

(11) Replacement of leaf springs of vision head with X axis

If any leaf spring which fixes the nozzle is deformed or damaged, replace it.

No.	Replacing procedure
1	Pull out the nozzle from the vision head.
2	The leaf spring is fastened with M2 screw. Remove M12 screw of the leaf spring which will be replaced.
3	Prepare the new leaf spring. Together with the plate which retains the leaf spring, install the leaf spring on the shaft nozzle.
4	The leaf spring retains the slant surface which is above the width-across-flats area of the nozzle. Thus, the nozzle is prevented from becoming vertically loose. Therefore, install the leaf spring in the position as shown below.
5	Install and remove the nozzle several times to check for a forcible force, and backlash during elevation and rotation.

Fig. 6-50
Shaft nozzle of
vision head

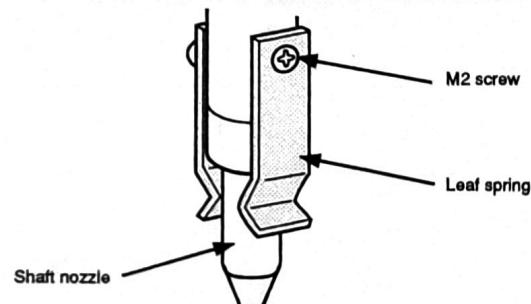


Fig. 6-51
Plate spring
attachment posi-
tions

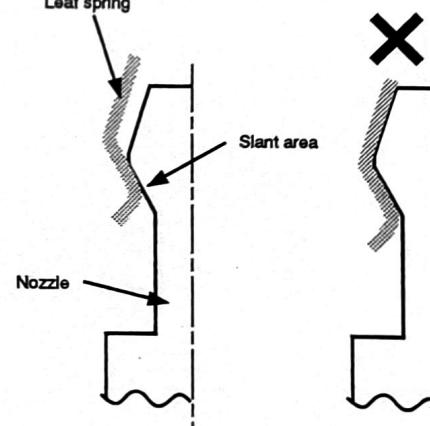
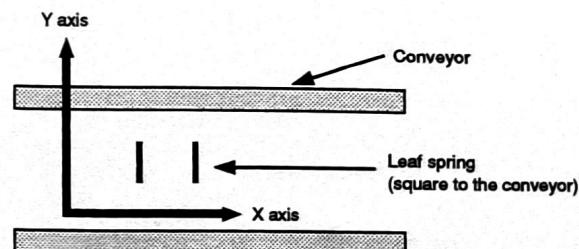


Fig. 6-52
Orientation of
plate springs

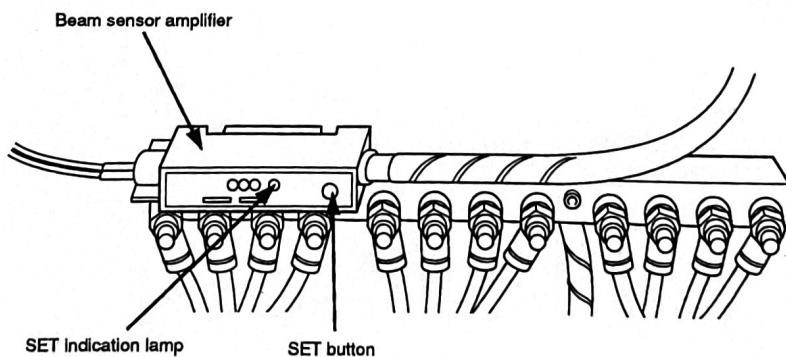


- 2) Sensitivity adjustment of beam sensor
 For sensitivity adjustment, teach two points on the object and outside it, and it will be automatically adjusted.

No.	Replacing procedure
1	Turn on the air and power supplies, and stand by the machine at the origin point.
2	Position the board on the conveyor without warpage or backlash.
3	Move the red focus light of the beam sensor to on the object (fiducial mark, bad mark).
4	Remove the cover of the beam sensor amplifier section.
5	Press the SET button (black) at the right end of the amplifier, and verify that SET indication lamp (green LED) blinks.
6	Move the red focus light of the beam sensor out of the object, and move it to another place (except pattern) of the board.
7	Like Step 7, press the SET button (black) at the right end of the amplifier, and verify that SET indication lamp (green LED) continues lit.
8	Move the red focus light of the beam sensor to on the object again, and verify that all lamps are lit.

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Fig. 6-56
 Beam sensor amplifier



6-3-5 Other functional sections

(1) Adjustment of beam sensor

When the beam sensor is replaced or an object (fiducial mark, bad mark, etc.) is not detected well, adjust the following.

