YAMAHA

QX1
DIGITAL SEQUENCE RECORDER

Operating Guide

1. SPECIFICATIONS

1-1 Configuration

KEY SWITCH	53
LCD	Dot matrix 40*2 letters
LED	MODE display 4
	FUNCTION display 4
	STAND BY/PLAY TRACK 8
	RECORD/EDIT TRACK 8
	RUN, TEMPO
CONTROL KNOB	Tempo VR
DISK DRIVE	Exclusively for 5.25 inch floppy
REAR PANEL	MIDI IN, THRU, OUT 1-8
	TAPE SYNC IN, OUT
	FOOT SW IN
	CLICK OUT

1-2 Rate

Supply voltage	UL, CSA Specification 120V
	Northern Europe 100-120/220-240
Power consumption	US, CSA Specification 40W
	Nothern Europe 40W

1-3 Appearance

Finish	Black Leather Satin
Dimensions	519W x 105H x 329D
Weight	7.5Kg

1-4 Recording Media

Double side, double density truck 5.25 inch floppy disk
Recommended floppy disk MAXELL MD-2DD

2. FUNCTIONS AND OPERATIONS

2-1 GENERAL FUNCTIONS AND OPERATIONS

(1) INTRODUCTION

The functions of the QX1 are divided into four elements. and the QX1 always operates under one of them. The four elements are PLAY RECORD EDIT UTLT (utility).

PLAY	Playback function
RECORD	Function for real time recording of the performance of external musical instrument.
EDIT	Edit function of the performance data by main keyboard.
UTILITY	Utility function

Immediately after each mode is selected, the following (BANK DIRECTORY DISPLAY) is indicated, and the LED indicating the mode in execution will light.

```
UTILITY MODE
EDIT MODE
RECORD MODE
PLAY MODE                       PROT:a         USE:bbbK
BANK cc        dddddddd   TEMPO:eee      TIME:ff/gg
```

a:	BANK protect switch 1=ON, 0=OFF
bbb:	Numbers of used areas of BANK 000-795
cc:	BANK number 01-32
dddddddd:	BANK name Less than 8 arbitrary letters.
eee:	Tempo value
ff/gg:	Time Signature

The BANK number and display of parameters can be updated by <▲>, <▼>.

While the BANK DIRECTORY is being displayed the display of used BANKs are as follows:

```
      PLAY MODE             PROT:a        USE:000K
      BANK cc     ********   TEMPO:***     TIME:**/**
```

Also STAND BY/PLAY displays the STAND BY TRACK at the same time as the above display.

(2)   JOB COMMAND

JOB COMMANDs are sub-functions which are incorporated in each mode, and each mode has different sub-functions. When a JOB COMMAND is inserted, the following messages are displayed, and the function can be selected by inserting the command number. See the section on JOB COMMANDS for more detailed explanation.

```
JOB COMMAND SELECT
COMMAND ..
```

(3) DATA INPUT

The ENTER key is pressed after data has been typed out with the keyboard in order to input it. If the ENTER key is not pressed, none of the data on the display will be input.

(4)   CURSOR CONTROL

The cursor will not move to the next data display position while 2 or more data are on display, even if alphanumeric characters are input from the keyboard. Use the ⟨▶⟩, ⟨◀⟩ keys to move the cursor. Use the ⟨↑▶⟩ and ⟨↑◀⟩ to move the cursor one character at a time.

(5)   WARNING DISPLAYS

If there is any possiblity that there will be an error due to a mistake in user or internal operations, various warning displays will be given. These warning displays alternate between a message and an alarm display. The following is a list of the alarm displays and their meanings. Press any key except: REPT, CHAIN, TRNS, or CLICK to release the alarm.

TOO MUCH DATA	The data input is larger than the perscribed amount. Internal buffers are overflowing
DISK FULL	No free space available on disk.
DISK PROTECTED	An attempt was made to write data onto a protected disk.
BANK PROTECTED	Attempt was made to write data into a protected bank.
CONFLICT DISK	Read/write error of disk has occured.

ILLEGAL ID	Attempt was made to use the wrong kind of disk.
ILLEGAL INPUT	Attempt was made to enter improper letters.
EXTRA INPUT	Attempt was made to enter improper numeric values.
NO DATA	No data available for execution.
EXECUTING NOW	Internal processing is underway.
SURE? YES(Y)/NO(N)	The operation attempted may not be desirable for execution (deletion, etc.). The computer is asking the user to make sure before execution.
MIDI DATA ERROR	An error has ocurred while receiving data through the MIDI interface.
NO DISK	There is no floppy disk loaded.

(6) PARAMETERS STORED IN DISKS

(a) Bank Parameters
There are 32 banks available, numbered 1 to 32. Each of these banks can contain the following parameters:

BANK NAME	8 arbitrary characters
Tempo Value	40 - 280
Rhythm	01 - 32/01, 02, 04, 08, 16, 32
Protect	ON/OFF
Number of Used Areas	000 - 795
Number of Used Tracks	Maximum - 8

(b) Bank Data
Banks can memorize nearly 80,000 sounds if they consist of notes alone. The following performance data can be stored in the banks:

Notes	
CONTROL CHANGE	
PROGRAM CHANGE	
PITCH BEND CHANGE	
Rhythm	01 - 32 / 01, 02, 04, 08, 16, 32
Tempo Value	50 - 200%

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(c) CHAIN PARAMETERS
There are 8 chains available. each of which contains
the following parameters:

CHAIN NAME   8 arbitrary characters

(d) CHAIN LIST
The following list can be stored in the chain.

Number of Steps   Maximum of 32
Each Step   Bank Number. REPEAT Times: 01 - 32

(e) BULK Parameter
BULK 01 ~ 16 parameters are available for use. and in
each one the following can be registered:

BULK NAME   8 arbitrary characters

(f) BULK Data
There are no special limitations on BULK data.

(g) OTHER
The following parameters can also be registered:

Disk ID   Maximum 40 characters

2-2 POWER ON

Insert disk and turn on power and the PLAY mode will be
selected automatically. If the disk has not been inserted,
the following messages will appear on the display:

```
WELCOME TO QX WORLD
SET DISK AND HIT ENTER KEY
```

Hit the ENTER key and the PLAY mode will be selected
automatically. When the above operation is carried out with
the wrong disk inserted. the following messages will appear
on the display:

```
DISK INITIALIZE
SET DISK & HIT ENTER KEY!
```

After the ENTER key has been hit. the following display will
come on:

ARE YOU SURE? YES(Y)/NO(N)

Hit the Y key. then the same function as UTILITY MODE. JOB
COMMAND 11 (Disk Initialize) will be performed. If. when
the above display comes on. N is entered instead, the
previous display will be repeated until the proper disk is
inserted.

