

READ ALL INSTRUCTIONS COMPLETELY AND THOROUGHLY UNDERSTAND THEM BEFORE DOING ANYTHING.
CALL CHASSISWORKS TECH SUPPORT (916) 388-0288 IF YOU NEED ASSISTANCE.

THIS DOCUMENT IS AVAILABLE ONLINE FOR ENLARGED VIEWING.

INSTALLATION GUIDE

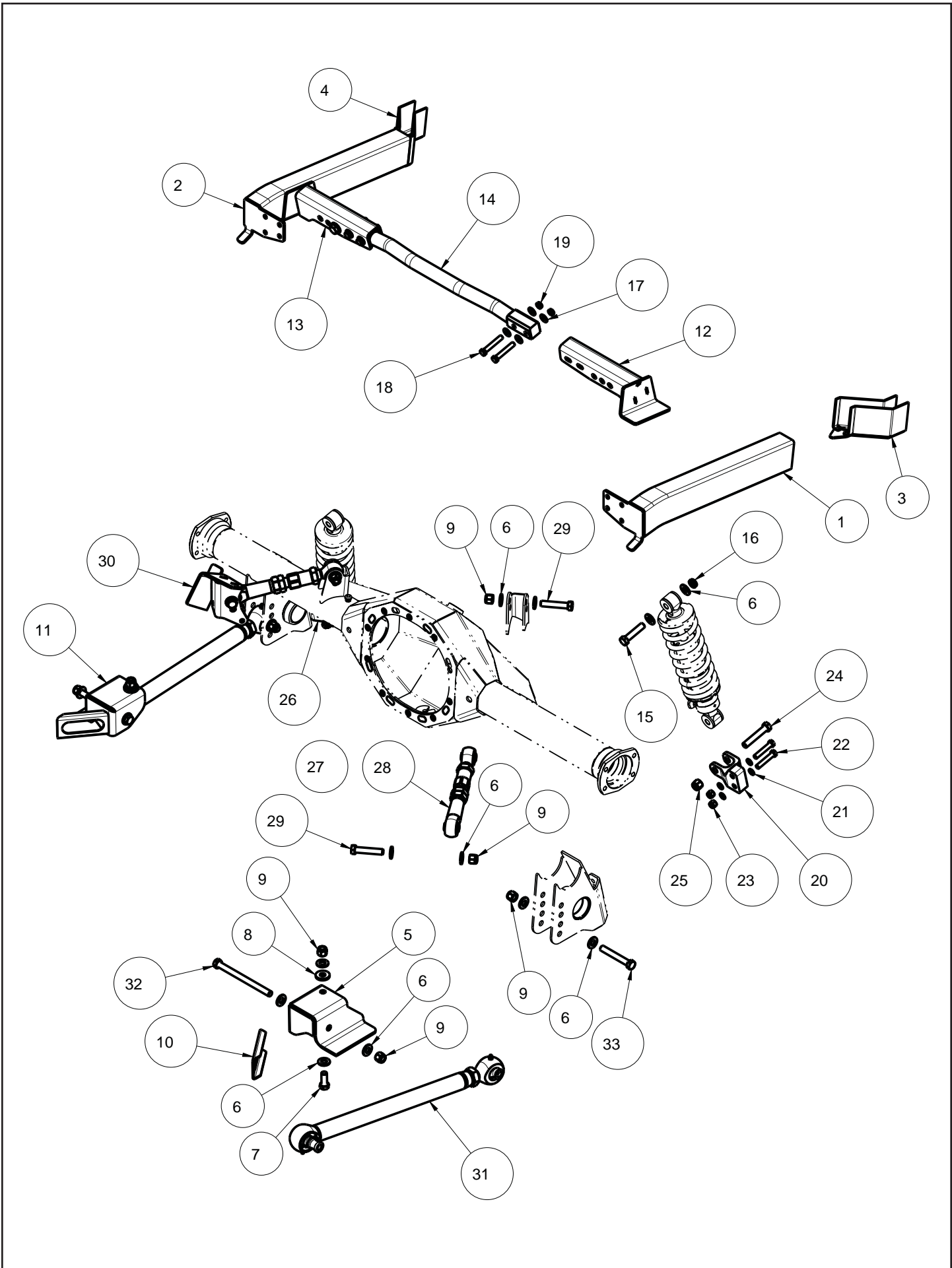


5854-M10 g-Link Mini-Tub and Chassis Mods Canted 4-Bar Coil-Over Rear Suspension 1964-1970 Mustang



Description: Canted 4-bar rear coil-over suspension for mini-tubbed 1964-1970 Mustang. Includes mini-tubs, offset frame rail inserts, upper and lower suspension links, chassis and axle brackets, and VariShock coil-overs. Options for billet-aluminum lower links, anti-roll bar and air-spring shocks.

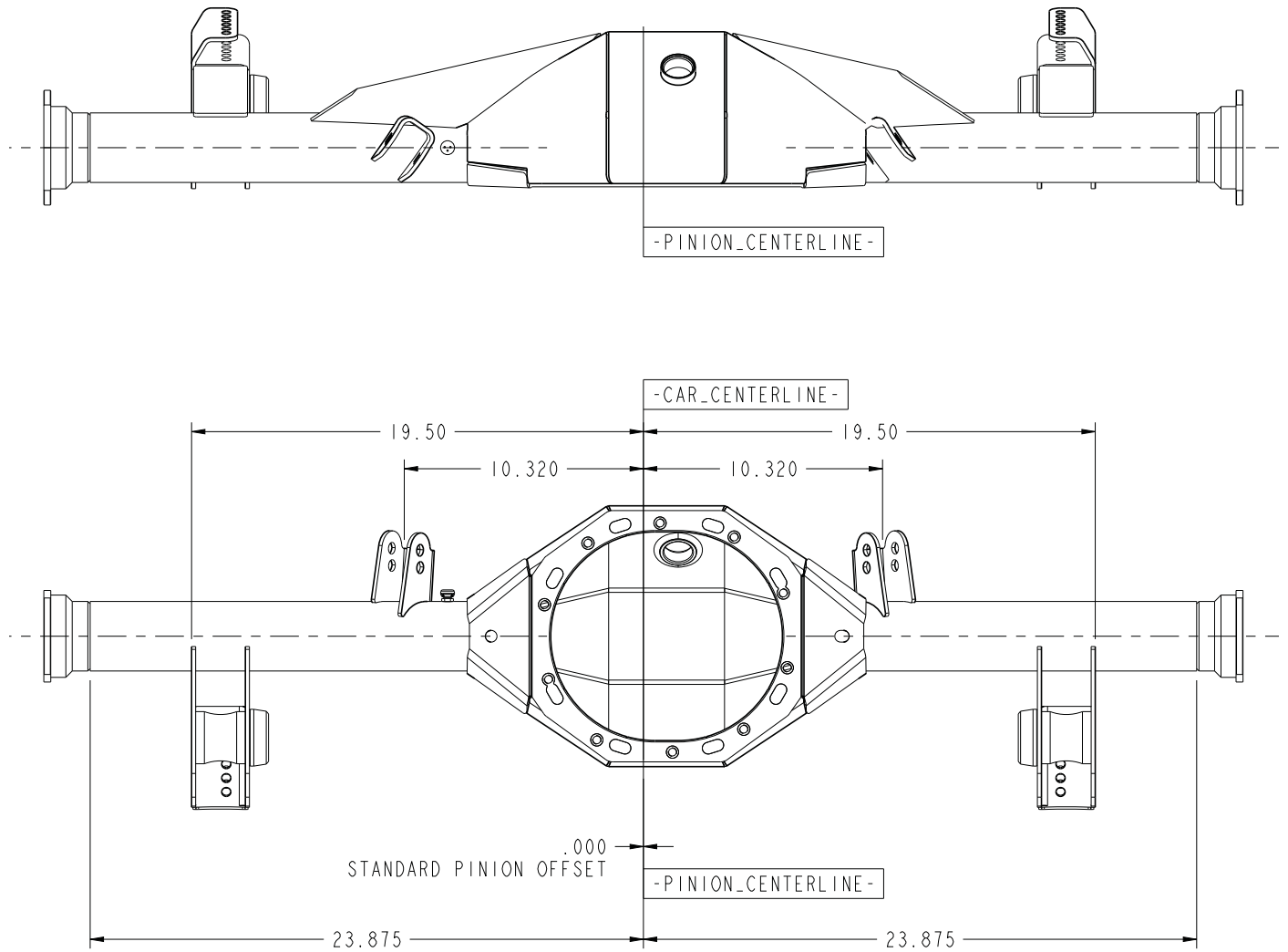
Notes: Installation requires modification of factory chassis and welding. Outside of lower link is approximately 2-3/4" narrower (per side) than the outside of the leaf spring. Requires narrowed gas tank due to relocated frame rails. New spring hanger position interferes with exhaust alignment through GT-style rear valances; all years.



