

DYNATRAC

THE PERFORMANCE AXLE SPECIALIST

2003-2010 4X4 DODGE 2500/3500 HEAVY DUTY BALL JOINT

PROSTEER BALL JOINT REBUILD INSTRUCTIONS V1.0

 **WARNING:** Improper use or installation of this product can cause major failures that could lead to injury or death.

 **WARNING:** Only perform this installation if you are a qualified and equipped mechanic.

 **WARNING:** Carefully read the instructions before you rebuild your ProSteer ball joints.

①**INFORMATION:** There is a replaceable ball socket inside of the ProSteer ball joints that may wear out over time. Dynatrac's rebuild kit, replaces the durable ball socket inside of the ProSteer Ball Joints. Carefully inspect your ball joints for damage, cracks or other defects. If the ball joints are worn beyond the replaceable ball socket, return the rebuild kit to Dynatrac and order a new set of ball joints.

Common Tools Which Will be Required

- Tools to assemble and disassemble the truck wheel end
- Punch set
- Snap ring pliers
- ½" Allen key
- Utility Knife

Preparation and Inspection

Using the attached bill of materials verify the kit is complete. It will take around 2 to 4 hours to rebuild the ball joints and an additional 4 to 8 hours to disassemble and reassemble the wheel end. Allow yourself plenty time to rebuild the ball joints. The installation should only be performed by a competent well equipped mechanic. If you are not experienced enough to perform the rebuild find a competent shop to perform the work needed.

Note: The wheel end of the vehicle must be disassembled to rebuild the ball joints. The ball joint cannot be rebuilt with wheel end assembled.

I. Removing the Knuckle

1.1: Because there are multiple axle configurations, it is recommended a service manual specific to the vehicle is used. Publications are available online that offer detailed instructions for replacing ball joints and disassembling the wheel end. Begin the installation by disassembling the vehicle wheel end.

1.2: Remove the wheel hub assembly, brakes, tie rod and all other miscellaneous hardware as outlined in the service manual. Once the knuckle is exposed, loosen the two nuts located on the shaft of the upper and lower ball joint. Loosen the lower ball joint nut until 3-5 threads are still on the nut, this will prevent the knuckle from falling off. Since the ball joints have a tapered stud they will be firmly seated in the knuckle. To remove the ball joint stud from the knuckle, use a 5Lb metal hammer to hit the bottom of the end forging. Several hard well directed blows should cause the ball joint stud to fall out of the end forging. At this point you will have the end forging with the ball joints still pressed inside of them (Figure 1).



Figure 1

II. Disassembly of Upper Ball Joint

2.1: Use a screw driver or small pry bar to remove the E-Clip from the upper ball joint (E-Clip, CR9.2-3049-H; Fig 2).



Figure 2

2.2: Use a screw driver to pry the thread locking tab from the top of the ball joint (Thread Locker, CR9.2-3049-I; Fig 3).



Figure 3

2.3: With a 1" socket unscrew the upper plug and remove it from the ball joint (Plug, CR9.2-3049-C; Fig 4).



Figure 4

2.4: There is a spacer bushing inside of the ball joint cup. Use a pick to pull the bushing out (Spacer Ring, CR9.2-3049-D; Fig 5).



Figure 5

2.5: At this point you can press the ball socket stud assembly out of the ball joint body. Take the original castle nut and screw it on the upper stud backwards. Make sure to leave about 3/16 of an inch of spacing from the top of the stud to the end of the castle nut (Fig 6). The castle nut will provide a safe surface to hammer on without damaging the threads.



Figure 6

2.6: Use a hammer to knock the upper stud and ball socket from the cup.



Figure 7

2.7: Once the stud or ball socket has been removed use a pry bar or screw driver to remove the seal (Seal, CR9.2-3049-J).

