

Oil types/filling capacities and oil level checkup

Automatic transmission fluid (ATF) or transmission oil	refer to Specifications for service products page 236.1, 236.2 refer to Specifications for service products page 237
Filling capacity	approx. 1.5 liter
Oil level checkup	With the oil at operating temperature (approx. 80 °C), the oil level in supply tank should reach up to punched-in mark (approx. 20 mm below edge of tank). With the engine cold and at ambient temperature, oil level 6–8 mm below mark. For filling up, use perfectly clean oil only, since even the smallest particle of dirt may cause trouble in hydraulic system.

Tightening torques		Nm	(kpm)
High-pressure expanding hose to powersteering pump		45–50	(4.5–5)
Connecting pipe for return flow hose		35–45	(3.5–4.5)
Hex nut to input shaft		50	(5)
Attachment of powersteering pump in carrier		Hex screw M 10 (10.9)	70 (7)
		Hex screw 3/8"	35–40 (3.5–4)
		Locking screw M 10 (12.9)	85 (8.5)
Attachment of carrier to cylinder crankcase and to oil pan		Hex socket screw M 10 (10.9)	70 (7)
		Hex screw M 8 (12.9)	40 (4)

Special tool

Puller for pulley of input shaft of powersteering pump

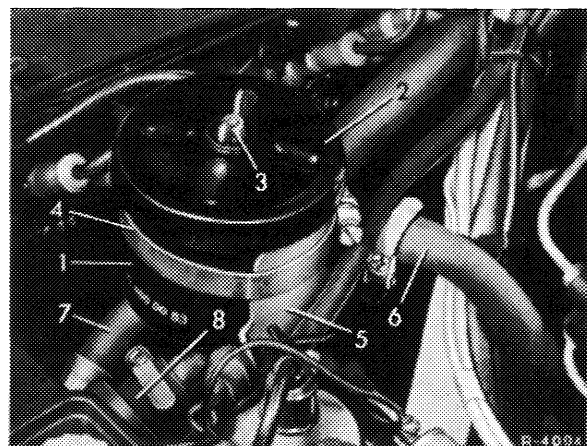


108 589 02 33 00

A. Model 115

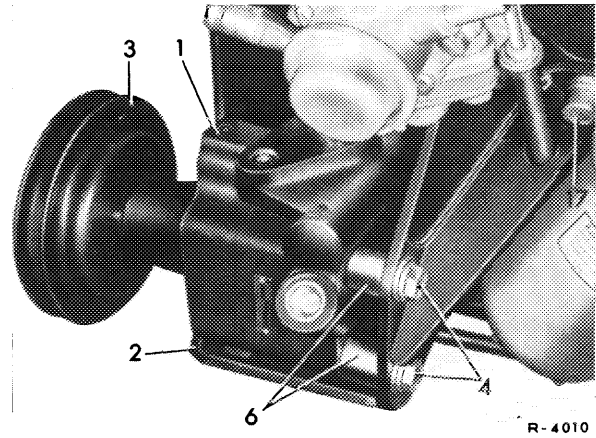
Removal

- 1 Unscrew wing nut (3), remove closing cover (2), compression spring and damping plate. Use syringe to draw oil from supply tank.
- 2 Loosen high-pressure expanding hose (7) on powersteering pump, close connection on pump and hose with blind plug.
- 3 Loosen connecting hose (8) from supply tank to powersteering pump at pipe elbow of pump or at supply tank.



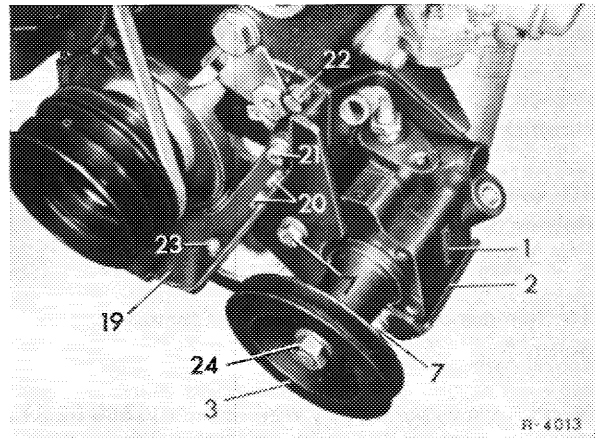
4 On models 115.0, loosen the two hex screws (4) of carrier (2).

- 1 Powersteering pump
- 2 Carrier for powersteering pump
- 3 Pulley
- 4 Hex screw with snap ring and washer
- 6 Spacing sleeve
- 17 Hex socket screw with 4 cup springs or locking springs



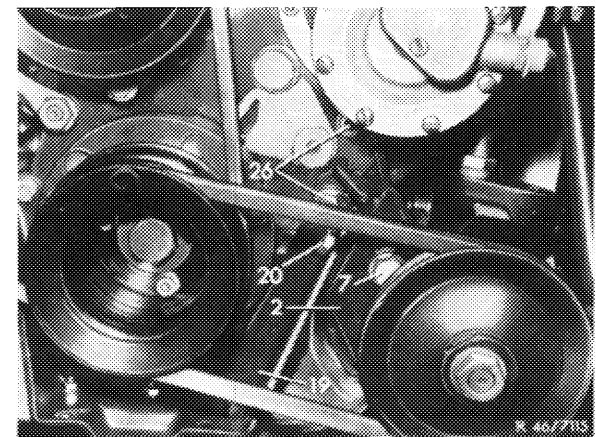
5 On models 115.0, loosen hex screws (7). Push powersteering pump toward engine and remove V-belt from pulley (3).

