1. OUTLINE

This specification provides a description for the TEAC FD-505, dual floppy
disk drive. The FD-505 has two drives in the size of a conventional 41mm
high 5.25 inch drive (equivalent to the TEAC FD-55GF), one is 1 inch high
5.25 inch mini floppy disk drive (TEAC FD-155GF, 1.6MB/1MB dual mode) and
the other is 0.5 inch high 3.5 inch micro floppy disk drive (TEAC FD-05HF,
2MB/1MB dual mode).

Hereinafter, the FD-155GF part is abbreviated as the 5.25" FDD, the FD-05HF
part as the 3.5" FDD, and the mixed part of the host interface for both FDDs
as the Adapter PCBA.

Tables 1-1 through 1-3 show the outline of the dual FDD, the 5.25" FDD, and
the 3.5" FDD.

<table>
<thead>
<tr>
<th>Model name</th>
<th>FD-505-000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety standard</td>
<td>UL &amp; CSA</td>
</tr>
<tr>
<td>on label</td>
<td></td>
</tr>
<tr>
<td>Front bezel</td>
<td>Beige (PS)</td>
</tr>
<tr>
<td>Eject button</td>
<td>Beige (PS) for both 5.25&quot;/3.5&quot; FDDs</td>
</tr>
<tr>
<td>LED indicator</td>
<td>Green for both 5.25&quot;/3.5&quot; FDDs</td>
</tr>
<tr>
<td>color</td>
<td></td>
</tr>
<tr>
<td>Disk installation</td>
<td>One action manual installation and one action</td>
</tr>
<tr>
<td>and ejection</td>
<td>manual ejection for both 5.25&quot;/3.5&quot; FDDs</td>
</tr>
<tr>
<td>method</td>
<td></td>
</tr>
<tr>
<td>Frame ground</td>
<td>Fasten 187 tab on the rear side</td>
</tr>
<tr>
<td>terminal</td>
<td></td>
</tr>
<tr>
<td>Required power</td>
<td>+5 ± 5% and +12 ± 10%</td>
</tr>
<tr>
<td>Input signal</td>
<td>1kΩ ± 5% each for 5.25&quot;/3.5&quot; FDDs, unremovable</td>
</tr>
<tr>
<td>terminator</td>
<td></td>
</tr>
<tr>
<td>Host interface</td>
<td>34 pin card edge, conventional 5.25&quot; type</td>
</tr>
<tr>
<td>connector</td>
<td>4 pin, conventional 5.25&quot; type</td>
</tr>
<tr>
<td>Signal</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>Strap setting</td>
<td>For 5.25&quot;</td>
</tr>
<tr>
<td>at delivery</td>
<td>On the Adapter PCBA: DS1, MON1</td>
</tr>
<tr>
<td>(See item 11.)</td>
<td>On the 5.25&quot; FDD: DS1, U0</td>
</tr>
<tr>
<td>Host interface</td>
<td>For 3.5&quot;</td>
</tr>
<tr>
<td>signal pin</td>
<td>On the Adapter PCBA: DS2, MON4, DC</td>
</tr>
<tr>
<td>assignment at</td>
<td></td>
</tr>
<tr>
<td>delivery</td>
<td>Pin 2: HD IN input for 5.25&quot; FDD, high density</td>
</tr>
<tr>
<td></td>
<td>at high level (OPEN for 3.5&quot; FDD)</td>
</tr>
<tr>
<td>Other optional</td>
<td>Not equipped.</td>
</tr>
<tr>
<td>function</td>
<td></td>
</tr>
</tbody>
</table>

