



QA1 UNIVERSAL PARALLEL 4 LINK–HOT ROD INSTALLATION INSTRUCTIONS: R075-100/R175-150/R275-150

WELCOME TO QA1!

OUR COMMITMENT

Congratulations on your purchase of this high-quality QA1 Universal Parallel 4-Link Rear Suspension assembly. It is engineered to the highest standards, utilizes the finest materials, and is built with exceptional craftsmanship and attention to detail.

While we understand your eagerness to start your build, please remember that your safety is our utmost priority. Always use an approved and appropriately rated jack, jack stand, or automotive lift, and take all necessary safety precautions to ensure the job is completed safely and correctly.

Before you start, read and understand all instructions thoroughly. With hand tools and essential equipment, you can do the main assembly and setup of your new 4-link rear suspension in your home garage, but if you feel unsure of your abilities during the assembly or installation and need some help or have any uncertainties, please seek the assistance of a qualified mechanic or automotive repair shop.

If you have any product questions or need guidance, please don't hesitate to call and speak with QA1 technical support at 952-985-5675.

Remember, we're here to support you every step of the way and are committed to ensuring your assembly and installation process is successful and enjoyable. We wish you all the best!

BEFORE INSTALLATION

Before you begin the QA1 Universal Parallel 4-Link Rear Suspension installation, read and understand these instructions carefully. If instructions are not correctly followed, personal injury, equipment, or product damage can result.

Products that have been installed are not eligible for returns. To prevent mistakes, thoroughly read these instructions before you start the 4-Link Rear Suspension assembly procedure.

Check your order as soon as possible upon delivery. QA1 has provided parts list tables and images, as shown on pages 4 through 7. Compare your order's contents against the tables. Call your authorized dealer immediately if you discover anything missing from your order.

This kit requires welding to assemble and install. When welding on and around your vehicle, take the necessary precautions. Utilize welding blankets and spark deflection paper to prevent sparks from reaching surrounding painted surfaces, fuel tanks and lines, braking components and lines, rubber hoses, electrical wiring, and other exterior components while welding and grinding.

It is equally important to wear the appropriate personal protective equipment (PPE). However, the responsibility does not end there. Follow the manufacturer's instructions for safe use when working with power tools, and be cautious and responsible in your work. Make sure to ventilate combustible vapors and remove any nearby flammable materials.

ABOUT THIS MANUAL

PURPOSE

These instructions outline the QA1 Universal Parallel 4-Link system. This system is designed to work with a variety of different rear axle housings.

ITS CONTENTS

The information that follows is described in this instruction set:

- Required tools and supplies.
- Safety, hazard, and warning rules.
- Product overview and included parts.
- Installation and the setup procedures required for use.

Pages with images will have paragraphs and sentences with callout numbers that refer to their respective images, steps, and parts.

Procedures, once described in the text, are generally not repeated. When it is necessary to refer to another procedure, the page and step reference will be given.

REQUIRED TOOLS AND SUPPLIES

- Floor Jack
- Jack Stands
- SAE Wrench Set
- SAE Socket Set
- Torque Wrench (lb-ft)
- Anti-Seize Lubricant
- Masking Tape
- Cut-Off Wheel
- Angle Grinder or Cut-Off Tool
- Weld-Through Primer
- Level and plumb bob
- Tape Measure
- Mig Welder (minimum of 1/4" penetration)
- Applicable welding equipment

SAFETY FIRST

- Work on your vehicle in an appropriate location.
- Park your car on a level surface.
- Use wheel chocks to prevent vehicle roll.
- Check your owner's manual for the correct jack lift points.
- Always support your vehicle with jack stands.
- Wear personal protection like safety glasses, gloves, and a fine particle respirator mask.
- Never use compressed air to clean brake or metal grinding dust from the brake, suspension components, frame, or rear axle housing.
- Grind metal only in a well-ventilated area, and wear a respirator until the dust has settled and the work area air has been cleared.
- Dispose of damaged or old parts in accordance with local laws. Do not throw any hazardous waste in the trash.
- Follow the manufacturer's instructions for safe use when working with power tools, and be cautious and responsible in your work.



