

TEAC FD-235HG/HF-AXXX (7XXX → AXXX)  
TECHNICAL DESCRIPTION OF DIFFERENCES

## 1. OUTLINE

This document describes the details of changes for the TEAC FD-235HG/HF micro floppy disk drive (hereinafter referred to as FDD) from the -7XXX series to -AXXX series.

In AXXX series, its mechanism, assignment of each pin and main parts, and the front bezel are designed based on the conventional 7XXX series and the components count is reduced, whereby improving reliability and productivity.

This document describes typical models of the 7XXX series and AXXX series as examples. If you have any questions about the specifications of individual models, etc., kindly contact us through our sales department.

## 2. MODEL NAME AND PART NUMBER

The nameplate attached on the rear of the FDD frame has the indication shown in Table 1, to distinguish between the 7XXX series and AXXX series.

(Table 1) Model name and part number

Indication	7XXX series	AXXX series
Model name	FD-235HF-7XXX	FD-235HF-AXXX
Part Number	1930777X-XX	193077AX-XX

For a model of 7XXX series which can be replaced by the AXXX series as it is, the top digit of the number is changed from "7" to "A" remaining the last three digits as they are.

e.g. FD-235HF-7291 → FD-235HF-A291

### 3. DIFFERENCES IN EXTERNAL APPEARANCE

For details, refer to each specification or actual model.

Tables 2 to 4 show a list of main differences in the external appearance.

#### 3.1 Mechanical Parts

(Table 2) External appearance differences in mechanical parts

Different points	Detail	Related drawings
Frame	The frame described below has been newly adopted to add to the conventional frame.	
	Top	
	The tapped hole position to mount the PCBA has been changed.	Marks (a) and (e) in Fig. 1
	The convex has been eliminated.	Mark (b) in Fig. 1
	The shape of the side to mount the SPM has been changed.	Mark (c) in Fig. 1
	The two concaves have been eliminated.	Mark (d) in Fig. 1

#### 3.2 Spindle Motor, Stepping Motor

(Table 3) Motor appearance differences

Different points	Detail	Related drawings	
Spindle motor Ass'y	Main body	A G-type (Kumagaya Seimitsu) has been newly added to the conventional S-type, J-type and M-type.	Fig. 2-1
	Switch	The switches made by Mic Electronics have been newly accepted to add to conventional switches made by Alps/Shinmei.	Fig. 2-2
Stepping motor Ass'y	Coil	The resistance of the M-type; 30 ohms to 18 ohms, the resistance of the S-type; 25.5 ohms to 15 ohms.	
	STM structure	The S-type structure has been changed from a conventional screw bearing type to a two-pivot type screw.	Fig. 3
	FPC	The soldering section in the PCBA has been changed from 1.25mm pitch to 1.6mm pitch.	

### 3.3 PCBA MFD Control

(Table 4) PCBA appearance differences

Different points	Detail	Related drawings
LSI	The 52-pin LSI has been newly accepted for use.	
PCB	The PCB for the LSI described above has been accepted for use.	Fig. 4
	The screw hole position for mounting the PCB has been changed and a mounting hole(C) has been newly added as shown in the figure.	
	The land pitch for FPC soldering of the stepping motor has been changed from a conventional 1.25 to 1.6mm.	
I/F Connector	The conventional 34-pin type has been changed to the type in which the pin No. 3 was eliminated. In the FDD with miss-insertion prevention, the prevention method has been changed from using a plate to using a connector of shouldered-type.	
Method of Ass'y	The flow soldering method has been newly accepted to be used in parallel with the conventional re-flow soldering method.	

### 3.4 Head Carriage Assembly

Different points	Detail
Head piece	A bulked-type has been newly adopted to be used in parallel with the conventional laminate type.

### 3.5 Packing Box

Different points	Details	
Packing Ass'y	Quantity	20 units → 30 units
	External dimensions	566×456×232 → 566×456×213
	Cushion	PS (Polyethylene) → Paper (recycled)
	Character color (printed)	Black → Dark blue

#### 4. DIFFERENCES IN SPECIFICATIONS

The differences in the specifications are only the current consumption and power consumption of the STM whose winding resistance is changed according to the change in the STM driver (LSI). All the other specifications such as physical dimensions, operational characteristics, environmental conditions, reliability, etc. are the same as for the 7XXX series.

##### 4.1 Power interface

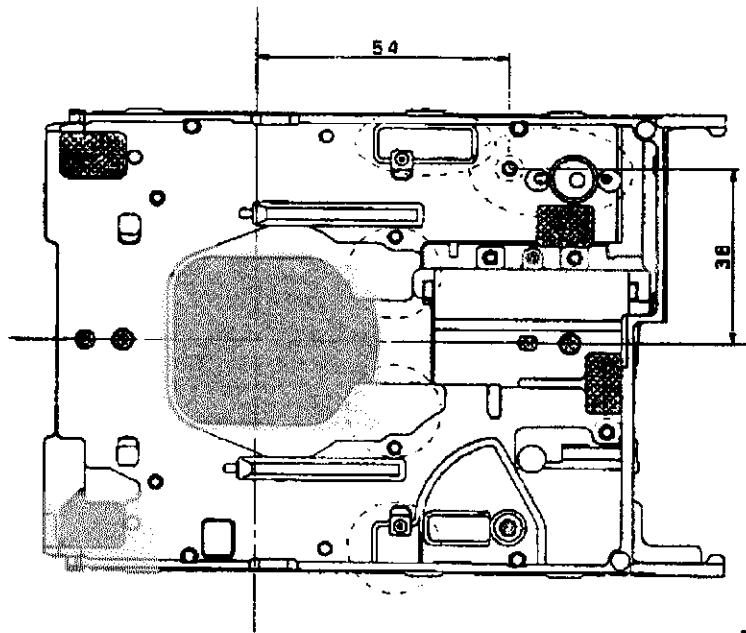
The details of the consumption are described in the specifications.

