

A1	AR35.31-P-0550D	Dismantling and assembling rear axle center assembly, adjusting gear assembly	10.6.96
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Rear axle center assembly dia. 210

in MODEL 124.008 /028 /029 /031 /032 /034 /036 /051 /052 /061 /066 /088 /091 /092,

129.058 up to 31.5.94,

129.061,

129.063 up to 31.5.94,

129.066,

140.028 /032 /033 up to 31.5.94,

140.042 /043 /063 /1,

210.070 up to 31.1.98,

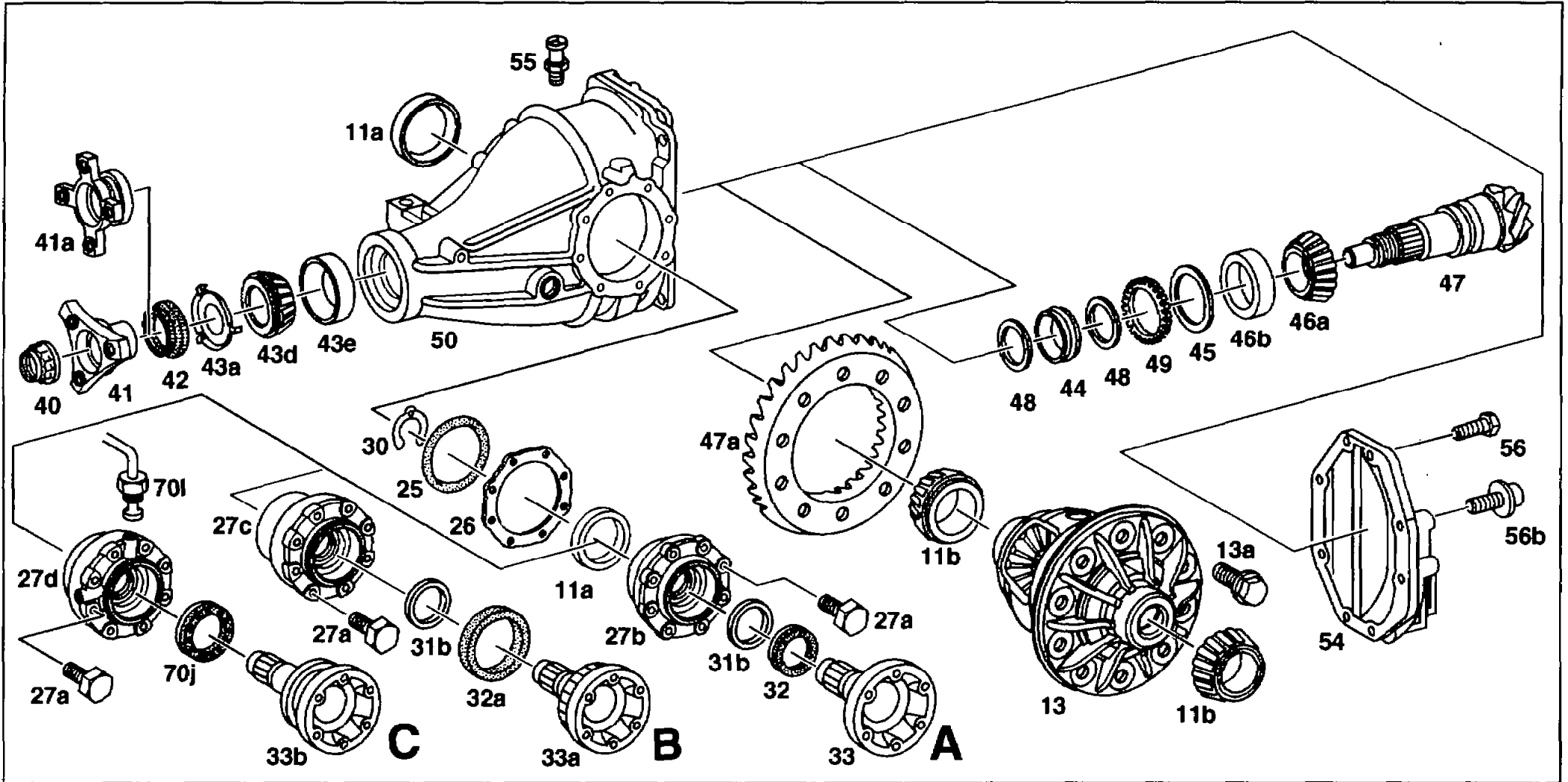
210.072,

210.074 /270 up to 31.1.98,

210.272,

210.274 up to 31.1.98,

210.617










A	Standard version	31b	Spacer ring	45	Shim
B	ASR version	32	Radial seal ring (standard)	46a	Tapered roller bearing inner race
C	ASD version	32a	Radial seal ring (ASR)	46b	Tapered roller bearing outer race
11a	Tapered roller bearing outer race	33	Connecting flange (standard)	47	Drive pinion
11b	Tapered roller bearing inner race	33a	Connecting flange (ASR)	47a	Ring gear
13	Differential gear	33b	Connecting flange (ASD)	48	Thrust washers
13a	Locking bolts	40	Twelve-point collared nut	49	ABS gear
25	O-ring	41	Joint flange, 3-arm	50	Rear axle housing
26	Shim	41a	Joint flange, 4-arm	54	End cover
27a	Hexagon bolt	42	Radial seal ring	55	Rear axle breather
27b	Side bearing cover (standard)	43a	Thrust washer	56	Bolt
27c	Side bearing cover (ASR)	43d	Tapered roller bearing inner race	56b	Collared bolt
27d	Side bearing cover (ASD)	43e	Tapered roller bearing outer race	70j	Radial seal ring (ASD)
30	Circlip	44	Spacer sleeve	70l	Hydraulic pipe




















