

RELAYS
AK TYPE
(WIRE SPRING TYPE)
PIECE-PART DATA AND REPLACEMENT PROCEDURES

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of AK-type relays. It also covers approved procedures for replacing these parts.

1.02 This section is reissued to add piece-part data and replacement procedures for the core plate and coil. Detailed reasons for reissue will be found at the end of this section. Since this reissue covers a general revision, the arrows ordinarily used to indicate changes have been omitted.

1.03 Part 2 of this section covers the piece-part numbers and the corresponding names of the parts which it is practicable to replace in the field in the maintenance of these relays. No attempt shall be made to replace parts not designated. Part 2 also contains an explanatory figure showing the different parts. This information is called Piece-Part Data.

1.04 Part 3 of this section covers the approved procedures for the replacement of the parts covered in Part 2. This information is called Replacement Procedures.

1.05 Before making any replacement of parts, take the circuits associated with both halves of the relay out of service.

2. PIECE-PART DATA

2.01 The figure included in this part shows the various piece-parts in their proper relation to other parts of the relay. The piece-part numbers of the various parts are given together with the names of the parts as listed by the Western Electric Company Merchandise Department. When these names differ from those in general use in the field, the latter names, in some cases, are shown in parentheses.

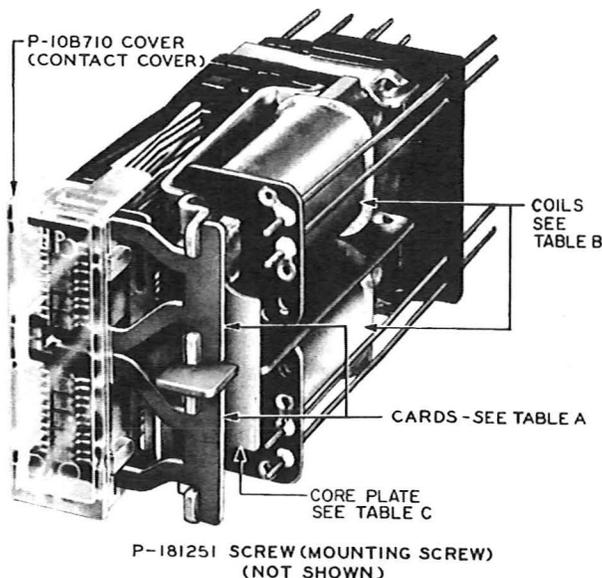


Fig. 1 - AK-Type Relay - General View

2.02 When ordering parts for replacement purposes, give both the piece-part number and the name of the part; for example, "P-10B710 Cover". Do not refer to the BSP number or to any information shown in parentheses following the piece-part number.

TABLE A

*CARD IDENTIFICATION NO.	CARD PIECE-PART DATA
1	P-10B699 Card (lower card)
3	P-10B701 Card (lower card)
2	P-10B700 Card (upper card)
4	P-10B702 Card (upper card)

* The identification number is stamped on the black surface of each card in the upper right-hand corner with the card properly mounted on the relay. Make sure that the replacement card has the same identification number as the card being replaced.

TABLE B

†COIL RESISTANCE (OHMS)	COIL PIECE-PART DATA
100	P-10F211 (top coil)
100	P-10F212 (bottom coil)
210	P-10F213 (top coil)
210	P-10F214 (bottom coil)

† Obtain the resistance of the coil for the relay involved from the circuit drawing and order the replacement coil by the piece-part number corresponding to the resistance value.

TABLE C

††CORE PLATE IDENTIFICATION NO.	CORE PLATE PIECE-PART DATA
1	P-10B712
2	P-10B713

†† The identification number is stamped in the upper right side of the core plate adjacent to the card. Order the core plate by the corresponding piece-part number in Table C.

3. REPLACEMENT PROCEDURES

3.01 List of Tools and Materials

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
628A	Balancing Spring Lifter
630A	Spring Holder
675A	Spring Holder (used when replacing upper cards)
675B	Spring Holder (used when replacing lower cards)
684A (3 reqd)	Insulator
688A	Spring Holder (used when replacing upper cards)
688B	Spring Holder (used when replacing lower cards)
1014A	Tool Kit (see 3.02) (includes the following)
AMT	
One	20A Carrying Case, containing:
One	715A Ratchet Handle
One	716A Ratchet Head
One	716B Ratchet Head

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
AMT	
One	717A Coil Setter
One	P-12B564 Plastic Box (for wedges)
Four	718A Wedge
One	P-12B537 Container (for terminal guide tubes)
Eight	P-12B536 Tubing (ter- minal guide tube)
R-1640	Center Punch
R-2315	Lettering and Numbering Set
KS-6320	Orange Stick
KS-8511	Tweezers
KS-16887 L1	Wedge
—	Long-Nose Pliers
—	4-Inch E Screwdriver
—	4-Ounce Riveting Hammer
—	5-Inch Diagonal Pliers

MATERIALS	
KS-2423	Cloth

No. 1014A Tool Kit

3.02 Fig. 2 shows the tools comprising the No. 1014A tool kit used for replacing coils on wire-spring-type relays. The No. 716A ratchet head furnished with the tool kit is not required for AK-type relays. This ratchet head is used for AF-, AG-, and AJ-type relays. Prepare the ratchet handle and head for use as covered below.

(a) When replacing a coil, the No. 716B ratchet head is mounted on the No. 715A ratchet handle and used for removing the core plate and coil. For removing the upper coil, mount the head with its hook above the rod. For removing the lower coil, mount the head with its hook below the rod. To mount the head on the handle, rotate the ratchet rod so that the teeth face away from the trigger and move the rod back through the handle until it engages its stop. Insert the head mounting rail in the handle slot so that the hole in the rail lines up with the rod. Push the rod forward sufficiently to hold the head in position. Then

