Precision Fiber Cleaver FC-6M/FC-6M-C Operation Manual

For your safety, please read these instructions before use.

SEI

Observe the following safety precautions.

- Do not disassemble or lubricate any part of the cleaver.
- Glass-fiber fragments are extremely sharp and may puncture the skin. Handle with care. Dispose of the fiber fragments in exclusive waste places.
- Do not touch the blade with bare hands. Use gloves.

A. General

The FC-6M and the FC-6M-C are designed for cleaving standard optical fibers. Fiber requirements and specifications are shown in Table 1 and Table 2.

Table 1. Outline of FC-6M and FC-6M-C

Model number	Product description	Dimensions	Weight
FC-6M	Fiber cleaver	63(W) x 65(D) x 63 (H) mm	430g
FC-6M-C	Fiber cleaver with off-cut fiber collector	97(W) x 65(D) x 63 (H) mm	480g

Table 2. Specification of FC-6M and FC-6M-C

Applicable fibers	Single fiber and up to 12-fiber ribbon
Cladding diameter	125 μm
Cleave length	10mm
Bare fiber length required for cleaving	More than 28mm (for FC-6M) 28 to 40mm (for FC-6M-C)
Typical cleave angle	0.5°
Blade life	36,000 fibers

B. Operation (refer to Fig.1)

(1) Lift-up the opening/shutting lever to open the fiber clamp mechanism.
(2) Ensure that the blade is in the forward starting position as shown in Fig. 1.
(3) Set the fiber (whose coating is removed) into the fiber holder.
(4) Place the fiber holder onto the fiber holder base so that the right side of the holder touches the fiber holder base.
(5) Ensure the fiber is straight.
(6) Close the lid of the off-cut fiber collector lightly (for FC-6M-C only).
(7) Lower and close the fiber clamp mechanism (Displayed "1 CLOSE" on the cleaver).
(8) Slide the blade carriage to cleave the fiber (Displayed "2" on the cleaver).
(9) Lift-up the opening/shutting lever to open the fiber clamp mechanism.
(10) Remove the fiber holder and dispose of the waste carefully.
(The FC-6M-C automatically collected the waste when the fiber clamp is open.)
(11) Pull out the off-cut fiber collector case to dispose of the collected off-cut (for FC-6M-C only).

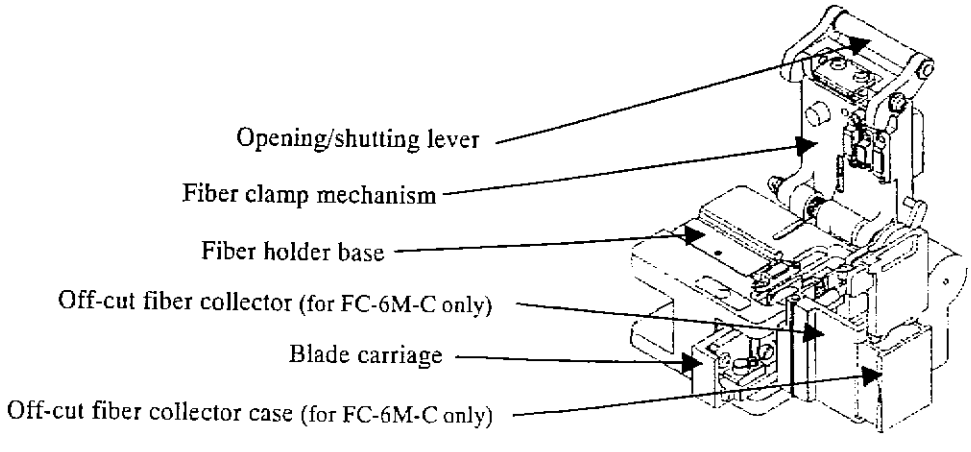


Fig. 1 FC-6M-C appearance

C. Maintenance

1. Cleaning the fiber clamps and the blade

Clean the upper and lower rubber surfaces of the bare fiber clamps and the blade edge with a cotton swab moistened with pure alcohol.

2. Rotating the blade position (refer to Fig. 2,3, and 4)

If cleaving results are poor, the blade position needs changing. Follow the procedures shown below.
(If pulling out the collecting case, you can change the blade position with the off-cut collector.)
(i) Loosen the blade fixing screw. (ii) Turn the blade to the next position as numbered.

