When subsequently installing the water pump in Model 220 a up to engine end no. 55 09040 use a pulley Part No. 180 205 07 10 with 3 hexagon screws M 8×18 DIN 933–8 G and 3 spring washers B 8 DIN 137, since up to this engine number the pulley is cast integral with the hub. When installing the high capacity water pump subsequently, make sure that there is sufficient space between the recess on the crankcase and the modified water pump housing (Fig. 01-4/42). If necessary, increase the recess (b) by milling down the crankcase.

In addition, on Models 220 a, 219, and 220 S the eye (a) for the front stud bolt on the cylinder head must de milled down to ensure that the water pump does not touch the cylinder head (Fig 01-4/42).

The previous air vent line from the water pump to the cylinder head can no longer be used for the new water pump. Models 180 a and 190 SL require an air vent line Part No. 121 200 02 58 and Models 220 a, 219, and 220 S require an air vent line Part No. 180 200 02 58.

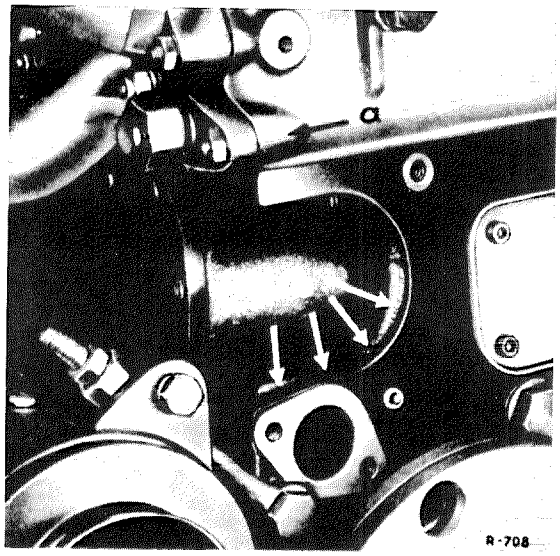

Fig. 01–4/42

F. Removal and Installation of Distributor with Bearing

Repair procedures see Job No. 15–23.

a) Distributor

The removal and installation procedures for the distributor on Models 180 a, 180 b, 190 SL, 220 a, 219, 220 S, and 220 SE are the same as described for Model 190.

In addition to the details given in the Workshop Manual for Model 190 the following points are of importance:

Before installing the distributor check whether the piston of the 1st cylinder is at ignition dead center and whether the distributor rotor arm points to the timing mark for the 1st cylinder on the distributor housing (Fig. 01–4/44).

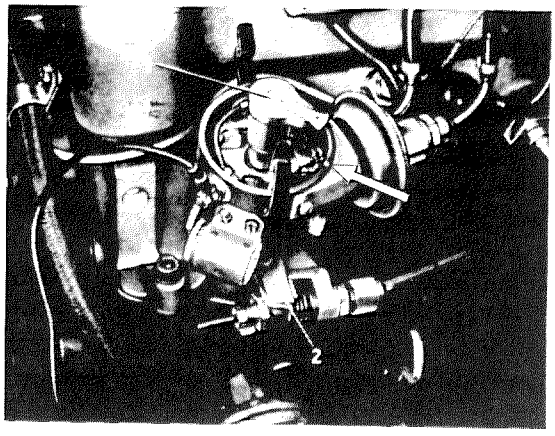

Fig. 01–4/44

1 Distributor rotor arm
2 Timing lever

If the helical gear has been removed, note the following points when re-installing it:

The groove in the helical gear and the two driving jaws of the distributor shaft are offset from the center by a = 0.8 mm (Fig. 01-4/45). When installing the helical gear make sure that the offset part of the groove is on the correct side, i. e. the wider segment must point toward the crankcase. Since groove and jaws are only slightly offset, the distributor can be forced into position if the helical gear has been installed the wrong way round, i. e. displaced by 180°. However, an incorrectly installed helical gear will make the distributor housing wobble and may cause scoring of the distributor drive.

