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CIRCUIT DESCRIPTION SWITCHING SYSTEMS DEVELOPMENT DEPARTMENT CD-21201-01 Issue 26D Dwg. Issue 29D

PANEL SYSTEMS FLOOR ALARM BOARD FUSE AND TIME ALARM CIRCUIT

## CHANGES

B. CHANGES IN APPARATUS

B.1 Added

1 - No. 2-type lamp, option "N", Fig. 59

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Fig. 59 is added to provide a stuck sender alarm for the Auxiliary Sender (SD-96479-01).

D.2 Option "M", Fig. 59, is furnished when the Audible Alarm Circuit for Floor
Alarm Board (SD-21819-01) is available for aisle pilots. Otherwise, option "N" is furnished to light an (AS) lamp at the floor alarm board.

D.3 Notes 146 and 147 are added.

D.4 Fig. 59 and options "M" and "N" are added to Options Used table.

D.5 Circuit rating is changed from AT&TCO. Standard to A&M Only in a general program of rerating Panel Systems standard circuits.

D.6 Index sheet is added and all existing sheets are reissued in order to apply the individual sheet reissue plan.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 To provide means for operating audible and visible signals when a fuse operates or a circuit failure takes place in the central office equipment.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

3.1 To cause operation of audible and visible signals when a trouble condition or operated fuse closes an alarm circuit.

3.2 For circuits with aisle pilot lamps, the alarm board ringer operates in unison with the aisle pilot ringer. 3.3 For circuits without aisle pilot lamps, a pilot lamp is provided at the floor alarm board.

3.4 To provide for transfer of alarms to a master office during unattended light load periods.

- 4. CONNECTION CIRCUITS
- 4.01 Misc. Ckts. for Sub. district frame, SD-21221-01.
- 4.02 Misc. ckt. for dist. sel. test frame, SD-21222-01.
- 4.03 Misc. ckt. for trunk make busy frame, SD-21223-01.
- 4.04 Misc. ckt. for 3-wire office frame, SD-21225-01.
- 4.05 Misc. ckt. for sub. link frame, SD-21228-01.
- 4.06 Misc. ckt. for incoming frame, SD-21229-01.
- 4.07 Misc. ckt. for incoming sel. test frame, SD-21230-01.
- 4.08 Misc. ckt. for final frame, SD-21231-01.
- 4.09 Misc. ckt. for final sel. test frame, SD-21232-01.
- 4.10 Misc. ckt. for final mult. test line frame, SD-21233-01.
- 4.11 Misc. ckt. for Sub. sender frame, SD-21234-01.
- 4.12 Misc. ckt. for Sub. sender test frame, SD-21235-01.
- 4.13 Misc. ckt. for Sender make busy frame, SD-21236-01.
- 4.14 Misc. ckt. for B sender frame, SD-21242-01.
- 4.15 Misc. ckt. for B sender test frame, SD-21243-01.
- 4.16 Misc. ckt. for office sel. test frame, SD-21244-01.
- 4.17 Misc. ckt. for "B" line frame, SD-21245-01.

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- 4.18 Misc. ckt. for Decoder frame, SD-21249-01.
- 4.19 Misc. ckt. for Decoder test frame, SD-21250-01.
- 4.20 Misc. ckt. for trouble indicator frame, SD-21251-01.
- 4.21 Misc. ckt. for decoder connector frame, SD-21252-01.
- 4.22 Misc. ckt. for local desk sel. frame, SD-21253-01.
- 4.23 Misc. ckt. for district timing frame, SD-21481-01.
- 4.24 Misc. ckt. for key pulsing dist. sel. frame, SD-21534-01.
- 4.25 Misc. ckt. for 2-party M.R. conn. frame, SD-21535-01.
- 4.26 Misc. ckt. for trunk finder frame, SD-21562-01.
- 4.27 Misc. ckt. for line finder frame, SD-21660-01.
- 4.28 Misc. ckt. for traffic register rack, SD-21661-01.