###### (1) Current consumption

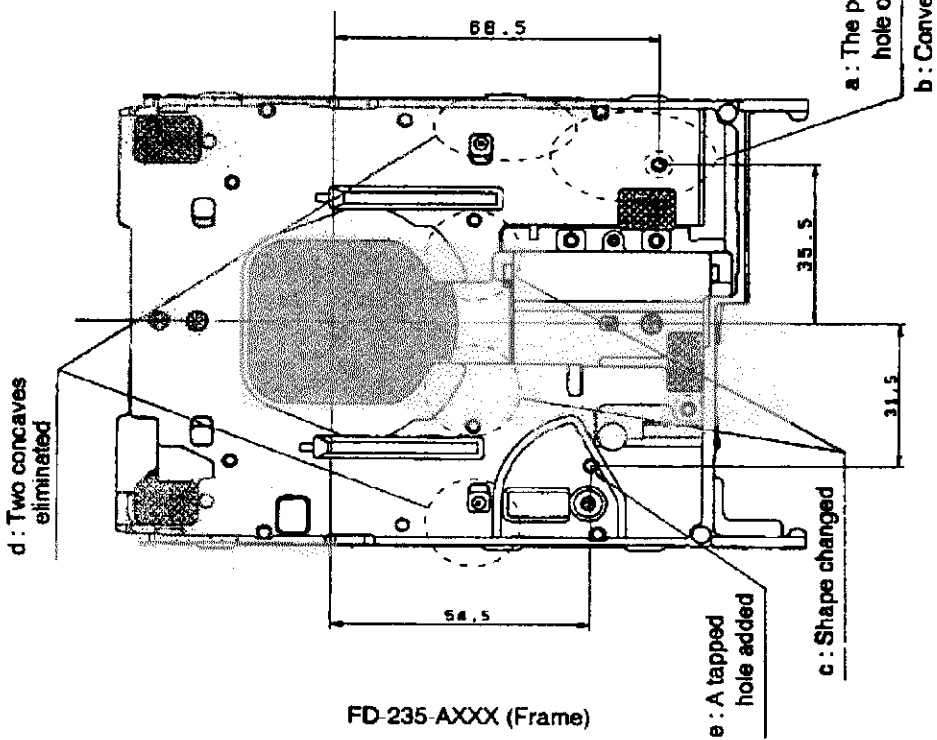
Operating mode	Conventional series		New series	
	Typ.	Max.	Typ.	Max.
During stand-by	3.0mA	5.0mA	8.0mA	10.0mA
During seek, Average	3ms	0.48A	0.56A	0.66A
	6ms	0.56A	0.68A	0.70A
During seek, Peak	Not described		0.9A	1.0A
At short time Max, Peak	0.9A or less		1.0A or less	

###### (2) Power consumption

Operating mode	Conventional series		New series	
	Typ.	Max.	Typ.	Max.
During stand-by	1.5mW	28mW	40mW	55mW
During seek, Average	3ms	2.40W	2.80W	3.63W
	6ms	2.80W	3.74W	3.85W
During seek, Peak	Not described		4.50W	5.50W

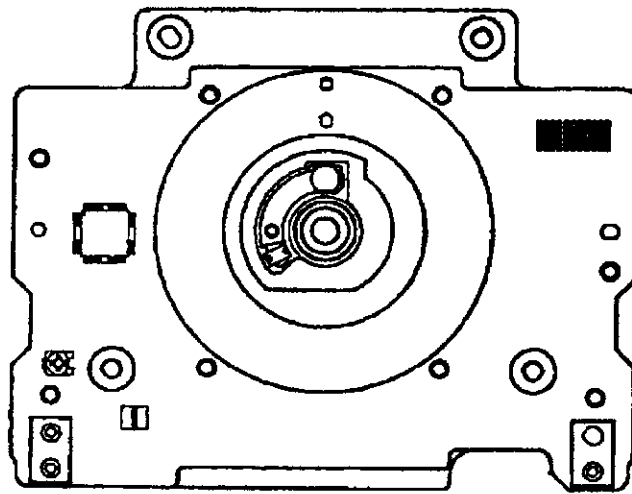


FD-235-7XXX (Frame)

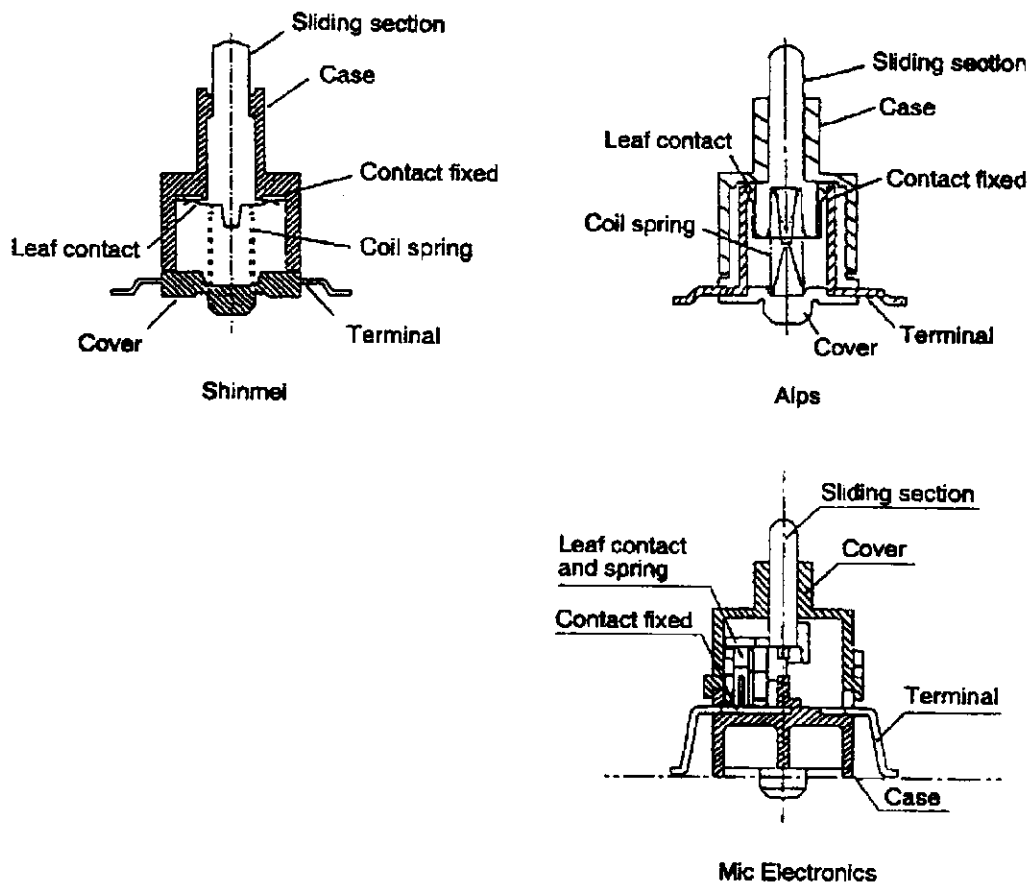


FD-235-AXXX (Frame)

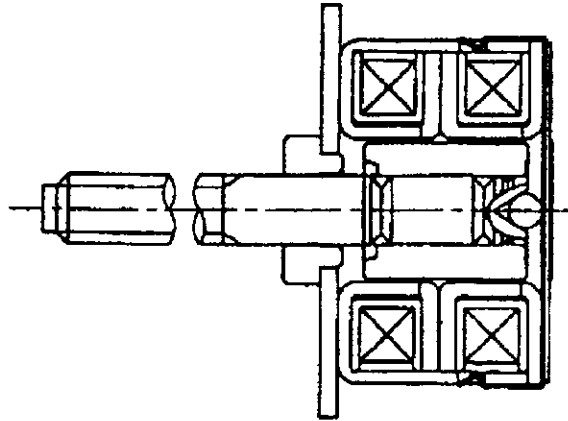
(Fig. 1)



