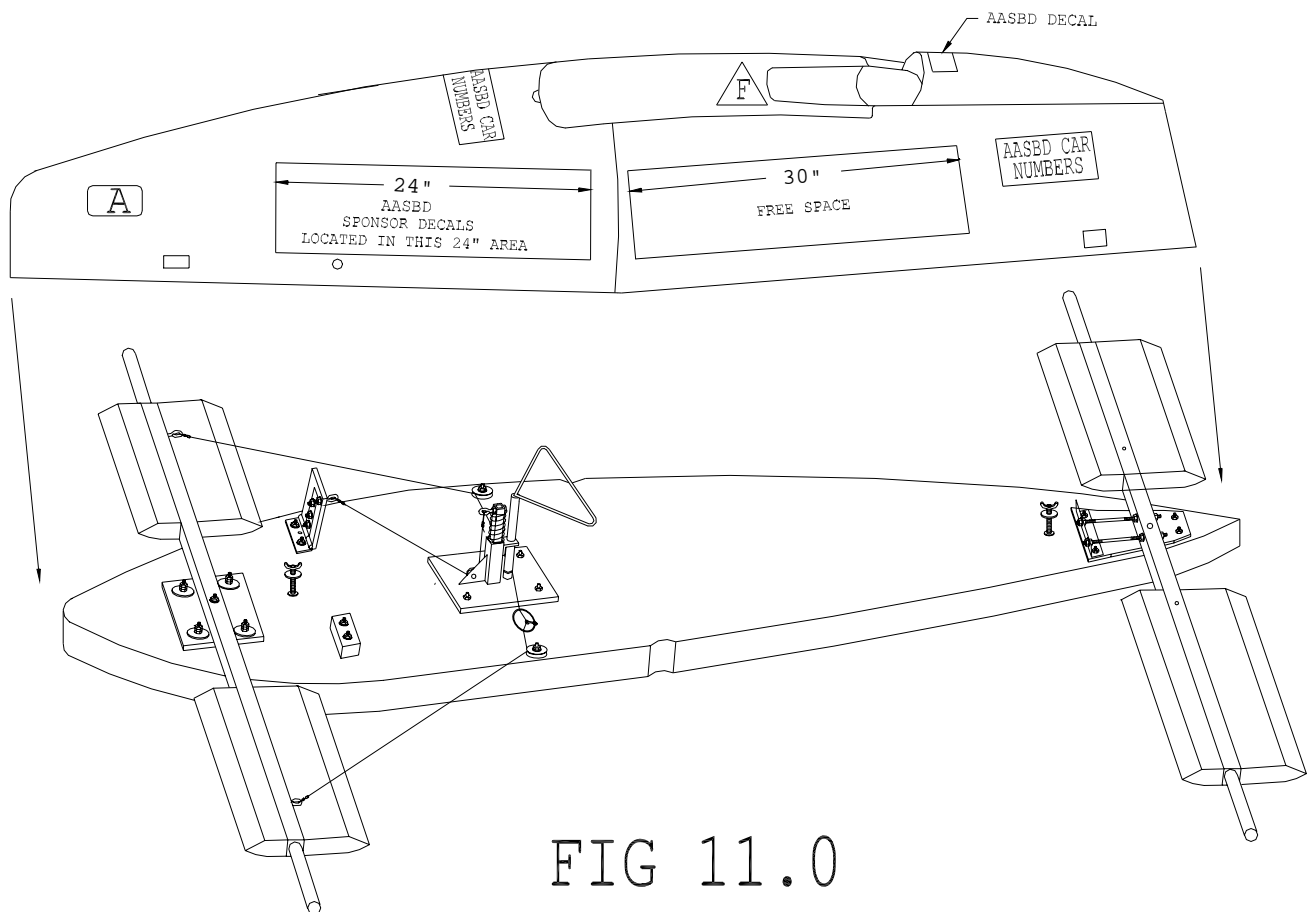


FIG 11.0

### **SM-12.00 Prohibited Construction:**

#### **THE FOLLOWING ITEMS ARE NOT PERMITTED**

- No welding or brazing, of any type of any part of the racer. The only exceptions to this rule is welding or brazing required in parts supplied by the AASBD.
- Loose materials or weights.
- Ready-made purchased parts designed for Soap Box Derby racing not approved by the AASBD.  
(This includes axles, axle mountings, & steering assemblies.)
- Fiberglass or similar reinforcement is not permitted, **Other then National Control board authorized repairs.**

### **SM-13.00 Inspection:**

- Cars with hidden material or errors in construction must be corrected within a one hour timed period.
- Floorboard dimension will be measured on the bottom of car. Any alteration to the original shape of the floorboard will result in replacement of the floorboard

