

## A. Removal and Installation of Distributor

The removal and installation procedures for the distributor are described in Job No. 01 — 4, Section F and the ignition adjustment in Job No. 01 — 3, Section E.

## B. Checking Distributor on the Tester

### a) Sight-Checking and Mechanical Checking

1. Check the distributor cap for cracks. Scrape the contacts of the distributor cap with a screwdriver and if necessary, replace the distributor cap.

2. Check the contact breaker points for tightness and correct location. They must not be loose, nor must they be offset with respect to each other.  
Tighten up the fixing screw at the contact holder carrier with a screwdriver.

**Note:** Twisted or displaced contacts can be straightened with Contact Setting Tool Bosch EFAW 57 or EF 3647 A. When this is done, only the fixed contact holder must be bent and not the contact breaker lever.

3. Check the contact pressure of the contact breaker with a suitable spring scale. The specified contact pressure is 400—500 g (see also Job No. 01 — 3, Section D, Fig. 01 — 3/22). If necessary, replace the contact breaker spring.

**Note:** If the spring is weak or burnt out, the contacts flutter at high engine speeds and this causes faulty ignition.

### b) Electrical Checking

When checking the distributor, the checking instructions of the manufacturer should be strictly adhered to.

The following checks should always be made:

#### aa) Checking the Angle of Closure

The angle of closure is determined by the shape of the cam and the contact point distance. Incorrect contact point distance, contacts which are burnt away, a worn cam, a worn distributor bearing or a loose base plate can all affect the angle of closure. The angle of closure should be  $48^{\circ}$  —  $52^{\circ}$ . It must not change by more than  $3^{\circ}$  at the most over the whole range of engine speeds.

4. Measure and adjust contact point distance with a feeler gage. The contact point distance must be 0.40—0.50 mm (see also Job No. 01 — 3, Section D, Measurement and Adjustment of Distributor Contact Gaps).

5. Check the end play of the distributor drive shaft. The end play must be 0.1 — 0.2 mm. In order to keep the end play to the specified value, use can be made of compensating washers between coupling and distributor collar. These washers are available in various thicknesses (see Job No. 15 — 26).

6. Check the lubricating wick for the distributor cam. The lubricating wick for the cam must be installed in such a way that it has a spring effect.

7. Check the condenser with a neon light. The neon light must only light up for a short time.

**Note:** It is also of importance to ensure that the condenser has a good ground connection to the distributor housing.

### bb) Checking the Firing Interval

The firing interval is equal to  $\frac{360^\circ}{\text{number of cylinders}}$  with a tolerance of  $\pm 1^\circ$ , which in the case of distributor Type VJU 4 BR 14 with 4 cams is:  $\frac{360^\circ}{4} = 90 \pm 1^\circ$ .

The firing interval should be measured at an engine speed of  $n = 150$  r.p.m. and  $n = 1500$  r.p.m. (speed of distributor).

### cc) Checking the Adjustment Curve

The adjustment curve must be checked with reference to the automatic governor control. The change in adjustment must be uniform and must take place without jerks (Fig. 15 — 23/1).

Automatic governor control movement for distributor VJU 4 BR 14

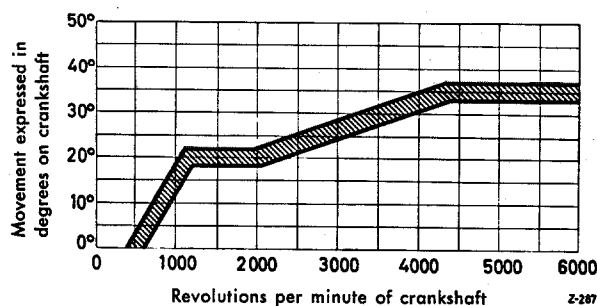


Fig. 15 — 23/1

Then the adjustment curve should be checked with reference to the automatic vacuum control (Fig. 15 — 23/2). When this check is made, a check for air-tightness in the vacuum control system should be made at the same time.

Automatic vacuum control movement for distributor VJU 4 BR 14

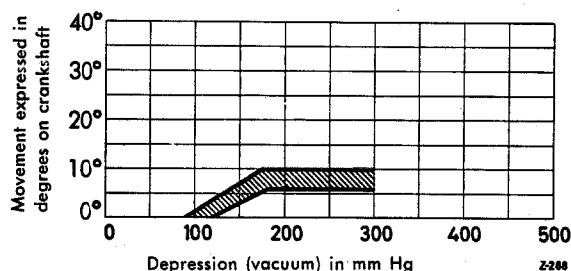


Fig. 15 — 23/2

The air-tightness test should be made at a depression of 600 mm Hg. The depression must not fall off by more than 10 % over a period of 2 minutes.

The maximum amount of movement should be  $10^\circ$ ; the movement is limited by the chamfered hexagon nut which is installed on the pull-rod of the automatic vacuum control. The adjustment range can be increased by screwing out the pull-rod and decreased by screwing it in. When this is done care must be taken to ensure that the pull-rod remains screwed in far enough; if necessary, the chamfered hexagon nut should be adjusted after releasing the lock nut.