CONTENTS

QA1 UNIVERSAL PARALLEL 4-LINK REAR SUSPENSION		
PARTS LIST	4	
FEATURES AND BENEFITS	7	
OPTIONAL CONFIGURATIONS	8	
VEHICLE PREPARATION	10	
INSTALLATION	12-37	
VEHICLE PREPARATION	12	
AXLE MOCK-UP	13	
TRAILING ARM MOCK-UP	16	
MOUNT PLATES	19	
COILOVER MOUNT BRACKETS	22	
CROSSMEMBER TUBE	25	
PANHARD BAR	27	
COILOVER SHOCK CROSSMEMBER		
WELDING	32	
WARRANTY		



R075-100/R175-150/R275-150 QA1 UNIVERSAL PARALLEL 4-LINK REAR SUSPENSION*

*A lateral locating device is required. This QA1 kit includes Panhard bar kit 7838-1135, but a diagonal or watts link can be used.



RO BUILD Due to the various fitment options available with this trailing arm kit, the front and rear trailing arm mount plates can be modified or oriented to achieve the desired fit, optimal location, and ride height. 8 2 See instruction document 9919-172 28 23 29 20 7827 (11 25 9 13 10 12 6



R075-100/R175-150/R275-150-QA1 UNIVERSAL PARALLEL 4-LINK REAR SUSPENSION					
POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION	
1	9039-539	TUBE, 2.5"OD X .120" WALL (shown cut)	1	_	
2	9039-541	PLATE, FRAME GUSSET	2	_	
3	9039-540	BRACKET, CROSSMEMBER GUSSET	2	_	
4	9039-537	PLATE, 4-LINK FRAME MOUNT	4	_	
5	9637-940	WELDMENT, LOWER TRAILING ARM	4	_	
6	91247A729*	BOLT, STEEL, GRADE 5, HEX 1/2-13 X 3.75"	4	75 lb-ft	
7	9005-228	WASHER, FLAT 1/2" SAE	28	_	
8	9014-520	NUT, GRADE 5, NYLOCK 1/2-13	12	_	
9	JNR12S	JAM NUT, STEEL 3/4-16 RH	5	_	
10	7039-157	PANHARD BUSHING, SHORT END SUB-ASM	4	_	
11	9032-169	BUSHING, POLY 2-PIECE .75" ID, BLACK	8	_	
12	9033-390	SLEEVE, .5" ID X .75" OD X 1.875	4	_	
13	9023-119	FITTING, ZERK 1/4-28, STRAIGHT	4		
14	9023-116	CAP, GREASE ZERK	4	_	
15	9039-536	PLATE, 4-LINK AXLE MOUNT	4	_	
16	91247A725*	BOLT, STEEL, GRADE 5, HEX 1/2-13 X 3.25"	4		
17	9037-104	BRACKET,SHOCK MOUNT, LEFT, BOLT ON	2	_	
18	9037-105	BRACKET, SHOCK MOUNT, RIGHT, BOLT ON	2	_	
19	9012-179	BOLT, GRADE 5, HEX 3/8-16 X 1.25"	8	30 lb-ft	
20	9005-256	WASHER, FLAT 3/8" SAE	16	_	
21	95615A140*	NUT, GRADE 8, STEEL, NYLOCK 3/8-16	8	_	
22	9053-117	TUBE, PRO COIL-OVER, 40" TUBE ONLY	1	_	
23	7740-426	PLATE, CROSS MEMBER MOUNT, FRONT	2	_	
24	9039-461	PLATE, SHOCK MOUNT TAB, LARGE OFFSET	4	_	
25	9032-444	BUSHING, 1.76" OD X .51" ID X 2.42"	4	_	
26	9039-538	PLATE, 4-LINK FRAME MOUNT, SOLID	2	_	
27	91247A722*	BOLT, GRADE 5, STEEL, HEX 1/2-13 X 2.5"	2	75 lb-ft	
28	9637-385	TUBE, PANHARD BAR	1	—	
29	9039-544	PLATE, PANHARD MOUNT, FRAME	2	—	
30	XMR8-12	ROD END, ENDURA ALLOY, HT 8-12 RH	1	—	
31	SG84	SPACER, ROD END, STAINLESS STEEL	4	—	
32	2000329*	BOLT, GRADE 5, STEEL,V HEX 1/2-13 X 2.75"	2	75 lb-ft	
33	JNL12S	JAM NUT, STEEL 3/4-16 LH	1	—	
34	XML8-12	ROD END, ENDURA ALLOY, HT 8-12 LH	1	—	
35	9637-941	WELDMENT, PANHARD MOUNT, AXLE	1	_	
36	1844-168	TUBE ADAPTER, 1-1/4" OD, 3/4-16 LH	1	_	
37	1844-167	TUBE ADAPTER, 1-1/4" OD, 3/4-16 RH	1	_	

Note: The part positions listed above will be called out in this installation manual as a visual reference to their respective positions during the installation procedure. Refer to these pages during the installation. Count and compare all parts and fasteners to the list above. If parts are missing, contact QA1 at sales@qa1.net.