2-3 PLAY MODE

(1) INTRODUCTION

With the PLAY mode, the user can play back the
memorized performance. The PLAY mode includes: BANK
DIRECTORY display, CHAIN DIRECTORY display, BANK PLAY,
and CHAIN PLAY.

(2) BANK DIRECTORY Display / CHAIN DIRECTORY Display

When the CHAIN is OFF, the contents of the bank are
displayed. When the CHAIN is ON, the contents of the
CHAIN are displayed. The BANK/CHAIN on display at the
time the ENTER key is hit, will be played back. Use
the < ▲ > and < ▼ > keys to update the display.

```
PLAY  MODE               PROT:a          USE:bbbK
BANK  cc      dddddddd    TEMPO:eee        TIME:ff/gg
```

```
PLAY  MODE
CHAIN h       iiiiiiii    TEMPO:eee        TIME:ff/gg
```

The BANK/CHAIN specified here, until the PLAY mode is
terminated.

(3) BANK PLAY

In the BANK PLAY mode, the message below is displayed,
requesting input from the user. At this time the
STAND BY TRACK display will be changed into the PLAY
TRACK display.

```
BANK  PLAY  READY         MEASURE:aaa
BANK  bb      cccccccc    TEMPO:ddd        TIME:ee/ff
```

The user can now set the following parameters:

aaaaa:	Bar Number	00001 - 999
ddd:	Tempo Value	40 - 280

Enter RUN or FOOT SW to change the display into the
following:

```
BANK  PLAYING            MEASURE:aaa
BANK  bb      cccccccc    TEMPO:ddd        TIME:ee/ff
```

Enter STOP or FOOT SW to stop playback at the end of
the current bar. The QX1 will now be ready for input
from the user.

<◀◀>	Use this key to return continuously to the previous bar.
<◀>	Use this key to return to the previous bar only.

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```
〈▶〉        Use this key to advance one bar
〈▶▶〉       Use this key to continously advance bars.
〈REPT〉     Use this key to repeat playback of the
           current bank.
〈TRNS〉     Use this key to transpose.
〈CLICK〉    Use this key to output metronome click sound
           to the CLICK OUT terminal.
```

(4) CHAIN PLAY

In the CHAIN PLAY mode, the message below is displayed,
requesting input from the user. At this time the
STAND BY TRACK display will be changed into the PLAY
TRACK display.

```
CHAIN PLAY READY          MEASURE:aaa
BANK bb      cccccccc     TEMPO:ddd       TIME:ee/ff
```

The user can now set the following parameters:

```
aaaaa:          Bar Number         00001 - 999
ddd:            Tempo Value        40 - 280
```

Enter RUN or FOOT SW to change the display into the
following:

```
CHAIN PLAYING             MEASURE:aaa
BANK bb      cccccccc     TEMPO:ddd       TIME:ee/ff
```

Enter STOP or FOOT SW to stop playback at the end of
the current bar. The QX1 will now be ready for input
from the user.

```
〈◀◀〉      Use this key to return continuously to the
           previous bar.
〈◀〉       Use this key to return to the previous bar
           only.
〈▶〉       Use this key to advance one bar
〈▶▶〉      Use this key to continously advance bars.
〈REPT〉     Use this key to repeat playback of the
           current bank.
〈TRAN〉     Use this key to transpose.
〈CLICK〉    Use this key to output metronome click sound
           to the CLICK OUT terminal.
```

(5) JOB COMMAND 1 DISK CHANGE

With the DISK CHANGE. the user can change disks.
After inputing the command, the user can unload the
disk. Then the following is displayed:

```
DISK CHANGE
SET DISK & HIT ENTER KEY!
```

After the ENTER key is pressed, the user will not be able to unload the disk again.

(6) JOB COMMAND 2 STATUS SWITCH

With STATUS/SWITCH, the user can specify the display setting of each parameter of the PLAY MODE as shown in the following:

```
                            SYNC:b
PLAY TRK:cccccccc           FREE:dddK BYTES
```

b: SYNC CLOCK Switch   I=INTERNAL, M=MIDI, T=TAPE
cccccccc: PLAY TRACK Switch   1-8=PLAY ON
                                 .=Standby is OFF
                                 *=Unused TRACK

ddd: Number of unused areas of disk.

To select track for PLAY, enter 1-8 for ON or SPACE for OFF.

(7) JOB COMMAND 3 OUTPUT ASSIGN

Use the OUTPUT ASSIGN to determine which of the MIDI OUT 1-8 channels to output from. OUTPUT ASSIGN can also be used to determine which of the MIDI channels (1-16) to add. Assignment can be done when the following message has come on:

```
TERMINAL ASSIGN    a   b   c   d   e   f   g   h
MIDI CH ASSIGN       ii   jj   kk   ll   mm   nn   oo   pp
```

a: MIDI OUT Number of the track1   1-8
b: MIDI OUT Number of the track2   1-8
                        :
                        :
ii: MIDI CH Number of tracks   01-16
jj: MIDI CH Number of tracks   01-16
                        :
                        :

However, no more than 3 tracks can be assigned to the same MIDI OUT.

2-4   RECORD MODE

(1) INTRODUCTION

The RECORD MODE is available for recording the performances of external musical instruments and consists of the BANK DIRECTORY DISPLAY, BANK NAME SET, REALTIME RECORD and PUNCH IN RECORD.

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(2) BANK DIRECTORY DISPLAY

Use this command for displaying the contents of BANKs.
The BANK being displayed when the ENTER key is pressed
will be recorded. Use the < ▲ > and < ▼ > for updating
the display.

```
┌─────────────────────────────────────────────────────┐
│RECORD MODE              PROT:a      USE:bbb          │
│BAND cc        dddddddd  TEMPO:eee   TIME:ff/gg        │
└─────────────────────────────────────────────────────┘
```

(3) BANK NAME SET

Use the BANK NAME SET for setting BANK parameters. Use
this command to record a performance into a new BANK.
If not, skip this command. Enter the BANK NAME, TEMPO
value, and RHYTHM when the following is on display.

```
┌─────────────────────────────────────────────────────┐
│BANK NAME SET            PROT:0      USE:000          │
│BANK 01        aaaaaaaa  TEMPO:bbb   TIME:cc/dd        │
└─────────────────────────────────────────────────────┘
```

aaaaaaaa:	BANK NAME (maximum)	arbitrary 8 characters
bbb:	TEMPO VALUE	40-280
cc/dd:	RHYTHM	01-32/01,02,04,08,16,32

(4) REALTIME RECORD

In the REALTIME RECORD, when the RECORD TRACK has
already been recorded, the new performance can be added
to the previously recorded performance. The following
messages are displayed to wait for any input by the
user.

