VOLVO SERVICE

PART 6

FRONT END AND STEERING SYSTEM

C3-series

SERVICE MANUAL

CONTENTS

GROUP 60 GENERAL

Data

WHEEL ANGLES

Caster	3.0°
Camber	1.0°
King-pin inclination	8.0°
Toe-in	0–3 mm (0–0.12")
Wheel inclination angle	31–32°

FRONT AXLE

Type	Rigid
Track	1540 mm (60.6")

STEERING KNUCKLE

Pre-load, lower steering pin	0.3 mm (0.012")
With play in steering pin adjust pin by removing shims until bushings are worn.	
Shims, steering knuckle support – lower ball shell, thicknesses in mm (in.)	0.35, 0.45, 0.60, 0.80 (0.014, 0.018, 0.024, 0.032)

STEERING GEAR

Make and type	ZF, worm and roller
Reduction ratio	22:1
Number of steering wheel turns from lock to lock	5.1
Pre-load, worm bearing	25–55 N (2.5–5.5 kp = 5.5–12 lbf)
Pre-load over centre position, complete steering gear	15–25 N (1.5–2.5 kp = 3.3–5.5 lbf)
Shims for worm bearing, thicknesses in mm (in.)	0.10, 0.12, 0.15, 0.30 (0.004, 0.005, 0.006, 0.012")
Adjuster washer between adjuster screw and sector shaft, thickness in mm (in.) in steps of 0.05 mm = 0.002"	2.1–2.5 mm (0.08–0.10")
Lubricant	Hypoid oil
Viscosity	MP 80 or MIL-L-2105 B, SAE 80
Capacity	0.5 litre (1 pint)

AUXILIARY STEERING ARM

Axial clearance	0 mm
Shims, relay arm, thicknesses in mm (in.)	0.1 and 0.35 (0.004 and 0.014)

TIGHTENING TORQUES

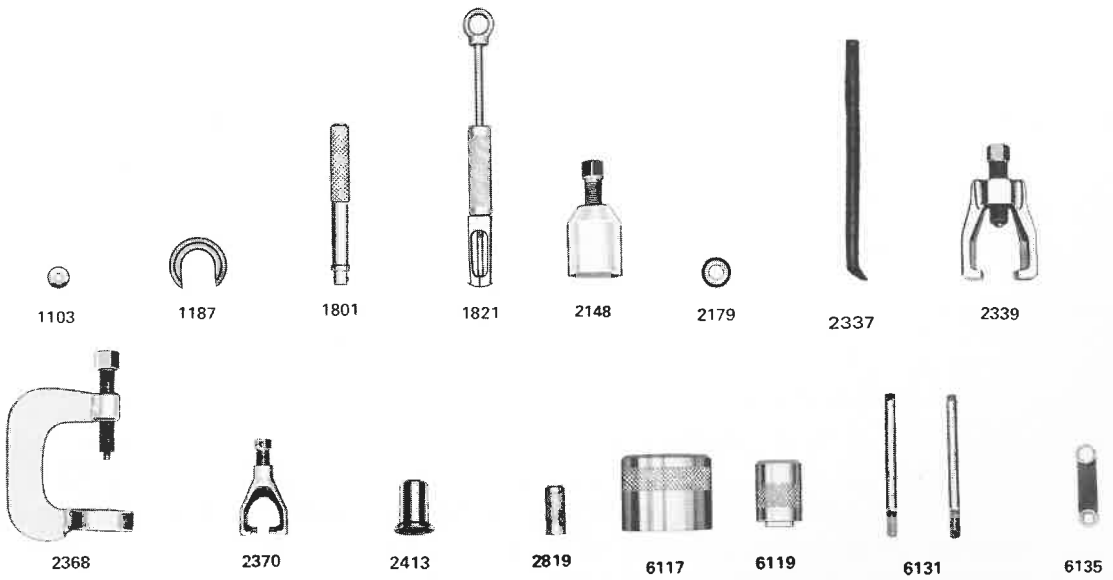
Steering wheel nut	35–35 Nm (3.5–4.5 kpm = 25–33 lbftf)
Nut, Pitman arm	250 Nm (25 kpm = 180 lbftf) and to nex hex for locking
Crown nut, aux. steering arm journalling	80–100 Nm (8–10 kpm = 57–72 lbftf)
Nut, king pins	150–200 Nm (15–20 kpm = 108–145 lbftf)

Bolt, steering knuckle support – wheel carrier	100–120 Nm (10–12 kpm = 72–87 lbftf)
Nut, tie rod[1]	140–180 Nm (14–18 kpm = 101–130 lbftf)
Nut, lower steering rod[1]	100–120 Nm (10–12 kpm = 72–87 lbftf)
Nut, upper steering rod[1]	140–180 Nm (14–18 kpm = 101–130 lbftf)

[1] See Fig. 64–2.

Tools

The following special tools are required for service work on the front end and steering system.



1103 Intermediate section for 2368 puller
1187 Clamp for 2368 puller
1801 Standard handle
1821 Puller for removing auxiliary steering arm bushings
2148 Puller for steering joint at sector arm
2179 Drift for fitting sector shaft bushings
2337 Drift
2339 Puller for removing pitman arm
2368 Puller for removing steering wheel
2370 Puller for removing steering pins
2413 Drift for installing auxiliary steering arm bushings
2819 Drift for installing bushing on lower steering pin
6117 Sleeve for installing rubber dust cover
6119 Sleeve for installing sector shaft sealing ring
6131 Guide pins for removing and installing wheel carriers
6135 Spanner for torque tightening

GROUP 63 FRONT END

Description

The ends of the front axle are provided with spherical steering knuckle supports (9, Fig. 63–1) on which the wheel carriers (1) are suspended in steering pins (6 and 14). The steering pins have ball shells (6 and 14) which are journalled in bushings (4 and 13) of synthetic material. The steering pins should be lubricated with grease of a quality specified according to the lubricating instructions. When being installed, the lower steering pin should be fitted with shims (12) so that there is pre-loading on the steering pins.

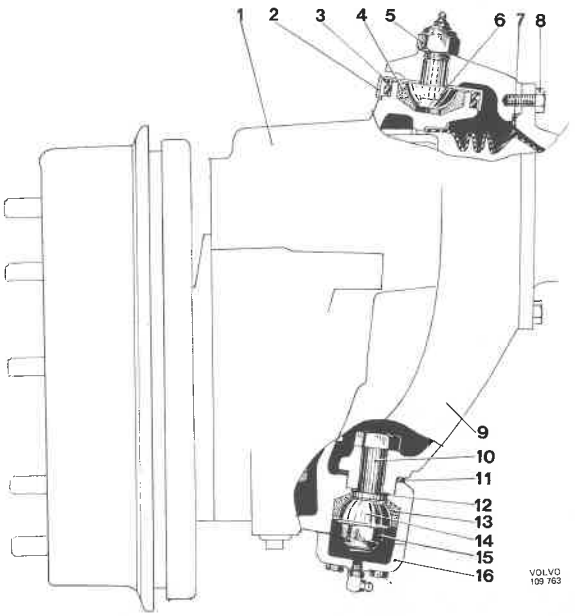


Fig. 63–1. Steering pins

1. Wheel carrier
2. Sealing washer
3. Sealing ring
4. Upper bushing
5. Nut
6. Upper ball shell
7. Rubber bellows
8. Attaching bolt
9. Steering knuckle support
10. Bolt
11. Sealing ring
12. Shims
13. Lower bushing
14. Lower ball shell
15. Nut
16. Cover

SERVICE PROCEDURES

STEERING KNUCKLES

Adjusting the steering pins

The steering pins must be adjusted when loose. This is done as follows:

1. Jack up the vehicle.
2. Remove the wheel.
3. Remove the lubricator on the cover (16, Fig. 63–1).
4. Place a dial indicator as shown in Fig. 63–2.

