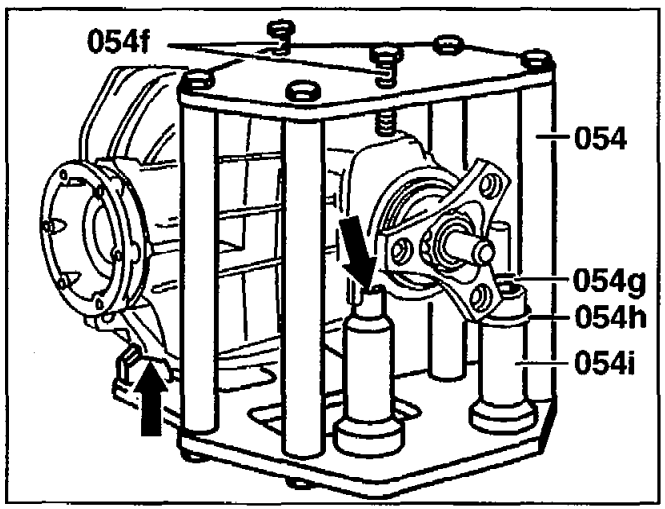
D8 AR35.31-P-0540-06B	Clamping rear axle center assembly in assembly frame	201 589 03 31 00 Assembly stand 129 589 00 31 00 Assembly stand 140 589 40 63 00 Mounting fixtures (2 ea.) 220 589 01 63 00 Mounts	

Rear axle center assembly with 168 mm dia. ring gear

Install rear axle center assembly in assembly frame (054) 210 589 03 31 00 and tighten with Allen screw (054g) and hex. head bolts (054f). If necessary insert commercially available washers (045h) between mounting bolt (054i) and rear axle housing to compensate height of approx. 13.5 mm.

i

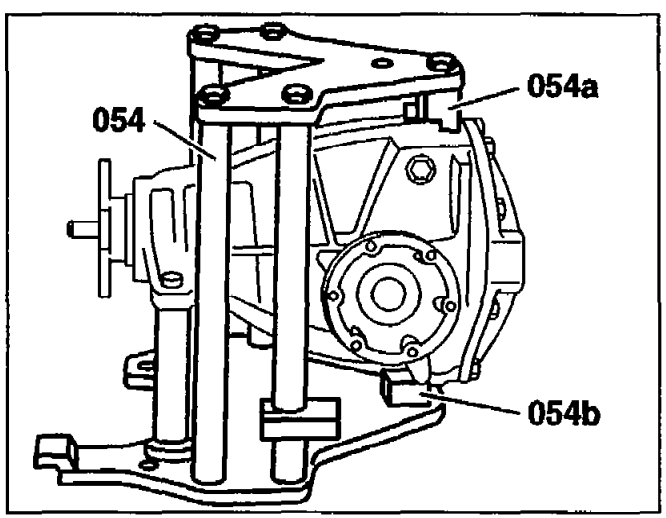
Ensure that center assembly is positioned properly in assembly frame (arrows).
The front left mounting pillar (arrow) is required for support only.



P35.31-0235-01

Rear axle center assembly with 185 mm dia. ring rear

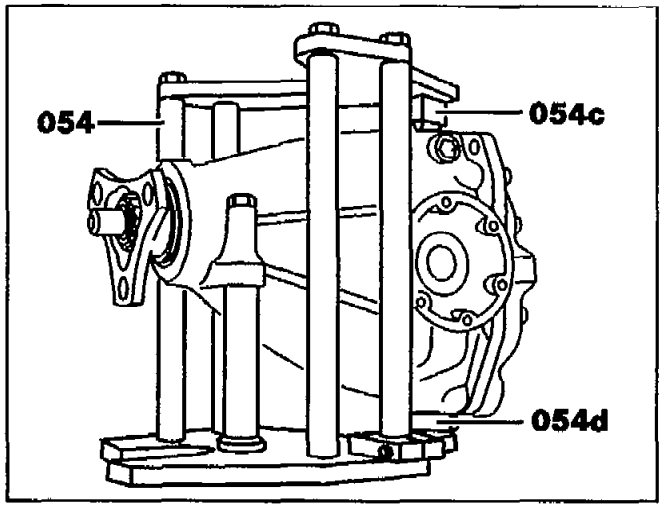
Install rear axle center assembly in assembly frame (054) 129 589 00 31 00 and tighten with mounts (054a) part 15 and (054b) part 09.



P35.31-0236-01

Rear axle center assembly with 198 mm dia. ring rear

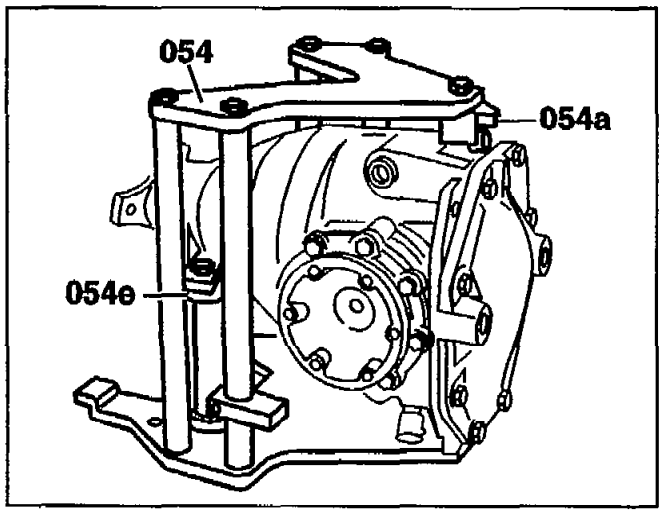
Install rear axle center assembly in assembly frame (054) 129 589 00 31 00 and install with mounts 140 589 40 63 00, top mount (054c) part 06 and bottom mount (054d) part 01, and tighten.



P35.31-0296-01

Rear axle center assembly with 210 mm dia. ring gear

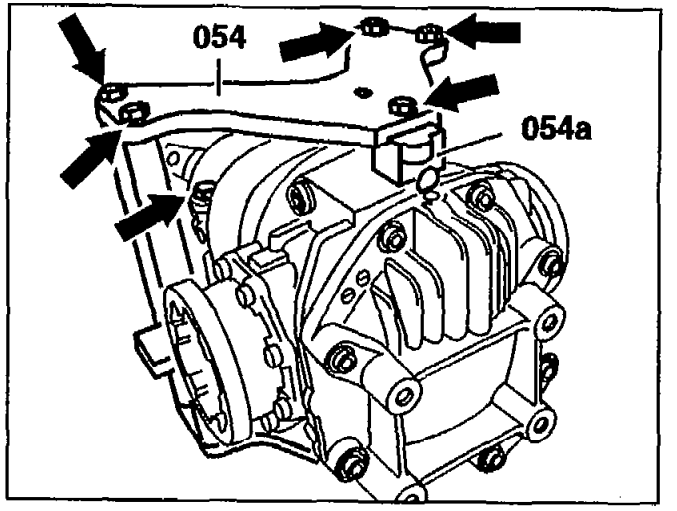
Install rear axle center assembly in assembly frame (054) 129 589 00 31 00 and tighten with mount (054a) part 15 and spacers (054e) part 10.



P35.31-0313-01

Rear axle center assembly with 210 mm dia. ring gear reinforced

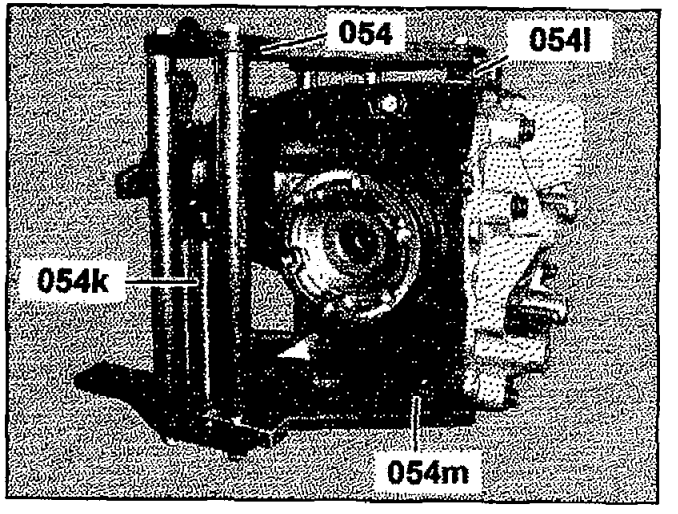
Install rear axle center assembly in assembly frame (054) 129 589 00 31 00 and tighten with mount (054a) part 15 (arrows).



P35.31-0314-01

Rear axle center assembly 210E with 210 mm dia. ring gear

Install rear axle center assembly in assembly frame (054) 129 589 00 31 00 and install with mounts 220 589 01 63 00, mount bolts (054k) part 01, top mount (054l) part 02 and bottom mount (054m) part 03 and tighten.



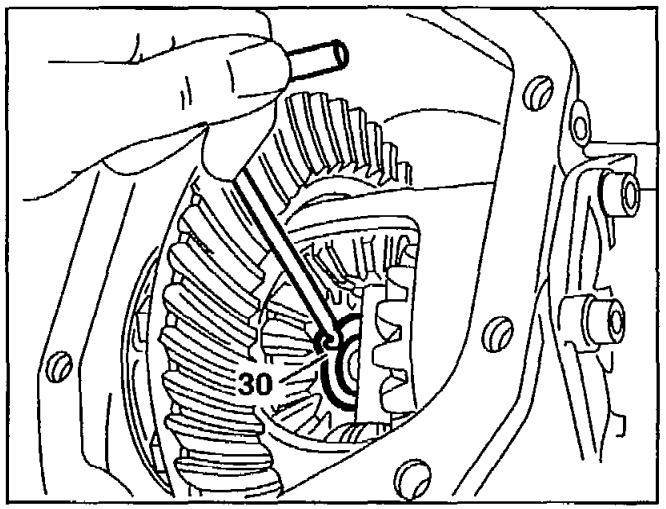
P35.31-2009-01

G8 AR35.31-P-0540-01A	Removal and installation of locking ring on connecting flange	116 589 01 62 00 Removal and installation tool	

Pull off or mount locking ring (30) at connecting flange.

Installation:

Replace locking ring and ensure that it is properly seated.



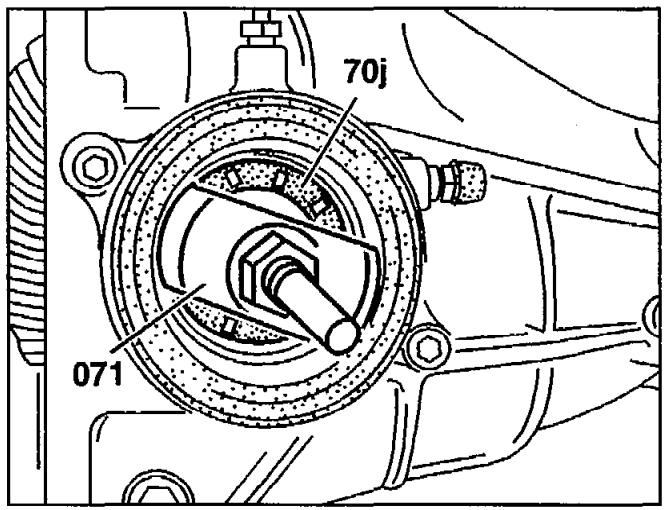
P35.31-0210-01

H8 AR35.31-P-0540-05G	Pressing out and pressing in radial seal ring on side of rear axle housing	Replace radial seal ring and smear sealing lip with Universal hypoid transmission fluid: ↓ 129 589 02 33 00 Removal tool 124 589 01 15 00 Drift punch Universal hypoid transmission fluids	 BB00.40-P-0235-07A

Pressing out

1 Attach puller (071) behind radial seal ring (70j).

2 Pull out radial seal ring (70j).

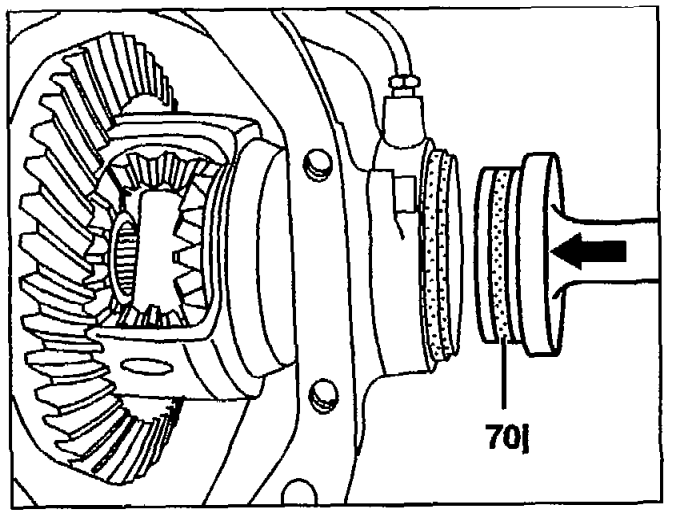


P35.31-0326-01

Pressing in

3 Smear sealing lip of new radial seal ring (70j) with Universal hypoid transmission fluid.

4 Press in radial seal ring (70j) with alignment tool.



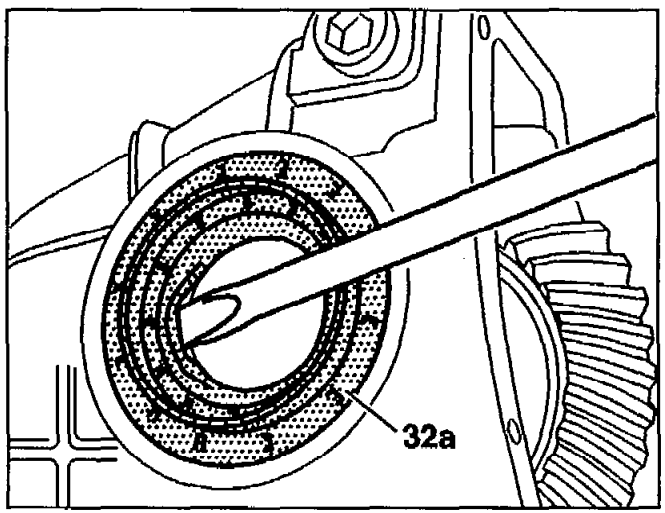
P35.31-0318-01

K8 AR35.31-P-0540-05H	Pressing out and pressing in radial seal ring on side of rear axle housing	Replace radial seal ring and smear sealing lip with Universal hypoid transmission fluid: ↓ 126 589 04 15 00 Drift punch Universal hypoid transmission fluids	 BB00.40-P-0235-07A

Pressing out

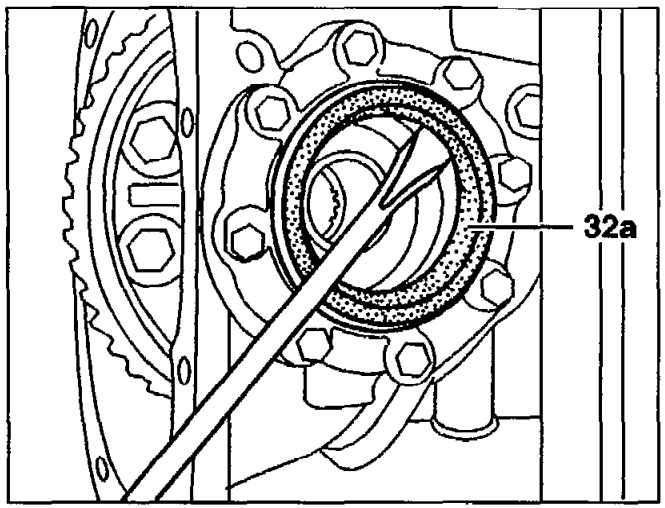
1 Press radial seal ring (32a) out of the housing using a suitable screwdriver.

Shown on 185 mm dia. rear axle center assembly without side bearing cover



P35.31-0238-01

Shown on 210 mm dia. rear axle center assembly with side bearing cover



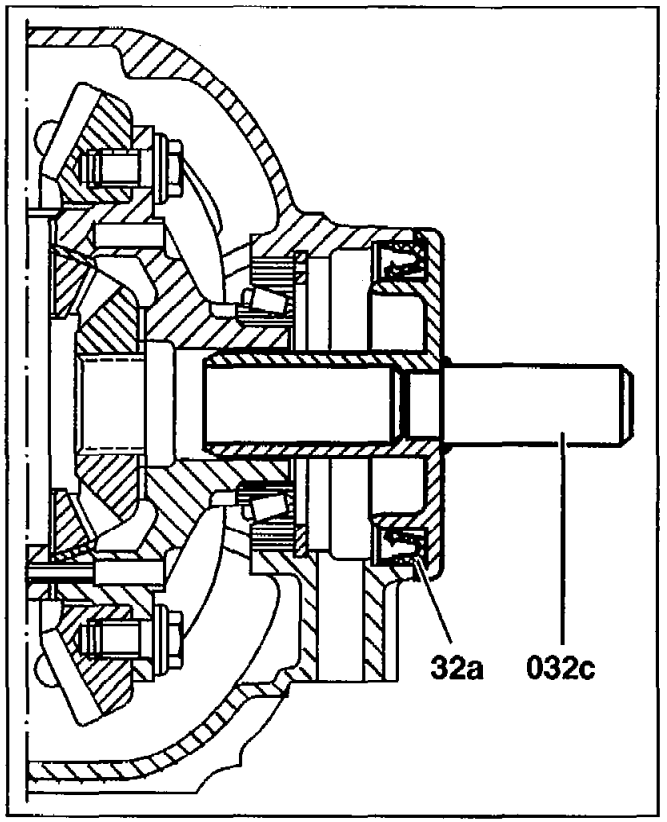
P35.31-0327-01

Pressing in

2 Smear sealing lip of new radial seal ring (32a) with Universal hypoid transmission fluid.

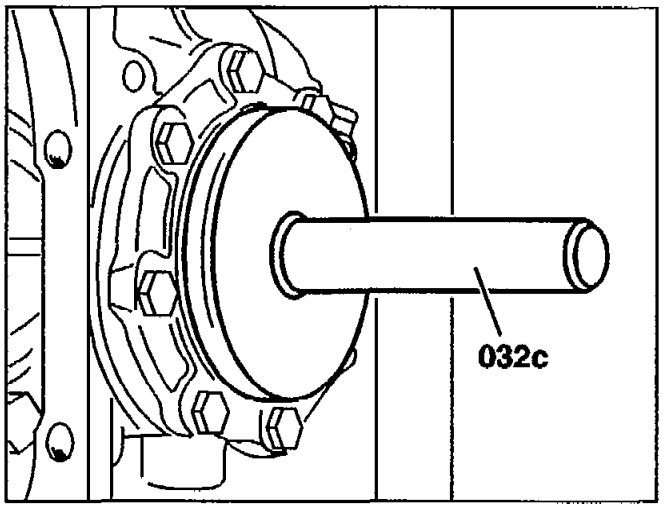
3 Press in radial seal ring (32a) with alignment tool (032c).

Shown on 185 mm dia. rear axle center assembly



P35.31-0319-02

Shown on 210 mm dia. rear axle center assembly

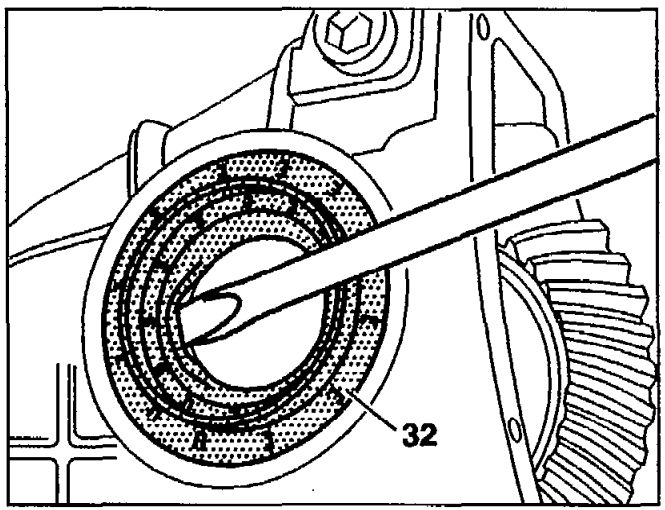


P35.31-0328-01

O8 AR35.31-P-0540-05F	Removal and installation of radial seal ring on side of rear axle housing	Replace radial seal ring and smear sealing lip with Universal hypoid transmission fluid: ↓ 126 589 00 15 00 Drift punch	
		Universal hypoid transmission fluids	BB00.40-P-0235-07A
BT	Radial seal ring on side of rear axle housing and connecting flange modified	as of 01.04.98	BT35.31-P-0013-01A

Pressing off

1 Press radial seal ring (32) out of housing using a suitable screwdriver.

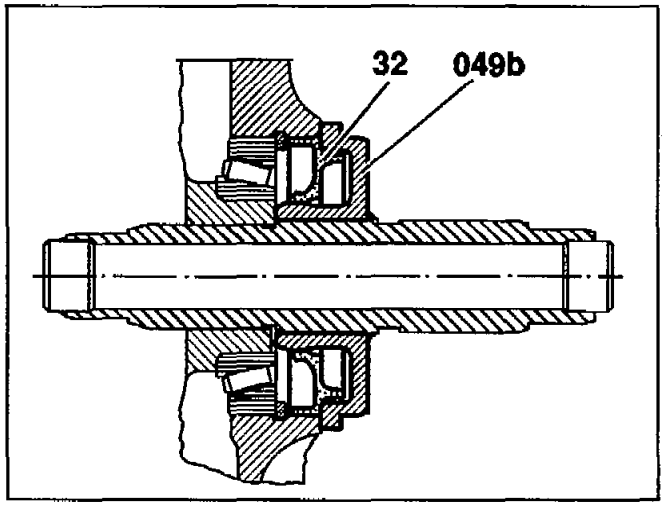


P35.31-0232-01

Pressing in

2 Smear sealing lip of new radial seal ring (32) with Universal hypoid transmission fluid.

3 Press in radial seal ring (32) using drift (049b).



P35.31-0234-01

A9 AR35.41-P-0545-01C	Removing and installing ASD hydraulic pipe on rear axle center assembly		
☞**BT**	Routing of ASD ring cylinder and hydraulic pipe modified	as of 01.07.89	BT35.41-P-0002-01A

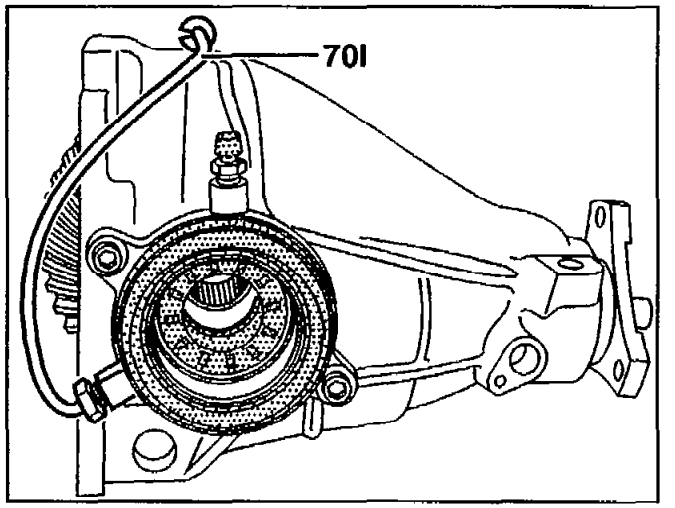
Removal

1 Remove hydraulic pipe (70l) and seal connection.

Installation

2 Install hydraulic pipe (70l), ensure good pipe routing.

Location of 1st version of pipe routing on right-hand side only, breather connector arranged perpendicular



P35.41-0204-01

B9 AR35.41-P-0545-02C	Removing and installing ring cylinder	Coat ring cylinder on periphery of O-ring with hydraulic fluid: ↓ Hydraulic fluids	 BB00.40-P-0343-00A

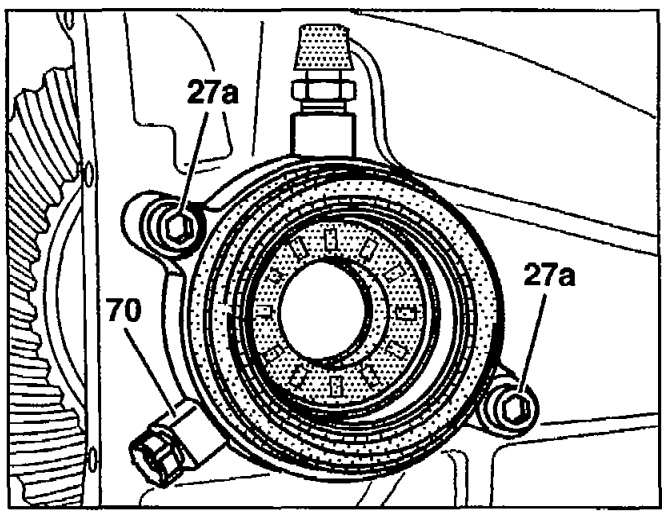
Nm Ring cylinder

Number	Designation		Model 124	Model 129	Model 201	Model 202
BA35.41-P-1001-01A	Bolt to ring cylinder	Nm	25	25	25	25

Removal

1 Unscrew hexagon socket bolts (27a) and remove ring cylinder (70)

Location of 1st version



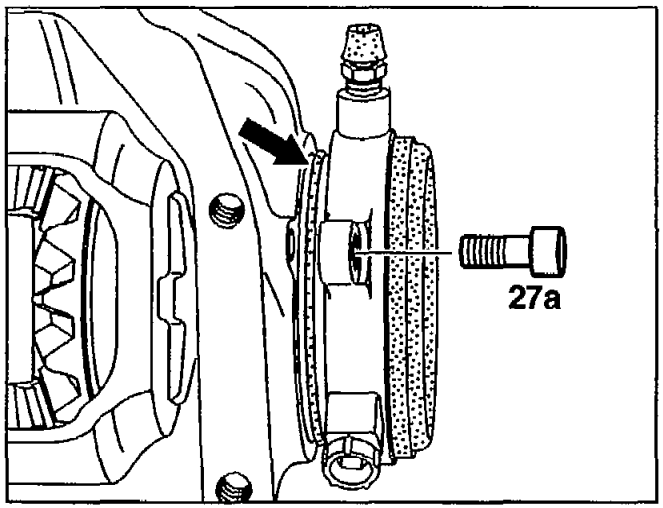
P35.41-0206-01

Installation

2 Smear ring cylinder on periphery of O-ring with hydraulic fluid (specification 343.0) and insert in rear axle center assembly.