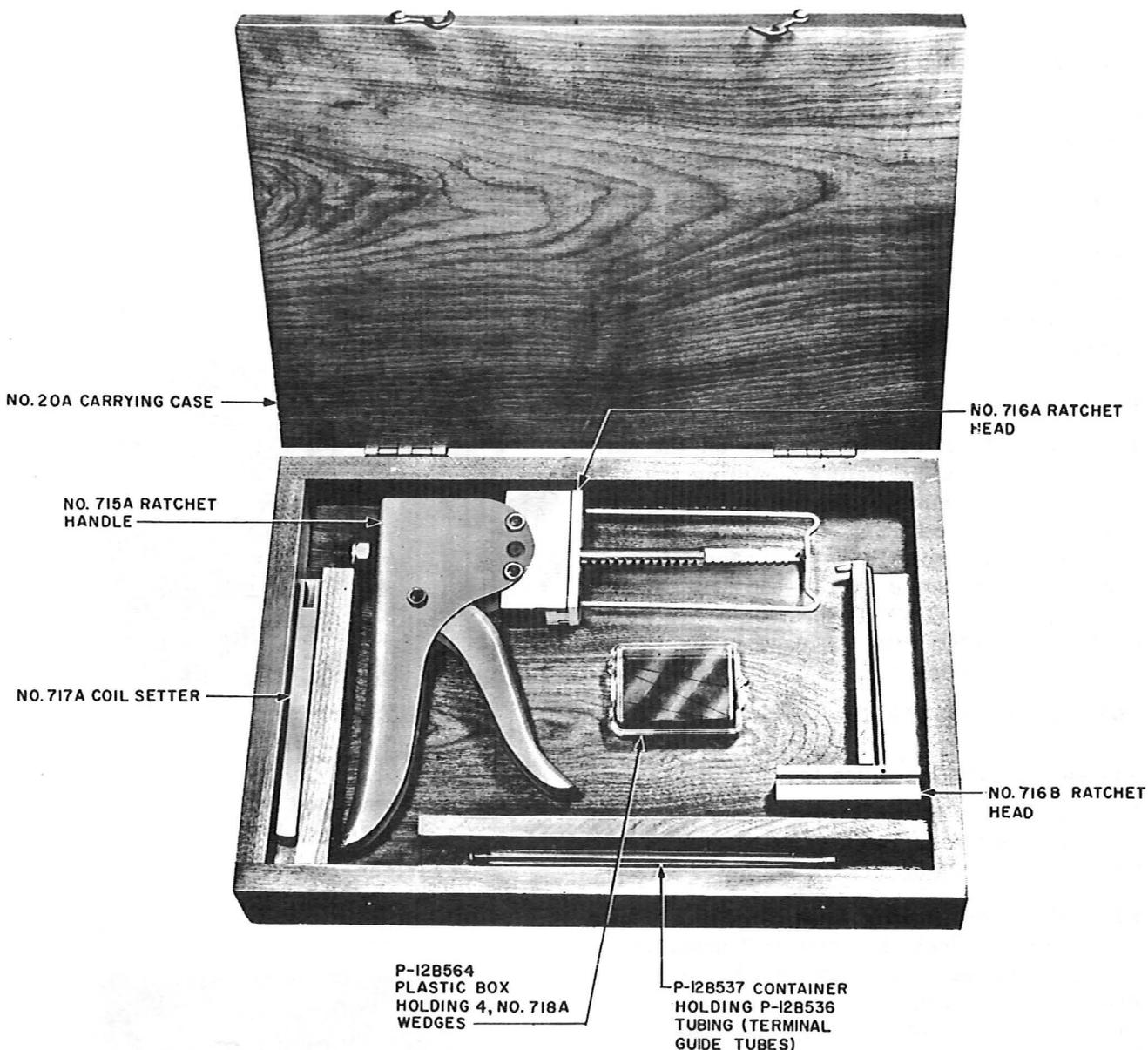


Fig. 2 - No. 1014A Tool Kit

rotate the rod 180 degrees so that its teeth face the trigger. In this position the rod may be advanced by pulling the trigger.

(b) To remove the head, rotate the rod so that its teeth face away from the trigger. Move the rod back through the handle until it engages its stop and slide the head off the handle.

3.03 No replacement procedures are specified for screws or other parts if the procedure consists of a simple operation.

3.04 In the procedures covering replacement of cards, the term relay means the half of the relay on which the card is being replaced.

3.05 After making any replacement of parts on the relay, the part or parts replaced shall meet the readjust requirements involved, as specified in Section A461.016. Other parts whose adjustments may have been directly disturbed by the replacing operations shall be checked to meet the readjust requirements and an over-all opera-

SECTION A507.213

tion check shall be made of both halves of the relay before restoring the circuits to service.

3.06 After replacing a card or coil, make sure that both halves of the relay meet the requirement in Section A461.016 covering movable twin contact spring position.

CARD

General

3.07 The same procedures apply for replacing either the upper or lower card, except as stated.

Stamping New Card

3.08 Note the circuit designation on the card to be replaced. Before mounting the new card, stamp the circuit designation in the same location, using the R-2315 lettering and numbering set. Make sure that this information is stamped on the same side of the new card as the single digit (1 to 4) located in the upper right-hand corner with the card in its proper position on the relay.

3.09 Remove the contact cover.

Disengaging Balancing Spring Legs

3.10 Disengage the balancing spring legs from the card to be replaced as covered in 3.11 for the upper card or 3.12 for the lower card.

3.11 *Balancing Spring Legs Engaging Upper Card:* Block the associated armature in the operated position with the KS-16887 L1 wedge. To disengage the outer leg of the balancing spring, hold the No. 628A balancing spring lifter in the left hand and insert the lifter next to the leg so that the end of the lifter is just behind the comb. Roll the end of the lifter under the leg of the spring so that the leg rests in the groove of the lifter. Then draw the lifter forward to the position shown in Fig. 3. With the other hand, place the end of a KS-6320 orange stick on the top edge of the card as shown in the figure. Lift the spring upward with the lifter and, at the same time, press the card downward with the orange stick. When the leg of the spring clears the top of the card, move it toward the left so that it is free of the card. Withdraw the spring lifter. To disengage the inner balancing spring leg from the card, hold the orange stick in the

right hand and insert it between the two cards so that the end of the orange stick is against the front molded section. Rotate the orange stick to separate the cards. With a second orange stick, push down on the end of the balancing spring leg as shown in Fig. 4 and disengage it from the notch in the card. Remove the wedge.