*This hardware part number is not specific to QA1 and may be available locally or online. If replacement hardware is needed outside QA1 Technical Support hours, purchase the hardware required for this application based on the provided description.



R075-100/R175-150/R275-150 QA1 UNIVERSAL PARALLEL 4-LINK REAR SUSPENSION w/ALTERNATIVE SHOCK **MOUNTS*** *A lateral locating device is required. This QA1 kit includes Panhard bar kit 7838-1135, but a diagonal or watts link can be used. RO BUILD This page is an example of an application using the modified axle mount plates (15), and the axle mount brackets (28) included in the Pro Rear System coilover conversion kit. Solo Color and C See instruction document 9919-172 Œ 6



R075-100/R175-150/R275-150–QA1 UNIVERSAL PARALLEL 4-LINK REAR SUSPENSION w/ALTERNATIVE SHOCK MOUNTS						
POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION		
15	9039-536	PLATE, 4-LINK AXLE MOUNT (MODIFIED)	4	—		
38*	9037-103	BRACKET, AXLE HOUSING MOUNT 3.00"	2	_		

Note: The part positions listed above will be shown on pages 9, 24, and 35 as a visual reference to their respective positions during the installation procedure. Refer to these pages during the installation.

*Included in the Pro Rear System Coilover Conversion Kit.



Note: Print pages 4 through 7 for a quick parts reference guide.

FEATURES AND BENEFITS

ADAPTABILITY

The installation kit includes essential components and premium hardware for the assembly and mounting of trailing arms, shocks, and springs.

Each part is designed for durability and performance in various conditions. Users can adjust raw materials like precision-cut steel and resilient alloys to meet specific project lengths.

Engineered for easy welding, these components adapt to multiple applications, from off-road vehicles to restorations, allowing for a customized, high-performance setup.

PACKAGING

The parallel four-link suspension system features an innovative design that fits compact spaces, making it ideal for tight vehicle or industrial applications.

While not every unique packaging requirement is addressed, the product's adaptable nature allows customization to meet specific needs. Users can modify sizes, materials, and configurations to make sure the system fits their unique constraints.

SIMPLICITY

This suspension system's straightforward design simplifies tuning, making it suitable for DIY enthusiasts and experienced builders alike.

The four parallel links maintain consistent axle position to enhance stability and responsiveness. The user-friendly design allows for easy adjustments to accommodate diverse driving conditions and preferences.

TUNABILITY & RIDE HEIGHT ADJUSTMENT

With adjustable coilovers, this suspension system offers customizable dampening and ride height.

Users can fine-tune shock absorption and rebound, and choose their vehicle stance—lower it for sportier handling or raise it for off-road capability. This versatility makes it an excellent fit for various applications and provides a tailored ride quality that meets user preferences.



Installer's Note: There are numerous options to install your suspension system!

The QA1 Universal Parallel 4-Link Rear Suspension system is adaptable for various vehicles. This kit includes a range of components, allowing you to customize your setup to fit your preferences.

While this document offers general guidance, the kit's universal nature lets you design a layout that best matches your vehicle. The images provided demonstrate installation ideas for your custom vehicle fit.

This configuration shows the parallel 4-link trailing arms mounted outside the frame. The front frame gusset plates are welded in a C-channel frame. This design prevents interference with the driveshaft.

This configuration shows the parallel 4-link trailing arms mounted inside the frame.

The front frame gusset plates are welded in a C-channel frame. This design prevents interference with the driveshaft.



This configuration shows the parallel 4-link trailing arms mounted outside the frame with the front frame gusset plates welded in a C channel frame.

The front primary tube was cut and sectioned for maximum trailing arm center stability at the front and prevents driveshaft interference.

This configuration shows the parallel 4-link trailing arms mounted outside a narrow frame with the front frame gusset plates welded in a C channel frame.

The axle mount plates were flipped and welded to the top of the axle housing.

The coilover shocks were moved in front of the axle housing, and the shock mount plates were flipped.

The front trailing arm plates were flipped, and the front primary tube was cut and sectioned for maximum trailing arm center stability at the front and prevents driveshaft interference.