ITEM	QTY	PART NO.	DESCRIPTION
1	1	7902-057	FRAME RAIL ASSY, DRIVER, 64-70 MUSTANG, MINI-TUB
2	1	7902-060	FRAME RAIL ASSY, PASSENGER, 64-70 MUSTANG, MINI-TUB
3	1	7902-091	RAIL CAP WELDMENT, DRIVER, 64-70 MUSTANG, MINI-TUB
4	1	7902-095	RAIL CAP WELDMENT, PASSENGER, 64-70 MUSTANG, MINI-TUB
5	1	7902-069	BRACKET, LEAF SPRING, DRV, 64-70 MUSTANG, MINI-TUB
6	24	3120-050S-Y	FLAT WASHER, 1/2 SAE, HARDENED, YELLOW ZINC
7	2	3100-050C1.25Y	HEX BOLT, 1/2-13 x 1 1/4, GRADE 8, YELLOW ZINC
8	2	210136	WASHER, \varnothing 1 1/4 x \varnothing 1/2 x .180 THICK
9	10	3101-050-13C	LOCKNUT 1/2-13, GRADE 5, NYLON INSERT, CLEAR ZINC
10	2	7902-071	GUSSET, LEAF SPRING, 64-70 MUSTANG, MINI-TUB
11	1	7902-070	BRACKET, LEAF SPRING, PSGR, 64-70 MUSTANG, MINI-TUB
12	1	7902-086	FRAME BRACKET WELDMENT, AXLE ARB, DRV, 64-70 MUSTANG, MINI-TUB
13	1	7902-089	FRAME BRACKET, WELDMENT, AXLE ARB, PSGR, 64-70 MUSTANG, MINI-TUB
14	1	7902-103	CROSS TUBE WELDMENT, SHOCK MOUNT, G-BAR, 64-70 MUSTANG, MINI-TUB
15	2	3100-050F2.25Y	HEX BOLT, 1/2-20 x 2 1/4, GRADE 8, YELLOW ZINC
16	2	3117-050-20C	LOCKNUT, 1/2-20, GRADE 5, HALF HEIGHT, NYLON INSERT, CLEAR ZINC
17	8	3120-038S-Y	FLAT WASHER, 3/8 SAE, HARDENED, YELLOW ZINC
18	4	3100-038F2.25Y	HEX BOLT, 3/8-24 x 2 1/4, GRADE 8, YELLOW ZINC
19	4	3117-038-24C	LOCKNUT, 3/8-24, GRADE 5, HALF HEIGHT, NYLON INSERT, CLEAR ZINC
20	1	1477-D	G-BAR STRAIGHT SHOCK MOUNT, DRIVER, ADJUSTABLE, OFFSET
21	8	3109-038-S-2-Y	AIRCRAFT WASHER 3/8 x .062 THICK
22	4	3100-038F2.00Y	HEX BOLT, 3/8-24 x 2, GRADE 8, YELLOW ZINC
23	4	3101-038-24C	LOCKNUT, 3/8-24, GRADE 5, NYLON INSERT, CLEAR ZINC
24	2	3100-050F2.75Y	HEX BOLT, 1/2-20 x 2 3/4, GRADE 8, YELLOW ZINC
25	2	3101-050-20C	LOCKNUT, 1/2-20, GRADE 5, NYLON INSERT, CLEAR ZINC
26	1	1477-P	G-BAR STRAIGHT SHOCK MOUNT, PSGR, ADJUSTABLE, OFFSET
27	1	7902-079	ASSY, FRAME BRACKET, G-LINK, DRV, 64-70 MUSTANG, MINI-TUB
28	2	3818-09.00	G-LINK UPPER LINK ASSY, DA, BALL PIVOT, 9.00 CENTER LENGTH
29	4	3100-050C2.50Y	HEX BOLT, 1/2-13 x 2 1/2, GRADE 8, YELLOW ZINC
30	1	7902-083	ASSY, FRAME BRACKET, G-LINK, PSGR, 64-70 MUSTANG, MINI-TUB
31	2	3816-21.00-ADD	LOWER LINK ASSEMBLY, G-LINK, DRV, 3.085 OFFSET PIVOT BALL, 21 CENTER
32	2	3100-050C6.50Y	HEX BOLT, 1/2-13 x 6 1/2, GRADE 8, YELLOW ZINC
33	2	3100-050C3.50Y	HEX BOLT, 1/2-13 x 3 1/2, GRADE 8, YELLOW ZINC

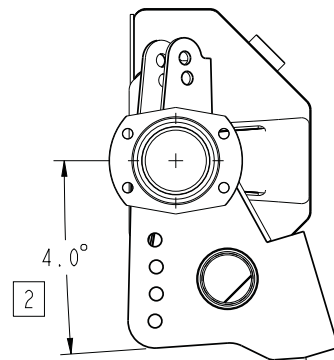
DESCRIPTION		G-LINK, AXLE MOUNT ARB, 64-70 MUSTANG, MINI-TUB	
<i>Chris Alston's</i> CHASSISWORKS INC. 8661 YOUNGER CREEK DRIVE SACRAMENTO, CA 95828 (916) 388-0288 FAX 388-0295		PART NO.	5854-M10
		3/15/19	DWG: 915854-M10

84M10-801



NOTES:

1. USE CHASSISWORKS FIXTURE 6732 TO INSTALL UPPER CONTROL ARM BRACKETS
2. BOTTOM OF AXLE BRACKET IS ROTATED 4 DEGREES FROM HOUSING FACE



UNLESS OTHERWISE SPECIFIED		APPROVALS	DATE	DESCRIPTION
DIMENSIONS ARE IN INCHES		DRAWN BY:	12/5/19	FAB9, G-BAR, M/S LBFS, HSNG MNT ARB, MINI-TUB, 64-70 MUSTANG
TOLERANCES		D. HOESCHEN		
FRACTIONS	ANGLES	DECIMAL	CHECKED BY:	Chris Alston's CHASSISWORKS INC. 8661 YOUNGER CREEK DRIVE SACRAMENTO, CA 95828 (916) 388-0288 FAX 388-0295
±1/16	±.5 ±.05 ±.005	±.1 ±.01 ±.005 ±.0010	S. RIEGER	
			DWG RELEASE LEVEL:	
FINISH				SIZE
NONE				B
MATERIAL				PART NO.
ASSEMBLY				915854-M10-FAB9
				PART REV.
				0
		SCALE:	5:32	DWG: 915854-M10-FAB9 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.

Lower Shock Mounts - 300-0106

Qty	Part Number	Description
1	1477-D	Shock mount, billet aluminum, driver side
1	1477-P	Shock mount, billet aluminum, passenger side
4	3100-038F2.00Y	Bolt, 3/8-24 x 2" hex head Grade 8
2	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4" hex head Grade 8
4	3101-038-24C	Locknut, 3/8-24 nylon insert
2	3101-050-20C	Locknut, 1/2-20 nylon insert
8	3109-038-S-2-Y	Aircraft washer, 3/8" small OD

Upper Control Arms - 300-0145

Qty	Part Number	Description
2	3818-09.00	Double-adjustable g-Link pivot-ball upper link assembly, 9" long
4	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4" hex head Grade 8
4	3101-050-20C	Locknut, 1/2-20 nylon insert
8	3120-050S-Y	Washer, 1/2" hardened flat SAE

Front Leaf Spring Mounts - 300-0202

Qty	Part Number	Description
2	210136	Doubler washer, 1/2" x 1-1/4" OD x .18" thick
2	3100-050C1.25Y	Bolt, 1/2-20 x 1-1/4" hex head Grade 8
2	3101-050-13C	Locknut, 1/2-13 nylon insert
4	3120-050S-Y	Washer, 1/2" hardened flat SAE
1	7902-069	Front leaf-spring mount, driver-side
1	7902-070	Front leaf-spring mount, passenger-side
2	7902-071	Leaf-spring-mount gusset

Shock Crossmember - 300-0203

Qty	Part Number	Description
1	7902-086	Shock crossmember mount, driver-side
1	7902-089	Shock crossmember mount, passenger-side
2	7902-103	Shock crossmember weldment

Upper Arm Frame Mounts - 300-0204

Qty	Part Number	Description
4	3100-050C2.50Y	Bolt, 1/2-13 x 2-1/2" hex head Grade 8
4	3101-050-13C	Locknut, 1/2-13 nylon insert
8	3120-050S-Y	Washer, 1/2" hardened flat SAE
1	7902-079	Upper link chassis mount, driver-side
1	7902-083	Upper link chassis mount, passenger-side

OPTION - Control Arm Axle Mounts

Qty	Part Number	Description
1	230229	Upper arm axle mount, driver-side
1	230230	Upper arm axle mount, passenger-side
1	5343	Lower arm axle mount, driver-side
1	5344	Lower arm axle mount, passenger-side
1	6732	Upper arm mount weld fixture
Note	Brackets may be omitted if purchasing direct-fit FAB9™ housing.	

