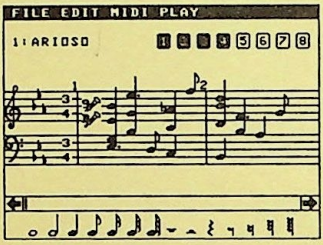
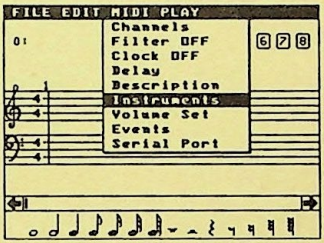
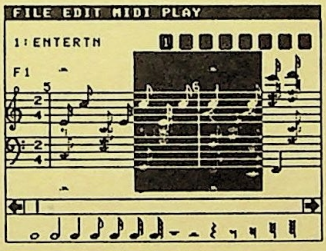
Lyra







A MIDI Based Music Composition Program for the Color Computer

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Lyra

A MIDI Based
Music Composition Program
for the Tandy Color Computer

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Introduction

Welcome to the wonderful world of MIDI! The marriage of computers and musical instruments, made possible with MIDI, enables anyone with just a little musical ability to make music that otherwise would be impossible. No longer do you have to worry about technical skills getting in the way of musical expression. With Lyra, your Color Computer can talk to your MIDI synthesizer.

Lyra is a music composition program for the Tandy Color Computer. It was designed with the goals of ease of use and power in mind. It is for those of use who would rather not spend hours studying a large manual in order to use a new program. Every effort has been made to make Lyra responsive to your needs so that it is truly useful.

Lyra takes advantage of the built-in music generation capabilities of the Color Computer as well as the increasingly popular music interface standard, MIDI. Full graphic display allows easy entry and editing of a music score with up to 8 fully independent parts.

To run Lyra you need the following equipment: a Tandy Color Computer (any version) with at least 64K memory, a mouse (or joystick), and a disk drive (Disk Extended Color Basic 1.0, 1.1, 2.0, or 2.1 required). Optional equipment includes a MIDI synthesizer and a connecting cable. Instructions for making your own cable to connect the computer and synthesizer are given in the appendix.

Getting Started

Lyra is not copy protected, so before you do anything else, please make a backup copy of the disk you purchased. Place a black light proof piece of tape over the notch in the side of the master disk to make sure that it is not accidentally erased or modified. If you have two disk drives, place the master disk

in drive 1 and a blank formatted disk in drive 0 and enter:

```
BACKUP 1 TO 0
```

If you have just one drive, then place the master disk in the drive and enter:

```
BACKUP
```

After reading a part of the disk, you will be instructed to replace the master disk with the blank formatted disk. After several swaps, the backup will be complete.

Now store your master disk in a safe place. Use only the copied disk from now on.

Make sure that a mouse or joystick is plugged into the right joystick connector on the back of the computer. If you are using a MIDI synthesizer, connect the synthesizer's MIDI IN connector to the SERIAL I/O connector on the back of the computer using the cable described in the appendix. Load the program from the backup disk by typing:

```
LOADM "LYRA"
```

and then press the ENTER key. When the disk drive light goes out and OK displays on the screen, press either "1" for a black on buff screen or "2" for a black on green screen. The buff screen is useful if you are using a monochrome monitor.

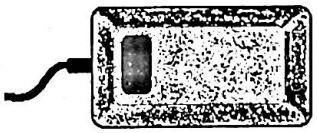
The screen will display a title and copyright message; press any key (or mouse/joystick button) to continue.

The tool you will need to master to get around Lyra is the mouse or joystick. From now on, whenever the mouse is mentioned, assume that the joystick could be used instead. You will find that a high quality joystick or mouse is well worth the additional expense.

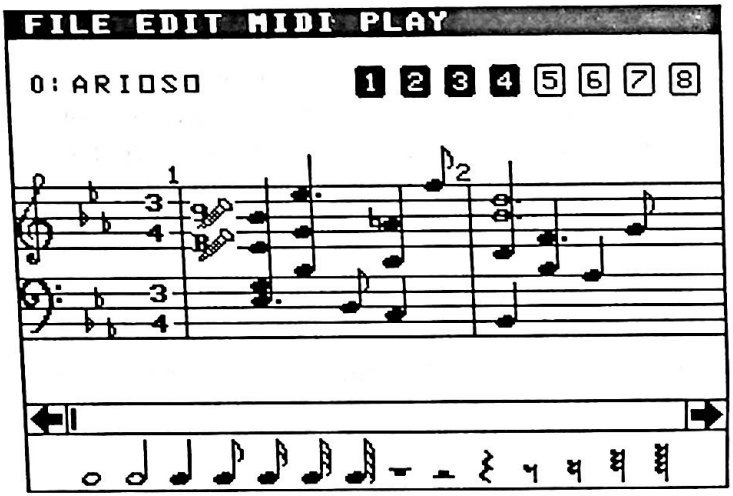
Move the mouse up and down. A small black diamond called a cursor will move up and down on the screen. You can tell the program what you want to do by placing the cursor in a certain area on the screen ("point") and then selecting by

pressing and releasing the mouse button ("click"). For example, move the cursor down to the line of notes at the bottom of the screen. As you move across the notes and rests, the item pointed to changes color. Press the mouse button, release it, ("click") and move the mouse up above the notes and rests. You will find that the cursor has changed to the selected note or rest. Any time that a note or rest is displayed in this way, you can put it on the music score. Just point to the desired position on the score and click. Voila! The note is now entered into the score. Now move the mouse above the music score. Point to the top line and move the mouse horizontally. You will see several boxes filled with commands pop down (called pull-down menus). Try selecting one of the commands by carefully moving the mouse down until the desired command is turned black. Click the mouse button and the command will be performed.