Set the vehicle on jack stands (shown) or a frame table on a flat and true surface.

1

2

Make sure the car is set to level. The measurements must be the same from the left to right sides and from the front to rear sides. Measure the drop distance from the bottom of the frame to the floor or frame table.

Adjust the vehicle height using shims between the frame and jack stand saddle until it reaches a true level.

Note: For visual clarity, the body is only shown in steps 2, 3, 4, and 7 for the rear axle mock-up.





If applicable, remove the existing rear suspension.

Make sure the axle is not connected to the frame by any other components.

If it is, disconnect or remove those components.





INSTALLATION-VEHICLE PREPARATION



3

4

Installer's Note: It is recommended that the body or rear fenders be put on to determine the best wheel fit for the opening.

It is also a good idea to use the final wheel and tire package for the best visual fitment against the fender's wheel opening.

> To find the center of the wheel opening, mock the wheel and tire up at the desired ride height and position in the wheel opening.

Put a piece of tape on the floor or frame table directly below the wheel.

With the wheel position determined, hang a plumb bob from the lip of the fender and down through the wheel's center to the tape on the floor.

Let the plumb bob come to a full rest.



Now mark the tape on the floor to show the axle vertical centerline.

Record the wheelbase distance from the front wheel hub/center in the table below.

VEHICLE WHEELBASE

LEFT SIDE RIGHT SIDE

With the recorded measurement, repeat the centering procedure for the other rear wheel.

Note: The marked tape on the floor will be used throughout the installation to show the axle centerline. Do not remove the tape until the installation is complete.



5

6

Start the installation with the axle positioned approximately where it will sit at the final ride height. Lift and support the rear axle housing on an axle cradle or stand, or use a floor jack to lift and support the axle with jack stands.

Evenly center the axle right-to-left under the car. Verify that the wheelbase is correct based on the measurement taken during step 4.

To have a properly functioning suspension system, the axle and tires must have at least 2" of up travel before contacting the frame, floor, or body.2.5"-3.00" of compression will provide enough travel to offer good ride quality for most street applications. Less than 2" of compression travel will result in poor ride handling and potential damage.





Mock-up the axle to the vehicle at the desired ride height. The pinion should be parallel to the engine and transmission angle measured with an angle finder.

After installation, the pinion angle can be adjusted with the adjustable upper and lower trailing arm links.

More information on pinion angles can be found at:

https://qa1.net/resources/drivelineand-pinion-angle-explained/

Note: The transmission output shaft and rear axle pinion shaft are shown parallel to each other (blue lines).

Both pinion angle settings are possible based upon the final ride height and wheel/tire combinations.

Your results may differ based on the engine and transmission's position within the frame.

Negative Driveline Operation Angle



Positive Driveline Operation Angle





INSTALLATION-AXLE MOCK-UP

QA1

Use the plumb bob to verify that the axle center placement under the vehicle is accurate, square, and straight to the frame/body.

The plumb bob must align to the tape mark applied during step 4.

Note: Once the axle is positioned, support the pinion with a jack stand (shown in green) or floor jack to prevent axle housing rotation.

Make sure to check that the pinion angle remains set at 0° throughout the mock-up procedure.

Note: The rear axle assembly shown in this instruction manual is not included with the parallel 4-link assembly and is used solely for illustrative purposes.



Apply a thin layer bushing grease to the bushings (11), then press them into a bushing end (10).

8

Apply bushing grease to a metal bushing sleeve (12) and press it into the bushings until fully seated.

Put the grease fitting cap (14) onto the grease fitting (13).

Note: The cap's open loop fits over the threaded end of the fitting.

Turn the grease fitting assembly into the drilled hole on the bushing end.

Repeat this assembly procedure for the remaining three bushing ends.







First, take one jam nut (9) and screw it onto the threads of the bushing end until it is nearly seated against the bushing end assembly.

9

10

Next, apply anti-seize lubricant to the threads of the bushing end.

Then, insert the bushing end into the threaded end of the trailing arm (5) and turn it so that 1/4" of the threads are visible between the jam nut and the trailing arm end.

Turn the jam nut until it lightly contacts the trailing arm end.

Repeat this assembly process for the remaining three trailing arms.

Note: The bushing ends are initially seated half-in for the mock-up procedure. They will be adjusted later to finalize the rear axle settings.



If the separate axle housing mount bracket (36) is used for a custom coilover location, the axle mount plate (15) can be modified, but make sure to verify the best shock placement before any modifications.