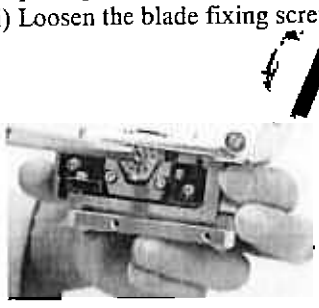


Fig. 2

Fig. 3

Effective positions are 1 to 12. Press a cotton swab on the side of the blade. Pushing the side of the blade should make it easier to turn.

(iii) Tighten the blade fixing screw (refer to Fig. 4).

Fig. 4

Tighten the screw, holding the side of the blade slightly. The correct tightening torque is around 10 N·m(kgf·cm). Normally there is no need to adjust the height once the blade has been turned, however if cleaving continues to be poor refer to "*3. Adjusting the blade height*".

3. Adjusting the blade height

(The FC-6M-C should be removed off-cut fiber collector before this maintenance (refer to **D. Equipping/Removing the off-cut fiber collector**).)

(i) Loosen the blade height locking screws (refer to Fig. 5).
(ii) Loosen the pressing screw (refer to Fig. 6).

Fig. 5

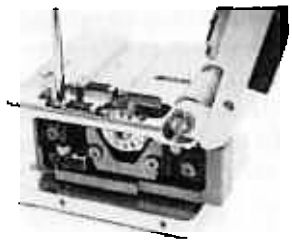


Fig. 6

(iii) Place a light stick made of wood or plastic onto the bare fiber clamps.

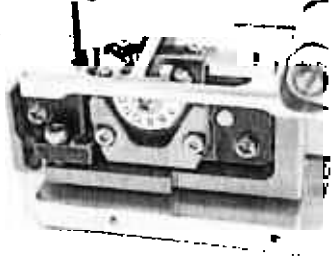
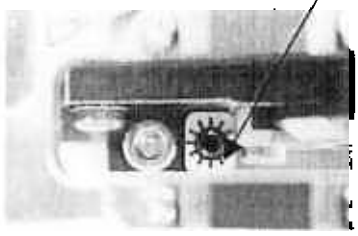


Fig. 7

Turn the blade height adjustment screw until the blade touches the stick lightly. Then turn it more 3 or 4 scales clockwise (refer to Fig. 7).

(iv) One scale of the blade height adjustment screw is 20 μm (refer to Fig. 8).



The height of the blade can be adjusted by turning this screw in either direction depending on the desired height.
When the blade lightly touches the wood stick, the height from the bare fiber clamps should be 20-30 μm. And after above (iii) adjusting, it should be made more 60-80 μm higher. So, the sum should be 80-110 μm.

Fig. 8

(v) Re-tighten the blade fixing screw. The correct tightening torque is around 10 N·m (kgf·cm).

(vi) Re-tighten the blade height locking screw. The correct tightening torque is around 6 N·m (kgf·cm).

4. When cleaving conditions are unsatisfactory

(i) For Angles occurring on the cleaved fiber edge
Although both the cleaver blade position and the blade height have been fully adjusted, the fiber is being cleaved at angle. : There may be a possibility that blade height is too low. In this case, the blade height will need raising. (refer to the "*3.Adjusting the blade height*"). If the screw is turned for less than one scale ideally half a scale, this will raise the height enough to reduce the angle, which is occurring.

(ii) For Cracking or chipping on the core of the fiber (Shadow appears around the cleaving portions in the microscope of the cleaver.)
Although both the cleaver blade position and the blade height have been fully adjusted, the fiber is being cracked or chipped. : There may be a possibility that blade height is too high. In this case, lowering the height may cause this problem to be eradicated (refer to the "*3.Adjusting the blade height*").
If the screw is turned for less than one scale ideally half a scale, this will lower the height enough to reduce the cracking or chipping which is occurring.

(iii) If these adjustments have taken place and the cleaving is still not suitable, there might be a defect in another part of the cleaver. In this case, please make an inquiry to a maintenance service section.

5. The blade height

After all of the blade positions (1 to12) have been used, set the blade back to position 1. You can perform cleaving again by adjusting the blade height. Raise the blade height by turning one more scale from standard condition (refer to the "*3. Adjusting the blade height*").
This blade height change can be used 3 times, thus giving 36 blade settings.