(Table 1-1) Dual FDD specification outline
<table>
<thead>
<tr>
<th>Operation modes (unformatted capacity)</th>
<th>1.6MB mode, write/read</th>
<th>1MB mode, write/read</th>
<th>0.5MB mode, read only</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.25 inch disk used</td>
<td>High density 2HD</td>
<td>Normal density 2DD</td>
<td>Normal density 2D</td>
</tr>
<tr>
<td>Data transfer rate</td>
<td>500kbps</td>
<td>250kbps</td>
<td>300kbps</td>
</tr>
<tr>
<td>Disk rotational speed</td>
<td>360rpm</td>
<td>300rpm</td>
<td>360rpm</td>
</tr>
<tr>
<td>Track density</td>
<td>96tpi</td>
<td>96tpi</td>
<td>(48tpi)</td>
</tr>
<tr>
<td>Required power</td>
<td>+5V, +12V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Function setting at delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. LED on condition: DRIVE SELECT and Ready (U0 strap is on and IU strap is off.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Spindle motor on condition: MOTOR ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Speed mode: Single speed mode (360rpm for high/norma density, I strap is on.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. INDEX/READ DATA output condition: Ready and Seek-complete (Full mask, E2 strap is on.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Density mode setting: Using HD IN signal on pin 2, High density at high level (LG strap is off.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. DISK CHANGE/READY selection: DISK CHANGE (RY/RD straps are off.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other optional function</td>
<td>Not equipped.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Table 1-2) 5.25" FDD specification outline

<table>
<thead>
<tr>
<th>Operation modes (unformatted capacity)</th>
<th>2MB mode, write/read</th>
<th>1MB mode, write/read</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5 inch disk used</td>
<td>High density (2HD)</td>
<td>Normal density (2DD)</td>
</tr>
<tr>
<td>Data transfer rate</td>
<td>500kbps</td>
<td>250kbps</td>
</tr>
<tr>
<td>Disk rotational speed</td>
<td>300rpm</td>
<td>300rpm</td>
</tr>
<tr>
<td>Track density</td>
<td>135tpi</td>
<td>135tpi</td>
</tr>
<tr>
<td>Track to track time</td>
<td>3msec</td>
<td></td>
</tr>
<tr>
<td>Required power</td>
<td>+5V</td>
<td></td>
</tr>
<tr>
<td>Function setting at delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. LED on condition: DRIVE SELECT and Ready</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Spindle motor on condition: MOTOR ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. INDEX/READ DATA output condition: Ready and Seek-complete (Full mask)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Density mode setting: Automatic setting by detecting HD hole of an installed disk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. DISK CHANGE/READY: Select by DC/RY straps on Adapter PCBA (both are output from 3.5&quot; FDD.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other optional function</td>
<td>Not equipped.</td>
<td></td>
</tr>
</tbody>
</table>

(Table 1-3) 3.5" FDD specification outline
Normal density 1MB mode, write/read: Normal density disk (2DD)

Host system cannot identify preliminary which type of disk is installed in the 3.5" FDD (the 3.5" FDD can know the installed disk type by discriminating the HD hole). It is required for the host controller to provide some control such as read trial without errors or previous designation of density mode for the host.

3. PHYSICAL SPECIFICATION

(1) Width : 146mm (5.748 in), Nom.
(2) Height : 41.3mm (1.626 in), Nom.
(3) Depth : 198mm (7.795 in), Nom., excluding front bezel
            203mm (7.992 in), Nom., including front bezel
(4) Weight : 920g (2.03 lbs), Nom., 950g (2.09 lbs), Max.
(5) External view : See Fig.1.
(6) Cooling : Natural air cooling
(7) Mounting: Mounting for the following directions are acceptable.
   (a) Front loading, mounted vertically.
   (b) Front loading, mounted horizontally with the 3.5" FDD up.
   (c) Mounting angle in items (a) and (b) should be less than 15° with front bezel up.

   Note: As to the other mounting directions than the above will be considered separately.
(8) Installation : With installation holes on the frame of the FDD.
                  Refer to Fig.1.
(9) Material of frame: Aluminum diecast
(10) Material of front bezel: PPHOX (Zyron, complying with UL94-5V)
(Fig.1) FDD external view
5. ENVIRONMENTAL CONDITIONS

Note: The following requirements are applied for the unpackaged FDD.