4.29 Misc. ckt. for sender M.B. frame for office served by central "A" bd., SD-21663-01.

- 4.30 Misc. ckt. for stuck connection finder frame, SD-21664-01.
- 4.31 Misc. ckt. for terminating sender frame, SD-21665-01.
- 4.32 Misc. ckt. for central "B" bd. sender frame, SD-21904-01.
- 4.33 Floor alarm board, misc. alarm ckt., SD-21203-01.
- 4.34 Misc. ckt. for misc. interrupter frame, SD-21666-01.
- 4.35 Master clock circuit, SD-91019-01.
- 4.36 Office selector automatic test ckt., SD-20041-01.
- 4.37 Incoming sel. automatic test ckt., SD-20042-01.
- 4.38 District sel. automatic test ckt., SD-20240-01.
- 4.39 Final sel: automatic test ckt., SD-20043-01.
- 4.40 Subs. & K.P. sender automatic test ckt., SD-21186-01.

- 4.41 "B" swbd. sender and pos. automatic test ckt., SD-21107-01.
- 4.42 Central "B" swbd. sender and pos. automatic test circuit, SD-21107-02.
- 4.43 Fuse alarm circuit for fuse boards and distributing fuse panels, SD-21272-01.
- 4.44 Audible alarm circuit, SD-21819-01.
- 4.45 Misc. register circuit, SD-21537-01.
- 4.46 Power system discharge ckt., SD-80510-01.

4.47 Allotter alarm and make busy circuit for nondial subscribers lines, SD-21720-01.

- 4.48 Test trunk sender circuit, SD-21645-01.
- 4.49 Time alarm circuit, SD-21668-01.
- 4.50 Permanent signal trunk ckt., SD-21696-01.
- 4.51 Timed release sender ckt., SD-21193-05.
- 4.52 Message register connector ckt., SD-21417-01.
- 4.53 Information desk start ckt., SD-90006-01.
- 4.54 Information desk, misc. ckts. for relay rack, SD-21450-01.
- 4.55 "B" swbd. reorder signal ckt., SD-21135-01.
- 4.56 Alarm Transfer Ckt., SD-20733-01.
- 4.57 Incoming Trunk Switch Circuit, SD-95500-01.

4.58 "E2" and "E3" Telephone Repeater Battery Supply and Connecting Ckts., SD-95161-01.

4.59 Line Concentrator Identifier Circuit, SD-95739-01

4.60 Auxiliary Sender Circuit, SD-96479-01.

DESCRIPTION OF OPERATION

5. FRAME FUSE ALARMS (FIGS. 1, 2 AND 3)

When a frame fuse operates, the associated relay (A) operates closing the circuit to operate relay (A1), Fig. 12. When the operated fuse is removed, relay (A) releases, retiring the alarms. The fuse in series with relay (A) of Fig. 2

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protects relay (A) in case an associated fuse alarm lamp becomes short circuited. Operation of the fuse operates relay (A), bringing in the alarms.

5. FUSE BOARD FUSE ALARM FOR 48V. 24V. TONE AND - COIN CONTROL FUSES (FIG. 4)

Operation of a fuse supplying 48 or 24-volt current, low tone, or negative coin control current operates relay (A). Operation of a fuse supplying high tone operates relay (HF) which lights the fuse panel lamp and operates relay (A). Operation of relay (A) operates relay (A1), Fig. 12. When the operated fuse is removed, relay (A) releases, retiring the alarms. The fuse in series with relay (A) protects the relay in case the fuse alarm lamp becomes short-circuited. Operation of the fuse operates relay (A) bringing in the alarms.

7. FUSE BOARD FUSE ALARM FOR RINGING FUSES (FIG. 5)

7.1 ("T" Option)

When a fuse in a ringing lead operates, ringing current operates relay (AR), operating relay (B) which lights the fuse panel lamp and closes the circuit to operate relay (Al), Fig. 12. When the operated fuse is removed, relay (AR) releases, retiring the alarms.

7.2 Alarms Transferred to a Distant Office ("S" Option)

When a fuse in a ringing lead operates, ringing current operates relay (AR), operating relay (B) which lights the fuse panel lamp and connects ground to lead "RF1" to operate an alarm at the distant master office. When the operated fuse is removed, relay (AR) releases, retiring the alarms.

