

TALKBACK INTERCOM SYSTEM

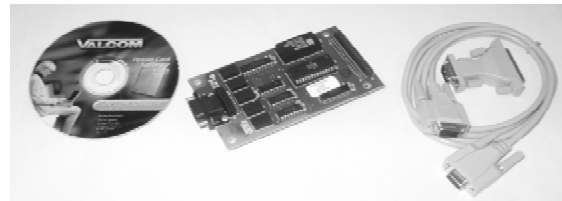
V-2928 OPTION BOARD

The V-2928 Option Board is an add-on feature for the V-2924A Expandable Zone Talkback Intercom System. The addition of this board provides the following supplemental features:

- Time sync output
- Custom page groups
- Enhanced Caller ID
- Flexible Architectural numbering plan
- Interface to the PC Programming Tool
- Store user data to EEROM
- Real time clock for SMDR printer
- Auto detect for Com Port or Modem
- Evacuation tone to specified groups
- Time tones to any of the Pre-Determined Groups selected
- Read software/firmware revision numbers

Dimensions/Weight

- 5.3" L x 3.00" W x 1.10" D
- (13.46cm L x 7.62cm W x 2.79cm D)
- 0.9 lbs (0.41 kg)



The V-2924A Programming Tool is a windows based software tool designed to interface with the V-2928

Option Board. The Option Board and the Programming Tool must both be installed to access the additional features provided by the Option Board. **All features must be set with the Programming Tool when the Option Board and Programming Tool are installed.**

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INSTALLATION OF THE OPTION BOARD

The Option Board must first be installed on the Control Unit Board (See Figure 1).

WARNING: Disconnect main power before servicing.

- Remove the side plate and top cover of the Control Unit and set aside.
- Slide small side plate upward to provide opening for Option Board connector (See Figure 1).
- Align J3 on the Option Board directly over J1 on the Control Board.
- Align J4 on the Option Board directly over JP2 on the Control Board.
- Press Option Board firmly in place to make sure connectors are seated properly.
- Replace the top cover and side plate of the Control Unit and plug in the power supply.
- Plug PC Communication Cable (included) into P1, PC Programming Port (located on the Option Board - See Figure 1).

The V-2928 Option Board requires the use of the PC Programming Tool to access the various features it provides.

INSTALLATION OF THE PROGRAMMING TOOL

Minimum Computer Requirements for the Valcom V-2924A Programming Tool:

Hardware:

- Pentium (higher is recommended)
- Hard drive with 60 Mbytes free
- Mouse
- 64 Mbytes of RAM (more is recommended)
- 1 available serial communication port

Operating System:

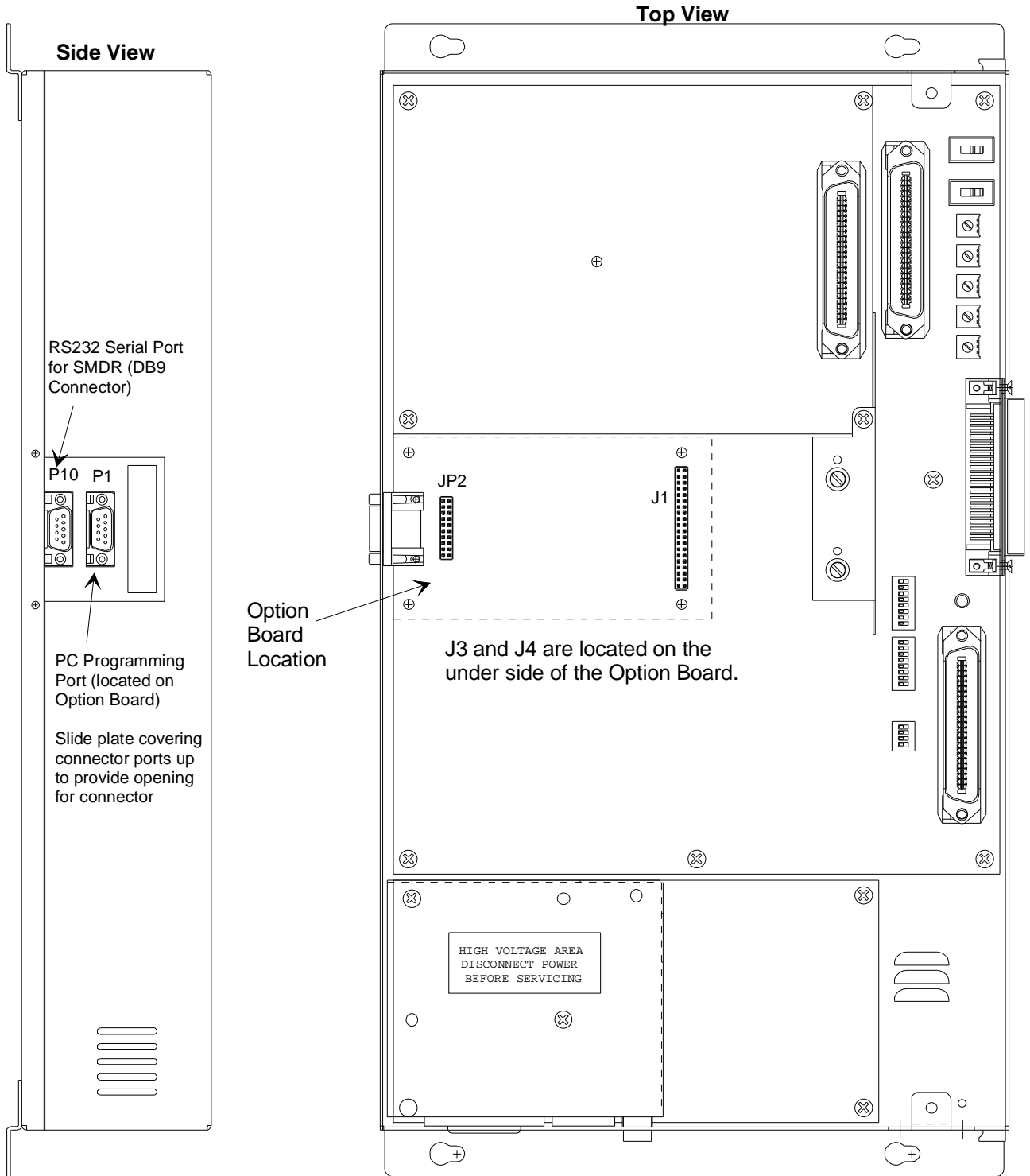
- The Programming Tool is compatible with Windows 98, ME, NT.4.0, Windows 2000 and Windows XP, Windows 7.

Rev 2 Programming Tool is compatible with previous versions of hardware, however, the new hardware is not compatible with previous versions of the Programming Tool.

The programming tool software is furnished on CD and must be installed to the hard drive. To install the software:

- Insert Programming Tool CD.
- CD will Auto Run.
- Follow on-screen instructions for full installation.
- The Valcom V-2924sc Programming Tool will automatically appear in the Programs list.

