



**DR-1C**  
**Dual Radio Interface**

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**INSTALLATION & OPERATION MANUAL**

**REVISION 2**



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# ORIENTATION

## ITEMS INCLUDED WITH THE DR-1C

The DR-1C Dual Radio Interface comes with the items listed in Table 1. Make sure you have all of these items **BEFORE** proceeding with the installation of the DR-1C.

QUANTITY	PART NUMBER	DESCRIPTION
2	450-0101-40	#8 Sheet Metal Screws
1	600-0091-00	Installation and Operation Manual
1	420-0020-00	Interconnect Cable
1	505-0333-00	Mounting Bracket
2	420-0014-00	MR-0X Radio Interface Cable
2	505-0672-10	Stack Mounting Brackets
1	_____	DR-1C Dual Radio Interface Unit

**TABLE 1:**  
Items included with  
the DR-1C



# ORIENTATION

The DR-1C, Dual Radio Interface, allows the interface of 2 separate mobile radios to the Firecom Model 3000C Intercom System. A front-mounted switch is used to select the transmit and primary receive radio. When the Push-To-Talk (PTT) button on the headset is pressed, only the selected radio will key and transmit. The 3000C can be set so that when radio transmissions are being received by both radios simultaneously, the non-selected (secondary) radio will be muted so only the selected (primary) radio is heard. All other functions of the 3000C Intercom System remain unchanged.

## IMPORTANT

The DR-1C is designed to function **ONLY** with the Firecom 3000C intercom. It will not work with earlier versions of the 3000 Intercom. If you are unsure if your intercom is a 3000C or an earlier version, get the serial number of your intercom and contact Firecom Technical Support at 800-527-0555, or by sending an email to [service@firecom.com](mailto:service@firecom.com)

## FRONT AND REAR PANELS

Figure 1 & 2 show the front and rear panels of the DR-1C. Listed below are the different items found on the front and rear panels, and an explanation of their use.

### RADIO SELECT KNOB

Selects which radio is the primary radio for transmit and receive functions.

### CUSTOM LABEL AREAS

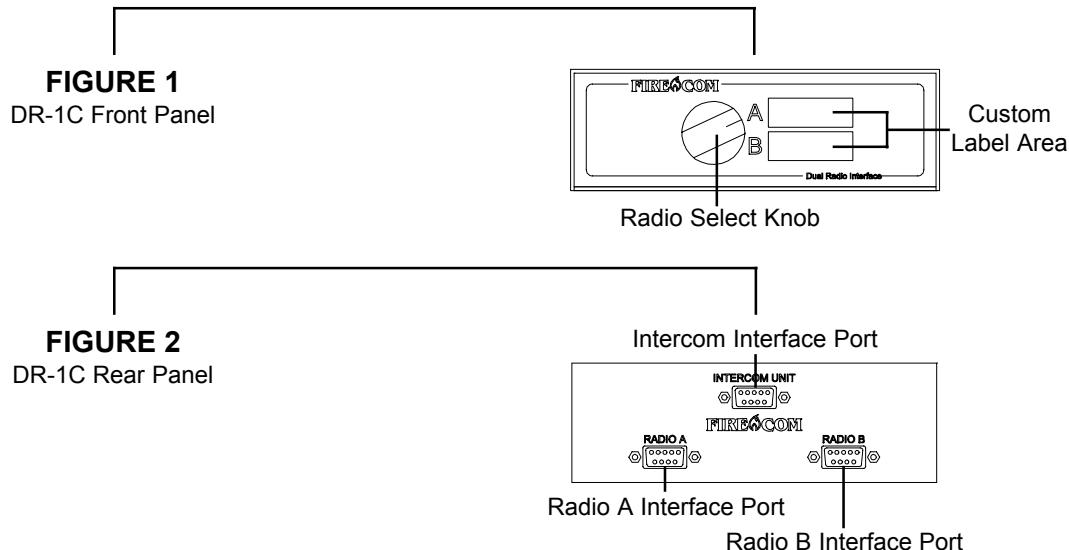
An area on the front of the DR-1C which can be written on has been provided, so the radios can be referred to by name instead of by the letter "A" or "B".

### INTERCOM INTERFACE PORT

A 9-Pin D-Sub connector, which provides the interface of the DR-1C to the 3000C intercom via the Interconnect Cable.

### RADIO INTERFACE PORTS

9-Pin D-Sub connectors which provides the interface of the DR-1C to the 2-way radios via a Mobile Radio Interface Cable.





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## ORIENTATION

### DEFINITIONS

This section lists some of the more common terms used in this manual and gives their description. Familiarize yourself with these terms before proceeding with the installation of the DR-1C.

