

No. 1022 ALARM PROCESSING CENTER

GENERAL INFORMATION:

This Alarm Processing Center is a U.L. Listed Multiple zone Grade A local control unit with polarity reversing police station connect relay. It can provide five supervised zones of burglary protection plus 24 hour silent holdup alarm. Entry/exit delay and 24 hour protection zones are included as well as facilities for testing, annunciation, alarm indication (local and remote), automatic alarm cutoff and reset, automatic zone shunting and rechargeable standby power.

INDEX:

Sections:

	<u>Page Nos.</u>
GENERAL INFORMATION	249
INDEX.....	249
FUNCTIONAL DESCRIPTION	250
Protection Zones (including Holdup).....	250
Keyswitch Positions.....	252
Timer.....	253
Automatic Reset.....	253
Outputs.....	253
Standby Power.....	253
INSTALLATION & WIRING.....	254
Unpacking.....	254
Mounting.....	254
Wiring (Terminal Connection Diagram on Page 257).....	254
TESTING & CHECKOUT.....	256
Power Input Test.....	256
Battery Connection & Circuit Test Verification.....	257
BELL TEST & Battery Checkout.....	258
NIGHT Checkout.....	258
DAY Checkout.....	259
Final Connections & Set-up.....	259
Turning System Over to the Subscriber.....	260
SPECIFICATIONS.....	260
Physical.....	260
Electrical.....	260

Principal Features Summary/Index:

Delay Zone with entry/exit delay feature (independently selectable entry and exit times of 0.5, 1 or 2 minutes). Buzzer operates during entry period. Accommodates closed and/or open circuit contacts. 251,254

Zones 1 and 2 can be activated during night by closed circuit (e.g. No. 39) and/or open circuit (e.g. No. 51) contacts. 252,254

Series Zone can be activated by closed circuit contacts. 252,255

24 Hr. Protection Zone provides supervisory buzzer during the day (for foil, fire doors, etc.) and full alarm at night. Accommodates closed and/or open circuit contacts. 252,255

Silent Holdup Zone uses lock-in type devices. Silent signal can be transmitted (via built-in burglary/holdup relay) 24 hours a day. 252,256

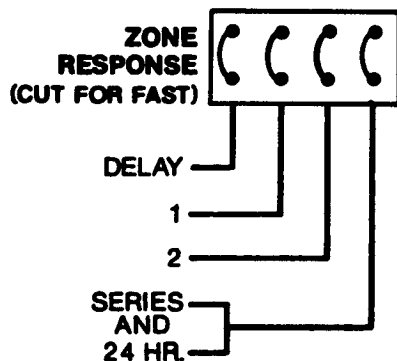
<u>Burglary/Holdup Relay</u> , DPDT transmits signals to central office or other remote location. When burglary activated local bell rings as well.	252,253, 256,259
<u>Automatic Alarm Cutoff and Reset</u> (5, 15 or 30 minutes).	253
<u>Automatic Zone Shunting</u> permits closing even though one or more zones may be inoperative.	251
<u>Latching LED Zone Annunciation</u> .	251
<u>A.C. Supervisory LED and Buzzer</u> .	253
<u>Selectable "Divide by 10 or 100" Delay Times</u> for accelerated testing.	253
<u>Adjustable Normal</u> (250 milliseconds) or <u>Fast</u> (7 milliseconds) <u>Zone Response Time</u> to accommodate fast acting switches.	251
<u>6 V.DC Bell Output plus Auxiliary 6 V.DC Constant Output Terminals</u> , circuit breaker protected.	253,255, 256
<u>Operation from Low Voltage Plug-In Transformer</u> .	256,260
<u>Built-in Sealed Lead Acid Rechargeable Standby Battery</u> with up to 40 hrs. standby.	260
<u>4 Position Keyswitch Operation</u> .	251,252
<u>Built-in Front and Rear Tamper Switches</u> with "override" feature on cover tamper for test purposes.	255
<u>Opening and Closing Reports</u> using ORANGE flying lead.	260

FUNCTIONAL DESCRIPTION:

User instructions for arming and disarming the system appear on the unit's nameplate.