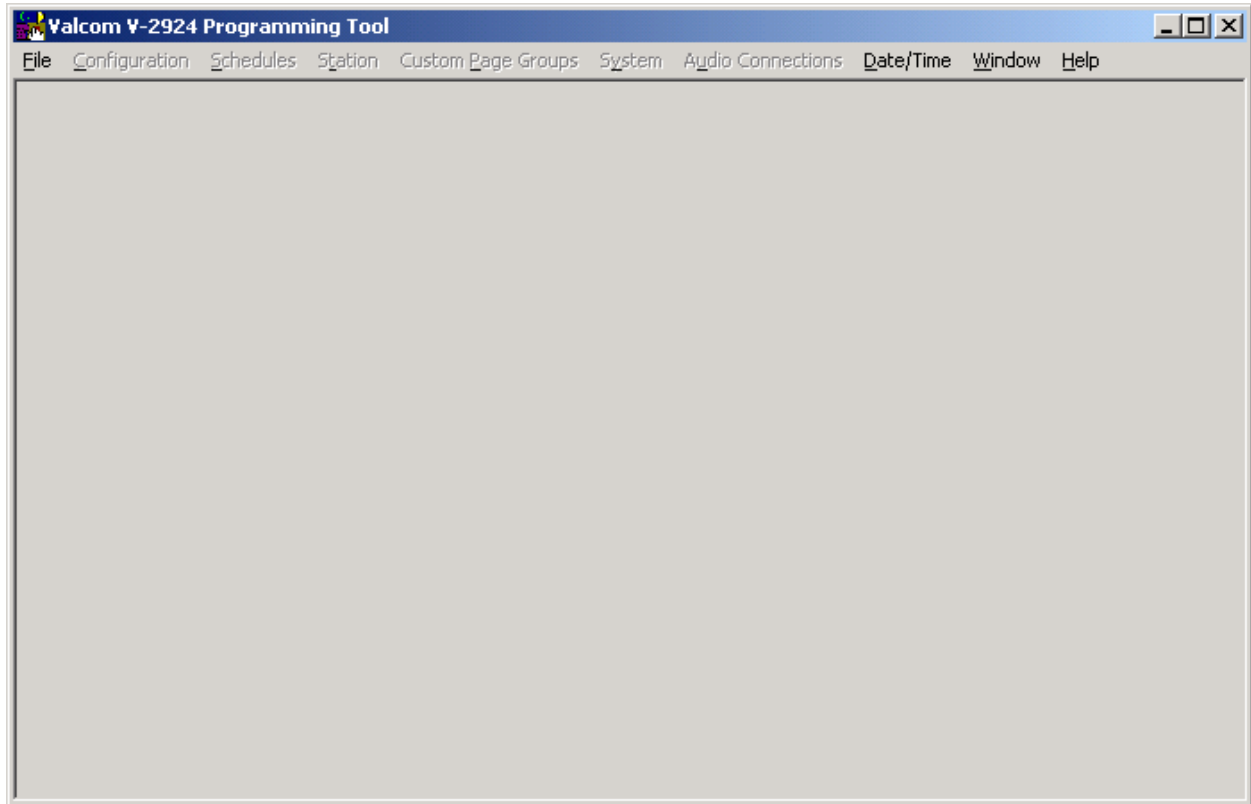
FIGURE 1 - OPTION BOARD LOCATION ON THE V-2928 CONTROL BOARD



Align J3 on the Option Board directly over J1 on the Control Board
 Align J4 on the Option Board directly over JP2 on the Control Board
 Press Option Board firmly into place.

USING THE PROGRAMMING TOOL

- On the taskbar, click the Start button, point to Programs and select VALCOM **V-2924sc Programming Tool**.
- The V-2924 Programming Tool splash screen appears momentarily and then the Programming screen comes into view.



System Configuration

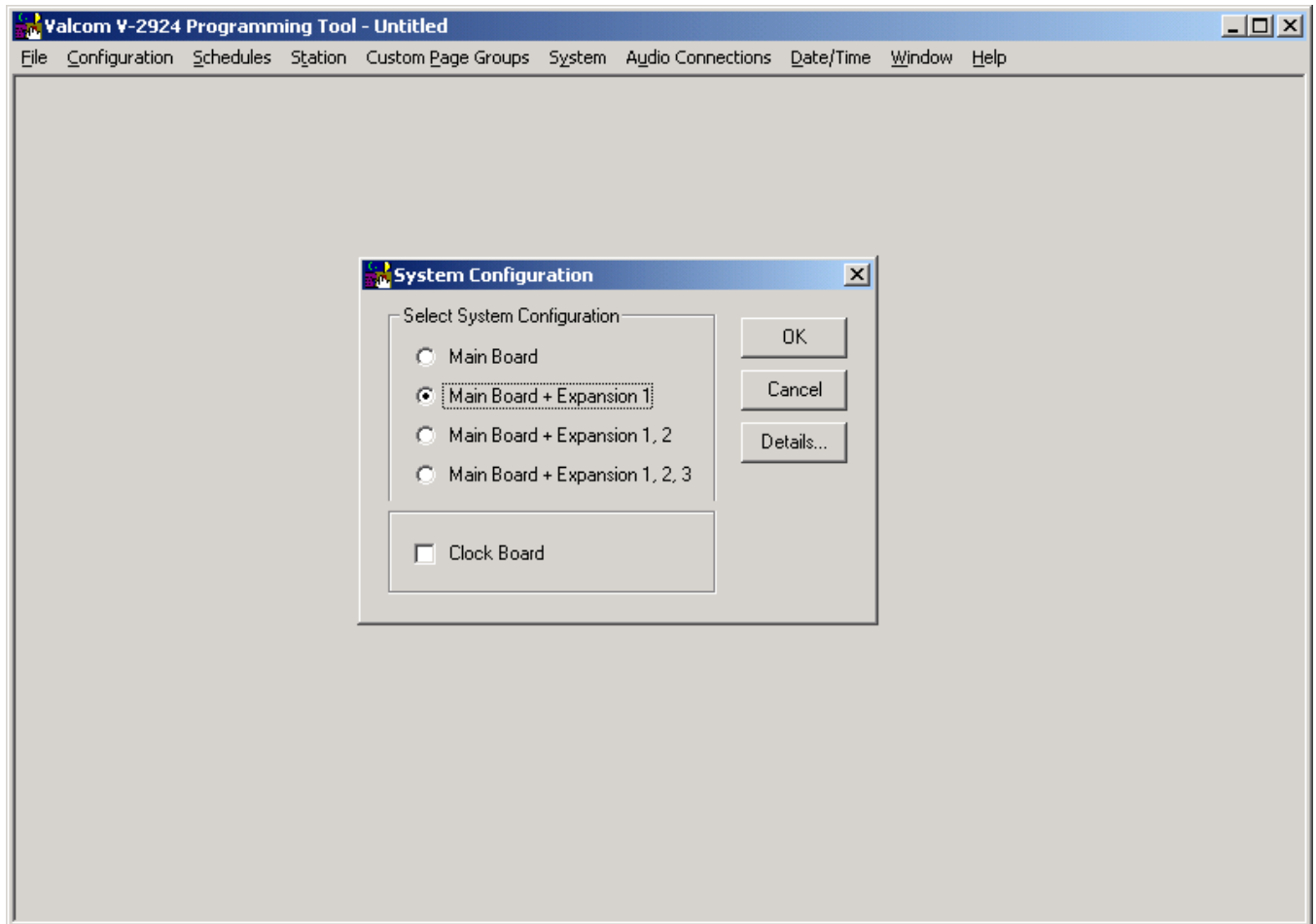
To begin the programming process, click on **File**. A pull-down menu appears allowing selection of a previously programmed file (click on **Open**) or the ability to create a new file (click on **New**). The following instructions assume a **New** configuration file is being created. Click on **New** from the pull-down menu. A System Configuration screen is displayed to allow selection of the installed components within the system.

Select one of the following from the list:

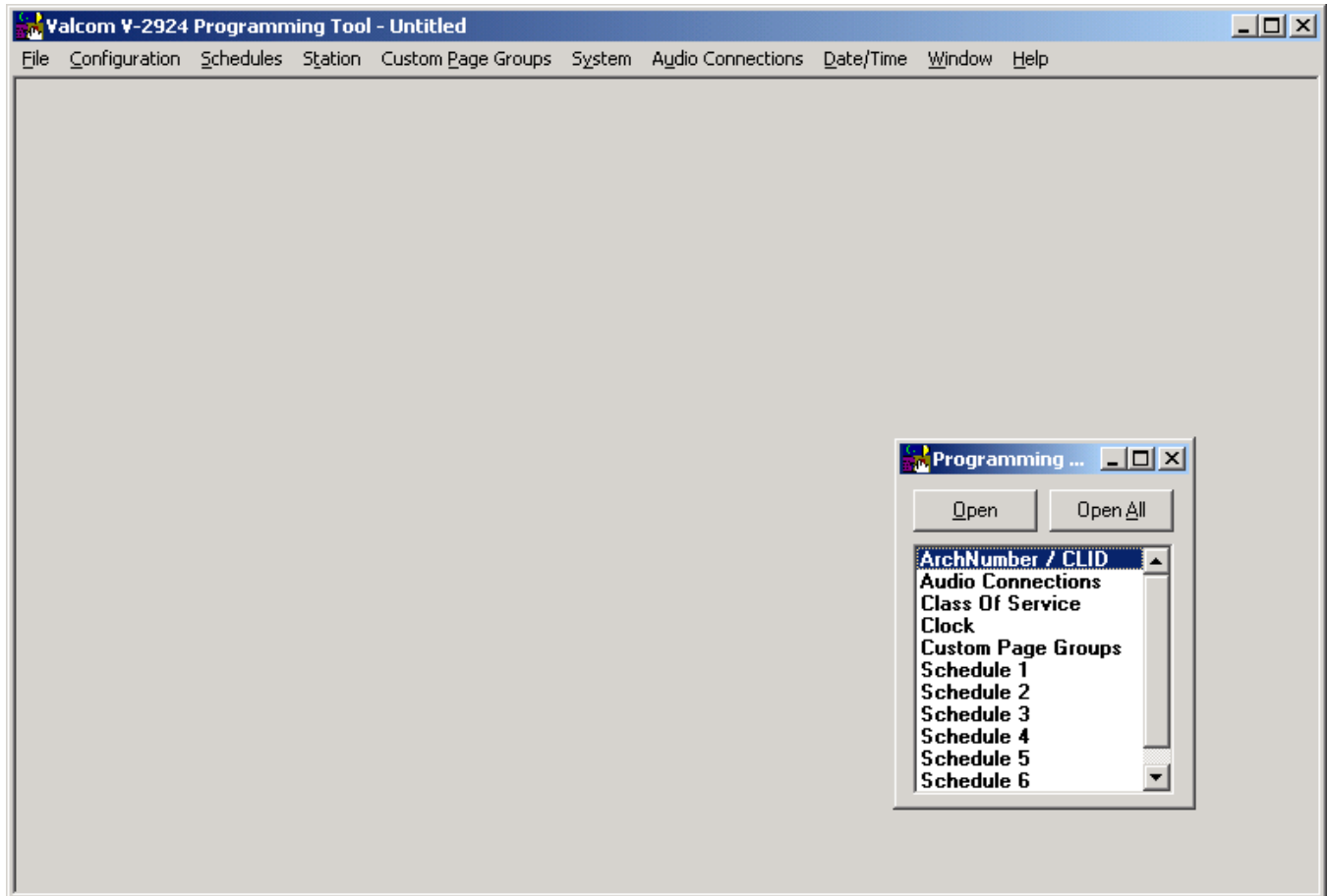
- For a 24-station system select **Main Board**.
- For a 48 station system select **Main Board + Expansion 1**.
- For a 72 station system select **Main Board + Expansion 1, 2**.
- For a 96 station system select **Main Board + Expansion 1, 2, 3**.