6. Blade replacement

(The FC-6M-C should be removed off-cut fiber collector before this maintenance (refer to **D. Equipping/Removing the off-cut fiber collector**).)
(i) Unscrew the blade fixing screw (refer to Fig. 9).

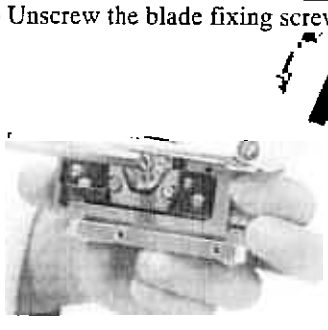
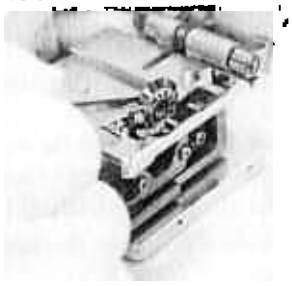


Fig. 9

(ii) Remove the used blade from the cleaver with tweezers (refer to Fig. 10).



Caution: Do not touch the blade with bare hands. Use gloves.

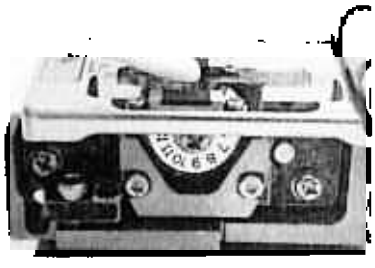
Fig. 10

(iii) Tilt the cleaver as shown in Fig. 11. Turn the number "1" of index sticker upwards and place the blade into the blade fixing cradle (refer to Fig. 11).

Caution: Do not touch the blade with bare hands. Use gloves.

Fig. 11

(iv) Push the blade down slightly with a cotton swab and ensure that the blade completely fits into the cradle (refer to Fig. 12).



Caution: Do not push the blade strongly. The blade could be damaged or stuck in the holder, which is difficult to remove again.

Fig. 12

(v) Tighten the blade fixing screw while pressing the side of the blade slightly with your finger. The required tightening torque is around 10 N·m (kgf·cm).

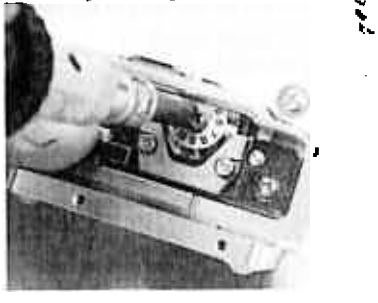


Fig. 13

D. Equipping/Removing the off-cut fiber collector

1.Equipping the off-cut fiber collector

(i) Lift-up the opening/shutting lever to open the fiber clamp mechanism. Ensure the blade is in the forward starting position (refer to Fig. 14).

Fig. 14

(ii) With the roller driving lever reclined, insert the lever pin into the lever hole while putting the fiber collector's connection part into the cleaver's connection part (refer to Fig. 15 and Fig. 16).

The position of the fixing rail (refer to Fig. 15) and its groove (refer to Fig. 17) is as shown in Fig. 18.

