MUSIC PRINTING OPTION
USER GUIDE

Release B
February, 1983

* PRELIMINARY VERSION *

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USING THIS MANUAL

This manual explains how to use the Music Printing Option (Release B) to transcribe sequences in the Synclavier (R) II memory recorder. It assumes that you are already familiar with the Synclavier (R) II real-time system, the SCRIPT system, and the computer terminal. If you are using a Winchester disk for the first time, please refer to the manual "Using the Winchester".

If you have used Revision A of Music Printing, you will find that the program has been greatly enhanced. There are several conceptual changes as well as many exciting new details. You will want to read this document carefully.

WHAT CAN MUSIC PRINTING DO? - AN OVERVIEW

Release B of the Music Printing software allows you to do your own professional copying swiftly and accurately. Performances created on the Synclavier (R) II keyboard or compositions written in SCRIPT can be transcribed directly into high quality notation.

With Release B, you can create scores with many special features:

* One or two voices within each part
* Separate key signatures for each part
* Changing time and key signatures
* Changing clefs
* Grand staffs
* Bracketed instrument sections
* Triplets and other odd rhythmic values
* Grace notes
* Many musical symbols and expression marks
* Lyrics and other text
* Measure numbers

Some of the powerful new editing commands allow you to:

* Change the actual pitch or duration of a note in the memory recorder by changing it on the staff
* Change the beaming between notes
* Change the voicing of a chord
* Change the split point between upper and lower halves of a grand staff
* Adjust the direction of ties between notes

Release B of Music Printing offers a sophisticated and flexible copying tool to the musician. The following pages will get you started. The ultimate results are up to you.

MUSIC PRINTING: HARDWARE AND SOFTWARE

The Hardware

To use the Music Printing Option, you need the basic Synclavier (R) II real-time keyboard system with 48K or, preferably, 56K memory and one of the following disk drive combinations:

a. one double density 5 1/4 inch drive and
   one single density 5 1/4 inch drive
b. two double density 5 1/4 inch drives
c. two 8 inch drives
d. one Winchester disk of any size and
   one of any of the above floppy drives

You also need the VT640 high-resolution graphics terminal and the PRISM 80 high-resolution graphics printer, as well as a PRINTER/MODEM port for the Synclavier (R) II computer.

Information on setting up and operating the PRISM 80 printer is included in this manual. Other information on updating your Synclavier (R) II system for Music Printing (adding memory, a new terminal, or additional drives) may be found in Section II of the Synclavier (R) II Setup Manual.

Finally, the click track output from the Synclavier (R) II Digital Synthesizer must be connected to your sound monitor system whenever you use the Music Printing Option. For instructions on this see Section I of the Synclavier (R) II Setup Manual.

The Software

The Music Printing software license is required for use of the Music Printing Option.

Release B of the Music Printing Option is packaged on a special SCRIPT system diskette (SCRIPT Release H System with Music Printing.) Any SCRIPT user diskette may be used with this system diskette. This means that old sequences can be displayed and printed with the Music Printing Option.

The Music Printing Option is a software module integrated into the SCRIPT operating system. Its addition does not alter the operation of any of the other SCRIPT software modules. That is, the SCRIPT monitor, the Synclavier (R) II real-time performance system, the SCRIPT reverse compiler, are operated exactly as always.

The Music Printing module is accessed in a similar manner as is the reverse compiler. When the real-time system is in computer memory, you press the PF3 key on the terminal keyboard to activate the Music Printing Option.

NOTE: When you use Release B to transcribe an old sequence with menu selections and edit information from Revision A of Music Printing, the sequence will automatically be reverse compiled when you press

the PF3 key. This will remove the incompatible Rev. A data. Simply type PLAY again, and then press PF3 again to activate Music Printing and plot the sequence.

THE MUSIC PRINTING SYSTEM

Music copying is a complex process. First, there are the basic tasks, such as displaying the correct rhythmic value and pitch for each note, the correct key and time signature, and clef in a readable format. Then, each piece of music has its own special copying requirements. One piece might be a simple melody, consisting of the notes for one instrumental part. Another might be a song with lyrics. And the next might be a complex orchestral composition, requiring a complete conductor score with several parts, each one containing the notes for two instruments.

The Music Printing Option provides a copying system which is simple in its framework. However, to allow you the necessary flexibility to create most any kind of notation, there are a great many options and details. If you become familiar with the basic system first, you may then pick and choose among the options in order to meet your own particular needs.

You enter the Music Printing system from the Synclavier (R) II real-time system after placing a sequence of notes in the memory recorder. The sequence can be recorded from the keyboard or typed in on the computer terminal in SCRIPT. As described later in this manual, these notes must be precisely recorded.

When you are ready to transcribe the sequence, you press the PF3 key on the terminal keyboard. The Music Printing software module will then be placed in computer memory and activated and the Music Printing Main Menu will appear on the terminal screen.

You must now tell the computer exactly how to transcribe the notes in the memory recorder. There are three places to input these instructions: the display options on the Main Menu, the part lines on the Score Format Menu, and right on the score itself on the Editing Display.

First, you establish the framework for the score as a whole using the display options on the Main Menu. You tell the computer the note value of the click used in recording, how much space to leave between the notes on the staff and between the staves on the page, how to number the measures, and so forth.

Then, to specify the individual parts in the score, you press the F key and the Score Format Menu will appear on the screen. On this menu, you set up a part line for each part in the score. This part line includes the track or tracks to be used for the part, as well as the clef, key or time signature. This menu also allows you to choose different formats for the score: braces between parts, grand staffs, etc. When the parts are specified you return to the Main Menu by pressing the ENTER key.

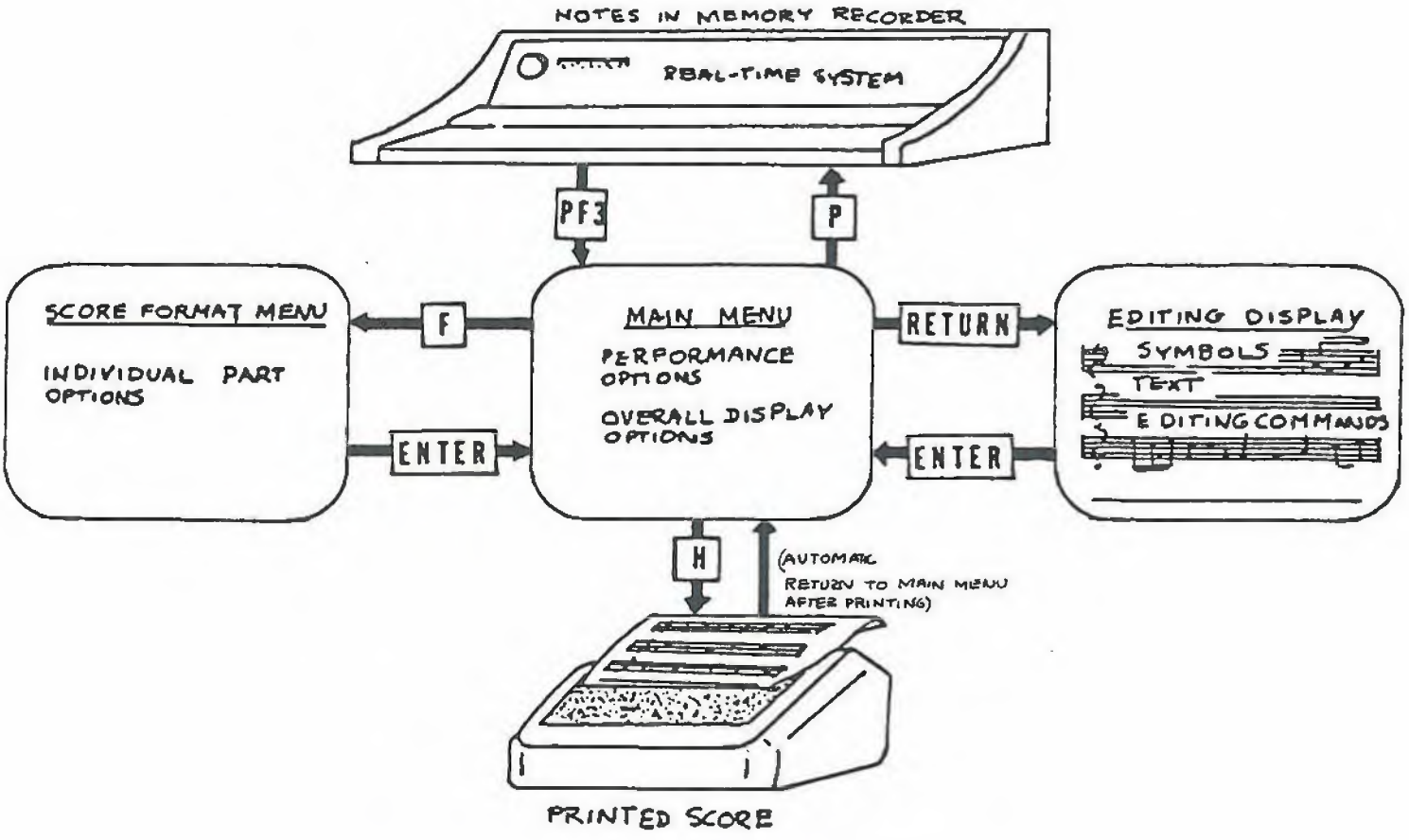
Next, you turn to the Editing Display to add to and change the parts within the score. When you press RETURN on the Main Menu, the computer will refer to the notes in the memory recorder, the display instructions on the Main Menu and the part instructions on the Score Format Menu, and then will plot the first lines of the score on the

screen. You may then edit in a variety of music symbols and any text that you want. You may also add editing commands to change the clef, key or time signature anywhere in the score. Other editing commands allow you to fix a wrong note by changing its position on the staff or by giving it a new rhythmic value.

You will find that you will be going back and forth between the Score Format Menu and the Editing Display as you edit a few parts at a time. From either display, you press ENTER to return to the Main Menu and then proceed from there.

When you have finished editing all the parts, you return to the Main Menu and press the H key to print the score on paper. The edited verson can also be saved on diskette for future use and modification. All selections you have made on both menus plus all material added during editing will be saved.

As you can see, you use commands on the Main Menu to direct the entire Music Printing system. Besides using it to specify the display options, to recall the Score Format Menu and Editing Display, and to print the score, you will use other performance commands to return to the real-time system, to reverse compile the sequence, to return to the SCRIPT monitor, and to store and recall sequences from the disk.



In the following step-by-step exercises, you will display, edit and print the sample SCRIPT user file BACH13. Then you will record and display a simple sequence. In this way, you will be introduced to the basic Music Printing system: the two menus and the Editing Display. The remainder of the manual will explain the details.

ACTIVATING MUSIC PRINTING

1. Turn on the computer and disk drives.

2. Load the SCRIPT Release H operating system with Music Printing Release B.

3. Recall the SCRIPT user file BACH13 from the Winchester disk or from the diskette in the right-hand drive by typing

   OLD BACH13

4. Type

   PLAY

   The file will be converted into a Synclavier (R) II sequence, placed in the memory recorder, and played.

5. Press the PF3 key on the keypad.

   The sequence will stop playing, the lights on the keyboard unit will be extinguished, and the Music Printing software module will be placed in computer memory and activated. The Music Printing Main Menu will appear on the screen.

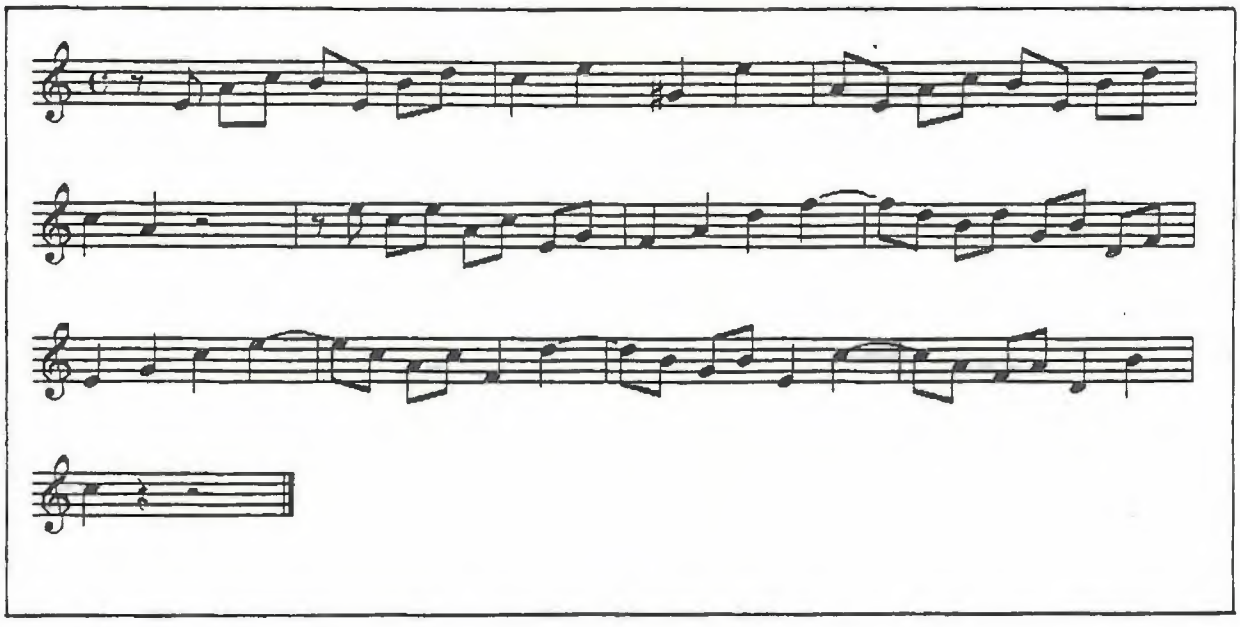
THE MENUS

Using the Main Menu

In this exercise, you will transcribe BACH13 with the default display settings from the Main Menu and the default part settings from the Score Format Menus. Then you will use the R - Click Rate option on the Main Menu to specify the correct rhythmic values to be used for the notes.

1. Press RETURN.

   This command activates the Editing Display. It displays the notes in the sequence in the memory recorder according to current settings on the Main and Score Format Menus. Since you haven't changed any of these settings, the default settings will be used. One part with the notes from track 1, a G clef, a key signature of C, and a time signature of 4/4 are default settings on the Score Format Menu. The spacing between the notes and between the staves are determined by default settings on the Main Menu.



Also determined by a setting on the Main Menu is the rhythmic value that will be displayed for each note. If you are familiar with the correct notation for the Bach Invention 13 in Two Parts, you will notice that the first seven notes, which should be drawn as sixteenth notes, are drawn as eighth notes. And the next notes, which should be drawn as eighth notes, are drawn as quarter notes.

You must return to the Main Menu and tell the computer the correct rhythmic values to display for the notes.

2. Press the ENTER key on the keypad.

   This command restores the Main Menu.

3. Examine the R - Click Rate setting. It is set at 4.

   The computer counts the clicks, or fraction of a click, that each note lasts. Then, it uses the R - Click Rate setting to decide the rhythmic value to display for each note. With an R - Click Rate setting of 4, a note lasting four clicks will be drawn as a whole note, a note lasting two clicks will be drawn as a half note, a note lasting one click will be drawn as a quarter note, a note lasting half a click will be plotted as an eighth note, and so forth.

   The BACH13 composition has no CLICKPERIOD statement. Therefore, when it was converted into a Synclavier (R) II sequence, it was assigned the default click rate of one click per .5 seconds. The first seven notes each last .25 seconds - half a click. Hence, they were drawn as eighth notes. To change them to sixteenth notes, you must change the Click Rate setting from 4 to 8, indicating that there are eight clicks per whole note.