Click in the box next to Clock Board if the V-2927 Clock Control Card is installed.

Press **OK** to accept the present selection or **Cancel** to re-select. When selection is complete, the Programming Window Screen will be displayed. (To display the configuration of the system press the **Details** button).



When **OK** is selected from the System Configuration screen, the Programming Window appears - see below. The Programming Window allows each option to be accessed by selecting the option and pressing **Open** or by double clicking on the selected option. All functions can be listed at once by pressing **Open All**. (All of the options accessed through the Programming Window can also be accessed from the pulldown menus).



Architectural Number and CLID (Caller ID) Programming

The first function to configure is the **Architectural Number and CLID Programming**.

The **Architectural Number** is a 1 to 4 digit number that is dialed by the phone to connect to a specific speaker. Flexible architectural numbering is often selected to allow speakers and room numbers to match. The **CLID Programming** allows a name or up to 15 characters description to be entered for each station.

The information entered in the CLID description field will be displayed on the phone or Caller ID unit if provided as part of the system.

The **Edit Station Entry** allows a CLID description to be entered for each station. Example: **105** would be the Arch # and **MR. HALL** would be the CLID description (15 character limit).

The **Delete Station Entry** allows removal of selected architectural and CLID descriptions.

Auto Numbering assigns the Arch # in sequential order. The beginning number is the currently selected station; an ending number must be specified.

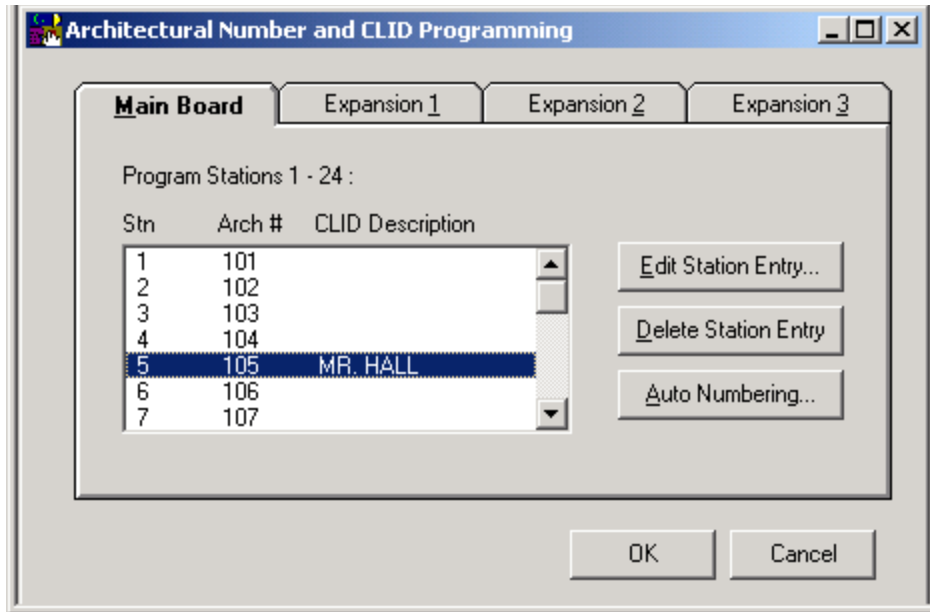
To Auto Number – Highlight station where architectural numbering begins.

Select **Edit Station Entry**. Enter beginning architectural number and select OK.

Select **Auto Numbering** and enter last architectural number (must be a higher number).

Select **OK**.

Enter information for the Main Board as well as each Expansion Unit being used and press **OK** to accept.



Audio Connections

This screen allows selection of groups to receive Background Music, Time Tones and Emergency Tones. This sample system consists of a "Main Board + Expansion 1" so eight groups are available to receive audio connections. (Each group contains six stations).

Group 1	Stations 1, 2, 3, 4, 5, 6	Main Board
Group 2	Stations 7, 8, 9, 10, 11, 12	Main Board
Group 3	Stations 13, 14, 15, 16, 17, 18	Main Board
Group 4	Stations 19, 20, 21, 22, 23, 24	Main Board
Group 5	Stations 25, 26, 27, 28, 29, 30	Expansion 1
Group 6	Stations 31, 32, 33, 34, 35, 36	Expansion 1
Group 7	Stations 37, 38, 39, 40, 41, 42	Expansion 1
Group 8	Stations 43, 44, 45, 46, 47, 48	Expansion 1

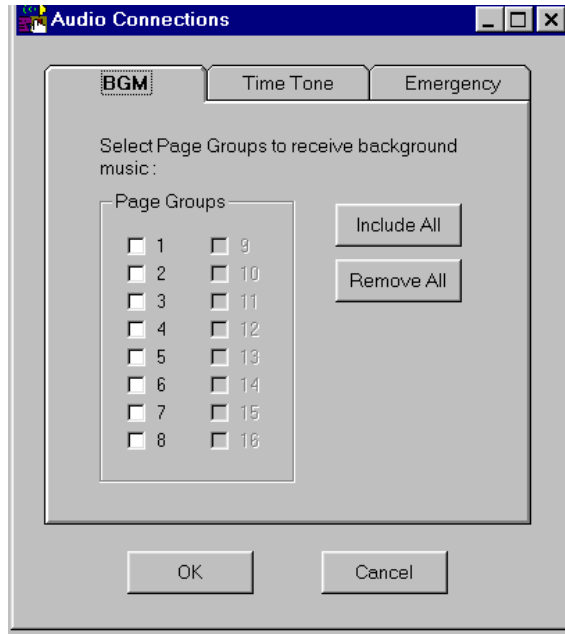
Click on the tab of the desired feature to program zones. Click on each group button to receive the audio connection. If all groups are to receive an audio connection for the specific feature, select **Include All**.

The zones for each feature:

BGM, Time Tone and Emergency, are selected in the same manner.

Defaults: **BGM** - All Off
 Time Tone - All On
 Emergency - All On

After zones for each feature have been selected, press the **OK** button.



The Audio Connections screen disappears, with the Programming Window still being active to allow selection of other options.

Class of Service.

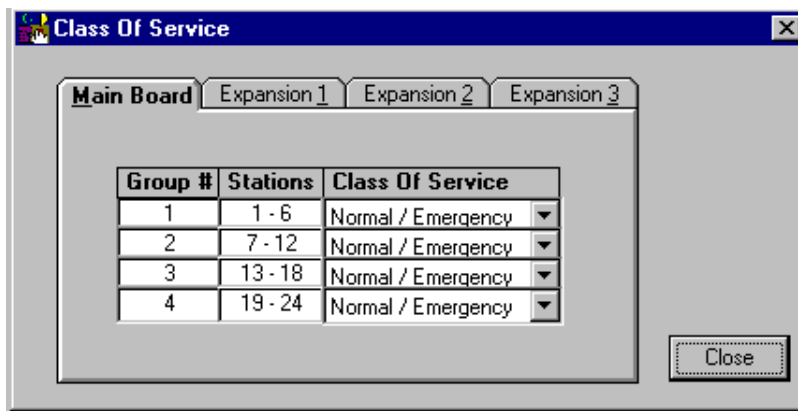
Class of Service defines how a call originated by a button press will be queued for answer by the attendant.

