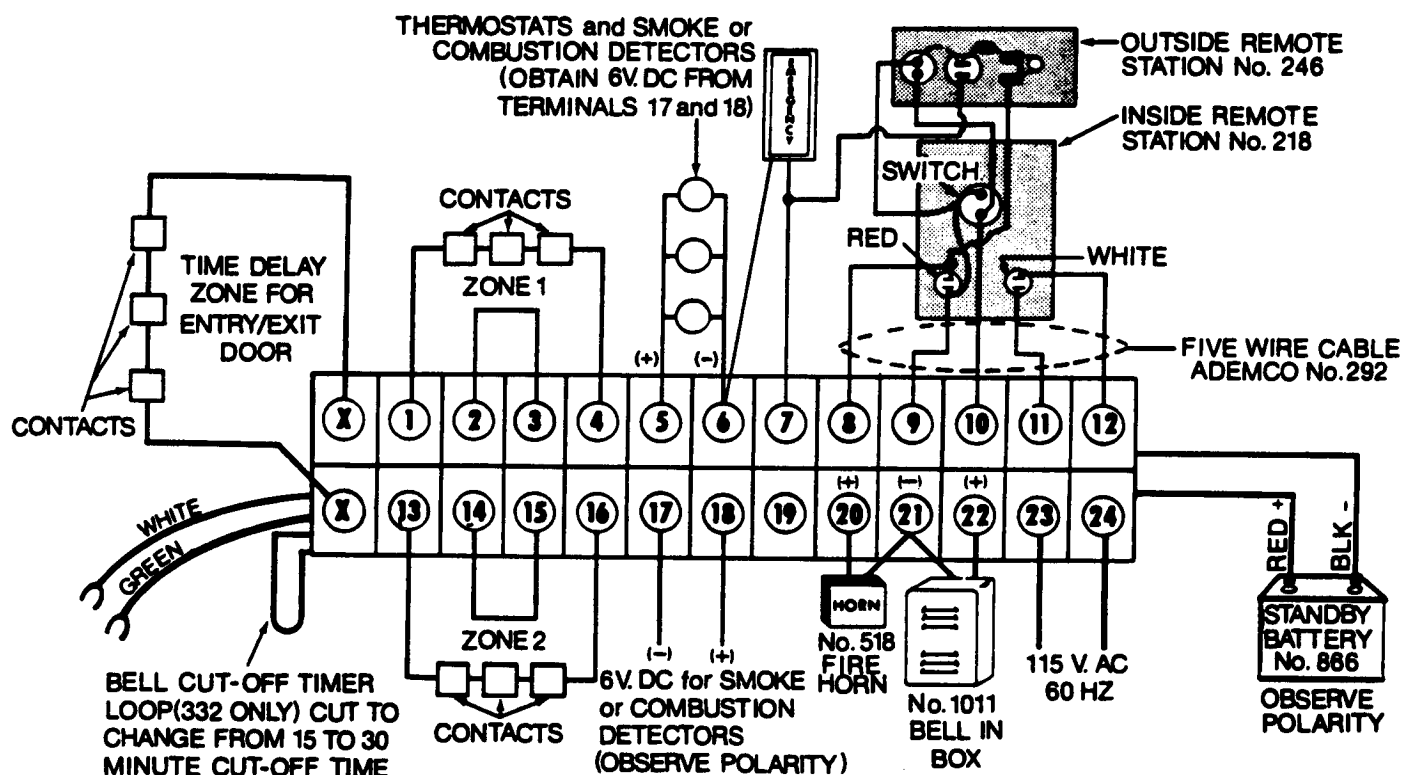


Nos. 331, 332 COMBINATION FIRE-BURGLAR CONTROL



TERMINALS

X-X

Entry/Exit Delay Zone

WIRING INSTRUCTIONS

Wire Entry/Exit Doors here. To set delays turn both delay wheels to extreme left. Turn entry wheel half way. Create an alarm condition after 20 seconds and note length of time for bell to ring. Readjust if desired. Turn exit wheel halfway. Arm system and start timing at once. Remove wire from one terminal X. Stop timing when alarm sounds and subtract entry time. Remainder is exit time. Readjust if desired.

"No Delay" Switch

If you wish the ability to set the control panel and eliminate the delay while on the premises, connect a No. 258 Toggle Switch to the white and green leads coming out of the left bottom corner of the wired chassis. With the switch "ON", the delay is eliminated.

