Hard Drive: FUJITSU: M2227D2 43MB 3.5"/HH MFM ST506

M 2 2 2 7 D 2 FUJITSU
NO MORE PRODUCED

			Native	Translation	
Form	3.5"/HH	Cylinders	615		
Capacity form/unform	43/ 51 MB	Heads	8		
Seek time / track	35.0/ 8.0 ms	Sector/track	17		
Controller	MFM / ST506	Precompensation	65535		
Cache/Buffer	KB	Landing Zone	614		
Data transfer rate	0.625 MB/S int	Bytes/Sector	512		
	0.625 MB/S ext				
Recording method	MFM		operating	non-operating	
Supply voltage	5/12 V	Temperature *C	5 45	-40 60	
Power: sleep	W	Humidity %	20 80	5 95	
standby	W	Altitude km	3.000	12.000	
idle	W	Shock g	3	40	
seek	7.5 W	Rotation RPM	3600		
read/write	W	Acoustic dBA	43		
spin-up	W	ECC Bit			
		MTBF h	30000		
		Warranty Month			
Lift/Lock/Park	NO	Certificates			

Layout

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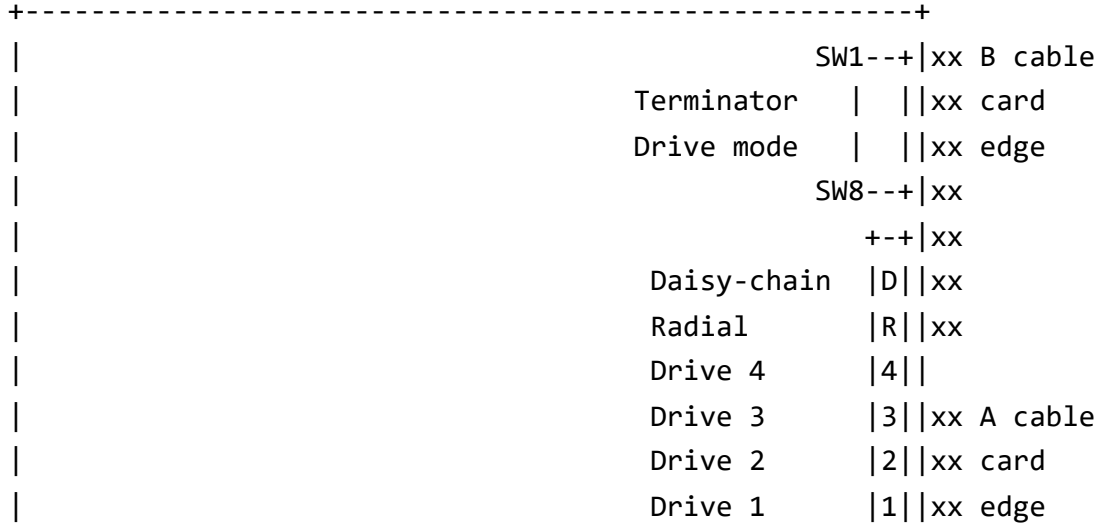

Jumpers

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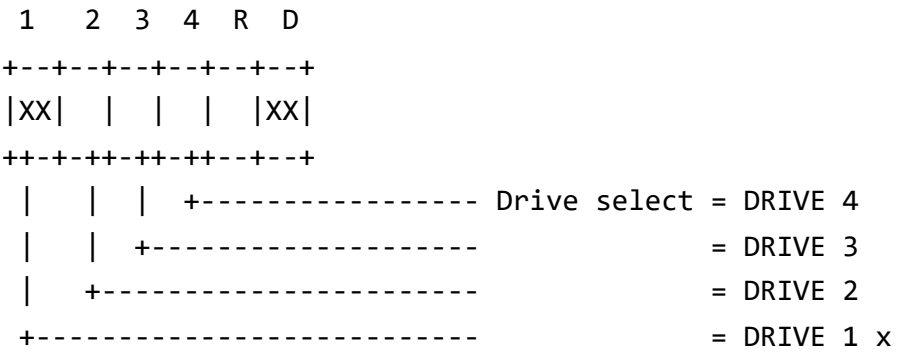
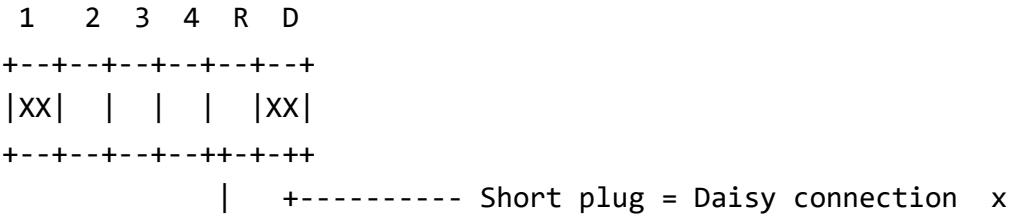
Jumper Settings
==========
x = Jumper is set from factory

Drive select

Set one of the drive number (1 to 4) with the short plug as
follows.



