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BIMOTIONAL SWITCH MECHANISMS, 2000 TYPE.

LUBRICATION.

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BIMOTIONAL SWITCH MECHANISMS, 2000 TYPE. LUBRICATION.

(This E.I. was previously TELEPHONE ENGINEERING / INTERNAL PLANT INSTALLATION General A 4221; page 8 has small amendments.)

CONTENTS:

1. GENERAL.

1.1 This Instruction covers the lubrication of Type 2000 Bimotional Switch Mechanisms; the adjustments of these switches are in E.I. TELEPHONE Exchanges Automatic AD 4221.

1.2 To obtain the maximum efficiency from the lubrication of the mechanical parts of the apparatus, it is essential that consideration be given to the following matters -

(i) Lubrication must be done cojointly with the routine examination of the mechanism, unless otherwise stated, and/or on the installation of the switch.

(ii) The lubricant appropriate to the various parts must be applied as indicated in paragraph 6 of this Instruction.

(iii) An excess of lubricant is liable to be projected on to other parts. It must, therefore, be applied in moderate quantity and any excess found after the subsequent operation of the mechanism carefully removed.

(iv) The lubricant must be kept free from grit and other foreign matter.

2. LUBRICANTS.

2.1 The only lubricants to be used are -

(i) Oil, Commonwealth No. 2.

(ii) Oildag, Concentrated.

3. REASON FOR USING OILDAG.

3.1 Where a surface is exposed to the atmosphere or excessive friction, a light oil quickly evaporates and leaves the bearing surface dry. In these cases, oildag which is very slow drying has been specified. (See Paragraph 6 of this Instruction.)

4. SUPPLY OF LUBRICANTS AND CONTAINERS.

4.1 To keep lubricants clean and enable them to be easily transported and stored, they must be kept in three small bottles, approximately 1 oz. capacity, fitted into a wooden stand. This stand is made locally. The stand is to be marked showing the type of lubricant to be placed in the bottle in each of the three holes provided. Commencing from the left, the bottles must contain -

1st. Clean Oil, Commonwealth No. 2, for lubrication of bearings.
2nd. Used oil, for use in conjunction with the oildag for lubrication of ratchets. (See Paragraph 5.1 (i).)
3rd. Oildag, for use on ratchets when required, and rubbing surfaces.

In addition to the markings showing the contents of each bottle, the first bottle should be marked with a 1/2" wide yellow band and the third bottle with a 1/2" wide black band. These additional markings facilitate the use of the color lubrication code in the drawings in this Instruction. In these drawings -

represents oil and ■ represents oildag.

4.2 When not in the bottles, the corks must be placed in small holes provided in the stand.

5. LUBRICATION OF SWITCHES.

5.1 The method of applying lubricants to the more common parts is given below -

(i) Ratchets. When making an initial application of oildag to a ratchet or hub, first clean the dust from the bearing parts, using a stiff bristle brush moistened with oil, Commonwealth No. 2. The oil used for this purpose is taken from the centre bottle, the brush being cleaned after each operation by wiping on a piece of clean Selvyt. Oildag is then applied sparingly to all teeth as required by means of a No. 1 sable brush (similar to a small water colour brush.) When making a subsequent application of oildag, it is often found that sufficient graphite from previous applications remains to provide a satisfactory lubricant with the application of a small quantity of oil taken from the centre bottle. A stiff bristle brush is used for this purpose, and it is necessary to work this well down into the notches to bring the oildag to a suitable consistency and redistribute it over the bearing surfaces. Where insufficient graphite from a previous lubrication remains, or where the existing lubricant is dirty, it must be cleaned from the notches by means of a stiff bristle brush moistened with oil taken from the centre bottle. The brush must be worked well down into the notches, to remove as much as possible of the original lubricant, and then cleaned by rubbing on a piece of clean Selvyt. When the notches have been cleaned, concentrated oildag must be applied sparingly to the notches using a No. 1 sable brush.

(ii) Pawl Stops and other Exposed Surfaces. Oildag is applied to these surfaces by means of a No. 1 sable brush, surplus lubricant being removed by means of a piece of clean Selvyt.

(iii) Bearings. Oil, Commonwealth No. 2, from No. 1 bottle, is applied as required, using a No. 1 sable brush which is specially reserved for this purpose. When not in use, this brush must be kept absolutely clean. Before the application of the lubricant, the surplus oil is wiped from the brush with a piece of clean Selvyt.

(iv) Wiper Carriage. Before lubrication, the wiper carriage shaft must be thoroughly cleaned with a piece of clean linen tape and, after lubrication, the wiper carriage raised to the O level a few times and any surplus oil removed.

