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## REAR AXLE Assy group 093

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## 1 Works at mounted rear axle

### 1.1 Check wheel bearing play

#### Tools:

torque spanner 3/4"

75-400Nm

magnetic support

dial gauge

standard

standard

standard

1 Lift vehicle with jack at rear axle body until wheels are without ground contact (1).

2 Place resting trestles under shock straps and lower vehicle.

**NOTE:** Use suitable support for shock straps (felt e.g.) in order to avoid varnish damages

3 Unscrew wheel.

4 Set back brake pads and piston of disk brake resp. Press housing of divided caliper strongly outwards (3).

5 Check countersunk screws (4/1) for tight seat (28 Nm). Clean measuring surface (4/2). Arrange magnetic support with dial gauge 1/100 and extended feeler pin acc. to fig. 4. Determine radial play of wheel bearings by tilting movements of brake disk.

Max. admissible radial play = 0.15 mm



Fig. 1

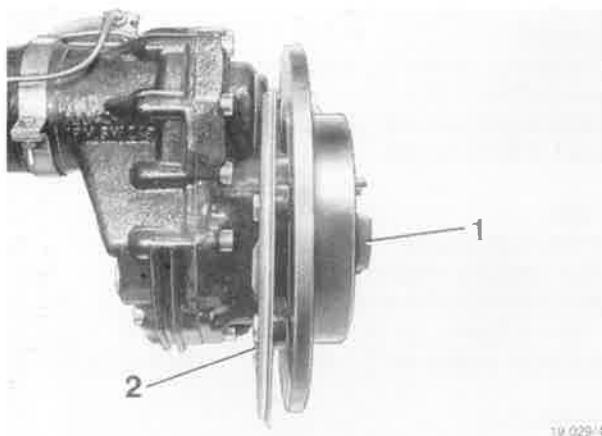


Fig. 2

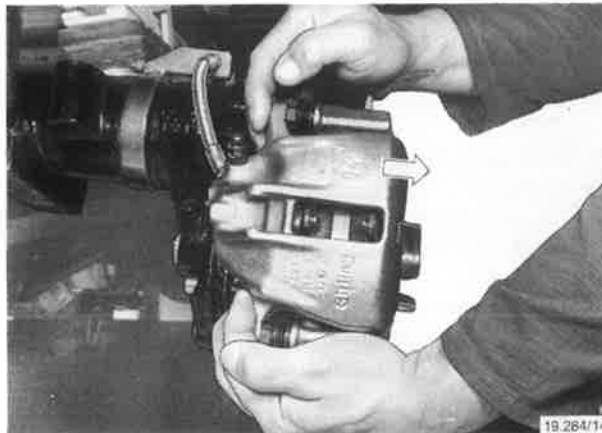


Fig. 3

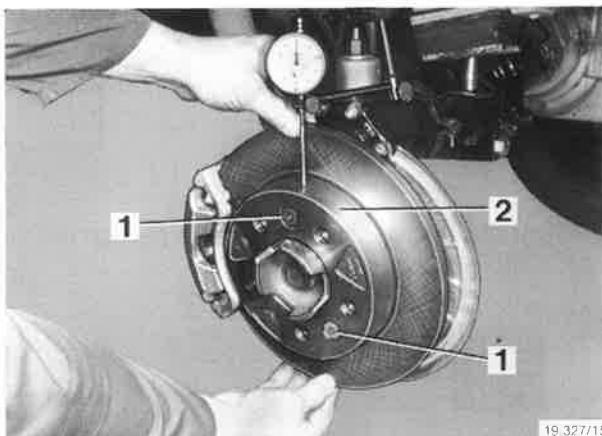


Fig. 4

- 6 Place magnetic support with dial gauge 1/100 acc. to fig. 5 and determine axial play of wheel bearing by pressing in and pulling out brake disk. Max. admissible axial play = 0.4 mm

**NOTE:** When max. admissible play(s) is (are) exceeded, replace wheel bearings, see section 1.1

- 7 Fit wheel.
- 8 Put vehicle on wheels and tighten wheel bolts or spherical collar screws resp. to 200 Nm.

## 1.1.1 Change wheel bearings

Includes:

Changing, removing and fitting brake anchor plate see section 1.2/1-17

Stripping/assembling brake anchor plate see section 2.5.1/1-8,10,12-26

Tools:

press-in and press-out tool

(four-part) for wheel drive

bearing and shaft sealing ring 905.3.33.304.0

support Kukko no. 22-2 905.0.14.001.0

extractor Kukko no. 21-6 905.0.14.010.0

Removing:

**NOTE:** Always change wheel bearings in wheel drive housing (cylindrical roller bearings) and in brake anchor plate (deep groove ball bearings) together.

- 1 Remove brake anchor plate see section 1.2/ 1-8.
- 2 Pull out cylindrical roller bearing (1/1) with inside extractor (1/2) Kukko no. 21-6 special tool pos. no. 905.0.14.010.0 and support (1/3) Kukko no. 22-2 special tool pos. no. 905.0.14.001.0.

**NOTE:** For not damaging sealing surface of wheel drive housing, insert soft metal plate (1/4) between wheel drive housing and support.

- 3 Strip brake anchor plate see 2.5.1/1-8.

Checking:

- 4 Check all parts for reusability (visual check). Derost contact surface of sealing lip of V-ring at brake anchor plate.

Fitting:

- 5 Assemble brake anchor plate see section 2.5.1/ 12-26.
- 6 Drive in cylindrical roller bearing (2/1) with special tool pos.no. 905.3.33.304.0/part 4 (2/2), part 3 (2/3) and part 1 (2/4).
- 7 Fit brake anchor plate see section 1.2/9-17.

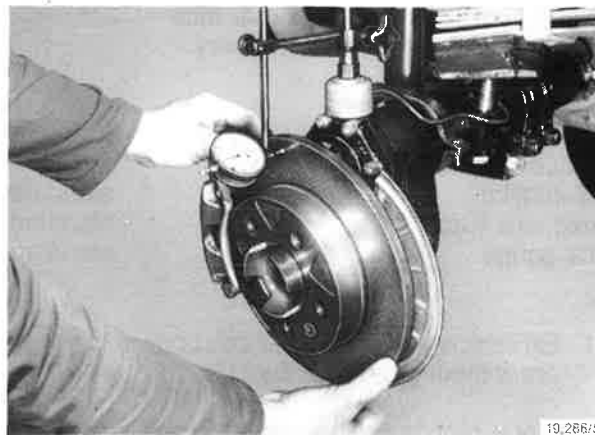


Fig. 5

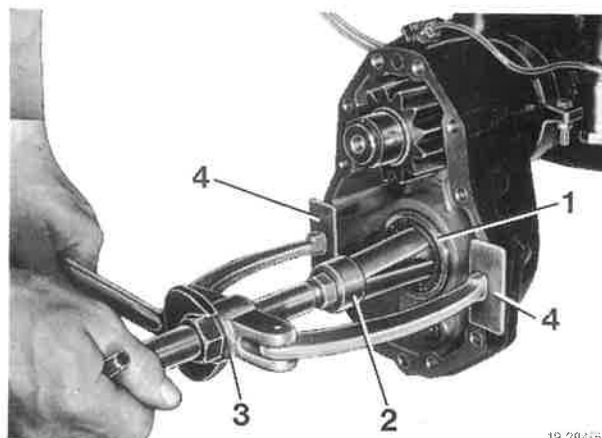


Fig. 1

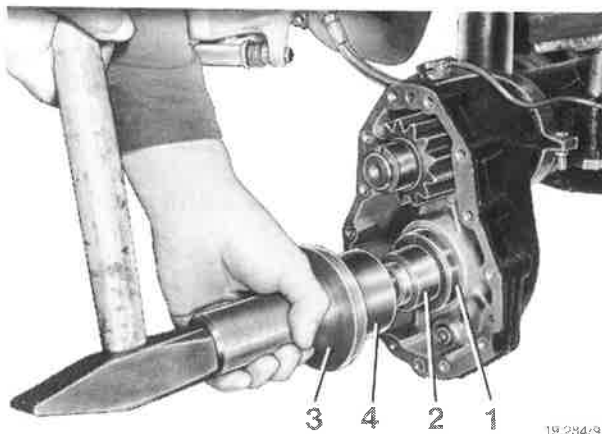


Fig. 2

## 1.2 Change, remove and fit brake anchor plate

### Tools:

ring spanner socket size 19	905.0.15.004.1
torque spanner 1/2"	
25-130 Nm	001 589 66 21 00
torque spanner 3/4"	
75-400 Nm	standard

### Removing:

- 1 Lift vehicle with jack at rear axle body until wheels are without ground contact (1).
- 2 Place resting trestles under shock straps and lower vehicle.

**NOTE:** Use suitable support (felt e.g.) for shock straps in order to avoid varnish damages.



Fig. 1

- 3 Unscrew wheel of respective half-axle.

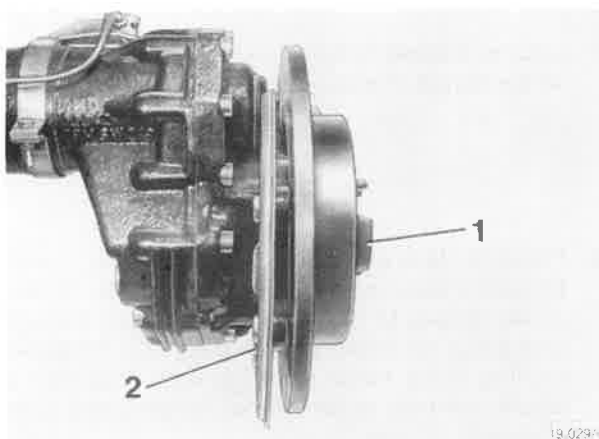


Fig. 2

- 4 Set back brake pads or piston of disk brake resp. Press housing of divided caliper strongly outwards (3).

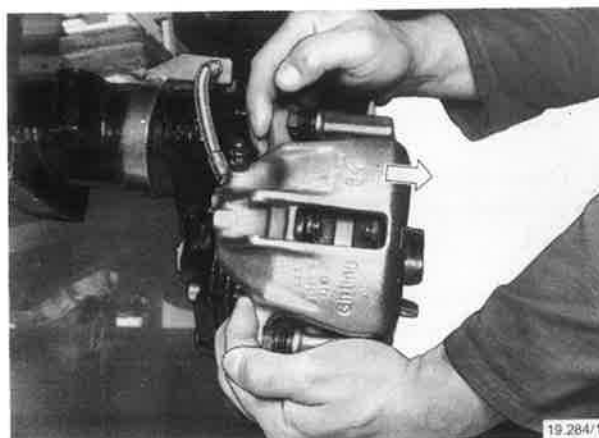


Fig. 3

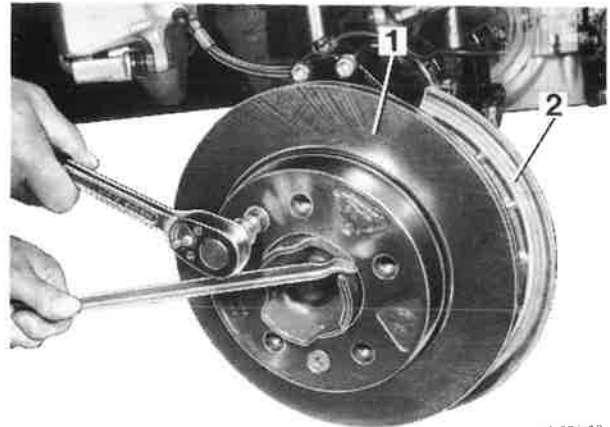
- 5 Unscrew caliper (4) and hang upwards with a piece of wire.



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Fig. 4

- 6 Detach brake disk (5/1).

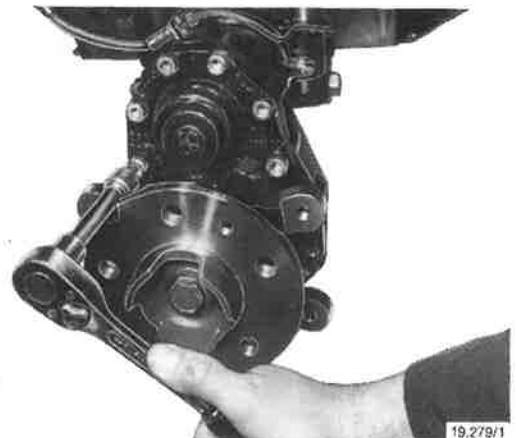


19.276/18

Fig. 5

- 7 Loosen cheese head screws (6). Turn recess in wheel flange in required position.

- 8 Place oil catch pan below the wheel drive. Clean thread for pressing off brake anchor plate. Screw in two screws M 10x50 (with continuous thread) and press off brake anchor plate (7). To avoid canting make some assisting light taps with a plastic hammer at the wheel flange upper side from time to time.



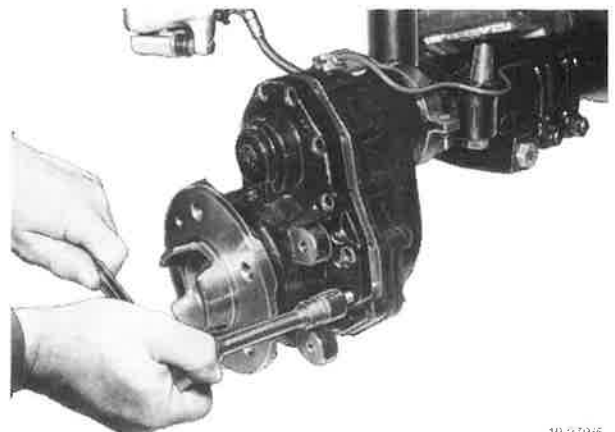
19.279/1

Fig. 6

Fitting:

**WARNING:** Check brake disk, brake pads and caliper for servability, see chapter "brake unit".

- 9 Clean sealing surfaces of brake anchor plate and of wheel drive housing and smear with Loctite 574.
- 10 Insert brake anchor plate and drive by slight taps with a plastic hammer in the dowel bolt area until fit at wheel drive housing.



19.279/5

Fig. 7

- 11 Pretighten cheese head screws (8/1) crosswise and tighten to 40 Nm.

**NOTE:** Smear thread of hexagon screws with Loctite Anti-seize.

- 12 Put brake disk (8/3) onto centering and tighten countersunk screws to 28 Nm.

**NOTE:** Smear thread and head rest of countersunk screws with Loctite Anti-seize.

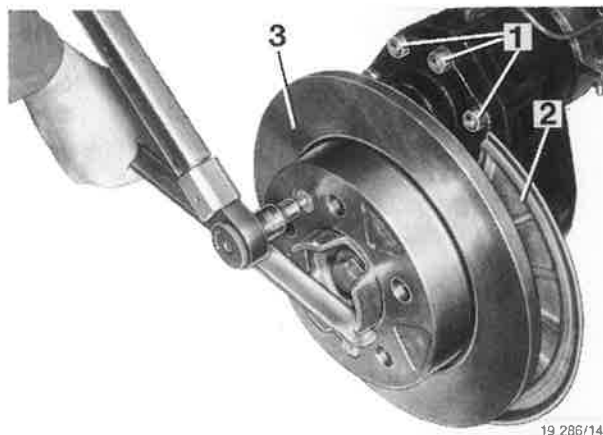


Fig. 8

- 13 Smear thread of hexagon screws for fastening caliper with Loctite 242 (9). Mount caliper with bleeding valve facing upwards and tighten hexagon screws with torque spanner special tool pos. no. 001 589 66 21 00 and ring spanner socket size 19 special tool pos. no. 905.0.15.004.1 to 125 Nm (10).

- 14 Fit wheel.

- 15 Put vehicle on wheels and tighten wheel bolts or spherical collar screws resp. to 200 Nm.

- 16 Fill in Mobil Glygoyle 30 into wheel drive housing when vehicle is in horizontal position. Top up to overflow level.

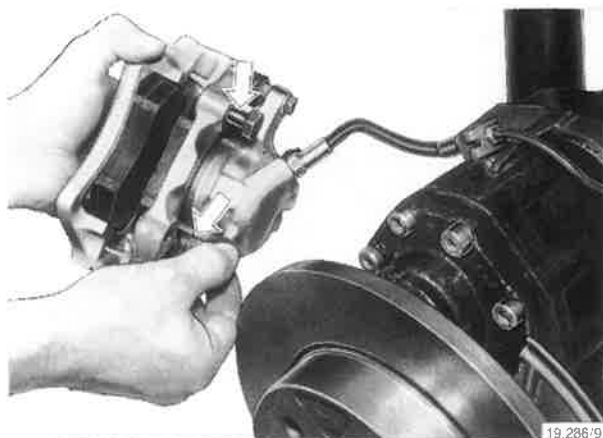


Fig. 9

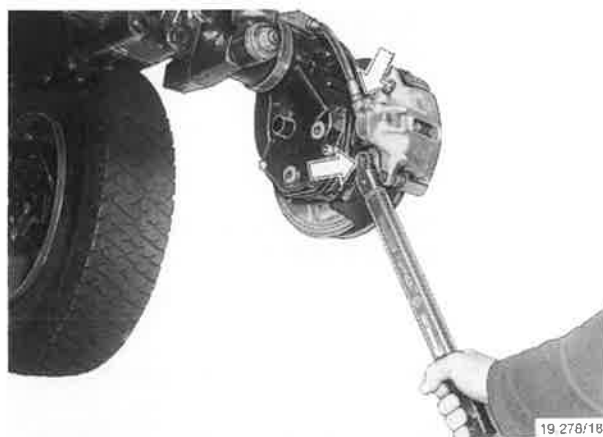


Fig. 10

### 1.3 Change wheel flange shaft sealing ring

Includes:

Changing, removing and fitting brake anchor plate  
see section 1.2/1-17

Stripping/assembling brake anchor plate see section  
2.5.1/1-6, 14-26

### 1.4 Change, remove and fit drive shaft

Includes:

Changing, removing and fitting brake anchor plate,  
Z.1.2/1-17

Tools:

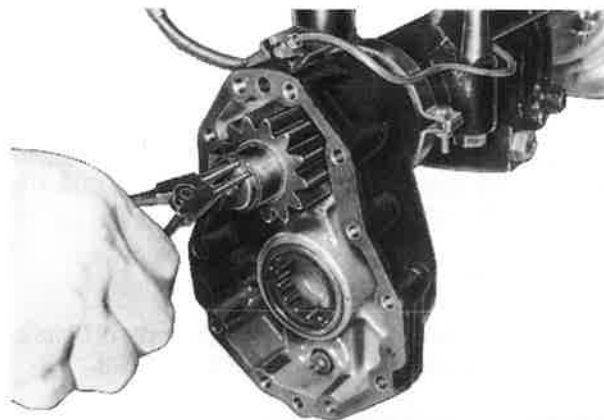
press-in and press-out tool (four-part) for wheel drive	
bearing and shaft sealing ring	905.3.33.304.0
distance piece	905.3.34.301.1
pull-on and pull-off device for pinion and bearing ring	905.3.34.302.0
thread insert M8	905.3.34.304.1
support Kukko no. 22-2	905.0.14.001.0
puller device Kukko no. 18-1	905.0.14.020.0
separating device Kukko no. 17-1	905.0.14.021.0

Removing:

**NOTE:** For better presentation various figures were  
made at dismantled wheel drive.

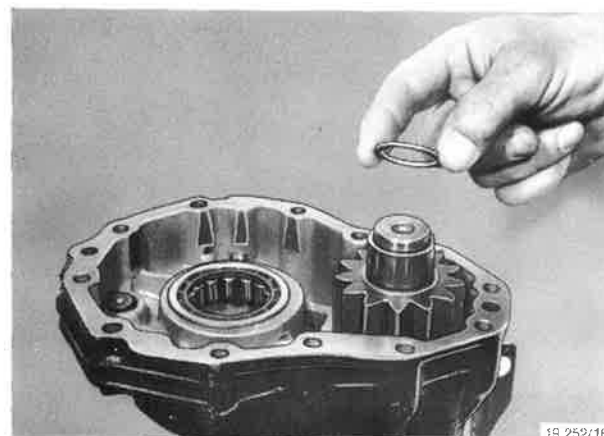
- 1 Remove brake anchor plate see section 1.2/1-8
- 2 Release snap-V-ring (1).
- 3 Remove adjusting washer (2).
- 4 Insert puller hook (3) of special tool pos. no.  
905.3.34.302.0 after every third tooth of pinion in  
the shown wheel drive housing area.

**NOTE:** Twist joint of circlip (15) downwards with  
Seeger pliers if necessary.



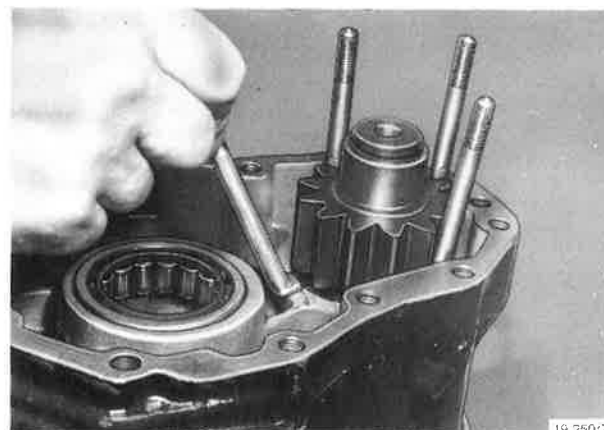
19.279/11

Fig. 1



19.252/16

Fig. 2



19.250/7

Fig. 3



- 5 Slip retaining sleeve (4/1) of special tool pos. no. 905.3.34.302.0 over puller hooks so that seat (4/2) fits in housing basis.

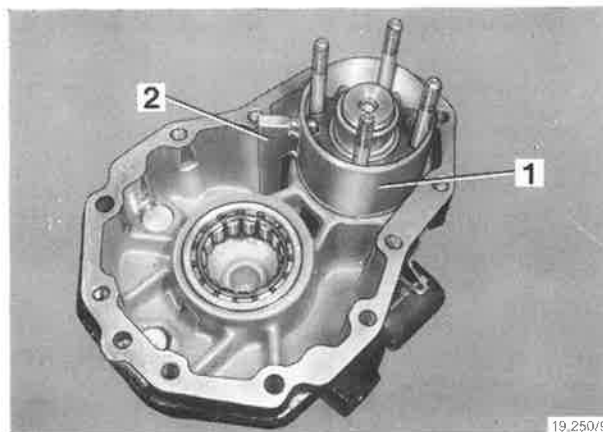


Fig. 4

- 6 Slip upper part (5/1) of special tool pos. no. 905.3.34.302.0 onto puller hooks and rest on driving shaft. Tension puller hooks by alternating tightening of nuts (5/2) to same level. Screw in spindle (5/3). Screw in drift punch (5/4) for backing up and press off pinion with bearing inner raceway.

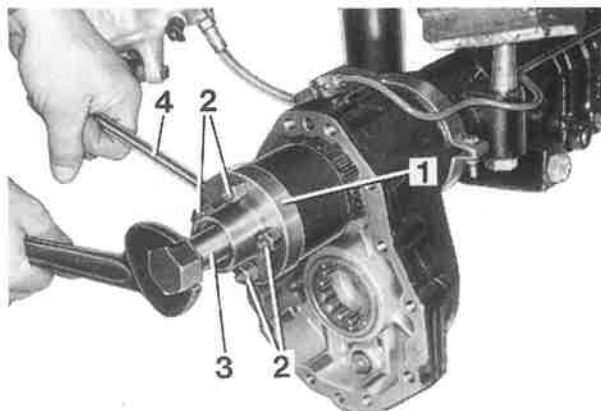


Fig. 5

**NOTE:** Bearing inner raceway and pinion are shrunk on to driving shaft. In case of extremely tight seat when pulling off and also if there is a danger of damaging the device it is recommended to pull off bearing inner raceway and pinion separately. For this purpose pull off pinion and bearing inner raceway by max. 2-3 mm with device. Remove device and screw thread insert (6/1) special tool pos. no. 905.3.34.304.1 into driving shaft. Mount and tighten strongly support (6/2) Kukko-no. 22-2 special tool pos. no. 905.0.14.001.0 using soft-metal plates (6/3). Set off pinion (6/4) from bearing inner raceway (6/5) to the measurement obtained by the device (abt. 2-3 mm) using a soft-metal drift punch.

Attach separating device Kukko no. 17-1 special tool pos. no. 905.0.14.021.0. Screw in puller (7/3) Kukko no. 18-1 special tool pos. no. 905.0.14.020.0 with distance piece (7/2) special tool pos. no. 905.3.34.301.1 and pull off bearing inner raceway. During pulling off loosen separating device, i.e. as soon as separating device (7/1) moves into area of recess for snap-V-ring, in order not to catch into the recess.

If it is not possible to loosen pinion and bearing inner raceway by 2-3 mm with the device, it is recommended to heat up bearing inner raceway to abt. 80-100° C; then lift with a flat chisel by 2-3 mm and pull off as described and shown in fig. 7.

Afterwards pull off pinion as described in step 6.

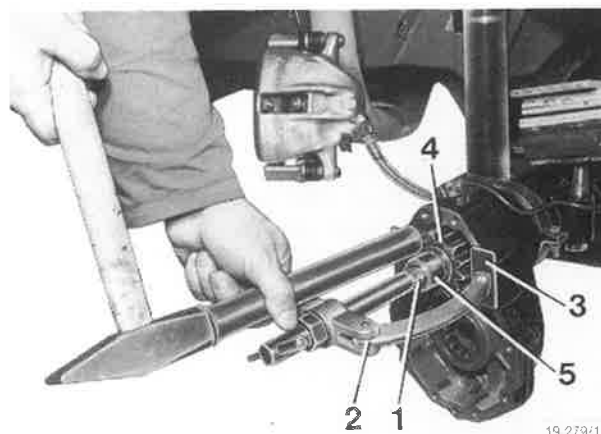


Fig. 6

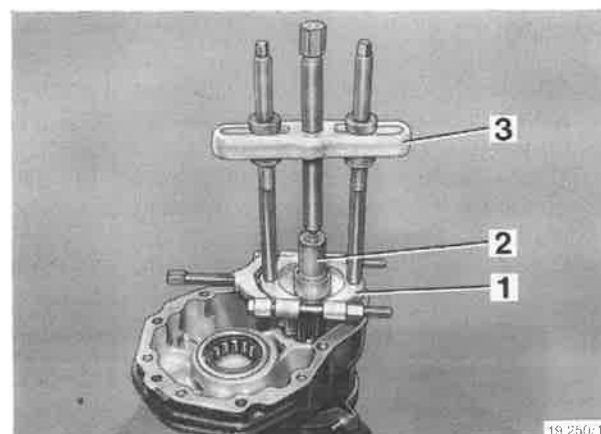
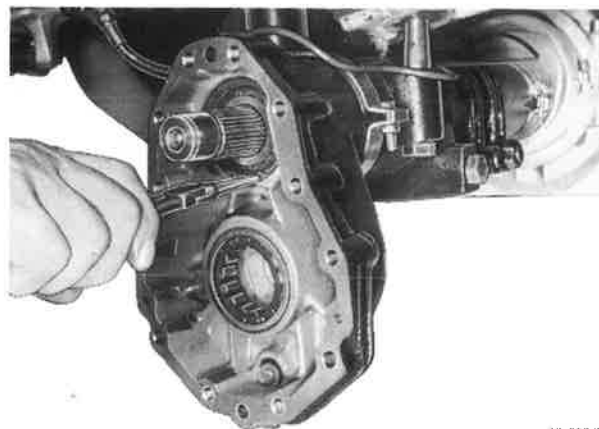


Fig. 7

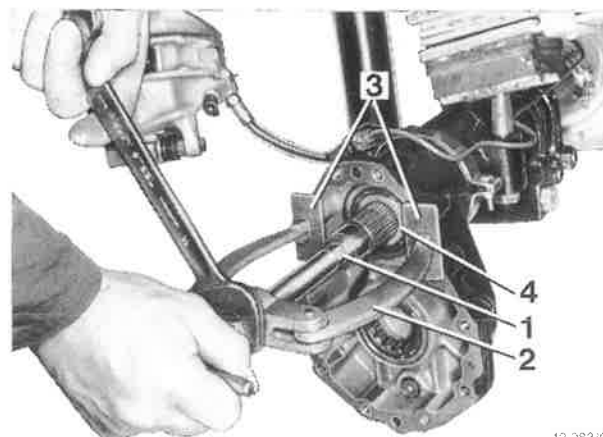
- 7 Release circlip (8).



19.263/5

Fig. 8

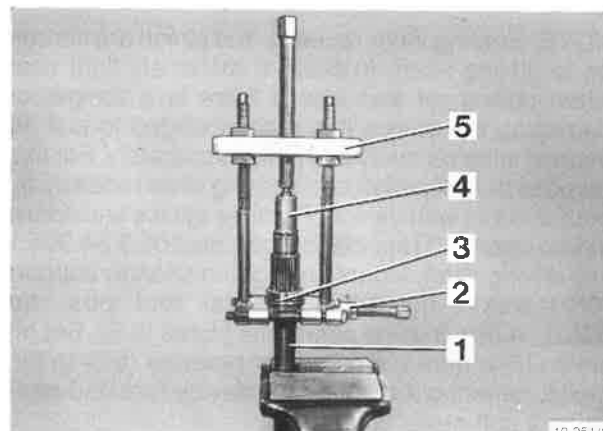
- 8 Screw in thread insert (9/1) special tool pos. no. 905.3.34.304.1 into driving shaft. Mount support (9/2) Kukko no. 22-2 special tool pos. no. 905.0.14.001.0 with soft metal plate (9/3) and pull out driving shaft with cylindrical roller bearing from wheel drive housing. Detach bearing outer raceway with thrust washer (9/4).



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Fig. 9

- 9 Clamp driving shaft (10/1) with aluminium jaws into vice. Place separating device (10/2) Kukko no. 17-1 special tool pos. no. 905.0.14.021.0 below bearing inner raceway (10/3). Put distance piece (10/4) special tool pos. no. 905.3.34.301.1 onto driving shaft and pull off bearing inner raceway with puller device (10/5) Kukko no. 18-1 special tool pos. no. 905.0.14.020.0.

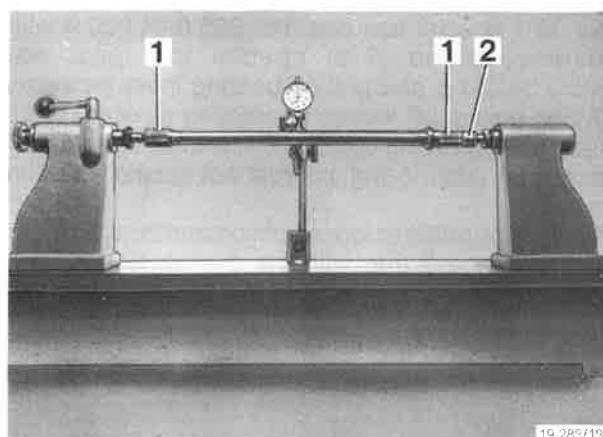


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Fig. 10

#### Checking:

- 10 Check all parts for servicability (visual check). Check connection toothing of driving shaft (11/1) for wear. Check recess (11/2) for snap-V-ring for o.k. condition. Check concentric running of driving shaft between two peak points (11). Max admissible run-out in shaft center = 0.5 mm



19.283/13

Fig. 11

## Assembling:

- 11 Heat up bearing inner raceway (12) to approx. 80° C and shrink on with collar facing shaft neck.



Fig. 12

- 12 Put cylindrical roller bearing (13/1) with thrust washer (13/2) with writing always pointing upwards onto bearing inner raceway. Put on part 4 (13/3) of press-in and press-out tool special tool pos. no. 905.3.33.304.0 for keeping distance and fix with snap-V-ring (13/4). Screw in thread insert (13/5) special tool pos. no. 905.3.34.304.1 into driving shaft.

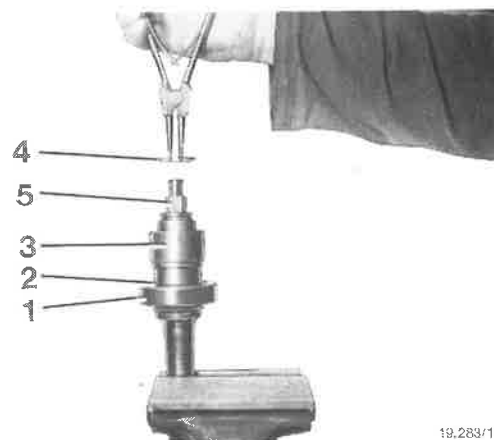


Fig. 13

- 13 Smear inner connection toothing of driving shaft with Molycote-Longterm no. 2 and insert driving shaft into crown wheel flange until the premounted cylindrical roller bearing fits centrally at the bore.

- 14 Drive in cylindrical roller bearing with part 1 and 3 of press-in and press-out tool special tool pos. no. 905.3.33.304.0 (14).

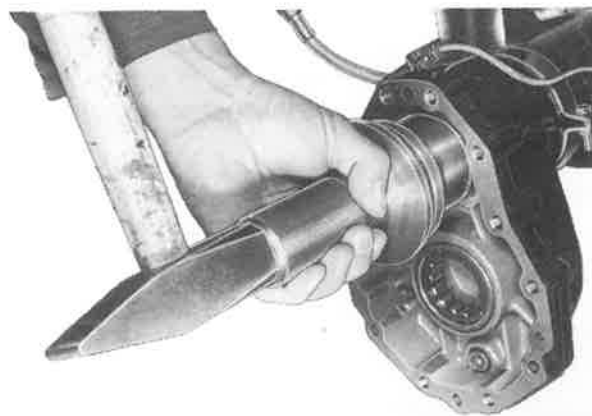


Fig. 14

- 15 Remove snap-V-ring and part 4 of special tool pos. no. 905.3.33.304.0 from driving shaft and insert circlip with joint facing downwards (15).

**NOTE:** Carry out this step carefully to prevent driving shaft from slipping inwards and bearing inner raceway from moving out of cylindrical rolls.

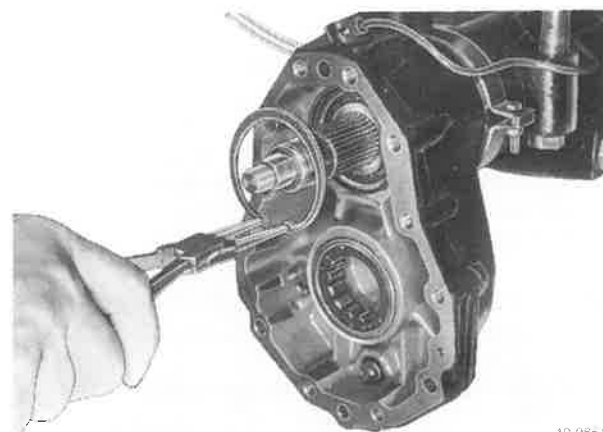


Fig. 15

- 16 Heat up pinion to approx. 140°C and shrink on to driving shaft with collar facing cylindrical roller bearing (16).

**NOTE:** To prevent driving shaft from slipping inwards, back up shaft when shrinking on pinion. For this purpose attach washer (16/2) and nut (16/3) to spindle (16/1) of counter support Kukko no. 22-2 special tool pos. no. 905.0.14.001.0, slip through thread bore of upper part (16/4) of special tool pos. no. 905.3.34.302.0 and screw on together with thread insert (16/5).

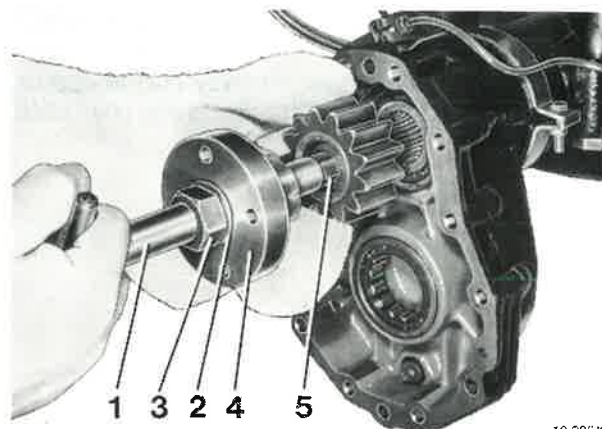


Fig. 16

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- 17 In order to be sure that pinion has been shrunk on completely, repress (17). Screw in stop screw (17/1) and drift punch (17/2). Tighten nut (17/3) until fit to pinion.

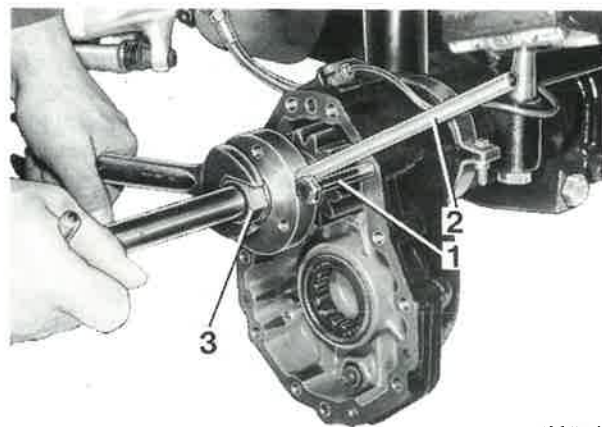


Fig. 17

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- 18 Detach tools except thread insert (16/5). Heat up bearing inner raceway (18/1) to approx. 100°C and shrink on to driving shaft with writing pointing outwards.

- 19 In order to be sure that bearing inner raceway has been shrunk on completely, repress with the combined tool (18/2) as described accordingly under steps 16 and 17. Then unscrew special tool.

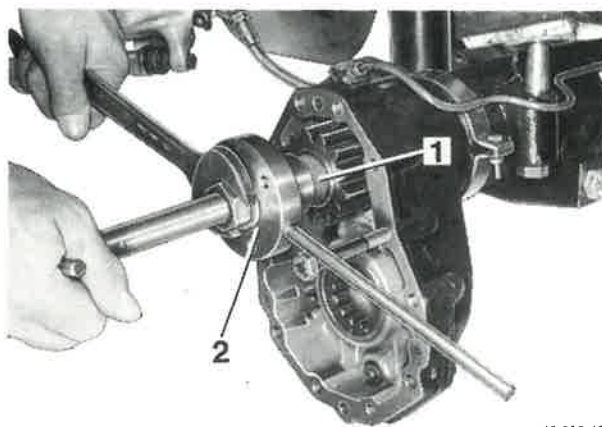


Fig. 18

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- 20 Fit snap-V-ring (19/1) and determine play between snap-V-ring and bearing inner raceway with feeler gauge (19/2).

- 21 Remove snap-V-ring and slip on adjusting shim (2) to driving shaft having thickness of the determined measure. Adjusting shims are available between 0.5 and 0.9 mm in tenths' intervals.

- 22 Fit snap-V-ring (1). It must fit tight in recess. Otherwise insert bigger sized adjusting shim.

- 23 Carry out further steps as per section 1.2/9-17.

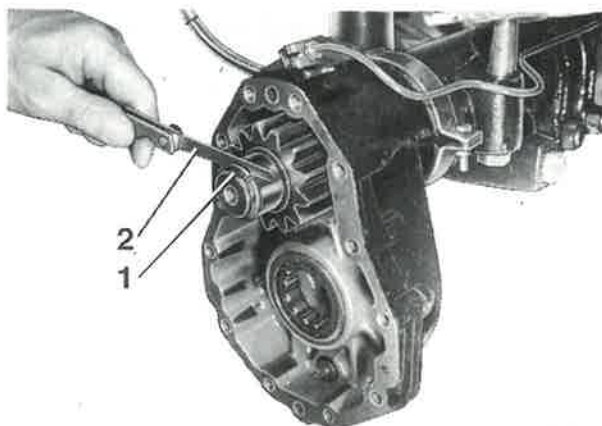


Fig. 19

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## 1.5 Change, remove and fit wheel drive model 716

Includes:

Bleeding brake unit see group 130

Level adjustment - check functioning see group 110

Tools:

ring spanner socket	905.0.15.004.1
press-off device for wheel drive	905.3.33.404.2
cleaning device for axle ball	
head/wheel drive housing	905.3.38.301.0
open ring spanner socket	
size 11	001 589 75 03 00
torque spanner 3/8"	
4-20 Nm	001 589 75 21 00
torque spanner 1/2"	
25-130 Nm	001 589 66 21 00
torque spanner 3/4"	
75-400 Nm	standard

Removing:

- 1 Lift vehicle with jack at rear axle body until wheels are without ground contact (1).
- 2 Place support trestles under shock straps and lower vehicle.

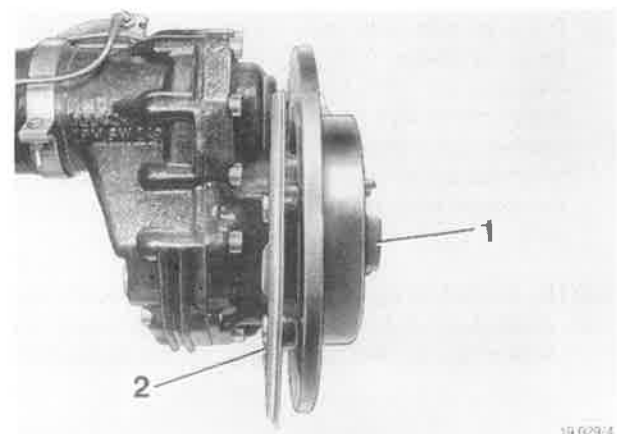
**NOTE:** Use suitable support for shock straps (e.g. felt) to prevent damages to paintwork.

- 3 Unscrew wheel.



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Fig. 1



19 629/4

Fig. 2

- 4 For removing coil spring, screw out spring support bolt (3/1) first by 15-20 mm. Loosen pressure line (3/2) at shock absorber. Support wheel drive with movable jack. Loosen nut to lower shock absorber fastening screw (3/3) and pull out screw. Lower jack and wheel drive resp. Screw out spring support bolt and detach coil spring with spring retainer and upper centering ring together with spring pads. Push together shock absorbers.

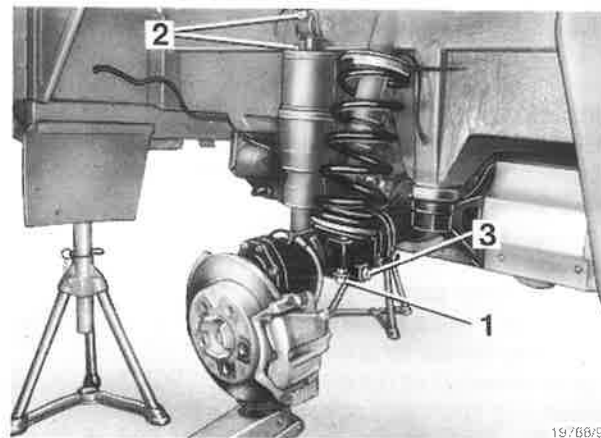


Fig. 3

- 5 Disconnect brake line to internal (4/1) and external (4/2) brake hose retainer. Detach brake line (4/3) with retaining springs. Seal brake line and brake hoses provisionally.

**NOTE:** When loosening brake line, back up brake hose in order not to get twisted. Collect leaking out brake fluid in suitable basin.

