DATA SET 401E-TYPE TRANSMITTER MAINTENANCE

1. GENERAL

1.01 This section covers the maintenance procedures for Data Set 401E-type.

1.02 This section is reissued to correct Figures 3, 4, and 6 and to show changed wiring for A lead control. Information on cover removal and replacement procedures has also been added. Due to extensive revision, arrows ordinarily used to indicate changes have been omitted.

1.03 No routine maintenance of Data Set 401E-type is required.

1.04 Data Sets 401E4 and 401E5 are TOUCH-TONE® versions of Data Set 401E-type. Data Set 401E4 is identical to Data Set 401E2 and Data Set 401E5 is identical to Data Set 401E3, except that Data Sets 401E4 and 401E5 contain an 11H apparatus unit instead of an 11D apparatus unit (refer to Table A).

TABLE A

DATA SET	ROTARY DIAL	TOUCH-TONE DIAL	APPARATUS UNIT
401E1	X		11B
401E2	X		11D
401E3	X		11D
401E4		X	11H
401E5		X	11H

1.05 For maintenance of the telephone circuit, refer to practices covering maintenance of 700-type telephone sets. Figure 1 shows the telephone circuit for Data Set 401E1 equipped with the D10M-61 mounting cord. Figure 2 shows the telephone circuit for Data Set 401E1 equipped with the D4BJ-61 mounting cord. Figure 3 shows the telephone circuit for Data Sets 401E2 and 401E3. Data Set 401E3 becomes the 401E2 when the voice answer-back circuit (Y option) is removed (refer to Fig. 3). Data Set 401E2 becomes Data Set 401E4 when the 11D apparatus is replaced by an 11H apparatus unit. Figure 4 shows the telephone circuit for Data Sets 401E4 and 401E5.

1.06 For detailed circuit information on Data Set 401E1, refer to circuit description (CD) and schematic drawing (SD) 1D011-01. For detailed circuit information on Data Set 401E2 or 401E4 and 401E3 or 401E5, refer to CD- and SD-1D063-01.

2. TESTING

2.01 Refer to Part 6 for cover removal and replacement procedures.

2.02 When trouble is suspected at the transmitting station, test the set as described in the section entitled Data Set 401E-Type Transmitter, Test Procedure (594-014-500).

2.03 If the data set tests satisfactorily, proceed as follows.

(1) Confirm that the customer's equipment has been checked.

(2) Check for intermittent trouble in the inside wiring, drop wire, protector, etc.

(3) Refer to the data set test center for further analysis.

3. MODIFICATIONS

3.01 A product improvement modification should be made if the station is visited. Table B shows this wiring modification.

4. CONTACT ALIGNMENT

4.01 If the data set contact springs on Data Set 401E1 are accidentally bent, adjust in accordance with the requirements outlined in Fig. 5. If the data key contact springs on Data Sets 401E2, 401E3, 401E4, or 401E5 are accidentally bent, adjust in accordance with the requirements outlined in Fig. 6. Refer to Fig. 7 for adjustment of the contacts of exclusion keys for all data sets.

5. TEST CALLS

5.01 When test calls are made, refer to the section entitled Crediting Charges on Test Calls (010-250-001) for the proper procedure in crediting charges.

6. COVER REMOVAL AND REPLACEMENT

6.01 Six cover screws are located around the base of Data Set 401E-type—two at the rear, two at the front, and one at each side. To remove rear cover, loosen the screws at the rear and at each side, and lift cover. After the rear cover is off, the front cover may be removed. Loosen the two remaining screws and lift up cover.

6.02 When replacing the covers, the front cover should be replaced first. Proceed as follows.

Care must be taken to avoid damage to the data key contacts. In the event that the data key contacts are bent, align in accordance with Part 4 of this section.

(1) Press in the two side holding screws and position the cover retaining plates.

(2) Press in the two front holding screws to provide clearance between the base pan and cover retaining plates.

(3) Holding the front cover at an angle as shown in Fig. 8, position the front slotted cover brackets between base pan and front cover retaining plates. Hold in the inside cover screws and carefully position the front section of the cover over the key unit and switchhook buttons, observing that the data key plunger is positioned properly between the outside contact springs.

