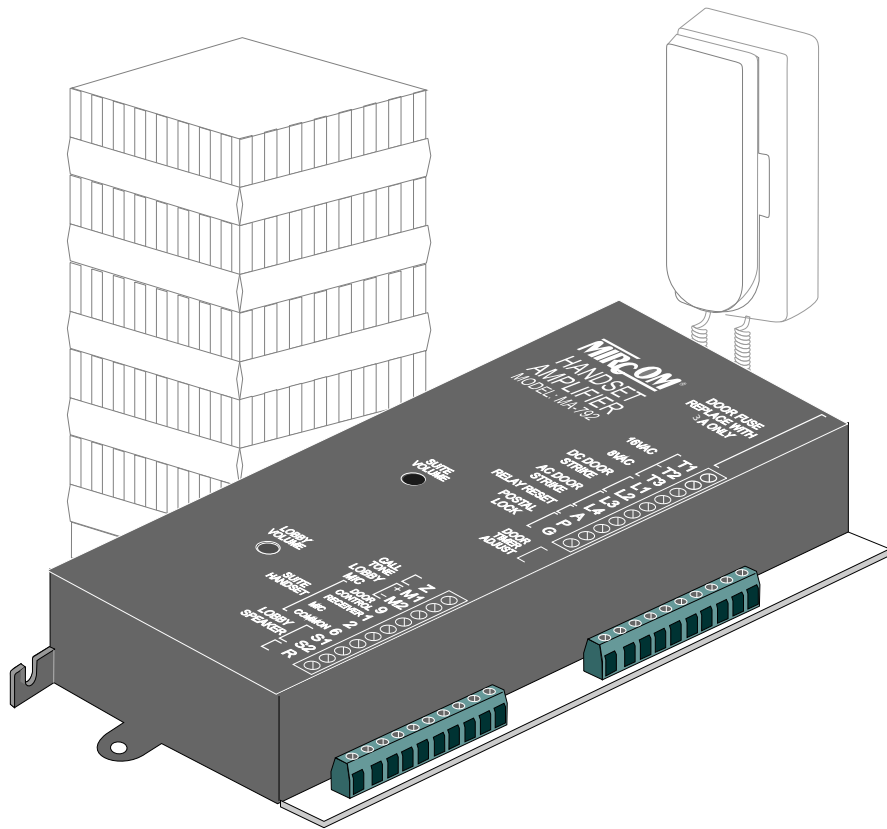




MODEL MA-792

APARTMENT INTERCOM AMPLIFIER

INSTALLATION AND OPERATING INSTRUCTIONS



NOTICE
 All information, document, and specifications contained in this manual are subject to change to change without prior notice by the manufacturer.

INTRODUCTION

The MA-792 is a communications amplifier designed for communication between handset type apartment suite stations and lobby panels incorporating handsets or loudspeakers. It incorporates facilities to control an electric door strike remotely from each suite station. Apartment installations involving more than one entrance can be accommodated with the addition of one or more MIRCUM RL-401B multiple-entrance relay units.

MA-792 SPECIFICATIONS

Power Input, Communication:16 VAC 0.3 A or 16-28 VDC 0.2 A

Power Input, Door Strike:3-24 Volts AC or DC, 3 Amps.

Power Output, Communication:300 mW into 45 Ohms

Power Output, Door Strike:3-24 Volts AC or DC, 3 Amps. Max.

Door Strike Timing:3-15 Seconds, Adjustable

WIRING SPECIFICATIONS

1. Twisted-Pair wiring is required from terminals 2 & 6 of MA-792 amplifier to suite stations. The following conductor pairs also require twisted pair wiring for distances up to 1m (3 feet):

M1/M2

M3/M4

M5/M6

For greater distances, Twisted-Shielded pair wiring is recommended.

Connect shields of shielded wires to terminal 'G' of amplifier.

2. Use adequate wire sizes in order to minimize resistance of each conductor. Refer to the following wire chart.

WIRE CHART

Power Wires: Terminals - T1, T2, T3; L1, L2, L3, L4, L5, L6

Communication Wires: Terminals - 1, 2, 6; S1, S2, S3, S4, S5, S6; X1, X2, X3, X4; Z, Z1, Z2

Function Wires: Terminals - 9, P, A, R

DISTANCE (meters)	POWER (feet)	POWER WIRES	COMMUNICATION WIRES	FUNCTION
50	164	#18 (AWG)	#22(AWG)	#22 (AWG)
75	246	#16	#22	#22
100	328	#14	#20	#22
150	492	#14	#18	#22
200	656	#12	#18	#22

ENCLOSURES AND HOUSINGS

1. The amplifier and relay unit are normally mounted within the lobby enclosure. When the enclosures are located outdoors, the amplifier and relay unit must be installed in a dry location where the ambient temperature is maintained between 0 °C and 40 °C (32 °F to 104 °F).
2. For installation of lobby enclosures refer to instructions supplied with enclosures.
3. PS-3B transformers may be mounted within the enclosures or at the main fuse panel. Care must be taken to locate transformers at least 12 inches away from the amplifier and the lobby microphone.
Observe local electrical codes regarding the installation of Class-2 transformers.
4. Suite station handsets can be mounted on single gang electrical boxes.

