



RUBICON EXPRESS 1017 W 600 N., Ogden, UT. 84404. 1-800-776-0767

## **INSTALLATION INSTRUCTIONS FOR: JK43M 4 DOOR JK WRANGLER 3.5" STANDARD SUSPENSION SYSTEM**

### **Safety Warning:**

Suspension systems or components that enhance the off-road performance of your vehicle may cause it to handle differently, on and off-road, than it did from the factory. Care must be taken to prevent loss of control or vehicle rollover during sudden maneuvers. Failure to drive the vehicle safely may result in serious injury or death to driver and passengers. We recommend you always wear your seat belt, drive safely and avoid quick turns and other sudden maneuvers. Constant maintenance is required to keep your vehicle safe. Thoroughly inspect your vehicle before and after every off-road use.

### **Installation Warning:**

All procedures described in these instructions were performed while the vehicle was properly supported on a vehicle lift. Use caution when supporting the vehicle as removing and installing parts will change the vehicle center weight. Rubicon Express recommends that chassis support jacks are always used at the front and rear of the vehicle during the installation of a suspension system.

We recommend that certified technicians perform the installation of our products. Attempts to install these products without knowledge or experience may jeopardize the safety of the vehicle. 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. Included instructions are guidelines only for recommended procedures and in no way are meant to be definitive. Installer is responsible to insure a safe and controllable vehicle after performing modifications. Do not perform test drives on public roads with partially completed installations. Always double and triple check your work before use.

**ESP WARNING NOTE: The 2007+ Jeep Wrangler JK is equipped an Electric Stability Program (ESP). This system is designed to help control the vehicle in times of uncertain traction conditions and roll stability. Due to the complex nature of this program Rubicon Express strongly suggest that after lifting the vehicle it is returned to the dealer for a computer "flash" to re address tire size and proper ESP control settings. Rubicon Express also recommends that you become familiar with the ESP controls and how the different level of settings can help you to keep better control of your vehicle.**

**WHEEL NOTICE:** If using factory wheels it will be necessary to purchase 1.5" wheel spacers to provide proper clearance to suspension components. Otherwise aftermarket wheels with 4.5" back space measurement will be required.

### **KIT CONTENTS**

RE1157 Rear Sway Bar End Links.  
RE1371 Front 3.5" Coil Springs  
RE1376 Rear 3.5" Coil Springs  
RE1380 2" Front lower bump stops.  
RE1387 Rear bump stop pad.  
RE1476 JK front lower cam bolt set.  
RE1477 JK rear upper cam bolt set.  
RE1507 JK front brake line relocation brackets  
RE1508 JK rear brake line relocation brackets  
RE1607 Rear Lower Track Bar Bracket  
RE2621 High Steer kit  
RE9800 JK Upper and Lower Control Arm Mounting Brackets

### **TYPICAL TOOLS REQUIRED**

Basic mechanics hand tools. Optional floor jack, jack stands, wheel chocks for ground installation.

### **INSTALLATION OVERVIEW**

The installation process can be broken down into the following tasks:

1. Installation of front coil springs, bump stops, high steer kit, and brake line relocation brackets.
2. Installation of rear coil springs, bump stops, track bar bracket, brake line relocation brackets, sway bar links and rear upper cam bolts.
3. Upper & lower control arm mounting brackets.
4. Final detailing and adjustments.

## **Step 1 – Front coil and component installation**

- A. With the vehicle and axle properly supported, prepare the front end suspension component installation by removing the following items; shocks, sway bar links (from the axle end only), and track bar. Loosen but do not remove the lower control arm bolts at the axle, they will be replaced later with caster adjusting cam bolts. The factory shocks and track bar will not be reinstalled on the vehicle.
- B. Remove the brake line attaching screw at the frame and let the lines hang loose until later in the install. DO NOT remove the brake lines or loosen the brake line fittings. Lower the breather hose clip on the shock tower approximately 3”.
- C. Lower the axle and remove both coil springs.
- D. Place the front bump stop (**RE1387**) on the center of the lower spring mount on the axle tube. Insert a center punch thru the center hole in the bump stop and mark the hole to be drilled. Drill the marked hole to 5/16”
- E. With the lower bump stop placed inside the new front coil spring (**RE1371**), raise the small diameter end of the coil into the upper spring bucket and over the lower spring cup and bump stop pad. Rotate the coil spring so the end of the coil properly sits in the factory pocket and install the supplied 3/8” self-tapping bolt thru the bump stop and secure to the axle. (**Photo #1**)
- F. Raise the axle towards the chassis and install the new shock absorbers. (Purchased separately)