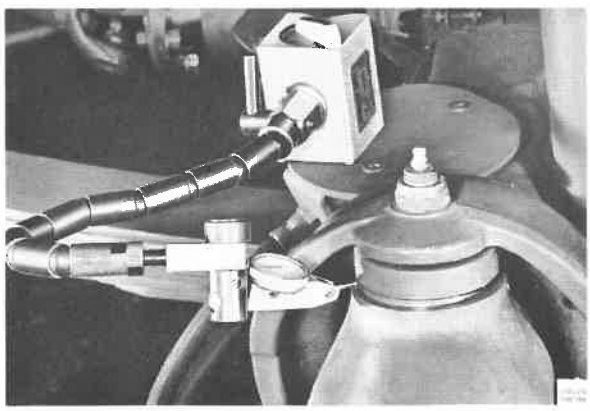


Fig. 63–2. Placing the dial indicator

5. Place a jack under the cover, Fig. 63–3. Push up the pin and release it entirely a couple of times. Read off the clearance measured.
6. Unscrew the cover (16).
7. Remove the nut (15), the lower ball shell (14) and the shims (12).
8. Remove shims of the same thickness as the measured clearance plus 0.3 mm (0.012"). If the clearance plus 0.3 mm (0.012") exceeds the thickness of the shims, the steering pins must be re-bushed according to the instructions given under the heading "Re-bushing the steering pins".
9. Fit the shims according to the above calculation.
10. Place the ball shell in position and tighten the nut to a torque at 150–200 Nm (15–20 kpm = 108–145 lbftf).
11. Screw on the cover and screw in the lubricator. Lubricate the pin until its grease squeezes out at the sealing ring.
12. Fit the wheel and lower the vehicle.

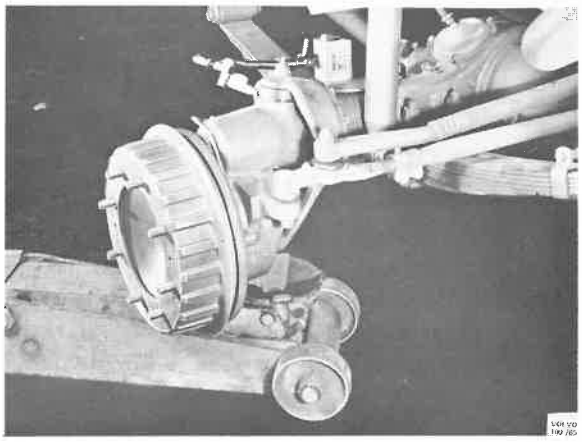


Fig. 63–3. Measuring the clearance

Re-bushing the steering pins

Special tools:

2370 Puller
2819 Drift
6131 Guide pins
6117 Sleeve
6135 Spanner

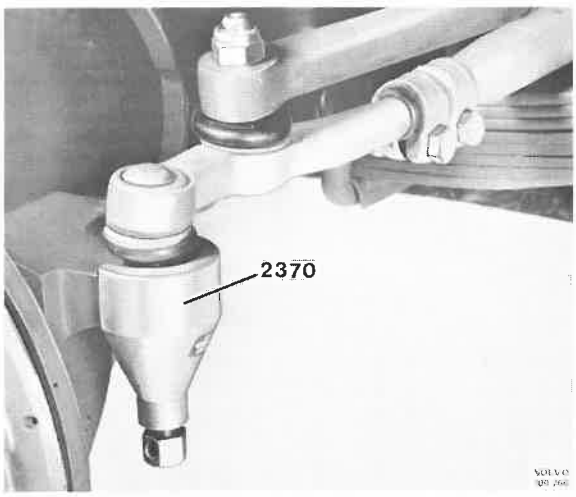


Fig. 63–4. Removing a steering joint

Removing the wheel carriers

1. Remove the wheel nuts on the wheel. Jack up the vehicle.
2. Remove the wheel.
3. Remove the steering joint from the steering arm with puller 2370, see Fig. 63–4.
4. Disconnect the brake lines from the brake hoses. Plug the hoses with sealing nipples. Remove the bracket with the hoses from the wheel carrier.
5. Remove the bracket plate for the hollow rubber spring.
6. Remove the upper bolts securing the wheel carrier to the front axle casing. Fit guide pins 6131 in the upper holes.
7. Remove the lower lubricator and place a jack under the wheel carrier.
8. Remove the upper bolts and pull out the wheel carrier and drive shaft, see Fig. 63–5. NOTE! Observe care so that the rubber bellows do not get clamped between the drive shaft and steering knuckle support.

Disassembling the steering pins

1. Clean well the removed unit.
2. Knock out the rubber bellows with a suitable tool.
3. Remove the cover (16, Fig. 63–1) under the lower steering pin and unscrew the nut (15) holding the pin together. Pull out the bolt (10) and then the ball shell (14), also the shims (12). Take care of the shims.

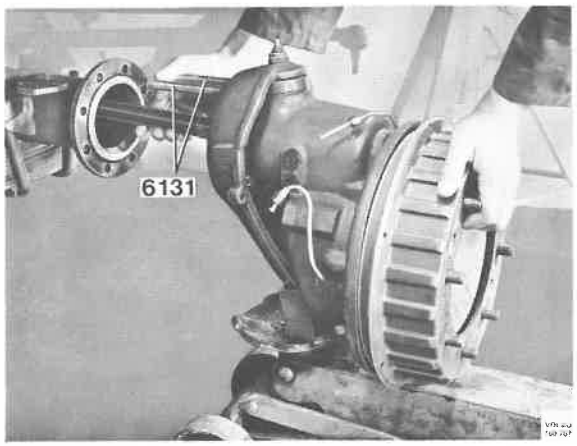


Fig. 63–5. Removing the wheel carrier

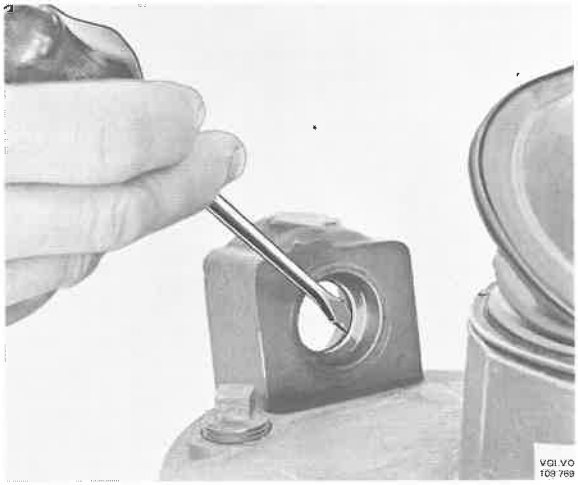


Fig. 63–7. Removing the lower bushing

4. Lift off the steering knuckle support (9) and remove the old sealing rings (3 and 11).
5. Knock out the old bushings (4 and 13) with a suitable tool, see Figs. 63–6 and 63–7.

