

## TELEPHONE SETS 402-, 410-, AND 411-TYPE DESCRIPTION, USE, AND CONNECTIONS

### 1. GENERAL

1.01 This section covers the description, use, and connections of the 402-, 410-, and 411-type telephone sets for key equipments and station wiring plans.

1.02 This section is reissued to convert it to letter size and to incorporate material from the addendum in its proper location. In the process of this conversion, marginal arrows have been omitted.

1.03 These sets are also used for key telephone systems, therefore, pertinent wiring changes for system use are contained in the schematic drawings and tables associated with key telephone systems.

### 2. DESCRIPTION AND USE

2.01 The 402-Type Telephone Sets are of the combined desk type and are equipped with an exclusion key. This consists of a switch operated by pulling up the right-hand plunger after the hand set is removed. While the switch is operated, its contacts serve to exclude one or more extension stations. When the handset is replaced on its mounting, the switch is automatically restored to normal.

2.02 The principal components of the 402-type sets are the B1A1 ringer, the 195A condenser, the F1A or F1G handset, the 101A induction coil, the 5HB or 6A dial or the 82A-3 apparatus blank for manual service.

2.03 The 410- and 411-Type Telephone Sets are of the combined set type and are, as shown in Fig. 1, equipped with a combined turn and push button key located in the telephone set housing just below and to the left of the dial. The key has a line engraved in its top to indicate the position of the key. The key is furnished with two sets of transfer contacts operated by turning the button and a set of make contacts operated by pushing it downward. Station number card masks (described in Section C37.321) which are arranged to fit over the regular number cards are available to indicate the various turn button functions of the key. The 411-type telephone sets in addition to the combination turn and push button are equipped with an exclusion key which operates in the same manner as the exclusion key of the 402-type sets.

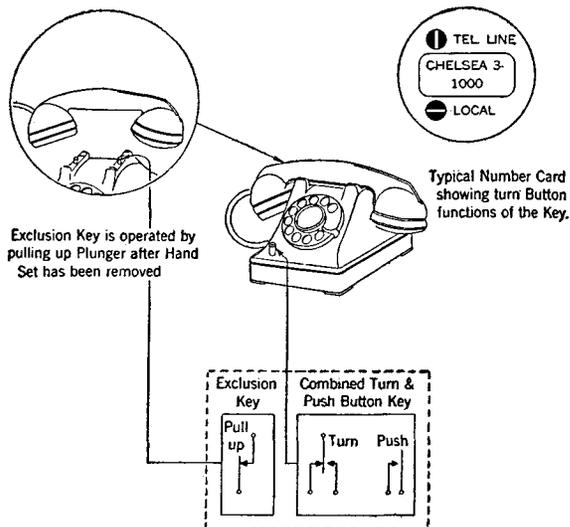


Fig. 1

2.04 The principal components of the 410- and 411-type sets are the B1A ringer, the 195B condenser, the F1A or F1G handset, the 101A induction coil, the 5HB or 6A dial or the 82A-3 apparatus blank for manual service.

2.05 Table 1 shows the features provided and the corresponding codes of the 410- and 411-type telephone sets and cords.

TABLE 1  
Feature Combinations Provided and Corresponding Code  
of Telephone Sets and Cords  
Combined Turn and Push Button Sets

TELEPHONE SET CODES			FEATURES							
MANUAL (See Note 1)	DIAL	MOUNTING CORD	Number of Lines Picked Up	Signalling Circuit	Line Ringer (See Note 2)	Common Ringer	Exclusion	Cut Off by Key		
								Ringer in Set *	Extension Station, External Ringer or Headset Control	Extension Station Ringer Transfer
410AA	410AC	D4AH	1	✓	✓			✓		
			1		✓				✓	
			2		✓					
411AA	411AC	D6P	1	✓	✓		✓	✓		
			1		✓		✓		✓	
			2		✓		✓			
410BA	410BC	D6P	1	✓	✓				✓	✓
			1	✓	✓				✓	
			2	✓	✓					
411BA	411BC	D8M	1	✓	✓		✓			✓
			1	✓	✓		✓		✓	
			2	✓	✓		✓			
410CA	410CC	D8M	2	✓		✓	✓			
411CA	411CC	D10C	2	✓		✓	✓			

Note 1 - Dial is replaced with apparatus blank.

Note 2 - The connections provide for ringing on line 1. If ringing on line 2 is required, connect the red ringer lead and the yellow condenser lead to terminals 3 and 4 respectively.

