



INSTALLATION INSTRUCTIONS
UNIVERSAL UN-WELDED MAGNUM SERIES
4-LINK FRAME KIT

PARTS LIST

- | | |
|------------------------------------|-------------------------------------|
| 2) 4-Link Frame Rails | 1) Upper Coil-Over Shock Mount Kit |
| 1) 4-Link Hardware Kit | 1) Diagonal Link Kit |
| 1) Lower Coil-Over Shock Mount Kit | 2) Coil-Over Springs (Except CU31M) |
| 2) Coil-Over Shocks | 1) 2" x 3" Universal Crossmember |
| 1) Drive Shaft Loop | |

Read all instructions completely before beginning the installation. The following suggestions will help to ensure a quality installation.

- All welding should be done using either the MIG or TIG process. A welding machine rated at 130 amps or higher should be used to ensure adequate weld penetration. All of the supplied components are made from mild steel unless otherwise noted.
- Select a clean, flat and level work area where the vehicle can remain undisturbed until final completion. The car cannot be moved once the rear frame and floor pan has been taken out.
- Trial fit all of the components several times, checking and re-checking all dimensions.
- Tack weld everything and double-check all your measurements before final welding.
- These instructions are only a guide to a correct installation. Certain applications may differ (Full Frame vs. Unibody, etc.) but the basic concepts used in chassis construction remain the same.
- Keep a fire extinguisher handy at all times during the construction process. Cutting torches, grinders and welding sparks can spark fires at any time.
- Cover all windows and gauges with cardboard to protect them from grinder spark.
- **This kit requires the installation of at least an 8-Point Roll Bar. We highly recommend that a 10-Point Roll Cage be installed. Both 8-Point and 10-Point kits are available from Competition Engineering.**

CU300INST
Rev B - 030802

*For Technical Assistance, call Competition Engineering's Tech Line at
(203) 458-0542, 8:30am-5:00pm Eastern Time*

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I. TOOL LIST

- Power Reciprocating Saw to remove floor pan and cut subframe to length.
- Body Grinder with coarse wheel to remove paint and rust.
- MIG or TIG welder with 130 amp minimum rating.
- Protective Face Shield for grinding and welding.
- Sheetmetal Shears to modify or remove interior panels.
- Tape Measure, Plumb Bob, Angle Finder, 3-ft Level, Chalkline, Framing Square
- 4 Jack Stands and Floor Jack to support vehicle
- Cutting Torch to modify full-framed chassis.
- Marking Pen

For a professional looking installation we highly recommend the following materials and tools:

- Thin cardboard to cover the windows. This protects the glass from welding and grinder sparks.
- Plasma Cutter for cleaner cuts when removing sheetmetal and frame components.

II. DISASSEMBLY AND SET-UP

1. Before beginning the installation, you must choose a place to work on the vehicle where it will not be disturbed until it is completed. The chosen area should be level, clean and preferably a solid surface, such as concrete.
2. At this time, remove all components that will be in the way of the removal and installation process. Items such as seats, carpet, wiring, door panels, gas tank, rear bumper and the deck lid should be taken off.
3. Take time now to cover all exposed glass with cardboard and tape. Also cover any gauges or radio to prevent damage from sparks.
4. Measure the wheelbase of the vehicle from the front spindle centerline to the rear axle centerline. Make sure that the front wheels are pointing straightforward. Mark this information down on the supplied build sheet at the back of this booklet.
5. Determine the desired ride height of the rear of the car. Measure from the floor to the bottom of the rearmost portion of the rocker box. Mark this dimension on the build sheet.

NOTE: Check your sanctioning bodies guidelines concerning minimum ride heights.

6. Jack up the front and rear of the vehicle to a comfortable working height (approximately 24"). Support the vehicle under the front frame and the body in the rear using as many jack stands as necessary to prevent the body from drooping when the rear frame is removed. A good location for the rear jack stands is under the rocker boxes, near the wheel opening.
7. Level the car using a 3-ft carpenter's level front to back and side to side. Take your time doing this, as this will determine how the subframe is finally located within the body shell. Use metal shims between the jack stands and the body/chassis to obtain proper level. It is recommended that braces be fabricated to support the rear tail light panel of the vehicle. These can be made from 2"x4" lumber and mounted through the rear bumper bolt holes.
8. Remove the rear tires from the car.
9. Using the plumb bob, drop a point onto the floor from the front spindle center on each side of the car. Mark this point on the floor with the marking pen. Repeat this process to locate the front of the axle tube on each side, marking the point on the floor.
10. Snap a chalkline between the two front spindle marks and the two rear axle marks. Using a straight edge and the marking pen, trace over the chalkline onto the shop floor, making the lines permanent.
11. Measure the diameter of the axle housing tube and divide it by 2. Write this dimension on the build sheet. Make a line using this dimension, behind the line made for the axle housing. This is your rear axle centerline.
12. Measure from the front spindle line to the rear axle centerline and compare this dimension to the one on the build sheet. Note any differences.
13. Using the plumb bob, locate and mark the axle centerline onto the body with the marking pen. This will provide you with a quick reference when checking if the car has moved during construction. We highly recommend that you drop points onto the floor from fixed positions on the body to reference its position

relative to the new chassis. Door to rocker pinch welds and front suspension brackets are the best places to use for reference points. Make sure you mark and circle the points so you can find them easily.

