

COMMON SYSTEMS
 DISTRIBUTION FUSE, COMMON AISLE
 AND MISCELLANEOUS INDIVIDUAL
 ALARM CIRCUIT
 WITH 24V BATTERY SUPPLY

TABLE OF CONTENTS	PAGE		PAGE
<u>SECTION I - GENERAL DESCRIPTION</u>	1	19. <u>DISTRIBUTION FUSE ALARM CIRCUIT -</u> <u>FILAMENT FOR 240-TYPE POWER PLANT</u> ...	4
1. <u>PURPOSE OF CIRCUIT</u>	1	20. <u>DISTRIBUTION FUSE ALARM CIRCUIT -</u> <u>PLATE FOR 240-TYPE POWER PLANT</u>	4
<u>SECTION II - DETAILED DESCRIPTION</u>	2	21. <u>FIRE DETECTION ALARM CIRCUIT</u>	4
1. <u>COMMON AISLE ALARM CIRCUIT</u>	2	22. <u>ROOM TEMPERATURE ALARM CIRCUIT</u>	4
2. <u>COMMON AISLE ALARM CIRCUIT FOR</u> <u>TELEGRAPH BATTERY WITH COMPENSATED</u> <u>GROUND</u>	2	23. <u>DOOR SWITCH ALARM CIRCUIT</u>	4
3. <u>BATTERY FOR ALARM CIRCUITS</u>	2	24. <u>B1 ALARM AND CONTROL SYSTEM</u> <u>48-VOLT-ABS FUSE ALARM</u>	4
4. <u>LAMP AND FUSE ALARM RELAY</u> <u>CIRCUIT</u>	2	25. <u>B1 ALARM AND CONTROL SYSTEM</u> <u>FUSE ALARM RELAY</u>	5
5. <u>MACHINE RING FUSE ALARM CIRCUIT</u>	2	26. <u>115-VOLT 60-HZ FUSE ALARM CIRCUIT</u> <u>FOR VIDEO AMPLIFIER</u>	5
6. <u>20-HZ RING FUSE ALARM CIRCUIT</u>	2	27. <u>RECHECK OVER ALARM TRUNK</u>	5
7. <u>TELEGRAPH COMPENSATED</u> <u>GROUND FUSE CIRCUIT</u>	2	28. <u>ALARM AND TRUNK LOOP OPEN</u>	5
8. <u>8.6-VOLT FUSE ALARM CIRCUIT</u>	2	29. <u>AC AND DC FUSE ALARMS AND</u> <u>ALARM LAMPS FOR RECTIFIERS</u>	5
9. <u>135-HZ ALARM CIRCUIT</u>	2	<u>SECTION III - REFERENCE DATA</u>	6
10. <u>DOUBLE COMMUTATION TELEGRAPH</u> <u>ALARM CIRCUIT</u>	3	1. <u>WORKING LIMITS</u>	6
11. <u>SINGLE COMMUTATION OR +34 VOLT</u> <u>METALLIC TELEGRAPH ALARM CIRCUIT</u>	3	2. <u>FUNCTIONAL DESIGNATIONS</u>	6
12. <u>CLOCK CIRCUIT FUSE ALARM</u> <u>RELAY AND LAMP CIRCUIT</u>	3	3. <u>FUNCTIONS</u>	6
13. <u>SINGLE COMMUTATION TELEGRAPH</u> <u>ALARM CIRCUIT</u>	3	4. <u>CONNECTING CIRCUITS</u>	6
14. <u>DOUBLE COMMUTATION TELEGRAPH</u> <u>ALARM CIRCUIT</u>	3	<u>SECTION IV - REASONS FOR REISSUE</u>	7
15. <u>COMMON AISLE ALARM CIRCUIT FOR</u> <u>PROGRAM AMPLIFIERS OR SERVICE ALARM</u> .	3	<u>SECTION I - GENERAL DESCRIPTION</u>	
16. <u>FUSE ALARM RELAY AND LAMP CIRCUIT</u> ..	3	1. <u>PURPOSE OF CIRCUIT</u>	
17. <u>DOOR SWITCH ALARM CIRCUIT</u>	3	1.01 This circuit provides arrangements for indicating the operation of a fuse or heat coil on a fuse panel, and also for indicating an alarm condition in a miscel- laneous circuit connected to the common aisle alarm circuit.	
18. <u>FIRE DETECTION AND ALARM CIRCUITS</u> ..	3		

