TDP-136

TRANSCEIVER DATA PROGRAMMER

PC SOFTWARE

●

INSTALLATION & OPERATING INSTRUCTIONS

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APPLICATION INFORMATION

The TDP-136 is designed to allow you to transfer channel parameter data between the TDFM-136 transceiver, and a PC. Changes in the TDFM-136 to support new features, have made it necessary to change the basic data structure used by the radio, and hence by the TDP-136. The table below shows which version of TDP-136 Software is required to operate with the TDFM-136 Radio Firmware.

TDFM-136 Firmware and TDP-136 Software Compatibility	
TDFM-136 Radio Firmware	**TDP-136 PC Software**
Release 1.x.x	Use version 1.13
Release 2.0.0	Use version 2.0.0

Document Revision Table for 00RE277				
Rev. / Issue	**Page**	**Description**	**Date**	**Appr.**
A	Section 2 (all pages)	Change document to reflect operating instructions for R1V11 software. . fix GD1/GD2 upload . support print to file	NOV 2000	R.K.
B		Change document to reflect operating instructions for Release 2.0.0 software.	MAR 2004	A.M

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SECTION 1

GENERAL DESCRIPTION

1.1 Introduction

This publication provides operating and installation information on the TiL Transceiver Data Programmer for the TDFM-136 (TDP-136). The TDP software allows a standard PC to retrieve data from a connected TDFM-136 transceiver, for editing, storing, and sharing with other TDFM-136 transceivers. With the TDP software, you can create, save and print archives of the TDFM-136 channel settings.

1.2 Description

The TiL TDP-136 software is a 32 bit Windows application that will work under Windows 95, Windows 98 and Windows NT 4.0. Please see the next section for specific details on your particular installation.

1.3 Minimum System Requirements

Windows 95

- Intel 486 or compatible based PC
- Windows 95 with the latest Service Releases/Packs installed
- (Installation of Microsoft Internet Explorer 5.0 or any Microsoft application more recent than mid 1998, will have automatically updated the required system files.)
- Mouse
- SVGA 800 x 600 Screen resolution
- 5MB free Hard-Disk space
- One available properly configured RS-232 serial (COM) port

or Windows 98

- Intel or compatible Pentium class PC
- Windows 98 with the latest Service Releases/Packs installed
- Mouse
- SVGA 800 x 600 Screen resolution
- 5MB free Hard-Disk space
- One available properly configured RS-232 serial (COM) port

or Windows NT 4.0

- Intel or compatible Pentium class PC
- Windows NT 4.0 with at least Service Pack 4 installed
- (Installation of Microsoft Internet Explorer 5.0 or any Microsoft application more recent than mid 1998, will have automatically updated the required system files.)
- Mouse
- SVGA 800 x 600 Screen resolution
- 5MB free Hard-Disk space
- One available properly configured RS-232 serial (COM) port

INSTALLATION INSTRUCTIONS

This section provides the user with a reference of the keypad accessible programming features of the Technisonic TDFM-136 VHF FM Digital Transceiver.
This section is divided into subsections as follows:

2.1	command structure overview and terms
2.2, 2.3, 2.4 and 2.5	detailed command descriptions by level
2.6	detailed operating description

2.1   Software Installation

TBefore the TDP software can be installed, all the minimum computer system requirements outlined in the previous section must be met, or you will have difficulty installing or operating the software.

The Installation procedures outlined in this document, assume some basic working knowledge of at least one of Microsoft's Windows 95/98/NT operating systems.

NOTE: At any point during installation, if any Dialog Boxes pop up exclaiming that newer system files are about to be overwritten by older files, click on NO to skip overwriting newer files.

2.1.1 Windows 95

If your computer does not have Microsoft Internet Explorer 5.0 (or any other Microsoft application, no later than mid 1998 installed), then it is possible that certain essential system files are outdated. If these system files are outdated then your system will not meet the minimum requirements for installing and operating a large variety of new software including the TDP software.

If your computer DOES meet the minimum requirements, you may proceed to step 3.

1. To update Windows 95, you will need to install an update available on Microsoft's website, called DCOM95 (dcom95.exe). To download DCOM95, enter "DCOM 95" into Google and follow the links.

Your Browser will invoke a SAVE AS dialog box for you to save the file. Keep track of where you place it, as you will be required to locate it and RUN it. Conveniently, the file will fit on a regular IBM Formatted 3½" 1.44MB floppy disk, for easy transport and distribution.
If you have the DCOM95.EXE update file on a floppy disk, copy/place it in a temporary location on your Hard-disk.

RUN DCOM95 by locating and double-clicking on it in Windows Explorer. Any System files on your computer that are OLDER than the ones contained in the DCOM95 update, will be replaced. You will be asked to restart your computer. Do so, and when the computer has finished booting, you will have an updated Operating System that will meet the requirements of the Transceiver Data Programmer software.

To install the TDP software, locate SETUP.EXE on the CD-ROM in Windows Explorer. When you have located it, double-click it to start the setup process.
The setup wizard may or may not ask to reboot the computer, depending on which components your system required from the installation package. If so, let the computer restart and run setup again to complete the installation process. No further reboots will be required.

After setup finishes unpacking the software, a dialog box will pop up with the option to continue (by clicking on the icon button see **Figure 2-1**), exit the setup, or at this time you may choose an alternate location for the installation. If you have no objections to the default location just click on the icon button to continue the installation.

