

PANEL SYSTEMS
PERMANENT SIGNAL ALARM CIRCUIT
ARRANGED TO OPERATE ON A SPECIFIED
NUMBER OF PERMANENT SIGNALS

CHANGES

B. CHANGES IN APPARATUS

- B.1 Superseded Superseded By
- | | |
|---|--------------------------|
| (CO) H&H toggle switch 80054E, option "K" | KS-13674, L5, option "J" |
| (AR) H&H toggle switch 80054Q, option "K" | KS-13674, L4, option "J" |
| (A) key, 522C, option "N" | |
| (PS) lamp, 2Y, Fig. 3 | |
| (CO) & (AR) toggle switches, Fig. 3 | |

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

- C.1 Test notes 2 and 3 are added to prevent operation of sensitrol relay during testing.

D. DESCRIPTION OF CIRCUIT CHANGES

- D.01 The (A) key is designation option "N" which is rated "Mfr. Disc." and is superseded by option "M" looping.

- D.02 The (AR) and (CO) switches, (PS) lamp and option "Q" ground previously shown as part of Fig. 1 are rated "Mfr. Disc.". These control keys and guard lamp are relocated in the Sender Make Busy Frame for more convenience and safety.

- D.03 Option "K" is rated "Mfr. Disc." and is superseded by option "J" to provide KS replacements for the "Mfr. Disc." H&H toggle switches.

- D.04 Separate grounds, option "M", on relay (B) and (C) are added for Fig. 2 lamp and Sender Make Busy lamp, respectively, to avoid parallel fusing. Option "N" wiring is rated "Mfr. Disc.".

- D.05 Designation of sensitrol relay (SR) is added on schematic drawing.
- D.06 "Alarm Routine" and "Take Equip. Out of Service" information is added to Circuit Description.
- D.07 Circuit rating previously was AT&T Co. Standard.
- D.08 Notes 104 and 105 are added for record purposes.
- D.09 Fig. 3 and options N, M, K and J are added to the OPTIONS USED table.
- D.10 Note 203 is added to indicate job records need not be maintained for options "R, S, T, V, W, X, Y & Z".

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

- 1.1 This circuit provides means for giving an alarm when a specified number of permanent signals occur simultaneously.

2. WORKING LIMITS

- 2.1 Adjustable for operation nominally on any number of simultaneous permanent signals from 2 to 41 inclusive.
- 2.2 With maximum allowable variation in circuit constants and battery voltage the number of simultaneous permanent signals required to operate the circuit may be between -17 and +33 percent of the nominal value as adjusted for.

3. FUNCTIONS

- 3.1 Provides means for indicating when a specified number of permanent signals occur simultaneously.
- 3.2 Provides means for giving a permanent signal alarm in the same or distant office.
- 3.3 Provides means for cutting off the major audible office alarm.
- 3.4 Provides means for releasing the alarm circuit.

3.5 Provides means for restoring the sensitrol relay.

3.6 Provides means for preventing operation of the permanent signal alarm circuit (option "N").

4. CONNECTING CIRCUITS

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

4.1 Permanent Signal Holding Trunk - SD-95554-01.

4.2 Misc. and Aux. Alarm Circuit - SD-21203-01.

4.3 Alarm Transfer Circuit - SD-20733-01.

4.4 Misc. Circuit for Sender Make Busy Frame - SD-21236-01 or SD-21663-01.

DESCRIPTION OF OPERATION

5. OPERATION

The sensitrol relay (SR) and resistance network are connected from 48 volt battery to all permanent signal holding trunks on lead "PS". When a trunk is busy as a result of a permanent signal condition, ground through 1,000 ohms is connected to lead "PS", and as the number of trunks in a permanent signal condition increases, the current drain is increased and proportionally more current flows through the 50 ohm winding of the (SR) relay until it operates and gives an alarm.

The wiring of the resistance network controls the current through the winding of the sensitrol relay (SR) and is adjusted so the sensitrol operates on the desired number of permanents.

When the sensitrol relay (SR) operates the contacts are prevented from opening again normally by the pull exerted by a small bar magnet on a piece of iron connected to the pointer or mooring contact. The sensitrol contacts closed, operate (A). (A) is slow release so it will hold over momentary opens or chatter of the sensitrol relay contacts. (A) operated, opens the circuit to the 50 ohm winding of the sensitrol to protect it against excessive current.

5.1 Control keys on relay rack (Fig. 3 and option N). (A) operated, operates (B) and ground on lead "AR2" from the alarm transfer circuit or locally with "Q" option, Fig. 3, operates (D) relay. (B)

operated, operates (C). (C) operated, connects ground to the lockup contact of (CO) and to switch CO, lights lamps (PS) and connects ground to lead "PS1". If the alarm is not to be transferred, ground is returned on lead (PS2) through the back contact of relay (CO) to lead "DG" to operate the major alarms. If "Q" option is provided, ground is connected directly to the back contact of relay (CO) to lead "DG" to operate the major alarms. (D) operated, operates (E) relay which holds to (A) relay operated through contacts of (C) operated and connects ground to the back contact of (D) relay.

When alarms are transferred to an Alarm Receiving Center, ground is removed from lead "PS2", preventing the operation of the office alarms and lead "PS1" is extended to operate alarms in the distant office.

5.11 Alarm Release

If, when the alarm circuit is operated, the non-locking switch AR is operated or ground is removed from lead "AR2" through the alarm transfer circuit, (D) relay releases and connects ground to the sensitrol relay restoring winding. The sensitrol contacts are forced apart releasing (A). (A) relay released, opens the circuit to (B) and (E) relays, closes the sensitrol operating winding and opens the circuit to the restoring solenoid. (B) relay released, releases (C) relay. Lamp PS is extinguished, ground is removed from leads "PS1" to "PS2" restoring the alarms to normal.