SECTION II - DETAILED DESCRIPTION1. COMMON AISLE ALARM CIRCUIT - FIG. 1, 2, 3, AND 4

1.01 When a connected circuit functions in response to an alarm condition, battery is connected through a lamp to lead A or AL to operate relay A. The operation of relay A provides ground on leads A, R, or G and DL, SV or F to the audible and visual alarm circuit. If the current through relay A becomes too great, due to the simultaneous operations of a number of connecting circuits, fuse A operates to protect the circuit. The operation of fuse A connects battery from relay FA to relay A causing the operation of both relay A and FA. Relay A performs the functions described above and the operation of relay FA provides ground on leads R and DL or F to the audible and visual circuits as well as providing ground to light a lamp on the fuse panel upon which fuse A is located.

2. COMMON AISLE ALARM CIRCUIT FOR TELEGRAPH BATTERY WITH COMPENSATED GROUND - FIG. 5, 6, AND 7

2.01 When a connected circuit functions in response to an alarm condition, battery is connected through a lamp to lead AL operating relay A1. Relay A1 connects ground to leads R and F to the audible and visual alarm circuit. If the current through relay A1 becomes too great, due to the simultaneous operation of a number of connecting circuits, fuse A1 operates to protect the circuit. The operation of the A1 fuse results in the lighting of the associated fuse panel lamp and the continued operation of relay A1.

3. BATTERY FOR ALARM CIRCUIT - FIG. 8, 9, AND 10

3.01 When a fuse operates, battery is connected to the alarm bar, causing the fuse panel lamp to light and causing the operation of the A or A1 relays in Fig. 2 or 6.

4. LAMP AND FUSE ALARM RELAY CIRCUIT - FIG. 14 AND 11, 12, OR 13

4.01 When a fuse in Fig. 11, 12, or 13 operates, battery is connected to the alarm bar and through resistor C, E, or F to relay A3 causing its operation. Relay A3, in operating, provides ground on leads R and AB or F to the audible and visual alarm circuit and also provides ground to light the fuse panel alarm lamp associated with the operated fuse.

5. MACHINE RING FUSE ALARM CIRCUIT - FIG. 15 AND 16

5.01 When the fuse in Fig. 15 operates, alternating current is supplied through resi-

stor MR to relay MR in Fig. 16. Relay MR operated operates relay PF which connects battery through the 2G lamp in parallel with the L resistor to the A lead in Fig. 1 causing the operation of relay A in Fig. 2. Relay A in Fig. 2 operates to provide ground on leads R and F to the audible and visual alarm circuit and the 2G lamp in Fig. 15 lights to indicate the particular fuse panel. Relay PF is slow releasing to prevent flickering of the alarm lamps and interruption of the audible alarm in case relay MR releases during the interval between ringing current and silent period direct current.

6. 20-HZ RING FUSE ALARM CIRCUIT - FIG. 17 AND 18

6.01 When the fuse in Fig. 17 operates, alternating current is supplied to relay R3 in Fig. 18. Relay R3 operates and connects battery through the 2G lamp in parallel with the R3 resistor to the A lead to Fig. 1, causing the operation of relay A in Fig. 2. Relay A in Fig. 2 operates to provide ground on leads R and F (other than 105 volts \pm audible alarm fuses) or on leads R and DL (105 volts \pm audible alarm fuses) to the audible and visual alarm circuit, and the 2G lamp in Fig. 17 lights to indicate the particular fuse panel.

7. TELEGRAPH COMPENSATED GROUND FUSE CIRCUIT - FIG. 19, 20, 21, AND 25

7.01 When a fuse in the telegraph compensated ground lead operates, a ground potential is applied to the alarm bar and causes the operation of relay CG from +130 volt battery through resistors J and H of Fig. 19 and 21. Relay CG in operating supplies ground for the operation of the associated fuse panel alarm lamp and also supplies ground for the operation of relay A2 in Fig. 25. Relay A2 in operating supplies ground to leads R and F to the audible and visual alarm circuit.

8. 8.6-VOLT FUSE ALARM CIRCUIT - FIG. 22, 23, 24, AND 25

8.01 When an odd-numbered or an even-numbered fuse operates, battery is applied to the alarm bar and to relay DF through resistor DF. Relay DF in operating provides ground for operating the associated fuse panel alarm lamps and also provides ground for operating relay A2 in Fig. 25. Relay A2 in operating provides ground on leads R and F to the audible and visual alarm circuit.

