

Below are the removal and installation steps I did for my 2000 F250 but should apply to all 1999-2004 F250/F350/Excursion as well.

Ordering:

When I placed my order with Red Head Steering (1-800-808-1148) they stated some 1999 and 2000 Model Year trucks came with either 32 or 36 spline output shafts. They asked which one I had and of course I had no idea. They suggest the easiest way to tell is count the number of teeth between the wide pitman arm alignment gaps (there are two of four you can access easily) of the output shaft. 8 teeth indicates it 32 spline and 9 indicates it's 36. I was easily able to do this with the steering box in the truck and the pitman arm mounted by turning the steering wheel all the way to the right and using a small pick to count the teeth between two alignment gaps.



Materials:

Besides the steering box the material list is rather small.

2-3 quarts ATF fluid

Red thread lock

Cotter pin

Zip ties

Small length of hose, about the size to fit over the input and return lines of the steering box

Tools:

The tools needed are also pretty minimal. Some of the socket sizes are based on aftermarket replacement parts (such as the drag link) so they may be different in your case.

Jack and jack stands

13MM socket

14MM socket

21MM socket

34MM socket (for pitman arm nut which is actually SAE but I did not have the right size)

16MM flare nut wrench (a regular wrench will work fine as well)

Pitman arm puller (you'll need proper socket or wrench size for your puller)

Breaker bar

Torque wrench

Bench vise

Needle nose pliers

Side cuts

Hammer

Removal:

Removal is pretty straight forward.

- 1.) Lift front tires off the ground and support each side with a jack stand. Do not work under or around truck if not properly supported by jack stands!
- 2.) Remove negative battery cable.
- 3.) Turn ignition key to “run” position so the steering wheel is unlocked.
- 4.) Loop seat belt through lower part of steering wheel and buckle it to keep the wheel from moving while the steering shaft is un-hooked from the steering box. Failure to immobilize the steering wheel can lead to damage of the clock springs!
- 5.) Remove and discard cotter pin from crown nut on the top of the pitman arm that holds the drag link. Remove nut with 21MM socket.



- 6.) Slide the Pitman arm puller over the arm and center it over the drag link bolt/pin. Crank down on the puller and the drag link will pop off. To keep the drag link off the floor and out of the way I zip tied it to the tie rod.
- 7.) Remove air intake filter housing using 13mm socket.
- 8.) Remove shield over steering shaft by popping it off the return line and slid it up the steering shaft.



9.) Removed steering shaft pinch bolt using 13mm socket.



10.) Slide up lower steering shaft up and off of steering box input shaft. I had to pry between the gear box and the end of the steering shaft to get it to come off.

11.) Place oil pan under the truck and position it under the steering box.

12.) Loosen and slide up the nuts on the input and return lines using 16MM flare nut or regular wrench. Do not pull the lines out of the steering box until you have both nuts loosened. I made this mistake and got fluid all over. Once they are both loose pull one line out and slide the hose over it. Pull the other line out and slide the other end over it. Zip tie the hose on to make sure it doesn't slide off. This will keep fluid from leaking all over the place.



- 13.) Remove two of the three bolts on the driver's side frame that hold the box in place using 14MM socket. Loosen the remaining bolt but do not remove it until you are in place to support the steering box. If you are not prepared to support the box it can drop to the floor! Once the last bolt is removed the box will drop down and slide out from the bottom.



- 14.) Remove the Pitman arm by mounting the steering box by the Pitman arm in a bench vise. Use a breaker bar and a 34MM socket (or equivalent SAE socket) and remove the nut holding the arm on. You can also use an air impact like I did instead of a breaker bar. Save nut and lock washer for installation.
- 15.) Slide the pitman arm puller over the arm and center over the output shaft. Start cranking down on the puller. Even using an air impact I had to bang on the pitman arm a few times with a hammer while cranking on the puller. With a little bit of work the pitman arm popped off.

Installation:

Before beginning the installation make sure the steering box is centered. I checked with the folks at Red Head Steering and they said the box was already centered. Installation is pretty much the reverse of removal.

- 1.) Reinstall Pitman arm by tapping the arm back on the output shaft and then remounting it in a bench vise by the arm. Apply red thread lock to the output shaft and reinstall lock washer and nut and torque nut to 199 ft-lbs.
- 2.) Apply red thread lock to the three bolts that hold the steering box to the frame. Slide the gear box back into truck from the bottom and support it while you install the bolts. It's easiest to start with the bottom front bolt and then use this as a pivot point to start the other bolts. Torque bolts to 59 ft-lbs (45 ft-lbs for 1999 MY).
- 3.) Reinstall the steering shaft by wiggling it onto the input shaft of the steering box as far as you can. Then tapping (hammering) on the back side and top of the rubber spring of the steering shaft. Apply red thread lock to the pinch bolt and torque to 36 ft-lb.



- 4.) Before reinstalling the input and return lines check that each line has a small rubber o-ring at the seat near the end of the line. Without these o-rings you may have a leak. Remove the zip ties and hose looping the lines together.
- 5.) Once you check the o-rings reinstall the lines by pushing the lines on the steering box and tightening the nuts.
- 6.) Reinstall the steering shaft shield.
- 7.) Reinstall the drag link to the pitman arm by tapping (hammering) it back into place. Reinstall the crown nut and torque to 66 ft-lbs (60 ft-lbs 1999 MY). Install new cotter pin. You may need to adjust the drag link to center the steering wheel again.
- 8.) Reinstall air intake filter housing.
- 9.) Reattach negative battery lead.
- 10.) Fill the power steering reservoir to the proper level.
- 11.) Start the engine and bleed the system by cranking the steering wheel from lock to lock several dozen times. Do not hold the steering wheel against the locks for more than several seconds. Recheck fluid level.
- 12.) Remove jack stands and lower front tires back down.

13.) Look at your pretty new Red Head Steering box and enjoy the slop free steering.