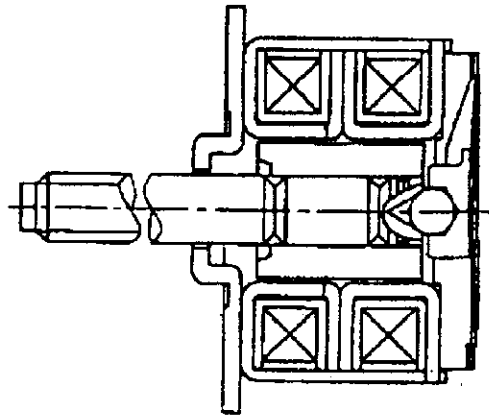
(Fig. 2-1)



(Fig. 2-2)



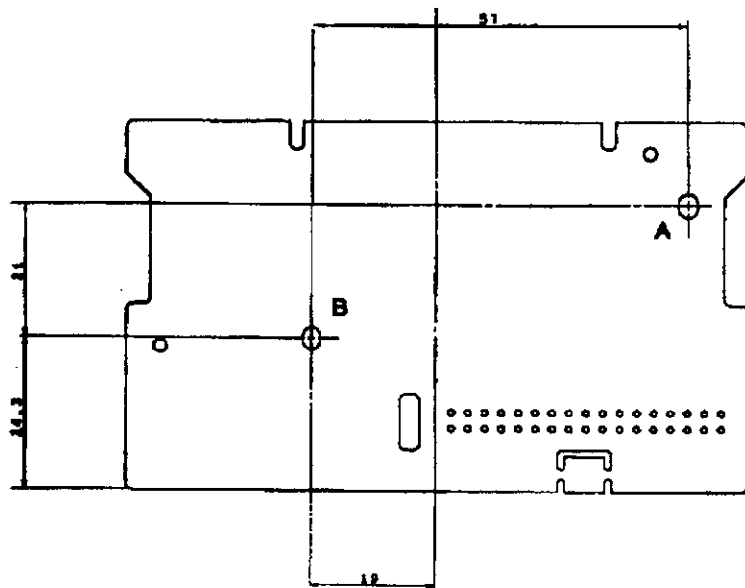
FD-235-7XXX (Stepping motor)



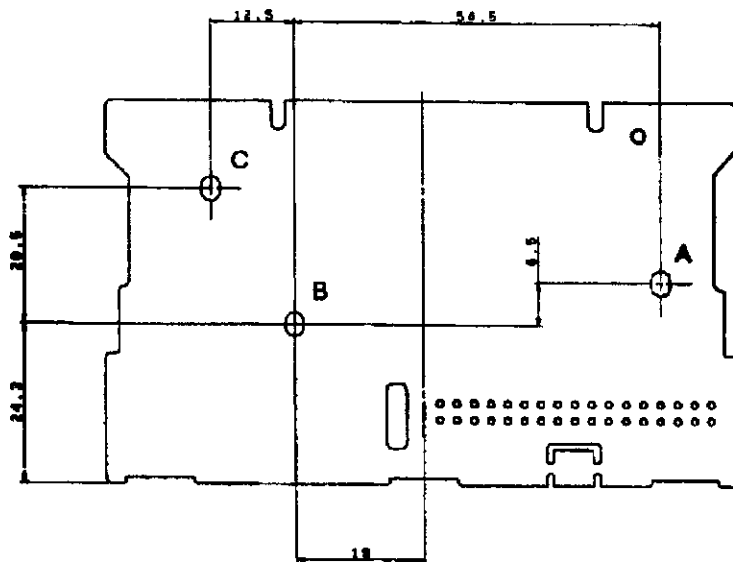
FD-235-AXXX (Stepping motor)

(Fig. 3)





FD-235-7XXX (PCB)



FD-235-AXXX (PCB)

(Fig. 4)

**TEAC FD-235HG/HF-A000 (8000 → A000)**  
**TECHNICAL DESCRIPTION OF DIFFERENCES**

## 1. OUTLINE

This document describes the details of changes for the TEAC FD-235HG/HF micro floppy disk drive (hereinafter referred to as FDD) from the -8XXX series to -AXXX series.

In AXXX series, its mechanism, assignment of each pin and main parts, and the front bezel are designed based on the conventional 8XXX series and the components count is reduced, whereby improving reliability and productivity.

This document describes typical models of the 8XXX series and AXXX series as examples. If you have any questions about the specifications of individual models, etc., kindly contact us through our sales department.

## 2. MODEL NAME AND PART NUMBER

The nameplate attached on the rear of the FDD frame has the indication shown in Table 1, to distinguish between the 8XXX series and AXXX series.

(Table 1) Model name and part number

Indication	8XXX series	AXXX series
Model name	FD-235HF-8XXX	FD-235HF-AXXX
Part Number	1930778X-XX	193077AX-XX

For a model of 8XXX series which can be replaced by the AXXX series as it is, the top digit of the number is changed from "8" to "A" remaining the last three digits as they are.

e.g. FD-235HF-8291 → FD-235HF-A291

### 3. DIFFERENCES IN EXTERNAL APPEARANCE

For details, refer to each specification or actual model.

Tables 2 to 6 show a list of main differences in the external appearance.

#### 3.1 Mechanical Parts

(Table 2) External appearance differences in mechanical parts

Different points	Detail	Related drawings
Frame	The frame described below has been newly adopted to add to the conventional frame.	
Top	The tapped hole position to mount the PCBA has been changed.	Fig.1

#### 3.2 Spindle Motor, Stepping Motor

(Table 3) Motor appearance differences

Different points	Detail	Related drawings
Spindle motor Ass'y	Main body	A G-type (Kumagaya Seimitsu) has been newly added to the conventional S-type, J-type and M-type.
	Switch	The switches made by Mic Electronics and by Alps Electronics have been newly accepted to add to conventional switches made by Alps/Shinmei.
		Fig. 2

#### 3.3 PCBA MFD Control

(Table 4) PCBA appearance differences

Different points	Detail	Related drawings
LSI	The 52-pin LSI (two suppliers) has been newly accepted for use.	
PCB	The PCB for the LSI described above has been accepted for use.	
	The screw hole position for mounting the PCB has been changed and a mounting hole(C) has been newly added as shown in the figure.	Fig. 3

### 3.4 Head Carriage Assembly

(Table 5)HCA appearance differences

Different points	Detail
Head piece	A bulked-type has been newly adopted to be used in parrallel with the conventional laminate type.

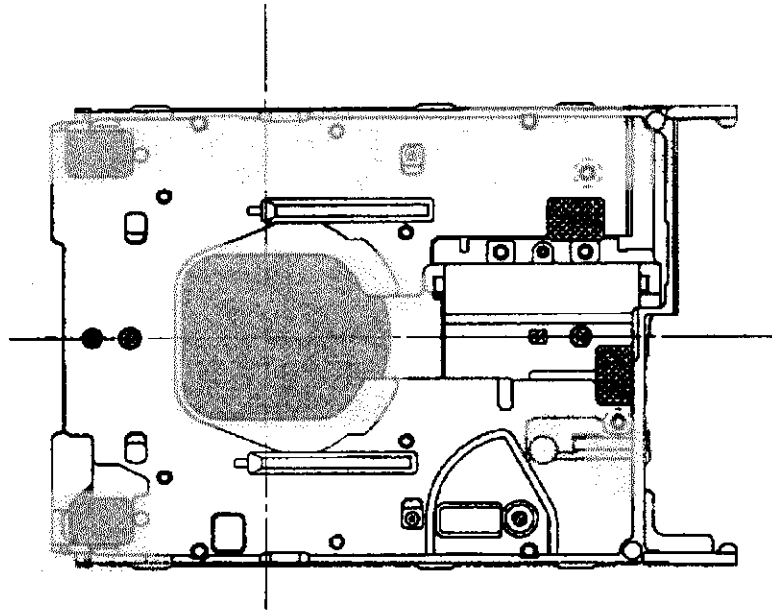
### 3.5 Packing Box

(Table 6)Packing Box appearance differences

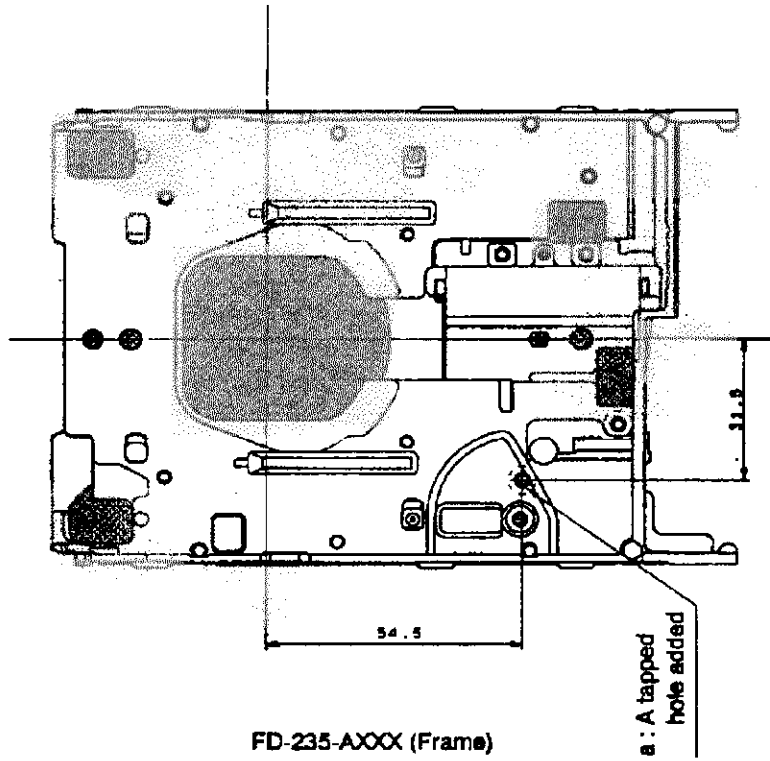
Different points	Details	
Packing Assy	Quantity	20 units → 30 units
	External dimensions	566×456×232 → 566×456×213
	Cushion	PS (Polyethylene) → Paper (recycled)
	Character color (printed)	Black → Dark blue

## 4.DIFFERENCES IN SPECIFICATIONS

All the specifications such as physical dimensions, operational characteristics, environmental conditions, reliability, etc. are the same as for the 8XXX series.

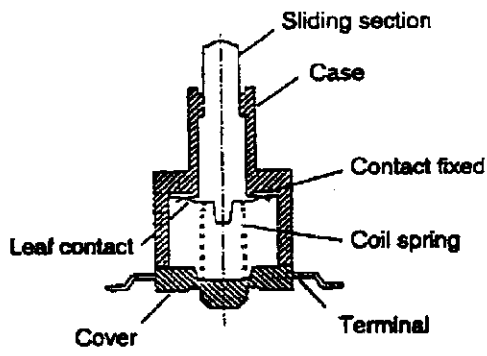


FD-235-8XXX (Frame)

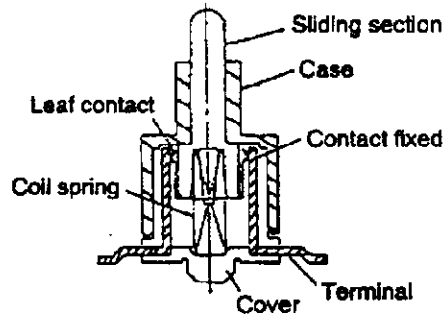


FD-235-AXXX (Frame)

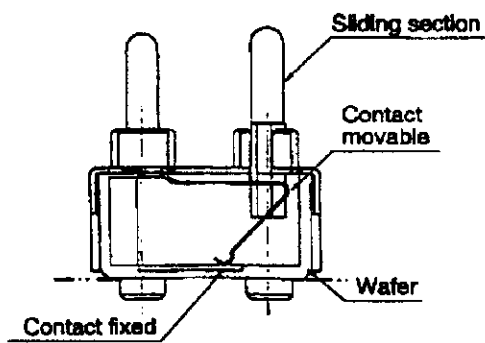
(Fig. 1)



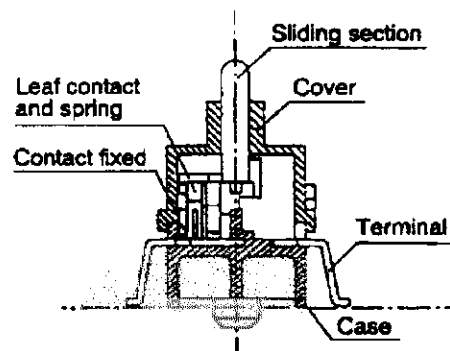
Shinmei



Alps

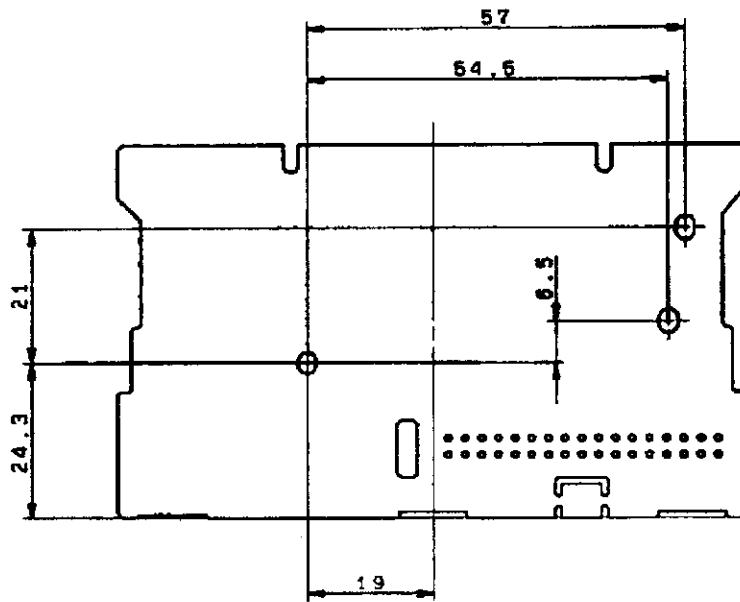


Alps (new)

