



S&W Race Cars and Components, Inc.

11 Mennonite Church Road
Spring City, PA 19475

TECH & INFORMATION: 610-948-7303

ORDERS: 1-800-523-3353

FAX: 610-948-7342

CAUTION!!! - *The most important requirement for a successful installation of this, or any, S&W chassis component is that you take your time and use good common sense. Check & recheck all measurements before cutting or welding. If at any time before or during the installation - STOP - and call our tech line at 610-948-7303 and we will gladly explain in more detail any step in the installation.*

Please read complete instructions thoroughly before beginning! **Installation Instructions for 10-502 82-92 Camaro Welded Frame**

Installing a welded frame unit into a clean stock car is a relatively easy job, although there are certain precautions that should be taken for your safety and to insure that the finished product is aligned properly. It is recommended that you wear eye protection during the removal of the stock floor, suspension and other components, and during welding and fabrication. Proper supports and jack stands must be used, not only for construction purposes (such as keeping the chassis level), but also for safety reasons. This work should be performed in a dry, well lit shop with a level or near-level floor.

While installing your welded frame unit, remember that the quality of your workmanship will directly affect the ultimate strength of the entire race car structure. It is important that all areas to be welded are clean, free of oil, slag, paint, undercoating and, of course rust.

Quality work requires the proper tools. Here is a list of some of the tools you will need.

- A. Common hand tools - for removing the stock suspension components and car interior.
- B. Jack stands - for supporting the car and new frame unit.
- C. Floor jack - for raising the car, removing the rear housing and raising the new welded frame unit into place.
- D. Measuring tools - 12' tape measure, level, inclinometer, plumb line, string, large square felt tip pen or soap stone.
- E. Cleaning tools - gasket scrapers and wire brush to remove undercoating.
- F. Cutting tools - Oxyacetylene torches, hand-held reciprocating saw or rotary grinder with a cutting disc.
- G. Welding equipment - a MIG welder is recommended. If possible, use of a stick welder should be avoided. *(Cars that are stick welded will not pass NHRA or IHRA technical inspection!!)* TIG welding is acceptable, but is unnecessary for this type of work.

- 1) With all stock components still in the car, measure and record the wheelbase and mark the rear axle centerline on the car body, directly above the wheel opening.
- 2) Raise the car to a comfortable working height, and level front to back and side to side. This can be done front to back by placing the inclinometer or level on the rocker panel. Level the car side to side by placing the level on the front crossmember and on a horizontal floor panel at the rear of the car. (**See tech notes #1 & #2.**)

- 3) In order to insure that you locate the welded rear frame unit properly in the car you must determine the chassis centerline (C/L). This reference is critical when it comes time to center the frame and rear suspension under the car. The chassis C/L is the midpoint line that runs the length of the car. To find the C/L, drop a plumb line from the same two points on opposite sides of the car to the shop floor. Do this at the front and rear of the car. We suggest using the front control arm mounting points and the seam between the rear of the rocker panel and quarter panel. Now measure half the distance between each set of plumb line marks on the floor. Each of these half distances can be connected and a straight line can be drawn on the floor running from front to back,



Photo #1

which represents the centerline of the car. It is a good idea to drop a plumb line to the centerline on the ground and transfer it into the car by punching marks on a few crossmembers. Now, if you have to move the car or when you do future work, the centerline can be quickly reestablished. The centerline can also be used for suspension alignment work.

- 4) Remove all stock components such as front and rear seats, carpeting and insulation, interior trim panels, rear wheels and tires, rear axle assembly, rear springs and shocks, brake lines, fuel tank and lines (remove electric fuel pump if rear mounted) and any rear mounted electrical components or wires.

