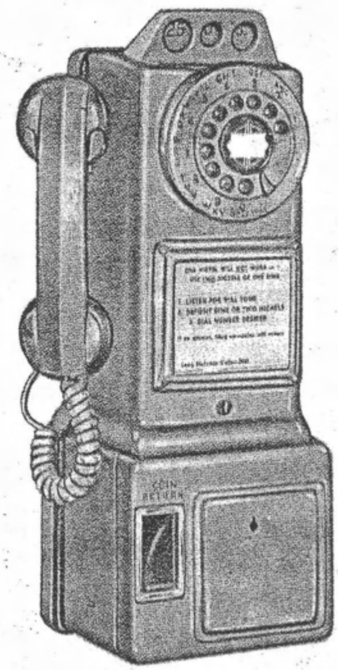
Prepay Paystations 470-918

PREPAY PAYSTATIONS



Technical bulletin 470-918

AUTOMATIC ELECTRIC

GENERAL SYSTEM

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

PREPAY PAYSTATIONS

CONTENTS

PREPAY PAYSTATIONS

TYPE 62, 62-55, LPA 82, LPA 82-55, LPB 82, LPB 82-55, 92, 92-55, LPA 92, AND LPA 92-55

1. DESCRIPTION

The paystations (see figure 1) described in this publication are designed for use in an automatic exchange. The automatic exchange must be equipped with coin-control repeaters, sources of positive and negative 110-volt collect and refund dc, and an interrupter which results in intermittent coin-control current being put on the line. The series 80- or 90 paystations may be equipped with either a manually-adjusted loop-compensating network, or with a self-compensating network. The -55 suffix after the paystation type number denotes two-nickel service.

The calling party is connected to a paystation repeater at the central office upon removal of the handset, but cannot dial until 2 nickels, 1 dime, or 1 quarter has been deposited.

After deposit of required coins, the calling party may dial and extend a connection in the usual manner.

Upon completion of the call, the money deposited is dropped into the cash compartment and the paystation is restored to normal automatically.

When the call is not completed, the money is returned to the calling party and the paystation is restored to normal automatically.

On toll calls, the operator may supervise the collection of coins by audible signals picked up through a special transmitter.

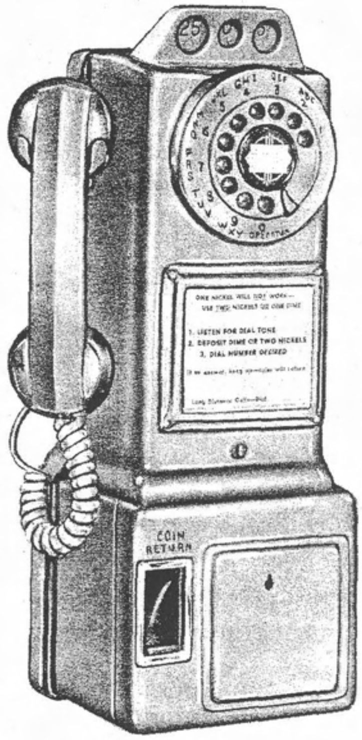


Figure 1. Prepay paystation.

2. INSTALLATION

2.1 Perform the following steps to install a paystation. (See figures 2 and 3.)

(a) Place backboard against wall vertically (it is important that backboard and paystation are perfectly upright).

(b) Mark through holes B onto wall.

(c) Drill holes where marked to take anchors, either Ackerman-Johnson or Rawl-Taper 1/4''-20.

(d) Mount anchors in wall.

(e) Push a loop of interior wire through backboard hole C.

(f) Carry remainder of interior wire down channel at rear of the backboard.

(g) Push end of interior wire through hole marked D.*

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*If interior wire runs along bottom of paystation booth or enclosure, push a loop of interior wire through hole D; carry interior wire up channel at rear of backboard and push end of wire through hole C.

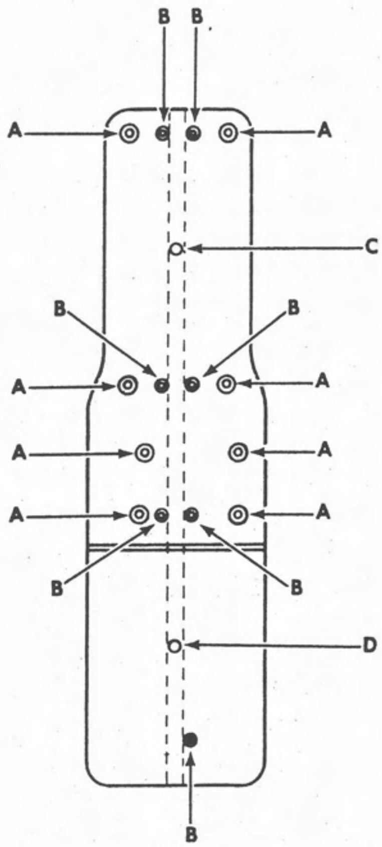


Figure 2. Backboard.

(h) Mount the backboard on the wall, using anchor screws.

(i) Unlock upper housing of paystation and lift housing off.

(j) Mount lower housing and backplate onto backboard with 1/4''-20 flat-head machine screws by using holes A which have threaded inserts to take 1/4'' -20 screws.

(k) Ensure that loop or end of interior wire comes through slot in backplate by terminal strip without pinching.

(l) Remove cover from ringer box.

(m) Mount ringer box on the bottom part of the backboard using common wood screws.

(n) Ensure that interior wire is not pinched and has free access to ringer box.

(o) Connect as shown in figure 3.*

(p) Replace cover on ringer box.

(q) Replace upper housing on paystation and lock.

2.2 Tests. After installation perform the following tests:

2.2.1 Using cash-compartment key:

(a) Insert 2 nickels, dial paystation number and wait for busy tone.

(b) Hang up.

(c) Check for money refund.

(d) Unlock cash-compartment door.

(e) Insert a dime and dial central office.

(f) When conversation is finished, hang up.

(g) Check that money falls into cash compartment.

(h) Repeat same procedure (steps e through g) with a quarter.

(i) Dial operator for assistance with coin signal testing.

*At sites having line loops of less than 500 ohms: On type LPA 82-55, disconnect the red lead at jackstrip terminal 2 and tape; on types LPA 92-55 and LPB 82-55 disconnect red lead at jackstrip terminal 1A and tape.

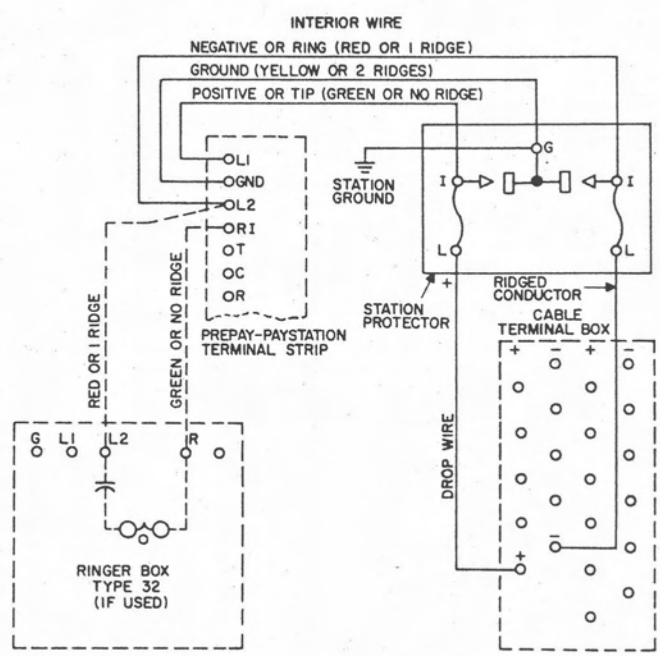


Figure 3. Connection diagram.

(j) Have operator identify each coin deposited.

(k) Relock cash-compartment door.

2.2.2 Without cash-compartment key:

(a) Insert 2 nickels, dial paystation number and wait for busy tone.

(b) Hang up.

(c) Check for money refund.

(d) Insert dime.

(e) Dial operator for assistance with coin signal testing.

(f) Have operator identify each coin deposited.

(g) Hang up. Coins will be refunded.

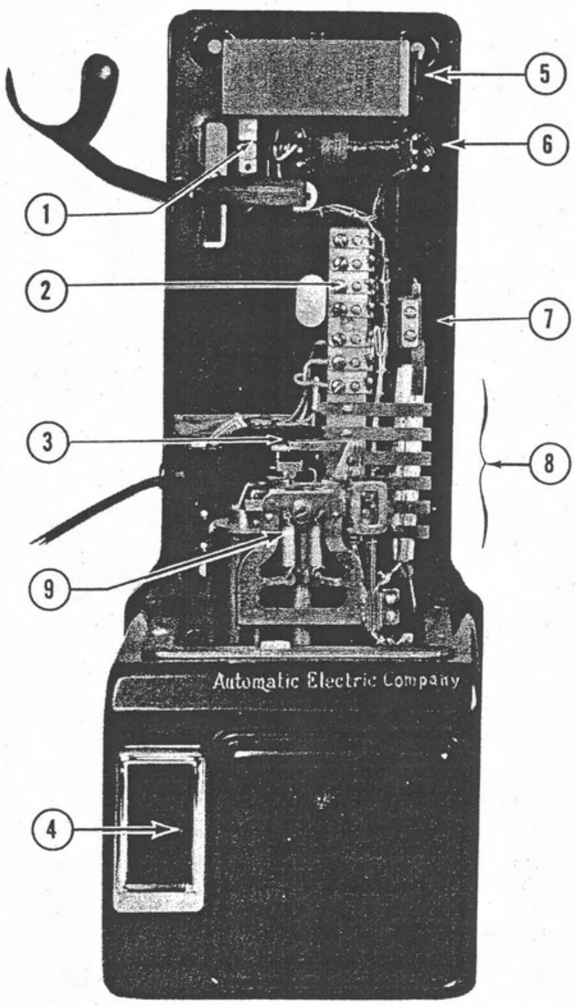
3. MECHANISM

3.1 Coin gauge. A coin gauge at the top of the upper housing provides 3 different size openings: one for nickels, one for dimes, and one for quarters. Each opening connects with a channel in the coin chute.

3.2 Coin chute. A coin chute is mounted below and in line with the coin gauge. The coin chute has 3 channels of varying sizes. Only a coin of the correct denomination, in its respective channel, will operate mechanism. All three channels end directly over the mouth of the coin hopper (figure 4). The lugs holding the coin chute to the upper housing are part of a framework riveted to the upper housing (figure 5). This framework constitutes the coin-return chute for coins that are incorrectly deposited. Coins that are incorrectly deposited will fall out of the coin chute (figure 6) because the depth of the particular channel on the rear side of the coin chute is just deep enough to hold a coin of the right size. After falling out of the coin chute, the coin is guided to the coin return chute in the lower housing. A permanent magnet mounted at the quarter channel on the coin chute acts as a slug rejecter. A slug in the quarter channel, possessing magnetic properties will be attracted by the slug rejecter and be prevented from striking the cathedral gong. The slug will be guided to the coin hopper and then to the coin receptacle; it will not be accepted as payment.

3.3 Coin signals. The bell mounted on the right side of the coin chute (figure 6 being a rear view, the bell is shown on the left) is so situated with respect to the nickel and dime channels that a nickel will strike and ring the bell only once. A dime will strike the bell at the top, and again at the bottom, thus ringing it twice. On the other side of the coin chute is the cathedral gong which a quarter will hit once. A coin signal transmitter mounted in the coin chute conveys these signals to the operator at the central office.

3.4 Ten-cent service, two-nickel control. Since these paystations are for ten-cent service, two nickels or one dime must be deposited before a local call can be made. A microswitch, mounted on the coin chute and adjacent to the nickel slot (figures 5 and 7), provides the nickel-counting feature necessary for two-nickel control.

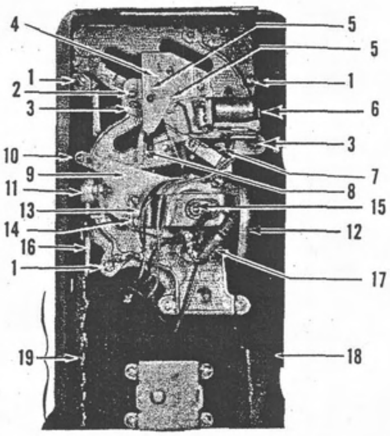


1. *Hookswitch*
2. *Terminal block*
3. *Coin hopper*
4. *Coin return*
5. *4 mfd capacitor*
6. *Induction coil*
7. *Auxiliary terminal assembly*
8. *Transfer springs*
9. *Coin relay*

Figure 4. Lower housing (upper housing removed).

3.4.1 First nickel operation. The first nickel deposited causes the microswitch-operating arm to slide down along the edge of the pendulum (figure 7). Gravity tends to maintain contact between the narrow bottom of the pendulum and the microswitch-operating arm. After the first nickel passes beyond the microswitch-operating arm, the arm is below the notch in the pendulum. Spring tension in the microswitch lifts the arm into the notch, latching it as shown in the lower right-hand sketch of figure 7. This action causes the microswitch to short-circuit the dial pulse-springs.

3.4.2 Second nickel operation. When the second nickel is deposited, it strikes the latched microswitch-operating arm, pushing it down. The arm rides along the cam-like surface leading out of the notch, and abruptly throws the pendulum to the left. As the coin moves on, spring tension in the microswitch raises the arm to normal. The abrupt kick imparted to the pendulum provides sufficient time for the microswitch-operating arm to return to normal without engaging the pendulum notch. The microswitch, (now restored) removes the short circuit from the dial-pulse springs, permitting the caller to dial.



1. *Mounting screws for coin chute assembly*
2. *Mounting screws (2) for 2-nickel mechanism cover plate*
3. *Mounting bracket and screw for 2-nickel mechanism*
4. *Cover plate for 2-nickel mechanism*
5. *Pivots for shock lever and pendulum*
6. *Restoring magnet*
7. *Micro-switch with wire arm*
8. *Pendulum*
9. *Mounting bracket for coin-signal gongs*
10. *Screw for coin-signal-gong mounting socket*
11. *Cathedral-gong mounting*
12. *Bronze bell*
13. *Mounting bracket for coin-signal transmitter*
14. *Screws (4) for coin-signal transmitter mounting bracket*
15. *Coin-signal transmitter mounting unit*
16. *Cathedral gong*
17. *75-ohm resistor*
18. *Rejected-coin return chute*
19. *Jack strip terminal block*

Figure 5. Upper housing.

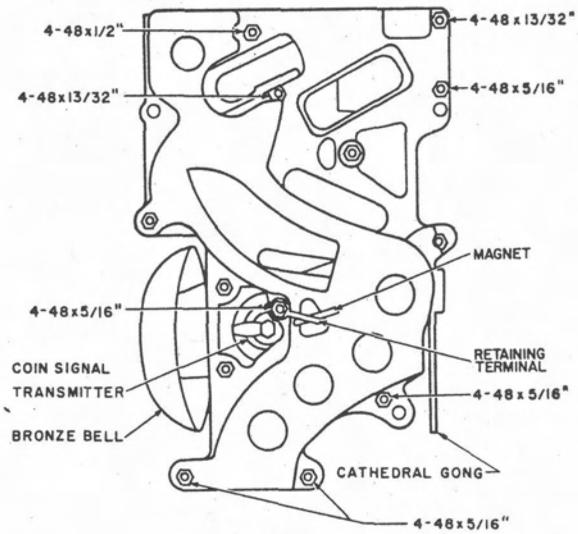


Figure 6. Coin chute.

3.4.3 If a dime (or a quarter) is used in the paystation, the above operations are omitted; the pendulum and microswitch function only when the nickel slot is used.

3.4.4 Restoring magnet. A restoring magnet, mounted above the microswitch (figures 5 and 7), is connected in series with the coin relay. The restoring magnet operates each time the central office sends coin-control current to collect or refund. This has no significance when a dime or a quarter is used, however, in the event that either a single nickel (in the case of an abandoned call) or an odd number of nickels (in the case of a toll call) have been deposited, the operating arm of the restoring magnet will move to the left and allow the microswitch-operating arm to restore. The nickel-counting mechanism will be set for the next call.

