

## 3.5" MICRO FLOPPY DISK DRIVES

### 3.5" MICRO FLOPPY DISK DRIVE

There are three types of micro floppy disk:

- Double-Sided Double-Density (DSDD), formatted at 720 KB and used on 720 KB, 1.44 MB and 2.88 MB drives.
- High-Density (HD), formatted at 1.44 MB and used on 1.44 MB and 2.88 MB drives.
- Extra-Density (ED), formatted at 2.88 MB and used on 2.88 MB drives.

Bear the following rules in mind when using these disks.

- The 2.88 MB drive can read and write to 720 KB and 1.44 MB disks; the 1.44 MB drive is compatible with 720 KB disks.
- Only MS-DOS release 5.0 can recognize 2.88 MB drives. The earlier DOS releases will recognize the 2.88 MB drive as a 1.44 MB drive.
- The 1.44 MB drive can format 720 MB disks by using the following formatting command: *Format/n:9/t:80, or /f:720*.
- The 2.88 MB drive that uses MS-DOS 5.0 can format 720 KB and 1.44 MB disks with the simple *Format* command.

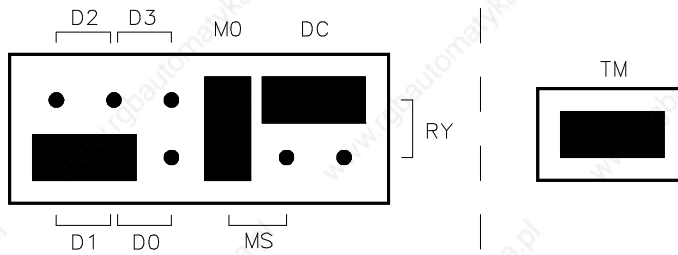
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### CONFIGURING DRIVE JUMPERS

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

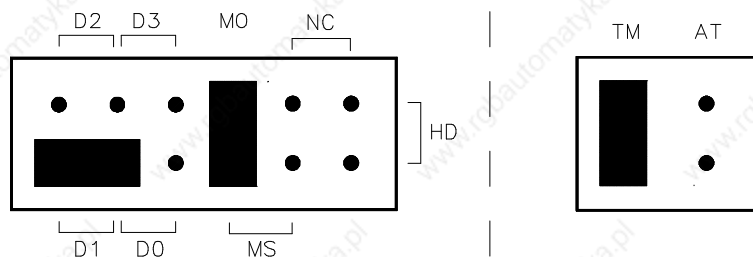
The only exception is the TM jumper (terminator), which must be removed when the 5.25" drive is installed as the system's second drive. However, this terminator must be present if the 5.25" drive is the only one present in the system. The terminator is always present on 3.5" drives, and is soldered on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

**1.44 MB FDU****PANASONIC JU-257-03T  
PANASONIC JU-257-03P****SA450**

JUMPER	DESCRIPTION	SETTING
D0	Drive selected as DRIVE 0	OFF
D1	Drive selected as DRIVE 1	ON
D2	Drive selected as DRIVE 2	OFF
D3	Drive selected as DRIVE 3	OFF
MO	Spindle motor controlled by the Motor On signal	ON
MS	Spindle motor controlled by the Drive Select signal	OFF
DC	Disk Change is the signal on pin 34 of the interface connector	ON
RY	Ready is the signal on pin 34 of the interface connector	OFF
TM	Terminator	ON

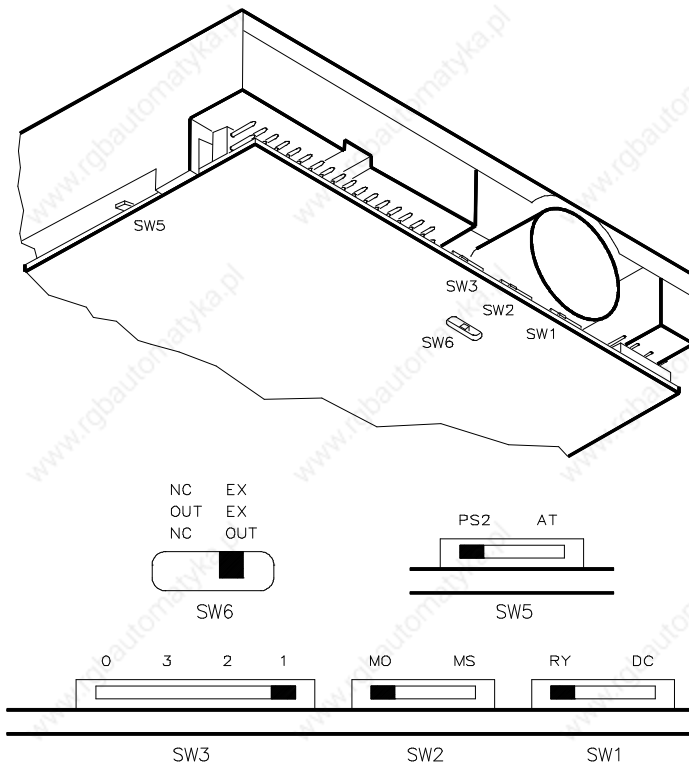
<b>1.44 MB FDU</b>	<b>PANASONIC JU-257A-081P PANASONIC JU-257A-101P</b>	<b>SA450</b>
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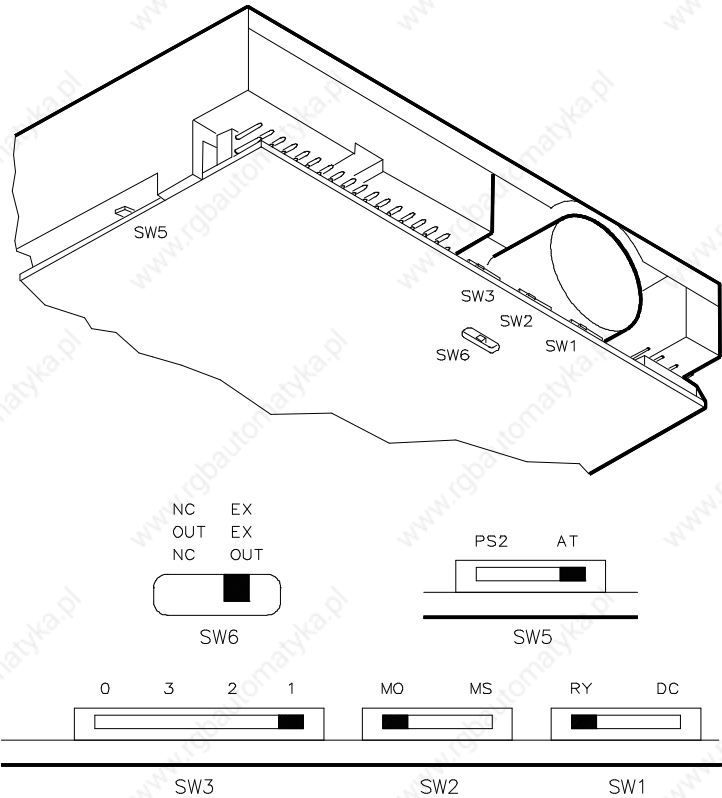
JUMPER	DESCRIPTION	SETTING FOR JU-257A-081P	SETTING FOR JU-257A-101P
D0	Drive selected as DRIVE 0	OFF	OFF
D1	Drive selected as DRIVE 1	ON	ON
D2	Drive selected as DRIVE 2	OFF	OFF
D3	Drive selected as DRIVE 3	OFF	OFF
MO	Spindle motor controlled by the Motor On signal	ON	ON
MS	Spindle motor controlled by the Drive Select signal	OFF	OFF
NC	Pin 2 of the interface connector is not connected	OFF	OFF
HD	HD is the pin 2 output signal	OFF	ON
TM	Terminator	ON	ON
AT	Mode Select PS2 (OFF) or PCAT (ON)	OFF	OFF