The TDP installation will ask what START menu Program Group you want the TDP software shortcut installed. Click FINISH if the default Program Group name is adequate.

The Transceiver Data Programmer is now installed and ready to use with a TDFM-136.

2.1.2 Windows 98

Windows 98 comes pre installed with Internet Explorer 5.0 embedded into the operating system. As a result, the operating system as a whole meets the requirements for the installation and operation of the TDP software.

1. To install the TDP software, locate SETUP.EXE on the CD-ROM in Windows Explorer. When you have located it, double-click it to start the setup process.
   The setup wizard may or may not ask to reboot the computer, depending on which components your system required from the installation package. If so, let the computer restart and run setup again to complete the installation process.

2. After setup finishes unpacking the software, a dialog box will pop up with the option to continue (by clicking on the icon button see **Figure 2-1**), exit the setup, or at this time you may choose an alternate location for the installation. If you have no objections to the default location just click on the icon button to continue the installation.

3. The TDP installation will ask what START menu Program Group you want the TDP software shortcut installed. Click FINISH if the default Program Group name is adequate.

The Transceiver Data Programmer is now installed and ready to use with a TDFM-136.

2.1.3 Windows NT 4.0

For a Windows NT 4.0 installation, a minimum of Service Pack 4 must be installed. If you do not have at least Service Pack 4, contact Microsoft for the most current Service Pack.

1. To install the TDP software, locate SETUP.EXE on the CD-ROM in Windows Explorer. When you have located it, double-click it to start the setup process.
   The setup wizard may or may not ask to reboot the computer, depending on which components your system required from the installation package. If so, let the computer restart and run setup again to complete the installation process.

2. After setup finishes unpacking the software, a dialog box will pop up with the option to continue (by clicking on the icon button see **Figure 2-1**), exit the setup, or at this time you may choose an alternate location for the installation. If you have no objections to the default location just click on the icon button to continue the installation.

3. The TDP installation will ask what START menu Program Group you want the TDP software shortcut installed. Click FINISH if the default Program Group name is adequate.

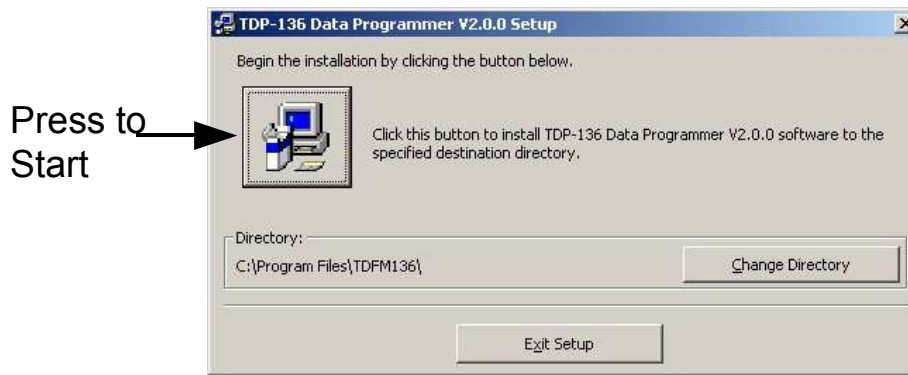The Transceiver Data Programmer is now installed and ready to use with a TDFM-136.

Figure 2-1.   TiL Data Cable for TDFM-136 to PC connection

2.2   Hardware Installation

To interconnect the TDFM-136 to your PC, you must connect the 15 pin D connector of the Data Cable (TiL Part No. 003469-1) to the TDFM-136, and the other end of the cable to an available Serial (COM) Port on your PC. The yellow (+) and green (-) wires that come out of the shell of the 15 pin D connector, are the power supply lines for the TDFM-136. In order for the TDFM-136 to operate, you must supply a minimum of 28 Volts (DC 1A capable min).
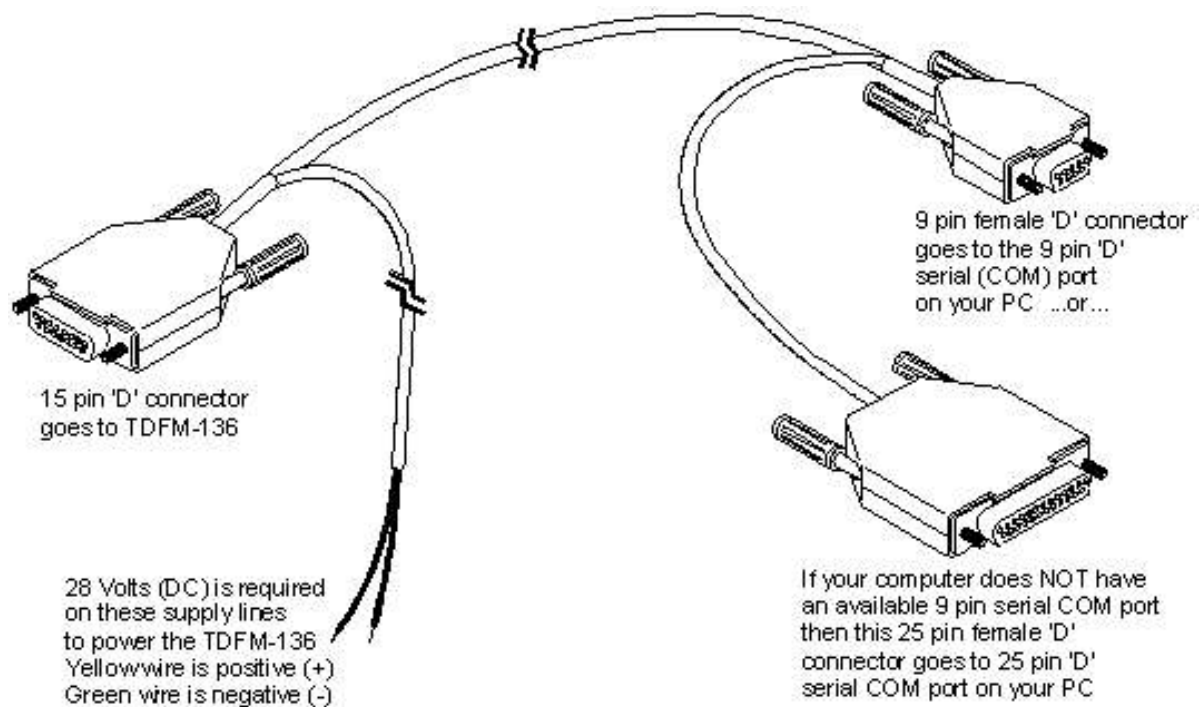

