

# Removal and Installation of Steering Column Bracket and Lock

Job No.

46-8

## I. Models 180, 180 a, 180 b, 180 D, 180 Db, 190 D, 190 Db, and 219

The removal and installation procedures for the steering column bracket and lock are the same as on Model 190.

## II. Models 220 a, 220 S, and 220 SE

### Removal:

1. Disconnect the ground cable at the negative terminal of the battery.
2. Remove the instrument cluster (see Job No. 54-11).
3. Set the steering lock to the "garage" position and take out the ignition key.
4. Remove the cable cover in the left glove compartment and unscrew the cover plate on the steering column below the instrument panel.
5. Loosen the two hexagon nuts on the tightening strap for the steering column jacket and remove together with washers. Pull out the tightening strap, taking care not to damage the mounting plate for the control knobs.
6. Unscrew the pull switch for the roof light (1), the rotary light switch (2) and pull switch for the instrument lighting (3) and pull them out of the mounting plate without disconnecting the cables (see Fig. 46-8/1).
7. Unscrew the choke control knob (8) with escutcheon (Fig. 46-8/1).

**Note:** a) On Model 220 SE there is no choke control knob (8). The arrangement of the other control knobs on the mounting plate is as shown in Fig. 46-8/1.

b) On Model 220 a and the 1<sup>st</sup> version of Model 220 S the ignition control knob (10) (octane number compensator) is to the right of the choke control knob. The pull switch for the demisting blower is arranged to the left of the charging light (Fig. 46-8/2).

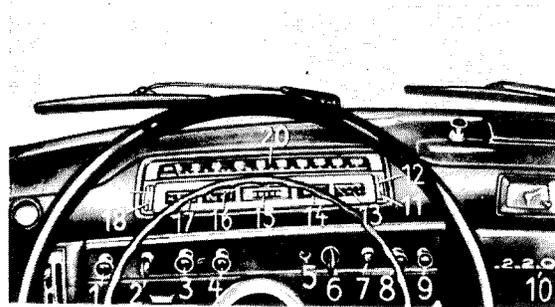


Fig. 46-8/1

- 1 Pull switch for roof light
- 2 Rotary light switch
- 3 Pull switch for instrument lighting
- 4 Pull knob for return mechanism of trip recorder
- 5 Charging light
- 6 Steering lock
- 7 Starter push-button switch
- 8 Choke control knob
- 9 Pull switch for demisting blower
- 10 Decorative cover
- 11 Green pilot light for demisting blower
- 12 Red pilot light for flash direction signal
- 13 Fuel reserve indicator
- 14 Trip recorder
- 15 Cumulative mileage counter
- 16 Oil pressure gage
- 17 Cooling water thermometer
- 18 White starter pilot light
- 19 Blue upper beam pilot light
- 20 Speedometer

c) It is necessary to disconnect the ignition control cable from the distributor before the mounting plate can be removed (see Job No. 30-8).

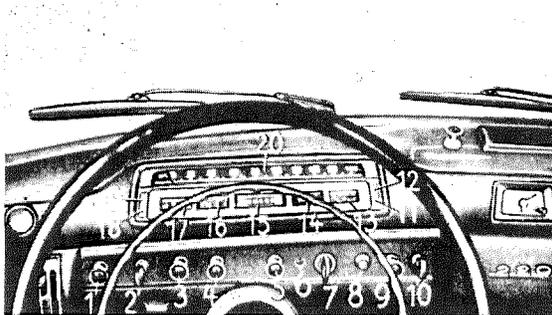


Fig. 46-8/2

- 1 Pull switch for roof light
- 2 Rotary light switch
- 3 Pull switch for instrument lighting
- 4 Pull knob for return mechanism of trip recorder
- 5 Pull knob for demisting blower
- 6 Charging light
- 7 Steering lock
- 8 Starter push-button switch
- 9 Choke control knob
- 10 Ignition control knob (octane number compensator)
- 11 Green pilot light for demisting blower
- 12 Red pilot light for flash direction signal
- 13 Fuel reserve indicator
- 14 Trip recorder
- 15 Cumulative mileage counter
- 16 Oil pressure gage
- 17 Cooling water thermometer
- 18 White starter pilot light
- 19 Blue upper beam pilot light
- 20 Speedometer