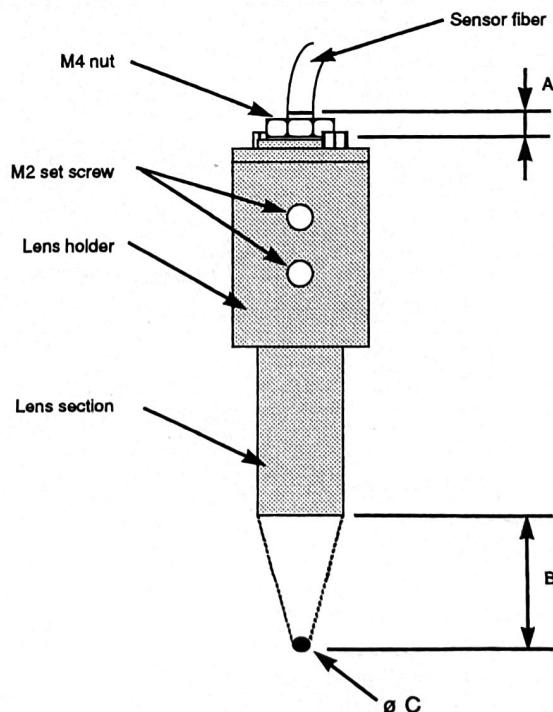
1) Adjustment of focus diameter of beam sensor

CAUTION !

Since the beam sensor is the reference unit of the machine, it is necessary to adjust the system data when the beam sensor is adjusted.

No.	Replacing procedure
1	Turn on the air and power supplies, and stand by the machine at the origin point.
2	Position the board on the conveyor without warpage or backlash. (The board is provided with the fiducial mark.)
3	Keeping the sensor section projected approx. 5mm (dimension A in the following figure) beyond the lens section, tighten M4 nut.
4	Adjust the height so that the focus diameter becomes 0.8 to 1.0mm (dimension A in the following figure) when the lens section is approx. 10mm (dimension B in the following figure) above the top surface of the board. To adjust the height, loosen M2 set screws which fasten the lens holder, and vertically move the lens section.

Fig. 6-55
Main body section
of beam sensor



6-3-4 Feeder section

✖ DANGER !!!

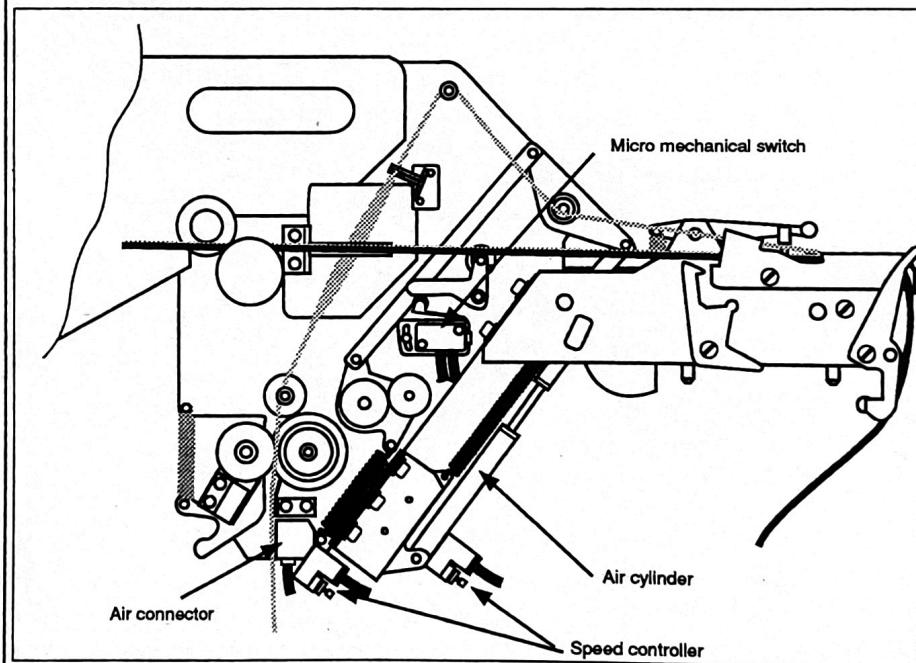
Before adjusting the feeder, remove it from the mounter or turn off the power supply of the mounter.

(1) Air speed adjustment of pneumatically driven feeder

On the pneumatically driven feeder, the tape is fed by the air cylinder. The speed controller in the air cylinder section suppresses the speed at which the cylinder retracts, and the speed controller in the air connector section suppresses the speed at which the cylinder projects. If the retraction speed of the cylinder is excessively fast, there will be a possible danger that the mechanical system is adversely influenced. Therefore, don't release the speed controller but lightly choke it.

