
Dr.T's
MUSIC • SOFTWARE
ROLAND D-50 Editor/Librarian
for Atari ST or Amiga

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Dr. T Presents...

CAGED ARTIST'S
D-50 EDITOR

For the Roland D-50 and D-550 synthesizers

February 1988 Version 2.0

Program by Robert J. Melvin
Ported to the Amiga by David Silver

Manual by Robert J. Melvin
Additional Material by David Silver
and Jim Johnson

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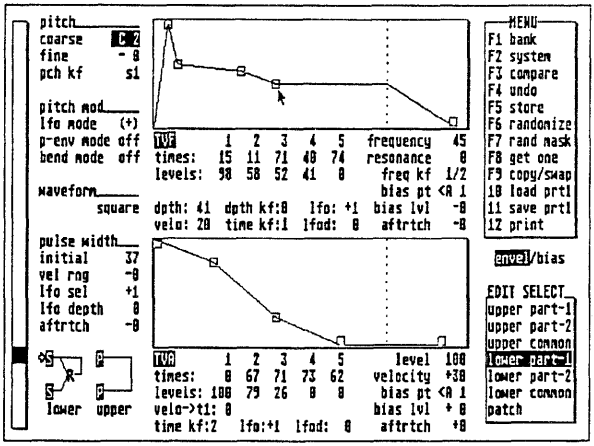
GETTING STARTED



Welcome, and thanks for buying Dr T./Caged Artist software. My goal in creating this series of software products was to make the program intuitive enough such that the manual is barely necessary, without the usual trappings of user-friendliness (Are YOU Sure?). To me, this is important since my Muse gets P.O.'d and deserts me whenever I have to open a manual or think too strenuously about the software. I hope you find this software as useful as I do in the process of creating music. If you like it, there's plenty more ware (s.i.c.) this came from.

- Bob Melvin
a.k.a. Caged Artist

** Note **

In this manual, anything enclosed in brackets refers to a key on the computer keyboard (e.g. [RETURN] is the Return key). "Clicking on" something means positioning the mouse cursor over it and pressing the left mouse button.

Terminology

Roland uses "patch" to denote the group of user alterable parameters which define the current sound of the instrument (other manufacturers use the terms "voice", "program", etc.). I will use the Roland terminology in this manual. I usually call all the sounds loaded in the synth at one time a "bank". Roland uses "bank" differently, so I will use the term "bank file" instead.

Amiga MIDI Interface

You can use any commercial or homebrew MIDI interface which is designed to attach to the Amiga's serial port. Interfaces which attach to the parallel port, such as the Roland MPU-401, are entirely unnecessary, and will not work with this software.

Connections

Initially, you'll want to connect the instrument directly to the computer, MIDI out to MIDI in and MIDI in to MIDI out to save the patches you've already created to disk (see Chapter 2 for a quick procedure to do just that). See Chapter 10 for a complete discussion of the built-in MIDI merger and some useful system set-ups.

Set Up the Synth

System Exclusive reception must be on. Check the System Exclusive parameter on the D-50 by pressing the MIDI button, and then using the left and right arrow buttons.

The D-50's Basic channel must agree with the program's System Exclusive channel, which initially defaults to channel 1. This can be changed in the program's SYSTEM Mode (more on that later).

Note for Atari ST Users

The Atari ST's MIDI out uses two pins which are usually not connected for a MIDI thru output. Many cables sold as MIDI cables wind up connecting these two pins to the MIDI signal, which may result in a random scrambling of the MIDI signal. IF YOU EXPERIENCE MIDI ERRORS, OR BIZARRE MIDI BEHAVIOR OF ANY KIND, THERE IS A GOOD CHANCE THAT YOU'RE USING THE WRONG TYPE OF CABLE! The cable should be a simple, cheap, three-conductor type. There are certainly ways to abuse a five-conductor type to make it work, but I will not go so far as to recommend mutilation as the solution.

Starting the Program on the Atari ST

Turn on the computer with the program disk in drive A. If you are using a color monitor, this program requires you to be in medium resolution mode: in the Options menu select **Set Preferences** - this dialog box will allow you to change the resolution. Select the icon labeled D50_EDIT.PRG by double-clicking on it. In a few seconds the program should be up and running.

**** Note ****

If you turn the ST's power off, leave it off for 10 seconds. Give its memory banks a full lobotomy. Otherwise, bizarre anti-social behavior may ensue.

To start the D-50 Editor from within the KCS, first insert the program disk in the disk drive and click on **Ext** on the sequencer's Edit screen. Using the file select window that appears, load D50_EDIT.INF from whichever drive you've stored it on (or the program disk, if you haven't) and the Multi Program Environment will do the rest! After you've loaded the program, you can return to the D-50 Editor from the KCS at any time by clicking on **D50**, to the right of **Ext**.

Starting the Program on the Amiga

The enclosed program disk is a bootable WorkBench disk. You can either boot your machine using this disk, by turning the machine on and inserting the disk in the internal drive (after KickStart-ing on an Amiga 1000), or insert the disk in an external drive after booting off of another WorkBench.

The program may be started either from the WorkBench, by double-clicking on the large icon that looks like an Amiga monitor, or from a CLI by typing the program name (the name that normally appears beneath the icon).

CHAPTER 2

A QUICK TUTORIAL TO SAVE YOUR SOUNDS

At this point, you probably can't wait to sink your teeth into the program's editing screens. Have patience! The first thing you'll want to do is get all the voices you've already created and save them to disk:

* Find or make a formatted disk on which to save your sounds.

* Do all the stuff in Chapter 1.

* Select **get all** in the BANK Mode menu by clicking on those words in the MENU box. You can alternatively use the function key shown just to the left of **get all.**

* On the D-50, press DATA TRANSFER, then select **Bulk Dump**, followed by ENTER. The prompt on the computer should change to "getting D-50 patches...", and about ten seconds later, the names of the patches in the synth's internal memory should appear on the screen. If nothing happens, hit a key on the computer, check your connections, read this manual, etc.

* Now, select the **save file** function in the menu. A file select box appears on the screen. You should enter the name of the file you wish to save by backspacing over and then re-typing the name. (The program will add the ".D50" suffix.) Then click in the **OK** box. The disk drive should start working, and hopefully no error messages will appear.

* Congratulations. Your patches are safe. You are now free to goof up with wild abandon, although if you intend to charge ahead sans manual, I suggest you save your file under several names on several disks, and put one of these disks in a very safe place, away from probing hands and magnetic fields.

CHAPTER 3

THE BASICS

Several concepts are best learned before attempting to use the program:

Getting Around

The entire program can be run with the mouse. The only time you will need to use the keyboard is while entering a new file name when saving a new file. Alternatively, nearly all the program's functions may be accessed without the mouse, with the exception of copying parameters, changing the randomization mask, and using the graphic editing.

