

OFFICE ALARM SYSTEM  
DESCRIPTION/THEORY

2-WIRE NO. 1 AND NO. 1A ELECTRONIC SWITCHING SYSTEM

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**1. GENERAL**

**INTRODUCTION**

1.01 This section describes the office alarm system for the No. 1 or No. 1A Electronic Switching Systems (ESS) as follows:

- Purpose of office alarm system
- Office alarm system characteristics
- Alarm categories
- Audible and visual alarm indicators

- Physical description of alarm equipment
- Functional description of alarm system
- Theory of operation
- Power restrictions
- Maintenance features.

1.02 Whenever this section is reissued, the reason for reissue will be given in this paragraph.

**PURPOSE OF OFFICE ALARM SYSTEM**

1.03 The purpose of this alarm system is to:

- Detect a trouble condition
- Sound an audible alarm
- Light lamps for visual guidance
- Provide a teletypewriter (TTY) output message to the responsible maintenance center.

An alarm may be generated from hardware- or software-detected troubles. The alarm system will sound an audible alarm, light lamps, and initiate the printing of an output message with each alarm.

**OFFICE ALARM SYSTEM CHARACTERISTICS**

1.04 The No. 1 (Centrex 7 or later) and No. 1A ESS have a trilevel (critical, major, minor) alarm system. In addition to this trilevel system that is activated by either software or hardware (equipment) alarms, the office alarm system includes existing power major, power minor, and alarm battery supply alarms. Alarm responsibilities for the No. 1 or No. 1A ESS may be assigned to the switching control center system (SCCS) in the event that the central office is unattended. During unattended operation, all alarm information is transmitted to a remote TTY at a distant maintenance center. When transferred, audible and visual alarms are simultaneously activated in both the attended and unattended areas unless silenced in the unattended area. Associated output messages are sent to both areas.

**ALARM CATEGORIES**

**1.05** The trilevel alarm system activated by the system software and hardware is categorized and described as follows.

- Critical (CR)—Activated when trouble condition affects call processing. Software or hardware activated.
- Major (MJ)—Activated when a trouble condition exists that, if not already affecting call processing, could do so. Software or hardware activated.
- Minor (MN) Spurt—Activated when an output message has been generated concerning a trouble condition that is not affecting call processing. This alarm is activated by software only and is self-retiring after approximately five seconds.
- Power Major (PMJ)—Activated when a trouble condition exists in the power supply equipment which affects or could affect call processing. Activated by hardware only.
- Power Minor (PMN)—Activated when a trouble condition exists in the power supply equipment and does not affect call processing. Activated by hardware only.
- Alarm Battery Supply (ABS)—Activated when a trouble condition occurs in the office alarm battery supply circuit. Activated by hardware only.

**1.06** Alarm grouping options to alarm circuits on the same or adjacent floor are as follows:

- Preceding audible and visual alarm circuit
- No. 5 Crossbar system alarm circuit
- Preceding or adjacent to other system alarm circuit.

Grouping with a foreign alarm system other than No. 1 or No. 1A ESS office alarm system is activated manually by the AG (alarm grouping) key provided with the main exit pilot lamp unit. This unit is located at the main exit door. This grouping is limited by the system hardware. Grouping

between work centers is activated by a TTY message and is controlled by the system software.

**1.07** Another feature of the office alarm system is the ability to accept alarms from common system frames (frames other than No. 1 or No. 1A ESS).

**AUDIBLE AND VISUAL ALARM INDICATORS**

**1.08** Six distinct audible signals are provided in the office alarm circuit (Table A):

- (a) Critical alarm—tone bar (two tones per cycle)
- (b) Major alarm—tone bar (one tone per cycle)
- (c) Minor alarm and minor power alarm—loud ringing subset
- (d) Major power alarm—loud bell
- (e) Alarm battery alarm—loud ringing subset
- (f) Single stroke bell for code signaling (optional).

**1.09** These signaling devices are arranged on a wall-mounted panel with provisions for four such panels per floor of ESS equipment, including the power and/or engine room.

**1.10** Visual signals are provided by four distinct sets of lamps as follows:

- (a) Two red and one yellow lamp at the MCC to indicate that a system (program) detected and initiated critical, major, or minor alarm has occurred. A key is associated with each lamp to extinguish it and retire the corresponding system initiated audible alarm.
- (b) A red pilot lamp in the end guard at one or both ends of each equipment lineup. This indicates a critical/major locally detected trouble in that equipment aisle.
- (c) A red, a yellow, and a green pilot lamp in the end guard at one or both ends of each main cross aisle. The red pilot lamp (main aisle pilot) indicates a critical/major locally detected trouble in this cross aisle. The yellow and the green pilot lamps indicate critical/major or minor alarms, respectively, in some adjacent area (other

TABLE A

NO. 1 AND NO. 1A ESS AUDIBLE  
AND VISUAL ALARMS

ALARM DESIGNATION	HOW DETECTED	HOW REPORTED	AUDIBLE SIGNAL
Critical System Detected	System Diagnosis	Audible Only	Tone Bar (2 tones per cycle)
Major System Detected	System Diagnosis or Scan Points	Audible Only	Tone Bar (1 tone per cycle)
MCC System Detected	System Diagnosis or Scan Points	Audible and Visual	Tone Bar (1 tone per cycle)
Minor Switchroom	Dedicated Scan Points, Program, or Frame Location Scan Points	Audible Only	Loud Ringing Subset
Major Locally Detected (Fuse Alarm)	Contact Closure to Office Alarm circuit plus Frame Location Scan Points	Audible and Visual	Tone Bar (1 tone per cycle)
Major Power	Contact Closure to Office Alarm Circuit	Audible Plus Exit Pilots Indicating Power Room	PF Bell
Minor Power	Contact Closure to Office Alarm Circuit	Audible Plus Exit Pilots Indicating Power Room	Loud Ringing Subset

floor) of a multifloored office when the alarms are grouped together (interconnected).

(d) Yellow exit pilot lamps over each main exit door of a multifloored office. These lamps are arranged vertically, one lamp representing each floor in order, including the basement if the power equipment is located there. On each floor, the lamp cap representing that floor is stenciled THIS FLOOR. A critical alarm, major alarm, minor alarm, major power alarm, or minor power alarm will light the exit pilot lamp representing this floor on all other floors. In addition, an alarm battery alarm on the floor containing the alarm circuit will light the exit pilot lamp representing that floor on all other floors if the fuse that failed is not the one powering the exit pilot lamps.

(e) For partially attended operation (maintenance personnel is same multioffice building but not necessary in area of ESS), an alarm grouping key and associated pilot lamp are located at the main exit door. If the ESS power area is not part of the switchroom a MULT key and associated pilot lamp provide the alarm grouping to the power area.

(f) For unattended operation (maintenance personnel at some remote location), an alarm transfer pilot is located at the main exit.

1.11 Typical office arrangement options for No. 1 or No. 1A ESS are given in Table B and C.

1.12 Listed below are the abbreviations used in this section.

ESS—electronic switching system  
 MCC—maintenance control center  
 SCCS—switching control center system  
 TTY—teletypewriter

**2. PHYSICAL DESCRIPTION**

**OFFICE ALARM SYSTEM**

**2.01** An office alarm system consists of various J units located on the miscellaneous power frame as indicated in Fig. 1. The frame is 2 feet 2 inches wide by 7 feet high.

