



## PRODUCT: LJ Lock-N-Load Long Arm Suspension

REV: B | 02-15-2018 | II-7143

**READ INSTRUCTIONS IN FULL BEFORE INSTALLATION.**

**QUESTIONS? CALL 916-631-8071 M-F 7:00 AM – 5:00 PM PST**

The MetalCloak experience includes the ease of installation of our products. We design for most contingencies, but installation may be different based on different Jeep condition, configuration and/or year.

We are continually trying to improve our products and instructions – please help us by providing feedback and pictures if you find any part of the instructions that do not match your particular Jeep or are not easily understandable.

If you have any difficulties at all, please give us a call. Thank you and enjoy your MetalCloak Products!

**IMPORTANT NOTE: We use Stainless Steel Hardware where possible. Therefore, a tube of Silver Anti-seize is provided and should be used on all bolts—only a small amount is needed.**

**WARRANTY INFORMATION:** This article is sold without warranty expressed or implied. No warranty or representation is made as to this products ability to protect the user from injury or death. The user assumes that risk. The effectiveness, warranty and longevity of this equipment are directly related to the manner in which it is INSTALLED, USED and/or MAINTAINED. THE USER ASSUMES ALL RISK. By purchasing this product and opening the packaging, purchasers expressly acknowledge, understand and agree that they take, select and purchase these MetalCloak products from Armored Works, LLC, its affiliates and distributors and agents as is and with all faults. The entire risk as to the quality and performance of these MetalCloak products is with the purchaser. Working on your vehicle can be a dangerous activity. If you are unsure of what you are doing, please leave mechanical or safety critical work to a skilled mechanic. We take no responsibility for the incorrect use and/or installation of MetalCloak products.

## Section 1: Tools & Notes on Installation



***This is an advanced suspension install for experienced technicians; If you are not competent with advanced automotive mechanics, cutting, drilling, and welding it is recommended to have this system installed by a MetalCloak Authorized Installer.***

**Safety Warning:** *Suspension systems or components that enhance the off-road performance of a vehicle may cause it to handle differently on or off-road than it did from the factory. Care must be taken to maintain control of modified vehicles during sudden maneuvers. Failure to drive the vehicle safely may result in serious injury or death to driver and passengers. MetalCloak recommends always wearing a safety belt, driving safely trying to avoid sudden maneuvers. As with any vehicle maintenance is required to keep it operating safely. Thoroughly inspect your vehicle before and after every off-road use.*

**Installation Warning:** *MetalCloak recommends that certified technicians perform the installations of MetalCloak products. These instructions only cover the installation of our products and may not include factory procedures for disassembly and reassembly of factory components.*

*Read instructions from start to finish and be sure all parts are present before disassembling the vehicle. These instructions are only guidelines for installation and in no way meant as definitive. The installer is responsible to insure that the vehicle is safe for use after performing modifications.*

**Slip yoke eliminator and CV driveshaft is required for this Long Arm System.**

**Exhaust modifications are required for this Long Arm System.**

## Section 1: Tools & Notes on Installation



**Tools Required:** This list is the recommended tools for ease of installation. Other versions of the same tool can be used. For example, Allen Wrenches instead of Allen Drive Sockets.



Socket & Ratchet Wrench

Tape Measure



Grinder

Safety Glasses



Drill Bits

Drill



Socket Set

Angle Finder



Pitman Arm Puller

Gas Welder



**HOW TO USE THIS GUIDE:** The installation guide should be used as a reference for installation. Please read and follow the instructions in order of each page top to bottom, and left to right.

**Jeep Model:** Instructions may apply to multiple Jeep models, but are labeled separately where appropriate (i.e. TJ vs. LJ).

**Options:** Because of the number of component options we offer, these instructions may contain steps that will not match your particular configuration. You can skip these steps.

**Images:** Pictures are provided and parts are labeled throughout the instructions. Each text box contains guidance based on the pictures next to it. The text will refer to alphabetical labels (A, B, etc.) found in the images.

**Installation Notes:** Terms may be used in the body of the instructions that you may not be familiar with, if you have any questions feel free to contact us at the number below, or email [techhelp@metalcloak.com](mailto:techhelp@metalcloak.com)

**QUESTIONS:** Any questions or comments about the instructions? Call us at 916-631-8071 M-F 7:00 AM – 5:00 PM PST.

## Section 2: Product Components

DC-0001 REV A

SHEET 1 OF 1

	1	2	3	4	5	6	7	8
	ITEM	PART NUMBER/DESCRIPTION			QTY.			
E	1	1102 BRAKEQUIP KIT, TJ FRONT 24.5L			1			
	2	1105 BRAKEQUIP KIT, TJ REAR 22L			1			
	3	7023 SHOCK MOUNT KIT, LOWER REAR TJ-LJ			1			
	4	7040 BUMP STOP KIT, 1.0-4.0 JK FRONT			2			
	5	7075 LOCK-N-LOAD RADIUS ARM LINK, TJ			1			
D	6	7087 LONG-ARM FRAME MOUNT SYSTEM, TJ			1			
	7	7089 LONG-ARM SKID PLATE, LATE TJ			1			
	8	7090 CONTROL ARMS, LOWER LONG-ARM, FRONT TJ-LJ			1			
	9	7090-P CONTROL ARM, LOWER LONG-ARM, FRONT PASS TJ-LJ			1			
	10	7091 RADIUS ARM, FRONT TJ-LJ			1			
	11	7094 TRACK BAR, LONG-ARM KIT, FRONT TJ			1			
	12	7096 TRACK BAR, LONG-ARM KIT, REAR TJ			1			
	13	7099 CONTROL ARMS, LOWER LONG-ARM, REAR LJ			1			
	14	7100 CONTROL ARMS, UPPER LONG-ARM, REAR LJ			1			
	15	7169 DROP PITMAN ARM, 3IN TJ-LJ			1			

REQUIRED MODIFICATIONS:  
CUT/GRIND (FRAME BRACKETS)  
WELD (FRAME SLEEVES, REAR AXLE MOUNTS)  
SLIP-YOKE ELIMINATOR

OPTIONS:

7143-4 4.5" LIFT: 7018, 7019, 7066

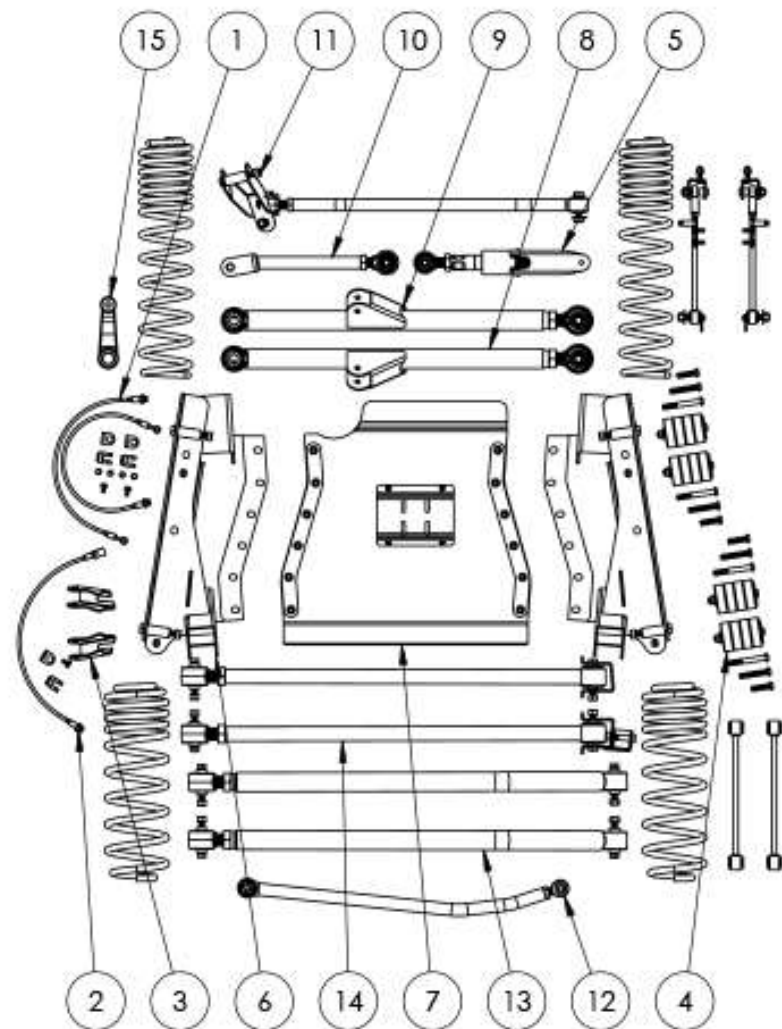
7143-6 6.0" LIFT: 7067, 7082, 7083

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PART NUMBER	DESCRIPTION
7143	LOCK-N-LOAD LONG-ARM SYSTEM, L



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**PART NUMBER  
DESCRIPTION**

**7143 LOCK-N-LOAD LONG-ARM SYSTEM, LJ**



## Section 3: Installation Instructions



### Step 1: Removal of Factory Lower Control Arm Mounts on Frame

**Important Note:** MetalCloak does not recommend powder coating your True Dual Rate Coils. The baking process in powder coating can, in some cases, cause the metallurgical properties of the coils to be changed, resulting in the loss of the lift properties of the coils. As such, the process of powder coating the coils will void any warranty stated or implied in relation to the coils.

