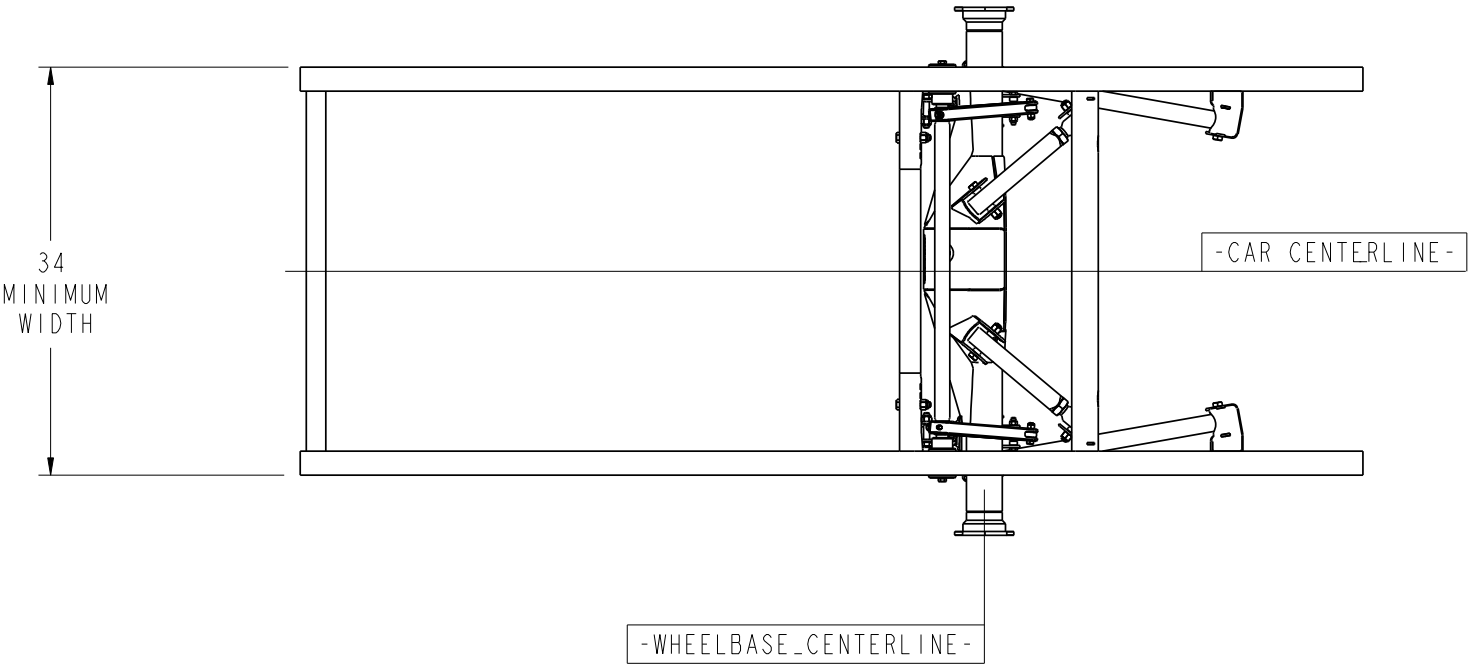
INSTALLATION GUIDE

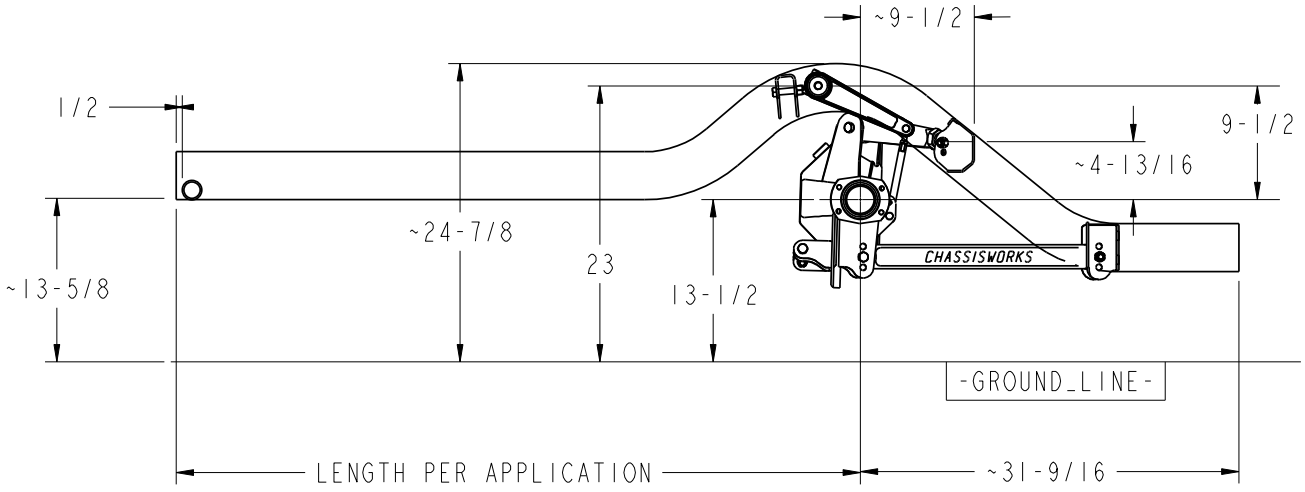
CHRIS ALSTON'S Chassisworks
THE HOME OF HIGHER TECHNOLOGY

7154
Canted Billet 4-Bar, 4x2 Rear Frame

