



QUICK DISK DRIVE



DPQ-280

*Scanned and converted by HansO, 2001
Original supplied by Sander van Nunen, msxorg*

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1. Name and Function of Unit

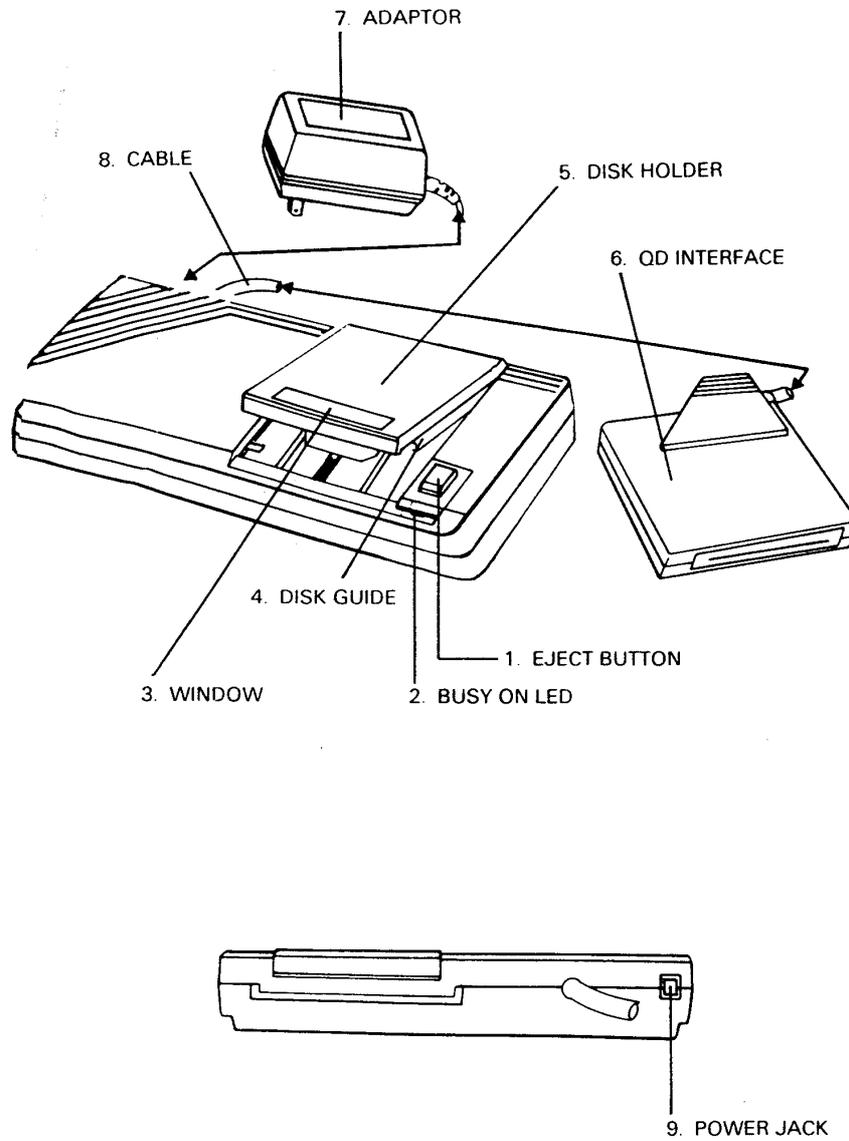


Fig. 1-1. System Unit

1. **EJECT BUTTON**
Press the button to open the disk holder.
If so, a disk will be able to be inserted or removed.
2. **BUSY ON LED.**
When transmitting data between computer and QD, the LED will be on.
If so, the operational conditions of QD will be able to be confirmed.
3. **WINDOW**
You can read the label on the disk through this window which is transparent.
4. **DISK GUIDE**
At any time when you insert or remove a disk, make sure to use the disk guide.
Improper insert could cause the disk holder not to be closed, furthermore, disk may be damaged.
5. **DISK HOLDER**
This part helps the disk to be properly fixed.
6. **QD INTERFACE**
It is the interface which connects the QD with the MSX computer.
7. **ADAPTOR**
It is a device which supplies the DC electric power to the QD.
In addition, to prevent the QD damages and mal-function from using the improper adaptor, the optional adaptor is recommended.
8. **CABLE**
It is the cable which connects the interface with QD.
9. **POWER JACK.**
The power jack, which is designed for receiving the DC electric power from the adaptor, includes two polarity like figure 1-2.
So be careful of the polarity.