<b>1.44 MB FDU</b>	<b>PANASONIC JU-257A-083P PANASONIC JU-257A-083PJ PANASONIC JU-257A-103P PANASONIC JU-257A-103PJ</b>	<b>SA450</b>
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<b>SWITCH</b>	<b>DESCRIPTION</b>	<b>SETTING FOR JU-257A-083P/PJ</b>	<b>SETTING FOR JU-257A-103P/PJ</b>
SW3-0	Drive selected as DRIVE 0	OFF	OFF
SW3-1	Drive selected as DRIVE 1	ON	ON
SW3-2	Drive selected as DRIVE 2	OFF	OFF
SW3-3	Drive selected as DRIVE 3	OFF	OFF
SW2-MO	Spindle motor controlled by the Motor On signal	ON	ON
SW2-MS	Spindle motor controlled by the Drive Select signal	OFF	OFF
SW1-RY	Disk Change is the signal on pin 34 of the interface connector	ON	ON
SW1-DC	Ready is the signal on pin 34 of the interface connector	OFF	OFF
SW5-PS2	PS2 Mode Select	ON	ON
SW5-AT	PCAT Mode Select	OFF	OFF
SW6 NC, OUT, NC	Pin 2 of the interface connector is not connected	ON	OFF
SW6 EX, EX, OUT	HD is the output signal on pin 2 of the interface connector	OFF	ON

<b>1.44 MB FDU</b>	<b>PANASONIC JU-257A-293P</b>	<b>SA450</b>
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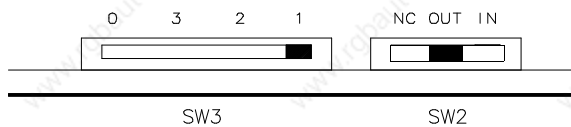
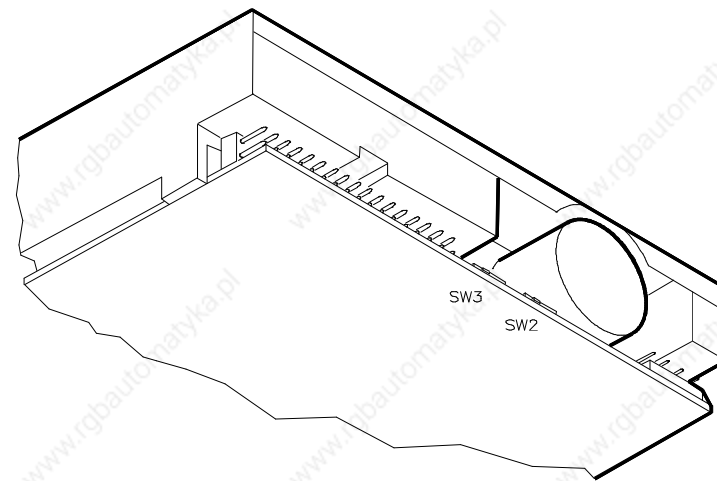
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SWITCH	DESCRIPTION	SETTING
SW3-0	Drive selected as DRIVE 0	OFF
SW3-1	Drive selected as DRIVE 1	ON
SW3-2	Drive selected as DRIVE 2	OFF
SW3-3	Drive selected as DRIVE 3	OFF
SW2-MO	Spindle motor controlled by the Motor On signal	ON
SW2-MS	Spindle motor controlled by the Drive Select signal	OFF
SW1-RY	Disk Change is the signal on pin 34 of the interface connector	ON
SW1-DC	Ready is the signal on pin 34 of the interface connector	OFF
SW5-PS2	PS2 Mode Select	OFF
SW5-AT	PCAT Mode Select	ON
SW6 NC, OUT, NC	Pin 2 of the interface connector is not connected	OFF
SW6 EX, EX, OUT	HD is the output signal on pin 2 of the interface connector	ON

1.44 MB FDU

**PANASONIC JU-257A-84P**  
**PANASONIC JU-257A-104P**

SA450

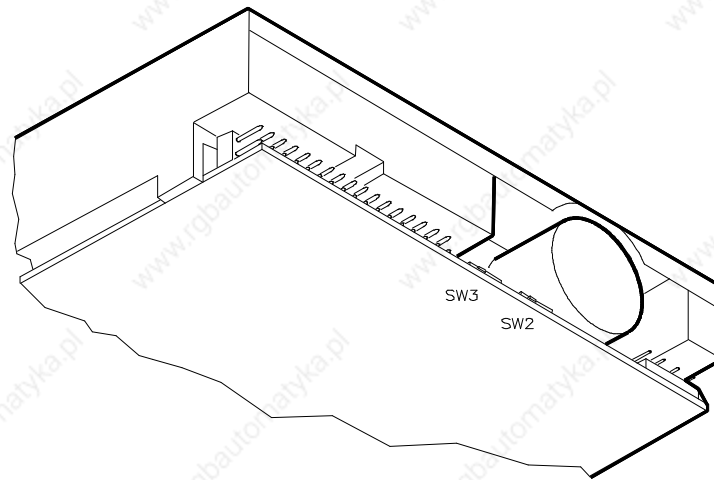


SWITCH	DESCRIPTION	SETTING FOR JU-257A-84P	SETTING FOR JU-257A-104P
SW3-0	Drive selected as DRIVE 0	OFF	OFF
SW3-1	Drive selected as DRIVE 1	ON	ON
SW3-2	Drive selected as DRIVE 2	OFF	OFF
SW3-3	Drive selected as DRIVE 3	OFF	OFF
SW2-NC	Pin 2 of the interface connector is not connected	ON	OFF
SW2-OUT	-HD is the output signal on pin 2 of the interface connector	OFF	ON
SW1-IN	+HD is the input signal on pin 2 of the interface connector	OFF	OFF

