

# Drive for Oil Pump, Distributor, Revolution Counter, and Injection Pump

Job No.

18-1

## I. Models 180 a, 180 b, 190 SL, 220 a, 219, and 220 S

On Models 180 a, 180 b, 190 SL, 220 a, 219, and 220 S the drive for the oil pump and the distributor is the same as on Model 190. All dimensions and tolerances necessary to check the idling gear shaft, the helical gear, and the front and rear bearing bushings are listed in the following tables.

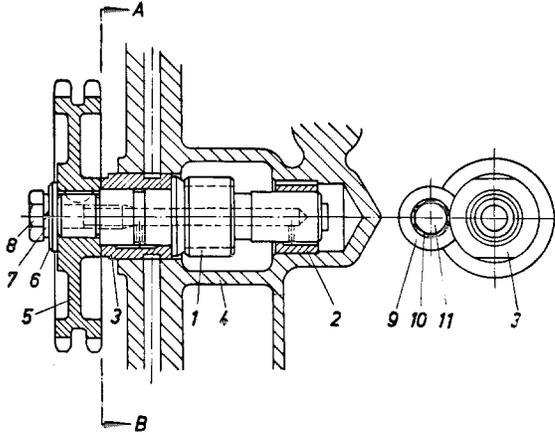


Fig. 18-1/1

- |                                       |                  |
|---------------------------------------|------------------|
| 1 Idling gear shaft with Woodruff key | 6 Washer         |
| 2 Rear bearing bushing                | 7 Lock washer    |
| 3 Front bearing bushing               | 8 Hexagon screw  |
| 4 Crankcase                           | 9 Retaining disk |
| 5 Idling gear                         | 10 Lock washer   |
|                                       | 11 Hexagon screw |

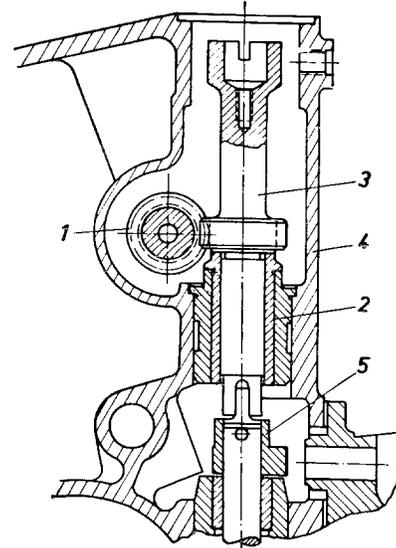


Fig. 18-1/2

- |                        |                                 |
|------------------------|---------------------------------|
| 1 Idling gear shaft    | 4 Crankcase                     |
| 2 Bearing with bushing | 5 Oil pump drive shaft with cam |
| 3 Helical gear         |                                 |

### Idling Gear Shaft with Bushings

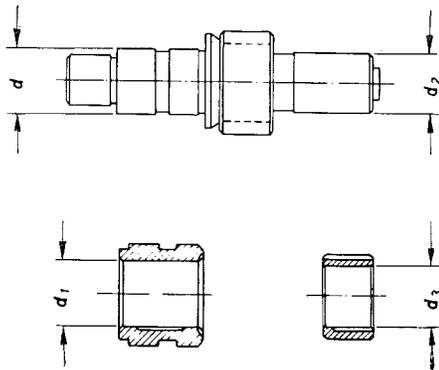


Fig. 18-1/3

d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>
19.980	20.020	17.960	18.000
19.959	20.033	17.940	18.018

### Helical Gear with Bushing

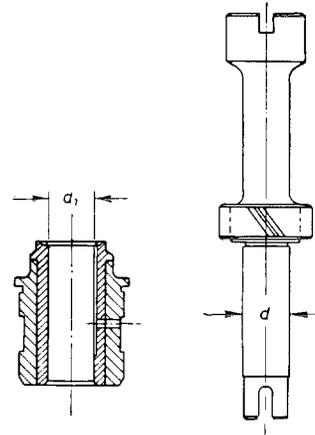


Fig. 18-1/4

d	d <sub>1</sub>
13.968	14.000
13.950	14.018

The earlier version of Model 180 a is provided with a single roller chain and corresponding sprockets; as from Engine End No. 85 10924 the chain and the sprockets are the same as on Model 190.