8. FUSE BOARD FUSE ALARM FOR + COIN CONTROL AND + 48-VOLT FUSES (FIGS. 6 AND 7)

Operation of a positive coin battery fuse or a positive 48-volt battery fuse operates relay (FC) which operates relay (A1), Fig. 12. When the operated fuse is removed, relay (FC) releases, retiring the alarms. The fuse in series with relay (FC) protects the relay in case the fuse alarm lamp becomes short-circuited. Operation of the fuse operates relay (FC), bringing in the alarms.

9. CLOCK CIRCUIT PUSE ALARM (FIG. 8)

Operation of a fuse in a **lead** supplying interrupted battery to the group relays, operates relay (CA) thru its 200-ohn winding when the master clock contacts close. When the battery from the master clock is interrupted, the relay holds thru both windings in series. Operation of relay (CA) lights the fuse panel lamp and operates relay (A1), Fig. 12. When the operated fuse is removed, relay (CA) releases, retiring the alarms.

#### 10. BATTERY DISTRIBUTING FUSE PANEL FUSE ALARM (FIG. 9)

Operation of a fuse at a battery distributing fuse panel operates relay (A) which lights the alarm board lamp and connects ground to lead "DG" or "DF". Grounding of lead "DG" operates the "DC" auxiliary signal. Grounding of lead "DF" operates the power failure audible signal. When the operated fuse is removed, relay (A) releases, retiring the alarms.

11. TRAFFIC REGISTER RACK FUSE ALANM (FIG. 10)

Operation of a fuse at the traffic register rack operates relay (A) which lights lamp (FA) and operates the (AC) or (NB) relay, causing continuous operation of the (AC) auxiliary signal. When the operated fuse is removed, relay (A) releases, retiring the alarms.

12. FLOOR ALARM BOARD FUSE ALARM (FIG. 11)

Operation of a floor alarm board fuse operates relay (AF), lighting lamp (FA) and operating the (AL) or (AE) relay, which continuously operates the (AC) auxiliary signal.

## 13. FUSE ALARM AISLE PILOT RELAY AND GROUP LAMP (FIGS. 12 AND 13)

Operation of fuses in various circuits operates relay (A1), which lights the aisle pilot lamp, operates the relay which controls the aisle pilot audible alarm for the alarm group in which is located the circuit controlled by the fuse, lights the group lamp and causes continuous operation of the night alarm.

14. DECODER TEST FRAME SIGNALS (FIG. 14)

When one of the leads from the decoder test frame or the lead from the trouble indicator frame is grounded, the corresponding floor alarm board lamp is lighted.

15. SENDER GROUP BUSY ALARM (MFR. DISC.) LINK DOWN DRIVE ALARM SENDER LOAD ALARM (FIG. 15)

When the (GL) relay operates, because all senders of a group have been busy for a predetermined time interval, or because the link down drive alarm or the sender load alarm has operated, relay (GA) operates, lighting the aisle pilot lamp, operating the (F) relay, which operates the

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aisle pilot audible alarm for the sender alarm group, lighting lamp (FGA) and causing continuous operation of the night alarm.

16. SELECTOR TIME ALARM RELAY (FIG. 16)

When the (S) relay at the selector frame operates, relay (AS) operates, operating relay (FS) of Fig. 17.

17. SELECTOR TIME ALARM (FIG. 17)

17.1 ("R" Option)

Operation of relay (AS) of Fig. 16 operates relay (FS) which operates the (T) or (ST) relay, to cause intermittent operation of the alarm group aisle pilot ringer, lights lamp (S) and operates the (TR) relay to cause intermittent operation of the night alarm.

17.2 ("Q" Option)

Operation of relay (AS) of Fig. 16 extends ground to the alarm transfer circuit over the "CO1" lead. If the alarms are attended by an alarm receiving center the ground on the "CO1" lead is cut off at an alarm cut off relay. If the alarms are supervised by the local office the ground on lead "CO1" is returned over lead "CO2" to operate relay (FS) as described in par. 17.1.

18. COIN CONTROL TIME ALARM RELAY (FIG. 18) (A & M ONLY)

When the (S1) relay at the district selector frame operates, relay (CC) operates, operating relay (FC) of Fig. 19.

19. COIN CONTROL TIME ALARM (FIG. 19) (A & M ONLY)

19.1 ("R" Option)

Operation of relay (CC) of Fig. 18 operates relay (FC) which operates the (SF) relay, to cause continuous operation of the district alarm group aisle pilot ringer, lights lamp (CN) and operates the (CR) relay to cause continuous operation of the night alarm.