Do not damage O-ring when installing (arrow).

3 Screw in hexagon socket bolts (27a), observe tightening torque.



P35.41-0207-01

D9	AR35.31-P-0550-36C	Removing right-hand locking ring from rear axle housing using spreader	126 589 00 31 00 Spreader 126 589 08 21 00 Kingpin inclination gauge	

Test values of rear axle housing expansion

Number	Designation		Models 124.003/004/007/019/022/023/026/027/030/040/042/043/050/060/062/079/082/083/090 Models 124.104/107 as of 01.05.94 Models 124.127/128/129/130/131/133 Model 124.186 as of 01.03.94, except (code 450) taxi version Models 124.188/190/191/193/226/230/290/330/333/393	Models 124.020/021/080/081/120/125/126/180/185/186, with (code 450) taxi version as of 01.11.88
BE35.31-P-1001-04C	Rear axle housing expansion (expanded dimension) when removing locking ring	mm	0.2	0.2

Test values of rear axle housing expansion

Number	Designation		Model 129.060	Models 170.445/ 447	Models 201.018/023/024/ 122/126, with (code 450) taxi version as of 01.11.88
BE35.31-P-1001-04C	Rear axle housing expansion (expanded dimension) when removing locking ring	mm	0.2	0.2	0.2

Test values of rear axle housing expansion

Number	Designation		Models 201.028/029/035/ 036/128	Models 202.018/078/ 120/121/122/ 125/182 with (code 450) taxi version, Models 202.018/020/ 022/120/121/125 with (code 211) ASD	Models 202.020/022/023/ 024/025/026/028/029/ 080/082/083/086/089/ 128/188, Model 202.085 with automatic transmission, Models 202.134/194 except (code 450) taxi version
BE35.31-P-1001-04C	Rear axle housing expansion (expanded dimension) when removing locking ring	mm	0.2	0.2	0.2

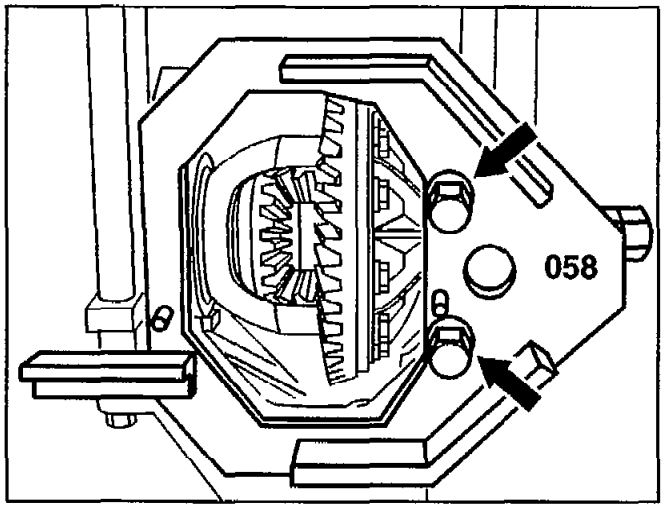
Test values of rear axle housing expansion

Number	Designation	Models 208.335/345/347/435/445/447	Models 210.007/010/020/035/037/061/210/235/237/261/610	Models 210.003/004 with (code 450) taxi version
BE35.31-P-1001-04C	Rear axle housing expansion (expanded dimension) when removing locking ring mm	0.2	0.2	0.2

Commercially available tools (refer to Workshop equipment manual)

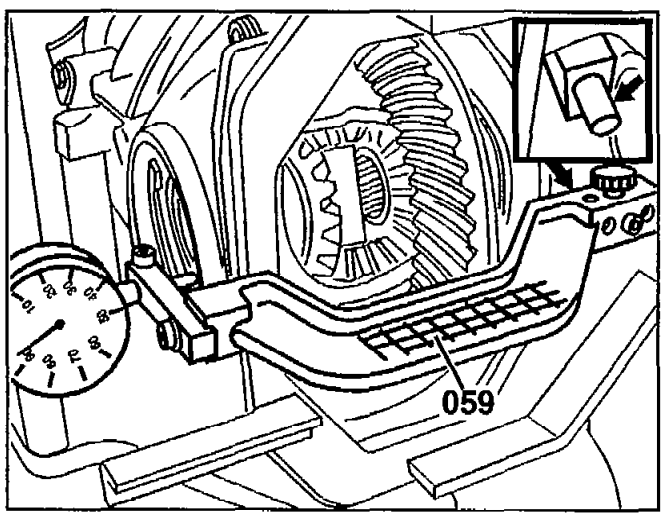
Number	Designation	Company (e.g.)	Order number
WH58.30-Z-1011-02A	Pliers for inner locking ring (85 - 165 mm dia.)	Hazet Güldenwerther Bahnhofstraße 25-28 D-42857 Remscheid	1846a-4

1 Fasten spreader (058) on rear axle housing, by tightening the hexagon bolts (arrows) to **40 Nm**.



P35.31-0401-01

2 Place contact arm (059) on spreader for expanded dimension measurement. Adjust dial gauge to **"0"** under **3 mm** preload.

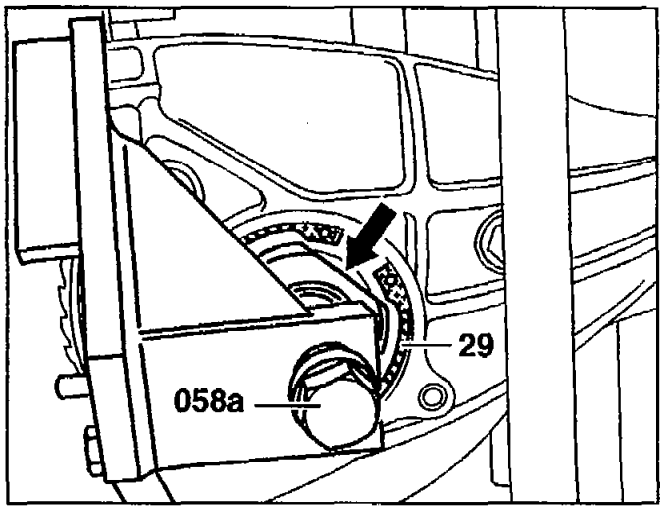


P35.31-0402-01

The stop pin (arrow) of the contact arm must abut the bearing surface of the rear axle housing.

3 Turn flat (arrow) of thrust piece towards the opening of the locking ring (29).

4 Screw in the threaded spindle (058a) of the spreader by hand until the thrust piece abuts the tapered roller bearing outer race.

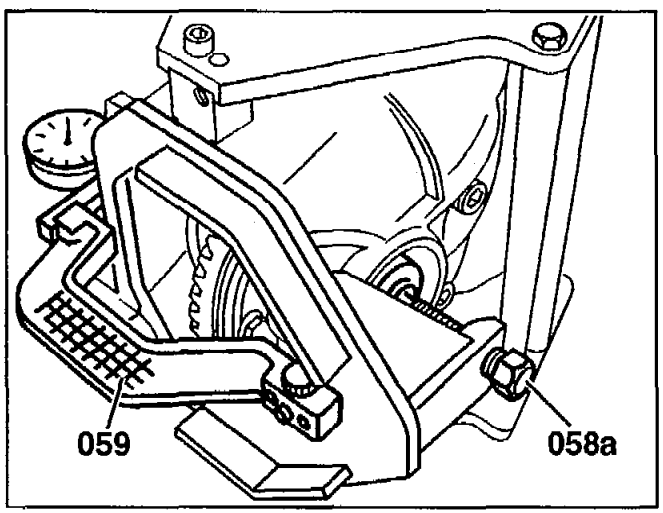


P35.31-0403-01

5 Screw in the threaded spindle (058a) until the rear axle housing has reached an expanded dimension of **0.20 mm.**

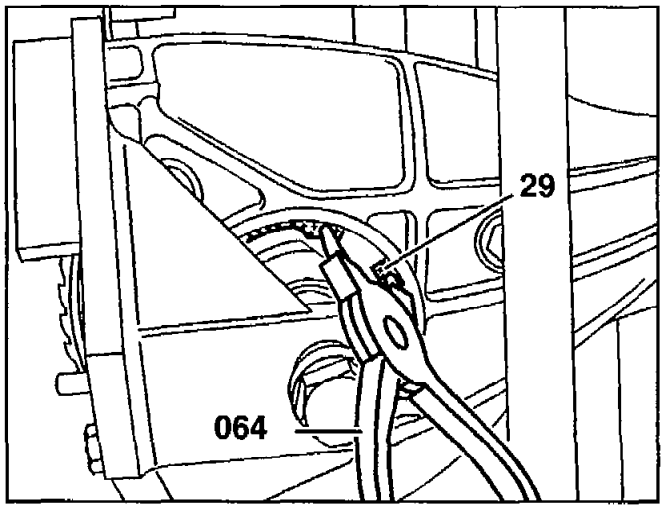
Do not exceed the specified expanded dimension when spreading.

6 Remove contact arm (059).



P35.31-0404-01

7 Remove right-hand locking ring (29) out of rear axle housing using locking ring pliers (064).



P35.31-0405-01

i

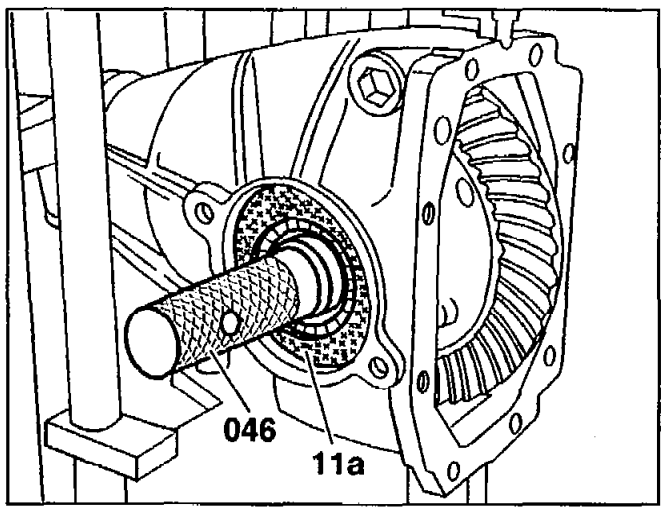
Mark locking ring.

8 Unclamp rear axle housing and remove spreader.

K9	AR35.31-P-0550-02C	Removing tapered roller bearing outer races from rear axle housing	116 589 18 61 00 Installation punch	

1 Insert assembly mandrel (046) for differential bevel gears on the left side and press complete differential to the right until it abuts the rear axle housing.

2 Remove left and right tapered roller bearing outer race (11a).



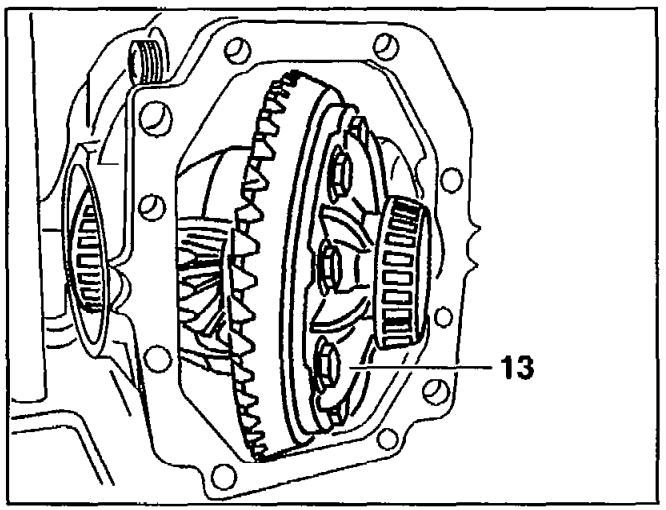
P35.31-0406-01

i

Mark tapered roller bearing outer races.

L9	AR35.31-P-0550-03B	Removing and installing differential at rear axle housing		

Move differential (13) into the position shown and remove/install at rear axle housing.



P35.31-0353-01

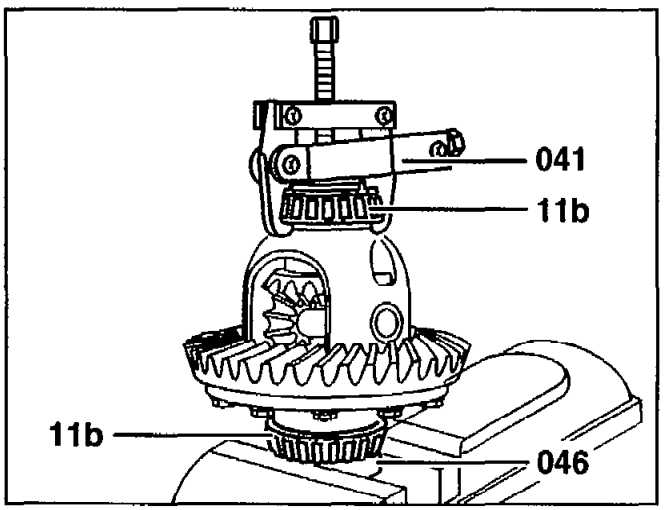
M9	AR35.31-P-0550-04C	Removing tapered roller bearing inner races from differential	116 589 18 61 00 Installation punch 123 589 08 33 00 Puller	

1 Put differential on assembly mandrel (046)

2 Using the puller (041), pull both tapered roller bearing inner races (11b) off differential.

i

Mark tapered roller bearing inner races.



P35.31-0407-01

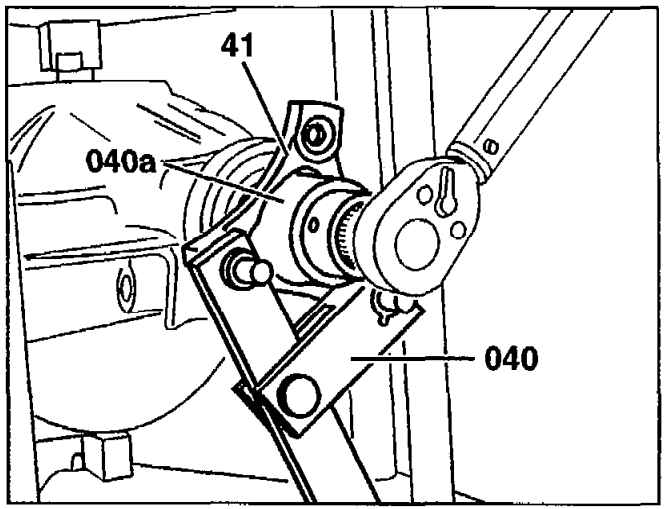
N9 AR35.31-P-0550-35C	Loosening and unscrewing twelve-point collared nut on joint flange	129 589 01 07 00 Pin wrench 126 589 02 09 00 Socket	

Mount Allen wrench (040) on joint flange (41). Using Allen wrench (040a), loosen and remove twelve-point collared nut.

i

To loosen, do not unlock crimped collar locking device of twelve-point collared nut.

185 mm dia. rear axle center assembly illustrated



P35.31-0408-01

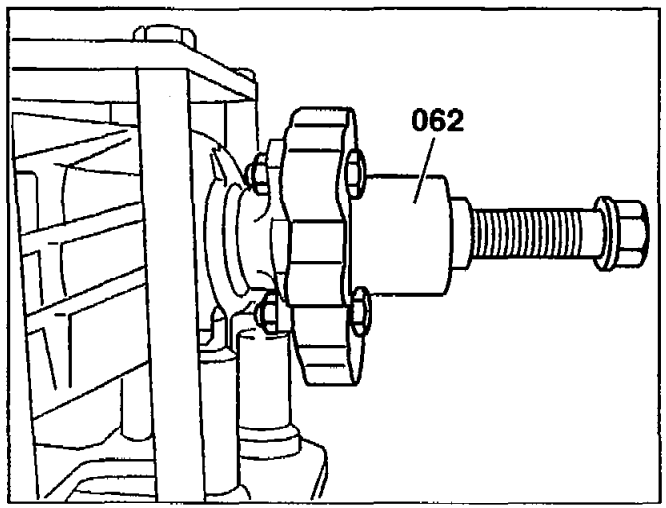
09 AR35.31-P-0550-06B **BT**	Removing joint flange Radial seal ring and joint flange on drive pinion modified	129 589 01 33 00 Puller Rear axle center assembly with 185 mm dia. crown wheel, 210 mm as of 01.04.98	BT35.31-P-0012-01A

Remove joint flange from drive pinion using puller (062), if necessary.

i

Mark joint flange relative to drive pinion, if necessary.

168 mm dia. rear axle center assembly illustrated



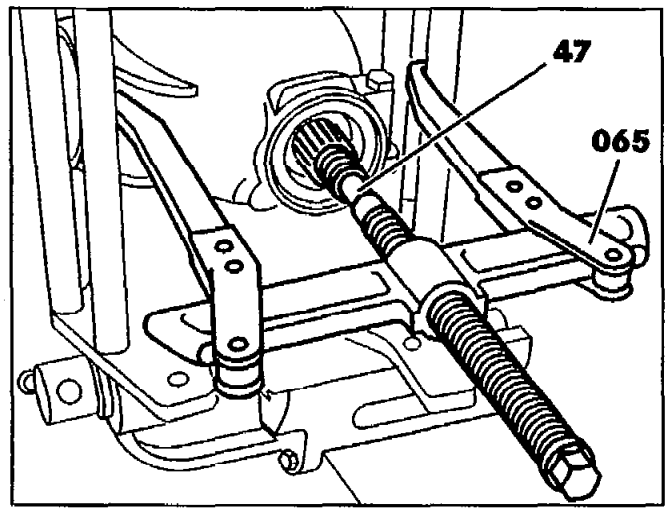
P35.31-0357-01

P9 AR35.31-P-0550-07A	Pressing drive pinion out of rear axle housing	000 589 65 33 00 Puller	

Press drive pinion (47) out of rear axle housing using puller (065) and remove.

When pressing out, hold drive pinion and puller securely.

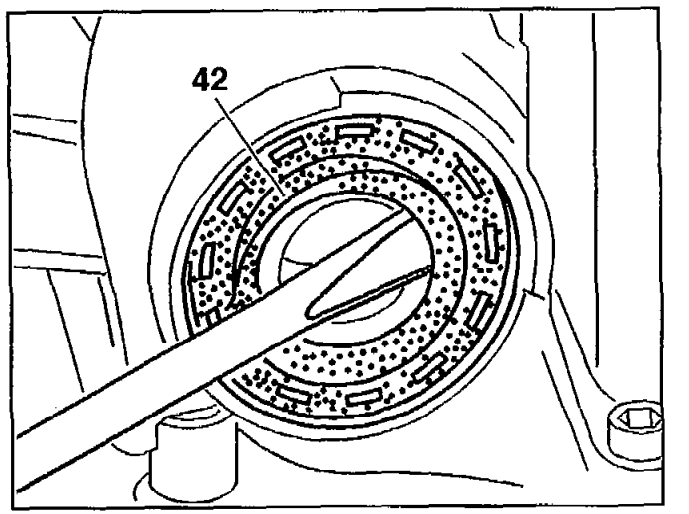
198 mm dia. rear axle center assembly illustrated



P35.31-0254-01

A10 AR35.31-P-0550-08B **BT**	Pressing radial seal out of rear axle housing Radial seal ring and joint flange on drive pinion modified	Rear axle center assembly with 185 mm dia. crown wheel, 210 mm as of 01.04.98	BT35.31-P-0012-01A

Press radial seal ring (42) out of rear axle housing using a suitable screwdriver.

