DAC I

User's Manual

July   1980

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Ohio Scientific makes no warranties or representations either
expressed or implied for DAC I software. It has been extensively
tested and is believed to be reasonably error-free. We do not
guarantee the programs in any fashion or that all bugs or problems
that may occur will be fixed. We will if duly notified under
normal circumstances make an attempt to help you with any problems
that may occur and intend to support this software whenever possible.

DAC I

Table of Contents

OHIO SCIENTIFIC DAC MUSIC SYSTEM

INTRODUCTION

    The Ohio Scientific DAC Music System consists of two disks.
These two disks are designed to operate on the model C4P MF or
C8P DF operating at the standard speed of 2MHz.

    The routines on these disks generate signals at the DAC
output port which can be fed into the auxiliary input jack
connection of an audio amplifier.

    With the software on these two disks, the user can play notes
and chords directly from the keyboard or enter and store songs
with single or multiple parts. Both disks provide detailed
instructions to the user at each step and can be used without
outside instruction. The following pages give a detailed
discussion of the organization and operation of these two disks.
These pages also describe several features which simplify the
input of musical selections.

    The first two selections on disk number one are demonstration
programs that illustrate the capabilities of the music system.

GENERAL INFORMATION

DISK NUMBER ONE

This disk contains software which allows the user to easily
utilize the D/A converter furnished with the C4P to generate music.
When the user runs this disk, the following description of the contents
of the disk is displayed on the monitor

```
OHIO SCIENTIFIC DAC MUSIC SYSTEM -- DISK NUMBER ONE
SEPTEMBER 1979

THIS IS DISK NUMBER ONE OF THE OHIO SCIENTIFIC D/A MUSIC
SYSTEM.  THIS DISK OFFERS THE FOLLOWING OPTIONS --

    1   DEMONSTRATION NUMBER 1 -- FRERE JACQUES
    2   DEMONSTRATION NUMBER 2 -- SILENT NIGHT
    3   KEYBOARD NOTES -- PLAYS SINGLE NOTES FROM THE KEYBOARD
    4   KEYBOARD ORGAN -- PLAYS CHORDS FROM THE KEYBOARD
    5   MUSIC BOX -- ALLOWS ENTRY AND PLAYBACK OF MUSICAL
                     SELECTIONS WITH ONE PART

DISK NUMBER TWO CONTAINS A PACKAGE OF PROGRAMS WHICH ALLOW
THE USER TO ENTER, STORE, EDIT AND PLAYBACK COMPLEX MUSICAL
SELECTIONS WITH FOUR MUSICAL PARTS

WHICH OF THE ABOVE OPTIONS DO YOU WISH TO USE?
```

In addition to the options listed, the user can respond UNLOCK
if he wishes to access BASIC.

The first two items on the disk, DEMONSTRATION NUMBER 1 and
DEMONSTRATION NUMBER 2, are included to demonstrate the single and
multiple note capabilities of the Ohio Scientific DAC Music System.
If the user specifies either of these two selections one of the
following two responses is displayed on the monitor

(DEMONSTRATION NUMBER 1)

```
THE OHIO SCIENTIFIC DAC MUSIC SYSTEM CAN PLAY MUSICAL
SELECTIONS WITH UP TO FOUR DISTINCT MUSICAL PARTS.  THE
FOLLOWING VERSION  OF  FRERE JACQUES  ILLUSTRATES BOTH THE
SINGLE AND MULTIPLE PART CAPABILITIES.  THE ENTIRE
SELECTION IS PLAYED FIRST WITH A SINGLE PART.  IT IS THEN
REPEATED WITH ADDITIONAL PARTS BEING ADDED UNTIL FOUR
DISTINCT PARTS ARE PLAYING SIMULTANEOUSLY.  FINALLY THE
PARTS DROP OFF ONE-BY-ONE UNTIL A SINGLE PART IS LEFT.
DEPRESS THE CARRIAGE RETURN TO BEGIN PLAYING THE SELECTION.
```

(DEMONSTRATION NUMBER 2)

```
THE OHIO SCIENTIFIC DAC MUSIC SYSTEM CAN PLAY MUSICAL
SELECTIONS WITH UP TO FOUR DISTINCT MUSICAL PARTS.
IN ADDITION TO ALLOWING THE USER TO PLAY ROUNDS SUCH AS
ON DEMONSTRATION NUMBER 1, THIS CAPABILITY ALLOWS THE
USER TO ENTER CHORDS WHEN PLAYING A SONG.  AS AN
EXAMPLE THE FOLLOWING SELECTION WILL FIRST BE PLAYED WITH
SINGLE NOTES AND THEN IN FOUR FULL PARTS.  DEPRESS THE
CARRIAGE RETURN TO PLAY THE SELECTION.
```

These two demonstration programs require no action on the part
of the user other than depressing the carriage return key after he
has read the description of the program. Each of these demonstration
programs returns the display of the contents of the disk to the screen.

