7459

INSTRUCTIONS FOR ELIMINATOR II A-ARM FRONT, 4-LINK REAR, MILD STEEL, 37-39 CHEVY COUPE

Item	Qty	Size/Part #	Tube Code	Description
1	2	4171		Cage side
2	2	7010		Forward strut, A-arm
3	1	4071		Main Hoop
4	1	4201		Windshield brace
5	2	4248		Rear frame Eliminator II
6	1	4709		Engine support loop
7	1	1 5/8 x 19	J	Rack and pinion crossmember
8	2	4206		Front frame 1 5/8 A-arm
9	2	1 5/8 x 49	A B	Long side bar
10	2	1 5/8 x 19	L	Upper side bar
11	2	1 5/8 x 25	I	Lower side bar
12	2	1 5/8 x 53	C D	Rocker support
13	1	1 5/8 x 39	E	Mid mount
14	2	4297		Main hoop to 4-link support crossmember
15	1	4296		Backbrace 54” wide
16	2	1 5/8 x 20	J	Rear frame crossmember
17	2	1 5/8 x 36	K	Main hoop rear strut
18	1	1 5/8 x 22	L	Transmission crossmember
19	2	1 5/8 x 5	A B	Cage side Mount
20	2	1 5/8 x 5	A B	Cage side support
21	4	1 5/8 x 5	C D	Frame upright
22				Item number not used
23	2	1 5/8 x 70	G H	Upper frame
24	4	1 1/4 x 24	R S	Frame diagonal
25	2	1 1/4 x 30	U	Rear frame support
26	3	1 1/4 x 24	T	Main hoop to rear strut back brace
27	2	1 1/4 x 36	M	Rear frame crossmember forward support
28	2	1 1/4 x 48	N O	Floor support
29	2	1 1/4 x 9	W	Rear strut support
30	4	1 1/4 x 6	X	Roll cage gusset
31	1	1 1/4 x 48	S	Cage top triangulator
32	2	1 1/4 x 36	P	Forward strut frame support
33	2	1 1/4 x 34	V	Frame triangulator
34	2	1 1/4 x 24	N O	Shock crossmember rear supports
35				Item number not used
36				Item number not used
37	2	1 1/4 x 36	Q	Lower bracket supports
38				Item number not used
39	4	2015		Frame end cap 1 5/8 round

Item	Qty	Size/Part #	Tube Code	Description
40	12	2101		1/2 hole suspension tabs
41	2	2300		Rack and pinion brackets
42	8	2103		Lower A-arm bracket 1 5/8 frame
43	4	2301		Lower bracket cap
44	2	2329		Control arm cap
45	2	3200		Locknut 1/2 - 20
46	2	3100		Bolt 1/2 - 20 x 2 1/4
47	4	1000		Misalignment bushing 1/2
48	1	927459		Assembly drawing

OPTIONAL PIECES FROM FUNNY CAR CAGE #7226

49	1	4230	Funny car cage auxiliary hoop
50	2	4231	Funny car cage support loops
51	1	1 5/8 X 17	Funny car cage top (made from spare tube from chassis)

All straight tubes are cut from two boxes labeled #4404, they contain the following tubes:

Qty	Size	Tube Code	Item from Instruction
12	1 5/8 x .134 x 72	A	9, 19 and 20
		B	9, 19 and 20
		C	12 and 21
		D	12 and 21
		E	13
		F	Spare
		G	23
		H	23
		I	11 and 11
		J	16 and 16
		K	17 and 17
		L	18, 10 and 10
12	1 1/4 x .134 x 72	M	27 and 27
		N	28 and 34
		O	28 and 34
		P	32 and 32
		Q	37 and 37
		R	24
		S	24 and 31
		T	26
		U	25 and 36
		V	33 and 33
		W	29
		X	30

When you receive your chassis, the first thing to do is to make sure you have all the parts. Use the above list of components to verify that you have all the parts. The bent cage parts will usually be banded together in two bundles. The straight tubes will come in two identical boxes labeled #4404. The brackets will be in a small box labeled #3000. The assembly drawing will be in

the same 8 1/2-x 11" envelope these instructions were in. If anything is missing, contact Chassisworks for assistance.

The straight tubes boxes will provide enough material to build your chassis provided you cut the correct lengths from each tube. The above chart will give you a guideline. The length of each tube from the instruction sheets are approximate. Do not cut the tubes before you need them and try to cut the long tubes first.