Protection Zones:

1. General (Applicable to All Zones except normally open holdup circuit):



FOR NORMAL RESPONSE (250 MILLISECONDS) LEAVE JUMPER(S) UNCUT

FOR FAST RESPONSE (7 MILLISECONDS) CUT APPROPRIATE JUMPER(S)

NOTE: USE FAST RESPONSE ONLY IF ZONE CONTAINS VIBRATION CONTACTS, PHOTOELECTRICS OR OTHER FAST ACTING DEVICES

FIGURE 1: Zone Response Jumpers

- a. Response Times: Each zone loop is normally connected for a 250 ms (millisecond) response time; this means that swingers, transients, or momentary loop disturbances lasting less than 250 ms will be ignored by the unit. If a vibration contact or other fast responding device is used in one of the loops, cutting the Zone Response Jumper for that zone will change its operation to the fast response mode (7 ms). See Figure 1.
- b. Resistance: Each zone loop is supervised and (except for the series zone) employs a No. 606, 1000 ohm End-of-Line Resistor. The total loop resistance excluding the E.O.L. resistor may be anywhere from zero to 500 ohms. Through this resistance range, loop current varies from 3 to 5 ma. If the total loop resistance (E.O.L. resistor included) varies more than a few hundred ohms below 820 ohms or above 1500 ohms, a zone alarm will occur. Each loop can have closed circuit (in series) or open circuit (in parallel) contacts or a combination of both wired into it (except the series zone which will be discussed later).
- c. Zone LED Indicators: Each zone has its own LED for circuit test purposes and zone annunciation (the series and 24 hour zones share a common LED).
- d. The Automatic Zone Shunt Feature allows the subscriber to set the system for the NIGHT with one or more zones "in alarm". The undisturbed zones arm normally. (This does not apply to the delay zone which, if left disturbed, will cause the exit and entry delays to run their course immediately, followed by an alarm.)
- e. When the system is set to NIGHT all zones arm immediately (except the delay zone, which arms following the exit delay period). After each zone is armed any subsequent loop disturbance will cause an alarm and the appropriate zone annunciation LED to light and stay lit until, at opening time, the subscriber turns the keyswitch to DAY which resets the LED's. The alarm bell will ring for the duration of the pre-selected bell cutoff interval and then stop. If the loop disturbance has by then cleared (or if it subsequently clears) the loop circuit will automatically reset. See "Automatic Reset" described later.

2. Delay Zone:

- a. The closed or open circuit contacts on the entry/exit door, as well as any interior contacts or sensors located in the path between the door and the control, are wired into this zone.
- b. At closing time, when the subscriber switches the keyswitch to NIGHT the exit delay time begins. The delay zone does not arm until the exit delay is over, thus permitting the subscriber to exit from the premises without initiating an alarm.
- c. If an intruder disturbs this loop during the night, an alarm will occur at the end of the entry delay. Also, the delay zone LED will light and stay lit until the system is switched to DAY. "Automatic Reset" (described later) will stop the bell at the end of the cutoff interval and reset the zone (and entry/exit delays) if or when the loop disturbance has cleared.
- d. Upon subscriber entrance in the morning the entry delay begins and the buzzer sounds. The panel must be switched to DAY before the entry delay times out or an alarm will occur.

3. Protection Zones 1 and 2:

- a. Both of these zones arm as soon as the system is switched to NIGHT.
- b. Any subsequent disturbance to either loop will result in an immediate alarm.
- c. The appropriate zone LED will stay lit until the system is switched to DAY.

4. Day/Night Zones [Series (Night) Zone & 24 Hr. Zone]:

A common LED indicator is used for an alarm in either of these zones. Otherwise these zones are independent of each other. Each zone arms immediately as soon as the system is switched to NIGHT.

- a. The Series (Night) Zone operates similarly to zones 1 and 2 except that only closed circuit switches wired in series may be used for detection.
- b. The 24 Hour Zone during the day, will annunciate a disturbance by buzzer, with no alarm. Foil and open or closed circuit contacts which should not be disturbed during the day are connected to this zone. At night, a full alarm signal will result if there is a disturbance in this zone. Note: When terminal 9 is connected to earth ground (see "Wiring"), a ground fault on any other zone may be indicated as a fault in the 24 hour Zone as well as the specific zone involved.