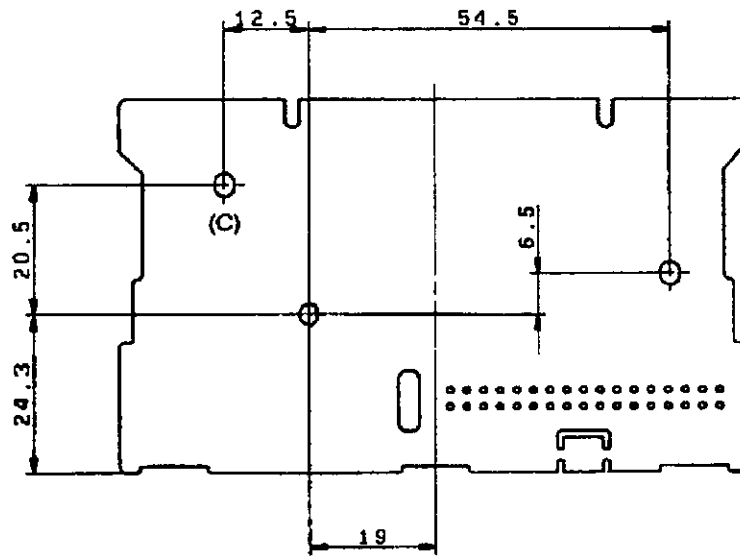


Mic Electronics

(Fig. 2)



FD-235-8XXX (PCB)



FD-235-AXXX (PCB)

(Fig. 3)



**TEAC FD-235HG/HF-Bxxx (Axxx → Bxxx)**

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**TECHNICAL DESCRIPTION OF DIFFERENCES**

**Rev. B**

**12 sheets in Total**

## 1. OUTLINE

This document describes the details of changes for the TEAC FD-235HF/HG micro floppy disk drive (hereinafter referred to as FDD) from the -Axxx series to -Bxxx series.

In Bxxx series, its mechanism, assignment of each pin and main parts, and the front bezel are designed based on the conventional Axxx series and the components count is reduced, whereby improving reliability and productivity.

This document describes typical models of the Axxx series and Bxxx series as examples. If you have any questions about the specifications of individual models, etc., kindly contact us through our sales department.

## 2. MODEL NAME AND PART NUMBER

The nameplate attached on the rear of the FDD frame has the indication shown in Table 2-1, to distinguish between the Axxx series and Bxxx series.

(Table 2-1) Model name and part number

Indication	Axxx series	Bxxx series
Model name	FD-235HF-Axxx	FD-235HF-Bxxx
Part Number	193077Ax-xx	193077Bx-xx

For a model of Axxx series which can be replaced by the Bxxx series as it is, the top digit of the number is changed from "A" to "B" remaining the last three digits as they are.

e.g. FD-235HF-A291 → FD-235HF-B291

### 3. DIFFERENCE IN EXTERNAL APPEARANCE

For details, refer to each specification or actual model.

Table 3.1-1 to Table 3.3-1 show lists of main differences in the external appearance.

#### 3.1 Mechanical Parts

(Table 3.1-1) External appearance differences in mechanical parts

Different points	Details	Related drawings
Front bezel ass'y	The front bezel and the shutter shall be separated and only the front bezel shall be used in the same way as the TEAC 1/2-height FDD (FD-05 series).	Fig. 3.1-1
Frame	The shutter shall be mounted onto the frame in the same way as the TEAC 1/2-height FDD (FD-05 series). Addition of the flap rotation stopper.	Fig. 3.1-2
Front bezel model	The position of the shutter will be changed from current position.	Fig. 3.1-3
No-bezel model	The shutter shall be mounted directly onto the frame as described above rather than mounting it onto the bracket as before. The position of the shutter will be changed from current position.	Fig. 3.1-4
Shutter shape	R0.3 → R1.5	Fig.3.1-1
Shield cover	The shape will be changed. (Adding the drawing shape)	Fig. 3.1-5
Holder	The shape of the holder will be changed.	Fig. 3.1-6

#### 3.2 Spindle Motor, Stepping Motor

(Table 3.2-1) Motor appearance differences

Different points	Details	Related Drawings
Spindle motor ass'y	It has been changed to a new M-type (Minebea) and new S-type (Sankyo) from the conventional M-type, J-type and S-type.	

### 3.3 PCBA MFD Control

(Table 3.3-1) PCBA appearance differences

Different points	Details	Related Drawings
PCB	The PCB for the each LSI (ROHM, MATSUSHITA and TOSHIBA) has been accepted for use. (The each PCB will be renewal.)	
FFC for SPMA	It will be changed from 11-pin to 10-pin (elimination of the ED sensor line: it is not currently used). The forming will be changed to an U-type from a S-type	

### 3.4 Nameplate

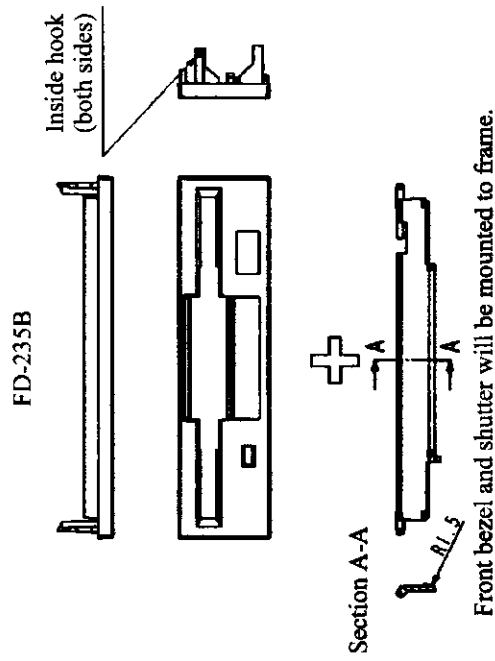
The attaching position of the nameplate is to be changed from the current back edge of the frame to the shield cover (see Fig. 3.4-1). However, as to the current model with the nameplate attached to the shield cover, the current position is to be kept as it is.

