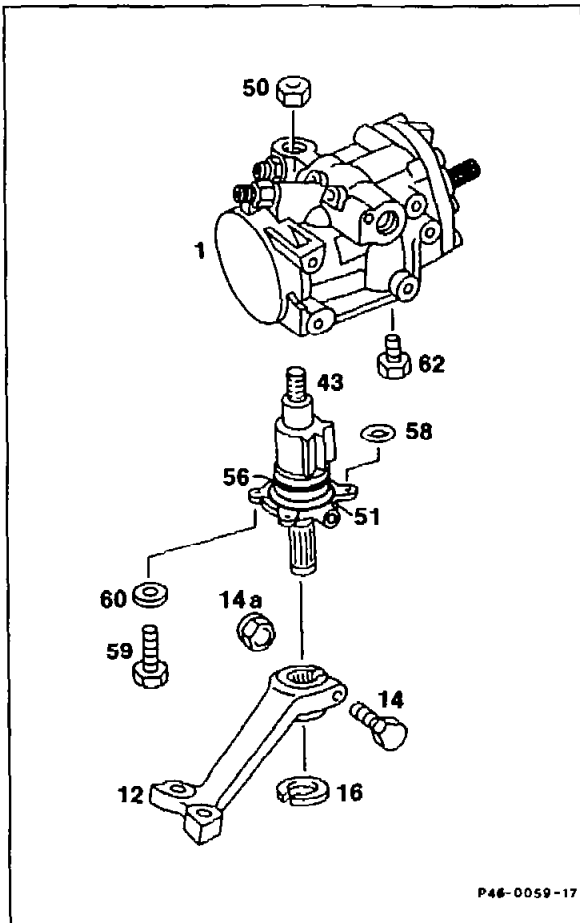


46-0232 Removing, installing and checking bearing cover with pitman arm shaft

Preceding work:
Removing and installing steering gear (46-3400)

Operation No. of operation texts and operation values or standard texts and flat rates:
46-3256

A. Steering gear with adjusting screw at top, models 124 (except 124.034/036), 201, 202

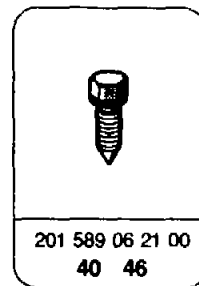
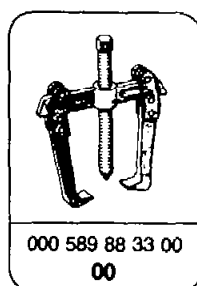
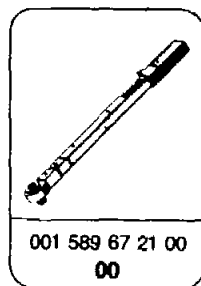
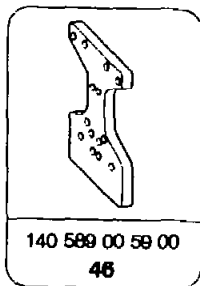


P46-0059-17

- | | |
|--|--|
| Steering gear (1) | mount on assembly support 140 589 00 59 00 with two screws and clamp in vise (number 1). |
| Distance "a" between pitman arm (12) and pitman arm shaft/bearing cover (51) | measure and note size (number 2). |
| Locking ring (16) | detach, attach, replace (number 3). |

Pitman arm (12)	pull off, by unscrewing nut (14a) and taking off bolt (14) (numbers 3 and 4). When installing pitman arm shaft and pitman arm, coat with Loctite 270 and fit on up to measured size "a" (number 2). Replace nut (14a) and attach with bolt (14), 55 Nm (numbers 17, 18).
Pitman arm shaft (43)	turn into center position (number 5).
Self-locking bolts (59)	unscrew, screw in, replace (numbers 6, 13) 30–35 Nm.
Self-locking collar nut (50)	unscrew, screw on, replace (numbers 7, 15) 60–65 Nm.
Pitman arm shaft (43)	press out of steering gear housing with pitman arm shaft/bearing cover (51) by turning adjusting screw clockwise (number 8, pay attention to center position). After installing pitman arm shaft, check friction torque of steering gear and adjust (number 14).
O-rings (56 and 58)	replace, ensure correctly fitted (number 10).

Special tools

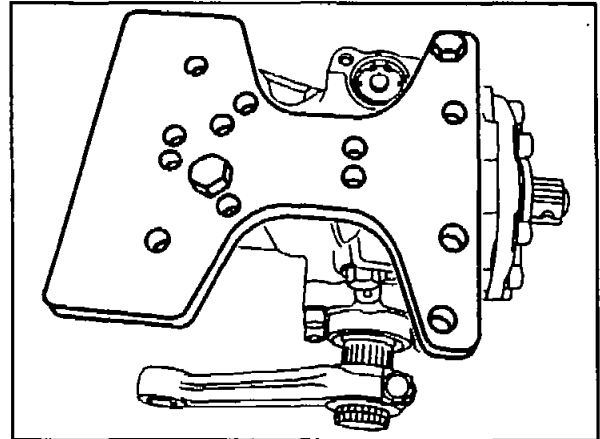




Pay attention to "Important notes regarding repair of steering gear" (46-0230)

