Adjustment of Differential Pinions

Friction torque when turning complete differential	approx. 25–35 Nm (250–350 kpcm)

Differential

Perm. vertical runout of differential housing on recess for ring gear	0.02
Perm. lateral runout of differential housing on flange surface for ring gear	0.02

Friction Plates

Without lining		1.1
With lining on both sides		1.8
With lining on one side	Thickness	3.0–3.6 and 4.0
	steps	from 0.1 to 0.1 and 0.4

Special Tools

Pulling fixture for tapered roller bearing	187 589 05 33 00
2 Assembly mandrels for side gears	116 589 18 61 00
Plug mandrel for differential pinions	116 589 07 61 00
Assembly mandrel for tapered roller bearing inner race	116 589 08 61 00
Clamping fixture for differential	self-made acc. to Fig. 1

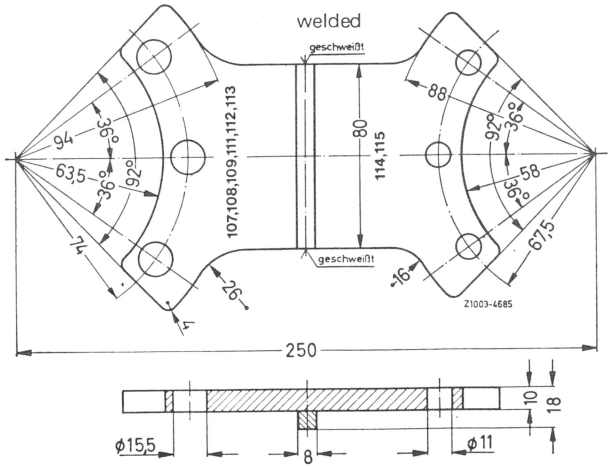

Fig. 1
Clamping fixture (self-made)

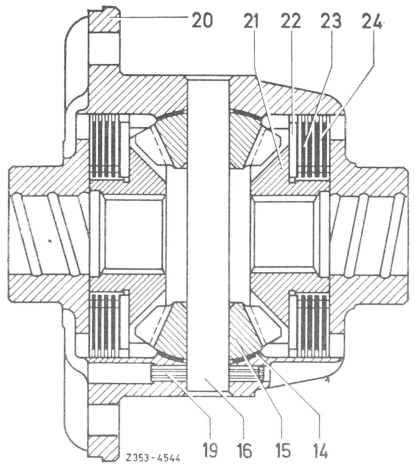

Fig. 2

14 Spherical washer
15 Differential pinion
16 Differential pin
19 Clamping sleeve
20 Differential housing
21 Side gear
22 Friction plate with lining on one side
23 Friction plate with lining on both sides
24 Friction plate without lining