Modification notes

14.8.97	Crown wheel/pinions ground	The matching number is omitted on ground crown wheel/pinions, refer to work step 26.1	BT35.31-P-0011-01B J17
1.9.98	Radial seal ring and joint flange on drive pinion modified	as of 01.04.98, refer to work step 34  The radial seal ring is pressed in using a new drift punch. When installing the new joint flange, it is essential to install the new radial seal ring as well. This is the only way to ensure correct sealing.	BT35.31-P-0012-01A L17

	Build conditions		
 GF	Features, installation survey for rear axle center assemblies		GF35.31-P-1000-01D A17
	Removing		
1	Remove rear axle center assembly (50)	Model 124 Model 129 Model 140 Model 210  Removal: Drain rear axle oil  Oil drain screw	RA35-0520 AR35.31-P-0520C AR35.31-P-0520A AR35.31-P-0520B BA35.31-P-1003-02A












 BT	Speed sensor tapped hole on rear axle housing relocated	Models 124, 129, 140	BT35.31-P-0004-01A	B18
	Dismantling			
2	Clamp rear axle center assembly in assembling trestle		AR35.31-P-0540-06B	D14
3	Detach end cover (54)			
4	Pull off circlips (30) of both connecting flanges (33 or 33a, 33b)		AR35.31-P-0540-01A	P13
5	Pull out connecting flanges (33 or 33a, 33b)			
6.1	Pull off deep-groove ball bearing connecting flange	Vehicles with ASD or ASR	AR35.31-P-0540-04A	M13
7.1	Remove spacer rings (31b)	Vehicles without ASD		
8.1	Detach hydraulic pipe (70l)	Vehicles with ASD	AR35.41-P-0545-01D	O13
9	Detach side bearing covers (27b or 27c, 27d)	 Mark bearing cover together with shim (26)	AR35.31-P-0550-39D	G14
10	Remove differential gear (13) from rear axle housing			
11	Drive left and right radial seal ring (32 or 32a, 70j) out of bearing cover		AR35.31-P-0550-40D	H14
12	Press both tapered roller bearing outer races (11a) out of bearing cover	  Mark tapered roller bearing outer races Vehicles without ASD	AR35.31-P-0550-41D	N12










		Vehicles with ASD	AR35.31-P-0550-41E	O12
13	Pull both tapered roller bearing inner races (11b) off differential gear (13)	  Mark tapered roller bearing inner races	AR35.31-P-0550-04C	K14
14	Loosen and detach locking bolts (13a) from ring gear (47a)	 Mark position of ring gear relative to differential gear		
15	Press ring gear (47a) carefully off differential gear (13)			
16	Loosen and unscrew twelve-point collared nut (40) on joint flange (41 or 41a)		AR35.31-P-0550-35C	L14
17	Pull off joint flange (41 or 41a)	  If necessary, mark joint flange relative to drive pinion	AR35.31-P-0550-06B	M14
 BT	Radial seal ring and joint flange on drive pinion modified	as of 01.04.98	BT35.31-P-0012-01A	L17
18	Press drive pinion (47) out of rear axle housing		AR35.31-P-0550-07A	N14
19	Press radial seal ring (42) out of rear axle housing	Use suitable screwdriver	AR35.31-P-0550-08B	O14
 BT	Radial seal ring and joint flange on drive pinion modified	as of 01.04.98	BT35.31-P-0012-01A	L17
20	Remove tapered roller bearing inner race (43d) with thrust washer (43a)			
 BT	Integrated thrust washer on tapered roller bearing inner race	as of 14.02.94	BT35.31-P-9402-01A	K17












21	Remove tapered roller bearing outer races (46b, 43e) and shim (45) from rear axle housing.		AR35.31-P-0550-09D	P14
22	Remove spacer sleeve (44) with thrust washers (48) from drive pinion			
23.1	Pull ABS gear (49) off drive pinion (47)	Vehicles with ABS, except model 210 (gear outside on rear axle shaft)	AR35.31-P-0550-30B	A15
24	Pull tapered roller bearing inner race (46a) off drive pinion (47)		AR35.31-P-0550-10C	B15
	Checking			
25	Check all parts for reuseability and replace if necessary	If the contact surface of the connecting and joint flange has been severely scored by the radial seal ring, the flanges are to be replaced.		
26.1	Check drive pinion (47) and ring gear (47a) for matching number	Only the lapped crown wheel/pinion up to approx. 06/95 is provided with a matching number. Each lapped crown wheel/pinion is assessed for the best possible quiet running and marked with a sequential matching number which is inscribed on both parts.	AR35.31-P-0550-11A	C15
BT	Crown wheel/pinions ground	Phased in as of 06/95	BT35.31-P-0011-01B	J17
	Assembling, adjusting crown wheel/pinion			


















<p>27</p> <p> WF</p>	<p>Press tapered roller bearing inner race (46a) onto drive pinion (47)</p> <p>Pressing-on sleeve for tapered roller bearing inner race</p>		<p>AR35.31-P-0550-12C M10</p> <p>WF58.50-P-3531-03B H18</p>
<p>28.1</p> <p> WF</p> <p> GF</p>	<p>Press ABS gear (49) onto drive pinion (47)</p> <p>Pressing-on sleeve for ABS gear</p>	<p>Vehicles with ABS, except vehicles with ETS, ASR, ESP</p> <p>Number of teeth of ABS gear: ↓</p> <p>Features, installation survey for rear axle center assemblies</p>	<p>AR35.31-P-0550-31B N10</p> <p>WF58.50-P-3531-04B J18</p> <p>GF35.31-P-1000-01D A17</p>
<p>29</p>	<p>Calculate shim (45) and place in rear axle housing</p>	<p>  Use measuring sheet: ↓</p> <p>Measuring sheet, rear axle crown wheel/pinion adjustment: Order no. B20.650.06.080.00B</p>	<p>AR35.31-P-0550-13D O10</p>
<p>30</p>	<p>Pull tapered roller bearing outer races (43e, 46b) into rear axle housing</p>	<p></p>	<p>AR35.31-P-0550-14C F11</p>
<p>31</p>	<p>Mount spacer sleeve (44) on the drive pinion with thrust washers (48) on both sides</p>	<p> Always replace spacer sleeve and thrust washers</p>	<p>AR35.31-P-0550-26B G11</p>
<p>32</p>	<p>Insert drive pinion (47) in rear axle housing (50)</p>	<p>  Support drive pinion with removal, installation device</p>	<p>AR35.31-P-0550-15D H11</p>

