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## COIN COLLECTORS MULTI-SLOT TYPES DESCRIPTION AND OPERATION

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## 1. GENERAL

1.01 This section contains general information pertaining to multi-slot coin collectors and is reissued to include apparatus designed for prepay or postpay service and five or ten-cent operation, receiver-transmitter types converted to handset types, and apparatus converted from five-cent to tencent operation.
1.02 The term "10¢ operation" is used, herein, to describe coin collectors requiring a minimum of two nickels or a dime to initiate or complete a connection.
1.03 The term " $5 \phi$ operation" is used, herein, to describe coin collectors requiring only one nickel to initiate or establish a connection.
1.04 The terms "prepay or prepayment" are used, herein, to describe coin collectors requiring a deposit of coins before dial tone can be received or an operator will answer. In a few localities, dial tone is obtained before the deposit of a coin, but local calls cannot be dialed before the coin deposit.
1.05 The terms "postpay or postpayment" are used, herein, to describe coin collectors by which the desired number may be dialed or given to the operator prior to a deposit. A deposit is required to complete the call after the connection has been indicated by a second dial tone or by the operator's request.
1.06 The term "receiver-transmitter" is used, herein, to describe apparatus having the talking transmitter mounted on the front of the upper housing and the receiver as a separate unit. See Fig. 1.
1.07 The term "handset" is used, herein, to describe apparatus having the receiver and talking transmitter mounted in a handle which is a unit separate from the upper housing. See Fig. 2.
1.08 This section cancels Section C42.136 covering the description and operation of the 191 and 193 handset coin collectors. The marginal arrows usually used to indicate changes within a practice have been omitted because of extensive changes in the scope and arrangement of this section.

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## 2. GENERAL DESCRIPTION

## General

2.01 A coin collector is a station set arranged to collect charges for telephone calls. The multi-slot types, herein, and listed under supplies in Section C42.104, are arranged to collect nickels, dimes and quarters.
2.02 The coin collector consists of two substantial assembly details; the upper housing and the backplate assembly which lock together and protect the various internal parts, such as: the coin chute, gong signal assembly, hopper, and coin receptacle. A coin gauge is fastened to the top of the upper housing externally to provide the proper size entrance for the subscriber to insert nickels, dimes or quarters.

## Explanation of Chart 1

2.03 Chart 1 gives some of the basic characteristics and distinguishing features of the various coin collectors. The numbers 1 to 4 on the left margin divide the apparatus into four groups: The first group consists of coin collectors which exist and operate as originally manufactured. The second group consists of receiver-transmitter types which have been converted from $5 \phi$ to $10 \phi$ operation. The third group consists of collectors which have been converted from $5 \phi$ operation receiver-transmitter types to $10 ¢$ operation handset types. The fourth group consists of $5 \phi$ coin collectors which have been converted from receiver-transmitter types to handset types.
2.04 Under the heading "Type Service", several codes are shown to be adaptable to more than one type of service. This means that for a particular coin collector, there is a choice of the type service for which it can be used, i.e., the 191-type, as indicated, may be used for manual or dial prepay service.
2.05 Under the sub-heading "Gong Signal Assembly", the 181, 182, 183, 191, 193, and 195-type coin collectors may be found with any one of the indicated gong signal assemblies which are described in Paragraphs 3.07 to 3.11 .
2.06 Under the sub-heading "Terminations", for the 161 , 162 , and 163 -type coin collectors the apparatus may exist in the field with either of the indicated terminations.
2.07 Under the sub-heading "Switchhook", for the 161, 162, and 163 -type coin collectors the apparatus may exist in the field with either the shaft or the yoke-type switchhook.


Fig. 1-Receiver-transmitter Coin Collector


Fig. 2-Handset Coin Collector

## 3. DESCRIPTION OF UPPER HOUSING

## General

3.01 The upper housings of all multi-slot coin collectors include the following parts: The coin gauge, coin chute, upper part of the coin return chute, and the gong signal assembly.
3.02 According to the type of service, dial or manual, a dial may or may not be mounted on the front of the upper housing.
3.03 In the case of the receiver-transmitter coin collectors the talking transmitter is mounted on the front of the upper housing.

## Coin Chutes

3.04 The coin chute designed for $10 ¢$ operation is made of stainless steel. It includes an electromagnet, condenser, gate, holding latch, and locking latch. The electromagnet is mounted on the chute at the entrance to the nickel channel and is connected with a 4 mf by-pass condenser in series with the transmission circuit. The condenser coded 452A or B, is mounted under the coin return chute in the upper housing, lead-wire end up, except where the coin collector is a receivertransmitter type which has been converted to $10 \phi$ operation. The gate is located on the rear of the coin chute, opposite to the holding and locking latches. See Figs. 3 and 4.
3.05 In the case of receiver-transmitter coin collectors which have been converted to $10 ¢$ operation, the condenser is mounted on the front of the coin chute under a guide for the operating arm. See Fig. 5.


Fig. 3-Coin Chute 10¢ Operation (Front)


Fig. 4-Coin Chute 10¢ Operation (Rear)


Fig. 5- Coin Chute 10c Operation (Condenser
Mounted on Front)
3.06 The coin chute designed for $5 \phi$ operation is of simple construction and made of lead or steel. It provides channels for the proper direction of deposited coins to the coin signals and hopper. See Figs. 6 and 7. The coin chute designed for $10 ¢$ operation may be used for $5 \xi$ operation by use of a so-called cut-over clip.


