

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 KB 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.

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Bear the following rules in mind when using these disks.

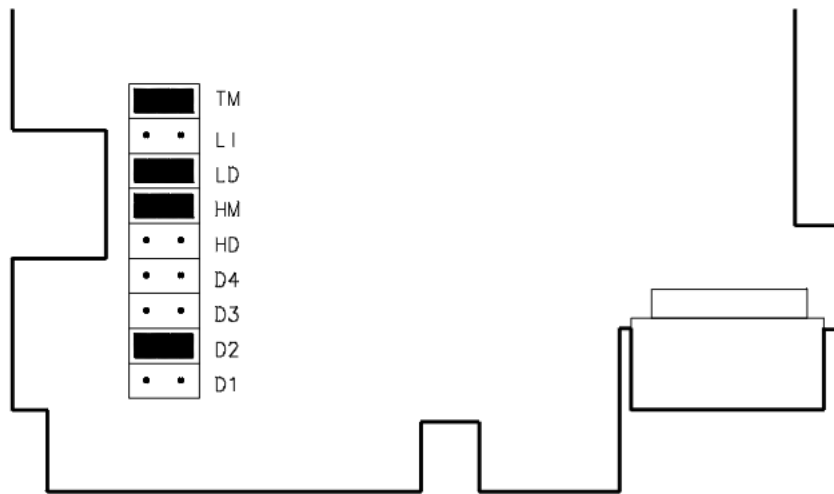
- SSDD are generally not used any more. They should, for safety's sake, be copied onto DSDD disks.
- A 1.2 MB HD diskette should be used in 1.2 MB drives and formatted at 1.2 MB.
- A 1.2 MB drive can format a 360 KB diskette if the following format command is used: *Format/n:9/t:40, or /f:360.*
- A 360 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

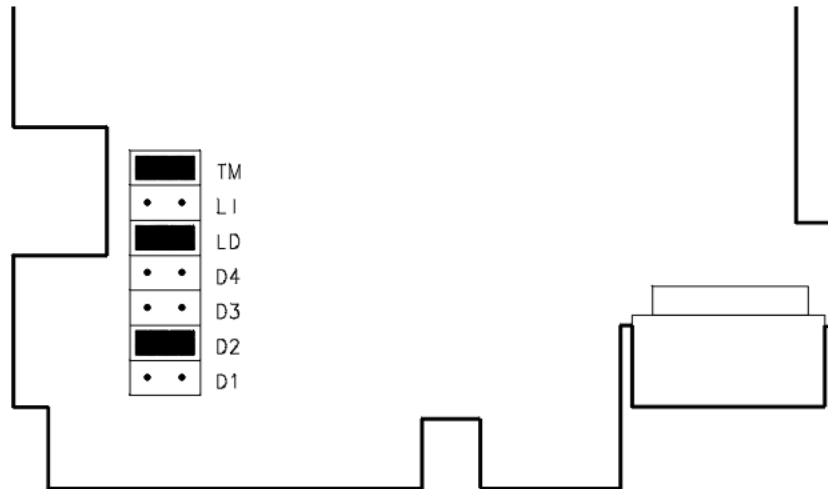
Jumper settings on the floppy disk drives must not be changed from the default configuration shown in the figures of the drives.

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.

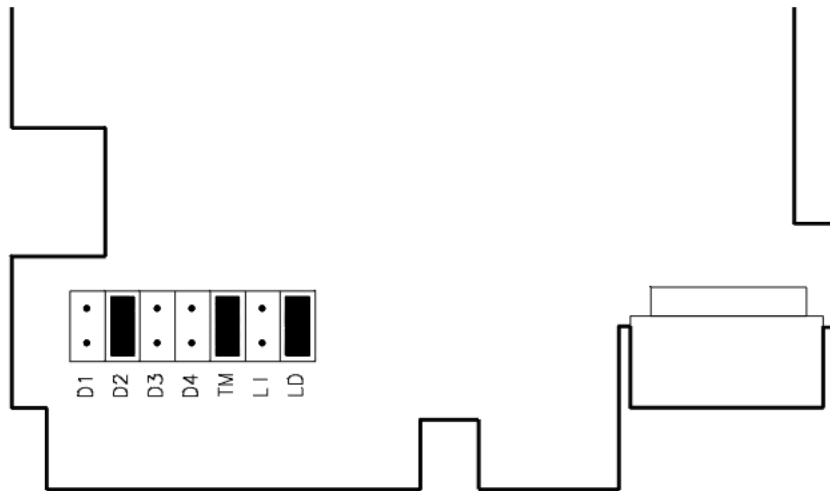
The cross-over of some of the wires in the floppy disk's signals cable determines the drive's physical address. The drive attached to the first connector is recognized as drive A, while the drive attached to the second connector is recognized as drive B. Therefore there is no need to make any jumper 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 as 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 |