(1) Ambient temperature
   (a) Operating : 4 - 51.7°C (39 - 125°F)
   (b) Storage : -22 - 60°C (-8 - 140°F)
   (c) Transportation: -40 - 65°C (-40 - 149°F)

(2) Temperature gradient
   (a) Operating : 20°C (36°F) or less per hour
   (b) Storage and transportation
        : 30°C (54°F) or less per hour

(3) Relative humidity
   (a) Operating : 20 - 80% (no condensation)
               Max. wet bulb temperature shall be 29.4°C (85°F)
   (b) Storage : 5 - 90% (no condensation)
               Max. wet bulb temperature shall be 40°C (104°F)
   (c) Transportation: 5 - 95% (no condensation)
               Max. wet bulb temperature shall be 45°C (113°F)

(4) Vibration
   (a) Operating : 1.0G or less (10 - 100Hz, 1/2oct/min. sweep rate)
               0.35G or less (100 - 600Hz, 1/2oct/min. sweep rate)
   (b) Transportation: 2G or less (10 - 100Hz, 1/4oct/min. sweep rate)

(5) Shock
   (a) Operating
       Write & read: 5G (11msec, 1/2 sine wave) or less
       Read only : 10G (11msec, 1/2 sine wave) or less
               Soft errors are allowed if they are recoverable within three retries.
   (b) Transportation: 60G (11msec, 1/2 sine wave) or less

(6) Altitude (operating): -300m (-980 feet) - 5,000m (16,400 feet)
6. RELIABILITY

(1) MTBF : 20,000 power on hours or more (for typical operation duty)
(2) MTTR : 35 minutes
(3) Design component life: 5 years
(4) Disk life : $3 \times 10^6$ passes/track or more
(5) Disk insertion: $3 \times 10^4$ times or more (each for 5.25"/3.5" FDD)
(6) Seek operation life
   : $1 \times 10^7$ random seeks or more (each for 5.25"/3.5" FDD)
(7) Preventive maintenance: Not required (for typical operation duty)
(8) Error rate
   (a) Soft error: 1 or less per $10^9$ bits read
      A soft (recoverable) error is defined that it can be read correctly within three retries.
   (b) Hard error: 1 or less per $10^{12}$ bits read
      A hard (unrecoverable) error is defined that it cannot be read correctly within three retries. However, it is recommended to be followed by a recalibration to track 00 and four additional retries.
   (c) Seek error: 1 or less per $10^6$ seeks
      A seek error is defined that it can seek to a target track within one retry including a recalibration to track 00.
(9) Safety standard: Complying with UL and CSA
(10) Electro-static discharge test: 15kV (150pF, 330Ω) or more
    No hard error and/or no component damage occur when the test is applied to the operator access area (front bezel area).
Your FD505 package includes:

- FD505 Combo Floppy Disk Drive
- Two AT type mounting rails
- Screws to mount AT rails
- Registration card/questionnaire
- Installation guide
Introduction

Thank you for purchasing the TEAC FD505 Combo Floppy Disk Drive. This product is intended for use in IBM® PC AT® and compatible computers. It allows you to expand the usefulness of your present computer by occupying one standard 5.25 inch computer bay, while providing 5.25 inch and 3.5 inch diskette compatibility. You can then utilize the other computer bay, normally occupied by a second floppy drive, for other peripherals, such as a CD-Rom, tape, or hard drive.

Tools You May Need

Depending on the design of your computer, you may need the following tools to complete the installation.

- a flat blade screwdriver
- a Phillips screwdriver
- needle nosed pliers

Handling the FD-505 Combo Drive

Please avoid placing your fingers on the upper cover. It is best to hold the FD-505 by the diecast frame, as indicated in Figure A.

Figure A
Preparing your Personal Computer for FD505 Installation

1. Unplug your computer.

2. Detach all input and output devices from your computer, such as printer, keyboard, monitor, etc.

3. Remove cover from your computer. Refer to your computer system manual for this procedure.

4. Note the two cables that are connected to your current floppy disk drives, as these same cables will be required to install your FD505. The floppy interface cable is the flat "ribbon" type, and the power connector consists of the 4 separate wires attached to a single connector. See Figure B.

5. Your system may also have a single ground wire attached to the floppy disk drive. Carefully remove all these cables from your floppy disk drive. Remove the current floppy drive from your system.

6. Remove current floppy drives from your system and install the FD-505.

---

Figure B

![Diagram of FD-505](image)

- Flat "ribbon" cable
- Pin #1 indicator stripe (red or blue)
- Power connector
- Ground connector
Attaching Mounting Rails, if Required

Your system may or may not require rails to mount the floppy drives. If rails are required, attach as shown in Figure C.

Figure C
Configuring Drive A and Drive B:

The following two user definable configurations are available to choose from at the time of installation. Your FD-505 Combo Drive is factory configured to Option #1.