14. With all the critical dimensions taken, you may now remove the axle housing and any other unnecessary suspension components.
15. Determine the centerline of the vehicle and mark its location on the shop floor. This can be done as follows:
 - a. Measure the distance from one front spindle centerline to the other. Divide by 2. Write this dimension on the build sheet. Also mark this point on the line marked between the front spindle centerlines.
 - b. Drop a point from the inside of each rear frame rail onto the axle centerline. Measure between these points and divide by 2. Mark this point on the axle centerline and on the build sheet.
 - c. Stretch a chalk line between the two marks made in steps a & b. Snapping a line between these points gives you the chassis centerline.
 - d. Using a straightedge make this line permanent by tracing over it with the marking pen.
16. Next we will determine the offset of the drivetrain. Most cars, but not all, have on-center drivetrains. You can figure this out as follows:
 - a. Measure from the center of the transmission tailshaft to the inside of the front frame rails on both sides.
 - b. Subtract one side's dimension from the other. The result will be the drivetrain offset.
 - c. Mark this point on the proper side of the chassis centerline in two places. Snap a chalkline between the two points and trace it with the straightedge and the marking pen. This line will be the centerline for the pinion. Write this dimension on the build sheet.
17. With the rear of the car down to the bare frame, determine where you want to cut the floor.
 - a. Measure forward from the rear axle centerline, along the chassis centerline, a distance of 27-7/8". Mark this location on the floor. Using the framing square, extend a line 90° from the chassis centerline at this point. Do this on both sides of the line extending it to approximately 30" per side.
 - b. Hold the string of the plumb bob against the floor pan over the line you just made on the floor. Center the point of the plumb bob over the line. Mark the location of the string on the floor pan. Do this in several locations across the floor pan, following the line on the floor.
 - c. Using a sharp punch or chisel, punch up through the floor pan on the marks you made from under the car.
 - d. Working from inside the car, connect the punch marks made through the floor pan with a marking pen and the straight edge. This will make the cut line for the front of the subframe crossmember. Extend this line so that it ends at the weld seam of the floor pan and the rocker box.
 - e. Cut out the floor pan using this line as a guide.
 - f. Remove all floor pan and trunk sheetmetal from this cut line back leaving the rear tail light panel and package tray intact. Also remove the wheelwells being careful not to damage the quarter panel sheetmetal in the process.
18. With the floor pan removed, you can now cut off the unwanted section of the frame. Only cut what is necessary to clear the new subframe installation and your wheel/tire combination. Leave enough of the frame on full framed cars to allow for additional bracing between the old and new frames. Uni-body cars will have to connect the existing front subframe to the new rear subframe by way of a weld-in subframe connector. These are available from Competition Engineering.
19. With all the sheetmetal and frame removed, determine the width of the new subframe by doing the following:
 - a. Position the wheels and tires that you intend to use under the body of the car. Use concrete blocks or milk crates to position them at the desired ride height.
 - b. The sidewall of the tire should be a minimum of 1" from the wheelwell lip. The tire should be centered on the axle centerline.
 - c. Measure from the inside tire bulge of one wheel to the inside tire bulge of the other wheel. Subtract two inches from this dimension. This is your frame rail width. Write this dimension on the build sheet.

Note: The wider you can make your frame rails, the better. Wider frame rails provide better top end stability and make it easier to mount your shocks and other brackets.

III. SUBFRAME INSTALLATION

1. Trimming the crossmember:
 - a. Measure the distance between rocker boxes right behind the cut line made earlier. Divide this dimension by 2 and mark it on the build sheet.
 - b. Locate the center of the crossmember that is included in the kit. Mark it with the pen. This is the line that will correspond with the chassis centerline.
 - c. Make a template to match the contour of the rocker panel where the 2"x3" crossmember will mount.
 - d. Using the template, trim the ends of the crossmember to the desired length, keeping the center of the crossmember centered in the chassis.
2. Determining frame rail length:
 - a. With the location and ride height of the front crossmember determined, measure from the **rear** face of the crossmember to the intended mounting location of the rear of the subframe. This location will be located somewhere on the rear body panel. Write this dimension on the build sheet. As shipped, the length of the frame rail from the **rear** face of the crossmember to the end of the top rail is 67".
 - b. Determine the desired height location of the rail ends on the body panel. As shipped, the **tops** of the frame rail ends are 14-15/16" above the **top** of the front crossmember. (The actual height of the frame rail is 17-15/16", you will be cutting a 3" notch in each rail to sit over the cross member, this makes the height of the frame rail ends 14-15/16" above the top of the crossmember). Measure from the floor to the desired mounting point on the rear body panel. Write this dimension on the build sheet.
 - c. To determine the proper length of the frame rails, subtract the as-shipped length (67") from the dimension determined in step a. Write this dimension on the build sheet.
 - d. Cut the frame rails to the proper length at this time.

