FIRE◊COM™
COMMUNICATION SAFETY SPECIALISTS
A Division of Sonetics Corporation

3000A
Fire Apparatus
Intercom System

INSTALLATION &
OPERATOR'S
MANUAL

Rev.3

3000A

FIRE COM™
COMMUNICATION SAFETY SPECIALISTS

TABLE OF CONTENTS

Intercom 3000A shown with
optional Dual Radio Interface

Optional "Behind-the-Helmet" Headset

Please Read this Manual Completely Before Starting Installation

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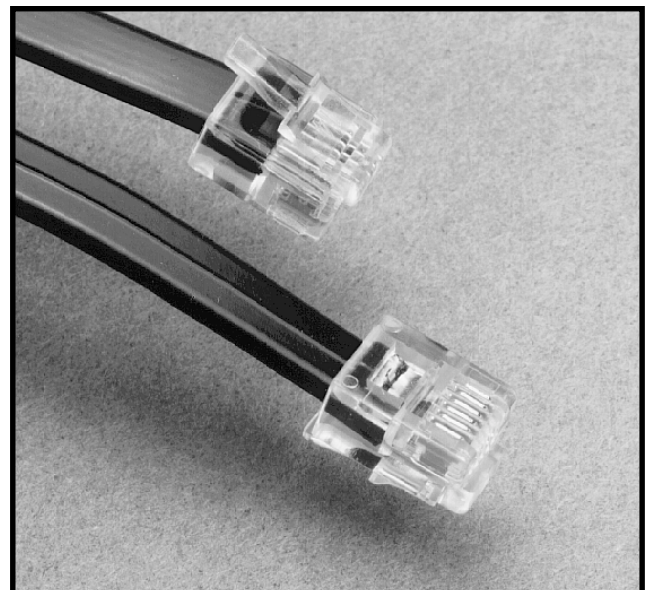# COMPONENT Identification

Radio Transmit Headset showing <u>red</u> *radio transmit button* at top of ear dome.

Jumpseat showing <u>black</u> *intercom transmit button* at top of ear dome

Headset Module showing headset modular cable input from intercom

Modular Cable and Plug

3000A

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SYSTEM DESCRIPTION

OVERVIEW
The FIRECOM system is designed specifically for Fire Apparatus use. It improves voice communications between apparatus personnel and provides hearing protection from high noise levels. It also augments normal radio communications by interfacing directly to the apparatus radio(s). Six headset connections are provided, and three have radio transmit capabilities.

The FIRECOM Digital Message Recorder Board is a solid-state device with no moving parts.

**INSTALLATION OF THIS SYSTEM IS MODULAR!
NO wire tangles...NO soldering..EASY to follow
step-by-step instructions**

VOICE ACTIVATED with Noise Cancellation
The Intercom 3000A includes a state-of-the-art squelch circuit which cancels background noise until you speak. This circuit quickly activates to include the first spoken syllable. In addition, the audio signal is processed to reduce wind, siren, horn, and engine noise. Mic muffs are included with headsets to aid in wind noise reduction.

COMPATIBILITY
The Intercom 3000A is compatible with all UHF/VHF Fire service radios, including 24 volt applications.

CONTINUOUS RADIO MONITORING
All personnel on the intercom will hear the radio traffic regardless of other intercom activity.

INTERCOM CONTROL FUNCTIONS
Squelch: Adjusts for a wide range of background noise levels.

Volume Control: Easily adjusts to varying microphone/headset sensitivities with ample reserve volume. Volume control does not affect apparatus radio volume.
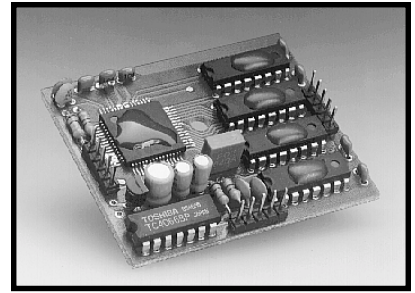
DUAL-RADIO INTERFACE
If you need to interface the intercom to more than one radio in a vehicle, FIRECOM can provide a solution through our Dual Radio Interface. For more information, please contact our technical staff at:

1-800/527-0555

Digital Message Recorder (DMR™)
The "Digital Message Recorder", a one megabit voice memory card, provides up to 32 seconds of voice recording. You can record radio or intercom communications and play them back immediately. FIRECOM technology provides you with unlimited instantaneous replays of incident address, apparatus assignments, and other critical information.

# PRE-INSTALLATION

DETERMINE SYSTEM MOUNTING LOCATIONS
When locating the system installation, consider areas which will provide ease of operation. (See illustrated examples of typical installations on page 4.)

⚠ **CAUTION**
When mounting the system components, verify that drilling through surfaces will not cause damage to adjacent wiring or equipment.

When selecting your intercom unit location, be sure to leave at least three inches behind it for cable clearance. The mounting surface should be flat, fixed, and without excessive vibration. The surfaces should be able to accept #8 sheet metal screws.