```
┌─────────────────────────────────────────────────────┐
│RECORD READY             MEASURE:aaa                  │
│BANK bb        cccccccc TEMPO:ddd      TIME:ee/ff      │
└─────────────────────────────────────────────────────┘
```

The following parameters can be specified at this time.
Setting the MEASURE to a small number will allow some
portion of the previously recorded performance to be
deleted.

aaaaa:	BAR number	00001-999
ddd:	TEMPO value	40-280

Entering the RUN or FOOT SW will allow a 2 bar waiting
period before the following message is displayed and
the recording commences.

```
┌─────────────────────────────────────────────────────┐
│RECORDING                MEASURE:aaa                  │
│BANK bb     cccccccc     TEMPO:ddd TIME:ee/ff          │
└─────────────────────────────────────────────────────┘
```

Entering the STOP or FOOT SW will result in halt at the
end of the current bar and a wait for key input.

Other keys function are as follows. When the bars are
reversed , the recorded data will be deleted by that
amount.

⟨◀◀⟩	Use this key to return to the previous bars continuously.
⟨◀⟩	Use this key to return to the previous bar.
⟨▶⟩	Use this key to advance one bar.
⟨▶▶⟩	Use this key to advance bars continuously.
⟨CLICK⟩	Use this key to output metronome click sound from the CLICK OUT.

(5) PUNCH IN RECORD

Use the PUNCH IN for rerecording certain bars. The
following messages will be displayed.

```
┌─────────────────────────────────────────────────────┐
│PUNCH REC.  READY            MEASURE:aaa              │
│BANK bb           cccccccc   TEMPO:ddd       TIME:ee/ff│
└─────────────────────────────────────────────────────┘
```

The following parameters can be specified at this time.
Setting the MEASURE to a small number will allow some
portion of the previously recorded performance to be
deleted.

aaaaa:	BAR number	00001-999
ddd:	TEMPO value	40-280

Entering the RUN or FOOT SW will allow a 2 bar wait
before the following message is displayed and the
recording commences.

```
┌─────────────────────────────────────────────────────┐
│PUNCH WAITING                MEASURE:aaa              │
│BANKbb            cccccccc   TEMPO:ddd       TIME:ee/ff│
└─────────────────────────────────────────────────────┘
```

Entering the ENTER or FOOT SW will resume the PUNCH IN
from the beginning of the following bar and the display
will be as in the following.

```
┌─────────────────────────────────────────────────────┐
│PUNCHING                     MEASURE:aaa              │
│BANK bb           cccccccc   TEMPO:ddd       TIME:ee/ff│
└─────────────────────────────────────────────────────┘
```

Entering the STOP or FOOT SW will result in a halt at
the end of the current bar. When the PUNCH IN is
executed 16 times, it will automatically stop.

Other keys function as follows. When the bars are
reversed . the recorded data will be deleted by that
amount.

    ⟨◀◀⟩   Use this key to return to the previous bars
                   continuously.
    ⟨◀⟩   Use this key to return to the previous bar.
    ⟨▶⟩   Use this key to advance one bar.
    ⟨▶▶⟩   Use this key to advance bars continuously.
    ⟨CLICK⟩   Use this key to output metronome click sound
                   from the CLICK OUT.

(7)   JOB COMMAND 1   DISK CHANGE

This performs the same function as the PLAY MODE JOB
COMMAND1 DISK CHANGE.

(8)   JOB COMMAND 2 STATUS/SWITCH

Use the STATUS/SWITCH for specifying display setting
each parameter of the RECORD MODE as in the following:

```
REC.   TRK:a              MODE:b
PLAY  TRK:cccccccc        FREE:dddK BYTES
```

a: RECORD TRACK switch   1-8
b: RECORD MODE switch   R=REALTIME, P=PUNCH
            IN
cccccccc: PLAY TRACK switch   1-8=PLAY ON
                                     . =STANDBY(OFF)
                                     # =free TRACKs
ddd: Number of free disk areas

The RECORD TRACK and MODE switch can be set when the
BANK DIRECTORY display or BANK NAME SET are made. With
the PLAY TRACK, enter 1 - 8 for ON or SPACE for OFF.

(9)   JOB COMMAND 3   OUTPUT ASSIGN

This performs the same function as the PLAY MODE JOB
COMMANDS3 OUTPUT ASSIGN.

(10) JOB COMMAND 4
This job command has no function.

(11) JOB COMMAND 5 RECEIVE CONDITION

With the RECEIVE CONDITION, the user can set the
receiving conditions of the MIDI IN. The displays and
settings are shown in the following:

```
RECEIVE CONDITION
MIDI:aa      CTRL:b    PROG:c      BEND:d
```

aa: MIDI CHANNEL number   01-16
b: CONTROL CHANGE switch   1=ON,0=OFF
c: PROGRAM CHANGE switch   1=ON,0=OFF
d: PITCH BEND CHANGE switch   1=ON,0=OFF

2-5 UTILITY MODE

(1) INTRODUCTION

The UTILITY consists of the BANK DIRECTORY display and
JOB COMMAND.

(2) JOB COMMAND 1 DISK CHANGE

This performs the same function as the PLAY MODE JOB
COMMAND1 DISK CHANGE.

(3) JOB COMMAND 2 STATUS
Use this STATUS for display the status of use of disks.

```
CHAIN:a          BANK:bb      BULK:hh    cccK BYTES USED
CHAIN:d          BANK:ee      BULK:gg    fffK BYTES FREE
```

a: Number of CHAINs in use
bb: Number of BANKs in use
ccc: Number of DISK AREAs in use
d: Number of free CHAINs
ee: Number of free BANKs
fff: Number of free DISK AREAs

If, when a+d=8, bb+ee=32, ccc+fff$\leq$795; ccc+fff is not
795, it shows that there is something wrong with the
disk.

(4) JOB COMMAND 3 CHAIN EDIT

Use the CHAIN EDIT for creating the CHAIN list. First,
the following display will appear. Then, select the
CHAIN that you wish to create.

```
CHAIN EDIT
CHAIN a
```

When a new CHAIN is to be created. the following
display will appear. Then, enter the CHAIN NAME
(maximum 8 characters). If not. skip this display.

```
CHAIN NAME SET
CHAIN a      bbbbbbbb
```

a: Selected CHAIN number
bbbbbbbb: CHAIN NAME (maximum 8 arbitrary
                characters)

The CHAIN list is as in the following:

```
INSERT    aa
STEP      aa
BANK bb      cccccccc      PLAY: dd
```

aa: STEP number   01-32
bb: BANK number
cccccccc: BANK NAME corresponding to BANK number
dd: Number of REPEAT times   01-32

The following keys are also effective:
⟨INS⟩   Use this key for inserting data which is
                more than 1 list size immediately before
                the display.
⟨DEL⟩   Use this key for deleting data of 1 list
                size, condensing what follows after.
⟨▲⟩   With this key, the user can display the
                following list.
⟨▼⟩   With this key, the user can display the
                previous list.

(5)   JOB COMMAND 4 CHAIN NAME CHANGE

Use the CHAIN NAME CHANGE for changing the CHAIN name.
First. the follwing will be displayed for specifying
the CHAIN number.