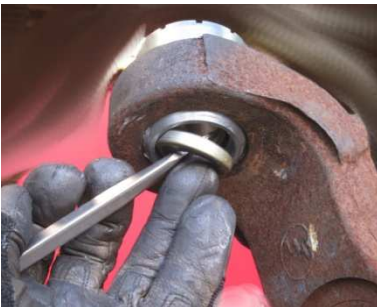


Figure 8

NOTE: If the Ball Socket/ Stud assembly came out as shown in figure 9 continue to steps 2.8 and 2.9. If the stud was removed from the cup but the ball socket is still in place continue to step 2.9.



Figure 9

2.8: If the ball socket and stud came out of the ball joint cup together, place the old ball socket in a vice and use a hammer to separate the two components. Remember you will reuse the stud so be careful not to damage the stud.



Figure 10

2.9: There is a chance the stud will come out without the ball socket attached to it. If the ball socket is still in the cup use the provided press tool to remove the ball socket separately. Insert the bolt through the ball socket so the thread end is pointed towards the top of the end forging. Place the washer over the bolt shaft and screw the nut on. Use a 3/8" allen key to hold the bolt and a wrench to turn the nut. This will pull the ball socket from the ball joint cup.

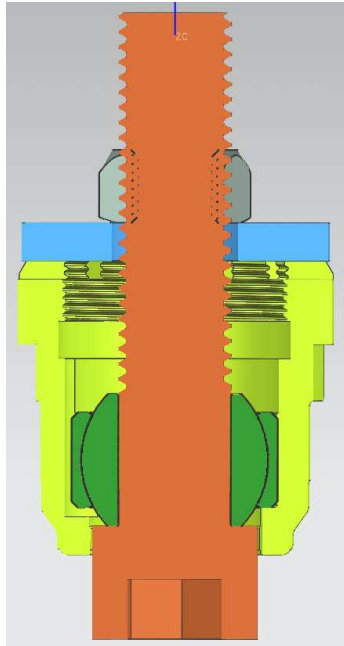


Figure 11

III. Disassembly of Lower Ball Joint

3.1: Remove the zerk fitting from the back of the ball joints with a 5/16" socket (Zerk Fitting, DA60-3049-N; Fig 12).



Figure 12

3.2: Use small punch to remove the roll pins from the lower ball joint (Roll Pins, CR9.2-3050-E; Fig 13). The press pins can be pressed into or out of the cup.



Figure 13

3.3: Use a 1/2" allen key to remove the plug from the lower ball joint (Plug, CR9.2-3050-C, Fig 14).



Figure 14

3.4: With a utility knife cut the lower seal off. It is glued to the body and needs to be removed with pliers and a utility knife (Seal, CR9.2-3050-H, Fig 15).



Figure 15

3.5: Once the lower seal is removed use snap ring pliers to remove the ball socket retaining snap ring (Snap Ring, DA60-3050-G; Fig 16).



Figure 16

3.6: Push the ball joint sideways to allow clearance for the punch and a hammer (Fig 17). Make sure the punch is located in the center hole of the stud. Using the punch begin to hammer the socket out of the cup. If the ball socket does not start to press out with several hard blows the ball joint boys will need to be removed from the knuckle. If the ball joint body does need to be removed call Dynatrac to get a copy of the ProSteer Installation instructions.



Figure 17

3.7: Remove the ball socket stud assembly from the cup (Fig 18).



Figure 18

3.8: With a pair of snap ring pliers remove the snap ring from the back of the stud (Snap Ring, DA60-3050-H, Fig 19).



Figure 19

3.9: Place the ball socket in a vice or fixture so the stud may be pressed out (Fig 20). Place a punch in the in the center hole of the ball socket. Damage

will result if you hammer directly on the spherical feature of the stud.



Figure 20

IV. Assembly Preparation

4.1: At this point the ball joints should be completely disassembled and ready for reassembly. Before the ball joints are reassembled there are a couple things that need to be done. Clean the ball joint bores with a clean rag and grease cleaner. Make sure to clean every component that will be reused in the ball joints (Fig 21).



