

TROUBLESHOOTING MODELS AP-24, APL-24

TROUBLE: 1. EXCESSIVE DRAIN OF PROTECTIVE CIRCUIT POWER SUPPLY OR REPEATED REPLACEMENT OF PROTECTIVE CIRCUIT BATTERY.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Short circuit in protective circuit wiring</u> (remove wires from terminals 3 and 4 of bell box and from protective circuit power source. See Part I, Section H, for finding short circuits).	A. <u>Repair or replace defective wiring.</u> Check for pierced insulation in protective circuit wiring, caused by tacks, staples, or pinching. Check where wires go through walls or around pipes.
B. <u>Short coil winding of sensitive relay</u> (located above terminals 5 and 6).	B. <u>Replace sensitive relay if resistance check indicates too low a value</u> (see Part I, Section H).

TROUBLE: 2. BELL(S) RINGS BUT DOES NOT GIVE FULL SOUND. (See also Part I, Section H).

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Low bell battery or power supply voltage</u> (in the case of a rechargeable power supply, be sure that the batteries are fully charged - charge batteries for 24 hours without a load).	A. <u>Replace battery if voltage measures substantially less than 6 volts</u> while the bell is operating. Allow rechargeable batteries to charge fully.
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 troubleshooting 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.
F. <u>Short circuit in coil of latching (drop) relay</u> (located above terminals 1 and 2 on relay panel). Coil should measure 50 ohms of resistance.	F. <u>Replace latching relay if resistance check indicates substantially less than 50 ohms.</u>
G. <u>Dirty or corroded keyswitch contacts.</u>	G. <u>Replace keyswitch with proper type</u> (see catalog).

PROBABLE CAUSE

REMEDY

H. Dirty or corroded latching (drop) relay contacts (located above terminals 1 and 2 of relay panel).

H. Clean and/or burnish relay contacts with burnishing tool and spray cleaner (catalog Nos. 316 and 317).

TROUBLE: 3. BELL CIRCUIT DOES NOT LATCH ON ALARM. WHEN THE CONDITION CAUSING ALARM IS CORRECTED, THE BELL STOPS EVEN THOUGH THE KEYSWITCH REMAINS IN THE NIGHT POSITION.

PROBABLE CAUSE

REMEDY

A. Dirty contacts on latching (drop) relay (located above terminals 1 and 2 on relay panel).

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

B. Open circuit in coil of latching (drop) relay (located above terminals 1 and 2 on relay panel. Look for approximately 50 ohms with an ohmmeter placed across coil winding).

B. Replace latching relay if ohmmeter check on coil reveals an open circuit.

TROUBLE: 4. WITH SYSTEM ARMED, BELL DOES NOT OPERATE WHEN PROTECTIVE CIRCUIT IS BROKEN. (See also Part I, Section H).

PROBABLE CAUSE

REMEDY

A. Stuck contact in protective circuit failing to release on entry.

A. Check each contact for proper operation. Replace as necessary.

B. Disconnected or discharged bell battery or power supply (be sure any rechargeable batteries in Recharge-A-Packs are fully charged; charge batteries for 24 hours without a load).

B. Check connections of bell battery or power supply to terminals 3 and 4 of control panel. Replace defective batteries if they do not measure substantially close to 6 volts when the bell or other sounding device is operating.

C. Disconnected, broken, or shorted wires between relay panel and bell. Check wiring between terminals 1 and 2 on control panel to the bell.

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

D. Dirty contacts on protective circuit (sensitive) relay (located above terminals 5 and 6 on control panel).

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

E. Dirty or corroded keyswitch contacts.

E. Replace keyswitch with proper type (see catalog).

PROBABLE CAUSE

REMEDY

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| F. <u>Bound bell clapper.</u> | F. <u>Free or adjust bell clapper.</u> If necessary, replace bell. |
| G. <u>Open circuit in coil of latching (bell drop) relay</u> (located above terminals 1 and 2 on relay panel). Look for approximately 50 ohms of resistance with an ohmmeter placed across coil winding. | G. <u>Replace latching relay</u> if ohmmeter check reveals an open coil winding. |

TROUBLE: 5. WHEN USING A STROBE LIGHT AS AN ALARM INDICATOR, THE LIGHT FAILS TO FLASH WHEN ACTIVATED.

PROBABLE CAUSE

REMEDY

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| A. <u>Polarity reversed to strobe light.</u> | A. <u>Observe proper polarity.</u> To terminal 1 of the relay panel attach the positive (+) wire. To terminal 2, attach the negative (-) wire. |
| B. <u>Trouble in strobe light circuitry,</u> burned out strobe lamp, break in wiring. | B. <u>Correct particular trouble</u> as required. |
| C. <u>Low battery or power supply voltage</u> (in the case of the rechargeable power supply, be sure that the batteries are fully charged - charge batteries for 24 hours without a load). | C. <u>Replace battery</u> if voltage measures less than 6 volts while bell is operating. Allow rechargeable batteries to charge fully. |

TROUBLE: 6. FALSE ALARMS OCCUR DUE TO SWINGERS IN PROTECTIVE CIRCUIT. (See also Part I, Section H).

