

CODE CALLING SYSTEMS

1A AND 1B

DESCRIPTION AND USE

1.00 GENERAL

1.01 This section was formerly Station Installation and Maintenance Section C54.201, Issue 3. Except for editorial changes and renumbering for inclusion in the Station Operations Manual, no other revisions have been made.

1.02 This section describes the 1A and 1B code calling systems including their associated signals which are also used in connection with the 2A and 2B code calling systems covered in the PBX Installation and Maintenance Practices.

1.03 The new sending stations can be used in the 1A code calling system without supplemental apparatus; however, a KS-14468, List 3 transformer unit (in addition to one of the new code sending stations) is required for use with the 1B code calling system.

1.04 The principal use for a code calling system in conjunction with telephone service is to sound code signals at various points throughout a customer's establishment to advise certain officials or employees who are not at their telephones that a call is awaiting them. The same code calling system may, however, be used to sound code signals for other purposes.

1.05 The 1A or 1B code calling system is generally used in conjunction with a manual PBX and operated by the PBX attendant although the code calling apparatus is not directly associated with the PBX equipment.

1.06 The 2A and 2B code calling systems covered in the PBX Installation and Maintenance Practices differ from the 1A and 1B systems in that they are operated in conjunction with a dial PBX, and the equipment which selects and sends the code signals is directly associated with the PBX equipment.

2.00 1A AND 1B CODE CALLING SYSTEMS

2.01 The 1A and 1B code calling systems consist essentially of a code sending station and a number of signals often supplemented with a signal control relay set. The code sending station and signals are available for operation on 110 volts 60 cycles or on 110 volts dc. Special arrangements can, however, be made to obtain the code sending station and signals for use on other commercial power supplies.

2.02 The 1A and 1B systems differ principally in the arrangements for supplying electrical power to operate the signals. The 1A system employs signals operated directly from commercial power supply under the control of the signal control relay set which is connected to the code sending station. The 1A system requires power wiring between the signals, the signal control relay set, and the code sending station. The 1B system, on the other hand, employs signals which operate indirectly on commercial power supply. The signals for this system have self-contained control relays or associated transformer relay sets which in general permit the use of ordinary telephone wiring between the signals and the signal control relay set. The 2A code calling system employs the same signals as the 1A system, and the 2B system employs the same signals as the 1B system.

2.03 The signal control for either of the code calling systems may be supplemented by or transferred to a signal control relay for night connections which may be associated with a specific PBX extension, such as the night watchman's telephone. Under this arrangement, the signals are sounded once each time ringing current is applied to the PBX extension station.

SECTION C71.553.00

2.04 Schematic diagrams of the 1A and 1B code calling systems are shown in Fig. 1 and 2, respectively. These figures indicate the connections between the signals and the 2A code calling unit associated with dial PBX as an aid to station installers and repairmen in visualizing a complete code calling system of either the 1 or 2 type. The PBX Installation and Maintenance Practices should, however, be consulted for specific information regarding the 2A code calling unit. The 302, 410, etc, telephone sets may be used instead of the hand telephone set and subscriber set shown in these figures. The night key may be a key in the 410-type telephone set, or it may be separately mounted.

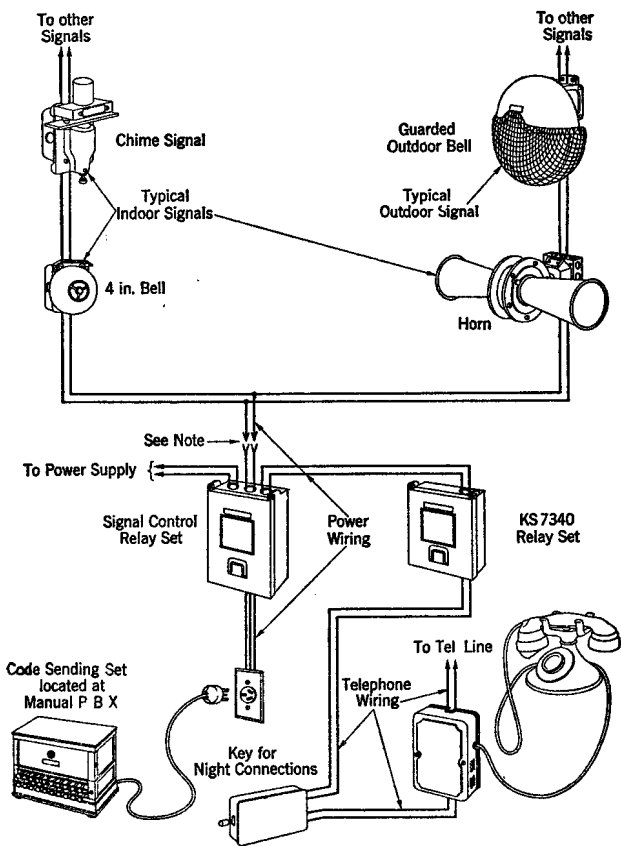
3.00 CODE SENDING STATIONS

KS-8225

3.01 This code sending station consists essentially of an operating unit, a code key unit or units which contain the keys for setting up the proper code, a base unit which contains the ter-

