DET TRONICS

INSTRUCTIONS

Auxiliary Zone Unit

R6001, R6003

4/82

Form 95-8227-02

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INSTRUCTIONS

Auxiliary Zone Unit

R6001, R6003

SYSTEM APPLICATION

The R6001 and R6003 Auxiliary Zone Units provide relay response according to zone and "voting" criteria in systems employing R7300B, R7301, R7302 or R7303 Controllers and C7050 Detectors. The R6001 is designed for use with R7301 or R7302 rack mounted controllers and the R6003 is used with R7300B and R7303 surface mounted controllers. These controllers provide an instant and a timed relay response to fire. The Auxiliary Zone Unit increases system relay output capability in several ways:

1. A separate relay response occurs for each zone sensing fire (up to 8).

2. Detectors can be used one to a zone or grouped together for redundant coverage.

3. Up to four controllers can be used with one Auxiliary Zone Unit to provide additional fire protection.

4. Alarm and extinguishing equipment can be operated either by individual zone relays or through a common relay output.

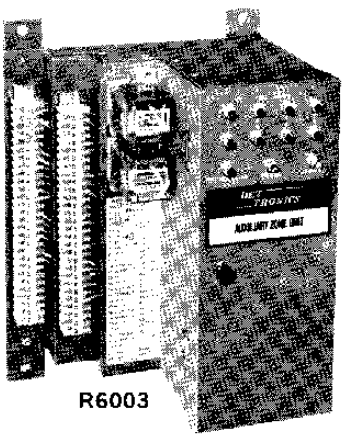
5. The Auxiliary Zone Unit can be programmed to actuate a "voting" relay in response to fire in two, three, four or five zones.

NOTE

The voting concept can only be effectively utilized when each zone is viewed by a sufficient number of detectors to give redundant coverage of the zone. Normally, more detectors are used in each zone when the voting concept is used. This is recommended because if only one detector is used per zone, it could be blinded by smoke, oil or other UV absorbing contaminants at the instant a fire begins. This would, in effect, put that zone out of the circuit with no protection and require the voting relay to wait longer for another zone to see the fire. The Auxiliary Zone Unit voting relay is actuated only when the selected number of zones "see" a fire. See the "General Application Information" section for details.

The R6001 Auxiliary Zone Unit is designed for mounting in a standard 19 inch instrument rack in conjunction with R7301 or R7302 Controllers. The optional Q4001 Mounting Cage can accommodate up to four controllers and R6001 units and is recommended for ease of installation and service.

R6001


R6003

The R6003 Auxiliary Zone Unit is designed for surface mounting in conjunction with R7300B and R7303 Controllers. An optional explosion-proof enclosure or Nema 4 cabinet is available for installing the R6003 Auxiliary Zone Unit.

FEATURES

- Front panel FIRE ZONE LEDs indicate which zone(s) is responding to a fire.

- The Auxiliary Zone Unit can be programmed to energize a voting relay in response to fire in 2, 3, 4 or 5 zones.

- A set of normally open relay contacts for each of the eight zones, wired with a common connection.
- Separate, independent, normally open or normally closed (optional) relay contacts for each of the eight zones.
- Each zone "latches" when actuated and returns to normal (delatches) only when the R6001 or R6003 is reset.
- A (normally energized) fault relay is de-energized, and a front panel FAULT indicator is illuminated if a failure occurs in the power supply or if the voting relay is removed. The fault relay remains de-energized and the FAULT indicator remains on until the fault is corrected.
- Optional automatic switchover relay for switching from ac to dc operation (R6001 only) if ac power fails.

GENERAL APPLICATION INFORMATION

The highest reliability, with regard to response to fire, is achieved when a hazardous area is supervised by more than one detector and when each detector can independently register an alarm. However, this arrangement has the least protection against false actuation, since malfunction of only one detector can produce actuation of the system. A better system, therefore, is one in which more than one detector must respond before the system will be actuated.

The various, independent, common and voting relays of the Auxiliary Zone Unit provide increased flexibility in choosing a desired response to fire. The independent relays of each zone and the programmable voting relay make possible two levels of operation. For example, the voting criteria could require two zones to respond before releasing an extinguishing agent, while any single zone response can produce an alarm.

Up to four controllers, each monitoring up to eight detectors, can be connected to one Auxiliary Zone Unit. A general layout of the area to be protected and the zones necessary to protect it should be made to determine the combinations of detectors, controllers and Auxiliary Zone Units needed.

When an Auxiliary Zone Unit is used in conjunction with an R7302 or R7303 Controller, the Automatic Fault Identification system of the controller does not check the Auxiliary Zone Unit. It is necessary to connect the fault relay circuits of each of the units either in parallel or in series so that if a fault occurs an alarm is given. For example, normally open contacts in parallel would produce closure of an alarm circuit if either the Auxiliary Zone Unit or the controller develops a fault. On the other hand, placing normally closed contacts in series will produce an electrical open in an alarm circuit if either the Auxiliary Zone Unit or the controller develops a fault.

The output relays of the Auxiliary Zone Unit must be in series with either the instant or timed relays of the controllers to prevent accidental actuation of the external load when the system is placed in BYPASS. If external bypass arrangements are necessary, contact Detector Electronics, Customer Service for assistance in system modification.

SYSTEM DESCRIPTION

The Auxiliary Zone Unit is designed to be employed in a system with one or more R7300B, R7301, R7302 or R7303 Controllers and several C7050 Detectors (up to eight per controller). Figure 1 is a simplified block diagram of a fire detection system employing an Auxiliary Zone Unit. Refer to the applicable instruction manual for a description of the controllers.

Both the R6001 and the R6003 provide output relays, front panel LEDs and lamps, a field wiring connector, and the electronic circuitry to monitor zone inputs and energize the relays. Both units are wired for use with up to eight zones (four zone boards - two zones per board). They are ordered with one to four boards. If additional zone boards (up to a total of four) are later required, they can be inserted in the field.

Relays

A set of **independent** relay contacts and a set of "parallel" (one side common) relay contacts are provided for each (up to eight) of the zones. The independent relay contacts can be ordered from the factory to be normally open or normally closed. The "parallel" contacts are normally open. All fire zone relays are latching relays and can be de-energized by pressing the RESET button on the front panel or by actuating the remote reset. (This is done by shorting the reset input to ground.)

In addition, a **voting relay** with form C (normally open and normally closed) contacts is provided. The Auxiliary Zone Unit can be programmed (in the field) to energize the voting relay when two, three, four or five zones respond to a fire. The voting relay is a latching relay, and can be de-energized by pressing the RESET button on the front panel or by actuation of the external reset.

A normally energized **fault relay** (with form C contacts) is de-energized if a failure occurs in the power supply, or if the voting relay is removed from its socket. The fault relay will remain de-energized until the fault is corrected.

Front Panel

The front panel of the Auxiliary Zone Unit (Figure 2) provides indicators to identify relay actuation and fault occurrences and a RESET switch for de-energizing the fire and voting relays.

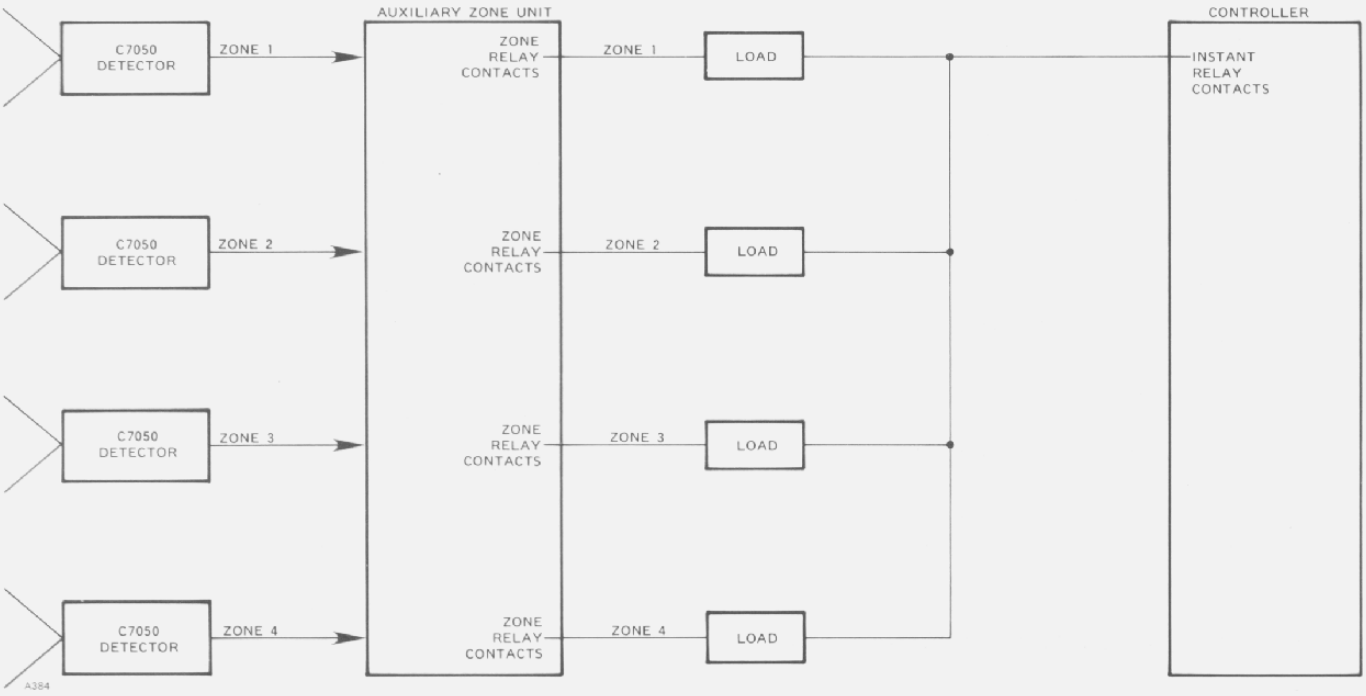


Figure 1—Simplified Block Diagram of a Fire Detection System Employing an Auxiliary Zone Unit

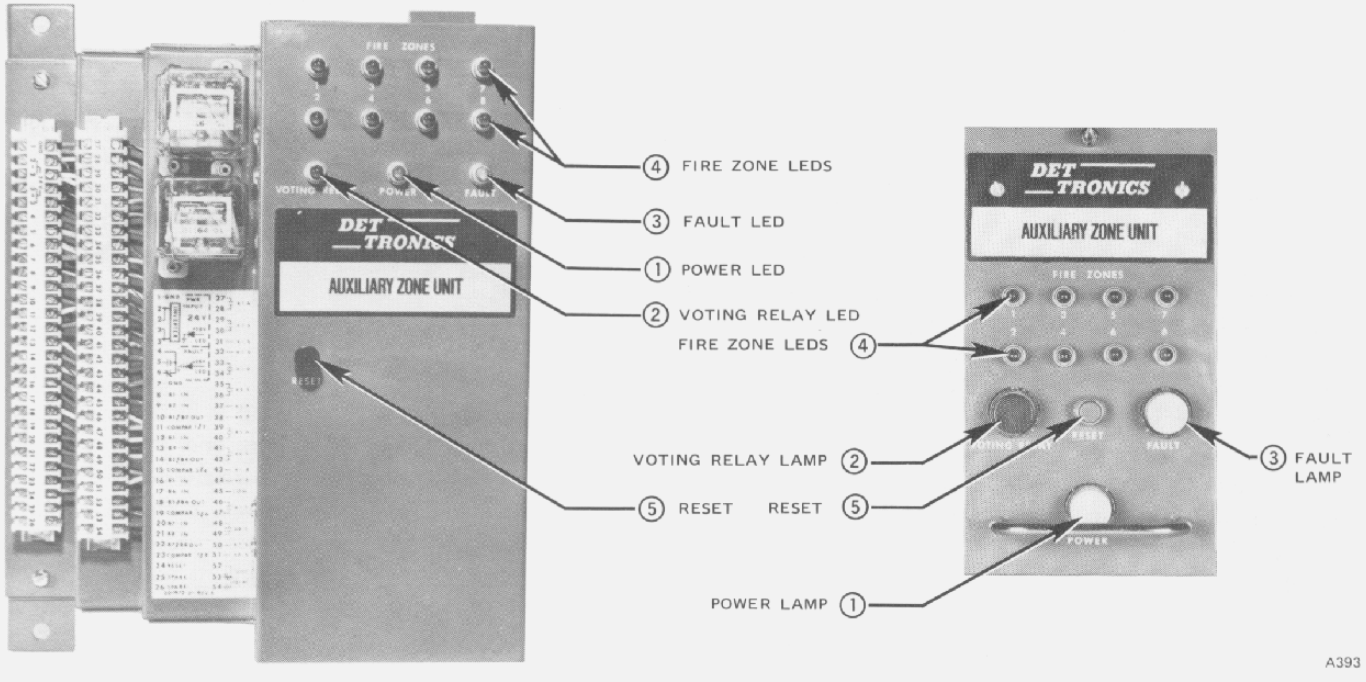


Figure 2—R6001 and R6003 Front Panels

1) The POWER indicator (white lamp on the R6001, green LED on the R6003) is illuminated when power is applied to the unit.

