

## 5.25" FLOPPY DISK DRIVES

### 5.25" MINI FLOPPY DISK DRIVE

The following mini floppy disks are available:

- Single-Sided Double-Density (SSDD), formatted at 160 KB and used on 360 KB drives.
- Double-Sided Double-Density (DSDD), formatted at 360 KB and used on 360 KB and 1.2 MB drives. The 360 MB drive is usually present in XT-compatible systems.
- High-Density (HD), formatted at 1.2 MB and used on 1.2 MB drives. This type of drive is usually present in AT systems.

**3**

Bear the following rules in mind when using these disks.

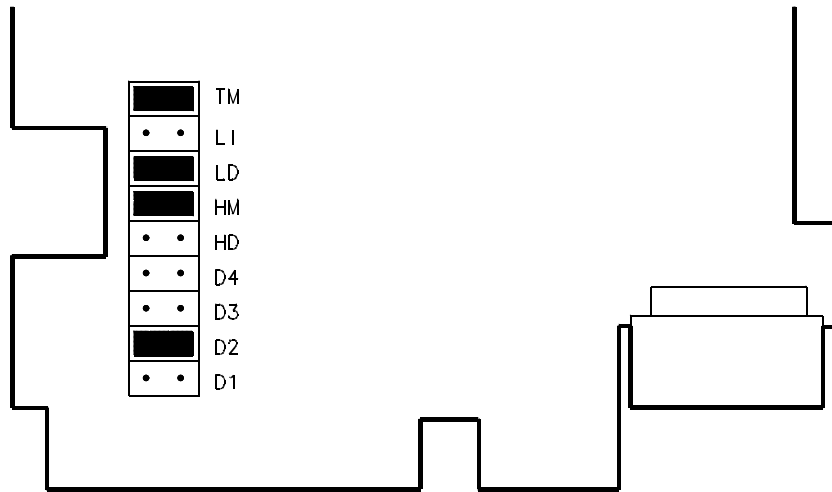
- SSDD are generally not used any more. They should, for safety's sake, be copied onto DSDD disks.
- A 1.2 MB HD diskette should be used in 1.2 MB drives and formatted at 1.2 MB.
- A 1.2 MB drive can format a 360 KB diskette if the following format command is used: *Format/n:9/t:40, or /f:360.*
- A 360 KB DSDD formatted and written on 360 KB can be read both by 360 KB and 1.2 MB drives.
- A 360 KB DSDD diskette formatted and written on 1.2 MB drives may be difficult to read on 360 KB drives, but not on 1.2 MB drives.
- If a 360 KB diskette from another system must be used, it is advisable to copy this diskette onto 1.2 MB diskette formatted on its own system.

### CONFIGURING DRIVE JUMPERS

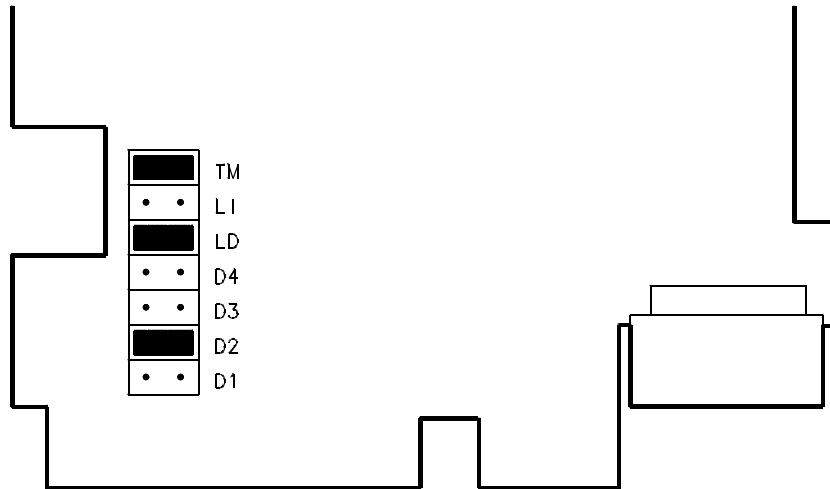
Jumper settings on the floppy disk drives must not be changed from the default configuration shown in the figures of the drives.

The only exception is the TM jumper (terminator), which must be removed when the 5.25" drive is installed as the system's second drive. However, this terminator must be present if the 5.25" drive is the only one present in the system. The terminator is always present on 3.5" drives, and is soldered on the board.

The cross-over of some of the wires in the floppy disk's signals cable determines the drive's physical address. The drive attached to the first connector is recognized as drive A, while the drive attached to the second connector is recognized as drive B. Therefore there is no need to make any jumper settings on the drive to determine its address. As a general rule, all floppy disk drives must have the second jumper DS installed (in the ON position); in some drives, this jumper is identified as DS1 since the jumpers are numbered DS0, DS1, DS2 and DS3. In other drives, however, this jumper is identified as DS2 as the numbering of the jumpers differs, such DS1, DS2, DS3 and DS4.