Option #1 - Factory Configuration

- Drive A: = 5.25 inch
- Drive B: = 3.5 inch

a) Attach the "A" interface connector to the FD-505 (see Figure D)

![Figure D](image)

b) Set jumpers as indicated on Figure E.

c) Connect ground cable, if your system requires.

![Figure E](image)
Configuring Drive A: and Drive B:
Option #2

Drive A: = 3.5 inch
Drive B: = 5.25 inch

a) Attach the "A" interface cable to the FD-505 (see Figure F).

b) Set jumpers as indicated on Figure G.

c) Connect ground wire, if your system requires.
Notes on Installing Your FD-505

Slide drive into any available bay. We recommend you use the uppermost bay.

- Make sure the mounting rails are aligned into the mating slots.
- Locate your system's floppy drive ribbon cable. The cable may be keyed to assist with alignment. If yours is not keyed, it should be attached, so that the color strip (red or blue) on the data cable is aligned with the edge of the floppy drive data connector that has the key slot. This is Pin 1.

Reattach power connector.

- Replace the cover.
- Reattach all input and output devices.
- Plug in computer.
## Trouble Shooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator light never turns on when executing READ or WRITE</td>
<td>Make sure that the interface cable and power cable are properly connected and drive address strap is set correctly. Refer to Pages 4 &amp; 5.</td>
</tr>
<tr>
<td>Indicator light comes on as soon as power is applied and stays on</td>
<td>The ribbon cable may be reversed. Check cable pin #1 orientation.</td>
</tr>
<tr>
<td>Drive type mismatch during boot</td>
<td>Check CMOS setup for correct drive type. If the indicator comes on, check for head recalibration to Track 00, if it doesn’t, drive is bad.</td>
</tr>
<tr>
<td>Invalid media or Track 00 bad when formatting</td>
<td>Attempted to format an HD diskette to 720K or an DD diskette to 1.44MB, drive is not properly set in CMOS setup, or controller card is not configured correctly. Check setup by referring to controller documentation.</td>
</tr>
<tr>
<td>The same directory is displayed for different diskettes</td>
<td>The disk change signal is not being output. Check the drive for the correct disk change strap setting (DC jumper). Or Pin #34 on the ribbon cable is broken.</td>
</tr>
<tr>
<td>Drive not ready error reading drive x</td>
<td>No diskette inserted in the drive or motor not spinning. Call TEAC Tech Support.</td>
</tr>
<tr>
<td>General failure error reading drive x</td>
<td>Diskette not formatted, drive out of alignment, 720K disk formatted to 1.44MB, or 1.44MB disk formatted for 720K in the 3 1/2&quot; drive.</td>
</tr>
<tr>
<td>Sector not found error</td>
<td>Head seek error or drive out of alignment. Call TEAC Tech Support.</td>
</tr>
</tbody>
</table>

**TEAC Tech Support hot line:** (323) 727-4660  
8:30a.m. - 5:00p.m., PST. Otherwise, leave message on our voice mail, or fax the problem description to **FAX** (323) 869-8751 or **EMAIL** DSPDTS@TEAC.COM

**TEAC America, Inc.,** 7733 Telegraph Rd., Montebello, CA 90640
1. OUTLINE

This specification provides a description for the TEAC FD-505, dual floppy disk drive. The FD-505 has two drives in the size of a conventional 41mm height 5.25-inch drive (equivalent to the TEAC FD-55GF), one is 1 inch height 5.25-inch mini floppy disk drive (1.6MB/1MB dual mode) and the other is 0.6 inch height 3.5-inch micro floppy disk drive (2MB/1MB dual mode).

Tables 1-1 through 1-3 show the outline of the dual FDD, the 5.25” FDD, and the 3.5” FDD.

