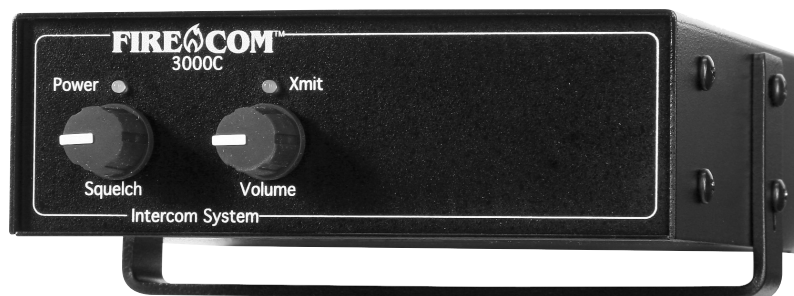




## **3000C FIRE APPARATUS INTERCOM SYSTEM**



**3000C INTERCOM**

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**INSTALLATION & OPERATION MANUAL**

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REVISION D

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### **FIRECOM IS A DIVISION OF SONETICS CORPORATION**

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# SYSTEM ORIENTATION

## SYSTEM OVERVIEW

This section provides an overview of the 3000C Intercom System and introduction to its individual components. Figure 1 shows a typical system. Refer to this diagram for each component.

### INTERCOM

The main control unit for the 3000C Intercom System which contains all the controls and interface circuitry for the intercom system.

### 2-WAY RADIO

The existing 2-way radio in the apparatus.

### MOBILE RADIO INTERFACE CABLE

Provides the interface connections between the 3000C Intercom Unit and the 2-way radio in the apparatus. There are many different cable assemblies available, depending upon the make and model of your radio. Contact your local Firecom Dealer for more information regarding an Interface Cable specific to your radio.

### POWER CABLE ASSEMBLY

Provides the power connections for the 3000C Intercom Unit. The power connections should be made at the same place as the power connections for your radio.

### HEADSET MODULES (HM-10)

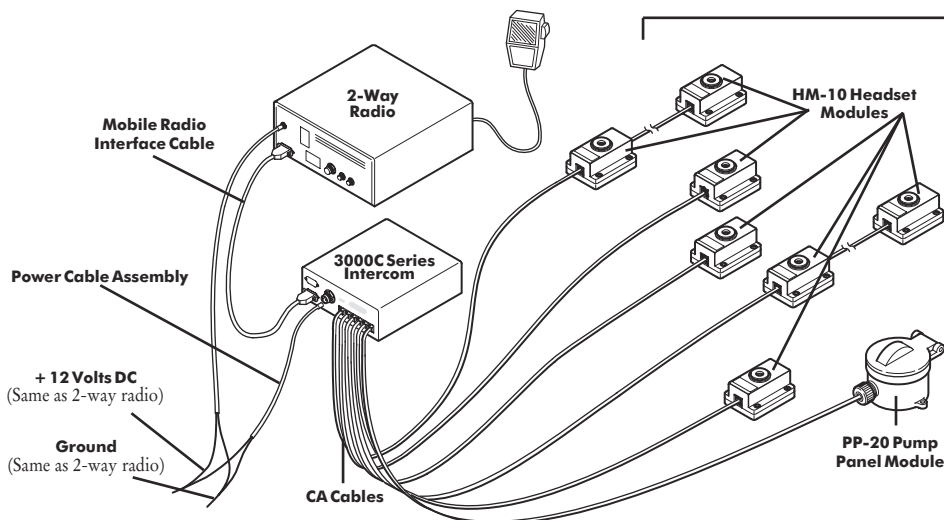
Headsets are plugged into the Headset Modules to interface them into the system. The HM-10 is the standard Headset Module for use inside the apparatus.

### PUMP PANEL MODULE (PP-20)

A water-resistant Headset Module for use on the exterior of the apparatus (i.e. at the pump panel, at the tail-board, etc.).

### CA CABLES

Six-conductor flat cable which connects the 3000C Intercom Unit to the HM-10 and the PP-20 Headset Modules.



**FIGURE 1:**  
3000C System Overview

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# SYSTEM ORIENTATION

## THE 3000C FRONT PANEL

Figure 2 shows the Front Panel of the 3000C Intercom. Listed below are the different items on the Front Panel and what they control/signify. These controls are explained further in "Intercom Operation" on page 20.

### POWER LED

A green LED which lights up when power is applied to the 3000C Intercom.

### XMIT LED

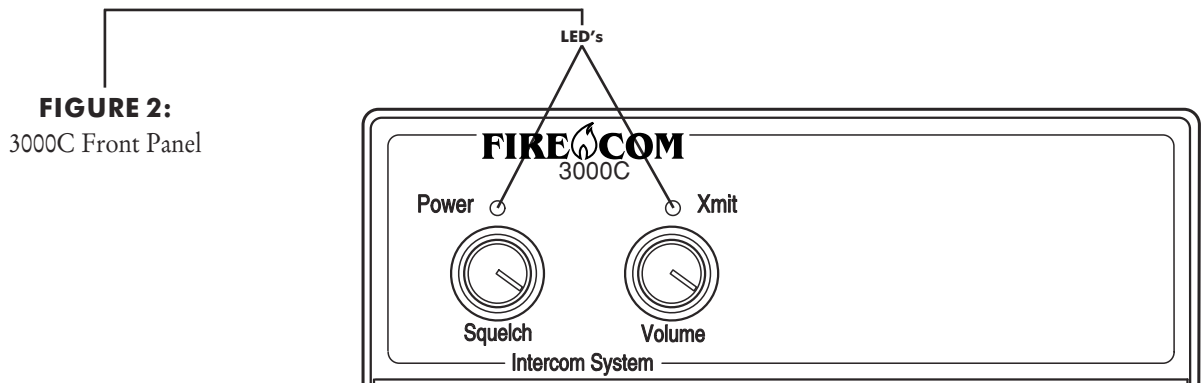
An orange LED which lights up when a radio transmit PTT is pressed and the radio is transmitting.

### SQUELCH CONTROL KNOB

Adjusts the level at which the microphones turn on/off to limit the background noise. This control does **NOT** affect, or is related to, the radio squelch control.

### VOLUME CONTROL KNOB

Adjusts the volume level of the audio present in the intercom system. This volume level can be modified to the wearer's preference by the volume control on each headset.



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# SYSTEM ORIENTATION

## THE 3000C REAR PANEL

Figure 3 shows the Rear Panel of the 3000C Intercom. This section lists the different connections located on the rear of the intercom, and the use of the connections.

### RADIO INTERFACE JACK

A 9-Pin D-Sub connector, which provides the attachment point for the Mobile Radio Interface Cable.

### POWER CONNECTOR

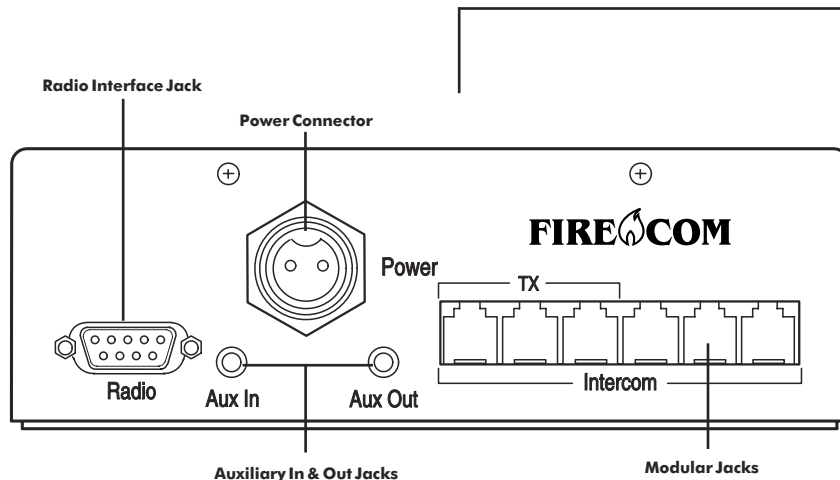
A 2-Pin connector, where the Power Cable Assembly is plugged in, interfacing the 3000C to the vehicle's power supply.

### MODULAR JACKS

There are 6 modular jacks on the 3000C. These modular jacks are the connection points for the CA Cables leading from the Intercom Unit to the Headset Modules. All 6 jacks have intercom capabilities. Only the 3 jacks on the left (when viewed from the rear) are capable of transmitting on the radio (as indicated by the "TX" designation on the rear panel).

### AUXILIARY INPUT & OUTPUT

The Auxiliary Input and Output are 3.5mm mono (2 conductor) jacks. These are used to bring miscellaneous audio (such as a CD or Cassette Tape Player) into, or Intercom Audio out of, the intercom system. See page 15 in this manual for more information on the Auxiliary In & Out Plugs.



**FIGURE 3:**  
3000C Rear Panel

---

# INSTALLATION ADVISORY

---

Firecom Apparatus Intercom Systems have been successfully installed in various fire apparatus for several years. During the last year, we have experienced increasing cases of alternator noise making its way into these systems. Because of the high load demands in some apparatus, alternators have to work harder, and in some cases, can be undersized for the growing load. When this occurs, the alternator injects noise on the DC power lines. The combination of an over-loaded alternator, radio equipment interfaced to an intercom system, and RF emissions can enhance noise that is already present but not normally heard. In some cases the alternator may need to be replaced.

Careful attention should be paid to microphone ground references, wire splices, and wires that run near other high emission equipment, such as radios, antennas, antenna coax, strobes and computer cables. Contact your local Firecom Dealer if you have any questions regarding installations and wire connections.

Here are a few tips that could help in subduing alternator whine problems:

## DON'T

### DON'T

- Bundle up headset wire runs (CA Cables).
- Run headset wires near antennas, antenna coax or near other equipment and their cables.
- Leave splices exposed.
- Connect mic low from radios to chassis ground.