## 4. DIFFERENCE IN SPECIFICATIONS

Regarding the bezel-less model, the distance from the frame mounting screw hole to the frame edge is to be changed (see Fig. 3.1-4).

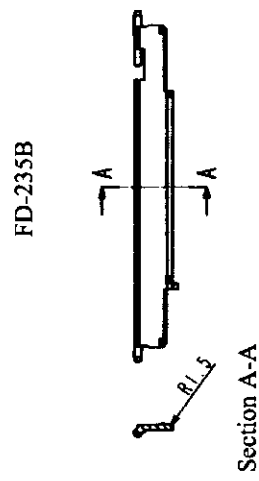
All the other specifications such as operational characteristics, environmental conditions, reliability, etc. except mechanical are the same as for the Axxx series.

FRONT BEZEL TYPE

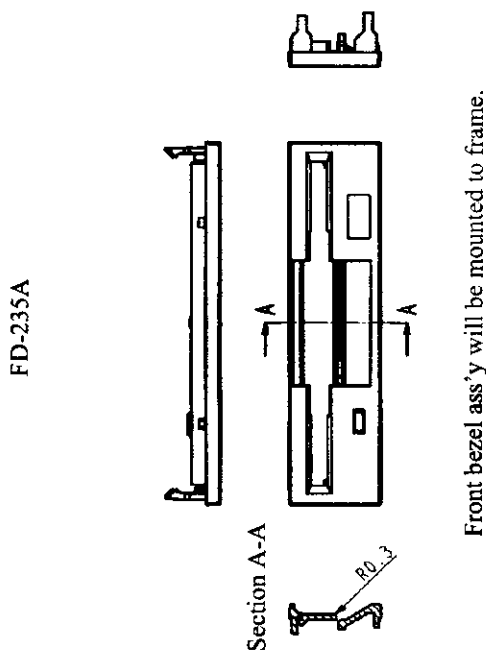


Front bezel and shutter will be mounted to frame.

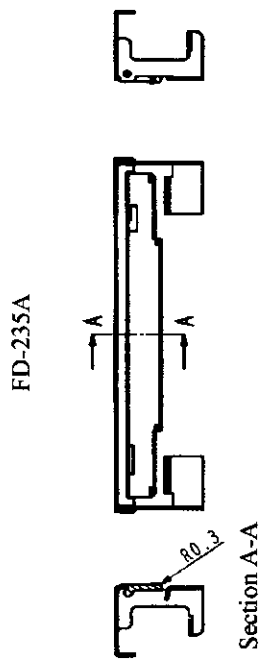
NO-BEZEL TYPE



Shutter will be mounted to frame.



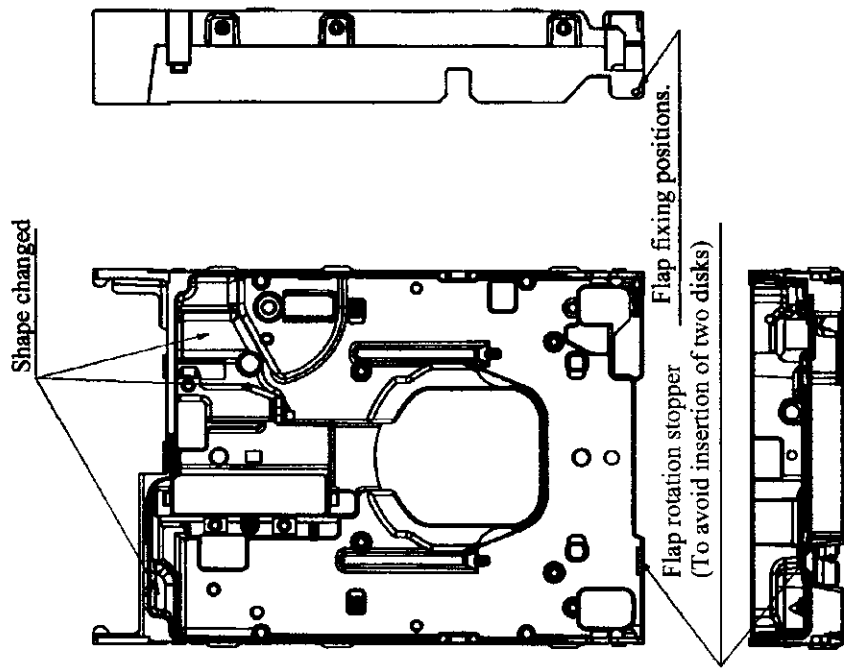
Front bezel ass'y will be mounted to frame.



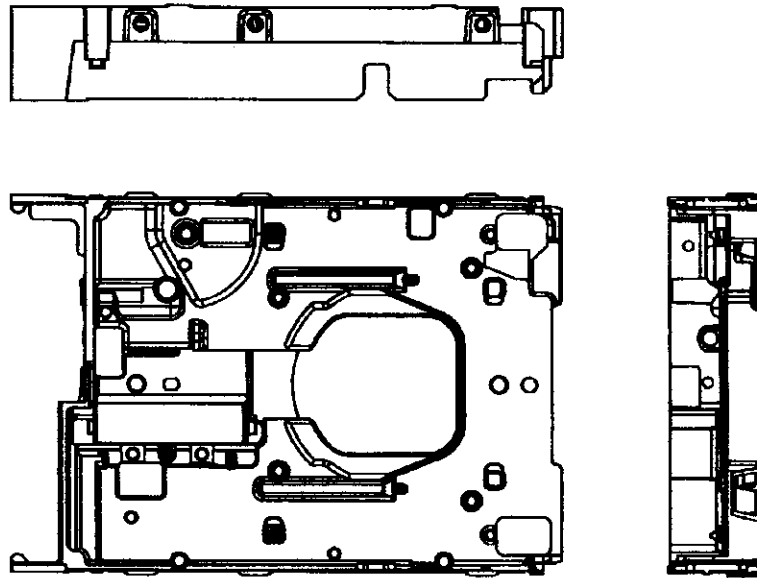
Bracket ass'y will be mounted to frame.