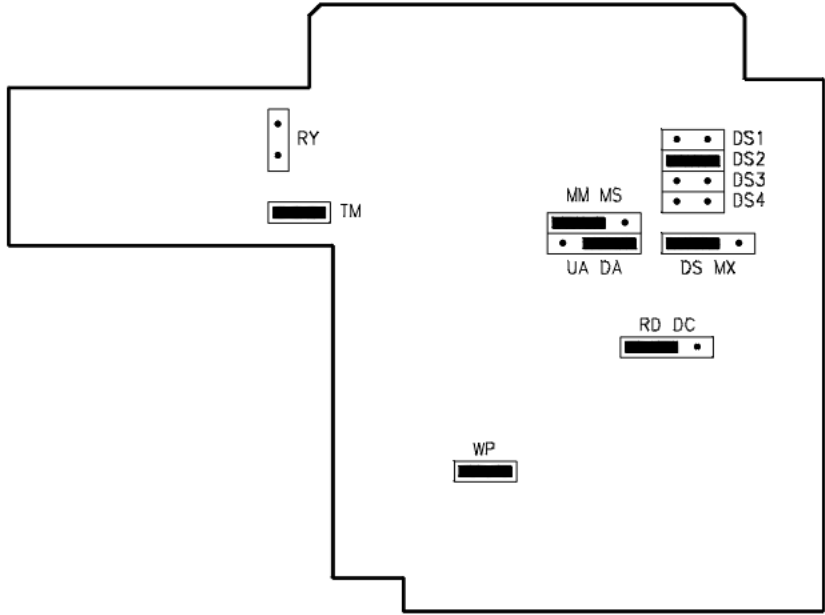
360 KB FDU**TOSHIBA ND04DT FDD5471 F1R****SA450****3**

| 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 |

360 KB FDU**TOSHIBA ND04DT FDD6475 S1R****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 |
| 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 |

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| 360 KB FDU | PANASONIC JU-455-5 C09 | SA450 |
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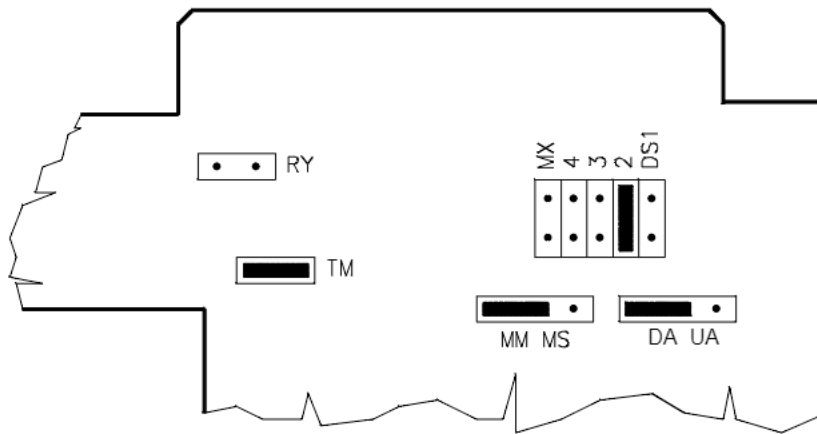
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| JUMPER | DESCRIPTION | SETTING |
|--------|--|---------|
| DS1 | Drive selected as DRIVE 1 | OFF |
| DS2 | Drive selected as DRIVE 2 | ON |
| DS3 | Drive selected as DRIVE 3 | OFF |
| DS4 | Drive selected as DRIVE 4 | OFF |
| MX | Drive selected 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