2) The VOTING RELAY indicator (red lamp on the R6001, red LED on the R6003) is illuminated when the voting relay is energized.

3) The FAULT indicator (amber lamp on the R6001, amber LED on the R6003) is illuminated when the normally energized fault relay is de-energized.

4) The eight red FIRE ZONE LEDs are illuminated when their corresponding fire zone relays are energized.

5) The RESET button is used to de-energize the fire zone and voting relays and to simultaneously turn off their corresponding front panel indicators.

Printed Circuit Boards

1) Zone Board - Each plug-in zone board (Figure 3) provides two fire zone relays and their associated circuitry. Up to four zone boards can be plugged into the Auxiliary Zone Unit.

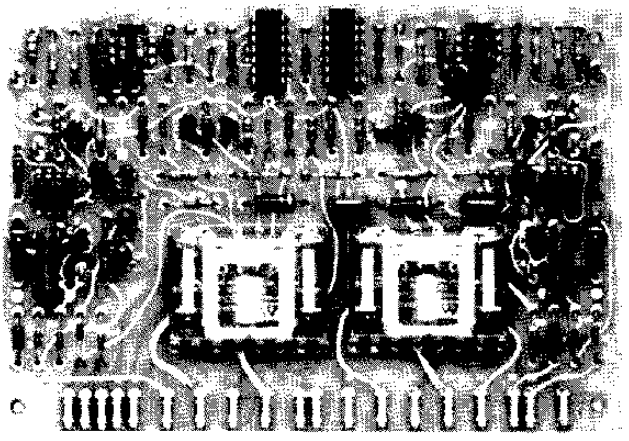


Figure 3—Plug-In Zone Board

2) "Mother" board - The "mother" board (Figure 4) contains the circuitry that controls the voting relay and a rocker switch assembly to pre-select the number of responding zones required to meet voting criteria (see "Installation" section). Electrical contact pins for plugging in the zone boards are also provided on this board.

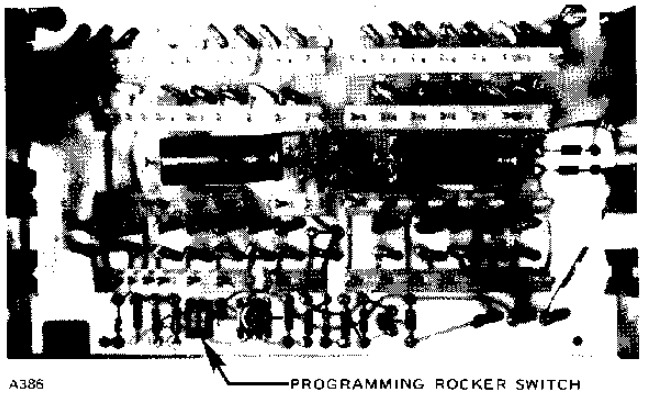


Figure 4—Auxiliary Zone Unit "Mother" Board

3) Inverter board - The inverter board (Figure 5) is used in Auxiliary Zone Units that are powered by a 12 Vdc or a 24 Vdc supply (ac models have a power transformer instead). The Auxiliary Zone Unit is not field convertible from ac to dc power, but the R6001 can be ordered from the factory for automatic ac to dc switchover in case of line (mains) supply failure. The automatic ac to dc switchover model uses the inverter board in addition to the power transformer and related circuitry. If ac input power to the transformer fails, a switching relay de-energizes and closes the contacts that connect the output of the inverter board to the R6001.

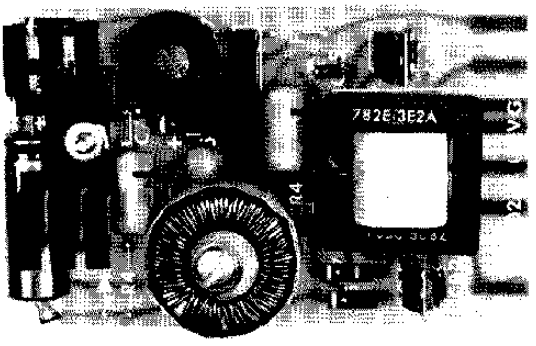


Figure 5—Inverter Board

Field Wiring Connector/Mounting Cage

The R6001 is furnished with a field wiring connector that incorporates pressure type screw terminals for attaching wires and two edge connectors for plugging the unit in. The optional Q4001 mounting cage holds up to four units and is designed to fit into a standard 19 inch instrument rack. The cage is designed for mounting the field wiring connector(s) for ease in making electrical connections, and installing and servicing the units.

The R6003 is designed for surface mounting and is equipped with two terminal strips for connecting wires. Refer to the "Installation" section for a detailed description of the field wiring connections.

THEORY OF OPERATION

The Auxiliary Zone Unit provides up to eight zone circuits each monitoring a direct input from one or more C7050 Detectors, and operating a zone relay with a set of independently connected contacts and a set of contacts wired with one side common. It also has a voting relay circuit, which monitors the zone circuits and can be programmed to actuate the voting relay when two, three, four or five zones exhibit a fire response.

Fire Zone Relay Response

When UV radiation strikes a detector, a series of voltage pulses is sent to both the Auxiliary Zone Unit and the controller. The frequency of the voltage pulses, measured in counts per second (cps), is proportional to the intensity of the UV radiation. If the signal frequency is greater than the sensitivity threshold of the controller, the instant relay is energized and the solid state comparator output is actuated. If the detector signal continues, the controller energizes the timed relay. (Refer to the appropriate controller manual for details.)

The comparator signal from the controller informs all connected zones in the Auxiliary Zone Unit that the sensitivity threshold has been exceeded. (Typically, the sensitivity setting of the controller will be greater than the fixed 20 cps threshold of the Auxiliary Zone Unit.) When a 20 cps signal is received at a zone input terminal **and** the comparator signal from the controller is actuated, the appropriate fire zone relay is energized. The relay will remain energized until the unit is reset. When a fire zone relay is energized, its corresponding FIRE ZONE LED is illuminated.

Voting Relay Response

The voting relay circuit can be programmed, via a rocker switch assembly (see "Installation" section) to energize the voting relay when two, three, four or five zones exhibit a fire response. The voting relay circuit monitors the zone circuit outputs so that both the individual zone inputs and the comparator signal from the controller must be actuated to satisfy the voting criteria.

SPECIFICATIONS

INPUT VOLTAGES–

Two ac models: 120 or 220/240 volts, 50/60 Hz. Operates between 85 and 110 percent of the rated ac voltage.

Two dc models: 12 Vdc with an operating range from 10.5 to 16.0 Vdc, 24 Vdc with an operating range from 18.0 to 38.0 Vdc.

AC AND DC POWER CONSUMPTION–

Maximum power required in standby is 12 watts. Maximum power required during actuation of all 8 zones is 25 watts.

RELAY CONTACT RATINGS–

Zone relays: Form A or Form B contacts (optional), 3 amperes resistive, 1/20 hp at 125 and 250 Vac or 30 Vdc.

Voting and fault relays: Form C contacts, 10 amperes resistive, 1/3 hp at 120 and 240 Vac or 28 Vdc.

DETECTOR WIRING–

All wires must be 22 gauge (0.64 mm diameter) or larger. One wire from each zone (the B-lead) is connected to the Auxiliary Zone Unit and must be shielded. All other wires from the detector must be in a separate cable connected to the controller.

RESPONSE TIMES–

Zone relays: 25 milliseconds typical.

Voting relays: 35 milliseconds typical.

TEMPERATURE RATING–

Operating: -40 to +70°C (-40 to +158°F).

Storage: -55 to +77°C (-67 to +170°F).

SHIPPING WEIGHT (Approximate)–

R6001: 5.4 kilograms (11.8 pounds).

R6003: 6.6 kilograms (14.4 pounds).

DIMENSIONS–

The dimensions given in Figure 6 are for the R6001. Dimensions for the optional Q4001 mounting cage are shown in Figure 7. Figure 8 shows the mounting dimensions for the R6003.

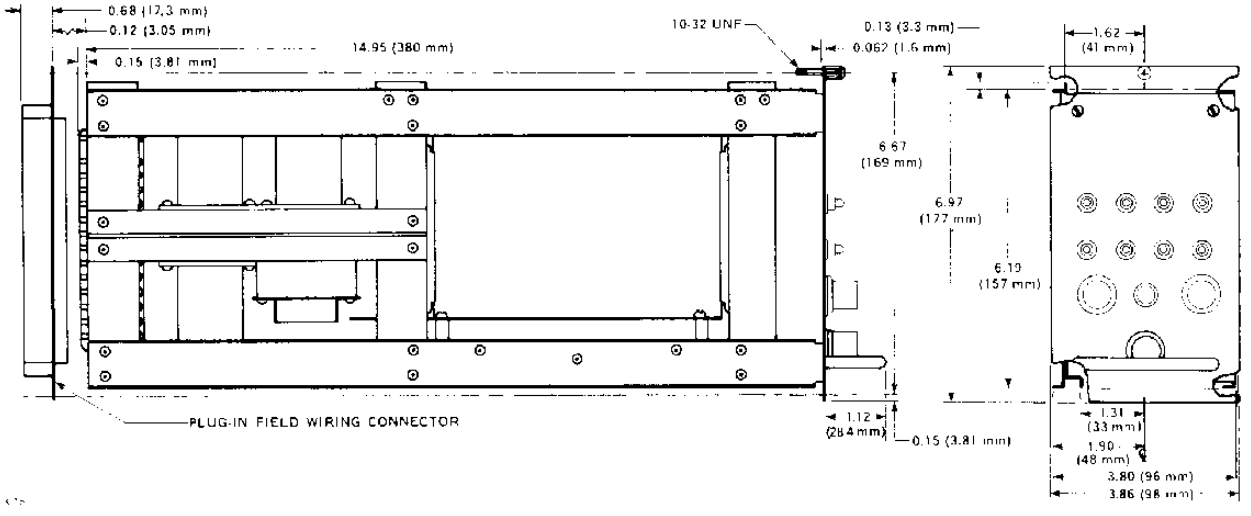


Figure 6–Mounting Dimensions of the R6001 Auxiliary Zone Unit in Inches (mm).