**AISLE PILOT CONTROL UNIT**

**2.02** The aisle pilot control unit (Fig. 2) contains four terminal strips and one relay for each equipment aisle to a maximum of 16. These components are mounted on a 2- by 25-inch mounting plate. Space is provided in the miscellaneous power frame for a second aisle pilot control unit.

**FLOOR ALARM CONTROL UNIT**

**2.03** The floor alarm control unit (Fig. 3) contains seven relays and three terminal strips mounted on a 2- by 25-inch mounting plate. One unit is required for each floor of ESS equipment.

**POWER ALARM CONTROL UNIT**

**2.04** The power alarm control unit (Fig. 4) contains seven relays and four terminal strips mounted on a 2- by 25-inch mounting plate. One unit is required for each power area.

**ALARM BATTERY SUPPLY CONTROL UNIT**

**2.05** The alarm battery supply control unit (Fig. 5) contains eight relays, two terminal strips, and an ABS AUD ALM lamp/key. One unit is supplied for each building alarm group (set consisting of all ESS floors between which alarms may be grouped).

**ALARM GROUPING CONTROL UNIT**

**2.06** The alarm grouping control unit (Fig. 6) contains 11 relays and 4 terminal strips

**TABLE B**  
**TYPICAL OFFICE ARRANGEMENT OPTIONS**  
**FOR NO. 1 OR NO. 1A ESS**  
**(ONE BUILDING FLOOR)**

EQUIPMENT ARRANGEMENT	OPTION			
	Y	Z	W-Z	X
Switching Equipment on floor is ESS exclusively - - -	X	X	X	X
Power room is on same floor	X			
Power room is not on same floor		X	X	X
Power alarms are supervised in area of ESS - - - -	X	X	X	
Power alarms are not supervised in area of ESS - - - -				X
Adjacent floors have non-ESS office alarm circuits - - -	X	X	X	X
ABS fuses are located on this floor	X	X	X	X
Major audible alarm circuit provided			X	

**TABLE C**  
**TYPICAL OFFICE ARRANGEMENT OPTIONS**  
**FOR**  
**THREE NO. 1 OR NO. 1A ESS FLOORS AND**  
**POWER ROOM IN BUILDING**

EQUIPMENT ARRANGEMENT	OPTION	
	Z MCC ON FLOOR A ONLY	Z ONE MCC OR MTCE/FLOOR
Power alarms are supervised from floor A - - - -	X	X
ABS fuses are located on floor A	X	X
Floor C is top floor	X	X
One MCC or MTC located on each floor - - -		X
MCC on floor A only	X	
One power plant powers all three floors - - - -		X

mounted on two 2- by 25-inch mounting plates. These units are supplied on the basis of one unit per two adjacent non-ESS areas to which alarm grouping is required.

#### CRITICAL ALARM UNIT

**2.07** The critical alarm unit (Fig. 7) contains five relays and two terminal strips mounted on 2- by 25-inch mounting plate.

#### MISCELLANEOUS ALARM UNITS

**2.08** Miscellaneous alarm units are used for audible and visual indications of alarms. These units will vary slightly with each office installation to provide the flexibility needed for single or multifloor offices and different floor layouts. The following are part of the miscellaneous alarm unit installation.

- Main aisle pilot lamp assembly
- Aisle pilot lamp assembly
- Exit pilot lamp unit (for single floor office)
- Exit pilot lamp unit (for multifloor office)

- Audible alarm panel.

#### Main Aisle Pilot Lamp Assembly

**2.09** The main aisle pilot lamp assembly (Fig. 8) is generally mounted on the side edge of the door of the end guard to face the maintenance aisle. Three lamps are furnished for main aisle alarm indications. The lamps have red, yellow, and green lenses for indicating, respectively, a critical/major alarm in the main aisle, major, and minor alarms in other areas on the same floor or on other floors.

#### Aisle Pilot Lamp Assembly

**2.10** The aisle pilot lamp assembly (Fig. 9) contains a light assembly with a red lens. The unit is mounted on the face side of the door for indicating a critical/major locally detected alarm in that equipment aisle.

#### Exit Pilot Lamp Unit (For Single Floor Office)

**2.11** The exit pilot lamp unit (Fig. 10) is a dual lamp arrangement for a single floor ESS installation. This unit contains an exit pilot lamp

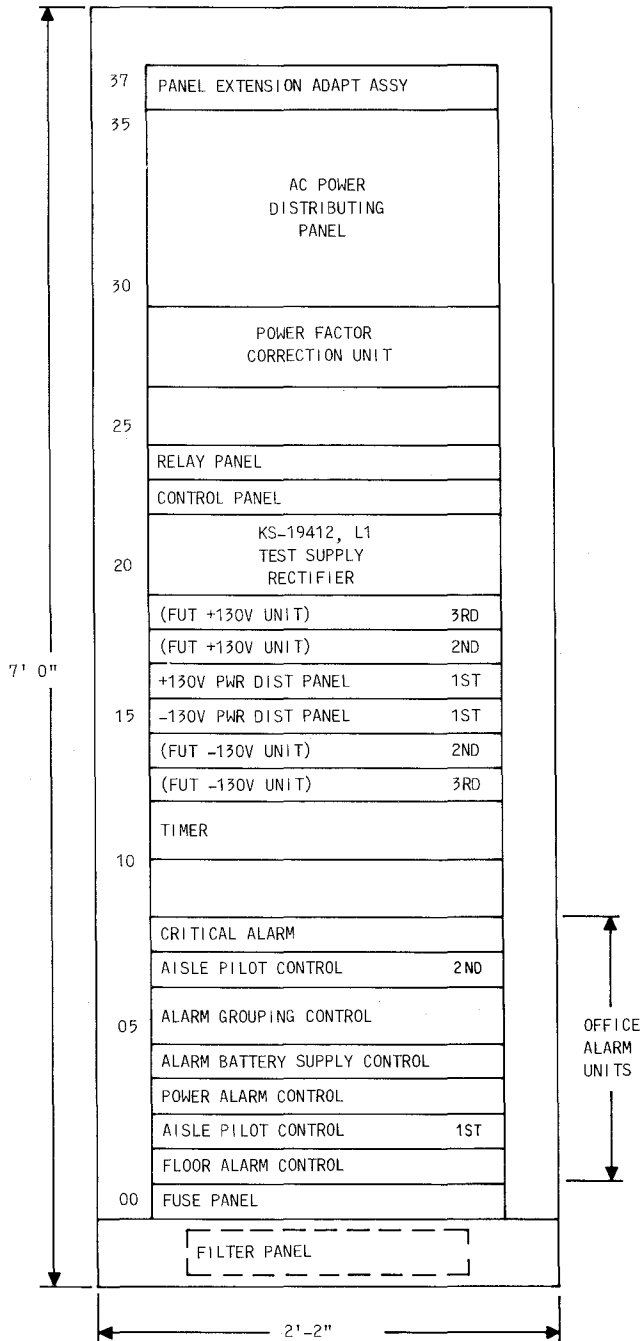


Fig. 1—Miscellaneous Power Frame with Office Alarm Units

and an alarm transfer lamp. The exit pilot lamp is mounted at the main exit door of the office.