5.2 Interrupter Springs. Owing to the possibility of oil creeping to the spring contacts, oil must be applied sparingly to the operating lever bearing pin and the loop springs and, after application, all surplus oil must be carefully wiped from the assembly.

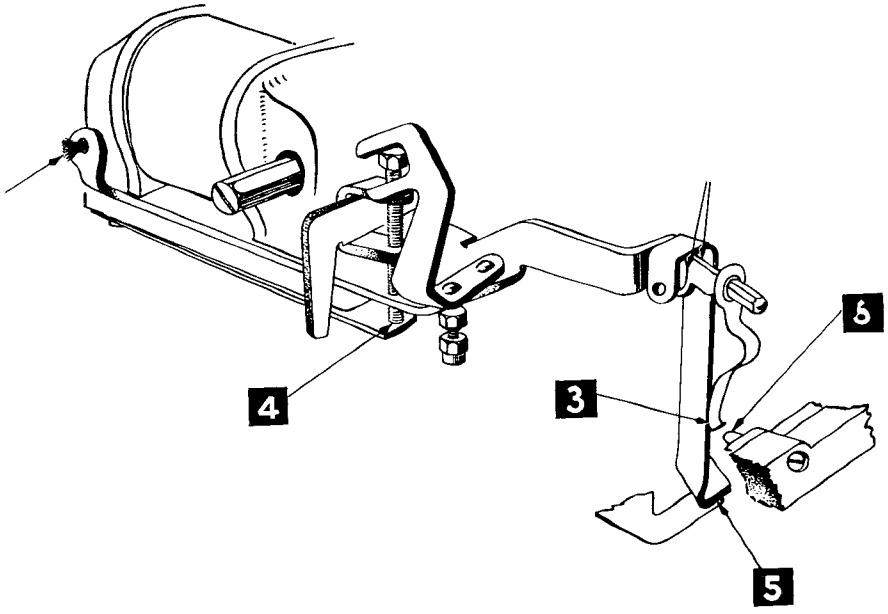
5.3 All brushes must be kept in a clean condition and replaced when showing signs of wear.

6. LUBRICATION SCHEDULE.

Note that in the diagram indicating the parts to be lubricated represents oil and ■ oildag. Where "Oil" is specified, this means "Oil, Commonwealth No. 2" from No. 1 bottle of the stand.

6.1 Vertical Mechanism. (See Fig. 1.)

Switch Part or Bearing Surface.	Use Lubricant.	Apply.	Point No.
Armature.	Oil	To exposed portion of lubricating wick and the outer bearing.	1
Pawl.	Oil	Between pawl and bearing collars.	2
Pawl Spring.	Oildag	To tip of spring at point of contact with the pawl.	3
Armature Restoring Spring.	Oildag	At point where spring engages its adjusting screw.	4
Pawl Guide.	Oildag	At point of contact with pawl.	5
Pawl Front Stop.	Oildag	At point of contact with pawl.	6

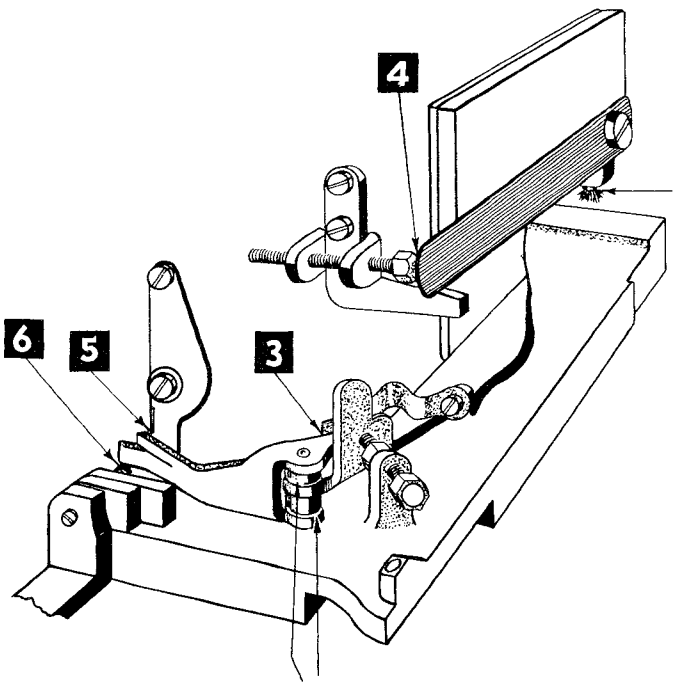


VERTICAL MECHANISM.

FIG. 1.