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19.2 ("Q" Option)

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Operation of relay (CC) of Fig. 18 extends ground to the alarm transfer circuit over the "CO3" lead. If the alarms are attended by an alarm receiving center the ground on the "CO3" lead is cut off at an alarm cut off relay. If the alarms are supervised by the local office the ground on lead "CO3" is returned over lead "CO4" to operate relay (FC) as described in Par. 19.1.

20. SUBS. LINK TIME ALARM RELAY (FIG. 20)

When the (SA) relay at the link frame operates, relay (AL) operates, operating relay (FL) of Fig. 21. 21. SUBS. LINK TIME ALARM (FIG. 21)

Operation of relay (AL) of Fig. 20 operates relay (FL) which operates the (LT) relay, to cause intermittent operation of the link alarm group aisle pilot ringer, lights lamp (L) and operates the (TR) relay to cause intermittent operation of the night alarm.

22. LINK SUBGROUP MAKE BUSY SIGNAL (FIG. 22) (A & M ONLY)

When the make busy key of either subgroup is operated, the corresponding lamp at the floor alarm board is lighted.

23. START CKT. ALARM RELAY (FIG. 23) (MFR. DISC.)

When aisle pilot lamp (SC) lights, due to failure of a line finder or trunk finder to start or due to failure of a link to advance, relay (STA) operates, operating relay (SP) of Fig. 24.

- 24. START CKT. ALARM (FIG. 24) (MFR. DISC.)
- 24.1 ("T" Option)

Operation of relay (STA) of Fig. 23 operates relay (SP) which operates the (LT) relay, to cause intermittent operation of the link alarm group aisle pilot ringer, lights lamp (SP) and operates the (TR) relay to cause intermittent operation of the night alarm.

24.2 Alarm Transferred to a Distant Office ("S" Option)

Operation of relay (STA), Fig. 23, operates relay (SP) which in turn lights lamp (SP) and connects ground to lead "STL" operating a major alarm at the distant master office.

25. TRIP CKT. ALARM RELAY (FIG. 25) (MFR. DISC.)

When aisle pilot lamp (TP) lights, due to failure of the trip circuit to release within a predetermined time interval, relay (TA) operates, operating relay (TA1) of Fig. 26.

26. TRIP CKT. ALARM (FIG. 26) (MFR. DISC.)

26.1 ("T" Option)

Operation of relay (TA) of Fig. 25 operates relay (TA1) which operates the (LT) relay, to cause intermittent operation of the trip circuit alarm group aiste pllot ringer, lights lamp (TA) and operates

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the (TR) relay to cause intermittent operation of the night alarm.

26.2 Alarm Transferred to a Distant Office ("S" Option)

Operation of relay (TA) of Fig. 25 operates relay (TA1) which in turn lights lamp (TA) and connects ground to lead "TR1" to operate an alarm at the distant master office.

27. "B" SWITCHBOARD LINK TIME ALARM RELAYS (FIG. 27) (MFR. DISC.)

When a link circuit connects ground to lead "TA", relay (LA) operates, connecting ground to lead "L" and removing control of its own winding from lead "PS". Operation of the (SL) relay disconnects battery from lead "PS" so that no other (LA) relay can operate until the operated (LA) relay is released. When the predetermined time interval has elapsed, the (SC) relay operates, operating relay (SA) which lights aisle pilot lamp (TP), places its own winding under control of relay (LA) and operates relay (FL), Fig. 28, to bring in the alarms. Relay (LA) holds relay (SA) operated as long as the ground remains on lead "TA". Operation of relay (SA) also releases the interrupter and associated relays which are then available for use thru other (LA) relays.

28. "B" SWITCHBOARD LINK TIME ALARM (FIG. 28)

When a link circuit has caused operation of the time alarm relays, relay (FL) operates, lighting lamp (LT), operating the (TR) relay to cause intermittent operation of the night alarm, and causing intermittent operation of the link alarm group aisle pilot audible alarm. When the time alarm relays are released by the link circuit, relay (LA) releases, retiring the alarms.