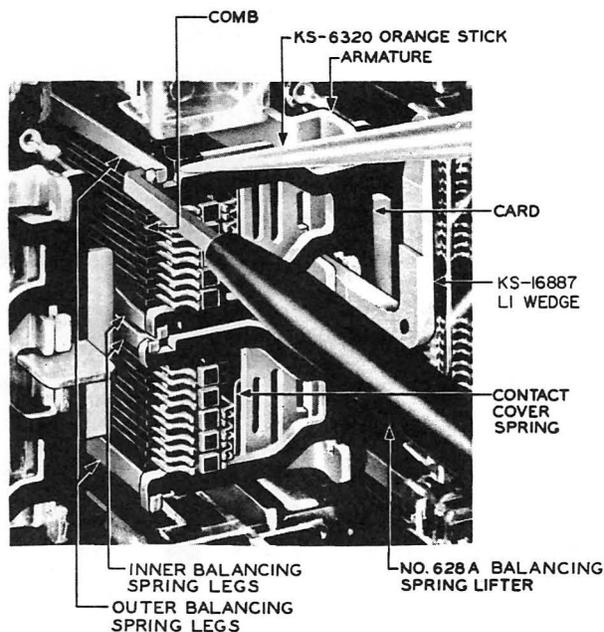


Fig. 3 - Disengaging Outer Balancing Spring Leg From Upper Card

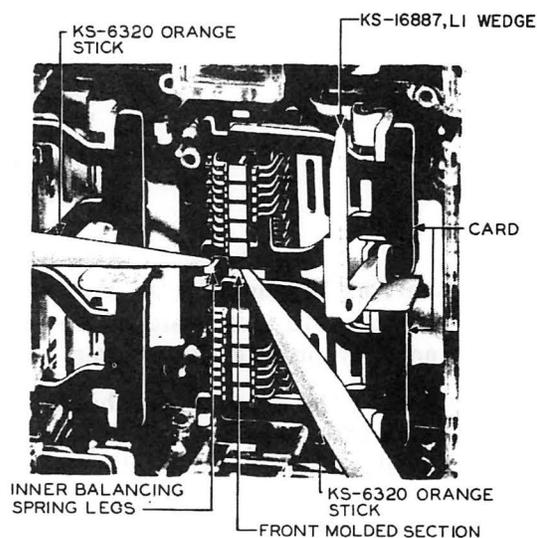


Fig. 4 - Disengaging Inner Balancing Spring Leg From Upper Card

3.12 *Balancing Spring Legs Engaging Lower Card:*

Card: Disengage the balancing spring legs from the lower card by following procedures similar to those covered in 3.11. In this case, however, roll the end of the balancing spring lifter over the top edge of the outer leg of the balancing spring and push this leg downward while pushing the card upward with the orange stick. Disengage the inner leg from the card by separating the cards with one orange stick and pushing the end of the leg upward with the second orange stick.

Insulating Break Contact Springs

3.13 If the relay has break contact springs, these springs must be moved out of their comb grooves during replacement of the card. In order to prevent shorting of the break contact springs against the contact cover spring or the core plate, insert the No. 684A insulator in the relay as follows. Hold the insulator with the offset end to the right and insert the other end between the comb and core plate so that the insulator passes to the left of the contact cover spring. Push the insulator inward until the beginning of the offset touches the core plate as shown in Fig. 5. Moving the insulator laterally,

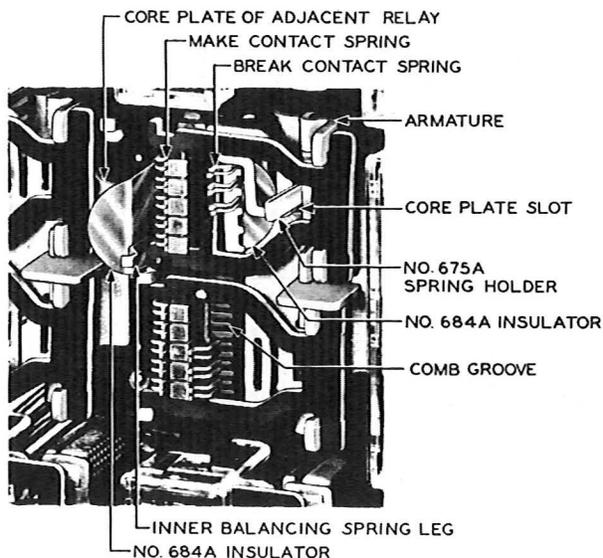


Fig. 5 – No. 684A Insulators and No. 675A Spring Holder Mounted on Upper Half of Relay

while inserting it, may facilitate positioning it in the relay. Make sure that the insulator is positioned so that it will insulate all the break contact springs.

Insulating Make Contact Springs

3.14 If the relay has make contact springs and if there is an AF-, AG-, AJ-, or AK-type relay mounted at its left as shown in Fig. 5, it is necessary to prevent shorting of the make contact springs against the core plate of the adjacent relay when these springs are held out of the comb grooves for replacement of the card. To prevent shorting of the make contact springs, position the No. 684A insulator adjacent to these springs as follows. Using a KS-6320 orange stick, move the disengaged inner balancing spring leg to the right. Hold the insulator with the offset end to the left and insert the other end between the inner balancing spring leg and the core plate of the other relay. Release the spring leg so that it holds the insulator against the core plate. With the KS-8511 tweezers, position the insulator so that the beginning of the offset is against the core plate as shown in Fig. 5, and so that the insulator will insulate all make contact springs from the core plate. If the relay is mounted adjacent to other apparatus against which the make contact springs may be shorted, insert a No. 684A insulator between the adjacent apparatus and one or both of the disengaged balancing spring legs as necessary.

Applying Spring Holders to Break Contact Springs

3.15 The No. 675A and 675B spring holders are used to hold break contact springs of the upper and lower halves of the relay, respectively, during replacement of the associated card. Each of the spring holders has five notches to engage the five pairs of break contact springs with which it may be used. It is important that the pairs of springs are engaged by the proper notches in the holders. Special care is required to engage the pairs of springs in the proper notches if all five positions on the relay are not equipped with these springs. The No. 675A spring holder is shown mounted on the relay in Fig. 5. To mount either the No. 675A or 675B spring holder, proceed as covered in 3.16.

3.16 With the right hand, apply the KS-6320 orange stick to the right inner edge of the card and move the card as far to the right as possible. Holding the handle of the spring holder in the left hand, insert the notched section of the holder behind the break contacts. Release the card. Swing the handle of the spring holder to the right and position the holder so that each pair of break contact springs is engaged by the proper notch and the inner end of the handle is clipped in the core plate slot directly in front of the armature as shown in Fig. 5. Make sure that the notched section of the holder is against the comb, and that the inner end of the handle does not prevent free movement of the armature which is necessary for removal of the card. If necessary, free the armature by carefully moving the handle slightly outward.

Disengaging Card From Armature Legs

3.17 Apply the KS-6320 orange stick to the right side of the outer leg of the armature behind the card and hold the armature in the unoperated position as shown in Fig. 6. With the KS-8511 tweezers, grasp the upper section of the card as shown in the figure and move the card to the right to disengage it from the armature leg notches. Then pull the card forward so that it is in front of the armature legs. Remove the orange stick from the armature.

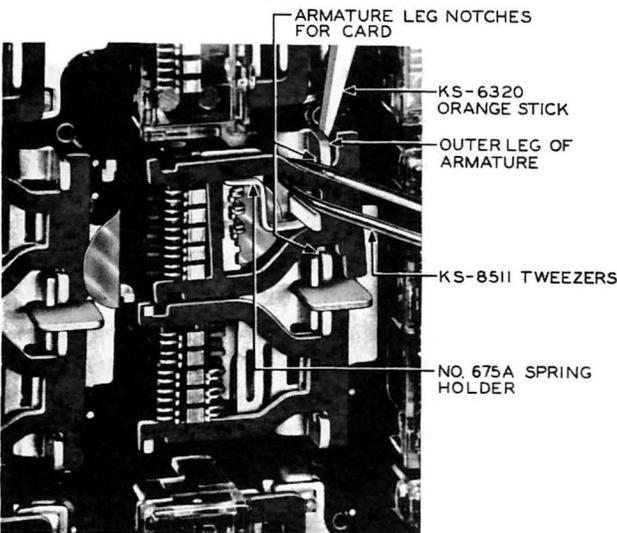


Fig. 6 - Disengaging Card From Armature Legs

Applying Spring Holders to Make Contact Springs

3.18 The No. 688A and 688B spring holders are used to hold make contact springs of the upper and lower halves of the relay, respectively, during replacement of the associated card. Each of the spring holders has five notches to engage the five pairs of make contact springs with which it may be used. It is important that the pairs of springs are engaged by the proper notches in the holders. Special care is required to engage the pairs of springs in the proper notches if all five positions on the relay are not equipped with these springs. Each of the spring holders has a top and a bottom handle. On the No. 688A spring holder the bottom handle is adjacent to the unnotched section, while on the No. 688B it is adjacent to the notched section. The No. 688A spring holder is shown mounted on the relay in Fig. 7. To mount either the No. 688A or 688B spring holder, proceed as covered in 3.19.

