

The logo for Poly Performance, featuring the brand name in a stylized, italicized font with a red and black color scheme, set within a white oval border with a red and black background.

POLYPERFORMANCE

PPM-8021 / PPM-8041 JEEP JK STAGE 1 SYNERGY SUSPENSION SYSTEM

GENERAL NOTES:

- These instructions are also available on our website; www.polyperformance.com. Check the website before you begin for any updated instructions and additional photos for your reference.
- The installation of this suspension kit requires drilling a 3/8" hole on the front axle coil buckets.
- Installation requires trimming of the rear track bar bracket and shock brackets with either a grinder with a cut off wheel or sawzall.
- You will need basic hand tools, a drill with 3/8" drill bit, a grinder with cut off wheel or sawzall, floor jack or automobile lift, and two sturdy jack stands to complete this installation.
- A list of additional components that can be added to this kit are available on our website. These components can be purchased and installed at a later date. Each component has instructions for installation.
- For Non-Rubicon models, we recommend installation of [PPM-8077](#) - JK Front Sway Bar Quick Disconnect Kit for removal of the front sway bar links to increase suspension articulation while off road.
- The longer rear sway bar links may be close to or rub the inside of the rear tires. Wheels with less back spacing (4.5" max) or wheel spacers can be used.
- We recommend that you upgrade to conventional double cardon CV style drive shafts during or soon after the suspension installation. The large diameter front drive shaft may rub on the automatic transmission pan and the CV boots will tear prematurely due to the increased operating angle caused by the suspension lift, especially 2 door rear drive shafts and 2 or 4 door front drive shafts.

1. Unpack the suspension components from boxes; verify that all parts have arrived, intact and in good condition.

Poly Performance Stage 1 Parts List

PPM-8004 - JK 9/16" Control Arm Cam Bolt Kit

PPM-8063-XX - JK Front Lift Springs

PPM-8064-XX - JK Rear Lift Springs

PPM-80XX - JK Front Bump Stop Spacer Kit

PPM-80XX - JK Rear Bump Stop Spacer Kit

PPM-8061 - JK Front Track Bar

PPM-8056 - JK Rear Track Bar Bracket

PPM-8083 - JK Front Brake Line Relocation Kit

PPM-8084 - JK Rear Brake Line Relocation Kit

PPM-8060 - JK Rear Sway Bar Links

2. Read all the following steps before beginning installation. If you do not have the proper tools or ability to install the components properly do not attempt installation. Find a creditable, local shop to do the installation work.

FRONT SUSPENSION

3. REMOVE STOCK PARTS

- Remove the front track bar. It is easiest to do this when the suspension is at the ride height position.
- Remove the automatic transmission skid plate if equipped to prevent damage to the front drive shaft when the suspension is drooped out.
- Remove the rear sway bar links, these will be reinstalled on the front sway bar.
- Use a floor jack under the center of front axle to lift the tires off the ground. Place jack stands under each frame rail just behind the lower control arm mounts to support the weight of the Jeep. Raise or lower the floor jack under the front axle to remove and install suspension components. The jack should stay under the axle the entire time the front suspension is being installed.
- Now remove these suspension components and retain the hardware in this order
 - Front Wheel/Tires
 - Loosen the upper control arm bolts and lower control arm frame mount bolts
 - Sway bar links
 - Shocks
 - Remove the brake line frame bracket bolts, but do not open the hydraulics
 - Lower the axle and remove the springs, make sure the wheel speed sensors wires are not overextended, loosen any retaining clips if needed to allow enough slack.

4. BRAKE EXTENTIONS

- Find the correct front brake line brackets, the front brackets are the shorter ones, and there is a left and a right. Install the new extension bracket to the frame with the stock bolt.
- Bolt the brake line to the extension bracket using the new supplied hardware. You will need to straiten the brake hard line with your hands to give enough slack for the brake line to reach the extension bracket.

