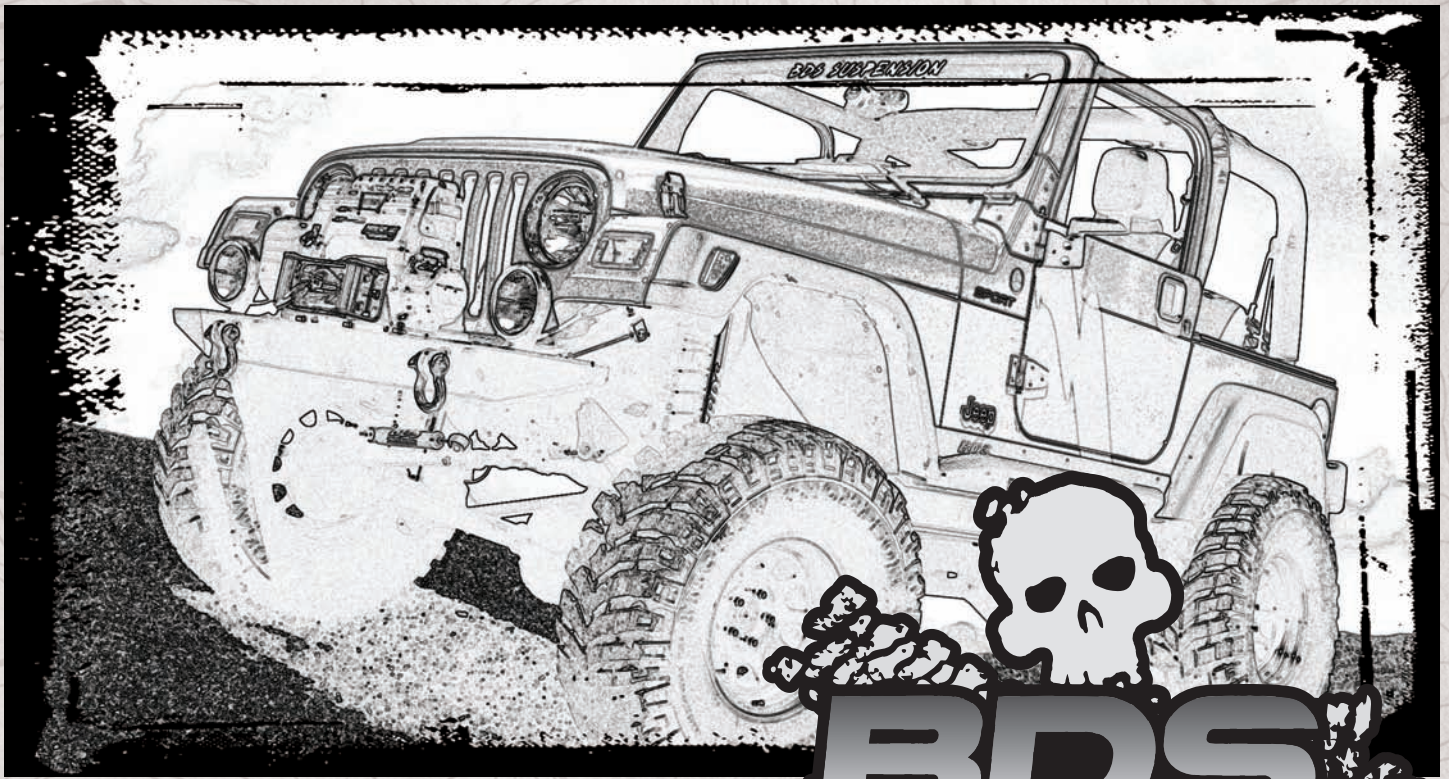


# Installation instructions



Part#: 124605

## Long Arm Upgrade System

Jeep Wrangler TJ 4WD | 1997-2006

# Read And Understand All Instructions And Warnings Prior To Installation Of System And Operation Of Vehicle.



## THANK YOU

Your truck is about to be fitted with the best suspension system on the market today. That means you will be driving the baddest looking truck in the neighborhood, and you'll have the warranty to ensure that it stays that way for years to come. Thank you for choosing BDS Suspension!