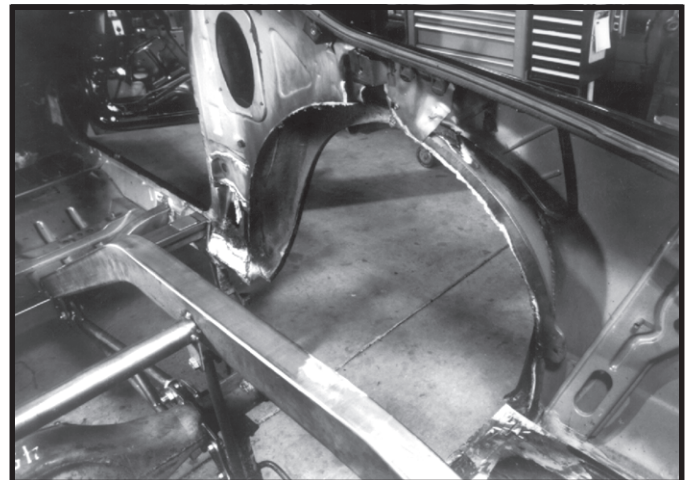


Photo #2

- 5) Cut out the stock floor and inner wheel wells. (**See photos #1,2 & 3**) This initial construction step is one of the most critical, if neat workmanship is going to be accomplished. Throughout the cutting process, keep an eye on the door and body alignment. Any change in the gap or angle of the door to sill clearance will alert you to bending, twisting or drooping of the car. Make a straight cut, 37" forward of the axle center line, from the bottom of each rocker panel to the base of the driveshaft tunnel. (**See drawing**)

We recommend you cut the driveshaft tunnel back on the same angle as the frame rails.

(**See photo #1**) For your own safety, make sure you support the floor during this step. Grind off all welds and slag from the body panels after removing the stock sheet metal.

(**See tech notes #2 & 3**)

- 6) It is now time to install the Camaro frame unit. If this step is not done correctly and misalignment occurs, you will have a car which will not launch or drive straight. In future chassis tuning work, you may have to compromise the suspension components to overcome your unsquare race car.

a) Install two 1/8" plates on the body at the rear of the car, the same width as the frame rails. Use your chassis C/L to establish the side to side location of the plates. Plates should remain flat, but trim edges to clear any obstruction. **(See photo #4)**

b) The leading edge of the front crossmember will be 37" in front of the axle centerline. Use the remaining 1/8" plates and form a cross member mounting pad on the rocker panel boxes. Form the plates so that they follow the contour of the stock sheet metal as closely as possible. This can be done with a metal brake or by tacking one edge, heating and forming. **(See photo #1)**

c) Trial fit the S&W welded Camaro frame unit into the car. Lift the frame unit into place. Level the frame unit from front to back and side to side. Check to side to side location using the chassis C/L. Inspect all clearances and the alignment with the 1/8" plates.

d) If you are satisfied with the installation, tack weld the new S&W frame unit in place. **Tack weld only!!!!**

e) Recheck the squareness and location of the welded frame unit with the chassis C/L. Recheck all clearances. This includes the distance from frame rail to tire and from tire to fender.