INTERCOM UNIT

25-Pin Connector

Modular Cables

3 inches
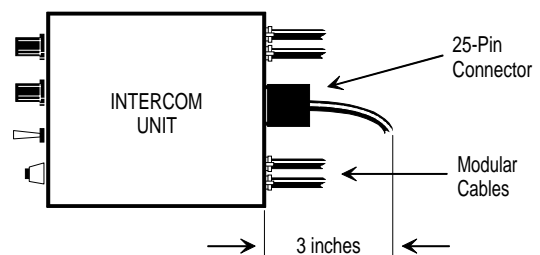
Intercom Rear Spacing Diagram
TOP VIEW

The Intercom 3000A is provided with a mounting bracket for dashboard, center console, or overhead mounting. The mounting bracket slots permit limited rotation of the Intercom Unit.

Behind-the-head or over-the-shoulder mounting of the headset modules is usually most convenient. Locate a flat area that permits surface mounting for each module. It will be useful to mount a hook or hanger nearby for storage when the headset is not in use.

If you wish to have an uncovered plug-in module near a pump panel, for example, FIRECOM has a waterproof enclosure available. The modular connectors used in the system are gold-plated to resist corrosion. The cabling may be installed on the surface, or you may choose to hide it behind panels, headliners, door sills, etc. Protect any cabling run through bulkheads or other sheet metal by use of grommeted holes to prevent damage to the cables.

Prior to securing the system components in place, verify the layout for:

- Control accessibility
- Headset storage
- Headset cable reach
- Interconnect cable length
- Ease of installation

Stow any excess cable length behind panels or other out-of-the-way locations. Additional interconnect cables may be ordered from FIRECOM if needed.

NOTE

Headset modules may be daisy-chained to the same intercom connection, but multiple headsets on one chain may reduce the received audio. This permits multiple location use of each intercom channel.

INSTALLATION

WARNING

To avoid damage or injury, always turn OFF the apparatus master switch before working on circuitry.

MODULAR CABLES

Cables are fabricated at the factory in set lengths. Do not cut these cables unless you are familiar with phone plug crimping techniques and have the proper tools. Additional cables may be ordered from FIRECOM if needed.

NOTE

Read the Pre-Installation section before attempting installation. All cables should be installed prior to final placement of other system components. Be sure to have all system component locations pre-selected and marked.

Observe that there are three INTERCOM/TRANSMIT ports and three INTERCOM ONLY ports at the rear of the Intercom 3000A (see photo). In a typical installation this would allow the Officer, Engineer/Driver, and Pump Panel positions to be connected to the INTERCOM/TRANSMIT side and the jumpseat positions to the INTERCOM ONLY side.

INTERFACE CONNECTION

The Intercom 3000A includes a 25-pin connector and interface cable for connection to the fire apparatus. Connections to power and to the radio are made through this cable. We recommend that these connections be made by a qualified radio technician.

NOTE

See the section on Technical Information for specific details on wire and pin locations and assignments

INTERCOM UNIT

After selecting your mounting location, mark where you want to set the mounting bracket.

NOTE

Be sure to observe the location criteria mentioned in the section on PRE-INSTALLATION.

1. Remove the mounting bracket and set the intercom unit aside

2. Set the mounting bracket in the place marked and mark the location for the mounting screw holes.

3. Drill two holes for the #8 sheet metal screws.

4. Mount the bracket.

5. Attach the intercom to the mounting bracket and install all the cables. Be sure to tighten the screws on the 25-pin interface connector.
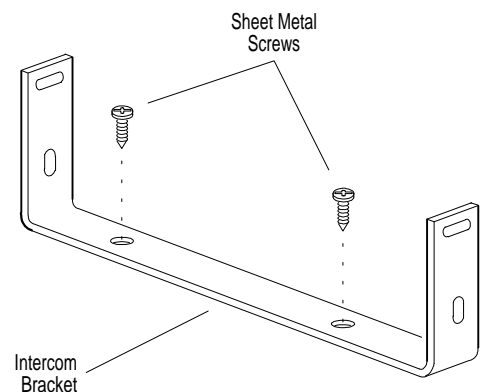
Intercom Mounting Bracket

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TYPICAL CONFIGURA-

Jump
Seat(s)

Officer
& Driver

Tailboard
(*Apparatus*
Backup
Assist)

