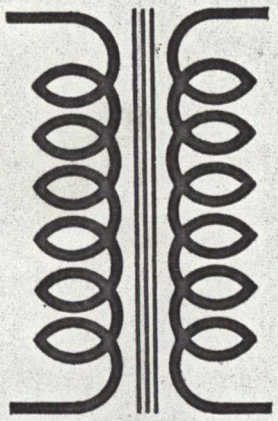
# REPEATING COILS



Western Electric

# REPEATING COILS

Western Electric repeating coils are designed by Bell Telephone Laboratories for FM and AM broadcasting and for general utility service. These coils have excellent frequency response and mechanical construction. They are available for a variety of applications such as:

Impedance matching between microphones and mixer circuits, between circuits at line transfer points, and between amplifiers and switching circuits.

Line isolation at circuit transfer points.

Bridging connections.

General utility service.

In general use, these repeating coils have very low insertion loss. Some types are equipped with electrostatic and electromagnetic shields for installation in circuits where extra shielding is required. Typical uses are shown below.

| Line Matching Coils | Line Bridging Coils | Microphone Matching Coils | General Purpose Coils |
|---|---|---|---|
| 111C | 154C | 172A | 153A |
| 119C | | 153A | |
| 170B | | 177C | |
| 177C | | | |

## *Features*

Designed by communication experts for use indicated.

Excellent frequency response.

Rugged construction.

Dependable performance.

# 111C and 119C REPEATING COILS

Toroidal type line repeating coils designed for dependable impedance matching applications and for line isolation at line circuit transfer points.

They are intended for use with amplifiers for program transmission over long or short cable or open wire circuits equipped with proper loading.

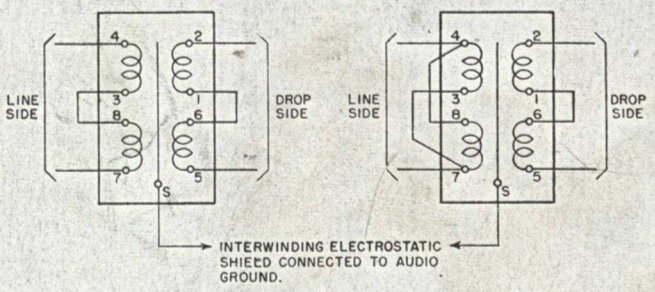
111C AND 119C REPEATING COILS

CONNECTIONS FOR TYPICAL USE BETWEEN 600Ω CIRCUITS

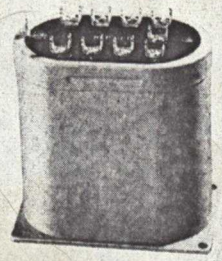
IMPEDANCE RATIO
111C 600Ω : 600Ω
119C 520Ω : 600Ω