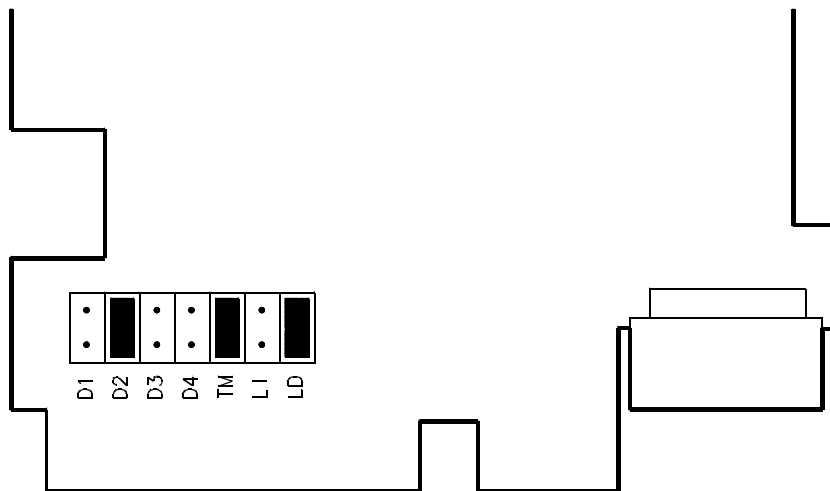
**360 KB FDU****TOSHIBA ND04DT FDD5451 F1R****SA450**

JUMPER	DESCRIPTION	SETTING
D1	Drive selected as DRIVE 1	OFF
D2	Drive selected as DRIVE 2	ON
D3	Drive selected as DRIVE 3	OFF
D4	Drive selected as DRIVE 4	OFF
HD	Head loading controlled by the Drive Select signal	OFF
HM	Head loading controlled by the Motor On signal	ON
LD	The LED comes on when the Drive Select signal is set to 1. If LI is also ON the LED will come on only when the In Use signal is set to 1.	ON
LI	The LED will come on when the In Use signal is set 1. If LD is also ON the LED will come on only when the drive is selected	OFF
TM	Terminator	ON

**360 KB FDU****TOSHIBA ND04DT FDD5471 F1R****SA450****3**

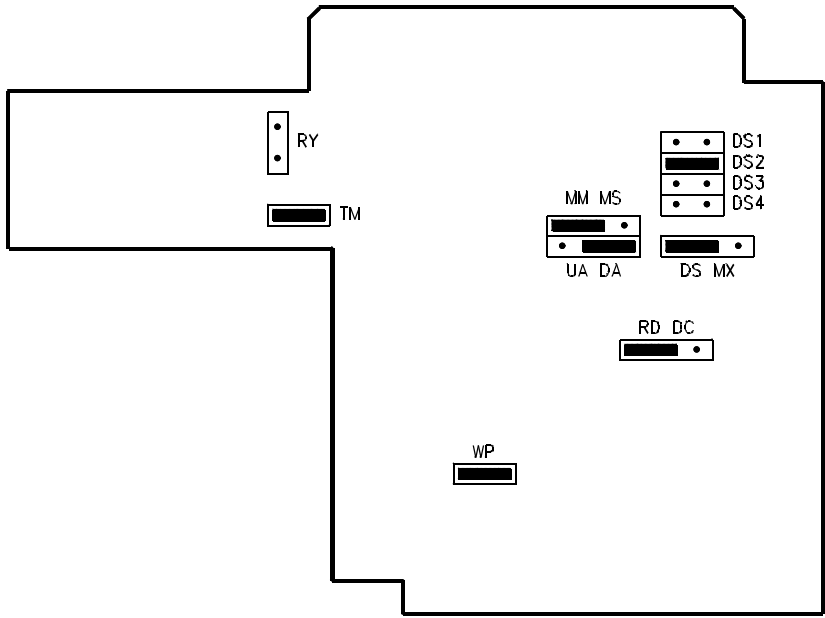
JUMPER	DESCRIPTION	SETTING
D1	Drive selected as DRIVE 1	OFF
D2	Drive selected as DRIVE 2	ON
D3	Drive selected as DRIVE 3	OFF
D4	Drive selected as DRIVE 4	OFF
LD	The LED comes on when the Drive Select signal is set to 1. If LI is also ON the LED will come on only when the In Use signal is set to 1.	ON
LI	The LED comes on when the In Use signal is set to 1. If LD is also ON the LED will come on only when the drive is selected	OFF
TM	Terminator	ON

<b>360 KB FDU</b>	<b>TOSHIBA ND04DT FDD6475 S1R</b>	<b>SA450</b>
-------------------	-----------------------------------	--------------



<b>JUMPER</b>	<b>DESCRIPTION</b>	<b>SETTING</b>
D1	Drive selected as DRIVE 1	OFF
D2	Drive selected as DRIVE 2	ON
D3	Drive selected as DRIVE 3	OFF
D4	Drive selected as DRIVE 4	OFF
LD	The LED comes on when the Drive Select signal is set to 1. If LI is also on the LED will come on only when the In Use signal is set to 1.	ON
LI	The LED will come on when the In Use signal is set to 1. If LD is also ON the LED will come on only if the drive is selected	OFF
TM	Terminator	ON

<b>360 KB FDU</b>	<b>PANASONIC JU-455-5 C09</b>	<b>SA450</b>
-------------------	-------------------------------	--------------