Description: Non-application specific, weld-in, 4 x 2” rear frame for use with Chassisworks 6241 billet aluminum suspension links.

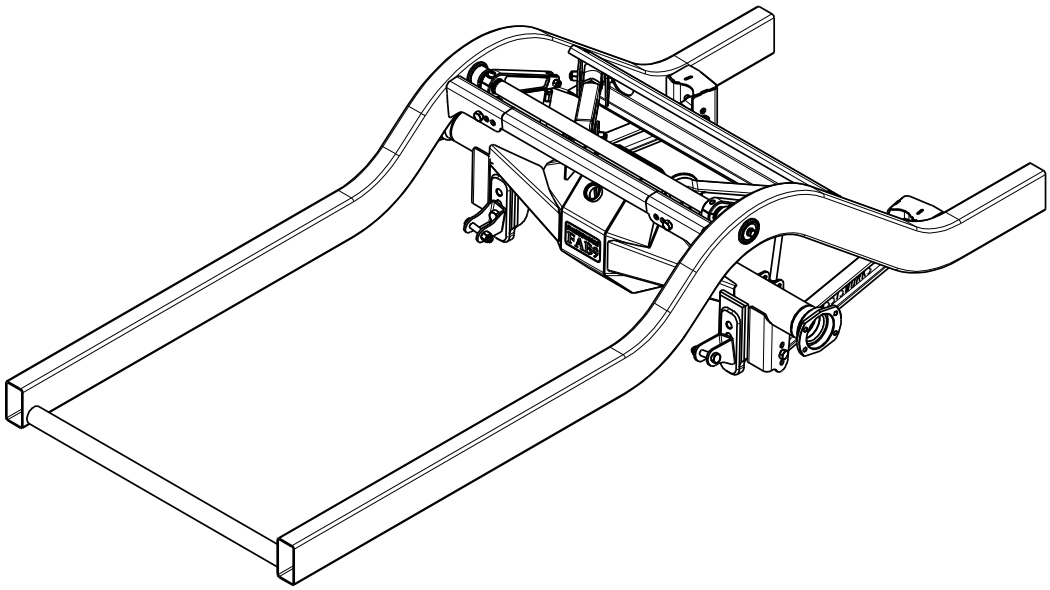
IMPORTANT: Read this document in its entirety prior to begining installation.

