

## 7124 HEAVY DUTY 3 X 2 FRAME, A-ARM, LADDER BAR

<u>ITEM</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	1833	Tube 1 5/8 x .120 x 96"
2	2	1112	Rack and pinion mount
3	4	2101	Suspension tab, 1/2 hole
4	8	2102	Lower A-arm bracket 3 x 2
5	4	2301	A-arm bracket cap
6	2	4505	Heavy duty front frame a-arm 3 x 2
7	2	4506	Heavy duty rear frame-ladder bar 3 x 2
8	1	1834	Tube 3 x 2 x 96"
9	1	1835	Tube 1 1/4 x .083 x 96"
10	2	2001	Frame end cap
11	2	2012	Front mount gusset
12	2	2329	Control arm cap
13	4	2100	Ladder bar front mount
14	8	2125	Frame tab 1/2 hole
15	2	1836	Tube 2 x 2 x 96"
16	4	1000	Misalignment bushings
17	2	3100	Bolt 1/2 - 20 x 2 1/4
18	2	3200	Locknut 1/2 - 20
19	2	3218	Lockwasher 1/2
20	2	2128	Rack washer
21	2	3102	Bolt 1/2 - 20 x 2
22	1	927124	Assembly drawing

This frame kit is designed to be used with a 14 point roll cage, CHASSISWORKS part #7015. The roll cage is mandatory to properly support the frame. In lightweight vehicles, 2800 lbs. or less, the frame can be used without a cage. The body should be prepared for the frame by first measuring forward from the rear axle centerline and marking the rocker panel at 31 inches. The wheelbase should also be measured, this will be Dimension "A". Both of these dimensions will be used when installing the frame. Dimensions "A" through "F" need to be determined by you. Write them on the Assembly Drawing in the boxes provided. The instructions will help you determine the dimensions.

Remove the stock frame, floor, and suspension but not the front fenders. The frame can be installed without completely removing the floor if you simply slot the floor for the frame, however, this method is a lot more difficult and will result in a much heavier car. Before starting, position the body so it is at the desired ride height off the ground. Block the rocker panels and rear of the frame so the car will be held steady. You need at least 4 1/2 inches of ground clearance. Do not let your car sit too low.

1. Install the 3 x 2 crossmember first. When you cut the floor out, you should have left the inner part of the rocker panel in place. The rocker panel should be neatly trimmed to allow for a good fit of the crossmember. The crossmember does not have to be dropped, the drive-shaft passes above it. If your inner rocker panel is not straight, you will have to contour the ends of the crossmember. Make sure you have a good fit to the rocker panel or it will be difficult to weld. Tack weld the crossmember in place so the rear side is 31 inches forward of the rear axle centerline (the dimension you previously measured).

2. Cut the 9 inch long straight off the front of the rear frame rail. Measure from the back of the crossmember to the tail light panel, this length will be Dimension "D" plus 31 inches. Cut the frame rails to this length and tack them in place. The frame rails should be centered in the car an equal distance from the car's centerline. They should be 28" to 20" wide on the outside, this will be Dimension "E". Make the frame as wide as possible while leaving enough room for the tires. Make sure the rails are centered on the tail light panel, the quarter panel, and on the crossmember. They should both be an equal distance from each side of the car and at the same height. Measure diagonally to make sure they are square.

3. Install the crossmembers. The rear crossmember should be even with the bottom of the frame and approximately 1/2 inch forward of the tail light panel. Weld the shock brackets to the center crossmember at the dimension shown on the assembly drawing. Make sure they are straight to each other. Put the crossmember between the frame rails at the dimensions shown.

4. Install the chassis ladder bar mount. The ladder bar mount attaches to the bottom of the frame and crossmember. The brackets are even with the outside edge of the frame. Use a rod end to get the correct spacing between them. The brackets must be straight or the ladder bar will not fit right. Install the ladder bar front mount gusset.

5. The two 1/2 x 2 1/4 inch bolts and the two 1/2 inch locknuts are used in the upper shock mounts to mount the shocks. The four misalignment bushings are also used in the shock mounts. One goes on each side of the shock bearings to fill the gap in the shock mount bracket. Use #6216 Adjustable Shock Mount for the lower mount.

6. Before you can install the front frame, you must determine what frame width you need for your tires to clear your fenders, this will be Dimension "F".

**Step 1:** Determine the outside front tire width that you need. Measure the width between the front fenders. You will need 4 to 5 inches of clearance from the side of the tire to the inner front fender lip. Subtract 8 to 10 inches from the inner fender width. This will equal the outside tire width.