5. Silent Holdup Zone:

24 hr. silent holdup protection is provided. During the DAY or NIGHT, whenever the holdup circuit is shorted by the actuation of a lock-in type holdup device, the burglar/holdup output relay will energize and the remote alarm indicator LED on the unit's chassis inside the cabinet will light. This LED is not visible when the unit's cover is closed. No bell or buzzer will sound, and the silent alarm will last for the duration of the closure of the holdup device contacts. When the holdup device is reset the relay will de-energize and the remote alarm LED will go out.

Note: If actuated by a burglar alarm, the burglar/holdup relay and LED will remain energized for the duration of the bell output.

Keyswitch Positions:

DAY, CIRCUIT TEST, BELL TEST, NIGHT

1. DAY AND NIGHT positions have been discussed previously (DAY: 24 hr. and silent holdup zones ON...NIGHT: All zones ON).
2. In the CIRCUIT TEST position any zone fault will cause the corresponding LED to light if the zone is then in a disturbed (alarm) condition. For normal conditions and maximum security, all zone LED's should be out in the CIRCUIT TEST position before switching to NIGHT. The subscriber does have the option, however, of using automatic zone shunting (described earlier) to arm the remainder of the system. If there is a fault in the AC power, the green AC POWER LED will be out. The buzzer will sound to indicate a fault.
3. In the BELL TEST position an open circuit condition is forced into each zone's circuit causing all zones (except holdup) to be disturbed, all zone LED's to light, and the bell to ring. During BELL TEST the control and the bell are powered from the battery only; the power from the A.C. line

relay and LED will not be affected.

Timer:

The "DIVIDE BY 10 OR 100" FEATURE provides a means of fast system checkout at any time. It is used for accelerated testing of bell cutoff time, exit delay and entry delay.

Example: With a selected bell cutoff time of 5 minutes, set the TIME lead on "divide by 100". After the system is armed, each contact in each zone can be tested by momentarily disturbing each contact, one at a time, and listening for a bell ring of 3 seconds each time the panel trips and resets automatically. (5 minutes times 60 seconds per minute divided by 100 equals 3 seconds.)

Automatic Reset:

1. If a zone becomes disturbed during the night, an alarm will occur which will last for the duration of the selected bell cutoff time. At the end of this time, if the zone has returned to normal, "auto reset" will automatically clear the system (except the zone LED will remain lit to indicate an alarm had taken place) so that it can report any subsequent disturbance to that zone or the other zones.
2. Even if the first disturbance still remains the bell will remain silent until any subsequent disturbance to another zone re-alarms the system.
3. "Auto-reset" can re-arm the system automatically any number of times. If the zone loop is still disturbed when the bell times out, it will automatically re-arm when the disturbance is removed.

Output:

1. Burglary/Holdup Relay (D.P.D.T.) dry contacts available for applications such as connection to a remote location (e.g. Modularm or Mini-Modularm Systems) or tripping dialer or digital communicator. 2 amp rating. Remote alarm indicator LED on chassis will light when this relay is energized. When actuated by a burglar alarm the relay and LED will remain energized for the duration of the bell output and then de-energize when cutoff takes place. When actuated by a holdup alarm the relay and LED will remain energized only as long as the holdup device remains tripped.
2. Auxiliary 6V. DC Output constantly available for auxiliary equipment.
Maximum Load: 150 ma (continuous)
2.5A (on alarm, including Alarm Bell load)
3. Alarm Bell 6 V.DC Output. Maximum Load: 2.5A (on alarm, including Auxiliary Output). Circuit Breaker protects Alarm Bell and Auxiliary Outputs.
4. Built-in Buzzer will sound for each of the following conditions:
a) Entry Delay, b) Disturbance, during day, on 24 hr. loop, c) Loss of A.C. power or a zone fault (keyswitch in CIRCUIT TEST).
5. Opening and Closing Reports may be sent to a remote location by connecting the unit's ORANGE flying lead to a digital communicator as described under "Final Connections and Set-up".