Though the projection speed of the cylinder is different depending on the tape of the supplied part, an electronic part will be unstably fed or clogged or the sprocket will go out of the tape guide hole if the speed is excessively fast. Since the accurate feed is thus disturbed, it is recommended to slightly slow down the speed.

Fig. 6-53
Air speed adjustment of feeder driven by emboss air



6-3-6 Installation of software

There are six kinds of softwares which configure the system.

Functions of softwares

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Software	Function
UFOS	Basic software of UFOS
SERVO	Axes controll.
VISION	Vision is recognition.
I/O	DI/DO signals input and output.
HHK	HHK is input.
BOOT	Software installation.

When the version is improved, UFOS, SERVO, VISION and BOOT are installed from the floppy disk, and I/O and HHK are revised with ROM replacement.

Five installable disks are provided.

Label No. of each installable disk

41199308-00

Software	Label No. (??? means the version No. of software.)
UFOS NO.1	KJ1-42D0.5??
UFOS NO.2	KJ1-42E0.5??
SERVO	KJ0-58D9.???
VISION	KJ1-44D0.???

Two disks above are necessary to install UFOS.

(1) The following procedure is taken to install software of UFOS, SERVO and VISION.

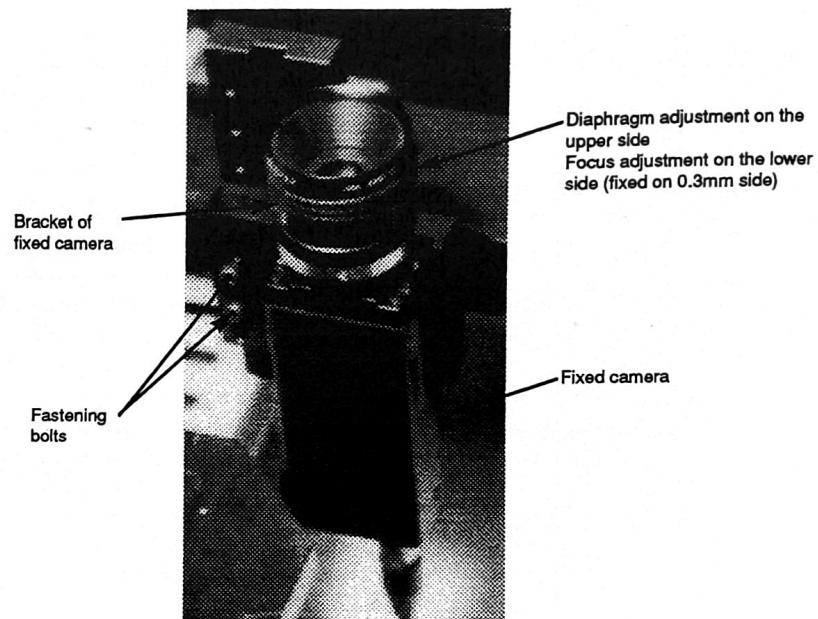
- 1) Selection of software installable mode
Pressing SHIFT key + ENTER key, turn on the power supply.
- 2) Installation of SERVO software
The following message is displayed.

61199437-00
Software installation
screen 1

INSERT SERVO DISK.
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.

To install SERVO software, insert the installation disk of SERVO software into the unit, and press any other key except EXIT key. To skip installation of SERVO software, press EXIT key.

Fig. 6-57
Appearance view
of fixed camera



(2) Adjustment of focus and diaphragm of fixed camera see figures 6-57.

WARNING !!

Since the focus and diaphragm of the fixed camera is very sensitive, carelessly adjust them. Particularly if the focus is adjusted, it is necessary to calibrate the vision file which is used by the camera.

No.	Replacing procedure
1	Turn the focus adjusting ring fully toward 0.3m side. (It is ordinarily fixed.) Loosen the set screw which fastens the diaphragm adjusting ring, and open it (to the brightest state).
2	Generate a vacuum on the nozzle of the vision head to suck QFP. The applied QFP must be of a specified size and have been already registered in the vision file by the user (e.g. QFP 100).
3	Keeping the part recognition illumination off, move the head to bring QFP to the center on the CRT screen.
4	Adjust the height of the fixed camera so that QFP may be finely shown (focused) on the CRT screen by loosening the bolts which fasten the bracket of the fixed camera, and move up and down the fixed camera. At this time, adjust the fixed camera so that the white reflective plate of the vision head may be shown to be smaller than the window (white square frame on the CRT screen).
5	On the manual screen, turn on the part recognition illumination (MV-LED). To make QFP most finely shown on the CRT screen, turn the diaphragm adjusting ring clockwise. As reference for the correct diaphragm, it is proper if the window is finely visible against the reflective plate and the leg (lead) of QPP is finely visible against the background. After adjustment, tighten the set screw.
6	As the initial adjustment, calibrate the vision file of QFP which is applied for adjustment, and adjust the shift and scale values. Readjust the other vision files which are used by the camera.