Mark all four axle mount plates as shown with the red dotted line.

Use the proper tool to cut along the dotted lines.

Smooth sharp edges and deburr the cuts for weld preparation.

The modified mount plates will appear like the one on the right in the image.



QA1

11

As shown in the image, assemble the axle mount plates (15) to the bushing ends using two hex bolts (16), four flat washers (7), and two lock nuts (8).

Next, attach the frame mount plates (4 and 26) to the front of the trailing arms with two hex bolts (6), four flat washers (7), and two lock nuts (8).

Tighten the hardware snugly, but do not entirely secure it at this stage, as the trailing arm assemblies will be disassembled later to weld.

Repeat these steps to build the other trailing arm assembly.

Note: The frame mount plates can be installed on either side of the trailing arms and depends on your frame and fabrication preferences.

QRO BUILO

12

During the mock-up, the hardware at the ends of the trailing arms may need to be reversed. Install the bolts for easy removal after placing the suspension.

Position the trailing arm assemblies up to the rear axle assembly. The axle mount plates will sit firmly against the axle tubes.

Note: The trailing arms can be mounted either inside or outside the frame rails and depends on factors like the width of the frame rails or tires, the location of the fuel tank, or a combination.







13 This configuration is for a narrow frame. In the shown placement, the trailing arm assemblies are evenly mounted outside the frame rails.

> To optimize stability and handling, position the trailing arms and shocks as close to the wheels as possible.

> **Note:** The QA1 springs included with this system have an approximate 3 1/2" outside diameter, so the spring-to-frame clearance must also be considered.



In the image shown at the right, the fasteners on the axle mount plates were reversed to prevent interference with brake parts, so verify hardware removal clearance at this time.



This configuration is for a wide frame. In the shown placement, the trailing arm assemblies are evenly mounted inside the frame rails.

Note: The QA1 springs included with this system have an approximate 3 1/2" outside diameter, so the spring-to-frame clearance must also be considered.



In the image shown at the right, the fasteners on the front frame mount plates were reversed to prevent interference with the frame, so verify hardware removal clearance at this time.





15

16

First, vertically position the holes (A) on the axle housing plates.

Next, adjust the upper and lower trailing arms. Make sure they are the same length to allow adequate forward and rearward adjustment of the axle and enough threads on each bushing end for future adjustment.

Note: As illustrated, set the trailing arm assemblies parallel to the ground.



Once the trailing arm assemblies and axle mount plates are aligned where desired, tack weld the mount plates to the axle tube.

Note: Do not fully weld the mount plates to the axle tube at this time.

Additional adjustments may be necessary until the trailing arm assembly is mocked up in its final position.

Note: Do not weld the mount plates to cast iron or the third member.





To install the trailing arms on the inside or outside (shown) of the frame, follow these steps:

First, use a combination square to make sure that the trailing arm is parallel to the frame rail (C).

Then, set the trailing arm assembly into position and support it to prevent it from moving.



18

17

Next, align the holes with the frame mount plates (4 and 26) at the front of the trailing arms.

Then, mark and drill a 2.5-inch hole through the outer frame rail and perpendicular to the frame mount plates.

Note: Four open frame mount plates (part position #4) are available for use if the crossmember will be used but not capped on the tube ends.

Now, use a combination square to measure the distance (D) from the drilled hole in the frame rail to the farthest frame mount plate (4 or 26).

FRAME PLATE DISTANCE				
LEFT SIDE	RIGHT SIDE			

Finally, repeat this procedure on the other side of the vehicle and record the measurements in the table below.



19

Measure and mark the 2.5" wall tube (1) from one end. Use the recorded measurements taken during step 18.

Cut the tube at the marked location. Make sure the cut is perpendicular and square to the tube.

Repeat the cut so there are two pieces of tube.

Note: It is recommended that the tubes be cut slightly more than measured. They can be trimmed for exact fit during step 21.



The tube can also be used as a crossmember based on fitment and additional frame support.

Make sure there is no interference with the driveshaft before using this option.



Put the cut tube (1) through the hole in the frame then into the frame mount plate.

Make sure the tube makes complete contact with the solid frame mount plate, if used.

Note: Though this assembly procedure shows the trailing arm setup outside of the frame, it applies to inside and outside mounted trailing arm installation.



20

The frame gusset plates (part position #2) are included for boxing open C channel frames.

Refer to step 21 for the gusset plate installation procedure.