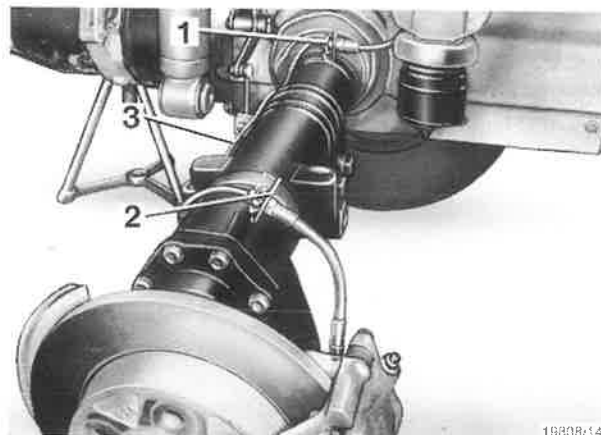


Fig. 4

- 6 Remove anti-fatigue bolts (5/1) for axle clamping.
- 7 Unscrew centering bolt (5/2).

**NOTE:** When removing right wheel drive press off joint rod (5/3) from ball head to retainer (5/4) and remove fastening screw of retainer.

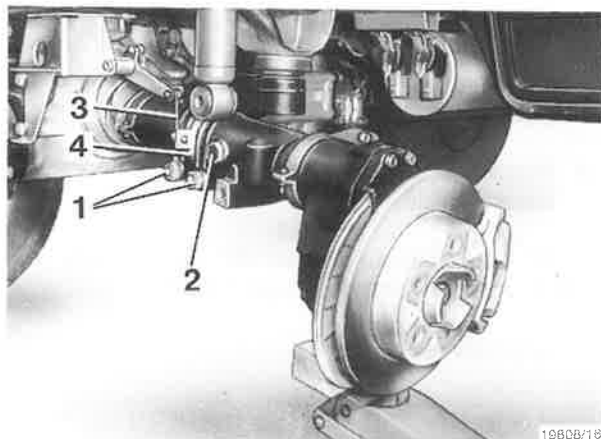


Fig. 5

- 8 Put half-axle with jack into horizontal position. Drive in wedge (6/1) of press-off device special tool pos. no. 905.3.33.404.2 in anti-fatigue bolt area until fit into wheel drive housing. Screw on device (6/2) - observe right and left position - tight to wheel drive housing. Press off complete wheel drive from half-axle by uniform tightening of nuts (6/3).

**NOTE:** Do not tilt downwards pulled-off wheel drive with driving shaft first nor set down nor carry out works as wheel drive oil is leaking out in this position.

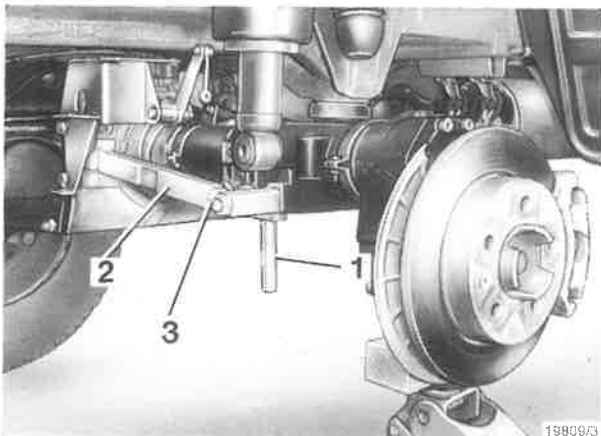


Fig. 6



- 9 Remove O-ring (15).

**NOTE:** Carry out following steps 10-12 and 14-16 only when replacement assembly is to be mounted. In such a case transfer parts of the brake unit onto the new assembly, furthermore drain oil before starting work.

- 10 Press housing (7/1) of divided caliper outwards or upwards resp. as in the illustrated case for setting back piston and brake pads resp. Then unscrew caliper (7/2).

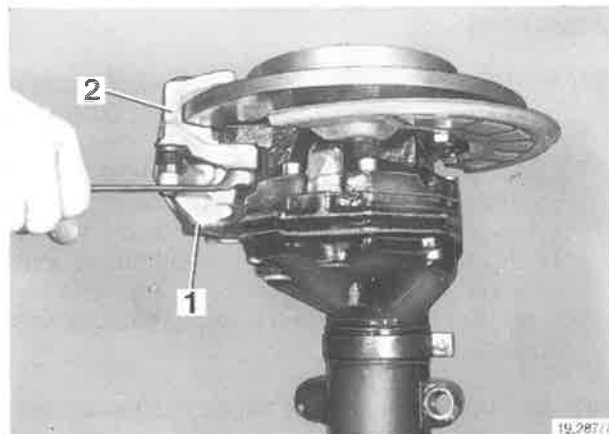


Fig. 7

- 11 Remove brake disk (8).

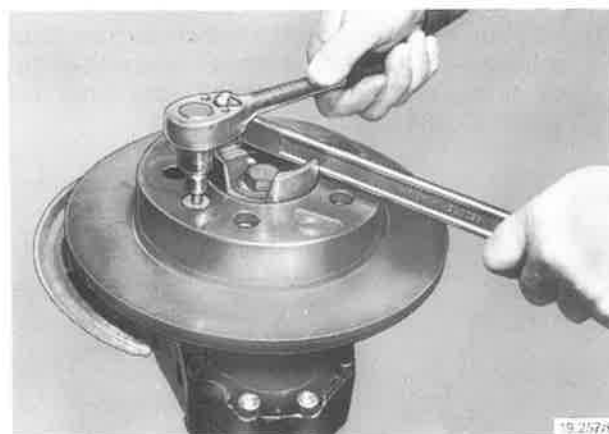


Fig. 8

- 12 Unscrew brake hose retainer (9/2).

Checking:

- 13 Check connection toothing of driving shaft for wear. In case of heavy wear strip axle drive and also check toothing in crown wheel flange for wear as well as the pertinent half-axle for distorting. Check hard chromium plating of axle ball head in seal ring area for o.k. condition.

- 14 Screw on brake hose retainer (9/2).

- 15 Put brake disk onto centering and tighten countersunk screws (8) to 28 Nm.

**NOTE:** Smear thread and head rest of countersunk screws with Loctite Anti-seize.

- 16 Smear thread of hexagon screws for fastening caliper with Loctite 242. Mount calipers in correct position so that bleeder screw is pointing upwards when wheel drive is fitted. Tighten hexagon screws with torque spanner special tool pos. no. 001 589 66 21 00 and ring spanner socket size 19 special tool pos. no. 905.0.15.004.1 to 125 Nm (10).

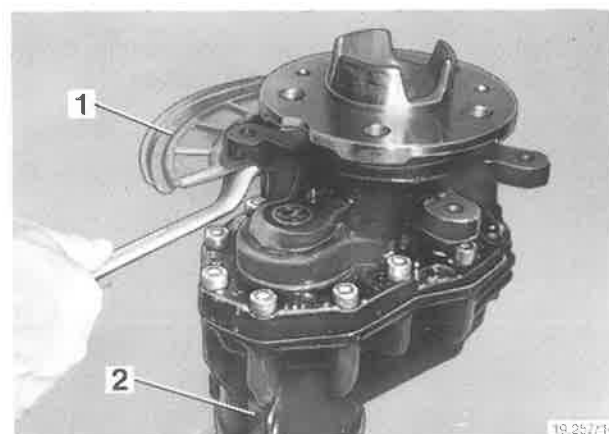


Fig. 9

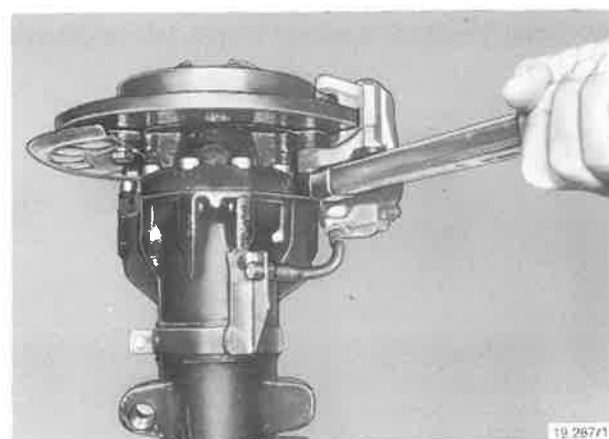


Fig. 10

Assembling:

**WARNING:** Check brake disk, brake pads and caliper for servability, see chapter brake unit.

- 17 Cover wheel drive housing inside with a clean rag. Attach coated abrasives into cleaning device special tool pos. no. 905.3.38.301.0 and remove Loctite residues from wheel drive housing inner side (11) or depreserve replacement assembly resp.. Remove rag again and degrease cleaned surface.

**NOTE:** Depth to clean or surface to degrease resp. in wheel drive housing = length of bright metallic half-axle end.

- 18 Key up cleaned and degreased wheel drive housing in area of anti-fatigue screw bores with wedge of press-off device special tool pos. no. 905.3.33.404.2 (12).

- 19 Remove Loctite residues from metallic bright half-axle end using coated abrasives (13).

- 20 Apply Loctite 270 evenly to half-axle bright end (14).



Fig. 11

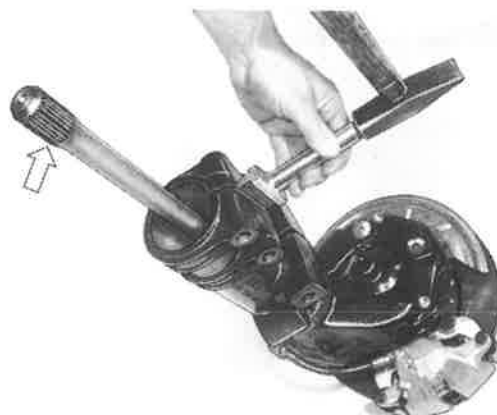


Fig. 12

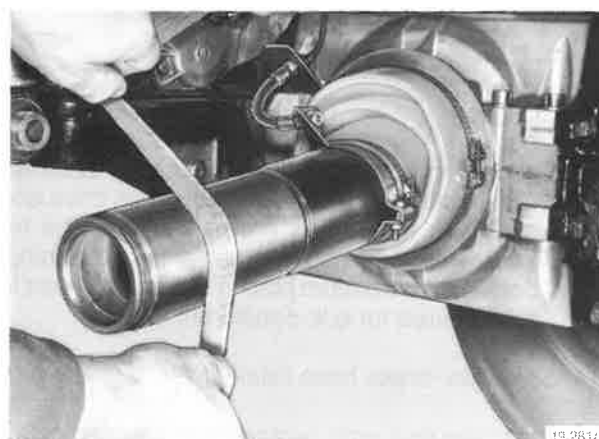


Fig. 13



Fig. 14



- 21 Oil or grease new O-ring moderately and insert into groove (15).

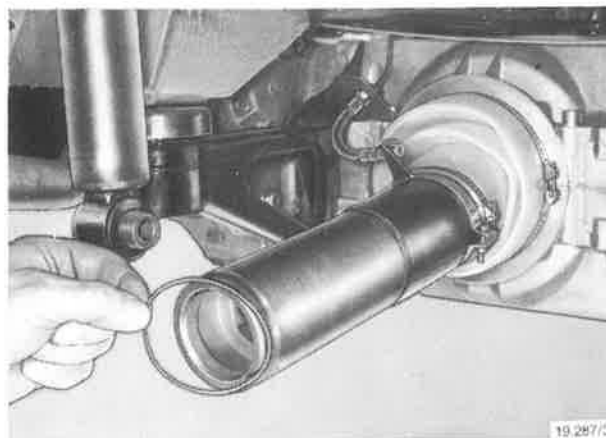


Fig. 15

- 22 Slip on wheel drive as far as possible. If necessary add some strong hammer blows (16) until centering bolt (16/1) can be screwed in easily. Insert anti-fatigue screws with thread pointing backwards and screw on nuts.

**NOTE:** After applying Loctite to the half-axle mount wheel drive immediately. Smear centering bolt as well as collar and thread of anti-fatigue screws before mounting with Loctite Anti-seize. Remove wedge (16/2) only when centering bolt has been screwed in totally.

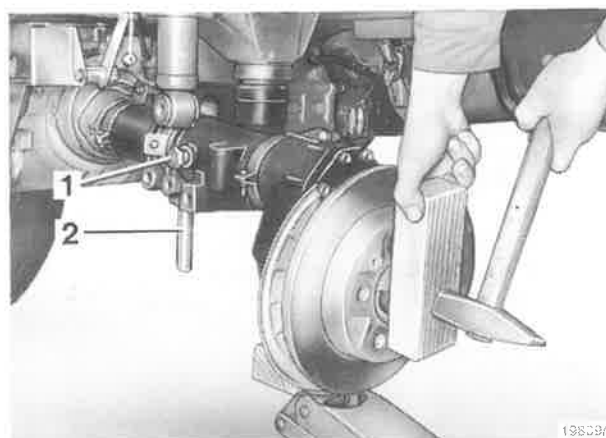


Fig. 16

- 23 Place movable jack under wheel drive housing and lift half-axle a bit.

- 24 Tighten centering bolt (17/1) first and then the two anti-fatigue screws (17/2) to 250 Nm.
- 25 Insert fastening screw to retainer (17/3) at right wheel drive. When fastening press retainer downwards. Press joint rod (17/4) onto ball head at retainer.

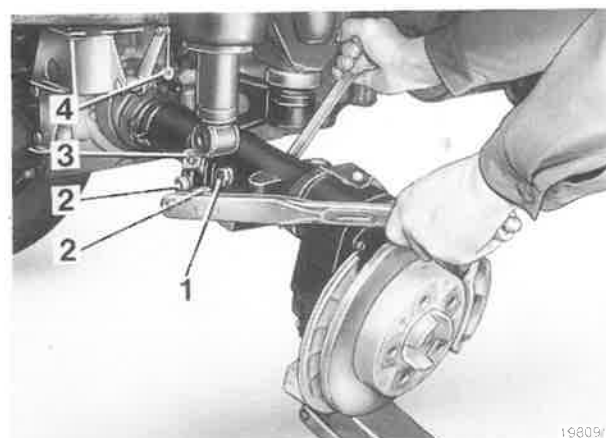


Fig. 17

- 26 Detach provisional lock from brake line and brake hoses and mount brake line to internal (18) and external (19) brake hose retainer with retaining springs and connect to brake hoses resp.



Fig. 18

Tighten brake line with torque spanner special tool pos. no. 001 589 75 21 00 and open ring spanner socket size 11 special tool pos. no. 000 589 75 03 00 to 15 Nm.

**NOTE:** Back up brake hoses when tightening brake line for not getting distorted.

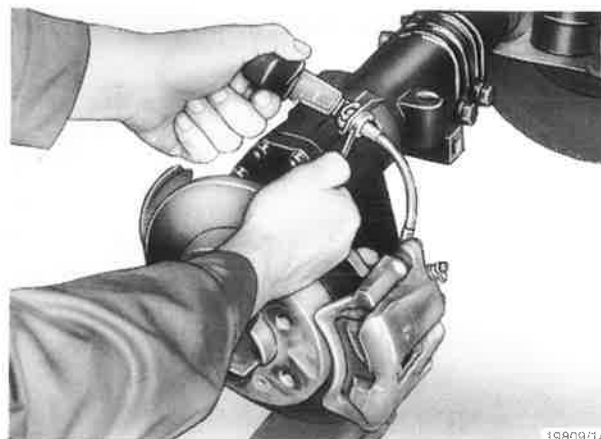


Fig. 19

- 27 Insert coil spring (20) observing that between centering rings (20/3) and spring retainers (20/1) two spring pads each (20/2-rubbers) have to be inserted. Fill ball-shaped recess in lower spring retainer (centering of spring support bolt) before inserting with Molycote Longterm no. 2. Smear thread of spring support bolt with Loctite Anti-seize and screw in. Align centering rings in a way that spring ends fit tight at stop (20/4).

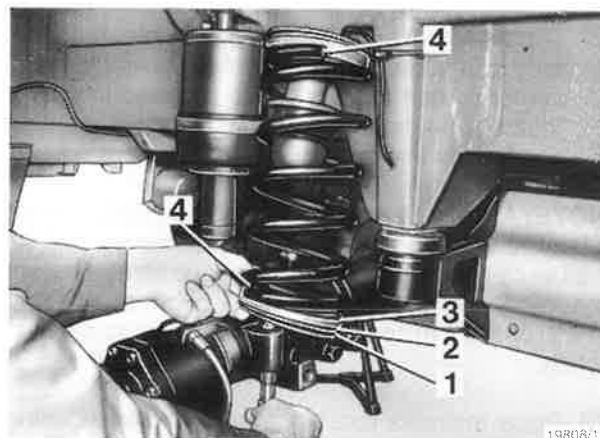


Fig. 20

- 28 Move half-axle by lifting wheel drive with a movable jack into horizontal position. Align shock absorbers in a way that distance sleeve (22/1) faces wheel drive.
- 29 Coat fastening scrow to shock absorber over the whole length with Loctite Anti-seize, mount acc. to fig. 22 and tighten to 200 Nm. Lower wheel drive and remove jack.

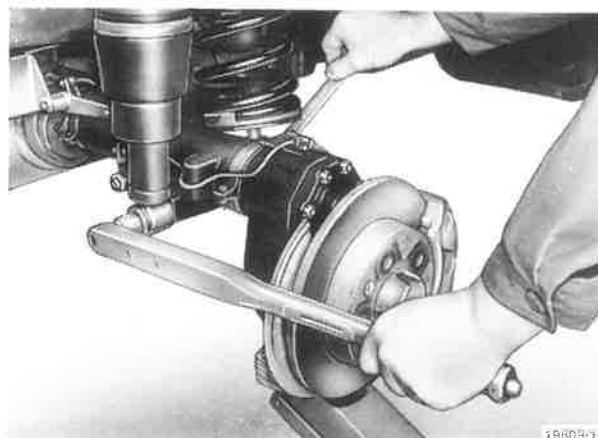


Fig. 21

- 30 Check sealing elements of pressure line (22/2) to air suspension (clamping shim 22/3, O-ring 22/4 and end sleeve for strands 22/5). Grease thread to union nut (22/6) at shock absorber moderately before connecting pressure line.

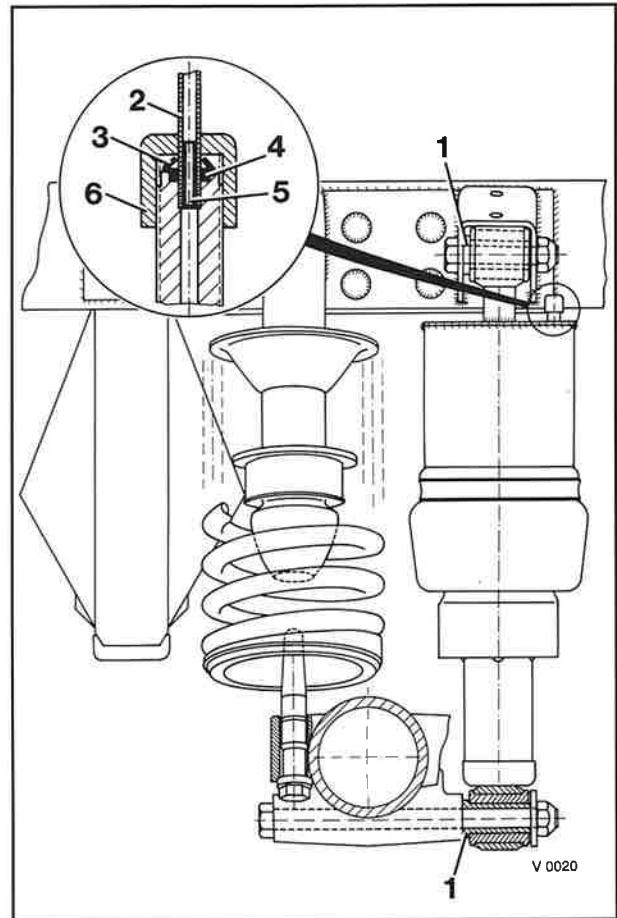


Fig. 22

- 31 Tighten spring support bolt (23) to 200 Nm.
- 32 Bleed brake unit see group 130/section 1.1
- 33 Fit wheel.
- 34 Put vehicle on wheels and tighten wheel bolts or spherical collar screws to 200 Nm.
- 35 Level adjustment - check functioning see group 110
- 36 Check oil level in wheel drive housing when vehicle is in horizontal position, refill with Mobil Glygoyle 30 if necessary or make new filling when mounting a replacement assembly. Top up to overflow level.

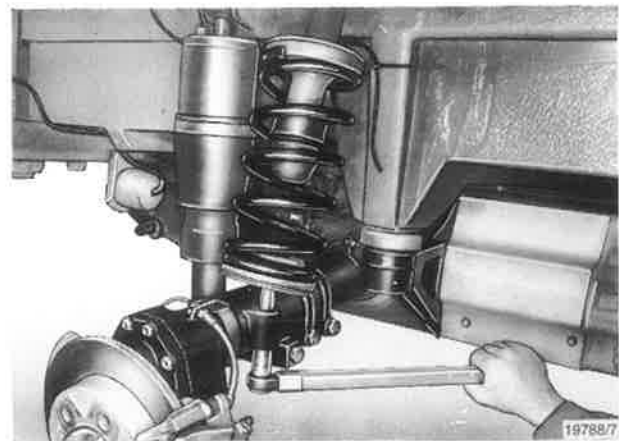


Fig. 23

## 1.6 Change, remove and fit wheel drive model 718

Includes:

Bleeding brake unit see group 130/section 1.1

Tools:

ring spanner socket size 19	905.0.15.004.1
press-off device for wheel drive	905.3.33.404.2
cleaning device for axle ball	
head/wheel drive housing	905.3.38.301.0
open ring spanner socket size 11	001 589 75 03 00
torque spanner 3/8" 4-20 Nm	001 589 75 21 00
torque spanner 1/2" 25-130 Nm	001 589 66 21 00
torque spanner 3/4" 75-400 Nm	standard

Removing:

- 1 Lift vehicle with jack at rear axle body until wheels are without ground contact (1).
- 2 Place support trestles under shock straps and lower vehicle.

**NOTE:** Use suitable support for shock straps (felt e.g.) to prevent varnish damages.

- 3 Unscrew wheel.
- 4 Place movable jack under wheel drive housing and lift half-axle a bit.



Fig. 1

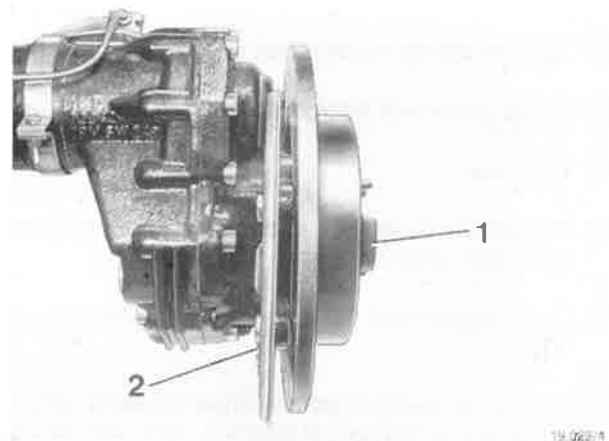


Fig. 2

- 5 Loosen fastening screw (3/1) to spring bracket and remove with shim.
- 6 Remove both spring support bolts (3/2) to leaf spring.
- 7 Remove shock absorber fastening screw (3/3). Push together shock absorber.

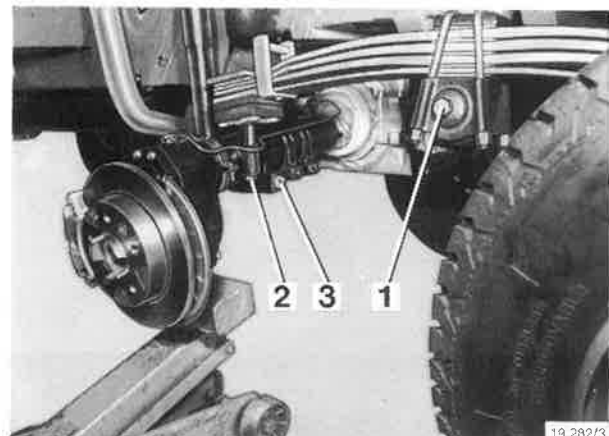


Fig. 3

**NOTE:** When removing left wheel drive of second rear axle press off joint rod (4/1) from adjusting lever (4/2) using open end spanner size 13.

- 8 Lower wheel drive and remove leaf spring.
- 9 Lift wheel drive again and support with movable jack.

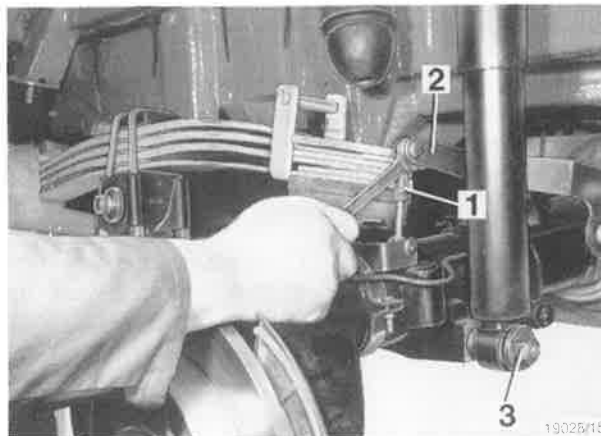


Fig. 4

- 10 Disconnect brake line to internal (5/1) and external (5/2) brake hose retainer. Detach brake line (5/3) with retaining springs. Seal brake line and brake hoses provisionally.

**NOTE:** When loosening brake line, back up brake hose in order not to get twisted. Collect leaking out brake fluid in suitable basin.

- 11 Remove anti-fatigue bolts (5/4) for axle clamping.

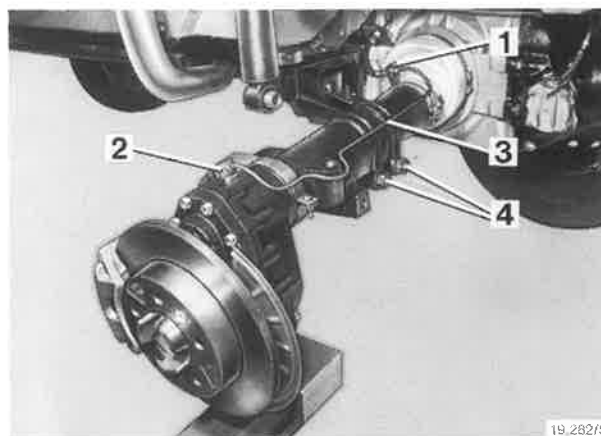


Fig. 5

- 12 Unscrew centering bolt (6).

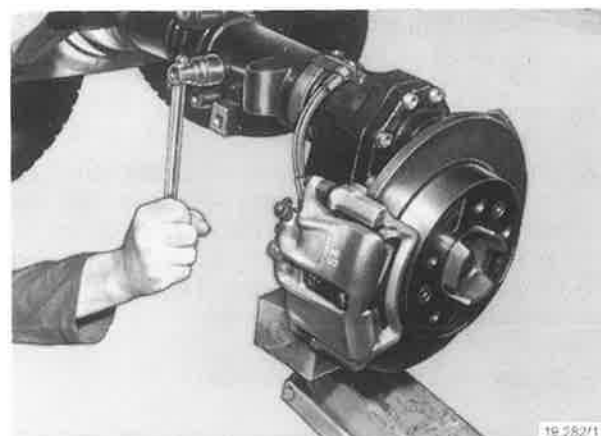


Fig. 6

- 13 Put half-axle with jack into horizontal position. Drive in wedge (7/1) of press-off device special tool pos. no. 905.3.33.404.2 in anti-fatigue bolt area until fit into wheel drive housing. Screw on device (7/2) - observe right and left position - tight to wheel drive housing. Press off complete wheel drive from half-axle by uniform tightening of nuts (7/3).

**NOTE:** Do not tilt downwards pulled-off wheel drive with driving shaft first nor set down nor carry out works as wheel drive oil is leaking out in this position.

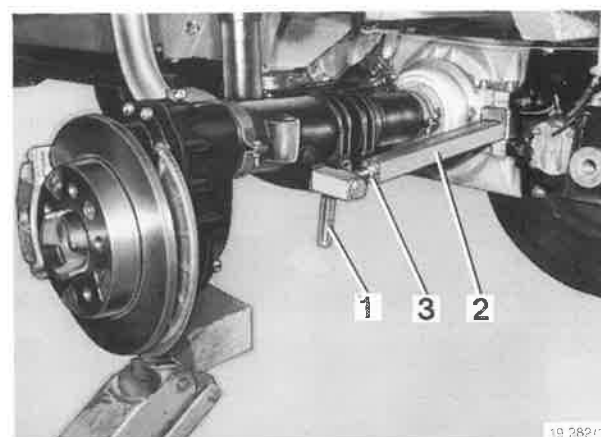


Fig. 7

14 Remove O-ring (16).

**NOTE:** Carry out following steps 15-17 and 19-21 only when replacement assembly is to be mounted. In such a case transfer parts of the brake unit onto the new assembly, furthermore drain oil before starting works.

15 Press housing (8/1) of divided caliper outwards or upwards resp. as in the illustrated case for setting back piston and brake pads resp. Then unscrew caliper (8/2).

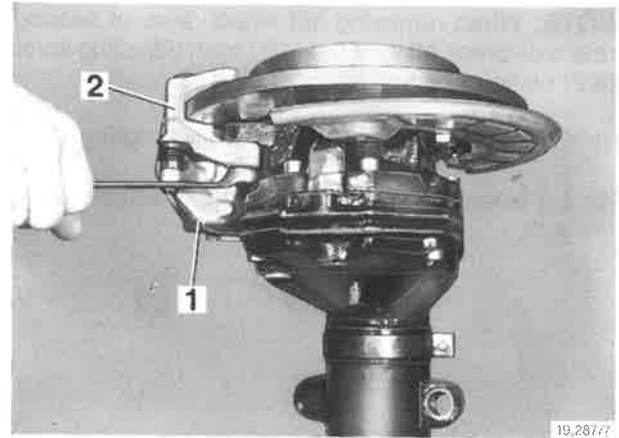


Fig. 8

16 Remove brake disk (9).

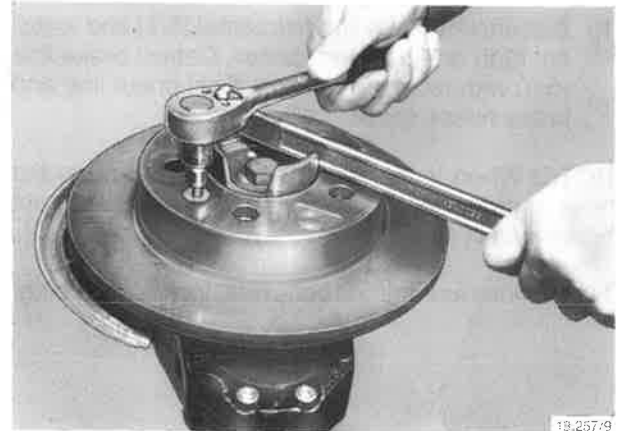


Fig. 9

17 Unscrew brake hose retainer (10/2).

Checking:

18 Check connection toothing of driving shaft for wear. In case of heavy wear strip axle drive and also check toothing in crown wheel flange for wear as well as the pertinent half-axle for distorting. Check hard chromium plating of axle ball head in seal ring area for o.k. condition.

19 Screw on brake hose retainer (10/2).

20 Put brake disk onto centering and tighten countersunk screws (9) to 28 Nm.

**NOTE:** Smear thread and head rest of countersunk screws with Loctite Anti-seize.

21 Smear thread of hexagon screws for fastening caliper with Loctite 242. Mount calipers in correct position so that bleeder screw is pointing upwards when wheel drive is fitted. Tighten hexagon screws with torque spanner special tool pos. no. 001 589 66 21 00 and ring spanner socket size 19 special tool pos. no. 905.0.15.004.1 to 125 Nm (11).

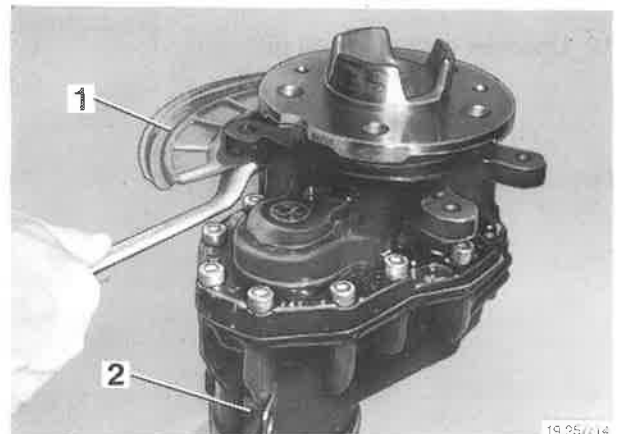


Fig. 10

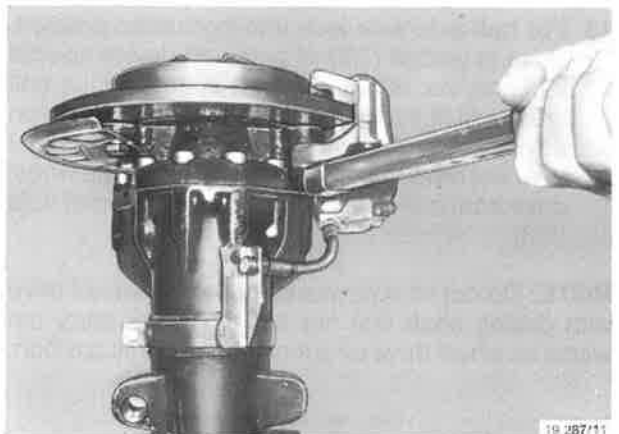


Fig. 11

Assembling:

**WARNING:** Check brake disk, brake pads and caliper are servicable, see chapter brake unit.

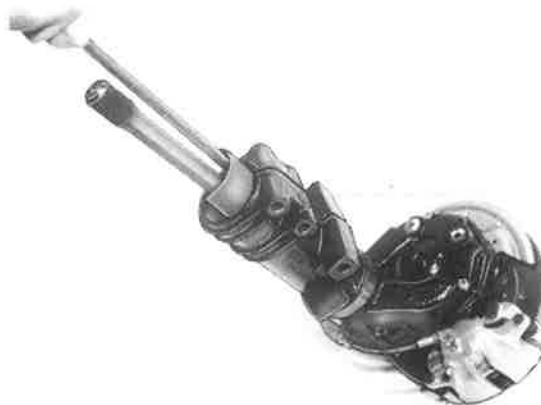
22 Cover wheel drive housing inside with a clean rag. Attach coated abrasives into cleaning device special tool pos. no. 905.3.38.301.0 and remove Loctite residues from wheel drive housing inner side (12) or depreserve replacement assembly resp.. Remove rag again and degrease cleaned surface.

**NOTE:** Depth to clean or surface to degrease resp. in wheel drive housing = length of bright metallic half-axle end.

23 Key up cleaned and degreased wheel drive housing in area of anti-fatigue screw bores with wedge of press-off device special tool pos. no. 905.3.33.404.2 (13). Apply Molykote Longterm no. 2 to connection toothing of rear axle shaft.

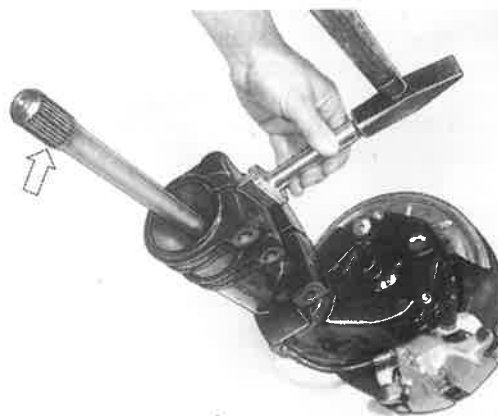
24 Remove Loctite residues from metallic bright half-axle end using coated abrasives (14).

25 Apply Loctite 270 evenly to half-axle bright end (15).



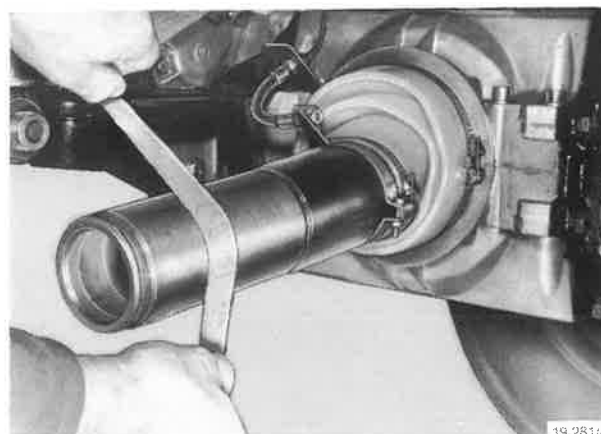
19,181/11

Fig. 12



19,181/18

Fig. 13



19,281/4

Fig. 14



19,281/5

Fig. 15

- 26 Oil or grease new O-ring moderately and insert into groove (16).

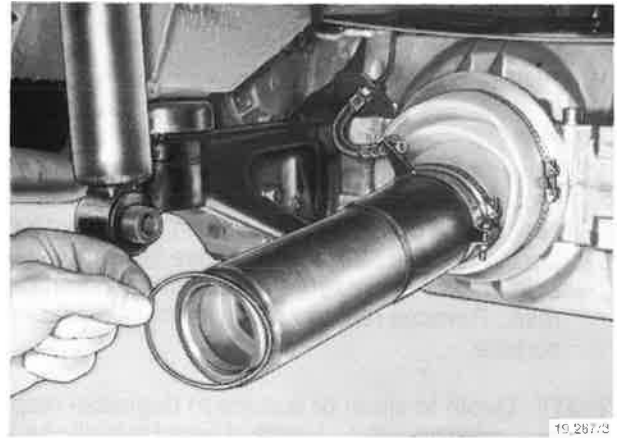


Fig. 16

- 27 Slip on wheel drive as far as possible. If necessary add some strong hammer blows (17) until centering bolt (17/1) can be screwed in easily. Insert anti-fatigue screws with thread pointing backwards and screw on nuts.

**NOTE:** After applying Loctite to the half-axle mount wheel drive immediately. Smear centering bolt as well as collar and thread of anti-fatigue screws before mounting with Loctite Anti-seize. Remove wedge (17/2) only when centering bolt has been screwed in totally.

- 28 Place movable jack under wheel drive housing and lift half-axle a bit.

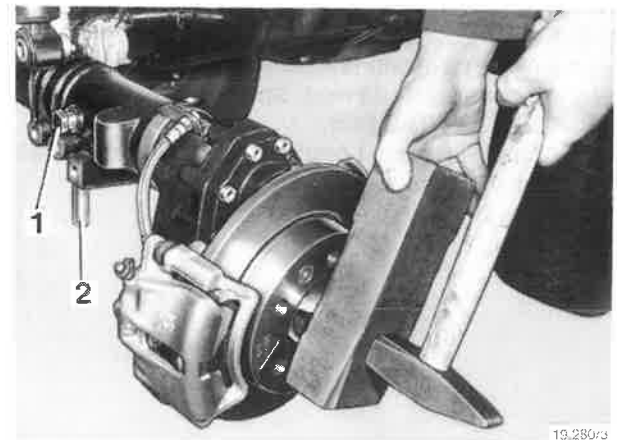


Fig. 17

- 29 Tighten centering bolt (18/1) first and then the two anti-fatigue screws (18/2) to 250 Nm.

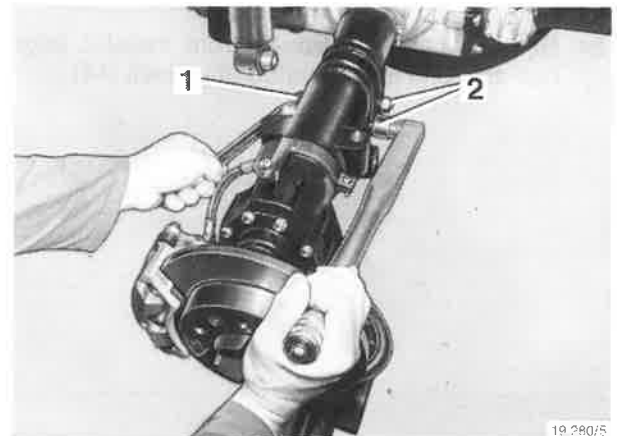


Fig. 18

- 26 Detach provisional lock from brake line and brake hoses and mount brake line to internal (18) and external (19) brake hose retainer with retaining springs and connect to brake hoses resp. Tighten brake line with torque spanner special tool pos. no. 001 589 75 21 00 and open ring spanner socket size 11 special tool pos. no. 000 589 75 03 00 to 15 Nm.

**NOTE:** Back up brake hoses when tightening brake line for not getting distorted.

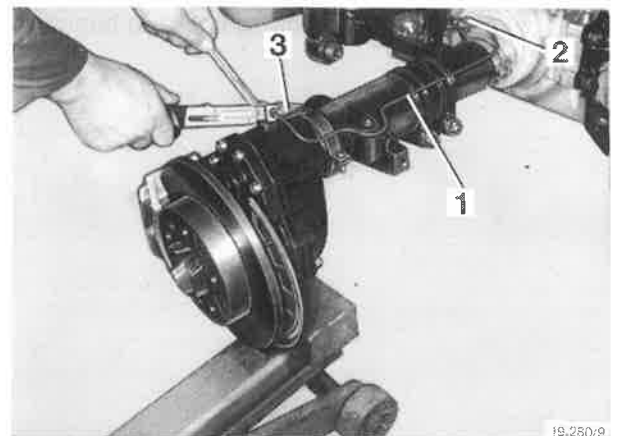


Fig. 19



- 31 Smear bearing stub of spring bracket with Molykote-Longterm no. 2 (20) and slip on leaf spring. Smear thread of fastening screw (3/1) with Loctite Anti-Seize, fit but do not tighten yet.

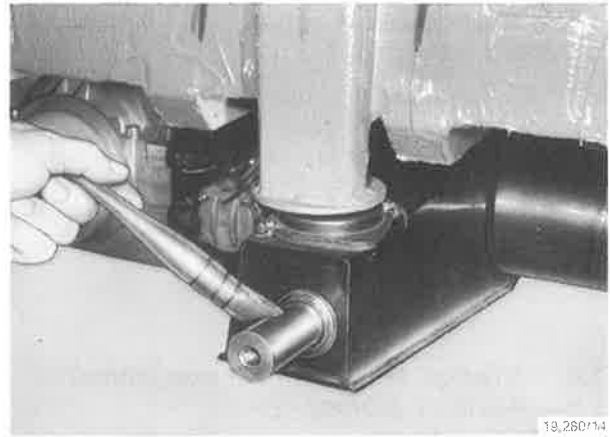


Fig. 20

- 32 Move half-axle by lifting with jack into horizontal position and mount shock absorber - distance sleeve facing to wheel drive housing. Tighten fastening screw to 200 Nm (21).

**NOTE:** Smear fastening screw over whole length moderately with Loctite Anti-seize.

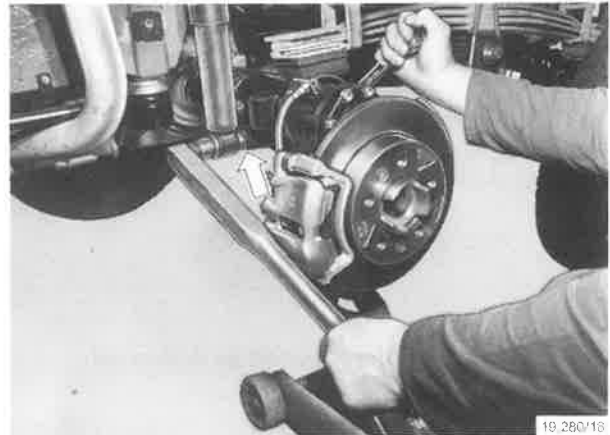


Fig. 21

- 33 Lower movable jack. Smear thread of spring support bolts (22/1) with Loctite Anti-seize. Fill ball-shaped recess of support cup in spring bearings (22/2) with standard grease. Fit both spring support bolts and tighten to 200 Nm (22).