### BEFORE YOU START

BDS Suspension Co. recommends this system be installed by a professional technician. In addition to these instructions, professional knowledge of disassembly/ reassembly procedures and post installation checks must be known.

### FOR YOUR SAFETY

Certain BDS Suspension products are intended to improve off-road performance. Modifying your vehicle for off-road use may result in the vehicle handling differently than a factory equipped vehicle. Extreme care must be used to prevent loss of control or vehicle rollover. Failure to drive your modified vehicle safely may result in serious injury or death. BDS Suspension Co. does not recommend the combined use of suspension lifts, body lifts, or other lifting devices. You should never operate your modified vehicle under the influence of alcohol or drugs. Always drive your modified vehicle at reduced speeds to ensure your ability to control your vehicle under all driving conditions. Always wear your seat belt.

### BEFORE INSTALLATION

Special literature required: OE Service Manual for model/year of vehicle. Refer to manual for proper disassembly/reassembly procedures of OE and related components.

Adhere to recommendations when replacement fasteners, retainers and keepers are called out in the OE manual.

Larger rim and tire combinations may increase leverage on suspension, steering, and related components. When selecting combinations larger than OE, consider the additional stress you could be inducing on the OE and related components.

Post suspension system vehicles may experience drive line vibrations. Angles may require tuning, slider on shaft may require replacement, shafts may need to be lengthened or trued, and U-joints may need to be replaced.

Secure and properly block vehicle prior to installation of BDS Suspension components. Always wear safety glasses when using power tools.

If installation is to be performed without a hoist, BDS Suspension Co. recommends rear alterations first.

Due to payload options and initial ride height variances, the amount of lift is a base figure. Final ride height dimensions may vary in accordance to original vehicle attitude. Always measure the attitude prior to beginning installation.

### BEFORE YOU DRIVE

Check all fasteners for proper torque. Check to ensure for adequate clearance between all rotating, mobile, fixed, and heated members. Verify clearance between exhaust and brake lines, fuel lines, fuel tank, floor boards and wiring harness. Check steering gear for clearance. Test and inspect brake system.

Perform steering sweep to ensure front brake hoses have adequate slack and do not contact any rotating, mobile or heated members. Inspect rear brake hoses at full extension for adequate slack. Failure to perform hose check/ replacement may result in component failure. Longer replacement hoses, if needed can be purchased from a local parts supplier.

Perform head light check and adjustment.

Re-torque all fasteners after 500 miles. Always inspect fasteners and components during routine servicing.

## TIRES AND WHEELS

### FITMENT GUIDE

#### 6.5" Lift:

35 x 12.50 on 17x9, 18x9 w/ 5" BS

35 x 12.50 on 20x9 w/ 5.75" BS

33 x 12.50 on 17x8 w/ 4.5" BS

#### 4.5" Lift:

33 x 12.50 on 17x9, 18x9 w/ 5" BS

33 x 12.50 on 20x9 w/ 5.75" BS

32 x 11.50 on 17x8 w/ 4.5" BS



# CONTENTS OF YOUR KIT



124605		
Part #	Qty	Description
02590	1	LCA Mount (drv)
02591	1	LCA Mount (pass)
15211	6	1/2"-13 x 2" bolt
YJTC6	6	Tapered Washer
W76USS	6	7/16" USS Washer
A221	2	Front Upper Control Arm Assembly
A222	2	Rear Upper Control Arm Assembly
01387	1	Front Upper Arm Mount (pass)
01388	1	Front Upper Arm Mount (drv)
02590	1	Long Arm Bracket - Drv
02591	1	Long Arm Bracket - Pass
787	1	Bolt Pack
	4	9/16"-12 x 4" bolt
	4	9/16"-12 prevailing torque nut
	8	9/16" SAE flat washer
	4	7/16"-14 x 3-1/2" bolt
	4	7/16"-14 prevailing torque nut
	8	7/16" SAE flat washer
	2	3/8"-16 x 1-1/4" self-tapping bolt
	2	5/16" USS flat washer
	4	12mm-1.75 x 80mm bolt
	4	12mm-1.75 prevailing torque nut
	8	12mm flat washer