## DO

### DO

- Use crimped connectors for any wire splices.
- Run headset wires (CA Cables) against the chassis when possible.
- Connect intercom power to the same connection points as the radio equipment.
- Monitor the power connections at the intercom with an AC Voltmeter for less than a 300 mV AC signal. Check this signal with the engine running at idle, and with the engine fully under load.
- Check for a bad diode in the alternator.

## IMPORTANT

**The sections in this manual on System Orientation (page 1), Pre-Installation (page 5) & Installation (page 10) should be read and understood BEFORE proceeding with the installation!!!!**

---

# **PRE-INSTALLATION**

---

Before installing the Firecom 3000C Intercom System, it is **VERY IMPORTANT** to take a little time and plan the installation. This section will provide information to assist in the process of planning the particular installation. You should read **AND UNDERSTAND** all of the information contained in this section, as well as the sections on the System Orientation (page 1) and Installation (page 10) **BEFORE** installing the 3000C onto the apparatus.

**Taking a little time to plan the installation BEFORE installing the 3000C Intercom System, may prevent many installation errors which could result in improper system operation.**

---

**IMPORTANT**

If you have any questions regarding the information contained in this section, contact your local Firecom Dealer for clarification **BEFORE** proceeding with the installation.

## **INTERCOM LOCATION**

When choosing a location to mount the 3000C Intercom Unit, the following conditions should be considered:

- The intercom should be close to the 2-way radio and the appropriate power connections.
- Allow at least 3 inches clearance on the sides and rear of the intercom unit for service and installation.
- The intercom unit should be placed where it will be easy to bring all the CA Cables from the Headset Modules.

---

# PRE-INSTALLATION

---

## HEADSET MODULES

There are 2 different types of Headset Modules for the 3000C Intercom system (Figure 4). The HM-10 is the standard module and is designed for use inside the apparatus where it is protected from the elements. The HM-10 also has a second connection for Daisy-Chaining (Page 7).

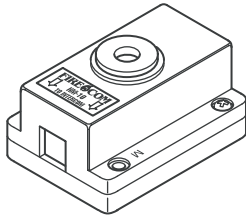
The second type of headset module is the PP-20. The PP-20 is a water and corrosion resistant module for use on the exterior of the apparatus (i.e. the pump panel, the tail-board, etc.).

Listed below are some of the items to consider when choosing the location of the headset modules:

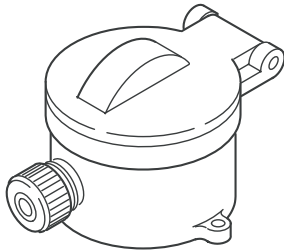
### FIGURE 4:

The 3000C Headset Modules

#### HM-10 MODULE



#### PP-20 MODULE



The module should be placed convenient to the user.

The module should be placed with the plug facing the direction of exit from the vehicle. This may help to prevent damage to the headset plug, comm cable or the headset module itself if the user attempts to exit the vehicle while still wearing the headset.

The headset comm cable should hang clear of obstructions.

The modules should be mounted close enough to the windows, so the user may look out the window without straining the headset module or the comm cable.

The modules should be positioned so that routing the CA Cables to the modules can be accomplished in a neat and orderly fashion.

The modules should be placed to provide access to the jacks on the module for the CA Cables. The CA Cable from the intercom will be inserted into the jack beneath the label on the headset module.

If you are connecting two headset modules via a "daisy-chain", allow clearance on the side opposite the label on the HM-10 for the CA Cable to the second headset module (Figure 5).



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# PRE-INSTALLATION

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## DAISY-CHAINING THE HEADSET MODULES

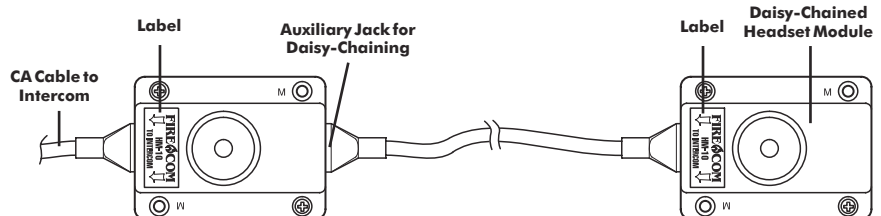
Daisy-Chaining the Headset Modules is a method used to increase the number of headset positions available, or a method of reducing the number of cable runs and the length of the cable runs. Daisy-Chaining the Headset Modules is easy to accomplish, but must be well thought out in advance considering the following requirements:

- The Headset Modules in a Daisy-Chain must be connected in a **SPECIFIC** manner (Figure 5).
- The CA Cable from the Intercom unit should **ALWAYS** be plugged into the Headset Module via the modular jack under the label.
- The modular jack on the other end of the Headset Module, is for the CA Cable which leads to the next Headset Module in the Daisy-Chain.
- **DO NOT** mix headset types (Intercom-Only vs. Radio-Transmit) that are plugged into a Daisy-Chain.
- A **maximum** of 2 Intercom-Only Headsets may be plugged into a Daisy-Chain at any time.
- You may have more Headset Modules in the Daisy-Chain, but **NEVER** plug more than 2 Intercom-Only Headsets into the Daisy-Chain at any one time.
- A **maximum** of 1 Radio-Transmit Headset may be plugged into a Daisy-Chain at any time.
- You may have more Headset Modules in the Daisy-Chain, but **NEVER** plug more than 1 Radio-Transmit Headset into the Daisy-Chain at any one time.

**Improper Daisy-Chains in a system may result in operational problems and reduced system performance. If you have any questions regarding Daisy-Chains, contact your local Firecom Dealer for more information.**

**IMPORTANT**

**FIGURE 5:**  
Daisy-Chaining The  
Headset Module



---

# PRE-INSTALLATION

## ROUTING THE CA CABLES

The path which you intend to run the CA Cables from the Intercom to the Headset Modules should also be planned **BEFORE** the installation. The items below are some of the items to consider when planning where to route the CA Cables.

- Route the CA Cables away from hot surfaces (such as the vehicle exhaust system).
- Route the CA Cables away from any moving equipment on the vehicle.
- Route the CA Cables away from the antenna or the antenna cable.
- **DO NOT** store excess cable. The length of each CA Cable should allow for approximately 10 inches of excess cable in each run (**VERY** important, especially in installations with a radio operating in the lower frequencies).
- When routing the CA Cables through bulkheads or other sheet metal, use a rubber grommet in the hole to prevent damage to the cables.

## INTERCOM CONNECTIONS

### MODULAR JACKS

On the rear of the intercom, there are 6 modular jacks (Figure 6). These jacks are for connecting the CA Cables from the Headset Modules to the intercom. The CA Cables plugged into any of these six jacks, will provide connections for intercom operation. Only the 3 modular jacks on the left (as viewed from the rear) have radio transmit capability. The CA Cable from any headset position that requires radio transmit capability must be plugged into one of these 3 positions.

### POWER CONNECTIONS

The 3000C Intercom System requires +12 volts DC (with a negative ground) at 0.15 amps. The 3000C Intercom comes with a Power Cable Assembly and a 1/2 amp in-line fuse. We suggest connecting the 3000C power and ground to the apparatus power busses; preferably to the same connection points as the radio.

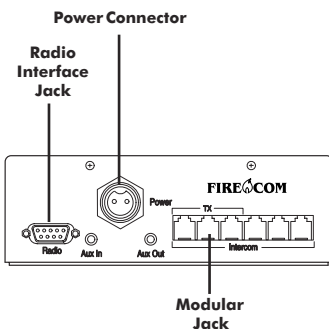
### RADIO INTERFACE

A universal Radio Interface Cable is supplied with the 3000C. This cable is a 9-wire, shielded cable which terminates with bare wires. These connections to the radio should be performed by a qualified radio technician.

There are many interface cables available from Firecom to interface the 3000C with specific radios. These "dedicated" interface cables will make interfacing the radio easier, but should still be done by a qualified radio technician. Contact your local Firecom Dealer for more information regarding the availability of an interface cable for your radio.

**ALL connections to the 2-way radio should be performed by a qualified Radio Technician to ensure proper interface between the 2-way radio and the 3000C Intercom System.**

**FIGURE 6:**  
The Rear Panel



**IMPORTANT**

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## **PRE-INSTALLATION**

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### **INTERCOM ADJUSTMENTS**

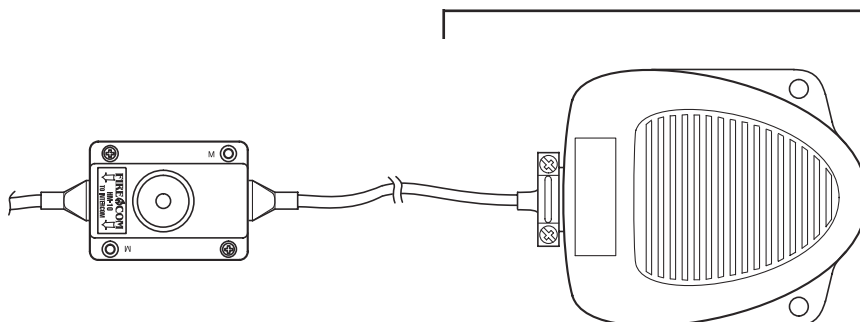
After the Intercom System and the radio interface have been properly installed, there are some adjustments which **MUST** be performed for proper operation of the system. These adjustments are outlined on page 14 in this manual.

**These adjustments to the intercom MUST be performed by a qualified Radio Technician to ensure proper operation of the 2-way radio and 3000C Intercom System.**

**IMPORTANT**

### **OPTIONAL FOOT SWITCH**

The optional Foot Switch (FS-1) is used in situations where the user cannot, or does not wish to, use the headset-mounted PTT. The Foot Switch is plugged into the Daisy-Chain Jack (Figure 7) on the Headset Module of the person using the Foot Switch, so “daisy-chaining” off this Headset Module is not possible. When selecting the location of the Switch, it should be convenient to the user, but in a location where it will not be accidentally depressed. Routing the CA Cable to that headset module must also be considered when choosing a location.