33.1  BT	Clip thrust washer (43a) onto tapered roller bearing inner race (43d) Integrated thrust washer on tapered roller bearing inner race	Rear axle center assemblies up to 13.02.94 Rear axle center assemblies as of 14.02.94	AR35.31-P-0550-37C J11 BT35.31-P-9402-01A K17
34	Insert tapered roller bearing inner race (43d) on drive pinion and press in together with radial seal ring (42)	 Replace radial seal ring and smear sealing lip with Universal hypoid transmission fluid: ↓ Universal hypoid transmission fluid	AR35.31-P-0550-16C K11 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 L17
35  BT	Slide joint flange (41 or 41a) onto drive pinion Imbalance at drive pinion joint flange reduced	 Observe any applied marking. Smear contact surface for radial seal ring with Universal hypoid transmission fluid: ↓ Universal hypoid transmission fluid Models 124, 129	BB00.40-P-0235-07A BT35.31-P-0007-01A P17
 BT	Radial seal ring and joint flange on drive pinion modified	as of 01.04.98	BT35.31-P-0012-01A L17
36	Screw on twelve-point collared nut (40)	 Replace twelve-point collared nut	126 589 02 09 00
37	Adjust friction torque of drive pinion bearing		AR35.31-P-0550-17C M11
38	Check adjustment dimension of drive pinion		AR35.31-P-0550-18D C12


39  WF	Lock twelve-point collared nut (40) at joint flange Caulker for locking collared nut at joint flange		AR35.31-P-0530-01B F12 WF58.50-P-3531-01A K18
40.1	Dismantle and assemble differential gear (13)	 Without ASD	AR35.31-P-0560A M2
40.2	Dismantle and assemble ASD differential gear (13)	 With ASD	AR35.41-P-0560C E4
41	Mount ring gear (47a) on differential gear	  Observe applied marking on ring gear and differential gear	AR35.31-P-0550-19D G12
42	Press tapered roller bearing inner races (11b) onto differential gear		AR35.31-P-0550-20D M12
43	Press both tapered roller bearing outer races (11a) into bearing cover	 Vehicles without ASD	AR35.31-P-0550-41D N12
		 Vehicles with ASD	AR35.31-P-0550-41E O12
44	Press radial seal rings (32 or 32a, 70j) into bearing cover	 Replace radial seal ring and smear sealing lip with Universal hypoid transmission fluid: ↓ Universal hypoid transmission fluid Vehicles without ASD/ASR Vehicles with ASR Vehicles with ASD	BB00.40-P-0235-07A AR35.31-P-0550-42D P12 AR35.31-P-0550-42E A13 AR35.31-P-0550-42F B13



45	Slide side bearing covers (27b or 27c, 27d) into rear axle housing (50) and insert differential gear (13)	 Observe applied marking on bearing cover with shim (26). Smear periphery of O-rings in bearing cover with Universal hypoid transmission fluid: ↓ Universal hypoid transmission fluid	AR35.31-P-0550-43D BB00.40-P-0235-07A	C13
46	Preload rear axle housing (spread) and measure spreading dimension (expansion)		AR35.31-P-0550-44D	F13
47	Measure gear backlash between bevel gear and ring gear and correct if necessary	  The adjustment of tapered roller bearings or crown wheel/pinion is in order when the spreading dimension (expansion) of rear axle housing and the gear backlash are in the range of specified of values.	AR35.31-P-0550-25D	J13
48	Detach stops for contact arm			
49.1	Press on deep-groove ball bearing connecting flange	Vehicles with ASD or ASR	AR35.31-P-0540-04A	M13
50.1	Attach hydraulic pipe (70l)	Vehicles with ASD	AR35.41-P-0545-01D	O13
51.1	Slide spacer rings (31b) onto connecting flanges (33 or 33a)	Vehicles without ASD		
52	Insert connecting flanges (33 or 33a,33b) in differential gear (13)			
 BT	Connecting flange with centering	Models 124, 129, 140	BT35.31-P-0009-01A	A18
53	Mount circlips (30) on connecting flanges	 Replace circlip	AR35.31-P-0540-01A	P13

54.1	Check and adjust connecting flange axial play	Vehicles without ASD  No axial play is to be adjusted on vehicles with ASD	AR35.31-P-0540-02A A14
55	Mount end cover (54)	 Clean sealing surface and smear with sealing agent	AR35.31-P-0550-28D B14
56	Detach rear axle center assembly from assembling tressle		
57	Pour in rear axle oil	 124  129  140  210  Oil filler screw	BF35.31-P-1001-01B BF35.31-P-1001-01C BF35.31-P-1001-01A BF35.31-P-1001-01E BA35.31-P-1002-02A
58	Replace rear axle breather (55) on rear axle housing (50)		BA35.31-P-1005-02A
	Installing		
59	Install rear axle center assembly (50)	Model 124 Model 129 Model 140 Model 210	RA35-0520 AR35.31-P-0520C AR35.31-P-0520A AR35.31-P-0520B



 BT	Speed sensor tapped hole on rear axle housing relocated	Models 124, 129, 140	BT35.31-P-0004-01A	B18
60.1	Bleed ASD hydraulic system	Vehicles with ASD: ↓ Model 124 Model 129 Model 140	RA35-0519 AR35.41-P-0519C AR35.41-P-0519A	K3 G3

Test values of 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
BE35.31-P-1001-02D	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 140.028/ 032/033 up to 31.05.94 Models 140.042/ 043/063/1	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	125–150