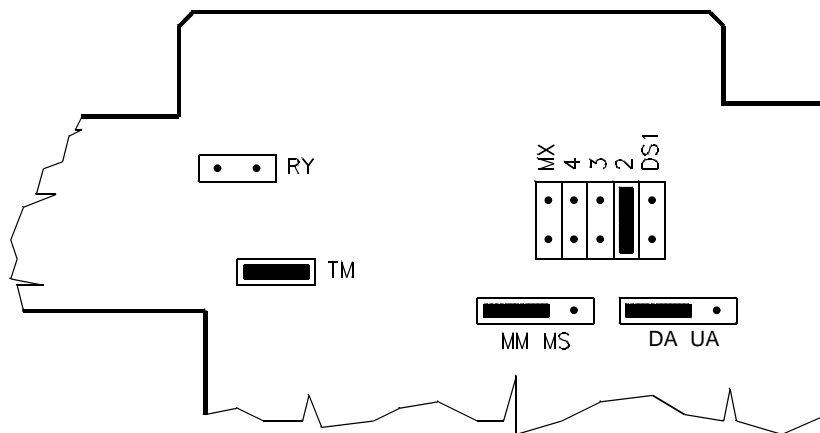
3

JUMPER	DESCRIPTION	SETTING
DS1	Drive selected as DRIVE 1	OFF
DS2	Drive selected as DRIVE 2	ON
DS3	Drive selected as DRIVE 3	OFF
DS4	Drive selected as DRIVE 4	OFF
MX	Drive selected by the Drive Select signal	OFF
DS	Drive selection enabled in a multidrive system	ON
RD	Ready signal enabled	ON
DC	Stores door closure	OFF
WP	Write Protect signal enabled	ON
MM	Drive motor enabled by the Motor On signal	ON
MS	Drive motor enabled by the Drive Select signal	OFF
UA	Front LED handled by the In Use signal	OFF
DA	Front LED handled by the Drive Select signal	ON
RY	PC XT-AT compatibility	OFF
TM	Terminator	ON

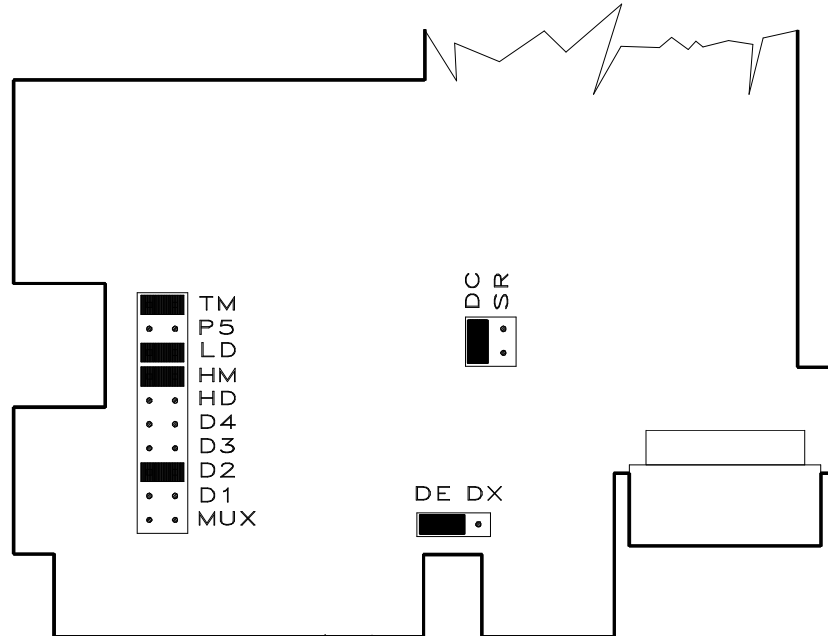
360 KB FDU

PANASONIC JU-455-7 C09

SA450



JUMPER	DESCRIPTION	SETTING
DS1	Drive selected as DRIVE 1	OFF
DS2	Drive selected as DRIVE 2	ON
DS3	Drive selected as DRIVE 3	OFF
DS4	Drive selected as DRIVE 4	OFF
MX	Drive selected permanently	OFF
MM	Drive motor enabled by the Motor On signal	ON
MS	Drive motor enabled by the Drive Select signal	OFF
UA	Front LED handled by the In Use signal	OFF
DA	Front LED handled by the Drive Select signal	ON
RY	PC XT-AT compatibility	OFF
TM	Terminator	ON

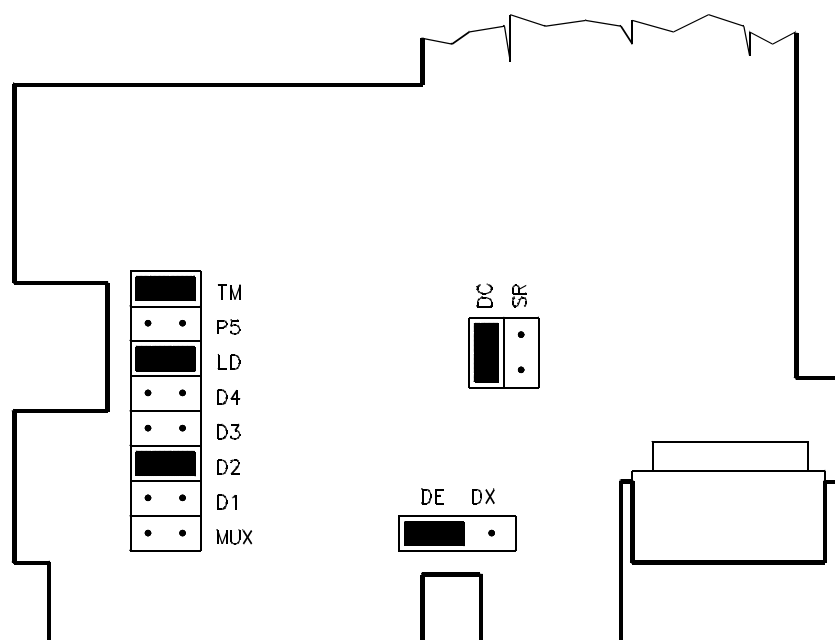
**1.2 MB FDU****TOSHIBA ND08DE FDD5861 H1R****SA450****3**