- 34 Bleed brake unit see group 130/section 1.1

- 35 Fit wheel.

- 36 Put vehicle on wheels and tighten wheel bolt or spherical collar screws to 200 Nm.

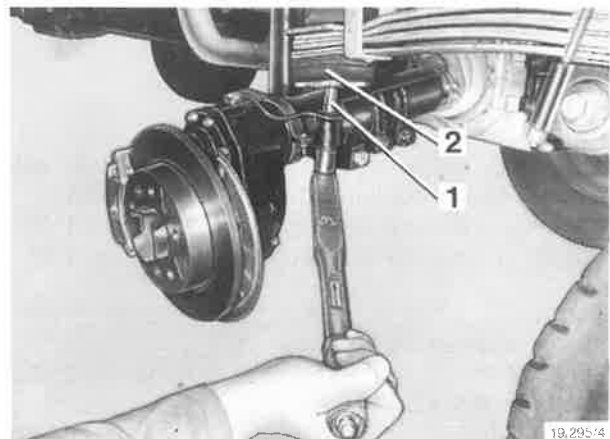


Fig. 22

- 37 Tighten spring bracket hexagon screw to 160 Nm (23).

- 38 Check oil level in wheel drive housing when vehicle is in horizontal position, refill with Mobil Glygoyle 30 if necessary or make new filling when fitting a replacement assembly. Top up to overflow level.



Fig. 23

## 1.7 Change rubber bellow

see group 090/section 1.3

## 1.8 Change, remove and fit axle journal at auxiliary gearbox

see section 1.8

Includes:

Changing, removing and fitting auxiliary gearbox see group 072/section 14/1,2,4-27

**NOTE:** Before fitting new axle journal check whether correct driving shaft - with lubricating bores (1/1) and bearing bush (1/2) - has been used.

### 1.8.1 Works at dismantled axle journal

see group 090/section 2.3

## 1.9 Change, remove and fit axle journal at first rear axle model 718

see section 1.9

Includes:

Changing, removing and fitting second rear axle model 718 see section 1.14/1-13,17-19,25-28

Bleeding brake unit see group 130/section 1.1

Adjusting hand brake see group 130/section 1.21

Tools:

torque spanner 1/2"

25-130 Nm

001 589 66 21 00

torque spanner 3/4"

75-400 Nm

standard

Removing:

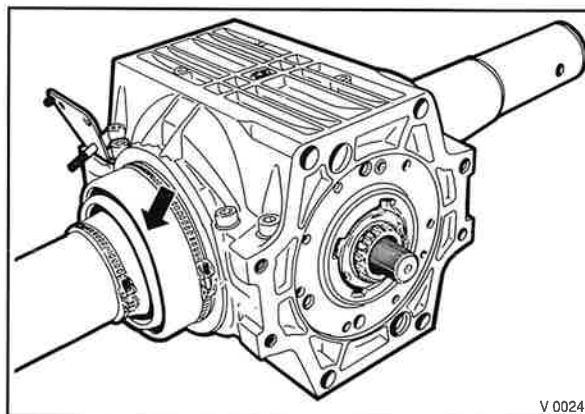
1 Remove second rear axle see section 1.14/1-13.

2 Loosen hexagon nuts (1/1) and hang pneumatic gearshift unit upwards with a piece of wire.

**NOTE:** The two hexagon screws (1/2) are combining the housing parts of pneumatic gearshift unit and must not be loosened.

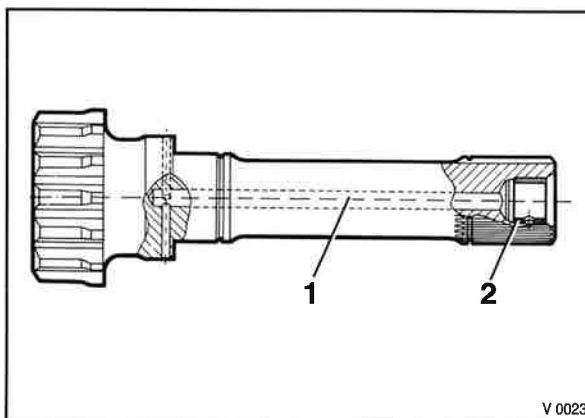
3 Open sheet clamp (1/3) above at support tube and lift out damping strip with lines.

4 Support second rear axle with movable jack exactly in axle center.



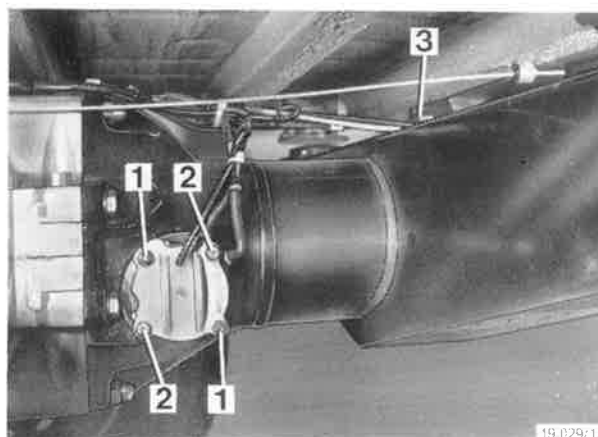
V 0024

Fig. 1



V 0023

Fig. 1



19.029:13

Fig. 1

- 5 Loosen hexagon screws (2/1) right and left and remove with special spring washers (chamfered version).
- 6 Loosen cap nuts (2/2) of anchor bolts, back up at front side.
- 7 Carry out further steps acc. to section 1.14/17-19.
- 8 Remove second rear axle with short support tube by abt. 10 cm straightly backwards. Remove bearing disk with bearing rubber from towing flange.

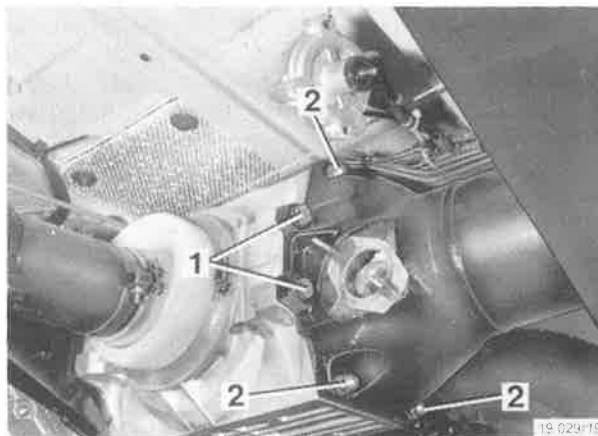


Fig. 2

**NOTE:** When setting back axle care for absolutely identical height (3/"H") and parallelity of support tube flange (3/"A") to axle housing. Axle weight with support tube must in no case rest on driving shaft of axle journal.

- 9 Place oil catch pan under axle journal. Loosen cheese head screws (3) and remove with washers.

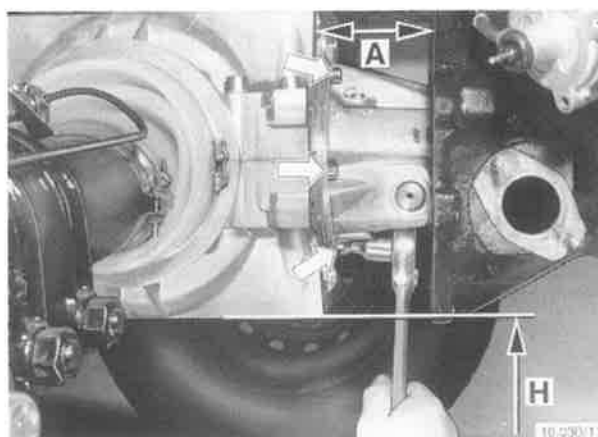


Abb. 3

- 10 Loosen axle journal (4/1) by slight lateral taps with plastic hammer, pull off from differential shaft (4/2) and put down in support tube.
- 11 Lower axle as far that axle journal can be taken from support tube.

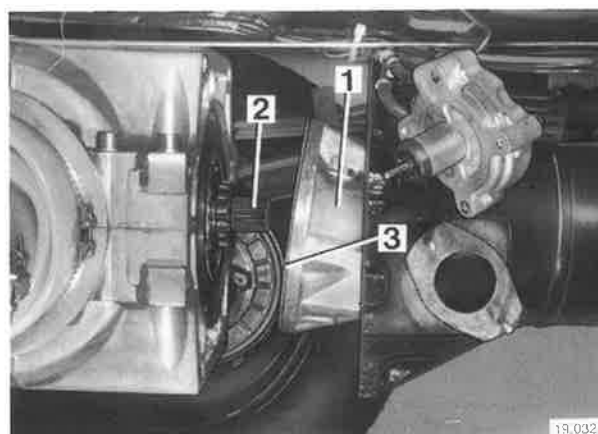


Abb. 4

Fitting:

- 12 Smear toothing of driving shaft with Molykote-Longterm no. 2 and insert axle journal (5/1) into support tube.
- 13 Move axle with support tube in mounting height to approx. 10 cm off the axle housing of the first rear axle (4).
- 14 Smear sealing surface of axle journal with Loctite 574 and put on new O-ring (4/3). Smear connection toothing of differential shaft (4/2) moderately with Molykote-Longterm no. 2.

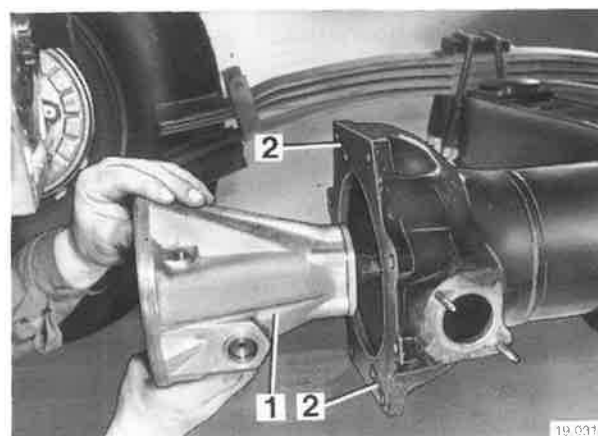


Abb. 5

15 Slip on axle journal onto differential shaft that there remains a small gap between axle journal and axle housing. Insert two opposite cheese head screws with washers to centering and screwing on axle journal (6). Mount other cheese head screws with washers. Tighten evenly all screws crosswise.

16 Smear sealing surface of support tube flange or axle housing with surface sealant Loctite 574.

**NOTE:** Vent slots and bores (5/2) in support tube flange must not be clogged.

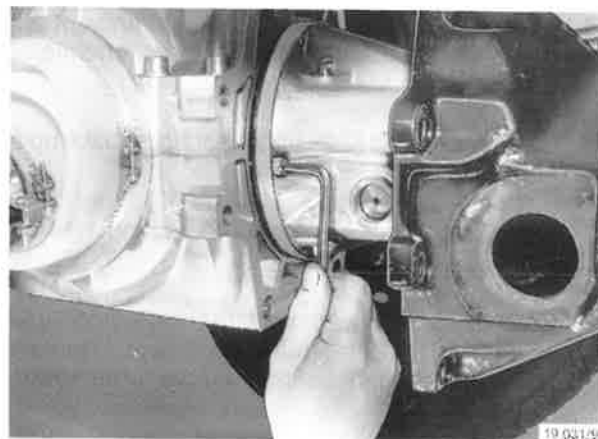


Fig. 6

17 Insert axle in mounting position so that two centering screws facing each other (M 12x55) - when in same distance to axle housing - can be screwed in by hand by at least 10 mm (7).

18 Insert axle completely, if necessary carefully tighten both centering screws alternately and turning both wheels of first rear axle into one direction with the aim that driving shaft engages into coupling sleeve. Then remove centering screws.

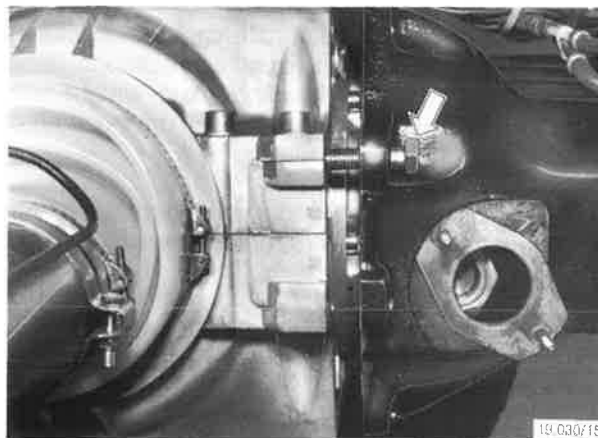


Fig. 7

**NOTE:** When inserting axle completely take care that distance between bearing cap (8/1) at cross member and platform support (8/2) does not exceed max. 1-2 mm.

19 Insert damping strip with lines into sheet clamp and fasten clamp.

20 Carry out further steps acc. to section 1.14/25-28

**NOTE:** Adjustment of brake power control needs not to be checked. Fill up oil in first rear axle to max. level.

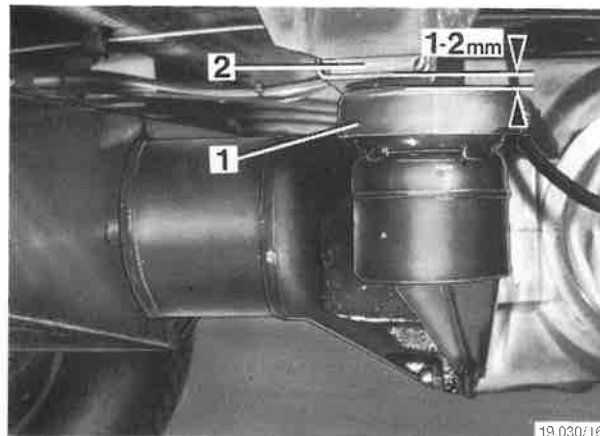


Fig. 8

**1.9.1 Works at dismantled axle journal**  
see group 090

### 1.10 Change, remove and fit axle journal at rear axle model 716 and at second rear axle model 718

Includes:

Changing, removing and fitting brake lining pads of parking brake see group 130/section 1.27/1-12,14-22

Checking adjustment of parking brake see group 130/section 1.21

Tools:

torque spanner 1/2"

25-130 Nm

001 589 66 21 00

torque spanner 3/4"

75-400 Nm

standard

general-purpose spoon

standard

Removing:

- 1 Remove brake lining pads of parking brake see group 130/section 1.27/1-12.
- 2 Unscrew both hexagon nuts (1/1) for fastening pneumatic gearshift unit.

**NOTE:** The two hexagon screws (1/2) are combining the housing parts of the pneumatic gearshift unit and must not be loosened.

- 3 Detach pneumatic gearshift unit (2/1) and hang upwards with a piece of wire.
- 4 Loosen hexagon screws (2/2) right and left and remove with the special spring washers (chamfered version).

**NOTE:** With the hexagon screws (2/2 and 3/1) at model 718 the support plate (2/4) is screwed left to the brake power control and at model 716 the bracket (3/2) for the level switch is screwed on right. Also detach distance shims (8/2) for even rest of support plate and bracket resp.

- 5 Loosen cap nuts (2/3) of anchor bolts, back up on front side.
- 6 Loosen hand brake flange with a plastic hammer and remove.
- 7 Place oil catch pan under axle journal, loosen cheese head screws (4) and remove with washer.
- 8 Loosen axle journal by slight lateral taps with a plastic hammer and remove from the differential shaft.

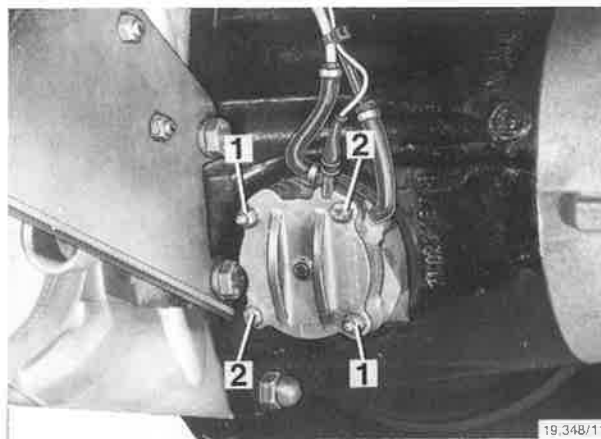


Fig. 1

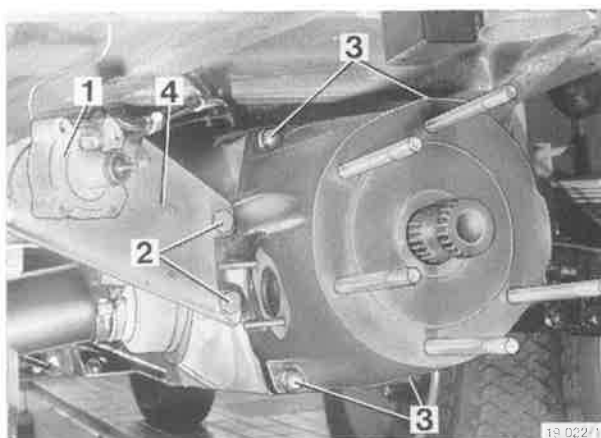


Fig. 2

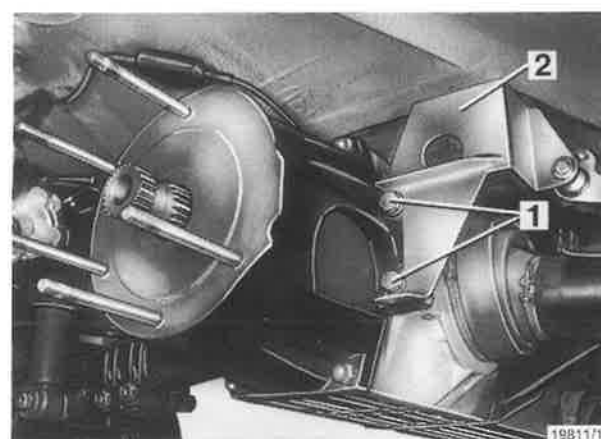


Fig. 3

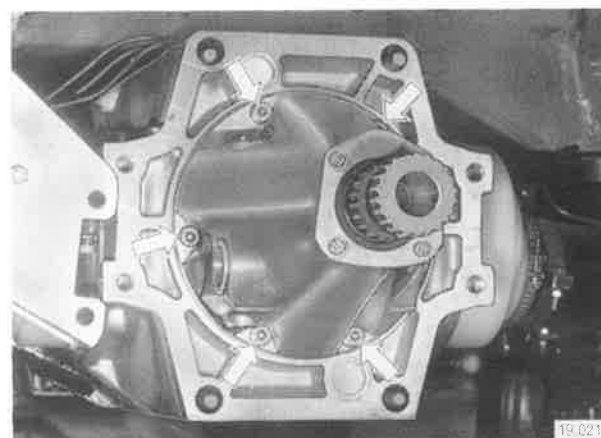


Fig. 4

## Fitting:

- 9 Put new O-ring on to axle journal (5). Smear O-ring and sealing surface with surface sealant Loctite 574. Smear connection toothing moderately with Molykote-Longterm no. 2.



Fig. 5

- 10 Slip on axle journal onto differential shaft that there remains a small gap between axle journal and axle housing. Insert two opposite cheese head screws with washers to centering and screwing on axle journal (6). Mount other cheese head screws with washers. Tighten evenly all screws crosswise.

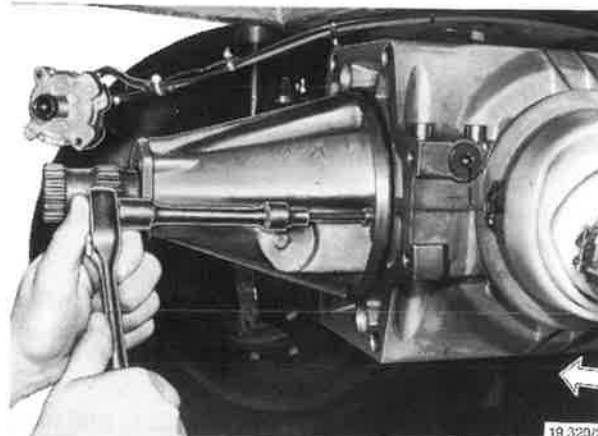


Fig. 6

- 11 Smear sealing surface of hand brake flange (7/1) with surface sealant Loctite 574 and put on.

**NOTE:** Vent slots and bores (7/2) must not be clogged.

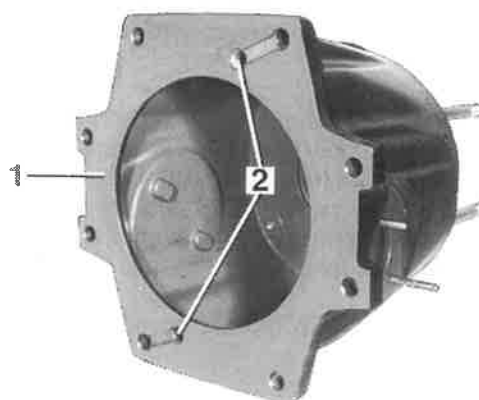


Fig. 7

- 12 Smear threads of hexagon screws and cap nuts (8/1) with Loctite Anti-Seize and tighten to 80 Nm.

**NOTE:** Fix distance shims (8/2) at model 718 to the left and at model 716 to the right before screwing on support plate or bracket resp. with grease.

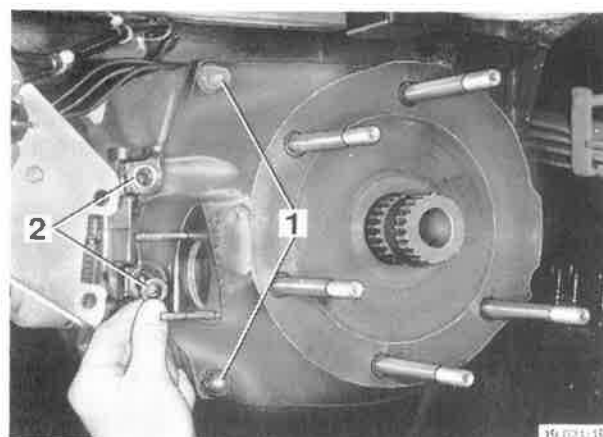


Fig. 8

- 13 Check stop position of V-ring (9/1) facing bush (9/2) in axle journal. Check diaphragm (9/3) and clamping sleeve (9/4) for intact state and correct seat. Centrally mount pneumatic gearshift assembly with new gasket having been smeared on both sides with surface sealant Loctite 574; use existing space for stud bolts (9/5) in a way that diaphragm (9/3) is in even position inside the bush (9/2) in axle journal.
- 14 Fit brake lining pads of parking brake see group 130/section 1.27/14-22.
- 15 Check adjustment of parking brake, adjust if necessary see group 130/section 1.21
- 16 Fill up oil in rear axle to max. level.

## 1.10.1 Works at dismantled axle journal see group 090/section 2.3

## 1.11 Works at pneumatic gearshift for all-wheel and lock(s) see group 090/section 1.5

## 1.12 Change, remove and fit rear axle model 716 see section 1.12

Includes:

Bleeding brake unit see group 130/section 1.1

Checking adjustment of parking brake see group 130/section 1.21

Level adjustment - checking adjustment see group 110

Level adjustment - checking functioning see group 110

Tools:

open-ring socket spanner

size 11 000 589 75 03 00

torque spanner 3/8" 4-20 Nm 001 589 75 21 00

torque spanner 1/2" 25-130 Nm 001 589 66 21 00

torque spanner 3/4" 75-400 Nm standard

Removing:

- 1 Drain oil of axle drive.
- 2 Lift vehicle with jack at axle body until wheels are without ground contact (1).
- 3 Place support trestles under shock straps and lower vehicle.

**NOTE:** Use suitable support (e.g. felt) at the shock straps in order to avoid damages to paintwork.

- 4 Remove wheels.
- 5 Remove safety lock (3/1) and pull out bolt (3/2) (hand brake cable).

**WARNING:** When pulling out bolt, hold tight fork piece (3/4) as brake cable is pre-tensioned (twisted) to effect resetting of handle.

- 6 Unhinge release spring (3/3) at angle lever.

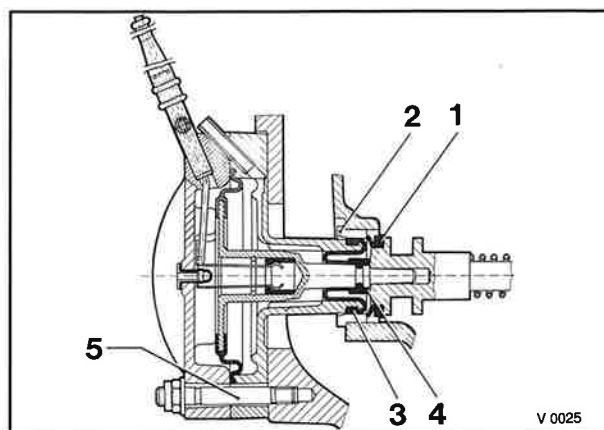


Fig. 9



Fig. 1

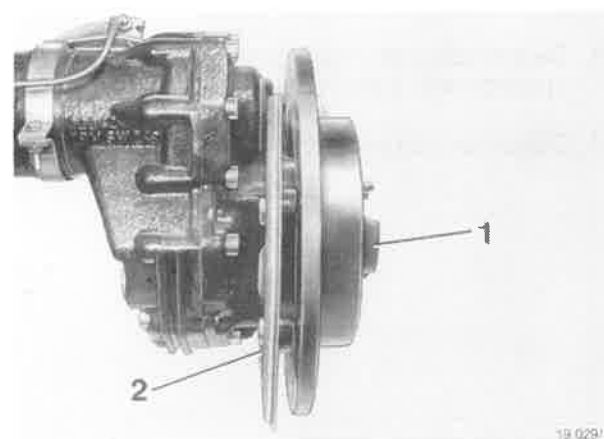


Fig. 2

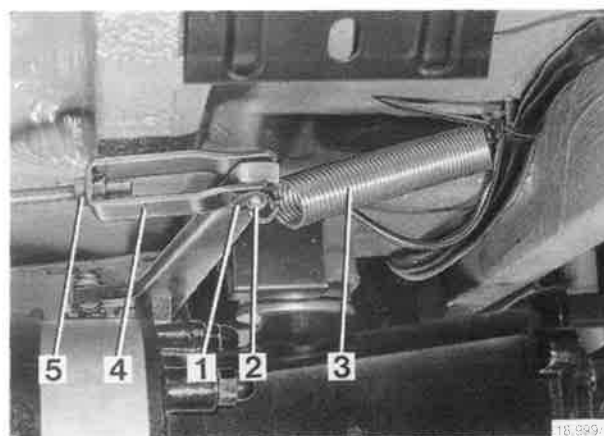


Fig. 3



- 7 Unscrew pneumatic gearshift unit to rear lock at hand brake flange (4/1) as well as to all-wheel gearshift at support tube flange right (5/1).

**NOTE:** The two hexagon screws (4/2 and 5/2) are combining the housing parts of the pneumatic gearshift unit and must not be loosened.

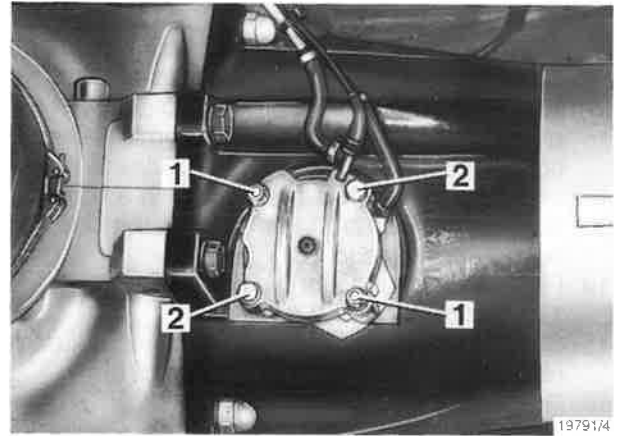


Fig. 4

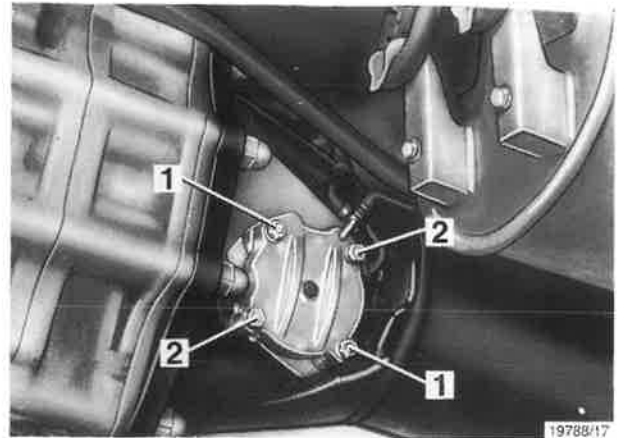


Fig. 5

- 8 Detach both pneumatic gearshift units and hang upwards with a piece of wire (6/1).
- 9 Disconnect coupling (6/2) from level switch.

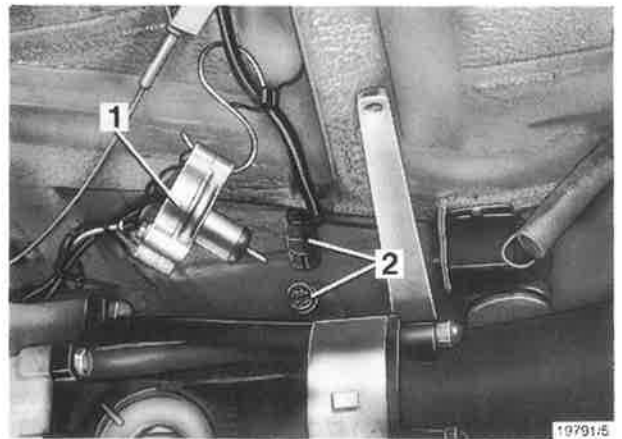


Fig. 6

- 10 Dismount coil spring. For that screw out spring support bolt (7/1) first by 15-20 mm. Loosen pressure line (7/2) only at one shock absorber. Support wheel drive with movable jack. Loosen nut to lower shock absorber fastening screw (7/3) and pull out screw. Lower jack and wheel drive resp.. Screw out spring support bolt and detach coil spring with spring retainer and upper centering ring together with spring pads. Push together shock absorber.

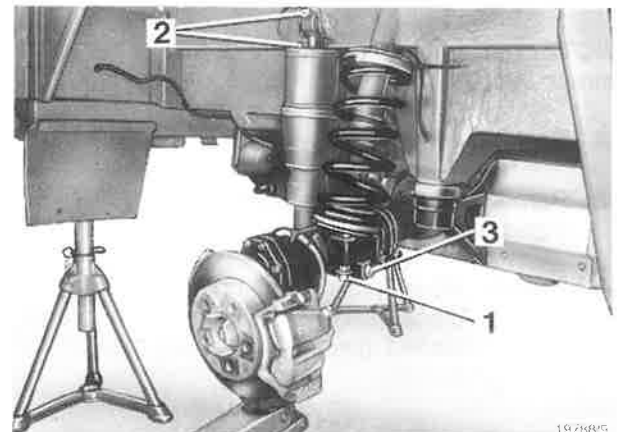


Fig. 7



- 11 Loosen brake line left at retainer on axle drive housing (8).

**NOTE:** When carrying out steps 11 and 12 back up brake hose for not getting twisted. Collect leaking brake fluid with a suitable basin. Seal brake lines and brake hoses provisionally.

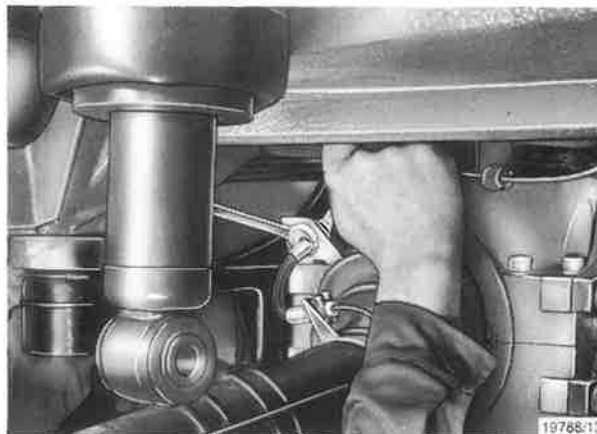


Fig. 8

- 12 Screw out fastening screw (9/1) left to brake line distributor and loosen brake line from retainer (9/2) at half-axle.

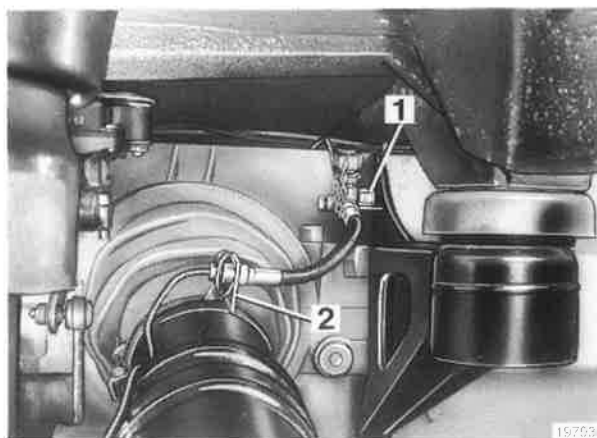


Fig. 9

- 13 Place movable jack a bit offset from axle center backwards and support axle (10). Place oil catch pan below partition line distance piece - auxiliary gearbox.

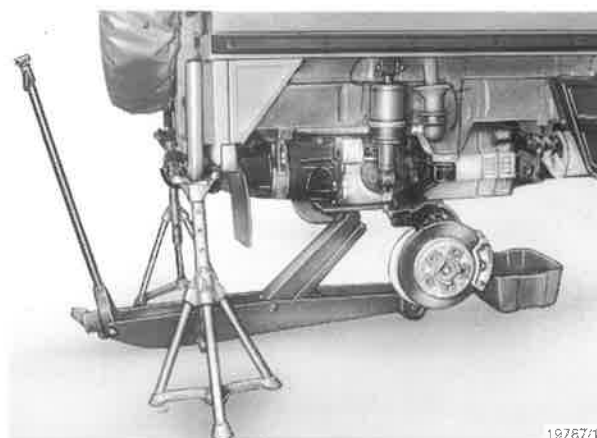


Fig. 10

- 14 Loosen body support screw (11) at towing flange. Remove nut, support shim and rubber pad.

**NOTE:** When loosening screw, back up nut (22/4) with spanner.



Fig. 11

- 15 Loosen body support screws (12) at cross member and remove with support shim and rubber pad.



Fig. 12

- 16 Unscrew cap nuts (13/1 and 13/2) to anchor bolts at support tube flange. (When loosening the two upper and lower anchor bolts (13/1) back up cap nuts at hand brake flange). Pull out lower anchor bolts backwards and remove, upper bolts pull backwards for not protruding into auxiliary gearbox.

**NOTE:** Do not loosen cap nut (13/3) as auxiliary gearbox remains mounted.

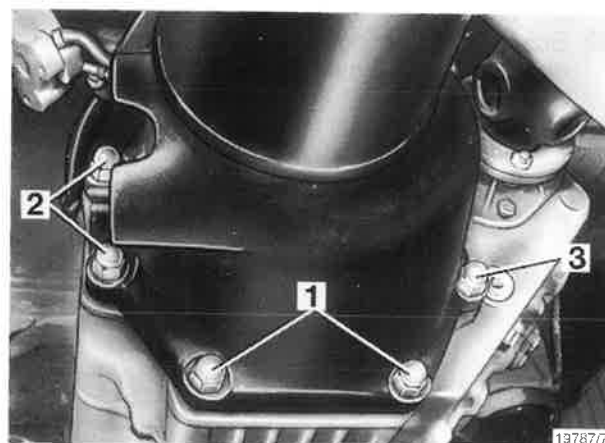


Fig. 13

- 17 Screw out lateral anchor bolts (14/1) with puller.

**NOTE:** Form puller (14/2) from spares D 063300012 (extra-long hexagon nut M12 to spring U-bolt at leaf spring) and D 009311032 (hexagon screw M 12x30).

- 18 Lower axle by abt. 3-5 cm and loosen insulating mat (17) from distance piece.

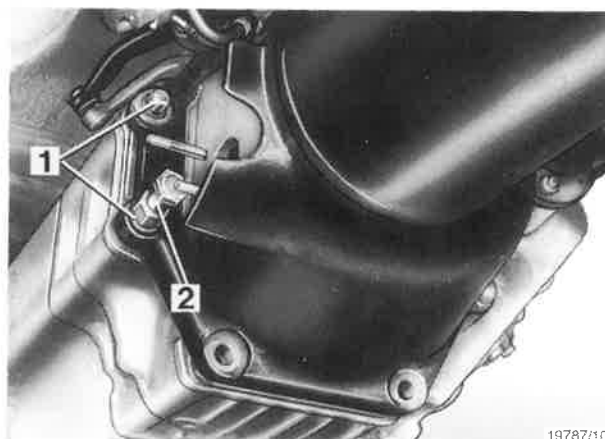


Fig. 14

- 19 Pull off circlip (15/1). Remove angle lever (15/3) with shim (15/2) from cut thread bolt. Put down angle lever at hand brake flange facing forwards.

- 20 Detach support shim (15/4) with rubber pad (15/5) from towing flange.

- 21 Remove axle from connection tooting at auxiliary gearbox and put down.

**NOTE:** When putting down rear axle use suitable support under axle housing.

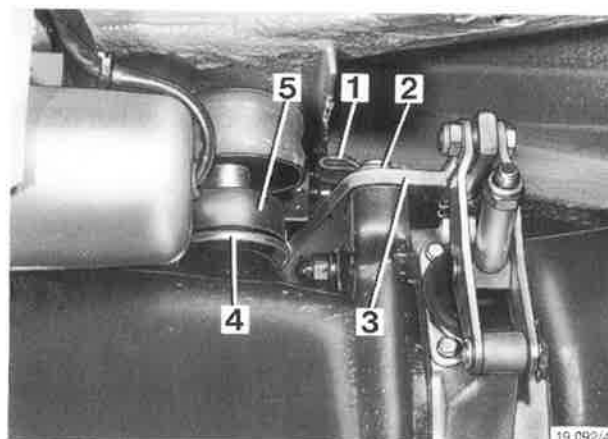


Fig. 15

## Fitting:

- 22 Smear sealing surface of distance piece (16/1) with surface sealant Loctite 574. Check tube shaft for tight seat. Grease toothing (16/2) with Molykote-Longterm no. 2 moderately.

**NOTE:** If axle is not stripped, distance piece and cross member must be newly sealed in order to avoid leakages, see section 2.1/29. Fasten loose tube shaft, see section 2.1/11,26 and 38.

- 23 Smear thread of anchor bolts (16/3) with Loctite Anti-seize, insert lower anchor bolts at towing flange. Slip anchor bolts only as far forwards to end flush with distance piece.
- 24 Put new O-ring (17) with surface sealant Loctite 574 on to auxiliary gearbox.
- 25 Check insulating mat (17) for o.k. condition and adhesive ability of underside, if necessary resmear with suitable adhesive.

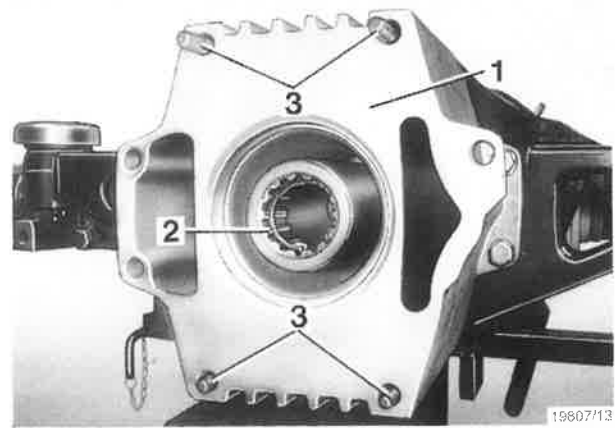


Fig. 16

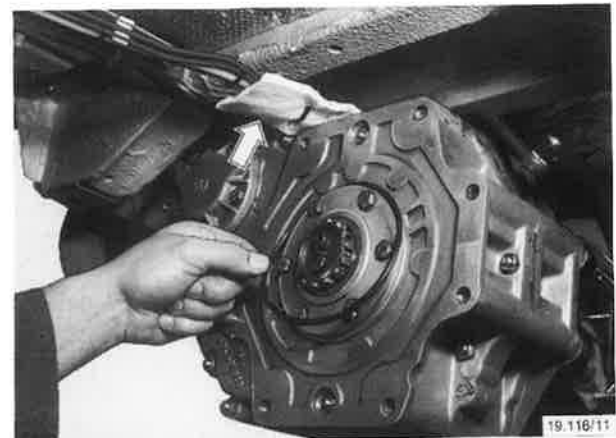


Fig. 17

- 26 Insert axle carefully. Raise right brake line (18/1) across cross member. Lift axle up to level of auxiliary gearbox. Distance (18) between bearing cap at cross member and platform support should be no more than abt. 5 mm. Shift with gearshift lever (18/2) into off-road or on-road gear. Insert axle completely at same distance all-round between distance piece and auxiliary gearbox. If connection toothings are not meshing, rotate both brake disks into one direction.

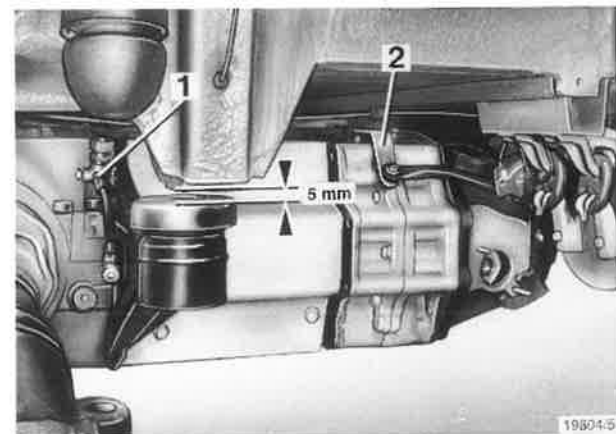


Fig. 18

- 27 Pretighten cap nuts of upper or lower anchor bolts (13/21) moderately. Then smear thread of lateral anchor bolts (14/1) with Loctite Anti-seize and pull in with provisional device as discribed in step 17. Screw on pertinent cap nuts, but do not tighten.

- 28 Align axle in horizontal position, i.e. play of anchor bolts in screw bores will be halved; this consequently will ensure body supports on cross memsber being in horizontal position and parallel to platform supports. Then tighten cap nuts (19) to 80 Nm. Back up upper and lower anchor bolts during above procedure.



Fig. 19

- 29 Tighten hexagon screws to distance piece to 80 Nm (2).

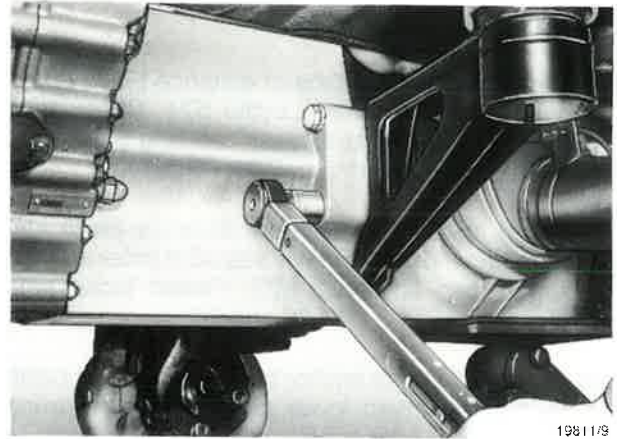


Fig. 20

- 30 Lower axle as deep as possible. Tighten brake lines right and left (21) with torque spanner special tool pos. no. 001 589 75 21 00 and opening socket spanner size 11 special tool pos. no. 000 589 75 03 00 to 15 Nm. Screw on brake line distributor right side. (9/1).
- 31 Again stick on or press on insulating mat (17) to distance piece.
- 32 Fit angle lever (15/3).

