

Nos. 330R, 332R, 340R, 342R

COMBINATION ALARM SYSTEM CHECKOUT

In order to simplify troubleshooting, a No. 218 Remote Station and a No. 707 Dual-Tone Mini-Howler should be pre-wired with flying leads to operate the control panel from its mounted location.

The first step in troubleshooting the panels is to verify the operation of the panel. Many perfectly good panels have been sent back for repair needlessly because the installer attributed sporadic operation to a defective panel, when actually the fault was present in the wiring emanating from the panel and running through the premises. The following check list will help to determine whether the fault is in the panel or in the remainder of the system.

NOTE: IF A NO. 330R OR 332R CONTROL IS COMPLETELY DEAD, CHECK FOR JUMPER PROPERLY INSTALLED ON TERMINALS 11 AND 12.

PROCEDURE:

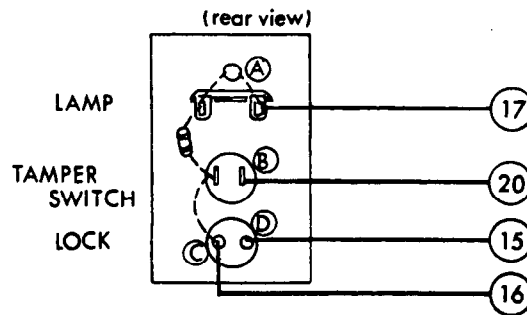
1. Remove all external wires from the panel except the wires from the low voltage transformer to terminals 23 and 24, and the jumper between terminals 11 and 12 on Nos. 330R and 332R panels.
2. Attach a No. 218 remote station to terminals 13, 14, 15, 16 and 17, and attach a No. 707 Mini-Howler to terminals 7, 18 and 19 (No. 707: terminal 1 to panel terminal 7; terminal 2 to panel terminal 19; terminal 3 to panel terminal 18).
3. Jumper the protective circuit terminals on the control, i.e., 1 and 4, 2 and 3, 3 and 6, and 4 and 5. On the Nos. 332R and 342R a jumper between the two "X" terminals is also required.
4. At this time the AC light should be lit and the white light on the remote station should also be on. If the white light is not on, verify the output voltage of the battery pack (which should have been charged overnight before testing) by installing a No. 605 resistor (7.5 ohm 40 watt rating) across terminals 3 and 4 of the battery pack after removing the red and black leads, and verifying with a voltmeter the presence of 6 volts DC. If the power supply does not read at least 6 volts under these conditions, perhaps it is not fully charged or there is a fault in the unit and it should be returned for repair. To continue troubleshooting, you may temporarily test the panel by putting a 6 volt battery (No. 866) on the red (+) and black (-) leads previously connected to the battery pack. Continue to the next step using the dry cell as a source of power.
5. With the white light on the Remote Station "ON", remove the jumper wire from terminal 1. This should cause the white light to go out.
6. Move the zone switch from "1 & 2 ON" to "zone 1 OFF". The white light should come back on.
7. Move zone switch back to "1 & 2 ON".
8. Place the jumper back on terminal 1 and remove the jumper wire from terminal 5. The white light should go out when the wire is removed from terminal 5.
9. Moving the light switch to "zone 2 OFF" should cause the white light to come on once again.

10. Depress the button on the No. 218 Remote Control several times and make certain that the red and white lights switch back and forth immediately.
11. Put the system into a red light (armed) condition and move the zone switch to "1 & 2 ON". This should cause the howler to sound. Push the button on the No. 218 to turn the No. 707 (alarm) off.
12. Reinstall the jumper onto terminal 5.
13. For Nos. 332R and 342R, install a jumper between terminals Y and Y. This jumper converts the delay loop to instant activation. Verify its operation by putting system into red light (armed) mode and removing one end of the X & X jumper. The alarm should sound immediately. Replace X & X jumper and reset system.
14. Remove Y & Y jumper and following standard set up instructions for delay loop, put alarm into red light (armed) condition and open X & X jumper to simulate leaving the premises and reclose immediately. Alarm should not sound. Wait 2 minutes and open X & X jumper again which simulates entry into premises. Depending upon adjustment of the entry potentiometer, the mini-howler should start to sound in 10 to 40 seconds. Replace X and X jumper and reset system.
15. Momentarily short terminal 20 to 21 to activate the panic circuit. The howler should sound until reset by pushing the slide switch marked "FIRE/SMOKE/PANIC RESET" down and letting it spring back.
16. Momentarily short terminal 9 to 10 to activate the fire alarm circuit. The No. 707 howler should sound with its second tone (as compared to the tone for burglary and panic) until reset by pushing down "FIRE/SMOKE/PANIC RESET".
17. If all steps are completed properly and the panel operates as specified, then any malfunctions you are encountering are probably caused by a fault in some part of the protective circuit, remote circuit or other external wiring connections. Troubleshoot protective circuit(s) for continuity making sure that doors and windows are closed. See Part I, Section H of this manual to aid in troubleshooting.

