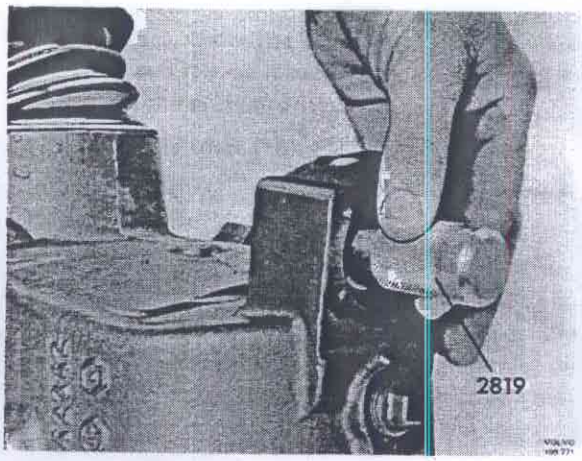

Fig. 63–9. Fitting the lower bushing

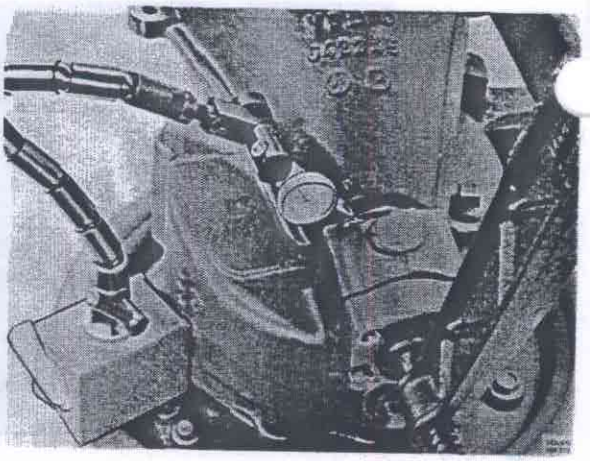

Fig. 63–11. Placing the dial indicator

Assembling the steering pins

1. Knock the new bushings into the wheel carrier. The upper bushing is carefully tapped in with a plastic mallet. The lower one is driven in with drift 2819 and a plastic mallet, see Fig. 63–9. Take care that the bushings are driven in properly all the way.
2. Place the steering knuckle support in position without any sealing rings. Fit the bolt through the lower pin. Place the old shims or new ones of the same thickness plus about 0.5 mm (0.02"). Place the ball shell and nut in position and tighten up the nut to a torque at 150–200 Nm (15–20 kpm = 108–145 lbftf).
3. Screw tight the cover under the lower pin and screw the lubricators out of the upper ball shell and the cover.
4. Place a screw clamp over the steering knuckle according to Fig. 63–10. Tighten up the clamp well (approx. 1500 N = 150 kp = 330 lbf) so that the knuckle does not have any clearance.
5. Place a dial indicator according to Fig. 63–11 and zero-set it. Note the measuring pointer position see Fig. 63–12.
6. Slacken the clamp and press the steering knuckle support in the other direction while turning it at the same time, see Fig. 63–13. Read-off the indicator and note the clearance.
7. Remove the dial indicator and unscrew the lower steering pin. Take care of the shims and lift off the steering knuckle support.

