

# PHONE PATCH CONTROLLER

## **PC-1A**

INSTRUCTION MANUAL

Your new PC-1A Phone Patch has been carefully engineered and manufactured under rigid quality standards, and should give you satisfactory and dependable operation for many years.

Before using, we suggest that you read through this instruction manual to become acquainted with correct operation.

Should any trouble arise with the unit, please contact either your dealer, or the KENWOOD factory service facility.

### **FEATURES:**

1. The PC-1A Phone Patch provides connection between a transceiver and a telephone line.
2. It is designed to provide excellent performance with high isolation between receiver input and transmitter output.
3. Its compact design permits convenient installation in a limited space.

**NOTE:** When using the PC-1A Phone Patch with a TS-930, TS-820, or TS-520 series transceiver, DO NOT use the Phone Patch IN or OUT jacks on the transceiver. Rather, follow the hookup instructions in this manual.

THIS UNIT COMPLIES WITH PART 68, OF FCC RULES.

FCC REGISTRATION NUMBER ALH9TK-70306-OT-N

RINGER EQUIVALENCE 2.2A

MANUFACTURED BY: TRIO-KENWOOD COMMUNICATIONS, INC.  
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Compton, California 90220

**Scanned by**  
**Ward Willats • KG6HAF • Felton, California**  
**23 August 2002**

## RESPONSIBILITY OF GRANTEE OF EQUIPMENT REGISTRATION

### ● FCC rules pertaining to the use of phone patches by radio amateurs

Section 97.79(d) states that "the licensee of an amateur station may permit any third party to participate in amateur radio communication from his station, provided that a control operator is present and continuously monitors and supervises the radio communications to insure compliance with the rules."

The Commission noted that this required a control operator to be on duty at all times during these operations. Furthermore, it said, all calls not initiated at an amateur station had to be screened by the control operator before being placed on the air.

Section 97.114 prohibits amateur licensees from transmitting or delivering third party traffic "involving material compensation, either tangible or intangible, direct or indirect, to a third party, a station licensee, a control operator, or any other person" or delivering third party traffic consisting of business communications on behalf of any party.

### ● Installation

Before you install your KENWOOD Phone Patch, it is your responsibility to call the telephone company and inform them that you are installing a phone patch and you require them to install a type RJ-11 jack and mating plug and cable. Ask the telephone company to specify which wires are to be connected to the two line terminals shown as 6 on the rear view, Figure 2, of the PC-1A. Give them the FCC Registration No. and Ringer Equivalence shown on the front page of the Instruction Manual. Also be sure to notify the

telephone company if, for any reason, you discontinue the use of the Patch.

The telephone company may make changes to their equipment, facilities, or operating procedures that could affect the operation of the Patch. If such changes occur, you should expect to receive adequate notice in writing in time to allow you to maintain uninterrupted service.

### ● A few important rules to follow regarding Phone Patches

1. Call the party on the telephone and explain that he will be on the air.  
Explain any special operating procedures he should observe. THEN switch to the PATCH position.
2. Keep the phone line speech levels as low as possible by means of the RCVR and XMTR GAIN controls. Excessively high levels cause cross-talk and interference with other conversations.
3. Don't let dial tones, dial clicks or telephone operators' voices go out over the air.
4. Don't jeopardize your license by accepting commercial calls or by other improper operating procedures.
5. Keep the PHONE PATCH switch in the "off" position at all times except when actually handling phone patch traffic.
6. If trouble occurs, immediately disconnect the PATCH from the telephone line. Do not reconnect until the fault is diagnosed and repaired.

THIS PHONE PATCH MAY NOT BE CONNECTED TO A PARTY OR COIN OPERATED LINE.