Test values of gear assembly of rear axle center assembly

Number	Designation	Model 124	Model 129
BE35.31-P-1001-03A	Permissible deviation from specified adjustment dimension on end face of drive pinion mm	–0.02/ + 0.01	–0.02/ + 0.01
BE35.31-P-1002-03A	Gear backlash between drive pinion and crown wheel mm	0.08–0.14	0.08–0.14
BE35.31-P-1003-03A	Temperature of crown wheel for installation °C	75–85	75–85

Test values of gear assembly rear axle center assembly gear

Number	Designation		Model 140	Model 210
BE35.31-P-1001-03A	Permissible deviation from specified adjustment dimension on end face of drive pinion	mm	-0.02/ +0.01	-0.02/ +0.01
BE35.31-P-1002-03A	Gear backlash between drive pinion and crown wheel	mm	0.08-0.14	0.08-0.14
BE35.31-P-1003-03A	Temperature of crown wheel for installation	°C	75-85	75-85

Test values of rear axle housing expansion

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
BE35.31-P-1001-04D	Set value of rear axle housing expansion (expanded dimension)	mm	0.15-0.20	0.15-0.20

Test values of rear axle housing expansion

Number	Designation		Models 140.028/ 032/033 up to 31.05.94 Models 140.041/ 043/063/1	Models 210.070/ 074/270/274 up to 31.01.98, models 210.072/ 272/617
BE35.31-P-1001-04D	Set value of rear axle housing expansion (expanded dimension)	mm	0.15–0.20	0.15–0.20

Test values of connecting flange/differential gear housing

Number	Designation		Model 124	Model 129	Model 140	Model 210
BE35.31-P-1001-05A	Axial play between connecting flange and differential gear housing	mm	0.03–0.3	0.03–0.3	0.03–0.3	0.03–0.3

Nm Rear axle center assembly housing

Number	Designation		Model 124	Model 129
BA35.31-P-1001-02A	Collared bolt, end cover to rear axle center assembly	Nm	50	50
BA35.31-P-1002-02A	Oil filler screw, rear axle center assembly	Nm	50	50
BA35.31-P-1003-02A	Oil drain screw, rear axle center assembly	Nm	50	50
BA35.31-P-1005-02A	Rear axle center assembly breather	Nm	25	30
BA35.31-P-1006-02A	Bolt, side bearing covers to rear axle center assembly	Nm	20	20

Nm Rear axle center assembly housing

Number	Designation		Model 140	Model 210
BA35.31-P-1001-02A	Collared bolt, end cover to rear axle center assembly	Nm	50	50
BA35.31-P-1002-02A	Oil filler screw, rear axle center assembly	Nm	50	50
BA35.31-P-1003-02A	Oil drain screw, rear axle center assembly	Nm	50	50
BA35.31-P-1005-02A	Rear axle center assembly breather	Nm	30	30
BA35.31-P-1006-02A	Bolt, side bearing covers to rear axle center assembly	Nm	20	20

Nm Gear assembly 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
BA35.31-P-1001-03D	Locking bolt, crown wheel to differential gear housing	without serrations	Nm 120	120
		with serrations	Nm 140	140



Nm Gear assembly of rear axle center assembly

Number	Designation	Models 140.028/ 032/033 up to 31.05.94 Models 140.041/ 043/063/1	Models 210.070/ 074/270/274 up to 31.01.98, models 210.072/ 272/617	
BA35.31-P-1001-03D	Locking bolt, crown wheel to differential gear housing	without serrations Nm	120	120
		with serrations Nm	140	140

☰ Rear axle center assembly

Number	Designation	Models 140.02/03 without (code 211) ASD up to 05/94	Models 140.02/03 with (code 211) ASD up to 05/94	Models 140.04/06	
BF35.31-P-1001-01A	Filling quantities	Rear axle center assembly Liters	1.3	1.3	1.3
		Specifications for Service Products Sheet	235.0	—	235.0
		Sheet	235.7	235.7	235.7



Rear axle center assembly

Number	Designation		Model 140.1 without (code 211) ASD	Model 140.1 with (code 211) ASD	
BF35.31-P-1001-01A	Filling quantities	Rear axle center assembly	Liters	1.3	1.3
		Specifications for Service Products	Sheet	235.0	-
			Sheet	235.7	235.7


Rear axle center assembly

Number	Designation		Models 124.008/028/ 029/031/032/034/036/ 051/052/061/066/088/ 091/092 without (code 211) ASD	Models 124.008/028/ 029/031/032/034/036 051/052/061/066/088 091/092 with (code 211) ASD	
BF35.31-P-1001-01B	Filling quantities	Rear axle center assembly	Liters	1.3	1.3
		Specifications for Service Products	Sheet	235.0	235.7
			Sheet	235.7	-



Rear axle center assembly

Number	Designation			Models 129.058/ 063 without (code 211) ASD up to 05/94	Models 129.058/ 061/063 with (code 211) ASD up to 05/94
BF35.31-P-1001-01C	Filling quantities	Rear axle center assembly	Liters	1.3	1.3
		Specifications for Service	Sheet	235.0	-
		Products	Sheet	235.7	235.7

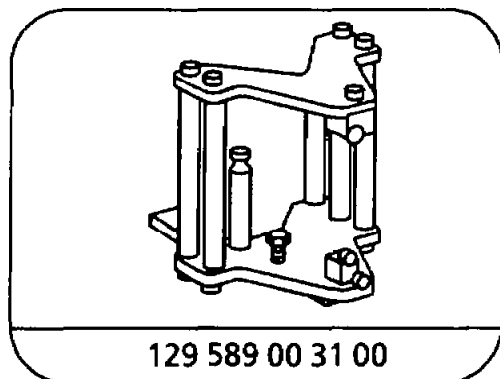

Rear axle center assembly

Number	Designation			Model 129.066	Model 129.061 without (code 211) ASD
BF35.31-P-1001-01C	Filling quantities	Rear axle center assembly	Liters	1.3	1.3
		Specifications for Service	Sheet	235.0	235.0
		Products	Sheet	235.7	235.7

