



# Telephones and Telephone Parts

CATALOGUE 4055

*(Superseding Cat. Nos. 4014, 4037 and 5002)*

## AMERICAN AUTOMATIC ELECTRIC SALES COMPANY

1033 West Van Buren Street, Chicago

*General Sales Agents In U.S. and Possessions for*

AUTOMATIC ELECTRIC COMPANY  
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AMERICAN ELECTRIC COMPANY  
Chicago

and other companies

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*Exclusive Export Distributors*

AUTOMATIC ELECTRIC SALES COMPANY, LIMITED  
1027 West Van Buren Street, Chicago, U.S.A.

AUTOMATIC ELECTRIC SALES COMPANY, S.A.  
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## TO THE PURCHASER

**When Ordering:**

Please give both code number and full description of the article, whenever possible. Be sure to read the notes at the bottom of each table, and give whatever additional information relating to ringer frequency, finish, circuits, etc., is requested.

**Code Numbers:**

We have listed in this catalog the code numbers of the telephones and parts most commonly required. Occasionally, however, variations of these standard items are desired, for which no code numbers are listed. In such cases, it is only necessary to quote the code number of the standard item, together with a description of the exceptions you wish made.

**Special Apparatus:**

While we recommend standard equipment wherever it can be utilized, due to its lower cost and quicker delivery time, we are, however, prepared to originate and develop special equipment for special requirements. We have an experienced staff of research and development engineers, which will be glad to submit suggestions upon the receipt of complete information concerning your particular problem.

**Guarantee:**

The apparatus described in this catalog is guaranteed to be free from mechanical and electrical defects and any part or unit which proves defective under normal conditions and when used as intended will be replaced or repaired without charge if returned to our general offices within one year.

**Returned Goods:**

If it is desired to return goods for credit,

exchange or repairs, please secure our consent before shipping.

**Shipments:**

State whether shipment should be made by parcel post, express or freight. If by freight, please give routing, as otherwise we cannot be responsible for extra drayage expense at destination. Mail shipments of appreciable value are insured and the expense charged to the customer.

**Claims:**

We assume no responsibility for breakage or loss after receiving an "In Good Order" receipt from the transportation company, and all claims of this kind should be made direct to them without delay. We will be glad to cooperate in securing satisfactory adjustment of such claims. Claims for shortage should be made promptly and should be accompanied by packer's ticket, which is placed in each case.

**Prices:**

Price lists are issued from time to time, which will be gladly sent upon request. Unpriced orders will be filled at prices prevailing at date of shipment. Small orders priced from obsolete price lists will be shipped at latest prices without requotation, unless revised quotations are requested before shipment. Large orders so priced will be quoted on, and your approval secured before shipment is made.

**Terms:**

Accounts with persons or firms with approved credit are payable net 30 days from date of invoice, unless otherwise indicated. Persons and firms unknown to us and not rated by commercial agencies should remit with order or send suitable references.

*All agreements are made contingent upon strikes, fires, accidents, or other causes beyond our control.*

## TELEPHONES AND TELEPHONE PARTS

The telephones illustrated and described in the following pages, represent forty years, and more, of telephone engineering leadership. They have received universal recognition and widespread use because they incorporate in their design and construction these three essentials of satisfactory service: First, they are pleasing in appearance, with graceful, modern lines. Second, they are unsurpassed in clearness of transmission and reception, and in convenience of operations. Third, they are highly economical to operate and maintain, due to their rugged, durable construction.

### Manufacturers:

The dial and offset base models listed here are products of Automatic Electric Company, the originator of the Strowger Automatic telephone system and the leader in the field of automatic telephone development. The center-stem manual and magneto models are products of American Electric Company. This company has an enviable standing in the telephone field as a supplier of high quality manual telephone products, and as a jobber to the telephone trade of an inclusive line of telephone construction materials and supplies.

### Monophones:

Seven years ago, Automatic Electric engineers perfected the Monophone—the first practical and successful handset of the modern type. Since that time, the traditional upright type of desk stand has disappeared forever from literally hundreds of thousands of homes and business offices. This is not only because the Monophone has become recognized as the most convenient, most beautiful and most efficient telephone ever devised, but also because it has

enabled telephone companies to progress and prosper by catering to modern needs.

The Monophones shown in this catalog represent the latest word in telephone design. These graceful, modern telephones are rapidly becoming the standard instrument, due to public demand. The Monophone hand unit is perfectly balanced and easily handled, and can be used at any angle or position. A specially developed, exclusive anti-sidetone circuit is used in most models, which results in high transmission efficiency without the disturbance of extraneous noises. Monophones can also be furnished in color and are in increasing demand for the better residences and well-appointed offices. In every detail the Monophone reveals quality and durability, and will be found to be a most satisfactory instrument from every practical operating viewpoint, as well as from the viewpoint of the telephone user.

### Type 32A14 Handsets:

The Type 32A14 models are similar to the Monophone styles in general design, except that the hand unit used in this series of telephones is of less expensive design, embodying a modern design “cornplaster” transmitter of the sealed capsule type, only slightly less efficient than that of the Monophone. The desk models incorporate a sub-base, housing an efficient single coil ringer and condenser, thus making each telephone a compact, self-contained set, eliminating the need for a separate ringer box. This set has been especially designed for operation on Strowger P-A-X and other private systems.

### Conventional Types:

The Type 21 line of desk and wall instruments adheres to the conventional design, with

certain modifications and improvements. A shell conceals the simple and sturdy hinge joining the transmitter and mounting neck, making a joint similar to a ball-and-socket joint, and presenting a clean-cut appearance. Standardization has made the telephone parts of the wall and desk sets interchangeable to a high degree. This permits an operating company to carry a limited supply of replacement parts, and results in definite savings in maintenance costs. Corresponding manufacturing economies also occur, resulting in a better value for the money expended.

### **Special Telephones:**

Under the classification "Special Telephones" are included various especially designed and constructed instruments, which are intended for certain specific uses, such as mine telephones, outdoor type telephones, elevator telephones, etc. These instruments all embody the same high qualities of performance and durability which characterize the standard types of telephones described.

### **Transmission:**

In developing the telephones listed in this catalog, more than usual attention has been paid to the quality of transmission. It is no exaggeration to say that, transmission accuracy and transmission volume both considered, these telephones are outstanding in their capacity to meet the needs of the most exacting telephone companies and administrations. It is important to note, too, that these qualities endure without the slightest deterioration throughout the life of the telephone, not merely for the first few months or years. Telephone companies are earnestly invited to make comparative tests of the transmission qualities of these and other telephones, either in their own laboratories or under actual working conditions, noting not only the faithfulness of reproduction, but also the complete ab-

sence of extraneous noise (side-tone), resulting from the use of exclusive circuit and mechanical designs.

### **Telephone Parts:**

For convenience in ordering, the principal telephone parts, such as ringers, condensers, dials, etc., are listed both in a separate parts section, as well as under the particular telephones with which they are used. A listing is included also of several important substation accessories which are being used with increasing frequency by telephone companies desiring to meet the growing demands of telephone subscribers for the most up-to-date and efficient facilities available.

### **Ringer Boxes:**

For use with desk stands requiring separate ringer boxes, both molded plastic (Bakelite) and steel ringer boxes are available. Unless otherwise specified, Bakelite boxes will be furnished. Brass boxes are also available for use under conditions of severe humidity.

### **Conversion Feature:**

The attention of telephone operating companies is directed to the conversion feature which is common to all of our dial type telephones. Practically all companies not now operating automatic equipment expect to do so at some future date. We strongly recommend that such companies install telephones of standard automatic design with number plates in place of dials. These plates can be quickly and easily replaced with dials whenever service is converted to automatic. In the meantime, the telephones are used just like any other manual telephones. The economy of this procedure is evident, as it avoids expenditure for telephones which may have to be retired before they have served a useful life.

## DIAL MONOPHONES (CENTRAL BATTERY)

All central battery dial Monophones are furnished with anti-sidetone booster circuits. Types 1-A, 3 and 4-A use a separate three-winding induction coil, while Types 11-A, 13 and 14-A are of the "induction-coil-receiver" type. The latter have an induction coil incorporated in the receiver itself, which makes a separate induction coil unnecessary. The Type 11-A desk stand may be used with any ringer box containing a 1 mf. or 2 mf. condenser. Type 34A3 may be furnished with either circuit.

Monophone desk stands Types 1-A and 11-A, use an offset molded plastic cradle and base, in which a

terminal block is molded as an integral part. This base is also furnished in brass, with an alloy cradle, when desired. A six-foot cord is furnished with each desk stand.

The Type 34A3 Desk Set is entirely self-contained and requires no ringer box. The housing or base is in one piece and is made of molded plastic.

The Types 3 and 13 Wall Monophones each consist of a Monophone handset and cradle mounted on top of a steel wall box of conventional design. Types 4-A and 14-A are compact wall models designed for extension service only, since they do not include signals.

### Dial Monophone Desk Sets, Types 1-A and 11-A



Dial Monophone Desk Stand  
Types 1-A and 11-A

These two Monophones have been the most popular of all our handset types, and have been more extensively used than any other style, since they meet every modern requirement for both business and residential use.

The Type 1-A desk stand requires a ringer box with a special circuit. The Type 11-A desk stand is equipped with an induction-coil receiver, and can be used with any conventional ringer box which contains a 1 mf. or 2 mf. condenser. When ordering, if metal instead of molded ringer box is desired, please so specify. Also, if brass base and zinc alloy cradle are preferred, they must be specified.

<i>Code No. Desk Set Complete (With Ringer Box)</i>	<i>Code No. Desk Stand Only (Less Ringer Box) (Molded Plastic Base and Cradle)</i>	<i>Type No.</i>	<i>Ringer Box (Molded)</i>	<i>Hand Unit With Cord</i>	<i>Monophone Switch</i>	<i>Ring- ing</i>
1001	1003	1-A	L-550-AO	L-900-AO	D-730474-A	Metallic
1002	1003	1-A	L-551-AO	L-900-AO	D-730474-A	Ground
1101	1103	11-A	L-558-AO	L-903-AO	D-730247-A	Metallic
1102	1103	11-A	L-565-AO	L-903-AO	D-730247-A	Ground

*When ordering, give code number or description of dial number plate and dial card and specify ringer frequency desired. For above Monophones with dial blanks, specify above code numbers with suffix "BO." See pages 27 and 29.*

#### Equipment Common to Types 1-A and 11-A

Dial (complete) .....	D-84729-A	Base (Brass-shell only) .....	D-47684 -A
Cradle (molded plastic-shell only) .....	D-62037-A	Hand Unit Cord .....	D-542509-A
Cradle (zinc alloy-shell only) .....	D-62028-A	Desk Stand Cord (For Type 1-A) .....	D-542510-A
Base (molded plastic-shell only) .....	D-47338-A	Desk Stand Cord (For Type 11-A) .....	D-542511-A

**DIAL MONOPHONES (CENTRAL BATTERY)—Continued**

**Dial Monophone Desk Set, Type 34A3**

This new Monophone is one of our more recent contributions to the line of handset designs. Containing within itself every element of equipment necessary for any type of central battery service, it requires no separate ringer box. All equipment is contained within the base, which is a one-piece plastic molding of exceptionally substantial construction. In spite of its compactness, all of the parts are easily accessible, and all of them are standard, full sized parts, with operating efficiency equal to that of any other Monophone model. The whole telephone presents a most pleasing appearance, being modern in general tone, without being radical. The manual (dial blank) model is convertible to automatic by the addition of a dial only.



Dial Monophone Desk Set  
Type 34A3

<i>Code No. Desk Set Complete</i>	<i>Hand Unit With Cord</i>	<i>Induction Coil</i>	<i>Resistance Coil</i>	<i>Monophone Switch</i>	<i>Ringing</i>
L-220-AO*	L-900-AO	D-282155-A	None	D-730813-A	Metallic
L-221-AO*	L-900-AO	D-282155-A	None	D-730813-A	Ground
L-224-AO†	L-903-AO	None	D-281634-A	D-730822-A	Metallic
L-225-AO†	L-903-AO	None	D-281634-A	D-730822-A	Ground

\*With 3-winding induction coil. †With induction coil receiver.

*When ordering, give code number of dial number plate and dial card, and specify ringer frequency. For above Monophones with dial blanks, specify above numbers with suffix "BO" instead of "AO." See pages 27 and 29.*

*Equipment Common to Type 34A3*

Dial (complete) .....	D-84729 -A	Hand Unit Cord.....	D-542509-A
Base (shell only).....	D-47690 -A	Line and Cord Term. Block.....	D-15430 -B
Desk Set Cord (met. ring).....	D-542500-A	Condenser* .....	D-68197 -A
Desk Set Cord (grd. ring).....	D-542511-A	*Two condensers for ground ring; one for metallic ring.	

**Dial Monophone Wall Sets, Types 3 and 13**

This Monophone wall set consists of a hand unit and cradle mounted on a black-japanned steel wall box of the enclosed-gong type. It is highly convenient, since the user need not stand but may sit within cord's length of the telephone.

The base of the set is interchangeable with that of the Type 21 wall telephones and ringer boxes, and one can be converted to the other by merely changing covers. The over-all dimensions, including the hand unit, are 12 inches in height, 9 inches in width and 5½ inches in depth.

Type 3 has a three-winding induction coil included in the wall box. Type 13 is equipped with an induction coil receiver, so requires no separate induction coil, but needs the resistance coil as listed. Metallic ringing circuits require one condenser; ground ringing circuits, two.



Dial Monophone Wall Set  
Types 3 and 13

### DIAL MONOPHONES (CENTRAL BATTERY)—Continued

Code No. Wall Set Complete	Type No.	Hand Unit (With Cord)	Monophone Switch	Ringings	Induction Coil	Resistance Coil
L-301-AO	3	L-900-AO	D-730474-A	Metallic	D-281901-A	None
L-305-AO	3	L-900-AO	D-730474-A	Ground	D-281901-A	None
L-302-AO	13	L-903-AO	D-730247-A	Metallic	none	D-281634-A
L-303-AO	13	L-903-AO	D-730247-A	Ground	none	D-281634-A

When ordering, give code number of dial number plate and dial card and specify ringer frequency desired. For above Monophones with dial blanks, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.

#### Equipment Common to Types 3 and 13

Dial (complete) .....	D-84729-A	Cover Terminal Strip.....	D-15515-A
Cradle (shell only).....	D-62024-A	Condenser (one or two).....	D-6897
Hand Unit Cord.....	D-542509-A	Bracket (for one cond.).....	D-73684
Base Term. Strip (No. 3).....	D-15513-A	Bracket (for two cond.).....	D-730100
Base Term. Strip (No. 13).....	D-15514-A		

### Dial Monophone Extension Sets, Types 4-A and 14-A



Dial Monophone Set  
Types 4-A and 14-A

Monophone Sets Types 4-A and 14-A may be used as extension stations for both incoming and outgoing calls, or they may be used as main-line telephones in connection with a ringer box. A set consists of a hand unit, cradle and dial mounted on a compact molded plastic case containing a condenser, induction coil (in Type 4-A) and terminal strip.

In order to permit mounting the set on a wall or on either end of a desk and still present the dial at a convenient angle, the bracket which holds the dial may be located at either end of the box. This extension box requires a mounting space of only 3¾ inches by 5½ inches.

An "L" bracket (D-730542) which permits mounting the extension set at right angles to the supporting surface may be had if desired.

Type 4-A has a three-winding induction coil in the wall box as listed. Type 14-A is equipped with an induction coil receiver, so requires no separate induction coil, but needs the resistance coil listed. Type 14-A may also be equipped with an A. C. buzzer for an incoming signal. If desired, so specify.

Code No. Extension Set Complete	Type No.	Hand Unit (With Cord)	Monophone Switch	Induction Coil	Resistance Coil
L-355-AO	4-A	L-900-AO	D-730793-A	D-281901-A	None
L-346-AO	14-A	L-903-AO	D-730518-A	None	D-281634-A

When ordering, give code number of dial number plate and dial card.

#### Equipment Common to Types 4-A and 14-A

Dial, Dial Cup and Bracket Assembly.....	D-84742	Hand Unit Cord.....	D-542509-A
Dial only .....	D-84729-A	Condenser .....	D-6897
Cradle .....	D-62020-B	Terminal Strip .....	D-15513-A
Wall Box (shell only).....	D-49462		

**MANUAL MONOPHONES (CENTRAL BATTERY)**

The manual Monophones listed hereunder are the equal in quality of construction, performance, transmission, etc., with the dial type Monophones. The operating parts, in fact, such as hand units, ringers, induction coils, etc., are identical, the chief difference

being in the absence of dials and dial mounting facilities. For companies who expect to operate manual equipment for some time to come, no better line of telephones could be desired. For manual Monophones convertible to dial operation, see under "Dial Monophones."

**Manual Monophone Desk Sets, Types 5-A, 15-A and 7**



Manual Monophone Desk Stand  
Types 5-A and 15-A



Manual Monophone Desk Stand  
Type 7 (Two-Conductor)

The Types 5-A and 15-A Desk Sets are manual Monophones of the center stem type, similar in design and construction but using different circuits. The handset is the same as that used with the dial types, but the base is of black-japanned brass. The Type 5-A Monophone uses a booster circuit and requires a special bell box. The Type 15-A Monophone has an induction coil receiver and may be used with any existing central battery ringer box, having a 1 mf.

or 2 mf. condenser. A separate induction coil in the latter is not required.

The Type 7 (Two-Conductor) Monophone has a raised base, which provides space for an induction coil and condenser, permitting this instrument to be used with any ringer box for either main line or extension service.