Fig. 6-Lead Coin Chute-5 $¢$ Operation (Cover Plate Side)


Fig. 7-Lead Coin Chute-5 $¢$ Operation (Quarter Channel Side)

## Gong Signal Assemblies

3.07 The function of any gong signal assembly is to provide the operator with identifiable coin signals. The following paragraphs describe five gong signal arrangements.
3.08 The chute mounted gong signal assembly consists of two signal gongs and two signal transmitters. One transmitter is mounted near the cathedral gong, the other inside the solid gong. The entire assembly mounts on the coin chute. See Fig. 8.
3.09 The swing type gong signal assembly is arranged in two ways. One arrangement consists of the assembly described in Paragraph 3.08 mounted on a bracket suspended from the inner top of the upper housing. See Fig. 9. The other arrangement differs in that it has only a single signal transmitter between the two gong signals. See Fig. 10. Both arrangements swing out and hook in a horizontal position to provide easy access for maintenance. See Fig. 11. Any one of the three gong signal assemblies described in this paragraph and Paragraph 3.07 may be found in the handset coin collectors (not including those coin collectors converted to handset types). See Chart 1.
3.10 The gong signal assembly which has the signal gongs mounted on the upper housing and a single signal transmitter within the solid gong is associated with coin collectors converted to the handset type. See Fig. 12 and Chart 1.
3.11 The receiver-transmitter type coin collectors use the talking transmitter to pick up the gong signals, therefore, the signal gongs mounted on the upper housing have no separate associated signal transmitters. See Fig. 13 and Chart 1.


Signal Condenser Under Return Chute


Fig. 8-Chute Mounted Gong Signal Assembly (Mounted in an Upper Housing)

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Fig. 10-Swing Type Gong Signal Assembly-One Signal Transmitter (In Operating Position)


Fig. 11-Swing Type Gong Signal Assembly-One Signal Transmitter (Swung Out in a Horizontal Position)


Fig. 12-Housing Mounted Gong Signal Assembly-One Signal Transmitter

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Fig. 13-Housing Mounted Gong Signals (Talking Transmitter on the Upper Housing)

## 4. DESCRIPTION OF BACKPLATE ASSEMBLY

## General

4.01 The backplate assembly is a unit which provides a mounting place for the various connecting and operating parts of the coin collector. For the purpose of description, the backplate assembly is considered divided into two sections; the lower housing and the backplate.

## Lower Housing

4.02 The lower housing forms a compartment into which a coin receptacle is placed to receive collected coins. A steel door with an individual lock is provided for the compartment.
4.03 The lower part of the coin return chute is located in the lower housing to the left of the coin receptacle compartment. An opening in the front of the lower housing gives access to the returned coins. The 195-type coin collector differs from all others in that the opening to the return chute is equipped with a pull bucket. See Figs. 14 and 15.
4.04 A coin relay and a coin hopper are mounted together on the tray at the top of the lower housing when the apparatus is arranged for prepayment dial or manual service. The relay and hopper function together to connect the set to the line and collect or return deposited coins. See Figs. 16 and 17.
4.05 A coin hopper equipped with spring contacts, a varistor, and resistance is mounted on the tray at the top of the lower housing when the apparatus is arranged for postpayment dial service. The function of the hopper and contacts is to establish the connection and collect coins. See Fig. 18.
4.06 A simple hopper is mounted on the tray at the top of the lower housing when the apparatus is arranged for postpayment manual service. The function of the hopper is to direct collected coins to the coin receptacle. See Fig. 19.


Fig. 14-Pull Bucket Return Chute (Open)


Fig. 15-Pull Bucket Return Chute (Closed)

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Fig. 16-Coin Relay-Prepayment Service


Fig. 17-Coin Hopper-Prepayment Service

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Fig. 18-Coin Hopper-Postpayment Dial


Fig. 19-Coin Hopper-Postpayment Manual

## The Backplate

4.07 The backplate of all coin collectors provides a mounting for the switchhook with its associated springs and the terminals used for circuit connections.
4.08 The backplate of the handset coin collectors (not including those converted to the handset types) differs in that it includes an induction coil mounted over a talking condenser.
4.09 Figs. 20 through 23 show several backplate arrangements of coin collectors. To determine the make-up of the backplate for a particular code, use Chart 1. Fig. 24
shows the spring assisted switchhook assembly used with the lightweight handset (G-type).


Fig. 20-Backplate for Handset Coin Collector (10 $¢$ OperationRubber Cover on Induction Coil)


Fig. 21-Backplate for Handset Coin Collector (10c OperationRubber Cover off Induction Coil)


Fig. 22-Typical Backplate-Coin Collector Converted to 10¢ Operation


Fig. 23-Typical Backplate-Coin Collector (5¢ Operation)

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Fig. 24-Spring Assisted Switchhook Assembly

## 5. OPERATION-PREPAYMENT

## Coin Chute- $10 ¢$ Operation

5.01

When the handset or receiver is off the switchhook and the electromagnet is in its unoperated position, the first nickel deposited is caught and held by the holding latch. The second nickel deposited strikes the first nickel and is routed to the locking latch. See Figs. 3 and 4. The locking latch is released by the second nickel, thereby releasing the holding latch. The first nickel, now released from the holding latch, follows the second nickel, both in succession strike the solid gong as they traverse the remaining distance of the coin channel and drop into the coin hopper.
5.02 If the handset or receiver is not removed from the switchhook when nickels are deposited, the nickels will be rejected from the gate which is held open by the gate operating arm on the switchhook assembly. Rejected nickels drop into the coin return chute.
5.03 Dimes and quarters traverse their respective channels freely when the handset or receiver is off the hook. The dimes are routed to strike the solid gong twice and the quarters are routed to strike the cathedral gong once. When the handset or receiver is on the hook, dimes will follow the channel to the coin hopper but quarters will be caught by the gate and held until the handset or receiver is removed from the hook.
5.04 After the initial deposit has passed into the coin hopper and the central office battery and ground have been connected to the entire circuit, the electromagnet is energized. When this electromagnet is in the operated position,
an arm attached to the electromagnet armature projects into the $5 ¢$ channel above the holding latch thus causing nickels to by-pass this latch and traverse the remainder of the channel and proceed directly to the coin hopper. When the call is completed and central office ground is removed from the coin collector talking circuit, the electromagnet is deenergized and the arm is removed from the $5 \phi$ channel thus resetting the collector for its next call. This function is important in that it allows single nickels to be deposited for toll call or overtime charges. By holding the electromagnet armature operated with a cut-over clip, the coin chute can be used for $5 ¢$ operation.

## Coin Chute-5c Operation

5.05 The coin chute designed for $5 ¢$ operation serves simply as a path to guide the nickels, dimes, and quarters to the proper gong signals and to the coin hopper.