1-2-3-4

Zone 1

Protective Circuit. Start at Terminal 1 & 2 with two conductor wire. Return wire to Terminals 3 & 4. Add closed circuit contacts in series between 1 & 4 as shown. For easy troubleshooting, protective circuit may be divided into two zones (see terminals 13-16).

5-6

Fire Detection

Wire thermostats (e.g.: Nos. 502, 504) and contacts of smoke detectors and/or combination detectors in parallel. Also see terminals 17, 18.

6-7

Emergency Buttons

Wire as shown using No. 219 normally open momentary contact buttons. Additional No. 219 Buttons may be wired in parallel.

Remote Stations

Wire No. 218 or No. 218L Inside Remote Stations as shown, using No. 292 five wire cable. Wire Outside Remote so that key lock switch at entrance door connects to Terminals 9 & 10; unused terminal on red light is wired to Terminal 8. Unused terminal on panic button is wired to terminal 7. Note: Additional Remotes may be wired in parallel, as shown.

13-14-15-16	Protective circuit for second zone. Convenient for isolating trouble by dividing circuit. Also ideal for mats, photocells, ultrasonics, etc. Mats must be installed with No. 602 Coupler. Zone may be turned OFF by zone switch on panel.
Zone 2	
17-18	6V. DC (1 amp. max. recommended) output for powering smoke detectors and/or combustion detectors. OBSERVE POLARITY! Also see terminals 5,6.
Power for Smoke or Combust. Det.	
19	For connection to optional Entry Delay Warning Device (No. 706). See instructions with No. 706.
20-21	Horn sounds for fire. Use Ademco No. 518 Horn. (No. 700 Siren may also be used)
6V. DC Fire Horn	
21-22	OUTDOORS used No. 1011 Bell-in-Box. INDOORS use No. AD-8 Bell. (No. 700 Siren may also be used)
6V D.C. Burglar Bell	
23-24	To 115V AC - replace terminal cover after connecting wires.
Bell Cut-off	Model No. 332 (only) has automatic bell shut-off after fifteen minutes. Shut-off time may be increased to 30 minutes by cutting the yellow time loop wire at the bottom left hand side of the panel (facing front of panel).
Short Circuit Lamp	If a short circuit develops in either Zone 1 or Zone 2 of the protective circuit, a lamp (Ademco No. 47) on the back left hand side of the chassis will light. To test lamp, short terminals 3 and 4. Note: If lamp is burned out, panel will not arm (white lamps on remote stations won't light).

When connecting additional remote stations, emergency buttons, or thermostats, wire in parallel. Connect these devices either directly to the terminal strip on the control or to the corresponding rear connections on any like device already installed, depending upon which method results in the shortest wire runs.

To turn system ON, turn key to right and allow key to spring back. To turn system OFF, turn key to right again. When using push button remote stations, push to turn ON, push again to turn OFF. When emergency buttons, thermostats, smoke or combustion detectors are operated, the system must be reset by depressing the RESET button. (Thermostats reset only after they have cooled. Smoke or combustion detectors reset only after smoke has been removed).