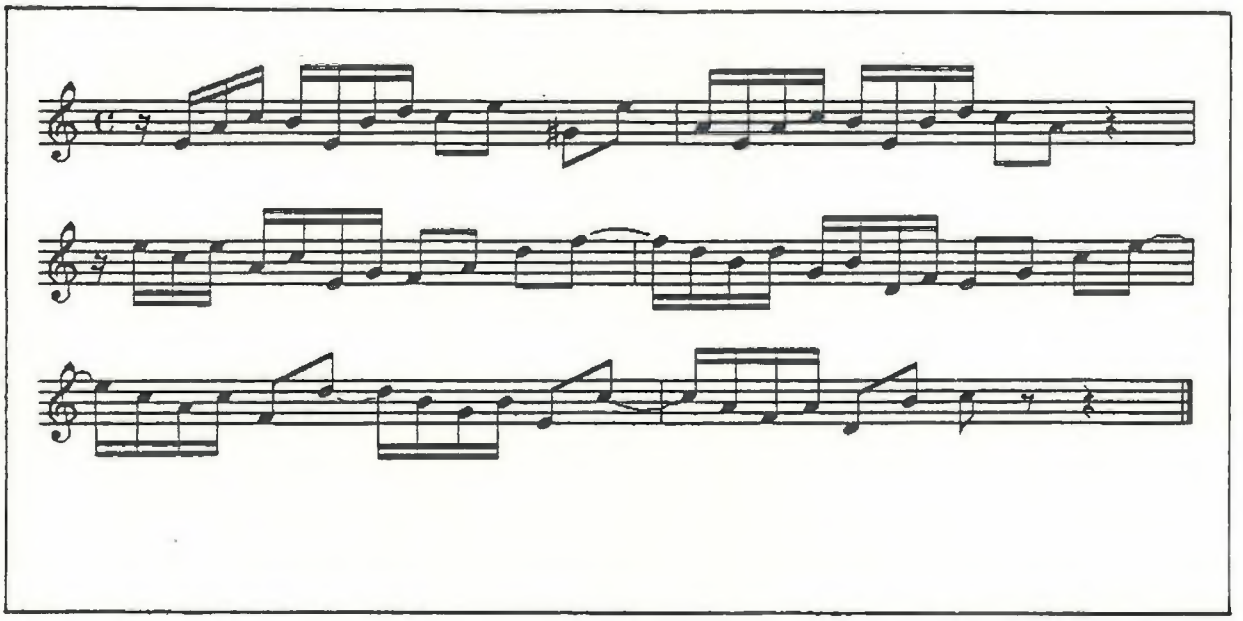
4. Press the R key.

   The bottom of the screen will say: Clicks:

5. Type the number 8 and press RETURN.

   The new number will appear in the column on the right.

6. Press RETURN to see the display with the correct rhythmic values.



7. Return to the Main Menu by pressing the ENTER key.

Using the Score Format Menu

You are now going to use the Score Format Menu to instruct the computer to display the second part.

1. Press the F key.

   The Score Format menu will appear on the screen. You will see one part line.

Part No.	Instrument Name	Score Format	Tracks Up	Tracks Dn	Vert. Space	Accd. Form.	Clef	Ins. Key	Key Sig.	Time Sig.	Note Resol.
1		*[		1	79	#	G	C	C	4/4	16

   This line represents the part you have already seen displayed. You need not be concerned about all the items on the part line right now, but you should note that the notes on track 1 are selected for notation on a G clef, in the key of C, with a time signature of 4/4.

   In order to display the second part, you must add another part line to the Score Format menu.

2. Press the PF1 key.

   Each time you press the PF1 key another part line with default settings will be added. The line on which the cursor is located will be moved down one.

   For the new part, you will keep most of the default settings but will specify a different track and a different clef.

3. Press the right arrow key to move the cursor to the number 1 in the "Dn" column under "Tracks". This is where you specify the number of the track to be used for the part.

4. Type the number 2 for track 2.

5. Then move the cursor further to the right to the column under "Clef".

6. Type F for bass clef.

   The two lines on the menu should now read:

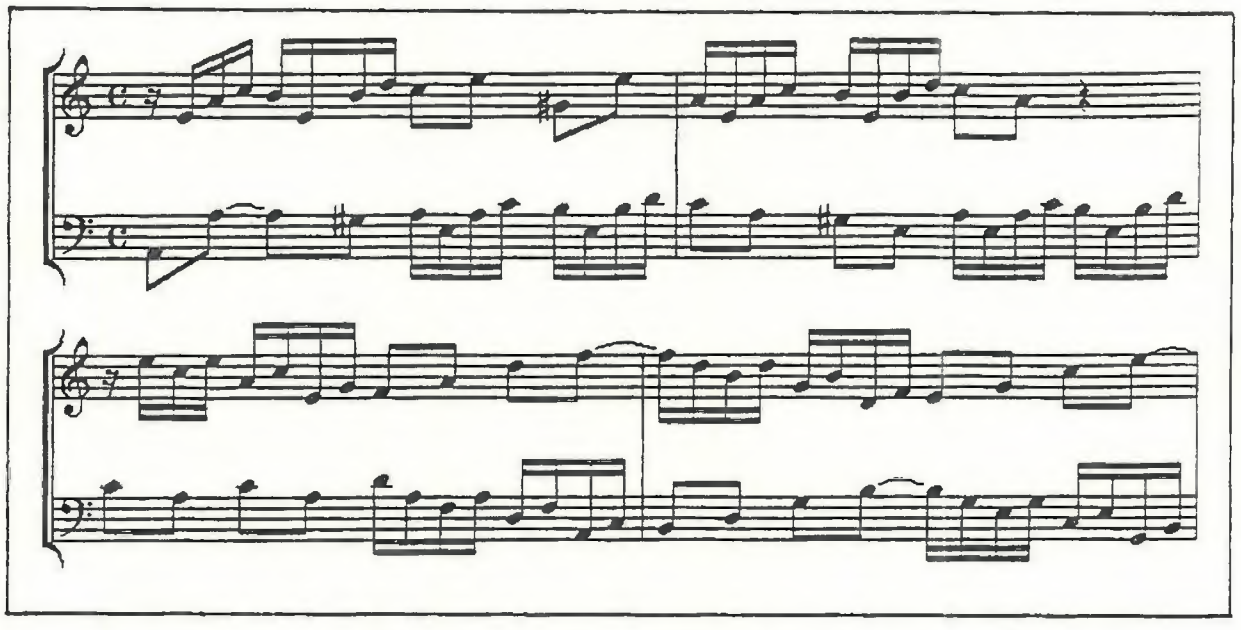
Part No.	Instrument Name	Score Format	Tracks Up	Tracks Dn	Vert. Space	Accd. Form.	Clef	Ins. Key	Key Sig.	Time Sig.	Note Resol.
1		*[		1	79	#	G	C	C	4/4	16
2		*[		2	79	#	F	C	C	4/4	16

7. Now press the ENTER key to return to the Main Menu. Pressing ENTER restores the Main Menu from both the Editing Display and the Score Format Menu.

8. Press RETURN.

   The computer will once again refer to the Main and Score Format Menu settings and will display the following notation. Both parts will be displayed.

   Note the bracket joining the two parts. The Score Format Menu has options for removing this bracket and for inserting a grand staff brace instead. This and other formatting options are covered in the chapter on the Score Format Menu.



Adjusting the Beat Format

This exercise is an example of the kind of detailed control the Music Printing system provides.

Note the tied note in measure 1 of the second part. You may prefer that this note be written as a quarter note instead. To do so:

1. Return to the Main Menu by pressing ENTER.

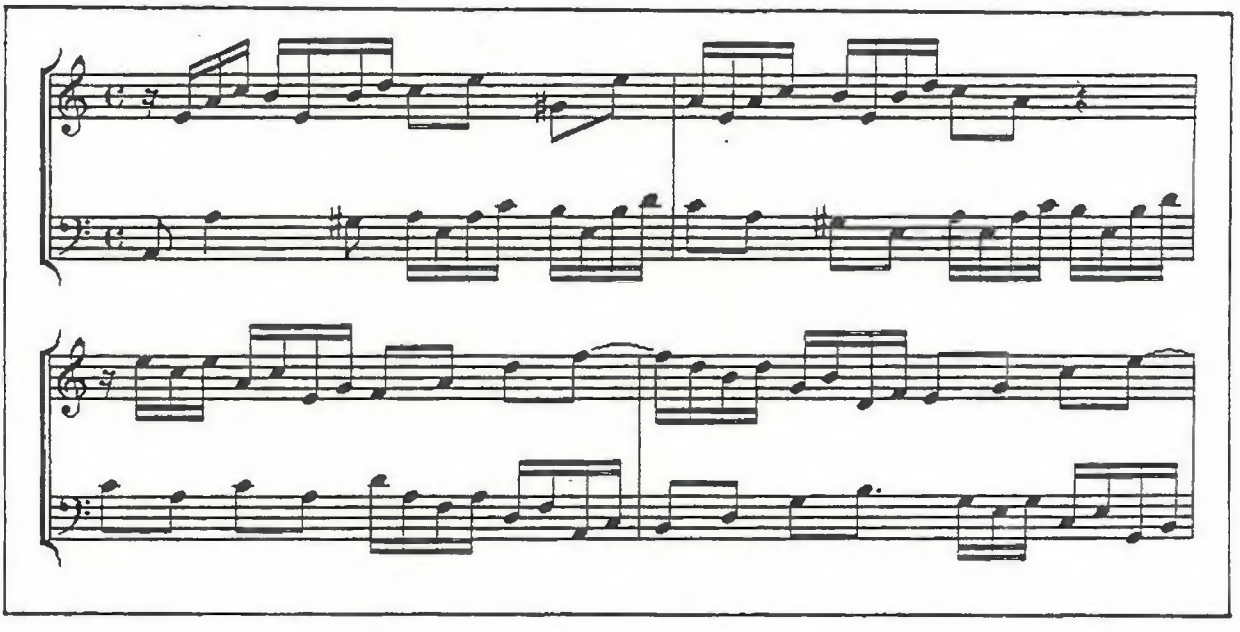
2. Press B to change the beat format.

   The value will be changed from "Classical" to "Jazz". The B display option allows you to vary the notation of notes which start after the beginning of one beat and extend past the beginning of the next beat.

   The "jazz" style displays single notes for such rhythmic values; the "classical" style displays tied notes.

3. Press RETURN for display with the new format.

   The tied note will be drawn as a quarter note.



EDITING

In this editing exercise, you will add some dynamics and tempo indications. You will be introduced to some of the special musical symbols which have been assigned to the keys of the keypad.

(You will only edit the very first beat in the piece. Moving the cursor around to edit other points in the score is covered in the chapter on editing.)

1. Press the comma key and then the minus key on the keypad.

   The mezzoforte abbreviation will be drawn onto the notation.

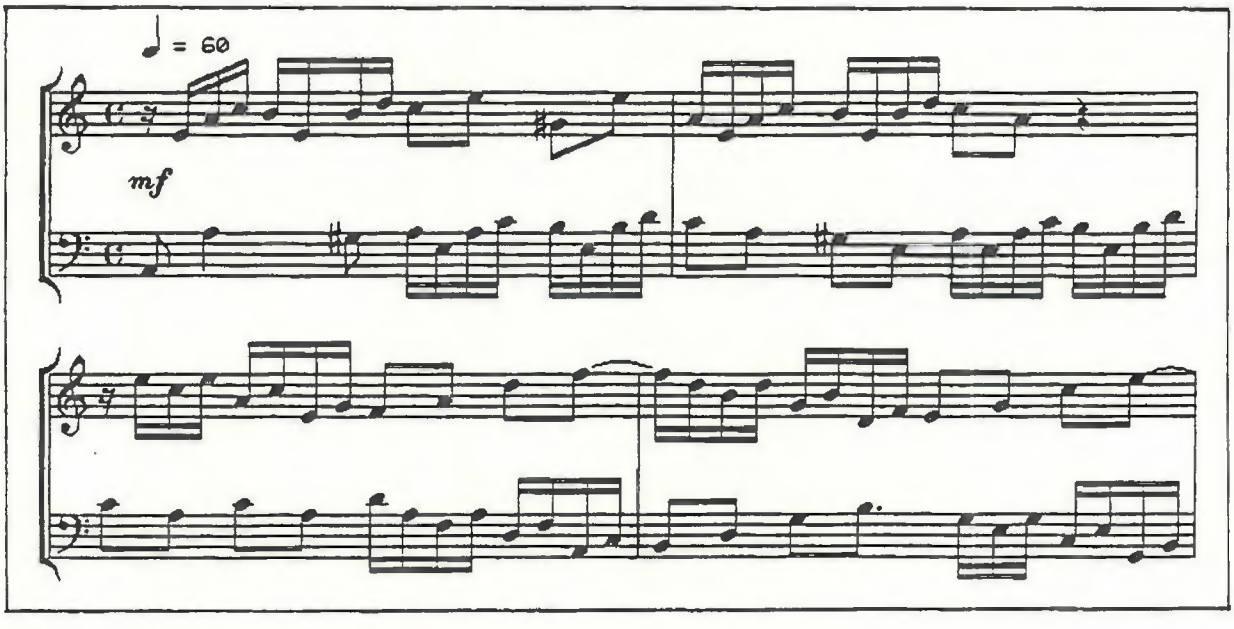
2. Now press the up arrow key until the cursor is positioned above the top staff. You are going to add a metronome indication.

3. Press the PF2 key.

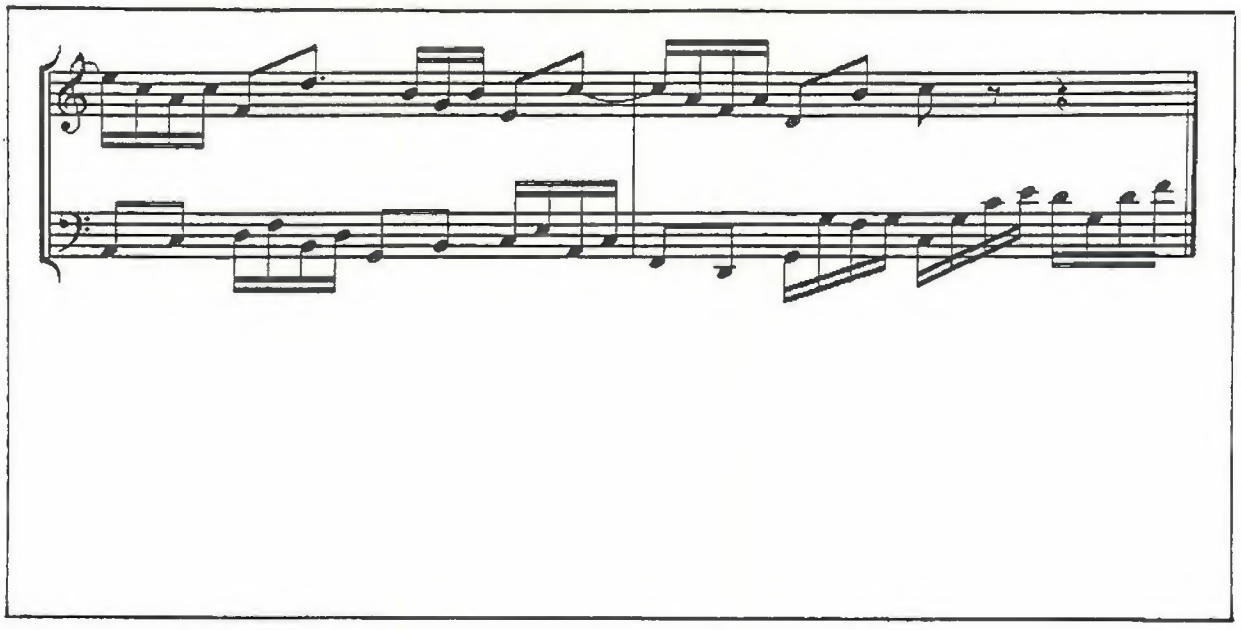
   A note will be drawn on the screen.

