DYNATRAC PRODUCTS

2007-2018 JEEP JK HEAVY DUTY BALL JOINT

JP44-2X3050-C

DYNATRAC BALL JOINT REBUILD INSTRUCTIONS V5.0

⚠ **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 Dynatrac ball joints.**

ⓘ**INFORMATION**: There is a replaceable ball socket inside of the ProSteer ball joints that will wear out over time. The rebuild kit, replaces the durable ball socket inside of the Dynatrac 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 JK wheel end
- 1/8" Punch
- Snap ring pliers
- 5/64" Allen key
- Utility Knife

Preparation and Inspection

Using the attached bill of materials verify the kit is complete. Contact Dynatrac if the kit does not include everything listed in the bill of materials ((714) 596 4469). 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, Dynatrac recommends using a service manual specific to the vehicle. 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, JP44-3049-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, JP44-3049-I; Fig 3).

Figure 3

2.3: With a 1" socket unscrew the upper plug and remove it from the ball joint (Plug, JP44-3049-C; Fig 4).

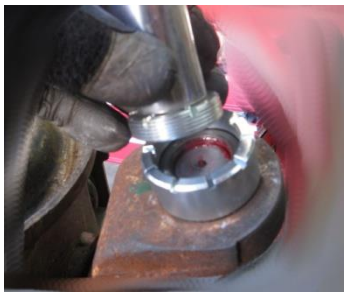

Figure 4

2.4: There is a spacer bushing inside of the ball joint cup. Use a pick to pull the bushing out (Spacer Ring, JP44-3049-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, JP44-3049-J).

Figure 8

NOTE: If the Ball Socket/ Stud assembly came out as shown in figure 9 continue to step 2.8. 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, a bolt can be used 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 a washer over the bolt shaft and screw a nut on. Tighten the nut while holding the bolt head. This will pull the ball socket from the ball joint cup.

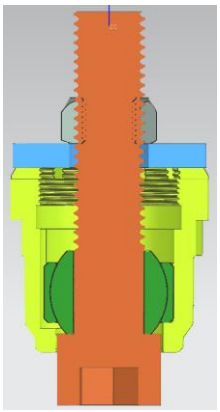

Figure 11

III. Disassembly of Lower Ball Joint

3.1: Remove the two small plugs on the upper face of the lower ball joint using a 5/64" allen key.

Figure 12

3.2: 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, DA60-3049-J, Fig 13).

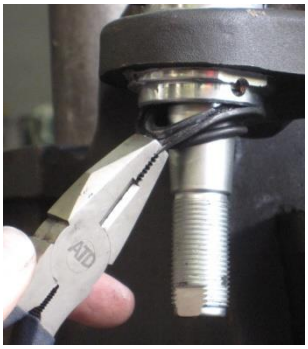

Figure 13

3.3: Once the lower seal is removed use snap ring pliers to remove the ball socket retaining snap ring (Snap Ring, DA60-3049-G; Fig 14).

Figure 14

3.4: Use a 1/8" punch to drive the spherical joint out of the ball joint body. Alternate back and forth between holes to avoid misaligning the spherical joint.

Figure 15

3.5: Remove the ball socket stud assembly from the cup (Fig 16).

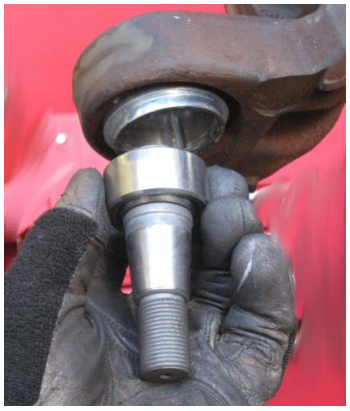

Figure 16

3.6: With a pair of snap ring pliers remove the snap ring from the back of the stud (Snap Ring, DA60-3049-H, Fig 17).

Figure 17

3.7: Place the ball socket in a vice or fixture so the stud may be pressed out (Fig 18). Place a punch in the center hole of the ball socket. Damage will result if you hammer directly on the spherical feature of the stud.

Figure 18

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 19).

Figure 19

4.2: Using 100 grit sand paper, remove the seal and glue material from the top of the ball joint cup (Fig 20). This is important to create a new surface for the seal to adhere to.

Figure 20

4.3: Take the new ball sockets and sand the edges of the part (Fig 21). This will break the edge of the ball socket preventing damage to the ball joint cup.

Figure 21

V. Lower Ball Joint Assembly

5.1: Press the lower stud (JP44-3050-D) into the new ball socket (DA60-3050-L). Set the ball socket on the installation bushing or appropriately sized socket and use a punch and hammer (or arbor press if available) to drive the stud into the ball socket (Fig 22). Do not hammer on top of the stud or you may damage the threads.

Figure 22

5.2: Insert the snap ring on the lower ball joint using snap ring pliers (Snap Ring, DA60-3049-H; Fig 23). Make sure the snap ring is fully seated in the groove.

Figure 23

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 24).

Figure 24

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, DA60-3049-G; Fig 25). If the snap ring is not fully seated place the press tool over the snap ring and tap it with a hammer.

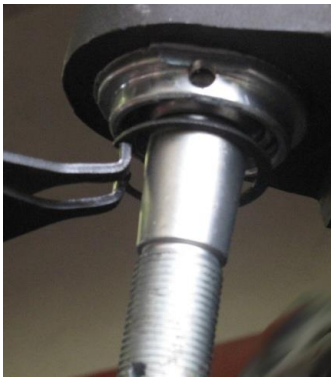

Figure 25

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 26).