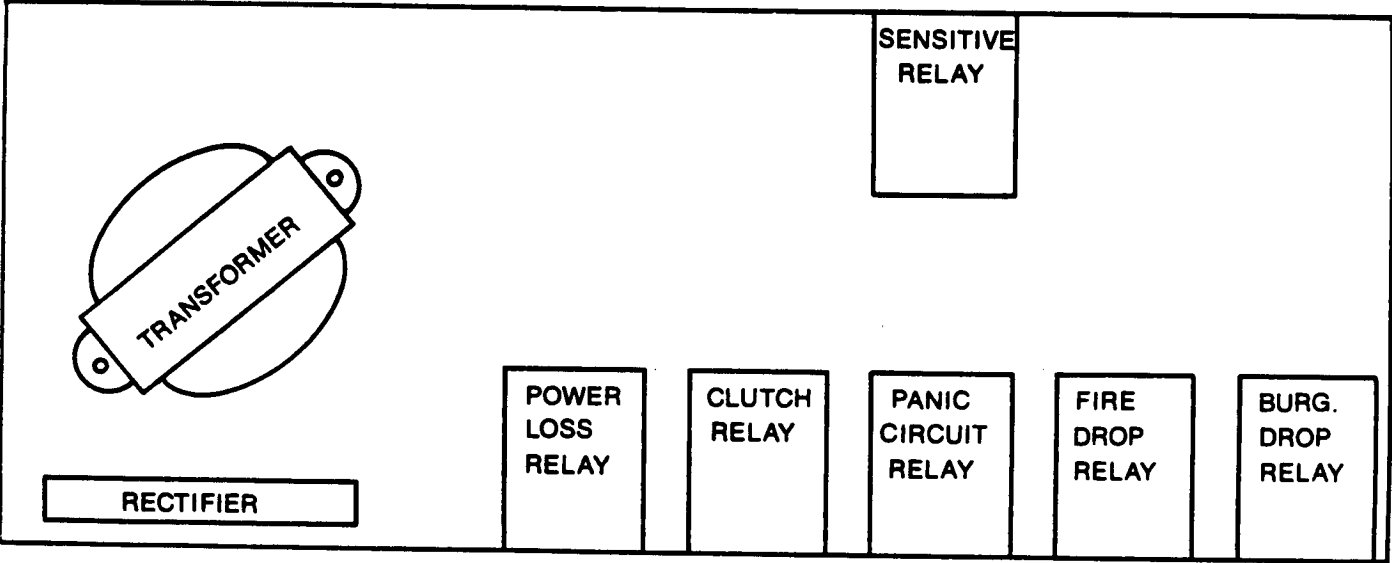
Fire reset button may be used to reset burglary bells also - this will be helpful when troubleshooting the control instrument.

CAUTION: DO NOT RESET CIRCUIT BREAKERS UNLESS REASON FOR "TRIP" HAS BEEN CORRECTED.

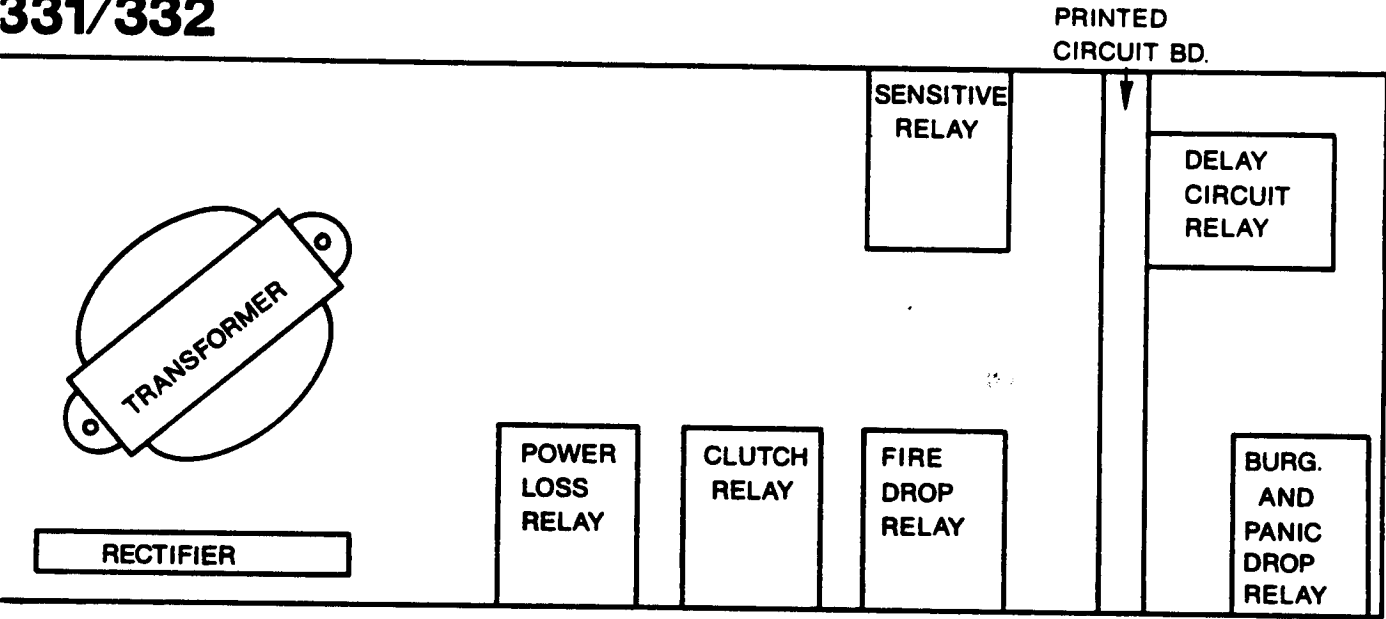
Nos. 330, 331, 332

RELAY LOCATIONS

330



331/332



Nos. 330, 331, 332

COMBINATION ALARM SYSTEM CHECKOUT

Note: In order to simplify troubleshooting, a No. 218 Remote Control and a No. 707 Dual-Tone Mini-Howler should be pre-wired with flying leads in order to operate the control panel from where the cabinet is mounted.

