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**STANDARDS BRANCH  
- Power Division**

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**STANDARDS BULLETIN No. : S1-026**

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**SUBJECT: MAINTENANCE OF MAGNEFIX MD4 SWITCHGEAR**

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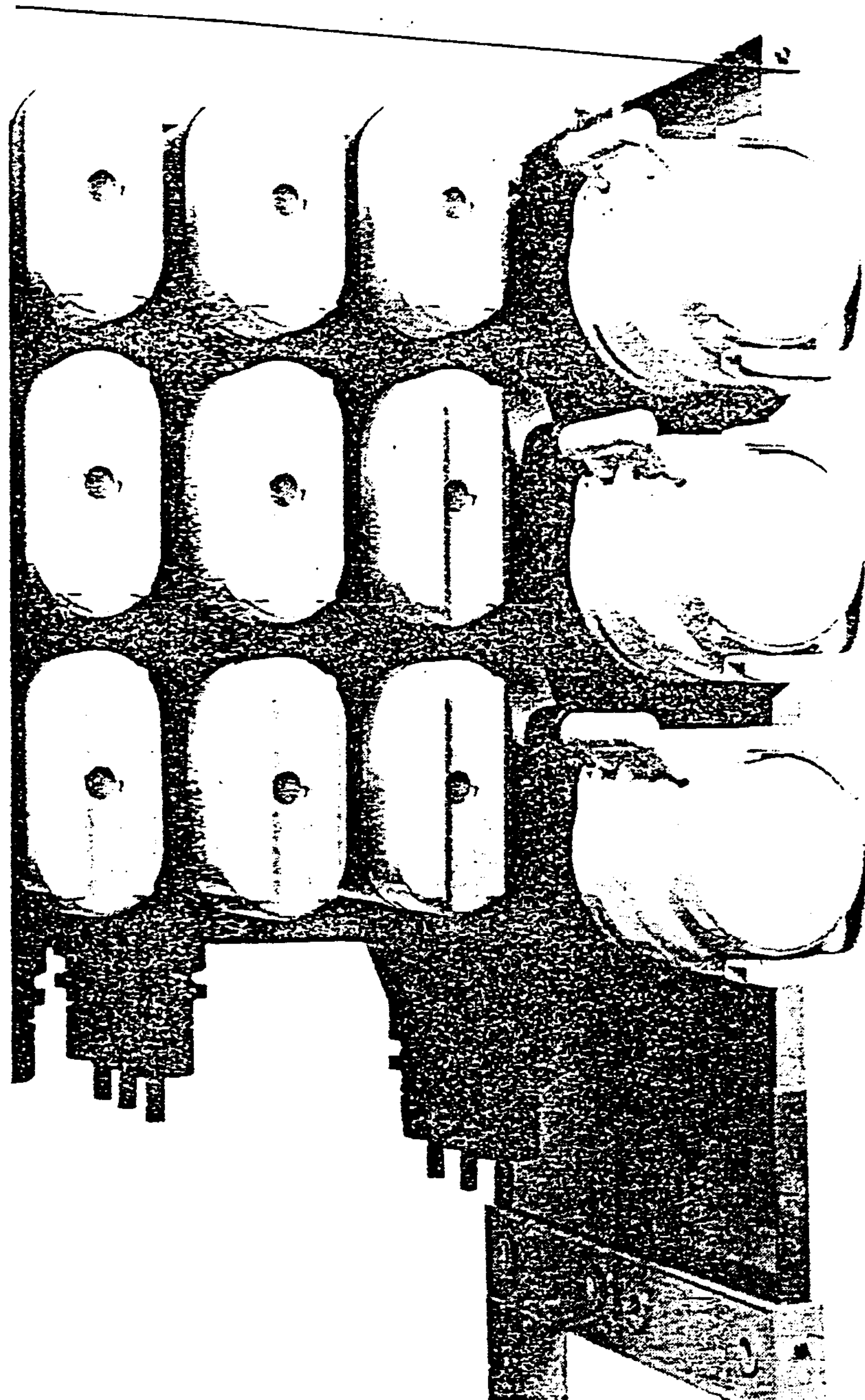
Attached is a maintenance bulletin recommended by Holec for Magnefix MD4 11KV switchgear.

This publication is to be used when the switchgear has been exposed to extreme pollution or corrosion. Under normal operating conditions, the standard installation, operating and manual instructions should be used.

**BRIAN KENT  
STANDARDS MANAGER POWER**

maintenance Magnefix MD4

under extreme service conditions



Recomendations for maintenance of Magnefix type MD/MD4 switchgear operating under extreme service conditions.

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1. Inspection of the switchboard

The aim of the inspection is to determine the general condition of the switchboard, with a view to assessing whether it can be safely operated and touched.

To achieve this aim, inspection should be carried out to ascertain whether:

- the switchboards are moist and dusty
- there are audible or visible discharges
- the metal parts are corroded
- the leakage currents are less than 0.5 mA.

Even if there are no outward signs of pollution on the insulation surface, corrosion on the metal parts or discharges, it is still advisable to inspect the interiors of the switch caps and fuse holders.

If the amount of pollution can be classified as normal, then maintenance can be carried out as described in the Installation, Operation and Maintenance manual.

When severe pollution and corrosion is encountered, maintenance should be carried out in accordance with the below mentioned recommendations. This will ensure that the switchboard can be operated safely.

## 2. Overhaul of the switchboard.

### 2.1. Fixed portion

#### 2.1.1. Cleaning

Disconnect the whole switchboard and remove all switch caps and fuse holders. Then earth the cables.