## Hopper and Relay Operation

5.06 When a coin drops into the coin hopper, it trips the coin trigger and comes to rest on the coin trap where it is held until the coin relay is operated. See Figs. 15 and 16. The tripping of the coin trigger permits the coin trigger lever to fall and the coin trigger lever spring then pushes the coin trigger lever against the inner ground contact spring causing this spring to make contact with the outer ground contact spring. This contact closes a circuit from the tip side of the line through the coin relay to ground and is maintained until the armature of the coin relay has operated. The ground contact springs open during the restoral of the armature.
5.07 When a coin is to be collected, the dial central office equipment or the operator (by depressing a "collect" key) connects 110 volts positive battery to the circuit. This operates the coin relay so that the relay armature is drawn toward the right pole piece of the relay. The coin vane pivoted directly beneath the coin trap is at the same time deflected to the left by the operating arm of the relay and the coin trap then swings downward due to the weight of the coin and the coin drops into the coin receptacle.
5.08 When a coin is to be returned, the dial central office equipment or the operator (by depressing a "return" key) connects 110 volts negative battery to the circuit. This operates the coin relay so that the armature is drawn toward the left pole piece of the relay and, at the same time, the operating arm of the relay deflects the coin vane to the right allowing the coin trap to drop the coin into the coin return chute in the lower housing.

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*

When the collect or return voltage is removed from the circuit, the armature restoring springs return the armature to its normal position. At the same time, the operating arm of the relay restores the coin vane to a vertical position under the restored coin trap and resets the coin trigger lever. The resetting of the coin trigger lever is accomplished by means of an insulated stud on the operating arm. This stud lifts the coin trigger lever while the relay is being operated, allowing the coin trigger to restore and hold the coin trigger lever when the coin relay returns to its normal position. The ground contact springs open while the relay is restoring.
5.10 The description of the operations given in the preceding paragraphs is based upon the assumption that 110 volts positive battery will be used to collect coins and 110 volts negative battery will be used to return coins. This is generally the case but in some central office districts the reverse arrangement is employed. In these cases, it will be necessary to make some wiring changes to reverse the relay. With this change, the coin collector will "collect" when 110 volts negative battery is applied to the tip side of the line and "return" when 110 volts positive battery is applied. The description of the operations in Paragraphs 5.08 and 5.09 will be correct for this latter arrangement if the words "positive" and "negative" are substituted one for the other whenever they appear.

## 6. OPERATION-DIAL POSTPAYMENT

## Coin Chute- 10 ¢ Operation

6.01 The coin chute used for $10 ¢$ operation in postpayment dial service is similar to the coin chute used for $10 ¢$ operation in prepayment dial service. The structures are almost the same except that by virtue of the circuit characteristics of community dial offices, a polarized instead of a non-polarized electromagnet is employed.
6.02 With the handset on the switchhook of the postpayment dial coin collector, the electromagnet may be in either position, i.e., with its armature arm in or out of the $5 ¢$ channel, since it remains in the position in which it was last operated. When the handset is lifted from the switchhook, the current flow is in a direction to move the electromagnet armature arm into the $5 \phi$ channel if it is not already there.
6.03 On a local call, when the party answers, a central office battery reversal moves the arm out of the $5 \phi$ channel making it necessary to deposit two nickels to operate the coin mechanism of the coin collector. A dime or quarter
will also operate the coin passing contact. Since there are no overtime charges for local calls in community dial areas, it is not necessary to revert to $5 ¢$ operation after the initial deposit.
6.04 When a call is made through an operator, there is no battery reversal and the arm remains in the $5 \phi$ channel so that the deposit of any of the proper coins, including single nickels, can be made at the operator's request.
6.05 The operation of the latches, gate and gong signals of the coin chute used for $10 ¢$ operation in postpayment dial service is the same as that for the coin chute used for $10 ¢$ operation in prepayment dial service.

## Coin Chute-5 ${ }^{¢}$ Operation

6.06

The coin chute used for $5 \phi$ operation in postpayment dial service serves simply as a guide to direct the proper coins to the proper gong signals and then into the coin hopper.

## Coin Hopper

6.07 On local postpay calls, when the called party answers, the dial central office equipment automatically splits the connection and sends dial tone to the calling party. The calling party then deposits a coin which operates a pair of contacts that are attached to the coin hopper. See Fig. 18. The operation of these contacts places a 4450 -ohm resistance in series with the line for about $1 / 10$ of a second. This causes the dial central office equipment to complete the split connection and remove dial tone. A 31 A varistor is used in parallel with the 4450 -ohm resistance to reduce the intensity of clicks resulting from opening and closing of these contacts.

## 7. OPERATION-MANUAL POSTPAYMENT

7.01 Since all deposits are made at the request of the operator before she completes the connection, the chute used for $5 \xi$ operation is all that is necessary for either the $5 \xi$ or $10 \dot{\phi}$ area. The operation of the $5 \dot{\phi}$ chute is described in Paragraph 6.06.
7.02 When the operator requests a deposit in postpayment manual service, there is no necessity for a refund of that deposit since the completion of the call is already ascertained. All that is necessary is to direct the coins from the coin chute to the coin receptacle. Fig. 19 shows the simple coin hopper used for this purpose. The holes in the side are to aid the repairman in clearing coin jams.

BELL SYSTEM PRACTICES
Station Installation and Maintenance

ADDENDUM C42.102
Issue 2, Oct., 1955
AT\&TCo Standard

## COIN COLLECTORS

## MULTISLOT TYPES

 DESCRIPTION AND OPERATION
## 1. GENERAL

1.01 This addendum supplements Section C42.102, Issue 3. It provides information on two new coin relay shields and the 196- and 197-type coin collectors previously covered in Addendum C42.102, Issue 1. This addendum is issued to change terminology in 3.04 and to add Figs. 25, 26, and 27.
2.05 Change to read: Under the subheading "Gong Signal Assembly," the 181-, 182-, 183-, 191-, 193-, 195-, 196-, and 197-type coin collectors may be found with any one of the indicated gong signal assemblies which are described in 3.07 to 3.11 , inclusive.