OPTION - Anti-Roll Bar

Qty	Part Number	Description
1	300-0200	Anti-roll bar, ball-end mounted, 3/4" diameter
1	300-0201	Hardware bag

OPTION - Shock Absorber Components

Qty	Part Number	Description
Coil-Over Shocks - Single Body		
1 (pair)	VAS 11111-515	VariShock single-adjustable coil-over shock, COM-8 eyes, 5.15" travel
1 (pair)	VAS 11211-515	VariShock double-adjustable coil-over shock, COM-8 eyes, 5.15" travel
1 (pair)	VAS 1A2B838-5	VariShock double-adjustable coil-over shock, pivot-ball eyes, 5.15" travel
1 (pair)	VAS 21-12XXX	VariSprings 12" long (spring rate optional)
1	VAS 508-105	Shock mount spacer set
1	VAS 517-RS-F	Shock reservoir silo-style mount
Coil-Over Shocks - Remote Reservoir		
2	VAS 11411-50	VariShock 4-way adjustable coil-over shock, COM-8 eyes, 5" travel
1 (pair)	VAS 21-10XXX	VariSprings 10" long (spring rate optional)
1	VAS 508-105	Shock mount spacer set
1	VAS 517-RS-F	Shock reservoir silo-style mount
Air-Spring Shocks		
1 (pair)	VAS 131K2-515	VariShock single-adjustable air-spring shock, poly eyes, 5.15" travel
1 (pair)	VAS 132K2-515	VariShock double-adjustable air-spring shock, poly eyes, 5.15" travel

OPTION - Mini-Tub and Frame Rail Set

Qty	Part Number	Description
1	5913-M10-NFI	Mini wheel tub set
1	7902-057	Frame rail assembly, driver-side (in 300-0205)
1	7902-060	Frame rail assembly, passenger-side (in 300-0205)
1	7902-091	Rail cap weldment, driver-side (in 300-0205)
1	7902-095	Rail cap weldment, passenger-side (in 300-0205)
Note	Components may be omitted if mini-tubs previously installed on vehicle.	

OPTION - Lower Control Arms

Qty	Part Number	Description
1	300-0144	g-Link pivot-ball lower control arms, tubular steel
1	300-0199	Billet g-Link pivot-ball lower control arms, billet aluminum

INSTRUCTIONS

The g-Link Canted 4-Bar Rear Coil-Over Kit replaces the majority of components in your existing rear suspension. It is necessary to remove all of the existing components to prepare for installation.

Installation of suspension brackets and offset frame rails must be completed prior to installing mini wheel tubs.

Remove Factory Suspension

1. Raise vehicle to a safe and comfortable working height. Use jack stands or a two-post lift to support the vehicle with suspension hanging freely. Make sure it is level front to rear and right to left.
2. Remove any portions of exhaust system that may interfere with installation. Mufflers in the stock location can remain in place. Unbolt or cut any exhaust tubing that is routed over the rear end housing.
3. Disconnect the driveshaft and brake lines from the rearend housing. Brake and fuel lines can remain on vehicle but will need to be secured along the body to prevent damage during installation.
4. Place a floor jack underneath the rearend center section to support its weight as the rear suspension is removed as an assembly.
5. Unbolt the front leaf-spring eyes and rear spring shackles from the vehicle, and removed the rear suspension.



Chassis Inspection

6. With the leaf springs out of the way, inspect the sheet metal for signs of fatigue. Clean the area to remove any grease or dirt so the metal and welds are clearly visible. Look for cracks along the welds or tearing of the mounts in any way. If there is any damage present, repairs will have to be made before proceeding.



Strengthen Factory Seams

High Horsepower and Traction: On vehicles equipped with racing slicks, drag-radials, or wide street tires (mini-tubbed) we recommend strengthening the factory spot welded seams by adding stitch welds along the areas adjacent to our suspension brackets. *Prior to welding, use a hammer to flatten the factory seams.*

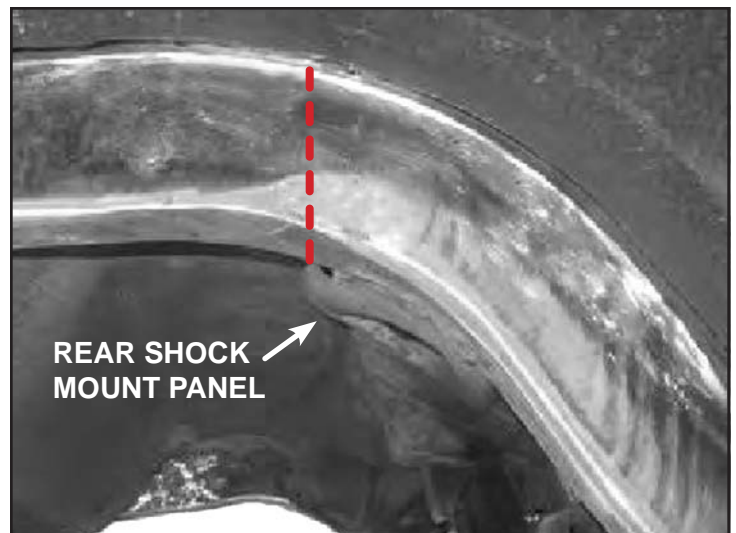
IMPORTANT: Remove rear seat, carpet, insulation and wiring from areas of vehicle that may be affected by heat from welding. This is done to reduce the risk of damage and potential fire.

7. Use a cut-off wheel or spot weld drill bit to remove the axle bumper mounts from the frame rail. This will give better access for marking and cutting the section of frame rail that will be removed.

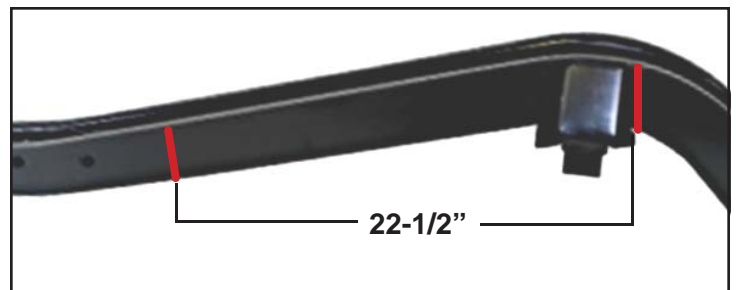
NOTE: Support the OEM rear frame at the valance before removing frame rail sections to prevent the body from sagging.



8. The front end of the frame rail insert sits flush against the backside of the rear shock mount panel. Place a straight edge or square flat against the back side of the rear shock mount panel to transfer a line onto the bottom of the frame rail. Continue the line along the outside of the frame rail until it meets the body.



9. From the forward cut-off line, mark a second line 22-1/2" rearward that is perpendicular to the frame rail. This is the rear cut-off point of the section of the factory rail that will be removed. This is slightly shorter than the overall length of the rail insert and offset rail segment to allow trimming of rails for best fit.