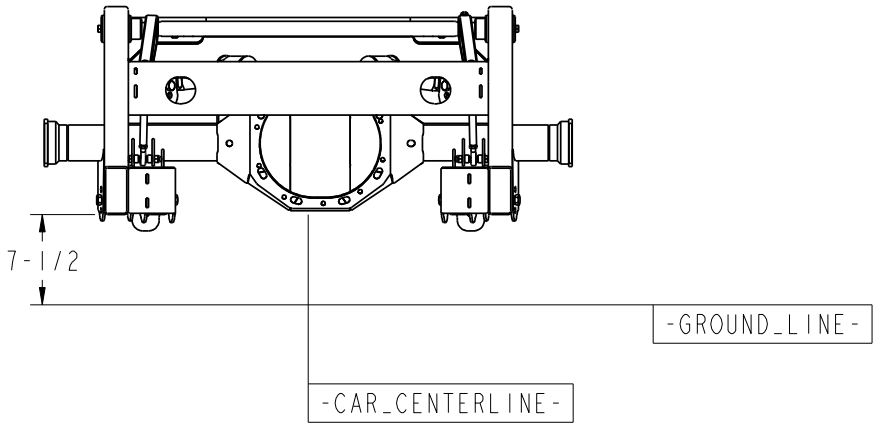




UNLESS OTHERWISE SPECIFIED	APPROVALS	DATE
DIMENSIONS ARE IN INCHES TOLERANCES FRACTIONS ±1/16 ANGLES ±.5° ±.05 ±.005 DECIMAL ±.1 ±.01 ±.005 ±.0010	DRAWN BY: K. DAVIS	8/18/03
	CHECKED BY: S. RIEGER	3/15/05
	DWG RELEASE LEVEL: Released	
FINISH NONE		
MATERIAL ASSEMBLY		

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED





DESCRIPTION

4 x 2 REAR FRAME
CANTED BILLET 4-BAR

Chris Alston's CHASSISWORKS INC.
8661 YOUNGER CREEK DRIVE
SACRAMENTO, CA 95828
(916) 388-0288 FAX 388-0295

SIZE	PART NO.	PART REV.
B	7154	0

SCALE: 1:16	DWG: 927154 REV: 0	SHEET 1 OF 1

PARTS LIST

Prior to beginning installation use the following parts lists to verify that you have received all components required for installation.

STANDARD COMPONENTS

7154 – Canted Billet 4-Bar Rear Frame

Part Number	Qty	Description
4419	1	Canted-4-bar components
4420	1	Canted-4-bar frame rail set

4419 – Canted-4-Bar Components

Part Number	Qty	Description
230174	2	Canted 4-bar upper shock mounts for frame
230175	1	4-bar upper shock crossmember
5331	1	Upper link crossmember canted 4-bar assembly
5332	1	Chassis mount lower control arm, driver side
5333	1	Chassis mount lower control arm, passenger side
904419	1	Hardware bag
E26.134-060.000	1	Tube 1-5/8 x.134 wall x 60” long

4420 – Canted-4-Bar Rear Frame Rails

Part Number	Qty	Description
5144	1	4 x 2 frame rail, canted billet 4-bar rear suspension, driver side
5145	1	4 x 2 frame rail, canted billet 4-bar rear suspension, passenger side

904419 – Hardware Bag

Part Number	Qty	Description
3100-050F2.50Y	2	Bolt 1/2-20 x 2-1/2” hex head Grade 8
3101-050-20C	2	Locknut 1/2-20 nylon insert, clear zinc

OPTIONAL COMPONENTS

4405 – Front Crossmember

Part Number	Qty	Description
4516	2	Box tubing bend 180° 2 x 1 x 11 tall x 5” inside width
B3232.120-30.00	2	Box tubing 2 x 4 x .120 wall x 30” long
E26.134-030.000	2	Round tubing 1-5/8 x .134 wall x 30” long (Optional use as additional bracing)

Frame Exhaust Ports

Part Number	Qty	Description
1070	2	Round tubing 4-1/2 x .250 wall x 2.10” long

Forward Frame Connectors

Part Number	Qty	Description
4668	1	Box tubing 2 x 4 x .120 wall x 60” long, pair

INSTRUCTIONS

NOTE: This kit is designed to provide a rear subframe for use with coil-over shocks and a canted 4-bar (Chassisworks part number 6241). This subframe can be used with a unibody or full frame vehicle. The first step is to determine your new frames outside width (minimum 34”) using a Chassisworks rear end worksheet.