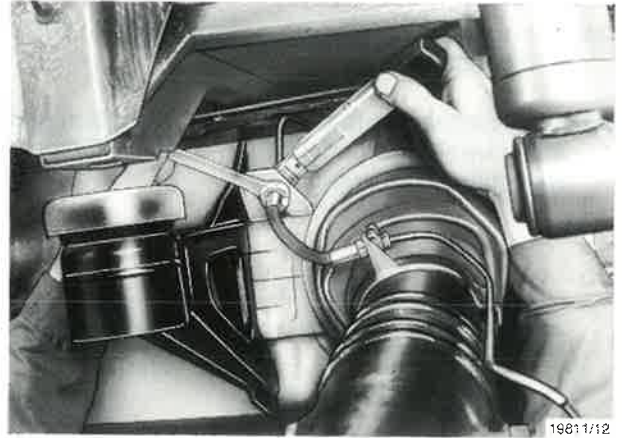


Fig. 21

- 33 Smear fastening screws of body supports with Loctite Anti-seize and mount body supports at towing flange acc. to fig. 22 and at cross member acc. to fig. 23 and tighten to 250 Nm.

**NOTE:** Fit support shims (22/3 and 23/1) only with rounded side facing rubber pad. Back up nut (22/4) when tightening.

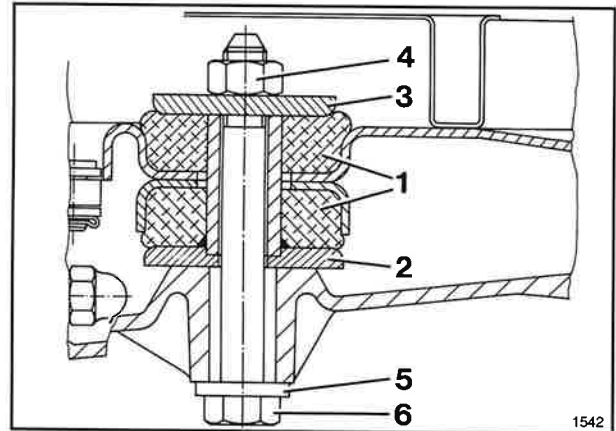


Fig. 22

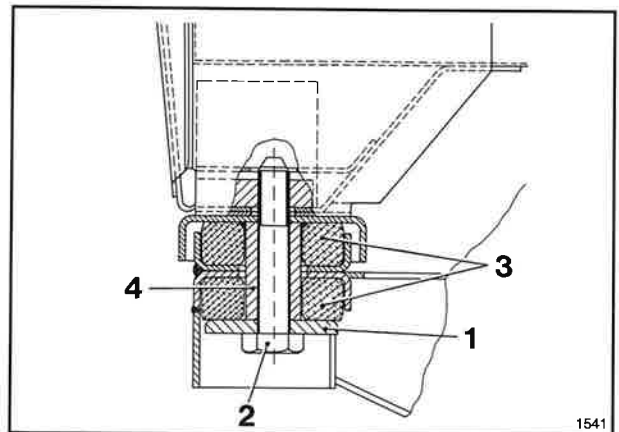


Fig. 23

- 34 Insert coil springs (24) observing that between centering rings (24/3) and spring retainers (24/1) two spring pads each (24/2-rubbers) have to be inserted. Fit ball-shaped recess in lower spring retainer (centering of spring support bolt) before inserting with Molycote-Longterm no. 2. Smear thread of spring support bolt with Loctite Anti-seize and screw in. Align centering rings in a way that spring ends fit tight at stop (24/4).

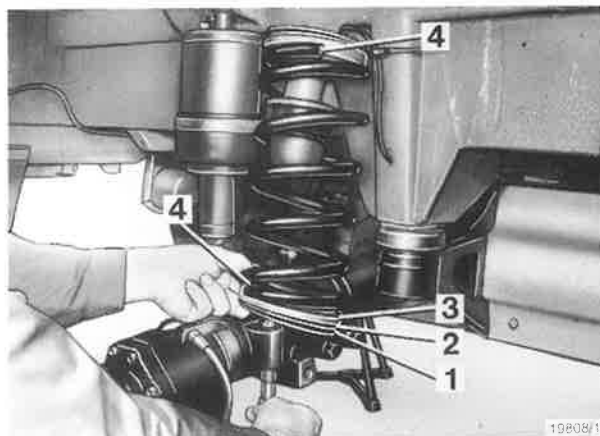


Fig. 24

- 35 Move half-axle by lifting wheel drive with a movable jack into horizontal position. Align shock absorbers in a way that distance sleeve (25/1) faces wheel drive.
- 36 Coat fastening screw to shock absorber over the whole length with Loctite Anti-seize, mount acc. to fig. 25 and tighten to 200 Nm. Lower wheel drive and remove jack.
- 37 Check sealing elements of pressure line (25/2) to air suspension (clamping shim 25/3, O-ring 25/4 and end sleeve for strands 25/5). Grease thread to union nut (25/6) at shock absorber moderately before connecting pressure line.

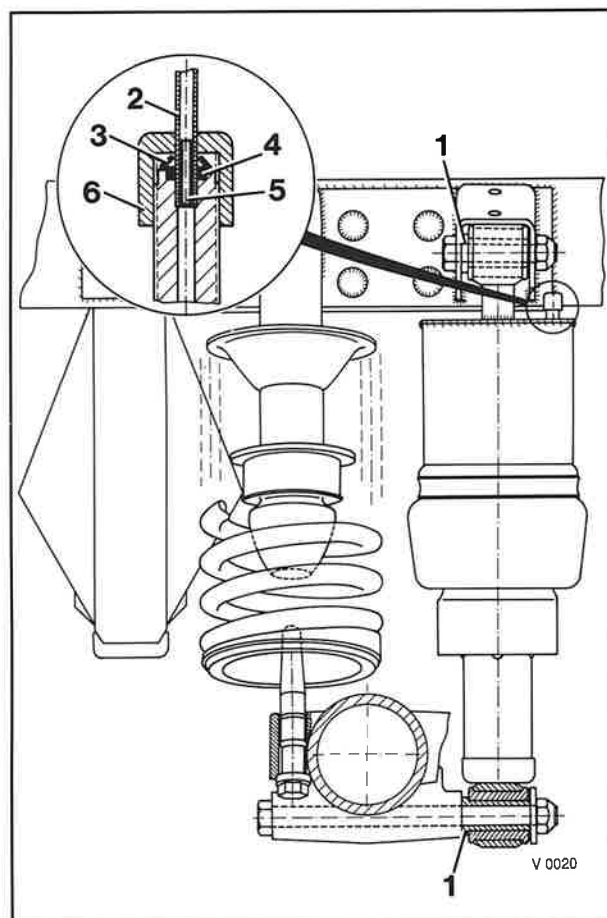


Fig. 25

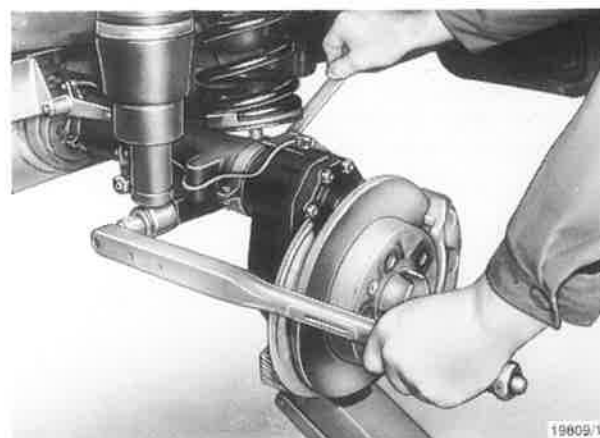


Fig. 26



38 Tighten spring support bolt to 200 Nm (27).

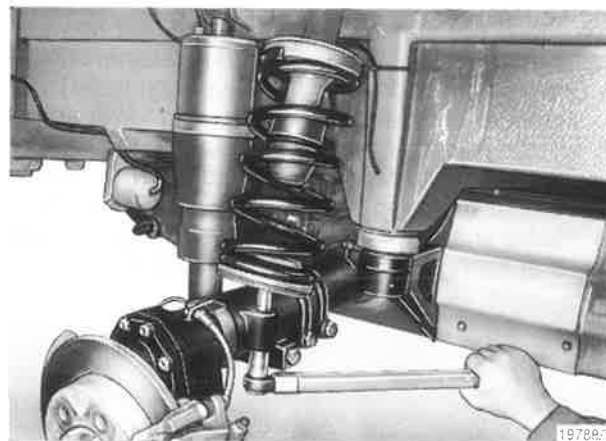


Fig. 27

39 Check stop position of V-ring (9/1) facing bush (9/2) in axle journal. Check diaphragm (9/3) and clamping sleeve (9/4) for intact state and correct seat. Centrally fit pneumatic gearshift assembly with new gasket having been smeared on both sides with surface sealant Loctite 574; use existing space for stud bolts (9/5) in a way that diaphragm (9/3) is in even position inside the bush (9/2) in axle journal.

40 Connect coupling (6/2) to level control switch.

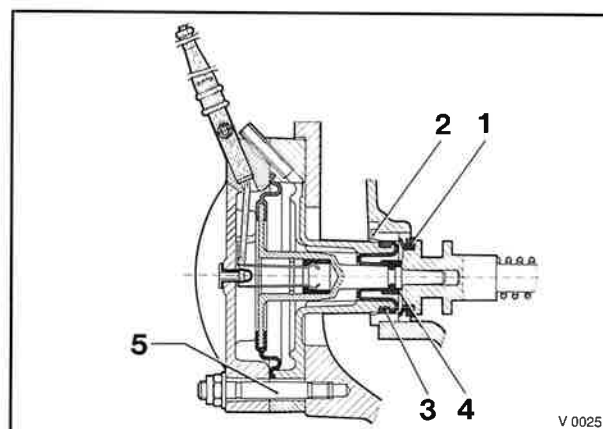


Fig. 28

41 Twist brake cable before hooking in into angle lever by 3-4 turns in same winding direction (29).

42 Check adjustment of parking brake, adjust if necessary, see group 130/section 1.21

43 Bleed brake unit see group 130

44 Tighten wheels to 200 Nm.

45 Check level adjustment, see group 110 and check for functioning see group 110

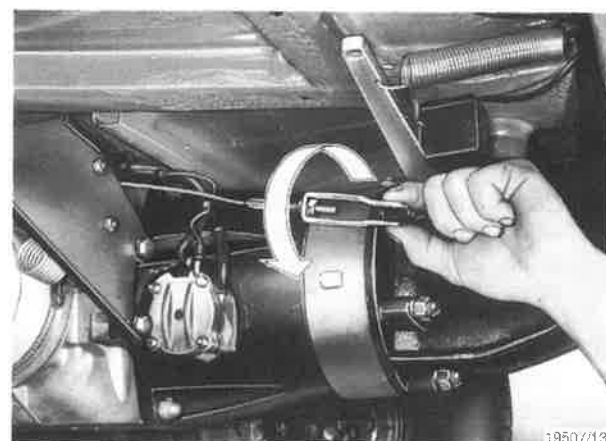


Fig. 29

46 Fill axle drive when vehicle is in horizontal position (oil filler plug 30/1, level control screw 30/2). Check oil level in wheel drives and top up to max. level resp. Observe different specifications of operating materials! Fill up to overflow level.

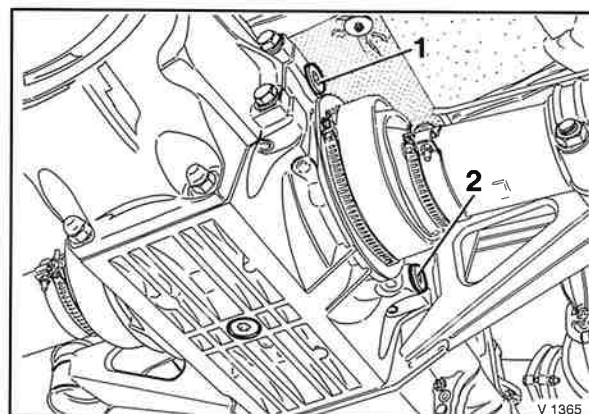


Fig. 30

### 1.13 Change, remove and fit first rear axle model 718

Includes:

Bleeding brake unit see group 130/section 1.1

Checking adjustment of parking brake see group 130/section 1.21

Tools:

open end spanner socket size 19 905.0.15.003.1

platform lifting strap 905.3.36.302.0

open-ring-spanner socket

size 11 000 589 75 03 00

torque spanner 1/2

25-130 Nm 001 589 66 21 00

torque spanner 3/8"

4-20 Nm 001 589 75 21 00

torque spanner 3/4"

75-400 Nm standard

Removing:

- 1 Drain oil from axle housing.
- 2 Remove safety lock (1/1) and pull out bolt (1/2).

**WARNING:** When pulling out bolt, fix fork piece (1/4) as brake cable is pretensioned (twisted) to effect resetting of handle.

- 3 Unhinge release spring (1/3) at angle lever.
- 4 Disconnect both brake lines (2/1 and 2/2) at brake power control and seal with rubber caps (2/3) of bleeder screws.

**NOTE:** Collect leaking brake fluid with suitable basin.

- 5 Open sheet clamp (3/1) at short support tube and remove all lines with damping strip. Press out brake pipe (3/2) from brake power control to distributor for second rear axle as well as brake pipe (3/3 and 4/3 resp.) from mentioned distributor to distributor of first rear axle from retainers (3/4 and 4/4).
- Hang up brake and pneumatic pipes at platform in cable lead area of parking brake cable with cable clips e.g.
- Lift off or loosen resp. insulating mat (4/1) from distance piece (4/2).

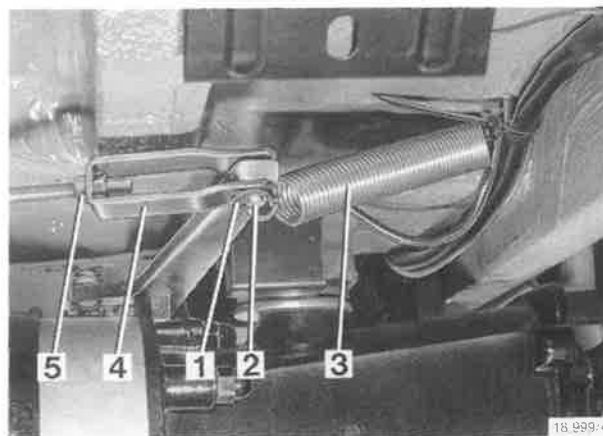


Fig. 1



Fig. 2

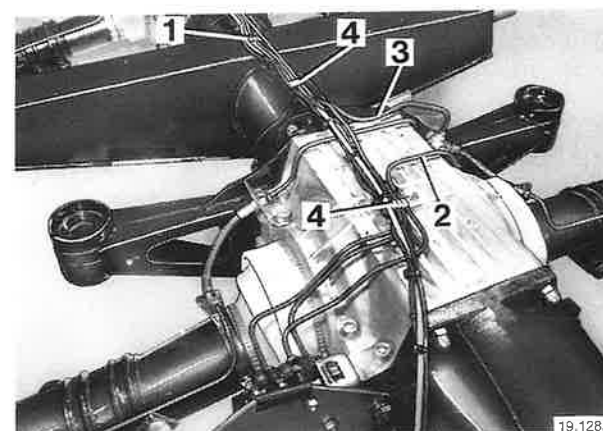


Fig. 3

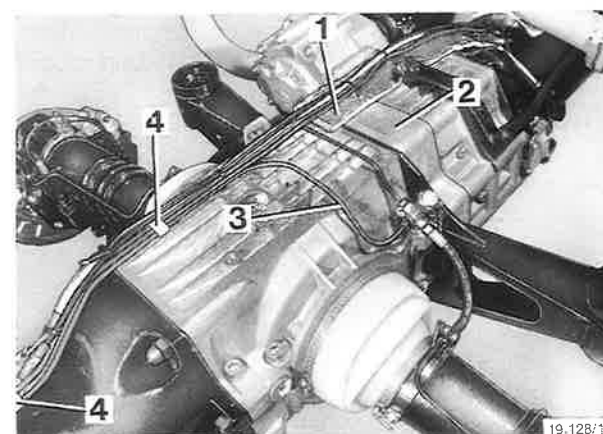


Fig. 4

- 6 Unscrew pneumatic gearshift unit of both rear locks as well as pneumatic gearshift unit for all-wheel drive (5/1).

**NOTE:** The two hexagon screws (5/2) are combining the housing parts of the pneumatic gearshift unit and must not be loosened.

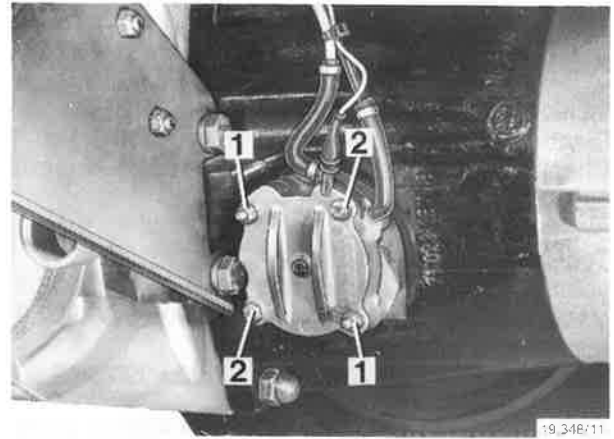


Fig. 5

- 7 Detach pneumatic gearshift unit and hang upwards with a piece of wire (6/1).
- 8 Screw out lower shock absorber screws of first rear axle. Dismount shock absorber of second rear axle (6/2).

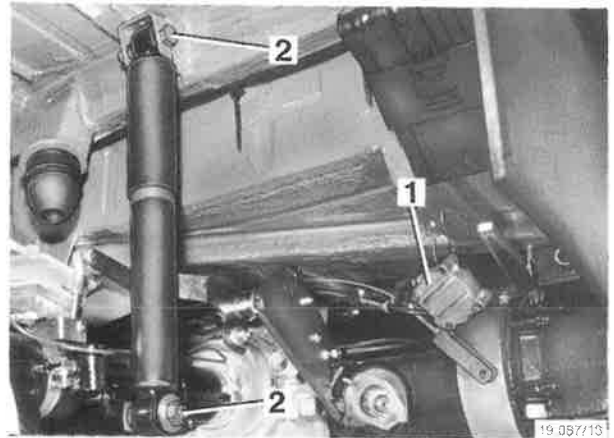


Fig. 6

- 9 Loosen body support screw (7) at towing flange. Remove nut, support shim and rubber pad.

**NOTE:** When loosening screw, back up nut (24/4) with spanner.



Fig. 7

- 10 Loosen body support screws (8) at cross members and remove with support shim and rubber pad.

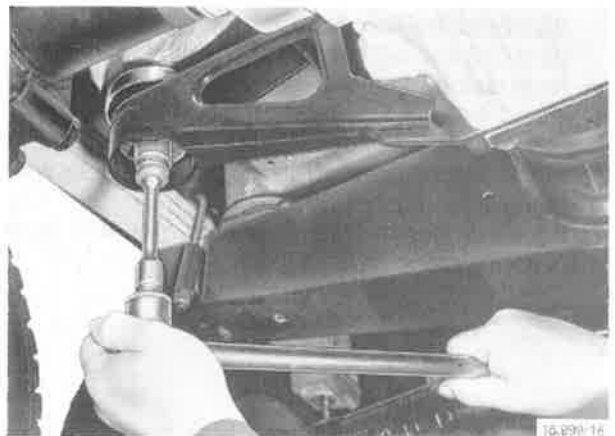


Fig. 8



- 11 Place oil catch pan under distance piece. Unscrew cap nuts (9/1 and 9/2) to anchor bolts at support tube flange (back up the two upper and lower anchor bolts). Pull out upper and lower anchor bolts backwards and detach.

**NOTE:** Do not loosen cap nut (9/3) as auxiliary gearbox remains mounted.

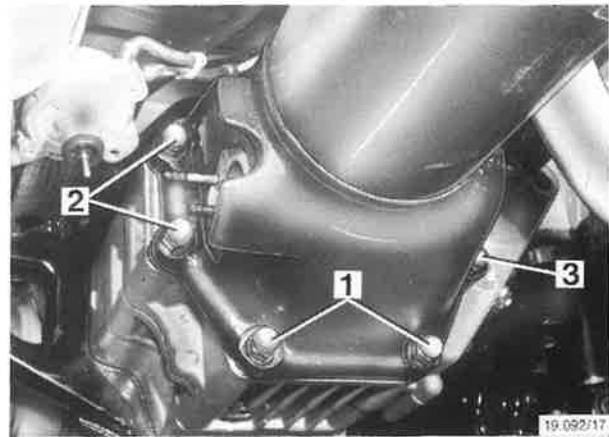


Fig. 9

- 12 Screw out lateral anchor bolt (10/1) with puller.

**NOTE:** Form puller (14/2) from spares D 063300012 (extra-long hexagon nut M12 to spring U-bolt at leaf spring) and D 009311032 (hexagon screw M 12x30).



Fig. 10

- 13 Unscrew cap nut (11) to distance piece.

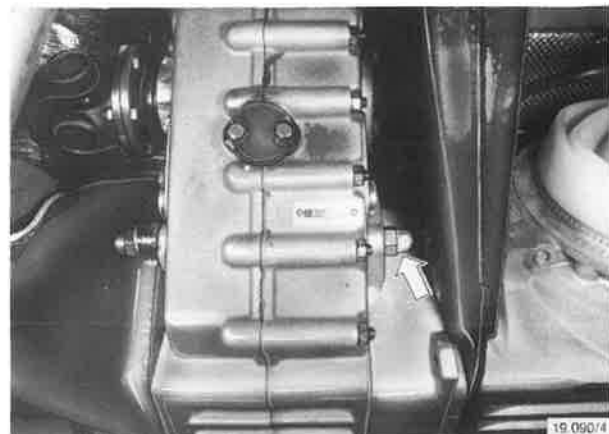


Fig. 11

- 14 Secure vehicle with wedges at front wheels against rolling back. Attach lifting strap (12) special tool pos. no. 905.3.36.302.0 with added screws and lift body or platform resp. slightly that there will be some millimeters of distance between platform support and platform props of first rear axle.



Fig. 12

- 15 Pull off circlip (13/1). Remove angle lever (13/3) with shim (13/2) from cut thread bolt. Put angle lever on to hand brake flange facing forward.
- 16 Detach support shim (13/4) with rubber pad (13/5) from towing flange.
- 17 Pull out axle from connection toothing at auxiliary gearbox and then lift body or platform resp. to make pulling double axle out possible without touching.

**NOTE:** Lift body slowly and pull out double axle carefully, during that check pipes are free to move.

- 18 Support second rear axle and short support tube with support trestles, first rear axle with movable jack and unscrew wheels.

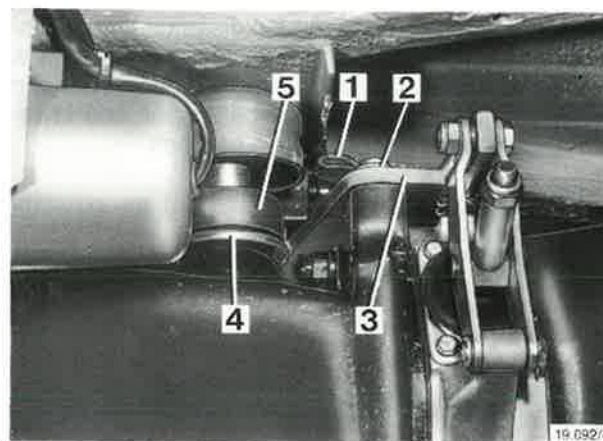


Fig. 13

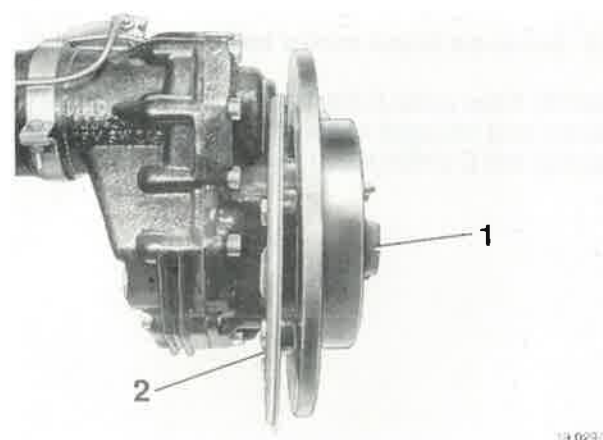


Fig. 14

- 19 Loosen spring support bolts (15/1) of leaf springs.

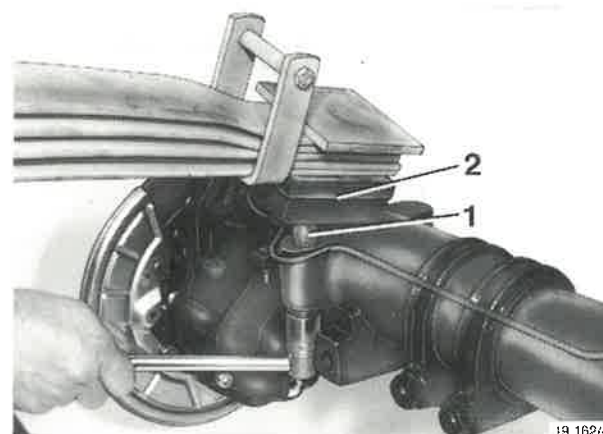


Fig. 15

- 20 Unscrew brake pipe (16/1) at distributor.
- 21 Loosen hexagon screws (16/2) right and left and remove with special spring washers (chamfered version).
- 22 Loosen first rear axle from short support tube and pull out resp.

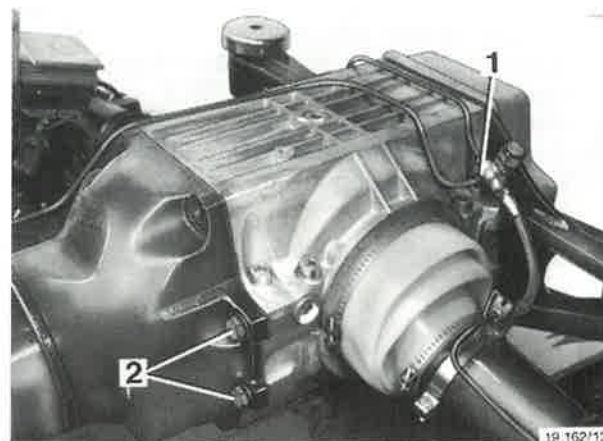


Fig. 16

## Fitting:

- 23 Smear sealing surface of support tube flange with surface sealant Loctite 574.

**NOTE:** Vent slots and bores (17/1) must not be clogged.

- 24 Smear toothings of driving shaft (17/2) with Molykote-Longterm no. 2.

- 25 Lift axle housing of first rear axle to same level as support tube flange, lift both leaf springs (18) and insert axle completely into support tube while simultaneously turning coupling sleeve (18/1).

- 26 Smear thread of hexagon screws (16/2) with Loctite Anti-seize and tighten to 80 Nm.

**NOTE:** Mount hexagon screws with special spring washers (chamfered version).

When tightening axle take care to align axle in same level as support tube (play of screws in bores to be halved).

- 27 Grease supporting shell in spring bearing (15/2) with standard grease. Spray thread of spring support bolts with Loctite Anti-seize and tighten to 200 Nm.

- 28 Screw on brake pipe (18/2) to distributor and tighten with torque spanner special tool pos. no. 001 589 75 21 00 and open-ring-spanner socket size 11 special tool pos. no. 000 589 75 03 00 to 15 Nm.

- 29 Fit wheels.

- 30 Smear sealing surface of distance piece with surface sealant Loctite 574. Grease moderately toothings of coupling sleeve (19/2) with Molykote-Longterm no. 2.

**NOTE:** Vent slots and bores (19/3) must not be clogged. If axle is not disaggregated reseal distance piece and cross member in order to avoid leakages. See section 2.2/3,4,29 and 30.

- 31 Smear thread of four anchor bolts with Loctite Anti-seize, insert at support tube flange and slip as far forwards for ending flush with distance piece.

- 32 Put new O-ring (17) with surface sealant Loctite 574 on to auxiliary gearbox.

- 33 Check insulating mat (17) for o.k. condition and adhesive ability of underside, if necessary resmear with suitable adhesive.

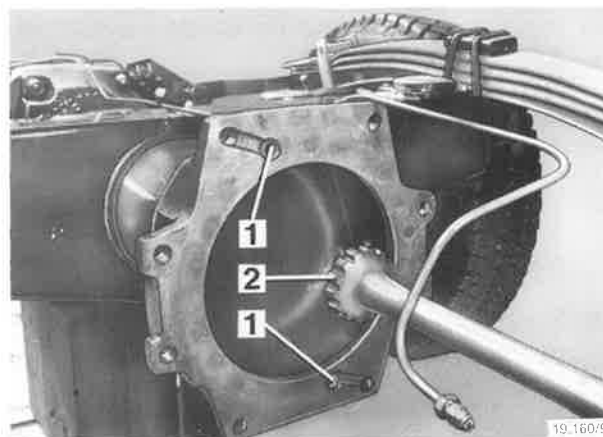


Fig. 17



Fig. 18

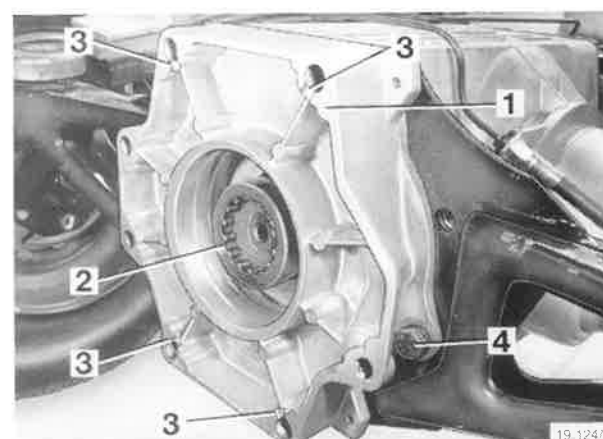


Fig. 19

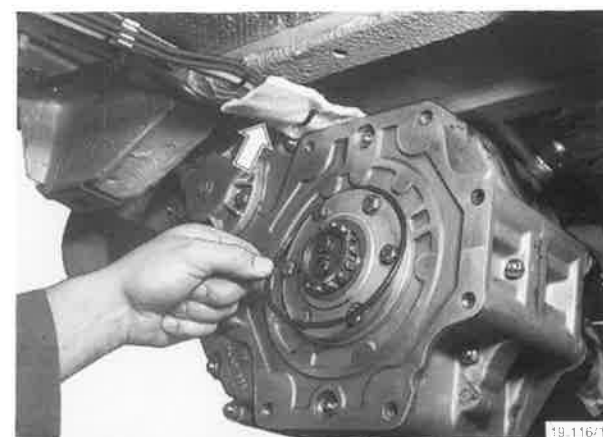


Fig. 20

- 34 Insert double axle carefully. Support second rear axle with movable jack.

**NOTE:** Take care for brake pipes and pneumatic pipes!

- 35 Lower body or platform resp. that distance between bearing cap (21/1) at cross member and platform support (21/2) does not exceed 1-2 mm.

- 36 Insert axle completely or mesh with auxiliary gearbox resp. If this is not possible shift automatic gear into "N" position. At auxiliary gearbox shift into on-road or off-road gear. Turn joint shaft and move double axle to auxiliary gearbox until connection toothings are meshing.

- 37 Pretighten moderately upper and lower anchor bolts (9/1) as well as hexagon screw to distance piece with cap nuts. Smear then thread of lateral anchor bolts (10/1) with Loctite Anti-seize and insert with provisional device as described in step 12. Screw on pertinent cap nuts, but do not tighten yet.

**NOTE:** Fit hexagon screw to distance piece with spring washer.

- 38 Tighten cap nuts (22) as well as cap nut (23/1) and hexagon screw (23/2) to 80 Nm. Back up upper and lower anchor bolts. For tightening cap nut (23/1) and hexagon screw (23/2) use spanner socket size 19 (23/3) special tool pos. no. 905.0.15.003.1.

**NOTE:** When pretightening or also when tightening resp. screw connections acc. to steps 37 and 38 take care that existing play of anchor bolts in screw bores is going to be halved by which is consequently ensured that body supports at cross member are in horizontal position and parallel to platform supports.

- 39 Again stick on or press on insulating mat (17) to distance piece.

- 40 Fit angle lever of parking brake system (15/3).

- 41 Smear fastening screws of body supports with Loctite Anti-seize and place body supports at towing flange acc. to fig. 24 (if it is necessary lift up platform or body resp. a little bit) and at cross member acc. to fig. 25 but do not tighten yet.

**NOTE:** Fit support shims (22/3 and 23/1) only with rounded side facing rubber pad. Back up nut (22/4) when tightening.

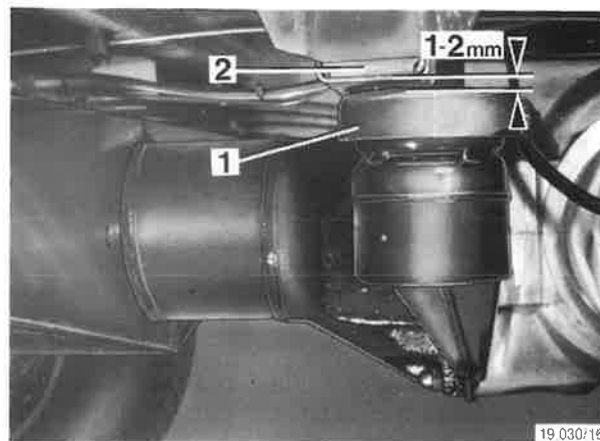


Fig. 21

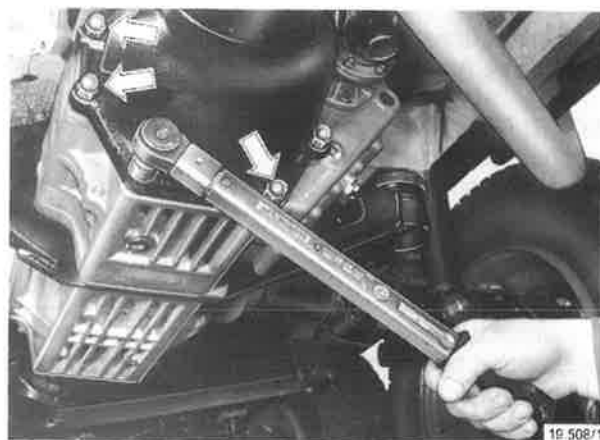


Fig. 22

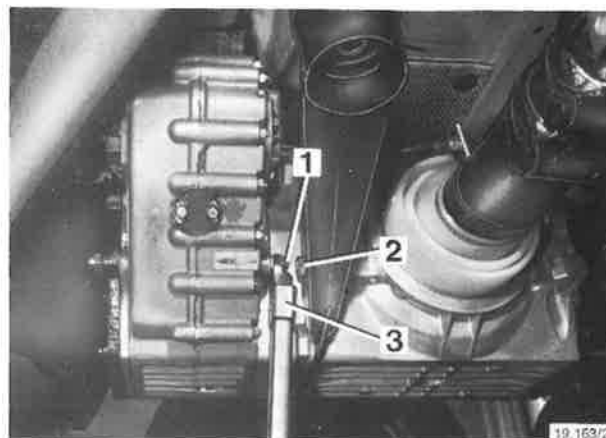


Fig. 23

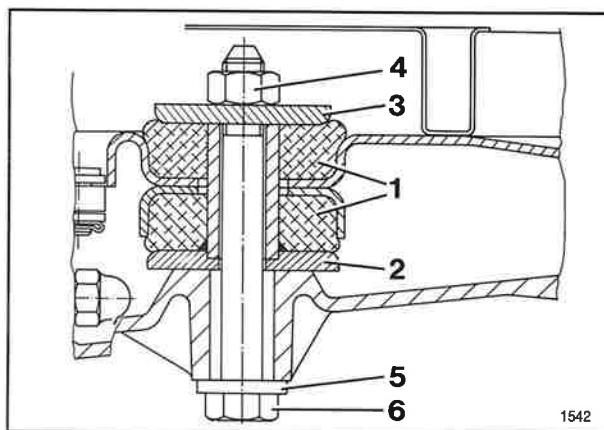


Fig. 24

42 Carry out steps 8-1 in reverse sequence of removing observing following points.

- Smear threads and shafts of shock absorber screws moderately with Loctite Anti-seize and mount acc. to fig. 26. Tighten screws only when axle being in extended position to 200 Nm.
- Check stop position of V-ring (27/1) facing bush (27/2) in axle journal. Check diaphragm (27/3) and clamping sleeve (27/4) for intact state and correct seat. Centrally mount pneumatic gear-shift assembly with new gasket having been smeared on both sides with surface sealant Loctite 574; use existing space for stud bolts (27/5) in a way that diaphragm (27/3) is in even position inside the bush (27/2) in axle journal.
- Tighten brake pipes with torque spanner special tool pos. no. 001 589 75 21 00 and open-ring socket spanner size 11 special tool pos. no. 000 589 75 03 00 to 15 Nm.
- Twist brake cable before hooking in into angle lever by 3-4 turns in same winding direction (29).
- Check adjustment of parking brake, adjust if necessary, see group 130/section 1.21
- Bleed brake unit see group 130
- Put vehicle on wheels and tighten fastening screws of body supports axlewise starting with first rear axle to 250 Nm.
- Tighten wheels to 200 Nm.
- Fill oil into axle housing when vehicle is in horizontal position and check at wheel drives resp. or make new filling. Observe different specifications of operating materials! Top up to overflow level!

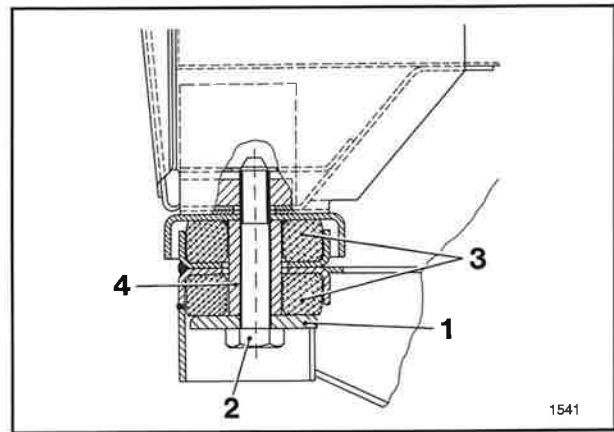


Fig. 25

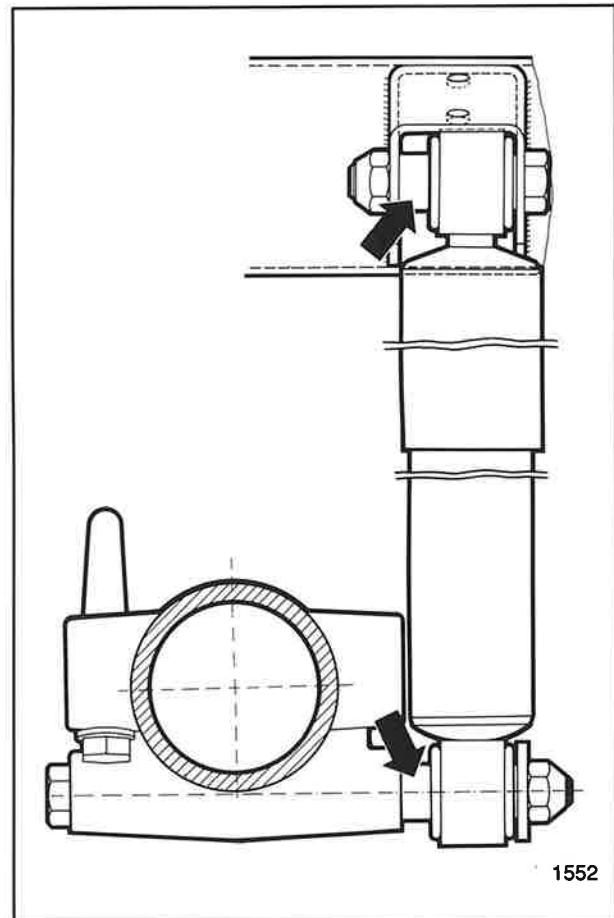


Fig. 26

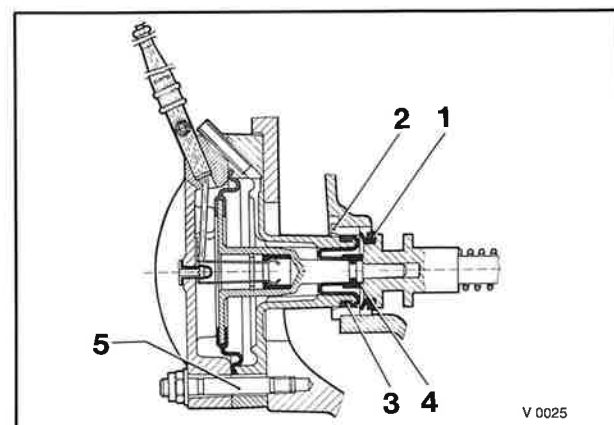


Fig. 27

## 1.14 Change, remove and fit second rear axle model 718

Includes:

Bleeding brake unit see group 130

Adjusting brake power control see group 130

Checking adjustment of parking brake see group 130

Tools:

open-ring socket spanner

size 11

000 589 75 03 00

torque spanner 1/2"

25-130 Nm

001 589 66 21 00

torque spanner 3/8"

4-20 Nm

001 589 75 21 00

torque spanner 3/4"

75-400 Nm

standard

Removing:

1 Lift vehicle with jack at body of second rear axle until all wheels of double axle just clear of the ground (1).

2 Place support trestles under bumpers and lower vehicle.

**NOTE:** Use suitable support (e.g. felt) at bumpers in order to avoid damage to paint finish.

3 Unscrew wheels of second rear axle

4 Detach safety lock (3/1) and pull out bolt (3/2).

**WARNING:** When pulling out bolt hold tight fork piece (3/4) as brake cable is pre-tensioned (twisted) to effect resetting of handle.

5 Unhook release spring (3/3) from angle lever.

6 Screw off the two hexagon nuts (4/1) for fastening pneumatic gearshift unit.

**NOTE:** The two hexagon screws (4/2) are combining the housing parts of the pneumatic gearshift unit and must not be loosened.



