

## F. Checking Camshaft Adjustment

1. Use Socket SW 22 (with ratchet) on the shoulder nut to turn the crankshaft in the direction of rotation of the engine to the point where the timing pointer indicates TDC (Fig. 01—3/31).

**Note:** In the diagram the timing pointer indicates 5 degrees BTDC.

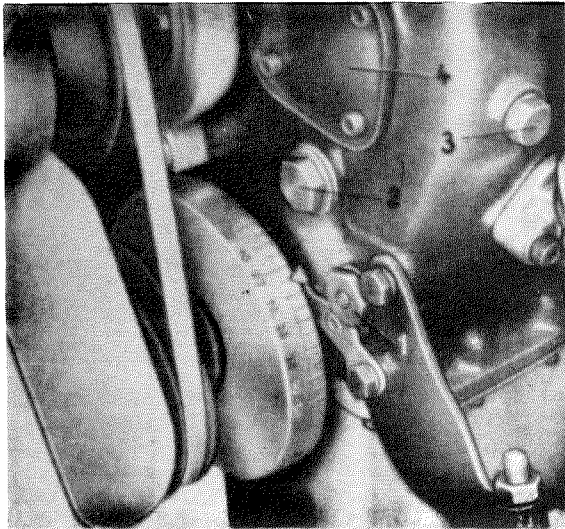


Fig. 01—3/31

- 1 Screw plug with pivot pin for chain guide
- 2 Screw plug for oil relief valve
- 3 Lock screw for chain drive
- 4 Cover plate

The crankshaft must only be turned in the direction in which the engine turns. In this way the left side of the chain is kept taut.

2. The marks on the compensating washer of the camshaft and on the first camshaft bearing must now correspond (Fig. 01—3/32).

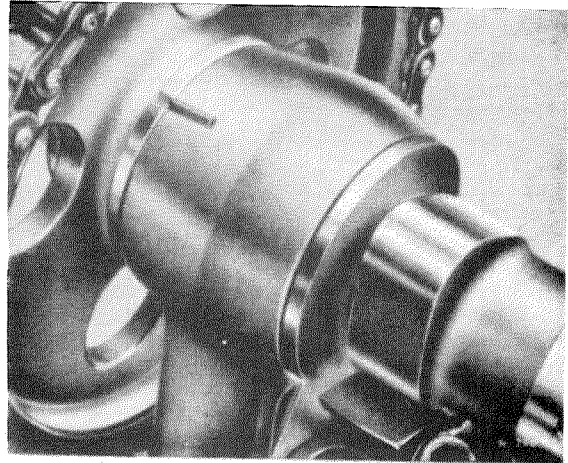


Fig. 01—3/32

In this position pistons number 1 and 4 are at TDC. The piston of number 1 cylinder is on the compression stroke.

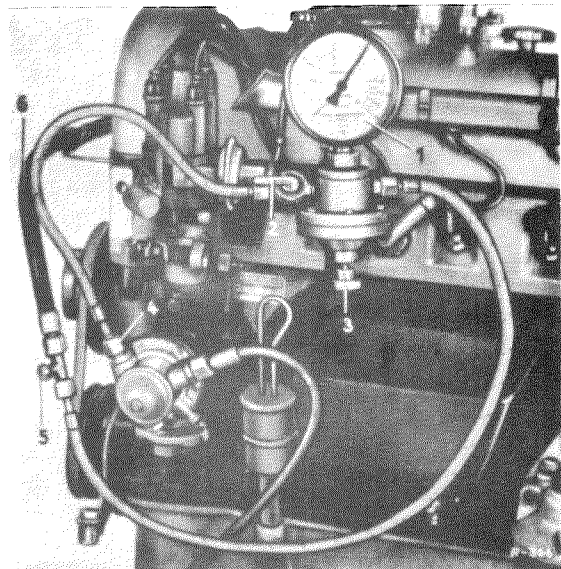
3. Any necessary correction may be made by a transposition of the twin roller chain.

## G. Measurement and Adjustment of Pressure of Fuel Feed Pump

1. The feed pressure of the fuel feed pump is measured with Pressure Gage (1) 000 589 30 21 (Fig. 01—3/33). Unscrew the fuel pipe (6) leading to the carburetor and connect the pressure gage (1) between the pump exhaust (4) and the carburetor fuel pipe (6) with the cock side (2) of the pressure gage toward the pump exhaust (4).
2. Open the cock (2) and start the engine (Fig. 01—3/33).