The frame rail has been designed with the least amount of rise over the axle so it can be installed under the stock floor of most vehicles. Once you have the OEM rear suspension removed test fit the rail under the floor. On the unibody car you will need to remove the OEM frame rails before starting the installation. If you are installing the frame under the stock floor go to number 3 below. If you need to remove the rear floor, start with number 1 below.

1. Measure 33-9/16” forward from the rear axle centerline to a point on the rocker panel. Draw a line between these points on the car floor. Sometimes this is easier to do under the car because of the driveshaft tunnel. Cut the entire floor and wheel wells out of the car from your line to the rear taillight panel. Cut out the package tray and double panels against the sides of the car leaving the inner part of the rocker panel in place. In some cases, you may have to remove some of the rear window crank mechanism to make room for the new wheel wells. Usually a simple bracket welded to the inner body panel and bolted to the window will hold the windows up.

2. After you have cut the floor out and neatly trimmed all the panels, you must level the car front to rear and right to left. The door sills are a good place to put your level. When you cut the floor out, you should have left the inner part of the rocker panel in place. The rocker panel should be trimmed to allow for a good fit of the crossmember. Tape a string to the floor to make a chassis centerline. Find the center at the front of the car and at the rear. You will use this later to align the new frame rails.

3. In most cases you would have purchased the optional front crossmember. The driveshaft loop in the crossmember will usually be offset from the center of the car to the passenger side about 1/2”. This is because most cars have an offset pinion. Measure your stock rear end to determine the amount of offset. After you have determined the crossmember offset, you can build the driveshaft crossmember. Cut the straight legs off both 1x2” driveshaft loops so each one is 5-1/2” tall. Weld the loops together to form an oval. This will create a driveshaft oval loop that is 9” tall inside and with a 7” outside width. Fit one end of each 2x4” tube to the driveshaft oval so the bottom of the oval is 1-1/2” below the 2x4 tube. Cut the 2x4” driveshaft loop crossmember to length so it fits between the rocker panels (or the stock frame in a full frame car). If your inner rocker panel is not straight, you will have to contour the crossmember. Make sure you have a good fit to the rocker panel or it will be difficult to weld.

4. Install optional exhaust ports (1070) at this time. The outside edge of the exhaust port must be positioned inside of the frame rail 4” to clear the lower control arm mounts. Verify exhaust clearance. Drill a pilot hole 2-1/4” down from the top of the crossmember and make cutout using a 4-1/2” hole saw.

5. Verify that your driveshaft oval has the correct offset from the vehicle centerline to match the factory offset. Make sure you have enough clearance for the driveshaft throughout its travel while trial fitting the crossmember. Tack weld the crossmember in place so the front side is 33-9/16” forward of the rear axle centerline. The bottom should be even with the bottom of the rocker panel or stock frame. The stock floor should butt-up against the front of the crossmember. Only in unibody vehicles will the floor hang below the crossmember. Push it up and tack it to the crossmember. The factory driveshaft tunnel will not be high enough to reach the top of the new driveshaft oval. Chassisworks manufactures part no. 6626 steel driveshaft tunnel. It easily welds into place and should be used to replace the factory driveshaft tunnel.