NOTES FOR Nos. 330R, 332R, 340R, 342R

OUTSIDE REMOTE STATIONS

- 1) These alarm panels are equipped to handle outside remote arming stations (Nos. 246, 246R, or 5246). When using any of these stations as described in the wiring diagram below, it is important to note that only two status indications can be obtained: 1. LED on, means system is armed; 2. LED off, means system is disarmed. In this wiring format, there is no indication given that the alarm system has all its protective circuits closed and is therefore ready to be armed. To use these outside remote stations with the additional capability of informing the user that all protective circuits are closed, use the No. 247 remote module (see below).



NO. 247 REMOTE MODULE

- 2) These panels are compatible with the No. 247 two-wire remote module. When using a No. 247, a No. 214 push button remote station should be used for indoor use. Outdoor remote stations Nos. 246, 246R or 5246 may be used as well. These remote stations have a single LED which will give all circuit information at a glance; i.e., the LED will be OFF when a contact is open (do not arm system), FLASHING when all contacts are closed (system now ready to be armed), or ON, when the system is armed.

BELL CUTOFF (NOS. 332R AND 342R)

- 3) The bell cut-off circuit is preset to shut off after 15 minutes. Time may be increased to 30 minutes by cutting the yellow loop of wire at the bottom left-hand side of the panel. The cut-off function may be prevented entirely by cutting the yellow loop and connecting terminal E to terminal 22 (applies only to No. 332R). The signal will then sound upon alarm and continue as long as power is supplied from the battery pack, or until reset by the user.

NO. 334 BELL PULSER MODULE

- 4) A No. 334 bell pulser module can be used to operate a single bell to indicate both burglary and fire alarms. During a burglary alarm the bell will ring steadily, but during a fire alarm the bell will pulse. Using a single sounding device saves labor and reduces the cost of installation. It can be used with any of the Combination Burglar and Fire Alarm Controls listed below:

<u>TERMINALS OF NO. 334</u>	<u>TO TERMINALS OF NOS. 330,331,332</u>	<u>TO TERMINALS OF NOS. 330R,332R</u>	<u>TO TERMINALS OF NOS. 340R,342R</u>
1	21	19	19
2	18	21	21
3	22	18	18
4	20	7	7
5	<u>BELL</u>	<u>BELL</u>	<u>BELL</u>
6	<u>BELL</u>	<u>BELL</u>	<u>BELL</u>

SILENT HOLD-UP ALARM CONVERSION

5) Conversion to silent hold-up alarm can be accomplished by adding a No. 336 reversing relay in combination with a No. 349 telephone line voltage booster if necessary. This conversion will allow silent alarm signals to be received by modularm and mini-modularm apparatus at central station locations. To wire up such a conversion, follow the procedure below:

USING NO. 336 ALONE (NO VOLTAGE BOOST NECESSARY)

<u>TERMINALS OF NO. 336</u>	<u>TO TERMINALS OF NOS. 330,331,332</u>	<u>TO TERMINALS OF NOS. 330R,332R,340R,342R</u>
1	18	21
2	21	19
3	22	18
4	17	22
5	<u>PHONE LINES</u>	<u>PHONE LINES</u>
6	<u>PHONE LINES</u>	<u>PHONE LINES</u>

NOTE: When using modularm and mini-modularm applications, bear in mind that the current drawn by the modularms is about mA, leaving that much less available current for smoke detectors.

USING A NO. 336 WITH NO. 349 TELEPHONE LINE VOLTAGE BOOSTER

<u>TERMINALS OF NO. 336</u>	<u>WITH NOS. 330, 331,332</u>	<u>WITH NOS. 330R,332R,340,342R</u>
1	to terminal 5, No. 349	to terminal 5, No. 349
2	to terminal 21, control	to terminal 19, control
3	to terminal 22, control	to terminal 18, control
4	to terminal 6, No. 349	to terminal 6, No. 349
5	PHONE LINES	PHONE LINES
6	PHONE LINES	PHONE LINES

NOTE: When using the No. 349 to boost voltage to the telephone lines, always connect terminals 3 and 4 directly to the 6 volt output of the control instrument's power source.