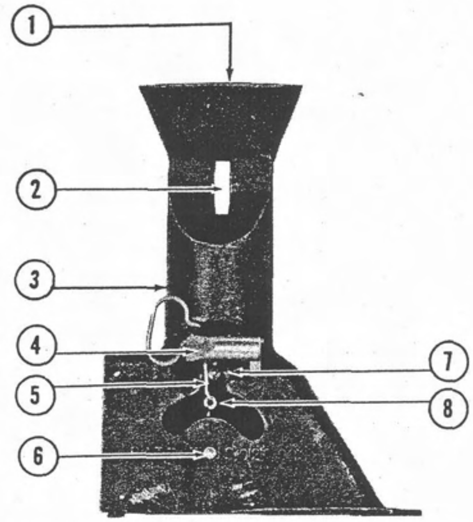
3.5 Shock lever. A shock lever (figure 7) in the paystation precludes attempts to set the nickel-counting mechanism after only one nickel has been deposited. If the paystation is banged, the shock lever will engage a lip on the pendulum and prevent unlatching of the microswitch-operating arm from the pendulum notch.

3.6 Coin-control mechanism. Figure 8 is a front view of the coin hopper. Figure 9 shows the internal mechanism of the coin hopper. Figure 10 shows a coin just entering the coin hopper mouth. Figure 11 shows the coin trigger (3) still set before a coin has dropped through. Figure 12 shows the coin trigger (3) tripped. Figure 13 shows refund; figure 14 shows collection.

3.6.1 As a coin leaves the coin chute, it enters the coin hopper mouth (figure 10), trips the coin trigger (3, figure 12), and comes to rest on the trap bottom (figure 9). The trap bottom is held up by the deflecting-vane roller, therefore, the coin remains on the trap bottom.

3.6.2 The deflecting-vane projection engages with the operating-arm fork of the coin relay (5, figure 11). The operating-arm fork of the coin relay moves to the right, or to the left, depending on the polarity of the current sent from the central office. The deflecting-vane projection, being engaged with the operating-arm fork, causes the deflecting vane to move to the right, or to the left, respectively. As the deflecting vane moves, the roller moves from beneath the trap bottom (figure 13). The weight of the coin overcomes the trap-bottom counterweight (figure 9) causing the trap bottom to pivot on its pin, and permitting the coin to slide off of the trap bottom. The coin is then deflected to the right, or to the left by the deflecting vane. Figure 13 illustrates the coin being deflected to the left to the coin return chute. Figure 14 illustrates the coin path after a completed call; the coin is deflected to the right, into the cash compartment.

3.6.3 The central-office equipment controls collection or refund of the coin or coins by placing either +110 volts dc or -110 volts dc on the line. On an unanswered call (after the calling party hangs up) -110 volts dc placed on the line operates the coin relay to move the operating arm to the right and correspondingly positions the deflecting vane to deflect the coins into the refund compartment (figure 13). On a completed call (after calling party hangs up), +110 volts dc placed on the line operates the coin relay to move the operating arm to the left and correspondingly position the deflecting vane to deflect the coins into the cash compartment (figure 14). After the coin has dropped, the trap-bottom counterweight will return the trap bottom to the horizontal position. As the control current is removed from the coin relay, the coin relay will restore; the operating arm will return to the vertical position. Correspondingly, the deflecting vane will return to the vertical position again to support the trap bottom.



1. Coin-hopper mouth
2. Coin-trigger slots
3. Coin-hopper housing
4. Counterweight of trap bottom
5. Coin-deflecting vane
6. Coin-deflecting vane pivot pin
7. Coin-deflecting vane roller
8. Coin-deflecting vane projection

Figure 8. Coin hopper.

3.7 Coin relay (figure 15). The coin relay consists of 2 coils (3), a permanent magnet between the coils (5) and a centrally-pivoted armature (6) mounted above the coils and magnet. The armature can be made to pivot to either side by reversing the polarity of the direct current to the relay coils. The alternate

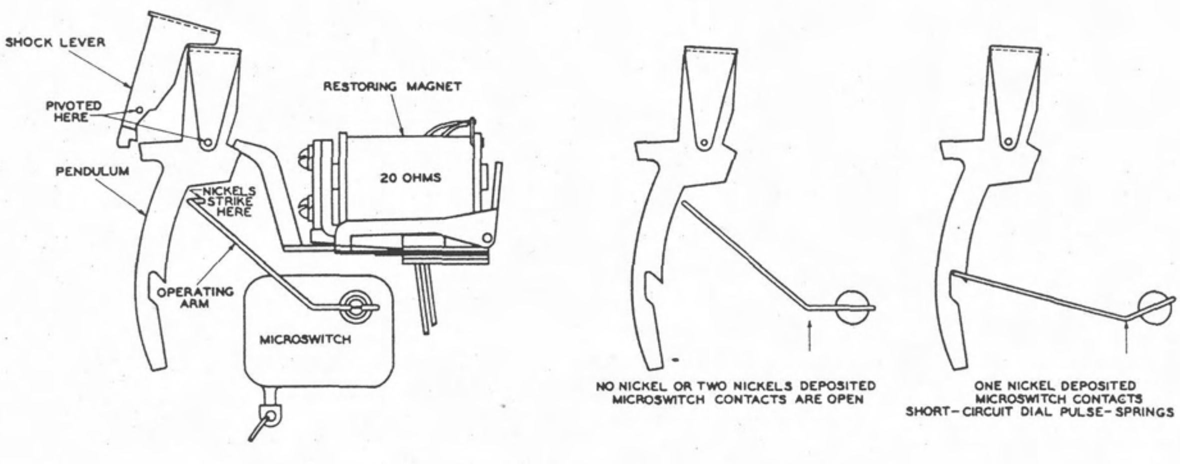


Figure 7. Nickel-counting mechanism.

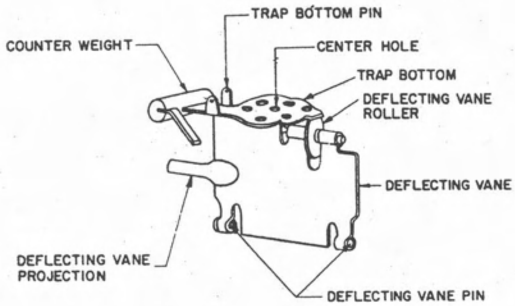


Figure 9. Trap bottom and deflecting vane assembly.

armature positions control the refund collection of the coins.

3.7.1 Figures 16, 17, 18, and 19 illustrate the various parts and operating conditions of the coin relay. The operating arm assembly, pivoted in the center, is mounted on top of the armature. It consists of the fork that engages the deflecting-vane projection (4, figure 15), the horizontal portion which is in contact with the armature (figure 14), and the restoring arm, (figure 16) which carries the stud that operates the ground-switch springs. Above the operating arm are the restoring levers (figures 17 and 20) pivoted on the same pin as are the operating arm and armature. The restoring levers are in contact with the operating arm and are also connected to the restoring springs which provide a spring bias (figure 16). The restoring levers ensure that when direct current to the coils is removed, the operating arm will return

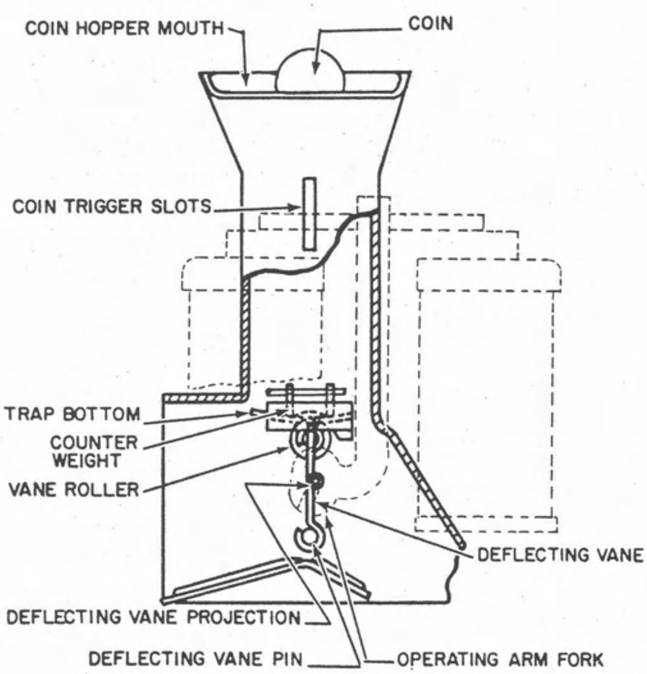
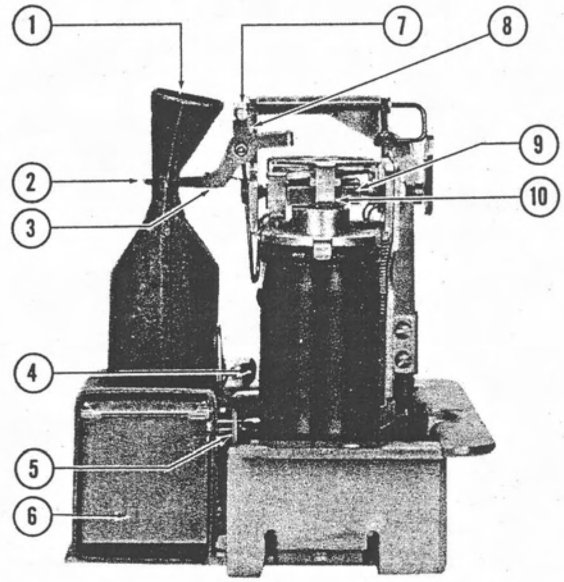


Figure 10. Coin hopper (section view).

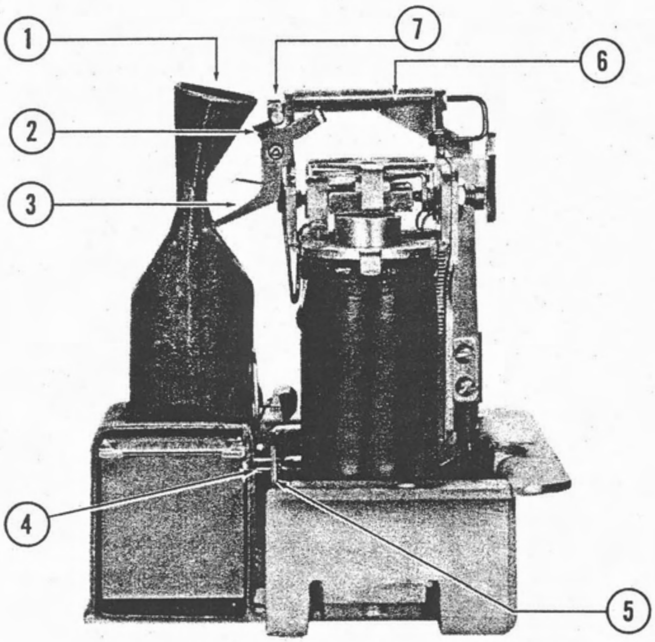
to a horizontal position. Also mounted on the coin relay is the switch lever (1, figure 15) which is pivoted on the coin relay frame. One end of the switch lever rests on the latch of the coin trigger (8, figure 11), the other end has a half round set in it to allow the stud of the restoring arm to restore the switch lever when required. Also pivoted on the coin relay frame is the coin trigger (3, figure 11). The coin trigger is counter-balanced in such a way that, if free, it will always return to the horizontal position. The tip of the coin trigger (2, figure 11) protrudes through the slot in the front and rear of the coin hopper. It is impossible for a coin to drop through the coin hopper without tripping the trigger.



1. *Coin-hopper mouth*
2. *Coin-trigger tip*
3. *Coin trigger*
4. *Trap-bottom counter weight*
5. *Operating-arm fork and deflecting vane projection*
6. *Coin shield*
7. *Switch lever*
8. *Coin-trigger latch*
9. *Armature*
10. *Restoring lever*

Figure 11. Coin-control mechanism (coin trigger normal).

3.8 Operation of coin relay. Figure 16 shows the relay and ground-switch springs in position before any coins have been deposited. Notice the switch lever resting on top of the coin-trigger latch, and the position of the opposite end of the switch lever with the half round set, and the stud on the restoring arm. The ground-switch spring with the half round set bears up against the stud. The ground-switch contacts are open and the dial-shunt springs are closed preventing dial pulses from being sent to the central office. In figures 12 and 17, a coin has been deposited in the coin chute and has dropped into the coin hopper. On its way down the hopper, the coin trips the coin trigger and forces it downward, causing the latch to move away from the switch lever and allowing the switch lever to drop slightly. The switch lever now prevents the coin trigger from returning to the horizontal position because the coin-trigger latch is now butting up against the switch lever (figure 12). In figure 17, note the position of the stud, switch lever, and contacts. The end of the switch lever with the half round set moves to the right and closes the ground-switch contacts but simultaneously opens the dial-shunt contacts. The restoring-arm stud remains in the center. The dial can now send pulses, unless the coin dropped was a first nickel; in this case, the microswitch places a shunt across the dial, preventing pulses from



1. *Coin hopper mouth*
2. *Coin trigger latch*
3. *Coin trigger*
4. *Deflecting vane projection*
5. *Operating arm fork*
6. *Switch lever pivot*
7. *Switch lever*

Figure 12. Coin-control mechanism (coin trigger tripped).

reaching the central office until the second nickel has been deposited (see paragraph 3.4). In the case of a dime or a quarter the coin relay has opened the path for dial pulses, and there will be no dial shunt.

3.8.1 Incompleted call. When a caller hangs up after an incompleted call; -110 volts dc is applied to the positive line. This reversal of polarity causes the armature to pivot to the left as in figure 18. The operating-arm fork is caused to move to the right as seen by the dotted image in the center of the drawing. Consequently, the fork engaged with the deflecting-vane projection, causes the deflecting vane to move to the right, allowing the trap bottom to drop. The deflecting vane guides the coins to

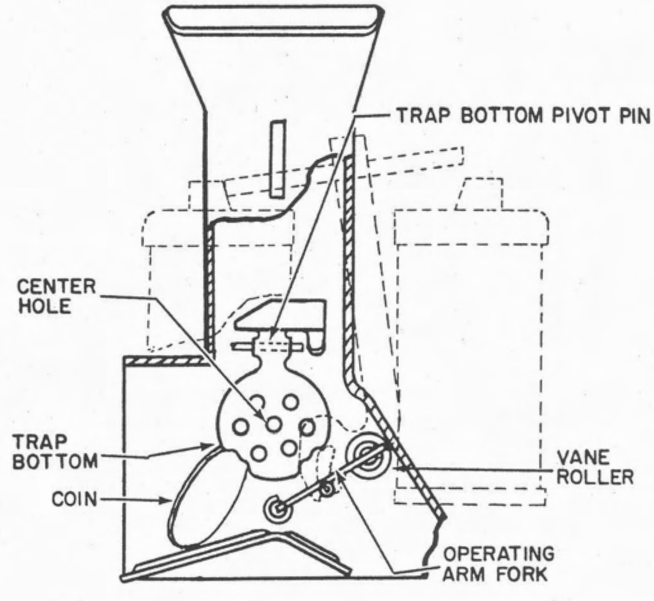


Figure 13. Coin hopper - refund.

the refund compartment. Simultaneously, the operating-arm stud moves upwards out of the area of the 2 half round sets in the switch lever and the ground-switch spring. The operating-arm stud forces the half round end of the switch lever to the left, consequently the other end of the switch lever moves upwards away from the latch of the coin trigger (8, figure 11). The coin trigger will return to its normal horizontal position.