If metal ringer box is desired, please so specify when ordering.

<i>Code No. Desk Set Complete (With Ringer Box)</i>	<i>Code No. Desk Stand Only (Less Ringer Box)</i>	<i>Type No.</i>	<i>Ringer Box (Molded)</i>	<i>Hand Unit (With Cord)</i>	<i>Monophone Switch</i>	<i>Desk Set Cord</i>
501	502	5-A	L-550-AO	L-900-AO	D-730474-A	D-542510-A
1501	1502	15-A	L-558-AO	L-903-AO	D-730474-A	D-542511-A
701	702	7	L-558-AO	L-900-AO	D-730474-A	D-542500-A

*When ordering specify ringer frequency desired.*

*Misc. Parts for Types 5-A, 15-A and 7*

Cradle (shell only—Types 5-A and 15-A).....	D-62043-A	Hand Unit Cord.....	D-542509-A
Cradle (shell only—Type 7).....	MP-6016	Resistance Coil (for No. 15-A).....	D-281634-A
Base (shell only)—Type 5-A and 15-A.....	MP3257	Condenser (for No. 7).....	AC-18530
Base (shell only—Type 7).....	MP3732	Induction Coil (for No. 7).....	D-281901-A

## MANUAL MONOPHONES (CENTRAL BATTERY)—Continued

### Manual Monophone Wall Sets, Types 6 and 16



Manual Monophone Wall Set  
Types 6 and 16

The manual Monophone wall set consists of a black japanned steel ringer box of the enclosed-gong type, on which is mounted a Monophone cradle. This set represents the utmost in convenience, whether mounted on the wall or on the end of a desk. The dimensions complete with hand unit, are 12 inches high, 9 inches wide and 4 inches deep. The base is interchangeable with that of the standard metal ringer box, and one can be converted to the other by merely changing covers.

Type 6 has an induction coil in the wall box as listed below. Type 16 is equipped with an induction coil receiver, so requires no separate induction coil, but needs the resistance coil as listed.

Code No. Wall Set Complete	Type No.	Hand Unit (With Cord)	Induction Coil and Terminal Strip	Resistance Coil
601	6	L-900-AO	D-281900-A	None
1601	16	L-903-AO	None	D-281634-A

When ordering, specify ringer frequency desired.

#### Equipment Common to Types 6 and 16

Cradle (shell only).....	D-62024-A	Cover Terminal Strip.....	D-15515-A
Hand Unit Cord.....	D-542509-A	Condenser .....	D-6897
Monophone Switch .....	D-730474-A	Condenser Bracket .....	D-73684
Base Term. Strip (for Type 16).....	D-15513-A		

### Manual Monophone Extension Sets, Types 4 and 14



Manual Monophone  
Extension Set  
Types 4 and 14

This compact wall box with Monophone hand unit is designed for extension service on any central battery telephone, and consequently is not provided with a ringer. It requires mounting space of only  $3\frac{3}{4}$  inches by  $5\frac{1}{4}$  inches, making it convenient for mounting in practically any location where the ringer of the main telephone is audible. A 500-ohm A.C. buzzer is supplied with the L-349-AO model, making it suitable for main line service where a buzzer signal is adequate.

Type 4 has an induction coil in the wall box as listed below. The Type 14 is equipped with an induction coil receiver, so requires no separate induction coil but needs the resistance coil as listed.

Occasionally it is desirable to mount this telephone at right angles to the surface on which it is mounted. For this purpose an angle bracket (D-730542) is available. Please specify if desired. Ideal for mounting on the end of a desk where it is ready to use, but out of the way.

**MANUAL MONOPHONES (CENTRAL BATTERY)--Continued**

Code No. Extension Set Complete	Type No.	Hand Unit (With Cord)	Monophone Switch	Induction Coil	Resistance Coil	Buzzer
L-356-AO	4	L-900-AO	D-730793-A	D-281901-A		
L-358-AO	14	L-903-AO	D-730518-A		D-281634-A	
L-349-AO	14	L-903-AO	D-730518-A		D-281634-A	D-56307

*Equipment Common to Extension Sets Types 4 and 14*

Cradle .....	D-62020	Condenser .....	D-6897
Wall Box (shell only) .....	D-49248	Terminal Strip .....	D-15513-A
Hand Unit Cord .....	D-542509-A		

**TYPE 21 DIAL TELEPHONES (CENTRAL BATTERY)**

To those telephone companies that prefer the conventional types of telephones with separate transmitters and receivers, the Type 21 automatic models offer the utmost in telephone efficiency and durability. The

parts are highly standardized and have been perfected through long experience. The parts offer also the economy of a high degree of interchangeability between the various types.

**Type 21 Dial Desk Sets (With Booster Circuits)**

The Type 21 Dial Desk Stand uses an offset molded plastic base, in which the terminal block is molded as an integral part. The dial may be adjusted without removing it from the base. The base plate may be removed by loosening one "non-losable" screw, after which the hookswitch may also be removed without disturbing the wiring, by taking out one screw. The simple hinge joining the transmitter and post, is covered by a shell similar in appearance to a ball and socket joint. Each desk stand is equipped with a six-foot Monotype cord. The height is 11½ inches; diameter of base, 5⅞ inches.

Desk Sets 2101 and 2102 use a booster circuit, with two-winding induction coil. Desk Sets 2115 and 2116 use an anti-sidetone booster circuit with a three-winding induction coil. If desk stand with brass base is preferred, please so specify. If metal ringer box is desired, it must also be specified.



Dial Desk Stand  
Type 21

Code No. Desk Set Complete (With Ringer Box)	Code No. Desk Stand Only (Less Ringer Box) Molded Plastic Base	Type No.	Ringer Box (Molded)	Hookspring and Mounting Plate	Desk Set Cord	Ringing
2101	L-428-AO	21	L-554-AO	D-78456-A	D-542511-A	Metallic
2102	L-428-AO	21	L-555-AO	D-78456-A	D-542511-A	Ground
2115	L-426-AO	21	L-550-AO	D-78458-A	D-542510-A	Metallic
2116	L-426-AO	21	L-551-AO	D-78458-A	D-542510-A	Ground

When ordering, give code number of dial number plate and dial card and specify ringer frequency desired. For telephones with dial blanks, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.

*Equipment Common to Type 21 Booster Desk Stands*

Dial (complete) .....	D-84729-A	Receiver .....	D-5164-A
Base (molded plastic-shell only) .....	D-47338-A	Transmitter .....	D-38237-A
Base (brass-shell only) .....	D-47684-A	Receiver Cord (Clips and Clips) .....	D-542498-A

**TYPE 21 DIAL TELEPHONES (CENTRAL BATTERY)—Continued**

**Type 21 Wall Set, With Booster Circuit**



Dial Wall Set—Type 21

The Type 21 Dial Wall Set is equipped with steel base and cover, finished in black japan. The bases of the wall set and metal ringer box are identical, so by merely changing the covers, the wall box can be readily changed to a ringer box, and vice versa. The cover opens by turning a screw, and can be easily removed. A neat hinge, similar to that of the desk stand, joins the transmitter to the cover. Connections are made at terminal strips, permitting changes without disturbing the interior wiring.

The dimensions of the wall set measured over the transmitter and receiver are 10 inches in width, 9<sup>5</sup>/<sub>8</sub> inches in height and 7<sup>1</sup>/<sub>2</sub> inches in depth. Actual base dimensions are 7<sup>1</sup>/<sub>4</sub> inches wide by 9<sup>5</sup>/<sub>8</sub> inches high.

Wall Sets L-613-AO and L-614-AO use a booster circuit with a two-winding induction coil. Sets L-603-AO and L-615-AO use an anti-sidetone booster circuit with a three-winding induction coil. Metallic ringing circuits require one condenser; ground ringing circuits, two.

<i>Code No. Wall Set Complete</i>	<i>Type No.</i>	<i>Hooksprings and Bracket</i>	<i>Induction Coil</i>	<i>Ringing</i>
L-613-AO	21	D-730463-A	D-281899-A	Metallic
L-614-AO	21	D-730463-A	D-281899-A	Ground
L-603-AO	21	D-730502-A	D-281900-A	Metallic
L-615-AO	21	D-730502-A	D-281900-A	Ground

*When ordering dial telephones, give code number of dial number plate and dial card and specify ringer frequency desired. For telephones with dial blanks, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.*

*Equipment Common to Type 21 Booster Wall Sets*

Dial (complete) .....	D-84729-A	Condenser (One or Two) .....	D-6897
Receiver .....	D-5164-A	Bracket for One Condenser.....	D-73684
Transmitter .....	D-38237-A	Bracket for Two Condensers.....	D-730100
Cover Terminal Strip.....	D-15515-A	Receiver Cord (Clips and Clips).....	D-542498-A

**Type 21 Dial Telephones, With Series Circuits**

Type 21 Series Telephones are identical in mechanical design and appearance with the Type 21 Booster Telephones, except that they are provided with simple series circuits which are especially adapted to isolated private automatic exchange use. No induction

coil or talking condenser is required, and receivers are of the direct current (electrically polarized) type.

If desk stand with brass base is preferred, please so specify when ordering. Also specify if metal ringer box is preferred.

*Type 21 Dial Desk Set (Series Circuit)*

<i>Code No. Desk Set Complete (With Ringer Box)</i>	<i>Code No. Desk Stand Only (Less Ringer Box) (Molded Base)</i>	<i>Type No.</i>	<i>Dial (Complete)</i>	<i>Ringer Box (Molded)</i>	<i>Hookspring and Mtg. Plate</i>	<i>Desk Set Cord</i>	<i>Ringing</i>
2103	L-427-AO	21	D-84734-A	L-558-AO	D-78463-A	D-542511-A	Metallic

**TYPE 21 DIAL TELEPHONES (CENTRAL BATTERY)—Continued**

*Type 21 Dial Wall Set (Series Circuit)*

<i>Code No. Wall Set Complete</i>	<i>Type No.</i>	<i>Dial (Complete)</i>	<i>Hookspring and Bracket</i>	<i>Cover Terminal Strip</i>	<i>Condenser</i>	<i>Condenser Bracket</i>
L-602-AO	21	D-84729-A	D-730463-A	D-15515-A	D-6897	D-73684

*When ordering, give code number of dial number plate and dial card and specify ringer frequency desired. For telephones with dial blanks, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.*

*Equipment Common to Type 21 Series Telephones*

Receiver .....	D-5161-A	Base of Desk Stand (molded shell only).....	D-47338-A
Transmitter .....	D-38237-A	Base of Desk Stand (brass shell only).....	D-47684-A
Receiver Cord (Clips and Clips).....	D-542498-A		

**TYPE 21 MANUAL TELEPHONES (CENTRAL BATTERY)**

Type 21 Manual Telephones, like the dial telephones of similar design, represent the most satisfactory and efficient type of instrument for those telephone companies that prefer the conventional designs. The various parts, such as receivers, transmitters, ringers, etc., are identical with those used in the dial

type instruments, and the general type of construction and mechanical design are also the same. These telephones are furnished with only one type of circuit—the booster circuit with a two-winding induction coil.

For Type 21 Telephones convertible to dial operation, see under "Type 21 Dial Telephones."

**Type 21 Manual Desk Set**

The Type 21 Manual Desk Stand has a height of 11½ inches and a base diameter of 5⅝ inches. The hinge joining the transmitter and post is similar to a ball and socket joint in appearance and simple and sturdy in construction. The base plate is easily removed by loosening a single "non-losable" screw, thereby giving complete access to the terminal block.

The base and stem are made of brass having a durable black enamel finish. The transmitter mounting neck is of alloy with a similar finish. Each desk stand is furnished with a six foot Monotype cord.

This telephone is a standard product with large numbers of operating companies using manual equipment and has set enviable standards for durability.



Manual Desk Stand  
Type 21

<i>Code No. Desk Set Complete</i>	<i>Code No. Desk Stand Only</i>	<i>Type No.</i>	<i>Ringer Box</i>	<i>Receiver Cord</i>	<i>Desk Set Cord</i>	<i>Receiver</i>	<i>Transmitter</i>
2104	2108	21	L-554-AO	D-542498-A	D-542511-A	D-5164-A	D-38237-A

*When ordering, specify ringer frequency desired.*

**TYPE 21 DIAL TELEPHONES (CENTRAL BATTERY)—Continued**

**Type 21 Manual Wall Set**



Manual Wall Set Type 21

The Type 21 Manual Wall Set has a steel cover and base, finished in black japan. The cover is opened by turning a screw, and can be easily removed. The hinge joining the transmitter and cover resembles a ball and socket joint and presents a very neat appearance. All connections are made to a terminal block mounted on the induction coil, so that changes can be readily made without disturbing the interior wiring. The base is interchangeable with that of the ringer box, so by merely changing covers, one can be converted into the other.

The dimensions of the wall set, measured over the transmitter and receiver, are tubing the interior wiring. The base is interchangeable with that of the metal ringer box, so by merely changing covers, one can be converted into the other.

<i>Code No.</i>	<i>Type</i>	<i>Hooksprings and</i>	<i>Induction Coil</i>	<i>Receiver</i>	<i>Transmitter</i>
<i>Wall Set Complete</i>	<i>No.</i>	<i>Bracket</i>	<i>and Term. Strip</i>	D-5164-A	D-38237-A
2113	21	D-73683-A	D-281899-A		

*When ordering, specify ringer frequency.*

*Miscellaneous Equipment*

Condenser Bracket .....	D-73684	Cover Terminal Strip.....	D-15515-A
Receiver Cord (Clips and Clips).....	D-542498-A	Condenser .....	D-6897

**TYPE 32A14 HANDSET TELEPHONES**

Type 32A14 Handset Telephones are similar to Monophones in general style and design, but are particularly suited for use with isolated private exchanges. Like the Monophone models, these handset telephones are made of molded plastic throughout, and present a very fine appearance.

The circuit employed makes use of an induction coil

type of receiver, no separate induction coil being necessary. The transmitter is of the sealed capsule type and is only slightly less efficient than that of the Monophone. An efficient and compact single coil ringer is employed in place of the regular polarized ringer. These telephones cannot therefore be furnished for harmonic ringing.

**The Type 32A14 Handset Desk Telephone**



Handset Desk Telephone Type 32A14

The Type 32A14 Handset Desk Stand is a self-contained unit and requires no ringer box. The base is slightly raised from the desk surface, and contains terminal block, dial, condenser and single coil ringer. No induction coil is needed. The desk set cord terminates in a small round terminal block made of molded plastic.

<i>Code No.</i>	<i>Handset</i>	<i>Ringling</i>	<i>Hand</i>
<i>Desk Set</i>	<i>Switch</i>		<i>Unit</i>
<i>Complete</i>			<i>With Cord</i>
L-144-AO	D-730696-A	Metallic	L-923-AO
L-145-AO	D-730696-A	Ground	L-923-AO

*When ordering, give code number of dial number plate and dial card. For telephones with dial blanks, specify above code number with suffix "BO" instead of "AO." See pages 27 and 29.*

*Miscellaneous Parts*

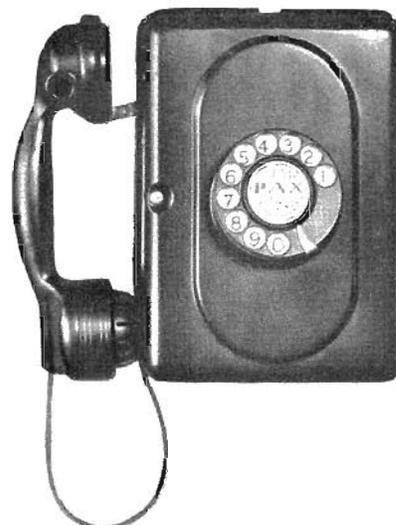
Dial (complete) .....	D-84734-A	Condenser .....	D-68197-A
Hand Unit Cord.....	D-542454-A	Condenser Bracket (Desk Set).....	D-730695
Base (Desk Set—Shell only).....	D-47634-A	Line and Cord Terminal Block.....	D-15430-B
Sub-Base (Desk Set—Shell only).....	D-47633	Ringer .....	D-56355-A

**TYPE 32A14 HANDSET TELEPHONES—Continued**

**The Type 32A14 Handset Wall Telephone**

The Type 32A14 Handset Wall Telephone uses a black-japanned steel wall box 9½ inches long, 7 inches wide and 3⅝ inches high. The dial is mounted in the center of the front of the box and the handset hangs on a switch hook at the left hand side. Equipped with an efficient single coil ringer. Adapter for mounting on a standard 4 inch outlet box.

The handset is the same as that used with its companion desk set, and is similar to the Monophone hand unit in appearance and construction, and only slightly less efficient in operation. The ringer is of the single coil type and cannot be furnished for harmonic signaling.



Handset Wall Telephone  
Type 32A14

<i>Code No. Wall Telephone Complete</i>	<i>Handset Switch</i>	<i>Ringing</i>	<i>Hand Unit With Cord</i>	<i>Ringer</i>
L-314-AO	D-730696	Met. or Grd.	L-923-AO	D-56355-A

*Miscellaneous Parts*

Dial (complete) .....	D-84734-A	Condenser .....	D-68197-A
Hand Unit Cord.....	D-542454-A	Condenser Bracket .....	D-730693

*When ordering, give code number of dial number plate and dial card. For telephones with dial blanks, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.*

**Type 32A14 Handset Extension**

The Type 32A14 Extension Set comprises a handset and a molded plastic case 3¾ inches long and 5½ inches wide, containing switch hook, terminal strip, condenser and concealed signal. Exceedingly compact in design.

