User Guide

KB-702 and KB-702GM/ KB-802GM-IM

Two Channel Remote Station

User Guide

Clear-Com®
AN HME COMPANY

Document reference

KB-702/KB-702GM/KB-802-GM-IM User Guide

399G259 Rev A

Legal disclaimers

Clear-Com Offices are located in California, USA; Cambridge, UK; Dubai, UAE; Montreal, Canada; and Beijing, China. Specific addresses and contact information can be found on Clear-Com's corporate website: www.clearcom.com

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Important Safety Instructions

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Only use attachments/accessories specified by the manufacturer.

10. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

11. Unplug this apparatus during lightning storms or when unused for long periods of time.

12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

13. **WARNING:** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

Please familiarize yourself with the safety symbols in the figure below. When you see these symbols on this product, they warn you of the potential danger of electric shock if the station is used improperly. They also refer you to important operating and maintenance instructions in the manual.

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CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

This symbol alerts you to the presence of uninsulated dangerous voltage within the product's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product's case.

This symbol informs you that important operating and maintenance instructions are included in the literature accompanying this product.

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1   Compliance

Clear-Com, LLC, an HME Electronics, Inc, company is committed to compliance with the laws and regulations of each country where Clear-Com markets the product below.

Applicant Name : Clear-Com, LLC

Applicant Address : 1301 Marina Village Parkway, Suite 105, Alameda, California 94501, United States

Manufacturer Name : HM Electronics, Inc.

Manufacturer Address : 2848 Whiptail Loop, Carlsbad CA 92010 USA

Country of Origin : USA

Brand : Clear-Com

Product Name : Speaker Station

Product Regulatory Model Number : KB-702, KB-702GM and KB-802GM-IM

This document was prepared in the English language. In case this document is translated into another language and a discrepancy arises between languages, the English version shall prevail as being the version which best expresses the intent of the parties. Any notice or communication given in conjunction with this document must include an English version.

Caution: All products are compliant with regulatory requirements detailed in this document when the user follows all the installation instructions and operating conditions per Clear-Com specifications.

Caution: Product modifications not expressly approved by the party responsible for compliance can void the user's authority to operate the equipment.

Caution: Use of accessories and peripherals other than those recommended by Clear-Com may void the product's compliance as well as the user's authority to operate the equipment.

European Union (CE mark)

The CE marking indicates compliance with the following directives and standards.

Directives:

- Electromagnetic Compatibility Directive 2014/30/EU

- Low Voltage Directive 2014/35/EU

- RoHS Directive 2011/65/EU

Standards:

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- EN 55032, EN 55024, EN 60950-1, EN 50581

Maritime Certification

The regulatory model KB802GM bears the DNV-GL mark, indicating conformity with DNVGL-CG-0339 Edition November 2016.

Location Classes:

The influence of the ambient environment on equipment depends upon the field of application on board. Environmental testing therefore implies tests being directly related to intended location on board as well as general tests, which are not directly related to location. There are five location classes: Temperature, humidity, vibration, enclosure and EMC. The allowed location of installation on board depends on the maritime approved location class.

Regulatory model KB-802GM-IM is DNV-GL type approved for Temperature Location Class A, Humidity Location Class A, Vibration Location Class A, EMC Location Class A & B and Enclosure Location Class A.

Regulatory model KB-802GM-IM is allowed to be installed in the control room and bridge. For more details please follow the Table 1 Location Class below.

Regulatory model KB-802GM-IM is not allowed to be installed in machinery spaces, pump room, holds, rooms with no heating and open deck.

Encore Models with DNV Certification, for use in Industrial and Marine Applications

KB-802GM-IM	
Temperature	0°C to +50°C
Humidity	Relative humidity up to 96 %
Vibration	Frequency range: 2 –13.2 Hz, Amplitude: 1.0 mm (peak value)

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	Frequency range: 13.2–100 Hz, Acceleration amplitude: 0.7 g
EMC	DNVGL-CG-0339 - Class A & B
Enclosure	IP20

Waste Electrical and Electronic Equipment (WEEE)

The European Union (EU) WEEE Directive (2012/19/EU) places an obligation on producers (manufacturers, distributors and/or retailers) to take-back electronic products at the end of their useful life. The WEEE Directive covers most Clear-Com products being sold into the EU as of August 13, 2005. Manufacturers, distributors and retailers are obliged to finance the costs of recovery from municipal collection points, reuse, and recycling of specified percentages per the WEEE requirements.

Instructions for Disposal of WEEE by Users in the European Union

The symbol shown below is on the product or on its packaging which indicates that this product was put on the market after August 13, 2005 and must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of the user's waste equipment by handing it over to a designated collection point for the recycling of WEEE. The separate collection and recycling of waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local authority, your household waste disposal service or the seller from whom you purchased the product.

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2 Operation

2.1 Introduction

Congratulations and thank you for choosing this Clear-Com product. The KB-702 and KB-702GM/KB-802GM-IM two-channel speaker stations are powerful, user-friendly units that can serve as versatile intercom stations.

Please read this manual completely to better understand the functions of these products. For questions not addressed in this manual, contact the dealer or Clear-Com directly. Clear-Com applications support and service people are ready to help.

2.2 Description

The Clear-Com KB-702 is a two-channel speaker station ideal for theatre, live performances, industrial applications, and small TV facilities. It features excellent speech intelligibility even in high-noise environments and can be tailored to your needs through its programmable options.

In addition, the Clear-Com KB-702GM/KB-802GM-IM contains a jack for an optional Clear-Com gooseneck panel microphone and a close-in, voice-controlled circuit (VOX). This circuit allows automatic, alternate dipping of the panel microphone and the speaker in response to conversation.

Selectable two-channel talking and/or listening allows the operator to communicate on either of the intercom channels. The dual-action *talk* button is electronic *momentary* or *latching*. Monitoring can be done through the headset, the integral speaker, or both at once. The KB-702 offers both visual and audible call signaling to attract the attention of operators. The *remote mic kill* (RMK) feature on main stations will turn off any open mics on the KB-702.

A balanced program input allows the monitoring of external audio using the headset or speaker. This program input can also be used as a paging function.

The KB-702 speaker station accepts dynamic headsets. A *sidetone* control allows the operator to vary the level of his/her own voice as heard in the headset and speaker.