```
CHAIN NAME CHANGE
CHAIN a
```

Then, the following will be displayed for changing the
CHAIN name.

```
CHAIN NAME SET
CHAIN a              bbbbbbbb
```

a: CHAIN number
bbbbbbbb: CHAIN   arbitrary 8   characters
                (maximum)

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(6) JOB COMMAND 5 CHAIN DIRECTORY

Use the CHAIN DIRECTORY for displaying the CHAIN names as in the following:

```
CHAIN DIRECTORY
CHAIN a          bbbbbbbb
```

a: CHAIN number
bbbbbbbb: CHAIN   NAME   arbitrary   8   characters
            (maximum)

Use the < ▲ > and < ▼ > to update the display.

(7) JOB COMMAND 6 CHAIN DELETE

Use the CHAIN DELETE for deleting the CHAIN list.
Enter the CHAIN name when the following is displayed.

```
CHAIN DELETE
CHAIN a
```

Then, enter Y for deleting the CHAIN or N for canceling the CHAIN DELETE command when the QX1 asks the user "SURE ? YES(Y)/NO(N)".

(8) JOB COMMAND 7 BANK NAME CHANGE

With the BANK NAME CHANGE , the user can change the BANK name and other parameters. Enter the BANK name when the following is displayed.

```
BANK NAME CHANGE
BANK CC
```

Then, change each parameter when the followings are displayed.

```
BANK NAME CHANGE          PROT:a    USE:bbbK
BANK cc          dddddddd  TEMPO:eeeTIME:ff/gg
```

a: BANK protect switch   1=ON,0=OFF
bbb: Number of areas in use, display only
            001-795
cc: BANK number
dddddddd: BANK NAME   arbitrary 8 .characters (maximum)
eee: TEMPO value   40-280
ff/gg: RHYTHM, display only

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(9)   JOB COMMAND 8 BANK BACKUP

Use the BANK BACKUP for copying the BANK data to the
BANK of other disks. Specify the source and
destination BANK number when the following messages are
displayed.

```
BANK  BACKUP
FROM BANK cc            TO BANK cc
```

Then, load the diskettes for both source and
destination disks according to the following messages:

```
BANK  BACKUP
SET ORIGINAL DISK & HIT ENTER KEY!
```
```
BANK  BACKUP
SET DUPULICATE DISK & HIT ENTER KEY!
```

When the copying is completed, the following messages
are displayed:

```
BANK BACKUP FINISHED
SET DISK & HIT ENTER KEY!
```

When the destination BANK is in use, the following
messages are displayed:

```
BANK  aa  EXISTS
```

aa: Destination BANK number

Enter Y for executing BANK BACKUP or N for canceling
the BANK BACKUP command when the QX1 asks the user
"SURE ? YES(Y)/NO(N)".

(10) JOB COMMAND 9 BANK COPY

Use the BANK COPY for copying BANKs within the same
disk. Spedify the source and destination BANK numbers
when the following messages are on display.

```
BANK  COPY
FROM BANK cc            TO BANK cc
```

When the destination BANK is in use, the following
message is displayed.

```
BANK  aa  EXISTS
```

aa: Destination BANK number

Enter Y for executing BANK COPU or N for canceling the
BANK COPY command when the QX1 asks the user "SURE?
YES(Y)/NO(N)".

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(11) JOB COMMAND 10 BANK DELETE

With the BANK DELETE, the user can delete BANKs. Enter
the BANK name when the following is displayed.

```
BANK DELETE
BANK cc
```

Then, enter Y for executing the BANK DELETE or N for
canceling the BANK DELETE command when the QX1 asks the
user "SURE ? YES(Y)/NO(N)".

(12) JOB COMMAND 11 DISK INITIALIZE

Use the DISK INITIALIZE for initializing disks for
preparing them to be usable by the QX1. Load the disk
to be initialized when the following is displayed.

```
INITIALIZE DISK
SET DISK & HIT ENTER KEY!
```

Then, enter Y for executing the DISK INITIALIZE or N
for canceling the DISK INITIALIZE when the QX1 asks
the user "SURE ? YES(Y)/NO(N)". When the DISK
INITIALIZE is completed, the operation automatically
proceeds to the JOB COMMAND 12. It takes approximately
4 minutes for completion of disk initialization.

(13) JOB COMMAND 12 DISK ID SET

With the DISK ID SET, the user can assign set an
identification to a disk (maximum 40 characters).
Enter the identification when the following is
displayed.

```
DISK ID SET
aaaa                    aaaaaaaa
```

aaa   aaa: ID arbitrary 40 characters(maximum)

(14) JOB COMMAND 13 DISK BACKUP

Use the DISK BACKUP to copy the entire disk data to
another disk. After this command is selected, specify
the source and destination disks.

```
DISK BACKUP
SET ORIGINAL DISK & HIT ENTER KEY!
```

```
DISK BACKUP
SET DUPULICATE DISK & HIT ENTER KEY!
```

When the command is completed, the following message
will be displayed.

```
DISK BACKUP FINISHED
SET DISK & HIT ENTER KEY!
```

When the destination BANK is in use, the following will
be displayed.

```
BANK EXSITS
```

Then, enter Y for executing the DISK BACKUP or N for
canceling the DISK BACKUP when the QX1 asks the user
"SURE ? YES(Y)/NO(N)".

(15) JOB COMMAND 14   TRACK MIX

Use the TRACK MIX for mixing the contents of one track
with those of another. When the destination track is
unused, this command will perform the COPY function.
Enter the BANK and TRACK numbers of the source and
destination disks when the following is on display.

```
TRACK MIX
FROM BANK cc TRACK .        TO BANK cc TRACK .
```

Then, enter Y for executing the TRACK MIX or N for
canceling the TRACK MIX when the QX1 asks the user
"SURE ? YES(Y)/NO(N)".

(16) JOB COMMAND 15   TRACK DELETE

Use the TRACK DELETE for deleting the contents of a
track. Enter the BANK and TRACK numbers when the
following is on display.

```
TRACK DELETE
BANK cc TRACK ..
```

Then, enter Y for executing the TRACK DELETE or N for
canceling the TRACK DELETE when the QX1 asks the user
"SURE ? YES(Y)/NO(N)".

(17) JOB COMMAND 16 DATA IN

Use this command for storing the performance data into
the bank. Specify the bank number when the following
is on display.