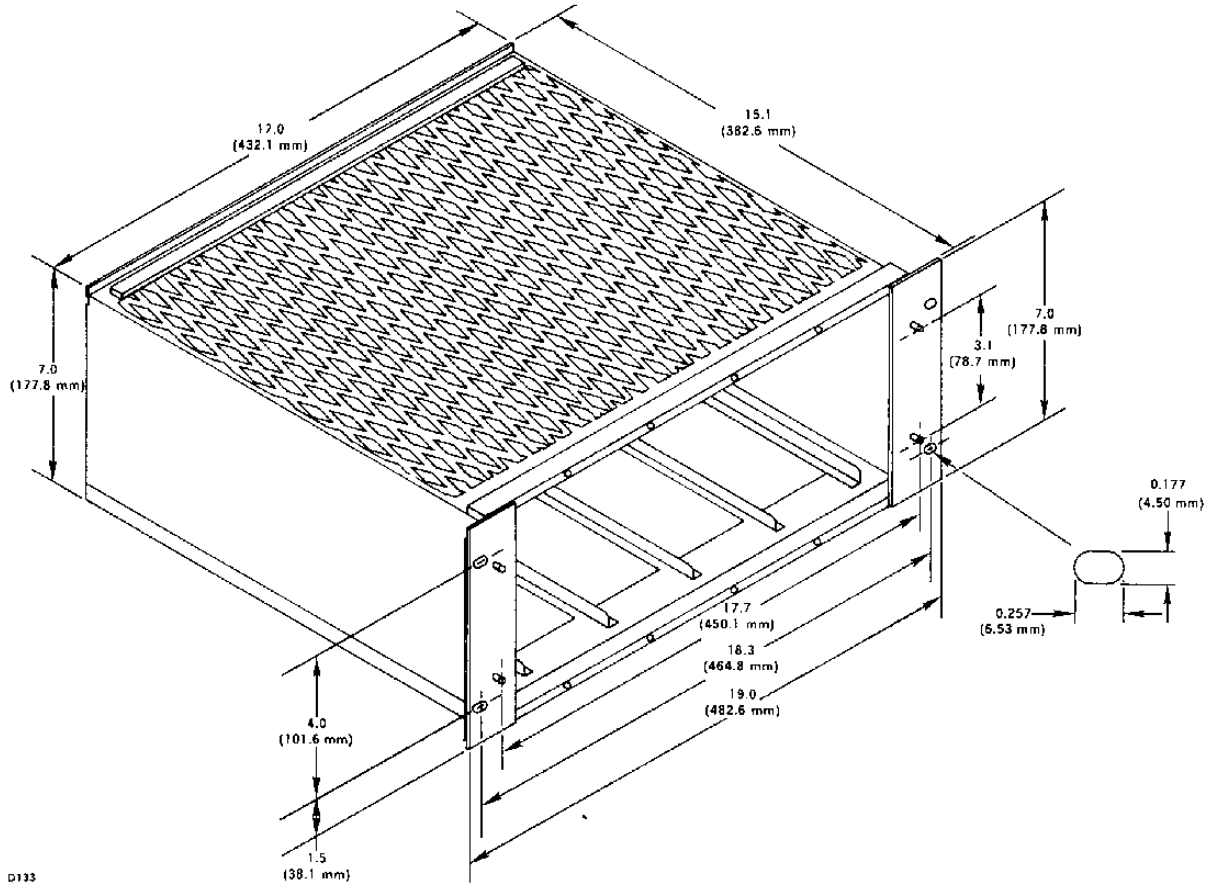


Figure 7–Mounting Dimensions of the Optional Q4001A Mounting Cage in Inches (mm)

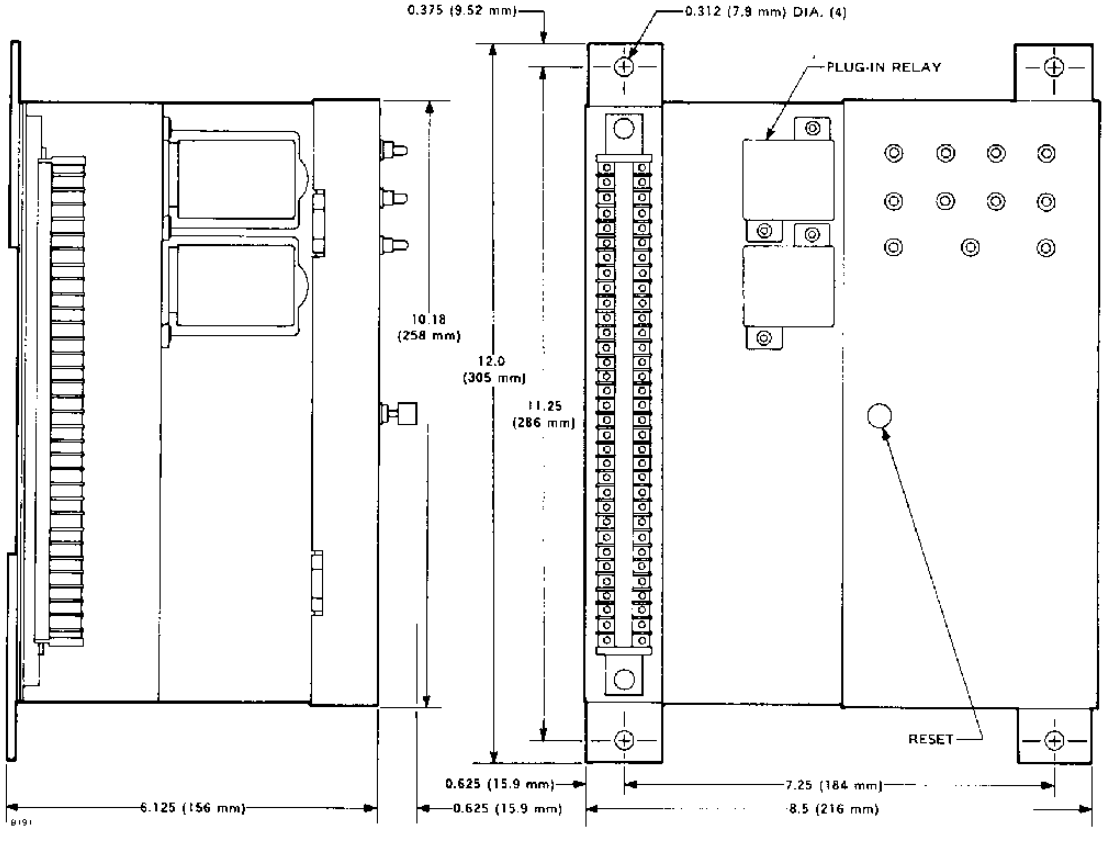


Figure 8–Mounting Dimensions of the R6003 Auxiliary Zone Unit in Inches (mm)

INSTALLATION

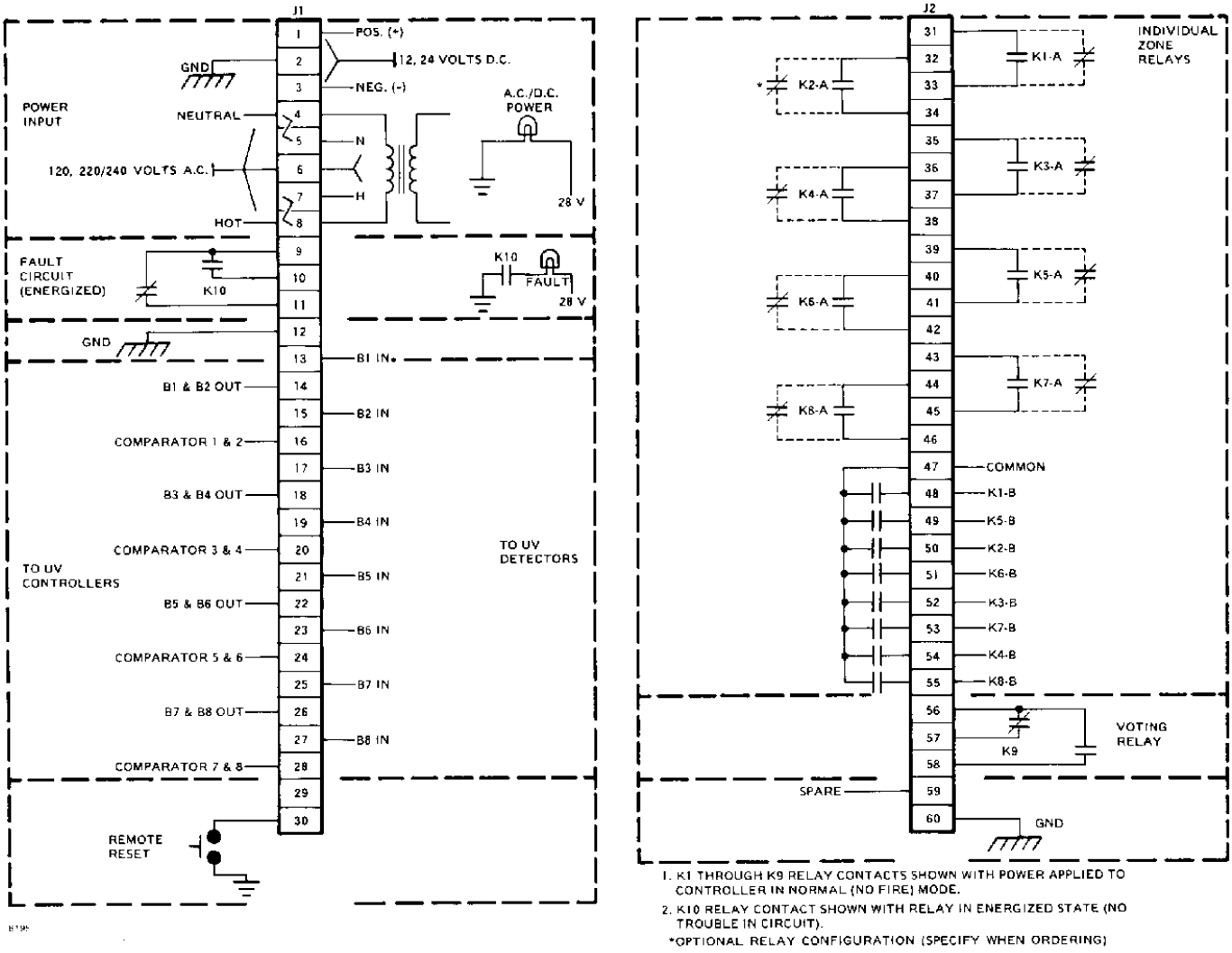
The R6001 Auxiliary Zone Unit is designed for mounting in a standard 19 inch instrument rack in conjunction with R7301 or R7302 Controllers. The R6001 is furnished with a field wiring connector that incorporates screw terminals for connecting wires, and circuit board edge connectors for plugging it in. The optional Q4001 Mounting Cage accommodates up to four controllers and R6001 units and is designed to hold the field wiring connector for ease in making electrical connections.

The R6003 is designed for surface mounting and is furnished with two permanently affixed terminal strips for connecting wires.