Checking, replacing parts

1. Clean all parts thoroughly. Clean thoroughly the surfaces between the cover (16) and wheel carrier, and between the steering knuckle support and front axle.
2. Check the ball shells (6 and 14, Fig. 63–1) and the surface on the sealing washer (2) for the sealing ring. Replace worn parts.
3. Replace the upper ball shell and sealing washer by removing the nut (5). If necessary hold against the ball shell with an Allen spanner, see Fig. 63–8.
4. When assembling, tighten the nut to a torque of 150–200 Nm (15–20 kpm = 108–145 lbftf).

Fig. 63–6. Removing the upper bushing

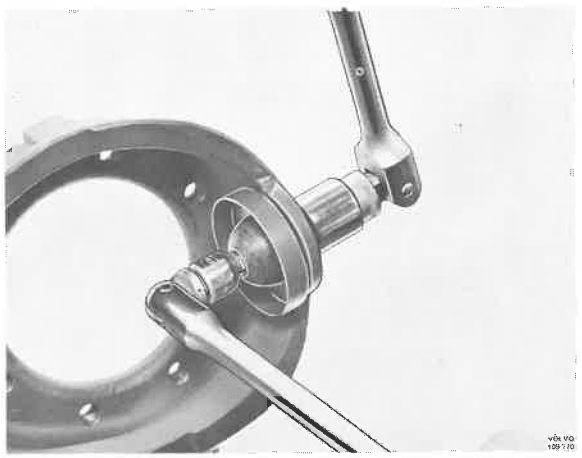


Fig. 63–8. Removing the upper ball shell

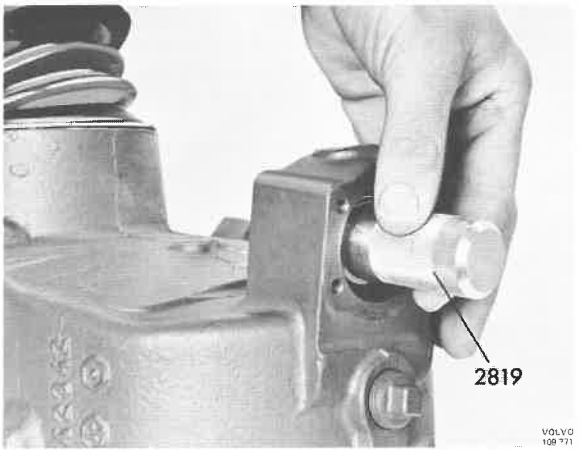


Fig. 63–9. Fitting the lower bushing

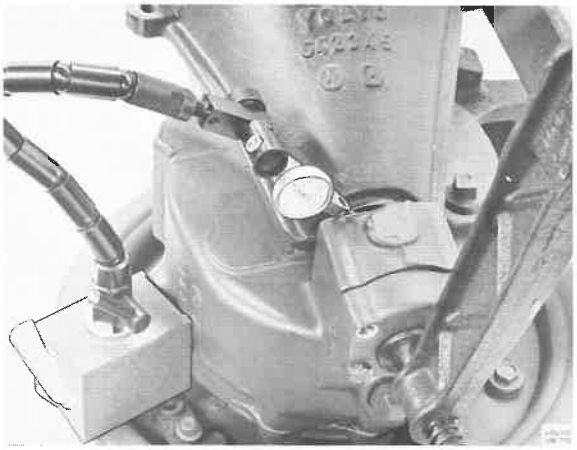


Fig. 63–11. Placing the dial indicator

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.

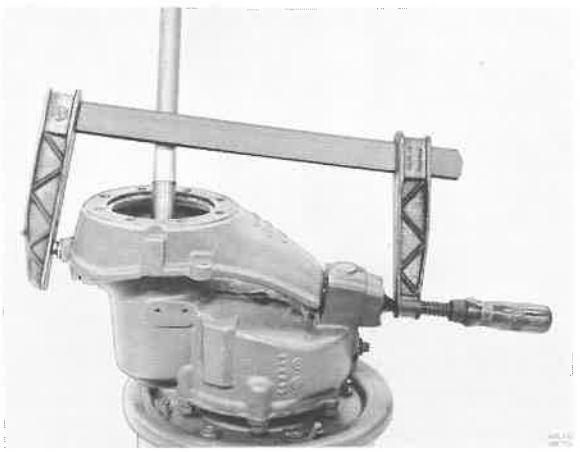


Fig. 63–10. Drawing together the steering pin assembly

Fig. 63–12. Dial indicator pointer setting

Fig. 63–13. Measuring the axial clearance

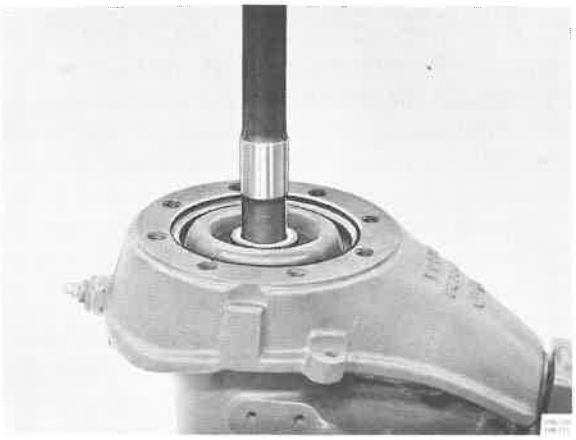


Fig. 63–15 Rubber bellows pushed down

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

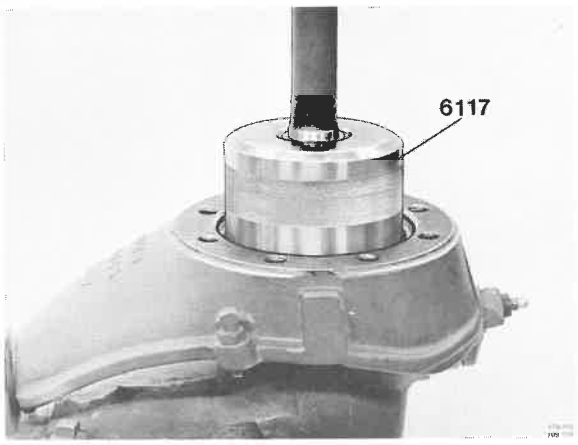


Fig. 63–14. Fitting the rubber bellows

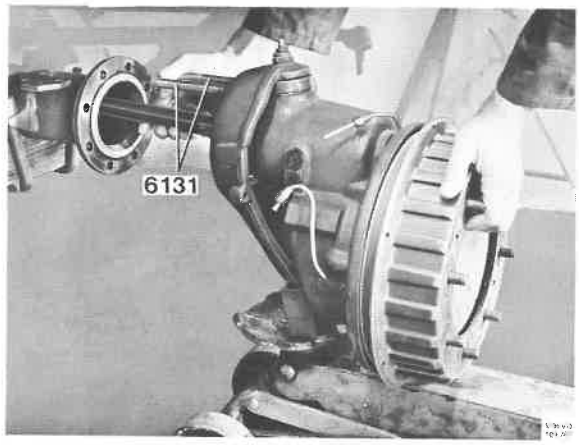


Fig. 63–16. Fitting the wheel carrier

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.

