SPECIFICATIONS

MODEL: F-354CAE/F-354C (135 TPI, DOUBLE SIDES)
CONTENTS

1. SCOPE ...................................................................................................................................................... 1

2. FEATURES ................................................................................................................................................ 1

3. SPECIFICATIONS ..................................................................................................................................... 2
   3-1. Specification (1) .............................................................................................................................. 2
   3-2. Specification (2) .............................................................................................................................. 3
   3-3. Installation Conditions ...................................................................................................................... 4
   3-4. Reliability ....................................................................................................................................... 5

4. DIMENSIONS ........................................................................................................................................... 6

5. INTERFACE SIGNALS .......................................................................................................................... 7
   5-1. Signal Voltage Levels ...................................................................................................................... 7
   5-2. Input Signals .................................................................................................................................... 7
   5-3. Output Signals ................................................................................................................................ 8
   5-4. Input signal Line Terminator .......................................................................................................... 9
   5-5. Interface Circuit ............................................................................................................................. 9
   5-6. Signal Timing ................................................................................................................................ 12

6. POWER CONSUMPTION ....................................................................................................................... 17
   6-1. Power Consumption (1) .................................................................................................................. 17
   6-2. Power Consumption (2) .................................................................................................................. 18

7. POWER-ON SEQUENCE ........................................................................................................................ 19

8. POWER SUPPLY INTERFACE .............................................................................................................. 20
   8-1. Power Supply Specifications ............................................................................................................ 20
   8-2. Frame Ground .................................................................................................................................. 20
   8-3. Power Supply Sequence ................................................................................................................... 20

9. INTERFACE CONNECTOR AND PIN ARRANGEMENT ....................................................................... 20
   9-1. Interface Connector ........................................................................................................................ 20
   9-2. Pin Arrangement ............................................................................................................................. 20

10. SHORT PLUG AND FRONT LED .......................................................................................................... 24
    10-1. Short Plug .................................................................................................................................... 24
    10-2. Front LED .................................................................................................................................... 25
1. SCOPE
These Specifications apply to 3-1/2" double-sided 135-TPI micro floppy disk drive (hereafter abbreviated as FDD) CHINON F-354CAE/F-354C.

2. FEATURES
The features of the F-354CAE/F-354C are as follows:

(1) Compact, Lightweight and Slim
The base section, the foundation supporting all components of the unit, uses aluminum die-cast to ensure superb heat radiation, thermal expansion characteristic and ruggedness against external force. With its light weight of 600 g (1.33 lb) and compact size of 101.6 (W) x 32 (H) x 155 (D) mm (4” x 1-1/4” x 6-1/8”), the F-354CAE/F-354C are ideal for desk-top type small computer systems or other portable systems.

(2) Low Power Consumption
Power consumption has been minimized by application of C-MOS circuitry, low power read/write IC and low power type DD motor, enabling a low power consumption of 2.2 W (typ.) in operation and 0.02 W (typ.) in standby. The peak value of power consumption during operation is also restricted by new technology.

(3) Auto-Eject Mechanism (Only F-354CAE)
Our original technology has produced an auto-ejection mechanism with no additional motor for ejection. The disk can be auto-ejected by just sending a control pulse from the system and selection of drive is also possible in case two or more FDDs are used.

(4) Head Soft-Landing Mechanism
The soft-landing mechanism protects head and disk against disk-loading impact to prolong the service lives of the head and disk.
This mechanism does not operate in disk ejection, making the eject operation lighter.

(5) Single-Touch Disk Positioning
Based on the cassette insertion mechanism in our famous car stereo system, the FDD allows the disk to be accurately positioned with a single touch. This sophisticated feature is very durable. When the disk is to be ejected, simple press the button and the disk pops out ready to file.

(6) High Reliability
The FDD has a flat, 3-phase DC brushless direct drive motor with an accurate chucking mechanism and a reliable spindle knob, so the rotation accuracy is improved and service life is prolonged.