Chassisworks makes no guarantee or claims that this chassis will be accepted by any sanctioning body. It is the sole responsibility of the chassis' owner to determine that this chassis can be used for the owners intended use. We suggest that you carefully examine the rules that pertain to chassis construction for the associations that you race under and, make sure that this chassis fits those rules. We also require you to measure the diameter and wall thickness of every tube (bent and straight) that goes into the chassis to make sure it is the correct size for the rules. With the advent of sonic testing, it is important that you measure the wall thickness of every tube in the roll cage that is subject to the sonic test. See your Association Rule Book to determine which tubes must be a specific minimum wall thickness. Do not install any tube that is not at least the minimum. Chassisworks will replace any tube that is undersized and has not been installed.

Read all the instructions completely and make sure you understand them before you begin. Only tack weld the chassis components whenever possible. This will make it easier to remove components if you make a mistake. All joints that are covered by another tube or bracket must be completely welded before they are covered up. This chassis must be tig (heliarc) welded by an experienced welder - your life depends on it!

Construction of a chassis cannot be accomplished without a jig. To assemble the chassis you will need a level surface as large as the car. This should be a steel table or an "I" beam. You will need to hold the body up off your surface at ride height, the table surface will simulate the ground. Also, weld a little of each joint at a time to help avoid distortion.

Do not assemble your chassis using only the dimensions on the assembly drawing. You must use a body to help in tube placement. The dimensions on the assembly drawing are for a 1937-1939 Chevy Coupe.

This chassis can easily be modified to fit other fat fendered size cars. Most fat fendered cars are very close to the same width inside. They also have very similar windshield angles. This allows this cage to fit many cars. When altering the dimensions on the assembly drawing for different vehicles, do not change any dimensions that affect where any front or rear suspension brackets mount in relation to other brackets or the chassis will not work.

To vary the wheelbase, lengthen or shorten the distance from the firewall to the front axle centerline. If your body has a shorter wheelbase, do not shorten the driver's compartment more than is absolutely necessary, you need the leg room for the driver.

When altering the dimensions on the assembly drawing for different vehicles, do not change any dimensions that are not inside rectangular boxes. Only the dimensions in the boxes should be altered to fit different vehicles.

Prepare the body for the frame by first measuring forward from the rear axle centerline and marking the rocker panel at 23 inches. This dimension will be used to position the body correctly on the chassis when viewed from the side. The mark on the body at 23 inches should be in line (when viewed from the side) with the back of the main hoop crossmember where the 4-link mounts. This will position the new chassis rear axle centerline in the same location in reference to the body that the stock rear axle centerline had. In some vehicles, it will be necessary to move the rear axle centerline rearward 1 to 3 inches from stock to provide adequate room for the rear wheel tubs against the fender. To do this, just move the body forward in reference to the chassis 1 to 3 inches. Measure the stock wheelbase and this will be Dimension A. In some body styles, the front tires will have to be moved forward to provide enough room for the engine. If you move the front tires forward, add this amount to the wheelbase. If your body was also set back to provide wheel tub clearance, this amount will usually be added to the front fenders to make the front end long enough. Measure the width of the car at the rocker panels, you will need this dimension later to assure the body is installed at the correct width.

Cut up the body by trimming all inner panels. You just want the single outer skin. You need to attach the body at the rocker panel, A- pillar, B-pillar, rear valance, and top 4 corners of the cage. On steel bodies, weld tabs to the chassis and body that bolt together. This will make it easier to remove and re-install the body as you build the car. Fiberglass bodies should be attached to sheet metal plates and fiber-glassed inside the body. Cleco the body to the plates until the final assembly when the plates should be fiberglassed in. Do not use pop rivets, they will rattle out and crack the fiberglass.

Locate the body off of the jig at the correct ride height. Block the rocker panels and rear of the body so that the car will be held steady. Your jig will need a centerline from the rear of the car to a point forward of the front axle centerline. A string pulled tight will work fine. This will ensure that all chassis and body parts are centered.

1. Install the main hoop. It tilts back 4 inches and attaches to the front of the lower main hoop 4-link support crossmember at the junction with the rocker support.

2. Install the lower 4-link support in the chassis between the rocker panels. To position the lower 4-link support in the car, you must place the backside 23 inches forward of the rear axle centerline. The rocker supports need to be cut to length and installed with the lower 4-link support.