The operating-arm stud also ensures (through counter-tension of opposing springs) that ground-switch-spring contacts remain closed

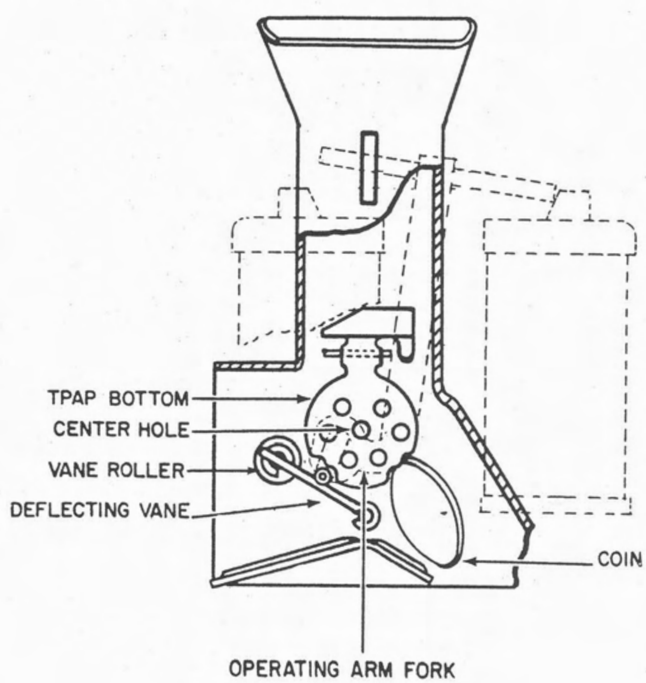


Figure 14. Coin hopper - collection.

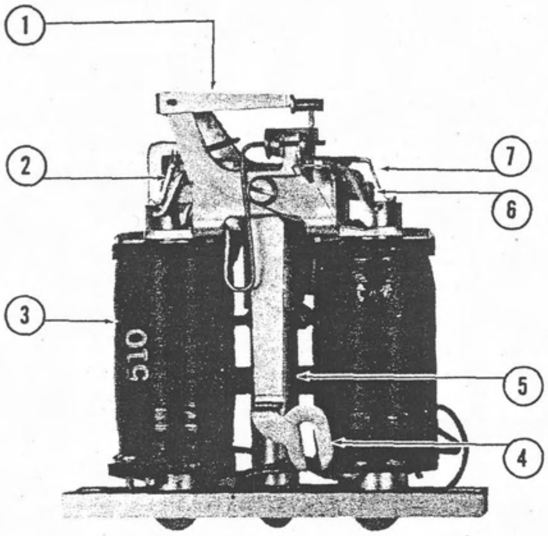
throughout the operation. When the -110 volts dc is removed from the positive line, the relay will appear as in figure 16 with the switch lever resting on the coin-trigger projection causing the ground-switch contacts to open and the dial-shunt contacts to close.

3.8.2 Completed call. When a caller hangs up after a completed call, +110 volts dc is applied to the positive line. The armature will pivot to the right as in figure 19. The operating-arm fork is caused to move to the left, as seen by the dotted image in the center of the drawing. Consequently the fork engaged with the deflecting-vane projection, causes the deflecting vane to move to the left, allowing the trap bottom to drop. The deflecting vane guides the coins to the cash compartment. Note that the operating-arm stud in moving downwards still keeps the ground-switch contacts closed. When the +110 volts dc is removed from the positive line, the restoring lever and restoring springs cause the armature to assume the horizontal position (figure 16).

4. ROUTINE MAINTENANCE

4.1 Upper housing

4.1.1 Coin gauge. When carrying out inspection of coin gauge, check for cleanliness and look for mutilation and stuck coins or slugs. Do not use hard steel instruments to remove coins or slugs, use a wooden instrument such as a toothpick or an orange stick. In the case of stuck coins, determine the reason for their sticking: dirt, sticky deposits, or misalignment of coin gauge. If the coin gauge is misaligned or mutilated, replace the upper housing with a serviceable unit. Overhaul the original upper housing in the shop.



1. *Switch lever*
2. *Restoring lever*
3. *Relay coils*
4. *Operating-arm fork*
5. *Magnet heelpiece*
6. *Armature*
7. *Restoring lever*

Figure 15. Coin relay, rear view.

4.1.2 Coin chute. When carrying out inspection of coin chute, a check for cleanliness is very important; and, if a mutilated coin or slug has stuck in the chute, ensure that the chute is not damaged in any way. Do not attempt to clean a dirty chute. If the coin chute is dirty or damaged, replace the upper housing with a serviceable unit. Overhaul the original upper housing in the shop. Check signals of nickel, dime, and quarter; if operator cannot identify the signals; replace upper housing and overhaul in the shop. With upper housing off, check microswitch lever. The microswitch lever should latch in the pendulum notch on the first nickel deposited, and should unlatch after the second nickel is deposited. Ensure that the shock lever engages with the pendulum when the upper housing is tilted to the left 30°. Deposit a penny or a dime in the nickel chute, the coin should fall out to the return chute; perform the same check on the quarter chute.

4.1.3 Dial. Check dial for freedom of operation and correct speed.

4.2 Lower Housing

4.2.1 Coin relay. Perform the following operations.

(a) Remove bolts at heel plate of coin relay.

(b) Disengage coin relay operating-arm fork from deflecting-vane projection.

(c) Lubricate inner surfaces of fork by rubbing with a pencil point.

(d) Check coin trigger.

(e) Reinstall coin relay, bolt down tightly.

4.2.2 Coin hopper. Check trap bottom and deflecting vane operation.

(a) Insert a thin piece of wood (3/4" wide, 5" long, and 1/8" thick) into coin hopper mouth.

(b) Carefully push down coin trigger; continue until wood touches trap bottom.

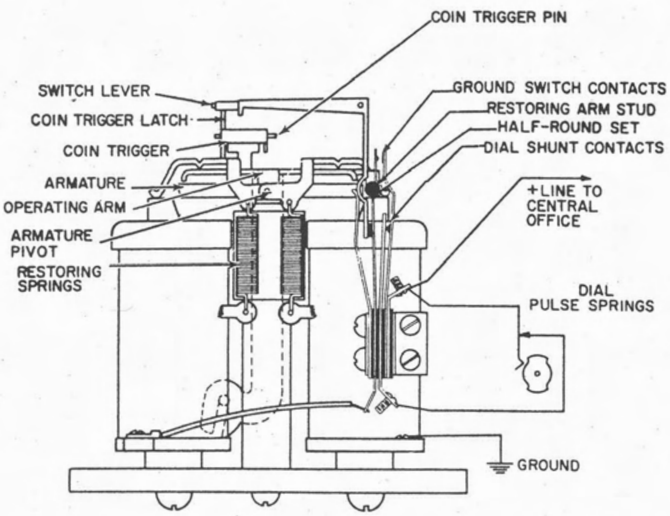


Figure 16. Coin relay restored.

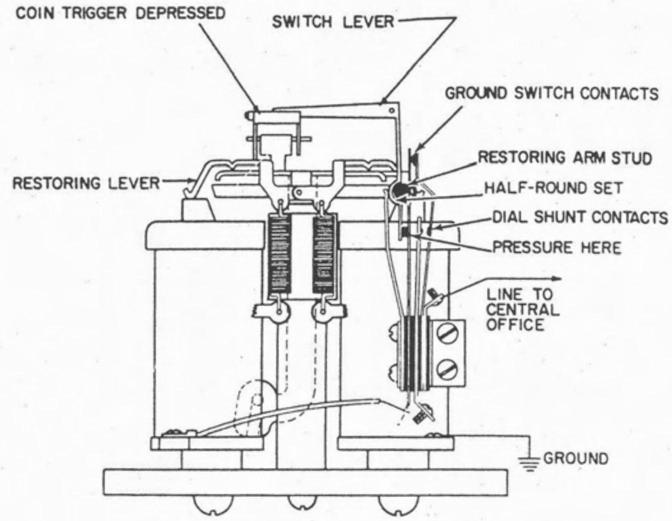


Figure 17. Coin relay - coin trigger tripped.

(c) Depress left side of coin-relay armature with other hand.

(d) Push wood down following trap bottom.

(e) Release armature.

(f) Pull wood strip slowly upward.

(g) Ensure that vane and trap bottom return to original position.

(h) Repeat steps (a) through (g) pressing the right side of the coin-relay armature.

4.2.3 If mechanism appears to be faulty, perform the following.

(a) Check vane for tight bearings.

(b) Remove coin-control relay heel plate.

(c) Disconnect the three leads on contact springs.

(d) Remove coin relay, being careful to clear coin trigger from the slot in hopper.

(e) Hold vane projection slightly left of vertical.

(f) Vane drops fully to collect position when released.

(g) Hold vane projection slightly right

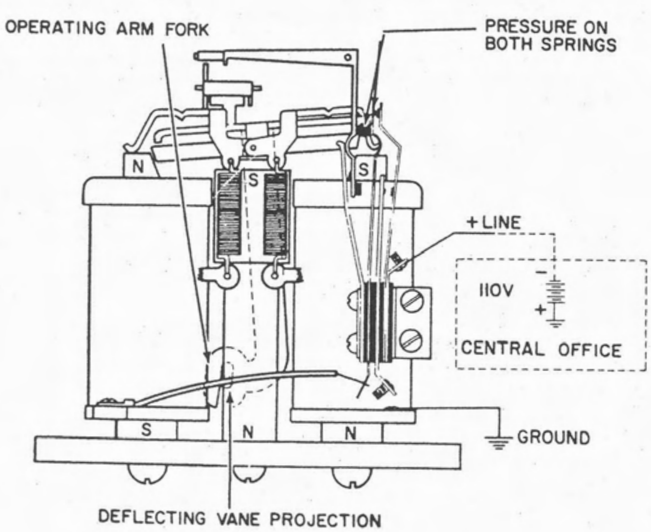


Figure 18. Coin relay - refund.

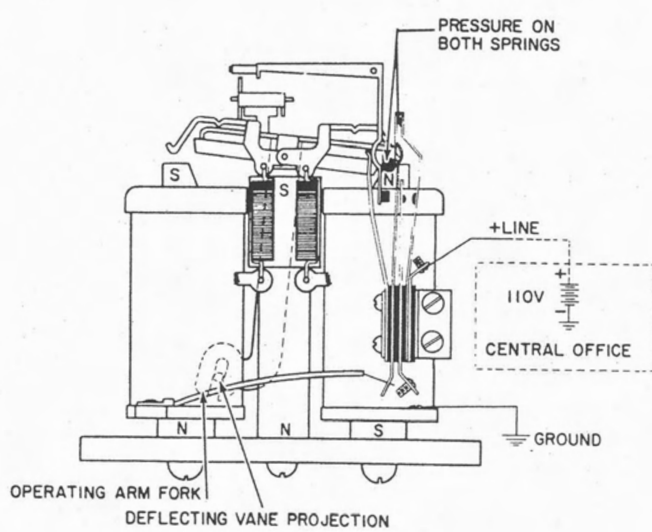


Figure 19. Coin relay - collection.

of vertical. Vane drops fully to refund position when released.

(h) If vane binds in any way, replace.

4.2.4 Check vane for binding on hopper.

(a) Grasp vane-projection pin and pull.

(b) While pulling pin, move vane to left and to right.

(c) Make sure vane does not scrape front of hopper.

(d) Grasp vane-projection pin and push.

(e) While pushing pin, move vane to left and to right.

(f) Make sure vane does not scrape rear of hopper.

(g) If vane scrapes, replace hopper assembly.

4.2.5 Check trap and vane for ease of movement.

(a) Move vane to the left.

(b) Lift trap-bottom counterweight with other hand.

(c) Move vane to upright position slowly, meanwhile maintaining slight pressure on counterweight.

(d) Make sure vane lifts trap smoothly and evenly.

(e) Repeat to the right.

(f) If vane or trap binds, replace trap and vane.

4.2.6 Trap and vane clearance check.

(a) Move counterweight up and down; there should be a small clearance.

4.2.7 Coin relay installation after hopper tests.

(a) Ease coin trigger through slots in hopper.

(b) Move vane to upright position and ease projection into fork.

(c) Looking down mouth of hopper, move relay to right or to left, until edge of vane can be seen through center hole of trap bottom. Ensure that coin trigger is in center of the hopper slots and not scraping sides.

(d) Fasten down heel plate holding relay, to make sure that relay does not move and upset adjustment.

4.2.8 Check coin shield on refund side of hopper for freedom of operation. Replace if faulty.

4.2.9 Check all switch points for cleanliness, especially horizontal transfer switch points.

4.2.10 Check hookswitch for ease of operation and inspect handset cord.

4.2.11 Call central office to place collect and refund current and note action of relays, coin control and restoring magnet.

5. SHOP OVERHAUL INSTRUCTIONS

5.1 Upper housing. Unlock the upper housing with the key provided; pull the lower part of the upper housing outwards and lift, this will disengage the projection on the inside top of the upper housing from the socket on the back plate and the upper housing will be clear.

5.1.1 Coin gauge. The coin gauge is mounted with rivets; to disassemble, remove these rivets after first removing coin chute (see paragraph 5.1.2). Install coin gauge before installing coin chute.

5.1.2 Coin chute disassembly (figure 5).

(a) Place upper housing front downward on bench.

(b) Remove coin chute by unscrewing the 3 mounting screws.

(c) Remove leads to jackstrip terminal.

(d) Lift out coin chute assembly, exercise care so as not to damage cathedral gong.

(e) Pull leads through retaining bracket fixed to housing.

(f) Lay coin chute assembly flat with sub-assemblies uppermost.

(g) Remove screw holding the bronze bell and remove bell and brass washer.

(h) Remove nut holding cathedral gong and remove gong.

(i) Remove mounting screws and nuts of two-nickel mechanism. Note that the long screw is the one situated underneath the restoring magnet.

(j) Remove 2 screws and nuts holding the bracket on which is mounted the signal transmitter. Note that long screw is situated just above cathedral gong mounting. Lift off bracket and signal transmitter sub-assembly.

(k) Remove 4 screws holding signal transmitter assembly to bracket. Lift off sub-assembly.

(l) Remove nut holding signal transmitter.

(m) Remove remaining 8 screws and nuts on coin chute (figure 6). Remove the slug rejector magnet and the retaining terminal, then the three parts can be separated.

(n) Remove 2 screws holding restoring magnet to bracket and withdraw restoring magnet.

(o) Remove 2 screws running through microswitch and withdraw microswitch; take care not to damage spring arm.

(p) Remove 2 remaining screws holding cover plate of pendulum and shock lever, and remove cover plate.

(q) Carefully remove pendulum and shock lever from their respecive pivots.

(r) Draw pivots from back of plate.

(s) Clean all parts and inspect thoroughly.

(t) Check all parts for cleanliness. Pay particular attention to tension of transfer springs mounted on terminal block assembly on back plate. These springs connect all circuits through jack springs from upper housing.

(u) Replace parts as necessary.

5.1.3 Dial removal.

(a) Remove coin chute.

(b) Disconnect dial leads from jackstrip terminal inside upper housing.

(c) Remove the 3 flat-headed screws and carefully pull dial forward, feeding leads through slot in inner mounting cup.

5.1.4 Dial installation.

(a) Feed dial leads from front of paystation through slot in inner mounting cup and push dial home.

(b) Install the 3 flat-headed screws and tighten.

(c) Connect dial leads to jackstrip terminal as in applicable wiring diagram (figures 25 through 34).

5.2 Upper housing tests and adjustments. Brass or equivalent non-magnetic quarter-size slugs are recommended for tests on paystations having magnetic slug rejector. Test slugs for the coin gauge and coin chute must have the following dimensions.

5.2.1 Coin gauge. The coin gauge must accept the following maximum sized slugs.

	Quarter	Dime	Nickel
Diameter	0.961"	0.710"	0.846"
Thickness	0.083"	0.058"	0.083"

5.2.2 Coin chute. The coin chute shall accept the following maximum, minimum, and standard slugs.

Quarter	Max.	Min.	Std.
Diameter	0.977"	0.938"	0.961"
Thickness	0.090"	0.052"	0.083"

Dime	Max.	Min.	Std.
Diameter	0.721"	0.685"	0.710"
Thickness	0.070"	0.043"	0.058"

Nickel	Max.	Min.	Std.
Diameter	0.857"	0.805"	0.846"
Thickness	0.090"	0.050"	0.083"

NOTE: If difficulty is encountered in locating threaded holes in dial, loosen the 3 round-headed screws and align holes. Tighten the 3 round-headed screws after aligning holes.

