Adjusting Data

End play of hollow shaft	0.3–0.4
End play of sun gear 1st gear assembly	0.2–0.3

Special Tools

Assembly fixture	112 589 07 59 00
Pulling fixture	000 589 98 33 00
Assembly mandrel	198 589 03 39 00

Disassembly

1 Remove output shaft (18) together with rear planetary gear carrier.

2 Remove radial bearing (20) and axial bearing (19) (Fig. 1).

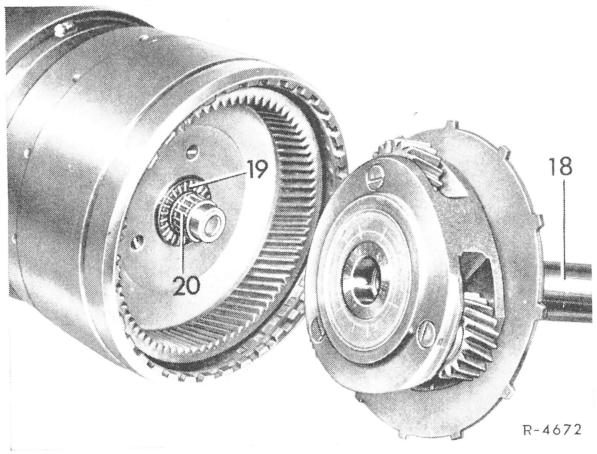

Fig. 1
18 Output shaft
19 Axial bearing
20 Radial bearing

3 Place gear assembly with input shaft in upward direction on assembly fixture 112 589 07 59 00 (Fig. 2).

4 Remove input shaft (1) with ring gear, as well as radial bearing (24) (Fig. 2 and 3).

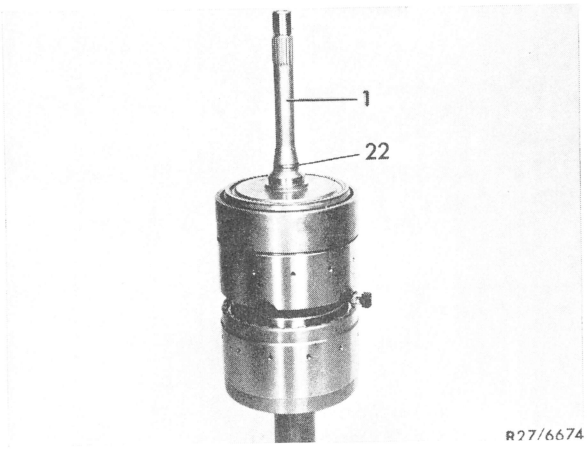

Fig. 2
1 Input shaft
22 Lube pressure ring

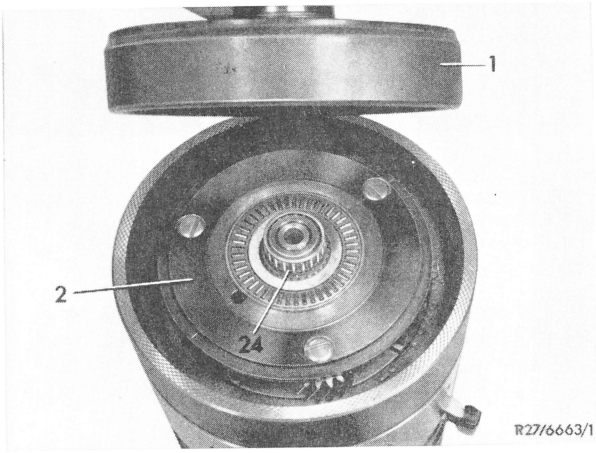

Fig. 3
1 Input shaft
2 Planetary carrier
24 Radial bearing

5 Remove planetary carrier first gear assembly (2) (Fig. 3).

6 Remove sun gear (3) and needle bearing (28) Fig. 4).

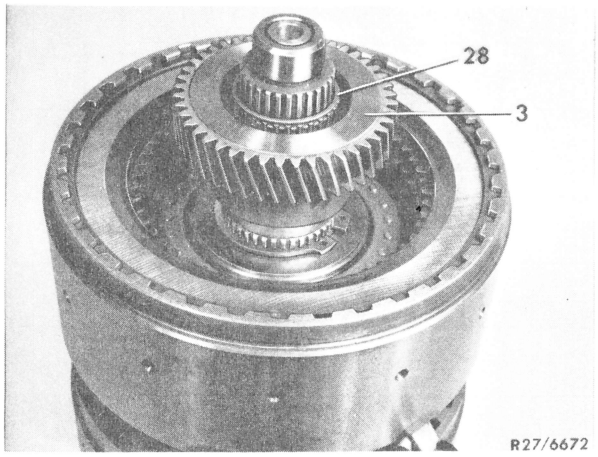

Fig. 4

3 Sun gear
28 Needle bearing

7 Remove circlip (31) and compensating washers (32) and pull off clutch K 1 (6) (Fig. 5).