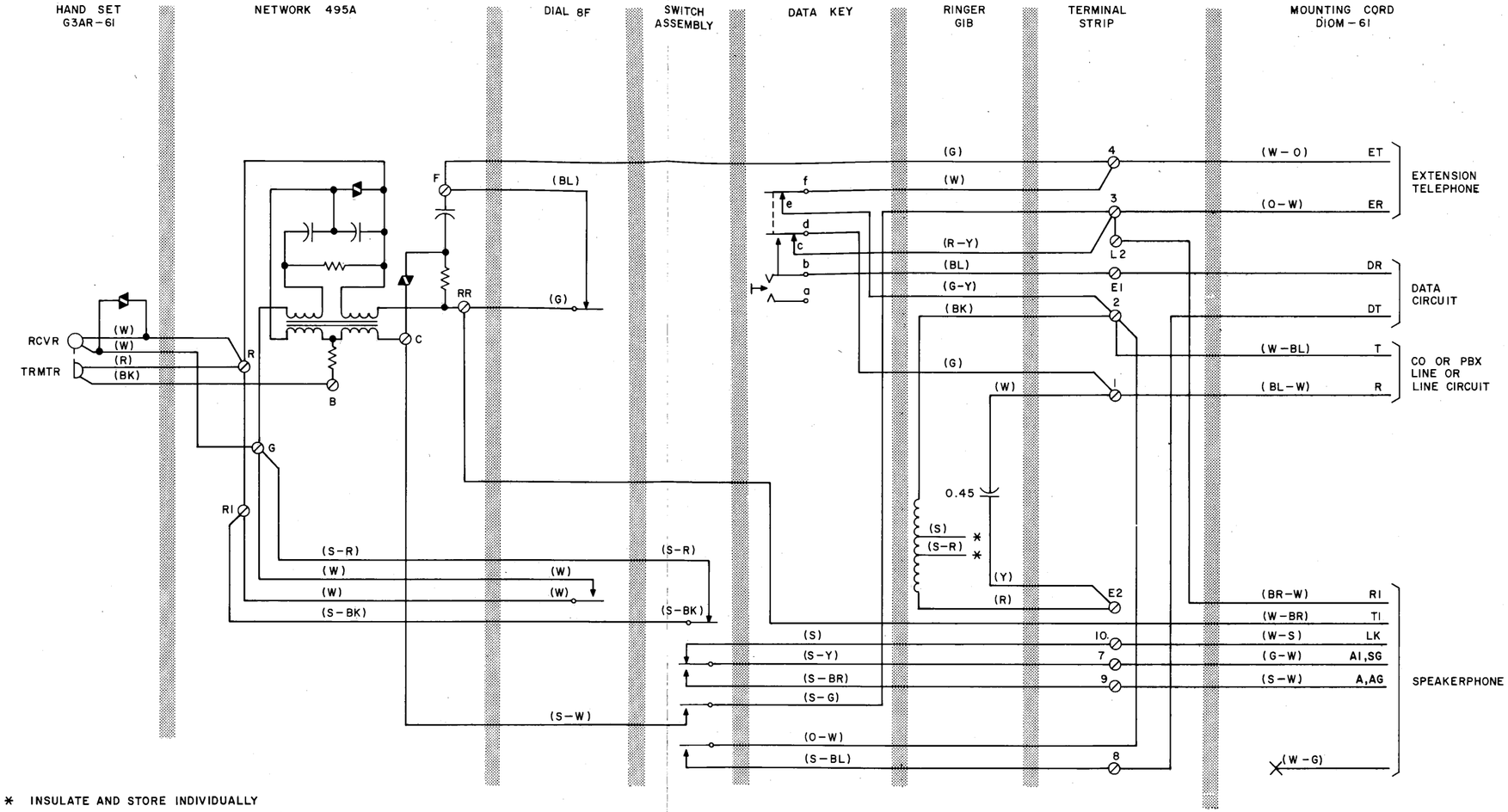
(4) Check test keys and switchhook buttons to make sure they do not bind on the cover.

(5) Carefully replace rear cover and tighten all screws.

TABLE B

LEAD DESIGNATION	FROM	TO
DT	2	8
O-W (Switchhook)	8	2
W-G (Mounting Cord)	8	*

*Insulate and store.



* INSULATE AND STORE INDIVIDUALLY

Fig. 1—Data Set 401E1, Telephone Circuit (D10M-61 Cord)