Standby Power:

Upon any failure of the A.C. supply to the instrument, instant automatic switch-over to the built-in rechargeable battery takes place. The battery can provide up to 40 hours of standby, if there is no continuous load on the auxiliary power output.

While operating on standby, the A.C. Power Green LED on the face of the instrument will be OFF and, during CIRCUIT TEST the built-in buzzer will sound.

INSTALLATION AND WIRING:

Unpacking:

The battery is packed separately from unit. Do not connect the battery until later. See page 256.

Mounting:

The design of the cabinet makes it unnecessary to remove the chassis from it when mounting.

Remove the appropriate knock-out(s) for the wiring to be run.

Wiring:

See the FUNCTIONAL DESCRIPTION section for additional general and specific information on the protection zones, including response times, loop resistance, entry/exit delay, and day/night zone. Also see Figures 1 through 5.

Terminals

Wiring Information

1,2

Delay Zone: Include open and/or closed circuit entry/exit door contacts as well as interior protection which is in the path between the entry/exit door and the panel. This zone is disarmed during the DAY and armed at NIGHT (after exit delay). See Figure 2. (If zone not used, connect No. 606, 1000 ohm End-of-Line Resistor directly across terminals 1 and 2 in lieu of the "end-of-line".)

3,4

Protection Zone 1: Include open and/or closed circuit contacts as desired. This zone is disarmed during the DAY and armed at NIGHT. See Figure 2. (If zone not used, connect No. 606, 1000 ohm End-of-Line Resistor directly across terminals 3 and 4 in lieu of the "end-of-line".)

5,6

Protection Zone 2: Similar to Protection Zone 1. See Figure 2. (If zone not used, connect No. 606, 1000 ohm End-of-Line Resistor across terminals 5 and 6 in lieu of the "end-of-line".)

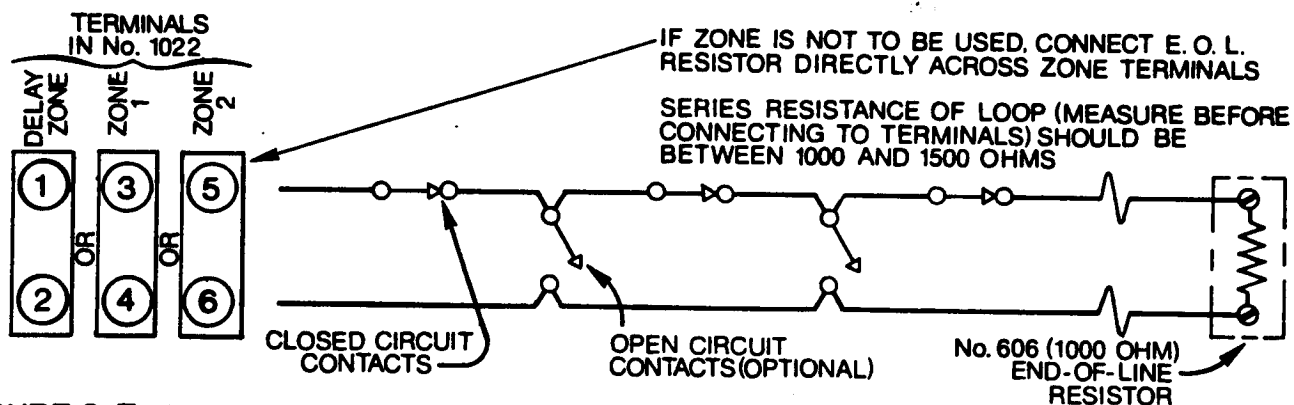


FIGURE 2: Typical Wiring for Delay Zone and Protection Zones 1 and 2

7,8

(Day/Night) Series (Night) Zone: Only closed circuit contacts can be connected into this zone. Connection of internal protective devices not in the exit path is suggested, although

8,9

**TERMINALS
IN
No. 1022**



10

Non-UL Installation: If no conduit is run between control and bell box, connect terminal 10 to 9 (protective circuit must be grounded as shown in Figs. 3 and 4). Alternatively (with no conduit or grounded protective circuit), connect terminal 10 directly to cold water pipe ground.

