

WIRELESS ROAMER SYSTEM

Integration of Aiphone's Intercom and Paging system with 900MHz Cordless Phone

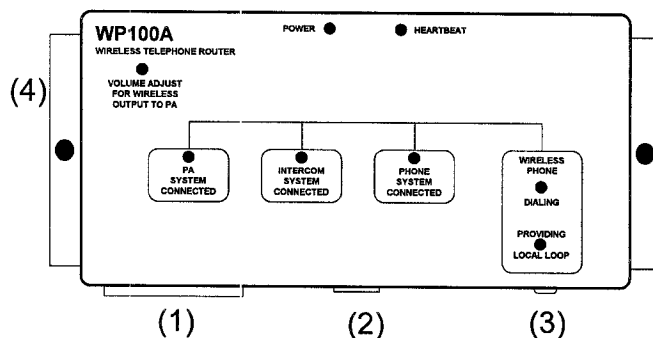
WP100A

WP100A Wireless Telephone Router
ANA9500 900MHz Phone
Used with Aiphone's

- MC-60/4A and MC-3 Market Com
- TD-H Selective Call Intercom

- INSTALLATION & OPERATION MANUAL -

1 NAMES AND FUNCTIONS



WP100A Wireless Intercom Interface "ROAMER"

- (1) 12-pin connector plug
- (2) Phone cord input
- (3) Power supply input
- (4) Volume adjustment for PA input

DESCRIPTION:

The Wireless Intercom Interface (WP100A) allows a 900MHz cordless phone to work with Aiphone's intercom and paging systems:

- MC-60/4A and MC-60/4B
- MC-3
- TD-H or TD-Z

The cordless phone can make or receive an outside phone call, initiate a page, or talk to someone on an intercom station. The phone can also initiate or respond to a call from the intercom station.

Equipment furnished with WP100A

- 1 - 24V AC Power supply
- 1 - 7', 8-conductor phone cord
- 1 - RJ31X Phone jack
- 2 - Packet of screws and wire nuts
- 1 - 4.7K ohm resistor, 1/4W
- 1 - Installation manual

Uniden ANA9500 Cordless Phone

- 1 - Base Unit
- 1 - Handset
- 1 - 8', 2-conductor phone cord
- 1 - 10V DC Power supply
- 2 - Rechargeable batteries
- 1 - Belt clip
- 1 - RJ11 Telephone jack
- 2 - Operational guide (photocopy quantities)

2 FEATURES

- Full communications with the Telephone system, Intercom system, and Paging system.
 - Place and receive outside phone calls
 - Make a page through the overhead PA system
 - Receive a call from any intercom station (ring or vibration from ANA9500)
 - Place a call to an intercom station on a specified channel
- Compatibility with any 2500-set compatible cordless phone, or our specified ANA9500 900MHz phone.
- Multiple cordless phones in a system, each with its own WP100A interface.
 - Up to 2 cordless phones with MC-60/4A system
 - Up to 4 cordless phones with the TD-H or TD-Z paging systems
- Compatible with MC-3, two-line system (Max. 1 cordless phone)

3 PRECAUTIONS

BEFORE YOU INSTALL OR OPERATE THE EQUIPMENT

Wireless Interface Adaptor:

1. Do not connect power supply to unit until all wiring connections are complete.
2. Select an installation location that is accessible, and not exposed to temperature extremes, moisture, or excessive dust.
3. The optimal place for installation is near the telephone and paging control equipment.

Wireless Telephone Base Station:

1. In a standard sized facility where usage will be indoors, the base may be installed near the telephone control equipment or in a Manager's office.
2. In larger facilities, or where the wireless phone will be used outdoors, the base station may need to be installed in a remote overhead location in the center of the facility. If this is the case, an AC outlet must be nearby and a 2-conductor phone cable must be run from the telephone equipment. When the base is inaccessible to the user, the optional remote charging cradle (EXP9585) is required.

