



**GAI-TRONICS® CORPORATION**  
A HUBBELL COMPANY

# Model 370-201 Interface Amplifier Assembly

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## 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 370-201 Interface Amplifier allows GAI-Tronics' Page/Party® systems to interface with standard private telephone networks. This unit interconnects two voice circuits that are dissimilar in voltage and/or impedance. The interface amplifier is not just a matching transformer; it also includes a gain adjustment that compensates for differences in signal levels, or permits use with a range of signal level. It can also be used in other paging systems.

Model No.	Consisting of:	
	Amplifier	Enclosure
370-201	371-201	372A

## Installation



**WARNING**

**Do not install the Model 370-201 in hazardous areas; such installation may cause a safety hazard and consequent injury or property damage.**

### Enclosure Placement

Installation, adjustment, and maintenance of the Model 370-201 Interface Amplifier Assembly is easier if a Page/Party® handset station is mounted close by. The Model 370-201 should be mounted on a wall or panel near a Page/Party® handset station and within 300 feet of the Model 305-001 Line Balance Assembly.

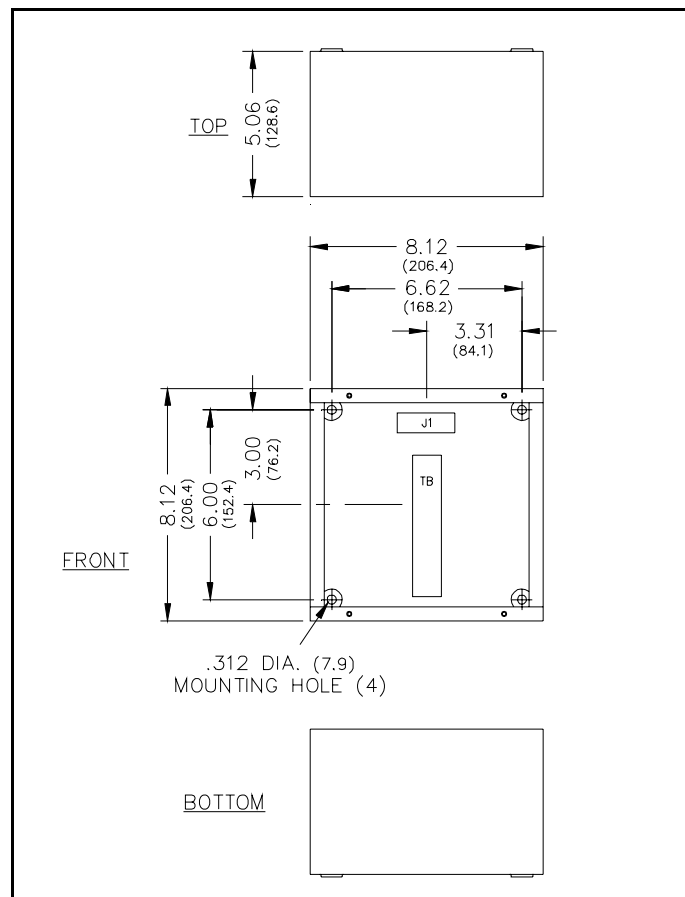


Figure 1. Model 372A Indoor Enclosure Mounting

## Mounting

The indoor enclosure is not supplied with openings for conduit or cable. Drill or punch these openings using the supplied template before mounting the enclosure. We recommend placing the conduit holes near the rear surface of the top or bottom of the enclosure. Avoid the top center, as it may interfere with the plug-in amplifier receptacle.

There are four 5/16-inch diameter mounting holes in the corners of the Model 372A Amplifier Enclosure. See Figure 1. When mounting the enclosure, use caution to avoid damaging the terminal blocks inside. The suggested mounting height for all station enclosures is 54 inches (137 cm) to the bottom of the enclosure.

Connect the conduit to the enclosure, and then feed the wiring through the conduit into the enclosure. When wiring the station, follow the wire colors carefully. The colors noted in Figure 2, Figure 3, and Figure 4 correspond to GAI-Tronics 60038 Series cable. The wires should be spade-lugged and connected properly to the terminal block. An improper termination may result in diminished station performance.

Wiring a Model 370-201 between a Page/Party® System and Telephone Lines

GAI-Tronics 60038-101 eight conductor cable is recommended for 372A enclosure connections. This cable contains a 14 AWG twisted pair for power connections (24 V dc or 120 V ac), a single 14 AWG ground wire, an 18 AWG pair for GAI-Tronics page or party line connections, and three spare 18 AWG wires (one twisted pair plus single wire). If other cable is used, make sure that the audio wires (GAI-Tronics Page/Party® line) are twisted pairs; shielded pairs are not necessary.