```
DATA IN
BANK cc
```

Then, the following two displays will be seen,
indicating that the QX-1 is waiting for data input, and
is loading data.

```
WAITING
```

```
EXECUTING
```

(18) JOB COMMAND 17 DATA OUT

Use this command for outputting the contents of a bank
through the MIDI OUT. Specify the bank number when the
following is on display.

```
DATA OUT
BANK cc     TERMINAL:. MIDI CHANNEL:..     WAIT: 0
```

Then, enter Y for executing the DATA OUT or N for
cancelling the DATA OUT when the QX-1 asks the user
"SURE ? YES(Y)/NO(N)."

(19) JOB COMMAND 18 TIME DISPLAY

Use this command for displaying the length of the time
of the performance stored in the memory. Specify the
bank number and the starting and ending bars when the
following is on display.

```
TIME DISPLAY
BANK cc     TOP MEAS:...     LAST MEAS:...
```

Then, the following will be displayed, indicating the
length of performance.

```
BANK:01     TOP MEAS:001     LAST MEAS:010
01 MIN 32.4 SEC              BY TEMPO 120
```

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(20) JOB COMMAND 19 TIME DISPLAY

Use this command for creating rest bars in the banks already available, or in the unused banks. Specify the parameters when the following is on display.

```
MEASURE INSERT
BANK cc    TOP MEAS:...    SIZE:...  TIME:../..
```

Then, enter Y for executing the TIME DISPLAY or N for cancelling the TIME DISPLAY when the QX-1 asks the user "SURE ? YES(Y)/NO(N), when the bank is available."

(21) JOB COMMAND 20 MEASURE DELETE

Use this command for deleting certain bars in a bank. it is effective for all tracks. Specify the bank number, starting and ending bar numbers, when the following is on display.

```
MEASURE DELETE
BANK cc    TOP MEAS:...    LAST MEAS:...
```

(22) JOB COMMAND 21 BULK IN

Use this command for storing MIDI system exclusive messages on the disk. Specify the bank number (01 - 16) when the following is on display.

```
BULK IN
BULK cc    TERMINAL:.    MIDI CHANNEL:..    FORMAT:...
```

The terminal number, MIDI channel format number (above) are the parameters for Dump request output. Specify the BULK NAME when the following is on display.

```
BULK NAME SET
BULK 01........
```

Then, the following two displays will be seen, indicating that the QX-1 is waiting for data input, and is loading data.

```
WAITING
```

```
EXECUTING
```

(23) JOB COMMAND 22 BULK OUT

Use this command for outputting the data stored in job 21 (above). Specify the bank number and the channel number when the following is on display.

```
BULK OUT
BULK cc     TERMINAL:.     WAIT: 0
```

Then, enter Y for executing the BULK OUT or N for cancelling it when the QX-1 asks the user "SURE ? YES(Y)/NO(N). when the bank is available."

(24) JOB COMMAND 23 BULK DIRECTORY

Use the BULK DIRECTORY to display the bulk names. The display is as follows:

```
BULK DIRECTORY
BULK aa          bbbbbbbb        USE:cccK
```

aa: BULK NUMBER
bbbbbbbb: BULK NAME

Use the < ▲ > and < ▼ > keys to change the display.

2-6   EDIT MODE

(1)   General Specification

The EDIT MODE will permit editing including modification, deletion, and addition of the performance data . It allows not only real-time input performance data to be edited but also new performance data to be created by the addition function. It also has various kinds of editing commands to facilitate ease of editing. It consists of the following two modes:

CHANGE MODE...The positions, musical intervals, note length of a performance data already available can be modified using cursor, numeric keys or exclusive keys.

INSERT MODE...Data can be inserted in-between or added after the performance data already available. Also, when you wish to create entirely new performance data, the positions, musical intervals, and length of tone of the data to be newly added can be entered using a cursor, numeric keys, or exclusive keys.

(2)   BANK DIRECTORY Display

The contents of banks are displayed. The BANK being displayed when the ENTER is entered can be edited. Use of <▲> and <▼> will allow displays to be updated.

```
┌─────────────────────────────────────────────────────┐
│EDIT  MODE              PROT:a    PROT:a    USE:bbbK  │
│BANK  cc    dddddddd    MM:eee    TEMPO:eee TIME:ff/gg│
└─────────────────────────────────────────────────────┘
```

(3)   BANK NAME SET

The BANK NAME SET is used for setting parameters of the
BANK and for editing a new BANK. Enter the BANK NAME.
tempo values and rhythms when the following is being
displayed.