NOTE: The maximum slugs will not pass through the coin gauge. The coin chute must reject the following minimum slugs.

	Quarter	Dime	Nickel
Diameter	0.903"	0.653"	0.767"
Thickness	0.083"	0.052"	0.083"

A dime or nickel deposited in any opening other than the one for which it is intended must be conveyed to the coin return chute; a penny deposited in either nickel or quarter opening must also be conveyed to the coin return chute.

5.2.3 Two-nickel mechanism.

(a) Check pendulum and shock lever for freedom of movement; they must not bind or interfere with each other.

(b) Operate restoring magnet relay with 1570 ohms in series on 46 volts (28 ma) and check that there is clearance between microswitch spring and that portion of the pendulum above notch.

(c) Check operating arm of microswitch as follows.

(1) The hub must not interfere with microswitch mounting bracket.

(2) The operating arm must have approximately 110° angle.

(3) The end of operating arm in coin chute slot must not rub against sides or back of coin chute.

(4) The operating arm when latched in pendulum must ride in radius of notch.

(5) With operating arm engaged in pendulum notch, tilt upper housing counterclockwise approximately 30°, the shock lever must slide off left arm of pendulum with perceptible clearance.

5.2.4 Restoring-magnet relay.

(a) Operate restoring-magnet relay with 1570 ohms in series on 46 volts (28 ma) and check that relay operates completely.

(b) Connect 1690 ohms in series with restoring-magnet relay and apply 46 volts (26 ma) and ensure that relay does not operate.

5.2.5 Upper housing lock. Check that the lock operates under a force not to exceed 1000 grams at a leverage of 2" from the center of the key.

5.3 Upper housing mechanism reassembly.

(a) Place the 3 parts of coin chute together, insert slug rejector in slot at quarter channel with retaining terminal and install screws and nuts (figure 6). Take care to use screws of correct length. Tighten screws securely.

(b) Install bell and gong mounting bracket with 3 screws and nuts, being careful to use correct length screw. Tighten screws and nuts securely.

(c) Mount cathedral gong and tighten screw and nut securely.

(d) Mount bronze bell; insert flat brass washer between bell and bracket with countersunk side of washer next to bell. Tighten screw securely.

(e) Test coin chute with slugs (paragraph 5.2).

(f) Place restoring magnet on mounting plate and secure with 2 screws.

(g) Secure microswitch to the mounting plate, taking care to clamp restoring magnet leads with clamp bracket supplied.

(h) Install copper pivots for pendulum and shock lever.

(i) Carefully mount pendulum and shock lever on respective pivots.

(j) Carefully place pendulum and shock-lever cover plate on the two pivots. Ensure that pivots are projecting through two holes in cover plate and that cover plate is fully seated on mounting plate. Install 2 small screws and tighten securely.

(k) Mount two-nickel mechanism on coin chute with correct length screws (take care not to damage microswitch-operating arm); install nuts and tighten screws.

(l) Test coin gauge with slugs (paragraph 5.2).

(m) Replace coin gauge, if necessary, by knocking out rivets. Install new coin gauge using new rivets.

(n) Mount coin chute and tighten 3 mounting screws.

(o) Connect leads as in applicable wiring diagram (figures 25 through 34).

5.4 Lower housing (upper half).

5.4.1 Horizontal transfer switch. Test insulation between all adjacent metal parts. Insulation must withstand 500 volts ac between 16 and 60 cycles per second for one-fourth of a second.

5.4.2 Hookswitch. Test pressure of contact points with receiver off hook. Pressure must not be less than 2-1/2 ounces. Check the clearance between contacts when open; it must not be less than 1/64''. Check degree of operating spring movement; it must not be less than 5/64''. Test the hook with an 11-1/2 ounce receiver; the hook must go to a full stop when the receiver is taken off.

5.5 Lower housing (lower half).

5.5.1 Coin-control mechanism removal.

(a) Loosen 2 terminal screws at spring contacts and 1 screw at rear of coil.

(b) Disconnect the three leads.

(c) Remove 2 round-head screws holding heel plate of coin relay.

(d) Trip coin trigger by hand.

(e) Carefully remove coin relay; make sure fork disengages from deflecting-vane projection. Exercise care so as not to bend coin trigger in slots of coin hopper.

5.5.2 Coin hopper removal.

(a) Remove 3 small screws from inside top of cash compartment.

(b) Lift out coin hopper.

(c) Clean thoroughly with a soft brush, remove iron filings around armature and coin relay cores. Ensure that coin hopper mechanism works freely.

5.5.3 Coin control mechanism tests and adjustments. The relay must safely deposit or refund a charge of, from one dime to eleven nickels, when 60 volts dc is applied to the coils immediately after the armature has been operated in the reverse direction by 120 volts dc.

(a) Apply 40 volts dc in either direction to the coils; deposit eleven nickels into the coin hopper while maintaining the applied voltage. Check that the armature does not operate.

(b) Apply 120 volts dc in either direction to the coils; slowly decrease to 30 volts. The armature must return to normal.

NOTE: All final tests involving the coin relay must be made with the upper housing in place.

(c) Check magnet strength for 2,500 maxwells.

(d) Check clearance on ground-switch spring contacts; it must not be less than 0.010'' (ten-thousandths of an inch).

(e) Check the clearance on dial-shunt-spring contacts; it must not be less than 0.010'' (ten-thousandths of an inch).

(f) Drop a minimum of ten dimes into coin hopper mouth. The trigger must be tripped each time, the ground-switch spring contacts must be closed each time, and the dial-shunt spring contacts must be opened each time and maintain their clearance of 0.010''.

(g) Check contact springs "follow," it must be 0.010''.

(h) Check release of switch lever by depressing coin trigger until a 0.030'' feeler gauge can be placed between point of trigger and inside rear wall of coin hopper. At this point, the switch-lever projection must be clear of coin-trigger latch. The ground-switch spring contacts must be held without break until armature is operated in either direction.

(i) Check resting point of switch lever on projection of coin trigger; this must be approximately on vertical line of pivot for trigger.

(j) Check trigger-extension point; this must be on vertical center line of coin-hopper slot and must not contact either sides or top of slot.

(k) Check trigger side play; it must not exceed 0.005". Check that restoring arm, which extends from operating arm, safely restores switch lever to normal position with full stroke of armature. The coin trigger must latch the switch lever.

(l) Check that the operating-arm fork brings deflecting vane (when in normal position) to the perpendicular; so that edge of deflecting vane can be seen through center hole of trap bottom, as viewed through mouth of hopper.

(m) With operating arm in normal position, check that there is no clearance between restoring levers and cores, and operating arm and levers at point of contacts. Check that clearance between frame and lugs that limit armature travel is between 0.123" and 0.135".

(n) Check that switch lever safely restores coin trigger with full armature travel, but does not restore coin trigger when depressed by hand to within 0.035" clearance of armature limiting lugs and frame. Pressure should be applied inside rounding of lug.

(o) Should it be necessary, the switch lever may be bent to conform with above requirements.

5.5.4 Relay operation and adjustments. Relays must operate with application of between 60 and 120 volts dc and with a pileup of, from one dime to eleven nickels. The relay must not operate under any circumstances with a minimum of 40 volts dc.

(a) If relay operates with 40 volts dc, check that deflecting vane edge can be seen through center hole of trap bottom. If necessary, adjust by shifting complete relay to right or left; otherwise, adjustment for this feature is limited to retensioning of restoring springs.

(b) Sluggish operation of relay may be caused by insufficient "follow" on ground-switch spring contacts. Adjust by increasing tension of ground switch operating spring or by bending contact springs. Check that dial shunting springs break to minimum clearance of 0.010" and that tension of switch lever on coin trigger is not increased to the point where the minimum dime will not trip coin trigger. If mating surfaces of coin trigger and switch lever are rough, smooth with crocus paper to facilitate operation.

(c) If relay fails to operate on 60 volts dc, or fails to release on 30 volts dc, check and adjust as follows:

(1) Inspect armature and coil cores for metal chips and remove them if found.

(2) Check deflecting vane for freedom of operation; there should be clearance between deflecting vane and coin hopper with play in both directions. Correct if necessary.

(3) Check for binding of deflecting-vane projection at operating-arm fork. Remove burrs if any and adjust if deflecting-vane projection hits top of slot in operating-arm fork.

(4) Check trap bottom for freedom of operation.

(5) Check for binding in armature, operating arm, and restoring levers. (It may help to remove one end of restoring lever spring when removing bind here.)

(d) With everything working freely:

(1) Adjust restoring springs to least tension permissible to still have a positive release with 30 volts dc applied to coils.

(2) Check for operation with 60 volts dc applied. Operation should be satisfactory. If not, readjust restoring-lever springs.

(3) If operation is still unsatisfactory, loosen locking screws in armature and shift towards pole piece where failure to operate occurs. (When making this adjustment, tilt the armature so clearance between armature and pole piece can be more readily observed.)

(4) Recheck for operation with 30 volts dc and then with 60 volts dc.

(5) If operation is still unsatisfactory, readjust restoring levers so as to tilt armature closer to pole

piece on side where failure occurs. After this is done, it is necessary to readjust operating arm lugs to maintain the 0.123" to 0.135" clearance. It may also be necessary to readjust switch lever to obtain reliable restoring of coin trigger.

6. CABLE AND ELECTRICAL PARTS

6.1 Breakdown test. The insulation between all adjacent insulated metal parts shall withstand 500 volts ac, 16 to 60 cycles per second for one-fourth second.

6.2 Microswitch (Two-Nickel Service). With buzzer connected between microswitch terminals, buzzer should operate when microswitch is latched on pendulum and cease when released from pendulum.

7. CONTINUITY TESTS

The continuity tests are made using an ohmmeter. The paystation upper housing must be removed before performing these tests.

7.1 Lower housing.

7.1.1 Type 62 and 62-55.

(a) Hookswitch up - trigger restored.

(1) Transfer spring 4 to BLK-BLU on 0.7 microfarad capacitor, reads approximately 100 ohms.

(2) Transfer spring 3 to transfer spring 1, reads approximately 65 ohms.

(3) Transfer spring 3 to BLK-YEL on 4 mfd capacitor, reads approximately 14 ohms.

(4) Transfer spring 2 to terminal L2, approximately 0 ohms.

(5) GRN on 4 microfarad capacitor to terminal T, reads approximately 0 ohms.

(6) Transfer spring 5 to terminal T, reads approximately 28 ohms.

(b) Hookswitch up - trigger tripped.

(1) Terminal L1 to terminal G reads approximately 1020 ohms.

(c) Hookswitch down - trigger either tripped or restored.

(1) BLK-BLU on 0.7 microfarad capacitor to terminal R1, reads approximately 0 ohms.

NOTE: On type 62-55 only: with trigger restored, auxiliary transfer spring 1A to transfer spring 6, reads approximately 20 ohms.

7.1.2 Type LPA 82 and LPA 82-55.

(a) Hookswitch up - trigger restored.

(1) Terminal L1 to BLK on 0.4 microfarad capacitor, reads approximately 0 ohms.

(2) Terminal L1 to transfer spring 6, reads approximately 0 ohms.

(3) Transfer spring 5 to lug 6 on induction coil, reads approximately 0 ohms.

(4) Lug 6 on induction coil to GRN wire on 5 microfarad capacitor, reads approximately 38 ohms.

(5) Lug 6 on induction coil to BLU wire on 0.4 microfarad capacitor, reads approximately 100 ohms.

(6) Lug 6 on induction coil to transfer spring 4, reads approximately 0 ohms.

(7) Lug 5 on induction coil to terminal T, reads approximately 0 ohms.

(8) Terminal C to lug 2 on induction coil, reads approximately 60 ohms.

(9) Terminal C to transfer spring 1, reads approximately 0 ohms.

(10) Lug 2 on induction coil to terminal R, approximately 10 ohms.

(11) Lug 2 on induction coil to SL wire on 5 microfarad capacitor, reads approximately 7 ohms.

(12) Terminal R to transfer spring 3, reads approximately 0 ohms.

(13) Terminal L2 to transfer spring 2, reads approximately 0 ohms.

(14) Terminal G to ground-switch assembly spring 1, reads approximately 1020 ohms.

(15) Terminal T to terminal C, reads continuity.*

(16) BLU to BLK wires, both on 0.4 microfarad capacitor, read open (very high resistance).

(b) Hookswitch down - trigger tripped or restored.

(1) Terminal R1 to BLU wire on 0.4 microfarad capacitor, reads approximately 0 ohms.

NOTE: On type LPA 82 only: transfer spring 5 to transfer spring 6, reads approximately 0 ohms; with trigger tripped, terminal G to transfer spring 6, reads approximately 1020 ohms. On type LPA 82-55 only: transfer spring 5 to auxiliary transfer spring 1A, reads approximately 0 ohms; with trigger tripped, terminal G to auxiliary transfer spring 1A, reads approximately 1020 ohms.

7.1.3 Type LPB 82 and LPB 82-55.

(a) Hookswitch up - trigger restored.

(1) Transfer spring 2 to transfer spring 5, reads approximately 0 ohms.

(2) Transfer spring 3 to lug 18 on induction coil, reads approximately 39 ohms.

(3) Transfer spring 5 to transfer spring 1, reads approximately 0 ohms.

(4) Transfer spring 4 to lug 14 on induction coil, reads approximately 11.5 ohms.

(5) Lug 14 on induction coil to terminal C, reads approximately 43 ohms.

(6) Lug 18 on induction coil to lug 19 on induction coil, reads approximately 8 ohms.

(7) Lug 18 on induction coil to terminal T, reads approximately 12 ohms.

*Because these values are measured across the transmitter, they may vary considerably depending on the age of the telephone, the type ohmmeter used, and the position of the transmitter.

(8) Terminal L1 to lug 1 on induction coil, approximately 0 ohms.

(b) Hookswitch down - trigger tripped.

(1) Terminal G to transfer spring 2, reads approximately 1020 ohms.

(c) Hookswitch down - trigger either tripped or restored.

(1) Terminal L1 to terminal R1, reads approximately 0 ohms.

NOTE: On type LPB 82-55 only: terminal L1 to auxiliary transfer spring 1A reads approximately 0 ohms.

7.1.4 Type 92N, 92W, 92-N-55, and 92-W-55.

The "N" and "W" series differ in that the "N" series uses a W.E.Co. handset, while the "W" series uses a W. E. Co. dial.

a. Hookswitch up - trigger restored.

(1) Terminal L1 to lug R on induction coil, reads approximately 22 ohms.

(2) Terminal C to lug R on induction coil, approximately 0 ohms.

(3) Transfer spring 1 to terminal L1, approximately 0 ohms.

(4) Transfer spring 2 to lug GN on induction coil, reads approximately 0 ohms.

(5) Transfer spring 4 to terminal L2, approximately 0 ohms.

(6) Transfer spring 5 to terminal T, reads approximately 0 ohms.

(7) Transfer spring 6 to terminal C, reads approximately 21 ohms (on "W" series only).

(8) Transfer spring 2 to terminal C, reads approximately 21 ohms (on "N" series only).

(9) Transfer spring 5 to BLK wire on 2 mfd capacitor approximately 0 ohms ("W" series only).

(10) Transfer spring 3 to BLK wire on 2 microfarad capacitor, approximately 0 ohms (on "N" series only).

(11) Transfer spring 6 to terminal T, reads continuity (on "W" series only).*

(12) Transfer spring 2 to terminal T, reads continuity (on "N" series only).*

(13) Lug GN on induction coil to BLU on 2 microfarad capacitor, approximately 20 ohms.

(b) Hookswitch down - trigger tripped or normal.

(1) Lug R on induction coil to lug GN on induction coil, reads approximately 75 ohms.

NOTE: On type 92 ("N" and "W" series) only: transfer spring 3 to transfer spring 4, reads approximately 0 ohms; with trigger tripped, terminal G to transfer spring 4, reads approximately 1020 ohms.

On type 92-55 ("N" and "W" series) only: transfer spring 3 to auxiliary transfer spring 1A, reads approximately 0 ohms; with trigger tripped, terminal G to auxiliary transfer spring 1A, reads approximately 1020 ohms.

