CS-DBJP-14
Ram Ball Joint Package - 2014+

Carli Suspension, Inc.
596 Crane St.
Lake Elsinore, CA 92530
888-992-2754

Note

Please review the product instructions prior to attempting installation to ensure installer is equipped with all tools and capabilities necessary to complete the product installation. We recommend thoroughly reading the instructions at least twice prior to attempting Installation.

Before beginning disassembly of the vehicle, check the "Parts Checklist" section of the instructions to ensure you've received all parts necessary to complete installation. Further, verify that the parts received are PROPER TO YOUR application (year range, motor, etc.) to avoid potential down-time in correcting potential discrepancies. Any discrepancies will be handled by Carli Suspension and the correcting products will be shipped UPS Ground.

Lifetime Ball Joint Warranty

Carli's Ball Joint warranty is the industry's only advanced replacement lifetime warranty. No more downtime or waiting for a manufacturer to inspect your damaged product. Carli Suspension provides a limited lifetime product warranty against defects in workmanship and materials from date of purchase to the original purchaser on part number CS-DBJP. Both Upper and Lower Carli Suspension ball joints must be installed to qualify for the lifetime warranty. Proper installation of the Carli Ball Joints is required to maintain the product's warranty.

Ball Joint Warranty Process
Should the ball joints develop excessive play defined as any 15 thousandths laterally in the upper or excess of forty thousandths vertically in the lower, send a video demonstrating the ball joint's deflection to info@carlisuspension.com along with your proof of purchase and shipping information. If the play is confirmed, we'll replace the affected joint and send a call tag to ship the failed joint back to us for inspection.
Upon receipt of the warranty (replacement) ball joints, the customer will replace the defective joints with the set received. The defective joints are to be returned to Carli Suspension for inspection.

Fine Print: The product warranty is limited to replacement of defective parts only; labor to install the parts is the responsibility of the purchaser. Carli's shipping responsibility on all warranty claims is limited to replacement of the product within the contiguous United States. Warranty claims from purchasers outside the United States are limited to replacement of the defective product only; international shipping costs are the

TRUCKS WITH AFTERMARKET BALL JOINTS

Carli Ball Joints are designed to exacting specifications ensuring perfect interference fit in trucks removing factory ball joints. If your ball joints have been replaced with aftermarket joints that are knurled, it's likely the ball joint bores are now oversized as a result.

If the Carli ball joints are difficult to install and press in securely, this is a non-issue; if they install by hand or slide in with only minimal resistance when operating the press - usually only the case after several sets of knurled joints have been installed - it's best to use a center punch to dimple the bore and swell the metal to provide sufficient clamping force for our factory-style ball joints.

Parts Checklist - CS-DBJP-14 - Ram Ball Joint Package - 2014+

- ☐ (Qty. 2) AS-DUBJ - Upper Ball Joints
- ☐ (Qty. 2) AS-DLBJ - Lower Ball Joints
- ☐ (Qty. 1) CS-CV2GREASE - Tube of CV2 Grease
- ☐ (Qty. 1) LC-DLBJT - Lower Installation Tool

Press Recommendation - OTC 7249 Press kit

This kit is reasonably priced and accommodates all but the installation cup for the upper ball joint. The Upper Ball Joint's Outside Diameter is 1.90". An ideally suited press-cup will measure 1.9375" (1-15/16") Internal Diameter, and 1.25" deep - The Outride Diameter of our cup is 2.75" but this can vary.

If not in possession of this cup, a piece of 2" Internal Diameter tubing with a flat plate on top is a suitable alternative. We've successfully used a 1-1/4" long piece of scrap 2.5" Outside Diameter DOM tubing that's 1/4" Wall (2" Internal Diameter) with a flat plate on top.

