



GAI-TRONICS® CORPORATION
A HUBBELL COMPANY

Model 701-202 Handset/Speaker Amplifier

Confidentiality Notice

This manual is provided solely as an operational, installation, and maintenance guide and contains sensitive business and technical information that is confidential and proprietary to GAI-Tronics. GAI-Tronics retains all intellectual property and other rights in or to the information contained herein, and such information may only be used in connection with the operation of your GAI-Tronics product or system. This manual may not be disclosed in any form, in whole or in part, directly or indirectly, to any third party.

General Information

The Model 701-202 Handset/Speaker Amplifier includes a new printed circuit board assembly (PCBAs) with alternate electronic components. This amplifier uses a new PCBA for replacement purposes. See the Replacement Parts section for details.

The Model 701-202 Handset/Speaker Amplifier is an important component of the 700 Series Page/Party® system, an industrial communications system designed to be both durable and flexible. GAI-Tronics offers a wide variety of configuration options to solve challenging application problems.



Do not install this equipment in hazardous areas or areas other than those on the equipment approval list in the Specifications section. Such installation may cause a safety hazard and consequent injury or property damage.

Installation

The Model 701-202 Handset/Speaker Amplifier is a plug-in amplifier that mates directly with the 702, 703, 732, 733, 7325, and 7335 Series Amplifier Enclosures. Install the handset/speaker amplifier by plugging it directly into the amplifier enclosure.

Operation

GAI-Tronics offers two types of Page/Party[®] systems: Page/Single-Party (with one party line), and Page/Multi-Party (with five party lines allowing up to five simultaneous two-way conversations).

- *Page/Single-Party*: To initiate a call, the lift the station handset and press the page button or the handset pressbar. Speak directly into the handset, make your page announcement. The paged individual lifts the handset of a Page/Party[®] station for two-way communication over the party line.
- *Page/Multi-Party*: First select an available party line with the five-position selector switch. Then make your page announcement as in single-party operation, remembering to indicate the party line being used. The paged individual then selects the indicated party line and lifts the handset for two-way communication.

The following adjustments are accessible through the rear chassis of the amplifier using a small standard screwdriver. However, these levels have been factory-set for optimal performance. Do not adjust these levels unless you have followed all the steps in the Troubleshooting section and are still not satisfied with the station performance. Each adjustment is clearly labeled:

- *Microphone Gain*: adjusts the gain level from the microphone signal to the page or party lines
- *Receiver Sidetone*: the amount of signal transmitted from the microphone to the receiver of a handset
- *Receiver Volume*: adjusts the gain level from a party line to the receiver
- *Speaker Amplifier Gain*: adjusts the speaker volume; also accessible from the front panel

Please refer to the figure below when installing and adjusting the Model 701-202 Handset/Speaker Amplifier.