Pump Panel

Pump Panel

Driver

Officer

Pump
Panel

Firefighter
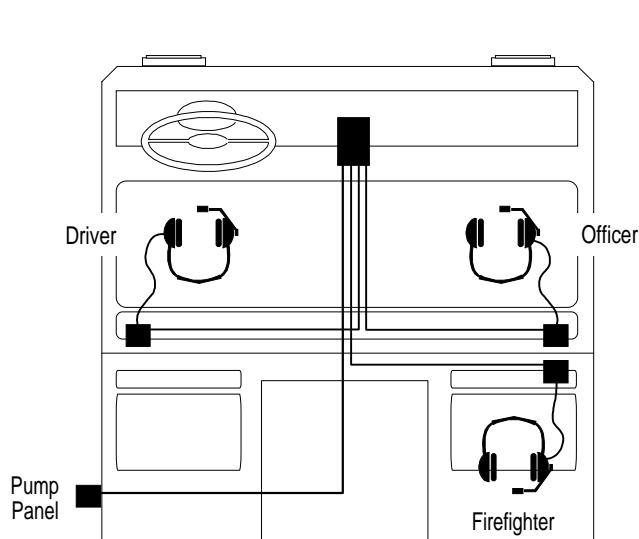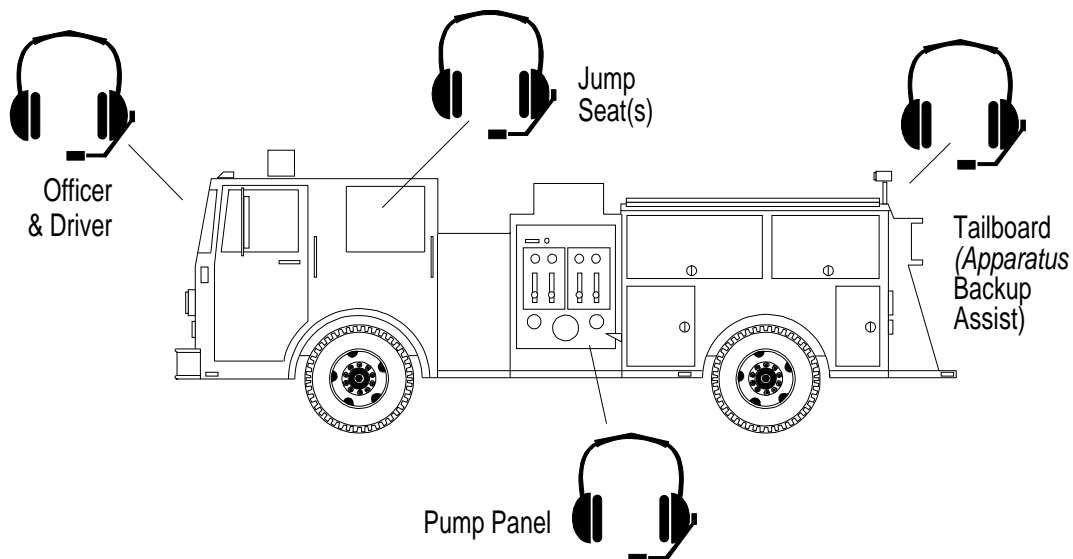
Dashboard Installation
TOP VIEW OF APPARATUS CAB

Driver

Officer

Firefighter
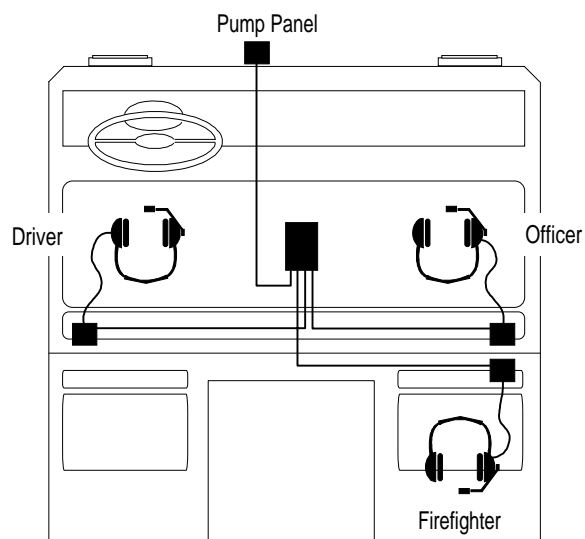
Overhead Installation
TOP VIEW OF APPARATUS CAB

■ Headset
Jack Module

■ Intercom

HEADSET MODULE

Note that the modular cables plug into each module on the side below the label. The connector on the opposite side is for daisy-chaining. Headset modules may be daisy-chained to the same intercom connection, but only one headset may be used at a time on each chain.
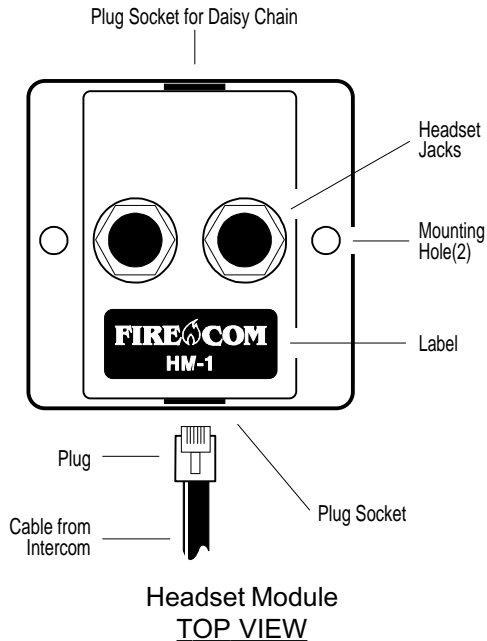
Plug Socket for Daisy Chain

Headset Jacks

Mounting Hole(2)

Label

Plug

Plug Socket

Cable from Intercom

Headset Module
TOP VIEW

Do a final location check to ensure that the headset cable lengths and mounting clearances are adequate before securing the modules.

Reminder: *HM-1 Headset Modules should be placed in the cab with the following in mind.*

→ Locate the modules close enough to the side window to enable the driver and engineer to have an unobstructed view out the windows without putting a strain on the cables.

→ If possible, locate the modules so that the jacks face in the direction of exit from the cab. This can prevent damage if the headset wearer inadvertently forgets to remove the headset when exiting.

