Removal and Installation of Sealing Rings in the Steering

Job No. 46-6

On Models 180 to 220 SE the removal and installation procedures for the sealing rings in the steering are the same as on Model 190.

Removal and Installation of Steering Tube

Job No. 46-7

A. General

I. Models 180 and 180 D with DB Re-Circulating Ball Steering Type LO (Previous Version)

On these cars the cables for the horn and the flash direction signals are not carried through the steering tube and the steering worm but are wound round the steering tube and emerge from the steering column jacket at the bearing assembly of the gear shift mechanism. On the first cars the cables were wound directly on the steering tube in 20–21 turns; later the steering tube was provided with a fabric hose and the cables were wound in 19 turns.

II. Models 180, 180 a, 180 D, 190 D, 220 a, 219, 220 S, and 220 SE. with DB Standard Re-Circulating Ball Steering Type LO

On these models the arrangement of the steering tube and its mounting in the steering column jacket are the same as on Model 190.

However, the length of the steering tube differs on the individual models. A 50 mm longer steering tube is available as an optional extra for all models listed above.

III. Model 190 SL

The steering tube is mounted in the steering column jacket in the same way as on Model 190, but it is not secured by a grub screw on the annular grooved bearing. The steering coupling is not provided with a jointing disk but takes the form of a universal joint. On recent cars the steering tubes are fitted with a lock ring for the steering lock. Steering tubes 40 mm longer are available as an optional extra.

IV. Models 180 b, 180 Db, and 190 Db

The arrangement of the steering tube and its mounting in the steering column jacket are the same as on Model 190.

B. Removal and Installation

I. Models 180 and 180 D with DB Re-Circulating Ball Steering Type LO (Previous Version)

Removal:

1. Disconnect the ground cable from the negative terminal of the battery.
2. Disconnect the cables for the flash direction signals and for the horn from the cable connector on the wheel arch panel.
3. Unscrew the cable clip on the bearing assembly of the steering wheel shift system.
4. Unscrew the upper clamping screw of the steering coupling.
5. Unscrew the grub screw at the top of the steering column jacket.

6. Set the steering lock to the "garage" position and take out the ignition key.

7. Loosen the two hexagon nuts on the tightening strap for the steering column jacket and pull out the tightening strap.

8. Pull out the steering tube together with the steering wheel and the cable harness, at the same time exerting a downward pressure on the steering column jacket.

Installation:

9. Insert a wire through the aperture for the cable harness in the rubber plate of the bearing assembly, pull the wire upward in the steering column jacket taking care not to damage the felt.

10. Attach the cables on the steering tube to the wire pulled through the steering column jacket. Carefully insert the steering tube and pull the cables through the aperture in the bearing assembly by means of the wire.

Note: a) When the steering tube is installed the cables must be tightly wound round the spindle. On steering tubes without fabric hose there are 20–21 turns but on the steering tube with fabric hose there are only 19 turns.

Only steering tubes with fabric hose are supplied as replacement parts.

b) When installing a new steering tube remove the tape on the bottom cable turn before inserting the tube in the steering column jacket.

11. Pull the cables through the rubber plate on the bearing assembly of the steering wheel shift system until they project about 440–450 mm. The insulating tube of the cable harness should not project into the steering column jacket by more than 15–20 mm (Fig. 46–7/1).

12. Install the tightening strap on the steering column jacket and tighten the two hexagon nuts.

13. Wind the cables onto the steering tube by turning the steering wheel toward the left while an assistant holds the cables at the cable opening A on the bearing assembly (Fig. 46–7/1).

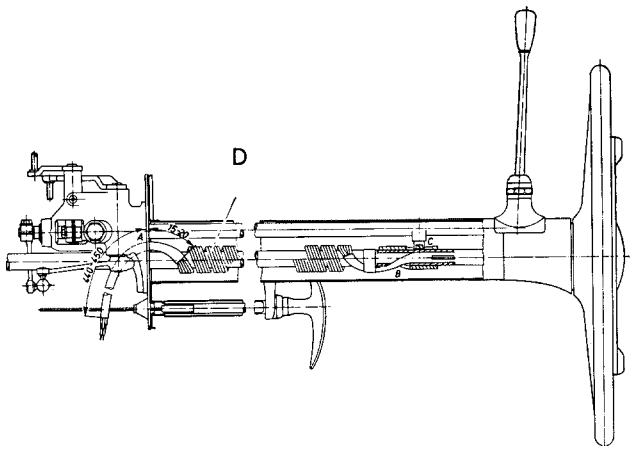

Fig. 46–7/1

A Cable opening on the bearing assembly
B Cable opening on the steering tube
C Lock bolt of steering lock
D Number of cable turns:
20—21 turns on steering tube without fabric hose
19 turns on steering tube with fabric hose

14. Starting from this position loosen the turns of the cables by turning the steering wheel about three turns toward the right. In this position of the steering tube press the tube into the serrations of the steering coupling after having made sure that the steering wheel is in the dead center position.

Note: When the steering tube is installed, the front wheel must be in the straight fore and aft position, the steering and the steering wheel must be in the dead center position.

Use Center Position Check Screw 186 589 00 23 to check the dead center position of the steering. If the dead center position of the steering does not correspond to the straight fore and aft position of the front wheels, the adjustment of the front wheels must be corrected by adjusting the tie-rods (for details see Job No. 40–3).

15. Turn the steering wheel hard over to the left and to the right in order to check whether the steering tube is correctly installed. At the same time make sure that on left lock the cables are not under tensile stress at the cable opening A on the bearing assembly by means of the cable clip (see Fig. 46–7/1).

16. Place the upper clamping screw in the steering coupling and tighten the hexagon nut.

    Only specified clamping screws may be used for the steering coupling.

    The clamping screws should be so tightened that the steering coupling is seated firmly on the steering worm and on the steering tube. Excessive tightening should be avoided in order to prevent the screws from being strained and from snapping.

17. Screw in the grub screw for the steering tube in the top of the steering column jacket.

18. Connect the cables for the flash direction signals and the horn to the cable connector on the wheel arch assembly.

19. Connect the ground cable to the negative terminal of the battery. Check whether the horn and the flash direction signals are working properly.

II. Models 180, 180 a, 180 D, 190 D, 220 a, 219, 220 S, and 220 SE with DB Re-Circulating Ball Steering Type LO

The removal and installation procedures for the steering tube are the same as on Model 190; the following details, however, require attention:

Upper Beam Flash Signal Switch Attached Directly to the Steering Column Jacket

Since on recent cars of Models 190, 190 D, 190 SL, 219, 220 S, and 220 SE the upper beam flash signal switch has been attached directly to the steering column jacket and since the switch projects into the steering column jacket, it is necessary to loosen the two Phillips head screws for the switch before removing or installing the steering tube and to pull the switch slightly back before the steering tube is removed. The same applies to export cars provided with a flash signal switch with automatic return mechanism.

III. Model 190 SL

The removal and installation procedures for the steering tube and the steering column jacket are described in Job No. 46–8.

IV. Models 180 b, 180 Db, and 190 Db

The removal and installation procedures for the steering tube are the same as on Model 190.