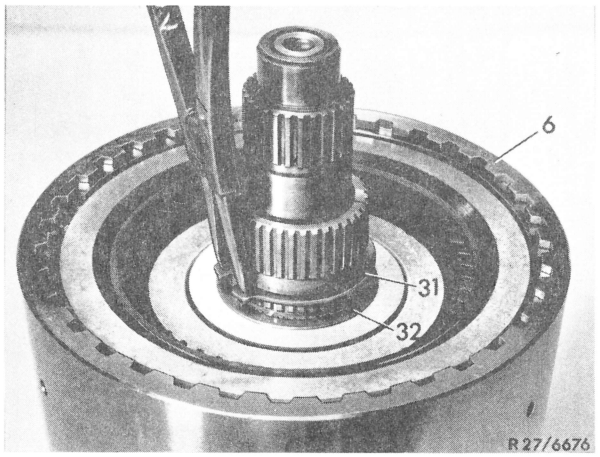

Fig. 5

6 Clutch K 1
31 Circlip
32 Compensating washers

8 Pull oil feeding sleeve (7) from supporting flange of K 2 (8) and remove (Fig. 6).

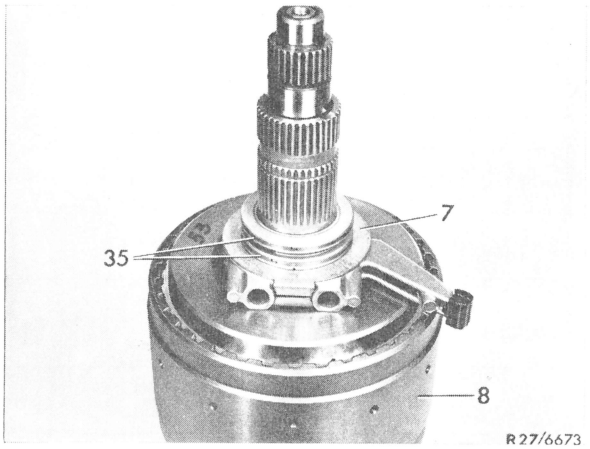

Fig. 6

6 Oil feeding sleeve
8 Supporting flange K 2
35 Oil sealing rings

9 Remove hollow shaft (11) with clutch K 2 (8) from intermediate shaft (12) (Fig. 7).

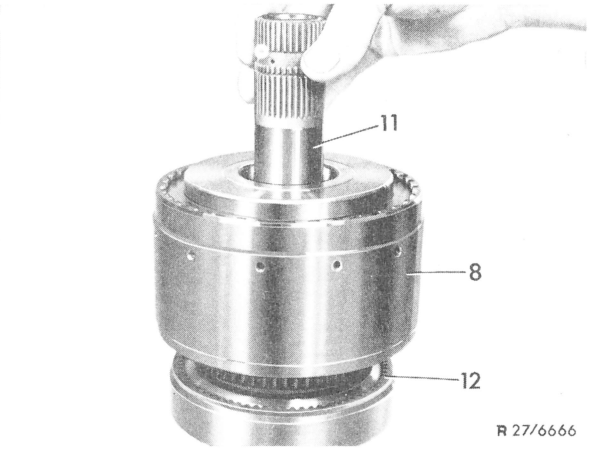

Fig. 7

8 Clutch K 2
11 Hollow shaft
12 Intermediate shaft

10 Remove needle bearing (44) and thrust washer (45) from intermediate shaft (12) (Fig. 8).

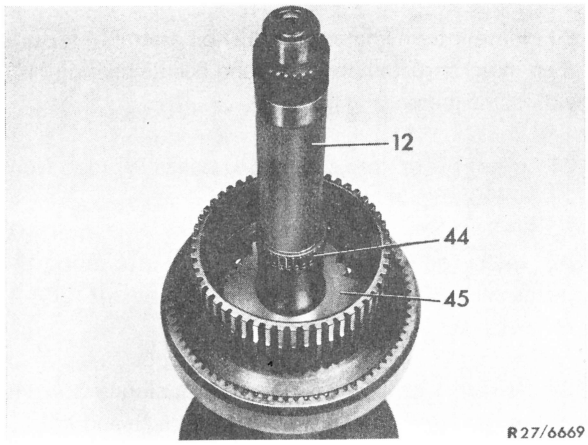

Fig. 8

12 Intermediate shaft
44 Needle bearing
45 Thrust washer

11 Remove hollow shaft (11) and roller clutch (43) from clutch K 2 (8) (Fig. 9).

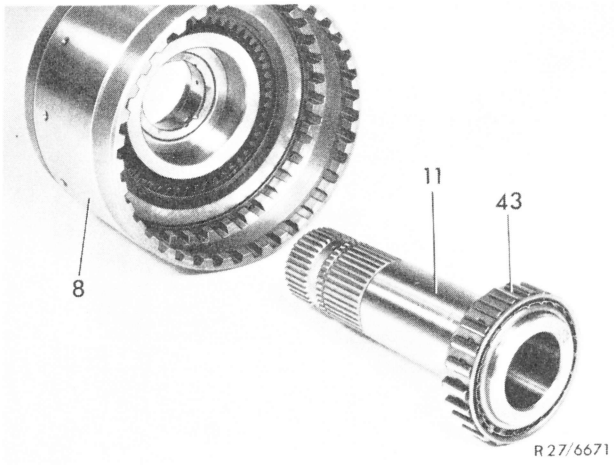

Fig. 9

8 Clutch K 2
11 Hollow shaft
43 Roller clutch

12 Pull out thrust washer (37) (Fig. 10).

13 Disassemble clutch K 2 (8) (Job No. 27.2–690).

14 Compress circlip (15) with pointed pliers and lift roller clutch outer race (14) from supporting flange K 2 (Fig. 11).