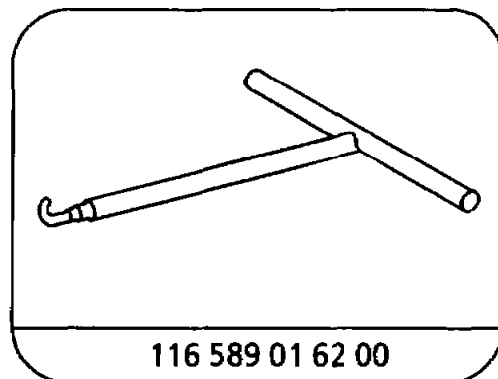


Rear axle center assembly

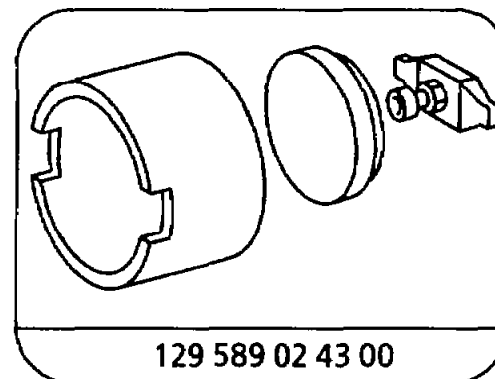
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BF35.31-P-1001-01E	Filling quantities	Rear axle center assembly	Liters 1.3
		Specifications for Service Products	Sheet 235.7



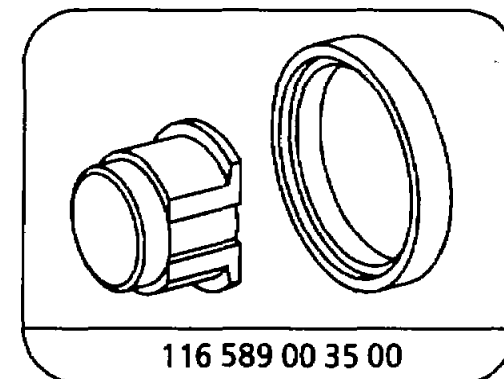
Assembling trestle



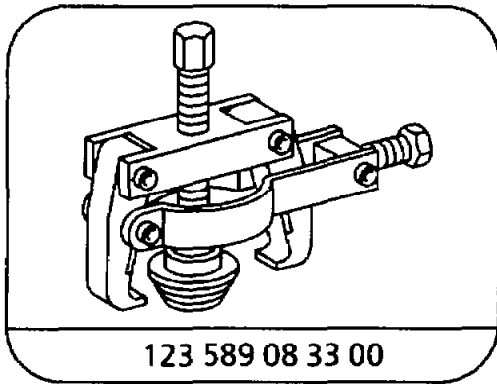
Removal and installation tool



Pressing-out and pressing-in tool

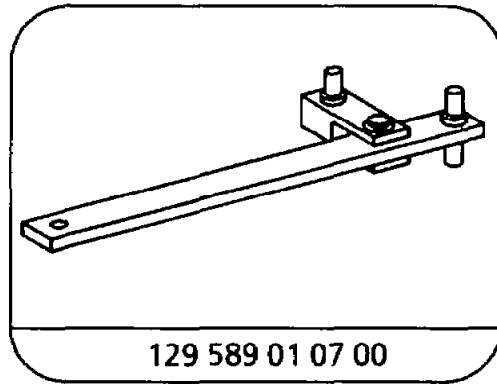


Pressing-out device



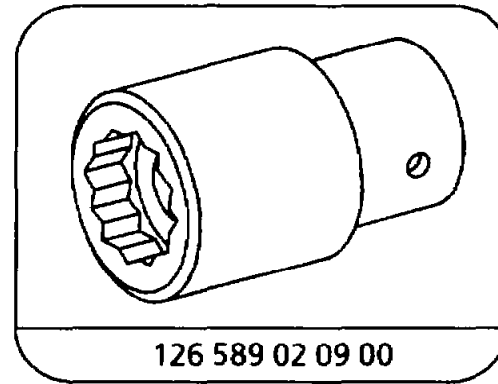
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Puller



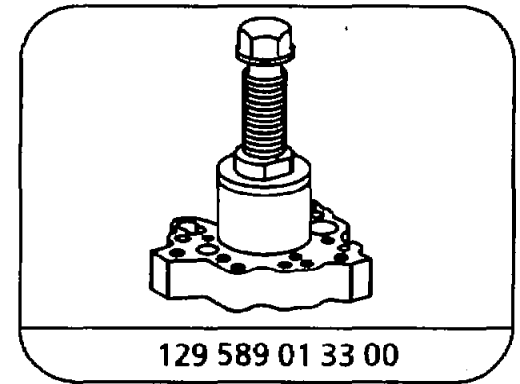
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Allen wrench



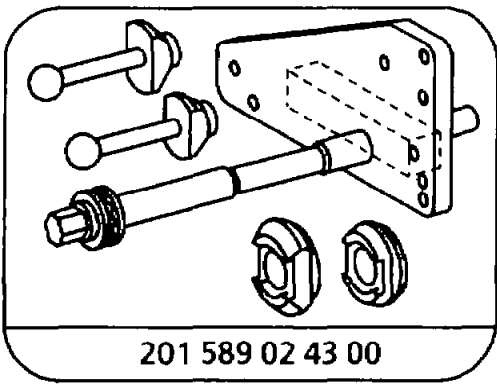
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Wrench socket



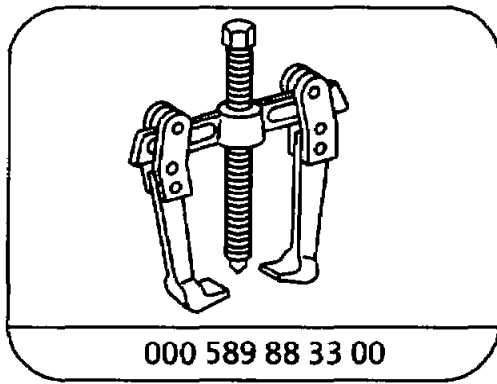
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Puller