- Intercom Audio:** Audio present when communicating via the intercom system. Intercom Audio is heard only on-board the vehicle.
- Intercom Interface Port:** A 9-pin D-sub on the rear of the DR-1C. The connection point for the Interconnect Cable which connects the DR-1C to the 3000C Intercom.
- Intercom Unit:** The main control unit for a Firecom Intercom System.
- Intercom-Only Headset:** The Intercom-Only Headset receives both intercom and receive audio at all times. This headset has a **Black** or **Yellow** PTT for intercom communication, and is **NOT** capable of radio transmission.
- Interconnect Cable:** The cable connecting the DR-1C to the 3000C Intercom.
- Radio Interface Cable:** The cable which plugs into a Radio Interface Port on one end, and connects to a 2-way radio on the other.
- Radio Interface Port:** A 9-pin D-Sub jack on the rear of the 3000C Intercom Unit where the Interconnect Cable from the DR-1C will plug in.
- Radio-Transmit Headset:** The Radio-Transmit Headset receives both intercom and receive audio at all times. The mic is always active for intercom communication. This headset has a **Red** PTT for radio communication.
- Receive Audio:** Audio from incoming radio transmissions. This is the same audio heard from the speakers on the communication system.
- Transmit Audio:** Audio signals being transmitted on the radio via a Radio-Transmit Headset with the **Red** PTT Button.



# INSTALLATION

**IMPORTANT** BEFORE installing the DR-1C Dual Radio Interface, make sure you have read AND UNDERSTOOD the ENTIRE installation procedure. If any item in this 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.

**IMPORTANT** If you are also installing a Firecom 3000C Intercom at this time, make sure you have read AND UNDERSTOOD the ENTIRE installation procedure contained in the *3000C Installation and Operator's Manual* BEFORE installing either the 3000C intercom or the DR-1C.

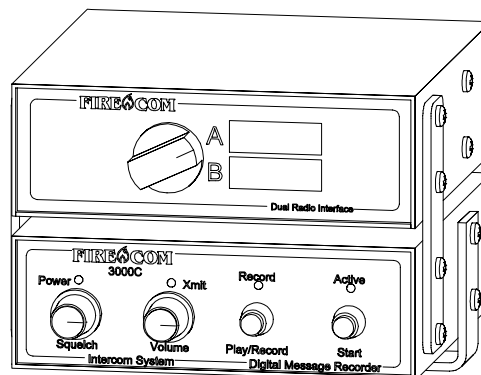
**IMPORTANT** If you are installing the DR-1C onto an existing 3000C Intercom System, make sure you have the manual for the 3000C available. There are some adjustments inside the 3000C that **MUST** be done to achieve a proper interface to the DR-1C.

## LOCATING THE DR-1C

When choosing the location for the DR-1C, the following items should be considered:

- The DR-1C should be located at a point that is near the 3000C intercom and is convenient for operator access.
- The DR-1C can be mounted beside the 3000C, or stacked on the 3000C. [Figure 3](#) shows the DR-1C stacked on top of the 3000C Intercom.
- Allow for at least 3 inches clearance on the sides and rear of the unit.
- If the 3000C is also being installed at this time, follow the conditions for the location of the intercom listed in the 3000C Installation & Operator's Manual.

**FIGURE 3**  
The DR-1C stacked  
on the 3000C Intercom



# INSTALLATION

## MOUNTING THE DR-1C

This section covers mounting the DR-1C in its mounting bracket. If you wish to stack the DR-1C on top of the 3000C Intercom, skip this section and proceed with step #6 of this procedure (see "[Stacking the Units](#)", page 6).

1. Remove the 4 screws (2 on each side) labeled "A" in [Figure 5](#) to remove the mounting bracket from the DR-1C.
2. Using the mounting bracket as a template, mark the location of the mounting holes.
3. Drill 2 holes for the #8 sheet metal screws (supplied).

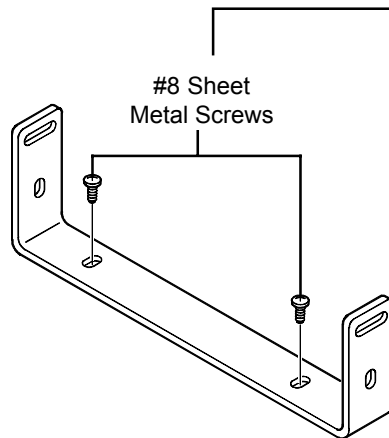
**Before drilling, make sure the area behind the panel you are drilling holes in is clear of any wires or other obstructions that could be damaged when drilling.**

4. Install the mounting bracket with the sheet metal screws ([Figure 4](#)).
5. Use the 4 screws removed in step #1 to mount the DR-1C on the mounting bracket.