When memory check is completed, the following message will be displayed.

61199445-00
Software installation
screen 9

```
VERIFYING...
oooooooooooooooooooo
OK.
STORING FILE INFORMAITON...
ERASING FLASH-MEMORY...
CHECKING BLANK...
WRITING FLASH-MEMORY...
STORED.
HIT ANY KEY WHEN READY.
```

4) Installation of UFOS software

When installation of VISION software is completed (or installation of VISION software is skipped), the following message will be displayed.

61199446-00
Software installation
screen 10

```
INSERT UFOS NO.1 DISK.
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.
```

To install UFOS software, insert No. 1 installation disk of the UFOS software into the unit, and press any other key except EXIT key. To skip installation of UFOS software, press EXIT key.

Press any other key except EXIT key, and the message to recognize the following software version will be displayed.

61199447-00
Software installation
screen 11

```
F-MEM VER.001 95.10.25 00:00:00 737361
FD VER 002 95.10.26 00:00:00 737361
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.
```

To install UFOS software after verifying the version, etc., press any other key except EXIT key. To skip installation of UFOS software, press EXIT key.

61199442-00
Software installation
screen 6

Press any other key except EXIT key, and the message to recognize the following software version will be displayed.

```
F-MEM VER.001 95.10.25 00:00:00 630143
FD VER.002 95.10.26 00:00:00 630143
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.
```

61199443-00
Software installation
screen 7

To install VISION software after verifying the version, etc., press any other key except EXIT key. To skip installation of SERVO software, press EXIT key.

Press any other key except EXIT key, and installation of VISION software will be started with the following message displayed.

```
ERASING FLASH-MEMORY (60000H) ...
ERASING FLASH-MEMORY (70000H) ...
ERASING FLASH-MEMORY (80000H) ...
ERASING FLASH-MEMORY (90000H) ...
ERASING FLASH-MEMORY (A0000H) ...
ERASING FLASH-MEMORY (B0000H) ...
ERASING FLASH-MEMORY (C0000H) ...
ERASING FLASH-MEMORY (D0000H) ...
CHECKING BLANK (60000H) ...
CHECKING BLANK (70000H) ...
CHECKING BLANK (80000H) ...
CHECKING BLANK (90000H) ...
CHECKING BLANK (A0000H) ...
CHECKING BLANK (B0000H) ...
CHECKING BLANK (C0000H) ...
CHECKING BLANK (D0000H) ...
LOADING...
OOO-----
```

61199444-00
Software installation
screen 8

When installation is completed, the memory check will be started with the following message displayed.

```
LOADING...
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
VERIFYING...
OOO-----
```

'O' marks indicate the progression of memory check. When 'O' marks reach the end of the line, it means that memory check is completed.

Press any other key except EXIT key, and the message to recognize the following software version will be displayed.

61199438-00
Software installation
screen 2

```
F-MEM VER.001 95.10.25 00:00:00 51159
FD VER.002 95.10.26 00:00:00 51159
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.
```

To install SERVO software after verifying the version, etc., press any other key except EXIT key. To skip installation of SERVO software, press EXIT key.

Press any other key except EXIT key, and installation of SERVO software will be started with the following message displayed.

61199439-00
Software installation
screen 3

```
LOADING...
OOO-----
```

'O' marks indicate the progression of installation. When 'O' marks reach the end of the line, it means that installation is completed. When installation is completed, the following message will be displayed.

61199440-00
Software installation
screen 4

```
LOADING...
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
ERASING FLASH-MEMORY...
CHECKING BLANK...
WRITING FLASH-MEMORY...
OK.
STORING FILE INFORMAION...
ERASING FLASH-MEMORY...
CHECKING BLANK...
WRITING FLASH-MEMORY...
STORED.
HIT ANY KEY WHEN READY.
```

3) Installation of VISION software

When installation of SERVO software is completed (or installation of SERVO software is skipped), the following message will be displayed.

61199441-00
Software installation
screen 5

```
INSERT VISION DISK.
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.
```

To install VISION software, insert the installation disk of the VISION software into the unit, and press any other key except EXIT key. To skip installation of VISION software, press EXIT key.