15 Pull ball bearing (16) from output shaft (18) by means of puller (17) (Fig. 12).

16 Remove thrust washer (41) with sun gear (40), as well as needle bearings (39) and (46) (Fig. 13 and 14).

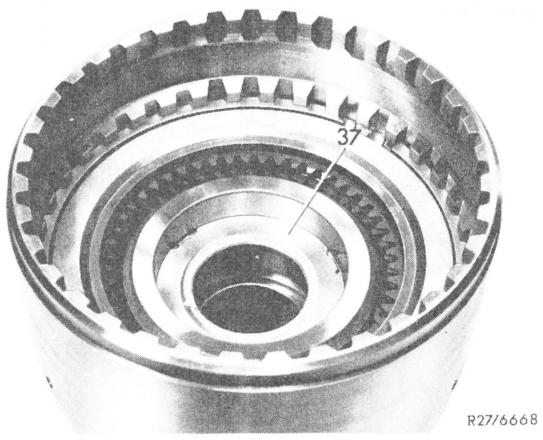

Fig. 10

37 Thrust washer

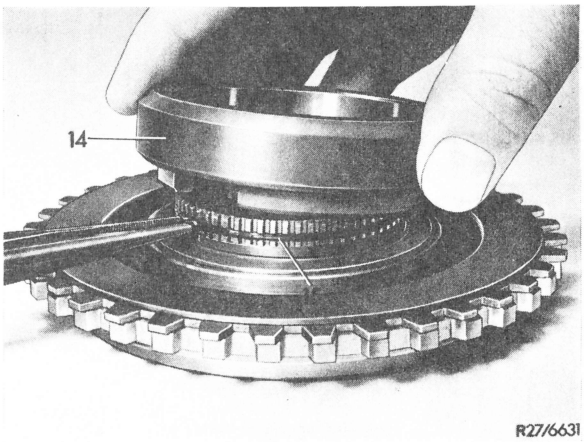

Fig. 11

14 Roller clutch outer race
15 Circlip

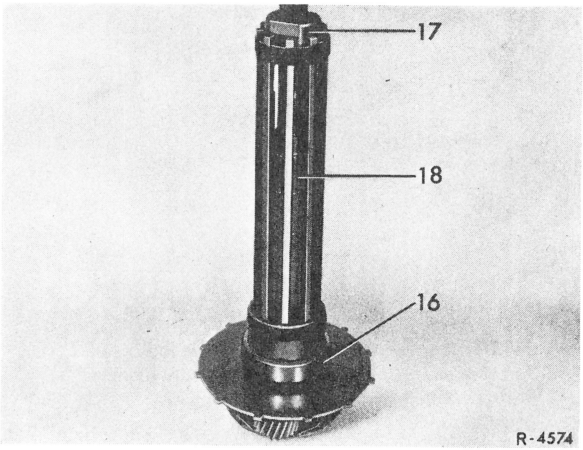

Fig. 12

16 Ball bearing
17 Puller
18 Output shaft

Assembly

17 Insert axial bearing (46) and split needle bearing (39) coated with grease (Fig. 13).

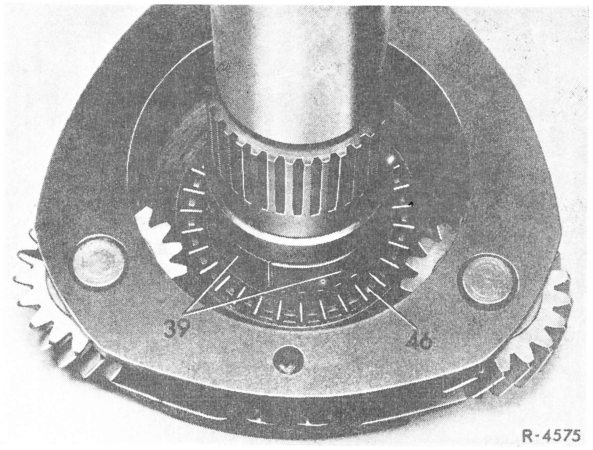

Fig. 13
39 Needle bearing
46 Axial bearing

18 Mount sun gear (40) and thrust washer (41), with offset end of thrust washer facing sun gear (Fig. 14).

19 Press-on ball bearing (16) and parking lock gear (42) with assembly mandrel (Fig. 14).

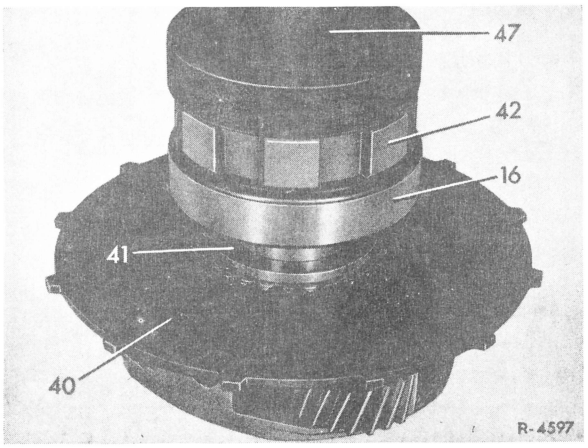

Fig. 14
16 Ball bearing
40 Sun gear
41 Thrust washer
42 Parking lock gear
47 Assembly mandrel

20 Place intermediate shaft (12) on assembly fixture, then insert thrust washer (45) and needle bearing (44) with some grease (Fig. 8).

21 Insert piston into supporting flange (8) (Job No. 27.2–690, Fig. 7).

22 Insert roller clutch outer race (14) into supporting flange and lock with circlip (15) watching out for correct seat of circlip (Fig. 11).