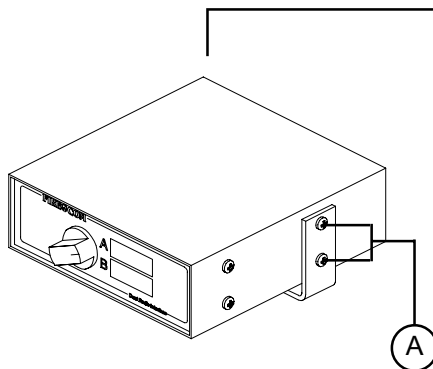
**DO NOT completely tighten the DR-1C mounting hardware until the entire installation is complete.**

IMPORTANT

IMPORTANT



**FIGURE 4**  
Mounting Bracket



**FIGURE 5**  
Mounting the DR-1C



# INSTALLATION

## STACKING THE UNITS

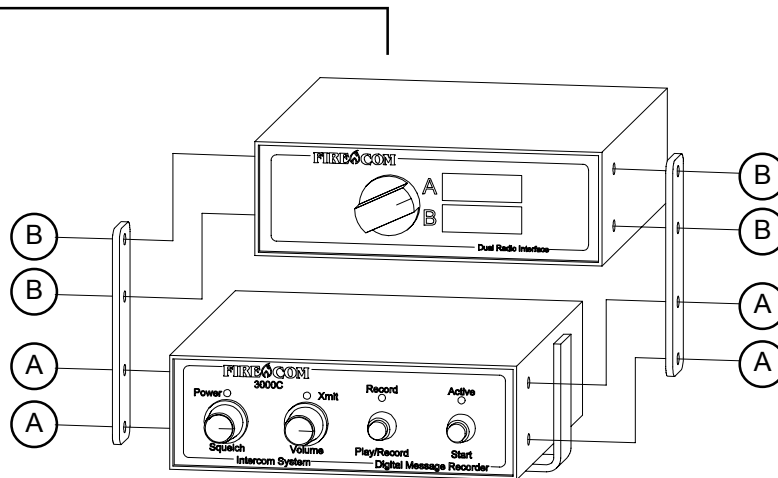
If you wish to stack the DR-1C on top of the intercom, follow the steps below. If you will not be stacking the DR-1C on top of the intercom, skip this section and proceed with step 9, (see "[Connecting the DR-1C to the 3000C Intercom](#)", page 7).

6. If the 3000C is not mounted in place, follow the instructions in the 3000C manual to mount it in the proper place.
7. Remove the 4 screws (2 on each side) closest to the front of the 3000C intercom unit (labeled "A" in [Figure 6](#)) and mount the Stack Mounting Brackets on the intercom as shown in [Figure 6](#).
8. Remove the 4 screws (2 on each side) closest to the front of the DR-1C unit (labeled "B" in [Figure 6](#)) and mount the DR-1C on the Stack Mounting Brackets with the 4 screws.

### IMPORTANT

If you are also installing the 3000C, complete the installation of the 3000C at this time. Follow the installation procedure in the *3000C Installation and Operator's Manual*. STOP when you reach the section on Radio Connections and continue with the procedure on page 7.

**FIGURE 6**  
Stacking the DR-1C on the  
3000C Intercom







# INSTALLATION

## CONNECTING THE DR-1C TO THE 3000C INTERCOM

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

The connection of the DR-1C to the 3000C intercom is made via the DR-1C Interconnect Cable (Figure 7).