- 1 Powersteering pump
- 2 Carrier for powersteering pump
- 3 Pulley
- 7 Hex screw with 5 cup springs or locking screw
- 19 Holder of engine stop restriction
- 20 Hex screw with snap ring
- 21 Hex socket screw with 5 cup springs or locking screw
- 22 Hex screw with 5 cup springs or locking screw
- 23 Hex nut
- 24 Hex nut



6 On models 115.1, loosen hex screws (7) on carrier (2).

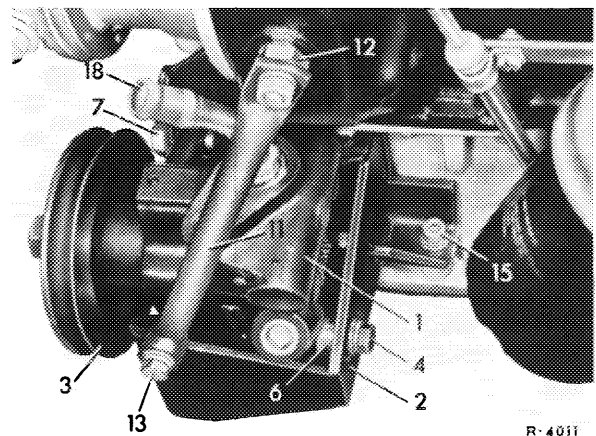
- 2 Carrier for powersteering pump
- 7 Hex screw with washer and snap ring
- 19 Holder for engine stop restriction
- 20 Hex screw with snap ring
- 26 Hex nut with snap ring



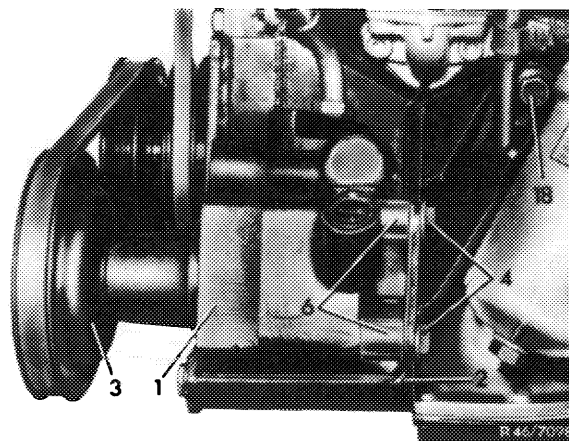
7 On models 115.1, loosen hex screws (4) on carrier (2). Push powersteering pump toward engine and remove V-belt.

8 On models 115.1, unscrew hex screw (13) on carrier (2) and hex nut on locking screw (12) for roller chain and remove supporting strut (11)

- 1 Powersteering pump
- 2 Carrier for powersteering pump
- 3 Pulley
- 4 Hex screw with snap ring and washer
- 6 Spacing sleeve
- 7 Hex screw with snap ring and washer
- 11 Supporting strut
- 12 Locking screw for roller chain
- 13 Hex screw with snap ring and washer
- 15 Hex socket screw with snap ring and washer
- 18 Pipe elbow



9 Unscrew hex screws while paying attention to spacing sleeve (6) located between pump housing (1) and carrier (2). Then remove powersteering pump.

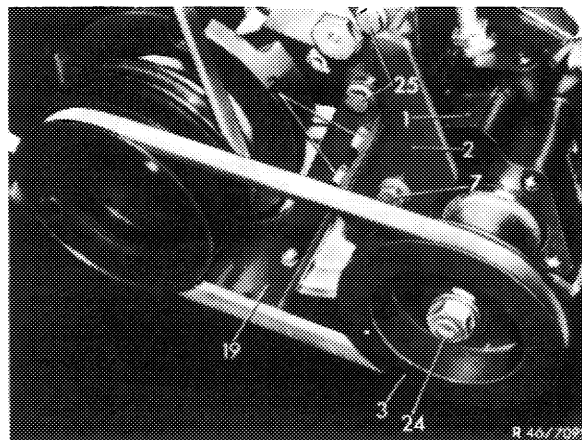


Note: The following versions of powersteering pump attachment at front in carrier apply to models 115.0: Hex screws (7) classification 10.9 with 5 uniformly stacked cup washers or locking screws (7 and 25) of classification 12.9.

10 Unscrew hex nut (24) on input shaft of powersteering pump while applying counterhold to flats (SW 36) of pulley.

11 Remove pulley from input shaft by means of puller.

Note: Remove pulley only with puller 108 589 02 33 00, since otherwise the powersteering pump will be damaged.



Installation

Attention!

