

SUBSCRIBER SETS—415H, CD  
MAGNETO  
USED WITH HAND TELEPHONE SETS  
CONNECTIONS

1.00 INTRODUCTION

This section covers the combination of apparatus, circuit diagrams, and connections for the 415H and CD magneto subscriber sets.

2.00 GENERAL

2.01 These sets may come equipped with either a 104A or 113D induction coil, but the coils are not interchangeable in the field. The corresponding terminals of the two coils are given below:

104A — L1	RBK	C	A	BL	SL
113D — S	S1	S2	S3	P	P

2.02 Sets are provided with means whereby any one of four different network combinations, A to D, may be made in the induction coil balancing circuit to obtain satisfactory sidetone balance when sets are used on the different types of subscriber loops employed in the plant.

2.03 Unless otherwise specified, sets are furnished with the type A network as shown in the circuit diagrams herein. To obtain the other types of networks, changes in the connections of the set must be made as indicated below:

Sets Equipped with 104A Induction Coils

**Network B:** Disconnect capacitor leads from terminals A and SL. Terminate both leads on an unused terminal in the set. Connect a KS-8058, 400-ohm resistor between terminals A and SL (see Notes 1 and 3).

**Network C:** Disconnect capacitor lead from terminal A and connect to terminal C.

**Network D:** Disconnect capacitor leads from terminals A and SL. Terminate both leads on an unused terminal in the set. Disconnect one end of strap from terminal C and connect it to terminal SL.

Sets Equipped with 113D Induction Coils

**Network B:** Disconnect strap from between terminals A and BK. Terminate both ends of strap on terminal C. Connect at 63FD or KS-8058, 280-ohm resistor between terminals A and BK (see Notes 1, 2, and 3).

**Network C:** Disconnect strap from between terminals A and BK. Terminate both ends of strap on terminal C. Connect a 449H or equivalent capacitor between terminals C and BK (see Note 3).

**Network D:** Disconnect end of strap from terminal A and connect it to terminal C.

**Note 1:** The KS-8058 resistor requires no mounting.

**Note 2:** The 63FD resistor mounts in the upper lefthand corner of the set.

**Note 3:** Capacitors and resistors are not furnished as part of the set and must be ordered separately.

2.04 Use of a 449E or equivalent 1-uf capacitor in series with the talking circuit or ringer is optional. This capacitor has the following uses:

- When connected in series with the talking circuit only, as shown in Table B, the bells on the line can be rung with a receiver off hook.
- When connected in series with the ringer only, as shown in Table C, the line may be tested on the same basis as common battery lines. This arrangement is also used in some special cases where there is battery on the magneto line and the switchboard drop operates whenever a receiver is removed from its hook.

**Note 1:** When used in series with a high-impedance ringer, the capacitor should be 0.5 uf (449H or equivalent).

**Note 2:** An HA1 receiver should not be used where there is battery on the line.

- When connected in series with both the talking circuit and the ringer, as shown in Table D, the bells at stations where a receiver is off hook can be rung and the line can be tested on the same basis as a common battery line. This arrangement cannot be used where switchhook supervision is employed as in special case described in 2.04.

**TABLE A  
COMBINATION OF APPARATUS**

Sub. Set Code	Components			
	Induction Coil	Capacitor	Ringer	Generator
415H	104A or 113D*	149F, 449F, 1149B, or 449H	51A, 38B, or B1F	22A
415CD			6JA or B1D	

\* Furnished only when specified.

**TABLE B  
CAPACITOR IN SERIES WITH TALKING CIRCUIT**

Wire or Lead		Terminals		
		Individual or Bridged	Ring Party	Tip Party
Capacitor Lead	Y	L1	L1	L1
	Y	COND	COND	COND
Lead from L1 or S on Induction Coil	SL	COND	COND	COND

**TABLE C  
CAPACITOR IN SERIES WITH RINGER**

Wire or Lead		Terminals		
		Individual or Bridged	Ring Party	Tip Party
Capacitor Lead	Y	COND	COND	COND
	Y	L2	L2	L1
Ringer Lead	R	COND	COND	COND
	BK	L1	GND	GND

**TABLE D  
CAPACITOR IN SERIES WITH TALKING CIRCUIT AND RINGER**

Wire or Lead		Terminals		
		Individual or Bridged	Ring Party	Tip Party
Capacitor Lead	Y	COND	COND	COND
	Y	GN	GN	L1
Ringer Lead	R	COND	COND	COND
	BK	L1	GND	GND
Mounting Cord or Local Wiring	R	R	R	R
	Y	Y	Y	Y
	BK	BK	BK	BK
	GN	COND	COND	GN
Lead from L1 or S on Induction Coil	SL	L1	L1	COND

**3.00 CONNECTIONS**

**3.01** To connect the subscriber set to its associated hand telephone set the appropriate circuit diagram herein should be matched with the fold-out page in the section covering the connections for the hand telephone set. ←

**3.02** Connections in table form are also given for each type of subscriber set connection. Table F covers the connections of the subscriber set when used with hand telephone sets. ←

**3.03** Hand telephone sets of the types listed in Table E may be used with the 415H or CD subscriber set.

**TABLE E**  
**ASSOCIATED APPARATUS**

Desk Type	Hangup Type
202H	201A
215A	211E
	213E

**TABLE F**  
**CONNECTIONS**

Wire or Lead		Terminals		
		Individual or Bridged	Ring Party	Tip Party
Inside Wire from Protector or Line	Ring	L2	L2	L2
	Tip	L1	L1	L1
	GND	GND	GND	GND
Ringer Lead	R	L2	L2	L1
	BK	L1	GND	GND
Magneto Lead	R	L2	L2	L2
	BK	L1	L1	L1
Mounting Cord or Local Wiring	R	R	R	R
	Y	Y	Y	Y
	BK	BK	BK	BK
	GN	GN	GN	GN

*Note:* Extension stations without ringers shall be connected in the same way as the associated main stations except that both leads from the ringer shall be connected to GND terminal.

## 3.04 Circuit diagram of 415H or CD subscriber set when used with hand telephone sets:

