



**GAI-TRONICS®**  
A HUBBELL COMPANY

# Keypad Replacement Kit for Model 491-204 Mine Dial Page Telephone

Model 12504-010

## Confidentiality Notice

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## General Information

The Model 12504-010 Keypad Replacement Kit for the Model 491-204 Mine Dial Page Telephone includes the following components:

Qty	Description
1	Keypad assembly
1	Keypad seal
1	Resistor, 100-ohm, 3-watt, WW or MF
3	Cable tie-wrap

## Installation

### Tools Required

- 5/16-inch nut driver
- 1/4-inch nut driver
- Phillips screwdriver
- Wire cutter

**⚠ CAUTION ⚠** This upgrade replacement kit may only be installed by a GAI-Tronics technician or by a GAI-Tronics authorized service center. Installation by any other service center or personnel will void MSHA approval.

**⚠ WARNING ⚠** Substitution of components may impair intrinsic safety.

R104 located on 69491-002 PCBA must be a 3-watt wire wound or metal film resistor to maintain MSHA approval. See Figures 1, 2, 3 and 4 to give a visual aid to identify and determine if the PCB assemblies were modified.

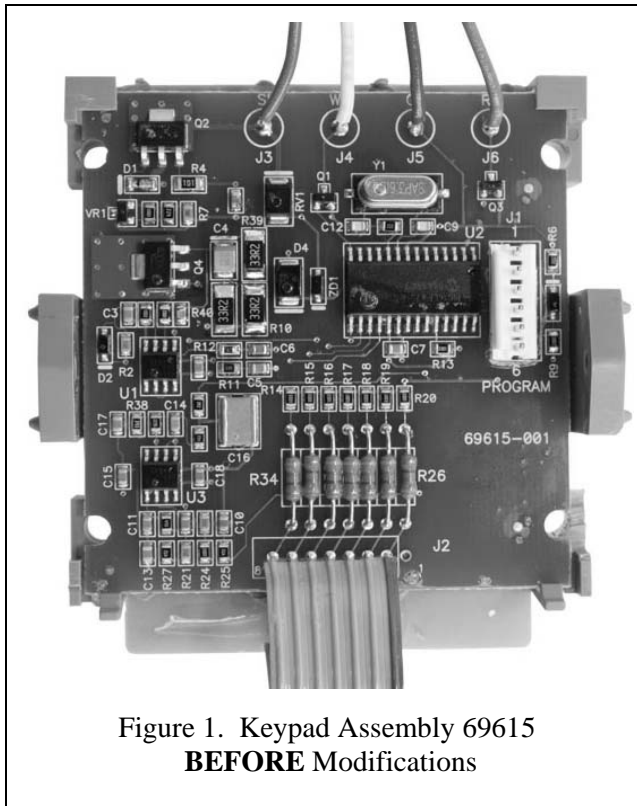


Figure 1. Keypad Assembly 69615 BEFORE Modifications