Clean all interior and exterior parts of the fixed portion as follows:

- Remove dust with either compressed air, a soft brush or a clean, dry cloth.
- Remove stuck-on dirt with a wet cloth. (Use water).
- Remove stubborn chemical contamination with a cloth dipped in turpentine or white spirit.
- Tracking marks and dirt that cannot be removed with turpentine or white spirit should be removed with a scouring sponge (i.e. Scotch Brite) or fine sand paper. Also use the latter to clean the magnets, and then apply DC-4 silicone grease or Releasil 7.

#### Remarks:

- It is not advisable to use abrasives on the thermoplastic parts.  
If these are badly damaged, replace them.
- In connection with the chemical composition of the synthetic materials used, cleaning solvents other than turpentine or white spirit should not be applied.
- In order to be able to clean the area surrounding the fixed contacts, it is advisable to remove the arcing chambers. They should be refitted afterwards. (See maintenance manual).

- To clean the area surrounding the fixed contacts, use a spatula, or a simular tool, wrapped in a cloth.

After cleaning, rub down the switchboard until it is dry. Then clean the interior parts with compressed air. Afterwards apply a very thin layer of silicone grease type DC-4 to the clean, dry cast resin surface to restore the moisture resistant film that was applied during manufacture. Polish until a shiny, non-sticky surface is obtained.

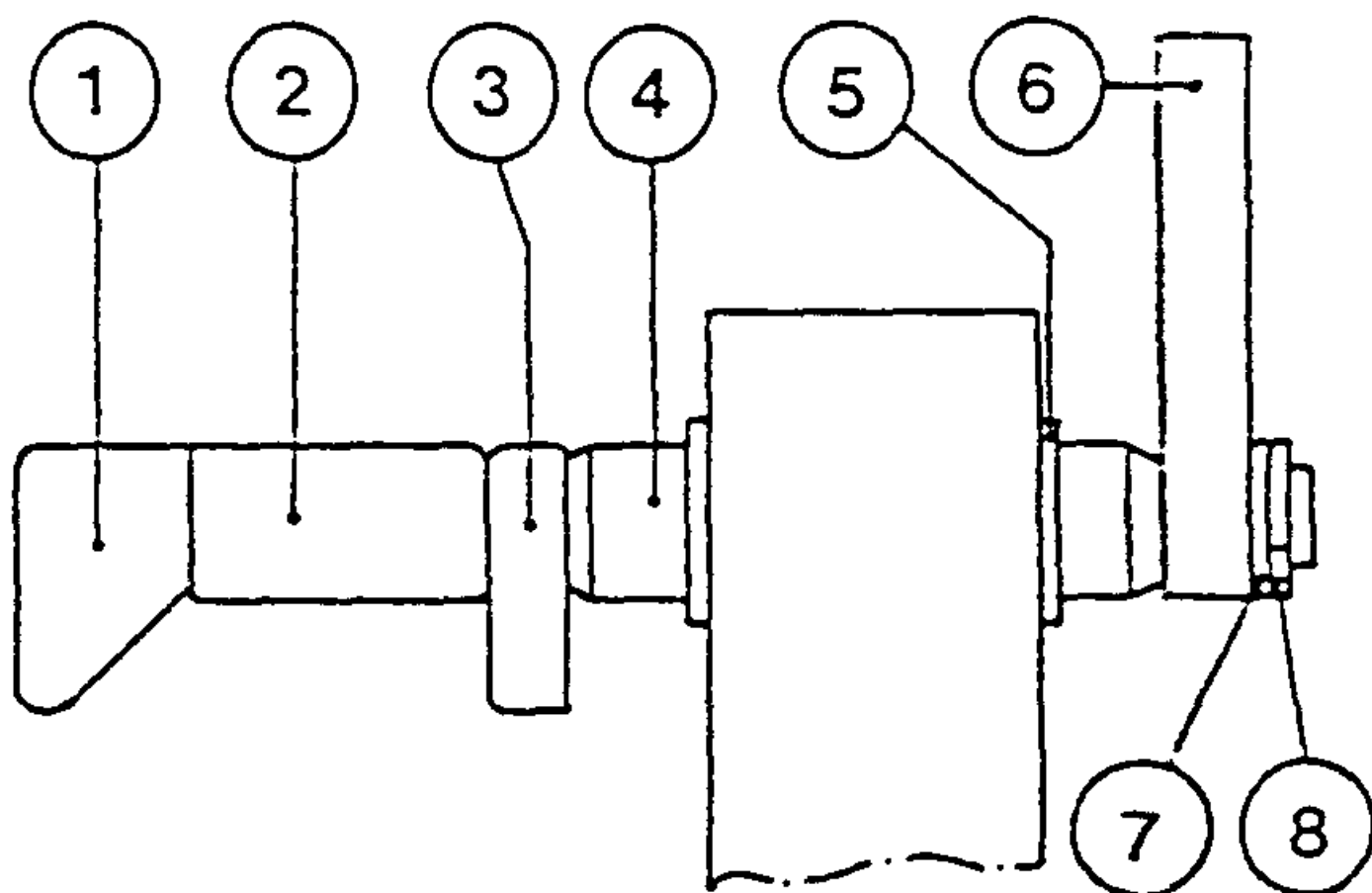
Note: Too much silicone grease attracts dirt. It is therefore not advisable to use a spray. In addition, not sufficient is known about the effects of the vapourized gases and thinner.