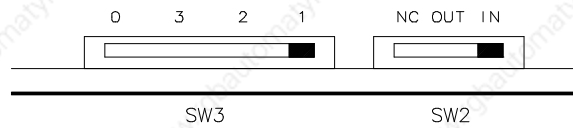
1.44 MB FDU

PANASONIC JU-257A-294P

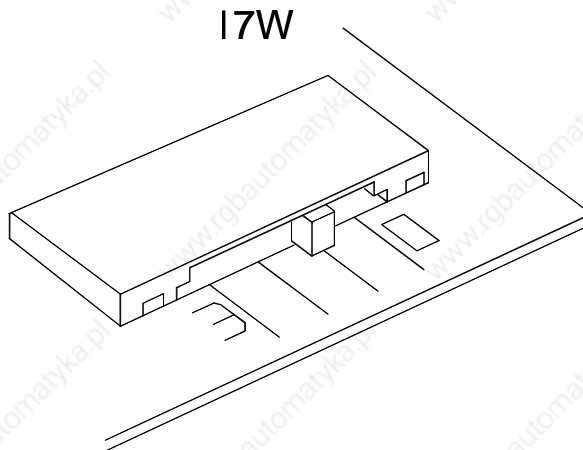
SA450



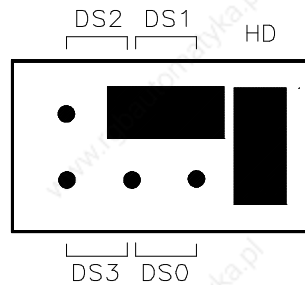
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SWITCH	DESCRIPTION	SETTING
SW3-0	Drive selected as DRIVE 0	OFF
SW3-1	Drive selected as DRIVE 1	ON
SW3-2	Drive selected as DRIVE 2	OFF
SW3-3	Drive selected as DRIVE 3	OFF
SW2-NC	Pin 2 of the interface connector is not connected	OFF
SW2-OUT	-HD is the output signal on pin 2 of the interface connector	OFF
SW1-IN	+HD is the input signal on pin 2 of the interface connector	ON

**1.44 MB FDU****SONY MP-F17W-80D****SA450**

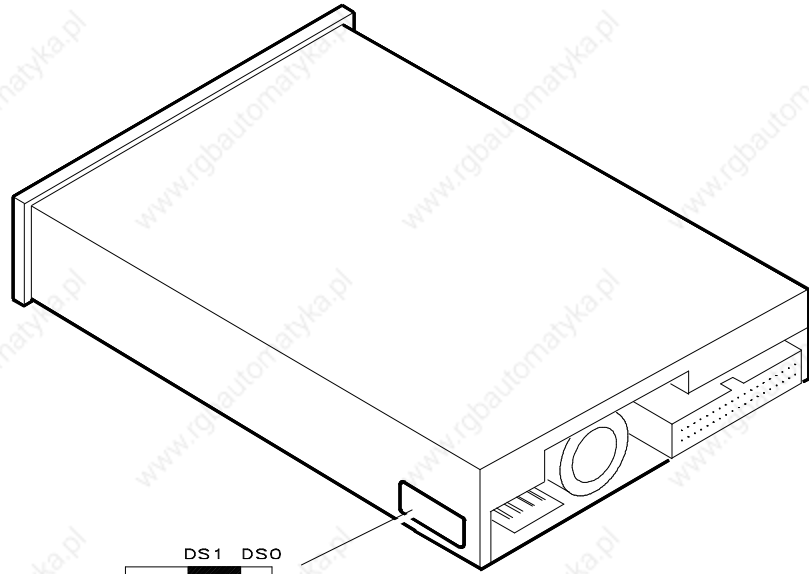
SWITCH	DESCRIPTION	SETTING
0	Drive selected as DRIVE 0	OFF
1	Drive selected as DRIVE 1	ON
2	Drive selected as DRIVE 2	OFF
3	Drive selected as DRIVE 3	OFF

**1.44 MB FDU****SONY MP-F17W-82D****SA450**

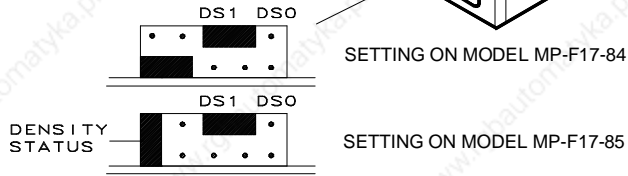
JUMPER	DESCRIPTION	SETTING
DS0	Drive selected as DRIVE 0	OFF
DS1	Drive selected as DRIVE 1	ON
DS2	Drive selected as DRIVE 2	OFF
DS3	Drive selected as DRIVE 3	OFF
HD	HD sense is the signal on pin 2 of the interface connector	ON



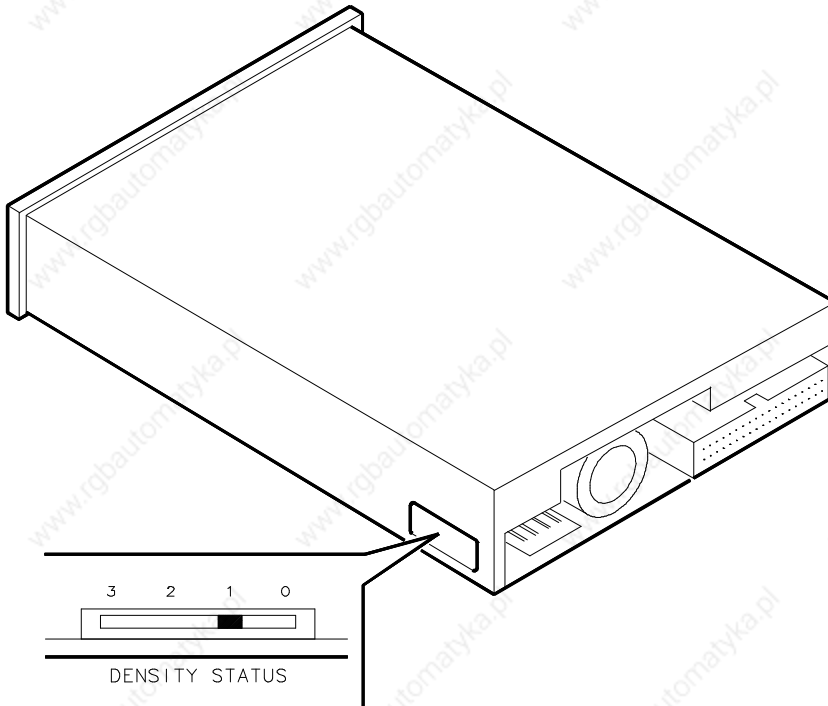
<b>1.44 MB FDU</b>	<b>SONY MP-F17W-84 SONY MP-F17W-85</b>	<b>SA450</b>
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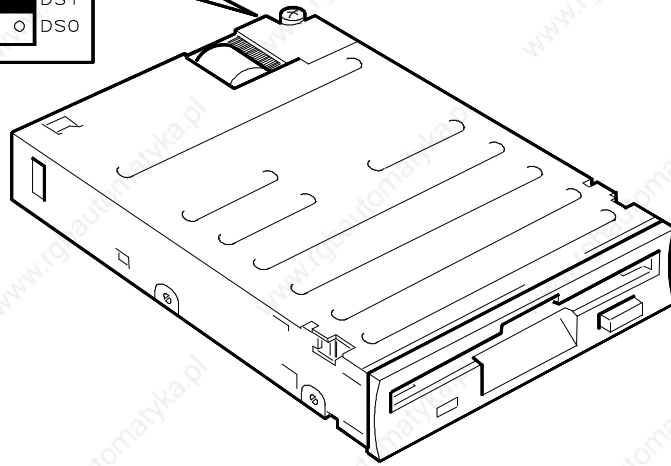
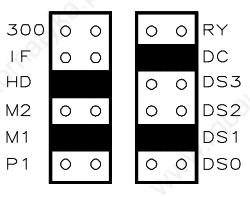
<b>JUMPER</b>	<b>DESCRIPTION</b>	<b>SETTING FOR MP-F17-84</b>	<b>SETTING FOR MP-F17-85</b>
DS0	Drive selected as DRIVE 0	OFF	OFF
DS1	Drive selected as DRIVE 1	ON	ON
DENSITY STATUS	Density Status is the signal on pin 2 of the interface connector	OFF	ON

**1.44 MB FDU****SONY MP-F17W-86****SA450**

SWITCH	DESCRIPTION	SETTING
0	Drive selected as DRIVE 0	OFF
1	Drive selected as DRIVE 1	ON
2	Drive selected as DRIVE 2	OFF
3	Drive selected as DRIVE 3	OFF

<b>1.44 MB FDU</b>	<b>Y-E DATA YD-702B-6039B Y-E DATA YD-702B-6037B</b>	<b>SA450</b>
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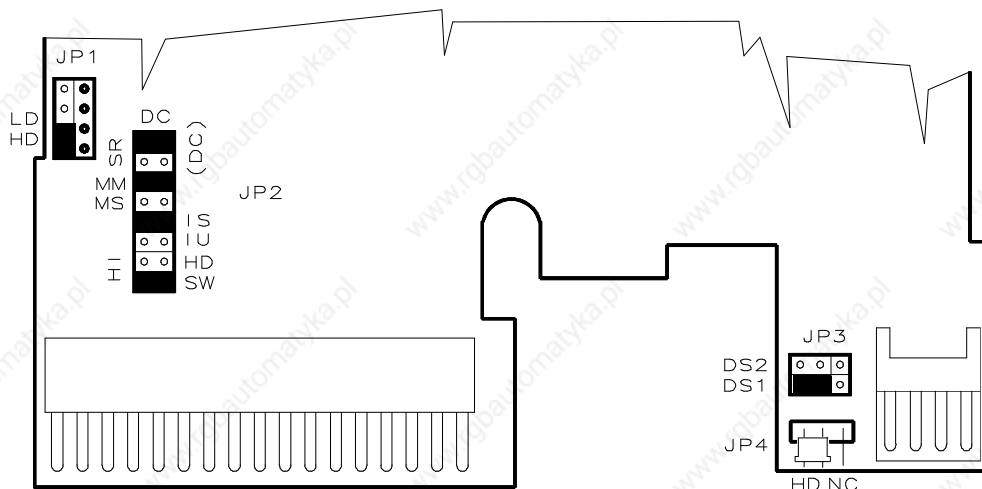
CONFIGURATION ON  
DRIVE YD-702B-6037B



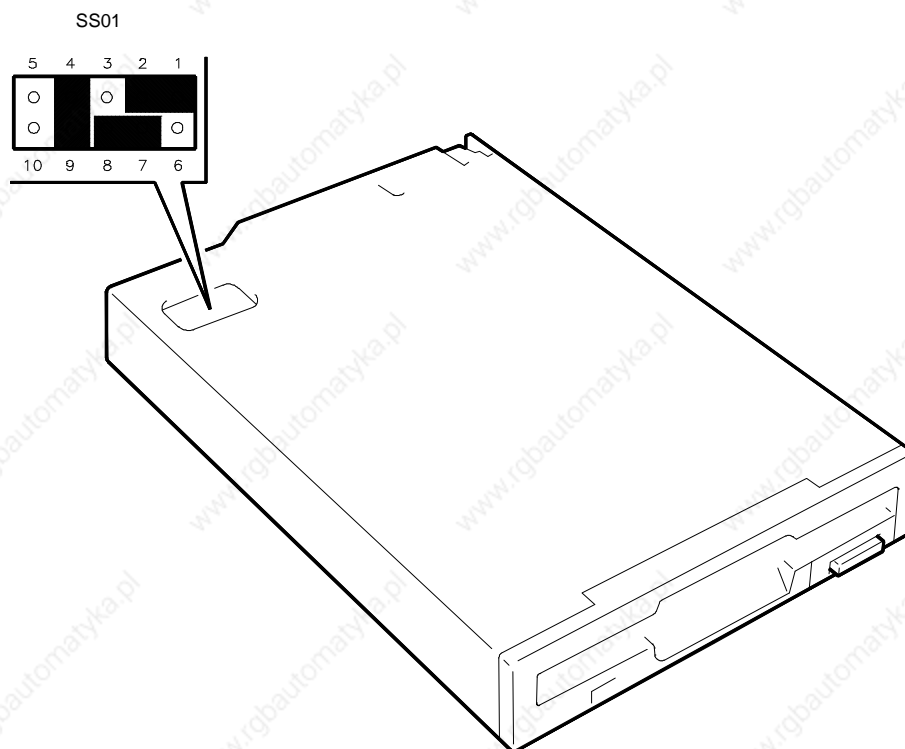
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JUMPER	DESCRIPTION	SETTING FOR YD-702B-6037B	SETTING FOR YD-702B-6039B
300	Enable 300 Kbit/sec transfer rate	OFF	OFF
IF		OFF	ON
HD	Issues the HD Sense signal on pin 2	ON	OFF
M2	Spindle motor controlled by the Drive Select signal	OFF	OFF
M1		ON	OFF
P1		OFF	OFF
RY	Ready is the signal on pin 34 of the interface connector	OFF	OFF
DC	Disk Change is the signal on pin 34 of the interface connector	ON	ON
DS3	Drive selected as DRIVE 3	OFF	OFF
DS2	Drive selected as DRIVE 2	OFF	OFF
DS1	Drive selected as DRIVE 1	ON	ON
DS0	Drive selected as DRIVE 0	OFF	OFF