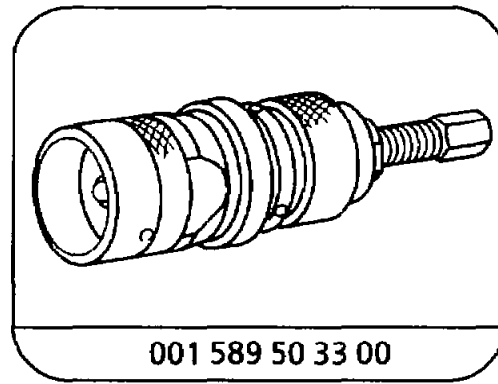
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Removal and installation tool



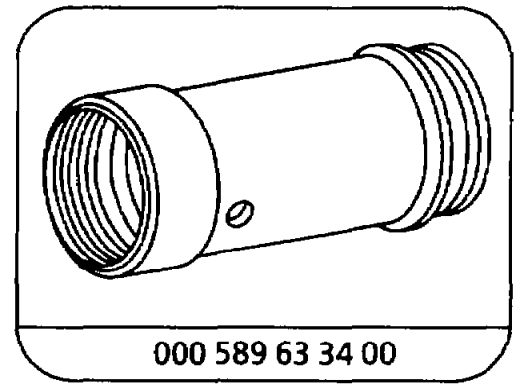
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Two-arm puller



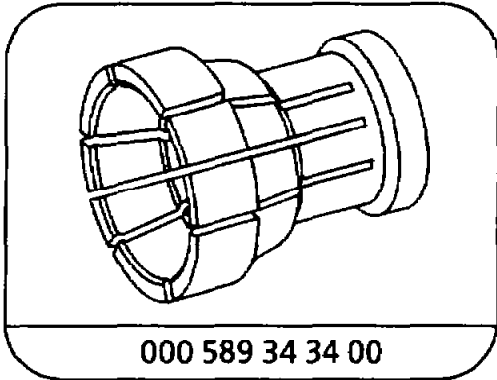
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Puller



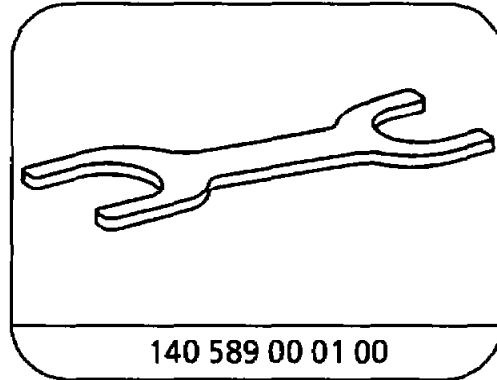
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Extension



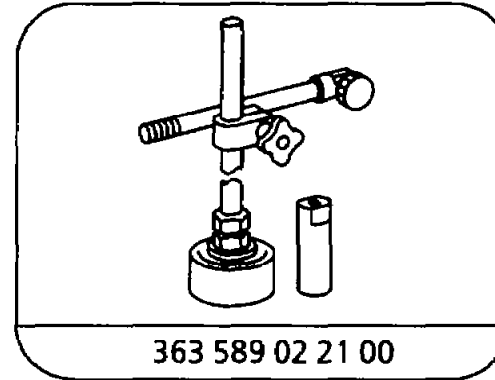
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Clamping pliers



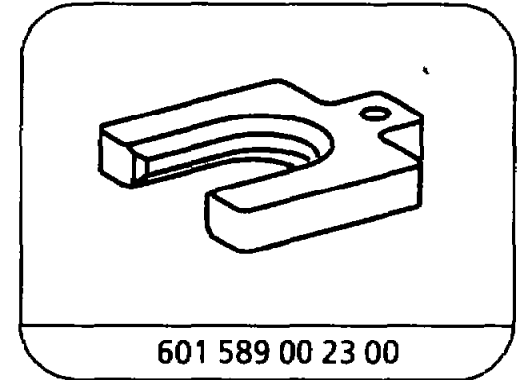
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Open-end wrench



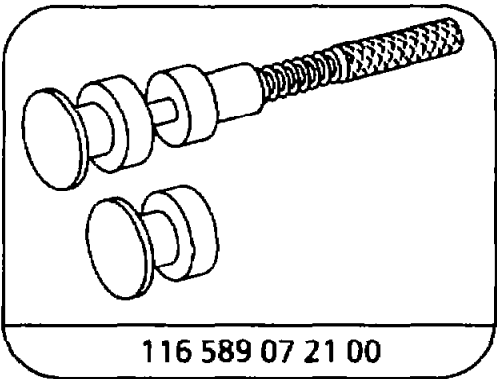
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Gauge stand



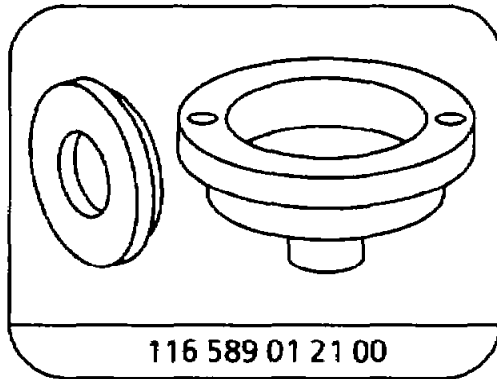
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Measuring plate