Electrical Connections

Diagrams of the R6001 field wiring connector and the R6003 terminal strips are provided in Figures 9 and 10. The zones are grouped in pairs: 1 and 2, 3 and 4, 5 and 6, 7 and 8. Each pair corresponds to one zone circuit board, two "B-In" terminals, one common "B-Out" terminal, and one common comparator input terminal. The B-Out leads are used to route the detector signals from the B-In input to the controller. The comparator input is connected to the comparator output of the controller. (Refer to the "Theory of Operation" section.) Each B-Out and comparator terminal can be connected to only one controller, therefore, a maximum of four controllers can be connected to one Auxiliary Zone Unit, depending on the number of zone boards provided.

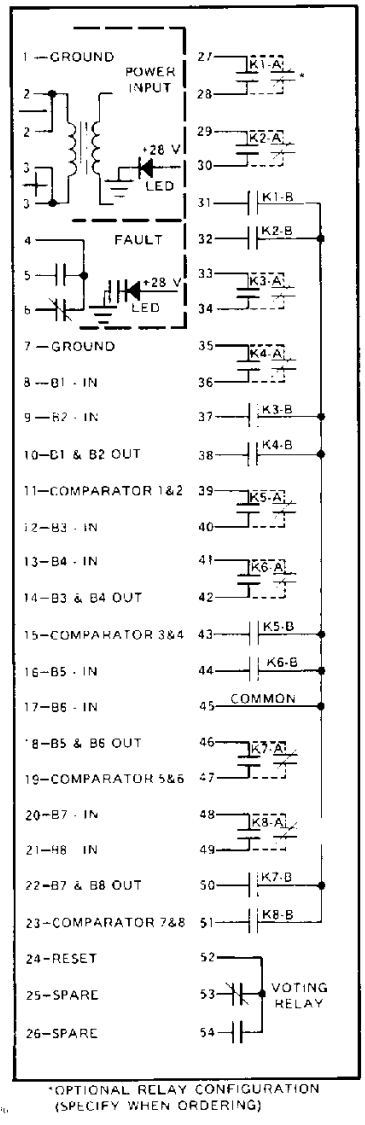
- The B-leads of the detectors in the various zones are connected to the B-In terminals. Due to the eight detector limit of the controllers and the restriction of one controller per zone board, a maximum of eight detectors (in any combination) can be connected to a zone pair.



1. K1 THROUGH K9 RELAY CONTACTS SHOWN WITH POWER APPLIED TO CONTROLLER IN NORMAL (NO FIRE) MODE.
2. K10 RELAY CONTACT SHOWN WITH RELAY IN ENERGIZED STATE (NO TROUBLE IN CIRCUIT).

*OPTIONAL RELAY CONFIGURATION (SPECIFY WHEN ORDERING)

Figure 9—R6001 Terminal Connection Diagram



*OPTIONAL RELAY CONFIGURATION (SPECIFY WHEN ORDERING)

Figure 10—R6003 Terminal Strip Connection Diagram

- When using the R7300B or R7301 Controllers with an Auxiliary Zone Unit, a maximum of four zones (eight detectors) are permitted (per controller), since only B-leads from zones that have end-of-line (EOL) resistors can be properly supervised. (The R7300B and R7301 Controllers do not employ automatic optical integrity. Refer to the appropriate controller manual for further information.)

- Examples of "typical" systems are provided in the following section.

Programming the Voting Relay

A rocker switch assembly (Figure 11) is provided on the "mother" board for programming the voting relay circuit. The switch is factory-set for two zones. To change the setting, set the rockers on the programming switch according to the following table.

Number of Zones	Rockers	
	1	2
2	open	open
3	closed	open
4	open	closed
5	closed	closed

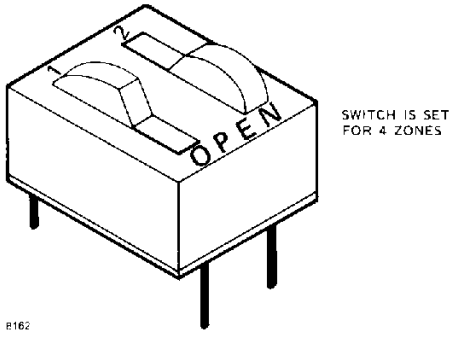


Figure 11—Rocker Switch for Programming the Voting Relay

System Application Examples

The following system applications are presented only as examples and are not intended to be specific recommendations for all applications. For assistance in designing other system configurations, write:

Detector Electronics Corporation
Application Engineering
6901 West 110th Street
Minneapolis, Minnesota 55438

The system shown in Figure 12 includes:

- One R7302 Controller

- One R6001 Auxiliary Zone Unit wired to monitor eight zones and to actuate eight load circuits

- Eight C7050 Detectors connected to the R7302 and to the eight separate zone inputs of the R6001.

Terminals 14, 18, 22 and 26 are used for routing the detector B-leads to the controller. Terminals 16, 20, 24 and 28 are connected to the comparator output terminal of the controller. The common connection of the eight "parallel" zone relay contacts is wired in series with the timed relay of the controller.

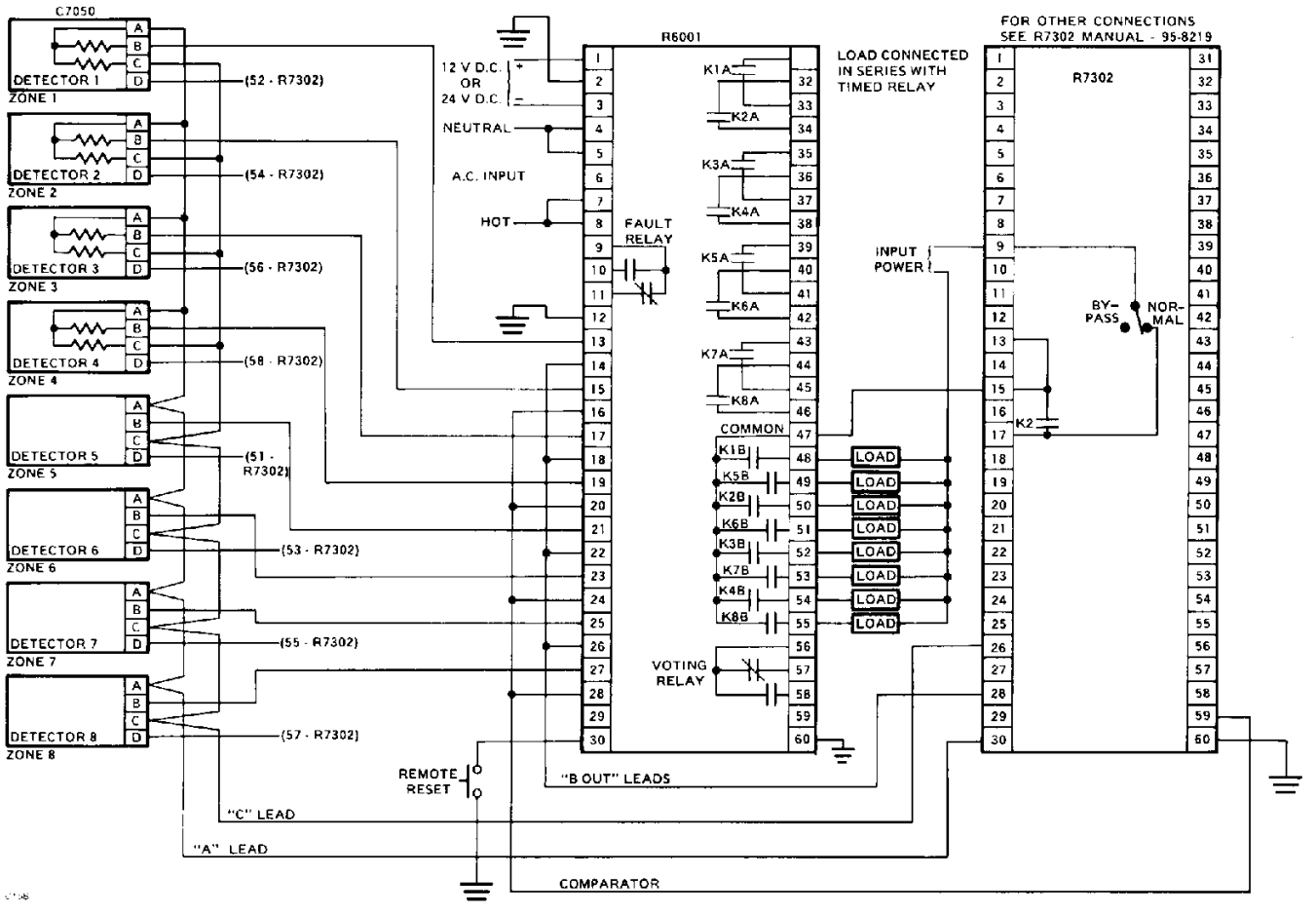


Figure 12—Typical System Using the R6001 Auxiliary Zone Unit and one R7302 Controller with Eight Detectors, Eight Zones

The system shown in Figure 13 includes:

- One R7303 or R7300B Controller*
- One R6003 Auxiliary Zone Unit wired to monitor eight zones and to actuate eight load circuits
- Eight C7050 Detectors connected to the controller and to the eight separate zone inputs of the R6003.

Terminals 10, 14, 18 and 22 are used for routing the detector B-leads to the controller. Terminals 11, 15, 19 and 23 are connected to the comparator output terminal of the controller. The common connection of the eight "parallel" zone relay contacts is wired in series with the timed relay of the controller.

*The field wiring terminals of the R7303 and R7300B are identical.

The system shown in Figure 14 includes:

- One R7301 Controller
- One R6001 Auxiliary Zone Unit wired to monitor four zones and to actuate four load circuits
- Eight C7050 Detectors connected to the R7301 and to four separate zone inputs of the R6001. (A maximum of four zones are permitted in the system in order to maintain B-lead supervision.)