11, 12

NOTE: While the cabinet door is open the cover tamper switch may be put into an "override" position by pulling its plunger outward.

13(-), 14 (+)

Continuous auxiliary 6 V.DC. (up to 150 ma) is available from

these terminals. As the same automatic reset circuit breaker protects these terminals and the bell terminals from overload, the maximum combined current that should be drawn from these auxiliary and bell terminals (24, 25) on alarm is 2.5 amps.

15 - 20

Burglary/holdup relay: Do not connect these relay contact terminals until "Final Connections and Set-up" described later.

This relay is used for both burglary (alarm with bell at NIGHT) and holdup (silent alarm at all times).

The relay has two sets of dry S.P.D.T. contacts rated at 2 amps each. The contacts can be wired as a telephone line reversing relay (shown) or in any other way desired by the user. See Figure 4.

23, 24

Silent Holdup Alarm: Connect any number of lock-in type holdup devices across these terminals (e.g.: Nos. 264, 266, 268, 269).

24 (-), 25 (+)

Bell Output, 6 V. DC: Connect 1 or 2 bells to these terminals, keeping in mind that the alarm current draw from these and the auxiliary terminals (13, 14) should not exceed 2.5 amps. This output (with the auxiliary terminals) is protected against overload by an automatic reset circuit breaker. Note: UL requires conduit for wires between control and bell box.

21, 22

Power Input, 12 V.AC: Turn the keyswitch to DAY and connect the output of the No. 1320 transformer to these terminals. DO NOT plug the transformer in as yet.

ORANGE*
(flying lead)

Opening and Closing Reports may be provided to a remote location by connecting to a digital communicator. See "Final Connections and Set-Up" under TESTING AND CHECKOUT.

Positive (+) 6V. DC appears on this lead (through an internal protective resistor) in all keyswitch positions except NIGHT. In NIGHT position it is grounded to negative (-).

GREEN
(flying lead)

This lead is for accessory use and is grounded to negative (-) when the keyswitch is in the CIRCUIT TEST position.