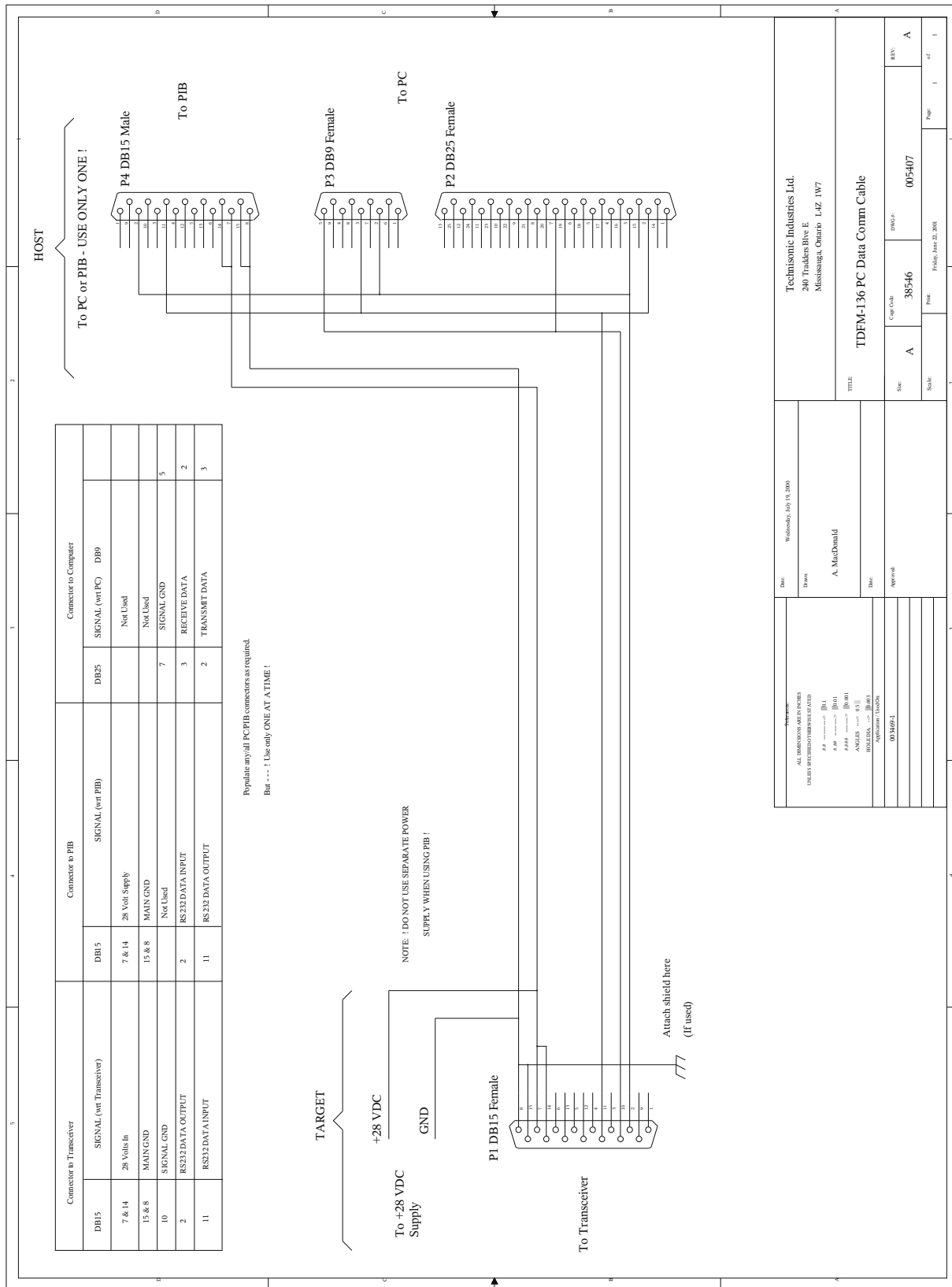Figure 2-2.   TiL Data Cable for TDFM-136 to PC connection

Figure 2-3.   TiL Data Cable for TDFM-136 to PC connection

You will need to either purchase a TiL Data Cable (p/n 003469-1), or you can make one referring to the schematic shown in figure 2-3 above.