This set can be supplied in any of the following combinations:

Without buzzer, for use as an extension in locations where the main signal can be heard.

With a 500 ohm A. C. buzzer and 1 mf. condenser, for use as a main station in quiet locations where a buzzer signal is adequate.

With a low-voltage D. C. buzzer, for use as an extension telephone with signaling between the main and extension stations by means of a push button.

<i>Code No. Extension Set</i>	<i>A. C. Buzzer</i>	<i>Hand Unit With Cord</i>	<i>D. C. Buzzer</i>	<i>Hand Unit Cord</i>
L-348-AO	None	L-923-AO	None	D-542454-A
L-350-AO	D-56307	L-923-AO	None	D-542454-A
L-350-BO	None	L-923-AO	Size 2 (6 v.)	D-542454-A



Handset Extension  
Type 32A14

## SPECIAL TELEPHONES (CENTRAL BATTERY)

In this section are listed types of telephones which, while being special in the sense that they are not universally applicable to the majority of subscribers' requirements, are nevertheless highly standardized and tested products. Telephone companies are urged to familiarize themselves with these products and the conditions they are designed to meet, so that they will be in position to furnish equipment that will supply

the exact type of service required by their subscribers.

Attention is directed particularly to such telephones as weatherproof telephones, key-type telephones, anti-noise telephones, mine telephones, and similar products which call for appreciable rate differentials, enabling telephone companies to add to their revenue with a very small increase in investment.

### The Type 31-B (Key Type) Monophone

The Type 31-B Monophone consists of a standard Type 1-A Desk Monophone, equipped with a sub-base containing a switching key. By its use, calls can be made or answered on either of two lines (local or central office) in any combination. The locking-type lever key is mechanically linked to the Monophone switch so that when the handset is replaced on the cradle the key is automatically restored to normal and both lines are released.

With the lever key in normal position, the telephone is connected to line No. 1 when the handset is raised. When the lever key is depressed, the telephone is connected to line No. 2. A holding bridge is provided for line No. 2, so that a call can be held on line No. 2 while the key is switched back to normal to answer a call on line No. 1. This holding feature is not provided for on line No. 1.

A push button is provided in the top of the sub-base for flashing the operator or to release in case of error in dialing.

The L-157 model is similar to the L-133 model, except that it has no mechanical releasing feature and no holding bridge. The key is a simple two way key,



Type 31-B Monophone

the upper position connecting to one line, the lower to a second.

These Monophones can be equipped with a standard ringer box for each line, or can utilize a special two-ringer bell box, L-528. The latter can be supplied with a D. C. ringer substituted for one of the A. C. ringers, if desired, and can also be equipped with a 3 volt buzzer in addition, for signaling purposes. Where two separate bell boxes are used, L-521 must be specified as one since it is equipped with a 9-conductor terminal.

<i>Code No. Desk Stand Only</i>	<i>Hand Unit (With Cord)</i>	<i>Sub-Base</i>	<i>Desk Set Cord</i>	<i>Monophone Switch</i>	<i>Hand Unit Cord</i>
L-133-AO	L-900-AO	D-47605-A	D-542517-A	D-730474-A	D-542509-A
L-157-AO	L-900-AO	D-47672-A	D-542516-A	D-730474-A	D-542509-A

#### Miscellaneous Parts

Ringer Box, with two single-coil ringers.....	L-528	Ringer Box, with polarized ringer and wood gongs.....	L-526
Ringer Box, with polarized ringer and 9 cond. term.....	L-521	Dial .....	D-84729-A

*When ordering, give code number of dial number plate and dial card. For above telephones with dial blank, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.*

**SPECIAL TELEPHONES (CENTRAL BATTERY)—Continued**

**Type 31 (Key Type) Handset Telephones**

This telephone is similar to the Key Type Monophones just described, but uses the Type 32A14 handset, which has a sealed capsule type transmitter. It is recommended particularly for private exchange use. There is no trunk-holding feature on this instrument and the lever key is mechanically independent of the

handset switch. A push button in the sub-base of the telephone can be used to operate a buzzer as a secretarial signal is desired. The ringer boxes employed are similar to those used in connection with the Type 31-B Monophone. See under "Ringer Boxes for Type 31 Telephones."

<i>Code No.</i>	<i>Sub-Base</i>	<i>Desk Set Cord</i>
Desk Stand Only L-158-AO	D-47673	D-542521-A

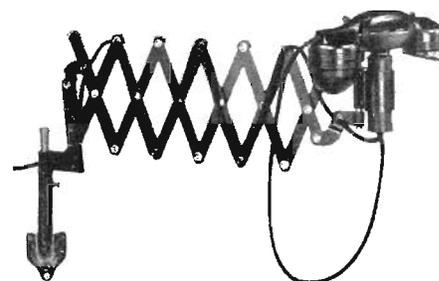
*Miscellaneous Parts*

Dial .....	D-84734-A	Hand Unit (With Cord) .....	L-923-AO
Cradle (Shell only) .....	D-62037-A	Hand Unit Cord .....	D-542454-A
Base (Shell only) .....	D-47338-A	Handset Switch .....	D-730696-A

*When ordering, give code number of dial number plate and dial card. For telephones with dial blanks, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.*

**The "Bracket" Monophone**

The Bracket Monophone consists of a manual Monophone hand unit rigidly fastened to an extension bracket, and combines the convenience of both in one instrument. The bracket revolves on the base and is instantly adjustable to different lengths. It has a 28 inch maximum extension, and is finished in black enamel. When ordering specify whether the Bracket Monophone is to be used for central or local battery service.



The "Bracket" Monophone

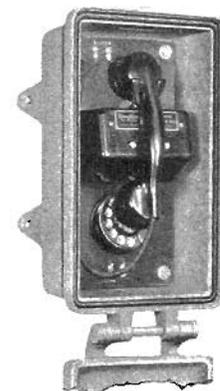
<i>Code No.</i>	<i>Hand Unit</i>	<i>Hand Unit Cord</i>	<i>Monophone Switch</i>	<i>Cradle and Collar Assen.</i>	<i>Terminal Block and Stud</i>	<i>Burns Bracket Assembly</i>
1903	L-900-AO	D-542510-A	D-730270-A	MP-4630	MP-4636	No. 127-34

**The Weatherproof Monophone**

The Weatherproof Monophone is specifically designed for marine service, but may be used wherever extreme humidity or possibility of mechanical injury exists. The Monophone proper is similar to the Type 4 Monophone Extension Set, and is contained in a heavy, aluminum alloy case which is sealed by a gasket when the cover is closed. The dial is mounted on the same molded plastic panel which holds the Monophone. A waterproof transmitter is used, and special clips keep the hand unit from swinging.

This Monophone uses an anti-sidetone booster circuit with an induction coil receiver, and may be used for manual or automatic service.

The dimensions of the case are 10¼ inches wide, 16½ inches high and 8½ inches deep. A separate ringer is used and should be ordered separately if desired. A waterproof ringer (L-545-AO) suitable for use with this telephone is listed elsewhere in this catalog.



The Weatherproof Monophone

### SPECIAL TELEPHONES (CENTRAL BATTERY)—Continued

The Weatherproof Monophone is a type that is used extensively by the U. S. Navy as a bulkhead telephone and is built to meet exacting government specifications. The dial used is of a special splashproof type. All parts are so designed and arranged that the telephone may be used under the most severe conditions

of storm, spray, wet weather, etc., and when not in use, has absolute protection against injury of any sort. The case is ordinarily finished in battleship gray, but can be finished in any other color desired, on special order.

<i>Code No. (Less Ringer Box)</i>	<i>Hand Unit (With Cord)</i>	<i>Monophone Switch</i>	<i>Ringer Box (Weatherproof)</i>	<i>Resistance Coil</i>	<i>Receiver</i>	<i>Transmitter</i>
L-360-AO	L-907-AO	D-730518-B	L-545-AO	D-281634-A	D-5155-B	D-38230-A

#### Miscellaneous Parts

Dial .....	D-84730-A	Terminal Strip .....	D-15513
Condenser .....	D-6897	Condenser Bracket .....	D-730268
Hand Unit Cord.....	D-542501-A	Hand Unit Retaining Spring.....	D-109217

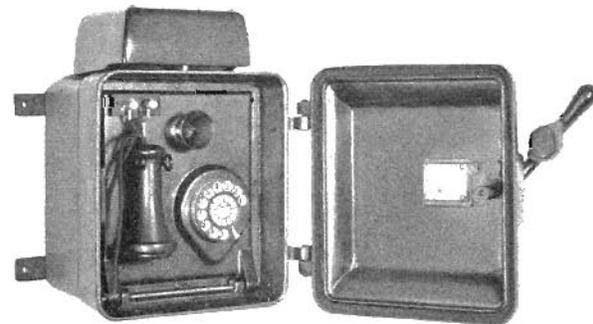
*When ordering, give code number of dial number plate and dial card. For manual service specify above number with suffix "BO" instead of "AO."*

### The Mine Telephone

This telephone is ideal for use where great strength and moistureproof construction are desired, such as in mines, quarries, boiler rooms, etc. The case is heavy cast iron provided with two moistureproof doors, all protected by a heavy finish of black rust-resisting paint.

The outer door is provided with a lock and a cam-type locking handle. The telephone parts are mounted on the inner door, which is opened only for installation or repair. The top and bottom of the case are drilled for  $\frac{1}{2}$  inch conduit, and a special pipe plug is furnished for plugging whichever hole is unused.

A cast-iron hood on the top of the case encloses three-inch loud-ringing gongs, connections to which are made through insulated brass rods extending through water-tight bushings from the inside of the case. All



Mine Telephone

coils are wound with enameled wire and other wires are impregnated with "Sarco" moisture-proof compound. Dimensions of the case are  $11\frac{1}{2}$  inches wide, 15 inches high and  $12\frac{1}{4}$  inches deep, over-all. An anti-sidetone booster circuit is used, with straight-line ringer.

<i>Code No. (Complete with Ringer)</i>	<i>Dial</i>	<i>Receiver</i>	<i>Transmitter</i>	<i>Induction Coil</i>	<i>Condenser</i>	<i>Condenser Bracket</i>	<i>Receiver Cord</i>
L-950-AO	D-84729-A	D-5164-C	D-38237-A	D-281901-A	D-6897	D-7338	D-542546-A

*When ordering give code numbers of dial number plate and dial card. For manual service, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.*

SPECIAL TELEPHONES (CENTRAL BATTERY)—Continued

Flush Type Wall Telephones



Flush Wall Telephone  
L-962-AO



Flush Wall Telephone  
L-961-AO



Flush Wall Telephone  
L-960-AO

Two types of flush-type telephones are available. The L-962-AO and L-963-AO models use a standard receiver, transmitter and dial mounted on a beveled steel plate, black-japanned, the dimensions of which are  $7\frac{3}{8}$  inches wide by 13 inches high. This telephone has a straight-line ringer, and the steel plate is perforated so that it can be clearly heard. A standard sheet iron outlet box, 12 inches high,  $6\frac{3}{8}$  inches wide and  $4\frac{1}{16}$  inches deep, is inset in the wall and supports the plate which is flush with the wall. Available with either series or booster circuit.

The L-961-AO type uses a watch case receiver, standard dial and transmitter mounted on a beveled black phenol-fibre plate  $7\frac{1}{8}$  inches wide and  $10\frac{23}{32}$  inches high. This plate is mounted on a sheet iron outlet box  $5\frac{3}{4}$  inches wide and  $9\frac{5}{16}$

inches long, and either 3 inches deep (for standard walls) or  $1\frac{1}{2}$  inches deep (for thin partitions). A 500 ohm A. C. buzzer is provided (in series with a 1 m.f. condenser), and since it is fastened to the face plate which acts as a resonator, no sound-escape holes are necessary. Series circuit only is used.

The L-960-AO model is designed for elevator cab use, and is identical with the L-961-AO except that the dimensions of the face plate are  $5\frac{3}{4}$  inches wide,  $9\frac{5}{16}$  inches long. Either  $1\frac{1}{2}$  inch or 3 inch deep outlet box can be furnished. The housing is not ordinarily furnished since it is usually a part of the elevator equipment.

On all models the transmitters are so mounted that the mouthpiece extends out but a short distance. Outlet boxes are provided only when specified.

Code No. (Complete with Ringer or Buzzer)	Dial	Receiver	Transmitter	Condenser	Induction Coil	Ringer	Buzzer	Circuit
L-962-AO	D-84729-A	D-5161-A	D-38231-A	D-6897		D-56292-B		Series
L-963-AO	D-84729-A	D-5164-A	D-38231-A	D-6897	D-281897-A	D-56292-B		Booster
L-960-AO	D-84734-A	D-5138-B	D-38237-A	D-68182-A			D-56307-A	Series
L-961-AO	D-84734-A	D-5138-C	D-38237-A	D-68182-A			D-56307-A	Series

When ordering, give code number of dial number plate and dial card. For telephones with dial blanks, specify above code numbers with suffix "BO" instead of "AO." See pages 27 and 29.

**SPECIAL TELEPHONES (CENTRAL BATTERY)—Continued**

**The Anti-Noise Monophone Hand Unit**



The Anti-Noise Monophone Hand Unit

A special anti-noise Monophone hand (transmitter and receiver) unit can be furnished for use in noisy locations such as shops, engine rooms, trading floors, or similar places. The unit consists of a standard black molded plastic handle equipped with a regular receiver, a special transmitter fitted with special transmitter cap or mouthpiece. The transmitter diaphragm is especially shielded acoustically, from extraneous noises, by means of baffles. The mouthpiece is so formed that only a small tapered hole leads to the diaphragm. The combination of transmitter and mouthpiece effectively cuts off all sounds not spoken directly into the transmitter.

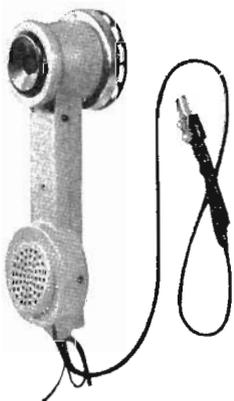
The anti-noise hand unit may be used to replace the standard hand unit on any type of Monophone, either of the anti-sidetone booster or induction coil receiver types. The latter is equipped with a waterproof transmitter as well.

When ordering hand unit alone, give code number below, or code number of telephone with which handset is to be used.

*Code No.*

Anti-Noise Monophone Hand Unit (Induction coil receiver).....	L-915-AO
Anti-Noise Monophone Hand Unit (Polarized receiver).....	L-917-AO

**The Hand Test-Telephone**



The Hand Test-Telephone

The hand test-telephone ("Buttinsky") is used for general supervision purposes in automatic exchanges. It consists of a light but strong aluminum-silicon handset unit, containing a transmitter at one end and a receiver and dial at the other. Two push buttons are mounted in the handle.

When the test-telephone is to be used for monitoring a busy line, the "C" button is pushed before connecting to the line. This opens the transmitter circuit and prevents the flow of direct current, so that neither a "click" nor a loss of sound volume is caused in the telephones being used. The receiver is wired in series with a condenser.

By pushing the "R" button, a 1200 ohm resistance is connected in series with the line for testing automatic switches over a maximum resistance loop.

<i>Code No. (With Dial)</i>	<i>Code No. (Without Dial)</i>	<i>Equipped With</i>	<i>Dial</i>
L-940-AO	L-940-BO	Cord and Automatic Test Plug	D-84734-A
L-940-A2	L-940-B2	Cord and Test Clips	D-84734-A
L-940-A6	L-940-B6	Cord and Manual Plug	D-84734-A

*Miscellaneous Parts*

Transmitter .....	D-38183-A	Impedance Coil .....	D-281733
Condenser .....	D-68119-A	Mounting Bracket (order separately).....	D-730370
Resistance Coil .....	D-281559-A	Receiver Magnet Coil.....	D-281456-A

**SPECIAL TELEPHONES (CENTRAL BATTERY)—Continued**

**The Type 75 Multi-Slot Paystation Telephone**

**Prepayment Type**

The Type 75 Multi-Slot, Prepayment Paystation requires a paystation switch train and associated equipment at the central office. The standard model uses nickels, dimes and quarters, but it can also be furnished for use with Canadian coins.

The door to the compartment containing the cash-box is secured by a lock requiring a key. The keys may be individual to each paystation, or may be common to any number of paystations, divided into groups as desired by the customer. An entirely different key must be used to open the mechanism cover. Ordinarily an open type cash-box is supplied, but a self-locking type can be furnished if desired. The self-locking type is sealed at the telephone office by a wire and lead seal. When inserted in the paystation, the box is automatically opened for coins, while removal automatically closes and locks it. When converting paystations with open type boxes, a special Coil Receptacle Rail must be ordered, in addition to the self-locking coin box.

The dimensions of the Type 75 paystation are 18 inches high, 7 inches wide and 5½ inches deep. The finish is black japan. Specify type of coin box desired, and whether individual or common keys are required.