124605 (cont.)		
Part #	Qty	Description
732	1	Bolt Pack
	4	12mm-1.75 x 50 mm bolt
	4	7/16" USS flat washer
	2	12mm-1.75 x 30mm button head bolt
731	1	Bolt Pack
	2	10mm-1.50 x 30mm bolt
	6	3/8" USS flat washer
	4	3/8"-16 x 3-1/2" bolt
	4	3/8"-16 prevailing torque nut
	8	3/8" SAE flat washer
	2	3/8"-16 x 1" self-tapping bolt
	2	7/16"-14 x 3" bolt
	4	7/16" SAE flat washer
	2	7/16"-14 prevailing torque nut
	2	10mm-1.50 x 90mm bolt
	2	10mm-1.50 prevailing torque nut

014660		
Part #	Qty	Description
A220	4	Front & Rear Lower Arm Assembly
60107	4	90° Grease Zerk

## TECH TIPS

### TROUBLESHOOTING INFORMATION FOR YOUR VEHICLE

1. Works with 4" - 7" of lift.
2. Will not fit jeep unlimited L J models without modification.

## INSTALLATION INSTRUCTIONS

### BEFORE YOU BEGIN

1. This is an upgrade kit intend for a vehicle that is already lifted 4 to 7". These instructions cover the installation of this upgrade with the assumption that all other necessary lift components are already in place.
2. These installation instructions are written for an install to be performed on the ground using hydraulic jacks and jack stands. While this is not the preferred or easiest method it is the most common. Ideally this installation should be performed using an appropriate two-post hoist. Using a hoist will allow for the installation to be performed more quickly and easily.

### SPECIAL TOOLS

Reciprocating saw  
Cutoff wheel and grinding disc

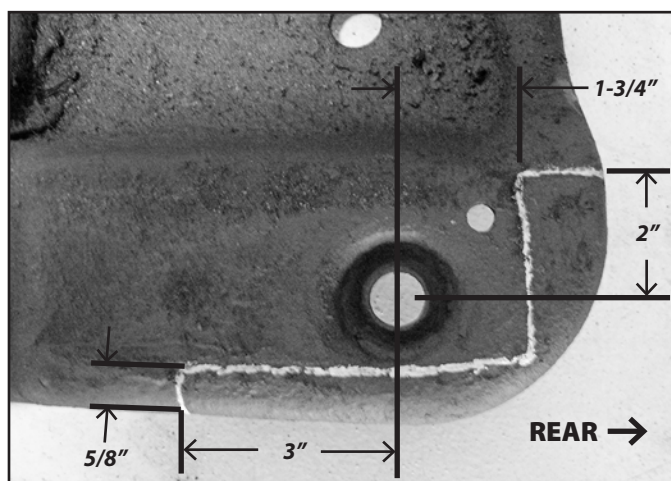
### FRONT INSTALLATION

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Raise the front of the vehicle and support the frame rails with jack stands just behind the front bumper.
3. Remove the 4 transmission mount nuts.
4. Support the transmission/transfer case with a transmission jack. Remove the 6 skid plate bolts and the skid plate from the vehicle.
5. The skid plate must be modified to provide clearance for the new lower control arm mounts. Place the frame mounting surface of the skid plate down.
6. **97-02 Models:**

**Part 1:** This trimming procedure is to be done on the rear driver's side corner of the skid plate only. (Figure 1)

- A. Measure in toward the center of the skid plate 2" from the center of the rearmost hole and make a cut line perpendicular to the back edge.
- B. Measure forward 3" from the center of the rearmost hole and make a cut line perpendicular to the outside edge. Measure in from the outside edge of the skid plate 5/8" and mark. Make a cut line from the 3" mark parallel to the outer edge at the 5/8" mark all the way to the rear edge (Fig 1).
- C. Measure back from the center of the rear hole 1-3/4" and make a cut line perpendicular with the outside edge.
- D. Make the "L" shaped cut from the rear corner of the skid plate with a reciprocating saw, cut-off wheel and/or plasma cutter. Remove all sharp edges/corners with a grinder and paint all bare metal to prevent corrosion.