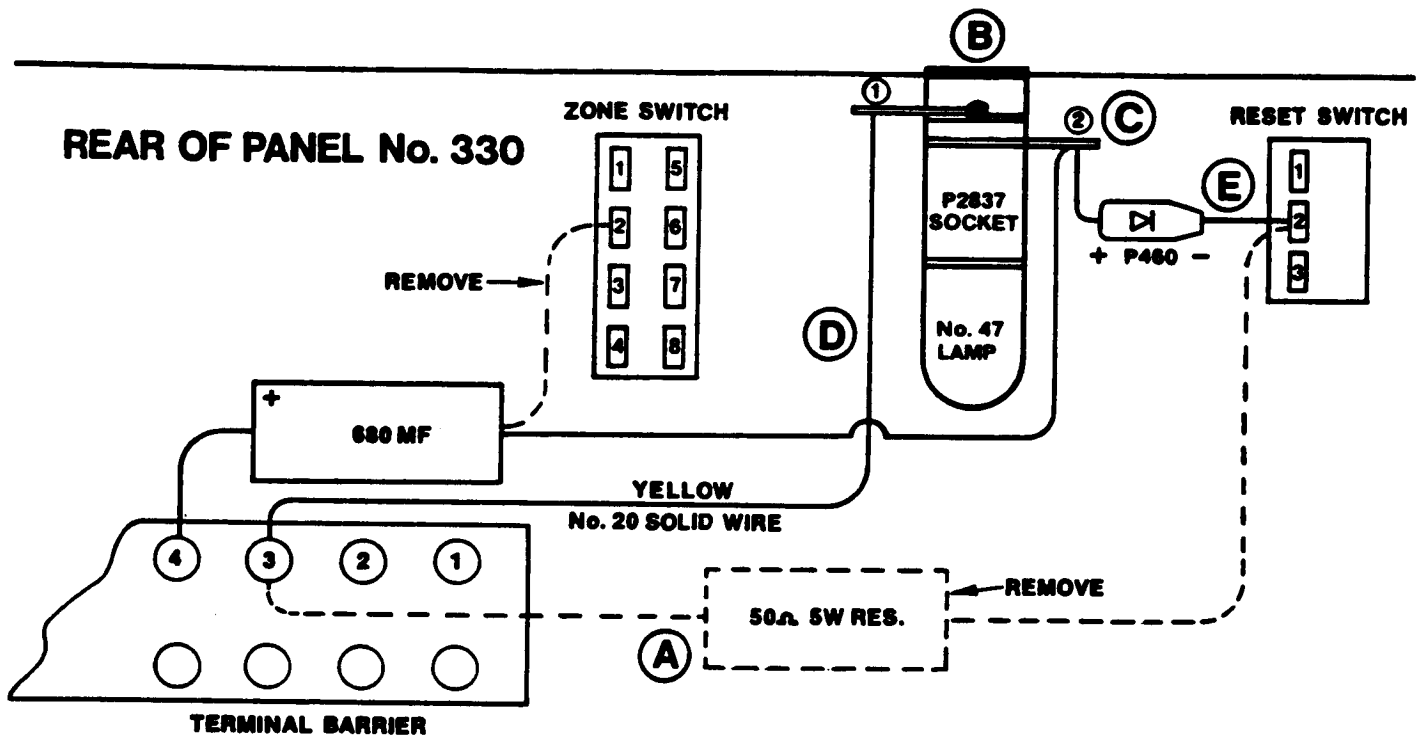
DETERMINE IF THE PROBLEM IS IN THE PANEL