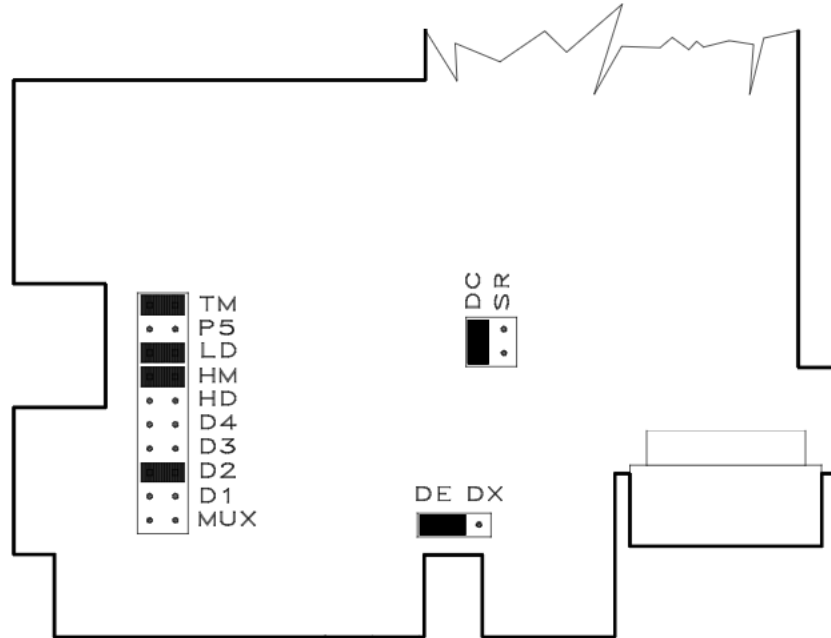
PANASONIC JU-455-7 C09

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 |

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| 1.2 MB FDU | TOSHIBA ND08DE FDD5861 H1R | SA450 |
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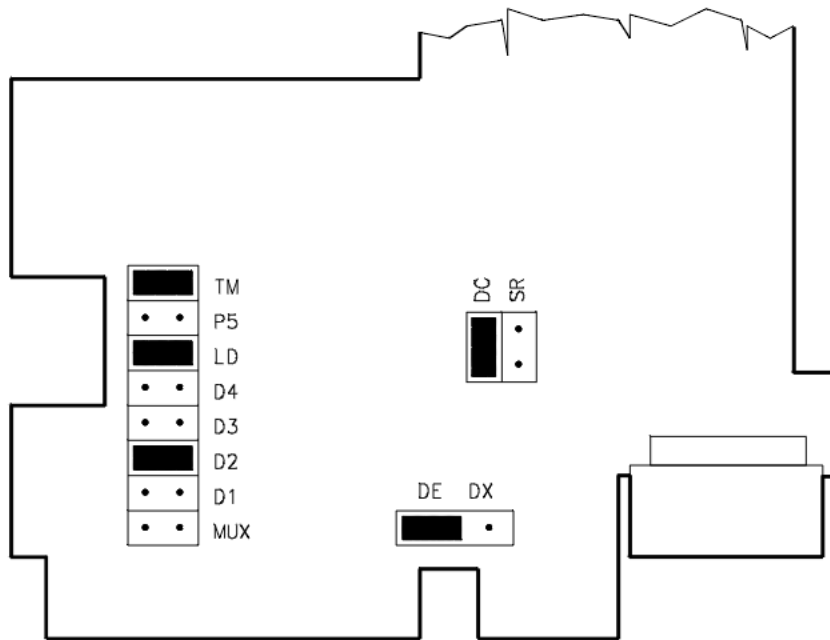
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| JUMPER | DESCRIPTION | SETTING |
|---------------|--|----------------|
| D1 | Drive selected as DRIVE 1 | OFF |
| D2 | Drive selected as DRIVE 2 | ON |
| D3 | Drive selected as DRIVE 3 | OFF |
| D4 | Drive selected as DRIVE 4 | OFF |
| MUX | Drive 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