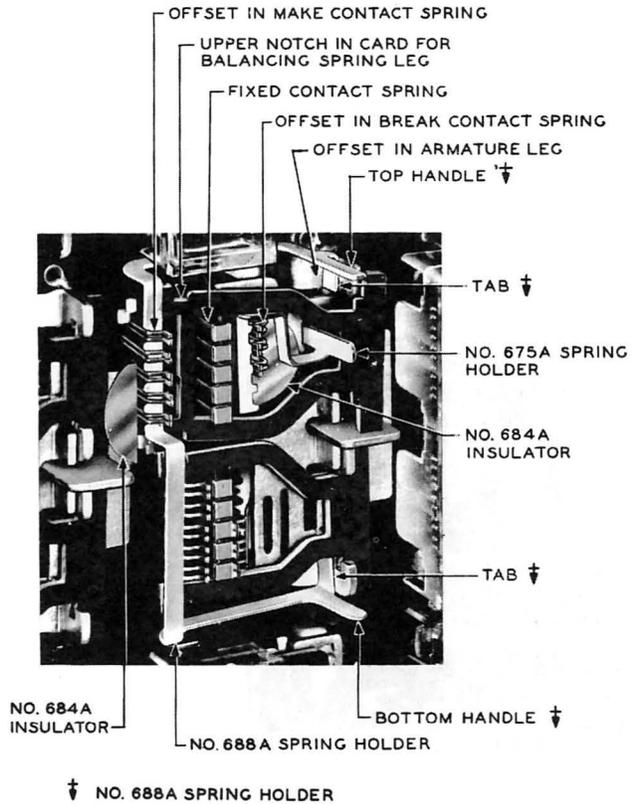


Fig. 7 - No. 688A Spring Holder Mounted on Relay (No. 675A Spring Holder and No. 684A Insulators in Place on Upper Half of Relay)

3.19 With the right hand, apply the KS-6320 orange stick to the right side of the card and move the card as far to the left as possible. With the other hand, hold the spring holder by the bottom handle and insert the notched section of the holder between the make contacts so that it touches the card. Swing the handle of the holder to the right and position the notched section behind the make contacts. Release the card. Then, using both hands, grasp the top and bottom handles of the spring holder. Position the holder so that its tab adjacent to the card being replaced is in front of this card and the pairs of make contact springs are engaged in the proper notches. Then, with the springs in the notches, move the holder to the left and position it so that each tab rests against the left side of the adjacent armature leg. Make sure that the notched section of the holder is against the offset in the make contact springs and that the inner edge of each tab is against the offset in the armature legs as shown in Fig. 7.

Removing Card From Relay

3.20 Hold the KS-8511 tweezers horizontally and grasp the card at the upper notch for the balancing spring leg. Withdraw the card from the relay, taking care not to dislodge the spring holders.

Mounting New Card on Relay

3.21 Make sure that the circuit designation has been stamped on the new card as covered in 3.08. Then, with the black surface of the new card uppermost and the two notches for the balancing spring legs at the left, grasp the card at the upper notch with the KS-8511 tweezers. Place the card, black surface outermost, on the relay so that the fixed contact springs are between the two vertical parallel sections of the card. Then engage the card on the armature legs as follows. Apply the KS-6320 orange stick to the right side of the outer leg of the armature behind the notch for the card and hold the armature in the unoperated position (see Fig. 6). Grasp the upper section of the card with the tweezers, and move the card to the right and back so that the card is in line with the notch in each armature leg. Then remove the orange stick from the armature and guide the card into the notches.

Removing Spring Holders and Insulators

3.22 675-Type Spring Holder: If a 675-type spring holder was mounted on the relay to hold break contact springs, remove it as follows. With the left hand, apply a KS-6320 orange stick to the left portion of the card and hold the card against the front molded section of the relay. Grasp the handle of the holder with the other hand and, taking care to keep the break contact springs in the notches, move the holder outward so that the notched section is against the offset in the springs. Then carefully guide the springs into their proper comb grooves by moving the holder to the left. Still holding the spring holder, apply the orange stick to the left side of the card and move the card to the right as far as possible while keeping the card against the front molded section. Move the spring holder to the left against the fixed contact springs and withdraw it by moving it vertically upward from the upper half of the relay or downward from the lower half of the relay.

3.23 688-Type Spring Holder: If a 688-type spring holder was mounted on the relay to hold make contact springs, remove it as follows.

(a) First, make sure that the card is against the front molded section of the relay and that the notched section of the holder is against the offset in the make contact springs. Using both hands, grasp the handles of the holder and carefully pull them outward to disengage the holder tabs from the armature legs. With the notched section of the holder against the offset in the make contact springs so that the notched section clears the card, carefully move the holder to the right and guide the springs into their proper comb grooves. Then disengage the notched section of the holder from the springs.

(b) Disengage the card from the armature legs as follows. Apply the KS-6320 orange stick to the right side of the outer leg of the armature behind the card and hold the armature in the unoperated position (see Fig. 6). Grasp the upper section of the card with the KS-8511 tweezers and move the card to the right and outward to disengage it from the armature legs. With the orange stick applied to the right side of the card, hold the card as far as possible to the left. Grasp the bottom

SECTION A507.213

handle of the holder, swing it outward and carefully withdraw the notched section through the gap between the make contacts. Release the card.

(c) Remount the card in the armature leg notches as follows. Apply the KS-6320 orange stick to the right side of the outer leg of the armature behind the notch for the card and hold the armature in the unoperated position (see Fig. 6). Grasp the upper section of the card with the KS-8511 tweezers, and move the card to the right and back so that the card is in line with the notches in each armature leg. Then remove the orange stick from the armature and guide the card into the notches.

3.24 No. 684A Insulators: If No. 684A insulators were used, remove them using the KS-8511 tweezers.

Engaging Balancing Spring Legs

3.25 Block the relay operated using the KS-16887 L1 wedge. Engage the outer balancing spring leg in its associated notch in the card, employing a method similar to that covered in 3.11 and 3.12 for disengaging the spring leg. Engage the inner balancing spring leg in its associated notch in the card by separating the cards with a KS-6320 orange stick as covered in 3.11. Then grasp the end of the leg with the KS-8511 tweezers, align the leg in the notch, remove the orange stick, and then remove the tweezers. Make sure that both balancing spring legs properly engage the notches in the card. Remove the wedge from the relay and check that the card is properly engaged in the notches of the armature legs.