The integral speaker can be turned on or off by a convenient front panel switch. An automatic speaker dipping circuit will lower the level of the speaker whenever the *talk* button is activated. This feature helps minimize acoustical feedback.

The KB-702 receives power from the Clear-Com intercom line. The unit mounts either in a standard four-gang electrical outlet box or in an optional Clear-Com four-gang V-box. The extra-thick front panel and compact surface-mount circuitry

maintains legendary Clear-Com ruggedness. The two intercom channels connect to a plug-on screw terminal strip. Male and female 3-pin XLR connectors are provided on the four-gang V-box for an inline connection to one of the intercom channels.

The KB-702 and KB-702GM/KB-802GM-IM are compatible with all Clear-Com party-line intercoms.

2.3   Operation

Normal operation of the KB-702 speaker station requires access only to the front panel controls. The controls located elsewhere on the unit are intended to be set-and-forget in nature. For intercom operation, set the *listen level* control to the desired level and press the *talk* button when talking. If a headset or handset is used, set the *sidetone* control for each channel for the desired amount of sidetone in the earphone. If a hand-held push-to-talk mic is used, or if the panel mic is used on the KB-702GM/KB-802GM-IM, set the sidetone controls for minimum feed-through to the speaker to prevent acoustic feedback.

2.3.1   Front Panel

The controls, indicators, and connectors found on the KB-702 and KB-702GM/KB-802GM-IM front panels are shown in the following figures and are described by the following text. The numbers in the left column refer to the figures below
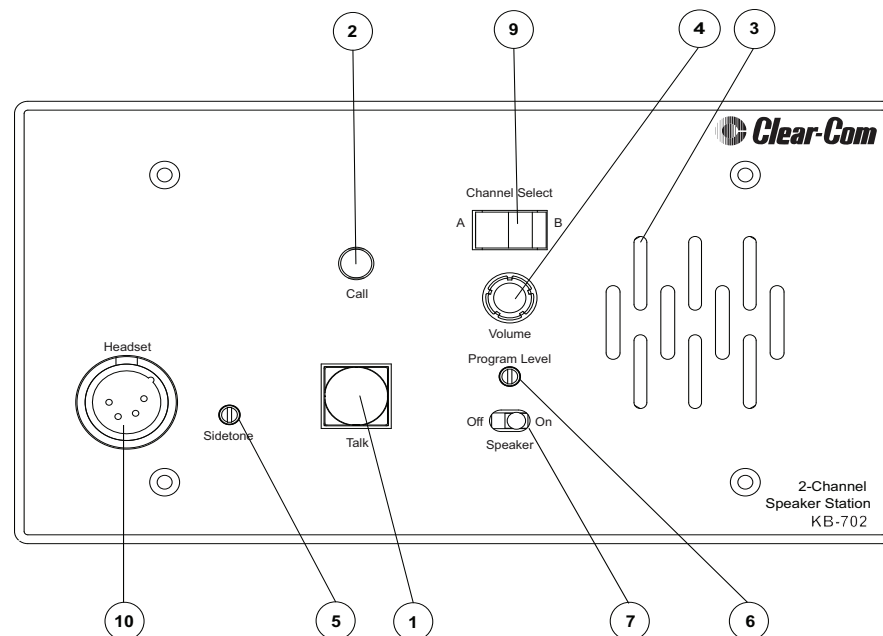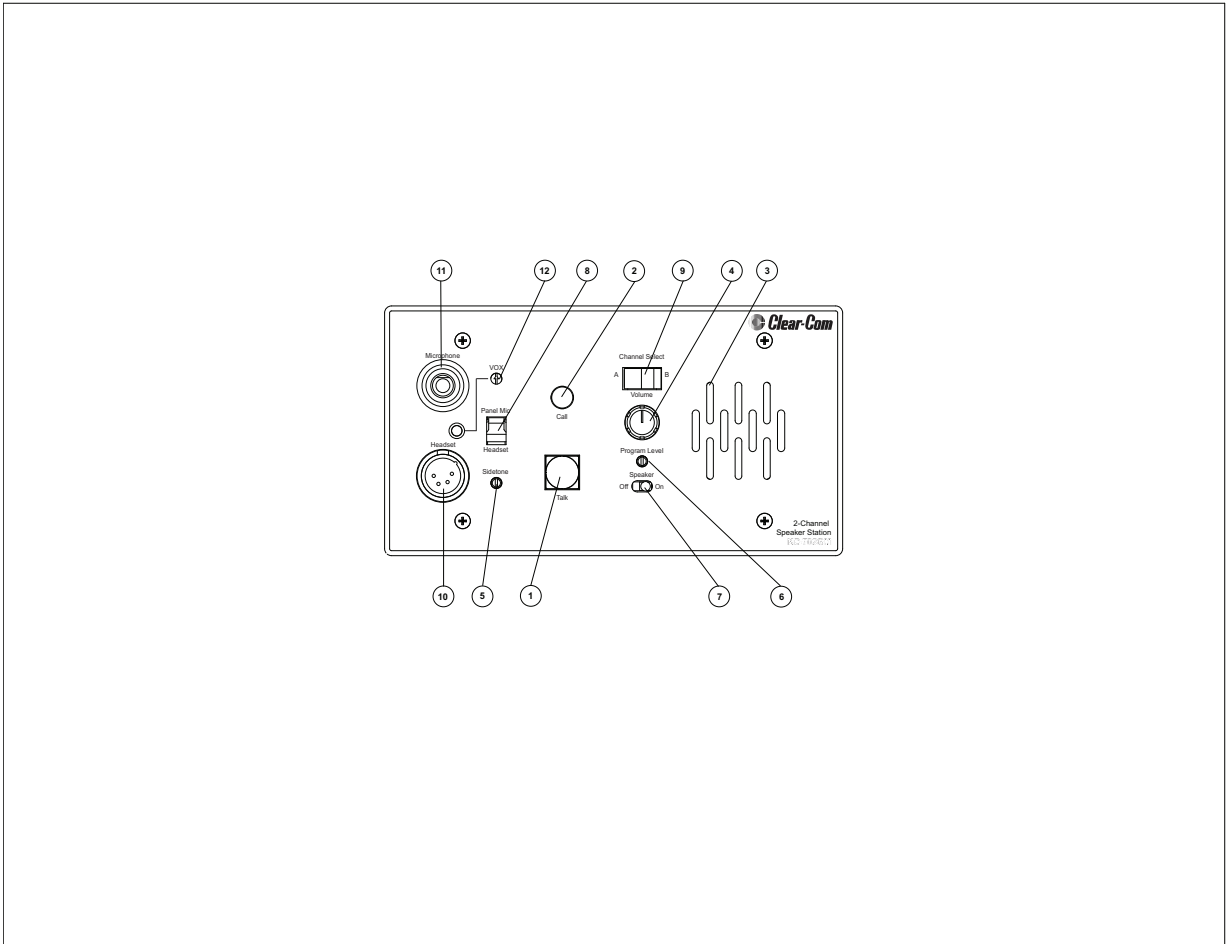
1. **Talk Button and Indicator**: The *talk* button activates the microphone feed to the selected intercom channel. It has a dual action (*momentary* or *latching*) depending upon how the button is pressed. If desired, the *latching* function can be defeated using an internal option switch. The following describes the various functions of this button.