The Type 75 Prepayment Paystation

<i>Code No. (With Open Type Coin Box)</i>	<i>Code No. (With Self- locking coin box)</i>	<i>Ringer Box</i>	<i>Dial</i>	<i>Transmitter</i>	<i>Receiver</i>	<i>Receiver Cord</i>	<i>Circuit</i>
L-729-AO	L-705-AO	L-502-AO	D-84729-A	D-38237-A	D-5164-A	D-542498-A	Booster
L-997-AO	L-706-AO	L-500-AO	D-84729-A	D-38237-A	D-5164-A	D-542498-A	Anti-side tone Booster

*When ordering, give code number of dial number plate and dial card. For telephone, with dial blanks, specify above code number with suffix "BO" instead of "AO."*

**The Type 750 Multi-Slot Paystation Telephone**

**Postpayment Type**

This dial paystation is unique in that it requires no special central office equipment either for toll or local operation. It is of the multi-slot, postpayment type arranged for nickels, dimes and quarters. Can also be furnished for Canadian coins. In operation, calls are dialed as usual, but when the called station answers conversation cannot take place until the coin is dropped. Coins placed in the wrong slot are automatically refunded, but other coins cannot be returned.

Locks, keys, and cash-boxes are similar to those described for the Type 75 Paystation. Dimensions of this paystation are 18 inches high, 7 inches wide and 5½ inches deep. The finish is bronze. Specify type of coin box desired and whether individual or common keys are required.



The Type 750 Postpayment Paystation

<i>Code No. (With Open Type Coin Box)</i>	<i>Code No. (With Self- locking coin box)</i>	<i>Ringer Box</i>	<i>Receiver Cord</i>	<i>Circuit</i>
L-994-AO	L-707-AO	L-519-AO	D-542498-A	Anti-sidetone Booster

*When ordering dial telephones, give code number of dial number plate and dial card.*

## SPECIAL TELEPHONES (CENTRAL BATTERY)—Continued

### Multi-Slot Handset Paystations



Prepayment Multi-Slot Paystation with Monophone Handset

Both the prepayment and postpayment types of multi-slot paystations are now available with Monophone hand units in place of the conventional transmitters and receivers. The paystation illustrated is of the prepayment type and serves the same purpose as the Type 75 paystations shown on page 21.

The handset employed is of the standard Monophone type and may be either of the regular booster or induction coil receiver type. The interior of the box contains a transmitter to permit the sound of the gongs being clearly heard by the operator. When ordering give same information as required for the conventional types, and state type of Monophone circuit preferred.

### Self-Locking Coin Box

This type of box is sealed at the telephone office by a wire and a lead seal. Insertion in the cash compartment of a paystation automatically prepares the box to receive coins, while removal of the box automatically closes and locks it. The cash compartment must be equipped with a Coin Receptacle Rail, which should be called for when converting paystations with open-type boxes.

*Code No.*

Self-Locking Coin Box .....G-6001-A

### Type 29 Coin Collector

(“Nickel Grabber”)



The Type 29 Coin Collector

This coin collector requires no special central office equipment, and may be used on all Strowger automatic individual and party lines (except two-party “jack-per-station” lines). The coin is suspended at the top of the coin-slot, by a lever, while the call is dialed. When the called station answers, the lever must be operated, collecting the nickel, before conversation can take place.

The box is of black-japanned steel, 9 inches high, 4 inches wide and 3 inches deep. The cash box is secured by a lock requiring a key. The keys may be individual to each coin collector, or may be common to any number of coin collectors divided into groups as desired by the customer. An entirely different key must be used to open the mechanism cover. A four-conductor cord is required between the telephone desk stand and ringer box.

*Code No.*

Type 29 Coin Collector (for telephone with series receiver).....D-14022-A  
Type 29 Coin Collector (for telephone with polarized receiver).....D-14022-B

## MANUAL MONOPHONES (LOCAL BATTERY)

Companies operating magneto exchanges need no longer handicap their efforts nor risk subscriber dissatisfaction with the cumbersome, old style magneto telephones. Magneto Monophones bring the rural telephone user every advantage of beauty, compactness and efficient operation that the city telephone subscriber enjoys.

The handset employed in the magneto models listed hereunder is of the same general type and design as that employed for central battery Monophones, but in detail design, of course, it is specifically intended for local battery operation. Magneto Monophones are available in self-contained types, with everything contained in the one instrument, or in types requiring separate ringer boxes.

### Manual Monophone Desk Sets (Local Battery)



Type 9



Type 19



Type 8

The Type 9 Desk is a manual Monophone of the center stem type, similar in mechanical design to the Type 5-A (central battery) Monophone, but arranged for local battery operation and requiring a special ringer box as listed. The Type 19 Monophone has a raised base in which is mounted an induction coil, permitting it to be used with any conventional local battery ringer box without induction coil, or from which the induction coil has been disconnected.

The Type 8 Desk Set is a complete local battery

telephone, including generator and ringer, all combined in a compact and attractive table set, 10 inches high. The batteries can be placed in any desired location. A four-conductor cord and terminal block are furnished with each instrument. Only the terminal block needs be permanently mounted. The two-bar generator will be found adequate where there are not more than four parties to a line. For long and heavily loaded lines the Type 9 or 19 Monophone is recommended.

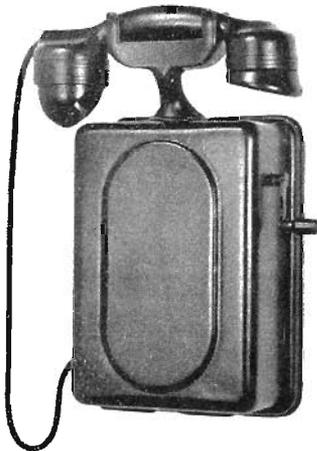
<i>Code No. Desk Set Complete (With Ringer Box or Ringer in Base)</i>	<i>Code No. Desk Stand Only (Less Ringer Box)</i>	<i>Type No.</i>	<i>Code No.</i>	<i>Ringer Box Contains</i>	<i>Hand Unit</i>	<i>Monophone Switch</i>	<i>Base (Shell only)</i>
901		9	911	3 bar generator 1000 ohm ringer	L-918-AO	D-730247-A	MP-3257
902		9	912	5 bar generator 1600 ohm ringer	L-918-AO	D-730247-A	MP-3257
903		9	913	5 bar generator 2500 ohm ringer	L-918-AO	D-730247-A	MP-3257
	1902	19	MC-89134	3 bar generator 1000 ohm ringer	L-918-AO	D-730247-A	MP-3732
			or MC-89135	5 bar generator 1600 ohm ringer			
801		8		2 bar generator 1000 ohm ringer	L-918-AO	D-730270-A	

**MANUAL MONOPHONES (LOCAL BATTERY)—Continued**

*Miscellaneous Parts for Types 8, 9, and 19*

Cradle (Shell only) (For Nos. 9 and 19).....	MP-6016	Hand Unit Cord.....	D-542509-A
Cradle (Shell only) (For No. 8).....	D-62024-A	Desk Set Cord.....	D-542510-A
Induction Coil .....	D-281569-A	Ringer (For No. 8).....	MC-56223-D
Generator (For No. 8).....	AC-90124		

**Manual Monophone Wall Set, Types 10 and 18 (Local Battery)**

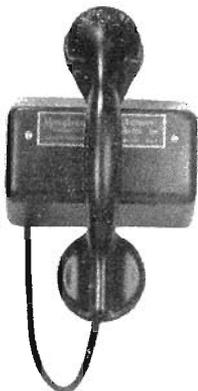


Manual Monophone Wall Set  
Type 10

The Type 10 Manual Local Battery Wall Monophone consists of a steel wall box, which contains ringer, two-bar generator and induction coil, and on which is mounted a cradle which holds the hand unit. The user need not stand, but may be comfortably seated at cord's length from the wall box. The dimensions of this wall set are 12 inches high, 9 inches wide and 4 inches deep (over-all dimensions). The two-bar generator is especially powerful for its size, but is not recommended for use where there are more than four parties to a line. For heavily loaded rural lines Wall Set No. 1801 is recommended. It is similar to the Type 10, except that it has an extremely powerful 5-bar generator and uses a wood cabinet instead of steel.

<i>Code No. Wall Set Complete</i>	<i>Type No.</i>	<i>Hand Unit (With Cord)</i>	<i>Hand Unit Cord</i>	<i>Monophone Switch</i>	<i>Induction Coil</i>	<i>Generator</i>	<i>Ringer</i>
1002	10	L-918-AO	D-542509-A	D-730270-A	D-281569-A	AC-90124 (2-Bar)	MC-56230-D (1000 ohm)
1801	18	L-918-AO	D-542509-A	D-730270-A	D-281569-A	AC-90116 (5-bar)	MC-56221-E (1600 ohm)
1802	18	L-918-AO	D-542509-A	D-730270-A	D-281569-A	AC-9092 (3-bar)	MC-56221-D (1000 ohm)

**Manual Monophone Extension Set, Type 17 (Local Battery)**



Manual Monophone  
Extension Set  
Type 17

This convenient extension set consists of a Monophone handset mounted on a molded plastic wall box. It is 8¾ inches in height, 5½ inches long and projects 4¾ inches from the wall. It is designed for extension service only, so does not contain a ringer or generator. It requires a wall space of 3¾ inches by 5½ inches for mounting.

<i>Code No. Extension Set Complete</i>	<i>Type No.</i>	<i>Hand Unit (With Cord)</i>	<i>Monophone Switch</i>	<i>Induction Coil</i>
1702	17	L-918-AO	D-730518-A	D-281569-A

*Miscellaneous Parts*

Cradle (shell only).....	D-62020-B	Hand Unit Cord.....	D-542509-A
Wall Box (shell only).....	D-49248	Terminal Strip .....	D-15513-A

## TYPE 200 LOCAL BATTERY TELEPHONES

### Type 200 Manual Desk Set (Local Battery)

The Type 200 Desk Stand is generally similar to the Type 21 Central Battery Desk Set. The base is a center stem type, and the hinge joining the transmitter and post resembles a ball and socket joint in appearance, yet is quite simple and sturdy in construction. The height is 11½ inches and the base diameter 5⅝ inches.

Easy accessibility to the inside of the base is obtained by loosening a single non-losable screw. The removal of another screw in the top of the stem permits the withdrawal of the hookswitch for inspection.

The base and stem are of brass, with a dull black japan finish. The transmitter mounting neck is of aluminum alloy. The desk stand is furnished with a six foot Monotype cord.



The Type 200 Manual Desk Stand

<i>Code No. Desk Set Complete</i>	<i>Code No. Desk Stand Only</i>	<i>Type No.</i>	<i>Ringer Box</i>	<i>Transmitter</i>	<i>Receiver</i>
201	205	200	911	D-38248-A	D-5164-A
202	205	200	912	D-38248-A	D-5164-A
203	205	200	913	D-38248-A	D-5164-A

#### Equipment Common to Above Models

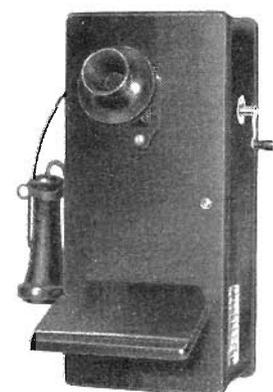
Induction Coil .....	MC-2888	Base Terminal Strip.....	D-15381-A
Desk Set Cord.....	MC-54260	Ringer Box Terminal Strip.....	MP-4696
Receiver Cord (Clips and Clips).....	D-542498-A	Hookspring & Mtg. Plate.....	D-78456-A

### Type 200 Manual Wall Set (Local Battery)

This wall set has a cabinet made of quarter sawed oak, has a short transmitter arm and concealed ringer. The dimensions are 15¼ inches high, 7¼ inches wide and 5¼ inches deep over-all.

The Type 200 wall set can be furnished, if desired and so ordered, with a condenser wired in series with the receiver, or with push button for selective signaling. When ordering, state whether "with condenser" or "with push button." Also state whether finish is to be ebony or golden oak.

The Type 200 Magneto Wall Telephone has become the standard among large numbers of telephone companies operating local battery equipment. While exceedingly compact in design, it has all of the efficiency and durability of older style telephones. Space is provided for two standard dry cells, but these must be ordered separately.

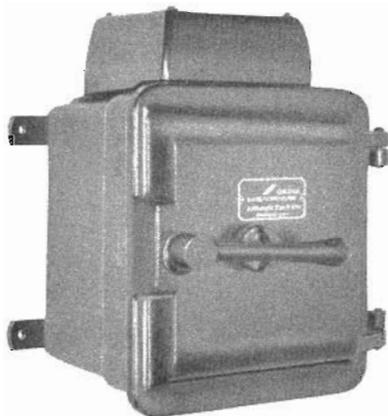


Type 200 Manual Wall Set

<i>Code No. Wall Set Complete</i>	<i>Ringer</i>	<i>Generator</i>	<i>Hookswitch</i>	<i>Transmitter Arm Complete</i>	<i>Receiver</i>	<i>Induction Coil</i>	<i>Receiver Cord</i>
210	MC-56221-D (1000 ohm)	AC-9092 (3 bar)	MC-6251	MC-3827	D-5164-A	MC-2888	D-542498-A
211	MC-56221-E (1600 ohm)	AC-90116 (5 bar)	MC-6251	MC-3827	D-5164-A	MC-2888	D-542498-A
212	MC-56221-G (2500 ohm)	AC-90116 (5 bar)	MC-6251	MC-3827	D-5164-A	MC-2888	D-542498-A

## SPECIAL TELEPHONES (LOCAL BATTERY)

### Manual Mine Telephone (Local Battery)



Manual Mine Telephone

This telephone is similar in general design and construction to the central battery mine telephone, except that this model is equipped with a 5 bar generator and either a 1600 or 2500 ohm ringer, together with proper circuits for local battery operation.

It has the same extra-rugged construction and moisture proof features, including "Sarco" impregnated insulation, etc., that have made this instrument so useful in mines, quarries, boiler rooms, etc., where atmospheric and other conditions are unusually severe.

The case is made of heavy cast iron and provided with two moisture-proof doors, all protected by a heavy finish of black rust-resisting paint. The ringer gongs are enclosed at the top of the case by a cast-iron hood, and all parts are so arranged as to effectually prevent the entrance of moisture. For a general interior view of this telephone, see the illustration on page 18, which shows the same telephone but with a dial in place of the magneto crank.

*Code No.  
Complete  
with  
Ringer*

<i>Ringer</i>	<i>Generator</i>	<i>Receiver</i>	<i>Transmitter</i>	<i>Induction Coil</i>	<i>Terminal Strip (Line)</i>	<i>Receiver Cord</i>	
2903	MC-56222-E (1600 ohm)	AC-90116 (5 bar)	D-5164-C	D-38248-A	MC-2885-A	MC-1530	D-542546-A
2904	MC-56222-G (2500 ohm)	AC-90116 (5 bar)	D-5164-C	D-38248-A	MC-2885-A	MC-1530	D-542546-A

## TELEPHONE PARTS

### The Type 24 Dial

The Type 24 Dial is extraordinarily durable and long-lived. In operation it is almost noiseless. Due to its advanced design, the number of parts have been kept to a minimum, resulting in lightness of weight and utmost reliability of operation.

The dial impulses are produced by the contact of two springs being broken by a phenol-fiber cam. Pulsing speed is controlled by a fly-ball type of governor, driven by a worm gear from the shaft of the impulse cam. Whenever the finger-plate is turned, a lever arm on the main shaft operates a group of springs to remove the transmitter and receiver from the line circuit during dialing.

The Type 24 Dial is made in three parts—the spring combination, the number plate, and the sub-assembly. The sub-assembly consists of all the working parts of the dial, and is assembled on a nicked brass cup 3 inches in diameter and  $\frac{3}{8}$  inch deep.



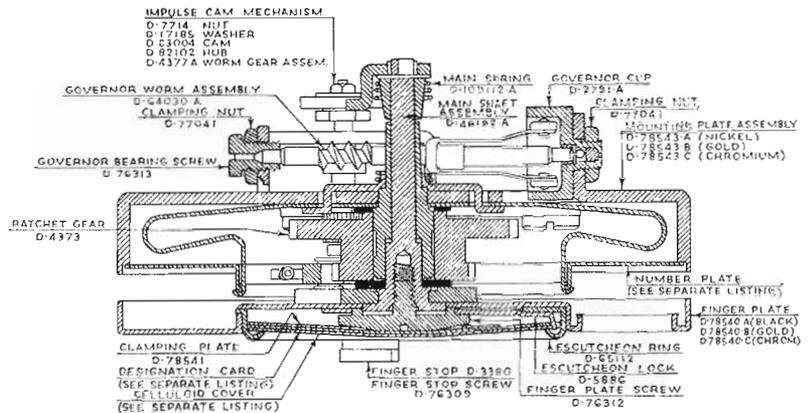
The Type 24 Dial (Rear View)

These parts can be furnished in any desired combination, some of those most commonly used being listed below. Dial cards must be ordered separately, as they are not furnished with dials.

In ordering dial wires, specify type of telephone on which they are to be used.

TELEPHONE PARTS—Continued

Type No.	Spring Assembly	Number Plate	Code Number of Complete Dial
24	D-730341-A	D-53146	D-84705-A
24	D-730339-A	D-53196	D-84716-A
24	D-730339-A	D-53146	D-84723-A
24	D-730535-A	D-53196	D-84724-A
24	D-730479-A	D-53146	D-84729-A
24	D-730479-A	D-53196	D-84732-A
24	D-730496-A	D-53146	D-84733-A
24	D-730498-A	D-53146	D-84734-A
24	D-730479-A	D-53211	D-84739-A
24	D-730535-A	D-53146	D-84741-A
24	D-730341-A	D-53196	D-84747-A

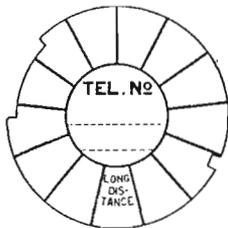


Cross Section of Type 24 Dial Showing Piece Numbers of Parts.