## PREPARATION FOR USE

### Accessories

The following accessories are furnished with the unit:

1. Instruction manual B50-4003-08 ..... 1 copy
  2. Phone Plug 1/8" E12-0001-05 ..... 1 piece
- NOTE:** The following accessories are for USA only.
3. 8 pin mic plug E07-0852-05 ..... 1 piece
  4. 4 pin mic plug E07-0451-05 ..... 1 piece
  5. Warranty card ..... 1 copy

### Connecting cables

When operating the unit in combination with your transceiver, the following cables are required:

- (1) A cable for connecting the transceiver EXT SP terminal to the RX IN terminal.
- (2) A cable for connecting your external speaker to the SP OUT terminal.
- (3) A cable for connecting the telephone line to the LINE terminal.

**NOTE:** Speaker cable grounds must go to the bottom screw terminals on the PC-1A. The telephone line is balanced, and therefore has no polarity.

## CONTROLS AND TERMINALS

### [Front panel]

- (1) **MIC:** Microphone connector
- (2) **Meter:** This indicates the transceiver audio output level to the telephone line. Secondly, it is also used to indicate circuit balance. The rear panel switch selects meter function.
- (3) **RX GAIN:** This adjusts input signal level fed from the transceiver to the phone line.
- (4) **TX GAIN:** This adjusts output signal level fed from the telephone line to the transceiver.
- (5) **PATCH:** ON/OFF switch for selecting "patch" or "through" operation.

### [Rear panel]

- (6) **LINE:** For telephone line connection. Use P4QK-7 cord with plug. The phone lines, being balanced, have no polarity.
- (7) **SP OUT:** For connecting an external speaker. When the PATCH is "OFF", the speaker is "ON".
- (8) **RX IN:** Input terminal: Accepts signal from the transceiver's EXT. speaker output.
- (9) **NULL:** This control adjusts balance of the hybrid circuit. Adjust for minimum deflection of the PC-1A panel meter with the MONI/NULL switch at NULL. (See OPERATION Section for full explanation.)
- (10) **MONI/NULL:** This switch selects the front panel meter function. In the MONI position, the meter indicates the audio signal level fed from the transceiver to the telephone line. In the NULL position, it indicates balance of the hybrid circuit.

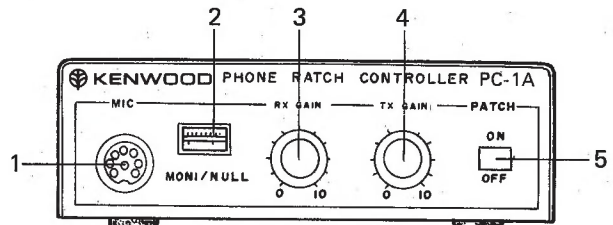


Fig. 1 Front Panel View

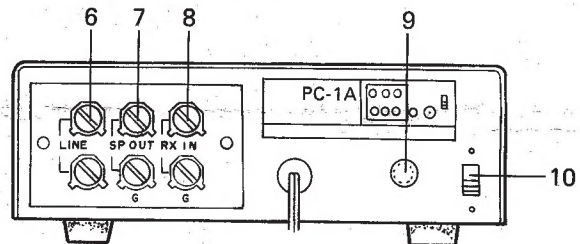


Fig. 2 Rear Panel View

## CONNECTION

Connect the cables as illustrated below. Consult your local Telephone Co. business office before connecting to the Phone lines.