#### 2.1.2. Replacement of the contacts in the fuse unit.

If the contacts in the rear of the fuse unit are heavily oxidized (green), they must be replaced. This is accomplished by removing the two bolts in the bottom of the contact unit. Clean the resin and contact surface in the oriface as described in section 2.1.1. Fit a new set of contacts and re-tighten the two bolts.

#### 2.1.3. Replacement of the interlock.

If the interlock of the transformer unit is no longer mechanically reliable, it should be replaced. An interlock comprises the following parts:

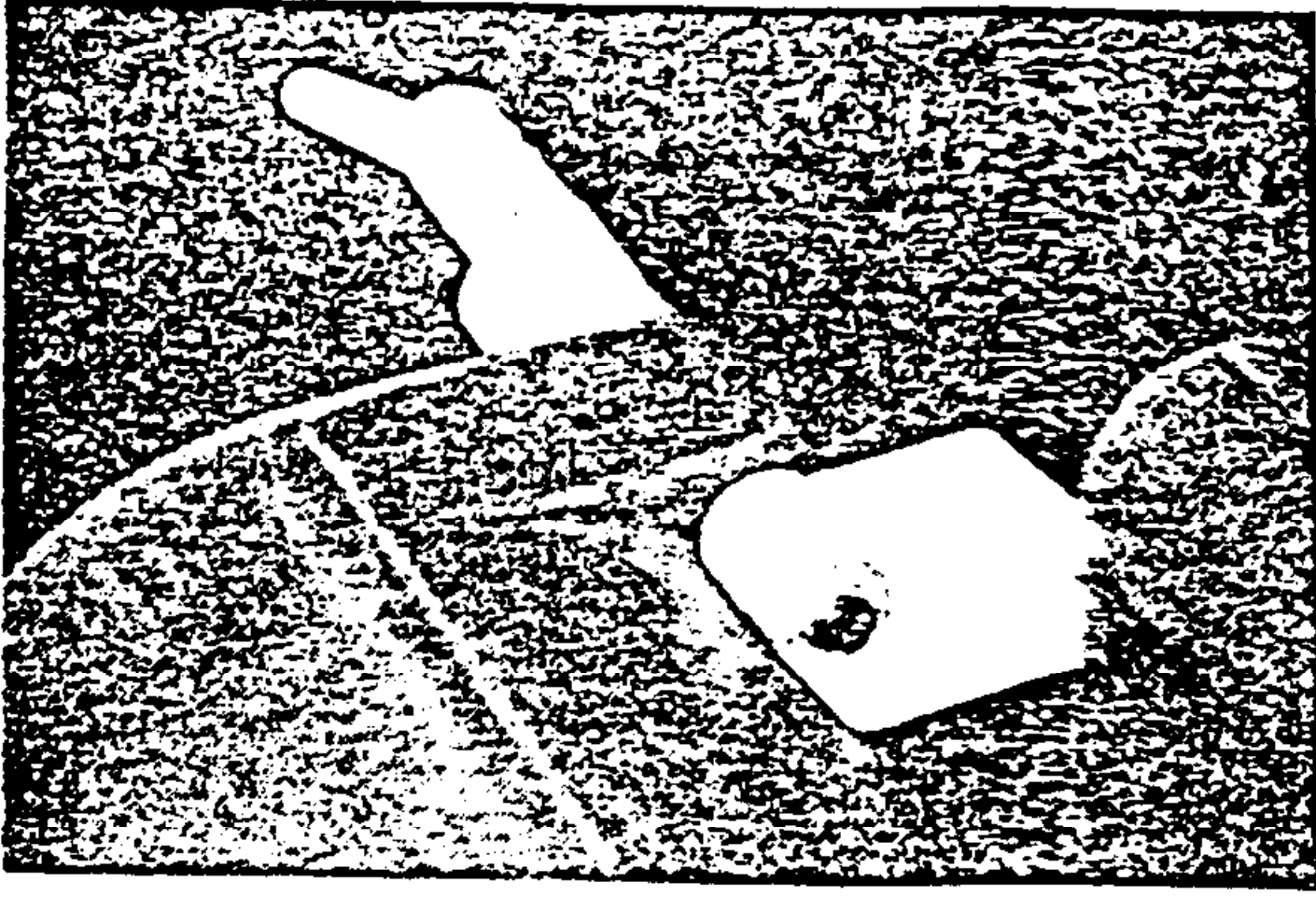


1. Interlock shaft
2. Spacer 12 x 18 (32 thick)
3. Small interlock cam
4. Bushing
5. Washer 17 x 21 (1,4 thick)
6. Large interlock cam
7. Washer 13 x 18 (1 thick)
8. Circlip type 9  
(Dimensions in mm).