(Fig. 3.1-1)

FRAME, 235B

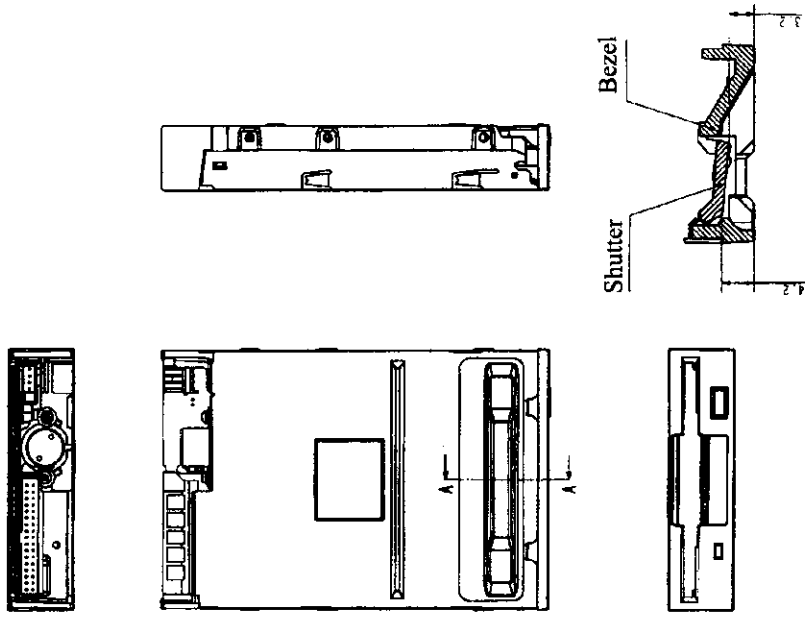


FRAME, 235A

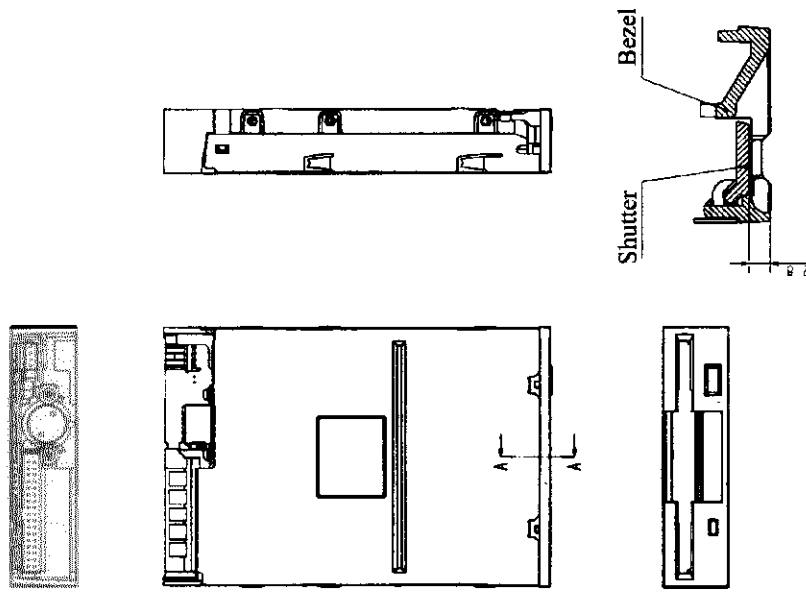


(Fig. 3.1-2)

FD-235B (FRONT BEZEL TYPE)

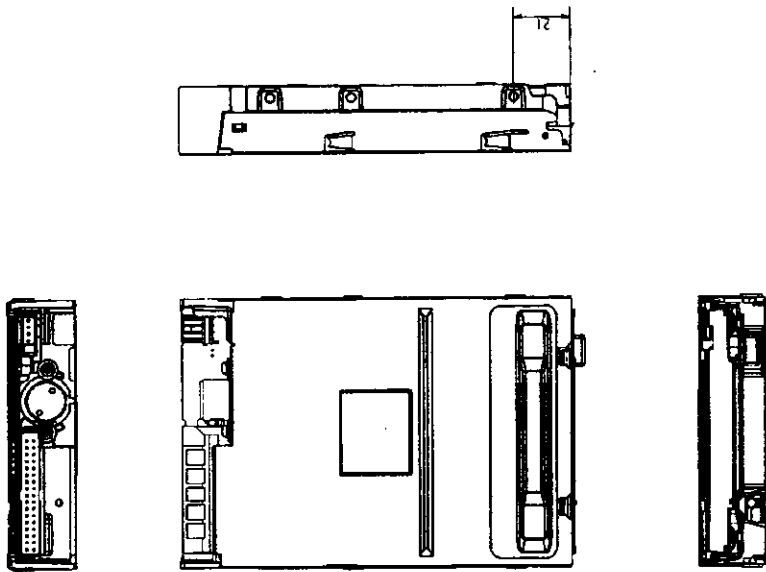


FD-235A (FRONT BEZEL TYPE)

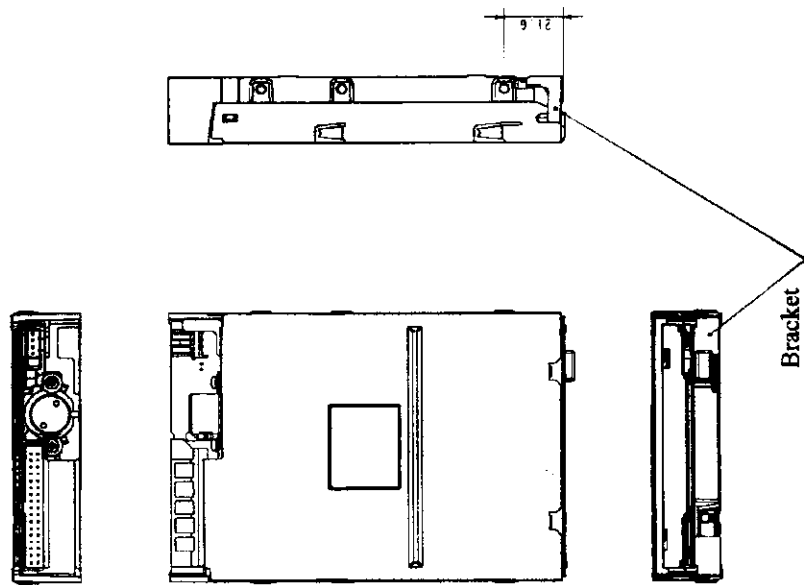


(Fig. 3.1-3)

FD-235B (NO-BEZEL TYPE)



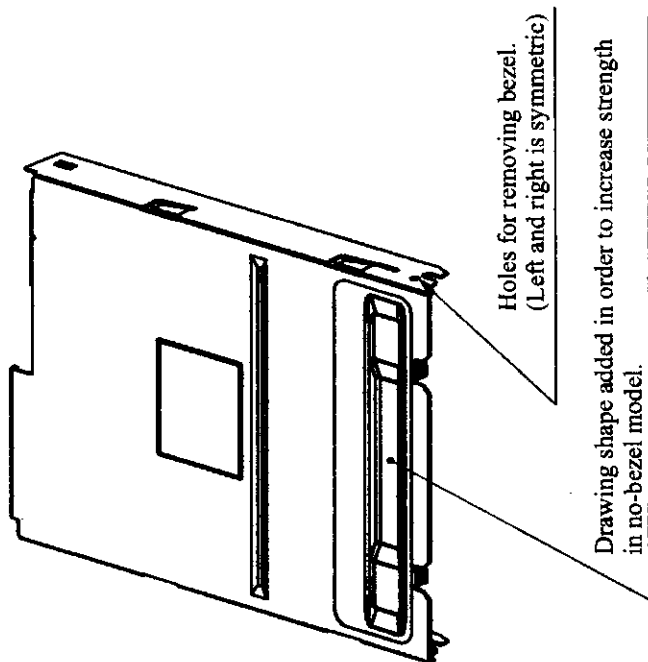
FD-235A (NO-BEZEL TYPE)