Caution! As from April 1972, transmission W 3 A 040 ist provided with a roller clutch outer race and holding plate.

The holding plate (50) encloses the roller clutch outer race (14) with roller clutch (43) and thrust washer (37) (Fig. 14a). The roller clutch with holding plate is a replacement for the version used up to then.

The installation width for the W 3 A 040 roller clutch is approx. 13 mm, for the W 3 B 050 roller clutch approx. 19 mm.

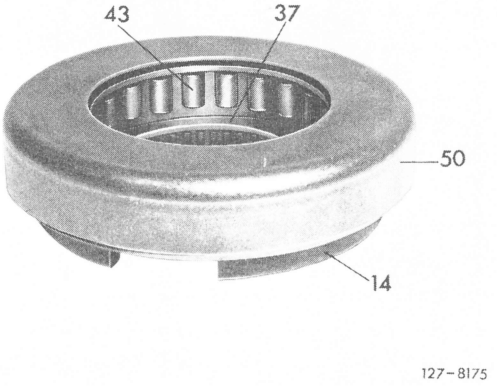

Fig. 14a
14 Roller clutch outer race
37 Thrust washer
43 Roller clutch
50 Holding plate

23 Assemble clutch K 2 and measure (Job No. 27.2–690).

24 Insert thrust washer (37) coated with grease (Fig. 10).

25 Insert roller clutch (43) into outer race (14). The edge with outward bead (refer to arrow) should face upwards (Fig. 15).

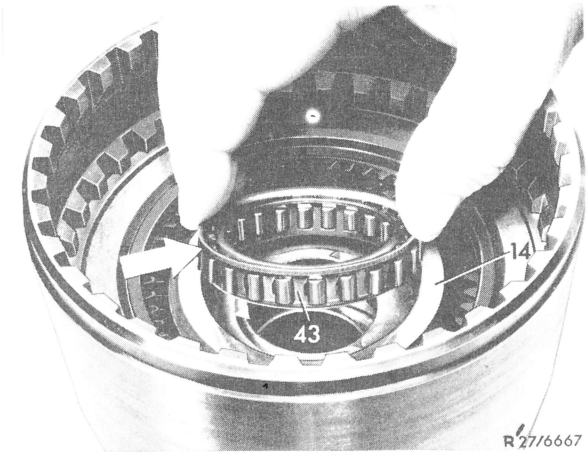

Fig. 15

14 Free-running assembly outer race
43 Free-running assembly

26 Insert hollow shaft (11) into free-running assembly (43) while rotating hollow shaft in direction of arrow (Fig. 16).

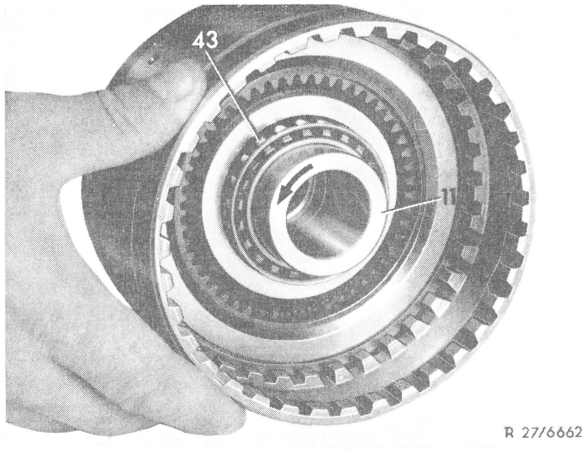

Fig. 16

11 Hollow shaft
43 Free-running assembly

Caution: Upon insertion of hollow shaft, the shaft should lock opposite to the direction of the arrow shown in Fig. 16.