7.1.5 Type LPA 92 and LPA 92-55.

(a) Hookswitch up, with the trigger restored.

(1) Terminal L1 to lug 3 on induction coil, reads approximately 16 ohms.

(2) Transfer spring 5 to lug 2 on induction coil, reads approximately 14 ohms.

(3) Transfer spring 4 to lug 6 on induction coil, reads approximately 14 ohms.

(4) Lug 6 on induction coil to terminal C, reads approximately 68 ohms.

(5) Terminal T to lug 7 on induction coil, reads approximately 36 ohms.

(6) Transfer spring 2 to transfer spring 5, reads approximately 0 ohms.

(b) Hookswitch up - trigger tripped.

(1) Terminal G to transfer spring 2, approximately 1020 ohms.

(c) Hookswitch down - trigger tripped or normal.

(1) Terminal L1 to terminal R1, reads approximately 0 ohms.

NOTE: On type LPA 92-55 only: auxiliary transfer spring 1A to terminal L1 reads approximately 0 ohms.

7.2 Upper housing.

NOTE: The values given in the following continuity tests that are measured across the transmitter may vary considerably depending on age of telephone, type of ohmmeter used, and position of transmitter.

7.2.1 Type 62 and 62-55.

(a) Dial normal.

(1) Transfer spring 5 to transfer spring 6, reads approximately 0 ohms.

(b) Dial off-normal.

(1) Transfer spring 2 to transfer spring 3, approximately 0 ohms.

(2) Transfer spring 2 to transfer spring 4, reads approximately 0 ohms.

7.2.2 Type LPA 82.

(a) Dial normal - Set loop compensator at 4.

(1) Transfer spring 1 to transfer spring 2, reads approximately 425 ohms.

(2) Transfer spring 5 to transfer spring 6, reads approximately 0 ohms.

(b) Dial off-normal.

(1) Transfer spring 4 to transfer spring 3, reads approximately 0 ohms.

*Because these values are measured across the transmitter, they may vary considerably depending on the age of the telephone, the type of ohmmeter used, and the position of the transmitter.

(2) Transfer spring 4 to transfer spring 1, reads approximately 0 ohms.

7.2.3 Type LPA 82-55.

(a) Dial normal, microswitch open, set loop compensator at 4.

(1) Transfer spring 1 to transfer spring 2, reads approximately 425 ohms.

(2) Transfer spring 5 to transfer spring 6, reads approximately 0 ohms.

(3) Transfer spring 6 to auxiliary transfer spring 1A, reads approximately 40 ohms.

(b) Dial off-normal, microswitch open or closed, relay restored.

(1) Transfer spring 4 to transfer spring 3, reads approximately 0 ohms.

(2) Transfer spring 4 to transfer spring 1, reads approximately 0 ohms.

(c) Dial normal, microswitch open or closed, relay operated.

(1) Transfer spring 2 to transfer spring 6, reads approximately 0 ohms.

(2) Transfer spring 5 to transfer spring 6, reads approximately 0 ohms.

(2) Transfer spring 5 to transfer spring 6, reads approximately 0 ohms when dial impulse springs are open and two-nickel mechanism microswitch is operated.

7.2.4 Type LPB 82 and LPA 92.

(a) Dial normal.

(1) Transfer spring 5 to transfer spring 6, reads approximately 20-30 ohms.

(b) Dial off-normal.

(1) Transfer spring 4 to transfer spring 3, reads approximately 0 ohms.

(2) Transfer spring 4 to transfer spring 1, reads approximately 0 ohms.

7.2.5 Type LPB 82-55 and LPA 92-55.

(a) Dial normal, microswitch open, relay restored.

(1) Transfer spring 5 to transfer spring 6, reads approximately 20-30 ohms.

(b) Dial off-normal, microswitch open, relay restored.

(1) Transfer spring 4 to transfer spring 3, reads approximately 0 ohms.

(2) Transfer spring 4 to transfer spring 1, reads approximately 0 ohms.

(c) Dial normal, microswitch open or closed, relay operated.

(1) Auxiliary transfer spring 1A to transfer spring 2, reads approximately 40 ohms.

(2) Transfer spring 5 to transfer spring 6, reads approximately 20-30 ohms when the dial impulse springs are open and two-nickel mechanism microswitch is operated.

7.2.6 Type 92-N-55. The type 92-N-55 paystation differs from the type 92-W-55 paystation (paragraph 7.2.7) in that the "N" series uses a handset provided by Western Electric Company.

(a) Dial normal, microswitch open or closed.

(1) Transfer spring 4 to auxiliary spring 1A, reads approximately 20 ohms.

(2) Transfer spring 5 to transfer spring 6, reads approximately 20-30 ohms.

(b) Dial normal, microswitch open.

(1) Transfer spring 3 to transfer spring 4, reads approximately 0 ohms.

(c) Dial off-normal, impulse springs

open, microswitch closed.

(1) Transfer spring 3 to transfer spring 4, reads approximately 0 ohms.

(d) Dial off-normal, microswitch open or closed.

(1) Transfer spring 1 to transfer spring 2, reads approximately 0 ohms.

(2) Transfer spring 1 to transfer spring 6, reads approximately 0 ohms.

7.2.7 Type 92-W-55. The type 92-W-55 pay-station upper housing differs from the type 92-N-55 upper housing (paragraph 7.2.6) in that the "W" series uses a dial provided by Western Electric Company.

(a) Dial normal, microswitch open or closed.

(1) Transfer spring 2 to transfer spring 6, reads approximately 0 ohms.

(2) Transfer spring 4 to auxiliary transfer spring 1A, reads approximately 20 ohms.

(3) Transfer spring 3 to transfer spring 5, reads approximately 20-30 ohms.

(b) Dial normal, microswitch open.

(1) Transfer spring 3 to transfer spring 4, reads approximately 0 ohms.

(c) Dial off-normal, impulse spring closed, microswitch open.

(1) Transfer spring 1 to transfer spring 4, reads approximately 0 ohms.

(d) Dial off-normal, impulse springs open, microswitch closed.

(1) Transfer spring 3 to transfer spring 4, approximately 0 ohms.

8. RINGER TESTS WITH BREAKDOWN VOLTAGE

Use a 7,000 ohm ringer test box with 500 volts at 60 cycles per second as a voltage source. Adjust ringer to ring through 125,000 ohms and not to ring through 250,000 ohms.

8.1 Lower housing breakdown tests. The ringer shall not operate when 500 volts at 60 cycles per second is connected for one-fourth second between the following points on the lower housing.

8.1.1 Type 62 and 62-55. With receiver on hook and trigger restored:

(a) Housing to all soldered connections and terminals.

(b) Terminal G to terminal L1.

(c) Lug 1 on induction coil to terminal L1.

(d) Lug 1 on induction coil to BLK-BLU on 0.7 microfarad capacitor. With receiver on hook and trigger tripped; lug 1 on induction coil to terminal L1. With receiver off hook and trigger restored; BLK-BLU on 0.7 microfarad capacitor to terminal R1.

8.1.2 Type LPA 82 and LPA 82-55. With receiver on hook and trigger restored:

(a) Housing to all soldered connections and terminals.

(b) Terminal G to terminal L1.

(c) Lug 6 on induction coil to terminal L1.

(d) Lug 6 on induction coil to BLU on 0.4 microfarad capacitor.

With receiver on hook and trigger tripped; lug 6 on induction coil to terminal L1. With receiver off hook and trigger restored; BLU on 0.4 microfarad capacitor to terminal R1.

8.1.3 Type LPB 82 and LPB 82-55. With receiver on hook and trigger restored:

(a) Housing to all soldered connections and terminals.

(b) Terminal G to terminal L1.

(c) Lug 1 on induction coil to terminal L1.

(d) Transfer spring 1 to spring 5.

With receiver on hook and trigger tripped; lug 1 on induction coil to terminal L1. With receiver off hook and trigger restored; terminal L1 to terminal R1.

8.1.4 Type 92 and 92-55 ("N" and "W" series). With the receiver on hook and trigger restored:

(a) Housing to all soldered connections and terminals.

(b) Terminal G to terminal L1.

(c) Lug GN on induction coil to transfer spring 2.

(d) Terminal T to transfer spring 5.

With receiver on hook and trigger tripped; terminal G to terminal L1. With receiver off hook and trigger restored; terminal G to terminal L1.

8.1.5 Type LPA 92 and LPA 92-55. With receiver on hook and trigger restored:

(a) Housing to all soldered connections and terminals.

(b) Terminal G to terminal L1.

(c) Lug 4 on induction coil to terminal L1.

(d) Lug 1 on induction coil to transfer spring 5.

With receiver on hook and trigger tripped; lug 4 on induction coil to terminal L1. With receiver off hook and trigger restored; terminal L1 to terminal R1.

8.2 Upper housing breakdown tests. With the dial at normal, the ringer must not operate when 500 volts at 60 cycles per second is connected for one-fourth second between the following points.

8.2.1 Type 62 and 62-55.

(a) Housing to all terminals.

(b) Between jackstrip terminals 2 and 3.

(c) Between jackstrip terminals 2 and 4.

(d) Between jackstrip terminals 4 and 5.

Dial off normal. With the ringer connected between jackstrip terminal 5 and 6, let dial rotate back to normal. An intermittent ringing is heard. A steady ring indicates a short; no ring indicates pulsing springs are not making.

8.2.2 Type LPA 82 and LPA 82-55.

(a) Housing to all terminals.

(b) Between jackstrip terminals 1 and 3.

(c) Between jackstrip terminals 1 and 4.

(d) Between jackstrip terminals 4 and 5.

Dial off-normal. With ringer connected between jackstrip terminals 5 and 6, let dial rotate back to normal. An intermittent ringing is heard. A steady ring indicates a short; no ring indicates pulsing springs are not making.

8.2.3 Type LPB 82, LPB 82-55, LPA 92, and LPA 92-55.

(a) Housing to all terminals.

(b) Between jackstrip terminals 1 and 3.

(c) Between jackstrip terminals 1 and 4.

(d) Between jackstrip terminals 3 and 5.

Dial off-normal. With ringer connected between jackstrip terminals 5 and 6, let dial rotate back to normal. An intermittent ringing is heard. A steady ring indicates a short; no ring indicates pulsing springs are not making.

8.2.4 Type 92N and 92-N-55.

(a) Housing to all terminals.

(b) Between jackstrip terminals 1 and 6.

(c) Between jackstrip terminals 2 and 6.

(d) Between jackstrip terminals 2 and 3.

Dial off-normal. With ringer connected between jackstrip terminals 3 and 4, let dial rotate back to normal. An intermittent ringing is heard. A steady ring indicates a short; no ring indicates pulsing springs are not making.

8.2.5 Type 92-W and 92-W-55 (W.E.Co.dial).

(a) Housing to all terminals.

(b) Between jackstrip terminals 1 and 3.

(c) Between jackstrip terminals 1 and 6.

Dial off-normal. With ringer connected between jackstrip terminals 3 and 4, let dial rotate back to normal. An intermittent ringing is heard. A steady ring indicates a short; no ring indicates pulsing springs are not making.

9. MOUNTING THE ANTI-STUFFING DEVICE (CONVERSION KIT P-70923 AND DRILL JIG P-70924)

Conversion of a paystation to incorporate the anti-stuffing device coin-return chute requires the following parts:

(a) 1 P-70293 Conversion kit.

(1) 1 P-11845 Coin-return escutcheon.

(2) 1 P-11848 Swivel pin.

(3) 1 P-11858 Anti-stuffing device.

(4) 1 P-60617 Coin-refund chute.

(b) 1 P-70294 Drill jig.

9.1 Method of Conversion. Remove paystation upper housing, then remove lower housing from back plate. Remove mechanism base (with coin relay and hopper) and refund chute in following manner; retain all screws.

(a) Unlock cash-compartment door.

(b) Loosen 2 terminals at spring contacts of coin relay and 1 terminal at rear of coil.

(c) Remove leads from coin relay.

(d) Remove two 1/4-28 x 1/2'' screws and three 10-32 x 1/4'' screws at

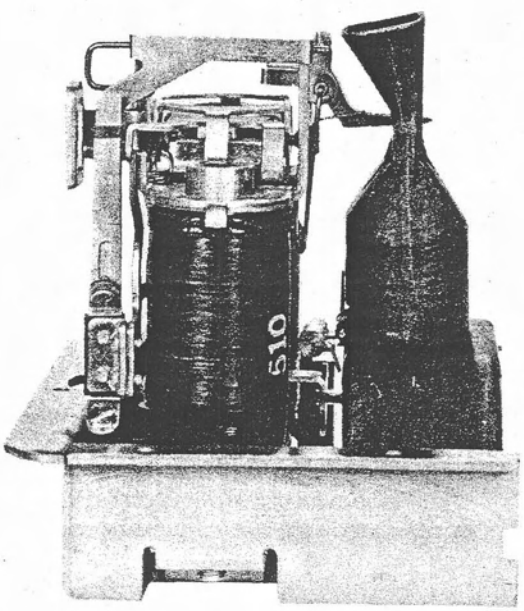


Figure 20. Coin relay, side view.

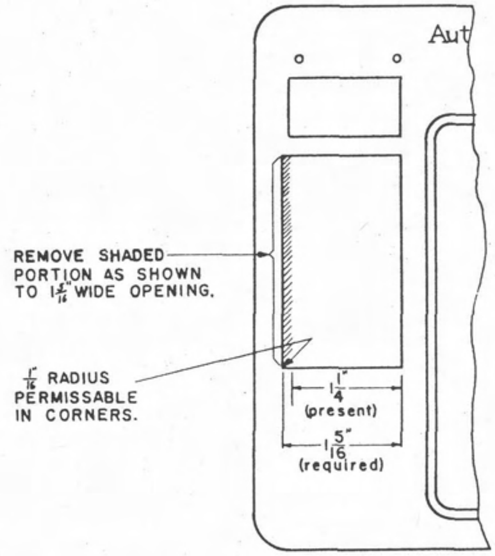


Figure 21. Widening of coin return opening in lower housing.

rear of back plate.

(e) Remove 1/4-28 x 1/2'' screw inside cash compartment in left bottom rear corner. Use slot at bottom of coin refund partition for easy access.

(f) Remove 1/4-28 x 1/2'' screw in top right corner inside of cash compartment.

(g) Separate lower housing from back plate and lay back plate in a safe place.

(h) Remove two 8-36 x 1/4'' round-head screws underneath mechanism base that hold coin refund chute.

(i) Remove three 8-36 x 3/16'' round screws on inside top right of cash compartment that hold mechanism base to lower housing.

(j) Remove the 8-36 x 3/16'' round-head screw on inside front center of cash compartment that also holds mechanism base.

(k) Place lower housing upright and remove the 8-36 x 3/16'' round-head screw from left side of mechanism base.

(l) Lift off mechanism base, coin relay and coin hopper.

(m) Lift out coin return chute, prying up lip in front until it clears edge of lower part of escutcheon.

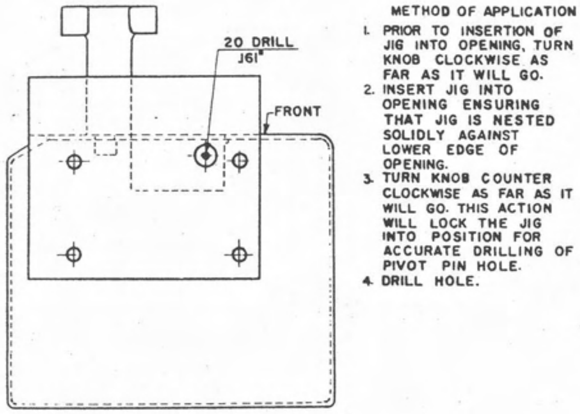


Figure 22. Drilling position.

(n) Knock out 4 drive pins (on older type paystations only) holding escutcheon to lower housing and retain 2 drive pins to plug 2 top holes. Discard escutcheon.

(o) Widen coin return escutcheon opening using a file, or preferably by milling (figure 21).

(p) Lay cash compartment on its side with refund section uppermost.

(q) Place drill jig (P-70294) on lower housing in coin refund opening and clamp tight (figure 22).