JUMPER	DESCRIPTION	SETTING
D1	Drive selected as DRIVE 1	OFF
D2	Drive selected as DRIVE 2	ON
D3	Drive selected as DRIVE 3	OFF
D4	Drive selected as DRIVE 4	OFF
MUX	Drive selected permanently	OFF
HM	Head loading controlled by the Motor On signal	ON
HD	Head loading controlled by the Drive Select signal	OFF
LD	Font LED controlled by the Drive Select signal	ON
P5	Front LED controlled by the Drive Select and Ready signals	OFF
TM	Terminator	ON
DE	Motor set to 360 rpm	ON
DX	Motor rpm controlled by the Low Density signal	OFF
DC	Disk Change is the output signal of interface pin 34	ON
SR	Ready is the output signal of interface pin 34	OFF

1.2 MB FDU

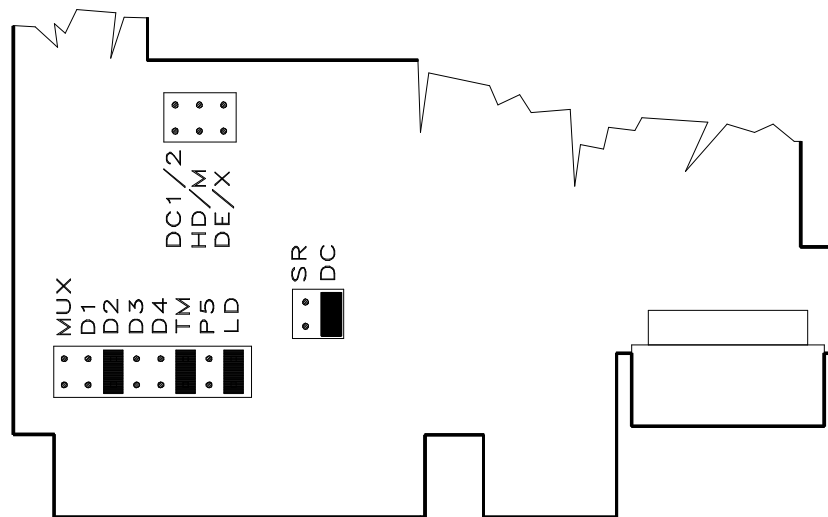
TOSHIBA ND08DE FDD5881 H1R

SA450

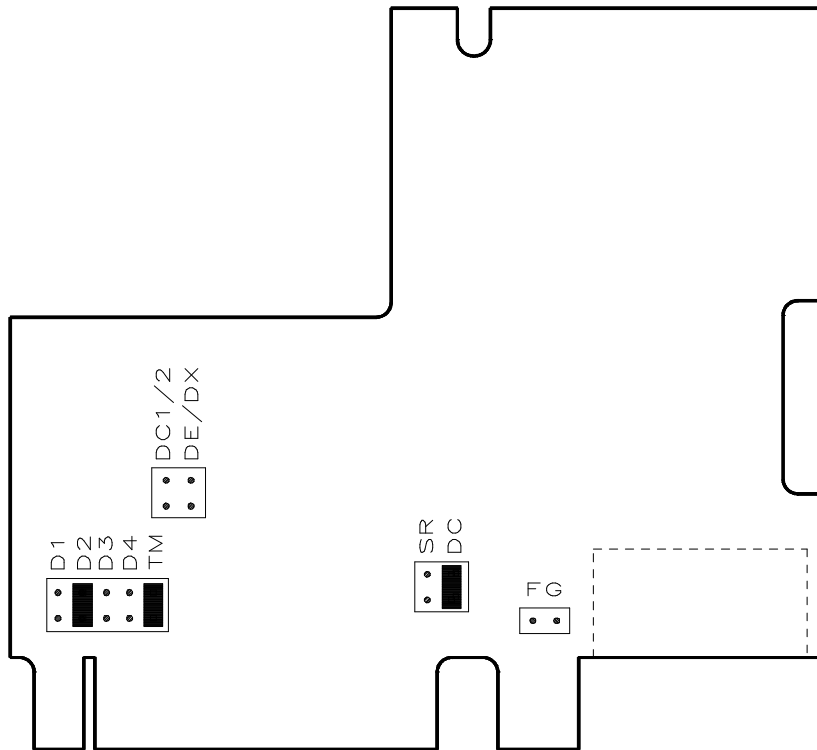


JUMPER	DESCRIPTION	SETTING
D1	Drive selected as DRIVE 1	OFF
D2	Drive selected as DRIVE 2	ON
D3	Drive selected as DRIVE 3	OFF
D4	Drive selected as DRIVE 4	OFF
MUX	Drive selected permanently	OFF
LD	Front LED controlled by the Drive Select signal	ON
P5	Front LED controlled by the Drive Select and Ready signals	OFF
TM	Terminator	ON
DE	Motor set to 360 rpm	ON
DX	Motor rpm controlled by the Low Density signal	OFF
DC	Disk Change is the output signal of interface pin 34	ON
SR	Ready is the output signal of interface pin 34	OFF