4. Now type

   = 60



5. To see the rest of the score, press the 0 key on the keypad. The next screen of notation will be drawn.



6. Press ENTER to return to the Main Menu.

This just gives you a taste of the editing process. There are many other symbols programmed onto the keypad that you may add to the score, as well as all the editing commands. Editing is covered in detail in the chapter on "Editing".

PRINTING

Now you will print the notation on paper. (First refer to the chapter "Using the Printer" for instructions on setting up the PRISM 80 and aligning the paper. For this exercise, it would be a good idea to use pinfeed paper.)

When the printer is ready, follow this procedure for printing BACH13.

1. First add a title to the score if you like. Press the T key and type in the following title:

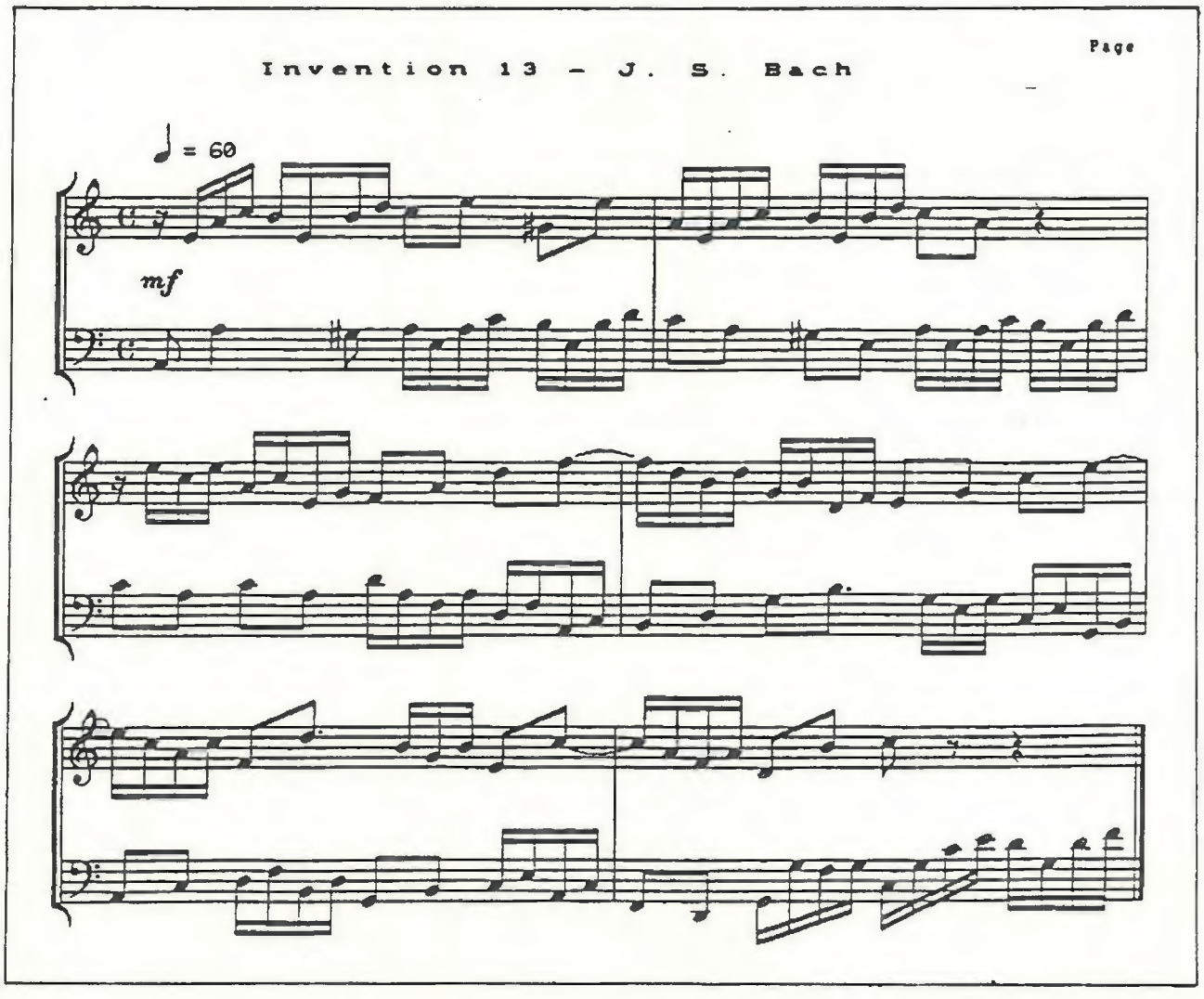
   Invention 13 - J. S. Bach

   and press RETURN.

2. Press the H key to initiate printing.

   The notation will be drawn on the screen half a page at a time and then printed on paper.

   When printing is completed, the Main Menu will be restored to the screen.



You have just been introduced to the Music Printing menu, editing, and printing system. There are many more options than we have covered here for varying the notation. These are described in the separate chapters on each menu and on editing.

Before you go further, however, you will want to start displaying your own sequences. Let's look at some of the special techniques for recording for Music Printing.

RECORDING FOR MUSIC PRINTING

When you are performing on the Synclavier (R) II keyboard, you play with articulation, phrasing, and changing tempi in order to create the most musical sound. When you record a piece of music for transcription, however, you should take a different approach. You must play in a "straight up" manner along with the click track and hold each note its full duration. Using a timbre with no delay as well as short attack and decay times is also helpful.

Before recording, set the click rate equal to the desired rhythmic value: e.g., one click per quarter note, one click per eighth note, one click per half note, one click per whole note, etc. (You use the Click Rate setting on the Main Menu to specify the value you have used for the click during recording, just as you have already done with BACH13.)

Then, turn on the click track output and record your sequence.

As you learned with BACH13, the computer determines the rhythmic value of each note after counting the clicks, or fraction of a click, that the note lasts. You must press and release each key precisely in order to enable the computer to distinguish between different rhythmic values, for example, between a quarter note and a quarter note tied over to a sixteenth note. Any final decay, that portion of the note that occurs after you lift your finger from the key, is disregarded. Your playing does not always have to be precise down to the 64th note. The Music Printing software allows you to decide on the shortest note you wish to display. This feature is described in the chapter on the "Score Format Menu".

Note that you can change time signature during your sequence. However, neither the rhythmic value of the clicks nor the tempo of the clicks can change during the sequence.

To repeat, the two simple rules for recording are: (1) play with the click track and (2) play the whole piece legato. (You can think of every note as having a tenuto accent).

Try the following simple exercise to get a feel for recording for Music Printing. (Make sure the click track output is connected, as described in the Synclavier (R) II Setup Manual.)

You will record and transcribe a simple C major scale.

1. Assuming you have just completed the previous exercise, press P (for play) from the Main Menu to reactivate the real-time system.

   The buttons on the Synclavier (R) II keyboard unit will light up and BACH13 will start to play.

2. Press the ERASE button twice to erase BACH13 from the memory recorder.

3. Select a timbre with no delay and short attack and decay times (e.g., TIMBRE 1-3).

4. Set the click rate to one click per quarter note.

   a. Press CLICK RATE once and set the click rate in beats per minute (e.g., 120)

   or

   b. Press CLICK RATE twice set the click period in milliseconds (e.g., 500).

   Leave the click track output in the audible state.

5. Press RECORD, count off four beats, play the major scale from middle C to the C above, and press STOP.

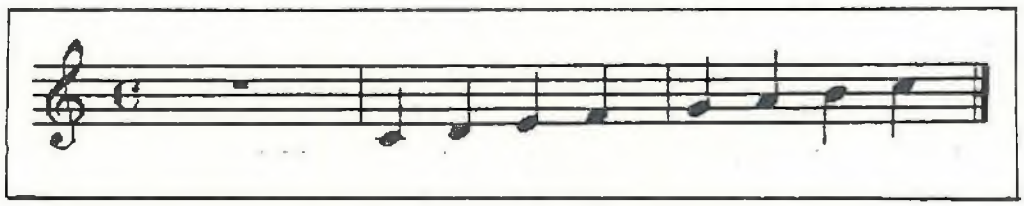
6. Press START to hear your recorded notes.

7. Press the PF3 key on the terminal keyboard.

   The Main Menu will appear on the screen with all the default settings.

8. Press RETURN for the Editing Display of your notes.

   Your notes will be drawn as follows on the screen.



   If your display does not match ours, you most likely did not play squarely on the click.

9. To return to the Main Menu, press ENTER.

10. To return to the keyboard for more recording, type P.

Now you know have recorded, displayed, edited and printed some simple music. Turn to the following pages for information on how to use Music Printing for more complex musical applications.

MORE ON THE MAIN MENU

You have already used a few of the options on the Main Menu. This chapter describes each option, from the top of the menu to the bottom, and spells out all the details. You will note that the menu is divided into the performance options at the top and the display options at the bottom.

PERFORMANCE OPTIONS

Most of the performance options are selected by a single keystroke.

S - Stop

This command returns control to the SCRIPT monitor. It will erase all recorded notes and all printing information for the sequence. If you are transcribing a SCRIPT composition, the Stop command will erase all real-time modifications and all music printing information as it restores the original line-numbered SCRIPT composition to the current file.

To prevent the loss of valuable material, this command has a safety prompt which allows you to change your mind about "stopping".

P - Play

This command returns control to the real-time system and plays the notes in the memory recorder. All the menu selections will be preserved as well as any material added during editing.

H - Hard Copy

This command initiates printing of the music notation onto paper. (For specific instructions on setting up the printer, see "Using the PRISM 80 Printer".) The format will be determined by the current settings on the Main and Score Format Menus and by any editing commands you may have used. Half a page of notation will be drawn on the screen at a time and then copied onto paper. Pages will be titled and numbered. If it is a single part, the instrument name will also appear at the top of each page. After printing is completed, the menu will reappear on the screen.

At any time during the printing process, you can press S once to stop printing and return to the Main Menu. (If after a few seconds, the Main Menu fails to appear, press S again.) The printer will be left lined up for the next printing job as if printing had terminated normally.

<ESC>n - Reverse compiler

This command restores the SCRIPT monitor and converts the Synclavier (R) II sequence in the memory recorder into the computer music format. Any of the formats listed in the SCRIPT documentation may be selected by following ESC with the appropriate number (n). All the menu selections will be preserved along with the notes as well as any material added during editing. This information will be placed in a block and listed at the end of the file. This block must not be tampered with or you will no longer be able to play or print the sequence.

The PF1 through PF4 keys may be used instead of <ESC>n as in SCRIPT.

<keypad 0>n

This command recalls a Synclavier (R) II sequence stored on the user diskette. The number n corresponds to the numbers for the buttons under RECORDER STORE/RECALL on the Synclavier (R) II keyboard unit. You may use the keypad numbers for n in this function.

<ENTER>n

This command stores the current sequence on the user diskette. As in the previous command, the number n corresponds to the numbers for the buttons under RECORDER STORE/RECALL on the Synclavier (R) II keyboard unit. All the menu selections will be stored with the notes as well as any material added during editing. You may use the keypad numbers for n in this function.

K for display of current keypad settings

The keypad on the right of the terminal keyboard is preprogrammed with special musical symbols that you may add to your notation. You also have the option of assigning various editing commands to these keys. Instructions on using the symbols and editing commands and on programming the keypad appear later in this document.

This command displays the current assignments for the programmable keys of the keypad. Note that the 0, period, and ENTER keys are not displayed, because their functions cannot be changed. Their functions are explained in the chapter on "Editing".

F for Score Format menu

This command displays the menu for specifying the individual parts.

<RETURN> for editing

This command places the editing display on the screen. It plots the first lines of your notation on the screen, using a format determined by the current selections on the Main and Score Format Menus and by any editing commands you may have used. At any time, you can press the S key to terminate the plotting immediately and return to the Main Menu. You can also return to the Main Menu after the page is finished plotting by pressing the ENTER key.

DISPLAY OPTIONS

With most of these display options, you select the option by pressing the key indicated in the left-hand column. Then you enter whatever information is requested on the bottom of the screen and press RETURN.

J - Jump to Measure Default = 1

Measures are internally counted by the Music Printing software. You can start the screen display or hard-copy printing at any measure. Regardless of the measure number, the page numbers in the paper printout will start at the page number set by the I option below.

Press J followed by a measure number and RETURN.

2 - Page Format Default = 1

Music Printing formats scores for 8 1/2 inch wide paper. If you wish to create double width conductor scores, you may select the "two-page" format. In order for this method to work properly, the systems* in your score must each be more than half page in length so that each system will be printed on a separate page.

In the two-page format, the score will be still be printed in the 8 1/2 inch width. However, the second system, instead of being printed as a complete page 2, will be printed to be used as the right half of page 1. It will be numbered page 1 and will not include the title or any of the information on the left of the parts (i.e., the brackets, braces, clefs). After printing, you simply cut and paste the first and second systems together into a single, perfectly aligned, double width page. Any additional odd and even numbered systems can be combined in the same way.

Press 2 to toggle to the two-page format; press it again to return to the one-page format.

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* In notation, a group of staves, one for each part in the score, is called a system.

I - Initial Page Number — Default = 1

Normally pages in the paper printout will be numbered starting with '1'. If you are jumping to a measure in the middle of a piece, you may change the starting page number for printing.

Press I followed by a page number and RETURN.

M - Measure Numbering — Default = 0

You may direct the computer to print numbers over certain measures by specifying any number above zero. The measures that are multiples of the specified number will be numbered.

Press M followed by a number and RETURN.

C - Starting Click — Default = 1

You can start the screen display or hard-copy printing at any click (or beat number in the digital display window) in the sequence. This allows you to skip over or leave in any rests at the beginning of the sequence. This feature is not intended for skipping notes since all notes in the sequence prior to the specified click will be printed on the first beat in measure 1.

Press C followed by a click number and RETURN.

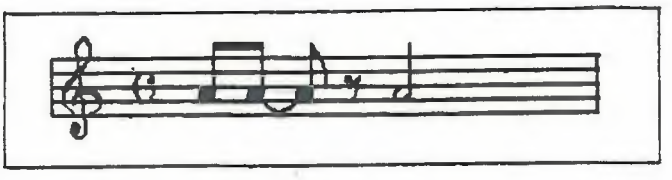
R - Click Rate — Default = 4

This option is used to tell the computer the rhythmic value you have used for the click during recording. You specify the value in terms of the number of clicks per whole note, For example, specify 8 for one click for each eighth note, 4 for one click for each quarter note, 2 for one click for each half note, etc. There must be an integral number of clicks per measure in all time signatures used in your piece. One further note: No measure may exceed 80 seconds in length.

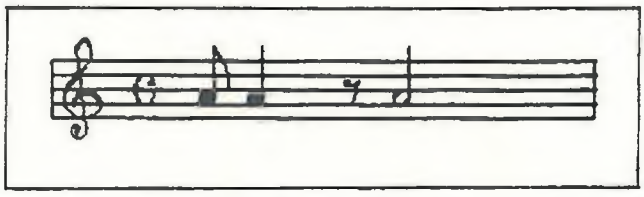
Press R followed by any integral number and RETURN.