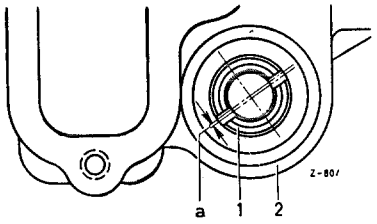

Fig. 01–4/45

a = 0.8 mm
1 Helical gear
2 Crankcase

On recent models the distributor is connected to the cylinder head by a ground lead (1) (Fig. 01–4/46).

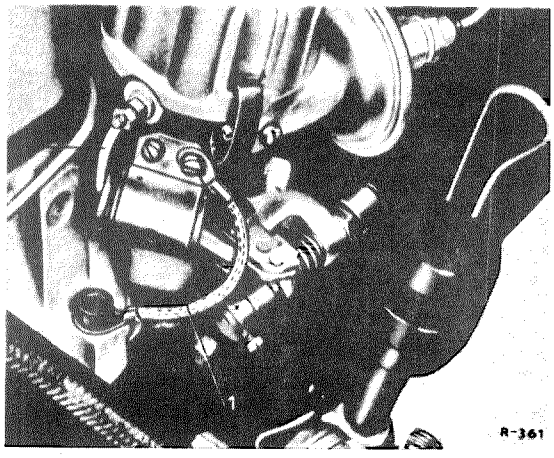

Fig. 01–4/46

1 Ground lead
2 Cable

Because of faulty ground connection between distributor and engine block, engines without ground lead may be subject to ignition failure at high engine speeds. In such cases, and when distributor bearings are replaced, we recommend the installation of this ground lead Part No. 121 150 02 32. The ground lead is fastened to the distributor by the right condenser screw; on Model 220 SE by the screw for the vacuum box; the ground lead is attached to the engine by the cylinder head screw on the sprocket housing.

b) Distributor Bearing

With the exception of Model 220 SE the procedures for removing and installing the distributor bearing on Models 180 a, 180 b, 190 SL, 220 a, 219, and 220SE are basically the same as described for Model 190. The deviations from the standard procedure result from the fact that in the course of time the distributor bearing and the timing device for the distributor have undergone a number of modifications.

The 1st version of the distributor bearing is shown in Fig. 01–4/47. Later, the distributor bearings were provided with a fixing lug (3) with which the bearing was fastened to the cylinder head by means of the hexagon socket screw (1) (Fig.01–4/49); the stud screw (4) was no longer fitted (Fig. 01–4/47). Later, the octane number compensator on the instrument panel was dispensed with and the distributor bearing was modified to enable the distributor to be adjusted directly on the bearing by means of the adjusting screw(13) (Fig. 01–4/50).

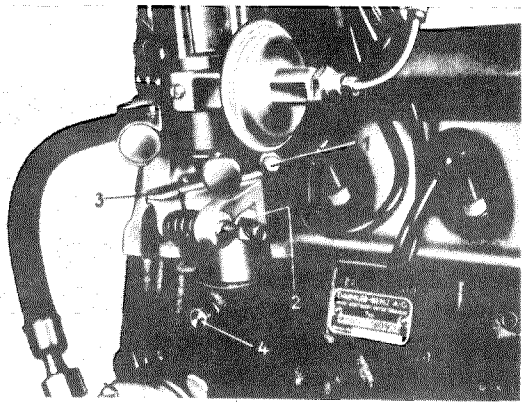

Fig. 01–4/47

1st Version distributor bearing
for octane number compensator

1 Clamping screw for clamping timing lever to distributor
2 Stud screw for securing distributor to distributor bearing
3 Timing lever at distributor bearing
4 Stud screw for fixing distributor bearing in crankcase