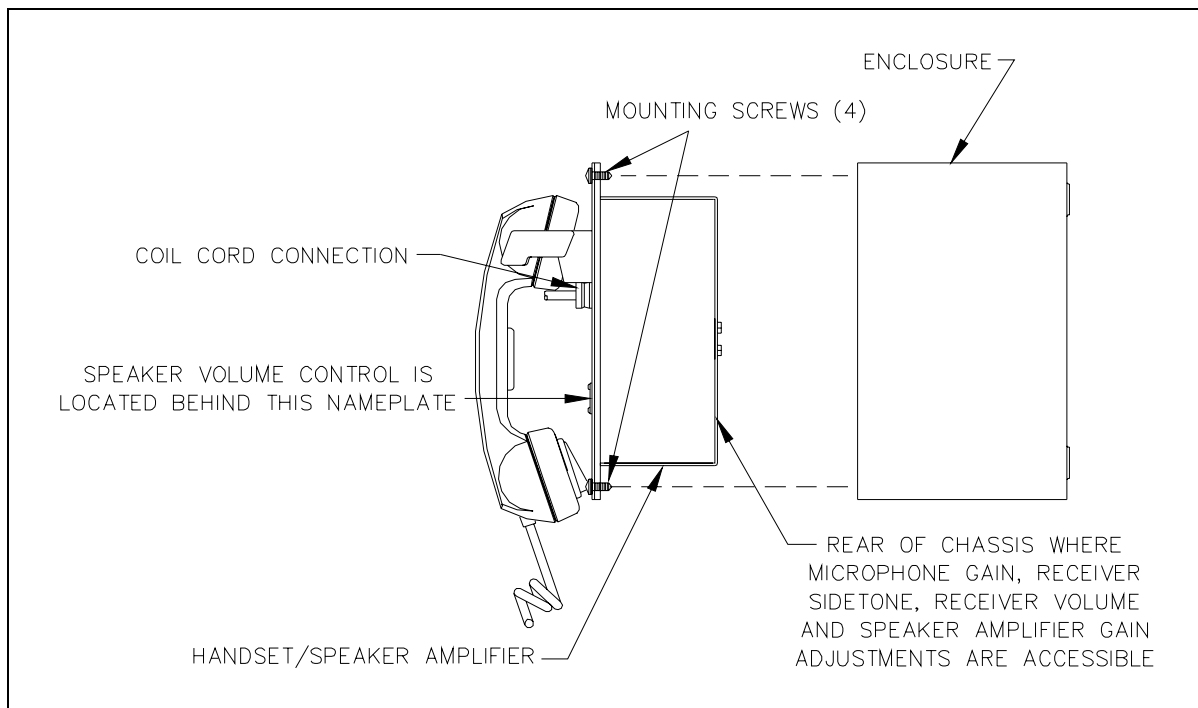


Figure 1. Installation and Adjustment Details

Maintenance

Troubleshooting

The following table lists some hints to aid technicians in troubleshooting.

Problem	Solution
Any problem with station performance occurs.	Review all the steps of the installation, ensuring that you have correctly followed ALL steps. Check all the terminations on the board and in the line balance assembly before proceeding to any other adjustments.
Integral speaker level requires adjustment.	<ol style="list-style-type: none"> 1. Adjust the volume control behind the nameplate on the front panel. 2. Replace the speaker or driver.
Outgoing conversation level requires adjustment.	<ol style="list-style-type: none"> 1. Adjust the microphone gain by removing the front cover of the station and attaching a Model 10440 Series extension ribbon cable between the connectors. Use a small standard screwdriver ($\frac{1}{8}$-inch blade), to slowly turn potentiometer (R17) on the rear chassis of amplifier until reaching the proper microphone gain. 2. Replace the handset microphone.
Incoming conversation level requires adjustment.	<ol style="list-style-type: none"> 1. Use a small standard screwdriver to adjust the receiver volume control on the rear of the amplifier using the extension ribbon cable assembly as described above. 2. Replace the receiver element in the handset.
Feedback/distortion (a hum or buzz on the line) occurs during all Page/Party [®] station operation.	<ol style="list-style-type: none"> 1. Adjust the receiver sidetone on the rear of the amplifier using the ribbon cable assembly as described above. 2. The line may be improperly terminated. Inspect the system cable for loose connections, shorts, and grounds. Line balance assembly connections are critical. 3. Replace the line balance assembly.
Feedback occurs only during page.	Use the muting feature in the amplifier enclosure at the terminal blocks. Connect the violet wire at TB1-8 to TB1-7.
Sidetone (how the operator hears his own voice) requires adjustment.	<ol style="list-style-type: none"> 1. Adjust the receiver sidetone at the amplifier, using the extension ribbon cable as described above. 2. Check that the line balance assembly resistors are connected properly. (See GAI-Tronics Publication 42004-139)
Crosstalk occurs.	One or more system cable pairs may be improperly terminated. Visually inspect the system cable connections for accidental crossing of the cable pairs or grounds.