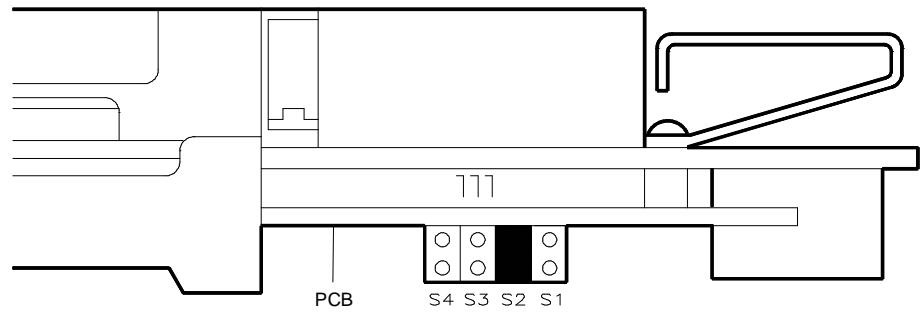
**1.2 MB FDU****TOSHIBA ND08DE FDD6881 H1R****SA450****3**

JUMPER	DESCRIPTION	SETTING
D1	Drive selected as DRIVE 1	OFF
D2	Drive selected as DRIVE 2	ON
D3	Drive selected as DRIVE 3	OFF
D4	Drive selected as DRIVE 4	OFF
MUX	Drive selected permanently	OFF
LD	Front LED controlled by the Drive Select signal	ON
P5	Front LED controlled by the Drive Select and Ready signals	OFF
TM	Terminator	ON
DC	Disk Change is the output signal of interface pin 34	ON
SR	Ready is the output signal of interface pin 34	OFF
DE/X	Motor is set to 360 rpm	OFF
HD/M	Head loading controlled by the Drive Select signal	OFF
DC1/2	Not used	OFF

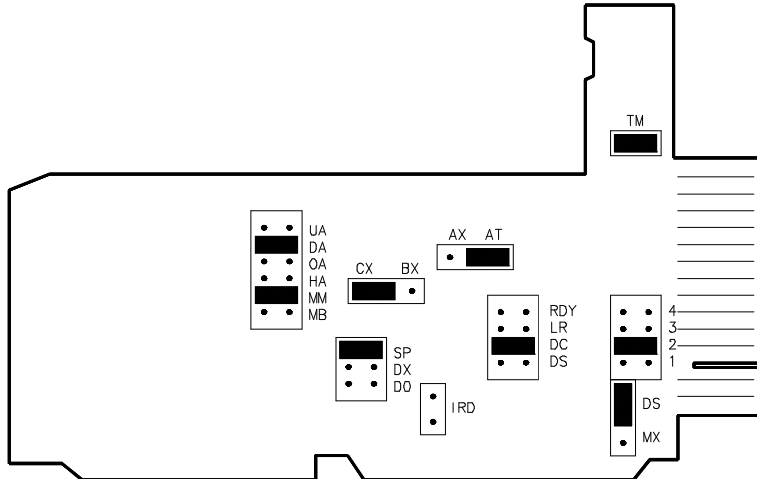
**1.2 MB FDU****TOSHIBA ND08DE FDD6787 H1R****SA450**

JUMPER	DESCRIPTION	SETTING
D1	Drive selected as DRIVE 1	OFF
D2	Drive selected as DRIVE 2	ON
D3	Drive selected as DRIVE 3	OFF
D4	Drive selected as DRIVE 4	OFF
DE/DX	Motor set to 360 rpm	OFF
DC	Disk Change is the output signal of interface pin 34	ON
SR	Ready is the output signal of interface pin 34	OFF
DC1/2	Standard Disk Change selection	OFF
TM	Terminator	ON
FG	The drive ground connected to DC ground by means of capacitors and resistances	OFF

<b>1.2 MB FDU</b>	<b>CANON MD5501-64</b>	<b>SA450</b>
-------------------	------------------------	--------------