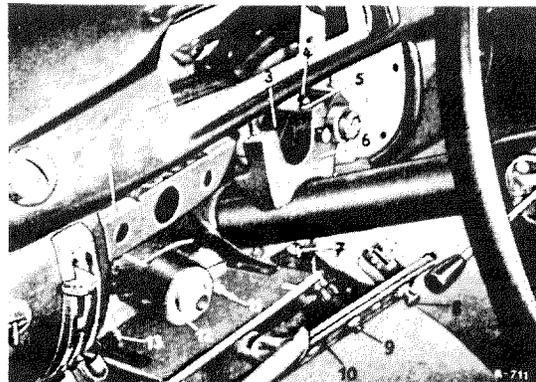


Fig. 46-8/3

- 1 Bracket for mounting plate
- 2 Aperture for instrument cluster in instrument panel
- 3 Contact cap at steering lock
- 4 Stud screw
- 5 Shim
- 6 Steering column bracket and lock
- 7 Wing nut for set screw
- 8 Pull switch for demisting blower
- 9 Starter push-button switch
- 10 Mounting plate for control knobs
- 11 Pull switch for instrument lighting
- 12 Rotary light switch
- 13 Pull switch for roof light

8. Loosen the hexagon nuts of the two set screws on the right hand side which fix the mounting plate for the control knobs to the lower part of the cowl and remove, the nuts together with the spring washers. Then pull out the mounting plate.

9. Working from the aperture of the instrument cluster loosen the two hexagon nuts for the steering column bracket and remove together with washers and crimped washers (see Fig. 46-8/3).

10. Press the steering column slightly down and pull out the steering column bracket together with the lock (6) (Fig. 46-8/3).

**Note:** If shims were installed between the steering column bracket and the cowl, remove the shims from the stud screws.

11. Unscrew the contact cap (3) from the steering lock and disconnect the cables (see Fig. 46-8/3).

#### Installation:

12. Connect the cables to the contact plate of the steering lock. Pay attention to the color coding:

Connect the red cable (lead number 57) to terminal 30, the black cable (lead number 10) and the black/red cable (lead number 24) to terminal 15,

the blue cable (lead number 72) to terminal 61 (see Job No. 15-21).

13. Install the steering column bracket with lock, the washer and crimped washers and finger-tighten the two hexagon nuts (see Fig. 46-8/3).

**Note:** During installation the steering lock must be in the "garage" position. If necessary shims can be installed between the steering column bracket and the cowl as required (see Fig. 46-8/3).

14. Insert the choke cable in the mounting plate for the control knobs and screw on the escutcheon and the knob.
15. Install the mounting plate. Make sure that the two set screws on the right side of the mounting plate are adjusted to the correct height. After adjusting the set screws tighten the wing nuts (7). Screw the hexagon nuts and the spring washers onto the set screws and tighten (see Fig. 46-8/3).
16. Screw on the pull switch for the roof light (1), the rotary light switch (2) and the pull switch for the instrument panel lighting (3) (see Fig. 46-8/2).
17. Attach the tightening strap for the steering column bracket and screw on finger-tight.
18. Align the steering column and finally tighten the two hexagon nuts for the attachment of the steering column bracket.
19. As a check of the steering lock turn the key to the position "Halt" (stop) and take it out.

In this position the lock bolt must engage in the steering tube when the steering wheel is turned and thus lock the steering.

#### **Position of the Steering Lock:**

Key in position "Halt" (stop): ignition switched off, steering locked. The ignition key can be taken out.

Key in position "Garage": ignition switched off, steering free. The ignition key can be taken out.

Key in position "Fahrt" (drive): ignition switched on, steering free. The ignition key cannot be taken out.

20. Install the instrument cluster (see Job No. 54-19).
21. Install the cable cover in the left glove compartment and screw the cover plate to the steering column below the instrument panel.
22. Connect the ground cable to the negative terminal of the battery. Check whether the horns and the flash direction signals work properly.
23. On cars of Models 220 a and 220 S with ignition control cable connect the cable to the distributor (see Job No. 30-8).

### **III. Model 190 SL**

#### **Removal:**

**Note:** Cars of Model 190 SL as from Chassis End No. 85 01846 are provided with a steering lock as a standard part.

1. Disconnect the ground cable at 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 upper beam flash signal switch from the steering column jacket.