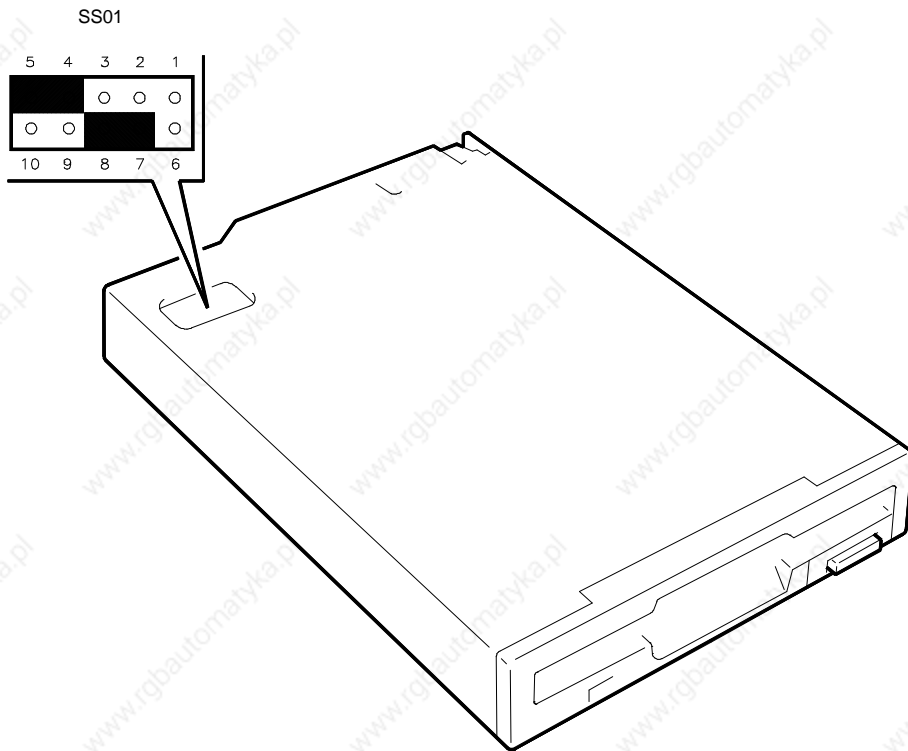
<b>1.44 MB FDU</b>	<b>mitsubishi MF-355C-58ML mitsubishi MF-355C-58MF</b>	<b>SA450</b>
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JUMPER	DESCRIPTION	SETTING FOR MF-355C-58ML	SETTING FOR MF-355C-58MF
JP2-IS	Front LED controlled by the Drive Select signal	ON	ON
JP2-IU	Front LED controlled by the Ready signal	OFF	OFF
JP3-DS0	Drive selected as DRIVE 0	OFF	OFF
JP3-DS1	Drive selected as DRIVE 1	ON	ON
JP2-MM	Motor start-up by the Motor-On signal	ON	ON
JP2-MS	Motor start-up by the Drive Select signal	OFF	OFF
JP2-HI JP2-HD JP2-SW JP1-HD JP1-LD	Open or Ready is the signal on pin 2 of the interface connector	OFF OFF ON ON OFF	OFF OFF ON ON OFF
JP4-HD	Issues the HD Sense signal on pin 2	ON	OFF
JP4-NC	Pin 2 not connected	OFF	ON
JP2-SR	Issues the Standard Ready signal on pin 34	OFF	OFF
JP2-DC	Issues the Disk Change signal on pin 34	ON	ON
JP2-(DC)	Issues the Disk Change signal on pin 2	OFF	OFF

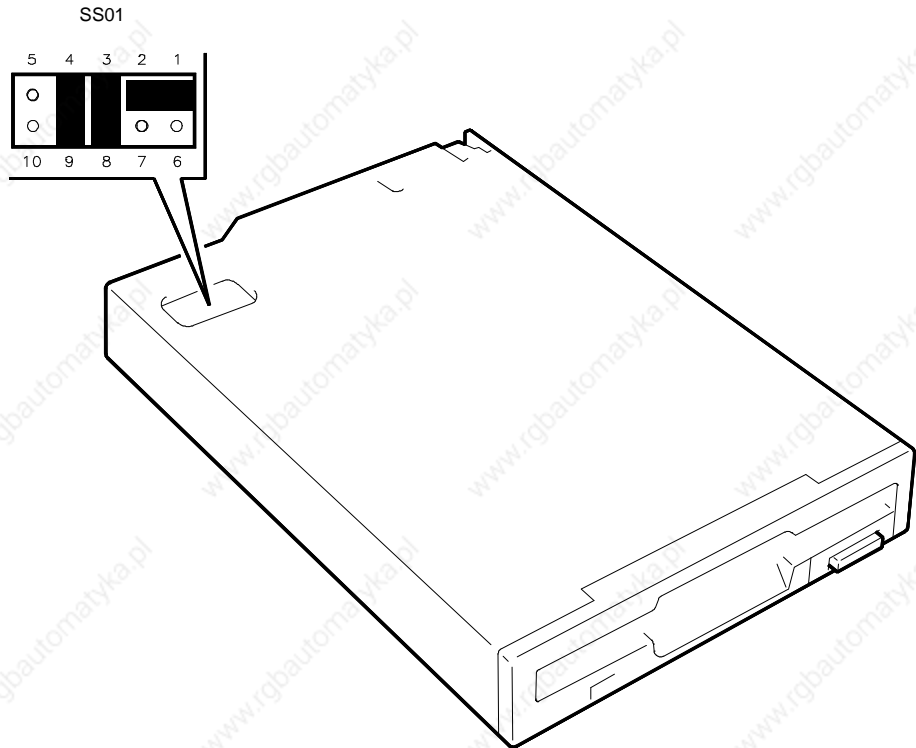
**1.44 MB FDU****EPSON SMD1040-418****SA450****4**

JUMPER SS01	DESCRIPTION	SETTING
1-6	Drive selected as DRIVE 0	OFF
1-2	Drive selected as DRIVE 1	ON
3-8 4-9	Mode is selected by an internal sensor. I/F pins 7, 9 and 11 are connected to GND.	OFF
3-4 7-8	Mode is selected by signal HDI. Mode 2M is set with input signal HDI at low level. I/F pins 7, 9 and 11 are open.	OFF
4-9 7-8	Mode is selected by input signal HDI. Mode 2M is set with input signal HDI at high level. I/F pins 7, 9 and 11 are connected to GND.	ON

**1.44 MB FDU****EPSON SMD1040-321****SA450**

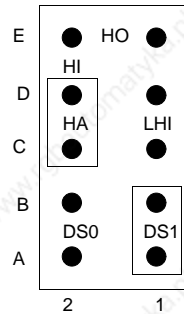
JUMPER SS01	DESCRIPTION	SETTING
3-8 4-5	Mode is selected by an internal sensor. I/F pins 1, 3 and 5 are connected to the +5 V.	OFF
3-4 7-8	Mode is selected by an internal sensor. When medium 2HD is inserted, the output signal on pin 9 is low. I/F pins 7, 9 and 11 are open.	OFF
4-5 7-8	Mode is selected by input signal HDI. Mode 2M is set when input signal HDI is at high level. I/F pins 1, 3 and 5 are connected to the +5 V.	ON

<b>1.44 MB FDU</b>	<b>EPSON SMD1040-419</b>	<b>SA450</b>
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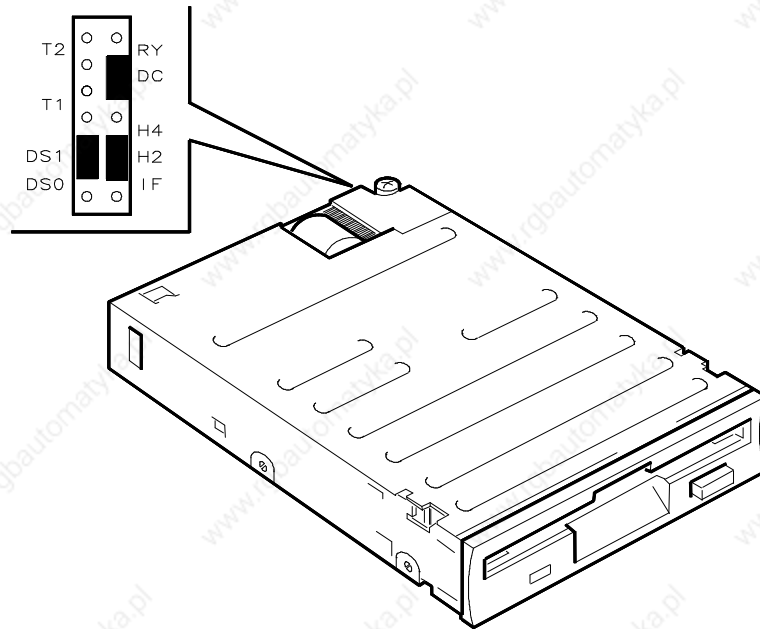
<b>JUMPER SS01</b>	<b>DESCRIPTION</b>	<b>SETTING</b>
1-6	Drive selected as DRIVE 0	OFF
1-2	Drive selected as DRIVE 1	ON
3-8 4-9	The mode is selected by an internal sensor. I/F pins 7, 9 and 11 are connected to GND.	ON
3-4 7-8	The mode is selected by the HDI input signal Mode 2M is selected by a low HDI input signal I/F pins 7, 9 and 11 are open.	OFF
4-9 7-8	The mode is selected by the HDI input signal Mode 2M is selected by a high HDI input signal. I/F pins 7, 9 and 11 are connected to GND.	OFF