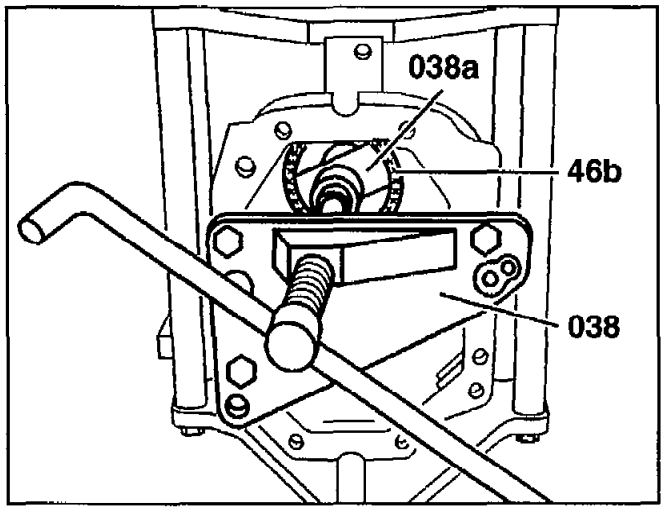


P35.31-0359-01

B10 AR35.31-P-0550-09C	Removing tapered roller bearing outer races from rear axle housing	201 589 02 43 00 Removal and installation tool	

1 Mount removal and installation tool (038) on rear axle housing.

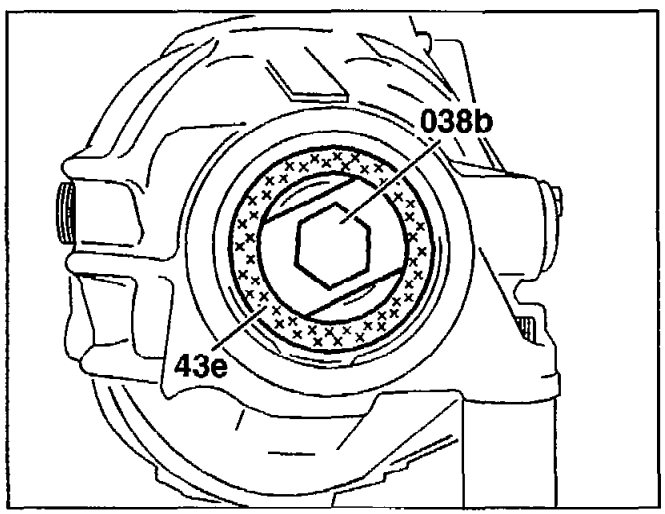
2 Using thrust piece (038a) part 15, pull the large tapered roller bearing outer race (46b) out of the rear axle housing and remove with shim.



P35.31-0409-01

3 Using thrust piece (038b) part 16, press out the small tapered roller bearing outer race (43e) and remove.

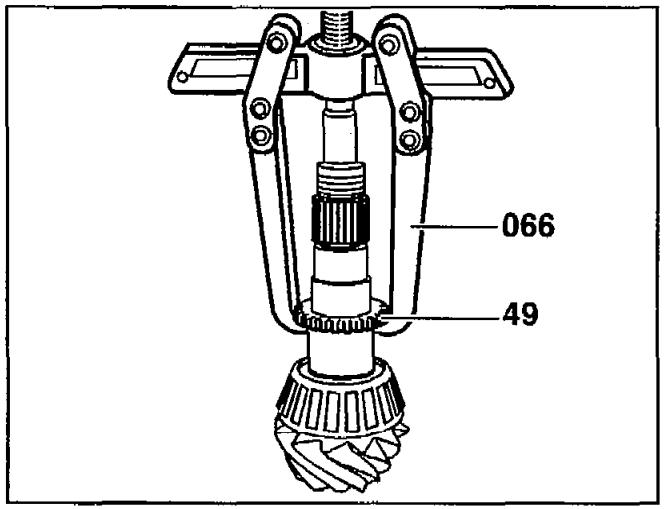
4 Remove removal and installation tool.



P35.31-0410-01

C10 AR35.31-P-0550-30B	Removing ABS gear from drive pinion	000 589 88 33 00 Two-arm puller	

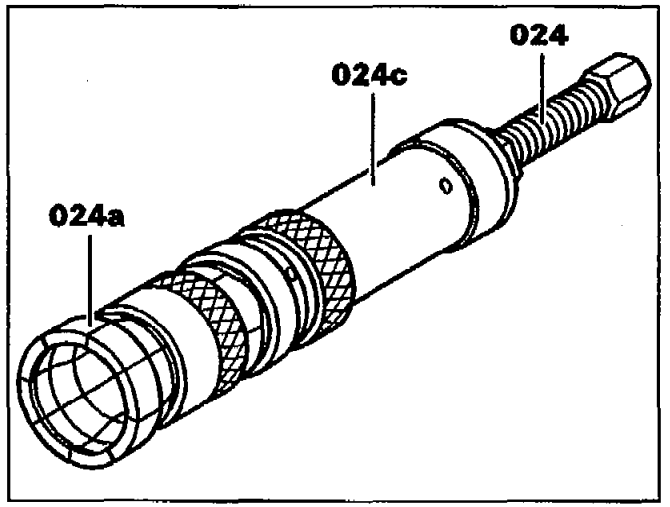
Remove ABS gear (49) with puller (066) from from drive pinion



P35.31-0362-01

D10 AR35.31-P-0550-10C	Removing tapered roller bearing inner race from drive pinion	000 589 34 34 00 Collet chuck 140 589 00 01 00 Open-end wrench 001 589 50 33 00 Puller 000 589 63 34 00 Extension	

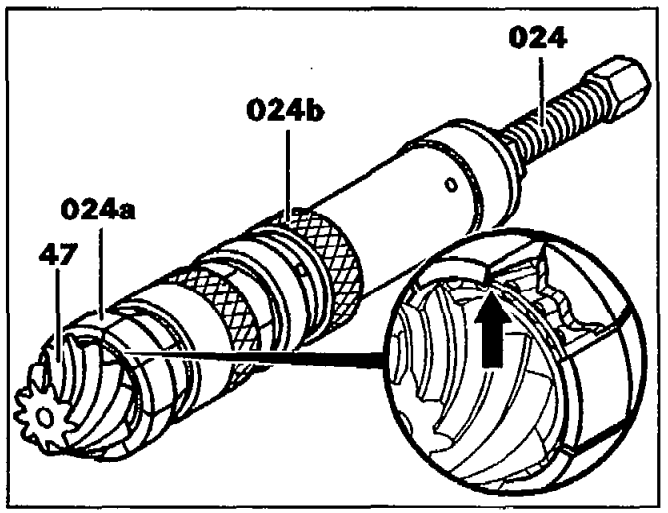
1 Assemble puller basic unit (024) with extension (024c) and clamping pliers (024a) and tighten securely. Use open-end wrench to assemble or dismantle the extension, if necessary.



P35.31-0258-01

2 Push the puller (024) with clamping pliers (024a) over the tapered roller bearing inner race and clamp securely behind the rollers (arrow) with roll pin (024b).

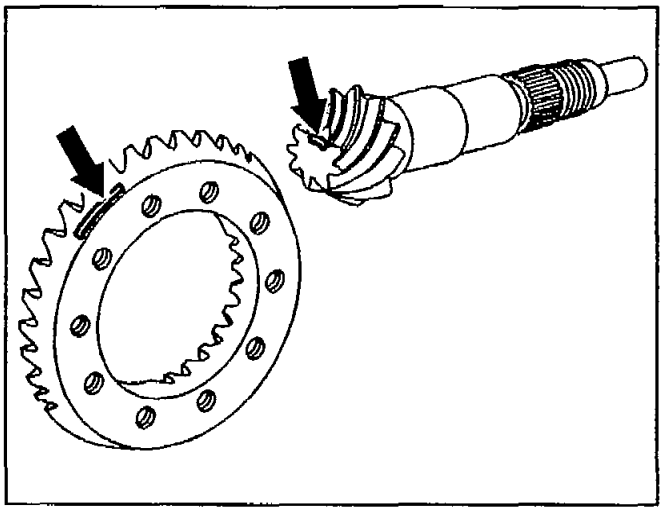
3 Using the puller (024), pull tapered roller bearing inner race off the drive pinion (47) and remove.



P35.31-0259-01

E10 AR35.31-P-0550-11A	Checking drive pinion and crown wheel for pairing number		
BT	Gear sets ground	Phased in as of 06/95	BT35.31-P-0011-01B

Each drive pinion and ring gear belonging to a lapped gear set is marked with a serial number which is written on both parts (arrows). In addition the basic dimension of the gears to one another which has to be adjusted for the relevant gear set is always shown with a + or - prefix on the drive pinion.



P35.31-0260-01

i

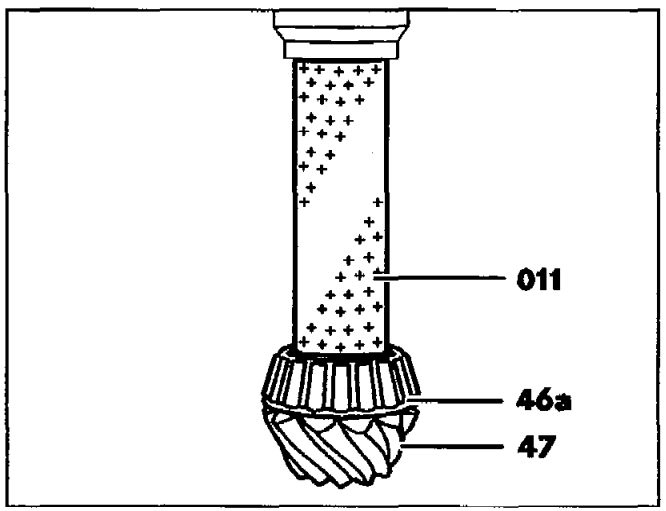
The shim thickness required for adjusting the drive pinion is to be calculated. Use the specified data sheet for this purpose.

F10 AR35.31-P-0550-12C	Pressing tapered roller bearing inner race onto drive pinion		
WF	Press-on sleeve for tapered roller bearing inner race		WF58.50-P-3531-03B

Using the shop-made press-on sleeve (011), press the tapered roller bearing inner race (46a) onto the drive pinion (47).

i

Use the side of the press-on sleeve (011) marked "B" for pressing on.



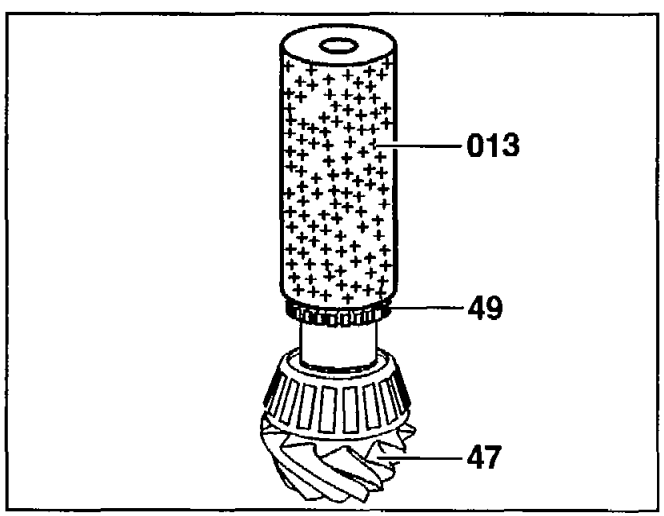
P35.31-0261-01

G10 AR35.31-P-0550-31B	Pressing ABS gear onto drive pinion		
☞WF	Press-on sleeve for ABS gear		WF58.50-P-3531-04B
		Number of teeth on ABS gear: ↓	
☞GF		Characteristics, installation survey for rear axle center assemblies with 168 mm dia. crown wheel	GF35.31-P-1000-01B
☞GF		Characteristics, installation survey for rear axle center assemblies with 185 mm dia. crown wheel	GF35.31-P-1000-01C
☞GF		Characteristics, installation survey for rear axle center assemblies with 210 mm dia. ring gear	GF35.31-P-1000-01D

Press ABS gear (49) with shop-made spacer sleeve (013) onto drive pinion (47).

i

The number of teeth on the ABS gear (49) must correspond with the rear axle ratio.

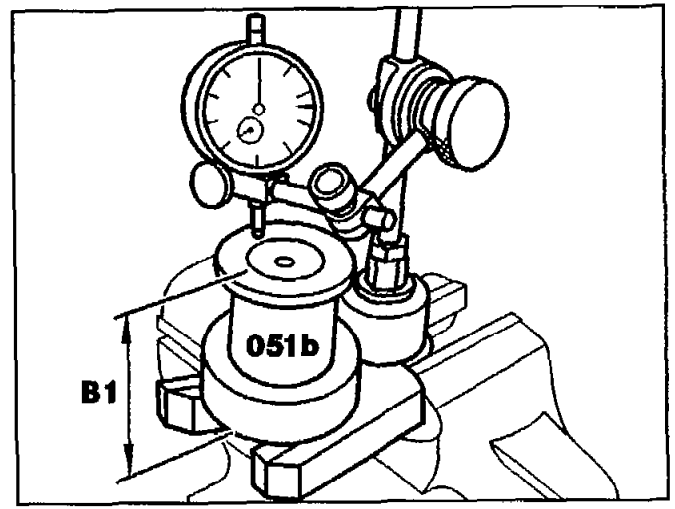


P35.31-0363-01

H10 AR35.31-P-0550-13C	Calculating shim and installing in rear axle housing	Use data sheet: ↓ 124 589 14 21 00 Measuring device 126 589 00 21 00 Measuring device 363 589 02 21 00 Dial gage holder 601 589 00 23 00 Measuring plate 000 589 38 19 00 Dial gauge Data sheet, gear set adjustment of rear axle: order no. B20.800.98.113.00C	

1 Clamp commercially available dial gauge in gauge stand 363 589 02 21 00 and mount on measuring plate 601 589 00 23 00.

2 Adjust dial gauge on gauging member (051b) 124 589 14 21 00 part 01 to **"0"** under approx. **3 mm** preload so that the height of gauging member **"B1"** is adjusted.

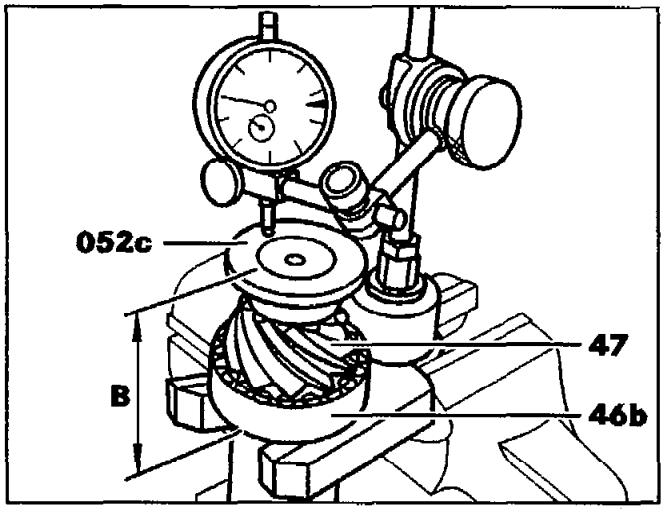


P35.31-0262-01

3 Mount tapered roller bearing outer race (46b) on the tapered roller bearing inner race of drive pinion (47) and attach magnetic plate (052c) 126 589 00 21 00 part 16.

4 Install drive pinion in the measuring plate and measure the height of the drive pinion with tapered roller bearing and magnetic plate.

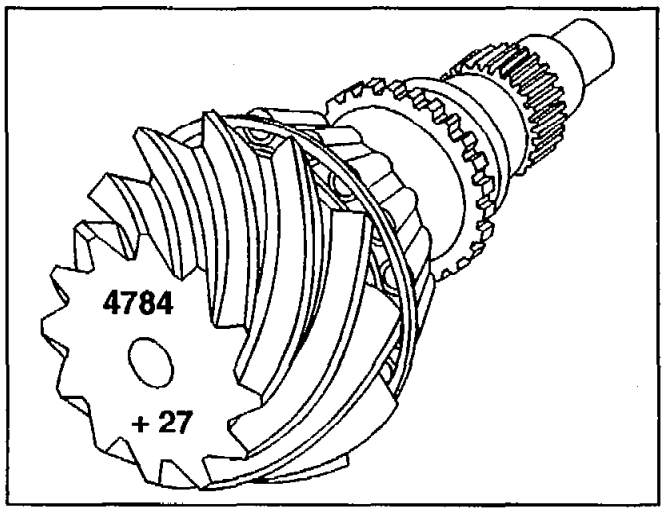
5 **Entering item 1 in the data sheet.**
Read off difference between height of gauging member **"B1"** height of drive pinion with magnetic plate **"B"** and enter under item 1 of the data sheet (e.g. 1.30 mm).



P35.31-0263-01

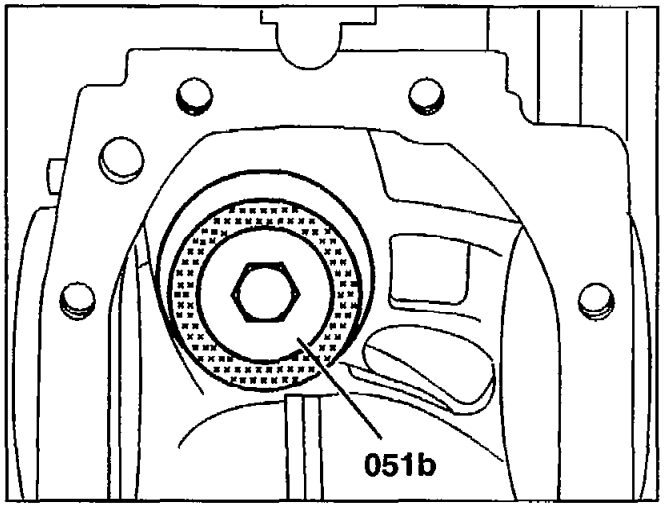
6 **Entering item 2 in the data sheet.**
Read off basic deviation **"a"** of the drive pinion (+ or -) and enter under item 2 of the data sheet (e.g. + 0.27).

7 **Calculating the subtotal in data sheet.**
Depending on the prefix (+) or (-) of the value on the drive pinion, add (+) or subtract (-) values from item 1 and 2.



P35.31-0364-01

8 Install gauging member (051b) 124 589 14 21 00 part 01 of the measuring device in the rear axle housing. Screw on gauging member with fixing piece 124 589 14 21 00 part 02 and hexagon bolt.



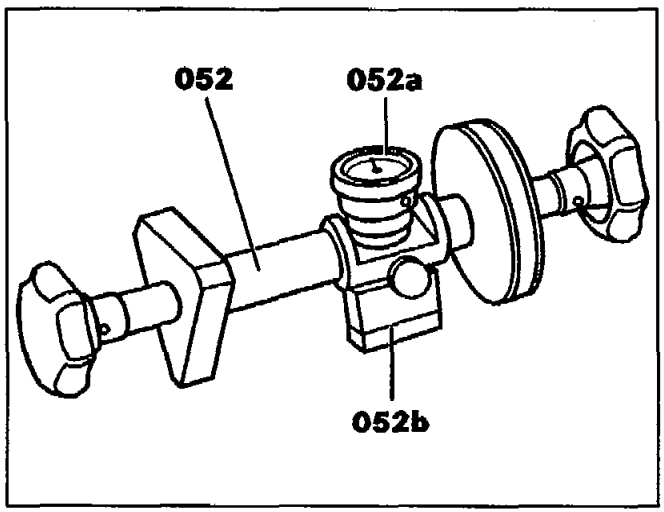
P35.31-0411-01

9 Install dial gauge (052a) 000 589 38 19 00 with measuring pin in the measuring device (052) 126 589 00 21 00 00.

i

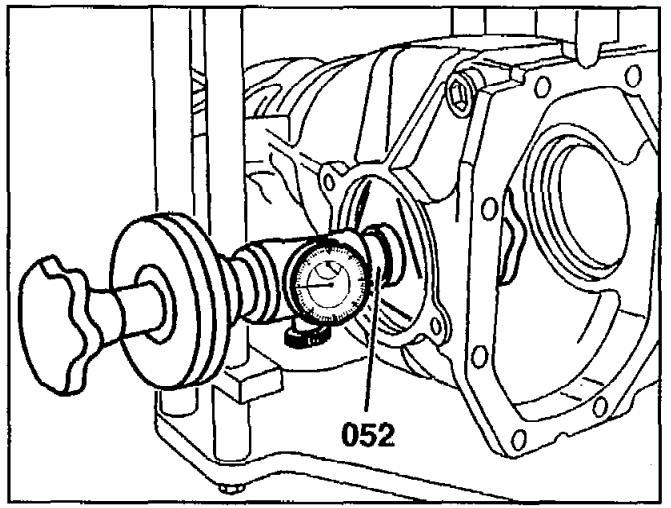
Measuring pin for dial gauge is screwed into the adjuster (052b)

10 Press adjuster (052b) 126 589 00 21 00 part 10 against the measuring device and adjust dial gauge to **"0"** under **2 mm** preload. Tighten clamping screw securely, checking the **"0"** position of the dial gauge and readjust, if necessary.



P35.31-0267-01

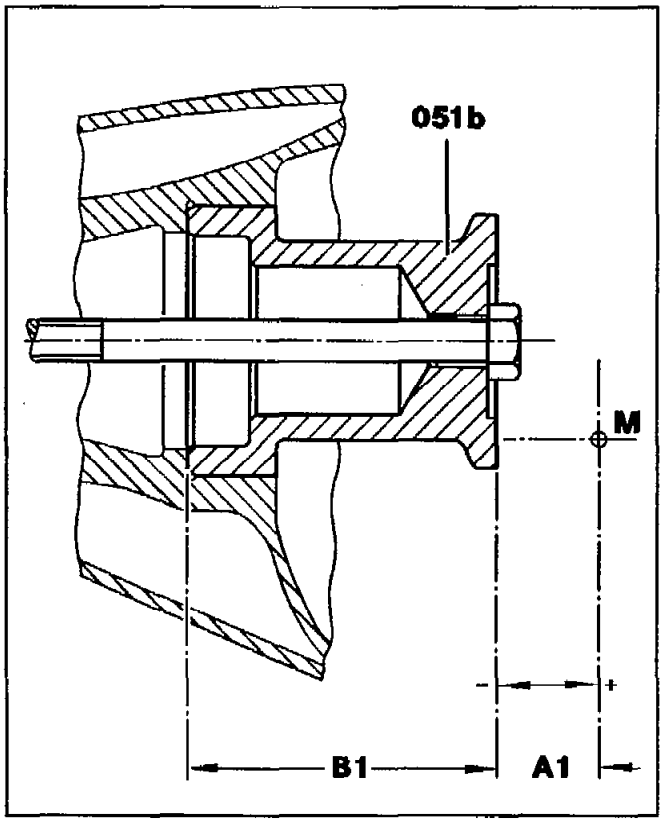
11 Install measuring device (052) in the rear axle housing from the left bore.



P35.31-0412-01

When inserting the measuring device (052) in the rear axle housing, ensure that the measuring pin of the dial gauge is not damaged at the bore.

12 Entering item 3 in the data sheet.
Measure the difference **"A1"** between the adjusted gauge dimension and end face of gauging member and enter under item 3 of the data sheet in the positive (+) or negative (-) direction (e.g.- 0.15 mm measured and therefore negative direction).