**FIGURE 7:**  
Foot Switch  
(Remote PTT)

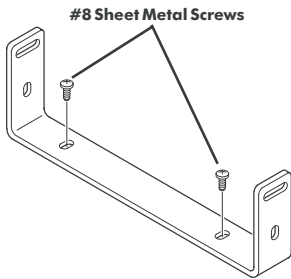
# INSTALLATION

## IMPORTANT

**Before installing the Firecom Series 3000C Intercom, make sure you have read AND UNDERSTOOD the ENTIRE installation procedure. You should also read the sections on Pre-Installation (page 5) and System Orientation (page 1). If any item in the Installation Procedure is not understood, or if you have any questions which are not addressed in this manual, contact your local Firecom Dealer for more information BEFORE you proceed with the installation.**

**FIGURE 8:**

The Mounting Bracket



## MOUNTING THE INTERCOM

1. Using the mounting bracket as a template, mark the location of the mounting holes.
2. Drill 2 holes for the #8 sheet metal screws (supplied).
3. Install the mounting bracket with the sheet metal screws (Figure 8).
4. Remove the 4 screws (2 on each side) closest to the rear of the intercom unit and mount the intercom on the mounting bracket with the 4 screws.

## IMPORTANT

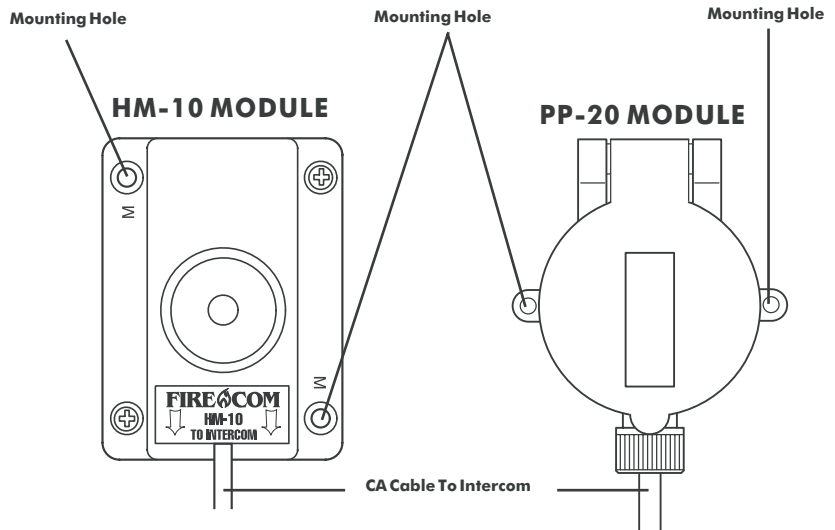
**DO NOT completely tighten the intercom mounting hardware until the entire installation is complete.**

## MOUNTING THE HEADSET MODULES

5. Using the Headset Module as a template, mark the location of the mounting holes (Figure 9).
6. Drill 2 holes for the #6 sheet metal screws (supplied).
7. Position the Headset Module and secure with the sheet metal screws.

**FIGURE 9:**

The 3000C Headset Modules



# INSTALLATION

## INSTALLING THE CA CABLES

- Slide a Bend Relief Grommet over one end of the flat CA Cable, (small end first).
- Attach a RJ-12 Modular Plug to the end of the flat CA Cable (see page 22 for instructions if necessary).

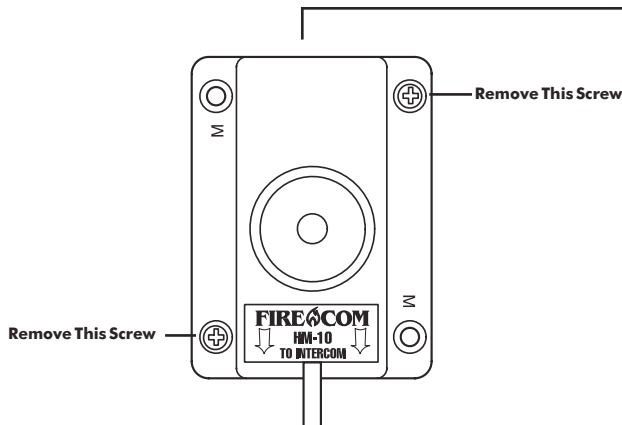
**ALWAYS make sure the printed side of the cable is facing the release-tab on the RJ-12 Modular Plug (Figure 12). This ensures proper orientation of the plug on each end of the cable.**

**IMPORTANT**

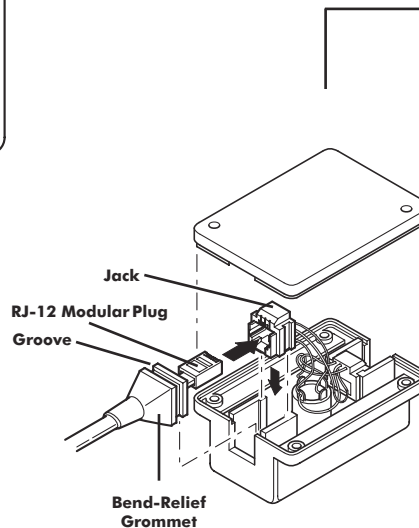
- Remove the screws holding the HM-10 together (Figure 10) and remove the bottom plate of the HM-10.
- Lift the jack slightly out of the HM-10 and insert the RJ-12 Modular Plug into the Jack in the HM-10 as shown in Figure 11.

**If the CA Cable is going from the Headset Module to the Intercom, it MUST be inserted into the Modular Jack on the same side of the HM-10 as the "Firecom" label. If the CA Cable is part of a "daisy-chain", you will need to remove the plastic tab which covers the access hole to the second Modular Jack on the HM-10. See "Daisy-Chaining" the Headset Modules (page 7).**

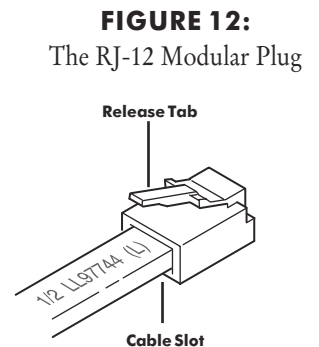
**IMPORTANT**



**FIGURE 10:**  
Opening The HM-10



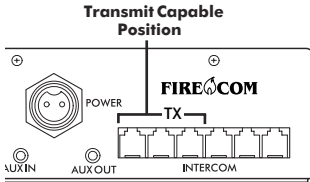
**FIGURE 11:**  
Installing a CA Cable into a  
HM-10 Module



**FIGURE 12:**  
The RJ-12 Modular Plug

# INSTALLATION

**FIGURE 13:**  
Modular Jacks



12. Insert the Bend Relief Grommet into the HM-10 so the groove in the grommet is over the side case of the HM-10 (Figure 11).
13. Replace the bottom plate of the HM-10 and secure with the 2 screws.
14. Mount the HM-10 in place on the apparatus.
15. Route the CA Cables to the rear of the Intercom Unit (or the next Headset Module in a Daisy-Chain).
16. Attach an RJ-12 Modular Plug to the end of the flat CA Cable (see page 22 for instructions if necessary).
17. With the “release-tab” on the RJ-12 Modular Plug facing up (Figure 13), insert the RJ-12 Modular Plug into a modular jack on the rear of the intercom unit (Figure 13). Make sure that the positions which require radio transmit capabilities are plugged into the proper jacks.
18. Repeat steps 8 through 17 until all remaining Headset Modules have been connected with the CA Cable to the Intercom Unit or the next Headset Module in a Daisy-Chain.

## POWER & GROUND CONNECTIONS

### IMPORTANT

**Before making the power connections, make sure the apparatus master switch is OFF!**

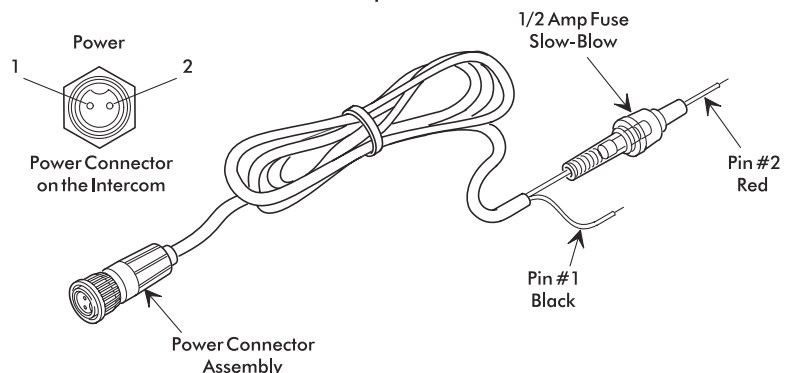
### IMPORTANT

**We suggest connecting the intercom power connections to the apparatus power busses (preferably, to the same point that the 2-way radio is connected).**

19. Connect the Power Cable Assembly to the rear of the Intercom Unit.
20. Connect the black wire (from pin 1) to the vehicles negative ground.
21. Connect the red wire (from pin 2) to one end of the supplied in-line fuse holder.
22. Connect the other end of the fuse holder to the vehicles switched +12 VDC.

The 3000C Series Intercom System is installed and ready for connection to the radio.

**FIGURE 14:**  
Power Cable Assembly



# INSTALLATION

## RADIO CONNECTIONS

To ensure proper operation, the connection to the radio should be performed by a qualified Radio Technician.