The mouse operation should be fairly intuitive. The left mouse button always selects something, and the right always plays the synthesizer. Point at a parameter and select it. Point at the slider box and select to move the slider. Point at menu items and select them, etc.

** Note **

Please note that you do NOT have to point at the slider bar to move the slider! Point at a parameter (or at any empty space on the screen) and hold down the left button while moving the mouse up or down past the slider's current position, which "grabs" the slider and allows you to move it.

In this manual, I use the term "select" when mouse or keyboard entry is possible, and "click on" when only mouse entry is being referred to.

Loading a Patch

In the BANK Mode, you load a patch by pointing at it and pressing the left mouse button (i.e. "click on it"). Or, you can use the cursor keys to move the patch pointer to the name of a patch, and press [Return]. The patch will be sent to the synth's Edit buffer, and loaded into the computer's Edit buffer.

Using the Program Menus

The Menu choices appear on the right of the screen. To select a menu item, either click on it, or hit the function key shown to the left of the menu item. (F11 and up are selected by [shift]-[F1], etc.). The right mouse button is used to play the synthesizer, more on that later in this chapter.

Default Parameters

Try selecting **system** in the MENU box. You will now be in SYSTEM Mode. Among the parameters in this mode are the MIDI channel on which the program sends data, the program's color scheme, the MIDI Merge settings, etc. These parameters may be changed and then saved to disk, and will be loaded when the program is booted. See Chapter 6 for more on SYSTEM Mode.

Bank Files

The computer contains internal memory for two D-50 bank files, each of which contains 64 patches and 32 reverbs (which, as of version 1.0, aren't programmable). Patches may be freely copied or swapped between these two bank files. Switching between the bank files can be done whenever you see the **FILE SELECT** box - including during a **copy**, **swap**, or **tone load** operation.

Graphic Displays

Envelopes, bias and equalizer settings are shown graphically. The various envelopes may also be edited graphically (see Chapter 9). Bias displays for each partial's TVF and TVA use the same area as the envelope displays. Under the menu is a button which you may click on to enable either the envelope or bias display. These displays are affected by the **bias pt** and **bias amt** parameters. The TVF display also shows the effect of the **freq kf** (frequency key follow) parameter, which is combined with the bias to form the actual filter frequency bias curve of the D-50 (see the Advanced D-50 Manual). The EQ display features separate graphs for the high and low equalizers.

Playing the Mouse

The right mouse button is used to play the synthesizer or synthesizers connected to your computer. You can directly generate notes with the mouse. The **Mouse Play Mode** parameter (found on the SYSTEM Mode screen) controls the function of the mouse.

If **Mouse Play Mode** is set to **notes**, the right mouse button will play a single note on the **Solo/Rech/Mouse Channel** (another SYSTEM Mode parameter). The note number is selected by the left/right position of the mouse. The range of 80 notes is centered around the G which is the center key on a standard five octave keyboard. The velocity is selected by the up/down position of the mouse cursor when the note is turned on, with full velocity at the top of the screen and minimal velocity at the bottom. The note sustains for as long as you hold down the button.

The mouse can also be made to play glissando-style by setting the **Mouse Play Mode** parameter to **gliss**. With glissando, a new note is triggered when the right mouse button is held down and the mouse is moved horizontally. Every eight pixels (one character width) is a new key.

When playing either single notes or glissando, you may transmit modulation controller values by pressing the left button (while the right button is sustaining the note). The modulation amount is controlled by the vertical position of the mouse. The program uses the middle 2/3 of the screen to go from off to full modulation. The modulation returns to zero when the note is released. The mouse may simulate channel pressure (aftertouch), or any of the 32 continuous controllers (e.g. mod wheel, breath, or foot controller). The controller is selected via the SYSTEM Mode **Mouse Mod Controller** parameter.

The [Shift] and [Alt] (or [Alternate], on the ST) keys can also be used in conjunction with the **notes** and **gliss** mouse play modes. If the [Shift] key is held down when **notes** is selected, glissandos are

produced, and if the [Alt] key is held down in either **notes** or **gliss** modes, then left/right motions of the mouse will send pitch bend messages. (The full MIDI pitch bend range is obtained within a range of 64 pixels (about an inch) on each side of the point where you first pressed the [Alt] key.) This is not only useful as a tool for trying out patches, it's also a *lot* of fun to play with.

Multi Program Environment (ST Only)

If you have an Atari ST with Dr. T's KCS (version 1.6 or later) and are running this program in Dr. T's Multi Program Environment, you may play sequences with the mouse without having to switch back to the KCS. The **Mouse Play Mode** parameter (described above) may be set to **sequence**, **range**, or **cue**, each of which play KCS sequences in a different manner. See the **Mouse Play Mode** parameter description in the SYSTEM Mode chapter for more detailed explanation.

Multi-tasking (Amiga Only)

If you have an Amiga, you may use multi-tasking, which makes one computer do the job of several computers plus a MIDI merge box. With the Amiga, the sequencer and several editors can all be running at the same time. You can start a sequence in the KCS, then switch to this program where you are able to edit sounds and even play the mouse while the sequence is running.

This program runs in its own individual screen in the standard Intuition environment. In order to make use of the Amiga's multi-tasking, you should be familiar with the Amiga system facilities for manipulating screens and windows. You will normally not see a drag bar at the top of the editor's screen. You can enable or disable the drag bar at any time simply by moving the mouse to the extreme right and clicking the left mouse button.

Once the drag bar is visible you can use it to raise or lower the editor's screen or rearrange all the screens

(using the depth gadget), just as in most other programs. Note that Intuition provides a keyboard shortcut for rearranging screens. Pressing the left [Amiga] key along with the [N] or [M] keys activates this function. See the Amiga documentation for more details.

The D-50 Editor will not interfere with the operation of most other software. If you are running several applications that send MIDI data, you should be aware that strange things can happen when MIDI data streams are randomly intermixed. An attempt has been made to ensure that most MIDI messages generated by this software will be impervious to interference from other programs. This means that under most circumstances, you will be able to, for example, play a sequence with the KCS while simultaneously editing the parameters of a patch in your synthesizer.

Modes

* The SYSTEM mode shows system parameters (such as MIDI channel and MIDI Merge mode), and allows them to be changed.

* The BANK Mode shows a list of the names of all available patches in the computer's memory. This mode is used to organize patches into bank files, and to load or save these bank files to disk. Also, this is where individual patches are selected for editing.

* The EDIT Mode shows synthesizer patch parameters and allows them to be changed under computer control. Seven separate screens show the data for one patch: the four partials, upper and lower common, and patch data.