9. 135-HZ ALARM CIRCUIT - FIG. 26, 27, 28, AND 29

9.01 When the heat coils in Fig. 26 or 29 operate, alternating current is supplied through the R1 or R2 capacitors to relays R1 or R2 in Fig. 27. Relay R1 or R2 in

operating connects battery through the 2G lamp in parallel with resistor M to the A lead to Fig. 1 causing the operation of relay A in Fig. 2. Relay A in Fig. 2 operates to connect ground to leads R and F to the audible and visual alarm circuit and the 2G lamp in Fig. 28 lights to indicate the particular fuse panel.

10. DOUBLE COMMUTATION TELEGRAPH ALARM
CIRCUIT - FIG. 30 AND 31

10.01 When a positive or negative metallic telegraph fuse operates, battery is connected through resistors K or L to relay DC, causing its operation. Relay DC in operating supplies ground to leads R and F to the audible and visual alarm circuit and also supplies ground to the fuse panel alarm lamp.

11. SINGLE COMMUTATION OR +34 VOLT METALLIC
TELEGRAPH ALARM CIRCUIT - FIG. 32 AND
33

11.01 When the fuses of Fig. 32 operate, battery is connected through resistor P or N to the windings of relay SC. Relay SC operates on either its primary or secondary windings and provides ground to leads R and F to the audible and visual alarm circuits. Relay SC also provides ground to the associated fuse panel alarm lamp.

12. CLOCK CIRCUIT FUSE ALARM RELAY AND LAMP
CIRCUIT - FIG. 34 AND 35

12.01 Clock circuit bus bars are provided with interrupted battery. When a fuse operates, relay CA operates over lead B. This connects battery through a fuse panel alarm lamp to lead A of Fig. 1 and causes relay A in Fig. 2 to operate in the usual manner. During the interval that the battery supply of the bus bars is on the open period, relay CA holds up through its primary and secondary windings in series.

13. SINGLE COMMUTATION TELEGRAPH ALARM
CIRCUIT - FIG. 36, 37, 38, AND 39

13.01 When fuses in Fig. 36 or 39 operate, battery is connected through resistor SP or SN in parallel with 2G lamps to relays SP or SN. Relays SP or SN operate to provide ground to leads R and F to the audible and visual alarm circuit. When the current in leads A or A1 becomes excessive, due to the simultaneous operation of a number of connected fuses, the fuses in Fig. 37 will operate and connect battery through resistors SP1 and SN1 to relays SP or SN thus holding them operated. The fuse panel alarm lamps associated with the protective fuse will also be lighted from this battery.

14. DOUBLE COMMUTATION TELEGRAPH ALARM
CIRCUIT - FIG. 40, 41, 42, AND 43

14.01 When a fuse operates on the positive or negative metallic telegraph battery, battery is applied through the DP or DN resistors in parallel with the 2G lamps to operate relay DP or DN. Relay DP or DN in operating applied ground to the leads R and F to the audible and visual alarm circuits. When the fuses in Fig. 41 operates due to excessive current in the A or A1 leads caused by simultaneous operation of the number of connected fuses, relays DP or DN are connected through resistors DPP or DNP to battery. In this case the lamp associated with the protective fuse panel lights to indicate the particular panel.

15. COMMON AISLE ALARM CIRCUIT FOR PROGRAM
AMPLIFIERS OR SERVICE ALARM - FIG. 44
AND 45

15.01 When a connected program amplifier circuit, a telegraph circuit or other circuit functions in response to an alarm condition, ground is connected through a 2G lamp over A or AL to relay A, Fig. 44, or over lead SA to relay SV, Fig. 45. The operation of relay A or SV will connect ground to leads R and F of Fig. 44 or leads A and SV of Fig. 45 to the audible and visual alarm circuit. Capacitor A in Fig. 44 has been provided in order to minimize electrical disturbances in the connected program amplifier circuits.

16. FUSE ALARM RELAY AND LAMP CIRCUIT - FIG.
46, 47, 48, AND 49

16.01 When the high or low air switch operates, ground from the alarm trunk, Y option or ground on the terminals of the switch, Z option, causes the operation of relay TA. Relay TA in operating provides ground to the audible and visual alarm circuit, provides ground to Fig. 48 for lighting the individual alarm lamp and locks itself operated from ground supplied by the alarm trunk or by the alarm release key in Fig. 49.