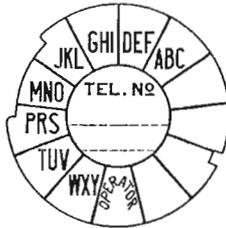
Special Dials

"Splash-proof" dial (for exposed use, such as ships, etc.).....	Code No. D-84730-A
Radio Suppressor Dial (See page 29).....	D-84745-A

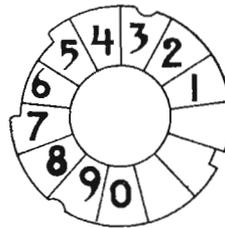
Dial Cards and Celluloid Covers



Card D-53180  
Cover D-53176



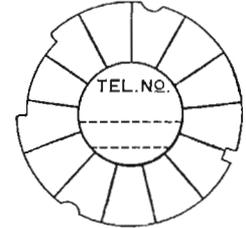
Card D-53181  
Cover D-53176



Card D-53309-B  
(Luminous Figures)  
Cover D-53176



Card D-53352  
Cover D-53351



Card D-53354  
Cover D-53353

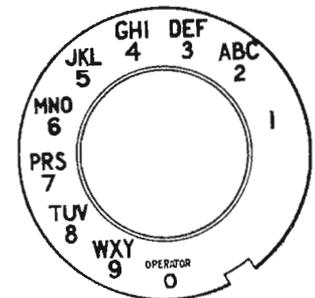
The dial cards shown above are typical examples of some of the most-used designs. Special cards can be made upon request. White bristol-board is used, and the cards are die-cut in such a shape that it is impossible to place them incorrectly in the dial escutcheon. The cover D-53176 is transparent celluloid for protective purposes only. The covers D-53351 and

D-53353 have designs printed in black, with white backing except transparent spaces where lettering on the dial card can show through. The dial card D-53309-B is of brass, finished in black with luminous figures and lines, radium-painted, making them visible in the dark.

Dial Number Plates

The number plate of the Type 24 dial is of pressed copper, coated with vitreous white enamel, suitably lettered. The plate is mounted in a spring clip on the base of the dial, and can be easily removed without damage.

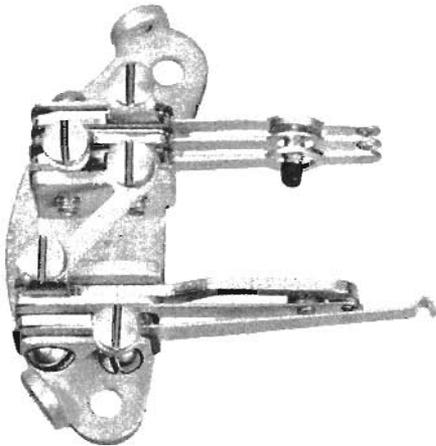
Dial Number Plate (Numbered 1 to 0 in black).....	Code No. D-53146
Dial Number Plate (Same as above, with addition of word "Operator" in the "O" space. Letters and figures in black).....	D-53211
Dial Number Plate (As shown. Black letters and red figures).....	D-53196



Dial Number Plate D-53196

TELEPHONE PARTS—Continued

Dial Spring Assemblies

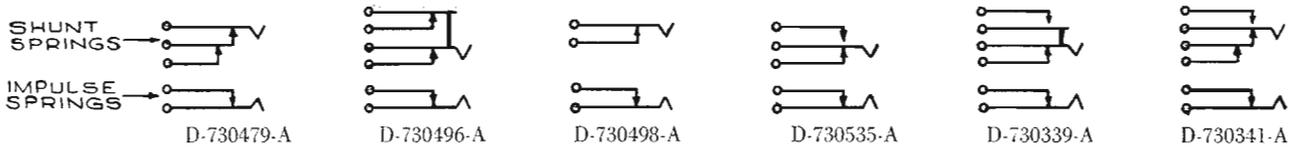


Dial Spring Assembly D-730479-A

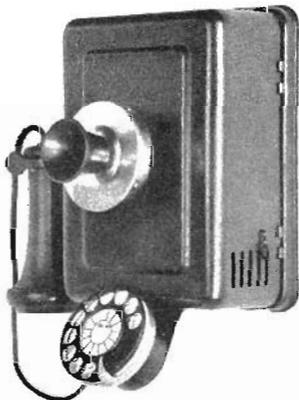
Dial Spring Assemblies are separate, detachable units. They are mounted with two screws on the rear of the dial so that the shunt and impulse springs are brought into exact position for operation by the proper cams.

The springs are of nickel-silver, with contacts made of a special alloy which is highly resistant to corrosion and pitting. Phenol-fiber insulation is used. A removable link connects the impulse and shunt spring groups.

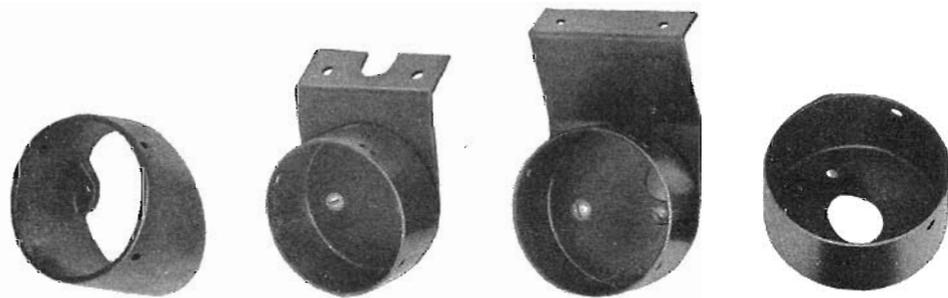
The impulse spring group consists of two springs. The shunt spring group usually consists of three springs, which place separate shunts around the transmitter and the receiver during dialing. While the spring assemblies shown below are the most commonly used, other combinations to fit special circuit conditions can be furnished upon request.



Dial Mounting Cups



Dial Mounting Cup D-49313-A  
Installed on Wall Telephone



D-49312

D-49313-A

D-49314-A

D-49315

The conversion of manual telephones to dial operation can be accomplished by connecting a dial into the circuit. The specially-designed dial mounting cups

shown here will meet practically every need for such conversions. They are strongly made and are finished in black japan, to match standard telephones.

	<i>Code No.</i>
Dial Mounting Cup (For face mounting on wall telephone).....	D-49312
Dial Mounting Cup (Mounts dial below wall box of wall telephone) .....	D-49313-A
Dial Mounting Cup (Wall telephone type—allows front of case to open) .....	D-49314-A
Dial Mounting Cup (For desk telephones—mounts on base).....	D-49315

**TELEPHONE PARTS—Continued**

**Dial Cover Plates**

Any dial telephone can be supplied without the dial and its associated wiring, and with a cover plate fitted over the dial hole. In many cases, such telephones are used in manual systems which are some day to be converted to automatic operation.

When ordering telephones which are to be equipped with dial blanks in place of dial, specify the code number of the corresponding dial telephone with suffix "BO" instead of "AO," and the code number of the dial cover plate desired, as listed below. The dial cover plate is made of heavy brass and is provided with a number card and celluloid card holder.



Type 1-A Desk Monophone With D-49318 Cover Plate

	<i>Code No.</i>
Dial Cover Plate—Black Japan Finished .....	D-49318-A
Dial Cover Plate—Gold Plated.....	D-49318-B
Dial Cover Plate—Chromium Plated.....	D-49318-C

**Dial Tools**

The escutcheon-lock tool is used for operating the lock which holds the escutcheon ring. This lock is invisible when the dial card is in place.

	<i>Code No.</i>
Escutcheon-Lock Tool .....	H-26917
Governor and Cam-Nut Wrench.....	H-25937
Cam-Nut Socket Wrench.....	H-16480
Impulse and Cam-Spring Adjusting Pliers.....	H-16290-7



Escutcheon-Lock Tool

**Radio Suppressor Dial**

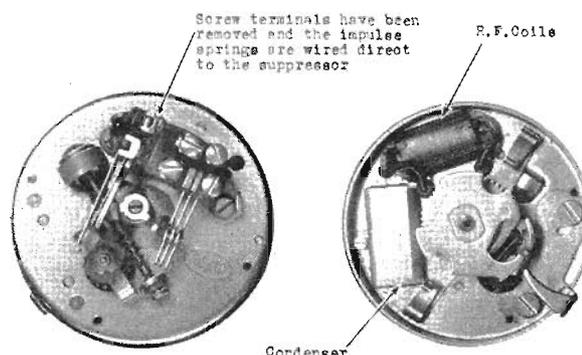
The Type 32A18 Radio Suppressor (for dial mounting) is built-in as a part of the Type 24 Dial and the whole furnished as a unit which will not broadcast signals interfering with radio reception.

A separate radio suppressor of small, compact size for use with existing dials is also available and serves the same purpose as does the Type 32A18 suppressor. It measures 1 1/4 x 3/4 x 5/16 inches.

	<i>Code No.</i>
Type 24 Dial, complete with Type 32A18 Radio Suppressor (std. black finish).....	D-84745-A

(When ordering, specify spring combination desired, also finish of metal parts, and code number of dial number plate and dial card desired.)

	<i>Code No.</i>
Separate radio suppressor for use with existing dials....	H-46526



Type 24 Dial Equipped with Type 32A18 Built-in Radio Suppressor

TELEPHONE PARTS—Continued

Monophone Hand Units



The Monophone Hand Unit

The Monophone hand unit is made of molded plastic, with a strong brass tube through the center of the handle which serves both to reinforce it and to carry the wires connecting the transmitter and receiver. The unit is very carefully balanced and shaped so that it can be held comfortably, and also so that it will always fall into the correct position to operate the Monophone switch, regardless of how it is replaced on the cradle.

Transmitter and receiver caps are also made of molded plastic. The receiver cap is shaped to fit the ear to exclude outside noises, and the transmitter cap is designed to guide the sound waves against the diaphragm without distortion.

An important feature of the Monophone handset is its exclusive transmitter design, which is so constructed that transmission is of maximum efficiency at all times, regardless of the position in which the hand unit is held. Ordinary types of transmitters often fail in this most important particular.

All Monophone hand units are designed for use with anti-sidetone circuits, either requiring a three-winding induction coil and polarized receiver or making use of an induction coil receiver, in which latter case, no separate induction coil is required.

Code No.  
Hand Unit  
Complete  
(With Cord)

Type	Transmitter	Transmitter Mouthpiece	Receiver	Hand Unit Cord
L-900-AO Pol. Rec. C.B.	D-38192-A	D-38210-A	D-5154-A	D-542509-A
L-903-AO Ind. Coil Rec. C.B.	D-38192-A	D-38210-A	D-5155-A	D-542509-A
L-918-AO Pol. Rec. L.B.	D-38217-A	D-38210-A	D-5154-A	D-542509-A
L-907-AO Ind. Coil Rec. Water-proof, Anti-Noise, C.B.	D-38230-A	D-38223	D-5155-A	D-542501-A
L-915-AO Ind. Coil Rec. Anti-Noise, C.B.	D-38225-A	D-38223	D-5155-A	D-542509-A
L-917-AO Po. Rec., Anti-Noise, C.B.	D-38224-A	D-38223	D-5154-A	D-542509-A

Equipment Common to Above Models

Shell only .....D-52048-A	Receiver Cap .....D-67149-A
Receiver Diaphragm .....D-38194	Receiver Cap (for L-923-AO only) .....D-67227

Type 32A14 Handset

Similar to the Monophone handset in general construction and appearance, but specifically designed for isolated private exchange service. Has sealed capsule type of transmitter of high quality, but slightly less efficient than that of the regular Monophone. Used only with Type 32A14 Telephones.

	Code No.
Type 32A14 Handset .....	L-923-AO
Transmitter .....	D-38262-A
Mouthpiece .....	D-38250
Receiver .....	D-5173-A
Shell only .....	D-52048-A
Receiver Cap .....	D-67227

**TELEPHONE PARTS—Continued**

**Monophone Tools**

	<i>Code No.</i>
Monophone Tool (for removing Monophone switch cover and receiver cap; also to check adjustment of Monophone Switch springs) .....	H-50754
Spanner Wrench (for removing Monophone Cradle).....	H-43173

**Transmitters—Monophone Types**

The transmitter used in the Monophone is of the solid back type, 2 $\frac{3}{8}$  inches in diameter, with a heavy forged brass framework. It will withstand the hardest usage, and operates with complete success under all

conditions of central or local battery service. It operates with full efficiency regardless of the position in which it is held.

*Central Battery Type*

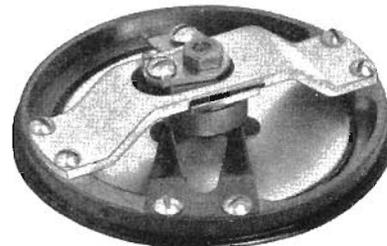
Transmitter 5C-1, Regular Type (Current Range—.125 to .250 ampere) .....	<i>Code No.</i> D-38192-A
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*Local Battery Types*

Transmitter 5L .....	D-38217-A
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**Transmitters—Conventional Types**

This transmitter, simple in construction and unsurpassed in transmission quality, is the result of years of experience in telephone design and manufacture. The front plate is of brass, heavily black japanned. The diaphragm is of aluminum with a sharp bend around the extreme edge. The front carbon electrode is mounted on an auxiliary metal diaphragm which vibrates in unison with the main diaphragm and which also conducts current to this electrode, thus obviating the necessity for flexible conductors. The framework has four equally-spaced tapped holes for mounting screws.



Rear View of Transmitter  
(Conventional Type)

All transmitters are furnished without mouthpieces, which must be ordered separately.

and dry when assembled. Since it is difficult to meet these requirements in the field, we recommend that transmitters requiring repairs be sent to us. Place a tag bearing your name on all such transmitters and pack them carefully to prevent damage in shipping.

To give best results, transmitters must be carefully adjusted and all current-carrying parts must be clean

*Central Battery Types*

Transmitter 6C-1, Regular Type (Current Range—.125 to .250 amperes) .....	<i>Code No.</i> D-38237-A
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*Local Battery Types*

Transmitter 6L .....	D-38248-A
Transmitter, complete with arm, for Type 200 Wall Telephone.....	MC-3827

**Transmitter Mouthpiece**

Transmitter Mouthpiece, for all transmitters.....	<i>Code No.</i> D-38238
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## TELEPHONE PARTS—Continued

## Receivers—Monophone Types

The Monophone polarized receiver consists of a permanent tungsten steel magnet bent to a circular shape with a gap of only  $\frac{5}{16}$  of an inch between poles. The magnet coils are wound on two short L-shaped pieces placed in contact with the two poles. The pull of the magnets is only  $\frac{5}{32}$  of an inch from the center of the diaphragm which is mounted within  $\frac{1}{100}$  of an inch of the coil cores, thus causing immediate response to even the smallest fluctuations in current. The assembly is contained in a brass cup  $1\frac{7}{8}$  inches in diameter.

The Monophone induction coil receiver needs no separate induction coil, since its magnet coils are wound to serve a dual purpose. The core is of laminated silicon-iron, and is mounted directly under the center of the diaphragm. The laminated construction prevents eddy currents and losses and greatly increases the operating efficiency of the receiver.

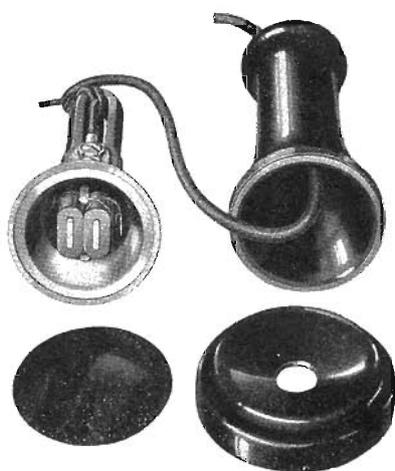
*Code No.*

Receiver, Monophone Type (Polarized) .....	D-5154-A
Receiver, Monophone Type (Induction Coil) .....	D-5155-A
Receiver Cap, Monophone Type .....	D-67149-A

## Receivers—Conventional Types

The same standard type of receiver is used for both dial and manual operation. It is of customary size and shape, with shell and earcap of polished black molded plastic. Monotype cords thirty-three inches long, are provided. These are covered with brown braid and are equipped with spade tips.

The polarized receiver has two coils, each having a resistance of 37.5 ohms. The coil cores pass through the brass mounting cup and are bolted to the poles of a horseshoe magnet. The direct-current receiver has no permanent magnet. A single coil, of fifty-three ohms, is magnetized by the line current.



Polarized Receiver Disassembled

*Code No.*

<i>Receiver and Cord</i>	<i>Type</i>	<i>Shell</i>	<i>Receiver Cap</i>	<i>Type of Cord</i>
D-5164-A	Polarized	D-52055-A	D-67186	"Sarco"-treated
D-5164-E	Polarized	D-52055-A	D-67186	Rubber-covered
D-5161-A	Direct-current	D-52054-A	D-67186	"Sarco"-treated
D-5161-C	Direct-current	D-52054-A	D-67186	Rubber-covered

## Monophone Resistance Coil

This resistance coil (used on Monophones Nos. 11-A to 16) is wound on a micarta form  $\frac{5}{8}$  inches square to a resistance of 205 ohms. The winding ends on tinned terminals, to which exterior connections can be soldered. Used on induction coil receiver circuits.