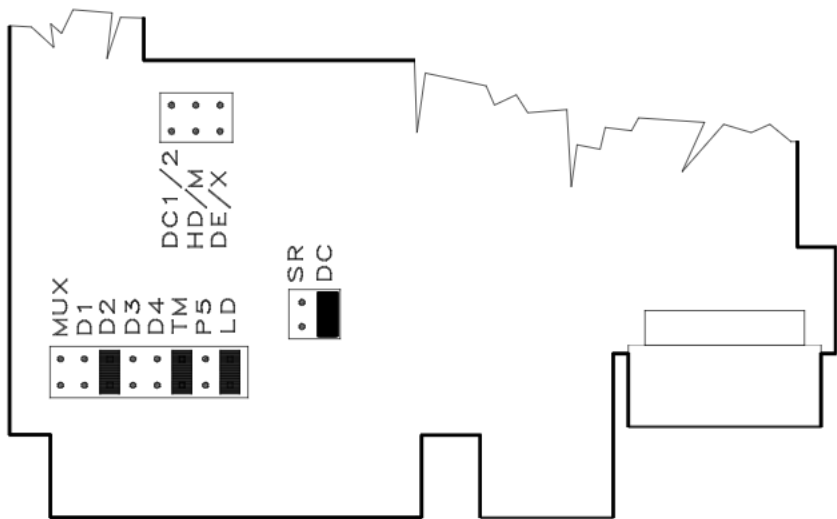
TOSHIBA ND08DE FDD5881 H1R

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 |

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| 1.2 MB FDU | TOSHIBA ND08DE FDD6881 H1R | SA450 |
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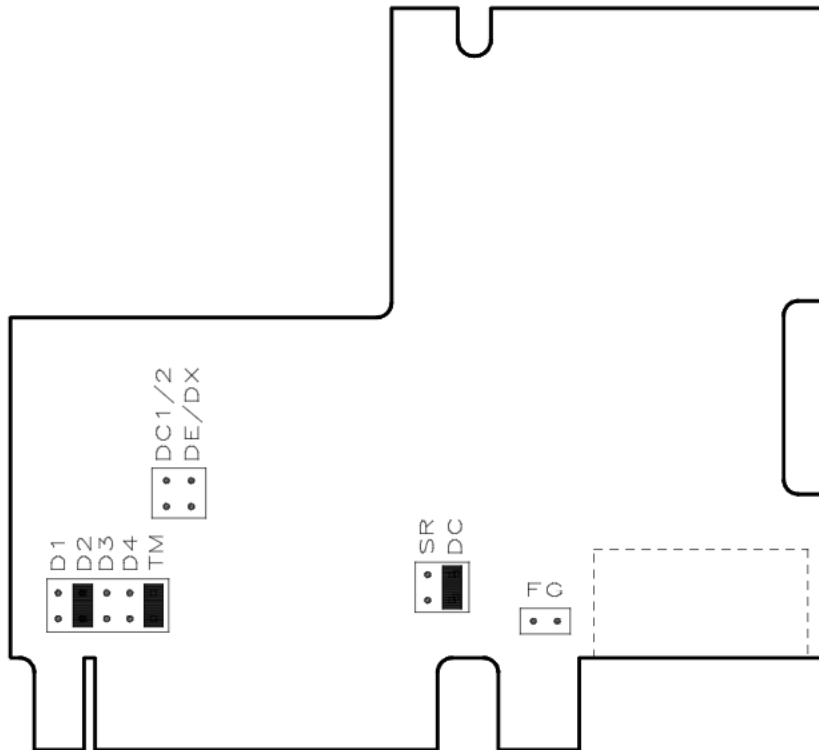
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| JUMPER | DESCRIPTION | SETTING |
|--------|--|---------|
| D1 | Drive selected as DRIVE 1 | OFF |
| D2 | Drive selected as DRIVE 2 | ON |
| D3 | Drive selected as DRIVE 3 | OFF |
| D4 | Drive selected as DRIVE 4 | OFF |
| MUX | Drive selected permanently | 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

