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## INSTALLATION INSTRUCTIONS FOR: RE7304 JK WRANGLER EXTREME DUTY LONG ARM SYSTEM

Congratulations on purchasing the ultimate suspension package available for the Jeep JK.

### Application Notes:

- 1) The JK long arm system is a complete suspension system, designed to replace the stock short arm configuration. Installation of the system will require the rear lower rear control arm brackets are removed from the frame along with modification or removal of the upper rear arm brackets. The front lower control arm brackets can remain on the frame but we suggest that they are removed for a better visual appearance.
- 2) This kit **does** require the removal of the fuel tank for installation. Special tools are **not** required to remove the fuel tank.
- 3) This kit does not require modifications to the exhaust system, however it is recommended that the exhaust, from the transmission cross member back is removed to better access the frame rail during rear bracket installation.
- 4) The transmission skid plate must be removed and will not be reinstalled due to drive shaft clearance.
- 5) It is absolutely necessary that a front and rear CV drive shaft be used in conjunction with this lift.

### 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 installations 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 new 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.**

### KIT CONTENTS

RE1372 Front 4.5" Coil Springs  
RE1377 Rear 4.5" Coil Springs  
RE1157 Sway Bar End Links  
RE1143 Gen2 Sway Bar Disconnects  
RE1380 2" Front lower bump stops  
RE1387 Rear bump stop pad  
RE1530 Front SS brake line set  
RE1540 Rear SS brake line set  
RE1605 Rear Track Bar Bracket  
RE1675 Front Extreme Duty Track Bar  
RE1680 Front Extreme Duty Drop Track Bar Bracket  
RE4070 Extreme Duty Control Arm Front Lower Left  
RE4080 Extreme Duty Control Arm Front Lower Right  
RE4075 (2) Extreme Duty Control Arm Front Upper  
RE4085 Extreme Duty Control Arm Rear Lower Left  
RE4095 Extreme Duty Control Arm Rear Lower Right  
RE4090 (2) Extreme Duty Control Arm Rear Upper  
RE4520 3 Piece Extreme Duty Cross Member  
RE4525 Rear Control Arm Bracket kit

## TYPICAL TOOLS REQUIRED

1. Basic mechanical hand tools
2. 1" & 1.25" bi-metal hole saws
3. ½" drill motor & drill bits
4. angle drill (for tight locations)
5. angle grinder
6. welder
7. plasma cutter, or reciprocating saw w/metal cutting blades, or cutting wheels for angle or die grinder (to remove control arm mounts)

## INSTALLATION OVERVIEW

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

1. Vehicle preparation for suspension installation
2. Installation of 3 piece cross member assembly
3. Installation of front control arms, track bar and bracket, coil springs and bump stops, shocks, and brake lines, Sway bar discs
4. Installation of rear control arm brackets
5. Installation of rear control arms, track bar bracket, bump stops, coil springs, shocks, brake lines, and sway bar links
6. Final detailing and adjustments.

### Step 1 – Vehicle preparation

Prepare the vehicle for the suspension installation by removing the following parts from the vehicle. The transfer case skid plate (4 Door models), fuel tank and exhaust will be re-installed at the end of the installation.

1. Automatic transmission skid plate (if equipped)
2. Transfer case skid plate
3. Front and rear drive shafts
4. Fuel tank.
5. Exhaust, from the collector at the cross member to the muffler

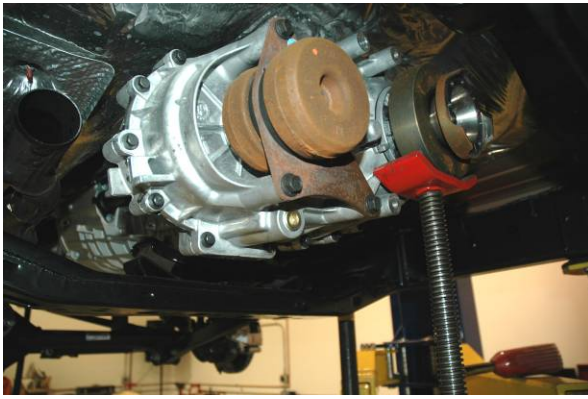
**FUEL TANK REMOVAL:** Special tools are **not** required for the removal of the fuel tank. All plastic clips should come apart by squeezing the outer portion of the clip and gently pulling apart. The following connections need to be removed: supply and return at the front of the tank, large plastic line at the charcoal canister, vent hose at fuel tank, and the fuel filler hose. DO NOT use excessive force, damage to the fittings or seals may result. The fuel tank removal should be done when there is less than 1/8 tank of fuel in the tank to avoid excess fuel sloshing weight. Before lowering the tank back out the bolt from the right rear lower control arm to avoid dragging the side of the tank on the end of the bolt. Do not completely remove the bolt at this time. **Caution:** With the fuel tank removed, there may be fuel vapors present. Use good judgment when drilling, cutting, and welding near the fuel system components.