CHAPTER 4

MENUS

Each Mode has its own menu in the upper right corner of the screen. The menu includes selections to take you to the other modes, as well as all the available operations for that mode. Menu items may be selected by either pointing and clicking or by pressing the associated function key listed beside each item. (F11 means [shift]-[F1], etc.) Details on each menu will be presented in the following chapters.

SYSTEM Mode

bank
To BANK Mode.

edit
To EDIT Mode.

save sys
Save system parameters to disk.

load mask
Load randomization mask from disk.

save mask
Save randomization mask to disk.

BANK Mode

edit
To EDIT Mode.

system
To SYSTEM Mode.

load file
Load bank file from disk.

save file
Save bank file to disk.

tone load
Load individual tones from the bank files.

copy
Copy patch from one position to another.

move
Move patch from one position to another.

swap
Exchange patches between two positions.

store
Store edited patch in a bank file.

get all
Get bank file from synth.

send all
Send bank file to synth.

print
Print out the list of patch names.

format (ST only)
Formats a blank disk for patch storage.

quit
Exit the program for good.

to kcs (ST/MPE only)
Return to the KCS in the MPE.

NewCLI (Amiga only)
Open a Command Line Interface window.

EDIT Mode

bank
To BANK Mode.

system
To SYSTEM Mode.

compare
Compare patch with any other patch, and copy parameters from it.

undo
Recall last edited patch.

store
Store the edited patch into a bank file.

randomize
Change parameters by a random amount.

rand mask
Select which parameters are randomized.

get one
Get a single patch from the synth.

copy/swap
copy or swap sections within the current patch.

print
Print out the edit parameters.

load tone
Load a single tone from the disk.

save tone
Save the currently selected tone.

load prtl
Load a single partial from the disk.

save prtl
Save the currently selected partial.

swap tone
Exchange upper and lower tones.

CHAPTER 5

PARAMETER EDITING

The D-50 Editor provides a number of different ways to change the program's parameters. Any value can be changed using the mouse, two increment/decrement buttons on the computer keyboard, or simply by typing the new value in. Details follow.

Selecting a Parameter

A parameter may be selected either by clicking on its value, or by moving to it via the cursor keys. Once selected, the parameter may be changed in several ways:

The Virtual Slider

On the far left hand side of the screen is the "virtual slider", a hollow rectangle with a solid one inside it. When a parameter is selected, the solid rectangle's vertical position shows the parameter's current value. There are three ways to move the slider:

CLICK IN THE SLIDER BOX, and the slider will jump to the cursor's position and follow the cursor as long as the left mouse button is held.

CLICK ON A PARAMETER AND HOLD THE LEFT MOUSE BUTTON. Keep the left mouse button depressed and drag the mouse up or down such that you pass the current vertical slider position. The slider then becomes active, and works just as if you had clicked on it. Since up/down movement with the mouse takes less effort than lateral movement, this is almost always more convenient. All changes are sent to the synth.

CLICK IN THE MIDDLE OF NOWHERE. If you click on an area of the screen which has no parameters or menu items, you may change the currently selected parameter using the technique in the preceding paragraph. Of course, you must pass the current slider position before the slider starts

moving. Once you've selected a parameter, this will make it easier to change: just aim for a wide open space, and with one sweeping gesture you're in business.

Increment and Decrement Keys

The [+] and [-] keys on the computer's numeric pad may be used to raise or lower the currently selected parameter's value by one. On the Amiga 1000 only, the numeric [.] key takes the place of the numeric [+] key.

Direct Numeric Entry

The current parameter may be changed by directly keying in a new value with the number keys on the computer. Simply type in the desired value, and, if necessary, press [Return]. As soon as you enter the first digit, the parameter display will change to a temporary "parameter input" display (unless the maximum parameter value is less than 10, in which case the change takes effect immediately). An underlined blank space to the left of the number you've entered signifies that the entry is not yet complete. Once you have pressed [Return] or entered the maximum number of digits, the parameter is changed and the new value is sent to the synth.

For example, to enter a value of 7 for a parameter which has a maximum value of 99, you could either press [7] and [Return] or press [0] and [7].

If a number is entered which exceeds the upper limit of a parameter's range, the value is set to the upper limit (likewise for the lower limit).

If a parameter may be either positive or negative, you will use the [+] and [-] keys on the regular keyboard (NOT on the numeric keypad). The [=] key (unshifted [+]) may be substituted for the [+] key. These keys directly change the sign of the current parameter's value.

Name Entry

The computer keyboard may be used directly to key in the patch names, instead of numeric entry.

Graphic Editing

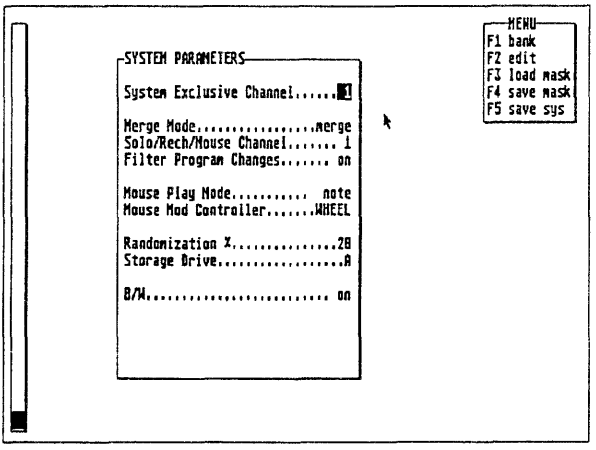
Envelopes may be edited graphically, by dragging points with the mouse. Chapter 9 covers this technique in detail.

**** Note ****

The D-50 will not display parameter changes received from the computer, but the parameters do in fact change and you can immediately hear the result. If you don't believe me, change a parameter and then select that parameter on the D-50 - it will then display the new value. This should cause no problem once you've established faith in this computer program.

CHAPTER 6

SYSTEM MODE



Changing the System Parameters

Select **system** in any menu. You may now change the parameters using the techniques discussed in Chapter 5. Be aware that some parameters will wait (if **Merge** is on) until all notes are off before changing. This was done to avoid the possibility of stuck notes. If this happens, you will receive a prompt and you'll have to hit a key or mouse button to continue. You can also save some of these parameters to disk, and they will be automatically loaded the next time you start the program.

System Exclusive Channel

This channel is used in all System Exclusive messages sent by the program, and should be set to the same channel as the synth's Basic channel.