Fig. 1

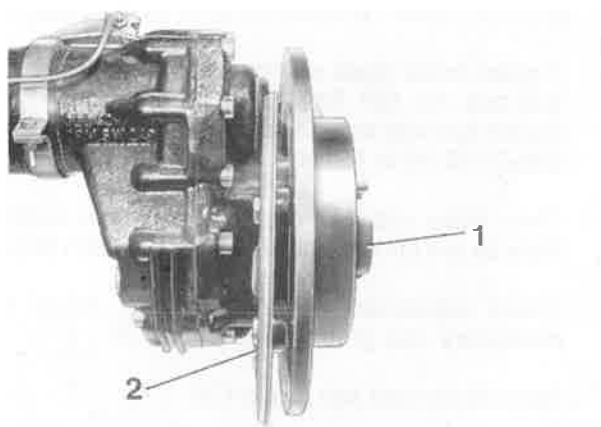


Fig. 2

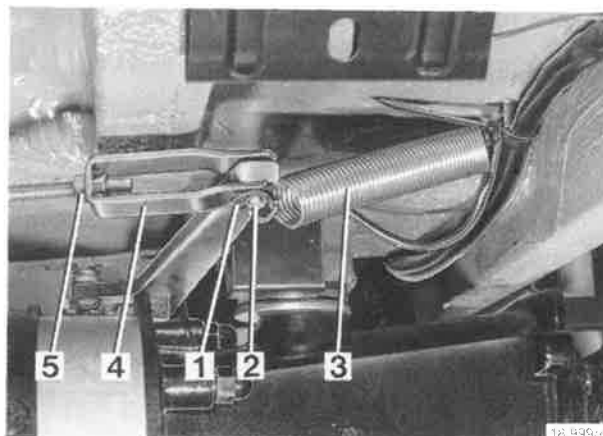


Fig. 3

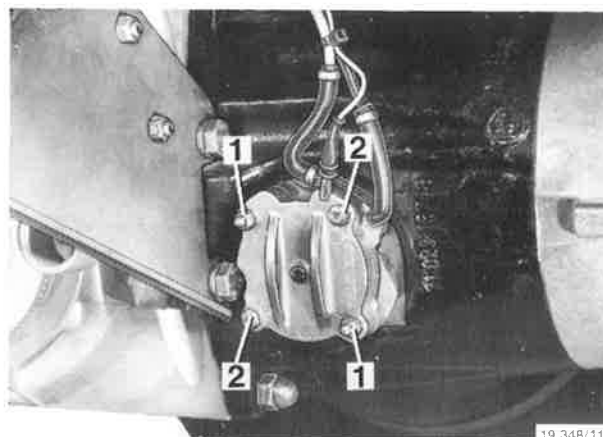


Fig. 4



- 7 Detach pneumatic gearshift unit and hang upwards with a piece of wire (5).

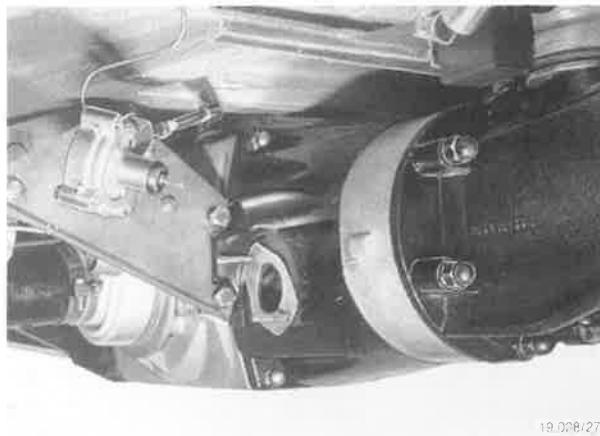


Fig. 5

- 8 Disconnect the two brake lines (6/1 and 6/2) at brake power control and seal with rubber caps (6/3) of bleeder screws.

**NOTE:** Collect leaking brake fluid with suitable basin. Seal brake lines and brake power control provisionally.

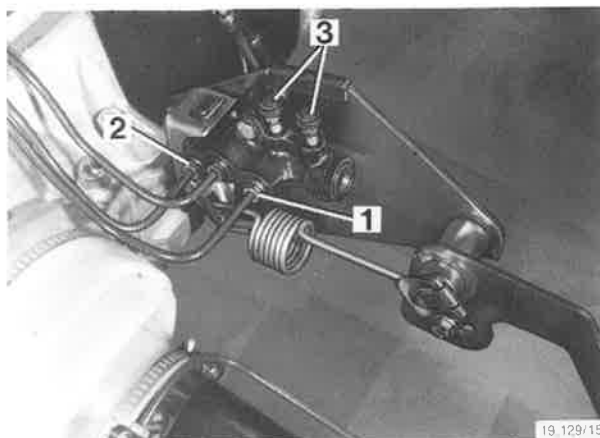


Fig. 6

- 9 Unscrew brake pipe (7/1) to first rear axle at distributor (7/2).

**NOTE:** Collect leaking brake fluid with suitable basin. Seal brake pipe and distributor provisionally.

- 10 Take brake pipe (7/3) from distributor to brake power control out of retainer (7/4).

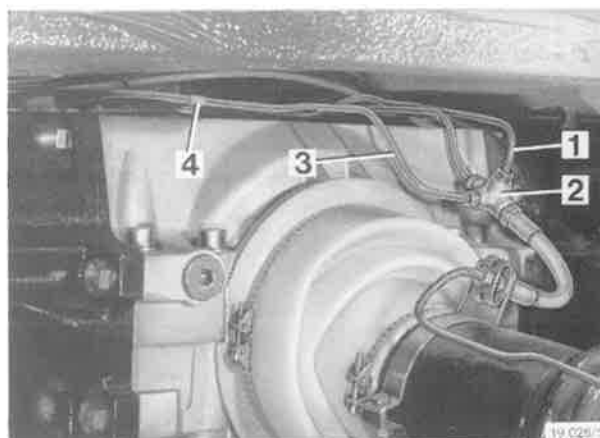


Fig. 7

- 11 Screw out spring support bolt (8) of first rear axle by approx. 15-20 mm.

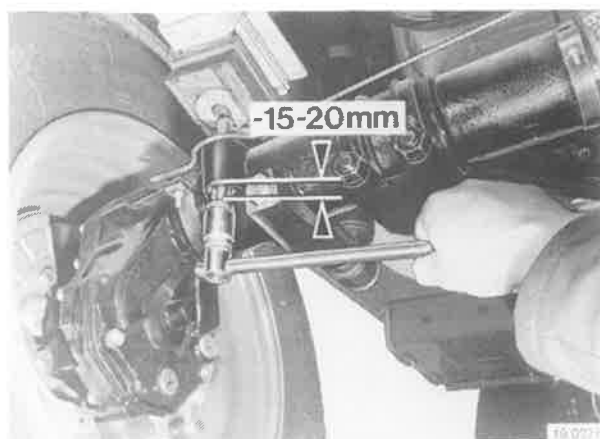


Fig. 8

- 12 Press off joint rod (9/1) with spanner size 13 from adjusting lever (9/2).
- 13 Lift half-axes of second rear axle with jack at wheel drive housing so that shock absorbers are relieved and dismount lower shock absorber fastening screw (9/3). Push together shock absorbers.

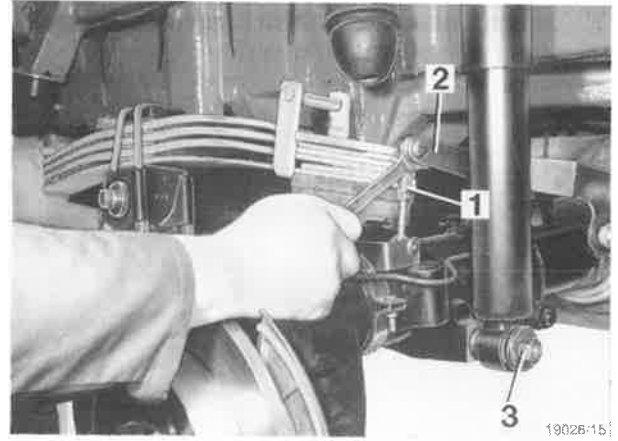


Fig. 9

- 14 Place movable jack offset backwards from axle center and support axle (10).

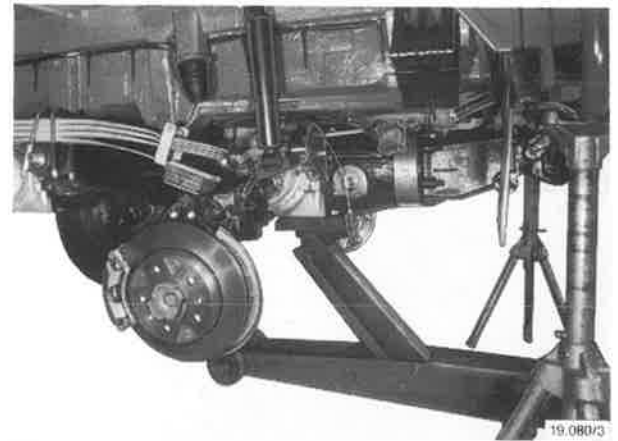


Fig. 10

- 15 Loosen body support screw (11) from towing flange. Remove nut, support shim and rubber pad.

**NOTE:** When loosening screw, back up nut (17/4) with spanner.

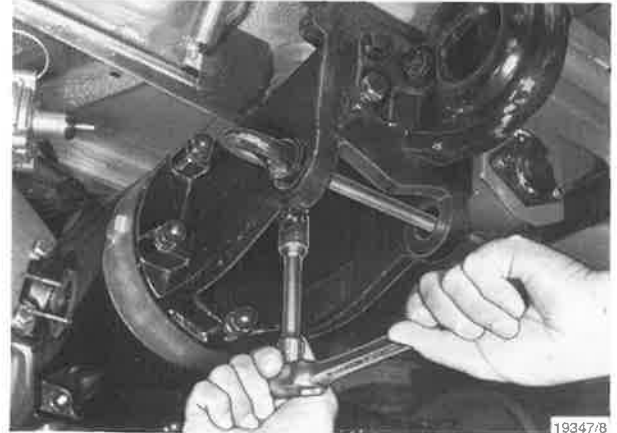


Fig. 11

- 16 Loosen body support screws at cross member of first rear axle by 6-8 turns. Screw out completely body support screws at cross member of second rear axle (12) and remove with support shim and rubber pad.

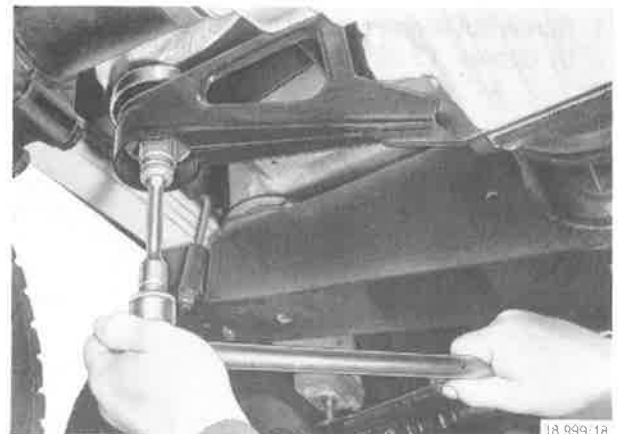


Fig. 12



- 17 Screw out hexagon screws (13/1) at short support tube and remove with special spring washers (chamfered version).
- 18 Loosen cap nuts (13/2) of anchor bolts also at short support tube. Back up rear at hand brake flange.

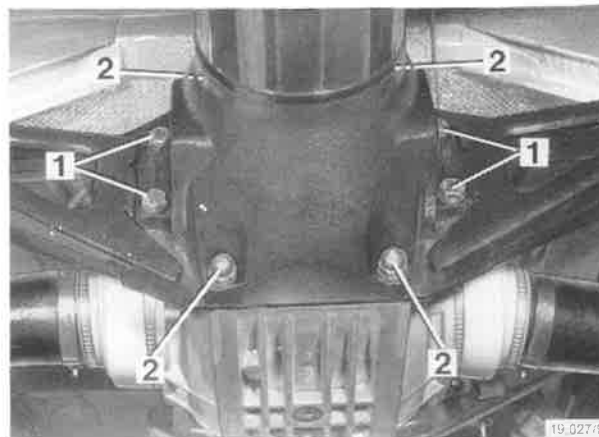


Fig. 13

- 19 Lower axle by abt. 3-5 cm and release circlip (14/1). Detach angle lever (14/3) with shim (14/2) from cut thread bolt and put angle lever down to hand brake flange facing forwards.
- 20 Pull out rear axle backwards and put down, detach support shim (14/4) and rubber pad (14/5) from towing flange.

**NOTE:** Use suitable support for putting down rear axle under the axle housing to avoid damaging of brake disk splash guards. Lift brake power control adjusting lever when axle is put down in extended position.

Fitting:

- 21 Smear toothing of coupling sleeve and of driving shaft (15/1) with Molykote-Longterm no. 2.
- 22 Smear sealing surface of support tube (15/2) or of cross member with Loctite 574

**NOTE:** Vent slots and bores (15/3) must not be clogged.

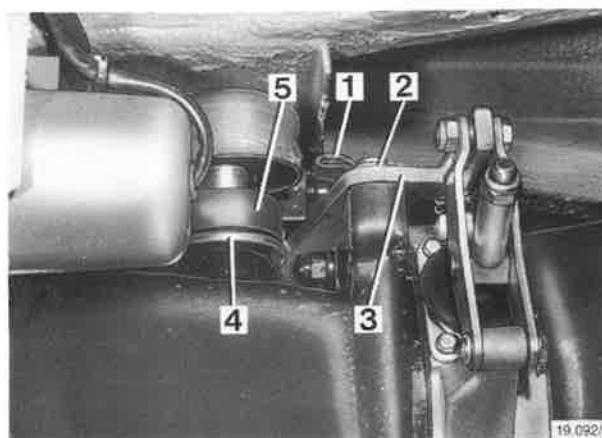


Fig. 14

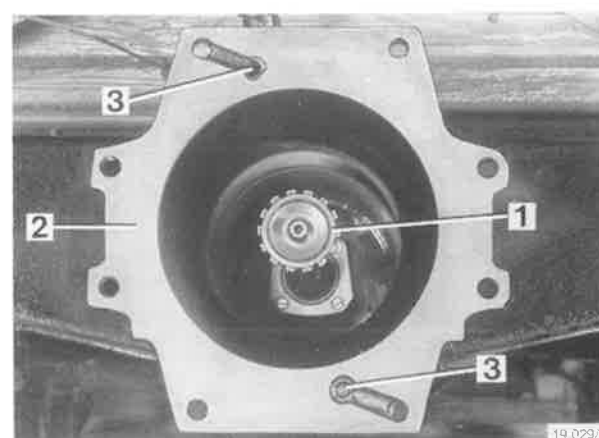


Fig. 15

- 23 Insert axle in mounting position as far that two centering screws facing each other (M 12x55) - when in same distance to axle housing - can be screwed in by hand at least 10 mm (16).



Fig. 16

24 Insert axle completely, rotate both wheels of first rear axle into one direction for meshing driving shaft into coupling sleeve. Remove centering screws.

25 Spray thread of hexagon screws and cap nuts with Loctite Anti-seize and tighten to 80 Nm (11).

**NOTE:** Fit hexagon screws with special spring washers (chamfered version).

When tightening axle take care to align axle in same level as support tube (play of screws in bores to be halved).

26 Fit angle lever (14/3).

27 Smear fastening screws of body supports with Loctite Anti-seize and mount body supports at towing flange acc. to fig. 17, at cross member acc. to fig. 18, but do not tighten yet.

**NOTE:** Fit support shims (17/3 and 18/1) only with rounded side facing rubber pad.

28 Carry out steps 1-13 in reverse sequence of mounting observing following points.

- Smear thread and shaft of lower shock absorber screw with Loctite Anti-seize and mount acc. to fig. 19. Move half-axle by lifting at wheel drive into extended position and tighten shock absorber to 200 Nm.
- Grease supporting shell in spring bearing with standard grease.

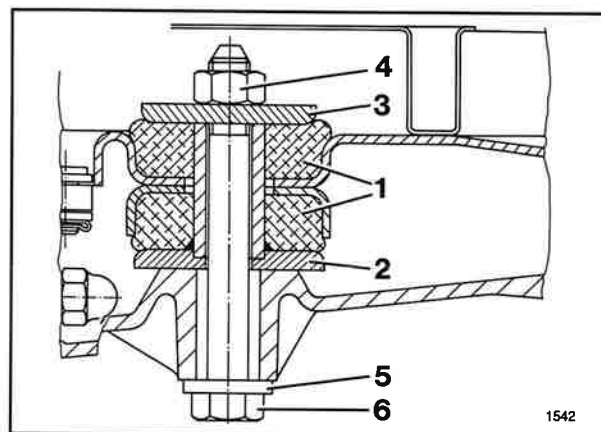


Fig. 17

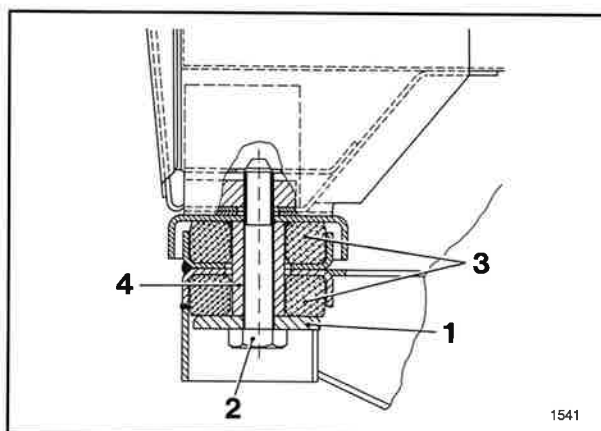


Fig. 18

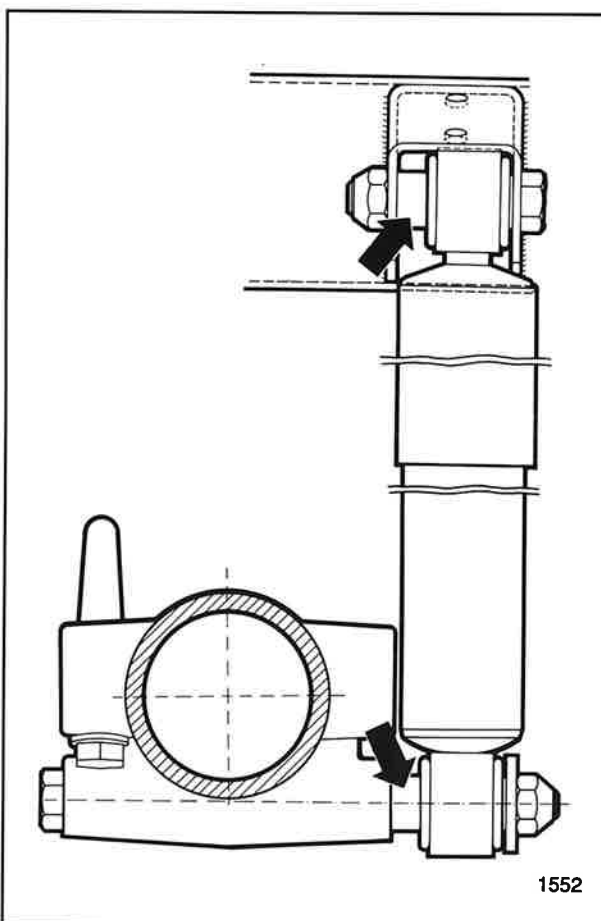


Fig. 19

- Spray thread of spring support bolts with Loctite Anti-seize and tighten with 200 Nm.
- Check stop position of V-ring (20/1) facing bush (20/2) in axle journal. Check diaphragm (20/3) and clamping sleeve (20/4) for intact state and correct seat. Centrally mount pneumatic gearshift assembly with new gasket having been smeared on both sides with surface sealant Loctite 574; use existing space for stud bolts (20/5) in a way that diaphragm (20/3) is in even position inside the bush (20/2) in axle journal.
- Tighten brake pipes with torque spanner special tool pos. no. 001 589 75 21 00 and open-ring socket spanner size 11 special tool pos. no 000 589 75 03 00 to 15 Nm.
- Twist brake cable before hooking in into angle lever by 3-4 turns in same winding direction (21).
- Check adjustment of parking brake, adjust if necessary, see group 130
- Bleed brake unit see group 130
- Check brake power control adjustment, adjust if necessary, see group 130
- Put vehicle on wheels and tighten fastening screws of body supports axlewise, starting from first rear axle, to 250 Nm. Back up nut (17/4).
- Tighten wheels to 200 Nm.
- Check oil level in axle housing (22) and in wheel drives (23) and top up to max. level resp. when vehicle is in horizontal position. (Oil filler plug 22/1 and 23/1 resp., level adjustment screw 22/2). Observe different specification of operating materials!  
Top up to overflow level.

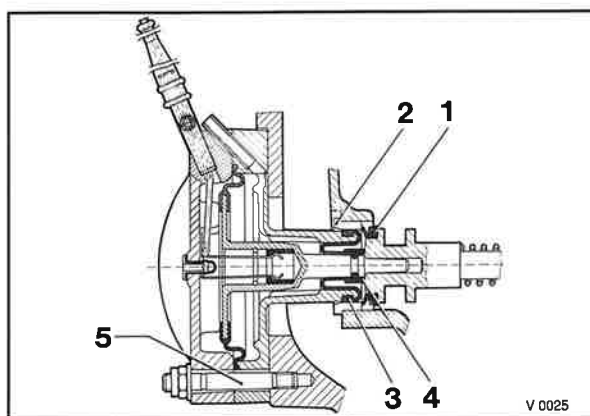


Fig. 20

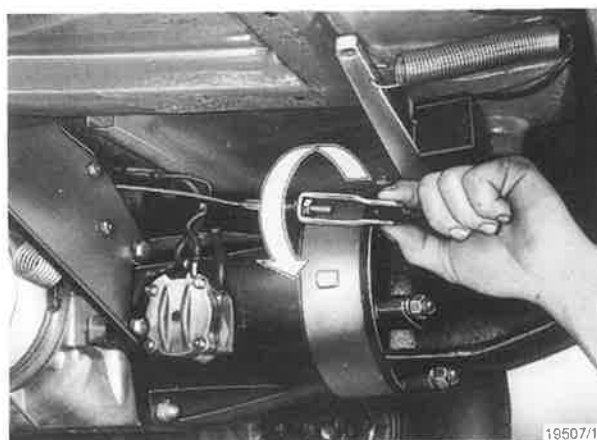


Fig. 21

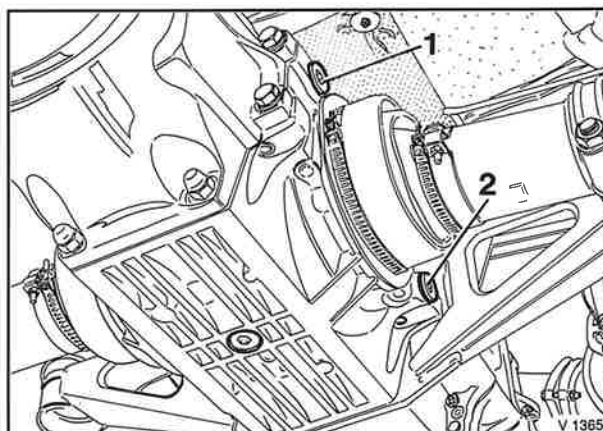


Fig. 22

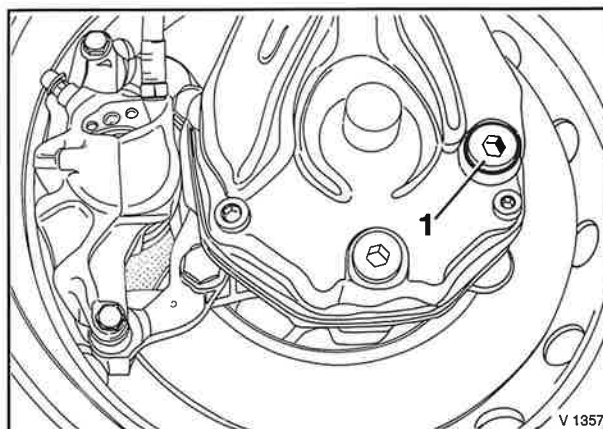


Fig. 23

## 2 Works at dismantled rear axle

### 2.1 Strip/assemble rear axle model 716

Includes:

Changing, removing and fitting rear axle model 716  
see section 1.12

Stripping/assembling axle drive see group 090/section  
2.1

Stripping/assembling wheel drives see section 2.5

Tools:

open end socket spanner size 19	905.0.15.003.1
mounting carriage	905.3.31.001.0
hook	905.3.31.104.1
axle mounting trestle	905.3.31.403.0
press-off device	905.3.33.404.2
press-off device for tube shaft	905.3.33.408.0
cleaning device for axle ball head/wheel drive housing	905.3.38.301.0
open-ring socket spanner size 11	000 589 75 03 00
torque spanner 3/8"	001 589 75 21 00
4-20 Nm	
torque spanner 1/2"	001 589 66 21 00
25-130 Nm	
torque spanner 3/4"	
75-400 Nm	standard

Stripping:

- 1 Replace screw plug in axle housing upper part by eye screw (1/1) pos. no. 710.1.32.386.1. Hook in hook (1/2) special tool pos. no. 905.3.31.104.1 into eye screw and insert axle with crane into mounting carriage special tool pos. no. 905.3.31.001.0 or axle mounting trestle special tool pos. no. 905.3.31.403.0 resp (1). Clamp axle into extended position and lift to working level.

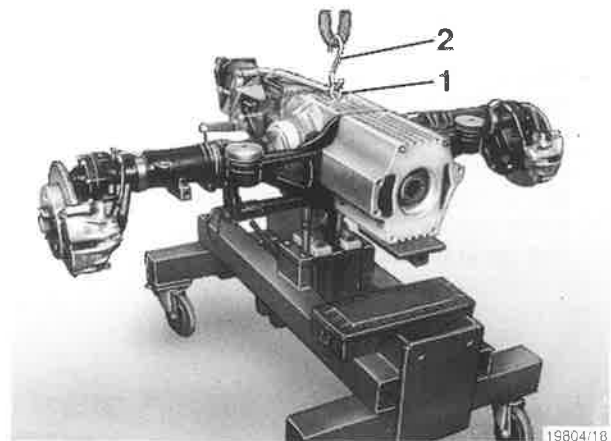


Fig. 1

- 2 Pull out anchor bolts (2/1) and unscrew distance piece (2/2). Remove cross member (2/3) with support shim (2/4) and rubber pad (2/5).

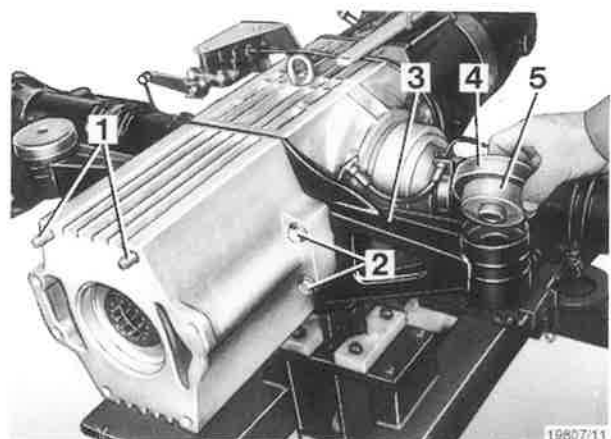


Fig. 2

- 3 Mark position of brake hose retainer on right (3/1) and left (29/1) half-axle. Dismount fastening screws (3/2 and 29/2) of hose retainers. Unscrew right (3/3) and left (29/3) brake pipe at brake hose retainer (3/4 and 29/4) from wheel drive housing. Detach brake pipes. Do not lose retaining springs (3/5 and 29/5). Seal pipes and brake hoses to calipers provisionally. Widen inner brake hose retainer and remove.

**NOTE:** Screw off brake hose retainer at wheel drive housing only when completely changing wheel drive housing or wheel drive.

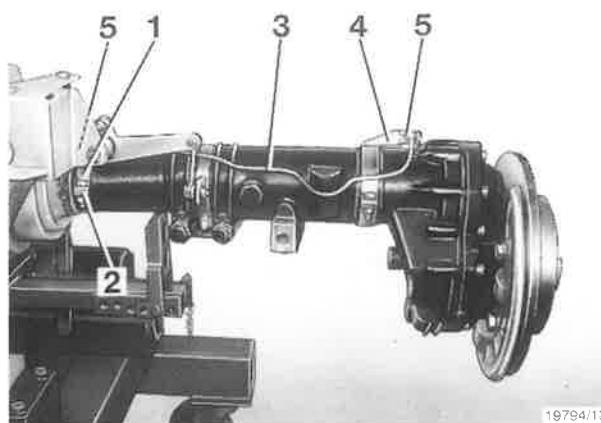


Fig. 3

- 4 Loosen cap nuts (5 units) for towing flange fastening (4) and remove with special spring washers (chamfered version). Pull off towing flange from stud bolt.

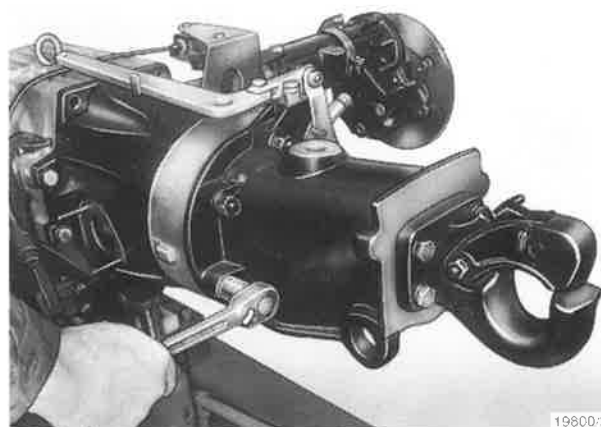


Fig. 4

- 5 Detach rear brake lining pad (5/1) and brake housing (5/2).

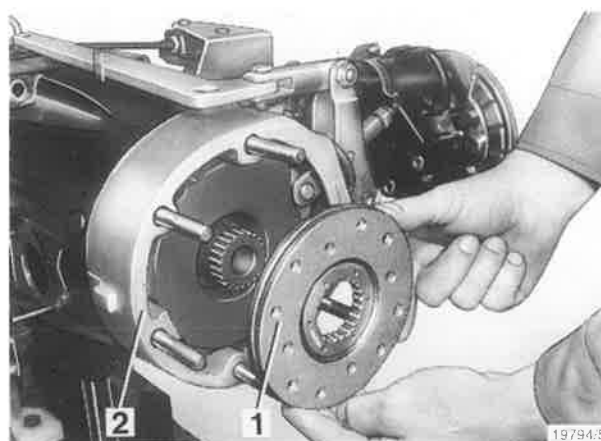


Fig. 5

- 6 Detach front brake lining pad (6/1) from brake shaft. Press off joint rod (6/2) from ball head at retainer (6/3) and dismount retainer. Loosen hexagon screws (6/4) right and left and remove with special spring washers (chamfered version) as well as bracket to level control switch (6/5) and distance shims (25).

- 7 Loosen hand brake flange (6/6) with plastic hammer and detach.

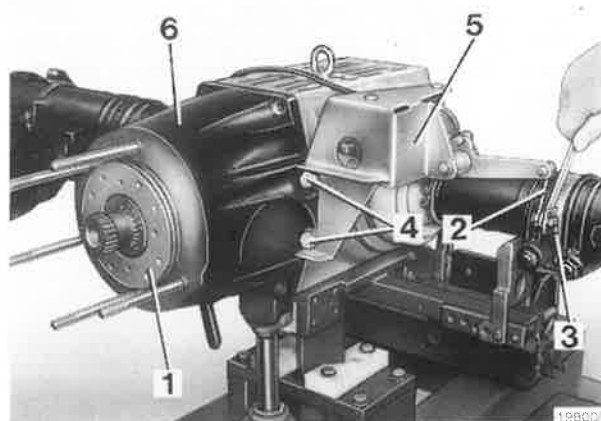


Fig. 6

- 8 Place oil catch pan under axle journal. Loosen cheese head screws (7) and remove with washers. Loosen axle journal by slight taps with plastic hammer and remove from differential shaft.

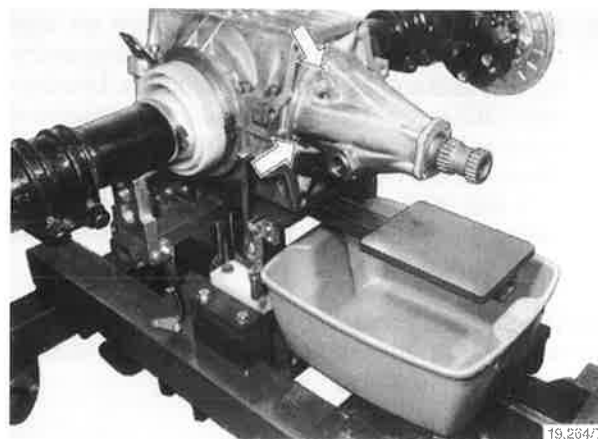


Fig. 7

- 9 Loosen anti-fatigue screws (8/1) and centering bolts (8/2) of both half-axes.

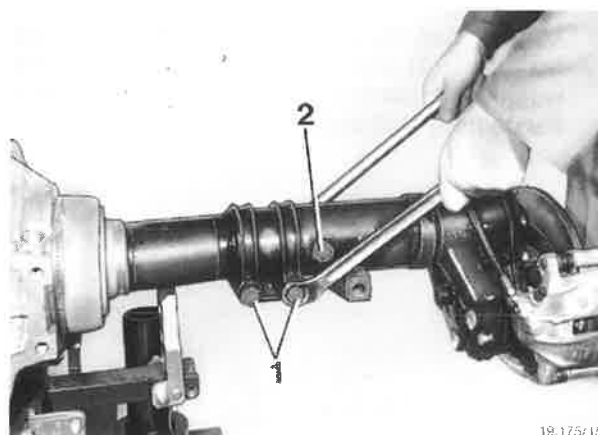


Fig. 8

- 10 Drive in wedge (9) of press-off device special tool pos. no. 905.3.33.404.2 in anti-fatigue screws area until stop in wheel drive housing. Screw on device when axle is in extended position and press off wheel drive. Detach O-ring (16). Carry out step at both half-axes.

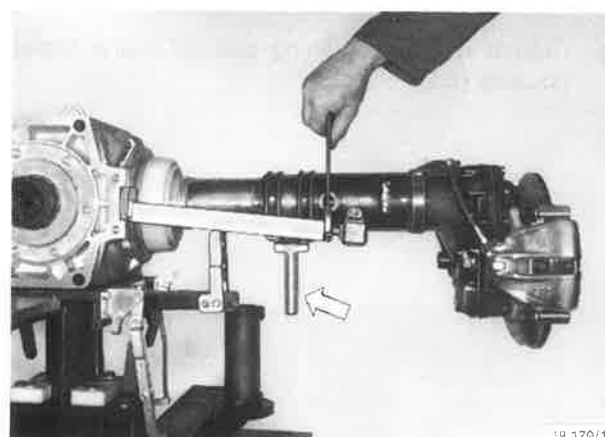


Fig. 9

- 11 Release circlip. Insert press-off device (10/1) special tool pos. no. 905.3.33.408.0 into tube shaft. Reattach circlip (10/2) and press off tube shaft.

**NOTE:** Tube shaft has been joined with Loctite. If dismantling is hard to make, heat up connection toothing area to approx. 110°C.

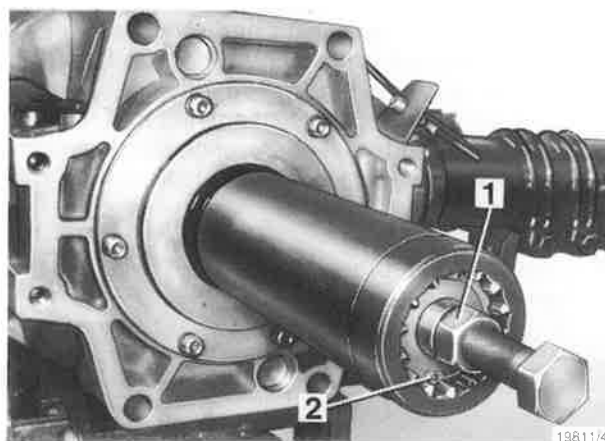


Fig. 10

- 12 Remove centering ring (11).
- 13 Strip wheel drive see section 2.5/1-7
- 14 Strip axle drive see group 090/section 2.1/1-10

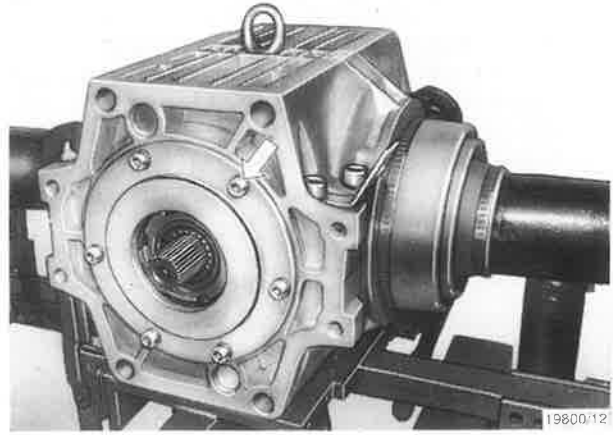


Fig. 11

## 15 Checking:

- Replace oiled brake lining pads and renew rotary shaft seal ring in axle journal cover see group 090/section 2.4.3
- Check splineshaft profile of brake lining pads, replace brake lining pads if necessary.
- Check lining thickness, min. thickness = 0.5 mm above rivet heads
- Check brake disk springs for sufficient pretension, replace if necessary see group 130
- Check brake flange for traces of wear and scoring, replace if necessary.
- Check towing flange for traces of wear and scoring, replace if necessary.

## Assembling:

- 16 Assemble axle drive see group 090/section 2.1/11-27.
- 17 Assemble wheel drives see section 2.5/8-14.

- 18 Remove Loctite residues from bright metallic half-axle ends using coated abrasives (12).

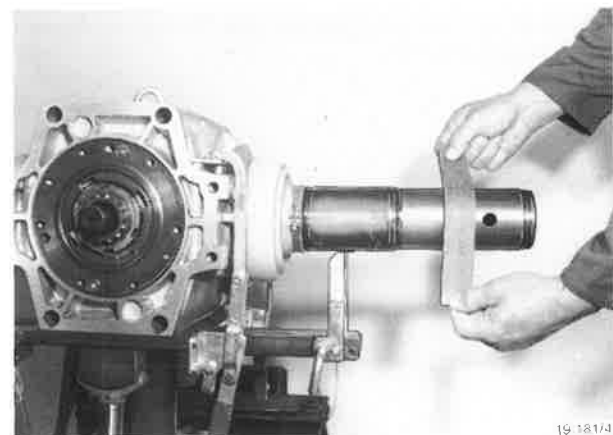
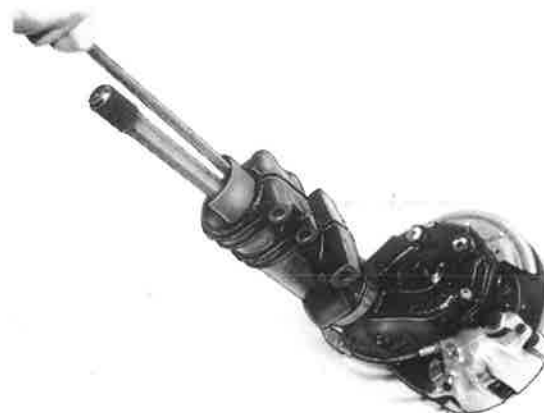


Fig. 12

- 19 Cover right wheel drive housing - thread for spring support bolt (18) facing forwards - inside with a clean rag. Attach coated abrasives into cleaning device special tool pos. no. 905.3.38.301.0 and remove Loctite residues from wheel drive housing inner side (13). Remove rag again and degrease cleaned surface.

**NOTE:** Depth to clean or surface to degrease resp. in wheel drive housing = length of bright metallic half-axle ends.

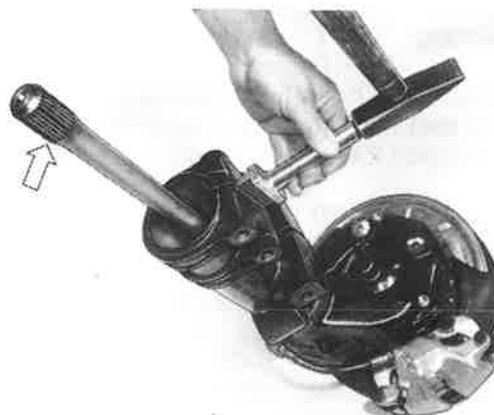


19,181/11

Fig. 13

- 20 Key up cleaned and degreased wheel drive housing in area of anti-fatigue screw bores with wedge of press-off device special tool pos. no. 905.3.33.404.2 (14). Smear connection toothing of rear axle shaft with Molykote-Longterm no. 2.

**NOTE:** Check connection toothing before greasing for wear.

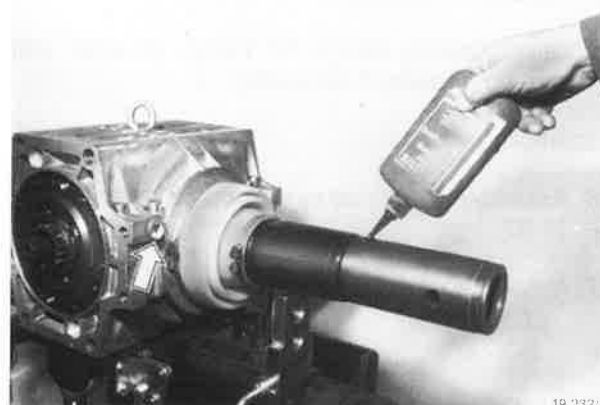


19,181/18

Fig. 14

- 21 Smear right half-axle bright end with Loctite 270 (15).

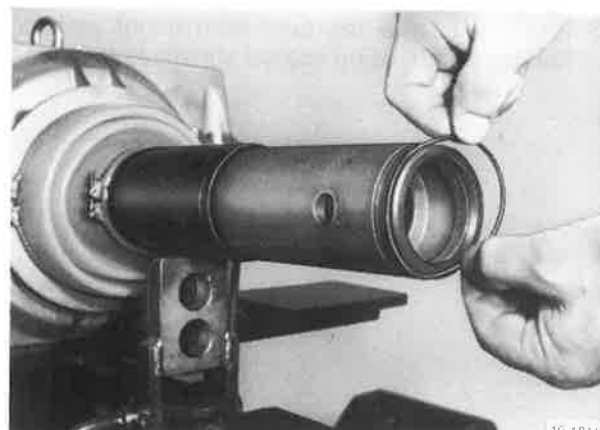
**NOTE:** Right half-axle is situated at the side of oil filler and oil level plugs.



19,232/5

Fig. 15

- 22 Oil or grease moderately new O-ring and insert into groove (16).



19,181/6

Fig. 16



- 23 Slip on right wheel drive - thread for spring support bolt (17/1) facing forwards - as far as possible. If necessary, add some strong hammer blows until centering bolt can be screwed in easily. Insert anti-fatigue screws with thread pointing backwards and screw on nuts.

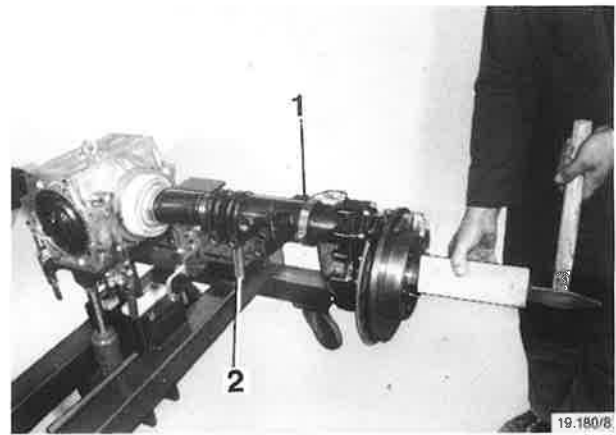


Fig. 17

**NOTE:** After applying Loctite to half-axle mount immediately wheel drive. Before mounting apply Loctite Anti-seize to centering bolt as well as to collar and thread of anti-fatigue screws. Do not remove wedge (17/2) before centering bolt is screwed in totally. Original wheel drive housings (18/A) have been provided only with one thread for spring support bolt and must be assigned to the respective half-axle. Replacement-wheel drive housings (18/B) have been provided with thread for spring support bolts on both sides of axle tube and therefore can be connected with the half-axle both right and left for actuation.