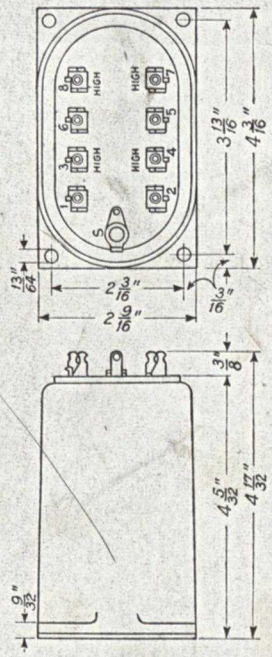
CONNECTIONS FOR TYPICAL USE FOR CABLE CIRCUITS & SHORT LINES

IMPEDANCE RATIO
111C 150Ω : 600Ω
119C 130Ω : 600Ω

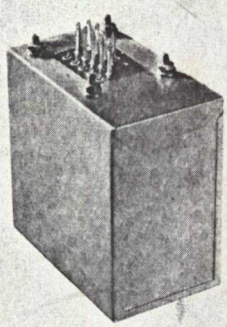


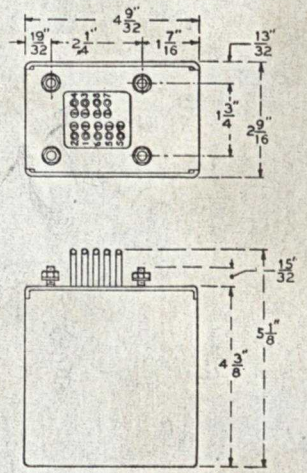

**111C Repeating Coil**






**119C Repeating Coil**






## *Specifications*

| | |
|---|---|
| FREQUENCY RANGE | 30-15000 cycles |
| INSERTION LOSS | Less than 0.5 db |
| MAXIMUM POWER CAPACITY AT 30 CYCLES | 1.1 watts (+30 dbm) |

### 111C REPEATING COIL

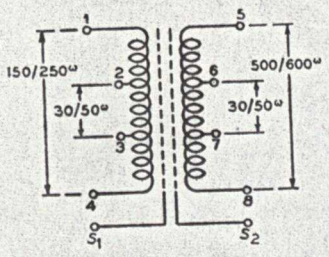
| | |
|---|---|
| DIMENSIONS | 2-9/16" x 4-3/16" x 4-17/32" |
| WEIGHT | 4½ pounds |
| MOUNTING | Flat base for board or panel mounting. Mounting holes to clear #8 machine screw. |
| FINISH | Gray enamel |

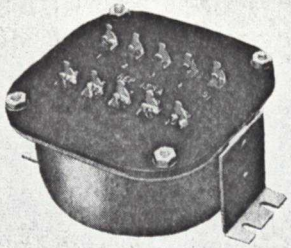
## 119C REPEATING COIL

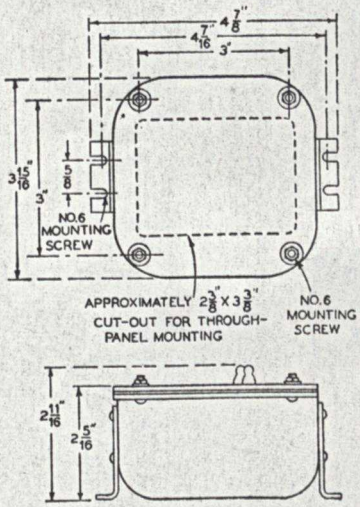
| | |
|---|---|
| DIMENSIONS | 2-9/16″ x 4-9/32″ x 5-1/8″ |
| WEIGHT | 4 pounds |
| MOUNTING | Single side stud mounting using 993A or 993C Mounting Plate |
| FINISH | Gray enamel |

# 153A REPEATING COIL

A toroidal coil with permalloy core in a flat type mounting, potted in a heavy iron case. Designed for general use in microphone or line level circuits to match impedances. A high degree of shielding against unwanted longitudinal transmission is provided by two electrostatic shields between windings. Use separately to segregate grounds, or strap to form a single shield.



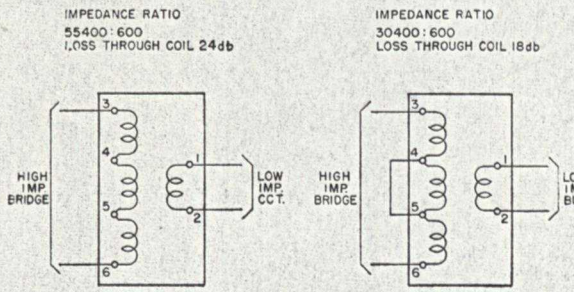



## *Specifications*

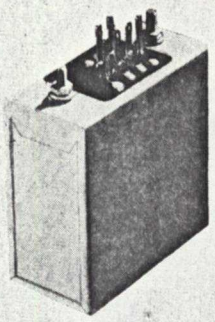
| | |
|---|---|
| FREQUENCY RANGE | 40-15000 cycles |
| INSERTION LOSS | Less than 0.5 db |
| MAXIMUM POWER CAPACITY AT 30 CYCLES | 0.226 watts (+24 dbm) |
| DIMENSIONS | 4-7/8″ x 3-15/16″ x 2-11/16″ including terminals |
| WEIGHT | 2 pounds 10 ounces |
| MOUNTING | Flat base for board or panel |
| FINISH | Gray enamel |