3.1   General

This section contains instructions for the correct operation of the TDP-136 software, and explanations of the various elements of the program's Graphical User Interface (GUI).

NOTE: The following images are examples only, and may not reflect your particular data settings.

3.2   Getting Started

To start the TDP-136 in Windows, simply click the Start menu > Programs > TiL Transceiver Data Programmer >TDP-136. The program should begin, and the following program window should open up. The current version number is in square brackets in the Title Bar. The TDP-136 window is shown in figure 3-1 below.
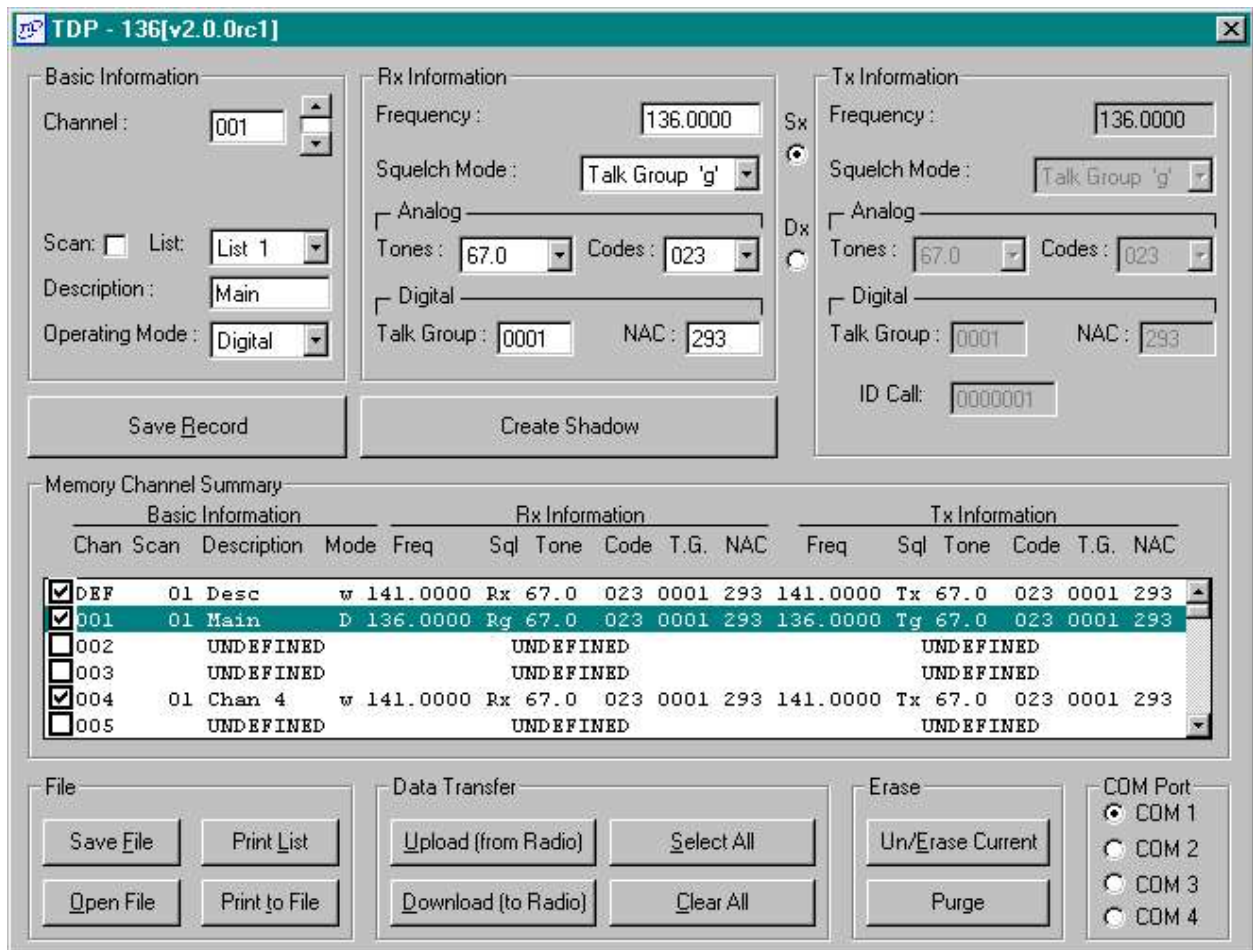

Figure 3-1.   TDP-136 Program Window

TDP - 136[v2.0.0rc1]   ☒

Figure 3-2.   TDP-136 Title Bar

3.3   The Graphical User Interface (GUI)

The window is broken up into 8 logical sections or 'frames' as follows: Basic Information, Rx Information, Tx Information, Memory Channel Summary, File Functions, Data Transfer Functions, Erase/Purge Functions, and COM Port Selector.