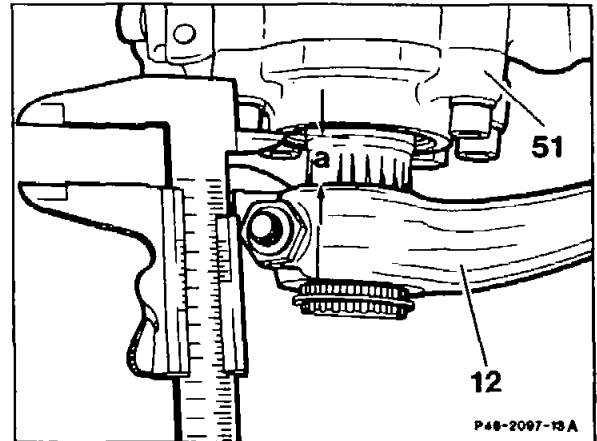
Removal

1 Attach steering gear to the assembly support 140 589 00 59 00 with two bolts and clamp in vise.



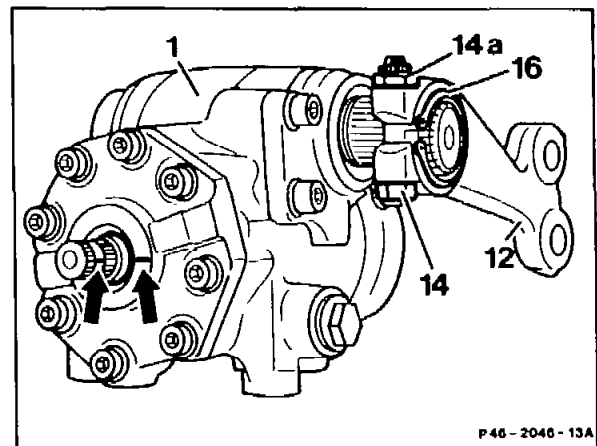
P46-5480-13

2 Measure distance "a" between pitman arm (12) and pitman arm shaft/bearing cover (51) and note size "a".



P46-2097-13A

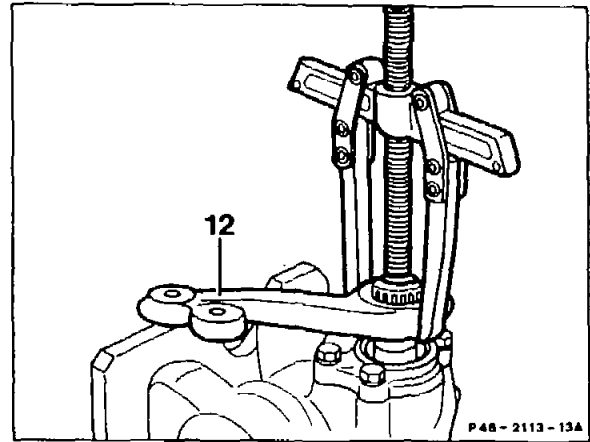
3 Take off locking ring (16). Unscrew nut (14a) and take off bolt (14).



P46-2046-13A

- 1 Steering gear
- 12 Pitman arm

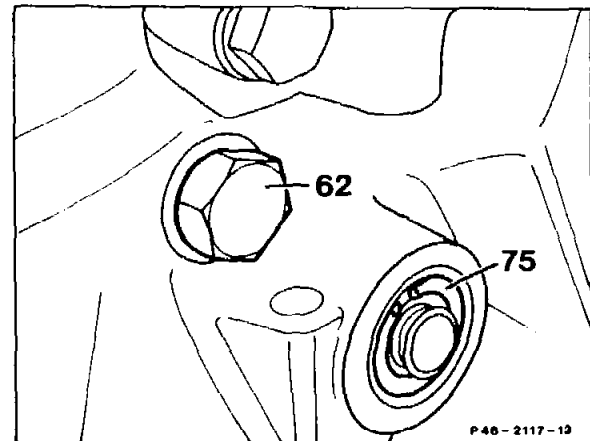
4 Pull pitman arm (12) off pitman arm shaft, use puller 000 589 88 33 00, if necessary.



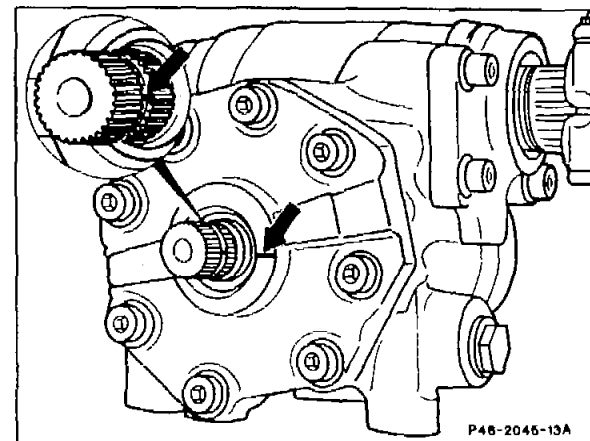
5 Turn steering gear into center position by unscrewing bolt (62) and screwing in center position inspection bolt 201 589 06 21 00.



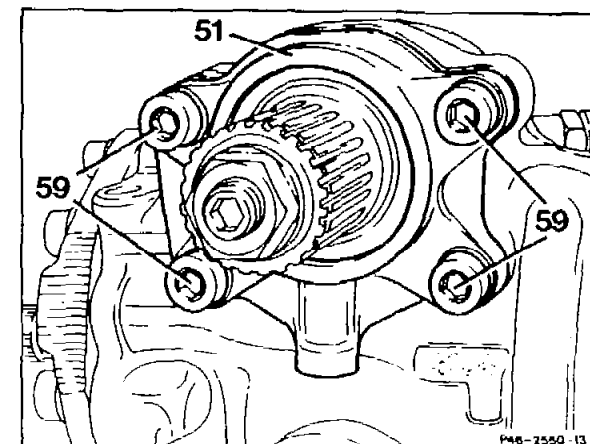
If the steering gear is not in the center position, the steering gear housing will be damaged on the inside when pressing out the pitman arm shaft together with bearing cover/pitman arm shaft.