Radial/daisy connection setting



```
              +-------------- Short plug = Radial connection
```

Set either radial or daisy connection.

Terminator connection

```
 1 2 3 4 5 6 7 8
+----------------+   When all switches other than SW7 are set on ON,
|x x x x x x   x |   the terminator is connected.
+----------------+
```

```
 1 2 3 4 5 6 7 8
+----------------+   When all switches other than SW7 are set on OFF,
|. . . . . .   . |   the terminator is not connected.
+----------------+
```

Drive mode

```
 1 2 3 4 5 6 7 8
+----------------+
|            .   |   Drive mode 1 is selected to set SW7 to OFF.
+----------------+
```

```
 1 2 3 4 5 6 7 8
+----------------+
|            x   |   Drive mode 2 is selected to set SW7 to ON.
+----------------+
```

To keep the high positioning accuracy, this drive renews the
positioning compensation data during the normal operation. This drive

has two mode, Drive mode 1 and 2, for this operation.

```
 Drive mode 1
 ------------
```

```
Select drive mode 1 when the function of the connected controller
satisfies following two items.
- Read or Write operation instruction after Drive Select must be
  issued after confirming Seek Complete signal from the drive.
- Drive Select signal must be turned off when the drive is not
  accessed even if only one drive is connected.
```

For this mode, the drive renews the compensation data after Drive Select signal becomes false. During this opertion, Seek Complete signal is false. Then the controller changes Drive Select signal to true, and teh read and write operation is executed after Seek Complete signal becomes true.

Drive mode 2

When the controller does not have the the function of Drive mode 1, the drive detects the renewal requirement for the positioning compensation data, waits specific time, and stops sending data on MFM RD Daa Line and Index signal (because the controller that causes the serious time out error to count the Index signal is available to use). After that, the drive performs the internal seek for renewing the positioning compensation data, returns the original cylinder and resumes the transmission of Read signal and Index signal.

Install

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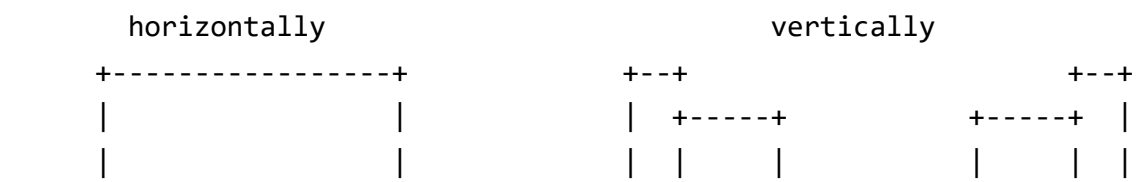
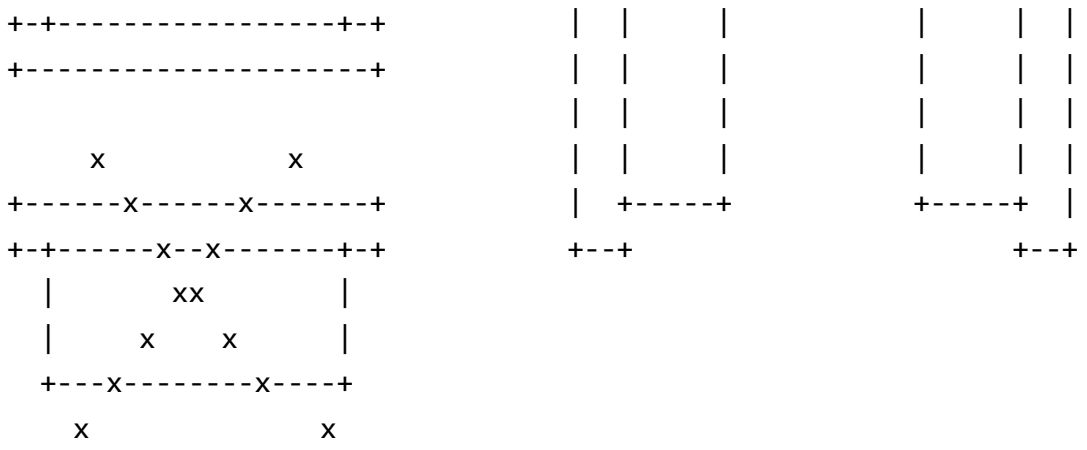
Notes on installation
==========

Installation direction





The drive may be installed as figure above.
In this case, installation horizontal rate shall be within 20
degrees. However, when inclines as the disk side comes lower side,

installation horizontal rate shall be within 5 degrees.

Never install PCA on the Top !!!