17. DOOR SWITCH ALARM CIRCUIT - FIG. 50 AND
101

17.01 When the door switch operates, ground is connected to relay DA causing it to operate. Operation of relay DA provides ground to the audible and visual alarm circuit, provides ground to the individual alarm lamp in Fig. 48 and locks itself operated to the alarm trunk or to ground supplied by the alarm release key in Fig. 49.

18. FIRE DETECTION AND ALARM CIRCUITS - FIG.
102 AND 103

18.01 When the circuit from battery through the 1A fire detection wire in Fig.

102 through the F relay in 103 is opened either by excessive heat or accidental means or when the battery fuse operates, relay F, normally held operated, will release. The release of relay F will provide ground to the audible and visual alarm circuit, provide ground to the individual alarm lamp in Fig. 48 and close the circuit from 130-volt battery over lead FB and ground over lead FG to the power service circuit.

19. DISTRIBUTION FUSE ALARM CIRCUIT -
FILAMENT FOR 240-TYPE POWER PLANT - FIG.
104, 106, 107, AND 108

19.01 When the fuses of Fig. 104 operate, battery through the F2 to F7 resistors and through the F1 resistor causes the operation of relay FA. Relay FA in operating lights the fuse panel lamp in Fig. 108 and causes the operation of relay P in 107. Operation of relay P provides ground to the audible and visual alarm circuit.

20. DISTRIBUTION FUSE ALARM CIRCUIT PLATE
FOR 240-TYPE POWER PLANT - FIG. 105,
106, 107, AND 108

20.01 When the fuses of Fig. 105 operate, battery through the P resistor causes the operation of relay FA. The operation of relay FA causes the operation of the fuse panel alarm lamp in Fig. 108 and causes the operation of relay P in Fig. 107. Relay P in operating provides ground to the audible and visual alarm circuit.

21. FIRE DETECTION ALARM CIRCUIT

21.01 A circuit is provided from battery through relay F1 Fig. 110, the 1A fire detection loop Fig. 109 or the connecting loop circuit for use with commercial fire detection equipment Fig. 123 and relay F Fig. 110 to ground. Relays F and F1 are normally operated. Two relays are provided to release, one of the relays if the fire detection loop is crossed with either battery or ground. Both relays release if the fire detection loop is opened, either by means of excessive heat or by accident. Either relay in releasing connects ground to leads DF and G to the audible and visual alarm circuit, lights the individual alarm lamp FIRE Fig. 48, connects ground to lead AT or MJ to the alarm trunk circuit and connects ground to a relay in a connecting circuit to stop operation of the ventilating fans.

22. ROOM TEMPERATURE ALARM CIRCUIT - FIG.
46, 111, 112, AND 48

22.01 When the HIGH or LOW air switch operates, ground from the alarm trunk, Y option, or from the switch, Z option, causes relay TA to operate. Relay TA, in operating, provides ground to the audible and visual alarm circuit over leads F and G, lights the

individual alarm lamp (TEMP) Fig. 48, locks itself operated to ground, and connects ground to lead AT or MN to the alarm trunk circuit.

22.02 Relay TA1, in conjunction with the ACO key, Fig. 112, provides means for releasing the audible and visual alarm circuit while maintaining the alarm indication to the alarm trunk and keeping the individual alarm lamp lighted until the alarm condition is cleared. Release of the audible visual alarm circuit frees the signals of that circuit to indicate additional alarms.

22.03 Operation of the ACO key causes relay TA1 to operate through the operated contacts of relay TA. Relay TA1, in operating:

- (a) Connects ground to lead AT or MN to the alarm trunk circuit to maintain the alarm indication.
- (b) Provides ground to keep the individual alarm lamp TEM, Fig. 48, lighted.
- (c) Opens the operating and locking circuits for relay TA causing it to release.
- (d) Locks itself operated through the contacts of the air switch to ground as long as the switch contacts are closed.

Relay TA in releasing disconnects ground from leads F and G to the audible and visual alarm circuit releasing the alarm indication in that circuit.

23. DOOR SWITCH ALARM CIRCUIT - FIG. 50,
113, 112, AND 48

23.01 When the door switch operates, ground is connected to relay DA causing it to operate. Relay DA in operating connects ground over leads DF and G to the audible and visual alarm circuit as an alarm indication, lights the individual alarm lamp DOOR, Fig. 48, locks itself operated to ground and connects ground to lead AT or MJ to the alarm trunk circuit.