4 INSTALLATION

ADDITIONAL EQUIPMENT NEEDED FOR INSTALLATION:

- Standard telco interconnect tool kit
- Drill
- Tie wraps, tape, wire, hardware
- Screwdriver set

1. Surface mount WP100A to wall or backboard with supplied screws. Unit should be located near the telephone system and intercom/paging adaptor and amplifier. AC outlet must be closeby to plug in 24V AC transformer.
2. Connect WP100A to MC-A/A paging adaptor for intercom and PA functions. Wire connections are made at 12-pin connector, which plugs into socket on WP100A. Use 2 conductor shielded wire for paging output to MC-A/A. Use 3 conductor wire to connect one intercom channel to WP100A (2 for power, 1 for communication).

4 INSTALLATION (Continued)

3. Plug 8 conductor phone cord between WP100A and RJ31X terminal block.
4. Connect a 1-pair cable (red/green) from the RJ31X terminal box to an **analog port** on the telephone system.
5. Make a hardwire connection of 1-pair between the RJ31X and RJ11 terminal boxes. (RJ31X white/blue to RJ11 red/green.)
6. From RJ11 terminal block, connect a 1-pair telephone cord with modular jack to the "line in" port of the ANA9500 cordless phone base.
7. Plug 10V DC transformer into ANA9500 cordless phone base.

NOTE: See wiring diagrams for complete and detailed wiring information.

PHONE SYSTEM CONNECTION:

- The ANA9500 phone requires an analog port on the telephone system. Connect it to a dedicated analog extension, or to a dedicated incoming line. If the phone system is digital, the phone system provider should be contacted and asked to provide an analog port.
- If the cord from the WP100A to the RJ31X is unplugged, the cordless phone will still be connected to the phone system, but will not have access to the intercom or PA system.

PAGING SYSTEM CONNECTION:

- Pins 1 and 2 of the WP100A should be connected to the highest priority input (600 ohm balanced). If the amplifier has only one input and no muting circuit, a resistor (included in accessory kit) must be installed. Refer to the amplifier's instructions for actual connection information, then choose the appropriate wiring diagram from this manual.

INTERCOM SYSTEM CONNECTION:

- The system can be configured to allow the intercom system to ring the cordless phone by selecting channel 2 from the phone. Install jumpers as shown below on channels where ring feature is required whenever a specific intercom channel is active. (MC-3 and MC-60/4A only.) If the jumpers are not installed, the phone will still have communication with the intercom, but the ringing function will be disabled.

<u>Jumpers on:</u>	<u>Ring channel</u>
8 to 12	-----> 1
4 to 5, 9 to 12	-----> 2
4 to 6, 10 to 12	-----> 3
4 to 5, 5 to 6, 11 to 12	-----> 4

TD-H SERIES SELECTIVE CALLING SYSTEM WITH WIRELESS ROAMER:

- The TD-H system can be interfaced with the Wireless Roamer for paging and intercom functions.

- The TD-H stations can ring a cordless phone by being connected to a station number, then pressing the station number and "CALL" on the TD-H phone. The cordless phone will ring, and the person can answer by pressing "TALK".
 - The cordless phone can call to a person on a TD-H handset by being connected to the TD-H's "C" (call) terminal. To call, press TALK, the station number (1~4), and the "#" key. The TD-H phone will ring, and when answered, begin speaking.
- Up to 4 WP100A interface units can be included in the TD-H system, each with its own ANA9500 phone. This allows maximum flexibility for interfacing between the wireless and hardwired communication systems.

5 TERMINAL FUNCTIONS and ADJUSTMENTS

The WP100A has a 24V AC transformer input, an 8-conductor modular phone jack input, and a 12-pin terminal connector.

12-pin Connector Terminal Definitions:

The 12-pin connector can be connected to the system wiring while unplugged, then simply plugged into the slot when wiring is completed.

- 1 Output to Amplifier (600 ohm balanced input)
- 2 Output to Amplifier (common)
- 3 Amplifier output shield (connect shield of 1 & 2 wires)
- 4 Common or negative
- 5 Call channel programing (For ring jumpers with MC system)
- 6 Call channel programing (" ")
- 7 Call input ring terminal from TD-H system (*TD-H system only*)
- 8 Communication line 1 from intercom to phone
- 9 Communication line 2 from intercom to phone
- 10 Communication line 3 from intercom to phone
- 11 Communication line 4 from intercom to phone
- 12 Ring activation from intercom to cordless phone (*MC system only*)

VOLUME ADJUSTMENT:

• With a small screwdriver, the volume can be adjusted for the output volume of the page from the ANA9500 phone. Additional volume adjustments for the paging system can be done at the paging adaptor and amplifier.