In the case of the 1<sup>st</sup> version switch loosen the tightening strap, remove the switch but do not disconnect the cables. In the case of the 2<sup>nd</sup> version switch which is fastened directly to the steering column jacket, unscrew the two Phillips head screws and disconnect the cables. Remove the switch and pull the cable harness out of the steering column jacket.

**Note:** For the flash direction signal switch with automatic return mechanism (on export cars) the procedures are the same as for the 2<sup>nd</sup> version upper beam flash signal switch.

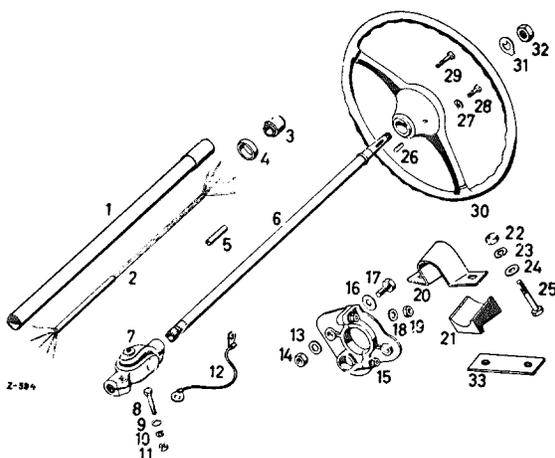


Fig. 46-8/4

- 1 Steering column jacket
- 2 Cable harness for steering tube
- 3 Needle bearing
- 4 Rubber ring for cable at steering column jacket
- 5 Rubber sleeve for cable attachment
- 6 Steering tube
- 7 Universal joint
- 8 Hexagon screw
- 9 Washer
- 10 Lock washer
- 11 Hexagon nut
- 12 Ground cable
- 13 Washer
- 14 Hexagon nut
- 15 Support for steering column bracket
- 16 Washer
- 17 Hexagon screw
- 18 Washer
- 19 Hexagon nut
- 20 Retaining clamp for steering column jacket
- 21 Rubber support for steering column jacket
- 22 Hexagon nut
- 23 Lock washer
- 24 Washer
- 25 Hexagon screw
- 26 Key
- 27 Spring washer
- 28 Cylinder screw
- 29 Cylinder screw
- 30 Steering wheel
- 31 Locking plate
- 32 Hexagon nut
- 33 Shim

4. Loosen the upper clamping screw of the universal joint on the steering tube and remove.
5. Set the steering lock to the "garage" position so that the lock bolt does not engage in the steering tube; then take out the ignition key.

6. On Convertibles fold back the roof and on Coupés remove the roof.
7. Pull out the steering tube giving due attention to the cable harness. If necessary loosen the steering tube by tapping the upper shank of the universal joint lightly with a hammer. Do not apply force to the steering wheel.
8. Loosen the two hexagon screws (25) for the retaining clamp (20) at the top of the cross strut in the cowl and remove the clamp together with the rubber support (21) and the shims (33) (Fig. 46-8/4).
9. Loosen the hexagon screw fixing the steering lock to the steering column jacket. Unscrew the grub screw at the bottom of the steering lock.
10. Working from the engine compartment side loosen the two hexagon nuts (19) at the bottom of the steering column jacket support. If necessary also loosen the two hexagon screw (17) attaching the support to the cowl. Pull the steering column jacket out toward the rear and remove the steering lock (see Fig. 46-8/4).

**Note:** Before pulling out the steering column jacket mark it in relation to the support. If necessary the rubber ring (4) for the attachment of the upper beam flash signal switch cable harness must be removed from the steering column jacket together with the tightening strap attachment.

11. Remove the contact cap from the steering lock, disconnect the cable and remove the steering lock.

#### Installation:

12. Connect the cables to the contact plate of the steering lock and pay attention to the color coding of the cables:

Connect the red cable (lead number 57) to terminal 30,  
 the black cable (lead number 10)  
 and  
 the black/red cable (lead number 24) to terminal 15,  
 the blue cable (lead number 72) to terminal 61 (see Job No. 15-21).

13. Insert the steering column jacket into the aperture of the instrument panel, install the steering lock and fully insert the steering column jacket. Fix the steering lock in the slot in the steering column jacket by means of the grub screw at the lower side of the lock but do not clamp the steering lock in position.
14. Clamp the steering column jacket to the support on the cowl noting the position marked during removal and making sure that the steering lock is correctly positioned.
15. Insert the steering tube into the steering column jacket and pull the cable harness through the cable guide tube of the steering. When doing this the steering lock must be in the "garage" position.
16. With the front wheels in the fore and aft position and the steering wheel and steering assembly in the dead center position press the steering tube onto the serrated part of the universal joint.

