

REMOVE WHEEL

- Self-explanatory.

REMOVE BRAKES

1. There is no need to remove the caliper from the caliper bracket. Unbolt the the larger two bolts holding the caliper bracket to the knuckle and pull the caliper (still attached to the caliper bracket) off the rotor.
2. Remove rotor and set aside.

REMOVE HUB LOCK

1. Remove the retainer ring on hub lock.
2. Pull outward on hub lock. This can be hard to remove, it will come off though. If needed, use a piece of wood to “jar” it on each side and then work it off.

REMOVE TIE ROD END



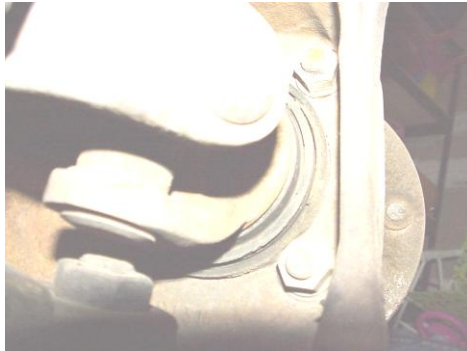
1. Remove tie rod from knuckle using pitman arm puller. You can purchase a puller form an auto parts store for about \$14. The Ford manual shows removing this later on when you get to the knuckle but by removing it now, you will be able to turn the knuckle left to right and access the hub lock nuts easier.

REMOVE WHEEL HUB



1. Remove snap ring on axle shaft. You will find a pair of snap ring pliers very handy for this.
2. Remove the three thrust washers. Remember how they came off because one of them is different and has to be in the middle of the two round washers.

3. If you have ABS, disconnect the ABS wheel sensor harness and routing clips. The Ford manual states do not remove the ABS sensor from the bearing but then later states to remove the bolt and the ABS sensor from the hub.
4. Remove the four lock nuts that hold the hub on. These are on the back of the knuckle and



are 13/16 nuts.

5. Remove the wheel hub and bearing by pulling out holding the lug nuts. You will probably have to wiggle it around some to get it out.
6. Remove the disc brake shield.
7. Remove and discard the yellow o-ring. Replace this o-ring anytime the hub is



removed.

This is Ford part number F81Z-4A322-AA and will cost about \$5.48 from the dealer. The Ford manual states that failure to replace this could cause a vacuum leak and loss of four wheel drive operations.

REMOVE AXLE SHAFT

1. Drive the axle shaft main seal out of the knuckle from behind using a drift (per manual).



Use a screwdriver if needed.

You will have to hit on top and bottom and then from side to side. Notice in the picture that the screwdriver

in the first groove coming up from the knuckle. It has a hard surface inside there. The second groove does not. Of course this will have to be replaced and is a major pain to install onto the axle shaft. We will get to this later. This is the axle shaft main seal and is Ford part number F81Z-3254-CB and will run about \$44.92 from the dealer.

2. Pull axle shaft out once you have driven the main seal into the knuckle. This might be a good time to place the tie rod back into the knuckle and straighten the knuckles front and center. This will help when trying to pull the axle shaft out. It will need to be pulled straight out. The passenger side will be tougher than the driver's side simply because it is longer. Just work with it and it will come



out.

REMOVE KNUCKLE

1. Remove upper ball joint castellated nut by removing cotter pin, nut, and



insert.

This is 1 1/8" on most.



2. Remove lower ball joint nut. Remove it by taking the tie rod out of the knuckle and turning the knuckle so that you can get a wrench

in to it.



3. Remove the vacuum line.
4. Remove the knuckle by tapping down on the top ball joint and also hitting the bottom of the knuckle beside the lower ball joint with a heavy hammer. Watch your toes! Place a towel under it on the floor so when it falls out it will not crash too hard on the



floor.

Do not mix up the alignment shim/sleeve on the upper ball joint from either side of the truck - they need to go back on the side they came off to ensure your camber/caster is correct afterwards.

REMOVE OLD BALL JOINTS



1. Remove lower ball joint first. Remove snap ring. Place knuckle in vice and use a ball joint removal kit to drive out lower and upper ball joints. The lower and upper ball joints must be driven out from the



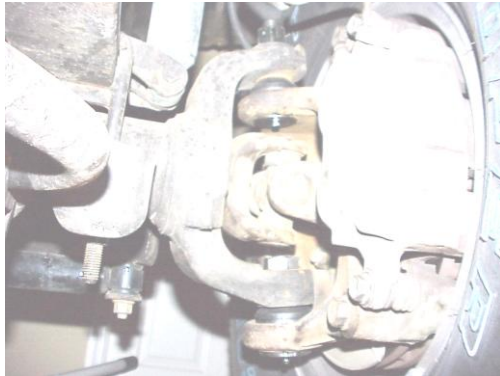
bottom.