**Photo # 1**



**Photo # 2**

### **Front brake line extension brackets and sway bar links**

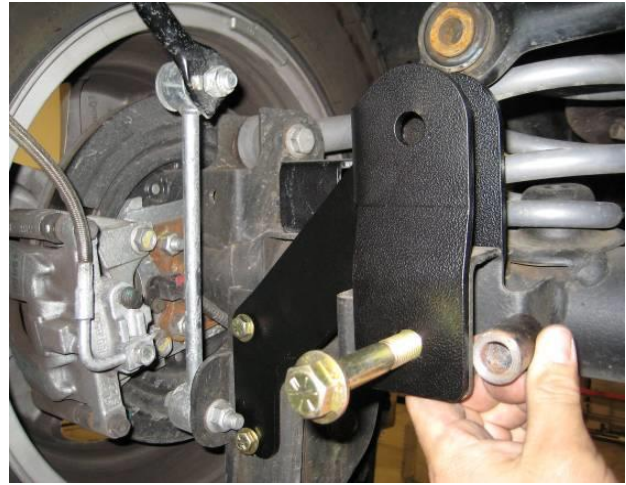
- A. With the front brake lines previously unbolted from the side of the frame install the brake line extension brackets from (**RE1507**) to the frame with the factory hardware. The tab end of the extension will locate in the frame rail as did the brake line.
- B. Remove the clips that attach the ABS wire to the brake line.
- C. Using the supplied 1/4” hardware from (**RE1507**). Bolt the brake line tab to the lower hole of the extension bracket. (**Photo #3**)

**NOTE: When lowering the brake line mounting point, use caution when pulling on the hard lines. It may be necessary to straighten some of the bends in the lines to get enough extension however excessive force or bending could weaken the hard brake line and potentially cause a leak in the system.**

- D. With the brake line secured in its new location safely re-route the ABS wires and secure to the brake line with plastic zip ties.
- E. Remove the rear sway bar links from the axle and sway bar and re-install to the front axle and sway bar using the OE hardware. New rear links are supplied.



