RD-70

Midi Data Filer

QUICK REFERENCE GUIDE

HD VERSION

viscount ®

PROFESSIONAL DIVISION

INSTRUCTIONS PERTAINING TO A RIS OF FIRE ELECTRIC S OC OR IN URY TO PERSONS
IMPORTANT SAFETY INSTRUCTIONS

WARNING: When using electric products, basic precautions should always be fallowed, including the following:

1) Read all instructions before using the product.
2) To reduce risk of injury, close supervision is necessary when product is used near children.
3) Do note this product near water – for example, near a batnub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
4) This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time in high volume level or at a level that is unconfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5) This products should be located away from heat sources such as radiators, heat register, or other products that produce heat.
6) The power supply cord of the instrument should be unplugged from the outlet when left unused for a long period of time.
7) Care should be taken so that objects do not fall and liquids are not spilled into the enclosure of the instrument.
8) The products should be serviced by qualified personnel when:
   a. The power supply cord or the plug has been demaged; or
   b. Objects have fallen, or liquid has been spilled into the product; or
   c. The products has been exposed to rain; or
   d. The products does not appear to operate normally or exibist a marked change in performance; or
   e. The products has been dropped, or the enclosure demaged.
9) Do not attemp to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified personnel.

iscount Professional t an s ou for c oosin t e RD-70

a fe si ple precautions

Never appl e cessive force to t e ec anical parts e s or dis
drive

Do not position t e unit near eat sources or in e cessivel u id or
dust at osp eres

Do not su ect t e unit to stress durin transport or use

W ere possi le do not position t e instru ent near units t at
produce interference li e radio or T appliances etc

Do not for an reason allo o ects or li uids of an ind to
penetrate t e unit s casin

Do not use solvents to clean t e outside of t e instru ent Use a soft
clot da ped it ater

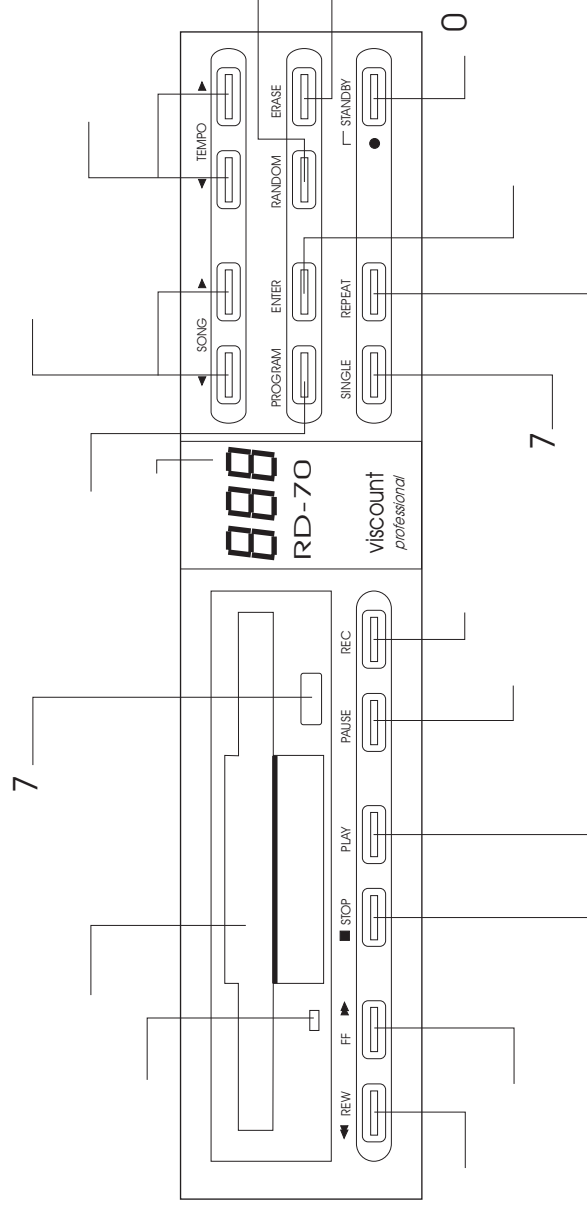Do not tr to re ove t e unit s etal casin Al a s call in an e pert
for repairs

Do not re ove t e flopp -dis fro t e drive unit until t e LED
indicator as one out

Do not e pose flopp dis s to a netic fields a nets
loudspea ers televisions etc or to direct sunli t

Re ularl a e ac -up copies of our data on flopp dis s to
avoid accidental deletion or da a e and su se uent loss of t e
recorded aterial