SYSTEM WIRING

Refer to figure 1 for system wiring required for single entrance application.

Figures 2 & 3 show optional dual entrance applications.

AC Door Strike Operation

For AC (buzzing) door strike operation, refer to figure 4 for wire connections. Select transformer "B" to suit the power requirement of the AC door strike. MIRCOCOM M-10 door strike requires the 8 VAC output of a PS-3B transformer for operation and transformer "B" is not required. Adjust door timing control for desired door open delay time.

DC Door Strike Operation

For DC (silent) door strike operation other than with MIRCOCOM M-10 door strikes, connect 16 VAC to terminals T1, T2 of the amplifier and the required door strike supply voltage as shown in figure 4. The door fuse on amplifier will burn if the door strike current exceeds 3 A. Use of a higher capacity fuse voids warranty.

OPTIONAL CONFIGURATIONS

Lobby Handset

Refer to figure 5 for the required connections when using IS-92 handset in the lobby enclosure.

Refer to figure 6 for wiring the IS-89 and IS-90 handsets in a suite.

Refer to figure 7 for wiring the IS-84 and IS-84W handsets in a suite.

Refer to figure 9 for wiring the IS-92BZ handset in a suite.

Dual Entrance Connections

1. See figures 2 and 3 for dual entrance wiring.
2. Connections marked 'V' are common conductors to all suite stations, wire as per basic connection diagram, figure 1.
3. Connections marked 'X' are wired as per basic connection diagram or optionally as shown in figure 4.
4. Busy lamp outputs at terminals X1, X2, X3, X4 are solid-state drivers. Connecting inductive loads or lamps rated in excess of 24 Volts / 50 mA may cause damage.

CONTROL ADJUSTMENTS

The MA-792 amplifier has three field adjustable controls located on the front:

Suite Volume- Controls the audio level from the entrance panel to the suite station.

Lobby Volume- Controls the audio level from the suite station to the entrance panel.

Door Timer- Controls the 'door-open' delay time from 3 to 15 seconds.

OPERATING INSTRUCTIONS

1. Depressing a call button at the entrance panel sounds a CALL TONE in the corresponding suite.
2. Resident replies by lifting the handset off the hook and speaking into the microphone, this allows both the resident and visitor to speak and listen simultaneously.
3. Resident may admit a visitor by depressing door button on the Suite Station, this will activate the electric door strike for a pre-set time.
4. In dual entrance installations, communication and door strike operation is automatically directed to the entrance from which the call originated.
5. Operating the optional post office lock activates the door strike at the main entrance.

TROUBLESHOOTING HINTS

1. No Communication from Lobby to suite handsets:
 - a. Check Volume control settings on amplifier.
 - b. Check wiring from terminals 1, 2, & 6 of amplifier to suite stations.
 - c. Check Speaker and Microphone connections from entrance panel to amplifier.
 - d. Check for 16 VAC supply at terminals T1 & T2 of amplifier.
2. Low Volume from Lobby area and from suite:
 - a. Check Volume control settings on amplifier.
 - b. Check that additional handsets are not 'off-hook'. Red lamp on amplifier will illuminate whenever a suite handset is lifted. If more than one handset is 'off-hook', volume will be reduced.
3. No Door Strike operation:
 - a. Adjust door timer control on Amplifier.
 - b. Ensure that voltage at T2 & T3 is the specified door strike voltage.
 - c. Check door fuse on amplifier. If necessary, replace only 3 Amp., 3AG type fuse.

MA-792 TERMINAL DESCRIPTIONS

The following is a description for each of the field terminals, along with expected voltage readings under specified conditions. Voltages are read with a 20,000 OHMS/Volt DC, 10,000 OHMS/Volt AC meter, with reference to terminal T2, except where noted otherwise:

- T1 16 VAC power input for amplifier and control circuits, this terminal must be positive when powering with DC.
- T2 Power Supply common & 0 volt reference.
- T3 Door strike transformer input.
- L1 Positive output terminal for door strike.
- L2 Negative output terminal for door strike.
- L3, L4 AC output for door strike: output voltage across L3, L4 is identical to input between T3, T2 when door strike is activated.
- P Postal lock door control input, carries approximately +11 VDC when not in use, door strike is activated by shorting terminal P to G.
- A Door strike control output, used for multiple-entrance systems, normally at 0 Vdc, +12Vdc when door circuit is activated.
- S1 Output for 45 Ohm entry panel loudspeaker, carries 0-5 VAC voice signals when operating.
- S2 Return path for signal on terminal S1, internally connected to common terminal T2.
- R Output for optional handset receiver on entry panel, carries ~0.5 Vac voice signals when operating.
- M1 Microphone input, for use with entry panel microphone, signal from microphone is 0-2 mV AC.
- M2 Return path for microphone signal on terminal M1, internally connected to terminal T2.
- 1 Suite station receiver line, carries 0 ~ 1 VAC voice signals when in operation.
- 2 Suite station microphone line, carries +12 VDC when all handsets are on their bases, ~ +6 VDC when one handset is lifted.
- 6 Return for audio paths of terminals 1 & 2, internally connected to terminal T2.
- 9 Door control input from suite stations, normally at +11 Vdc, 0 Volts when door button on suite station is depressed.
- Z Call tone generator output, normally at +22 Vdc, supplies ~ 10 Vac call tone signal when a call button is depressed.