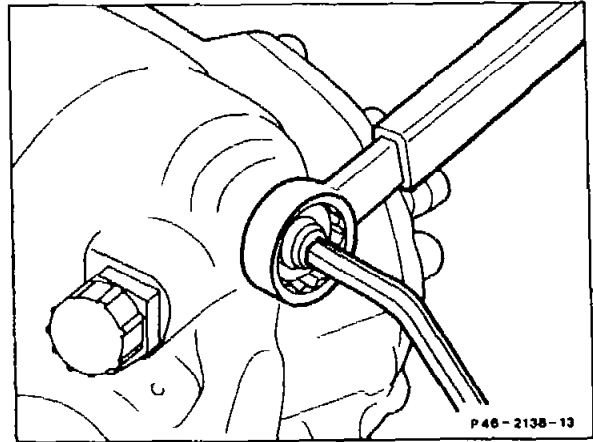
Position steering gear with external centering (as of 1/90) to mark (arrows).



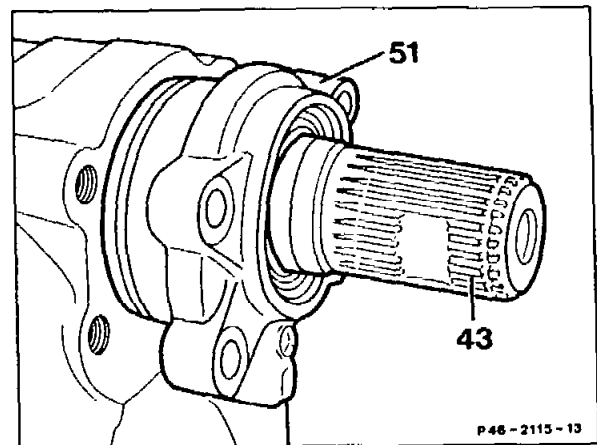
6 Unscrew self-locking bolts (59) for attaching pitman arm shaft/bearing cover (51).



7 Unscrew collar nut from adjusting screw, holding adjusting screw tight.

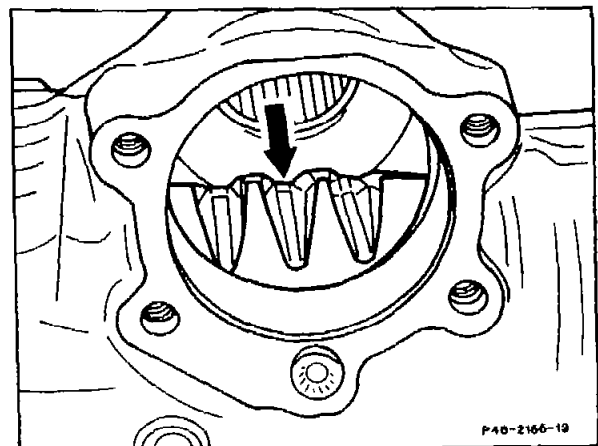


8 With steering in center position, turn adjusting screw clockwise; this causes the pitman arm shaft (43) to be pressed out of the steering gear housing together with the bearing cover/pitman arm shaft (51).

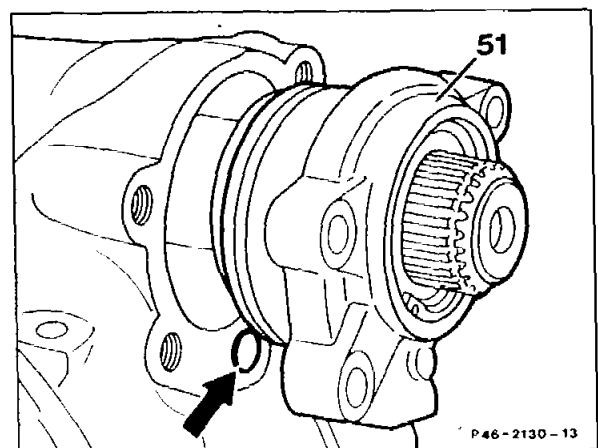


Installation

9 Turn steering worm so that the center tooth gap of the power piston (arrow) is positioned in the middle of the opening in the steering gear housing.



10 Replace O-rings. Introduce pitman arm shaft/bearing cover (51) together with pitman arm shaft into the steering gear housing so that the center tooth of the pitman arm shaft meshes into the middle tooth gap of the power piston. Ensure that the O-rings are properly seated (arrow).