**1.44 MB FDU****TEAC FD235HF-4473****SA450**

JUMPER	SETTING	DESCRIPTION
DS1	ON	Drive selected as DRIVE 1
DS0	OFF	Drive selected as DRIVE 0
HA	ON	Density set automatically (mode 2)
HI	OFF	Density set by HD IN on pin 2 (mode 1)
HO	OFF	HD OUT on pin 2 (mode 3)

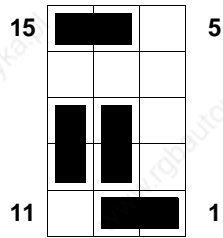
MODE	JUMPERS				PIN 2 FUNCTION	HD LEVEL	SET DENSITY	
	HA	HI	HO	LHI			HOST SIDE	FDU SIDE
1A	OFF	ON	OFF	OFF	HD IN	High	Key-in or software	HD IN from host
1B	OFF	ON	OFF	ON	HD IN	Low		
2	ON	OFF	OFF	OFF	Open	-	Key-in or software	Automatic from sensor
3	OFF	OFF	ON	OFF	HD OUT	High	HD OUT from FDU	Automatic from sensor



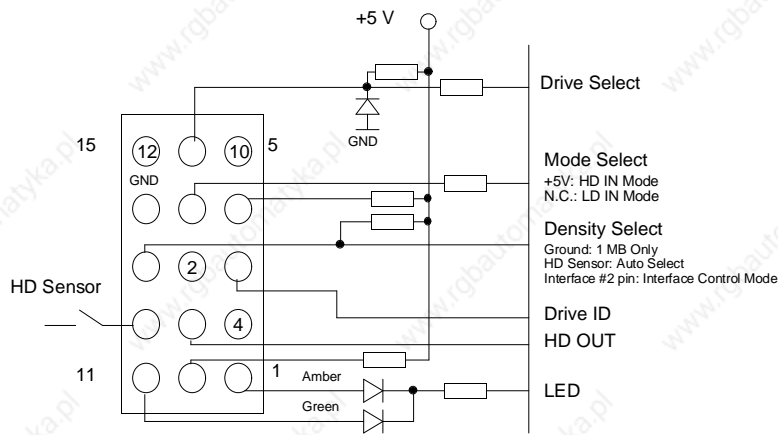
**1.44 MB FDU****Y-E DATA YD-702D-6037D****SA450****4**

JUMPER	DESCRIPTION	SETTING
IF, T1, T2	Automatic Switching operating mode	OFF
H2	Sends the HD sense signal on pin 2	ON
H4	Sends the HD sense signal on pin 4	OFF
RY	The Ready signal is on pin 34 of the interface connector	OFF
DC	The Disk Change signal is on pin 34 of the interface connector	ON
DS1	Drive selected as DRIVE 1	ON
DS0	Drive selected as DRIVE 0	OFF

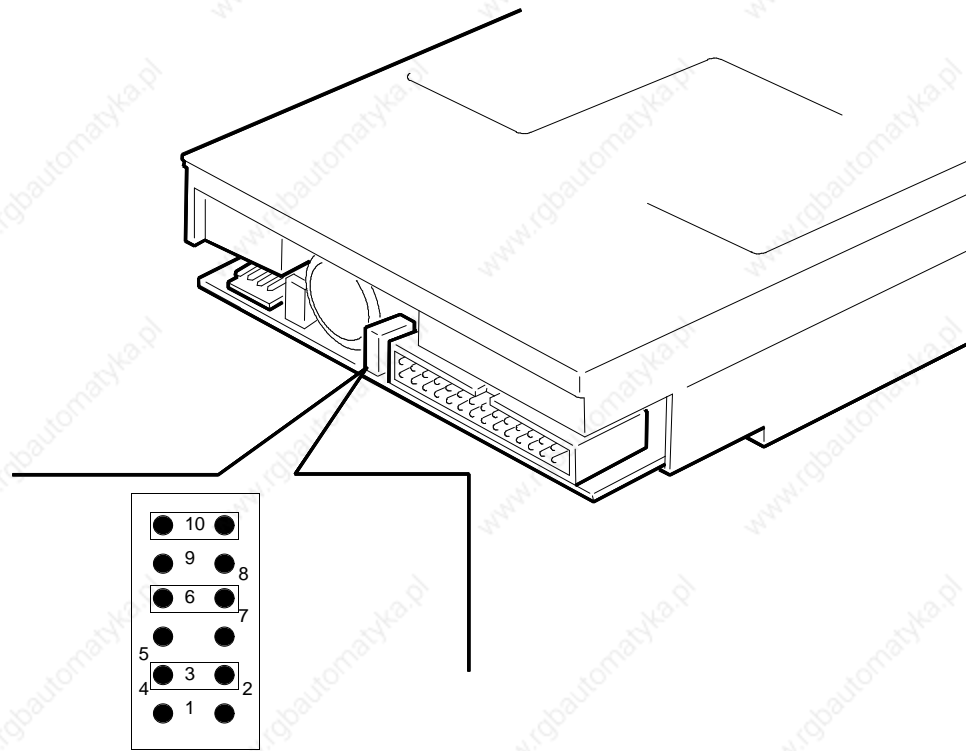
<b>1.44 MB FDU</b>	<b>SONY MPF 420-1</b>	<b>SA450</b>
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**Jumper Description**