```
┌─────────────────────────────────────────────────────┐
│BANK NAME SET         PROT:0          USE:000K        │
│BANK 01   aaaaaaaa    TEMPO:bbb       TIME:cc/dd       │
└─────────────────────────────────────────────────────┘
```

aaaaaaaa: BANK NAME   Arbitrary 8 charactors
cc/dd: rhythm   01-32/01,02,04,08,16.32

(4)   How to express performance data with EDIT

The QX1 stores data using event formats and hence the
performance data can be expressed by the time when the
event occurred (key on,off) and the contents. It has
an internal clock for measuring the time when events
occurred. where 1 clock equals a quarter note/384.
Hence. the resolution of the QX1 is a quarter note/384
and the performance data is stored with a precision of
a quarter note/384. The following expressions can also
be obtained:

   a quarter note=384 clocks
   an eight note=192 clocks
   four quarter notes=384*4=1536 clocks

The QX1 always expresses the events of the performance
data by counting how many clocks are available from
the beginning of a bar.

The performance data is expressed by counting how many
clocks there are from the start of a bar until the
beginning of the performance data. In this case. the
fourth beat of data of a bar will be 1,152 clocks.
This number is too large to be meaningful. For this
reason. there is supplementary unit. called a STEP.
This is similar to the way that time is expressed by
hours. minutes. and seconds. That is. it is easier to
understand "2 minutes and 36 seconds," that it is to
understand "156 seconds." The QX-1 uses a time
division larger than "clock" units for this reason.
The performance data is more roughly expressed using
STEPS. Sine the STEP unit is supplemental. the user
can freely specify the number of steps in a bar.
Normally at 4/4 time. it is easier to use 4. 8. or 16
to divide the time. The relationship between note.
step, and clock for 4/4 time is shown in the following.

   STEP=4   1 STEP = 384 clocks = quarter note
   STEP=8   1 STEP = 192 clocks = eighth note
   STEP=16   1 STEP = 96 clocks = sixteenth note

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(5)   Note Length, Gate Time and Rests

The NOTE LENGTH is the time until the next note (a quarter note and an eight note) and is specified by clocks.
The GATE TIME is the time when sound is actually being generated(staccato and tenuto) and is specified by clocks.
The QX1 allows data to be recorded by the event format so that only the GATE TIME is effective as performance data. The NOTE LENGTH is used ,during the INSERT MODE, to allow the display automatically to shift to the next note position and can be omitted.
          can be used . during the INSERT MODE. to allow display automatically to shift to the next note position.
It cannot be recorded as data and can be omitted.
In the CHANGE MODE, changing a note data to a rest will result in performing the same operation as DELETE. The relationship between a note and clocks is shown below.
The GATE TIME can be set freely depending on notes.

a whole note	1536
a half note	768
a quarter note	384
an eight note	192
a semiquaver	96
a demisemiquaver	48

(6)   Edit keys

⟨▲⟩   During the CHANGE MODE, this key is used to allow data of the event immediately before the current one to be displayed. During the INSERT MODE, use of this key will result in the CHANGE MODE and allows the last input data to be displayed.

⟨▼⟩   During the CHANGE MODE, this key is used to allow data of the event immediately after the current one to be displayed. During the INSERT MODE, use of this key will result in the CHANGE MODE and allows the last input data to be displayed.

⟨◀◀⟩   With this key, a cursor can be continuously advanced to prior bars. Press the STOP key to stop this operation. When this key is pressed during the INSERT MODE, the mode is automatically replaced by the CHANGE MODE.

⟨▶▶⟩	With this key, a cursor can be continuously advanced to the following bars. Press the STOP key to stop this operation. When this key is pressed during the INSERT MODE, the mode is automatically replaced by the CHANGE MODE.
⟨◀⟩	During the CHANGE MODE, use of this key allows the display to return to the bar line of the current bar. When a bar line is already in display, the line of the previous bar will be displayed. When this key is pressed during the INSERT MODE, the mode is automatically replaced by the CHANGE MODE.
⟨▶⟩	During the CHANGE MODE, use of this key allows the display to advance to the following bar line. When this key is pressed during the INSERT MODE, the mode is automatically replaced by the CHANGE MODE.
⟨C⟩-⟨B⟩	Musical Interval keys; used for entering a musical interval. Pressing the key will advance the compass up by one octave. Pressing the ⟨↓C⟩-⟨↓B⟩ keys once will advance the compass down by one octave. Keep pressing the keys will further advance the compass down by one octave.
⟨♩⟩-⟨○⟩	Note length keys; used for entering the NOTE LENGTH. Pressing these keys will also automatically allows the GATE TIME to be displayed. The value of the GATE TIME is determined by the GATE TIME RATIO.
⟨REST⟩	Rest keys; used for entering rests. Pressing these keys will also automatically allows the GATE TIME to be displayed. But, it is not necessary, in this case, to enter the GATE TIME.
⟨PPP⟩-⟨fff⟩	Note Strength keys; used to enter the strength of notes. For the rests, however, it is not necessary to do so.
⟨stac⟩	Staccato key; pressing this key will reduce the GATE TIME to half.

⟨tie⟩	Tie Key; used for entering ties. Pressing the NOTE LENGTH key immediately

after the tie key will allow the NOTE LENGTH on display to be connected with the NOTE LENGTH currently entered with a tie. The GATE TIME will be added to the NOTE LENGTH currently on display. |
⟨−8va⟩, ⟨+8va⟩	With these keys, the user can change the compass of the MUSICAL INTERVAL key. Pressing the +8va key once will increase the compass of the MUSICAL INTERVAL key entered hereafter by one octave. Pressing the -8va key will decrease it by one octave.
⟨⌐N⌐⟩	After pressing this key, entering the numeric keys, 1-9, will allow the NOTE LENGTH key on display to be divided by the value of the numeric key. If there is a remainder, it will be neglected. After entering this key, press the next NOTE LENGTH key again.
⟨.⟩	Using this DOT key, the user can extend the GATE TIME and NOTE LENGTH by 1.5 times. Pressing this key two times continuously will result in double dots.
⟨TEMPO⟩	This TEMPO CHANGE key is used for changing tempo during playing and is effective only when the INSERT MODE is selected. The variation of TEMPO is expressed by the ratio against the reference tempo and can be set from 50 to 200 %.
⟨CTRL⟩, ⟨PRGM⟩	These are the CONTROL CHANGE and the PROGRAM CHANGE keys and are they effective only when the INSERT MODE is selected. Use these keys for entering the CONTROL CHANGE EVENTS and the PROGRAM CHANGE EVENTS of the MIDI signal in decimal number.
⟨BEND⟩	Use this PITCH BEND key for entering the PITCH BEND CHANGE EVENT of the MIDI signal in decimal number. This key is effective only when the INSERT MODE is selected.

⟨DELETE⟩	Use this DELETE key for deleting data on display except bar lines. This key is effective only when the CHANGE MODE is selected.
⟨INSERT⟩	With this INSERT key , the user can switch from the CHANGE MODE to the INSERT MODE. When the TOP OF BANK or END OF BANK are displayed, it is not possible to enter the INSERT MODE.
⟨RUN⟩	Press this START key when bar lines are on display to start playing the following two bars.
⟨STOP⟩	Press this key to stop fast forward. return or playing.
⟨ENTER⟩	Use this ENTER key to enter the data on display. When the ENTER key is not pressed , the input of data currently on display will be invalid. During the INSERT MODE, the data currently on display will be added to increase the time on display to advance by the note length. The defaults of other data are also displayed. During the CHANGE MODE, the data previously being on display will be modified to the data currently on display.
⟨SPACE⟩	With this SPACE key, the user can enter the data currently on display. When the SPACE key is not pressed, the input of the data currently on display will be invalid. During the INSERT MODE, the data currently on display will be added to increase the time on display to advance by the note length. The defaults of other data are also displayed. During the CHANGE MODE, the data previously being on display will be modified to the data currently on display.
⟨+/−⟩	Inversion key for data.
⟨KBD⟩	Keyboard data read key.

Note: External keyboards

Connecting an external keyboard to the
QX1 and pressing keys, when the QX1 is
ready to accept notes, will allow KBD
(for musical intervals) and 128(for the
key number) to be displayed whether it
may be a single sound or compound sound.
In this situation, pressing the ENTER or
SPACE key will allow the data of the
external keyboard to be entered whether
it may be a single sound or compound
sound. Releasing your finger from the
keyboard and then newly press a key will
enable the new note to be valid.

(7) Edit displays

(a) TOP OF TRACK

```
MEASURE:...         STEP:../..    CLK:..../....
TOP OF TRACK
```

This shows that the pointer is currently at the top of
the file.

(b) END OF TRACK

```
MEASURE:238         STEP:01/04    CLK:0000/0348
END OF TRACK
```

This shows that the pointer is currently at the end of
the file.

(c) Note data