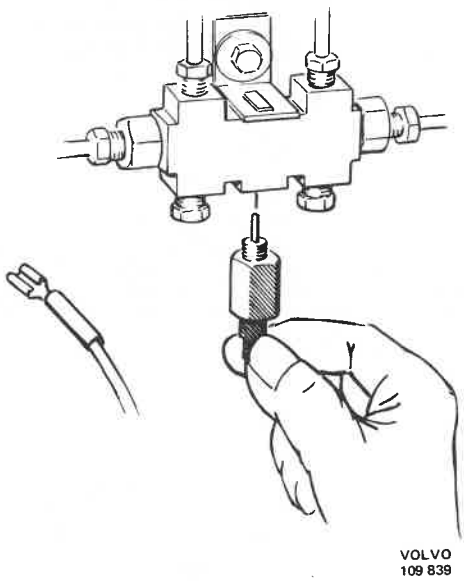


Fig. 63–17 Contact for pressure difference

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.

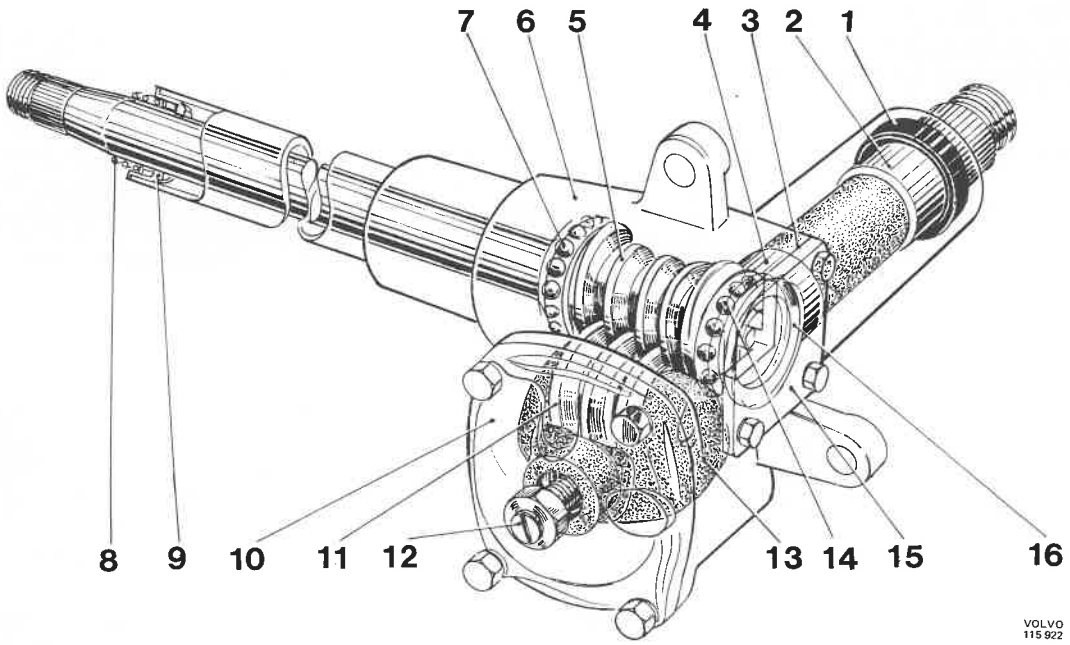


Fig. 64–1. Steering gear

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).

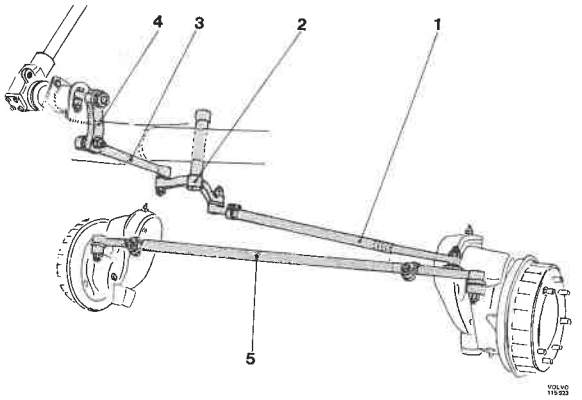


Fig. 64–2. Steering rods with aux. steering arm

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

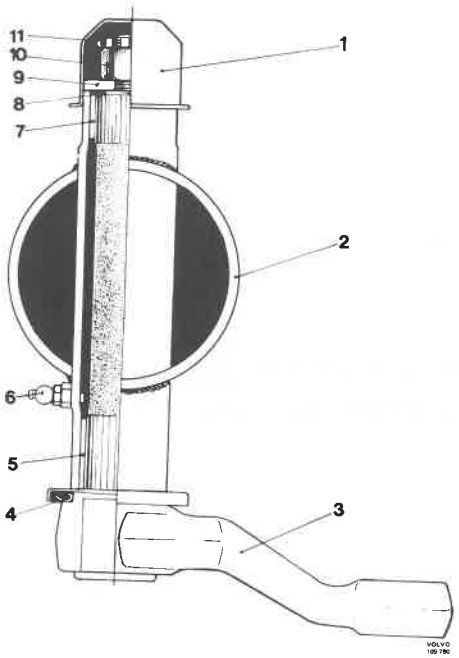


Fig. 64–3. Auxiliary steering arm

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.