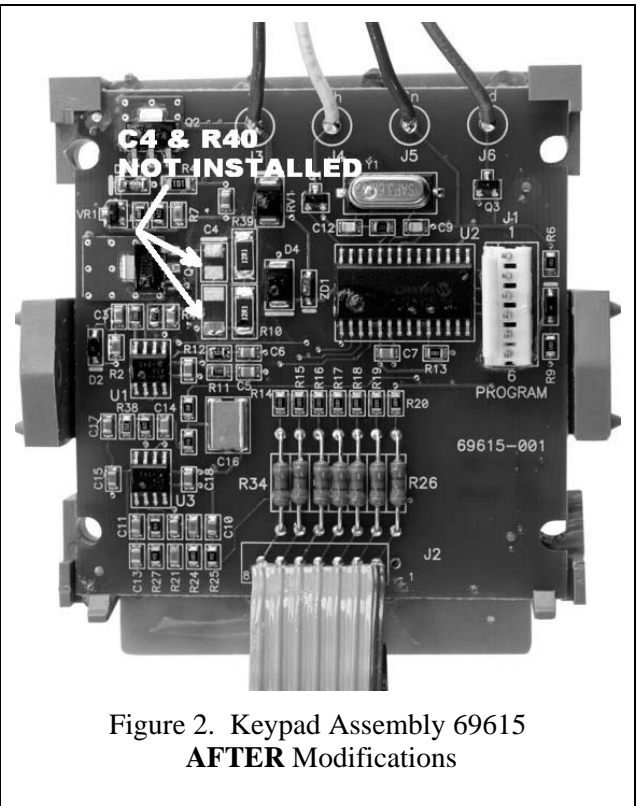


Figure 2. Keypad Assembly 69615 AFTER Modifications

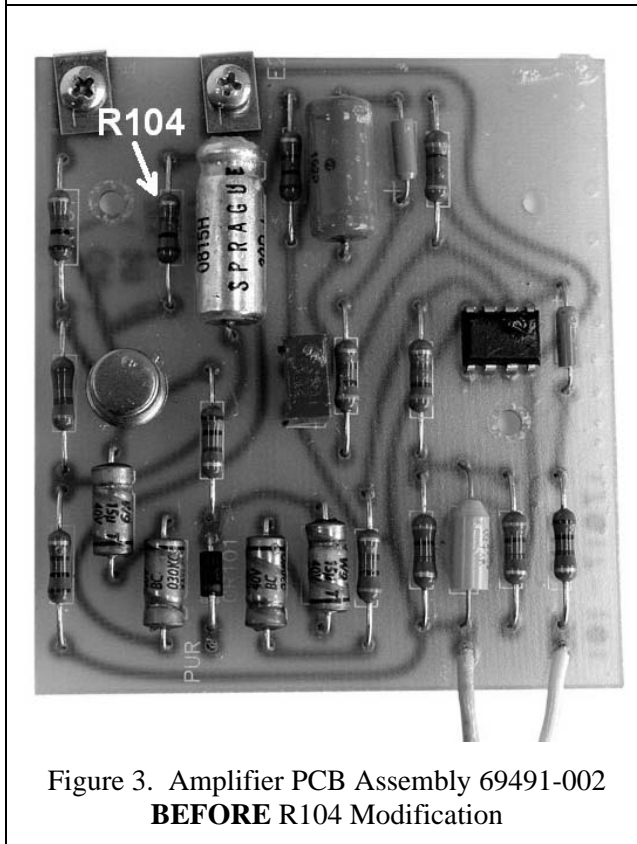


Figure 3. Amplifier PCB Assembly 69491-002 BEFORE R104 Modification

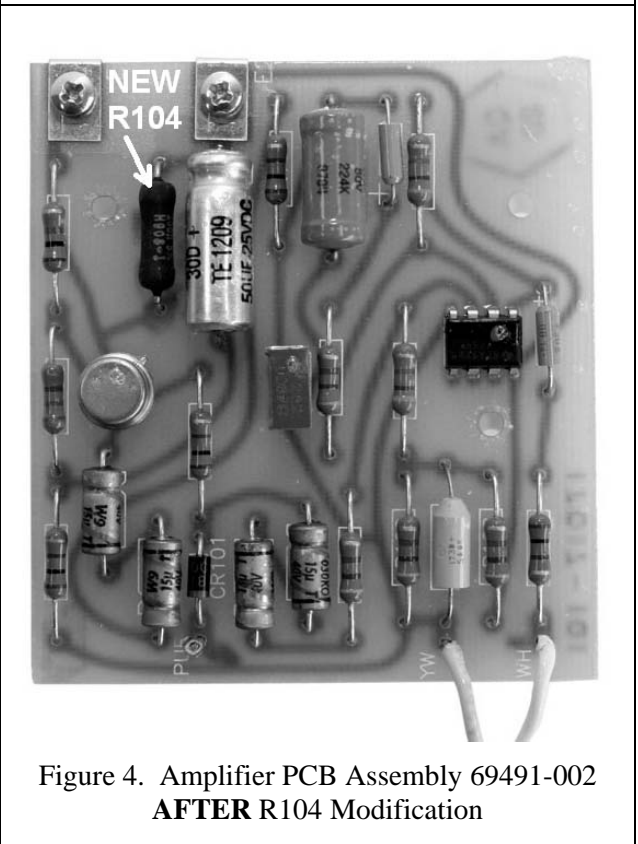


Figure 4. Amplifier PCB Assembly 69491-002 AFTER R104 Modification

## Procedure

1. DISCONNECT the Mine Dial Page Phone telephone line's connection from the communication system.
2. Open the enclosure and disconnect both wires from the positive terminal of the battery.
3. Take note of the positioning of the tie-wraps securing the keypad and wires of the 69491-002 PCB assemblies. Wires MUST be routed and secured to prevent contact with uninsulated conductors. Securing of the wiring in the same fashion will be required at completion.
4. Cut each tie-wrap that is holding the keypad wires and the 69491-002 wires to the enclosure wiring harness. Using the Phillips screwdriver, loosen all screws to remove the keypad wires from the terminal block TB2 and terminal E1 on the 69491-002. Re-tighten all loosened screws to ensure that all other wires remain connected to their appropriate locations. See Figure 5.