Merge Mode

This parameter is used to select the mode of operation of the program's MIDI Merge (echo) feature. The merge feature makes it possible to load and edit sounds with this program while playing the synth from a master controller, sequencer, drum machine, or whatever. Connect the MIDI out of your controller to the MIDI in of the computer, and the MIDI out of the computer to the synthesizer (as usual). There are several modes of operation which you may want to explore:

Merge

When **Merge** is set to any value other than **off**, MIDI messages (except System Exclusive) received by the computer are echoed to the MIDI out, and merged with the System Exclusive messages from the program.

Solo

If **Merge** is set to **solo**, only the Channel Voice messages (note on and off, controllers, etc.) for the **Solo/Rech/Mouse Channel** (see below) are passed through. All other channels are filtered out. System Real Time messages (timing information) will also be merged. This is useful if you are merging several channels of MIDI from an external sequencer or drum machine, and want to solo one of the channels.

Rechannelize

If **Merge** is set to **rechannelize**, all Channel Voice messages at the computer's MIDI in are converted to the **Solo/Rech/Mouse Channel** (see below) before they are echoed to the MIDI in of the computer. If you are using a master keyboard to voice several synths on several different channels, this allows you to select the channel from the computer.

Solo/Rech/ Mouse Channel

This channel serves several functions:

* It is the channel on which the mouse plays (see **Playing the Mouse** in Chapter 3).

* It is the only channel allowed to pass through the computer in Merge Solo mode (see above).

* It is the channel to which all messages are converted in Merge Rechannelize mode (see above).

**** Note ****

When MIDI merging is on, the program attempts to keep track of notes, so that it may know when to allow various changes in the **Merge** settings to occur without causing hung notes. If you get a prompt advising you that notes may be on, releasing them should allow the program to continue. If not, you'll have to hit a key on the computer or a mouse button to continue.

Filter Program Changes

When merging is on, program changes may come through and cause a ball of confusion. You don't want this to happen, so you should turn this parameter **on**, except for special occasions. Program changes will be blocked.

Mouse Play Mode

As described in Chapter 3, the right mouse button may be used to play single notes and glissandos. If you have an Atari ST, and this program was started from Dr. T's KCS (using the Multi Program Environment), it may also play entire sequences. The following is a brief description of the options - for more information, see **Playing the Mouse** in Chapter 3:

notes: The mouse plays single notes. The note sounds until both mouse buttons are released.

gliss: The mouse again plays single notes, but new notes are triggered when the mouse moves right or left, until both buttons are released. A new note is triggered on every eighth pixel.

sequence: (ST/MPE only): This makes a right mouse click in this program equivalent to a right mouse click in the KCS Edit screen - it plays the current sequence or track.

range: (ST/MPE only): If a range of events is highlighted in the KCS Edit screen, the mouse button will play the range. Otherwise, the entire current sequence or track is played.

cue: (ST/MPE only): This option causes all tracks to be played. If a cue is set in KCS Track mode, it will play the current cue. If a range is highlighted on the KCS Edit screen, all tracks will be played over the specified range. This is the setting to use if you want to hear the patch you are editing in the context of the whole sequence.

On the ST only, all of these mouse play modes may be directly accessed *from any screen* of the program (except the SYSTEM Mode screen) by typing the proper control code on the computer.

notes	[Ctrl]-[N]
gliss	[Ctrl]-[G]
sequence	[Ctrl]-[S]
range	[Ctrl]-[R]
cue	[Ctrl]-[C]

Mouse Mod Controller

The controller which can be simulated by the mouse is selected with this parameter. The mouse can play pressure (aftertouch) or any continuous controller from 1 to 31. See Chapter 3 for more on how to play the mouse.

Randomization %

This parameter is used during a randomize operation to determine the amount of randomization. See Chapter 8 for more on randomization.

Storage Drive (ST Only)

The current drive is selected here. Any drive from A - H may be used to store bank files and randomization masks. The default value for this parameter is saved by the **save sys** command. The **save sys** command only saves to drive A, however, since that is the drive the program must be booted from.

Colors

If you are using a color monitor, you can change the color scheme. The colors are stored along with the other defaults by using the **save sys** command. You are free to customize the program to your whim, whether it be day-glo, earth tones, pastels or whatever!

B/W (ST Only)

With the high resolution monochrome monitor only, this parameter selects black on white (**on**) or vice versa.

Save System Parameters to Disk

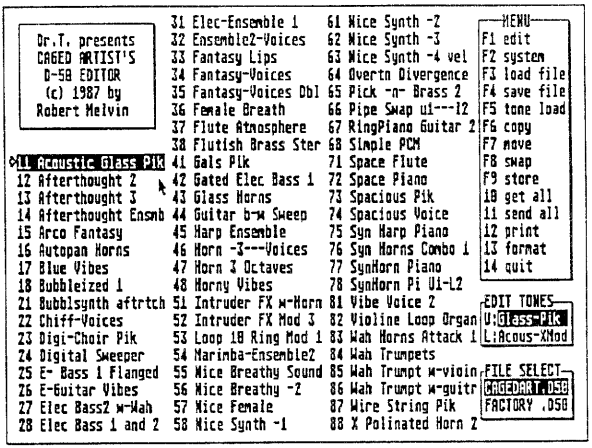
With the program disk in the disk drive, select **save sys** in the SYSTEM Mode menu. All the system parameters, including the current randomization mask, are saved to disk, and will be automatically loaded the next time you run the program.

Loading or Saving the Randomization Mask

Use the **load mask** and **save mask** functions to store your favorite randomization masks on disk. The procedure is similar to the **load file** and **save file** functions covered in Chapter 7.

CHAPTER 7

BANK MODE



All About BANK Mode

When the program is first started, it will enter the BANK Mode. The screen displays the names of the two computer bank files, and the names of the 64 patches in the currently selected bank file. Individual patches may be loaded into or stored from the computer's Edit buffer. Patches may be copied to another position in any bank, swapped with another patch from any bank, or moved anywhere within the same bank. A bank file may be downloaded to the synth in its entirety, uploaded from the synth, loaded from disk, or saved to disk.

The patch which is currently loaded in the computer's Edit buffer is shown in inverse video. The computer attempts to keep track of this position, even during the **copy**, **move**, and **swap** operations.

The upper and lower tone names for the currently loaded patch are shown at the right side of the screen.

Selecting an Internal Patch File

Use the mouse to click on one of the file names in the **FILE SELECT** box. The patch names for the selected file appear on the screen, and the file's name is highlighted.

The **FILE SELECT** box may be used whenever it is displayed (including during copy, move, swap, or store operations. The number keys 1 - 2 will also select the file whenever the **FILE SELECT** box is displayed.

Selecting a Single Patch

To load a single patch into the Edit buffer of the computer, and send it to the synthesizer, simply point at the name and click the left mouse button. Or, lacking a mouse, move the pointer (see below) to the desired name and press [Return]. The patch you have selected will now be available for editing in the EDIT Mode, and should be audible on your synth, if all is well.