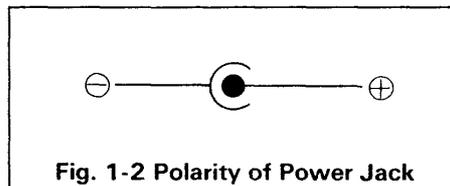


Fig. 1-2 Polarity of Power Jack

2. Connection Configuration

DPO-280 (or DPO-380) should be connected to MSX computer. (Refer to the figure 2-1).

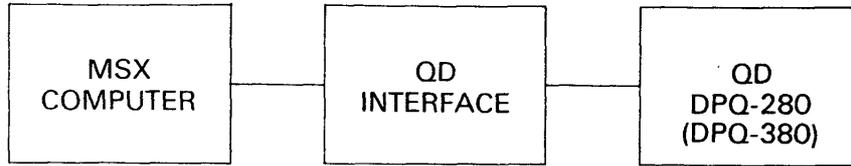


Fig. 2-1. Connection Configuration of QD

3. Head cleaning

Regularly clean the head surface to remove foreign substance.

If you use too dirty head without cleaning, the machine occasionally does not work properly.

① Open the disk holder by pressing the eject button.

② The head is seen deeply inside the center shaft.

Rub the head surface with cotton tips, soaked in the head cleaning liquid.
(the same way with that of cleaning tape recorder)

- Note:**
1. Absolutely avoid using other materials except the cotton-tips for cleaning.
 2. Purchase the cotton-tips and head cleaning liquid in a general or special service agency.
 3. You can easily get the cotton-tips in the drugstores.

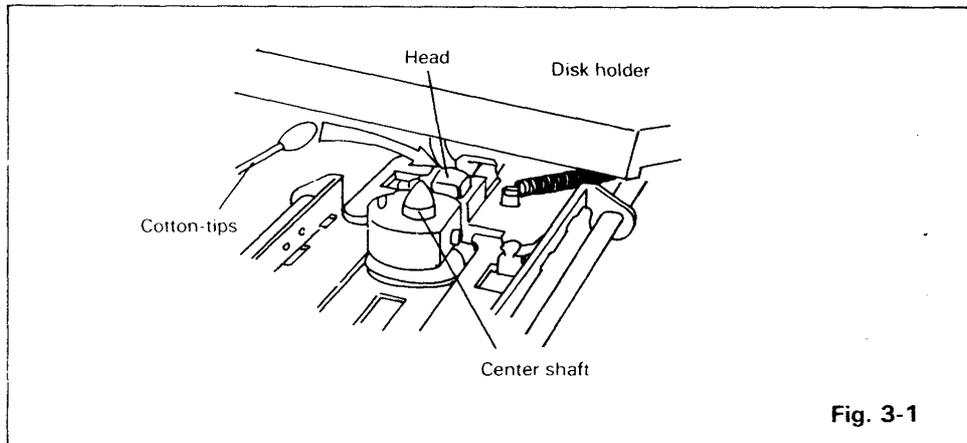
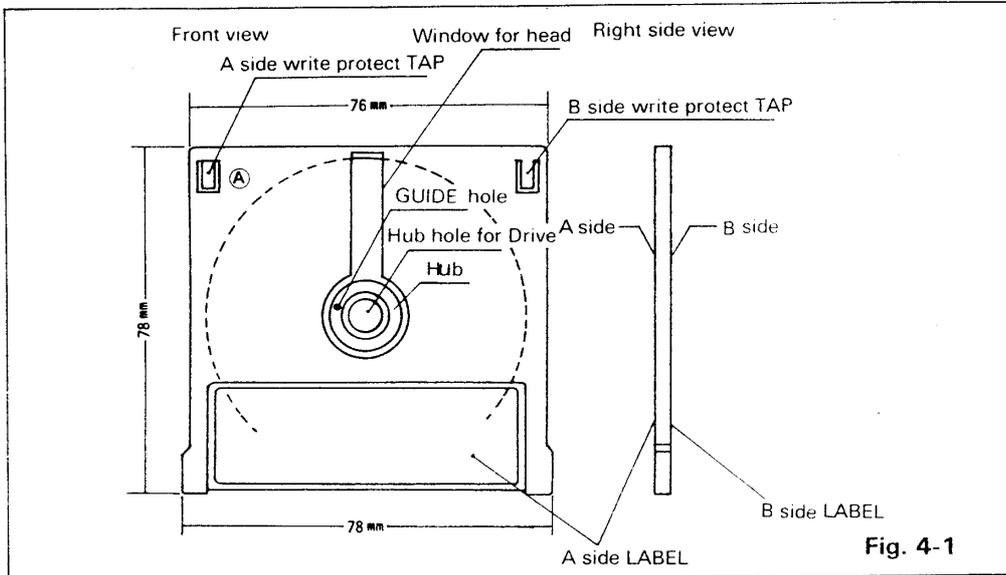