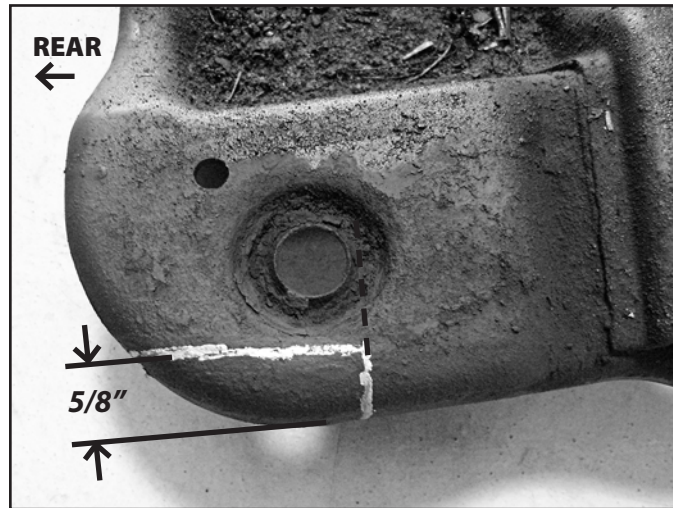
FIGURE 1



**Part 2:** This trimming procedure is to be done on the rear passenger's side corner of the skid plate. (Figure 2)

- A. Make a cut line that is in line with the forward edge of the rearmost hole and perpendicular with the outside edge.
- B. Measure in 5/8" from the outside edge of the skid plate and make a cut line parallel with the outside edge from the rear all the way to the cut line made in step A.
- C. Make the cut from the rear corner of the skid plate with a reciprocating saw, cut-off wheel and/or plasma cutter. Remove all sharp edges/corners with a grinder and paint all bare metal to prevent corrosion.

**FIGURE 2**



**Part 3:** Driveshaft Clearance for lifts over 4.5"

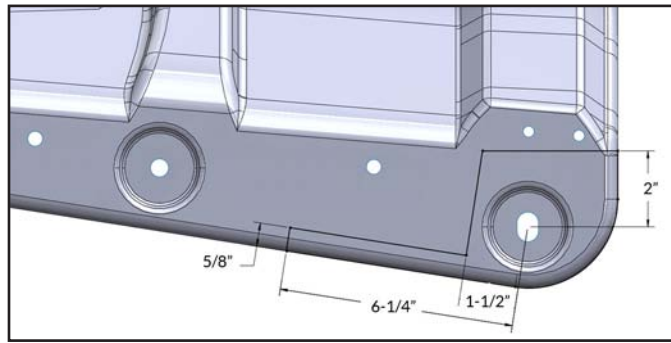
- A. Locate the front set of four slotted holes in the bottom of the skid plate. Measure from the center of the front driver's side slot, toward the driver's side 6" and mark. Place the provided cut template so that the corner is located at the 6" mark and the longer edge is flush with the front edge of the skid plate. Using the template as a guide, make a cut line from the Driveshaft clearance cut. Make the trapezoid shaped cut from the skid plate with a reciprocating saw, cut-off wheel and/or plasma cutter (Fig 3). Remove all sharp edges/corners with a grinder and paint all bare metal to prevent corrosion. (See template on last page.)

**FIGURE 3**



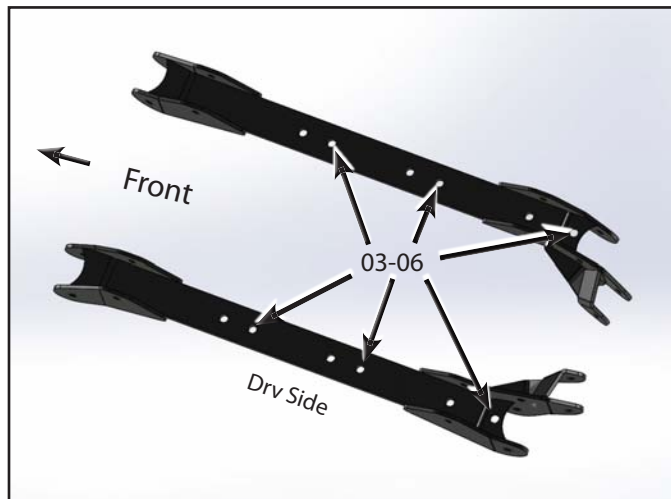
7. **03-06 Models:** This trimming procedure is to be done on the rear driver's and passenger's side corners of the skid plate.
  - A. Measure in toward the center of the skid plate 2" from the center of the rear most hole and make a cut line that runs perpendicular to the back edge.
  - B. Measure forward from the rear most hole 1-1/2" and make a mark perpendicular to the outside ends of the skid pan until it intersects the mark made in step A.
  - C. Measure forward from the center of the rearmost hole 6-1/4" and make a cut line perpendicular to the outside edge. Measure in from the outer edge of the skid plate 5/8" and mark. Make a cut line from the 6-1/4" mark, parallel to the outer edge at the 5/8" mark until it hits the exiting cut line made in step B (Fig 4).