RD-70 Front Panel

viscount
professional
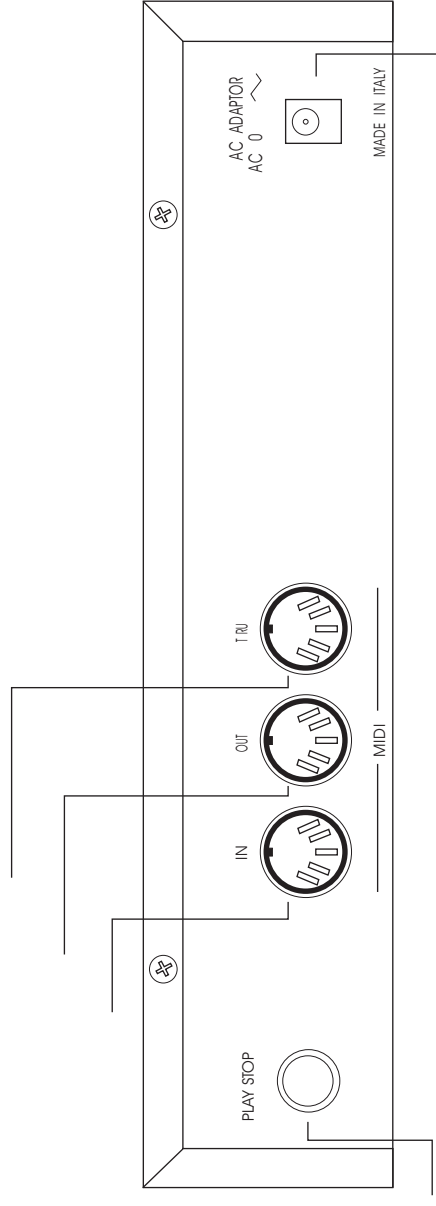
RD-70

1. REW button
Press this button to rewind in order to select a beat.

2. FF button
Press this button to advance in order to select a beat.

3. STOP button
Press this button to stop playback.

4. PLA button
Press this button to start playback.

5. PAUSE button
Press this button to pause on playback.

6. REC button
Press this button to record.

7. SINGLE button
Press this button for single playback.

8. REPT button
Press this button for repeated playback of a song.

9. SET button
Press this button to confirm previous programming.

1 . STANDB   button
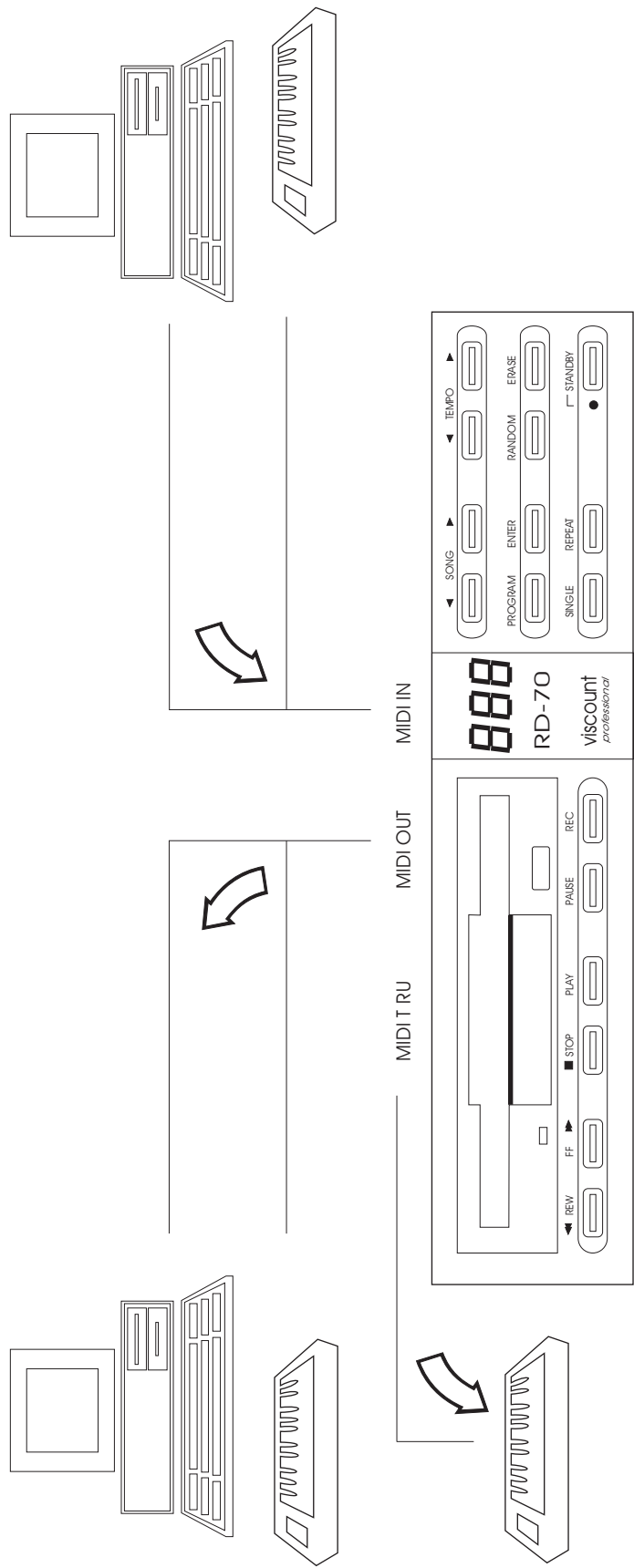Press this button to turn the unit on off.

11. CLEAR button
Press this button to delete programming.

12. RND button
Press this button to playback songs in random order.

13. TEMPO buttons
Press these buttons to set the tempo.

14. SONG buttons
Press these buttons to select the song number.

15. Multi-function display

16. PROG button
Press this button to program a sequence of songs.

17. E ECT button
Press this button to remove the floppy-disk from the drive unit.

18. Floppy-disk drive.

19. Indicator which lights up when the disk drive is operating.

REW   FF   STOP   PLAY   PAUSE   REC

SONG   TEMPO
PROGRAM   ENTER   RANDOM   ERASE
SINGLE   REPEAT   STANDBY

RD-70 Rear Panel

1. PLAY STOP jack
An on off pedal (optional) can be connected to this jack for remote control of PLAY and STOP functions.

2. MIDI IN connector
This connector is for connecting a MIDI data source, such as a keyboard, computer or external sequencer.

3. MIDI OUT connector
This connector is for connecting any device with a data-receiving MIDI interface.

4. MIDI THRU connector
This allows the RD-7 to be used as a bridge for inclusion in a chain of MIDI devices.

5. AC ADAPTOR jack
This is for connecting the AC adaptor supplied.

RD-70 Connections

MIDI THRU   MIDI OUT   MIDI IN

REW   FF   ■ STOP   PLAY   PAUSE   REC

888   RD-70   viscount professional

▼ SONG ▲   ▼ TEMPO ▲
PROGRAM   ENTER   RANDOM   ERASE
SINGLE   REPEAT   STANDBY

The RD-7 can be easily integrated into complex MIDI systems thanks to the MIDI THRU connector, which acts as an output bridge, re-transmitting messages from MIDI IN.

The RD-7 is a MIDIFILE player, which means that it can play back song data from floppy disks and transmit them to a system of MIDI synthesisers or a computer with MIDI interface, connected by means of the MIDI OUT connector. It can also record MIDI data from a computer or external MIDI sequencer, or from a MIDI keyboard connected by means of the MIDI IN connector.
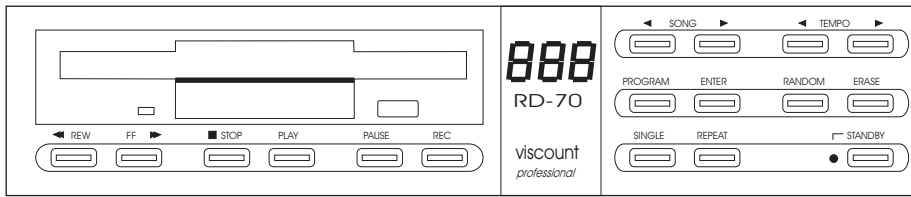
Contents

1

INTRODUCTION

Introduction

1.1 General Functions

The RD-70 can playback and record messages generated by musical instruments equipped with a MIDI interface.

The messages are made permanent by using back-up floppy-disks (3.5", 2DD and 3.5", HD) and storing the data as a standard MIDIFILE.

The RD-70 cannot generate sounds itself, it can only handle MIDI information needed for the sounds to be produced by other instruments (keyboards, expanders, drum-machines, etc.). It must therefore always be connected to these devices by means of the MIDI connectors.

Stored data can be re-transmitted to other MIDI devices in order to automatically reproduce the original performance.

No particular type of MIDI device is needed for either recording or reproduction: the user can choose the instrument that he finds most convenient without any restrictions.

There is no limit to the number of MIDI devices that can be simultaneously controlled by the RD-70.

1.2 Memory

The RD-70 uses the direct-to-disk memory system.

This means that MIDI messages received from external devices connected through MIDI IN are continuously recorded as they arrive on the floppy disk, in the standard MIDIFILE 0 format (see section 1.4).