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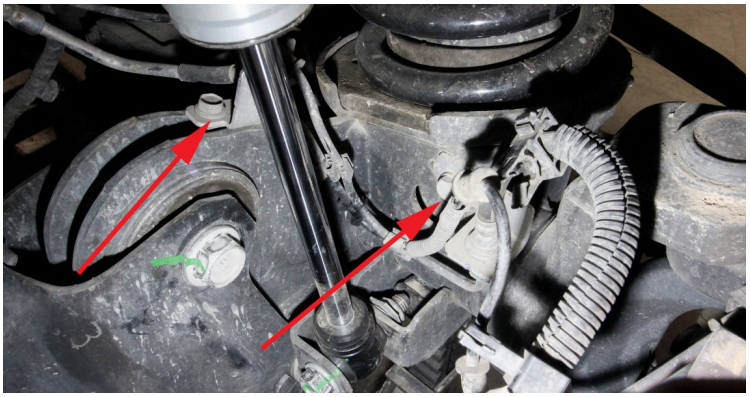
Installation Instructions

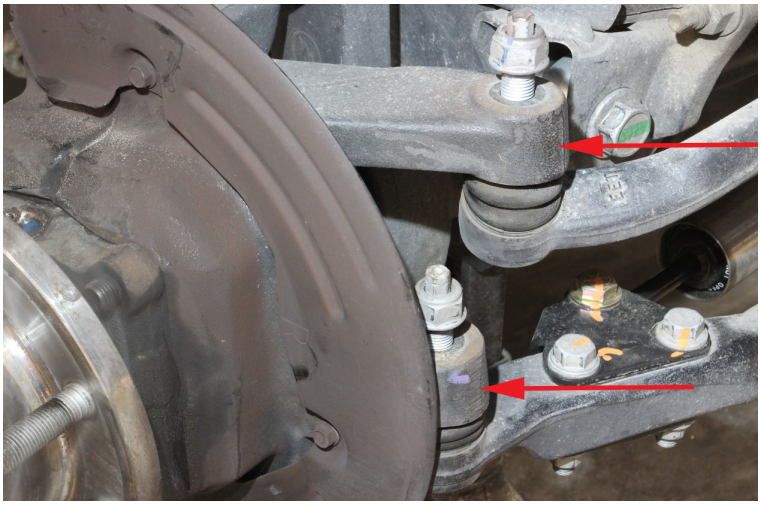
1. Using a jack, lift the front of the truck and support the axle with jack stands.
2. Remove the Passenger's side wheel/tire.
3. 13MM - Remove the two bolts securing the two ABS/Brake line brackets to the radius Arm Mount and front axle.



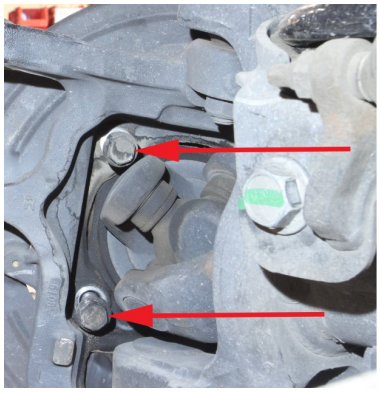
4. Separate the factory clips securing the ABS lines to the brake lines
5. 24MM - Remove the two bolts securing the Brake Caliper to the knuckle and remove the caliper. **DO NOT allow the caliper to hang.** We use wire to hand it from the hole in the frame to the rear of the coil bucket ensuring the brake line has sufficient slack.
6. Remove the rotor and set it aside.
7. Using a pick, separate the clip securing the ABS line to the knuckle.