The third and fourth items on the disk, KEYBOARD NOTES and
KEYBOARD ORGAN, are programs which allow the user to play notes or
chords using selected keys on the keyboard of the computer. Each
of these programs prints detailed instructions on the monitor and
includes a short sequence of keystrokes which plays an easily
recognized selection. The user can restore the display of the
contents of the disk to the screen from either of these programs
by releasing and relocking the shift lock key.

When the user selects KEYBOARD NOTES, he is offered a selection
of voicings. Then the following text is displayed on the monitor

```
THE COMPUTER WILL ALLOW YOU TO PLAY NOTES IN THREE OCTAVES
BY ENTERING THE NOTES THROUGH THE KEYBOARD.  THE THREE OCTAVES
ARE THE OCTAVE FROM MIDDLE-C TO HIGH-C AND THE OCTAVES
IMMEDIATELY ABOVE AND BELOW THIS OCTAVE

TO PLAY A NOTE ENTER ANY OF THE FOLLOWING NOTE NAMES--

A,A+ OR B-,B,C,C+ OR D-,D,D+ OR E-,E,F,F+ OR G-,G,G+ OR A-

THE NOTE PLAYED WILL BE THE NOTE NAMED IN THE MIDDLE OCTAVE
UNLESS YOU SIMULTANEOUSLY DEPRESS THE 1 OR 2 KEY.

        1   SELECTS THE LOWER OCTAVE
        2   SELECTS THE UPPER OCTAVE

AS AN EXAMPLE THE FOLLOWING SEQUENCE OF NOTES PLAYS THE
BALLAD  AMAZING GRACE

G1 C E D E E D C A1 G1 G1 D E D E
D G G G E D E E D C A1 G1 G1 C
E D E D C

TO TERMINATE THE PROGRAM RELEASE AND RELOCK THE SHIFT LOCK KEY
```

Most notes can be played by depressing one or two keys simultaneously. A letter key "A","B","C","D","E","F", or "G" must always be depressed to select the desired note. The "+" (for sharp) or "-" (for flat) key must be simultaneously depressed to play a sharp or a flat. Additionally, the note can be played in the lower or higher octave by simultaneously depressing either the "1" (lower) or "2" (higher) key.

The computer plays a note as long as the keys selecting the note are depressed. The user can easily adjust the tempo to suit the selection being played. Difficulties occur with notes requiring multiple key closures unless all keys are depressed simultaneously since the computer begins playing as soon as it detects a key closure for a legitimate note. If, for example, the user wishes to play "A+" and depresses the "A" key slightly before the "+" key then the note "A" will play briefly before the "A+" begins. This difficultly can be avoided if the user avoids depressing the note name key (in this case the "A" key) until any additional keys (in this case the "+" key) have been depressed.

When the user selects KEYBOARD CHORDS, he is offered a selection of voicings. Then the following text is displayed on the monitor

---

CHORDS ARE COMBINATIONS OF THREE OR MORE NOTES PLAYED AT THE SAME TIME. MANY MUSIC BOOKS LIST BOTH THE MELODY AND CHORDS TO ACCOMPANY THE MELODY. WITH THIS PROGRAM YOU CAN PLAY CHORDS TO ACCOMPANY SONGS IN A GUITAR STYLE.