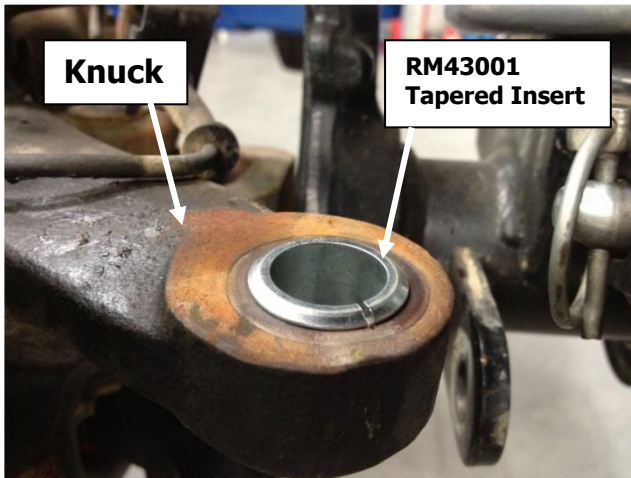
**PHOTO # 3**



**PHOTO # 4**

**Step 2 – JK High steer kit (RE2621) installation**

- A. Prepare for the installation by removing the following items from the front of the vehicle: the track bar at the axle end, OE steering stabilizer, sway bar end links from the front axle and drag link from the knuckle and pinch collar. Keep the parts and hardware for reuse on the front of the vehicle.
- B. Bolt the optional sway bar end link mounting pin or OE sway bar end link, using the previously removed OE hardware, to the track bar relocation bracket (**RM24169**). Access will be difficult after the track bar relocation bracket is installed.
- C. Install the track bar relocation bracket (**RM24169**) using spacer (**RM31122**), the previously removed OE bolt and hardware and (3) lower 5/16" X 1" bolts and hardware from Hardware pack (**15036**).  
**NOTE: The spacer will go in the bottom hole of the relocation bracket.**
- D. Using the (2) side holes in track bar relocation bracket as a guide, drill through the upper arm mount using a 5/16" drill bit. Secure relocation bracket using the front nut plate (**RM24173**) and (2) 5/16" X 1" bolts and hardware from hardware pack (**15035**).
- E. Loosen the clamp on the cross bar for the steering stabilizer. Rotate the bracket until the stud faces straight up.
- F. Install the metric **12mm X 80mm** bolt and hardware from hardware pack (**15037**) through the hole in the track bar relocation bracket. Slide the standoff spacer (35-RM31121) over the **12mm** bolt and attach the other end of the steering stabilizer. Do not tighten bracket at this time.
- G. With the outer drag link removed from the knuckle, drill out the tie rod taper to 13/16" (straight through). Install the new tapered insert (**RM43009**) from the top. (**Photo #5**)