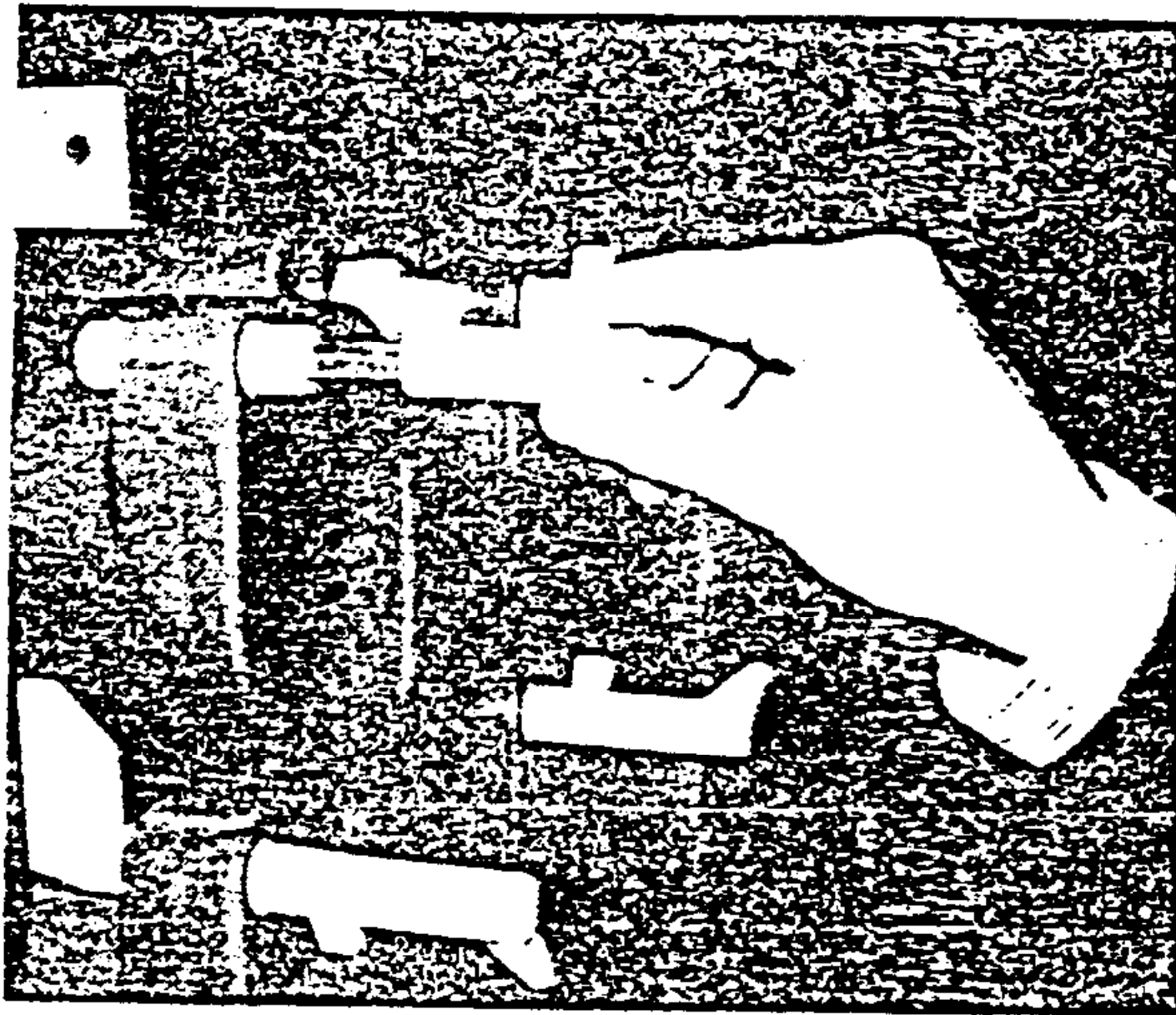
Special tools are available for fitting and removing the circlip:  
 Hook : art. nr. 2052.006  
 Circlip key: art. nr. 2052.005



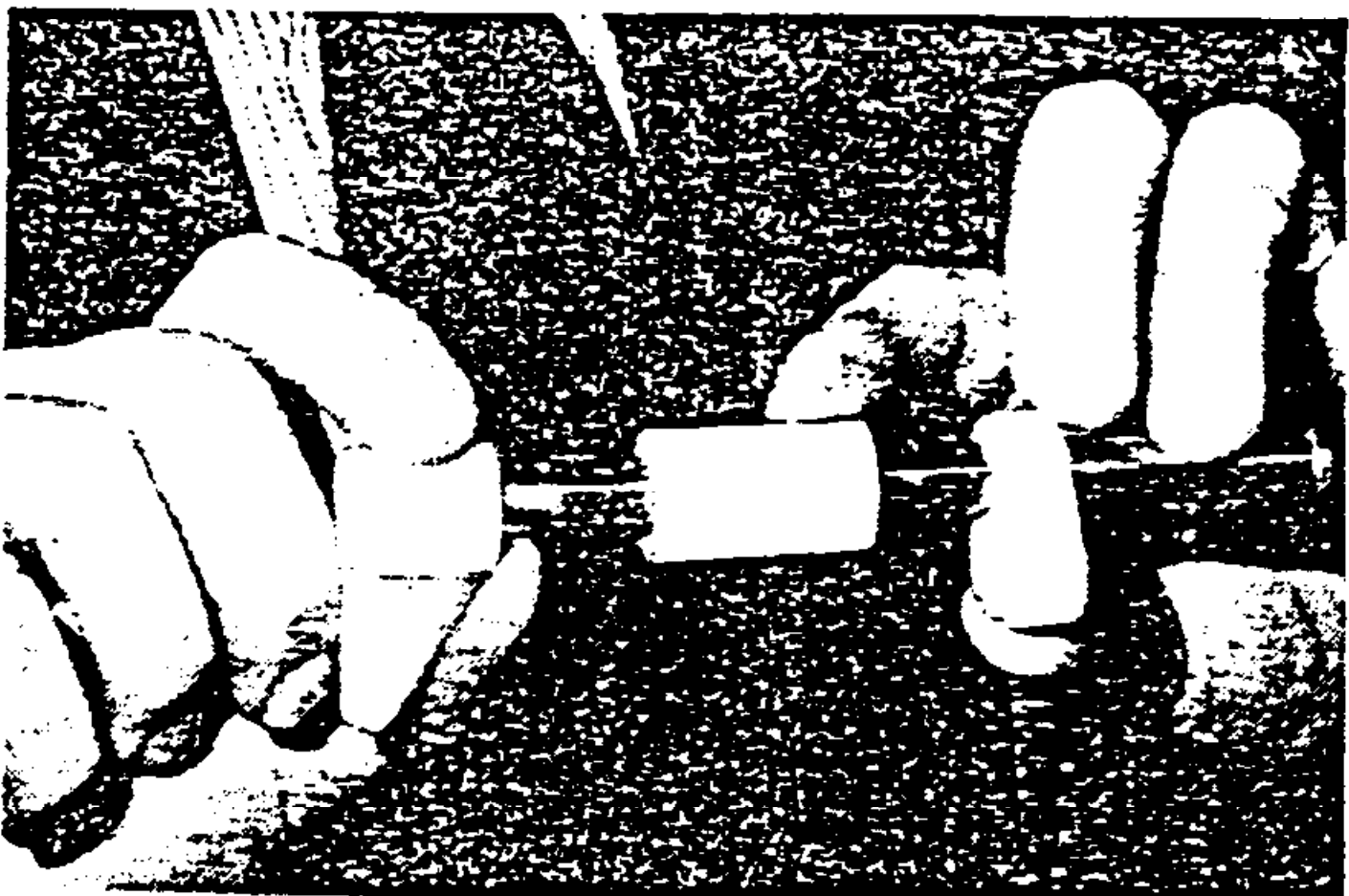
Proceed as follows:



