

G. Removal and Installation of Oil Pump Drive, Distributor Drive, Injection Pump Drive, and Revolution Counter Drive

Repair procedures see Job No. 18-1.

I. Models 180 a, 180 b, 220 a, 219 and 220 S

Removal and installation procedures for the oil pump and the distributor drive are the same as described for Model 190.

On Model 180 a the idling gear on older cars was designed for the single roller chain; on recent cars the idling gear is the same as for Model 190, since Model 180 a is now also provided with a twin roller chain.

II. Model 190 SL

Removal and installation procedures for the oil pump and distributor drive are basically the same as described for Model 190.

On Model 190 SL the idling gear shaft (10), via the driving screw (5), also drives the angle drive for the revolution counter (15). The idling gear (8) has a shoulder on the end face which carries the centering disk (7) for the driving screw (5) (Fig. 01-4/52). On no account should an idling gear without shoulder be installed in Model 190 SL.

In place of the cover plate, the flange bushing (1) with the angle drive for the revolution counter (15) is screwed to the crankcase (Fig. 01-4/52). See also Fig. 01-4/53, Nos. (5) and (4).

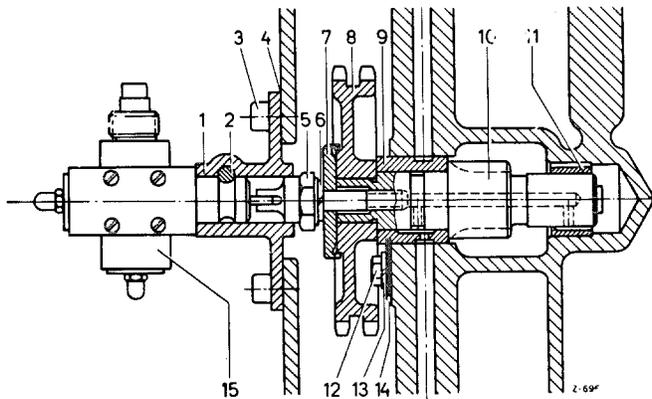


Fig. 01-4/52

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|------------------------|--|
| 1 Flange bushing | 9 Front bearing bushing |
| 2 Hexagon screw | 10 Idling gear shaft |
| 3 Hexagon socket screw | 11 Rear bearing bushing |
| 4 Gasket | 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 | |

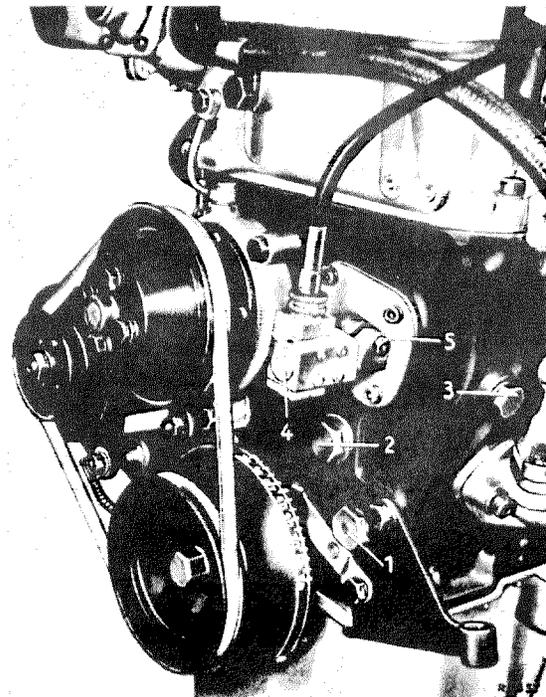


Fig. 01-4/53

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|---|
| 1 Screw plug with pivot pin for chain guide |
| 2 Screw plug for oil relief valve |
| 3 Lock screw for chain drive |
| 4 Angle drive for revolution counter |
| 5 Flange bushing |

III. Model 220 SE

On Model 220 SE the idling gear shaft drives not only the oil pump and the distributor but also the injection pump. The whole drive arrangement is shown in Fig. 01-4/54. The removal and installation procedures are as follows:

Removal:

1. Remove the injection pump, the venturi control unit, and the distributor. Unscrew the cylinder head cover and move the piston for the 1st cylinder to ignition TDC.
2. Unscrew the six hexagon socket screws on the distributor bearing (8), remove the bearing and pull out the helical gear (9) for the distributor drive (Fig. 01-4/54).
3. Unscrew the hexagon nut (21) at the front of the idling gear shaft (10) and remove the lock washer (22), the washer (23), the drive sleeve (18), the Woodruff key and the spacer sleeve (19).
4. Back off the screw plug (33) on the oil pump drive approximately 2 turns, unscrew the hexagon screw (35) and pry out the pressure piece (36) upward by inserting a screw driver between the screw plug (33) and the cover disk (32). Then pull out the helical gear (39).
5. Unscrew the screw plug (33) completely from the pressure piece (36) and remove the cover disk (32) and the rubber ring (34).
6. Unscrew the chain guide in the cylinder head, the hexagon screw on the camshaft sprocket and the chain tensioner. Then pull off the camshaft sprocket by means of Puller 187 589 01 33, paying attention to the compensating washer between camshaft and camshaft sprocket.
7. Unscrew the locking screw for the chain drive and tap out the idling gear shaft toward the back, removing the idling gear at the same time.
8. If the front and rear bearing bushings (11) and (12) and the bearing assembly (38) with the bearing bushing (40) have to be removed, remove the bearing bushings for the idling gear shaft by means of Puller 186 589 09 33 or tap them out with a suitable drift; after having removed the oil pan tap out the bearing assembly with the bushing for the helical gear from below with a suitable drift.