### Step 2 – Three Piece cross member installation.

- A. Prepare the new cross member, RE4520, by loosely installing the supplied ½" bolts thru all 3 pieces before trying to install into the vehicle. The shorter of the two ½" bolts install from the front to the back and the longer of the two from the back to the front. Install the 4, 3/8" flat head bolts into the bottom of the cross member and tighten, then tighten the prior installed ½" bolts to Installing the hardware in this fashion will allow the removal of the center cross member section without removal of the front lower control arms should transmission service become necessary. **(photo 1)**
- B. Support the transmission/transfer case assembly at the rear output shaft. Remove the 3 transmission mount nuts and 4 cross member nuts.
- C. Gently lift the transmission/transfer case assembly to relive the weight off the factory cross member. Remove the 4 cross member thru bolts and remove the factory cross member. **(photo 2)**
- D. Install the new Rubicon Express cross member into the factory mounts with the control arm pockets facing forward. Insert the nut strip in the square hole and start the forward mounting ½" bolt. Rotate the brace to the front side of the cross member mounts and reinstall the 4 factory cross member bolts thru the brace and cross member. Tighten to 55 ft/lbs. **(Photo 3)**
- E. Insert the frame rail nut strip thru the hole in the frame rail and bolt thru the cross member brace and frame rail.
- F. Lower the transmission, install and tighten transmission mount nuts. Re check and tighten all hardware.



Photo # 1



**Photo #2**



**Photo#3**

### **Step 3 – Front arm and component installation**

- A. Prepare the front end suspension component installation by removing the following items, Shocks, sway bar links, and track bar.
- B. Remove the brake line attaching screw at the frame, unclip the abs wires from there attaching points for additional length, and lower the breather hose clip on the shock tower approximately 6".

#### **Front arm Installation**

- A. Prepare the new Rubicon Express front lower long arms by pre setting the length to 36 ½"
- B. Remove the passengers side factory upper and lower control arms.

**NOTE:** It will be necessary to cut the upper control arm bolt off at the frame end to remove the passenger upper front arm. This is due to the bolt being installed from the inside out prior to the exhaust installation from the factory. Alternatively the head pipe assembly can be removed to pull the bolt out of the frame bracket. If choosing to unbolt the head pipe be sure to disconnect all O2 sensors before removal. **(photo 4)**

- C. Using the supplied 9/16" x 4.5" bolt from the Rubicon Express front arm kit, install passengers side arm (pocket bracket faces drivers side) into the cross member mount. **(photo 5)** Next install the bushing end of the arm into the stock control arm location on the axle housing using the stock hardware.
- D. Set the upper arms to 15 1/8". With the supplied ½" bolt install the rubber bushing end into the pocket on the lower control arm and the fork of the arm over the bushing mount on the axle. Use the factory hardware thru the fork end of the arm. **(photo 6)**

**NOTE:** The rubber coupler is welded at an offset angle. Be sure when installing the arm that the bushing is in a neutral position. If the arm does not drop over the upper mount remove the ½" bolt and rotate the coupler 180 degrees.

- E. Repeat steps A – D on the drivers side
- F. Tighten the lower control arm bolts at the cross member only, all other rubber attaching points should remain loose until the vehicle is under its own weight to prevent bushing preload.



**Photo # 4**



**Photo # 5**





Photo # 6



Photo # 7

### Front bump stops and coil springs

- A. Place the front bump stop on the center of the lower spring mount on the axle tube. Insert a center punch thru the center and mark the hole to be drilled. Drill the marked hole to 5/16", use the supplied self-tapping bolt to secure the bump stop to the lower spring cup.
- B. Raise the small diameter end of the coil into the upper spring bucket and over the lower spring cup and bump stop. Then raise the axle to seat the upper mount and rotate the coil to properly index in the lower mounts.