## 3. DESCRIPTION OF UPPER HOUSING

3.04 Change to read: The coin chute designed for $10 \phi$ operation is made of stainless steel and includes an electromagnet, capacitor, gate, holding latch, and locking latch. The electromagnet is mounted on the chute at the entrance to the nickel channel and is connected with a 4 -uf bypass capacitor in series with the transmission circuit. The capacitor coded 452 A or 452 B is mounted under the coin-return chute in the upper housing, lead-wire end up, except where the coin collector is a receiver-transmitter type which has been converted to $10 ¢$ operation. The gate is located on the rear of the coin chute, opposite the holding and locking latches. (See Figs. 3 and 4.) The 196- and 197-type coin collectors are provided with a COIN RELEASE push button marked PUSH located at thetupper righthand corner on the front of the upper housing. The operation of the COIN RELEASE button pushes the top of thetcoin chute away from the star wheel assembly, thereby releasing any held coins into the return chute.

## 4. DESCRIPTION OF BACKPLATE ASSEMBLY

4.03 Change to read: The lower section of the coin-return chute is located in the lower housing to the left of the coin receptacle compartment. An opening in the front of the lower housing provides access to remove returned coins. The 195- and 197-type coin collectors are equipped with pull bucket ${ }^{+} 7$ features in the opening of the return chute. (See Figs. 25 and 26.)
4.04 Change to read: A coin relay and coin hopper are mounted on the tray at the top of the lower housing when the coin collector is arranged for prepayment dial or manual service. The relay and hopper function together to connect the set to the line and to collect or refund deposited coins. The coin relay and coin hopper are shown in Figs. 16 and 17, respectively. The coin relay is protected by a relay shield which may be either a fiber shield coded KS-7994 or a molded plastic shield, P-349486 (see Fig. 27). On coin collectors equipped with'7 a D-95365 contact device, the P-16A336 plastic shield should be used. Slight pressure on the front of the shield will cause the head of the coin relay armature pivot screw to protrude through the hole in the plastic shield. A P-13A963 clamp (hair pin cotter) placed between the shield and the head of the pivot screw will hold the shield securely in place. The clamps are, $\downarrow$ supplied with the plastic shields and should not be used with the KS-7994 fiber shield.

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Fig. 25-197-type Coin Collector (Pull Bucket Closed)


Fig. 26-197-type Coin Collector (Pull Bucket Open)


Fig. 27-Coin Relay With Plastic Shield

# COIN COLLECTORS 

## MULTI-SLOT TYPES DESCRIPTION AND OPERATION

## 1. GENERAL

1.01 This WR sheet modifies Section C42.102 to give information concerning coin collectors and associated coin collector parts which are either no longer manufactured or are now made of substitute materials because of wartime conditions. It is reissued to include information regarding out of service signs.
1.02 The code numbers of the coin collectors which have been discontinued are:
181C-13, ${ }^{\bullet}$ 181D-13, $181 \mathrm{E}-13,{ }^{\bullet}{ }^{\circ} 181 \mathrm{~F}-13,{ }^{\bullet}{ }^{\circ}$ 181G-13, ${ }^{*}$ 181H-13 182C, * 182D-13 183E-13, 183F-13, 183G-13, 183H-13
The $50 \mathrm{C}-13^{\circ}$ apparatus blank is also discontinued. Items marked (*) were normally stocked at the factory and will continue to be available only until existing stocks are exhausted.
1.03 The principal changes in the construction of the coin collectors are as follows:
(a) Coin Gauge: Cold rolled steel with a nickel finish is used instead of stainless steel.
(b) Coin Return Escutcheon and Coin Return Plate are made of cold rolled steel finished black instead of stainless steel.
(c) Coin Return Chute parts are now made of sheet steel with a zinc-plated finish instead of nickel-plated and stainless steel.
(d) Coin Hoppers are now made of zinc-plated steel instead of nickel-plated brass. The brass, nickel silver and phosphor bronze coin vanes and traps are now made of steel with the same heavy chromium finish used heretofore.
(e) Other Changes: The equalizing spring is now zincplated steel instead of nickel silver. The various screws and nuts used throughout the coin collector were formerly made of brass and in some cases were nickel-plated. They are now being made of zinc-plated iron except where they are in the magnetic circuit of the coin relay and these are of brass without a plated finish. A number of other minor parts are also made of zinc-plated iron instead of brass.
1.04 The metal sign KS-7991 used on coin collectors which ${ }^{+1}$ are not ready for service or are temporarily out of service has been discontinued. However, Form E-158, a cardboard sign equipped with a cord, may be used for this purpose. The cardboard sign bears essentially the same information as the metal sign and is placed in front of the coin collector and suspended from the coin gauge by means of the cord.

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BELL SYSTEM PRACTICES
Station Installation and Maintenance

SECTION C42.102
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## COIN COLLECTORS

## MULTI-SLOT TYPES DESCRIPTION AND OPERATION

## 1. GENERAL

1.01 This section gives general information pertaining to multi-slot coin collectors such as description, use, apparatus and operation. It is reissued to include the 181, 182 and 183 type (hand set) coin collectors.

## 2. DESCRIPTION

2.01 General: A coin collector is a machine arranged to
2.01 General: A coin collector is a machine arranged to types described herein are arranged to collect nickels, dimes and quarters and a separate opening is provided in the coin gauge on top of the machine for the deposit of each of these coins. The coin collector consists of three substantial metal coins. The coin collector consists of three substantial metal are designed to lock together and protect the various internal parts.
2.02 The Backplate serves as a base for mounting the lower housing, a switchhook assembly and several other parts such as contact springs and screw terminals for making electrical connections between the apparatus parts employed in the coin collector. 181, 182 and 183 type hand set coin collectors include on the backplate the induction coil and talking condenser which are not present in earlier machines.
2.03 The Lower Housing is made of pressed or forged steel and is firmly attached to the lower part of the backplate. It forms a compartment in which a coin receptacle (with or without a locking type cover) is placed to receive coins that are collected. A forged steel door with a strong lock is provided for the coin compartment. A coin return chute is located in the left-hand side of the lower housing to return coins that are accidentally deposited in the wrong
coin chute or properly deposited coins that are refunded for operating reasons. In the case of prepayment coin collectors a coin hopper mechanism and associated relay are mounted on top of the lower housing to direct the coins into the coin receptacle or the return chute as required. In postpaymont manual coin collectors a simple coin hopper, mounted in the same location, directs properly deposited coins into the coin receptacle. In postpayment dial coin collectors the coin hopper on top of the lower housing serves the same purpose as in the postpayment manual machine but is equipped with a trap and contact mechanism which opens and closes whenever a coin passes through on its way into the coin receptacle.
2.04 The Upper Housing encloses the coin chute which provides runways for nickels, dimes and quarters and gong signals for the operator to identify each of these coins as they are deposited. In the earlier type coin collectors the gong signals are picked up by the talking transmitter located on the front of the upper housing but in the hand set type coin collectors (where talking transmitter is part of the hand set) a separate transmitter is located inside of the upper housing to pick up the gong signals. This transmitter and the gongs are mounted on a bracket hinged in the top of the upper housing so that it can be swung outward to give ready access to the coin chute for maintenance purposes. With this gong and transmitter mounting arrangement much less chute noise is picked up by the transmitter and the coin signals are much clearer than in other coin collectors. For this reason it is generally the practice for the Traffic Department to be advised in advance of the initial installation of hand set coin collectors so the operators will recognize the change in signals. The installer should wherever practicable check the coin signals with an operator.