Fig. 3-1

4. DISK

4-1. Disk.

Quick Disk, available for 2.8" two-sided record, is used as DPQ-280 record media. It consists of magnetic sheet and hard case, its external appearance would look like Figure 4-1.



① Hub Hole for Drive

By setting the disk to the Disk Drive, the pivot of drive is fixed in this hub hole and guide pin is also fixed in the guide hole. As the result of it, the main body of disk will go around.

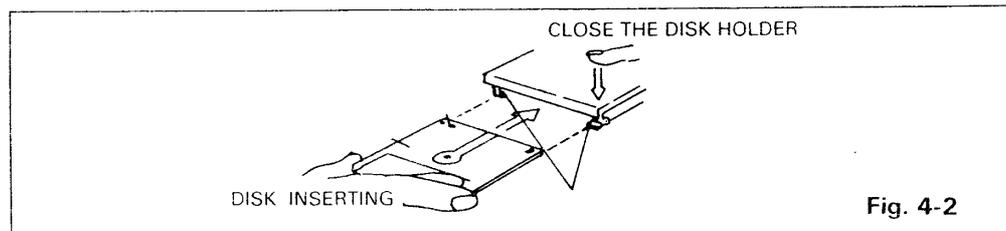
② Window for head

The functions of READ/WRITE are executed when the head for READ/WRITE touches the disk through this window.

Note: Make sure not to touch the magnetic sheet with hands.

4-2. Disk Inserting holder

Take a moment to read the precautions attached to the disk holder.



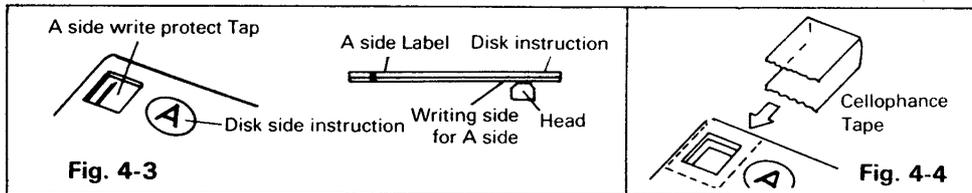
- (1) Open the disk holder by pressing the eject button.
- (2) Insert the disk with the window for head for wards according to the disk guide.
(Insert the disk, holding the both ends of disk with the thumb and the forefinger, as shown in the figure 4-2.)
Disk can be used for both A and B sides. All the user have to do is to insert it according to the disk instructions or labels.
- (3) Insert the disk gently until it is completely located in the disk drive. Then close the disk holder.
Avoid inserting the disk under the disk guide or closing the disk holder on inserting.
This may cause the disk damages or mal-function of READ/WRITE.

4-3. Write protecting tap.

It is a tap for protecting the contents of written disk from mistakes or carelessness.
If this tap is removed, the function of WRITE (SAVE) stops, just the function of READ works.

Disk is conveniently equipped with two taps for A and B sides, respectively.

Make sure the instruction on the disk surface indicates the opposite side to be written. (If you remove the tap on the left side of the instruction on the disk surface, the function of WRITE stops on the opposite side that is the written side.)



As you want to re-write the disk from which the WRITE protect tap was removed, attach the self-adhesive (cellophane) tape to the both ends of tap.