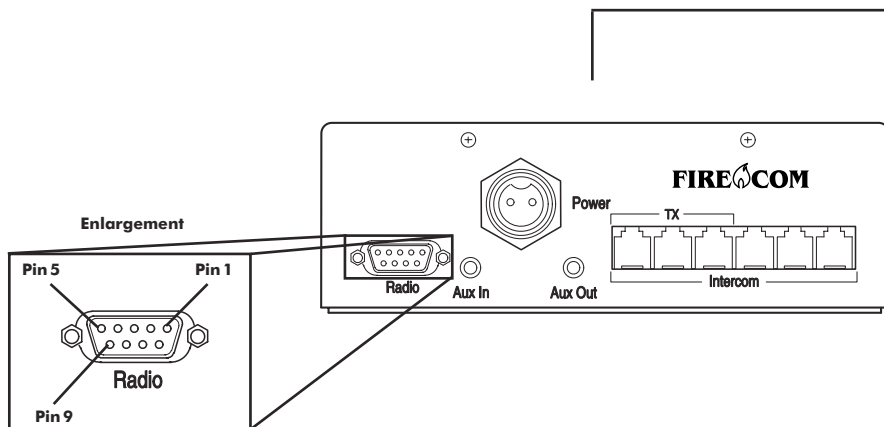
**IMPORTANT**

23. If you are using a radio-specific interface cable, follow the directions included with the interface cable, then proceed with step #26 in this installation procedure.
24. Plug the 9-Pin plug on the end of the supplied MR-0X Mobile Radio Interface Cable into the jack on the rear of the intercom (Figure 15).

**Make sure to tighten the 2 screws on the plug of the MR-0X. If these screws are not tightened, the 9-pin plug may vibrate loose and cause problems with transmission, reception or other radio problems.**

**IMPORTANT**

25. Using the information in Table 1, connect the wires on the MR-0X Mobile Radio Interface Cable to the appropriate places on the 2-way radio.



**FIGURE 15:**  
The Rear Panel

Pin #	Wire Color	System Function	Radio Connection
1	Brown	Transmit Audio Hi	Mic Hi
2	Red	Transmit Audio Lo	Mic Lo
3	Orange	PTT Hi	PTT Line
4	Yellow	PTT Lo	PTT Reference
5	Green	No Connection	----
6	Blue	Receive Audio Hi	Receive Audio Hi
7	Violet	Receive Audio Lo	Receive Audio Lo
8	Gray	No Connection	----
9	Black	No connection	----

**TABLE 1**  
Interface Cable Wiring

# INSTALLATION

## INTERCOM ADJUSTMENTS

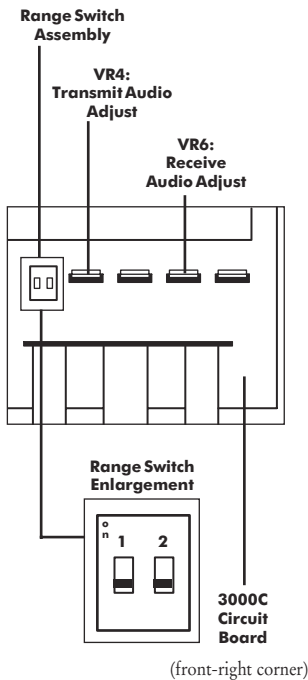
In order to match the Transmit and Receive Audio to the radio, it will be necessary to perform some adjustments. These items are adjusted by switches and variable resistors located on the circuit board inside the intercom unit (Figure 16).

### IMPORTANT

**These adjustments MUST be performed by a qualified Radio Technician. Failure to perform these adjustments may result in problems hearing and in transmitting radio signals when using the Intercom System.**

**FIGURE 16:**

The 3000C Adjustments



### RECEIVE AUDIO ADJUSTMENT:

26. Turn the 2-way radio on, and adjust the radio volume to the normal volume level for use **WITHOUT THE INTERCOM INSTALLED**.
27. Adjust VR6 to set the Receive Audio so that it is at the same level as the audio heard when listening to someone speak over the intercom (turning the wheel to the right increases the volume, turning the wheel to the left decreases the volume).

### TRANSMIT AUDIO ADJUSTMENT:

The Transmit Audio is adjusted using the Range Switch Assembly, and variable resistor VR4. The range switch assembly has 2 switches which select ranges for the Transmit Audio adjustment (see Table 2 for the range switch settings), and VR4 adjusts the Transmit Audio level within these ranges.

28. Using a service monitor, adjust the range switch assembly and VR4 for proper transmitter deviation and no transmitted audio clipping (turning the wheel to the right increases deviation, turning the wheel to the left decreases deviation).

### IMPORTANT

**For proper adjustment of the Transmit Audio, this adjustment MUST be performed by a qualified Radio Technician, using a service monitor.**

**TABLE 2**

Range Switch Settings

S1	S2	Mic To Output Gain
On	On	19 dB to -1.5 dB
Off	On	-1 dB to -21.5 dB
Off	Off	-21.5 dB to -43 dB
(Maximum Signal At Mic Jack: 1.1 v pk-pk)		



# INSTALLATION

## AUXILIARY INPUT & OUTPUT

On the back of the 3000C, there are 2 jacks labeled "Aux In" and "Aux Out" (Figure 17). These jacks are 3.5mm mono (2 conductor) jacks. The auxiliary input signal will be mixed with the radio and the intercom audio. The auxiliary input signal cannot be directed to the transmit circuits for radio broadcast.

There are 2 adjustments inside the 3000C Intercom which **MUST** be adjusted if you are using the Auxiliary Input. These adjustments are performed by adjusting the variable resistors located on the circuit board inside the intercom unit (Figure 18). These adjustments control the volume of the Auxiliary Audio in the headsets, and if/when the Auxiliary Audio gets muted when other audio is present in the intercom.

### AUXILIARY INPUT VOLUME ADJUSTMENT:

Potentiometer VR5 (Figure 18) adjusts the volume level (in the headsets) of the signal entering the intercom through the Aux In jack.

Adjust VR5 for the desired volume of the Auxiliary Input (Turning the wheel to the right increases the volume, and turning the wheel to the left decreases the volume).

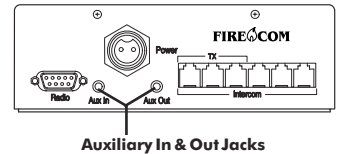
### AUXILIARY INPUT MUTE CONTROL:

Variable resistor VR2 (Figure 18) adjusts the Mute Control of the Auxiliary Input signal. The muting of the Auxiliary Input can be adjusted to the following conditions:

- To have the Auxiliary Audio mute when there is Radio Receive Audio, turn the adjustment wheel to the middle of its adjustment range. This situation may require some fine tuning to find the proper setting.
- To prevent the Auxiliary Audio from muting, turn the adjustment wheel all the way to the left.

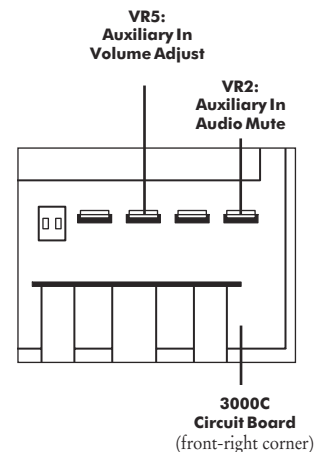
**If you set the muting control all the way to the LEFT, the Auxiliary Audio will be active all the time and incoming radio messages will not mute the auxiliary audio.**

**FIGURE 17:**  
3000C Rear Panel



Auxiliary In & Out Jacks

**FIGURE 18:**  
3000C Adjustment  
Potentiometers



3000C  
Circuit Board  
(front-right corner)

**IMPORTANT**

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# **SYSTEM TEST**

This procedure tests all functions of the 3000C Intercom System and should be used to test the system for proper operation after installation. In the event of a system failure, it may also be used to help identify and isolate the exact symptoms before troubleshooting a problem and to test the system after repair work has been performed.

## **POWER ON**

1. Turn on the apparatus master switch.
2. Confirm that power is applied to the intercom by observing that the green "Power" LED is lit.
3. Install a Radio-Transmit Headset at the Officer's or Driver's position.
4. Turn the Squelch Control on the intercom unit fully clockwise.
5. Adjust the Volume Control to the middle of its range.

## **ADJUST THE HEADSET**

6. Adjust the headset headband for a comfortable fit.
7. Adjust the microphone boom to place the microphone in front of the mouth and approximately 1/8" from the lips.
8. Speak into the microphone to confirm intercom operation. You should hear yourself through the headset speakers.

## **TEST THE RADIO-TRANSMIT HEADSETS**

9. Connect a Radio-Transmit Headset to a radio-transmit capable station.
10. Turn the headset volume control fully clockwise.
11. While speaking into the microphone, adjust the volume control on the intercom unit slightly louder than a comfortable listening level.
12. Adjust the headset volume for a comfortable listening level.
13. Monitor radio communications. Verify that the incoming radio transmissions are the same volume as the intercom volume.
14. Test radio transmission by pressing the red Push-To-Talk (PTT) button on the headset and speaking into the microphone. The orange "Xmit" LED on the front panel of the Intercom should light as long as the PTT on the headset is depressed.
15. If there is an optional foot switch installed, test radio transmission by pressing the foot switch and speaking into the microphone on the headset. The orange "Xmit" LED on the front panel of the Intercom should light as long as the foot switch is depressed.
16. Check the other radio-transmit stations as above.

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# **SYSTEM TEST**

## **TEST THE INTERCOM-ONLY HEADSETS**

17. Connect an Intercom-Only Headset to an intercom-only station.
18. Adjust the headset for a comfortable fit and microphone position.
19. Press the black Push-To-Talk (PTT) button on the headset and verify intercom operation by listening to your own voice.
20. Adjust the headset volume for a comfortable listening level.
21. Test the other Intercom-Only Headsets and stations.

## **SYSTEM DYNAMIC TEST**

22. Start the apparatus engine.
23. At a Radio-Transmit station close to the intercom unit, check the intercom and radio functions.
24. Adjust the Squelch Control on the intercom unit counter-clockwise until the engine noise just cannot be heard. **DO NOT** over-adjust the squelch or you may not be able to hear the normal intercom traffic.