PAGING ADAPTOR AND AMPLIFIER CONNECTIONS:

To connect the Wireless Roamer system to the paging system, use the 600 ohm balanced input into the paging amplifier. This is usually noted as a "TEL" (telephone) input.

WP100A -----> MC-A/A

- 4 -----> 5/-
- 8~11 ----> 3, 4, 6, 7 (For communication)

WP100A -----> Aiphone PG-C series Amplifier

- 1-----> 1 TEL (*Set dip switches 1 & 2 to ON position*)
- 2-----> 2 Common
- 3-----> 3 (Shield connection)

WP100A -----> TOA 900 Series with L41S 600 ohm bal. muting module

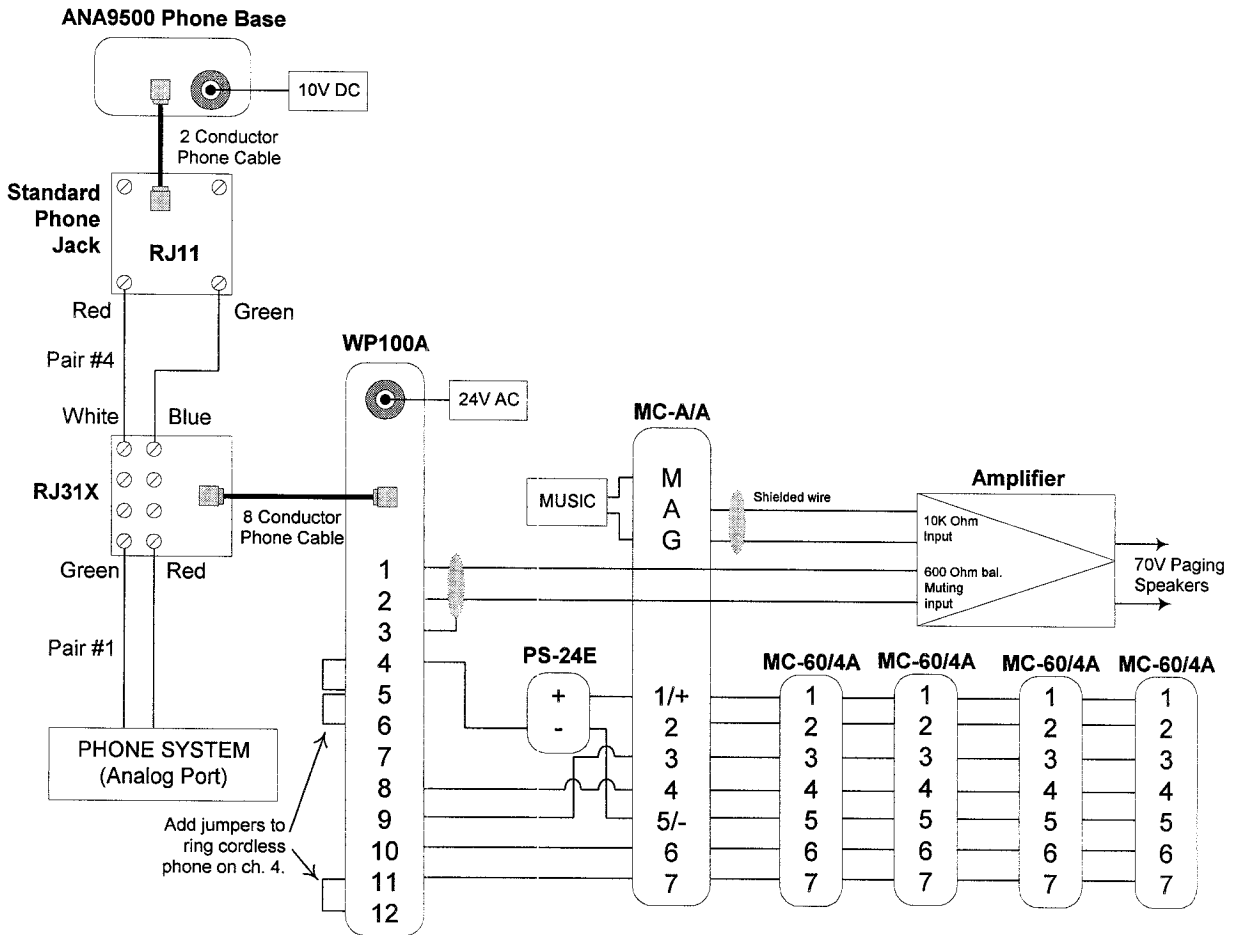
- 1-----> 3 (Hot)
- 2-----> 2 (Common)
- 3-----> 1 (Earth, Shield connection)