- A. Support vehicle by frame (*preferably on a lift*)  
Support both axles with jack stands and remove the following components; Wheels, shocks, track bars, sway bar end links, coil springs, lower control arms, bump stops, rear drive shaft, and exhaust system behind the catalytic converter
- B. Cut off the (4) factory lower and (4) factory upper control arm mounts from the frame.
- C. Grind sharp areas smooth and repaint

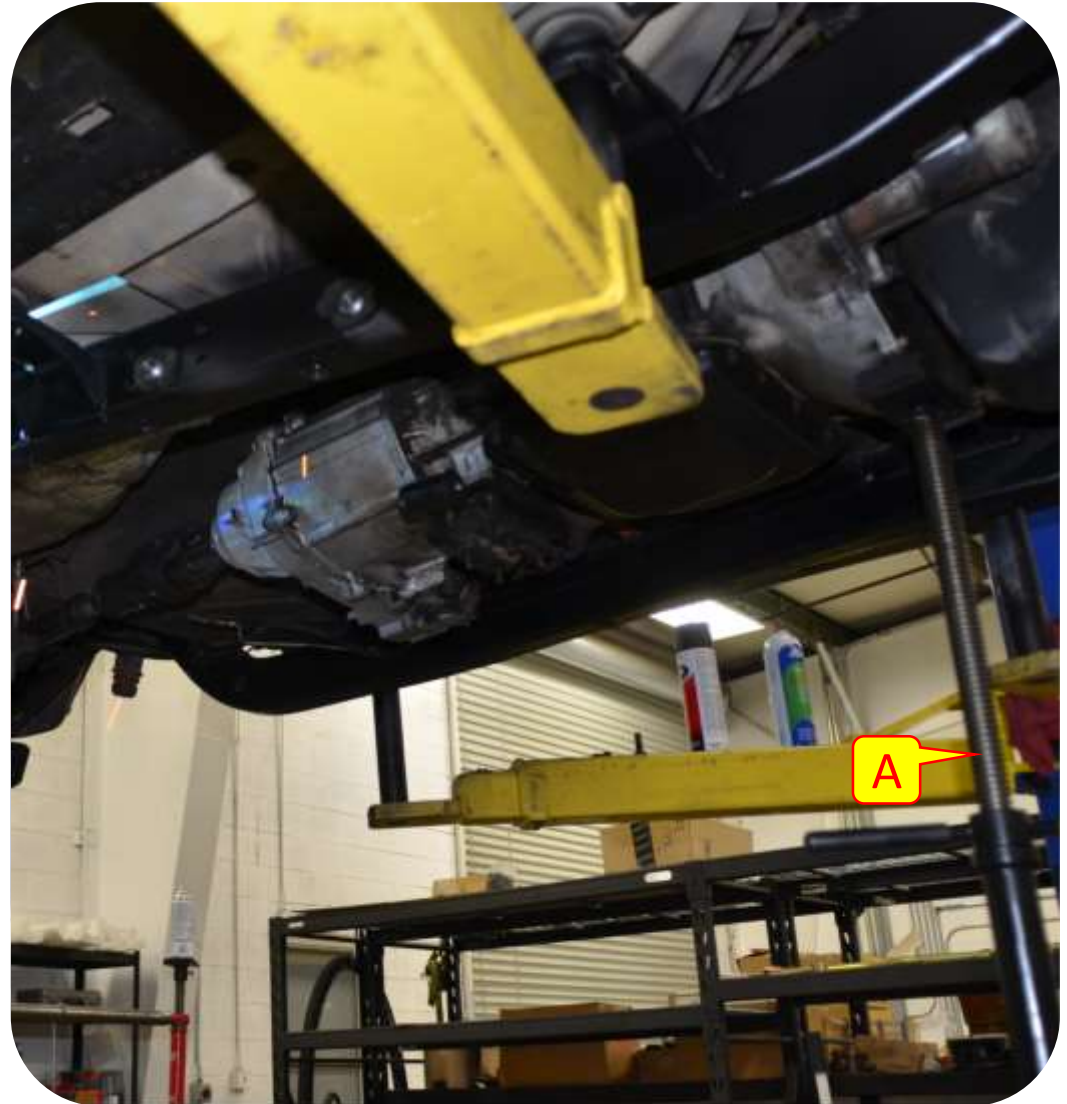


## Section 3: Installation Instructions



### Step 2: Removal of Crossmember

- A. Support the transmission and transfer case and remove the stock crossmember.



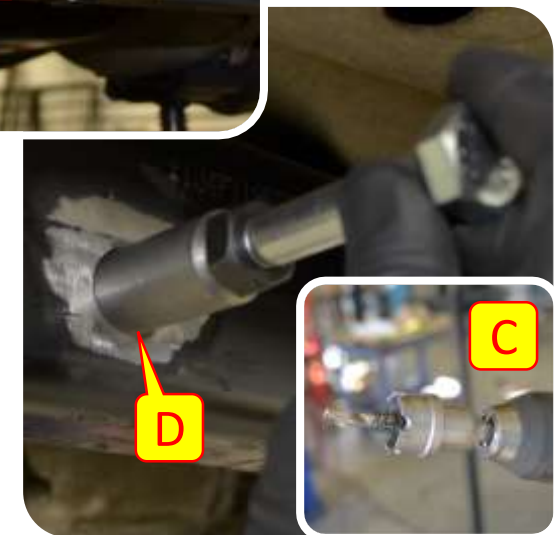
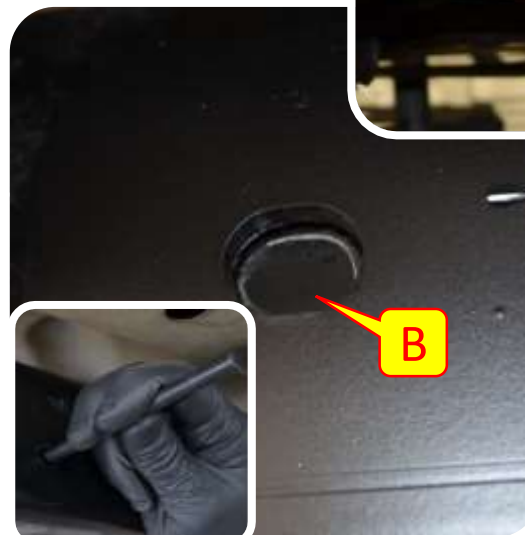
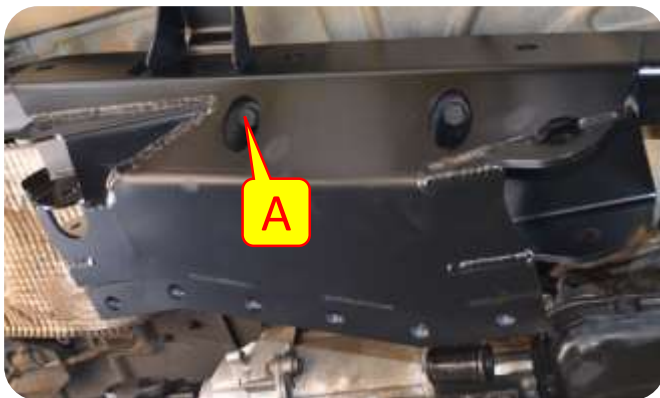
**Note:** The “Rubicon” model TJ’s will require relocation of the compressor. The factory compressor bracket may be reused by drilling a hole and mounting it to the seat belt bolt on the underside of the vehicle.

## Section 3: Installation Instructions



### Step 3: Install MetalCloak Skid Plate System

- A. Install side plates using factory holes to locate.
- B. Once the side plate is mounted mark holes on frame rail.
- C. Remove side plates and cut holes in outside frame rail for sleeves using 1" hole saw.
- D. Prepare frame rail surface for welding and install frame sleeves.
- E. Weld in frame sleeves.
- F. Use welded frame sleeve as guide to drill a 1/2" hole through inside frame rail.
- G. Grind welded areas flush and repaint bare surfaces.



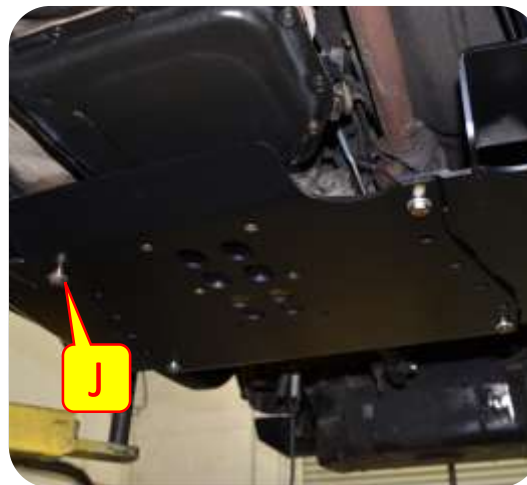


## Section 3: Installation Instructions



### Step 3: Install MetalCloak Skid Plate System

- G. Chase bolt holes with drill bit to remove any burs.
- H. Bolt side plates on to frame rails
- I. Install transmission mount adapter on center section
- J. Install center section to frame rails
- K. Lower transmission and bolt to center section.



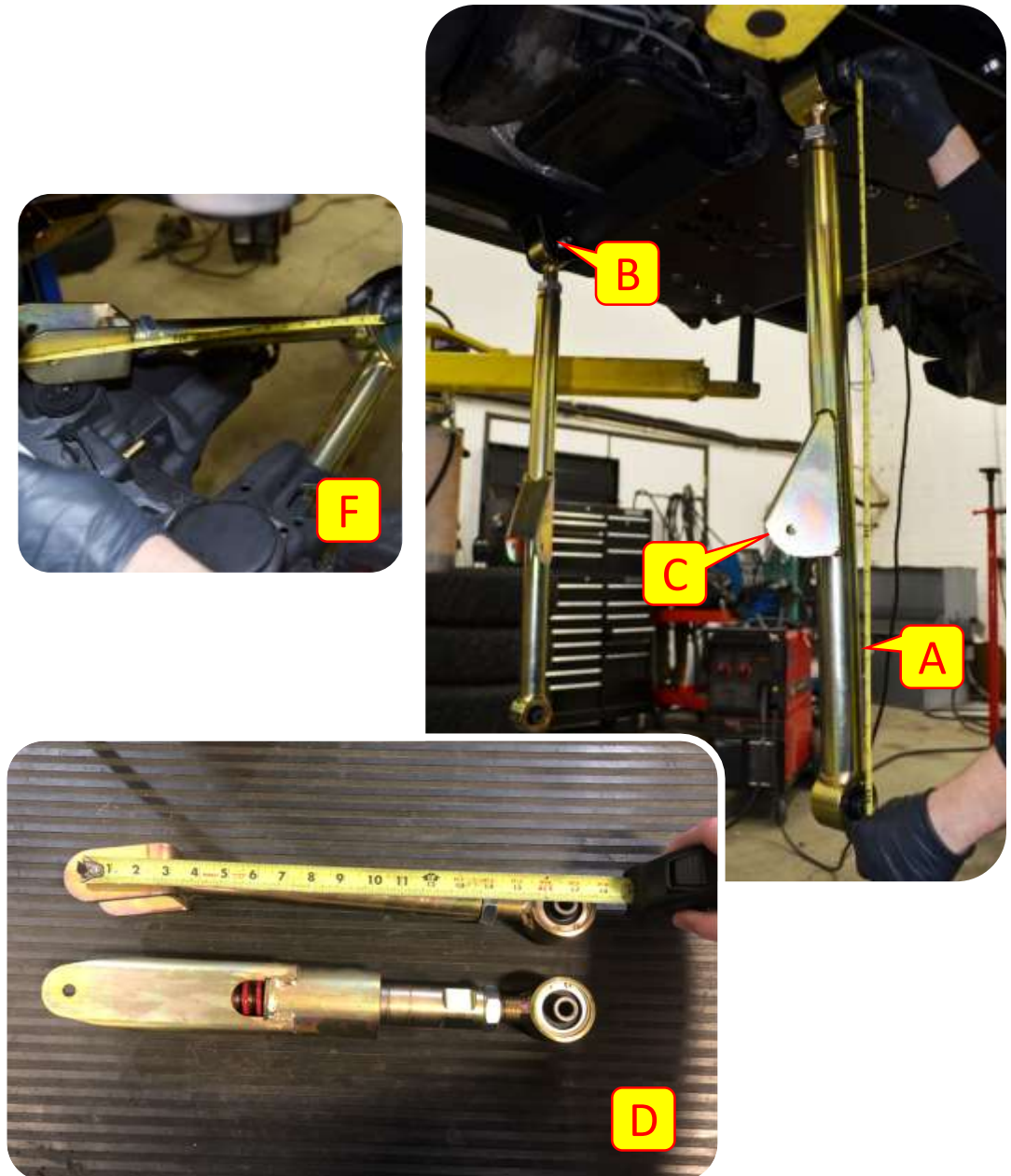


## Section 3: Installation Instructions



### Step 4: Install MetalCloak Front Control Arms

- A. Adjust front lower control arms' length to an initial setting of 36" from bolt center to bolt center.
- B. Install adjustable side of arm to the cross member with supplied hardware.
- C. Position the arms so the welded on brackets for the front upper arms and Lock-N-Load are on top and bending towards each other.
- D. Adjust the front upper control arm and Lock-N-Load lengths to an initial setting of 16-3/8" from bolt center to bolt center. Install front upper arms' with the non-adjustable side into the lower control arm brackets with supplied hardware. (See Lock-N-Load set up)
- E. The upper arms will be used to adjust final caster and pinion angle.
- F. Attach front lower control arms to axle with the supplied hardware, attach upper arms to axle with supplied hardware.