P35.31-0270-02

051b *Gauging member*
A1 *Difference between gauge dimension and end face of gauging member*
B1 *Height of gauging member*
M *Center of crown wheel*

i

The specification of the positive (+) or negative (-) direction is related to the direction of rotation of the dial gauge pointer.
Starting from the zero position the counterclockwise direction of rotation therefore means negative direction and the clockwise direction of rotation means the positive direction.

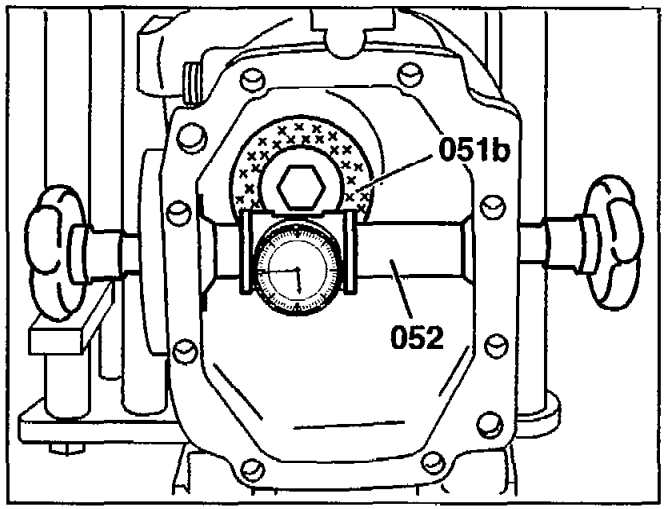
13 **Calculating the shim "S" thickness in the data sheet.**
Add (+) or subtract (-) the subtotal of the values from item 1 and 2 as well as the value from item 3. The value calculated gives the shim thickness.

Example:

1. Measure difference in height of gauging member **"B1"** and height of drive pinion with magnetic plate **"B"**		= 1.30
2. Read off basic deviation **"a"** on drive pinion		= + 0.27
		= -
Subtotal		= 1.57
3. Measure difference **"A1"** between gauge dimension adjusted and end face of gauging member	Negative direction	= + 0.15
	Positive direction	= -
Shim thickness "S"		= 1.72

14 Take measuring device (052) out of rear axle housing. Remove gauging member (051b).

15 Install shim with the calculated thickness "**S**" in the rear axle housing.



P35.31-0413-01

i

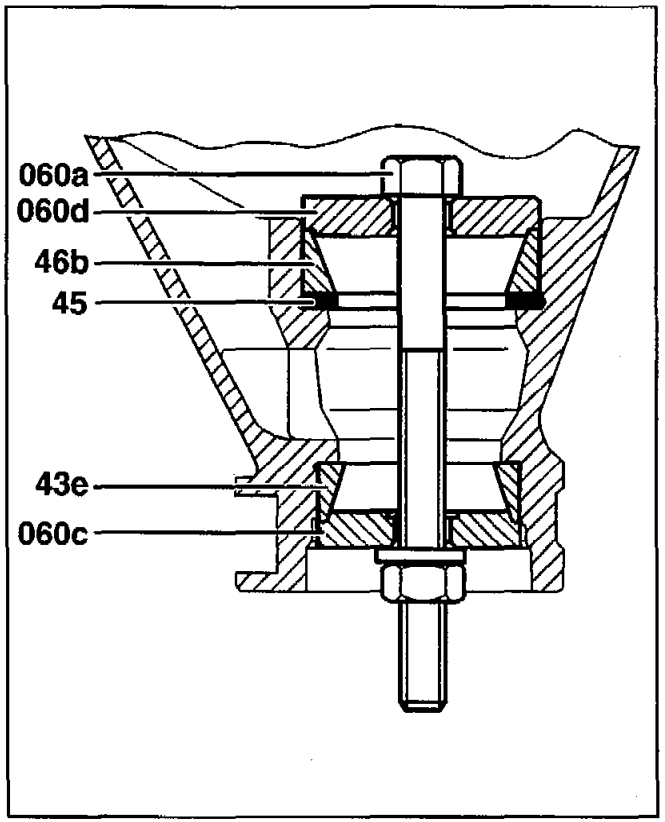
Only hardened shims may be used. They are available in various thicknesses (refer to parts microfiche). If necessary, grind shim accordingly.

O10 AR35.31-P-0550-14C	Pulling tapered roller bearing outer races into rear axle housing	116 589 11 61 00 Installation tool	

Using pulling-in device (060a, 060c, 060d), pull in outer races of the front (43e) and rear (46b) tapered roller bearing up to the stop in the rear axle housing.

Ensure that the shim (45) is installed. Do not tilt over tapered roller bearing outer races when pulling in.

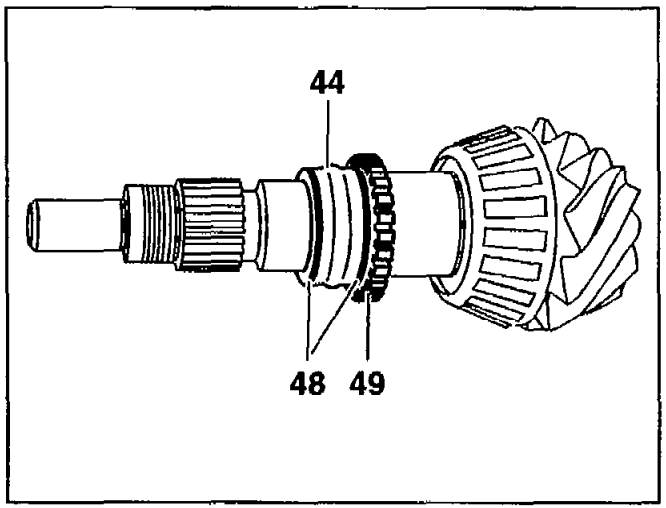
060a Threaded spindle
060c Small pulling-in washer, part 03
060d Large pulling-in washer, part 02
43e Tapered roller bearing outer race, front
45 Shim
46b Tapered roller bearing outer race, rear



P35.31-0414-02

P10 AR35.31-P-0550-26B	Installing spacer sleeve with bearing washers on both sides on drive pinion		

Place one bearing washer (48) on both sides of the spacer sleeve (44) and install on the drive pinion.



P35.31-0369-01

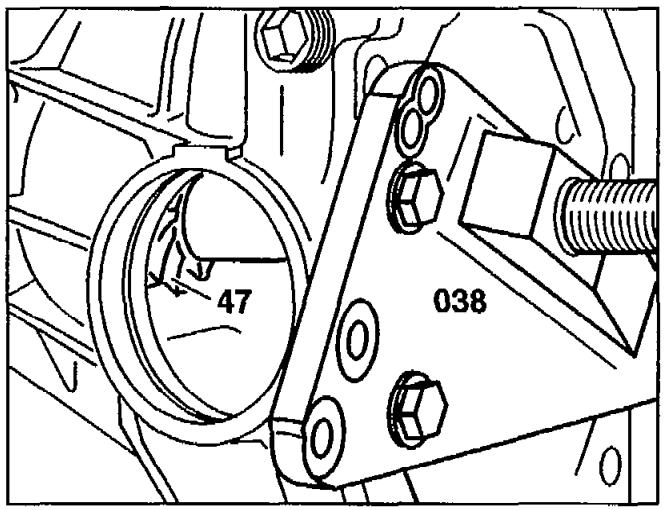
i

The spacer sleeve and bearing washers must always be replaced.

44 Spacer sleeve
48 Bearing washer
49 ABS gear

A11	AR35.31-P-0550-15B	Installing drive pinion in rear axle housing	201 589 02 43 00 Removal and installation tool	

Install drive pinion (47) in the rear axle housing and support with removal and installation tool (038), turning the spindle lightly by hand.



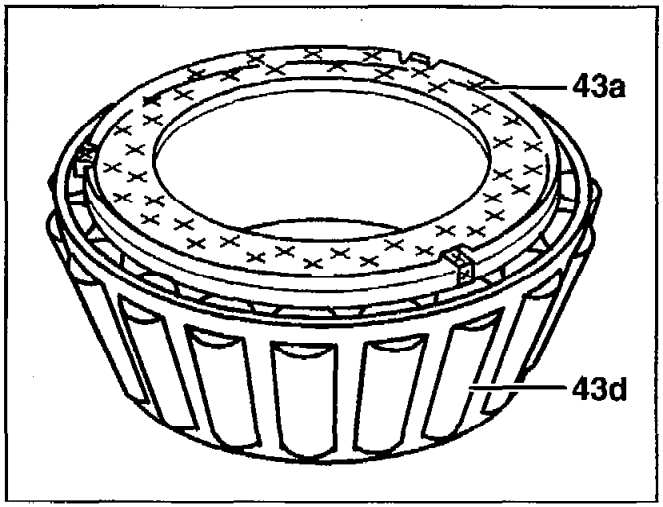
P35.31-0370-01

B11 AR35.31-P-0550-37C	Clipping thrust washer onto tapered roller bearing inner race		
BT	Integrated thrust washer on tapered roller bearing inner race		BT35.31-P-9402-01A

Clip thrust washer (43a) on tapered roller bearing inner race (43d).
Check retaining clips on tapered roller bearing inner race are properly seated.

i

Replace thrust washer.



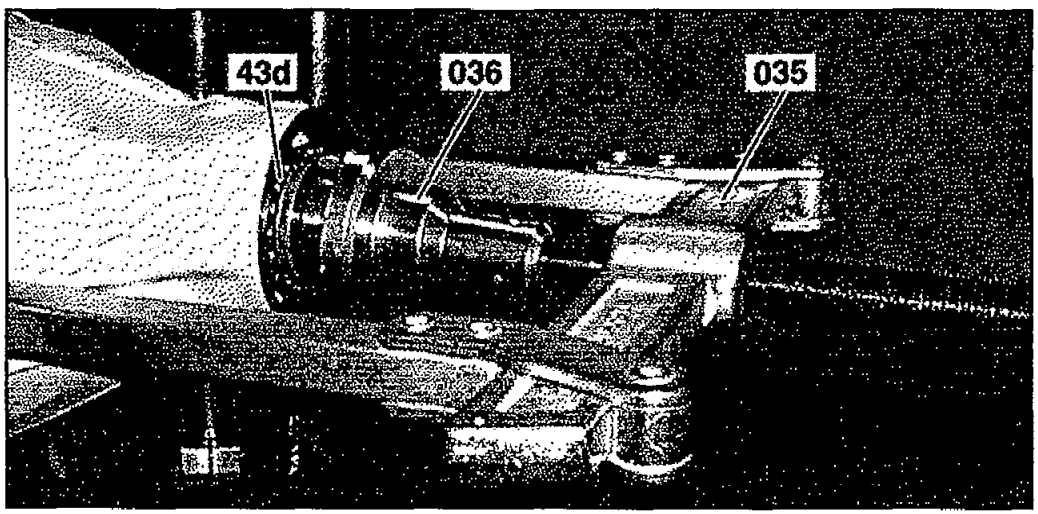
P35.31-0415-01

C11 AR35.31-P-0550-16C	Install tapered roller bearing inner race on drive pinion and press in together with radial seal ring	Replace radial seal ring and smear sealing lip with Universal hypoid transmission fluid: ↓ 208 589 00 15 00 Drift 124 589 02 15 00 Drift punch 000 589 65 33 00 Puller	
BB		Universal hypoid transmission fluids	BB00.40-P-0235-07A
BT	Radial seal ring and joint flange on drive pinion modified	As of 01.04.98	BT35.31-P-0012-01A

1 Insert tapered roller bearing inner race (43d) in rear axle housing.

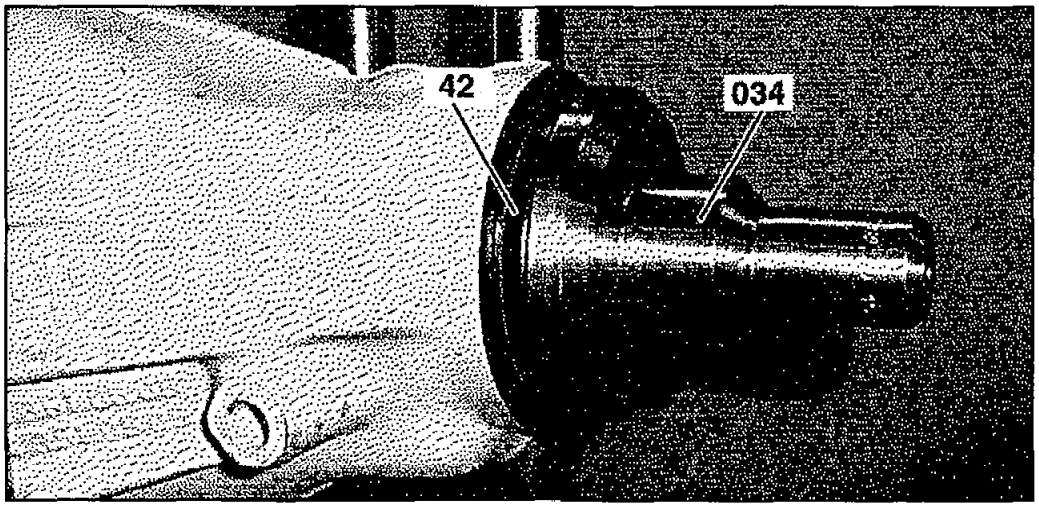
2 Press in tapered roller bearing inner race (43d) using drift punch (036) 124 589 02 15 00 and puller (035).

3 Remove puller with drift punch from rear axle housing.



P35.31-2016-10

4 Smear sealing lip of new radial seal ring (42) with Universal hypoid gear oil and press in using drift punch (034) 208 589 00 15 00.



P35.31-2017-10

i

The radial seal ring (42) must be pressed in approx. 2 mm from the end face of the rear axle housing (up to the chamfer).

5 Remove drift punch.

E11 AR35.31-P-0550-17C	Adjusting friction torque of drive pinion bearing	001 589 49 21 00 Torque meter 100 589 02 59 00 Adapter 129 589 01 07 00 Pin wrench 126 589 02 09 00 Socket	

Test values of friction torque of rear axle center assembly

Number	Designation		Models 124.003/004/007/ 019/022/023/026/027/ 030/040/042/043/050/ 060/062/079/082/083/ 090 Models 124.104/107 as of 01.05.94 Models 124.127/128/129/ 130/131/133 Model 124.186 as of 01.03.94, except (code 450) taxi version Model 124.188/190/191/ 193/226/230/290/330/ 333/393	Models 124.020/021/080/ 081/120/125/126/180/ 185/186, with (code 450) taxi version as of 01.11.88	Model 129.060
BE35.31-P-1001-02C	Friction torque of drive pinion bearing(new tapered roller bearings)	Ncm	125-150	125-150	125–150

Test values of friction torque of rear axle center assembly

Number	Designation		Models 170.445/447	Models 201.018/023/ 024/122/126, with (code 450) taxi version as of 01.11.88	Models 201.028/ 029/035/ 036/128
BE35.31-P-1001-02C	Friction torque of drive pinion bearing (new tapered roller bearings)	Ncm	125-150	125-150	125-150

Test values of friction torque of rear axle center assembly

Number	Designation		Models 202.018/078/ 120/121/122/125/182, with (code 450) taxi version, models 202.018/020/022/ 120/121/125 with ASD (Code 211)	Models 202.020/022/023/ 024/025/026/028/029/ 080/082/083/086/089/ 128/188, Model 202.085 with automatic transmission, models 202.134/194, except (code 450) taxi version
BE35.31-P-1001-02C	Friction torque of drive pinion bearing (new tapered roller bearings)	Ncm	125-150	125-150

Test values of friction torque of rear axle center assembly

Number	Designation		Models 208.335/ 345/347/435/ 445/447	Models 210.007/ 010/020/035/ 037/061/210/ 235/237/261/ 610	Models 210.003/ 004 with (code 450) taxi version
BE35.31-P-1001-02D	Friction torque of drive pinion bearing (new tapered roller bearings)	Ncm	125–150	125–150	125–150

Test values for friction torque of rear axle center assembly

Number	Designation		Models 124.008/ 028/029/031/ 032/034/036/ 051/052/061/ 066/088/091/ 092	Models 129.058/ 063 up to 31.05.94 Models 129.061/066	Models 140.028/ 032/033 up to 31/05/94 Models 140.041/ 043/063/1
BE35.31-P-1001-02D	Friction torque of drive pinion bearing (new tapered roller bearings)	Ncm	125–150	125–150	125–150

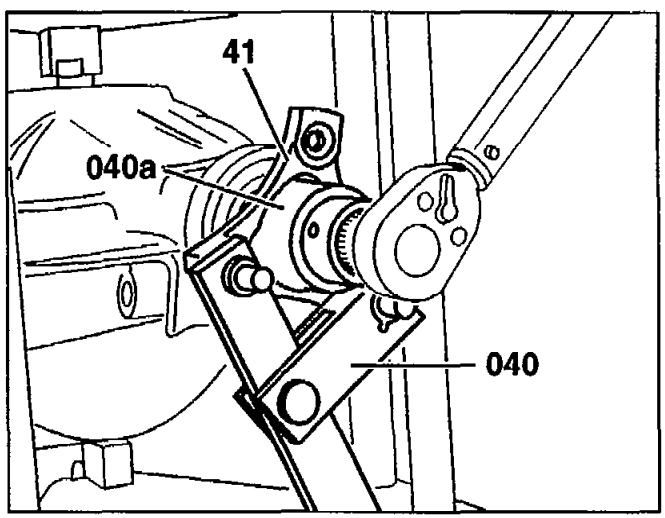
Test values of friction torque of rear axle center assembly

Number	Designation		Models 210.070/ 074/270/274 up to 31.01.98, models 210.072/ 272/617
BE35.31-P-1001-02D	Friction torque of drive pinion bearing (new tapered roller bearings)	Ncm	125–150

1 Mount Allen wrench (040) and wrench socket (040a) on joint flange (41) and **carefully** tighten twelve-point collared nut until the specified friction torque is achieved.

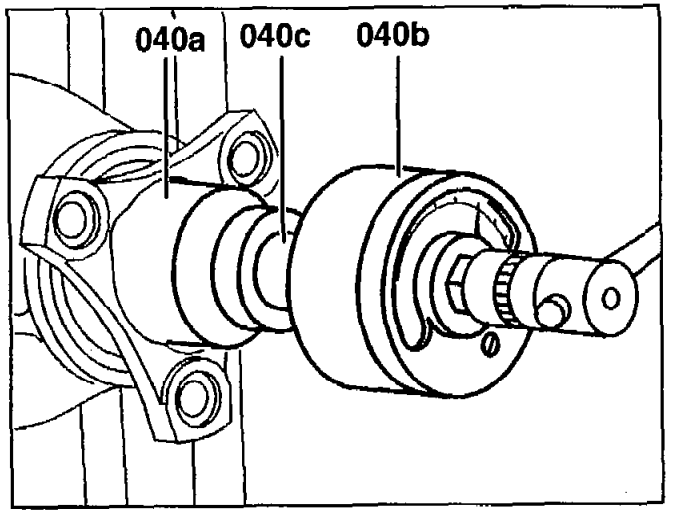
When tightening the twelve-point collared nut, turn the drive pinion several times and ensure by means of light blows on the axle housing that the tapered rollers are positioned evenly in the track.

185 mm dia. rear axle center assembly illustrated



P35.31-0408-01

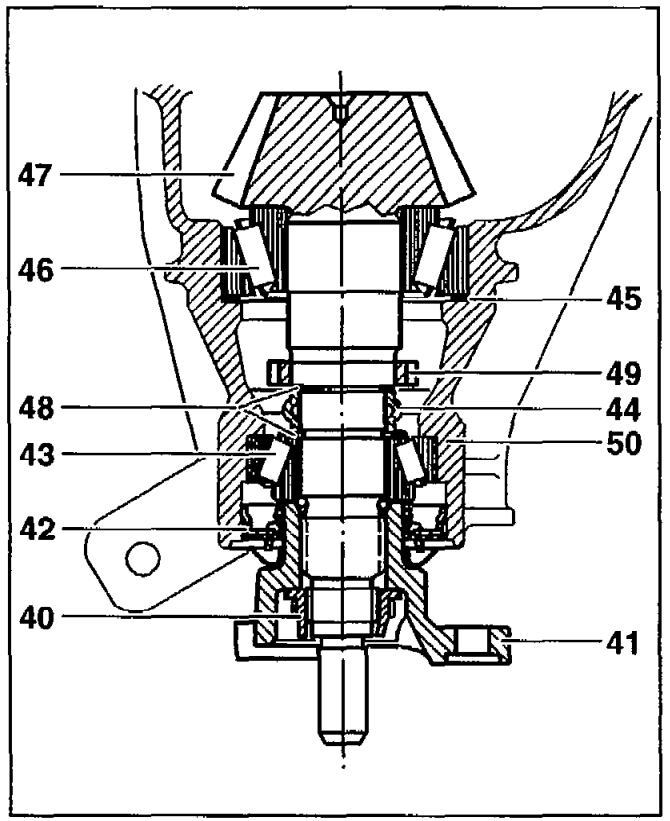
2 To check, mount the torquemeter (040b) with connector (040c) on the wrench socket (040a) and rotate drive pinion at **approx. 60 rpm** while reading off the friction torque.



P35.31-0417-01

If the specified friction torque is exceeded the drive pinion is to be removed again and a **new** spacer sleeve installed.

[i] The tapered roller bearings (43, 46) of the drive pinion (47) must be installed with a particular preload. This permanent preload is achieved by compressing the spacer sleeve (44) located between the tapered roller bearing inner race and drive pinion when the twelve-point collared nut (40) is tightened. If the friction torque when the drive pinion is rotated, i.e. the preload of the tapered roller bearing is too low, twelve-point collared nut (40) is to be retightened slightly. If the friction torque was exceeded, the drive pinion is to be removed again and a **new** spacer sleeve (44) installed. **Under no circumstances may the friction torque be reduced by loosening the twelve-point collared nut,** as the preload of the tapered roller bearings would be too low. This would result in play in the drive pinion when driving and therefore noise from the rear axle drive.