5. FRONT LOWER CONTROL ARM CAM BOLTS

* Cam bolts are necessary if you choose to retain the stock lower control arms. If you do not want to perform the following procedure you can purchase adjustable lower control arms. PPM-8051 Poly Performance Adjustable Front Lower Control Arms

- Remove the lower control arm bolts at the axle housing. Let the control arms drop out of the control arm mount.
- Remove the cam positioning tabs from the LCA mounts. You can purchase PPM-8004-01 JK Cam Bolt Knock-out Tool or if you have the proper tools you can cut the tabs out.
- You will notice that the bolt hole in the LCA mount is square. There are partially punched metal tabs at the front and back of the square hole; these tabs need to be punched out to make the LCA mount slotted. Since you need to increase castor, only the tabs that are toward the rear of the vehicle need to be punched out. The easiest way to remove the tabs is to cut the top and bottom with a narrow saw blade (Figures 5-1 and 5-2), then bend/break the tabs out with pliers (Figure 5-3). You may need to clean the burr from the back edge of the hole with a file or carbide burr for the cam bolt/washer to fit (Figure 5-4). Do this to each side of both front LCA mounts. Total of four places.



Figure 5-1



Figure 5-2



Figure 5-3



Figure 5-4

- Reinstall the lower control arms using the new cam bolts. Use anti-seize liberally on the cam bolts and washers. Position the cam bolts to maximize caster (bolt positioned to the rear most portion of the vehicle, Figure 5-5). Final caster can be set when the vehicle is aligned by a professional shop after installation, but most likely you can just adjust to the max castor.



Figure 5-5

- Wait to torque the new cam bolt until the vehicle is on the ground.
6. BUMPSTOP SPACERS AND COIL SPRINGS
- Locate and center punch the center of the bumpstops strike pad on the axle coil spring mounts. Drill a 3/8" hole.



Figure 6-1

- Put the bump stop bolt through the bump stop and slide the bump stop into the bottom of the coil spring.
- Install the coil spring while holding the bump stop spacer inside the coil spring. When the spring is in place, align the bump stop spacer bolt with the hole that was drilled. Install the bump stop bolt through the hole and the 3/8" serrated nut onto the bump stop bolt. Hand tighten the nut and then use a 5/16" allen wrench through the coil spring to tighten the bump stop bolt.

7. SHOCKS

- Install the shocks using the stock lower mounting nut/bolt. Use the new stem bushings, washers and nuts.
- Tighten the lower bolts to 56 ft-lbs
- Install the thicker of the two upper stem bushing nuts and tighten until the bushing begins to bulge out. Install and tighten the jam nut.

8. SWAY BAR LINKS

- Install the rear sway bar links to the sway bar and axle tabs. The sway bar links go on the outside of the sway bar and inside of the tabs just like the original front ones were mounted.
- Torque the upper sway bar nut/bolts to 75 ft-lbs. Wait to tighten the lower bushing nut/bolt when the jeep is sitting at ride height.

9. FRONT TRACK BAR

- Install the front track bar with the bushing at the frame end and rod end at the axle end. Attach the track bar to the frame bracket only, you will need to wait until the tires and wheels are installed and the jeep is sitting on the springs with the tires on the ground to attach the axle end.
- The rod end can be adjusted by turning the adjuster sleeve with a 1/4" punch or similar tool. Wait to adjust the track bar until the tires are on and the vehicle is on the ground at ride height.

10. INSTALL TIRES AND WHEELS AND REMOVE FROM JACKSTANDS

- Raise the front axle with the floor jack and install the tires and wheels.
- Remove the jack stands supporting the frame and lower the axle so wheels are back on the ground
- Attach the track bar to the axle bracket using the original bolt. Make sure the two spacers are installed in the rod end. Use the factory bolt and nut tab. You can have a helper turn the steering wheel to align the track bar bolt. Wait to torque the track bar bolts until the end of the suspension installation.
- Re-install the automatic transmission skid plate if equipped.
- The installation of the front suspension is complete except for the steering wheel alignment and final torque of the control arm bolts, sway bar links and track bar. You may want to wait until the rear is finished because you will be using similar tools and torque settings.

REAR SUSPENSION

11. REMOVE STOCK PARTS

- Disconnect the rear track bar at the axle bracket. It is easiest to do this when the suspension is at the ride height position
- Use a floor jack under the center of axle to lift the tires off the ground. Place jack stands under each frame rail just in front of the lower control arm brackets to support the weight of the Jeep. Raise or lower the floor jack under the rear axle to remove and install the suspension components. The jack should stay under the axle the entire time the rear suspension is being installed.
- Now remove these suspension components and retain the hardware in this order
 - Rear Wheel/Tires
 - Loosen both the upper and lower control arm bolts
 - Remove the shocks
 - Remove the parking brake cable wire formed retainer from the floor
 - Remove the brake line frame bracket bolts, but do not open the hydraulics
 - Disconnect the parking brake cables at the axle end
 - Lower the axle and remove the springs, make sure the wheel speed sensors wires are not overextended, loosen any retaining clips if needed to allow enough slack

12. INSTALL BRAKE EXTENTIONS

- Find the correct rear brake line brackets, the rear brackets are the longer ones, and there is a left and a right. Install the new extension bracket to the frame with the stock bolt.
- Bolt the brake line to the extension bracket using the new supplied hardware. You will need to straiten the brake hard line with your hands to give enough slack for the brake line to reach the extension bracket.