<table>
<thead>
<tr>
<th>Model name, (Bare FDD)</th>
<th>FD-505 -1XX -2XX -3XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety standard</td>
<td>UL, CSA &amp; IEC950(CB)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED indicator color</th>
<th>Green for both 5.25”/3.5” FDDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disk installation and ejection method</td>
<td>One action manual installation and one action manual ejection for both 5.25”/3.5” FDDs</td>
</tr>
<tr>
<td>Frame ground terminal</td>
<td>Not equipped.</td>
</tr>
<tr>
<td>Required power</td>
<td>+5V ± 5% and +12V ± 10%</td>
</tr>
<tr>
<td>Signal output driver</td>
<td>Open collector TTL</td>
</tr>
<tr>
<td>Input signal terminator</td>
<td>1kΩ ± 5% unremovable</td>
</tr>
<tr>
<td>Host interface connector</td>
<td>Applicable to the connectors of conventional 3.5” FDD.</td>
</tr>
<tr>
<td>Strap setting at delivery</td>
<td>5.25” FDD: SD1, 3D2, 5M1, 3M2</td>
</tr>
<tr>
<td>Host interface signal pin assignment at delivery (Refer to item 8.2)</td>
<td>Pin 2: HD IN input for 5.25” FDD, high density at high level (OPEN state for 3.5” FDD)</td>
</tr>
<tr>
<td></td>
<td>Pin 4: NO CONNECTION for 5.25”/3.5” FDDs</td>
</tr>
<tr>
<td></td>
<td>Pin 6: NO CONNECTION for 5.25”/3.5” FDDs</td>
</tr>
<tr>
<td></td>
<td>Pin 10: MOTOR ON 2 input</td>
</tr>
<tr>
<td></td>
<td>Pin 12: DRIVE SELECT 1 input</td>
</tr>
<tr>
<td></td>
<td>Pin 14: DRIVE SELECT 2 input</td>
</tr>
<tr>
<td></td>
<td>Pin 16: MOTOR ON 1 input</td>
</tr>
<tr>
<td></td>
<td>Pin 34: DISK CHANGE output for 5.25”/3.5” FDDs</td>
</tr>
<tr>
<td></td>
<td>Others: The same as the conventional FDDs</td>
</tr>
<tr>
<td>Accessory</td>
<td>Not equipped.</td>
</tr>
<tr>
<td>Other optional function</td>
<td>Not equipped.</td>
</tr>
</tbody>
</table>

Dual FDD specification outline
ENVIRONMENTAL CONDITIONS

Note: The following requirements are applied for the unpackaged FDD.

(1) Ambient temperature
   (a) Operating : 4 ~ 51.7°C (39 ~ 125°F)
   (b) Storage : -22 ~ 60°C (-8 ~ 140°F)
   (c) Transportation: -40 ~ 65°C (-40 ~ 149°F)

(2) Temperature gradient
   (a) Operating : 20°C (36°F) or less per hour
   (b) Storage and transportation : 30°C (54°F) or less per hour

(3) Relative humidity
   (a) Operating : 20 ~ 80% (no condensation)
      Max. wet bulb temperature shall be 29.4°C (85°F)
   (b) Storage : 5 ~ 90% (no condensation)
      Max. wet bulb temperature shall be 40°C (104°F)
   (c) Transportation: 5 ~ 95% (no condensation)
      Max. wet bulb temperature shall be 45°C (113°F)

(4) Vibration
   (a) Operating : 1.0G or less (10 ~ 100Hz, 1oct/min. sweep rate)
      0.35G or less (100 ~ 600Hz, 1oct/min. sweep rate)
   (b) Transportation: 2G or less (10 ~ 100Hz, 1/4oct/min. sweep rate)

(5) Shock
   (a) Operating
      Write & read: 5G (11msec, 1/2 sine wave) or less
      Read only : 10G (11msec, 1/2 sine wave) or less
      Soft errors are allowed if they are recoverable within three retries.
   (b) Transportation: 60G (11msec, 1/2 sine wave) or less

(6) Altitude (operating): -300m (-980 feet) ~ 5,000m (16,400 feet)
RELIABILITY

(1) MTBF : 20,000 power on hours or more (for typical operation duty)
(2) MTTR : 35 minutes
(3) Design component life: 5 years
(4) Disk life : $3 \times 10^6$ passes/track or more
(5) Disk insertion: $3 \times 10^6$ times or more (each for 5.25"/3.5" FDD)
(6) Seek operation life
   : $1 \times 10^7$ random seeks or more (each for 5.25"/3.5" FDD)
(7) Preventive maintenance: Not required (for typical operation duty)
(8) Error rate
   (a) Soft error: 1 or less per $10^9$ bits read
      A soft (recoverable) error is defined that it can be read correctly within three retries.
   (b) Hard error: 1 or less per $10^{12}$ bits read
      A hard (unrecoverable) error is defined that it cannot be read correctly within three retries. However, it is recommended to be followed by a recalibration to track 00 and four additional retries.
   (c) Seek error: 1 or less per $10^6$ seeks
      A seek error is defined that it can seek to a target track within one retry including a recalibration to track 00.