1. Remove the circlip (8) and washer (7).
2. Remove the large interlock cam (6).

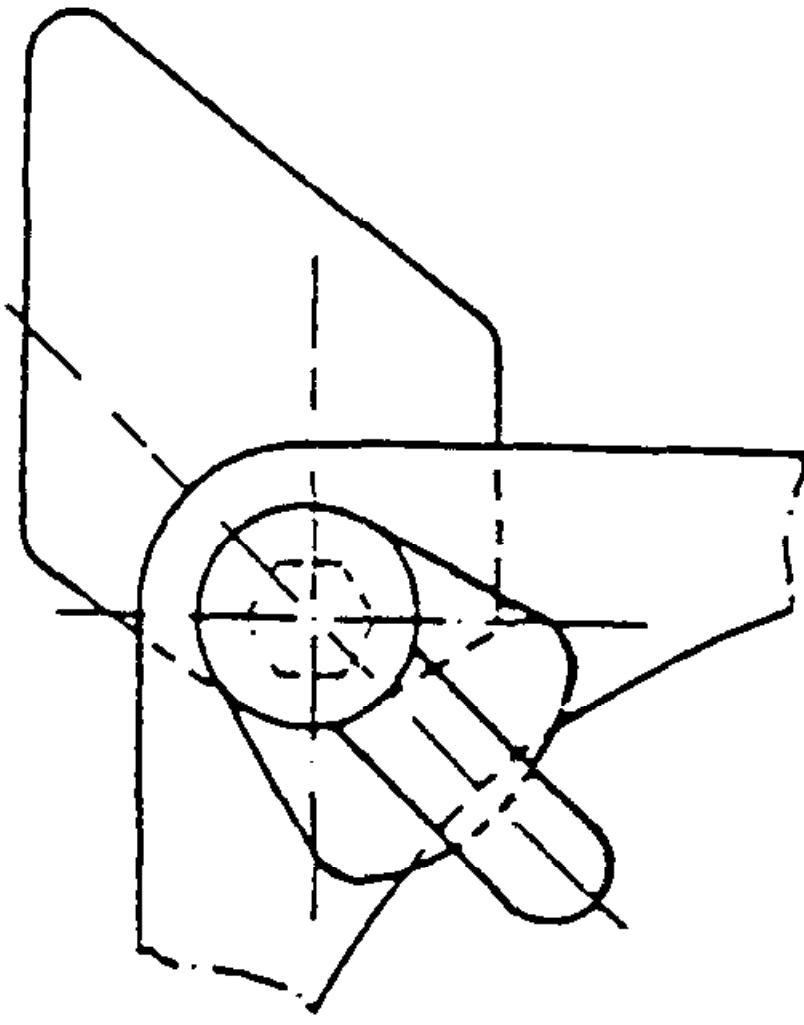


3. Remove the interlock shaft (1), small interlock cam (3), spacer (2), bushing (4) and washer (5) and throw all 8 parts away.



Fit the new parts as follows:

4. Fit the bushing and keep it in position by means of the washer (5). Put the spacer and small interlock cam onto the shaft.



Important: Make sure the small cam and shaft are fitted correctly (see sketch).

5. Fit a new interlock shaft.

6. Fit a new interlock cam.

Important: Make sure the knob of the interlock shaft is positioned correctly (see sketch).