TROUBLESHOOTING Nos. 330R, 332R, 340R AND 342R

TROUBLE: 1. SYSTEM APPEARS TO HAVE NO POWER.

PROBABLE CAUSE

REMEDY

- | | |
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| <p>A. <u>Disconnected rechargeable battery</u>
(be sure AC outlet into which transformer is plugged is active 24 hours. Look for pilot lamp indication on front of panel to ascertain presence of AC power). NOTE: Be sure to use No. 1320 transformer when using No. 492 rechargeable battery. Use No. 1322 transformer when using No. 493 rechargeable battery.</p> <p>B. <u>Highly discharged or dead battery</u>
(measure battery voltage across terminals 3 and 4 of the rechargeable battery pack. 6 volts is the proper reading obtained with the bell ringing on alarm. To determine if the battery is capable of being recharged, follow the procedure below:</p> <ol style="list-style-type: none">1. Remove red and black flying leads from terminals 3 and 4 of rechargeable battery pack.2. Allow the battery to charge for 24 hours in this manner (making sure that the transformer is properly plugged in and the AC pilot lamp is lit.3. If, after 24 hours, the bell (or other sounding device) does not ring satisfactorily during an alarm test, replace the rechargeable battery with the proper type. <p>C. <u>Terminals 11 and 12 not jumpered together when NOT using a remote FIRE/SMOKE/PANIC reset switch (applies only to Nos. 330R and 332R).</u></p> | <p>A. <u>Check wiring from rechargeable battery pack to the red and black flying leads on panel.</u> Be sure red lead (+) goes to terminal 3 and black lead (-) goes to terminal 4 of battery pack.</p> <p>B. <u>Replace rechargeable battery pack with No. 492 or No. 493 if battery cannot be recharged according to the procedure below.</u></p> <p>C. <u>Jump panel terminals 11 and 12 together as per instructions in wiring diagrams (Nos. 330R and 332R only).</u></p> |
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NOTE 1: Under no circumstances may the total current available for powering smoke detectors connected to terminals 21 and 22 be exceeded (see listings on wiring diagrams). Check the current draw for each device used by consulting its particular specifications in its Installation Instructions.

NOTE 2: If, after a prolonged alarm condition, new batteries are required, the old batteries must be put on a 24 hour charge without a load. DO NOT leave a sealed lead acid battery in a highly discharged condition for more than 48 hours without charging.

NOTE 3: Sealed lead acid batteries must be fully charged after each 6 months of unused storage conditions.

TROUBLE: 2. BELLS DO NOT YIELD FULL SOUND.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Panel is operating from weak re-chargeable battery</u> (AC line current is used to charge the battery. Be sure AC pilot lamp is on, and all connections are properly made).	A. <u>See TROUBLE 1, Part B for procedure.</u>
B. <u>Bell line run does not conform to specified procedures</u> (see note at the end of this section; see also, Part I, Section G).	B. <u>Make changes in bell wiring.</u>
C. <u>Improper bell mounting</u> has caused clapper to jam.	C. <u>Inspect mounting and bell dome position.</u> Correct any binding or jamming.
D. <u>Short circuit in bell wires</u> (see Part I, Section G, for trouble-shooting bell connection).	D. <u>Replace wires to bell,</u> being careful to avoid conditions that will cause short circuits.
E. <u>Defective bell</u> (if possible, test system with new bell).	E. <u>Replace bell</u> (if necessary).

TROUBLE: 3. REMOTE STATION INDICATOR AND ALARM SYSTEM WILL NOT SWITCH FROM A DISARMED CONDITION TO AN ARMED CONDITION AND VICE VERSA.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Defective remote keyswitch, remote pushbutton, or open wiring</u> leading to terminals 15 and 16 of panel (use a jumper and momentarily short terminals 15 and 16 in the control panel to verify operation).	A. <u>Replace remote switch or wiring</u> if jumper test now causes system to alternately arm and disarm properly.
B. <u>Short circuit in remote switch wires</u> to panel terminals 15 and 16 (remove wires from terminals 15 and 16. Use an ohmmeter to determine if wiring from the remote station switch to the control panel is shorted).	B. <u>Repair or replace shorted wiring.</u>
C. <u>Defective clutch relay or panel circuitry.</u>	C. <u>Replace clutch relay</u> (use No. 90607) or return panel for repair.
D. <u>Red light circuit-breaker has tripped</u> (check for shorts in remote station wiring as a cause of circuit-breaker tripping).	D. <u>Reset circuit breaker in panel</u> (marked RED LIGHT RESET) by pushing on panel button.