Note: If your chassis has an offset drive train, the centerline of the crossmember must be aligned with the drive train centerline that you marked on the floor, **not the chassis centerline**.

3. Position crossmember under the body. Align the centerline mark on the crossmember with the chassis centerline on the floor. Support the crossmember with jack stands or wood blocks. Trim the crossmember as needed to ensure a snug fit.
4. Level the crossmember side-to-side and front-to-back using the 3-ft level and an angle finder. Draw a line 2" behind the previously made front crossmember line. Using the carpenter's square, check to see if the crossmember line is perpendicular to the chassis centerline.
5. Drop plumb bob points off the back of the crossmember down to the line on the floor. Adjust the crossmember until it aligns perfectly with the new line on the floor. Tack the ends of the crossmember to the rocker boxes.
6. Take the frame rail width you established previously and divide by 2. Take this dimension from the **chassis centerline** out in both directions and make at least two marks on either side of the line. With a straight edge connect these marks with the marker from front to back. These two lines will be the outside edge of the frame rails.
7. With the plumb bob, mark points from these lines at both the crossmember and tail light panel with the marker.
8. Carefully begin to trim one rail so that it sits on top of and flush to the backside of the crossmember. The frame rail should also have a snug fit against the tail light panel.
9. Once the first rail is trimmed to fit, lay it over the other rail, clamp them together and cut the other rail to the exact same profile.
10. Place both rails into position in the vehicle, use jack stands or wood blocks to hold them in position. Cut two 2 x 4's to the dimension between the rails and clamp them between the rails at the front and rear with either bar clamps or ratchet straps.
11. Check to make sure that the rails are square and level and aligned with all the marks made previously. Tack into place.

12. It may be necessary to fabricate reinforcing brackets from the rear body panel to the new subframe for strength. Remember to only tack everything in place; final welding will be done at the completion of the project.
13. You may now install your subframe connectors, tying them into the front of the new crossmember. For full frame cars we recommend adding diagonal bracing from the stock frame to the front of the new crossmember.

With the subframe tacked in place, we will now move on to modifying the axle housing.

IV. AXLE BRACKET INSTALLATION

1. Using the plasma cutter or cutting torch, remove all existing factory brackets from the axle housing you intend to use. Be careful not to add too much heat to the housing, as it will warp the tubes, causing problems later.
2. Remove the housing ends as close to the welds as possible using a bandsaw or abrasive chop saw.
3. Measure the centerline distance between the frame rails and write this dimension on the build sheet.
4. Assemble the 4-link axle brackets using your rod ends as spacers, with the axle bracket having the shock bracket mounting holes toward the chassis center. (See Diagram)
5. Slide the axle housing brackets onto the axle tubes so that the flat edge of the brackets face forward and the link mounting holes closest to the axle-mounting hole are on top. (See Diagram)
6. Align the brackets so that they are equally spaced from the pinion centerline for centered drivelines. For offset drivelines, make sure you offset the pinion the same amount as the driveline. Each pair of brackets must be positioned on the axle housing such that they are centered under each frame rail, the proper distance from the pinion centerline.
7. Tack weld the brackets so that they are 90° to the pinion. Place tacks in three places around each bracket to ensure that they do not move.

V. LOWER SHOCK MOUNT INSTALLATION

1. This kit has been improved to include the shock bracket mounting holes integral with the inner most 4-link axle bracket. Using this method allows the shocks to be installed as far apart as possible, increasing vehicle stability, and reducing unsprung weight. You may discard the supplied axle-mounting bracket for the shocks at this time, or if you choose, use these brackets to mount the shocks directly to the axle tube.
2. Assemble the lower shock mounting brackets to the 4-link brackets using one right hand bracket and one left hand bracket per side. (See Diagram) Use the provided 3/8"-16 bolts and locknuts to attach them. Do not tighten completely at this time. Mount these brackets in the middle of the 4-link bracket holes to allow for up or down ride height adjustment.

VI. UPPER SHOCK MOUNT INSTALLATION

1. Measure the distance between the frame rails and cut the shock mount tube to that dimension. After the tube is cut, measure and mark it's centerline on the tube.
2. With the new style 4-link brackets, the shocks will be mounted at an angle inward at the top. This step will allow you to mount the upper shock tabs in the proper location to ensure the springs and shocks will clear the frame rails. Mark the centerline of the shock crossmember tube. Measure the centerline

distance of the shock mounts on the axle housing and divide by 2 (See Diagram). Make a mark on the shock crossmember tube at this dimension **MINUS 2 1/4"** from both sides of the centerline. This is the center of the top of each shock. Make a mark 1/2" to either side of the two marks made in the previous step. These will be the shock mounting tab locations.

3. Bolt the tabs together using the shocks as a spacer. Position one set on its marks and tack into place.
4. Now position the other set on its marks, making sure they are parallel to the other set and tack into place. Remove the shocks.
5. Position the tube between the rails so that the tabs are parallel to the rails and the shock mounting holes are 31-1/4" from the rear of the crossmember (See Diagram). Use a plumb bob for this measurement.