7. Fit the washer and circlip.

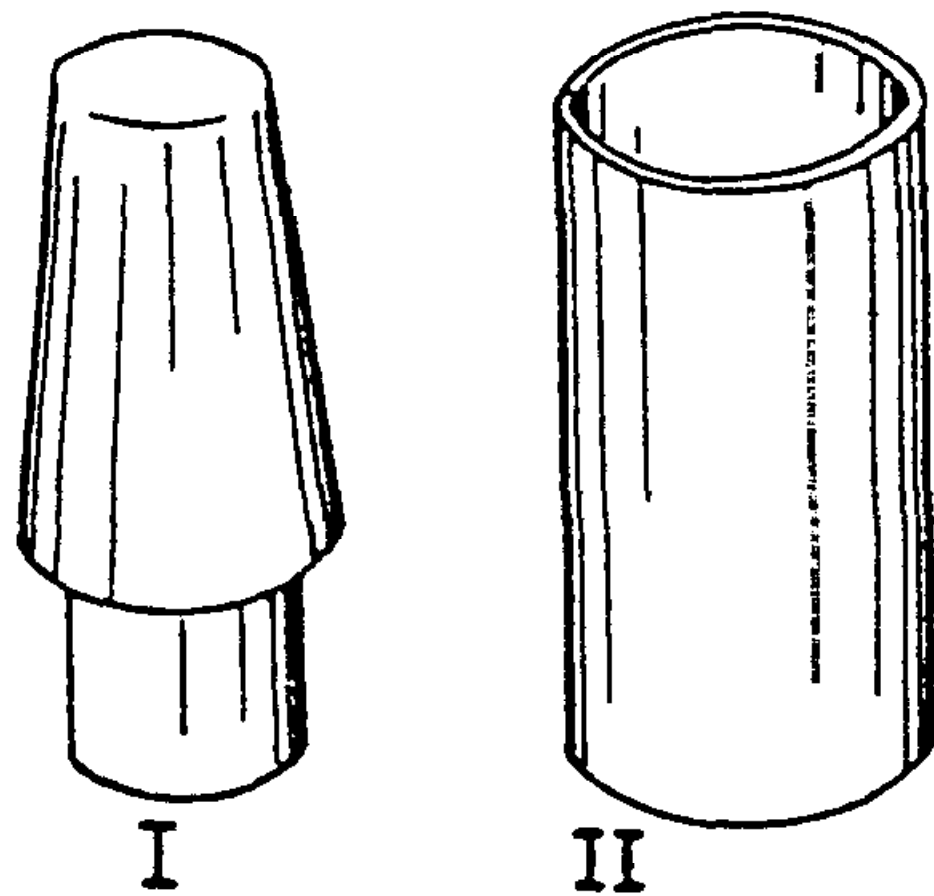
## 2.2. Switch caps

### 2.2.1. Cleaning

If any of the switch cap parts are heavily oxidized and the interior surface is badly polluted, the cap should be returned to Holec.

The annular springs on the tubular contacts can be replaced on site (see section 2.2.2.), as also the leaf springs (with stainless steel springs) (see section 2.2.3.). The outside surface of the switch cap should be treated as described in section 2.1.1.

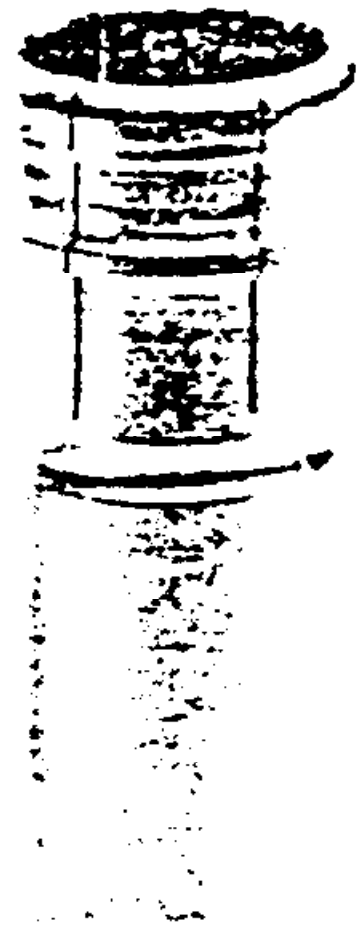
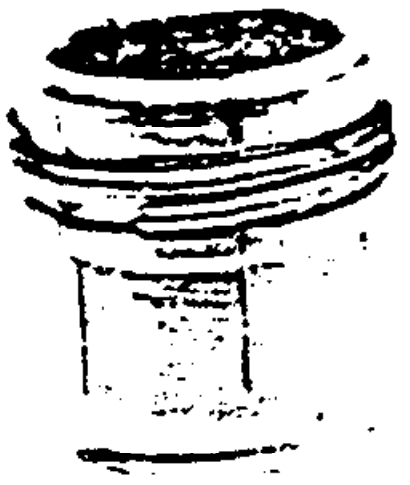
### 2.2.2. Replacement of annular springs



The following tools are required for fitting the annular springs:

I. Conical stud, art. nr. 2052.007

II. Bush, art. nr. 2049.201.



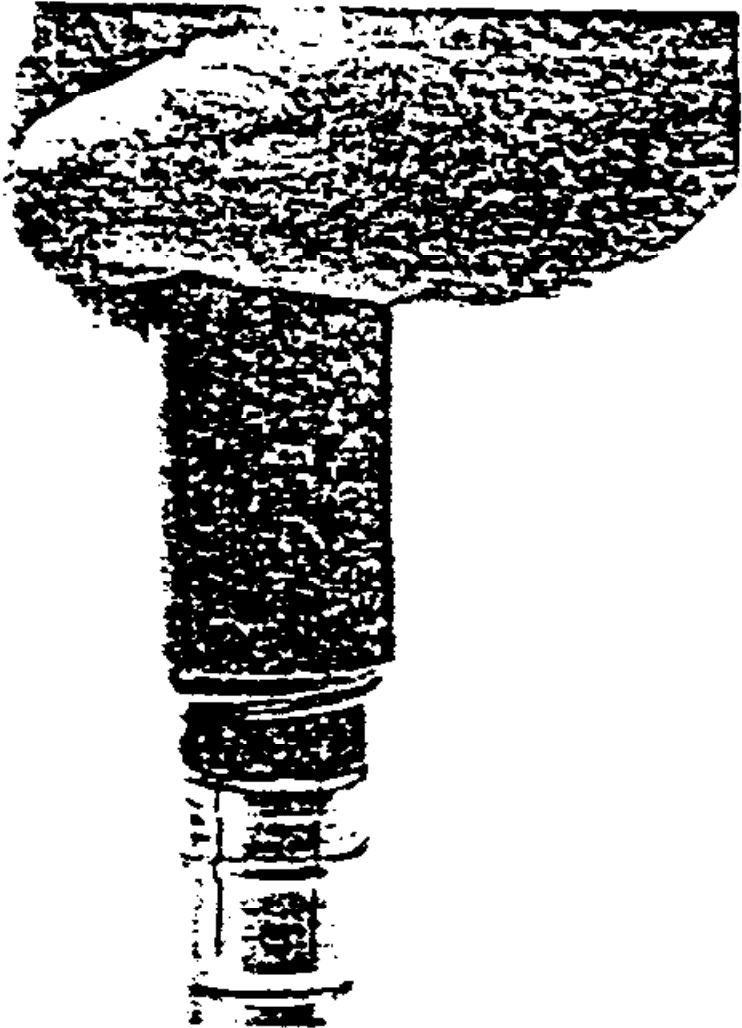
1. Remove the old springs from the tubular contacts.