*Code No.*

Monophone Resistance Coil (for Monophones Nos. 11-A to 16) .....	D-281634-A
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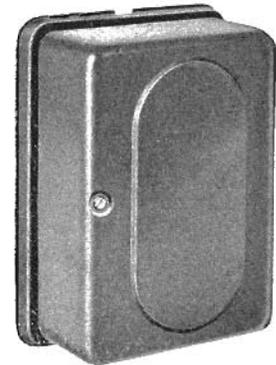
Monophone Resistance Coil

**TELEPHONE PARTS—Continued**

**Ringer Boxes—Metal Central Battery**

These ringer boxes may be used with almost any make of telephone. They are furnished with steel cases which are heavily black japanned, but can also be furnished in brass when desired. The base of each ringer box with all of its parts, is interchangeable with that of the corresponding Type 21 wall telephone and certain wall Monophone models.

These ringer boxes can be provided for straight-line ringing, for code-ringing or individual lines, or with harmonic ringers of all standard frequencies. Equipment consists of a ringer, terminal strip, one or two condensers (depending upon whether for metallic or ground ringing), and in the booster types, an induction coil. For simple booster circuits the induction coil is a conventional two-winding type, while for the anti-sidetone booster circuit, a three-winding coil is furnished. Dimensions are 9<sup>5</sup>/<sub>8</sub> inches high, 7<sup>1</sup>/<sub>4</sub> inches wide, and 4 inches deep.



Metal Ringer Box

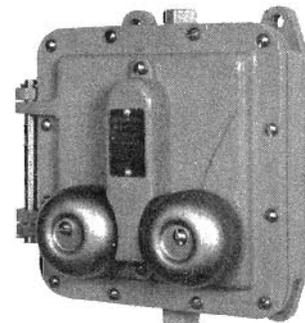
Code No. Bell Box Complete	Used with the following and similar ckt.s.	Ring- ing	Base	Cover	Induction Coil	Con- denser	Con- denser Bracket	Circuit	Term. Strip
L-502-AO	Type 21 Desk Stand and Type 75 Paysta.	Met.	D-47425-A	D-49414-A	D-281897-A	D-6897	D-73684	Booster	D-15513-A
L-510-AO	Type 21 D. S.	Grd.	D-47425-A	D-49414-A	D-281897-A	D-6897	D-730100	Booster	D-15513-A
L-509-AO	Mono. 7, 11-A and 15-A	Met.	D-47425-A	D-49414-A		D-6897	D-73684	Series	D-15514-A
L-530-AO	Mono. 11-A	Grd.	D-47425-A	D-49414-A		D-6897	D-730100	Series	D-15514-A
L-500-AO	Mono. 1A and 5A Type 21 Desk Stand and Type 75 Paysta.	Met.	D-47425-A	D-49414-A	D-281901-A	D-6897	D-73684	Anti-Side Booster	D-15513-A
L-503-AO	Mono. 1A and Type 21 D.S.	Grd.	D-47425-A	D-49414-A	D-281901-A	D-6897	D-730100	Anti-Side Booster	D-15513-A
L-519-AO	Type 750 Paystation	Met.	D-47425-A	D-49414-A	D-281901-A	D-6897	D-730144 & D-6891	Anti-Side Booster	D-15513-A
L-511-AO	Type 21 Desk Stand (Series Ckt.)	Met.	D-47425-A	D-49414-A		D-6897	D-73684	Series	D-15514-A

Note: When ordering, specify ringer frequency desired.

**Ringer Box—Waterproof**

Designed primarily for marine service, this ringer box is ideal for outdoor use or for use in any location exposed to wet weather or other conditions of moisture. The entire working parts of the ringer are enclosed in a case of cast alloy, which is equipped with a front cover of similar material. The cover is loosely hinged to the box and is fitted with a gasket against which the cover is drawn tightly by means of a series of bolts. Pipe connections are furnished at top and bottom, and fitted with pipe plugs.

The ringer box may be had with or without a condenser, for use as a main line or extension ringer respectively.



Waterproof Ringer Box ..... Code No. L-545-AO

Specify whether or not condenser is required.

## TELEPHONE PARTS—Continued

## Ringer Boxes—For Types 31 and 31-B Monophones

The following ringer boxes are especially designed for use with special two-line sub-base Monophones, as indicated. The L-528-AO and L-529-AO are equipped with two single-coil single-gong ringers in the same box, the gongs having distinctive tones to indicate which line is being called. A low-voltage D. C. buzzer may be mounted over the induction coil and used with a push button for signalling from the main station to an extension. Two separate ringer boxes can also be used, in which case the L-521-AO and L-526-AO are recommended. The L-521-AO has a 9-conductor

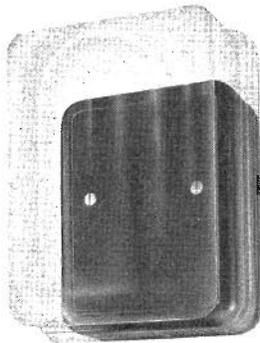
terminal strip, induction coil, talking condenser and ringer, while the L-526-AO has only a condenser and ringer. A Type 32 Compact ringer box is also suitable for this use.

L-528 can be supplied with a 3 volt buzzer in addition when desired. Also, a D. C. ringer can be substituted for one A. C. ringer, when so specified. All of the above ringer boxes are of black japanned steel.

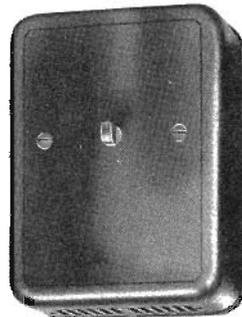
For special lamp signal units, chime signals, etc., see Miscellaneous Equipment section.

<i>Code No. Bell Box Complete</i>	<i>Ringng</i>	<i>Base</i>	<i>Cover</i>	<i>Induction Coil</i>	<i>Condenser</i>	<i>Gong</i>	<i>Description</i>
L-521-AO	Met., Grd. or any Freq.	D-47425-A	D-49475-A	D-281901-A	D-6897	D-56166-A	One-Ringer, with 9-cond. terminal
L-526-AO	Met., Grd. or any Freq.	D-47425-A	D-49414-A		D-6897	D-56194	One-Ringer, with wood gongs
L-528-AO	Met or Grd.	D-47425-C	D-49414-A	D-282155	D-6897	D-56328	Two single-gong ringers
L-529-AO	Met. or Grd.	D-47425-C	D-49414-A		D-6897	D-56328	Two single-gong ringers—Ind. Coil Receiver Circuit

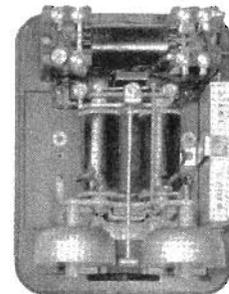
## Ringer Boxes—Compact Type 32



Compact and "Standard" Ringer Box Compared



Compact Ringer Box with Key



Compact Ringer Box Interior View

The Type 32 Compact Ringer Box is a new design, unusually small in size yet highly efficient in operation. It contains everything the older type ringer box does, yet holds it in one-half the space without sacrificing accessibility in the slightest. Its dimensions are  $7\frac{1}{4}$  inches high,  $5\frac{1}{2}$  inches wide and  $2\frac{5}{8}$  inches deep.

The base and cover are of molded plastic. This material has great structural strength, is highly dielectric, is immune to corrosion and the ravages of insects, and never loses its lustrous, highly-polished black

finish. A fine-mesh brass screen over the sound-escape holes prevent the entrance of insects.

The ringer is a highly efficient two-coil, two-gong movement, furnished for either metallic or ground ringing, and either straight-line or any standard harmonic frequency. Three terminal studs extending through the back of the box permit direct connection of line and ground wires. There is ample space for both talking and ringing condensers and the ringer box can be used with any central battery telephone,

**TELEPHONE PARTS—Continued**

either automatic or manual, with bridged or grounded ringers.

A cut-off key can be furnished, arranged to control either the ringer with which it is mounted, or the

ringer at an extension telephone. This key is of the turn-button type, and extends through the cover at the center of the box. Boxes without this key can be equipped with it at any time.

<i>Code No. Bell Box Complete</i>	<i>Type No.</i>	<i>Ringing</i>	<i>Cover With Key</i>	<i>Cover Without Key</i>	<i>Induction Coil</i>	<i>Turn Key and Spring Assem.</i>
L-550-AO	32	Metallic		D-49488-A	D-282155†	
L-554-AO	32	Metallic		D-49488-A	D-282332*	
L-551-BO	32	Metallic	D-49488-N		D-282155†	D-730628-A
L-554-BO	32	Metallic	D-49488-N		D-282332*	D-730628-A
L-551-AO	32	Ground		D-49488-A	D-282155†	
L-555-AO	32	Ground		D-49488-A	D-282332*	
L-551-BO	32	Ground	D-49488-N		D-282155†	D-730628-A
L-555-BO	32	Ground	D-49488-N		D-282332*	D-730628-A
L-558-AO	32	Metallic‡		D-49488-A		
L-565-AO	32	Ground				
L-558-BO	32	Either	D-49488-N			D-730628-A

*Specify frequency when ordering.*

†Three-winding induction coil, for use with Type 1-A Monophone and similar circuits.

\*Two-winding induction coil, for use with conventional booster-type circuits.

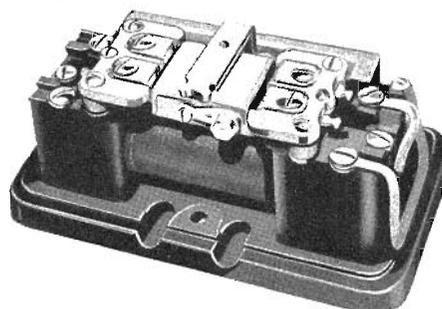
‡For Metallic or Ground Ringing on Type 21 Series Telephone.

*Equipment Common to Above Models*

Condenser (1 M.F.).....	D-68197-A	Gong .....	D-56328
Condenser Bracket .....	D-730626	Base .....	D-47591-A

**Extension Boxes—Central Battery**

Extension boxes are designed for use with an extension telephone where no ringer is required, or with a main line instrument, where special ringing equipment is provided. They are available in two general styles: in a small, compact case made entirely of molded plastic (the Type 32), and in a slightly larger steel box, with wood base. In most cases, these extension boxes contain only a condenser, terminal strip and induction coil, if required. In the Type 32 extension box, a low voltage D. C. buzzer can be provided, if desired for signaling purposes.



The Type 32 Compact Extension Box, with cover off, showing induction coil and buzzer.

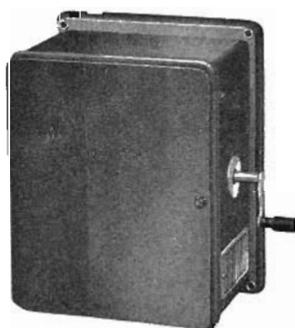
**Extension Boxes (Steel Cover, Wood Base, Central Battery)**

<i>Code No. Extension Box</i>	<i>Used with the following and similar ckt.s.</i>	<i>Condenser</i>	<i>Induction Coil</i>	<i>Terminal Strip</i>	<i>Dimensions</i>
L-990-AO	Monophone Desk Stand 1-A	D-6897	D-281901-A	D-15513-A	5 3/8" x 3 1/4" x 3"
L-991-AO	Type 21 Desk Stand	D-6897	D-281897-A	D-15513-A	5 3/8" x 3 1/4" x 3"
L-992-AO	Monophone Desk Stand 11-A	D-6897		D-15513-A	5 3/8" x 3 1/4" x 3"

## TELEPHONE PARTS—Continued

## Type 32 Compact Extension Boxes (Central Battery)

<i>Code No. Extension Box</i>	<i>Used with the following and similar ckt.s.</i>	<i>Condenser</i>	<i>Induction Coil</i>	<i>Terminal Strip</i>	<i>Dimensions</i>
L-708-AO	Monophone Desk Stand 1-A	D-68197-A	D-282155	D-15608-A & D-15609-A	5½" x 3" x 2½"
L-709-AO (With D.C. Buzzer)	Monophone Desk Stand 1-A	D-68197-A	D-282155	D-15608-A & D-15609-A	5½" x 3" x 2½"
L-718-AO	Type 21 Desk Telephones	D-68197-A	D-282332	D-15608-A & D-15609-A	5½" x 3" x 2½"
L-720-AO (With D.C. Buzzer)	Type 21 Desk Telephones	D-68197-A	D-282332	D-15608-A & D-15609-A	5½" x 3" x 2½"
L-721-AO	Series Ckt. Telephones	D-68197-A		D-15608-A & D-15609-A	5½" x 3" x 2½"
L-722-AO (With D.C. Buzzer)	Series Ckt. Telephones	D-68197-A		D-15608-A & D-15609-A	5½" x 3" x 2½"



Local Battery Ringer Box

## Ringer Boxes—Standard Local Battery

Local battery ringer boxes are furnished in wood, with hand magneto-generator and concealed gongs. The ringer is clearly audible through openings in each side of the box covered with wire mesh. For extension or other service, steel boxes without generator can be furnished. The wood box is 9 3/16 inches high, 7¾ inches wide and 5½ inches deep, and can be finished in either golden oak or ebony black, as desired. It may be supplied with condenser wired in series with the receiver, or with push button for selective signaling. In ordering, state whether "with condenser" or "with push button."

<i>Code No. Bell Box Complete</i>	<i>Use with the following and similar ckt.s.</i>	<i>Box Only</i>	<i>Ringer</i>	<i>Generator</i>	<i>Induction Coil</i>	<i>Terminal Strip</i>
220	Type 200 L. B. Desk Stand	M-6308	MC-56221-D (1000 ohms)	AC-9092 (3 bar)	MC-2888	MP-4696
221	Type 200 L. B. Desk Stand	M-6308	MC-56221-E (1600 ohms)	AC-90116 (5 bar)	MC-2888	MP-4696
222	Type 200 L. B. Desk Stand	M-6308	MC-56221-G (2500 ohms)	AC-90116 (5 bar)	MC-2888	MP-4696
MC-89134	Mono. Type 19	M-6308	MC-56221-D (1000 ohms)	AC-9092 (3 bar)		MP-4696
MC-89135	Mono. Type 19	M-6308	MC-56221-E (1600 ohms)	AC-90116 (5 bar)		MP-4696
911	No. 9 L.B. Monophone	M-6308	MC-56221-D (1000 ohms)	AC-9092 (3 bar)	D-281569-A	MP-5112
912	No. 9 L.B. Monophone	M-6308	MC-56221-E (1600 ohms)	AC-90116 (5 bar)	D-281569-A	MP-5112
913	No. 9 L.B. Monophone	M-6308	MC-56221-G (2500 ohms)	AC-90116 (5 bar)	D-281569-A	MP-5112

Note: The above ringer boxes are ordinarily furnished in golden oak finish. If ebony black finish is desired, specify when ordering.

**TELEPHONE PARTS—Continued**

**Extension Ringer Boxes (Standard Size Steel Boxes, Local Battery)**

<i>Code No. Extension Bell Box Complete</i>	<i>Ringer Resistance</i>	<i>Ringer</i>	<i>Terminal Strip</i>	<i>Dimensions</i>
5100	2500 Ohms	MC-56220-G	D-15514-A	9 <sup>3</sup> / <sub>8</sub> "x7 <sup>1</sup> / <sub>4</sub> "x4"
5101	1000 Ohms	MC-56220-D	D-15513-A	9 <sup>3</sup> / <sub>8</sub> "x7 <sup>1</sup> / <sub>4</sub> "x4"
5102	1600 Ohms	MC-56220-E	D-15513-A	9 <sup>3</sup> / <sub>8</sub> "x7 <sup>1</sup> / <sub>4</sub> "x4"

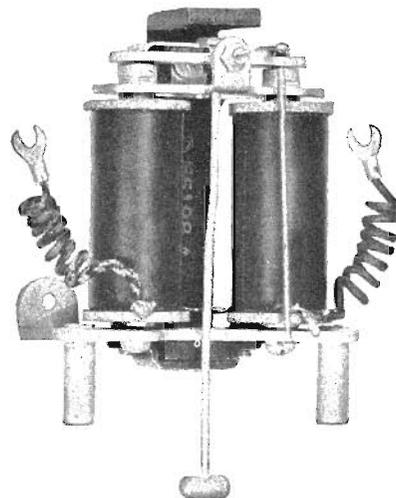
**Ringers**

All ringers are simply and sturdily constructed, and are highly efficient in operation. Annealed Norway iron cores are used and are wound with the highest grade magnet wire. Coil heads are fibre, and each coil is carefully tested, both before and after assembling, for proper resistance, etc.

The straight-line ringers are provided with a biasing spring permitting the use of pulsating ringing current, and may therefore be used for biased bell ringing on party lines.

Harmonic ringers use a clapper arm fastened to a steel reed which is adjusted to operate at one of the standard frequencies. The assembly is simple and requires no further regulation.

Gongs are not furnished with central battery ringers, and should be ordered separately, if desired.