PROBABLE CAUSE

REMEDY

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| A. <u>Swinger or intermittent break in protective circuit loop.</u> | A. <u>Use No. 12 tester or equivalent</u> to locate faults. (See Part I, Section H for instructions). |
| B. <u>Weak batteries or insufficiently charged power source</u> supplying protective circuit (check panel ammeter for 3 to 4 ma current draw during circuit test; 6 ma in the case of rechargeable power sources supplying 6 volts). | B. <u>Replace batteries</u> if defective. Be sure that any rechargeable batteries in Recharge-A-Packs are fully charged (charge batteries for 24 hours without a load). |
| C. <u>Dirty or corroded keyswitch contacts.</u> | C. <u>Replace keyswitch</u> with proper type (see catalog). |

TROUBLE: 7. AMMETER READING ON CONTROL PANEL IS ZERO OR LESS THAN 3 MILLIAMPS IN ALL POSITIONS OF THE KEYSWITCH.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>A protected point of entry is open.</u>	A. <u>Check all windows and doors.</u> Close any opened door and windows in protective circuit.
B. <u>Dead battery in protective circuit.</u>	B. <u>Replace battery.</u> Be sure there is no shorted wiring causing shortened battery life.
C. <u>Defective Recharge-A-Pack powering protective circuit.</u> All discharged batteries of this type should be charged for 24 hours without a load.	C. <u>Be sure Recharge-A-Packs are fully charged and operating within their maximum output capacity.</u> After charging sufficiently, use a voltmeter to measure battery output under operating conditions.
D. <u>A break or short exists in protective circuit wiring.</u>	D. <u>Repair or replace defective wiring.</u> Check wiring at relay panel for shorts between screw terminals 3 and 4 of the bell box panel.
E. <u>Open circuit in the sensitive relay coil</u> (located above terminals 5 and 6 on relay panel).	E. <u>Replace sensitive relay</u> if ohmmeter check reveals an open circuit in the coil winding.
F. <u>Defective panel ammeter.</u> If alarm system works normally but ammeter reads zero when key is in CIRCUIT TEST position (with all points of entry closed), a defective ammeter is indicated.	F. <u>Replace ammeter with proper type</u> (see catalog for details).

TROUBLE: 8. BELL SOUNDS WHENEVER KEYSWITCH IS TURNED TO NIGHT POSITION.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Break in protective circuit wires, contacts, foil, or sensitive relay coil.</u>	A. <u>Check protective circuit</u> as described in Part I, Section H.
B. <u>Sticking latching relay or sensitive relay contacts</u> (latching relay is located above terminals 1 and 2 on the rear of relay panel; sensitive relay is located above terminals 5 and 6 on the rear of relay panel).	B. <u>Visually inspect relay contacts</u> for sticking condition. Clean and burnish as required (use burnishing tool and/or spray cleaner, catalog Nos. 316 and 317). <u>Replace relay</u> if cleaning fails to cure condition.

TROUBLE: 9. STEPPING ON THE FLOOR MAT (IF USED) DOES NOT TRIP THE ALARM.

PROBABLE CAUSE

REMEDY

- A. Too much resistance in wires from floor mat.
- B. Improper mat installation.

- A. See Installation Notes on floor mats, 1000 Series Controls, pages 104-105.
- B. See Installation Notes on floor mats, 1000 Series Controls, pages 104-105.

TROUBLE: 10. BELL OR OTHER SOUNDING DEVICE DOES NOT OPERATE DURING BELL TEST POSITION OF KEYSWITCH.

PROBABLE CAUSE

REMEDY

- A. Problems may exist in the power supply, bell, bell wiring, relay contacts, or terminal connections.
- B. Dirty or corroded contacts in key-switch.

- A. See TROUBLE 4, Sections B, C, E, and F.
- B. Replace keyswitch with proper type (see catalog).

TROUBLE: 11. WHEN USING MODEL AP-24 IN MODULARM OR MINI-MODULARM APPLICATIONS, THE CENTRAL STATION DOES NOT RECEIVE SIGNALING VOLTAGE FROM THE PANEL.

PROBABLE CAUSE

REMEDY

- A. Incorrect wiring hookup.
- B. Telephone lines exceed the 2 to 3 mile length limit (maximum resistance in lines should be no more than 1250 ohms).
- C. Dirty or corroded relay contacts on reversing relay (located just above terminals 5 and 6 on the relay panel).

- A. Be sure wiring conforms to Installation Instructions (positive wire of leased telephone lines goes to terminal 14; negative wire goes to negative supply terminal of telephone line power source).
- B. Use a Telephone Line Voltage Booster No. 349 for telephone lines exceeding the maximum resistance limit (see appropriate instructions contained in unit for proper use). As an alternative, a No. 89-24 Energy Pack can be used to provide greater voltages where the telephone line resistance exceeds 1250 ohms.
- C. Clean and/or burnish normally-closed relay contacts (use No. 316 burnishing tool and No. 317 contact cleaner).

TROUBLE: 12. ON ALARM, NO SUCH INDICATION IS RECEIVED AT THE CENTRAL STATION MODULARM OR MINI-MODULARM UNIT.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Stuck normally-closed contacts of drop relay</u> (located above terminals 1 and 2 on relay panel).	A. <u>Clean and/or burnish normally-closed relay contacts</u> (use No. 316 burnishing tool and No. 317 contact cleaner).
B. <u>Shorted wires going to terminals 13 and 14 of control.</u>	B. <u>Inspect terminals 13 and 14 on terminal block. Repair any shorted wires.</u>

TROUBLE: 13. AN ALARM (TROUBLE) INDICATION IS SHOWN ON THE MODULARM UNIT AT THE CENTRAL MONITORING STATION.

<u>PROBABLE CAUSE</u>	<u>REMEDY</u>
A. <u>Telephone line trouble possibly caused by a break in the lines.</u>	A. <u>Trouble must be repaired.</u> Consult the telephone company.
B. <u>Defective power supply or weak batteries not supplying enough current to register with modularm circuitry.</u> (In cases where telephone line resistance exceeds 1250 ohms, see REMEDY section under TROUBLE 11, Section B).	B. <u>Be sure power supply is delivering proper voltage.</u> Measure output voltage across terminals 5 and 6 and across corresponding terminals on telephone junction block. Be sure it falls within specification.

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.