3.3.1 Basic Information Frame

The Basic Information frame is where you enter or edit the basic information for a channel memory. The field information displayed includes: the current active channel for editing, the **Scan List(s)** that the current **Channel** is to be included in, the text **Description** assigned to that channel and the channel **Operating Mode**.
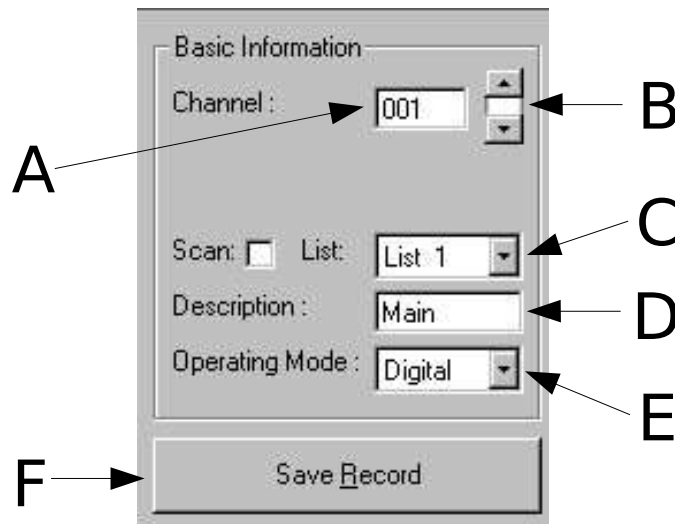

Figure 3-3. Basic Information Frame

A.   The **Channel** box displays the currently active channel. Valid entries are DEF, 1 through 200, GD1, and GD2. If you like, you may directly enter the channel number you would like to edit into this box. Invalid characters will be ignored.

B.   The UP/DOWN buttons allow you to select the next or previous channel for editing. If you should scroll down past the lower channel limit (001), the channel will jump to GD2 and continue scrolling down from there. Inversely, if you should scroll up past the upper channel limit (GD2), the channel will jump to 001 and continue scrolling UP from there.

C.   The **Scan List** pull-down list box allows you to assign the current active channel to a scan list. Each new memory **must** be assigned to a scan list, and can be a member of **only one** scan list. There are 15 scan lists, and each scan list can have up to 16 members.

D. The **Description** text box, allows for a name or label to be assigned to the current active channel. The label can be any arbitrary word up to 8 characters in length. Valid characters are 0 through 9, (lower-case) a through z, (upper-case) A through Z, (space), !, ", #, $, %, and &. Invalid characters will be ignored.

E. The **Operating Mode** pull-down list box, sets and/or displays the current mode of operation for the active channel. The options are Wide, Narrow, or Digital. Both Wide and Narrow are Analog operation functions. The pull-down box allows for selection but not direct entry.

F. The **Save Record** button, will commit to the active channel, any changes done in the Basic Information, Rx Information, Tx Information frames. You will see the active channel data in the Channel Information Summary reflect the changes made. By clicking on the Save Record, the active channel will advance by one record.

G. When the current active **Channel** is DEF, You may edit the DEFault values of all information entered into the Basic Information, Rx information, and Tx Information frames. These entries will become the defaulted values pre-entered into all the fields of each frame for any active channel that has never been edited.

3.3.2 Rx Information Frame

The Rx Information frame is where you enter or edit the receive parameters for the selected channel memory. Each field is explained below.
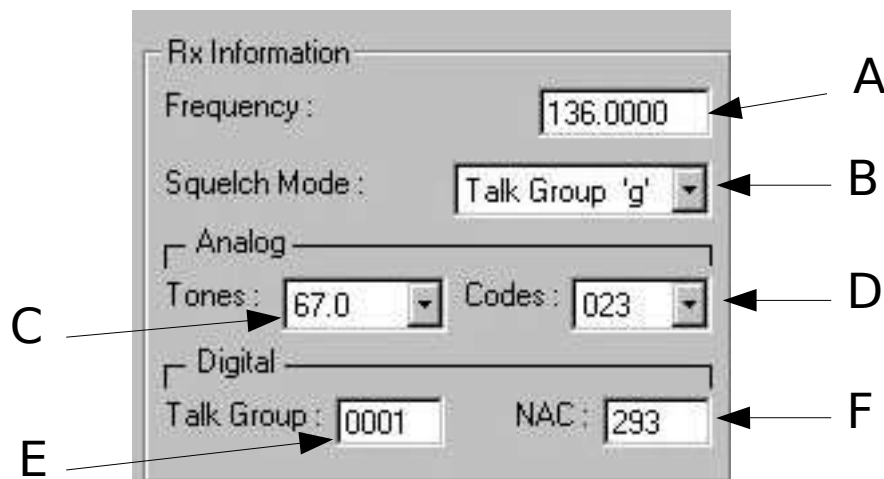

Figure 3-5. Rx (Receive) Information Frame

A. This **Frequency** box determines the receive frequency. The valid range is 136.0000 MHz to 174.0000 MHz, in 25 kHz (0.0250 MHz) steps for Wide mode and 12.5 kHz (0.0125 MHz) steps for Narrow and Digital modes. The program will ignore invalid characters.

B. The **Squelch Mode** pull-down list box selects either Noise, CTCSS, or DCS (also known as DPL) modes for the TDFM-136 in Narrow or Wide (analog) modes. Refer to **E** in **3.3.1**. For Digital mode, the valid selections are Digital Clear, or Talk Group. Refer to **E** in **3.3.1**. The pull-down box allows for selection but not direct entry, and will not allow for incompatible mode selection.