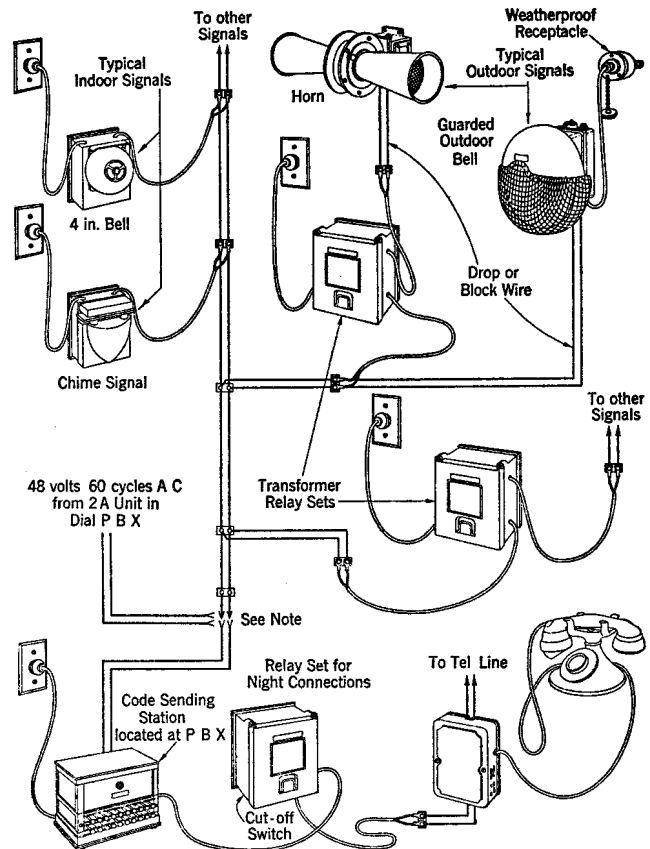
minals for all connections to the station, and a top which covers the operating unit. The top is equipped with a jeweled red lamp cap which serves as a busy signal. The operating unit is arranged to operate either on 110 volts ac or on 110 volts dc. Code sending stations for 1B systems, having low-voltage ac signals, are each equipped with a 110- to 48-volt transformer in order to furnish a 48-volt ac power supply to the signals or to the associated transformer relay set. A 40-code set for use with the 1A system is shown in Fig. 3.

3.02 All of the equipment of the code sending station is contained in suitable sections which, when fitted together, form a box 7-1/8 inches by 7-7/8 inches base dimensions. Sets equipped with a transformer have base dimensions of 7-7/8 inches by 9-7/8 inches. The sectional construction of the sending station permits increasing the capacity of the system by adding key unit sections up to a maximum of three 20-code key units, or 60 codes.



Note: In 2A code calling system, signals are connected directly to 2A unit in dial PBX.

Fig. 1 – Schematic Diagram, 1A System



Note: In 2B code calling system, signals are connected to transformer relay set which is operated by 2A unit in dial PBX.

Fig. 2 – Schematic Diagram, 1B System

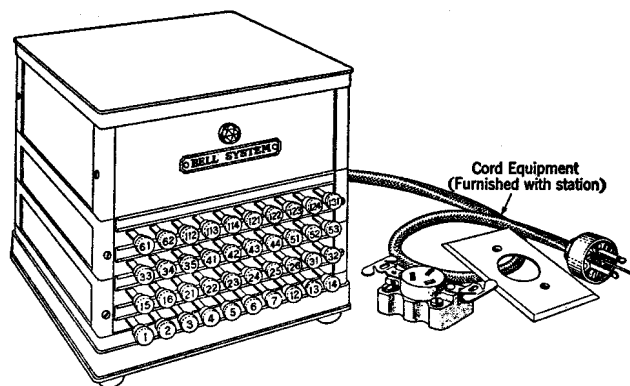


Fig. 3 — KS-8225 Code Sending Station (40 Codes)

KS-14468

3.03 The KS-14468 code sending stations are motor driven and operate on ac current only. The busy lamp is arranged to flash the code instead of burning steadily as on the KS-8225 sender. The stations are also equipped with a 2-position switch. With the switch at the position marked N, the code call is repeated only three times. With the switch at the position marked C, the code call is repeated continuously until the switch is returned to the N position.

3.04 The KS-14468, List 1 sender is arranged to send up to 20 codes and is shown in Fig. 4. Fig. 4 also shows the sender with the transformer unit required to adapt it to the 1B code calling system. The KS-14468, List 2 sender, arranged to send up to 40 codes, is shown in Fig. 5.