**Exit Pilot Lamp Unit (For Multifloor Office)**

2.12 The exit pilot lamp unit (Fig. 11) is a five-lamp unit for a multifloored office. This unit contains an alarm transfer lamp (white), three exit pilot lamps (yellow), an alarm grouping lamp (white) for partially attended operation, and an alarm grouping key. If the ESS power area is not part of the switchroom, a MULT key and associated MULT pilot lamp provide the alarm grouping to the power area. The exit pilot lamp unit is mounted at the main exit door of the ESS office and the unit with the MULT key and associated MULT pilot lamp is located at the exit of the power room.

**Audible Alarm Panel**

2.13 The audible alarm panel (Fig. 12) is a wall-mounted unit that contains a tone bar (chime signal) for critical/major alarms, two ringing subsets (one for alarm battery and one for minor alarms), a signal bell for power failures, and an optional signal bell for code signaling.

**3. FUNCTIONAL DESCRIPTION**

**OFFICE ALARM SYSTEM**

3.01 Functions of the office alarm system are to provide the audible and visual indications used in an ESS office to report critical, major and minor office alarms, major and minor power alarms, and alarm battery alarms in both switchroom and power areas. Figure 13 is a block diagram of the office alarm system.

3.02 The No. 1 or No. 1A ESS recognizes alarm conditions and initiates alarms. The system is capable of recognizing certain internal trouble conditions and reporting the existence of such conditions via audible and/or visual indicators of the office alarm circuit, and providing trouble location information via the TTY. Negative 48 volts is the main power in the office alarm system and is supplied through frame fuses.