(7) High-Speed, High-Accuracy Head Positioning Mechanism
The small, compact, flat hybrid-type stepping motor and steel belt drive mechanism assures high accuracy in head positioning and fast access time of 3 ms for 1 track.

(8) Higher Track Density, Larger Capacity
The high 135 TPI density allows a high 1 MB capacity with double-density (MFM) unformatted disk.

(9) Easy Interfacing
The FDD is compatible with 5-1/4" FDDs and data replacement is easy.
3. SPECIFICATIONS

3-1. Specification (1)

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Double density</td>
</tr>
<tr>
<td>Unformatted</td>
<td></td>
</tr>
<tr>
<td>Per disk</td>
<td>1 M bytes</td>
</tr>
<tr>
<td>Per track</td>
<td>6.25 K bytes</td>
</tr>
<tr>
<td>Formatted (Equivalent to IBM format)</td>
<td></td>
</tr>
<tr>
<td>Per disk</td>
<td>655.36 K bytes</td>
</tr>
<tr>
<td>Per track</td>
<td>4096 bytes</td>
</tr>
<tr>
<td>Recording density</td>
<td>8717 BPI</td>
</tr>
<tr>
<td>Rate of data transfer</td>
<td>250 K bits per second</td>
</tr>
<tr>
<td>Power on to ready time</td>
<td>0.5 sec.</td>
</tr>
<tr>
<td>Single track seek time</td>
<td>3 ms per track</td>
</tr>
<tr>
<td>Average access time</td>
<td>95 ms</td>
</tr>
<tr>
<td>Settling time</td>
<td>15 ms</td>
</tr>
<tr>
<td>Average latency time</td>
<td>100 ms</td>
</tr>
<tr>
<td>Rotation speed</td>
<td>300 rpm</td>
</tr>
<tr>
<td>Long term speed variation</td>
<td>Less than +1.5%</td>
</tr>
<tr>
<td>Instantaneous speed variation</td>
<td>Less than +1.5%</td>
</tr>
<tr>
<td>Number of tracks</td>
<td>160</td>
</tr>
<tr>
<td>Number of heads</td>
<td>2</td>
</tr>
<tr>
<td>Track radius</td>
<td>Side 0: 39.5 mm</td>
</tr>
<tr>
<td></td>
<td>24.6875 mm</td>
</tr>
<tr>
<td>Number of indexes</td>
<td>1</td>
</tr>
<tr>
<td>Recording method</td>
<td>MFM</td>
</tr>
<tr>
<td></td>
<td>FM</td>
</tr>
<tr>
<td>Track density</td>
<td>135 TPI</td>
</tr>
</tbody>
</table>
### 3-2. Specification (2)

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical dimensions</td>
<td>101.6 (W) x 32 (H) x 155 (D) mm</td>
</tr>
<tr>
<td>Weight</td>
<td>600 grams</td>
</tr>
<tr>
<td>Power supply</td>
<td>DC +12 V ± 5%</td>
</tr>
<tr>
<td></td>
<td>DC +5 V ± 5%</td>
</tr>
<tr>
<td>Power consumption</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 V</td>
</tr>
<tr>
<td>Stand by</td>
<td>4 mA TYP</td>
</tr>
<tr>
<td>Read</td>
<td>200 mA TYP</td>
</tr>
<tr>
<td>Write</td>
<td>210 mA TYP</td>
</tr>
<tr>
<td>Seek</td>
<td>100 mA TYP</td>
</tr>
<tr>
<td>Starting current</td>
<td>10 mA TYP</td>
</tr>
<tr>
<td>During auto ejection</td>
<td>4 mA TYP</td>
</tr>
<tr>
<td>Ripple voltage allowance</td>
<td></td>
</tr>
<tr>
<td>DC +12 V</td>
<td>Less than 150 mVp-p (including spike noise)</td>
</tr>
<tr>
<td>DC +5 V</td>
<td>Less than 100 mVp-p (including spike noise)</td>
</tr>
<tr>
<td>Noise</td>
<td>Less than 55 phons (class A) (separated from the drive by 1m)</td>
</tr>
<tr>
<td>Cabinet specifications</td>
<td></td>
</tr>
<tr>
<td>Front panel</td>
<td>Material: ABS</td>
</tr>
<tr>
<td>Front door</td>
<td>Material: ABS</td>
</tr>
</tbody>
</table>
## 3-3. Installation Conditions