4.00 SIGNAL CONTROL RELAY SETS

4.01 The signal control relay set for the 1A code calling system consists of a suitable relay for controlling the operation of the signals. It is mounted in a metal housing with a black finish. Different relay coils are, of course, required, depending upon the commercial power supply that is employed.

4.02 When operated from alternating current, the 1B system employs a signal control relay set similar to the one described in 4.01 for the 1A system except that a step-down transformer for supplying a low-voltage current to operate the signals or the relays associated with the signals is also included in the relay set.

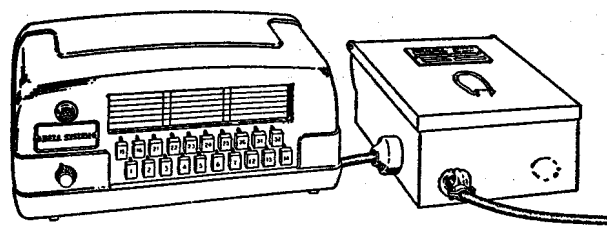


Fig. 4 — KS-14468, List 1 Code Sending Station (20 Codes), Shown with KS-14468, List 3 Transformer Unit

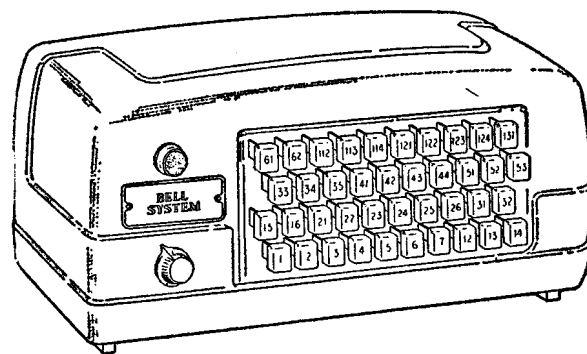


Fig. 5 — KS-14468, List 2 Code Sending Station (40 Codes)

4.03 On 1B systems operating on alternating current, the supplementary transformer relay sets may be omitted where the total wattage required to operate the relays in the signals does not exceed the rated output of the transformer associated with the code sending station, which is 50 watts.

4.04 When the 1B system is operated from direct current, the signal control relay set requires a separate source of supply for operating the relays associated with the signals. This supply may be any of a number of low-voltage sources, such as uninterrupted telephone ringing current or PBX battery.

4.05 More complete information on the signal control relay sets is given in the C Section entitled Power Relay Sets, Identification, Installation, and Maintenance.

5.00 SIGNALS FOR 1A, 1B, 2A, AND 2B CODE CALLING SYSTEMS

5.01 In general the signals for use with the above code calling systems consist of single-stroke bells of various sizes, chime signals, and vibrating horns. Some of the signals are suitable for indoor use only and others are suitable for outdoor use. A single-stroke bell or chime signal is one in which the plunger strikes the gong or chime once each time a signal pulse is received at the signal. A vibrating-type signal is one which continues to operate as long as the power supply is connected to the signal.

5.02 The signals for the 1A and 2A systems operate directly from the commercial power supply. In the 1A system the commercial power supply to the signals is controlled by a suitable signal control relay set, while in the 2A system this power is controlled by the 2A code calling unit in the dial PBX.

5.03 The signals for the 1B and 2B systems usually have self-contained relays which when operated connect the commercial power supply to the solenoids in the signals. When the commercial power supply is alternating current, the relays in the signals of the 1B system are controlled by a transformer relay set, the code sending station, or both; and the relays in the signals of the 2B system are controlled by a transformer relay set and the 2A code calling unit in the dial PBX. When the commercial power supply is direct current, the relays in the signals of the 1B system are controlled by a relay set operated in conjunction with the code sending station, and the relays in the signals of the 2B system are controlled by the 2A code calling unit in the dial PBX. The source of power for the relays in the signals may be uninter-

rupted telephone ringing current or low-voltage direct current, such as PBX battery.

5.04 Different signal solenoids and relay coils are, of course, required, depending upon the commercial power supply that is employed to operate the solenoids and the characteristics of the low-voltage current used to operate the relays in the signals. See the C Section entitled Auxiliary Signals, Identification, for further data regarding the signals for use with various current supplies.

6.00 OPERATION

6.01 In operating the 1A or 1B system, the PBX attendant, upon receiving a call and finding that the party desired is not at his telephone, depresses the button corresponding to the code number which has been assigned to the person called as far as it will go. This starts the code sending equipment which sounds the code three times upon the signals located throughout the establishment. Upon hearing his code, the party desired calls the PBX attendant from the nearest telephone, and the attendant can then complete the call in the regular way.

6.02 In case the party does not answer the first sending of the code, the attendant can repeat the code by simply depressing the same button in the sending station again. The key corresponding to the code last sent remains in a center or partially operated position until another key in the code sending station is depressed, at which time it restores to a normal position. Only one code can be sent at a time. A red light on the sending station indicates to the attendant that the equipment is busy.