Fig. 18

- 24 Tighten centering bolt (19/1) first and then both anti-fatigue screws (19/2) to 250 Nm.
- 25 Fit left wheel drive analogously as described in steps 19-24.
- 26 Remove Loctite residues from connection toothing of compensation shaft (20/1) and of tube shaft (30) and degrease. Tube shaft must easily be shifted on until stop.

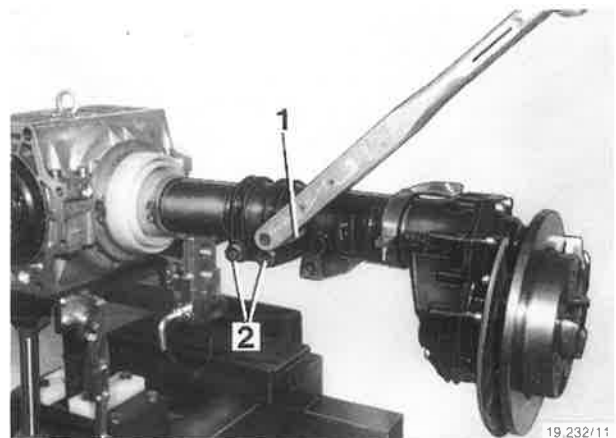


Fig. 19

**NOTE:** Fit centering ring (20/3) as well as tube shaft (30) at the axle front side to pinion without connection toothing.

- 27 Put on new O-ring (20/2) and smear O-ring and centering ring sealing surface (20/3) with surface sealant Loctite 574. Insert centering ring carefully as otherwise O-ring might slip away. Tighten cheese head screws with washers crosswise.

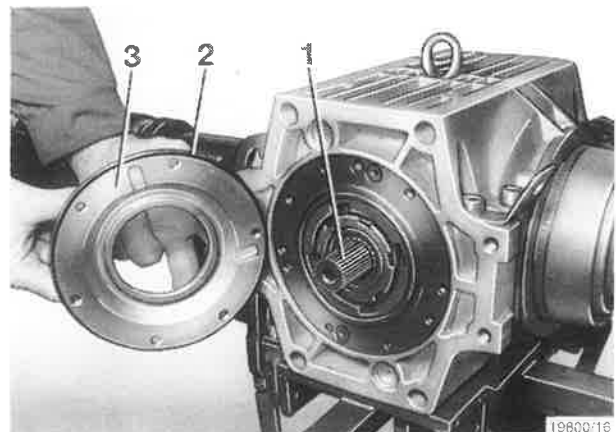


Fig. 20

- 28 Oil or grease new O-ring and insert into groove at centering ring (21).

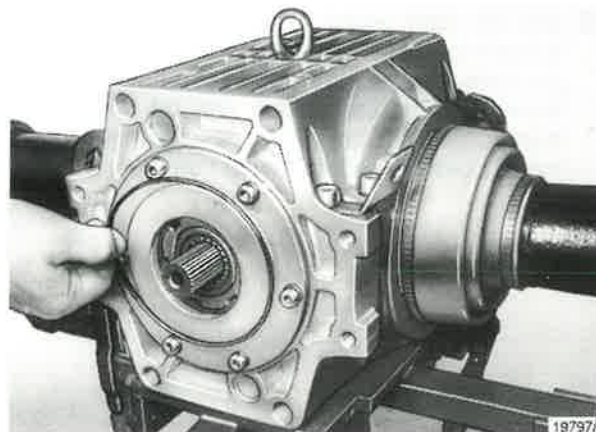


Fig. 21

- 29 Put on new O-ring at axle journal (22). Smear O-ring and sealing surface with surface sealant Loctite 574. Smear connection toothing moderately with Molykote-Longterm no. 2.



Fig. 22

- 30 Slip on axle journal as far onto differential shaft that there remains a small gap between axle journal and axle drive. Insert two cheese head screws facing each other with washers for centering and screw on axle journal with them (23). Fit rest of cheese head screws with washers. Tighten evenly all screws crosswise.

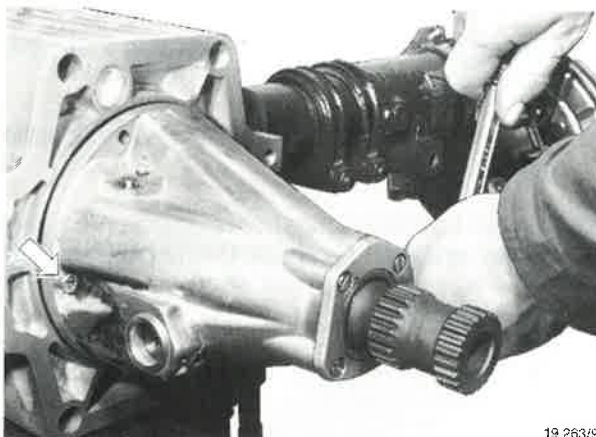


Fig. 23

- 31 Smear sealing surface of hand brake flange (24/1) with surface sealant Loctite 574 and put on.

**NOTE:** Vent slots and bores (24/2) must not be clogged.

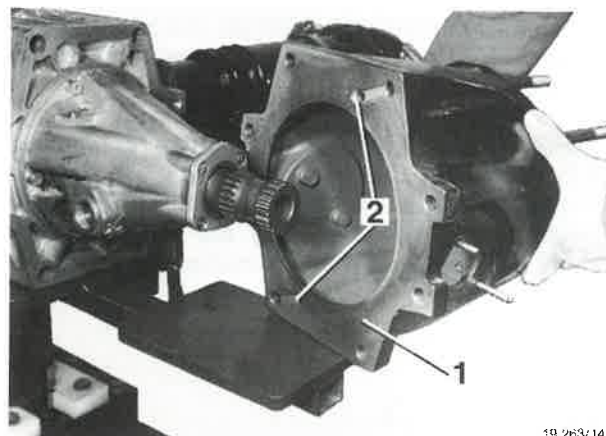


Fig. 24

- 32 Fix distance shims (25) with grease enabling plane fit of bracket for level control switch.

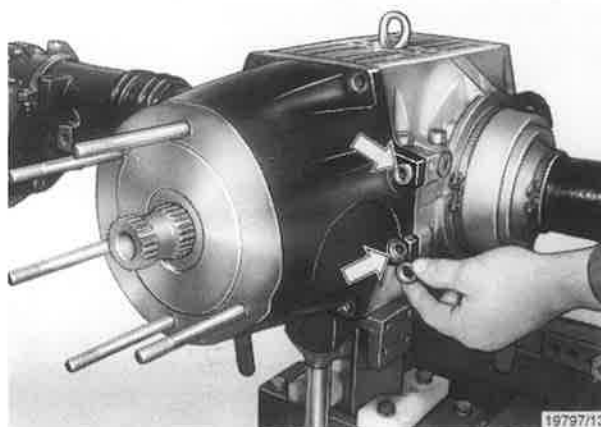


Fig. 25

- 33 Smear thread of four hexagon screws for fastening hand brake flange with Loctite Anti-seize and tighten to 80 Nm (26/1).

**NOTE:** With hexagon screws situated right screw on bracket (26/2) for level control switch. Press bracket inwards for this purpose.

- 34 Fit retainer (26/3). When tightening screw press ball head downwards.

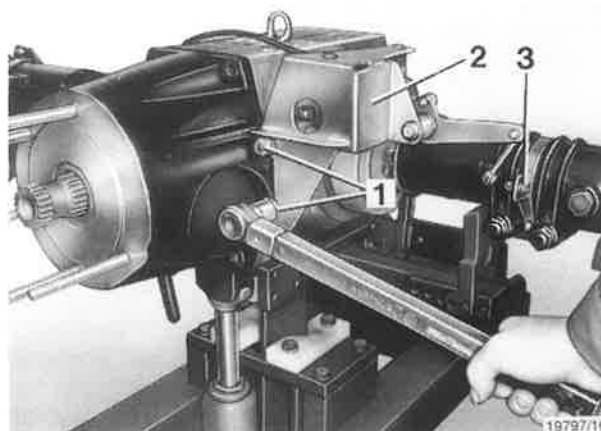


Fig. 26

- 35 Slip front brake lining pad (27/1) onto brake shaft. Smear sealing surfaces on both sides with surface sealant Loctite 574 and slip on until stop. Insert rear brake lining pad (5/1).

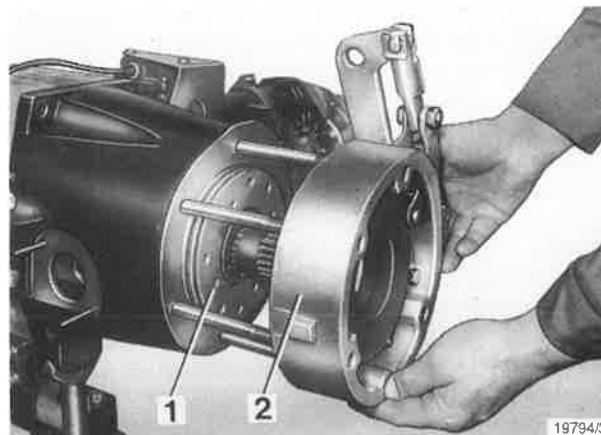


Fig. 27

- 36 Fit towing flange. For this purpose smear thread of stud bolts or of cap nuts with Loctite Anti-seize and tighten cap nuts with torque spanner special tool pos. no. 001 589 66 21 00 and open end socket spanner size 19 special tool pos. no. 905.0.15.003.1 to 80 Nm.

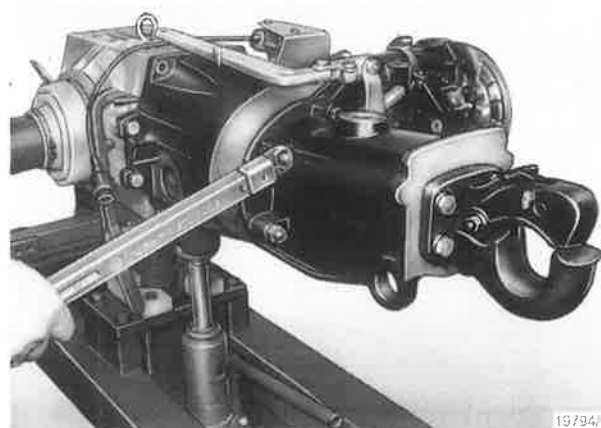


Fig. 28

- 37 Fit brake pipes acc. to fig. 29 and 3. Lead inner brake hose retainer (29/1 and 3/1) right to cylindrical neck of collar and to marking made during dismantling (with the aim that brake hose remains tension-free also in case of swinging out axle). Insert fastening screws from above. Tighten brake pipes with open-ring socket spanner size 11 special tool pos. no. 000 589 75 03 00 and torque spanner special tool pos. no. 001 589 75 21 00 to 15 Nm. Observe brake hoses not getting twisted.

- 38 Smear connection toothing of tube shaft (30) with Loctite 270 and slip tube shaft onto differential shaft until stop. Remove excess Loctite.

**NOTE:** Fit axle as quick as possible as long as Loctite compound has hand firm consistency or has not yet hardened and consequently there is an aligning connection from tube shaft to auxiliary gearbox.

hand firmness 15-30 min.  
final firmness abt. 12 hrs.

- 39 Smear sealing surfaces of axle drive and distance piece - side facing axle drive or cross member resp. - with surface sealant Loctite 574. Put cross member (31/3) onto centering ring. Fasten distance piece provisionally with two hexagon screws (31/2) (tighten screws with torque spanner not before axle has been mounted). Put on rubber pad (31/5) and bearing cover (31/4) on both sides. Insert anchor bolts (31/1).

**NOTE:** Center-offset platform supports (bearing cover with rubber pad) of cross member (32/2) must point forwards seen in driving direction.

- 40 Lift axle with crane from mounting trestle. Replace eye screw (1/1) by screw plug.

**NOTE:** When half-axes hanging downwards check brake hoses (29/6) between axle housing and half-axes for stress-free condition. Make oil filling of axle drive and also oil level check in wheel drives resp. when axle is mounted and in horizontal position. Observe different specifications of operating materials.

Top up to overflow level.

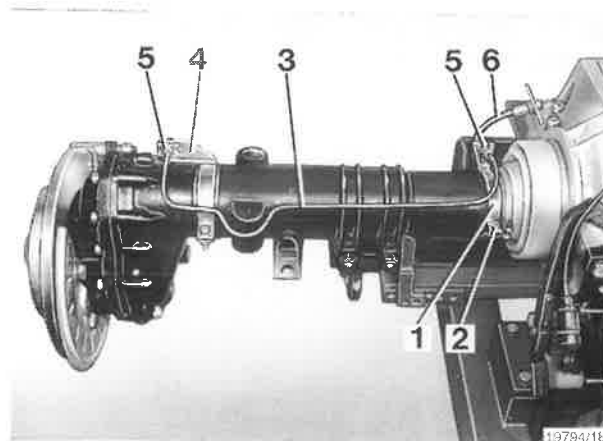


Fig. 29



Fig. 30

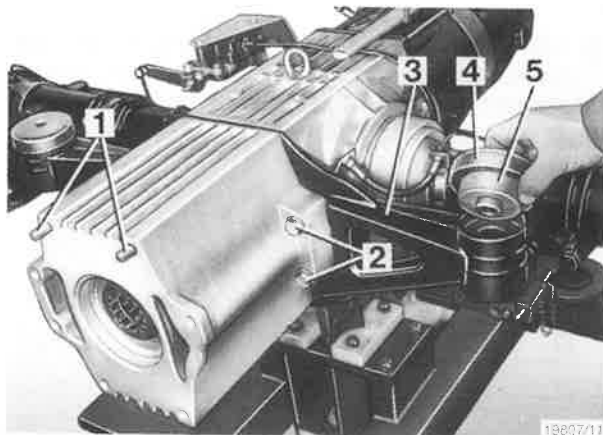


Fig. 31

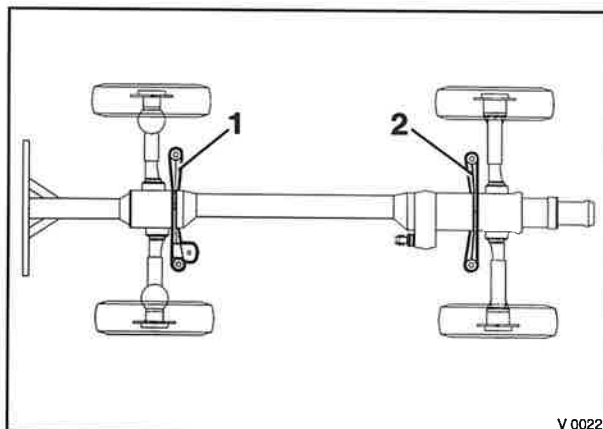


Fig. 32

## 2.2 Strip/assemble first rear axle model 718

Includes:

Changing, removing and fitting first rear axle model 718, see section 1.13

Stripping/assembling axle drive, see group 090/section 2.4

Stripping/assembling wheel drives, see section 2.5

Tools:

mounting carriage	905.3.31.001.0
hook	905.3.31.104.1
axle mounting trestle	905.3.31.403.0
press-off device	905.3.33.404.2
distance piece	905.3.34.301.1
cleaning device for axle ball	
head/ wheel drive housing	905.3.38.301.0
steering drop arm puller	
Kukko 204-2	905.0.14.019.0
open-ring socket spanner	
size 11	000 589 75 03 00
torque spanner 3/8"	
4-20 Nm	001 589 75 21 00
torque spanner 3/4"	
75-400 Nm	standard

Stripping:

- 1 Drain oil of axle drive.
- 2 Replace screw plug in axle housing upper part by eye screw pos. no. 710.1.32.386.1. Hook in hook special tool pos. no. 905.3.31.104.1 into eye screw and insert axle with crane into mounting carriage special tool pos. no. 905.3.31.001.0 or axle mounting trestle special tool pos. no. 905.3.31.403.0 resp (1). Clamp axle into extended position and lift to working level.
- 3 Unscrew brake pipe distributor (2) from cross member.
- 4 Loosen fastening screw (3/1). Remove distance piece (3/3) and cross member (3/4) with body support (3/2).
- 5 Mark position of brake hose retainer on right (4/1) and left (23/1) half-axle. Dismount fastening screws (4/2 and 23/2) of hose retainers. Unscrew right (4/3) and left (23/3) brake pipe at brake hose retainer (4/4 and 23/4) from wheel drive housing. Detach brake pipes together with inner brake pipe retainers. Do not lose retaining springs (4/5 and 23/5). Seal brake hoses to calipers provisionally.

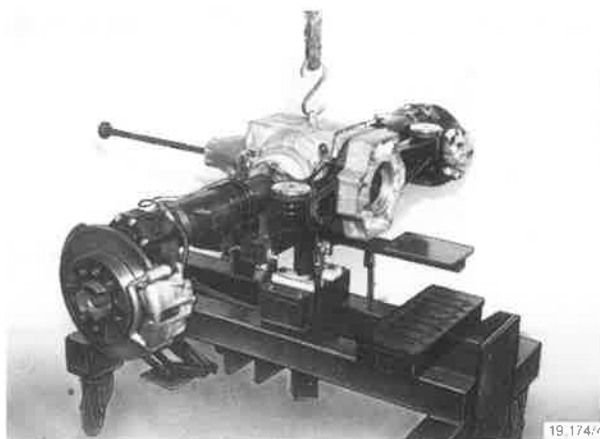


Fig. 1



Fig. 2

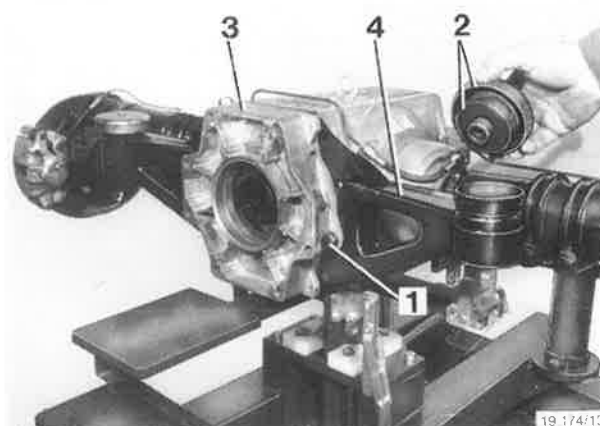


Fig. 3

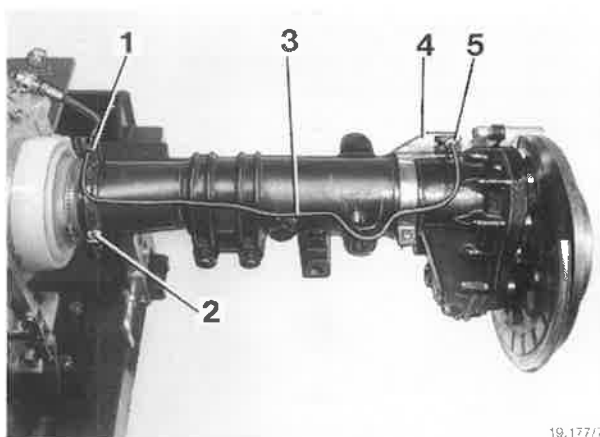


Fig. 4

**NOTE:** Screw off brake hose retainer at wheel drive housing only when completely changing wheel drive housing or wheel drive.

- 6 Place oil catch pan under axle journal. Loosen cheese head screws (5) and remove with washers. Loosen axle journal by slight taps with plastic hammer and remove from differential shaft.

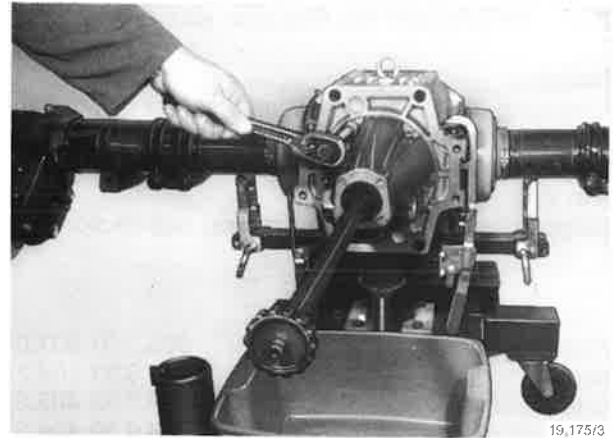


Fig. 5

- 7 Loosen anti-fatigue screws (6/1) and centering bolts (6/2) of both half-axes.

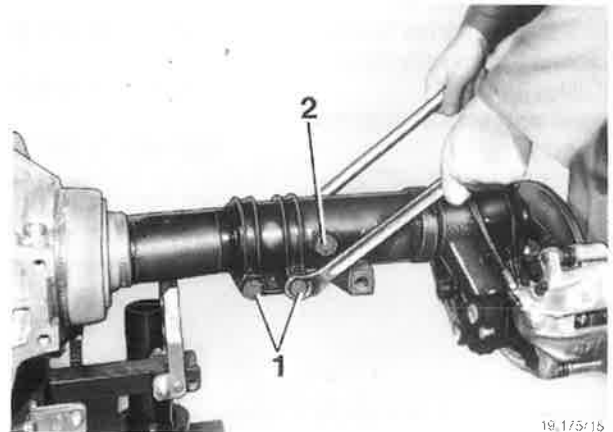


Fig. 6

- 8 Drive in wedge (7) of press-off device special tool pos. no. 905.3.33.404.2 in anti-fatigue screws area until stop in wheel drive housing. Screw on device when axle is in extended position and press off wheel drive. Detach O-ring (16). Carry out step at both half-axes.

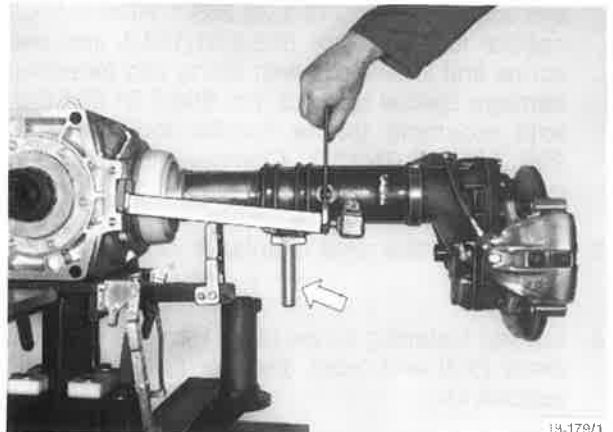


Fig. 7

- 9 Insert distance piece (8/1) special tool pos. no. 905.3.34.301.1 at compensator shaft, place steering drop arm puller (8/2) Kukko 204-2 special tool pos. no. 905.0.14.019.0 centrally, back up with quick collet (8/3) and pull off coupling sleeve (8/4).

**NOTE:** Coupling sleeve is stuck on with Loctite. If parts are hard to disconnect heat up coupling sleeve to 110°C.

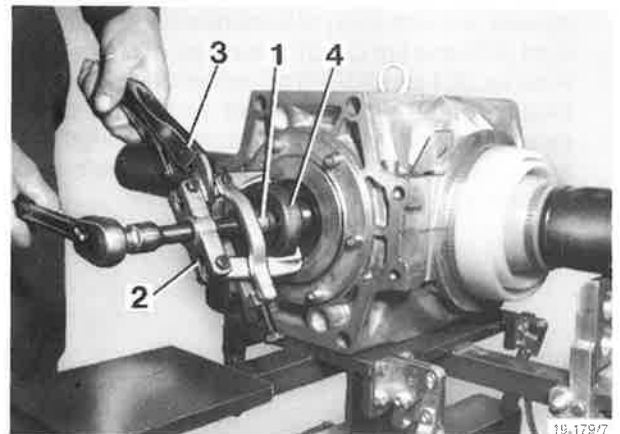


Fig. 8



- 10 Remove centering ring (9).
- 11 Strip wheel drives see section 2.5/1-7
- 12 Strip axle drive see group 090/section 2.1/1-10

## Assembling:

- 13 Assemble axle drive see group 090/section 2.1/11-27.
- 14 Assemble wheel drives see section 2.5/8-14.

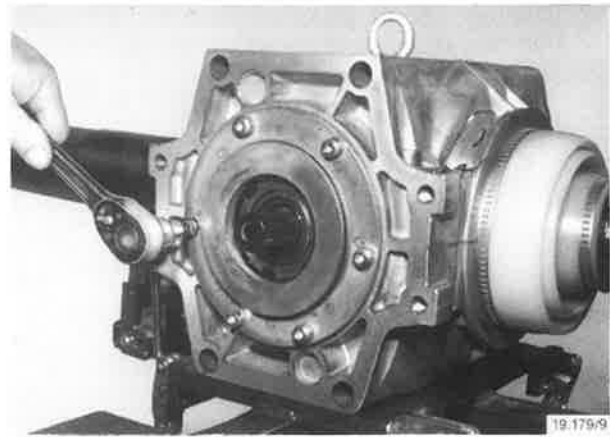


Fig. 9

- 15 Put on new O-ring (10) and smear O-ring as well as sealing surface of centering ring with surface sealant Loctite 574. Mount centering ring. Tighten evenly cheese head screws crosswise.

**NOTE:** Fit centering ring at axle front side - pinion without connection toothing.



Fig. 10

- 16 Remove Loctite residues from connection toothing of compensator shaft (11/1) and coupling sleeve (11/2) and degrease. Coupling sleeve must easily be shifted on until stop. Smear both connection toothings with Loctite 641 and slip on coupling sleeve until stop. Remove excess Loctite.

**NOTE:** Do not change position of coupling sleeve after mounting. Observe hardening period of Loctite compound before further assembling.  
Hand firmness 10-30 min.  
Final firmness abt. 12 hrs.

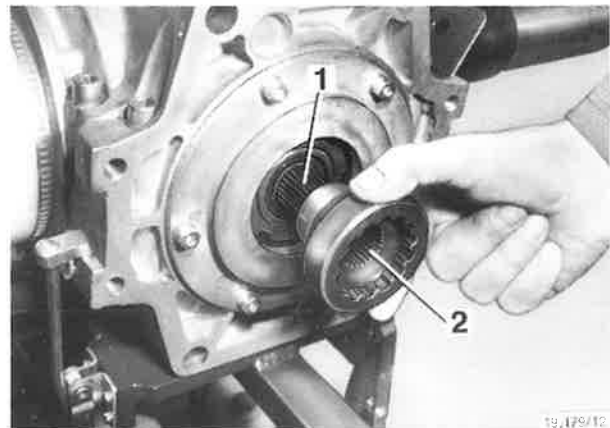


Fig. 11

- 17 Change outer O-ring (12) and insert with standard grease into centering ring groove.

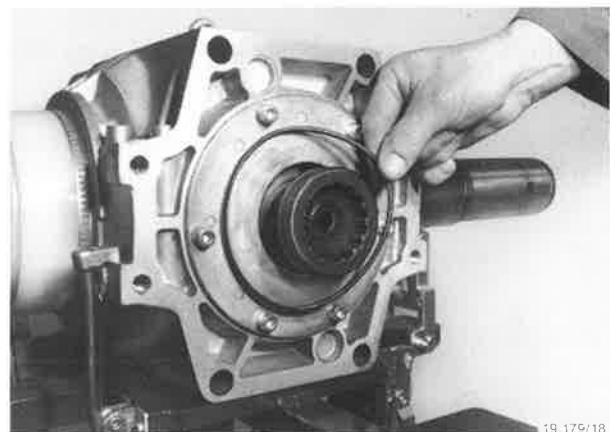


Fig. 12



- 18 Remove Loctite residues from bright metallic half-axle ends using coated abrasives (13).

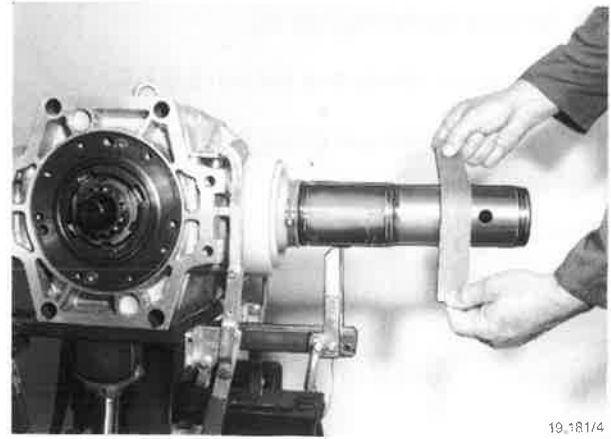


Fig. 13

- 19 Cover right wheel drive housing - thread for spring support bolt (18/1) facing backwards - inside with a clean rag. Attach coated abrasives into cleaning device special tool pos. no. 905.3.38.301.0 and remove Loctite residues from wheel drive housing inner side (14). Remove rag again and degrease cleaned surface.

**NOTE:** Depth to clean or surface to degrease resp. in wheel drive housing = length of bright metallic half-axle ends.



Fig. 14

- 20 Key up cleaned and degreased wheel drive housing in area of anti-fatigue screw bores with wedge of press-off device special tool pos. no. 905.3.33.404.2 (15). Smear connection toothing of rear axle shaft with Molykote-Longterm no. 2.

**NOTE:** Check connection toothing before greasing for wear.

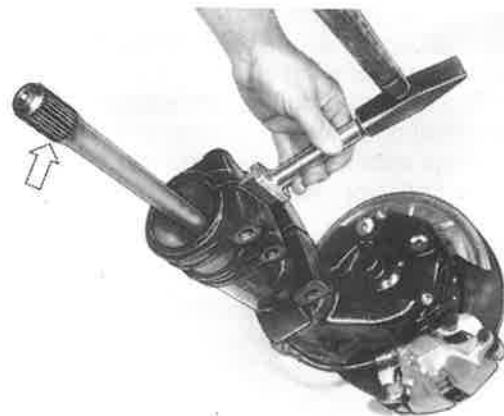


Fig. 15

- 21 Smear right half-axle bright end with Loctite 270 (16).

**NOTE:** Right half-axle is situated at the side of oil filler and oil level plugs.

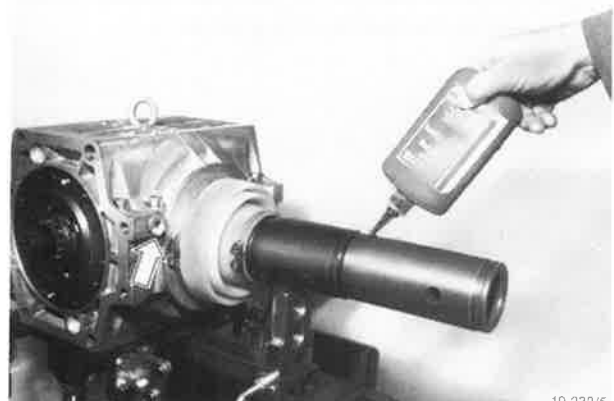


Fig. 16

- 22 Oil or grease moderately new O-ring and insert into groove (17).

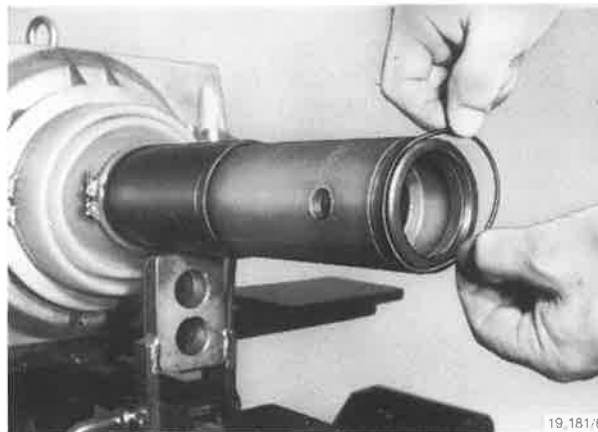


Fig. 17

- 23 Slip on right wheel drive - thread for spring support bolt (18/1) facing backwards - as far as possible. If necessary, add some strong hammer blows until centering bolt can be screwed in easily.  
Insert anti-fatigue screws with thread pointing backwards and screw on nuts.

**NOTE:** After applying Loctite to half-axle mount immediately wheel drive. Before mounting apply Loctite Anti-seize to centering bolt as well as to collar and thread of ant-fatigue screws. Do not remove wedge (18/2) before centering bolt is screwed in totally.

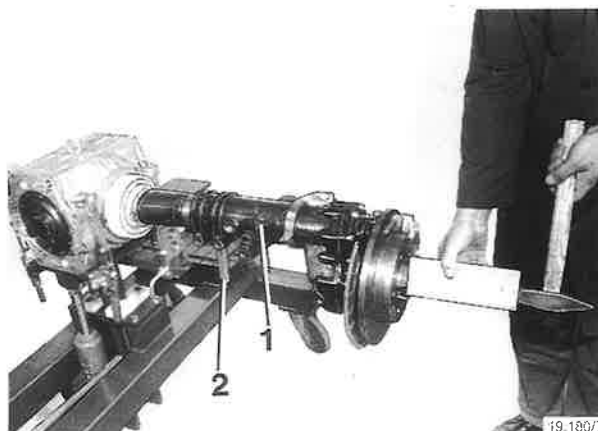


Fig. 18

Original wheel drive housings (19/A) have been provided only with one thread for spring support bolt and must be assigned to the respective half-axle. Replacement-wheel drive housings (19/B) have been provided with thread for spring support bolts on both sides of axle tube and therefore can be connected with the half-axle both right and left for actuation.



Fig. 19

- 24 Tighten centering bolt (20/1) first and then both anti-fatigue screws (20/2) to 250 Nm.
- 25 Fit left wheel drive analogously as discribed in steps 19-24.

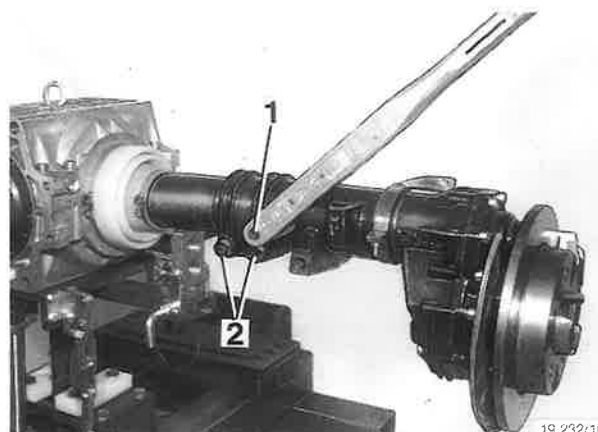


Fig. 20

- 26 Put on new O-ring at axle journal (21). Smear O-ring and sealing surface with surface sealant Loctite 574. Smear connection toothing moderately with Molykote-Longterm no. 2.

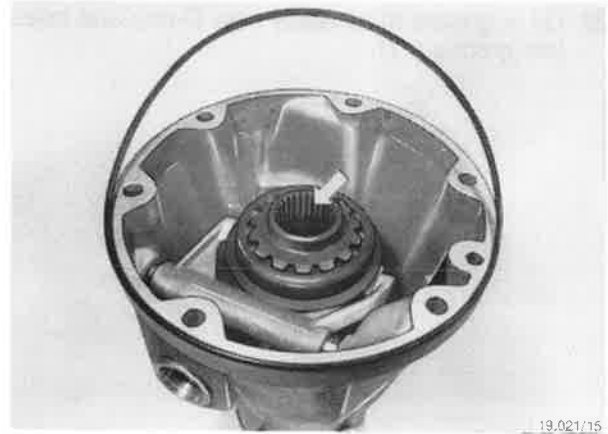


Fig. 21

- 27 Slip on axle journal as far onto differential shaft that there remains a small gap between axle journal and axle drive. Insert two cheese head screws facing each other with washers for centering and screw on axle journal with them (22). Mount rest of cheese head screws with washers. Tighten evenly all screws crosswise.

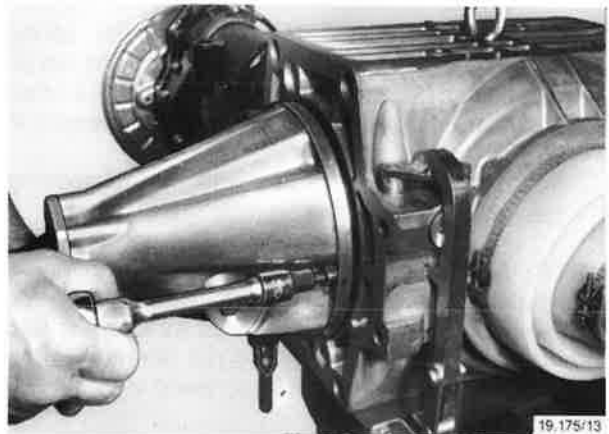


Fig. 22

- 28 Fit brake pipes acc. to fig. 23 and 4. Lead inner brake hose retainer (23/1 and 4/1) right to cylindrical neck of collar and to marking made during dismounting (with the aim that brake hose remains tension-free also in case of swinging out axle). Insert fastening screws from above. Tighten brake pipes with open-ring socket spanner size 11 special tool pos. no. 000 589 75 03 00 and torque spanner special tool pos. no. 001 589 75 21 00 to 15 Nm. Observe brake hoses not getting twisted.

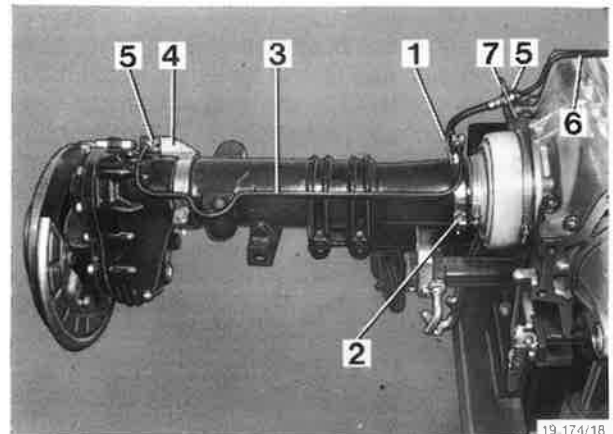


Fig. 23

- 29 Smear cross member (24/4) on both sides with surface sealant Loctite 574 and mount together with distance piece (24/3). Tighten fastening screw (24/1) only when axle is mounted to 80 Nm. Insert rubber pad with bearing cover (24/2) into cross member.

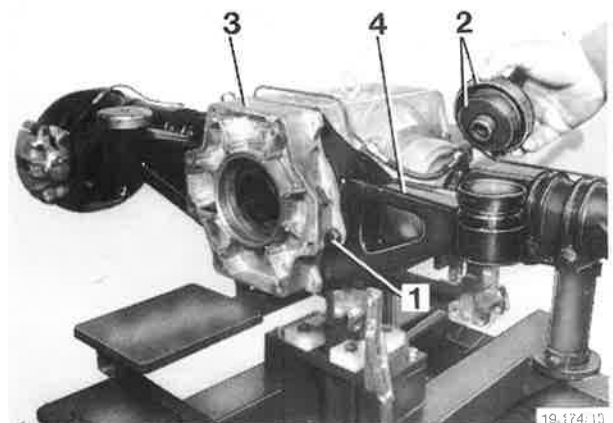


Fig. 24

**NOTE:** Center-offset platform supports (bearing cover with rubber pad) of cross member (25/2) must point forwards seen in driving direction.

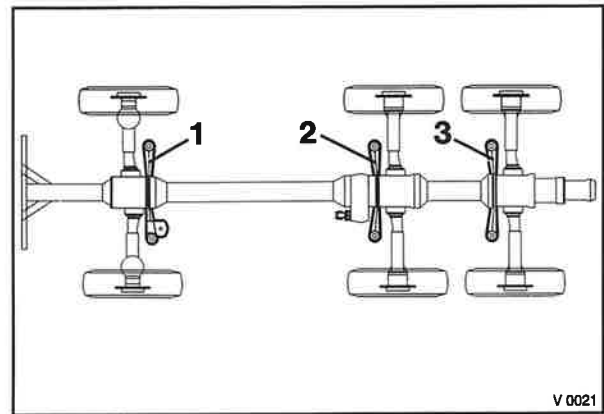


Fig. 25

- 30 Screw on brake pipe distributor to cross member (26).



Fig. 26

- 31 Lift axle with crane from mounting trestle (27).  
Replace eye screw by screw plug.

**NOTE:** When half-axles hanging downwards check brake hoses between axle housing and half-axles for stress-free condition.

Make oil filling of axle drive and also oil level check in wheel drives resp. when axle is mounted and in horizontal position. Observe different specifications of operating materials.  
Top up to overflow level.

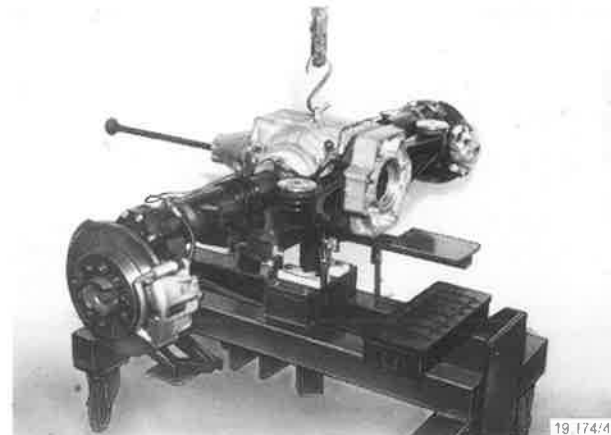


Fig. 27

## 2.3 Strip/assemble second rear axle model 718

### Includes:

Changing, removing and fitting second rear axle model 718, see section 1.14

Stripping/assembling axle drive, see group 090/section 2.1

Stripping/assembling wheel drives, see section 2.5

### Tools:

mounting carriage	905.3.31.001.0
hook	905.3.31.104.1
axle mounting trestle	905.3.31.403.0
press-in and -out tool for wheel drive bearing and rotary shaft seal ring	905.3.33.304.0
press-off device	905.3.33.404.2
distance piece	905.3.34.301.1
cleaning device for axle ball head/ wheel drive housing	905.3.38.301.0
steering drag arm puller Kukko 204-2	905.0.14.019.0
open end socket spanner size 19	905.0.15.003.1
open-ring socket spanner size 11	000 589 75 03 00
torque spanner 3/8" 4-20 Nm	001 589 75 21 00
torque spanner 1/2" 25-130 Nm	001 589 66 21 00
torque spanner 3/4" 75-400 Nm	standard

### Stripping:

- 1 Drain oil of axle drive.
- 2 Replace screw plug in axle housing upper part by eye screw pos. no. 710.1.32.386.1. Hook in hook special tool pos. no. 905.3.31.104.1 into eye screw and insert axle with crane into mounting carriage special tool pos. no. 905.3.31.001.0 or axle mounting trestle special tool pos. no. 905.3.31.403.0 resp (1). Clamp axle into extended position and lift to working level.
- 3 Screw off brake pipe distributor (2/2) from cross member (2/1), detach cross member with body support (2/3).