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mounting position</strong></td>
<td></td>
</tr>
<tr>
<td>Vertical</td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td></td>
</tr>
<tr>
<td>15° MAX</td>
<td></td>
</tr>
<tr>
<td>Declination upward</td>
<td></td>
</tr>
<tr>
<td>0°</td>
<td></td>
</tr>
<tr>
<td>Declination downward</td>
<td></td>
</tr>
<tr>
<td><strong>Media eject</strong></td>
<td>10 mm or more in the above mounting positions</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td></td>
</tr>
<tr>
<td>During operation</td>
<td>5 ~ 45°C</td>
</tr>
<tr>
<td>During non-operation</td>
<td>0 ~ 50°C</td>
</tr>
<tr>
<td>During storage</td>
<td>-20 ~ 60°C</td>
</tr>
<tr>
<td><strong>Environment conditions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td></td>
</tr>
<tr>
<td>During operation</td>
<td>20 ~ 80% RH Maximum wet bulb temperature 29°C</td>
</tr>
<tr>
<td>During non-operation</td>
<td>5 ~ 90% RH No dew condensation</td>
</tr>
<tr>
<td>During storage</td>
<td>8 ~ 90% RH No dew condensation</td>
</tr>
<tr>
<td><strong>Temperature change</strong></td>
<td>15°C/H</td>
</tr>
<tr>
<td><strong>Vibration</strong></td>
<td></td>
</tr>
<tr>
<td>During operation</td>
<td>Continuous vibration Amplitude Less than 0.5 mm 5 ~ 25 Hz 0.25G 25 ~ 100 Hz</td>
</tr>
<tr>
<td></td>
<td>Single vibration Less than 10G (10 ms)</td>
</tr>
<tr>
<td>During non-operation and storage (W/Protect sheet)</td>
<td>Continuous vibration Amplitude Less than 7 mm 5 ~ 9 Hz 0.5G 9 ~ 100 Hz</td>
</tr>
<tr>
<td></td>
<td>Single vibration Less than 30G (10 ms)</td>
</tr>
<tr>
<td><strong>Drop shock</strong></td>
<td>Fall height in packing State: 70 cm</td>
</tr>
<tr>
<td></td>
<td>(corner: one time, sides: three times, flat surfaces: six times)</td>
</tr>
</tbody>
</table>
3-4. Reliability

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drive</strong></td>
<td></td>
</tr>
<tr>
<td>MTBF</td>
<td>10,000 POH</td>
</tr>
<tr>
<td>MTTR</td>
<td>0.5 H</td>
</tr>
<tr>
<td>Drive life</td>
<td>Five years</td>
</tr>
<tr>
<td><strong>Error rate</strong></td>
<td></td>
</tr>
<tr>
<td>Software errors</td>
<td>$10^{-9}$ times/bit</td>
</tr>
<tr>
<td>Hardware errors</td>
<td>$10^{-12}$ times/bit</td>
</tr>
<tr>
<td>Seek errors</td>
<td>$10^{-6}$ times/seek</td>
</tr>
<tr>
<td><strong>Life</strong></td>
<td></td>
</tr>
<tr>
<td>Drive</td>
<td></td>
</tr>
<tr>
<td>Number of mountings of the media</td>
<td>30,000 times or more</td>
</tr>
<tr>
<td>Seek</td>
<td>10,000,000 seeks or more</td>
</tr>
<tr>
<td>Head</td>
<td>10,000 H or more</td>
</tr>
<tr>
<td>Media</td>
<td></td>
</tr>
<tr>
<td>Number of identical track passes</td>
<td>3,000,000 passes or more</td>
</tr>
<tr>
<td>Number of mountings</td>
<td>10,000 times or more</td>
</tr>
</tbody>
</table>