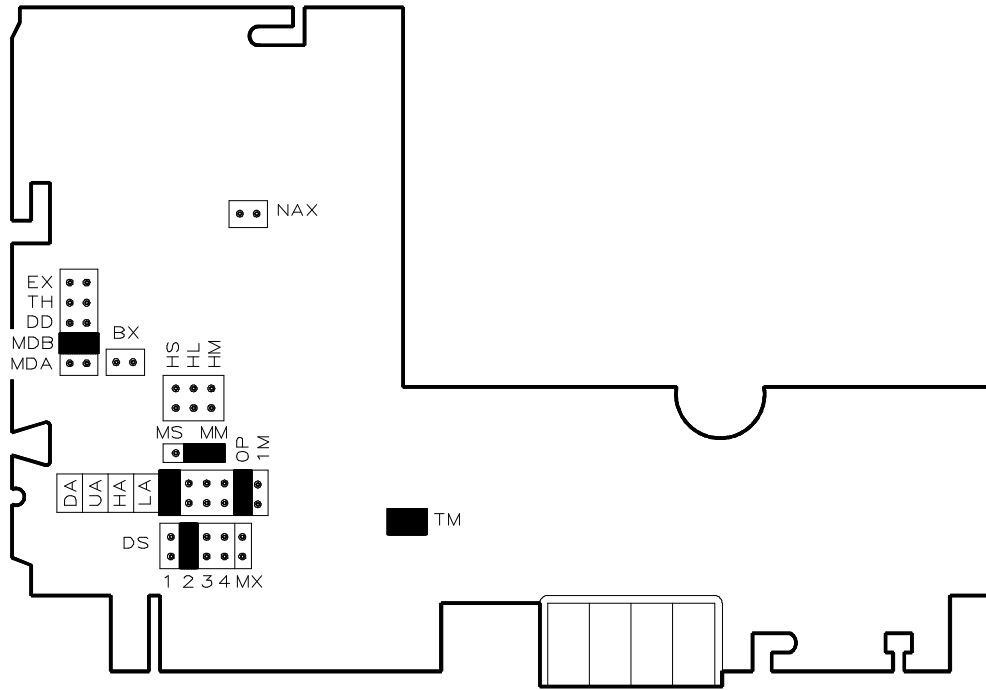


<b>JUMPER</b>	<b>DESCRIPTION</b>	<b>SETTING</b>
S1	Drive selected as DRIVE 1	OFF
S2	Drive selected as DRIVE 2	ON
S3	Drive selected as DRIVE 3	OFF
S4	Drive selected as DRIVE 4	OFF

**1.2 MB FDU****PANASONIC JU-475-2 C08****SA450**

JUMPER	DESCRIPTION	SETTING
TM	Terminator	ON
DS1	Drive selected as DRIVE 1	OFF
DS2	Drive selected as DRIVE 2	ON
DS3	Drive selected as DRIVE 3	OFF
DS4	Drive selected as DRIVE 4	OFF
DS	Selection of a drive in a multidrive system enabled	ON
MX	Drive selected permanently	OFF
AT	Drive for use in the system enabled	ON
AX	Stores the Drive Select signal	OFF
RDY	Standard Ready signal	OFF
LR	Stores the Ready signal	OFF
DC	Stores door closure	ON
DS	Door open	OFF
BX	Double speed	OFF
CX	Single speed	ON
IRD	Internal Ready signal	OFF
SP	Step Disk Change	ON
DX	Index Disk Change	OFF
DO	Disk Change drive selection	OFF
UA	Front LED controlled by the Ready signal	OFF
DA	Front LED controlled by the Drive Select signal	ON
OA	Front LED controlled by the Ready or Drive Select signal	OFF
HA	Front LED controlled by the Ready and Drive Select signals	OFF
MM	Motor drive enabled by the Motor On signal	ON
MB	Motor drive enabled by the Drive Select signal	OFF

<p><b>1.2 MB FDU</b></p>	<p><b>PANASONIC JU-475-3 C08</b> <b>PANASONIC JU-475-3 C20</b></p>	<p><b>SA450</b></p>
--------------------------	--	---------------------



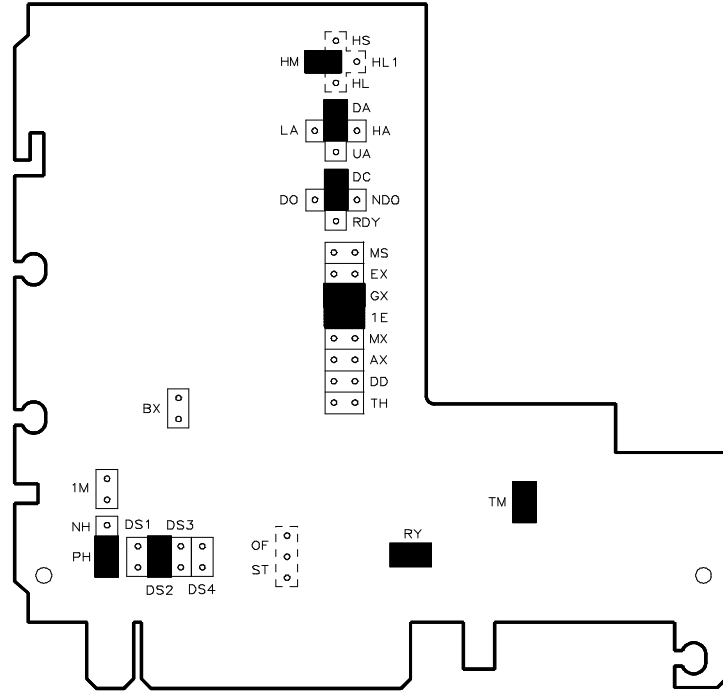
3

JUMPER	DESCRIPTION	SETTING FOR JU-475-3 C08	SETTING FOR JU-475-3 C20
TM	Terminator	ON	ON
DS1	Drive selected as DRIVE 1	OFF	OFF
DS2	Drive selected as DRIVE 2	ON	ON
DS3	Drive selected as DRIVE 3	OFF	OFF
DS4	Drive selected as DRIVE 4	OFF	OFF
MX	Drive selected permanently	OFF	OFF
DA	Front LED controlled by the Drive Select signal	ON	ON
UA	Front LED controlled by the Ready signal	OFF	OFF
HA	Front LED controlled by the Ready and Drive Select signals	OFF	OFF
LA	Front LED controlled by the Ready signal selecting the drive	OFF	OFF
MS	Motor drive enabled by the Drive Select signal	OFF	OFF
MM	Motor drive enabled by the Motor On signal	ON	ON
HS	Head loading controlled by the Drive Select signal (not used)	OFF	OFF
HL	Head loading controlled by the Drive Select and Ready signals (not used)	OFF	OFF
HM	Head loading controlled by the Motor On signal (not used)	OFF	OFF
OP	Dual Mode	ON	ON
1M	Single Mode (only 1 MB)	OFF	OFF
BX	Double speed	OFF	ON
NAX	Used with OP, BX and 1M	OFF	OFF
EX	Active index after head positioning on any track	OFF	OFF
TH	Interface connector pin 34 selected by the Drive Select signal	OFF	OFF
DD	Not used	OFF	OFF
MDB	Pin 34 is kept low by Drive Select when the support is not inserted and by the first Drive Select when the support has been changed	ON	ON
MDA		OFF	OFF