INSTALL NEW BALL JOINTS

1. Install new ball joints using the same kit. Install in reverse order with the upper going in



first. Clean out the openings for the joints. new Ball Joints, have grease fittings, but be careful with the upper grease fitting because it may hit the knuckle as it travels around. Even with a 90 you should still check it



closely.
on the lower ball joint.

Do not forget to put the snap ring back

INSTALL KNUCKLE

1. Position wheel knuckle onto axle housing.
2. Install nut onto lower ball joint. Do not tighten at this time.
3. Install the insert and castellated nut onto the upper ball joint. Do not tighten at this time.
4. Tighten the lower ball joint retaining nut to 101 lb-ft. One thing to remember here: more than likely the ball joint is going to spin as you try to tighten the lower ball joint retaining nut. You will have to apply pressure to the lower ball joint in order to get the nut going

and get the ball joint snug before you can torque it down.



You can also use light upward pressure from a floor jack to prevent the ball joints from spinning.

5. Tighten the upper ball joint nut to 101 lb-ft. Install cotter pin.
6. Install tie rod end onto knuckle.
7. Tighten the tie rod castellated nut to 52 lb-ft.
8. Install cotter pin into tie rod nut.

INSTALL AXLE SHAFT

1. First you will need to replace the two seals on the axle shaft. The larger is on the outside and is Ford part number F81Z-3254-CB and will cost about \$44.92 from the dealer. The smaller one is a dust seal on the inside and is Ford part number F81Z-1S175-HCA, around \$25.82 from the dealer.



2. The inside small dust seal can be easily installed by hand. The large outside main seal will require a little more ingenuity. This seal will need to be tapped on with force. It must be hit with something that is barely larger than the opening in the center. You need to match something slightly larger than the inside



diameter of the hole in the seal.

If you hit it more to the outside, it will cave in with you. Use care when installing the seal.

3. Once new seals are on, install the axle shaft back through the knuckle and into the axle shaft housing. Use a block of wood placed over the axle shaft, and tap the axle shaft in

far enough to put the hub back on and the hub bolts will stick out the back of the knuckle enough to get the nuts on them. Then cross-tightened the hub bolts and this will push the axle shaft in as it is tightened. Do not forget to put the washer onto the axle shaft before putting the hub on. This washer looks grey and has grooves on one side which faces inside against the new main seal. Also make sure you have installed a new yellow o-ring



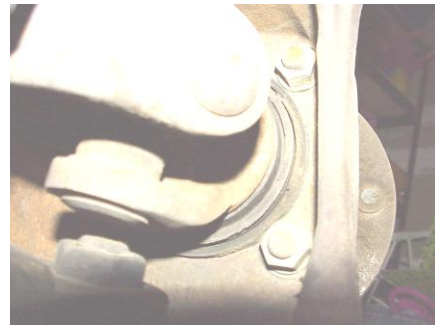
on the hub

and put the disc brake shield back

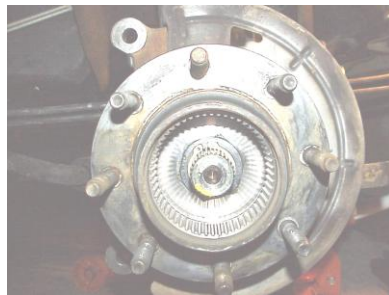


on.

If you have ABS, position the ABS sensor back on the hub and tighten bolt to 13 lb-ft.



4. Tighten hub bolts on back of knuckle to 133 lb-ft.
5. Put the three thrust washers onto the axle shaft inside the hub. Make sure the non-metallic thrust washer is installed between the two metal thrust washers. Failure to do this will cause severe wear to the non-metallic washer and cause damage to the wheel hub and bearing, the axle shaft seal and the axle shaft.



6. Install snap ring.
7. Install the hub lock and retainer ring.

INSTALL ROTOR

INSTALL BRAKE ROTOR PAD HOLDER




1. Install pad holder onto rotor and knuckle.

Tighten bolts.

INSTALL CALIPER

INSTALL ESOF VACUUM LINE



1.  If you get black(er) hands at this stage, consider replacing the line - it is perishing. Also check the lower hose fitting (on the knuckle) for rust. It is known to 'fade away...' - replace with a brass fitting.

RE-INSTALL WHEEL

Before you drive the truck, jack both wheels off the ground and lock each hub at the wheel and turn the wheels to see if the front driveshaft will turn. Then turn on the switch and engage the ESOF and turn both wheels again with the hubs locked together, individually and unlocked. Everything should check great at this point and you're all done.

By the way, do not forget to grease the new ball joints!