TWELVE GROUPS OF CHORDS ARE AVAILABLE. THE GROUPS ARE IDENTIFIED BY THE FOLLOWING NOTE NAMES--

A,A+ OR B-,B,C,C+ OR D-,D,D+ OR E-,E,F,F+ OR G-,G,G+ OR A-

BY DEPRESSING THE KEY(S) OF EACH NOTE NAME YOU CAN PLAY THE FIRST CHORD (THE MAJOR CHORD) IN EACH GROUP. THE OTHER FIVE CHORDS IN EACH GROUP ARE PLAYED BY DEPRESSING THE 1,2,3,4 OR 5 KEY TOGETHER WITH THE NOTE NAME. THE CHORDS OBTAINED ARE

 1=DOM 7   2=MINOR   3=MINOR 7   4=AUG   5=DIM

PLAYED WITH THE CORRECT TEMPO THE FOLLOWING SEQUENCE OF CHORDS PLAYS I'VE BEEN WORKING ON THE RAILROAD

G (8X) , C (4X) , G (10X) , A1 (4X), D1 (7X) , G (2X)
C (5X) , A3 (2X) , B1 (1X) , C (6X), G (4X) , D1 (2X) , G (1X)

TO TERMINATE THE PROGRAM RELEASE AND RELOCK THE SHIFT LOCK KEY

Chord names are entered in the same way that notes are entered with the program KEYBOARD NOTES. When playing chords that require multiple key closures all keys should be depressed simultaneously or difficulties similar to those described above for KEYBOARD NOTES can occur.

The last item on disk number one is a program called MUSIC BOX. This program allows the user to enter, store and play the melodies of up to five songs. When the user selects this option the following text is displayed on the monitor

```
THIS PROGRAM ALLOWS YOU TO ENTER, STORE AND PLAY THE
MELODIES OF UP TO 5 SONGS.  THE FOLLOWING SELECTIONS
ARE CURRENTLY AVAILABLE--

SELECTION                          TITLE
1                        MORNING HAS BROKEN
2                        LET THERE BE PEACE ON EARTH
3                        WHAT A WONDERFUL WORLD
4                        I WALK THE LINE
5                        OKIE FROM MUSKOGEE

YOU HAVE THE FOLLOWING OPTIONS--

    1   PLAY AN EXISTING SONG
    2   INPUT A NEW SONG
    3   REVIEW/MODIFY AN EXISTING SONG
    4   DELETE AN EXISTING SONG
    5   QUIT

WHICH OPTION DO YOU WISH TO UTILIZE?
```

As the above text indicates, the user can play previously entered songs, input new songs, review and modify previously entered songs, or delete previously entered songs. An entry "(OPEN)" in the title column indicates space is available to store an additional song.

If the user selects option number 1, then the computer responds

WHICH SELECTION DO YOU WISH TO PLAY?

The user then enters the number between 1 and 5 of the selection he wishes played. If the user inadvertantly enters the number of a selection which is currently open the computer responds

SELECTION CURRENTLY OPEN

and reruns the program MUSIC BOX. If the user enters an invalid response, the computer will ask the user to enter the selection number again. Otherwise the computer offers the user a selection of voicings and plays the selection chosen. When the song is finished, the computer reruns the program MUSIC BOX.

If the user selects option number 2, the computer searchs the list of titles to find the first open entry. If all entries are currently full, the computer asks the user if he wishes to delete one of the current entries. If an open entry exists in the list of titles the computer prints the response

```
THE NEW SELECTION WILL BE SELECTION NUMBER XX

THE TITLE OF THE NEW SELECTION CAN BE UP TO 30
CHARACTERS LONG.  INPUT THE TITLE OF THE NEW SELECTION
?
```

and waits for the user to enter the title of the new selection. Characters in excess of the 30 character limit are ignored. After accepting the title of the new selection, the computer prints the following detailed instructions for entering the notes of the song

```
SONGS ARE LIMITED TO NO MORE THAN 254 NOTES.  NOTES ARE
ENTERED IN THE FOLLOWING ORDER -- NAME,OCTAVE,LENGTH

NAME--
    C,D,E,F,G,A,B,C+,D+,F+,G+,A+,D-,E-,G-,A-,B-,R
    + IS FOR SHARP, - IS FOR FLAT, R IS FOR REST
    PRECEDE THE NAME BY > TO TIE IT TO THE PRECEDING NOTE
OCTAVE--
    -3,-2,-1,0,1,2,3
    THE OCTAVE FROM MIDDLE C TO HIGH C IS NUMBERED 0
    OTHER OCTAVES ARE NUMBERED ABOVE AND BELOW THIS OCTAVE
LENGTH--USUALLY A MULTIPLE OF 0.25 LESS THAN OR EQUAL TO 4
   .25=1/16 NOTE    .5=1/8 NOTE    1=1/4 NOTE    2=1/2 NOTE
    4=WHOLE NOTE    ADD HALF VALUE SHOWN FOR A DOTTED NOTE
ENTER   END,0,0   TO SIGNAL THE END OF THE SONG

EXAMPLES--
    D-,-1,1    1/4 NOTE, D FLAT, OCTAVE ABOVE MIDDLE OCTAVE
    >B,0,.5    1/8 NOTE, B, MIDDLE OCTAVE, TIED TO
               PRECEDING NOTE
    R,0,4      REST FOR A WHOLE NOTE
    END,0,0    THE END OF THE SONG
```