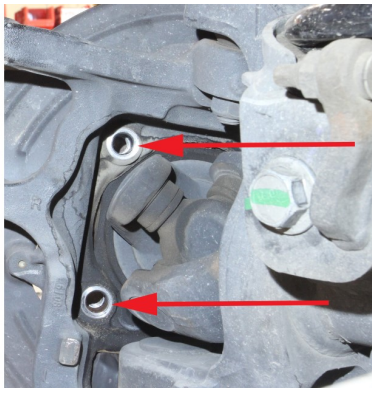
8. 5MM Allen - GENTLY Remove the ABS Sensor from the hub

9. 21MM - Remove Drag Link and Tie-Rod from Passenger's side knuckle connection points. We back these nuts off until they're only engaged a few threads then strike the knuckle housing - see arrows below - (NOT the tie-rods) with a hammer under the joint drops. Then remove the nut and linkage.



10. 18MM - Behind the knuckle, you'll find the 4 bolts that retain the axle/hub assembly. Remove these bolts.





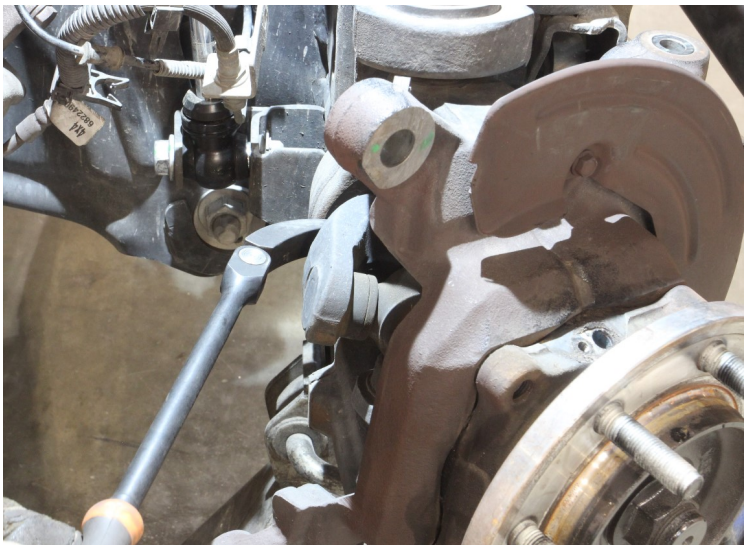
11. Pry the axle out from the outer housing. This is the Southern California version. We've never failed to get a hub out by prying it. That said, the hubs are notoriously seized to the knuckles in areas with inclement weather. There are a few tricks out there for those having issues removing the hubs. Most all start by cycling heat (be careful not to heat soak the hub and destroy the grease/bearing) and penetrating lubricant. If you have access to a proper puller, they'll usually break the hubs free. If not:

a. Leave the 4 hub retaining bolts engaged a few threads. Place an impact rated 18MM socket and extension onto one bolt at a time (work around all four) striking the extension to press the bearings out from the back.

b. **WE DO NOT RECOMMEND THIS:** if the above fails, people have used the hydraulic steering system by wedging the extension/socket/bolt combo against the knuckle, turned the truck on and turned the wheel to press the bearing out. (steering will need to be connected to do this).