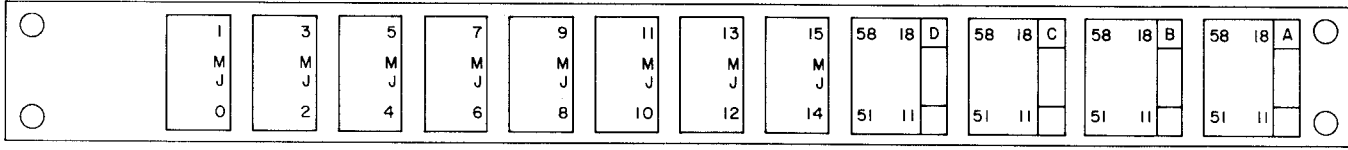


Fig. 2—Aisle Pilot Control Unit

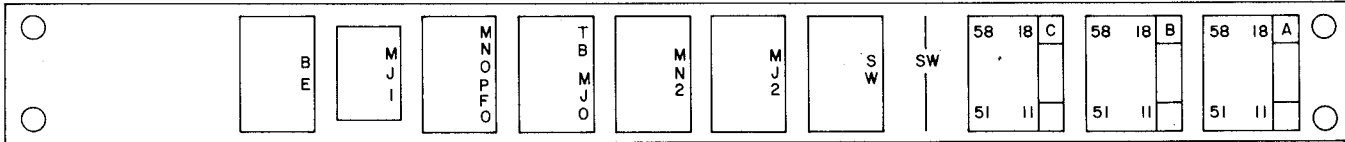


Fig. 3—Floor Alarm Control Unit

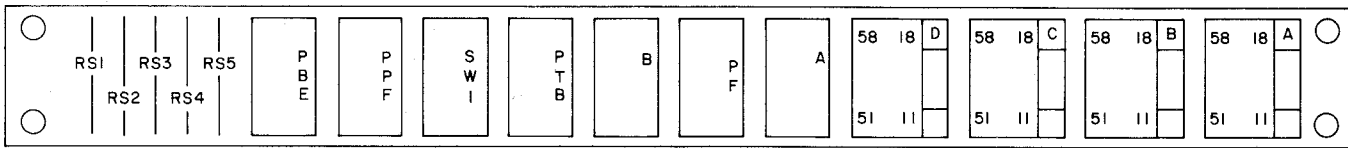


Fig. 4—Power Alarm Control Unit

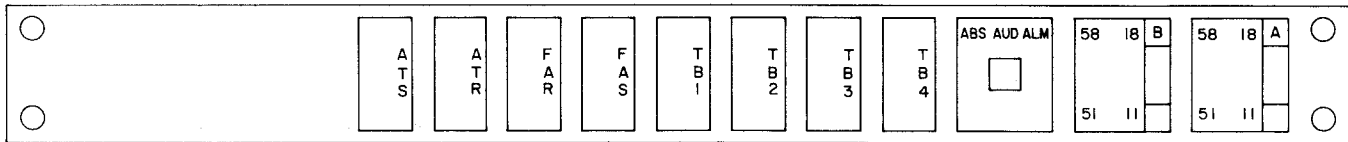


Fig. 5—Alarm Battery Supply Control Unit

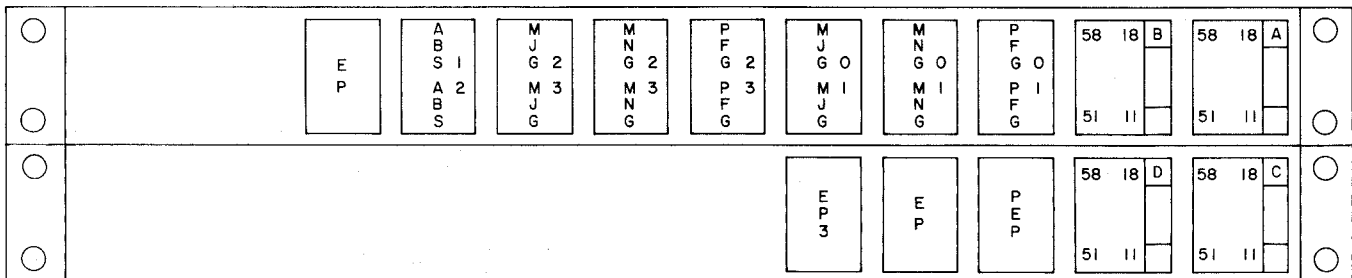


Fig. 6—Alarm Grouping Control Unit



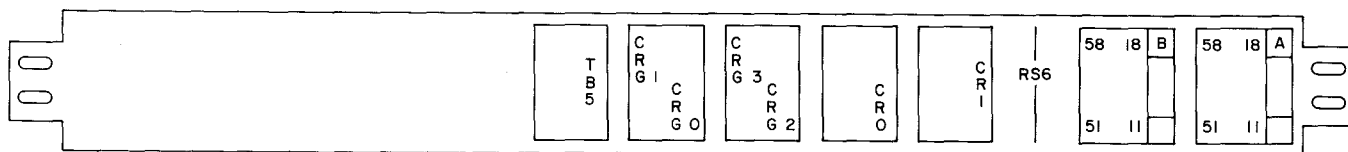


Fig. 7—Critical Alarm Unit

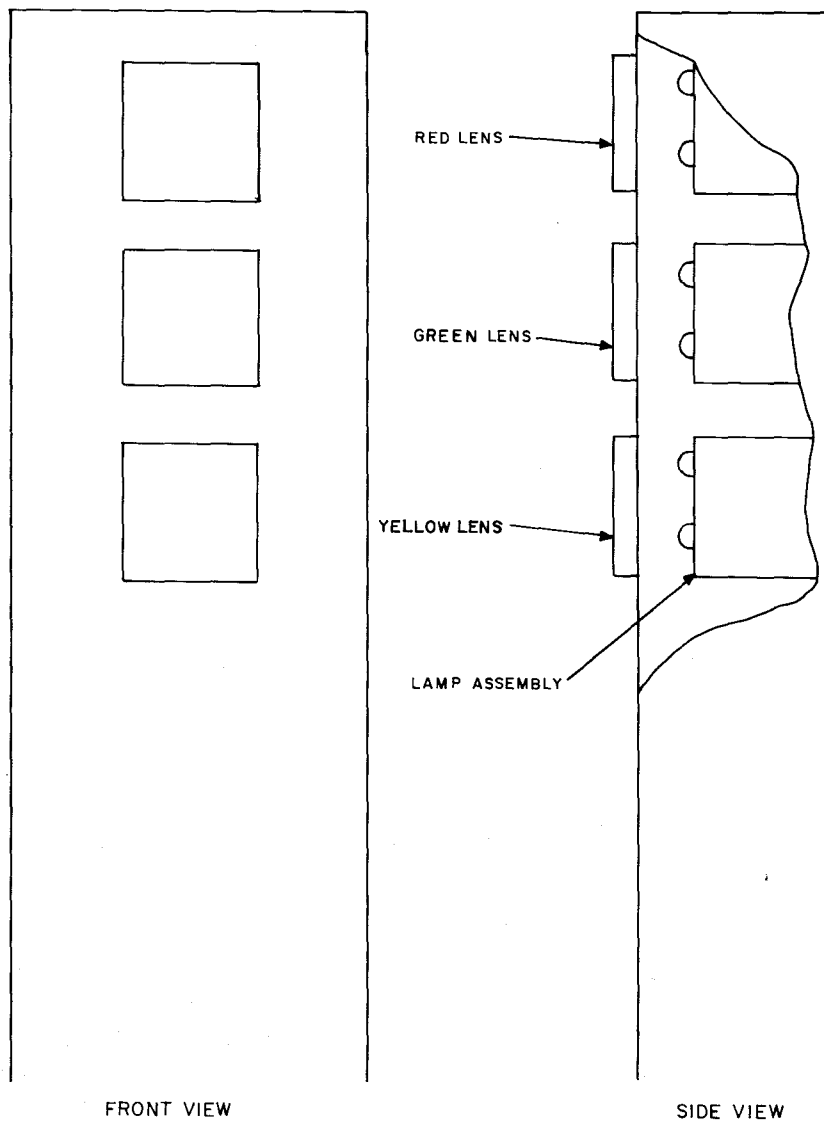


Fig. 8—Main Aisle Pilot Lamp Assembly

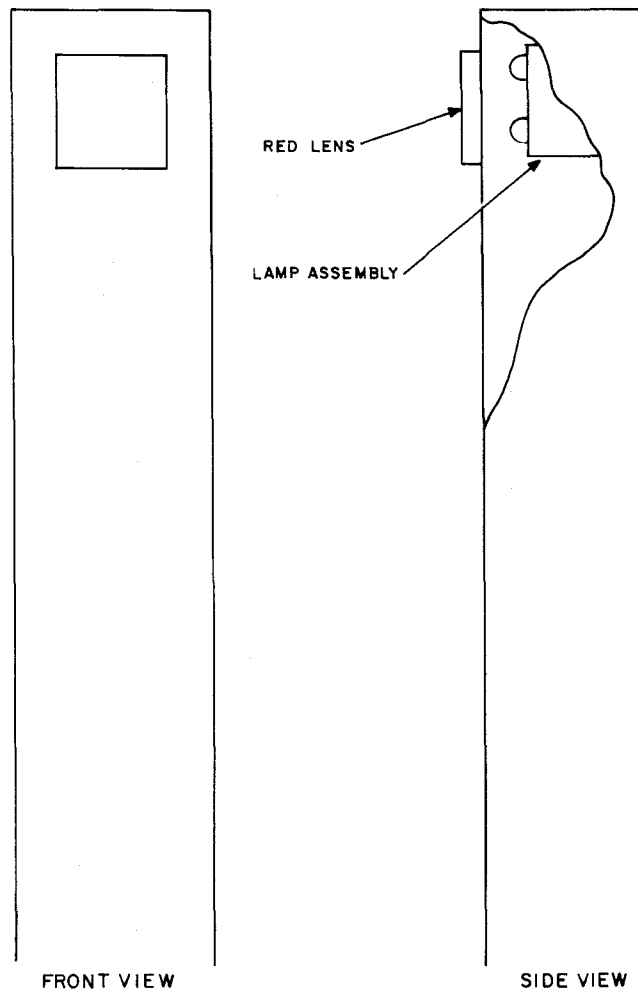


Fig. 9—Aisle Pilot Lamp Assembly

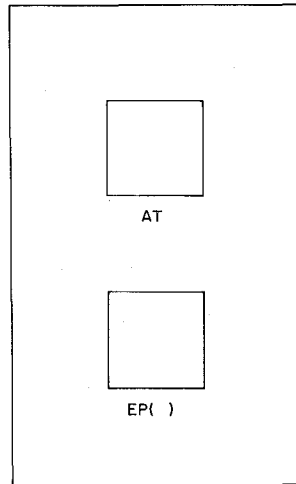
**3.03** Other types of trouble, such as fuse alarms, which the system is unable to detect by self-diagnosis, are reported directly to the office alarm circuit by a relay contact closure or by a power control switch on the frame housing the equipment in which the trouble originates.

**3.04** Trouble conditions are indicated by a distinctive audible signal and the frame in question is identified by a system of pilot lights. In addition, the location of the trouble frame or the type of the trouble is also reported directly to the system via MCC or master scanner scan points associated with the frame. The scan points initiate messages on the TTY providing a record of the trouble and identifying the frame or type of frame at a remote location if the office is unattended.

Output messages indicate blown fuses. Refer to the output message manual for the TTY message description.

**3.05** The existence of a trouble condition in Non-ESS equipment is reported by the "AR01 MISC ALM IDLD SPL....." TTY message (SPL = special). The same message is used to report: (1) building alarms (BLDG), (2) carrier group alarms (CGA), (3) service alarms (SERV), and (4) toll alarms (TOLL). The building alarm message reports trouble with certain miscellaneous equipment within the building housing the No. 1 or 1A ESS.

(a) Monitoring the equipment high temperature indicators is an example of this type of trouble reporting.