### **SM-14.00 Clarifications or Questions:**

ANY QUESTIONS DIRECTED TOWARD  
THE NATIONAL CONTROL BOARD  
PERTAINING TO ANY RULE MUST BE REQUESTED IN WRITING  
PLEASE INCLUDE YOUR NAME, ADDRESS AND PHONE NUMBER  
 MAIL TO: AASBD, PO BOX 7225, AKRON, OH 44306  
 E-MAIL: SOAPBOX@AASBD.ORG  
 PHONE:330-733-8723 FAX: 330-733-1370  
ANSWERS WILL ONLY BE GIVEN TO QUESTIONS THAT  
HAVE BEEN SUBMITTED IN WRITING.



**2011 SCOTTIE MASTERS  
INSPECTION SHEET**

**AASBD  
Car Number**

Inspection Area	Inspection Item	Description	Pass?
<b>Car Dimensions</b>	Girth	36-1/2 inches high minimum, at hatch hinge	_____
	Nose Height	8-1/2 inches high, 4-1/2 inches back minimum	_____
	Wheel Base	65 inches minimum, spindle to spindle	_____
<b>Shell</b>	Outside Shell	Body fillers at seams and headrest only	_____
<b>Headrest</b>	Helmet	First rivet must be visible	_____
	Helmet Width	Cannot change shape of helmet when put into headrest; 7-1/4 inches outside between rivets	_____
	Helmet Cutout	7 inches wide to first rivet	_____
	Shell Cutout	Sides of shell must be padded with 3/8 inch thick foam	_____
<b>Hatch</b>	Hinge	AASBD issued	_____
	Wood Backing	Optional 2 x 3 x 3/4 inch maximum wood block	_____
	Sight Groove	Optional 5 inch minimum width, 1/2 inch maximum depth	_____
	Foam	AASBD issued foam, 6 inches of foam in front of face	_____
<b>Floorboard</b>	Shape	No alterations	_____
	Sealer	Wax only	_____
<b>Axle Mounting</b>	Axle Mounting Plates	AASBD issued. AASBD logo must be visible	_____
	Axle Mounting Plates	First plate may be epoxied to floorboard	_____
	Kingpins	AASBD issued kingpins and bushings only	_____
	Angle Iron Rear Axle Mounting Assembly	Installed per plan	_____
	Alternate Rear Axle Mounting Assembly	Installed w/carriage bolts and nuts AASBD issued	_____
<b>Steering</b>	Attachments	Cable clamps & eyebolts must be visible at axle without removal of any parts	_____
	Turning Radius	3/8 inch minimum, 1 inch maximum each direction	_____
	Floorboard Pulleys	AASBD Drilled location	_____
<b>Brakes</b>	Brake Pedal	3/4 inch plywood or pivot style brake	_____
	Brake Facing	New AASBD brake pad installed	_____
	Brake Hinge	AASBD issued	_____
	Foot Brace	Required 3/4 x 3/4 x 3 inch minimum size	_____
<b>Axles</b>	Date	2004 or newer	_____
	Logo and Date	Axle Logo and date must be visible	_____
	Kingpins	3-1/2 inch grade 8 and must be visible	_____
<b>Airfoils</b>	Foils	AASBD issued	_____
	Mountings	Four 3/16 inch holes per axle	_____
<b>Weights</b>	Bolts	5/16 inch bolts	_____
	Adjustable	10 pounds minimum (with wing nuts)	_____
<b>Decals</b>	Shell decals and decorations per plans	Locate per Figure 11.0	_____
	All-American Soap Box Derby Number		_____
	Title/National Sponsor(s)		_____
	Local Race City Organization OR Rally Region		_____
<b>Steering/ Hand Brake</b>	Guidelines Met for Use	Drivers feet touching or on front axle plate	_____
	Installed per Directions	Brake cable double looped & double clamped	_____
<b>Construction</b>	Errors in Construction	Repairs must be completed within one hour	_____

The persons signing this document acknowledge that, as a condition precedent to participation in the All-American Soap Box Derby (AASBD) World Championship in Akron, Ohio, the cars of such winner must pass an inspection conducted in Akron, Ohio by the AASBD representatives chosen by and in the sole and absolute discretion of the AASBD. The inspection shall be conducted by the AASBD in accordance with the applicable rules, spirit, plans and specifications as the AASBD shall determine and it is understood and agreed that the decision of the AASBD regarding compliance with these items as well as qualification/disqualification of any car shall be final and binding upon all parties.

**Local Race Director Signature** \_\_\_\_\_ **Date** \_\_\_\_\_ **Regional Director Signature** \_\_\_\_\_ **Date** \_\_\_\_\_