Each selection can contain up to 254 notes (including rests). Each note is entered by typing the note name, the octave, and the length of the note. Note names are the usual "A" through "G" with the option of "+" or "-" for sharps and flats respectively. "R" is also a valid note name and denotes a rest or pause. Preceding a note name by the ">" symbol causes the note entered to be tied to the previous note. Notes can be played in any of seven octaves. The octaves are numbered -3,-2,-1,0,1,2,3 with "0" representing the octave from middle C to high C. The other octaves are numbered above and below this octave. The length of a note is entered as a

decimal number. A whole note has arbitrarily been assigned a numeric value of 4. This assignment yields the following equivalents for common notes:

                        .25 = 1/16 note
                        .5 = 1/8 note
                        1   = 1/4 note
                        2   = 1/2 note
                        4   = whole note

To enter a dotted note add half the value shown. For example "3" denotes a dotted half note. Normally all length entries should be a multiple of 0.25.

      After these instructions the computer displays the message

```
ENTER NOTE 1
NAME,OCTAVE,LENGTH?
```

As each note is entered the computer checks the name, octave and length for validity. If it detects any difficulty, it prints an appropriate response and asks that the note be entered again.
As each note is entered the computer prompts the user for the next note. The user inputs END,0,0 to signify the end of the song.
When this entry is detected the computer responds

      THE SONG HAS BEEN SAVED AS SELECTION NUMBER XX

and reruns the program MUSIC BOX.

      If the user wishes to review or modify an existing song he selects option 3. The computer then asks for the following information

      INPUT THE NUMBER OF THE SELECTION YOU WISH TO REVIEW/MODIFY?

If the user enters a valid response to this question, the computer displays the following message

```
YOU ARE IN THE REVIEW/MODIFY MODE WITH THE FOLLOWING OPTIONS--
    1  LIST (AND CHANGE) THE NOTES
    2  LEAVE THE REVIEW/MODIFY MODE

INPUT THE OPTION YOU WISH TO UTILIZE?
```

If the user responds "2" the computer will rerun the program MUSIC BOX. If the user wishes to make changes in the selection he has designated he enters "1" and receives the following response

```
SELECTION NUMBER XX HAS XXX NOTES
YOU CAN START THE LISTING AT ANY NOTE.  WHEN YOU STOP
THE LISTING YOU WILL BE ABLE TO CHANGE OR DELETE THE
LAST NOTE LISTED OR INSERT A NOTE BEFORE THE LAST NOTE
LISTED.
WHICH NOTE DO YOU WISH TO BEGIN YOUR LISTING WITH?
```

After receiving a valid response the computer continues

```
TO BEGIN LISTING NOTES DEPRESS  L  KEY
NOTES WILL CONTINUE LISTING UNTIL THE  L  KEY IS RELEASED
OR UNTIL THE END OF THE SELECTION IS REACHED.
```

When the user depresses the "L" key the computer begins to print
the following messages

```
NOTE NUMBER  1  IS  C          0          4
NOTE NUMBER  2  IS  B         -2          .5
NOTE NUMBER  3  IS  G+         1          1.5
```

until the user releases the "L" key or until the end of the
selection is reached. When the computer stops listing notes
the user is offered the following choices

```
YOU CAN SELECT ANY OF THE FOLLOWING OPTIONS--

     1   CHANGE THE LAST NOTE LISTED
     2   DELETE THE LAST NOTE LISTED
     3   INSERT A NOTE BEFORE THE LAST NOTE LISTED
     4   NO CHANGE

INPUT THE OPTION YOU WISH TO UTILIZE?
```

     After receiving the user's response, the computer makes the
specified change and gives the user the option of continuing to
list and change notes or leaving the review/modify mode.