You have now learned 90% of what you need to know to make Lyra do your bidding. Go ahead, close this manual and try playing around!



Screen Description



At the very top of the screen is a black bar with words in it. This is the *pulldown menu* line. Each word describes the type of commands that can be accessed by selecting it. To use the pulldown menu, simply point to the desired word on the top line; a list or menu of choices will pop down. By moving the mouse down, each choice will be highlighted in turn. A choice may be selected by clicking. If an item is displayed in halftone, it is not available at the moment; some other command must first be performed.

At the left below the pulldown menu line is the name of the current disk file being edited. The name is prefixed by the disk drive number (0-3) and a colon. The name changes when you change the file name by loading or saving a file through the **File** pulldown menu.

On the opposite side of the screen are 8 numbered boxes. Each box corresponds to one of the 8 possible *voices* or parts that music can be entered into. When a box is black, that voice is selected. Clicking that box will change it to halftone; clicking once more will change it to clear. If notes are

displayed, each part will be displayed in full tone, half tone, or not at all depending on what the corresponding box shows. To enter music, only one voice box can be selected black. If more than one voice is selected then no music can be entered. The cursor will display in half tone if more than one voice is selected.

When the mouse is pointing at the music score the note name and octave number are displayed below the filename. This is particularly useful if you are entering a note that is above or below the staves.

Below the music staff are two arrows pointing in opposite directions. The music displayed may be moved either direction by pointing to the desired arrow and holding the mouse button down. Between the two arrows is the fast move bar. You can jump to any part of music by positioning the cursor in the bar and clicking. If the cursor is in the midpoint of the bar, then music will be displayed at it's midpoint. Moving the cursor in either direction will move the music a proportional amount in the same direction. You can hold the mouse button down and move the pointer from right to left and move back and forth through the music.

At the bottom of the screen is the note and rest menu area. Each item may be selected by pointing and clicking. When the mouse is moved up into the music staff area, the cursor changes to the selected note or rest. When the mouse is moved above or below the staff, the note disappears and the diamond shaped cursor appears. Unless a new note or rest is selected, the previously selected note will reappear when the mouse is moved back into the staff area.

Note Entry

Before entering any music, select the correct voice at the top right hand corner of the screen. Only the voice box corresponding to the music part you want to enter music into must be black. If more than one voice box is black then Lyra will ignore any attempts to enter music, and the cursor will be halftone when it is in the area of the staff. After a note or rest has been selected, it may be placed on the music staff simply by pointing to the desired location and clicking. You may also use the keys 1 through 8 to select a music voice. For example, if you wish to enter notes into voice 3, press the "3" key. The third voice box will turn black and all other voice boxes that were black will turn half-tone.

When adding new notes in the music score, place the cursor immediately after the last note in the voice being used before clicking. If you have entered music in a particular voice and have scrolled the display to the right so that now no notes in that voice are displayed, move the display back until a note in that voice is seen before entering a new note.

Lyra will let you enter only one note per voice. In order to build a chord, you must enter each note of the chord in a different voice. Use the number keys 1 through 8 to quickly select each voice in a chord. This will speed things up considerably.

Occasionally you will find that a particularly long measure cannot be displayed completely at one time. This may cause some difficulty adding new notes especially if a note (such as a whole note) lasts for more than one screen length. To add a note after such a note, move the display so that the long note is at the beginning of the display. Select the note length you want to add next, and click it on the music staff at the correct pitch anywhere after the long note. Now when you advance the display, you will see the new note has been entered correctly.

Note values other than those shown on the note menu at the bottom of the screen may be entered using the tie (T) or period (.) key. A tie is entered by pointing to the second note (that has the same pitch as the first note) involved and pressing the "T" key. For example, suppose you wish to enter a dotted quarter note. This has the same note value as a quarter note tied to an eighth note. Pick up a quarter note and put it on the staff and then place an eighth note immediately after it. Point to the eighth note and press the "T" key. A tie connecting the quarter and eighth notes will appear. *Please note that musical slurs which look like ties are not supported on Lyra.* A tie connects two notes of the same pitch whereas a slur connects two or more notes of differing pitch.

A dotted note may be entered by placing the cursor over the desired note and pressing the period (.) key. This has the effect of increasing the note length by one-half. Triplets of any note value except a whole note may be entered by putting a note on the score and then pressing the "#" key while the cursor is positioned over the note.

You can enter sharp, flat, or natural notes by pointing to the correct pitch and pressing "S", "F", or "N" instead of the mouse button. A natural is used to cancel the sharp or flat of the key signature. Lyra deviates from standard musical notation here in that a sharp, flat, or natural lasts only for one note and not until the end of the measure. If the sharp or flat is a part of the musical key signature, it is not necessary to enter the sharp or flat. Lyra will do it for you. As a general rule, if you see the sharp or flat in a score, go ahead and put it in Lyra, too.

Editing music is very simple. Select the desired voice using the numbered boxes at the top of the screen. Remember, only a single box should be solid black. To change a note's pitch, point to the new pitch directly above or below and click. A note may be inserted by pointing just before or after a note

and clicking. You can delete a note by pointing to it and pressing the "D" key. Note that any changes in the number of notes or note lengths causes Lyra to adjust the screen appropriately.