**Note:** Final arm lengths may vary from around 37.5" to 38" depending on lift, axle squareness and differential clearance to track bar.

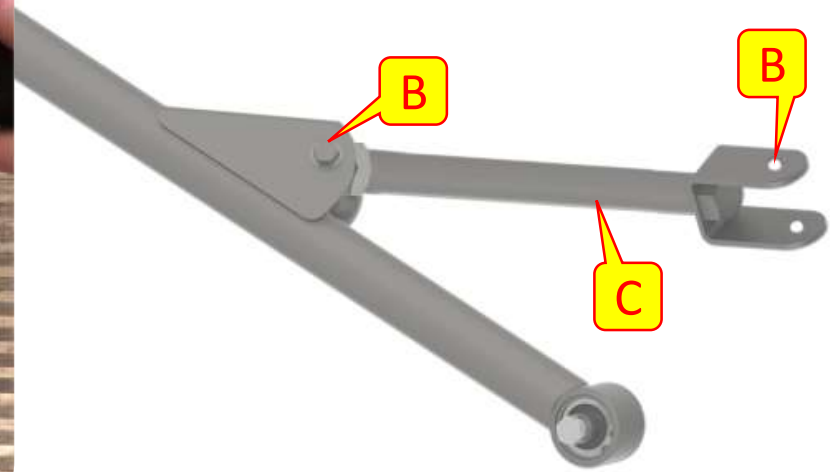
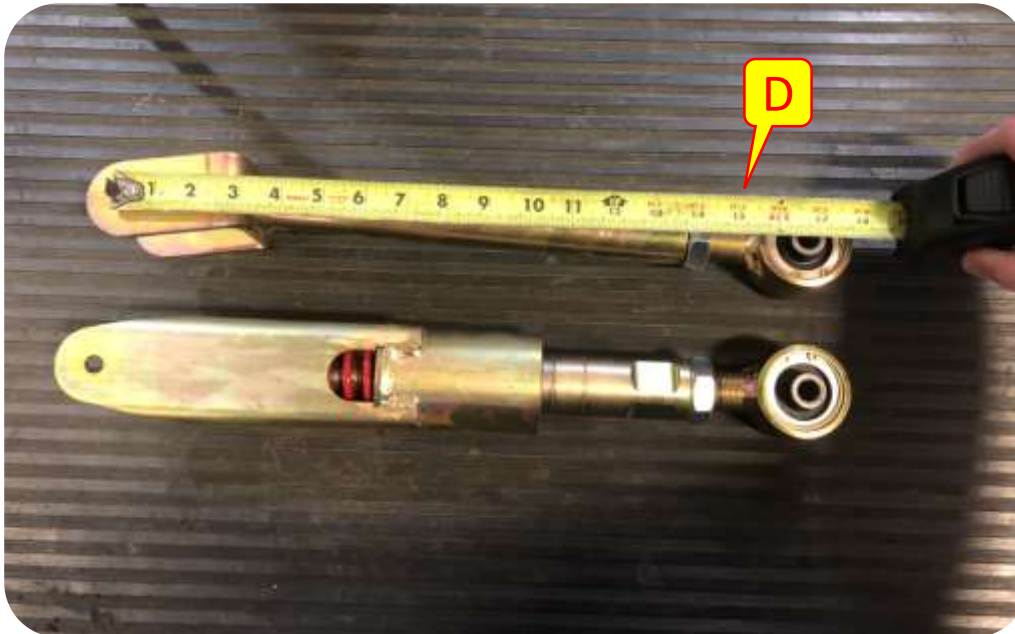
## Section 3: Installation Instructions



### Step 5: Setup for Lock-N-Load

**Note:** These Instructions are for the Lock-N-Load upper control arm. The Lock-N-Load was designed specifically for radius arm suspensions. The Lock-N-Load control arm is for use on radius arm suspensions and is **ONLY** installed on the passenger side upper control arm location.

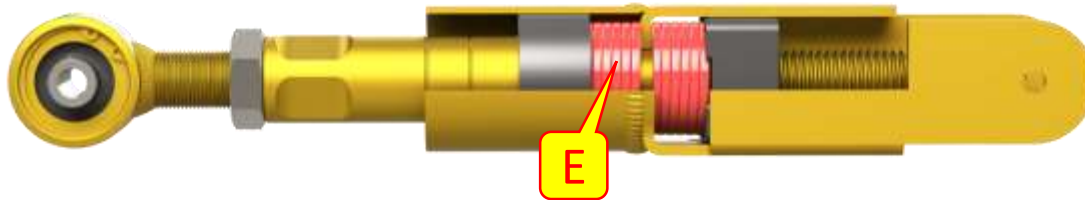
- A. With Jeep on flat surface block front and rear wheels to keep from moving.
- B. Remove the bolts holding in the upper control arm on the passenger side.
- C. Remove control arm.
- D. Measure the length of the passenger side control arm from eye to eye ( *this measurement is what you will set the Lock-N-Load to* ).



## Section 3: Installation Instructions

### Step 5: Setup for Lock-N-Load

- E. Take the Lock-N-Load control arm and make sure that it is in the Locked position (*springs are completely compressed*).
- F. If the Lock-N-Load is not in the locked position you may place the square section of the Lock-N-Load body in a vise and gently clamp to hold.
- G. Using an 1 ¼" wrench turn the adjustment of the control arm clockwise until the line on the arm corresponds with the lock position.
- H. Adjust the coupler on the control arm to the earlier recorded measurement (*eye to eye length*) and tighten jam nut with a 1 ½" wrench.





## Section 3: Installation Instructions



### Step 5: Setup for Lock-N-Load

- I. Install the squared section of the Lock-N-Load into the axle bracket and attach with given hardware.
- J. Place back side of control arm into the radius arm bracket and attach with Lock-N-Load hardware.
- K. Torque to spec (75lbs).



**Note:** To unlock for off-road use loosen jam nut and spin Lock-N-Load adjuster until corresponding line shows unlocked; Tighten jam nut and go wheeling.



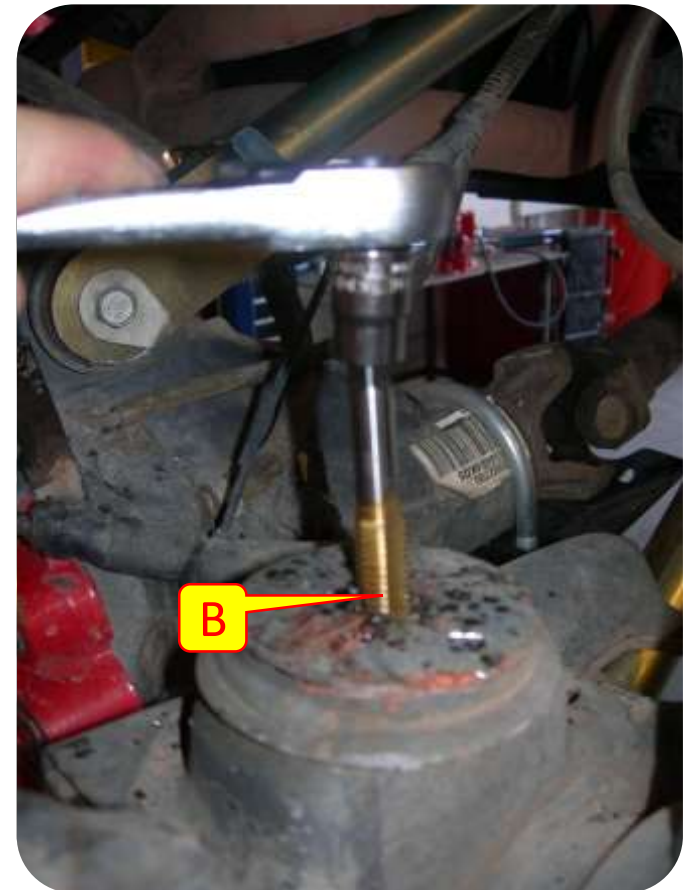


## Section 3: Installation Instructions



### Step 6: Drill Spring Cup for Front Bump Stops

- A. Mark the center of the stock bump stop; a puck and a punch work well for this process.
- B. Drill and tap this location with a 1/2"-13 tap. You can simply drill a 27/64" clearance hole, but the inside of the bump perch is very difficult to access on the driver side, and basically impossible on the passenger side.



## Section 3: Installation Instructions

### Step 7: Install Front Bump Stop

- C. Select the appropriate Screw length so that the threads stick out of the bottom Disks approximately  $\frac{3}{4}$ ". Assemble your bump stops by feeding the  $\frac{1}{2}$ " Countersunk Screw through the Cover Plate, and then threading through the Bump Stop Disks. The center hole in the Disk is intentionally small to create the most rigid assembly possible after installation.
- D. **IMPORTANT!** Place the assembled Bump Stop inside the spring before re-installing. Re-install the spring and place the end of the  $\frac{1}{2}$ " Screw in the drilled hole.
- E. Tighten until everything is tight; the hardware will not bottom out, but instead will begin to compress the Disks.
- F. Repeat all steps for other side, and then re-install all other suspension components.