### 2.05 New Hand Set Coin Collector as mentioned in 2.02

 includes the induction coil and talking condenser. It also includes the hand set, cords, apparatus blank and the dial if required and is, therefore, ready for connection to the line when equipped with a coin receptacle and door. Since the ringer for incoming calls is not included in the coin collector an external ringer must be provided. This signal may be connected to the telephone line at any point where it can be effectively heard, although in telephone booth installations it seems advisable to install the set containing the ringer and ringing condenser under the shelf in most cases.> 2.06 The following diagrams give internal and external views of the hand set coin collector as well as some of the earlier type machines.
$1!$


Fig. 1-Hand Set Coin Collector


Fig. 2-New Hand Set Coin Collector-Backplate Assombly لـ لـ

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Fig. 3-Hand Set Coin Collector-Interior of Upper Housing
Note: The signal transmitter and gongs are attached to bracket " B " which is attached to bracket " C " with bolts and insulating bushings to prevent signal transmister from picking up noise of coins running through coin chute. If screws " $A$ " are removed the bracket arrangement supporting the gongs and transmitter may be swung upward and supported by lugs " $E$ " to gain access to the coin chute for maintenance parposes.


Fig. 4-Earlier Type Coin Collector


Fig. 5-Earlier Type Coin Collector-Backplate and Lower Housing

## Page 8



Fig. 6-Earlier Type Coin Collector-Backplate and Lower Housing

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Fig. 7-Earlier Type Coin Collector-Interior of Upper Housing
2.07 All of the coin collectors described herein will accept United States nickels, dimes and quarters. Some will also accept Canadian coins of the same denominations except for a small five cent piece in use in Canada.

## 3. USE

3.01 Prepayment Multi-Slot Coin Collectors are intended for use on individual lines and employ individual line subscriber sets except for the 181 type hand set coin collector which requires only an extension ringer set, 584DE or DF Subscriber Set or the equivalent. Table 1 lists the coin collectors for prepayment manual or dial service.

## Table 1

| Code No. | Finish |
| :---: | :---: |
| 50G | Black |
| 50H | Black |
| 150G-3 | Black |
| 150G-13 | $\dagger \mathrm{Ox} . \mathrm{Br}$ |
| $150 \mathrm{H}-3$ | Black |
| $150 \mathrm{H}-13$ | $\dagger$ Ox. Br. |
| 161 A-3 | Black |
| 161 A-13 | $\dagger \mathrm{Ox} . \mathrm{Br}$. |
| $161 \mathrm{~B}-3$ | Black |
| $161 \mathrm{~B}-13$ | $\dagger \mathrm{Ox} . \mathrm{Br}$ |
| $161 \mathrm{C}-3$ | Black |
| $161 \mathrm{C}-13$ | $\dagger \mathrm{Ox} . \mathrm{Br}$. |
| 161D-3 | Black |
| 161D-13 | $\dagger \mathrm{Ox} . \mathrm{Br}$. |
| D-98548 | Black |
| D-99788 | Black |
| $181 \mathrm{C}-3$ | Black |
| 181C-13 | $\dagger \mathrm{Ox} . \mathrm{Br}$. |
| 181D-3 | Black |
| 181D-13 | $\dagger \mathrm{Ox}$. Br. |
| $181 \mathrm{E}-3$ | Black |
| $181 \mathrm{E}-13$ | $\dagger \mathrm{Ox}$. Br . |
| $181 \mathrm{~F}-3$ | Black |
| 181F-13 | $\dagger \mathrm{Ox}$. Br. |
| 181 G-3 | Black |
| 181G-13 | $\dagger \mathrm{Ox} . \mathrm{Br}$. |
| $181 \mathrm{H}-3$ | Black |
| $181 \mathrm{H}-13$ | $\dagger \mathrm{Ox} . \mathrm{Br}$ |

Service
Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial Manual or Dial

Manual
Manual
Manual
Manual
*Dial
*Dial
*Dial
*Dial
**Dial
**Dial
**Dial
**Dial

Coins Accepted
U. S. only
U.S. and Can.
U. S. only
U.S. only
U. S. and Can.
U. S. and Can.
U. S. only
U. S. only
U. S. and Can.
U. S. and Can.
U. S. only
U.S. only
U. S. and Can.
U.S. and Can.
U. S. only
U. S. and Can.
U. S. only
U.S. only
U. S. and Can.
U. S. and Can.
U. S. only
U. S. only
U. S. and Can.
U. S. and Can.
U. S. only
U. S. only
U. S. and Can.
U. S. and Can.
*Dial with 147A Number Plate
$\dagger$ Oxidized bronze finish
3.02 Postpayment manual coin collectors may be used on individual or party lines in conjunction with the subscriber set normally used for non-coin stations on similar lines. 182 type hand set coin collectors require only an extension ringer set. Table 2 lists the coin collectors used for manual postpayment service.