The display of a voice can be turned off by clicking its voice box until it is clear. Changing display modes can be used to check parts separately, especially when the display becomes crowded.

One word of caution: while it is ok to have less notes in voices 2 through 8 than voice 1, voice 1 should be full up until the end of music. The reason for this is that many of the editing routines in Lyra use voice 1 for positioning. Unpredictable results may occur if voice 1 is not full.

Barlines are automatically displayed for you depending on the time signature. The time signature can be set by getting the EDIT pulldown menu and selecting **Time signature**. Note that barlines do not affect the music code stored in memory; you can reset the time signature and the barlines will be re-adjusted accordingly. The time signature can be reset only when the display shows the start of music. More on this in the pulldown menu section.

If there is an error in a voice such that there are too many beats in a measure (such as a whole note in a 3/4 bar), further display of barlines becomes inaccurate.

Playing Music

Lyra is designed to work best with a MIDI synthesizer. But if you don't have one, you can still play music through the TV speaker by going to the PLAY pulldown menu and selecting **TV Play**. See the section on pulldown menus for more details.

If you have a synthesizer, first be sure you have connected the Color Computer to it with the correct cable (see the appendix). Plug the 4 pin connector into the serial port on the back of the computer and the other end of the cable into the MIDI in connector on the synthesizer. Point to the MIDI pulldown menu and click on **MIDI play.** All voices displayed (either in black or halftone) will be played through the synthesizer. If you have problems with getting the right sound or not being able to get all voices to play, read on.

Lyra may also be used with the CoCo MIDI pack. Make sure that you have plugged the pack into your MultiPak or Y-cable and have connected the MIDI out connector on the pack to the MIDI in connector on the synthesizer according to the directions that come with CoCo MIDI. Enable output to CoCo MIDI by selecting **Serial Port** on the MIDI menu. Select **MIDI play** on the PLAY menu and music will be played through the CoCo MIDI pack.

Only those voices that are displayed on the screen in black or half-tone will be played. If you wish to turn off a voice, click on it's voice box until it disappears.

Playing music on a MIDI synthesizer can be a fairly complicated process. You need to make sure that your CoCo and the synth are talking to each other on the same "wavelength". Read on for more information.

Setting MIDI Parameters

MIDI is an electronic communications standard that allows musical synthesizers and computers to talk to each other. If properly equipped, synthesizers can pass musical information to each other and computers can be used to control one or more synthesizers.

Every synthesizer is slightly different in the way MIDI is implememented and not all synthesizers are capable of playing all the features that Lyra has. If you have questions about what your synthesizer can do, you should consult the manual that came with your synthesizer.

In order to make your synthesizer work, you must set up a number of parameters in Lyra.

The most important parameter is the *channel* parameter. This is similar to the channels on a TV. Even though a TV has a single antenna, many stations can communicate with your TV by broadcasting on different channels. In the same way Lyra can communicate with more than one synthesizer by sending notes on one of 8 channels. The musical information from each voice could be sent on any of 8 channels or all voices could be sent on one channel. You could hook up 8 separate synthesizers and each synthesizer would respond differently, just like the different TV stations. Some synthesizers can "hear" more than one channel and allow you to play different sounds on each channel. Such a synthesizer could be set up so that it would make 8 different sounds simultaneously, like a small band. Such synthesizers are called "multi-timbral".

What channels you set up depends on what your synthesizer is capable of and what type of effect you want. If you are not sure, then the best bet is to send all music information on channel 1.

Program changes are numbers sent to a synthesizer to change the sound or timbre that it makes. For example, a certain

synthesizer might make sounds like a violin when program change number 3 is sent to it, and like a piano when program change number 6 is sent. Program changes are called instrument numbers in Lyra. You can change these instrument numbers as often as you wish.

Instrument numbers are sent through the same channels as notes. You can take advantage of this to set notes of different channels to sound as different instruments. Voice 1 could be set to channel 1, voices 2 through 7 set to channel 2, and voice 8 set to channel 3. If you issue instrument numbers in voice 1 to set a saxaphone, voice 2 to set brass, and voice 8 to set electric bass, then all three instrumental sounds would be produced by your synthesizer simultaneously. Voices 2 through 7 would all sound as brass because they are all set to the same channel.

Velocity sets the loudness of a note. Lyra implements this as volume changes. As with instrument numbers, volume changes are sent over channels and affect all notes played on a channel. If you want different voices to have different volumes, then those voices must have different channels.

MIDI has provision for timing information to be sent that allows instruments to be synchronized with each other. *Clock* information is useful when you are using a drum machine synthesizer with Lyra. The clock can be turned on or off. When it is turned on then timing signals are sent 24 times for each quarter note.

All MIDI parameters are set through the MIDI pulldown menu. More details may be found in that section.

Pulldown Menus

This section discusses the various commands available through the pulldown menus in order of the menu line at the top of the screen. Most commands request information that must be entered through the keyboard. After this information is entered, press the ENTER key and the command will be performed. The BREAK key may be used to abort a command.

The FILE menu

Selecting the **New** command will erase all music. Be sure to save any music you may be editing before using this command as there is no way to undo it!

A composition may be loaded by selecting **Load.** A directory of Lyra files will be displayed. You can change the default drive number by clicking on one of the drive names at the bottom of the screen. Move the mouse around until the arrow is pointing to the desired file, then press the mouse button. The filename will be displayed in the left upper corner of the screen as soon as the music has been loaded.