Note: This should be done very carefully to avoid damage to the contact.

2. Thoroughly clean the edge and contact area of the tubular contact, and then apply acid-free vaseline. (Repair any damage).



3. Put the conical stud (1) onto one of the tubular contacts and then place a new annular spring on the stud.



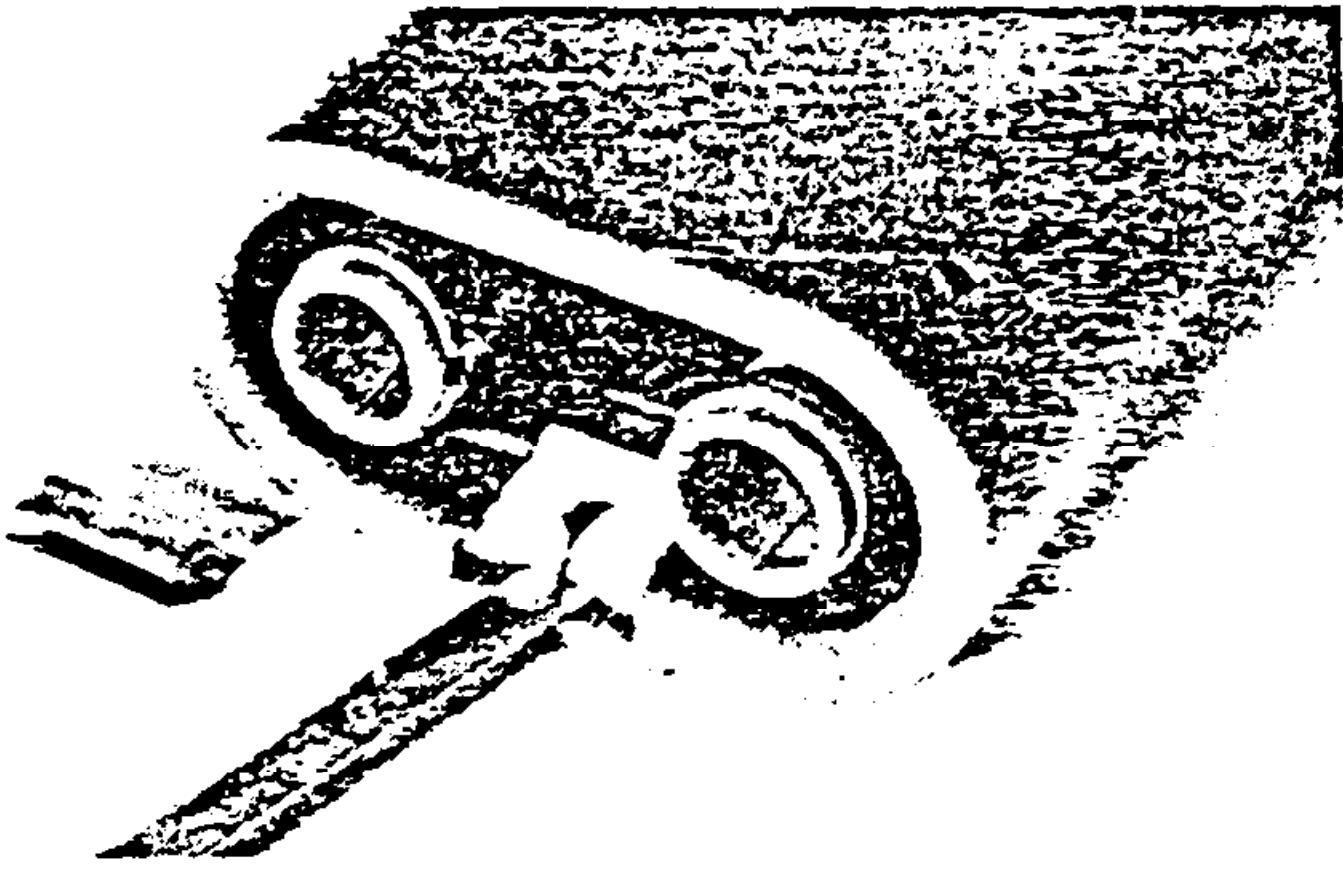
4. Push the spring over the stud onto the contact by means of the bush.

Clean the switch cap thoroughly before putting it back into service.

