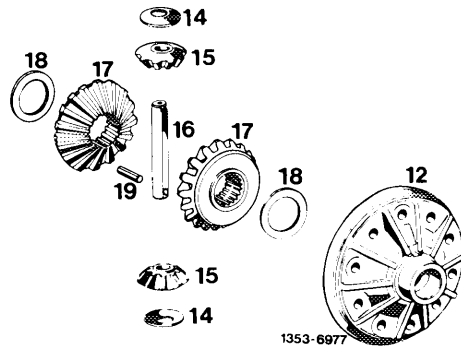


A. Standard differential



12 Differential housing . . . . .	Check vertical and axial runout on fitted dia. for ring gear, max. 0.02
14 Spherical washer . . . . .	Renew
15 Differential . . . . .	Check for damage
16 Differential pinion shaft . . . . .	Check for wear
17 Differential side gear . . . . .	Check for damage
18 Thrust washer . . . . .	Renew, selecting thickness to obtain a friction torque of 30–90 Nm
19 Clamping sleeve . . . . .	Renew

## Adjustment of differential gears

Friction torque when rotating complete differential	30–90 Nm
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### Differential

Permissible vertical runout of differential housing on fit for ring gear	0.02
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Permissible lateral runout of differential housing on flange surface for ring gear	0.02
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Thrust washer on side gear	Thickness	large center piece <sup>1)</sup>	1.3 to 1.7
		small center piece <sup>1)</sup>	1.0 to 1.7
	Steps		0.1 mm each

Clamping sleeve	large center piece <sup>1)</sup>	6 x 45
	small center piece <sup>1)</sup>	6 x 40

<sup>1)</sup> Refer to installation survey rear axle center piece 35–500

### Special tools

Puller for tapered roller bearing		123 589 08 33 00
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Assembly mandrel (2 each) for side gears		116 589 18 61 00
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Assembly mandrel for differential gears	large center piece	126 589 02 15 00
	small center piece	123 589 06 15 00

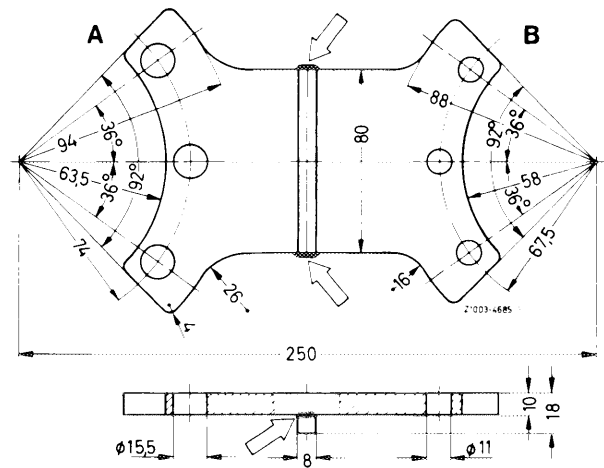
Assembly mandrel for inner race of tapered roller bearing	large center piece	116 589 08 61 00
	small center piece	115 589 04 61 00

Support for differential housing		126 589 06 31 00
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## Self-made tool

### Clamping device for differential

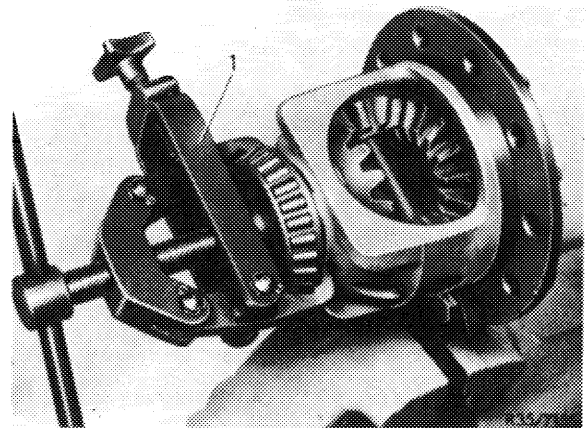
A = large rear axle center piece  
 B = small rear axle center piece  
 Arrow = intermediate web welded