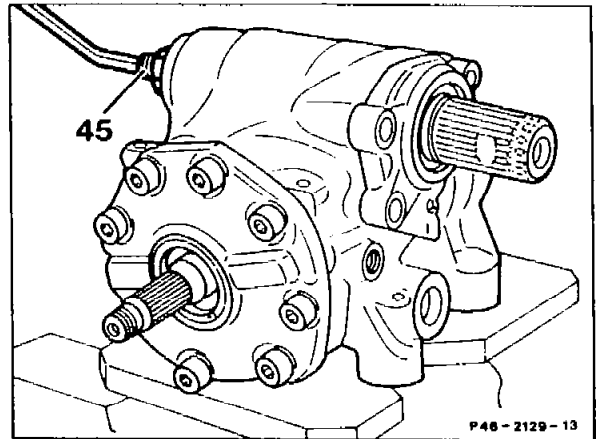


11 Turn pitman arm shaft/bearing cover (51) so that oil passage and bore are aligned with those of the steering gear.

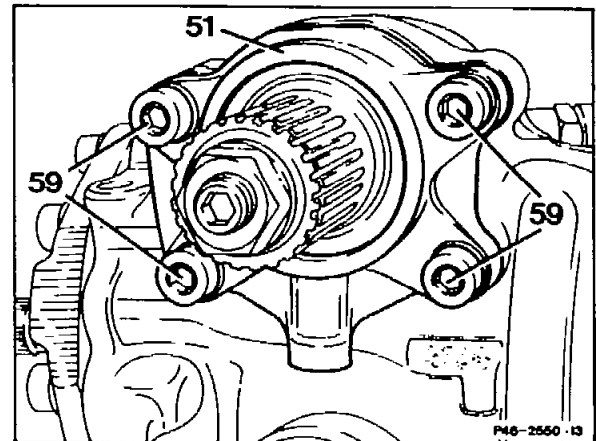
12 Screw adjusting screw (45) into the steering gear housing far enough for it to make contact. Unscrew center position inspection bolt and fit screw plug with new seal (35–40 Nm).

Note

Only by screwing in the adjusting screw is it ensured that the pitman arm shaft/bearing cover rests against the steering gear housing.



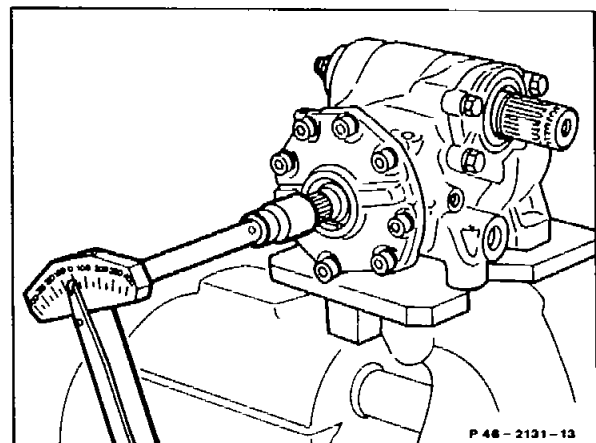
13 Tighten pitman arm shaft/bearing cover (51) with new self-locking bolts (59), (30–35 Nm).



14 Check, adjust friction torque of steering gear (46–0120).

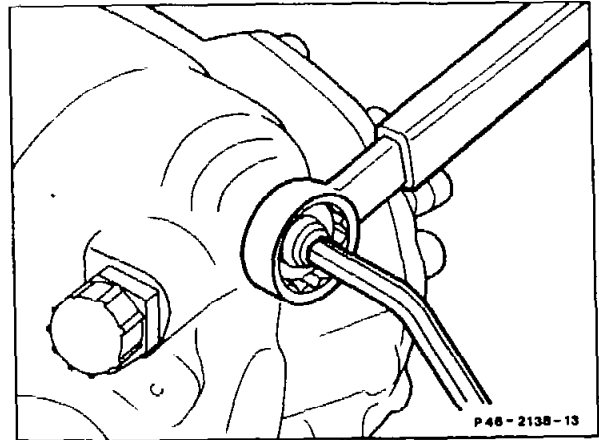
Note

A slight pressure point must be felt when turning beyond the center position. The steering gear must move freely when the steering shaft is turned from lock to lock.



15 Screw collar nut onto the adjusting screw and tighten to 60–65 Nm, holding the adjusting screw tight.

16 Re-check friction torque (46-0120).

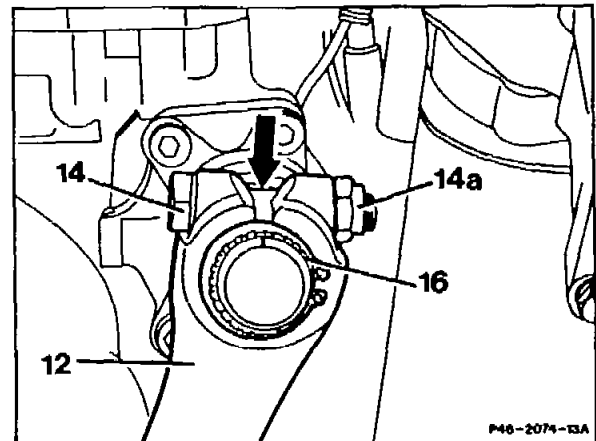


17 Clean shaft spline on the pitman arm shaft and on the pitman arm (12). Both parts must be free of oil and grease.

Coat shaft spline of pitman arm with **Loctite 270**. Then, push pitman arm shaft to size "a" measured in number 2 on to the pitman arm shaft in line with the cross nut.

18 Insert bolt (14). Replace nut (14a), 55 Nm.

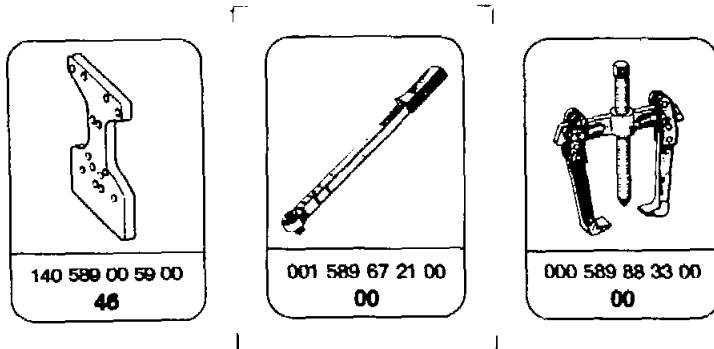
19 Install new locking ring (16). Ensure it is correctly seated.



