

COMMON SYSTEMS  
CIVIL AIR RAID WARNING SYSTEM  
CODE GENERATING CIRCUIT  
KEY POINT TO WARNING STATIONS

CHANGES

C. CHANGES IN CIRCUIT REQUIREMENTS  
OTHER THAN THOSE APPLYING TO ADDED  
OR REMOVED APPARATUS

C.1 Test Note 1 is added to both pages of the circuit requirements table to guard against the possibility of transmitting false alert signals to the civil air raid warning stations and siren stations while testing or adjusting any relay in this circuit.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Connecting circuit information for the "B" lead (Y option) in Panel or Crossbar No. 1 offices is changed to provide for automatic transfer to an alternate interrupter frame if the regular frame is taken out of service for maintenance purposes.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit generates the signal codes required for the Civil Air Raid Warning System from a Keypoint to Warning Stations.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

- 3.1 To generate codes as follows:
- 3.11 60 i.p.m. for red signal code.
  - 3.12 Two 1/2 second pulses each 4 seconds for the yellow signal code.
  - 3.13 Three 1/2 second pulses each 4 seconds for the blue signal code.
  - 3.14 A 16 second signal followed by 16 seconds silence for the white signal code.
- 3.2 To furnish each of the above codes over two leads only one of which, for any one code, will be closed at a time.
- 3.3 To prevent sending a partial code when the circuit starts operation.

3.4 To start operating under control of the connecting circuit.

4. CONNECTING CIRCUITS

When this circuit is listed on a keysheet, the connecting information thereon is to be followed.

- 4.01 Dial Pulse Receiving and Code Distributing Ckt. - SD-95678-01.
- 4.02 Aux. Ringing Supply & Bat. Distg. Ckt. - SD-81202-01.
- 4.03 Power Ringing Ckt. - SD-80885-01\*.
- 4.04 Power Ringing Ckt. - SD-80515-02\*.
- 4.05 Floor Alm. Frame Misc. and Aux. Alm. Ckt. - Crossbar No. 1 Office - SD-25047-01.
- 4.06 Floor Alm. Bd. Motor Alm. Ckt. Panel Office (Bat. Cut-Off) - SD-21202-01.
- 4.07 Alm. Ckt. Motor Stop and Frame Busy Panel Office (Grd. Cut-Off) - SD-20143-01.
- 4.08 Interrupter Circuit Crossbar No. 5 Offices - SD-25814-01\*.
- 4.09 60 and 120 IPM Interrupter Circuit No. 1 or 350A SxS Offices - SD-31606-01\*.
- 4.10 Interrupter Relay Circuit - No. 355A SxS Offices - SD-31868-01.

\*Typical circuit

DESCRIPTION OF OPERATION

5. GENERAL

5.1 When the dial pulse receiving and code distributing circuit requires code pulses, it connects ground to the "ST" lead operating relay (ST). Relay (ST) operated, grounds the "MS" leads to the auxiliary ringing supply and battery distributing circuit or to the power ringing circuit, and also grounds the "ST" lead to the interrupter circuit to start these circuits if they are not already operating. One of these

circuits will return 60 i.p.m. ground to operate (P) at that rate - 1/2 second operated, 1/2 second released. (ST) operated also connects ground to spring 5T or (W4) to control the operation of the "pick up" relay (PU). (PU) operated will lock to (ST).

5.2 The operation and release of relay (P) connects ground alternately through (PU) operated to leads "R1" and "R2" for the red signal code. In a like manner it connects ground alternately to leads "Y1", "Y2", "B1" and "B2" for the yellow and blue signal codes, under control of contacts on the (W), (W1), (Z) and (Z1) relays. Operation of these relays is described in 5.3

5.3 When relay (P) operates the first time it connects ground to (W) and (Z), but as (Z) is short circuited through its back contact, only (W) operates and locks to (ST). When (P) releases, the short circuit is removed from (Z) which operates on ground from (ST) through (W). On the next operation of (P), (W) is short circuited by ground from (P), but (Z) remains operated until (P) releases. The above cycle of operations is then repeated as long as ST remains operated. Thus (W) and (Z) are operated for 1 second and released for 1 second (Z) connects

ground to (W1) and (Z1), which operate in the same manner as (W) and (Z). (W1) also operates in turn (W2), (W3) and (W4). (W4) operates (PU) as described in 5.1. The operation and release of relay (W4) connects ground alternately to leads "W1" and "W2" for the white signal code. The operation of W and Z; W1 and Z1, W2 and Z2, W3 and Z3 and W4 and Z4, and the ground closures to leads "R", "R1", "Y", "Y1", "B", "B1", "W" and "W1" are shown graphically in Note 301.

5.4 By providing two leads for each signal code, only one of which is closed at a time, the warning stations can be divided into two groups for signaling purposes. In this way twice as many warning stations can be signaled from a given supply of ringing current.

## 6. TAKING EQUIPMENT OUT OF SERVICE

6.1 No provision has been made for taking this circuit out of service as an individual unit. However, this circuit is always associated with a dial pulse receiving and code distributing circuit, and before any maintenance work is performed on either circuit, the dial pulse receiving and code distributing circuit should be taken out of service as covered in the circuit description for that circuit.

BELL TELEPHONE LABORATORIES, INC.

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