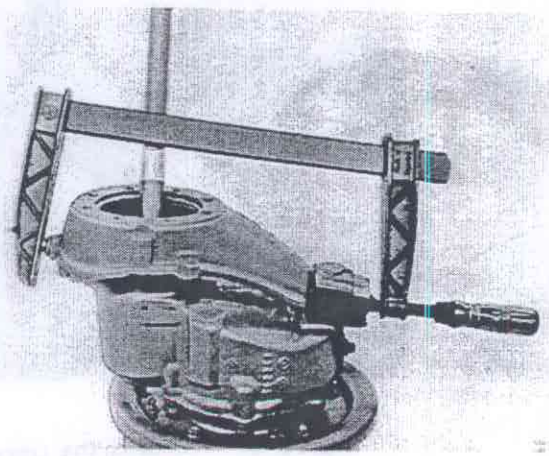

Fig. 63–10. Drawing together the steering pin assembly

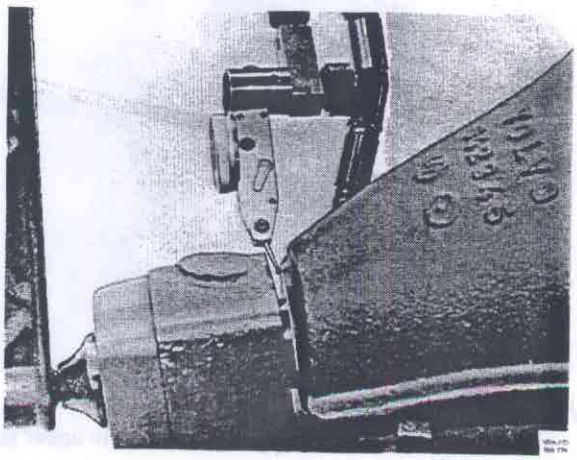

Fig. 63–12. Dial indicator pointer setting

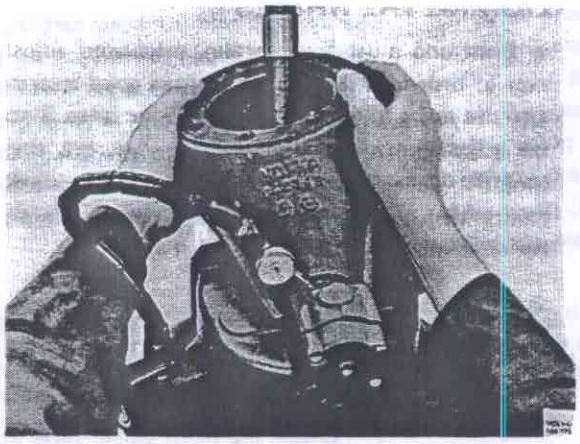

Fig. 63–13. Measuring the axial clearance

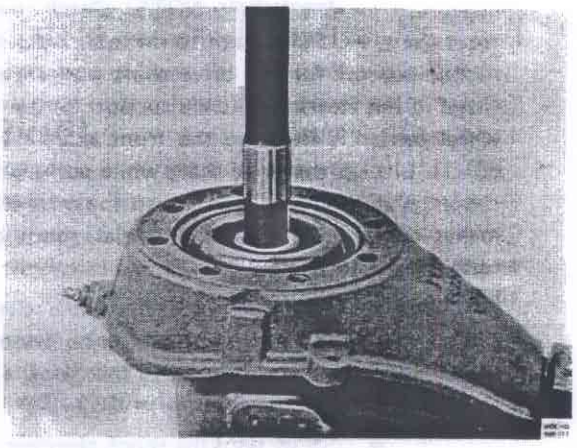

Fig. 63–15 Rubber bellows pushed down

8. Place new sealing rings on the wheel carrier and on the steering knuckle support, and fit the steering knuckle support in position. Insert the bolt through the lower steering pin.
9. Place shims of a thickness as follows: Shims when measured less measured clearance less 0.3 mm (0.012") (pre-load).
10. Place the lower ball shell and nut in position. Tighten up the nut to a torque of 150–200 Nm (15–20 kpm = 108–145 lbftf).
11. Apply sealing agent to the contact surface between the cover and wheel carrier and screw tight the cover. Screw the lubricators into the cover and upper ball shell.
12. Lubricate the steering pins until grease squeezes out at the sealing rings. Unscrew the lower lubricator.
13. Fit the rubber bellows over the drive shaft and knock them into position with sleeve 6117, see Fig. 63–14.
    NOTE! Observe great care that the rubber bellows are not clamped between the drive shaft and steering knuckle support.
14. Press down the rubber bellows as shown in Fig. 63–15. Let them remain pressed down until its shaft is in the support and the unit hangs on the guide pins.

Installing the wheel carrier

1. Apply sealing agent to the sealing surfaces on the steering knuckle support and front axle flange.
2. Fit the two guide pins 6131 in the upper holes of the steering knuckle support, see Fig. 63–16. Place the wheel carrier on a jack and lift the