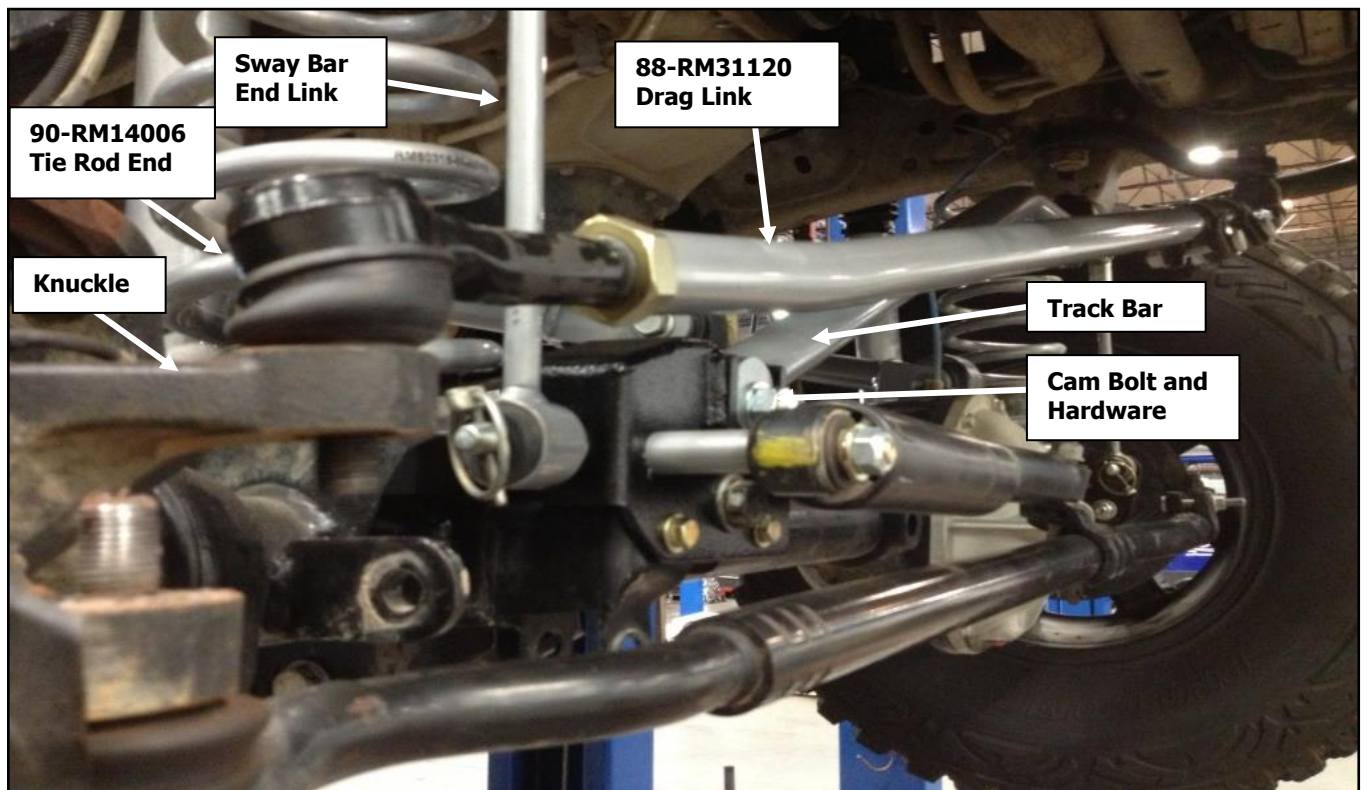
**PHOTO # 5**



**PHOTO # 6**



- H. Thread the supplied jam nut (**90-4185**) onto the new tie rod end (**90-RM14006**). Thread the new tie rod into the new drag link (**88-RM31120**), leaving only a few threads exposed passed the jam nut. Thread the new drag link assembly into the pinch clamp and leave loose. Install the new tie rod into the knuckle from the top down using the supplied 9/16" washer and supplied castle nut. Torque to 65 ft./lbs. Install new cotter pins. **(Photo #6)**  
**NOTE: Install the supplied MIL spec thin washer (RM14077), if having difficulty inserting cotter pin.**
- I. Reinstall the track bar to the track bar relocation bracket (**RM24169**) using the supplied cam block off plate, 9/16" X 3" bolt and hardware from hardware pack (**15019**).  
**NOTE: Cams may need to be rotated to aid in centering the axle under the vehicle.**
- J. On the driver side, install the sway bar end link mounting tab (**20815**) to the axle using the supplied 12mm X 35mm bolt and hardware from hardware pack (**15037**). Secure the OE sway bar end link to the sway bar end link mounting tab using the OE hardware.
- K. Center the steering wheel by rotating the drag link counterclockwise until the steering wheel is centered. Re-torque the drag link adjustment collar to 26 ft./lbs.  
**IMPORTANT! If the steering wheel is not centered properly, it will trigger the anti-lock brake and traction control warning lights.**
- L. With the vehicle on the ground, make sure the axle is centered. Center the steering wheel, turn the wheels to the left to right and adjust the steering stabilizer so it's not being pulled on in either direction.



**PHOTO # 7**

### **Step 3 – Rear coil and component installation**

- A. With the vehicle and axle properly supported prepare the rear end suspension component installation by removing the following items: shocks and track bar at the axle end only (loosen the track bar bolt at the frame). The shocks will not be reinstalled on the vehicle.
- B. Remove the brake line attaching screw at the frame and let the lines hang loose until later in the install. Unclip the abs wires from the forward attaching point on the upper control arm brackets for additional length. It may also be helpful to remove the two nuts holding the E-brake cables to the bottom of the body to allow for more axle droop and easier removal and installation of the coil springs.
- A. Lower the axle and remove both factory coil springs. The rubber isolators will come out with the coil and must be reinstalled with the new coil springs.<sup>9</sup>
- B. Install the new coil springs (**RE1376**) with isolators at the top and raise the axle just enough to keep the springs and isolators in place.

#### **Rear Upper Cam bolt installation**

- A. One side at a time remove the factory bolt that attaches the upper control arm to the axle.
- B. Locate the indented marks around the square hole in the bracket to be removed. (**Photo 2**)
- C. Using a punch, hammer, and a receiving cup such as a socket that fits between the mounts knock out the tabs to create elongated holes. If the tabs will not knock out with a couple hits of the punch, it will be necessary to use a burr type cutter to elongate the holes.
- D. Install the cam bolt assemblies (**RE1477**) with one washer on each side of the bracket between the locating ears. Rotate the bolt into the center portion of the slot and tighten the nut so the bolt will not spin but not fully tight at this time.

#### **Rear bump pads, track bar bracket and factory track bar**

- A. Install the two bump stops (**RE1387**) on the axle with the supplied 3/8" bolts and lock nuts from hardware pack (**10319**).
- B. With the axle properly supported remove the driver's side rear lower control arm from the axle this will allow for easier access when installing the track bar bracket.
- C. Place the new track bar bracket (**RE1607**) over the factory track bar mounting point on the axle while aligning the two 3/8" holes on the back side of the lower control arm bracket. Loosely install the two 3/8" bolts, washers, and nuts from hardware pack (**10295**) thru the lower control arm bracket and track bar bracket.
- D. Install the 9/16x3.5" bolt from hardware pack (**10295**) thru the factory track bar location being sure to use the supplied spacer to keep the factory bracket from collapsing. Tighten the two 3/8" bolts to 35 ft/lbs then tighten the 9/16" bolt to 90 ft/lbs.
- E. Using the supplied 9/16x3" from hardware pack (**10295**) install the factory track bar into the new bracket. Install the nut on the back side near the coil spring but do not tighten at this time. (**Photo 4**)
- F. Reinstall the lower control arm to the axle mounting point and tighten the bolt.