## II. Drive for Revolution Counter on Model 190 SL

On Model 190 SL the angle drive for the revolution counter (15) is driven by the idling gear shaft (10) via the driving screw (5). An additional centering disk (7) is located on the collar of the idling gear (8) and centers the driving screw (5) for the revolution counter (Fig. 18-1/5). When repairs are carried out, the idling gear cannot be replaced by a standard idling gear as used on Models 180 a, 180 b, 220 a, 219, and 220 S.

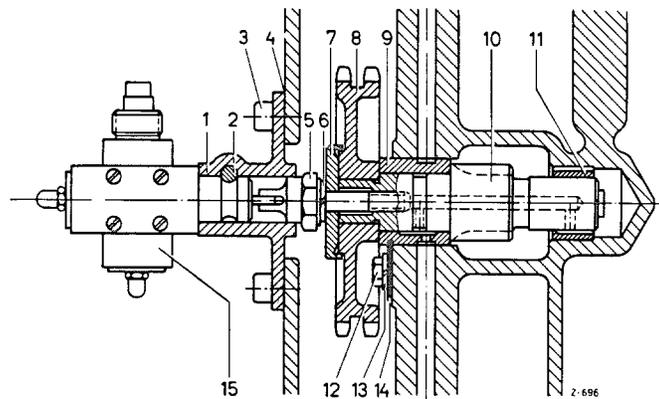


Fig. 18-1/5

- |                        |  |
|------------------------|--|
| 1 Flanged bushing      | 9 Front bearing bushing                    |
| 2 Hexagon screw        | 10 Idling gear shaft                       |
| 3 Hexagon socket screw | 11 Rear bearing bushing                    |
| 4 Gaskets              | 12 Hexagon screw                           |
| 5 Driving screw        | 13 Lock washer                             |
| 6 Spring washer        | 14 Locking plate for front bearing bushing |
| 7 Centering disk       | 15 Angle drive for revolution counter      |
| 8 Idling gear          |  |

## III. Drive for Injection Pump on Model 220 SE

On Model 220 SE the oil pump, the distributor, and the injection pump are driven by the idling gear shaft. The injection pump is connected with the splines at the rear end of the idling gear shaft (10) by means of a coupling sleeve (13) (Fig. 18-1/6). The helical gear (9) for driving the distributor (1) is carried in a cover screwed to the crankcase (Section A-B) and engages with the drive sleeve (18) on the idling gear shaft. As on other models the oil pump is driven by the idling gear shaft (10) via the helical gear (39) which is carried at the bottom in the bearing assembly (38) in the crankcase and at the top in the pressure piece (36). The pressure piece is sealed by means of the rubber ring (34), the cover disk, (32), and the screw plug (33) and is secured by means of the hexagon screw (35) (Fig. 18-1/6).