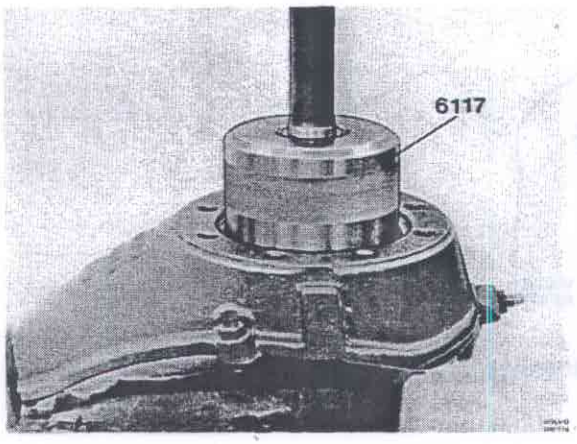

Fig. 63–14. Fitting the rubber bellows

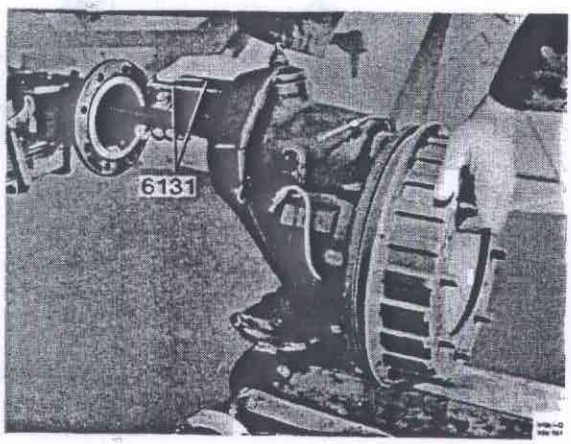

Fig. 63–16. Fitting the wheel carrier

carrier up so that the guide pins can fit in the front shaft. NOTE! Check to make sure that the rubber bellows for the drive shaft are properly fitted in the steering knuckle support before the wheel carrier is fitted to the front axle (7, Fig. 63–1). Lift up the drive shaft while pushing the carrier in at the same time. When the drive shaft makes contact with the differential, rotate the centre gear flange while pushing the carrier to the bottom.

3. Fit all the bolts between the steering knuckle support and front axle. Remove the guide pins. Tighten the bolts to a torque of 100–120 Nm (10–12 kpm = 72–87 lbftf).
4. Screw tight the shock absorber and the stop plate for the hollow rubber spring.
5. Screw in the lower lubricator. Screw tight the steering rod.
6. Screw tight the bracket for the brake lines and connect up the brake lines. Bleed the wheel cylinders whose brake lines have been disconnected. During the bleeding the contact for the pressure difference should be removed, see Fig. 63–17. If a bleeder unit is used, the working pressure should be 0.2 MPa (2 kp/cm^2 = 28 lbf/in^2). For more detailed instructions concerning the bleeding, see Part 5.
7. Install the wheel and lower the vehicle.

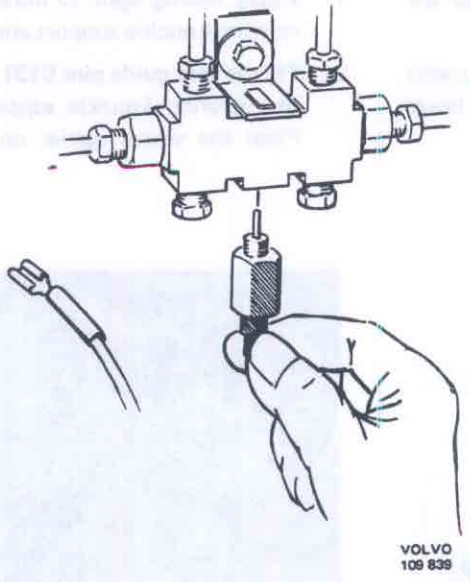

Fig. 63–17 Contact for pressure difference

ALIGNING THE WHEELS

The front end must have certain, calculated adjustments in order for the vehicle to have good steering properties and a minimum of wear on the tyres. Since these adjustments can alter due to wear, etc, they should be checked at regular intervals. Those adjustments which should be regularly checked are the caster, camber, king-pin inclination and toe-in.

Procedure before wheel adjusting

Before checking or adjusting the wheel adjustment, carry out the following checks and remedy any faults:

1. Check the front wheel tyres concerning pressure and wear.
2. Check that the radial and lateral throw on the wheels do not exceed 2.5 mm (0.10").
3. Check that the springs are in good condition and have equally efficient function.
4. Check the adjustment for the steering gear.
5. Check the steering rods for looseness and deformation.