1. Mark the desired location of the module mounting holes.

2. Drill two holes and secure the modules using two #8 sheet metal screws (provided).

3. Plug unused, exposed connections with silicone sealant to avoid problems from salt air or excessive moisture.

Headset modules mounted in exposed locations such as a pump panel should be contained in a water proof enclosure. Waterproof enclosures containing headset modules with cables attacked are available from Firecom.

OPERATION

HEADSETS

The FIRECOM system offers two types of headsets: Radio Transmit Headset and Jumpseat Headset. Refer to photos on page 1. Other optional headsets may also be supplied.

All headsets must be plugged into a Headset Module for operation.

FIRE COM
Radio Transmit

Radio Transmit Headset: This headset receives both intercom and radio communications at all times. It is also hands-free, voice-activated to the intercom. When you wish to transmit over the radio, simply depress and hold the **RED** Push-To-Talk (PTT) button. This headset is typically located at the Driver, Officer, and Pump Panel positions.

FIRE COM
Jumpseat

Jumpseat Headset: This headset receives both intercom and radio communications at all times, but it is not radio transmit capable. It is typically located at the jumpseat position. Due to the higher ambient noise level at this location (engine noise, etc.) it is not voice-activated. When you wish to speak over the intercom, depress and hold the **BLACK** PTT button.

HEADSET ADJUSTMENTS

All "FH" headsets have adjustable headbands with slide mechanisms located at each side above the ear domes. Adjust for a comfortable fit. If the adjustment slides become loose, gently tighten the self-locking hex nuts. All "UH" (Under-the-Helmet) headsets have an adjustable velcro head strap. Adjust either type of headset to position the liquid-filled ear seals for best noise reduction and comfort. Washable cloth covers are provided to absorb moisture. Replacement covers are available from Firecom.

IMPORTANT NOTE!

*This is a **Noise-cancelling Microphone**. It compares outside noise level to voice level. To operate properly, it must be positioned at the corner of your mouth and **no more than 1/8 inch from your lips.***

1/8"
from mouth
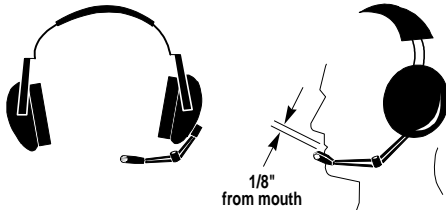
A mic muff on each headset microphone is provided to help reduce wind noise.

Each headset has two plugs of different size which correspond to the appropriate connectors on the Headset Module.

HEADSET VOLUME
Preset each headset volume to the highest setting (full clockwise). Set the radio volume to a level above the normal comfortable listening level but at a level which does not cause distortion. Reset the individual headset volume for best listening level.

INTERCOM 3000A
Volume: This is a master intercom volume control to all headsets on the system. Adjust it to match the radio volume adjusted above.

Squelch: This control is adjusted from the Driver or Officer position, while wearing a Radio Transmit Headset. Adjust it with the apparatus engine running, so that "normal" background noise is present. Start with this control fully clockwise; then slowly rotate counterclockwise until the background noise is no longer heard. Do not set this control any further than necessary. Once set correctly, additional adjustment should not be required.

NOTE
These controls do not affect the radio squelch control setting.

DIGITAL MESSAGE RECORDER (DMR™)
To record, set the toggle switch to RECORD, and press the START button. The red LED confirms you are set to the recording mode. The yellow LED indicates the DMR™ has been started. To make a new recording, switch to PLAY and back to RECORD, and press the START button. A new recording replaces any previous one. To stop recording before the 32 second time limit is reached, simply set the toggle switch to PLAY.

To playback, set the toggle switch to PLAY, and press the START button. The recording will be replayed each time you press the START button, as many times as desired. To stop the playback before the message is completed, set the toggle switch to RECORD and quickly back to PLAY again. The message will not be erased unless the START button is pressed while in the RECORD mode. Disconnecting power will erase the recording.

The DMR™ may be left idle and ready in either RECORD or PLAY mode.

SYSTEM SETUP & TEST

The Intercom 3000A radio transmit level has been preset to a nominal level at the factory. In most installations, satisfactory performance is obtained without having to re-adjust this level. However, if it is necessary, optimal RF carrier modulation level may be set by adjusting the "Transmit Level Adjustment" potentiometer. This control is located on the interface circuit board of the System 3000A Intercom and can be accessed by removing the top metal case of the System 3000A Intercom. See interface Circuit Board layout below.

This adjustment should be performed by a qualified radio technician with access to a suitable RF communications test set.

Intercom 3000A
Internal Circuit Board

Transmit Level Adjust
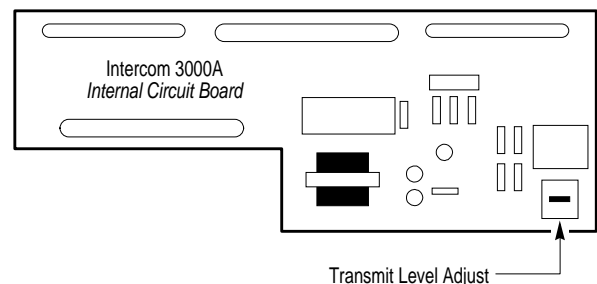
Intercom 3000A Interface Circuit Board Layout

Power On
1. Turn on the Intercom 3000A at the apparatus master switch

2. Confirm that power is applied to the system by placing the RECORD/PLAY switch to RECORD and observing that the red LED illuminates.