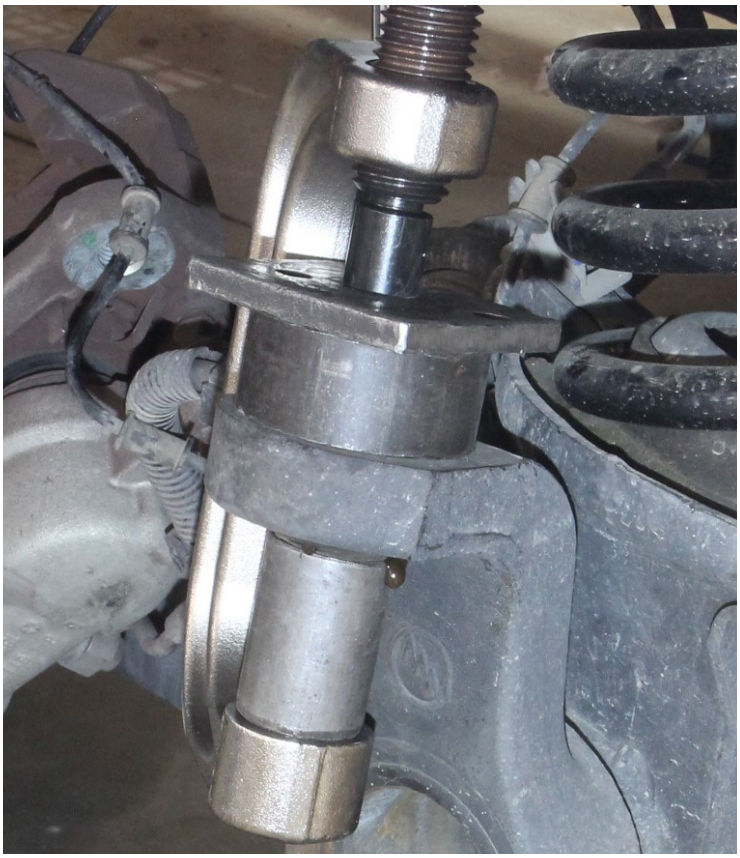
c. Others buy new hub bearings in anticipation of the install knowing they'll destroy the unit bearings when removing them. Hubs, U-Joints and Ball Joints have similar lifespan, anyway. If you're replacing one, it's not a bad idea to replace them all.

(Picture of our pry-point on the next page)

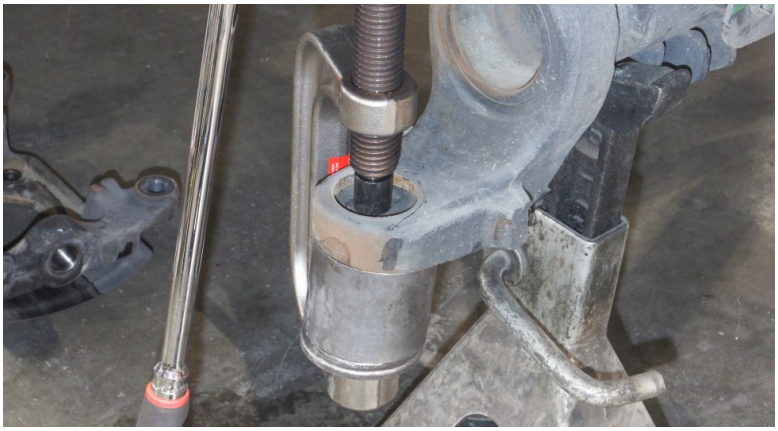


12. Remove the unit bearing/axle assembly and set it aside. Guide the axles out gently to ensure you do not damage your inner axle seals.
13. 37MM - Loosen Lower Ball Joint Nut; leave engaged a few threads to keep the knuckle in place as you dislodge the tapers.
14. 24MM - Loosen Upper Ball Joint Nut; leave engaged a few threads.
15. Using a large hammer, strike the knuckle housing around the outside where the ball joint pins are seated. Once the knuckle breaks free and drops onto the nuts, remove the nuts and knuckle. If the knuckle doesn't drop, a tie rod separator, puller or pickle-fork can be used.
16. Remove the factory ball joints.

a. The Upper presses out from the top. We recommend the Medium Cup and cap from the OTC as the upper. So long as it's wide and deep enough to press the whole upper housing out, you're good - an alternate of DOM Tube and a flat plate is shown here. The lower cup needs to sit securely on a structural part of the ball joint as it will be pressing it out.