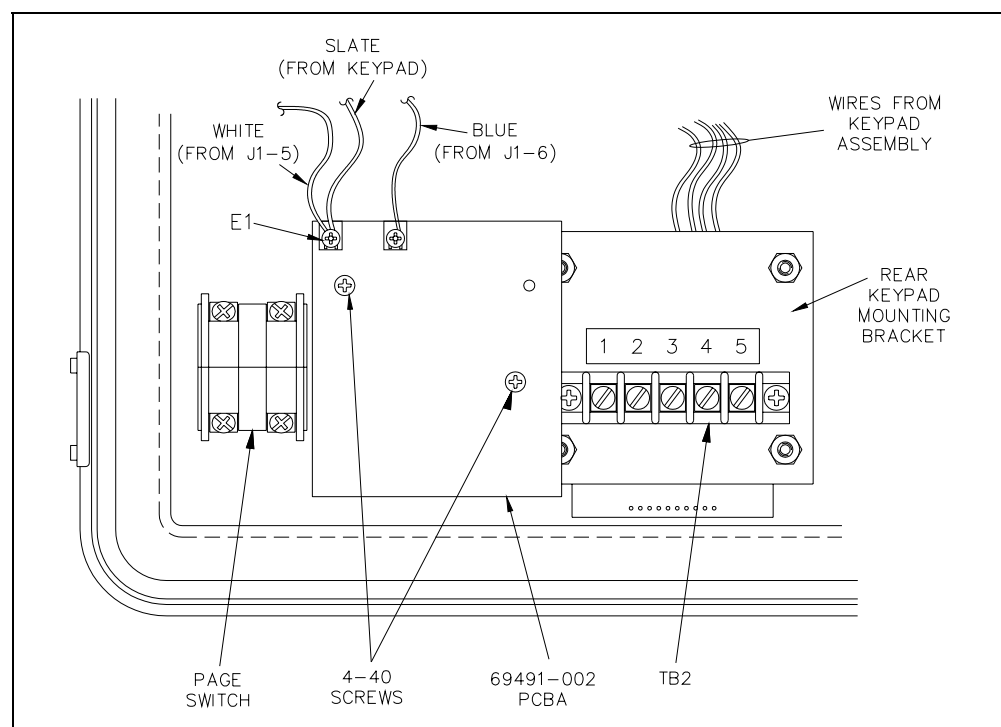


Figure 5.

### 69491-002 Modification for Maintaining Intrinsic Safety (Used in conjunction with keypad PCBA modification)

5. Remove the two 4-40 screws securing the 69491-002 PCBA. Save for re-assembly.
6. On the 69491-002 PCBA, locate R104, which is adjacent to C101 and E2. Refer to Figure 3.
7. De-solder and remove R104 (100-ohm resistor, 1/2-watt).
8. Install new R104 (100-ohm resistor, 3-watt). Re-solder and trim leads.
9. Re-coat the PCBA around R104's soldered connections with an approved moisture resistant material.
10. Swing the PCBA out of the way for access to the keypad assembly.

## Keypad Assembly Replacement

11. Remove the four hex nuts on the rear keypad mounting bracket using the 5/16-inch nut driver. Save the hex nuts for re-assembly.
12. Lift the rear keypad mounting bracket to expose the keypad assembly. Remove the four ¼-inch hex standoffs using the ¼-nut driver. Save the hex standoffs for re-assembly.
13. The front keypad mounting panel can now be pulled away from the keypad assembly from the front of the enclosure.
14. Lift the aluminum keypad spacer off the front keypad mounting panel to expose the keypad seal. See Figure 6. Save the keypad spacer for re-assembly.
15. Pull the keypad seal off the front keypad mounting panel and dispose of the old seal.
16. Press the new keypad seal into the front keypad mounting panel as shown in Figure 6. Make sure that each key extrusion of the seal is seating fully into the front keypad mounting panel.