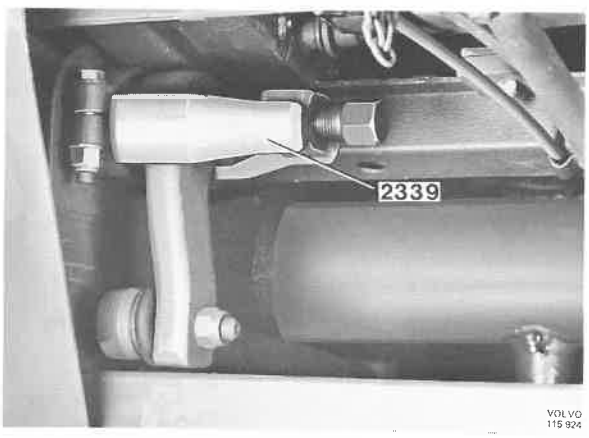


Fig. 64–4. Removing the pitman arm

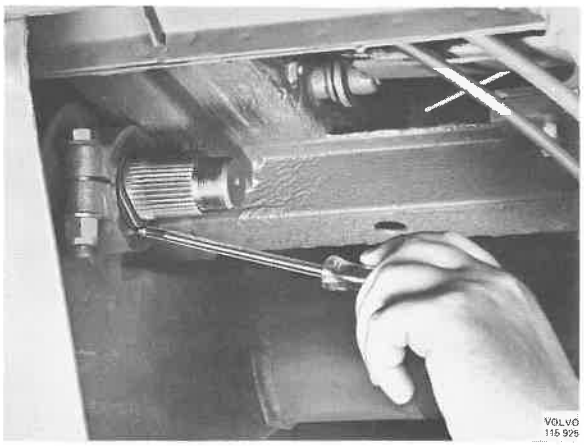


Fig. 64–5. Removing the sealing ring

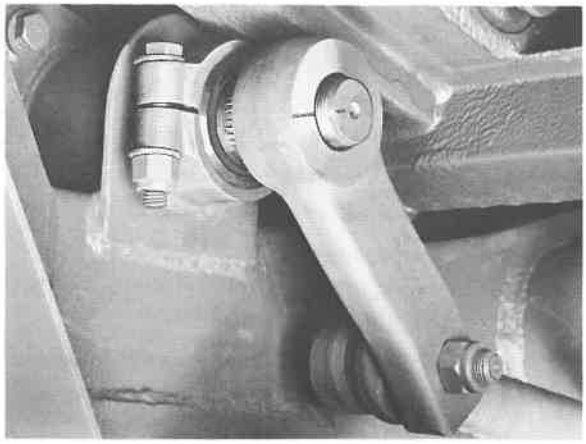


Fig. 64–7. Marking up pitman arm – sector shaft

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.

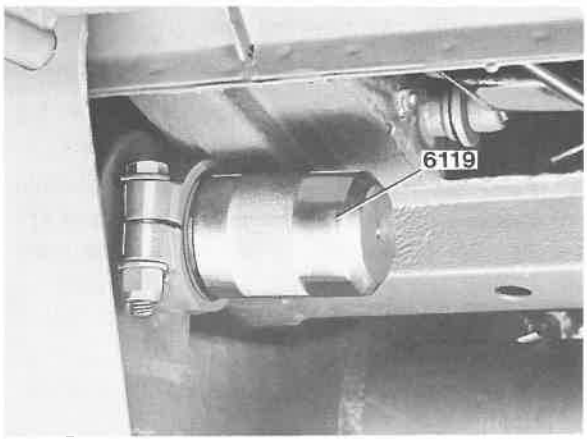


Fig. 64–6. Fitting the sealing ring

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.

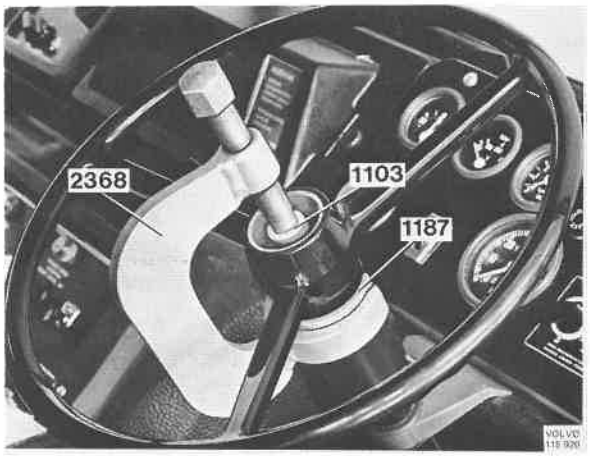


Fig. 64–9. Removing the steering wheel

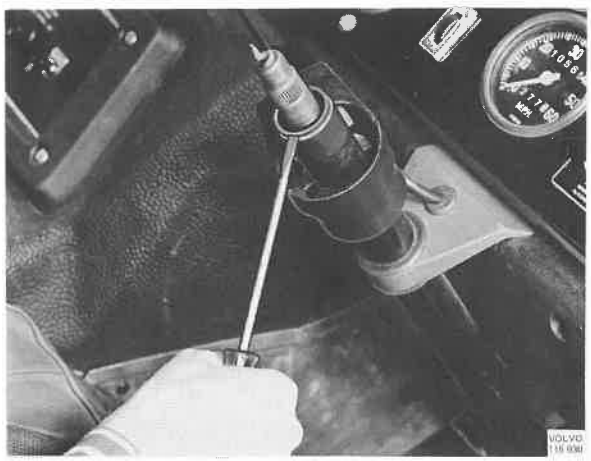


Fig. 64–10. Removing the upper steering shaft bearing

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 cover 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).