- **Emergency Only** - Top priority. Stations programmed as Emergency Only are moved to the top of the priority list to be answered first.
- **Normal/Emergency** - Calls from stations programmed as Normal/Emergency are received in the queue as they are made. 1 button press from the station, the call is received as a normal call; 4 button presses from the station, the call is received as an emergency call.
- **Normal Only** - Calls from stations programmed as Normal Only are received in the queue as Normal priority whether 1 or 4 button presses are made at the calling station.

Set the Class of Service for all Groups on the Main Board as well as any Expansion Boards. Press the down arrow at the end of the Class of Service field to display the available types of service for selection.

When finished, press the **Close** button.

Default option of all stations, with or without the Option Board installed, is Normal/Emergency.

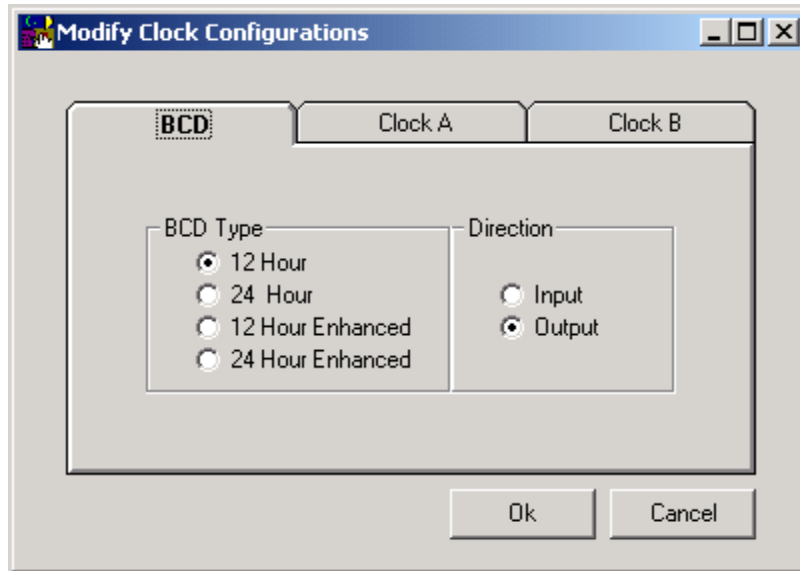


Clock

Note: Clock programming option is available if Clock Board has been checked on System Configuration screen. Clock correction is only available with the V-CLK2924 Clock Correction Kit.

When Clock is selected, the following screen is displayed.

Click on the tab for Clock A. Then click on the down arrow next to Clock Type, and select the clock type code (codes are defined in the V-2927 manual) for the Clock Circuit 1 connections on the V-CIO. If using the Clock Circuit 2 connections on the V-CIO, click on the Clock B tab, and select the clock type code for those connections.



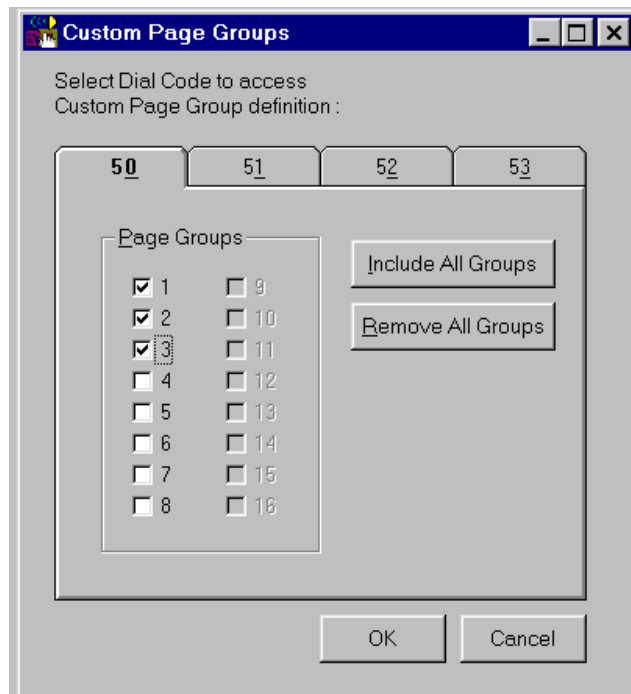
Custom Page Groups

When **Custom Page Groups** is selected, the following screen is displayed.

There are 4 Custom Page Groups available.

Select the Page Groups to receive custom paging by clicking on the desired box. Each Custom Page Group can contain all groups or a combination of groups. (Example: Custom Page Group 50 could contain page groups 1, 2 and 3, and Custom Page Group 52 could contain page groups 1, 2, 7 and 8).

Select OK after all desired page groups are defined.

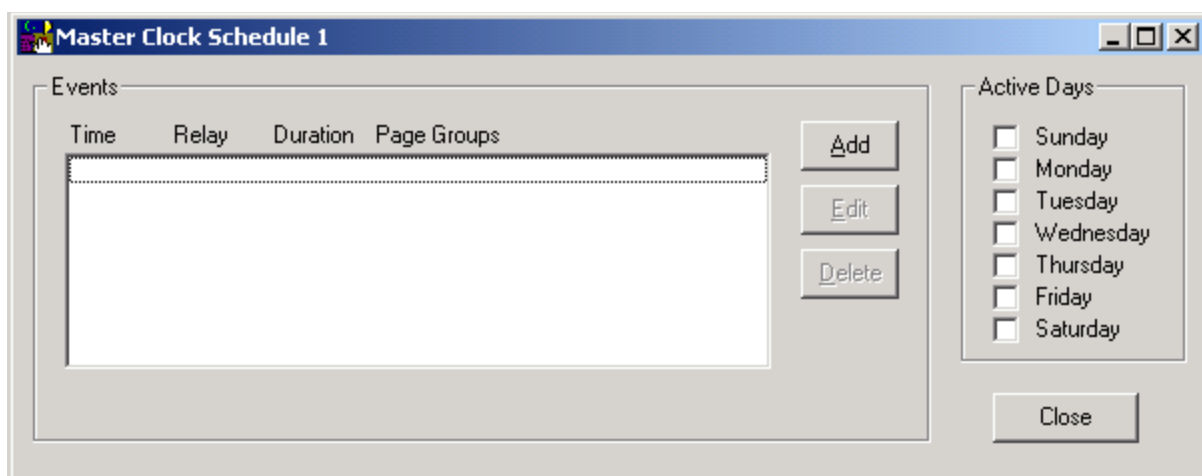


Master Clock Schedule

The Master Clock Schedule has 6 separate schedules with up to 256 total events. The user defines how these events are to be distributed between schedules.

Dial codes may be used to force a schedule or to turn a schedule off. #94X forces schedule on with the X being the number of the schedule (i.e. #941 will force Schedule 1). #940 turns off the active schedule.

- Select Schedule 1-6.
- Click Open.
- Displays Schedule 1 menu.
- Choose which "days" schedule is to be active.
- Select Add.



New Event Screen menu will be shown. Select Start Time. Select which Relay Type you want to follow the Schedule and Select the Relay Duration of the contact closure. Select which Page Group(s) tone should go to. Select Save.

NOTE: The contact closure pairs 13, 14, 15, 16 on the system punchdown block, should be wired to the tone select input of an external tone generator (V-9927A). The tone output of the external tone generator should then be wired to the external tone input of the V-2924A, pair 5 of the system punchdown block.