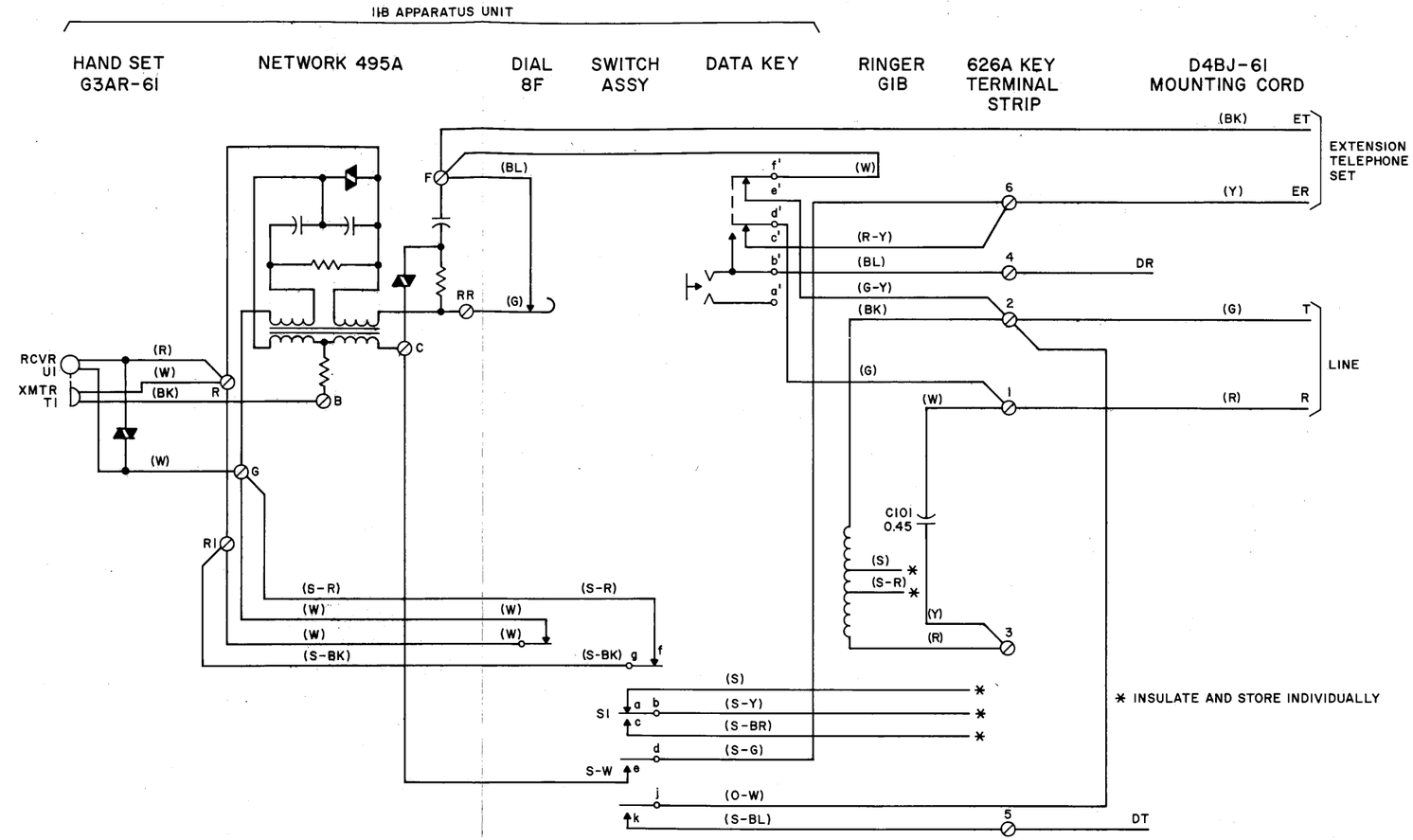


Fig. 2—Data Set 401E1, Telephone Circuit (D4BJ-61 Cord)