C



D

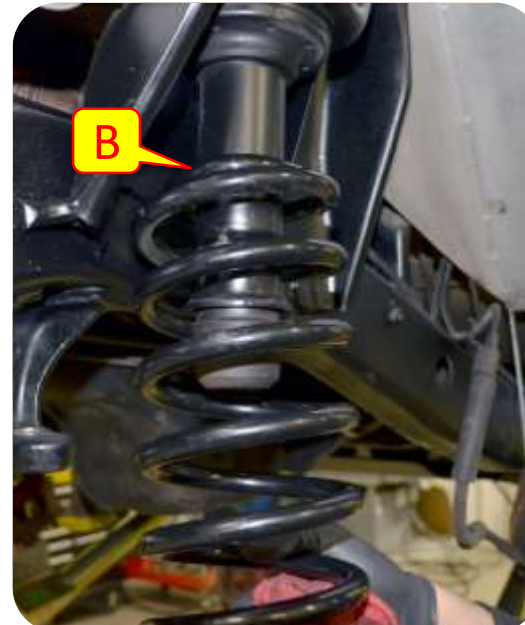


## Section 3: Installation Instructions



### Step 8: Install Front Coils

- A. If the axle does not “droop” enough to allow the coil to be put in place a coil compressor can be used to compress the coil to allow fitment.
- B. Install Front Dual Rate Coils with the tightly wound coils oriented upward.
- C. Slip the bottom of the coil onto the coil base on the axle.

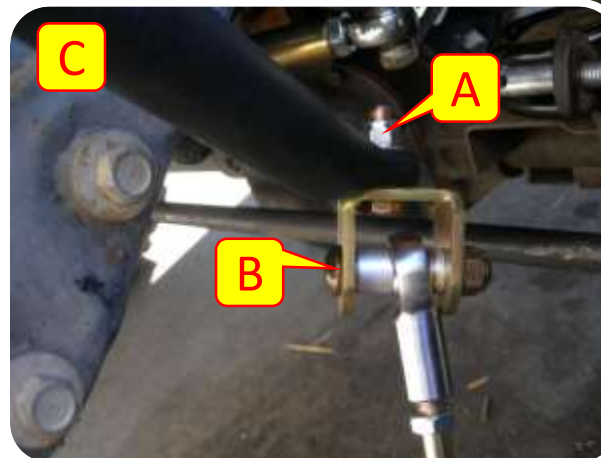




## Section 3: Installation Instructions

### Step 9: Install Front Sway Bar Links

- A. The Upper components are installed outboard (to put the rod away from the frame).
- B. Install the bracket to the sway bar by inserting the 9/16" Hex Bolt with washer, backed by the 9/16" Hex Locknut. Tighten the bracket by using an open-ended wrench to hold the Hex Bolt while using a socket and wrench to tighten the nut.
- C. Attach the sway link to the bracket by inserting the 5/16" Button Cap Screw through the bracket and assembling the spacers with the biggest spacer positioned closer to the frame and the smaller spacer located farthest from the frame and the sway link positioned between them as shown. The Button Cap Screw is then backed by the 3/4" Hex Flange Nut
- D. Tighten the assembly by using a 5/16" Allen wrench to hold the Button Cap Screw while using a 3/4" socket and wrench to tighten the Hex Flange Nut.



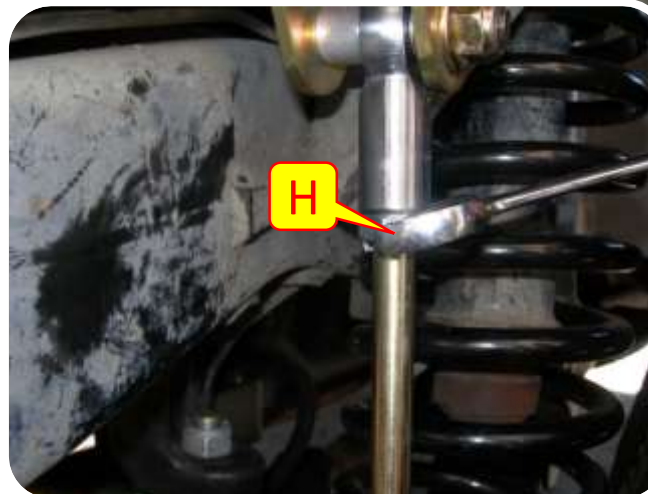
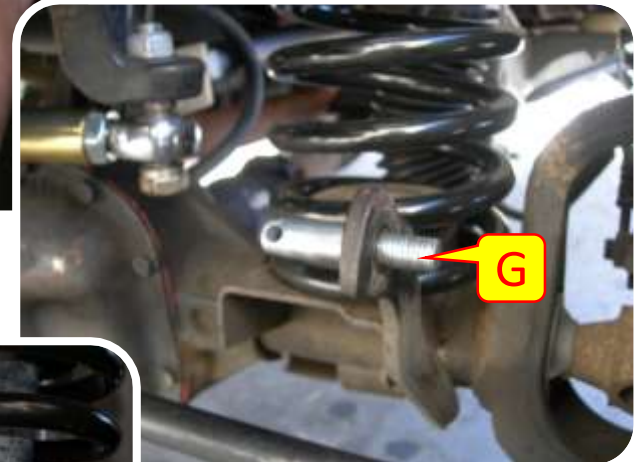


## Section 3: Installation Instructions



### Step 9: Install Front Sway Bar Links

- F. The lower components are installed inboard.
- G. Install the lower Quick Disconnect Pin in the stock location. Point the Pin toward the center of the vehicle. A hammer may be needed to tightly set it in.
- H. Thread lock nut onto sway bar end link. Thread end link into rod end until snug; now unthread rod up to one half turn so the rubber bushing on the bottom aligns with the disconnect pin. Tighten locknut to the rod end to secure into position.
- I. Back the Quick Disconnect Pin with the washer and the 3/4" Hex Flange Nut and tighten with socket and ratchet wrench.
- J. Slide the lower sway bar link through the Quick Disconnect Pin Screw and insert the Hitch Pin.



**Note:** The threaded section of rod is not for adjusting the rod length!

## Section 3: Installation Instructions

### Step 9: Install Front Sway Bar Links



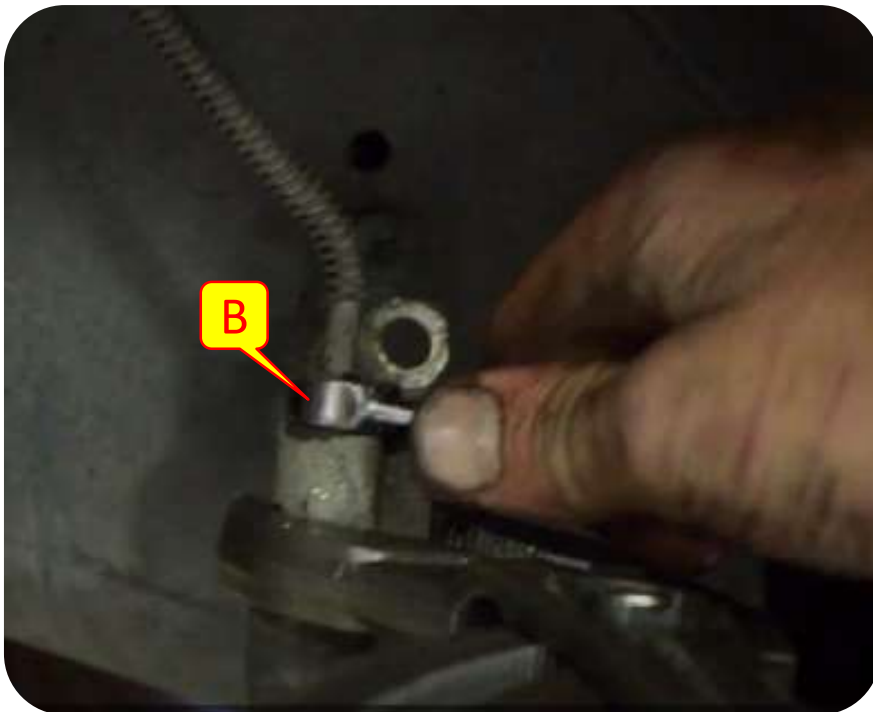
J. The links should be roughly vertical once installed.

## Section 3: Installation Instructions



### Step 10: Remove Stock Front Brake Lines

- A. Remove brake hose mounting screw from inner fender well using 3/8" box wrench.
- B. Disconnect bottom of brake line using 3/8" box wrench.

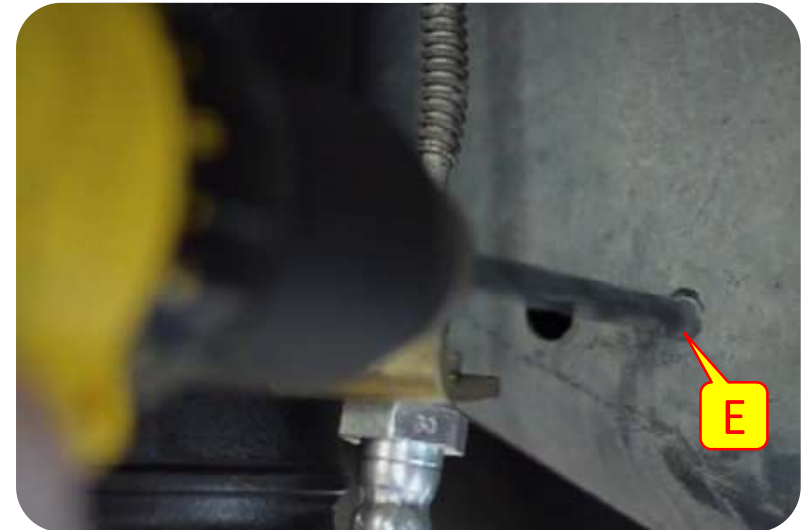
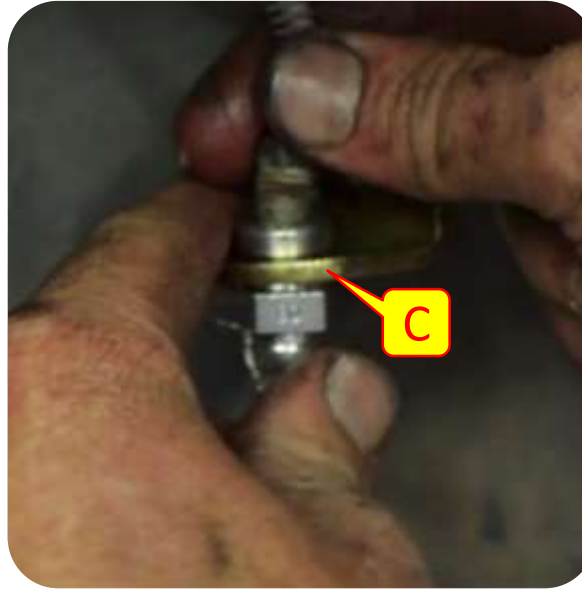


## Section 3: Installation Instructions



### Step 10: Install Front Brake Lines

- C. Install new brake line and bracket.
- D. Carefully straighten bend from brake hardline.
- E. Mark new bracket location and drill holes using a L drill bit or a 9/32" drill bit.
- F. Re-attach brake line to inner fender well using a 1/2" box wrench.
- G. Use hammer to Install brake line retainer clips.
- H. Bleed brakes before driving.