* Media to be used SONY OM-D4440
* Maintenance is not required under normal use conditions.
*1 Reference value
4. DIMENSIONS

Eject button position when disk is loaded

Eject button position when no disk is loaded

- 6 -
5. INTERFACE SIGNALS

The interface signal has 12 input signal lines and 6 output signal lines. See Fig. 5-1

5-1. Signal Voltage Levels

The interface signal interfaces with the controller at the TTL level. For all signals, low is true. The I/O signal level into the drives have the following specifications.

1) Input signal
   Low level 0.00V to +0.40V
   High level +2.40V to +5.25V
   Input impedance 1kΩ (center)
   (For daisy chain connection of N units: 1 kΩ/N: N is up to four units)

2) Output signal
   Low level 0.00V to +0.40V
   High level +5.25V max. (by receiving the end terminator)
   Output current (for low level) 48 mA (max.)
   Output current (for high level) 250 µA (max.)

5-2. Input Signals

1) DRIVE SELECT 0 to 3 signal lines
   When one of these signal lines goes into low level, the drive corresponding to the signal line is selected and the I/O gate is opened. Up to four drives can be controlled using these four signal lines. The drive corresponding to one of the DRIVE SELECT 0 to 3 signal lines is determined by the position of the short plug in the drive.
   At that time, set the short plug to MD to control the DD motor ON/OFF operation. When the short plug is set to M0 – M3, the signal line functions as the MOTOR ON signal line. (See 10-1 “Short Plug”.)

2) MOTOR ON signal line
   This line controls the ON/OFF of the spindle motor. When this signal line is set to low level, the spindle motor revolves. When it is set to high level, it stops. 0.5 seconds is the required start up time of the spindle motor. The motor start operation is not executed when no disk is loaded.
   This signal operates independently of the DRIVE SELECT signals.

3) DIRECTION SELECT signal line
   This signal determines the direction of movement of the head when a pulse is sent via the STEP signal line. When this signal line is set to low level and the STEP signal pulse is sent, the head moves toward the center of the disk. When it is set to high level and the STEP signal pulse is sent, the head moves away from the center.
   The logic level of this signal should be held for at least 1 microsecond after the trailing edge of the STEP pulse.

4) STEP signal line
   This signal line moves the head. With the rise of a single low level pulse, this signal line changes from LOW level to HIGH level and the head moves one track in the direction determined by the DIRECTION SELECT signal.
   However, this signal is not accepted when the FDD is in WRITE mode. The head is stabilized 15 ms after the trailing edge of the last STEP pulse, and the FDD is ready for data read/write operation.

5) WRITE GATE signal line
   This signal line specifies drive write and read status. When this signal line is set to low level, write enable status occurs and the data is stored on the disk surface by the WRITE DATA signal. When this signal line is set to high level, read status occurs.
   After the writing operation, a period of 1.2 ms is necessary before a valid READ DATA signal appears on the interface.
(6) WRITE DATE signal line
Data written on the disk surface is transferred on this signal line. With the decline of the pulse sent to this signal line (when the signal line changes from the high level to the low level), data is written on the disk surface.

(7) SIDE SELECT signal line
This signal line selects the head.
When this signal line is set to high level, the side 0 head is selected; when it is set to low level, the side 1 head is selected. Side 0 stands for the one-sided medium recording surface.
The selection is completed 100 microseconds after the change of the SIDE SELECT signal line, and read/write becomes possible.

(8) IN USE signal line
When this signal line is set to low level, the LED on the front panel lights. This signal line operates regardless of the DRIVE SELECT signals. (The LED also lights when the DRIVE SELECT signal line selected by the short plug is set to low level.)