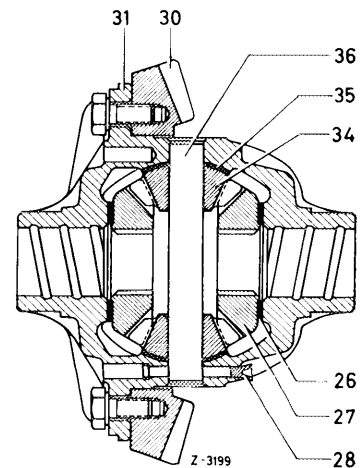
### Disassembly

1 Clamp differential with self-made clamping device into vise.

2 Pull both tapered roller bearing inner races from differential housing with puller (1).



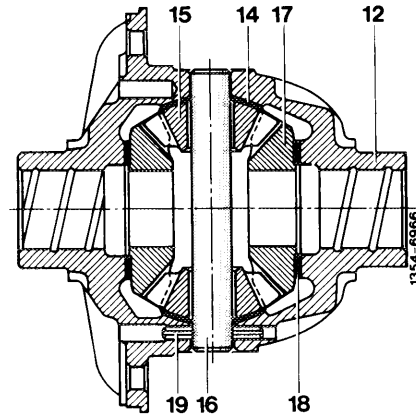
3 Knock clamping sleeve (28) for differential pinion shaft (36) out of differential housing (31) by means of a matching mandrel.



### Complete differential of 1st version

26 Thrust washer	31 Differential housing
27 Side gear	34 Differential pinion
28 Clamping sleeve	35 Ball washer
30 Ring gear	36 Differential pinion shaft

4 Force out differential pinion shaft and remove differential pinions, side gears, thrust washers and ball washers.



Complete differential of 2nd version

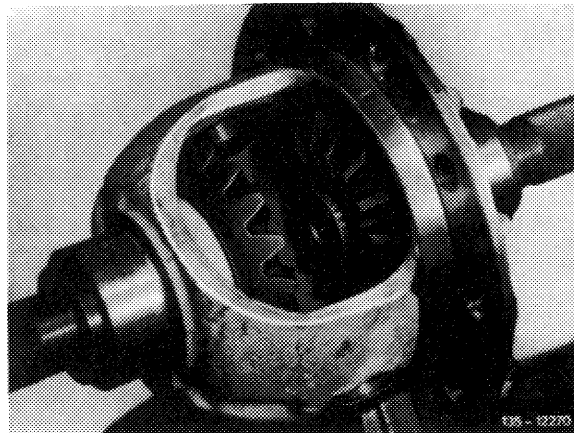
- |                              |                    |
|------------------------------|--------------------|
| 12 Differential housing      | 17 Side gear       |
| 14 Ball washer               | 18 Thrust washer   |
| 15 Differential pinion       | 19 Clamping sleeve |
| 16 Differential pinion shaft |                    |

5 Check individual parts for re-use. Renew all overheated or seized differential pinions, thrust washers and ball washers on principle.

6 Check bores in differential housing. Check fit and supporting surface for ring gear for radial and axial runout.

**Assembly**

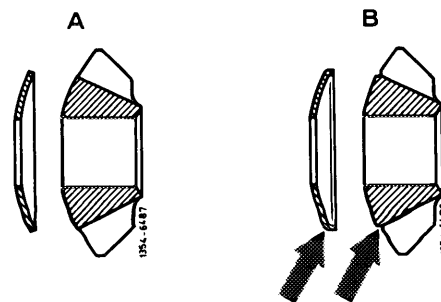
- 7 Insert both assembly mandrels into bores of differential housing.
- 8 Place thrust washer on side gears.
- 9 Place both side gears with thrust washers on assembly mandrels in differential housing.



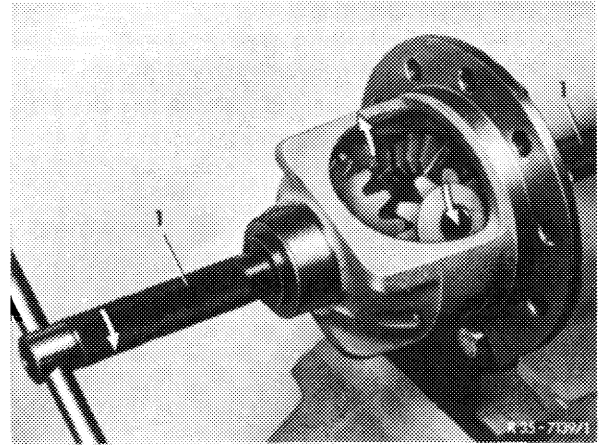
**Attention!**

To facilitate assembly, the ball washers of the present version (B) of the differential are provided with a collar at OD and the differential pinions with a shoulder (arrow).