1. Remove all external wires from the panel except A.C. and standby battery.
2. Attach a No. 218 to terminals 8, 9, 10, 11, and 12 and attach a No. 707 to terminals 20, 21 and 22.
3. Jumper the protective circuit terminals on the control, i.e., 1 and 4, 2 and 3, 13 and 16, and 14 and 15. (For the No. 331 and No. 332, a jumper must also be placed between terminals x and x.)
4. With the white light of the remote station "ON", remove the jumper wire from terminal 1. This should cause the white light to go out.
5. Move the zone switch from "1 and 2 ON" to "Zone 1 OFF". The white light should come back on.
6. Connect the jumper back on terminal 1 and remove the jumper wire from terminal 13. The zone switch should be returned to "1 and 2 ON", and the white light should go out.
7. Moving the zone switch to "Zone 2 OFF" should cause the white light to come on once again.
8. Depress the button on the No. 218 Remote Control several times and make certain that the red and white lights switch back and forth.
9. Put the system into a red light condition and move the zone switch to "Zone 1 and 2 ON". This should cause the horn to sound. Push the button on the No. 218 to turn the horn off.
10. Momentarily short terminal 6 and 7 to activate the panic circuit. The horn should sound until reset by pushing the slide switch located on the chassis.
11. Making certain that the A.C. is connected and the standby battery attached, reconnect the jumper wire to terminal 13. Cycle the panel to a red light condition and push then release the A.C. circuit breaker several times. The alarm should not activate when performing this test.
12. Momentarily short terminals 5 and 6 to activate the horn on the fire alarm circuit. Reset by pushing the slide switch on the chassis.

Note: When checking the No. 331 and No. 332 controls, the delay circuits should be tested using the above method and following the wiring instructions supplied with each unit. Connecting the green and white wire together turns the delay circuit off. On older panels, without the green and white wires, a jumper must be placed between terminals 8 and 19 in order to turn the delay circuit on.

No.330 MODIFICATION KIT

NOTE: On older No. 330 Alarm Systems it may be desired to install this modification if the alarm bell should sound during an AC power failure. See TROUBLE 2, Part D, in this section.



INSTALLATION INSTRUCTIONS FOR THE SA 349

- Remove 50 ohm 5 watt resistor connected to terminal barrier No. 3 and reset switch terminal No. 2.
- Slip socket clip over edge of panel.
- Remove negative (-) lead of 680 MF capacitor from zone switch terminal No. 2 and connect to terminal No. 2 of lamp socket.
- Connect yellow wire attached to socket to terminal barrier No. 3.
- Connect P460 diode lead attached to socket to reset switch terminal No. 2.

TROUBLESHOOTING Nos. 330,331 AND 332

TROUBLE: 1. SYSTEM APPEARS TO HAVE NO POWER.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Tripped circuit breaker</u> (check for short circuits in remote station wiring as a cause of circuit breaker tripping).	A. <u>Push the circuit breaker, marked "RED LIGHT RESET".</u>
B. <u>Standby battery disconnected, accompanied by loss of AC power.</u>	B. <u>Check connections of standby battery to the red and black flying leads from control panel. Be sure wall outlet into which unit is plugged has power at all times.</u>

TROUBLE: 2. BELL RINGS ON AC POWER FAILURE.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Leads to standby battery are reversed.</u>	A. <u>Reverse leads on standby battery.</u>
B. <u>Dirty contacts on power loss relay</u> (see location sheet).	B. <u>Clean contacts with a burnishing tool and/or spray cleaner</u> (catalog Nos. 316 and 317).
C. <u>Weak standby battery</u> (measure voltage of battery with AC unplugged and bell ringing. Look for 6 volts at battery terminals).	C. <u>Replace battery</u> if voltage is too low.
D. <u>Modification kit is needed to extend transfer time</u> (for all 330 Series controls that do NOT have the white indicator lamp informing of a short circuit condition).	D. <u>Order No. SA 349 modification kit and make the required changes to the panel.</u>

TROUBLE: 3. BELL SOUNDS WHENEVER SYSTEM IS ARMED.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Break in protective circuit wires, contacts, foil, or sensitive relay coil</u> (any such condition will cause the white light on the remote station to remain OFF).	A. <u>Check protective circuit as described in Part I, Section H</u> (check sensitive relay coil with an ohmmeter to determine if open in coil. If so, replace. See diagram for relay locations).
B. <u>Burned out Short Circuit Lamp</u> (located on lefthand side of panel). An immediate alarm will occur if system is armed in this condition.	B. <u>Test bulb by shorting terminals 3 and 4. If bulb fails to light, replace with Ademco No. 47 bulb.</u>

PROBABLE CAUSE

REMEDY

- C. Sticking latching bell relay or sensitive relay contacts (see diagram for locations or relays).