If, when (A) releases after the sensitrol is restored to normal, sufficient permanent signals are still present to operate the sensitrol, it reoperates, in turn reoperating (A), (B) and (C) relays. (B) and (C) are slow releasing so when this condition occurs (C) will not be released before the circuit is re-energized. The alarm circuit will remain operated and the circuit to the sensitrol restoring winding remains open since (D) and (E) are released. When ground is reconnected to lead "AR2" or key AR is reclosed, (D) operates to keep the restoring circuit open and (E) operates from (A) operated as before.

5.12 Alarm Cutoff

If non-locking switch CO is operated when an alarm condition exists, (CO) operates and holds under control of (C) relay operated. Lamp PS remains lighted and ground is removed from lead "DG" cutting off the major audible alarm.

5.13 Disabling Key

To prevent operation of the permanent signal alarm circuit, Key A is operated disconnecting the sensitrol relay (SR) from the resistance network.

5.2 Control Keys at Sender Make Busy Frame (option "M")

(A) operated, operates (B). Ground on lead "AR" from the Sender Make Busy Frame either from the frame or from the Alarm Transfer Circuit when furnished, operates (D). (B) operated, operates (C) and lights the floor alarm board (PS) lamp. (C) operated, connects ground to the lockup contact of (CO), to lead "CO" and lead "PSL" which operates lamp (PS) at the Sender Make Busy Frame, and to lead "PS1" to the Alarm Transfer Circuit. If alarms are not transferred, ground is returned on lead "PS2", through the back contact of relay (CO) to lead "DG" to operate the major alarms. If option "Q" is furnished, ground is connected directly to the back contact of relay (CO) to lead "DG" to operate the major alarms. (D) operated, operates (E) which holds to (A) operated through contacts of (C) operated and connects ground to the back contact of relay (D).

5.21 Alarm Release

When the alarm circuit is operated, if the (PSAR) key at the Sender Make Busy Frame is operated or ground is removed from the key by the Alarm Transfer Circuit, (D) releases and connects ground to the sensitrol relay restoring winding. The sensitrol contacts are forced apart, releasing (A). (A) released, opens the circuit to (B) and (E), closes the sensitrol operating winding and opens the circuit to the restoring solenoid. (B) released, releases (C) and removes ground from the floor alarm board (PS) lamp. (C) released, removes ground from leads "PS1", "CO" and "PSL", restoring the alarms to normal and releasing relay (CO), if locked operated.

When (A) releases, if sufficient permanent signals are still present to operate the sensitrol, it reoperates. Relays (A), (B) and (C), in turn, reoperate. (B) and (C) are slow release so that (C) will not release on immediate re seizure. The alarm circuit will remain operated and the circuit to the sensitrol restoring winding remains open since (D) and (E) are released. When ground is reconnected to the (PSAR) key or the (PSAR) key is reclosed, (D) operates to keep the

restoring circuit open and (E) operates from (A) as before. If (C) should release and the alarm was cutoff, relay (CO) will release.

5.22 Alarm Cutoff

When the alarm circuit is operated, if the (PSCO) key at the Sender Make Busy Frame is operated, relay (CO) operates and holds under control of relay (C). Ground is removed from lead "DG" cutting off the major audible alarms but lamps (PS) remain lighted.

6. TAKING EQUIPMENT OUT OF SERVICE

6.1 Permanent Signal Alarm Circuit

At the relay rack on which this circuit is mounted, operate the (A) key. If the (A) key is not provided, block relay (A) non-operated. Insulate 1B contact of relay (A).

6.2 Precautions to be followed when working on apparatus

Block relay (CO) operated when working on any part of circuit. When working on relay (CO), block relay (C) non-operated. Thus, the audible alarm will not be sounded.

Whenever possible, block relay (B) non-operated so that the visual alarms are not lighted.

7. ALARM INFORMATION

If the permanent signal alarm circuit is not arranged to transfer its alarms or if alarms are not transferred, the alarms brought in are the major audible alarm, the floor alarm board (PS) lamp, the (DFL) lamp at all floor alarm board and power room, the (OF) (other floor) and (EP) (exit pilots) lamps if furnished, and the red (PS) lamp at the relay equipment (Fig. 3) or at the Sender Make Busy Frame (option "M").

If alarms are transferred to an Alarm Receiving Center, the audible alarm is silenced, but the (PS) lamps at the floor alarm board and at the relay equipment (Fig. 3) or Sender Make Busy Frame (option "M") remain lit.

7.2 Retiring Alarms

7.21 Fig. 3 and option "N"

If, in response to a major audible alarm, the red (PS) lamp at the permanent

signal alarm equipment is found lighted, operate the AR key (alarm release).

If the (PS) lamp remains lighted, indicating that the alarm condition still exists, operate the CO key (cut off) to silence the major audible alarm. Observe that the (PS) lamp remains lighted as a guard signal.

7.22 Option "M"

If, in response to a major audible alarm, the red (PS) lamp at the Sender Make Busy Frame is found lighted, operate the (PSAR) key.

If the (PS) lamp remains lighted, indicating that the alarm condition still exists, operate the (PSCO) key to silence the major audible alarm. Observe that the (PS) lamp remains lighted as a guard signal.

BELL TELEPHONE LABORATORIES, INCORPORATED

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