   - MOMENTARY: Press and hold the *talk* button while you are speaking. Release it when you are finished. The button lights amber when the *talk* function is active and blue when it is inactive.

   - LATCHING: Press the button quickly to latch the *talk* function. Press the button again to turn off the *talk* function.

   - VOX INDICATION: On the KB-702GM/KB-802GM-IM, when the VOX feature is enabled, the *talk* button illuminates amber to indicate an active talk, and the *VOX* light illuminates amber to indicate that the panel microphone is in use. This will automatically dip the speaker.

2. **Call Button and Light**: Pressing the *call* button will send a call signal on the selected channel. All the call lights on that channel will then flash. Call signals

can also be sent while talking if required. The call button will light when pressed, or whenever a call signal is present on the selected channel. An internal option jumper can be set to allow the call button to light when a call signal is present on either channel.

3. **Tone Alert**: An audible *tone alert* can be enabled to sound when a call signal is received on the selected channel or either channel. This can be useful when the operator's attention has been drawn away from the KB-702 indicator panel. The audible tone alert level can be adjusted or turned off by an internal control. The tone alert will not sound if a call signal originates at the KB-702 station or if the *speaker on/off* switch is turned *off*. The tone alert plays through both the speaker and headset if the speaker on/off switch is turned on.

4. **Volume Control**: Turn this control to set the *volume* required on the speaker or headset. This control does not affect the *tone alert* level or the *program input* level.

5. Sidetone Control: Sidetone is the level of your own voice that you hear while talking on the intercom. Setting a comfortable level of sidetone will ensure that the intercom line sounds alive and also helps you modulate your voice relative to other voices on the line.

   Typically, different *sidetone null* settings are needed depending upon whether you are using the speaker. Use one of the following procedures to correctly set the *sidetone level* control.

   Sidetone Adjustment Procedure for Headset:

   a. Set the *intercom level* control to a comfortable level by having someone talk to you from another station.

   b. Press the *talk* button and speak into the microphone while turning the s*idetone null* control slowly back and forth until you hear your voice at a comfortable level in the headset.

   Sidetone Adjustment Procedure for Gooseneck Mic (KB-702GM/KB-802GM-IM only) or hand-held push-to-talk mic with the speaker turned *on*:

   a. Set the *VOX* control fully counterclockwise to disable this feature.

   b. Set the *intercom level* control to a comfortable level.

   c. Press the *talk* button and speak into the microphone while turning the s*idetone null* control slowly back and forth. There should be a point where your voice (and any accompanying acoustic feedback) disappears. This is the null point.

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d. Readjust the *VOX* control. (Refer to the VOX control paragraph in this section.)

6. **Program Level Control:** Adjust the *program level* control to set the program audio level heard in the headset or panel speaker.

> *Note:* Do not force the trimpots past their stop points. This will damage them.

7. **Speaker On/Off Switch**: The *speaker on/off* switch turns the front panel speaker *on* or *off.* This switch also controls whether the tone alert is heard through the speaker. The speaker volume will automatically dip whenever the talk function is set, unless the VOX function is disabled.

8. **Mic Select Switch (KB-702GM/KB-802GM-IM only)**: The *mic select* switch selects whether the panel microphone or the headset microphone is active. If the VOX feature is enabled, it is only operational when the panel microphone is active.

9. **Channel Switch:** This switch selects whether the speaker station is active on intercom channel A or channel B.

10. **Headset Connector:** The headset connector is located on the front panel. All Clear-Com headsets are recommended for use with the KB-702. The Clear-Com handheld push-to-talk microphone will also plug into the headset connector. The following is a description of the characteristics of a suitable headset:

    Mic Type --- Dynamic; see technical specifications for details

    Headphone --- Dynamic; see technical specifications for details

    The wiring of the headset is to be as follows:

    Pin 1 --- Mic common

    Pin 2 --- Mic hot

    Pin 3 --- Headphone common

    Pin 4 --- Headphone hot

    The mic and headphone wiring in the headset cord must be individually shielded. Do not connect pins #1 and #3 together. Headset extension cords or headset "Y" cables are not recommended because they will increase crosstalk between channels.

11. **Panel Mic Connector (KB-702GM/KB-802GM-IM only)**: Clear-Com recommends the GM-9 and GM-18 plug-in panel microphones for use with the KB-702GM/KB-802GM-IM. The GM-9 is 9 in. (23.04 cm) long and the GM-18 is 18

in. (46.08 cm) long. Both are the electret type. The 1/4 in. (0.64 cm)phone jack on the microphone mates with the *panel mic* receptacle on the front panel of the KB-702GM/KB-802GM-IM.

To install a GM-9 or GM-18 microphone, use the following steps:

a. Remove the plastic plug from the jack, if present.

b. Check and unscrew the set screw in the mic mounting flange to make sure it is clear of the threads in the bushing.

c. Screw the microphone into the bushing hand tight.

d. Turn the set screw on top of the mic mounting flange clockwise to lock the microphone in place.