## **Rear sway bar links, brake line extensions, and shocks**

- A. Install the supplied links (RE1157). Install the drivers side link to the outside of the sway bar and lower axle mounting point. **(Photo 4)** drivers side shown
- B. Install the supplied brake line extension brackets to the frame with the factory hardware. Use the supplied hardware to reattach the brake line bracket to the lowering bracket **(photo 8)**
- C. Install new shock absorbers. (sold separately)
- D. Install wheels, verify all coils are properly seated, shocks installed and lower the vehicle.



**PHOTO # 8**

### **Step 4 – Upper and lower control arm mounting brackets.**

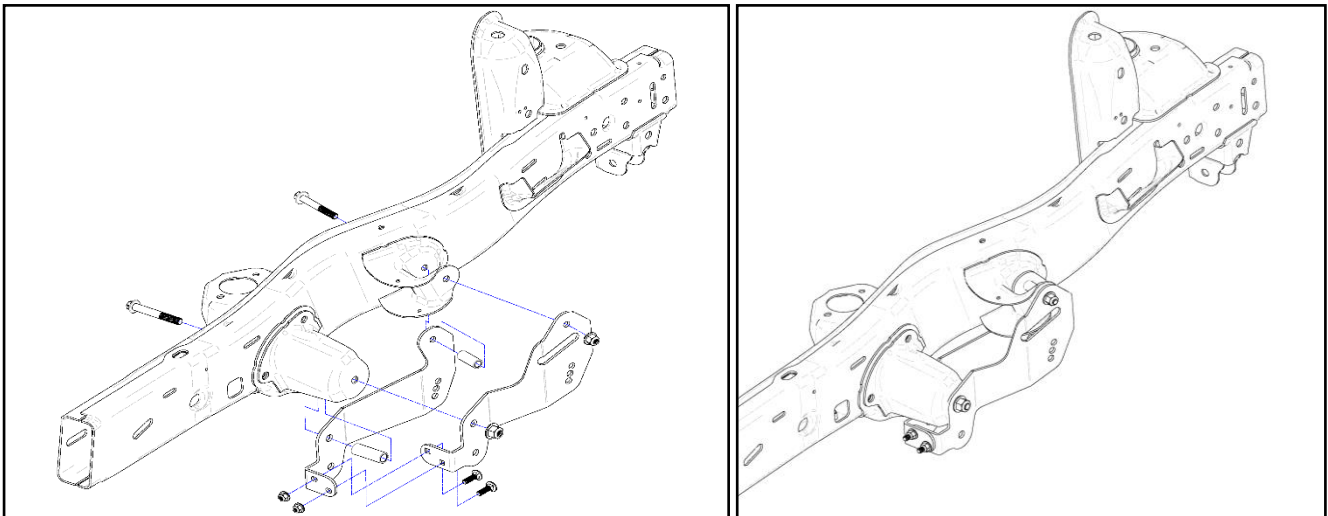
**NOTE: This installation is best performed with all four wheels on the ground.**

- A. Working on one side of the vehicle at a time, remove the OE upper and lower control arm bolts at the frame end. Save the OE hardware for reinstallation.

**NOTE: Depending on the build of your vehicle you may need to pry the exhaust out of the way in order to remove and install the passenger side upper control arm 12mm X 80mm bolt.**