Table 2

| Code No. | Finish |
| :--- | :---: |
| 50K | Black |
| 50L | Black |
| 150K-3 | Black |
| 150K-13 | Oxidized Bronze |
| 150L-3 | Black |
| 150L-13 | Oxidized Bronze |
| 162A-3 | Black |
| 162A-13 | Oxidized Bronze |
| 162B-3 | Black |
| 162B-13 | Oxidized Bronze |
| 162C-3 | Black |
| 162C-13 | Oxidized Bronze |
| 162D-3 | Black |
| 162D-13 | Oxidized Bronze |
| $182 \mathrm{C}-3$ | *Black |
| $182 \mathrm{D}-3$ | *Black |

## Coins Accepted

U. S. only
U. S. and Canadian
U. S. only
U. S. only
U. S. and Canadian
U. S. and Canadian
U. S. only
U. S. only
U. S. and Canadian
U. S. and Canadian
U.S. only
U.S. only
U. S. and Canadian
U. S. and Canadian
U. S. only
U.S. and Canadian
*If coin collector in oxidized bronze finish is required it will be made up on special order.
3.03 Postpayment Dial Coin Collectors may be used on individual lines or party lines as covered in a separate section in Division C60.

Table 3

Code No.
150 U
150W
163A
163B
163C
163D
183E-3
183F-3
183G-3
$183 \mathrm{H}-3$

Finish
Black
Black
Black
Black
Black
Black
*†Black

* $\dagger$ Black
* $\ddagger$ Black
* $\ddagger$ Black

Coins Accepted
U. S. only
U. S. and Canadian
U. S. only
U. S. and Canadian
U.S. only
U. S. and Canadian
U. S. only
U. S. and Canadian
U. S. only
U. S. and Canadian
*If coin collector in oxidized bronze finish is required it will be made up on special order.
$\dagger$ Dial with 147A Number Plate $\ddagger$ Dial with 147B Number Plate
3.04 Any of the coin collectors listed except the 181, 182 and 183 type coin collectors may be used at sidetone stations. If other than the 50 type is used no connection is made between the subscriber set and the BK terminal in the coin collector.
3.05 Any of the coin collectors listed in the foregoing tables except the 50 type may be used at anti-sidetone stations. Where stock conditions require it the 50 type may also be used with anti-sidetone subscriber sets by strapping the BK and L2Y terminals in the subscriber set. The use of this arrangement is limited to individual line main stations as only one talking set (no extension stations) and one low or two high impedance ringing bridges are permissible on the line.
3.06 When local battery talking common battery signaling is required one of the earlier anti-sidetone type coin collectors should be rewired for use with a local battery subscriber set as covered in the sections in Division C60 covering coin collector connections.
3.07 At magneto stations the postpayment coin collectors listed in Table 2 except the 182 type may be used either on an individual line or party line basis. The subscriber set should be the same as is used for other stations on the same type of line. Sidetone subscriber sets must be used with the 50 type coin collectors and either sidetone or anti-sidetone subscriber sets may be used with the other coin collectors listed in Table 2.
3.08 The details regarding the connections for all of the coin collectors described herein are given in Division C60.

## 4. APPARATUS

4.01 The following is a list of the apparatus that is associated with or forms a part of coin collectors and may be needed in connection with installation and maintenance work and for conversions from one code to another.

> Apparatus
> Blank:

50C Type. Used to cover dial hole on coin collectors arranged to mount dials when these are used at manual stations. Includes instruction card frame and glass or P-243343 card holder assembly. Also used on dial hand set coin collectors to hold instruction card.
$\left.\begin{array}{cc}\text { Card Holder: } & \begin{array}{c}\text { 1B. A bracket for mounting instruction card } \\ \text { on top of upper housing of dial coin collec- } \\ \text { tors. Includes instruction card frame and } \\ \text { glass or card holder assembly P-243343. }\end{array} \\ \text { Not needed on hand set coin collectors. }\end{array}\right\}$

E-351A. For manual prepayment coin collectors in areas having dial service where coin is returned when receiver is hung up on an incompleted call.
E-352A. For manual prepayment coin collectors where coin is not returned when receiver is hung up on an incompleted call.
E-353A. For manual common battery coin collectors.
E-354A. For postpayment coin collectors on individual magneto lines.
E-355A. For postpayment coin collectors on magneto party lines.
E-2025. For postpayment dial coin collectors.
Number Plates: 147 Type. For use with HH type dials.

Receivers:
Sign:
144 or 706A. For all except hand set coin collectors.
KS-7991 Out of Service Sign. Used on coin gauge to close openings when coin collector is not ready for service or is temporarily out of service. Replaces Form E-158 and 126A Number Plate.
Spring Assembly:
Transmitters:
upper Housing:

Varistor:
D-22990. For converting 50A or F coin collectors to 50 G or H.
323, 337 or 635A. For all except hand set coin collectors.
D-95310 Gong Transmitter. For D-98548 or D-99788 hand set coin collectors.
636A. Gong transmitter for all other hand set coin collectors.
P-243236. For converting 50A to 50G coin collectors. Also used on all other coin collectors that accept only U. S. coins, except hand set coin collectors.
$\mathbf{P - 2 4 3 5 7 1}$. For converting 50 F to 50 H coin collectors. Also used on all other coin collectors that accept both U. S. and Canadian coins, except hand set coin collectors.
31A. For 163 and 183 type coin collectors.

## 5. OPERATION

5.01 The coin chute carries the coin from the coin gauge past the signal gongs to the coin hopper. A nickel strikes the solid gong once, and a dime strikes it twice. A quarter strikes the cathedral gong once. Slugs or coins not
of proper size fall out of the coin chute, before reaching the signal gongs and drop into the coin return chute.

## Prepayment Service

5.02 When a coin drops into the coin hopper it trips the coin trigger and comes to rest on the coin trap where it is held until the coin relay is operated. See Fig. 8. The tripping of the coin trigger permits the coin trigger lever to fall and the coin trigger lever spring then pushes the coin trigger lever against the inner ground contact spring causing this spring to make contact with the outer ground contact spring. This contact closes a circuit from the tip side of the line through the coin relay to ground and is maintained until the armature of the coin relay has operated and has nearly restored.