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

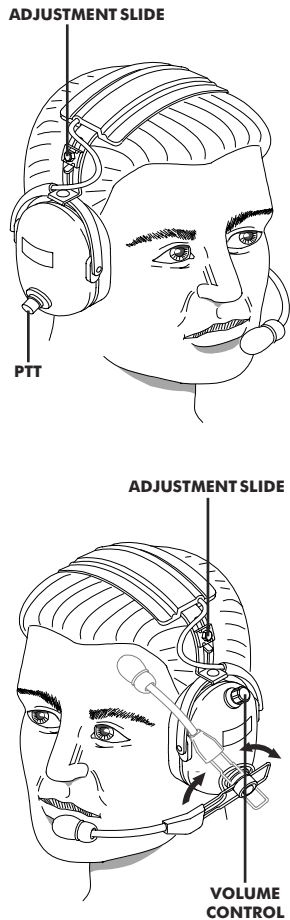
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# INTERCOM OPERATION

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**FIGURE 19:**

FH Style Headset



## HEADSETS

Firecom offers many different styles of headsets for use with the 3000C Intercom System. Headsets are available in an Over-The-Head (Figure 19), or Under-The-Helmet (Figure 20) style. Either of these styles can be Radio-Transmit capable, or Intercom-Only.

For more information regarding the different models of headsets available, contact your local Firecom Dealer.

### RADIO-TRANSMIT HEADSETS

The Radio-Transmit Headsets receive both intercom and radio communications at all times. The mic is always active for intercom communications. Radio-Transmit Headsets are typically used at the Driver, Officer and Pump Panel positions.

There are 2 models of Radio Transmit Headsets available for use with the 3000C Intercom System: the UH-10 and the FH-10. There is a **RED** Push-To-Talk (PTT) button located on the ear dome which allows communication on the radio

### INTERCOM-ONLY HEADSETS

The Intercom-Only Headsets receive both intercom and radio communications at all times, but are NOT radio-transmit capable. Intercom-Only are typically used at the jumpseat positions, due to the high ambient noise level at these locations (engine noise, etc.).

There are 4 models of Intercom-Only Headsets: the UH-20, the FH-20, the UH-40 and the FH-40.

- The UH-20 and the FH-20 have a **BLACK** Push-To-Talk (PTT) button on the ear dome. Press and hold this black PTT to speak on the intercom.
- The UH-40 and the FH-40 have a **YELLOW** Push-To-Talk (PTT) on the ear dome. Press and release the yellow PTT to turn the microphone on. Press and release the yellow PTT again to turn the microphone off.

### HEADSET ADJUSTMENT

The vertical fit of the headset is adjusted by the adjustable headband (FH models) or the adjustable headstrap (UH models).

- Over-The-Head (FH) style headsets (Figure 19): These headsets have adjustable headbands with slide mechanisms located at each side above the ear domes. If the adjustment slides become loose, gently tighten the self-locking nuts on the slide mechanisms.
- Under-The-Helmet (UH) style headsets (Figure 20): These headsets have an adjustable headstrap for adjusting the height of the ear domes.

For maximum comfort, wear the headset as far back on the head as possible, while ensuring that the ear domes still completely cover the ears. If discomfort is felt in the jawbone, you are wearing the headset too far forward.

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# INTERCOM OPERATION

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## MICROPHONE PLACEMENT

The microphones used on Firecom headsets are noise-canceling electret microphones. The placement of the microphone is **VERY** important. For proper operation, the microphone should be positioned in front of the mouth and no more than 1/8" away from the lips (Figure 21).

**Placement of the microphone is CRITICAL. If the microphone is positioned incorrectly, you will experience drastic reduction in volume and clarity of the intercom and radio communication.**

**IMPORTANT**

## LEFT & RIGHT DRESS

The Firecom headsets may be adjusted so the mic is on the right side (right dress) or left side (left dress).

- Over-The-Head (FH) style headsets: Rotate the Mic Boom **ONLY** in an upward direction (Figure 19).

**ALWAYS rotate the Mic boom upwards as shown to prevent damage to the Mic Boom and the Mic Cable.**

**IMPORTANT**

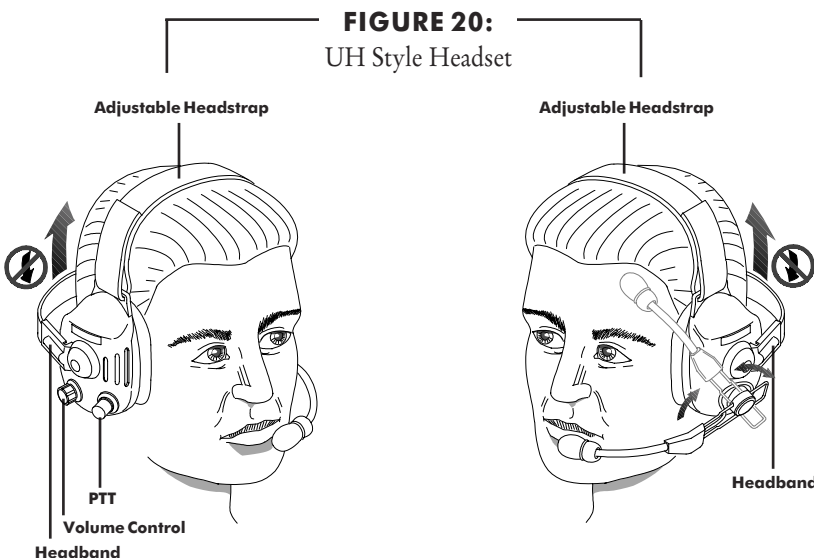
- Under-The-Helmet (UH) style headsets: Rotate the Mic Boom and the rear Headband **ONLY** in an upward direction (Figure 20).

**ALWAYS rotate the Mic Boom and the rear Headband upwards as shown to prevent damage to the Mic Boom, the Mic Cable and the Headband Cable.**

**IMPORTANT**

## HEADSET VOLUME CONTROL

Located on the ear dome of each Firecom Headset is a volume control for adjusting the volume of headset speakers. This allows each user to adjust the volume to the preferred level. Turning the Volume Control clockwise increases the volume, turning the control counter-clockwise decreases the volume.



**FIGURE 21:**  
Microphone Placement



**No More Than 1/8" From Lips**

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# INTERCOM OPERATION

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## INTERCOM CONTROLS

The 3000C Intercom Unit has two controls on the front panel which affect the intercom operation (Figure 22).

### VOLUME:

The Volume Control is the master control for overall volume of the 3000C Intercom System. This volume should be set with the individual headset volumes turned all the way up. Set the Intercom Volume Control slightly louder than a comfortable listening level, then adjust the volume down using the individual volume control on each headset.

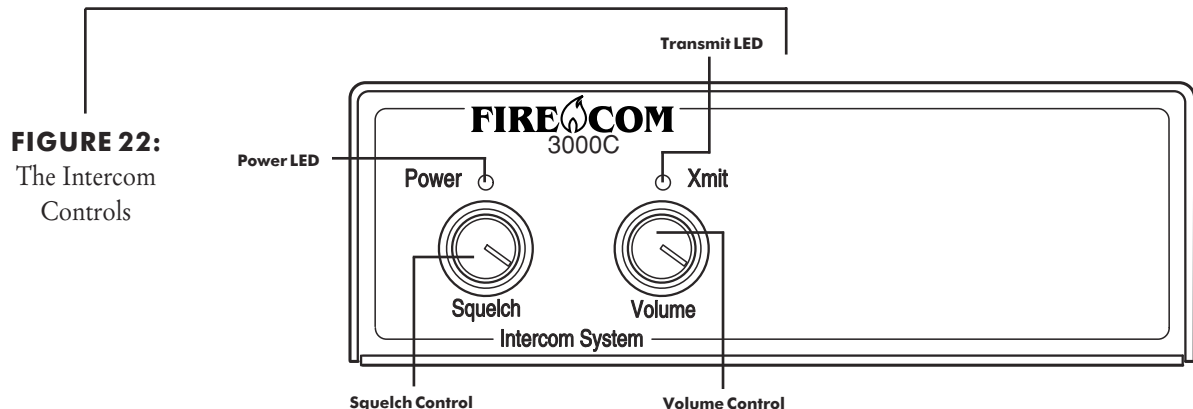
### SQUELCH:

The Squelch Control adjusts the level at which the microphones turn on/off to limit the background noise. This control does **NOT** affect, or relate to, the radio squelch control.

This adjustment **MUST** be performed while the apparatus engine is running and "normal" background noise is heard.

1. Put on a Radio-Transmit Headset.
2. Turn the Squelch Control fully clockwise.
3. **SLOWLY**, turn the Squelch Control counter-clockwise stopping **IMMEDIATELY** once the background noise is no longer heard.

Once the Squelch is properly adjusted, additional adjustment should not be necessary.



# MODULAR PLUG INSTALLATION

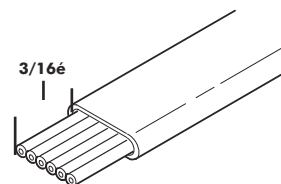
This section describes the installation of the RJ-12 Modular Plugs onto the flat CA Cable.

1. Using the cutter blade on the crimping tool (labeled “A” in Figure 26), cut the flat CA Cable so the cut is clean and 90 degrees to the sides of the cable.
2. Fully insert one end of the CA Cable between the stripping blades (labeled “C” in Figure 26) until the end of the cable hits the stop (labeled “B” in Figure 26).
3. Squeeze the handles of the crimping tool together until the tool bottoms out.
4. While holding the handles together, pull the cable out of the tool.
5. The stripped insulation should expose approximately 3/16" of wire (Figure 24).
6. Push a RJ-12 Modular Plug into the plug holder on the crimping tool (labeled “D” in Figure 26) until the release tab on the plug locks into position.
7. Holding the cable so that the printed side of the cable is toward the release-tab on the plug, push the cable into the plug as far as it will go.