(r) Using a #20 drill (0.161") and the jig guide, drill a hole through outside of cash compartment and inner partition.

(s) Countersink outside hole to accommodate head of swivel pin.

(t) Plug 2 upper escutcheon holes with drive pins (removed in step n).

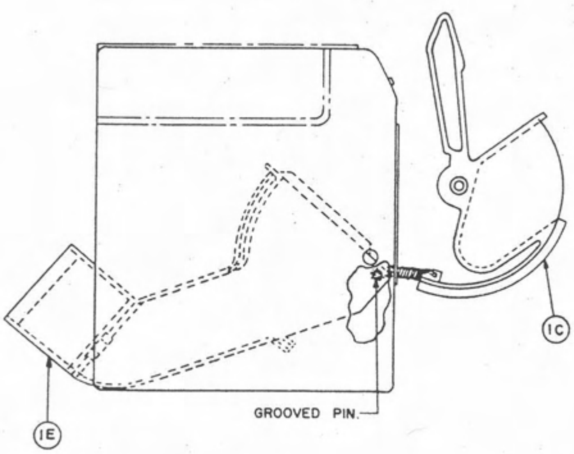


Figure 23. Insertion.

(u) Insert escutcheon (P-11845) into widened opening.

(v) Bend over bottom flange of escutcheon against inside surface of lower housing.

(w) Place refund chute in approximate location in lower housing with grooved pin to front at coin refund opening (figure 23).

(x) Insert end of coil spring into lip-hole of anti-stuffing device (figure 24). Close up loop of spring after this assembly.

(y) Give anti-stuffing device one half-turn; this is necessary because anti-stuffing device is positioned upside down to facilitate coin spring insertion.

(z) Insert anti-stuffing device into coin return opening. Line up holes of anti-stuffing device, refund chute, and lower housing to facilitate insertion of swivel pin.

(aa) Peen over legs of swivel pin against sides of partition.

(ab) Place mechanism base, coin relay and hopper in position on top of lower housing. Hold refund chute up so coin hopper can slide inside edges.

(ac) Carefully lay lower housing, front down. Do not damage anti-stuffing device.

(ad) Insert an 8-36 x 3/16" round-head screw in top left hole inside of cash compartment. Move mechanism base to line up threaded hole of base with hole in lower housing.

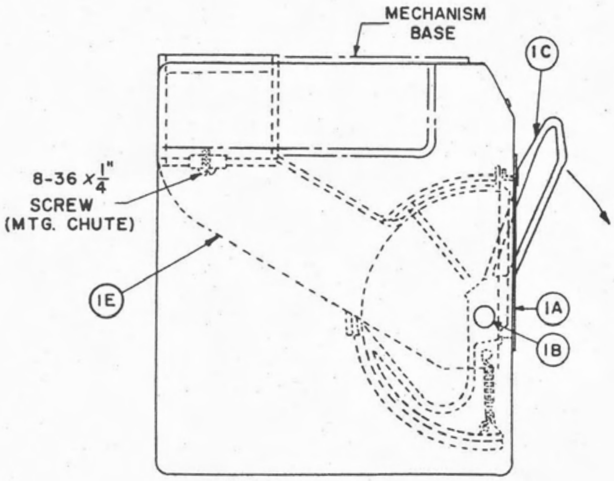
(ae) Do not tighten screw at this time.

(af) Insert an 8-36 x 3/16" round-head screw in lower left hole inside of case compartment, take up approximately 2 turns, leaving this screw loose.

(ag) Place lower housing on its back.

(ah) Insert an 8-36 x 3/16" round-head screw at inside front center of cash compartment leaving this screw loose.

(ai) Place an 8-36 x 3/16" round-head screw in remaining hole of mechanism base and tighten securely.



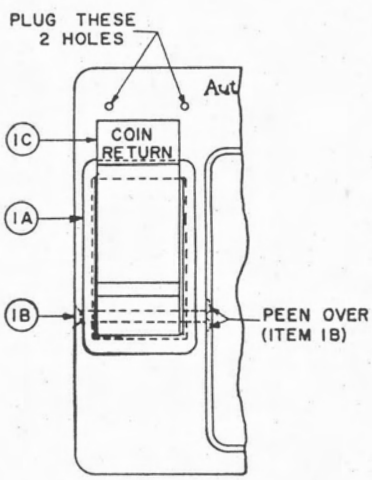


Figure 24. Completion.

(aj) Tighten other 3 round-head screws securely.

NOTE: To facilitate insertion of these screws, use a screw-holding tool.

(ak) Secure refund chute to mechanism base with an 8-36 x 1/4'' round-head screw (figure 24).

(al) Mate lower housing to back plate with back plate lying flat on bench.

(am) Using a screw-holding tool, insert a 1/4-28 x 1/2'' screw into top right corner inside cash compartment. Leave screw loose.

(an) Insert a 1/4-28 x 1/2'' screw at bottom left corner inside of cash compartment. To reach screw insert screwdriver through slot in partition.

(ao) Lift paystation upright.

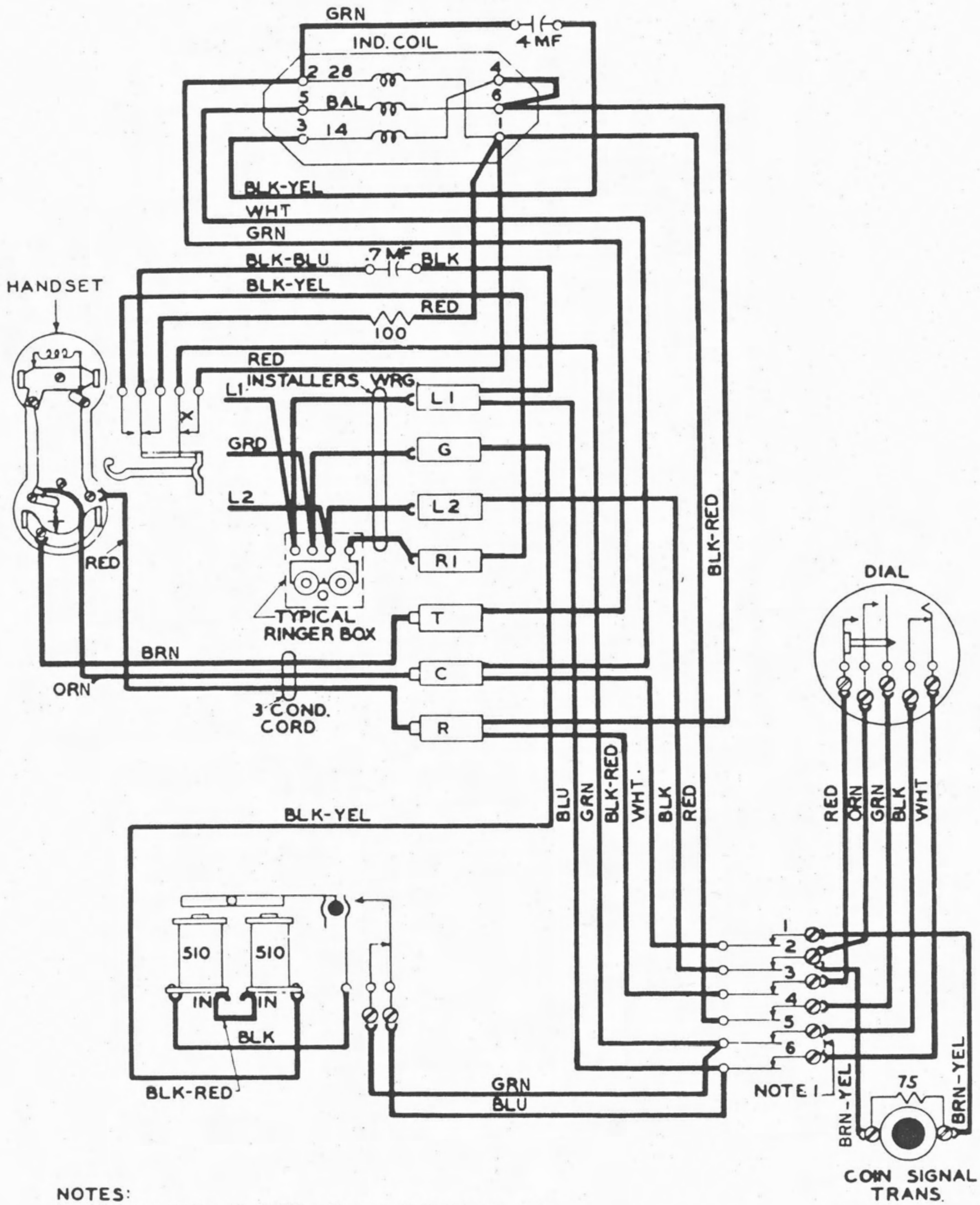
(ap) Insert a 1/4-28 x 3/8'' screw in top right corner at rear of back plate.

(aq) Insert a 1/4-28 x 3/8'' screw in bottom left corner at rear of back plate.

(ar) Insert three 8-32 x 1/4'' screws in remaining holes.

(as) Tighten all 7 screws securely.

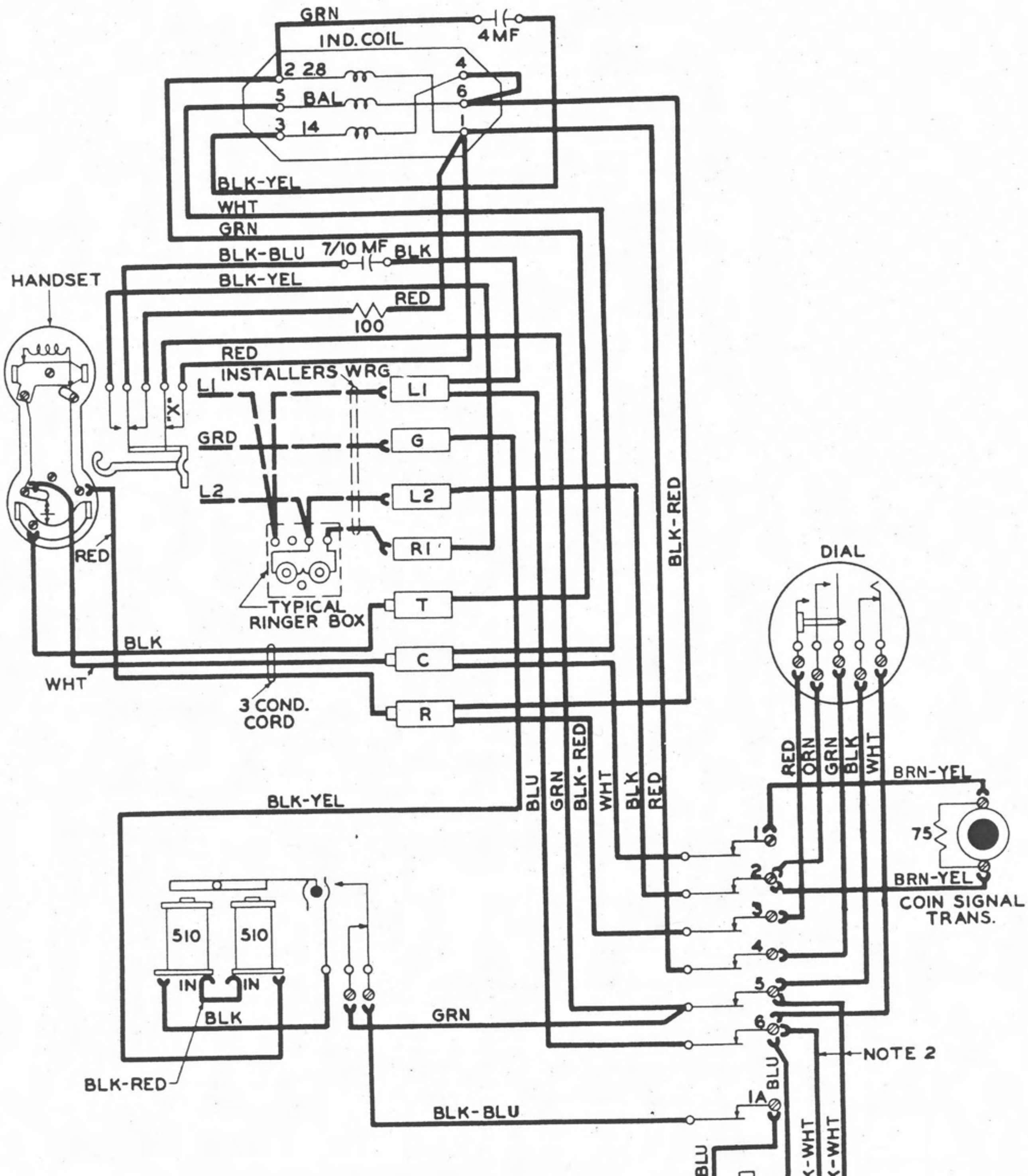
(at) Install upper housing and lock.



NOTES:
1- WHEN NO DIAL IS USED STRAP TERMINALS 5 & 6.
WHEN NO RELAY IS USED TAPE LEADS

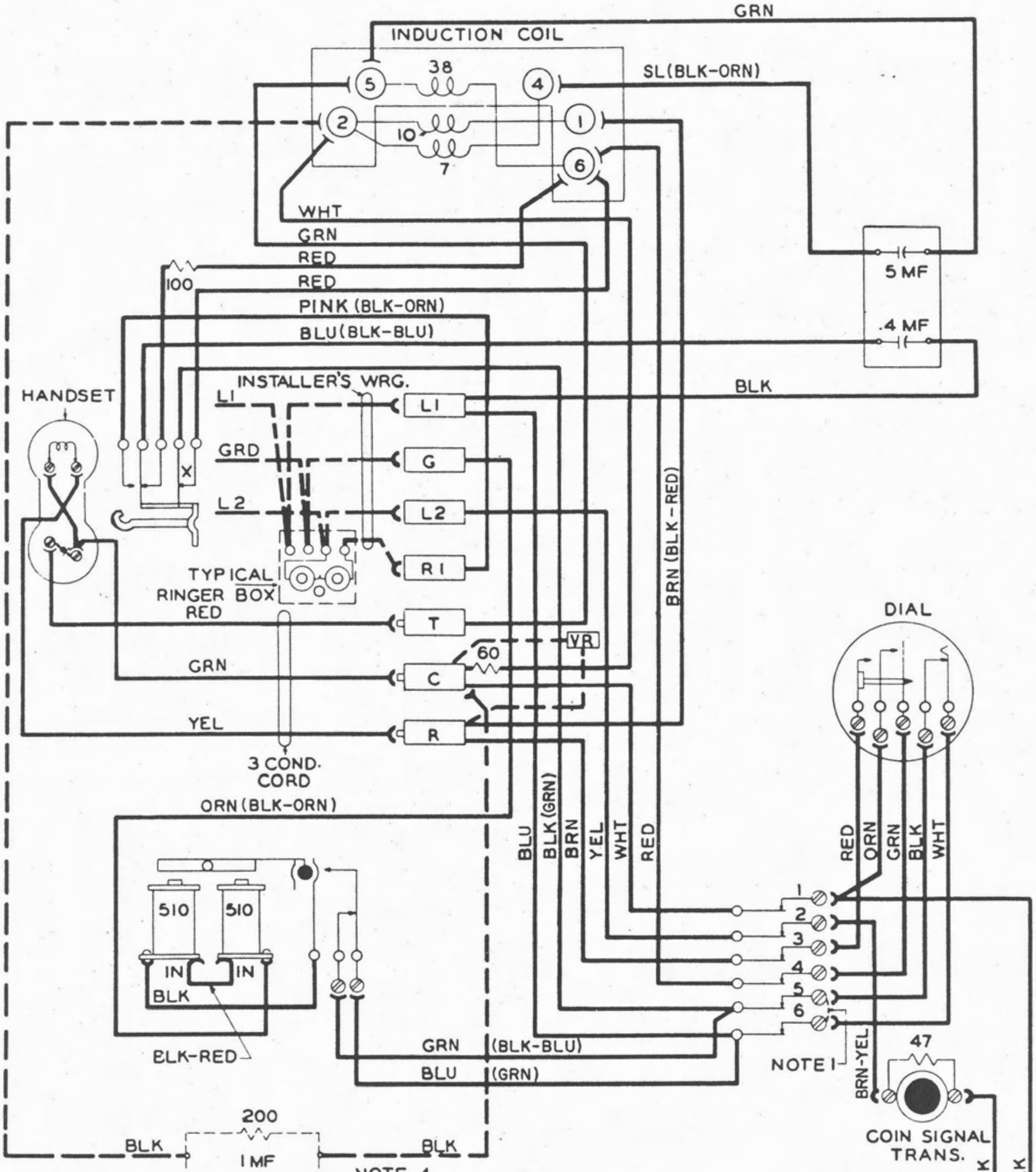
2- CONTACT X TO BREAK FIRST AND MAKE LAST.