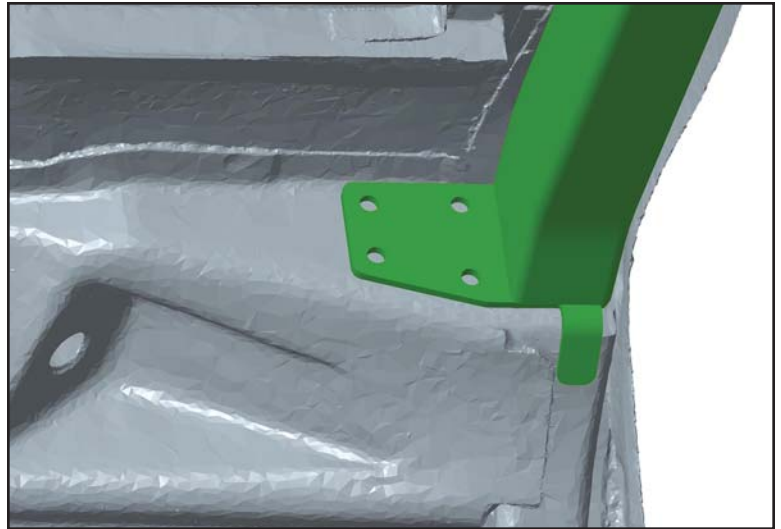


10. Make the two vertical cuts before cutting along the top corner against the floor. Be extremely careful not to cut through the floor. Any remaining material from the factory rail must be ground flush to allow the new rail segment to seat flush against the floor.

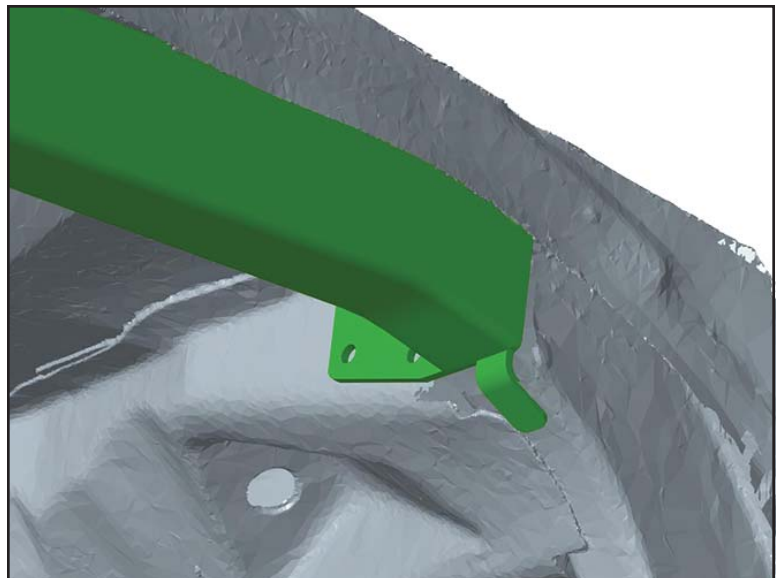
Both frame rails must be cut out at this time.

11. Prepare the frame rail inserts and brackets for welding by removing any light rust or debris along the outside edges where the welds will be made. Use a drill with scotch-brite pad or wire wheel attachment.
12. Position the frame rail (green) against the back side of the shock mount panel. Top of the rail must seat flush against the floor with rail extending square to the shock mount panel.

RAIL INSERTS AND BRACKETS MUST BE TACK WELDED INITIALLY.



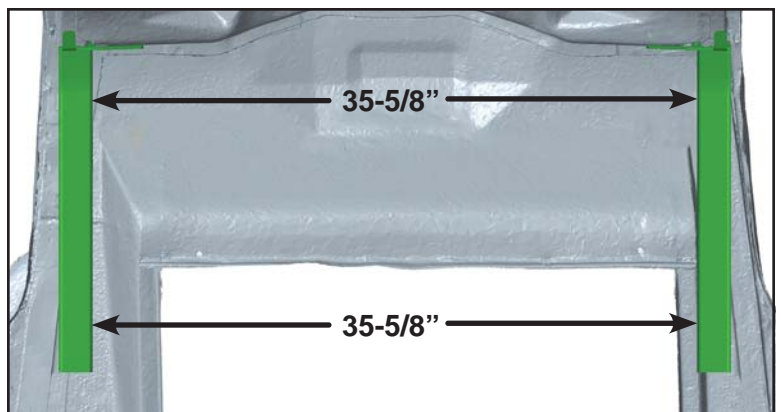
13. The outside of the rail insert should be flush with the factory rail. Position may change slightly once distance between rails is verified.
14. The tab below the rail may be bent to fit tighter against the bottom of the stock rail.



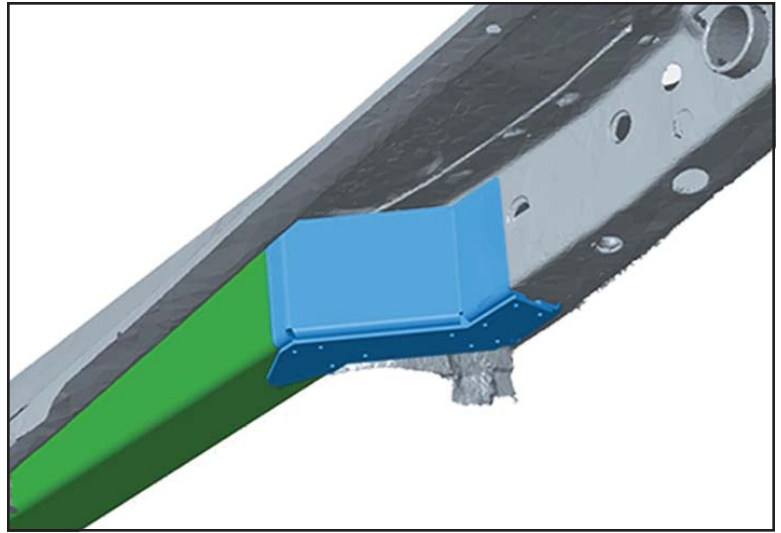
Verify Rail Position

15. Once the first rail has been lightly tack welded, the second rail can be put into position.

The rails must be parallel to each other at a distance of 35-5/8" to the inside edges.



16. The offset rail cap (blue) can be fit into position at this time. The stock rail as well as the new rail segments may require trimming to achieve the best fit. Segment must fit flush against floor and inline with both rails.



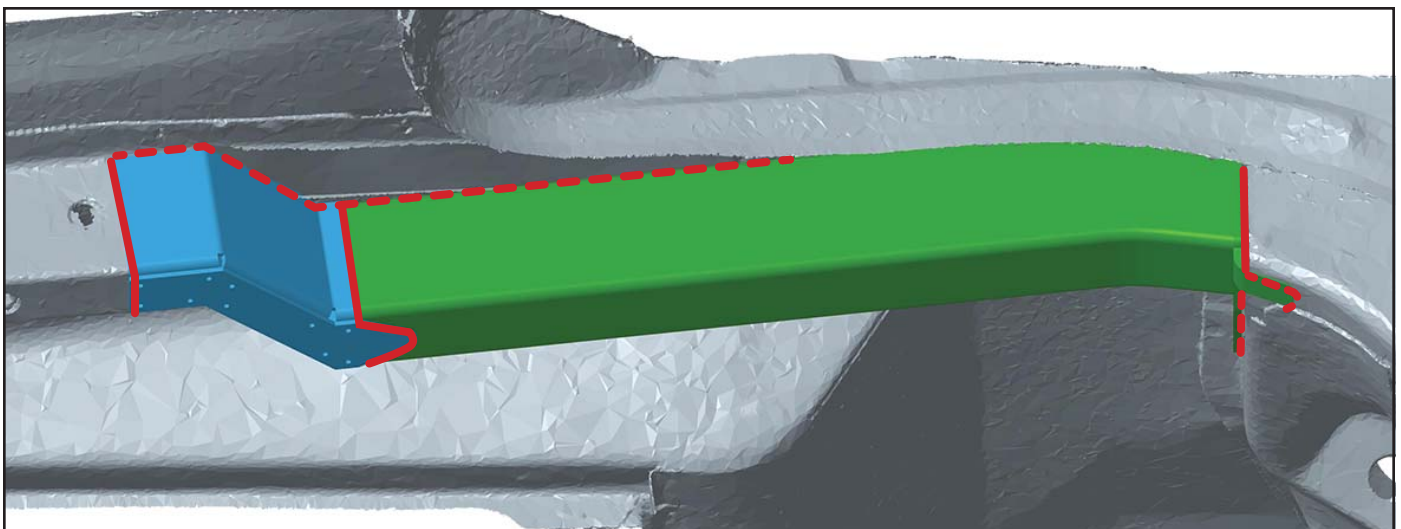
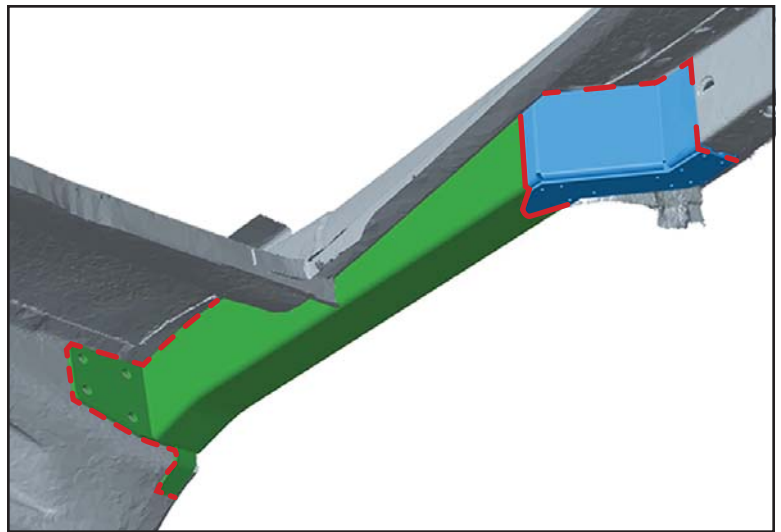
17. TEST FIT THE SHOCK CROSSMEMBER WITH BOLTS AT THIS TIME.