27 Insert intermediate shaft (12) into clutch K 2 while rotating slightly, so that the teeth of the inner disc carrier enter the inner discs (Fig. 17).

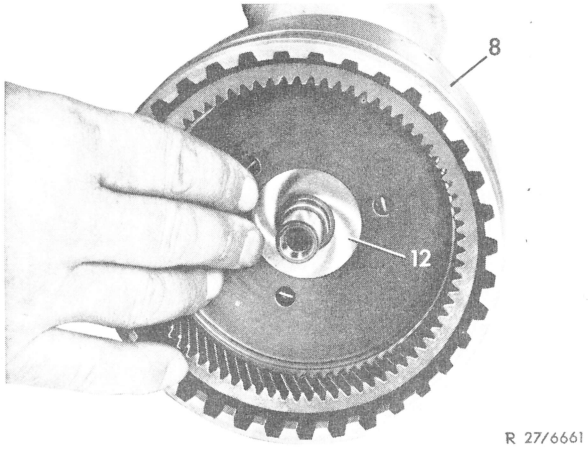

Fig. 17

8 Clutch K 2
12 Intermediate shaft

28 Place gear assembly again on assembly fixture.

29 Insert radial bearing (36) in between hollow shaft (11) and supporting flange K 2 (8) (Fig. 18).

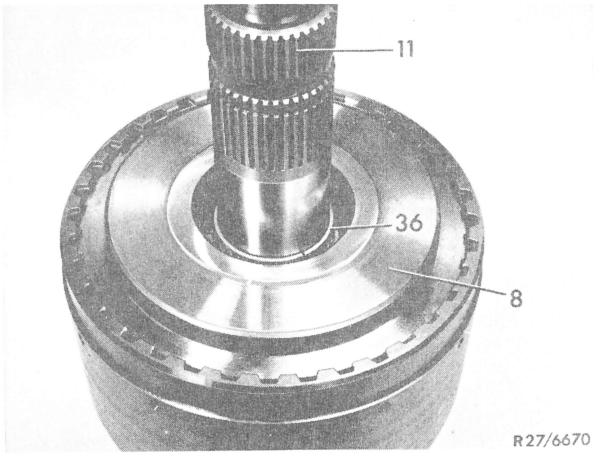

Fig. 18

8 Supporting flange K 2
11 Hollow shaft
36 Radial bearing

30 Check oil sealing rings (35) on oil feeding sleeve and replace, if required.

31 Insert oil feeding sleeve (7) into supporting flange K 2 (8), while completely pushing down so that both oil sealing rings will enter the supporting flange K 2 (Fig. 19).