The RD-70 consequently has a small buffer memory used for momentary storage of incoming messages which are then immediately unloaded onto the physical storage medium, ie. the floppy disk.

This system allows the machine to record continuously for up to 192,000 notes!

Once recording has been completed, the RD-70 is also able to immediately begin song playback through the external devices.

1.3 MIDI Code

The word MIDI is an abbreviation for Musical Instrument Digital Interface.
The MIDI language was originally designed by NASA for scientific purposes, and it is only since 1983 that it has been successfully applied to musical instruments.

It is basically a code which can convert any parameter of real musical performance into a series of messages which can then be transmitted, by means of a special interface and cables, to an external device equipped with a MIDI interface which is able to decode the messages and reconvert them into musical sounds.

The MIDI code is now universally used by all musical instrument manufacturers as it minimizes incompatibility between different brands and models, enabling them to communicate without problems. Communication takes place through a maximum of 16 separate transmit/receive channels (similar in principle to TV channels) allowing for simultaneous control of at least 16 different instrumental parts, each with completely independent pitch, dynamics, volume, etc.

Three types of connection are used for data communication:

MIDI IN: receives messages from an external device which generates them.

MIDI OUT: transmits messages generated by the device on which it is installed.

MIDI THRU: re-transmits messages received at MIDI IN without altering them in any way.
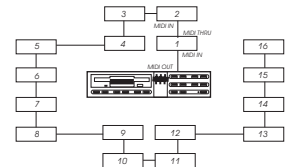
MIDI can separately control up to 16 independent sound sources.

A MIDI connector.

1.4 Standard MIDI File

The Standard MIDI File is an encoding format for MIDI data and is not affected by the type of data contained or the type of sound source. It is basically a way of ensuring compatibility between recordings made by different devices (such as sequencers, computers, etc.).

There are two types of MIDI FILE: 0 and 1.

Format 0 is also known as the single-track format because it stores the MIDI data on a single track containing all of the information about the recorded instrumental parts. The parts are only separated by the MIDI channel through which they are reproduced.

Format 1 is also known as the multi-track format because it maintains the division of the instrumental parts on separate tracks when storing the messages (if division has been used at the recording stage).

2

PLAYBACK

2.1 Preliminary Operations

* Check that the included power supply connector is correctly inserted in the AC Adaptor jack (see rear panel diagram in this manual).

* Check that the power supply plug is firmly inserted in the power socket (220V/AC).

* Connect a MIDI cable (standard 5 pin DIN) from the MIDI OUT connector of the RD-70 to the MIDI IN connector of an external sound source.

5 pin DIN MIDI CABLE

MIDI OUT   MIDI IN

MIDI OUT   MIDI IN

AC ADAPTOR   220V/AC
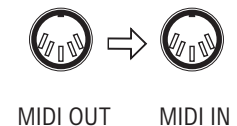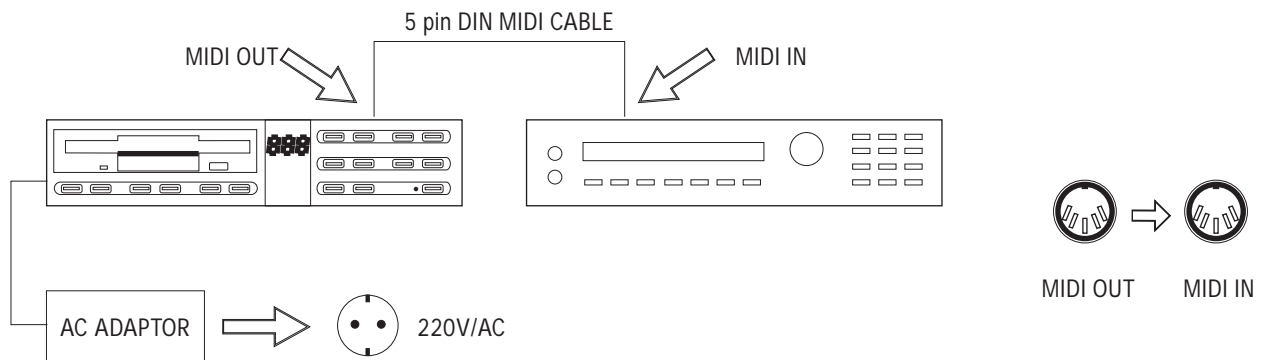
2.2 Playing Back a Song

* Insert the floppy disk containing the song to be played in the disk drive, making sure that it is not upside down or back to front.

* The display will show the number 01, which refers to the first song on the disk.

* If the AUTOPLAY parameter (see 2.8 PLAYBACK) is in the ON position, playback will be performed automatically. Otherwise, press the PLAY button.

* You can pause playback of the song by pressing the PAUSE button.

* You can stop playback and go back to the beginning of the song by pressing STOP.

01

PLAY

PAUSE

STOP
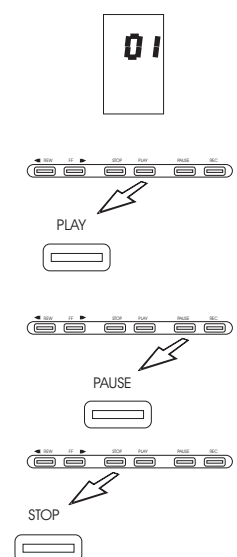
2.3 TEMPO Function

* Press TEMPO < and > simultaneously to display the current tempo

* Press TEMPO < or TEMPO > to change the playback tempo.
*   The change in the tempo value is shown in real time on the display
*   Values from 32 to 250 beat per minute can be selected
*   For a faster tempo change keep the selected TEMPO button pressed down

*   The original tempo value can be easily restored by simultaneously pressing ERASE and the TEMPO < buttons.
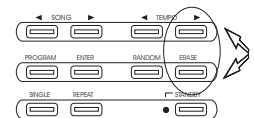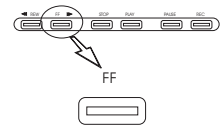
2.4 SONG Number

*   Press SONG < and > simultaneously to display the number of the current song

N.B. This function is automatically actuated when the RD-70 is turned on.

*   To move from one song to another, use the SONG < and > buttons.

*   When a large number of songs are stored on the same disk, you can move more quickly from one number to another by keeping the SONG button indicating the desidered direction of movement pressed down.
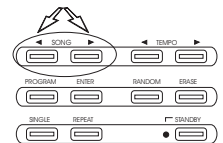
2.5 Fast-Forward and Rewin

* Fast-Forward and rewind the songs as with any normal cassette recorder

* To advance, press FF

* To rewind, press REW

*   The display will show the number of beats flashing during the search operation

*   For faster FF and Rewind operations, hold down the button indicating the desidered direction of movement

*   To directly move to the start of the song, keep the STOP button pressed down then press REW

*   To directly move to the end of the song, keep the STOP button pressed down then press FF. The display show 'End' during the search operation
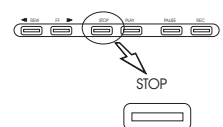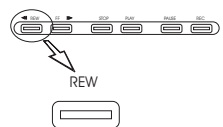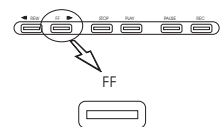
N.B. The functions described in section 2.4 can only be actuated if the RD-70 is in PLAY, PAUSE or STOP mode.