P35.31-0374-02

185 mm dia. rear axle center assembly illustrated

40 Twelve-point collared nut
41 Joint flange
42 Radial seal ring
43 Tapered roller bearing
44 Spacer sleeve
45 Shim
46 Tapered roller bearing
47 Drive pinion
48 Thrust washers
49 ABS gear
50 Rear axle housing

L11 AR35.31-P-0550-18C	Checking adjustment dimension of drive pinion	126 589 00 21 00 Measuring device 000 589 38 19 00 Dial gauge	

Test values of rear axle center assembly gear assembly

Number	Designation		Model 124	Model 129	Model 170
BE35.31-P-1001-03A	Permissible deviation from the specified adjustment dimension on the end face of drive pinion	mm	–0.02/+0.01	–0.02/+0,01	–0.02/+0.01

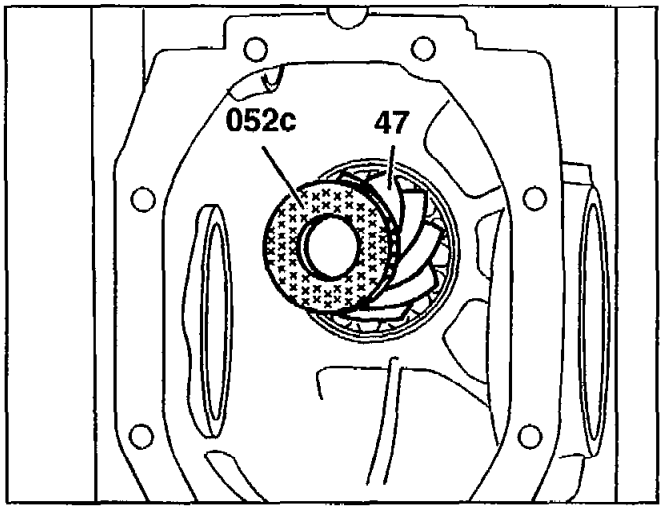
Test values of rear axle center assembly gear assembly

Number	Designation		Model 201	Model 202
BE35.31-P-1001-03A	Permissible deviation from the specified adjustment dimension on the end face of drive pinion	mm	–0.02/+0.01	–0.02/+0.01

Test values of rear axle center assembly gear assembly

Number	Designation		Model 208	Model 210
BE35.31-P-1001-03A	Permissible deviation from the specified adjustment dimension on the end face of drive pinion	mm	–0.02/+0.01	–0.02/+0.01

1 Mount magnetic plate (052c) 126 589 00 21 00 part 16 on the end face of the drive pinion (47) to measure the adjustment dimension "**A**".



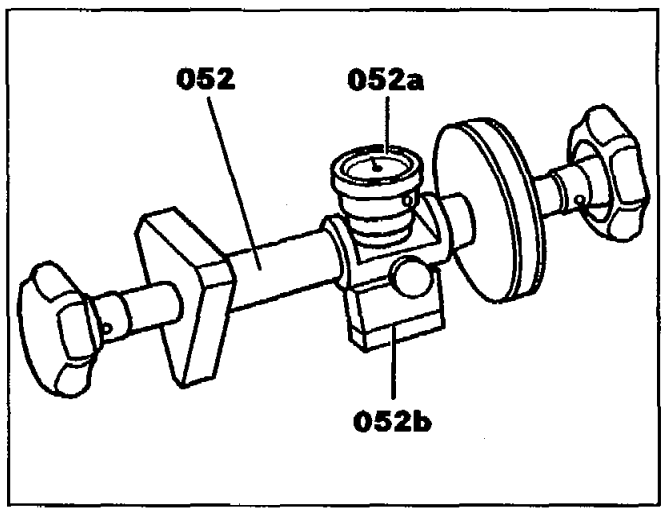
P35.31-0418-01

2 Install dial gauge (052a) 000 589 38 19 00 with measuring pin in the measuring device (052) 126 589 00 21 00.

i

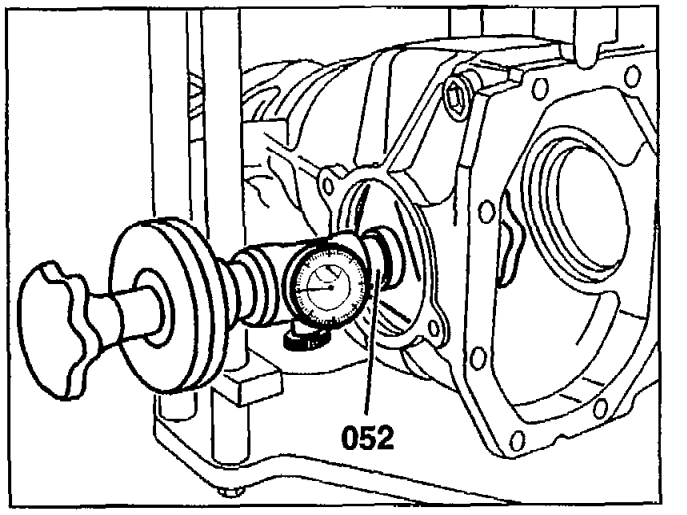
The measuring pin for the dial gauge is screwed into the adjuster (052b).

3 Press adjuster (052b) 126 589 00 21 00 part 10 against the measuring device and adjust dial gauge to "**0**" under **2 mm** preload. Tighten clamping screw securely, checking the "**0**" position of the dial gauge and readjust, if necessary.



P35.31-0267-01

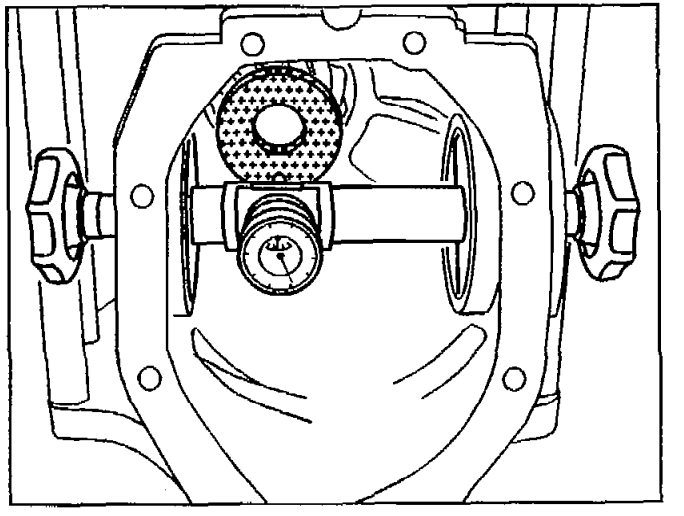
4 Install measuring device (052) in the rear axle housing from the left bore.



P35.31-0412-01

When inserting the measuring device (052) in the rear axle housing, ensure that the measuring pin of the dial gauge is not damaged at the bore.

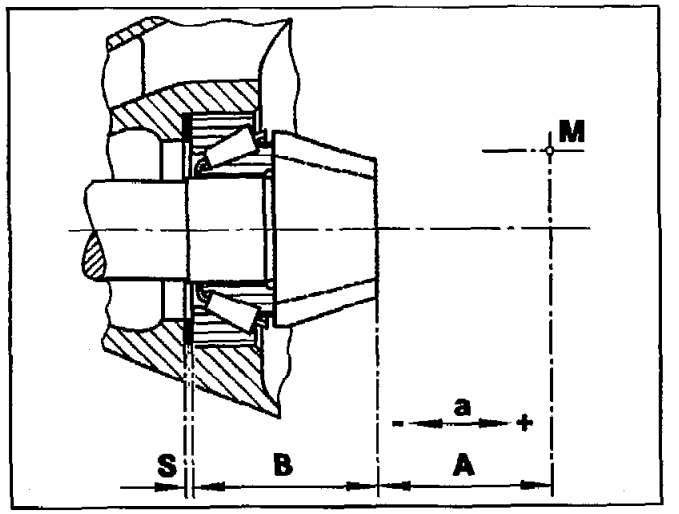
5 Read off adjustment dimension **"A"**. The adjustment dimension must be within the tolerance.



P35.31-0419-01

The adjustment dimension **"A"** is the basic design adjustment of the drive pinion, the basic deviation **"a"** having to be within the permissible tolerance towards **positive** or **negative**. The basic deviation **"a"** is the dimension which is written on the end face of the drive pinion.

If the adjustment dimension is outside the tolerance, the shim (S) installed is to be reground or a new shim of the appropriate thickness is to be installed. However, in the process it is absolutely essential to use a **new spacer sleeve** for the tapered roller bearings.



P35.31-0306-01

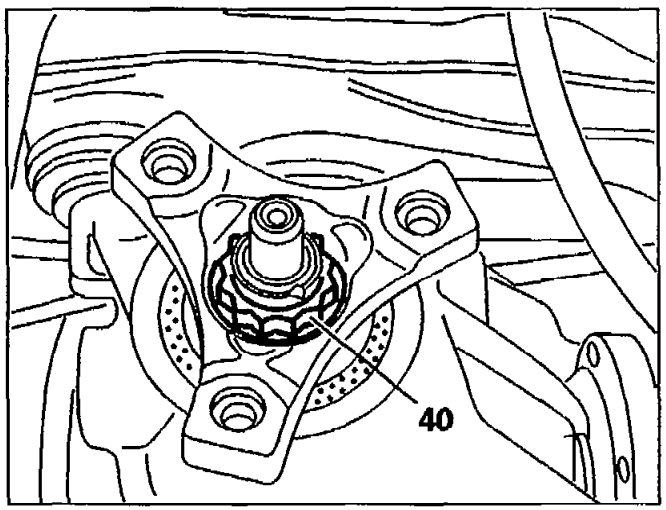
a *Deviation of basic adjustment*
A *Basic adjustment - design*
B *Height of head of bevel gear plus the height of the tapered roller bearings*
S *Shim thickness*
M *Center of crown wheel*

6 Remove measuring device and magnetic plate from rear axle housing.

P11 AR35.31-P-0530-01B **WF**	Locking twelve-point or hexagon collared nut on drive pinion propeller flange	Caulker for locking the collared nut on joint flange	WF58.50-P-3531-01A

Caulk the twelve-point or hexagon collared nut (40) into one of the grooves in the drive pinion using a caulker so that there is no gap between the groove and the locking tab.

Do not strike hard in the axial direction.



P35.31-0228-01

A12 AR35.31-P-0550-19A	Installing crown wheel on differential	124 589 07 21 00 Remote thermometer 116 589 18 61 00 Installation punch	
BT	Tightening torque of crown wheel bolts reduced	Models 124, 129, 201 with 185 mm dia. rear axle center assembly as of 01.02.87	BT35.31-P-0005-01A

Test data of rear axle center assembly of gear set

Number	Designation		Model 124	Model 129	Model 140
BE35.31-P-1003-03A	Crown wheel heating temperature when installing	°C	75–85	75–85	75–85

Test data of rear axle center assembly of gear set

Number	Designation		Model 170	Model 201	Model 202
BE35.31-P-1003-03A	Crown wheel heating temperature when installing	°C	75–85	75–85	75–85

Test data of rear axle center assembly of gear set

Number	Designation		Model 208	Model 210	Model 220.063/065/165
BE35.31-P-1003-03A	Crown wheel heating temperature when installing	°C	75–85	75–85	75–85

Nm Gear set rear axle center assembly

Number	Designation		Model 129.058/063 as of 01.06.94 model 129.059/064	Model 140.02/03 as of 01.06.94	Model 202.033/093/133/193, model 202.085 with manual 5-speed transmission
BA35.31-P-1001-03A	Securing bolt of crown wheel to differential housing	Nm	85	85	85

Nm Gear set rear axle center assembly

Number	Designation		Model 208.365/370/465/470	Model 210.006/015/017/025/045/053/055/063/065/08/206/215/217/225/245/265/28/606/663	Model 220.063/065/165
BA35.31-P-1001-03A	Securing bolt of crown wheel to differential housing	Nm	85	85	85

Gear set rear axle center assembly

Number	Designation		Model 124.003/004/007/019/022/023/026/027/030/040/042/043/050/060/062/079/082/083/090, model 124.104 /107 as of 01.05.94, model 124.127/128/129/130/131/133, model 124.186 as of 01.03.94, except (code 450) taxi version, model 124.188/190/191/193/226/230/290/330/333/393	Model 124.020/021/080/081/120/125/126/180/185/186, with (code 450) taxi version as of 01.11.88
BA35.31-P-1001-03C	Securing bolt of crown wheel to differential housing	Nm	85	85

Gear set rear axle center assembly

Number	Designation		Model 129.060	Model 170.445/447	Model 201.018/023/024/122/126, with (code 450) taxi version as of 01.11.88
BA35.31-P-1001-03C	Securing bolt of crown wheel to differential housing	Nm	85	85	85

Nm Gear set rear axle center assembly

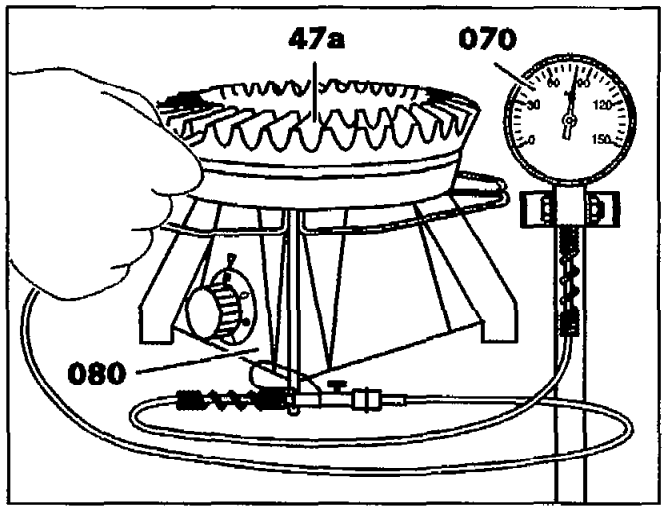
Number	Designation		Model 201.028/029/035/036/128	Model 202.018/078/120/121/122/125/182 with (code 450) taxi version, model 202.018/020/022/120/121/125 with ASD (code 211a)	Model 202.020/022/023/024/025/026/028/029/080/082/083/086/089/128/188, model 202.085 with automatic transmission, model 202.134/194 except (code 450) taxi version
BA35.31-P-1001-03C	Securing bolt of crown wheel to differential housing	Nm	85	85	85

Nm Gear set rear axle center assembly

Number	Designation		Model 208.335/345/347/435/445/447	Model 210.003/004 with (code 450) taxi version	Model 210.007/010/020/035/037/061/210/235/237/261/610
BA35.31-P-1001-03C	Securing bolt of crown wheel to differential housing	Nm	85	85	85

1 Carefully clean crown wheel bore and crown wheel seat on the differential housing.

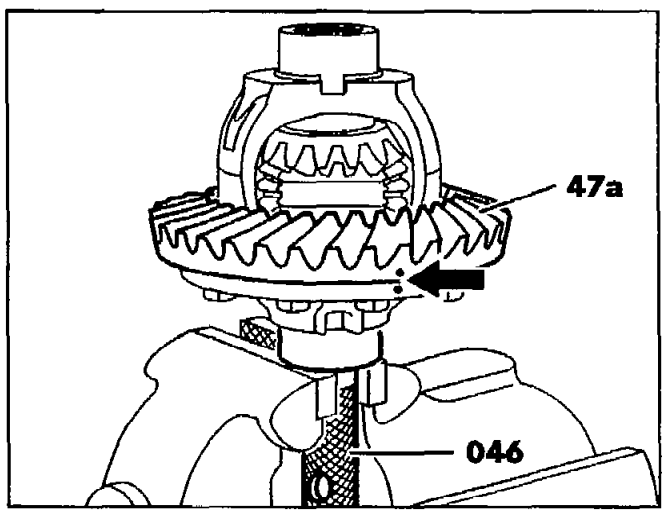
2 Heat up crown wheel (47a) to installation temperature using hot plate (080), constantly checking the temperature with a telethermometer (070).



P35.31-0282-01

3 Clamp differential housing using assembly mandrel (046).

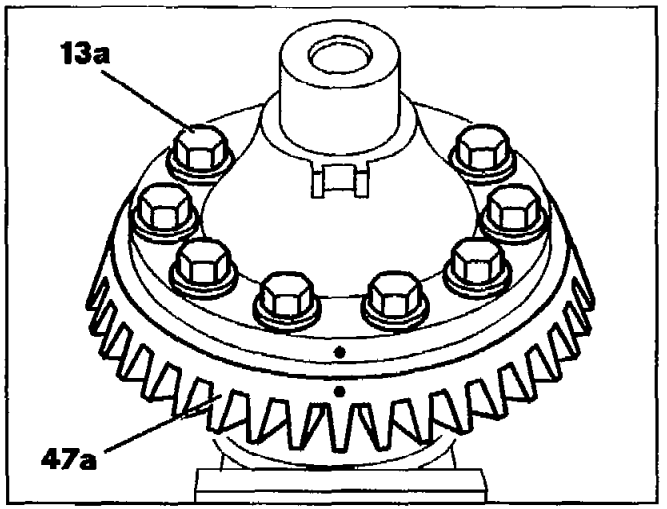
4 Mount crown wheel (47a) on the differential housing, assisting with light blows from a hammer (rubber hammer) if necessary.



P35.31-0283-01

Pay attention to any marking applied (arrow) on the crown wheel and differential housing.

5 Evenly and diagonally, tighten the locking bolts with ribs (13a) for mounting the crown wheel (47a) securely.

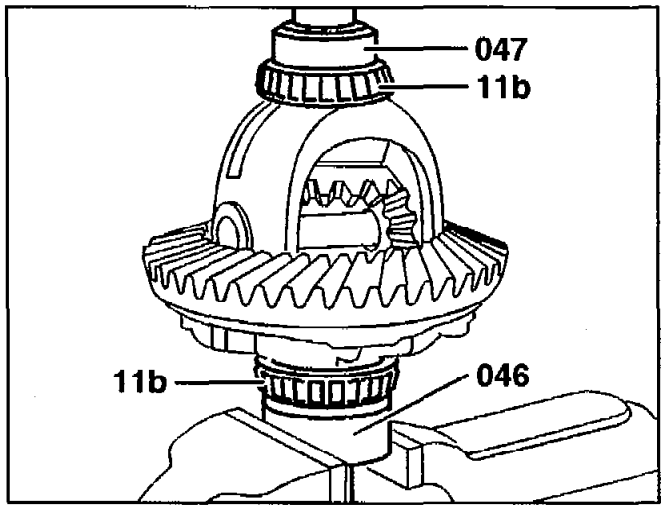


P35.31-0284-01

Crown wheel bolts (13a) must always be replaced after they have been used once.

G12 AR35.31-P-0550-20C	Pressing tapered roller bearing inner races onto differential	115 589 04 61 00 Installation punch 116 589 18 61 00 Installation punch	

Using assembly mandrel (047) 115 589 04 61 00, press tapered roller bearing inner races (11b) onto differential housing.



P35.31-0420-01

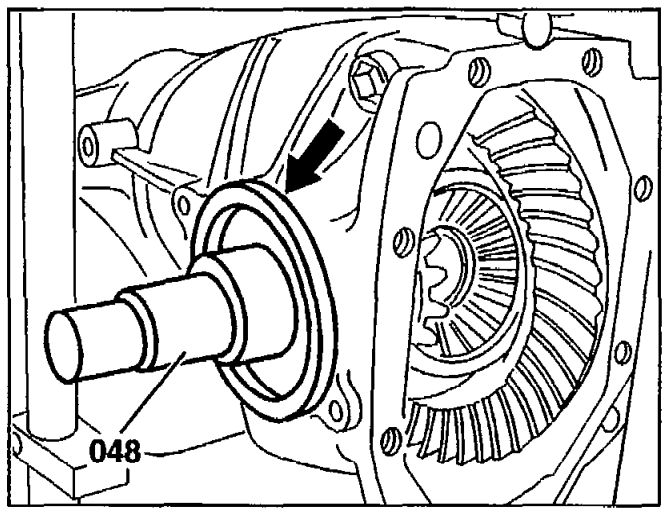
To prevent damaging the roller cage of the second tapered roller bearing inner race, the assembly mandrel (046) 116 589 18 61 00 is to be used as a support in the vise.

H12 AR35.31-P-0550-38C	Installing left-hand tapered roller bearing outer race in rear axle housing	126 589 00 15 00 Drift punch	

1 Locate differential with alignment tool (048).

2 Remove left-hand alignment tool (048), and together with the left-hand tapered roller bearing outer race, press into the rear axle housing again until it abuts the rear axle housing (arrow).

3 Remove left-hand alignment tool (048).



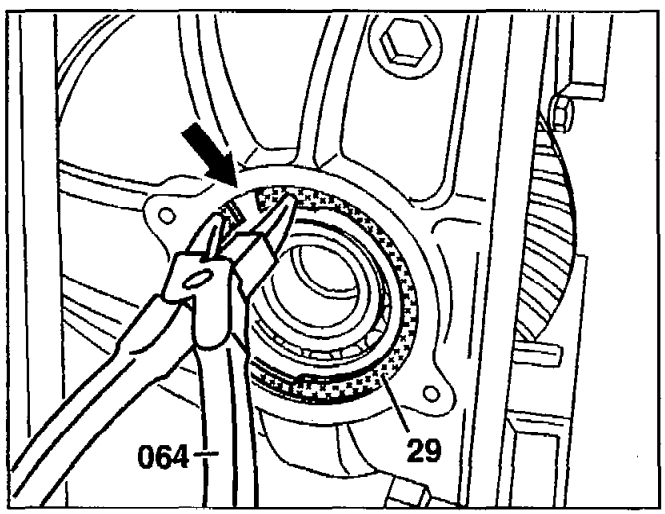
P35.31-0421-01

J12 AR35.31-P-0550-27C	Installing left-hand locking ring	126 589 00 15 00 Drift punch	

Commercially available tools (refer to Workshop equipment manual)

Number	Designation	Company (e.g.)	Order number
WH58.30-Z-1011-02A	Pliers for inner locking ring (85 - 165 mm dia.)	Hazet Güldenwerther Bahnhofstraße 25-28 D-42857 Remscheid	1846a-4

1 Using locking device pliers (064), install the locking ring (29) which was marked during removal in the groove so that the opening of the locking ring points towards the rib (arrow).

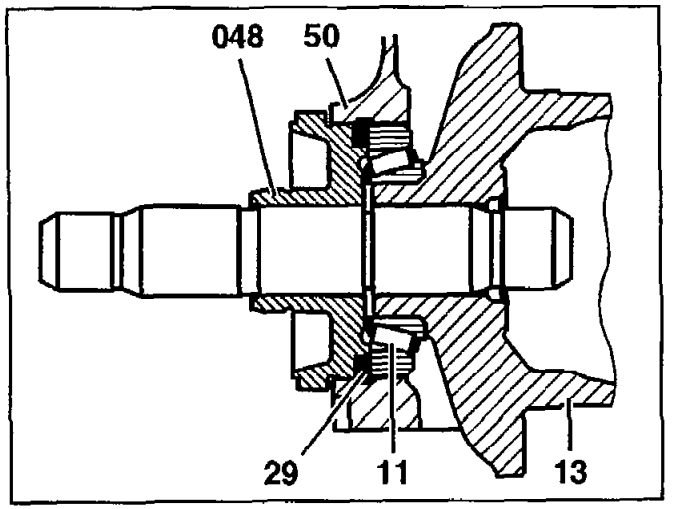


P35.31-0422-01

ℹ

Install the locking ring which was previously removed and marked in order to achieve the basic rear axle housing preload.

