PANEL SYSTEMS
ALARM CIRCUIT
FROM STEP-BY-STEP OFFICE, STEP-BY-STEP PBX OR 101B POWER PLANT ARRANGED FOR THE EXTENSION OF ALARMS FOR PANEL OR CROSSBAR OFFICE

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Fig. 12 is rated Mfr. Disc.

D.2 Fig. 13 added. The PBX-SW key will close path to operate a relay in the floor alarm frame miscellaneous and auxiliary alarm circuit when a trouble occurs.

D.3 Note 108 added to the circuit.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 To provide alarms at the central office when there is a trouble condition at a PBX, step-by-step office or 101B power plant.

2. WORKING LIMITS

2.1 The combination of (A) and (B) relays in Fig. 1-A functions over a maximum external circuit loop of 4330 ohms with minimum leak resistance of 30,000 ohms.

2.2 The (B) relay of Fig. 1-B functions over a maximum external circuit loop of 3125 ohms and a minimum leak resistance of 30,000 ohms.

2.3 The (A) relay of Fig. 1-B functions over a maximum external circuit loop of 500 ohms and a minimum leak resistance of 30,000 ohms.

2.4 The (F) relay of Fig. 6 functions over a maximum external circuit loop of 6750 ohms and a minimum leak resistance of 30,000 ohms.

3. FUNCTIONS

3.1 To provide alarms at the central office when there is a trouble condition at an unattended office, PBX or power plant.

3.2 To provide means for silencing the audible alarm.

3.3 To provide means for giving visible and audible signals when trouble has been cleared.

4. CONNECTING CIRCUITS

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

4.1 Alarm Circuit at Step-by-Step Office - SD-31209-011

4.2 Alarm Circuit at PBX - SD-66135-01

4.3 Floor Alarm Board Miscellaneous and Auxiliary Alarm Circuit - SD-21203-01

4.4 Miscellaneous Alarm Circuit - ES-226102, ES-226189, ES-20241-011

4.5 Audible Alarm Switching Circuit - SD-20410-01

4.6 Power Circuit for 101B Power Plant - SD-80530-01

4.7 Audible Alarm Circuit for Floor Alarm Board - SD-21819-01

4.8 Aisle Pilot Circuit - SD-25087-01

4.9 Floor Alarm Frame Fuse and Time Alarm - SD-25046-01

4.10 Floor Alarm Frame Miscellaneous and Auxiliary Alarm Circuit - SD-25047-011

DESCRIPTION OF OPERATION

5. MAJOR TROUBLE

When a major trouble occurs at a step-by-step office or PBX connected to Fig. 1-A, relays (A) and (B) release, operating the (A1), (B1) and (AS) relays. When a major trouble occurs at a PBX connected to Fig. 1-B, relays (A) and (B) operate, operating relays (A1), (B1) and (AS). Operation of relay (AS) lights lamp (CLASS A) and operates relay (S), which operates the ringer at the alarm cabinet and, if key (PBX SW) is operated, lights alarm lamps and operates the major alarms. The attendant operates key (DA) to release relay (S), retiring the alarms and silencing the alarm cabinet ringer. Lamp (CLASS A) remains lighted. When the major trouble is cleared, relays (A) and (B) restore to their normal conditions, if a minor trouble has not appeared in the meantime, and relays (A1), (B1) and (AS) release, extinguishing lamp (CLASS A), lighting lamp (SUPV) and operating relays (AB), (BS) and (S) which operate the alarm cabinet ringer and, if key (PBX SW) is operated, operate the minor alarms. When key (DA) is restored to normal, lamp (SUPV) is extinguished and relay (S) releases to retire the alarms.

6. MINOR TROUBLE FOLLOWING A MAJOR TROUBLE (FIG. 1-A)

If a minor trouble occurs at the same distant office or PBX after the (DA) key has been operated in response to a major alarm and before the major

trouble has been cleared, no change occurs in this circuit until the major trouble has been cleared. Relay (A) then operates and relay (A1) releases, releasing relay (AS) to extinguish lamp (CLASS A), and operating relay (BS) to light lamp (CLASS B). Since the (DA) key is operated, no audible signal is given until the minor trouble has been cleared and relay (B1) releases.

7. MINOR TROUBLE FOLLOWING A MAJOR TROUBLE (FIG. 1-B)

If a minor trouble occurs at the same distant office or PBX after the (DA) key has been operated in response to a major alarm and before the major trouble has been cleared, relay (A) may remain operated so that no change occurs in this circuit until both troubles have been cleared. If relay (A) releases, relay (A1) releases, releasing relay (AS) to extinguish lamp (CLASS A) and operating relay (BS) to light lamp (CLASS B). Since the (DA) key is operated, no audible signal is given until the trouble had been cleared and relay (B1) releases.

8. MINOR TROUBLE

When a minor trouble occurs at a distant office or PBX, relay (B) of Fig. 1-A releases or relay (B) of Fig. 1-B operates, operating relay (B1) which operates relay (BS). Operation of relay (BS) lights lamp (CLASS B) and operates relay (S), which operates the alarm cabinet ringer and, if key (PBX SW) is operated, lights alarm lamps and operates the minor alarms. The attendant operates key (DA) to release relay (S), retiring the minor alarms and silencing the alarm cabinet ringer. Relay (AB) is also operated and locks up under control of key (DA). Lamp (CLASS B) remains lighted. When the minor trouble is cleared, relay (B) restores to normal condition and relay (B1) releases, extinguishing lamp (CLASS B), lighting lamp (SUPV) and operating relay (S), which operates the alarm cabinet ringer and, if key (PBX SW) is operated, operates the minor alarms as an indication that the trouble has been cleared. When key (DA) is restored to normal, lamp (SUPV) is extinguished and relays (S), (BS) and (AB) release, retiring the alarms.