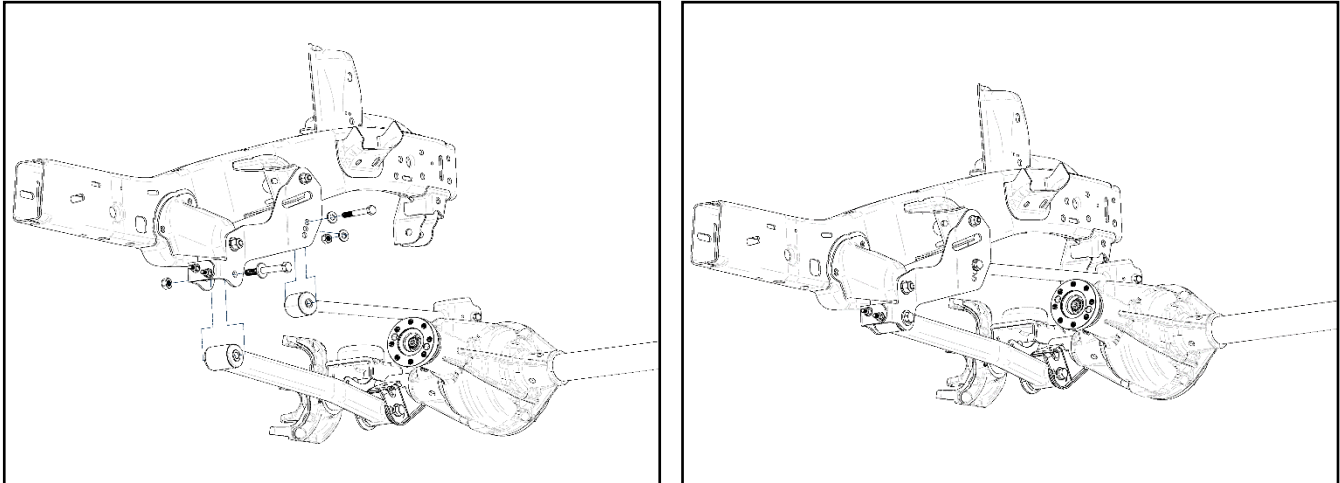
- B. Assemble and install the control arm brackets (Drvr: **RM24161** outer and **RM24162** inner, Pass: **RM24163** outer and **RM24164** inner) as shown in the illustrations below using the previously removed OE hardware, supplied sleeves (**RM31118** large sleeve and **RM31119** small sleeve) and 3/8" X 1" carriage bolts and nuts from hardware pack (**15033**).

**NOTE: The sleeves fill the void between the OE frame mounts and the frame.**



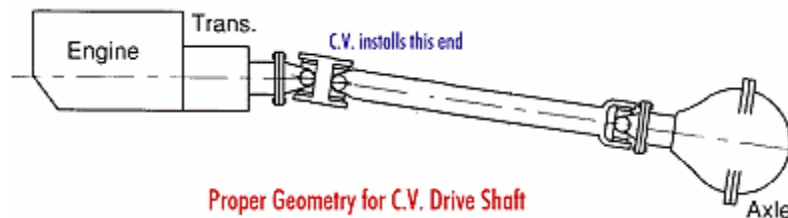
- C. Use the supplied hardware from hardware pack **(15033)** to mount the control arms into the new brackets (12mm X 80mm bolts for the upper control arms and 14mm X 110mm bolts for the lower control arms).

**NOTE: There are three upper control arm relocation holes in the brackets. For Rubicon Express 2.5" Suspension Kits, use the upper hole. For Rubicon Express 3.5" Suspension Kits, use the middle hole. For Rubicon Express 4.5" Suspension Kits, use the bottom hole.**



### **Step 5 - Final details and adjustments**

- A. Check the front track bar for axle center, adjust as necessary.
- B. Tighten all control arm and track bar rubber bushing hardware. Use factory specs where factory bolts are used.
- C. If front caster angle or rear pinion angle need adjustment do so by loosening the cam bolt nuts and rotating each bolt in the direction needed to get the desired angle. Tighten the nut after adjustments are made.
- D. Manually disable the factory ESP system before the first test drive. (Refer to owner's manual for the disable procedure) Note the location of steering wheel while driving in a straight line and any driveline vibrations.
- E. Adjust drag link to center the steering wheel. **NOTE:** Centering the steering wheel is highly critical for proper ESP function. Minimum factory caster and maximum factory toe-in is the recommended initial setting for alignment (see Troubleshooting as well).
- F. Adjust upper control arms if necessary for proper front caster angle and rear pinion angle. **NOTE:** Shown below is a diagram of proper pinion angle for a CV style drive shaft (see Troubleshooting as well).



- G. Retighten all bolts after 50 miles and again after every off-road excursion.
- H. After all adjustments have been made, Rubicon Express recommends that your local Jeep dealership "flash" the computer to adjust for proper tire size and ESP control settings.