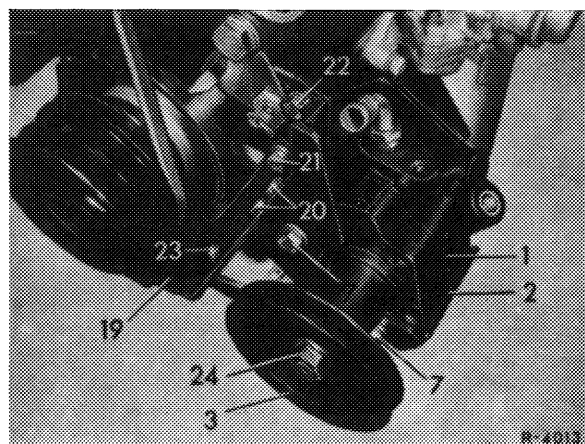
Prior to installing powersteering pump on models 115.0, check attachment of carrier to cylinder crankcase, to oil pan and to holder for engine stop restriction.

12 Insert powersteering pump into carrier.

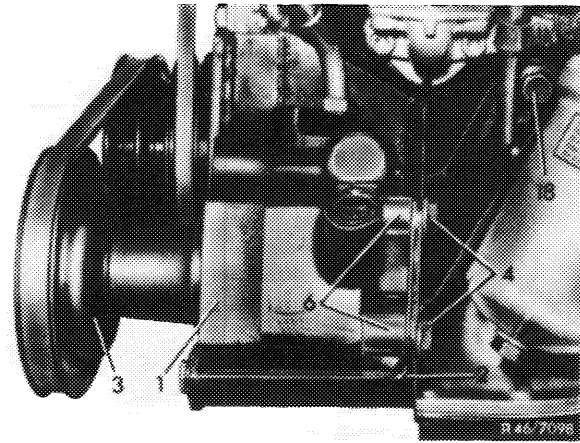
13 Screw-in front fastening screws (7) and tighten slightly.

Note: On model 115.0 the powersteering pump at front in carrier is either attached with hex screws (7) and 5 uniformly stacked cup springs or with locking screws (7).

On model 115.1 the powersteering pump is attached at the front with hex screws (7), washers and snap rings.

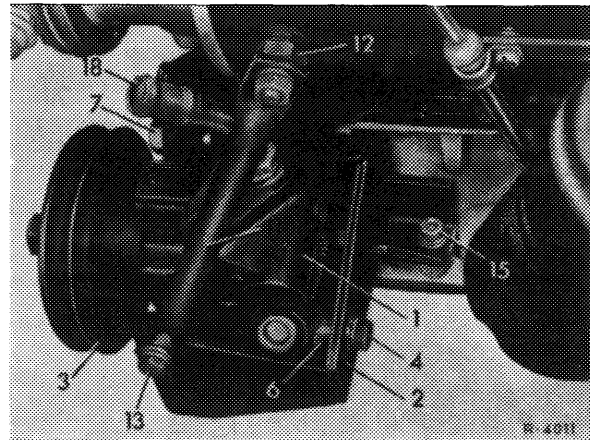


14 On model 115.0, insert the two spacing sleeves (6) between pump housing (1) in carrier (2), then screw-in both hex screws (4).



15 On model 115.1, insert spacing sleeve (6) and screw-in hex screw (4), install supporting strut (11).

Note: Spacing sleeves are available 18.75 to 21.25 mm long, in steps of 0.25 mm each.



16 Slip pulley on input shaft; make sure that the woodruff key is correctly entering groove of pulley.

17 Mount snap ring, screw-on hex nut and tighten, while applying counterhold to pulley on flats.

18 Push powersteering pump toward engine and mount V-belt. Then push pump away from engine by means of a lever until the V-belt is correctly tensioned (approx. 5 mm during thump depth under approx. 60 N (6 kp) load), then tighten hex screws or locking screws.

19 Connect high-pressure expanding hose and connecting hose.

20 Fill powersteering system with specified oil type, add oil with the engine running, until the marking in supply tank is attained.

21 On vehicles with LS 75 steering, bleed system.

22 On vehicles with LS 90 steering, turn steering wheel several times slowly to the left and right to bleed the system.

23 Check oil level and powersteering system for leaks.

B. Models 114.01 and 114.02

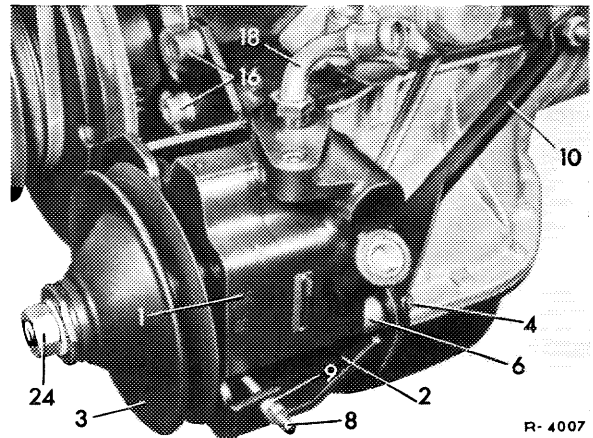
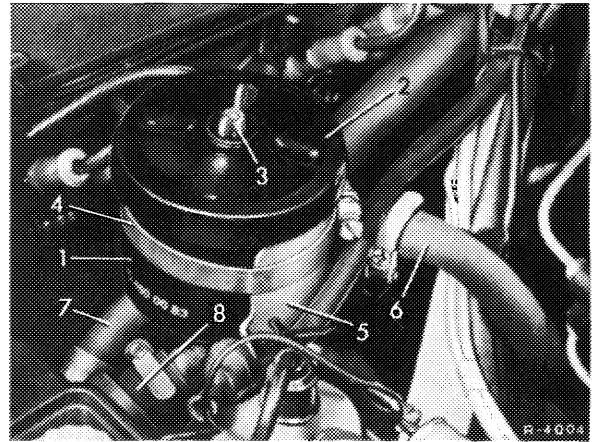
Removal