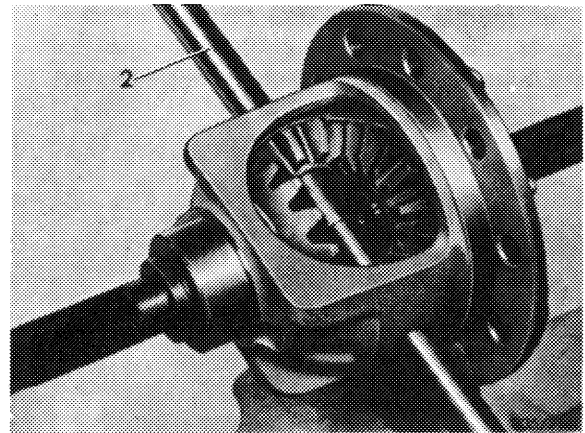
Mount differential pinions and ball washers only in the combination shown in illustration.



10 Turn both differential pinions and ball washers together into differential housing by means of assembly mandrel (1).

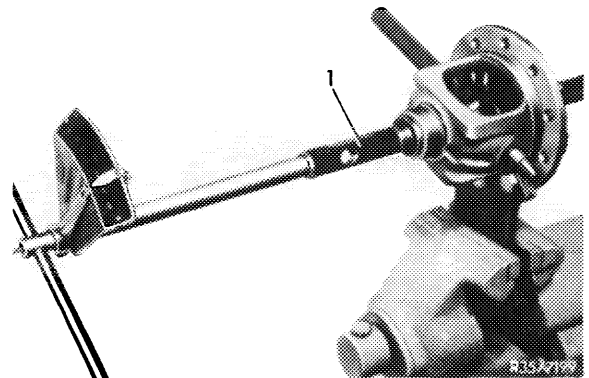


11 Slip assembly mandrel (2) instead of differential bolt into differential housing to locate differential pinions and ball washers.

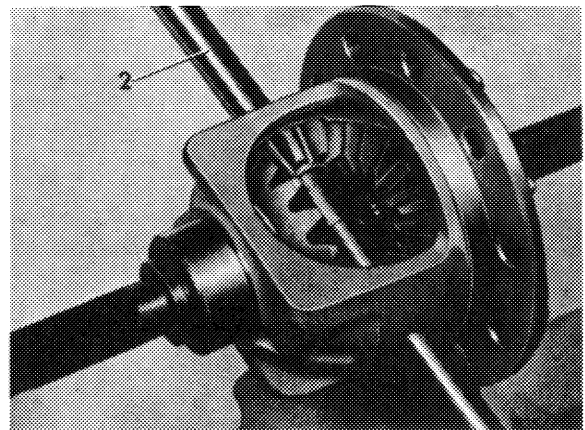


12 Check friction torque. Friction torque should amount to 30–90 Nm, at restraining points up to 100 Nm.

**Note:** Select thrust washers for side gears in such a manner that a given friction torque is available during assembly.



13 Knock in differential bolt while paying attention to bore for clamping sleeve.

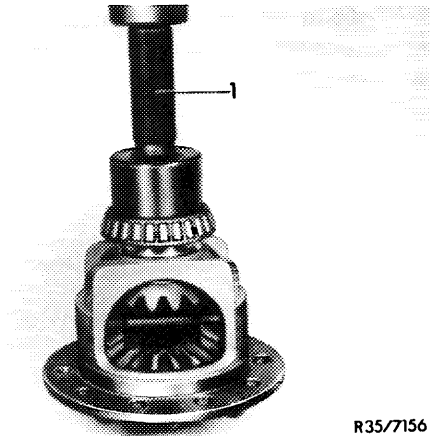


14 Knock in new clamping sleeve.

15 Press inner races of tapered roller bearings on differential housing by means of assembly mandrel (1).

Assembly mandrel for:

small	rear axle center piece:	115 589 04 61 00
large	rear axle center piece:	116 589 08 61 00



R35/7156

**Attention!**

To prevent damage to roller cage when pressing-on second inner race, use support (048) (for small rear axle center piece without lateral bearing caps only).