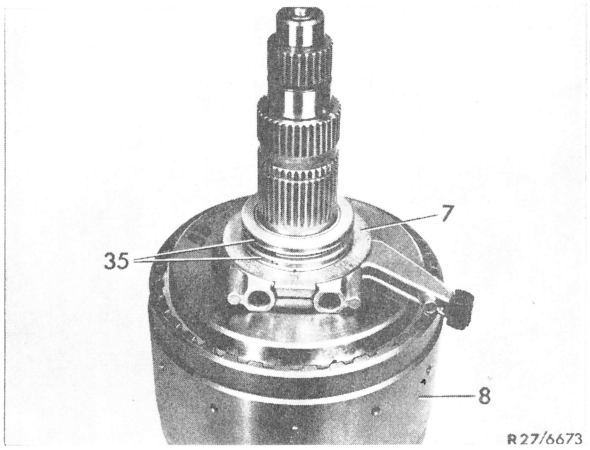

Fig. 19

7 Oil feeding sleeve
8 Supporting flange K 2
35 Oil sealing rings

32 Position K 1 (6), also watch out for correct engagement of oil sealing rings.

33 Insert circlip (31) (Fig. 20).

34 Check play with feeler gauge (Fig. 20).

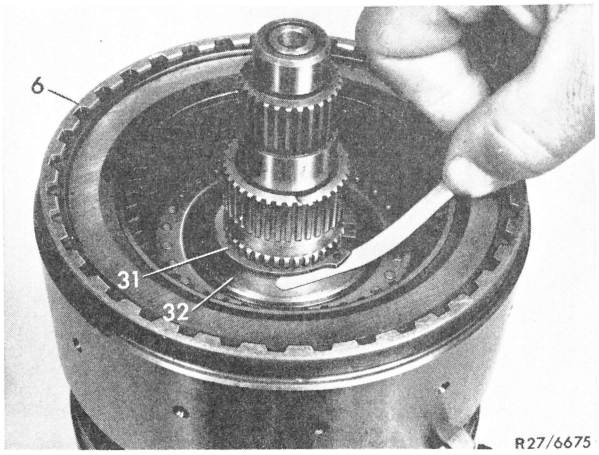

Fig. 20

6 Clutch K 1
31 Circlip
32 Compensating washers

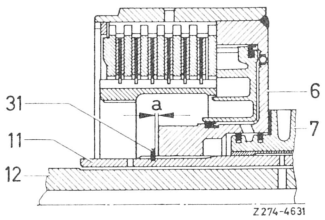

Fig. 21

6 Clutch K 1
7 Oil distributing sleeve
11 Hollow shaft
12 Intermediate shaft
31 Circlip

35 Adjust play to 0.3–0.4 mm (dimension "a", Fig. 21) by adding compensating washers (32).

36 Glue axial bearing (27) with some grease to planetary carrier (2) (Fig. 22).

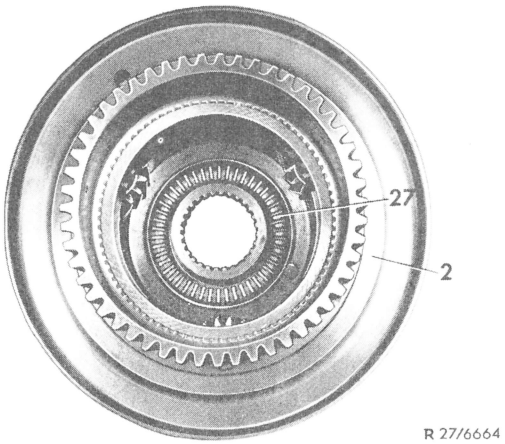

Fig. 22

2 Planetary carrier
27 Axial bearing

37 Measure with depth gauge distance from face of inner plate carrier to a roller of the axial bearing (27) and determine dimension "a" (Fig. 23).

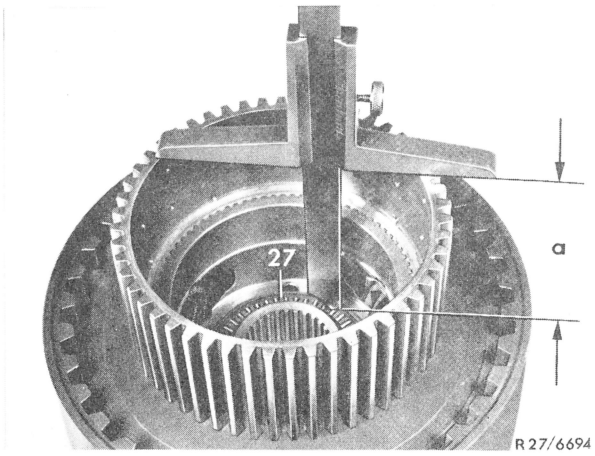

Fig. 23

27 Axial bearing

38 Measure distance from face of inner plate carrier to shoulder of planetary gear carrier and determine dimension "b" (Fig. 24).

39 Measure distance from face of intermediate shaft (12) to shoulder of intermediate shaft and determine dimension "d" (Fig. 25).