#### dd) Continuous Run Test

The distributor should be subjected to a continuous run test under working conditions. The test should be of a quarter of an hour's duration and should be made at a rated voltage at the ignition coil of 12 V, a spark distance of 7 mm and a speed (distributor speed) of  $n = 500$  r.p.m.

#### ee) Maximum Speed Test

The distributor should be checked with the maximum speed (distributor speed) of  $n = 3000$  r.p.m. and with a spark distance of 7 mm. There must be no misfiring.

Suppressed distributors should be checked in the same way as **unsuppressed** distributors, that is to say, without suppressors.

If, when this test is made, misfiring occurs, this may be due to any of the following defects:

Dirty contact breaker points or contact gap too large,

Contact pressure too weak,

Battery voltage too low,

Electrodes of flash-over distributor badly burnt away,

Defective condenser or bad condenser connection (excessive arcing),

Ignition coil defective.

#### ff) Starting Output Test

At a speed of  $n = 100$  r.p.m. (distributor speed), a battery voltage of 8 Volts and with a spark distance of 9 mm, the ignition spark must jump over to the spark drawer without misfiring for a test period of a half-a-minute. It is absolutely necessary for the contacts and the spark drawers to be in perfect condition when this test is made.

### C. Removal and Installation of Contact Breaker Points

#### Removal:

1. Remove the distributor cap.
2. Take off the rotor arm.
3. Slacken the terminal nut (1) of terminal 1, slacken the lock nut and pull out the cable (2) to the contact breaker lever (Fig. 15—23/3).
4. Remove the lockwire (5) at the pivot pin for the contact breaker lever and also the washer (4).
5. Unscrew the fixing screw (3) for the contact holder.
6. Unscrew the cheese-head screw (8), paying attention to the lock washer.

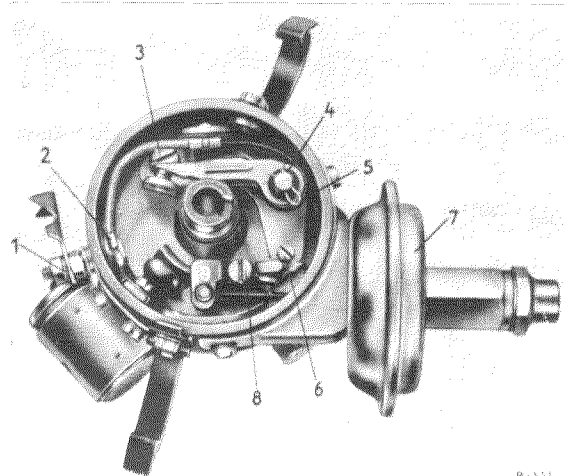


Fig. 15 — 23/3

1 Hexagon nut  
2 Connecting cable  
3 Fixing screw  
4 Washer  
5 Lockwire

6 Eccentric bolt  
7 Automatic vacuum control  
8 Cheese-head screw  
9 Angle bracket with bolt

7. Push the angle bracket (9) with bolt to one side and take out the contact lever with the contact holder. Pay attention to the eccentric bolt (6) in the contact holder.

**Installation:**

8. When installing the contact holder carrier, make sure to put in the eccentric bolt (6) correctly.

9. Screw in the cheese-head screw (8), taking care not to forget the ground cable from the automatic vacuum control and the lock washer.

10. The remainder of the installation procedure is the reverse of the removal procedure.

11. Adjust the contact gap to 0.4 — 0.5 mm. (For further details see Job No. 01 — 3, Section D.)

## **D. Removal and Installation of Automatic Vacuum Control**

**Removal:**

1. Remove the distributor cap.
2. Unscrew the cheese-head screw (8) (see Fig. 15 — 23/3), paying attention to the lock washer.
3. Take out the angle bracket (9) with bolt (see Fig. 15 — 23/3).
4. Remove the cheese-head screws for fixing the automatic vacuum control to the housing of the distributor, paying attention to the two lock washers, and then remove the automatic vacuum control.

**Installation:**

5. Installation is the reverse of the removal procedure.

**Note:** When screwing in the cheese-head screw (8), do not forget the ground cable from the automatic vacuum control and the lock washer (see Fig. 15 — 23/3).

## **E. Removal and Installation of Distributor Coupling**

**Removal:**

1. Fix the distributor by the distributor collar in a vise (use aluminum jaws).
2. Knock out the dowel pin of the coupling with a suitable drift.
3. Take the coupling off the shaft, paying attention to the fiber washer and the compensating washer.
4. Take the snap ring off the lower part of the coupling with a screwdriver. The coupling can now be taken apart.

**Installation:**

5. Installation is the reverse of the removal

procedure. Attention should be paid to the following points:

- a) Compensating washers, which are placed between the coupling and the distributor collar in order to maintain the permissible end play of 0.1 — 0.2 mm of the distributor drive shaft, are available in two thicknesses:

Part. No. 000 158 00 52 0.1 mm thick

Part. No. 000 158 04 52 0.2 mm thick

The measurement is taken with the dowel pin pressed in.

- b) Make sure that the fiber washer is on the distributor collar side and that the compensating washers (steel washers) are on the coupling side.