Figure 25. Wiring diagram, type 62.



NOTES:
1- CONTACT "X" TO BREAK FIRST AND MAKE LAST.
2- FOR NICKEL SERVICE DISCONNECT LEADS INDICATED.

Figure 26. Wiring diagram, type 62-55.



NOTES:

1– WHEN NO DIAL IS USED STRAP TERMINALS 5 & 6. WHEN NO RELAY IS USED TAPE LEADS.

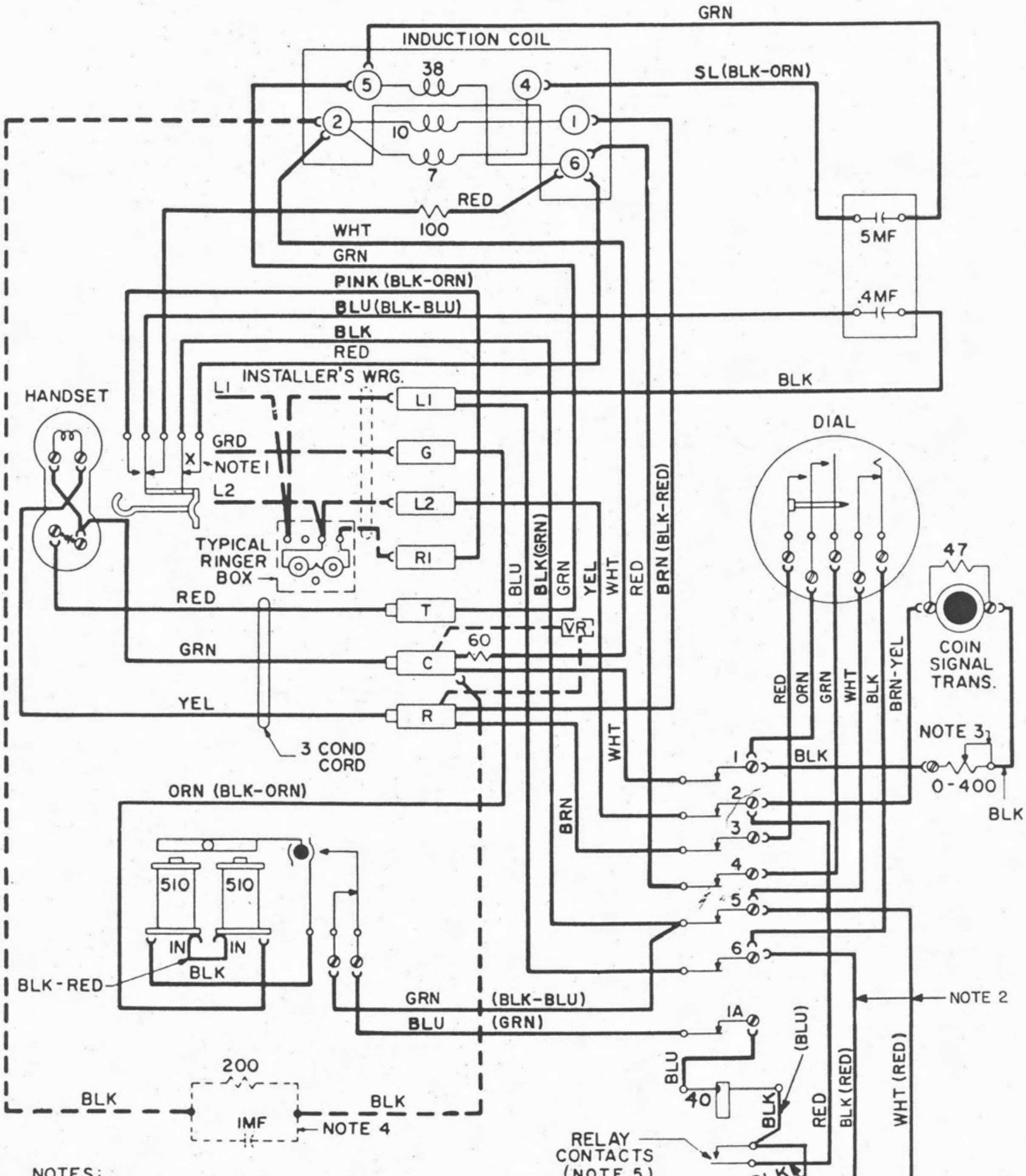
2– CONTACT "X" TO BREAK FIRST AND MAKE LAST.

3– LOOP COMPENSATOR TO BE SET AT "2" FOR LESS THAN 200 OHM LOOPS AND AT "0" FOR OVER 200 OHMS.

4– INSTALL SIDETONE BALANCING IMPEDANCE ON UNLOADED CABLE LOOPS OF OVER 200 OHMS PROVIDING ANY ADJACENT OPEN WIRE SECTION IS LESS THAN 200 OHMS.

5– COLOR CODES THAT VARY FROM LPA 82 PAYSTATIONS AND APPEAR ON OLDER TYPE 82 PAYSTATIONS ARE GIVEN IN PARENS.

Figure 27. Wiring diagram, type LPA 82.



NOTES:

1- CONTACT "X" TO BREAK FIRST AND MAKE LAST.

2- FOR NICKEL SERVICE DISCONNECT LEAD INDICATED.

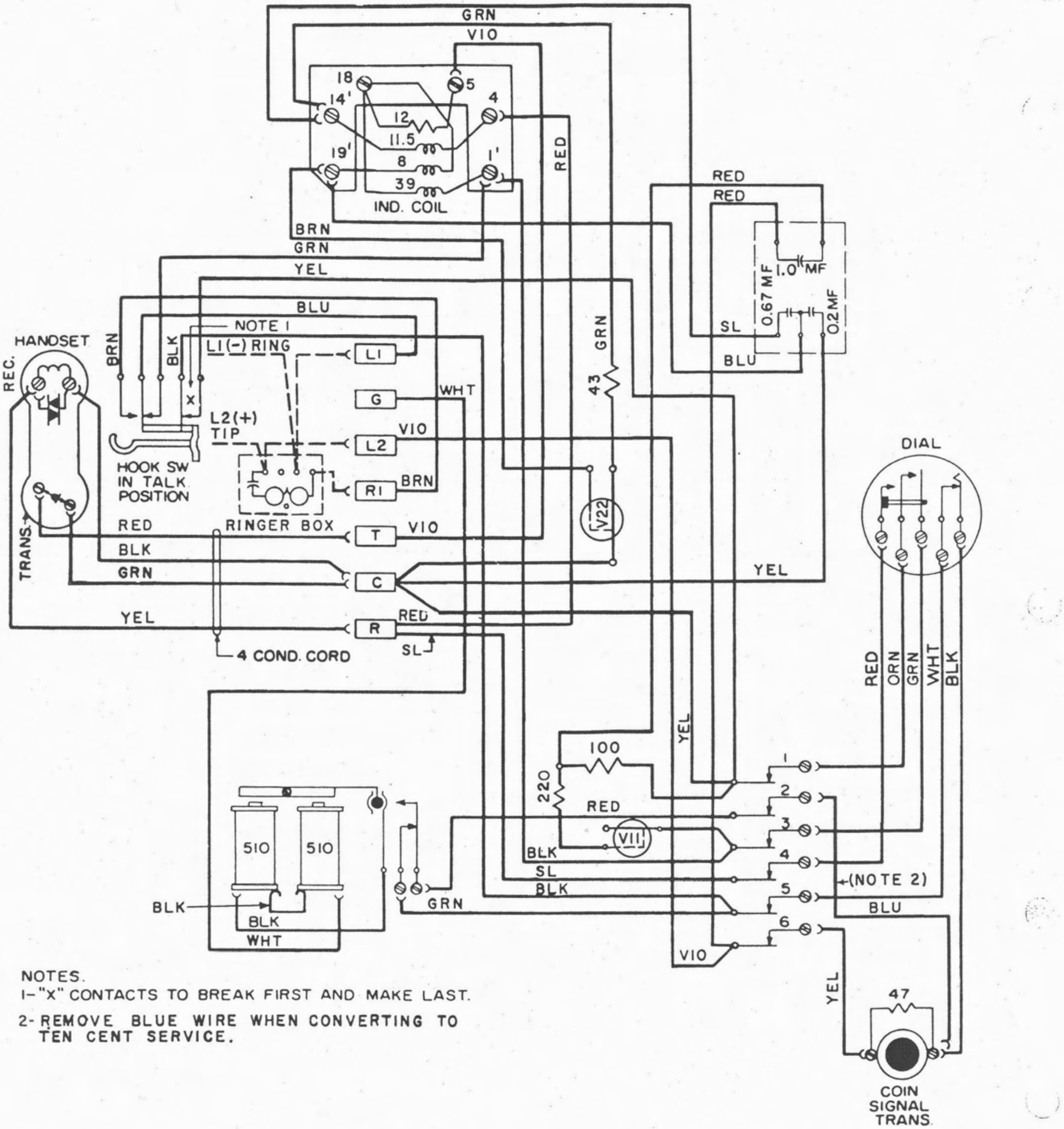
3- LOOP COMPENSATOR TO BE SET AT "2" FOR LESS THAN 200 OHM LOOPS AND AT "0" FOR OVER 200 OHMS.

4- INSTALL SIDETONE BALANCING IMPEDANCE ON UNLOADED CABLE LOOPS OF OVER 200 OHMS PROVIDING ANY ADJACENT OPEN WIRE SECTION IS LESS THAN 200 OHMS.

5- ON LINE LOOPS LESS THAN 500 OHMS ISOLATE RELAY CONTACTS BY DISCONNECTING "RED" RELAY LEAD FROM JACK STRIP TERMINAL AND TAPING.

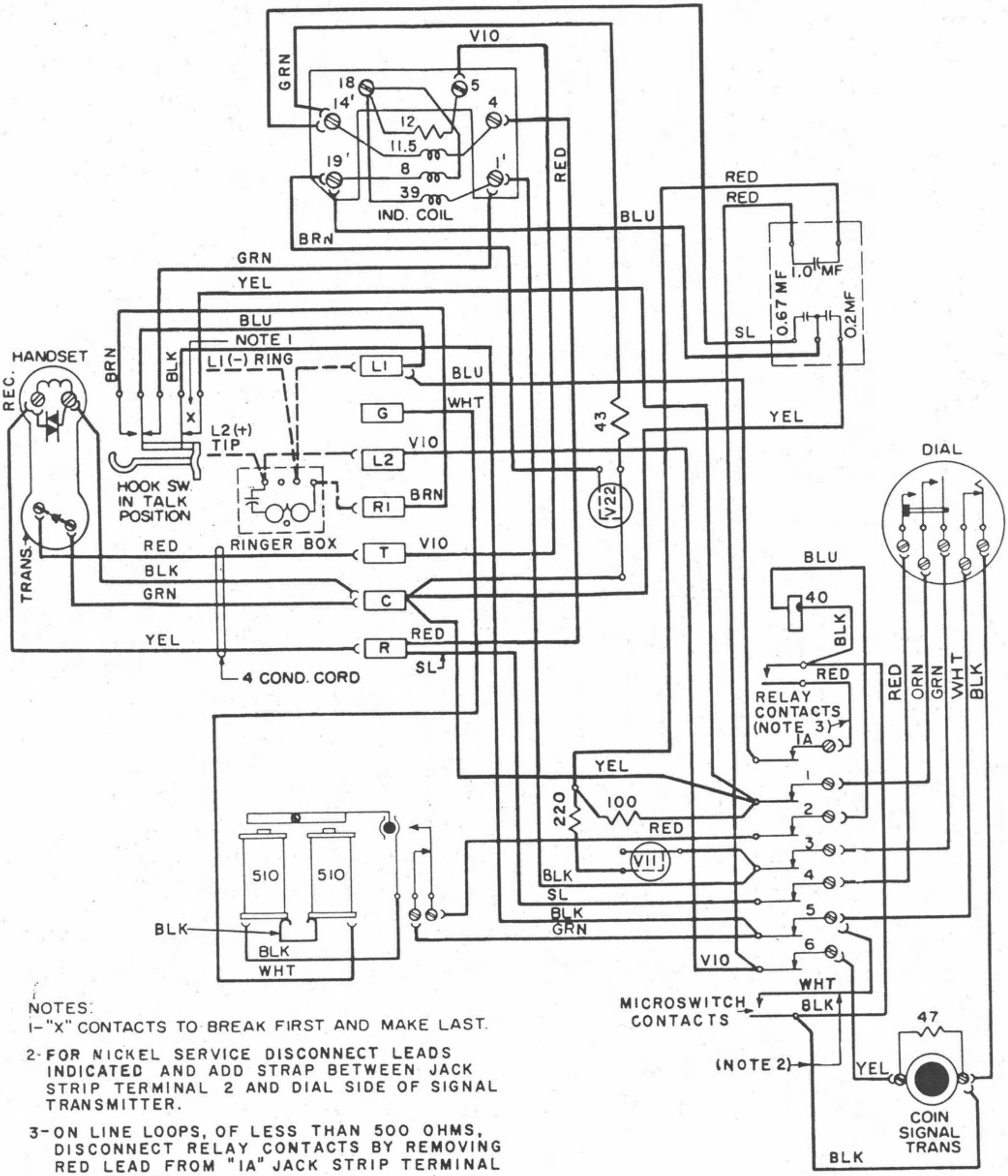
6- COLOR CODES THAT VARY FROM LPA 82-55 PAYSTATIONS AND APPEAR ON OLDER TYPE 82-55 PAYSTATIONS ARE GIVEN IN PARENS.

Figure 28. Wiring diagram, type LPA 82-55.



NOTES.
1- "X" CONTACTS TO BREAK FIRST AND MAKE LAST.
2- REMOVE BLUE WIRE WHEN CONVERTING TO TEN CENT SERVICE.

Figure 29. Wiring diagram, type LPB 82.