Fig. 8
5.03 When a coin is to be collected the dial central office equipment or the operator (by depressing a "Collect" key) connects 110 volts positive battery to the line. This operates the coin relay so that the relay armature is drawn toward the right-hand pole piece of the relay. The coin vane pivoted directly beneath the coin trap is at the same time deflected to the left by the operating arm of the relay and the coin trap then swings downward due to the weight of the coin and the coin drops into the coin receptacle.
5.04 When a coin is to be returned the dial central office equipment or the operator (by depressing a "Return" key) connects 110 volts negative battery to the line. This operates the coin relay so that the armature is drawn toward the left-hand pole piece of the relay and at the same time the operating arm of the relay deflects the coin vane to the right allowing the coin trap to drop the coin into the coin return chute.
5.05 When the collect or return voltage is removed from the line and the coin trap has returned to its normal position after dropping the coin, the armature of the relay aided by the armature restoring springs, returns to its normal position and at the same time, the operating arm of the relay restores the coin vane to a vertical position and resets the coin trigger lever. The resetting of the coin trigger lever is accomplished by means of an insulated stud on the operating arm. This stud lifts the coin trigger lever while the relay is being operated allowing the coin trigger to restore and hold the coin trigger lever when the coin relay returns to its normal position. The insulated stud also holds the ground contact springs in contact until the relay has almost completely returned to its normal position.
5.06 The description given in the preceding paragraphs is based on the assumption that 110 volts positive battery will be used to collect coins and 110 volts negative battery will be used to return coins. This is generally the case but in some central office districts the reverse of this arrangement is employed. In these cases it will be necessary to make some wiring changes to reverse the coin relay. To reverse the coin relay connect the yellow wire to the right-hand relay coil and the black wire to the left-hand relay coil. With this change the coin collector will "collect" when 110 volts negative battery is applied to the tip side of the line and "return" when 110 volts positive battery is applied. The description given above will be correct for this latter arrangement if in paragraphs 5.03 and 5.04 the words positive and negative are substituted one for the other wherever they appear

## Postpayment Manual Service

5.07 Coins of proper size strike the signals in the upper housing as covered in 5.01 and then pass into a coin hopper which directs them into the coin receptacle as mentioned in 2.03. Coins should not, of course, be deposited until called for by the operator.

## Postpayment Dial Service

5.08 Coins strike the signal gongs and pass into the hopper as in the case of postpayment manual service but in passing through the hopper the coins operate a device similar to the coin trap used in prepayment coin collectors which in turn operates a pair of contacts which are attached to the hopper.
5.09 For this type of service the patron dials the desired number before depositing a coin. When the called party answers the dial central office equipment automatically splits the connection and sends back dial tone to the calling party. The calling party then deposits a coin which operates the contacts referred to in 5.08 . The operation of these contacts places a 4450 -ohm resistance in series with the line for about one-tenth of a second. This causes the dial central office equipment to complete the connection and remove the dial tone. A 31 A Varistor is used in parallel with the 4450 -ohm resistance to reduce the intensity of clicks resulting from opening and closing of these contacts.

BELL SYSTEM PRACHICES Station Installation and Maintenance

ALLENLUM $\mathrm{C}_{4} 2.102$
Issue D, January, 1948 N.Y.Tel.Co.,L.I.

## COIN COLTECTORS MUETI-SLOT TYPES

## DESCRIPTION AND OPERATION

## 1. GMNERAL

1.01 This addendum to Section C 42.102 , Issue 2 is is sued to include informa- * tion on coin collectors modiff ed per Speciff cation D-96279, coin collectors ( $150-\mathrm{GZ}$ ) modified for use with extension stations restricted to answering incoming calls, and to include additional information on apparatus associated. with coin collectors.
1.02 The asterisk (*) indicates a ohange from the previous isse.

## 2. DESCRIPTION

Add the following paragraphs:
2.08 When the D-96279 Coin Collector is specified on the service order, it shall be ordered as "(type) Coin Collector per D-96279". Collectors so equipped can be used only with D-96283 steel backboards described In Sections C42.111 and C37.201.
2.09 The 150-GZ Coin Collector shall be used whenever it is necessary to connect en extension station to a semi-public coin station. To prevent overhearing conversations, the extensi on station is disconnected when the switchhooic of the modifled coin collector is operated. In all cases the extension station shall be a manual type instrument. The special

ADDENDUR
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instruction card required at the coin station and the special station number card mask required at the extension station are 11sted in Paragraph 4.01* of this addendum. When disconnecting the exten- ** sion service only on this type of service, the instruction card on the coin colle ctor shall be changed to conform to the type of service provided. The coin collector, however, need not be changed from the modifled type.

## 4. APPARATUS

Replace paragraph 4.01 of the main section by the following:
4.01 Following is a list of the apparatus that is associated with or forms a part of coin collectors and may be needed in connection wi th installation and maintenance work and for conversions from one code to another. On booth orders** the assignment office will order the publicity * cards and card holders, and will arrange to fur nish the proper instruction cards. When the booth is instalied the workman shall be sure that the instruction card furnished is the correct type.

When ordering coin collectors for maintenance replacement or for installations not associated with booths refer to the following description of instruction cards to determine if the instruction card required is to be supplied by the assignment office with the order or to be ordered from the warehouse at the time of ordering the coin collector.

| Alarm | P-372083. | Used to equip coin |
| :---: | :---: | :---: |
| SwItch: | collectors cuit. | with closed alarm cir- |
|  | P-249523. | Used to equip coin |
|  | collectors | with open alarm cir- |

Apparatus Blank:

50C. Used to cover dial hole on coin collectars used for manual service. Includes a P-243643 mounting plate, a P-165463 card holder and P-243343 card holder assembly. Also used on dial hand set coin collectors to hold instruction card.

BRACKET:

Card
Holders:

Chute:

Coin
Hopper:

Coin
Relay:

P-24.3645. L shaped bracket. Part * of the IB-3 card holder. Screws for attaching are not included.

1B-3. A bracket for mounting instruction card when required on top of upper housing of $50,150,161,162$, and 163 type coin collectors. Includes a P-243645 bracket, a P-165463 card holder frame and a * p-243343 card holder.
KS-6486. Used for mounting booth advertising card or dial coin station instruction card on the inside wall of all type booths.
P-243343. A piece of cardboard, P-247945, with a cellulose acetate cover, P-247944, used in 50 C apparatus blank or 1B-3 card holder. P-298106. Supplied with dials. Is used to hold station number card.
$\frac{\mathrm{p}-298088, \text { coin. }}{\cos \text {. }}$. Used on all types of *
p-248478. Hopper, trap, shield and vane for converting from postpayment to prepayment coin collectors and for replecements.