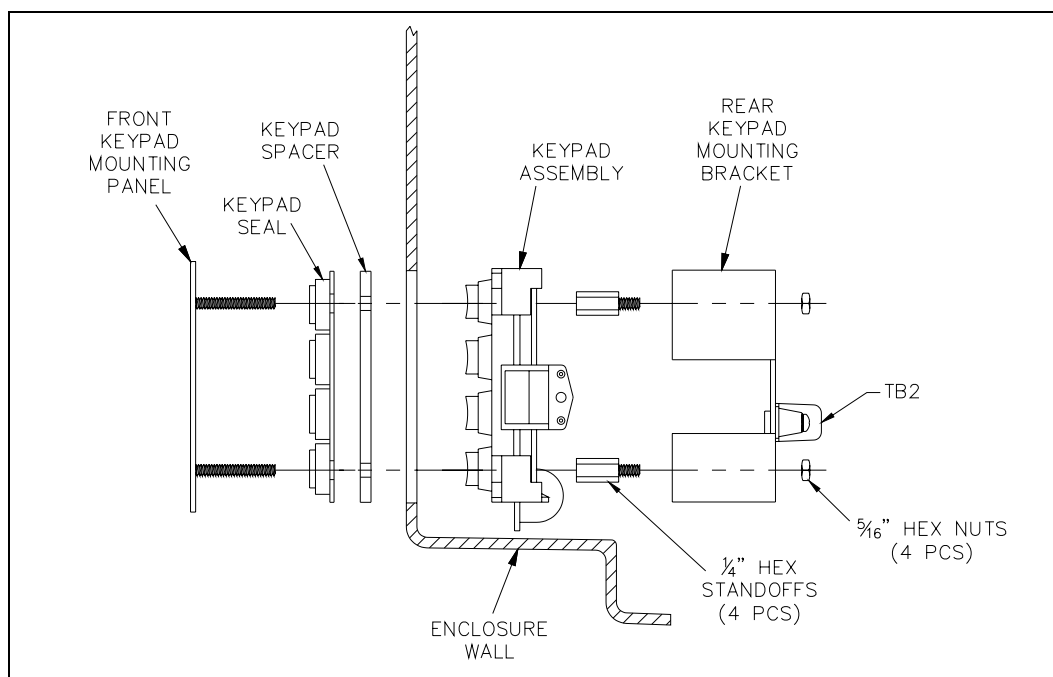


Figure 6.

17. Place the aluminum keypad spacer onto the front keypad mounting bracket to cover the keypad seal.
18. Place the front keypad panel back into the front of the enclosure making sure that the keypad spacer seats in the opening of the enclosure. Hold the front keypad panel in place and from the inside of the enclosure, place the new keypad assembly over the studs of the front keypad panel. Use the four ¼-inch hex standoffs to secure the keypad assembly to the studs. Tighten the hex standoffs.
19. While holding the front keypad panel and keypad assembly in place, put the rear keypad mounting bracket over the hex standoffs. Ensure that the four wires from the keypad assembly exit out the top (speaker side) of the rear keypad mounting bracket. See Figure 5.. Use the four 5/16-inch hex nuts to secure the rear keypad mounting bracket. Tighten the nuts by using an “x” pattern to ensure uniform compression of the front keypad panel.

20. Re-install the 69491-002 PCBA using the two Phillips head screws.
21. Reconnect the four wires from the keypad assembly as follows:
  - Connect white wire to terminal 3 of TB2.
  - Connect green wire to terminal 4 of TB2.
  - Connect red wire to terminal 5 of TB2.
  - Connect slate wire to terminal screw E1 on the 69491-002 PCBA.
22. Re-secure the wiring as noted in Step 3 using supplied tie-wraps. Wires MUST be routed and secured to prevent contact with uninsulated conductors. Refer to Figure 7 as an example.

