STATION SYSTEMS
KEY AND TELEPHONE CIRCUIT
FOR ROTARY AND "TOUCH-TONE® " DIAL
20-BUTTON TELEPHONE SET
831 A1M AND 2831 A1M TELEPHONE SETS

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SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 This circuit provides for talking, listening, and dialing through pickup keys arranged in two module units of 10 keys each. The pickup keys connect the telephone circuit to the central office, PBX, private, or intercommunicating lines of Key Telephone Systems No. 1A1, 1A2, or 6A. Information is shown for holding one or more lines; for visual signaling with lamps which illuminate the pickup key buttons; for audible signaling with a ringer which may be associated with one of the lines or may be used as a common audible signal; for audible signaling with a buzzer; for converting pickup keys to signaling keys to be used for individual signaling. Dialing is provided by either TOUCH-TONE or rotary dials. The circuit shows connection information to station busy lamp and Speakerphone Systems No. 1A, 1A1, and 3A.

SECTION II - DETAILED DESCRIPTION

1. TRANSMITTING AND RECEIVING

HANDSET OPERATION

1.01 The handset and network circuits function in the usual manner as a common battery subscriber station circuit.

CONNECTIONS TO SPEAKERPHONE SYSTEMS

1.02 Leads are provided to bring out through the set cord the LK,AG,IR,IT,P3,P4, R1, and T1 connections to the speakerphone system. When speakerphone is provided, lamps to the eighth and ninth pickup keys, busy lamp, and signaling keys cannot be provided.

2. LINE SELECTION

PICKUP KEYS

2.01 Pickup keys are the locking type and have three make contacts. When a pickup key is operated, the common circuit of the set is connected to the line associated with the key, and a call may be answered or originated in the usual manner. The pickup keys are furnished in two key units, one of nine, plus a hold key and the other of ten. Mechanical lockout releases other pickup keys when a

pickup key is operated and prevents the operation of two pickup keys at one time within a key unit.

CHAINING SWITCH

2.02 To prevent simultaneous connection of two lines in different key units, a chaining switch, consisting of three break contacts, is furnished between the key units. Operation of any pickup key in the first key unit causes the operation of the chaining switch, thus preventing connection of common circuits to an operated pickup key in the second key unit.

3. CONNECTION TO LINE CIRCUITS

1A1 OR 1A2 LINES

3.01 Pickup keys can be connected to 1A1 or 1A2 line circuits.

4. CONNECTION TO PRIVATE OR INTERCOMMUNICATING LINES

4.01 Pickup keys to be arranged for pickup or signaling of private or intercommunicating lines may be any key not used for connection to line circuits of Key Telephone System 1A1 or 1A2.

5. SIGNALING

VISUAL SIGNALS

5.01 A 10-volt ac lamp is provided for each pickup key arranged to illuminate the key and designation strip. Lamps are controlled by the associated circuits which provide different signals by lighting the lamps steady or with various interruptions.

AUDIBLE SIGNALS

A. Ringers

5.02 A ringer and capacitor (contained in network) are provided in the set and may be connected for line ringing of any line. The ringer may be connected to common signaling or other ringing circuits, as required. Ringer connections are made by connecting the cable leads R or R1, and B or B1 to the desired circuit.

B. Buzzers

5.03 A KS-8109 buzzer may be used as a common signal or as an intercommunicating signal. Supports and screws are provided on the base plate for the mounting of the buzzer. The KS-8109 buzzer can be operated on 24 volts dc or 18 volts ac.

SIGNALING KEYS

5.04 All pickup keys can be converted from pickup to signaling or vice versa. The keys are converted from locking to nonlocking by removing a screw detail from the plunger. The spade tipped lead from pin 2 of the associated key plug must be connected to the SG cord lead. Speakerphone cannot be provided when signaling keys are used.

6. DIALS

A. Rotary

6.01 A rotary dial is provided on the 831 A1M telephone set. When operated, the dial opens the telephone set connection to the CO or PBX line in a series of pulses to operate the automatic switching equipment.

B. TOUCH-TONE

6.02 A TOUCH-TONE dial is provided on the 2831 A1M telephone set. When operated, the dial provides multifrequency tones to operated the CO or PBX automatic switching equipment.

7. HOLDING

7.01 A hold button is provided for use with the line circuit hold feature. The hold button opens the A lead path to ground to place the line circuit in to a hold condition.

8. STATION BUSY LAMP CIRCUIT

8.01 Sets are arranged for operating the station busy lamp circuit. The station busy lamp lights at a distant station when the principal station goes off-hook. Speakerphone cannot be provided when station busy lamp is required.

9. RADIO FREQUENCY NOISE SUPPRESSOR

9.01 A radio frequency suppressor for dial interference is built into the set network.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

None.

2. FUNCTIONAL DESIGNATIONS

None.

3. FUNCTIONS

3.01 A handset and anti-sidetone transmission circuit to a 2-wire common battery line.

3.02 Picking up a maximum of 9 lines.

3.03 Operation of holding circuit.

3.04 An audible signal which can be connected to any line or audible signaling circuit.

3.05 Dialing.

3.06 Keys that may be converted in the field from pickup (locking) to signaling (nonlocking).

3.07 Operation of station busy lamp.

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3.08 Connection to speakerphone equipment.

3.09 Lamps to provide visual signals.

3.10 Connections to line circuits of Key Telephone System 1A1 or 1A2.

4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a keysheet, the connecting information thereon is to be followed. The following are typical connecting circuits:

(a) Line and associated circuits of Key Telephone Systems 1A1 and 1A2.

(b) Speakerphone Systems 1A, 1A1, and 3A.

(c) Intercommunicating System 6A.