**FIGURE 4**



- D. Make the "L" shaped cut from each of the rear corners of the skid plate with a reciprocating saw, cut-off wheel and/or plasma cutter. Remove all sharp edges/corners with a grinder and paint all bare metal to prevent corrosion.
8. Mount the new provided lower control arm subframes (02590-drv, 02591-pass) to the vehicle using the provided hardware (Fig 5). For 97-02 models use 1/2" x 2" bolts. For 03-06 models use 12mm x 50mm bolts (BP 732). Attach the subframes to the frame rails using the mounting holes that are correct for the model year of vehicle – see figure 5. Snug the hardware so that the subframes are mounted tight to the frame.

**FIGURE 5**



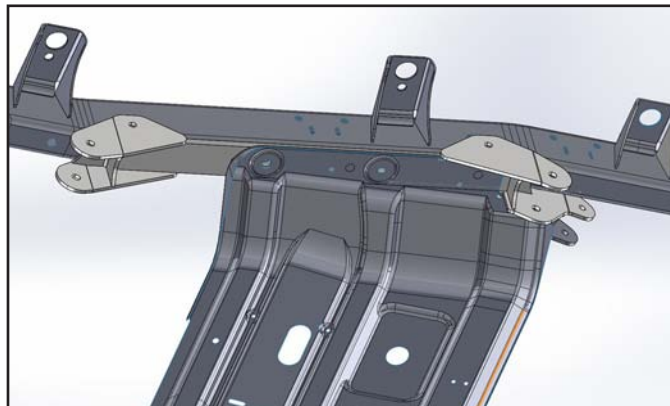
9. With the subframes properly mounted in position, using the holes in the subframes as a guide, mark the horizontal mounting holes (Fig 6) to be drilled in the frame (4 holes total).

**FIGURE 6**



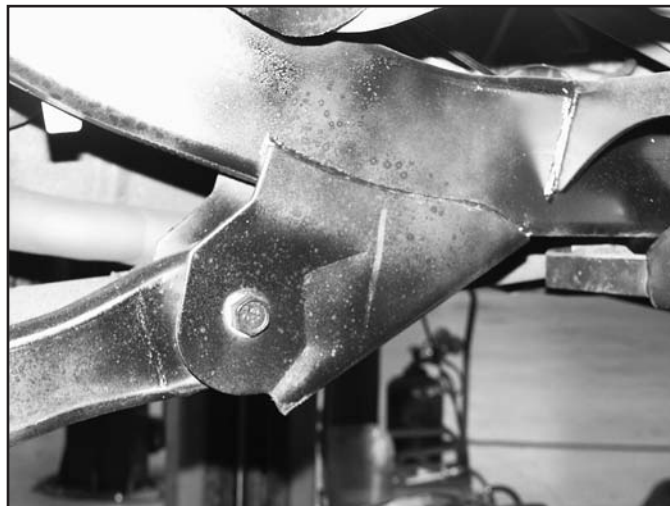
10. Remove the subframes and drill 7/16" holes at the marks on the frame. Take care to drill the holes straight (square) to the frame. Drill through both the outer and inner surfaces of the frame. Caution: Check for lines and hoses on the inner frame rail before drilling.
11. When all four horizontal subframe mounting holes are drilled, reinstall the subframes on the frame rails with the provided 7/16" x 3-1/2" bolts, nuts and 7/16" SAE washers (BP 787) through the drilled holes. Leave hardware loose at this time.
12. Install the modified skid plate on the vehicle (Fig 7). Use Loctite on all mounting bolts.
  - A. **97-02 models:** Attach the skid plate to the frame using six 1/2" x 2" bolts with the provided 7/16" USS washers followed by the tapered washers (YJTC6). When all the bolts are installed, torque the 1/2" hardware to 65 ft-lbs.
  - B. **03-06 models:** Attach the skid plate to the frame using four 12mm x 50mm bolts and 7/16" USS washers (BP 732). Install a provided 12mm x 30mm button head bolt in the rearmost hole of each subframe. With all the bolts installed, torque the six 12mm bolts to 65 ft-lbs.