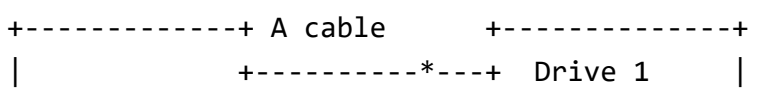
Ambient temperature

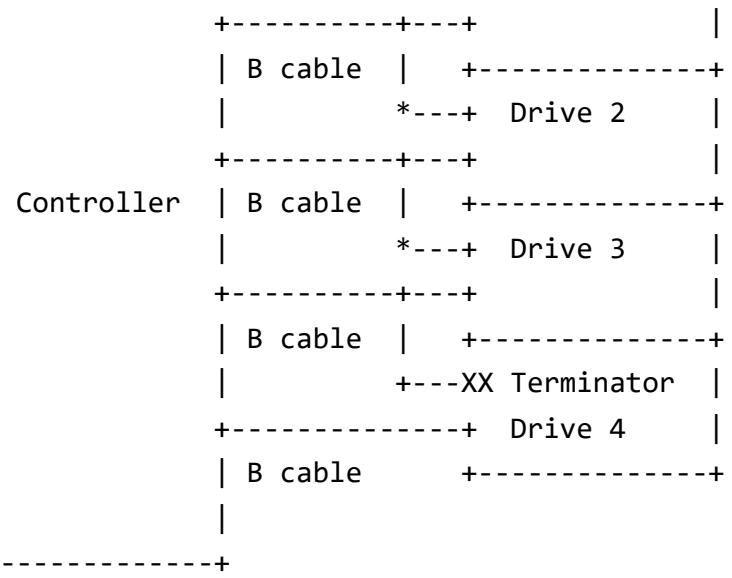
The operating temperature range of the drive is specified at a distance of 3 cm from the drive. The operating temperature should not exceed 45*C with considering cooling air flow. To satisfy above condition, the base surface temperature under the Ready condition should not exceed 60*C. The PCA should be cooled especially with proper air circulation in the cabinet.

Cable requirements

The total control cable length in a multi-drive connection should not exceed 6m.

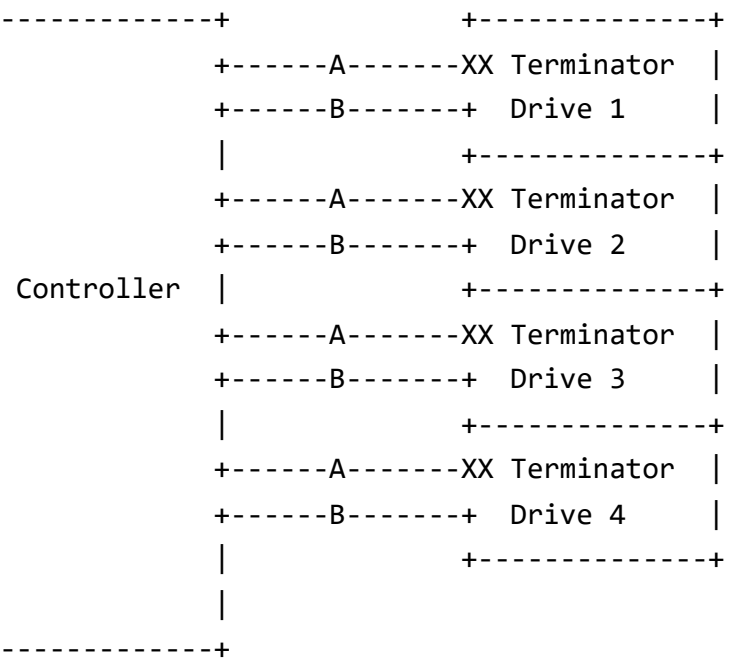
Daisy chain connection





Connection of drive to its controller is shown in that figure. The cable A (control signals) must be connected in series and the B cable (R/W signals) in parallel. The termination of control signal must be performed only at the last drive.

Radial connection



Connection of drive to its controller is shown in that Fiugre. The cable A (control signals) and the B cable (R/W signals) must be

connected in parallel. The termination of control signal must be performed at all drives.

```
Power cable
-----------
+-----------------+  1 = +12 V
|  4   3   2   1  |  2 = +12 V RTN
+-----------------+  3 = + 5 V RTN
                     4 = + 5 V
```

Features

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Start and stop time

Start time (time from when power is turned on until the drive is ready) is 15 seconds or less and stop time (time to completely stop when power is turned off) is 25 seconds or less.

AC line noise

To eliminate AC line noise, a noise filter of the specifications given below should be incorporated in the AC input terminal of the drive power supply.
Attenuation characteristics: 40 dB or grater at 10MHz
Circuit configuration: T type

Media error

Cylinder 0, Head 0 7 are defect free.
The number of defect in the M222XD2 are as follows:

```
M2225D2 ..... max. 25
M2226D2 ..... max. 38
M2227D2 ..... max. 51
```

Mean Time Between Failures (MTBF)

The estimated MTBF of this drive during its life time is 30,000 hours after an initial 3-month period.

Mean Time To Repair

MTTR is the average time taken by well-trained service mechanic to diagnose and repair a unit malfunction. This drive is designed for a MTTR of 30 minutes or less.

Service life

Overhaul of this drive is not required for the first five year.

Power loss

Integrity of the data on the disk is guaranteed against all forms of abnormal DC power failure except a power failure during writing.

Write Precompensation

Write precompensation is not necessary.