**ALWAYS make sure the printed side of the cable is facing the release-tab on the RJ-12 Modular plug (Figure 25). This ensures proper orientation of the plug on each end of the cable.**

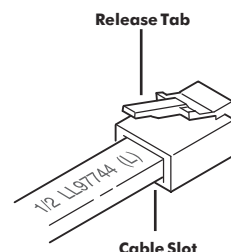
8. Squeeze the tool handles **COMPLETELY** together. You may feel the crimper finish punching the contacts through the insulation on the wires.
9. Let the handles spring open.
10. Push down on the release-tab on the RJ-12 (Figure 25) and remove the RJ-12 plug from the crimping tool.
11. Inspect the plug to ensure that the cable is held securely in place.
12. Repeat this procedure as necessary to install a RJ-12 Modular Plug on each end of each CA Cable.

**FIGURE 24:**  
The Stripped CA Cable

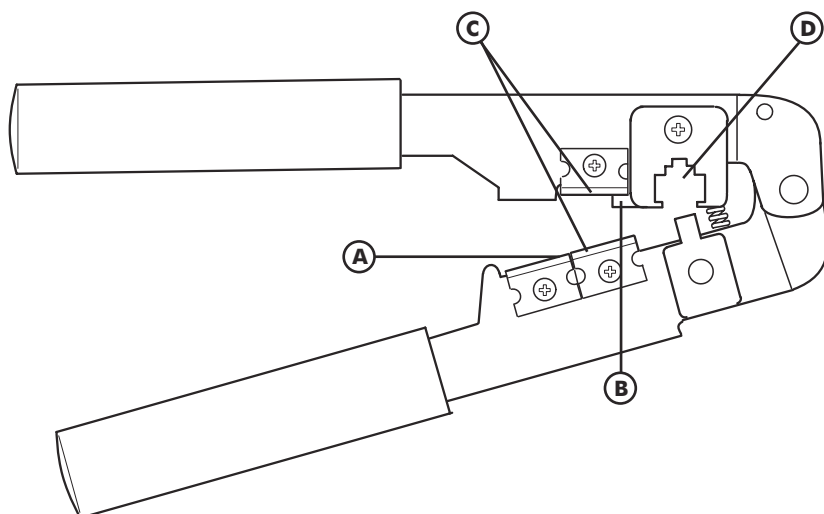


**IMPORTANT**

**FIGURE 25:**  
The RJ-12 Modular Plug



**FIGURE 26:**  
RJ-12 Modular Plug  
Crimping Tool



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## SERVICE INFORMATION

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The Firecom 3000C Intercom System, when installed properly, and adjusted according to specifications, will perform reliably and offer you the finest in hearing protection and enhanced communication. However, as with any electronic equipment, occasionally a malfunction may occur.

In the following sections, you will find information that will help familiarize you with the intercom system and aid in the troubleshooting process.

If the symptoms you are experiencing are not covered in this manual, or if you are having difficulty troubleshooting your system, contact your local Firecom Dealer for assistance.

### DEFINITIONS

This section lists some of the more common terms used in the troubleshooting section and the description of what is meant by the terms.

<b>CABLE:</b>	Flat, six conductor cable, which may have modular connectors on each end, used to make connections between the intercom unit and the HM-10's or PP-20's.
<b>HEADSET LOCATION:</b>	Any combination of CA Cables, HM-10's, PP-20's and headsets connected to a single port on the rear of the intercom unit.
<b>HM-10:</b>	Black plastic module used to connect headsets into the intercom system. For use inside the vehicle.
<b>INTERCOM AUDIO:</b>	Audio present when communicating via the intercom system. Intercom audio is heard only on board the apparatus.
<b>INTERCOM- ONLY HEADSET:</b>	The Intercom-Only Headset receives both intercom and receive audio at all times. This headset has a Black or Yellow PTT for intercom communications and is <b>NOT</b> capable of radio transmission. (see page 18 for more information).
<b>INTERCOM PORT:</b>	Any one of the six modular jacks on the rear of the Intercom Unit (see page 3 for more information).
<b>INTERCOM/TX PORT:</b>	One of the three intercom ports capable of keying and transmitting over a 2-way radio (see page 3 for more information).
<b>INTERCOM UNIT:</b>	The 3000C Intercom.



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## SERVICE INFORMATION

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<b>MODULAR CONNECTOR:</b>	The six conductor plugs on the ends of the CA Cables. These connectors plug into the Headset Modules and the Intercom Unit. Also referred to as a RJ-12 Modular Connector.
<b>PP-20:</b>	A round metal, water resistant, module for headset connection. For use on the exterior of the vehicle.
<b>RADIO INTERFACE PORT:</b>	A 9-pin D-sub jack on the rear of the Intercom Unit (see page 3 for more information).
<b>RADIO INTERFACE CABLE:</b>	The cable which plugs into the Radio Interface Port on one end, and connects to a 2-way radio on the other.
<b>RADIO TRANSMIT HEADSET:</b>	The Radio-Transmit Headset receives both intercom and receive audio at all times. The mic is always active for intercom communication, and has a <b>Red</b> PTT for radio communication (see page 18 for more information).
<b>RECEIVE AUDIO:</b>	Audio from incoming radio transmissions. This is the same audio that is heard from the radio's speaker.
<b>RJ-12:</b>	See Modular Connector (Above).
<b>TRANSMIT AUDIO:</b>	Audio signals being transmitted on the radio via a Radio-Transmit Headset with the <b>Red</b> PTT button pressed.

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## **SERVICE INFORMATION**

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### **ALTERNATOR WHINE & 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.

#### **COMMON CAUSES OF NOISE ON THE COMMUNICATION CIRCUIT**

- Improper installation.
- Intercom adjusted improperly.
- Radio Interface not connected properly.
- Intercom power connections dirty, loose or connected to the wrong location.
- Battery terminals corroded.
- A faulty alternator.

Generally, the problem is not caused by the alternator. It is usually the result of a difference in 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**

- Connect the apparatus radio to the cleanest power source possible: a source without motors (i.e. heaters, windshield wipers, etc.), sirens, strobes or flashers.
- Use the same precautions when connecting the intercom power.
- Ensure that all radio and intercom power and ground connections are clean and tight.
- Ensure that the radio and intercom power and ground wires are no smaller than 18 AWG.
- Keep all battery connections clean and free from dirt and corrosion.
- Use separate noise filters on radio and/or intercom power as needed.

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## **S E R V I C E   I N F O R M A T I O N**

### **IF THE SYSTEM DOES NOT OPERATE AS EXPECTED, CHECK THE FOLLOWING ITEMS FIRST**

- Check that the apparatus master switch is on.
- Check the fuse or circuit breaker.
- Check system wiring and interconnections.
- Check the orientation of **ALL** RJ-12 Modular Connectors on **BOTH** ends of each CA Cable. See "Modular Plug Installation" (page 21).
- Check that the headsets 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 proper locations. A Radio-Transmit Headset **MUST** be plugged into an Intercom/Tx port. An Intercom-Only Headset will **NEVER** transmit on the radio.

If these steps do not correct the problem, continue with the advanced troubleshooting procedures on page 27. If you cannot find a section relating to the symptoms you are experiencing, or if you need assistance, contact your local Firecom Dealer.

### **TROUBLESHOOTING A HEADSET LOCATION**

This procedure will help determine if a problem exists in a particular headset location, and which component in the headset location is faulty.

1. Examine the headset's label to determine if the headset is an Intercom-Only Headset or a Radio-Transmit Headset.
  - If the headset is a Radio-Transmit Headset, the speakers should always be active. The mic should always be active, pressing the red PTT button on the ear dome should key the radio only if that headset location is plugged into an Intercom/Tx port, otherwise the PTT button will have no effect.
  - If the headset is an Intercom-Only Headset, the speakers should always be active. The mic should be active only when the black or yellow PTT button on the ear dome is pressed. The headset should never cause the radio to key when installed in any headset location.
2. Plug the headset into another good headset location.
  - If the headset fails to perform properly in the new location, the headset is faulty. Contact Firecom for a Return Authorization to return the headset for repair.

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## **SERVICE INFORMATION**

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3. Unplug the CA Cable from the intercom unit and exchange intercom ports with a known good headset location.
  - If the headset location works properly, check the intercom port for bent or stuck pins which can be straightened.
  - If the headset fails to perform properly, the headset location has a faulty component and you should continue troubleshooting the headset location.
4. Check the HM-10 by exchanging it with a known good one.
  - If the new HM-10 works, check the modular plug of the faulty HM-10 for bent or stuck pins. If the pins look good and the HM-10 fails to perform properly it will need to be replaced.
5. Install new RJ-12 modular connectors on **BOTH** ends of the CA Cable (page 21).
6. Replace the CA Cable.

### **CHECK THESE ITEMS BEFORE RETURNING AN ITEM FOR REPAIR**

#### **FAULTY INTERCOM:**

1. Check all intercom ports for bent or stuck pins that can be straightened.

#### **FAULTY CA CABLES:**

1. If tools are available, try replacing the modular plugs on both ends of the CA Cable (page 21).

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# **ADVANCED TROUBLESHOOTING**

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**This section is designed for use by a QUALIFIED TECHNICIAN only!!!**

**IMPORTANT**

This section is designed to aid in the troubleshooting process of an intercom system that has been working properly, but has now failed. Make sure you read and understand **THE ENTIRE** procedure **BEFORE** attempting any of the troubleshooting steps in this section. If there are questions regarding this information, contact your local Firecom Dealer for more information **BEFORE** proceeding with the troubleshooting steps.

The System Test on page 16 is also a helpful tool in isolating and determining the actual symptoms of the problem.