(9) EJECT signal line
When the DRIVE SELECT signal line selected by the short plug is set to low level, the EJECT request is latched by the positive-going edge (the moment of change from low level to high level) of the pulse applied to the EJECT signal line and the disk auto-eject operation starts.
(Do not turn the power off during auto eject operation.)
When the auto-eject mechanism is not in use, open the signal line with the host system or pull-up to 5V line.

5-3. Output Signals
(1) INDEX signal line
Whenever the disk rotates once, this signal line outputs a low level pulse indicating the start of the track. A decline of the pulse signal (when this signal line changes from high level to low level) indicates the start of the track. However, the pulse is only output when the disk is inserted.

(2) TRACK 00 signal line
When this signal line is set to low level, the head is located at the track 00 position and the specific phase of the stepping motor is excited.

(3) WRITE PROTECT signal line
When this signal line is set to low level, the inserted disk cannot be written on. This signal line may also be set to low level even when no disk is inserted in the drive. The write function of the drive becomes inoperative when write-inhibited disk is inserted.

(4) READ DATA signal line
This signal line is used for the transfer of the pulse series read from the disk, in which clock pulses and data pulses are mixed. The negative-going edge (the moment of change from high level to low level) of the pulse output at this signal line indicates the readout data (clock and data pulses). (See Page 14.)

(5) READY signal line
When this output signal line is set to low level, the disk is inserted and the number of disk rotations is fixed.
When the READY signal is ON, read and write operations can be performed on the disk. Immediately after the MOTOR ON signal is turned ON, power is supplied. After the disk is inserted, check that the READY signal is ON before performing write and read operations.
(6) DISK CHANGE signal
   This signal line is set to low level by power on or when a disk is ejected, and set to high level by
   STEP signal input when a disk is loaded.

5-4. Input Signal Line Terminator
The F-354CAE/F-354C are operable with either daisy chain or star chain systems. There is no need to dis­
connect the terminal resistor even with the daisy chain system.
Each of the input signal lines has a 1 kΩ terminal resistor.
When a number of input signal line terminators are connected by the daisy chain system, resistance will
differ, depending upon the number of drives. When two drivers are connected resistance will 500Ω.
When four drives are connected, resistance will be 250Ω.

5-5. Interface circuit
(1) Drives-receivers
   When recommend the following drivers-receivers.

(2) Wire material
   Flat cables or twisted pair wires
(3) Wire length

1) Daisy chain system (4 drives max.)

![Diagram of Daisy chain system]

Max. 0.5m x N drives (N=2 to 4)

Note: 1. When only one drive is connected, the cable length is 1m max.
2. To connect a number of the drives in the daisy chain connection method, keep the power supplied to all drives.

2) Star chain system

![Diagram of Star chain system]
Fig. 5-1 Interface with the controller and host system

CONTROLLER SIDE

*1: EJECT
IN USE
DRIVE SELECT 3
DRIVE SELECT 0
DRIVE SELECT 1
DRIVE SELECT 2
MOTOR ON
DIRECTION SELECT
STEP
WRITE DATA
WRITE GATE
SIDE SELECT

DRIVE SIDE

2 DISK CHANGE
4 INDEX
6 INDEX
10
12
14
16
18
20
22
24
26 TRACK 00
28 WRITE PROTECT
30 READ DATA
32
34 READY

DC GROUND
+12 V DC
+12 V RETURN
+5 V RETURN
+5 V DC

SIGNAL GROUND
100 kΩ
0.01 μF

AC GROUND
FRAME GROUND

*1: Only F-354CAE
5-6. Signal Timing

(1) Initialize sequence

The drive requires a power-on sequence delay of 600 ms. DRIVE SELECT is ignored during this delay time.
(2) Access timing

![Diagram of Access Timing](image)

- DRIVE SELECT
- STEP
- DIRECTION SELECT
- TRACK 00

\[ t: 1 \mu s \text{ min.} \]

(3) Read timing

![Diagram of Read Timing](image)