12. **VOX Control (KB-702GM/KB-802GM-IM only)**: When the panel microphone is selected on the KB-702GM/KB-802GM-IM, the *VOX* control should be adjusted for proper operation. This control is located to the right of the panel mic connector. Use a narrow flat blade screwdriver such as a *greenie* or *tweaker* for this adjustment. When the adjustment is correctly set, the *VOX* light illuminates amber when speaking into the panel microphone. Turning the control clockwise makes the KB-702GM/KB-802GM-IM more sensitive to your voice. The VOX feature can be disabled by turning the VOX control fully counterclockwise.

2.3.2   Internal Adjustments and Connections

The controls and connectors found inside the KB-702 are shown in the following figure and described by the following text. The controls can be accessed without completely removing the panel from its wall box or V-Box enclosure by removing the top two screws and loosening the bottom two screws a few turns. Then lean the panel out from the wall. The controls will then be accessible as shown in the lower view of Figure 1-3. The numbers in the left column of the following descriptions refer to Figure 1-3.
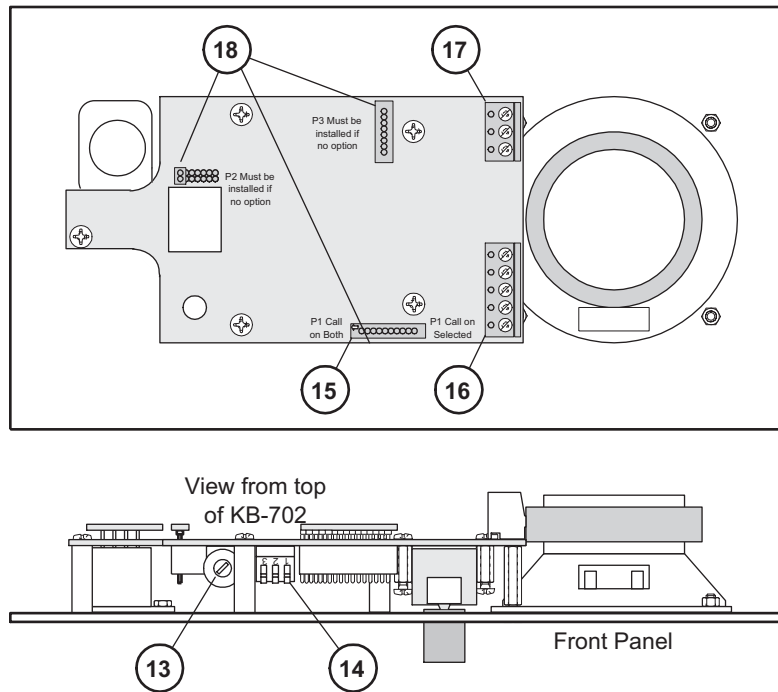
1. **Call Alert Tone Level Control:** This control adjusts the volume of the *call alert tone* sound. This is normally adjusted when the system is set up and there should be no need to adjust it in normal operation. This feature can be disabled by turning the control fully counterclockwise.

2. **Option Switches:** Three *option* switches are provided. They should be configured when the system is set up, but are not changed in normal operation. Note the *on* position of each switch is toward the circuit board and the *off* position is toward the front panel. The default position of the switches is in the *off* position. The function of each switch is as follows:

   a. SINGLE CHANNEL: In some installations, the KB-702 is intended to be used only with one intercom channel. Setting the *single channel* switch to the *on* position will connect the KB-702 to the one intercom channel regardless of the position of the front panel channel selector. In two-channel installations, this switch must be set to the *off* position.

   b. LONG LINE: If a long cable run is unavoidable and approaches 700 ft. (213.5 m) or more, set the *long line* option switch to the *on* position. The ability to set a sidetone null depends upon properly setting this switch.

   c. LATCH DISABLE: Setting the *latch disable* switch to the *on* position will disable the latching function of the *talk* button. In this mode, the talk button must be continuously pressed while the operator is talking.

3. **Call Signal Jumper**: In some installations it is important to receive a *call* signal from either channel, regardless of the setting of the channel selector. The plug-on jumper *P1* makes the *call* light respond to either (a) the selected channel or to (b)either channel, depending upon its orientation. By default, the jumper is set to the selected channel position. When the TW or 4-Wire Option modules are installed, this jumper is not used. In TW operation, the call signal always originates on channel A. In 4-Wire operation, the call signal is not used.

4. **Intercom Line Connection**: The KB-702 contains a 5-terminal plug-on connector for intercom line connection. This connector is intended to be unplugged from the circuit board when connecting the intercom line, and then plugged back on when the wiring is completed. The connections for each pin are visible on the circuit board when the connector is unplugged. The pinout of this connector is as follows:
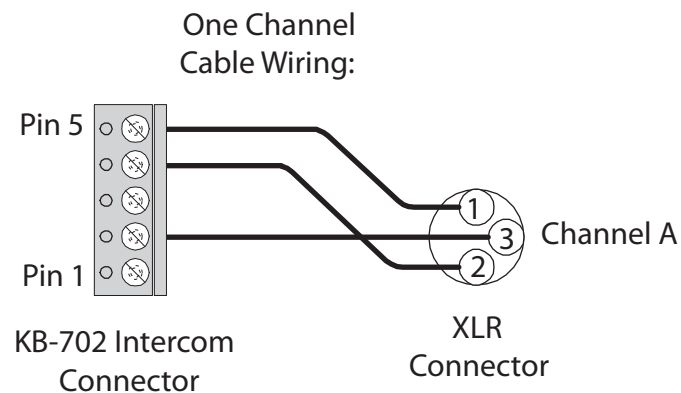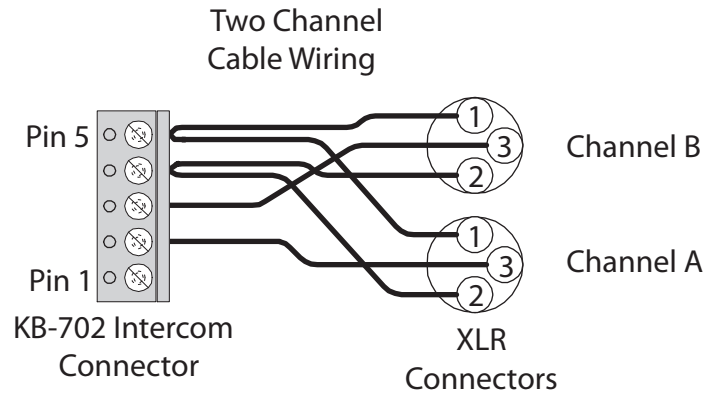
Pin 1 --- (NC)