## **A) THERE IS NO SOUND IN THE HEADSET FROM EITHER THE INTERCOM OR THE RADIO**

1. Check the headset Volume Control. Make sure it is not turned all the way down.
2. Check the headset location for faulty connections or components. See "Troubleshooting a Headset Location" (Page 25).
3. Verify that the green LED on the front panel of the intercom unit is lit, indicating that the intercom is powered on.
4. Measure the voltage between pins 1 & 2 on the Power Cable. There should be at least 11.0 volts DC present, and not more than 15.0 volts DC.
5. Check the wiring to the intercom and any fuses or circuit breakers in the power circuits to the intercom and correct any faults.
6. If there is sufficient power to the intercom, and it doesn't work, the Intercom Unit is faulty. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

## **B) THERE IS NO SOUND IN THE HEADSET FROM THE RADIO, BUT THE INTERCOM IS OKAY**

1. Check the radio volume. Make sure it is not turned all the way down.
2. Adjust the Receive Audio adjustment see "Intercom Adjustments" (Page 14).
3. Verify that receive audio is present by listening to the radio's speaker.
4. If there is no audio from the radio's speaker:
  - a. Disconnect the Radio Interface Cable from the back of the intercom unit. If there is audio from the radio's speaker, the Intercom Unit is faulty. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.
  - b. Disconnect the Radio Interface Cable from the radio. If there is audio from the radio's speaker, the Radio Interface Cable is faulty.
  - c. If there is still no audio from the radio's speaker, the radio is faulty.

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## **ADVANCED TROUBLESHOOTING**

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5. If there is audio from the radio's speaker, check the connections to pins 6 & 7 on the Radio Interface Port on the back of the intercom unit.
6. Try swapping the intercom unit with a known good one (if one is available). If the problem persists, the problem is in the Radio or the Mobile Radio Interface wiring.
7. If no fault can be found, then the fault must lie in the Intercom Unit. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

### **C) THERE IS NO SOUND IN THE HEADSET FROM THE INTERCOM, BUT THE RADIO IS OKAY**

1. Check the headset location for faulty connections or components. See "Troubleshooting a Headset Location" (Page 25).
2. If the headset location checks good, the fault must lie in the Intercom Unit. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

### **D) THERE IS SOUND IN ONLY ONE EAR**

1. Check to see if the headset is a model UH-10S headset. The UH-10S has 1 "slotted" ear dome without a speaker in it. This is normal operation for a UH-10S.
2. The headset is faulty. Contact Firecom for a Return Authorization to return the headset for repair.

### **E) YOU CAN HEAR OTHERS ON THE INTERCOM, BUT THEY CANNOT HEAR YOU**

1. If the headset is an intercom-only headset, be sure that the black PTT button is fully depressed when trying to talk on the intercom.
2. If the headset is an intercom-only headset with a yellow PTT, press and release the PTT and test again.
3. Check the headset location for faulty connections or components. See "Troubleshooting a Headset Location" (Page 25).
4. The headset is faulty. Contact Firecom for a Return Authorization to return the headset for repair.

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## **ADVANCED TROUBLESHOOTING**

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### **F) YOU CAN'T HEAR OTHERS ON THE INTERCOM, BUT THEY CAN HEAR YOU**

1. Check the headset location for faulty connections or components. See "Troubleshooting a Headset Location" (Page 25).
2. If the headset location checks good, the fault must lie in the Intercom Unit. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

### **G) THERE IS A LOUD SQUEAL IN THE INTERCOM SYSTEM WHEN THE 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 a headset 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.
3. Check the headset location for faulty connections or components. See "Troubleshooting a Headset Location" (Page 25).

### **H) THE RADIO RECEIVE IS WEAK**

1. Check the setting of the radio's volume control. The radio's volume should be set at the normal volume for use with **NO** intercom system present.
2. Adjust the Receive Audio adjustment. See "Intercom Adjustments" (page 14).
3. Verify proper connection to pins 6 & 7 on the Radio Interface Cable.
4. Try swapping the intercom unit with a known good one (if one is available). If the problem persists, the problem is in the radio or the Mobile Radio Interface wiring.
5. If no fault can be found, then the fault must lie in the Intercom Unit. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

### **I) THE RADIO KEYS BUT HAS NO TRANSMIT AUDIO (CARRIER BUT NO AUDIO)**

1. Check the affected headset location for faulty connections or components. See "Troubleshooting a Headset Location" (Page 25).
2. Check the Transmit Audio adjustment. See "Intercom Adjustments" (page 14).
3. Verify connection of pins 1 & 2 on the Radio Interface Cable and the Radio Interface Port.
4. Try swapping the Intercom Unit with a known good one (if one is available). If the problem persists, the problem is in the Mobile Radio Interface wiring.

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## ADVANCED TROUBLESHOOTING

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5. If no fault can be found, then the fault must lie in the Intercom Unit. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

### **J) THE RADIO DOESN'T KEY**

1. Check the affected headset location for faulty connections or components. See "Troubleshooting a Headset Location" (Page 25).
2. If the headset location checks good, verify proper connection of radio interface pins 3 & 4.
4. Try swapping the Intercom Unit with a known good one (if one is available). If the problem persists, the problem is in the radio or the Mobile Radio Interface wiring.
5. If no fault can be found, then the fault must lie in the Intercom Unit. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

### **K) ALTERNATOR AND/OR STROBE NOISE IS PRESENT IN TRANSMIT AUDIO ONLY**

1. Verify that the radio interface pins 1 & 2 are connected properly and that all connections are clean and tight.
2. Check adjustment of the Transmit Audio. See "Intercom Adjustments" (page 14). 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 unintelligible in the presence of background noise.
3. Using a voltmeter, measure the incoming power to the intercom, looking for an AC signal. There should be less than 300mV AC present on the power lines.

### **L) ALTERNATOR AND/OR STROBE NOISE IS PRESENT IN ALL INTERCOM AUDIO**

1. Check for proper positioning of the mic in relation to the speaker's mouth. See "Microphone Placement" (page 19). Improper mic positioning will defeat the noise canceling characteristics of the mics.
2. Inspect the headset microphones, making sure that all slots on both sides of the mic are clean and unobstructed. Obstruction of these slots will hamper or defeat the noise canceling characteristics of the mics.
3. Disconnect any exterior headset locations. If the noise stops, inspect that location for water or other contamination. If contamination is present, contact Firecom for a Return Authorization for repair of the unit.

### **M) ENGINE NOISE AND SIRENS ARE PRESENT IN TRANSMIT AUDIO**

1. Review the set up and operation of the intercom volume and squelch controls. See "Intercom Controls" (page 20). Possibly the intercom volume is set too high.



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## **ADVANCED TROUBLESHOOTING**

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2. Check for proper positioning of the mic in relation to the speaker's mouth. See "Microphone Placement" (page 19). Improper mic positioning will defeat the noise canceling characteristics of the mics.
3. Inspect the headset microphones, making sure that all slots on both sides of the mic are clean and unobstructed. Obstruction of these slots will hamper or defeat the noise canceling characteristics of the mics.
4. Check adjustment of the Transmit Audio. See "Intercom Adjustments" (page 14). 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 unintelligible in the presence of background noise.

### **N) INTERCOM VOLUME CONTROL HAS NO EFFECT**

1. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

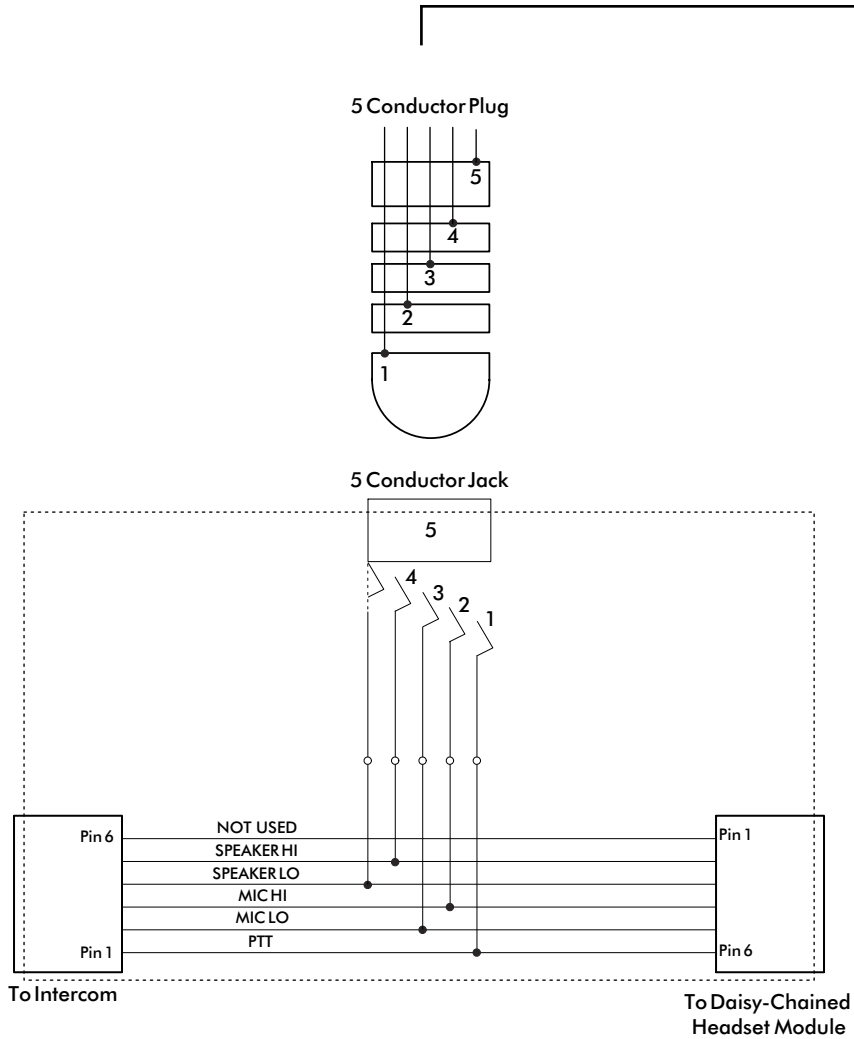
### **O) INTERCOM SQUELCH CONTROL HAS NO EFFECT**

1. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

### **P) SQUELCH ADJUSTMENT IS TOO SENSITIVE**

1. Review the set up and operation of the Squelch Control. See "Intercom Controls" (page 20). Note that it is important to speak in a loud clear voice, and that the mic **MUST** be placed **VERY** close to the speaker's mouth. See "Microphone Placement" (page 19).
2. Contact Firecom for a Return Authorization to return the Intercom Unit for repair.