1 Unscrew wing nut (3), remove closing cover (2), compression spring and damping plate. Draw oil from supply tank by means of syringe.

2 Loosen high-pressure expanding hose (7) on powersteering pump, close connection on pump and hose with blind plug.

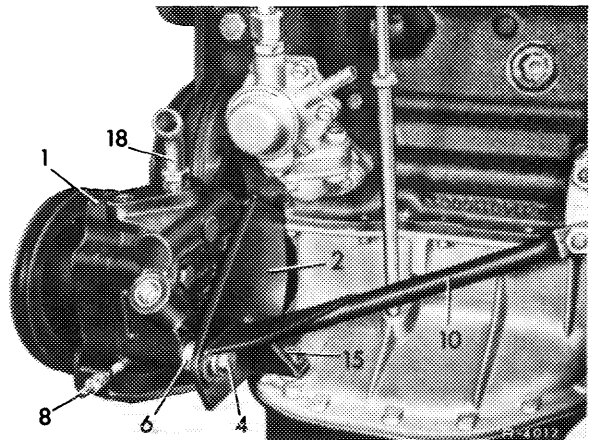
3 Loosen connecting hose (8) from supply tank to powersteering pump of pipe elbow of pump or on supply tank.

4 Loosen both front hex screws (in illustration covered by pulley) for powersteering pump in carrier (2) and hex nuts on tensioning screw (8). Unscrew rear hex screw (4) and remove together with spacing sleeve (6). Push powersteering pump toward engine and remove V-belt. Unscrew hex screws (16).



5 Unscrew hex socket screw (15) for attaching carrier (2) to oil pan. Then remove powersteering pump including pulley and carrier, while paying attention to spacing ring located between carrier and oil pan.

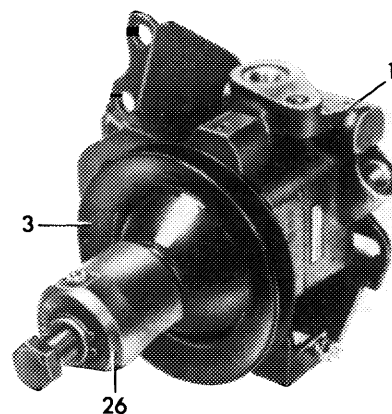
- 1 Powersteering pump
- 2 Carrier for powersteering pump
- 3 Pulley
- 4 Hex screw with snap ring and washer
- 6 Spacing sleeve
- 8 Tensioning screw
- 9 Hex nut
- 10 Supporting strut
- 16 Hex socket screw with snap ring and washer
- 18 Pipe elbow
- 24 Hex nut



6 Unscrew hex nut from input shaft of powersteering pump, while applying counterhold to pulley at flats (36 mm).

7 Pull pulley from input shaft with puller (26).

Note: Remove pulley with puller 108 589 02 33 00 only, since otherwise the powersteering pump may be damaged.



8 Unscrew both front hex screws (7), remove tensioning screw (8).

9 Remove powersteering pump on carrier (2).

Installation

10 Insert powersteering pump into carrier. Screw both hex screws (7) with washer and snap ring into pump housing (1), but do not yet tighten.

11 Introduce tensioning screw (8) over pin of lower hex screw (7), then screw-on both hex nuts (9).

12 Attach pulley to input shaft, tighten hex nut to 50 Nm (5 kpm), while applying counterhold to pulley at flats.

13 Place spacing ring on oil pan and attach carrier (2) to cylinder crankcase front and to oil pan, tighten hex socket screw (15 and 16) to 35–40 Nm (3.5–4 kpm).

14 Insert spacing sleeve (6) between powersteering pump (1) and carrier (2), screw-in hex screw (4), but do not yet tighten.

Note: The supporting strut (10) is attached to carrier together with rear axle screw. Spacing sleeves are available 11 to 12.25 mm long, in steps of 0.25 mm each.

15 Mount V-belt, tighten hex nuts of tensioning screw (8) till correct V-belt tension of approx. 5 mm during thump test at approx. 60 N (6 kp) load is attained.