P-145749. For converting coin collectors from postpayment to prepayment operation, and for replacements.

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Coin
Trap:

Coin
Tane:

Cords:

Dial 56A. For mounting dial and 147 type Adapter:

Guard:
P-136084. Part of coin hopper assem-* bly. Does not include a P-247410 coin trap pin.

P-111875. Part of P-248478 coin hopper assembly. Includes roller and coin vane pin.

R2BU. Rubber jacketed waterproof cord for 144 receiver.
R2DY. Rubber jacketed watergroof cord for 706 A recelver.
H3S. Rubber jacketed cord for F1B-3* hand set on 181, 182, and 183 type coin collectors.
TlC or T1A. Transmitter cords used on $50,150,161$ and 163 coin collectors.
D4Y. Dial cord used on $50,150,161$, and 163 type coin collectors.
D5AB. Dial cord used on 181 and 183.* type coin collectors.
$\frac{\text { M1W } 14^{\prime \prime} \text {. Hend set coin collectars }}{\text { only. }}$
4HH or 5 HH . Used wi th 147 type number plate and 56 A dial adapter. number plate on coin collector.

KS-8487, L1st 2. A transparent swing ing guard suspended over the coin gauge on manual post payment collectors to discourage users depositing $\infty$ in before operator askśs for it.

Hand Sets: FlB-3. For black finish hand set collectars.

Instruction Form SCS-36. Used at manual prepayCards:
ment coln collectors equipped with 635A transmitters, and as maintenance replacement for Form SCS-39.

## 11

Card and card holder assembly will be furnished by assignment office.
Form SCS-39X. Used at manual prepayment coin collectors having an extension station for answering incoming calls. To be mounted on 1-B3 card holder. Form will be supplied by local warehouse.
Form SCS-43. Used on party iine postpayment coin collectors. Form to be furnished by assi enment office. Form SCS-44* Used on Individual line postpayment coin collectors. Form to be furnished by assignment office. Form SCS-60C. For prepayment di al coin collectors in booths in
Applegate 6 and 7, Zone 6;
Esplanade 2 , Zone 7 ; and Lichigan 2,* Zone 10. This is a large si ze in- * struction card to be ordered by the * assignment office for new instal- * lations.
Form SCS-61CB. For prepayment dial coin collectors in booths in central* office areas equipped to dial directly all New York City calls. * This is a large size instruction * card to be ordered by the assignment* office for new installations.
Form SCS-61C. For all panel and crossbar coin stations in booths Forms SCS-60C and SCS-61AA are not * used. This is a large size in- * struction card to be ordered by the * assignment office on new instal- * lations.
Form SCS-62C. For prepayment dial * coin collectors (not in booths) in * Applegate 6 and 7, Esplanacie 2, and Michigan 2. Form will be supplied * by the assignment office.
Form SCS-63C. For all panel and crossbar coln stations (not in booths)
where Form SCS-62C is not used. Forin is furnished by the local warehouse.
Form SCS-63CX. For prepayment dial coln collectors in panel and crossbar districts having an extension station for answering incoming calls. Form is furnished by the local warehouse.
Form SCS-63AA. For prepayment dial coin collectors not in booths in central office areas equipped to dial directly all New York City calls. Form will be supplied by the* assignment office.
Form SCS-63AAX. For prepayment dial coin collectors equipped with extension telephones in central office* areas equipped for dialing all New York City calls. Form will be supplied by the assignment office
Form SCS-107. For prepayment coin collectors in step-by-step areas where special instructions pertaining to the local dialing area are required. Form to be furnished by the assignment of fice.
Form SCS-113. For use wi th Form SCS107 on step-by-step prepayment coin collectors having an extension station for answering incoming calls. In attaching the form, remove the two bottom screws from the card frame and adjust Form SCS-113 so that the two upper holes colncide with the two bottom holes of the card frame, then replace screws. Form to be furnished by the assignment office.
Form SCS-114. For use with Form SCS-44 on manual post payment coin collectors having an extension station for answering incoming calls. Attach the form in the same manner
as Form SCS-113. Form to be furnished by the assignment office. Form SCS-115. Mask for the station number card on extensions to coin stations. To be furnished by the assignment office.

Latching Device:

Lock:

Number
Plate:
Pin:

D-97495. Anti-stuffing device. Used on 50,150 and 161 type coin collectors.

10-G. Upper, housing lock for coin
collectors.
147 Type. For use with Hi type dials.

P-111524 Switch Hook. Used as pivot * for P-206465 switch hook of 50, 150, 161, 163 type coin collectors.
P-247410 Coin Trap. Part of coin * hopper of prepayment coin collectors.
P-247411 Coin Shield: Part of coin * hopper of prepayment coin collectors.
$\frac{\text { P- } 248039 \text { Coin Trigger. Part of coin * }}{\text { relay. }}$
Receivers: As specified by Transmission Zoning Practice.

Shield:

Sign: $\frac{\mathrm{KS}-7994 \text { : Used to protect coin relay }}{\text { and its }}$ contacts from dust and dirt. $\frac{\text { P-296792. }}{\text { assembly }}$. Part of coin hopper
$\frac{\text { KS-7991 Out of Service. Used on coin }}{\text { gauge to close openings when coin }}$ gauge to close openings when coin collector is not ready for service or is temporarily out of service.

Spring: Housing Contact Spring NY88D4. Used * in converting 50A Collectors to 50 G . P- 145640 Switch Hook. Spring assembly used in No. 50 type coin collectors.
P-145641 Contact. Ground contact * spring asseribly for 50 and 181 type coin colle ctors.
P-236376 switch Hook. Spring assem- * bly used in 150, 161, 162 and 163 type coin collectors.
p-248496 Coin Trigger. Coiled wire * spring used on coln relays.

Transmitter: As specifled by Transmission Zoning Practine.
636A. Gong transmitter for hand set coln collectors.
-nenciean.
TeTrionery