Pin 2 --- Channel A Audio

Pin 3 --- Channel B Audio

Pin 4 --- Power

Pin 5 --- Ground (Shield)

One Channel
Cable Wiring:

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Two Channel
Cable Wiring

Pin 5

Channel B

Channel A

Pin 1

KB-702 Intercom
Connector

XLR
Connectors

5. **Program Input:** A 3-terminal plug-on connector provides the program input to the station. Program is fed to the headset and speaker. The level to the speaker or headset is controlled by the *program level* control. The *program input* accepts a balanced or unbalanced line-level audio signal. If this input is connected to the *stage announce (SA)* output of a main station it can be used as a paging input. Since the level of this input is independently adjustable from the intercom audio volume, it can be used to override the intercom audio.

The pinout of the *program input* connector is as follows:

Pin 1 --- Ground (shield)

Pin 2 --- + Signal

Pin 3 --- - Signal

Program Input
Cable Wiring

Pin 3

Pin 1

KB-702 Program
Input Connector

XLR
Connector
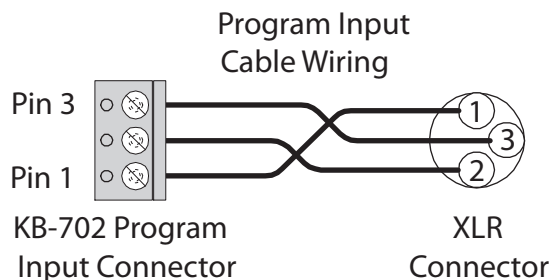
6. Option Board Jumpers:The three jumper plugs *P1*, *P2*, and *P3* must be installed when optional modules are not used. When the optional EB7-4W four-wire module is used, both *P1* and *P3* must be removed. In the KB-702GM/KB-802GM-IM, *P2* is replaced by the VOX module. Save these jumper plugs for possible future use after removing them. **The KB-702 will not operate without either these jumper plugs or the optional modules installed.**

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3   Installation

1. Unpack the unit and inspect for any damage that may have occurred in shipping.

2. Set the *option* switches to the default (*up*) position.

3. Connect the intercom lines. If only one intercom line is to be connected, turn *option* switch #1 to the *on* or *closed* position.

4. Install the KB-702 into the four-gang outlet box or V-box. (For additional information, refer to the *Clear-Com System Installation Manual.*)

5. Set *listen levels* and *sidetones*. (Refer to the listen level and sidetone setting topics in the Operation chapter of this manual.)

6. The speaker station should now be operating properly.

7. Read the rest of this manual for further information.

4 Maintenance

This chapter provides maintenance information including block diagrams and tips for solving problems.

Caution: These servicing instructions are for use by qualified personnel only. To reduce the risk of electrical shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