3. Install a Radio Transmit Headset at the Officer's or Driver's HM-1 position.

Adjust headset(s)
4. Adjust the headset headband for a comfortable fit.

5. Adjust the microphone boom to place the microphone at the corner of your mouth and approximately 1/8" from your lips.

6. Speak into the microphone to confirm intercom operation. You should hear yourself through the headset.

Adjust Volume

7. Preset the headset volume and the Intercom Unit squelch controls fully clockwise.

8. Adjust intercom volume for a comfortable listening level.

9. Test radio communications by pressing the Push-To-Talk button on your headset and speaking into the microphone. Adjust your headset volume control for best listening volume while monitoring radio traffic.

Test Digital Message Recorder

10. With the RECORD/PLAY switch in RECORD (red LED on), press the START button (yellow LED on) and speak into the microphone. Stop the recording by placing the RECORD/PLAY switch to PLAY. Press the START button and listen for a recording of what you just said/

Repeat at Other Stations

11. Check the intercom and radio functions at each Intercom/Transmit station as above.

12. Connect a Jumpseat Headset at an intercom only station.

13. Adjust the headset for a comfortable fit and microphone position.

14. Press the Push-To-Talk button and verify intercom operation by listening to your own voice.

15. Test the intercom function at each intercom only station.

System Dynamic Test

16. Start the apparatus engine.

17. At an Intercom/Transmit station, located close to the Intercom Unit, check the operation of the intercom and radio functions.

NOTE
If static or noise is present on the circuit, it may be due to improper grounding.
(See the Technical Data section)

18. With the radio volume adjusted to the desired level, adjust your headset volume for best listening level.

19. Adjust the intercom Volume for best level in the intercom mode while speaking into the microphone.

20. Adjust the intercom Squelch Control counterclockwise just until the engine noise cannot be heard. Do not over-adjust, or you may not be able to hear the normal intercom traffic.

Final adjustment of these controls will be required under actual apparatus operating conditions.

TROUBLESHOOTING

If Unit Doesn't Work as Expected:

√ Check that apparatus master switch is on.

√ Check fuse or circuit breaker

√ Check system wiring and interconnections

√ Check that the headphones are plugged in all the way

√ Check intercom and headset control settings

√ Check for corrosion on headset plugs

√ Check that the headsets are plugged into the correct headset modules. A Radio Transmit Headset must be plugged into an Intercom/Transmit headset location in order to transmit. A Jumpseat Headset will not transmit under any circumstances and is designed to be plugged into an Intercom Only location.

Excessive Static or Noise:

→ See the section on Technical Data.

TROUBLESHOOTING?
If you have a problem or just a question,
call our Technical Support Staff
1-800/527-0555

TECHNICAL DATA

INSTALLATION REQUIREMENTS:

The FIRECOM System uses only seven wires for total apparatus/radio connection. The signals required are: Mic HI, Spkr HI, Spkr LO, Radio PTT, Radio PTT Ref, Power, and GND. These signals provide easy connection to a wide variety of apparatus radios whose input and output circuits are referenced to ground (or other system reference via A-). See *Functional Block Diagram below.*
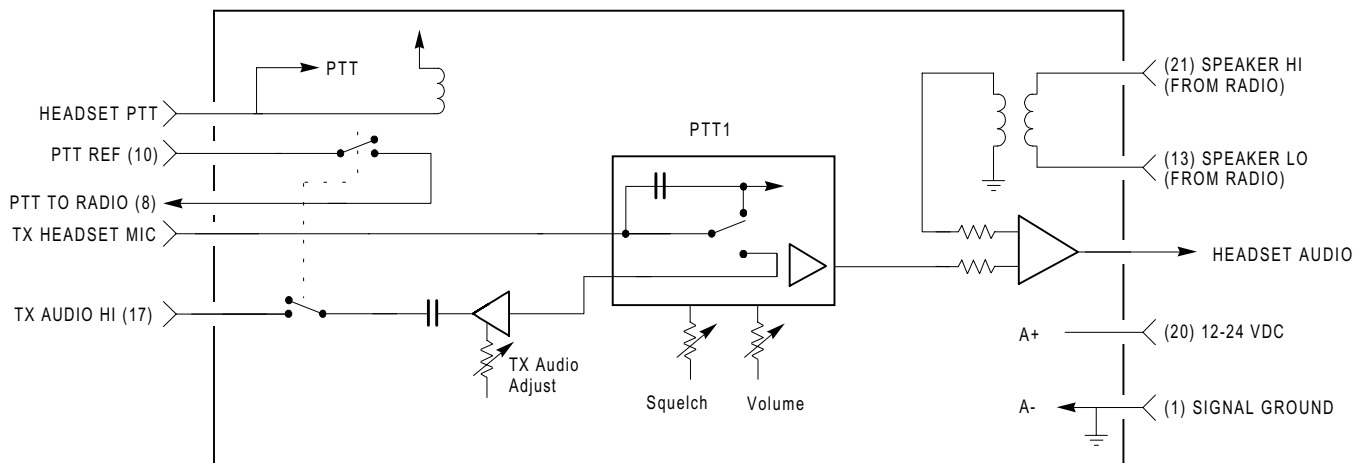
Functional Block Diagram: Intercom 3000A

Wires & Connections Are Identified As Follows:

Connector Pin #	Wire Color	System Function	System Connection
10	Orange	Radio PTT Ref.	Connect to radio PTT Ref
8	Black	Transmitter Key	Connect to radio PTT input
17	White	Transmit Audio	Connect to radio Mic HI
21	Green	Receive Audio	Connect to Radio Speaker HI
13	Blue	Receive Audio	Connect to Radio Speaker LO
20	Red	Power Supply	Connect to switched and fused +12V to + 24VDC Use 1/2 amp fast blow fuse (See System Specifications)
1	Shield	System GND	Connect this wire to radio signal GND to minimize EMI/RFI problems.