2.6 Beat Number

* The RD-70 features a function for displaying the beat number. This is very useful as it allows the user to see exactly what point of the song is being played. To actuate this function, press FF and REW simultaneously.
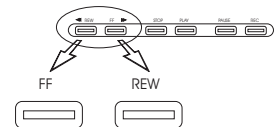
2.7 REPEAT Functions

* The RD-70 can repeat a whole disk, a single song or a specific section of a song

* To repeat a whole disk, simply press REPEAT (the LED under the button will light up) before or after starting palyback. It will be played through to the end of the last song recorded on the disk, then the device will go back to the first song and start all over again.
To exit this funcion press STOP (playback will be stopped) and press REPEAT again (LED under button will go off)

* To repeat a single song, proceed as follows:

1) Press the SINGLE button and REPEAT button (the relative LEDs will light up)
2) Select the desidered song with the SONG < and > buttons and start playback.
The song selected will be repeated until the stop button is pressed.

* To repeat a specific section of a song:

1) Select the song containing the block to be repeated
2) Turn on the single function
3) While olding ENTER, press REPEAT. The relative LED will start to flash slowly.
4) Use the REW and FF buttons to move the start of the block that is to be repeated and press ENTER (the REPEAT button LED will start to Flash quickly).
5) Use the REW and FF buttons to move the end of the block that is to be repeated and press ENTER
6) At this point the block has been defined: The REPEAT button Led will stay on and the playback can be started by pressing PLAY

* It is possible to alternately position the device at the start or the end of the set block. To do this, while holding STOP press REPEAT

* If the AUTOREW function has been actuated (see section 2.10), if the STOP button is pressed during block repeat, the RD-70 will automatically go back to the start of the song being played.

* To delete the block from the divice's memory, stop playback then, while holding ERASE, press repeat
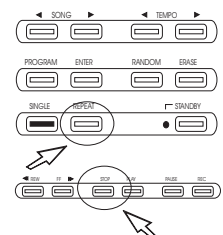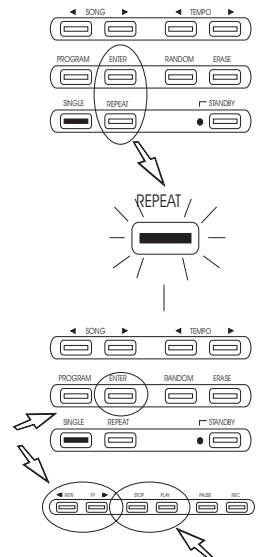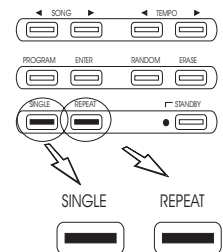
2.8 AUTOPLAY Function

* Playback of the songs can be automatically started immediately after inserting the floppy disk in the drive unit (AUTOPLAY ON) by means of a simple procedure:

1) While holding the ENTER button press PLAY: the current status of the AUTOPLAY function will appear on the display.
2) Press REW or FF to change the status of the function as desired (on/off).
3) Confirm the change by pressing ENTER.

PLAY
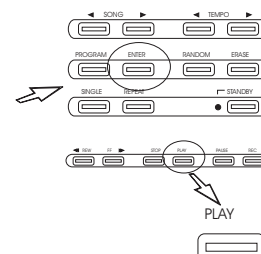
2.9 SINGLE Function

* The way in which the initial parameters (see 3.6 PROGRAMMING) have been set causes the RD-70 to automatically read all of the songs on a floppy disk in sequence, going from first to second and so on to the end. In order to change this, simply select the SINGLE mode.

1) Press the SINGLE button. Actuation of the SINGLE mode will be signalled by the relative LED which will light up.

Once the RD-70 is in SINGLE mode, it will stop after each song.

SINGLE
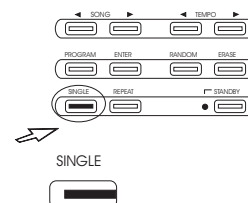
2.10 AUTOREW Function

* The autorewind function allows the STOP button to operate in two different ways:

1) AUTOREW on: when you press STOP, the player will go back to the beginning of the song that has just been played back.

2) AUTOREW off: when you press STOP, the player will stay at the point where playback was stopped.

* By holding ENTER and also pressing STOP, the status of the AUTOREW function will be shown on the display. It can be changed (on/off) using the REW or FF buttons and confirmed with ENTER.

* The AUTOREW off function can be useful when the pedal (optional) is used for START/STOP commands.
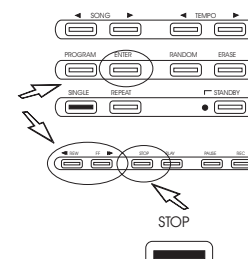
STOP

2.11 START/STOP Pedal Control

* A footswitch with a normally-open contact can be connected up to the appropriate jack (see rear pannel diagram) for remote control of START and STOP functions. In order to avoid serious demage to the equipment, ONLY footswitches of the raccomanded type should be used.

3

PROGRAMMING

3.1 Creating a CHAIN

* The RD-70 can be programmed to automatically playback a series of songs in the order selected by the user (CHAIN).
The procedure is described below:

1) While holding ENTER, press the PROG button (the relative LED will start flashing).
2) Press the SONG < or > buttons to set the number of the song that you want to include.
3) Confirm with ENTER.
4) Repeat points 2) and 3) for each song that you want to program in sequence (max possible number is 99).
5) At the end of selection, press STOP (the PROG LED will remain on, indicating that the programming has been stored in the memory).
6) Press PLAY to start chain playback. The chain can be stopped at any time by pressing STOP or PAUSE.
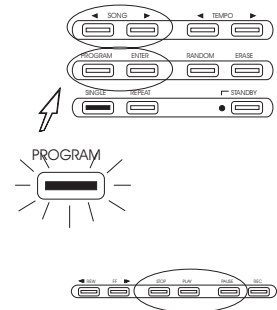
3.2 Deleting a CHAIN

* The chain programming remains stored in the memory even when the unit is turned off.
As subsequent programmings will be added onto previous ones, it is advisable to delete any chain already existing in the memory before programming another.
Check the PROG LED in order to see whether the memory is free - the LED should not be illuminated.
If the LED is on, while holding ERASE press PROG to clear.

N.B. The chain will not be able to work if a floppy disk other than the one containing the songs programmed in the chain is inserted in the drive.