6. Make sure the tube is square to the frame and tack into place.

VII. CHASSIS 4-LINK BRACKET INSTALLATION

Assemble the four link chassis brackets using the rod ends as spacers. Position them so they are centered on the frame rails and that the radius on the front side fits into the contour of the frame rail. Tack into position making sure they are parallel to each other and the same distance apart as the axle brackets.

VIII. HOUSING INSTALLATION

1. Assemble the 4-link tubes with the rod ends of your choice. Thread the jam nuts onto the rod ends so that approximately 1" of thread is showing. Thread the rod ends into the link tubes and adjust them equally to achieve a distance of 21" center to center.
2. Using a floor jack, slide the housing under the newly installed subframe.
3. Install the link tube assemblies into the chassis and axle brackets using the supplied 3/4" hardware. **DO NOT INSTALL THE PASSENGER SIDE UPPER BAR AT THIS TIME.**
4. Swing the housing upward so that the distance between the upper and lower shock mounting holes is 13-3/4". Support the housing with the floor jack.
5. Check your wheelbase on each side using the dimension from the build sheet for reference. If the wheelbase needs to be adjusted, rotate the lower 4-link bars to achieve the correct dimension. Once the correct measurement has been reached, tighten the jam nuts.
6. Using an angle finder, check the pinion angle by placing it against the mounting surface of the center section (Mopar 8-3/4" and 9" Ford) or the rear cover surface (10&12 Bolt GM, Dana, Ford 8.8 etc.).
7. Rotate the driver's side upper 4-link bar to achieve 1°-2° downward pinion angle. Lock the jam nuts in place.
8. Install the passenger side upper bar at this time. This bar should be installed so that the bolts slide in without resistance. Do not force the bolts or move the housing to get them to fit. Instead, rotate the link to achieve the proper length.

NOTE: Forcing the bolts into place will cause the chassis to be pre-loaded. This will cause problems later on, when it comes time to tune the chassis.

9. Re-check the wheelbase on each side, adjust as necessary. If you make changes to the wheelbase, be sure to check the pinion angle and the pre-load bar.
10. Label the mounting locations of the link tubes using masking tape and a marking pen. This will ensure that they go back in the right place.

IX. DIAGONAL LINK SET-UP

1. With the rear axle housing centered in the chassis and at ride height. Loosen and remove the bolt located on the driver's side chassis bracket. This will be the bolt holding the front of the lower bar.
2. Slide the bolt through one of the supplied link brackets and replace it into its mounting hole. The ears of the bracket should be facing the driveshaft and be parallel with the ground. Re-install the retaining nut on the bolt, but do not tighten completely at this time.
3. Repeat steps 1 & 2 for the passenger side lower hole located on the axle bracket.
4. Thread the left-hand jam nut onto the left-hand rod end. Thread it approximately 3/4 of the way up the rod end threads. Thread the left-handed tube adapter onto the rod end until it contacts the jam nut. Repeat this process for the right hand rod end.
5. Install the rod ends into the link brackets with the supplied 1/2"-20 bolts.

6. With the threaded portions of the rod ends facing each other measure the distance from the stepped flange in one tube adapter to the other. This will be the finished length of the tube.
7. If necessary, cut the tube to match the dimension taken in step 6. Tack-weld the tube ends to the tube. Double check all measurements, then remove the diagonal link for final welding. The tubing is chrome moly, and should be welded using the "Tig" process (GTAW).
8. Remove the rod ends from the brackets and thread them into the end of the tubes. We highly recommend using anti-seize compound on the threads to eliminate galling and thread damage. Install the bar assembly into the mounting brackets.
9. Re-check the positioning of the axle housing and adjust as necessary. Tighten all nuts and bolts at this time.
10. Raise and lower the rear end assembly within the chassis and check for bind. Re-adjust as necessary and re-tighten all nuts and bolts.

X. FINAL WELDING

Now that everything is fitted and in place you can begin the final welding process. We will begin with the welding of the subframe, then the axle housing and ending with the roll bar. Remember to take your time. If a tack weld breaks, re-tack it before proceeding. Alternate your welds from one end of the part to the other. This will prevent twisting and excessive movement of the welded part. When welding on the axle housing, the use of an alignment bar is highly recommended.

NOTE: WE HIGHLY RECOMMEND THAT YOU INSTALL YOUR ROLL BAR OR ROLL CAGE AT THIS TIME TO ELIMINATE SHIFTING OF THE SUBFRAME.

1. With the rear housing moved out of the way, begin to add secondary tacks to all the areas that are to be welded. Place the tacks in locations that will be the beginning and end of a weld bead. This will ensure a cleaner looking weld.
2. With all the secondary tack welds in place, begin to weld the subframe to the car. Weld each end of the crossmember first, then proceed to the rear of the frame rails. Next, weld the subframe connectors to the face of the crossmember and then to the front subframe.
3. Weld the floor pan to the front of the crossmember using a stitch technique to eliminate burn through.
4. Prepare the rear axle housing for final welding.
5. Insert the alignment bar through the housing using bushings in the axle tubes and center section to hold the bar centered within the housing.
6. Weld the brackets to the axle tubes using the same alternating weld technique to minimize warpage. Allow the welds to cool periodically, this will also help to reduce warpage.
7. With the brackets welded completely, install your choice of housing ends at this time. Remember to keep the alignment bar in the housing during the installation of the housing ends. The bar should be left in until the housing is completely cool.