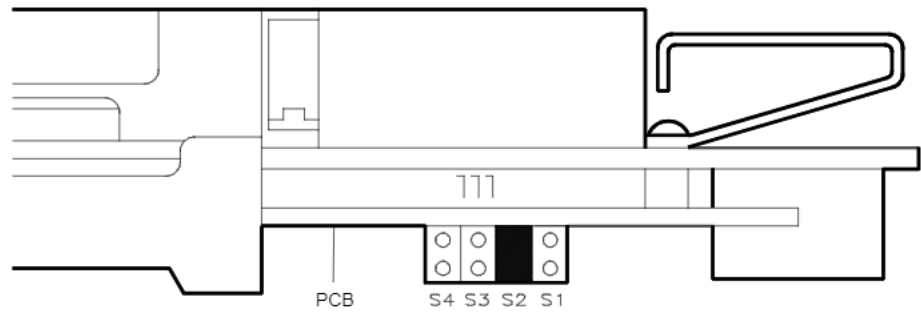
TOSHIBA ND08DE FDD6787 H1R

SA450



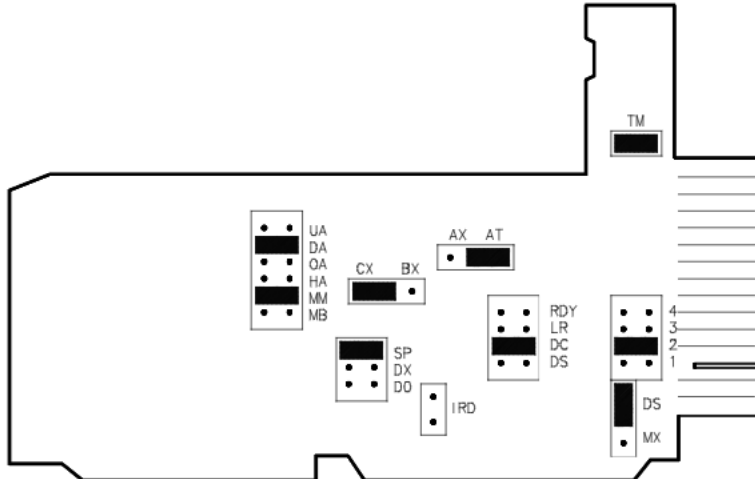
| JUMPER | DESCRIPTION | SETTING |
|--------|--|---------|
| D1 | Drive selected as DRIVE 1 | OFF |
| D2 | Drive selected as DRIVE 2 | ON |
| D3 | Drive selected as DRIVE 3 | OFF |
| D4 | Drive selected as DRIVE 4 | OFF |
| DE/DX | Motor set to 360 rpm | OFF |
| DC | Disk Change is the output signal 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 |

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| 1.2 MB FDU | CANON MD5501-64 | SA450 |
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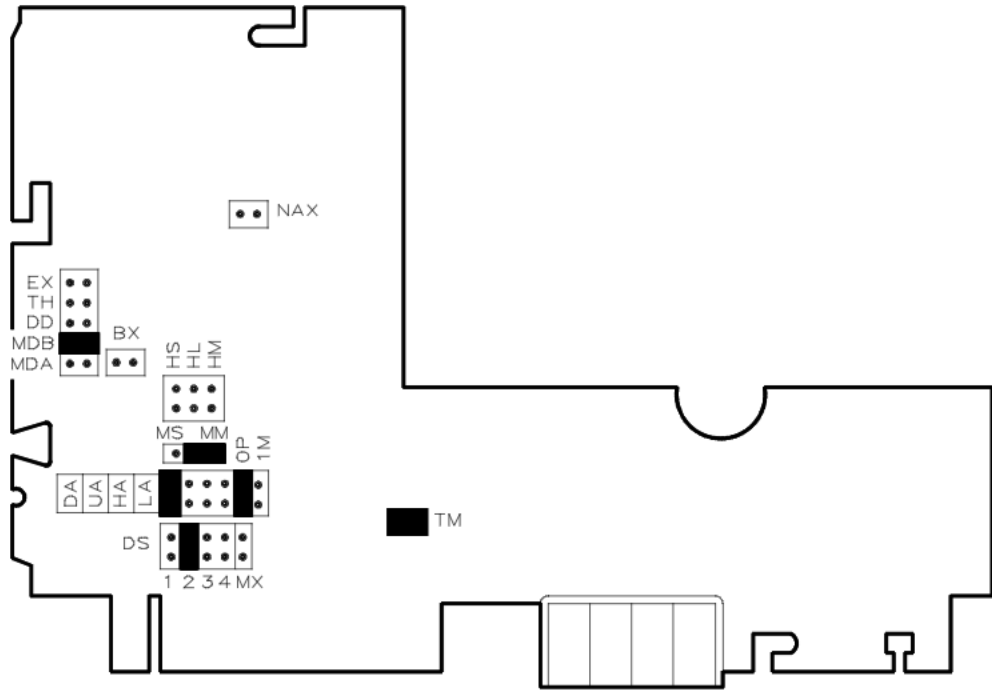
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| JUMPER | DESCRIPTION | SETTING |
|---------------|---------------------------|----------------|
| S1 | Drive selected as DRIVE 1 | OFF |
| S2 | Drive selected as DRIVE 2 | ON |
| S3 | Drive selected as DRIVE 3 | OFF |
| S4 | Drive selected as DRIVE 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 |