**NOTE:** If the axle cannot be dropped far enough from the frame due to brake line or ABS wire length to install the coil springs remove the bump stop and insert it into the coil. Then slide the coil over the stock axle mount and re-install the bump stop bolts. **(photo 7)**

### Front track bar bracket

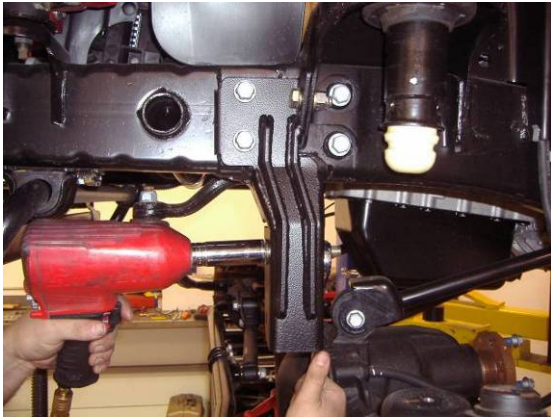
- A. Remove the forward two factory steering box bolts, place the new drop bracket into the stock track bar bracket and reinstall the two factory steering box bolts. **(photo 8)**
- B. With the steering box bolts tight, mark the 1/2" hole on the coil spring tower. Remove the steering box bolts and bracket and drill the marked hole to 1/2". **(Photo 9)**
- C. Reinstall the track bar bracket with the steering box bolts. Use the supplied 1/2" hardware to bolt thru the coil spring tower and track bar bracket and the 9/16" bolt with sleeve thru the stock track bar location. Torque the steering box bolts then the 9/16" bolt, both to 60 ft/lbs. Torque the 1/2" bolt to 50ft/lbs. **(photo 10)**



Photo # 8



Photo # 9



**Photo # 10**



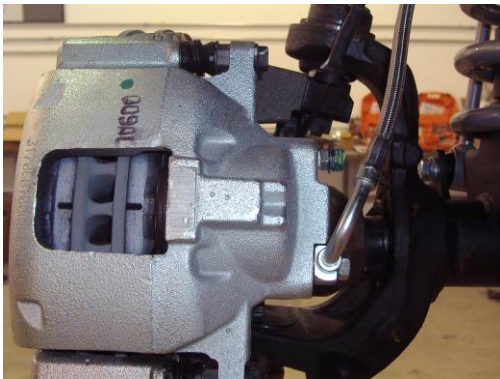
**Photo # 11**

**Front Track bar**

- A. Set the track bar at an initial setting of 32 5/8".
- B. Using the supplied 1/2" bolt, install the Super-Flex end of the bar into the drop track bar bracket. Using the stock track bar bolt, install the bushing end into the axle bracket. Do not tighten the axle end until the final length check at the end of the installation and the vehicle is sitting on its own weight. **(Photo 11)**

**Front brake lines, shocks, and sway bar links/disconnects**

- A. Remove and replace the front brake lines with the included stainless steel brake lines. The lines are left and right specific, when installed the 90 degree leader from the caliper should be leaning away from the tire. **(photo 12)**
- B. Depending on what shocks have been purchased with the suspension system, it may be necessary to reuse the sleeves and bar pins from the stock shocks. If this is necessary be sure to lubricate the sleeves or bar pins during removal and most importantly during re-installation.
- C. See supplied instruction sheet for the front sway bar link / disconnect information (RE1143). This kit contains all parts necessary to be used on a Jeep Rubicon model with factory electronic disconnect as well as X and Sahara Jeep models.



**Photo # 12**



**Photo # 13**

**Step 4 – Rear control arm bracket installation**

**NOTE:**

- 1. The rear control arm brackets can and should be installed before any of the stock rear suspension components come off of the vehicle. This will keep the axle in place while working around the rear section of the frame. In addition, the lower rear control arm brackets must be removed and the uppers removed or at least relief cut.
- 2. Two Door models will require that the forward exhaust hanger and t-case skid mount nut be cut off of the frame and sanded smooth for proper bracket clearance.
- 3. If the vehicle is equipped with factory rocker skids it may be helpful to remove the rockers before going forward with the control arm bracket installation.