The Patch Pointer

The patch which is currently playing will be highlighted (shown in inverse video). In addition, there is a small pointer which remains to the left of the patch numbers. The pointer signifies that this is the patch which will be loaded if [Return] is pressed, and this is the patch which will be used for the compare/copy parameters feature in the EDIT Mode. The patch pointer may be moved with the mouse by clicking to the left of the patch number, or by the cursor keys.

Loading a Bank File

load file

This operation loads a bank file from the disk into one of the computer's temporary (RAM) bank files. With the display showing the bank file you wish to replace, select the **load file** operation. The computer will catalog the disk, displaying the names of all the bank files only. Click on the desired file name, and then click in the **OK** box. If you prefer, you may also manually type in the file name, and press [Return].

**** Note ****

If you have made important changes or updates to a bank file, you must save the file to disk before loading another file over it.

Saving a Bank File

save file

With the display showing the bank file you wish to save, select the **save file** function. If you are saving the file under the same name it had when it was loaded, all you need do is to click on the **OK** box or hit [Return]. Otherwise, you'll want to erase the current name and then enter a new file name (the ".D50" extension is automatically added).

Send a Bank File to the Synth

send all

The entire currently selected bank file will be sent when the **send all** command is selected, replacing the patches in the D-50. This also sends 16 reverb patches. The D-50 MIDI out must be connected to the computer's MIDI in, as this program uses a "handshaking" technique to send the patches. First, select this command. Then, select DATA TRANSFER and "B.Load" on the D-50 and press ENTER. The computer prompt will change to "sending D-50 patches..." If the D-50 is not connected properly, you'll have to hit the mouse button or any key on the computer to cancel.

Get a Bank File from the Synth

get all

First, make sure the MIDI out of the synth is connected to the MIDI in of the computer (and vice versa). Select the **get all** command. On the synthesizer, select DATA TRANSFER and "B.Dump" and hit the ENTER key. The prompt on the computer should change to "getting D-50 patches ...". Shortly thereafter, the currently selected bank file will be replaced by the patches from the synth. If this doesn't occur, check your connections.

Store Edited Patch in a Bank File

store

This command allows you to store your edited patch in any bank file position, replacing whatever was in that position. The old position is highlighted. Select the position using the same methods you would use to load a patch.

**** Note ****

To make any change permanent, the altered bank must be saved to disk. See "Saving a Bank File".

Copy a Patch

copy

This command takes a patch from any bank file, and copies it to any position in any bank file. This is a destructive copy, meaning that the patch which occupies the position to be copied to is obliterated by the copy.

Move a Patch

move

This command allows you to shuffle patches within a bank file, without losing any patch data. A patch is moved to a selected position. All the patches between the source and destination position are shifted to adjust for this change.

Swap Patches

swap
This command allows two patches from any bank or position to be exchanged.

Notes on the Patch Commands

In all the above operations, select the source and destination patches in the usual way - using the file select box or number keys, and clicking on the selected patch. This will not disturb the current Edit buffer patch.

These commands automatically repeat until you click on the **RETURN TO BANK MODE** box, or press the [ESC] key. The computer remembers the source and destination bank file, and automatically switches bank files for you on subsequent repetitions.

If you make a mistake, click in the **RETURN TO BANK MODE** box or hit [ESC] to cancel the operation, or click on **RE-SELECT SOURCE** if you selected the wrong source. These commands cannot be undone.

Through all of these operations, the computer attempts to keep track of the location of the currently loaded patch. The location is shown in reverse video.

Load Single Tones

tone load

This function allows you to load individual tones from a bank file into the upper or lower tones of the current patch - the easiest and fastest way to come up with new sounds. Instead of displaying patch names, the computer shows the two tone names for each patch in the bank file. Click on the upper or lower tone in the **CURRENT TONES** box to select the tone to be replaced. Clicking on any of the tone names loads the tone and sends it to the synth. Keep trying until you like what you hear, then click in the **RETURN TO BANK MODE** box to get back to the BANK Mode, where you can choose to edit and/or store your new patch.

Format a Disk (ST Only)

format

This command leads you through a series of dialog boxes which let you format a single or (if possible) double sided diskette. If you change your mind, click on the **CANCEL** box. The first box asks you to insert a blank disk into drive A (and only drive A). The second box asks for single or double sided format. You should not select double sided if you only have a single sided disk drive. Clicking on **PROCEED** starts the process of formatting, The lower right hand side of the screen shows the progress (there are 80 tracks per side).

Open a CLI Window (Amiga Only)

NewCLI

Selecting this option temporarily suspends the execution of the editor, brings the WorkBench screen to the front and opens a new Command Line Interface (CLI) window. When you are finished with the CLI, just type "EndCLI" and the normal operation of the editor will resume.

Print Out Patch Names

print

The entire patch list for the bank file may be printed out by selecting the **print** function. If the printer is not ready, the ST program will wait for you to hit a key (or mouse button). If it's still not ready, printing is cancelled. The Amiga program will wait thirty seconds, then issue an error message, if the printer is not ready.

Exit the Program

quit or **to kcs**

The **quit** command allows you to quit the program. Everything important should be saved to disk before quitting, as the patches in the computer's memory will be lost.

If the program is running under the MPE on the Atari ST, **quit** will be replaced by **to kcs**. Clicking on this option will take you directly back to the KCS, as you probably guessed.

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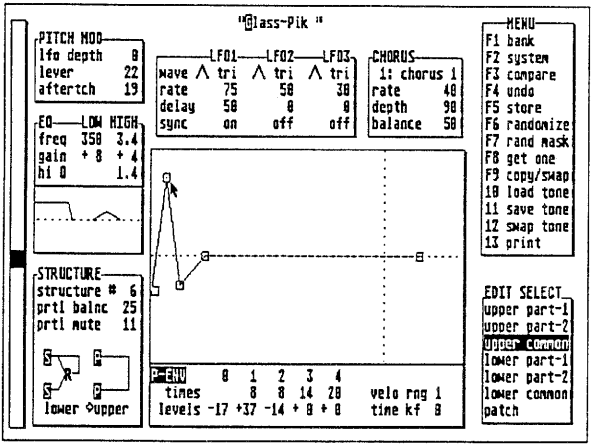
CHAPTER 8

EDIT MODE



Memory Organization

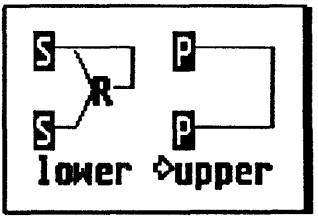
While it is certainly not necessary for you to understand all of the inner workings of the program in order to make use of it, sometimes it helps to know just what the computer is doing with the data you give it. This is especially important when you're copying or moving patches, since sometimes it's easy to lose track of what's where.