If the chain is called up with the PROG button during normal playback of a song, the chain will begin after the end of the song.
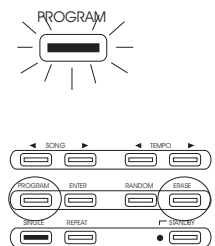
3.3 Random Playback

* It is possible to playback all the songs on a disk, or all the songs included in a chain, in random order.

1) Press RND (the relative LED will light up), then PLAY.

Random playback of the songs on the disk will begin and can be interrupted by pressing STOP.

2) Actuate the PROG function (LED will light up) then follow procedure 1).
Random playback of the programmed songs will begin and can be interrupted by pressing STOP.
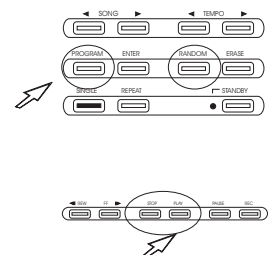
3.4 Programmed Pause

* In chain playback, the RD-70 can also set the interval time between one song and another.

1) While holding ENTER button press also PAUSE.
2) Use the REW and FF buttons to choose the desired interval (in seconds) which will be shown on the display.
3) Confirm with ENTER.
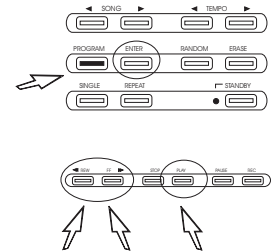
3.5 CHAIN Operations

* In PROGRAM mode (PROG LED on) it is also possible to use the single playback, random order, repeat, and random repeat functions.

* Press PROG then SINGLE to playback the programmed songs one at a time: after playback of the first song, the RD-70 will automatically go on STOP and wait for the go-ahead for playback of the next song - given by pressing PLAY.

* Press PROG then RND for continuous repeated   playback of programmed songs in random order. Press STOP to interrupt.

* Press PROG then RPT for continuous repeated playback of the chain. Press STOP to interrupt.

3.6 General Parameters

* When purchased, the general parameter values determining operation of the RD-70 are as follows:

AUTOREW (')   ON
AUTOPLAY (')   ON
SONG INTERVAL TIME (")   sec
SOFT-THRU ("')   ON
ACTIVE SENSING ("')   ON
MIDI CLOCK SELECT (")   AUTO
MIDI CLOCK OUT ("')   ON
MIDI UPDATE ("')   ON
EXCL. SYSTEM DUMP ("')

3.7 Initialization

*It is possible to restore the original parameter values indicated in section 3.6, clearing any modifications made by the user during programming. Proceed as follows:

1) Turn off the RD-70 by pressing the STANDBY button (LED will light up).
2) While holding ERASE, turn the RD-70 back on with the STANDBY button.

STANDBY

ERASE   STANDBY

4
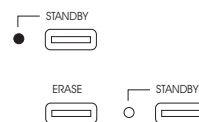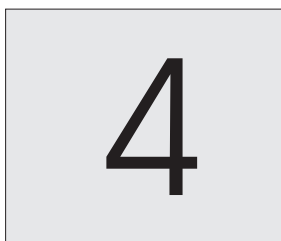
RECORDING

4.1 Preliminary Operations

*Connect a MIDI cable (standard 5 pin DIN) from the MIDI OUT connector of the data source to be recorded to the MIDI IN connector or the RD-70.

*Connect a MIDI cable (standard 5 pin DIN) from the MIDI OUT connector of the RD-70 to the MIDI IN connector of the external sound module (or to the MIDI IN connector of the data source itself if it has a built-in sound source).

MIDI OUT   MIDI IN

MIDI OUT
DATA
SOURCE

MIDI IN
RD-70

MIDI OUT   MIDI IN

5 PIN CABLE   MIDI IN

MIDI IN

MIDI OUT   MIDI IN

MIDI OUT
RD-70

MIDI IN
SOUND MODULE

AC ADAPTOR   220V/AC
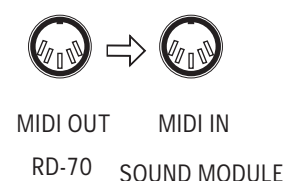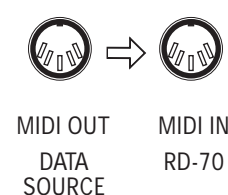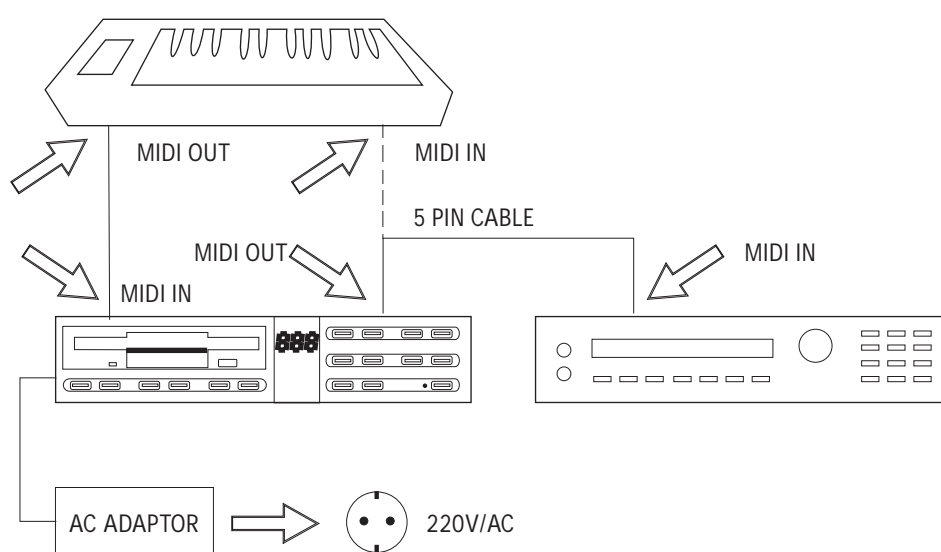
4.2 Recording a Song

*The RD-70 stores MIDI messages with the "direct to disk" recording method. Before starting to record, prepare a floppy disk (3.5", 2DD or 3.5", HD) for use (ie. formatted, with the tab in the upper right hand corner in the closed position) and insert it into the disk drive (see Floppy-Disks 5.2).

*To actuate record mode, while holding the REC button press PAUSE (the relative LEDs will light up). The RD-70 can be set on standby for recording in two different ways:

1) AUTOMATIC METHOD: recording is carried out automatically as soon as a MIDI code is sent to the MIDI IN connector from the connected data source. (see section 6.3 SYNCRONIZATION)

2) MANUAL METHOD: recording is performed manually by pressing again the PAUSE buttons, even if no data has yet been sent by the connected data source.

* Press STOP to stop recording.