LOBBY WIRING

DOOR FUSE
REPLACE WITH
3 A ONLY

**MIRCOM
HANDSET
AMPLIFIER**
MODEL: MA-782

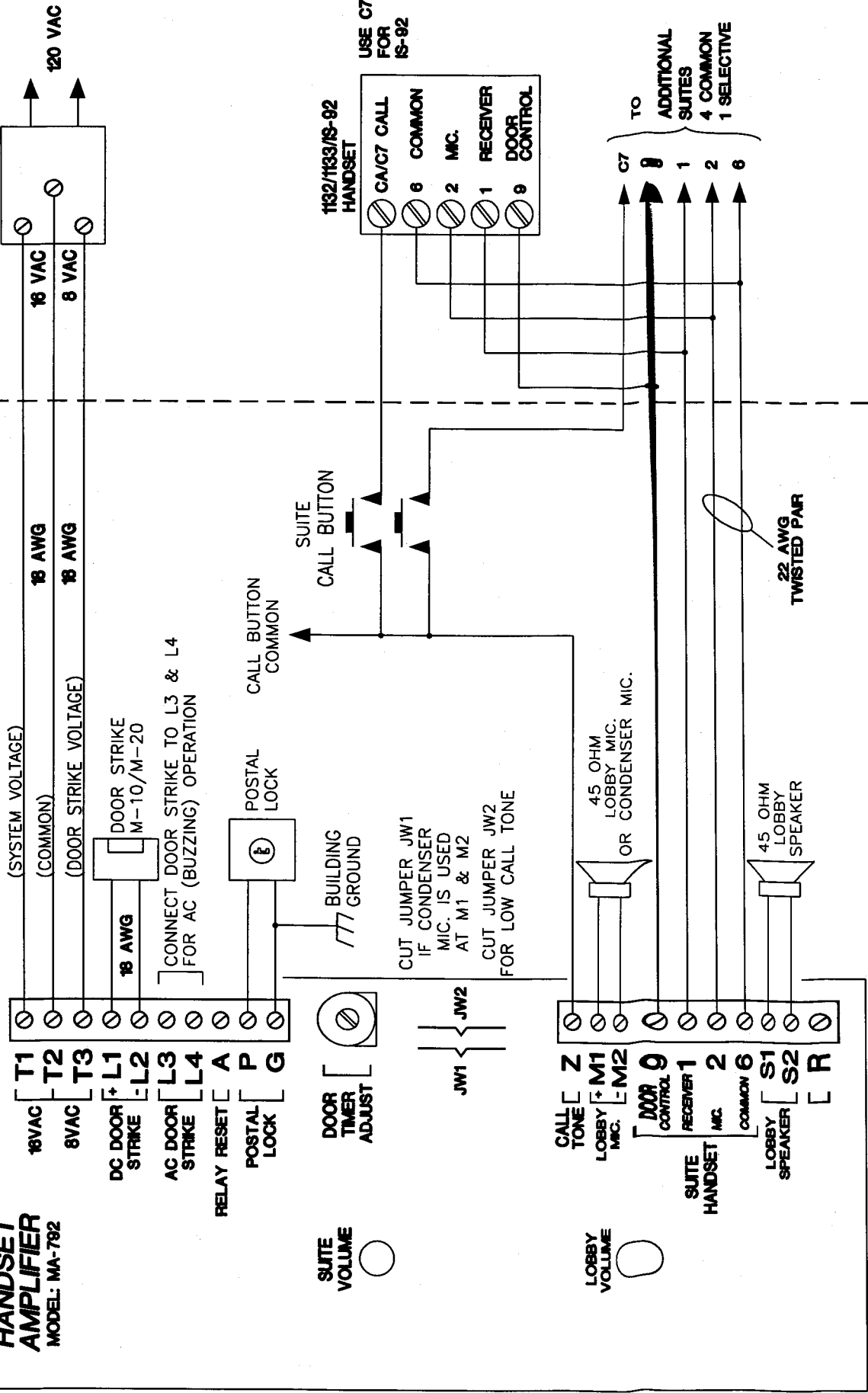
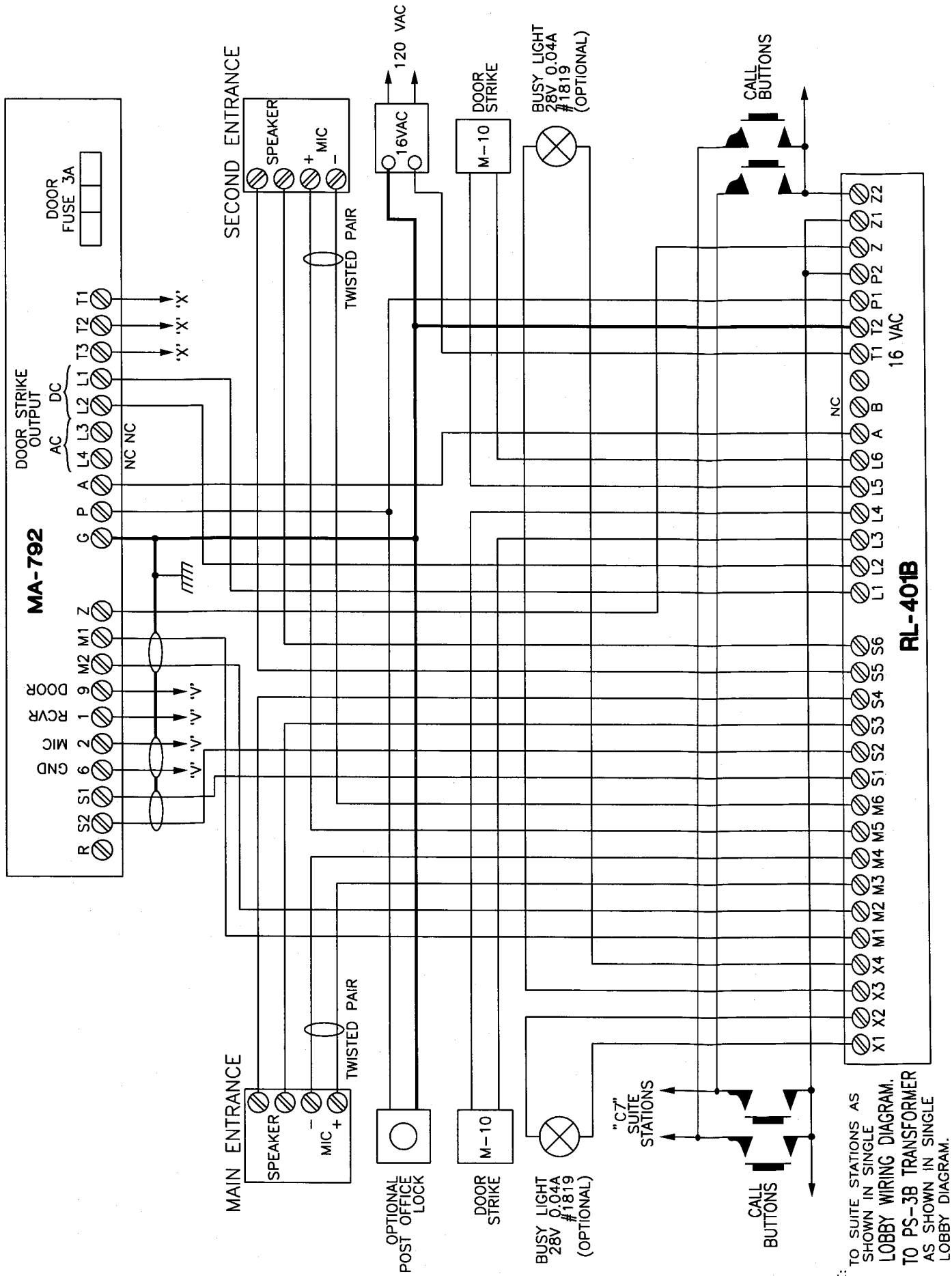
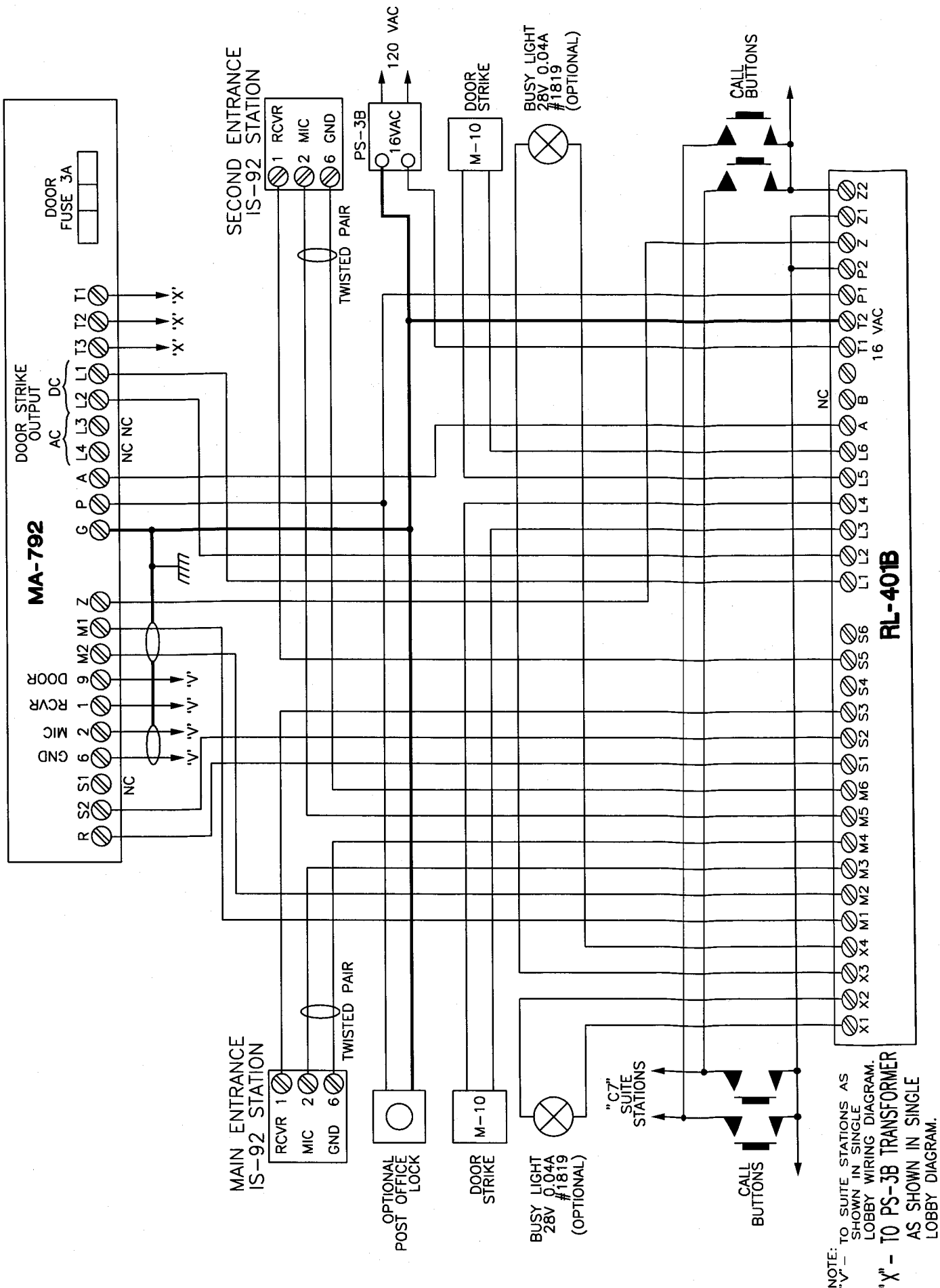