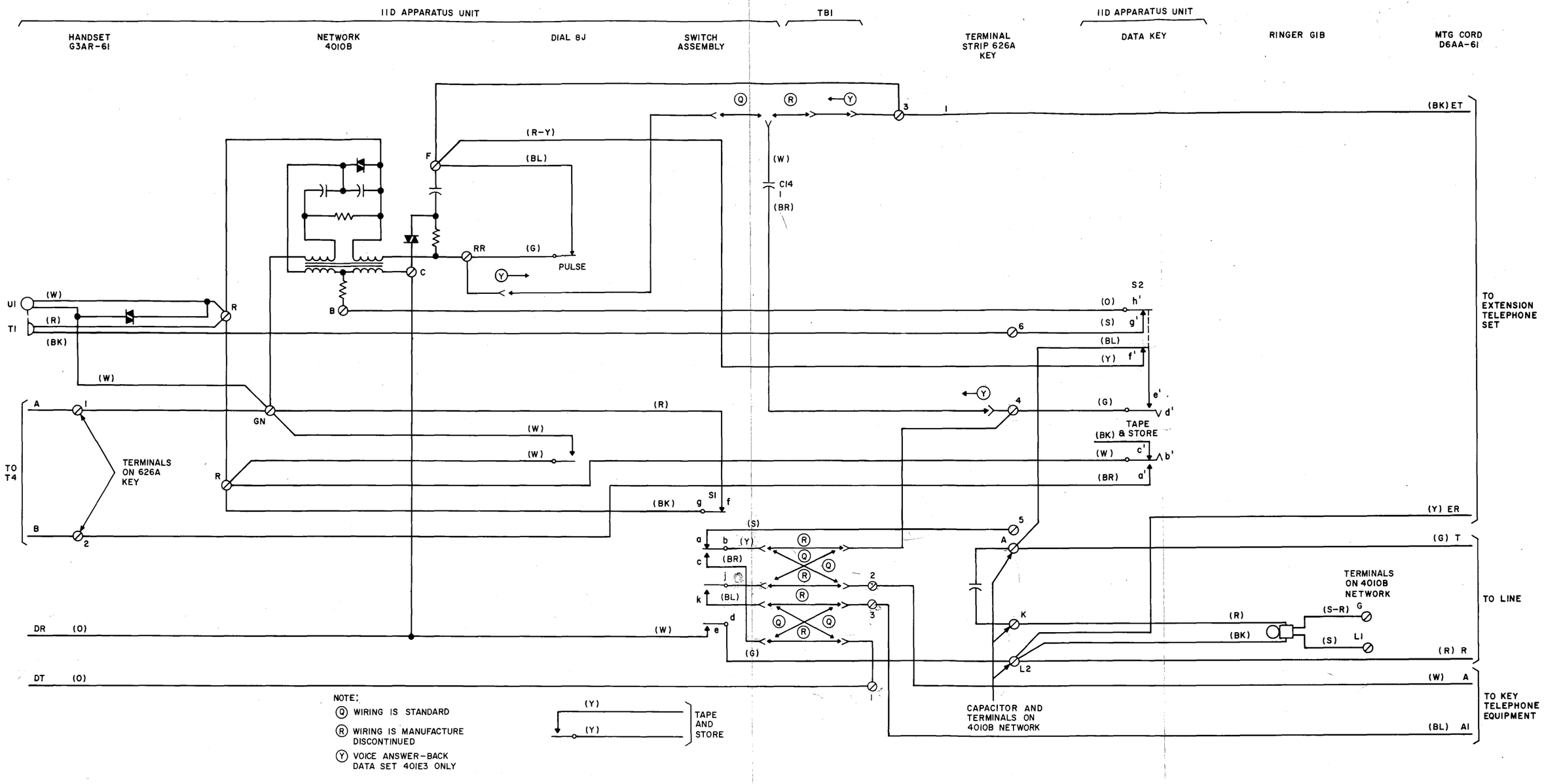


Fig. 3—Data Sets 401E2 and 401E3, Telephone Circuit

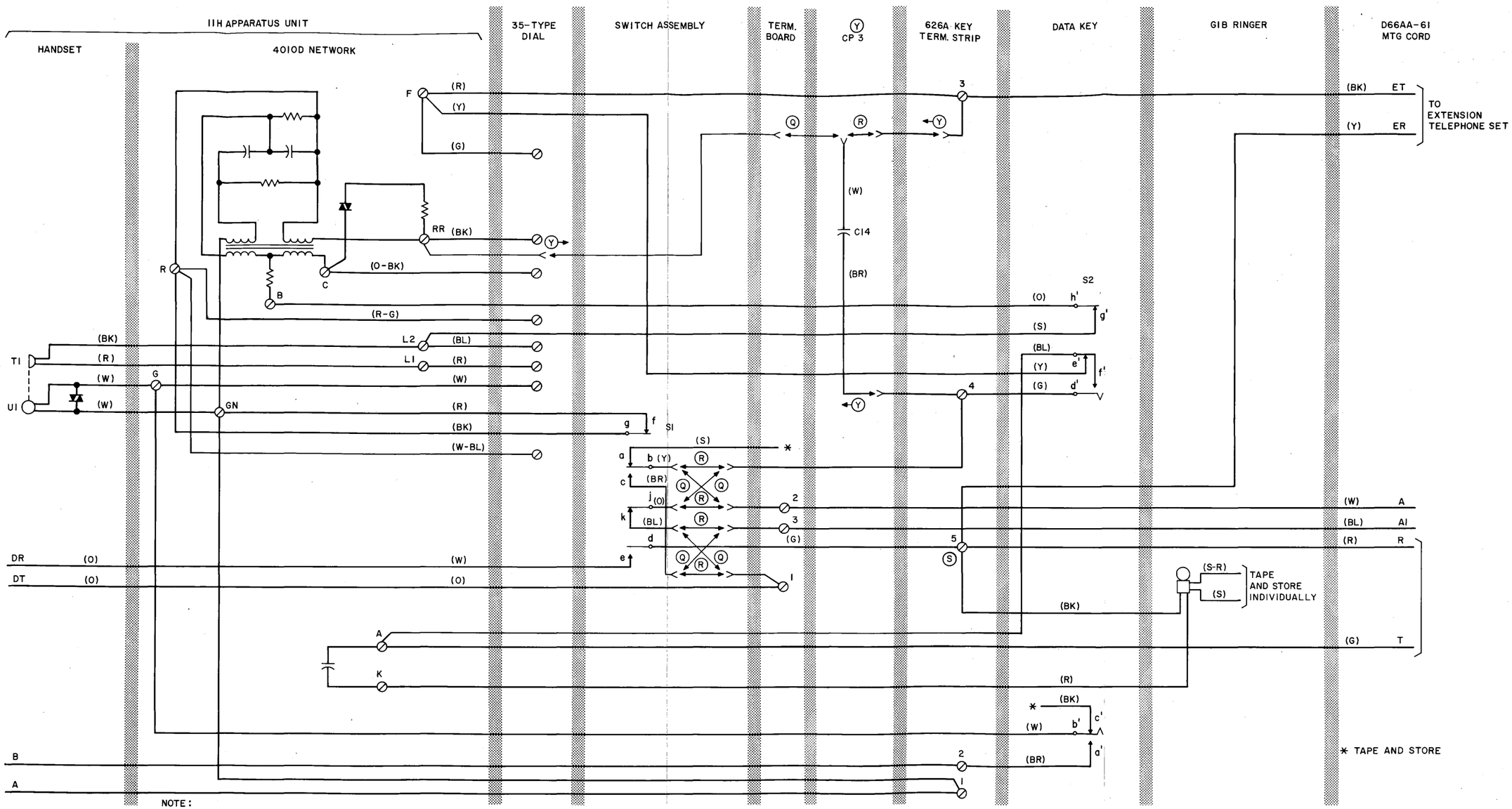
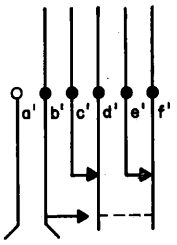