1.2 MB FDU

PANASONIC JU-475-4 C08  
PANASONIC JU-475-4 C20

SA450

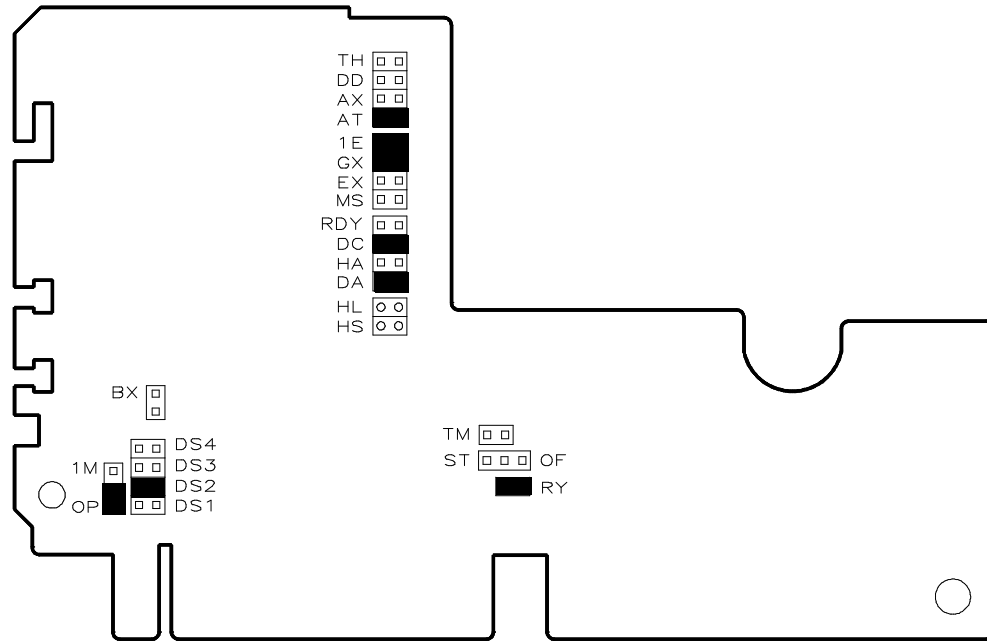


3

JUMPER	DESCRIPTION	SETTING FOR JU-475-4 C08	SETTING FOR JU-475-4 C20
TM	Terminator	ON	ON
DS1	Drive selected as DRIVE 1	OFF	OFF
DS2	Drive selected as DRIVE 2	ON	ON
DS3	Drive selected as DRIVE 3	OFF	OFF
DS4	Drive selected as DRIVE 4	OFF	OFF
MX	Drive selected permanently (used on single drive systems only)	OFF	OFF
UA	Front LED controlled by the Ready signal	OFF	OFF
DA	Front LED controlled by the Drive Select signal	ON	ON
LA	Front LED controlled by the stored Ready function	OFF	OFF
HA	Front LED controlled by the Ready and Drive Select signals	OFF	OFF
MS	Motor drive enabled by the Motor On signal	OFF	OFF
HL	Head loading controlled by the Drive Select and Ready signals (not used)	OFF	OFF
HS	Head loading controlled by the Drive Select signal (not used)	OFF	OFF
HM	Head loading controlled by the Motor On signal	ON	ON
HL1	Head loading controlled the stored Ready function (not used)	OFF	OFF
PH	Dual mode (positive high density)	ON	ON
NH	Dual mode (negative high density) (not used)	OFF	OFF
AX	Mode Select with the storage of Drive Select	OFF	OFF
1M	Single Mode (only 1 MB)	OFF	OFF
BX	Double speed	OFF	ON
RDY	Standard Ready signal	OFF	OFF
DC	Disk Change 1 (reset via Step)	ON	ON
NDO	Disk In	OFF	OFF
DO	Disk Out	OFF	OFF
DD	Disk Change 2 (reset via Drive Select)	OFF	OFF
TH	Pin 34 of the interface connector selected by Drive Select	OFF	OFF
GX	Read Data is enabled by Write Gate, Write Protect, Drive Select and when the head is positioned on a track	ON	ON
EX	Active index following the positioning of the head on a track	OFF	OFF
1E	Selects 96 TPI or 48 TPI (set at the factory)	ON	ON
RY	Connects the Drive Status signal to interface connector pin 34 (set at the factory)	ON	ON
ST	Not used	OFF	OFF
OF	Not used	OFF	OFF