Events - Schedule - 1

Add New Event :

Start Time: 00:00

Relay Type: 1 2 3 4

Relay Duration: 1 (1 - 59 secs)

Page Groups:

<input type="checkbox"/> 1	<input type="checkbox"/> 9	Include All
<input type="checkbox"/> 2	<input type="checkbox"/> 10	
<input type="checkbox"/> 3	<input type="checkbox"/> 11	Remove All
<input type="checkbox"/> 4	<input type="checkbox"/> 12	
<input type="checkbox"/> 5	<input type="checkbox"/> 13	
<input type="checkbox"/> 6	<input type="checkbox"/> 14	
<input type="checkbox"/> 7	<input type="checkbox"/> 15	
<input type="checkbox"/> 8	<input type="checkbox"/> 16	

Buttons: Close, Save, Cancel, Add, Edit, Delete

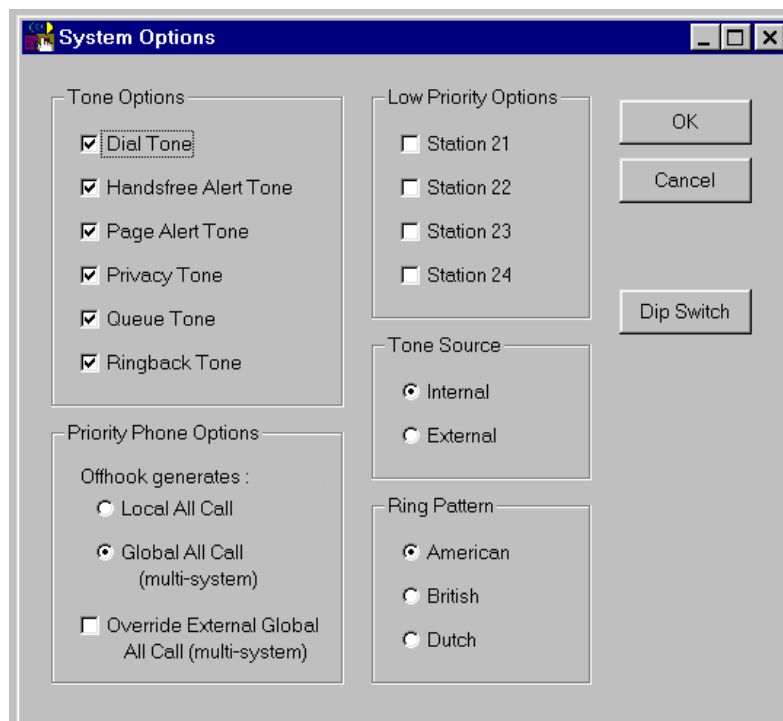
System

Note: If Clock Board was checked in system configuration, you will need to scroll down to find **System** in the Programming Window.

Next select **System** from the Programming Window. A check in the box means ON (selected); an empty box means OFF (not selected). Select the desired options and click on **OK** to exit this screen. The options are described in more detail in the Control Unit (V-2924A) document or select **Help** from the pull-down menu for on-screen details.

The **Dip Switch** button displays the dip switch equivalent (see next page) of the options selected with the programming tool.

IMPORTANT: Options set using the programming tool override options selected manually using the Control Unit dip switches.

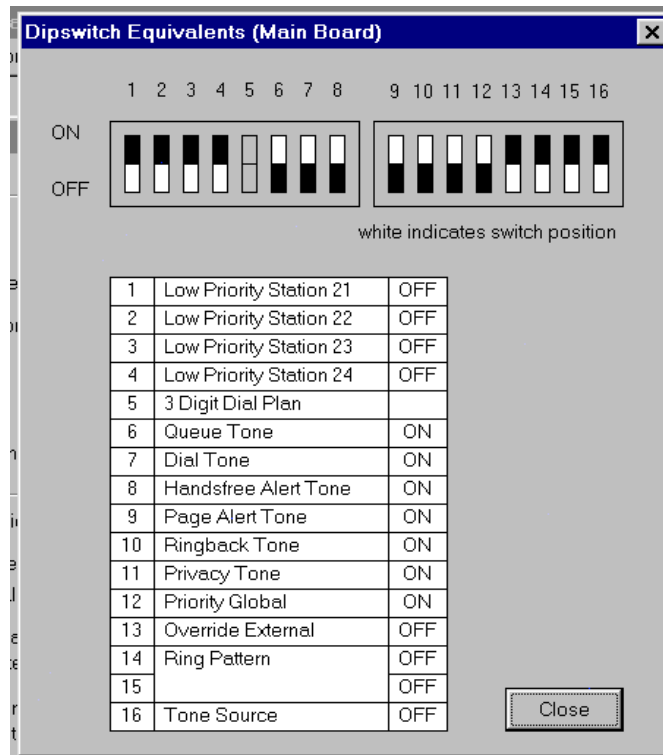


The screenshot shows a window titled "System Options" with a blue title bar and standard window controls. The window is divided into several sections:

- Tone Options:** A list of six checked options: Dial Tone, Handsfree Alert Tone, Page Alert Tone, Privacy Tone, Queue Tone, and Ringback Tone.
- Priority Phone Options:** A section with three options: Offhook generates : Local All Call, Global All Call (multi-system), and Override External Global All Call (multi-system).
- Low Priority Options:** A list of four unchecked options: Station 21, Station 22, Station 23, and Station 24.
- Tone Source:** A section with two radio button options: Internal and External.
- Ring Pattern:** A section with three radio button options: American, British, and Dutch.

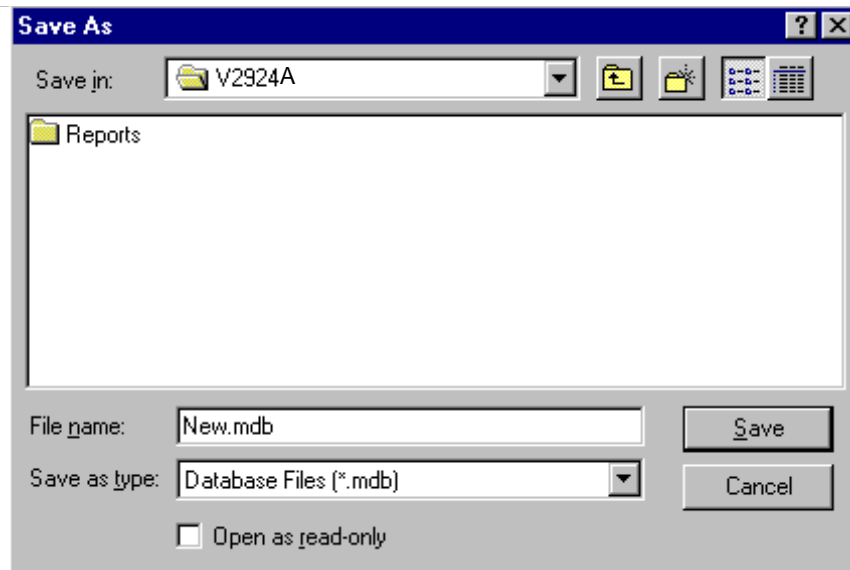
On the right side of the window, there are three buttons: "OK", "Cancel", and "Dip Switch".

Dip switch equivalent of programmed options.



Save Programmed Data to a File

When the programming selections are complete, click on the **File** menu option to access the pull-down menu and select **Save**. Define file name and location and press **Save**.



COMMUNICATING WITH THE V-2924A

Communicating with the V-2924A allows sending and receiving of user programmed data, Setting of System Date and Time and reading the revision numbers of the system firmware.

Once system programming is complete, this data must be downloaded to the V-2924A System. This communication can be accomplished through two methods:

Initiating Communications

Direct Connect (PC is on site with the V-2924A System - can be accessed via a Null Modem RS232 cable).

To Connect:

Connect null modem cable from the V-2924A to the PC being used.

Set up Com Port (page 15).

Connection complete.

Modem Connect (PC is off site or can only be accessed using phone lines to communicate).

To Connect:

Set up modem (User required procedure - page 15).

Set up Com Port (page 15).

Select Dialing Method:

- Modem Connect (page 15)
- Manual Connect (page 16)

REMINDER:

For a modem to communicate with the V-2924A, there must be a remote modem connected to the V-2924A. See page 18 for Setup of the Remote Modem.

Serial Port The serial port on the V-2928 Option Board is set for 9600 bits/second, 8 data bits, no parity and 1 stop bit (9600-8-N-1). The serial port properties of the connected PC or modem must be set to match these parameters.

Direct Connect - Set Up Com Port

Select **File, Com Setup, Com Port Selection**.

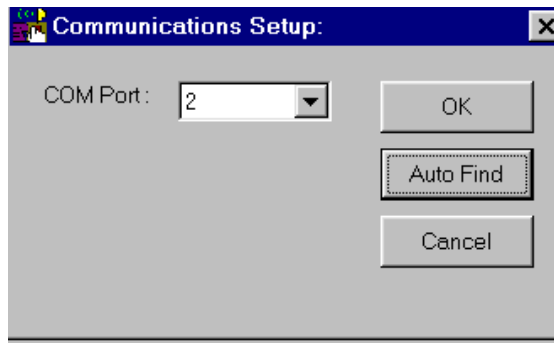
If the port is known, use the down arrow to locate the number, select it and press OK.