**FIGURE 7**




13. With the skid plate completely installed, go back and torque the four 7/16" horizontal subframe bolts to 40 ft-lbs. Do not over-torque the 7/16" bolts.
14. Lower the transmission/transfer case back on the skid plate by aligning the four transmission mount studs in the skid plate mounting holes. Fasten the mount with the original nuts and torque to 20 ft-lbs.
15. Support the front axle with a hydraulic jack.
16. Remove the wheels.
17. Remove the lower control arms from the axle and the frame. Retain hardware and discard control arms.
18. The front lower control arm pockets must be removed from the frame to provided clearance for the new long lower control arms (Fig 8). Cut the pockets completely off of the frame using a cut-off wheel and/or reciprocating saw. Take special care not to cut into the frame. Grind that area smooth with a medium grit grinding wheel and paint all bare metal to prevent corrosion. The mounts must be removed completely.


**FIGURE 8**



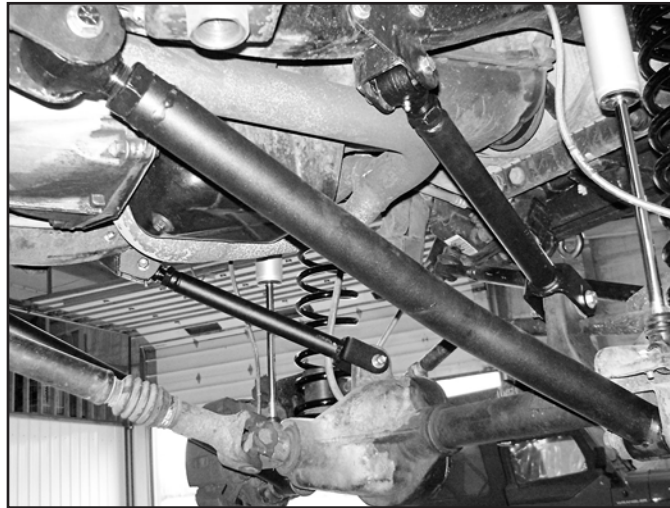
19. Locate (2) pre assembled long lower control arms (A220). Adjust the length to 29-1/4". Install a provided 90° grease zerk (60107) in the flex end so it faces 45° from facing down the arm and towards the outside of the vehicle. The arms are installed with the flex eye at the frame with the bend towards the inside of the vehicle.

 **Tip** *The lower arms are the same front and rear.*


20. Install the new lower control arms in the OE axle bracket with the original hardware and the new subframe pocket with a 9/16" x 4" bolt, nut and 9/16" SAE washers (BP 787). The 90° fitting should be pointing at a 45° angle towards the outside. Leave hardware loose (Fig 9).

 **Tip** *With the shocks and front track bar still attached, just push the axle forward enough to attach the arms to the subframe.*