16 Tighten hex screws (4 and 7).

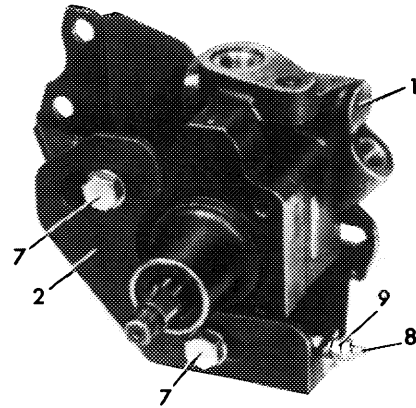
17 Connect high-pressure expanding hose and connecting hose.

18 Add oil of specified oil type with the engine running until the marking in supply tank is attained. Screw closing cover on supply tank.

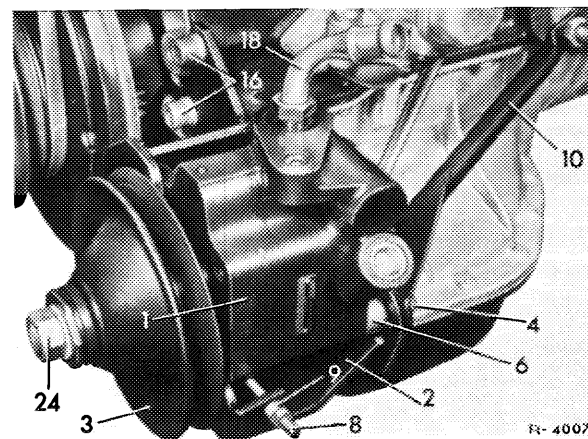
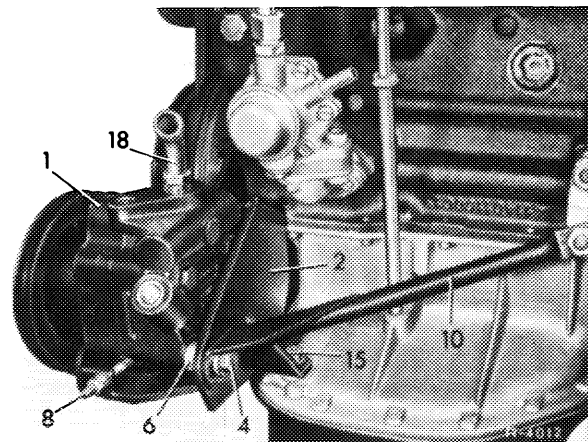
19 On vehicles with LS 75 steering, bleed system.

20 On vehicles with LS 90 steering, slowly turn steering wheel several times to the left and right to bleed the system.

21 Check oil level and power system for leaks.



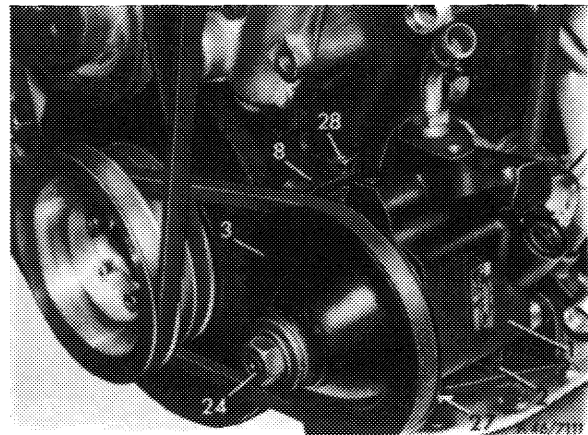
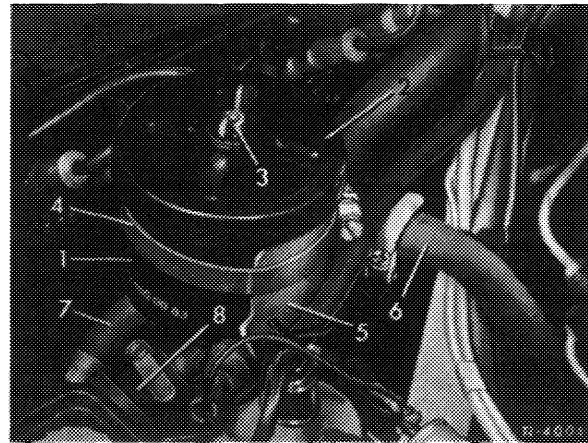
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C. Model 114.06 and 114.07

Removal

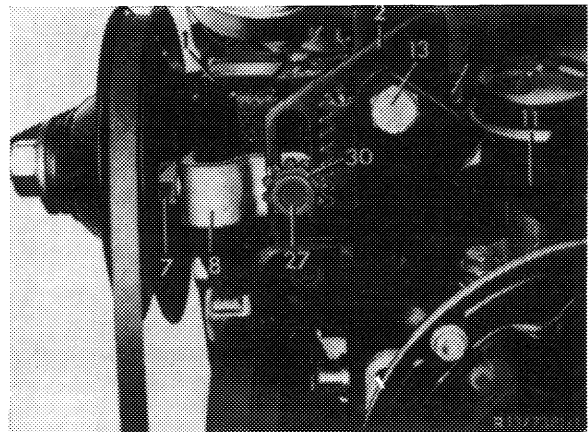
- 1 Unscrew wing nut (3), remove closing cover (2), compression spring and damping plate. Draw oil from supply tank with a syringe.
- 2 Loosen high-pressure expanding hose (7) on powersteering pump, close connection on pump and hose with blind plug.
- 3 Loosen connecting rod (8) from supply tank to powersteering pump on pipe elbow of pump or on supply tank.
- 4 Remove radiator.
- 5 Loosen hex socket screw (28).