REC   PAUSE

REC START

MIDI OUT   MIDI IN
DATA SOURCE   RD-70

PLAY   PAUSE
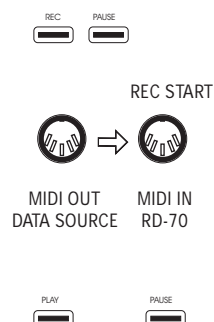
4.3 Storing

* Data storage is carried out completely automatically DURING actual recording. This is the fundamental characteristic of the "direct to disk" read/write system used by the RD-70 which uses the disk directly as the data loading and unloading unit since it does not have buffer memory banks (RAM).

* The RD-70 also organizes the recognition of songs on the disk, assigning automatic progressive numbering to them: each song is identified by a number higher than that of the last song identified on the disk.

4.4 Recording Errors

* As the RD-70 has been designed to essentially read recorded songs, it does not have any specific functions for correcting material stored on the disk. Therefore, if there are performance errors the only way to correct them is by repeating the whole recording procedure after deleting the whole song. See FLOPPY-DISK 5.3 for the delete function.

5

FLOPPY-DISKS

5.1 Disk Format

* The RD-70 uses 3.5" double-sided double-density (2DD) and high density (HD) floppy disks.

* 100% reading compatibility is guaranteed for floppy disks formatted in an MS-DOS enviroment

* As this format can be read by the majority of sequencers and computers avaible on the market, easy access to a huge library of ready-prepared songs is possible.

* If you have a problems reading a song, which is however in standard MIDIFILE format, proceed as follows

1) Prepare a 720 Kb or 1.44 Mb disk for writing (initialization) on a computer which uses the MS-DOS operating system or on the RD-70 itself

2) Store the song in MIDIFILE format (*.MID extension) received from any computer or sequencer with software capable of handling this format (ATARI ST, APPLE MAC II, LC etc. with PC-Utilities., compatible systems MS-DOS, ROLAND MC series with MRM conversion's software, etc.) on the disk .

3) Insert the disk containing the song into the disk drive of the RD-70 and wait

5.2 Initialization

* The RD-70 player is able to prepare blank disks for writing using a MS-DOS format.

* Only use good quality disks in the format allowed.

* To initialize the disks proceed as follows:

1) Close the tab in the upper right hand corner of the disk.

2) Insert the disk into the disk drive while holding ERASE button (the display will ask "Sur" - "Are you sure?")

3) Confirm by pressing REC.

The initialization procedure will be scanned on the display, showing the number of the disk track currently being formatted (from 1 to 80). When initialization has been completed "Nos" ("No song" or "Disk Blank) will be displayed to confirm that the opration has been carried out.
At this point the disk is ready for writing.

* You may need to format a disk that has already been used by the RD-70 or another machine, or that is not blank in any case. Use the same procedure as for a blank disks

5.3 Copying a Song

* To copy a song from one disk to another proceed as follows:

1) In stop position, insert the copy source disk containing the song to be copied into the disk drive (for safety, protect the disk against overwriting by moving the tab in the upper right hand corner to the open position).
2) Select the number of the song to be copied using the SONG < and > buttons.
3) While holding REC, press ENTER (the display will ask "Sur" ("Are you sure?").
4) Press REC to confirm (the display will request "dSt" - "copy destination disk".
5) Remove the copy source disk by pressing EJECT (see front panel diagram) and insert the copy destination disk (with the tab in the upper right hand corner in the closed position).

When the copy has been made the number of the copied song will be displayed.

N.B. If a large amount of data has to be copied, the RD-70 may request the copy source disk a number of times. In this case, the display will request "Src" (copy source disk). The source and destination disks must be inserted one after the other the number of times requested by the machine with the "Src" and "dSt" requests.

5.4 Copying a Whole Disk

* To copy a whole disk onto another , proceed as follows:

1) Insert the copy source disk into the disk drive (for safety, protect the disk against overwriting by moving the tab in the upper right hand corner to the open position).
2) While holding REC, press REPEAT (the display will ask "Sur" ("Are you sure?").
3) Press REC to confirm (the display will request "dSt" - "copy destination disk".
4) Remove the copy source disk by pressing EJECT (see front panel diagram) and insert the copy destination disk (with the tab in the upper right hand corner in the closed position).

The copy will be made in sections and the RD-70 will ask for the copy source disk and then the copy destination disk a number of times. The display will request "dSt" (copy destination disk) every so often, and then "Src" (copy source disk) and the two disks must be swapped as requested.

5.5 Deleting a Song

* To delete a song from the disk, proceed as follows:

1) Select the song to be deleted using the SONG < and > buttons.
2) While holding REC, press ERASE then REC again.

* This operation required the disk enabled for the writing operation.

5.6 Deleting a Whole Disk

* To delete all of the songs on a disk, proceed as follows:

1) Insert the disk to be deleted.
2) While holding PAUSE, press ERASE then REC.

At the end of the operation all the songs on the disk will be deleted.

5.7 The protection of a song

* To enable or disable the protection of an individual song on a disk, against accidental deletion proceed as follows:

1) While holding ERASE also press SONG < .
2) Run through the song numbers until you reach the one that you want to protect and then release the keys (the display will show "Pr" - "protect" preceded by S (Song Protected) or N (No Protected).
3) Change protection status with the REW and FF buttons.
4) Press REC to confirm.
5) Press STOP to exit this function.

5.8 Protecting All Songs

* To protect all of the songs on a disk against accidental deletion all at once, proceed as follows:

1) While holding ERASE, also press FF.
2) The display will show "Run", "operation in progress".

At the end of the operation, all the songs on the disk will be protected.

5.9 Removing Protection from All Songs

* If total protection of all songs (see 5.8) has been performed on a disk, this can be removed as follows:

1) While holding ERASE, also press REW.
2) The display will show "Run" - "operation in progress".

At the end of the operation, protection of all the songs on the disk will have been removed.

5.10 Occupied Disk Space

* To see how much space is occupied by a song on the disk, proceed as follows:

1) Stop the reproduction and select the song with the SONG < and > buttons.
2) While holding ERASE, press the SONG > button.

The display will give the value in KBytes.

5.11 Free Disk Space

* To find out how much space is still available on the disk, proceed as follows:

While holding ERASE, also press RANDOM.

The display will give the value in KBytes.

6

MIDI FUNCTIONS

6.1 MIDI UPDATE Function

* This function enables the RD-70 to correctly resume playback from the middle of a song.

* The function works by intercepting any PROGRAM CHANGES, CONTROL CHANGES, etc. that may have been skipped by starting playback at a later stage of the song.
* If messages of this kind have been skipped, they will immediately be re-transmitted to ensure correct playback pitch and dynamics.
* To turn this function on or off:
1) Press ENTER and FF.
2) Select ON/OFF by pressing REW or FF.
3) Press ENTER to confirm.

6.2 SOFT THRU Function

* The SOFT THRU function transforms the MIDI OUT connector into a MIDI OUT/THRU connector so that, as well as transmitting data generated by the RD-70, it can also re-transmit messages from an external MIDI device received at MIDI IN.