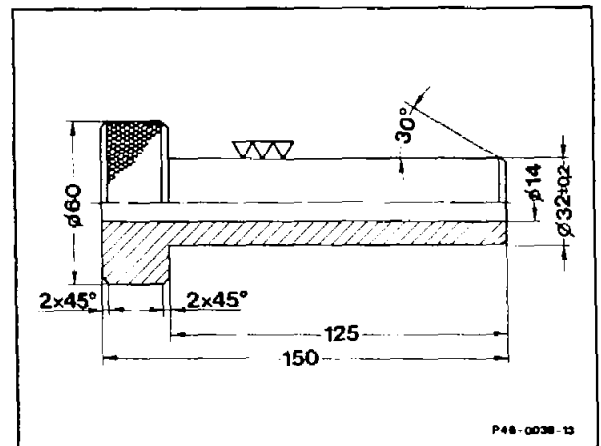
20 Detach steering gear from assembly support.

- Self-locking collar nut (50) unscrew, screw on, replace (numbers 7, 18)
60–65 Nm.
- Pitman arm shaft (43) press out of the steering gear housing with the
pitman arm shaft/bearing cover (51) by turning
the adjusting screw (45) clockwise. (Number 9,
pay attention to center position).
After installing pitman arm shaft, check and
adjust friction torque of steering gear
(number 17).
- Needle bearing in steering gear housing check whether any bearing needles have
dropped out (32 needles); insert bearing
needles with grease, if necessary (number 10).
- Shop-made assembly mandrel (090) insert in steering gear (number 11).
- O-rings (56 and 58) replace, ensure correctly fitted (number 13).

Special tools



**Shop-made tool
Mandrel (090).**

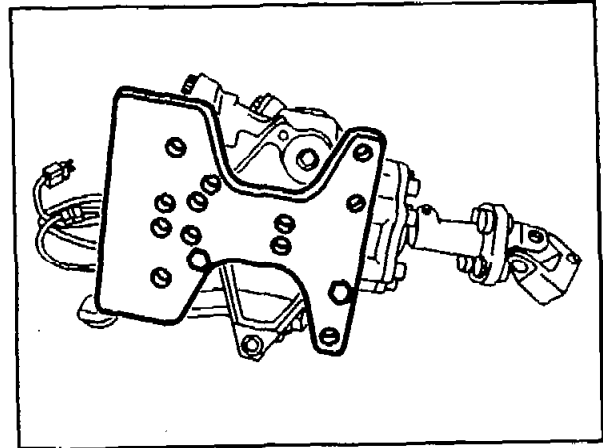




Pay attention to "Important notes regarding repair of steering gear" (46-0230).

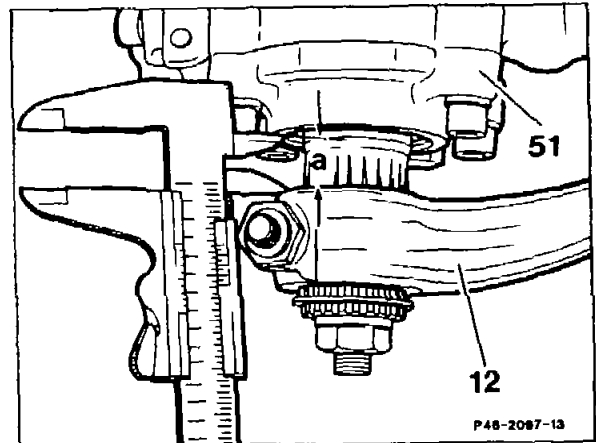
Removal

1 Mount steering gear on assembly support 140 589 00 59 00 with two bolts and clamp in vise.



P40-5480-13

2 Measure distance "a" between pitman arm (12) and pitman arm shaft/bearing cover (51) and note size "a".



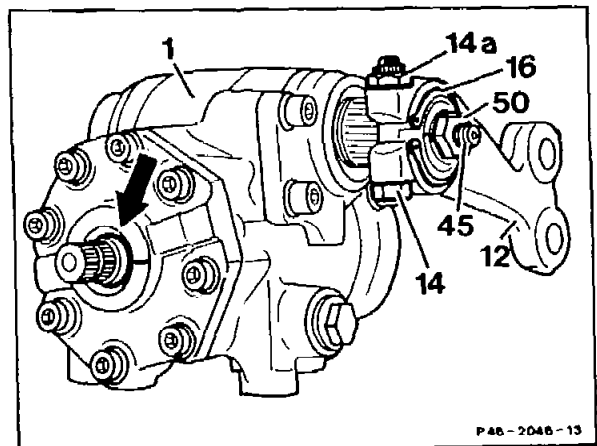
P48-2097-13

3 Take off locking ring (16). Unscrew nut (14a) and take off bolt (14).

4 Turn steering into center position so that markings are aligned (arrow).

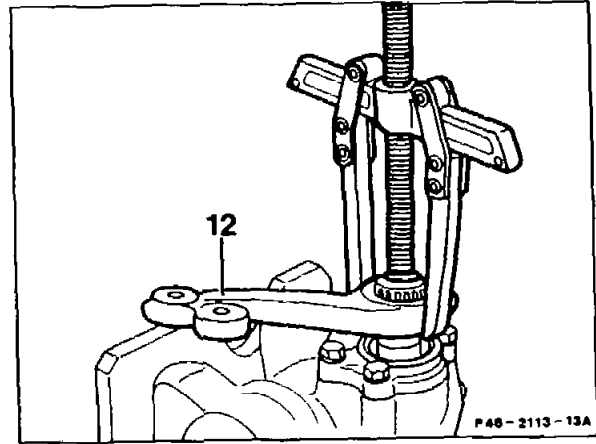


If the steering gear is not in the center position, the steering gear housing will be damaged internally when pressing out the pitman arm shaft with the bearing cover/pitman arm shaft.