**Fig. 10—Exit Pilot Lamp Unit (For Single Floor Office)**

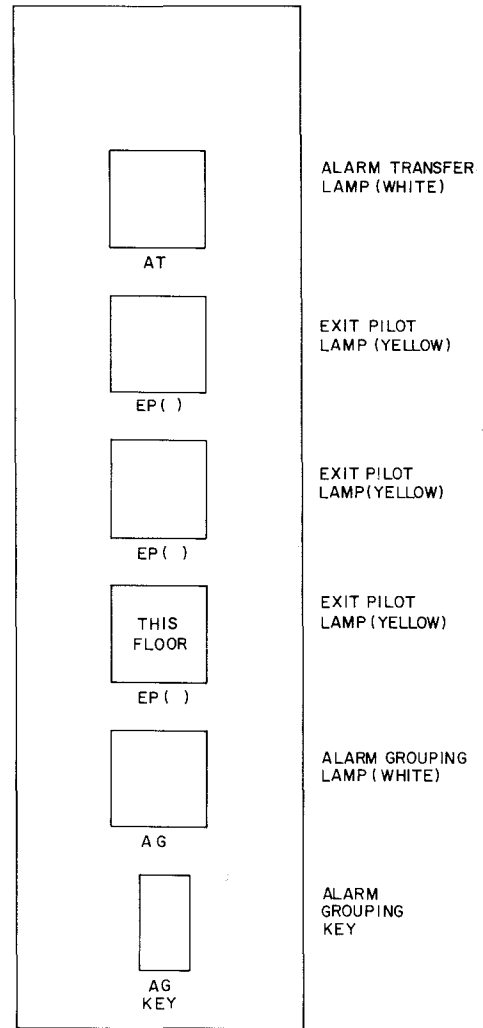
- (b) Trouble with the equipment that produces carrier signals, which are used for interoffice communication, is reported by printing the AR01 message with the CGA subfield.
- (c) The SERV subfield of the message is used to alert office personnel that a service alarm has been reported at an order wire and alarm panel.
- (d) The TOLL subfield indicates trouble with the equipment in the toll transmission facilities area of the switchroom.

**AISLE PILOT CONTROL UNIT (FS 2, SD-1A158-01)**

**3.06** The function of the aisle pilot control unit is to light the aisle pilot lamps and main aisle pilot lamps associated with a specific equipment lineup. When a major alarm condition occurs in a frame, the relays on the panel that are associated with that particular equipment lineup operate by a contact closure on the frame associated with that aisle.

**FLOOR ALARM CONTROL UNIT (FS 1)**

**3.07** The floor alarm control circuitry functions as an interface for the various office alarm



**Fig. 11—Exit Pilot Lamp Unit (For Multifloor Office)**

units and provides the control and logic functions of the office alarm circuit.

**POWER ALARM CONTROL UNIT (FS 4)**

**3.08** The power alarm control unit monitors the power plants. It provides detection

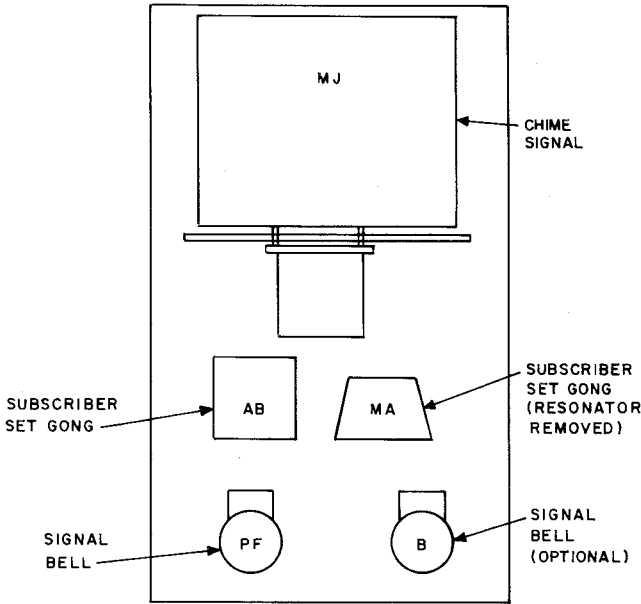


Fig. 12—Audible Alarm Panel

arrangements for power area alarms and relay control for audible signals in the power room not in the area of ESS switching equipment.

#### ALARM BATTERY SUPPLY CONTROL UNIT (FS 3)

**3.09** The alarm battery supply control, interrupter, and alarm silencer circuitry provides the logic for reporting alarm battery failures and, in addition, provides interrupted -48 volts to operate the critical/major tone bar. This circuit also contains relays which operate when the office is unattended, silencing the audible signals and providing contact closures (or opens) as required to other circuits in the office.

#### ALARM GROUPING CONTROL UNIT (FS 11)

**3.10** The alarm grouping control unit circuitry provides the transfer of alarm information between ESS and other switching systems on the same or adjacent floors via repeater relays.

#### CRITICAL ALARM UNIT (FS 1)

**3.11** The critical alarm unit provides the relays for bringing up the critical alarm syncopated tone and alarm grouping. This panel houses components for the alarm battery supply control

unit, the alarm grouping control unit, and the power alarm control unit.

## 4. ALARM REPORTING

### GENERAL

**4.01** The office alarm system may be activated by software or hardware. Processor frames are equipped with power control switches; keys on the switches control the state of the frame. Two scan points in the MCC scan point matrix are assigned to each switch to monitor its state. A blown fuse is detected by the switch, and is reported to the system by a change in state of the scan points. The switch also activates directly the major alarm in the office alarm circuit. Peripheral frames are equipped with keys to control the status of the frame. Each frame is assigned master scan points so that the system can monitor the frames status. A blown fuse will be reported by a change in state of the scan points, which activates directly the major alarm in the office alarm circuit. Transmission type frames also activate the alarm system directly via relay contacts. Refer to Figure 14 for the functional block diagram of the office alarm system.

**4.02** In addition to the visual indicators included in the office alarm circuit, supplementary visual indicators are contained in other ESS circuits as follows:

- (a) In each frame, there is a red POWER OFF pilot lamp which lights whenever power is removed from any circuit in the frame by operation of a POWER OFF key, or operation of a fuse in that frame.
- (b) On the MCC control and display panel, there are three red lamps which indicate the presence of a system-detected minor, critical, or major alarm condition in the office.

### ALARM REPORTING—MULTIFLOOR OFFICE

**4.03** To simplify the explanation in the following description of alarm reporting in a multifloor office, it is assumed that the floor under discussion is some intermediate floor in a multifloored office, with power equipment in the basement and with alarm grouping arrangements between adjacent floors. It is also assumed that the floor under