For open C channel frames, mock up the frame gusset plate (2) for the best fitment to the frame.

First, make sure it fully contacts the tube and fits flush to the frame. Trim the tube if needed for an exact fit.

Once fitment is verified, mark or scribe the outline of the frame gusset against the frame rail.

Then, trim the gusset to fit the frame's height.

Now, mark the location of the tube to the gusset.

Remove the frame gusset and tube from the frame and mount the front trailing arm mount plates.

Note: The gusset plates are not required for boxed frames.



Position the tube onto the gusset plate where it was marked during step 21.

Note: The image shows the tube centered to the gusset for illustrative purposes only.

Make sure the tube is perpendicular to the frame gusset plate, then weld it in place.

Note: For the best fitment to the frame rail, make sure to knock off spatter.



ASSEMBLY-MOUNT PLATES



23

Slide the welded tube assembly through the drilled holes in the frame and into the frame mount plate on the trailing arm.

Make sure that the tube fully contacts, and is perpendicular, to the frame mount plate.

The tube assembly can be rotated to fit the frame rail height and other frame parts.



24

Tack weld the frame gusset plate to the frame, and the solid frame mount plate was shown in the image.

Repeat steps 20 through 24 to mock up the front mount on the other trailing arm.



QA

25

26

Follow this procedure for standard axle mount plate (15) assemblies:

Fasten a right shock mount bracket (18) to the outer axle mount plate with two bolts (19), four flat washers (20), and two locknuts (21).

Now, tighten the hardware snugly, but do not entirely secure it at this stage. It will need to be removed so the axle mount plates can get welded to the axle tubes during the final weld procedure.

Note: The images on this page demonstrate the shock mounts positioned in the middle range, which allows for additional ride height adjustments to be made upward or downward as needed.



Repeat step 25 to fasten the shock mount brackets (17 and 18), as shown in the image. The bracket positions must be assembled as called out.

Note: The correctly assembled brackets will measure an inside distance of 1.25".

If the distance exceeds that, the brackets must be removed and correctly reassembled.



ASSEMBLY-COILOVER MOUNT BRACKETS

QA

27

Follow this procedure for a modified axle mount plate assembly:

Fasten the left and right shock mount brackets (17 and 18) to the outer axle mount plate with two bolts (19), four flat washers (20), and two locknuts (21).

Now, tighten the hardware snugly, but do not entirely secure it at this stage. It will need to be removed so the axle mount plates can get welded to the axle tubes during the final weld procedure.

Note: The modified axle mounts (15) and separate axle housing mount bracket (38) from page 6 is shown already tack welded to the axle tubes for illustrative purposes.



Repeat step 27 to fasten the shock mount brackets (17 and 18), as shown in the image. The bracket positions must be assembled as called out.

Note: The correctly assembled brackets will measure an inside distance of 1.25".

If the distance exceeds that, the brackets must be removed and correctly reassembled.



This setup illustrates the coilover shock mount evenly positioned at the rear of the axle housing.

This system's customization capability allows the mount brackets (38) to be welded to the front or rear of the axle housing. The mounts can also be evenly positioned inboard or outboard of the trailing arms for best fitment.



ASSEMBLY-COILOVER SHOCKS

29 Position the bottom of a coilover shock assembly between the shock mount brackets.



Attach the shock to the shock mounts with one bolt (27), two washers (7), and one Nylock nut (8).

Repeat steps 29 and 30 to attach the other coilover shock assembly.





30





31

Determine a suitable location for the upper shock tube (22), and measure the left to right distance.

Cut the tube to length minus the thickness of the crossmember mount plates (23).



32

Tack weld the plates to the crossmember tube.





Position the upper shock tube assembly perpendicular to the frame rails or body.

Make sure that it is evenly positioned, square, and level with the frame or body and remains parallel to the rear axle housing.

Adjust the height of the lower shock mounts and the upper crossmember and mounts as needed. 34

33

Mark the upper shock tube with a combination square and scribe to make sure it aligns with the coilover shock mounts.

Note: Before welding on the upper coilkover mount tabs, the Panhard bar assembly must be mocked up to verify that it does not interfere with the coilover shocks or their mounts.



ASSEMBLY-PANHARD BAR

QA

Turn the LH Jam Nut (33) onto the LH rod end (34) until the nut is approximately 1/4" from the rod end's spherical bearing body.

Then, turn the rod end assembly into the LH tube adapter (36) until the jam nut contacts the adapter.