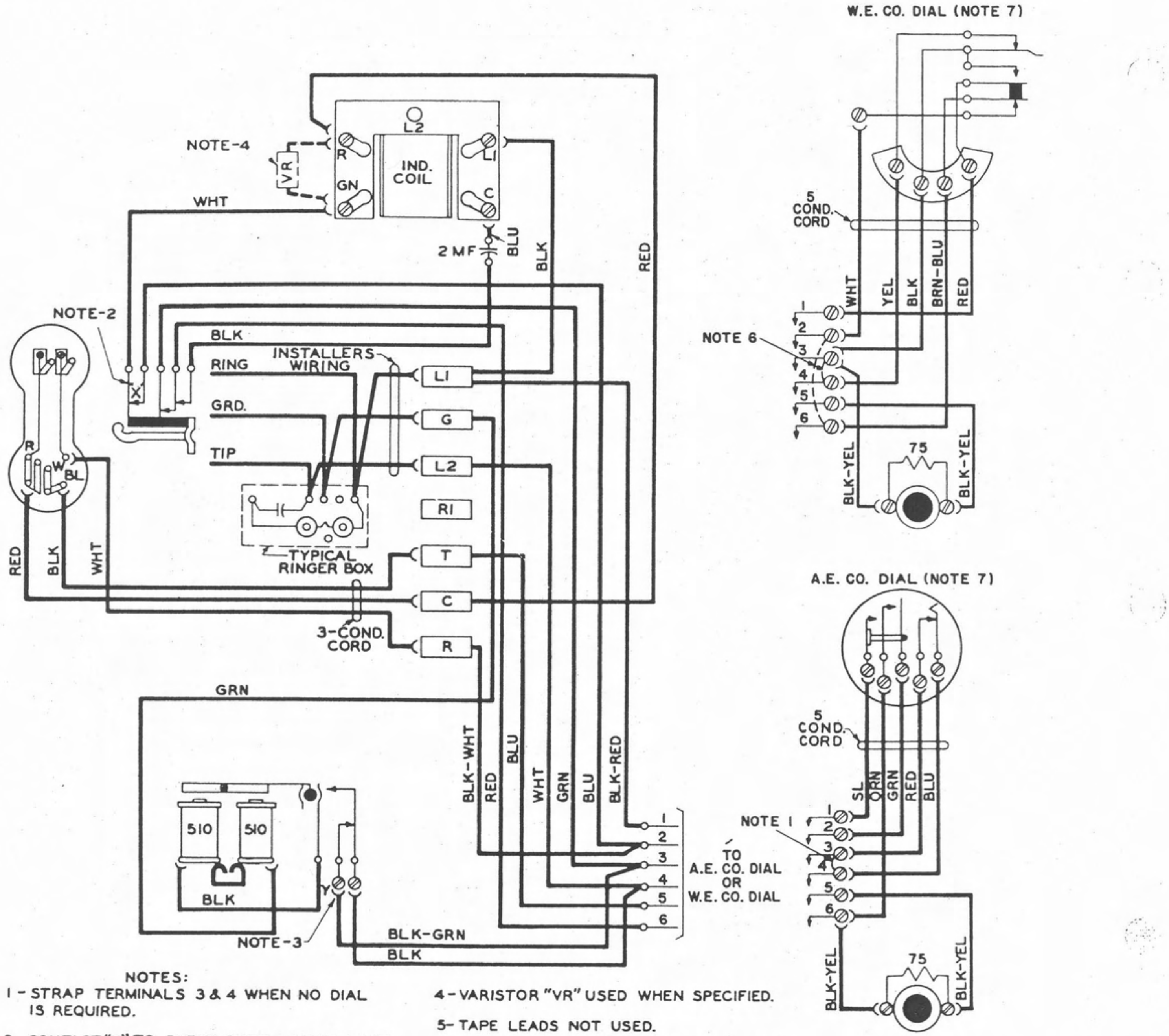
NOTES:

1-"X" CONTACTS TO BREAK FIRST AND MAKE LAST.

2-FOR NICKEL SERVICE DISCONNECT LEADS INDICATED AND ADD STRAP BETWEEN JACK STRIP TERMINAL 2 AND DIAL SIDE OF SIGNAL TRANSMITTER.

3-ON LINE LOOPS, OF LESS THAN 500 OHMS, DISCONNECT RELAY CONTACTS BY REMOVING RED LEAD FROM "1A" JACK STRIP TERMINAL AND TAPING.

Figure 30. Wiring diagram, type LPB 82-55.



NOTES:

1 - STRAP TERMINALS 3 & 4 WHEN NO DIAL IS REQUIRED.

2 - CONTACT "X" TO BREAK FIRST & MAKE LAST.

3 - WHEN USED WITH REPEATERS THAT DO NOT REQUIRE A SHUNTED DIAL CONTROL, DISCONNECT CLIP "Y"

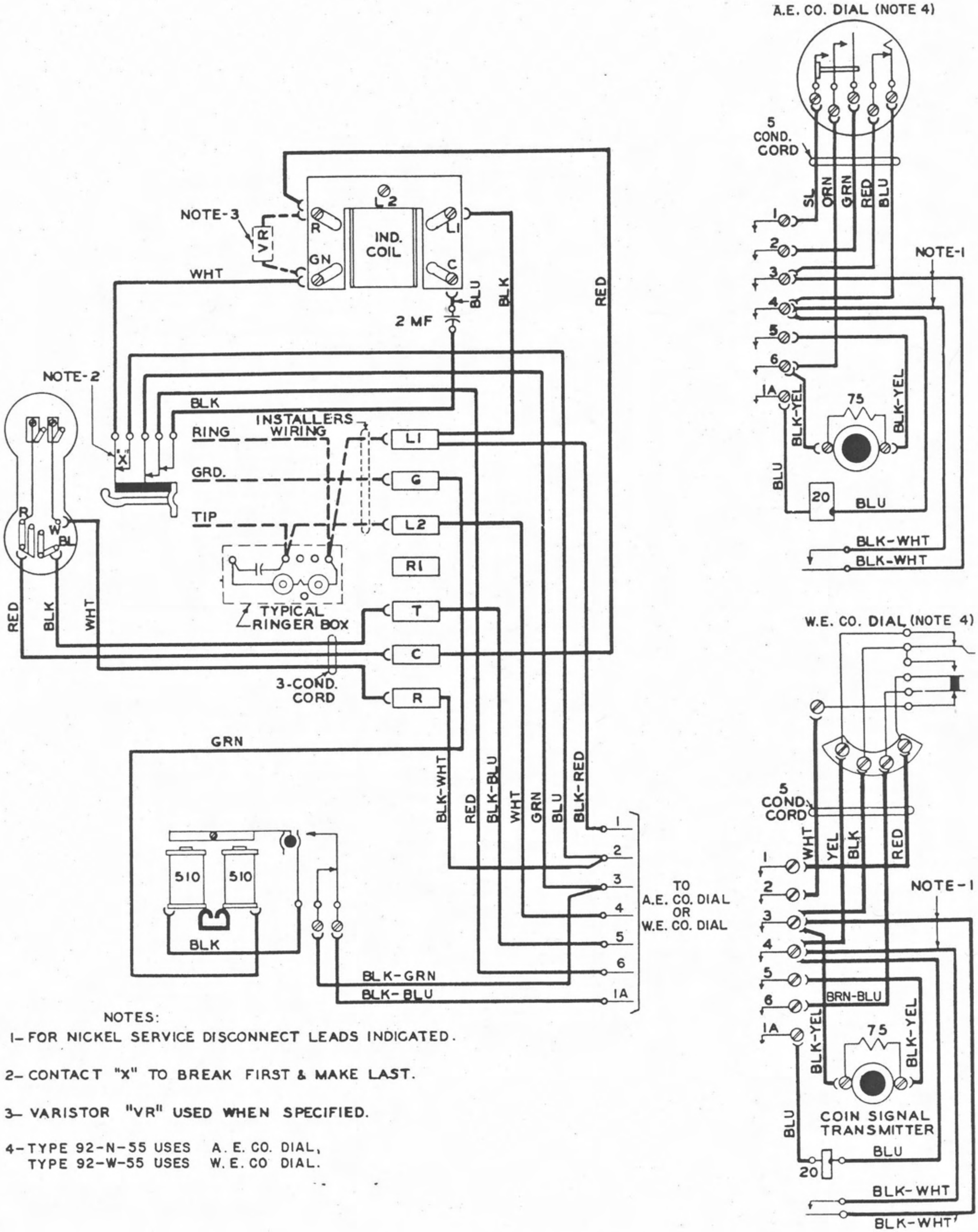
4 - VARISTOR "VR" USED WHEN SPECIFIED.

5 - TAPE LEADS NOT USED.

6 - STRAP TERMINALS 2 & 6 AND 3 & 4 WHEN NO DIAL IS REQUIRED.

7 - TYPE 92N USES A. E. CO. DIAL,
TYPE 92W USES W. E. CO. DIAL.

Figure 31. Wiring diagram, type 92 ("N" and "W" series).



NOTES:

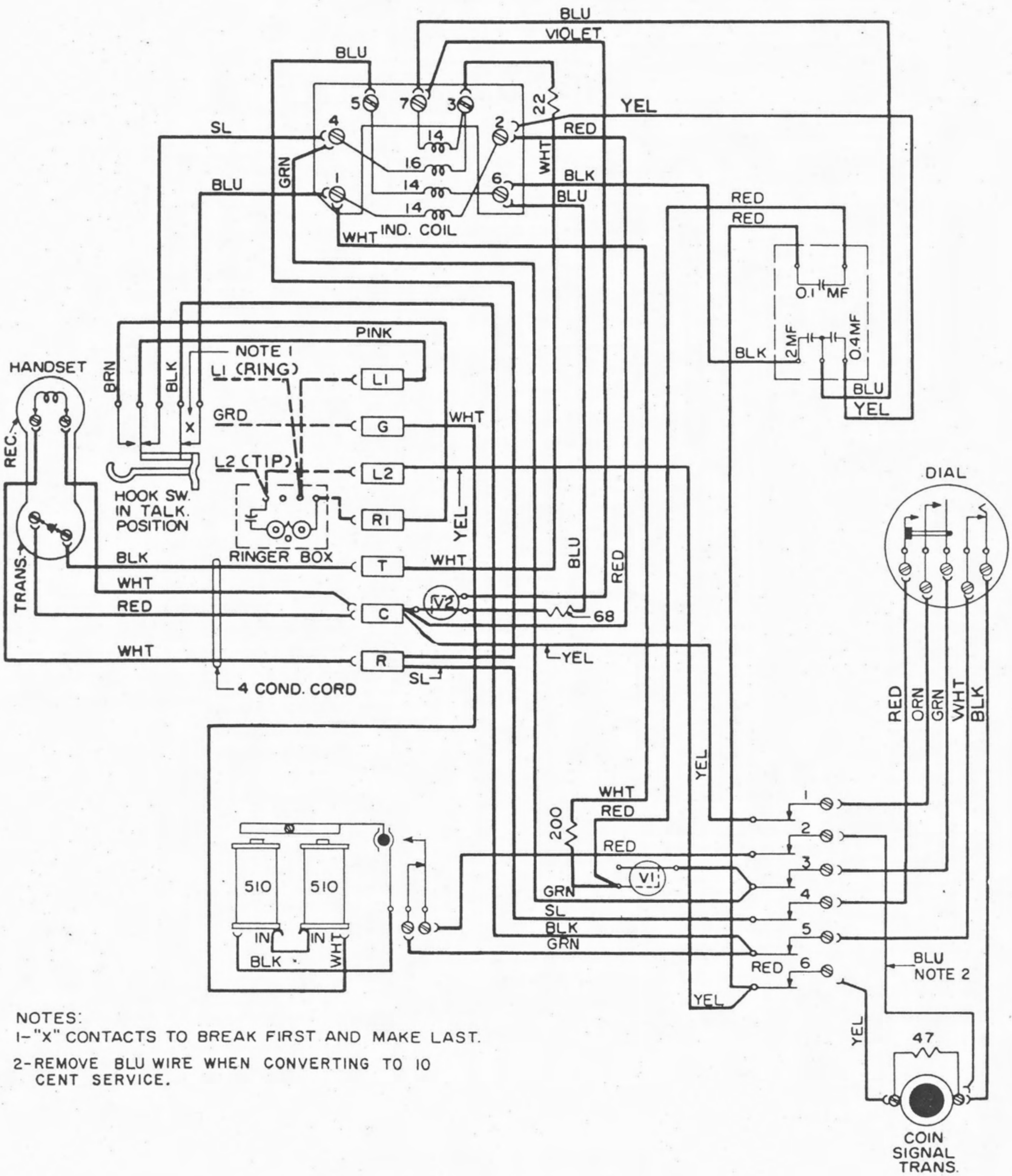
1- FOR NICKEL SERVICE DISCONNECT LEADS INDICATED.

2- CONTACT "X" TO BREAK FIRST & MAKE LAST.

3- VARISTOR "VR" USED WHEN SPECIFIED.

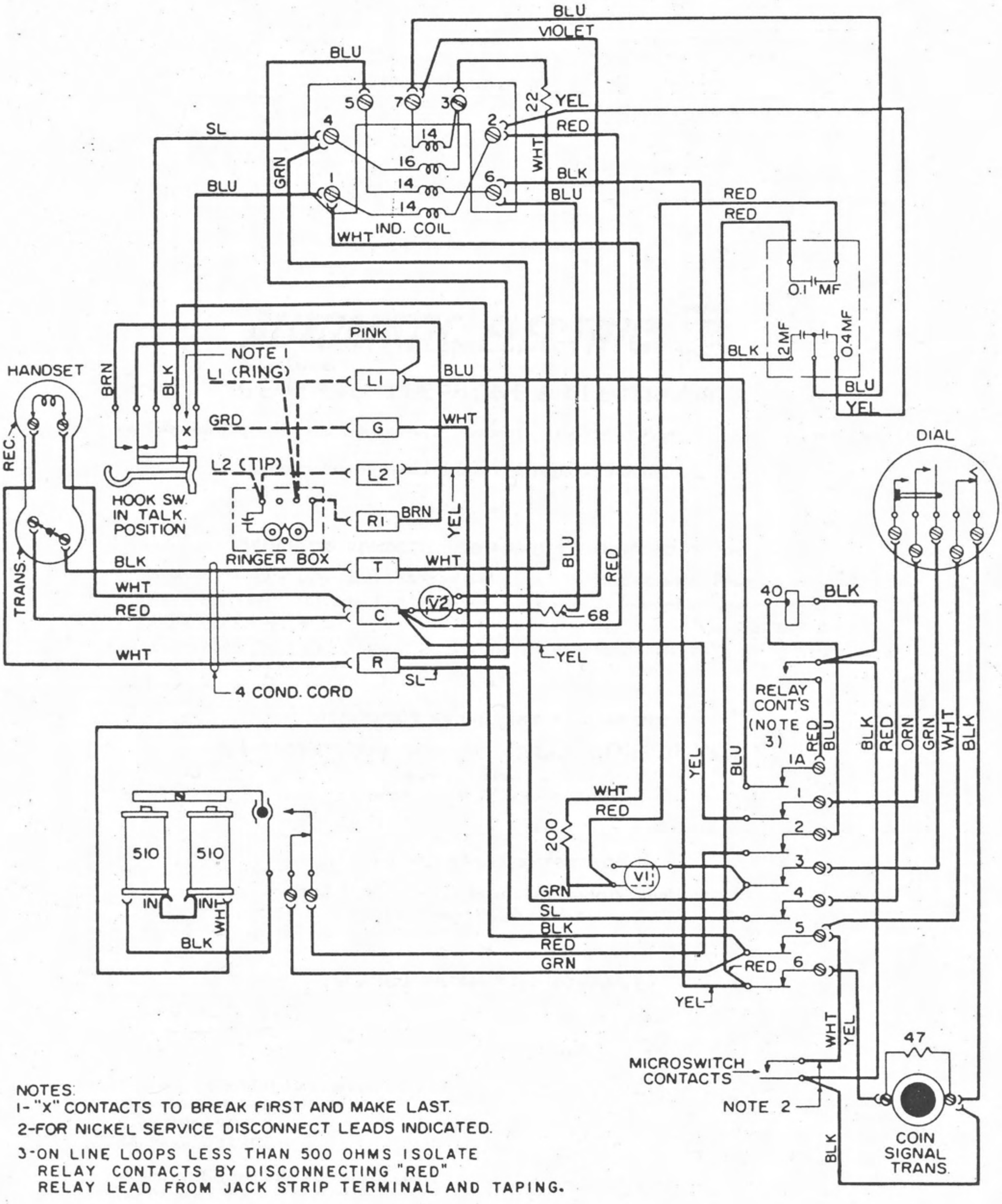
4- TYPE 92-N-55 USES A. E. CO. DIAL,
TYPE 92-W-55 USES W. E. CO DIAL.

Figure 32. Wiring diagram, type 92-55 ("N" and "W" series).



NOTES:
1- "X" CONTACTS TO BREAK FIRST AND MAKE LAST.
2- REMOVE BLU WIRE WHEN CONVERTING TO 10 CENT SERVICE.

Figure 33. Wiring diagram, type LPA 92.



NOTES:
1- "X" CONTACTS TO BREAK FIRST AND MAKE LAST.
2-FOR NICKEL SERVICE DISCONNECT LEADS INDICATED.
3-ON LINE LOOPS LESS THAN 500 OHMS ISOLATE RELAY CONTACTS BY DISCONNECTING "RED" RELAY LEAD FROM JACK STRIP TERMINAL AND TAPING.

Figure 34. Wiring diagram, type LPA 92-55.

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