WP100A-----> Standard Paging Amplifier (Use muting input if music is included)

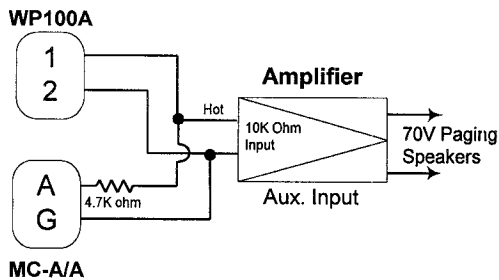
- 1-----> 600 ohm balanced, HOT
- 2-----> 600 ohm, Common
- 3-----> Ground (Shield connection)

6 WIRING DIAGRAMS

MC-60/4A WITH WIRELESS ROAMER SYSTEM - With MC-A/A and Amplifier -



IF P.A. AMP HAS ONLY 1 INPUT AVAILABLE FOR PAGING

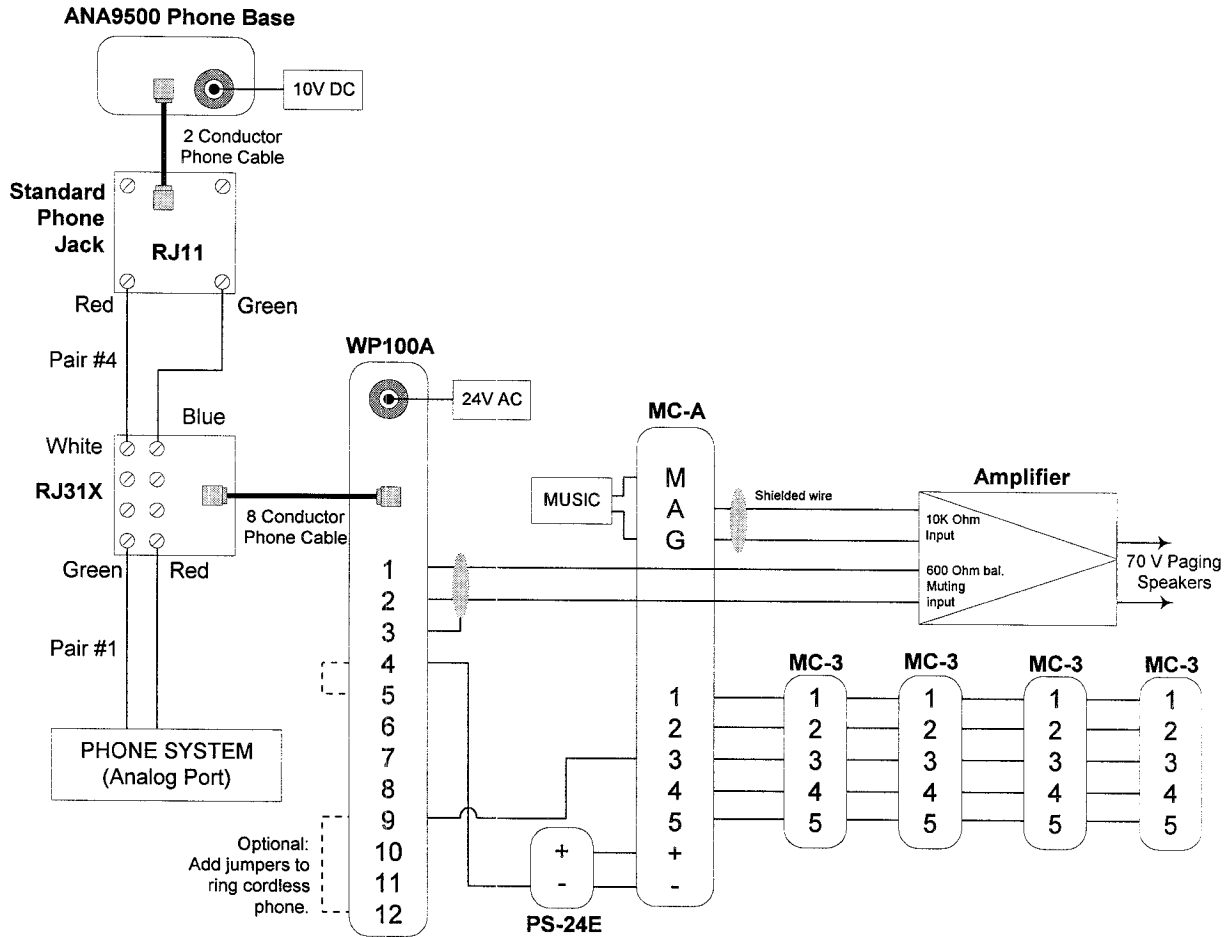


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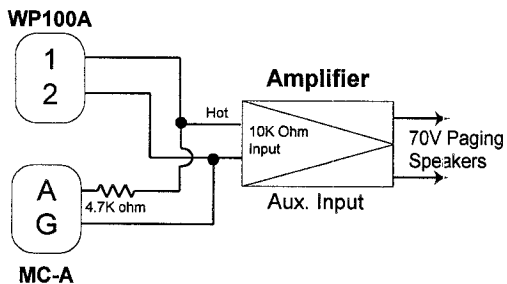
1. All communication lines are shown wired to the Roamer phone, allowing the phone to answer a call on any intercom line. The ring jumpers allow the MC-60/4A's to ring the ANA9500 by selecting channel 4. Press "TALK" on the phone to answer the call.
2. To call from the phone to the MC-60/4A system, Press "TALK" and channel number (1 through 4).
3. MC-60/4A handsets must be wired in blocks with maximum 10 stations per block.