Fig. 4—Data Sets 401E4 and 401E5, Telephone Circuit



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REQUIREMENTS:
1. THE CONTACT OF THE SPRINGS SHALL HAVE PERCEPTIBLE FOLLOW.
2. CONTACT SEQUENCE SHALL BE AS FOLLOWS:
   (a) WHEN SPREADING SPRING TO $\frac{7}{16}$ INCH, b' d' SHOULD MAKE BEFORE c' d' AND e' f' BREAK.
   (b) WHEN RELEASING SPRING TO $\frac{17}{32}$ INCH, c' d' AND e' f' SHOULD MAKE BEFORE b' d' BREAK.

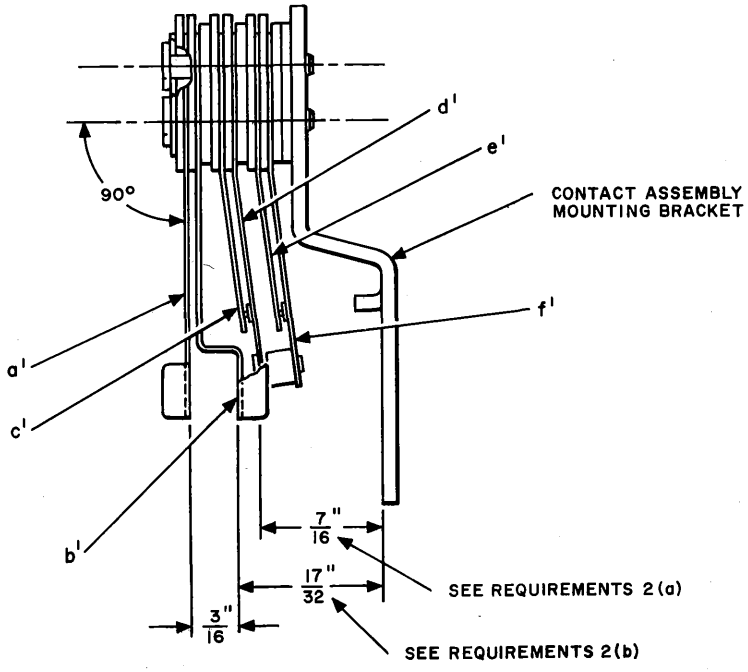


Fig. 5—Data Set 401E1, Data Key Contact Adjustments

REQUIREMENTS:

1. SPRINGS IN NORMAL CONDITION (AS SHOWN):
   A. THE PRESSURE BETWEEN EACH PAIR OF CONTACTS ON SPRINGS BC, EF, AND GH SHALL NOT BE LESS THAN 15 GRAMS MEASURED AS NEAR TO THE LINE OF CONTACT AS PRACTICABLE.
   B. THERE SHALL BE A SEPARATION BETWEEN THE CONTACTS ON SPRINGS AB AND DF OF NOT LESS THAN 0.015 INCH.
2. THE ENDS OF THE SPRINGS ARE SPREAD TO 0.297 AND 0.583 INCH (SEE ILLUSTRATION).
   A. THE PRESSURE BETWEEN THE CONTACTS ON SPRINGS AB AND DF SHALL NOT BE LESS THAN 15 GRAMS MEASURED AS NEAR TO THE LINE OF CONTACT AS PRACTICABLE.
   B. THERE SHALL BE A SEPARATION BETWEEN THE CONTACTS ON SPRINGS BC, EF, AND GH OF NOT LESS THAN 0.015 INCH.
3. THE INSULATION BETWEEN ALL METAL PARTS SHALL BE CAPABLE OF WITHSTANDING A 500 VOLT AC BREAKDOWN TEST PER SPECIFICATION X-38, SUPPLEMENT C.
4. THE DISTANCE BETWEEN SPRINGS DESIGNED NEVER TO MAKE CONTACT AND BETWEEN THE BRACKET AND A SPRING SHALL NOT BE LESS THAN 0.016 INCH.
5. CONTACT SEQUENCE SHALL BE AS FOLLOWS:
   A. WHEN SPREADING SPRING TO 0.297 INCH, CONTACT DF MAKES BEFORE EF AND GH BREAK, AND BC BREAKS BEFORE AB MAKES.
   B. WHEN RELEASING SPRING TO NORMAL CONDITION, CONTACTS EF AND GH MAKE BEFORE DF BREAKS, AND AB BREAKS BEFORE BC MAKES.