     Option number 4 of the program MUSIC BOX allows the user to
delete a song previously stored on the disk. Option number 5 allows
the user to exit the program MUSIC BOX and restores the display of
the contents of the disk to the screen.

DISK NUMBER TWO

This disk contains an advanced version of the program MUSIC
BOX found on disk number one. The major enhancements offered by
this version are the following
      1) storage for 10 selections
      2) ability to play four part music
      3) ability to specify the voicings (waveforms) for each
         of the four parts
      4) ability to modify the tempo of a selection
      5) ability to add to a selection previously entered
When the user inserts this disk, the statement

PREPARING TO RUN MUSIC PROGRAM

appears on the screen. After a brief delay during which the computer
reads a disk file with the names of the selections currently stored,
the following text is displayed on the monitor

```
THIS PROGRAM PLAYS MUSICAL SELECTIONS IN FOUR PARTS
THE FOLLOWING SELECTIONS ARE AVAILABLE--

SELECTION                       TITLE                    TEMPO
  1              FRERE JACQUES                              2
  2              SILENT NIGHT HOLY NIGHT                    3
  3              JESU JOY OF MAN'S DESIRING                 3
  4              DELTA DAWN                                 2
  5              STAR WARS-MAIN TITLE                       2
  6              STAR WARS-CANTINA BAND                     1
  7              PRELUDE IN C MIN -- J S BACH               2
  8              (OPEN)                                     0
  9              (OPEN)                                     0
 10              (OPEN)                                     0

YOU HAVE THE FOLLOWING OPTIONS--

   1   PLAY A SONG
   2   INPUT A SONG
   3   REVIEW/MODIFY A SONG
   4   DELETE AN EXISTING SONG
   5   ADD TO A SONG


WHICH OPTION DO YOU WISH TO UTILIZE?
```

Option number 1 allows the user to play any song which has been
previously stored in the list of titles. If the user requests option
1, the computer asks

      WHICH SELECTION DO YOU WISH TO PLAY?

just as it does in the program MUSIC BOX on disk number one.

If the user's response is valid then the computer asks

DO YOU WISH TO SPECIFY THE VOICINGS FOR THE FOUR PARTS?

If the user says "NO" or "N" then the selection is played and the program is rerun. If the user responds "YES" or "Y" then he is offered the following choices

```
THE FOLLOWING VOICINGS ARE AVAILABLE--
   1   SQUARE WAVE     2   RAMP WAVE
   3   TRIANGLE WAVE   4   PULSE WAVE
   5   FRENCH HORN     6   PICCOLO
   7   OBOE            8   BASSOON
```

and he is asked to enter his choice for each of the four parts of the selection. The selection is then played and the program is rerun.

Option number 2 allows the user to enter and save a new selection. As in the program MUSIC BOX on disk number one, the user in asked to enter the title of the new selection. The user is then asked to specify the tempo of the new selection by the following message

```
THE FOLLOWING TEMPOS ARE AVAILABLE--
     1         2         3          4          5
  VERY FAST  FAST    MODERATE     SLOW     VERY SLOW

INPUT THE TEMPO FOR THE NEW SELECTION?
```

The tempo entered by the user determines the speed at which the selection will be played. The program allows the user to alter the tempo later if his initial selection proves unacceptable. The title and tempo of the new selection are stored on a disk file and the following detailed instructions are given for entering the notes of the song

```
EACH PART IS LIMITED TO NO MORE THAN 254 NOTES.  EACH NOTE IS
ENTERED IN THE FOLLOWING ORDER -- NAME,OCTAVE,LENGTH

NAME--
     C,D,E,F,G,A,B,C+,D+,F+,G+,A+,D-,E-,G-,A-,B-,R
     + IS FOR SHARP, - IS FOR FLAT, R IS FOR REST
     PRECEDE THE NAME BY   TO TIE IT TO THE PRECEDING NOTE
OCTAVE--
     -3,-2,-1,0,1,2,3
        THE OCTAVE FROM MIDDLE C TO HIGH C IS NUMBERED 0
        OTHER OCTAVES ARE NUMBERED ABOVE AND BELOW THIS OCTAVE
LENGTH--USUALLY A MULTIPLE OF 0.25 LESS THAN OR EQUAL TO 4
   MULTIPLES OF .33(=1/3) AND .166(=1/6) ARE OK FOR TRIPLETS
    .25=1/16 NOTE     .5=1/8 NOTE   1=1/4 NOTE    2=1/2 NOTE
       4=WHOLE NOTE      ADD HALF VALUE SHOWN FOR DOTTED NOTE
ENTER  END,0,0  TO SIGNAL THE END OF THE PART BEING ENTERED
```