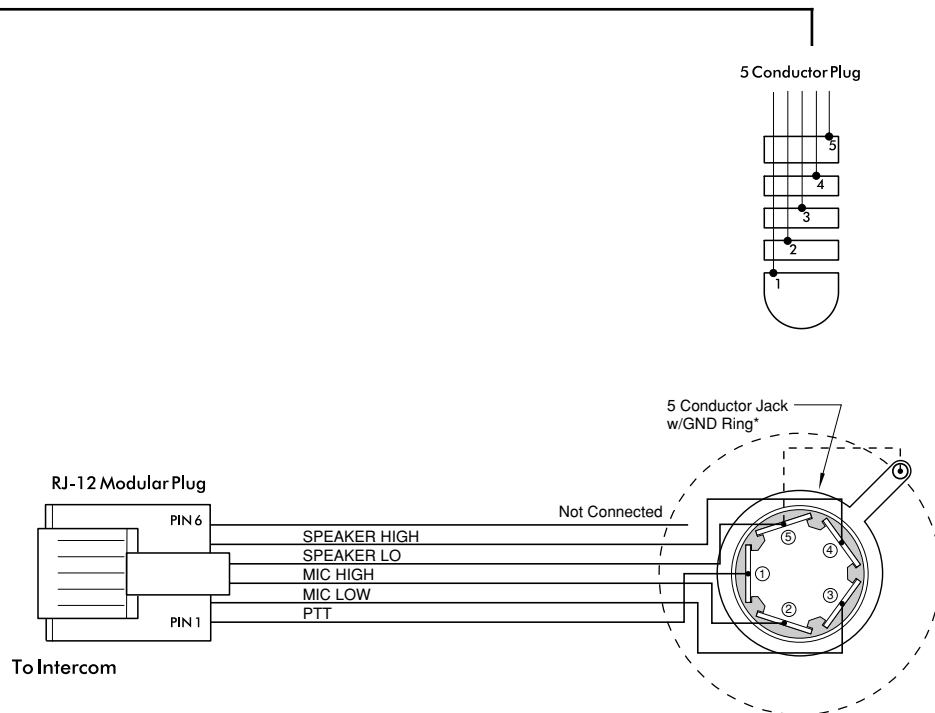
# WIRING DIAGRAMS & SCHEMATICS



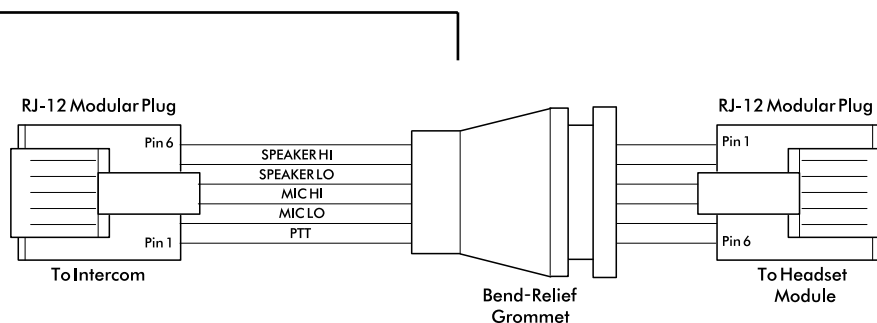
**FIGURE 27:**  
HM-10 Wiring

# WIRING DIAGRAMS & SCHEMATICS

**FIGURE 28:**  
PP-20 Wiring



**FIGURE 29:**  
CA Cable Wiring



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## **S P E C I F I C A T I O N S**

### **HEADSETS:**

Sensitivity: ..... 104 dB re .0002 microbar @ 1000 Hz, 1 mW  
Frequency Response: ..... 100-17,000 Hz +5 dB in 6 cc coupler  
Impedance: ..... 600 ohms nominal, 150 to 1200 ohm source  
Weight: ..... 21.2 oz. (FH models) 19.6 oz (UH models)

### **MICROPHONE:**

DC Bias Supply: ..... 8-16 volts, not polarity sensitive  
Source Resistance: ..... 200 to 2200 ohms  
Output Voltage: ..... 370 mV @ 114 SPL re .0002 microbar  
Frequency Response: ..... Optimized for speech clarity and noise reduction  
Max. Amb. Noise Level: ..... 125 dB SPL re .0002 microbar  
Weight: ..... 0.2 oz.

### **INTERCOM:**

Size: ..... 6.6" L x 6.1" W x 2" H (with mounting bracket)  
Weight: ..... 42.6 oz. (without mounting bracket)  
Output: ..... 375 milliwatts into a total of 6  
150 ohm headsets (1 each channel)  
Power Requirements: ..... 0.15 amps 12 volt nominal, negative sound

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## **OPTIONS & ACCESSORIES**

### **HEADSETS:**

All Firecom Headsets for the 3000C Intercom System are equipped with a noise-canceling electret condenser microphone on a solid, flexible boom, Glove Rugged™ plug, volume control, adjustable headstrap/headband and liquid foam ear seals.

#### **FH-10:**

Over-the-head style, Radio-Transmit Headset (Red PTT). Part Number: 105-0190-00

#### **FH-20:**

Over-the-head style, Intercom-Only Headset (Black PTT).

Part Number: 105-0191-00.

#### **FH-10S:**

Over-the-head style, single ear, Radio-Transmit Headset (Red PTT).

Part Number: 105-0194-00

#### **FH-40:**

Over-the-head style, Intercom-Only Headset with alternating push-on, push-off PTT (Yellow PTT). Part Number: 105-0191-10

#### **UH-10:**

Under-the-helmet style, Radio-Transmit Headset (Red PTT).

Part Number: 105-0192-00

#### **UH-20:**

Under-the-helmet style, Intercom-Only Headset (Black PTT).

Part Number: 108-0193-00

#### **UH-10S:**

Under-the-helmet style, Radio-Transmit Headset, one slotted ear dome without speaker. (Red PTT). Part Number: 105-0196-00

#### **UH-40:**

Under-the-helmet style, Intercom-Only Headset with alternating push-on, push-off PTT (Yellow PTT). Part Number: 105-0193-10

### **HEADSET MODULES & EXTENSION CORDS:**

#### **HM-10:**

Interior headset module for use with all headsets listed above.

Part Number: 107-0407-00

#### **PP-20:**

A water-resistant headset module for use with all headsets listed above.

Part Number: 107-0413-00

#### **HE-150:**

15-foot coiled headset extension cord. For use with all headsets listed above.

Part Number: 108-0675-00

#### **HE-150J:**

15-foot coiled extension cord with a male connector at each end, to be used as a jumper between two PP-20 Headset Modules. Part Number: 108-0675-10

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## **OPTIONS & ACCESSORIES**

### **OTHER ACCESSORIES:**

#### **CLOTH COVERS:**

Replacement cloth covers, sold only by the dozen. Part Number: 108-0003-00

#### **CRIMPER:**

Crimping tool used for installing the RJ-12 Modular Plugs onto the CA Cables (instructions included). Part Number: 108-0023-00

#### **EAR SEAL:**

Replacement liquid foam ear seals, sold by the pair. Part Number: 108-0012-00

#### **FOOT SWITCH:**

A heavy duty foot switch, for use as a remote PTT. Part Number: 108-0670-10

#### **HEADSTRAP:**

Cloth headstrap used on the UH-10, UH-10S, UH-20 & UH-40 model headsets. Part Number: 108-0025-00

#### **HEADSET HANGER HOOKS:**

Rubber-coated, steel headset hanger hook. Part Number: 108-0676-00

#### **HANDHELD RADIO INTERFACE:**

Works with all Firecom headsets. Contact your local Firecom Dealer for specific information regarding your particular handheld radios.

#### **HS-1:**

System Selector Switch. Part Number: 108-0677-10

#### **MIC MUFFS (DOZEN):**

Replacement mic muffs with O-rings, sold only by the dozen. Part Number: 108-0004-00

#### **RJ-12:**

Modular connectors used with the CA Cable to make the interface cables between the intercom and the headset modules or Remote Head. Part Number: 351-0002-00

#### **TRI-COM:**

Triple radio interface for use with the Firecom intercoms. Part Number: 108-0672-10

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# **WARRANTY**

## **TWO-YEAR LIMITED WARRANTY TO ORIGINAL PURCHASER**

Sonetics Corporation warrants to the original purchaser of its products, that they will be free from defects in materials and workmanship, under normal and proper use, for the period of two years from date of purchase. Sonetics Corporation will repair or replace, at its option, any parts showing factory defects during this warranty period, subject to the following provisions. This warranty applies only to a new product which has been sold through authorized channels of distribution. All work under warranty must be performed by Sonetics Corporation. All returned products must be shipped to our address, freight prepaid, accompanied by a dated proof of purchase. This warranty is void if the purchaser or others attempt to repair, service or alter the product in any way. This warranty does not apply in the event of accident, abuse, improper installation, unauthorized repair, tampering, modification, fire, flood, collision, or other damage from external sources, including damage which is caused by user replaceable parts (leaking batteries, etc.). This warranty does not extend to any other equipment or apparatus to which this product may be attached or connected. The foregoing is your sole remedy for failure in service or defects. Sonetics Corporation shall not be liable under this or any implied warranty for incidental or consequential damages, nor for any installation or removal costs or other service fees. This warranty is in lieu of all other warranties, express or implied, including the warranty of merchantability or fitness of use, which are hereby excluded. To the extent that this exclusion is not legally enforceable, the duration of such implied warranties shall be limited to two years from date of purchase. No suit for breach of express or implied warranty may be brought after two years from date of purchase.



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