- DRIVE SELECT
- STEP
- WRITE GATE
- SIDE SELECT
- VALID
- READ DATA

- 1 \mu s \text{ min.}
- 18 \text{ ms} \text{ min}
- 100 \mu s \text{ min}
- 1.1 \text{ ms} \text{ min}
- 18 \text{ ms max}
- 1.2 \text{ ms max}
- 100 \mu s \text{ max}
(4) READ DATA timing

DATA

| 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |

READ DATA (FM recording)

C D C D C C D C C C

1μs ±250ns

4μs nom

8μs nom

READ DATA (MFM recording)

D D D C C C C

1μs ±250ns

8μs nom

6μs nom

4μs nom

C; Clock
D; Data

(5) Write timing

MOTOR ON

500ms min

DRIVE SELECT

STEP

18ms min

1μs min

WRITE GATE

100μs min

1.3ms min

1.1ms min

SIDE SELECT

8μs max

WRITE DATA

8μs max

1.1ms min
(6) WRITE DATA timing

DATA

WRITE DATA
(FM recording)

WRITE DATA
(MFM recording)

C; Clock  D; Data

(7) INDEX timing
(8) EJECT timing (Only F-354CAE)

INDEX and READY are not output during EJECT operation.
6. POWER CONSUMPTION

6-1. Power Consumption (1)

<table>
<thead>
<tr>
<th>DRIVE STATUS</th>
<th>Stand by</th>
<th>Motor Start</th>
<th>(Read)</th>
<th>Seek</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Stand by</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRIVE SELECT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRITE GATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOTOR ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>READ/WRITE AMP.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEPPER MOTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.D. MOTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Power Consumption:
- Stand by: 0.02W
- Motor Start: 3.1W
- Read/Write Amp.: 2.2W
- Write: 4.5W
- Read: 2.2W
- Stand by: 2.2W
- Low Power: 1.0W
- High Power: 1.5W
- Rush: 2.8W
6-2. Power Consumption (2) During Auto Eject Operation

**POWER**

- 0.02W
- 3.1W
- 3.6W
- 1W
- 1W
- 2.4W
- 0.6W
- 0.02W

**DRIVE STATUS**

- Stand by
- Auto-eject operation
- Stand by

**DRIVE SELECT**

- Stand by
- Stand by

**EJECT**

- Stand by
- Stand by

**D.D. MOTOR**

- 0W
- Rush
- 200ms TYP.

**EJECT SOLENOID**

- 0W
- Stand by
- Stand by

- 18 -
7. POWER-ON SEQUENCE

Recalibration of the head position is performed during the power-on sequence of the FDD. Fig. 7-1 shows the power-on sequence.

![Flowchart of Power-On Sequence]

**Fig. 7-1 Power-On Sequence**

Note: At power on, the DD motor is rotated by about 12 turns for warm-up.
8. POWER SUPPLY INTERFACE

8-1. Power Supply Specifications
The DC power (+12V, +5V) shown in Specification (2) of Section 3-2 is required by the power supply. There are four power lines (+12V, +5V, and the two return lines).

8-2. Frame Ground
The frame ground and signal ground are connected through a capacitor and a resistor. The values are as follows:
\[ R = 100 \, \text{k}\Omega \quad C = 0.01 \, \mu\text{F} \]
Connect the frame ground where the AC ground and DC ground are one point connected in the host system.

8-3. Power Supply Sequence
(1) The power ON sequence is not specified. However, the time in which the supplied power voltage rises up to 90% of the specified value, should be set to 100 ms or less.
(2) If the drive is in a status other than write operation, and the DC power is disconnected, the disk and the data stored on the disk are not destroyed. However, its contents will be destroyed if the WRITE GATE is not set to high level.

9. INTERFACE CONNECTOR AND PIN ARRANGEMENT

9-1. Interface Connector
(1) DC power connector

<table>
<thead>
<tr>
<th>Connector/housing</th>
<th>Drive side</th>
<th>Host side</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMP 171826-4 or equivalent</td>
<td>AMP 171822-4 or equivalent</td>
<td></td>
</tr>
</tbody>
</table>

The diagram of the drive side power connector dimensions is shown in Fig. 9-1.