To save a composition, point to the Files pulldown menu and click on **Save as.** Type in the name of the composition (up to 8 letters) and press ENTER. You may add a disk drive number (0-3) at the end of the name. This drive number then becomes the default drive. Your composition will be saved to disk. If there already is a file with the same name on the disk, Lyra will ask you if you wish to write over the old file. Type "Y" if you do.

If you have edited a composition and wish to save it again, simply select **Save** on the EDIT pulldown menu. This saves the composition with the name displayed in the upper left hand corner of the screen. If you wish to change the name then use the **Save as** command. You will notice that if no filename is displayed in the upper left hand corner the **Save**

command is displayed in halftone and cannot be selected. This command can be used only after a file has been loaded or saved. Lyra saves several things along with the music code: the current voice selections, the note lengths table, the MIDI instrument table, MIDI volumes, and the synthesizer description.

Should an error occur in loading or saving a file, the type of error that occurred will be displayed and the program will halt until any key is pressed. Errors that are identified simply by an error number should not occur. In addition, certain other errors that have the directive to "report this error" should be reported. Please report what type of system you have, what you were doing just before the error occurred, and what the error was.

The **Append** command will append just the notes from a Lyra file to the end of the current music in memory. Be sure that the original and appended files use identical voices and that all voices used in the current music in memory are full (end at the same place).

The **Delete** command lets you kill a disk file without having to return to Basic. The command displays a directory of the current disk (just like **Load**); point to the file you want to delete and click the mouse.

Load instr and **Save instr** loads or saves MIDI instrument tables to disk. This provides an easy way to change an instrument table if you wish to use a different set of instruments or if you are changing synthesizers and don't want to go through the music to change all the instrument markers. The synthesizer description is also included in each file so you can tell which synthesizer the table is intended for. These commands function similarly to the **Load** and **Save as** commands.

Set drive is for users who have more than one disk drive. Just enter the drive number (0-3) and and files will be loaded from

or saved to that drive.

The **Quit** command returns you back to Basic. Like the New command, there is no way to return to Lyra unless you reload the program.

The EDIT menu

All voices on is a quick way to set all 8 voices on. Voice 1 is set to black and the others are set to halftone. Music can be entered into voice 1.

Time signature is used to change the time signature. Enter two numbers to correspond to the desired time signature and press ENTER. This should be done only at the start of music.

Key signature may be set by first entering a number corresponding to the number of flats or sharps in the key signature and then either "F" or "S" for flat or sharp. To enter a key signature of 5 flats, enter "5F". This command affects the entire score.

Note lengths allows you to specify the length of each note as a fraction of 8 for each voice. Eight fractions will appear on the screen when you select this item; each fraction corresponds to each voice 1 through 8. Entering 6 for voice 1 will cause notes in voice 1 to be played for 6/8ths of the note value. Entering 0 has the same effect as 8. Please note that this will affect only MIDI play.

Fill voice allows you to fill a voice with rests up until the start of displayed music. This is useful when you have filled a voice with notes and then decide that you need another voice to add a note to a chord. Instead of going back to the start of the new voice and laboriously adding rests until you reach the point where the new note goes, just position the start of displayed music to where the new note will go, select the **Fill Voice** command, and enter the voice number that needs to be filled. After the command has been completed, the display is backed up one space. You can specify the position of the inserted

up one space. You can specify the position of the inserted rests by first placing a rest at the start of the voice at the desired position.

Lyra allows you to edit blocks or sections of music. The next five commands work on blocks. Until a block has been marked, these commands are displayed in halftone and cannot be selected. A block is marked by moving the cursor to the start of the block, pressing the "B" key and then moving forward to the end of the block and pressing the "B" key again. The marked block of music is displayed with colors reversed so you can easily tell where it is. The end of the block may be changed by by pointing to a new location and pressing the "B" key. The start of a block cannot be reset unless the whole block is cleared first. It probably is a good idea to save your music on a disk before performing a block command, just in case an error occurs. Note that all block commands will function only with those voices that are displayed. Turning a voice off will prevent a block function from working on it.

Reset block clears a marked block in case you marked th wrong section of music.

Block delete deletes the marked section of music. Be sure you have marked music correctly!

Block copy allows you to copy a block of music. Mark the block then select **Block copy**. The cursor changes into a vertical COPY. Now move the cursor to the spot in music where you want the block to be copied to. You can make use of the arrows or quick move bar as much as you need. Click the mouse button and the copy will be performed. If you wish to copy to the end of music, first put an extra note in voice 1 at the end of music. Copy the block to just before the last note and then delete that extra note.

You can transpose a block of music with the **Block Transpose** command. The notes will be actually moved up or down on the score. Set the "mode" to "S" to make the

remains marked after the transpose so you can make another transpose if necessary. The block markers are cleared if you Reset block or if you add or delete a note.

The **Voice Copy** command copies a single voice from a given voice to another within a marked block. The copied data is appended to the new voice (or "tacked on" the end of the new voice).

An alternate way of getting around you music quickly is provided with the **Go To Bar** command. Enter three digits (the first two digits must be zeros if the number is less than 10; the first digit must be zero if the number is less than 100) corresponding to the bar number you want to move to.

The MIDI menu

The MIDI pulldown menu provides most of the commands needed to set up and play music through your MIDI synthesizer.