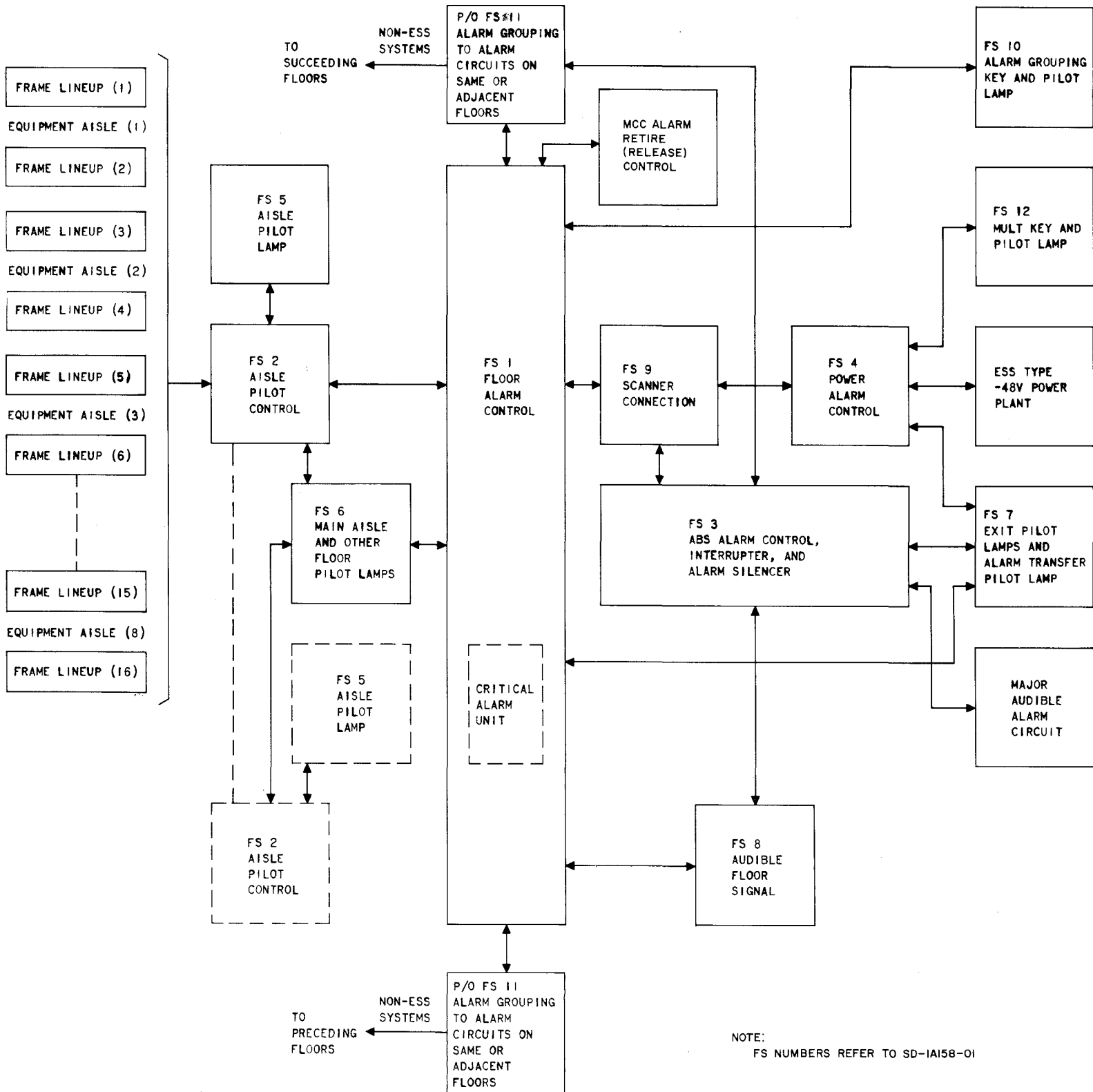
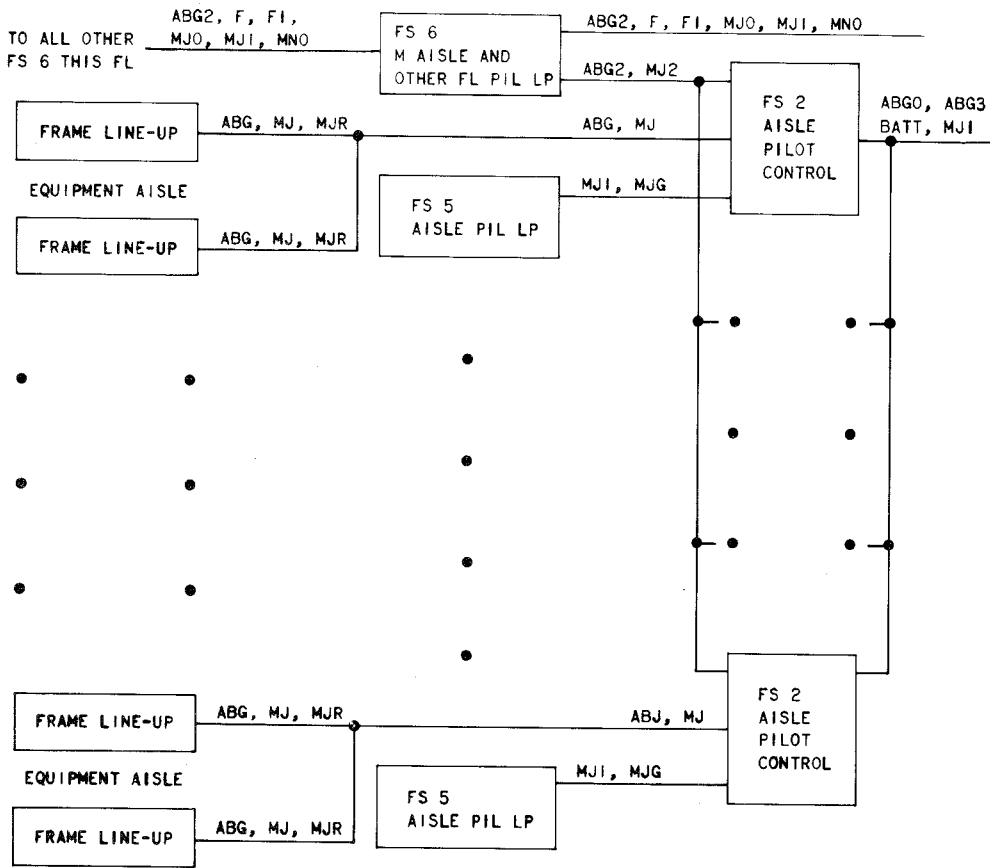