- C. Visually inspect relay contacts for sticking condition. Clean and burnish as required (use burnishing tool and/or spray cleaner catalog Nos. 316 and 317). Replace relay if cleaning fails to cure condition.

TROUBLE: 4. BELLS DO NOT YIELD FULL SOUND.

PROBABLE CAUSE

REMEDY

- A. Panel is operating from weak standby battery (normally AC line current is used to operate panel, and the standby battery is used only in the event of a power outage).
- B. Bell line run does not conform to specified procedures (see note at the end of this section; see also, Part I, Section G).
- C. Improper bell mounting has caused clapper to jam.
- D. Short circuit in bell wires (see Part I, Section G for troubleshooting bell connection).
- E. Defective bell (if possible, test system with new bell).

- A. Replace standby battery. Be sure that AC outlet is a 24 hour outlet.
- B. Make changes in bell wiring.
- C. Inspect mounting and bell dome position. Correct any binding or jamming.
- D. Replace wires to bell, being careful to avoid conditions that will cause short circuits.
- E. Replace bell if necessary.

TROUBLE: 5. REMOTE STATION INDICATOR AND ALARM SYSTEM WILL NOT SWITCH FROM A DISARMED CONDITION TO AN ARMED CONDITION OR VICE VERSA.

PROBABLE CAUSE

REMEDY

- A. Defective remote keyswitch, remote pushbutton or open wires leading to terminals 9 and 10 of panel (use a jumper and momentarily short terminals 9 and 10 in the control panel to verify operation).
- B. Burned out Short Circuit Lamp (located on lefthand side of panel). System will not arm if bulb is burned out. Test bulb by shorting terminals 3 and 4.

- A. Replace remote switch or wiring if jumper wire test now causes relay to operate.
- B. Replace bulb with Ademco No. 47 if bulb fails to light as described at left.

PROBABLE CAUSE

REMEDY

- | | |
|---|---|
| C. <u>Short circuit in remote switch wires to panel terminals 9 and 10 (remove wires from terminals 9 and 10. Use an ohmmeter to determine if wiring from remote station switch to panel is shorted).</u> | C. <u>Repair or replace shorted wiring.</u> |
| D. <u>RED LIGHT RESET circuit breaker has tripped (check for shorts in remote station wiring as a cause of circuit breaker tripping).</u> | D. <u>Reset circuit breaker (marked RED LIGHT RESET) by pushing in panel button.</u> |
| E. <u>Short circuit in red light (status indicator) circuit (pushing RED LIGHT RESET will not reset condition).</u> | E. <u>Remove red light lines to terminals 8 and 9 one by one until the circuit breaker can be reset. Correct wiring faults in line having the shorted wiring.</u> |
| F. <u>Defective clutch relay or panel circuitry.</u> | F. <u>Replace clutch relay (use No. 90607) or return panel for repair.</u> |
| G. <u>Jammed actuator of clutch relay (make sure the actuator of the clutch relay has not been accidentally moved to a jammed position. The clutch relay is located at the lower left corner of the chassis when viewed from the rear. During operation of the system, the actuator moves the cam to an alternate position each time the relay is energized. If the actuator is jammed, proper operation of the system will be impossible).</u> | G. <u>The actuator can easily be returned to normal, if necessary. See diagram that follows.</u> |

TROUBLE: 6. WITH SYSTEM ARMED, BELL DOES NOT OPERATE WHEN PROTECTIVE CIRCUIT IS BROKEN.

PROBABLE CAUSE

REMEDY

- | | |
|--|---|
| A. <u>Stuck contact in protective circuit failing to release on entry.</u> | A. <u>Check each contact for proper operation. Replace as necessary.</u> |
| B. <u>Shorts in protective circuit (with system armed, remove protective circuit wiring from terminals 1,2,3, and 4 for Zone 1, and terminals 13,14,15, and 16 for Zone 2. If alarm activates, troubleshoot wiring).</u> | B. <u>Repair or replace shorted wiring in protective circuit (see Part I, Section H for troubleshooting information).</u> |