B - Beat Format — Default = Classical

You may choose whether the syncopated notes in your sequence will be written in the classical or the jazz style of notation. In the first example, the notes are written in the classical style:



In the second example, the same notes are written in the jazz style:



Use the jazz style for 6/8 or 12/8 time. Otherwise, the dotted quarters will appear as eighth notes tied to quarter notes.

Press B to toggle to jazz; press B again to toggle back to classical.

N - Note spacing Default = 16

The display on the VT640 screen is made up of an array of 640 by 480 picture elements (pixels). There are 80 pixels per inch both vertically and horizontally (33 pixels per centimeter). The PRISM 80 printer offers a resolution of 84 pixels per inch, a slightly smaller image.

You specify the spacing between the notes in your music notation in pixels. You may choose any value, although too few pixels between notes would obviously make the score illegible. The number you specify will be the minimum number of pixels between the notes in your score. This spacing will be expanded if necessary to line up bar lines with the right and left margins.

The last measure in the piece, however, will not be extended to the right margin unless it is more than two-thirds of the line.

Press N followed by a number and RETURN.

V - Vertical spacing Default = 10

You use this option to specify the number of staves that will be printed on each page of the hard copy. An equal number of spaces are set between each staff on the page. This option is the quick way to establish the vertical spacing for the notation. The Score Format Menu allows you to override this equal spacing and vary the spacing between individual parts.

You can specify the same number of staves as there are parts in your score so that each system is printed on a separate page (for use in two-page formatting, as above). If all the

staves in the system won't fit on the 11 inch page, longer pages will be printed automatically.

If one or more systems will fit onto the 11-inch page, however, only the standard page length is permitted.

Press V followed by a number and RETURN.

T - Title

Any title up to 40 characters in length can be specified. This title will be printed on the top of every page of the score.

Press T followed by your title and RETURN.

MORE ON THE SCORE FORMAT MENU

You already have specified a few items on the Score Format menu. In this chapter, we will go into more detail. First, we will describe the mechanics of using the menu, then the major concepts behind the menu, and finally the individual items.

THE MECHANICS

Before you start specifying values on the menu, you should first press PF1 repeatedly until there are as many part lines on the menu as there are parts in your score. Each new part line will be displayed with default values. You use the cursor arrow keys to move from item to item, changing the default values to set up the parts as desired.

As you enter information onto the menu, you may make mistakes. Pressing DELETE will restore the default value to the item on which the cursor is located. If you enter an unacceptable response for any item, the character you typed will temporarily appear on the screen until you move to another item. Then the previous value for that item will be reprinted on the screen.

Press ENTER to return to the Main Menu and then RETURN to display the notation as specified on the two menus. It is possible that you may then run into an error message displayed on the bottom of the screen. This message will tell you what needs to be changed in order to display the notation. For more information, see the chapter on "Error Messages".

THE CONCEPTS

The total number of separate parts that you can print together is sixteen. However, you can only display for editing as many parts as will fit on the screen. The asterisk (*) symbol under Score Format is used for quickly selecting those parts you wish to edit together. Remove the asterisk from any part you don't want to display. Then, when you have finished editing and are ready to print the score, restore the asterisk to all the parts. Even though they cannot all be displayed on the screen at once, they can be printed on paper.

Other symbols under Score Format are used to set up the systems of your score: to bracket parts in the same section, to designate a part as either the upper or lower half of a grand staff, etc.

The "Track" item is used to specify the track or tracks that will be used for the part. A part may be written for one voice* using the notes from a single track. It may also be written for two voices, an upper and a lower voice. You can transcribe the notes of two tracks onto one part while retaining visible separation between the two musical lines. Or, you can split the notes of a single track into two voices. In this case, the computer will separate the voices at the largest interval in each chord. You change this voicing, or stemming, of a chord during the editing process.

The other items on the Menu - spacing, accidental format, transposing key, clef, key signature, time signature, and note resolution (shortest note) - are fairly straightforward and are covered below. Note, however, that many of the items specified on this menu can be changed in the middle of the score during the editing process.

One final concept is that of the edit list. Each part has connected with it two edit lists, one for the upper and one for the lower voice. The edit list is a list in computer memory of all editing you perform on the voice. It is completely separate from the information stored with the track.

If you delete a part line from the Score Format Menu by pressing PF2, you will erase all the menu choices you have made on that line. You will also at the same time erase both edit lists for that part and, therefore, will lose all the material added during editing.

You can delete the edit lists for a part without deleting the part line by pressing PF3.

THE ITEMS

Part No.

Parts are numbered automatically. Next to the part number, you will see the letter E if the part has had anything added to it on the editing display.

Instrument Name

You may type in anything you want up to 14 characters. This text will be printed to the left of the first line in the part. If you have two parts connected by a grand staff brace, the instrument name specified for the upper part will be centered between the two parts.

---

* For the sake of clarity, we should point out that this voicing has to do with the stemming of the notes. It has nothing to do with Synclavier (R) II synthesizer channels or partial timbres.

Score Format

This setting has several symbols that can all be turned on or off. They determine how the systems of your score will be formatted.

The symbols always appear in the order:

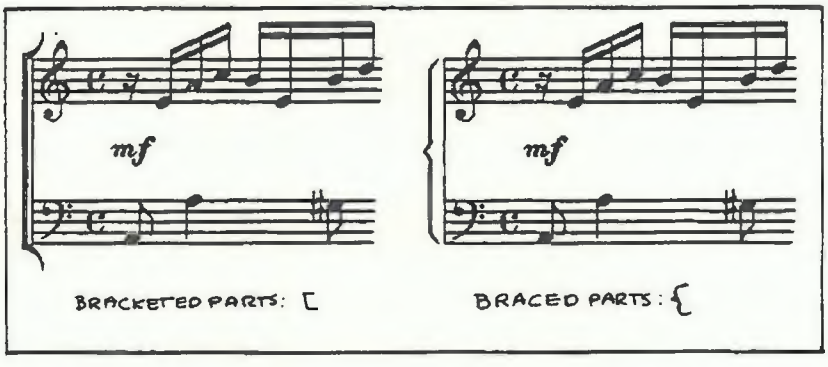
*[{¦U
or
*[{¦L

The cursor will always jump to the first symbol in the group. You move through the group pressing any character to turn on a symbol and the spacebar to turn off a symbol.

The asterisk indicates that the part will be included in the score, either on the editing display or on the printed paper.

The bracket indicates that a bracket will be placed at the left end of the part. This bracket will link all the adjacent parts that have the bracket symbol.

The brace indicates that the part and the one above or below, if it also has the brace symbol, will be connected with a grand staff brace.



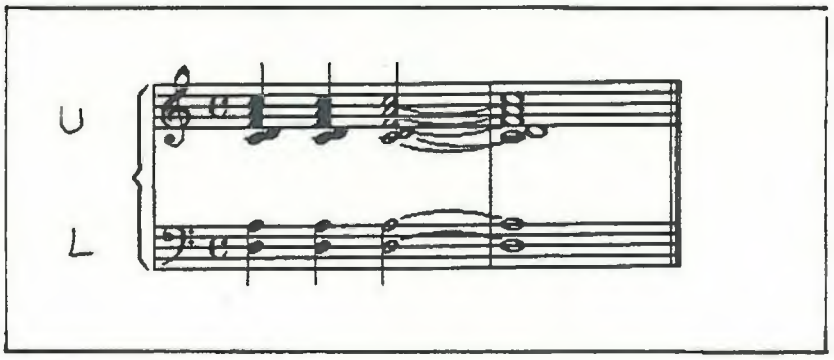
When the ¦ does not appear, vertical lines will be drawn in connecting the measure bars in the part with those in the part above. When the ¦ does appear, the vertical lines will be omitted and the left bracket will be broken.

The last symbol can be either a U or an L. To display the U, press any character key. To display the L symbol instead of the U, you must press the L key.

These symbols are used when you want the notes on one track to be split onto the upper and lower staves of a grand staff.

The U symbol is specified for the upper half of the grand staff. It simply tells the computer to omit from the display all the notes in the track(s) used for the part which are below a split point of middle C. Middle C is the default split point and can be changed during editing to any note.

The L symbol is used for the lower half of the grand staff. The notes in the track or tracks used for the part which are at the split point or above will be omitted from the display.



Tracks (Up=Upper, Dn=Lower)

You may specify one or two tracks for the part and one or two voices.

If you specify only one track under Dn (Up only is not allowed), all the notes will be stemmed as if for one voice, up or down depending on the staff location. Simultaneous notes will be written as chords with a single stem.

If you specify two different tracks for Up and Dn, the notes on the track specified under Up will be drawn as an upper voice - stems up. And the notes on the track specified under Dn will be drawn as a lower voice - stems down.

If you specify the same track for both Up and Dn, the notes on the track will be split into two voices by the computer. It will determine the voicing by the largest interval in each chord. The notes above that interval will be drawn as an upper voice - stems up. The notes below that interval will be drawn as a lower voice - stems down. This voicing can be changed during editing.

To delete a track number from under Up or Dn, press the DELETE key.

Vertical Spacing

The default vertical spacing between parts is set by the Vertical Spacing option on the Main Menu. This option allows you to vary the vertical spacing between parts.

The number you specify will be the precise number of pixels between the center line of the staff of the part and the center line of the staff above. Remember, as stated under "Note Spacing" in the section on the Main Menu, a pixel is one picture element in the display. There are 80 pixels per inch (33 per centimeter) on the screen, 84 per inch on the printed score.

If you specify too small a spacing, the staves will overlap. If you specify so large a spacing that the selected parts will not fit on the screen, you will get an error message. When it comes to printing on paper, however, you can specify any spacing between parts up to 255 and create multiple part systems of any length.

Accidental Format

You can specify whether sharps or flats will be used for the accidental notes in the part (e.g., whether a note is written as A sharp or B flat). Press the F key for flat; press any other key for sharp. This format can be changed anywhere in a part during editing.

Instrument Key

You may specify any major key to transpose the part for instruments pitched in different keys. Use F for flat (e.g., BF for music for B flat clarinet) and # for sharp.

Clef

The available clefs are G (treble); A (alto); T (tenor); F (bass); and D (double or grand staff).

If you specify D, an additional part line will be added to the Score Format Menu. The original line will receive a U symbol under Score Format and will be assigned a G clef. The new second line will have identical item values as the original, except it will have an L under Score Format and an F clef. Both lines will have the { symbol. Thus, a grand staff will be specified for you. Since the U and L symbols are present under Score Format, the split point of middle C will be used in plotting the notes on the two staves. Remember, you can change this split point during editing.

You can also set up a grand staff without using D, by pressing PF2 to add a new part line and setting the various items yourself. Any clefs can be used for the upper and lower halves of a grand staff.

Note also that you can change the clef anywhere in the part during editing.

Key Signature

You may specify any major or minor key. Use upper case for major keys and lower case for minor keys and F for flat and # for sharp as in SCRIPT (e.g., AF for A flat major or a# for A sharp minor). You can change the key signature anywhere in the part during editing.

Time Signature

You may specify any time signature. The measure bars will be drawn in based on your specifications. The denominator will determine the rhythmic value to be used as a unit of measure. This number must be a legitimate note value, i.e., 1 (whole note), 2 (half note), 4 (quarter note), 8 (eighth note), 16 (sixteenth note), 32 (thirty-second note), and 64 (sixty-fourth note). The numerator will determine the number of such units in each measure. This number can be any number up to 255.

Note: As of this release, all parts must have the same time signature. If you enter a different time signature for a part, the time signatures in the other parts will be changed to match it when you move to another item.

The time signature can be changed anywhere in the piece, so long as it is changed in every part at the same place in the music.

Note Resolution

The Synclavier (R) II memory recorder is an extremely sensitive and accurate recorder of rhythmic duration and beat. It records the slightest hesitation, the slightest anticipation. You may or may not wish to transcribe these slight rhythmic variations. The note resolution option allows you to specify the shortest note that will appear in the notation. Your choice of shortest note will depend on the rhythmic intricacy of the music, as well as on the accuracy of your playing in relation to the click track.

You simply specify the rhythmic value of the shortest note you wish to display: 1 (whole note), 2 (half note), 4 (quarter note), 8 (eighth note), 16 (sixteenth note), 32 (thirty-second note), or 64 (sixty-fourth note). Note that you cannot specify a value that is smaller than the denominator of your time signature (e.g., have a half-note shortest note in 4/4 time).

The sequence will be divided conceptually into blocks of the specified rhythmic value. All notes will be justified to appear in the notation on the closest block. Furthermore, any recorded notes the same length or shorter than the

specified rhythmic value will be displayed as the shortest note.

Note that if you do wish to display accurate thirty-second or sixty-fourth notes, the rhythmic justification feature provided by Release G along with the click rate multiplier of Release H provide easy-to-use means of recording any notes in perfect synchrony to the beat.

This note resolution value also determines the number of edit blocks provided in the editing display. The cursor will move across the lines of the notation from edit block to edit block so that you can edit each note. You will also use the edit blocks when you create triplets or other "tuplets". Edit blocks are described in detail in the next chapter.

Note: As of this release, all parts must have the same note resolution value. If you enter a different resolution value for a part, the resolution values in the other parts will be changed to match it when you move to another item.

The note resolution value can be changed anywhere in the piece, so long as it is changed in every part at the same place in the music.

EDITING

Now that you have become familiar with the menus, you are ready to start editing. You added a few symbols in the introductory exercise, but there is a great deal more to learn about editing.

In the Music Printing editing display, as in any screen editing program, you move the cursor to the place where you wish to enter or delete information. The difference between Music Printing and other screen editing programs is that you are editing a musical score rather than text.

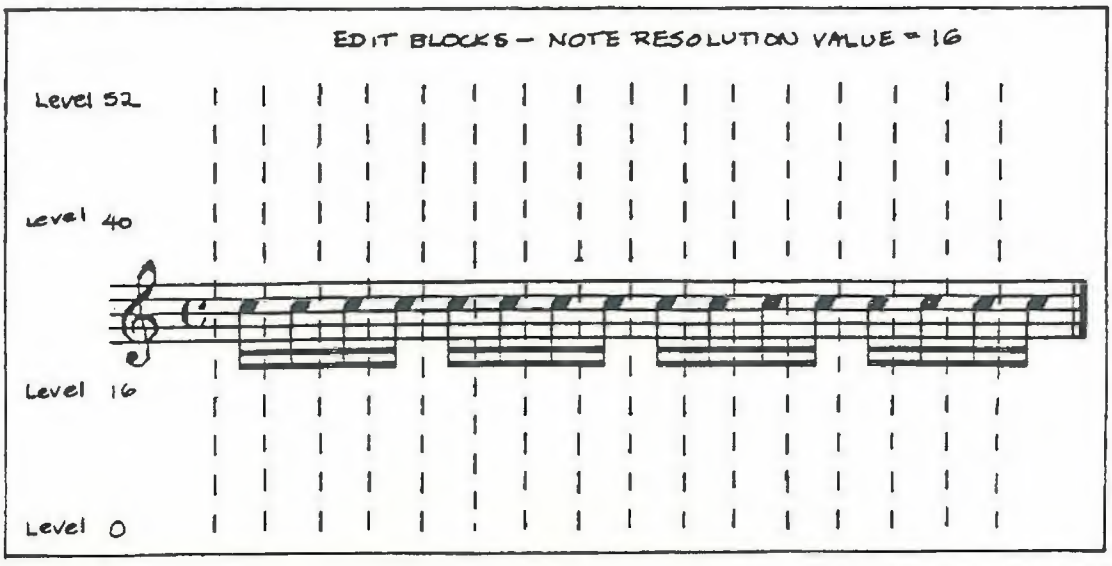
You can enter lyrics, written instructions for the musician, expression marks and other musical symbols. All these things will be immediately visible on the editing display.

