STUD TYPE ROTARY SWITCHES
212 TYPE INPUT TRANSFORMERS
REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers the stud type rotary switches of the 212 type Input Transformers.

1.02 It is reissued to change 3.03 (3) to cover the use of a piece of wire when measuring the pressure of the middle contact spring.

1.03 Reference shall be made to Section 020-010-711 covering general requirements and definitions for additional information necessary for the proper application of the requirements listed herein.

2. REQUIREMENTS

2.01 Cleaning and Lubricating: When necessary the contact surfaces shall be cleaned and lubricated in accordance with the section covering cleaning and Lubricating Stud Type Rotary Switches.

2.02 Alignment of Contact Springs

(a) Fig. 1 (A) and (B) - The contact surfaces of the contact springs shall be parallel with the contact surfaces of the studs and collector ring segment. Gauge by eye.

(b) Fig. 2 (A) - The contact springs shall be approximately centrally located on each contact stud when the detent roller rests in the corresponding depression in the detent plate. This requirement applies for both clockwise and counterclockwise rotation of the switch. Gauge by eye.

2.03 Pressure of Contact Springs: Fig. 1 (A) and (B) - The pressure of each contact spring exerted on a contact stud or the collector ring, shall be within the limits shown in the following table. Use 79B gauge.

Contact Spring	Pressure - Grams Min.	Max.
Top	150	450
Middle	250	450
Bottom	250	450

2.04 Pressure of Detent Roller: Fig. 3(A)- The pressure of the detent roller against the detent plate, when the roller is seated in a depression in the plate, shall be:

Min.-Grams	Max.-Grams
900	1350

Use 79E gauge.