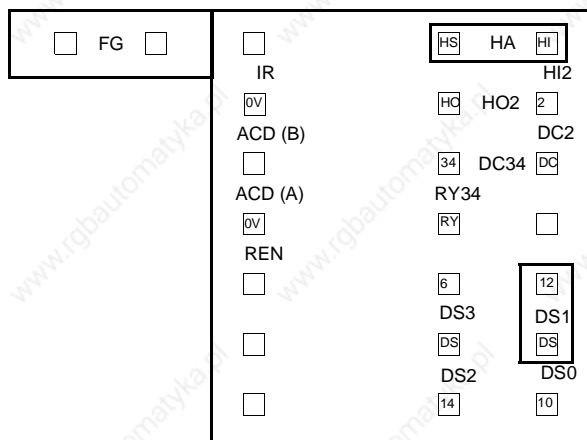


**Note:** The numbers in the circles indicate the number of interface pins connected.

**1.44 MB FDU****MITSUMI D359T3****SA450****4**

JUMPER POSITION	DESCRIPTION	SETTING
1	Not connected	OFF
2	Not connected	OFF
3	Drive selected as DRIVE 1	ON
4	Drive selected as DRIVE 2	OFF
5	Drive selected as DRIVE 0	OFF
6	Shift from Normal Density to High Density through disk insertion	ON
7	High Density input	OFF
8	Low Density input	OFF
9	Low Density output	OFF
10	High Density output	ON

<b>1.44 MB FDU</b>	<b>TEAC FD235HF-6573</b>	<b>SA450</b>
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JUMPER	FUNCTION	SETTING
DS0	Drive selected as DRIVE 0 on pin 10	OFF
DS1	Drive selected as DRIVE 1 on pin 12	ON
DS2	Drive selected as DRIVE 2 on pin 14	OFF
DS3	Drive selected as DRIVE 3 on pin 6	OFF
RY34	READY output on pin 34	OFF
DC34	DISK CHANGE output on pin 34	OFF
DC2	DISK CHANGE output on pin 2	OFF
HA	Density set automatically by the sensor	ON
HI2	Density set by HD IN on pin 2	OFF
HO2	HD OUT output on pin 2	OFF
IR	LED on: Drive Select * Ready	OFF
ACD (A) or (B)	Auto-checking at power on enabled	OFF
REN	Auto-recalibration at power on disabled	OFF
FG	The drive's ground is connected to the ground of the PCBA board	OFF

METHOD	JUMPERS			INPUT	OUTPUT	HD LEVEL	DENSITY SET	
	HO2	HI2	HA	PIN 2	PIN 2		HOST SIDE	FDU SIDE
1	OFF	ON	OFF	HD IN	Open	High	Key-in or software	HD IN from host
2	OFF	OFF	ON	Open	Open	-	Key-in or software	Automatic from sensor
3	ON	OFF	ON	Open	HD OUT	Low	HD OUT from FDU	Automatic from sensor

<b>1.44 MB FDU</b>	<b>MITSUMI D359C</b>	<b>SA450</b>
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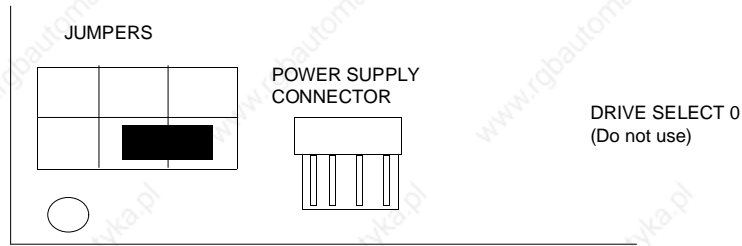
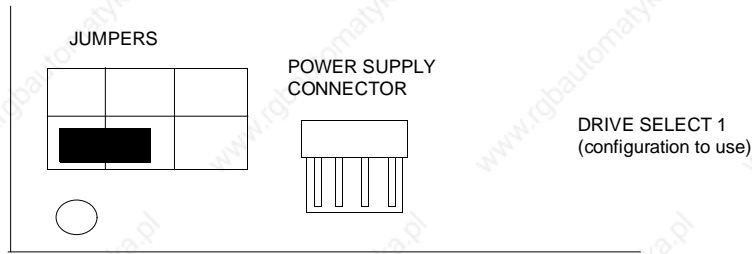
There are no jumpers to be set on this drive and for this reason the drive does not have any. Density Mode and Drive Select are fixed and have already been set by Mitsumi as follows:

- Density Mode = Auto Select
- Drive Select = Drive 0

D359C drives are installed on systems where they cannot be fitted as second drives.

<b>1.44 MB FDU</b>	<b>SONY MPF520-3</b>	<b>SA450</b>
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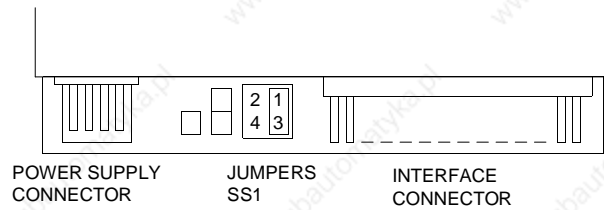


<b>1.44 MB FDU</b>	<b>MITSUMI D359T5</b>	<b>SA450</b>
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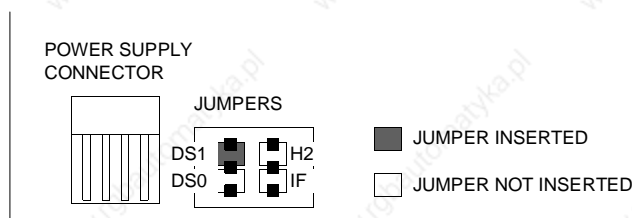
There are no jumper settings to be made on this drive and consequently there are no jumpers present. The Density Mode and Drive Select parameters cannot be changed and are factory-set by Mitsumi as follows:

- Density Mode = Auto Select
- Drive Select = Drive 2.

<b>1.44 MB HDU</b>	<b>EPSON SMD 1340 P-031</b>	<b>SA450</b>
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Jumpers SS1	Drive Select	Capacity Mode	Decided by	Disk or logic signal		
				2 MB	1.6 MB	1 MB
	DS1	Capacity Mode is switched by the internal sensor	Disk	2HD	-	2DD
	DS1	Capacity Mode is switched by the internal sensor	Disk	2HD	-	2DD
	DS1	Capacity Mode is switched by the HDI (pin 2) input signal	HDI (pin 2)	H	-	L
	DS1	Capacity Mode is switched by the internal sensor on the HDO (pin 2) output signal (setting to be used)	HDO (pin 2)	L	-	H
	DS1	Capacity Mode is switched by the internal sensor and by the 1.6MI (pin 2) input signal	Disk	2HD	-	2DD
			1.6MI (pin 2)	H	L	-
	DS1	Capacity Mode is switched by the internal sensor	Disk	2HD	-	2DD
	DS0	Capacity Mode is switched by the internal sensor	Disk	2HD	-	2DD
	DS0	Capacity Mode is switched by the HDI (pin 2) input signal	HDI (pin 2)	L	-	H
	DS0	Capacity Mode is switched by the LDI (pin 2) input signal	LDI (pin 2)	H	-	L
	DS0	Capacity Mode is switched by the internal sensor and by the 1.6MI (pin 2) input signal	Disk	2HD	-	2DD
			1.6MI (pin 2)	H	L	-
	DS0	Capacity Mode is switched by the internal sensor	Disk	2HD	-	2DD