Fig. 13—No. 1 or No. 1A ESS Office Alarm System Block Diagram

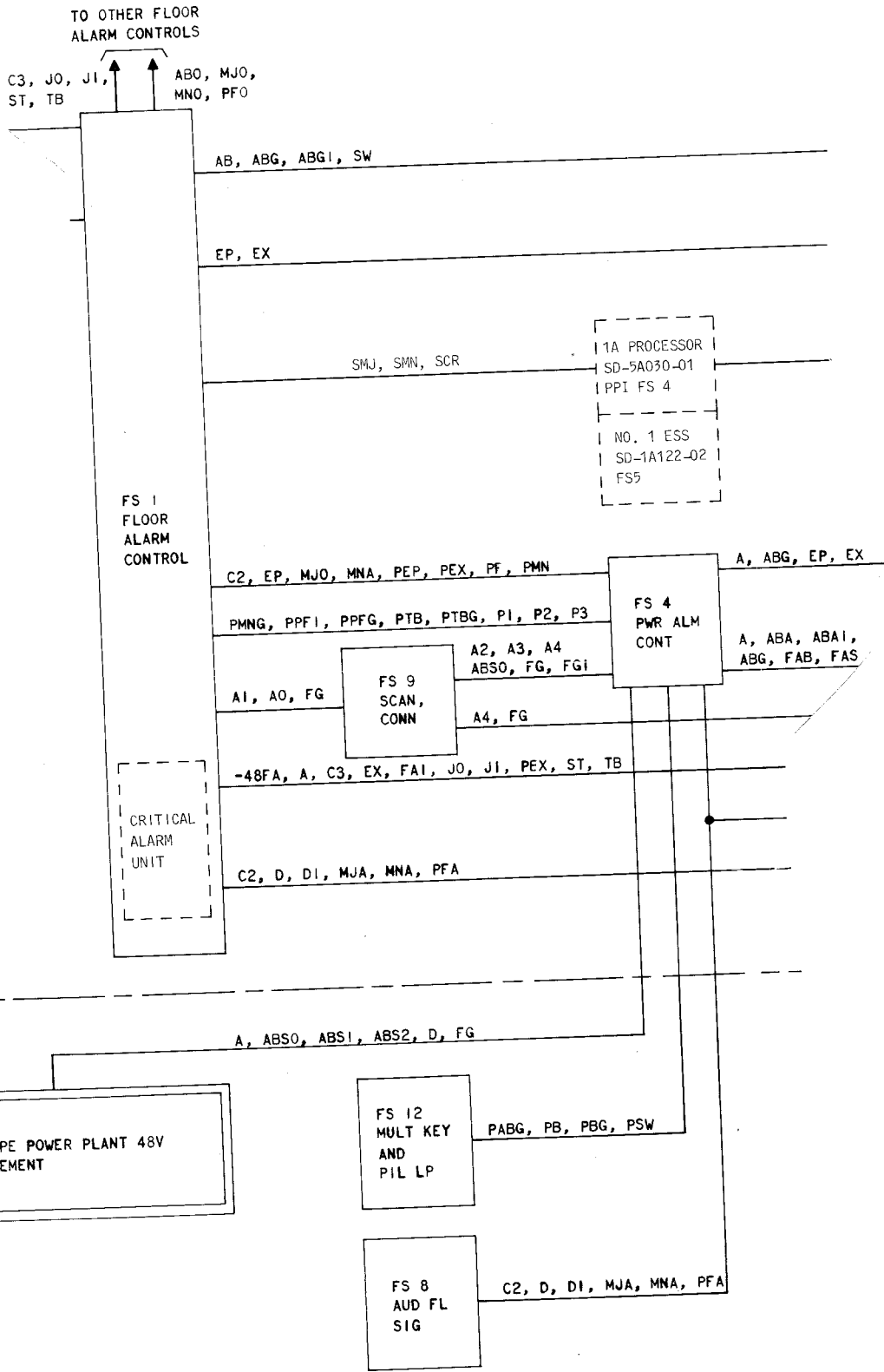


FLOOR A

BASEMENT

NOTE:

FS NUMBERS REFER TO SD-1A158-01



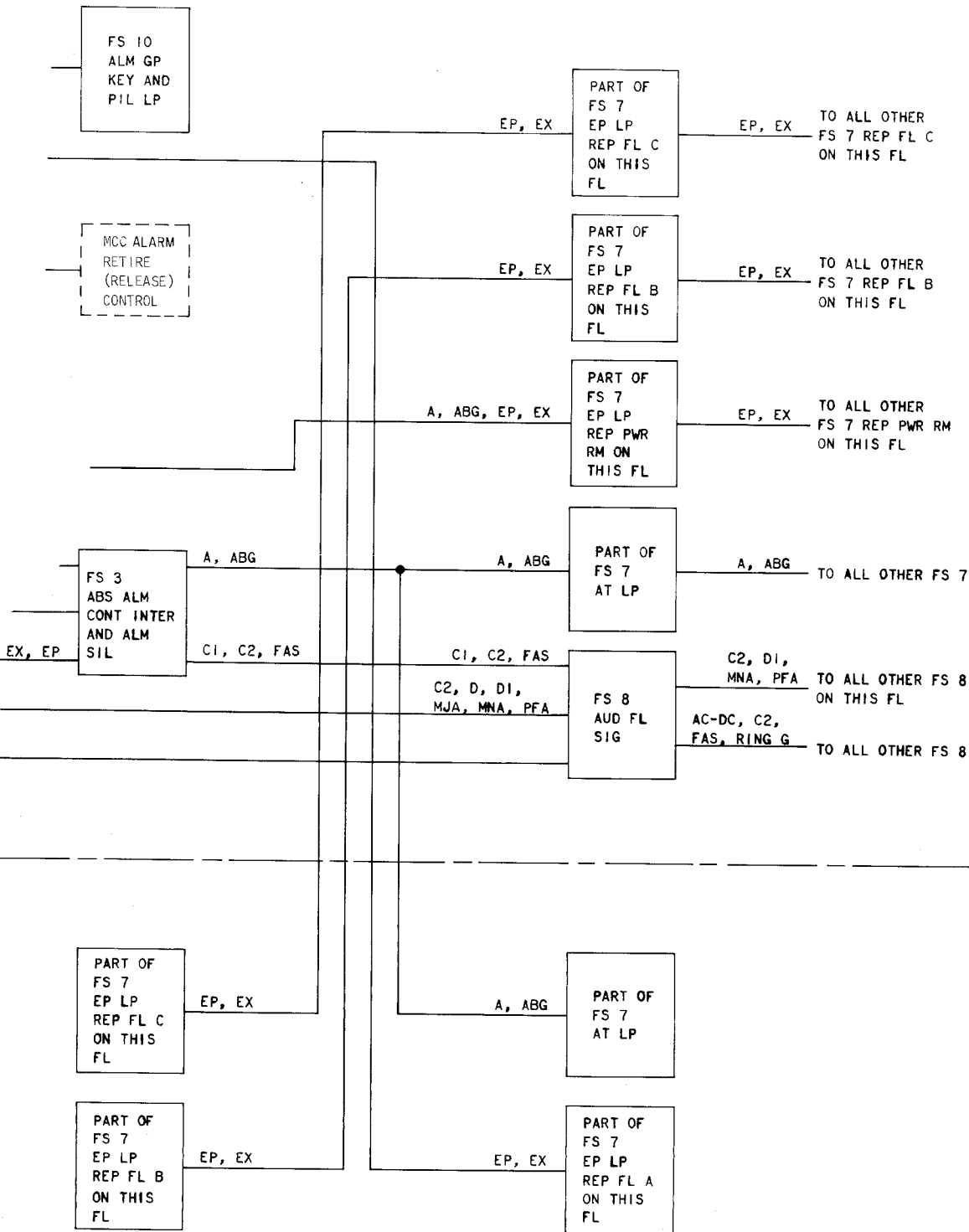


Fig. 14—No. 1 or No. 1A ESS Office Alarm System Functional Block Diagram



discussion is the only floor containing ESS equipment associated with the MCC on that floor.

**4.04** When a blown fuse occurs at a frame, the red POWER OFF lamp at the frame lights and a signal is placed in the office alarm circuit. This will cause the aisle pilot lamp for this aisle to light, the main aisle pilot lamp for this cross aisle to light, an audible signal to be given on this floor, and the exit pilot lamps for this floor to light on all other floors. Lighting the other floor lamps and giving audible signals on other floors is optional and depends on whether or not the alarm grouping key on each floor has been operated. When this key has been operated on any one floor, a trouble on that floor will light the other floor lamps on the succeeding floor and will sound the audible alarm on the succeeding floor. Conversely, a trouble on the succeeding floor will light the other floor lamps and sound the audible alarm on the first mentioned floor. With all the alarm grouping keys operated, the maintenance personnel on any floor other than the one from which the alarm originates, will be alerted by the audible signal, note the other floor lamp lighted, and find the floor with the alarm by noting which exit pilot lamp is lighted. The exit pilot lamps are arranged in a column with one lamp for each floor, top lamp for top floor, etc. On each floor, the lamp cap representing that floor is stenciled "THIS FLOOR." The correct floor is indicated by the relative position of the lighted lamp to THIS FLOOR lamp. Once on the floor on which the trouble is located, the main aisle pilot lamps and aisle pilot lamps will indicate the proper aisle, and the lighted POWER OFF lamp on the frame will indicate the equipment causing the alarm. The aisle pilot lamps and the audible alarm signal may be retired on most frames by operating a pushbutton on the frame originating the alarm. The individual frame POWER OFF lamp will remain lighted however, to indicate the alarm condition still exists. Operating the MCC ALARM RETIRE key will not retire this alarm. Replacing the blown fuse will retire the alarm.