In this program there are three buffers, or temporary storage locations, in the computer which are used in the editing of a patch: the Edit buffer, the Compare buffer, and the Undo buffer. In the BANK Mode, individual patches are loaded from a bank of patches into the Edit buffer. The patch in this buffer is then edited using the techniques introduced in Chapter 5, as well as the techniques in this chapter, and stored back into the bank using the **store** command. The Compare buffer is used to compare an edited patch with another patch (usually the original patch), and to copy parameters from the other patch. The Undo buffer holds a copy of the last edited patch which may be recalled by the **undo** command.

Edit Select

The D-50 patch consists of two tones, each with two partials, as you probably know. The tone consists of the partials plus the "common" data. The patch (or "sound" if you prefer) is made up of the two tones plus the patch data. With this program, you select one of these blocks of data by clicking on its name in the **EDIT SELECT** box.

There are three different screen layouts used which I'll refer to as Partial, Common and Patch.

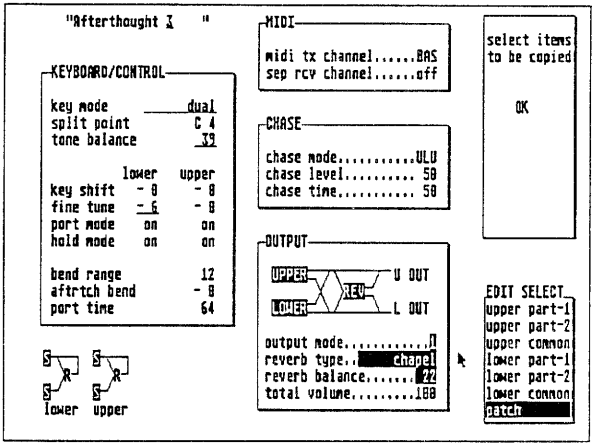


The all-important structure type is always shown graphically in the lower left hand corner of the screen. A very handy little arrow points at the partial or tone currently selected.

You will notice that partials which are used as ring modulators and PCM partials have parameters which are not shown (they appear as asterisks ***). This signifies that these parameters are inactive for the current structure. If this concept is foreign to you, I suggest you read the Advanced D-50 Manual. The parameters which are not used may still be selected and changed as usual, but they won't make any difference to the sound. Of course, if the keyboard mode is "whole", the entire lower patch is inaudible, but I chose not to show that.

Muting Partials

The partials (either **P** or **S**) in the graphic structure display (lower left corner) are shown in reverse video if they are on, and normal video if they are muted. Clicking on the partial's letter designator toggles the mute feature. This method of muting is always available while you're in the EDIT mode. The mute settings are also shown numerically (as on the D-50) on the Common screens.



Compare and Copy

comp/copy

This function causes the sound from the current BANK Mode Patch Pointer position (see Chapter 7) to be loaded into the Compare buffer, displayed, and sent to the synth. **Note:** ANY sound in any bank (not just the original sound) may be compared or copied from by going to the BANK Mode and repositioning the Patch Pointer, using either the cursor keys or by clicking to the left of the patch number.

You will note that any parameters which have different values from those in the Edit buffer are shown in a different color. On the ST's monochrome monitor, they are underlined.

You may copy any parameters from the Compare/copy patch by clicking on the parameters.

This adds that parameter to a list of parameters which will be copied when you click in the **OK** box. Clicking again removes that parameter from the list to be copied. Upon clicking in the **OK** box, the selected parameters are copied to the Edit patch, and the resultant patch is sent to the synth. If you made a mistake, **undo** will undo the whole operation.

The **EDIT SELECT** box does not work when you're comparing a sound, but it is included to remind you which partial or tone you are comparing.

The **PARTIAL MUTE** feature DOES work, and can be used to great advantage. You can mute everything but the partial or tone you are comparing, making it easier to hear the difference between sounds.

**** Note ****

To copy a whole partial from another patch, it is usually easier to use the **load prtl** and **save prtl** functions, covered later in this chapter. The **comp/copy** function is better suited for progress checks and for "undoing" undesirable parameter changes.

Undoing Changes

undo

Undo is possible under the following circumstances:

* When a new patch is loaded over an edited patch.

* Whenever a new parameter is changed.

* When parameters are copied using **comp/copy**.

* When the **randomize** feature is used.

* When **get one** gets a patch from the synth.

* When an envelope point is moved.

* During **load tone, load prtl**, or **swap tone**.

* When the **copy/swap** feature is used.

This command therefore undoes **randomize, copy/swap, get one**, etc. It also can be used to gauge the effect of your latest parameter change, to help you stay on course when you're going for a certain sound.

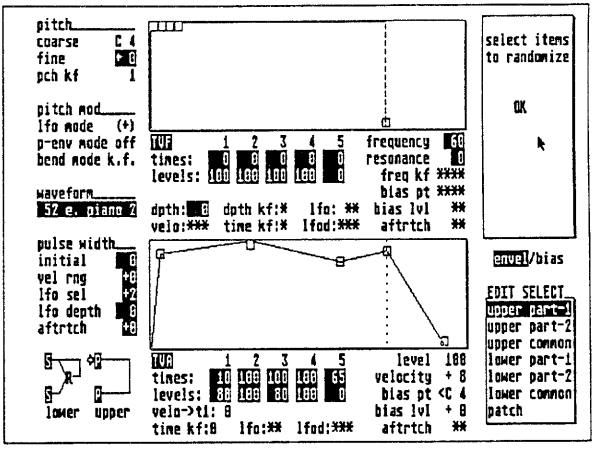
Store the Edited Patch

store

This function is the same as the **store** command in the BANK Mode. However, the program returns to the EDIT Mode one second after showing you that the patch was indeed stored.

**** Note ****

To make any patch change permanent, the bank must be saved to disk. See "Saving a Bank File" in Chapter 7.



Randomize

randomize

The D-50 Editor includes a versatile and easy to use random patch modifier/generator. It allows you to select the parameters which will be randomized, and the amount of randomization. It operates on the patch currently in the Edit buffer, so it can be used to generate anything from slight variations to entirely random patches.

**** Note ****

In this program, **the randomizer only affects the data on the currently selected page.**

First, set up a randomization mask (see next section). Then, set the **Randomization %** parameter to the desired value. The **Randomization %** factor, which is found and can be edited from the edit screen, is the amount (in terms of a percent of a parameter's total range) which a parameter can deviate. For example, if a parameter goes from 0 to 99, its range is 100, and a **Randomization %** of 20 means that a random number between -20 and +20 will be added to the parameter the next time it is randomized. This amount is always at least +/- 1.