2 Using alignment tool (048), check locking ring (29) is properly seated.



P35.31-0423-01

048 Alignment tool
11 Tapered roller bearing
13 Differential
29 Locking ring
50 Rear axle housing

L12 AR35.31-P-0550-23C	Pretensioning (spreading) rear axle housing using spreader	126 589 00 31 00 Spreader 126 589 08 21 00 Kingpin inclination gauge	

Test values of rear axle housing expansion

Number	Designation		Models 124.003/004/007/019/022/023/026/027/030/040/042/043/050/060/062/079/082/083/090 Models 124.104/107 as of 01.05.94 Models 124.127/128/129/130/131/133 Model 124.186 as of 01.03.94, except (code 450) taxi version Models 124.188/190/191/193/226/230/290/330/333/393	Models 124.020/021/080/081/120/125/126/180/185/186, with (code 450) taxi version as of 01.11.88
BE35.31-P-1002-04C	Rear axle housing expansion (expanded dimension) when installing locking ring	mm	0.3	0.3

Test values of rear axle housing expansion

Number	Designation	Model 129.060	Models 170.445/447	Models 201.018/023/024/ 122/126, with (code 450) taxi version as of 01.11.88
BE35.31-P-1002-04C	Rear axle housing expansion (expanded dimension) when installing locking ring mm	0.3	0.3	0.3

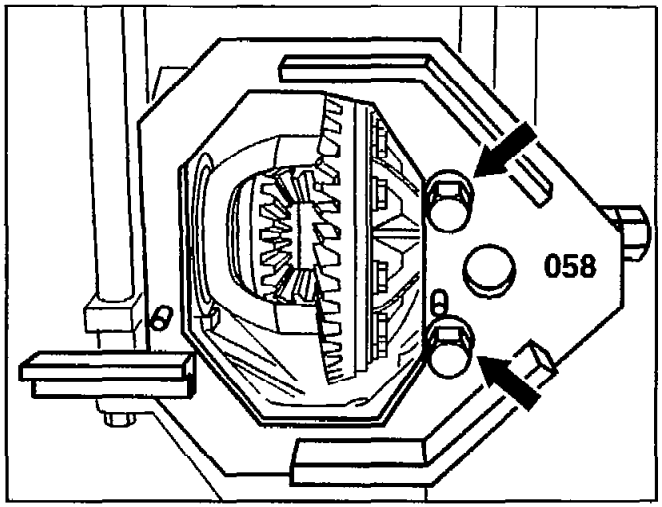
Test values of rear axle housing expansion

Number	Designation		Models 201.028/029/035/036/128	Models 202.018/078/120/121/122/125/182 with (code 450) taxi version, Models 202.018/020/022/120/121/125 with (code 211) ASD	Models 202.020/022/023/024/025/026/028/029/080/082/083/086/089/128/188, Model 202.085 with automatic transmission, Model 202.134/194 except (code 450) taxi version
BE35.31-P-1002-04C	Rear axle housing expansion (expanded dimension) when installing locking ring	mm	0.3	0.3	0.3

Test values of rear axle housing expansion

Number	Designation		Models 208.335/345/347/435/445/447	Models 210.007/010/020/035/037/061/210/235/237/261/610	Models 210.003/004 with (code 450) taxi version
BE35.31-P-1002-04C	Rear axle housing expansion (expanded dimension) when installing locking ring	mm	0.3	0.3	0.3

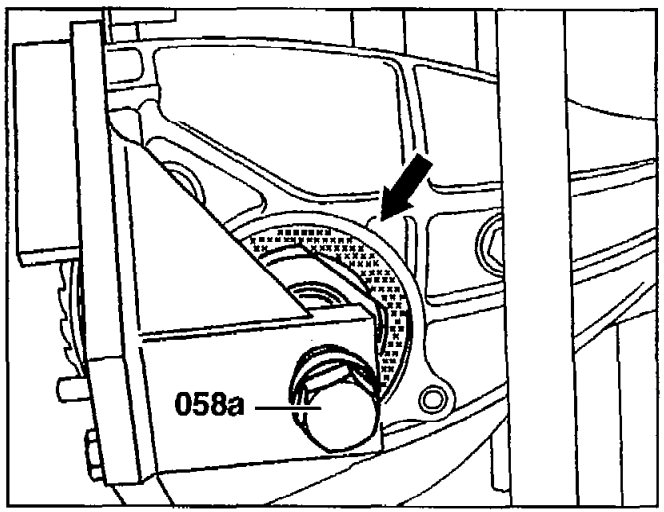
1 Fasten spreader (058) on rear axle housing, by tightening the hexagon bolts (arrows) to **40 Nm.**



P35.31-0401-01

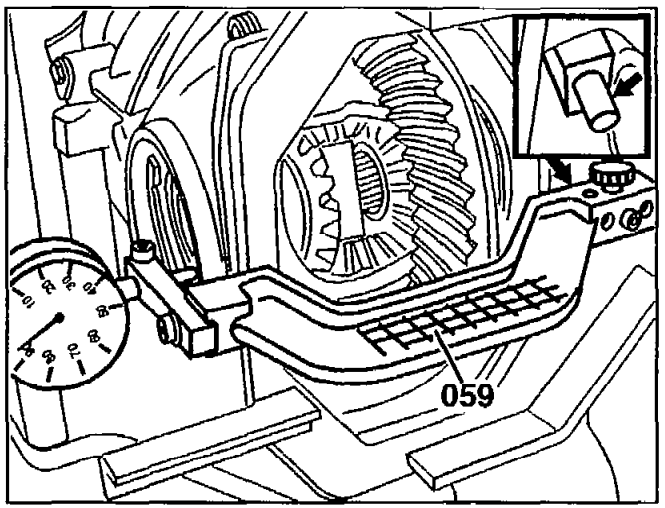
2 Turn straight surface of thrust piece towards the front rib (arrow).

3 Screw in the threaded spindle (058a) of the spreader by hand until the thrust piece abuts the tapered roller bearing outer race.



P35.31-0424-01

4 Place contact arm (059) for expanded dimension measurement on spreader.
Adjust dial gauge to **"0"** under **3 mm** preload. Ensure that this **"0"** adjustment is retained.

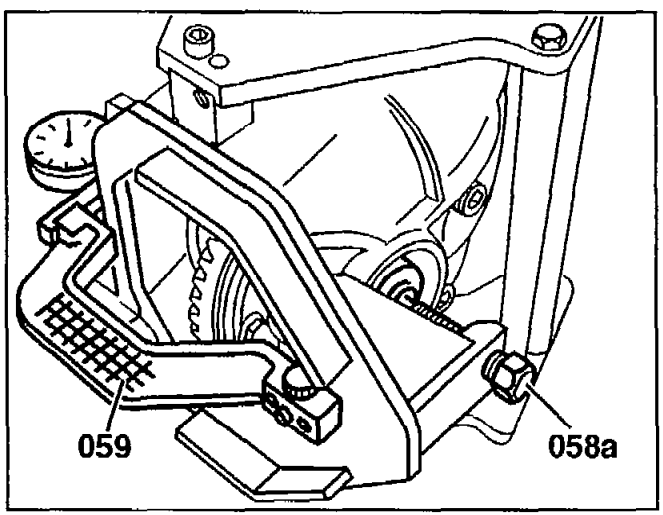


P35.31-0402-01

i

The stop pin (arrow) of the contact arm must abut the bearing surface of the rear axle housing.

5 Screw in the threaded spindle (058a) until the rear axle housing has reached an expanded dimension of **0.30 mm**.



P35.31-0404-01

Do not exceed the specified expanded dimension when spreading.

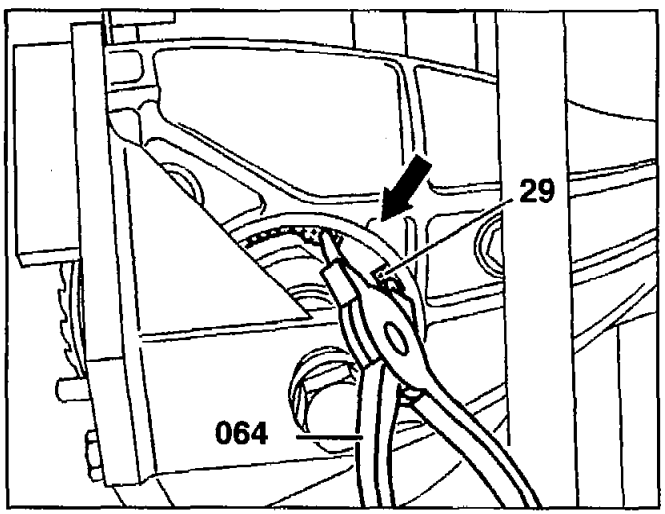
6 Remove contact arm (059).

A13 AR35.31-P-0550-22C	Installing right-hand locking ring		

Commercially available tools (refer to Workshop equipment manual)

Number	Designation	Company (e.g.)	Order number
WH58.30-Z-1011-02A	Pliers for inner locking ring (85 - 165 mm dia.)	Hazet Güldenwerther Bahnhofstraße 25-28 D-42857 Remscheid	1846a-4

1 Using locking device pliers (064), install the locking ring (29) which was marked during removal in the groove so that the opening of the locking ring points towards the rib (arrow).



P35.31-0425-01

i

Install the locking ring which was previously removed and marked in order to achieve the basic rear axle housing preload.

2 Check locking ring (29) is properly seated.

B13 AR35.31-P-0550-24C	Measuring expanded dimension (expansion) of rear axle housing	126 589 00 31 00 Spreader 126 589 08 21 00 Kingpin inclination gauge	

Test values of rear axle housing expansion

Number	Designation		Models 124.003/004/007/019/022/023/026/027/030/040/042/043/050/060/062/079/082/083/090 Models 124.104/107 as of 01.05.94 Models 124.127/128/129/130/131/133 Model 124.186 as of 01.03.94, except (code 450) taxi version Models 124.188/190/191/193/226/230/290/330/333/393	Models 124.020/021/080/081/120/125/126/180/185/186, with (code 450) taxi version as of 01.11.88
BE35.31-P-1003-04C	Adjustment value of rear axle housing expansion (expanded dimension)	mm	0.11-0.17	0.11-0.17

Test values of rear axle housing expansion

Number	Designation		Model 129.060	Models 170.445/447	Models 201.018/023/024/122/126, with (code 450) taxi version as of 01.11.88
BE35.31-P-1003-04C	Adjustment value of rear axle housing expansion (expanded dimension)	mm	0.11-0.17	0.11-0.17	0.11-0.17

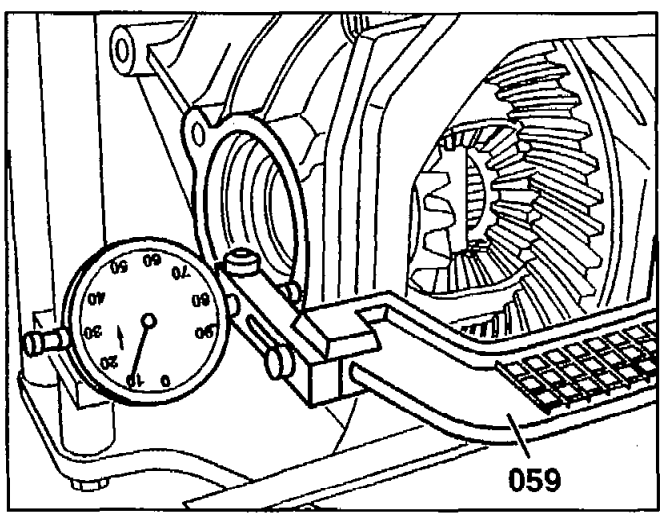
Test values of rear axle housing expansion

Number	Designation		Models 201.028/029/035/036/128	Models 202.018/078/120/121/122/125/182 with (code 450) taxi version, Models 202.018/020/022/120/121/125 with (code 211) ASD	Models 202.020/022/023/024/025/026/028/029/080/082/083/086/089/128/188, Model 202.085 with automatic transmission, Models 202.134/194 except (Code 450) taxi version
BE35.31-P-1003-04C	Adjustment value of rear axle housing expansion (expanded dimension)	mm	0.11-0.17	0.11–0.17	0.11–0.17

Test values of rear axle housing expansion

Number	Designation		Models 208.335/345/ 347/435/445/447	Models 210.007/ 010/020/035/ 037/061/210/ 235/237/261/ 610	Models 210.003/004 with (code 450) taxi version
BE35.31-P-1003-04C	Adjustment value of rear axle housing expansion (expanded dimension)	mm	0.11–0.17	0.11–0.17	0.11–0.17

1 Measure expanded dimension (expansion) of the rear axle housing again with contact arm (059) and measure the "0" adjustment of dial gauge adjusted previously.



P35.31-0426-01

i

If the expanded dimension is outside the specified value, this value is to be noted first.

2 Remove contact arm (059).

E13 AR35.31-P-0550-25C	Measuring gear backlash between drive pinion and crown wheel and correcting if necessary	201 589 03 21 00 Backlash measuring instrument	

Test values of rear axle center assembly gear assembly

Number	Designation		Model 124	Model 129	Model 170
BE35.31-P-1002-03A	Gear backlash between bevel gear and crown wheel	mm	0.08-0.14	0.08-0.14	0.08-0.14

Test values of rear axle center assembly gear assembly

Number	Designation		Model 201	Model 202
BE35.31-P-1002-03A	Gear backlash between bevel gear and crown wheel	mm	0.08-0.14	0.08-0.14

Test values of rear axle center assembly gear assembly

Number	Designation		Model 208	Model 210
BE35.31-P-1002-03A	Gear backlash between bevel gear and crown wheel	mm	0.08–0.14	0.08–0.14

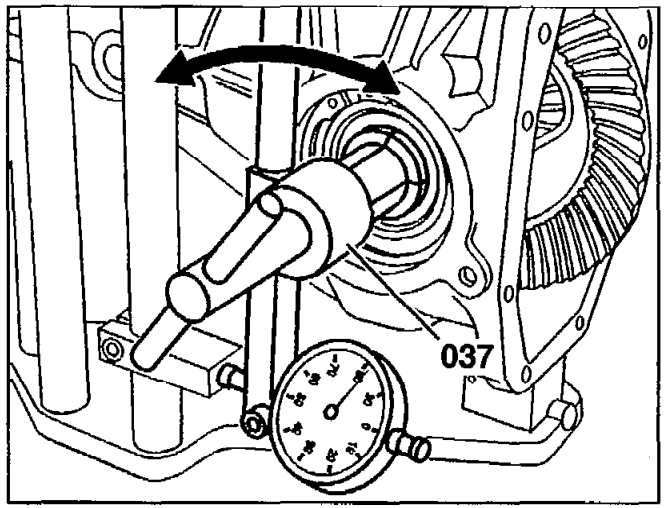
1 Install gear backlash measuring device (037) with dial gauge in the left bore of the differential housing and clamp securely.

2 Adjust dial gauge to **"0"** under **3 mm** preload.

3 Hold drive pinion securely at joint flange and alternately move the dial gauge to the left and right at the handle (arrow), reading off the gear backlash.

4 Carry out the measurement four times. To do this, always turn the crown wheel through approx. 90°.

5 Remove gear backlash measuring device.



P35.31-0427-01

The tapered roller bearings and gear set are correctly adjusted if the expanded dimension (expansion) of the rear axle housing and gear backlash are within the range of specified values. If these values are not achieved, the adjustment must be repeated with suitably thicker or thinner locking rings.

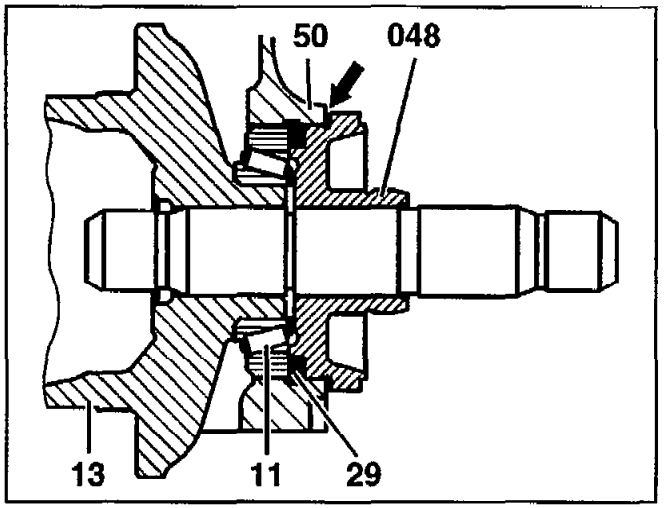
1. Example
Measurement: Gear backlash correct, but the expanded dimension of the rear axle housing is too small, e.g. measured expanded dimension value is 0.05 mm.
Correction: Fit a 0.05 mm thicker locking ring on both sides, the gear backlash can change slightly in the process.

2. Example
Measurement: Expanded dimension correct, but the gear backlash is too large.
Correction: A locking ring which is thinner by the missing amount is to be installed on the left assembly side.
A locking ring which is thicker by the missing amount is to be installed on the right assembly side (crown wheel side).

Proceed in the reverse order if the gear backlash is too small.

H13 AR35.31-P-0550-32C	Checking locking ring for correct seating	126 589 00 15 00 Drift punch	

1 Using alignment tool (048), check locking ring (29) is properly seated.



P35.31-0428-01

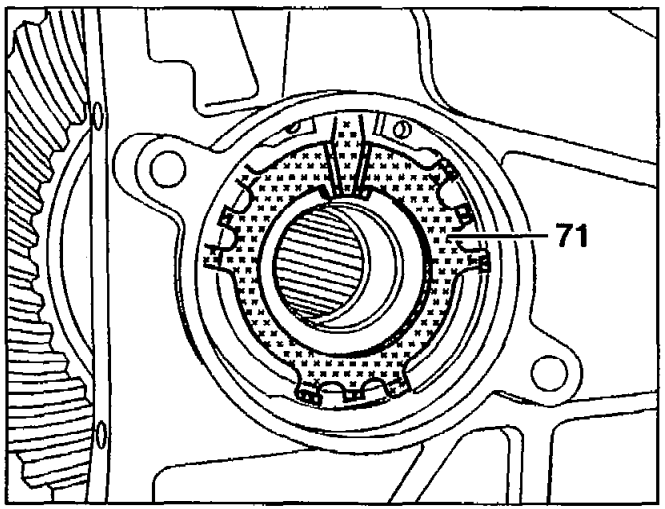
i

The locking ring is correctly installed when a gap < 0.5 mm (arrow) is visible between the alignment tool and rear axle housing.

048 Alignment tool
11 Tapered roller bearing
13 Differential
29 Locking ring
50 Rear axle housing

J13	AR35.41-P-0545-03C	Installing oil deflector in rear axle housing		

Install oil deflector (71), ensuring correct seating in the rear axle housing.



P35.41-0208-01

K13 AR35.31-P-0540-02E	Checking and adjusting axial play of connecting flange		

Connecting flange/differential housing

Number	Designation		Model 124	Model 129	Model 170	Model 201
BE35.31-P-1001-05A	Axial play between connecting flange and differential housing	mm	0.03–0,3	0.03–0,3	0.03–0,3	0.03–0,3

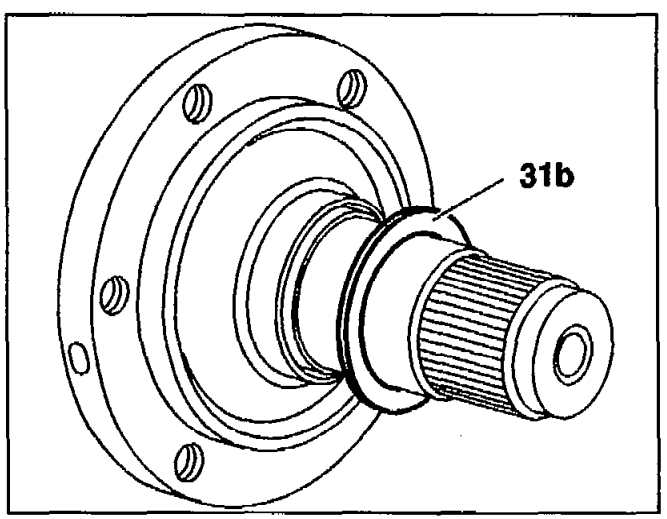
Connecting flange/differential housing

Number	Designation		Model 202	Model 208	Model 210
BE35.31-P-1001-05A	Axial play between connecting flange and differential housing	mm	0.03–0,3	0.03–0,3	0.03–0,3

Check axial play between connecting flange and differential side gear, if necessary, fit a spacer ring (31b) of greater or lesser thickness.

The axial play must be within the specified tolerance range.

Shims are available in thicknesses ranging from 0.7 mm to 1.5 mm in 0.05 mm graduations.



P35.31-0231-01

L13 AR35.31-P-0550-28C	Attaching end cover		

Nm **Rear axle center assembly housing**

Number	Designation		Model 124	Model 129	Model 170
BA35.31-P-1001-02A	Collared bolt, end cover to rear axle center assembly	Nm	50	50	50

Nm **Rear axle center assembly housing**

Number	Designation		Model 201	Model 202
BA35.31-P-1001-02A	Collared bolt, end cover to rear axle center assembly	Nm	50	50

Nm **Rear axle center assembly housing**

Number	Designation		Model 208	Model 210
BA35.31-P-1001-02A	Collared bolt, end cover to rear axle center assembly	Nm	50	50

Repair product

Number	Designation	Order number
BR00.45-Z-1011-01A	Hylomar sealing agent	001 989 25 20

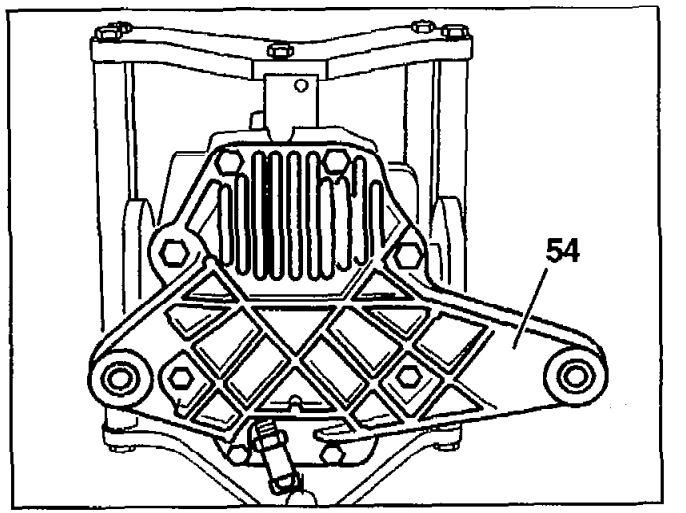
1 Clean sealing surface on end cover (54) and rear axle housing and coat with sealing agent.

2 Mount end cover.

i

Replace collared bolts.