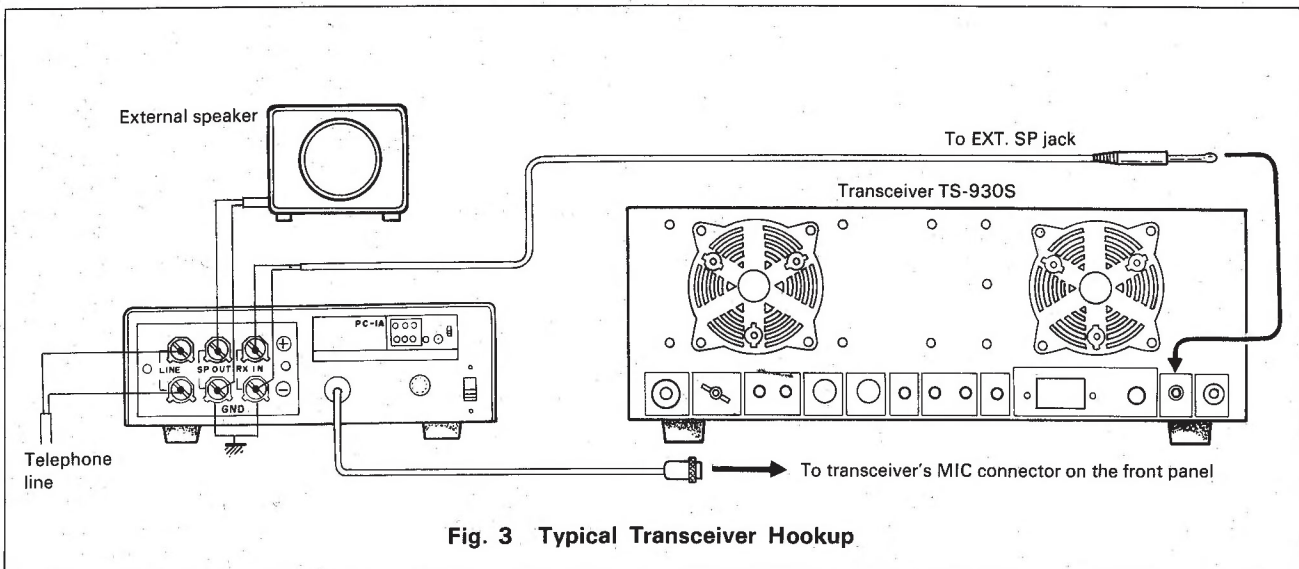


Fig. 3 Typical Transceiver Hookup

# PC-1A STANDARD WIRING

View from cord side.

| Pin | Function        | Color         |
|-----|-----------------|---------------|
| 1   | MIC HOT         | White         |
| 2   | PTT             | Black         |
| 3   | DOWN            | Blue          |
| 4   | UP              | Red           |
| 5   | AUX 1           | —             |
| 6   | AUX 2           | —             |
| 7   | MIC GND         | Stripped wire |
| 8   | PTT, UP/DWN GND | Brown         |

**Fig. 4 8 Pin Cable Connector**

If your transceiver has a 4-pin mic connector, change the PC-1A output cable plug (to transceiver mic terminal) from 8-pin to 4-pin.

(View from cord side)

**NOTE:** Please follow the instructions in your transceiver owners manual.

| Pin | Function | Color               |
|-----|----------|---------------------|
| 1   | MIC HOT  | Red                 |
| 2   | PTT      | White               |
| 3   | PTT GND  | Blue                |
| 4   | MIC GND  | Black & Shield wire |

**Fig. 5 For KENWOOD transceivers with 4-pin mic connectors.**

If your microphone is not equipped with an 8-pin plug, change the connector as shown.

Supplied 8-pin mic plug

To PC-1A Change to 8-pin

View from cord side

**Fig. 6 8-Pin Cable Connector**

## OPERATION

### 1. NULL adjustment

- 1.1 Begin with the PATCH OFF.
- 1.2 Have someone call you by phone.
- 1.3 Receive a continuous signal, such as a Marker beat, on your transceiver. Adjust the transceiver for normal volume through the speaker.
- 1.4 Turn the PATCH ON. The external speaker will be silenced, and the beat will be heard through your telephone handset receiver.
- 1.5 Set the RX GAIN control to max (10), and the MONI/NULL switch to NULL position.
- 1.6 Adjust the NULL control for minimum meter deflection. Return the switch to the MONI position.

Null adjustment is now completed.

### 2. RX GAIN adjustment

After the NULL adjustment has been completed, adjust the RX GAIN control so that the transceiver's signal can be heard clearly through the telephone receiver. An optimum signal level is obtained when the meter indicates about 0 VU. At this time, have your telephone party check that he can hear the signal clearly.