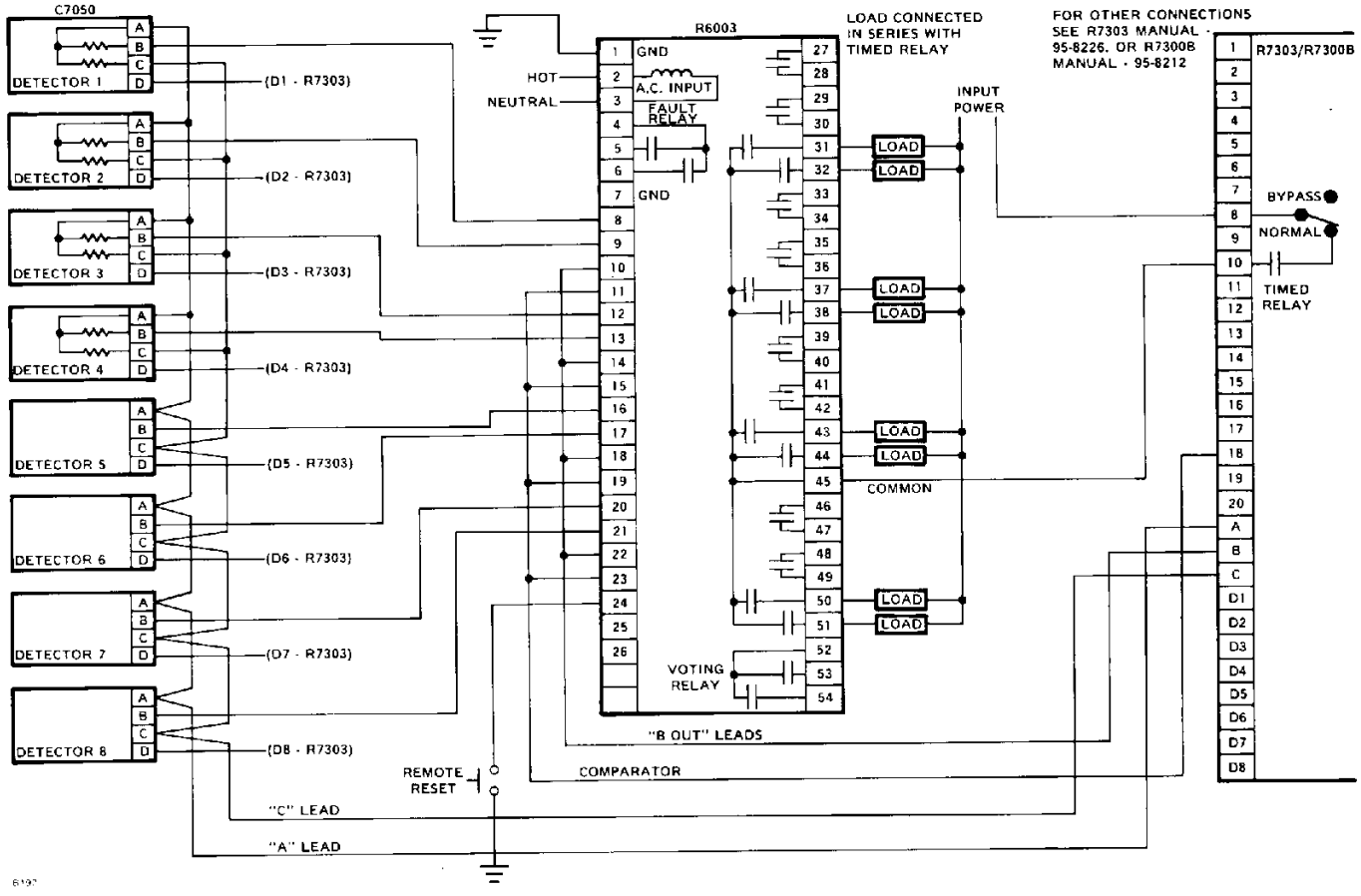


Figure 13—Typical System Using the R6003 Auxiliary Zone Unit and one R7303 (or R7300B) Controller with Eight Detectors, Eight Zones

The system shown in Figure 15 includes:

- One R7302 Controller
- One R6001 Auxiliary Zone Unit wired to monitor four zones and to actuate pump shutdown and extinguish circuits (in conjunction with R7302 relay action)
- Four C7050 Detectors connected to the R7302 and to four separate zone inputs of the R6001.

The pump shutdown circuit is actuated when any one of the four "parallel" zone relays is energized. The alarm circuit is actuated when the instant relay of the R7302 is energized. The extinguish circuit is actuated when both the R6001 voting relay and the R7302 timed relay (wired in series) are energized.

The system shown in Figure 16 includes:

- One R7303 or R7300B Controller
- One R6003 Auxiliary Zone Unit wired to monitor four zones and to actuate pump shutdown and extinguish circuits (in conjunction with controller relay action)
- Four C7050 Detectors connected to the controller and to four separate zone inputs of the R6003.

The operation of this system is identical to that of the system shown in Figure 15. The pump shutdown circuit is actuated when any one of the four "parallel" zone relays is energized. The alarm circuit is actuated when the instant relay of the controller is energized. The extinguish circuit is actuated when both the R6003 voting relay and the controller's timed relay (wired in series) are energized.

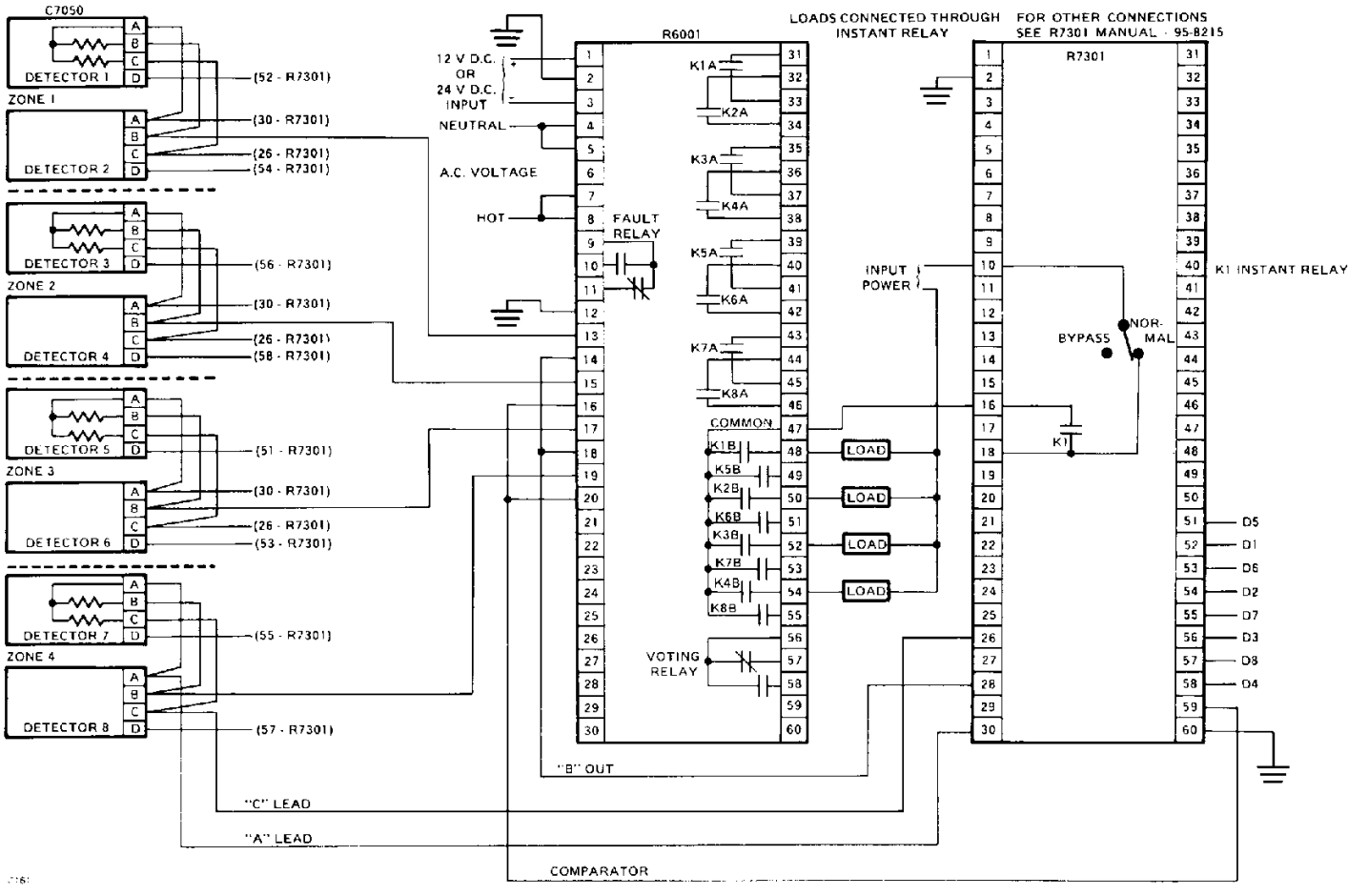


Figure 14—Typical System Using R6001 Auxiliary Zone Unit and one R7301 Controller with Eight Detectors, Four Zones and Four EOL Resistors

The system shown in Figure 17 includes:

- Two R7302 Controllers
- One R6001 Auxiliary Zone Unit wired to monitor four zones and to actuate four remote zone indicators, a fault alarm, and four independent extinguishing systems (in conjunction with R7302 relay action)
- Twelve C7050 Detectors connected to four zone inputs of the R6001 and (six each) to the R7302 Controllers.

Four "parallel" zone relays are wired to illuminate four remote ZONE indicators. Four independent zone relays are each wired in series with the R7302 timed relay to (independently) actuate the four zone extinguishing systems. The fire alarm is actuated by either R7302 instant relay. The trouble alarm is actuated by the fault relay of the R6001 or of either R7302.

The system shown in Figure 18 includes:

- Two R7303 or R7300B Controllers
- One R6003 Auxiliary Zone Unit wired to monitor four zones and to actuate four remote zone indicators, a fault alarm, and four independent extinguishing systems (in conjunction with controller relay action)
- Twelve C7050 Detectors connected to four zone inputs of the R6003 and (six each) to the controllers.

The operation of this system is identical to that of the system shown in Figure 17. Four "parallel" zone relays are wired to illuminate four remote ZONE indicators. Four independent zone relays are each wired in series with the controller's timed relay to independently actuate the four zone extinguishing systems. The fire alarm is actuated by either controller's instant relay. The trouble alarm is actuated by the fault relay of the R6003 or of either controller.

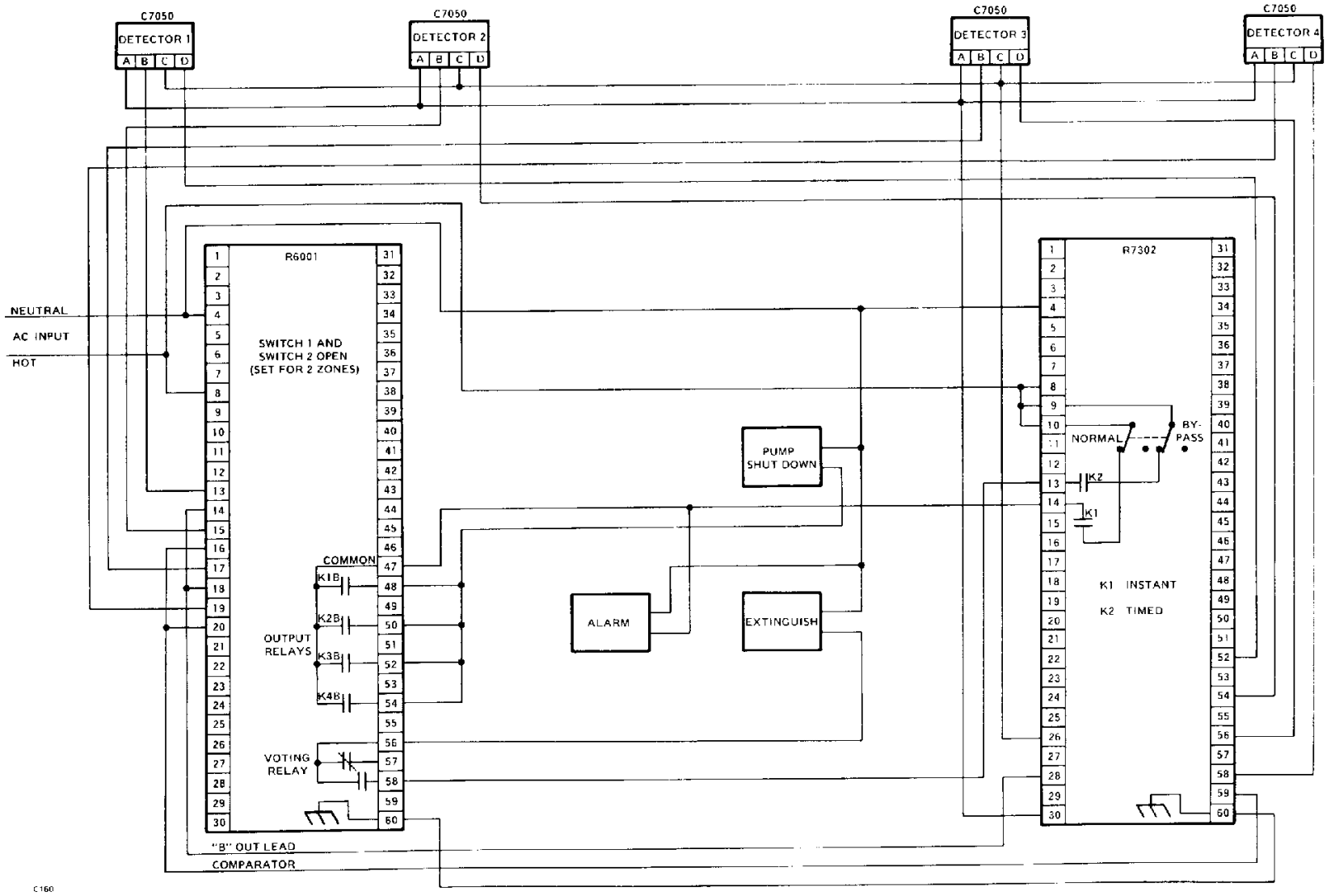


Figure 15—Typical System Using the R6001 Auxiliary Zone Unit and one R7302 Controller with Voting Relay in Series with the Timed Relay of the R7302