(2) Interface signal connector

<table>
<thead>
<tr>
<th>Connector</th>
<th>Drive side</th>
<th>Host side</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAE PS-34PE-D4LT1-P/N 1 or equivalent</td>
<td>JAE PS-34SEN-D4P1-1C or equivalent</td>
<td></td>
</tr>
</tbody>
</table>

The diagram of the drive side signal connector dimensions is shown in Fig. 9-2.

“▼” marking on the connector indicates pin #34. Key protrusion on some connector plugs should be placed in the slot of P.C. Board.

9-2. Pin Arrangement
The arrangement of each pin is shown below. This diagram shows the back of the drive.
(1) DC Power connector

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+5V DC</td>
</tr>
<tr>
<td>2</td>
<td>+5V RETURN</td>
</tr>
<tr>
<td>3</td>
<td>+12V RETURN</td>
</tr>
<tr>
<td>4</td>
<td>+12V DC</td>
</tr>
</tbody>
</table>

(2) Interface signal connector

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Signal</th>
<th>Pin number</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>DISK CHANGE</td>
<td>1</td>
<td>*1 EJECT</td>
</tr>
<tr>
<td>4</td>
<td>IN USE</td>
<td>3</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>DRIVE SELECT 3</td>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>INDEX</td>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>10</td>
<td>DRIVE SELECT 0</td>
<td>9</td>
<td>GND</td>
</tr>
<tr>
<td>12</td>
<td>DRIVE SELECT 1</td>
<td>11</td>
<td>GND</td>
</tr>
<tr>
<td>14</td>
<td>DRIVE SELECT 2</td>
<td>13</td>
<td>GND</td>
</tr>
<tr>
<td>16</td>
<td>MOTOR ON</td>
<td>15</td>
<td>GND</td>
</tr>
<tr>
<td>18</td>
<td>DIRECTION SELECT</td>
<td>17</td>
<td>GND</td>
</tr>
<tr>
<td>20</td>
<td>STEP</td>
<td>19</td>
<td>GND</td>
</tr>
<tr>
<td>22</td>
<td>WRITE DATA</td>
<td>21</td>
<td>GND</td>
</tr>
<tr>
<td>24</td>
<td>WRITE GATE</td>
<td>23</td>
<td>GND</td>
</tr>
<tr>
<td>26</td>
<td>TRACK 00</td>
<td>25</td>
<td>GND</td>
</tr>
<tr>
<td>28</td>
<td>WRITE PROTECT</td>
<td>27</td>
<td>GND</td>
</tr>
<tr>
<td>30</td>
<td>READ DATA</td>
<td>29</td>
<td>GND</td>
</tr>
<tr>
<td>32</td>
<td>SIDE SELECT</td>
<td>31</td>
<td>GND</td>
</tr>
<tr>
<td>34</td>
<td>READY</td>
<td>33</td>
<td>GND</td>
</tr>
</tbody>
</table>

GND: SIGNAL GROUND

*1: Only F-354CAE
Fig. 9-1 Power connector dimensions
Fig. 9.2 Signal connector dimensions

- 23 -
10. SHORT PLUG AND FRONT LED

10-1. Short Plug
The MOTOR ON signal functions as same as that of the former 5-1/4" FDD. However, when the short plug is set to MD, instead of MON, the DD motor ON/OFF operation can be controlled by DRIVE SELECT signal together with drive select operation. When the short plug is set to M0 – M3 instead of MON, the DD motor ON/OFF operation can be controlled by the DRIVE SELECT line. (For example, when short plugs are placed at DSO and M2, the drive will be selected by the drive select 0 signal and its motor will be controlled by the drive select 2 signal.) With this function, the motor ON/OFF operation of the 2 drives can be independently controlled.
10-2. Front LED
The front LED lights when the DRIVE SELECT signal selected by the short plug or the IN USE signal is set to low level.