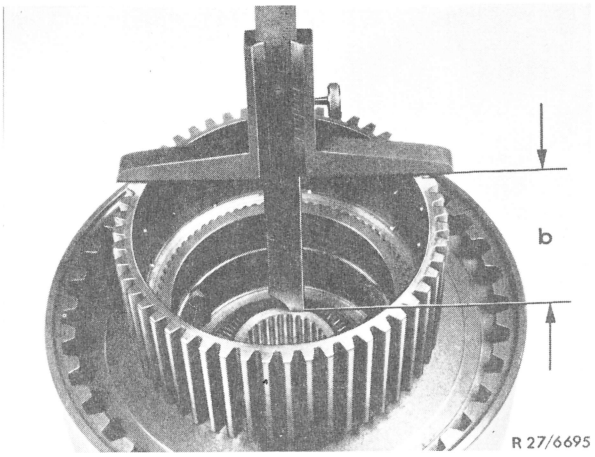

Fig. 24

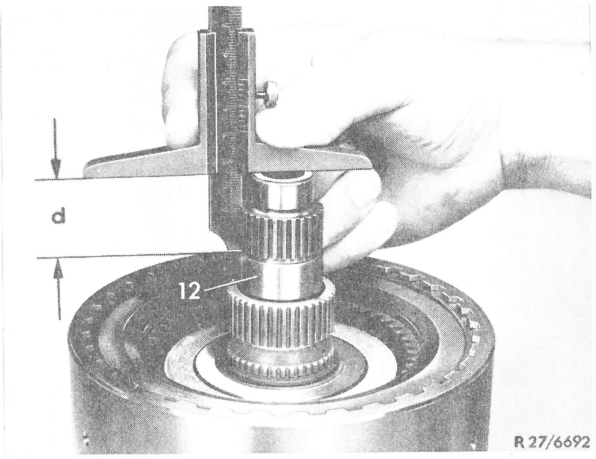

Fig. 25
12 Intermediate shaft

40 Place sun gear (3) on hollow shaft and insert needle bearing (28) (Fig. 26).

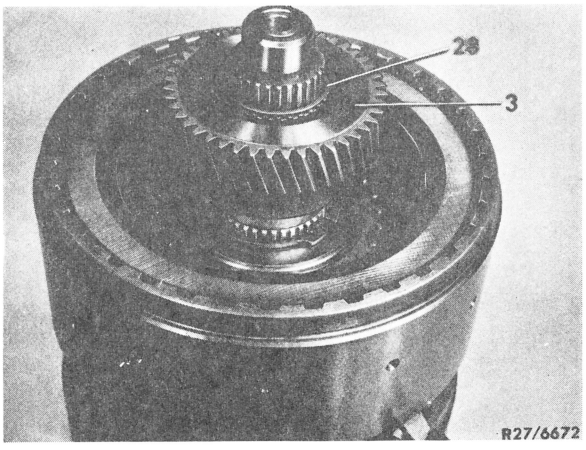

Fig. 26
3 Sun gear
28 Needle bearing

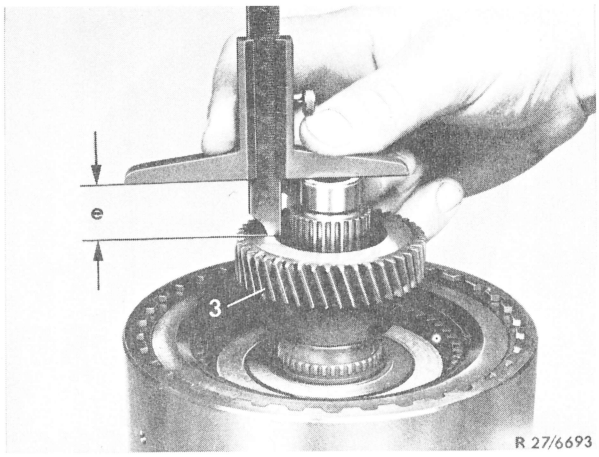

Fig. 27
3 Sun gear

41 Measure distance from face of intermediate shaft to face of sun gear (3) and determine dimension "e" (Fig. 27).

42 The play is determined from the following computation:
Dimension "a" – "b" = "c"
Dimension "d" – "e" = "f"
Dimension "c" – "f" provides the play.

43 Adjust play to 0.2–0.3 mm by adding compensating washers under axial bearing (27) (Fig. 22).

Measuring Points for Figs. 23, 24, 26 and 27

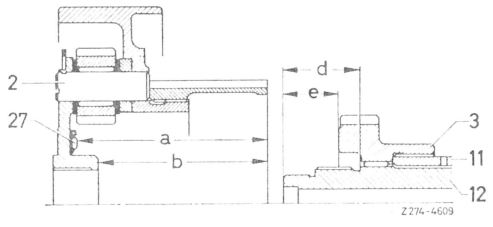

Fig. 26
2 Planetary gear carrier
3 Sun gear
11 Hollow shaft
12 Intermediate shaft
27 Axial bearing

44 Position planetary gear carrier (2) while slightly turning back and forth, so that the inner plate carrier enters the teeth of the plates, then insert radial bearing (24) (Fig. 29).