(9) Safety standard: Complying with UL and CSA
(10) Electro-static discharge test: 15kV (150pF, 330Ω) or more
     No hard error and/or no component damage occur when the test is applied to the operator access area (front bezel area).
TEAC FD-505 Combo Drive
Installation Guide

Your FD-505 package includes:

☑ FD-505 Combo floppy disk drive
☑ One edge card adapter
☑ One power connector adapter
☑ Registration card/questionnaire
☑ Installation guide
Introduction
Thank you for purchasing the TEAC FD-505 Combo Floppy Disk Drive. This product is intended for use in IBM® PC AT® compatible computers. Upgrading IBM/AT systems requires Bastech driver installation. It allows you to expand the usefulness of your present computer by occupying one standard 5.25 inch computer bay, while providing 5.25 inch and 3.5 inch diskette compatibility. You can then utilize the other computer bay, normally occupied by a second floppy drive, for other peripherals, such as a CD-ROM, tape, or hard drive.

This quality drive will provide trouble-free operation for your computer system if properly installed. PLEASE READ THE ENTIRE INSTALLATION GUIDE THOROUGHLY BEFORE YOU BEGIN THE INSTALLATION. Use a high density controller with optional bios to support 3.5 inch high density drive, if this option is not available on your system bios. If you have questions or comments on the installation, please call TEAC Technical Support Center at the telephone number listed on the back page of this Guide.

Tools You May Need
Depending on the design of your computer, you may need the following tools to complete the installation:
- a flat blade screwdriver
- a Phillips screwdriver
- needle-nosed pliers

Handling the FD-505 Combo Drive
Please avoid placing your fingers on the upper cover. It is best to hold the FD-505 by the diecast frame, as indicated by the arrows in Figure A.

Caution: Do not apply pressure to this cover.

Preparing your Personal Computer for FD-505 Combo Drive Installation

CAUTION: TURN OFF YOUR COMPUTER AND UNPLUG IT FROM THE AC POWER SOURCE BEFORE INSTALLING THE FD-505. FAILURE TO DO SO MAY RESULT IN ELECTRIC SHOCK.

1. Unplug your computer.
2. Detach all input and output devices from your computer, such as printer, keyboard, monitor, etc.
3. Remove cover from your computer. Refer to your computer system manual for this procedure.
4. Note the two cables that are connected to your current floppy disk drives, as these same cables will be required to install your FD-505. The floppy interface cable is the flat “ribbon” type, and the power connector consists of the 4 separate wires attached to a single connector. See Figure B on next page.
5. Your system may also have a single ground wire attached to the floppy disk drive(s). Carefully remove all cables from your floppy disk drive(s).
6. Remove current floppy drive(s) from your system and install the FD-505.

Note: The FD-505 comes with two optional pieces of hardware to assist you with correctly installing your Combo Drive. The two pieces are: a power connector adapter cable and an edge card adapter (see below).

Power Connector Adapter: You will need this adapter if your power supply cable does not have the smaller connector, like the one found on the FD-505 Combo Drive.

Edge Card Adapter: You will need this adapter if your interface cable has only the traditional edge card connector. The edge card connector is typically found on the 5.25 inch FDDs. However, if your cable has a pin header connector then you do not need this adapter.
Configuring Drive A: and Drive B:

Your Combo Drive can be configured in two ways at the time of installation. You can choose either option.

**Option #1**
- Drive A: 5.25" (1.2 MB)
- Drive B: 3.5" (1.44 MB)

**Option #2**
- Drive A: 3.5" (1.44 MB)
- Drive B: 5.25" (1.2 MB)

---

Configuring for Option #1:

Using an IBM PC compatible cable with a twist at the end connector (Figure C) and the factory default strap settings 1 (shown in Figure D).

a) Connect the FD-505 Combo drive to connector A: Connector A: is at the end of the cable as shown in the sketch.

b) Set the jumpers as indicated in Figure D.

c) Connect the ground cable if your system requires it.