XI. SHOCK ASSEMBLY

The following instructions cover the assembly and installation of the Magnum Series Coil-Over Shocks.

1. Clamp the lower mounting loop in a large vise. (Use of soft vise jaws is recommended to protect the aluminum housing from scratches etc.)
2. Screw the aluminum spring seat and jam nut down to the last thread, NO FURTHER. Now is a good time to lubricate the threads of the shock body with an anti-seize lubricant.
3. Pull the piston rod all the way out and slide the bump stop down. Check the jam nut under the upper bearing housing making sure it is secure.
4. Slide the spring (Not included in Kit CU31M) over the shock body. Slip the spring cap in place, making sure that it is set in the spring squarely. The spring rate selected for your application will determine how difficult they will be to install.

5. Adjust the spring seat up until the spring is compressed 1 inch shorter than the free height of the spring, i.e. 12-inch spring would be compressed to 11 inches. This preloads the springs prior to mounting on the vehicle. (Make sure that the spring cap is aligned properly under the upper bearing mount)
6. Bearing Installation:
 - a. Test fit the bearings in both ends of the shock. Bearings may start easier on one side than the other.
 - b. Clean the outer bearing race with solvent and apply thread-locking compound to the outer bearing race and the bore surface of the bearing mount.
 - c. Assemble by inserting the bearing in a twisting motion. Install the snap rings on both sides of the bearing. (In some cases it may be necessary to press the bearings into the mount.)

XII. FINAL ASSEMBLY

1. With the subframe securely welded to the car and the axle housing welded complete; begin to re-assemble the rear suspension.
 - a. Slide the housing assembly under the chassis and locate it in place using your marks on the floor.
 - b. Install the assembled 4-link bars into the appropriate holes in the chassis and axle brackets. Remember the lower links go in the bottom holes of the chassis and axle brackets and the top links go in the top holes on the axle brackets and the middle holes on the top of the chassis brackets. Do not put the passenger side upper bar in at this time. Make sure that you put the labeled bars in their correct positions.
2. Install the diagonal link in position but do not tighten the jam nuts at this time. Make sure that the mounting brackets are parallel to the shop floor.
3. Mount the assembled Magnum Series Shocks into the upper and lower shock mount brackets using the supplied 1/2"-20 x 2-1/2" bolts and locknuts.
4. Position the drive shaft hoop on the cross member such that it has equal spacing on either side of the drive shaft, and centered front to rear on the cross member. Mark the cross member for placement of the weld on mounting lugs. Tack weld the lugs into position using the hoop as a guide. Fit check for proper clearance and final weld lugs to cross member.
5. Slide the drive shaft hoop over the welded lugs on the crossmember. Drill through the center of each hoop leg approximately 1" from the end using an 11/32" drill bit. Install the supplied 5/16"-18 x 1-3/4" bolts and locknuts.

XIII. ADJUSTMENTS AND TUNING TIPS

The following procedure should be done with the vehicle's weight resting on the housing. Support the axle housing with jack stands.

1. Adjust the coil-over spring seat up or down to reach the desired shock ride height. Shock ride height is the distance from the center of the top-mounting loop to the center of the bottom-mounting loop. If you have selected the proper spring rate, you should be able to adjust the spring seat up or down

- approximately 1/2" to get into the recommended ride height. If you cannot achieve the shock ride height recommended, a softer or stiffer spring may be required.
2. Check the vehicle ride height using the calculation found on your build sheet. Vehicle ride height should be changed if the car sits higher or lower than desired. With the chassis supported with jack stands, unbolt the
3. Adjustable lower shock mount brackets and move the housing up or down to get the vehicle ride height you are looking to achieve. When this is accomplished, place the vehicle's weight back on the axle housing supporting it with jack stands.
4. Using the plumb bob check the alignment of the housing in relation to the centerlines on the floor. Rotate the diagonal link in either direction to center the housing under the chassis. Lock the jam nuts when you are finished.
5. Check the wheelbase on each side of the car using the dimensions on your build sheet. Adjust the lower bars to achieve the correct dimension.

6. Adjust the pinion angle by turning the driver's side upper bar so that the angle finder reads 1-2° downward angle.
7. Install the passenger side upper bar so that the mounting bolts slide through the brackets without resistance. Do not force the bolts. Lengthen or shorten the link bar to allow the bolts to go through.
8. Tighten all jam nuts and mounting bolts.
9. The installation of your 4-link Subframe Kit is now complete. At this time you can install your fenderwells and tinwork as well as your axles, center section and wheels.