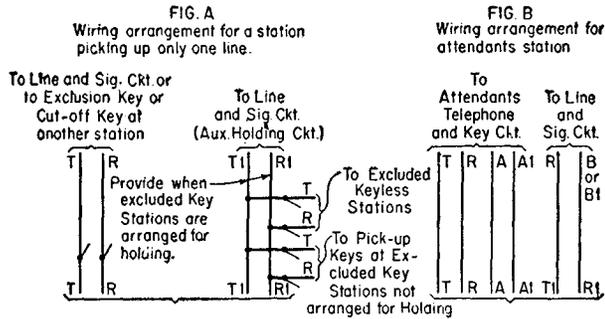
Note 3: When the suffix R is shown added to the code number of any telephone set shown in Table 1, it indicates that the telephone set is equipped with a retractile handset cord. For example: a 440AA-3 key telephone set equipped with a retractile handset cord becomes a 440AAR-3 key telephone set. Sets ordered with the suffix R will be equipped with retractile handset cords when received.

\* When only feature desired is to silence ringer in set a 305 type set should be used.

### 3. CONNECTION

#### 402-Type Sets

3.01 Fig. 2 is a schematic drawing for the 402A (manual) and 402C (dial) telephone sets and Table 2 lists the features provided as well as the telephone set connections for those features.



**TABLE 2**

FEATURES	Connections To Terminals Inside Set																	
	Mounting Cord Colors						Cord Code	Ringer Leads			Condenser Leads			Exclusion Key Leads				
	R	G	Y	BK	BL	W		R	BK	Y	S	BL	W	R	Y	G-Y		
One Line Pickup Ringer in Set, Exclusion	L1	L2	E	E2	A1	A		*	L1	K	*	L2	K	E	E2	*	L1	L2
One Line Pickup, Ringer of Extension Station Exclusion	L1	L2	E	E2	A1	A		⊙	K	*	L2	K	E	E2	*	L1	L2	
One Line Pickup, Common or Private Line Ringer in Set Cut-Off by Exclusion Key	L1	L2	E	E2	A1	A		⊙	E2	K	K	E	E3	⊙	E3			

⊙ Circle indicates connections that must be changed in set as furnished.  
 \* Indicates terminals on Induction Coil, Other terminals in table are on Connecting Block

**TABLE 3**  
410A, B and C Telephone Sets

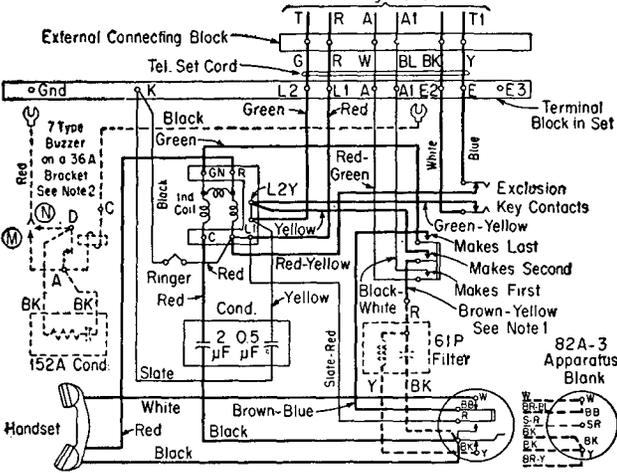
FEATURES	Connections To Terminals Inside Set															
	Mounting Cord Colors						Cord Codes	Ringer and Condenser Connections								
	R	G	Y	BK	BL	W			R	Y	S					
410A-Type Set							D4AH									
One Line Pickup and Signaling Ringer Cut-Off (Ringer in Set)	L1	L2Y	⊙	⊙				⊙	⊙	K						
One Line Pickup Extension Cut-Off with Ringer Transfer	L1	L2Y	3	4				⊙	⊙	K						
One Line Pickup Extension Cut-Off, or Ringer Cut-Off (External Ringer), or Head Set Control	L1	L2Y	3	4						K						
Two Line Pickup	⊙	⊙	3	4				⊙	⊙	K						
410B-Type Set							D6P									
One Line Pickup and Signaling Extension Cut-Off with Ringer Transfer	L1	L2Y	3	4	S	Gnd		⊙	⊙	K						
One Line Pickup and Signaling Extension Cut-Off (External Ringer), or Head Set Control	L1	L2Y	3	4	S	Gnd				K						
Two Line Pickup and Signaling	⊙	⊙	3	4	S	Gnd		⊙	⊙	K						
Two Line Pickup with Common Ringer	⊙	⊙	3	4	A	K		A	L2Y	⊙						
410C Type Set							RRGG	D8M								
Two Line Pickup and Signaling with Common Ringer	1	2	3	4	S	Gnd	A	K	A	L2Y	⊙					

⊙ Circle indicates connections that must be changed in set as furnished.  
 \* Indicates terminals on Induction Coil. Other terminals in table are on Connecting Block.