Notes are entered in the same manner as for the program MUSIC BOX on disk number one. Although the length of each note should normally be a multiple of 0.25, the user is free to use other lengths with caution. If the computer detects a note length that is not a multiple of 0.25 it prints the following message

```
***WARNING--LENGTH SHOULD NORMALLY BE A MULTIPLE OF 0.25***

DO YOU WISH TO RE-ENTER THIS NOTE?
```

If the user responds "NO" or "N" the computer accepts the note as entered. Otherwise it asks the user to enter the note again. Once a note has been accepted whose length is not a multiple of 0.25 the computer will continue to accept such entries with no further challenges until a note is entered whose length is a multiple of 0.25. This allows triplets to be entered without continually overriding the protective check.

The lengths of the notes play a critical role in synchronizing the four parts when they are played by the computer. Multiples of .25(1/4), .166(=1/6) and .33(=1/3) will work correctly. Other values of length may lead to timing difficulties when the selection is played.

This version of the music program allows null (blank) entries for the octave and/or length of a note if the octave or length is the same as for the last note entered. The following examples illustrate this capability.

```
    If the last note entered was  D,-1,4  then
        1)  an entry of  E,,2   would be the same as  E,-1,2
        2)  an entry of  A,2,   would be the same as  A,2,4
        3)  an entry of  B-,,   would be the same as  B-,-1,4
```

The user must enter END,0,0 to signal the end of each part. All four parts must be entered. When the computer detects the end of the fourth part it prints the message

THE SONG HAS BEEN SAVED AS SELECTION NUMBER XX

and reruns the program.

Option 3 is essentially the same as option 3 for the program MUSIC BOX on disk number one except that it includes the ability to modify the tempo of a selection previously entered. There are other minor differences due to the four part capability of the program, but they   do not modify the general techniques described above for disk number one.

Option number 5 provides the user with a convenient method of adding to or extensively revising a previously saved selection. The following examples illustrate two uses of option number 5.

Example 1 - Entering a selection in segments

Initially select option number 2 and enter the song title and tempo. Option number 2 expects all four parts of the selection to be entered at one sitting. For long selections, just enter as many notes as time allows (for example, all of part 1 and 20 notes of part 2). Then enter "END,0,0" to suspend the entry of part 2. When the computer asks for parts 3 and 4, just enter "END,0,0". The incomplete version of the selection will then be stored. Later, with option number 5, you will be able to return and continue entering notes beginning with note 21 of part 2.

Example 2 - Making extensive revisions in a selection

When you specify the part of the selection you wish to make additions to, the computer indicates how many notes are currently stored in the chosen part. For example, part 3 of selection 4 has 53 notes. You can update part 3 of the selection beginning anywhere from note 1 to note 54. If you chose to begin your update with note 11, then notes 1 through 10 will be unchanged and the old notes 11-53 will be discarded.

Although a selection can be entered one part at a time using option number 5, it cannot be played until all four parts are present. The reason for this is that the first "END,0,0" encountered in any of the four parts terminates the play of a selection.

TECHNICAL INFORMATION

DISK NUMBER ONE

The following is a description of the directory on DISK NUMBER ONE.

FILE NAME	TRACK RANGE
OS65D3	0 – 12
BEXEC*	14 – 14
DEMO1	15 – 15
DEMO1*	16 – 16
DEMO2	17 – 17
DEMO2*	18 – 18
KBDNOT	19 – 19
KBDCHD	20 – 20
MUSIC	21 – 24
LISTER	25 – 28
TITLES	29 – 29
SONG1	30 – 30
SONG2	31 – 31
SONG3	32 – 32
SONG4	33 – 33
SONG5	34 – 34
NOTOBJ	35 – 35
CHDOBJ	36 – 36
KBDOBJ	37 – 37
MSCOBJ	38 – 39