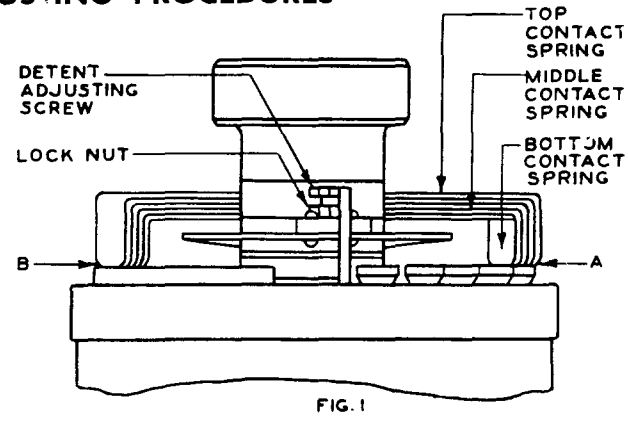

FIG. 1

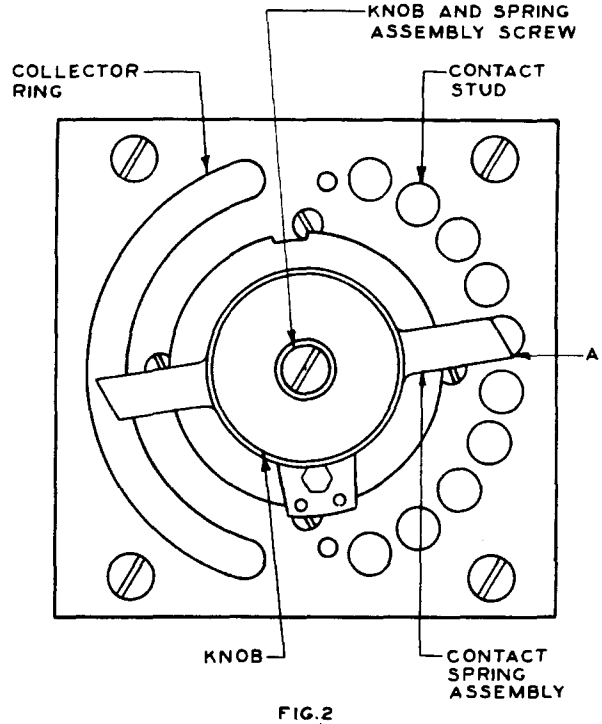

FIG.2

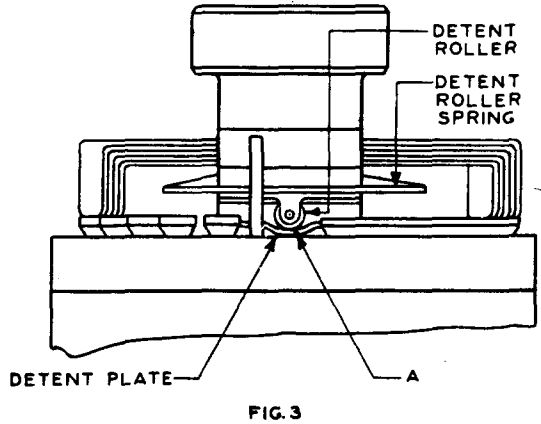

FIG. 3

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3. ADJUSTING PROCEDURES

3.001 List of Tools, Gauges and Materials

Code No.	Description
79B	0-1000 Gram push pull tension gauge
79E	0-3000 Gram push pull tension gauge
KS-6015	Duck-Bill Pliers
-	Bell System 3-1/2" Cabinet Screw-driver per A.T.&T.Co. Drawing 46-X-40
-	Bell System 4" Regular Screw-driver per A.T.&T.Co. Drawing 46-X-34
43 (2 Required)	Wrench - 3/16" and 1/4" Hex. Open Double End Flat
Materials	
-	Wire - Not larger than 31 B&S Gauge

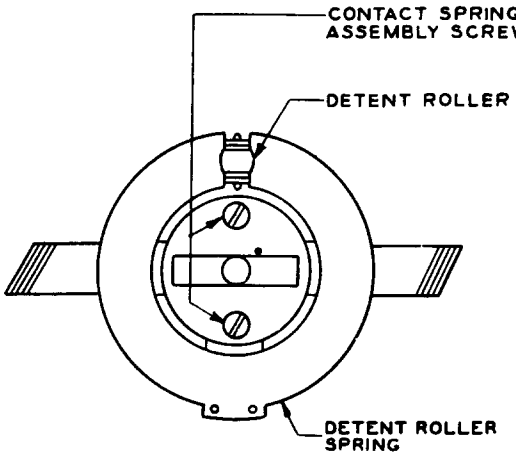
3.01 Cleaning and Lubricating (Rq.2.01)
(No Procedure)

3.02 Alignment of Contact Springs (Rq.2.02)

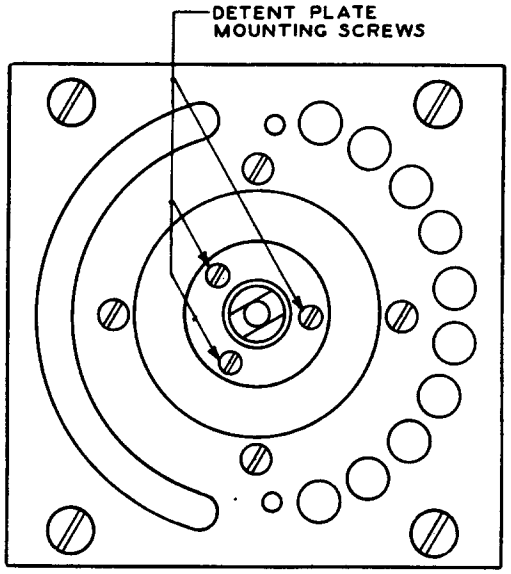
(1) Remove the knob and spring assembly by removing the knob and spring assembly screw (Fig. 2) with the 4" regular screw-driver. Adjust the spring as required with a pair of duck-bill pliers. Reassemble on the switch. Repeat until requirement 2.02 (a) is met.

Note: Care should be taken to avoid making any kinks or sharp bends in the contact springs.

(2) Remove the knob and spring assembly as covered in (1). Loosen the two contact spring assembly screws (Fig. 4)



KNOB AND SPRING ASSEMBLY BOTTOM VIEW
FIG.4



KNOB AND SPRING ASSEMBLY REMOVED
FIG.5

and the three detent plate mounting screws (Fig.5) using the 3-1/2" cabinet screw-driver. Adjust the position of the detent plate and spring assembly. Tighten all screws securely and reassemble on the switch. Repeat until the requirement 2.02 (b) is met.

3.03 Pressure of Contact Springs (Rq.2.03)

Note: In gauging the pressure of the bottom and middle contact springs care should be taken to insure that each spring moves independently of the others at the point of gauging.

(1) Measure the contact pressure of the top contact spring by looping a piece of wire under the spring and as near as possible to the bend in the spring (Fig. 6), and drawing the loop with a 79B gram gauge in a direction perpendicular to the longitudinal axis of the spring, until the spring just breaks contact with the stud or collector ring. The reading of the gauge is the contact pressure.

(2) Measure the contact pressure of the bottom contact spring by hooking the 79B gram gauge under the bottom spring as near the bend as possible (Fig. 6) and pulling in a direction perpendicular to the longitudinal axis of the spring until the spring just breaks contact with the stud or collector ring. The reading of the gauge is the contact pressure.