### 3. TX GAIN adjustment

Turn the transceiver VOX switch ON. Have your party speak in a normal telephone voice. Adjust the TX GAIN control for good VOX operation.

This completes adjustments.

4. With the PATCH OFF, use the microphone and external speaker independently of the phone patch. Leave the patch connected, just turn OFF the PC-1A ON/OFF switch for normal transceiver operation. Do not disconnect the patch cables.
5. For phone patch operation, turn the patch ON. By placing the transceiver's VOX switch ON, convenient VOX operation between the telephone and amateur radio station is obtained.
6. If your telephone party is not familiar with radio operating techniques, tell him not to speak until the other party finishes. Tell him to say "over" when he finishes.

7. When the telephone party speaks at a low level or background noise is high, the VOX circuit will not operate properly. Reducing the RX GAIN will most often make the telephone party speak louder. Monitor the voice of both parties for effective VOX operation. If required, use the transceiver's transmit switch for manual transmit receive operation.
8. If you speak into your telephone or your room is noisy, the VOX will operate.
9. Observe good operating practice, and the law, when conducting phone patch traffic. Don't transmit dial tones, dial pulses, ringing or busy signals, or telephone operator chatter.

## REPAIR INFORMATION

### SERVICE

Should it ever become necessary to repair this equipment it MUST be returned to an authorized KENWOOD Service Center or to TRIO-KENWOOD COMMUNICATIONS INC., 1111 Walnut Street, Compton, CA 90220. Pack in its original box and packing, and include a full, detailed description of the problems involved.

Please mention the model and serial number of your equipment in any correspondence, whether phone or written.

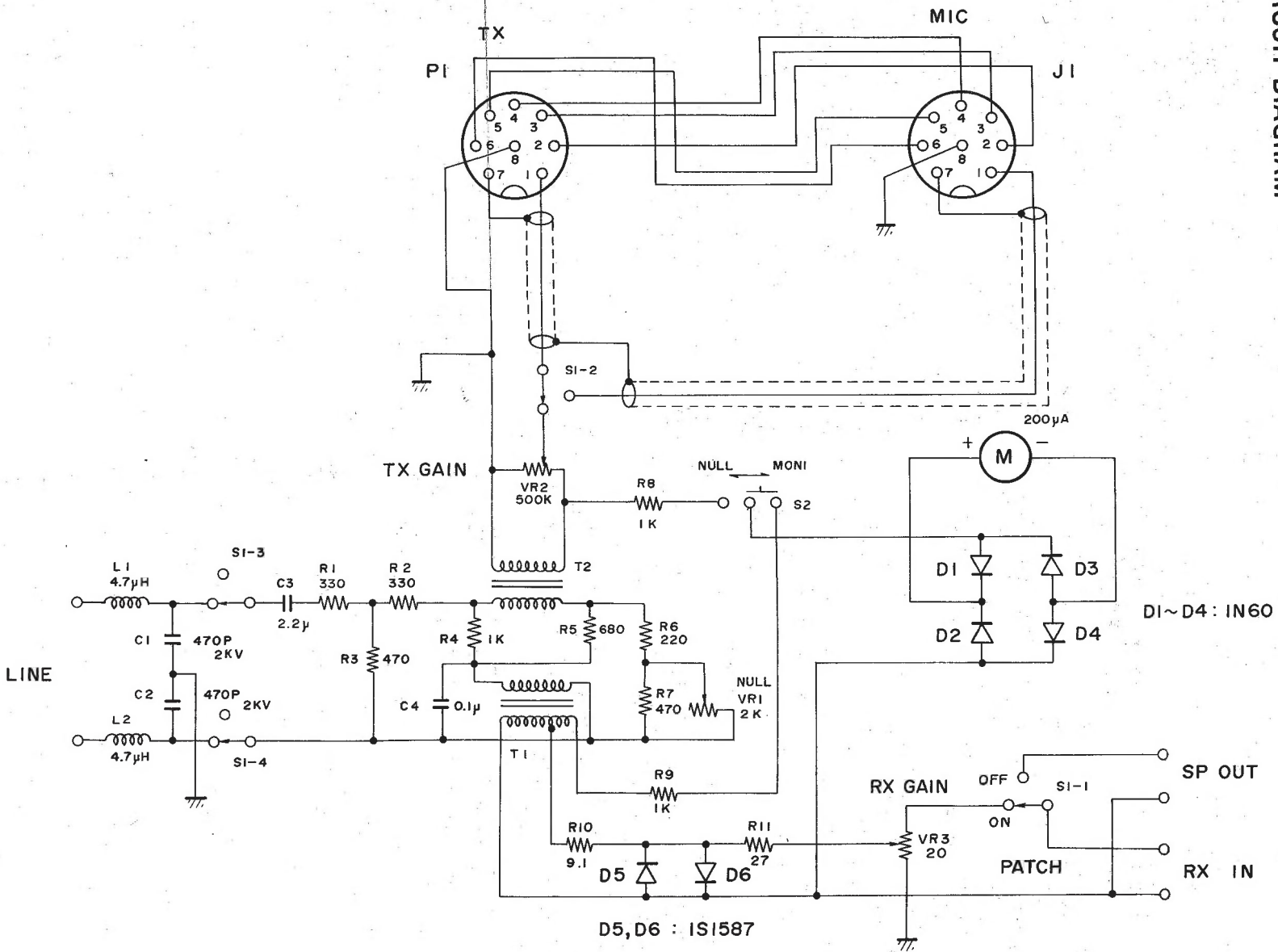
### NOTE:

When claiming warranty service, please include a photocopy of the bill of sale, or other proof of purchase showing the date of sale.

## SPECIFICATIONS

### Impedance Levels

|         |                  |
|---------|------------------|
| LINE:   | 600 ohms nominal |
| RX IN:  | 8 ohms nominal   |
| SP OUT: | 8 ohms nominal   |
| MIC:    | 50k ohms nominal |



A product of  
**TRIO-KENWOOD CORPORATION**

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PC - 1A OPERATING MANUAL ERRATA

Please change page 4, Fig. 4 and Fig. 5.

Fig. 4 8-pin Cable Connector

| Pin | Function            | Color         |           |
|-----|---------------------|---------------|-----------|
|     |                     | Incorrect     | Correct   |
| 5   | AUX 1               | -             | Green     |
| 6   | AUX 2               | -             | Yellow    |
| 7   | MIC GND             | Stripped wire | Bare wire |
| 8   | PTT, UP/<br>DWN GND | Brawn         | Brown     |

Fig. 5 For KENWOOD transceivers with...

| Pin | Function | Color             |           |
|-----|----------|-------------------|-----------|
|     |          | Incorrect         | Correct   |
| 1   | MIC HOT  | Red               | White     |
| 2   | PTT      | Whit              | Black     |
| 3   | PTT GND  | Blue              | Brown     |
| 4   | MIC GND  | Black & shield w. | Bare wire |

Additional information for page 4 Fig. 6.

To change the MC-50's 4-pin plug to 8-pin plug for example, connect as follows:

|                      |                  |       |                       |
|----------------------|------------------|-------|-----------------------|
| <i>inline socket</i> | 4-pin plug       |       | 8-pin plug            |
| <i>white</i>         | - Pin 1 (Yellow) | ————— | Pin 1 - <i>white</i>  |
| <i>Black</i>         | - Pin 2 (Violet) | ————— | Pin 2 - <i>Black</i>  |
| <i>Red</i>           | - Pin 3 (Red)    | ————— | Pin 8 - <i>Brown</i>  |
| <i>Shield</i>        | - Pin 4 (Shield) | ————— | Pin 7 - <i>Shield</i> |

Note: Terminals of the 8-pin plug 3, 4, 5. and 6 should not be connected.