You can also enter commands that will be stored in the edit list for the part. Each time the computer plots the score, it will refer to these commands for instructions on such functions as key changes or unusual beaming of a particular group of notes. Two special commands are used to change the actual pitch and duration of notes in the memory recorder.

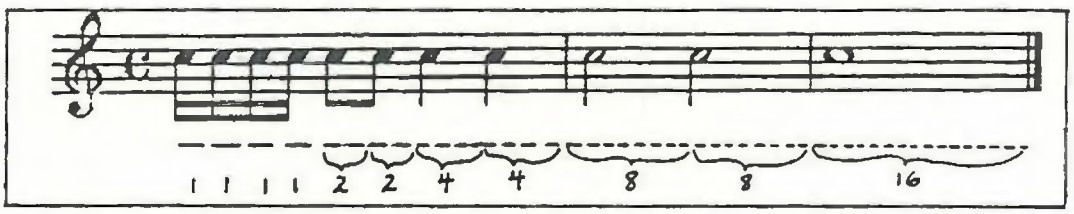
EDIT BLOCKS

Since the information you add to the score is related to a particular moment in the music, the editing program is designed so that you move through the score from note to note, or from edit block to edit block. There is one edit block for each note resolution block, or shortest note value, in the sequence. Each edit block extends well above and below the staff, allowing you to add text or symbols anywhere.

The figure below shows the edit blocks for one measure. The note resolution value is set at 16, so there is one edit block for each sixteenth note segment of the measure. Since the time signature is 4/4, there are sixteen edit blocks in the measure. The levels in the figure indicate the range of possible cursor positions within each edit block.



The next figure shows the edit blocks in three measures with a variety of notes. The note resolution value is still 16; there are still sixteen edit blocks per measure. There is one edit block for each sixteenth note, two edit blocks for each eighth note, four for each quarter note, and so forth. The spacing between the edit blocks is determined by the notes with which they are associated. Thus, the four edit blocks associated with a quarter note are closer together than the four edit blocks for four sixteenth notes.



MOVING AROUND THE SCREEN

Whenever you call up the editing display, you will see the cursor, a small green underline, in the first edit block in the first musical line on the screen. To move the cursor vertically within this edit block, you press the up and down arrow keys. The current cursor level (from 0 below the line to 52 above the line) is printed on the bottom of the screen. When the cursor is within the staff itself, and is not very visible, the number of the staff line or space will be printed next to the level number.

You can flip the cursor from level 16 (just below the staff) to level 40 (just above the staff) and back by pressing CTRL-F. Or, by pressing the down arrow at level 0, you can wrap around to level 52, and vice versa.

To move into the next edit block, you press the right arrow key. To return to the previous edit block, you press the left arrow key. If you want to move the cursor horizontally without moving to a new edit block, you can use the space bar to move to the right and the BACK SPACE key to move to the left. For example, use these two keys to move the cursor to the areas beyond the right and left ends of the staff. Note that using the space bar to move the cursor under the next note does not move it into the edit block associated with that note.

You move the cursor to the edit blocks of the staff below by pressing RETURN. The cursor will be positioned on whatever level you were on before, only in the first edit block of the new line. You return the cursor to the staff above by pressing LINEFEED.

To move to the next screen of notation, press the keypad 0 key. And to return to the Main Menu, press the keypad ENTER key.

NOTE: It is also possible to go directly from the editing display to the real-time system by pressing CTRL-P. The current display will remain frozen on the screen while the sequence plays. Return to Music Printing by pressing the PF3 key as usual. Note that if you do

not return to Music Printing, you will have to clear the notation from the screen yourself by pressing SET-UP and then the 0 key.

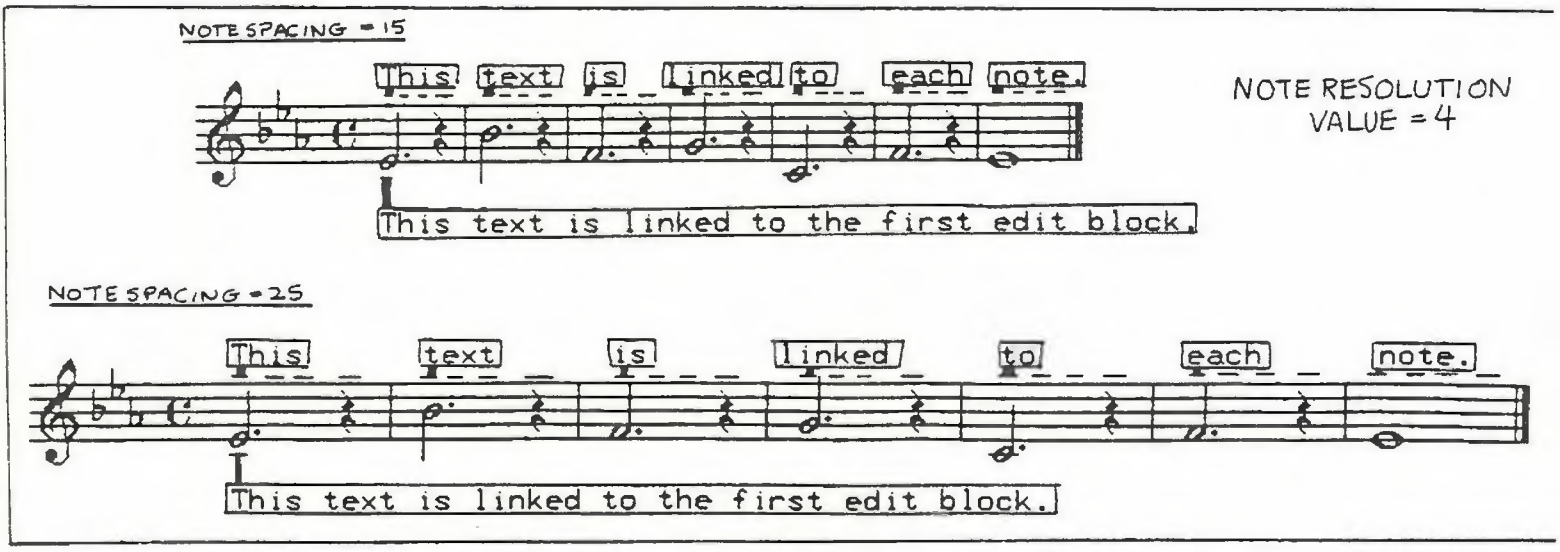
ADDING TO THE NOTATION

Each addition to the score, whether it be a single character symbol, a lyric, or a hidden editing command, is associated with the particular edit block in which the cursor was located when the entry of the item began. In this way, the added material will be linked with the note or notes in the edit block.

You can add lyrics, chords, and musical expression marks at any level in any edit block. Just position the cursor and type in upper and lower case letters and numbers and any of the special symbols provided by the keypad keys (described on the next page).

There is no limit to how much you can add at each edit point. To add lyrics, however, you will want to link each word or syllable with a particular note rather than just typing them in across the screen. Use the right or left arrow keys to position the cursor in the edit block for the note before typing the corresponding word. This way the words will remain linked with the correct notes even if you change the note spacing.

The two figures below show this clearly. The words written above the staff were entered in the edit blocks associated with the different notes. The words written below the staff were simply typed in without changing edit blocks and, hence, are all linked with the first edit block. In the second figure, where the note spacing has been changed, you can see that the text above the staff has been spaced differently to retain alignment with the proper notes and the text below the staff remains unchanged.



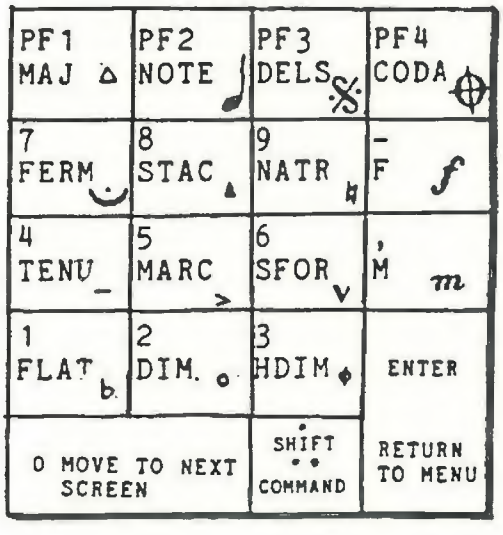
You can change the note spacing in this way, but once you have added anything to your score, you should never change the note resolution value. Because this would change the number of edit blocks, the added material would no longer be aligned with the correct notes.

Special Symbols

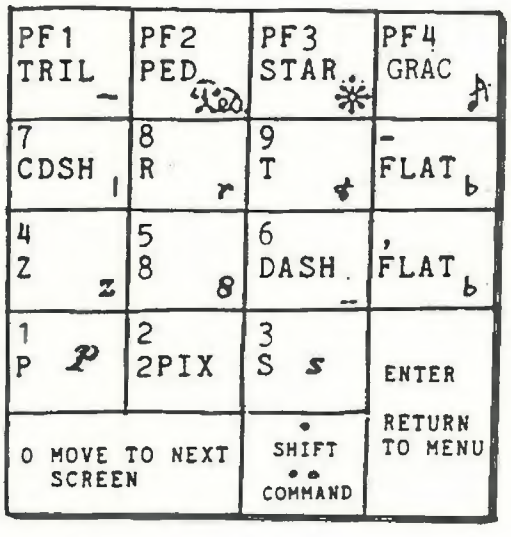
With Release B, all but three keypad keys (which are ENTER, 0, and period) can be used to insert a symbol or editing command. Each of these 15 keypad keys has two symbols preprogrammed onto it. To insert the first, or unshifted, symbol, just press the key. To insert the second, or shifted, symbol, first press the period key and then the symbol key.

The keypad assignments may be changed so that the keys can issue commands instead. This is covered in the next chapter. You may always see a display of the current keypad assignments if you return to the Main Menu and press K.

For now, you should position the cursor on your display and experiment with the preset symbols:



UNSHIFTED



SHIFTED

2PIX is actually a cursor movement command, rather than a symbol or an editing command. It is used to move the cursor two pixels to the right, without moving into the next edit block.

A few hints:

1. Use S, F, Z for *sfz*

2. Use T, R, and TRIL repeated for *tr* ~~~~~~~~

3. Use 8, DASH repeated, and CDSH for 8----------

To erase a simple typo or a symbol, press the DELETE key. To erase all the material at all levels in an edit block, place the cursor in the edit block and press the period key on the keypad followed by the DELETE key. To erase only the information added at one level in an edit block, place the cursor on the right level in the edit block and press CTRL-D. (This last feature is useful when you wish to delete printing characters - i.e., text, symbols, and tuplet bars - without deleting the editing commands entered in the same edit block.)

The text or symbols added to each edit block are saved in the edit lists. If you have only one voice in the part, you can enter material anywhere above, below or on the staff and it will be saved in the lower edit list. If your part has two voices, all material entered at the middle line of the staff and above will be saved in the upper edit list. All material entered below this line will be saved in the lower edit list. If the part is then replotted with no upper voice, the material in the upper edit list will be left out.

To erase all the information added in both edit lists for the part, press PF3 on the Score Format Menu.

EDITING COMMANDS

Music Printing editing commands are special instructions that you insert into the edit list for a part to affect the way it will appear when it is replotted.

Each command is entered in the same way. First you place the cursor in the appropriate edit block. Then you press the period key on the keypad twice, at which point the lower left corner of the screen will say "Item:" This is the Music Printing prompt for an editing command. Type in your command and press RETURN. Usually, you will then be asked for more information, such as a key signature in the KEY command, to complete the command. The details for each command will be covered below. Press RETURN instead of a command after "Item:" if you change your mind about entering a command.

Editing commands can also be programmed onto the keys of the keypad, so that you may enter a command by pressing a single key. This is covered in the next chapter.

With all editing commands, you won't see any effect until the score is replotted. Thus, to see the changed notation, you press ENTER to return to the Main Menu and then press RETURN for display. Normally when you are editing a score, you will insert several editing commands before replotting. But, until you are familiar with the commands, you should replot the editing display after you insert a command so that you can see the results clearly. Note that the "Jump to Measure" display option on the Main Menu can be used to avoid unnecessary delays.

All but the pitch and duration commands are linked with the edit block where you wish the change to take place and are stored in the lower edit list for the part. The pitch and duration editing

commands immediately change the notes themselves in the memory recorder.

Any command except those two can be deleted by placing the cursor in the same edit block in which the command was inserted and pressing the period key on the keypad and then the DELETE key. You cannot really delete the pitch and duration commands. To restore a note, you must reenter either command with the original pitch or duration.

Remember, the edit list itself will be deleted if you press PF2 to delete the part from the Score Format Menu or if you press PF3 to delete the edit lists of the part.

The first two commands - KEY and CLEF - can be inserted anywhere and will affect the plotting of the notes in all subsequent edit blocks in the part. You use the same procedure for both commands.

Changing the Key Signature - KEY

The KEY command is used to change the key signature used for a part. It can be inserted in any edit block in the part and will affect the plotting of all following notes until the next KEY command.

1. Move the cursor into the edit block just before the point where you wish the key signature to change.

2. Press the period key on the keypad twice.

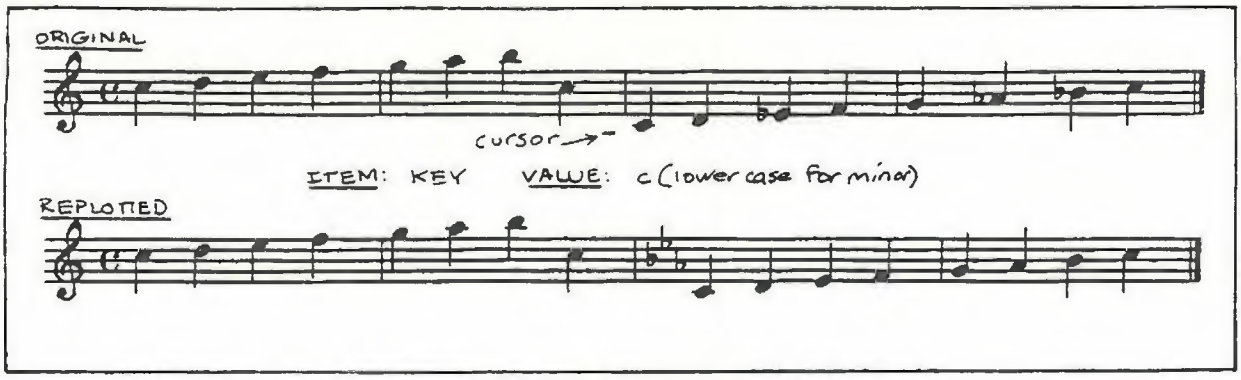
   The screen will ask for an "Item:"

3. Type the command KEY and press RETURN.

   The screen will ask for a "Key:"

4. Type in any key signature, just as on the Score Format Menu, and press RETURN.

Upon replotting, the part will have a new key signature right after the edit block in which you entered the command. Accidentals and naturals will be added as necessary to notate the subsequent notes correctly in the new key signature. (If you are changing from a key in sharps to a key in flats or vice versa, you must first change the accidental format before entering the KEY command. See the ACC command on page 46.)



You can change key signature in this way as frequently as desired in the part.

Changing the Clef - CLEF

The CLEF command is used to change the clef used for a part. It can be inserted in any edit block in the part and will affect the plotting of all following notes until the next CLEF command.