4-4. Precautions for disk handling

1. As you use the disk, abide by the precautions written on the disk carton.
2. When a disk is not used, keep the disk standing vertically after putting it in the disk carton.
Make sure not to bend the disk by keeping it lean.
3. Do not bend the disk.
The functions of READ/WRITE may not work if it is bent.
4. As you write on the label, write before attaching it to the disk.
In the case of writing on the attached label, avoid using sharp ended pencils or ball-point pens.
Use sign-pens with soft ends.
5. Keep it in mind not to place magnet near the disk. If you put the magnetic objects near the disk, the written data or programs can be destroyed.

5. QD Commands

QD commands contain the following symbols.

1. The user can omit the part symbolized with [].
2. The contents inside < > is indicated by a user.
3. In the case of using the latter term only in [, < the former term >] [< the latter term >], The comma ' , ' in the first [] should be indicated.
4. The symbol : ' () ' or ' " ' should be used in the indicated place.
5. The symbol ' | ' indicates to choose the left side or the right side.
6. [n] of QD [n] used in each command indicates the connected QD Drive number. (You may omit the [n] or QD[n] if you connect the one with computer. (n=0) Maximum Number of n is 7.)
7. "—" (Underscore) on the computer key board can be used as the CALL key.

5-1. QDFORMAT

Function : It executes the FORMAT of Disk
Type : CALL QDFORMAT [("QD[n]:")]
Example : CALL QDFORMAT or —QDFORMAT
Explanation : To use the disk for QD-BASIC, first of all, a user should write the data on the disk with a certain rule.
Then a user can write a file on the disk and read data from a file by using QD-BASIC. At this moment a user can identify the location of the necessary file on the disk, because the information is supplied by the data written when formatting.
It is the FORMAT of disk that the data is in advance written on the disk according to the given form.
The FORMAT of disk is used for using a new file or removing all the files on the disk.

Now it will be explained how to execute the FORMAT of disk.

1. After entering CALL QDFORMAT (-QDFORMAT), Press the **RETURN** key and then the following sentence will appear on the screen.
Are you sure ? (Y/N)
2. If you want FORMAT at this time, press Y key and then the screen shows the sentence,
Now formatting.
3. If the format of disk is finished, the following sentence appears.
Complete
Ok
And then the format of disk is finished.
4. If you do not want FORMAT, type N and then the screen shows the following sentence.
Canceled
Ok
And at the same time, QD-BASIC is returned to MSX-BASIC.

Now execute the FORMAT of QD by yourself. The screen appears with the following order.

```
CALL QDFORMAT  
ARE YOU SURE(Y/N)Y  
NOW FORMATTING  
COMPLETE  
OK
```

```
RUN LOAD BLOA list run
```

In case of cancelling format, the following screen appears

```
CALL QDFORMAT  
ARE YOU SURE(Y/N)N  
CANCELED  
OK
```

```
RUN LOAD BLOA list run
```

5-2. SAVE

Function : To write the program stored in the computer memory into the QD file.
Type : CALL SAVE ("[QD[n]:] < file name > ")
CALL SAVE ("[QD[n]:] < file name > ", A)
Example : CALL SAVE ("QD0 : TEST 1") or CALL SAVE ("TEST 1")
CALL SAVE ("QD0 : TEST 1", A) or CALL SAVE ("TEST1", A)

SAVE and ASCII SAVE :

After the file name is indicated, the program is written in this file. If the indicated file name has already existed on the disk, it is perceived as Error (Device I/O error)

If the Option A is specified, the program is written with the ASCII type.

If the option is not specified, the program is written with condensed form according to the internal logic. ASCII SAVE needs more file spaces than the condensed form. But in the case of operating the saved program file or data file again, ASCII SAVE file is only available.

So carefully use SAVE or ASCII SAVE in the proper case.

For example, if you want to merge Program A and B, choose ASCII SAVE.

However a data file is automatically saved by ASCII type. So all the users have to do is to use either SAVE or ASCII SAVE in the program file only.

Note ; In case of using SAVE for cassette file, CSAVE is suitable for the internal logic, whereas SAVE for the ASCII type.
But make sure SAVE ("file name") takes the internal logic, and SAVE ("file name", A) does ASCII type as options respectively.

How to execute SAVE :

Now by preparing simple program which consists of four statements, how to save on QD will be demonstrated.