FIG. 1 HANDSET AMPLIFIER WIRING, SINGLE LOBBY APPLICATION



NOTE: TO SUITE STATIONS AS SHOWN IN SINGLE LOBBY WIRING DIAGRAM.
 "X" - TO PS-3B TRANSFORMER AS SHOWN IN SINGLE LOBBY DIAGRAM.

FIG. 2: DUAL ENTRANCE CONNECTION FOR USE WITH SPEAKER/MICROPHONE PANELS IN LOBBY



NOTE: TO SUITE STATIONS AS SHOWN IN SINGLE LOBBY WIRING DIAGRAM.

"X" - TO PS-3B TRANSFORMER AS SHOWN IN SINGLE LOBBY DIAGRAM.

FIG. 3: DUAL ENTRANCE CONNECTION FOR USE WITH HANDSET PANELS IN LOBBY

USING A DOOR STRIKE OTHER THAN MIRCOM'S M-10/20, SELECT TRANSFORMER "B" TO SUIT THE POWER REQUIREMENTS OF THE DOOR STRIKE. CONNECT TRANSFORMER "B" TO T2 AND T3. SEE FIG. 4

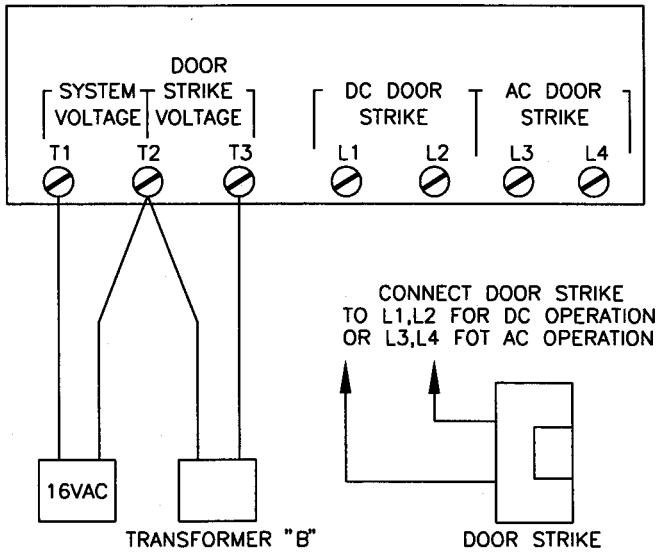


FIG. 4

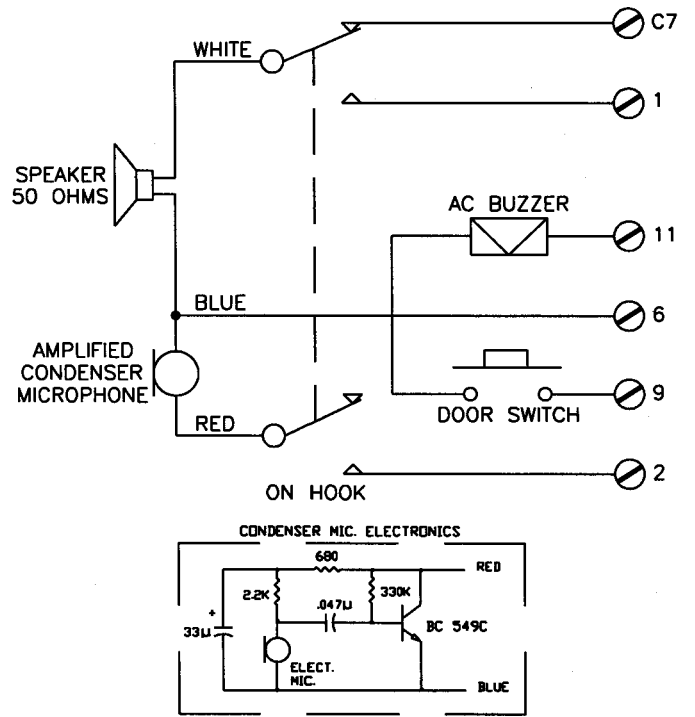