3.26 Remount the contact cover.

COIL

3.27 The same procedures apply for replacing either the upper or lower coil except as otherwise stated.

Stamping New Core Plate

3.28 Replacement of either coil requires replacement of the core plate. Note the circuit designation on the core plate to be replaced. Before mounting the new core plate, stamp the circuit designation in the same location, using the R-2315 lettering and numbering set. Make

sure that this information is stamped on the same side of the core plate as the projecting armature stops.

3.29 Remove the contact cover.

Disengaging Balancing Spring Legs

3.30 Disengage the balancing spring legs from both cards as covered in 3.11 and 3.12.

Relays Having Break Contact Springs

3.31 If the relay has break contact springs, insulate them as covered in 3.13. Mount the No. 675A spring holder on the upper half of the relay and the No. 675B spring holder on the lower half of the relay as covered in 3.15 and 3.16.

Disengaging Cards

3.32 Disengage both cards from the armature legs as covered in 3.17.

Relays Having Make Contact Springs

3.33 If the relay has make contact springs, use the No. 630A spring holder and associated clamp to hold the make contact springs during replacement of the coil as follows.

(a) Push both cards to the left to open the gap between the fixed and movable contacts sufficiently to permit insertion of the spring holder without the clamp. Insert the spring holder through the gap and turn the handle to the left. Release the cards. Position the spring holder so that the larger projection is centered between positions 5 and 6 on the relay and the pairs of twin make springs are engaged by the proper notches in the holder.

(b) Hold the clamp associated with the spring holder by the handle, with the notch at the bottom. Place the metal loop, at the top of the clamp, on the end of the spring holder that extends out above the make contact springs. Move the clamp downward so that the notch in the bottom of the clamp engages the pin located adjacent to the handle on the spring holder. The clamp will hold the make contact springs in their proper notches on the spring holder (see Fig. 8).

(c) Using the No. 628A balancing spring lifter in the right hand, place the outer end of the top leg of the balancing spring in the notch

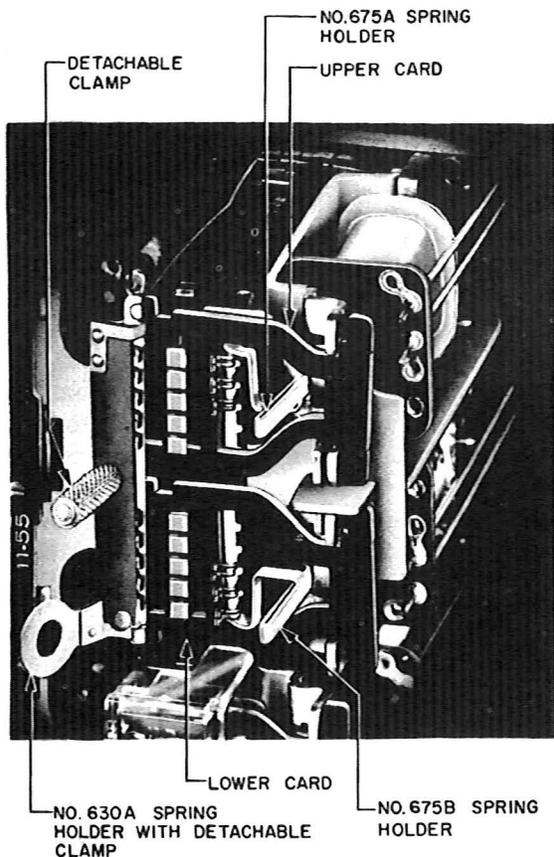


Fig. 8 - Card Removal Tools Mounted in Place

at the top of the spring holder as shown in Fig. 8. Similarly place the outer end of the bottom leg of the balancing spring in the notch at the bottom of the spring holder.

Removing Cards

3.34 Remove both cards as covered in 3.20.

Removing Core Plate

3.35 To remove the core plate proceed as follows.

- (a) If a 675-type spring holder was used to hold break contact springs during removal of the card, remove the spring holder as covered in 3.22.
- (b) If No. 684A insulators were used, remove them using the KS-8511 tweezers.
- (c) Mount the No. 716B ratchet head on the No. 715A ratchet handle with the insulated hook above the ratchet rod as covered in 3.02(a).

(d) Referring to Fig. 9, position the hook of the ratchet head over the top right edge of the core plate with the notched end of the rod engaging the front edge of the shield between the halves of the relay. Make sure that the rod is positioned in the head with the ratchet teeth downward and that the rod is in line with the shield as shown in the figure. Hold the tool with the rod horizontal and advance the rod by pulling the trigger until the core plate is freed from the upper core leg.

(e) Remove the tool by rotating the ratchet rod 180 degrees and moving the rod back into the handle. Then remove the head and remount it on the handle with the hook below the rod as covered in 3.02(a). Position the tool with the hook under the lower right edge of the core plate and the rod engaging the end of the shield between the halves of the relay. Then advance the rod by pulling the trigger until the core plate is freed from the lower core leg. Withdraw the tool with the core plate. Remove the core plate from the tool.

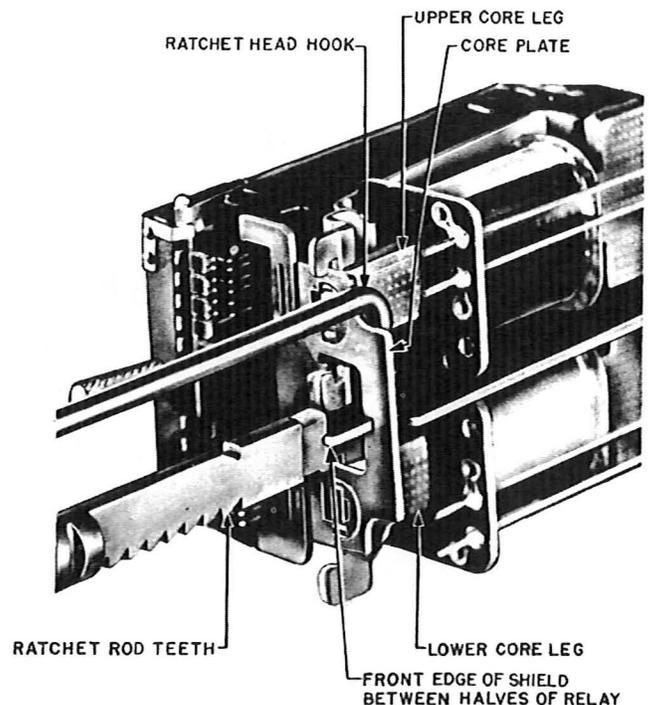


Fig. 9 - Removing Core Plate

3.36 Removing Coil: The procedure for removing the upper and lower coil is the same except for the positioning of the No. 718A wedge and ratchet tool. These exceptions are noted in the following procedures.