C. The **Tones** pull-down list allows for the selection of an industry standard tone frequency for the **CTCSS tone** squelch mode. The pull-down box allows for selection but not direct entry.

D. The **Codes** pull-down list allows for the selection of an industry standard DCS code for the **DCS code** squelch mode. The pull-down box allows for selection but not direct entry.

E. The **Talk Group** box is used to assign a numeric identifier or serial number to the user for the P25 (digital) operating mode. This is a 4 character HEXADECIMAL number. Valid characters are 0 to 9 and A to F. All other characters will be ignored.

F. The **NAC** (Network Access Code) box is used to assign a numeric identifier or serial number to the user for the P25 (digital) operating mode. This is a 3 character HEXADECIMAL number. Valid characters are 0 to 9 and A to F. All other characters will be ignored.

3.3.3 Tx Information Frame

The Rx Information frame is where you enter or edit the transmit parameters for the selected channel memory. Each field is explained below.
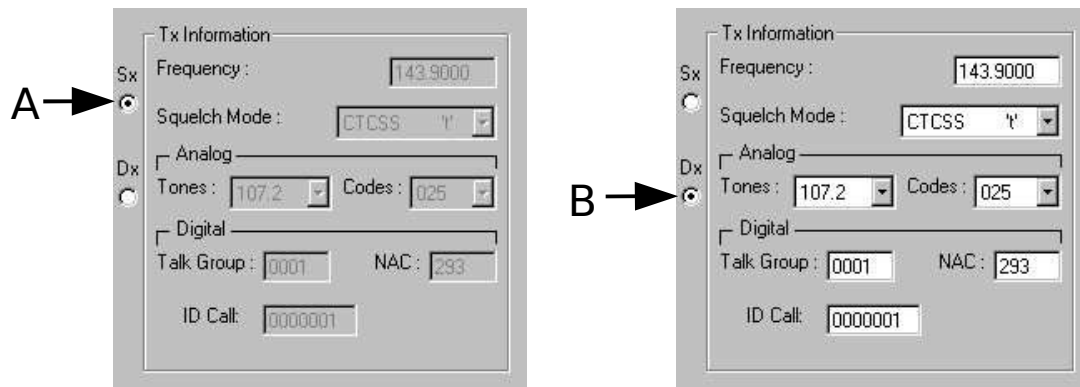

<u>Figure 3-6. Tx (Transmit) Information Editing Window</u>

The **Sx** and **Dx** radio buttons, select either Simplex or Duplex operating modes. In Simplex (Sx) mode, receive (Rx) and transmit (Tx) parameters are the same, in Duplex (Dx) mode, the Rx and Tx parameters may differ. The operation is as follows:

A. In Simplex (Sx) mode, the Tx Information setting fields are grayed out, and none of the field values may be edited. All the values in the fields will be the same as those entered in the Rx Information frame. When you enter the information into each field in the Rx frame, the corresponding Tx field will display the same setting.

B. In Duplex (Dx) mode, the Tx Information setting fields are available for edit. Changing the transmit fields has no effect on the data in the receive fields.

3.3.4 Creating Shadow Channels

The TDFM-136 software Release 2.0.0 and later support 'Shadow Channels', this feature allows you to link up to seven (7) 'shadows' to one (1) primary channel. In this link, the frequency must remain the same, but Operating Mode and Squelch Modes may vary (see the TDFM-136 Install and Operating Instructions for a complete description). You may create a shadow channel by selecting the "Shadow Channel' button, which is located beside the "Save Record" button (see figure 3-1 above). Once the user selects the "Create Shadow" button, the following dialog box is displayed:
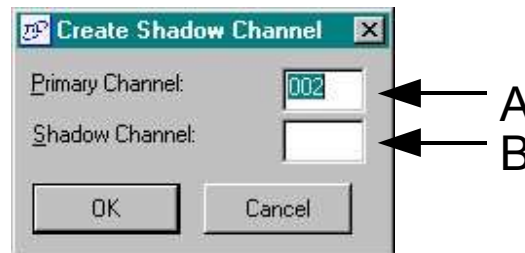

Figure 3-7. Create Shadow Channel Dialog Box

The dialog allows you to select a 'Primary' channel, by number, and assign a number to the shadow channel. Note that Guard Channels cannot have shadow channels.

A.   When the create Shadow Channel dialog comes up, the channel that you were on becomes the default selection for the Primary channel, but you can change that to any existing *Main channel* (provided that it is not already a shadow).

B.   After you select a Primary channel, then choose a number for the Shadow Channel that you wish to create (this must be a currently un-used channel number!).

Once you have made your selections, press OK, this immediately puts the Shadow Channel Data into the Edit Frames (Basic, Rx, and Tx Information frames). You can now edit all the data, except for the channel frequency.

3.3.4 Memory Channel Summary Frame

The Memory Channel Summary displays the currently stored settings for all the available memory Channels (all Main channels plus, GD1, and GD2). All of the information for each channel line represents the settings as defined in the Basic Information, Rx Information, and Tx Information fields.

Figure 3-8. Memory Channel Summary Frame

The up-down scroll bar on the right will allow you to quickly move to the desired channel in the summary window. The selected channel will automatically center itself in the window (where possible). And will become the 'active' channel displayed in the Edit frames/fields above. The TDP software will keep track of and display whether the Channel entry was programmed in Simplex (Sx) or Duplex (Dx) modes. The editable channel default settings (defined as '**Def**') are shown at the top of the summary window, and remain there for quick reference, independent of the channel list position.