61199448-00
Software installation
screen 12

Press any other key except EXIT key, and installation of UFOS software No.1 will be started with the following message displayed.

```
ERASING FLASH-MEMORY (C0000H LOW) ...
ERASING FLASH-MEMORY (C0000H HIGH) ...
ERASING FLASH-MEMORY (80000H LOW) ...
ERASING FLASH-MEMORY (80000H HIGH) ...
ERASING FLASH-MEMORY (60000H LOW) ...
ERASING FLASH-MEMORY (60000H HIGH) ...
CHECKING BLANK (60000H) ...
CHECKING BLANK (70000H) ...
CHECKING BLANK (80000H) ...
CHECKING BLANK (90000H) ...
CHECKING BLANK (A0000H) ...
CHECKING BLANK (B0000H) ...
CHECKING BLANK (C0000H) ...
CHECKING BLANK (D0000H) ...
CHECKING BLANK (E0000H) ...
CHECKING BLANK (F0000H) ...
LOADING...
OOO-----
```

61199449-00
Software installation
screen 13

When installation is completed, the memory check will be started with the following message displayed.

```
LOADING...
oooooooooooooooooooooooooooo
VERIFYING...
OOO-----
```

61199450-00
Software installation
screen 14

When memory check is completed, the following message will be displayed.

```
VERIFYING...
oooooooooooooooooooooooooooo
OK.
INSERT UFOS NO.2 DISK.
HIT ANY KEY WHEN READY.
```

61199451-00
Software installation
screen 15

Next, insert No. 2 installation disk of UFOS software into the unit, and press any key. Here, installation of UFOS software can not be interrupted.

Press any key, and the message to check the following software version will be displayed.

```
F-MEM VER.001 95.10.25 00:00:00 737361
FD VER.002 95.10.26 00:00:00 737361
HIT ANY KEY WHEN READY.
```

3) End of software installation mode

After all softwares are completely installed, the following message will be displayed.

61199460-00
Software installation
screen 24

RESTART IS POWER ON RESET.

Insert the user data disk into the unit, and turn on the power again.

 CAUTION !

1. To install MAIN SYSTEM software, it is necessary to install both NO. 1 and NO. 2.
Accordingly, the main system software can be installed only when both disks are prepared.
2. The version No. of each software now installed in the machine can be checked on the screen 'system parameter version NO.'.

(2) Also install BOOT software in the following procedure.

1) Selection of software installation mode

Pressing SHIFT key + ~~F5~~ key, turn on the power supply.
~~F5~~

2) Installation of BOOT software

The following message will be displayed.

61199456-00
Software installation
screen 20

```
KJ1-M4210-010
KJ1 BOOT PROGRAM
VERSION 007 NOV.08 1995
BOOT PROGRAM VERSION-UP MODE.
INSERT BOOT DISK.
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.
```

To install BOOT software, insert the installation disk of BOOT software, and press any other key except EXIT key. To skip installation of BOOT software, press EXIT.

Press any other key except EXIT key, and the message to check the following software version will be displayed.

61199457-00
Software installation
screen 21

```
F-MEM VER.001 95.10.25 00:00:00 160180
FD VER.002 95.10.26 00:00:00 160180
HIT ANY KEY WHEN READY.
IF NOT LOAD THEN PRESS <EXIT>.
```

After verifying the version, etc., press any other key except EXIT key to install BOOT software. To skip installation of BOOT software, press EXIT key.

Press any other key except EXIT key, and installation of BOOT software will be started with the following message displayed.

61199458-00
Software installation
screen 22

```
LOADING...
OOO-----
```

After installation, the following message will be displayed.

61199459-00
Software installation
screen 23

```
ERASING FLASH-MEMORY...
CHECKING BLANK...
WRITING FLASH-MEMORY...
```

61199452-00
Software installation
screen 16

Press any key, and installation of UFOS software will be installed with the following message.
Here, installation of UFOS software can not be interrupted.

LOADING...
000-----

61199453-00
Software installation
screen 17

When installation is completed, the memory check will be started with the following message displayed.

LOADING...
00000000000000000000000000000000
VERIFYING...
000-----

61199454-00
Software installation
screen 18

When memory check is completed, the following message will be displayed.

VERIFYING...
00000000000000000000000000000000
OK.
STORING FILE INFORMATION...
STORED.

5) End of software installation mode

When all softwares are completely installed, the following message will be displayed.

61199455-00
Software installation
screen 19

INSERT USER-DATA DISK.
RESTART IS POWER ON RESET.

Insert the user data disk into the unit, and turn on the power supply again.