**Step 2:** To determine the hub width, you need to know how much wider the outside of the tire is than the front hub. Put a yard stick across the outside of the tire and measure through the center to the side of the wheel that bolts to the hub. When the wheel is bolted on, it is this much wider than the hub. Multiply this by 2 and subtract this amount from the outside tire width you calculated in step one. This will be the required hub width.

**Step 3:** Subtract 26 1/4 inches from the hub width to find the outside frame width. The frame cannot be narrower than 24 inches. Write your frame width on the Assembly Drawing.

7. Position the new frame rails in the chassis. The rear end will most likely be too long, it attaches to the crossmember welded between the rocker panels. Try to put the first bend by the new firewall location. This will be determined by Dimensions "B" and "C". If the front frame does not clear the grill work, shorten it. Be careful not to cut too much. The end of the frame must be at least 13 inches forward of the front spindle centerline. The rails should be parallel at the correct width you determined and centered in the frame. Measure diagonally to make sure the frame is square. Measure from the side of the frame to the body in several places to make sure the frame is centered in the body.

The top of the frame rail (measured at the front spindle line) should be 16 1/4 inches off the ground. This will give you 4 1/2 inches of ground clearance on the bottom of the frame. The frame does not have to be level in the engine bay or the driver's compartment. Use whatever frame rake is necessary to attach the rear of the frame correctly. The top of the frame in the engine compartment should be within 3 degrees of level.

8. Install the 2 x 2 top rail of the double rail frame. The 2 x 2 rail should be installed at whatever angle is necessary to make the floor installation easier. It does not have to be parallel to the lower rail. Use 1 to 3 uprights made from 2 x 2 to space the top and bottom rails apart. The top rail can extend above the floor into the driver's compartment.

9. Measure forward from the crossmember between the rocker panels to locate the front spindle line, this dimension is equal to Dimensions "B" and "C". Use a large square or plumb bob to put a line on both sides of the new front frame rails which will represent the front spindle centerline. All of your brackets will locate off of this line.

10. Using the A-arm assembly tool #6706, install the lower A-arm brackets to the frame. Bolt the brackets together with the correct spacers. See the Assembly Drawing for the correct dimensions. Hold the assembly under the frame and tack it in place. The rear A-arm bracket goes 3/4 of an inch behind the spindle centerline. Use the control arm cap to gusset the front pair of lower A-arm brackets. Use two lower A-arm bracket caps on each rear set of lower A-arm brackets. One caps the bottom of the brackets and the other provides an additional gusset for the top adjustable shock mount. See the Assembly Drawing for the correct location.

11. Cut the 3 x 2 inch tube to the correct length for the rack and pinion crossmember. Install it between the front A-arm brackets so it is even with the bottom and rear edges of the front A-arm brackets. Install the rack and pinion mounts per the dimensions on the assembly drawing. If the frame outside width is less than 29 inches, you will have to trim the driver's side rack and pinion mount as it will actually weld to the lower A-arm bracket. Just tack weld the rack and pinion mount in place until after you have checked for bump steer on the front end.

12. Install the upper A-arm brackets and adjustable shock mount (purchased separately). Use the #6706 Spacer Set to properly space the brackets. See the Assembly Drawing for the correct dimensions. Position the A-arm brackets so the adjustable shock mount is 1/4 inch forward of the front spindle line. Just tack weld the upper mounts in place until after you have installed the A-arms and been able to properly align the front end.

13. Install the 1 1/4 inch tube supports from the rack and pinion crossmember to the A-arm brackets and to the lower frame. Check the assembly drawing for their location. Make sure you leave enough room to tighten the lower A-arm bolt.

14. Install the forward struts from your roll cage kit. The forward end should be attached to the frame forward of your upper A-arm brackets. Also, tie the frame to the roll cage at the firewall. Use the 1 5/8 tube for a cage side mount that will not create header clearance problems.

15. Install the complete front suspension and steering less the springs. Align the front end to 1/32 to 1/8 inch toe in, zero degrees camber, and 6 to 10 degrees of caster. The front end can be aligned by using a machinist level on the spindle flats.

16. Move the spindle through its full travel to make sure nothing binds up. Also, check for bump steer. If assembled correctly, all unnecessary bump steer can be removed by raising or lowering the rack and pinion slightly (1/16 of an inch at a time).

17. After everything checks out okay, final weld it all. Use the frame end caps to cap the front open end of the frame.

18. Use heavy duty splined u-joints and double splined shafts to connect your steering column. You may also have to grind some clearance on the forward rear lower A-arm mount on the driver's side for the lower u-joint of the steering column. You need tie rod adapter #6106 to lengthen or shorten the tie rods on the steering box because they will be the wrong length.

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