If the port is not known, select **Auto Find**.

Reminder:

If direct connect is being used, make sure cables are connected and V-2924A is on.

If modem connect is being used, make sure modem is installed and working properly.



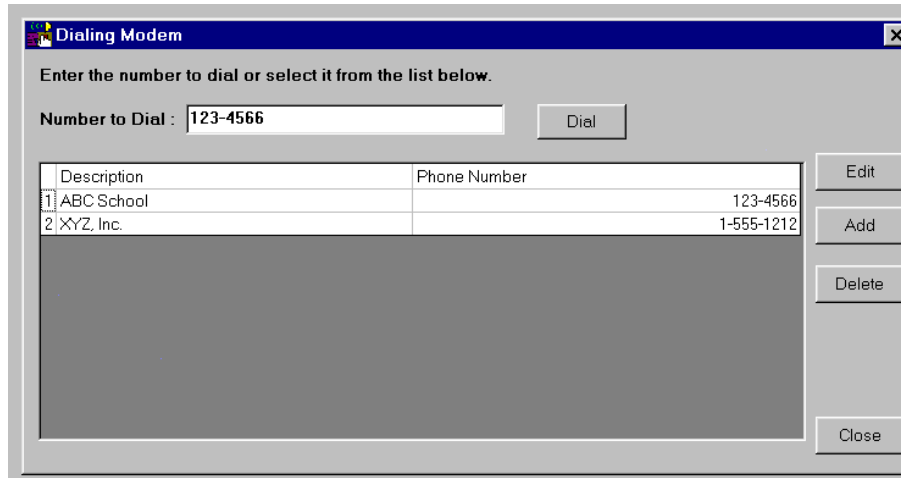
Modem Connect

From the Programming Tool, select **File, Modem** and then **Modem Connect**.

The screen below appears. Enter the number to dial or select a phone number from the list displayed. Numbers can be added, edited or deleted from the list. Up to 10 numbers can be stored.

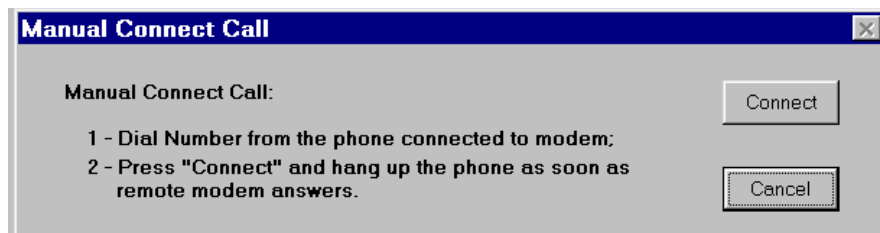
Once the desired phone number is displayed in the **Number to Dial** field, click on the **Dial** button. Messages should be displayed stating, "**Initializing**", "**Dialing**" and "**Modem Connection Successful**". Click on OK.

If modem fails to connect, verify modem was set up properly during system installation. Refer to section titled, "**Setup of the V-2924A Modem,**" page 18.



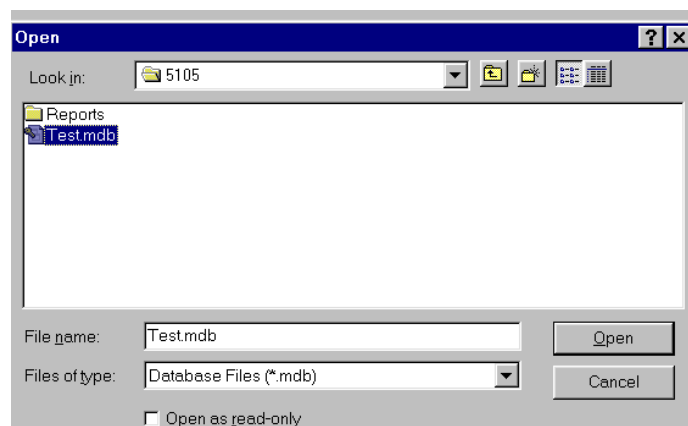
Manual Connect

From the Programming Tool, select **File, Modem and Manual Connect**. Follow the instructions as described on the screen. Messages should be displayed stating, "**Initializing**", "**Dialing**" and "**Modem Connection Successful**". Click on **OK**.



Send data to V-2924A

From the main menu, select **Send Data to V-2924A**. If a file is open, that file will be sent to the V-2924A System. If no file is open when **Send Data to V-2924A** is selected, the screen appears to allow selection of the data file to be opened and downloaded to the V-2924A. **Highlight** the desired file and click on **OK**.

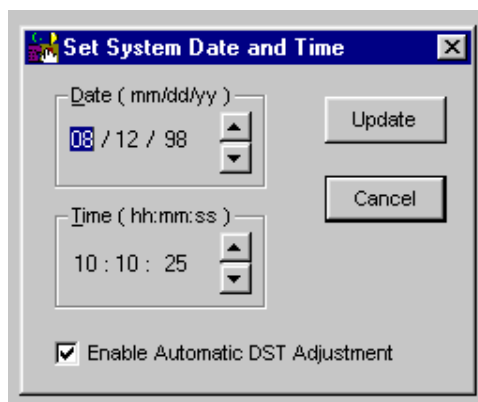


Receive Data from V-2924A

From the main menu, select **Receive Data from V-2924**. This will take place automatically. If you are not allowed to select **Receive Data from V-2924**, close the currently open file and try again. Messages will be displayed stating **Receiving Data**, **Receive Data Completed Successfully**. Click on **OK**.

Set System Date and Time

Set System Date/Time by clicking on the **Date/Time** pull-down menu. Up/Down arrows are used to move date and time to the desired setting. Press **Update** to set the new Date/Time or **Cancel** to leave unchanged. The **Automatic DST Adjustment** can be enabled or disabled here. The DST correction is based on the pre-2007 rules (first Sunday of April, last Sun of October) therefore it is recommended to not enable the Automatic DST Adjustment.



Read Software and Firmware Revision Numbers

This feature is accessed through the Help menu. Select **Help**, then **About**. This option provides information for all processors.

Reminder: *The PC must be connected to the system to access this information.*



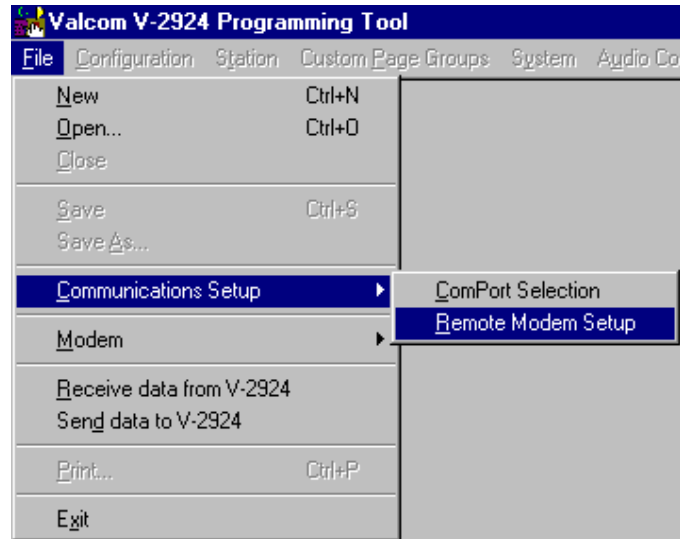
Ending Communications

Direct Connect: No action required, just unplug cable.

Modem Connect: From the pulldown menu, select **File, Modem, Modem Release**.