```
        (1)              (2)              (3)
         |                |                |
MEASURE:002         STEP:01/04      CLK:0000/0384
C..3    ...    .mf             064  0380  0000   064
  |      |      |               |     |    |      |
 (4)    (5)    (6)             (7)   (8)  (9)    (10)
```

(1) It shows the bar where an event is positioned.
(2) It shows the number of STEPs where an event is
positioned.
(3) It shows the number of CLOCKs where an event is
positioned.
(4) It shows the note of a note. For the   and
external keyboard input, ... and KBD. are displayed
respectively.
(5) It shows the note length of a note.

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(6) It shows the strength of a note.
(7) It shows the the MIDI number (0-127) of a note.
The following numbers are given for the   and external
keyboard input:

                    =129-255
            external keyboard input=128

(8) It shows the GATE TIME.
(9) It shows the number of CLOCKs of the note length.
(10) It shows the MIDI number (0-127) of the note
strength.

During the INSERT MODE, MEASURE displays INSERT.

(c) BAR LINE

MEASURE:002	STEP:../..	CLK:..../....
MEAS.BAR	SIGN:04/04	

                         (1)

This shows that the pointer is currently positioned at
the bar line. By rewriting (1), the ryhthm of the
current one bar can be changed.

(d) CONTROL CHANGE

MEASURE:002	STEP:01/04	CLK:0000/0384
CTRL	001 012	

               (1)   (2)

(1) Control change number(0-127) for the MIDI signal
(2) Control change value(0-127) for the MIDI signal

(e) BEND CHANGE

MEASURE:002	STEP:01/04	CLK:0000/0384
BEND	3000	

               (1)

(1) Pitch bend change number for the MIDI signal($-8192 \sim 8191$)

(f) PROGRAM CHANGE

MEASURE:002	STEP:01/04	CLK:0000/0384
PROG	032	

               (1)

(1) Program change number for the MIDI signal (0~127)

(g) TEMPO CHANGE

```
MEASURE:002          STEP:01/04    CLK:0000/0384
TMPO                 132%
```
                      |
                     (1)

(1) Tempo change value 50-200%

(8) JOB COMMAND 1 DISK CHANGE

This performs the same function as the PLAY MODE JOB
COMMAND1 DISK CHANGE.

(9) JOB COMMAND 2 STATUS/SWITCH

This STATUS/SWITCH is used for setting display of each
parameter of the EDIT MODE as in the following:

```
EDIT TRACK:a                FREE: dddK BYTES
```

a: EDIT TRACK switch   1-8
ddd: Number of free areas of a disk

The EDIT TRACK can be set when the BANK DIRECTORY
display. Entering <1>- <8> and SPACE will turn ON or OFF
the display respectively for the PLAY TRACK .

(10) JOB COMMAND 3 OUTPUT ASSIGN

This performs the same function as the PLAY MODE JOB
COMMAND 1 OUTPUT ASSIGN.

(11) JOB COMMAND 4 RECEIVE CONDITION

With the RECEIVE CONDITION, the user can set the
receiving conditions of the MIDI IN. The displays and
settings are shown in the following:

```
RECEIVE CONDITION
MIDI:aa     CTRL:b     PROG:c     BEND:d
```

aa: MIDI CHANNEL number   01-16
b: CONTROL CHANGE switch   1=ON,0=OFF
c: PROGRAM CHANGE switch   1=ON,0=OFF
d: PITCH BEND CHANGE switch   1=ON,0=OFF

(12)   JOB COMMAND 5 GATE TIME RATIO

Use this GATE TIME RATIO for setting the GATE TIME
corresponding to the NOTE LENGTH key. Enter values
for each note length. The display is as in the
following:

```
1/1: 080% 1/2: 080%   1/4: 080%   1/8: 080%
1/16:080% 1/32:080%   1/64:080%   1/N: 080%
```

The possible range of the GATE TIME RATIO is 1-100%.

(13)   JOB COMMAND 6 STEP PER MEASURE

With this STEP PER MEASURE, the user can set the step
value. Entering values is possible when the following
is on display.

```
STEP PER MEASURE
STEP:04
```

The possible range of the STEP PER MEASURE is 1-99.

(14)   JOB COMMAND 7 COPY MEASURE

With the COPY MEASURE command, the user can copy the
performance data between two specified measures to the
measure following another specified measure which is
within the same bank. This command will only apply to
the bank currently under selection and on display. The
COPY MEASURE command is effective only when the BANK
DIRECTORY Display is on.

```
MEASURE COPY    TOP MEAS:...    LAST MEAS:...
DEST MEAS:...                   COPY:..
```

DEST MEAS - Used for specifying the measure count of
the destination to receive the copy.
TOP MEAS - Used to specify the starting measure of the
source.
LAST MEAS - Used for specifying the last measure of
the source.

Once all the spaces have been filled, press the ENTER
key to execute the copy. If there is data in the
destination measure it will be written over by the
copied data.

(15)   JOB COMMAND 8 TRANSPOSE MEASURE

With the TRANSPOSE MEASURE command, any bank chosen
with the BANK DIRECTORY on can be transposed. TOP
and LAST measures are set. All the tracks of the
measures between them are transposed at the same time.
The TRANSPOSE MEASURE function can only be called when
the BANK DIRECTORY is on display.

```
┌─────────────────────────────────────────────────────────────┐
│KEY TRANSPOSE                                                  │
│WIDTH:...   TOP MEAS:...     LAST MEAS:...                     │
└─────────────────────────────────────────────────────────────┘
```

WIDTH: Space to set the width of the transposition.
Transposition width data can be from -99 to +99 (half
note steps).   Determine UP or DOWN with the +/- keys,
and the width with the numerical keys. With the + (UP)
key. a space will be opened in front of the data and
the display will look like this: WIDTH: ww. With the -
(DOWN) key. a minus sign will appear in front of the
data, and the display will look like this: WIDTH:-ww
TOP MEAS - Used to specify the first measure to be
transposed.
LAST MEAS - Used for specifying the last measure to be
transposed.
Once all the spaces have been filled, press the ENTER
key to execute the transposition.

(16) JOB COMMAND 9 TIME QUANTIZING

With the TIME QUANTIZING command, any bank chosen with
the BANK DIRECTORY on and created with the REAL TIME
RECORD function can be quantized. TOP and LAST
measures are set. All the tracks of the measures
between them are quantized at the same time. The
TIME QUANTIZE function can only be called when the BANK
DIRECTORY is on display.

