P.O. ENGINEERING DEPT.
ENGINEERING INSTRUCTIONS

TESTS & INSPECTIONS
ROUTINE
S 5202

COIN-BOX INSTALLATIONS

Cleaning and Check of Adjustment of Mechanisms, Relays etc.

[Maintenance Routine Instruction (M.R.I.) No. S 202]

1. General. This Instruction gives details of the procedure to be adopted for the routine cleaning and check of the adjustments of coin-box mechanisms. Re-adjustments, if necessary, should be made in accordance with TELEPHONES, Call Offices, D 5001.

INSPECTION OF COIN-BOX MECHANISM

2. Coin-collecting-box wiring. The wiring of the coin-collecting box should be examined to ensure that it is tidy and free from dry joints and other potential sources of faults. If the wiring is damp or if the presence of verdigris points to low insulation, ohmmeter tests should be arranged with the Maintenance Control; faulty equipment should be changed, and faulty *local* wiring renewed.

* **3. To clean the mechanism,** the mechanism of the coin-collecting box should be swung out on its hinges, and all accessible items of mechanism should be cleaned with a sash brush and a dry duster. Special attention should be given to the coin tracks and chutes where there is a tendency for a greasy dirt to accumulate; this deposit should be removed with a dry "Brush, Uniselector Cleaning", but if this is unsuccessful a rag moistened with "Sprit, White" or with petrol should be used. *Care should be taken not to scratch the coin tracks.* The plug and jack points should be examined and, if necessary, cleaned carefully with "Emery Paper No. 0". Before the mechanism is replaced, any loose screws and nuts should be tightened and the coin-box should be dusted out.

* **4. Defective operation of buttons "A" or "B".** If button A sticks, or button B sticks or shows signs of hesitancy, the mechanism should be lubricated, as indicated in TELEPHONES, Call Offices, D 5001. On early-type mechanisms in busy coin-boxes, sticking of button B may, however, be due to excessive wear of the hole in item "X" [see Fig. 1(A)], to which the top end of the helical spring (escapement mechanism) is attached. This hole tends to become elongated with wear, thus shifting the point at which the releasing force is applied and preventing the full restoration of the escapement mechanism. This fault should be cleared by fitting an escapement mechanism of the later pattern, i.e. "Box, C.C. Parts: Escapement No. 1 or No. 3" [see Fig. 1(B)].

5. Escapement mechanism. The prepayment escapement mechanism is energized by the depression of button B. After the release of this button, a period of approximately seven seconds should elapse before spring-set No. 3 returns to normal. The post-payment escapement mechanism is actuated by the insertion of a coin and should delay the return to normal of the spring assembly for approximately 1½ to 2 seconds.

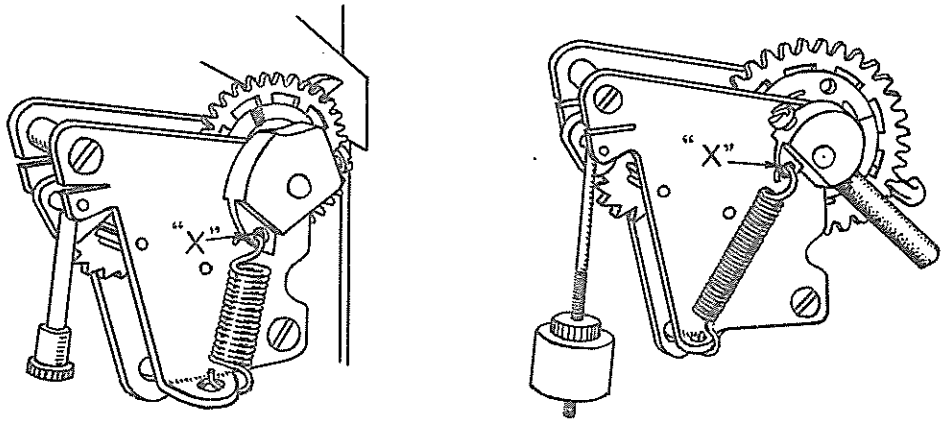
* **6. Balance arm.** The balance arm should be free on its bearings, the side-play being as small as possible consistent with free movement of the balance arm. It should not foul any other part of the mechanism during its movement. For this check, the latch arm should be held clear, and the balance arm moved slowly up and down, first with a gentle pressure towards the mechanism and then with a gentle pull away from it.