18. Once all rail segments are correctly positioned, final welding can be completed.

Seams between the each rail segment should be fully welded.

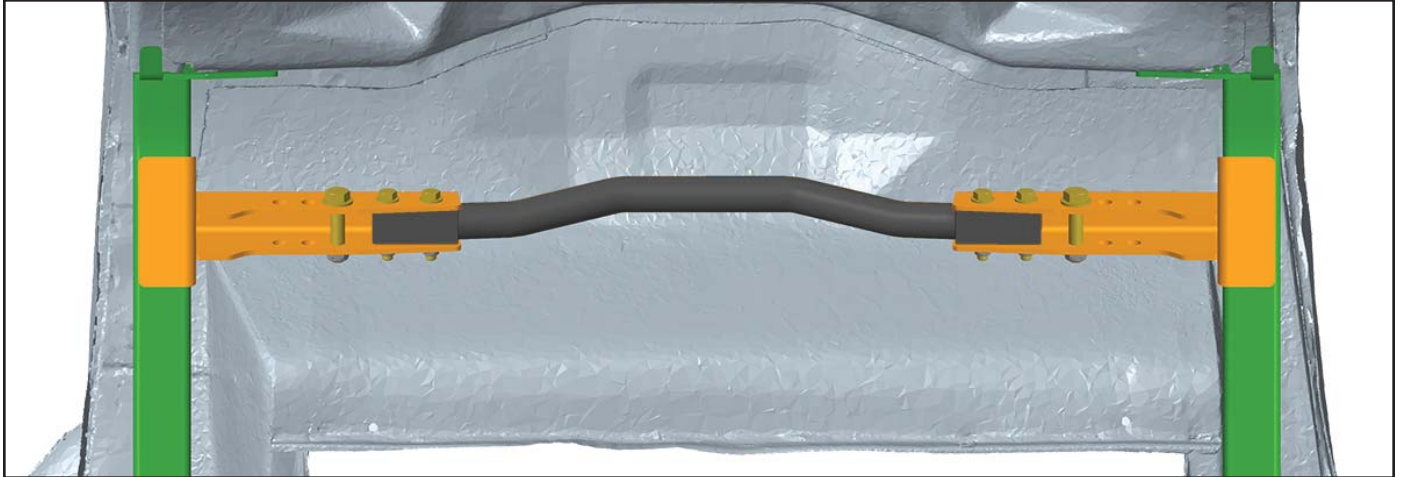
Horizontal joints between the rail and floor should be stitch welded.

The bracket at the shock mount panel should be plug welded then stitched along the perimeter.



Shock Crossmember

19. Assemble the shock crossmember and frame mounts using the supplied bolts and raise into position.

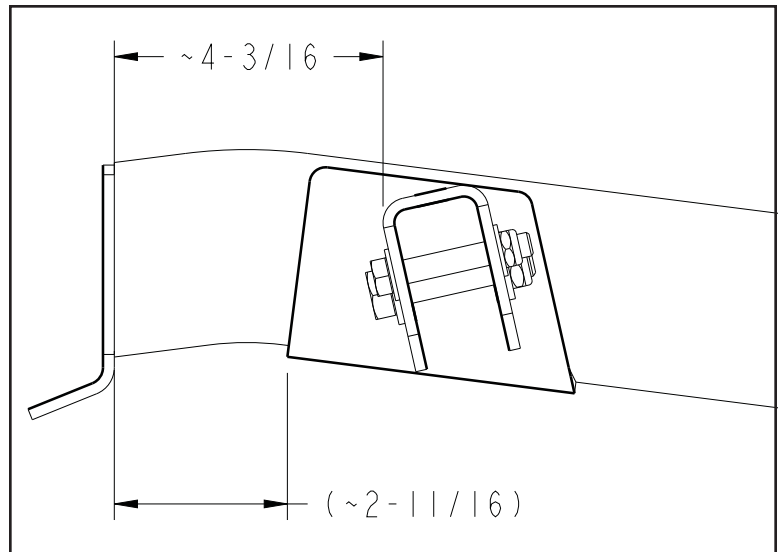


20. Position the crossmember along the frame rail at the distances specified in diagram to the right. Measurements are made from the plug-welded flange of the frame rail to the closest corners of the crossmember mounts.

TOOL TIP: A couple pieces of scrap material can be cut to a width of $4\text{-}3/16$ " and used as a simple jig to position the crossmember.

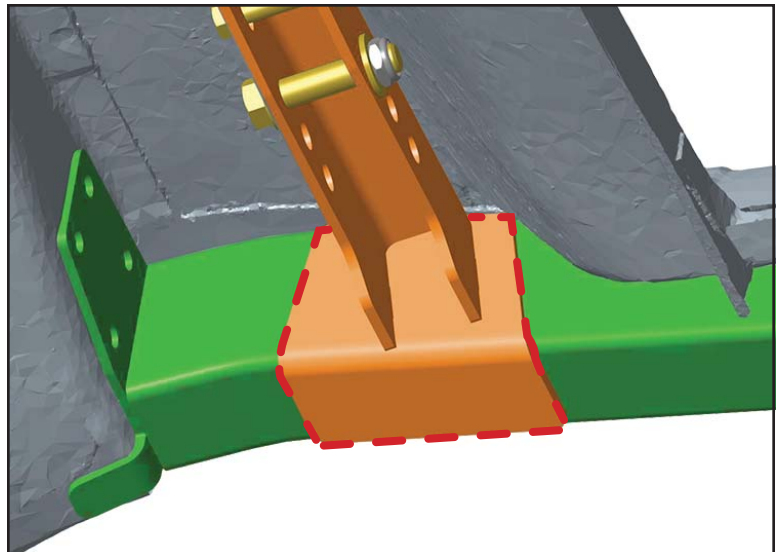
21. Clamp the crossmember mounts against the frame rail and tack weld.

LEAVE THE CROSSMEMBER BOLTED TOGETHER WHILE WELDS ARE COMPLETED.



22. Use tack welds to secure the crossmember mounts until after the suspension has been checked for clearance.

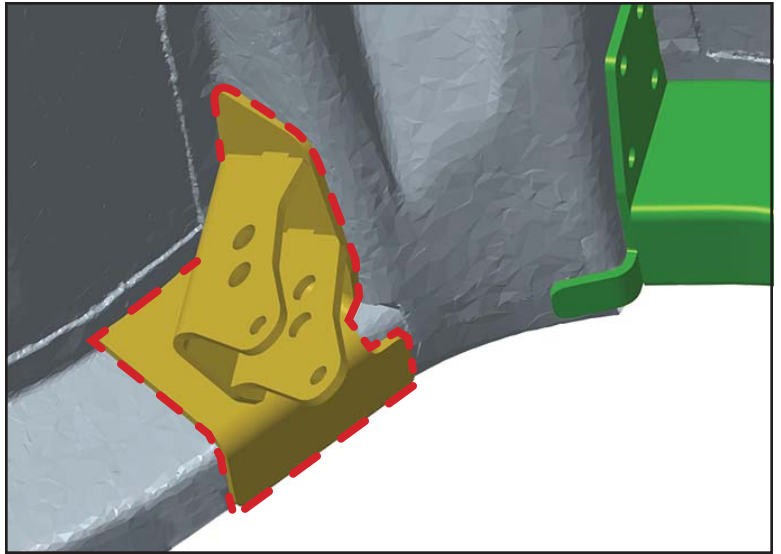
FINAL WELDING: Stitch weld around the crossmember mounts, wrapping the corners where possible.