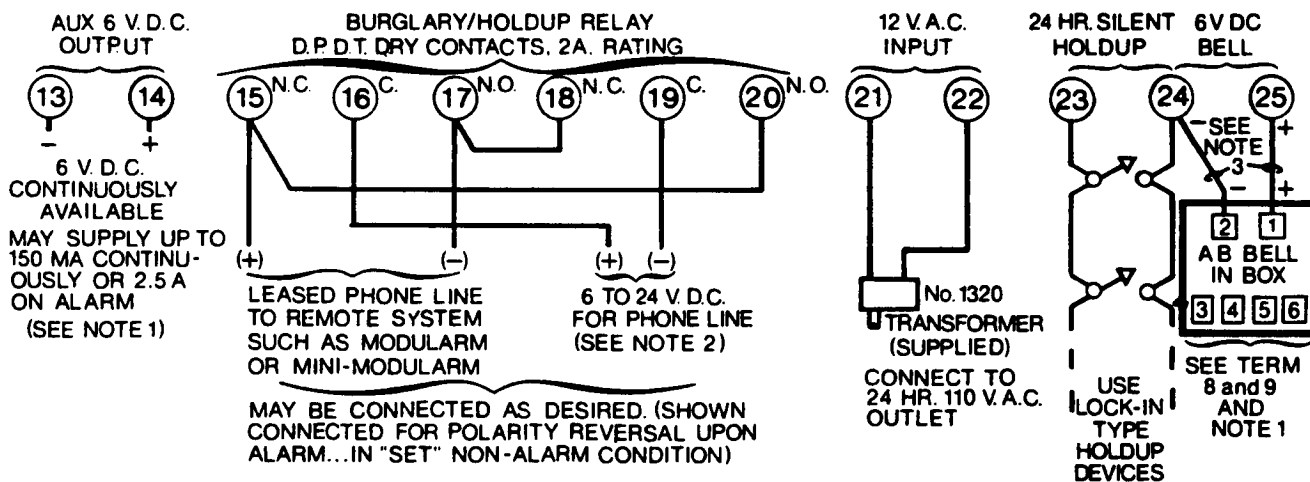
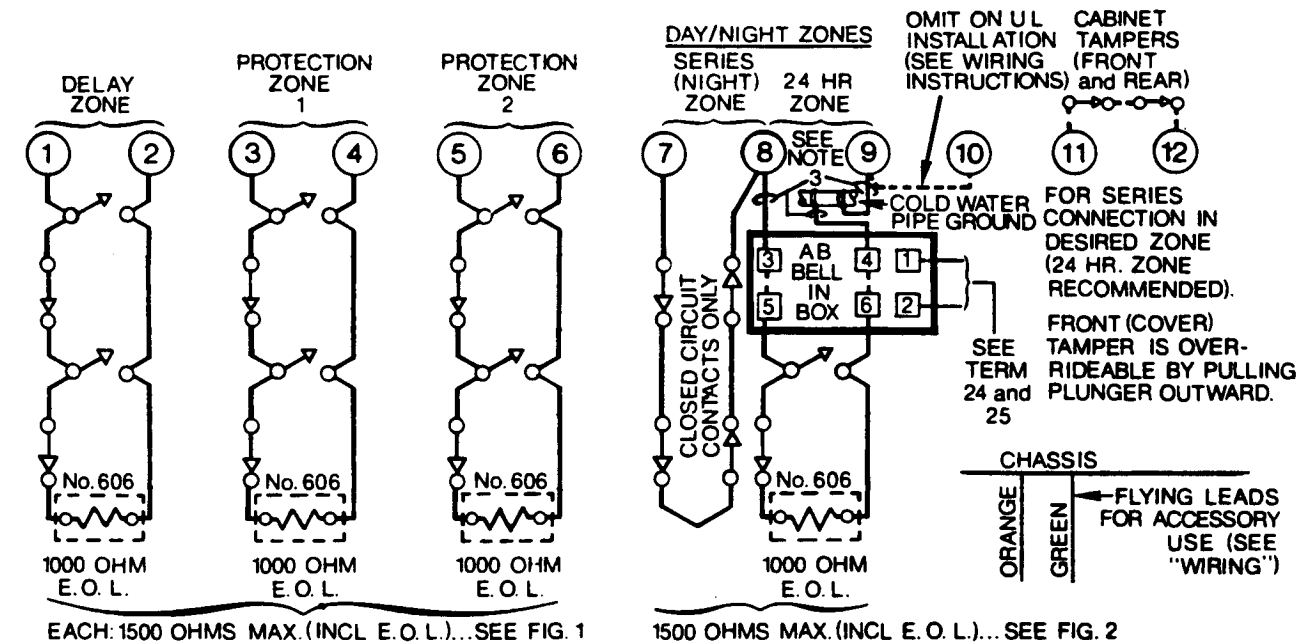
One use permits the connection of a No. 355 Entry/Exit Delay Module to one of the panel's non-delay protection zones, to provide a second and independent delay zone. Instructions accompany the No. 355.

TESTING AND CHECKOUT:

These procedures are to be followed only after all wiring and connections described in the previous section have been completed.

Power Input Test:

Plug the transformer into a 115 V.AC outlet that is ON 24 hours a day.
The green A.C. Power LED should light. Unplug the transformer.



NOTE 1: TOTAL CURRENT DRAW FROM "AUX. 6 V.DC OUTPUT" (13, 14) AND "BELL" (24, 25) TERMINALS, TOGETHER, SHOULD NOT EXCEED 2.5A ON ALARM.

NOTE 2: TERM. 13 & 14 CAN BE USED FOR TEL. LINE. ADD RESISTOR IN SERIES (100 OHM, 1/2 W). USE NO. 349 FOR MORE VOLTAGE (WITHOUT RESISTOR).

NOTE 3: UL REQUIRES CONDUIT FOR WIRING BETWEEN CONTROL AND BELL.