Figure 21

4.2: Using 100 grit sand paper, remove the seal and glue material from the top of the ball joint cup (Fig 22). This is important to create a new surface for the seal to adhere to.



Figure 22

4.3: Take the new ball sockets and sand the edges of the part (Fig 23). This will break the edge of the ball socket preventing damage to the ball joint cup.



Figure 23

V. Lower Ball Joint Assembly

5.1: Take the lower stud (CR9.2-3050-D) and press it into the new ball socket (DA60-3050-L). Set the ball socket on the installation bushing, then use punch

and hammer to drive the stud into the ball socket (Fig 24). Do not hammer on top of the stud or you may damage the threads.



Figure 24

5.2: Insert the snap ring on the lower ball joint using snap ring pliers (Snap Ring, DA60-3050-H; Fig 25). Make sure the snap ring is fully seated in the groove.



Figure 25

5.3: Make sure the bore of the ball joint cup has been lined with axle grease; it will help when installing the ball socket. Place the ball socket installation tool over the ball socket stud assembly. Using a hammer hit the ball socket press tool to drive the new ball socket into the ball joint cup (Fig 26).



Figure 26

5.4: After the lower ball joint has been inserted into the body, make sure it is fully seated against the bottom of the cup.

Install the retaining snap ring into the cup; make sure the snap ring is fully seated in the groove (Snap Ring, DA60-3050-G; Fig 27). If the snap ring is not fully seated place the press tool over the snap ring and tap it with a hammer.



Figure 27

5.5: Make sure the top of the cup has been cleaned and all the old seal material has been removed. Prep the top of the cup and the seal with acetone (Fig 28).



Figure 28

5.6: Apply a thin layer of glue to the seal and quickly place it on the cup (Seal CR9.2-3050-H, Fig 29).



Figure 29

5.7: Place the seal on the ball joint cup and hold it in place for several minutes to allow the glue to set (Fig 30).



Figure 30

5.8: Install the lower plug using a .5" allen key (Plug, CR9.2-3050-C, Fig 31). Screw the plug down until you feel it bottom out. Then back it off 1/8 of a turn and continue loosening to the next locking position.



Figure 31

5.9: Make sure the slots of the back plug are lined up with 2 of the holes in the cup (Fig 32). Using needle nose pliers hold the roll pin and tap the pin in with a hammer (Roll Pin, CR9.2-3050-E).



Figure 32

5.10: Use a 5/32 socket to install the button head zerk fitting (Zerk Fitting, DA60-3049-N, Fig 33).



Figure 33

5.11: Wait for 2 to 3 hours before you fill the lower ball joint with grease.

VI. Assembling Upper Ball Joint

6.1: Install the stud into the ball socket with a hammer (Fig 34). Hammer the stud into the ball socket until the flange is about 1/4" away from the top of the ball socket (Fig 35).



Figure 34



Figure 36



Figure 35

6.2: Using the installation bushing insert the stud ball socket assembly into the upper cup (Fig 36). Hammer directly on the installation bushing until the ball joint socket is fully seated against the bottom of the cup.

6.3: Make sure the ball joint stud is strait and concentric to the ball joint cup. Using a small hammer lightly tap the seal into the ball joint cup (Seal, CR9.2-3049-J; Fig 37). Be care full not to damage the seal during reassembly.



Figure 37

6.4: Insert the spacer ring with the grooved edge facing towards the top of the part (Fig 38). It is very important to keep the grooved edge towards the top of the part to allow grease to flow properly.



Figure 38

6.5: Screw the upper plug into the ball joint body using a 1" socket (Plug, CR9.2-3049-C). Tighten the plug to 30ft/lbs then continue to tighten to the next locking position (Fig 39). The slots in the plug need to line up so the thread locker tab may be installed.



Figure 39

6.6: Insert the thread locker tab into the part, and use a small hammer to tap it into place if needed (Thread Locker, CR9.2-3049-I; Fig 40).