Next, turn the RH Jam Nut (9) onto the RH rod end (30) until the nut is approximately 1/4" from the rod end's spherical bearing body.

Now, turn the rod end assembly into the RH tube adapter (37) until the jam nut contacts the adapter.

Push the assembled rod ends into the Panhard bar (28).

Finally, tape the rod end assemblies to the Panhard bar to temporarily keep the rod ends in place during the mock-up procedure.

Note: The position of the LH and RH rod assemblies on the Panhard bar are interchangeable.



Assemble the Panhard bar frame mounts to a rod end with one bolt (32), two flat washers (7), frame mounts (29), rod end spacers (31), and one Nylock nut (8).

Snug the hardware only.

36





37 Put two rod end spacers (31) against the other rod end, then slide the rod end assembly into the axle mount weldment (35) pocket.





Attach the rod end to the axle mount with one bolt (32), two flat washers (7), and one Nylock nut (8).

Snug the fasteners.



Determine a suitable location for the Panhard bar's axle and frame mounts.

Make sure there is no interference with the coilover shocks as they move through their travel.

Now, move the Panhard bar assembly until there is adequate space around the coilovers.

Note: The Panhard bar can be trimmed to fit to gain added clearance, but it is best to have it as long as possible for improved driving dynamics and to prevent excessive lateral movement of the rear axle.



40

Once the Panhard bar assembly has been mocked up and the fitment is verified for clearance, the threaded tube adapters, frame, and axle mounts can be tack-welded into position.

If the Panhard bar and coilover shocks interfere, remove the shocks and mounts, adjust for the required clearance, and tack-weld the mounts to the axle housing.

Note: If the 4-link axle mount plates (15) are used in their original, unmodified form, this will affect the locations of the rear trailing arm mounts when moved. As a result, adjustments will need to be made to the trailing arm assemblies at both the front and rear to make sure they remain parallel to the frame.

If fitment interference between the coilover shocks and the Panhard bar is unavoidable, modify the plates described in Step 10 and use the 3.00" axle housing mount (38) to gain the required clearance.





Installer's Note: The upper shock mount tabs can be positioned on the upper coilover tube in many different positions. It is recommended that the tabs be placed for the best shock articulation.

41

Align the upper shock mount tabs (24) to the marks made during step 38. Make sure they are aligned to each other.

Note: Verify the shock length at ride height.

The shocks included with this kit are QA1 US502 and DD502, with a recommended length of 14 to 15 inches at ride height.

If shocks other than the models listed above are used, please refer to the ride height recommendations for the shocks used.

Tack weld the tabs into position.



Verify that the shock mount tabs are correctly aligned with each other and correct any misaligned tabs, if necessary.

Tack-weld one of the tabs and check the location/orientation to ensure the welding torch will fit into the space.

Note: Due to space limitations, a tack-weld inside the tabs may not be feasible.



QA1 shock bushings are 1–1/4" inches wide, while the bearings measure 1 inch wide.

Install the steel sleeves from the shocks and add a standard washer on each side to set the spacing properly.

This will allow extra space to accommodate paint thickness and make sure it is easy to assemble once everything is fully welded.



ASSEMBLY-COILOVER SHOCK CROSSMEMBER



First, remove the springs from the coilover shocks.

Next, attach the tops of the shocks to the tabs on the shock crossmember.

Then, install the tires/wheels and driveshaft (not shown) on the rear axle assembly to prepare for the next step.

Once the rear axle is fully loaded as it will be driven, proceed to step 44.

It is recommended that the rear bump stops be installed between the frame and the axle, as this will help prevent the shocks from bottoming out during the next step.



With the shock springs removed, cycle the suspension to fully compressed and fully extended.

Do this several times and verify that there is no suspension bind, parts, wheel/tire, driveshaft, or floor pan interference while the rear axle assembly moves through its updown travel arc.

Verify that the ride height is appropriately set for the shocks' overall travel, then verify the pinion angle and wheelbase one final time.

If the rear axle freely moves through its arc and there is no interference, proceed to step 45.

Note: If there are noticeable issues with the above-listed parts and operational conditions, do not proceed to the next step.

Instead, adjust the mount plates, Panhard bar, lower shock location, or upper shock crossmember until all such conditions are resolved.



31/38



45

With mock-ups complete and positioned as desired, remove the trailing arms from the front and rear trailing arm mount plates.

Now, apply a full weld bead (marked in red) to the areas on the front mount plates.

Now, clean up any weld spatter that may be present.