Specifications

Amplifier

Voltage..... 90/140 V ac range, 50/60 Hz, 120 V ac nominal
 Power Consumed: Zero/max. signal (12 watts)..... 10 VA, 4.5 W/50 VA, 27 W
 Construction/Finish..... 16-gauge cold-rolled steel/gray baked enamel

Handset

Microphone Dynamic, noise-canceling
 Receiver Dynamic, hearing aid compatible per FCC Part 68
 Cable..... Retractable, 6-foot extended PVC
 Material..... Gray ABS
 External controls..... Push-to-page handset pressbar, handset hook-switch

Handset Amplifier

Output level..... 1.5 V_{RMS} nominal into 33-ohm load
 Output limiter 1.5 V_{RMS} nominal
 Gain 55 dB nominal (below limiter level);
 adjustable from 40 to 63 dB
 Frequency response..... 250-4000 Hz, +/- 1.5 dB
 Distortion 1.5% maximum THD @ 1000 Hz
 Controls..... Microphone gain, receiver volume and sidetone

Speaker Amplifier

Output..... 12 watts min., with nominal supply voltage
 Voltage gain 26 dB max, adjustable
 Frequency response..... 250-4,000 Hz, +0, - 3 dB ref. to 1 kHz
 Distortion 1% max. THD @ 1,000 Hz, 12 watts
 Input impedance..... 50,000 ohms nom.
 Controls..... Speaker volume (adjusted through the access
 hole behind the nameplate on the front panel)

General

Temperature range (Operating/Storage)..... -22° F to +158° F (-30° C to +70° C)
 Dimensions..... 8.1 H x 8.1 W x 3 D inches (20.6 x 20.6 x 7.6 cm) behind panel
 8.1 H x 8.1 W x 3.5 D inches (20.6 x 20.6 x 8.9 cm) front of panel
 Shipping Weight 6.8 lbs. (3.1 kg)

Approvals

NRTL Listed for USA and Canada: Div. 2, Class I, Groups A, B, C, D when used with
 GAI-Tronics Listed 702 or 703 Series 120 V ac enclosures.
 Div. 2, Class I, Groups A, B, C, D; Div. 2, Class II, Group F and G;
 Div. 2, Class III when used with listed GAI-Tronics
 Model 733, 732, 7325, or 7335 Series 120 V ac enclosures

REPLACEMENT PARTS

Part No.	Description
10105-007	Handset Assembly
13204-002	Receiver Cap
12511-001	Dynamic Transmitter and Cap
12550-001	Receiver Assembly and PCBA
51008-003	Pressbar Switch Kit
12514-007	6-foot PVC Cord and Bushing
12514-008	15-foot PVC Cord and Bushing
12514-009	25-foot PVC Cord and Bushing
12514-004	6-foot Hytrel Cord and Bushing
12514-005	15-foot Hytrel Cord and Bushing
12514-006	25-foot Hytrel Cord and Bushing
69701-007	PCBA
12523-001	GAI-Tronics Nameplate Kit
12601-001	PCBA Standoffs (10)
46101-012	Hardware Kit
12519-002	Hook Assembly
12530-001	Transformer/ Conn. Subassembly
25210-005	Cell Gasket
10440-002	16-pin ribbon cable connector
61512-007	Harness Assembly Switch
12604-001	0.7 amp (10 pack)
12604-002	1 ¹ / ₁₆ amp (10 pack)

Warranty

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.

Warranty Periods. Every claim by Buyer alleging a defect in the goods and/or services provided hereunder shall be deemed waived unless such claim is made in writing within the applicable warranty periods as set forth above. Provided, however, that if the defect complained of is latent and not discoverable within the above warranty periods, every claim arising on account of such latent defect shall be deemed waived unless it is made in writing within a reasonable time after such latent defect is or should have been discovered by Buyer.

Limitations / Exclusions. The warranties herein shall not apply to, and GAI-Tronics shall not be responsible for, any damage to the goods or failure of the services supplied hereunder, to the extent caused by Buyer's neglect, failure to follow operational and maintenance procedures provided with the equipment, or the use of technicians not specifically authorized by GAI-Tronics to maintain or service the equipment. **THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

Return Policy

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.