Magnum Series Shock Adjustment:

- Competition Engineering Magnum Series Coil-Over Shocks have 12 damping settings. There are 4 clicks per revolution of the knob. The knob will rotate 3 times. Do not adjust past the 12th click. Base settings to start testing with are 3-5 clicks for bracket racing and 4-7 clicks for Pro Tree racing. **THESE ARE BASELINE SETTINGS. NOTE: DO NOT FORCE THE ADJUSTER KNOB. DO NOT USE PLIERS OR ANY OTHER TOOLS ON THE ADJUSTER KNOB. DO NOT EXCEED 12 CLICKS UNDER ANY CIRCUMSTANCES. THIS COULD DAMAGE THE IDLER PIN AND CAUSE THE SHOCK NOT TO ADJUST. THIS WILL VOID ALL WARRANTIES.**
- The ride height can be adjusted by raising the chassis and supporting it with jack stands. With the rear axle housing supported by a floor jack, raise or lower the shock mounting brackets the desired amount.

CAUTION: NEVER ATTEMPT TO MAKE A SUSPENSION ADJUSTMENT WITHOUT FIRST SUPPORTING THE CAR WITH JACK STANDS.

Tuning Tips:

- If the car pulls to the right on launch, you can shorten the passenger side upper bar up to one wrench flat at a time. If more than two wrench flats are added you should look for signs of suspension binding or flex.
- If you run into trouble while tuning always go back to your baseline set-up. Keep your build sheet in a place where it won't get lost and refer to it when making changes.
- Change one thing at a time and try it before changing something else. Too often racers change several things at once not knowing what thing made the car run better or worse. Keep a log of all changes.
- Lowering the instant center (the imaginary intersection point of the top and bottom bars) will reduce weight transfer and soften the hit on the tires.
- Raising the instant center will increase weight transfer and hit the tires harder.
- Always check the pinion angle when relocating the links on the brackets. Strive to keep 1-2° downward pinion angle.
- Check your mounting bolts before each race making sure they are tight. Keep your rod ends clean and oiled. Take the suspension apart each year to clean and re-oil the rod ends. Look for mechanical bind as well as bent or cracked brackets and welds.

XIV. BUILD SHEET

Driver's Side Wheelbase = _____ Passenger Side Wheelbase = _____

Desired Ride Height = _____ Axle Housing Diameter / 2 = _____

Front Spindle Center to Center / 2 = _____ Rear Frameraill to Frameraill / 2 = _____

Drivetrain Offset = _____ New Frameraill Width = _____

Rocker Box to Rocker Box / 2 = _____ New Frameraill Length = _____

Floor to Rear Body Panel Mounting Point = _____

Amount to Cut Off Frame Rail = 69"- New Framerrail Length = _____

Distance Between the Front Chassis Brackets (Inside to Inside) = _____

Center to Center Distance Upper Shock Mounts = _____

Diagonal Link Length = _____ Tire Size = _____

Pinion Angle = _____ Rear Spring Installed Height = _____

Spring Rate, Rear = _____ Shock Valve Setting = _____

RIDE HEIGHT FORMULA

$DR-(TD/2) = \text{_____}$ (HD height difference), $AJ-RJ = \text{_____}$ (CH construction height)