6 WIRING DIAGRAMS

MC-3 WITH WIRELESS ROAMER SYSTEM - With MC-A and Amplifier -



IF P.A. AMP HAS ONLY 1 INPUT AVAILABLE FOR PAGING

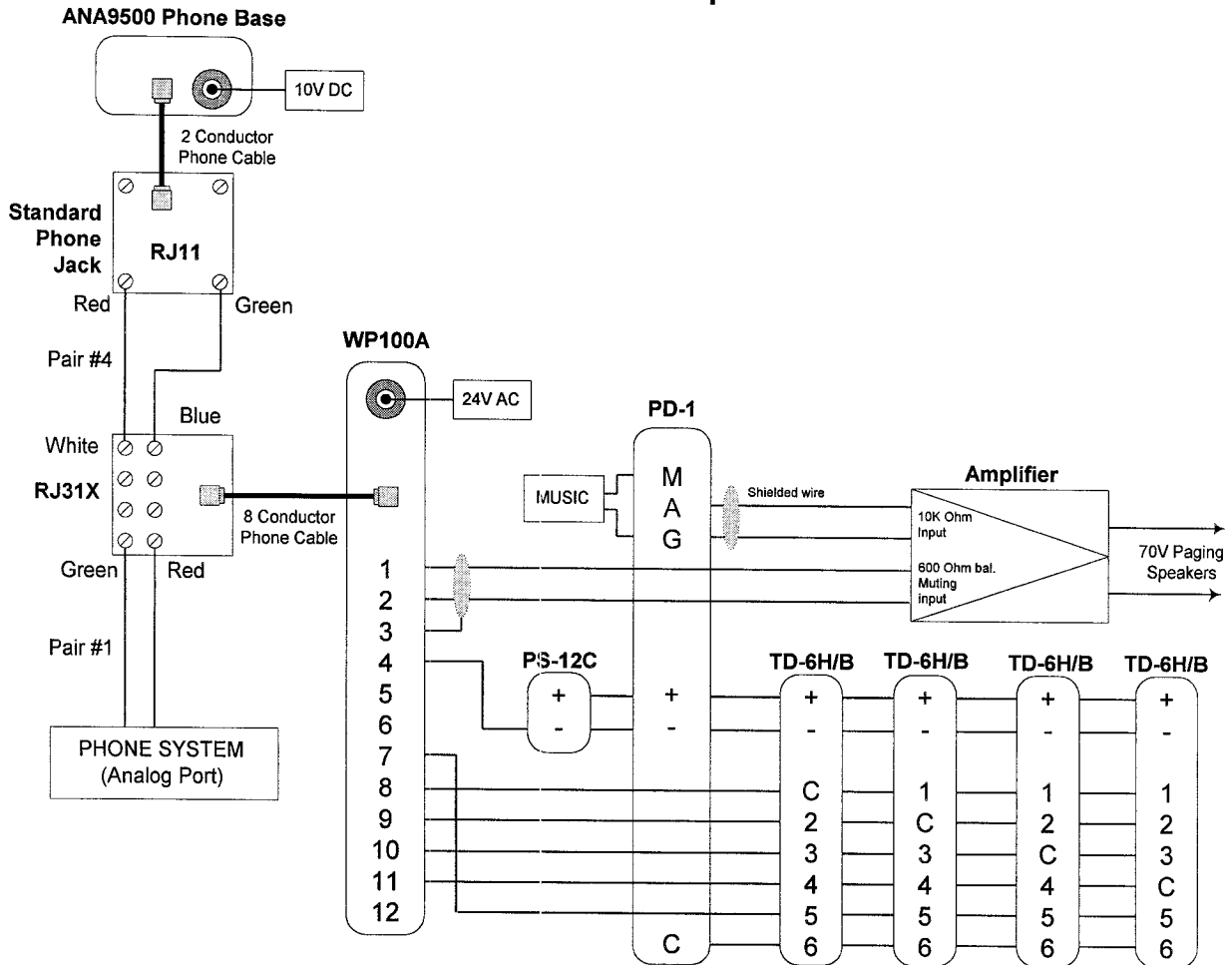


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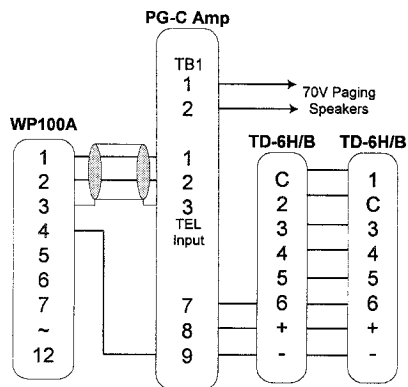
1. Line 2 (green) is the designated intercom channel for communication with the Roamer phone. The ring jumpers allow the MC-3's to ring the ANA9500 phone by selecting channel 2. If both intercom channels are used regularly, it is advised that the ring jumpers not be installed.
2. To call from the phone to the MC-3 system, Press "TALK" and "2".
3. MC-3 handsets must be wired in blocks with maximum 10 stations per block.

6 WIRING DIAGRAMS

TD-H WITH WIRELESS ROAMER SYSTEM - With PD-1 and Amplifier -

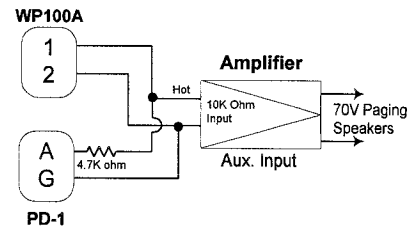


WHEN USING A PG-C SERIES AMP



PG-C DIP SWITCH SETTINGS:
 * Before operating the system, be sure to configure the dip switches as follows:
 1 through 8: OFF (Lower position)
 Optional: 6 = Pretone on/off. If pretone is desired, move switch to ON (Upper position).