CLUTCH RELAY CAUTION

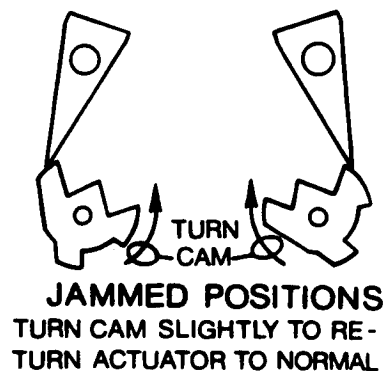
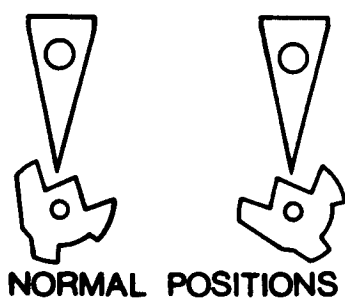
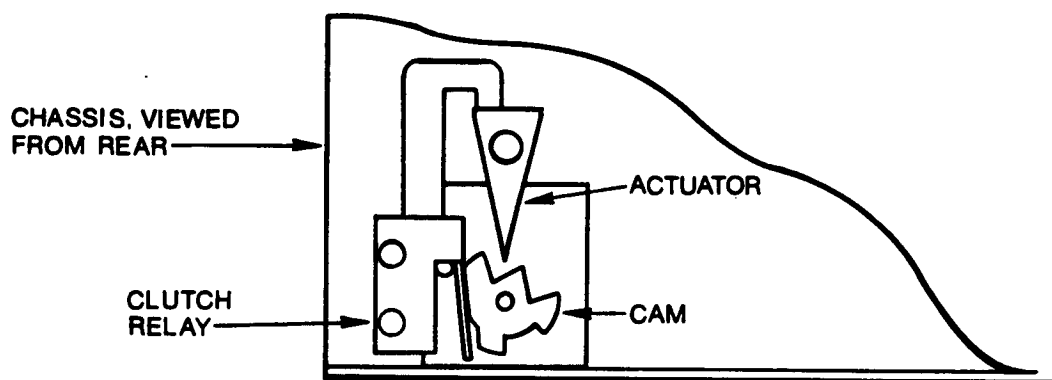
CAUTION!

INSERT FOR; COMBINATION BURGLAR/FIRE CONTROLS
NOS. 221, 229, 330, 331, 332 and those in the 330R,
332R, 340R, 342R Series.

The control's chassis should be removed from the cabinet while the cabinet is mounted. Before replacing the chassis make sure the actuator of the CLUTCH RELAY has not been accidentally moved to a jammed position.

The clutch relay is located at the lower left corner of the chassis when viewed from the rear. During operation of the system, the actuator moves the cam to an alternate position each time the relay is energized.

If the actuator is jammed, proper operation of the system will be impossible. The actuator can easily be returned to normal, if necessary. See the diagram below.



PROBABLE CAUSE

REMEDY

C. Disconnected, broken, or shorted wiring between relay panel and bell. Check wiring between terminals 21 and 22 on control panel to the bell device.

C. Check wiring and repair or replace as necessary (see Part I, Section G).

D. Bound bell clapper.

D. Free or adjust bell clapper. If necessary, replace bell.

TROUBLE: 7. BELL CIRCUIT DOES NOT LATCH ON ALARM. THE BELL SOUNDS WHEN DOOR IS OPENED BUT STOPS WHEN DOOR IS CLOSED.

PROBABLE CAUSE

REMEDY

A. Dirty contacts on bell drop relay (see diagram for location).

A. Clean relay contacts with burnishing tool and/or spray (see catalog Nos. 316 and 317).

B. Open coil winding of bell drop relay (see diagram for location).

B. Replace relay if ohmmeter check reveals an open coil winding.

TROUBLE: 8. FALSE ALARMS OCCUR DUE TO SWINGERS IN PROTECTIVE CIRCUIT.

PROBABLE CAUSE

REMEDY

A. Swinger or intermittent break in protective circuit loop.

A. Use No. 12 or equivalent to locate faults (see Part I, Section H for instructions).

TROUBLE: 9. NO WHITE LIGHT OR LED INDICATION THAT SYSTEM IS READY FOR ARMING. ALARM SOUNDS WHEN REMOTE BUTTON OR KEYSWITCH IS USED TO ARM SYSTEM.