29. TEST FRAME ALARM (FIG. 29)

When an automatic test circuit fails to complete a test, on account of failure of itself, or of the circuits under test, relay (TF) operates in series with the alarm lamps of the test frame. Operation of relay (TF) lights the (TP) aisle pilot lamp, operates relay (ST) or (T), which causes intermittent operation of the alse pilot audible alarm for the alarm group in which the test circuit is located, lights lamp (TF) of Fig. 30 and operates the (TR) relay to cause intermittent operation of the night alarm.

30. TEST FRAME ALARM LAMP (FIG. 30)

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Operation of the (TF) relay, Fig. 29. lights lamp (TF) and operates the (TR) relay to cause intermittent operation of the night alarm.

31. "B" SWITCHBOARD SENDER TEST CIRCUIT TIME ALARM (FIG. 31) ä. 9

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When ground is applied by the test circuit to lead "TA", relay (TC) operates, lighting the (TP) aisle pilot lamp, operating the (T) relay, which causes intermittent operation of the aisle pilot audible alarm for the sender alarm group lighting lamp (ST) and operating the (TR) relay to cause intermittent operation of night alarm.

32. "B" SWITCHBOARD REORDER SIGNAL ALARM (FIG. 32)

When ground is applied to lead "RS" by the reorder signal circuit, relay (RS) operates, lighting aisle pilot lamp (RP), operating the (T) relay, which causes intermittent operation of the aisle pilot audible alarm for the alarm group, lighting lamp (RS) and operating the (TR) relay to cause intermittent operation of the night alarm.

33. INFORMATION DESK TIME ALARM OR INCOMING TRUNK SWITCH TIME ALARM (FIG. 33)

When an information desk circuit or an incoming trunk switch circuit fails to function within a predetermined time interval, ground is connected to leads "TA" and "DR", lighting lamp (DT) and operating the (DC) auxiliary signal.

34. COIN CONTROL TIME ALARM (FIG. 34)

34.1 ("R" Option)

When the (S1) relay at the district selector frame operates, relay (PC) operates, lighting aisle pilot lamp (CP), operating the (SF) relay, which causes continuous operation of the aisle pilot audible alarm for the district alarm group, lighting lamp (CN) and operating the (CR) relay to cause continuous operation of the night alarm.

34.2 ("Q" Option)

The operating battery for all (PC) relays Fig. 34 is brought to the alarm transfer circuit over lead "CO4". If the alarms are supervised by an alarm receiving center the battery on lead "CO4" is cut off at an alarm cut off relay. If the alarms are supervised by the local office the battery on lead "CO4" is returned over lead "CO3" to permit the operation of relay (PC) as described in par. 34.1.

35. INFORMATION DESK TRUNK ALARM

When the line relay of an incoming information trunk fails to release within

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a predetermined time interval, the (TT) relay operates to light lamp (TA) and operate the (TR) relay, which causes intermittent operation of the night alarm.

36. INFORMATION DESK TOLL TRUNK ALARM (FIG. 36)

A trouble condition in the toll trunk or in the associated information desk start circuit, operates the (A2) relay which lights lamp (TG) and operates the (TR) relay, causing intermittent operation of the night alarm.

37. MESSAGE REGISTER CONNECTOR ALARM LAMPS (FIG. 37)

This figure provides the floor alarm board lamp associated with Figs. 38 and 39.

38. MESSAGE REGISTER CONNECTOR FRAME FUSE ALARM (FIG. 38)

Operation of a fuse on the message register connector frame, operates relay (F), operating relay (FP), which operates the (DC) bell at the message register connector frame, lights lamp (FL) lights the (FP) aisle pilot lamp and operates the (DL) relay, operating the (DC) auxiliary signal.

39. MESSAGE REGISTER CONNECTOR TIME ALARM (FIG. 39)

Operation of the (S3) relay in the message register connector circuit lights the (CP) aisle pilot lamp and operates relay (TA), which operates the (DC) bell at the message register connector frame, lights lamp (TL) and operates the (DL) relay, which operates the (DC) auxiliary signal.

40. SENDER MAKE BUSY FRAME PERMANENT SIGNAL TRUNK ALARM (FIG. 40)

Closure of the permanent signal alarm leads in the permanent signal trunk circuit, or operation of the (OF) relay by an overflow condition in the permanent signal trunk group, operates relay (PS) which lights the (P) aisle pilot lamp, operates the (T) relay, which causes intermittent operation of the aisle pilot audible alarm for the sender alarm group, lights lamp (PS) and operates the (TR) relay to cause intermittent operation of the night alarm.