* This function can be extremely useful in certain cases as it allows the RD-70 to be incorporated into complex MIDI systems, while in others it may cause problems as in certain types of connection it can produce "data loops" which create errors in the machine's control of the MIDI code.
For this reason the function can be turned off as follows:

1) While holding ENTER, press SONG < (current status of the function will be displayed - ON/OFF).
2) Change status by pressing FF or REW.
3) Press ENTER to confirm.

6.3 Synchronization

* This function enables the RD-70 to synchronize with any MIDI device capable of receiving/transmitting MIDI CLOCK signals.

* While holding ENTER button press TEMPO < . Now we have four options can be selected with REW and FF buttons:

1) "Aut" (automatic): the RD-70 will normally use its own internal clock, but if it receives MIDI START and MIDI CLOCK messages from an external MIDI device it will automatically synchronize with them.

2) "int" (internal): the RD-70 will only use its own internal clock. External synchronization messages will be ignored.

3) "in" (MIDI): the RD-70 will use only the MIDI CLOCK signal received at the MIDI IN port.

4) "rEt" (remote): the RD-70 will use its own internal clock, but START and STOP can be controlled from an external MIDI device.

* Press ENTER to confirm or STOP to cancel

6.4 TIME BASE Selection

* This function determines the resolution to be used to record incoming MIDI messages.

* The RD-70 TIME BASE is usually set to 96, but a value of 240 can be selected if desired.

* The following table indicates the compatibility of the two values in relation to the resolution of the songs to be recorded: :

RD-70	Other Units
192	24, 48, 96, 192, 384
240	30, 60, 120, 240, 480

* To set the TIME BASE, proceed as follows:

1) While holding ENTER, press REC (the current value will be displayed).
2) Change the value using REW and FF.
3) Press ENTER to confirm.

6.5 ACTIVE SENSING Function

* This MIDI message enables the units forming the system to "sense connection" with one another.

* Although almost all modern instruments can handle these messages, some older ones do not interpret the code correctly: in this case, it is advisable to disable production of this message as follows:

1) While holding ENTER, press SONG > (current status of the function will be displayed - ON/OFF).
2) Change the status by pressing REW or FF.
3) Press ENTER to confirm.

6.6Exclusive System

* The RD-70 can store a set of MIDI exclusive system MIDI messages. The maximum size of the messages is about 890 Kbytes

* The messages, which will contain set-up data for the devices connected, can be stored by the RD-70 and assigned to the SONG < and > and TEMPO < and > buttons.

* We will consequently have four exclusive message strings at our disposal, which can be accessed at any time and easily transmitted to the connected machines

* Proceed as follows :

1) Send the string of data to be stored to the MIDI-IN connector of the RD-70, recording it as though it were a normal song.
2) Select the song that has just been recorded with the song < and > buttons
3) While holding STOP, press ENTER and one of the TEMPO or SONG buttons (where the string is to be stored). The display ask 'Sur' ("Are you sure?").
4) Press REC to confirm .

* If the message "PFL" appears when you try to confirm, it means that you are trying to store too much data.
Reduce the quantity and repeat the oprations.

* Stored data can be transmitted as follows:

1) In stop status, hold the STOP button and press the button where the exclusive system data that you want to transmit has been saved (the display ask 'Sur' , "Are you sure? ")
2) Press REC to confirm or STOP to cancel operation.

* If the 'NPC' ("No PaCket") error is displayed, it means that no data has been assigned to that button

* It is also possible to automatically transmit a Midi Packet every time that the machine is turned on

1) In stop status, hold the ENTER button and press REW.
2) Use the REW and FF buttons to select the storage location where the RD-70 must search for the data to be transmitted considering that:

SONG < is location Pc1
SONG > is location Pc2
TEMPO < is location Pc3
TEMPO > is location Pc4
OFF = automatic transmission function disabled

3) Press ENTER to confirm the function that is to be automatically performed the next time that the RD- 70 is turned on.

* To clear one of the four exclusive system strings from the device's memory, proceed as follows :

1) In stop status, while holding STOP and ERASE, press the button where the string to be deleted is stored
2) The display ask "Sur", "Are you sure?". Press REC to confirm or stop to cancel.

7 MESSAGGES

ERROR MESSAGES

Err Hardware error

HLt CPU halted

Cause of error:
The RD-70 hes detected a fault in its electronic components

Remedy:
Contact the technical assistence centre

dEr Disk error

Ect Eject disk

Cause of error:
The RD-70 has detected errors during disk reading or writing

Remedy:
If the error is displayed as soon as the disk is inserted, it means that the machine is unable to identify it. Check that you have inserted a Midifile disk. If it is a new disk, check that it has been formatted.
If the error is displayed during playback or recording of one or more songs, it means that you are using a disk with demage sectors that cannot be interpreted by a Direct-to-Disk system.
In this case, transfer the contents of the disk onto a new disk using a computer that can handle the MS-DOS data (also see section 5.1 of this manual) .
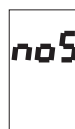
noS No song

Cause of error:
The Floppy-Disk that you have inserted does not contain data.

Remedy:
This error normally appears to confirm that formatting has been performed (blank disk).
If the disk does contain files, they are not of the standard format read by the machine (*.MID extension)

dPr	Disk protected

Cause of error:
You have tried to write or delete data on a protected disk

Remedy:
Close the tab in the top right hand corner of the disk

noP	No Play song

Cause of error:
The song selected cannot be played by the RD-70.

Remedy:
The identification parameters of the song that you have selected are incorrect or have not been updated.
Take the software or instrument used to create the song and transfer the data onto the RD-70 by MIDI .

FEr	Format error

Cause of error:
An error has been detected during the disk formatting procedure.

Remedy:
If the error appears as soon as the disk is inserted, check that it is not protected against overwriting (tab in top right hand corner of floppy disk should be closed)
If the error appears while the tracks are being recorded, it means that the disk that you are using is severely demaged and must be changed.

dFL	Disk full

Cause of error:
The disk that you are using does not have enough space to store any more data.

Remedy:
Insert a new formatted disk or delete files that are no longer needed.
Go back to the beginning of the operation underway when the error appeared

`nod` No Disk

Cause of error:
A disk must be inserted in order to proceed with the operation.

Remedy:
Insert a disk in the drive.
If the error appears when a disk is already in the drive, check that it
has been inserted correctly.

`E9u` Source and destination disk are equal
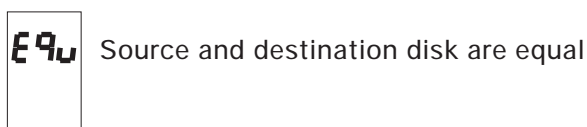
Cause of error:
During the copying operation, the RD-70 has detected that the source disk and
destination disk are identical.

Remedy:
Change the destination disk and repeat the operation.