Disassembly

1 Clamp differential with clamping fixture (Fig. 1). into vise.

2 Pull both tapered roller bearings from differential housing by means of pulling fixture (Fig. 3).

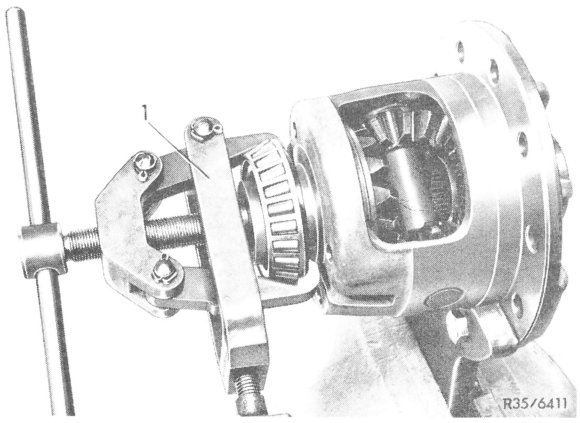

Fig. 3

1 Pulling fixture

3 Knock clamping sleeve for differential pin out of differential housing with matching mandrel.

4 Knock out differential pin.

5 Insert assembly mandrels for guiding side gears (Fig. 4).

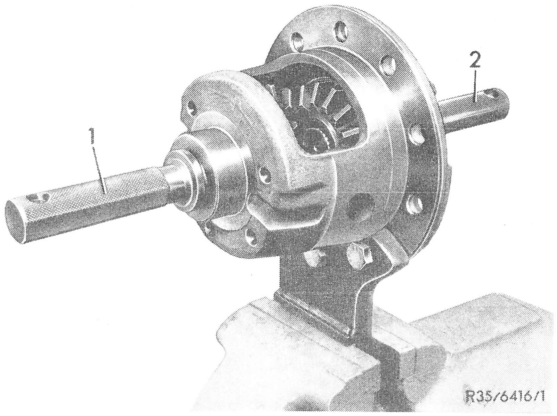

Fig. 4

1, 2 Assembly mandrel

6 Remove differential pinions with spherical washers (Fig. 5).

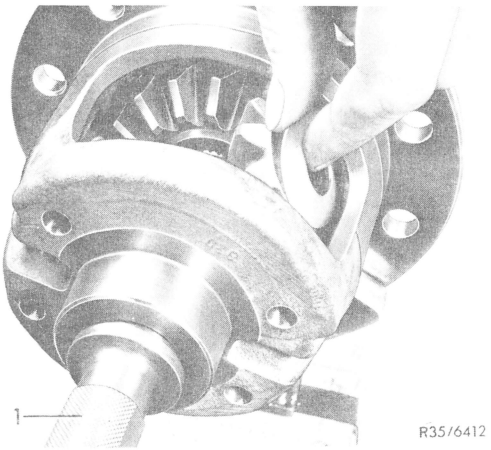

Fig. 5

1 Assembly mandrel

7 Remove righthand side gear with friction plates (Fig. 6).

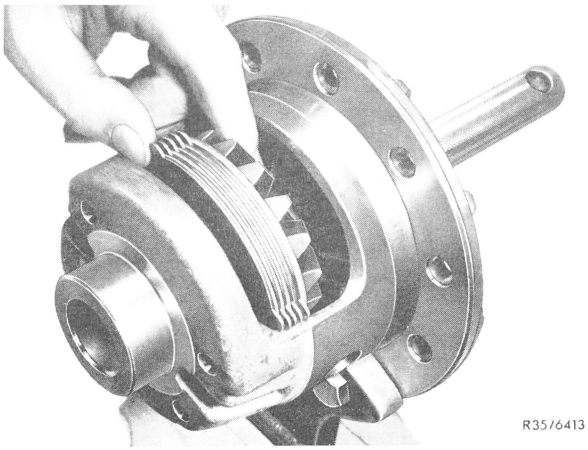

Fig. 6

8 Remove lefthand side gear together with friction plates (Fig. 7).

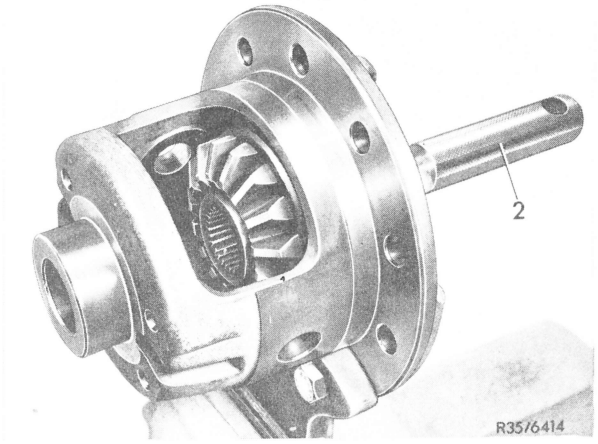

Fig. 7
2 Assembly mandrel

9 Check components for re-use and replace, if required.

10 Check bores in differential housing. Check recess for ring gear for vertical runout and contact surface for lateral runout.

Assembly

Note: When installing new friction plates it will be of advantage to measure friction plates with one-sided lining and then reinstall new friction plates of same thickness.

11 Mount friction plates on both side gears in correct sequence (Fig. 8).

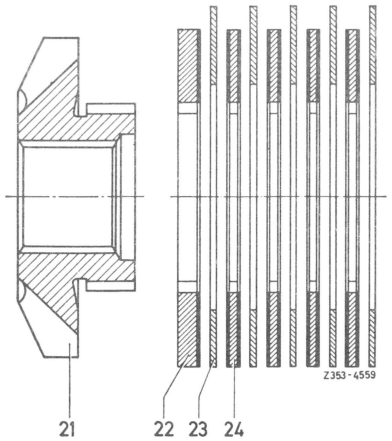

Fig. 8
21 Side gear
22 Friction plates with lining on one side
23 Friction plate without lining
24 Friction plate with lining on on both sides

12 Install lefthand side gear (ring gear end) with friction plate and insert assembly mandrel, while watching lugs of friction plates without lining (Fig. 9).