6. The rear frame butts against the crossmember at the front end and shortened at the rear to fit in the car. To determine how much to cut off the rear of the frame; measure from the back of the crossmember to the taillight panel. Cut the frame rails to this length. In cars with a rear frame crossmember that holds the bumper on, it is a good idea to attach the stock rear crossmember to the new subframe. Retain the stock crossmember to mount the bumper and rear of the body to. Some fabrication may be required if the height or width of the new frame and the bumper mount do not match closely.

7. Tack weld the frame assembly to the correct outside width you calculated using the rear-end worksheet. Mark the outside frame width on the 2x4 front crossmember and the rear panel. Use a carpenters square off the chassis centerline string to make sure the marks are an equal distance from the centerline to the driver and passenger sides of the car.

8. Position the frame rails with the machined slots toward the inside, even with the marks from the outside frame width you just made and use small tack welds to hold in place. Check the frame rails for squareness by measuring from the front of one rail diagonally to the rear of the other. These measurements should be within 1/16”.

9. The upper link crossmember assembly has etched marks on it every 1/2” that are used to set the frame width. Cut the upper link crossmember assembly so it is 4” shorter than the outside frame width. Make sure you cut an equal amount from each end of the crossmember. There is a 1/8” diameter hole machined in each frame rail, to locate the upper link crossmember assembly. Position the crossmember so the front of the crossmember just covers the 1/8” hole and the upper flange is even with the top edge of the frame rail. Use a bar or pipe clamp to hold it in place.

10. Cut the round rear crossmember to length out of the 60” long x 1-5/8” OD tube in the kit. It needs to be 4” shorter than your outside frame width. The rear crossmember should be even with the bottom of the frame and approximately 1/2” forward of the rear of the frame rail. Use a second bar or pipe clamp to hold the crossmember in place.

11. Insert the shock mounts into the machined slots on each frame rail and secure with clamps. Tack weld the mounts to each frame rail.

12. Verify that the outside frame width at the shock mounts is correct. Measure the distance between the exposed end of the upper shock mounts, cut the crossmember channel to fit, and then tack weld together. The completed shock crossmember assembly should be even with the top of the frame rails.

13. Check the frame again for squareness and complete the welds at each seam and joint.

14. Fit the lower control arm mounts into the slots machined in the frame rails behind the 2x4 front crossmember. Insert the tabs into the slots and clamp the mounts to the rail. Tack weld brackets, check for squareness and final weld.

15. If you are installing this frame in a unibody car, install the optional subframe connectors (full frame cars like ‘55-’57 Chevys, Chevelles, etc., do not need connectors). The subframe connectors must run from the 2x4” crossmember forward to the stock front subframe. The floor will usually have to be slotted for the connectors. In most cases, the connector will be wider spaced at the front than at the 2x4” crossmember, where it should be the same width as the new rear frame.

16. If you purchased the frame clip welded, the 2x4” crossmember and/or the rear frame length will be too long. Cut them to length for your application. The rear frame crossmember is tacked between the rails for shipping purposes. Knock it out and reinstall it at the correct position after you have trimmed the rear rails to length.

17. Follow the instruction included with the 4-bar to install the rear axle brackets.

NOTES:

WARRANTY NOTICE:
There are NO WARRANTIES, either expressed or implied. Neither the seller nor manufacturer will be liable for any loss, damage or injury, direct or indirect, arising from the use or inability to determine the appropriate use of any products. Before any attempt at installation, all drawings and/or instruction sheets should be completely reviewed to determine the suitability of the product for its intended use. In this connection, the user assumes all responsibility and risk. We reserve the right to change specification without notice. Further, Chris Alston's Chassisworks, Inc., makes **NO GUARANTEE** in reference to any specific class legality of any component. **ALL PRODUCTS ARE INTENDED FOR RACING AND OFF-ROAD USE AND MAY NOT BE LEGALLY USED ON THE HIGHWAY**. The products offered for sale are true race-car components and, in all cases, require some fabrication skill. **NO PRODUCT OR SERVICE IS DESIGNED OR INTENDED TO PREVENT INJURY OR DEATH**.

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