1.2 MB FDU	<b>PANASONIC JU-475-5 C08 (to lev. 02)</b> <b>PANASONIC JU-475-5 C20</b>	SA450
------------	---	-------

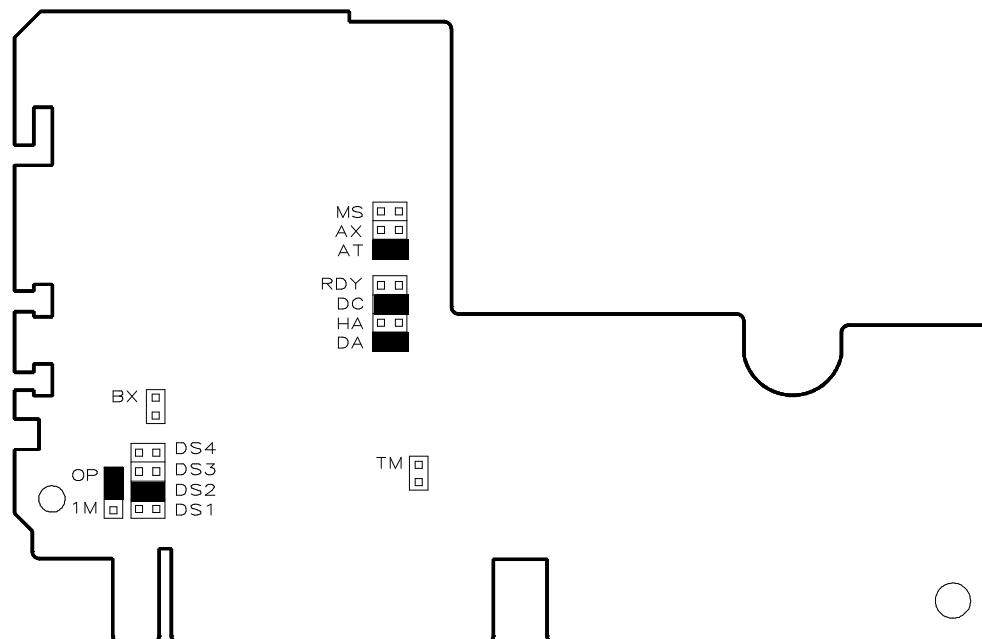


3

<b>JUMPER</b>	<b>DESCRIPTION</b>	<b>SETTING FOR JU-475-5 C08</b>	<b>SETTING FOR JU-475-5 C20</b>
TM	Terminator	OFF	OFF
DS1	Drive selected as DRIVE 1	OFF	OFF
DS2	Drive selected as DRIVE 2	ON	ON
DS3	Drive selected as DRIVE 3	OFF	OFF
DS4	Drive selected as DRIVE 4	OFF	OFF
DA	Front LED controlled with the Drive Select signal	ON	ON
HA	Front LED controlled with the Ready and Drive Select signals	OFF	OFF
MS	Motor drive enabled with the Motor On signal	OFF	OFF
HL	Head loading controlled by Drive Select and Ready (not used)	OFF	OFF
HS	Head loading controlled by Drive Select (not used)	OFF	OFF
OP	Dual Mode (high density positive)	ON	ON
AT	Enables drive for use in system	ON	ON
AX	Mode Select with storage of Drive Select	OFF	OFF
1M	Single Mode (only 1 MB)	OFF	OFF
BX	Double speed	OFF	ON
RDY	Standard Ready signal	OFF	OFF
DC	Disk change 1 (reset via step)	ON	ON
DD	Disk change 2 (reset via Drive Select)	OFF	OFF
TH	Pin 34 of interface connector selected by Drive Select	OFF	OFF
GX	Read Data enabled by Write Gate, Write Protect, Drive Select and when the head has set on a track	ON	ON
EX	Index active after the head has set on a track	OFF	OFF
1E	Select 96 TPI or 48 TPI (set in the factory)	ON	ON
RY	Connects Drive Status to pin 34 of the interface connector	ON	ON
ST	Not used	OFF	OFF
OF	Not used	OFF	OFF

1.2 MB FDU	<b>PANASONIC JU-475-5 C08 (from lev. 03)</b> <b>PANASONIC JU-475-5 A72</b> <b>PANASONIC JU-475-5 A08W</b>	SA450
------------	---	-------

3



**Note:** Jumpers EX, GX, DD and TH have been removed from drive JU-475-5 C08 starting from this drive's level 03 (March, '94). To set the disk change mode 2 on this drive (as used on L1 with G0280D, FP1 fw2.4, FP4 fw3.7), solder a 15 Kohm resistor at R18. The JU-475-5 C20 drive will no longer be available from March, 1994; instead, you can use drive JU-475-5 C08 by inserting jumper BX.

JUMPER	DESCRIPTION	SETTING
TM	Termination	OFF
DS1	Drive selected as DRIVE 1	OFF
DS2	Drive selected as DRIVE 2	ON
DS3	Drive selected as DRIVE 3	OFF
DS4	Drive selected as DRIVE 4	OFF
DA	Front LED handled by the Drive Select signal	ON
HA	Front LED handled by the Ready and Drive Select signals	OFF
MS	Drive motor enabled by the Motor On signal	OFF
OP	Dual mode (positive high density)	ON
AT	Enables the drive for use in the system	ON
AX	Mode Select with Drive Select storage	OFF
1M	Single Mode (only 1 MB)	OFF
BX	Dual speed	OFF
RDY	Standard Ready signal	OFF
DC	Disk Change 1 (reset via Setup)	ON