`bFL` MIDI buffer full   `OuF` MIDI buffer overflow
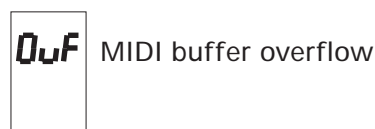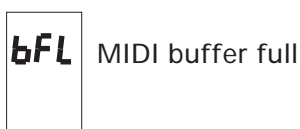
Cause of error:
There is an overflow of incoming MIDI data at the MIDI-IN port of the RD-70.

Remedy:
Reduce the amount of data being sent to the RD-70 or send the messages at a

`nCL` No clock selected
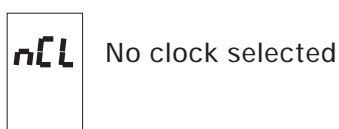
Cause of error:
The internal clock of the RD-70 has been disabled and there is no icoming
MIDI-CLOCK message at the MIDI-IN port.

Remedy:
Check that the MIDI line is efficent and make sure that the machine connected
to the MIDI-IN port of RD-70 is actually transmitting the MIDI-CLOCK
message. Alternatively, reset the RD-70's internal clock (see section 6.3 of
this manual).

PFL Packet overflow

Cause of error:
You have tried to save an exclusive system string that is too large for the machine's storage capacity.

Remedy:
Reduce the size of the string and perform the storage procedure again.

nPc No packet transmitted

Cause of error::
You have tried to transmit the contents of a memory location (MIDI-Packet) that is empty (see section 6.6 of the manual)

Remedy:
Check that you have selected the right memory location.
Repeat the exclusive-string storage procedure if necessary.

OTHER MESSAGGES

Sur   Are you sure?

96   Time base setting at 96 bpm

120   Time base setting at 120 bpm

192   Time base setting 192 bpm

240   Time Base setting at 240 bpm

Pc1   Midi Packet nr. 1 selected

Pc2   Midi Packet nr. 2 selected

Pc3   Midi Packet nr. 3 selected

Pc4   Midi Packet nr. 4 selected

End	End of song reached
Src	Insert source disk
dSt	Insert destination disk
nPr	Song protection off
SPr	Song protection on
Aut	Automatic MIDI Clock slected
int	Internal Clock selected
in	External MIDI Clock selected
rEt	Remote Clock Selected
ECL	External Clock selected

| Run | Unit working |

| Abo | Operation interrupted by user |

QUICK REFERENCE GUIDE

Floppy Disk Operations

Format unused disk	=	Insert disk + ERASE
Format used disk	=	Insert disk + ERASE
Copy selected song	=	REC + ENTER, REC
Copy all songs	=	REC + REPEAT, REC
Display protection status	=	ERASE + SONG <
Select ON/OFF status	=	FF o REW
Store	=	REC
Assign total protection	=	ERASE + FF
Remove total protection	=	ERASE + REW
Occupied disk space	=	ERASE + SONG >
Free disk space	=	ERASE + RANDOM
Delete selected song	=	REC + ERASE, REC
Delete all songs	=	PAUSE + ERASE, REC

Utility Functions

Reset	=	ERASE + STANBY
Display song number	=	SONG < o >
Display total number of songs	=	ERASE + TEMPO >
Display tempo	=	TEMPO < + TEMPO >
Reset original tempo	=	ERASE + TEMPO <
Display beat number	=	REW + FF
Total number of beats in song	=	STOP + FF
Start of song	=	STOP + REW
CHAIN programming	=	ENTER + PROGRAM
Select song for CHAIN	=	SONG < and SONG >
Store CHAIN	=	ENTER
Exit CHAIN programming	=	STOP
Delete CHAIN in memory	=	ERASE + PROGRAM

In SINGLE mode:

Block programming	=	ENTER + REPEAT
Select start of block	=	REW o FF
Store start of block	=	ENTER
Select end of block	=	REW o FF
Store end of block	=	ENTER
Start or end of block	=	STOP + REPEAT
Clear block memory	=	ERASE + REPEAT

Assign file to SONG > button	= STOP + ENTER + SONG >
Assign file to SONG < button	= STOP + ENTER + SONG <
Assign file to TEMPO > button	= STOP + ENTER + TEMPO >
Assign file to TEMPO < button	= STOP + ENTER + TEMPO <
Store	= REC
Select file assigned to SONG >	= STOP + SONG >
Select file assigned to SONG <	= STOP + SONG <
Select file assigned to TEMPO >	= STOP + TEMPO >
Select file assigned to TEMPO <	= STOP + TEMPO <
Confirm	= REC
Delete file assigned to SONG >	= STOP + ERASE + SONG >
Delete file assigned to SONG <	= STOP + ERASE + SONG <
Delete file assigned to TEMPO >	= STOP + ERASE + TEMPO >
Delete file assigned to TEMPO <	= STOP + ERASE + TEMPO <
Confirm	= REC

MIDI Functions

Display current clock mode	= ENTER + TEMPO <
Select clock mode	= REW or FF
Display last clock out value	= ENTER + TEMPO >
Select clock out mode	= REW or FF
Store	= ENTER
Display SOFT THRU status	= ENTER + SONG <
Display ACTIVE SENSING status	= ENTER + SONG >
Display ALL NOTE OFF status	= ENTER + RANDOM
Display TIME BASE value	= ENTER + REC
Display AUTOREW status	= ENTER + STOP
Display AUTOPLAY status	= ENTER + PLAY
Display SONG INTERVAL TIME value	= ENTER + PAUSE
Display excl.syst. control setting	= ENTER + REW
Display MIDI UPDATE status	= ENTER + FF
Select ON/OFF or value	= REW or FF
Store	= ENTER
Prepare to record	= PAUSE + REC
Start recording	= PAUSE
Stop recording	= STOP

LITHIUM BATTERY WARNING

CAUTION! <u>This product contains a lithium battery.</u> There is danger of explosion if battery is incorretly replaced. Replace only with a Maxell CR2032.
Replace only with the correct polarity. Discard used battery according to manufacter's instruction's.
ADVARSEL! Lithiumbatteri – Eksplosjonsfare. Vade utksifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.
ADVARSEL! Lithiumbatteri - Eksplosjonsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri av samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.
VAROITUS! Paristo voi räfähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppin. Hävitä käytetty paristovalmistajan ohjeiden mukaisesti.
WARNING! Explosionsfar vid felaktigt batteribyte. Anväd samma batterityp eller en ekvivalent typ som rekommendars av apparatillverkaren. Kassera använt batteri enlight fabrikantens istructions.

The information contained in this manual is subject to change at any time without notification. Some information contained in this manual may also be inaccurate due to undocumented changes in the product or operating system since this version of the manual was completed. The information contained in this version of the owner's manual supercedes all previous version.

FCC RULES

NOTE: This equipment has been tested and found to comply with the limits for a **Class B** digital Device, persuant to Part 15 if the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio comunications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determinated by turning the equipment off and on, the user is encuraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced Radio/Tv technician for help.

The user is cautioned that any changes or modification not expressly approved by the party responsable for compliance could void the user's authority opearate the equipment.