**4.05** A critical alarm is detected by the system through maintenance or diagnostic routines. The repeated PC (Processor Configuration Circuit) state also triggers a critical alarm. The system then lights the MCC critical alarm lamp and places a critical alarm signal in the office alarm circuit, which sounds the tone bar in a syncopated manner, lights the exit pilot lamp representing this floor

on all other floors, and, under the control of the alarm grouping key, lights the major other floor lamps, and sounds the critical/major tone bar on the other floor. The alarm may be retired with the ALARM RETIRE key at the MCC.

**4.06** When a system-detected major alarm occurs at a frame, it is detected by the system through diagnostic routine. The system then lights the MCC major alarm lamp and places a major alarm signal in the office alarm circuit, which sounds the major alarm tone bar (indicating that the TTY will provide further trouble location information), lights the exit pilot lamp representing this floor on all other floors, and, under control of the alarm grouping key, lights the major other floor lamps and sounds the major alarm tone bar on the other floors. The system-detected major alarm may be retired by operating the ALARM RETIRE key at the MCC.

**4.07** When a minor alarm (all minor alarms are system-detected) occurs at a frame, it is detected by the system through change of state of the frame alarm scan points or through dedicated scan points. The system then lights the MCC minor alarm lamp and places a minor alarm in the office alarm circuit, which sounds the minor alarm audible signal (indicating that the TTY will provide trouble locating information), lights the exit pilot lamp representing this floor on all other floors, and, under control of the alarm grouping key, lights the minor other floor lamps and sounds the minor audible alarm signal on the other floors. The minor alarm may be retired by operating the ALARM RETIRE key in the MCC. (ALM RLS for No. 1 ESS MCC)

**4.08** The power equipment in the power room is tied into the office alarm circuit such that major power alarms light the yellow other floor lamps, light the exit pilot lamps on all floors indicating the power room, and sound a distinctive power failure audible alarm on all floors under control of the alarm grouping keys. Minor power alarms will light the green other floor lamps on all floors and sound the regular minor audible alarm on the floor where power alarms are normally supervised. The exit pilot lamps representing the power room are lighted on all floors as for the major power alarm. When the grouping keys are operated, the minor power alarm audible signal will be transmitted to all floors.

**4.09** The MULT key and pilot lamp in the power area serve the same functions as the ALARM GROUPING key and pilot lamp associated with switching floors, except that operation of this key accomplishes grouping between the power room and the ESS floor from which power alarms are normally supervised. In the case where power equipment is not in a separate power room but is sharing a floor with switchroom equipment, connection to the office alarm circuit is such that major power alarms sound the distinctive power failure audible alarm on all floors and light the yellow other floor lamps on all other floors, whether or not the grouping keys are operated. A regular major office alarm is also signaled which lights the appropriate aisle pilot lamps on the floor with the power equipment and lights the exit pilot lamps for this floor on all other floors. The regular major audible alarm is also operated on this floor. Minor power alarms are signaled as regular minor office alarms and sound the regular minor audible alarm. The regular major and minor audible alarm signals can be transmitted to all floors by operation of the grouping keys.

**4.10** The office alarm circuit also contains alarms to indicate a failure in the battery supply that powers the alarm circuits themselves. A failure in any one of the fuses that supply the alarm circuit will cause the exit pilot lamps for the floor on which the alarm circuit fuses are located to light on all other floors (if the fuse that powers these lamps was not the one that failed). The yellow other floor lamps will light on all other floors, and a distinctive audible signal will sound on all floors whether or not the grouping keys are operated. A failure of the power room fuse, which powers the power alarm circuit, lights the exit pilot lamps for the power room, lights the yellow other floor pilot lamps on all floors, and sounds the same distinctive audible signal on all floors whether or not the grouping keys are operated. A failure in the fuse which powers the power alarm circuit for power equipment on a floor with switchroom equipment is signaled to adjacent areas as an alarm battery for that floor. A loss of the -48 volt battery to the alarm circuit for any reason (failure of the charge-discharge fuse, open or shorted cable) will cause the same distinctive audible signal to sound on all floors. No lamps can be lighted in this case, however, since no power is available. (The distinctive audible signal for failures in the alarm circuit is powered by the 20-cycle ac-dc continuous ringing supply.)

**4.11** When fully unattended operation is desired, a contact closure from the signal distributor applique circuit or contact closures from the peripheral decoder applique circuit operate relays in the office alarm circuit, silencing the audible signals, lighting the alarm transfer pilot lamp, and providing contact closures and opens required by other circuits in the office when the office is unattended. During the unattended operation, the local maintenance TTY continues to provide a record of alarms and trouble location information and, in addition, all alarm information is transmitted to a remote TTY at a distant maintenance center.

**ALARM REPORTING—MULTIFLOOR OFFICE (SAME MCC OR MAINTENANCE CENTER)**

**4.12** When adjacent floors contain ESS equipment under control of the same MCC, major locally detected alarms and MCC system-detected alarms are reported as described in 4.04. However, under these circumstances, each floor is provided with maintenance TTY. Consequently, a system-detected critical or major alarm or a minor alarm is reported by simply multiplying the respective audible signals on each floor. This indicates that the nearest TTY will provide further identification and location information.

**5. POWER**

**5.01** The feeders supplying the miscellaneous units on the miscellaneous frames and on the miscellaneous power frames may be any of the following combinations:

- Two -48 volts feeders with two filters
- One -48 volts feeder with two filters
- One -48 volts feeder with one filter
- One -48 volts and one +24 volts feeder with two filters.

**5.02** Feeders supplying the office alarm circuits bypass the power distribution frame and come directly from the charge and discharge at the power plant. The feeders should be fused at 20 amperes.

**6. MAINTENANCE**

**6.01** Testing and troubleshooting procedures for office alarm circuitry are provided by task oriented practices.

**SECTION****TITLE**

231-301-000

Processor Peripheral Interface  
Frame and Control and Display  
Frame Description—2-wire No.  
1A Electronic Switching System

**7. REFERENCES**

**7.01** The following list provides the number and title of related documents.

231-301-001

Processor Peripheral Interface  
Frame and Control and Display  
Frame Theory—2-wire No. 1A  
Electronic Switching System

**SECTION****TITLE**

231-125-301

966-120-100

2-wire No. 1A Electronic  
Switching System—General  
Description

Master Control Center Alarm,  
Display, and Control Panel  
Method of Operation—2-Wire  
No. 1 Electronic Switching  
System

966-100-100

2-Wire No. 1 Electronic Switching  
System—General Description

201-400-100

Switching Control Center  
System—Overall Description