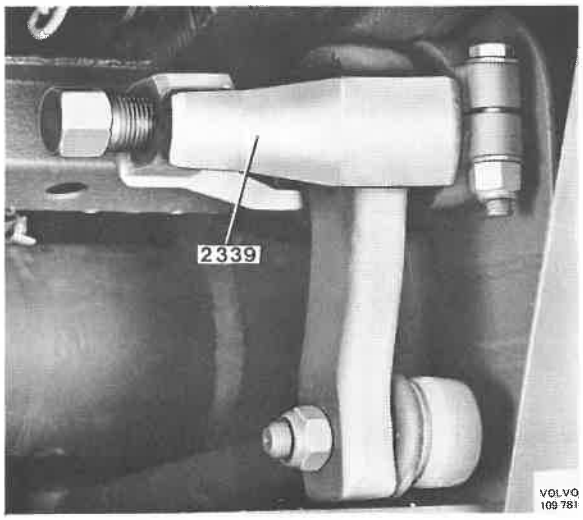


Fig. 64–11. Removing the pitman arm

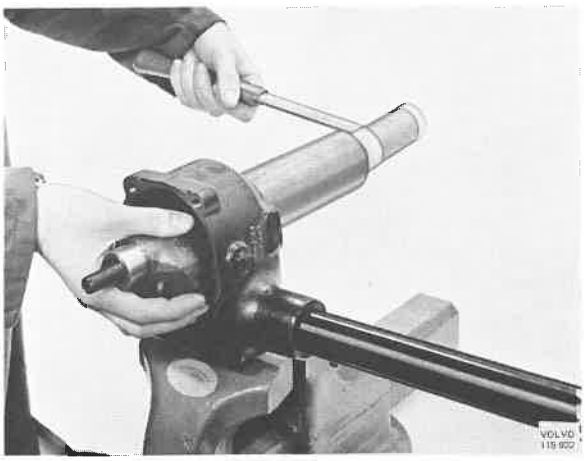


Fig. 64–13. Removing the sector shaft

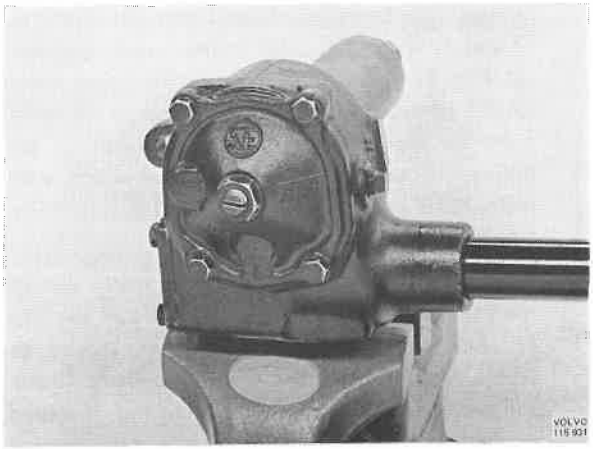


Fig. 64–12. Fixing steering box in vice

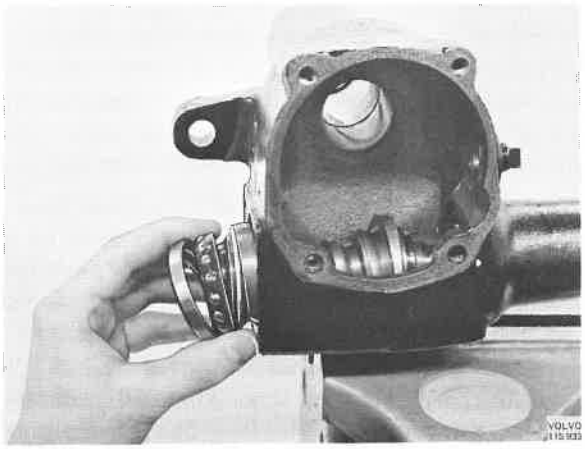


Fig. 64–14. Removing the worm

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.

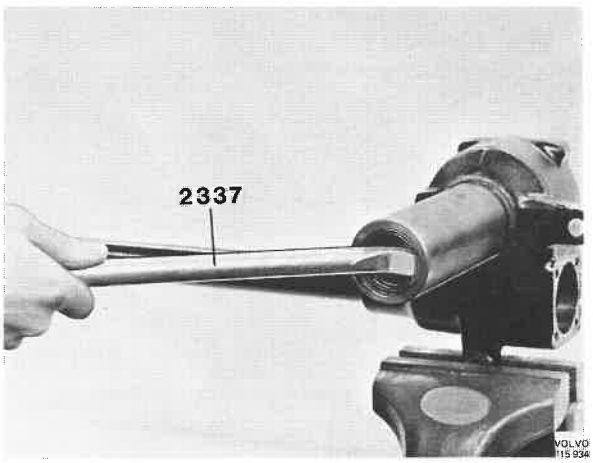


Fig. 64–15. Removing the sealing ring

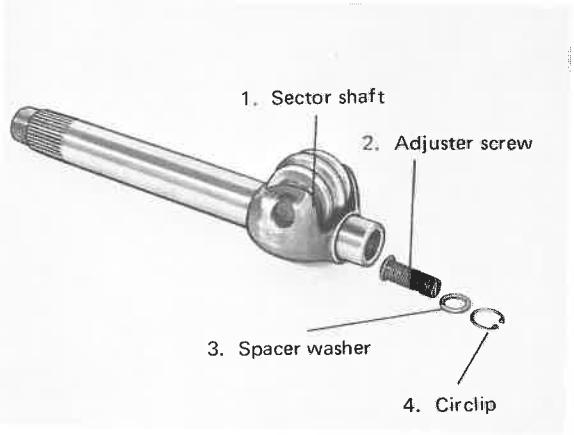


Fig. 64–16. Sector shaft

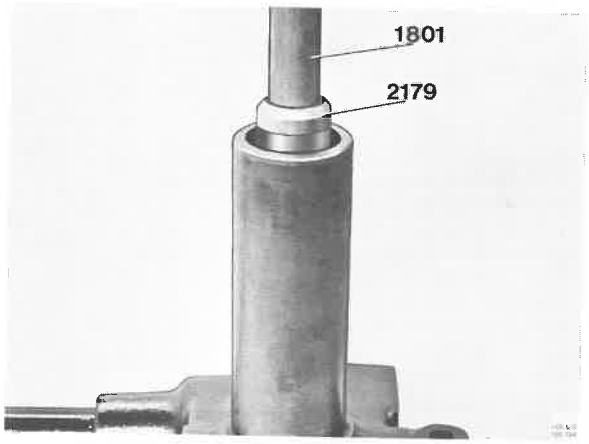


Fig. 64–18. Fitting the bushing

Checking, replacing parts

1. Clean all parts thoroughly.
2. Check the sector shaft. The roller in the sector shaft may not be scored, scratched or severely worn on the contact surfaces and it may not be loose on its shaft. If worn or loose, replace the sector shaft.
3. Check the axial clearance on the adjuster screw. It may not exceed 0.05 mm (0.002"). If this is the case, adjust the axial clearance with the spacer washer (3) according to Fig. 64–16. Spacer washers are available in thicknesses 2.10–2.50 mm (0.083–0.098") in steps of 0.05 mm (0.002"). The adjuster screw is released by removing the circlip (4, Fig. 64–16). The clearance should be as small as possible. However, it is important that the adjuster screw can be turned easily after adjustment.
4. Check the sector shaft bushings (2, 4 and the one in the upper cover), see Fig. 64–1. If loose, replace the bushings. Knock out the bushings (2 and 4) with drift 2337 in their own direction, see Fig. 64–17. The bushing in the upper cover cannot be replaced, and for this reason the cover must be replaced complete. The bushings are pressed in each from their own direction with drift 2179 and standard handle 1801, see Fig. 64–18.
5. Check the contact surfaces of the worm against the roller and the inner races for the ball bearings (7 and 14). If there are scratches, scoring or severe wear, replace the worm and shaft. Check the balls of the bearings and outer rings. If scored or damaged in any other way, replace the bearing parts. The upper bearing outer ring is pulled out with the help of a Kukko standard jackknife No. 21–6 kit 24B, see Fig. 64–19. Tap the ring in