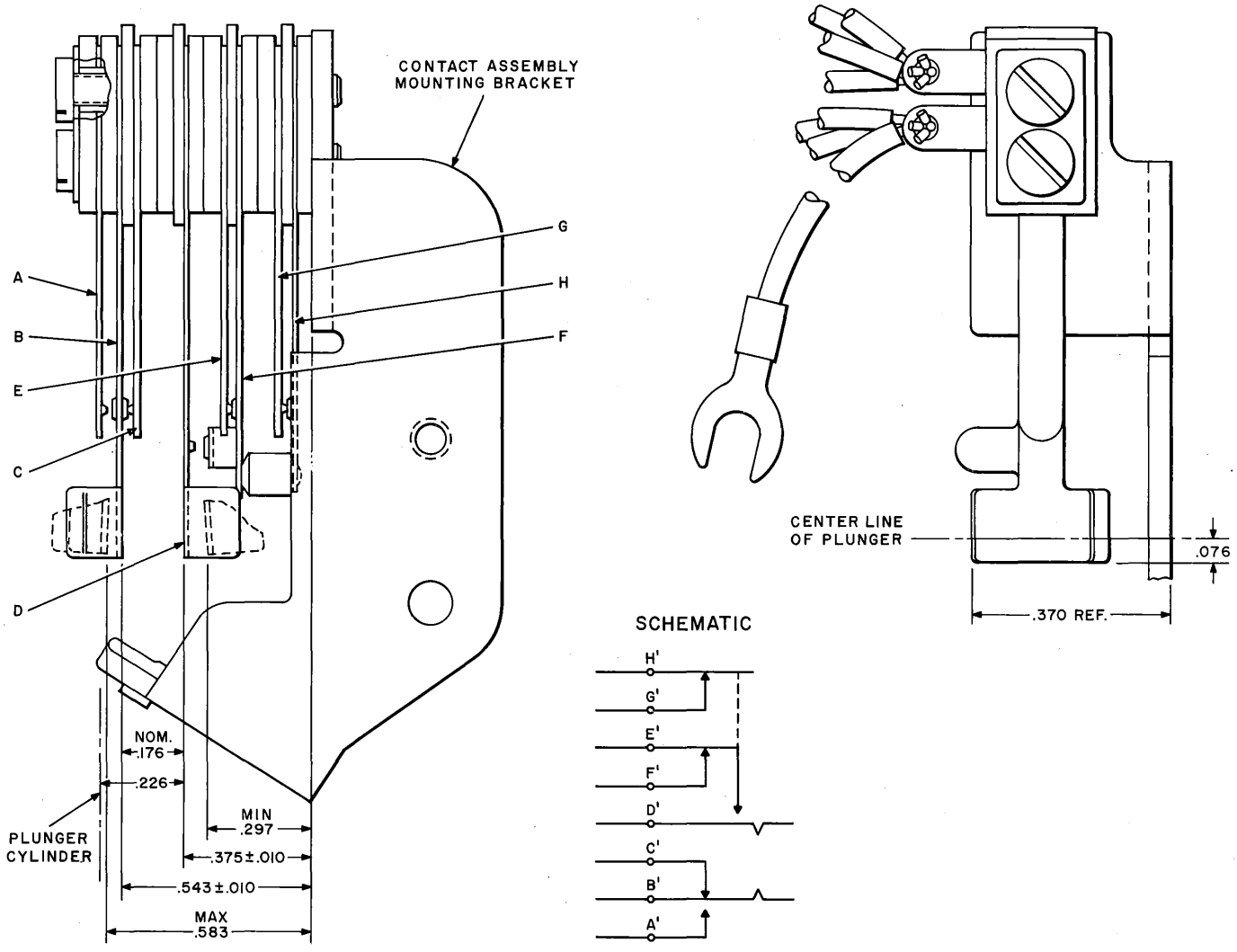


Fig. 6—Data Sets 401E2, 401E3, 401E4, and 401E5 Data Key Contact Adjustments

REQUIREMENTS:

1. WITH SPRINGS (D) IN NORMAL CONDITION (AS SHOWN):
   A. THE PRESSURE BETWEEN EACH PAIR OF CONTACTS ON SPRINGS EF, AND GH SHALL NOT BE LESS THAN 15 GRAMS NOR MORE THAN 50 GRAMS MEASURED AS NEAR TO THE LINE OF CONTACT AS PRACTICABLE.
   B. THERE SHALL BE A SEPARATION BETWEEN THE CONTACTS ON SPRINGS OF NOT LESS THAN 0.015 INCH.