3. Install the 4-link support in the chassis between the rocker panels. The dropped portion of the support attaches to the rear of the main frame. The top of the 4-link support is level with the doorsill, where it attaches to the main hoop. To position the 4-link support correctly in the car, you must place the backside 23 inches forward of the rear axle centerline. Fit the main frame to hold it up. Fit the main frame per the blueprint.

4. Install the upper 4-link crossmember. Use the 4-link chassis mounts to help position it at the correct location.

5. Install the rear frame rails per the dimensions on the assembly drawing. Measure from the back of the main hoop crossmember to the tail light panel. Subtract 23 inches and this will be Dimension D. The frame rails should be centered in the car and 3 inches narrower than the outside width of the 4-link brackets. This will be Dimension F. Make the 4-link brackets outside width as wide as possible while leaving enough room for the rear tires. Install the two rear frame

crossmembers per the assembly drawing. Install the rear upper shock mount so it is centered under the frame. Install the chassis 4-link front mounts on the main hoop crossmember and the upper 4-link crossmember. The upper crossmembers front side is even with the main hoop crossmembers rear side when viewed from the side. Two 1/2 x 2 1/4 inch bolts and 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 #6247 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 "G". Due to the many different front wheel and tire combinations, you should do the following calculations for your vehicle, even if it is listed in the chart.

***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 yardstick 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 front 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 grillwork, shorten it. Be careful not to cut too much. The end of the frame must be at least 10 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 inches off the ground. This will give you 3 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.

NOTE: The 37-39 Chevy body places the front grill very close to the front rack and pinion crossmember. In order for the grill to clear the front crossmember, the rack has been moved back 3 inches. The dimensions on the drawing already reflect this change. The only problem caused by relocating the rack and pinion is that Chassisworks standard lower A-arm #6110 will not fit the chassis. To use the #6110 A-arm on the chassis, cut the forward tube off the A-arm and reweld the two pieces back together 3” closer. Use the A-arm brackets welded to your chassis to act as a

weld fixture. Be sure to blast the chrome off the A-arm parts you will be welding back together. Chassisworks #6706 Assembly Tool for the A-arm brackets can be used to install the front suspension brackets if you shorten the 8 5/8" spacer tube 3 inches to 5 5/8".

8. Measure forward from the crossmember welded between the rocker panels to locate the front spindle line, this Dimension is equal to "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.

9. Using the A-arm assembly tool #6706, install the lower A-arm brackets to the frame. Remember the 8 5/8" long spacer will have to be shortened to 5 5/8". 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.

10. Cut the 1 5/8-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 crossmember in place until after you have checked for bump steer on the front end.

11. 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. Also install the forward frame struts. Make sure they clear the A-arms and shock mounts.

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

13. 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 shimming the tie rods up and down at the spindle or by raising or lowering the rack and pinion slightly (1/16 of an inch at a time).

14. Install the seat back brace in the center of the bend on the main hoop.

15. Install the upper frame rail per the blueprint. It runs from the rear frame forward of the 4-link on a slight outward angle to the main frame forward of the firewall.

16. Install the cage side mounts and cage side support tubes along with the frame uprights per the blueprint. This assembly is the cage side mount. The rocker supports should be

installed under the cage side mount and main hoop. The rocker supports should be positioned so the front ends are open.

17. Tack the cage sides in place. Keep the lower leg of the cage side and the frame as close to 90 degrees as possible. This will make installation of the firewall easier.

18. Tack the windshield brace in place. Make sure the front end is at the correct location.

19. Install the mid mount bar at the correct height.

20. Install the engine support tubes at the mid mount per the drawing (each “U” bend makes 2 parts). If the engine is too far back, it can be moved forward for more windshield clearance. The mid plate attaches to the front of the engine support tubes. Install the tubes at 2 degrees from perpendicular to the frame. Remember that the engine runs uphill to the rear 2 degrees. Install the front motor plate to the forward end of the frame’s forward struts.

21. Install the transmission crossmember, rocker supports, and frame triangulator when you are installing the transmission crossmember.

22. Install the remaining straight tubes, forward frame strut, rear main hoop struts and back brace, rear crossmember and frame supports, side bars and roll cage gussets. Make sure these additional tubes clear all parts of the body.

23. Use the frame end caps to cap the ends of the front and rear frame.

24. Recheck all dimensions, remove the body and finish welding the chassis.

25. Chris Alston's Chassisworks, Inc. carries a complete line of accessories to make completion of your car easier.

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