Measuring and adjusting the wheel angles

The front wheel angles are measured with the instruments intended for this purpose. The only wheel angle which can be adjusted is the toe-in. It should be within the distance 0–3 mm (0–0.12"). Toe-in is adjusted on the lower steering rod (5, Fig. 64–2). The measuring is made in the middle of the wear tread and at hub height. If any of the other angles are faulty, examine which part is deformed and replace accordingly.

GROUP 64 STEERING SYSTEM

Description

STEERING GEAR

The steering gear is of the worm and roller type and its design can be seen from Fig. 64–1. The worm (5) is journalled in two ball bearings (7 and 14) and its pre-load is adjusted by means of shims (3) placed between the lower cover (15) and housing (6).

The sector shaft is journalled in three bushings (2, 4 and in the upper cover). The bushing in the cover cannot be replaced, so that the cover must be changed complete if there is looseness. The roller (11) is journalled in the sector shaft. It cannot be replaced so if there is looseness the sector shaft must be changed complete.

The steering gear is adjusted by altering the axial location of the roller in relation to the worm. This is adjusted by means of the adjuster screw (12), which is journalled in the sector shaft.

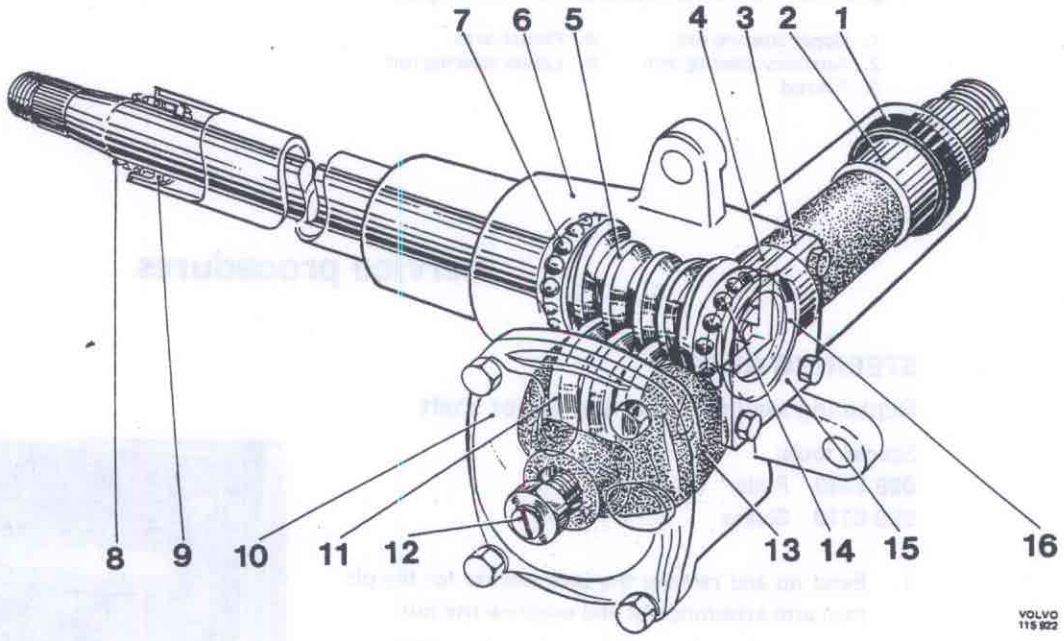

Fig. 64–1. Steering gear

1. Sealing ring
2. Bushing
3. Shims
4. Bushing
5. Worm
6. Housing
7. Ball bearing
8. Spring
9. Steering shaft bearing
10. Upper cover
11. Roller
12. Adjuster screw
13. Sector shaft
14. Ball bearing
15. Lower cover
16. Spacer ring

STEERING RODS AND AUXILIARY STEERING ARM

The steering gear has three steering rods, a lower steering rod (5, Fig. 64–2), an upper steering rod (1) and a tie rod (3). The toe-in is adjusted on the lower steering rod. All steering joints are lubricated-for-life and are to be replaced when loose.

The auxiliary steering arm (2) links the tie rod to the upper steering rod. The auxiliary steering arm is journalled in the front tubular member by means of two bushings (5 and 7, Fig. 64–3). Any axial looseness on the auxiliary steering arm can be remedied with the help of shims (8).

