

S177A Direct Core-Monitoring Fusion Splicer

1. GENERAL DESCRIPTION

Since the work involved in making FTTH connections is performed outdoors, it is desirable that the equipment used should be compact and lightweight; splicers are no exception from this. Splicers of the direct core-monitoring type make it possible to achieve low-loss splices, and since they effect fiber core alignment by observation of the core itself, they must incorporate a focusing mechanism and a core aligning mechanism, resulting in an unavoidable tendency for the unit to be larger and heavier. In the S177A direct core-monitoring fusion splicer developed here, the core aligning mechanism that achieves low-loss splices effects a reduction of 40% in weight and size (Figure 1). This has resulted in a splicer that can be used seamlessly from FTTH and trunk line laying to factory use.



Figure 1 Appearance of S177A.

2. FEATURES

2.1 Compact, Lightweight Body

The use of magnesium alloy construction, a dramatically smaller and lighter alignment structure, and circuit board trimming through full digitalization of fiber image processing (Figure 2), have made it possible to achieve a 40% reduction in size and weight compared to earlier types. And not only is it smaller; the adoption of a T-shaped form means that it also offers greater convenience in hand-portability (Figure 3).

2.2 Adoption of a Graphical User Interface

The use of a GUI with a large number of icons makes for an intuitive and easily understood operating display

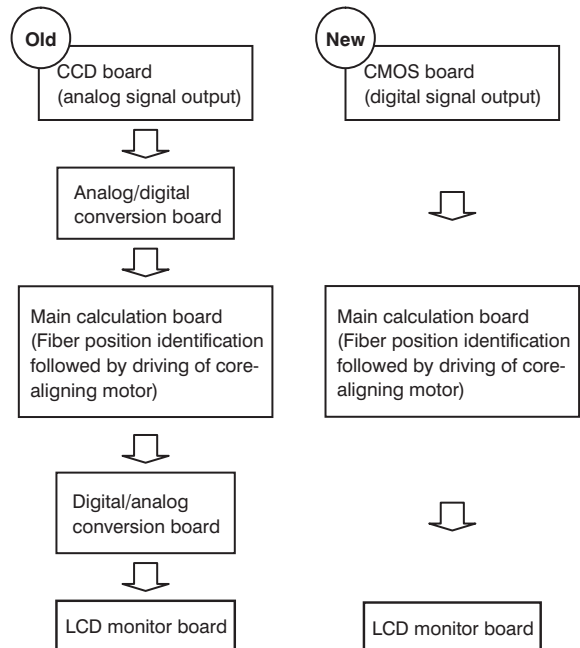


Figure 2 Circuit board trimming by signal digitalization.



Figure 3 Ease of portability.

(Figure 4). A display magnification ratio of 600 during fiber splicing is twice as great as formerly, permitting more detailed observation of the fiber. And the adoption of a semipermeable LCD monitor screen, like those used in cell phones, greatly improves image recognition under direct sunlight.



Figure 4 New GUI.

2.3 High-speed Operation

By increasing the operating speed of the aligning motor, it has been possible to achieve fiber splicing times of about 9 sec. The heating time of the heat-shrinking sleeve that reinforces the splice has also been reduced to 37 sec (Furukawa Electric's S922 sleeve) by changing the configuration of the heater from flat to U-shaped (Figure 5). This has resulted in reducing total operating time to approximately one-half that of current types.



Figure 5 Heater configuration.

2.4 Operates on both Self-Contained Batteries and AC Line

Assuming the units will be primarily used outdoors, we have provided a self-contained rechargeable battery. An external AC supply can be easily connected using an AC adapter. If the battery charge is low while the AC adapter is connected, the battery recharges automatically, so that there is no need to replace batteries, and splicing and heat reinforcing can be done while recharging is in process. From full charge the battery delivers 70 splicing/reinforcing operations, and this can be increased to 370 operations with the use of a heavy-duty external battery.

2.5 Maintenance Guide and Image Capture Function

A high-brilliance monitor and increased built-in memory capacity has made it possible to display photographic images. This feature has been used to provide illustrated explanations of routine maintenance procedures for easier understanding (Figure 6). A fiber image capture and

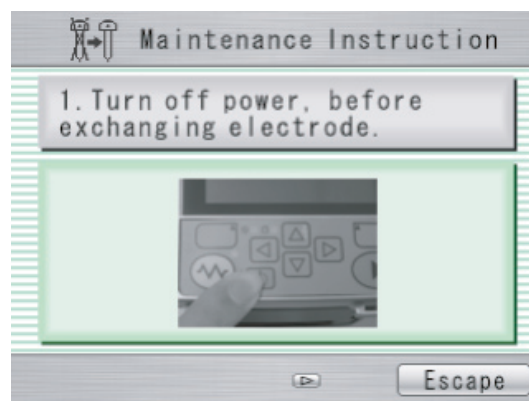


Figure 6 Photographic display.

storage function has also been added, allowing a record to be kept of abnormalities involving the fiber or splice.

3. PRODUCT SPECIFICATIONS

The main specifications of the S177A direct core-monitoring fusion splicer are shown in Table 1.

Table 1 S177A product specifications.

Item	Specification
Types of fiber	Single-core SM/MM/DS/NZDS, etc.
Fiber sheath diameter	0.1 - 1.0 mm
Fiber clad diameter	0.08 - 0.15 mm
Fiber core diameter	SM 8 - 11 μ m MM 50, 62.5 μ m DS 8 μ m Special 4 - 15 μ m
Splicing loss	SM Ave. 0.02 dB MM Ave. 0.01 dB DS Ave. 0.04 dB
Splicing time	9 sec (approximate)
Heat-reinforcing sleeve length	20/25/35/40/60 mm
Heat-reinforcing times	60-mm Approximately 51 sec 40-mm Approximately 37 sec 20-mm Approximately 35 sec
Number of programs	Splicing 150 Heat-reinforcing 12
Data items stored	Splicing 2000 Discharge detection 100 Fiber images 12
Input/output	Power supply EIAJ RC-5302A compatible. Voltage sectors: 5 Data USB 1.1 (Type B)
Power supply	DC 11 - 17 V AC 85 - 264 V (using S957)
Dimensions	130(W) x 260(D) x 138(H) mm
Weight of main unit	2.2 kg (including built-in battery)

For more information, please contact:

Interconnectivity Equipment Dept.,
Telecommunications Co.

TEL: +81-3-3286-3455 FAX: +81-3-3286-3708