2. WHEN THE ENDS OF THE SPRINGS, D ARE SPREAD TO 0.297 INCH.
   A. THE PRESSURE BETWEEN THE CONTACTS ON SPRINGS DF SHALL NOT BE LESS THAN 15 GRAMS MEASURED AS NEAR TO THE LINE OF CONTACT AS PRACTICABLE.
   B. THERE SHALL BE A SEPARATION BETWEEN THE CONTACTS ON SPRINGS EF AND GH OF NOT LESS THAN 0.015 INCH.

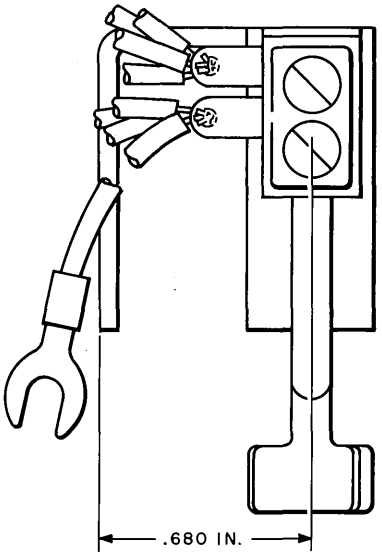
3. WITH SPRINGS B IN NORMAL CONDITION (AS SHOWN):
   A. THE PRESSURE BETWEEN CONTACTS ON SPRINGS BC SHALL NOT BE LESS THAN 50 GRAMS MEASURED AS NEAR TO THE LINE OF CONTACT AS PRACTICABLE.
   B. THERE SHALL BE A SEPARATION BETWEEN THE CONTACTS ON SPRINGS AB OF NOT LESS THAN 0.015 INCH.

4. WHEN THE END OF SPRING, B IS SPREAD TO 0.603 INCH.
   A. THE PRESSURE BETWEEN CONTACTS ON SPRINGS SHALL NOT BE LESS THAN 15 GRAMS MEASURED AS NEAR TO THE LINE OF CONTACT AS PRACTICABLE.
   B. THERE SHALL BE A SEPARATION BETWEEN THE CONTACTS ON SPRINGS BC OF NOT LESS THAN 0.015 INCH.

5. THE INSULATION BETWEEN ALL METAL PARTS SHALL BE CAPABLE OF WITHSTANDING A 500 VOLT A.C. BREAKDOWN TEST PER SPECIFICATION X-38, SUPPLEMENT C.

6. THE DISTANCE BETWEEN SPRINGS DESIGNED NEVER TO MAKE CONTACT AND BETWEEN THE BRACKET AND A SPRING SHALL NOT BE LESS THAN 0.016 INCH.

7. CONTACT SEQUENCE SHALL BE AS FOLLOWS:
   A. WHEN SPREADING SPRING, ITEM D, TO 0.297 INCH CONTACTS DF MAKE BEFORE BF AND GH BREAKS.
   B. WHEN RELEASING SPRING, ITEM D TO NORMAL CONDITION CONTACTS EF AND GH MAKE BEFORE DF BREAKS.
   C. WHEN SPREADING SPRINGS ITEM B, TO 0.603 INCH CONTACTS BC BREAK BEFORE AB MAKE.
   D. WHEN RELEASING SPRING, ITEM B, TO NORMAL CONDITION CONTACTS AB BREAK BEFORE BC MAKE.



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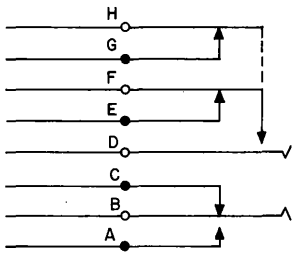