6.2 Rotary Mechanism. (See Fig. 2.)

Switch Part or Bearing Surface.	Use Lubricant.	Apply.	Point No.
Armature.	Oil	To exposed portion of lubricating wick and the lower bearing.	1
Pawl.	Oil	Between pawl and bearing collars.	2
Pawl Spring.	Oildag	To tip of spring at point of contact with the pawl.	3
Armature Restoring Spring.	Oildag	At point where spring engages its adjusting screw.	4
Pawl Guide.	Oildag	At point of contact with pawl.	5
Pawl Front Stop.	Oildag	At point of contact with pawl.	6

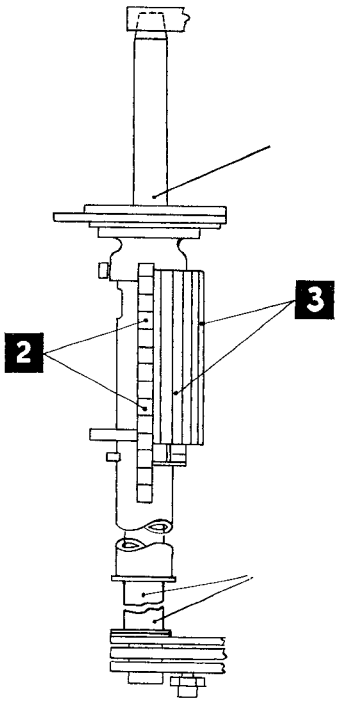


ROTARY MECHANISM.

FIG. 2.

6.3 Shaft and Wiper Carriage Assembly. (See Fig. 3.)

Switch Part or Bearing Surface.	Use Lubricant.	Apply.	Point No.
Shaft and Carriage Restoring Spring.	Oil	After the shaft has been cleaned, three or four applications of the oil are applied to the exposed portion of the shaft using a No.1 sable brush. One similar application of the oil shall be applied to the lower exposed portion of the shaft when the carriage is lifted to the O level.	1
Vertical Ratchet.	Oildag	To all vertical teeth.	2
Rotary Ratchet.	Oildag	To all rotary teeth.	3

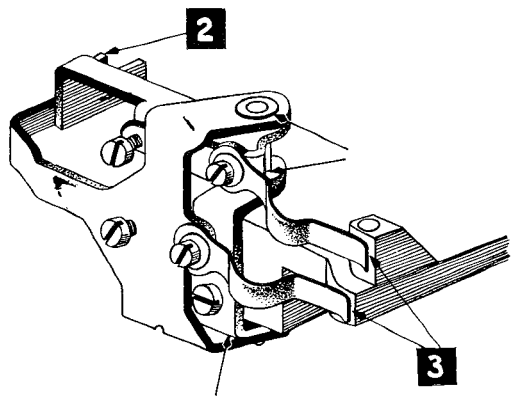


SHAFT AND WIPER CARRIAGE ASSEMBLY.

FIG. 3.

6.4 Detents. (See Fig. 4.)

Switch Part or Bearing Surface.	Use Lubricant.	Apply.	Point No.
Vertical and Rotary Detent Bearings.	Oil	At point of bearing on spindle.	1
Rotary Detent Upper Projection.	Oildag	At point of engagement with rotary disk.	2
Vertical and Rotary Detent Springs.	Oildag	At tip of springs where they engage the frame.	3