The connections shown provide for ringing on Line 1. If ringing on Line 2 is required, connect the red ringer lead and the yellow condenser lead to terminals 3 and 4 respectively.

**Connections of S-R Condenser Lead**

	No of Lines Picked Up	Buzzer or Set Ringer Used for	Connect S-R Cond Lead to Term Block Pthg
Sets Mfr. up to 4-1-41 No Dot Beside Date	1	Common Sig or Line Ringer	L1
	2	Line Ringer	1 or 3 having Red Ringer Lead
Sets Dated 4-1-41 with Dot Beside Date and Dated Later without Dot	1	Common Sig or Line Ringer	1
	2	Line Ringer	1 or 3 having Red Ringer Lead

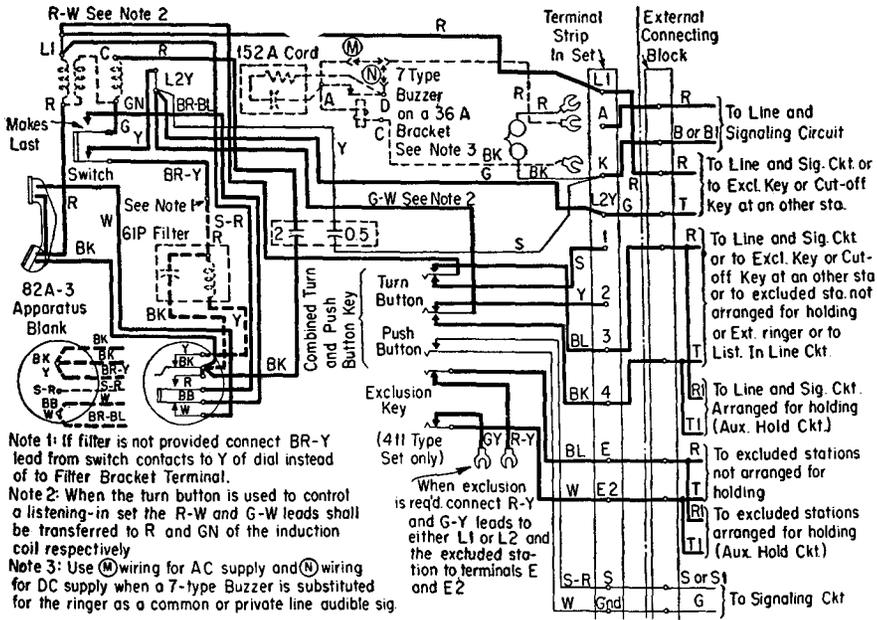


**Note 1:** If filter is not provided connect Brown-Yellow lead from the switch contacts to Y of dial instead of to Filter Bracket Terminal.  
**Note 2:** Use (M) wiring for AC supply and (N) wiring for DC supply when a 7-Type Buzzer is substituted for the ringer as a common or private line audible signal

**Fig. 2—402-Type Telephone Set**

**410- and 411-Type Sets**

**3.02** Fig. 3 is a schematic drawing for the 410- and 411-type telephone sets. Tables 3, 4, 5, and 6 following Fig. 3 lists the telephone set connections required for the features listed in Table 1.



**Note 1:** If filter is not provided connect BR-Y lead from switch contacts to Y of dial instead of to Filter Bracket Terminal.  
**Note 2:** When the turn button is used to control a listening-in set the R-W and G-W leads shall be transferred to R and GN of the induction coil respectively  
**Note 3:** Use (M) wiring for AC supply and (N) wiring for DC supply when a 7-type Buzzer is substituted for the ringer as a common or private line audible sig

**Fig. 3—410- and 411-Type Telephone Set**

TABLE 4  
410A, B, and C Telephone Sets

FEATURES	Mtg Cord Conns To External Conn. Block									
	To Line 1		To Line 2		To Cut-off Ext. Stas. or Ringers		To Signaling Circuit		To Common Ringer Relay	
410A-Type Set	Ring	Tip	Ring	Tip	Ring	Tip	Buzz	Gnd	R-Lead	B-Lead
One Line Pickup and Signaling Ringer Cut-Off (Ringer in Set)	R	G	---	---	---	---	---	---	Y	BK
One Line Pickup Extension Cut-Off with Ringer Transfer	R	G	---	---	Y	BK	---	---	---	---
One Line Pickup Extension Cut-Off or Ringer Cut-Off (External Ringer), or Head Set Control	R	G	---	---	Y	BK	---	---	---	---
Two Line Pickup	R	G	Y	BK	---	---	---	---	---	---
410B-Type Set										
One Line Pickup and Signaling Extension Cut-Off with Ringer Transfer	R	G	---	---	Y	BK	BL	W	---	---
One Line Pickup and Signaling Extension Cut-Off or Ringer Cut-Off (External Ringer) or Head Set Control	R	G	---	---	Y	BK	BL	W	---	---
Two Line Pickup and Signaling	R	G	Y	BK	---	---	BL	W	---	---
Two Line Pickup with Common Ringer	R	G	Y	BK	---	---	---	---	BL	W
410C-Type Set										
Two Line Pickup and Signaling with Common Ringer	R	G	Y	BK	---	---	BL	W	R-R	G-G