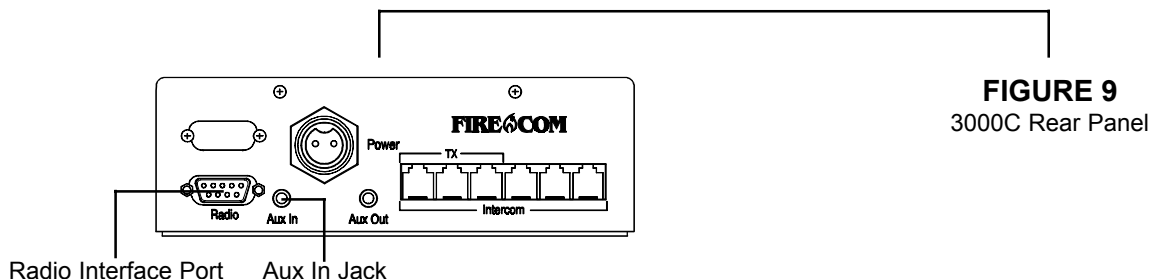
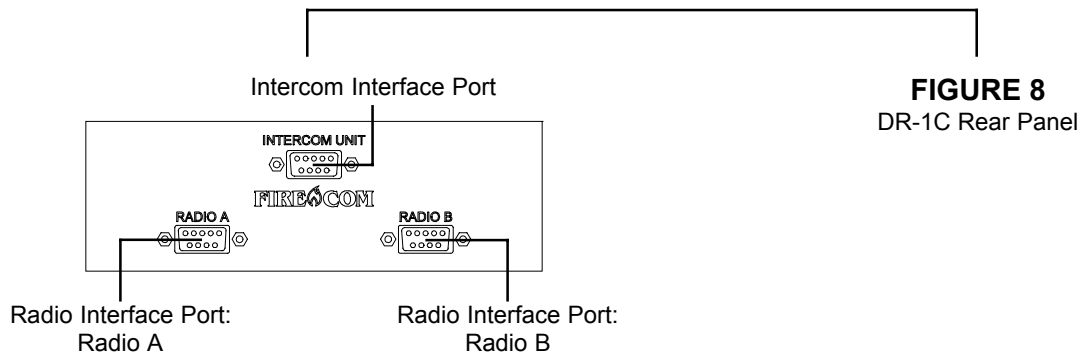
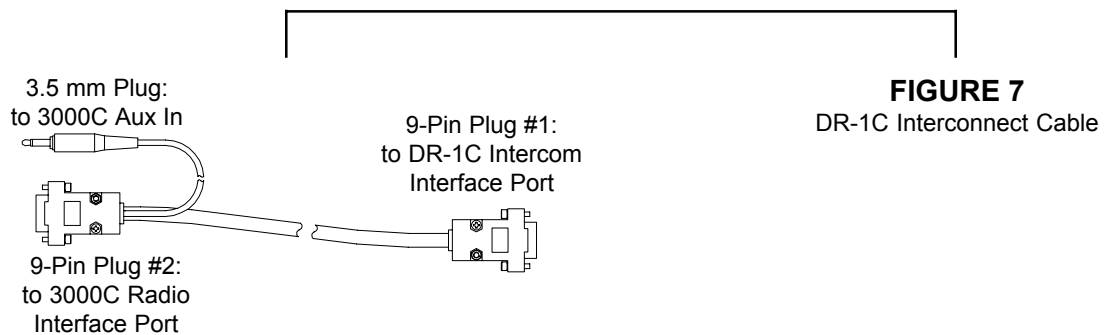
**IMPORTANT**

9. Connect 9-pin plug #1 (Figure 7) to the Intercom Interface Port on the rear of the DR-1C (Figure 8).
10. Connect 9-pin plug #2 (Figure 7) to the Radio Interface Port on the rear of the 3000C Intercom (Figure 9).

**Tighten the 2 screws on the 9-Pin plugs. If these screws are not tightened, the plug may vibrate loose and cause problems with transmission, reception or other radio interface problems.**

**IMPORTANT**

11. Plug the 3.5 mm plug (Figure 7) into the "Aux In" Jack on the rear of the 3000C Intercom (Figure 9).



# INSTALLATION

## CONNECTING TO THE RADIO

**IMPORTANT**

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

12. If you are using a radio-specific interface cable, follow the instructions included with the interface cable, then proceed with step 17 in this Installation Procedure (see "[Adjusting the Intercom & DR-1C](#)", page 9).

**IMPORTANT**

**If you are unsure if your interface cable is the proper one, or if you want to know if Firecom manufactures a Radio-Specific Interface for your radios, contact your local Firecom Dealer.**

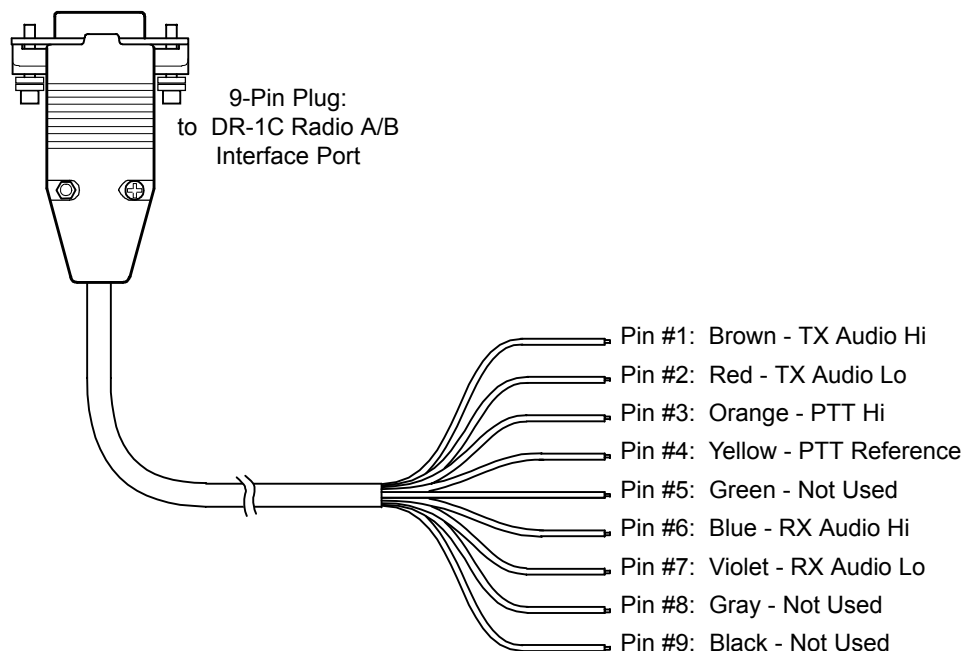
13. Plug the 9-pin plug on the end of the supplied MR-0X Mobile Radio Interface Cable into the Radio A or Radio B Interface Port on the rear of the DR-1C ([Figure 8](#)).