9. MAJOR TROUBLE FOLLOWING A MINOR TROUBLE

If a major trouble occurs at the same distant office or PBX before a minor trouble has been cleared and while the (DA) key is operated, relay (A) of Fig. 1-A releases or relay (A) of Fig. 1-B operates, operating relay (A1) which releases relay (BS), extinguishing lamp (CLASS B) and operating relay (AS), which lights lamp (CLASS A) and operates relay (S). Operation of relay (S) operates the alarm cabinet ringer and if key (PBX SW) is operated, lights alarm lamps and operates the major alarms. Key (DA) is then restored to normal to release relay (AB). The alarms continue to operate until key (DA) is reoperated to release relay (S). If the minor trouble is cleared first, leaving the major trouble, no change takes place in the circuit. Clearing of the major trouble then releases relays (A1), (B1) and (AS) extinguishing lamp (CLASS A), lighting lamp (SUPV) and operating relays (AB), (BS) and (S), which operate the alarm cabinet ringer and, if key (PBX SW) is operated, operates the minor alarms. If the major trouble is cleared first, relay (A) of Fig. 1-A will operate but relay (A) of Fig. 1-B may not release. Operation of relay (A) of Fig. 1-A, or release of relay (A) of Fig. 1-B, releases relay (A1) which releases relay (AS) and operates relays (BS) and (AB), extinguishing lamp (CLASS A) and lighting lamp (CLASS B). Clearing of the minor trouble then restores relay (B) to normal condition to release relay (B1), extinguishing lamp (CLASS B), lighting lamp (SUPV) and operating relay (S), which operates the alarm cabinet ringer and, if key (PBX SW) is operated, operates the minor alarms. If the major trouble occurs after a minor trouble and before key (DA) has been operated, lamp (CLASS B) is extinguished, lamp (CLASS A) is lighted and the circuit functions in the same manner as when the major trouble precedes the minor trouble.

10. FUSE ALARM FOR 101-B POWER PLANT (FIGS. 6, 7 & 8)

Operation of a fuse at the power plant operates relay (F), operating relay (FA) which lights lamp (FA) and operates relay (R). Operation of relay (R) operates the alarm cabinet ringer and, if key (PBX SW) is operated, lights alarm lamps and operates the minor alarms. The attendant operates key (FA) to release relay (R), retiring the minor alarms and silencing the alarm cabinet ringer. Lamp (FA) remains lighted. When the operated fuse is removed, relays (F) and (FA) release, extinguishing lamp (FA), lighting lamp (SUPV) and operating relay (R), which operates the alarm cabinet ringer and, if key (PBX SW) is operated, lights alarm lamps and operates the minor alarms as an indication that the fuse has been removed. When key (FA) is restored to normal, lamp (SUPV) is extinguished and relay (R) releases, retiring the alarms.

11. FUSE ALARM FOR 101-B POWER PLANT (FIGS. 1, 2 & 6)

Operation of a fuse at the power plant operates relay (F), operating relay (B1) of Fig. 1, which operates relay (BS). Operation of relay (BS) lights

lamp (CLASS B) and operates relay (S), which operates the alarm cabinet ringer and, if key (PBX SW) is operated, lights alarm lamps and operates the minor alarms. The attendant operates key (DA) to release relay (S), retiring the minor alarms and silencing the alarm cabinet ringer. Relay (AB) is also operated and locks up under control of key (DA). Lamp (CLASS B) remains lighted. When the trouble is cleared, relays (F) and (B1) release, extinguishing lamp (CLASS B), lighting lamp (SUPV) and operating relay (S), which operates the alarm cabinet ringer and, if key (PBX SW) is operated, operates the minor alarms as an indication that the trouble has been cleared. When key (DA) is restored to normal, lamp (SUPV) is extinguished and relays (S), (BS) and (AB) release, retiring the alarms.

12. ALARM SWITCHING KEY (FIG. 11)

Operation of key (PBX SW) connects the alarms of the alarm cabinet to the alarms of the floor alarm near which the alarm cabinet is located, in such a manner that operation of an alarm cabinet alarm operates the corresponding floor alarm board alarms.

13. ALARM SWITCHING KEY (FIG. 12) MFG-DISC

Operation of key (PBX SW) connects the alarms of the alarm cabinet to the aisle pilot circuit to sound the audible alarm and light the aisle pilot and main aisle pilot in the aisle in which the alarm cabinet is located.

14. ALARM SWITCHING KEY (FIG. 13)

Operation of key (PBX SW) connects the alarms of the alarm cabinet to the aisle pilot circuit to sound the major or minor audible alarm. It also connects the alarms of the alarm cabinet to the floor alarm frame miscellaneous and auxiliary alarm circuit to operate a relay to light an aisle pilot lamp and a main aisle pilot lamp in the aisle in which the alarm cabinet is located.

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