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| <p>1.2 MB FDU</p> | <p>PANASONIC JU-475-3 C08 PANASONIC JU-475-3 C20</p> | <p>SA450</p> |
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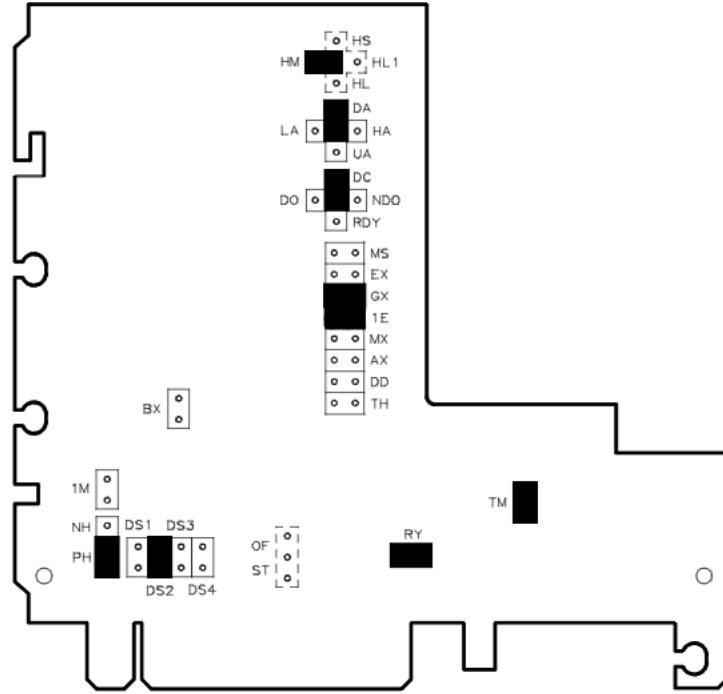
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| JUMPER | DESCRIPTION | SETTING FOR JU-475-3 C08 | SETTING FOR JU-475-3 C20 |
|---------------|---|-------------------------------------|-------------------------------------|
| TM | Terminator | ON | ON |
| DS1 | Drive selected as DRIVE 1 | OFF | 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