Upper Arm Mounts

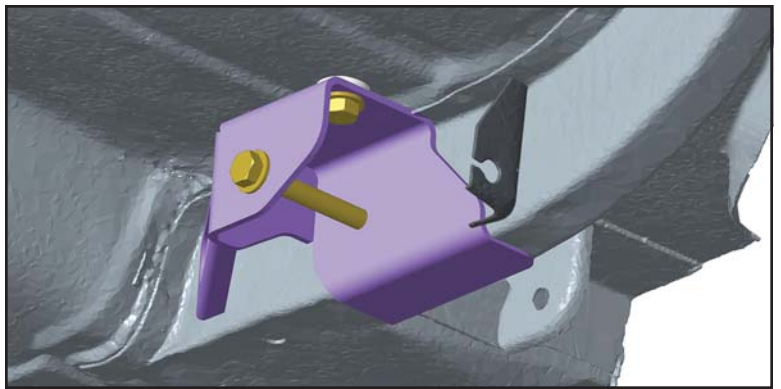
23. The upper arm mounts seat against the front side of the shock mount panel, and the inside and bottom of the frame rail. Use a hammer to flatten or contour OEM frame to allow mount to sit flatter against vehicle.
24. Use tack welds to secure the mounts until after the suspension has been checked for clearance.

FINAL WELDING: Stitch weld around the bracket, wrapping the bracket corners.

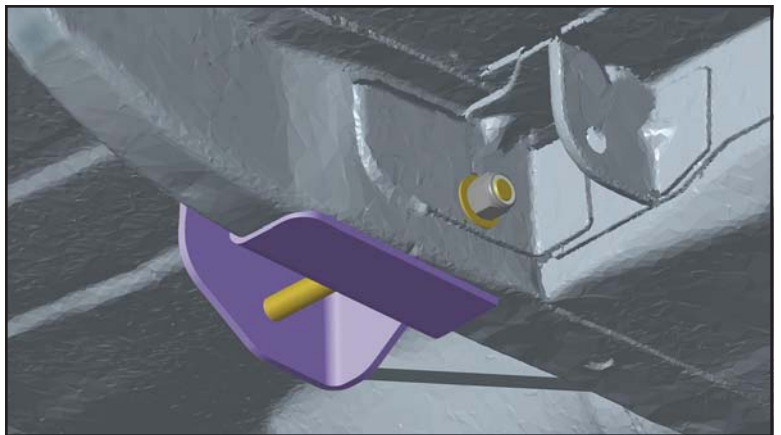


Lower Arm Mounts

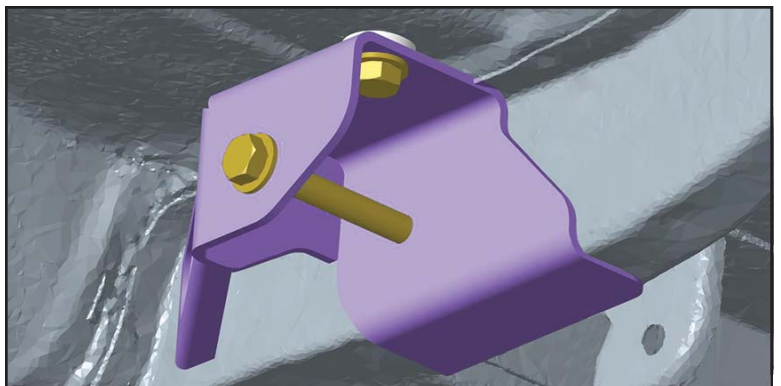
25. Carefully remove the parking brake cable bracket (black) along the inside of the frame rail as it will interfere with the lower arm.
26. Reattach bracket below frame to prevent interference with lower arm.



27. Make sure bracket is seated and square with the bottom of the frame rail. A hammer should be used to flatten or contour the OEM frame rail as needed.
28. Snug up the bolt using a washer and lock nut to align the bracket.
29. Tack weld the bracket in multiple areas to secure this position.



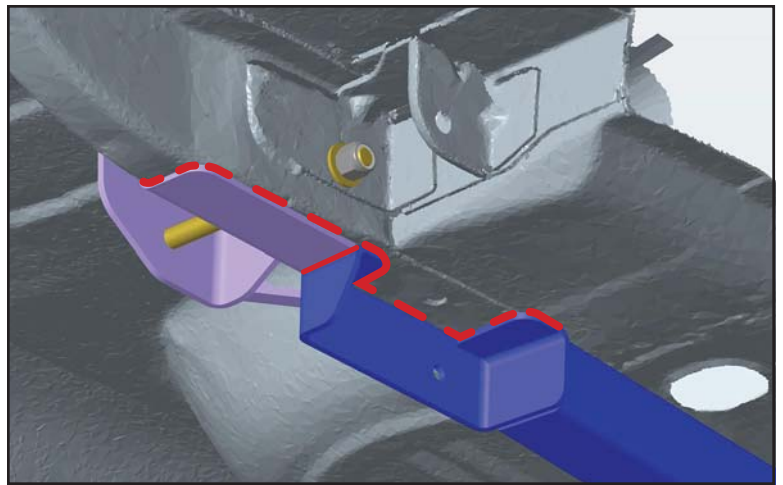
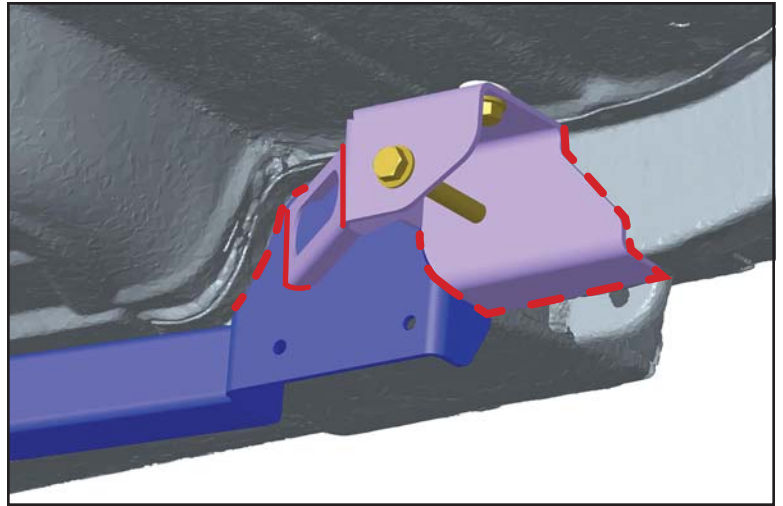
30. Using the bracket as a jig, drill a 1/2" hole through the floor. Carpet and insulation should have already been removed.
31. Insert the 3/16"-thick spacer between the bracket and floor and secure using the 1/2" bolt, flat washers and lock nut.
32. If not using subframe connectors, tack the front-side gusset to brace the bracket against the frame rail.