FIGURE 4: Terminal Connections

Battery Connection and CIRCUIT TEST Verification:

1. Plug in the battery. (Use only the battery provided with the unit.)
2. Switch to CIRCUIT TEST.
3. The buzzer should sound and no red zone LED's should light (if zones are wired properly and closed.)
4. Plug in the transformer. The buzzer should stop, indicating A.C. power has been applied.

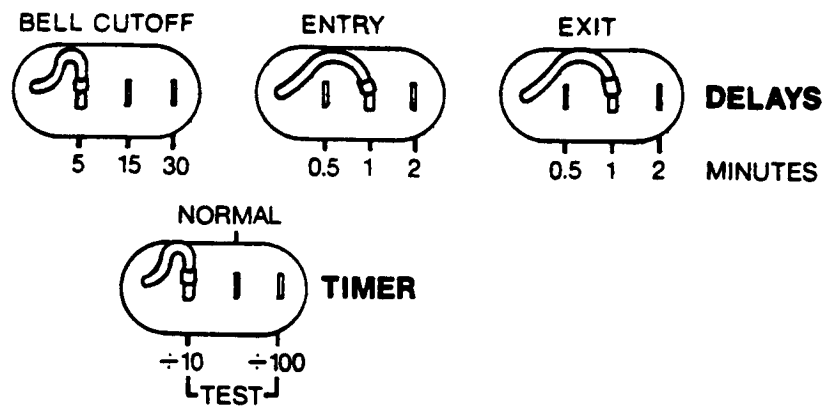


FIGURE 5: Delay and Timer Settings (Start of "NIGHT CHECKOUT" Shown)

5. Using a shorting wire, short each of the zones one at a time to verify that the corresponding red zone LED lights. The "series" (night) loop will have to be opened instead of shorted.

BELL TEST and Battery Checkout:

1. Switch to BELL TEST: The Bell should ring and all 4 zone LED's light.

NOTE: A fully charged battery is shipped with each control. If this test is tried with a low battery, there will not be enough power to ring the bell.

2. Switch to CIRCUIT TEST or DAY to stop the bell from ringing.

NIGHT Checkout:

See Figure 5.

1. Select a BELL CUTOFF DELAY of 5 minutes by placing the BELL CUTOFF wire (located on the chassis) on the appropriate post.
2. Select TIMER "divide by 10".
3. Select ENTRY DELAY of 1 minute.
4. Select EXIT DELAY OF 1 minute.
5. Short the delay zone terminals (1, 2); and leave it in place during step 6.
6. Switch to NIGHT: At the end of 6 seconds (exit delay), the buzzer should sound for the next 6 seconds (entry delay) followed by a 30 second alarm (burglary/holdup relay picked up and bell ringing). The delay zone LED will light when the alarm starts and will remain on after the alarm resets.
7. Remove the short added in step 5.
8. Switch to CIRCUIT TEST. The delay zone LED will go out.
9. Select TIMER "divide by 100".
10. Short the following terminals: protection zone 1 (3,4), protection zone 2 (5,6), 24 hour loop (8,9). The corresponding zone LED's should light as each zone is shorted. Leave the shorts in place.

11. Switch to NIGHT. No alarm should occur (automatic zone shunt feature), but the zone LED's will go out.
12. Switch to CIRCUIT TEST and remove the shorts added in step 9.
13. Switch to NIGHT.
14. Short the protection zone 1 terminals (3,4) momentarily until an alarm is caused (there will be a delay of 0.25 seconds before the alarm starts if the ZONE RESPONSE JUMPER for this zone hasn't been cut). The alarm should last 3 seconds and reset, leaving the zone 1 LED lighted.
15. Repeat step 14 for protection zone 2 (5,6) and the 24 hour loop (8,9).
16. Repeat step 14 for the series (night) zone (7,8), but instead of using a short, open this loop.
17. All the zone contacts can now be checked by disturbing each contact in each zone one at a time and listening for the 3 second bell ring.
18. Short the holdup terminals (23,24). The burglar/holdup relay should pick up and the remote alarm LED should light. The bell should not ring. Remove the short.
19. Switch to CIRCUIT TEST and verify that all 4 zones are good (LED's out), then switch to DAY.