**FIGURE 9**

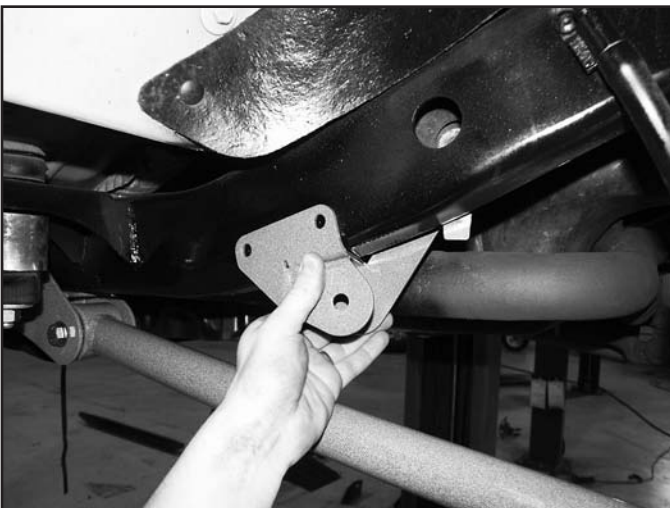


21. Remove the upper control arms from the front axle and frame. Retain the nut tab from the frame mount.

 **Tip** *Be sure that the axle is well supported.*

22. Complete the upper control arm bracket install one side at a time. Loosely install the provided upper control arm drop bracket (01387-pass, 01388-drv) to the OE upper control arm pocket with a 10mm x 35mm bolt, 3/8" USS washer (BP 731) and the OE nut tab. The bracket will run from the outer portion of the OE pocket down to the frame and wrap around to the outside surface of the frame (Fig 10A, B). Adjust the bracket so that it is flush to the bottom and outside surfaces of the frame. Using the bracket as a template, mark the 3 mounting holes to be drilled. Allow the bracket to swing down out of the way.

**FIGURE 10A**



**FIGURE 10B**





23. Drill 3/8" holes at the two marks on the outside surface of the frame. Drill the holes all the way through the frame.



**Tip** Try to drill as straight as possible (perpendicular to the outside of the frame).

24. Drill a 5/16" hole at the mark on the bottom of the frame, only drilling through the bottom portion (not all the way through).



**Tip** It may be necessary to disconnect the lower control arms one side at a time to gain drill clearance for the bottom hole.

25. Reposition the bracket to the frame and fasten through the outside 2 holes with 3/8" x 3-1/2" bolts, nuts and 3/8" SAE washers (BP 731). Leave loose.
26. Fasten the bracket to the bottom of the frame with a 3/8" x 1-1/4" self-tapping bolt (BP 731). Apply Loctite to the threads of the self-tapping bolt and torque all mounting hardware to 30 ft-lbs. Torque the 10mm bolt at the OE pocket last. The bracket will reform itself slightly to match the angle of the upper OE bracket.
27. Repeat the upper bracket installation of the opposite side of the vehicle. When positioning the bracket, make a reference dimension from the completed side to aid in locating the hole positions to ensure the brackets are located consistently from side to side.
28. Locate the new front upper control arm assemblies. Install a 10mm x 90mm bolt (BP 731) in the clevis end of each upper control arm. Measure from the center of the clevis (using the bolt to indicate center location) to the center of the eye of the control arm end (Fig 11). Adjust this distance to 17-3/4" (this is a starting point based on 6" of lift). Leave the jam nut loose.



**Tip** When installed in the vehicle, the grease fitting must be towards the ground. When adjusting the length of the arms, make them mirror images of one another, a driver's side arm and a passenger's side arm (Fig 10).

**FIGURE 11**



29. Install the new upper control arms in the new upper control arm brackets with 7/16" x 3" bolt, nut and 7/16" SAE washers (BP 731). Attach the arm to the OE front axle mount with the 10mm x 90mm bolt used earlier along with a 10mm nut and 3/8" USS washers (BP 731). Leave control arm hardware loose.
30. Install the wheels and lower the vehicle to the ground.
31. Bounce the front of the vehicle to settle the suspension. Ensure that the axle is centered under the vehicle.
32. Torque the front upper control arm bolts to 40 ft-lbs. Ensure the upper control arm flex end is positioned square in the new bracket and lock off the jam nut securely.
33. Torque the front lower control arm bolts to 95 ft-lbs and lock off the jam nuts.

## REAR INSTALLATION

1. Block the front wheels.
2. Raise the rear of the vehicle and support the frame rails with jack stands just ahead of the rear bumper.
3. Remove the wheels.
4. Be sure that the axle is well supported. Remove the lower control arms from the axle and the frame. Retain hardware and discard control arms.
5. The rear lower control arm pockets must be removed from the frame to provide clearance for the new long lower control arms. Cut the pockets completely off of the frame using a cut-off wheel and/or reciprocating saw. Take special care not to cut into the frame. Grind that area smooth with a medium grit grinding wheel and paint all bare metal to prevent corrosion.
6. Disconnect the clips retaining the emergency brake cable and rear brake hose to the rear upper control arms (Fig 12).