[Program example 1]

```
10 REM "SAVE DEMO"  
20 A$="QUICK DISK DRIVE DPQ-280"  
30 PRINT A$  
40 END
```

```
RUN LOAD BLOA list run
```

Let's decide the file name as "SAVE 1".

CALL SAVE ("SAVE 1")

After you enter the above-mentioned statement, press **RETURN** key, then the indicator of BUSY ON LED will be lit and QD saves the [Program example 1] as the file name "SAVE 1". After you save "SAVE 1", it is confirmed whether the recording was correct through the verification of "SAVE 1", and then, if it is correct, sentence Ok will be shown on the screen.

If the program is not saved correctly, the sentence "Unprintable error" will appear on the screen. If it is impossible to save program, Device I/O error will appear on the screen.

If you want to save [program example 1] with ASCII, take the following instance.

Let's decide the file name as "SAVE 2".

CALL SAVE ("SAVE 2", A)

After you enter the sentence, press **RETURN** key, ASCII SAVE of [program example 1] will be executed.

File type of QD : a file name can designate the file type. The following usages are examples.

CALL SAVE ("file name. BAS") : indicate the file written in BASIC

CALL SAVE ("file name. DAT") : indicate the file consisted of DATA.

Here, BAS or DAT declares the type, and a user can use it according to his own purpose.

A user can use the maximum three letters for each type.

Also a user can use the maximum eight letters for a file name. Do not place digits or spaces at the first character of file name. If the file name exceeds eight letters, the file name takes only first eight letters, and next three letters is automatically assigned as the file type.

If the file name has 14 letters like "ABCDEFGHJKLMN", the file name would be the following and LMN will be ignored.

<u>"ABCDEFGH,</u>	<u>IJK"</u>
file name	Type

There is no difference to write file name with capital or small letters in Alphabet. When a file name is written on the file, it is automatically converted

- | |
|--|
| <p>Note: 1. To save too long program file or data file with ASCII type, the process is divided into many pieces. Therefore it takes longer time than the SAVE does.</p> <p>2. In the case of placing space or Arabian figure on the head of file name, it will be treated as error like "Bad file name"</p> |
|--|

5-3. LOAD

- Function : Transfer the contents of program file into the computer memory.
- Type : CALL LOAD ("[QD [n]:] < file name >" [, R])
- Example : CALL LOAD ("SAVE 1") or - LOAD ("SAVE 1")
CALL LOAD ("SAVE 1", R) or - LOAD ("SAVE 1", R)
- Explanation : LOAD command has the function to load the contents of program file indicated into the computer memory. If this command is executed, the program or data that have been already placed on the computer memory will be eliminated. The file which you want to load can be used according to the above mentioned type, disregarding the fact that whether it is saved by SAVE on ASCII SAVE. Now, LOAD command will be executed. Because, in the preceding example, [program 1] was recorded as "SAVE 1", "SAVE 2", A respectively, to load the program, first of all, clear the screen,

```
CALL LOAD ("SAVE 1")
```

and enter the sentence by pressing **RETURN** key, then the BUSY ON LED will be lit and "SAVE 1" will be loaded.

If LOAD is finished, OK will appear on the screen. If LOAD is failed, it will be counted as error (refer to Error message). "SAVE 2" saved by ASCII SAVE can be loaded in the same ways. If you want to execute the loaded program automatically, execute the following command,

```
CALL LOAD ("SAVE 1", R)
```

Then the result of executing [program 1] would look like this.

```
CALL LOAD("SAVE1",R)
QUICK DISK DRIVE DPQ-280
OK
```

```
RUN LOAD BLOA list run
```

Note: When loading the program file recorded by ASCII SAVE, the loading process will be repeated as many as separated pieces, so it takes longer time than the file recorded by SAVE.

5-4. QDFILES

- Function** : It shows the written files on the disk and the size of each file.
- Type** : CALL QDFILES [{"QD[n]:"}] or
— QDFILES [{"QD[n}:"}]
- Example** : CALL QDFILES or __QDFILES
- Explanation** : It is used when printing the file name, types, size and so on which are recorded in the disk on the screen.
Now the disk contains two files such as "SAVE 1" and "SAVE 2". Let's write these files on the monitor.
The command about CALL QDFILES can be divided into two as follows.