Figure 2, Figure 3, and Figure 4 show the various wiring configurations and the suggested wire colors from the GAI-Tronics 60038-101 cable. If a Model 370-201 Interface Amplifier Assembly is used, TB1 5 and 6 can be connected to either the page line or to a party line on a GAI-Tronics Page/Party® system and terminal 7 and 8 are connected to the incoming telephone line.

**NOTE:** Any party line can be selected.

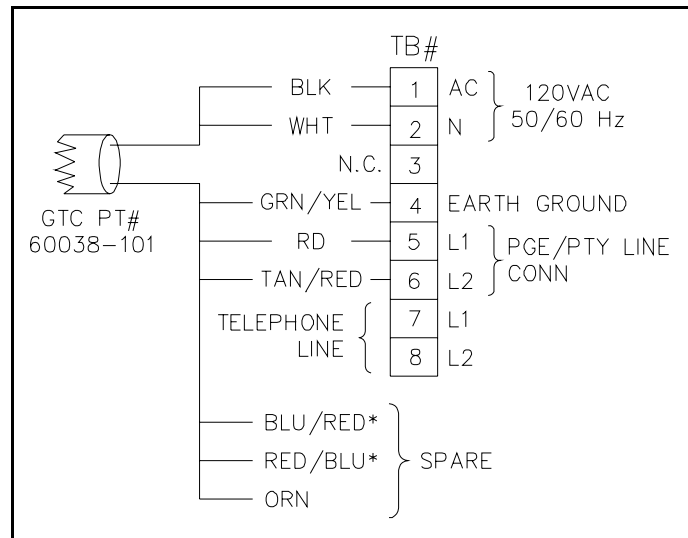


Figure 2. 120 V AC 50/60 Hz Power Connection

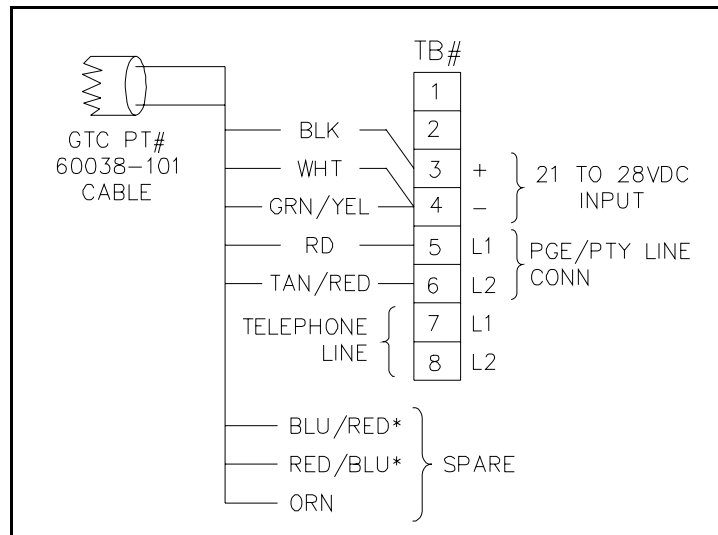


Figure 3. 24 V DC Connection with Negative Ground

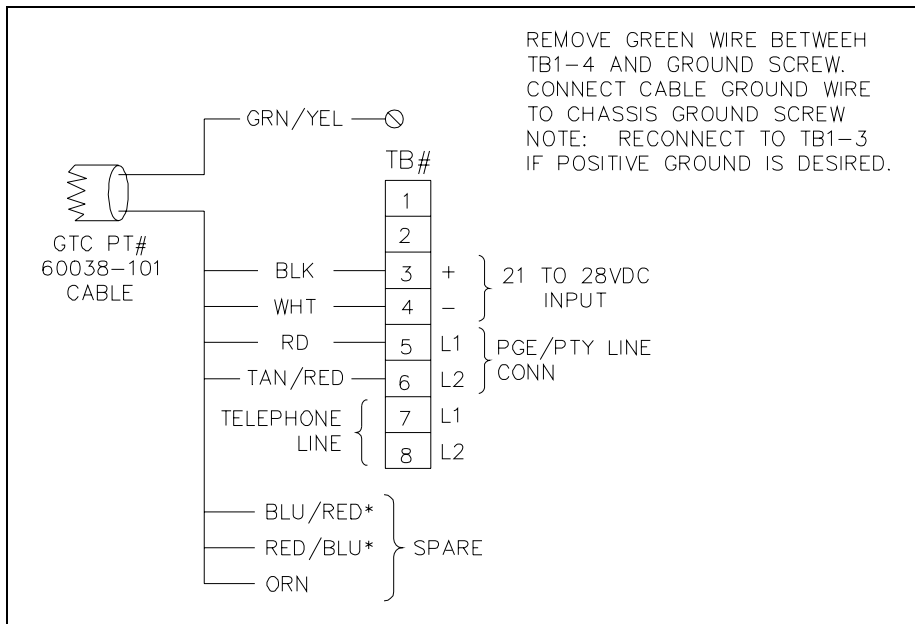


Figure 4. 24 V DC Connection with Floating Power Supply

## Checkout and Adjustment

1. After the Model 370-201 is installed and connected to the power, verify that normal use of the Page/Party<sup>®</sup> system has not been affected by the addition of the Model 370 Interface. Make sure that the GAI-Tronics sidetone level (the amount of transmitted signal from the microphone that is heard in the receiver) is not substantially affected when the interface is connected to the system.

If oscillation, distortion, or excessive sidetone occurs, check the Model 370 installation wiring and ensure that the 305-001 Line Balance Assembly is properly installed and connected. See 42004-139, the GAI-Tronics 700 Series Page/Party<sup>®</sup> Systems installation manual. If normal operation is not restored, proceed to Step 3.

2. After the Model 370-201 has been connected to the Private Branch Exchange (PBX) extension, initiate a call to the PBX extension connected to the Model 370-201 Interface and verify the ability to carry on a conversation between the telephone system and the Page/Party<sup>®</sup> system.