PROBABLE CAUSE

REMEDY

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|---|--|
| E. <u>Short circuit in red-light circuit (pushing RED LIGHT RESET will not reset condition).</u> | E. <u>Remove red light lines one by one from panel terminals 16 and 17 until the circuit breaker can be reset. Look for shorted wiring from particular remote station.</u> |
| F. <u>Terminals 11 and 12 not jumpered together when NOT using a remote FIRE/SMOKE/PANIC RESET switch (applies only to Nos. 330R and 332R).</u> | F. <u>Jump panel terminals 11 and 12 together as per instructions in wiring diagrams (Nos. 330R and 332R only).</u> |
| G. <u>Jammed actuator of clutch relay.</u> | G. <u>See instructions found in Troubleshooting Section for No. 330 panel--TROUBLE 5, Section G.</u> |

TROUBLE: 4. WITH SYSTEM ARMED, BELL DOES NOT OPERATE WHEN PROTECTIVE CIRCUIT IS BROKEN.

PROBABLE CAUSE

REMEDY

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| 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, use zone switch alternately and remove protective circuit wiring from terminals 1,2,3, and 4 for zone 1, and terminals 5 and 6 for zone 2. If alarm now activates, there is a short circuit in protective circuit wiring.</u> | B. <u>Repair or replace shorted wiring in failing protective circuit (see Part I, Section H for troubleshooting information).</u> |
| C. <u>Disconnected, broken, or shorted wiring between control panel and bell. Check wiring between terminals 18 and 19 on control panel to the bell.</u> | C. <u>Check wiring and repair or replace as necessary (see Part I, Section G).</u> |
| D. <u>Bound bell clapper.</u> | D. <u>Free or adjust bell clapper. If necessary, replace bell.</u> |

TROUBLE: 5. BELL CIRCUIT DOES NOT LATCH ON ALARM. THE BELL SOUNDS WHEN DOOR IS OPENED BUT STOPS WHEN DOOR IS CLOSED.

PROBABLE CAUSE

REMEDY

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| A. <u>Dirty contacts on bell drop relay (see diagram for location).</u> | A. <u>Clean relay contacts with burnishing tool and/or spray (see catalog Nos. 316 and 317).</u> |
| B. <u>Open coil winding of bell drop relay (see diagram for location).</u> | B. <u>Replace relay if ohmmeter check reveals an open coil winding.</u> |

TROUBLE: 6. 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 tester or equivalent to locate faults (see Part I, Section H for instructions).

TROUBLE: 7. 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,
2. Set ZONE SWITCH to "1 OFF". Remove protective circuit wiring from zone 2, terminals 5 and 6. Install a jumper between terminals 3 and 6, and between terminals 4 and 5. 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. 332R and 342R) 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.

1. Restore protective loop of zone 1 to proper operation (see Part I, Section H).
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. Problems in control panel circuitry (If system cannot be put into a disarmed condition after following the above procedures AND alarm sounds when they system is armed, suspect control panel circuitry).

C. Return control panel for repairs.

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

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

TROUBLE: 8. REMOTE STATION LIGHT(S) DO NOT OPERATE. ALL ELSE IS NORMAL AND SYSTEM IS CAPABLE OF BEING ARMED.

PROBABLE CAUSE

REMEDY

A. Burned out lamp (does not apply to remote stations Nos. 214, 246, and 5246).

A. Replace lamp with proper type.

B. Broken wire(s) to system status indicating lamp(s).

B. Repair breaks in wires or splices (check wiring at rear of each remote station; also check wiring to terminals 13, 14, 16, and 17 of control panel).

TROUBLE: 9. BURGLAR ALARM SOUNDS AT ALL TIMES WITHOUT THE ABILITY TO BE RESET.

PROBABLE CAUSE

REMEDY

A. Short circuit in Emergency Switch wiring (check for shorts between wires to terminals 20 and 21 of panel and at Emergency Switch).

A. Repair or replace shorted wiring.

B. Short in tamper switch or tamper switch wiring to outside remote station (if used).

B. Remove wiring from terminals 16 and 20. Use an ohmmeter to locate a short circuit. Repair or replace as required.

C. Short circuit in wires going to remote FIRE/SMOKE/PANIC reset switch (if used to reset system remotely--applies to Nos. 330R and 332R only).

C. Disconnect wires from terminals 11 and 12 at panel (Nos. 330R and 332R only). Using an ohmmeter connected to these leads, press remote reset switch. Look for an open circuit when switch is depressed. Repair or replace shorted wiring.