- (a) Disconnect the external leads from the terminals of the coil to be replaced. If the leads were soldered, clip off the ends of the terminals as close as possible to the relay mounting plate using the diagonal pliers. Using the 4-inch E screwdriver, loosen the mounting screws of the relay and of adjacent relays, if necessary, one full turn to permit a greater separation between relays when replacing the coil.
- (b) Place a KS-2423 cloth as shown in Fig. 10 to insulate adjacent apparatus before inserting the No. 718A wedge as covered in (c).
- (c) Position a No. 718A wedge between the armature and the shield separating the

halves of the relay as shown in Fig. 10 if the upper coil is to be removed and as shown in Fig. 11 if the lower coil is to be removed. To position the wedge for removing the upper coil, manually move the upper armature to the left. Referring to Fig. 10, insert the wedge with the straight side against the shield and the small end toward the rear of the relay. Move the wedge diagonally upward, behind the offset in the armature adjacent to the front spoolhead, to the position shown in the figure. Insert the wedge sufficiently to permit removal of the coil without interference by the front of the armature. The wedge is positioned for removing the lower coil in a similar manner except that the lower armature is moved to the left and the wedge is inserted from above the shield as shown in Fig. 11.

- (d) Position the No. 716B ratchet head on the No. 715A ratchet handle as covered in 3.02(a), with the insulated hook of the head

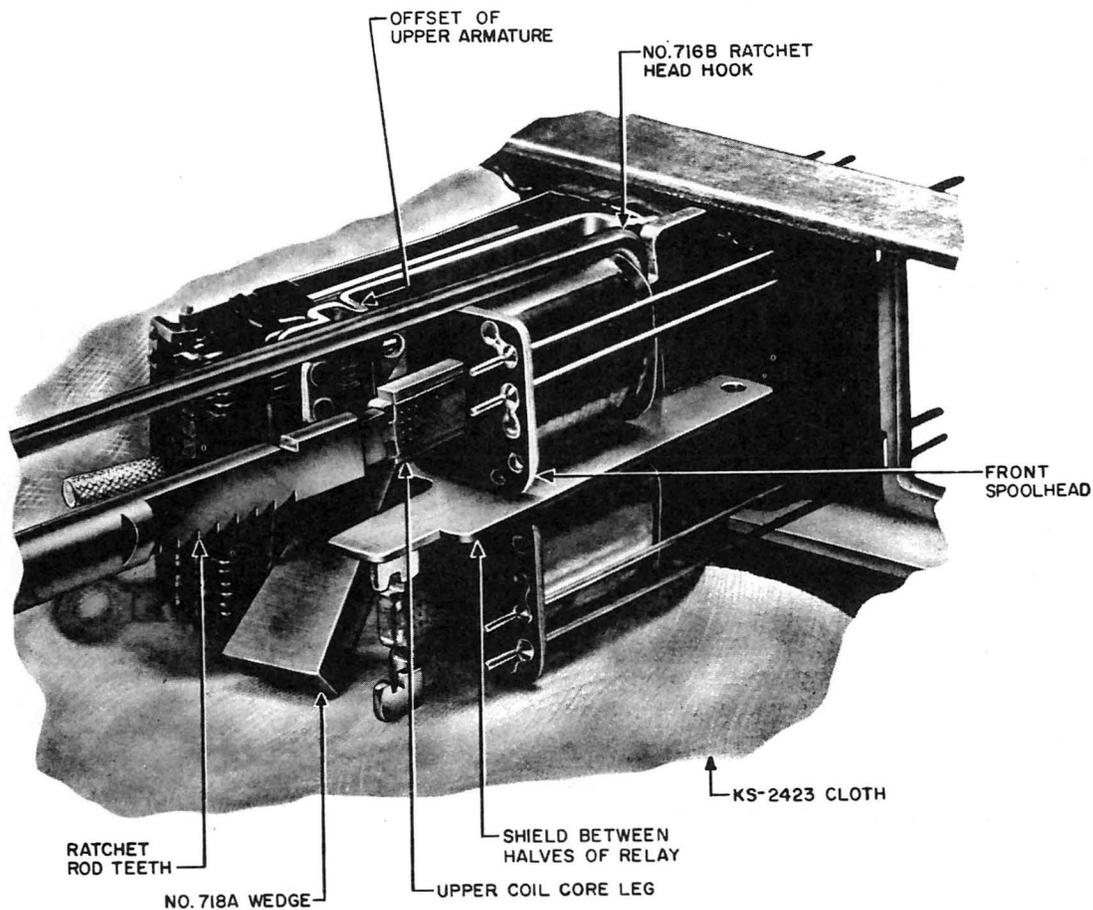


Fig. 10 - Removing Upper Coil

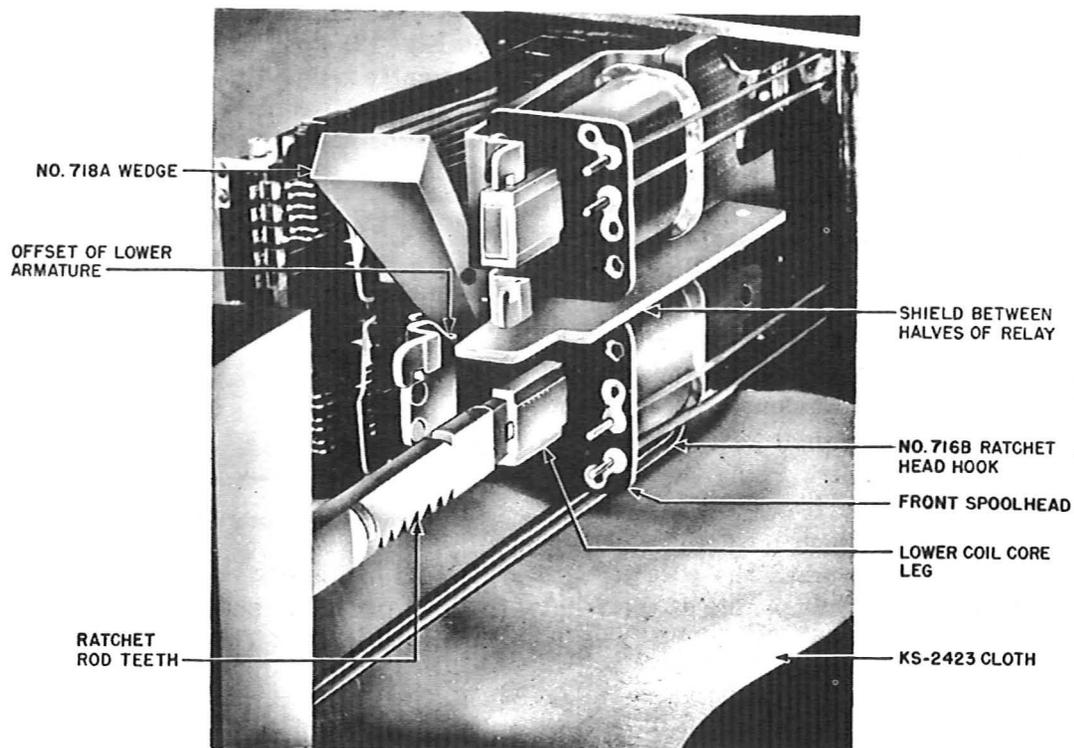


Fig. 11 – Removing Lower Coil

above the ratchet rod for removing the upper coil and the hook below the rod for removing the lower coil. Then, position the rod so that the end of the rod is approximately 2-1/2 inches from the end of the hook and the ratchet teeth are downward.

