

## V70XC Inner/Outer Tie-Rod Replacement

### 1997 - 2000 V70XC

This is a pretty straight-forward repair that anyone who has turned wrenches can do (I rate it a two skinned knuckle job out of a possible five). If you aren't sure that your tie-rod ends need to be changed, you can jack up the front-end of your car and try to wiggle the tires by holding the tire at the 3 and 9 o'clock positions. When you try to wiggle the tire, you should feel no looseness. If you hear or feel a looseness, then you need to do this repair. Another sound reason to do this repair yourself, is that I have been told (but not confirmed) that Volvo charges \$1400 for this repair (both inner and outer tie-rod ends)!

You'll need the following at a minimum:

#### Tools:

Jack (suggest floor jack)  
Some support for the car (wood blocks, car stand)  
Small pipe wrench  
18 mm deep socket  
ratchet wrench or breaker bar to fit 18 mm socket  
Long handled pliers (channel-locks)  
Long punch (12" or so)  
BFH (big friggin' hammer)

#### Parts:

2 -Inner tie-rod ends (FCP-Groton #9191410 - \$19.50 each (7/7/2007))  
2 -Rack Boot Kit (FCP Groton #9191409 - \$12.00 each (7/7/2007))  
Optional: 2-Outer tie rod ends (FCP Groton # 271598 and # 271599 – each \$16.00)

**Now, not required, but I sure do advise (don't ask me how I know 🤔 ) that you consider changing your outer tie-rod ends at the same time if they haven't been changed in awhile. This way, when you are done, you will have inners and outers done...you have to take the outer tie-rod ends off anyway.**

**Be sure to have your car realigned when you have finished the installation.**

1) Jack the car up high enough to remove the front wheel. **I suggest STRONGLY that in addition to the jack you immediately place the car stand or blocks under the car.** Lower the jack a bit until both the jack and the car stand are firmly in place.



2) Remove the front wheel where you will start the job.



3) Squeeze the outer clamp on the inner-tie rod boot and move it towards you, off of the boot. Cut the bellows back about 4" or so.



4) Remove the 18 mm bolt that holds the outer tie-rod end to the hub assembly.



Note: After removing the nut, whack the side of the assembly with the BFH (just about where the arrow points to). Now remove the shaft from the assembly.

5) Remove the outer tie-rod end. You can see the inner tie-rod joint where I cut the bellows back in Step #3. Now take a wrench and hold the nut that locks the outer tie-rod in place and turn the tie-rod end (counterclockwise)...it will unthread from the inner tie-rod. DO NOT turn the nut. If you don't change the nut position, you will not be too far off on alignment when you are done (*be sure to get the car aligned though, when you are finished*).



6) Now for the inner tie-rod end. I didn't have a wrench big enough to fit the inner tie-rod end so I used a small pipe wrench. You can see the flats for a wrench just in front of the red plastic bushing.



Here is the pipe wrench on the inner tie rod.



Lay down underneath the car and give it (the wrench or the pipe wrench) a yank in a counter clockwise direction. It will break loose fairly easily. After a turn or two, you'll be able to remove it by hand, simply by unscrewing it. You can see the remains of the bellows in this picture.



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Here is the inner tie-rod out of the car. The ball joint in mine had about a 1/16" of slop (wear) in it.



I then knocked the inner bellows clamp off with my 12" punch and a hammer (the replacement kit comes with the clamps). Disassembly is almost complete.



**So now it is time to put in the new parts (I always like this part!).**

1) Here is the old inner tie-rod next to the new tie-rod end. You need to take the nut off of the new tie-rod end.



2) Slide the new boot over the tie-rod end with the large end of the boot facing the ball joint of the tie-rod end. After you get the boot on the inner tie-rod end, push it as far forward as you can get it (toward where the nut will be put on ).



3) Now screw the inner tie-rod end into the steering rack. Do not work the boot over the end of the steering rack yet! Snug the tie rod to the steering rack (I used a pair of channel locks) by putting the wrench on the flats at the end of the tie-rod end.



4) Now put the nut onto the inner tie rod end. I used the old tie-rod end to place the nut in approximately the same distance as the old tie-rod stop nut was when I took it out.





5) Now comes the only real tricky part of this repair. You have to work the boot over the end of the machined surface of the steering rack. It is a real PITA (ask your dad, if you don't know this acronym) but doable. When you get the boot over the end of the steering rack, work the cable tie over it and cinch it up tight. Finally clip the excess cable tie off.



Repeat this with the outer end of the boot...this is an easy one. Just push the boot to the machined surface (see photo in Step #1 of reassembly) on the tie-rod end and cinch up with the smaller cable tie and trim off the excess.



6) Screw the outer tie-rod end (new one I hope) onto the inner tie-rod end up to the nut. When you hit the nut tighten the nut by holding the outer tie rod end (there are flats on it) and the nut together. After tightening it up, turn the outer tie rod end so the stud faces down.



7) Reattach the outer tie-rod end to the wheel assembly and tighten the 18 mm nut to (torque value?).



8) Put the wheel back on and torque the lug nuts to, I believe 80 ft-lbs. Now repeat this process on the other side and you have saved yourself a lot of money and the steering will feel like brand new!

My total bill for parts was just under \$100. Be sure to drive to your friendly wheel alignment shop and get a good alignment. My car drifted a bit left when I got it finished...hardly noticeable.



If you have questions, don't hesitate to email me at [nlemerise@usa.com](mailto:nlemerise@usa.com)

**Adios!**