41. TIMED RELEASE SENDER STUCK SENDER ALARM (FIG. 41)

Closure of the contacts in the sender circuit operates relay (SS), lighting the (SP) aisle pilot lamp, and operating the (F) and (CR) relays ("Z" wiring) or the (T) and (TR) relays ("V" wiring). With "Z" wiring, the operation of the (F) relay causes continuous operation of the aisle pilot alarm for the sender alarm group lighting lamp (SS), and the operation of the (CR) relay causes continuous operation of the night alarm.

With "V" wiring, the operation of the (T) relay causes intermittent operation of the aisle pilot alarm for the sender alarm group lighting lamo (SS), and the operation of the (TR) relay causes intermittent operation of the night alarm.

42. TIMED RELEASE SENDER DISCONNECT TONE FUSE ALARM (FIG. 42) (A & M ONLY)

Operation of a fuse supplying disconnect tone, operates relay (FT) when the back contact of the (TN) interrupter closes. When the operating circuit is opened by opening of the interrupter contact, the relay holds thru both windings in series. Operation of relay (FT) operates relay (D), Fig. 43, lights the fuse panel lamp and operates relay (A), Fig. 4, and relay (A1), Fig. 12. When the operated fuse is removed, relay (FT) releases, retiring the alarms.

43. TIMED RELEASE SENDER DISCONNECT TONE RELAY (FIG. 43) (A & M ONLY)

When a disconnect tone fuse operates, operation of relay (FT), Fig. 42, operates relay (D), which disconnects the batterycross test alarm.

44. TERMINATING SENDER STUCK SENDER ALARM (FIG. 44)

Sticking of a sender causes operation of the (TM4) relay, which lights lamp (TS) and operates the (TR) relay to cause intermittent operation of the night alarm.

- 45. "B" SWBD. LINK DOWN DRIVE ALARM (FIG. 45)
- 45.1 ("T" Option)

When the link down drive register is operated, relay (GL) operates, locks under control of the alarm release key, Fig. 46, lights lamp (GL) and operates relays (AL) or (AE) to cause continuous operation of the (AC) auxiliary signal.

45.2 Alarm Transferred to a Distant Office ("S" Option)

When the link down drive register is operated, relay (GL) operates, locks under control of the ground on lead "AR2", Fig. 46, from the Alarm Transfer Ckt., connects ground to lead "LA3" to operate an alarm at the distant master office and lights lamp (GL).

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#### 46. ALARM RELEASE KEY (FIG. 46)

46.1 ("T" Option)

When the (GL) relay of Fig. 45 operates, it locks under control of key (AR). Momentary operation of key (AR) releases the (GL) relay, retiring the alarms.

46.2 Alarm Transferred to a Distant Office ("S" Option)

When relay (GL), Fig. 45, operates it locks under control of the ground on lead "AR2" from the Alarm Transfer Ckt. Momentary operation of an alarm release relay in the Alarm Transfer Ckt. removes the ground from lead "AR2" and releases relay (GL).

47. ALARM SYSTEM BATTERY FUSE ALARM (FIG. 47) (A & M ONLY)

47.1 ("T" Option)

Operation of a discharge fuse supplying alarm battery for power alarms or for floor alarm boards, operates relay (PR) which lights lamp (PR) and operates the ringer. Operation of a power system power alarm circuit fuse does not operate relay (PR).

**67.2** Alarm Transferred to a Distant Office ("S" Option)

This circuit functions as described in paragraph 47.1 except that relay (PR) connects ground to lead "AB1" to operate an alarm at a distant office instead of operating the ringer in the local office.

48. MULTIPLE REGISTRATION TEST CIRCUIT ALARM (FIG. 48)

When ground is applied by the test circuit to lead "CA", relay (TF) operates lighting the (TP) aisle pilot lamp, operating the (T), (LT) or (ST) relay, which causes intermittent operation of the aisle pilot audible alarm for the alarm group, lighting lamp (TF) and operating the (TR) relay to cause intermittent operation of the night alarm.