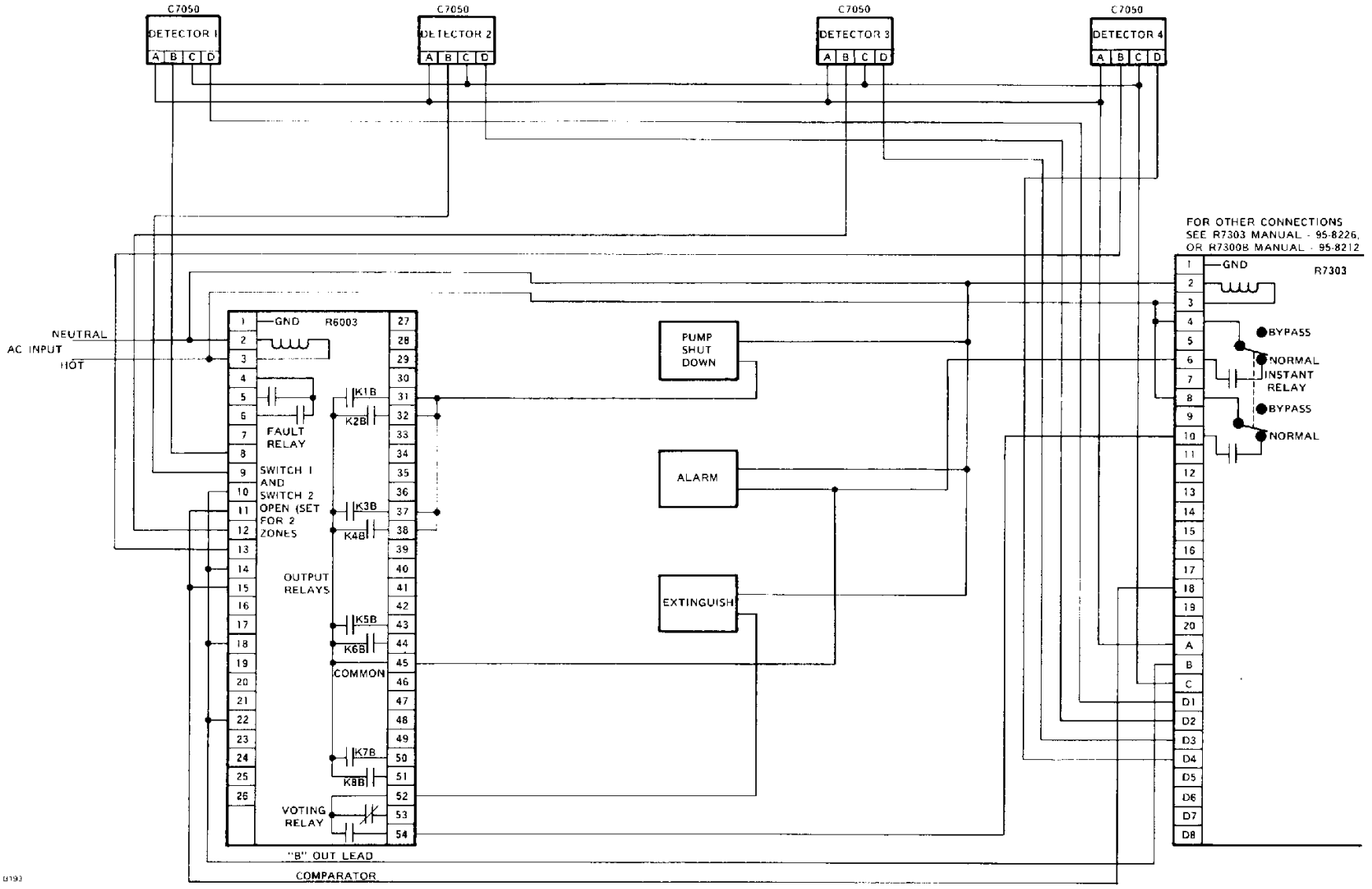


Figure 16—Typical System Using the R6003 Auxiliary Zone Unit and one R7303 (or R7300B) Controller with Voting Relay in Series with the Timed Relay of the R7303 (or R7300B)

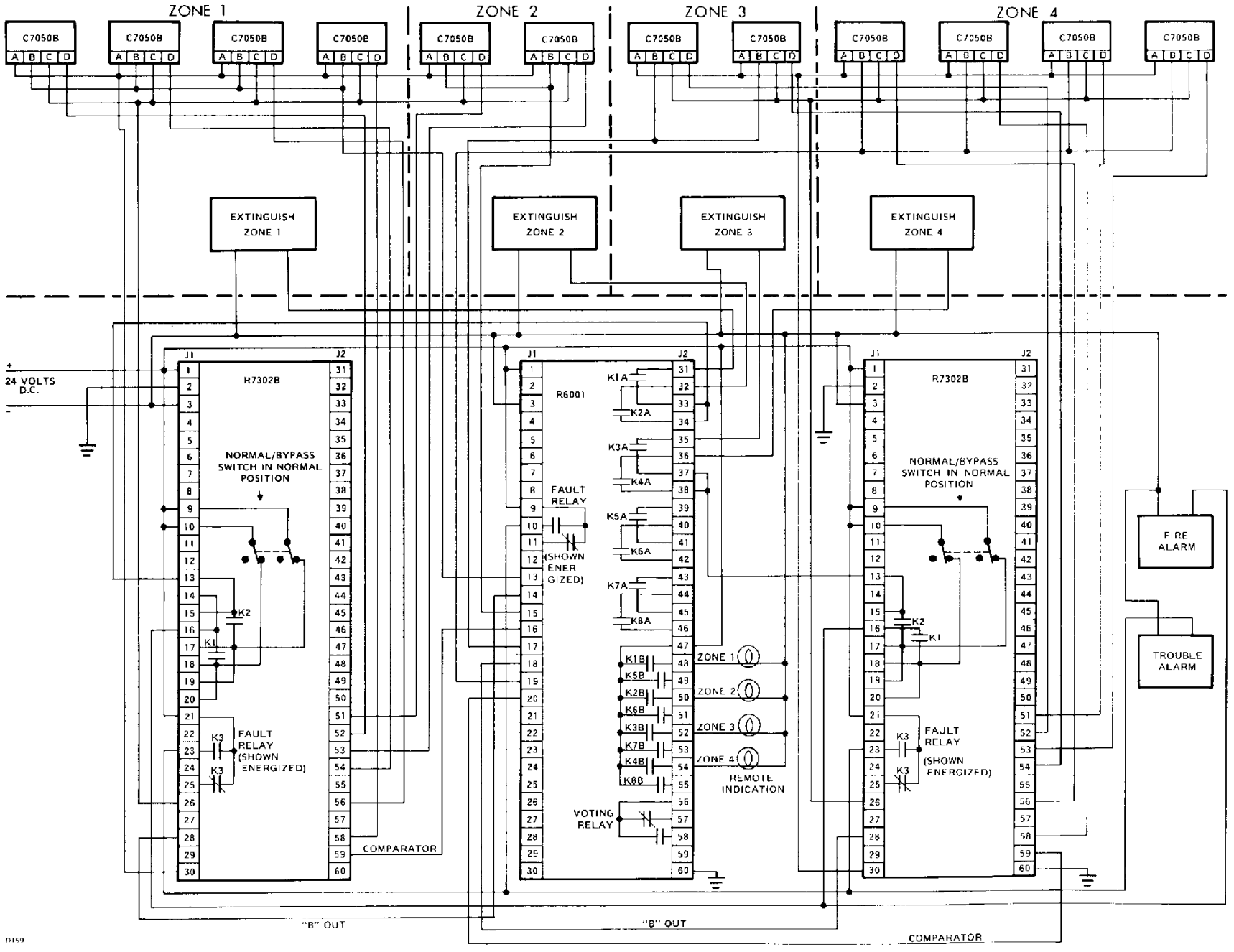


Figure 17—Typical System Using one R6001 Auxiliary Zone Unit and two R7302 Controllers with Remote Indication

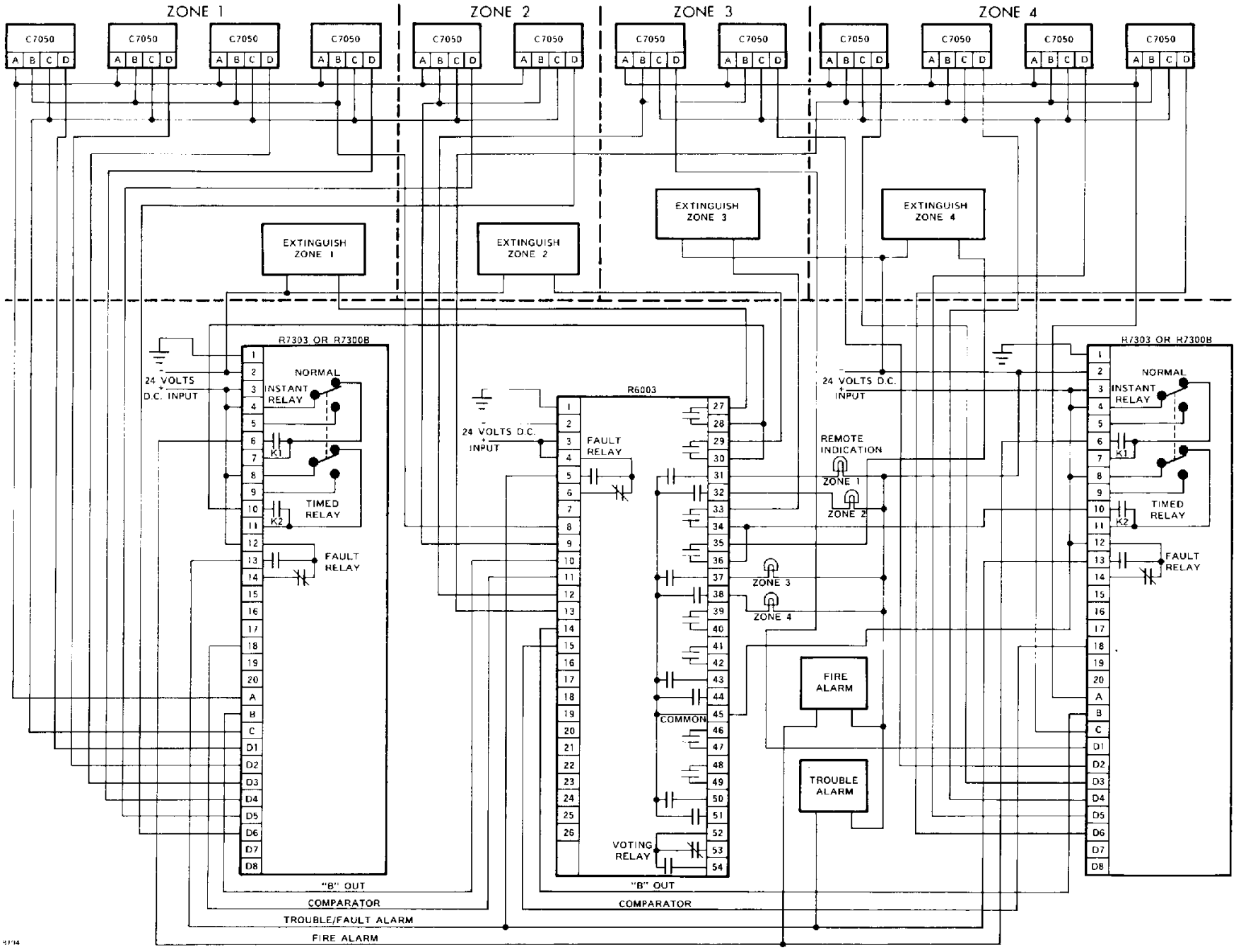


Figure 18—Typical System Using one R6003 Auxiliary Zone Unit and two R7303 (or R7300B) Controllers with Remote Indication