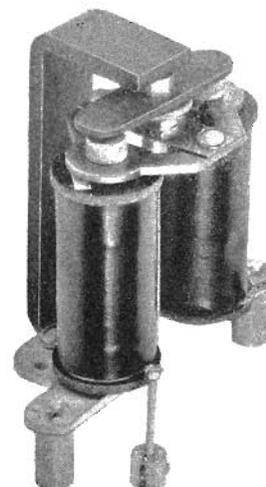


Straight-Line Ringer

**Compact Ringers (Central Battery)**

*For Type 32 Ringer Boxes and Type 34A3 Monophone*

<i>Frequency</i>	<i>Resistance</i>	<i>Code No.</i>	
		<i>For Type 32 R. B.</i>	<i>For Type 34A3 Monophone</i>
Straight Line	1400 Ohms	D-56329-A	D-56391-A
16.6	2760 Ohms	D-56330-A	D-56390-A
20	2110 Ohms	D-56335-A	D-56390-F
25	2080 Ohms	D-56331-A	D-56390-B
30	1224 Ohms	D-56336-A	D-56390-G
33.3	528 Ohms	D-56332-A	D-56390-C
42	528 Ohms	D-56337-A	D-56390-H
50	476 Ohms	D-56333-A	D-56390-D
54	476 Ohms	D-56338-A	D-56390-J
66.6	476 Ohms	D-56334-A	D-56390-E



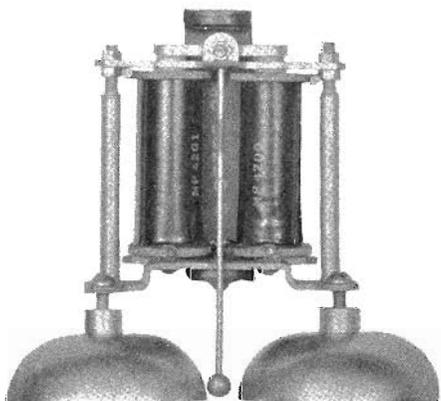
Harmonic Ringer

Gong for Above Ringers, Order Separately (2 Required).....D-56328

## TELEPHONE PARTS—Continued

*For Wall Telephones and Metal Ringer Boxes*

<i>Code No.</i>	<i>Total Resistance</i>	<i>Frequency</i>
D-56292-A	1400 Ohms	Straight-Line
D-56293-A	2760 "	16.6 Cycles
D-56298-A	2110 "	20 "
D-56294-A	2080 "	25 "
D-56299-A	1224 "	30 "
D-56295-A	528 "	33.3 "
D-56300-A	528 "	42 "
D-56296-A	476 "	50 "
D-56301-A	476 "	54 "
D-56297-A	476 "	66.6 "



Local Battery Ringer

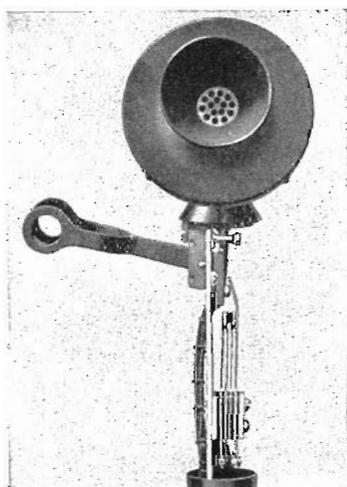
*Gong for Above Ringers (Order Separately)*

- D-56166-A 2½-inch diameter, eccentric hole, white nickel finish.  
 D-56166-B 2½-inch diameter, eccentric hole, black rubber-japan finish.  
 D-56194 2½-inch diameter, eccentric hole, wood gong. (Used where a different sound is desirable because several ringers are located close together.)

## Ringers (Local Battery)

<i>Code No.</i>	<i>Total Resistance</i>	<i>For Use With</i>
MC-56223-D	1000 Ohms	No. 8 Monophone
MC-56221-D	1000 "	No. 9 Monophone
MC-56221-E	1600 "	No. 9 Monophone
MC-56221-G	2500 "	No. 9 Monophone
MC-56230-D	1000 "	No. 10 Monophone
MC-56221-D	1000 "	Type 200 Telephones
MC-56221-E	1600 "	Type 200 Telephones
MC-56221-G	2500 "	Type 200 Telephones

Note: The above ringers are furnished equipped with gongs, unless otherwise specified.



Desk Telephone Hookswitch

## Hookswitches

The springs of these hookswitches are made of stiff phosphor bronze, which insures the contact pressure being ample. The contacts are of a special alloy which will not easily pit or corrode, and are designed to maintain exact alignment. Phenol fiber is used to insulate the springs from the frame and clamping screws. These latter can be removed, if necessary, to permit changing the springs. Receiver hooks not included.

## Desk Type Hookswitches

<i>For Use With</i>	<i>No. of Springs</i>	<i>Description</i>	<i>Code No.</i>
Type 21 Desk Stand (Aut.)	5	For anti-sidetone booster circuits	D-78458-A
Type 21 Desk Stand (Aut.)	4	For booster ckt.	D-78456-A
Type 21 and 200 Desk Stands (Man.)	4	Closes 2 circuits	D-78456-A
Above hookswitch, complete with receiver hook	4	Closes 2 circuits	3200
Type 21 Desk Stand	3	For series circuits	D-78463

TELEPHONE PARTS—Continued

Wall Type Hookswitches

<i>For Use With</i>	<i>No. of Springs</i>	<i>Description</i>	<i>Code No.</i>
Type 21 Wall Sets (Aut.)	5	For anti-sidetone booster circuits	D-730502-A
Type 21 Wall Sets (Aut.)	4	For booster circuits	D-730463-A
Type 21 Wall Set (Man.)	4	Closes two circuits	D-73683-A
Above hookswitch, complete with receiver hook	4	Closes two circuits	8100
Type 21 Wall Set	3	For series circuits	D-730504-A
Type 200 Wall Set (Man.), complete with receiver hook	3	For local battery circuits	MC-6251

Receiver Hooks

Receiver Hook only, for standard wall telephone use.....	D-62034-B
Receiver Hook only, special for suspending Monophone hand unit.....	D-62056-A
Receiver Hook only, special for suspending Type 32A14 hand unit.....	D-62020-B

The Monophone Switch

The Monophone switch serves the same purpose as does the hookswitch of a conventional telephone. When the hand unit is placed on the cradle it pushes the plunger rod down. This in turn, through a lever arm, moves a pair of bushings into contact with the springs thus breaking their contacts.

The spring contacts are of special alloy. The springs themselves are of phosphor bronze and are stiff enough to create ample contact pressure. Connecting cords are furnished with each Monophone switch to fit the particular instrument in which they are to be used.

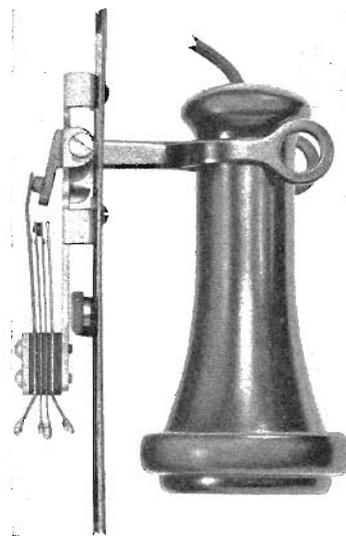
<i>Code No.</i>	<i>No. of Springs</i>	<i>For Use With Monophone Type No.</i>
D-730474-A	5	1-A, 3, 5-A, 6, 7, 9, 10, 15-A, 16
D-730514-A	5	4, 4-A
D-730247-A	4	11-A, 13
D-730518-A	4	14, 14-A, 17
D-730240-A	4	8

Offset Base

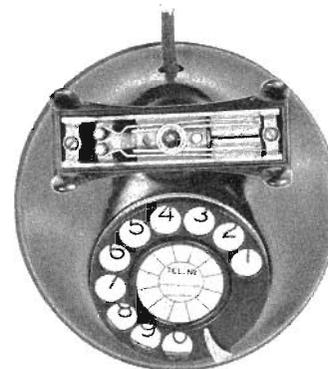
This offset base is recommended where manual desk stands of Western Electric Company manufacture are to be converted to dial operation. A telephone so converted is similar in appearance to the Type 21 desk stand.

The offset base is of black molded plastic, with an eight-point terminal block molded in. The base is clamped to the post of the desk stand by means of a larger spanner nut, (which is furnished) using the wrench listed below. The unit is supplied without dial. If base is desired with dial, specify code number of dial and dial card desired.

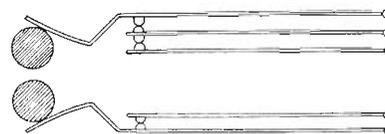
Offset Base (molded plastic without dial).....	H-50779
Spanner Wrench (for mounting the above base).....	H-43614-1



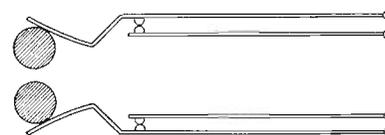
Wall Telephone Hookswitch



Monophone Switch in Dial  
Desk Set No. 11-A



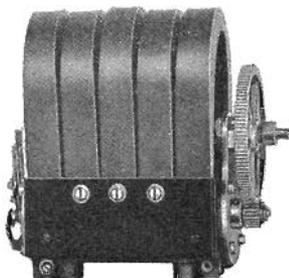
The Five-Spring Switch



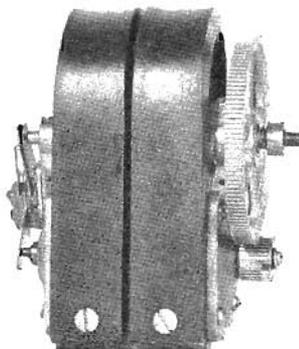
The Four-Spring Switch

## TELEPHONE PARTS—Continued

## Generators



Five Bar Generator



Two Bar Generator



Condenser D-6897

The magnets of these generators are of the finest steel obtainable. Field pieces are soft iron castings, and the generator heads are of heavy sheet brass, accurately formed. The gear wheel is of brass and the pinion steel, which insures long life and smooth running. A protector cap equipped with cushion springs, is placed over the pinion, absorbing the shock of sudden starting and reducing the strain on the gears.

Special springs shunt the armature winding out of the circuit when the generator is idle. Turning the crank automatically breaks this short-circuit. Three and five bar generators are of standard design. The two bar generator, however, is a special development for use in compact telephones.

*Code No.*

Two Bar Generator (for Monophone Desk Set No. 8 and Wall Set No. 10).....	6622
Three Bar Generator .....	6623
Five Bar Generator (for Type 200 Wall Sets, and Ringer Box for Type 200 Desk Sets) .....	6625

Note: Crank is not furnished with the above generators, but must be ordered separately, if desired.

## Generator Crank

*Code No.*

Generator Crank, for two, three and five bar generators.....	1929
--	------

## Condensers

These moisture-proof condensers are made of high grade tinfoil insulated between double layers of special condenser paper. The internal terminals are plates of thin sheet brass. The condenser unit is baked to drive out all moisture, held under vacuum and saturated with a special paraffine. The terminals are soldered to a terminal block, the can sealed with a black waterproofing compound and the cover soldered on.

The completed condenser is given a five-hundred volt insulation test. The capacitance is stamped into the aluminum-painted can, preventing the annoyance of lost labels. The actual capacitance of the condenser is guaranteed to be not below, nor more than twenty-five per cent above the rated value.

<i>Approximate Dimensions</i>	<i>Capacitance</i>	<i>Code No.</i>
4½"x2" x1"	2 m.f.	D-6891
3½"x1¼"x ⅝"	1 m.f.	D-68197-A
4½"x2" x ¼"	1 m.f.	D-6897
2⅞"x2" x ⅜"	1 m.f.	D-68182-A
4½"x2" x ¼"	.7 m.f.	D-6894
3¾"x ⅝"x ⅞"	.43 m.f.	D-68119-A
4½"x2" x ¼"	.4 m.f.	D-68179-A
4½"x2" x ¼"	.2 m.f.	D-68033

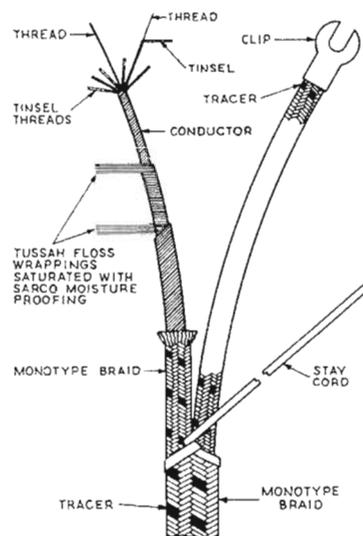
TELEPHONE PARTS—Continued

Telephone Cords

Monotype telephone cords are a new development in the telephone field, and are distinctly superior in several respects. An entirely new material is used for the outer braid, which by actual test outwears silk, mercerized cotton and woolen cords. It resists wear and abuse to such an extent that it sets new standards of long life for cords regardless of the service conditions under which they are used.

The method of construction of Monotype cords is unusual, in that the conductors are laid straight instead of being twisted into a round cable as is the customary practice. This type of construction resists "kinking" and disarrangement of the individual conductors, and thus prevents the most common cause of failure in cords.

Monotype cords also have an unusually high insulation resistance. All cords are treated with "Sarco," a moisture-proofing compound of high effectiveness, which together with the higher effective insulating properties of the new outer wrapping, gives this cord an insulation resistance surpassed only by rubber-covered cords. Where exceptional conditions of humidity exist, a rubber-covered cord is recommended; in which case Monotype cords are available which utilize the same materials and methods of construction except that a layer of vulcanized rubber is included in the covering of each conductor.



The Construction of "Monotype" Cords (Sarco Insulation)

Monotype Monophone Hand Unit Cords

Code No.

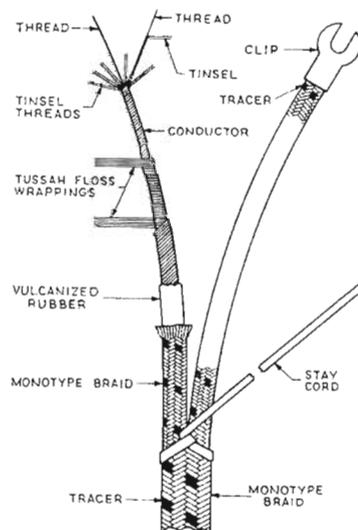
- 53-Inch, 3-Conductor, "Sarco" treated (for connecting the Monophone hand unit to the Monophone base).....D-542509-A
- 53-Inch, 3-Conductor, Rubber Covered (same use as above).....D-542501-A

Monotype Receiver Cords

- 33-Inch, 2-Conductor, "Sarco" Treated (for all receivers).....D-542498-A
- 33-Inch, 2-Conductor, Rubber Covered (same use as above).....D-542502-A

Monotype Desk Set Cords

- 6-Foot, 4-Conductor, "Sarco" Treated (for connecting Monophone Desk Stands Nos. 1-A, 5-A and 9, or Type 21 Desk Stand, anti-sidetone booster circuit, to the ringer box).....D-542510-A
- 6-Foot, 4-Conductor, Rubber Covered (same use as above).....D-542504-A
- 6-Foot, 3-Conductor, "Sarco" Treated (for connecting Monophone Desk Stand Nos. 11-A and 15-A, or the Type 21 Desk Stand, booster circuit, to the ringer box).....D-542511-A
- 6-Foot, 3-Conductor, Rubber Covered (same use as above).....D-542503-A
- 6-Foot, 2-Conductor, "Sarco" Treated (for connecting Monophone Desk Stand No. 7 to the ringer box).....D-542500-A
- 6-Foot, 2-Conductor, Rubber Covered (same use as above).....D-542505-A



The Construction of "Monotype" Cords (Rubber Insulation)

## TELEPHONE PARTS—Continued

## Induction Coils

The cores of these induction coils are made of silicon iron strips, which material is recognized as best for this purpose. The coils are wound over the insulated cores, and ended on terminal lugs on the spoolheads. Connections may be made to these lugs without endangering the windings.



Induction Coil D-281897-A

## Regular Booster Induction Coil

For regular central battery booster circuits. The inner winding has 1400 turns with a resistance of 27 ohms. The outer winding has 1700 turns with a resistance of 14 ohms. Dimensions are 4 inches by 1 $\frac{1}{8}$  inches by 1 $\frac{1}{4}$  inches.

Code No.

Booster Induction Coil .....D-281897-A

Booster Induction Coil, Terminal Strip and Mounting.....D-281899-A

(Above coil used on Type 21 dial and manual wall telephones and ringer boxes)

## Anti-Sidetone Booster Induction Coil

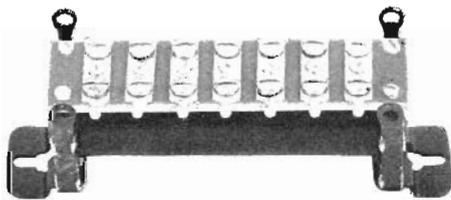
This is a three-winding induction coil designed especially for the anti-sidetone booster circuits of Type 21 telephones and Monophones. It is identical in size and general appearance with the two-winding coil.

Code No.

Anti-Sidetone Booster Induction Coil.....D-281901-A

Anti-Sidetone Booster Induction Coil, Terminal Strip and Mounting.....D-281900-A

(Above coil used on Monophones Nos. 3, 4, 5-A, 6 and 7, ringer boxes and Type 21 Wall Telephone.)



Induction Coil and Terminal Strip D-281899-A

## For Local Battery Monophones

This induction coil is especially designed for local battery Monophones. In size and appearance it is identical with the coils described above.

Code No.

Induction Coil (for local battery Monophones).....D-281569A

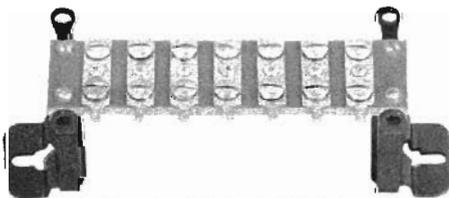
## Compact Induction Coils

These coils were designed especially for use in the Compact (Type 32) Ringer Box and, while they occupy only a small amount of space, they are fully as efficient as the larger coils. Spool heads are made of molded plastic. Used also in Compact Extension boxes and the Type 34A3 Monophone.