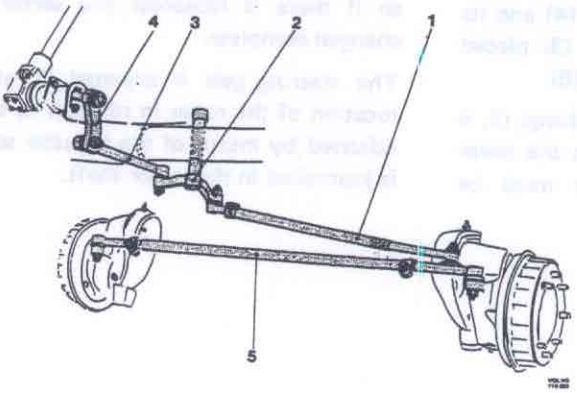

Fig. 64–2. Steering rods with aux. steering arm

1. Upper steering rod
2. Auxiliary steering arm
3. Tie rod
4. Pitman arm
5. Lower steering rod

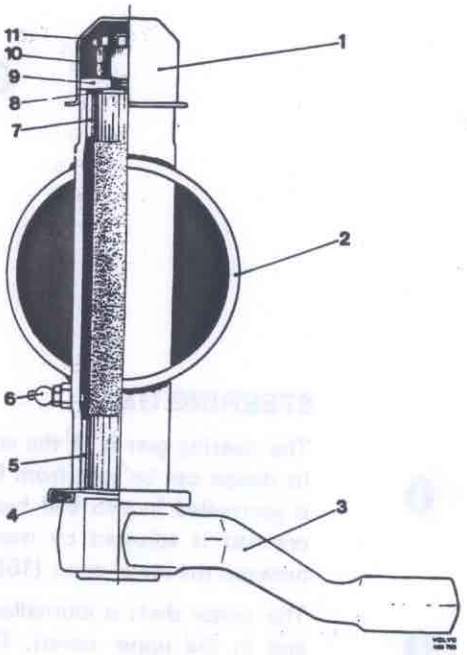

Fig. 64–3. Auxiliary steering arm

1. Cover
2. Tubular member
3. Aux. steering arm
4. Sealing ring
5. Lower bushing
6. Lubricator
7. Upper bushing
8. Shims
9. Washer
10. Nut
11. Split pin

Service procedures

STEERING GEAR

Replacing sealing ring at the sector shaft

Special tools:
999 2339 Puller
999 6119 Sleeve

1. Bend up and remove the lock washer for the pitman arm attaching nut and unscrew the nut.
2. Pull off the pitman arm with puller 2339, see Fig. 64–4.