Checking:

9. Check the parts for wear, in particular the contact surface of the idling gear and of the front bearing bushing.

The end play between the idling gear and the bearing bushing should be 0.05–0.12 mm. If the play exceeds 0.20 mm replace the worn parts. When replacing the idling gear, install one with a hardened check plate. The check plate turns with the idling gear, they are connected by a heavy dowel pin.

Installation:

10. Use a suitable drift to drive in the bearing bushings or the bearing assembly if previously removed, install the idling gear shaft from the rear, push on the idling gear and install the roller chain making sure that the Woodruff key is properly seated.

Note: On Model 220 SE the front bearing bushing has oil grooves on both end faces, whereas on other models the front bearing bushing has oil grooves only on the rear end face.

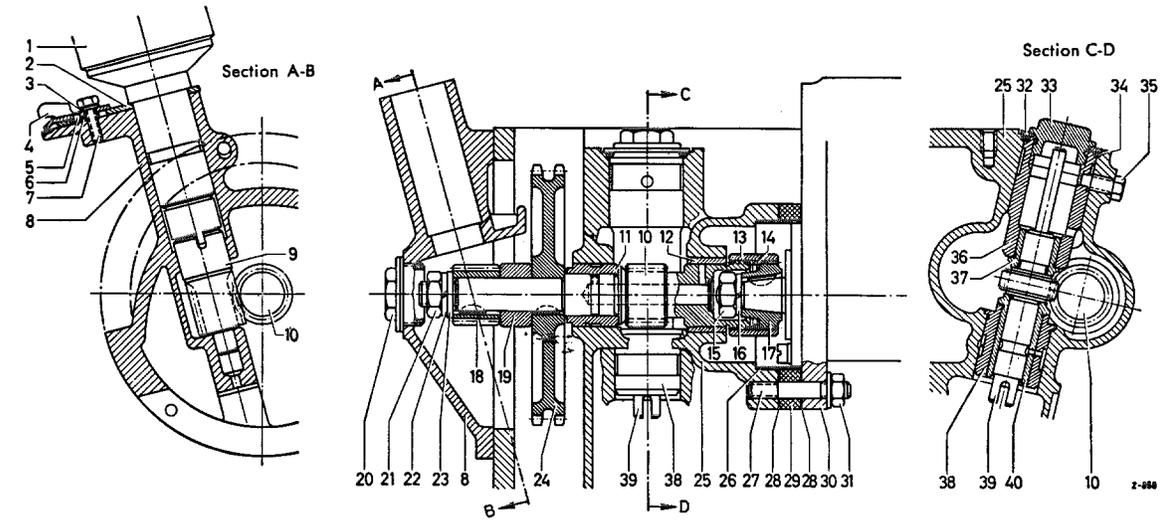


Fig. 01-4/54

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|-----------------------|---------------------------|----------------------|---------------------------|
| 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 sleeve | 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 |

11. Install the spacer sleeve (19), the drive sleeve (18), the washer (23), the lock washer (22) and screw on the hexagon nut (21), making sure that the Woodruff key for the drive sleeve is properly seated.

Then tighten the hexagon nut (21), holding the idling gear shaft steady by inserting Serrated Wrench 621 589 00 08 in the serrations for the coupling sleeve (13).

Check the end play of the idling gear shaft (0.05–0.12 mm).

12. Screw the distributor bearing (8) to the crankcase. Use a new gasket!
13. Check whether the piston for the 1st cylinder is at TDC. Then install the camshaft sprocket together with the chain, paying attention to the timing mark on the compensating disk and on the front camshaft bearing.
14. Install the chain tensioner and bleed it. Screw on the chain guide in the cylinder head.

15. Put on the cylinder head cover and screw it down, making sure that the rubber seal is properly seated.

16. Insert the helical gear (39) for the oil pump drive and the pressure piece (36). Tighten the stud screw (35) to secure the pressure piece. Check the end play by touch, pulling at the pin of the helical gear; the end play should be 0.1–0.8 mm.

17. Fit the rubber ring (34) and the cover disk (32) and screw in the screw plug (33).

18. Install the distributor and set the ignition.

19. Screw the locking screw for the chain drive and the screw plug (20) into the bearing of the distributor. Use new sealing rings.

20. Install the venturi control unit and the injection pump. Do not forget to check the adjustment of the control linkage (see Workshop Manual Passenger Car Models as from August 1959, Job No. 00-16).