Figure 26

5.6: Apply a thin layer of glue to the seal and quickly place it on the cup (Seal DA60-3049-J, Fig 27).

Figure 27

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 28).

Figure 28

5.8: Install the two small plugs using a 5/64" allen key.

Figure 29

5.9: Wait at least 30 minutes to allow the glue to cure before you fill the lower ball joint with grease. Dynatrac recommends working on the upper ball joint while the glue cures on the lower ball joint.

VI. Assembling Upper Ball Joint

6.1: Install the stud into the ball socket with a hammer (Fig 30). Hammer the stud into the ball socket until the flange is about 1/2" away from the top of the ball socket.

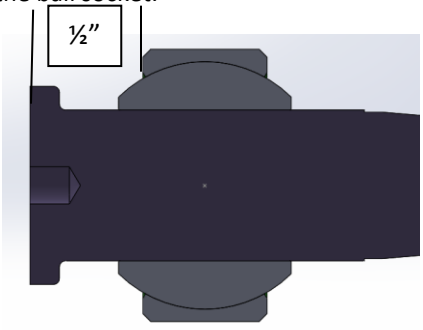

Figure 30

6.2: Using the installation bushing insert the stud ball socket assembly into the upper cup (Fig 31). Hammer directly on the installation bushing until the ball joint socket is fully seated against the bottom of the cup.

Figure 31

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, JP44-3049-J; Fig 32). Be care full not to damage the seal during reassembly.

Figure 32

6.4: Insert the spacer ring with the grooved edge facing towards the top of the part (Spacer Bushing, JP44-3049-D; Fig 33). It is very important to keep the grooved edge towards the top of the part to allow grease to flow properly.

Figure 33

6.5: Screw the upper plug into the ball joint body using a 1" socket (Plug, JP44-3049-C). Tighten the plug to 20 ft-lbs then continue to tighten to the next locking position (Fig 34). The slots in the plug need to line up so the thread locker tab may be installed.

Figure 34

6.6: Insert the thread locker tab into the part, and use a small hammer to tap it into place if needed (Thread Locker, JP44-3049-I; Fig 35).

Figure 35

6.7: Using a pair of pliers install the E-Clip in the ball joint back plug (E-Clip, CR9.2-3049-H; Fig 36)

Figure 36

6.8: Finally, fill the upper and lower ball joints with grease. Only a few pumps are required because on Dynatrac Ball Joints, the primary function of the grease is to prevent contamination. If grease does not come out of the seal, do not continue to pump grease.

VII. Installation of Knuckle

7.1: Now the knuckle is ready for installation. A 7/8 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 is a plunging design to take up any tolerance between the two tapers in the knuckle. Tighten the upper ball joint nut until you see the lower ball joint stud start to seat into the knuckle taper. 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 105 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

JP44-1X3050-C, JK Ball Joint Rebuild Kit		
JP44-1X3050-E, Lower Ball Joint Parts		**QTY**
DA60-3049-L	Ball Socket	2
DA60-3049-J	Seal	2
DA60-3049-G	1.375" heim snap ring	2
DA60-3049-H	3/4 Stud Snap Ring	2
CR9.2-3049-E	5/8-18 Castle Nut	2
DA60-3049-K	Cotter Pin	2
JP44-3050-I	10-32 Set Screw, Cup Plug	2
JP44-1X3049-A, Upper Ball Joint Parts		
DA60-3049-L	Ball Socket	2
JP44-3049-J	Seal	2
JP44-3049-E	9/16-18 Castle Nut	2
DA60-3049-K	Cotter Pin	2
JP44-3049-I	Thread Locker Tab	2
CR9.2-3049-H	E-Clip	2

Rebuild Tools (Not Included)

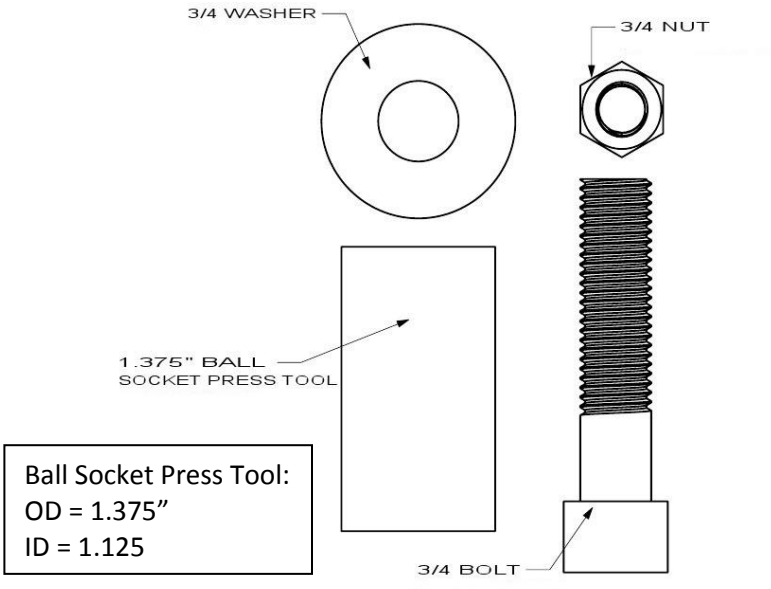

Figure 37