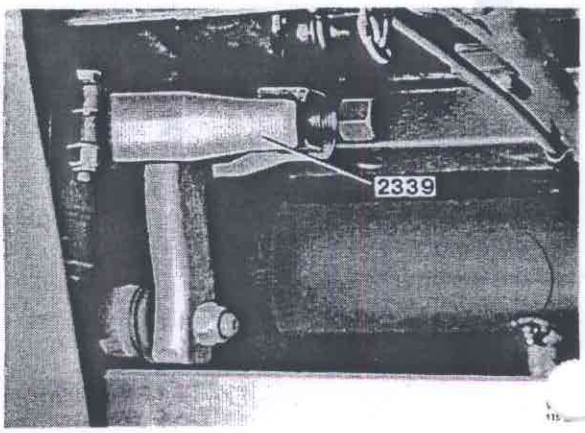

Fig. 64–4. Removing the pitman arm

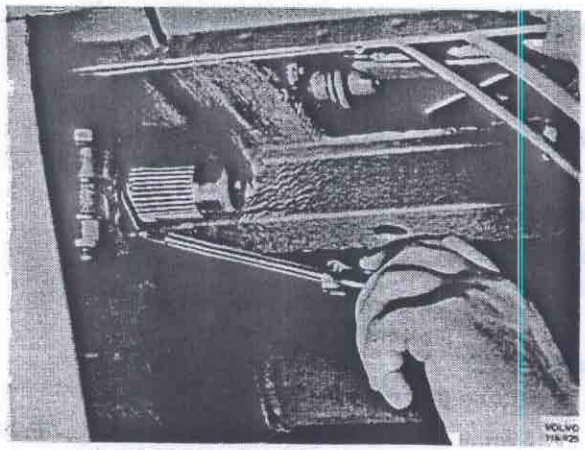

Fig. 64–5. Removing the sealing ring

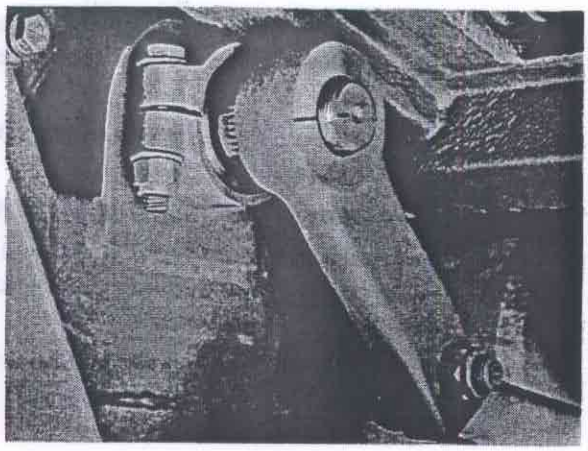

Fig. 64–7. Marking up pitman arm – sector shaft

3. Lever out the sealing ring with a screwdriver as shown in Fig. 64–5. Do not knock in the screwdriver too far otherwise it might damage the bushing for the sector shaft.
4. Knock the sealing ring in with sleeve 6119, see Fig. 64–6.
5. Place the pitman arm according to the marking on Fig. 64–7. Tighten the nut to a torque of 250–350 Nm (25–35 kpm = 180–253 lbftf) and lock the nut with the lock washer.

Replacing upper steering column bearing

Special tools:
999 2368 Puller
999 1187 Clamp
999 1103 Intermediate section

1. Remove the horn button with a screwdriver, see Fig. 64–8. Disconnect the electric cable from the horn button.
2. Mark the location of the steering wheel on the steering column with punch pops and unscrew the steering wheel nut.

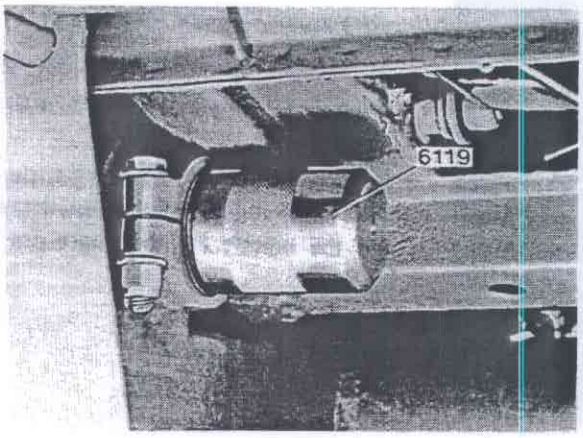

Fig. 64–6. Fitting the sealing ring

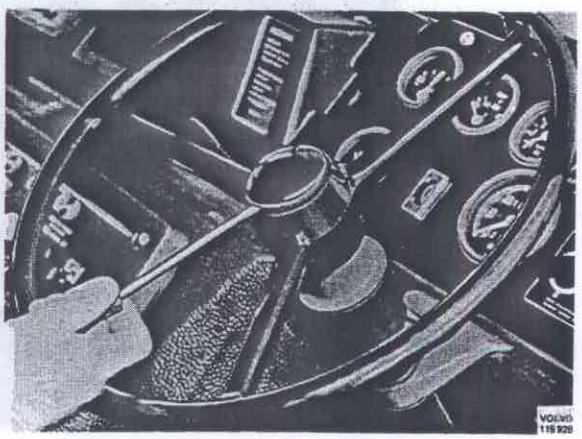

Fig. 64–8. Removing the horn button

3. Pull off the steering wheel with puller 2368, clamp 1187 and intermediate section 1103, Fig. 64–9.
4. Lift off the spring and drive out the bearing with a screwdriver, Fig. 64–10.
5. Knock down the bearing and fit the spring.
6. Re-fit the steering wheel according to the marking and tighten the nut to a torque of 35–45 Nm (3.5–4.5 kpm = 25–33 lbftf).
7. Connect up the electric cable to the horn button and press the button in position.