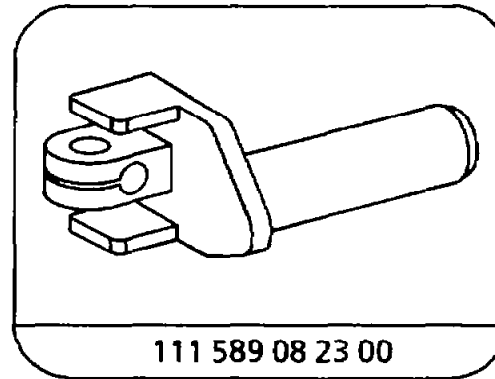
116 589 07 21 00

Measuring device



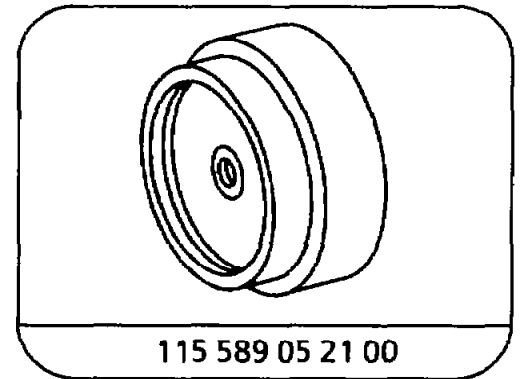
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Measuring device



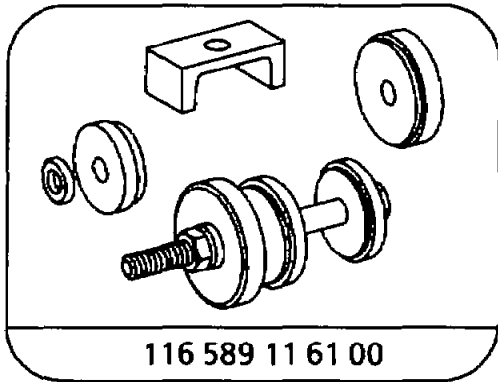
111 589 08 23 00

Gauge stand



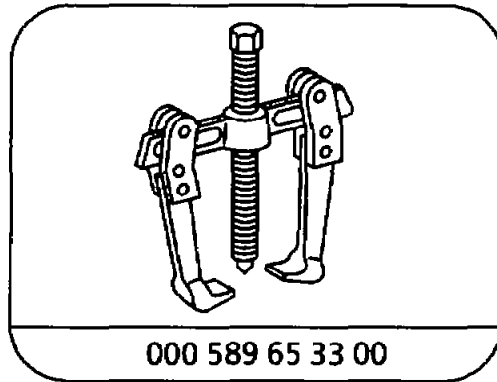
115 589 05 21 00

Adjustment gauge



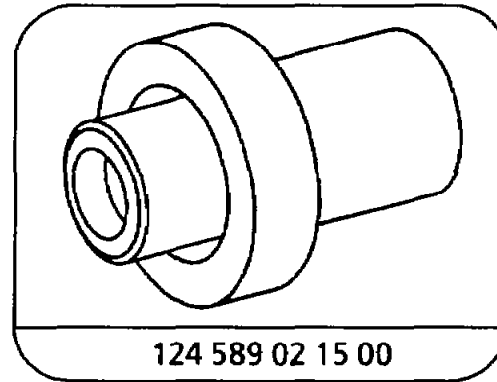
116 589 11 61 00

Pulling-in device



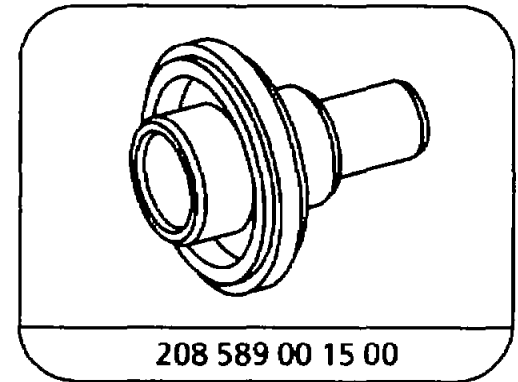
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Puller