**Note:** 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 (see Job No. 40-3).

17. Install the upper clamping screw on the universal joint and tighten.

**Note:** Only specified clamping screws (hexagon screws) may be used for attaching the universal joint to the steering tube and to the steering worm.

These screws should be tightened until 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.

18. Detach the steering column jacket again from the support on the cowl and move it to obtain a distance of 2-2.5 mm be-

tween the steering column jacket and the steering wheel hub.

19. Slightly tighten the two hexagon screws at the bottom of the support and if necessary the two hexagon screws for attaching the support to the cowl.
20. Slide the rubber support (21) with shims (33) onto the cross strut under the steering column jacket and install the clamp. Install the two hexagon screws (25) from below and tighten. Also tighten the clamping screw of the steering lock (see Fig. 46-8/4).

**Note:**

- a) The height of the steering column jacket can be adjusted from above by inserting or removing shims between the cross strut and the rubber support.
- b) The steering lock can be moved in the longitudinal direction of the steering column jacket inside the slot for the grub screw. The cylinder of the steering lock must be positioned in the center of the aperture in the instrument panel and should project about 1-2 mm.
21. Now tighten the screws and nuts on the support making sure that the steering tube is positioned in the center of the steering column jacket. If necessary loosen the support and move it to center the steering tube.
22. To check the steering lock turn the ignition key to the position "Halt" (stop) and take it out. In this position, when the steering wheel is turned, the lock bolt must engage in the steering tube, thus locking the steering.

**Positions of the Steering Lock:**

Key in position "Halt" (stop): ignition switched off, steering locked. The ignition key can be taken out.

Key in position "garage": ignition switched off, steering free. The ignition key can be taken out.

Key in position "Fahrt" (drive): ignition switched on, steering free. The ignition key cannot be taken out.

23. Connect the cables for the flash direction signals and for the horn to the cable connector on the front wheel arch (front left). Pay attention to the color coding. The color coding of the cables of the steering tube harness must correspond to the color coding of the main cable harness.

24. Attach the upper beam flash signal switch to the steering column jacket. In the case of the 1<sup>st</sup> version switch clamp the switch to the steering column jacket with the tightening strap. In the case of the 2<sup>nd</sup> version switch pass the cable through the steering column jacket and connect it to the flash signal switch. Then screw the switch to the steering column jacket.

25. Connect the ground cable to the negative terminal of the battery and check whether the horns and the flash direction signals are working properly.

### Subsequent Installation of a Steering Lock on Model 190 SL

#### a) Modification of the Steering Column Jacket

When a steering lock is installed subsequently, the steering column jacket need not be replaced, since it can be modified for the installation of the steering lock. To do this mark and file the two slots on the steering column jacket as shown in picture 3 in Fig. 46-8/5, making sure that the two slots are arranged at the correct distance from one another and at an angle of 90°.