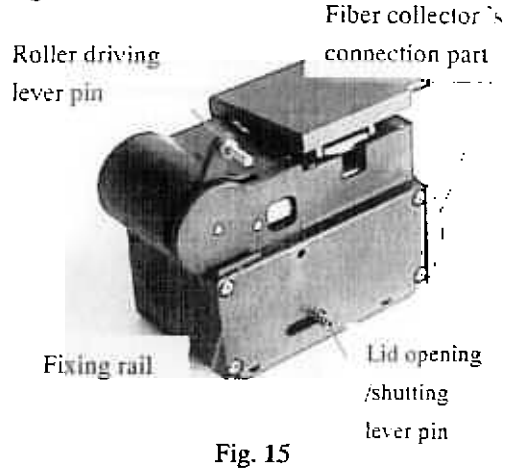


Fig. 15

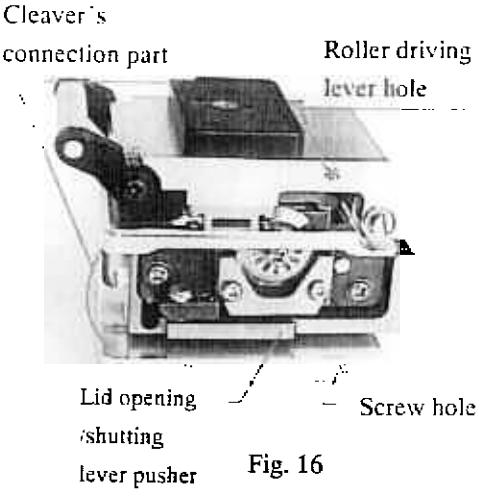


Fig. 16

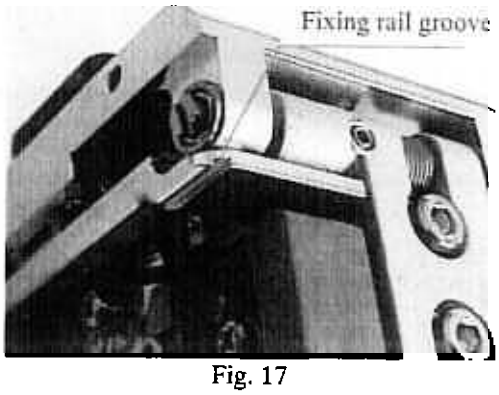


Fig. 17

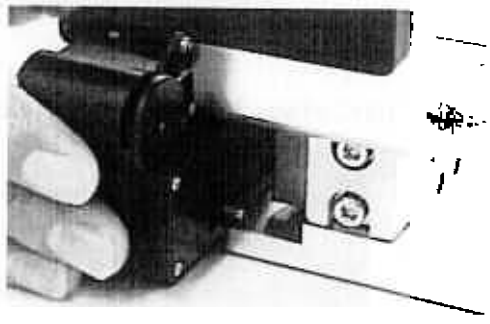


Fig. 18

(iii)After performing (ii), close the fiber clamp while pulling the fiber collector toward yourself.

(iv) Align the screw holes of the cleaver and the fiber collector, and fix them with screws (refer to Fig. 19).

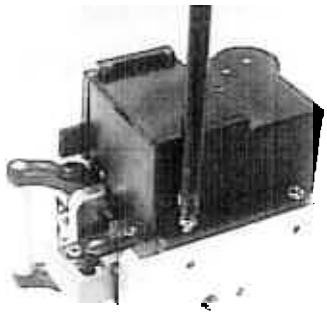


Fig. 19

2.Removing the off-cut fiber collector

(i) Remove the fixing screws (refer to Fig. 20).

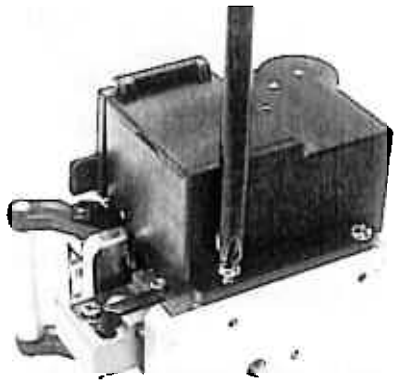


Fig.20

(ii) Slide the fiber collector backward while opening the fiber clamp mechanism (refer to Fig. 21 and Fig, 22).

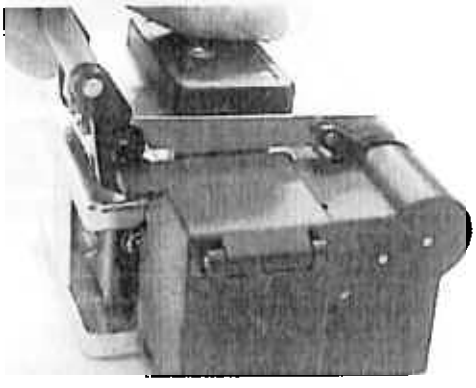


Fig.21

Fig.22

(iii)Continue to slide the fiber collector backward until the fixing rail is completely removed (refer to Fig.23).

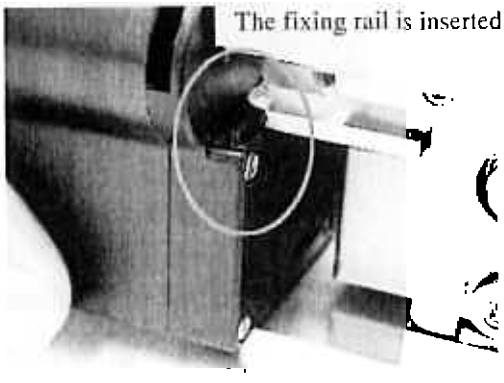


Fig.23