**IMPORTANT**

**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 and other radio problems.**

14. Connect the wires on the MR-0X Mobile Radio Interface Cable to the appropriate places on the 2-Way Radio. [Figure 10](#) shows the wire colors and the signal functions for each wire in the MR-0X.
15. Repeat steps 12 to 14 to interface the second radio with the DR-1C.

**FIGURE 10**  
MR-0X Universal Radio  
Interface Cable



# INSTALLATION

## ADJUSTING THE INTERCOM & DR-1C

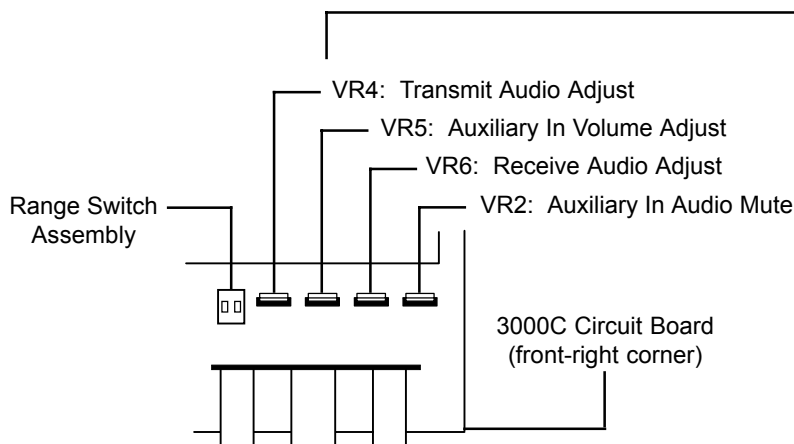
### RECEIVE AUDIO (SELECTED RADIO)

The receive audio in the headsets for the selected radio will need to be adjusted. The volume of receive audio heard should be adjusted to match the volume of intercom communication.

**When adjusting the Receive Audio, you want to find an average volume level between the 2 radios. It may be necessary to go through this procedure more than once.**

**IMPORTANT**

16. Turn radio "A" on and radio "B" off. Adjust the radio volumes to the level for normal use **WITHOUT AN INTERCOM INSTALLED**.
17. Turn the Radio Select Knob on the DR-1C to select radio "A".
18. Listen to the volume of radio "A" in the headsets.
19. Turn radio "A" off and radio "B" on. Adjust the radio volumes to the level for normal use **WITHOUT AN INTERCOM INSTALLED**.
20. Turn the Radio Select Knob on the DR-1C to select radio "B".
21. Listen to the volume of radio "B" in the headsets and compare it to the volume of radio "A" heard in step 18.
22. Using VR6 in the 3000C ([Figure 11](#)), adjust the volume of the receive audio heard in the headsets to achieve an average volume level for the radios. (*turning the wheel to the right increases the volume, turning the wheel to the left decreases the volume*).
23. Repeat this section as often as necessary to achieve an acceptable average volume of the radios in the headsets.



**FIGURE 11**  
3000C Adjustments

# INSTALLATION

## RECEIVE AUDIO (NON-SELECTED RADIO)

The receive audio in the headsets for the non-selected radio will need to be adjusted. You may wish to set the volume of the non-selected radio to be slightly less than the selected radio. This will help determine which radio is receiving the transmission.

**IMPORTANT** When adjusting the Receive Audio, you want to find an average volume level between the 2 radios. It may be necessary to go through this procedure more than once.