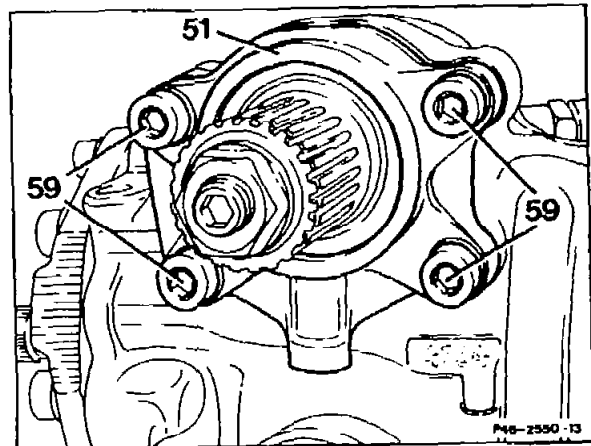


P46-2046-13

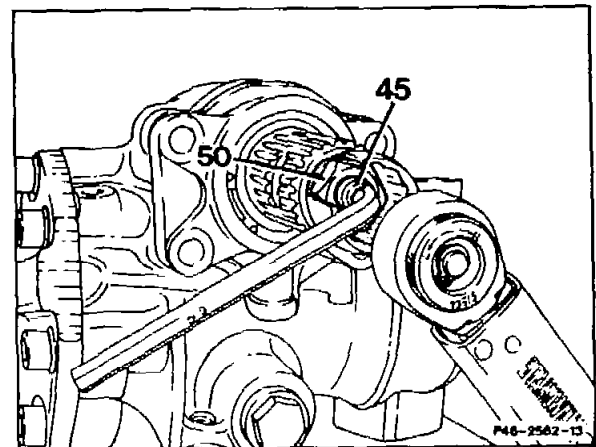
5 Pull pitman arm (12) off the pitman arm shaft, use puller 000 589 88 33 00, if necessary.



6 Unscrew self-locking bolts (59) for attaching pitman arm shaft/bearing cover (51).

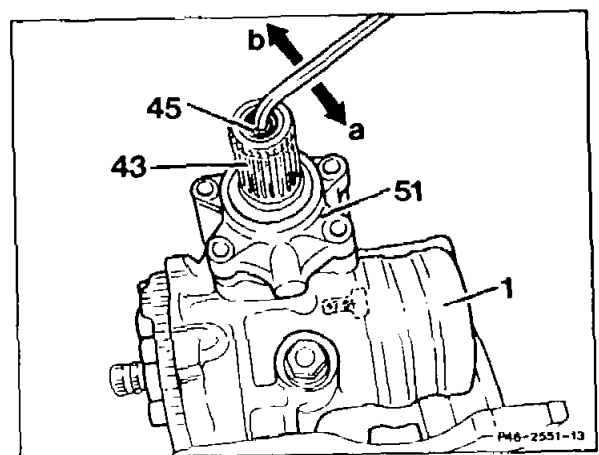


7 Unscrew collar nut (50) from the adjusting screw (45), holding adjusting screw (45) tight.



8 Rotate assembly support 140 589 00 59 00 so that the pitman arm shaft is positioned vertically.

9 With steering in center position, turn adjusting screw (45) clockwise; this causes the pitman arm shaft (43) together with the pitman arm shaft/bearing cover (51) to be pressed out of the steering housing (1).