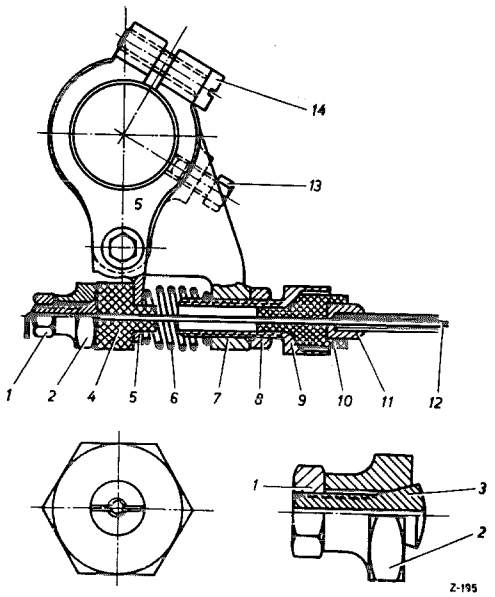

Fig. 01–4/48

1st Version distributor bearing
for octane number compensator

1 Hexagon nut
2 Clamping chuck
3 Collet
4 Damping rubber
5 Timing lever
6 Pressure spring
7 Distributor bearing
8 Hexagon nut
9 Adjusting screw
10 Rubber sleeve
11 Sleeve
12 Coil spring
13 Hexagon screw for fixing distributor
14 Clamping screw

When installing a distributor bearing with the fixing lug (3) cast integral, please note that the hexagon socket screw (1) is 45 mm long, whereas on distributor bearings of the 1st Version (without fixing lug) the hexagon socket screw was only 20 mm long (Fig. 01–4/49).

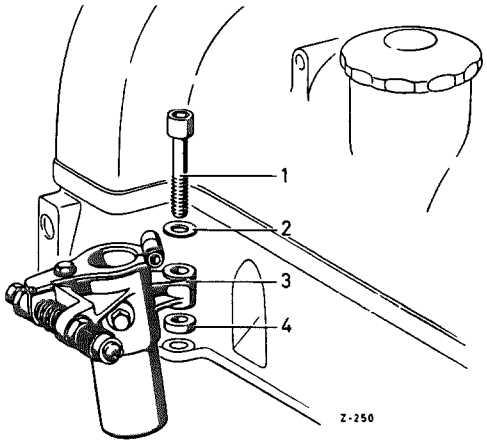

Fig. 01–4/49

2nd Version distributor bearing for octane number compensator

1 Hexagon socket screw (45 mm long)
2 Washer
3 Fixing lug on distributor bearing
4 Spacer ring

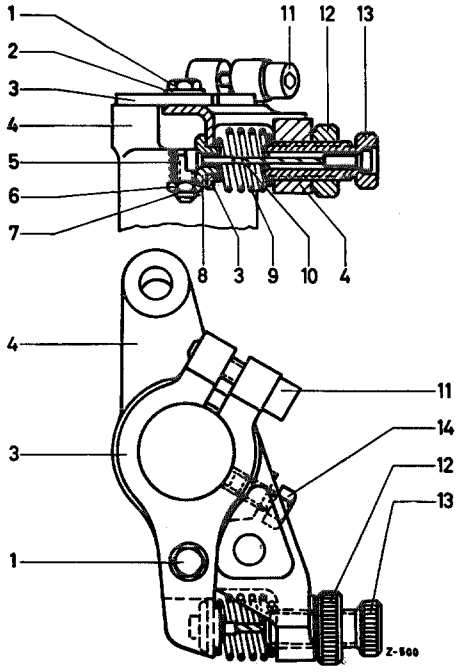

Fig. 01–4/50

3rd Version distributor bearing with adjusting screw

1 Hexagon screw
2 Washer
3. Timing lever
4 Distributor bearing
5 Spring
6 Hexagon nut
7 Cotter pin
8 Washer
9 Pressure spring
10 Cable with 2 nipples
11 Clamping screw
12 Milled nut
13 Adjusting screw
14 Hexagon screw for fixing distributor

On recent models the adjusting screw and control cable on the distributor bearing have been replaced by a hand lever (2) with eccentric disk (Figs. 01–4/51 a and 01–4/51 b). In addition, the stud screw (14) which projects into the circular groove in the distributor collar, is no longer fitted (Fg. 01–4/50).

On Model 220 SE the distributor bearing also serves as a cover plate and is screwed to the end face of the crankcase (Fig. 01–4/51 b).