## Section 3: Installation Instructions



### Step 11: Bleed Front Brake Lines

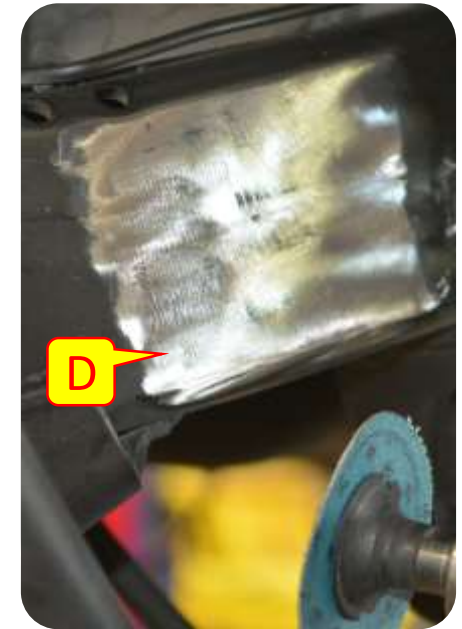
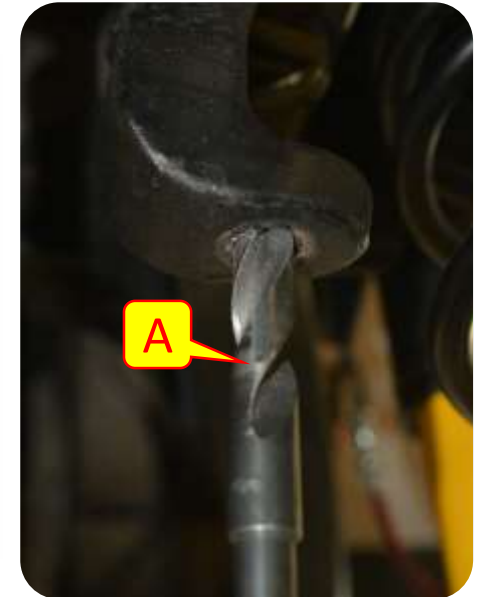
**Important Note:** *Before driving bleed brake lines.*



## Section 3: Installation Instructions

### Step 12: Prepare Front Track Bar Components

- A. Using a 5/8" drill bit drill out the OE mount bolt hole.
- B. Recommending to wear safety glasses; grind off powder coat on provided track bar drop bracket.
- C. Temporarily place the track bar drop bracket in place to mark out area to prepare for welding onto the frame rail.
- D. Using a grinder remove paint from the frame rail in the marked off area that the bracket will be welded on at.

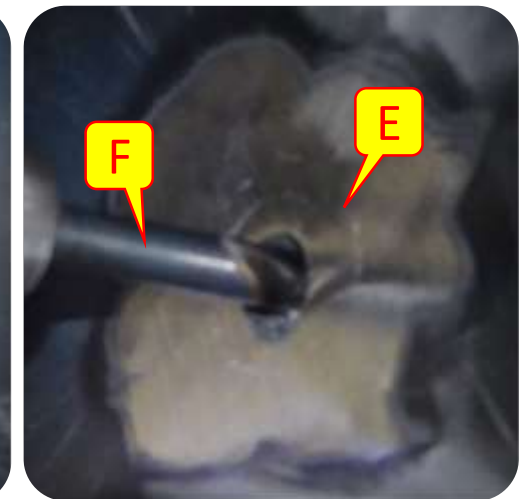
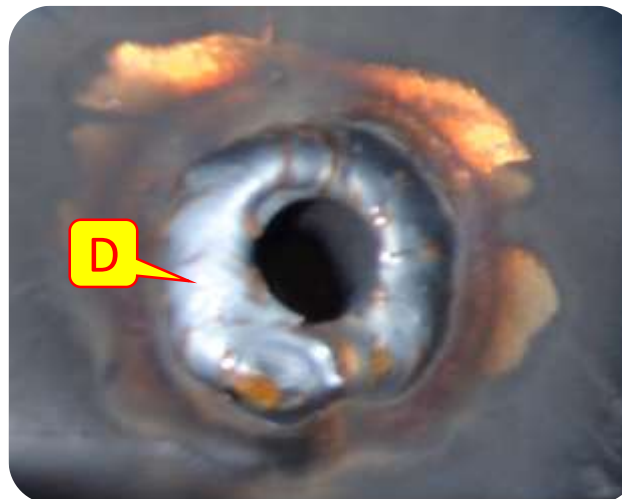
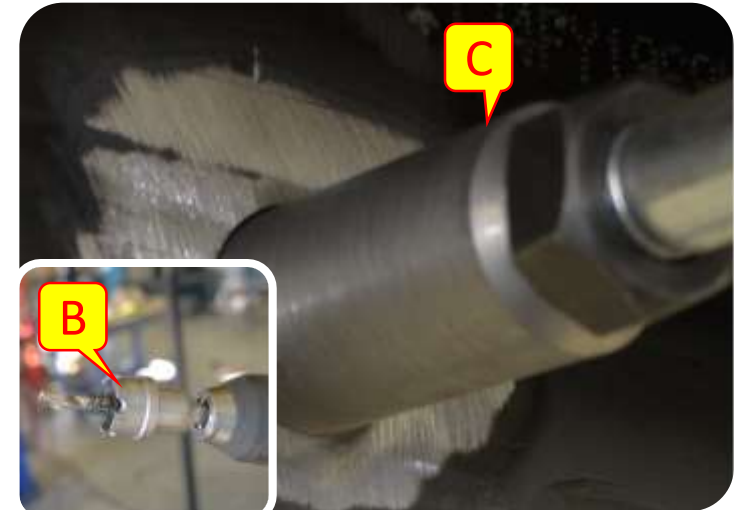


## Section 3: Installation Instructions

### Optional: Front Track Bar Bracket Center Bolt

**Note:** Bolting the center of the track bar bracket is optional. Bolting the center bolt of the track bar bracket provides extras strength and protection but is not required. If you don't choose to do the center bolt of the bracket continue to page 23.

- A. Place Track Bar Bracket onto the grinded area and using a center punch mark hole location.
- B. Remove the bracket and using a 1" hole saw drill out the inside frame rail.
- C. Install the frame sleeve.
- D. Weld the frame sleeve.
- E. Grind Down frame sleeve weld flush with the frame rail.
- F. Use welded frame sleeve as guide to drill a ½" hole through outside frame rail.

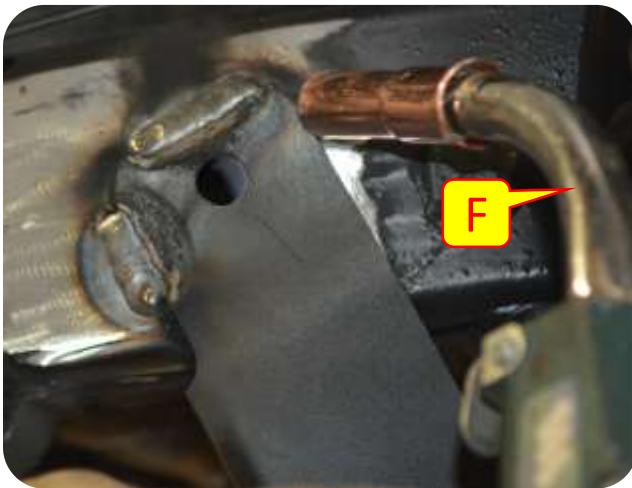




## Section 3: Installation Instructions

### Step 13: Install Front Long Arm Track Bar Bracket

- E. Place the provided track bar drop bracket in location and use a 5/8" socket to secure to the OE mount.
- F. Weld the track bar drop bracket in place.
- G. Using a 19mm socket remove the pitman arm side of the drag link.
- H. Take note of position of the pitman arm before removal.
- I. Remove Pitman arm using a pitman arm puller.
- J. Install new pitman arm in the same position as the stock pitman arm.





## Section 3: Installation Instructions

### Step 14: Install Front Long Arm Track Bar



- K. Attach the drag link using a 19mm socket.
- L. Drill out the axle bracket using a 14mm drill bit and using a 22mm socket attach the fixed side of the track bar to the axle side bracket.
- M. Center vehicle over axle. Measuring carefully using like points on each side of the vehicle until centered.