CHECKOUT/TROUBLESHOOTING PROCEDURE

The Auxiliary Zone Unit should be periodically checked. The checkout procedure used in testing the controller also checks the Auxiliary Zone Unit. (See the R7300B Instruction manual 95-8212, the R7301 Instruction manual 95-8215, the R7302 Instruction manual 95-8219, or the R7303 Instruction manual 95-8226.) Placing the controller NORMAL/BYPASS switch in the BYPASS position turns on the FAULT lamp of the controller (but not that of the Auxiliary Zone Unit) and places the system in the "manual check" mode. On the R7302 and R7303, the digital display is activated.

CAUTION

The normally open contacts of the Auxiliary Zone Unit relays must be connected in series with the instant or timed normally open relay contacts of the controller, or must have a separate bypass switch to prevent false actuation during testing. The normally closed contacts must be connected in parallel with the instant or timed normally closed relay contacts of the controller, or must have a separate bypass switch to prevent false actuation during testing.

The DETECTOR display of the R7302 or R7303 will show the number of the detector being checked by the manual test circuitry. The FAULT display will alternately blink from the numeral eight to the numeral two. Depressing the TEST button switch on the controller will light the controller INSTANT lamp and a ZONE LED on the Auxiliary Zone Unit. The right digit display of the controller (R7302 or R7303) will show a "0" after 3 seconds. Releasing the TEST button switch on the controller and pushing the SELECT button programs the controller to test the next detector.

R7301 and R7300B Controllers employ an eight position rotary switch to select the detector to be tested. When the oi TEST button is depressed, the INSTANT lamp on the controller and the auxiliary zone unit ZONE LED that corresponds to the detector under test will be illuminated. Rotate the DETECTOR SELECT switch to select each of the detectors. The voting relay will be energized when the preselected number of zones have latched in.

The above sequence should be used to check each detector in the system. The ZONE LEDs and relays on the Auxiliary Zone Unit stay on (latched) until the R6001 or R6003 RESET button is depressed. **Reset the Auxiliary Zone Unit before resetting the controller.** To reset the Auxiliary Zone Unit, depress the RESET button. To reset the controller, place the NORMAL/BYPASS switch in the NORMAL position and depress the FAULT-RESET indicator switch. This turns off the digital display (R7302 and R7303) and the FAULT lamp on the controller.

TROUBLESHOOTING THE R6001 OR R6003 USING THE R7302 OR R7303 CONTROLLER

1. Place the NORMAL/BYPASS switch of the controller in the BYPASS position.

   a. The FAULT lamp on the controller is illuminated. Note that the FAULT lamp/LED on the R6001 or R6003 is not illuminated.

   b. The controller digital display is activated. The DETECTOR display registers the number of the detector under test, and the FAULT display alternately blinks an 8 and a 2.

WARNING

If the output relays of the Auxiliary Zone Unit are not wired in series with the instant or timed relays of the controller, an external method of switching them into bypass is required when making the manual checks.

2. Press the oi TEST button on the controller.

   a. The controller INSTANT lamp is illuminated.

   b. The appropriate ZONE LED on the Auxiliary Zone Unit is illuminated to indicate that the zone of the detector under test has responded.

   c. The controller FAULT display changes to a "0" after three seconds.

   d. The TIMED lamp on the controller is illuminated at the end of the time delay.

If a ZONE LED does not come on as each detector is tested, but the INSTANT lamp on the controller turns on, a failure in the Auxiliary Zone Unit is indicated. If neither lamp comes on during the manual test, a failure in the detector or controller is indicated. See appropriate controller manual for corrective measures.

3. Release the controller oi TEST button and depress the detector SELECT button.

   a. The controller's DETECTOR display changes to indicate the next (lower number) detector for test.

   b. The ZONE LED illuminated in the preceding test stays on as each zone is tested.

   c. The voting lamp/LED is illuminated after the preselected number of zones have latched in.

4. Reset the R6001/R6003 and place controllers in normal after troubleshooting is completed.

NOTE

If more than one detector is connected into each zone, reset the R6001 or R6003 after each detector check.

The fault circuit of the Auxiliary Zone Unit gives an indication only when there is a failure in the power supply or when the voting relay is removed. These faults do not activate the digital display of the R7302 or R7303.

TROUBLESHOOTING THE R6001 OR R6003 WITH THE R7300B OR R7301 CONTROLLER

1. Place the controller NORMAL/BYPASS switch in the BYPASS position.

   a. The FAULT lamp on the front panel of the controller is illuminated. Note that the FAULT indicator on the R6001/R6003 is not illuminated.

WARNING

If the output relays of the Auxiliary Zone Unit are not wired in series with the instant or timed relays of the controller, an external method of switching them into bypass is required when making manual checks.

2. Rotate the DETECTOR rotary switch on the controller to position 1.

3. Press the oi TEST button on the controller.

   a. The INSTANT lamp on the controller is illuminated.

   b. The ZONE indicator on the R6001/R6003 associated with that detector is illuminated.

If a ZONE indicator on the R6001/R6003 does not light, but the INSTANT lamp (on the controller) lights, there is a fault in the Auxiliary Zone Unit. If neither lamp lights, the detector or the controller is defective. See the controller instruction manual for corrective measures.

4. Release the oi TEST button on the controller.

   a. The INSTANT lamp on the controller goes out.

   b. The ZONE indicator on the R6001/R6003 stays on (latched).

NOTE

Reset the R6001/R6003 after each test if more than one detector is connected to each zone.

5. Rotate the DETECTOR rotary switch on the controller to positions 2 through 8 (or to the positions of the connected detectors if less than eight are used) and repeat steps 3 and 4.

6. Voting indicator comes on after the preselected number of zones have latched in.

7. Reset the R6001/R6003 and place controllers in normal after troubleshooting is completed.

ORDERING INFORMATION

When ordering, specify either model R6001 or model R6003 and:

1. The number of zones - 2 zones, 4 zones, 6 zones or 8 zones.

2. Input - 120 Vac, 50/60 Hz
   220/240 Vac, 50/60 Hz
   12 Vdc
   24 Vdc

3. Either N.O. or N.C. independent relay contacts.

4. Automatic ac to dc switchover.

5. Options -

   - Q4001 metal cage for mounting the R6001 Auxiliary Zone Unit and/or the R7302 and R7301 Controllers. The Q4001A can hold up to four units, see form 95-8217 for details. The Q4001B holds one unit, see form 95-8234 for details. The Q4001C holds five units. The Q4001D holds two units.

   - Q1016 watertight and dust-tight Nema 4 enclosure for mounting the R6003 Auxiliary Zone Unit in non-hazardous locations. See form 90-1006.

   - Q1019 explosion-proof enclosure for mounting the R6003 Auxiliary Zone Unit. See form 90-1007 for details.

   - C7050 Detector. See form 95-8214 for details.

   - R7300B Controller. See form 90-1002 for details.

   - R7301 Controller. See form 90-1002 for details.

   - R7302 Controller. See form 90-1004 for details.

   - R7303 Controller. See form 90-1010 for details.

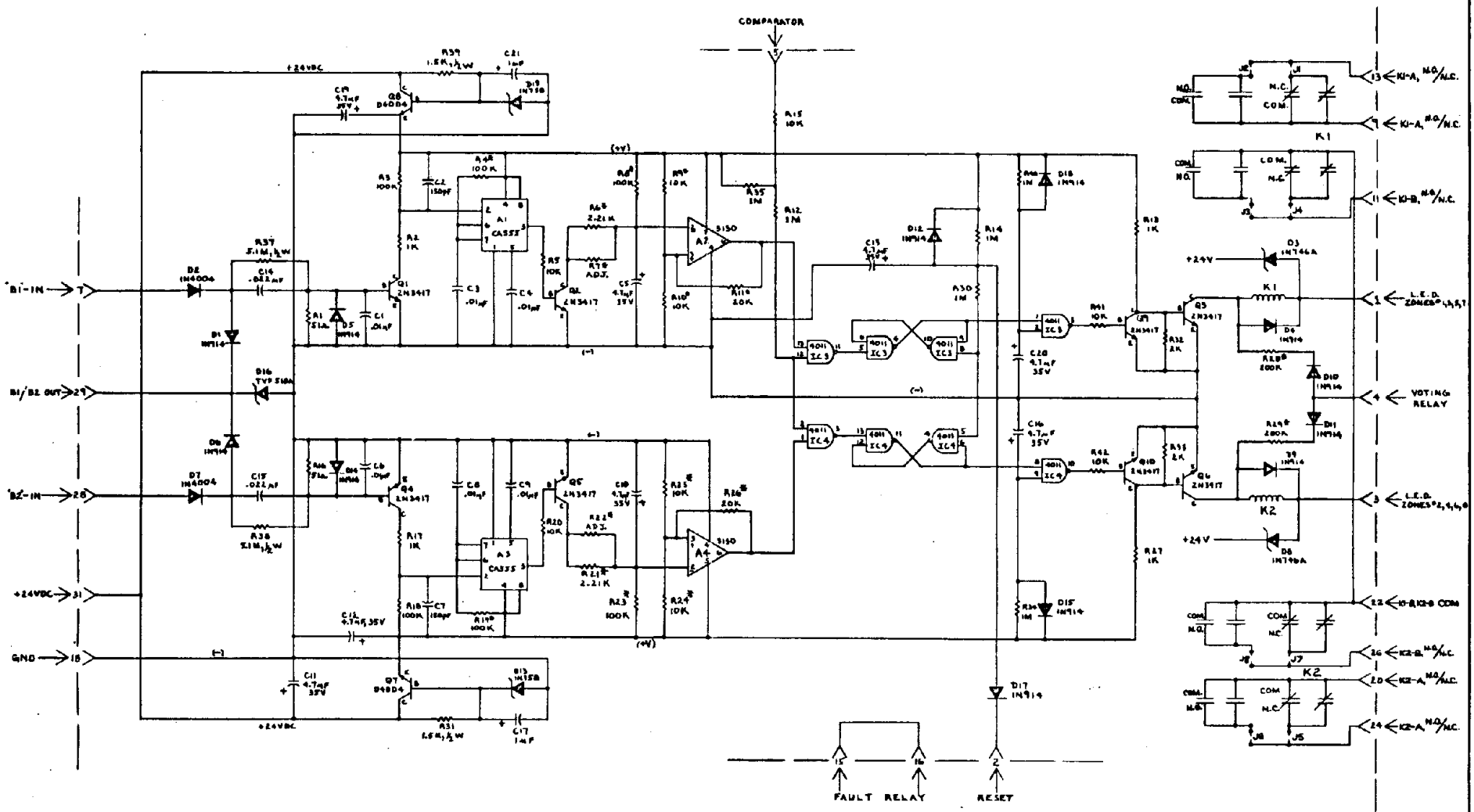
REPLACEMENT PARTS

Part Number	Description	Recommended Quantity
002458-001	Plug-in zone board with normally open contacts	1
002458-002	Plug-in zone board with normally closed contacts	1
101017-004	Lamp, 28 volt	2
101164-001	Plug-in relays (voting, fault)	1
002453-001	Inverter board (24 Vdc)	1
002453-002	Inverter board (12 Vdc)	1