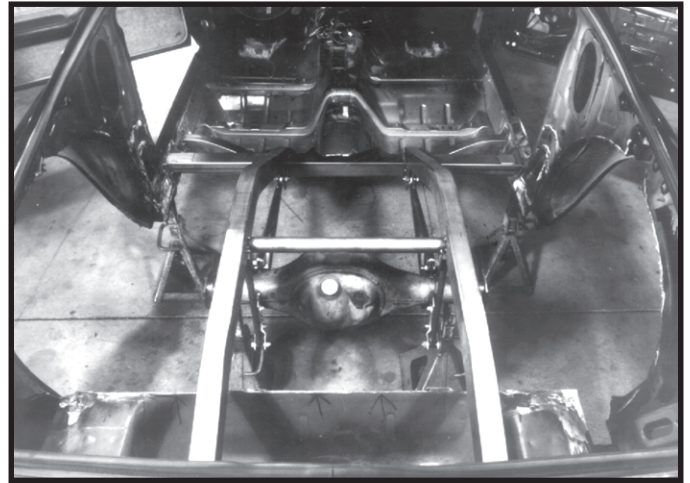


Photo #3

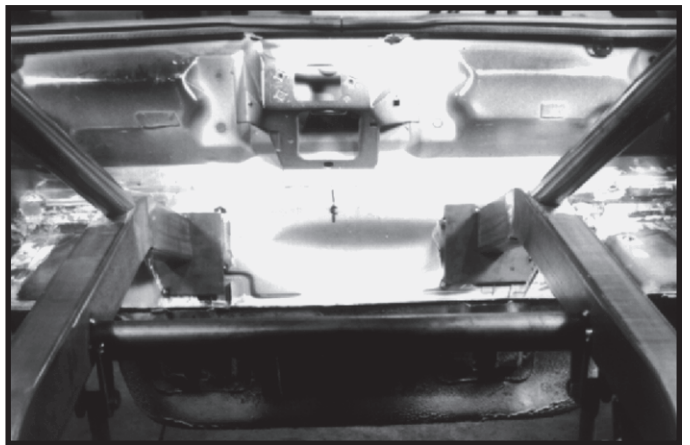


Photo #4

7 With the welded frame unit tacked in place, the next step is to install the frame connectors and roll bar outriggers. Installation of these components will join the new welded frame unit with the original front subframe and the car body to form one strong structural unit.

(See tech notes #1, 2 & 4)

a) The connectors are installed with the 3" edges as the horizontal surfaces. The back of the connector is to be located directly ahead of the rear suspension mounting points. The front will be welded to the stock front subframe. Cut front subframe to match connectors. The connectors will not be parallel - this is the correct installation.

b) Fit the connectors in place and tack weld. Recheck all dimensions and alignment.

c) Position roll bar outriggers, between frame and rocker panels, where necessary for proper main hoop installation.

8. Finish weld the frame rails and crossmember to the mounting plates. Finish weld the connectors to the frame unit and front subframe. **(See photo #1 & #4)**

9. Refer to instructions included with ladder bars, panhard bar and shock & spring kit for proper installation of these components.

TECH NOTES

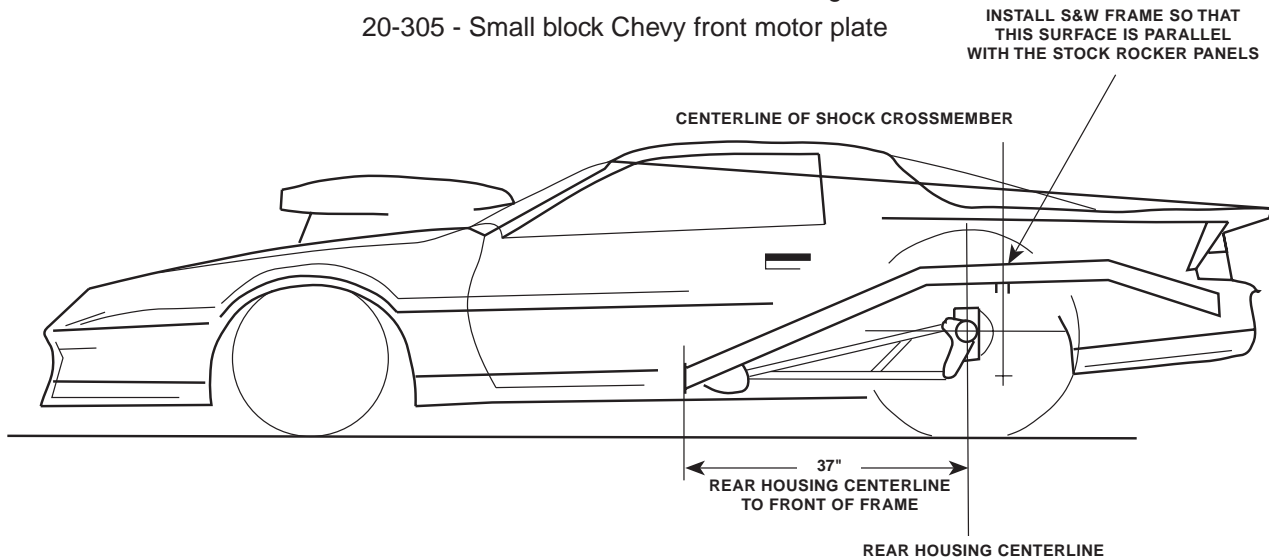
- 1) When leveling & supporting the car, be sure to keep it from drooping. If the car is bent while the welded frame unit is being installed, you will have door alignment problems & the potential for pre-load and handling problems.
- 2) Keep the car doors closed during the construction process and position the jack stands to give you the widest base of support possible. With the car raised and level support it at six (6) locations, one of these being the rear bumper area.
- 3) Sparks from cutting, welding and grinding can damage windows. Be sure to sufficiently cover or remove windows to avoid damage.
- 4) From the first step to the last **ALWAYS BE AWARE, AND MAINTAIN THE CAR'S LEVEL CONDITION!!**