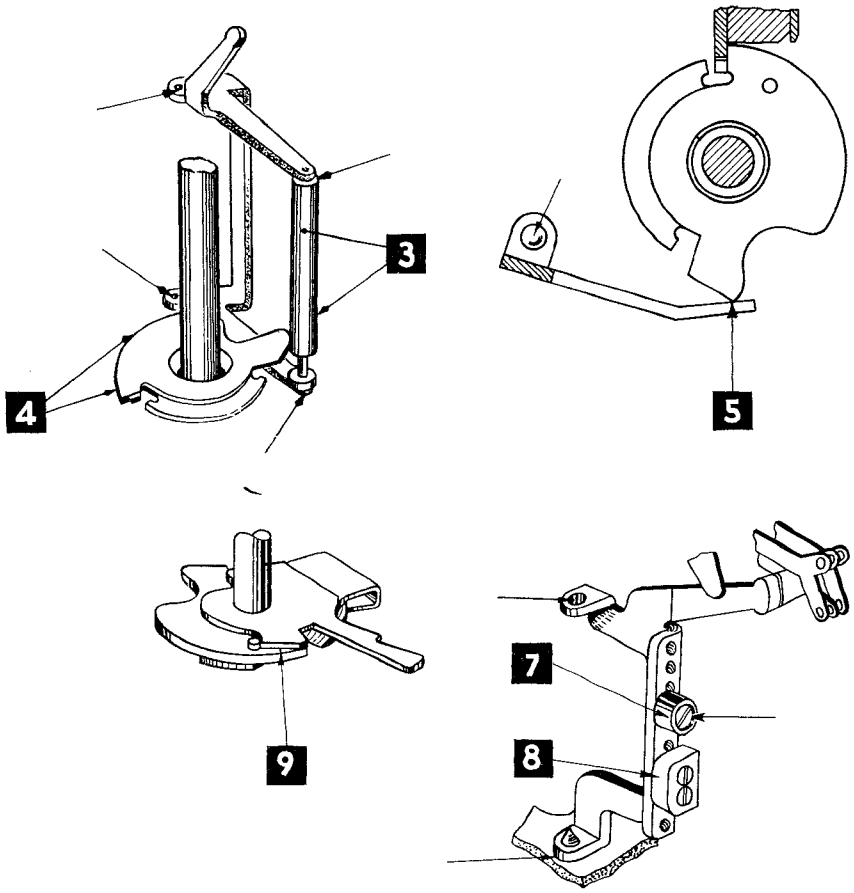


DETENTS.

FIG. 4.

6.5 Mechanically Operated Spring Levers and Rollers. (See Fig. 5.)

Switch Part or Bearing Surface.	Use Lubricant.	Apply.	Point No.
Lever Bearings.	Oil	Upper and lower bearings. Oil holes are provided in frame for upper bearings on some early type frames.	1
Rollers (where fitted, latest switches have no roller).	(Oil (Oildag	Upper and lower bearings. Outer roller surfaces.	2 3
Operating Cam.	Oildag	At periphery of cam.	4
Off-Normal Spring Operating Cam.	Oildag	At point of contact with cam.	5
Level Spring Roller.	(Oil (Oildag	Roller bearing. To outer roller surface.	6 7
Level Spring Cam Plates (when fitted.)	Oildag	To bearing surface of cam plate.	8
Level Spring Auxiliary Cam.	Oildag	To undersurface of cam.	9

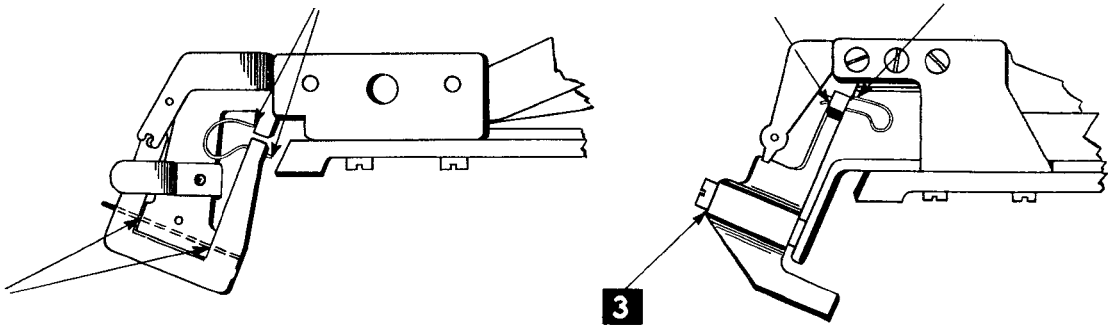


MECHANICALLY OPERATED SPRING LEVERS AND ROLLERS.

FIG. 5.

6.6 Interrupter Springs. (See Fig. 6.)

Switch Part or Bearing Surface.	Use Lubricant.	Apply.	Point No.
Loop Spring.	Oil	To both bearings.	1
Operating Lever Bearing Pin. (Fig. 6a.)	Oil	To both ends of bearings.	2
Operating Lever Bearing Pin.	Oildag	✱ To bearing surface of pin, only when new interrupters are fitted or when the switch is being completely overhauled.	3



(a) Metal Toggle (Interrupters Nos. 1 & 2). (b) Moulded Toggle (Interrupters Nos. 4 & 5.)

FIG. 6. INTERRUPTER SPRINGS.

6.7 Vertical Marking Wiper. (See Fig. 7.)

Switch Part or Bearing Surface.	Use Lubricant.	Apply.	Point No.
Bearing.	Oil	Between bearing and wiper carriage.	1
Tongue.	Oil	To sides of tongue on vertical wiper bracket.	2

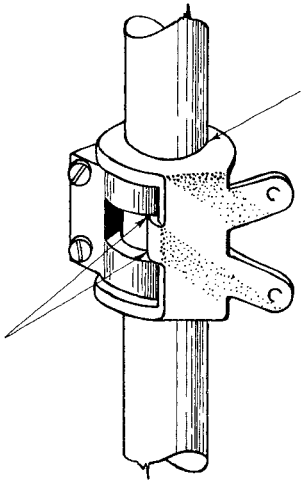


FIG. 7. VERTICAL MARKING WIPER.

E N D.