Finally, select the **randomize** command. If you like what you hear, store it. If you don't, you can undo it

with the **undo** command and try again. Or, you can just keep randomizing, and see what you get.

Randomization Mask

rand mask
The best feature of the program's randomizer is the fact that you select which parameters are to be randomized. You may choose to randomize envelopes only, or waveforms, TVAs, LFOs, etc. in any combination. Since you have control, you can use your creativity and a knowledge of the D-50's parameters to make random patches which have a greater chance of being useful.

Select **rand mask** and click on the parameters to be randomized, they will appear in inverse video. Clicking on one that's already on will turn it off. When you're done, click in the **OK** box. Use the **randomize** command to do the randomization.

To load or save a mask, or to save a mask as the default mask, follow the procedures in Chapter 6.

Get a Patch from the Synth

get patch
This function is mainly intended to get one patch from the synth's Edit buffer and put it in the computer's Edit buffer. The synth's MIDI out must naturally be connected to the computer's MIDI in for this to occur. If an error message occurs, press the mouse button or any key, then check your system parameters, connections, etc.

Print

print
Use this function to print out the EDIT or FUNCTIONS Mode screen. If the printer is not ready, the Atari ST program will wait for you to hit a key (or mouse button). If it's still not ready, **print** is cancelled. The Amiga version will wait for thirty seconds, then issue an error message, if the printer is not ready.

Load or Save Tones or Partials

load tone
save tone
load prtl
save prtl

Individual partials and tones may be saved to disk, providing an easy way to build a library of useful patch components. The currently selected tone or patch is loaded or saved, using the standard file selection method. While different tones always provide rewarding variations on a patch (provided you're in DUAL or SPLIT mode), partials are trickier. You should pay attention to the partial type (SYNTH, PCM or RING MOD), and the tone's structure to select an appropriate replacement partial.

Swap Upper and Lower Tones

swap tone

This useful function does exactly what you'd expect, and sends the resulting patch to the D-50.

Copy or Swap Sections of a Patch

copy/swap

This function moves sections of data around within a patch. It basically duplicates the COPY function included in the D-50, but adds the ability to swap instead of copying, and includes more options for the section of data to be copied or swapped, up to and including an entire tone. Swapping partials comes in handy when you're going for a particular stereo arrangement, using output modes 2 - 4. Swapping sections more or less at random may also produce interesting results. The most popular use of copying is to copy a partial or a tone, which you would then presumably detune or otherwise slightly adjust to create a "bigger" sound.

To use this function, click on an item in the **FROM** box. The **SECTION** and **TO** choices will change accordingly if necessary. Click on the section and destination of your choice. When you're ready to proceed, click in either the **SWAP** or **COPY** box, and the action will take place. The resulting patch is

sent to the D-50. If not satisfied, use **undo** to restore the old patch.

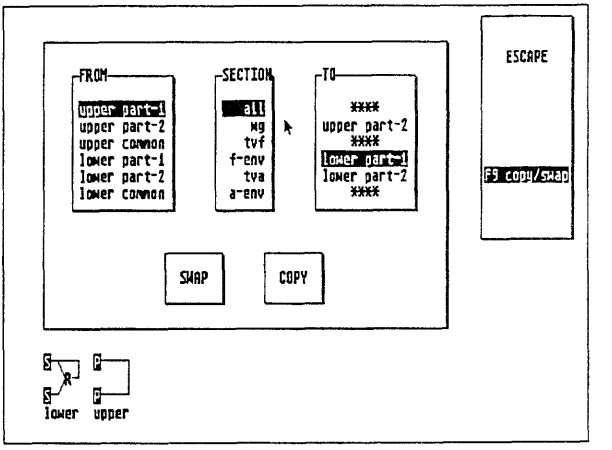
To copy or swap an entire tone, click on **upper common** or **lower common**, and on **tone** in the **SECTION** box.

The various sections are, for partials:

all	All partial parameters
wg	Pitch, wave, and pulse width
tvf	All time-variant filter parameters
f-env	TVF times and levels only
tva	All time-variant amplifier parameters
a-env	TVA times and levels only

...and for common:

all	All common parameters
lfos	All three LFOs' wave, delay, rate and sync
p-env	All pitch envelope parameters
eq	All parametric equalizer parameters
tone	Partial 1, partial 2 and common parameters

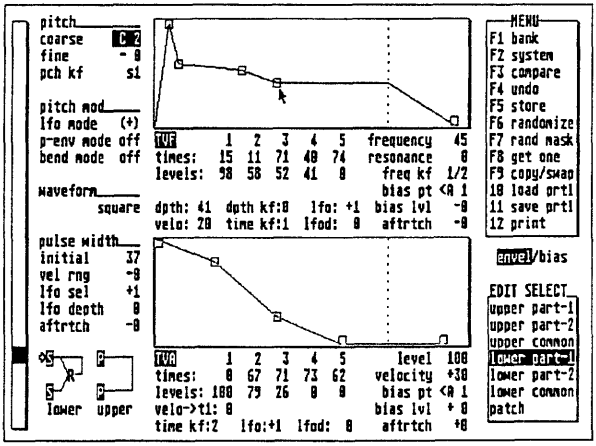


CHAPTER 9

GRAPHIC EDITING

Now here's something you'll really like!
- Rocket J. Squirrel

Forget about those messy numbers, you won't need them here. Here you will shape the envelope with your mouse, and a minimal bit of hand/eye coordination. Graphic Editing lets you pick a point on an envelope and move it anywhere it CAN be moved (note the emphasis - I can't make any envelope shapes that couldn't be made via the front panel, given enough monkeys and enough time).



Envelope and Bias Display

The envelopes are shown on level vs. time plots. The vertical dotted line represents the point in time where the theoretical "key" is lifted, and the envelope begins its release stage.

The bias curves for a partial may also be shown by clicking on the word **bias**, shown just below the menu. Click on **envel** to switch back to the envelope display.

Bias curves show TVF frequency, or the overall TVA level vs. note number. These curves are not edited graphically.

Envelope Input

To edit a point in an envelope, click in its box, and keeping your finger firmly placed on that left mouse button, move it around. When you have released, the updated parameters will be sent to the synth, and you can play the mouse a little to hear what you did.

Use the **undo** command in the menu to undo an envelope change. This will undo the most recent change only.

CHAPTER 10

MIDI MERGE

There are several good ways to patch together a system which will take advantage of the MIDI merge features built into this program. The system you choose will depend on the equipment you have.