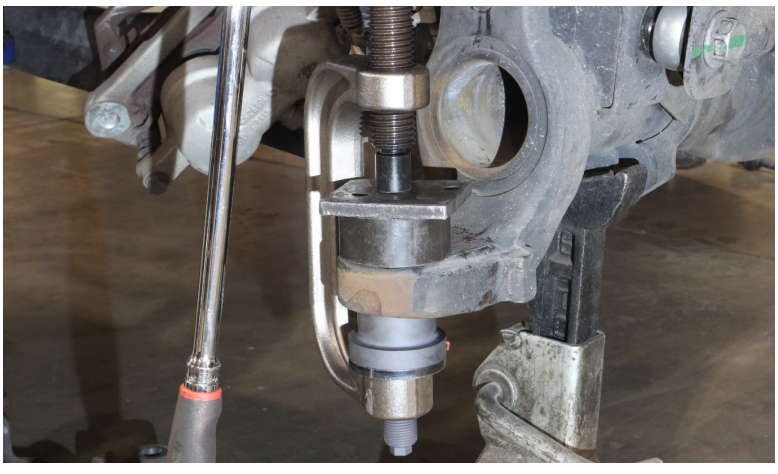
b. The Lower presses out from the bottom. No specific specification of press cups are used for this, the lower cup must be larger than the OD of the ball joint and deep enough to allow the ball joint to be pressed all the way out *(The OTC Large Cup/Plate would work great on the bottom)*. We put the press directly on the ball joint but a cup can be used to distribute the load if preferred.

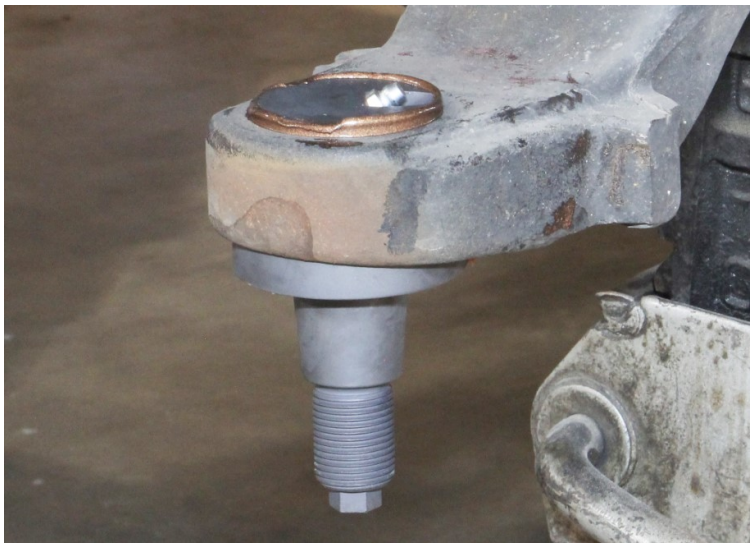


17. With the factory ball joints removed, use some scotch-brite to clean the ball joint bores of any corrosion.
18. Apply a light coating of anti-seize to the bore.
19. Place the install tool onto the lower ball joint.

20. Insert the ball joint into the bottom of the bore indexing the zerk fitting 45° between front and center to allow easy access to grease the ball joint. If the front of the truck is 12:00 and the rear 6:00, the passenger side zerk should face 10:30 and the Driver's side 1:30.
21. Lower Ball joint cup configuration: Top of the Bore - Large cup from the OTC press on top with one of the plates .
22. Lower Ball joint cup configuration: Bottom of the Bore - Medium cup from the OTC kit sits perfectly against the outside of the ball joint & installation washer. Use the other plate on the bottom of the assembly and press the ball joint into the bore.

NOTE: Show below is a different configuration than recommended. Using the press directly on the install washer as shown deformed the install washer. For this reason, a cup is much better suited to load the outside perimeter of the shim.