FIG. 5: INTERNAL WIRING

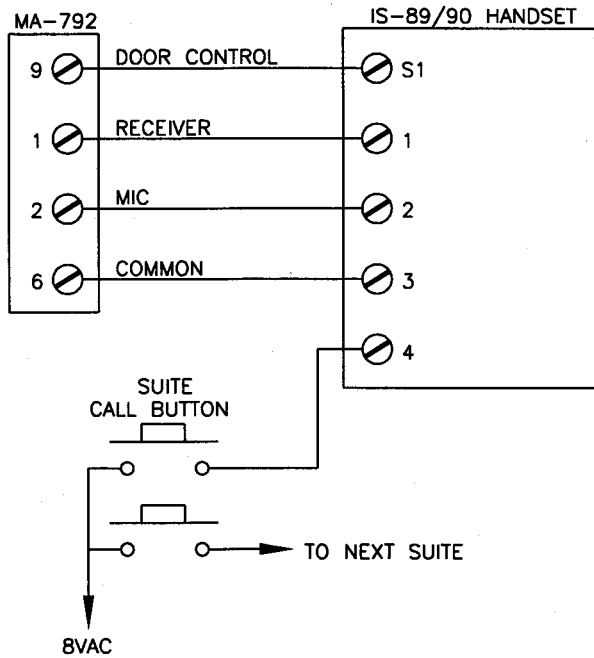


FIG. 6: USING IS-89/90 HANDSET IN SUITE

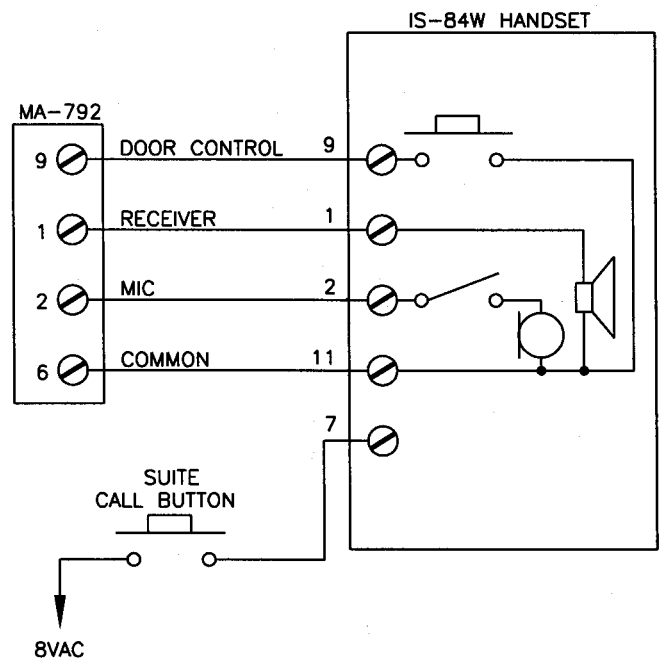


FIG. 7: USING IS-84/IS-84W HANDSET IN SUITE

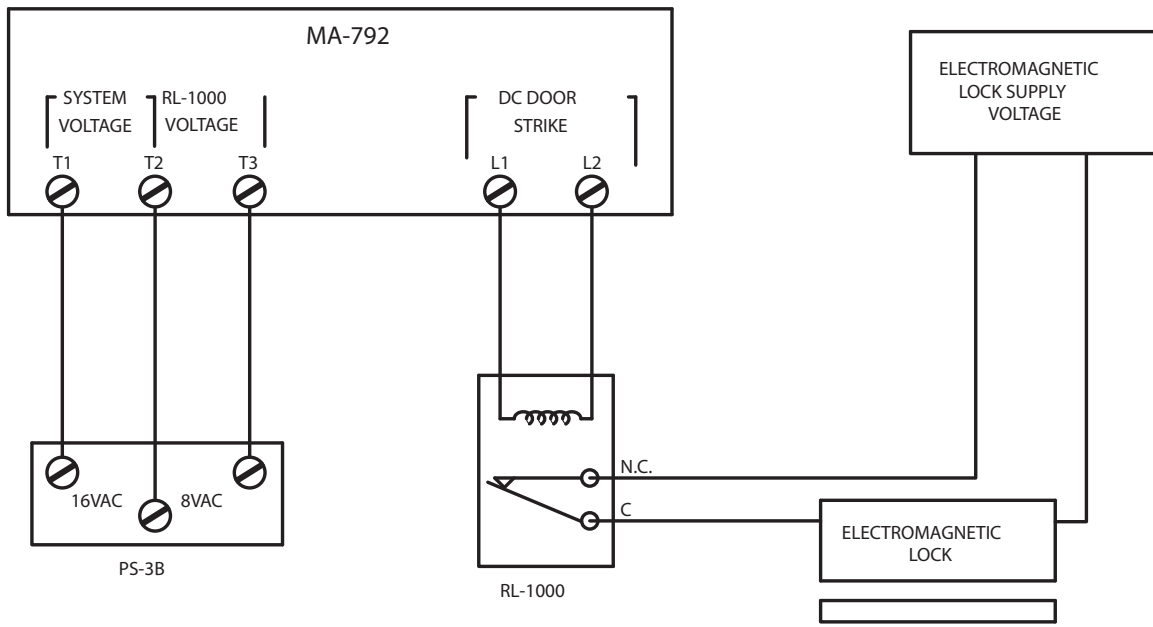


FIG. 8: ELECTROMAGNETIC LOCKS CONNECTIONS

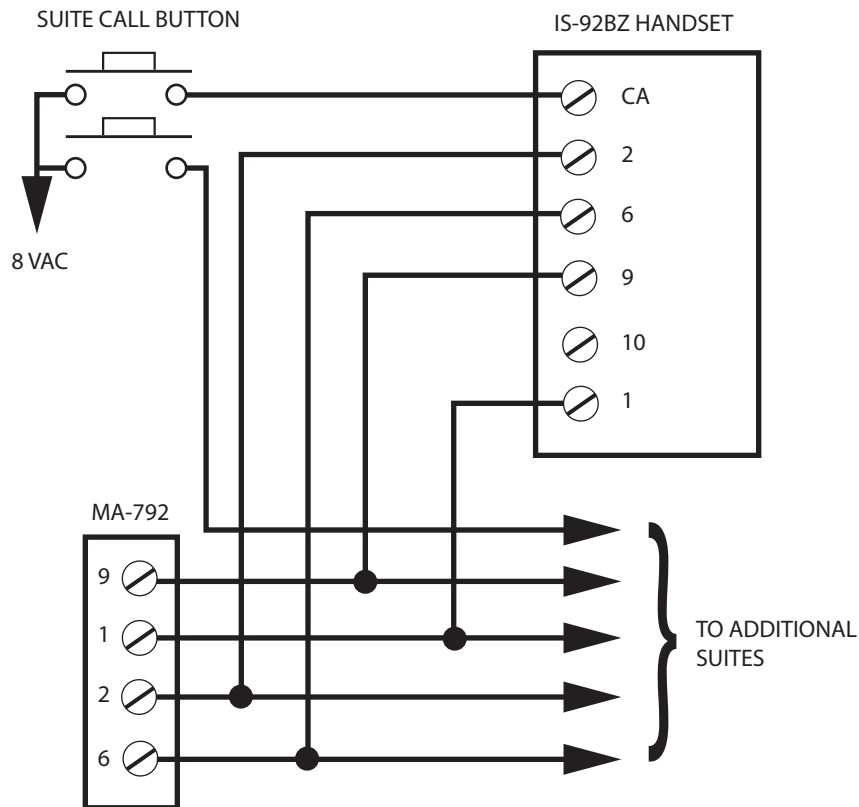


FIG. 9: USING IS-92BZ HANDSET IN SUITE

Warranty & Warning Information

Warning Please Read Carefully

Note to End Users: This equipment is subject to terms and conditions of sale as follows:

Note to Installers

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this system. Failure to properly inform system end users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure.

