

FRONT END REPAIRS

Most front end work can be done by anyone with a little mechanical ability. NO SPECIAL TOOLS ARE NEEDED! A good hammer, properly used, can be substituted for the special tie rod and ball joint removing tools. I know of several excellent mechanics who never owned them.

1800 front ends usually wear in roughly the following order:

- 1.Upper control arm bushings
- 2.Idler arm bushings
- 3.Stabilizer bar bushings (sway bar)
- 4.Lower ball joint (s)
- 5.Tie rod ends and side rods.
- 6.Steering box
- 7.Lower control arm bushings
- 8.Upper ball joint(s)

The procedures for checking and replacing are as follows:

1. Upper control arm bushings. Inspect visually. Bounce front end up and down. Often they will squeak when bad. On rough roads they can go bad in a year or two. They are cheap (about \$2.00 apiece) and easy to replace. Time: about 20 minutes per side. Replace them all. You should NOT remove the shaft as Volvo says. Jack or support car on front cross member. Remove nuts and remove C clamps. Slide bushings off ends of upper control arm rod. CLEAN ROD WELL with emery cloth. Lubricate with vaseline, brake fluid or grease. Slide new bushings on. Raise or jack under lower A frame (wishbone), or wheel to place U clamps in position and reassemble. The wheel will have dropped when the U clamps were removed. If you remove the wheel first, the job is slightly easier and the mechanics are a little more obvious, Front end must be aligned!

2. Idler Arm Bushing (Aux. arm) To check: Grasp end of idler arm and try to move up and down. There should be NO vertical play.

To replace: Remove cotter pins and nuts from tie rod and side rod. To remove rods from idler arm, pound on side of idler arm with a heavy hammer where rods connect (one at a time) and put a little down pressure on the rod. Sometimes they pop right out with one or two blows. sometimes you have to keep at it, but they will come! Remove bolts that fasten idler arm assy. to frame and remove assy. The old bushing must be pressed out and a new one pressed in. It can be done in a good vise with "a suitable drift" but it's best to have it done at a machine shop in a press. Have them pay attention to pressing it in facing the right way! The lip goes against the upper body of the casting. Reassemble in reverse order. Move the right wheel to line up rods with idler arm. The pitman arm (On steering box) will have held the tie rod in place, but the right wheel will have been unhooked.

3. Stabilizer bar bushings. Inspect visually. Grasp bar and push up and down. The bar should be tight. Remove upper nut while holding lower bolt head with a wrench. Remove upper rubbers and remove bolts from inside of sleeve. Push up on bar to remove rubber under bar. Sometimes the bolt is rusted fast inside the sleeve. Try liquid wrench and tap from above a few times with nut on rod a few turns so as nut to ruin threads. If that fails,. try holding the sleeve in a vice-grip and turning the bolt from below. If it just won't come you'll have to chisel the sleeve away and replace, use heat, or saw thru the bolt and replace the whole thing. If the lower rubbers look OK, DONT BOTHER! Just replace the uppers. ANY SHOCK ABSORBER RUBBERS WILL DO. These are non-critical cushions. Reassemble so that the bushings are slightly compressed.

4. Tie Rod Ends, Side Rods. These are obvious and easy. Use a heavy hammer on the side of the female part, some down pressure on the arms. It's a lot easier to replace the whole tie rod than to replace the ends. Toe in must be adjusted if any of these parts are replaced.

5. Steering Box. To check: Rotate the steering shaft back and forth with your right hand. Grasp the pitman arm with your left hand. The pitman arm should move with the steering shaft with no appreciable lag. There is usually a little vertical play in the pitman due to wear on the lower bushing in the box. This is normal and no cause for alarm. To adjust: Jack front end under cross member so that both wheels are off the ground, 2. Loosen the lock nut on top of the box a few turns. 3. Tighten the screw down fairly tight. 4. turn the steering wheel left and right all the way a few times. If you feel any binding, back screw off 1/2 turn or until binding disappears, and stop. If no binding: 5. Tighten screw down again, and back off 1/2 turn. check for binding as above. It is not healthy to have these too tight, so unless you have experience with them, the 1/2 turn and no binding is the safe way to do it. If you still have too much play-the steering wheel moves more than 1" before the pitman moves-and no adjustment left, consider replacing the box. Rebuilding is a tough job.

To replace: Remove rods from pitman (pound on side of pitman where rods connect). Remove mounting bolts on box. Disconnect joint and ground wire at upper end of steering shaft. Remove box with shaft. When replacing the box, especially if the car has been hit in front, you can move the connector flange on the steering shaft for a good fit with the upper shaft by loosening the locking bolt and tapping the flange up or down on the shaft. This is easier done with the box and shaft out of the car. Also, connect the shafts before tightening the box mounting bolts so that the alignment of the two shafts will minimize stress on the connector and the steering box bearings.

6. Lower Control Arm Bushings. These seldom go bad. Bounce the car up and down and inspect visually. Replacing these can be a rotten, hard job if the shaft (bolt) won't come out. If you're capable of tackling it, you don't need any directions. If you can afford it, have someone else do this job.

7. Upper Ball Joints: Check same as lowers. These rarely go bad. To replace-same as lowers, only a little harder. Beware of ball joints of English mfg. with copper colored shafts. They are terrible.

BOB STEIN