1. Move the cursor into the edit block just before where you wish the clef to change.

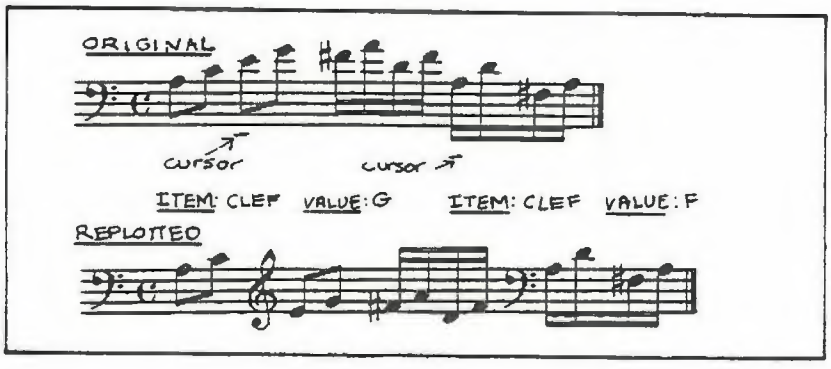
2. Press the period key on the keypad twice.

3. Type the command CLEF and press RETURN.

   The screen will ask for a "Clef:"

4. Type in G, A, T, or F and press RETURN.

Upon replotting, the part will have the new clef right after the edit block in which you entered the command. You can change the clef as frequently as you want in a part.



The next two commands - TIME and RESO - are inserted in the last edit block before a measure bar and affect the plotting of the notes in all subsequent measures. When either of these commands is inserted into a part, it must also be inserted into all other parts at the same point in the music.

Changing the Time Signature - TIME

The TIME command is used to change the time signature in the middle of the score. It is inserted in the last edit block before a measure bar to cause a signature change at the beginning of the next measure.

As of this release, all parts in the score must have the same time signature. Therefore, if you insert a TIME command into one part, you must also insert the same command into all other parts at the same point in the music before replotting. This applies to *'d parts only. Parts that are not *'d are not plotted. If you are editing one part at a time, just put in the time signature changes where they belong. But all time signature changes must line up when the whole score is plotted together.

1. Move the cursor into the last edit block before the measure where you want the time signature change to occur.

2. Press the period key on the keypad twice.

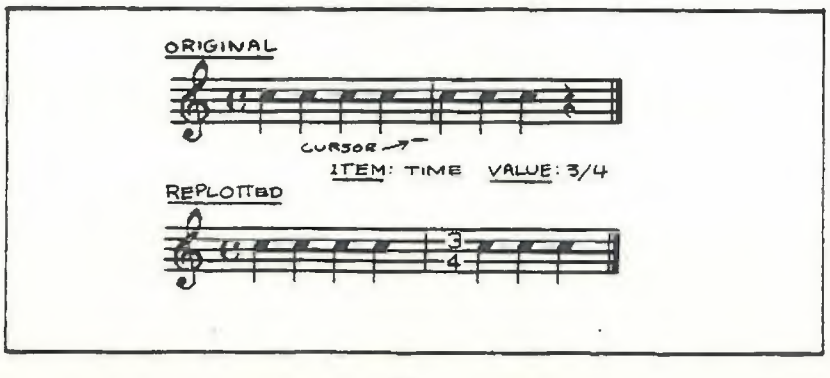
3. Type the command TIME and press RETURN.

   The screen will ask for a "Time signature:"

4. Type in any standard time signature, just as on the Score Format Menu, followed by RETURN.

5. If there are other parts displayed on the screen at this time, you must now enter the same TIME command into those parts at the same point in the sequence.

Upon replotting, the part or parts will have a new time signature in the measure following the command. Measure bars will be drawn in based on the new time signature until the next TIME command. You can insert as many of these as you want into a score.



Changing the Note Resolution Value - RESO

The RESO command is used to change the note resolution value anywhere in the notation. You can thus choose different shortest note values for particular measures in a piece. The command is always inserted in the last edit block before a measure bar so that the change will occur at the beginning of the next measure.

IMPORTANT NOTE: You should never insert the RESO command into an edit block after editing has been done beyond that point. Otherwise notes will no longer be associated with the correct text, symbols and commands that you have added. Therefore, if you are going to make note resolution changes in any measures in your notation, you should do this first before editing those or any following measures.

As of this release, all parts in the score must have the same note resolution value. Therefore, if you insert a RESO command into one part, you must also insert the same command into all other parts at the same point in the music before replotting.

1. Move the cursor into the last edit block before the measure where you want a different shortest note value.

2. Press the period key on the keypad twice.

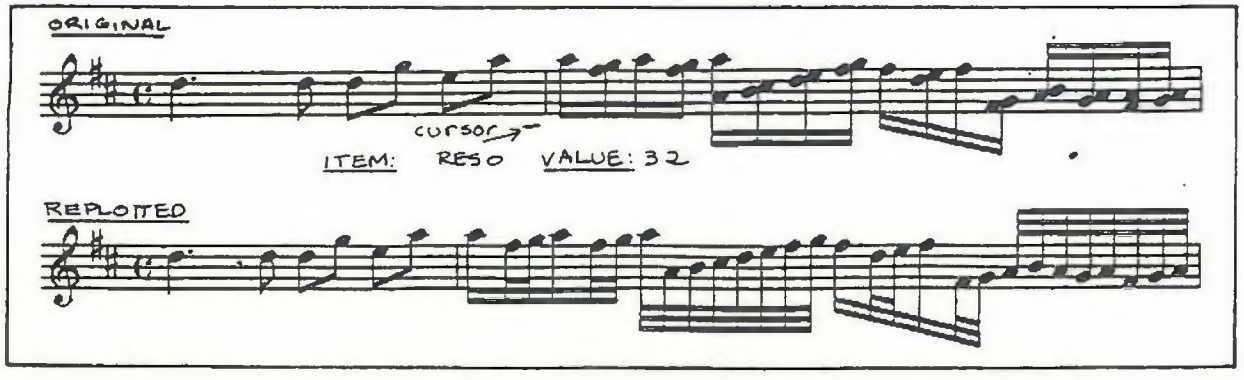
3. Type the command RESO and press RETURN.

   The screen will ask for a "Resolution:"

4. Type in a note resolution value, just as on the Score Format Menu, followed by RETURN.

5. If there are other parts displayed on the screen at this time, you must now enter the same RESO command into those parts at the same point in the sequence.

Upon replotting, the part or parts will have a new shortest note value in the measure following this edit block. A new number of edit blocks will also exist in this measure and all following measures. You can insert as many RESO commands into your score as you want.



The next two commands - ACC and SPLT - can be inserted anywhere and will affect the plotting of the note or notes that are in the edit block in which the command is inserted as well as all following notes.

Changing the Accidental Format - ACC

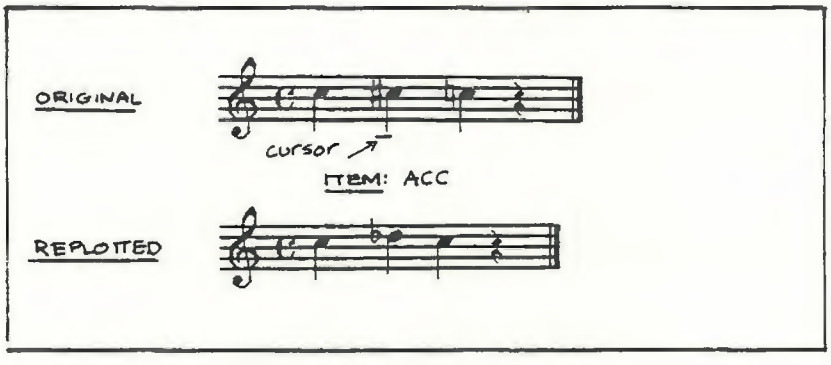
With a key signature change in the middle of the part, you may need to change the accidental format from sharp to flat or vice versa. The ACC command allows you to "toggle" the current accidental format setting. You can also use ACC commands to change a single note from sharp to flat to make your notation easier to read. (For example, a sequence of C, C sharp, C natural could be changed to C, D flat, C.)

1. Move the cursor into the edit block where you wish the accidental format to change.

2. Press the period key of the keypad twice.

3. Type the command ACC and press RETURN.

Upon replotting, the accidental format will be the reverse of whatever it was before the command. The new format will remain in effect for the part until the next ACC command.



Changing the Split Point - SPLT

The computer automatically uses middle C for a split point when plotting notes on the U and L halves of a grand staff. On the U staff, all notes below middle C will be left out of the plotting. On the L staff, all notes from middle C up will be left out.

You can insert the SPLT command in any edit block in the U and L parts to specify a different note for the split point. Each change affects the note or notes in that edit block as well as all following notes until a new split point is indicated.

You must insert the SPLT command into both the U and L parts to move a note from one staff to the other since the split point must be changed in both parts.

In the following example, the split point is changed from middle C to middle D to move a middle C note on the U staff down to the L staff.

1. Place the cursor in the edit block for the middle C on the upper staff.

2. Press the period key on the keypad twice.

3. Type the command SPLT and press RETURN.

   The screen will say "Enter a note value as in script:"

4. Type in the letter D and press RETURN.

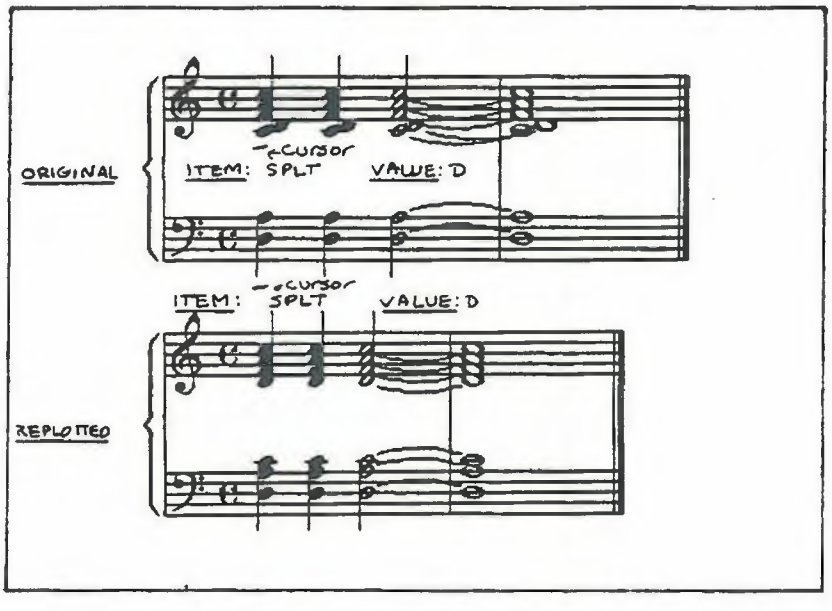
   You can use any pitch letter followed by an octave number. A number is unnecessary in this particular case because the default middle octave 3 is desired.

5. Move the cursor to the staff below by pressing RETURN.

6. Position the cursor in the edit block corresponding to the middle C.

7. Repeat steps 2 through 4 to establish the new split point for the lower part.

Upon replotting, the middle C in the edit block, as well as all subsequent middle C's on the track, will be left out of the upper staff and will appear on the lower staff.



You can change the split points as frequently as you want in the U and L parts.

The next commands - VOX and TIE, BRK and MEND, TUP and TBAR - affect the plotting of specific notes only.

Changing the Voicing - VOX

When you specify the same track for upper and lower voices for a part, the computer will determine the voicing of chords according to the largest interval in the chord. With the VOX command, you can change this voicing. In effect, you go into the chord and leave "markers" on the notes that you want in the upper voice - that is, drawn with the stems up.

1. Place the cursor under the chord you wish to revoice.

2. Press the period key twice.

3. Type the command VOX and press RETURN.

   A plus sign (+) will appear on the lowest note in the chord.

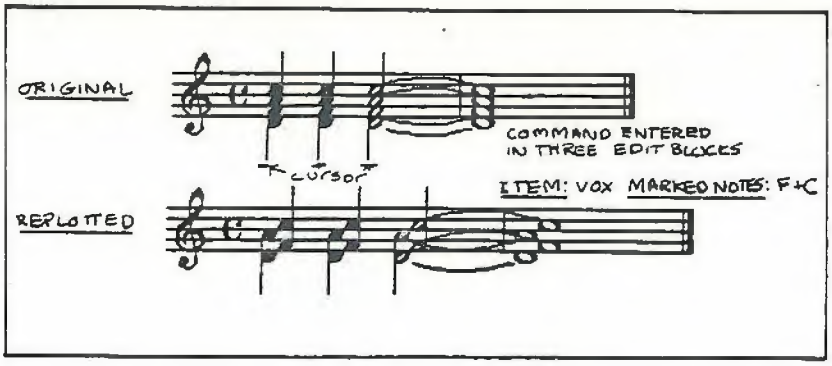
4. Try moving the + from note to note in the chord by pressing the up and down arrow keys.

5. Now you must mark all the notes you want to be drawn stem up. Even if a note is already drawn stem up, you must mark it. Simply move the + to a note you want to mark and then press any character on the keyboard. A short line will be drawn across the note. Move the + to the next note you wish to mark and press any character. Continue until all marking is done. If you mark any note by mistake and wish to remove the mark, return to the note and press the space bar.

6. When all the notes for the upper voice are marked, press ENTER.

   Note: If no notes are marked when you press ENTER, then all notes will be drawn stems down. To return to the original voicing, press the period key followed by DELETE to delete the edit command from the edit list.

Upon replotting, the marked notes will appear stems up on the notation.



This feature only works when the two voices are from the same track of notes. You cannot revoice notes from separate tracks.

Changing the Directions of Ties - TIE

When there is one voice on a part, each tie will face in the opposite direction from the stem of the first note in the tie. When there are two voices, the ties of notes in the upper voice will face up ⌒ and the ties in the lower voice will face down ⌣. You may wish, for the sake of readability, to change, or "flip", a tie. The process is similar to changing the voicing. You go into a chord and mark all the notes with ties that you want to face up. When the score is replotted, the ties on marked notes will face up; all others will face down.

IMPORTANT NOTE - The second note in a tied set of notes is not a "real" note. Each tied pair is a single rhythmic value that is written in this way when the note in the memory recorder extends beyond the measure (or half or quarter of the measure). Always place the cursor under the first note in the tie before initiating this or any other editing command.

1. Place the cursor under the first note in the tie.

2. Press the period key twice.

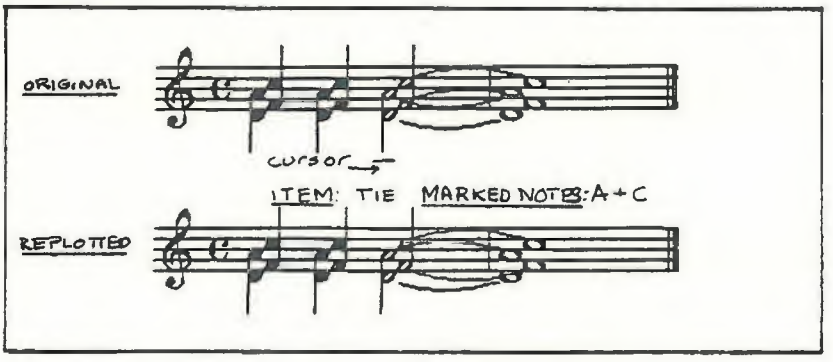
3. Type the command TIE and press RETURN.

   A plus sign (+) will appear on the note. If this edit block contains a chord, the + will appear on the lowest note in the chord.

4. Now you must mark all the notes with ties that you want to face up. Even if a tie is already facing up, you must mark it. Simply move the + to a note you want to mark and then press any character on the keyboard. A short line will be drawn across the note. Move the + to the next note you wish to mark and press any character. Continue until all marking is done. If you mark any note by mistake and wish to remove the mark, return to the note and press the space bar.

5. When the notes that should have ties that face up are all marked, press ENTER.

Upon replotting, the ties for the marked notes will appear facing up on the notation. All others will be facing down.