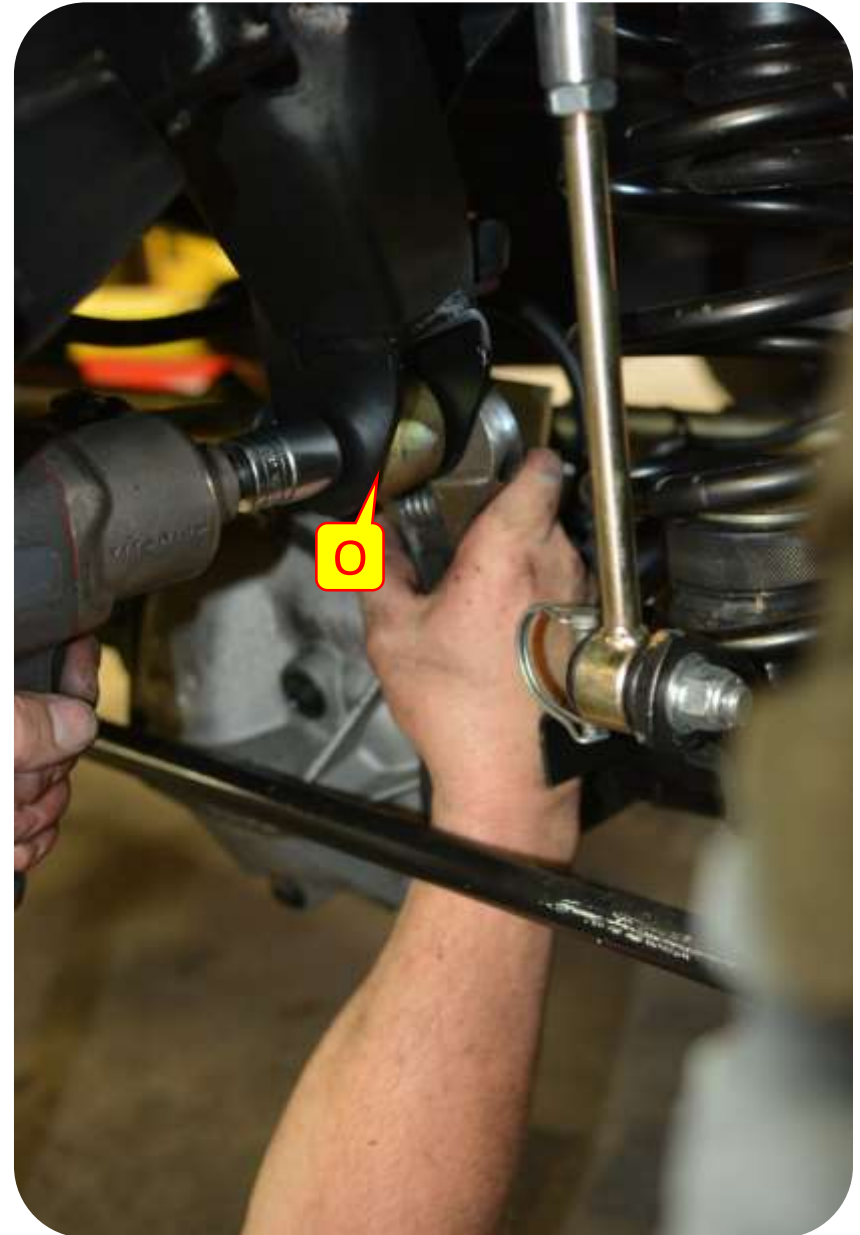
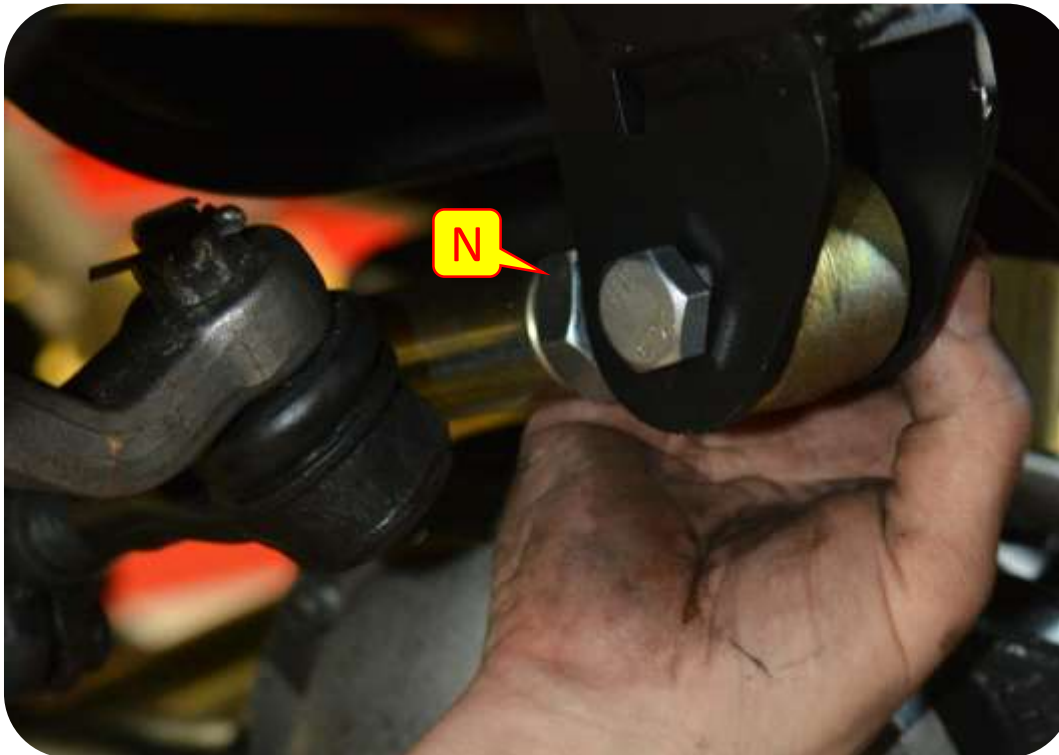


**Note:** Having a second person to turn the steering wheel while centering the vehicle over the axle is very useful.

## Section 3: Installation Instructions

### Step 14: Install Front Long Arm Track Bar

- N. Lengthen or shorten the track bar on the adjustable side until bushing hole aligns with the track bar drop bracket hole.
- O. Attach track bar with provided hardware into bracket location.
- P. Tighten all hardware.



## Section 3: Installation Instructions



### Step 1: Rear Factory Control Arm Brackets

**Note:** *Factory control arms should already be removed and rear axle should be properly supported by stands.*



## Section 3: Installation Instructions

### Step 1: Rear Factory Control Arm Brackets

A. Remove upper factory rear control arm brackets from axle.



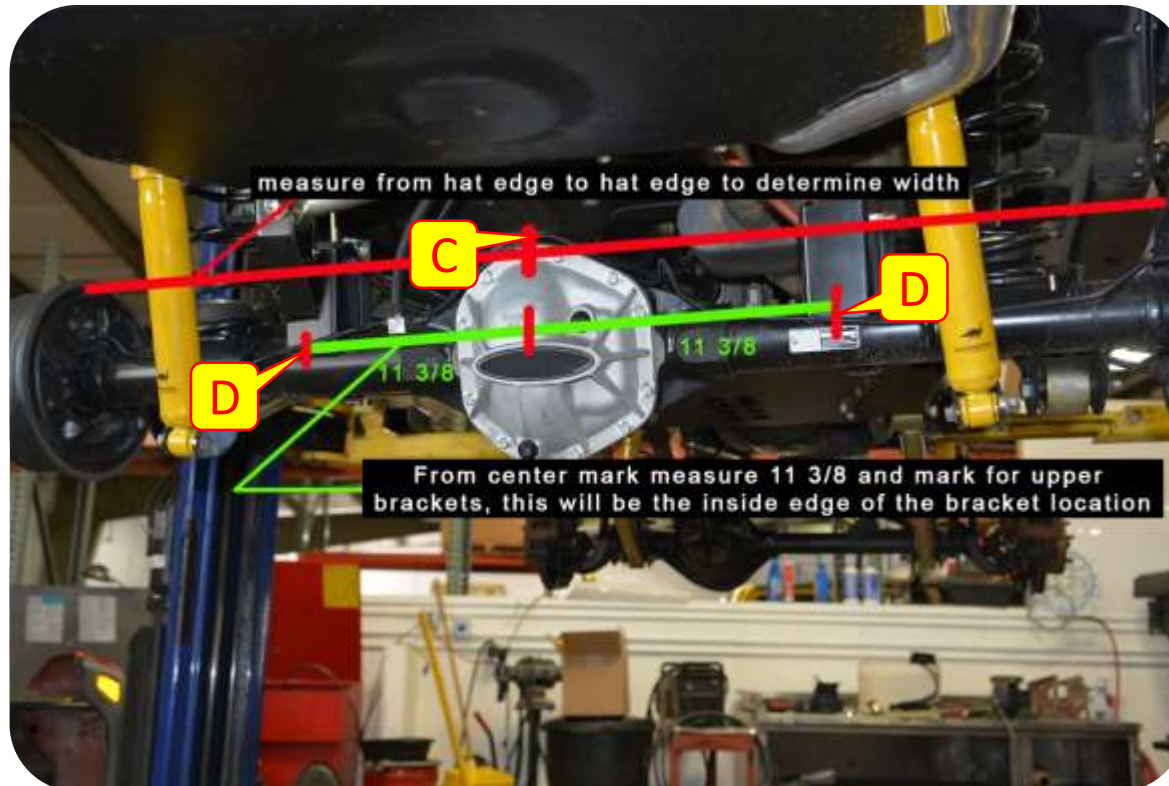
**IMPORTANT NOTE:** THE LOWER BRACKETS REMAIN ON THE AXLE! DO NOT REMOVE THE LOWER BRACKETS!

## Section 3: Installation Instructions



### Step 2: Installing Rear Control Arm Brackets

- B. Remove factory rear track bar.
- C. Measure axle width to find axle center and mark.
- D. From the axle center mark use a tape measure to measure  $11 \frac{3}{8}$ " out to both driver and passenger sides from the center and mark (*this will be the placement for the inside edge of the MetalCloak replacement axle brackets*).



**Note:** The differential may not be the actual center.

## Section 3: Installation Instructions



### Step 2: Installing Rear Control Arm Brackets



- E. Temporarily place the MetalCloak replacement axle brackets onto the mark made on step D and mark bracket location and remove replacement axle brackets.
- F. Remove any surface coating on axle to prepare for welding.

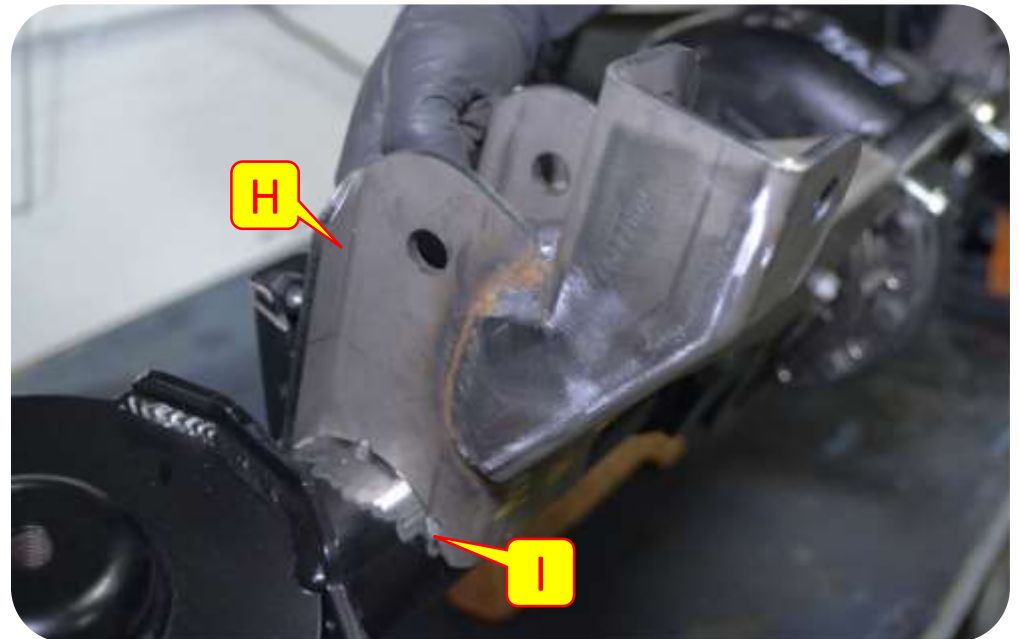


## Section 3: Installation Instructions

### Step 2: Installing Rear Control Arm Brackets



- G. Set the pinion of the axle to be exactly horizontal using an angle finder.
- H. Center the axle brackets at the previously marked locations.
- I. Using the angle finder rotate axle brackets 11 degrees towards the pinion and tack the brackets into place *(be sure the pinion is still horizontal before tacking)*.