The adjustment of the balance should be checked with a "Gauge, Tension, No. 1". With the latch arm moved away, the balance arm should move when a pressure of 21 gm. is applied to the flattened portion which passes through the front plate. It should not move with a pressure of 19 gm.

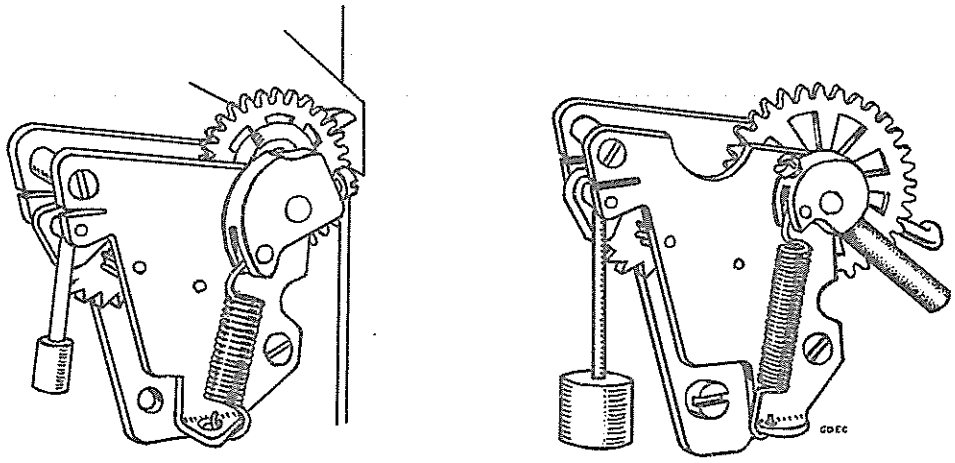
* **7. Latch arm.** The latch arm should be free on its bearing with a minimum amount of side-play. The top horizontal portion should be at right angles to the front plate and the part which is struck by the falling penny about $\frac{2}{3}$rds of the way down the edge of the sloping face of the penny runway, and about $\frac{1}{8}$ in. away. (On certain old mechanisms having no cut-away portion at the bottom of the sloping face of the penny runway, the position should be about halfway down the edge and $\frac{1}{8}$ in. away.)

Check that there is a small clearance (5-10 mils , as judged by eye) between the catch and the latch, with both latch and balance arm normal, and that $\frac{1}{2}$ to $\frac{2}{3}$ rds of the width of the catch is over the latch.

* **8. Tone transmitter.** Check that the tone transmitter is pressing firmly against the silver gong.



(A) EARLY PATTERN



(B) LATER PATTERN

FIG. 1. "BOX, C.C. PARTS: ESCAPEMENTS NO. 1 AND 3"
INSPECTION AND ADJUSTMENTS OF SPRING-SETS

(COIN-BOX AND RELAYS)

9. Relays. "Relay No. 309A" and "Relay No. 128B" are included in prepayment call-office circuits in C.B. areas, and "Relays No. 281A" in prepayment call-office circuits in U.A.X. Nos. 5 and 6 areas. The relays are fitted in a separate mounting-box, except in the latest type of call-office equipment in which the relays are situated in the mechanism compartment of the coin-box. Access to the relays for adjustment purposes is readily gained in the latter type of call-office equipment, by swinging the mechanism out on its hinges, but, to adjust relays which are fitted in a separate mounting-box, the cover of the mounting-box should be removed by lifting it from the hinges.

10. Inspection of spring-sets. *General.* The points detailed in the pars.11 to 13 should be observed when verifying the correct operation of the spring-sets associated with the coin-collecting-box mechanism or with relays. Contact and buffer clearances should be as indicated in those paragraphs. Precise adjustment to one or two mils either way is not necessary, and adjustment should therefore be judged by eye.

* **11.** *Break spring-sets.* (See Figs. 2 and 3).

(a) Relay break spring-sets. A slight clearance should be observed between the lifting pin and the insulated buffer when the armature is unoperated and held squarely on the knife edge.

(b) Coin-collecting box break spring-sets. A slight clearance should be observed between the lever spring and the operating buffer (or collet) when the spring-set is unoperated.