Changing the Beaming - BRK and MEND

You can override the computer's beaming of notes either by joining unbeamed notes or by breaking the beams.

To join a beam:

1. Place the cursor under the note that you wish to beam to a previous note or group of notes.

2. Press the period key twice.

3. Type the command MEND and press RETURN.

Upon replotting, the note will be beamed to the previous note.

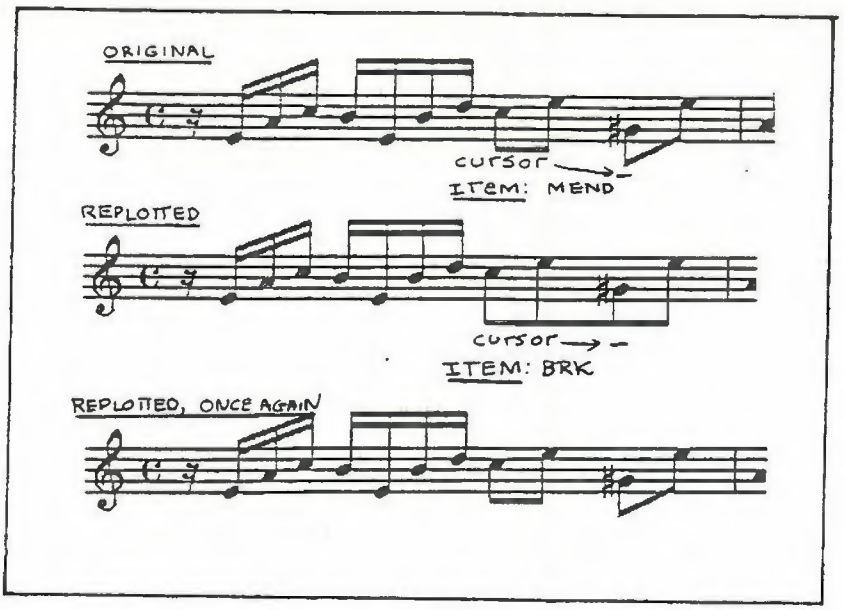
To break a beam:

1. Place the cursor under the note that you wish to break off from the beamed group. This note will become the first note in the new group.

2. Press the period key twice.

3. Type the command BRK (for "break") and press RETURN.

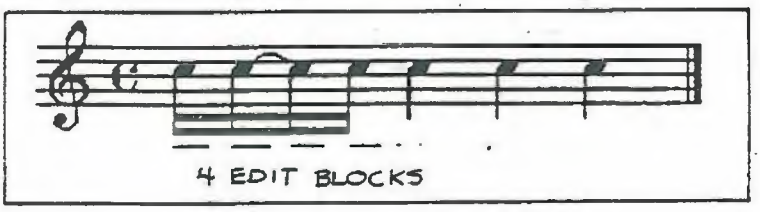
Upon replotting, the note will be broken off from the beamed group.



Creating Tuplets - TUP

When you record odd rhythmic values, e.g., triplets or quintuplets, the computer will justify these notes according to the note resolution value you have specified. You use the TUP (for "tuplet") command to replot the notes precisely as you want them.

Suppose your note resolution value is 16, that is, one edit block for each sixteenth note, and your sequence has a passage with eight-note triplets. The computer will initially plot this group of notes as follows:



The eighth-note triplets will be printed as sixteenth notes in order to fit them into the four edit blocks allowed for each beat. Since each eighth note requires two such edit blocks, you need six edit blocks for this beat in order to display the three eighth notes. The TUP command allows you to add the additional edit blocks to the measure just where you need them.

To change those sixteenth notes to eighth note triplets, follow this procedure:

1. Place the cursor under the first note in the group.

2. Press the period key on the keypad twice.

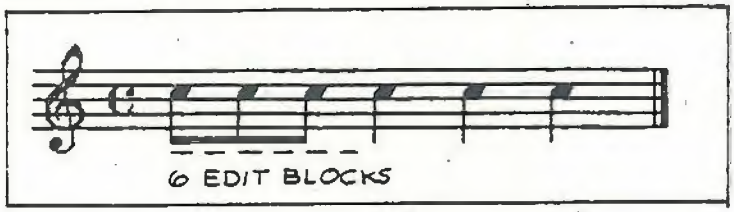
3. Type the command TUP (for "tuplet") and press RETURN.

   The screen will ask you for "Old Blocks/New Blocks:"

   The present group of notes uses four edit blocks (Old Blocks); the triplets require six edit blocks (New Blocks).

4. Type 4/6 and press RETURN.

Upon replotting, two new edit blocks will be added to the part at this point and the notes will be plotted as three eighth notes.



You may move forward in the score and insert additional TUP commands or perform other editing before replotting. However, do not attempt to do any editing on new tuplets or on anything before new tuplets without first replotting. This will ensure that all edit blocks will be directly aligned with the correct notes.

You may justify quarter note triplets similarly. In a piece with a note resolution value of 16, you will have to add four edit blocks to the original eight edit blocks alloted for the notes. Specify 8/12 in the TUP command.

You can use the TUP command for quintuplets, sextuplets, etc. Just determine the number of edit blocks required for each note in the group and multiply that figure by the number of notes in the group.

Special Notes on Tuplets:

1. You must record tuplets accurately for this procedure to work. Use the rhythmic justification feature of Release G and the click rate multiplier feature of Release H to record justified tuplets in a sequence.

2. A tuplet may not cross a measure bar.

3. The rhythmic structure in the upper and lower voices within the same part must be the same. That is, if you have a triplet in the upper voice, there must be one in the lower voice at the same point in the part.

   To create tuplets in a two-voice part, you should follow this procedure: Place the cursor under the first note in the tuplet in the lower voice and insert the TUP command. Then press CTRL-F and insert the same command in the

upper voice.

Adding a "Tuplet" Bar - TBAR

You will also want to place a numbered bar above or below your "tuplets". Here is how to specify a triplet bar:

1. Place the cursor above or below the first note in the group of triplets. The level of the cursor will determine the level of the triplet bar and the direction it faces (└─3─┘ or ┌─3─┐).

2. Press the period key on the keypad twice.

3. Type the command TBAR and press RETURN.

   The screen will ask you for a "Number:"

4. For a triplet bar, type 3 and press RETURN.

Upon replotting, the triplet notes will have a triplet bar above or below them.

You may specify any number to create a bar to fit any group of tuplets.

Note that you must replot your tuplets after the TUP command is inserted before you enter the TBAR command. Otherwise the tuplet bar will not be lined up with the tuplet correctly. Alternatively, you can place the cursor in the edit block over the first note in the group of notes, then enter the TBAR command followed by the TUP command, and then replot or go on in the score.

To delete a tuplet bar, place the cursor on the right level in the edit block and press CTRL-D. The tuplet bar will be removed from the display when you replot.

The last two commands - PTCH and DUR - affect the actual note in the memory recorder.

Changing the Duration of a Note - DUR

You use the DUR command to change the duration of a note in the memory recorder and the rhythmic value that it is given in the display. Note that this change affects only the duration of the note itself. It does not affect the following notes.

1. Place the cursor under the note you wish to change.

2. Press the period key twice.

3. Type the command DUR (for "duration") and press RETURN.

   A plus sign (+) will appear on the lowest note on the staff in this edit point.

4. Move the + until it is on the note you wish to change. You can only change one note at a time.

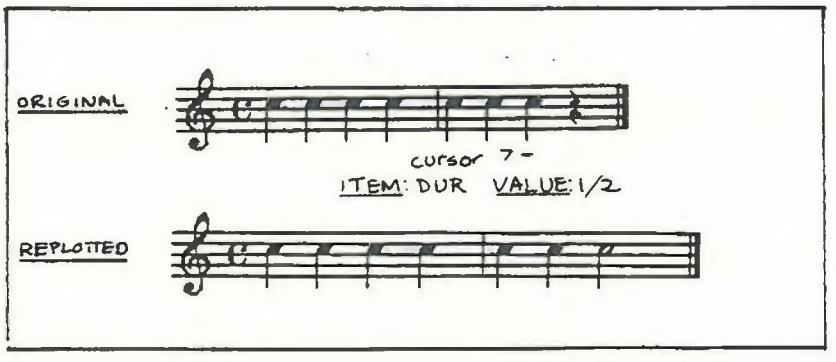
5. Then press the ENTER key.

   The screen will ask you to "Enter a duration fraction (N/D):"

   You can specify any fraction of a whole note: 1/1 for whole note, 1/4 for quarter note, 1/8 for eighth note, 3/4 for a dotted half note, 1/6 for quarter note triplet, etc.

6. Type in the desired new rhythmic value and press RETURN.

The note in the memory recorder will be given a new duration. Upon replotting, the note will appear on the staff with a different rhythmic value. And if you play the track, you will hear the new duration.



Changing the Pitch of a Note - PTCH

The PTCH command is used to correct or change the pitch of a note in the memory recorder. Obviously, when a note is changed in the memory recorder, it will then be placed differently on the staff.

1. Place the cursor under the note you wish to change.

2. Press the period key twice.

3. Type the command PTCH and press RETURN.

   A plus sign (+) will appear on the lowest note on the staff in this edit point.

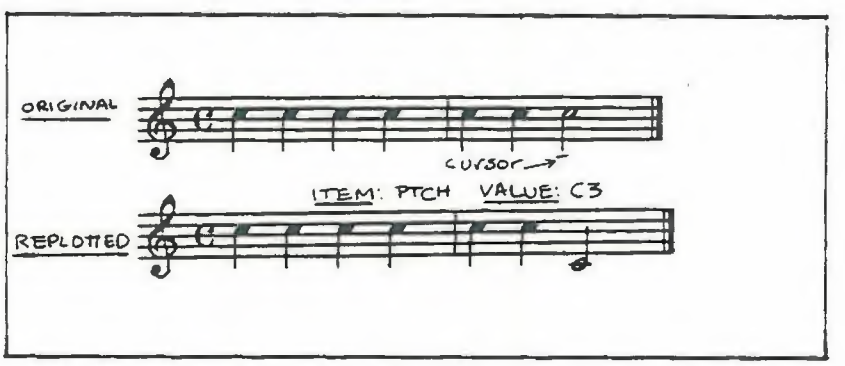
4. Using the arrow keys, move the + until it is on the note you wish to change. You can only change one note at a time.

5. Then press the ENTER key.

   The screen will ask you to "Enter a note value as in SCRIPT:"

6. Type in a SCRIPT pitch and press RETURN.

The note in the memory recorder will be changed to the new pitch. Upon replotting, the note will appear on the staff in a new position. And if you play the track, you will hear the new pitch.



PROGRAMMING THE KEYPAD - SET

As you have already seen, the keys on the keypad are preprogrammed with symbols. You can reprogram these keys so that they initiate editing commands instead. Any editing command can be assigned as the unshifted or shifted function for any of these keys. This can speed up the editing process by eliminating the need to press the period key twice and then type in the command. You can also reassign any of the symbols to different keys on the keypad.

1. Press the period key on the keypad twice.

2. Type the command SET and press RETURN.

   The screen will ask you to "Press key to be set."

   You can use any of the fifteen keys either unshifted or shifted.

3. To program the unshifted key, simply press the key.

   or

   To program the shifted key, press the period shift key first and then the key.

   Then the screen will ask you to "Enter item for key:"

4. You may now type any editing command, except the SET command, and press RETURN.

   The command is now assigned to the key.

5. Return to the Main Menu and press the K key to see the display of the keypad assignments. You will see your new command assigned to the unshifted or shifted key.

Whenever you wish to use the command, you need only position the cursor on the right edit block and press the correct unshifted or shifted key. Note that some of the commands, e.g., ACC, BRK, and MEND, are completed by one pressing of the keypad key. There will be nothing printed on the screen to indicate that the command has been entered until you replot.

The converse of all this is that the symbols that are assigned to the keypad can also be entered just as you would an editing command. In other words, each symbol abbreviation, such as TRIL or F, is also an "Item". Press the period key twice, then type the abbreviation, and then press RETURN to display the symbol on the editing display. You can also use a symbol as the "Item" in the SET command to reassign it to a key on the keypad.

USING THE PRISM 80 PRINTER

The PRISM 80 PRINTER prints high quality copies of Music Printing screen displays. Its Dot Plot Graphics feature provides the same high resolution of 84 dots per inch both vertically and horizontally as the VT100. In addition, the PRISM 80 can be used in the character printing mode to produce hard copies of SCRIPT compositions or MAX or XPL programs.

The instructions below explain how to connect the printer to the computer, turn the printer on, adjust the paper, and start printing scores. These instructions are particularly directed to those who have not used a computer printer before.

Complete information on all aspects of the printer can be found in the PRISM PRINTER Owner's Manual. If you have a problem, or if you want to use the programmable control codes, refer to that manual.

SETTING UP THE PRISM 80

1. Unpack the PRISM 80 and place it in a convenient location.

   The PRISM 80 is a table-top printer which will print on single sheets or pinfeed fanfold paper. Single sheets are loaded through a chute in the front of the printer. Pinfeed paper is loaded through slots in either the bottom or the back. Therefore, if you are using pinfeed paper, be sure to place the printer in such a way that the paper path is unobstructed.

   Note that printing quality is superior in the pinfeed method because the paper is held very firmly between the tractors.

2. Remove printer window.

3. Remove the restraining cardboard tubes and plastic tie-downs from the printer. (Be sure to save all packing material in case shipment is ever necessary.)

4. Make sure the printer is OFF. The power switch is at the back.

5. Plug the printer into a three-wire grounded 115 VAC (60 Hz) power outlet. If your power source is 230 VAC, 50 Hz, see page 2-4 and 2-5 of the PRISM PRINTER Owner's Manual for instructions on reconfiguring the printer for this voltage.

6. The D40 board on the computer must be set at 9600 baud, the maximum allowed on the PRISM 80. To check this setting, or to change it, refer to the instructions on page 25 of the Synclavier II Setup and Installation Manual.

7. Connect one end of the printer cable to the connector on the back of the printer and the other end to the connector on the computer labeled PRINTER/MODEM port.

8. Check the small Function Select Switches on the top left of the printer. They should be set as indicated in the figure below. If they are not, you can position them correctly using a ball-point pen. (Do not use a pencil - the carbon is conductive.)

   If it is necessary to change the switches at this or any other time, the printer must be turned off.

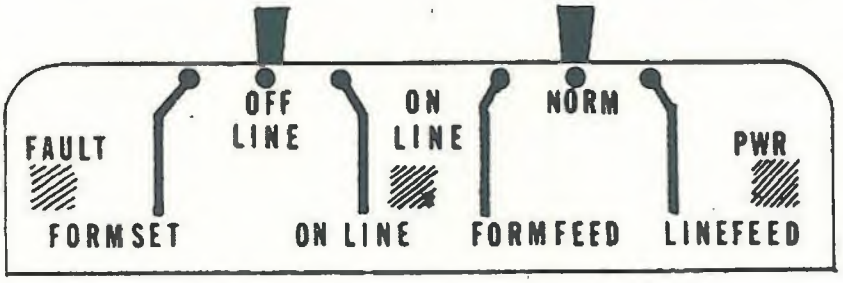
	x	x	x	x	x			x			x		x		off
x						x		x		x	x		x		on
1	2	3	4	5	6	7		1	2	3	4	5	6	7	

DIP S4 DIP S5

Next to these switches is located the Self-Test Switch which is used to run test printouts. This switch should be pushed to the left, where it will be inactive.

SWITCHES AND LIGHTS

Before proceeding further, examine the switch panel on the top right of the printer. There are two switches and three lights.