- 6 Loosen hex socket screw (27) as well as hex screw (4). Push powersteering pump towards cylinder crankcase by turning gear wheel (30) and remove V-belt.

- 7 Unscrew hex nut from input shaft and pull off pulley by means of puller.

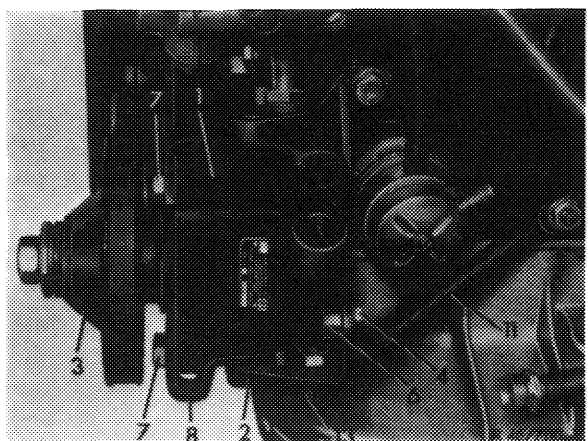
Note: Remove pulley only with puller 108 589 02 33 00, since otherwise the powersteering pump is damaged.



- 8 Unscrew hex screws (7 and 4) and remove powersteering pump, paying attention to spacing sleeve (6).

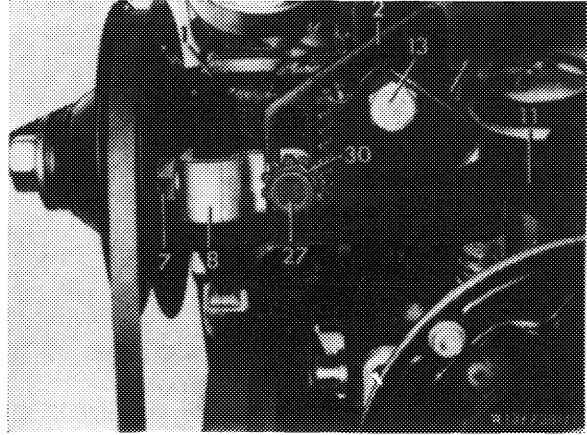
Installation

- 9 Screw hex screws (7) into pump housing and tighten to 70 Nm (7 kpm). Place spacing sleeve (6) in-between pump and carrier and screw-in hex screw (4).



10 Attach pulley to input shaft and tighten hex nut to 50 Nm (5 kpm), while applying counterhold to pulley at flats.

11 Mount V-belt. Push powersteering pump away from cylinder crankcase by means of gear wheel (30) until the correct belt tension is attained. Then tighten hex socket screws (27 and 28) as well as hex screw (4).



12 Connect high-pressure expanding hose and connecting hose.

13 Install radiator.

14 Fill powersteering system with specified oil type, add oil with engine running until the marking in supply tank is attained. Screw closing cover on supply tank.

15 Turn steering wheel several times slowly to the left and right to bleed the system.

16 Check oil level and system for leaks.

D. Model 115

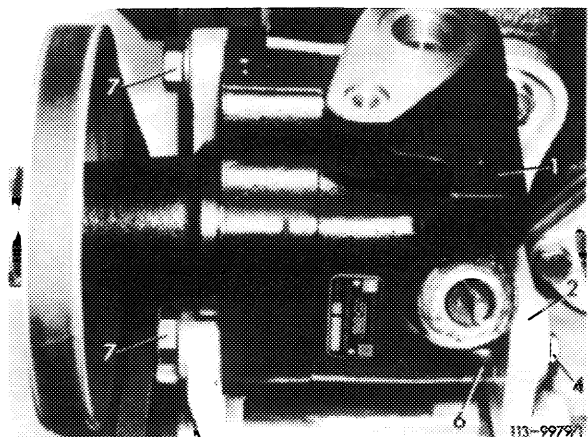
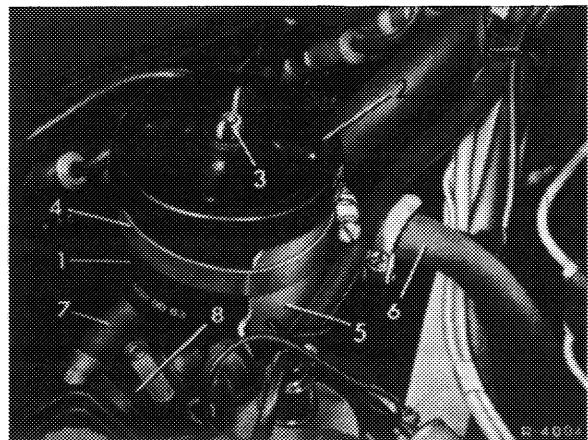
Removal

1 Remove battery and battery box.

2 Unscrew wing nut (3), remove closing cover (2), compression spring and damping plate. Draw oil from supply tank by means of a syringe.