Code No.

Two-Winding Induction Coil, for regular booster circuits.....D-282332-A

Three-Winding Induction Coils, for anti-sidetone booster circuits.....D-282155-A



Terminal Strip D-15514-A

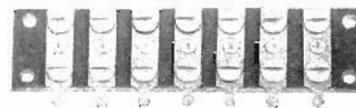
**TELEPHONE PARTS—Continued**

**For Type 200 (Local Battery) Telephones**

This coil is a standard 3 terminal, short-core, induction coil and may be used in practically any standard magneto telephone. The primary winding consists of 380 turns of No. 26 gauge copper wire and has a resistance of 1.8 ohms. The secondary winding has 1520 turns of No. 28 gauge copper wire and a resistance of 14 ohms. Dimensions are 2 3/4 inches by 1 1/16 inches by 1 1/16 inches.

*Code No.*

Induction Coil (for Type 200 and local battery telephones).....MC-2888



Terminal Strip D-15513-A

**Terminal Strips**

The terminal strips used in our telephones and ringer boxes are of phenol fiber, which is strong and durable, and has excellent insulating qualities. Terminals are fastened to the strip by means of tubular rivets. Each terminal has a tip, tinned for soldering, and screws under which cord tips or wires may be fastened.

*Code No.*

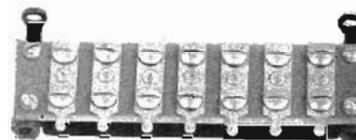
Terminal Strip (7 terminals, for Type 21 wall telephones, wall Monophones, and ringer boxes).....D-15513-A

Terminal Strip (8 terminals, similar to above).....D-15488-A

Terminal Strip (for series type ringer boxes, complete with wooden blocks and mounting brackets).....D-15514-A

Terminal Strip (7 terminals, with steel bracket for mounting on a flat surface, such as cover of wall telephone).....D-15515-A

Terminal Strip (8 terminals, semi-circular shape for bases of desk sets) D-15381-A



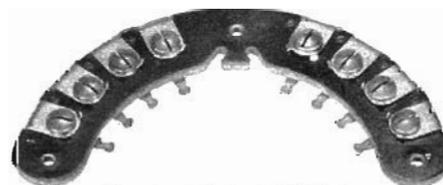
Terminal Strip D-15515-A

**Mounting Bracket for Extension Monophone**

This steel bracket is "L" shaped, black-japanned and drilled to mount an extension Monophone No. 4, 4-A, 14 or 14-A at right angles to a supporting surface. By its use it is possible to mount the extension set on a wall, side of a desk, or similar places where difficulty might otherwise be encountered. The bracket mounts on a space 2 1/2 inches by 3 7/8 inches and projects 6 3/16 inches.

*Code No.*

Mounting Bracket (for extension Monophone).....D-730542



Terminal Strip D-15381-A

**Condenser Brackets**

*Code No.*

Bracket for One Condenser (Wall Telephones or Ringer Boxes).....D-73684

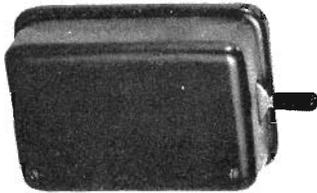
Bracket for Two Condensers (Wall Telephones or Ringer Boxes).....D-730100

Bracket for One Condenser (Mine Telephone or any flat surface).....D-7338

Bracket for One Condenser (Flush Type Wall Telephone or any flat surface—condenser on edge).....D-730126

## MISCELLANEOUS SUBSTATION EQUIPMENT

### Telephone Switching Key



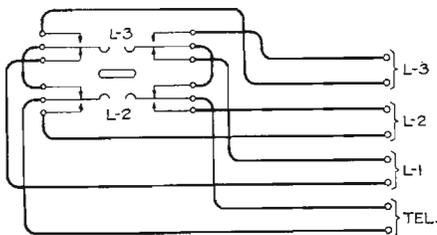
The Telephone Switching Key

The telephone switching key has many applications, such as connecting one telephone to several lines, etc. The unit consists of a locking type lever key, wired to a phenol fiber terminal strip, mounted on a steel base and protected by a pressed steel cover finished in dull black japan. The dimensions are  $1\frac{1}{2}$  inches high,  $3\frac{3}{8}$  inches wide and  $5\frac{3}{4}$  inches long, including handle.

The switching key may be mounted in any convenient location, such as the side of a desk or table. It is available in three standard spring arrangements: (a) 2-conductor, 3-way, (b) 2-conductor, 2-way and (c) 4-conductor, 2-way.

*Code No.*

2-Conductor, 3-Way Telephone Switching Key.....	5201
2-Conductor, 2-Way Telephone Switching Key.....	5202
4-Conductor, 2-Way Telephone Switching Key.....	5203



Schematic Diagram of 2-Conductor, 3-Way Switching Key

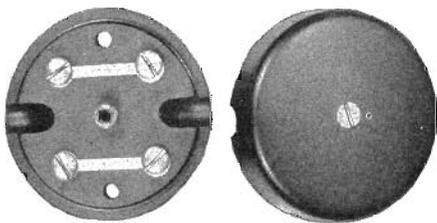
### Line and Cord Terminal Block

This terminal block is small and neat appearing, and can be used whenever it is desired to connect two or more pairs of wires, such as connecting interior substation wiring to outside drop wires.

A molded plastic cover, fastened with one screw, protects the terminals and wiring. The connecting screws (or strip terminal in the second type) are mounted on the molded plastic base, which has holes for two mounting screws.

*Code No.*

Line and Cord Terminal Block (for Monophones Nos. 34A3 and 7).....	D-15430-B
Line and Cord Terminal Block (for Monophone No. 8).....	MC-1533



Line and Cord Terminal Block D-15430-A

### Lamp Signaling Ringer Box

This is a standard black-japanned steel ringer box equipped with condensers, induction coil and terminal block, and with a special A. C. relay in place of the ringer assembly. This ringer box is suitable for metallic or ground straight-line operation and can be furnished for any type of central battery telephone circuit. A wall telephone equipped with A. C. relay in place of ringer assembly, is also available.

The relay contact springs have a current carrying capacity of  $\frac{1}{2}$  ampere (non-inductive load) and are designed to close one side of a local low-tension circuit to cause a lamp to glow during the ringing period. Desk type lamp signal unit 5250 and trunk type lamp signal unit 5251 are suitable for use with this telephone.

*Code No.*

Lamp Signaling Ringer Box (with A.C. relay).....	L-507-AO
Lamp Signaling Wall Telephone (with A.C. relay).....	L-619-AO

Note: When ordering, specify type and make of telephone with which the ringer box is to be used and whether for metallic or ground ringing.

MISCELLANEOUS SUBSTATION EQUIPMENT—Continued

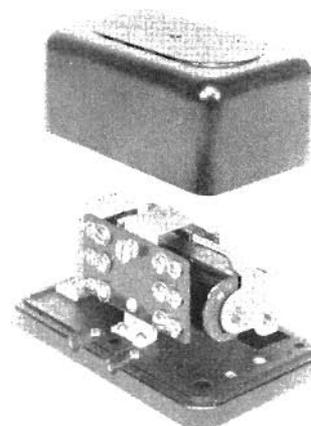
Telephone Relay Box

This relay box (Type 32) is made of molded plastic, and is only  $5\frac{3}{8}$  inches long, 3 inches wide and  $2\frac{1}{2}$  inches high. It is supplied equipped with three different circuits.

MC-89139 contains an A. C. relay, a condenser and a terminal strip. It can be used in place of a ringer box when no induction coil is required, to operate a lamp or other local signal.

L-715-AO contains a D. C. relay designed to be connected in series with one side of a telephone line to operate visual signals at one or more telephones connected to that line, to indicate that the line is in use.

The A. C. relay is suitable for straight line operation only. The current carrying capacity of the contacts of each of these relays is approximately  $\frac{1}{2}$  ampere non-inductive load.



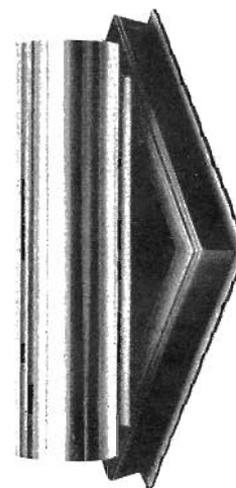
Type 32 Relay Box

	<i>Code No.</i>
Type 32 Telephone Relay Box (with 41 ohm D.C. relay and 50 ohm non-inductive winding) .....	L-715-AO
Type 32 Telephone Relay Box (with A.C. relay, condenser and terminal strip for operating any type of visual or audible signal).....	MC-89139

Continuous Telephone Signaling Unit

This signaling unit consists of a 2 m.f. condenser and an A. C. relay which responds to straight-line ringing current of all standard voltages. The operation of this relay closes a commercial current circuit to a second relay which locks through the contacts of a key and causes a signal to operate continuously until released by operating the key. Currents up to 5 amperes can be controlled by this arrangement, which can be used with either central battery or magneto lines. Any type of bell or signal can be used in connection with this unit.

	<i>Code No.</i>
Continuous Telephone Signaling Unit (for A.C. commercial power) .....	5260
Continuous Telephone Signaling Unit (for D.C. commercial power) .....	5261

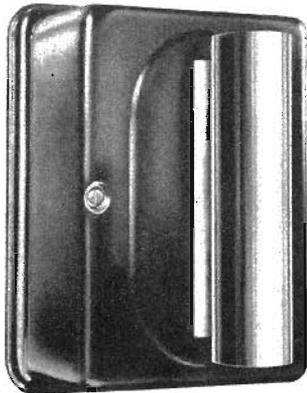


Mell-O-Tone Telephone Chime, Model TE

Mell-O-Tone Telephone Chimes

The Mell-O-Tone Chime strikes a single, soft, musical note at the beginning of each ringing period, and operates from a low voltage circuit closed by an A. C. relay actuated by the ringing current. A transformer or dry cells can be used for the low voltage supply. These signals can be used on all types of telephone lines, except harmonic party lines, or lines using codes consisting of "long" and "short" rings.

MISCELLANEOUS SUBSTATION EQUIPMENT—Continued



Mell-O-Tone Telephone Chime, Model TR

- Code No.*
- Mell-O-Tone Chime (consists of standard Type 21 ringer box, with chime, resonator and solenoid mounted on the front. The base contains A.C. relay, condenser and terminal strip).....Model TR
- Mell-O-Tone Chime (consists of single chime mounted on a diamond-shaped molded plastic base—requires separate Type 32 relay box).....Model TE
- Mell-O-Tone Chime (consists of two chimes mounted on diamond-shaped molded plastic base, the second chime being used as a door signal or signal for second telephone line. Requires Type 32 relay box for each line).....Model TD
- Mell-O-Tone Chime (consists of standard Type 21 ringer box, with chime, resonator and solenoid mounted on the front. The base contains A.C. relay, one condenser for metallic ring and three-winding induction coil, complete with separate transformer).....MC-89136
- Mell-O-Tone Chime (same as MC-89136, except equipped with two 1 m.f. condensers for ground ring).....MC-89137

**Desk Lamp Signal**

This desk lamp signal may be used in place of a bell, or as an addition to an audible signal to indicate on which of two or more lines a call is coming, or as a busy visual, located at either or both of two telephones on the same line.

It consists of a bronze lacquer finished metal base  $2\frac{3}{4}$  inches in diameter and  $1\frac{1}{2}$  inches high, with a glass dome which can be supplied in either white, red or green. The base contains a lamp socket in which may be inserted a 6, 12, 24 or 48 volt lamp. A 6-foot brown two-conductor cord is furnished with the signal. The lamp is operated in conjunction with a relay, which closes the low voltage circuit at every ringing period, or, if used as a busy signal, remains operated while the line is in use. The Type 32 relay box may be used for this purpose.



Desk Lamp Signal

- Code No.*
- Desk Lamp Signal (complete with cord and lamp).....5250
- Note: When ordering, specify voltage of lamp and color of glass dome desired.

**Trunk Lamp Signal Unit**

This unit can be used to provide auxiliary visual signals or busy visuals, or if desired, each lamp may be used for both visual signal and busy visual on the same line. There are three 12 volt colored lamps, arranged for wall or ceiling mounting. Current for operating these lamps may be supplied by dry cells or a bell-ringing transformer, and can be controlled by Type 32 relay units.

- Code No.*
- Trunk Lamp Signal Unit.....5251

## MISCELLANEOUS SUBSTATION EQUIPMENT—Continued

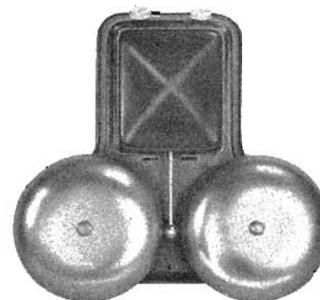
### Loud Ringing Telephone Bell

This loud ringing telephone bell is of the two-gong, vibrating type and is designed for use in noisy locations where an ordinary ringer could not be heard. It is ruggedly constructed of heavily enameled iron, and can be used in an outdoor location as well as indoor.

It operates in place of the standard ringer on any of the standard telephone ringing voltages. It is designed for straight-line operation, either magneto or central battery, and can be equipped with 1000, 1600 or 2500 ohm coils. A 2 mf. condenser can be mounted on the assembly when the bell is used on central battery lines.

*Code No.*

Loud Ringing Bell (6-inch gong, 1000 ohm coil, with 2 m.f. condenser).....EB-102  
 Loud Ringing Bell (6-inch gong, 1600 ohm coil, with 2 m.f. condenser).....EB-104  
 Loud Ringing Bell, (6-inch gong, 2500 ohm coil, with 2 m.f. condenser).....EB-106



Loud Ringing Telephone Bell

### Portable Telephone Plugs and Jacks

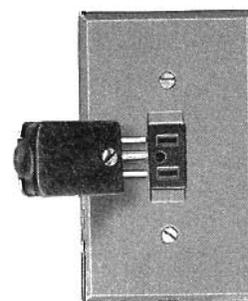
For use in clubs, hotels, large residences, etc., it is often convenient to have available portable telephones which can be plugged into convenient sockets which are suitably distributed throughout the building, to avoid the necessity of permanent installations of telephones. Any standard type of telephone may be used for this purpose, provided it is equipped with a plug, and provided the building wiring terminates in jacks of corresponding design.

For all ordinary purposes, a desk telephone complete with signal is most satisfactory, since it requires only a two conductor plug and jack. For this purpose, we recommend either the Type 32A14 Handset desk telephone (equipped with a ringer or buzzer) or the Type 34A3 Monophone, either of which may be equipped with the plug listed herewith. Four conductor jacks and plugs for use with other types of telephones are also available.

The jack plates are of the flush type, designed to mount on a standard sectional type electric switch box, measuring 3 inches high, 2 inches deep and 2 inches wide.

*Code No.*

Two-conductor Plug .....5303  
 Two-conductor Jack and Flush Plate (less outlet box).....5300  
 Four-conductor Plug .....5301  
 Four-conductor Jack and Flush Plate (less outlet box).....5302



Two-Conductor Plug and Jack

## MISCELLANEOUS SUBSTATION EQUIPMENT—Continued

**Autelco Telephone Timer**

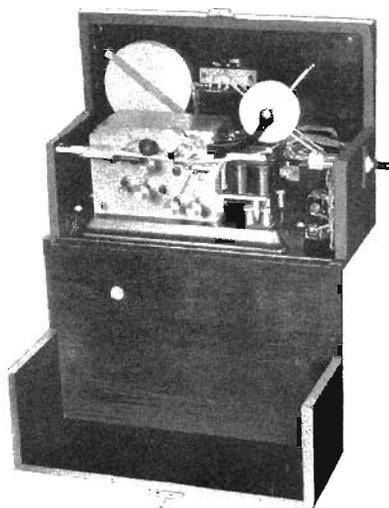
The Autelco Telephone Timer

The Autelco Telephone Timer is designed to prevent "takeouts" and provides a "pay-as-you-talk" service until the subscriber can resume a full-time service. It is a clockwork device which attaches to any telephone, either automatic or manual, central or local battery, and can be set by the telephone company to provide telephone service for periods of 3, 6, 9, 12, 15, 18, 21 or 24 hours upon the deposit of a five-cent piece.

This device operates entirely independently of the central office equipment, and does not affect other instruments on party lines. The ringer can be connected through to signal all incoming calls if desired but conversation cannot take place until a coin is deposited. Dimensions are 8 inches high,  $4\frac{1}{2}$  inches wide and  $2\frac{3}{4}$  inches deep.

*Code No.*

The Autelco Telephone Timer (operates on five-cent pieces).....H-60257-B

**Telephone Call Recorder**

The Telephone Call Recorder

The Telephone Call Recorder is used in conjunction with an automatic telephone, to record on paper tape as a series of short dashes, the telephone number of parties who call a subscriber during his absence. When he leaves, he merely operates a key which connects the recorder to his line. Ringing current starts the apparatus, which causes a distinctive tone to be returned to the calling person, who thereupon dials his own number. The device automatically stops and is prepared for the next call after the number has been recorded on the tape.

The necessary modification of the central office connector switches for this service can be readily accomplished on existing installations. The mechanism of the device is driven by clock-work, and is contained in an ebony-finished wood cabinet  $14\frac{3}{4}$  inches long  $6\frac{3}{4}$  inches wide and  $10\frac{1}{2}$  inches high.

*Code No.*

Telephone Call Recorder (for use with dial telephones).....8001

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