DEVICE REPAIR

For devices or components in need of repair, contact your local source or return transportation prepaid to:

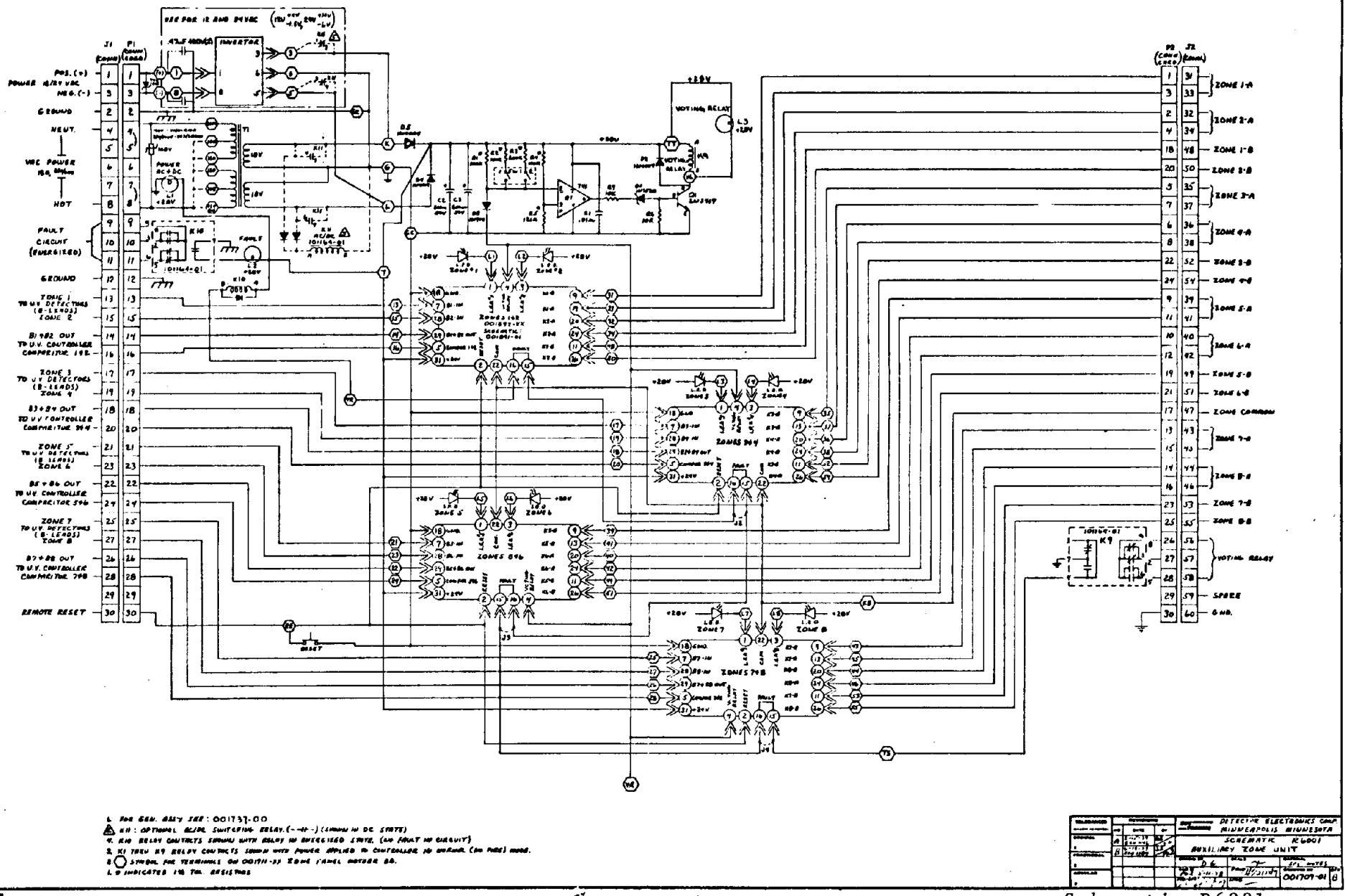
Detector Electronics Corporation
Return Goods Department
6901 West 110th Street
Minneapolis, Minnesota 55438 U.S.A.



1. FOR ASS'Y SEE 001895-01
2. >>- SYMBOL USED TO INDICATE PIN CONNECTIONS.
3. ALL RESISTORS ¼ W UNLESS OTHERWISE INDICATED.
4. * INDICATES 1% TOL. RESISTOR.

DETECTOR ELECTRONICS CORP.
MINNEAPOLIS, MINNESOTA
SCHEMATIC
AUXILIARY ZONE UNIT
001891-01 B

Schematic Auxiliary Zone Unit



1. FOR GEN. ASS'Y SEE: 001737-00
2. K11: OPTIONAL AC/DC SWITCHING RELAY. (--||--) (SHOWN IN DC STATE)
3. K10 RELAY CONTACTS SHOWN WITH RELAY IN ENERGIZED STATE. (NO FAULT NO CIRCUIT)
4. K1 THRU K9 RELAY CONTACTS SHOWN WITH POWER APPLIED TO CONTROLLER NO ALARM. (NO FIRE) MODE.
5. ⬡ SYMBOL FOR TERMINALS ON 001719-01 ZONE PANEL MOTHER BD.
6. Ω INDICATES 1/4 WATT RESISTORS

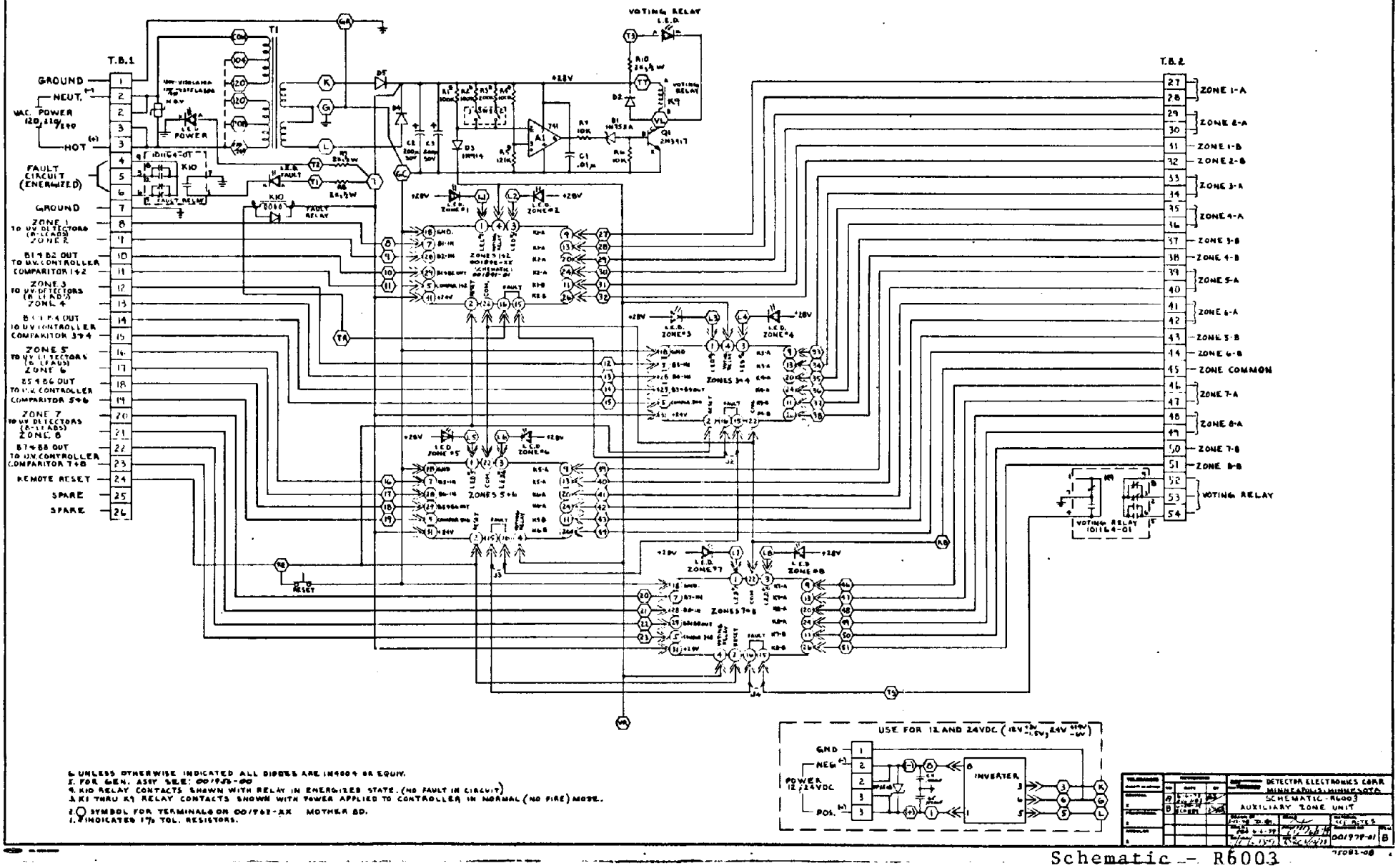
DETECTOR ELECTRONICS CORP. MINNEAPOLIS MINNESOTA

SCHEMATIC R6001

AUXILIARY ZONE UNIT

001709-01 B

Schematic R6001
Auxiliary Zone Unit



6. UNLESS OTHERWISE INDICATED ALL DIODES ARE IN4004 OR EQUIV.
5. FOR GEN. ASSY SEE: 00/978-00
4. K10 RELAY CONTACTS SHOWN WITH RELAY IN ENERGIZED STATE. (NO FAULT IN CIRCUIT)
3. K1 THRU K9 RELAY CONTACTS SHOWN WITH POWER APPLIED TO CONTROLLER IN NORMAL (NO FIRE) MODE.
2. ○ SYMBOL FOR TERMINALS ON 00/962-XX MOTHER BD.
1. * INDICATES 1% TOL. RESISTORS.

DETECTOR ELECTRONICS CORP.
MINNEAPOLIS, MINNESOTA
SCHEMATIC - R6003
AUXILIARY ZONE UNIT
00/979-01 B

Schematic – R6003
Auxiliary Zone Unit