Channels allows you to specify which channels the music should be played through on the synthesizer. At start-up, all 8 voices are set to play through channel 1. Most synthesizers will play music correctly in this mode provided they can handle however many voices you have used. Check the manual that came with your synthesizer to determine how it implements this feature. Each voice may be set to its own channel if desired. Enter a string of 8 numbers corresponding the to channel desired for each voice. MIDI channels are numbered from 0 (for channel 1) through 9, and then A,B,C,D,E,F (for channels 10 through 16). For example, if you have 4 voices being used in your composition, and desire to send voice 1 to channel 1, voice 2 to channel 2, and voices 3 and 4 to channel 3, then you would enter 01220000. The last 4 numbers could be any number since they are not being used.

Filter OFF is a toggle that can be turned on or off. The ON or OFF refers to the current state of the filter. This is useful when you wish to ignore certain types of MIDI information

that could be used differently on different synthesizers. The filter is turned on selecting the Filter command and then entering one or more of the letters B,C,E,I or V. These letters correspond to MIDI Byte options, Channels (all notes are sent on channel 1), MIDI Events, and Volumes (a default velocity of 64 is used). When the filter has been turned on, the "Filter OFF" changes to "Filter ON". To disable a filter option, merely enter a space in it's place.

Clock OFF allows you to turn the MIDI clock on or off. The ON or OFF displayed refers to the current state of the clock. When on, Lyra will send MIDI timing signals at the rate of 24 every quarter note. In addition, start and stop signals are sent at the start and stop of music. If you interrupt playing with the "U" key and then restart, a MIDI continue signal will be sent instead of the start signal. The main use of the clock is for synchronization with drum machines and other synthesizers. Note that the clock can also be turned on and off within the musical score using the key command "C".

MIDI delay may be used to correct note sticking and random sounding "garbage" problems with certain synthesizers. There appear to be two reasons for these problems: either the cable connecting the CoCo serial port to the synthesizer is not supplying the correct current to the synthesizer, or the synthesizer is not fast enough to keep up with Lyra. In most cases, the synthesizer is probably the culprit. MIDI delay allows you to enter a number from 00 to 99. The larger the number, the longer the pause that is inserted between MIDI signals when Lyra is playing music. Experiment with your synthesizer to determine what number works best. Note that as you increase the number and consequently the amount of time between MIDI signals, the tempo becomes slower and there is greater variation in tempo depending on the number of notes being played simultaneously.

Description is used to make a note as to what synthesizer was used for the instrument table. This information is stored

with the music code and also with instrument tables.

Instruments allows you to set up to 16 different MIDI instruments (or program numbers). The instrument data is arranged in two columns: first is the instrument number (0 to 9 and A to F) followed by a colon, then the MIDI program number (the actual number sent to your synthesizer), and then a seven letter description of the instrument. You can change the program number and descriptions to fit the instruments available on your synthesizer.

To use these instruments in your composition, you must set an instrument marker in the music. Make sure the desired voice is selected, and the cursor is positioned where you want to make the change. Press the I key. A complete list of the instruments you have set up will display. Now press the instrument number (0 to 9, A to F) and an I followed by whatever instrument number you selected will be entered into the score. Notice that this affects only the channel selected by the voice. For example, suppose you have entered I3 into voice 3 and the channels selected are 12243111. When the music is played, voices 2 and 3 will be set to the new instrument since they both are on the same channel. If you wish all the voices to have different instruments, then each voice must be set to a different channel.

Since there is no standardization as to what sound is produced by a program number on a synthesizer, the instrument table used in Lyra helps to circumvent the difficulties that would be encountered if a music file was played on a synthesizer other than the one that the music was originally set up for. One synthesizer might require a program number of 3 for a violin sound and another require a program number of 2. To play a composition set up for the first synthesizer, it is not necessary to go through music and change all the instrument markers (which could be quite a chore!). All that you have to do is to change the program numbers in the instrument table.

To help you get around on the instrument table, the down

arrow key moves the cursor to the next field. The left arrow key will move the cursor back until the start of the current field. The right arrow key will advance the cursor one space.

Volume set allows you to modify the volume settings used by the V key. Lyra is preset to certain values that should work for most situations:

ppp- 16	*pp* - 32
p - 48	*mp* - 64
mf - 80	*f* - 96
ff - 112	*fff* - 127

The values you enter must all be less than 128 or your synthesizer may behave strangely. These volume settings are saved with the music. You will find that music files written with earlier versions will have the volume settings all set to 64.

To place a volume setting in music, position the cursor where you want the volume setting to be and press the "V" key. A table of numbers and volumes will appear; select the desired volume by pressing the corresponding number.

The **Events** command lets you set up an event table similar to the Instrument table. Events can then be entered into music much the same as instrument markers. Events are sequences of numbers that are sent to MIDI while music is being played. This is similar to the MIDI byte option except that up to 14 bytes can be stored in an event. The event table has room for 4 events, numbered 0 to 3. The first 8 spaces are for a short description, the next number is the number of bytes used in the event (use A,B,C,D for numbers greater than 9), and then the actual numbers (they must be entered in hexadecimal). If the number of bytes is set to "F", then Lyra tries to load a file from disk that has the name given in the description with the extension of "EVN". For example, if the description is "ORGAN", then Lyra tries to load "ORGAN/EVN". The contents of the loaded file is sent to MIDI. You can put anything in the file you wish. This feature is especially useful for setting special effects in your synthesizer, initial configur-

ation setup, or even uploading new voice patches. An event marker is entered into music by positioning the cursor at the correct spot and pressing the "E" key and then the number corresponding to the event you want.