The Left-Hand Switch

When this switch is pushed to the right to ON LINE, the printer can receive and print data from the computer.

When this switch is centered at OFF LINE, the printer cannot print, although it can still receive data from the computer if its buffer is not full. Always set this switch at OFF LINE when loading paper, to make sure that the printer does not unexpectedly start printing.

When this switch is pushed to the left to FORM SET, the right-hand switch can be used for positioning the top-of-page in pinfeed paper printing.

The Right-Hand Switch

This spring-loaded switch is normally at center (NORM). It performs differently depending on the position of the the left-hand switch.

If the left-hand switch is placed on ON LINE, the right-hand switch is inactive.

If the left-hand switch is placed on OFF LINE, the right-hand switch will perform as follows: When the switch is pushed to the left to FORMFEED, the paper will be moved to the top of the next page in pinfeed printing or ejected in friction single sheet printing. When the switch is pushed to the right to LINEFEED, the paper will be moved forward one line at a time.

If the left-hand switch is placed on FORM SET, the right-hand switch will perform as follows: When the switch is pushed to the left to FORMFEED, the paper will be moved downward slowly in 1/48 inch increments. When the switch is pushed to the right to LINEFEED, the paper will be moved upward slowly in 1/48 inch increments.

The Lights

The POWER light is lit whenever the printer is turned on. The ON LINE light is lit whenever the left-hand switch is placed on ON LINE. The FAULT light is lit when the paper is out of paper. When both the ON LINE and FAULT lights are blinking, a random access memory error is indicated. Refer to PRISM PRINTER Owner's Manual.

ALIGNING PAPER AND PRINTING

The instructions for loading and adjusting paper are slightly different depending on whether you use single sheets of paper or pinfeed paper.

Single Sheets of Paper

In this method, single sheets of paper are fed through a loading chute at the bottom front of the printer. For Music Printing, use 8 1/2 by 11 inch paper.

We assume that your computer is on, that you have loaded the SCRIPT Release H with Music Printing operating system, that your notation is ready to be transcribed onto paper, and that the main Music Printing menu is on the terminal screen. If you line your paper up as described below, your scores should be properly placed on the page.

1. Turn on the PRISM 80 - the switch is in the back.

2. Place the left-hand switch on OFF LINE.

3. Momentarily place the right-hand switch on FORMFEED to clear the printer buffers.

4. Remove the plastic window on the printer if it is not already off.

5. Push the Feed Mode Select lever towards the back of the printer. This black lever is located on the left front inside the printer compartment.

6. Unlock the tractors, push them to widest position possible, and open the tractor doors.

7. Align the left paper guide on the loading chute with the "C" on the margin guide.

8. Using a sheet of paper as a guide, adjust the right paper guide so the space between guides is the width of the paper plus an extra 1/16th inch to avoid paper binding.

9. Carefully push the paper through the loading chute into the printer until it is picked by the friction feed mechanism. In approximately 1/2 second, the printer will automatically feed the paper through and stop at the top of the page. (The top-of-page has been set in the Music Printing software).

10. Push the right-hand switch to the right to LINEFEED until the paper moves to the top of the tractors.

11. Align the outside edges of the friction rollers with the left and right edges of the paper.

12. Slide the tractors up against the rollers, close the tractor doors and lock the tractors in place.

13. Eject the paper by briefly pushing the right-hand switch to FORMFEED.

14. Now check the paper path, margins, and print quality:

    a. Push a sheet of paper through the loading chute into the printer until the printer engages it and feeds it through.

    b. Hold the right-hand switch on LINEFEED until the paper moves between the tractors. If the paper gets stuck on one or both of the tractors, carefully pull out the paper and briefly place the right-hand switch on FORMFEED. Then readjust the friction rollers and tractors and try again with another sheet of paper.

    c. When the paper moves smoothly, perform a self-test. Push the Self-Test switch to the right for a few seconds and then push it to the left. Several lines of characters will be printed.

d. If the test lines are not horizontally centered on the paper, eject the paper by briefly placing the right-hand switch on FORMFEED. Then reset the paper guides, rollers and tractors as described above and try again with another sheet of paper.

e. If the print quality is too light or too dark, use the Forms Thickness Adjust Lever located on the far right of the printer compartment to correct the situation. If too light, push this lever towards the back of the printer. If too dark, pull the lever towards the front of the printer.

f. Perform additional self-tests as required until margin placement and print quality are as desired.

g. Eject the test paper by briefly placing the right-hand switch on FORMFEED.

15. Now place the left-hand switch on ON LINE, insert a new sheet of paper until it is picked up by the feed mechanism and press the H key on the terminal keyboard.

    After writing the notation to the terminal screen, the printing of your first sheet of music should now commence. The printer will stop at the bottom of the page and eject the paper.

16. To print the next page, insert a new sheet of paper into the loading chute. The printer will automatically position the paper and resume printing.

Please note the following:

a. Do not feed a new sheet of paper into the printer until the previous sheet has been ejected.

b. You can eject a sheet of paper at any time by placing the left-hand switch on OFF LINE and momentarily placing the right-hand switch on FORMFEED. Insert a new sheet and switch back to ON LINE to resume printing.

c. If the paper jams, place the left-hand switch on OFF LINE, carefully remove the paper, and momentarily place the right-hand switch on FORMFEED. Then insert a new sheet of paper and switch back to ON LINE.

Pinfeed Paper

We assume that your computer is on, that you have loaded the SCRIPT Release H with Music Printing operating system, that your notation is ready to be transcribed onto paper, and that the main Music Printing menu is on the terminal screen. If you line your paper up as described below, your scores should be properly placed on the page.

1. Turn on the PRISM 80 - the switch is in the back.

2. Place the left-hand switch on OFF LINE.

3. Momentarily place the right-hand switch on FORMFEED to clear the printer buffers.

4. Remove the plastic window on the printer if it is not already off.

5. Push the Feed Mode Select lever towards the front of the printer. This black lever is located on the left front inside the printer compartment.

6. Slide the paper rollers to the center of the rail.

7. Insert the top edge of the pinfeed paper into one of the paper loading slots located on the back or on the bottom of the printer; slide the paper on up through the printer until it reaches the tractors.

8. Open the tractor doors, place the pinfeed holes in the paper over the pins on the pin belt. Close the tractor door.

   It may be necessary to adjust the tractors to the width of the paper being loaded. To adjust, pull down the locking lever on each tractor, slide the tractors horizontally to the required paper width, insert the paper, and lock the tractors in place.

9. Set the top-of-page:

   a. Hold right-hand switch on LINEFEED until the perforated line appears above the printhead.

   b. Place the left-hand switch on FORM SET.

   c. Hold the right-hand switch on LINEFEED until the perforated line in the paper just clears the ledge beneath the tractors (the same position at which the single sheets stop when fed in through the front loading chute).

   d. Place the left-hand switch on OFF LINE again.

10. Check margins and print quality by performing a self-test:

    a. Push the Self-Test switch to the right for a few seconds and then return it to the left. Several lines of characters will be printed.

    b. If the test lines are not horizontally centered on the page, release the locking levers on the tractors, move the tractors to the right or left as required, and relock.

c. If the print quality is too light or too dark, use the Forms Thickness Adjust lever located on the far right of the printer compartment to correct the situation. If too light, push this lever towards the back of the printer. If too dark, pull the lever towards the front of the printer.

d. Perform additional self-tests as required until margin placement and print quality are as desired.

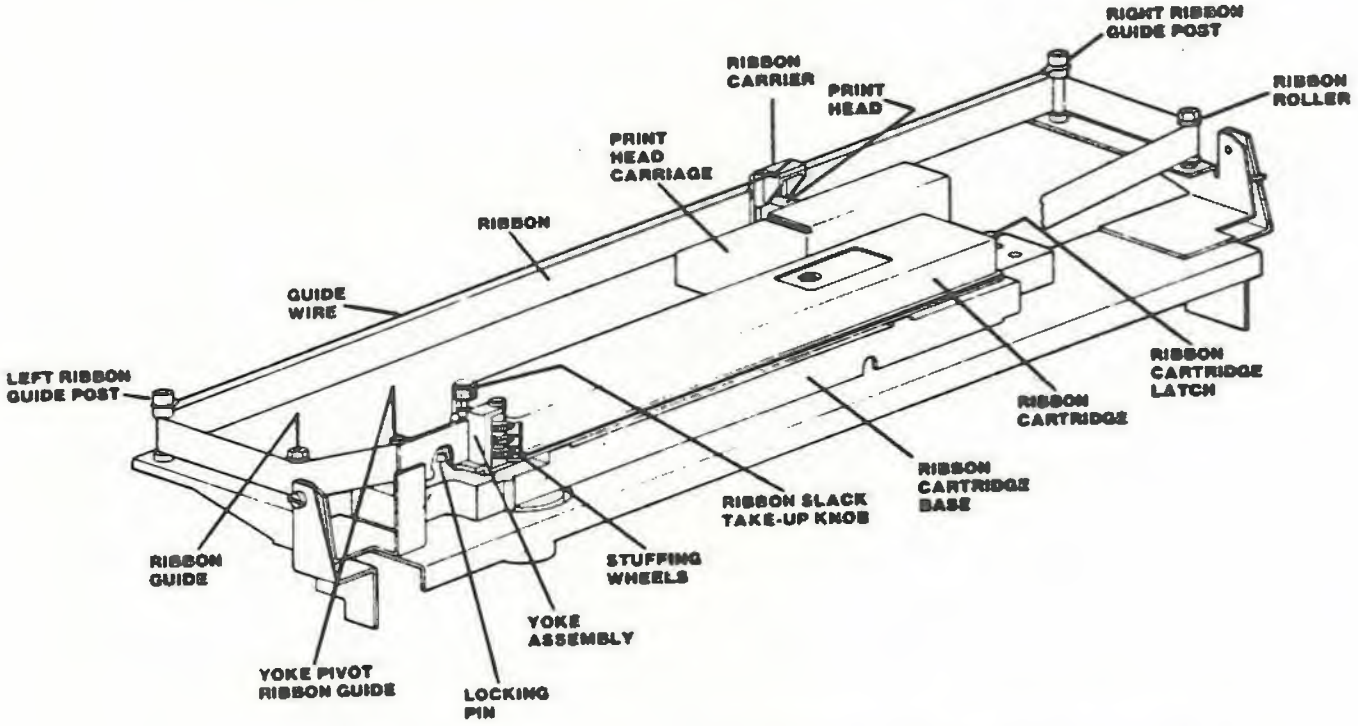
11. Briefly place the right-hand switch on FORMFEED to move to the top of the next sheet of paper.

12. Now place the left-hand switch on ON LINE and press the H key on the terminal keyboard.

    After writing the notation to the terminal screen, the printing of your first sheet of music should now commence. Additional pages will be printed automatically.

CHANGING THE RIBBON

The ribbon for the PRISM 80 is a snap-in ribbon cartridge which can be quickly and easily replaced. You should use only ribbon cartridges supplied by Integral Data Systems and available from New England Digital. To replace the cartridge, refer to the figure below and proceed as follows:



NOTE
THE PRISM 132 PRINTER RIBBON GUIDE PATH IS SHOWN; THE PRISM 80 RIBBON GUIDE PATH IS SIMILAR BUT SHORTER IN LENGTH.

1. Turn the power off.

2. Remove the printer window.

3. Center the print head and carriage on the carriage shaft; locate the ribbon carrier on the print head.

4. At the ribbon carrier, push the ribbon down to clear the curved arms; then pull the ribbon slightly forward and up to clear the carrier.

5. Pivot open the yoke assembly until you hear a click. A spring-loaded locking pin will snap up to hold the yoke assembly open while changing the ribbon cartridge.

6. Depress the red ribbon cartridge latch to unlock the cartridge, then slide the cartridge to the right over the latch.

7. Lift the cartridge and ribbon from the printer and discard.

8. As necessary, clean the ribbon stuffing wheels, guide posts, ribbon rollers and ribbon carrier with lint free tissue or "Q" tips moistened with isopropal alcohol.

9. Unwrap a new cartridge and carefully pull the cardboard ribbon restrainer out of the stuffing (left) end of the cartridge.

10. Carefully pull approximately 10 inches of ribbon from the stuffing end of the cartridge.

11. Place the cartridge on the ribbon cartridge base so that the right end of the cartridge is over the red latch.

12. Position the ribbon between the two stuffing wheels and around the yoke pivot ribbon guide.

13. Press down on the cartridge and slide the cartridge to the left until you hear a click; the cartridge is now locked in place.

14. Carefully position the ribbon between the stuffing wheels so that there are no folds or twists in the ribbon.

15. Push down on the yoke assembly locking pin to release the yoke assembly; this locks the ribbon in place between the stuffing wheels.

16. Starting at the yoke pivot ribbon guide, loop the ribbon around the ribbon guides and across the ribbon carrier; if necessary, pull more ribbon from the right end of the cartridge.

17. At the ribbon carrier, slide the ribbon down between the nose of the carrier and the two ribbon carrier arms, then push the ribbon in and up between the curved arms.

18. Take up any slack in the ribbon by turning the slack takeup knob in the direction indicated by the arrow on the knob.

    Be sure that there are no twists in the ribbon at any point in the ribbon path.

19. Recheck the ribbon to ensure that it is around all rollers and posts and is positioned under the curved arms of the ribbon carrier.

20. Check that the guide wire is positioned within the slot in the top of the ribbon carrier. If it has slipped out, push it down into the slot.

21. Reinstall the printer window.

22. Turn the power on.

The following error messages may appear on the bottom of the screen to inform you of incorrect settings, commands, or sequences.

Too many staves to edit at once

This message may occur when you press RETURN for editing display. It occurs when the vertical spacing is too great for all the selected parts to fit on the screen.

Illegal sequence

This message may occur when you press RETURN for Editing Display or H for hard copy. It indicates something is wrong with the sequence internally.

Measure number too large

This message may occur when you press RETURN for Editing Display or H for hard copy. It indicates that you have entered a measure number in the Jump option which is greater than the last measure number in the piece.

Recorder full

This message may occur during editing. It indicates that the number of notes in the sequence along with the material you have added during editing use up all the "notes" in the memory recorder. Exactly when this will occur depends on the amount of memory in your system.

Program out of room

This message is somewhat related to the one above. It may occur when you press RETURN for Editing display or during editing. If there are too many staves per page, or too small note spacing, and if the sequence has many notes or a great deal of edited in material, the resulting size of the sequence may not allow the desired notation to be written on the screen all at once.

You can lessen the amount that needs to be written on the screen by changing to a larger vertical spacing or to a larger note spacing.

Sequence too long to store

This message occurs when you type <ENTER>n and the sequence is too long to fit in sequence-file-n on the diskette. Use a different diskette with room for a longer sequence.

Sequence not available on this disk

This occurs when you type <keypad 0>n and there is no sequence-n on the diskette. Retype with a new number or try another diskette.

Incompatible sequence

This message occurs when the sequence you are accessing is incompatible with Synclavier (R) II.

Invalid sequence

This message occurs when the sequence you are accessing is incompatible with the Music Printing software.

Sequence too long

This message occurs when the sequence on the diskette that you access by typing <keypad 0>n is too long to fit into computer memory. This can occur if the sequence was created on another Synclavier (R) II.

Too many tied notes at once

This message occurs when you have too many tied notes active at one point in the music. That is, if you drew a vertical line from top to bottom of the screen, the line would cross more than 16 ties. If desired, you could use SCRIPT to remove some of the notes.

There must be an even number of clicks per measure

This message occurs when you press RETURN for Editing Display or H for hard copy and an invalid click rate has been established. Change the click rate setting in the Synclavier (R) II memory recorder so that an integer number of clicks will occur each measure.