**1.44 MB FDU****Y-E DATA YD-702D-6537D****SA450**

**Note:** This drive is available in two versions: with and without front panel

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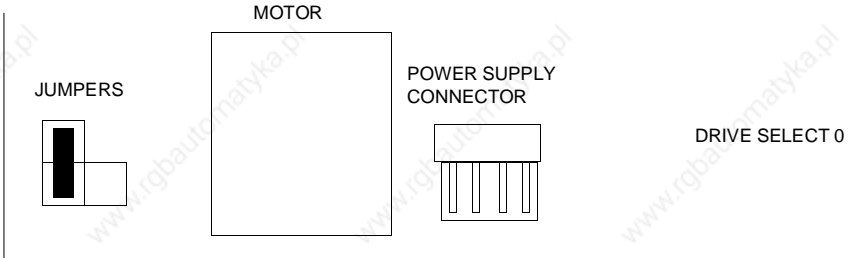
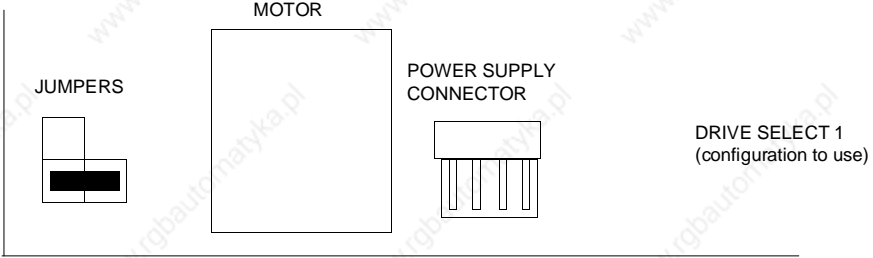
JUMP.	FUNCTION	COND.
IF	Selects the capacity	
	Mode 2 (2.0/1.0 MB) Automatic Switching operation 2.0 MB: if a high density disk is used 1.0 MB: if a double density disk is used	OFF *
	Mode 3 (2.0/1.6/1.0 MB) Automatic Switching with "Mode Select" operation 2.0 MB: if a high density disk is used with "Mode Select" high 1.6 MB: if a high density disk is used with "Mode Select" low 1.0 MB: if a double density disk is used; "Mode Select" is not used	ON
H2	Selects the output of the "High Density" signal	
	The High Density signal is applied to interface connector pin 2	ON
	The High Density signal is not applied to the interface connector	OFF *
DS1	Drive selected as DRIVE 1	ON *
DS0	Drive selected as DRIVE 0	OFF

**1.44 MB FDU****PANASONIC JU-257A 746P****SA450**

**Note:** This drive is available in two versions: with or without front panel.

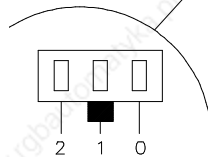
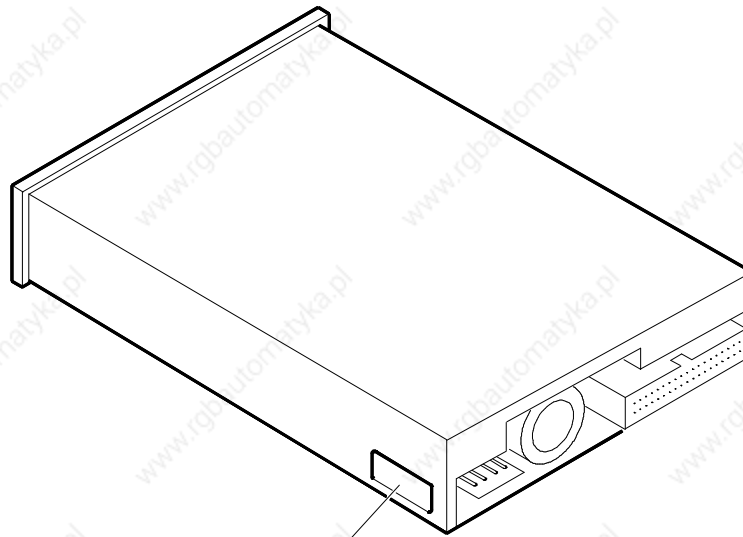
There are no jumper settings to be made on this drive and consequently there are no jumpers present. The Density Mode and Drive Select parameters cannot be changed and are factory-set by Panasonic.

<b>1.44 MB FDU</b>	<b>SONY MPF920-3</b>	<b>SA450</b>
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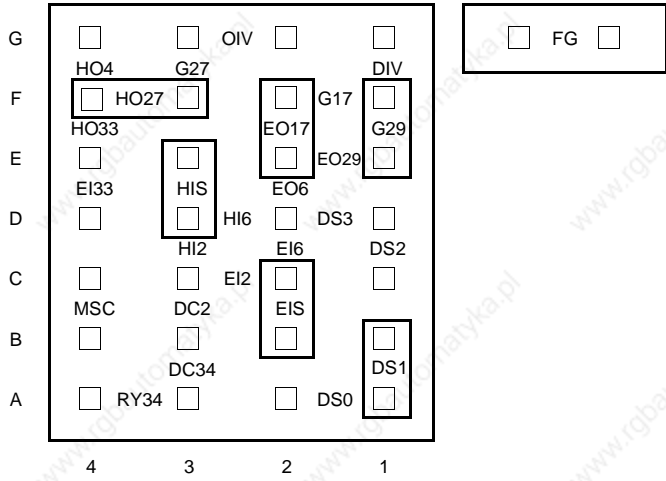
<b>2.88 MB FDU</b>	<b>SONY MP-F40W-17 SONY MP-F40W-17/1 SONY MP-F40W-31</b>	<b>SA450</b>
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<b>SWITCH</b>	<b>DESCRIPTION</b>	<b>SETTING</b>
0	Drive selected as DRIVE 0	OFF
1	Drive selected as DRIVE 1	ON
2	Drive selected as DRIVE 2	OFF

<b>2.88 MB FDU</b>	<b>TEAC FD235J-5636</b>	<b>SA450</b>
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JUMPER	DESCRIPTION	SETTING
DS0	Drive selected as DRIVE 0 on pin 10	OFF
DS1	Drive selected as DRIVE 1 on pin 12	ON
DS2	Drive selected as DRIVE 2 on pin 14	OFF
DS3	Drive selected as DRIVE 3 on pin 6	OFF
RY34	READY output on pin 34	OFF
DC2	DISK CHANGE output on pin 2	OFF
DC34	DISK CHANGE output on pin 34	OFF
HIS	HD set automatically by the HD sensor	ON
HI2	HD IN input on pin 2	OFF
HI6	HD IN input on pin 6	OFF
EIS	ED set automatically by the ED sensor	ON
EI2	ED IN input on pin 2	OFF
EI6	ED IN input on pin 6	OFF
EI33	ED IN input on pin 33	OFF
HO4	HD OUT output on pin 4	OFF
HO27	HD OUT output on pin 27	ON
HO33	HD OUT output on pin 33	OFF
EO6	ED OUT output on pin 6	OFF
EO17	ED OUT output on pin 17	ON
EO29	ED OUT output on pin 29	OFF
OIV	HD OUT / ED OUT level inverted, Low = true	OFF
DIV	HD IN / ED IN level assignment	OFF
MSC		OFF
G17	DC 0V on pin 17	OFF
G27	DC 0V on pin 27	OFF
G29	DC 0V on pin 29	ON
FG	Drive ground connected to PCBA ground	OFF