$CH-HD = \text{_____}$ AMOUNT TO RAISE OR LOWER SHOCK MOUNTS FOR CORRECT RIDE HEIGHT

VEHICLE WEIGHT SPECIFICATIONS

Total Weight = _____

Front Weight = _____

Rear Weight = _____

Left Front Weight = _____

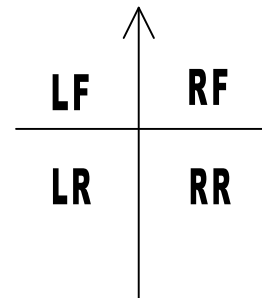
Right Front Weight = _____

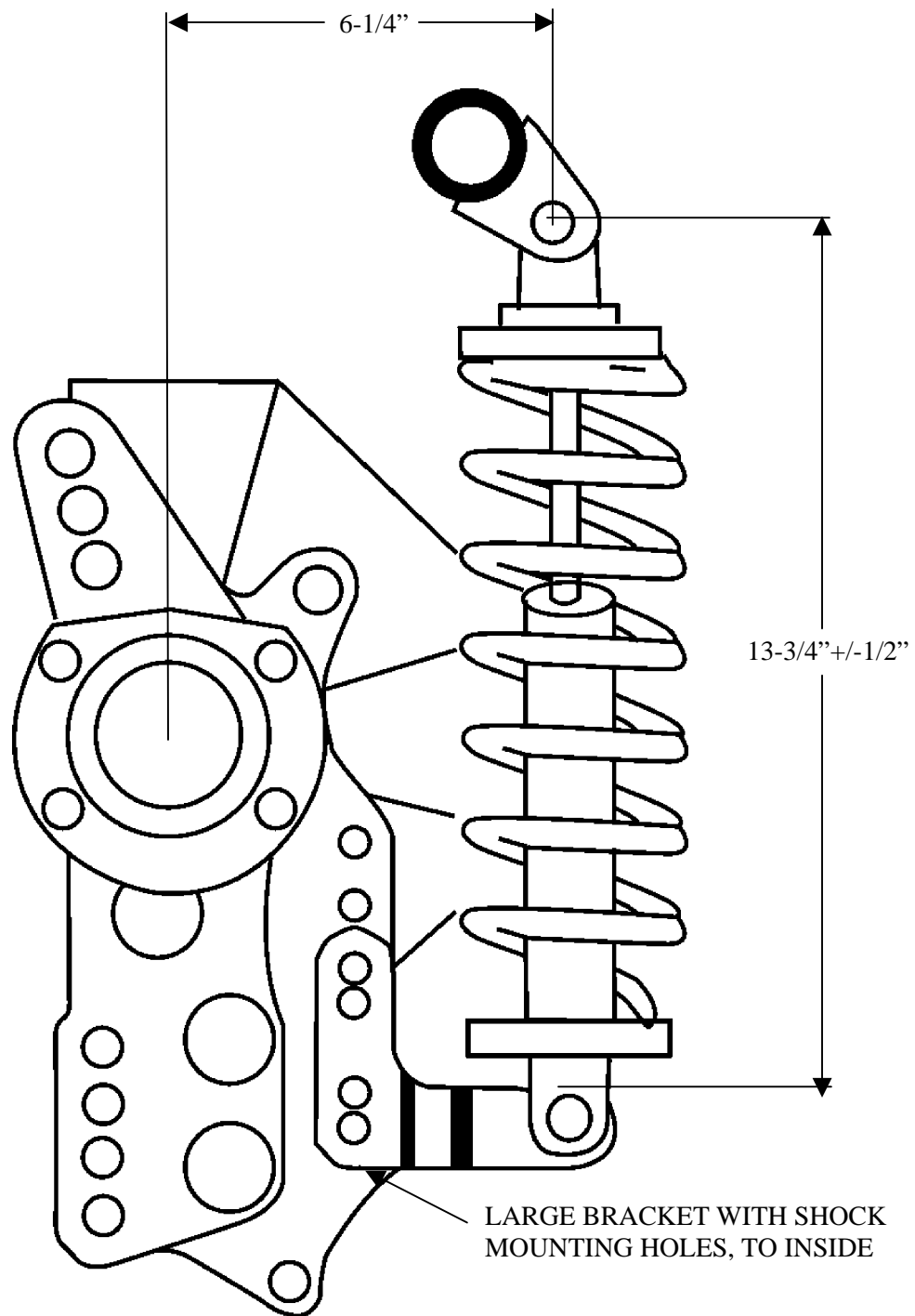