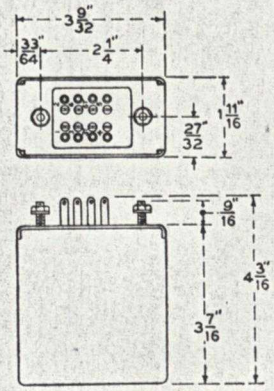
# 154C REPEATING COIL

A high quality repeating coil for bridging service. It has a shell type chrome permalloy core and is potted in a rectangular metal case arranged for single side stud mounting.




LOSS IN CIRCUIT BRIDGED NEGLIGIBLE IF COIL IMPEDANCE IS AT LEAST 5 TIMES THAT OF CIRCUIT BRIDGED.



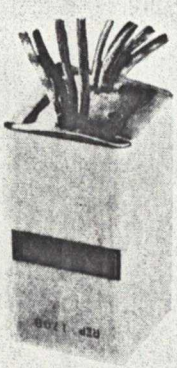


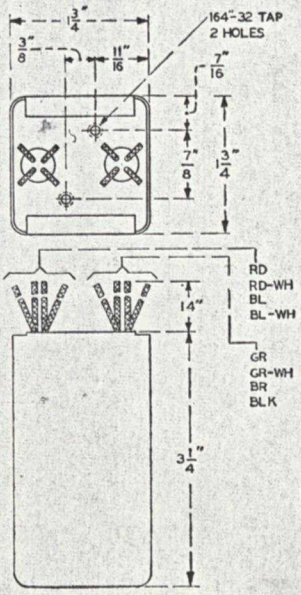

## Specifications

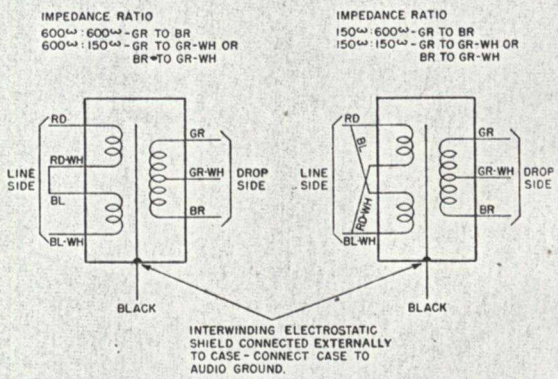
| | |
|---|---|
| FREQUENCY RANGE | 30-15000 cycles |
| INSERTION LOSS | 18 db or 24 db depending upon strapping |
| MAXIMUM POWER LEVEL AT 30 CYCLES | .782 watt (+29 dbm) |
| DIMENSIONS | 3-9/32" x 1-11/16" x 4-3/16" |
| WEIGHT | 2¼ pounds |
| MOUNTING | Single side stud mounting using 993B or 993C Mounting Plate |
| FINISH | Gray enamel |

# 170B REPEATING COIL

A shell type line repeating coil with a permalloy core enclosed in a small metal case. Designed for dependable impedance matching applications and for line isolation at line circuit transfer points.