IF P.A. AMP HAS ONLY 1 INPUT AVAILABLE FOR PAGING



NOTES:

- In this example:
 Channel 5 of TD-6H/B calls the Roamer phone.
 Channel 6 of TD-6H/B accesses the paging system.
- To call from the phone to a TD-H intercom, Press "TALK", channel number (1 through 4) and press # to activate ringer.
- To call from a TD-6H/B to the Roamer phone, press "5" and "CALL" on the TD-6H/B (in this example). To answer, press "TALK" on the ANA9500.

7 OPERATIONS

The WP100A Roamer System connects the ANA9500 cordless phone to the paging and intercom system, as well as to the facility's telephone system. The cordless phone allows full roaming capabilities for the manager or person most needing to be in communication with people both inside and outside the building.

TELEPHONE SYSTEM:

The WP100A connects the ANA9500 to the telephone, paging, and intercom systems. The WP100A has three inputs to provide major functions.

1. *When a hardwired extension in the phone system calls the ANA9500:* Connected through an analog port on the telephone system, a ring signal is sent to the WP100A.
 - If the cordless phone is not busy, it will ring. There are three settings for ring: loud, soft, and vibration. When the TALK button is pressed, the phone goes "off hook" and is connected to the incoming call.
 - If the ANA9500 is busy with an intercom call, both the cordless phone and intercom will hear a call-waiting tone. The standard telephone placing the call will hear a ring-back tone.
2. *When an intercom station calls the ANA9500:* The ring jumper(s) must be installed on the WP100A to allow the MarketCom system to ring the cordless phone. (See pg. 3)
 - The person at the intercom picks up the handset and selects the designated channel button.
 - If the ANA9500 is not busy, it will ring. When the TALK button is pressed, the cordless phone is connected to the designated channel on the intercom system.
 - If the cordless phone is busy with a standard telephone call, a busy tone will be heard at the calling party's intercom.
 - If the ANA9500 is busy with an intercom call, both the cordless phone and intercom will hear a call-waiting tone.
3. *Placing a call from the ANA9500 cordless phone:* If no other call is waiting, a go-ahead tone will be heard when the TALK button is pressed.
 - To connect to a standard telephone extension, press "TALK, *".
 - To page, press "TALK, 0", wait for pretone, then make a page announcement.
 - To connect to an intercom channel, press TALK and designated communication channel (1~4).
 - With the TD-H system, the ANA9500 can ring a TD-H phone if wired to do so.

ADVISORY TONES:

During normal operation, the WP100A generates the following advisory tones:

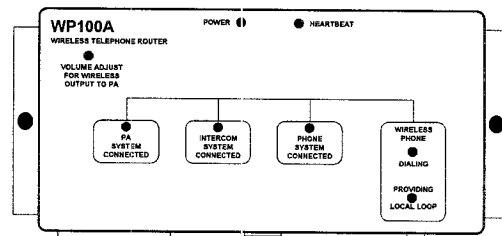
- **Go Ahead.** Series of three tones sent when the ANA9500 goes off-hook and there are no calls waiting.
- **Paging.** Series of five tones sent after the ANA9500 has dialed "0" to access the PA system, and indicates that a page can now be made.
- **Paging Pre-tone.** Tone sent over the PA system to indicate that a page is forthcoming. When using Aiphone's PG-C series amplifier, the same pretone will be heard when paging from the intercom or cordless phone, with adjustable volume.

7 OPERATIONS

ADVISORY TONES (Continued):

- **Call Waiting.** Tone sent to the ANA9500 and the intercom station connected to it to indicate that another telephone or intercom is trying to call the cordless phone.
- **Ring-back.** Tone sent to an intercom that is attempting to call the ANA9500. This tone is heard on the intercom station to indicate that the cordless phone is ringing.
- **Busy.** Tone sent to an intercom that is attempting to call the cordless phone when it is already on a call through the standard telephone system.