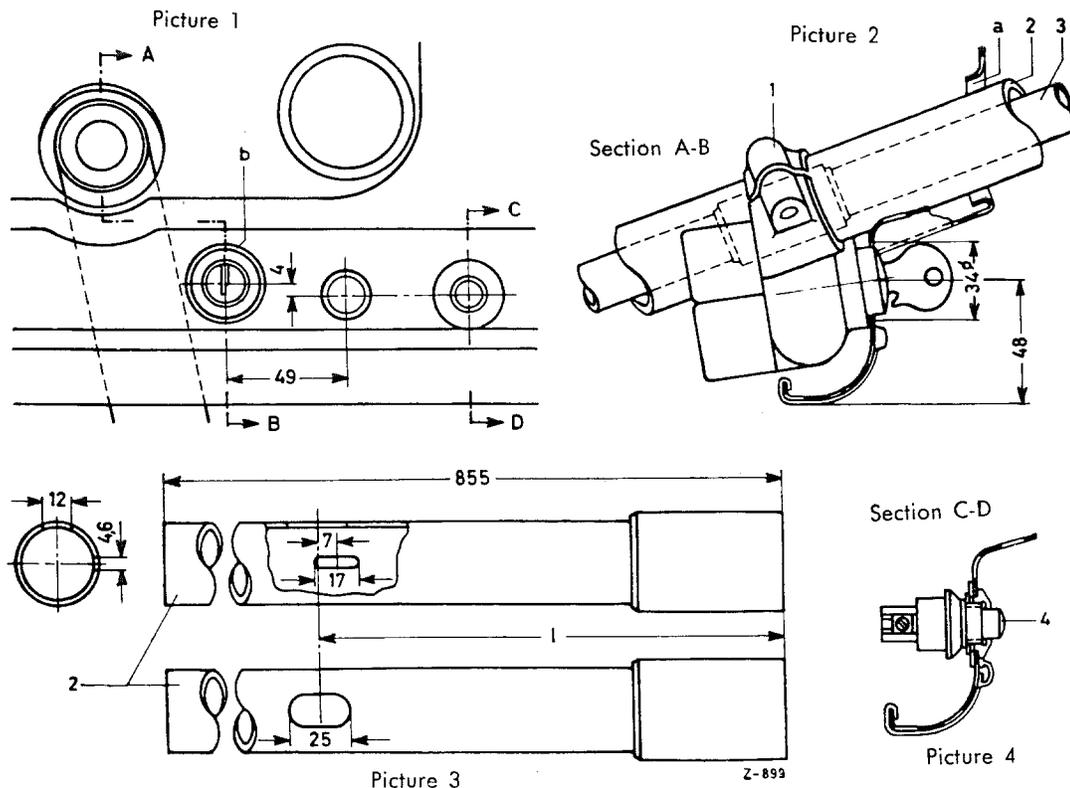


Fig. 46-8/5

a Instrument panel  
b Aperture for cylinder  
1 Steering lock

2 Steering column jacket  
3 Steering tube  
4 Push-button switch

## b) Aperture for Steering Lock in Instrument Panel

After having mounted the steering column jacket on the steering tube, cut out the circular opening (b) (approx. 34 mm  $\phi$ ) on the instrument panel to take the cylinder of the steering lock. To do this loosen the hexagon screw on the steering lock and back out the grub screw slightly so that the steering lock can be moved on the steering column jacket. When filing the opening check the steering lock for position several times (Fig. 46-8/5).

## c) Starter Switch

Remove the starter switch and replace it by the push-button switch (4) Part No. 000 545 27 08 (see Fig. 46-8/5).

## d) Cables and Leads

1. Replace the soldering sleeves on the cable ends at the starter switch by cable terminals 4.3 x 0.8 and Hellermann rubber grommets after having shortened the insulating tube by 80 mm.
2. Connect the lead from the starter (terminal 50) to the push-button switch.
3. Connect the new lead Part No. 121 540 16 38 from the steering lock (terminal 15-24) to the push-button switch.
4. Connect the lead from fuse No. 2 to the steering lock (terminal 15-24).
5. Connect the lead from the rotary light switch (terminal 30) to the steering lock (terminal 30).

**Note:** The charging light is not removed from the instrument panel.

## e) Parts Required for Subsequent Installation of Steering Lock on Model 190 SL

Number	Designation	N° de pieza
1	Steering tube with lock ring (overall length 1135 mm) Standard version	121 460 09 09
1	Steering tube with lock ring (overall length 1175 mm) Special version	121 460 14 09
1	Steering lock for steering column jacket with 38 mm tube diameter on left-hand drive models	000 462 07 30
1	Steering lock for steering column jacket with 34 mm tube diameter on left-hand drive models	000 462 08 30
1	Steering lock for steering column jacket with 34 mm tube diameter on right-hand drive models	000 462 09 30
1	Steering column jacket with 38 mm tube diameter	121 460 34 16
1	Steering column jacket with 34 mm tube diameter	121 460 37 16
1	Steering column jacket with 34 mm tube diameter for longer steering tube	121 460 42 16
1	Starter push-button switch	000 545 27 08
1	Escutcheon for push-button switch	121 545 00 72
1	Washer for push-button switch	136 990 42 40
1	Washer for push-button switch	121 990 24 40
3	Spade terminal 4 x 8 N 261	
3	Rubber grommet	000 997 01 81
1	Electric lead B 2.5 DIN 72 551 from steering lock to starter push-button switch	121 540 16 38
1	Hexagon screw M 8 x 40 DIN 941 — 8 G	
1	Lock washer B 8 DIN 127	
1	Hexagon nut M 8 DIN 934 — 5 S	