```
┌─────────────────────────────────────────────────────────────┐
│TIME QUANTIZE                                                  │
│CLK:...   TOP MEAS:...     LAST MEAS:...                       │
└─────────────────────────────────────────────────────────────┘
```

CLK: The length of the note to act as standard is
entered here. It is usually the shortest note of the
measure to be quantized. Remember that this function
is only for adjusting the length of the notes and has
nothing to do with the rhythm of the measures.
TOP MEAS - Used to specify the first measure to be
quantized.
LAST MEAS - Used for specifying the last measure to be
quantized.
Once all the spaces have been filled, press the ENTER
key to execute the quantization.

(17) JOB COMMAND 10 CLOCK MOVE

With this command. the timing of any bank chosen with
the BANK DIRECTORY on can be made earlier or later with
a defined number of clocks. TOP and LAST
measures are set. All the tracks of the measures
between them are retimed at the same time. The CLOCK
MOVE function can only be called when the BANK
DIRECTORY is on display.

```
┌─────────────────────────────────────────────────────────────┐
│CLOCK MOVE                                                     │
│CLK:...   TOP MEAS:...     LAST MEAS:...                       │
└─────────────────────────────────────────────────────────────┘
```

CLK: The number of clocks is entered here.
TOP MEAS - Used to specify the first measure to be
retimed.
LAST MEAS - Used for specifying the last measure to be
retimed.
The number of clocks can be from -99 to +99. Use the
+/- keys to determine the sign, and the CLOCK key to
determine the number of clocks. With the + (ADVANCE)
key, a space will be opened in front of the data and
the display will look like this: CLK: ccc. With the -
(DELAY) key, a minus sign will appear in front of the
data, and the display will look like this: CLK:-ccc.
Once all the spaces have been filled, press the ENTER
key to execute the timing modification.

(18) JOB COMMAND 11 GATE TIME MODIFY

With this command, the gate time of any bank chosen
with the BANK DIRECTORY on can be made longer or
shorter. TOP and LAST measures are set. All the
tracks of the measures between them are retimed at the
same time. The GATE TIME MODIFY function can only be
called when the BANK DIRECTORY is on display.

```
GATE TIME MODIFY
MOD:...%  TOP MEAS:...    LAST MEAS:...
```

MOD: The gate time modification rate is entered here.
the gate time of the data already stored is considered
to be 100%.
TOP MEAS - Used to specify the first measure to be
retimed.
LAST MEAS - Used for specifying the last measure to be
retimed.
Gate time can be modified at rates from 050 to 200%.
Once all the spaces have been filled, press the ENTER
key to execute the gate time modification.

(19) JOB COMMAND 12 VELOCITY MODIFY

With this command, the velocity of any bank chosen with
the BANK DIRECTORY on can be increased or decreased.
TOP and LAST measures are set. All the tracks of the
measures between them are modified at the same time.
The VELOCITY MODIFY function can only be called when
the BANK DIRECTORY is on display.

```
VELOCITY MODIFY
MOD:... TOP MEAS:...    LAST MEAS:...
```

(20) JOB COMMAND 13 NOTE LENGTH DEFINE

Use this job command to define the length of the note

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length key (0 ~ ♪). Block values can be set as shown in the following display:

1/1:	1536	1/2:	0768	1/4:	0384
1/8:	0192	1/16:	0096	1/32:	0048

(21) JOB COMMAND 14   BEND DELETE

Use this job command delete the bend data for a specified group of measures. The parameter data can be set as shown in the following display:

```
BEND DELETE
          TOP MEAS:...   LAST MEAS:...
```

(22) JOB COMMAND 15   CONTROL DELETE

Use this job command delete the control data for a specified group of measures. The parameter data can be set as shown in the following display:

```
CTRL DELETE
CTRL:...   TOP MEAS:...   LAST MEAS:...
```

(23) JOB COMMAND 16   EDIT CANCEL

This job command will delete all data entered during an editing session. The display is as shown in the following:

```
SURE? YES(Y)/NO(N)
EDIT CANCEL
```

MOD: The velocity modification number is entered here.
TOP MEAS - Used to specify the first measure to be modified.
LAST MEAS - Used for specifying the last measure to be modified.
The velocity modification number can be from -99 to +99. Use the +/- keys to determine the sign, and the numerical keys to determine the number. With the + (INCREASE) key, a space will be opened in front of the data and the display will look like this: MOD: mm.
With the - (DECREASE) key, a minus sign will appear in front of the data, and the display will look like this: MOD:-mm. The modification number will not be outside of a range of 0 to 127. Once all the spaces have been filled. press the ENTER key to execute the velocity modification.

2-7 TRANSPOSE

The TRANSPOSE is effective to entire performance during the PLAY MODE. When the TRAN is on. entering C -B will carry out UP/DOWN of pitch by half tone.

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```
                        :
                        :
⟨↓B⟩⟨↓B⟩          1 OCTAVE & 1 NOTE DOWN
⟨↓C⟩             1 OCTAVE DOWN
                        :
                        :
⟨↓A⟩             2 NOTES DOWN
⟨↓Bb⟩            1 & HALF NOTE DOWN
⟨↓B⟩             1 NOTE DOWN
⟨C⟩              Return to the original pitch.
⟨C♯⟩             HALF NOTE UP
⟨D⟩              1 NOTE UP
⟨Ed⟩             1 & HALF NOTE UP
⟨E⟩              2 NOTES UP
                        :
                        :                                (CONT.)
⟨C⟩⟨C⟩           1 OCTAVE UP
⟨C♯⟩⟨C♯⟩         1 OCTAVE & HALF NOTE UP
⟨D⟩⟨D⟩           1 OCTAVE & 1 NOTE UP
⟨Eb⟩⟨Eb⟩         1 OCTAVE & 1 & HALF NOTE UP
⟨E⟩⟨E⟩           1 OCTAVE & 2 NOTES UP
                        :
                        :
```

2-8 CLICK

The CLICK is output from the CLICK OUT of the rear
panel and is used for turning on or off the metronome.
Immediately after the RUN key is pressed, the metronome
begins to generate sound from the beginning of the
performance for the ·PLAY MODE and from the beginning of
the third bar for the RECORD MODE . In this case,
ACCENT/NONACCENT are output according to the rhythm
selected.

2-9 EXTERNAL SYNCHRONIZATION

There are two external synchronizations, MIDI SYNC and
TAPE SYNC.

(1) Synchronized Output

Synchronization signals are always available when the
MIDI SYNC/TAPE SYNC are being run under the PLAY/RECORD
MODE. The MIDI SYNC is output from the MIDI OUT 8.

(2) Synchronized Input

Synchronized input is possible when the PLAY MODE is
selected. The operation differs depending on whether
the MIDI SYNC or TAPE SYNC is selected. For the MIDI
SYNC, the RUN/STOP controls are possible through the
main unit or external devices. For the TAPE SYNC, the
controls are possible through the main unit only.