DAY Checkout:

1. Switch to DAY.
2. Short the holdup terminals (23,24). The burglar/holdup relay should energize until the short is removed. The remote alarm LED should also light. The bell should not ring. Remove the short.
3. Short the 24 hour zone terminals (8,9). The buzzer should sound. Remove the short and the buzzer should stop.

Final Connections and Set-up:

1. Connect the burglary/holdup relay contact terminals (15-20), as required, to leased phone line to remote system (e.g.: Modularm or Mini-Modularm), dialer, digital communicator, etc. Figure 4 shows connections for polarity reversal, upon alarm, if required.
2. Select TIMER "Normal".
3. Select desired BELL CUTOFF, ENTRY and EXIT DELAYS.
 - a. BELL CUTOFF Delay Wire:
 - For a U.L. installation, set at not less than 30 minutes.
 - If this wire is not connected to one of its delay posts, the bell will ring continuously on alarm until the panel is reset.
 - b. ENTRY and EXIT Delay Wires:
 - For a U.L. installation set each at not longer than 1 minute.
 - If either wire is not connected to one of its delay posts, the DELAY ZONE will not initiate alarms properly.
4. If Opening and Closing Reports to a remote location are desired, connect the panel's ORANGE flying lead to a digital communicator such as the No. 669 or No. 670. Proceed as follows:
 - a. Program Channel B of the digital communicator to a distinctive "opening" code, other than those codes normally used for fire, hold-up

or burglary (use of Code 4, 5, 6 or 7, if unused, is suggested).

- b. Set the digital communicator's Channel B ABORT (Red) and RESTORE (White) jumpers in the "Abort with Restore" mode as described in the digital communicator's installation instructions. Cut the Channel B "voltage activation" (orange) jumper as well.
- c. Connect the ORANGE (+) lead and a wire from terminal 13 (-) of the Panel to the digital communicator's Channel B "voltage activation" terminals. These are terminals 4 (+) and 10 (-) in the Nos. 669 and 670. Observe Polarity.

When the panel's keyswitch is in the NIGHT position, zero voltage appears on the ORANGE lead and the digital communicator is not affected.

When the keyswitch is in any position other than NIGHT, positive (+) voltage (6V. DC) appears on the ORANGE lead through an internal protective resistor. Channel B of the digital communicator is thus triggered and its programmed "opening" code is sent.

At closing time, when the keyswitch is moved to the NIGHT position, triggering voltage on the ORANGE lead drops to zero and Code 9 "restore" signal is transmitted by the digital communicator to signify "closing".

Turning System Over to Subscriber:

1. Fully explain the operation of the system to the subscriber by going through each of its features as well as the USER INSTRUCTIONS shown on the nameplate of the unit.
2. Describe to him the operation of each zone. Clarify which zones are used at night and which are used during the day.
3. Encourage him to find and remedy his own bad loop when setting the alarm, by using CIRCUIT TEST.

SPECIFICATIONS:

Physical:	Width:	12"	(30.5 cm)
	Height:	12"	(30.5 cm)
	Depth:	3"	(7.6 cm)

Electrical:	Voltage:	12 V.AC (From No. 1320 Plug-In Transformer)
-------------	----------	---

Zone Current:	3-5 ma
---------------	--------

Zone Resistance:	1000-1500 ohms (including No. 606, 1000 ohm End-of-Line Resistor)
------------------	--

Zone Response:	Normal: 250 milliseconds (Response Jumper <u>Not</u> Cut) Fast: 7 milliseconds (Response Jumper Cut)
----------------	--

6 V.DC Auxillary Circuit:	Continuously: 150 ma maximum On Alarm: 2.5A maximum total with Bell Circuit
---------------------------	---

6 V.DC Bell Circuit:	On Alarm: 2.5A maximum total with Auxiliary Circuit
----------------------	--

Burglar/Holdup Relay Contacts:	DPDT, 2A
-----------------------------------	----------

Standby:	Rechargeable 6 V., 2.5 A.H. Sealed Lead Acid Battery, with Connector. 40 hours standby (Ademco No. 496)
----------	---