24. Turn radio "A" on and radio "B" off. Adjust the radio volumes to the level for normal use **WITHOUT AN INTERCOM INSTALLED**.
25. Turn the Radio Select Knob on the DR-1C to select radio "B".
26. Listen to the volume of radio "A" in the headsets.
27. Turn radio "A" off and radio "B" on. Adjust the radio volumes to the level for normal use **WITHOUT AN INTERCOM INSTALLED**.
28. Turn the Radio Select Knob on the DR-1C to select radio "A".
29. Listen to the volume of radio "B" in the headsets and compare it to the volume of radio "A" heard in step 26.
30. Using VR5 in the 3000C (Figure 12), adjust the volume of the receive audio heard in the headsets to achieve an average volume level for the radios. (*turning the wheel to the right increases the volume, turning the wheel to the left decreases the volume*).
31. Repeat this section as often as necessary to achieve an acceptable average volume of the radios in the headsets.

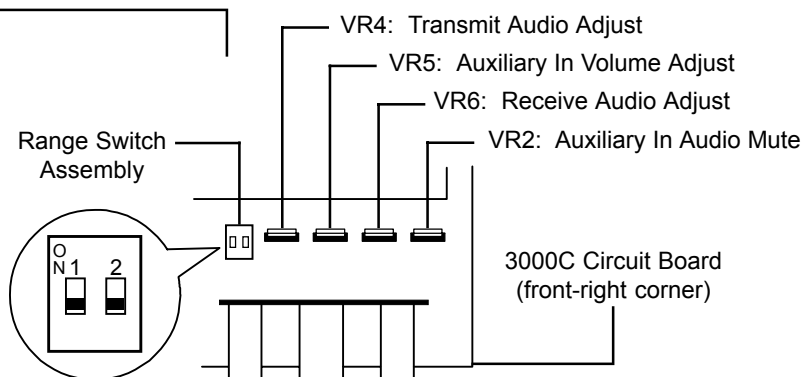
## RECEIVE AUDIO MUTE (NON-SELECTED RADIO)

The 3000C can be adjusted to mute the non-selected radio when both radios are receiving a transmission at the same time. The Auxiliary In Audio Mute (VR2) in the 3000C (Figure 12), adjusts the sensitivity of the muting function in the 3000C.

32. To allow the non-selected radio to mute, turn VR2 to the middle of its adjustment range. This will require some fine-tuning over time to determine the proper setting.
33. If you do not want the non-selected radio to mute, turn VR2 all the way to the left.

**IMPORTANT** If the muting control is set all the way to the left, the non-selected radio will NOT mute if both radios receive transmissions at the same time.

**FIGURE 12**  
3000C Adjustments



# INSTALLATION

## TRANSMIT AUDIO

The Transmit Audio is adjusted using the Variable Resistors in the DR-1C (Figure 13) and Variable Resistor VR4 and the Range Switch Assembly in the 3000C (Figure 12). The Range Switch Assembly has 2 switches which select ranges for the Transmit Audio adjustment (see Table 2 for the range switch settings). VR4 adjusts the Transmit Audio within these ranges.

**For proper operation, the Transmit Audio MUST be adjusted by a Qualified Radio Technician using a service monitor.**

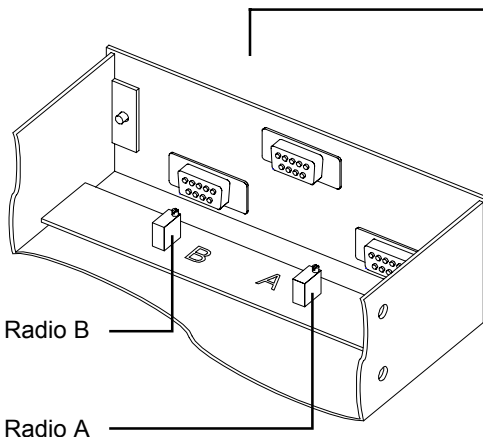
**IMPORTANT**

30. Determine which radio requires the highest Transmit Audio Input. Move the Radio Select Knob on the front of the DR-1C to select that radio.
31. Using a Service Monitor, adjust the Range Switch Assembly and VR4 (in the 3000C) for proper transmitter deviation and no clipping (*turning the wheel to the right increases deviation, turning the wheel to the left decreases deviation*).
32. Select the other radio using the Radio Select Knob on the DR-1C.
33. Using a Service Monitor, adjust the Transmit Audio for the currently selected radio by adjusting the appropriate Variable Resistor in the DR-1C (Figure 13).