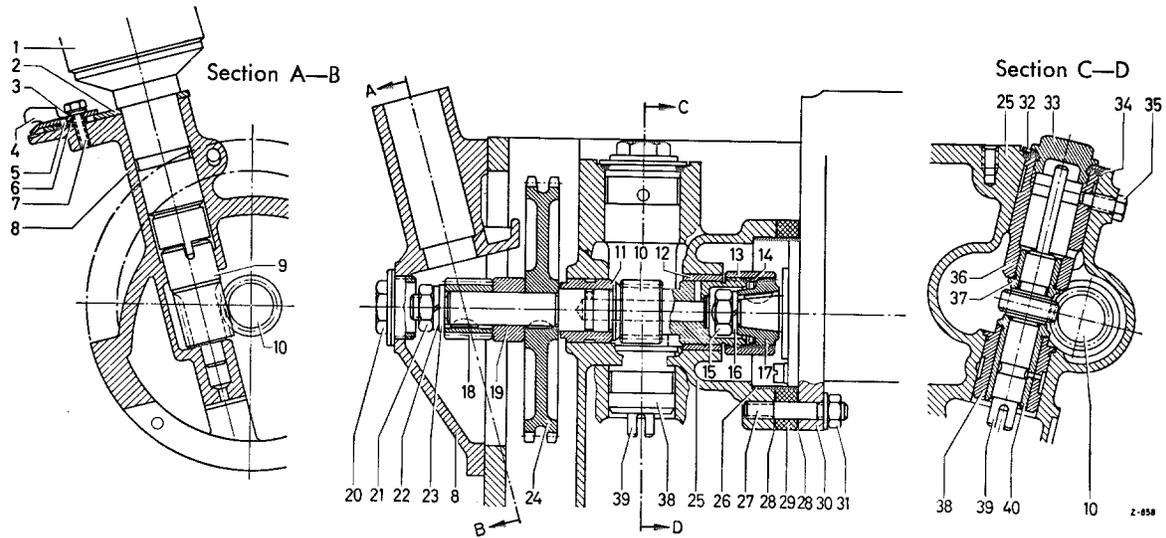


Fig. 18-1/6

- |                       |                           |                      |                           |
|-----------------------|---------------------------|----------------------|---------------------------|
| 1 Distributor         | 11 Bearing bushing, front | 21 Hexagon nut       | 31 Hexagon nut and washer |
| 2 Timing lever        | 12 Bearing bushing, rear  | 22 Lock washer       | 32 Cover disk             |
| 3 Spring washer       | 13 Coupling sleeve        | 23 Washer            | 33 Screw plug             |
| 4 Hand lever          | 14 Snap ring              | 24 Idling gear       | 34 Rubber ring            |
| 5 Cylindrical pin     | 15 Hexagon nut            | 25 Crankcase         | 35 Hexagon screw          |
| 6 Eccentric disk      | 16 Lock washer            | 26 Bearing bushing   | 36 Pressure piece         |
| 7 Hexagon screw       | 17 Follower               | 27 Stud bolt         | 37 Bearing bushing        |
| 8 Distributor bearing | 18 Drive sleeve           | 28 Sealing flange    | 38 Bearing assembly       |
| 9 Helical gear        | 19 Spacer sleeve          | 29 Insulating flange | 39 Helical gear           |
| 10 Idling gear shaft  | 20 Screw plug and seal    | 30 Injection pump    | 40 Bearing bushing        |

**Bearing for Distributor Helical Gear**

**Helical Gear with Pressure Piece and Bearing Assembly**

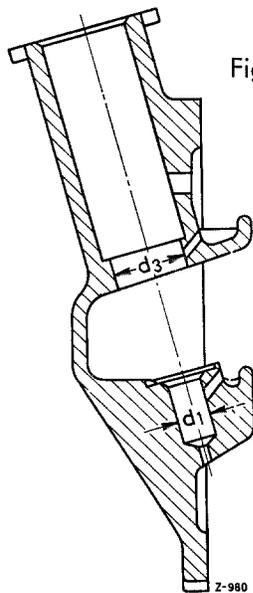


Fig. 18-1/7

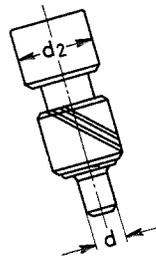
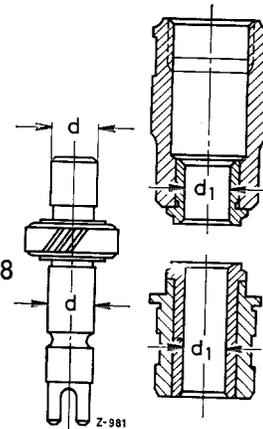


Fig. 18-1/8



d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>
9.987	10.000	23.980	24.000
9.972	10.015	23.959	24.021

d	d <sub>1</sub>
13.968	14.000
13.950	14.018

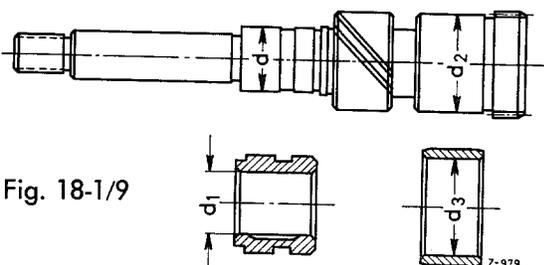


Fig. 18-1/9

**Idling Gear Shaft with Bushings**

d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>
19.980	20.020	29.960	30.000
19.959	20.033	29.927	30.021