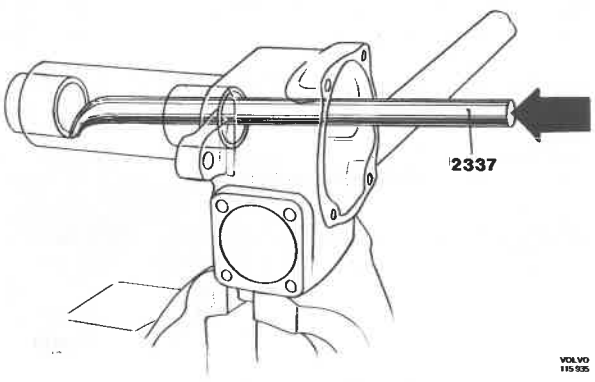


Fig. 64–17. Removing the bushing

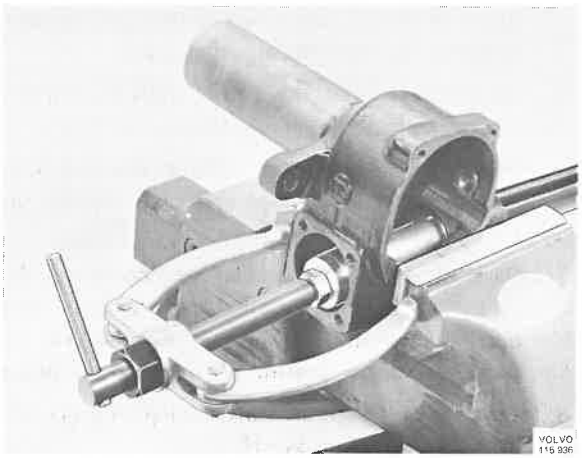


Fig. 64–19. Removing the upper bearing adjuster ring

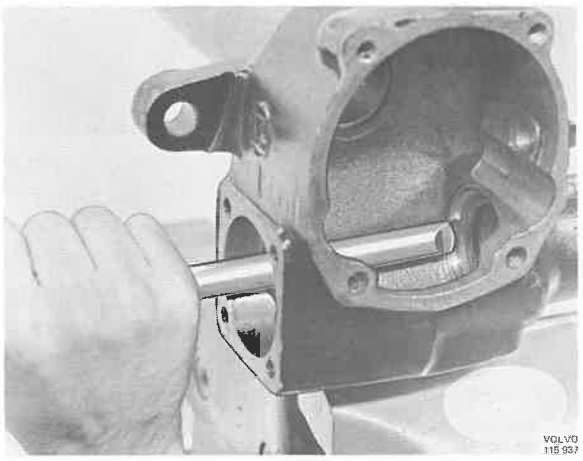


Fig. 64–20. Fitting the upper bearing outer ring

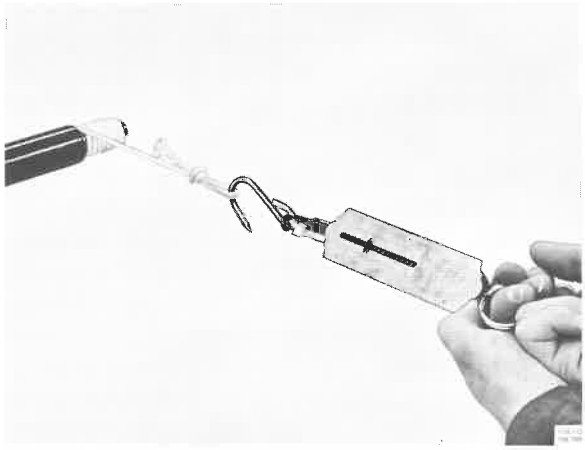


Fig. 64–22. Checking the pre-load

with a brass drift, see Fig. 64–20. Tap with light taps round the bearing race so that the key does not stick.

6. Check the bearing at the top of the steering column jacket. To replace the bearing, knock it out with a screwdriver, see Fig. 64–21. Knock in the new bearing with a plastic mallet.

Assembling the steering gear

1. Place the upper bearing on the steering column and place the steering column in position. Fit the lower bearing and its bearing race, the spacer ring and shims. Fit the same number of shims which were removed.
2. Fit the lower cover and tighten up the bolts while checking that the steering column can be rotated without any notable resistance.
3. Wind a cord a couple of times round the steering column and attach a spring balance to the end of the cord, see Fig. 64–22. Rotate the steering column and read off the force on the bearings, which should be between 2.5–5.5 kp (5.5–12 lbf). With excessive pre-load, add shims, and with too little pre-load, remove some.
4. Oil the sector shaft bushings and place the sector shaft in position in the housing. Coat the cover contact surface against the housing with sealing glue and screw the cover on the adjuster screw. Screw out the adjuster screw so far that the sector shaft is not clamped when the cover attaching bolts are tightened up.
5. Knock in the sealing ring for the sector shaft with sleeve 6119, see Fig. 64–23.

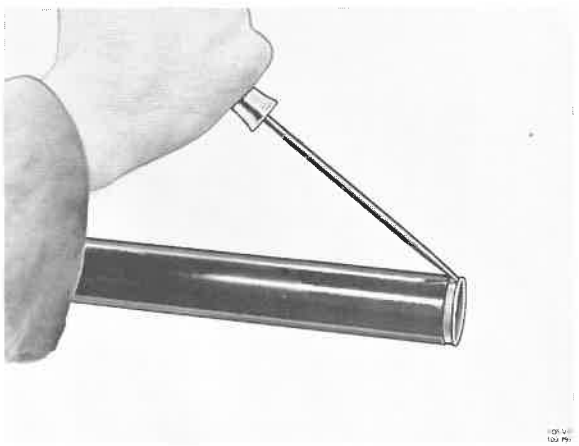


Fig. 64–21. Removing the upper steering shaft bearing

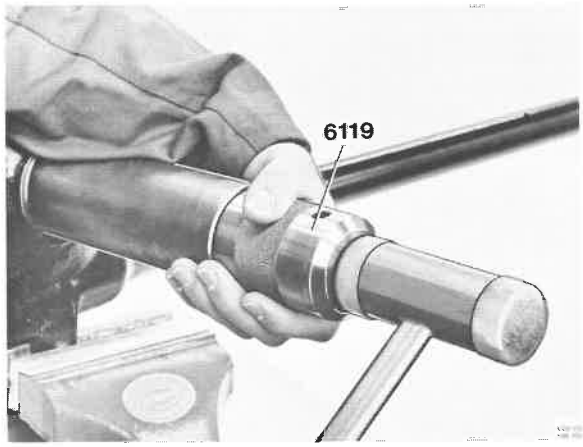


Fig. 64–23. Fitting the sealing ring

6. Position the steering gear in the centre position. Screw in the adjuster screw so far that notable resistance is felt when rotating it back and forth over the centre position.
7. Turn the gear to full lock in one direction and wind a cord a couple of times round the steering column and attach a spring balance to the end of the cord, see Fig. 64–22. Rotate the steering shaft. Maximum resistance should be obtained when the steering gear is turned across the centre position, and this should be 15–25 N (1.5–2.5 kp = 3.3–5.5 lbf). If the resistance is greater than this, screw out the adjuster screw, and if the resistance is too small, screw in the adjuster screw. When the correct value has been obtained, tighten up the lock nut. Re-check the value after having tightened up the lock nut.
8. Fill with 0.5 litre (1 pint) MP 80 oil.

Installing the steering gear

1. Position the steering gear with the attachment round the steering shaft pipe.
2. Screw the attachment tight to the frame with the three attaching bolts.
3. Screw tight the steering wheel bracket to the dashboard.
4. Tighten up the clamp bolt round the sector shaft pipe.
5. Screw tight the pitman arm according to the marking, see Fig. 64–24, and lock the nut with the lock washer.
6. Screw tight the stay between the bumper and frame.
7. Route the horn cable through the steering column jacket.
8. Put back and screw tight the floor cover.
9. Screw tight the bracket for the direction indicator lever and connect up the cables under the dashboard.
10. Place the spring in the steering column jacket and fit the steering wheel according to the marking, if the old steering shaft is still fitted. If the steering shaft has been replaced, point the wheels straight forwards and fit the steering wheel straight, that is, with one of the spokes pointing straight downwards.
11. Tighten the steering wheel nut to a torque of 35–45 Nm (3.5–4.5 kpm = 25–33 lbftf).
12. Connect up the electric cable to the horn button and push the button securely into position.