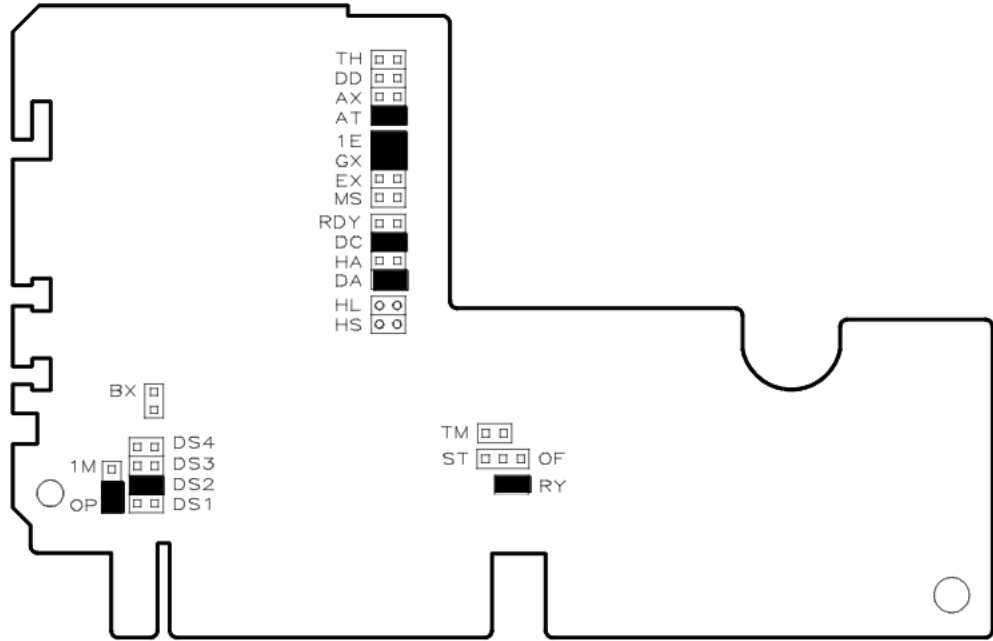
SA450



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| 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 |

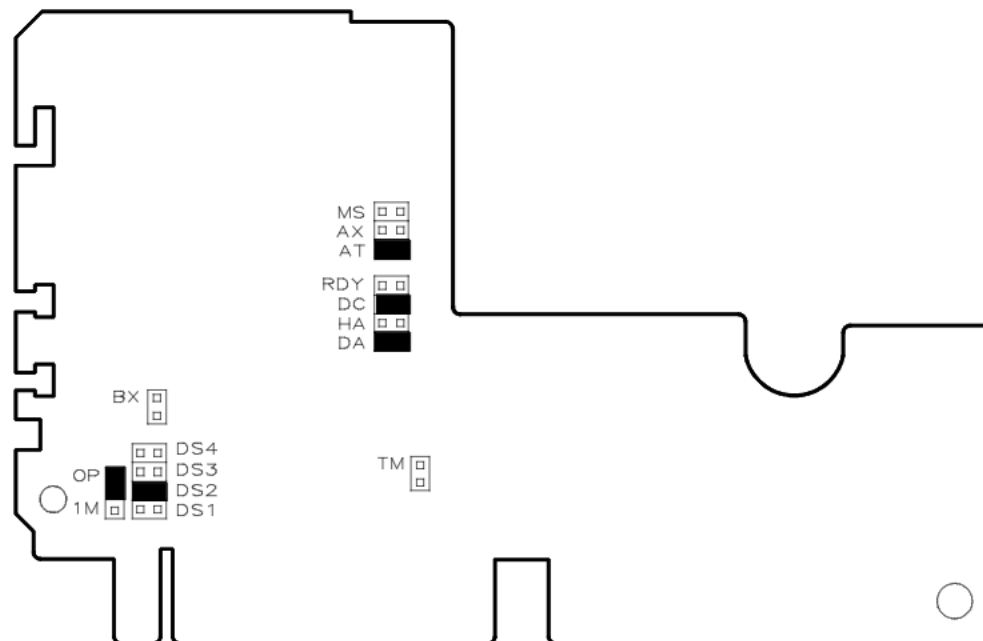
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| 1.2 MB FDU | PANASONIC JU-475-5 C08 (to lev. 02) PANASONIC JU-475-5 C20 | SA450 |
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| JUMPER | DESCRIPTION | SETTING FOR JU-475-5 C08 | SETTING FOR JU-475-5 C20 |
|---------------|---|-------------------------------------|-------------------------------------|
| 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 |

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| 1.2 MB FDU | PANASONIC JU-475-5 C08 (from lev. 03) PANASONIC JU-475-5 A72 PANASONIC JU-475-5 A08W | SA450 |
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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 |