23.02 Relay DA1, Fig. 113, and the ACO key, Fig. 112, provides means for releasing the audible and visual alarm while maintaining the alarm indication to the alarm trunk and holding the individual alarm lamp DOOR lighted as described in 23.01, substituting relays DA and DA1 for relays TA and TA1.

24. B1 ALARM AND CONTROL SYSTEM 48-VOLT ABS
FUSE ALARM - FIG. 12 AND 114

24.01 When a fuse in Fig. 12 operates, battery is connected to the alarm bar and through resistor E, Fig. 12, and relay A4, Fig. 114, over lead B to ground through a relay in the station alarm sending circuit of

the B1 Alarm and Control System. Relay A4 and the relay in the station alarm sending circuit both operate. Relay A4, in operating, connects ground to leads R and F to the audible and visual alarm circuit and also provides ground to light the fuse panel alarm lamp associated with the operated fuse.

25. ALARM AND CONTROL SYSTEM FUSE ALARM RELAY - FIG. 115 AND 48

25.01 When a main fuse in the 48-volt ABS battery supply for a B1 Alarm and Control System operates, battery is connected over lead B from the charge and discharge circuit to operate relay A5, Fig. 115. Relay A5, in operating, provides ground on leads F and R to the audible and visual alarm circuit and also provides ground to light the individual alarm lamp B1 PWR, Fig. 48.

26. 115-VOLT 60-HZ FUSE ALARM CIRCUIT FOR VIDEO AMPLIFIER - FIG. 116, 117, AND 118

26.01 Resistor AC in Fig. 116 is mounted on the 115-volt, 60-Hz fuse panel. When a fuse operates, 115-volt 60-Hz current is connected through resistor AC to varistor AC which has relay AC bridged across it. The varistor rectifies the 60-Hz current to operate relay AC.

26.02 When Fig. 117 connects to the office alarm circuit, relay AC, in operating, lights the associated fuse panel lamp and also provides ground on leads R and F which operate the audible and visual alarms in the office alarm circuit.

26.03 When the alarm signals are to be transmitted to the alarm circuit of the TD radio system, Fig. 117 connects to Fig. 118. If the 115-volt 60-Hz fuse operates, relay AC operates, lights the associated fuse panel lamp, and operates relay AC1. If the 24-volt fuse operates, battery from the fuse alarm bar operates relay AC1. In either case relay AC1, in operating, connects ground to lead AT to the station alarm sending circuit and to leads L, DF and A to operate the audible and visual alarms of the TD radio system.

27. RECHECK OVER ALARM TRUNK

27.01 A relay or key is provided in the associated alarm trunk whereby the ground on lead LU may be removed, while the relay or key is operated, thereby, releasing the DA, DA1, TA or TA1 relay that is locked to that ground. If the alarm condition still exists, relay DA or TA will reoperate when the recheck key is released and the DA1, Fig. 113, or TA1, Fig. 111, relay will reoperate if the AC0 key is reoperated.

28. ALARM TRUNK LOOP OPEN

28.01 The individual alarm lamp LOOP OPEN, Fig. 48, lights when ground is connected to lead LO by the alarm trunk circuit to indicate that the alarm trunk loop is open.

29. AC AND DC FUSE ALARMS AND ALARM LAMPS FOR RECTIFIERS - FIG. 119, 120, 121, AND 122

29.01 The equipment shown in Fig. 119, 120, 121, and 122 provides fuse alarms and an alarm lamp for use with rectifiers and will be located with the rectifiers.

29.02 Fig. 119 is used with 230-volt 60-Hz rectifier units equipped with fuses, (A&M Only). When a fuse operates, the ac potential is connected via the alarm bar to a transformer, shown on the L3 carrier application schematic, and it in turn connects 20-volt 60-Hz potential over leads A and B to varistor AC, Fig. 119. The varistor rectifies the 60-Hz current and operates relay AC. Relay AC, in operating, connects ground:

- (a) To light the alarm lamp Fig. 120.
- (b) To leads R and F or R and DF to the audible and visual alarm circuit depending upon whether the alarm is to give a minor or major alarm signal.
- (c) To lead AT to the station alarm sending circuit when the alarm signals are to be transmitted to an alarm receiving circuit located at a distant station.