Serial Port is actually another toggle that changes to CoCo MIDI when selected and then back to Serial Port when selected again. It tells Lyra where to send MIDI information. If you are using the simple cable plugged into the back of the computer, then Serial Port should display. When CoCo MIDI is displayed, then MIDI information is sent to the CoCo MIDI interface.

The PLAY menu

MIDI play will play your music through your synthesizer starting at the first note displayed on the screen. Only those voices selected in black or halftone are played. Play may be aborted by pressing any key. Pressing the U key causes the screen to update to where the music was interrupted. This is useful for editing music. Volume and tempo are reset at the start of play and will not reflect the most recent changes in the music unless you start play at the beginning of music. If you are not getting any sound from your synthesizer, check the appendix for possible causes.

MIDI Play All will play all Lyra files on a disk. When you select this command, you will be asked if you want to lose "current music" because when the first file is loaded, what you have now in memory will be lost.

TV play plays the music through the TV (or monitor) speaker. The music starts playing at the point displayed on the screen and may be interrupted by pressing any key. This feature is useful if you don't yet have a synthesizer. Please note that **TV Play** ignores all music information except for note on and note off. All of the MIDI information such as channels, instrument numbers, volume, and note lengths is ignored.

Transpose lets you transpose music up or down up to 9 half steps. Enter the direction (+ for up and - for down) and the number of half steps. To transpose down a whole tone, enter -2. When the transpose amount is 0, then the word "OFF" is displayed next to "Transpose"; when any other amount is set, then "ON" is displayed instead.

Master tempo allows you to set the tempo. A smaller number speeds the music up, and a larger number slows it down. It is normally set to 32. This setting is independent of the "R" tempo setting that is set within the music (see the section titled "Key Commands"). By having two separate controls, you can speed up or slow down a piece of music and still preserve any tempo variations within the music.

Memory displays the amount of memory left for music code. You will find that there is more than enough space for most small to medium sized compositions. Press any key to erase the memory box and continue editing.

Key commands displays a list of the commands that may be perfomed by just pressing a key. Use this to jog your memory if you should forget. Press any key to continue editing.

Annotation provides a means of entering any type of information, up to 4 lines long, that is saved with the music. You can enter a description of the music, how it is to be performed, or copyright information. Move from one line to the next with the down arrow key, and press the ENTER key when you're done.

Key Commands

A number of Lyra commands are performed by simple single keypresses. Here is a summary of each one in alphabetical order. All of these commands require that only one voice is set to black. To perform the command, put the cursor on the music staff in the appropriate spot, and press the key.

B set start and end of music block.

C set the MIDI clock. Press the "C" key and then "+" to turn the clock on or "-" to turn it off. This command is useful to control a drum machine.

D delete note in current voice.

E event set. After pressing E, a list of the 4 available events are displayed. Press the key corresponding to the one you want, and an event marker (the letter "E" followed by the number you pressed) will be entered into the score. See the section on Pulldown Menus for more information.

F enter a flat note. This does the same thing as pressing the fire button except that a flat is added. If the flat is not a part of the key signature, then the flat lasts only for that note, and not for the rest of the measure.

I instrument set. After pressing "I", a list of the 16 instrument number is displayed. Press the key corresponding to the the instrument number you want (0-9, A-F). This sends a program number to a MIDI synthesizer when the music is played.

L *loco.* Play the following notes as written; used to cancel an "O" octave command (see below).

M You may send any byte out to MIDI by the use of the "M" key. Position the cursor at the point in music where you wish the byte to be sent. Press the "M" key and enter the hex value of the byte you wish to be sent. You will need to consult the manual that came with your synthesizer to

determine what value should be used. This option can be used to set volume, sustain, or other special effects on your synthesizer. Note that this information is sent to the synthesizer without any channel information.

N enter a natural note (cancel sharp or flat of key signature).

O An individual voice may be transposed up or down an octave by use of the "O" key. Position the cursor where you wish the change to take place and press the "O" key. An *8va* will appear. If the marker is displayed above the grand staff, then it will raise all notes following it in that voice by one octave; if below the staff, then it will lower by an octave.

R Tempo within a piece of music may be altered by positioning the cursor at the point you wish the change to take place, pressing "R" and then entering the tempo. The value 40 is the normal tempo. Note that this tempo value is independent of the **Master Tempo** that you can set in the EDIT menu. The tempo affects all eight voices. Smaller numbers produce a faster tempo, larger make it slower. The acutal tempo at which the music plays is a combination of the **Master Tempo** and whatever tempo markers have been placed in music.

S enter a sharp note. This does the same thing as pressing the fire button except that a sharp is added. If the sharp is not a part of the key signature, then it will last for only that note.

T tie a note to a previous note of the same pitch. This is used for entering note lengths other than those available on the note menu. If the previous note is not of the same pitch, then the effect is of sustaining the previous note (its MIDI "note off" command is not sent).

U when used to interrupt MIDI play, the music score displayed at the point where it was interrupted.

V Volume may be set by selecting the desired voice,

Tips and Suggestions

If you are transcribing music that is several or more pages long, you will find it a good idea to transcribe one page at a time and save each page as you complete it under a different file name. When you have completed the composition then you can load page one back into memory and then append each successive page. This method will minimize any loss of music that might occur due to program or user error, and make editing of large compostions faster and easier.

You may find it quicker to enter notes one note value at a time. First enter the quarter notes for one or more measures and then go back and add the eighths, and then the sixteenths.