You may also use the summary window to select the active channel for editing. By clicking anywhere on the line of any of the channels listed in the window, you will make that channel active for editing in the Basic Information, Rx Information, and Tx Information frames.

If the **Save Record** button is clicked at any point after editing any active channel, the changed information is reflected for that channel in the summary window.
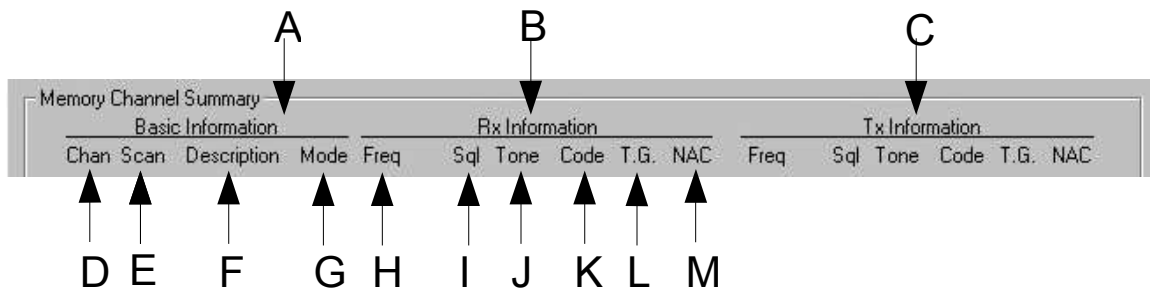

Figure 3-9. Memory Channel Summary Window Header

The Memory Channel Summary window header is organized as follows:

A. All information under this heading represents the Basic Information configuration for each of the 2 channels. See 3.3.1

B. The Receive settings for all channels are arranged in columns under this heading. See 3.3.2

C. The Transmit settings for all channels are arranged in columns under this heading. See 3.3.3

D. **Chan** represents the channel number (001 to 232).

E. **Scan** shows which scan list(s) each channel is currently assigned to.

F. The **Description** is the alphanumeric label or name assigned by the user to the Channel.

G. **Mode** indicates the spacing of the channel. **n** indicates narrow channel spacing (12.5 kHz), the **w** indicates wide channel spacing (25 kHz) and **D** indicates Digital operating mode.

H. This is the receive **Freq**uency assigned to the channel.

I. Indicates the **Sq**uelch mode assigned to the receive function of the channel. In Noise and Digital Clear squelch mode, the mode will be indicated as **Rx**. In CTCSS mode, the mode will be indicated as **Rt**. The DCS squelch mode is identified as **Rc**. In digital mode, the Talk Group mode is identified as **Rg**.

J. **Tone** is the user selected CTCSS tone.

K.   **Code** is the user selected DCS code.

L.   Represents the unique identifier or serial number assigned to the **T**alk **G**roup function for the Digital Mode.

M.   Represents the unique identifier or serial number assigned to the **N**etwork **A**ccess **C**ode function for the Digital Mode.

Note: H, I, J, K, L, and M represent the same data types for the Transmit Information.
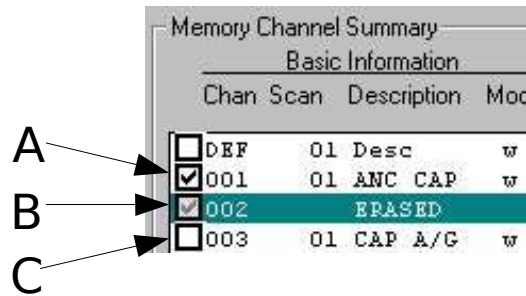

Figure 3-10. Save and Erase Check Box

To the left of the Channel number, you will notice a column of check-boxes. These check-boxes indicate whether a channel's content data is to be saved, erased or ignored during the download process.

A.   The check-box indicates a channel whose data is to be updated in the connected TDFM-136 during download.

B.   The grayed check-box indicates a channel whose contents are to be erased from the connected TDFM-136 during download.

C.   An empty check-box will do nothing during download. During the download process, the channel will be skipped over. (See 3.3.5 - C and D)

3.3.5 File Functions Frame

The File Functions Frame controls allow the user to manipulate the Transceiver Data Files for the TDFM-136 (*filename*.136).
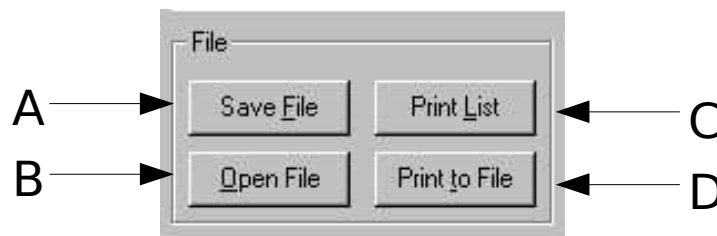

Figure 3-11. File Manipulation Controls

A.   **Save File** will allow you to save the Current data set into a file with a name of your choosing. The filename may be any length up to 64 characters. A file extension of .136 will be automatically appended to the filename. **(eg: Dataset1.136)**

B.   **Open File** will bring up the Open dialog box to allow you to select an existing .136 file to load.

C.   The **Print List** function will print all the contents of all the channels (All Main and both Guard) channels, as presented in the Memory Channel Summary window. The description header will be printed at the top of each page.