(c) Relay and coin-collecting box break spring-sets:-

(i) A slight follow should be observed between the break and lever springs when they are operated and restored.

(ii) When the spring-set is operated the minimum contact clearance should be 10 mils.

NOTE:- The clearances referred to in *(a)* and *(b)* ensure that the whole of the lever-spring tension are exerted on the break contacts when the spring-sets are normal.

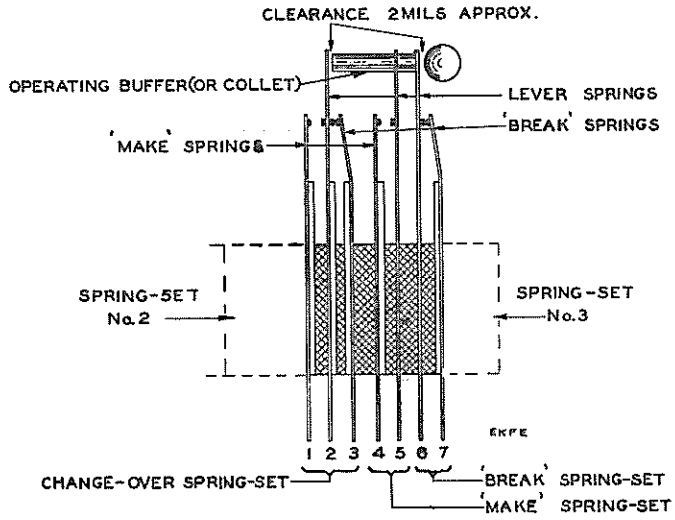


FIG. 2. SPRING-SET NO. 1 PREPAYMENT COIN-BOX MECHANISM

[*Fig. 3 follows*]

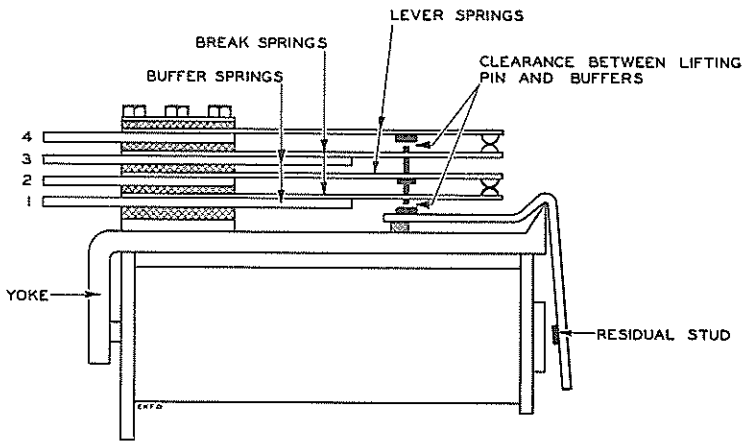


FIG. 3. RELAY NO. 281A

12. *Make spring-sets*

(a) There should be a minimum contact clearance of 10 mils.

(b) A slight follow should be observed between the make and lever springs when they are operated and restored by rocking the coin-box crank arm.

(c) In manual areas the adjustment of the lever spring of Spring-set No. 2 should be such that, with the balance arm in the normal position, the lever spring is just touching the operating collet without being tensioned against it.

13. *Change-over spring-sets. (See Figs. 2 and 3)*

(a) Relay change-over spring-sets. A slight clearance should be observed between the lifting-pin and the insulated buffer when the armature is unoperated and held squarely on the knife edge.

(b) Coin-collecting box change-over spring-set. A slight clearance should be observed between the lever spring and the operating buffer (or collet) when the spring-set is unoperated.

(c) Relay and coin-collecting box change-over spring-sets.

(i) The three contacts should not bunch during the travel of the lever spring.

(ii) A slight follow should be observed between the lever spring and the break spring and also between the lever spring and the make spring, on the operation, and on release, of the spring-set.

(iii) The minimum contact clearance in the normal, and in the operated, position should be 10 mils.

NOTE:- The clearances referred to in *(a)* and *(b)* ensure that the whole of the lever-spring tensions are exerted on the break contacts when the spring-sets are normal.

References:- TELEPHONES, Call Offices, D 5001
(Tp2/4)

END