AUXILIARY STEERING ARM

Replacing the bushings for the auxiliary steering arm

Special tools:
999 2370 Puller
999 1821 Impact tool
999 2337 Drift
999 2413 Drift

Disassembling

1. Remove the nuts for both the steering rods attached to the auxiliary steering arm.
2. Pull off the steering rods from the auxiliary steering arm with puller 2370, see Fig. 64–25.

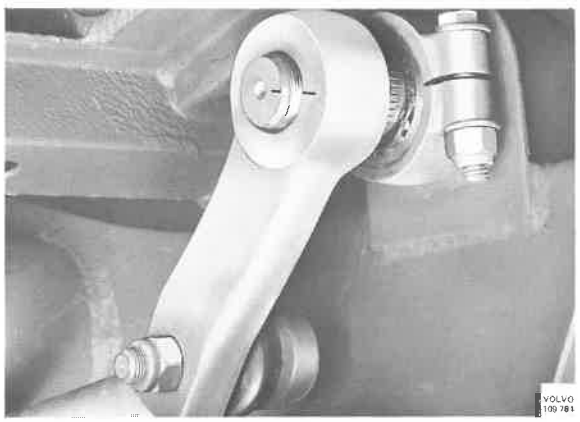


Fig. 64–24. Marking up pitman arm – sector shaft

Fig. 64–25. Removing the steering rod

Fig. 64–26. Removing the lower bushing

3. Remove the cover (1, Fig. 64–28) at the top of the shaft.
4. Remove the split pin (11) and unscrew the nut (10).
5. Take down the auxiliary steering arm and take care of the washer (9) and shims (8).
6. Knock out the lower bushing (5) with impact tool 1821, see Fig. 64–26.
7. Knock out the upper bushing (7) with drift 2337, see Fig. 64–27.

Checking, replacing parts

1. Replace the sealing ring (4, Fig. 64–28). Check the contact surface of the sealing ring against the protector ring, and if necessary replace the ring. The ring is tapped securely in position with a plastic mallet.
2. Check the slide surfaces on the auxiliary steering arm. If they are damaged, replace the arm.

Fig. 64–27. Removing the upper bushing

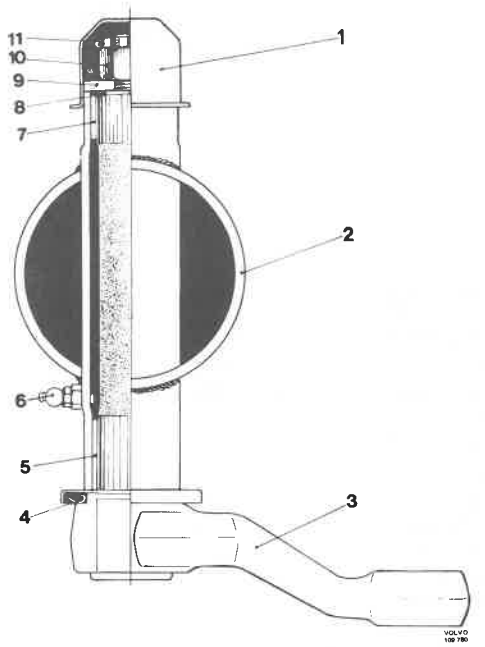


Fig. 64–28. Auxiliary steering arm

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

Assembling

1. Knock in the bushings with drift 2413, Fig. 64–29. NOTE! Make sure that the bevel on the inside points downwards.
2. Ream the bushings so that the auxiliary steering arm can be fitted. Use an adjustable reamer approx. Ø 30 mm (1 3/16") and ream as little as possible. It is important that both bushings are reamed at the same time. Fit the auxiliary steering arm in position. Place shims of the same thickness at those that were removed plus about 0.5 mm (0.02"). Fit the washer (9, Fig. 64–3) and tighten up the nut to a torque of 80–100 Nm (8–10 kpm = 57–72 lbftf).

Fig. 64–29. Fitting the bushings

3. Place a dial indicator according to Fig. 64–30 and measure the axial clearance on the arm.
4. Remove the arm and the shims corresponding to the measured clearance.
5. Re-fit the remaining shims, washer and screw tight the nut to the torque mentioned above. Fit the split pin.
6. Grease the auxiliary steering arm until the grease squeezes out at one of the ends. Fit the cover (1).
7. Screw tight the steering rods. Use new lock nuts. Tighten the nuts to a torque of 140–180 Nm (14–18 kpm = 101–130 lbftf).

STEERING JOINTS

Replacing

Special tools:

999 2370 Puller
999 2148 Puller

1. Unscrew the nut.
2. Pull loose the steering joint with puller 2370, see Fig. 64–31. Pull off the steering joint at the sector arm with puller 2148.
3. Release the clamp bolts and screw out the joint.
4. Screw on the new joint and tighten up the clamp bolts.
5. Screw tight the steering joint to the torque given in the specifications.
6. Check the toe-in.

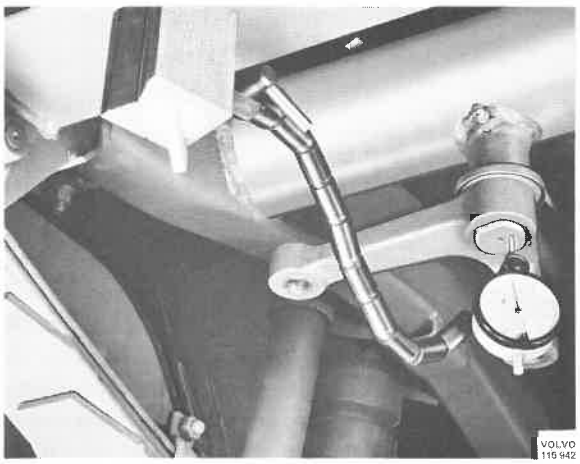


Fig. 64–30. Placing the dial indicator

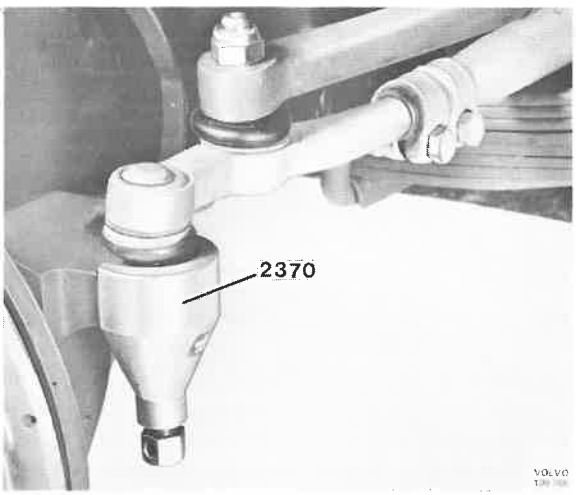
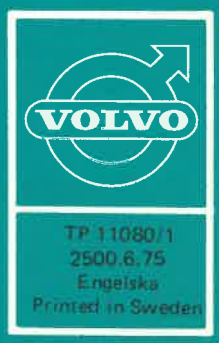


Fig. 64–31. Removing the steering joint



TP 11080/1
2500.6.75
Engelska
Printed in Sweden

Printed in Sweden, Gotab, Kungälv 74.15049