TROUBLE: 10. FIRE ALARM SOUNDS WITHOUT THE ABILITY TO BE RESET.

PROBABLE CAUSE

REMEDY

A. A short circuit exists in the wiring to thermostats and/or smoke detectors.

A. Repair or replace shorted wiring. Check panel connections at terminals 9 and 10 (and terminals 11 and 12 in the case of Nos. 340R and 342R).

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

TROUBLE: 11. FIRE CIRCUIT TROUBLE BUZZER SOUNDS (NOS. 340R AND 342R ONLY).

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>A break exists in the wiring going to or from thermostats and/or smoke detectors</u> (disconnect wires from panel terminals 9,10,11, and 12. Use an ohmmeter to check for continuity between the wires removed from terminals 9 and 12, and between the wires removed from terminals 10 and 11).	A. <u>Trace and repair or replace any wiring that does not show continuity as described in the CAUSE column</u> (be sure all wiring is fastened properly to screw terminals of devices and control panel, and be sure that all wiring splices are tight and clean).

TROUBLE: 12. WHEN TESTED, SMOKE DETECTORS DO NOT APPEAR TO WORK.

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

NOTE: Under no circumstances may the total current available for powering smoke detectors be exceeded (see listings on wiring diagram). Check the current draw for each detector by consulting its particular specifications in its Installation Instruction. See also Section U in Part II of this manual for information relating to particular smoke detectors.

TROUBLE: 13. THE PANIC CIRCUIT WILL NOT ACTIVATE WHEN THE EMERGENCY SWITCH IS DEPRESSED.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Defective emergency switch(es) or open wiring between switch and panel terminals 20 and 21.</u>	A. <u>Repair or replace switch or wiring as required.</u>

TROUBLE: 14. DEVICES ATTACHED TO DRY CONTACTS OF PANEL (DIALER, DIGITAL COMMUNICATOR, FLOODLIGHTS, REMOTE SOUNDING DEVICE) DO NOT OPERATE DURING FIRE, PANIC, OR BURGLAR ALARM.

PROBABLE CAUSE

REMEDY

- A. Dirty or corroded dry contacts of fire, burglar, or panic relay (remove all devices from terminals F and B).

- A. Clean relay contacts by using a spray cleaner and/or burnishing tool, catalog Nos. 316 and 317. See additional information below:

Procedure

Procedure

1. Simulate fire alarm by shorting terminals 9 and 10 together (it may be desirable to first disconnect fire horn to avoid annoyance).
2. Use an ohmmeter to measure relay contact resistance between terminals F. Proper closure will give a resistance reading of 0 ohms.

If fire alarm dry contacts measure greater than zero ohms on closure clean as recommended above (see diagram for fire circuit relay location).

3. Simulate burglary alarm by arming system and opening an entry point (it may be desirable to disconnect bell first to avoid annoyance).
4. Use an ohmmeter and measure relay contact resistance between terminals B. Proper closure will give a resistance reading of zero ohms.

If burglar alarm dry contacts measure greater than zero ohms on closure, clean as recommended above (see diagram for fire circuit relay location).

5. Without removing ohmmeter leads, press emergency switch to simulate panic alarm.
6. Look for a zero resistance reading across terminals B as an indication of proper panic alarm dry closure.

If panic alarm dry contacts measure greater than zero ohms on closure, clean as recommended above (see diagram for panic circuit relay location).

- B. Open wiring to the devices operating off the dry contacts.

- B. Check wiring for breaks. Repair or replace as necessary.

- C. Power supply problems or individual operating problems with attached devices (each device must have its own power source in good condition).

- C. Check source of power for each device and its wiring to terminals F and B. If problems persist, see Troubleshooting Section for the units involved.

TROUBLE: 15. THE NO. 706 MINI-HOWLER (IF USED WITH NOS. 332R OR 342R) DOES NOT SOUND DURING THE ENTRY DELAY PERIOD.

PROBABLE CAUSE

REMEDY

- A. Disconnected, broken, or incorrect wiring from panel terminals C, 19, and 16 to corresponding terminals on the No. 706 (be sure jumper wire on the mini-howler is cut).

- A. Restore wiring or correct wiring errors according to wiring diagram.

PROBABLE CAUSE

REMEDY

B. Defective mini-howler.

B. See Troubleshooting Section for No. 706.

C. Problems with panel circuitry (check for presence of 6 volts DC at terminals 16 (+) and 19 (-) at all times. Be sure these terminals are properly connected to mini-howler terminals 3 and 2 respectively.

C. Return unit for factory servicing if voltage indications are not present at these terminals.

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.