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TECHNICAL DATA-*cont.*

ALTERNATOR WHINE
AND OTHER DISTRACTING NOISES

Because of the level of ambient noise present with the apparatus motor running, alternator whine and other noises may not be noticed in the communications systems until an intercom is added. A noisy system will always be apparent, however, once an intercom is installed.

Alternator whine and other noises on the communications circuit are due to two main causes:

→ Improper installation.

→ A faulty alternator.

Generally, the problem is not caused by the alternator. It is usually the result of a difference in signal potential between the apparatus radio signal ground and the intercom signal ground. Additional sources may also exist in the apparatus electrical system

To reduce or eliminate alternator whine, perform the following:

❏ Connect the apparatus radio to the cleanest power source possible; a source without motors (e.g., heaters, windshield wipers, etc.), sirens, strobes, or flashers.

❏ Use the same precautions when connecting the intercom power.

❏ Ensure that all radio power and ground connections are clean and tight.

❏ Ensure that the radio power and ground wires are of sufficient gauge to prevent a signal developing across them.

❏ Keep all battery connections clean and free from dirt and corrosion.

❏ Use noise filters on radio and intercom power if needed.

TECHNICAL ASSISTANCE

Our technical staff is just a phone call away. Contact us at 1-800/527-0555.

TECHNICAL NOTES:

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SPECIFICATIONS

HEADSET/All FH- and UH- models

Sensitivity .... 104 dB re .0002 microbar @ 1000 Hz 1 mW
Frequency Response .... 150-5,000 Hz + 5 dB in 6cc coupler
Impedance .... 600 ohms nominal, 150 to 1200 ohm source
Weight .... 19 oz
Shielding .... Full floating shield w/independent gnd.
Noise Reduction Rating .... 24 dB

MICROPHONE/Part No: A-7A

DC Bias Supply .... 8 to 16 volts, not polarity sensitive
Source Resistance .... 220 to 2200 ohms
Output Voltage .... 370 mV @ 114 dB spl re .0002 microbar
Frequency Response .... Optimized for speech clarity
and noise reduction
Max. Amb. Noise Level .... 125 dB spl re .0002 microbar
Weight .... .02 oz

INTERCOM

Size .... 7-3/8"L x 6-1/2"W x 2-3/8"H with mounting bracket
Weight .... 48 oz
Output .... 375 milliwatts into each of up to
.... six 150 ohm headsets. Sound level remains
.... constant regardless of the number of headsets connected.
Power Requirements .... .016 amps, 12-24 VDC external
Fuse .... 1/2 amp fast blow type 3AG

NOISE REDUCTION DATA

	125	250	500	1000	2000	3000	4000	6300	8000
MEAN ATTENUATION IN dB	19.3	24.7	32.7	37.2	31.3	35.3	37.5	33.9	32.3
MEAN DEVIATION IN dB	3.1	4.1	3.5	2.5	2.9	3.6	3.7	3.7	4.4

NRR = 24

Use this laboratory-derived data for comparison only. The amount of protection afforded in field use is often significantly lower depending on how the headset is fitted and worn.

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OPTIONS and ACCESSORIES

Headsets:

FH-1: *Headset with Radio Transmit PTT.* A high quality adjustable headset with 24dB noise reduction, liquid filled ear seals, adjustable microphone boom, electret microphone and volume control.

FH-2: *Intercom Only Headset.* Specially designed for jump seat positions.

UH-1: *Under the Helmet Radio Transmit Headset.* Incorporates all the features of the standard Radio Transmit Headset/FH-1 Headset, but is specially designed for wearing under the helmet.

UH-2: *Under the Helmet Jumpseat Headset.* Incorporates all the features of the standard Jumpseat Headset/FH-2 Headset, but is specially designed for wearing under the helmet.

FH-1S: *Single Ear Radio Transmit Headset.* Same as the Radio Transmit Headset/FH-1 except has only one earphone with an over-the-head band.

FH-2: *Single Ear Jumpseat Headset.* Same as the Jumpseat Headset/FH-2 except has only one earphone with an over-the-head band.

Headset Modules and Accessories

HM-1: *Headset Module.* Provides a convenient location for connecting headsets into the intercom system. Non-waterproof.

PP-2: *Pump Panel Headset Modules, waterproof.* A waterproof headset module designed for use in environments subject to weather and water spray. (Includes an attached modular cable.)

CA*: *Modular Cable.* Interconnect cables used to provide signal paths between a headset module and the Intercom Unit. Standard lengths include 6, 12, and 20 feet. They may also be custom ordered to any length.