SETUP OF THE V-2924A MODEM

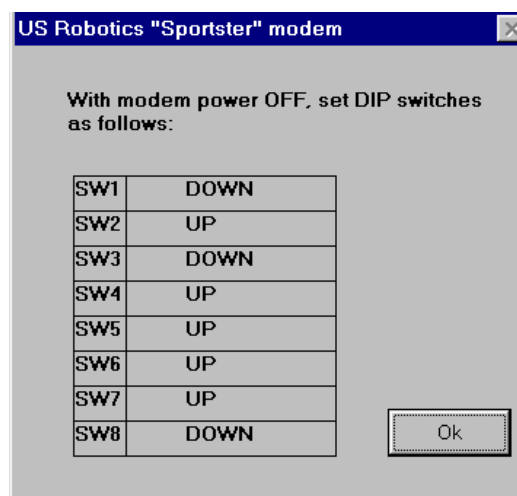
1. To transfer data from a PC through a modem to the V-2924A System, the Remote Modem must be setup. **THIS IS A "ONE-TIME" PROCEDURE THAT SHOULD BE PERFORMED WHEN THE MODEM IS INSTALLED.** Select **Communications Setup** from the File Menu as shown in the following screen display:



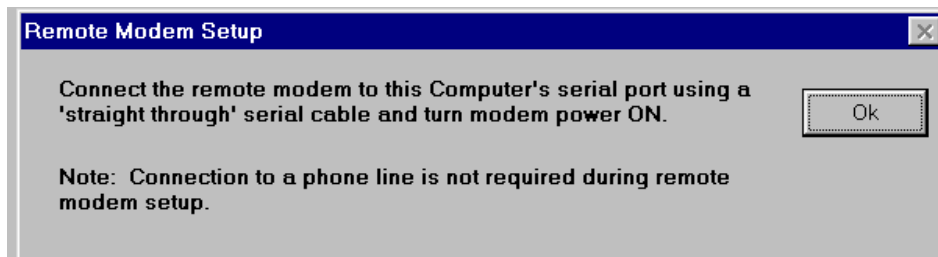
2. Select **Remote Modem Setup** and the following screen is displayed:



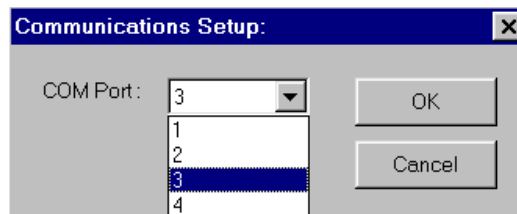
3. If Yes is selected, the dip switches at the back of the modem must be set to the positions shown below. Press **OK** to continue.



The following screen is displayed after selecting No from the question of using a US Robotics modem or after selecting Yes, setting the dip switches and pressing OK.

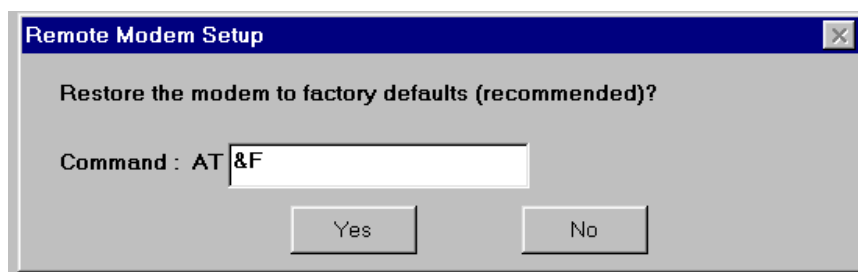


4. Complete the instructions on the screen and click **OK**. The next screen to be displayed requests selection of a COM Port. Select the proper COM Port and click **OK**.

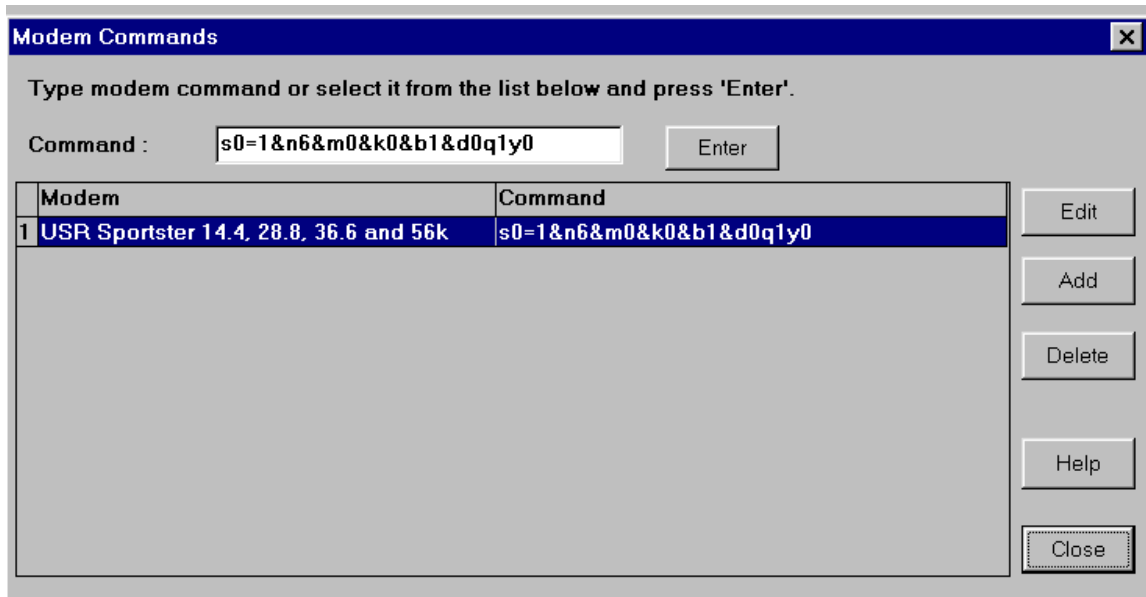


The program then attempts to test the communication line between the PC and the modem. If the connection is okay, continue to Step 5. If the connection fails, you can Abort the setup, Retry the setup or Ignore the warning.

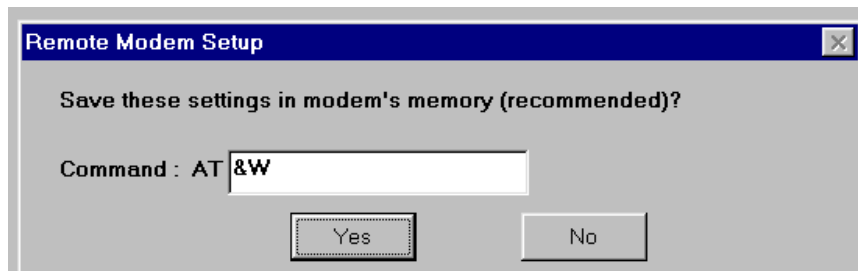
5. After establishing a successful connection, restore the modem's factory default settings as shown below by clicking on **Yes**.



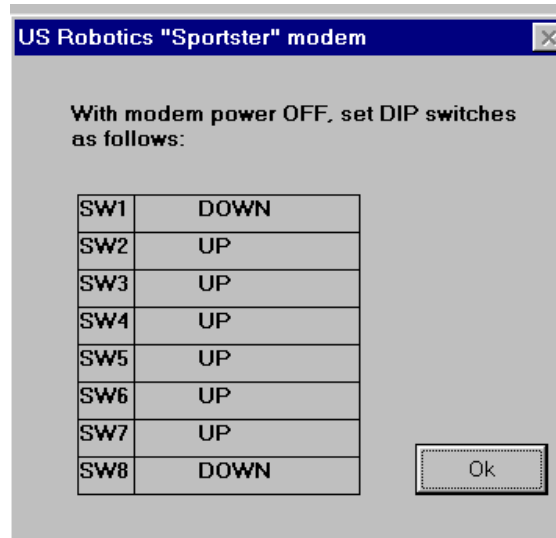
6. The default modem commands for the US Robotics Sportster appear below. Click on **Enter** to send these commands to the modem.



7. Save the settings to the modem's memory by selecting "Yes" as shown in the figure below.

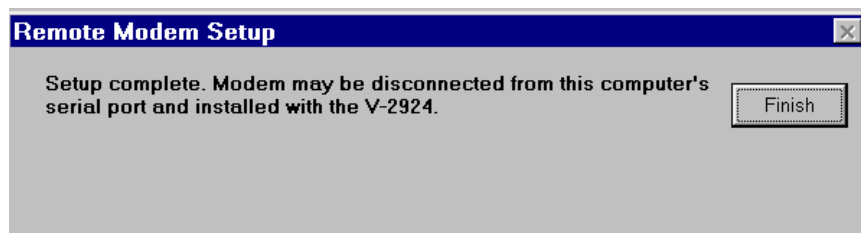


8. If "Yes" was selected in step 2, now with the modem power OFF, set the dip switches to the settings shown below and then click on **OK**. For a description of "DIP" switch functions, refer to the table below.