Subframe Connectors

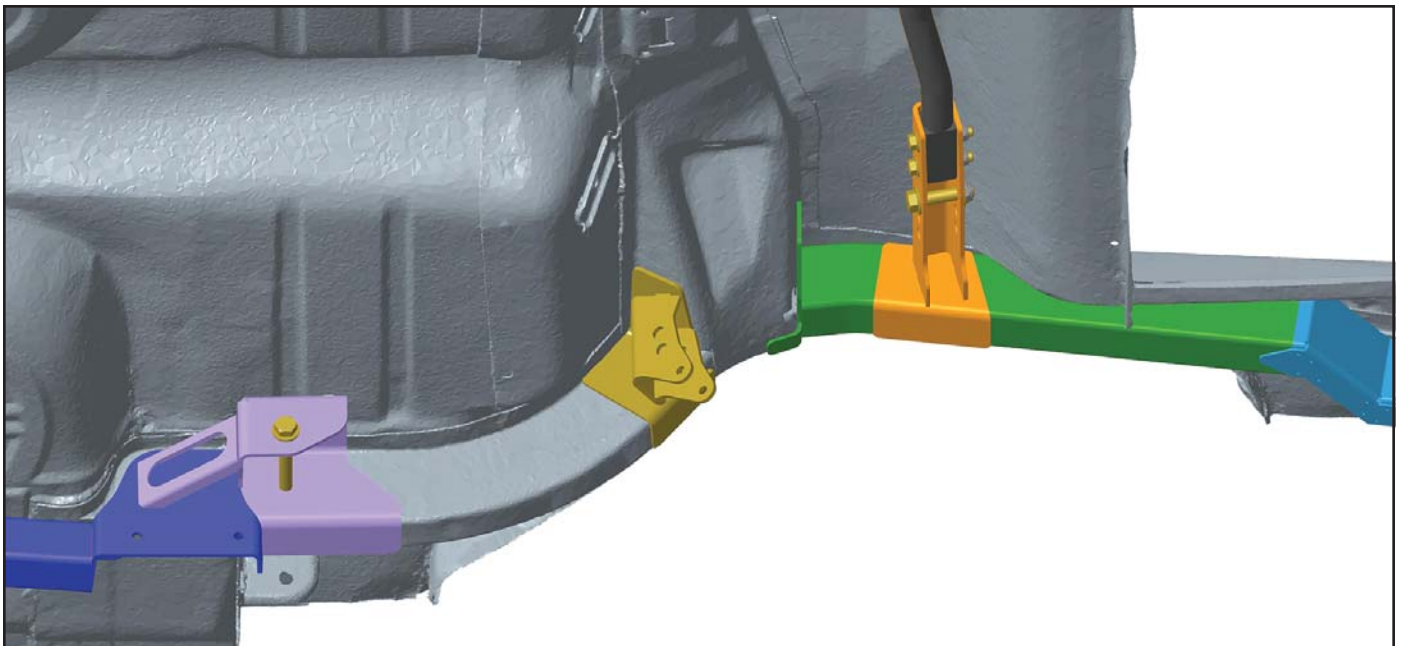
If subframe connectors have been previously installed, the leading edge of the bracket may need to be ground for clearance. Lower arm mounts must use the front leaf spring mounting bolt to determine their location.

33. Follow instructions included with subframe connectors for proper installation. Connectors should cup the end of the front subframe and sit just forward of the lower arm bracket.
34. The front-side gusset is then installed on top of the subframe connector flange.
35. Refer to the red lines in the images to the right for areas to be stitch welded after suspension clearance has been checked.



Final Welding

Leave brackets and mounts tack welded until after suspension and housing have been test fit and checked for any clearance issues. If there are not issues, proceed with final welding and painting of brackets and weld areas.



Chassisworks FAB9™ Housings

Bolt-in FAB9™ rear end housings are available pre-assembled with welded upper and lower control arm brackets. Housings accept Ford 9" third-members and axles. Installation of control arms and anti-roll bars is identical to factory housing installations.



Suspension Installation and Test Fit

The installation images in this section were shot using a different model vehicle; procedures are identical. Refer to the assembly diagram for suspension component installation and specific hardware.

Initially, suspension components can be loosely bolted-on for the purpose of checking for any clearance issues. The suspension must be articulated through the entire range of travel and roll before being removed for final welding of brackets. **Torque specs** are listed in these steps, but will not be tightened until final installation.

36. Tighten **shock crossmember bolts** to **35 lb-ft**.
37. Tighten **through floor bolts** to **50 lb-ft**.
38. Adjust the lower link bars to 21" center to center of the mounting holes, if applicable.
39. Install the **lower suspension links at the front chassis mount** using 1/2" diameter bolts, flat washers, and lock nuts. Grease zerk fittings must point downward. Torque to **65 lb-ft**.
40. Position the rear end housing under the car on jack stands. Attach the **lower suspension links to the axle brackets** with 1/2" bolts, flat washers, and locknuts. Use the second hole from the bottom on the axle brackets for initial installation. Torque to **65 lb-ft**.
41. Adjust upper suspension links to 9-1/2" center to center of the mounting holes.
42. Attach the **non-adjustable end of upper links to the upper holes of the cradle** with 1/2" bolts, flat washers and locknuts. Grease zerk must point down. Torque to **65 lb-ft**.
43. Bolt opposite end of each **upper link to the lower hole at the axle bracket**. Grease zerk must point up. Torque to **65 lb-ft**.
44. Install the **billet lower-shock mounts** at the lower axle bracket using 3/8" hardware. Leave two blank holes below the mount for initial setup. Torque to **30 lb-ft**.
45. Raise rearend housing so that the distance from the billet-shock-mount hole to the center upper-shock-mount hole measures 11"; fully compressed.
46. Lower rearend housing so that the distance from the billet-shock-mount hole to the center upper-shock-mount hole measures 13-1/2". This is the baseline ride-height position.
47. The upper suspension links can now be used to center the rearend in relation to the chassis, and then to adjust pinion angle. Link ends will need to be unbolted from axle brackets to adjust length. One full turn IN on one link and OUT on the other link will move the rearend housing approximately 3/16" toward the shortened side. Measuring from a point on the frame to the end of the axle on each side is the best way to center the housing in the car.



48. To adjust pinion angle turn both upper adjusters equal amounts IN or OUT.
49. Note: Carefully read the Pinion Angle section at the end of this installation guide before determining the correct pinion angle.
50. Install **shocks** with 1/2" bolts, flat washers and locknuts. Do not inflate springs at this time. The top shock eye should be mounted in the center hole. Adjustments can be made later to soften ride quality by moving to the inner hole, or stiffen ride quality by moving to the outer hole. Torque to **65 lb-ft**.



51. Adjust both shocks to their softest setting, then temporarily install into cradle using 1/2 x 2-3/4" bolts with locknuts. Shocks will be used to limit travel during next step.
52. Using a jack, cycle the rear suspension through its full range of vertical travel and body roll in both directions to check for binding and potential clearance issues at all suspension joints and along the lengths of any moving parts including the rearend housing. Remember the air-spring shock will be larger in diameter when inflated. Allow for an additional 1/2" to 3/4" of clearance around the air spring.

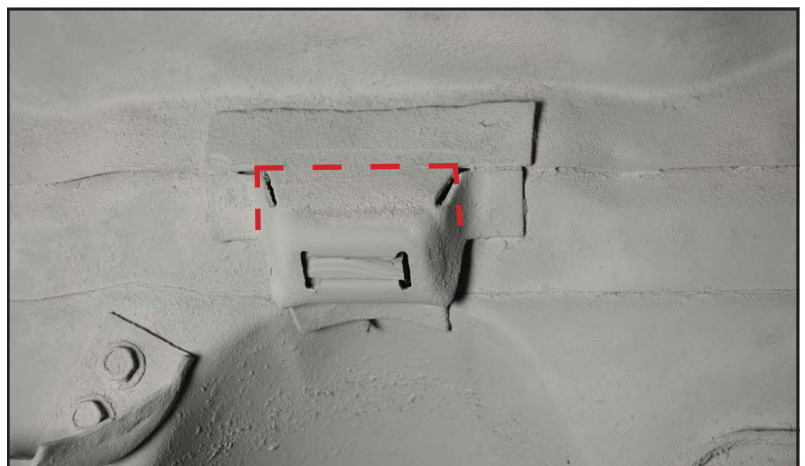




53. Once clearance has been verified, remove the housing and final weld the upper link brackets to the housing.

Lowering Options

Customers wishing to lower their vehicle ride height beyond the factory clearance limitations have the option of purchasing add-on lowering kits. Installation of these kits requires removal of the pinion snubber mount and additional sheet metal modifications.



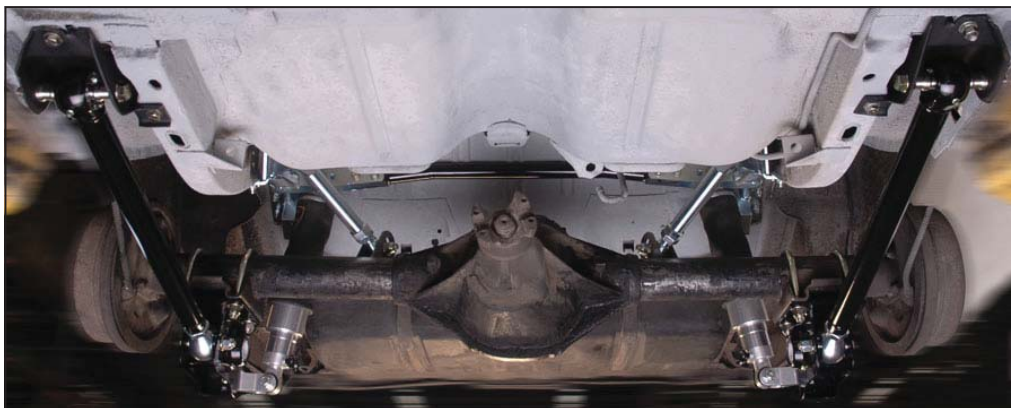
Shock Extenders

(P/N: 300-0163 or 300-0164)

Use with bolt-on
or weld-on brackets.