**CAUTION:** During the next few steps we recommend constantly double checking the marked hole locations, pilot drill locations and final drill locations. Doing so will result in a better fit without the need to ream holes for proper installati

- A. First, separate the six brackets (3 per side) that make up the left and right bracket kits. The brackets in the photo are shown as left and right assemblies with the top of the photo being the front of the vehicle. **(Photo 13)**
  - B. Using the drivers side inner reinforcement plate, locate the indexing oval on the inside of the driver frame rail. Mark the 2 countersunk holes at the rear of the bracket and 3 square holes. **(photo 14)**
  - C. Using the same drivers side inner reinforcement plate, repeat step B on the passenger outside frame rail with the addition of marking the 3/16" hole near the bottom center of the plate. **(photo 15)**
  - D. Using the passenger side inner reinforcement plate repeat steps B & C on the inside passenger and outside driver frame rails.
  - E. Using a 1.25" hole saw, cut the relief hole for the outer nut plate to sit flush against the outside frame rail. **(photo 16)**
  - F. Locate the outer nut plate over the outside frame rail and double check the prior marked three square and two tapered holes. If the alignment is good drill the remainder of the marked holes to 3/16"
  - G. On the inside of the frame us a 1" hole saw to open the two rear most vertically marked and pilot drilled holes for the 1/2" I.D. threaded weld spacers. Drill all other holes to 1/2" thru both frame rails.
  - H. Place the outer nut plate on the outside frame rail. Using a spare 1/2" bolt, partially engage the threaded spacers on the bolt and insert thru the inside of the frame. Insert the 1/2" tapered head bolt thru the nut plate and into the spacer from the outside frame rail, tighten to secure and remove the spare bolt from the spacer. Weld each spacer to the inside of the frame rail, sand the frame smooth if necessary and paint all raw steel. **(Photo 17)**
- NOTE:** When welding the spacers to the inside frame rail it may be helpful to leave the spare bolt in the spacer to prevent the weld berries from entering and damaging the threaded spacer.
- I. Place the inner reinforcement plate on the inside frame rail and insert the three 1/2" carriage bolts thru all three brackets. Install the two 1/2" tapered head bolts from the inside to the threaded spacers and tighten. **(photo 18)**
  - J. Using washers and nylock nuts, tighten the three carriage and four tapered head bolts to 55 ft/lbs. **(photo 19)**
  - K. Mark the two tapered holes on the bottom of the frame rail and drill to 1/2". Using a piece of mechanics wire, insert the nut strip thru the existing hole in the outside frame rail and pull into location. **(Photo 20)**
  - L. Install one of the tapered head bolts into the open hole, pull the wire from the nut strip and install the second tapered head bolt. Torque to 55 ft/lbs. **(photo 21)**



Photo # 14



Photo # 15



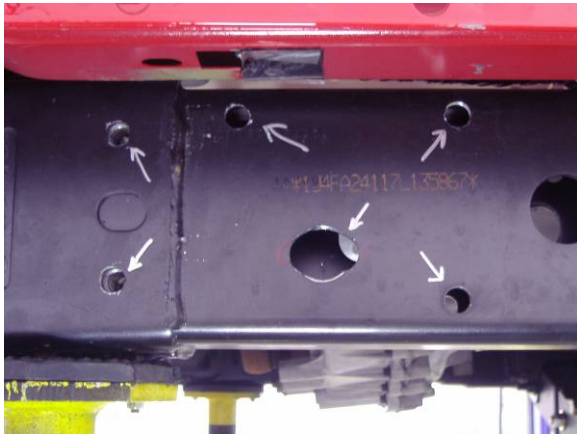


Photo # 16



Photo # 17



Photo # 18

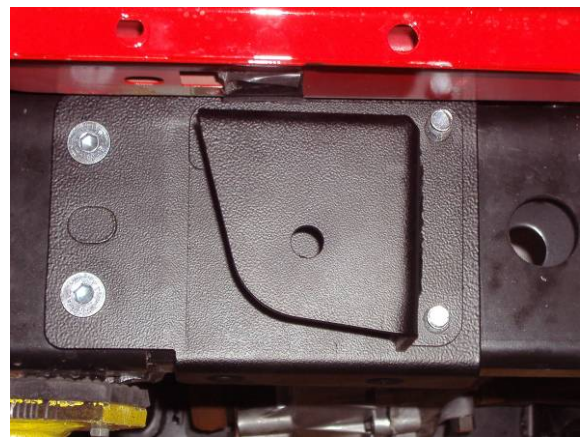


Photo # 19



Photo # 20



Photo # 21

## **Step 5 – Rear arm and component installation**

### **Rear arms**

- A. Prepare the rear of the vehicle for control arm and component installation by removing the following items: shocks, sway bar links, coil springs, track bar, brake line brackets at the frame, e-brake cables at the body and the drivers side upper and lower control arms.
- B. Pre set the lower rear long arms to 41.5" and install the coupler end into the frame brackets with the supplied 9/16" bolt, flat and lock washers. Attach the rubber bushing end into the lower control arm mount on the axle housing using the factory hardware. Do not tighten the rubber bushing until the vehicle is on the ground to avoid bushing preload.