After entering CALL QDFILES, press **RETURN** key and then the file on the disk will appear like this. In this case, you can also enter it by using FUNCTION KEY (F10).

```
CALL QDFILES
      NAME      ATR SIZE
("QD0:SAVE1    "`02 0046
("QD0:SAVE2    "`03 0400
OK

RUN  LOAD  BLOA  list  run
```

Here we have encountered Atr and Size which have not been explained yet. For Atr, "0 2" indicates BASIC program, and "0 3" indicates that the program is saved by ASCII SAVE. Except "0 2" or "0 3", there are "0 1" and "0 B" which will be explained later, (Atr ... Attribute). Size indicates the size of file, or the length of program or data. By adding all the sizes of files on the disk, total length of the files recorded will be calculated. Then you can count the remaining capacity of disk for future use.
Remaining capacity on disk = 64K byte (total sum of file size)
QD can record maximum 20 files. So users cannot record more than 21 even though the capacity of Disk is left. So when users want to record the 21th file, one must use a new Disk.

5-5. QDKILL

Function : It eliminates the last file on the disk.
Type : CALL QDKILL ("QD [n:] < file name >") or
_QDKILL ("QD[n:] < file name >")
Example : CALL QDKILL ("SAVE 2") or _QDKILL ("SAVE 2")
Explanation : It is used to eliminate the last file on the disk.
The file recorded in the first or middle part of disk cannot be eliminated by QDKILL command. File name "SAVE 2" can be eliminated as follows.
CALL QDKILL ("SAVE 2")

After entering the command, press the **RETURN** key, and then execute the QDKILL. If it is finished, type OK and returned to MSX-BASIC. If you write the file name placed in the head or middle part of disk, it will be considered as error. Using this command, the following message will appear on screen.

```
CALL QDKILL ("SAVE1")
ILLEGAL FUNCTION CALL
OK

RUN LOAD BLOA list run
```

5-6. RUN

Function : It executes the program after that you loaded the file indicated into the computer memory from QD.

Type : CALL RUN ("[QD[n]:] < file name > ")

Example : CALL RUN ("SAVE 1") or _RUN ("SAVE 1")

Explanation : After loading the program file from the disk to computer memory, it does automatically run with this command. After you enter the command,

```
CALL RUN ("SAVE 1")
```

press **RETURN** key, and then QD works, after a moment, the result of running "SAVE 1" appears as follows.

```
CALL RUN("SAVE1")
QUICK DISK DRIVE DPQ-280
OK
```

```
RUN  LOAD  BLOA  list  run
```

5-7. MERGE

Function : It merges ASCII file Program into the program on the memory.
Type : CALL MERGE ("[QD[n]:] < file name >")
Example : CALL MERGE ("SAVE 2") OR —MERGE ("SAVE 2")
Explanation : It is the merge that you move the program or data of the given file to the memory without eliminating the current program or data in the computer memory. In this case the file recorded in QD should be the file saved by ASCII type.

If the program or data in the file has the same statement number with that of programs and data in the memory, the contents of the statement number in the memory is changed into those in the file.

The following simple program is prepared to explain the process of MERGE.

[Program exercise 2]

```
100 REM"MERGE DEMO"  
110 B$="MERGE PROGRAM"  
120 PRINT B$  
130 END
```

Let's merge "SAVE 2" [program exercise 2]. After you enter the command, CALL MERGE ("SAVE 2"), press RETURN key and then QD executes the function of MERGE. If OK appears, the operation has completed. Type "list", then you will see that the following two programs are merged.

```
10 REM"SAVE DEMO"  
20 A$="QUICK DISK DRIVE DPQ-280"  
30 PRINT A$  
40 END  
100 REM"MERGE DEMO"  
110 B$="MERGE PROGRAM"  
120 PRINT B$  
130 END
```

```
RUN LOAD BLOA list run
```

After omitting the line number 40, execute this program. Then the following result appears.

```
QUICK DISK DRIVE DPQ-280
MERGE PROGRAM
OK

RUN LOAD BLOA list run
```