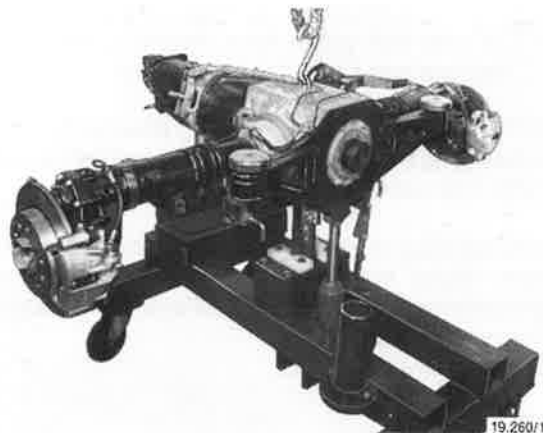


Fig. 1

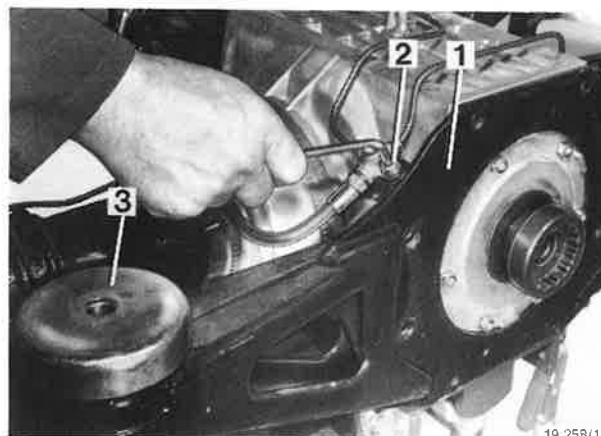


Fig. 2

- 4 Mark position of brake hose retainer on right (3/1) and left (31/1) half-axle. Dismount fastening screws (3/2 and 31/2) of hose retainers. Unscrew right (3/3) and left (31/3) brake pipe at brake pipe retainer (3/4 and 31/4) from wheel drive housing. Loosen connection pipe (3/6 and 31/6) at brake hose retainer (31/7) from axle housing. Unscrew brake pipe (31/8) at brake power control. Detach brake pipes. Do not lose retainer springs (3/5 and 31/5). Seal brake hoses to calipers as well as connections at brake power control provisionally.

**NOTE:** Unscrew brake hose retainer at wheel drive housing only when changing completely wheel drive housing or wheel drive.

- 5 Loosen cap nuts (5 units) for towing flange fastening (4) and remove with special spring washers (chamfered version). Pull off towing flange from stud bolt.

- 6 Detach rear brake lining pad (5/1) and brake housing (5/2).

- 7 Detach front brake lining pad from brake shaft (6)

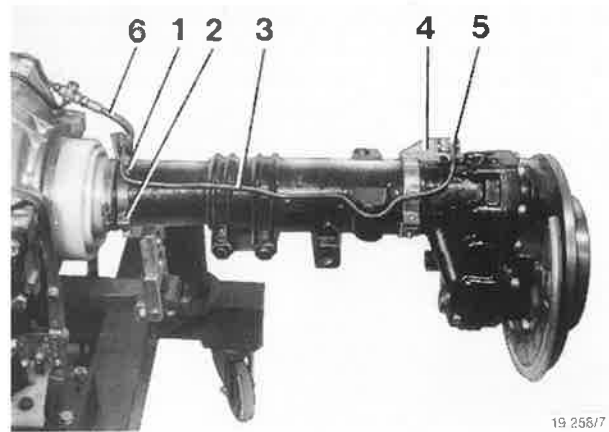


Fig. 3

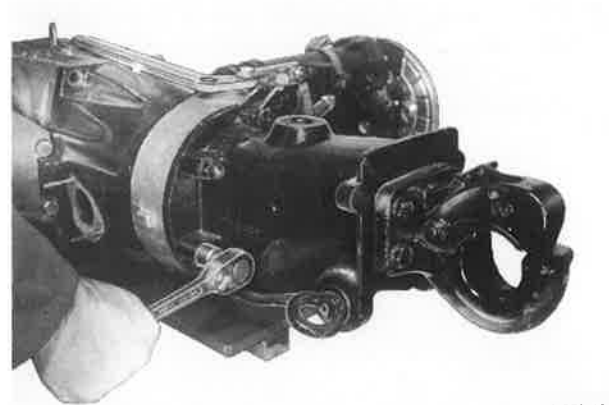


Fig. 4

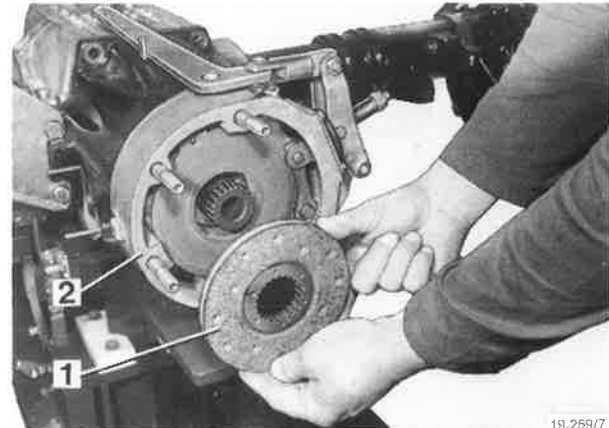


Fig. 5

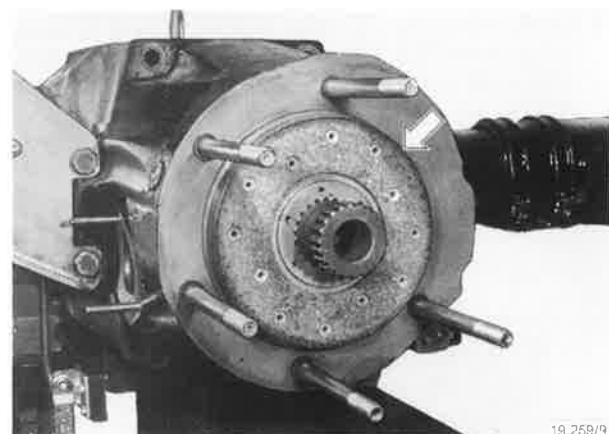


Fig. 6

- 8 Loosen hexagon screws (7/1) and detach with special spring washers (chamfered version) as well as support plate (7/2) with brake power control and distance shims (27).
- 9 Loosen hand brake flange (7/3) with plastic hammer and remove.

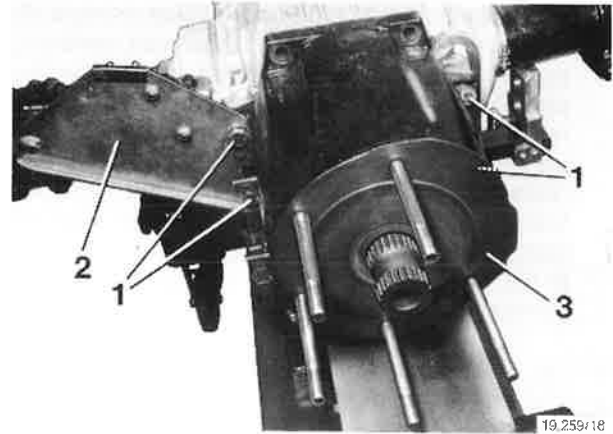


Fig. 7

- 10 Place oil catch pan under axle journal. Loosen cheese head screws (8) and remove with washers. Loosen axle journal by slight taps with plastic hammer and remove from differential shaft.

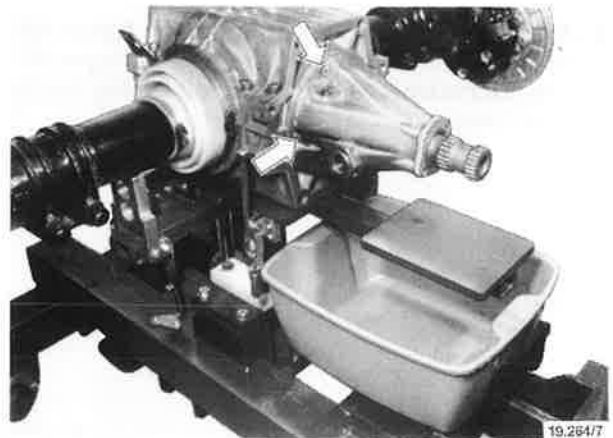


Fig. 8

- 11 Loosen anti-fatigue screws (9/1) and centering bolts (9/2) of both half-axes.

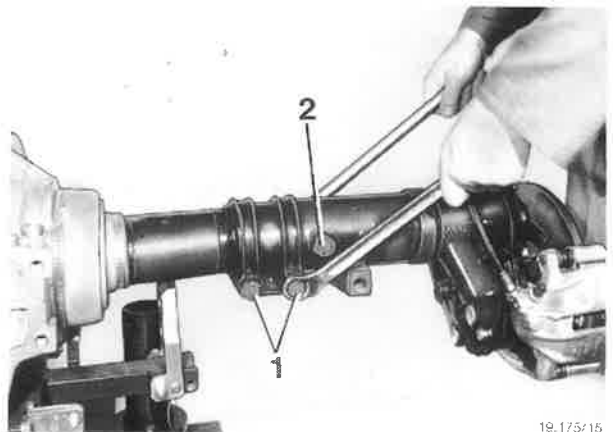


Fig. 9

- 12 Drive in wedge (10) of press-off device special tool pos. no. 905.3.33.404.2 in anti-fatigue screws area until stop in wheel drive housing. Screw on device when axle is in extended position and press off wheel drive. Detach O-ring (20). Carry out step at both half-axes.

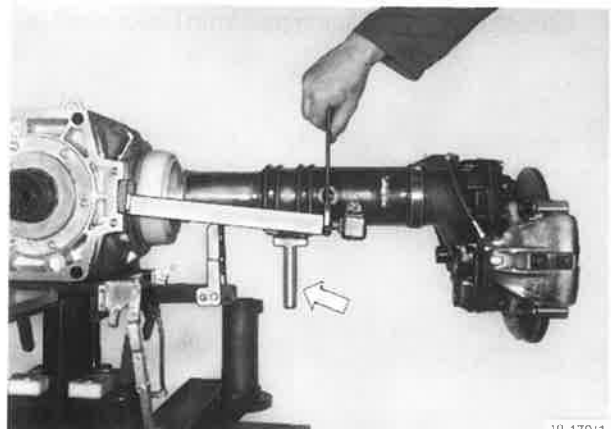


Fig. 10



- 13 Insert distance piece (11/1) special tool pos. no. 905.3.34.301.1 at compensator shaft, place steering drop arm puller (11/2) Kukko 204-2 special tool pos. no. 905.0.14.019.0 centrally, back up with quick collet (11/3) and pull off coupling sleeve (11/4).

**NOTE:** Coupling sleeve is stuck on with Loctite. If parts are hard to disconnect heat up coupling sleeve to 110° C.

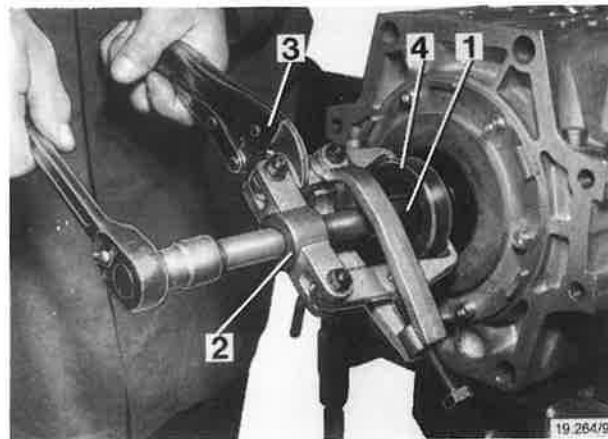


Fig. 11

- 14 Remove centering ring (12).  
 15 Strip wheel drive see section 2.5/1-7  
 16 Strip axle drive see group 090/section 2.1/1-10

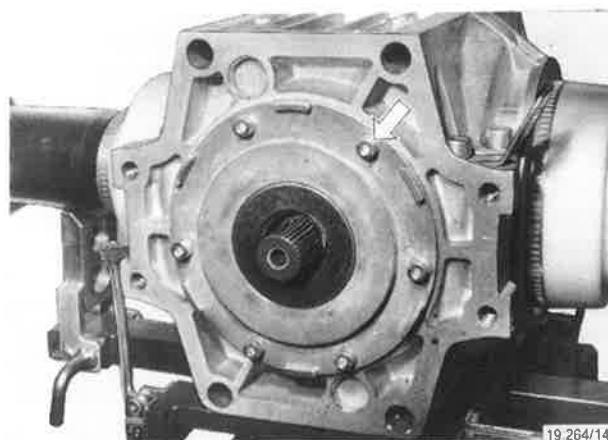


Fig. 12

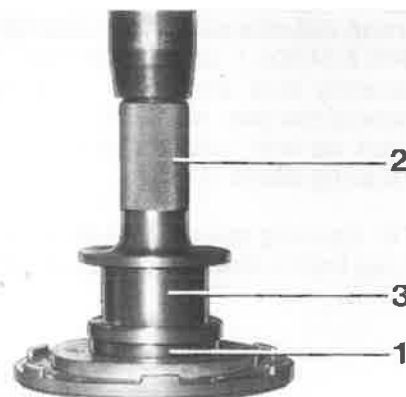
#### 17 Checking:

- Replace oiled brake lining pads and renew rotary shaft seal ring in axle journal cover see group 090/section 2.4.3
- Check splineshaft profile of brake lining pads, replace brake lining pads if necessary.
- Check lining thickness, min. thickness = 0.5 mm above rivet heads
- Check brake disk springs for sufficient pretension, replace if necessary see group 130/section 1.17
- Check brake flange for traces of wear and scoring, replace if necessary.
- Check towing flange for traces of wear and scoring, replace if necessary.

#### Assembling:

- 18 Assemble axle drive see group 090/section 2.1/11-27.  
 19 Assemble wheel drives see section 2.5/8-14.

- 20 Press in flush new rotary shaft seal ring (13/1) at centering ring with special tool pos. no. 905.3.33.304.0 part 1 and 3 (13/2 and 13/3).



19,275/5

Fig. 13

- 21 Remove Loctite residues from connection toothing of compensator shaft (14/1) and coupling sleeve (15/1) and degrease. Coupling sleeve must easily be slipped on until stop.

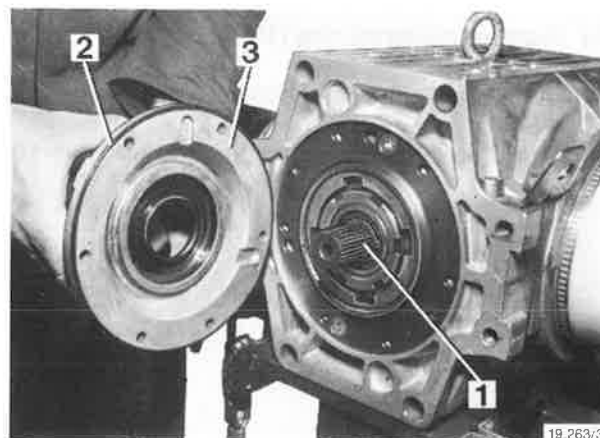
**NOTE:** Fit centering ring (14/3) as well as coupling piece (15/2) at axle front side to pinion **without** connection toothing.

- 22 Put on new O-ring (14/2) and smear O-ring as well as sealing surface (14/3) of centering ring with surface sealant Loctite 574. Oil sealing lips of shaft sealing ring. Insert centering ring carefully to avoid O-ring is slipping away. Tighten evenly cheese head screws with washers crosswise.

- 23 Smear both connection toothings (14/1 and 15/1) evenly with Loctite 641 and slip on coupling sleeve (15/2) until stop. Remove excess Loctite.

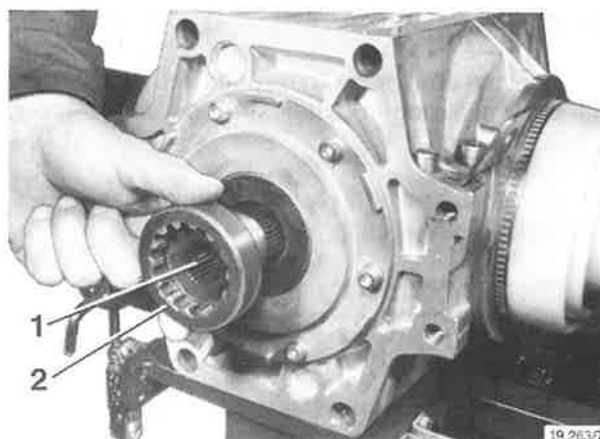
**NOTE:** Do not change position of coupling sleeve after fitting. Observe hardening period of Loctite compound before further assembling.

Hand firmness 10-30 min.  
Final firmness abt. 12 hrs.



19,263/3

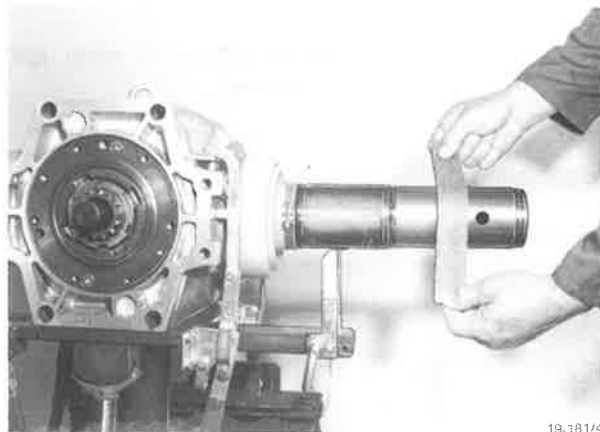
Fig. 14



19,263/7

Fig. 15

- 24 Remove Loctite residues from bright metallic half-axle ends using coated abrasives (16).



19,781/4

Fig. 16

- 25 Cover right wheel drive housing - thread for spring support bolt (21/1) facing forwards - inside with a clean rag. Attach coated abrasives into cleaning device special tool pos. no. 905.3.38.301.0 and remove Loctite residues from wheel drive housing inner side (17). Remove rag again and degrease cleaned surface.

**NOTE:** Depth to clean or surface to degreas resp. in wheel drive housing = length of bright metallic half-axle ends.



19,181/11

Fig. 17

- 26 Key up cleaned and degreased wheel drive housing in area of anti-fatigue screw bores with wedge of press-off device special tool pos. no. 905.3.33.404.2 (18). Smear connection toothing of rear axle shaft with Molykote-Longterm no. 2.

**NOTE:** Check connection toothing before greasing for wear.



19,181/18

Fig. 18

- 27 Smear right half-axle bright end with Loctite 270 (19).

**NOTE:** Right half-axle is situated at the side of oil filler and oil level plugs.



19,232/5

Fig. 19

- 28 Oil or grease moderately new O-ring and insert into groove (20).



19,181/6

Fig. 20

- 29 Slip on right wheel drive - thread for spring support bolt (21/1) facing forwards - as far as possible. If necessary, add some strong hammer blows until centering bolt can be screwed in easily. Insert anti-fatigue screws with thread pointing backwards and screw on nuts.

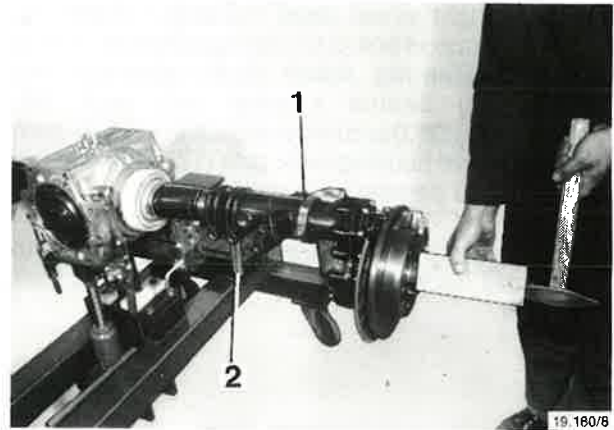


Fig. 21

**NOTE:** After applying Loctite to half-axle mount immediately wheel drive. Before mounting apply Loctite Anti-seize to centering bolt as well as to collar and thread of ant-fatigue screws. Do not remove wedge (21/2) before centering bolt is screwed in totally. Original wheel drive housings (22/A) have been provided only with one thread for spring support bolt and must be assigned to the respective half-axle. Replacement-wheel drive housings (22/B) have been provided with thread for spring support bolts on both sides of axle tube and therefore can be connected with the half-axle both right and left for actuation.



Fig. 22

- 30 Tighten centering bolt (23/1) first and then both anti-fatigue screws (23/2) to 250 Nm.
- 31 Fit left wheel drive analogously as described in steps 25-30.

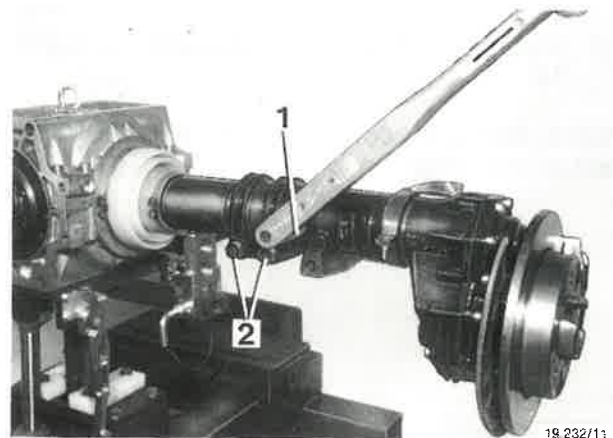


Fig. 23

- 32 Put on new O-ring at axle journal (24). Smear O-ring and sealing surface with surface sealant Loctite 574. Smear connection toothing moderately with Molykote-Longterm no. 2.



Fig. 24

- 33 Slip on axle journal as far onto differential shaft that there remains a small gap between axle journal and axle drive. Insert two cheese head screws facing each other with washers for centering and screw on axle journal with them (25). Fit rest of cheese head screws with washers. Tighten evenly all screws crosswise.



Fig. 25

- 34 Smear sealing surface of hand brake flange (26/1) with surface sealant Loctite 574 and put on.

**NOTE:** Vent slots and bores (26/2) must not be clogged.

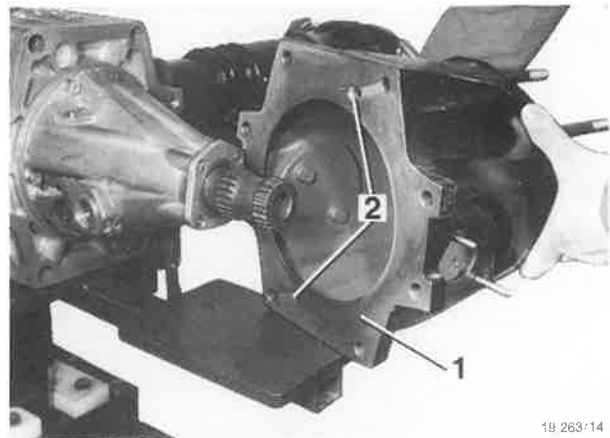


Fig. 26

- 35 Fix distance shims (27) for plane fit of support plate for brake power control with grease.

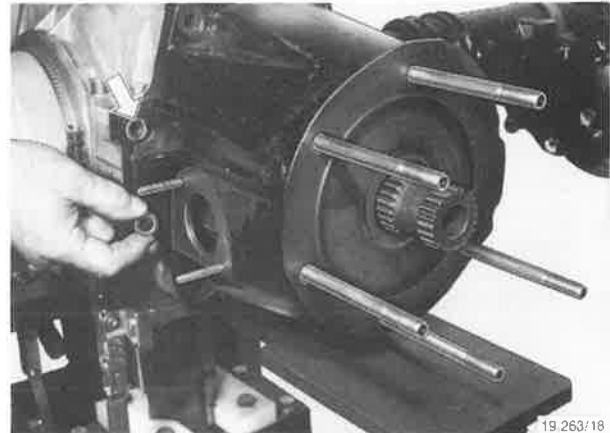


Fig. 27

- 36 Smear thread of four hexagon screws for fastening of hand brake flange with Loctite Anti-seize and tighten to 80 Nm (28/1).

**NOTE:** Screw on support plate (27/2) for brake power control with hexagon screws situated left.

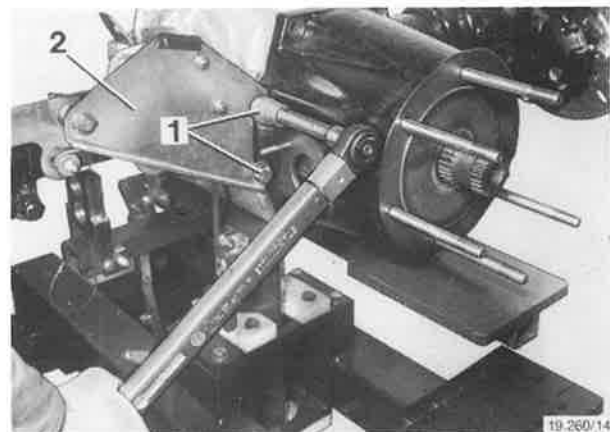


Fig. 28

- 37 Slip front brake lining pad (29/1) onto brake shaft. Smear sealing surfaces of brake housing (29/2) on both sides with surface sealant Loctite 574 and slip on until stop. Insert rear brake lining pad (5/1).

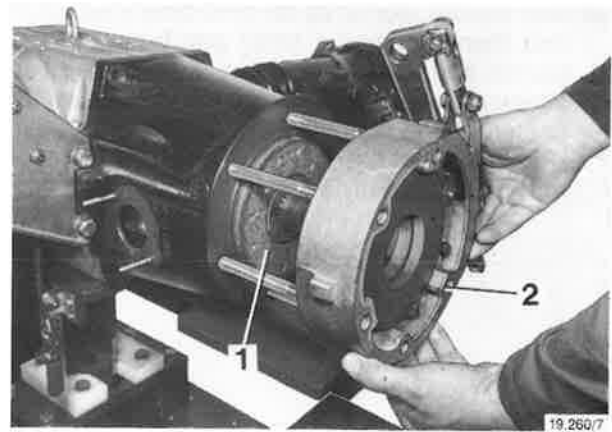


Fig. 29

- 38 Fit towing flange. To do this smear thread of stud bolts or cap nuts with Loctite Anti-seize and tighten cap nuts with torque spanner special tool pos. no. 001 589 66 21 00 and open end socket spanner size 19 special tool pos. no. 905.0.15.003.1 to 80 Nm (30).

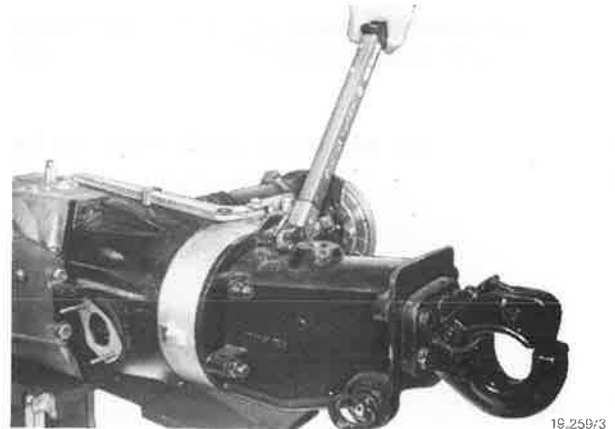


Fig. 30

- 37 Fit brake pipes acc. to fig. 31 and 3. Lead inner brake hose retainer (31/1 and 3/1) right to cylindrical neck of collar and to marking made during dismounting (with the aim that brake hose remains tension-free also in case of swinging out axle). Insert fastening screws from above. Tighten brake pipes with open-ring socket spanner size 11 special tool pos. no. 000 589 75 03 00 and torque spanner special tool pos. no. 001 589 75 21 00 to 15 Nm. Observe brake hoses not getting twisted.

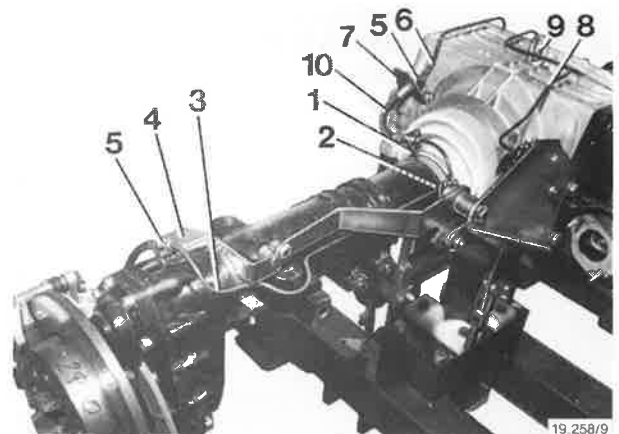


Fig. 31

- 40 Smear cross member (32/1) sealing surface on axle drive side with surface sealant Loctite 574 and put onto centering ring. Screw on brake pipe distributor (32/2). Put on rubber pad with bearing cover (32/3).

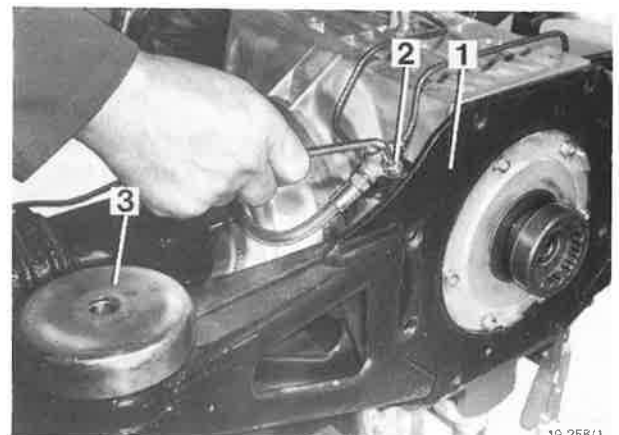


Fig. 32

**NOTE:** Center-offset platform supports (bearing cover with rubber pad) of cross member (33/3) must point forwards seen in driving direction.

- 41 Lift axle with crane from mounting trestle. Replace eye screw (31/9) by screw plug.

**NOTE:** When half-axes hanging downwards check brake hoses (31/10 and 3/6) between axle housing and half-axes for stress-free condition.

Make oil filling of axle drive and also oil level check in wheel drive resp. when axle is fitted and in horizontal position. Observe different specifications of operating materials.

Top up to overflow level.

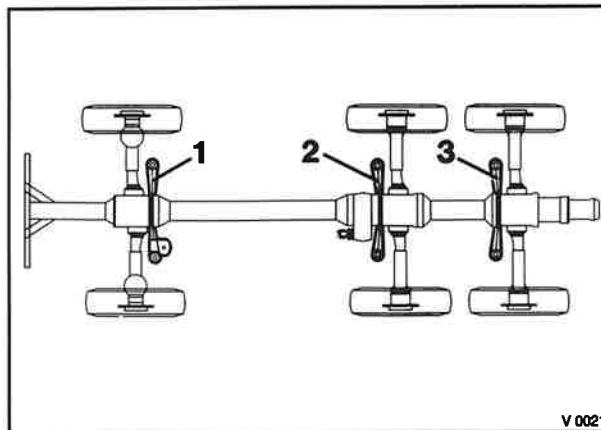


Fig. 33

## 2.4 Strip/assemble axle drive

see group 090/ section 2.1

## 2.5 Strip/assemble wheel drive

Includes:

Changing, removing and fitting wheel drive model 716 see section 1.5

Changing, removing and fitting wheel drive model 718 see section 1.6

Stripping/assembling brake support see section 2.5.1

Stripping/assembling wheel drive housing see section 2.5.2

Tools:

tie bolt to wheel flange 905.3.24.301.0

mounting carriage 905.3.31.001.0

press-off ring 905.3.33.204.0

press-in and -out tool (four-part)

for wheel drive bearing and rotary shaft seal ring 905.3.33.304.0

press-on tool 905.3.33.401.1

puller 905.3.34.208.0

distance piece 905.3.34.301.1

pull-on and -off device for pinion and bearing ring 905.3.34.302.0

puller stopper for wheel flange 905.3.34.303.1

thread insert M8 905.3.34.304.1

holding device for wheel flange 905.3.36.301.2

cleaning device for axle ball

head/wheel drive housing 905.3.38.301.0

support Kukko no. 22-2 905.0.14.001.0

extractor Kukko no.21-6 905.0.14.010.0

puller device Kukko no. 18-2 905.0.14.013.0

puller device Kukko no. 18-1 905.0.14.020.0

separating device

Kukko no.17-1 905.0.14.021.0

ring-spanner socket size 19 905.0.15.004.1

torque spanner 1/2"

25-130 Nm 001 589 66 21 00

torque spanner 3/4"

75-400 Nm standard

turn angle measuring device standard

magnetic support standard

dial gauge 1/100 standard



## Stripping:

- 1 Drain oil from wheel drive housing. Clean drain plug magnet, put new seal to drain plug and screw in again.
- 2 Insert complete wheel drive into support sleeve at mounting carriage special tool pos. no. 905.3.31.001.0.
- 3 Press housing (1/1) of divided caliper outwards or upwards as in shown case resp. in order to set back piston and brake pads resp. Then unscrew caliper (1/2).

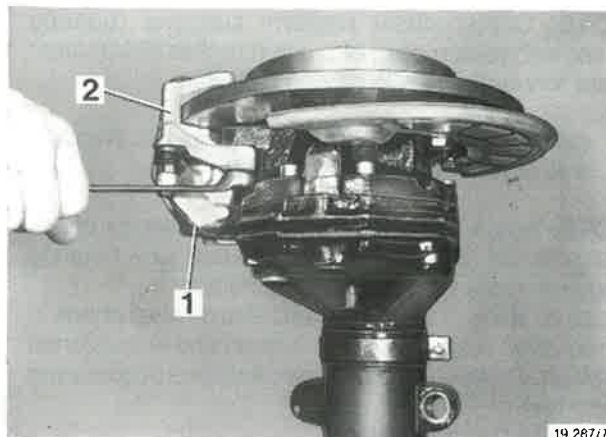


Fig. 1

- 4 Remove brake disk (2).

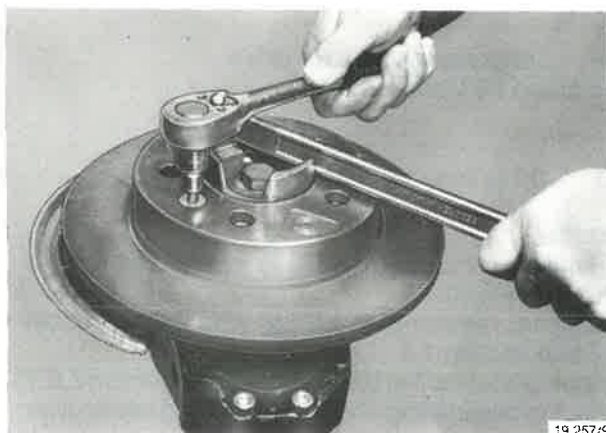


Fig. 2

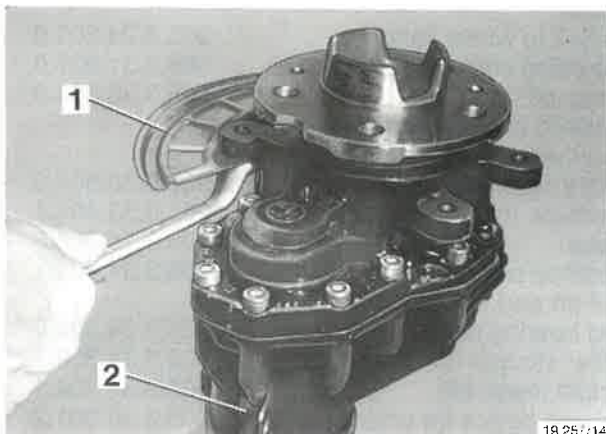


Fig. 3

- 5 Loosen cheese head screws (4). For this purpose turn wheel flange recess into required position.



Fig. 4

- 6 Clean thread for pressing off brake anchor plate. Screw in two screws M 10x50 (with continuous thread) and press off brake anchor plate (5). To avoid canting tap slightly with plastic hammer to wheel flange upper side.

Assembling:

**NOTE:** Stripping/assembling brake anchor plate see section 2.5.1

Stripping/assembling wheel drive housing see section 2.5.2

**WARNING:** Check brake disk, brake pads and caliper for reusability, see chapter "brake unit".

- 7 Clean sealing surfaces of brake anchor plate and wheel drive housing and smear with surface sealant Loctite 574.
- 8 Put on brake anchor plate and drive by slight plastic hammer taps in fit bolt area to stop at wheel drive housing.
- 9 Pretighten evenly cheese head screws crosswise and tighten to 40 Nm (6).

**NOTE:** Smear thread of hexagon screws with Loctite Anti-seize.

- 10 Put brake disk onto centering and tighten countersunk screws to 28 Nm (7).

**NOTE:** Smear thread and head rest of countersunk screws with Loctite Anti-seize.

- 11 Smear thread of hexagon screws for fastening caliper with Loctite 242. Mount calipers in correct position so that bleeder valve is pointing upwards when wheel drive is mounted. Tighten hexagon screws with torque spanner special tool pos. no 001 589 66 21 00 and ring spanner socket size 19 special tool pos. no. 905.0.15.004.1 to 125 Nm (8).
- 12 Fill wheel drive with Mobil Glygoyle 30 when in mounted condition and when vehicle is in horizontal position. Top up to overflow level.

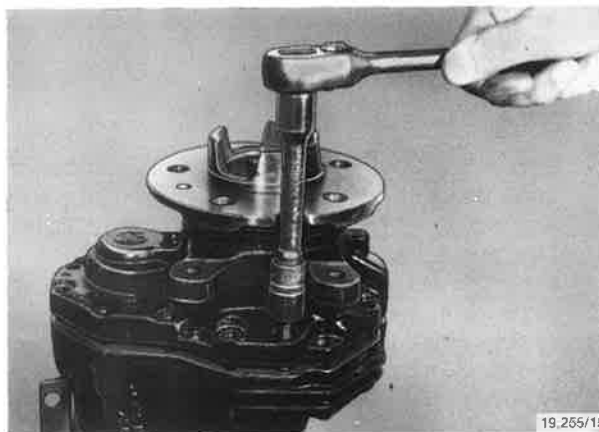


Fig. 5

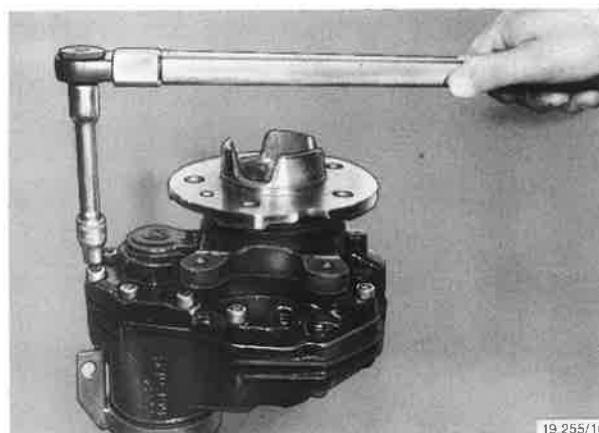


Fig. 6

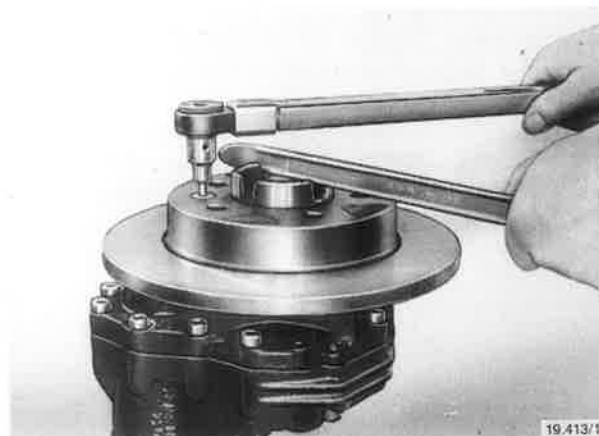


Fig. 7

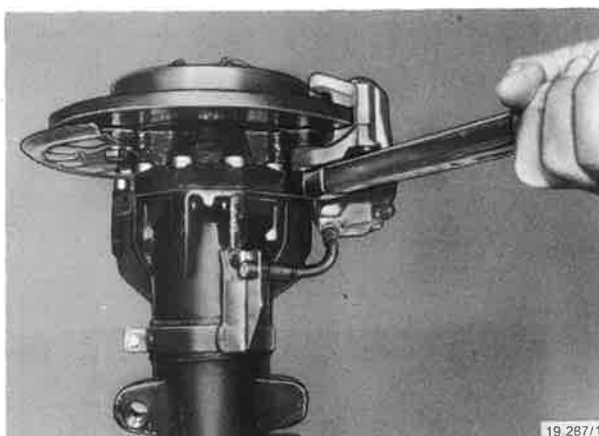


Fig. 8

## 2.5.1 Strip/assemble brake anchor plate

Stripping:

- 1 Screw on wheel flange (1/1) with three spherical collar screws (1/2) to holding device (1/3) special tool pos. no. 905.3.36.301.2 and clamp holding device into vise.
- 2 Screw out anti-fatigue bolt (1/4) until flush with strain washer (1/5). Drive out strain washer from centering of bearing inner raceway by a hammer blow on screw head. Then remove anti-fatigue bolt and strain washer.
- 3 Detach holding device, reinsert two spherical collar screws into wheel flange and clamp wheel flange with screws into vise. Put puller stopper (3/1) special tool pos. no. 905.3.34.303.1 onto wheel flange and pull off gear and also distance ring and bearing inner raceway resp. with puller special tool pos. no. 905.3.34.208.0 from wheel flange (2).
- 4 Put puller stopper (3/1) special tool pos. no. 905.3.34.303.1 onto wheel flange, screw in tie bolt (3/2) special tool pos. no. 905.3.24.301.0 into brake anchor plate and pull off brake anchor plate with puller device (3/3) Kukko no. 18-2 special tool pos. no. 905.0.14.013.0 from wheel flange.
- 5 Lift raceway with flat chisel from wheel flange (4) and remove together with O-ring situated below.

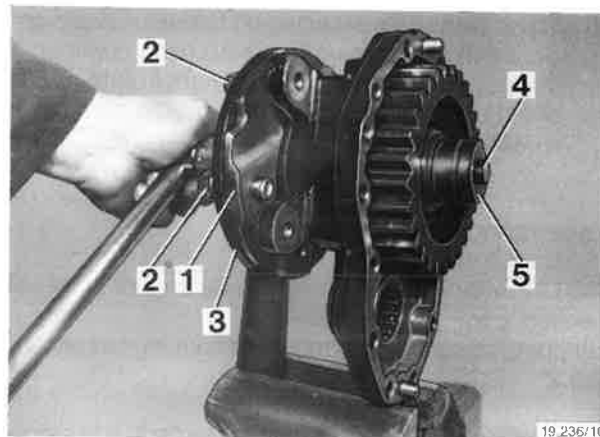


Fig. 1



Fig. 2

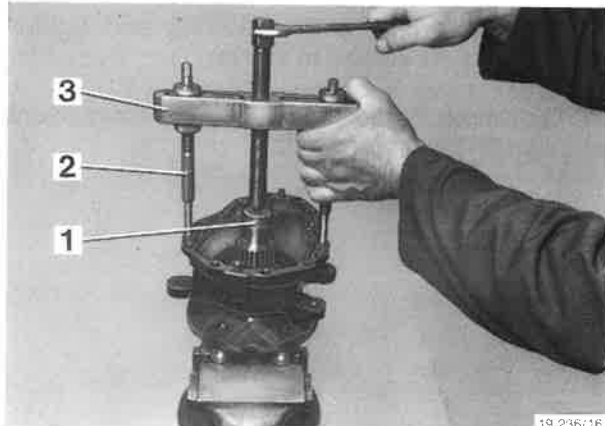


Fig. 3

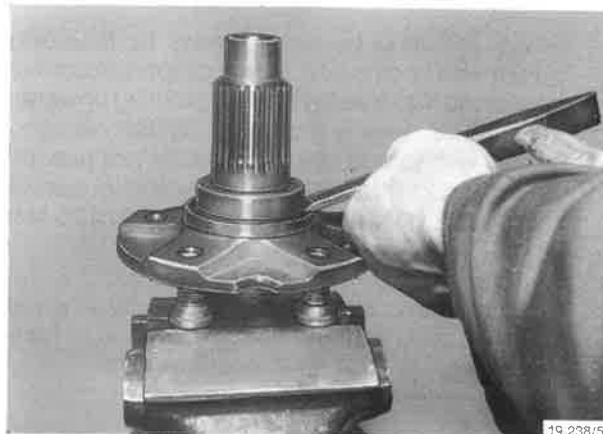


Fig. 4

- 6 Clamp brake anchor plate into vice and press out rotary shaft seal ring with general purpose spoon (5).

