

7404
INSTRUCTIONS FOR 37 - 41 WILLYS COUPE
4130 CHASSIS STRUT, 4-LINK

<u>ITEM</u>	<u>QTY</u>	<u>SIZE/PART #</u>	<u>TUBE CODE</u>	<u>DESCRIPTION</u>
1	2	4377		Cage side
2	2	4381		Forward strut
3	1	4379		4-link support
4	1	4380		Back brace
5	2	4341		Main frame
6	1	4723		Rack and pinion crossmember
7	2	4340		Rear frame
8	1	4376		Main hoop
9	1	4378		Windshield brace
10	2	4730		Accessories strut
11	16	2101		Tab 1/2 hole
12	2	2300		Rack and pinion mount
13	4	4724		Engine support tubes
14	2	1 1/4 - 35	X	Front frame diagonal
15	2	1 5/8 x 49	G	Long side bar (Driver's side .083)
16	2	1 5/8 x 25	H	Lower side bar
17	4	1 5/8 x 5	C	Frame upright
18	2	1 5/8 x 100	B	Upper frame
19	2	1 5/8 x 30	M	Main hoop support (Driver's side .083)
20	2	1 5/8 x 5	J	Cage side mount (.083)
21	2	1 5/8 x 5	T	Cage side support (.083)
22	2	1 5/8 x 19	I	Upper side bar
23	1	1 5/8 x 58	N	Continuous cross brace
24	1	1 5/8 x 39	D	Mid mount
25	2	1 5/8 x 40	F	Rocker support (Driver's side .083)
26	3	1 5/8 x 22	Q	Frame crossmember
27	1	1 5/8 x 21	O	Short X-brace
28	1	1 5/8 x 37	P	Long X-brace
29	1	1 5/8 x 27	W	Transmission crossmember
30	2	1 1/4 x 20	U	Frame support
31	4	1 1/4 x 48	E	Frame diagonal
32	2	1 1/4 x 12	R	Rear strut support
33	2	1 1/4 x 33	A	Frame strut
34	1	1 1/4 x 40	L	Cage top triangulator
35	4	1 1/4 x 6	K	Roll cage gusset
36	1	1 1/4 x 22	S	Rear frame support x-member
37	2	1 1/4 x 30	V	Frame triangulator
38	2	1 1/4 x 48		Floor support
39	4	3200		Locknut 1/2 - 20
40	8	1000		Misalignment bushing 1/2
41	4	3100		Bolt 1/2 - 20 x 2 1/4
42	1	927404		Assembly drawing

All straight tubes are cut from the boxes #4411, they contains the following tubes:

<u>QTY</u>	<u>SIZE</u>	<u>TUBE CODE</u>	<u>ITEM FROM INSTRUCTION</u>
12	1 5/8 x x 72	GQ	15 and 26 (.083)
	(4 are .083)	GQ	15 and 26
	(8 are .065)	FM	25 and 19 (.083)
		FM	25 and 19
		DOJT	24, 27, 20 and 21
		HPJT	16, 28, 20 and 21
		NCCC	23, 17, 17 and 17
		IICH	22, 22, 17 and 16
		WQQ	29, 26 and 26
		Plus 3 spares.	
8	1 1/4 x .058 x 72	E	31
		ERR	31, 32 and 32
		AAK	33, 33 and 35
		LKKK	34, 35, 35, and 35
		UUV	30, 30, and 37
		XX	13 and 13
		Plus 1 spare	

There are two pair of long 1 5/8 tubes, Part #4340, they will be:

4	1 5/8 x 108	B	18
		B	18
		Y	5
		Y	5

NOTE: READ ALL INSTRUCTIONS AND MAKE SURE YOU UNDERSTAND THEM BEFORE YOU BEGIN!!! ONLY TACK WELD THE CHASSIS IN CASE YOU MAKE A MISTAKE AND HAVE TO REMOVE SOMETHING. Remove the body when the chassis is completely tacked together to make welding easier. 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. You will need to hold the body up off your 4 to 6 inches, the table surface will simulate the ground. Also, weld a little of each joint at a time to help avoid distortion. Cut the straight tubes out as needed and be careful when measuring because lengths may vary a little from the instructions.