8 TROUBLESHOOTING



SYSTEM STATUS LED INDICATORS:

Name:	Function:
Power	• Illuminates when power is on
Heartbeat	• Flashes during normal operation
PA System Connected	• Illuminates when ANA9500 is connected to PA
Intercom System Connected	• Flashes for an incoming call, stays lit when the ANA9500 is connected to an intercom station
Phone System Connected	• Flashes for an incoming call, stays lit when the ANA9500 is accessing an outside phone line (or other phone extension)
Dialing	• Flashes when digits are being pressed on ANA9500
Providing Local Loop	• Illuminates when local loop is provided to the ANA9500 phone

FAULT TOLERANCE:

- If the WP100A loses power, internal jumpers in the WP100A connect the cordless phone to the facility's phone system. If the 8-conductor phone cord is unplugged, internal jumpers will connect the ANA9500 phone to the phone system. This ensures that in power outages or system tampering that the cordless phone will still have primary telephone functions.

REMOVAL OF WP100A:

If the WP100A Interface unit needs to be taken out of the system for any reason, unplug the phone cord at the RJ31X terminal block. This will ensure that the cordless phone will still be connected to the telephone system (through internal jumpers in the RJ31X).

8 TROUBLESHOOTING (Continued)

After the WP100A has been installed, no routine maintenance is required. Problems with the system are easily identified by observing the LED status indicators.

PROBLEM:

CORRECTIVE ACTION:

Power LED
not illuminated

Check that the power supply and cable are plugged in properly and firmly. Verify that the AC outlet is live.

Heartbeat LED
stopped flashing

If the heartbeat LED has stopped flashing (remaining steady or not lit at all), unplug the power supply for 10 seconds, then plug back in.

ANA9500 phone
does not receive
or send

1. Unplug the 8-conductor cable from the RJ31X block connector (not from the WP100A) and verify that the ANA9500 can access the facility's phone system.
2. If the ANA9500 can't access the phone system, unplug the ANA9500 and replace it with a standard analog telephone (2500 set). The 2500 set is for testing only; it cannot be rung by the WP100A. Verify that the test phone can access the facility's phone system. If it does work, then the ANA9500 may be faulty, or a portion of the phone system or cabling may be defective.

ADDITIONAL TROUBLESHOOTING FOR ANA9500:

Problem:

Corrective Action:

Charge light
doesn't come on

- Make sure AC adaptor is plugged into the base unit and AC outlet.
- Make sure handset is properly seated in base unit.
- Make sure NiCad battery is properly placed on the handset.
- Make sure the charging contacts on the handset and base are clean.

Conversation
interrupted
frequently

- Make sure the base unit antenna is fully vertical.
- Move closer to the base unit while communicating, or relocate the base unit to a more central location.
- Check for LOW BAT warning.

Warning tone &
NO SERVICE
message

- Move closer to the base unit.

Handset doesn't
ring.

- Make sure ring jumpers are installed properly.
- Ni-Cad battery may be weak. Charge the battery for 8-10 hours.
- Check the Ringer Alert setting, which may be on "RING OFF" mode.
- Make sure the base unit antenna is fully vertical.
- The handset may be too far away from the base unit.

9 SPECIFICATIONS

WP100A WIRELESS TELEPHONE ROUTER:

Power: 24V AC. Use AC adaptor provided.
Phone Output: Analog port
PA Output: 600 ohm balanced
Dimensions: 5-9/16"H x 10-3/16"W x 1-3/8"D (Width includes mounting flanges.)

ANA9500 900MHz CORDLESS PHONE:

Power: 10V DC
Frequency Control: Phase Lock Loop
Modulation: MSK
Operating Temp: 10 to 130 degrees F

Base Unit:

Trans/Rec Freq: 902MHz - 928 MHz Spread Spectrum
Dimensions: 7-3/4"H x 3-1/8"W x 7/8"D
Weight: Approx. 1 lb. 5 oz.

Handset:

Power: Rechargeable Ni-Cad battery pack
Dimensions: 6-1/2"H x 2-1/8"W x 7/8"D
Weight: Approx. 8.6 oz. with battery
Battery: Capacity: 400 mAH, 4.8V
Talk Mode: 3 hours (typical)
Standby Mode: 42 hours (typical)

Specifications are subject to change without notice.