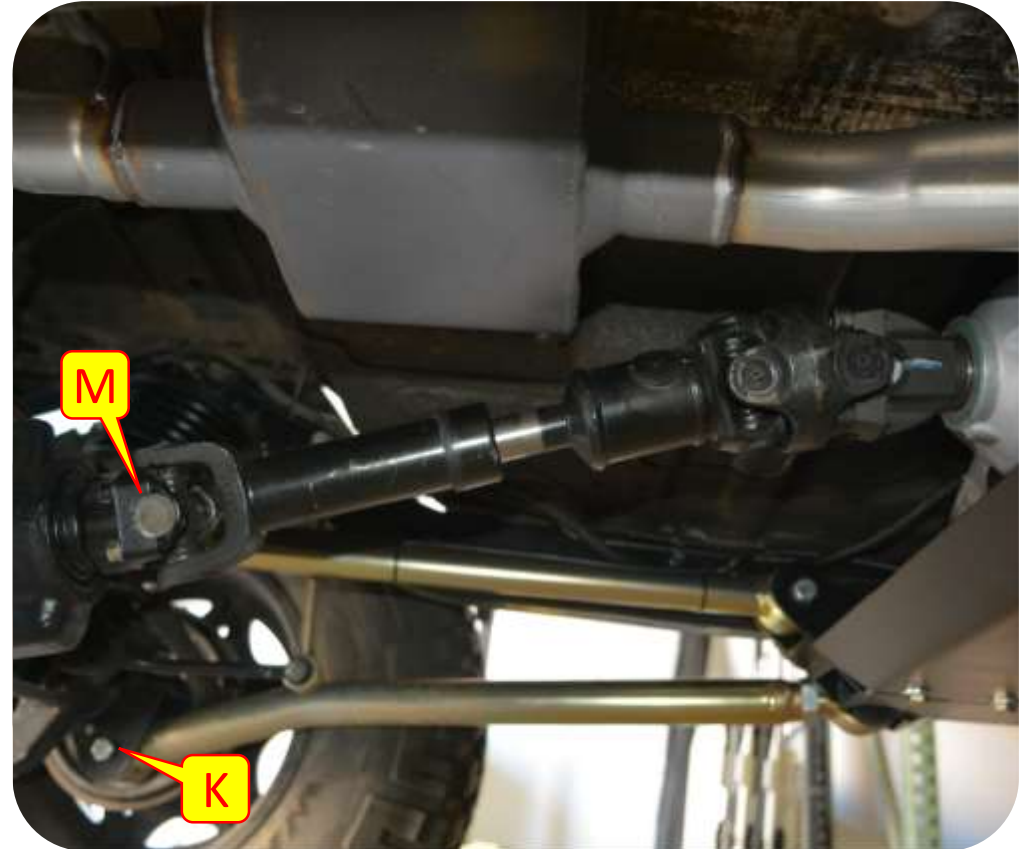


## Section 3: Installation Instructions



### Step 3: Installing Rear Control Arms

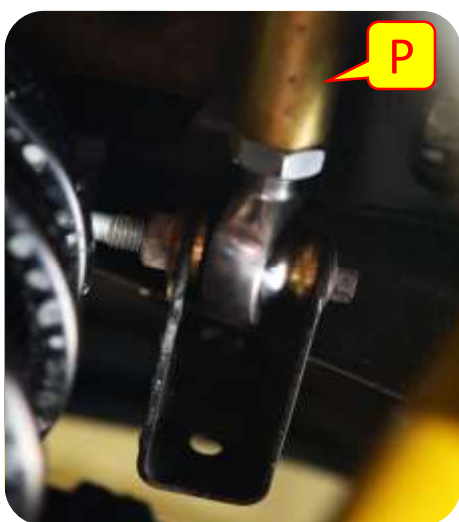
- J. Preset the MetalCloak long arm control arms. The rear lower control arms should be set to 43 ½" and the upper rear control arms should be set to 41" for reference.
- K. Loosely attach rear upper and lower control arms to the axle with provided hardware.
- L. Attach rear fixed side of track bar to axle side bracket.
- M. Install rear drive shaft.



## Section 3: Installation Instructions

### Step 3: Installing Rear Control Arms

- N. Remove stands and lower Jeep onto the ground.
- O. Center vehicle over rear axle. Measuring carefully using like points on each side of the vehicle until centered.
- P. Adjust the frame side of the rear track bar to fit into the factory track bar bracket on the frame and bolt into place.
- Q. Adjust the upper control arm lengths to adjust to the correct pinion angle.
- R. When the control arm lengths have been adjusted re-lift the Jeep and support with stands.

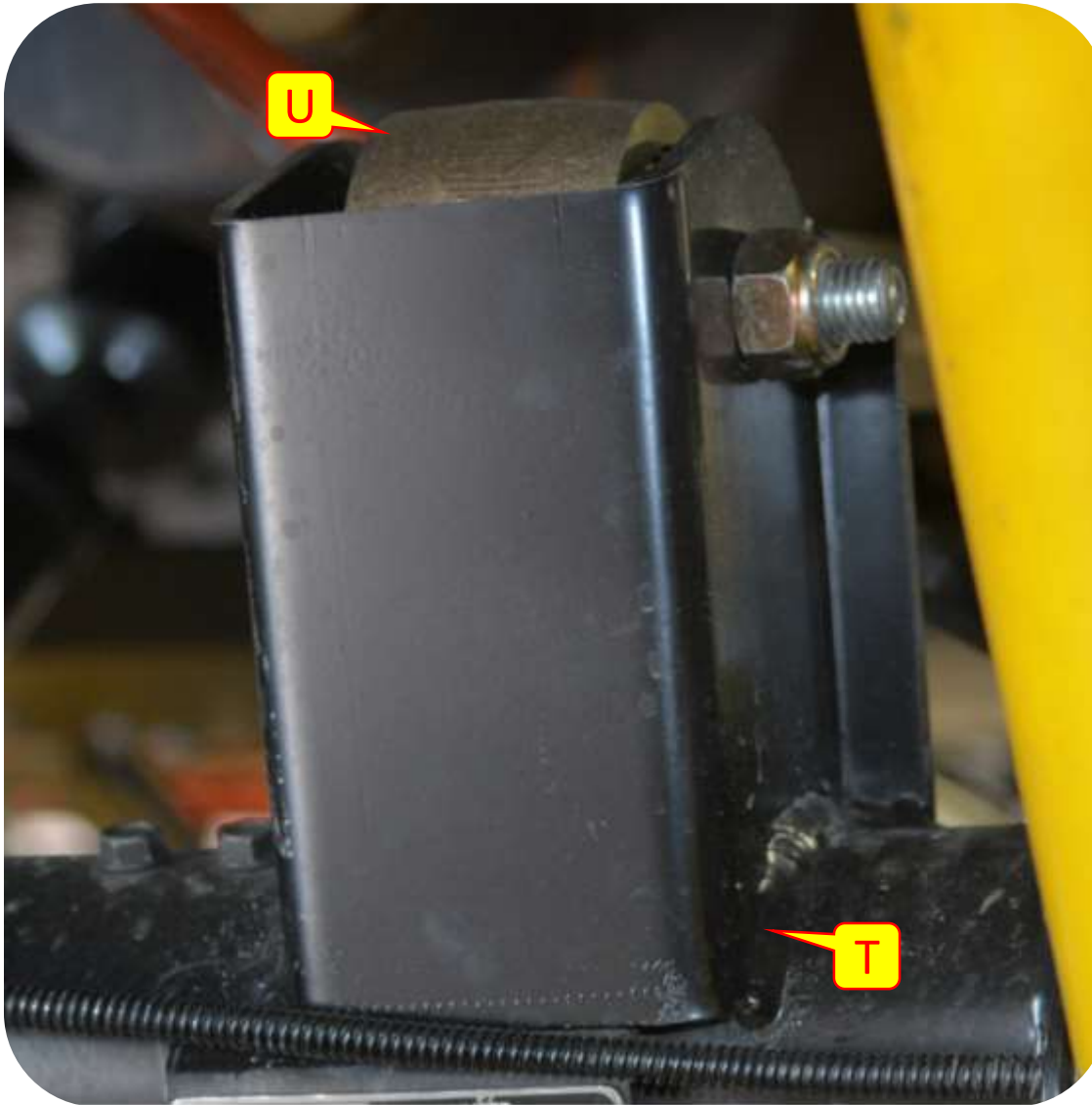




## Section 3: Installation Instructions



### Step 3: Installing Rear Control Arms



- S. Remove bolts holding the rear control arms in the axle brackets and remove control arms.
- T. Weld brackets into place.
- U. Re-install the rear control arms back into axle brackets with provided hardware.

**Note:** Heat from welding may damage Duroflex Joints. Disconnect the rear control arms prior to welding on brackets and wait for welds to cool.

## Section 3: Installation Instructions

### Step 4: Drill Spring Cup for Rear Bump Stops

- A. Mark the center of the stock bump stop; a puck and a punch work well for this process.
- B. Drill and tap this location with a 1/2"-13 tap. You can simply drill a 27/64" clearance hole, but the inside of the bump perch is very difficult to access on the driver side, and basically impossible on the passenger side.



## Section 3: Installation Instructions

### Step 5: Install Rear Bump Stop

- C. Select the appropriate Screw length so that the threads stick out of the bottom Disks approximately  $\frac{3}{4}$ ". Assemble your bump stops by feeding the  $\frac{1}{2}$ " Countersunk Screw through the Cover Plate, and then threading through the Bump Stop Disks. The center hole in the Disk is intentionally small to create the most rigid assembly possible after installation.
- D. **IMPORTANT!** Place the assembled Bump Stop inside the spring before re-installing. Re-install the spring and place the end of the  $\frac{1}{2}$ " Screw in the drilled hole.
- E. Tighten until everything is tight; the hardware will not bottom out, but instead will begin to compress the Disks.
- F. Repeat all steps for other side, and then re-install all other suspension components.