5" disks

FILE NAME	TRACK RANGE
OS65D3	0 – 8
BEXEC*	9 – 9
DEMO1	15 – 15
DEMO1*	16 – 16
DEMO2	17 – 17
DEMO2*	18 – 18
KBDNOT	19 – 19
KBDCHD	20 – 20
MUSIC	21 – 24
LISTER	25 – 28
TITLES	29 – 29
SONG1	30 – 30
SONG2	31 – 31
SONG3	32 – 32
SONG4	33 – 33
SONG5	34 – 34
NOTOBJ	35 – 35
CHDOBJ	36 – 36
KBDOBJ	37 – 37
MSCOBJ	38 – 39

8" disks

The program MSCOBJ, located on tracks 38 and 39, is a program in machine code which, given appropriate data, is capable of supplying the signals to the DAC necessary to generate musical output. This routine is the same routine used on DISK NUMBER TWO and is capable of generating four part music.

On DISK NUMBER ONE, the routine MSCOBJ is referenced by the BASIC programs DEMO1 (track 15), DEMO2 (track 17) and MUSIC (tracks 21 – 24). The following lines from the program DEMO1 illustrate the use of the routine MSCOBJ

```
130 DISK!"CA 4F00=38,1":DISK!"CA 5000=39,1":DISK!"CA 5800=16,1"
140 DISK!"GO 4F00"
150 RUN"BEXEC*
```

The first two disk calls on line 130 load the routine MSCOBJ in memory beginning at location 4F00. The third disk call on line 130 loads the data for the selection FRERE JACQUES from the file DEMO1* located on track 16. Line 140 transfers control to the routine

MSCOBJ. When the selection has finished playing, statement 150
runs BEXEC* which again displays the contents of the disk on the
monitor.

       DEMO2 and MUSIC utilize MSCOBJ in the same manner as DEMO1.
The data for DEMO2 is located in the file DEMO2* on track 18.
The file TITLES on track 29 contains a list of the selections
currently stored by the program MUSIC. The files SONG1 through
SONG5 on track 30 - 34 are provided to store the data for the
five selections which can be stored by MUSIC. The BASIC program
LISTER on tracks 25 - 28 provides edit capabilities to the program
MUSIC.

       The routine KBDOBJ is a modification of MSCOBJ which responds
to keyboard input as detected by one of the machine code routines
NOTOBJ and CHDOBJ. When KEYBOARD NOTES or KEYBOARD ORGAN is selected
by the user, one of the BASIC programs KBDNOT or KBDCHD is run.
These programs print a descriptive paragraph on the monitor and
load and activate the above machine code routines. When these
routines detect the release and relock of the shift lock key, the
BEXEC* is run again.

       The contents of any track can be "interpreted" as musical data
by the routine MSCOBJ. The following brief BASIC program allows
the user to play the track of his choice as "music". If the results
are too offensive or the "music" refuses to stop, the user can
always resort to the break key.

```
10 DISK!"CA 4F00=38,1":DISK!"CA 5000=39,1";
20 DISK!"CA 5800=TT,S"
30 DISK!"GO 4F00"
40 END
```

TT = track number   S = sector number

DISK NUMBER TWO

The following is a description of the directory on DISK NUMBER
TWO.

FILE NAME	TRACK RANGE		
OS65D3	0	–	12
BEXEC*	14	–	14
MUSIC	15	–	18
EDIT	19	–	21
LISTER	22	–	25
TITLES	26	–	26
MUSOBJ	27	–	28
PLAYER	29	–	29
SONG1	30	–	30
SONG2	31	–	31
SONG3	32	–	32
SONG4	33	–	33
SONG5	34	–	34
SONG6	35	–	35
SONG7	36	–	36
SONG8	37	–	37
SONG9	38	–	38
SONGIO	39	–	39

5" disks

FILE NAME	TRACK RANGE		
OS65D3	0	–	8
BEXEC*	9	–	9
MUSIC	15	–	18
EDIT	19	–	21
LISTER	22	–	25
TITLES	26	–	26
MSCOBJ	27	–	28
PLAYER	29	–	29
SONG1	30	–	30
SONG2	31	–	31
SONG3	32	–	32
SONG4	33	–	33
SONG5	34	–	34
SONG6	35	–	35
SONG7	36	–	36
SONG8	37	–	37
SONG9	38	–	38
SONG10	39	–	39

8" disks