Left Rear Weight = _____

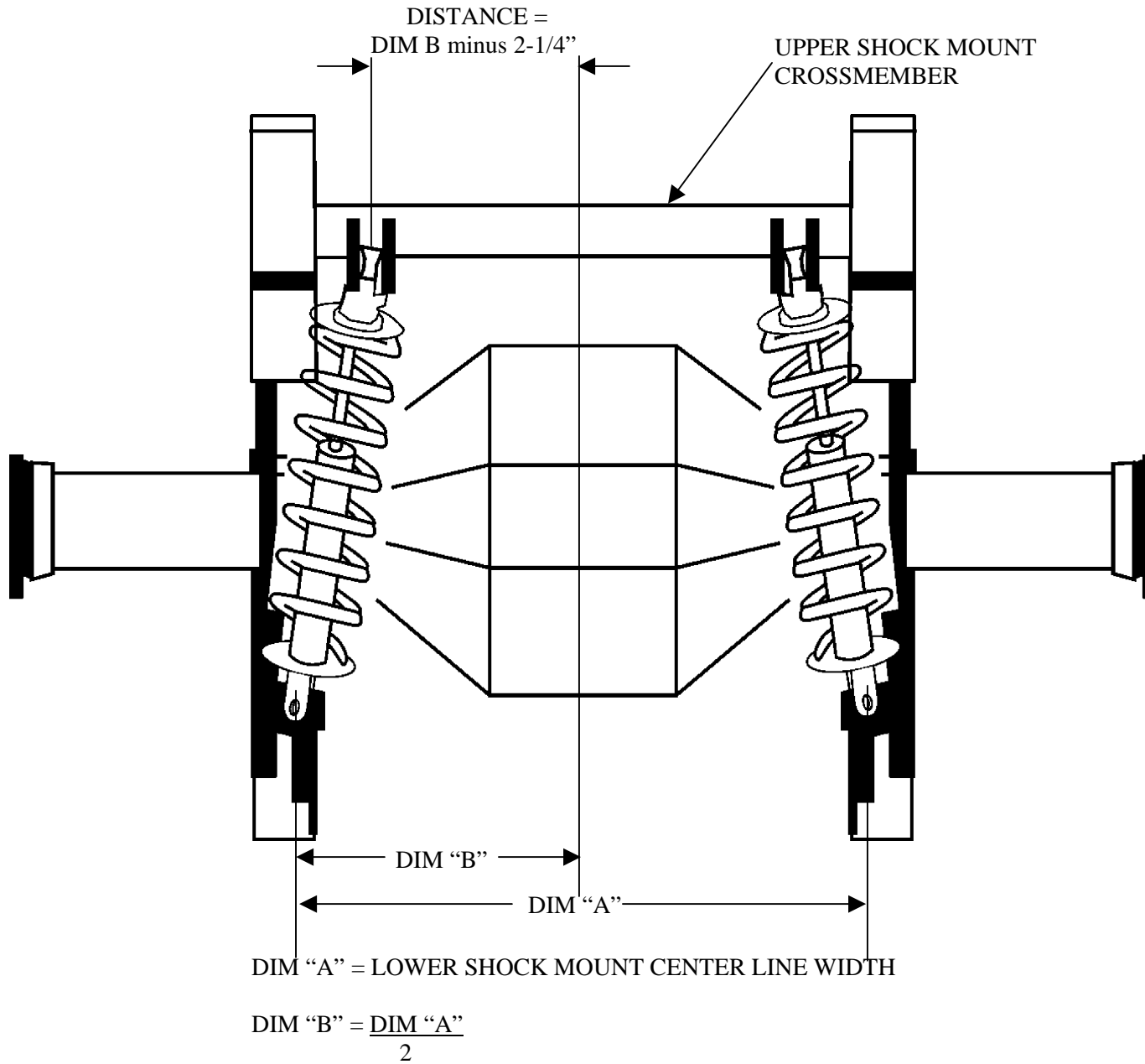
Right Rear Weight = _____

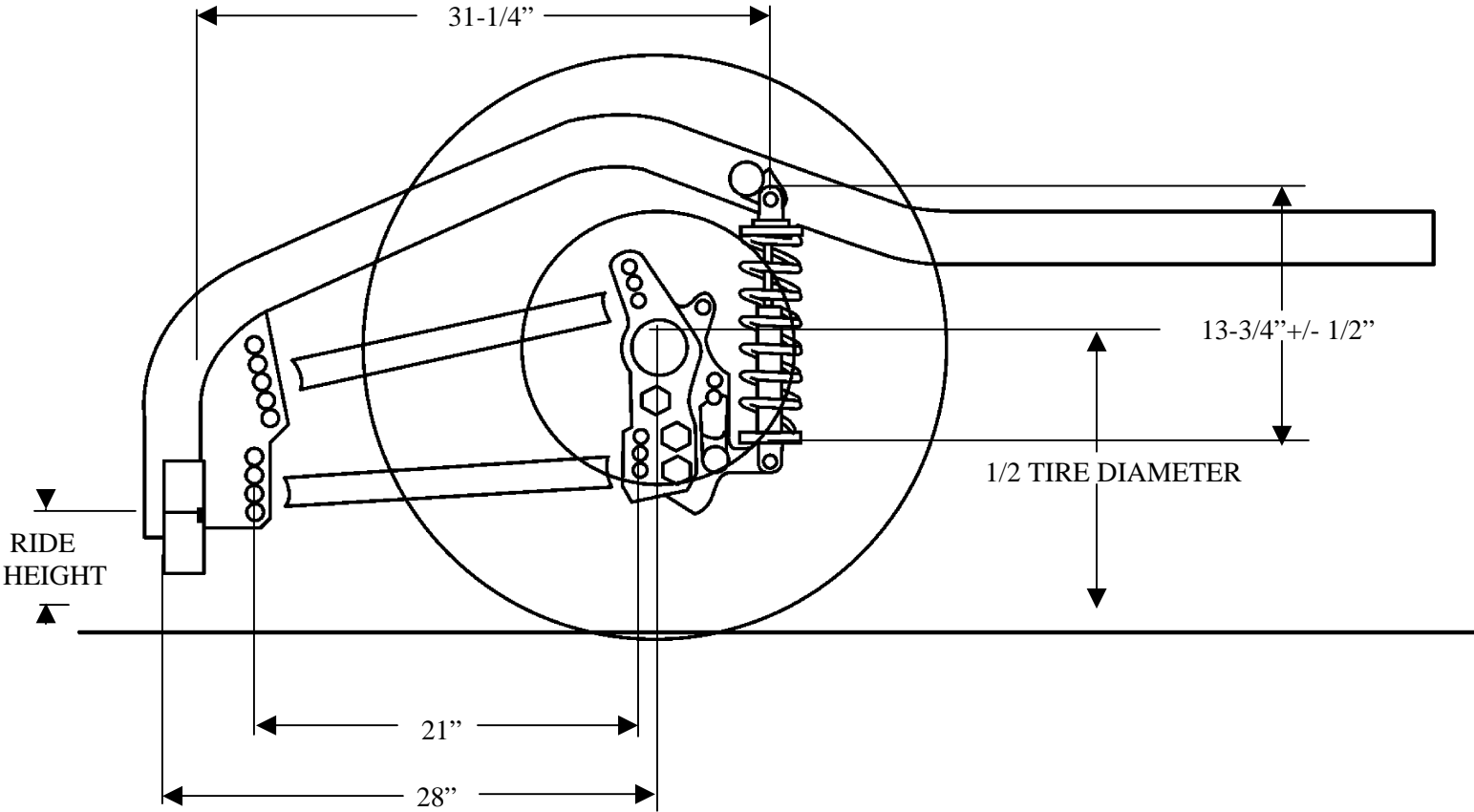
% of Weight, Front $(LF+RF/Total \times 100) = \text{_____}$

% of Weight, Rear $(LR+RR/Total \times 100) = \text{_____}$









Floor Centerline Diagram