C



D





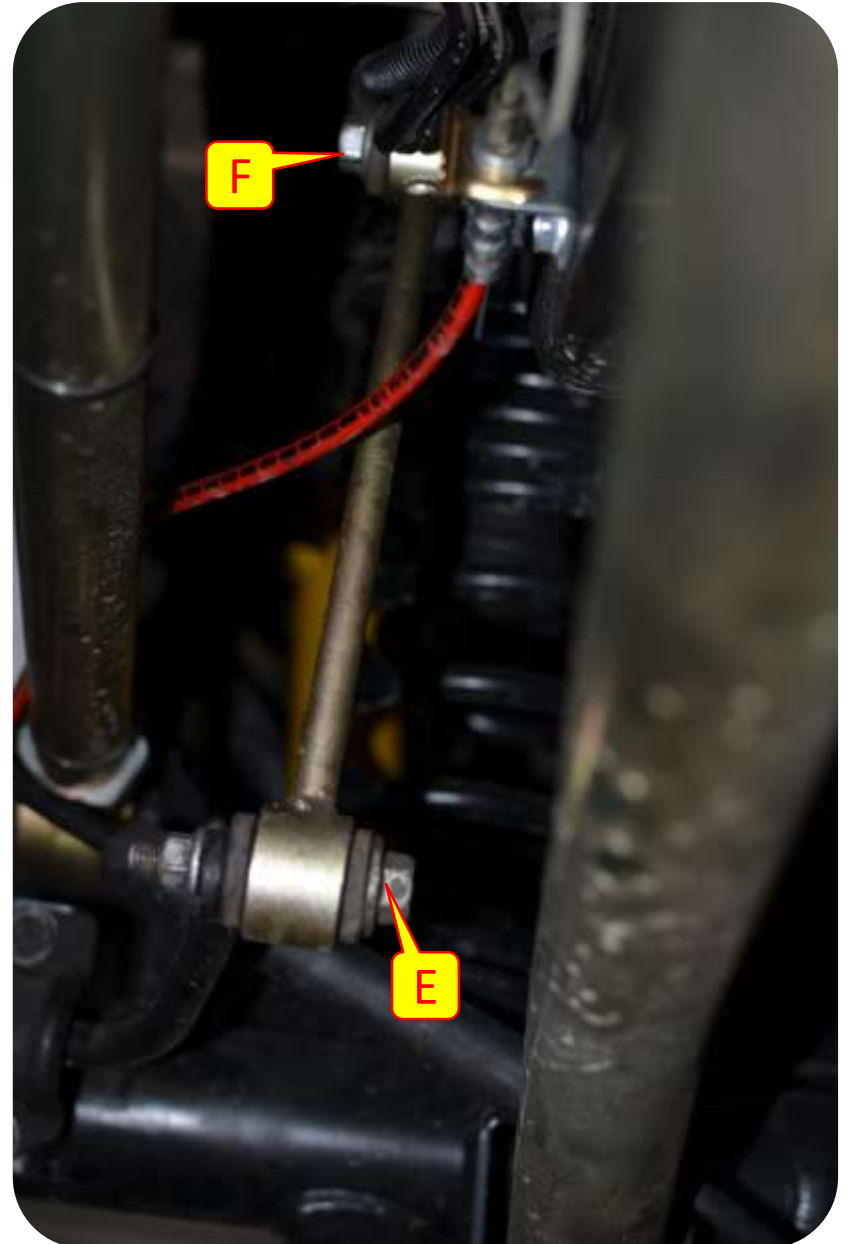
## Section 3: Installation Instructions



### Step 6: Rear Sway Bar Links

- A. Use the two 18mm wrenches or socket to unbolt the lower bolt of the sway bar end link.
- B. Use the 19mm wrench to hold ball socket side on upper attaching point *(Inside the rubber cover)*.
- C. Use the 18mm wrench for the back side of the sway bar to remove the nut.
- D. Remove the factory sway bars.
- E. Using the factory hardware install the bottom of the MetalCloak extended sway bar links.
- F. Using the factory hardware install the top of the MetalCloak extended sway bar links.
- G. Torque upper and lower bolts to 75lbs.

**Note:** Keep all factory hardware.

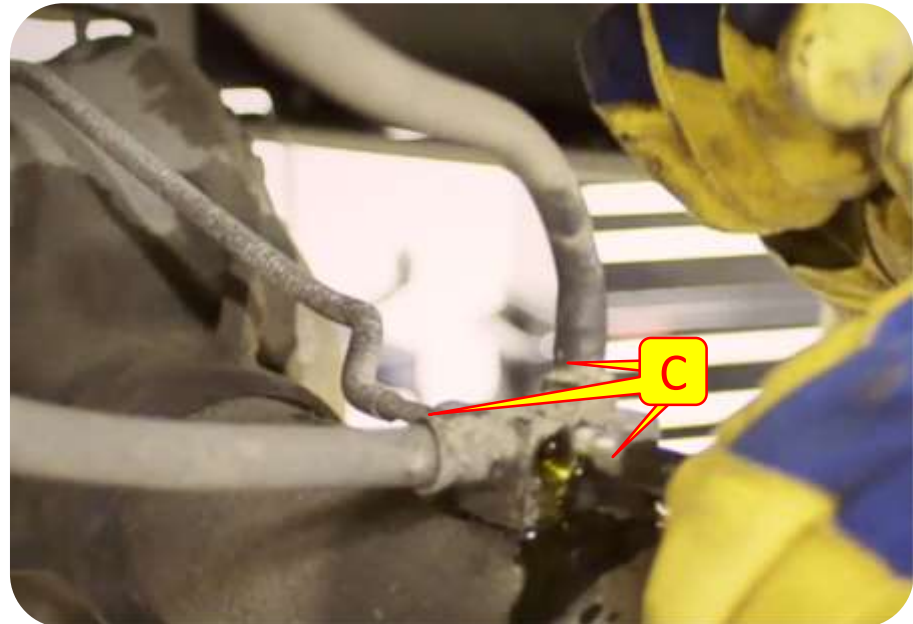
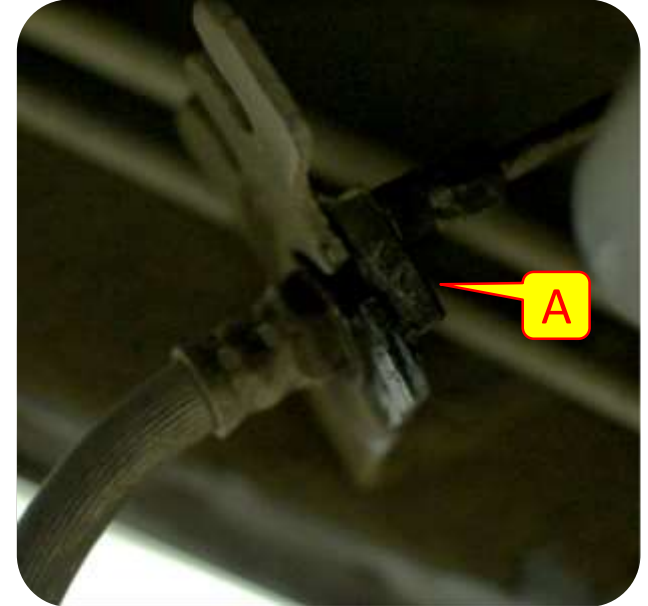


## Section 3: Installation Instructions



### Step 7: Remove Stock Rear Brake Line

- A. Using pliers remove brake line retaining clip.
- B. Disconnect top of brake line from break hardline using a 3/8" box wrench.
- C. Disconnect all three brake hard lines from bottom part of break line using a 3/8" box wrench.

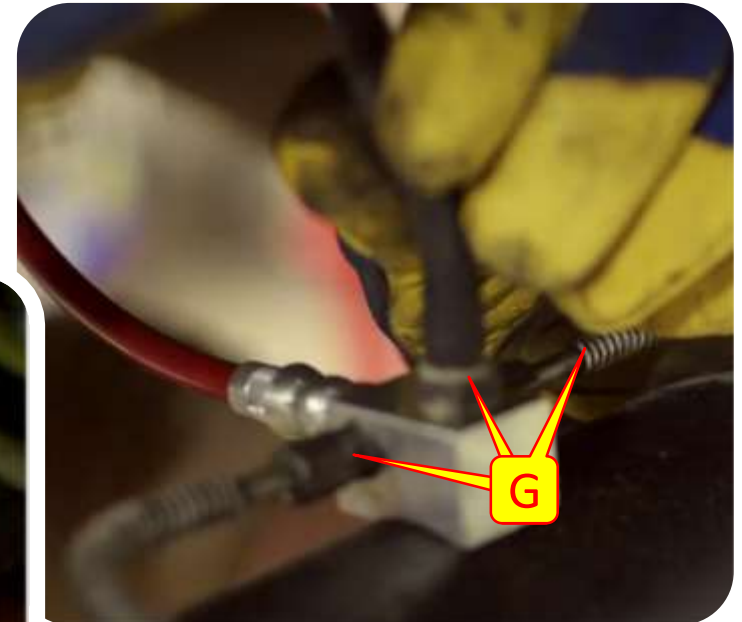
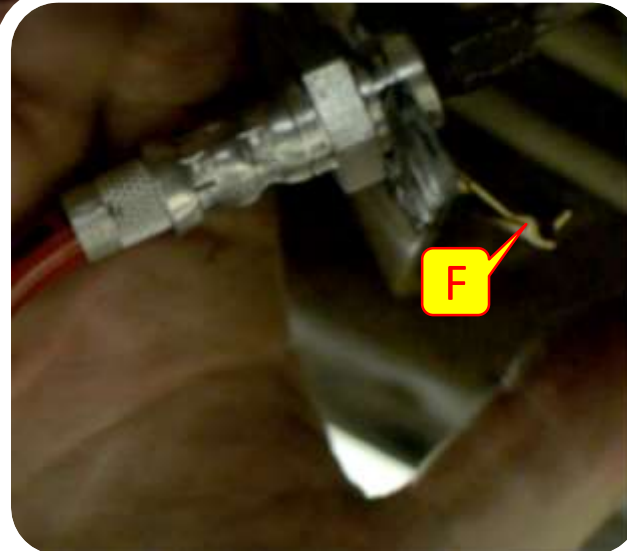
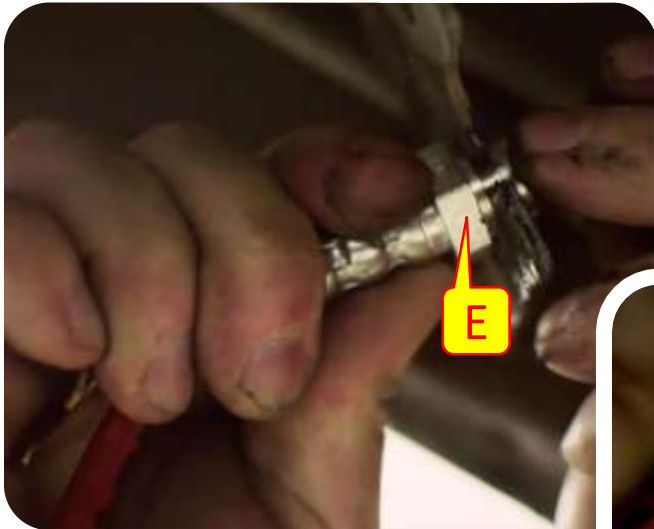


## Section 3: Installation Instructions



### Step 8: Install Rear Brake Line

- E. Install new brake line and bracket tighten with 3/8" box wrench.
- F. Use hammer to Install brake line retainer clip.
- G. Attach the three hard lines to new brake line.
- H. Bleed brakes before driving.



## Section 3: Installation Instructions



### Step 9: Bleed Brake Line

**Important Note:** *Before driving bleed brake line.*





## Section 3: Installation Instructions



### Step 10: Tighten all hardware

Lower Jeep and Tighten ALL hardware.