4.1 Block Diagram for the KB-702
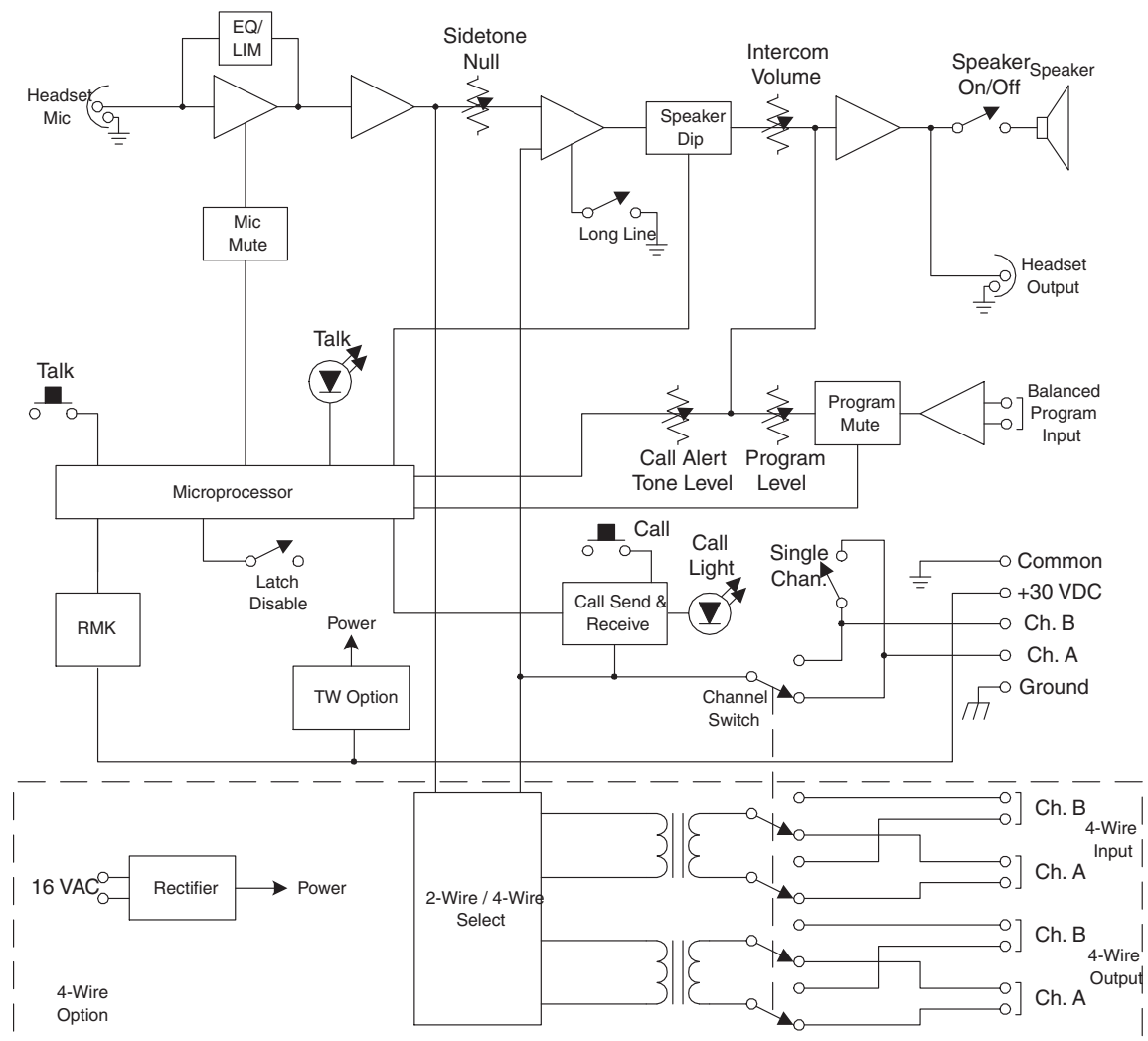
4.2 Block Diagram for the KB-702GM/KB-802GM-IM

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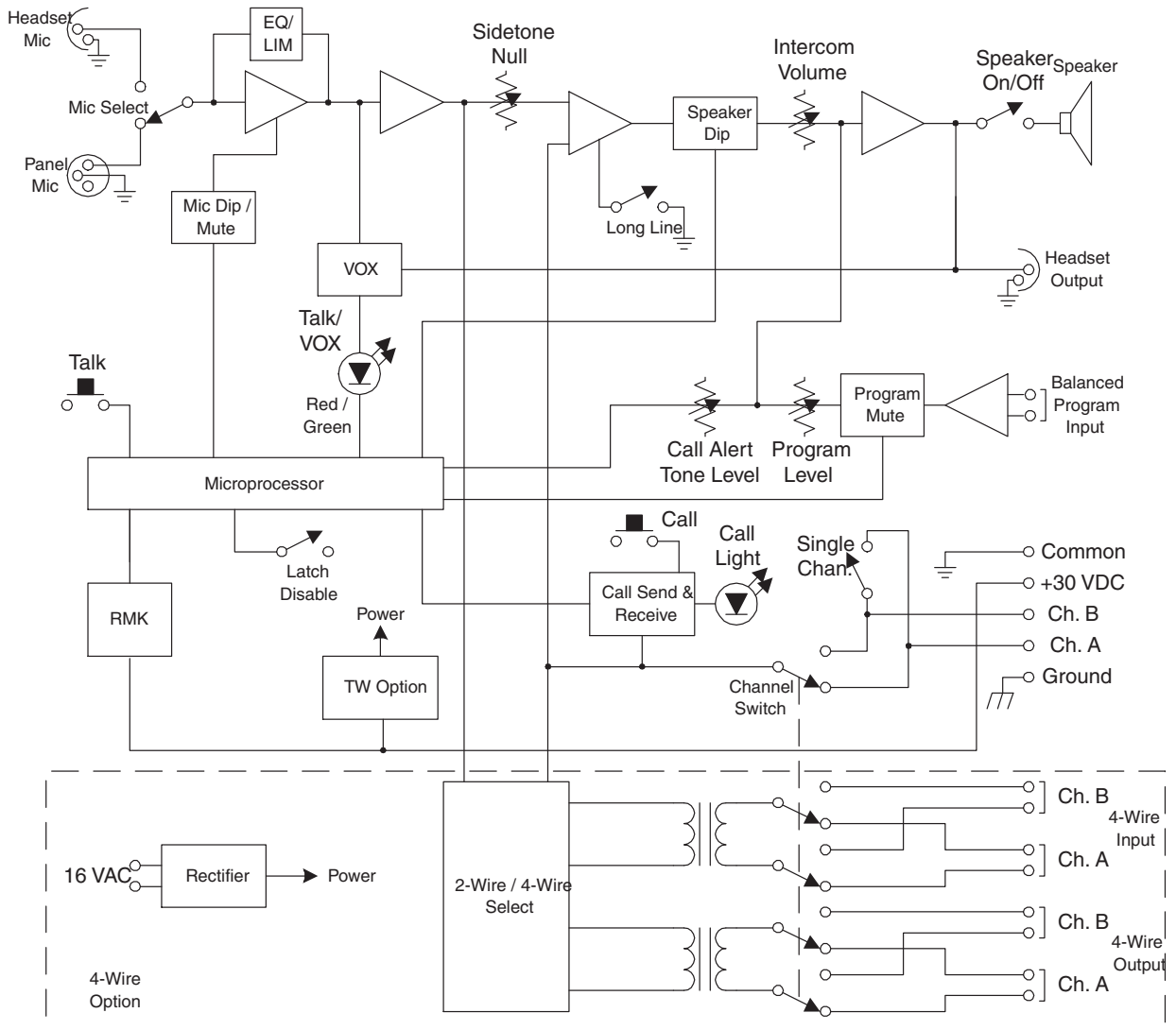
4.3 Troubleshooting

Symptom	Cause	Solution
System does not operate. *Talk* button does not light.	No intercom connection to the KB-702. If the EB7-4W four-wire option module is connected, the KB-702 may not be receiving AC power.	Check connections and cable.
	The KB-702 has an internal failure.	Unit requires servicing.

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Symptom	Cause	Solution
Speaker does not operate. *Talk* button lights amber when pressed.	Speaker switch turned off, volume knob turned all the way down, or channel switch set to unused channel.	Adjust controls appropriately.
	Speaker plug or wiring has come loose.	Make sure speaker is connected internally.
	Plug P3 missing on circuit board.	Plug *P3* must be installed in jack J3 if the EB-TW or EB7-4W options are not used.
Hum or buzz in system	Inductive pickup caused by close proximity of this speaker station or connected stations to power lines or transformers.	Relocate the offending unit or wiring. If the cable run is exceptionally long, consider adding and using the EB7-4W four-wire option module. (Requires an additional four-wire interface at the opposite end of the "long run.")
System feedback (Acoustical)	Intercom level control at this station or another station is set too high.	Adjust.
	Sidetone null control at this station or another station is not adjusted correctly.	Adjust. Refer to the chapter "Operation."
	Channel not terminated.	Set the *main station* or power supply termination switch for that channel to the *on* position.
	Channel switch set to an unconnected channel.	If only one intercom line is connected, set option switch #1 to the *on* or *closed* position to link both channel switch positions to