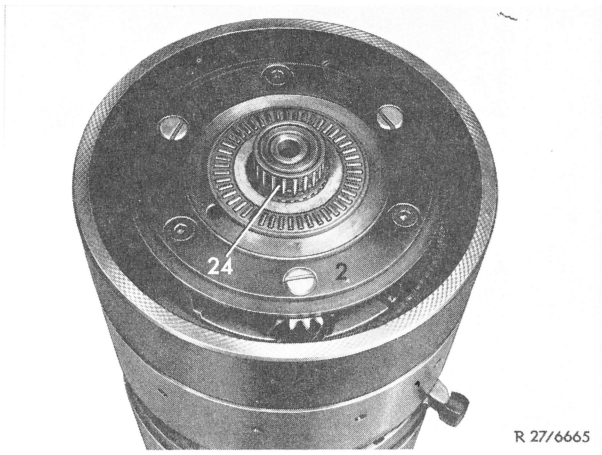

Fig. 29

2 Planetary gear carrier
24 Radial bearing

45 Mount input shaft (1) (Fig. 30).

46 Insert new lube pressure ring (22) on input shaft (1) into groove and engage (Fig. 30).

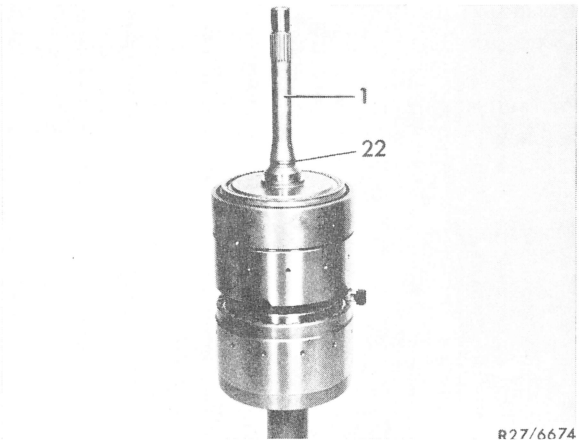

Fig. 30

1 Input shaft
22 Lube pressure ring

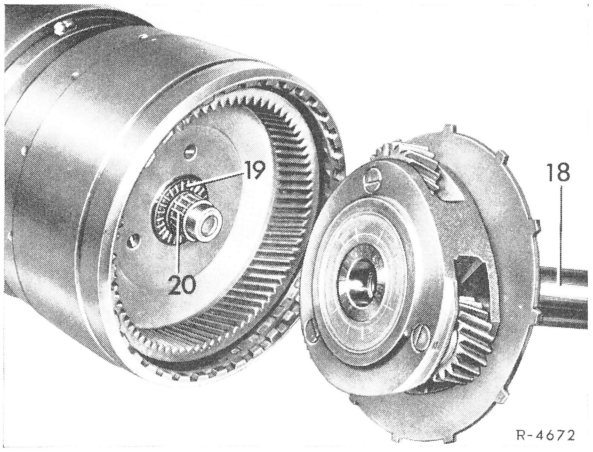

Fig. 31

18 Output shaft
19 Axial bearing
20 Radial bearing

47 Take gear assembly from assembly stand, insert radial bearing (20) and axial bearing (19) with grease (Fig. 31).

48 Insert output shaft (18) into brake drum B 2.

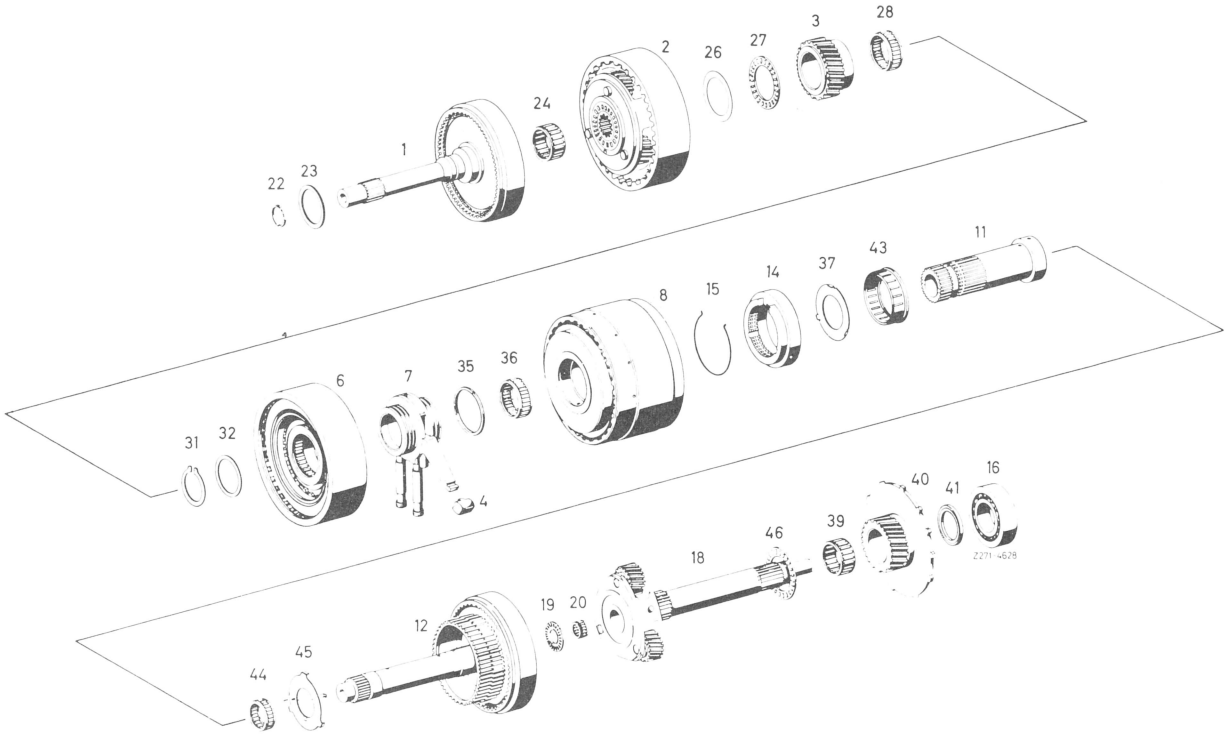

Fig. 32

1 Input shaft
2 Planetary gear carrier
3 Sun gear front gear assembly
6 Clutch K 1
7 Oil distributing sleeve
8 Clutch K 2
11 Hollow shaft
12 Intermediate shaft
14 Free-running assembly outer race
15 Circlip
16 Ball bearing
18 Output shaft
19 Axial bearing
20 Radial bearing
22 Lube pressure ring
23 Compensating washer
24 Radial bearing
26 Compensating
27 Axial bearing
28 Radial bearing
31 Circlip
32 Compensating washer
35 Oil sealing ring
36 Radial bearing
37 Thrust washer
39 Split needle bearing
40 Sun gear rear gear assembly
41 Thrust washer
43 Free-running assembly
44 Axial bearing
45 Thrust washer
46 Axial bearing