The alarm lamp, Fig. 120, does not identify the particular fuse that has operated but indicates only that one of the fuses has blown.

29.03 Fig. 122 is used with 230-volt 60-Hz rectifier units equipped with circuit breakers. When the circuit breaker functions to disconnect power from the rectifier, either from an overload condition or when the circuit breaker is opened manually AC potential is connected to a transformer, shown on the L3 carrier application schematic, and it in turn connects 20-volt 60-Hz potential over leads A and B to varistor AC, Fig. 122. The varistor rectifies the 60-Hz current and operates relay AC. Relay AC, in operating, connects ground:

- (a) To light the alarm lamp Fig. 120.
- (b) To leads R and F or R and DF to the audible and visual alarm circuit depending upon whether the alarm is to give a minor or major alarm signal.
- (c) To lead AT to the station alarm sending circuit when the alarm signals are to be transmitted to an alarm receiving circuit located at a distant sta-

tion. The alarm lamp, Fig. 120, does not identify the particular circuit breaker that has operated but indicates only that one or more of the circuit breakers in a common group have functioned.

29.04 The circuit breakers function to send an alarm when a rectifier unit is taken out of service as well as when the unit is in trouble. Therefore, an alarm cut-off feature is provided to permit silencing the alarms while servicing a rectifier unit. This feature functions as follows. When the circuit breaker associated with the rectifier unit to be serviced is opened manually, the circuit breaker functions to send the alarm as described above. Operation of the nonlocking key ACO causes the alarm cut-off relay ACO to operate. Relay ACO in operating:

- (a) Locks under control of relay AC.
- (b) Lights guard lamp ACO to indicate that the alarms have been cut off.
- (c) Disconnects ground from the alarm leads.
- (d) Extinguishes the alarm lamp Fig. 120.

Relay AC remains operated as long as any circuit breaker in the common group is open. Therefore, once relay ACO has been operated by operation of key ACO, it will be necessary to check that all of the circuit breakers in the same common group are closed to insure restoration of the alarms. This will be indicated by the guard lamp being extinguished.

29.05 Fig. 121 provides an alarm circuit for the high potential dc output of a rectifier. Voltages of -100 volts, +190 volts, and +315 volts are provided from 130-volt, 190-volt, and 315-volt rectifiers. The alarm bars of rectifiers producing a given voltage may be connected to the same alarm relay within the limitations shown on the drawings. This connection is shown on the L3 carrier application schematic. The connecting lead to Fig. 121 is designated to indicate the voltage of the rectifier supplying the power. When a fuse operates, the dc potential of the rectifier is connected, via the alarm bar and a limiting resistor, to resistor G* and the alarm relay, causing the relay to operate. The alarm relay, in operating connects ground:

- (a) To light the alarm lamp.
- (b) To leads R and F or R and DF to the audible and visual alarm circuit depending upon whether the alarm is to give a minor or major alarm signal.

* Resistor G is provided to limit the potential across the alarm relay as a protection against shock when adjusting the relay.

- (c) To lead AT to the station alarm sending circuit.

The alarm lamp in lighting does not indicate operation of a particular fuse but only that one of the fuses has blown.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

None.

2. FUNCTIONAL DESIGNATIONS

None.

3. FUNCTIONS

3.01 To cause the audible and visual alarm circuit to function when a fuse or a heat coil on a fuse panel operates, or when an alarm condition occurs in a connected miscellaneous circuit.

3.02 To cause the fuse panel lamp to light as a local visual alarm, indicating the particular fuse panel in which the fuse is operated.

4. CONNECTING CIRCUITS

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

- (a) Audible and Visual Alarm Circuit - SD-95063-01, SD-95075-01, SD-96188-01.
- (b) Alarm Trunk Circuit - SD-95310-01, SD-64542-01.
- (c) Station Alarm Sending Circuit - SD-55937-01.
- (d) Charge and Discharge Circuit - SD-80717-01.
- (e) Receiving Director Circuit - SD-55935-01.
- (f) Audible and Visual Alarm Circuit for Use With TD Radio Systems - SD-56230-01.
- (g) Miscellaneous Circuits requiring alarms.
- (h) L3 Carrier Application Schematic - SD-59507-01, SD-59595-01.
- (i) Commercial Fire Detection Equipment Application Schematic - SD-99375-01.