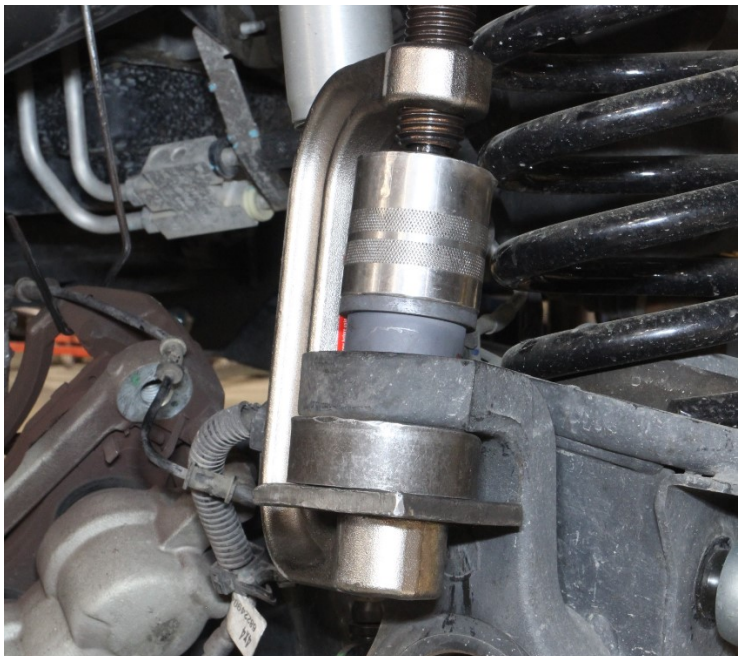




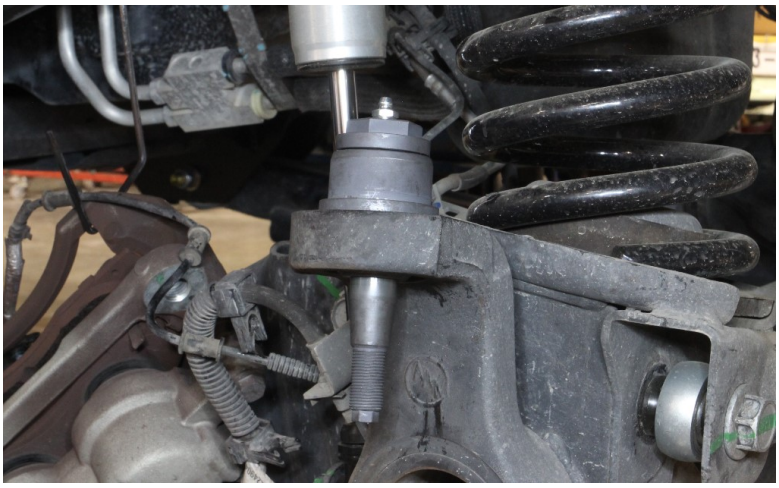
23. Clean out the upper ball joint bore with scotch-brite and apply a light coat of anti-seize.
24. Disassemble the Upper Ball Joint. Remove the cap and push the pin out of the ball joint.
25. Place the upper ball joint cup into the bore and configure the cups to install.

a. The Upper Ball Joint's Outside Diameter is 1.90". An ideally suited press-cup will measure 1.9375" (1-15/16") Internal Diameter, and 1.25" deep - The Outride Diameter of our cup is 2.75" but this can vary. If not in possession of this cup, a piece of 2" Internal Diameter tubing with a flat plate on top is a suitable alternative. We've successfully used a 1-1/4" long piece of scrap 2.5" Outside Diameter DOM tubing that's 1/4" Wall (2" Internal Diameter) with a flat plate on top.

b. The medium cup from the OTC kit is a perfect receiver for the upper. There's a slight angle to the bottom of the knuckle so the cup will not fit flush. We ground ours to match the knuckle but it's possible to keep it all straight enough to press the ball joints in without this.



26. With the cup pressed all the way in, remove the press and cups.
27. With the grease provided, lightly coat the head of the pin and inside of the cup and insert the upper ball joint pin. The pin should drop in with only slight resistance from the O-ring. It should NOT require excessive pressure or tools to install the upper pin!
28. Push the pin as deep as it will go into the housing and pack the ball joint cavity with grease until it's flush to the threads.
29. Install the upper cap a few threads (NOT all the way). There should be a slight gap visible between the top of the cup and mating surface of the cap.