**FIGURE 12**



7. Locate (2) remaining lower control arms (A220). Adjust the length to 29-1/4". Install a provided 90° grease zerk (60107) in the flex end so it faces 45° from facing down the arm and towards the outside of the vehicle. The arms are installed with the flex eye at the frame with the bend towards the inside of the vehicle.
8. Locate the (2) pre assembled long upper control arms (A222). Adjust the length of the new upper control arms to 25-7/8" (center-to-center). This is a starting point. The length may need to be adjusted at the end of the install for proper driveshaft angles, depending on how the drivetrain is setup.
9. Install the new lower control arms in the OE axle bracket with the original hardware. Swing the arm up to the new subframe pocket and fasten with a 9/16" x 4" bolt and 9/16" SAE washer (BP 787). The 90° fitting should be on top and pointing 45° from down the arm and towards the outside. Leave hardware loose.
10. Remove the OE rear upper control arms from the frame and axle mounts. Retain hardware and discard the control arm.



**Tip** *Be sure the axle is well supported.*

11. Install the new upper control arm flex eye in the inside subframe pocket (Fig 13) so that the grease zerk is pointing down. Fasten the arm with the 12mm x 80mm bolt, the arm is formed to get the bushing aligned at the axle (BP 787). Attach the small rubber bushing end of the upper control arm to the OE axle mount with the original hardware. Leave hardware loose.



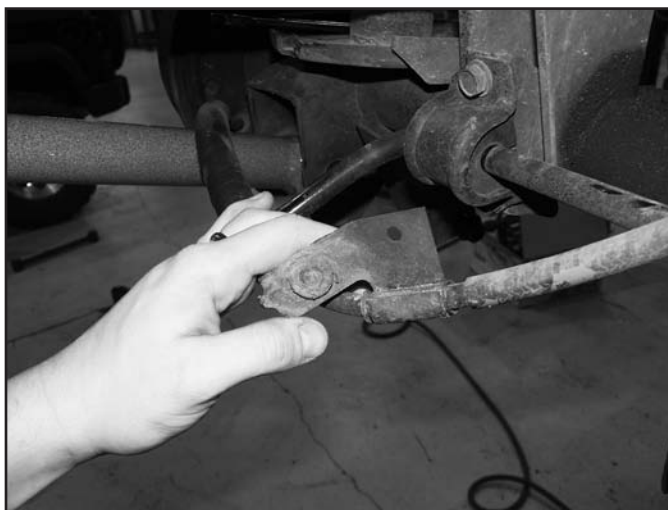
**Tip** *The emergency brake cable should run below the upper control arm and above the sway bar and lower control arm.*

**FIGURE 13**



12. Locate the OE mounting tabs on the two emergency cables (Fig 13). Using a cut-off wheel, etch the side of the bracket so that it can be easily formed open and removed from the cable. Leaving the cable free at these points will eliminate the chance of binding during extreme suspension articulation. Take care not to cut into the cable.

**FIGURE 14**



13. Install wheels and lower the vehicle to the ground.
14. Bounce the rear of the vehicle to settle the suspension.
15. Torque the rear upper control arm bolts to 40 ft-lbs. Ensure the upper control arm flex end is positioned square in the new subframe bracket and lock off the jam nut securely.
16. Torque the rear lower control arm bolts to 95 ft-lbs. and lock off the jam nuts.

## **POST INSTALLATION**

1. Check all hardware for proper torque.
2. Check hardware after 500 miles and any offroad use.
3. Adjust headlights.
4. Grease the control arms now and after any offroad use and at regular services. Check all control arm jam nuts periodically for tightness.
5. A professional front end alignment is recommended to achieve proper steering toe-in and steering wheel alignment. Upper control arm length adjustment will also provide alignment adjustment when necessary.
6. Complete a full steering sweep to check tire clearance with the body, frame and suspension components. Depending on the alignment and tire/wheel combo used, the factory steering stops on each steering knuckle may need to be adjusted.

**STEP 6D TEMPLATE**