If your synthesizer is capable of responding to more than one channel and can play more than one instrument at a time, then take advantage of this in your arrangements. Set the melody voice to a distinctive instrument, the inner voices to an accompaniment, and the bass line to a bass instrument.

In addition, don't forget to use the volume changes. Not all synthesizers are velocity sensitive, but if yours is, then changing volumes at appropriate points can add a lot. Remember that making one voice louder than others can be put to good effect if you want a voice to stand out.

LyraPrint

LyraPrint is a handy utility that allows you to print out a Lyra music file on your dot matrix printer. It is simple to use and easy to adapt to your particular printer. Detailed information is included that allows you to modify the printer configuration files so you can extract every bit of capability from your printer. Currently supported printers include:

Tandy (Radio Shack)
Epson (and compatibles such as Gemini and Panasonic)
Okidata 92

The first thing you need to do to get LyraPrint up and running is to set up a printer file. If your printer is a Radio Shack, Epson (or compatible such as Panasonic, Gemini, and others), or Okidata 92, then you will have no problem. If you have a different printer, then check the section on printer codes file format for futher information on how you can set up your own printer.

Three files on the Lyra disk have the extension name of COD. These are the files that contain special graphics printing codes for different printers. Copy the file corresponding to your printer to a new file called PRINTER/COD. For example:

```
COPY "RS/COD" TO "PRINTER/COD"
```

This sets up LyraPrint for use with a Radio Shack printer. If you have already set up a printer and want to change it to another, first delete the PRINTER/COD file. The printer codes file must be on the same disk as LyraPrint. Putting it on a different disk will confuse LyraPrint.

One other thing that needs to be done before you start printing is to tell your computer at what Baud rate it is to send data to your printer. If your printer works at a speed other than 600 Baud, you will need to POKE a value at location 150 (see your computer manual).

Run LyraPrint by entering:

LOADM "LP":EXEC

You will be asked to enter the name of the Lyra file you wish to print. You must enter the entire name, including extension. If the file is on a drive other than the default drive (usually drive 0), then the drive number goes on the end of the name. Here are some examples of valid file names:

WISH/LYR

SONATA/LYR:1

After the file has been loaded into memory, you will be asked how many blank lines you want between the treble and bass staves. Normally this is zero; larger numbers separate the two staves so that you could type in lyrics if you wish.

If you are going to type in lyrics, then the next question ("Do barlines extend across middle space") should be answered "N". This frees the entire space between staves.

The next question "Graphics preview?", when answered "Y", will direct LyraPrint to display the music on the screen rather than printing it.

The question "Alternate note stems up/down?" when answered "Y" produces a printout with the note tails of voices 2, 4, 6, and 8 pointing down, and the rest pointing up. This makes the music look more like standard choral print.

The last question "Display options?" refers to whether you want informationother than the notes such as tempo change markers, instrument changes, event markers, volumes, etc. displayed. If you answer "N" then only the note will be displayed.

If your printer has been correctly set up, and graphics preview has not been selected, LyraPrint will start printing a line of graphics. A page form feed (new page) is sent to your printer after 5 staves have been printed. If your printer does not support form feeds (some Radio Shack printers do not), then you will need to put the printer "off line" after 5 staves have

been printed, advance the paper, then put the printer back "on line".

The printing will continue until complete. If you wish to abort, press and hold down the BREAK key until printing stops. You will be asked if you want to quit. Pressing Y will return you to Basic; any other key will let you start over.

If you selected graphics preview, pressing any key will display a new screen. Pressing the BREAK key will return you to the main menu.

If an error should occur, you will be returned to Basic and a standard error message will appear. Consult your computer manual to determine what the error means. The most common error will be ?NE ERROR. This means that LyraPrint could not find a file.

If this occurs before you have entered a file name to print, you need to make sure that you have correctly set up the PRINTER/COD file and that it is on the same disk as LyraPrint.

If you get this error after entering a file name, then it means that LyraPrint could not find the file as you typed it. Most likely you mis-spelled it or you gave the wrong drive number specification. Enter EXEC and try again.

LyraPrint uses a simple data file to determine exactly what data it needs to send to your printer to make it print graphics correctly. The following information is provided to assist you if you wish to modify it to take advantage of special features your printer may have or if you have a printer that has different codes.

Because of the large number of printers available, we cannot afford to support every printer on the market. The three that are supported are those that over 90% of all Color Computer owners have. You are on your own if you wish to try to utilize this information!

Each file is 54 bytes long. The following list describes the different parts of the file.

2 bytes: **Margin** left margin in bits
2 bytes: **Scrnwid** screen width in bytes (maxiumum is 60)
1 byte: **Reverse** 0=normal 1=reverse printer bit order
1 byte: **Offset** added to each graphics byte sent to printer
1 byte: **Bits** number of bits in print head
1 byte: **Repeat** number of times to repeat each byte
9 bytes: **Setlf** set printer line feed size
9 bytes: **Setgm** set printer graphics mode
9 bytes: **Setcr** carriage return/line feed code
9 bytes: **Setff** formfeed code
9 bytes: **Endgm** end printer graphics mode
1 byte: **Oki** 0=normal, 3=Okidata set graphics control code

The two items that are two bytes long are word integers, meaning that they can have values from 0 to 65535. Those that are one byte long can have values of 0 to 255.

Margin tells LyraPrint how big a margin it should make. If it is set to 10, then LyraPrint will skip the width of 10 dots before printing.