Dip Switch Number	Description
SW1	Override DTR
SW2	Verbal Result Codes
SW3	Suppress Result Codes
SW4	Echo Offline Commands
SW5	Auto Answer on Ring
SW6	Carrier Detect Normal
SW7	Load NVRAM Defaults on Power-up
SW8	Smart Mode

9. After modem setup is complete, the screen below appears verifying a successful setup.



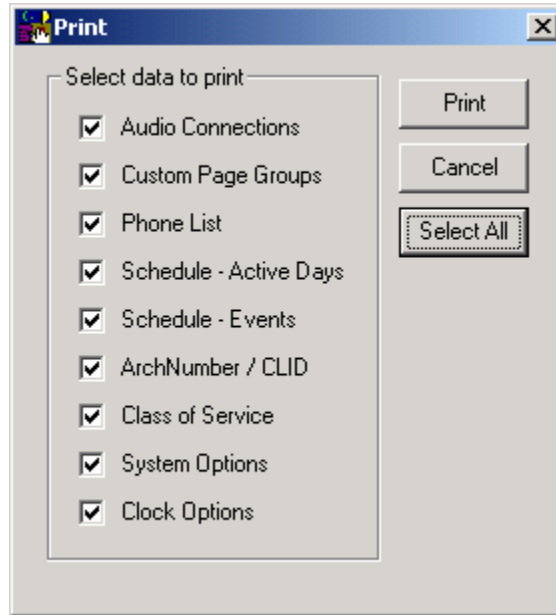
MENU OPTIONS

PRINT

The print option allows the system to provide a hard-copy verification of how the system is programmed. To print, the PC must be connected to a printer via the RS-232 serial printer port (DB9 connector).

To access this option, select **File** and then **Print**. A screen (shown below) appears to allow selection of all programmed options or individual options for printing.

This screen shows all items selected for printing.

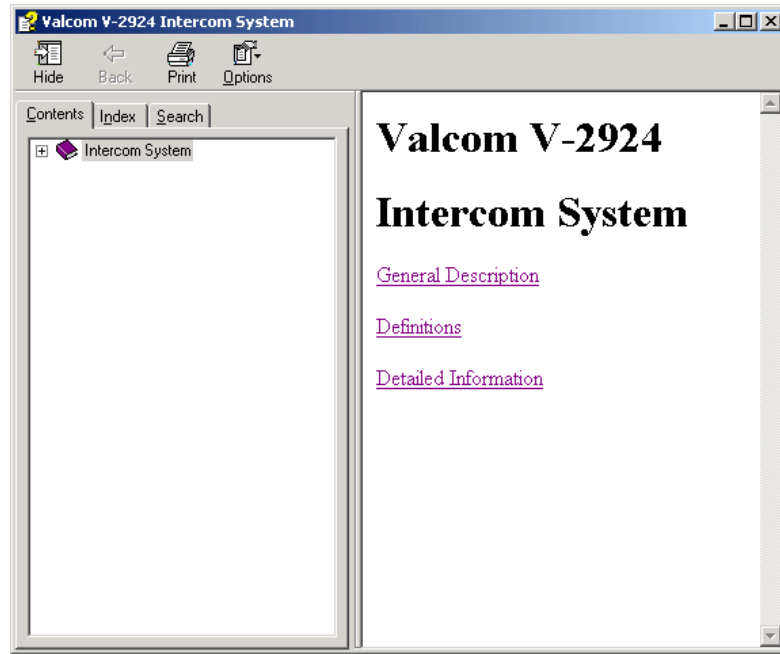


WINDOW

The pull-down menu titled **Window**, allows several screens to be closed at once. Instead of going through several open screens, closing them individually, select **Window, Close All** or select the screens individually from the pull-down window.

HELP

The **Help** pull-down menu provides on-screen definition of elements provided by the V-2924A Talkback Intercom System. Select **Help**, select **Contents**. Click on **General Description, Definitions** or **Detailed Information** to view the list of topics available through the Help menu.



EXIT

Select **Exit** from the **File** pull down to close the Programming Tool.

TECHNICAL ASSISTANCE

When trouble is reported, verify that power is being supplied to the unit and there are no shorts or grounds on cabling.

Assistance in troubleshooting is available from the factory. When calling, have a VOM and a telephone test set available and call from the job site. Call (540) 563-2000 and press 1 for Technical Support or visit our website at <http://www.valcom.com>.

Valcom equipment is not field repairable. Valcom, Inc. maintains service facilities in Roanoke, VA. Should repairs be necessary, attach a tag to the unit clearly stating company name, address, phone number, contact person, and the nature of the problem. Send the unit to:

**Valcom, Inc.
Repair and Return Dept.
5614 Hollins Road
Roanoke, VA 24019-5056**

VALCOM LIMITED WARRANTY

Valcom, Inc. warrants its products only to the original purchaser, for its own use, to be free from defects in materials and workmanship under conditions of normal use and service for a period of one year from the date of shipment. This Limited Warranty obligation shall be limited to the replacement, repair or refund of any such defective device within the warranty period, provided that:

1. inspection by Valcom, Inc. indicates the validity of the claim;
2. the defect is not the result of damage, misuse or negligence after the original shipment;
3. the product has not been altered in any way or repaired by others and that factory sealed units are unopened (a service charge plus parts and labor will be applied to units defaced or physically damaged);
4. freight charges for the return of products to Valcom are prepaid;
5. all units 'out of warranty' are subject to a service charge. The service charge will cover minor repairs (major repairs will be subject to additional charges for parts and labor).

This Limited Warranty is in lieu of and excludes all other warranties, expressed or implied and in no event shall Valcom, Inc. be liable for any anticipated profits, consequential damages, loss of time or other losses incurred by the buyer in connection with the purchase, operation, maintenance, installation, removal or use of the product. The maximum liability of Valcom under this warranty is limited to the purchase price of the specific Product covered by the warranty.

Disclaimer. Except for the Limited Warranty provided herein, the product is provided "as-is" without any warranty of any kind whatsoever including, without limitation, any **WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.**

This warranty specifically excludes damage incurred in shipment. In the event a product is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved in accordance with the F.O.B. point.

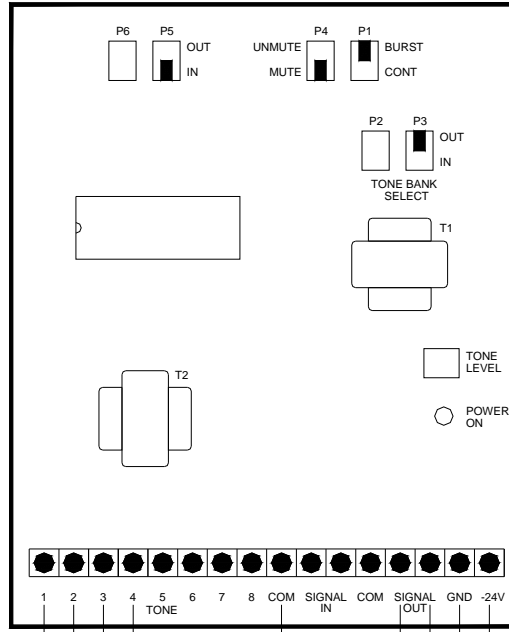
Headquarters:
Valcom, Inc.
5614 Hollins Road Roanoke, VA 24019-5056
Phone: (540) 563-2000 FAX: (540) 362-9800

CONTACT CLOSURE CONNECTIONS * TO P7 FROM THE OPTIONS CARD

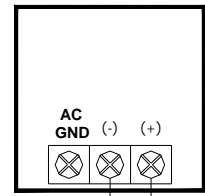
V-9927A

Block P7 - System Inputs

— 26	WH/BL	—
— 1	BL/WH	—
— 27	WH/O	—
— 2	O/WH	—
— 28	WH/GR	—
— 3	GR/W	—
— 29	W/BR	—
— 4	BR/W	—
— 30	W/S	—
— 5	S/W	—
— 31	R/BL	—
— 6	BL/R	—
— 32	R/O	—
— 7	O/R	—
— 33	R/G	—
— 8	G/R	—
— 34	R/BR	—
— 9	BR/R	—
— 35	R/S	—
— 10	S/R	—
— 36	BK/BL	—
— 11	BL/BK	—
— 37	BK/O	—
— 12	O/BK	—
— 38	BK/G	—
— 13	G/BK	—
— 39	BK/BR	—
— 14	BR/BK	—
— 40	BK/S	—
— 15	S/BK	—
— 41	Y/BL	—
— 16	BL/Y	—
— 42	Y/O	—
— 17	O/Y	—
— 43	Y/G	—
— 18	G/Y	—
— 44	Y/BR	—
— 19	BR/Y	—
— 45	Y/S	—
— 20	S/Y	—
— 46	V/BL	—
— 21	BL/S	—
— 47	V/O	—
— 22	O/V	—
— 48	V/G	—
— 23	G/V	—
— 49	V/BR	—
— 24	BR/V	—
— 50	V/S	—
— 25	S/V	—



**POWER SUPPLY
-24VDC**



* Available only with Options Card Installed.