SECTION IV - REASONS FOR REISSUEB. Changes in ApparatusB.1 Superseded

1A Fire Detection
Wire - Fig. 109

Superseded By

Connecting Loop Cir-
cuit for use with
Commercial Fire De-
tection Equipment -
Fig. 123

DA1 - 186A network - Fig. 113- option F
DA - 185A network - Fig. 113- option F
A4 - 186A network - Fig. 114- option F
A5 - 185A network - Fig. 115- option F
AC1 - 185A network - Fig. 118- option F
HV - 185A network - Fig. 121- option F
E - 100A resistor- Fig. 17 - option G

B.2 Added

A - 186A network - Fig. 2 - option F
FA - 186A network - Fig. 3 - option F
A1 - 186A network - Fig. 6 - option F
A3 - 185A network - Fig. 14 - option F
PF - 185A network - Fig. 16 - option F
CG - 185A network - Fig. 20 - option F
DF - 185A network - Fig. 23 - option F
A2 - 185A network - Fig. 23 - option F
P - 185A network - Fig. 31 - option F
S - 185A network - Fig. 31 - option F
P - 185A network - Fig. 33 - option F
S - 185A network - Fig. 33 - option F
P - 186A network - Fig. 35 - option F
S - 186A network - Fig. 35 - option F
SP - 186A network - Fig. 38 - option F
SN - 186A network - Fig. 38 - option F
DP - 186A network - Fig. 42 - option F
DN - 186A network - Fig. 42 - option F
SV - 185A network - Fig. 45 - option F
TA - 185A network - Fig. 47 - option F
DA - 185A network - Fig. 101- option F
F - 185A network - Fig. 103- option F
FA - 185A network - Fig. 106- option F
F - 185A network - Fig. 107- option F
TA1 - 186A network - Fig. 111- option F
TA - 185A network - Fig. 111- option F
F - 186A network - Fig. 110- option F
F1 - 186A network - Fig. 110- option F

D. Description of Changes

D.1 Fig. 2 is modified to provide multi-
pling of the A relay make contacts 1 and 2
to other Fig. 2 associated with the same
visual alarm signal.

D.2 Fig. 2 is changed to provide addi-
tional connection to an auxiliary alarm
circuit.

D.3 In Fig. 17 a 3200-ohm resistor,
option G, and a wiring, option H, are added.
Previously option H was not so designated.

D.4 Fig. 18 is modified to provide con-
nection of the R3 relay to Fig. 17 or to
other circuits with 20-ohm fuse alarm.

D.5 Fig. 109 is rated A&M Only, replaced
by Fig. 123.

D.6 Fig. 51 is modified to provide cabl-
ing information for the circuit changes of
Fig. 51.

D.7 Fig. 72 is changed to provide cabl-
ing information for the A and B leads to Fig.
81.

D.8 Fig. 81 is added to provide connec-
ting information for the A and B leads from
Fig. 72 to commercial fire detection
equipment.

D.9 Circuit Note 102 is changed as
follows:

(a) Reference to +48 volt telegraph is
deleted from item K.

(b) Provision for Fig. 109 under item AE
is replaced by Fig. 123.

D.10 The Figures and Options Table on
sheet 11 is extended to include Fig. 123 and
apparatus or wiring options G and H.

D.11 Circuit Note 108 is extended to
include the circuit changes as per this
issue.

D.12 Circuit Note 110 is rated Mfr Disc.

D.13 Circuit Note 111 is added.

D.14 Circuit Note 112 is added to:

- (a) Prohibit the use of both fire detection and connecting loops in the same zone.
- (b) Optionalize the use of either fire detection arrangements or emergency alarm circuits.

D.15 Information Note 301 is added.

D.16 Equipment Note 211 is added to provide connecting information for the commercial fire detection equipment.

D.17 The title of the circuit is changed. It formerly read:

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5822-GAK-WAM

**COMMON SYSTEMS
DISTRIBUTION FUSE, COMMON AISLE
AND MISCELLANEOUS INDIVIDUAL
ALARM CIRCUIT
FOR TOLL AND TELEGRAPH SYSTEMS**

D.18 Option F is added to provide relay protection networks to reduce transient effects upon operation and release of relays.

D.19 Circuit Note 113 is added for providing option F when modifying existing jobs for transient suppression.

D.20 Circuit Note 114 is added to provide the values of the 185A and 186A networks.