PROBABLE CAUSE

REMEDY

A. A point of entry is open.

A. Check for windows or doors slightly ajar; correct condition.

B. Open wiring, breaks, or shorts in protective circuit loop(s).

B. See REMEDY procedures below.

Procedure

Procedure

1. With ZONE SWITCH set to "2 OFF", remove protective circuit wiring from zone 1, terminals 1, 2, 3, and 4. Install a jumper between terminals 2 and 3. If white light (or disarmed indication) comes on, there is a problem in the zone 1 wiring or contacts. If not,

1. Restore protective loop of zone 1 to proper operation (see Part I, Section H).

Procedure

2. Set ZONE SWITCH to "1 OFF". Remove protective circuit wiring from zone 2, terminals 13,14,15, and 16. Install a jumper between terminals 13 and 16, and between terminals 14 and 15. If white light (or disarmed indication) comes on, there is a problem in the zone 2 wiring or contacts. If not,
3. Remove entry/exit loop wiring (Nos. 331 and 332) from the X terminals. Install a jumper between these terminals. If the white light (or disarmed indication) now comes on, there is a problem in the entry/exit zone wiring or contacts.

C. Problems in control panel circuitry (if system cannot be put into a disarmed condition after following the above procedures AND alarm sounds when the system is armed, suspect control panel circuitry).

D. Sticking latching bell relay or sensitive relay contacts (see diagram for locations of relays).

E. Burned out Short Circuit Lamp (located on lefthand side of panel). An immediate alarm will occur if system is armed in this condition.

Procedure

2. Restore protective loop of zone 2 to proper operation (see Part I, Section H).
3. Restore entry/exit zone to proper operation (see Part I, Section H).

C. Return control panel for repairs.

D. Visually inspect relay contacts for sticking condition. Clean and burnish as required (use burnishing tool and/or spray cleaner, catalog Nos. 316 and 317). Replace relay if cleaning fails to correct condition.

E. Test bulb by shorting terminals 3 and 4. If bulb fails to light, replace with Ademco No. 47 bulb.

TROUBLE: 10. REMOTE STATION LIGHT(S) DO NOT OPERATE. ALL ELSE IS NORMAL AND SYSTEM IS CAPABLE OF BEING ARMED.

PROBABLE CAUSE

- A. Burned out lamp (does not apply to Nos. 214,246, and 5246).
- B. Broken wire(s) to system status indicating lamp(s).

REMEDY

- A. Replace lamp with proper type.
- B. Repair breaks in wires or splices (check wiring at rear of each remote station; also check wiring to terminals 8,9,11, and 12 of control panel).

TROUBLE: 11. BURGLAR ALARM SOUNDS AT ALL TIMES WITHOUT THE ABILITY TO BE RESET.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Short circuit in Emergency Switch wiring</u> (check for shorts between wires to terminals 6 and 7 of panel and at Emergency Switch).	A. <u>Repair or replace shorted wiring.</u>
B. <u>Short in tamper switch or tamper switch wiring to outside remote station</u> (if used).	B. <u>Use an ohmmeter to locate the short circuit.</u> Repair or replace as required.

TROUBLE: 12. FIRE ALARM SOUNDS WITHOUT THE ABILITY TO BE RESET.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>A short circuit exists in the wiring to thermostats and/or smoke detectors.</u>	A. <u>Repair or replace shorted wiring.</u> Check panel connections at terminals 5 and 6 for shorts.

NOTE: Thermostats and smoke detectors must reset themselves before the panel RESET switch will work. Thermostats reset only after they have cooled; smoke detectors reset only after the smoke has cleared.

TROUBLE: 13. WHEN TESTED, SMOKE DETECTORS DO NOT APPEAR TO WORK.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Disconnected power to smoke detector</u> (check for presence of 6 volts at corresponding terminals on smoke detectors. Be sure polarity is observed).	A. <u>Repair wiring and/or connections which carry power to each failing smoke detector.</u>

NOTE: Under no circumstances may the total current available for powering smoke detectors be exceeded (see listing on wiring diagram). Check the current draw for each detector by consulting its particular specifications in its Installation Instructions.

TROUBLE: 14. THE PANIC CIRCUIT WILL NOT ACTIVATE WHEN THE EMERGENCY SWITCH IS DEPRESSED.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Defective emergency switch or open wiring between switch and terminals 6 and 7 on panel.</u>	A. <u>Repair or replace switch or wiring as required.</u>

NOTE: WIRE RUNS FOR BELLS OR OTHER SOUNDING DEVICES

For runs of up to 50 feet, use 16 gauge wire.

For runs between 50 and 100 feet, use 14 gauge wire, or preferably double 16 gauge wire (thus having four wires going to the sounding device).

For wire runs of over 100 feet, see Part I, Section G of this manual.