5-8. BSAVE

- Function : It saves machine language program
- Type : CALL BSAVE ("[QD[n]:] <file name > ", < start address > ,
< end address > [, < executing address >])
CALL BSAVE ["[QD [n]:] <file name>", <start address> ,
< end address > [, < executing address >] [,s])
- Example : CALL BSAVE ("TEST", 0, &H3FFF)
CALL BSAVE ("TEST", 0, &H3FFF, S)
- Explanation : BSAVE is used to save the prepared in machine language program
There are two kinds of files, binary program/data file and screen data file.
In case of binary program file, Atr is "01".
Whereas in the case of screen data file, Atr is "0B".
If it is a screen data file, "S" must be added at the last part as shown
above in the second type.
Screen data file is used for saving figures, digits or characters on the screen.
If you want to write the machine language program by yourself, the
machine language program should be made using MONITOR MODE or
POKE Command.
Thus, it is recommended, execute BSAVE using the program already pre-
pared in machine language.

5-9. BLOAD

Function : It loads the machine language program
Type : CALL BLOAD ("[QD[n]:] <file name>")
CALL BLOAD ("[QD[n]:] <file name>" [RIS][, OFFSET])
Example : CALL BLOAD ("TEST", R)
CALL BLOAD ("TEST", S)
Explanation : The program is loaded from the < start address > given when it was saved.
If you use option [,S], the program is loaded within the given area of VRAM and screen mode is unchanged, and if [, OFFSET] is omitted, the program is loaded from the <start address> , which is given when the machine language program has been BSAVED.
The program written in machine language cannot be listed by "LIST" command . Only RUN of program is possible.

5-10. OPEN

Function : It opens file for data handling.
Type : OPEN "QD[n]: <file name>" "FOR<MODE> AS [#] <file number>
Example : OPEN "QD : SAVE 4"
<MODE> INPUT
It is used when contents of the file in the QD are entered one after another.
OUTPUT
It is used when the program in the memory is written into the QD one after another..
<File Number> MAXFILES = 1~15, file number should be less than or equal to the number of MAXFILES.

Explanation : Sequential file manipulation for QD uses two types as shown below.
1. When writing data.
OPEN of file → writing of Data → CLOSE of file.
2. When reading data.
OPEN of file → reading of Data → CLOSE of file.

Let's examine the following example.

```
10 OPEN"QD:TEST.DAT" FOR OUTPUT AS#1
20 READ A$
30 PRINT #1,A$
40 CLOSE #1
50 END
60 DATA MSX
```

In the above example, "OPEN" command used in the statement number 10 is the command to open the file.

```

10 OPEN "QD : TEST. DAT" FOR OUTPUT AS # 1
name of device | file name | Type | MODE | file number

```

Opening a file means that a file with a certain file name is made on a certain device. In the above example, it is shown that the file with the name of TEST and type of DAT is opened.

In case of writing data, OUTPUT must be indicated, and in case of reading data, INPUT MODE is used to indicate the purpose of opening file.

The command of PRINT # in the statement number 30 is the command to write data into the file.

PRINT # file number, format string or variable

```

30 print #1, A$
file number | format string or variable

```

The string of A\$ is written as data in the file by this statement. Here string of "MSX", corresponding to the variable A\$, is written as data.

The file number is the number indicated when OPEN command is executed.

The CLOSE command in the statement number 40 is to close the file after entering data.

CLOSE # file number

```

40 CLOSE # 1
file number

```

If the file number given by OPEN command is indicated by CLOSE command, this file is closed. With this process, recording data on the data file "TEST. DAT" is completed.

This command is used with commands below.

```

PRINT #
PRINT # USING
INPUT #
INPUT $
LINE INPUT #

```

* Refer to the MSX BASIC reference manual for these commands.

5-11. CLOSE

Function : It closes the data file.

Type : CLOSE [[#] <file number>]

Example : CLOSE # 1

<file number> MAXFILES = 1~15, file number should be less than or equal to the number of MAXFILES.

Explanation : It closes the corresponding file. If a file is closed, input/output for this file is not performed until it is reopened. Because, when a file is opened for output, the remaining data in the buffer come out, the CLOSE statement should be executed to finish output processing for sure.

5-12. CASQD.

Function : It transfers the file from data recorder to QD.
Type : CALL CASQD [(" [CAS:] < file name > ") [, "[QD[n]:] [< file name >]"]]
Example : CALL CASQD.
Explanation : After connecting the cassette and QD to the computer, CASQD is used for transtering. The program file from cassette to QD as well as Date file.