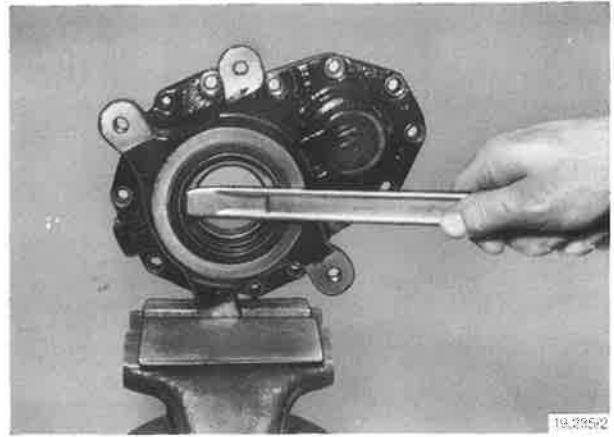


Fig. 5

- 7 Compress circlip (6/1) and remove.

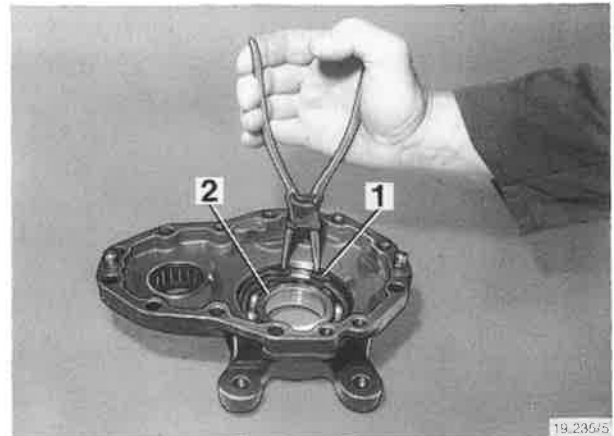


Fig. 6

- 8 Press out deep groove ball bearing (6/2) with special tool pos. no. 905.3.33.304.0, part 1 (7/1) and part 3 (7/2) from brake anchor plate (7/3).

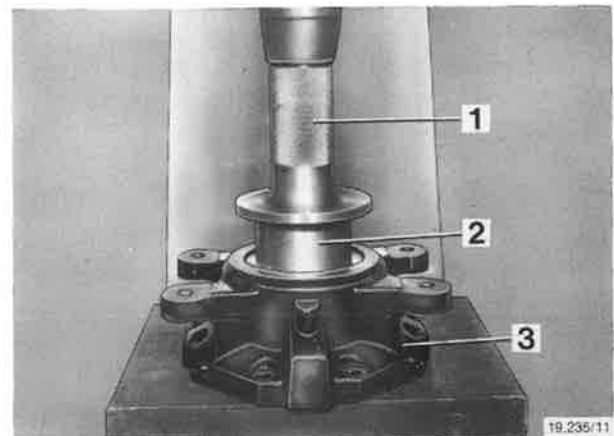


Fig. 7

- 9 Clamp brake anchor plate with two hexagon screws (M12) into vise and pull out needle bearing (8/1) with extractor (8/2) Kukko no. 21-6 special tool pos. no. 905.0.14.010.0 and support (8/3) Kukko no. 22-2 special tool pos. no. 905.0.14.001.0.

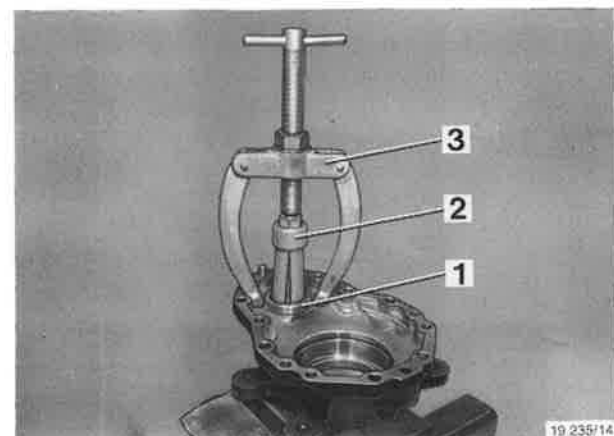


Fig. 8

## Checking:

- 10 Check all parts for reusability (visual check). Derost contact surface of V-ring sealing lip at brake anchor plate.

## Assembling:

- 11 Press in needle bearing (9/1) with special tool pos. no. 905.3.33.304.0/part 4 (9/2).

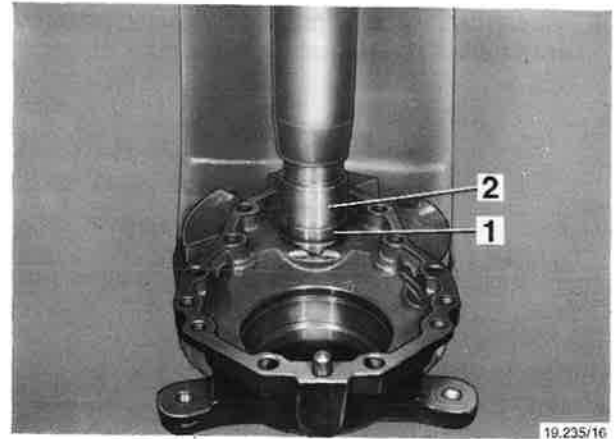


Fig. 9

- 12 Press in deep groove ball bearing (10/1) with special tool pos. no. 905.3.33.304.0/part 1 (10/2).

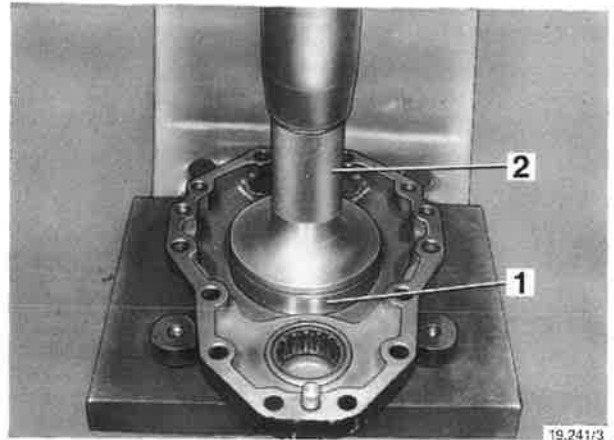


Fig. 10

- 13 Fit circlip (6/1) and rotary shaft seal ring (11/1) with special tool pos. no. 905.3.33.304.0/part 1 (11/2) and part 3 flush into brake anchor plate housing (11/3).

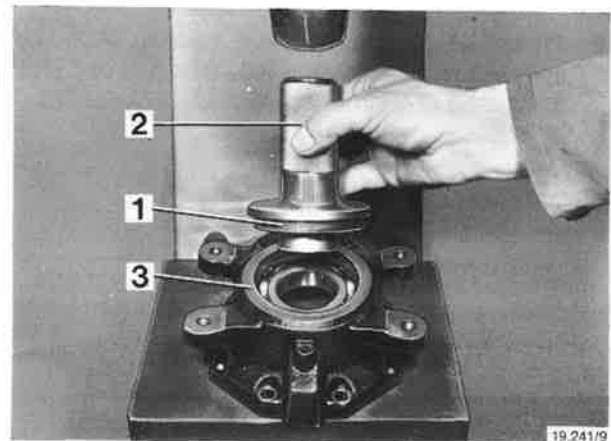


Fig. 11

- 14 Clamp wheel flange with two wheel bolt (spherical collar screws) into vise. Put new O-ring onto wheel flange neck (12) and smear sufficiently with surface sealant Loctite 574.

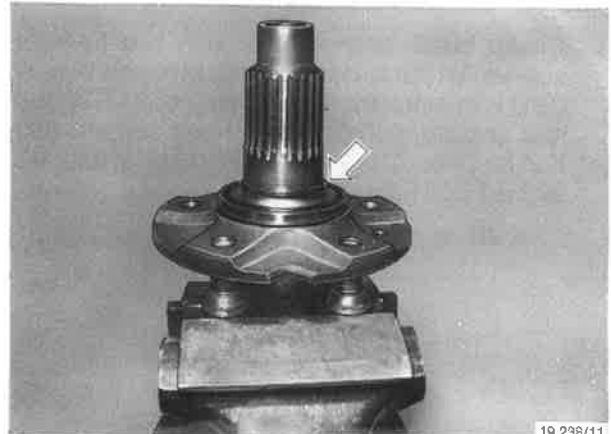


Fig. 12

- 15 Press on raceway (13/1) with divided ring (13/2) special tool pos. no. 905.3.33.204.0 and press-on tool (13/3) special tool pos. no. 905.3.33.401.1.

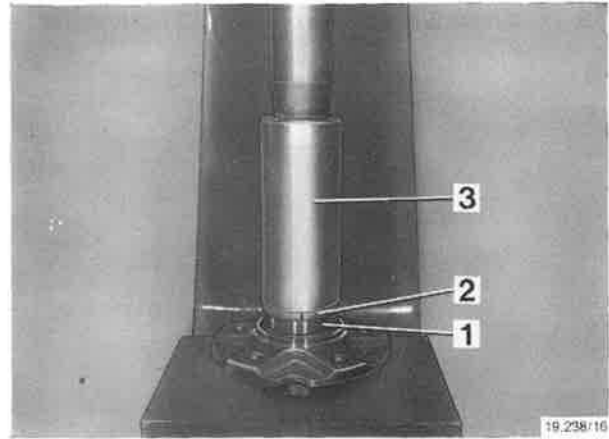


Fig. 13

- 16 Slip rotary shaft seal ring (V-ring) over centering at wheel flange and grease sealing lip with Bosch silicon grease no. 5700 083 000 (14).

**NOTE:** Spray contact surface of V-ring at brake anchor plate housing with Molykote sliding media 3402-C.

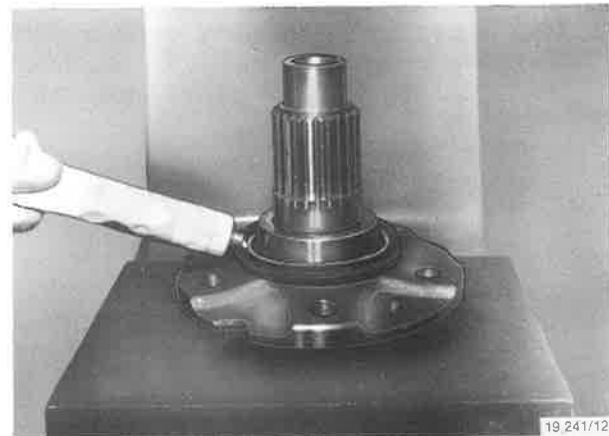


Fig. 14

- 17 Place wheel flange (15/1) under piercing press and press on brake anchor plate (15/2) with divided ring (15/3) special tool pos. no. 905.3.33.204.0 and press-on tool (15/4) special tool pos. no. 905.3.33.401.1 to wheel flange neck.

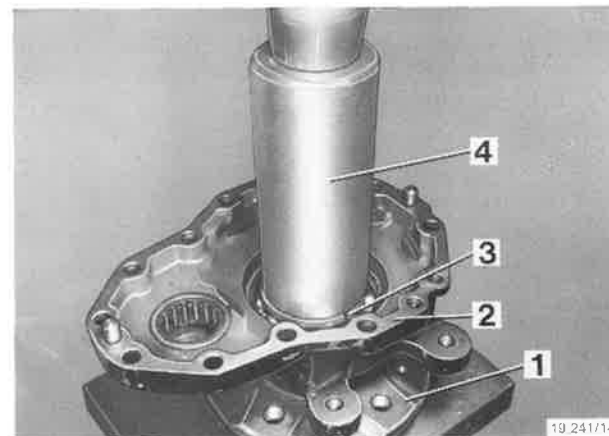


Fig. 15

- 18 Heat up gear to approx. 140°C and shrink on with collar first (16) to wheel flange neck. Repress until stop if necessary.

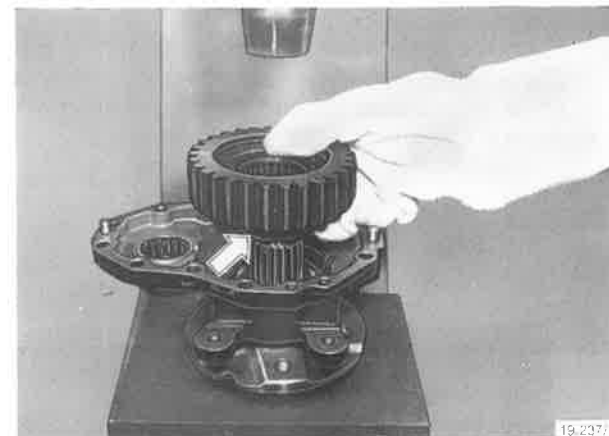


Fig. 16



19 Attach distance ring acc. to fig. 17.

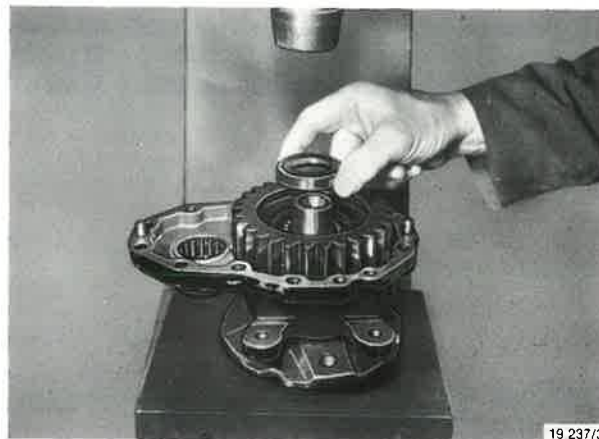


Fig. 17

20 Heat up bearing inner raceway to approx. 80°C and shrink on with collar first (18) to wheel flange neck. Repress until stop at distance ring, if necessary.

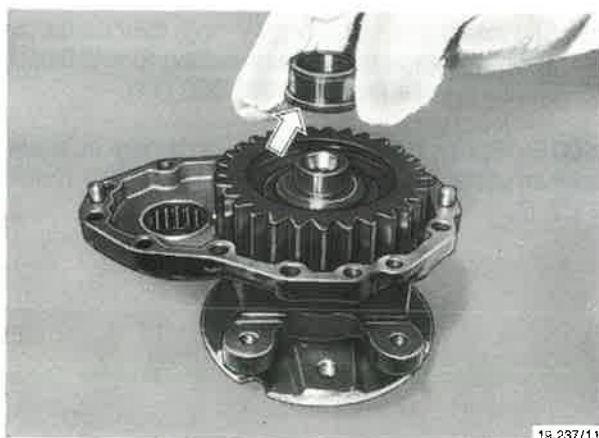


Fig. 18

21 Drive in strain washer (19/1) into bearing inner raceway (19/2) with soft metal hammer or press in under piercing press.

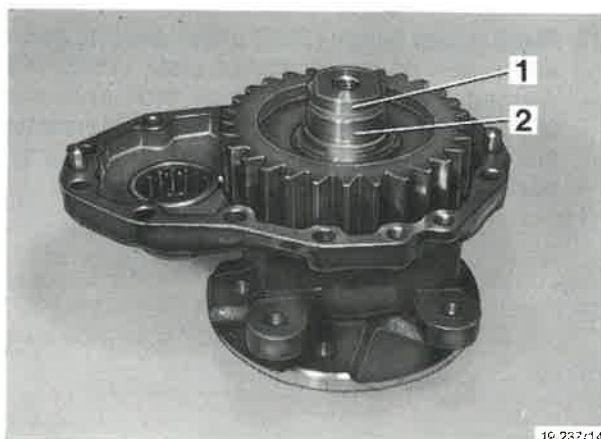


Fig. 19

22 Apply new O-ring (20/2) to anti-fatigue bolt (20/1). Smear or spray thread with Loctite Anti-seize. Smear cleaned and degreased head rest surface (20/4) with Loctite 242 and fit bolt.

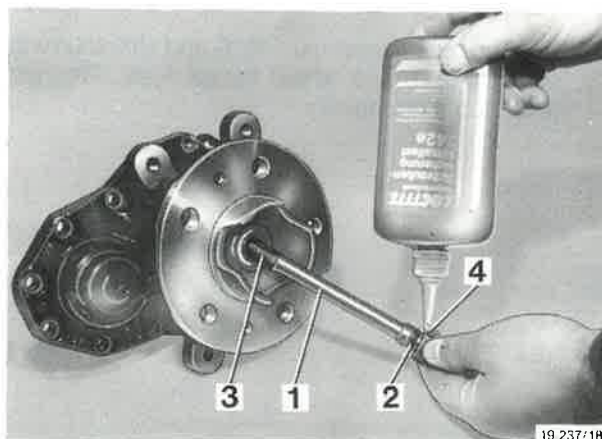


Fig. 20



- 23 Clamp brake anchor plate or wheel flange resp. with holding device special tool pos. no. 905.3.36.301.2 into vise and tighten anti-fatigue bolt to 250 Nm (21). Then screw out anti-fatigue bolt enabling coating head rest surface (20/4) again with Loctite 242.

Mark position of strain washer (21/1) to bearing inner raceway (21/2) with felt-tip pen (21/3) for checking joint turning.

Pretighten anti-fatigue bolt to 100 Nm. Then mark anti-fatigue bolt position to wheel driving flange acc. to fig. 22 and carry on turning anti-fatigue bolt by  $180^\circ + 20^\circ$ .

**NOTE:** Screw tightening acc. to torque and turn angle must be carried out immediately one after another (within max. one minute). If there is a turn angle measuring device, marking can remain undone.

- 24 Check felt-tip pen marking of strain washer. In case that strain washer has joined turning, repeat tightening of anti-fatigue bolt, backing up strain washer when tightening anti-fatigue bolt.

- 25 Check anti-fatigue bolt for 250 Nm torque. If this value is not reached replace anti-fatigue bolt as well as strain washer.

- 26 Mark one or two key surfaces of anti-fatigue bolt to wheel flange with colour dot (control marking for tightened anti-fatigue bolt).

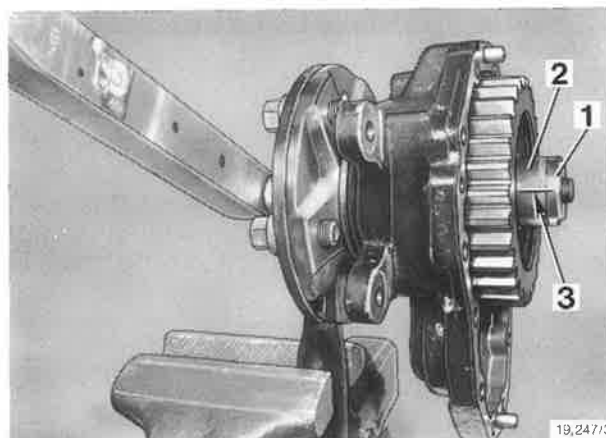


Fig. 21

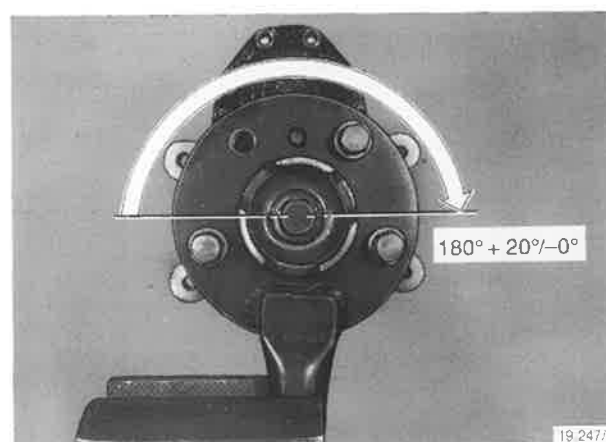


Fig. 22

### 2.5.2 Strip/assemble wheel drive housing

#### Stripping:

- 1 Attach wheel drive housing to support tube on mounting carriage special tool pos. no. 905.3.31.001,0 and support driving shaft to ground.
- 2 Release snap-V-ring (1).
- 3 Remove adjusting washer (2).

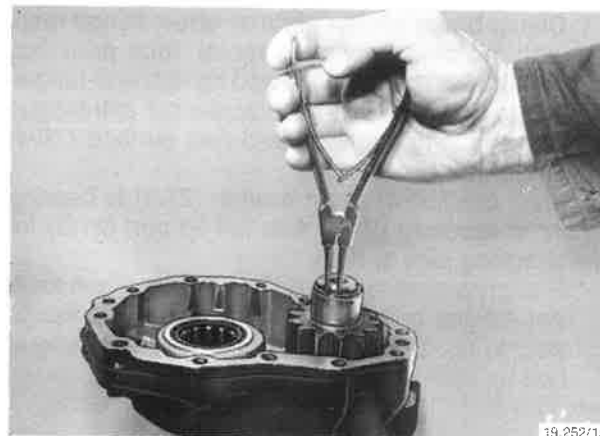


Fig. 1

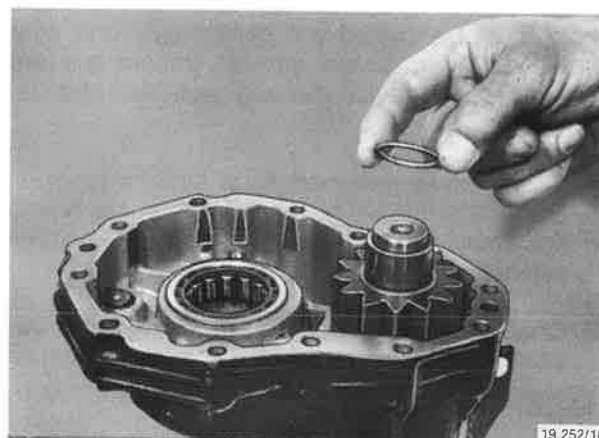


Fig. 2

- 4 Insert puller hook (3) of special tool pos. no. 905.3.34.302.0 after every third tooth of pinion in shown area of wheel drive housing.

**NOTE:** Twist downwards circlip joint (16) with Seeger pliers if necessary.

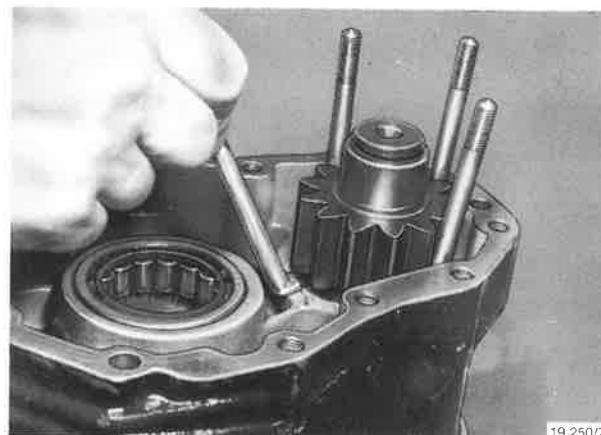


Fig. 3

- 5 Slip retaining sleeve (4/1) of special tool pos. no. 905.3.34.302.0 over puller hooks until stop (4/2) in housing base.

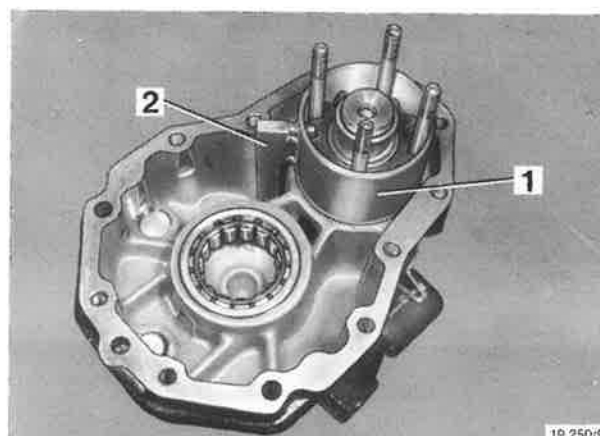


Fig. 4

- 6 Slip upper part (5/1) of special tool pos. no. 905.3.34.302.0 onto puller hooks by alternating tightening of nuts (5/2) to same level. Screw in spindle (5/3). Screw in drift punch (5/4) for backing up and press off pinion with bearing inner raceway. Detach thrust washer(17).

**NOTE:** Bearing inner raceway and pinion are shrunk on to the driving shaft. In case of extremely tight seat when pulling off and also if there is danger of damaging the device it is recommended to pull off bearing inner raceway and pinion separately. For this purpose pull off pinion and bearing inner raceway by max. 2-3 mm with device. Put special tool pos. no. 905.3.33.304.0/ part 1 and 3 onto pinion (6) and set off pinion by strong hammer blows from bearing inner raceway that separating device (7/1) Kukko no. 17-1 special tool pos no. 905.0.14.021.0 can be mounted. Put distance piece (7/2) special tool pos. no. 905.3.34.301.1 onto driving shaft and pull off bearing inner raceway with puller dvice (7/2) Kukko no. 18-1 special tool pos. no. 905.0.14.020.0. During pulling off loosen separating device, i.e. as soon as separating device (7/1) moves into area of recess for snap-V-ring, in order not to catch into the recess.

If it is not possible to loosen pinion and bearing inner raceway by 2-3 mm with the device, it is recommended to heat up bearing inner raceway to approx. 80-100°C; then lift with a flat chisel by 2-3 mm and pull off as described and shown in fig. 7. Afterwards pull off pinion as described in step 6.

- 7 Lift wheel drive housing from support tube and remove driving shaft. Then slip wheel drive housing again onto support tube.

- 8 Release circlip (8).

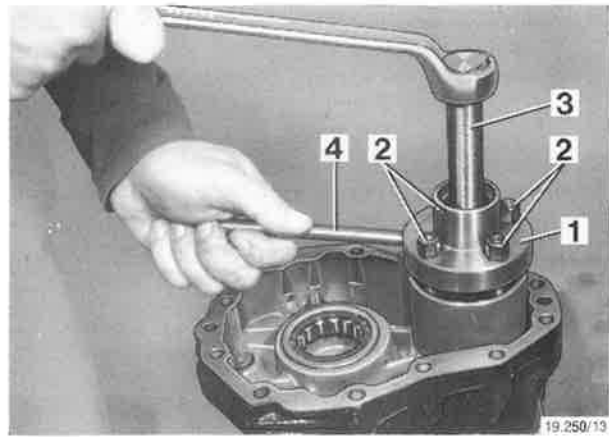


Fig. 5



Fig. 6

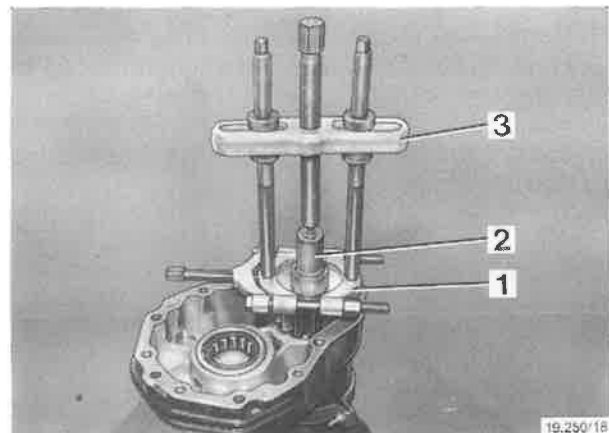


Fig. 7



Fig. 8

- 9 Pull out both cylindrical roller bearings (9/A and 9/B) with extractor (9/1) Kukko no. 21-6 special tool pos. no. 905.0.14.010.0 and support (9/2) Kukko no. 22-2 special tool pos. no. 905.0.14.001.0.

**NOTE:** Insert light metal plate (9/3) between wheel drive housing and support in order to avoid damages of sealing surface. When exchanging wheel drive housing unscrew brake hose retainer (9/4).

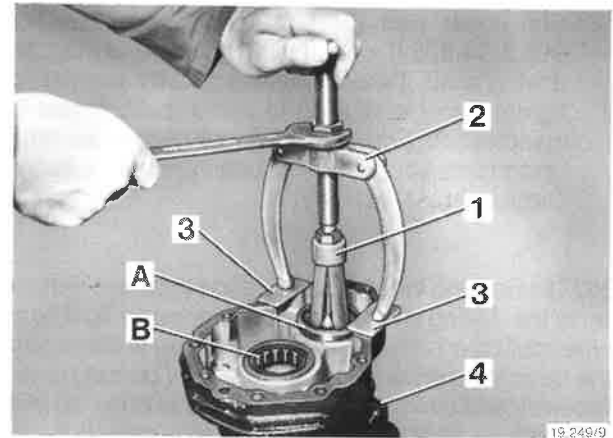


Fig. 9

- 10 Clamp driving shaft (10/1) with aluminium jaws into vise. Place separating device (10/2) Kukko no. 17-1 special tool pos. no. 905.0.14.021.0 under bearing inner raceway (10/3). Put distance piece (10/4) special tool pos. no. 905.0.34.301.1 onto driving shaft and pull off bearing inner raceway with puller device (10/5) Kukko no. 18-1 special tool pos. no. 905.0.14.020.0.

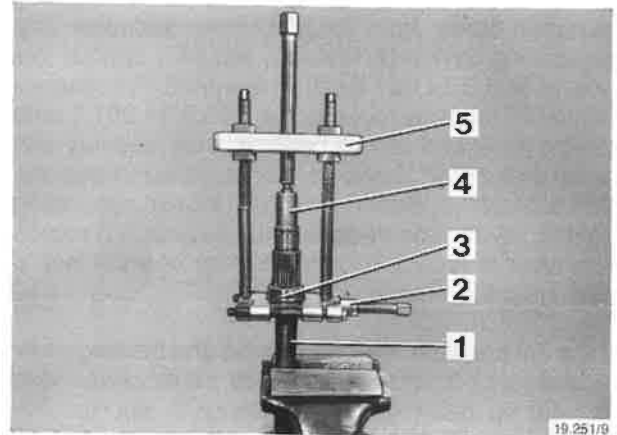


Fig. 10

- 11 Remove Loctite residues from inner wheel drive housing. To do so attach coating abrasives to cleaning device special tool pos. no. 905.3.38.301.0 and clean housing in clamping area of half-axle (11). Then rinse wheel drive housing carefully.

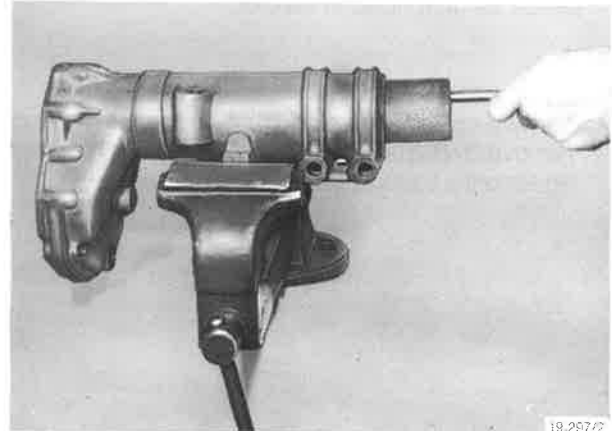


Fig. 11

Checking:

- 12 Check all parts are servicable (visual check). Check connection toothing of driving shaft (12/1) for wear. Check snap-V-ring recess (12/2) for o.k. condition. Check driving shaft for concentric running between two peaks (12). Max. admissible run-out measured in shaft center = 0.5 mm.

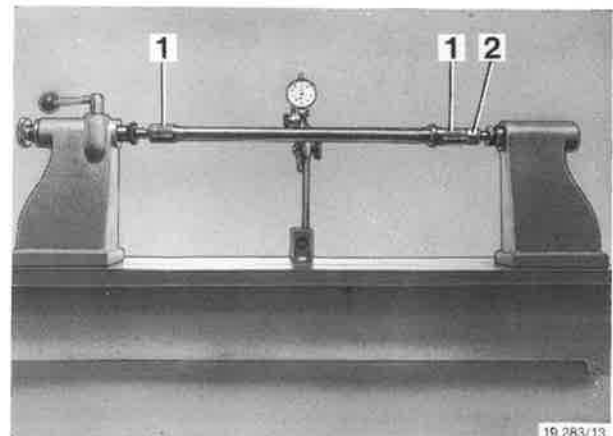


Fig. 12

## Assembling:

- 13 Heat up bearing inner raceway to abt. 80° C and shrink on with collar facing shaft neck (13).



Fig. 13

- 14 Drive in cylindrical roller bearings (14/1 and 14/2) with four-part special tool pos. no. 905.3.33.304.0 into wheel drive housing. For this purpose put part 4 (14/3) of mentioned tool on to cylindrical rolls. This part 4 only serves for centering of part 3 (15/1) which rests on bearing outer raceway and which performs driving in bearing in combination with part 1 (15/2).

**NOTE:** Drive in cylindrical roller bearing with writing pointing outwards. Observe different heights of bearings.

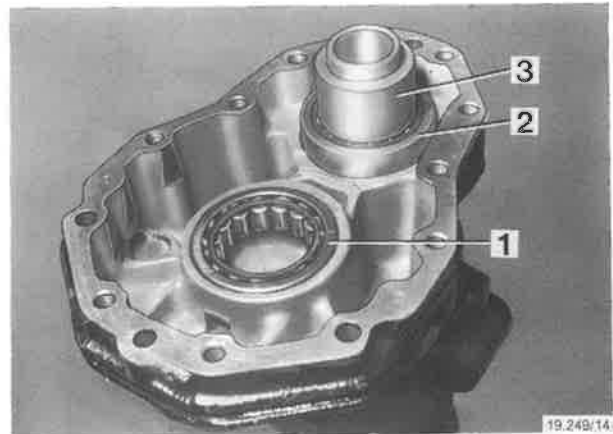


Fig. 14

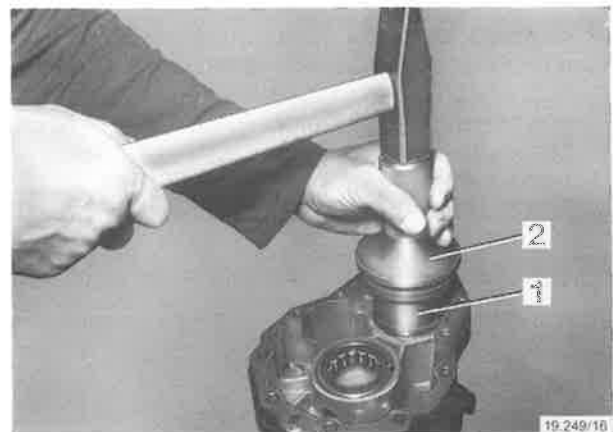


Fig. 15

- 15 Fit circlip (16) with joint facing downwards or to cylinder roller bearing of wheel flange resp. (for easier mounting regarding inserting of puller hooks see fig. 3).

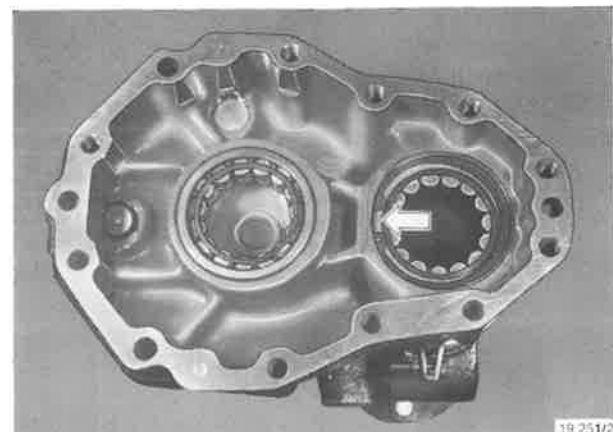


Fig. 16

- 16 Detach wheel drive housing from support tube and insert driving shaft into cylindrical roller bearing. Keep driving shaft in this position and slip wheel drive housing again onto support tube on mounting carriage. Support driving shaft play-free to ground.
- 17 Insert thrust washer (17) with writing pointing upwards.

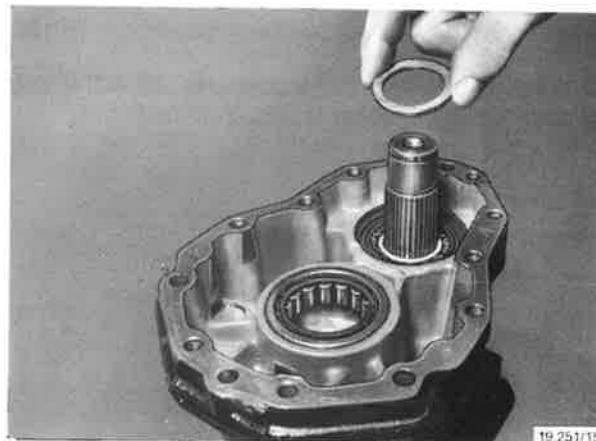


Fig. 17

- 18 Heat up pinion to abt. 140° C and shrink on to driving shaft with collar pointing to cylinder roller bearing (18).



Fig. 18

- 19 In order to be sure that pinion has been shrunk on completely, repress with special tool pos. no. 905.3.34.302.0 immediately after shrinking on. For this purpose slip retaining sleeve (19/1) over pinion until stop in housing base (19/2). Screw in thread insert (19/3) special tool pos. no. 905.3.34.304.1 into driving shaft and tighten.

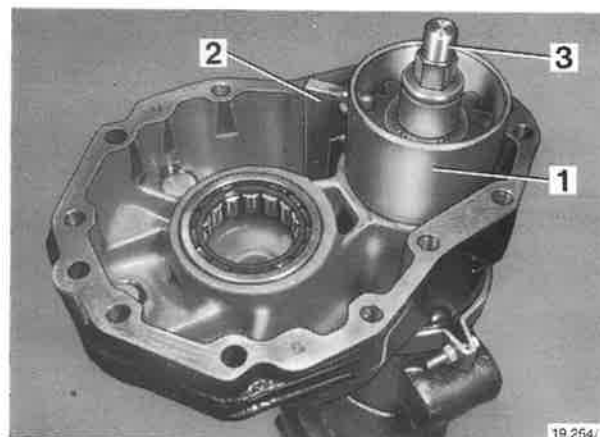


Fig. 19

Put special tool upper part (20/1) with collar first onto pinion. Screw on spindle (20/2) of support Kukko no. 22-2 special tool pos. no. 905.0.14.001.0 with washer (20/3) and nut to thread insert (19/3). Screw in drift punch (20/4) and mount stop screw (20/5).

Now check by tightening nut (20/6) whether pinion is shrunk on until stop.

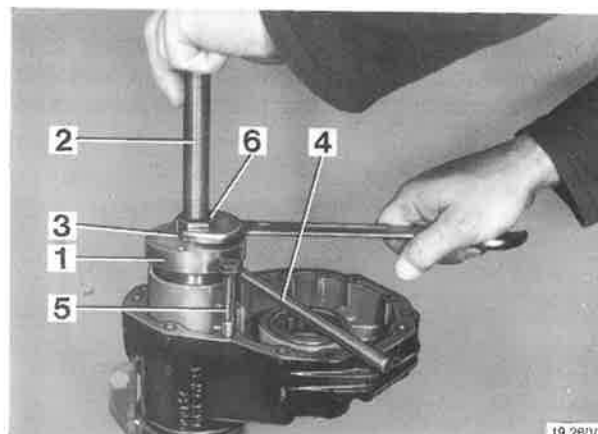


Fig. 20

- 20 Heat up bearing inner raceway (21) to approx. 100°C and shrink on to driving shaft with writing pointing upwards.

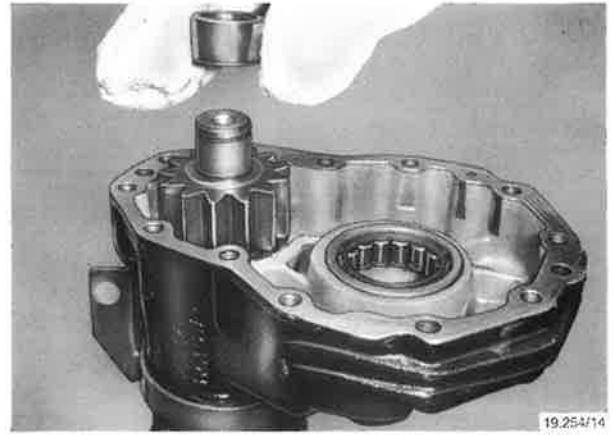


Fig. 21

- 21 In order to be sure that bearing inner raceway has been shrunk on completely repress with special tool pos. no. 905.3.34.302.0 immediately after shrinking on. Proceed accordingly as described in step 19. Special tool upper part is resting with collar at the bearing inner raceway (22).

- 22 Unscrew thread insert (19/3).

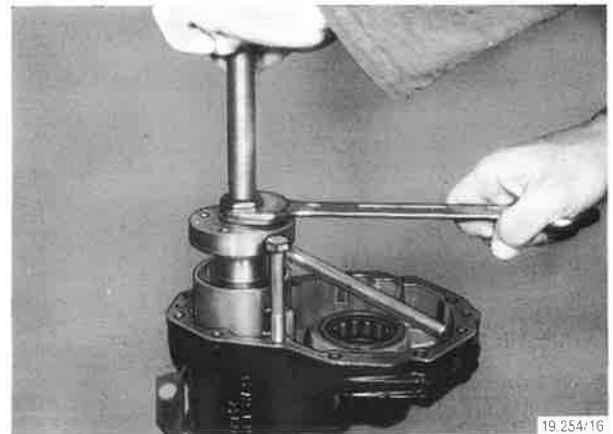


Fig. 22

- 23 Fit snap-V-ring (23/1) and determine play between snap-V-ring and bearing inner raceway with feeler gauge (23/2).
- 24 Remove snap-V-ring and put adjusting washer having a thickness of the determined measure onto bearing inner raceway (2). Adjusting washers are available from 0.5-0.9 mm in tenths' intervals.
- 25 Fit snap-V-ring (1). It must sit tight in the recess. Otherwise use bigger sized adjusting washer.

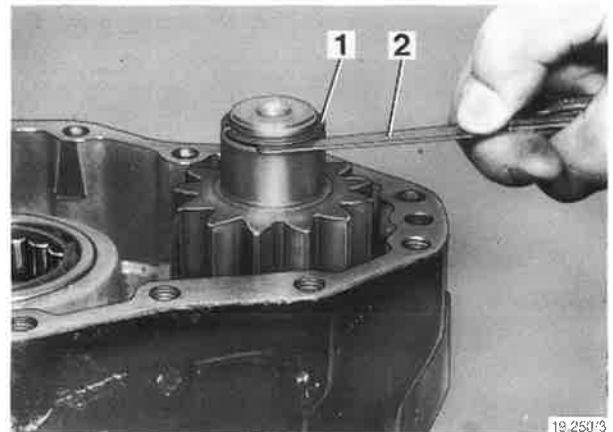


Fig. 23