Do not assemble your chassis using only the dimensions on the blueprint. You must use a body to help in the tube placement. The dimensions on the assembly drawing are for a 1937-1941 Willys Coupe. 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.

1. First, you must determine exactly where the stock rear axle centerline is located on your car. Measure from this point forward to the door edge and note this dimension. The dimension will represent the rear axle centerline after the frame has been removed. Also, 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.

2. Prepare the body by cutting out the entire floor and firewall, and by removing the doors, hatch windows, fenders, and suspension. The body should be cut up so all that remains is the single outer skin. Make sure you have removed all of the double panels in the roof, door pillars rocker panels and quarter panels. When you are finished, the body needs to mount to the chassis in at least 6 places, they are: 2 points attaching the rear frame rails to the taillight panels; 2 points attaching the main hoop to the rocker panels; and 2 points attaching the bend in the cage side to the "A" pillar just below the windshield. When your chassis is done and the body is attached by these six points, the body will seem very unstable. Do not add more attachments. After the firewall, wheel wells and floor are installed, the body will be very rigid.

3. Locate the body off of the jig. 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.

4. 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 22 inches forward of the rear axle centerline. Fit the main frame with the 4-link support tube so you can tack the 4-link support to the main frame to hold it up. Fit the main frame per the blueprint. Install the front frame crossmember.

5. Next, install the rack and pinion mounts to the rack and pinion crossmember. Determine the center of the crossmember and mark where the brackets go according to the dimensions on the blueprint. Tack the brackets to the crossmember at the correct dimensions, namely, 90 degrees to the crossmember and both at the same height. Cut the legs off the crossmember to locate the rack and pinion brackets at the correct distance above the frame. Tack weld the crossmember above your frame rails at the correct location. It will be necessary to grind on the rack and pinion brackets to make them fit the crossmember properly. Next, install the brackets at the correct angle and spacing according to the assembly drawing. You will have to trim about 1/2" of material off 4 of the brackets in order for them to fit correctly. It is best to install the lower brackets with strut control arm installed this will ensure getting the angle on the bracket perfect.

6. Install the main hoop. It stands straight up and attaches to the 4-link.

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

8. Install the rear rails per the blueprint. They will be shortened in the rear per the blueprint.

9. Install the frame crossmembers. One at the rear of the frame and one in the center for a shock mount. Install shock mounts at the correct width and distance from the frame. Install the forward crossmember per the blueprints.

10. Install the cage sides mount and cage side support tubes along with the frame uprights per the blueprint. This assembly is the cage side mount.

11. 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.

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

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

14. Install the front upper strut mount suspension tabs per the blueprint. The easiest way to install the forward roll cage struts is to make a bracket that holds the suspension tabs in place. Fit the brackets and forward strut tube together and grind a little on each until it fits. The brackets will be rotated differently on the tube because the tube crosses them at an angle. The four 1/2 x 2 1/4 bolts and the four 1/2 locknuts are used in the upper front and rear shock mounts to mount the shocks. The eight misalignment bushings are used to fill the gap in the shock mount.

15. Install the upper frame rail per the blueprint. It runs from the rear frame forward of the 4-link to the forward strut just above the lower frame rail.

16. Install all three pieces of X-brace.

17. Install both rear frame accessory struts so that the lower end is even with the rear crossmember. The upper end attaches to the X-brace.

18. Install the rear strut supports and the rear frame support crossmember.

19. Install the rocker supports between the cage side and main hoop.

20. Install the 3 pieces of the door bar X-braces.

21. Install the main hoop support tubes. They can be attached to the seat back brace to clear a bench seat.

22. Install the bracket support tube and frame struts per the blueprint.

23. Install the cage top triangulator.

24. Install the front and rear gussets.

25. Install the chassis front mounts for the 4-link, part of kit #6205. Use a rod end to determine the correct distance between the mounts. The brackets are centered under the frame.

26. Install the remaining frame, upright, transmission crossmember, frame triangulator, and frame diagonals when you are installing the transmission.

27. Install the engine support tubes. The motor plate and midplates attach to the face of the tubes.

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

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

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