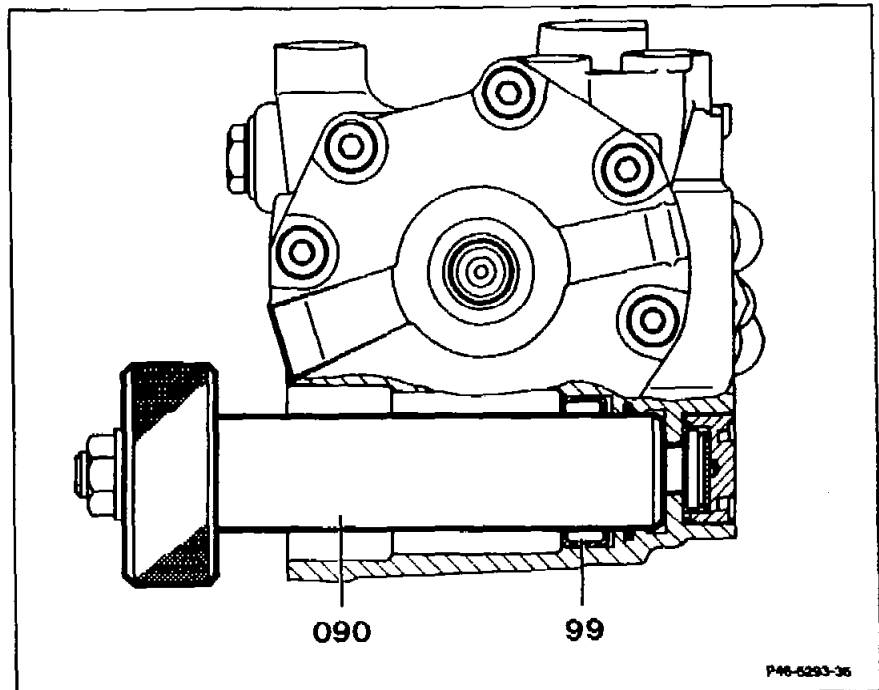
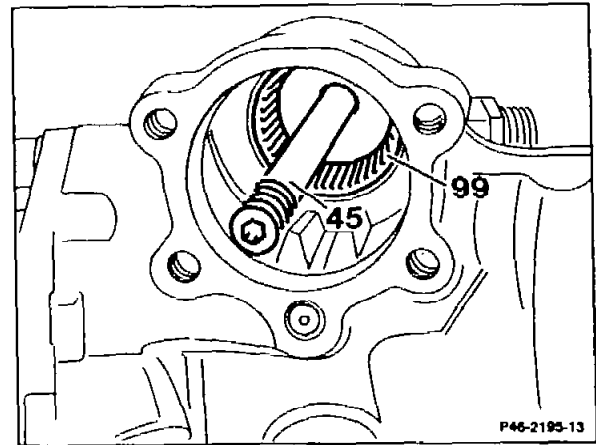


10 Examine the needle bearing (99) and the O-ring located behind it for signs of damage and wear. Ensure that none of the 32 bearing needles drops out of the needle bearing; insert bearing needles with grease if necessary.

11 Prevent the bearing needles in the steering gear housing from dropping out by pushing the shop-made mandrel (090) over the adjusting screw and securing with the collar nut.

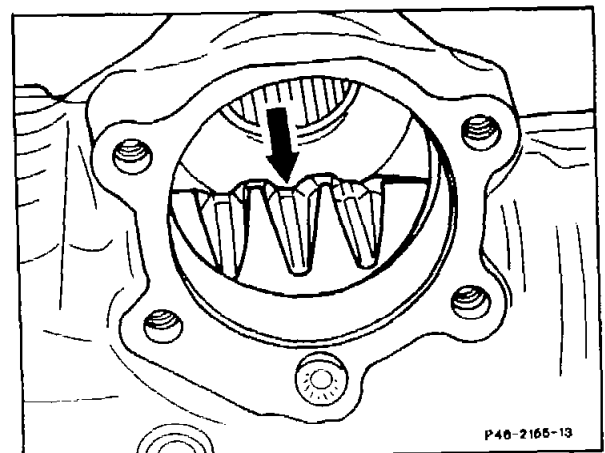
Note

A needle bearing with cage has been installed as of approx. 6/92.



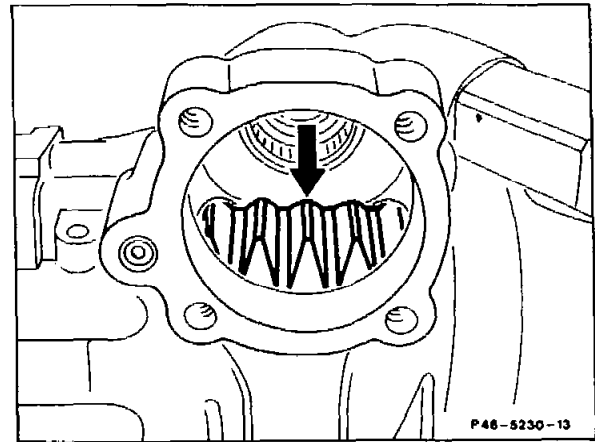
Installation

12 Rotate steering worm so that the middle tooth gap of the power piston (arrow) is located in the center of the opening in the steering gear housing.

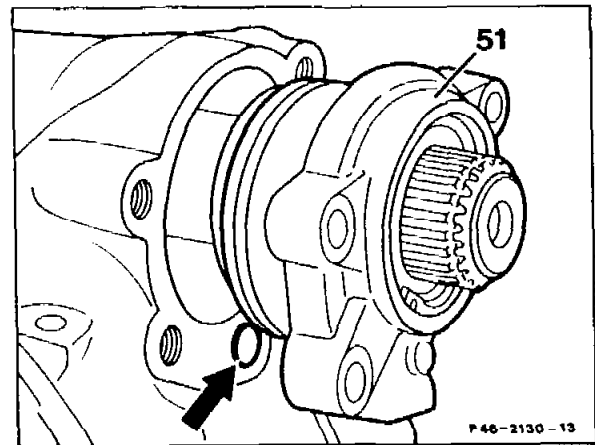


Note

On steering gear 765.94 (model 140), turn the steering worm until the center tooth flank (arrow) is in the center of the opening in the steering gear.



13 Replace O-rings. Introduce pitman arm shaft/bearing cover (51) together with pitman arm shaft into the steering gear housing so that the center tooth of the pitman arm shaft meshes into the middle tooth gap of the power piston. Ensure that the O-rings are correctly seated.