Symptom	Cause	Solution
		the same intercom line.
	A headset extension cord was used.	Headset extension cords are not recommended.
VOX problems (KB-702GM/KB-802GM-IM only)	Stays tripped (amber light on). Sensitivity set too high.	Turn VOX sensitivity control in a counter-clockwise direction.
	Will not trip with voice. Sensitivity set too low.	Turn VOX sensitivity control in a clockwise direction. Note: VOX is intended for close-in operation.
Excessive crosstalk	High DC resistance has a ground return.	Use heavier cable; add additional conductor(s) to ground return. If the cable run is exceptionally long, consider adding and using the EB7-4W four-wire option module.
	Multi-channel cable pairs are not individually shielded.	Replace cable with individually shielded pairs.
	Headset cables are not wired properly or shielded properly.	Correct wiring. Use headsets with properly shielded wiring. Refer to the chapter "Operation."
Program signal sounds distorted.	Program level control set too high.	Turn the *program level* control counter-clockwise.
	Overload of program input circuit.	Reduce the gain of the program signal at the source, such as an audio mixer.
Call signal does not function.	Excessive DC loading of intercom line.	Remove any audio transformers or other equipment that may be

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Symptom	Cause	Solution
		connected across the intercom line. If equipment other than Clear-Com intercom equipment must be connected to the intercom line, please contact Clear-Com application or service personnel for information or recommendations.
	Far too many terminations on the intercom line.	Check all main stations and power supplies to make sure each intercom channel is terminated at only one point.
	Plug *P1* missing on circuit board.	Plug *P1* must be installed in jack *J1* if the EB7-4W option is not used.

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5 Technical Specifications

5.1 KB-702/KB-702GM/KB-802GM-IM Two-Channel Speaker Stations

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS

5.1.1 Panel Microphone Input (KB-702GM/KB-802GM-IM)

Input Type: Electret

Input Impedance: >=2KΩ

Mic Limiter Threshold: -2dBu ±3dB

Mic Limiter Range: >= 15dB

5.1.2 Headset Microphone Input

Input Type: Dynamic

Input Impedance: >= 1KΩ

Mic Limiter Threshold: -2dBu ± 3dB

Mic Limiter Range: >= 15dB

5.1.3 Program Line Input

Maximum Level before Clipping: >= 20dBu

Input Impedance: >= 5KΩ

5.1.4 Headset Output

Load Impedance: >= 8Ω

Output Impedance: <= 25Ω

Output Limiter Threshold: +5dBu ± 3dB

Maximum Output Level before Distortion: >= 17dBu

5.1.5 Speaker Output

Load Impedance: >= 4Ω

Max Output Level before 1% Distortion: 20dBu ± 2dBu

5.1.6 Party Line Output

Off Noise: < -74dBu

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Output Impedance: >10KΩ

5.1.7   Party Line Input

Crosstalk: < -60dB

Max level before Clipping: >= 12dBu

Sidetone Null Capability (KB-702GM/KB-802GM-IM only): > 25dB

5.1.8   Frequency Response

Panel Mic - Party Line (KB-702GM/KB-802GM-IM only): 300 - 16KHz ± 3dB

Headset Mic - Party Line: 300 - 15KHz ± 3dB

Program Input - Headset Out: 200 - 18KHz ± 3dB

Program Input - Speaker Out: 200 - 18KHz ± 3dB

Party Line - Headset Out: 200 - 18KHz ± 3dB

Party Line - Speaker Out: 200 - 18KHz ± 3dB

5.1.9   Max Distortion

Panel Mic - Party Line (KB-702GM/KB-802GM-IM only): <= 0.5%

Headset Mic - Party Line: <= 0.5%

Program Input - Headset Out: <= 0.2%

Program Input - Speaker Out: <= 0.5%

Party Line - Headset Out: <= 0.2%

Party Line - Speaker Out: <= 0.5%

5.1.10   Noise

Panel Mic - Party Line (KB-702GM/KB-802GM-IM only): < -65dBu

Headset Mic - Party Line: < -70dBu

Program Input - Headset Out: < -60dBu

Program Input - Speaker Out: < -60dBu

Party Line - Headset Out: < -50dBu

Party Line - Speaker Out: < -50dBu

5.1.11   Max Gain

Panel Mic - Party Line (KB-702GM/KB-802GM-IM only): >= 37dB

Headset Mic - Party Line: 41dB ± 2dB

Program Input - Headset Out: >= 18dB

Program Input - Speaker Out: >= 24dB

Party Line - Headset Out: >= 34dB

Party Line - Speaker Out: >=40dB

5.1.12   Power

Input Voltage Range: 20-30 VDC

Input Current (Idle): <= 90mA

Input Current (Max):<=110mA

5.1.13   Internal Adjustments and Connections

Intercom: Line: Five terminal connector

Program Input: Three terminal connector

Option Switches: Three DIP switches

Call Signal Jumper3: Three sets of options jumpers

Call Alert Tone Level Control: Level adjustment control

5.1.14   Front Panel Connectors

Panel Mic: (KB-702GM/KB-802GM-IM only): (1)1/4 in. (0.64 cm) panel mounting jack

Headset: (1) XLR-4M

5.1.15   Front Panel Controls & Indicators (KB-702GM/KB-802GM-IM)

(1) Panel / headset mic switch

(1) Program monitor level control

(1) Sidetone null control

(1) Talk button

(1) Call button

(1) Speaker ON-OFF switch

(1) Channel select switch

(1) Speaker volume control

(1) VOX control

(1) VOX indicator

5.1.16   Front Panel Controls & Indicators (KB-702)

(1) Program monitor level control

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(1) Sidetone null control

(1) Talk button

(1) Call button

(1) Speaker ON-OFF switch

(1) Channel select switch

(1) Speaker volume control

5.1.17   Environmental

32 - 122° F (0 - 50° C)

5.1.18   Dimensions (KB-702/KB-702GM/KB-802GM-IM)

8.25 in. W x 4.5 in. H x 1.75 in. D (210 mm x 114 mm x 44 mm)

5.1.19   Weight

KB-702 0.99 lbs. (0.45 Kg)

KB-702GM/KB-802GM-IM 1.1 lbs.(0.50 Kg)

5.1.20   Notice About Specifications

While Clear-Com makes every attempt to maintain the accuracy of the information contained in its product manuals, that information is subject to change without notice. Performance specifications included in this manual are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

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6 Technical Support and Repair Policy

To ensure that your experience with Clear-Com and our World Class products is as beneficial, effective and efficient as possible, we would like to define the policies and share some "best practices" that can accelerate any problem solving processes which we may find necessary and to enhance your customer service experience. Our Technical Support, Return Material Authorization, and Repair Policies are set forth below. These Policies are subject to revision and constantly evolve in order to address our Customers' and the Market's needs. Therefore, these are provided by way of guidance and for information only and may be changed at any time with or without Notice.