(e) Position the insulated hook of the No.

716B ratchet head behind the rear spoolhead of the coil with the ratchet rod in line with and against the core leg as shown in Fig. 10 for removing the upper coil and as shown in Fig. 11 for removing the lower coil. To do this, hold the tool horizontally with the hook facing to the right. If the upper coil is to be removed, insert the hook above this coil with the tip of the hook approximately in line with the right side of the core leg and just behind the rear spoolhead. Then rotate the tool 90 degrees clockwise and draw it forward so that the hook engages the rear spoolhead and rests against the right side of the core leg. If the lower coil is to be removed, position the hook in a similar manner by inserting the hook below the lower coil and rotating it 90 degrees

counterclockwise. With the hook positioned as described above, hold the tool with the ratchet rod horizontal and advance the rod by pulling the trigger until the end of the rod is against the core leg. Make sure the rod is in line with and touches the end of the core leg. Advance the rod by pulling the trigger until the coil is off the core leg. Withdraw the tool with the coil.

(f) Remove the coil from the ratchet tool by rotating the ratchet rod 180 degrees and moving the rod back into the handle.

Mounting New Coil

3.37 To mount the new coil proceed as follows.

(a) The terminal guide tubes furnished with the No. 1014A tool kit fit only in the two inner terminal holes in the molded mounting bracket of the AK-type relay, the outer two terminal holes being too small for the tubes. Therefore, before mounting an upper coil, insert from the rear of the relay a terminal

guide tube in the lower terminal hole for the coil. Similarly, before mounting a lower coil, insert a terminal guide tube in the upper terminal hole for the coil. In each case move the tube forward until it extends beyond the front of the relay.

(b) Hold the new coil with the terminals to the right and facing toward the rear of the relay. Insert the proper terminal of the new coil in the terminal guide tube and push the coil on the core leg, carefully tapping it, if necessary, using the slotted end of the No. 717A coil setter and 4-ounce riveting hammer until the free terminal just touches the molded mounting bracket. Using the KS-6320 orange stick, guide the free terminal into its hole in the bracket. Then, push the coil further onto the core leg until the core leg extends slightly beyond the opening at the front of the coil.

(c) Place the slotted end of the No. 717A coil setter over the core leg as shown in Fig. 12. Position the coil on the core leg by gently tapping the coil setter with the 4-ounce riveting hammer until the bottom of the slot in the coil setter engages the end of the core leg.

(d) Carefully remove the No. 718A wedges and the KS-2423 cloth. Remove the terminal guide tube and tighten the screws of the relay and of adjacent relays if they were loosened.

(e) Connect the leads to the coil winding terminals.

Mounting New Core Plate

3.38 Make sure that the circuit designation has been stamped on the new core plate as covered in 3.28. Then proceed as follows.