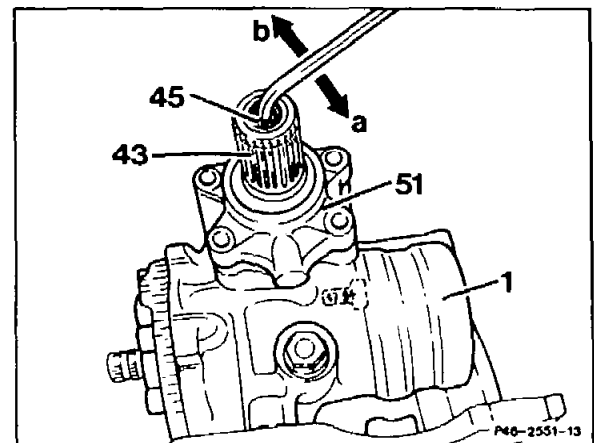


14 Rotate pitman arm shaft/bearing cover (51) so that oil passage and bore are aligned with those of the steering gear.

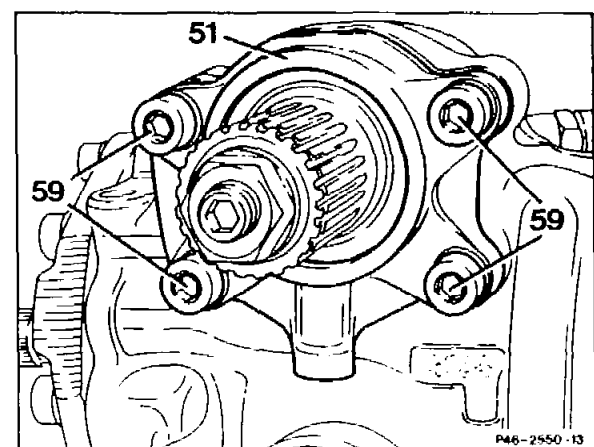
15 Turn adjusting screw (45) in the pitman arm shaft (43) far enough to the left for the pitman arm shaft to be making contact in the steering gear housing.

Note

Only by screwing in the adjusting screw (45) is it ensured that the pitman arm shaft/bearing cover is touching the steering gear housing.



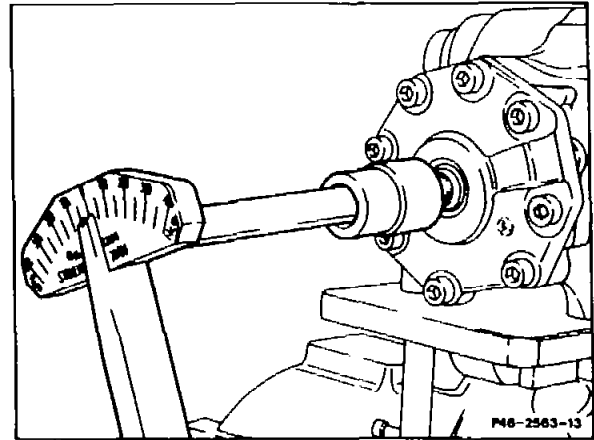
16 Tighten pitman arm shaft/bearing cover (51) with new self-locking bolts (59). Tightening torque 30-35 Nm.



17 Test and adjust friction torque of the steering gear (46-0120).

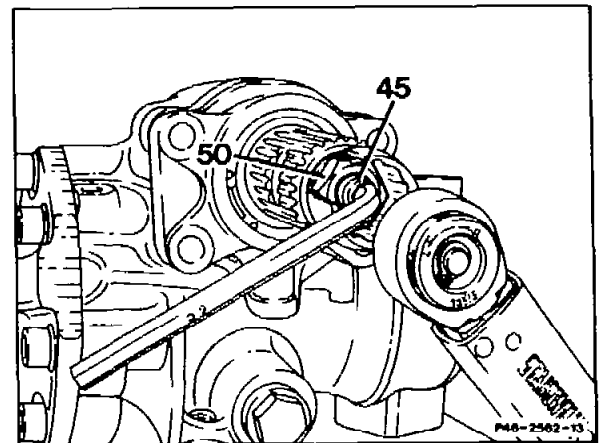
Note

A slight pressure point must be felt when rotating beyond the center point. The steering gear must operate easily when the steering worm is turned from lock to lock.



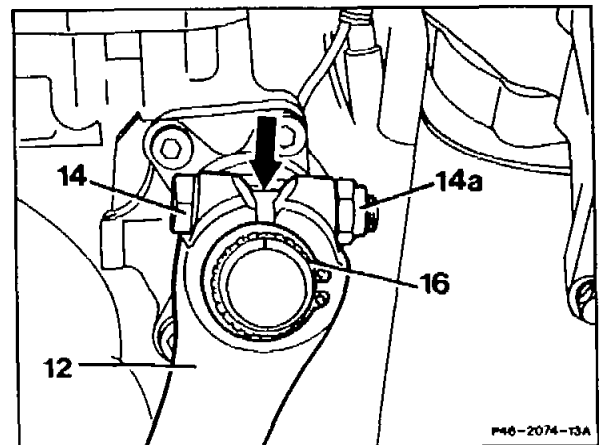
18 Screw collar nut (50) onto the adjusting screw (45) and tighten to 60-65 Nm, holding the adjusting screw (45) tight.

19 Re-check friction torque (46-0120).



20 Clean shaft spline of the pitman arm shaft and pitman arm (12). Both parts must be free of oil and grease.

Coat shaft spline of pitman arm (12) with Loctite 270. Then, push pitman arm onto the pitman arm shaft to the size "a" measured in number 2 in line with the cross nut.



21 Push in bolt (14). Replace nut (14a), 55 Nm.

22 Install new locking ring (16). Ensure it is correctly seated.

23 Detach steering gear from assembly support.