30. Install the knuckle onto the Carli Ball Joints. And thread the nuts on hand tight. To seat the tapers, start on the lower. Use a 1-5/16" Box wrench to tighten the nut holding the pin with a 1/2" socket. Until the nut seats to the bottom of the knuckle.
31. Do the same to the upper using a 15/16" Wrench and 7/16" socket.
32. 1-5/16" Socket - Torque lower ball joint nut to 35lb.ft.
33. 15/16" - Torque upper ball joint nut to 70lb.ft.
34. Retorque lower ball joint nut to 160lb.ft.
35. With the knuckle torqued, rock it from front to rear steering stop through it's full range of travel a few times to ensure it moves free and smooth.
36. Attach your manual (NOT PNEUMATIC) grease gun to the zerk fitting on the lower ball joint and pump until grease comes out the grease port directly below the zerk fitting between the outer axle and the knuckle.

37. The cap should still be loose on the upper ball joint. Attach the manual grease gun and grease it until the grease gun handle firms.
38. Torque the upper ball joint cap to 20lb.ft.
39. Rock the knuckle from stop to stop. It should be firm after greasing but should loosen up after a few cycles.
40. Clean the inside mating surface of the knuckle where the hub installs with scotch-brite to remove surface rust and apply a generous coat of anti-seize. This will make hub removal far easier the next time.
41. Apply a light grease coating to the axle splines and the shiny spot on the axle shaft itself where it contacts the inner axle seal.
42. Slide the axle shaft back into the diff, again, taking care not to damage the inner axle seal.
43. With the axles installed, ensure the ABS sensor hole in on top of the hub.
44. Install 4 hub retaining bolts with red loctite.
45. 18MM - Torque 4 bearing retaining bolts to 150lb.ft.
46. 5mm Allen - Reinstall the ABS sensor into the hub

47. Reconnect the ABS line to the retaining clip on the knuckle
48. Slide the Rotor into position and use two lug nuts to secure it into place.
49. Check the rotor's proximity to the dust shield to ensure no alterations are needed to prevent contact.
50. 24MM - Install calipers using the factory hardware. Red loctite, torque to 250lb.ft.
51. Secure brake lines to ABS lines with the factory clips on the line.
52. 13MM - Secure the brake line/ABS brackets to the two axle mounts using the factory hardware. Take special care not to overtighten the bolt securing the bracket to the upper radius arm/axle mount as it will strip VERY easily.
53. 21MM - Reinstall drag link and tie-rod torqueing to 90lb.ft.
54. This wraps up the Passenger side. The Driver's side is exactly the same.
55. When both Sides are complete, reinstall the wheels and tires and torque lug nuts to 130lb.ft.

Maintenance Procedure

Carli Ball Joints should be serviced every 5,000 miles or 6 Months; whichever comes first.
We recommend Redline CV2 Grease but any synthetic Ball Joint Grease will do.

Standard Greasing Procedure:
1. Set the front axle on jack stands ensuring the tires are off the ground; this will unload the Ball Joints.
2. If the ball joints were installed according to the instructions, the zerk fittings will be accessible on the lowers. Clean the zerks if they're gunked from road debris and attach your manual grease gun.
3. Pump the lower until clean grease begins to come out the grease port.
4. Pump grease into the upper until the grease gun firms; it should only take 1-2 pumps but more doesn't indicate an issue.
5. With all 4 ball joints greased, turn the truck on and cycle the steering wheel from lock to lock 5 times while it's still on jack stands.
6. Turn the truck off and remove the jack stands; this concludes the greasing procedure.

Every 3-4 maintenance cycles, recheck torque on the ball joints nuts:

☐ 1-5/16" - Torque lower ball joint nut to 35lb.ft.

☐ 15/16" Crow's Foot - Torque upper ball joint nut to 70lb.ft.