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)

**TABLE 2**  
Range Switch Settings



**FIGURE 13**  
DR-1C Adjustments

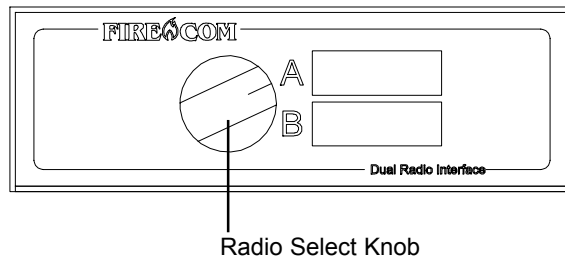


## OPERATION

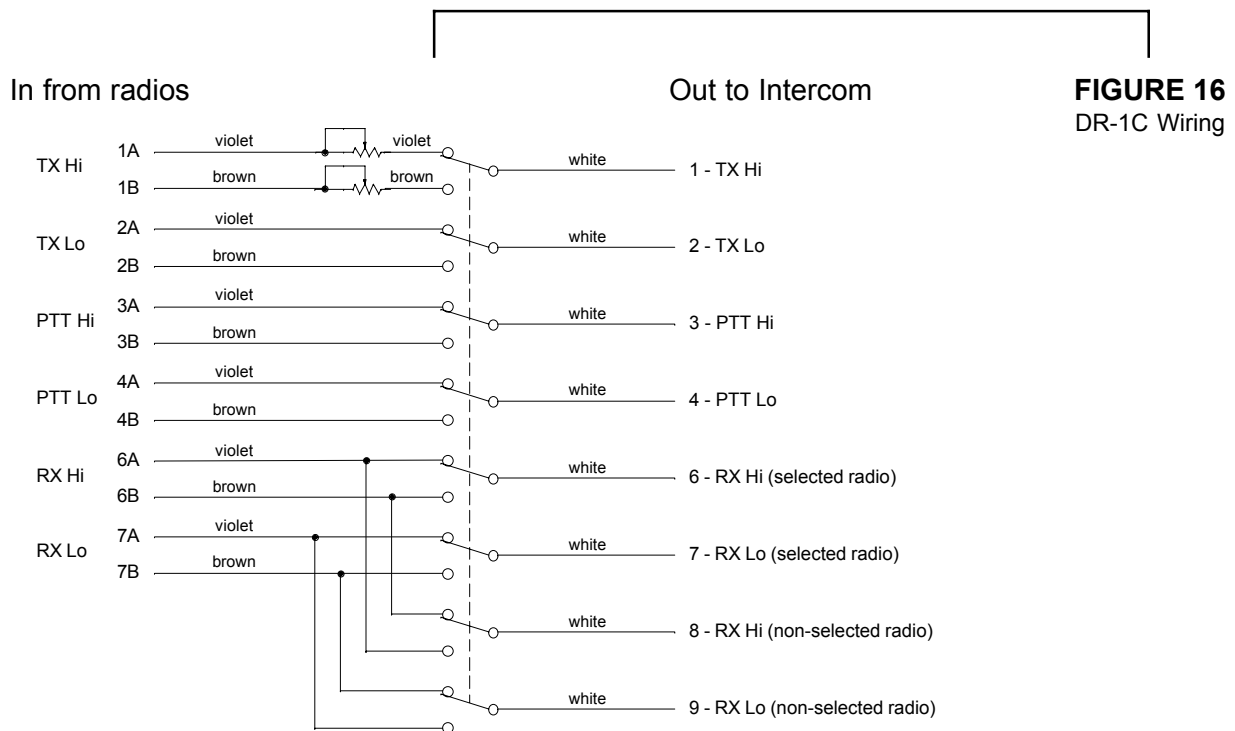
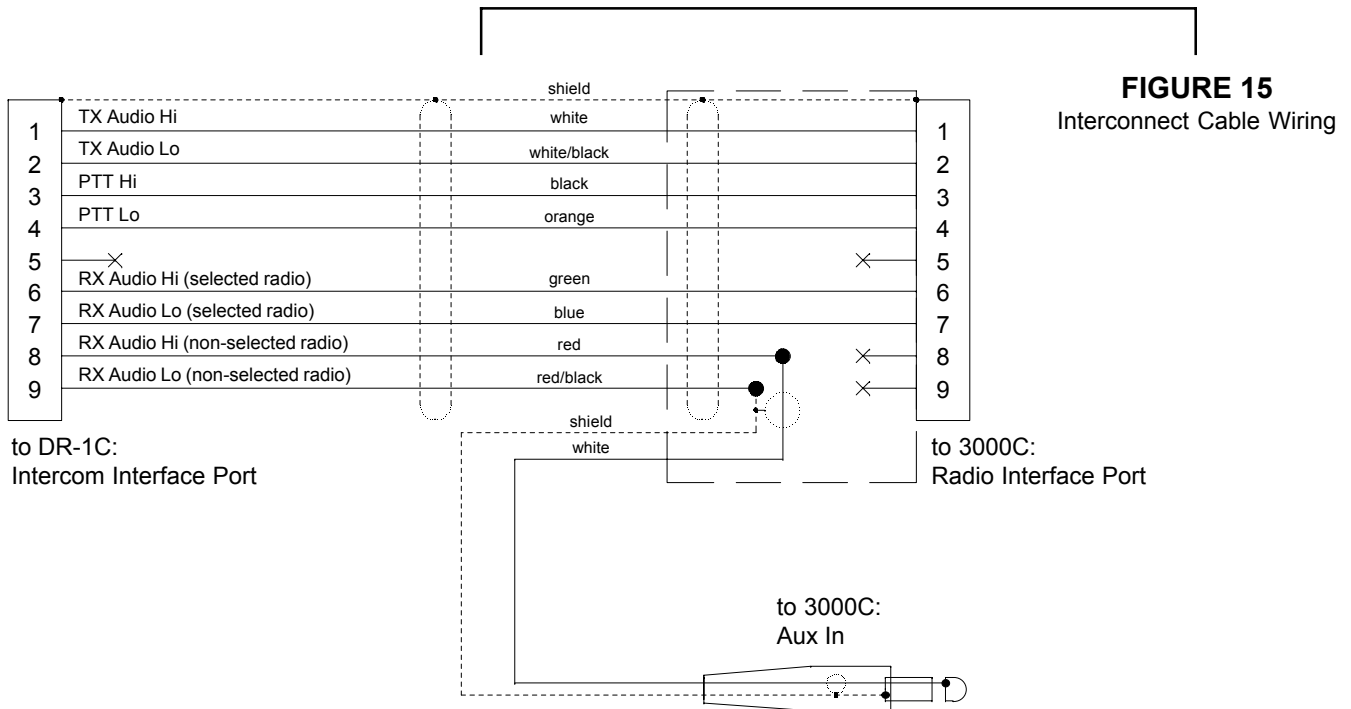
The DR-1C makes no change to the intercom operation on the 3000C. To use the DR-1C, simply rotate the Radio Select Knob to select a "Primary" radio. The Primary radio is the radio that you will transmit on when the **Red** Push-To-Talk button on a Radio-Transmit headset is pressed.