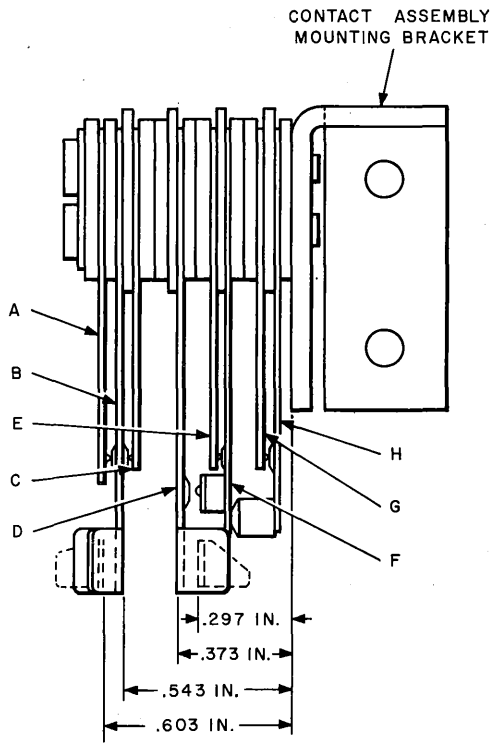

Fig. 7—Data Sets 401E2, 401E3, 401E4, and 401E5 Exclusion Key Contact Adjustments

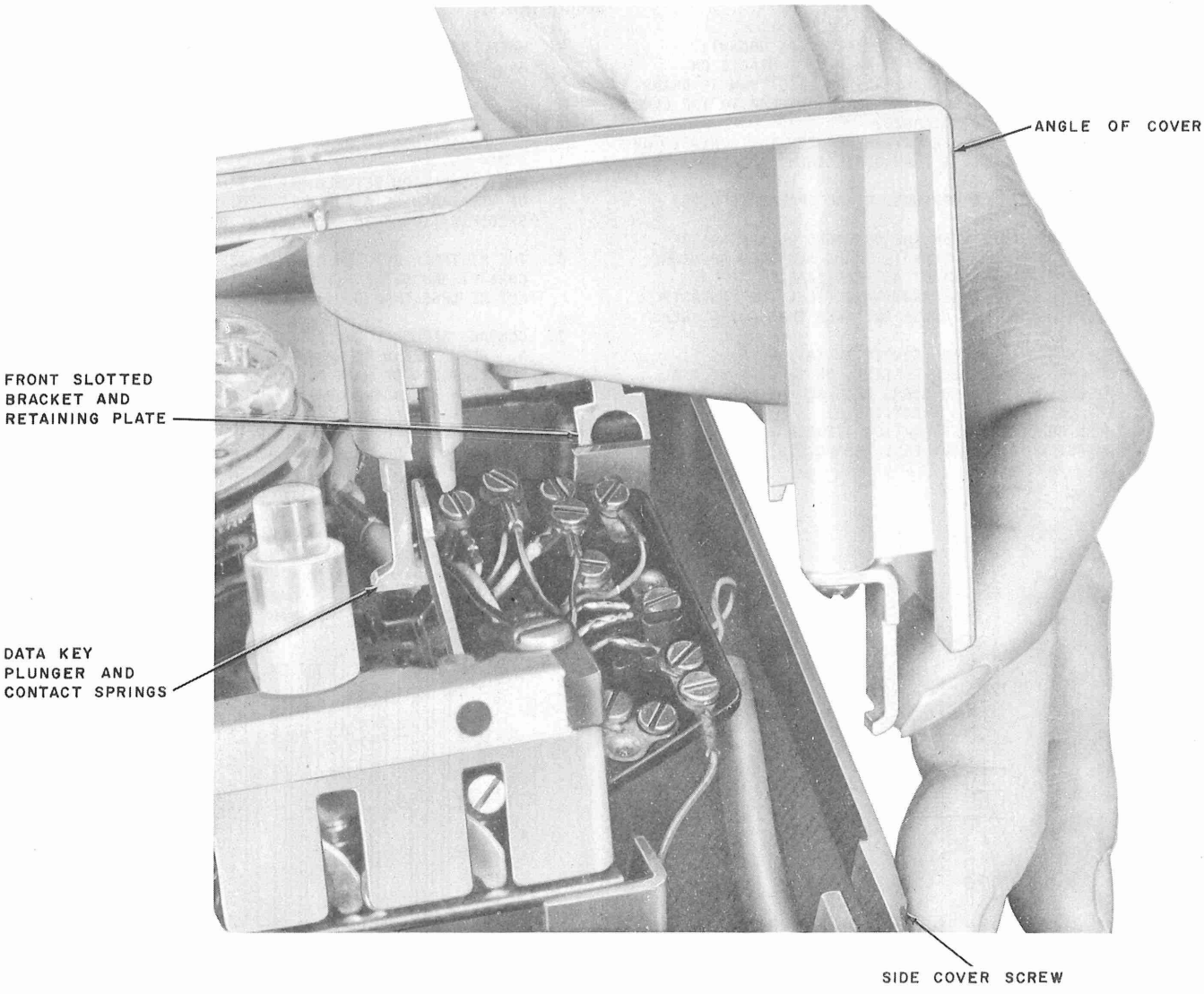

Fig. 8—Data Set 401E-Type—Method of Replacing Front Cover