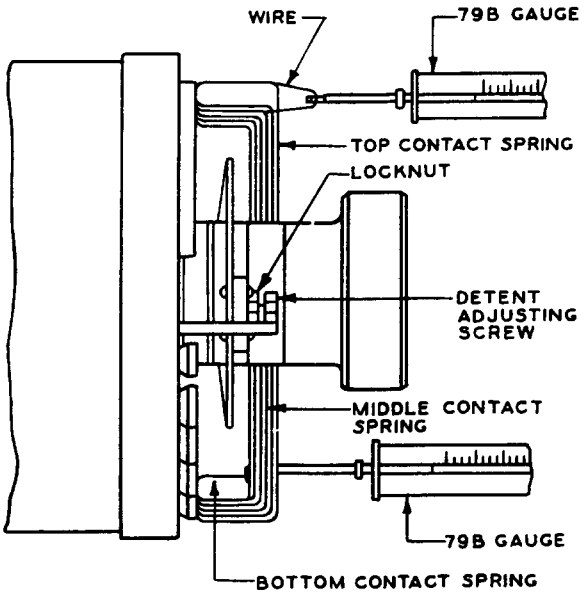


FIG. 6

(3) Measure the contact pressure of the middle contact spring by looping a piece of wire under the spring and as near as possible to the bend in the spring and drawing the loop with a 79B gram gauge in a direction perpendicular to the longitudinal axis of the spring, until the spring just breaks contact with the stud or collector ring. The reading of the gauge is the contact pressure. The length of the loop in this case should be such that there is a six inch distance between the spring and the gauge, as otherwise with a short loop, the wire will exert a pull on the edges of the top spring and this will interfere with obtaining a true reading for the middle spring.

(4) When the contact pressure of any spring exceeds the maximum allowable pressure the spring may be adjusted without removing the knob and switch assembly from the switch. Grasp the spring to be adjusted as near the knob as possible with the duck-bill pliers and adjust the spring until the proper pressure is obtained.

Note: Care should be taken to avoid making any kinks or sharp bends in the contact springs.

(5) When the contact pressure of any spring is less than the minimum allowable pressure, remove the knob and spring assembly screw (Fig.2) using the 4" regular screw-driver. Remove the knob and spring assembly (Fig. 4) from the switch but do not loosen or remove the springs from the knob. Grasp the spring to be adjusted as near the knob as possible with the duck-bill pliers and adjust the spring as required until the proper pressure is obtained.

Note: Care should be taken to avoid making any kinks or sharp bends in the contact springs.

(6) Check to see that the contact surfaces of the contact springs are parallel with the contact studs and collector ring. Adjust as covered in procedure 3.02 (1) when necessary.

3.04 Pressure of Detent Roller (Rq.2.04)

(1) Loop a piece of wire under the bend of the detent roller spring at the outer end of the roller (See Fig. 7). Insert the end of a 79E gram pressure gauge in this loop and pull in a direction perpendicular to the horizontal axis of the detent plate until the roller just leaves its seat in the detent plate. The reading of the gauge is the pressure of the roller against the detent seat. To adjust this pressure loosen the locknut on the detent adjusting screw (Fig. 6) with a 43 wrench. Turn the detent adjusting screw (using 43 wrench) in a clockwise direction to increase the pressure and in a counter-clockwise direction to decrease the pressure. After obtaining the correct pressure, tighten the locknut securely being careful not to disturb the position of the adjusting screw.

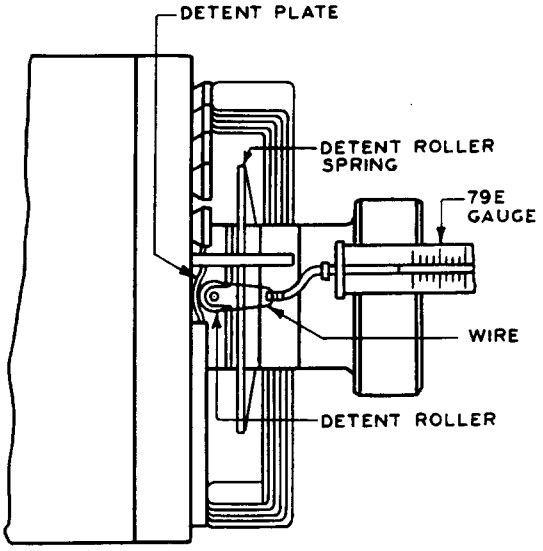


FIG. 7