You will hear both the primary and the secondary radio incoming transmissions in the headsets. If both radios have incoming transmissions at the same time, the 3000C can be set to mute the audio from the secondary radio (see "[Receive Audio Mute](#)", page 10).

**FIGURE 14**  
DR-1C Front Panel



# WIRING DIAGRAMS





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## SPECIFICATIONS

### PHYSICAL DIMENSIONS

#### LENGTH

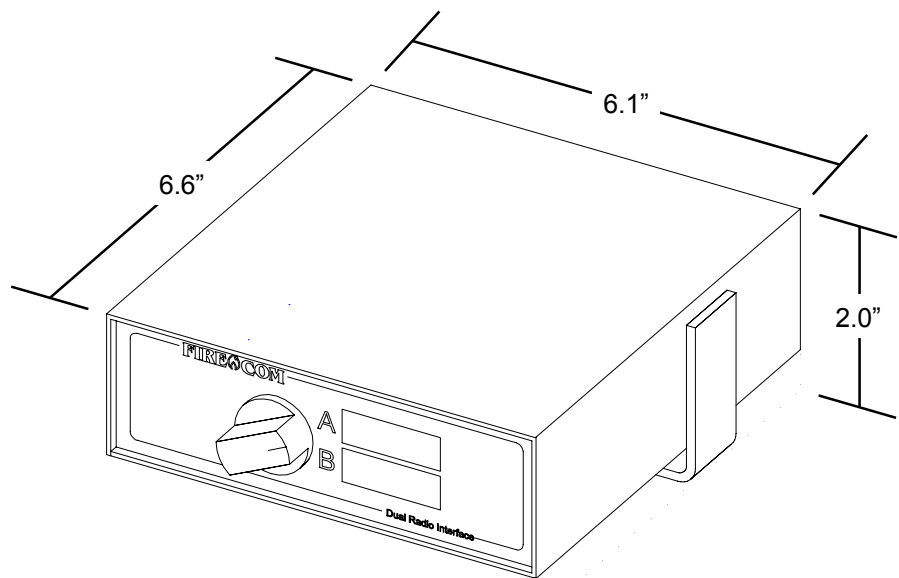
6.6 inches

#### WIDTH

6.1 inches

#### HEIGHT

2 inches (with mounting bracket)







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## **WARRANTY**

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### **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. The purchaser voids this warranty if he, she 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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