**NOTE:** The Model 370-201 Interface Amplifier is designed to connect a line from a PBX to a GAI-Tronics Page/Party<sup>®</sup> system. It is designed to match impedance and voltage levels of the 600-ohm 0 dBm telephone network and the 33-ohm 18 dBm GAI-Tronics system. This unit is not designed to be connected to the Public Telephone switched Network and is not FCC Part 68-approved.

3. After system basic operation has been verified, adjust the Model 370-201 Interface if necessary. First, establish communications between the PBX and the Page/Party<sup>®</sup> handset station nearest the interface. Follow Sub-steps A through C to complete the Model 370-201 adjustment. Adjustments are made through the plugged access holes on the front cover.
  - A. The *Balance Control* is adjusted for minimum sidetone at the GAI-Tronics station. To perform this adjustment, blow into the microphone of the GAI-Tronics handset and adjust the balance potentiometer on the Model 370-201 Interface to “null out” the microphone signal from the receiver.
  - B. Adjust the *Line to GAI-Tronics* potentiometer until the volume of the voice of the caller on the PBX is comparable to normal voice levels on the GAI-Tronics system. See note below.
  - C. Adjust the *GAI-Tronics to Line* potentiometer until the volume of the signal from the GAI-Tronics system to the PBX line is comparable to normal system voice levels. See note below.

**NOTE:** If the **LINE TO GTC** and/or the **GTC TO LINE** controls are set too high, oscillation and distortion may result. In this event, decrease these control settings, readjust the **BALANCE** control as necessary, and reset the **LINE TO GTC** and/or the **GTC TO LINE** controls for optimum levels below the point at which oscillation occurs.

Model 370-201 Applications

**Two-Way Communication from a Telephone to a Page/Party® Line**

In Figure 5, the communication is initiated by the telephone system. Once party-line communication is established, two-way communication can occur. This application requires conversations to be prearranged.