- C. Set the upper arm to an initial setting of 17.5", install the coupler end at the mounting point on the lower arm with the supplied ½" hardware and the other end at the upper mount on the axle using the factory hardware. **(photo 22)**
- D. Repeat steps A – C on the passenger side.
- E. The upper arms may need to be to be readjusted after the installation is complete for proper pinion angle.



**Photo # 22**



**Photo # 23**

#### **Rear track bar bracket and factory track bar**

- A. Place the new track bar bracket into the pocket of the factory bracket. Loosely install the 9/16" bolt thru the stock mounting location from the front to back. This will keep the hardware from interfering with the lower bump stop pad.
- B. Insert the two supplied ½" bolts with washers and nyloc nuts thru the cross member mounting point. Tighten to 60 ft/lbs.
- C. Tighten the 9/16" bolt to 75 ft/lbs
- D. Using the factory hardware, loosely install the factory track bar into the axle housing end then the upper track bar mount. Again, use the factory hardware and install from the front to the back. **(photo 23)**

#### **Rear coil springs and sway bar links**

- A. Using the factory spring isolator place the rear coils up into the upper mount and over the lower mount. Raise the axle into place just enough to keep the coil spring from falling out.
- B. Install the supplied links (RE1157). Install the drivers side link to the inside of the sway bar and lower axle mounting point. On the passengers side install the link on the outside of the sway bar link and lower axle mount.

#### **Rear brake lines and shocks**

- A. Remove and replace the rear brake lines with the included stainless steel brake lines. The lines are left and right specific and when installed the 90 degree leader from the caliper should be leaning away from the tire. **(photo 12)**
- B. Depending on what shocks have been purchased with the suspension kit it may be necessary to reuse the sleeves and bar pins from the stock shocks. If this is necessary be sure to lubricate the sleeves or bar pins during removal and most importantly during re-installation.

#### **Fuel tank and exhaust**

- A. Reinstall the fuel tank in the reverse order of removal. Be sure that the hoses do not get bound on any frame rails or cross members while raising the tank into position. Connect the wire harness and hose on the top of the tank before completely raising the tank. **(photo 24)**
- B. Route the e-brake cables below the fuel filler and breather hose so during suspension cycling the cables do not pull on the fuel hoses. **(photo 25)**
- C. Re-hang the factory exhaust system and tighten all clamps.





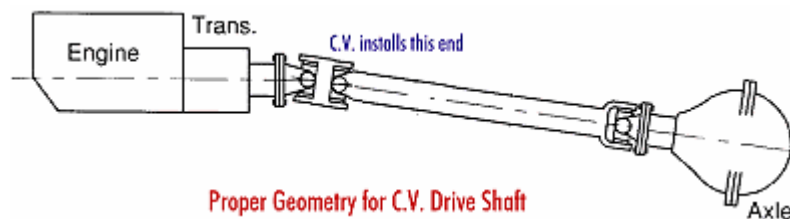
Photo # 24



Photo # 25

### **Step 6 - Final details and adjustments**

- A. Install wheels, verify all coils are properly seated shocks installed and lower the vehicle.
- B. Check the front track bar for axle center, adjust as necessary.
- C. Tighten all control arm and track bar rubber bushing hardware. Use factory specs where factory bolts are used.
- D. Properly bleed brake lines per factory manual and check for leaks and a firm pedal.
- E. Manually disable the factory ESP system before the first test drive. (Refer to owners manual for the disable procedure) Note the location of steering wheel while driving in a straight line and any driveline vibrations.
- F. 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 seems to work well with these front ends (see Troubleshooting as well).
- G. Adjust upper control arms if necessary for proper front castor 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).



- H. Retighten all bolts after 50 miles and again after every off road excursion.
- I. 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.