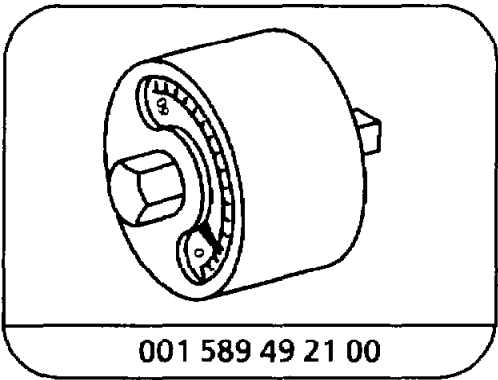
124 589 02 15 00

Drift punch



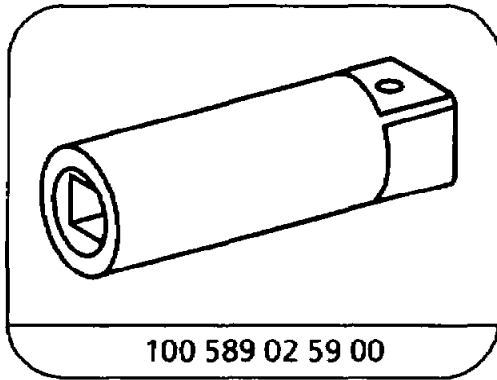
208 589 00 15 00

Drift punch



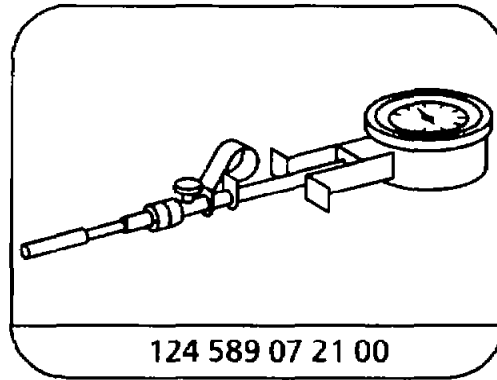
001 589 49 21 00

Torque meter



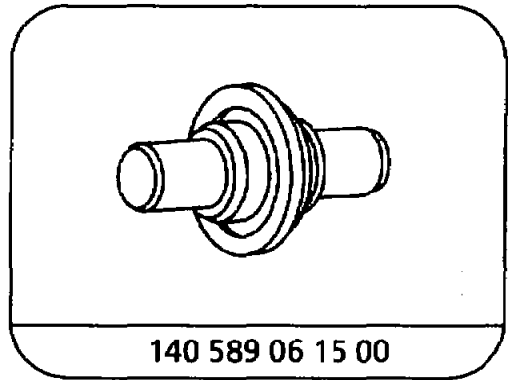
100 589 02 59 00

Connecting piece



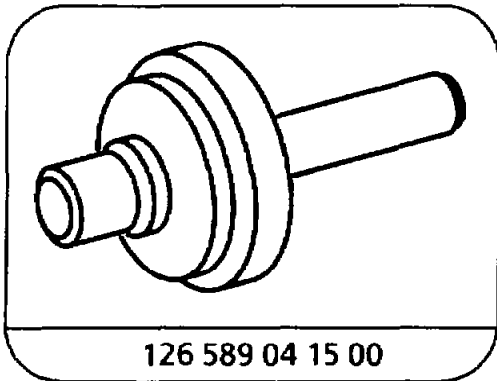
124 589 07 21 00

Telethermometer



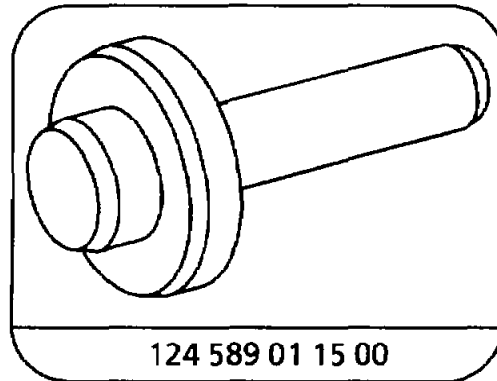
140 589 06 15 00

Drift punch



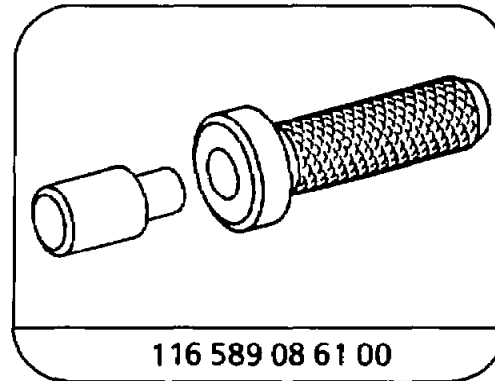
126 589 04 15 00

Drift punch



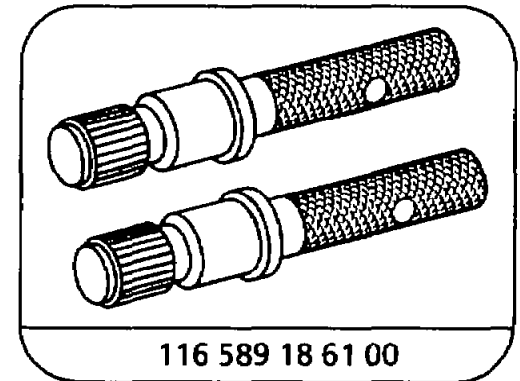
124 589 01 15 00

Drift punch



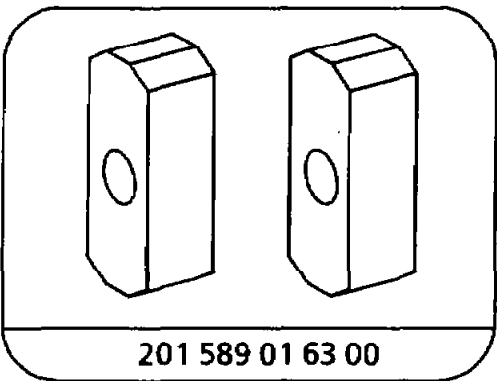
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Assembly mandrel



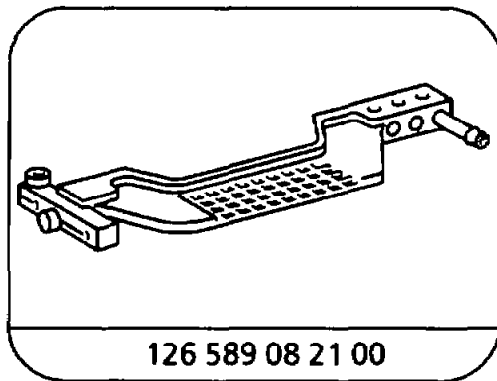
116 589 18 61 00

Assembly mandrel



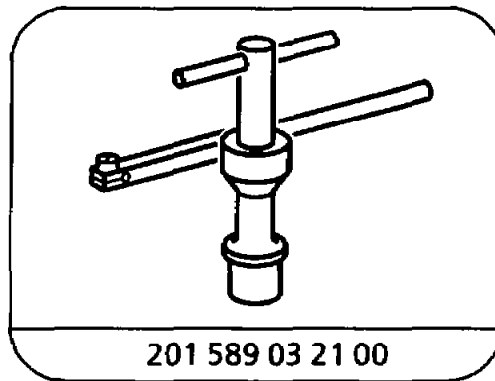
201 589 01 63 00

Stop



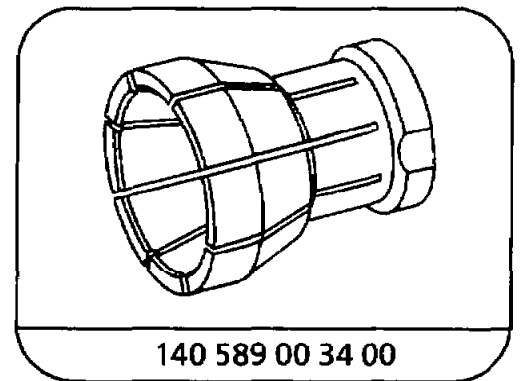
126 589 08 21 00

Contact arm



201 589 03 21 00

Gear backlash measuring instrument



140 589 00 34 00

Clamping pliers

**Repair product**

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