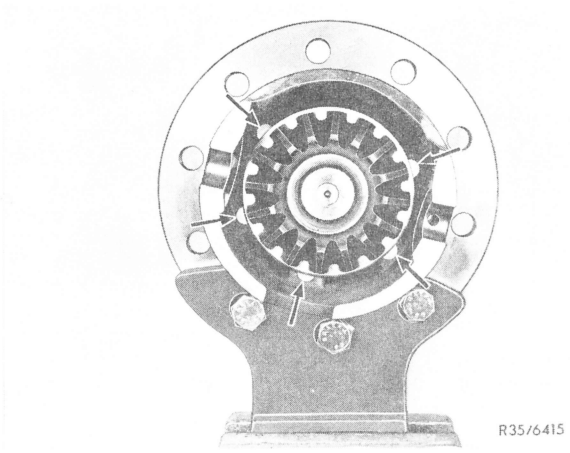

Fig. 9

13 Install righthand side gear with friction plates and insert assembly mandrel (Fig. 6).

14 Mount differential pinions with new spherical washers (Fig. 5).

15 Insert assembly mandrel instead of differential pin for locating the differential pinions and spherical washers (Fig. 10).

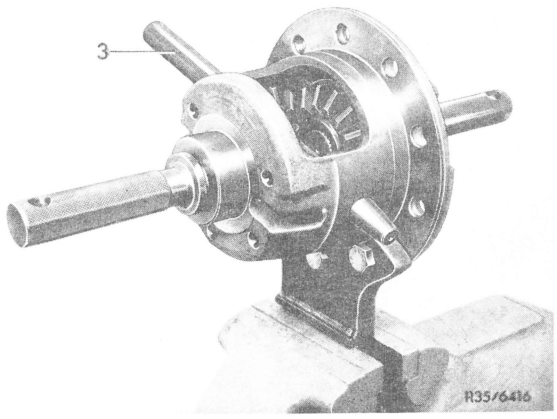

Fig. 10
3 Plug mandrel

16 Check friction torque (Fig. 11). Friction torque should be approx. 25–35 Nm (250–350 kpcm).

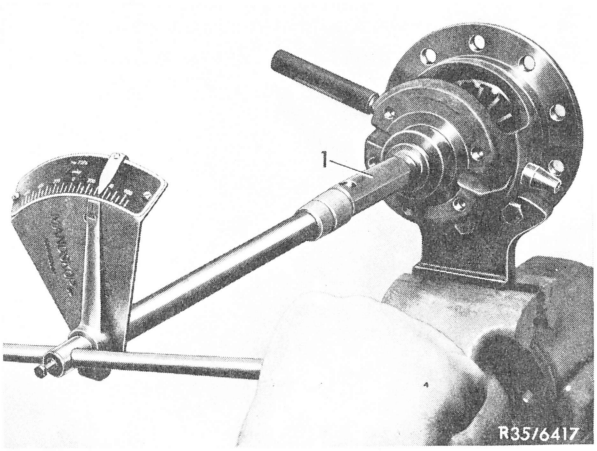

Fig. 11
1 Assembly mandrel

17 Knock-in differential pin (Fig. 12).

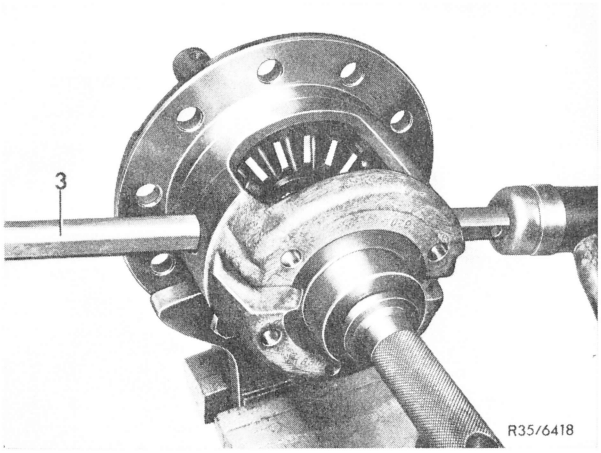

Fig. 12
3 Plug mandrel

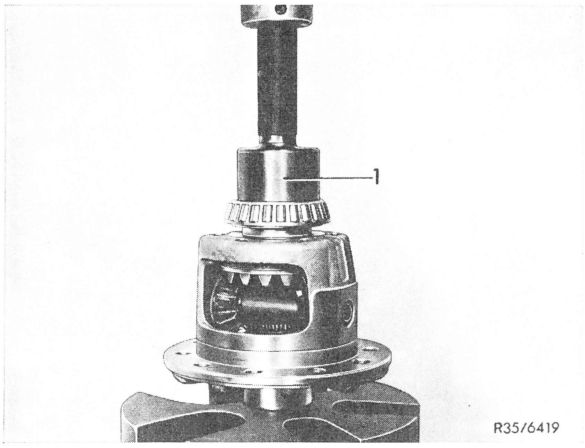

Fig. 13
1 Assembly mandrel

18 Knock-in new clamping sleeve.

19 Press-on inner races of tapered roller bearings (Fig. 13).