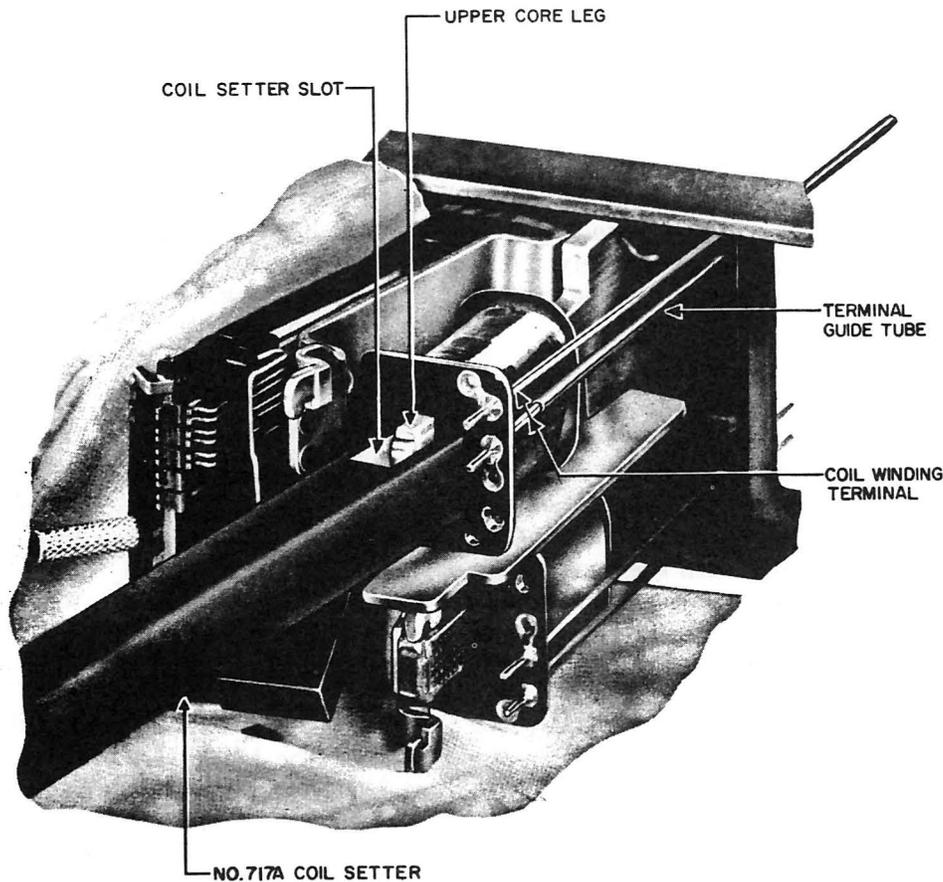


Fig. 12 – Positioning Replacement Coil With No. 717A Coil Setter

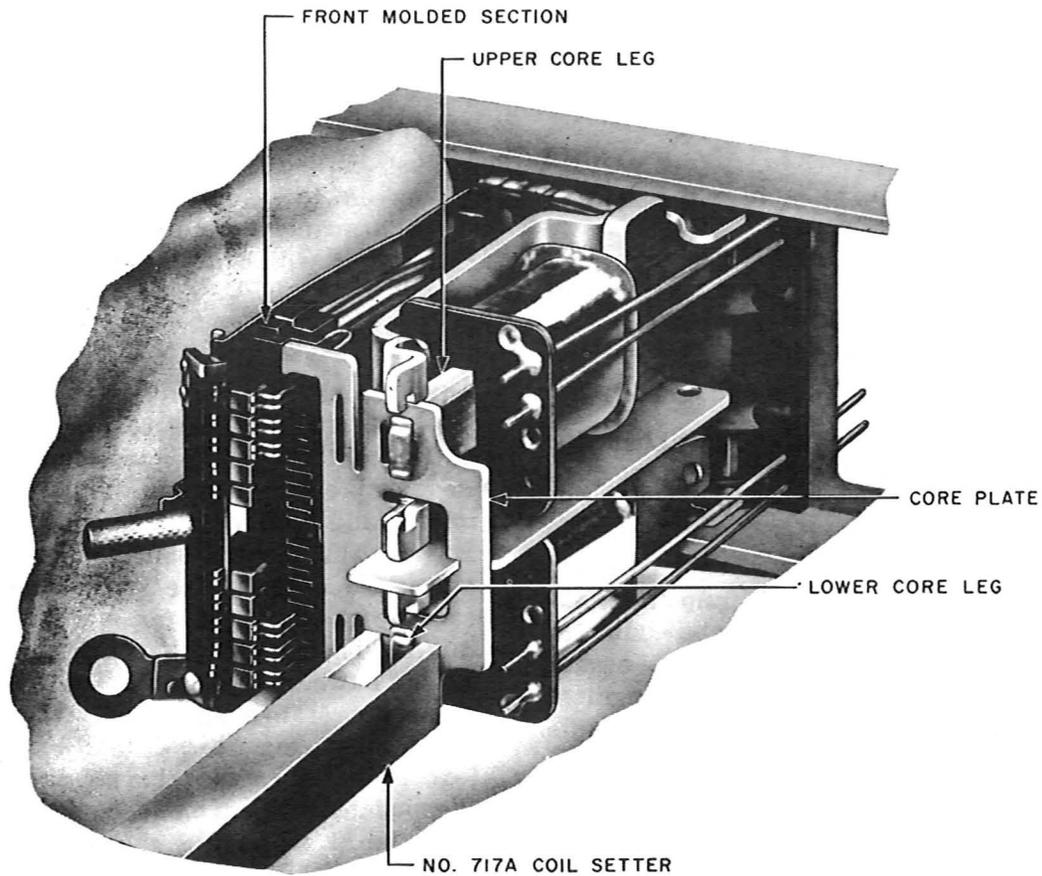


Fig. 13 – Positioning Core Plate With No. 717A Coil Setter

(a) Place the tip of the KS-6320 orange stick against the center portion of the front molded section of the relay and push the molded section to the left. Position the new core plate in front of the core legs with the armature stop on the core plate facing away from the relay. Manually start the core plate on the core legs and position the upper and lower portion of the front molded section against the core plate. Using the No. 717A coil setter and the 4-ounce riveting hammer, gently tap the core plate into position on the core legs. Fig. 13 shows the coil setter being used to position the core plate on the lower core leg.

(b) Using the R-1640 center punch and the 4-ounce riveting hammer, stake each corner of the upper and lower core legs to secure the core plate as shown in Fig. 14.

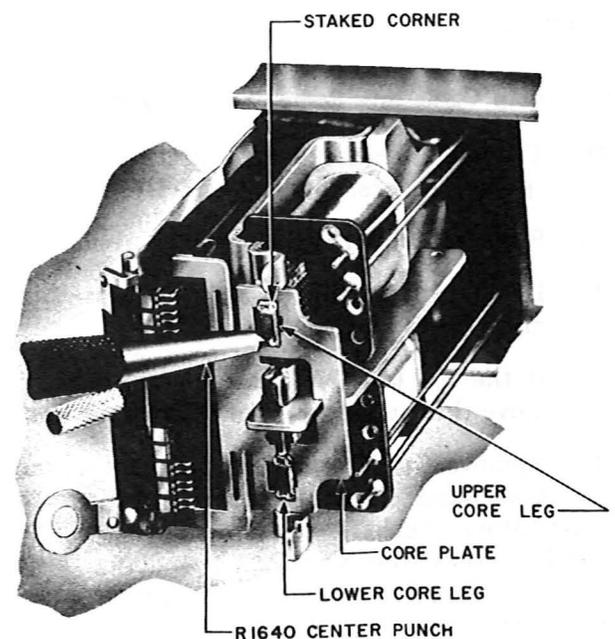


Fig. 14 – Staking Core Legs to Secure Core Plate

Insulating Break Contact Springs

3.39 If the relay has break contact springs, insulate them as covered in 3.13.

Applying Spring Holders to Break Contact Springs

3.40 Use the No. 675A and 675B spring holders to hold the break contact springs of the upper and lower halves of the relay, respectively, during remounting of the card, as covered in (a) and (b).

(a) If there are break contact springs on the upper half of the relay, insert the notched leg of the No. 675A spring holder behind the movable spring contacts from above. Position the holder so that each pair of springs is engaged by the proper notch and clip the inner end of the handle in the core plate slot directly in front of the armature. Make sure that the notched leg of the holder is against the comb, and that the inner end of the handle does not prevent free movement of the armature, which is necessary for remounting the card.

(b) If there are break contact springs on the lower half of the relay, similarly apply the No. 675B spring holder, except insert the notched leg of the holder behind the movable spring contacts from below. Fig. 8 shows the spring holders in position.

Remounting Cards and Removing Spring Holders

3.41 To remount the cards and remove the spring holders, proceed as follows.

- (a) Remount each card as covered in 3.21.
- (b) If 675-type spring holders were used, remove them as covered in 3.22.
- (c) If the No. 684A insulators were used, remove them using the KS-8511 tweezers.
- (d) Remove the No. 630A spring holder and associated clamp from the relay as follows. Move the holder and clamp slightly to the left. With the No. 628A balancing spring lifter, remove the top leg of the upper balancing spring and the bottom leg of the lower

balancing spring from the holder. Carefully move the holder to the right permitting the springs to fall into their proper grooves in the comb. Remove the clamp from the holder. Push both cards to the left to open the gap between the contacts sufficiently to permit withdrawing the holder. Swing the holder to the right, withdraw it, and release the cards.

Final Procedures

3.42 Block the relay operated, using the KS-16887 L1 wedge. Engage the outer balancing spring leg in its associated notch in the card, employing a method similar to that covered in 3.11 and 3.12 for disengaging the spring leg. Engage the inner balancing spring leg in its associated notch in the card by separating the cards with a KS-6320 orange stick as covered in 3.11. Then grasp the end of the leg with the KS-8511 tweezers, align the leg in the notch, remove the orange stick, and then remove the tweezers. Make sure that both balancing spring legs properly engage the notches in the card. Remove the wedge from the relay and check that the card is properly engaged in the notches of the armature legs.

3.43 Remount the contact cover.

REASONS FOR REISSUE

1. To revise Fig. 1, 3, and 4.
2. To add a new Fig. 2.
3. To revise Table A.
4. To add Tables B and C.
5. To revise the list of tools and materials (3.01).
6. To add information on the No. 1014A tool kit (3.02).
7. To omit the No. 679A armature blocking tool and to substitute the KS-16887 L1 wedge wherever specified in the section.
8. To add procedures for replacing the coil (3.27 through 3.43).
9. To add Fig. 8 through 14.