## **TROUBLESHOOTING**

### **Rear driveline:**

**Acceleration vibration:** Caused by the pinion being too high in relation to the transfer case output shaft. Adjust upper control arm to lower pinion accordingly.

**Deceleration vibration:** Caused by the pinion being too low in relation to the transfer case output shaft. Adjust upper control arm to raise pinion accordingly.

### **High speed wobble:**

It is a condition where front tires will shimmy after hitting a bump. Avoid bias ply tires and wheels with excessive offset. Check for worn or loose parts. In most cases a reduction of positive castor will eliminate this condition.

### **RE1157 Rear sway bar end links**

2	RM11065 sway bar link rear, 11.5"
1	HWC15025 Hardware pack: Rear sway bar links
2	1/2-13 Nylon insert locknut zinc pltd
2	1/2 ASTM F436 Hard washer (A325) USS yellow zinc
2	1/2-13 X 2 1/2 Hex bolt J429 gr 8 *imp* zinc II

### **RE1508 JK rear brake line relocation bracket**

1	RM50063 JK left rear brake line
1	RM50064 JK right rear brake line
2	1/4" - 20 X 5/8 hex bolt J429 gr 8 *imp* zinc II
2	1/4" USS grade 5 nylock nut
2	1/4" SAE flat washer

### **RE1371 JK 3.5 4DR Front springs**

2	RM60430 JK LCG 3.5" lift front coils
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### **RE1376**

2	RM60475 JK LCG 3.5" lift rear coil
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### **RE1380 2" Front lower Bump stops**

2	RM42520 Bump stop 2" front
2	HW1060 HWH TCS 3/8 - 16 X *F*

### **RE1387 2" Rear bump stop pad**

2	RM22016 Bump stop spacer rr jeep
1	HWC10319 Hardware pack: rear bump stop
4	3/8 - 16 X 3/4 Hex bolt J429 gr 8 *imp* zinc II
4	3/8 - 16 Top lock grade c zinc

### **RE1477 Cam bolt kit jk rear**

2	HW3051 Nylock ne 9/16 - 12
2	HWC11038 JK rr upper cam bolt
4	HWC11039 Cam washer JK

### **RE1607 Jk rear lower track bar bracket**

1	RM20555 JK rear lower track bar bracket
1	RM10037 Sleeve JK rear axle trk
1	HWC10295 Hardware pack: JK lower track bar bracket
2	3/8 - 16 X 1 hex cap screw grade 8 - zinc II
2	3/8 - 16 Top lock grade c zinc
4	3/8 SAE flat washer zinc II
1	9/16 - 12 X 3 HCS gr 8 yellow zinc- import
1	9/16 - 12 X 3-1/2 Hex cap SC gr 8 zinc II
2	9/16 - 12 Top lock grade c zinc
4	9/16 SAE flat washer zinc II

### **RE1507 JK front brake line relocation bracket**

1	RM50061 JK left front brake line
1	RM50062 JK right front brake line
2	1/4" - 20 X 5/8 hex bolt J429 gr 8 *imp* zinc II
2	1/4" USS grade 5 nylock nut
2	1/4" SAE flat washer



**RE2621 JK high steer kit**

1	RM24169 Front Track Bar Bracket
1	RM43009 Tapered Insert
1	HWC15038 Hardware Pack: Tie rod End
1	90-4185 Jam Nut: 1" -18
1	RM24173 Front Nut Plate
1	RM31121 Stand Off Sleeve
1	35-RM31122 Spacer
1	RM31120 Drag Link
1	RM14006 Tie Rod End
1	RM20815 Front Sway Bar End Link Mounting Tab: Drvr
1	HWC15035 Hardware Pack: Bracket to Arm Mount
2	5/16"-18 X 1" Hex Bolt Gr. 8
2	5/16" Hardened SAE Flat Washer
1	HWC15036 Hardware Pack: Bracket to Axle
3	5/16"-18 X 1" Hex Bolt Gr. 8
3	5/16" -18 Stover Nut Gr. C
6	5/16" Hardened SAE Flat Washer
1	HWC15037 Hardware Pack: Steering Stab/Sway bar
1	12mm-1.75 X 35mm Hex Bolt Gr. 10.9
1	12mm-1.75 X 80mm Hex Bolt Gr. 10.9
2	12mm-1.75 Nylock Nut
4	12mm Flat Washer
1	HWC15019 Hardware Pack: Track Bar
1	RM24074 Block Off Plate
1	9/16" X 3" Hex Bolt Gr. 8
1	9/16" Stover Nut Gr. C
1	9/16" SAE Flat Washer Gr. 8
1	9/16" SAE Flat Washer Gr. 8
1	RM14077- 9/16" MIL Spec Thin Washer