13. INSTALL BUMPSTOP SPACERS

- Install the new rear bump stop spacers. The bump stop spacers should be oriented so they lean forward. See [Figure 12-1](#). Use a washer under the head of the 3/8 bolts and use the serrated nut on the bottom. Tighten to 30 ft-lbs



Figure 12-1

14. INSTALL REAR TRACK BAR RELOCATION BRACKET

- Cut part of the factory track bar off as shown in the following pictures. The pictures are shown using a 4 1/2" grinder with a cut off wheel, but a sawzall can also be used.



- Attach the new track bar relocation bracket to the factory bracket as shown with the new 9/16" bolt and lock nut; use a flat washer under the bolt head and lock nut.
- Install the u-bolts over the axle tube and through the track bar relocation bracket, use a flat washer and nylock nut to secure the u-bolt.
- Torque the 9/16 bolt to 150 ft-lbs, and the 3/8" u-bolts to 40 ft-lbs

- Wait until the vehicle is sitting at ride height to attach the track bar.

15. INSTALL COIL SPRINGS AND SHOCKS

- Install the new coil springs.
- Jack the axle up enough to install shocks using the original hardware, torque the upper bar pin bolts to 37 ft-lbs and the lower bolt and nut to 56 ft-lbs.

16. INSTALL REAR SWAY BAR LINKS

- Install the new sway bar end links, torque the lower bolt to 75 ft-lbs and the upper to 60 ft-lbs. If tire clearance is an issue, you can mount the sway bar links to the inside of the sway bar and axle tab.

17. PARKING BRAKE CABLES

- 4DR MODELS The parking brake cables are routed above the cross member that is in front of the wire formed hanger you have previously removed. Re route the parking brake cables to underneath this cross member and gas filler hose and secure to the cross member with a zip tie. The wire formed hanger is no longer used
- 2DR MODELS Re route the parking brake cables underneath the gas filler hose. The wire formed hanger is no longer used

18. FINAL ASSEMBLY

- Jack the rear axle up enough to install the tires and wheels.
- Remove the jack stands from under the frame and lower the jeep to the ground.
- Attach the track bar to the new track bar relocation bracket using the factory nut and bolt. If the track bar does not line up with the hole you can have someone push the back of vehicle from side to side to align the track bar bushing to the hole in the bracket.

19. FASTENER TORQUE

- Now that the vehicle is sitting at ride height on level ground you can do the final fastener torque
- Torque the front and rear lower control arm bolts to 125 ft-lbs
- Torque the rear upper control arm bolts to 125 ft-lbs
- Torque the front upper control arm bolts to 75 ft-lbs
- Torque the front and rear track bar bolts to 125 ft-lbs
- Torque the sway bar bolts to 75 ft-lbs
- Torque the lug nuts to 85-125 ft-lbs.

20. FRONT END ALIGNMENT

- The castor should be optimal with the cam bolts maxed for the most castor.
- Adjust the front track bar to center the front axle. Torque the pinch bolt to 30 ft-lbs
- Adjust the draglink to center the steering wheel by using the adjuster sleeve on the driver side tie rod end (pitman arm end).
- If the steering wheel is not centered the ESP light will come on, so make sure you adjust the draglink so the steering wheel is perfectly centered. This is can done by test driving and making the necessary adjustments. When driving in a strait line take note of which way the steering wheel needs to turn to be centered. If the steering

wheel needs to turn right to be centered, shorten the draglink. If the steering wheel needs to turn left to be centered, lengthen the draglink

- We recommend you have the jeep aligned by a professional alignment shop.
- Check all hardware after 500 miles of driving.
- We recommend checking all hardware before and after all off road trips to avoid failure due to loose fasteners.

Thank you for choosing Poly Performance Inc. Please call you if you have any questions, we can be reached M-F 8-5 pst.