3 Loosen high-pressure expanding hose (7) and pipe elbow of connecting hose (8) on powersteering pump. Close connections on pump and on hoses with blind plugs.

4 Loosen hex screws (4 and 7).



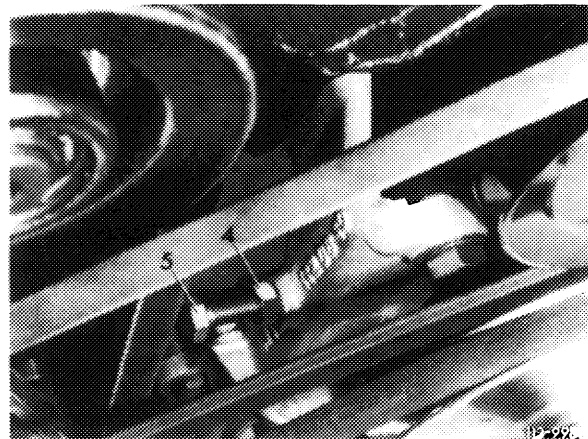
5 Loosen hex nut (4), turn hex screw (5) back for several threads and remove V-belt.

6 Unscrew hex screws (4 and 7) and remove powersteering pump for carrier, while paying attention to spacing sleeve (6) located between pump and carrier.

7 Unscrew hex nut from input shaft of powersteering pump while applying counterhold to pulley at flats, (36 mm).

8 Remove pulley from input shaft with puller.

Note: Remove pulley only with puller 108 589 02 33 00, since otherwise the powersteering pump may be damaged.



Installation

9 Attach pulley to input shaft.

10 Insert powersteering pump into carrier.

11 Screw-in front fastening screws (7) and tighten slightly.

12 Attach spacing sleeve (6) between carrier (2) and powersteering pump (1), screw-in hex screw (4) (inch threads) and tighten slightly.

13 Mount V-belt and tension with hex screw until correct V-belt tension is attained. Tighten hex nut.

14 Tighten hex screws (4 and 7).

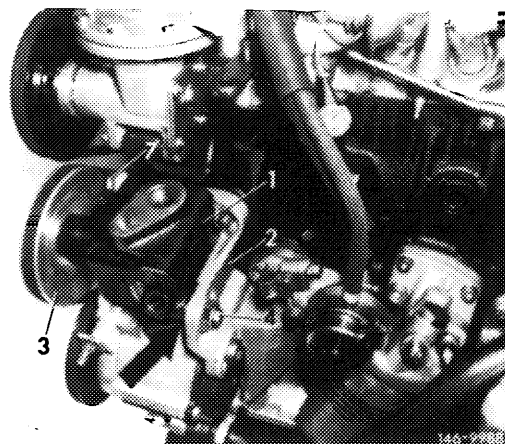
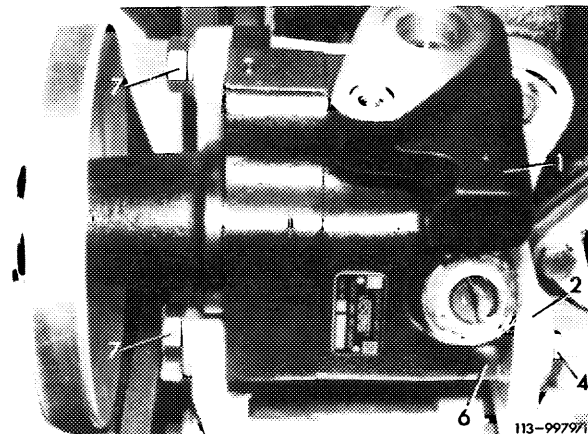
15 Install battery box and battery.

16 Connect high-pressure expanding hose and pipe elbow of connecting hose.

17 Fill powersteering system with specified oil type, add oil with the engine running until the mark in supply tank is attained.

18 Turn steering wheel several times slowly to the left and right to bleed the system.

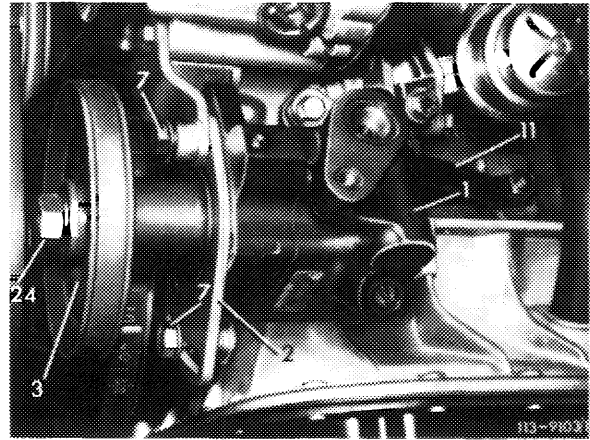
19 Check oil level and powersteering system for leaks.