(* insert cable length in place of *.)

HE-15: *Headset Extension, 15 foot coiled cord.* A coiled cord providing extended length between the headset module and the headset.

FS-1: *Heavy Duty PTT Foot Switch.* Used when handsfree transmit capability is desired.

HH-Series: *Hand-held Radio-to-headset Interface.* Check for availability of radio model interface.

Consumable and Replacement Items

CC-1: *Cloth Comfort Covers.* Cloth covers with elastic bands which slip over the headphone ear seals providing comfort and hygiene for the wearer.

MM-1: *Microphone Muff.* A foam muff used over the microphone providing wind noise reduction.

A-7A: *Replacement Microphone for all FH and UH series headsets.*

EXTENDED TROUBLESHOOTING

If Things Go Wrong

The FIRECOM Apparatus Intercom System, when installed properly and adjusted according to specifications, will perform to industry standards and offer you the finest in hearing protection and enhanced communication. However, occasionally you might experience a malfunction.

The following recommendations cover potential trouble areas.

Find the symptom which you are experiencing and follow the trouble-shoot steps in the sequence given.

If the symptoms you are experiencing are not covered in this document, call the FIRECOM Customer Service Department at 1-800-527-0555.

Definitions:

Intercom unit	3000A Intercom with or without the DMR.
Radio Interface Port	25 pin d sub jack on the rear of the intercom unit.
Radio Interface Cable	Cable which mates with the radio interface port.
Intercom Port	Any one of six modular jacks on the rear of the intercom unit.
Intercom/Tx Port	One of the three intercom ports capable of keying and transmitting over the apparatus radio through the Radio Interface Port.
HM-1	Black plastic module with a speaker jack and a smaller microphone jack used to connect headsets into the intercom system
PP-2	A mic jack and a speaker jack in a water resistant enclosure.
CA Cable	Flat six conductor cable with six-wide modular plugs on each end used to make connections between HM-1's or PP-2's and the intercom unit
Headset Location	Any combination of "CA" cables and HM-1's or PP-2's connected to a single port on the rear of the intercom unit.

How to verify that a headset location has a bad component and troubleshoot to either a bad headset, bad cable or bad HM-1

(A) Examine the headset's label to determine if the headset is a jumpseat type or a radio transmit type headset.

   1. If the headset is a radio transmit type, the speakers should always be active. The mic should always be active. Pressing the red PTT button on the eardome should key the radio only if that headset location is plugged into an intercom/tx port, otherwise the PTT button will have no effect.

   2. If the headset is a jumpseat type headset, the speakers should always be active. The mic should be active only when the black PTT button on the eardome is pressed. The headset should never cause the radio to key once installed in any headset location.

(B) Unplug the headset location from the intercom unit and exchange intercom ports with a known good headset location. If the headset fails to perform properly, the headset location has a faulty component and you should continue troubleshooting the headset location

(C) Plug the headset into another good headset location. If the headset fails to perform properly in the new location, the headset is faulty and needs to be repaired.

(D) If the headset is not at fault, check the HM-1 by exchanging it with a known good one from another headset location, and checking for proper operation of the headset location. Check the modular plug of the HM-1 for bent or stuck pins. If the pins look good and the HM-1 fails to perform properly, it will need to be replaced.

(E) If the HM-1 is not at fault, check the intercom port the headset location is connected to by plugging a known good headset location into that port. If the new headset location operates properly, the cable of the original headset location is bad and will need to be replaced. It is possible that the problem with the cable will be at the modular connector and that a new one could be crimped on and thus solve the problem with the headset location. A modular cable crimping tool is required to attach new modular ends.

EXTENDED TROUBLESHOOTING

Troubleshooting an intercom system that has been working properly but has failed

(A) There is no sound in the headset from either intercom or radio.

1. Check the headset location for proper orientation and replace any faulty components.

2. If the headset location checks good, verify that power is present at pin 20 and that ground is present at pin 1 by verifying a voltage of at least 11.5 volts between those two pins. If power is present the red LED on the intercom faceplate will light when the toggle switch is in the RECORD position (the green LED will always light on an intercom without a DMR). If power is not present, check the wiring to the intercom and any switches, fuses, or circuit breakers in the power circuits to the intercom and correct any faults.

3. If there is power to the intercom and it doesn't work, the intercom unit is bad. Remove it for repair. Contact **FIRECOM** for return authorization.

(B) There is no sound in the headset from the radio, but the intercom is okay.

1. Verify that the receive audio is present by listening to the radio's speaker. If there is no audio from the radio's speaker, disconnect the radio interface port connector from the back of the intercom unit. If there still is no audio from the radio's speaker, the radio or wiring is at fault.

2. If the radio is putting out receive audio, check the connections to pins 13 and 21 of the intercom. An open will cause no receive audio.

3. If no wiring fault is found, try swapping the intercom unit with a known good one to verify that the problem is not the wiring. If no fault can be found in the wiring, then the intercom unit is bad and should be removed for repair.

(C) There is no sound in the headset from the intercom, but the radio is okay.

1. Verify that the headset location is good, replace any faulty headset location components.

2. If the headset location checks good, the fault must lie in the intercom unit. Remove it for repair.

(D) There is no sound in one ear.