Fig. 01—3/33

- 1 Pressure gage 000 589 30 21
- 2 Cock on pressure gage
- 3 Milled nut
- 4 Feed pump exhaust
- 5 T-piece adapter
- 6 Fuel feed pipe to carburetor



3. Measure the feed pressure.

The feed pressure should be 0.15 to 0.20 atmospheres at an idling speed of 700 to 750 r. p. m. with float needle valve closed.

**Note:** The feed pressure remains more or less constant throughout the whole engine speed range.

4. If necessary, correct the feed pressure. This is done by measuring the play between the tappet (4) of the fuel feed pump at the beginning of its power stroke and the BDC of the drive cam (7) (Fig. 01—3/34).

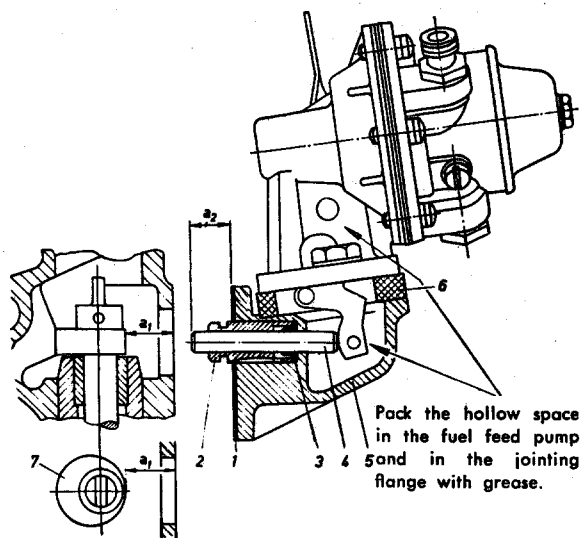


Fig. 01—3/34

$a_1$  = Distance from the crankcase to the drive cam at BDC.

$a_2$  = Distance between the sealing flange and the tappet at the beginning of the power stroke.

- |                   |                                   |
|-------------------|-----------------------------------|
| 1 Sealing flange  | 5 Jointing flange                 |
| 2 Bushing         | 6 Insulation flange with gaskets  |
| 3 Shoulder sleeve | 7 Cam of the oil pump drive shaft |
| 4 Tappet          |                                   |

Measure (at the crankcase) the distance  $a_1$  between the separating surface and the drive cam at BDC (7), using depth gauge.

Then measure the distance  $a_2$  between the end of the tappet — with the tappet at the beginning of the power stroke — and the sealing flange.

The difference between the two dimensions  $a_1 - a_2$  is equal to the play between the drive cam and the tappet.

The play must be 0.4—0.5 mm.

The play can be corrected by removing or by adding shims (sealing flange).

**Note:** If the feed pressure of the fuel feed pump is too high, the float needle valve may be forced and this could cause an unduly high fuel level in the carburetor.

The excessive feed pressure may be due to insufficient clearance between drive cam and pump tappet or hardening of the pump diaphragm.

If the pump pressure is too low the carburetor system will be fuel-starved. As an expedient shims may be added if the pump pressure is too high, or removed if the pump pressure is too low.

It must be remembered, however, that one shim at least is necessary in order to obtain a fuel-tight joint between the jointing flange of the fuel feed pump and the crankcase.

If in spite of the play between cam and tappet being correct, the feed pressure can still not be properly adjusted, the fault must lie in the fuel feed pump.

5. The float needle valve can also be checked with the pressure gage.

Switch off the engine and close the cock (2). Turn the milled nut (3) to the right, until the feed pressure is increased to approx. 0.26 atmospheres.

**If the indicator moves backward slowly, this indicates that the float needle valve is leaking.**

If the pressure increases further, the float needle valve will be forced, even if it is in good condition. The opening pressure is approx. 0.28 atmospheres.

If the float needle valve keeps the pressure constant the cock must be opened and the pressure thus conveyed to the fuel feed pump. The valves must be able to hold back the accumulated pressure for at least 3 minutes. If the valves are leaking, the indicator will move back quickly.

**Note:** A float needle valve can be tested for leakage by forcing gasoline through under pressure (see Job No. 07—3, Paragraph 17, Note).