E. Model 114.06 and 114.07 (USA)

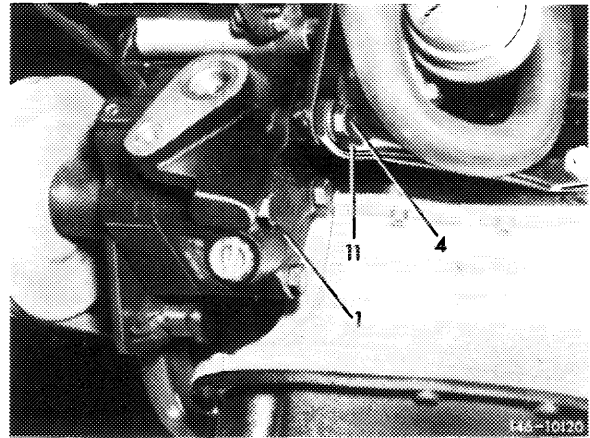
Removal

- 1 Remove radiator.
- 2 On vehicles model year 1974, loosen hex screws (4 and 7), push powersteering pump toward engine and remove V-belt.

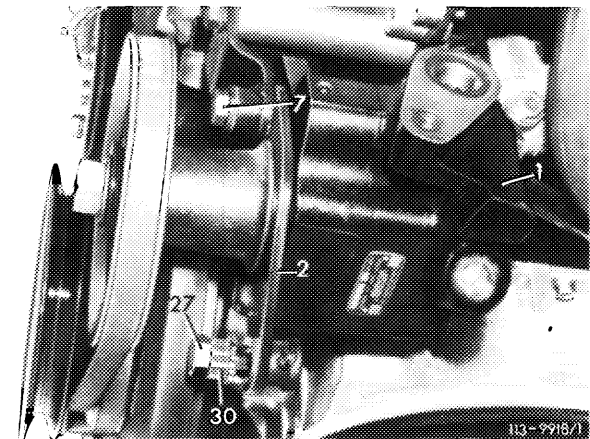


- 3 On vehicles starting model year 1975, loosen hex screws (7 and 27), as well as hex socket screw (SW6) at face end, as well as hex screw (4) at the rear.

Note: Hex screws (4 and 7) are provided with inch threads.

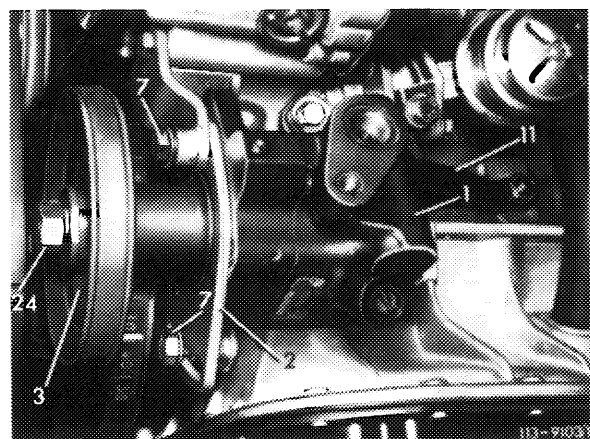


- 4 Turn powersteering pump with gear wheel (30) toward engine and remove V-belt.
 - 5 Unscrew hex nut (24) from input shaft and pull off pulley (3) by means of puller.
- Note:** Remove pulley only with puller 108 589 02 33 00, since otherwise the powersteering pump may be damaged.
- 6 Unscrew hex screws, remove powersteering pump.



Installation

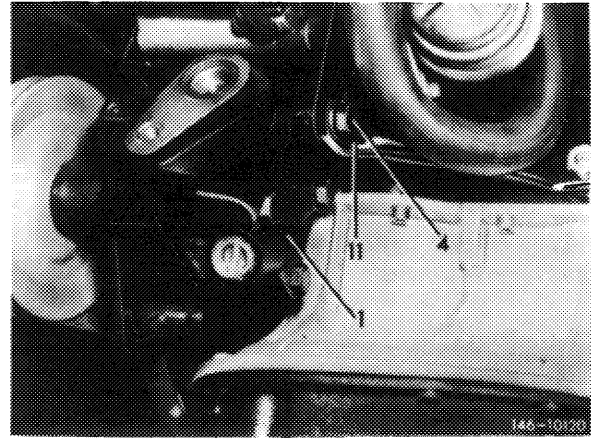
- 7 Install powersteering pump (1) into carrier (2). On vehicles model year 1974, screw-in both hex screws (7), but do not yet tighten.
- 8 On vehicles starting model year 1975, screw-in hex screw (7) and hex socket screw (6 mm) and tighten.



9 Screw-in hex screw (4) from rear of powersteering pump and tighten.

10 Attach pulley to input shaft and mount V-belt.

11 On vehicles model year 1974, push powersteering pump away from cylinder crankcase until the correct V-tension is attained, then tighten hex screws (4 and 7).



12 On vehicles starting model year 1975, push powersteering pump with gear wheel (30) away from cylinder crankcase until the correct V-belt tension is attained. Then tighten hex screw (27).

13 Connect high-pressure expanding hose and connecting hose.

14 Add specified oil type to powersteering system with the engine running until the marking in the supply tank is attained.

15 Turn steering wheel several times slowly to the left and right to bleed the system.

16 Check oil level and powersteering system for leaks.