TABLE 5  
411A, B and C Telephone Sets

FEATURES (All 411-Type Sets are Equipped for Exclusion)	Connections To Terminals Inside Set												
	Mounting Cord Colors							Cord Codes		Ringer and Condenser Connections			
411A-Type Set	R	G	Y	BK	BL	W	D6P		R	Y	S		
One Line Pickup and Signaling Ringer Cut-Off (Ringer in Set)	L1	L2Y	⑤	⑥	E	E2			③	④	K		
One Line Pickup Extension Cut-Off with Ringer Transfer	L1	L2Y	3	4	E	E2			①	②	K		
One Line Pickup Extension Cut-Off or Ringer Cut-Off (External Ringer), or Head Set Control	L1	L2Y	3	4	E	E2			**	**	L1 L2Y K		
Two Line Pickup	①	②	3	4	E	E2			①	②	K		
411B-Type Set													
One Line Pickup and Signaling Extension Cut-Off with Ringer Transfer	L1	L2Y	3	4	S	Gnd	E	E2			①	②	K
One Line Pickup and Signaling Extension Cut-Off or Ringer Cut-Off (External Ringer), or Head Set Control	L1	L2Y	3	4	S	Gnd	E	E2			**	**	L1 L2Y K
Two Line Pickup and Signaling	①	②	3	4	S	Gnd	E	E2			①	②	K
Two Line Pickup with Common Ringer	①	②	3	4	A	K	E	E2			A	L2Y	②
411C-Type Set													
Two Line Pickup and Signaling with Common Ringer	1	2	3	4	S	Gnd	E	E2	A	K	A	L2Y	②

- Circle indicates connections that must be changed in set as furnished
- \* The connections shown provide for ringing on Line 1. If ringing on Line 2 is required, connect the red ringer lead and the yellow condenser lead to terminals 3 and 4 respectively.
- \*\* Indicates terminals on Induction Coil. Other terminals in table are on Connecting Block.

Connections of S-R Condenser Lead

	No. of Lines Picked Up	Buzzer or Set Ringer Used for	Connect S-R Cond Lead to Term Block Pchg
Sets Mfr. up to 4-1-41 No Dot Beside Date	1	Common Sig. or Line Ringer	L1
	2	Line Ringer	1 or 3 having Red Ringer Lead
Sets Dated 4-1-41 with Dot Beside Date and Dated Later without Dot	1	Common Sig. or Line Ringer	1
	2	Line Ringer	1 or 3 having Red Ringer Lead

TABLE 6  
411A, B, and C Telephone Sets

FEATURES (All 411-Type Sets are Equipped for Exclusion)	Mtg Cord Conns To External Conn. Block											
	To Line 1		To Line 2		To Excluded Stations		To Cut-off Ext. Stas. or Ringers		To Signaling Circuit		To Common Ringer Relay	
411A-Type Set	Ring	Tip	Ring	Tip	Ring	Tip	Ring	Tip	Buzz	Gnd	R-Lead	B-Lead
One Line Pickup and Signaling Ringer Cut-Off (Ringer in Set)	R	G	---	---	BL	W	---	---	Y	BK	---	---
One Line Pickup Extension Cut-Off with Ringer Transfer	R	G	---	---	BL	W	Y	BK	---	---	---	---
One Line Pickup Extension Cut-Off or Ringer Cut-Off (External Ringer), or Head Set Control	R	G	---	---	BL	W	Y	BK	---	---	---	---
Two Line Pickup	R	G	Y	BK	BL	W	---	---	---	---	---	---
411B-Type Set												
One Line Pickup and Signaling Extension Cut-Off with Ringer Transfer	R	G	---	---	R-R	G-G	Y	BK	BL	W	---	---
One Line Pickup and Signaling Extension Cut-Off or Ringer Cut-Off (External Ringer) or Head Set Control	R	G	---	---	R-R	G-G	Y	BK	BL	W	---	---
Two Line Pickup and Signaling	R	G	Y	BK	R-R	G-G	---	---	BL	W	---	---
Two Line Pickup with Common Ringer	R	G	Y	BK	R-R	G-G	---	---	---	---	BL	W
411C-Type Set												
Two Line Pickup and Signaling with Common Ringer	R	G	Y	BK	R-R	G-G	---	---	BL	W	Y-Y	BK-BK