Scrnwide is the width of the staff; it can have a value from 6 to 60. A value larger than 60 may cause the program to crash.

Reverse is an indicator of what order the dots on the printer head should be. Setting it to 1 reverses the order.

Offset is the number that is added to each graphics byte before it is sent to the printer. Most often this is either 0 or 128.

Bits is the number of wires or "bits" in the print head. This is usually either 7 or 8. Some newer printers may have more than 8; LyraPrint can handle only up to 8.

Repeat is normally 1; setting it to 2 makes the printer print each dot twice. This is used for high resolution printing.

The items that are 9 bytes long have a special format. The first byte indicates how many of the 8 bytes that follow are used to set the particular function. The unused bytes are normally set to zero.

Setlf is sent to the printer at the start of each staff. **Setgm** is sent to the printer at the start of each graphics line. **Setcr** is sent to the printer at the end of each line. **Endgm** is sent to the printer at the end of each staff. The names given to each group of 9 bytes corresponds to their function with an Epson printer. Obviously you can use each to do whatever job your printer needs. If a group is not needed, then set the first byte to zero.

Appendix

While every effort was made to make the music display on Lyra as close to printed music as possible, there are a few differences that could cause difficulty for the unwary.

The most common problem is that *accidentals (sharps, flats, or naturals) in Lyra last only for one note* but in printed music they last until the end of the bar. If you are transcribing sheet music, you might want to pencil in the extra accidentals in a bar so you don't forget to enter the notes correctly in Lyra.

Slurs and ties are easy to confuse. The difference is important since Lyra does not support slurs. Slurs connect two or more notes of differing pitch and usually indicate phrasing. Ties always connect two notes of the same pitch and literally "tie" the two notes together so that the second note is not struck.

The last difference is purely cosmetic: groups of notes (8ths, 16ths, 32nds, or 64ths) are not connected together as they are in printed music.

There are several limitations in this version of Lyra that you should be aware of. First of all, bar numbers greater than 999 will cycle around to 0 and on. The bar move at the bottom of the screen will function until the size of music causes certain counters to overflow. This occurs at 1365 quarter notes in voice 1 (or 341 bars of 4/4 time). The time signature can handle up to 5/4 or 9/8 time, but 6/4 or 10/8 or greater will cause an overflow error.

You will find that these limitations for the most part will cause little trouble. Time signatures can be adjusted to smaller values (like changing 12/8 to 6/8). By the time you have exceeded 1365 quarter notes in voice one, you probably will have used up only one third to one half of the available memory. You can still use the full amount of memory by making use of the Append command. Break a long piece of music up into smaller chunks (smaller than 1365 quarter

notes) and save each part in a different disk file. After you have made sure that each part is correct, then load the first into Lyra, and append each successive part in turn.

What to do if your synthesizer doesn't work with Lyra

1. Check the cable and/or the CoCo MIDI pack. If you made your own cable, recheck the wiring.
2. Check the MIDI channel assignments (see the MIDI pulldown menu section). Some synthesizers may recognize only one channel. If in doubt, change all voices to channel 1 (enter 11111111). Check your synthesizer manual.
3. Check the MIDI instrument table. You may have set a program number that your synthesizer doesn't recognize. If in doubt, check your synthesizer manual.
4. Check the MIDI velocities. Your synthesizer may implement this feature differently.

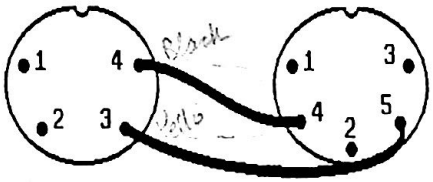
What to do if Lyra doesn't work or appears to ignore you

1. Make sure you have a joystick or mouse plugged into the right joystick connector at the back of the computer.
2. If you can't enter notes onto the music score, make sure that only one voice is set on black (right upper screen). Enter a new note immediately after the last one in that voice (or right after the first barline). If the last note in a voice is not displayed (display has scrolled beyond the end of a voice) then back the display up until it is displayed.
3. Key commands require that a single voice has been selected first.
4. 64K RAM is required, and only Radio Shack DOS versions 1.0, 1.1, 2.0, and 2.1 will work.
5. Lyra will not work unless it is loaded from a disk that has

been copied from the master disk using the Basic BACKUP command.

Making Your Own MIDI Cable

For those of you who do not have CoCo MIDI and need information on how to make a CoCo to MIDI cable, here is the information you need. You will need one 4 pin DIN plug (Radio Shack part #274-007) and one 5 pin DIN plug (part #274-003) and some two conductor cable (shielded, preferably). Cut the cable to the desired length and solder the cable to the plugs, connecting the pins as shown below in the diagram. The diagram shows the ends of the assembled plugs as you would see them. The numbers are usually molded into the plug.



Part #274-007 Part #274-003
CoCo Serial I/O **MIDI IN**

Copyright

Lyra is continually being improved and we invite your comments. Should you have any questions or problems, you may call or write. We hope you find Lyra to be a useful program and that it is one of the most used diskettes in your library. The program is not copy protected because we believe copy protection is detrimental to both the buyer and seller. Please do not give copies of Lyra away to your friends. Doing so not only violates the copyright law but also discourages software writers.

In order for us to inform you of significant changes and improvements in Lyra, we need to know your address. Please take the time to fill out the enclosed Serial Registration card and drop it in the mail.

a: Chips

BB PART 1

33. BRKFRTH

LUUTOTEL

JESUSAVE

CHRSTMS

ANGLONHI