The installation of this welded frame unit does not result in a completed chassis!

We recommend the installation of at minimum an eight point roll bar before operating the vehicle.

The following parts are available from S&W Race Cars for the 82-92 Camaro/Firebird and are designed specifically to work in conjunction with your newly purchased rear frame package.

- 11-013 - 8 point roll bar
- 11-513 - 10 point roll cage
- 45-1465 - 9" Ford narrowed rear housing
- 20-305 - Small block Chevy front motor plate



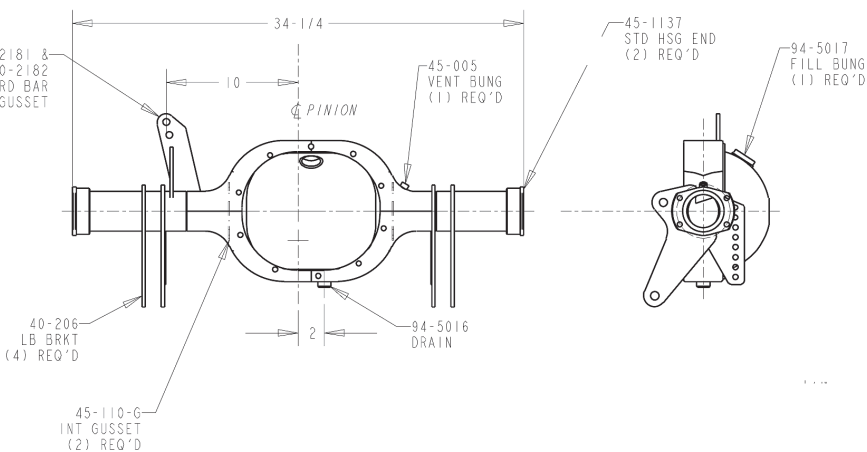
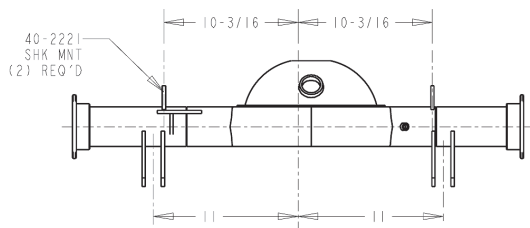
INSTALL S&W FRAME SO THAT
THIS SURFACE IS PARALLEL
WITH THE STOCK ROCKER PANELS

CENTERLINE OF SHOCK CROSSMEMBER

37"
REAR HOUSING CENTERLINE
TO FRONT OF FRAME

REAR HOUSING CENTERLINE

NOTE:
1. CENTERED PINION.



The S&W Race Cars 82-92 Camaro rear frame package is designed to use wheels and tires with the following dimensions

Wheels - 14" wide with a 4" rear spacing

Tires - 21.5 x 33 Mickey Thompson
- 15 x 33 Goodyear

The rear housing *with axles* should measure 38-1/2" axle flange to axle flange. Housing uses #45-1137 new style big ford housing end

Mount all brackets as shown at left.