6.1 Technical Support Policy

a. Telephone, online, and e-mail technical support will be provided by the Customer Service Center free of charge during the Warranty Period.

b. Technical support will be provided free of charge for all software products under the following conditions:

  i. The application, operating, and embedded software is installed on a product covered by Clear-Com's Limited Warranty, and:

  ii. The software is at the current release level; or,

  iii. The software is one (1) version removed from current.

  iv. Older versions of software will receive "best-effort" support, but will not be updated to correct reported bugs or add requested functionality.

c. For Technical Support:

  i. North and South America, (incl. Canada, Mexico, and the Caribbean) & US Military:

    Hours: 0800 - 1700 Pacific Time

    Days: Monday - Friday

    Tel: +1 510 337 6600

    Email: Support@Clearcom.com

  ii. Europe, the Middle East and Africa:

    Hours: 0800 - 2000 Central European Time

    Days: Monday - Friday

Tel: +49 40 853 999 700

Email: TechnicalSupportEMEA@clearcom.com

iii. Asia-Pacific:

Hours: 0800 - 1700 Pacific Time

Days: Monday - Friday

Tel: +1 510 337 6600

Email: Support@Clearcom.com

d. Email Technical Support is available for all Clear-Com branded products free of charge for the life of the product, or two years after a product has been classified as obsolete, whichever comes first. To log or update a request, send an email to: Support@Clearcom.com.

e. Support for Distributor and Dealer Sales

a. Distributors and Dealers may utilize the Customer Service Centers once a system has been installed and commissioned. Clear-Com Systems and Applications Engineers will provide support to the Distributor from the pre-sales stage through to satisfactory installation for new system purchases. Customers will be encouraged to contact their Dealer or Distributor with their installation and technical support enquires rather than using the Customer Service Centers directly.

f. Support for Direct Sales

i. Customers may utilize the Customer Service Centers once a system has been installed and commissioned by Clear-Com Systems and Applications Engineers, or in the case of project installations, once the Project Team has completed the hand-over to the Support Centers.

6.2   Return Material Authorization Policy

a. Authorizations: All products returned to Clear-Com or a Clear-Com Authorized Service Partner must be identified by a Return Material Authorization (RMA) number.

b. The Customer will be provided with an RMA number upon contacting Clear-Com Sales Support as instructed below.

c. The RMA number must be obtained from Clear-Com via phone or email prior to returning product to the Service Center. Product received by the Service Center

without a proper RMA number is subject to return to the Customer at the Customer's expense.

d. Damaged equipment will be repaired at the Customer's expense.

e. Returns are subject to a 15% restocking fee.

f. Advance Warranty Replacements (AWRs);

    i. During the first 30 days of the Standard Warranty Period: Once the equipment fault has been verified by Clear-Com or its authorized representative, Clear-Com will ship a new replacement product. The Customer will be provided with an RMA number and be required to return the faulty equipment within 14 days of receipt of the replacement or will be invoiced for the list price of a new product.

    ii. During days 31-90 of the Standard Warranty Period: Once the equipment fault has been verified by Clear-Com or its authorized representative, Clear-Com will ship a like-new, fully refurbished replacement product. The Customer will be provided with an RMA number and be required to return the faulty equipment within 14 days of receipt of the replacement or will be invoiced for the list price of a new product.

    iii. To obtain an RMA number or request an AWR:

North and South America, Asia-Pacific, and US Military:

Hours:0800 - 1700 Pacific Time

Days:Monday - Friday

Tel:+1 510 337 6600

Email:SalesSupportUS@Clearcom.com

Europe, the Middle East and Africa:

Hours:0800 - 1700 GMT + 1

Days:Monday - Friday

Tel:+ 44 1223 815000

Email:SalesSupportEMEA@Clearcom.com

    iv. Note: AWRs are not available for UHF WBS Analog wireless intercom systems. UHF WBS Analog wireless intercom systems out-of-box failures must be returned to Clear-Com for repair.

   v. Note: Out-of-box failures returned after 90 days will be repaired and not replaced unless approved by Clear-Com Management.

   vi. Note: AWRs are not available after 90 days of receipt of product unless an AWR Warranty Extension is purchased at the time of product purchase.

   vii. Note: Shipping charges, including duties, taxes, and insurance (optional), to Clear-Com's factory are the responsibility of the Customer.

   viii. Note: Shipping AWRs from Clear-Com is at Clear-Com's expense (normal ground or international economy delivery). Requests for expedited shipping (E.g. "Next-Day Air"), customs duties, and insurance are the responsibility of the Customer.

6.3   Repair Policy

a. Repair Authorizations: All products sent to Clear-Com or a Clear-Com Authorized Service Partner for repair must be identified by a Repair Authorization (RA) number.

b. The Customer will be provided with an RA number upon contacting Clear-Com Customer Services as instructed below.

c. The RA number must be obtained from Clear-Com via phone or email prior to returning product to the Service Center. Product received by the Service Center without a proper RA number is subject to return to the Customer at the Customer's expense.

d. Return for Repair

   i. Customers are required to ship equipment at their own cost (including transportation, packing, transit, insurance, taxes and duties) to Clear-Com's designated location for repair.

    Clear-Com will pay for the equipment to be returned to the Customer when it is repaired under warranty

    Shipping from Clear-Com is normal ground delivery or international economy.

    Requests for expedited shipping (E.g. "Next-Day Air"), customs duties, and insurance are the responsibility of the Customer.

   ii. Clear-Com does not provide temporary replacement equipment ("loaner") during the period the product is at the factory for repair. Customers should consider a potential prolonged outage during the repair cycle, and if required

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for continuous operations purchase minimum spare equipment required or purchase an AWR Warranty Extension.

iii. No individual parts or subassemblies will be provided under warranty, and warranty repairs will be completed only by Clear-Com or its Authorized Service Partner