Figure 40

6.7: Using a pair of pliers install the E-Clip in the ball joint back plug (E-Clip, CR9.2-3049-H; Fig 41)



Figure 41

6.8: Fill the upper ball joint with grease until it starts to come out of the hole next to the seal (Fig 42).



Figure 42

6.9: Using a needle grease fitting fill the lower ball joint with grease after the seal has had about 2 hours to dry (Fig 43).



Figure 43

VII. Installation of Knuckle

7.1: Now the knuckle is ready for installation. A 1-1/8 socket and a 15/16 socket are required to tighten the ball joint nuts. Be sure to clean the tapered shafts with brake cleaner or acetone; this will help prevent the shaft from spinning during assembly. Place the knuckle into the end forging and lightly screw on the ball joint nuts, preventing the knuckle from sliding out.


7.2: Once the knuckle has been lightly fastened to the end forging begin to tighten the upper ball joint. The upper ball joint has a shaft that plunges. Use the upper ball joint nut to pull the upper ball joint shaft into the knuckle. This will pull the lower ball joint into the bottom of the knuckle. After the upper ball joint nut has been lightly tightened the lower ball joint nut can be tightened.

Torque Procedure

- Torque upper ball joint to 35ft. lbs
- Torque lower ball joint to 70 ft. lbs,
- Torque upper ball joint to 70Ft/ lbs, then rotate the castle nut to the next available slot
- Insert cotter pin and fold the tab over
- Re-torque lower ball joint to 140/160 ft. lbs

Reassembly of Wheel end

7.3: At this point the knuckle should be properly bolted to the end forging. Refer to the service manual and reassemble the wheel end. After everything has been installed check the wheel alignment. Make sure the axle is filled with gear oil if the differential was drained prior to disassembly. The knuckle may feel stiff as you move it from side to side; this is common and nothing to worry about.

 WARNING: Failure to check bolt and lug nut torque can cause serious accident, component failure, serious injury or death.

Bill of Materials

CR92-2X3050-A 2003-2008 Dodge ProSteer Rebuild Kit		
CR92-1X3050-B Lower Rebuild Parts		Qty
CR9.2-3050-H	Lower Seal	2
DA60-3050-L	Spherical Heim	2
DA60-3050-H	7/8 Stud Snap Ring	2
DA60-3050-G	1.625 heim Snap Ring	2
CR9.2-3050-D	3/4-16 Lock Nut	2
CR9.2-3050-E	Press Pin	4
CR92-1X3049-A Upper Rebuild Parts		Qty
DA60-3050-L	Spherical Heim	2
CR9.2-3049-J	Upper Seal	2
CR9.2-3049-E	5/8-18 Castle Nut	2
CR9.2-3049-H	E-Clip	2
CR9.2-3049-I	Thread Locker Tab	2

Tools		
DA60-3050-Q	1.625" Ball Socket press tool	Qty
CR9.2-3049-L	3/4 Bolt	1
CR9.2-3049-M	3/4 Washer	1
CR9.2-3049-N	3/4 Nut	1
Loctite 380		1