Shown on model 129



P35.31-0429-01

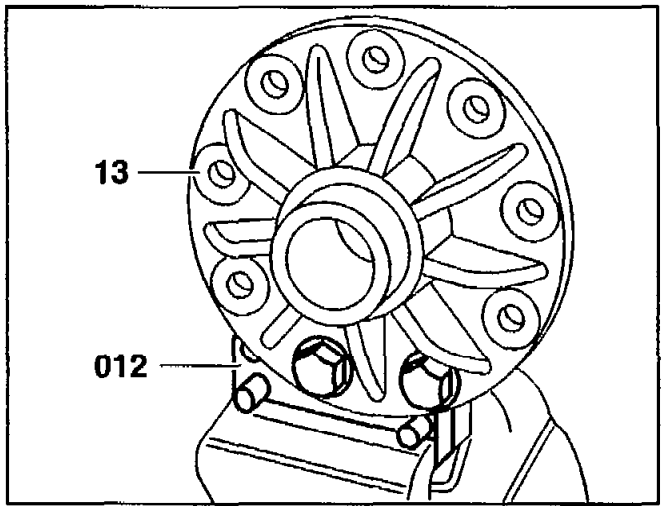
N13 AR35.31-P-0560-01A	Clamping differential housing	201 589 02 31 00 Disk	

Secure differential housing (13) on plate (012) and clamp in vise.

i

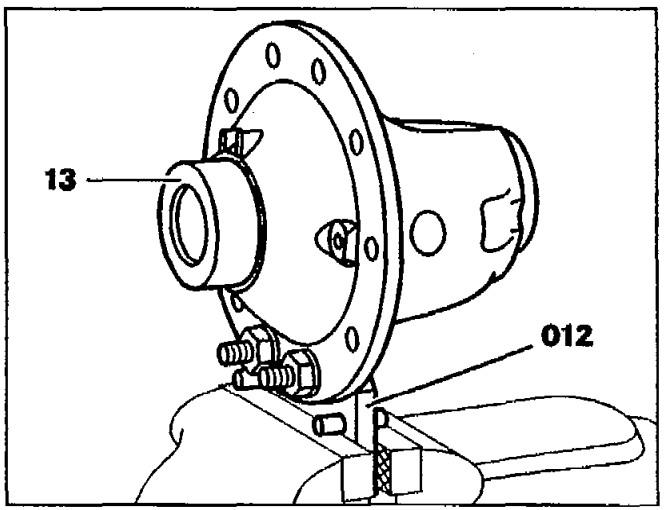
Use bolts M 10x30 with nuts for securing.

Shown on 185 mm dia. differential housing



P35.31-0394-01

Shown on 198 mm dia. differential housing



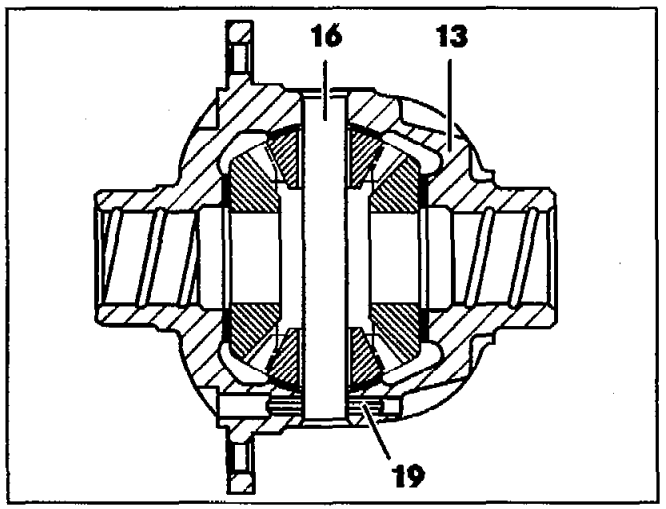
P35.31-0298-01

013 AR35.31-P-0560-02A	Driving roll pin and differential pin out and in	126 589 02 15 00 Installation punch 123 589 06 15 00 Installation punch	

Removal

1 Using a suitable drift, drive roll pin (19) for the differential pin (16) out of the differential housing (13).

2 Using a punch, drive differential pin (16) out of differential housing.



P35.31-0299-01

Installation

3 Using drift punch (123 589 06 15 00 for 185 mm dia. differential housing and 126 589 02 15 00 for 198 mm dia. differential housing), drive differential pin (16) into differential housing, paying attention to the bore for the roll pin (19).

4 Drive in roll pin (19) until it seats centrally in the differential pin (16).

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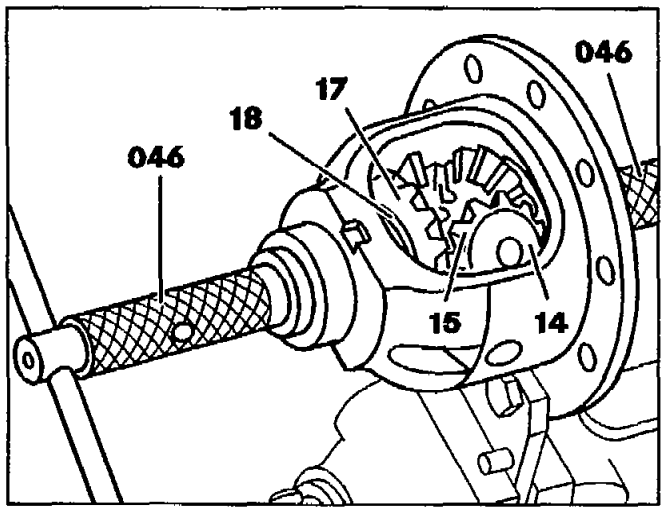
Replace roll pin (19).

P13 AR35.31-P-0560-03A	Removing differential bevel gears and differential side gears	116 589 18 61 00 Installation punch	

1 Install assembly mandrels (046) and turn until the differential bevel gears (15) are upright in the opening.

2 Remove differential bevel gears (15) with spherical washers (14).

3 Remove differential side gears (17) with thrust washers (18).

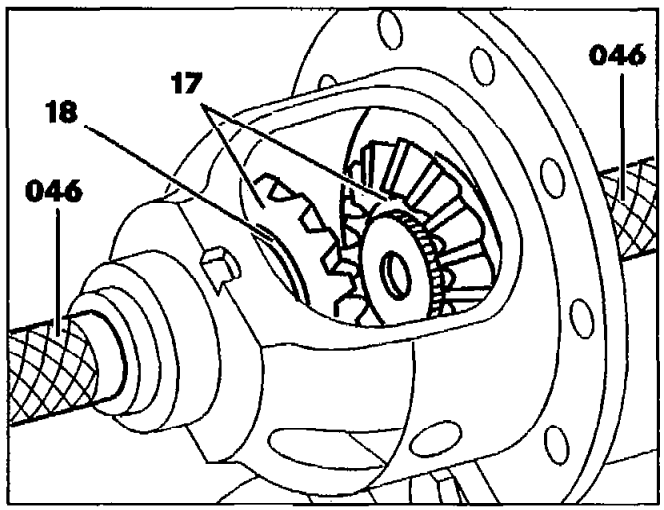


P35.31-0300-01

A14 AR35.31-P-0560-04A	Installing differential side gears and differential bevel gears	116 589 18 61 00 Installation punch 123 589 06 15 00 Installation punch 126 589 02 15 00 Installation punch	

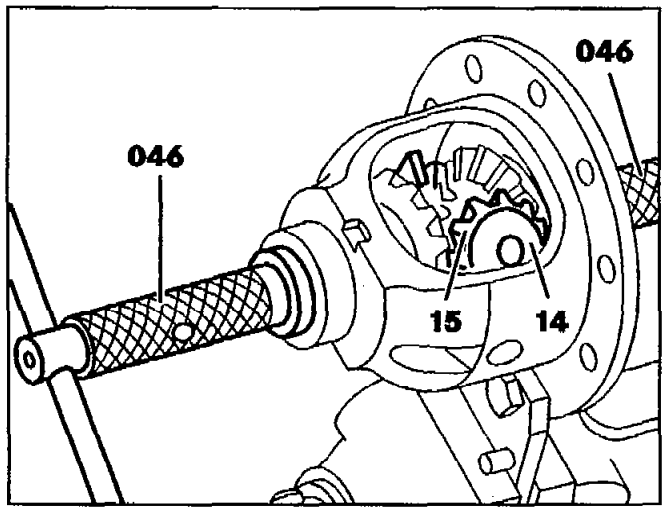
1 Insert assembly mandrel (046) (116 589 18 61 00) in bores of the differential housing.

2 Mount both differential side gears (17) with thrust washers (18) on the assembly mandrels in the differentiol housing.



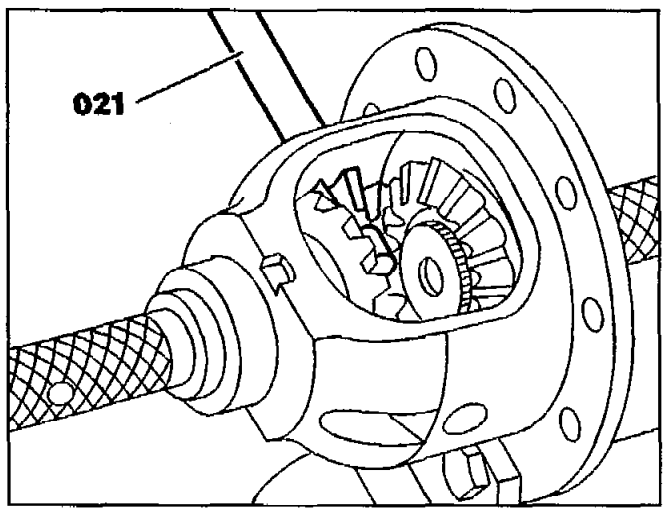
P35.31-0301-01

3 Install both differential bevel gears (15) with spherical washers (14) together and precisely aligned in the differential housing and screw in using assembly mandrel (046).



P35.31-0302-01

4 Push the assembly mandrel (021) (123 589 06 15 00 for 185 mm dia. differential housing and 126 589 02 15 00 for 198 mm and 210 mm dia. differential housing) for fixing the differential bevel gears (15) and spherical washers into the differential housing instead of the differential pin.



P35.31-0303-01

C14 AR35.31-P-0560-05A	Checking friction torque of differential		

Rear axle center assembly friction torque

Number	Designation	Model 129.058/063 as of 01.06.94, model 129.059/064	Model 140.02/03 as of 01.06.94	Model 202.133/193, model 202.085 with manual 5-speed transmission
BE35.31-P-1002-02A	Friction torque when rotating complete differential (steel spherical washers) Nm	5–30	5–30	5–30

Rear axle center assembly friction torque

Number	Designation	Model 202.033/093	Model 208.365/370/ 465/470	Model 210.006/015/017/025/ 045/053/055/063/065/ 08/206/215/217/225/ 245/265/28/606/663
BE35.31-P-1002-02A	Friction torque when rotating complete differential (steel spherical washers) Nm	5–30	5–30	5–30

Rear axle center assembly friction torque

Number	Designation	Model 220
BE35.31-P-1002-02A	Friction torque when rotating complete differential (steel spherical washers) Nm	5–30

Test data of rear axle center assembly friction torque

Number	Designation		Model 124.003/004/007/ 019/022/023/026/027/ 030/040/042/043/050/ 060/062/079/082/083/ 090 Model 124.104/107 as of 01.05.94 Model 124.127/128/129/ 130/131/133 Model 124.186 as of 01.03.94, except (code 450) taxi version Model 124.188/190/191/ 193/226/230/290/330/ 333/393	Model 124.020/021/080/ 081/120/125/126/180/ 185/186, with (code 450) taxi version as of 01.11.88	Model 129.060
BE35.31-P-1002-02C	Friction torque when rotating complete differential (plastic spherical washers)	Nm	40–90	40–90	40–90

Test data of rear axle center assembly friction torque

Number	Designation		Model 170.445/ 447	Model 201.018/023/024/ 122/126, with (code 450) taxi version as of 01.11.88	Model 201.028/ 029/035/ 036/128
BE35.31-P-1002-02C	Friction torque when rotating complete differential (plastic spherical washers)	Nm	40–90	40–90	40–90

Test data of rear axle center assembly friction torque

Number	Designation		Model 202.018/078/120/ 121/122/125/182 with (code 450) taxi version, Model 202.018/020/022/ 120/121/125 with ASD (code 211)	Model 202.020/022/023/ 024/025/026/028/029/ 080/082/083/086/089/ 128/188, model 202.085 with automatic transmission, models 202.134/194, except (code 450) taxi version
BE35.31-P-1002-02C	Friction torque when rotating complete differential (plastic spherical washers)	Nm	40–90	40–90

Test data of rear axle center assembly friction torque

Number	Designation		Model 208.335/345/347/435/445/447	Model 210.007/010/020/035/037/061/210/235/237/261/610	Model 210.003/004 with (code 450) taxi version
BE35.31-P-1002-02C	Friction torque when rotating complete differential (plastic spherical washers)	Nm	40–90	40–90	40–90

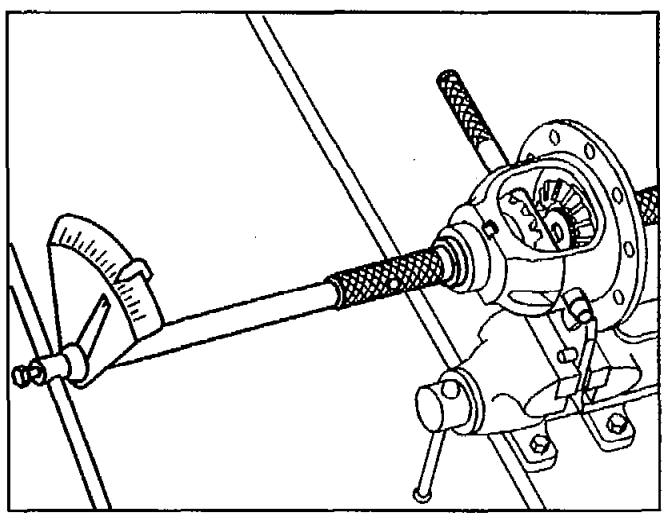
Test data of rear axle center assembly friction torque

Number	Designation		Model 124.008/028/029/031/032/034/036/051/052/061/066/088/091/092	Model 129.058/063 up to 31.05.94 model 129.061/066	Model 140.028/032/033 up to 31.05.94 Model 140.042/043/063/1
BE35.31-P-1002-02D	Friction torque when rotating complete differential (steel spherical washers)	Nm	5–30	5–30	5–30

Test data of rear axle center assembly friction torque

Number	Designation	Model 210.070/ 074/270/274 up to 31.01.98, models 210.072/272/617
BE35.31-P-1002-02D	Friction torque when rotating complete differential (steel spherical washers) Nm	5–30

Check friction torque.

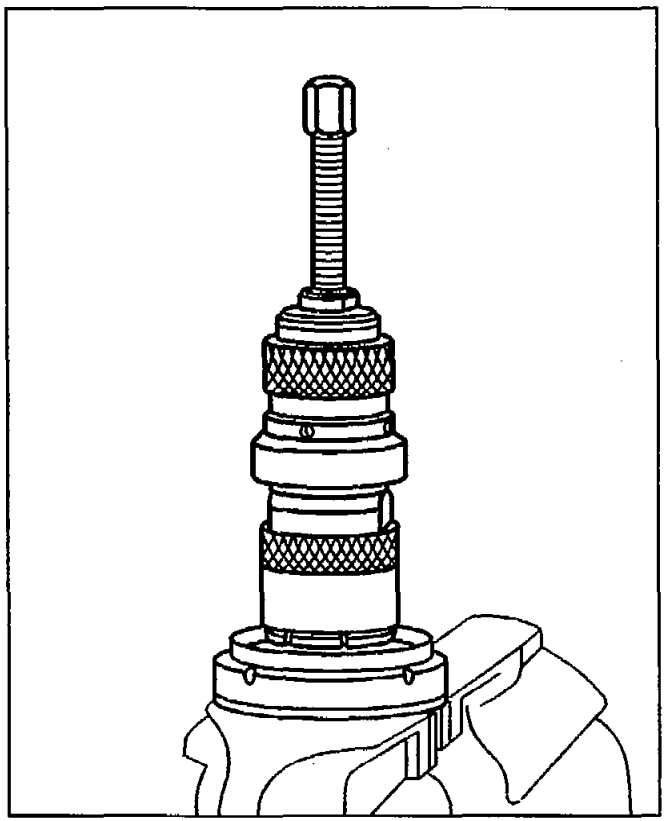


P35.31-0304-01

If the friction torque differs from the specification, it is necessary to install thrust washers of a different thickness.

J14 AR35.31-P-0540-04A	Pulling off and pressing on grooved ball bearing connecting flange	001 589 50 33 00 Puller 140 589 00 34 00 Collet chuck	

1 Disconnect grooved ball bearing from connecting flange.



P35.31-0324-02

Pressing on grooved ball bearing

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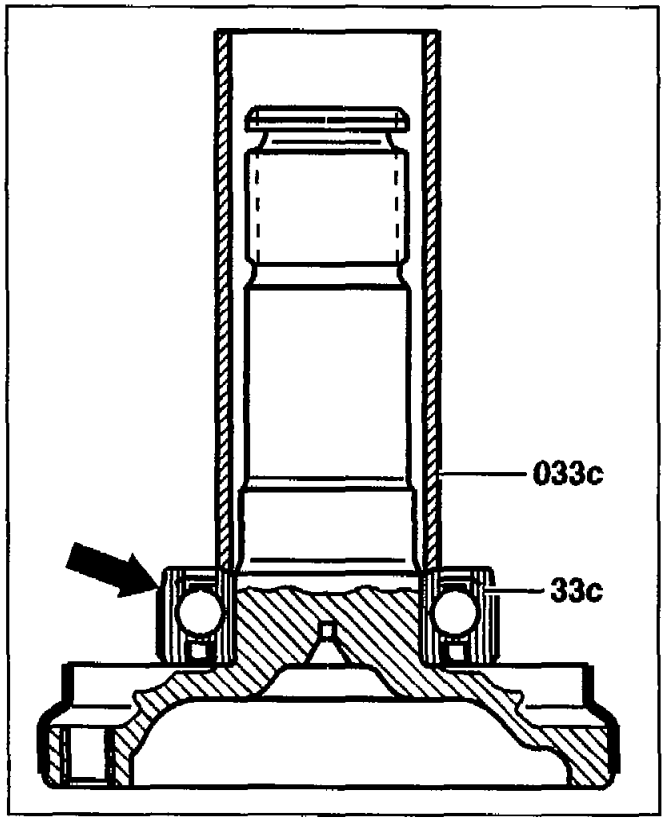
On vehicles with ASD, the chamfer or groove (arrow) must point towards the shaft. An installed position is not specified on vehicles with ASR.

2 Press on deep-groove ball bearing (33c) using suitable tube (033c) until it abuts the flange.

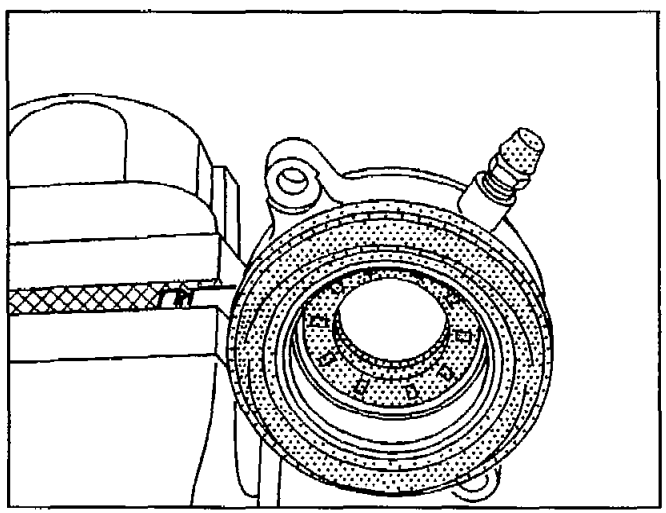
Location of connecting flange on ASD version



P35.31-0214-02

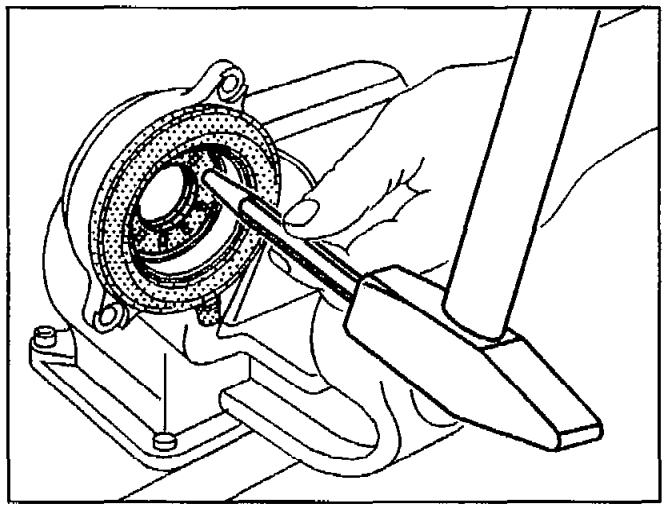
L14	AR35.41-P-0545-04C	Repairing ring cylinder	☑ Replace radial seal ring and coat sealing lip with universal hypoid transmission fluid: ↓ ☑ 124 589 01 15 00 Drift punch ☑ 124 589 01 35 00 Installation tool Universal hypoid transmission fluids Replace O-rings and coat with hydraulic fluid: ↓ Hydraulic fluids (specification 343.0)	 BB00.40-P-0235-07A BB00.40-P-0343-00A

1 Clamp ring cylinder in vise at the hydraulic pipe connection.



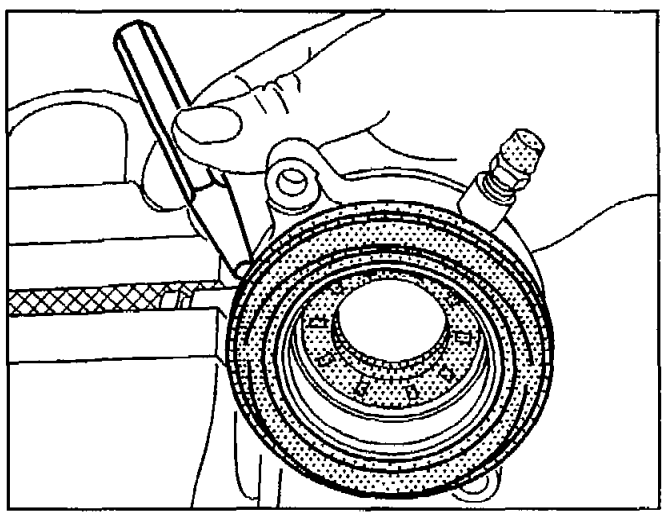
P35.41-0209-01

2 Using a drift, press radial seal ring backwards out of the annular piston.



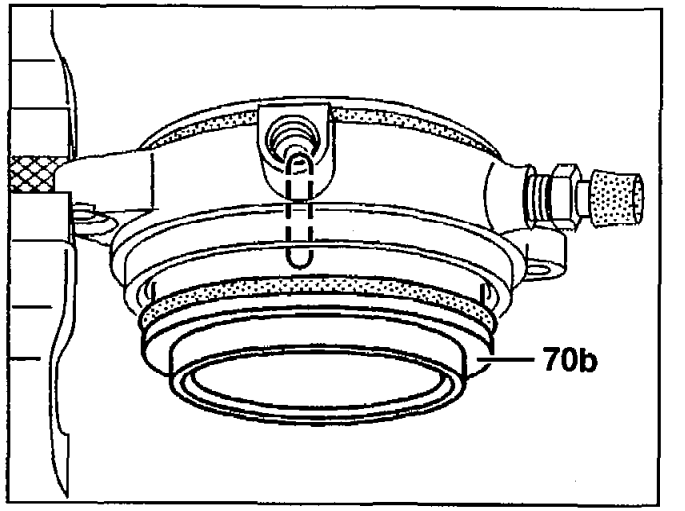
P35.41-0210-01

3 Using a suitable drift at the periphery, press rubber boot off ring cylinder and annular piston and remove.



P35.41-0212-01

4 Press annular piston (70b) out of the ring cylinder by hand.



P35.41-0215-01

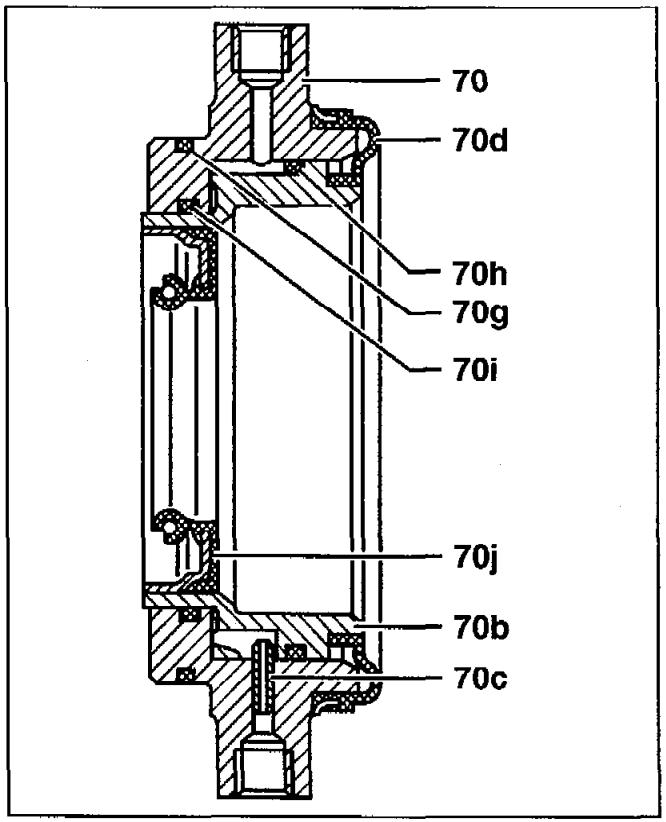
5 Replace O-rings (70g, 70h and 70i).