1. The headset is faulty. Remove it for repair.

(E) You can hear others on the intercom but they cannot hear you.

1. If the headset is a jumpseat type headset, be sure that the black PTT button is fully depressed when trying to talk on the intercom.

2. Verify that the headset location is good. If it appears that the headset is the faulty component, check the phillips head set screws on the mic element for proper tightness before removing the headset for repair.

(F) You can't hear others on the intercom but they can hear you.

1. Verify that the headset location is good. Replace any faulty headset location components.

2. If the headset location checks good, the fault must lie in the intercom unit. Remove it for repair.

(G) There is a loud squeal in the intercom system when intercom volume is turned up.

1. Check for an open mic too near the speakers of a headset. Feedback problems are often fixed by turning the intercom volume down, moving the mic away from the headset speakers, or unplugging the smaller jack on the headset's com-cable when not in use.

2. If the problem persists, unplug the headset locations one at a time from the rear of the intercom unit until the squeal stops. Most likely there is a short in that location's cabling. The cable should be unplugged from both its HM-1 and the intercom unit and checked for shorts between conductors. If any are found, the cable will need to be replaced.

(H) The radio receive is weak.

1. Check the setting of the radio's volume control. The radio's volume control is the only adjustment for receive audio level in the intercom systems.

2. Verify proper connection of radio interface pins 13 and 21.

3. If no fault is found and another intercom unit is available, try swapping a known good intercom with the suspect one. If the problem goes away, the fault is in the suspect intercom unit. Remove it for repair. If the problem persists, call **FIRECOM** technical support for assistance.

EXTENDED TROUBLESHOOTING

(I)   The radio keys but has no transmitter audio (carrier but no audio).

1. Verify radio interface pin 17 (transmit audio) for proper connection.
2. If pin 17 is properly connected, verify that the transmit audio adjustment inside the intercom unit is not set for zero output by setting it to mid-range.
3. If no fault is found and another intercom unit is available, try swapping a known good intercom with the suspect one. If the problem goes away, the fault is in the suspect intercom unit. Remove it for repair. If the problem persists, call **FIRECOM** technical support for assistance.

(J)   The radio doesn't key.

1. Verify that the headset location is good. Replace any faulty headset location components.
2. If the headset location checks good, verify proper connection of radio interface pins 8 and 10.
3. If no fault is found and another intercom unit is available, try swapping a known good intercom with the suspect one. If the problem goes away, the fault is in the suspect intercom unit. Remove it for repair. If the problem persists, call **FIRECOM** technical support for assistance.

(K)   Alternator and/or strobe noise is present in transmit audio only.

1. Verify that radio interface pin 1 is connected to mic low and all connections are clean and tight.
2. Verify that the intercom transmit audio level adjustment is not set too high. Too much gain here will cause excessive background noise to be transmitted along with the voice. In the worst case, the voice will be somewhat distorted when transmitting from a quiet place and will become unreadable in the presence of background noise.

(L)   Alternator and/or strobe noise is present in all intercom audio.

1. Review the set up and operation of the intercom volume and squelch controls. Possibly the intercom volume is set too high.
2. Inspect the headset microphones, making sure that all the slots on both sides of the mic are clean and unobstructed. Obstruction of these slots will hamper the noise cancelling characteristics of the mics.
3. Disconnect any exterior mounted headset locations. If the noise stops, inspect that location for water or other contamination is present, contact **FIRECOM** for return of the unit.

(M)   Engine noise and sirens are present in transmit audio.

1. Verify that the intercom transmit audio level adjustment is not set too high. Too much gain here will cause excessive background noise to be transmitted along with the voice. In the worst case, the voice will be somewhat distorted when transmitting from a quiet place and will become unreadable in the presence of background noise.

(N)   Intercom volume control has no effect.

1. Call **FIRECOM** technical support for assistance or return authorization

(O)   Intercom squelch has no effect.

1. Call **FIRECOM** technical support for assistance or return authorization

(P)   Cannot seem to set the squelch level (squelch is too touchy).

1. First review the set up and operation of the squelch control. Note that is important to speak in a loud clear voice and keep the mic very close to the speaker's mouth.
2. Call **FIRECOM** technical support for assistance or return authorization

(Q)   DMR does not work

1. Review proper operation of DMR switches
2. Call **FIRECOM** for return authorization.

(R)   DMR has a noisy playback.

1. Call **FIRECOM** for return authorization.

(S)   DMR playback is weak.

1. Call **FIRECOM** for return authorization.

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EXTENDED TROUBLESHOOTING

Use this section to check out items identified as bad before sending them out for repair.

Bad headset:

Bad mic circuit -

1. Using a #0 phillips screwdriver, check that the set screws in the mic element are snug.

2. Exchange mic elements with a working headset to check that the mic element is not bad.

3. If neither of these solves the problem, call for a return authorization and send the headset in for repair.

Bad speaker or PTT circuit:

1. Send the headset in for repair.

Bad intercom:

1. Check all intercom ports for bent or stuck pins.

Bad HM-1 or PP-2:

1. Send HM-1 or PP-2 in for repair.

Bad CA Cable

1. If tools are available, try replacing the modular plug on both ends of the CA cable. Note that there is one correct way to assemble these cables. The order of the wire colors must be opposite at each end.

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