System Failures

This system has been carefully designed to be as effective as possible. There are circumstances, such as fire or other types of emergencies where it may not provide protection. Alarm systems of any type may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some reasons for system failure include:

- Inadequate Installation

A Fire Alarm system must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. An inspection and approval of the initial installation, or, after any changes to the system, must be conducted by the Local Authority Having Jurisdiction. Such inspections ensure installation has been carried out properly.

- Power Failure

Control units, smoke detectors and many other connected devices require an adequate power supply for proper operation. If the system or any device connected to the system operates from batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition and installed correctly. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage electronic equipment such as a fire alarm system. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

- Failure of Replaceable Batteries

Systems with wireless transmitters have been designed to provide several years of battery life under normal conditions. The expected battery life is a function of the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. While each transmitting device has a low battery monitor which identifies when the batteries need to be replaced, this monitor may fail to operate as expected. Regular testing and maintenance will keep the system in good operating condition.

- Compromise of Radio Frequency (Wireless) Devices

Signals may not reach the receiver under all circumstances which could include metal objects placed on or near the radio path or deliberate jamming or other inadvertent radio signal interference.

- System Users

A user may not be able to operate a panic or emergency switch possibly due to permanent or temporary physical disability, inability to reach the device in time, or unfamiliarity with the correct operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm.

- Automatic Alarm Initiating Devices

Smoke detectors, heat detectors and other alarm initiating devices that are a part of this system may not properly detect a fire condition or signal the control panel to alert occupants of a fire condition for a number of reasons, such as: the smoke detectors or heat detector may have been improperly installed or positioned; smoke or heat may not be able to reach the alarm initiating device, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors; and, smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building.

- Software

Most Mircom products contain software. With respect to those products, Mircom does not warranty that the operation of the software will be uninterrupted or error-free or that the software will meet any other standard of performance, or that the functions or performance of the software will meet the user's requirements. Mircom shall not be liable for any delays, breakdowns, interruptions, loss, destruction, alteration or other problems in the use of a product arising out of, or caused by, the software.

Every fire is different in the amount and rate at which smoke and heat are generated. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector or heat detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

- Alarm Notification Appliances

Alarm Notification Appliances such as sirens, bells, horns, or strobes may not warn people or waken someone sleeping if there is an intervening wall or door. If notification appliances are located on a different level of the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners or other appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.

- Telephone Lines

If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods of time. Also the telephone lines may be compromised by such things as criminal tampering, local construction, storms or earthquakes.

- Insufficient Time

There may be circumstances when the system will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.

- Component Failure

Although every effort has been made to make this system as reliable as possible, the system may fail to function as intended due to the failure of a component.

- Inadequate Testing

Most problems that would prevent an alarm system from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested as required by national standards and the Local Authority Having Jurisdiction and immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

- Security and Insurance

Regardless of its capabilities, an alarm system is not a substitute for property or life insurance. An alarm system also is not a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation.

IMPORTANT NOTE: End-users of the system must take care to ensure that the system, batteries, telephone lines, etc. are tested and examined on a regular basis to ensure the minimization of system failure.

Limited Warranty

Mircom Technologies Ltd. together with its subsidiaries and affiliates (collectively, the “Mircom Group of Companies”) warrants the original purchaser that for a period of three years from the date of shipment, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Mircom shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labor and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original owner must promptly notify Mircom in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period.

International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Mircom shall not be responsible for any customs fees, taxes, or VAT that may be due.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Mircom such as excessive voltage, mechanical shock or
- water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Mircom);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Mircom must first obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained. **NOTE:** Unless specific pre-authorization in writing is obtained from Mircom management, no credits will be issued for custom fabricated products or parts or for complete fire alarm system. Mircom will at its sole option, repair or replace parts under warranty. Advance replacements for such items must be purchased.

Note: Mircom's liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) And of all other obligations or liabilities on the part of Mircom neither assumes nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

Out of Warranty Repairs

Mircom will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Mircom must first obtain an authorization number. Mircom will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Mircom determines to be repairable will be repaired and returned. A set fee which Mircom has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Mircom determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

The foregoing information is accurate as of the date of publishing and is subject to change or revision without prior notice at the sole discretion of the Company

WARNING: Mircom recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

NOTE: Under no circumstances shall Mircom be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property.

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