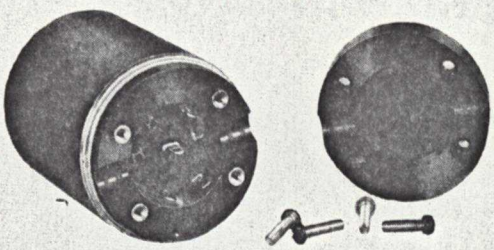



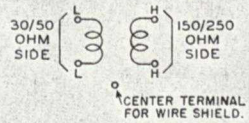
## Specifications

| | |
|---|---|
| FREQUENCY RANGE | 30-15000 cycles |
| INSERTION LOSS | 1 db (approx.) |
| MAXIMUM POWER CAPACITY AT 30 CYCLES | .247 watt (+24 dbm) |
| DIMENSIONS | 1¾″ x 1¾″ x 3½″ |
| WEIGHT | 1¼ pounds |
| MOUNTING | Flat base for flat plate or chassis mounting. Two threaded mounting holes take 8/32 screws. |
| FINISH | Gray enamel |

# 172A REPEATING COIL

An exceptionally high quality impedance matching device for use in low level circuits particularly between a microphone and amplifier. It has a shell type coil potted in a permalloy metal case, which provides electromagnetic shielding. It employs screw type terminals and is adaptable for connection in the microphone cordage, or it may be mounted on the associated amplifier. A plastic cover, illustrated below, protects and insulates the coil. The cord slots grip the cord and relieve the strain on the terminals and terminal plate. The 172A will transmit equally well in either direction.






## Specifications

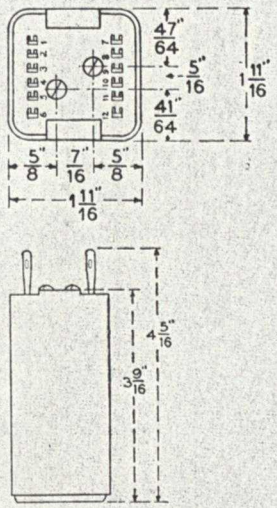
| | |
|---|---|
| FREQUENCY RANGE | 30-15000 cycles |
| INSERTION LOSS | 1 db (approx.) |
| MAXIMUM POWER LEVEL AT 30 CYCLES | .045 watt (+16 dbm) |
| DIMENSIONS | 1¾″ diameter x 2-25/32″ long |
| WEIGHT | 12 ounces |
| MOUNTING | Use connected in microphone cord or mount on flat surface by means of loop bracket |
| FINISH | Black |

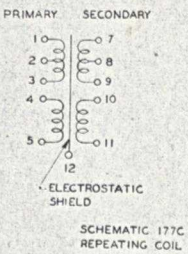
# 177C REPEATING COIL

A shell type line repeating coil with a permalloy core enclosed in a metal case. Designed for dependable impedance matching applications as well as for line isolation at line circuit transfer points, and for changing from balanced to unbalanced circuits. The coil has a one-to-one ratio and efficiently covers the impedance range—25 ohms to 600 ohms. In general, for impedances between 600 ohms and 150 ohms a series connection is most efficient, and for impedances between 150 ohms and 25 ohms the parallel connection is preferred.

For changing circuits from balanced to unbalanced, or vice versa, terminals 2 and 8 are the center tap points.

The 177C is equipped with an electrostatic shield between windings and an electromagnetic shield inside the case. Additional electromagnetic shielding, if required in instances of severe exposure, may be obtained by adding a 42A shield externally.



SCHEMATIC 177C REPEATING COIL

| SERIES CONNECTION | Output | Center Tap |
|---|---|---|
| 3 to 4 | 1- 5 | |
| 9 to 10 | 7-11 | |
| **PARALLEL CONNECTION** | | |
| 1 to 4 — 3 to 5 | 1-3 | 2 |
| 7 to 10 — 9 to 11 | 7-9 | 8 |

## *Specifications*

| | |
|---|---|
| FREQUENCY RANGE | 50-15000 cycles |
| INSERTION LOSS | Less than 1 db when connected between two like impedances; slightly more when generating from a low impedance into an open circuit. |
| MAXIMUM POWER LEVEL AT 50 CYCLES | .25 watt (+24 dbm) |
| DIMENSIONS | 1-11/16" x 1-11/16" x 3-9/16" |
| MOUNTING | Flat base for flat plate or chassis mounting. Two threaded mounting holes take 8/32 screws. |
| FINISH | Gray enamel |