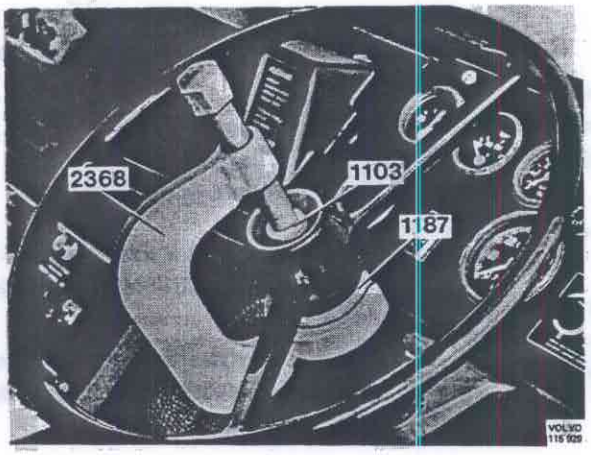

Fig. 64–9. Removing the steering wheel

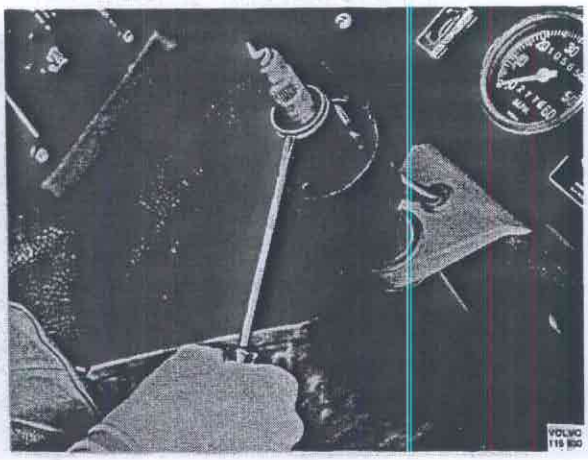

Fig. 64–10. Removing the upper steering shaft bearing

Reconditioning the steering gear

Special tools:

999 2368	Puller
999 1187	Clamp
999 1103	Intermediate section
999 2339	Puller
999 2337	Drift
999 2179	Drift
999 1801	Standard handle
999 6119	Sleeve

Removing the steering gear

1. Remove the horn button with a screwdriver, Fig. 64–8. Disconnect the electric cable from the horn button.
2. Mark the location of the steering wheel on the steering column with punch pops and unscrew the steering wheel nut.
3. Pull the steering wheel off with puller 2368, clamp 1187 and intermediate section 1103, Fig. 64–9. Remove the spring.
4. Remove the bracket for the direction indicator lever and steering wheel bracket. Disconnect the connections for the direction indicator lever under the dashboard and pull out the cable.
5. Fold aside the mat and remove the floor cc over the steering gear.
6. Bend off the lock washer for the pitman arm attaching nut and unscrew the nut.
7. Pull off the pitman arm with puller 2339, Fig. 64–11.
8. Remove the stay between the bumper and frame.
9. Release the clamp bolt over the sector shaft pipe. Pull out the horn cable.
10. Remove the three attaching bolts for the attachment round the sector shaft pipe and lower the steering gear.

Disassembling the steering gear

1. Clean the outside of the steering gear.
2. Fix the steering gear in a vice as shown in Fig. 64–12.
3. Place the steering gear in the centre position. Unscrew the lock nut for the adjuster screw (12, Fig. 64–1) and the bolts for the upper cover (10).