Lower Ball Joint Components

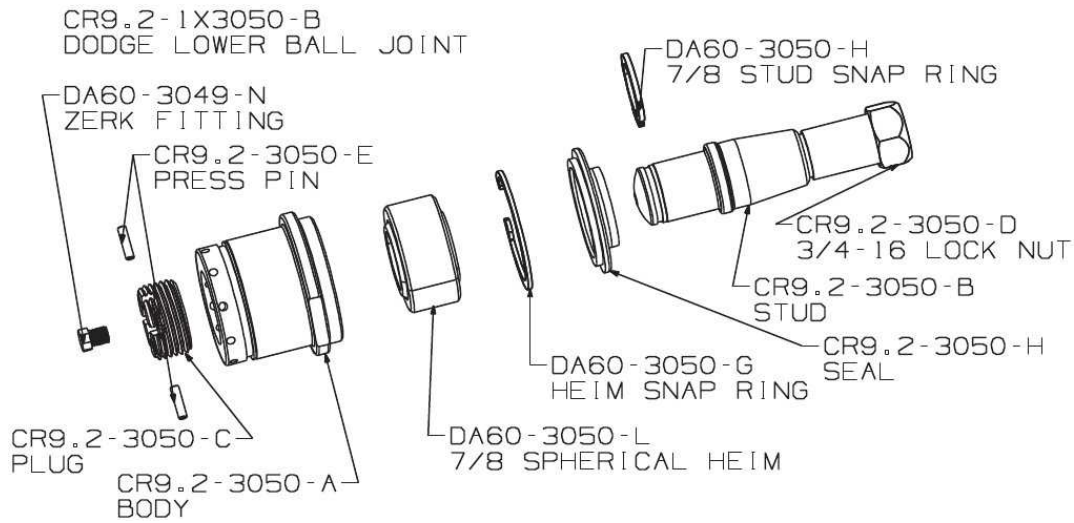


Figure 44

Upper Ball Joint Components

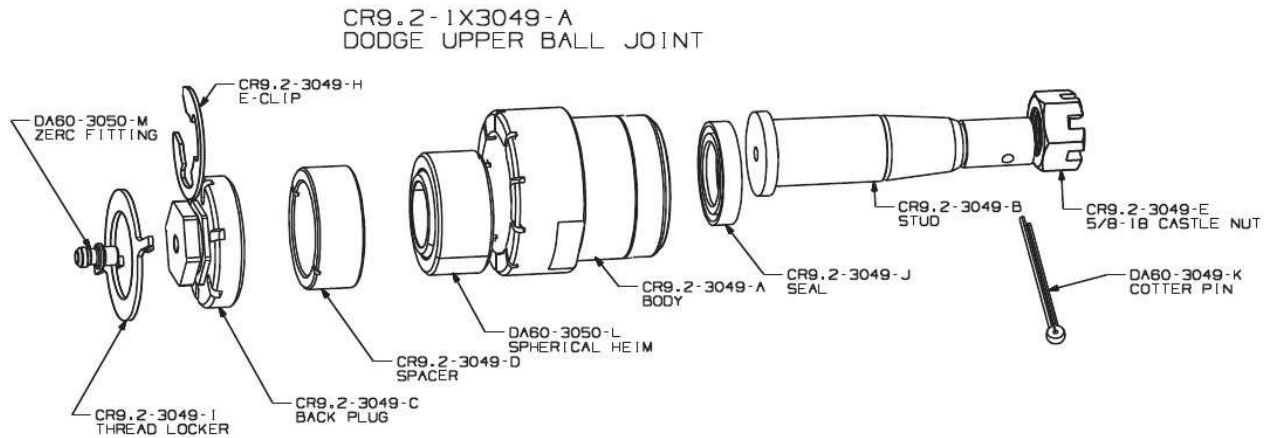


Figure 45

Rebuild Tools

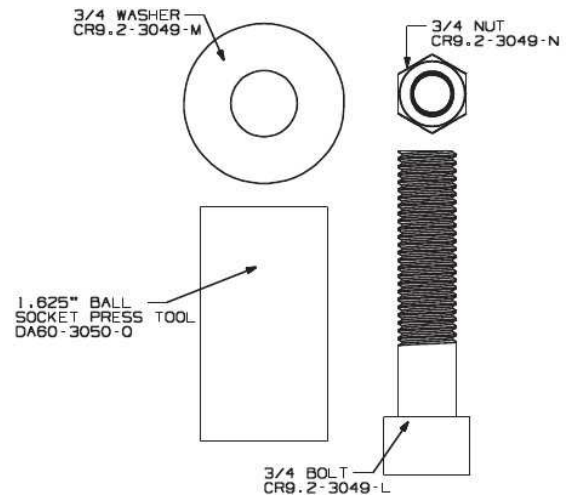


Figure 46