49. ALARM FOR LINE FINDER TRIP AND START CIRCUIT (FIG. 49)

When ground is connected to lead "SC", due to failure of a line finder to start, or due to failure of a link to advance or due to failure of the trip circuit to release within a predetermined time interval, relay (TS) operates. Operation of relay (TS) lights the (TS) aisle pilot lamp, lights lamp (ST), Fig. 51, and operates the (DL) relay, which operates the (DC) auxiliary signal. **50.** ALARM FOR INTERCEPTING TRK. FINDER TRIP AND START CKT. AND FOR ALLOTTER START CKT. (FIG. 50)

When ground is connected to lead "SC", due to failure of a trunk finder or allotter to start, due to failure of a link to adwance, or due to failure of the trib circuit to release within a predetermined time interval relay (ST) operates. Operation of relay (ST) lights the (TS) aisle pilot lamp, lights lamp (ST), Fig. 51, operates the (LT) relay to cause intermittent operation of the aisle pilot audible alarm, and operates the (RT) relay to cause intermittent operation of the night alarm.

51. TRIP AND START CIRCUIT ALARM LAMP (FIG. 51)

Lamp (ST) lights to indicate failure of a line finder, trunk finder or allotter to start, failure of a link to advance, or failure of a trip circuit to release within a predetermined time interval.

52. FUSE BOARD FUSE ALARM FOR 48V. ALARM BATTERY SUPPLY FUSES (FIG. 52)

Operation of a fuse board fuse operates relay (K), operating relay (AS), which lights the aisle pilot lamp, lights lamp (ABS), operates the (AB) relays to operate the alarm battery supply audible signals on all floors, and operates the (F) relay to light "other floor" pilot lamps and exit pilot lamps on other floor.

- 53. ALARM SYSTEM BATTERY FUSE ALARM (FIG. 53)
- 53.1 ("T" Option)

Operation of a discharge fuse supplying alarm system battery operates relay (PR) which lights lamp (PR) and operates the (AB) relays to operate the alarm battery supply audible signals on all floors.

53.2 Alarm Transferred to a Distant Office ("S" Option)

Operation of a discharge fuse operates relay (PR) which lights lamn (PR) and connects ground to lead "ABI" to operate an alarm at a distant office.

54. MAJOR ALARM FOR 48V. TALKING BATTERY FUSES (FIG. 54)

When a major talking battery frame fuse operates, relay (D) operates, lighting the red aisle oilot lamp and operating relay (MF), (FIG. 55).

55. MAJOR ALARM RELAY (FIG. 55)

When a major frame fuse operates, operation of relay (D), Fig. 54 operates

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relay (MF) which lights the floor alarm board lamp and operates the major audible signal.

56. TIMED RELEASE SENDER DISCONNECT TONE - VARIABLE PITCH TONE (FIG. 56)

Operation of a fuse supplying disconnect tone operates the (FT) relay. Relay (FT) operates relay (A), Fig. 4, and relay (A1), Fig. 12. When the fuse is removed, relay (FT) releases retiring the alarms.

57. FUSE ALARM FOR POSITIVE 130V. BATTERY SUPPLY (FIG. 57)

When a positive 130V. fuse operates, battery on lead "FO" from the fuse alarm circuit operates relay (FO). Relay (FO) "Fuse for Oscillator" operated, lights the aisle pilot lamp and operates relay (MF) Fig. 55 which in turn lights the floor alarm board lamp and operates the major audible signal.

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131. MAJOR ALARM RELAT (FTG. 55)

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58. LINE CONCENTRATOR IDENTIFIER TIME ALARM (FIG. 58)

When a trouble occurs in the Line Concentrator Identifier a relay in that circuit operates and connects ground to leads DG, MW and W to operate a major audible signal in the floor alarm board to light the CI lamp in this circuit, and to light the aisle pilot lamp.

59. AUXILIARY SENDER STUCK SENDER ALARM (FIG. 59)

When the auxiliary sender encounters a stuck sender condition, ground is connected to leads "AG" and "W" to operate the minor audible alarm and, with option "M", light the aisle pilot lamp. When aisle pilots are not furnished, option "N" is furnished to light lamp AS at the floor alarm board.

ALARM FOR LINE FIRES

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