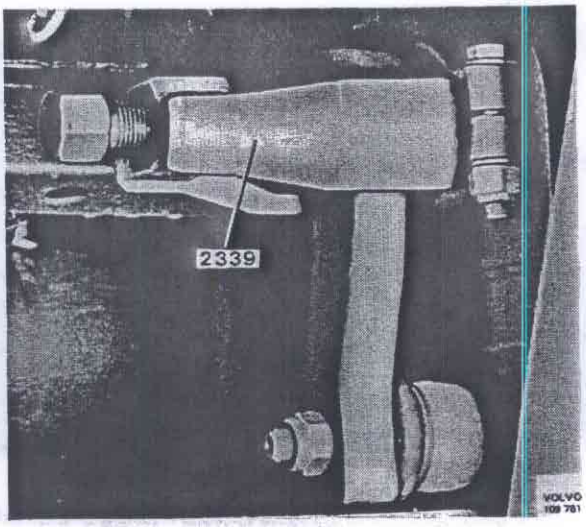

Fig. 64–11. Removing the pitman arm

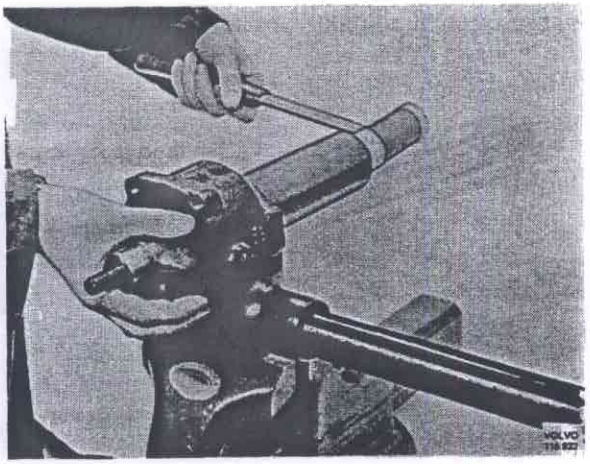

Fig. 64–13. Removing the sector shaft

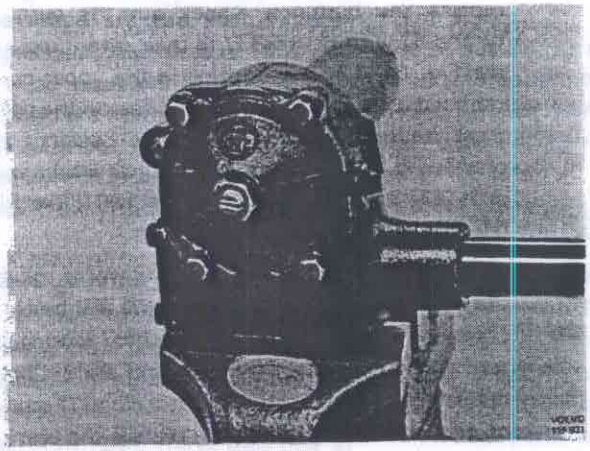

Fig. 64–12. Fixing steering box in vice

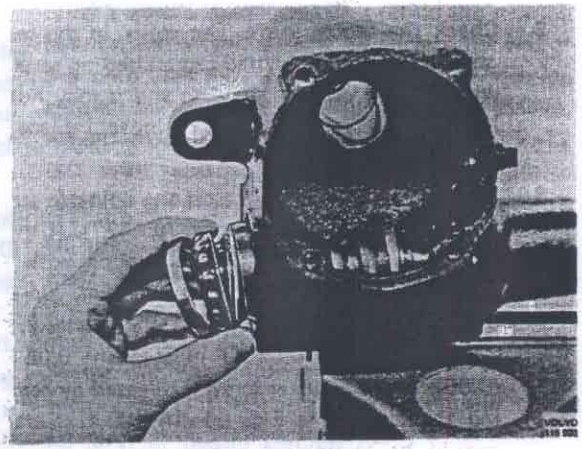

Fig. 64–14. Removing the worm

4. Screw in the adjuster screw until its cover slackens from the housing and empty the oil. Screw in the adjuster screw farther until its cover releases fully from the adjuster screw.
5. Carefully tap out the sector shaft (13) with a plastic mallet, see Fig. 64–13.
6. Remove the lower cover (15) at the end of the steering column and take care of the spacer ring (16) and shims (3).
7. Carefully knock out the steering column with a plastic mallet. Take hold of the worm's lower bearing race and bearing, see Fig. 64–14, and pluck the upper bearing (7) out of the housing.
8. Lever out the sector shaft sealing ring (1) with drift 2337, see Fig. 64–15.

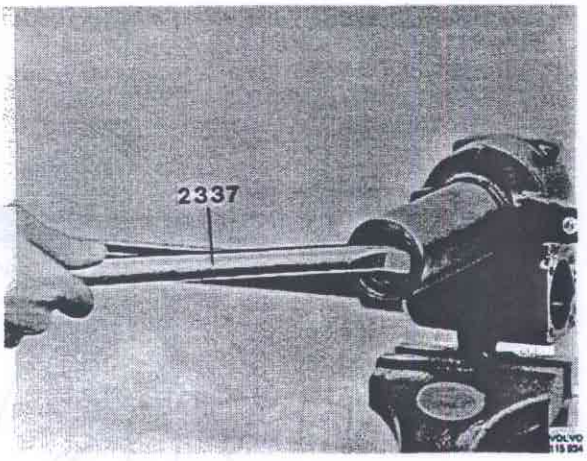

Fig. 64–15. Removing the sealing ring