How Merge Works

The MIDI merge function contained in this program combines external MIDI data with System Exclusive data generated by the program. When **Merge** is set to any value other than **off**, the MIDI information which appears at the computer interface MIDI in is "echoed" to the MIDI out, and merged with System Exclusive data from this program.

One of the incoming channels may be soloed (only input on one specific channel is merged) or rechannelized (input on all channels is converted to the specified channel). These options are also selected with the **Merge** parameter.

A Review of Merge Modes

on: Everything is retransmitted, except during disk access or printing, and combined with System Exclusive messages from this software. System Exclusive messages are not re-transmitted.

solo: Only messages on the designated **Solo/Rech/Mouse Channel** are re-transmitted.

rechannelize: Messages received on ANY MIDI channel are retransmitted on the designated **Solo/Rech/Mouse Channel**.

off: Nothing is re-transmitted.

Using Merge

With an External Sequencer...
If you own an external sequencer or drum machine, or another computer which is used for sequencing, you will be able to play a sequence concurrently and adjust synthesizer parameters or load patches from the computer. With the **solo** feature, the instrument you are voicing (or any other channel) may be soloed in the sequence.

With a Master Keyboard...
Another typical case in which Merge is especially useful is with rack mounted modules like the D-550. Merging allows you to play your rack mounted synth from a master keyboard while you voice it.

With Alternative Controllers...
Some of us use special controllers, like guitar or wind controllers (harmonicas, kazoos, etc.). Using MIDI merging, the synth may be voiced with ANY MIDI controller.

** Note **

When **Merge** is on, the program attempts to keep track of notes, so that it may know when to allow certain changes (such as turning merging off) to occur without causing stuck notes to occur. If the program stops while changing a merge related parameter, it's waiting for all notes to be turned off.

** Note **

It is always a good idea to have a MIDI thru box or switcher to feed all the slaves. A MIDI matrix switcher, such as those made by Kamlet, 360 Systems, J.L. Cooper and others, can be very useful in any system. The ideal switcher would have one input and output for each MIDI instrument. If inputs are lacking, an extra input switch can select the slave output to be connected to the main switcher, to be used when and if bidirectional communication is needed, for example, to get sounds from the slave.

APPENDIX A

HELPFUL HINTS

Start out with a bank file of initialized patches, which should be available on your disk (INITBANK.D50). Save this file under the name WORKBANK.D50 or whatever. As you edit patches, store them into this "scratch" file, and/or store the individual tones and partials. Periodically, save the scratch file to disk. With all the cheap storage that this program affords, there is no reason to be stingy about saving patches which may not be perfect, since they may turn out to be useful someday.

I have started to break apart all the factory sounds into their component partials and save these to disk. A lot of useful sounds can be made by juggling these partials, or by using the **load tone** feature to quickly try different combinations of tones.

When you edit a partial, it is best to mute the partials you aren't working on (see Chapter 8). For the TVF, note that the parameters on the right side of the display set the basic frequency of the filter. (It's not obvious from the D-50 literature that TVF bias effects the filter frequency directly, and NOT the TVF envelope depth, as one may have hoped.) The effects of the TVF envelope and LFO are added to this basic frequency. The TVF envelope **depth** parameter must be non-zero for the envelope to have any effect (like volume on the TVA). Likewise, the LFO depth parameter (**lfod**) must be non-zero for the LFO to have an effect.

Changing the Default Bank

To get your own bank of sounds to load automatically at program start-up, do the following: First, save INITBANK.D50 under some other name or on a different disk. Then, on the program disk, save the file you wish to be the default, and call it INITBANK.D50.

APPENDIX B

SERVICE AND SUPPORT

This program and the associated documentation are copyright (C) 1986 and 1988 by Robert J. Melvin. This program is licensed to be used on a single machine, by the original purchaser of the program only. It may not be copied without explicit written permission.

The diskette on which the program is furnished is warranted for ninety (90) days from the date of delivery. The program is not guaranteed to meet your requirements, and operation of the program is not guaranteed to be uninterrupted or error free. **In no event will Robert J. Melvin or Dr. T's Music Software be liable for any damages, including any lost savings, lost profits, or other incidental or consequential damages arising out of the use or inability to use this program, even if we have been advised of the possibility of damages. Dr. T's Music Software and Robert J. Melvin shall not be responsible for any damages claimed by any other party, resulting from the use or attempted use of this program.** All warranties implied are with Dr. T's, not your local dealer. If problems arise, call Dr. T's directly.

Copy Protection and Backups

The program disk which contains D50_EDIT.PRG is copy protected, and must be inserted in drive A on the Atari, or any drive on the Amiga, when running the program from either the hard or floppy disk. We regret the necessity for copy protection, but experience has shown this to be the only way to deal with unauthorized distribution of our programs. **Software piracy is a crime and deprives your fellow artists of their rightful income.** Because of this problem, we are much more fun to deal with if we have your completed warranty card in our hands when you call for technical support.

Backup disks may be obtained from Dr. T's for $15, when you send in your warranty registration card. You must include either your completed warranty card or your diskette serial number and a copy of the sales receipt with your request for a backup. There is a $15 charge for the replacement of program disks that become defective more than 90 days after the date of purchase. We will only sell one backup disk to each customer, and you will be required to return either your backup or original disk when ordering updates or replacement disks.

When returning disks for replacement or updates, **please send the disk by UPS, Federal Express, Express Mail, or some other service that will allow you to trace the shipment.** We're sorry, but we cannot be held responsible for packages sent via regular US mail.

Dr. T's reserves the right to make improvements to the program without notice, and to make what we consider to be reasonable charges for updates.

What To Do If Problems Arise

If you have problems with the D-50 Editor that you are unable to solve with the help of the manual, Dr. T's maintains a customer service staff of experienced MIDI musicians. We are happy to help you with questions regarding the D-50 Editor and any of our other programs, but due to the incredible variety of MIDI products available today, **we cannot answer questions regarding other manufacturer's hardware or software, including questions on the basic operation of GEM, Intuition, the Atari ST, the Commodore Amiga, or any other computers.**

When calling Dr. T's for customer service, there are a number of things that you can do to help us help you, which can also save you money on your long distance bill. Here is a check list of things to have ready when calling Dr. T's:

* Your diskette registration number.

* Your manual.

* Computer turned on and the D-50 Editor booted.

* Any data related to the problem.

* Information on your computer's disk drive configuration, monitor type, printer type, etc.

* Paper and pencil.

When you call us, we will walk you through the program and ask you questions about what happens, so it is very important that you have this material at hand when calling. If you don't have this ready, we will ask you to call back later with the required information. When you've gathered everything together, call us at **(617) 244-1542** between 10 AM and 4 PM Eastern Standard Time, Monday through Friday.