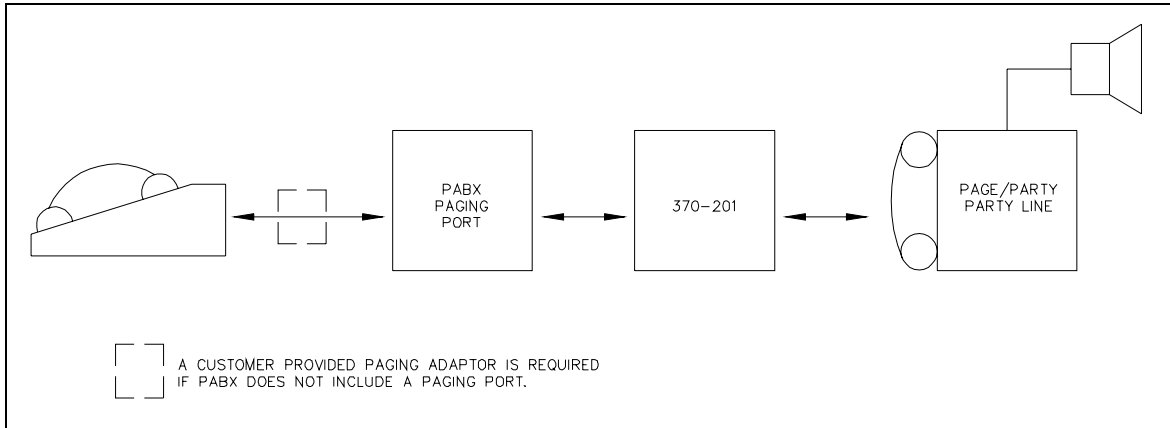


Figure 5.

**One-Way Paging between a Telephone and a Page/Party® System**

Model 370-201 may be used with a customer-provided page adaptor (paging port) to interface telephone PBX paging. This feature permits one-way paging from your telephone system to the page line of the Page/Party® system. See Figure 6, noting that the direction of the arrows represents the flow of communication. See the One-way Operation section.

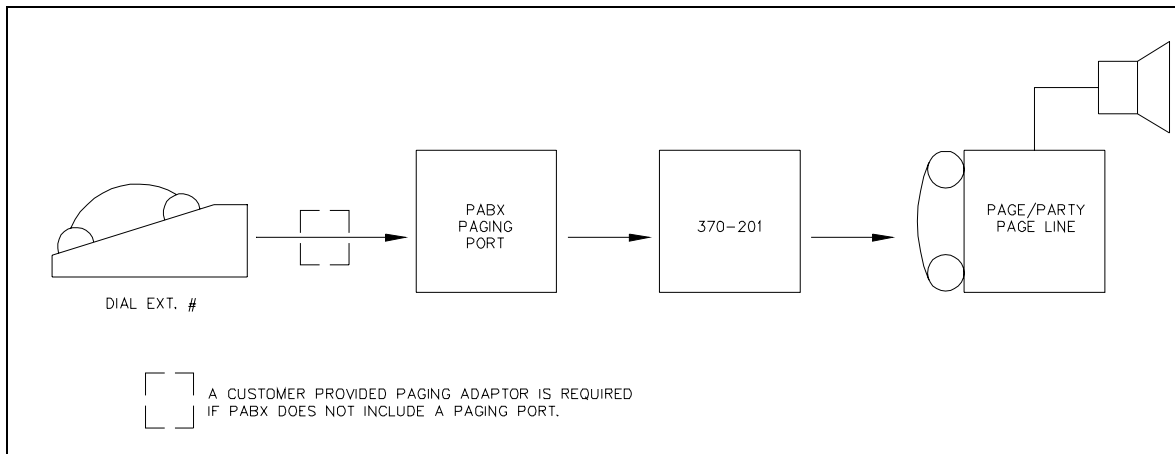


Figure 6.

### One-Way Operation

If the Model 370-201 Interface is **only** used for one-way communication, jumper wires located on the Model 370-201 two-way amplifier printed circuit card (69056-001) can be removed to improve amplifier stability and performance.

If the Model 370-201 is used for **one-way communications ONLY**, complete the following adjustments:

1. The telephone line/PBX paging port, cut Jumper W-4.
2. The GTC system page line to telephone/PBX Line or Central Amplifier, cut Jumper W-3.

When the Model 370-201 is operated in a one-way mode, the **BALANCE** control will have no effect on operation. When W-4 is cut, only the **LINE TO GTC** control will be functional. The **GTC TO LINE** potentiometer will be active if W-3 is cut.

### One-Way Paging from a Page/Party<sup>®</sup> System to Another Paging System

Model 370-201 may be used to connect the page line of a Page/Party<sup>®</sup> system into another page system (similar to a central amplifier system). Figure 7 illustrates the flow of communication from a GAI-Tronics Page/Party<sup>®</sup> page line to a central amplified system page line. See the One-way Operation section.