CALL CASQD

After entering the command, press **RETURN** key and then the file in cassette is transfered to QD. At this time the file name written on the disk is the same as that in cassette. If you want to change the file name, enter a new name according to the above instructions.

If you want to save the file "GRAPH" to QD as "GRAPH 1", execute as follows. Keep it in mind that operation is nothing to do with the type of file.

CALL CASQD ("CAS : GRAPH", "QD: GRAPH1")

After entering the command, press the **RETURN** key and then the cassette starts loading "GRAPH". When it finds "GRAPH",

FOUND : GRAPH

the following message is sent after loading "GRAPH", "GRAPH 1" is saved on QD.

```
CALL CASQD("CAS:GRAPH,"QD:GRAPH1")
FOUND:GRAPH
OK
```

```
RUN LOAD BLOA list run
```

5-13. QDKEY

Function : It changes the contents of FUNCTION KEY.
 Type : CALL QDKEY (n)
 Example : CALL QDKEY (n)
 Explanation : When turning on the power in state that the QD is connected, the contents of FUNCTION KEYS are defined as the following values

F1	F2	F3	F4	F5
RUN	LOAD	BLOAD	LIST	RUN
COLOR 15, 4, 7	QDKEY	SAVE ("QD:	BSAVE ("QD:	QDFILES
F6	F7	F8	F9	F10

In case of-QDKEY [o], returns to the following state:

F1	F2	F3	F4	F5
COLOR	AUTO	GOTO	LIST	RUN
COLOR 15, 4, 7	QDKEY	CONT	LIST	RUN
F6	F7	F8	F9	F10

So far, we enter the commands one by one. However using the above mentioned FUNCTION KEY, one can complete the QD commands by adding file names.

Example) press F1, _RUN appears on the screen.
 To run "SAVE 1", just press **RETURN** key by adding file names.

RUN ("SAVE 1")
 F1 the file name indicated by the user.

FUNCTION KEY can be changed by the following commands. For example, to change F1 into_QDKILL, execute the following.

KEY 1, "--QDKILL"
 Number of Contents of FUNCTION KEY
 FUNCTION KEY
 (It is available from one to ten)

If you press F1 key, "--QDKILL" appears on the screen.

6. Error Messages

FILE NOT FOUND

It occurs when the file indicated with commands such as LOAD, QDKILL and OPEN does not exist in the disk.

FILE ALREADY OPEN

It occurs when the file is not closed.
After entering CLOSE, press the RETURN key, and then QD works and the file is closed.

BAD FILE NAME

It occurs when a user uses the file name of which the first letter is a number or a space.
At this time, the file name is indicated by LOAD, SAVE, QDKILL or OPEN command.

DIRECT STATEMENT IN FILE

It occurs when LOAD the ASC II data file is commanded. This type of file should be read in INPUT mode after OPEN.

FILE NOT OPEN

It occurs when the input/output is indicated for the file for which the OPEN command is not executed.
In this case, the file name should be modified to OPEN statement that can be executed.

DEVICE I/O ERROR

1. It may occur when a user uses the unformatted disk. In this case the disk should be used after FORMAT.
2. It may occur when a user try to SAVE a file when the same file name exists on the disk. In this case the file name should be changed.
3. It may occur when a user try to SAVE files more than 20 on a disk. Files from 21st should be saved on a new disk.

7. Miscellany

1. Place this machine on horizontal place.
2. Avoid the direct rays and don't place near the Heating Goods like electric heater.
3. Don't use it at the place where the temperature is too high (over 30°C) or too low (under 10°C), or the Variation is severe.
4. Don't use it at high humidity (over 60% RH) place or dusty place.
5. AC Power sources of Adaptor should be used away from the equipment (super motor etc.) that generates the noises.

8. Specifications

Storage capacity	One side 64K Byte (2 SIDE 128 K Byte)
Read/Write time	64K/8 sec
Transmitting speed	1 01K [BPS]
Recoding density	4410 [BPI]
Track density	59 [TPI]
Number of Track	1 (spiral)
Recoding System	MFM
Disk rotation speed	423 [RPM]
Power consuming	DC 8V, 450mA
Disk	2.8 Inch
Number of Head	1
Measure	267×137×50 (m/m)