---

**FD-505 Jumper Matrix**

**Default strap settings 1:**
- AB 2 = 3D2
- BC 1 = 5D1
- DE 2 = 3M2
- EF 1 = 5M1
Configuring for Option #2:
To reverse drive assignments using an IBM PC compatible cable (Figure E) with a twist at the end connector and the default strap settings.

a) Connect the FD-505 Combo drive to connector B: (the untwisted connector).
   Connector B: is the connector to left of the end connector.

b) Set the jumpers as indicated on previous page in Figure D.

c) Connect the ground wire if your system requires it.

This will create the Option 2 drive assignments, namely:

**Option #2**
- Drive A ~ 3.5 (1.44 MB)
- Drive B ~ 5.25 (1.2 MB)

To create the Option #2 drive assignments USING THE CONNECTOR A:

a) Connect the FD-505 Combo drive to connector A:

b) Set the jumpers as indicated in Figure F, i.e. Strap setting 2.

c) Connect the ground wire if your system requires it.

FD-505 Jumper Matrix

Strap settings 2:

<table>
<thead>
<tr>
<th>AB</th>
<th>BC</th>
<th>DE</th>
<th>EF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5D2</td>
<td>3D1</td>
<td>5M2</td>
<td>3M1</td>
</tr>
</tbody>
</table>

**Figure F**

Notes on Installing Your FD-505

Slide drive into any available bay. We recommend you use the uppermost bay.

Make sure the mounting rails are aligned into the mating slots. (If rails are attached)
Locate your system's floppy drive ribbon cable. The cable may be keyed to assist with alignment. If yours is not keyed, it should be attached, so that the color strip (red or blue) faces the center of the drive (jumper block). This is Pin 1.

1. Reattach power connector.
2. Replace the cover.
3. Reattach all input and output devices.
4. Plug in computer.

**Attaching Mounting Rails, if required**

Your system may or may not require rails to mount the floppy drives. If rails are required, please call TEAC parts department and order rail kit for the FD-235. Tel: 323726-0303 Ext. 840 (TEAC P/N: 10000000-60). Attach rails as shown in Figure G.

The tapered end of each rail, when mounted, should point toward the back of the floppy drive.

Note: Each rail is marked on the inside surface with “R” indicating the right rail or an “L” for the left rail.

Caution: Do not apply pressure to this cover.

When attaching rails, place screws through the bottom hole of each set of holes on the rail. (Some rails may have only one hole per location).

Attach power connector. Attach mounting rail to the bottom hole on each side of the Combo Drive (4 places).
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator light never turns on when executing READ or WRITE.</td>
<td>Make sure that the interface cable and power cable are properly connected and drive address strap is set correctly.</td>
</tr>
<tr>
<td>Indicator light comes on as soon as power is applied and stays on.</td>
<td>The ribbon cable may be reversed. Check the pin #1 orientation.</td>
</tr>
<tr>
<td>Drive type mismatch during boot.</td>
<td>Check CMOS setup for correct drive type. If the indicator comes on, check for head recalibration to Track 00; if it doesn't, drive may be malfunctioning.</td>
</tr>
<tr>
<td>Invalid media or Track 00 bad when formatting.</td>
<td>Attempted to format an HD diskette to 720K or DD diskette to 1.44MB. Drive is not properly set in CMOS setup. Or controller card is not configured correctly. Check setup by referring to controller documentation. For IBM/AT upgrade, Bastech driver must also be installed.</td>
</tr>
<tr>
<td>The same directory is displayed for different diskettes.</td>
<td>Controller card is not receiving disk change signal. Check the drive for the correct disk change strap setting. Pin #34 on the ribbon cable is broken. Or disk drive is malfunctioning.</td>
</tr>
<tr>
<td>Drive not ready error reading drive X.</td>
<td>No diskette inserted in the drive or motor not spinning. Drive may need service.</td>
</tr>
<tr>
<td>General failure error reading drive X.</td>
<td>Diskette not formatted. Drive out of alignment. LD or ND disk formatted to 1.44MB. HD disk formatted for 720K in the 3½&quot; drive.</td>
</tr>
<tr>
<td>Sector not found error.</td>
<td>Head seek error or drive out of alignment.</td>
</tr>
</tbody>
</table>

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