D.   The **Print to File** option will create a text file of the entire channel list, as presented in the Memory Channel Summary window. The text file may then be inserted into your documentation.

3.3.6 Data Transfer Functions Frame

The Data Transfer Functions frame is where you send data to, or receive data from, the TDFM-136 transceiver. Note that the TDFM-136 and the user's PC must be correctly connected for file transfer to work. Each button is explained below.

Figure 3-12. Data Transfer Controls

In the TDP-136, the button nomenclature has been worded to coincide with the TDFM-136's function. Any channel that has parameters assigned to it is termed 'defined', any channel that does not have parameters assigned to it is 'undefined', and is marked as such. When a data transfer is started, the Memory Channel Summary Window, changes into a transfer status window until the transfer is complete.

A.   The **Upload (from Radio)** button instructs the TDP-136 program to read in the channel data *from* the TDFM-136 connected to the Computer's COM Port.

B.   The **Download (to Radio)** button instructs the TDP-136 program to send the channel data, for any defined channels, *to* the TDFM-136 connected *to* the Computer's COM Port.
     Note that if you download to a TDFM-136 without uploading first, the TDP will PURGE the contents of the transceiver first no matter what you have selected! If you change scan list or shadow channel information, the TDP will PURGE the contents of the transceiver first.

C.   **Select All** marks all *defined* channels for download to the TDFM-136. In the Channel Summary window, all channels will be marked with a check to the left of the channel number. All channel data will be updated to the TDFM-136 connected to the PC, during the download process.

D.   **Clear All** un-selects all channels in the Channel Summary window.

3.3.7 Erase/Purge Functions Frame

The erase and purge functions allow you to erase selected memory channels (Erase) or to remove all data from the radio and reset it to 'FACTORY SETTINGS' (Purge). The functions may be selected or de-selected in the TDP software as desired, the actual data in the Transceiver is not affected until the command is transferred to the unit using the 'Download' command.

NOTE: Once the command has been sent to the Transceiver, the previous information **CANNOT** be restored using the UnErase or UnPurge functions.
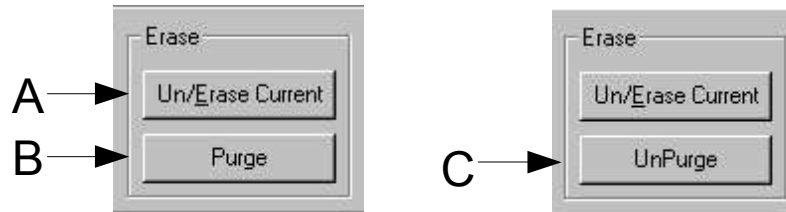

Figure 3-13. Erase and Purge user Controls

A.   By clicking on the **Un/Erase Current**, you will mark the currently active channel for erasing. The contents of the channel in the Channel Summary window will be replaced with the word ERASED. The channel will also be marked with the grayed out check-box. During the download process, the contents of channels marked for erase will be erased on the connected TDFM-136.

This is a toggle function. If you click Un/Erase Current again, the previous data contents for the currently active channel will be restored in the TDP Software only (see the note above) Because of the nature of the TDFM-136, channels 001, GD1 and GD2 CAN NOT be empty or erased. If you click the Un/Erase Current button while either of the channels is active, the program will display an Alert message to inform you of this.

B.   The **Purge** function, effectively resets the TDFM-136 to 'AS SHIPPED from the FACTORY'. This function erases the entire contents of the TDFM-136, and resets channels 001, GD1 and GD2 to the factory defaults. Use this function to quickly erase and reset the transceiver.

C.   **Purge** is a toggle function. When the Purge button is pressed, it becomes an **UnPurge** function. By clicking this UnPurge function, all the channel data for each of the Channels in the Channel Summary window will be restored IN THE TDP SOFTWARE ONLY – you CANNOT UnPurge the Transceiver Data once the command has been sent.

Figure 3-14. Summary Window Display whan Purge is Selected

When the user selects Purge, all the channels in the memory summary window will be displayed in reverse image (white on black). This mode applies to all channels independent of whether they are selected (indicated by check mark) or not. The Purge command will be executed upon Download ONLY.

3.3.8 COM Port Selector Frame

This selects the COM (RS-232 Serial communications) port on your computer, to which the TDFM-136 is connected.
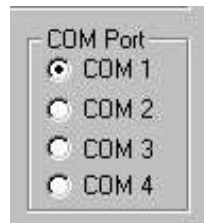

Figure 3-15. COM Port Selector

On ANY computer manufactured after 1990, COM 1 is typically a 9 pin male "D" connector. COM 2 may be either a 9 pin male or 25 pin male "D" connector. COM 3 and COM 4 are available in the TDP-136 software as a valid option, although they typically exist only in a computer with a third party Serial Card installed.

Any time you select a COM port, the selection is saved automatically. Next time the TDP-136 software is run, the COM port you chose, will be selected.

NOTE: The TDP-136 software assumes you have an available, properly configured COM port.

3.3.9 RS-232 Serial Technical Data

The TDP-136 software communicates with the TDFM-136 transceiver at 9600 Baud 8 Data bits, No parity and 1 Stop bit. The TDP software is preset to this configuration and therefore the settings are not user definable.