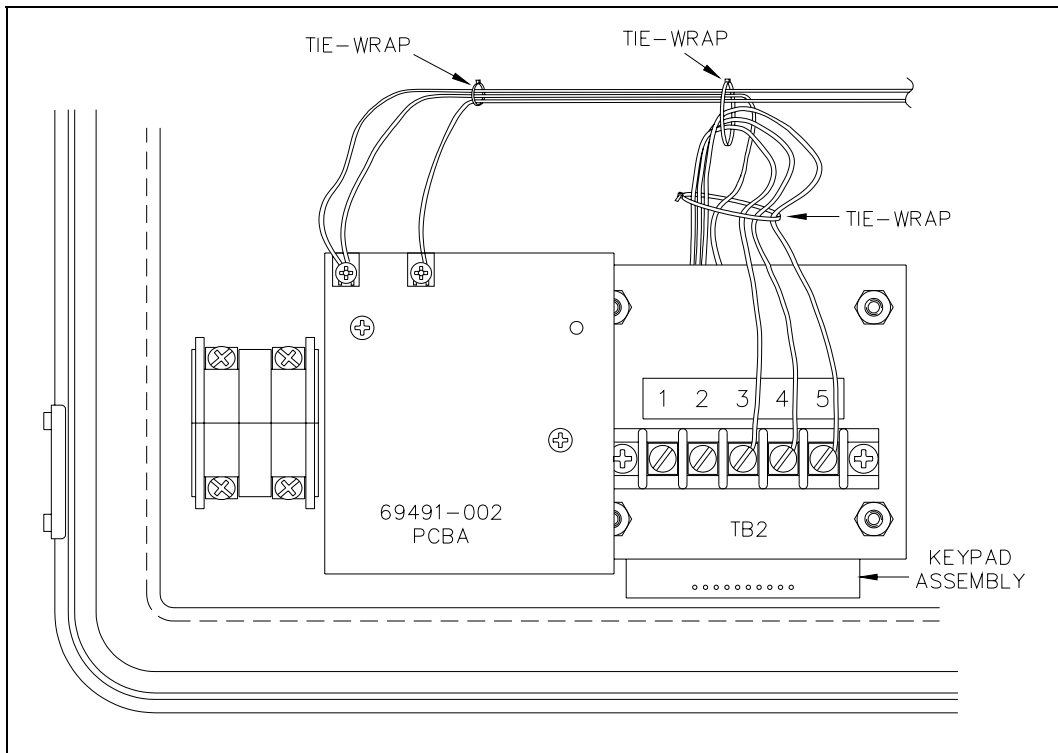


Figure 7. Tie-Wrap Location Example

23. Check all work, then reconnect both wires to internal battery's positive terminal. Test keypad for proper operation.

# Warranty

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Equipment. GAI-Tronics warrants for a period of one (1) year from the date of shipment, that any GAI-Tronics equipment supplied hereunder shall be free of defects in material and workmanship, shall comply with the then-current product specifications and product literature, and if applicable, shall be fit for the purpose specified in the agreed-upon quotation or proposal document. If (a) Seller's goods prove to be defective in workmanship and/or material under normal and proper usage, or unfit for the purpose specified and agreed upon, and (b) Buyer's claim is made within the warranty period set forth above, Buyer may return such goods to GAI-Tronics' nearest depot repair facility, freight prepaid, at which time they will be repaired or replaced, at Seller's option, without charge to Buyer. Repair or replacement shall be Buyer's sole and exclusive remedy. The warranty period on any repaired or replacement equipment shall be the greater of the ninety (90) day repair warranty or one (1) year from the date the original equipment was shipped. In no event shall GAI-Tronics warranty obligations with respect to equipment exceed 100% of the total cost of the equipment supplied hereunder. Buyer may also be entitled to the manufacturer's warranty on any third-party goods supplied by GAI-Tronics hereunder. The applicability of any such third-party warranty will be determined by GAI-Tronics.

Services. Any services GAI-Tronics provides hereunder, whether directly or through subcontractors, shall be performed in accordance with the standard of care with which such services are normally provided in the industry. If the services fail to meet the applicable industry standard, GAI-Tronics will re-perform such services at no cost to buyer to correct said deficiency to Company's satisfaction provided any and all issues are identified prior to the demobilization of the Contractor's personnel from the work site. Re-performance of services shall be Buyer's sole and exclusive remedy, and in no event shall GAI-Tronics warranty obligations with respect to services exceed 100% of the total cost of the services provided hereunder.

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## Return Policy

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If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with the warranty policy set forth above. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 (inside the USA) or 610-777-1374 (outside the USA) for help identifying the Regional Service Center closest to you.