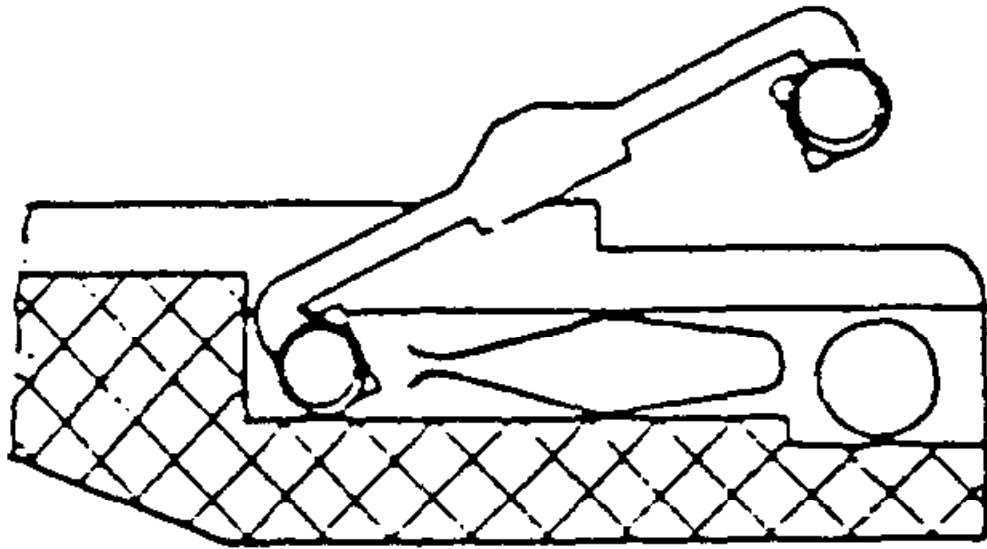




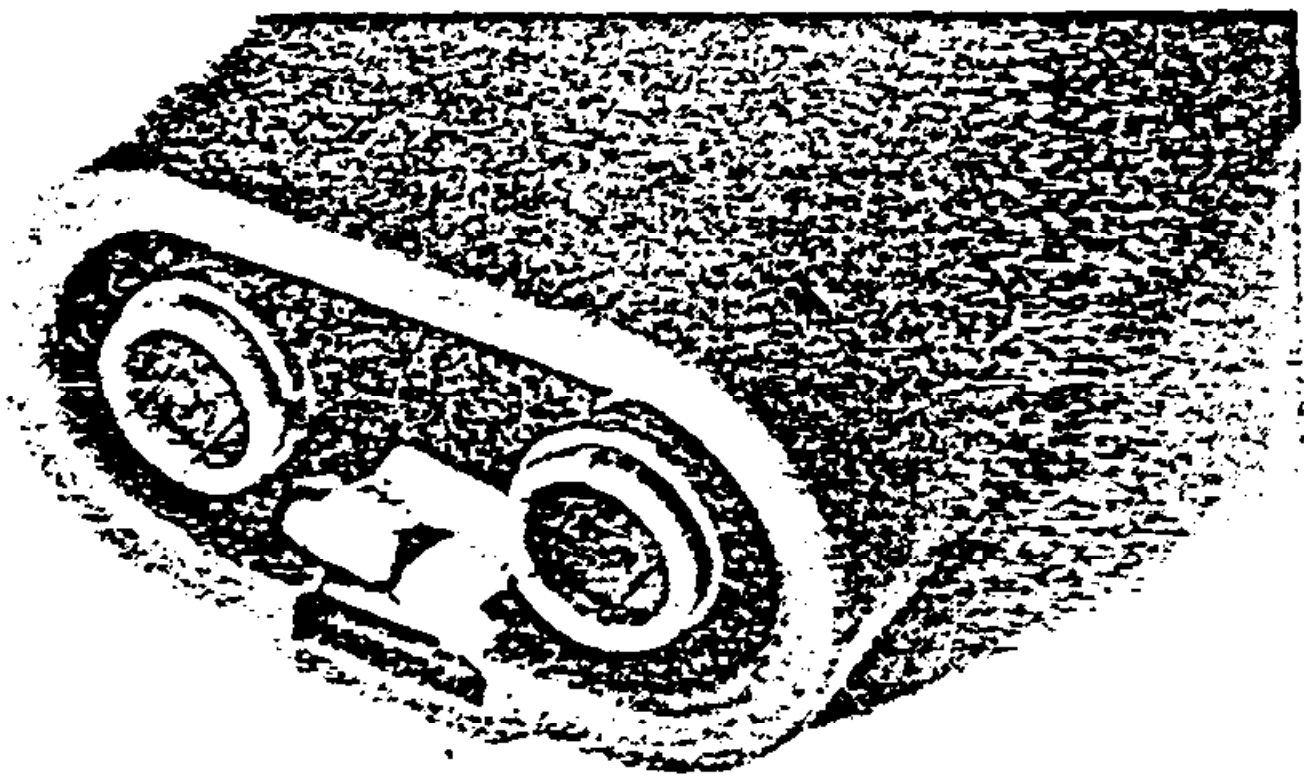
### 2.2.3. Replacement of the spring holder and leaf spring.



Lift up the spring holder at the front with a screwdriver. (Blade approx. 9 mm). Remove the spring holder and leaf spring.



1. Fit the new spring holder by pushing one end into the hole provided.
2. Slide a leaf spring into position, with the closed side facing upwards.



3. Push the other end of the holder into position and press it firmly to ensure it lies flat in the switch cap.

## 2.3. Fuse holders

### 2.3.1. Cleaning

Treat the interiors and exteriors of the fuse holders as described in section 2.1.1.