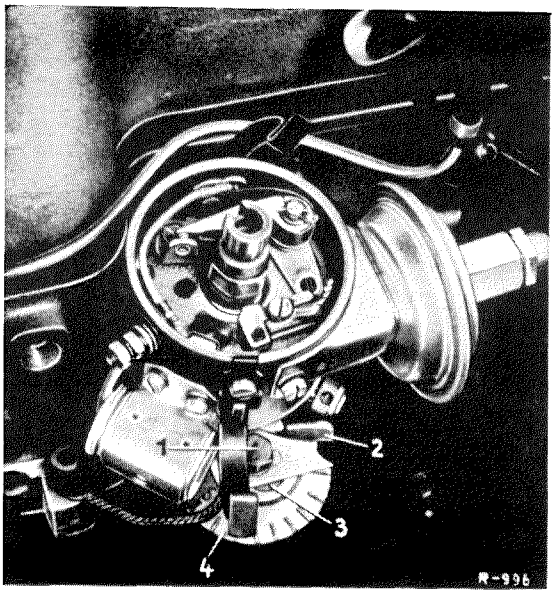

Fig. 01–4/51 a

4th Version distributor bearing with hand lever and eccentric disk

1 Hexagon screw with spring washer
2 Hand lever with eccentric disk
3 Timing lever
4 Distributor bearing

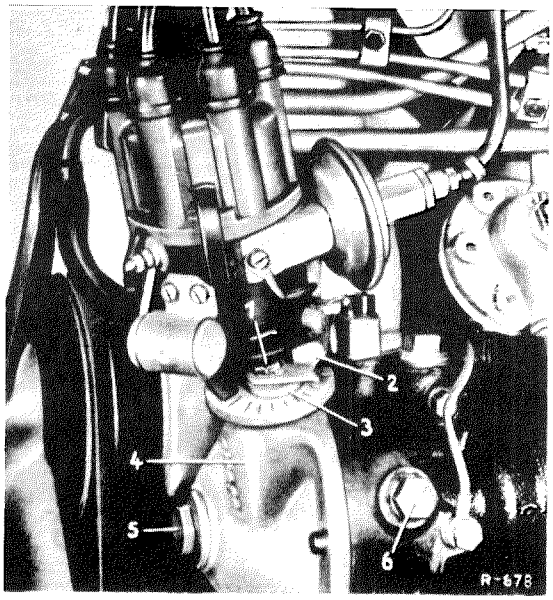

Fig. 01–4/51 b

4th Version distributor bearing photographed on Model 220 S

1 Hexagon screw with spring washer
2 Hand lever with eccentric disk
3 Timing lever
4 Distributor bearing
5 Screw plug
6 Lock screw for chain drive

When the hand lever (2) is turned, the timing lever (3) is moved via the eccentric disk and automatically moves the distributor. To provide a means of checking the ignition adjustment, these distributor bearings have a graduated scale. Movement of the hand lever by one graduation results in a change of the ignition setting by 2° on the crankshaft.

To adjust the hand lever (2) loosen the hexagon screw (1) and then tighten it again.

Note: In future, only distributor bearings with hand lever and eccentric disk will be supplied as replacement parts. If such a bearing is installed in a car which has an octane number compensator remove the control cable.

The following table shows which distributor bearing types are installed as standard parts in the various models.

180 a	180 b	190 SL	220 a	219	220 S	220 SE	Distributor bearing type
		+	+	+	+		1. with octane number compensator as shown in Figs. 01-4/47 and 01-4/48
		+		+	+		2. with octane number compensator and fixing lug as shown in Fig. 01-4/49
+		+		+	+		3. with fixing lug, adjusting screw, and cable as shown in Fig. 01-4/50
+	+	+		+	+	+ [1]	4. with fixing lug, hand lever and eccentric disk as shown in Figs. 01-4/51 a and 51 b

[1]) On Model 220 SE the distributor bearing serves at the same time as a cover plate (Fig. 01-4/51 b).