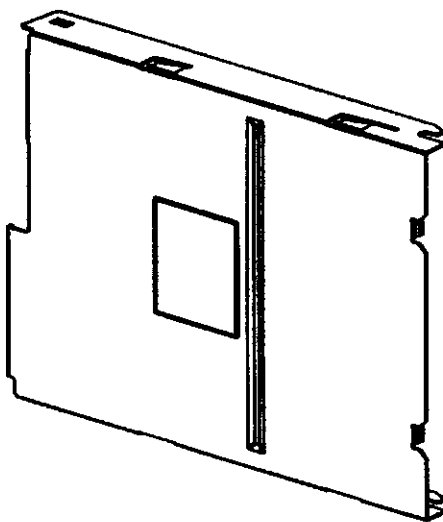
(Fig. 3.1-4)



COVER, 235B

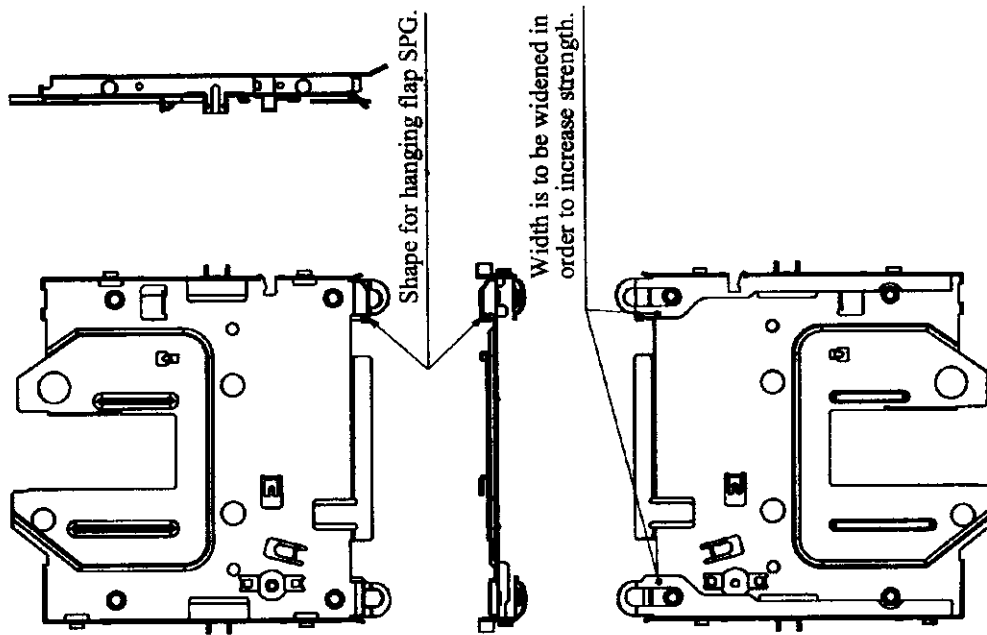


COVER, 235A

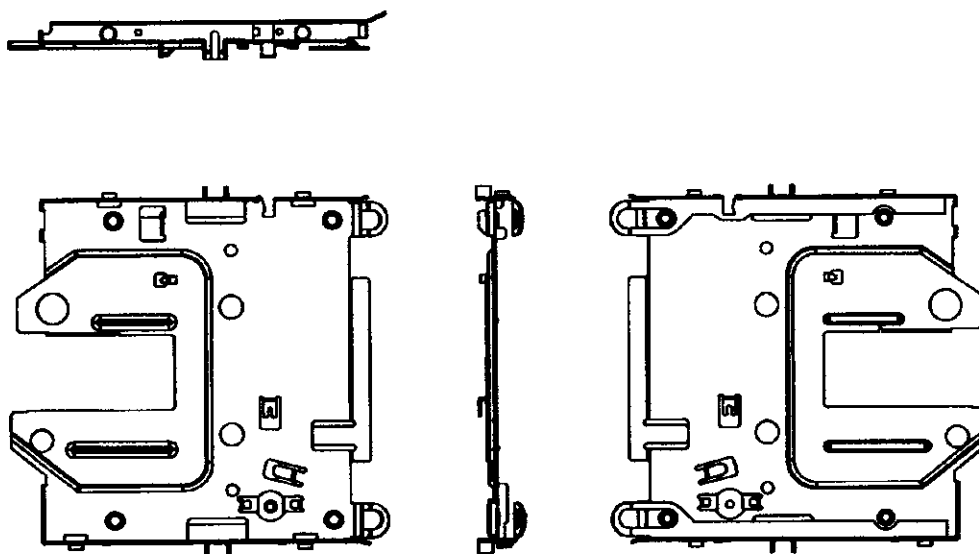


(Fig. 3.1-5)

HOLDER, 235B



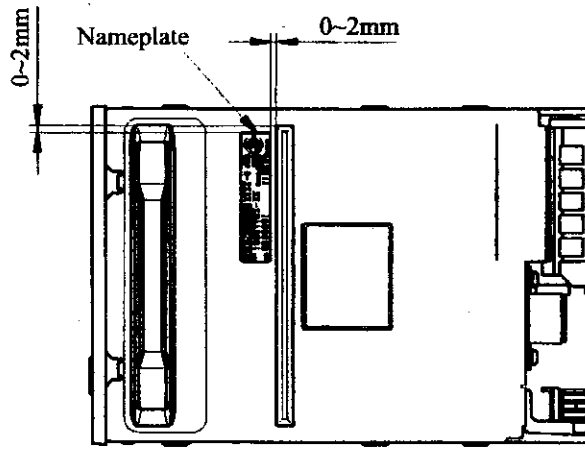
HOLDER, 235A



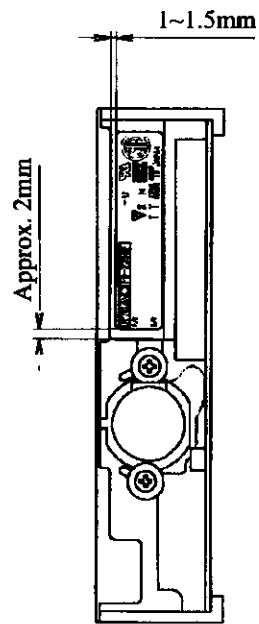
(Fig. 3.1-6)

Nameplate attaching position

FD-235B



FD-235A



(Fig. 3.4-1)