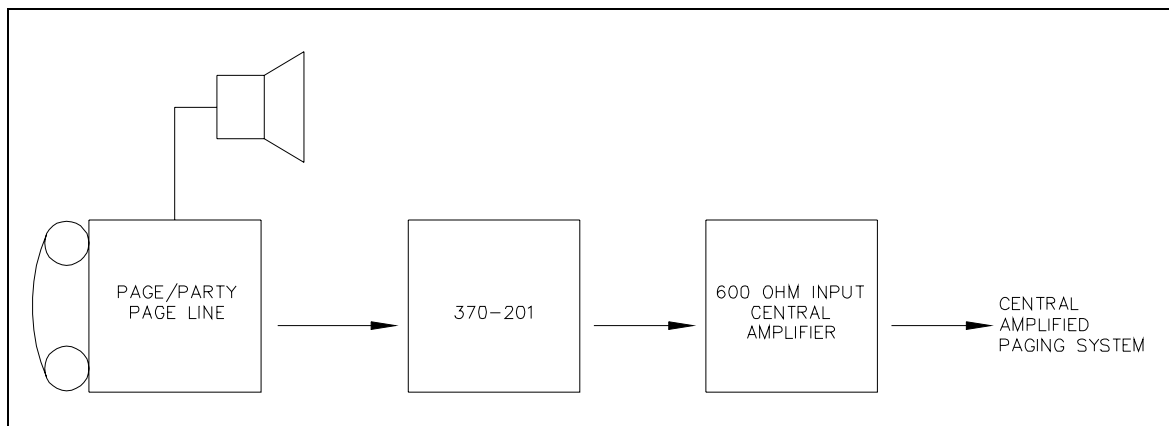


Figure 7.

## Special Applications

Please contact your GAI-Tronics' Representative for more detailed information on the capabilities and special applications of the 370 Series. The 370 Series Interface can also be used with the following:

- Mine Page Telephones
- Two Model 370-201 Interface Amplifier Assemblies can be used to connect two Page/Party<sup>®</sup> systems together through a telephone line or a simple twisted pair of wires.
- An interface to a central amplifier

## Maintenance

The construction of the 371 Series Plug-in Two-way Amplifier allows replacement of either the Printed Circuit Board Assembly (PCBA) or two fuses without the need for soldering. The Model 371-201 is used to interface Page/Party<sup>®</sup> systems to standard telephone systems.

### Replacement Parts

Part No.	Description	371-201	372A
61508-010	Harness Assembly		■
12535-001	Enclosure Hardware Kit (5 sets)		■
12508-002	Captive Screw Kit	■	■
69056-001	PCBA, Two-way Amp (GTC-TEL LINE)	■	
25210-005	Gasket	■	
12601-001	PCBA Standoffs (10 pack)	■	
12604-002	Fuse, Slow-Blow 1/16A (0.25 × 1.25, 250 V) (10 pack)	■	
12604-005	Fuse, Slow-Blow 0.3A (0.25 × 1.25, 250 V) (10 pack)	■	
10440-001	Maintenance Cable	■	■

# Specifications

## Audio Characteristics

Line Terminals Output: GAI-Tronics Terminals Input; 1000 Hz

Load Impedance.....	600-1000 ohms 0.15 uF in parallel
Output source impedance.....	600 ohms, nominal
Output level.....	0.78 V <sub>RMS</sub> , nom. (with nom. input)
Maximum output.....	2.0 V <sub>RMS</sub> (with nom. input)
Input level.....	1.5 V <sub>RMS</sub> , nom.; 0.39 V <sub>RMS</sub> minimum
Frequency response.....	250-4000 Hz (0, -0.5 dB)
Harmonic distortion.....	0.6% maximum

GAI-Tronics Line Terminals Output: Line Terminals Input; 1000 Hz

Load impedance.....	33 ohms, nominal
Output source impedance.....	1000 ohms, minimum
Output level.....	1.5 V <sub>RMS</sub> , nom. (with nom. input)
Maximum output.....	1.9 V <sub>RMS</sub> (with nom. input)
Input level.....	0.78 V <sub>RMS</sub> , nom.; 0.21 V <sub>RMS</sub> , min.
Frequency response.....	250-4000 Hz (0, -4dB)
Harmonic distortion.....	0.6% max.

## Power Requirements

120 V ac.....	105-130 V ac, 50-60 Hz, 10 W
24 V dc.....	21-28 V dc, .1 amp max.

## Physical Characteristics

Controls.....	Gain control GTC TO LINE Gain control LINE TO GTC BALANCE Control (to compensate line capacitance)
Temperature range.....	-22° F to +158° F (-30° C to +70° C)
Construction/finish.....	16-gauge cold-rolled steel/gray polyurethane enamel
Mounting.....	Wall or column, four 5/16-inch mounting holds
Connections.....	Internal screw-type barrier terminal blocks
Dimensions.....	8.1 H × 8.1 W × 5.1 D inches; (206 × 206 × 129 mm)
Shipping weight.....	11 lbs (4.8 kg)

# 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.

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

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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.