54. If possible, the exhaust system should be installed at this time while the rear end can be easily manipulated to check for proper clearance.
55. Air-spring shocks can be installed onto cradle and inflated. Torque hardware to 50 lb-ft.
56. Refer to coil-over shock and VariSpring installation guides for specific instructions regarding adjusting spring preload and valve adjustment.
57. Note: When moving lower shock mounts or suspension link mounting locations the suspension must be checked for binding and adequate clearance throughout its full range of vertical travel and body roll.
58. Carefully read the shock angle section on following pages.
59. Refer to anti-roll-bar installation guide for specific instructions.
60. Reassemble the rear-end components and the installation is complete.



Mounting Options and Final Adjustments

Lower Suspension Link

Mounting Position: The lower link has four (FAB9™ housing) mounting positions at the axle bracket. Ideally, to minimize suspension steering effects (roll steer), the link should be set as close to horizontal as possible with the suspension at ride height. Lowering the rear position from horizontal will also increase available traction, but also increases roll oversteer.

Length (pivot-ball link only): Correct adjusted length is 21.00", measured at the center of the bolt holes. Due to chassis variances it may be necessary to adjust the lower suspension link lengths to position the rear end housing square to the chassis.

Upper Suspension Link

Mounting Position: The upper link has two mounting positions at the cradle bracket and axle bracket. The starting installation position provides the largest anti-squat percentage and provides more immediate traction to the rear tires (less chassis movement). Lowering the front position and/or raising the rear position provides less anti-squat and a more gradual transfer of weight to the rear tires (more chassis movement).

Length: Correct adjusted length is 9.50", measured at the center of the bolt holes. Due to chassis variances it may be necessary to center the housing in relation to the chassis by adjusting the upper suspension link lengths.

Shock Absorber

Lower Mounting Position: The lower shock mount can be moved to one of four positions to alter ride height in 5/8" increments.

Upper Mounting Position: The upper shock mount can be moved to one of three positions along the upper crossmember. Ride height is altered in 1/4" increments at each position with approximately a 5% change in shock/spring stiffness and ride quality. Outermost hole = highest/stiffest; Innermost hole = lowest/softest.

Air Pressure: Refer to air-spring shock installation guide (899-031-204 or 899-031-224) for detailed information regarding pressure settings and correct balance of travel at ride height.

Under no circumstance should the shock length at ride height be less than 13-1/2" or more than 14-1/2" while driving the vehicle. Damage to the shock absorbers will occur, and you will be charged to repair them.

Maintenance

Suspension Link Lubrication

Each suspension pivot assembly can be lubricated using a standard grease gun. Pivot-ball links without a grease zerk fitting can be lubricated by removing the locking set screw and temporarily installing a zerk fitting.

Pivot-Ball Preload

The retaining ring can be tightened to remove any free-play that develops in the pivot-ball mechanism. Remove the locking set screw and turn the retaining ring clockwise, using a common spanner wrench, to the next set screw position.

Pinion Angle

Our recommended pinion angle of one to two degrees down, as compared to the engine crankshaft angle, serves as a starting point for your particular application. Installed components, available traction, and specific application will have some affect on the correct settings for your vehicle.

Pinion angle is to be set at ride height by equally adjusting the upper control arm lengths. Upper arm must be unbolted from the axle tabs and jam nut loosened for adjustment. Be sure to tighten the jam nuts and mounting hardware to the torque value specified in this installation guide.

Understanding Pinion Angle

The pinion angle is a very misunderstood measurement. The pinion angle is simply the difference in degrees of the engine crankshaft or drivetrain angle and the third member. The pinion angle is not a tuning aid. It is something that has to be set, but you do not adjust it for bite.

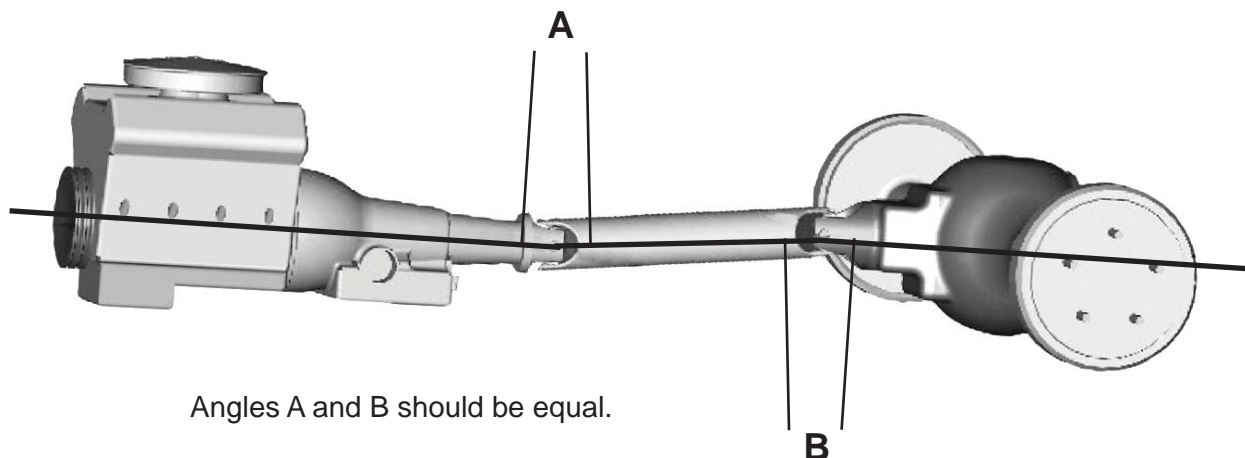
Measuring the Drivetrain Angle

This can be taken from the vertical surface of the transmission tailshaft, the oil pan rail, or the front face of the harmonic balancer. Most production vehicle drivetrain angles will run slightly downhill towards the rear bumper. A typical measurement may be 2 degrees.

Adjusting the Third Member Angle

The third member should be adjusted so that at ride height there is one to two degrees difference in the measured drivetrain angle and the third member angle. The pinion must point down 1 or 2 degrees from the engine or drivetrain angle. As an example, the two degrees downhill drivetrain angle previously established would require the third member to be set at zero degrees or parallel to the ground for a difference of two degrees. Lengthening the upper control arms to tilt the pinion upward to a measurement of one degree would give a difference of one degree when compared to the drivetrain angle.

Greater traction from wider or softer tire compounds combined with higher horsepower levels will require a greater pinion angle than low traction, low horsepower applications. The object is to get the two angles to be equal during acceleration. A poly-bushing link is more compliant and will flex more than the pivot-ball link, so poly links may require more initial pinion angle.



Shock Angle

The upper shock eye can be mounted in one of three positions to alter the effectiveness of the spring and shock against suspension movement. This adjustment can be used to soften or stiffen ride quality in roughly 5% increments. The center mount is the initial mounting position. Moving to the inner hole softens the suspension. Moving to the outer hole stiffens the suspension.

If the shock angle is changed you must verify that the shock is still within the allowable ride height range of 13-1/2 to 14-1/2 inches, eye to eye.

Mount Position Effect on Ride

Inner	Center	Outer
-5%	Base	+5%



Fastener Torque Specifications

Fastener Description	Location	Torque Value
5/16-24 x 1" Hex Head Cap Screw	Factory pinion bump stop mount	19 lb-ft
1/2-20 x 2-1/4 Hex Head Cap Screw, Grade 8	Shock mounts at cradle and lower shock mounts	50 lb-ft
5/8-18 x 2-3/4" Hex Head Cap Screw, Grade 8	Upper arm at cradle and welded axle tube mounts Lower arm at axle mount	75 lb-ft
5/8-18 x 1-1/2" Socket Head (Allen) Cap Screw	Lower shock mount to axle mount	75 lb-ft

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.**

Chris Alston's Chassisworks
8661 Younger Creek Drive
Sacramento, CA 95828
Phone: 916-388-0288
Technical Support: tcptech@cachassisworks.com