Do not install O-rings twisted, as they may be damaged when the annular piston is installed in the ring cylinder or the ring cylinder is installed in the rear axle housing.

6 Coat the outside dia. of annular piston (70b) and O-rings (70h, 70i) with hydraulic fluid (specification 343.0).

7 Press in annular piston (70b) of the ring cylinder by hand.

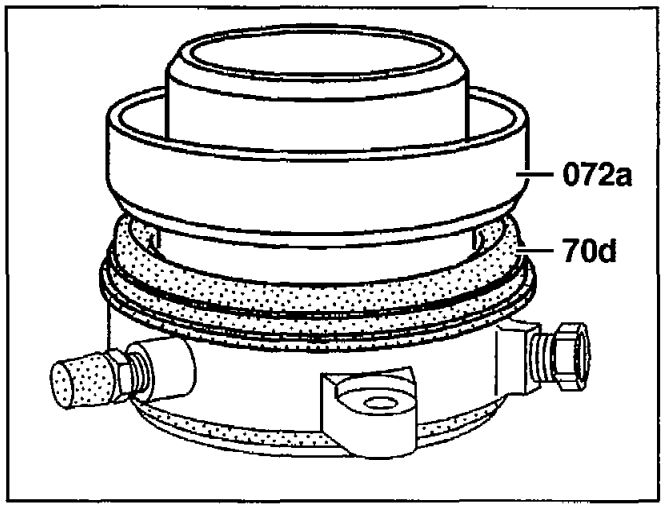
When pressing the annular piston (70b) into the ring cylinder, ensure that the groove aligns with the roll pin (70c) or bore.



P35.41-0216-02

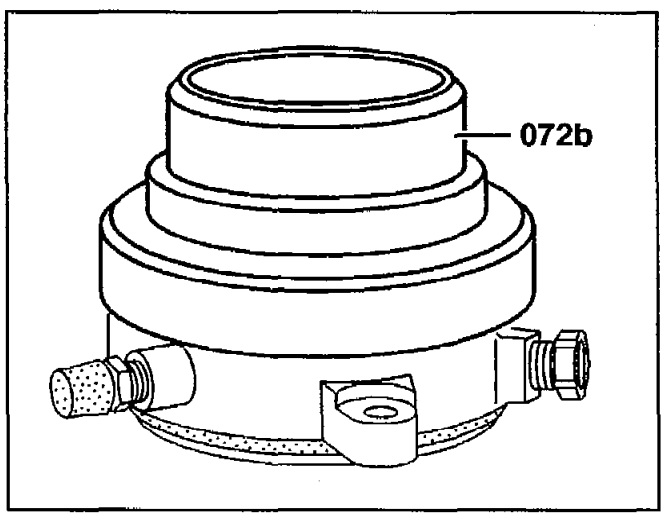
70 Ring cylinder
70b Annular piston
70c Roll pin
70d Rubber boot
70g O-ring (80x2)
70h O-ring (72x3)
70i O-ring (63x2.5)
70j Radial seal ring

8 Using the smaller diameter of the pressing in tool (072a), press rubber boot (70d) onto the annular piston.



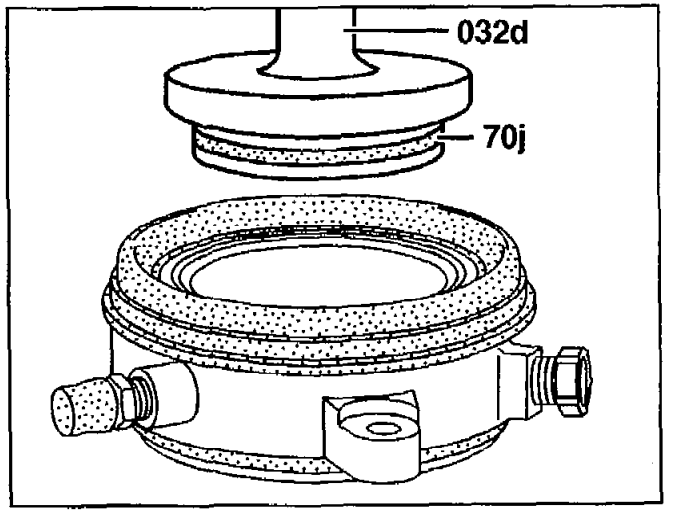
P35.41-0213-01

9 Using the larger diameter of the pressing in tool (072b), press rubber boot onto the ring cylinder.



P35.41-0214-01

10 Using alignment tool (032d), press in new radial seal ring (70j). Smear sealing lip lightly with Universal hypoid transmission fluid.



P35.41-0211-01

B15 AR35.41-P-0560-02C	Driving out and driving in ASD differential pin and roll pin	123 589 06 15 00 Installation punch 126 589 02 15 00 Installation punch	

Removal

1 Using a suitable drift, drive roll pin (19) for the differential pin (16) out of the differential housing (13).

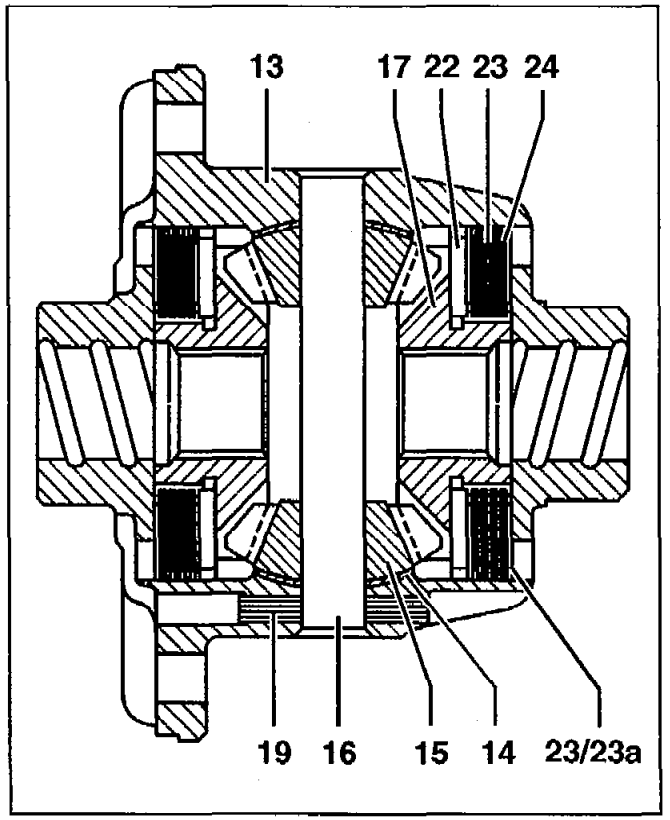
2 Using drift punch 123 589 06 15 00 for 185 mm dia. crown wheel or 126 589 02 15 00 for 210 mm dia. crown wheel, drive differential pin (16) out of differential housing.

Installation

3 Using drift punch 123 589 06 15 00 for 185 mm dia. crown wheel or 126 589 02 15 00 for 210 mm dia. crown wheel, drive differential pin (16) into differential housing, paying attention to the bore for the roll pin (19).

4 Drive in roll pin (19) until it seats centrally in the differential pin.

ⓘ Replace roll pin (19).



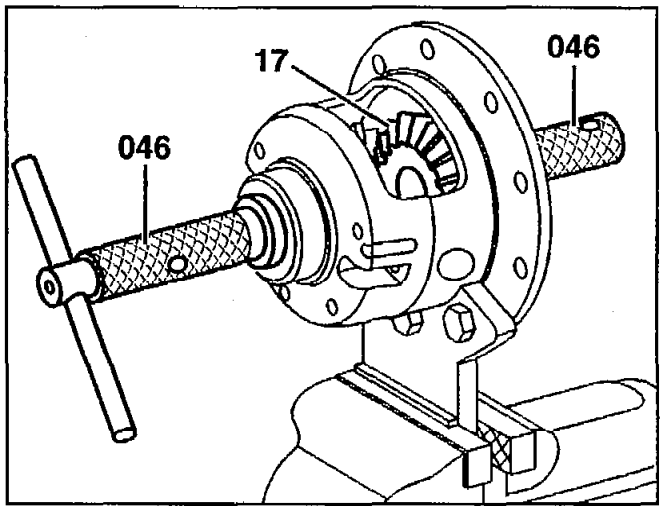
P35.41-0218-02

13 Differential housing
14 Spherical washer
15 Differential bevel gear
16 Differential pin
17 Differential side gear
19 Roll pin
22 Friction washer with lining on one side
23 Friction washers without lining with 5 lugs
23a Friction washer without lining with 4 lugs and 2 grooves, 185 mm dia. crown wheel only
24 Friction washers with lining on both sides

D15 AR35.41-P-0560-03C	Removing and installing differential bevel gears with spherical washers	126 589 02 15 00 Installation punch 116 589 18 61 00 Installation punch 123 589 06 15 00 Installation punch	

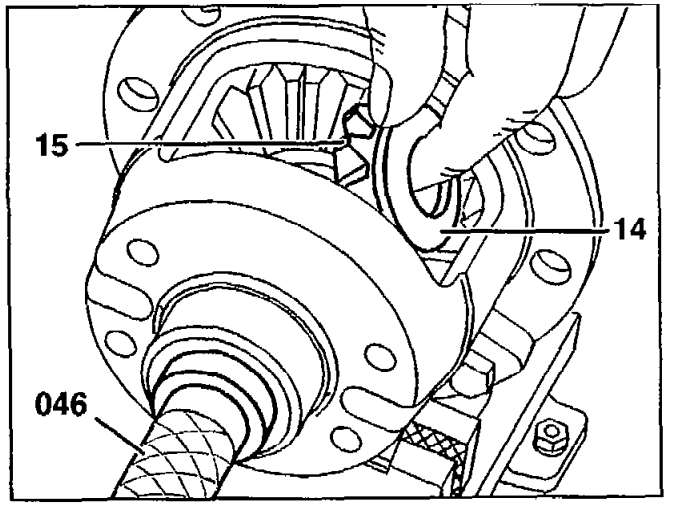
Removal

1 Install assembly mandrels (046) to guide the differential side gears (17).



P35.41-0219-01

2 Turn differential bevel gears (15) with spherical washers (14) towards the opening and remove.

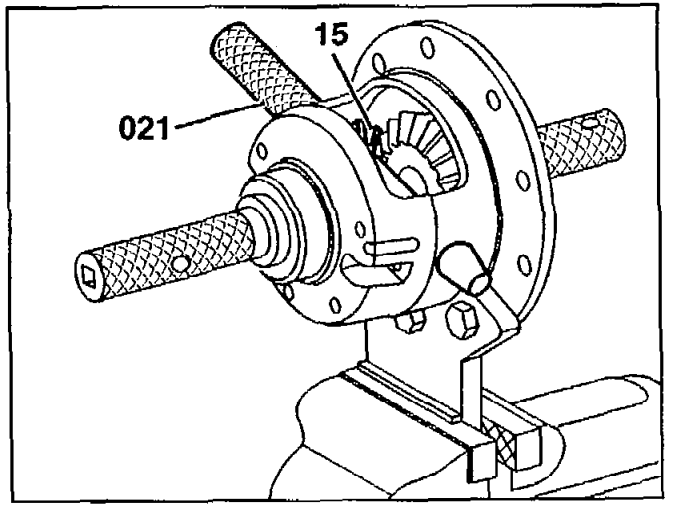


P35.41-0220-01

Installation

3 Install differential bevel gears (15) with spherical washers (14) in sequence and, using assembly mandrel (046) screw in until the bores of the differential bevel gear and differential housing align.

4 Instead of the differential pin, push in the drift punch 123 589 06 15 00 for 185 mm dia. crown wheel and 126 589 02 15 00 for 210 mm dia. crown wheel to locate the differential bevel gears (15) and spherical washers.

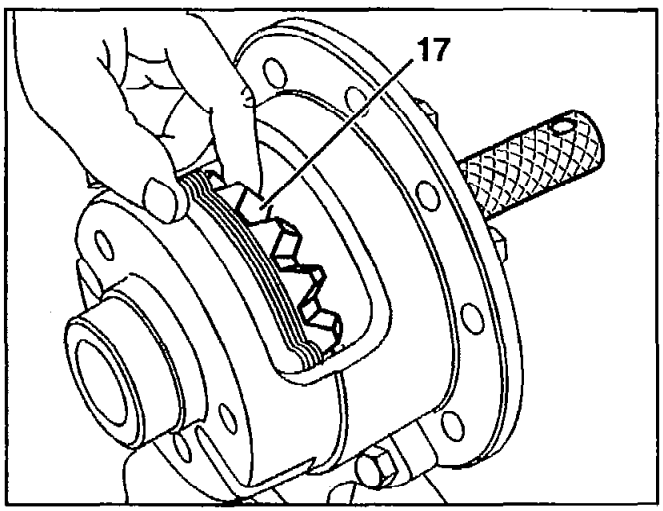


P35.41-0221-01

F15 AR35.41-P-0560-04C ☞ **BB**	Removing and installing differential side gears with friction washers	Smear friction washers with lining (22, 24) thoroughly with Universal hypoid transmission fluid: ↓ 116 589 18 61 00 Installation punch Universal hypoid transmission fluids	 BB00.40-P-0235-07A

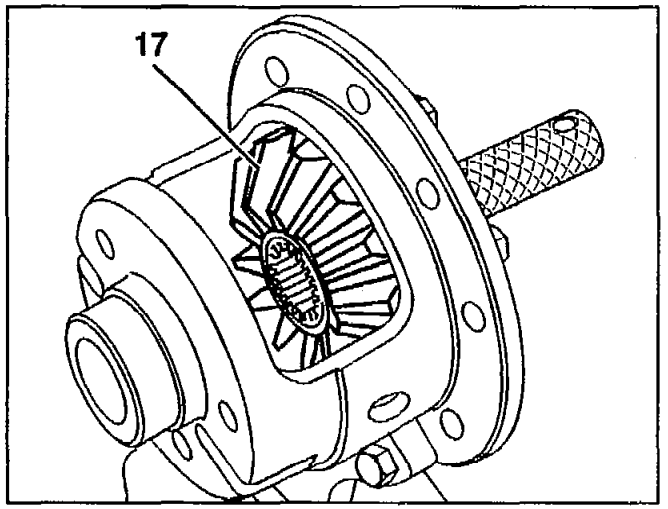
Removal

1 First remove the right-hand differential side gear (17, viewed in the installed position) with friction washers.



P35.41-0223-01

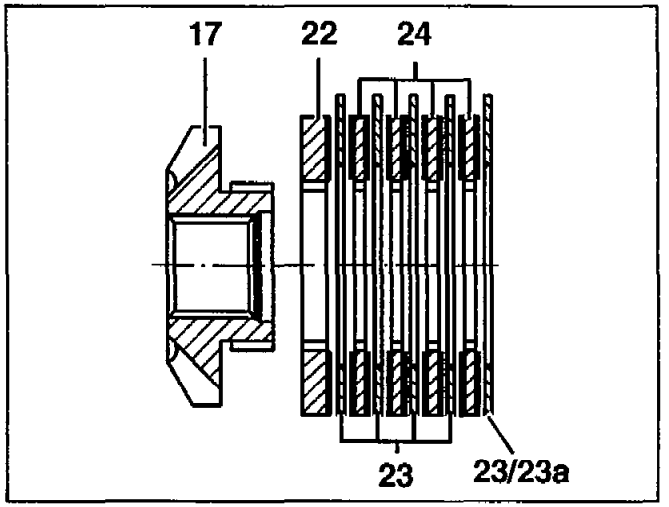
2 Remove the left-hand differential side gear (17, on crown wheel side) with friction washers.



P35.41-0224-01

Installation

3 Mount friction washers in the correct sequence on both differential side gears and smear friction washers with lining (22 and 24) thoroughly with Universal hypoid transmission fluid.



P35.41-0227-01

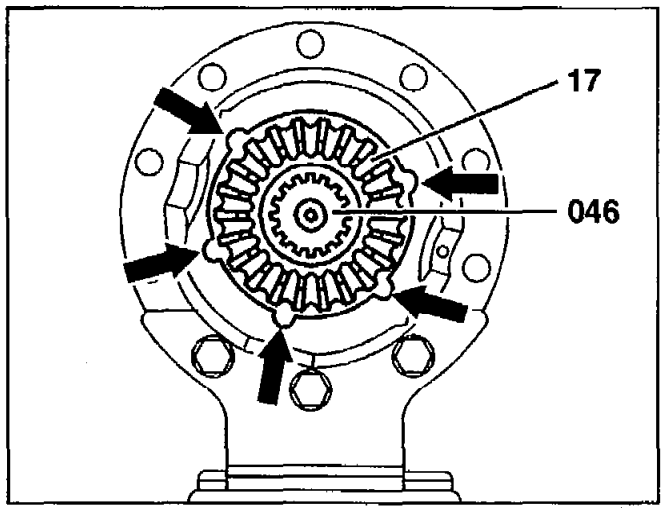
i

If new friction washers are installed, it is expedient to measure the friction washers with lining on one side (22) and install a new friction washer again which is approx. 0.1 mm thicker.

17 Differential side gear
22 Friction washer with lining on one side
23 Friction washers without lining with 5 lugs
23a Friction washer without lining with 4 lugs and 2 grooves, 185 mm dia. crown wheel only
24 Friction washers with lining on both sides

4 First install the left-hand differential side gear (17, on crown wheel side) with friction washers, then right-hand differential side gear (17) with friction washers and install assembly mandrel (046), paying attention to the lugs of the friction washers without lining (arrows).

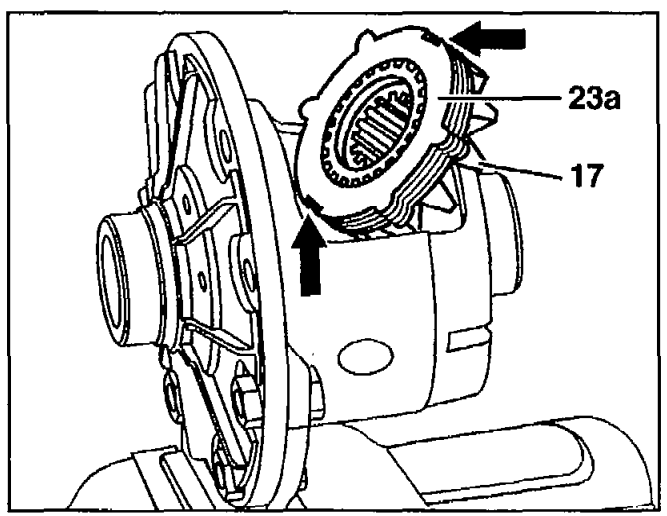
Shown on 210 mm dia. crown wheel



P35.41-0225-01

i 185 mm dia. crown wheel

On the differential with 185 mm dia. crown wheel a friction washer without lining (23a) with 4 lugs and 2 grooves (arrows) is always installed towards the housing side as the end friction washer.



P35.41-0226-01

K15 AR35.41-P-0560-05C	Checking friction torque of ASD differential		

Test values - friction torque of ASD rear axle center assembly

Number	Designation		Model 124 with 185 mm dia. rear axle center assembly and CODE 211a (ASD)	Model 129 with 185 mm dia. rear axle center assembly and CODE 211a (ASD)
BE35.41-P-1001-01A	Friction torque when complete differential is rotated	Nm	80–160	80–160

Test values - friction torque of ASD rear axle center assembly

Number	Designation		Model 201 with 185 mm dia. rear axle center assembly and CODE 211a (ASD)	Model 202 with 185 mm dia. rear axle center assembly and CODE 211a (ASD)
BE35.41-P-1001-01A	Friction torque when complete differential is rotated	Nm	80–160	80–160

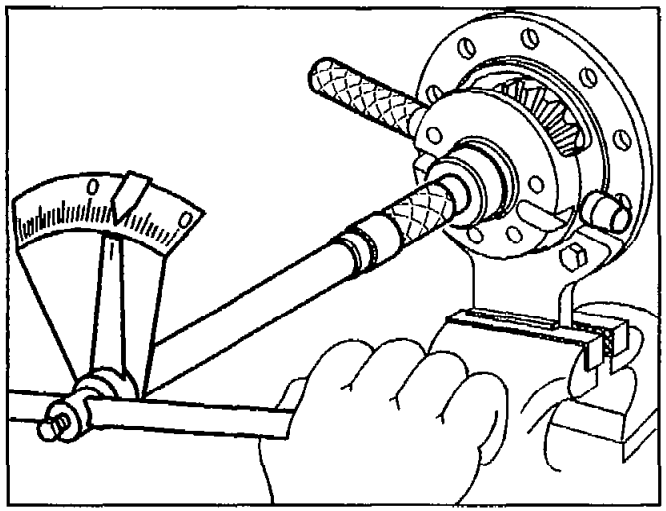
Test values - friction torque of ASD rear axle center assembly

Number	Designation		Model 124 with 210 mm dia. rear axle center assembly and CODE 211a (ASD)	Model 129 with 210 mm dia. rear axle center assembly and CODE 211a (ASD)
BE35.41-P-1001-01B	Friction torque when complete differential is rotated	Nm	80–160	80–160

Test values - friction torque of ASD rear axle center assembly

Number	Designation		Model 140 with 210 mm dia. rear axle center assembly and CODE 211a (ASD)
BE35.41-P-1001-01B	Friction torque when complete differential is rotated	Nm	80–160

Check friction torque.



P35.41-0222-01

i

If the friction torque deviates from the specified value, the friction washers with lining on one side for the differential side gears are to be selected so that the specified value is achieved after assembly.