Then, prime and paint, or powder coat the parts and frame.



46

Apply a full weld bead (marked in red) to the threaded tube adapters on the Panhard bar.

Now, clean up any weld spatter that may be present.

Then, prime and paint, or powder coat the Panhard bar.



FINAL ASSEMBLY-WELDING



47

48

The front and top view of the assembly shows the unmodified axle mount plates (15).

Apply a full weld bead (marked in red) when accessible to the areas on the axle mount plates, coilover crossmember, and Panhard bar mounts (axle and frame).



The rear and bottom view of the assembly shows the unmodified axle mount plates (15).

Complete a full weld bead (marked in red) when accessible to the areas on the axle mount plates, coilover crossmember, and Panhard bar mounts (axle and frame).

Now, clean up any weld spatter that may be present.

Finally, remove the parts from the frame and prime and paint, or powder coat the welded assemblies.

49

50

The assembly shown uses the modified axle mount plates (15) and 3.00" axle housing mount bracket (38).

Apply a full weld bead (marked in red) when accessible to the areas on the axle mount plates, housing mount brackets, coilover crossmember, and Panhard bar mounts (axle and frame).

The rear and bottom view of the assembly shows the 3.00" axle housing mounts (38).

Complete a full weld bead (marked in red) when accessible to the areas on the axle mount plates, axle housing mounts, coilover crossmember, and Panhard bar mounts (axle and frame).

Now, clean up any weld spatter that may be present.

Finally, remove the parts from the frame and prime and paint, or powder coat the welded assemblies.

QA1

Attach the shock crossmember to the frame.

Note: Though the illustration at the right shows hardware attachment, the shock crossmember can be bolted, perimeter-welded, or plugwelded to the frame.

If the crossmember is welded, apply weld-through primer to the frame area before the shock crossmember is welded into place.

Hardware is not included for this step as the size is dependent on the shock crossmember location to the frame or body.

52

If fasteners are used, and to facilitate future hardware removal, make sure that the washers and nuts are placed in locations where they won't interfere during removal.

Or optionally plug-weld in through the holes in the end plate (shown in blue), or perimeter weld the end plates to the frame (shown in red).

If welded, clean up any weld spatter that may be present.

Finally, prime and paint, or powder coat the frame and welded areas.

FINAL ASSEMBLY-WELDING

 Position the crossmember gusset bracket (3) against the frame and trailing arm tube.

Weld the crossmember gusset bracket to the frame and trailing arm tube with a perimeter weld, as shown. Repeat steps 53 and 54 on the opposite side.

Next, clean up any weld spatter that may have occurred during the process.

Finally, apply a primer, paint, or protective coating to the frame and any welded areas.

Now that the installation of the parallel 4-link rear suspension system is complete, all parts that were removed for welding or coating must be reinstalled.

Make these final adjustments:

Set the ride height Set the wheelbase Set the lateral axle location Set the pinion angle Bleed the brakes

Note: Before driving the vehicle, ensure it is professionally aligned.

54

DISCLAIMER / WARRANTY

QA1 warrants that the products will be free from defects in material and workmanship for one year from the date of sale to the original purchaser. QA1 makes no other warranty of any kind, expressed or implied.

QA1 shall have no obligation under the preceding warranty where the defect results from improper or abnormal use, your negligence, vehicle accident, inappropriate or incorrect installation or maintenance, nor when the product has been repaired or altered in any way. QA1's liability in the case of defective products subject to the preceding warranty shall be limited to the repair or replacement of the defective products at QA1's option.

The user understands and recognizes that racing parts, specialized street rod equipment, and all parts and services sold by QA1 are exposed to many varied conditions due to the manner in which they are installed and used. It is the user's responsibility to determine the proper use or application of QA1 products.

QA1 shall bear no liability for any loss, damage, or injury, either to a person or to property, resulting from the installation, direct or indirect use of any QA1 products, or inability by the buyer to determine proper use or application of QA1 products. With the exception of the limited liability warranty set forth above, QA1 shall not be liable for any claims, demands, injuries, damages, actions, or causes of action to the buyer arising out of or connected with using any QA1 products.

Motorsports are inherently risky; therefore, no warranty or representation is made as to the product's ability to protect the user from injury or death. The user is fully aware and assumes that risk.

9919-357 Rev 02252025

9574 217th Street West • Lakeville, MN 55044 • www.QA1.net Tech Support & Sales: 952-985-5675 • Email: sales@QA1.net