**RE9800 JK upper and lower control arm mounting bracket**

1	RM24161 Bracket Outer: Drvr
1	RM24162 Bracket Inner: Drvr
1	RM24163 Bracket Outer: Pass
1	RM24164 Bracket Inner: Pass
4	RM24165 Cam Washer
2	RM31118 Large Sleeve
2	RM31119 Small Sleeve
1	HWC15033: Hardware Pack
4	1/2" SAE Flat Washer Gr 8
2	1/2" USS Flat Washer Gr. 8
2	M12-1.75 Stover Lock nut
2	M12-1.75 x 80MM Hex Bolt 10.9
4	M14-2.0 Flanged Hex Nut Non-Locking
4	M14-2.0 x 110MM Hex Bolt 10.9
4	3/8"-16 Flanged Hex Nut Non-Locking Gr. 5
4	3/8"-16 x 1.0" Carriage Bolt Gr. 5



## RUBICON EXPRESS ADVANTAGE LIFETIME WARRANTY

### ***Notice to Owner, Operator, Dealer and Installer:***

Vehicles that have been enhanced for off-road performance often have unique handling characteristics due to the higher center of gravity and larger tires. This vehicle may handle, react and stop differently than many passenger cars or unmodified vehicles, both on and off-road. You must drive your vehicle safely! Extreme care should always be taken to prevent vehicle rollover or loss of control, which can result in serious injury or even death. Always avoid sudden sharp turns or abrupt maneuvers and allow more time and distance for braking! Rubicon Express reminds you to fasten your seat belts at all times and reduce speed! We will gladly answer any questions concerning the design, function, maintenance and correct use of our products.

Please make sure that the Dealer / Installer explains and delivers all warning notices, warranty forms and instruction sheets included with Rubicon Express product.

Application listings in this catalog have been carefully fit checked for each model and year denoted. However, Rubicon Express reserves the right to update as necessary, without notice, and will not be held responsible for misprints, changes or variations made by vehicle manufacturers. Please call when in question regarding new model year, vehicles not listed by specific body or chassis styles or vehicles not originally distributed in the USA.

Please note that certain mechanical aspects of any suspension lift product may accelerate ordinary wear of original equipment components. Further, installation of certain Rubicon Express products may void the vehicle's factory warranty as it pertains to certain covered parts; it is the consumer's responsibility to check with their local dealer for warranty coverage before installation of the lift.

### ***Warranty and Return Policy:***

Rubicon Express warrants its full line of products to be free from defects in workmanship and materials for the life of the product. Rubicon Express's obligation under this warranty is limited to repair or replacement, at Rubicon Express's option, of the defective product. Any and all costs of removal, installation, freight or incidental or consequential damages are expressly excluded from this warranty. Rubicon Express is not responsible for damages and / or warranty of other vehicle parts related or non-related to the installation of Rubicon Express product. A consumer who makes the decision to modify his vehicle with aftermarket components of any kind will assume all risk and responsibility for potential damages incurred as a result of their chosen modifications.

Warranty coverage does not include consumer opinions regarding ride comfort, fitment and design. Warranty claims can be made directly with Rubicon Express or at any factory authorized Rubicon Express dealer.

### ***Claims not covered under warranty:***

- Parts subject to normal wear; this includes bushings\*, shock absorbers, driveshafts, ball joints, tie rod ends and heim joints.
- Discontinued products at Rubicon Express's discretion.
- Finish after 90 days.

Rubicon Express accepts no responsibility for any altered product, improper installation, lack of or improper maintenance or improper use of our products.

**\*Rubicon Express PT-MEG Super-Ride bushings are covered by the Rubicon Express Advantage Lifetime Warranty, and will be replaced in the event of failure for the life of the product.**