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PLEASE CHECK FOR CHANGE INFORMATION AT THE REAR OF THIS MANUAL.

OF150 FIBER OPTIC TIME DOMAIN REFLECTOMETER

HANDBOOK

INSTRUCTION MANUAL

Tektronix, Inc.
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OPERATORS SAFETY SUMMARY

The general safety information in this part of the summary is for both operating and servicing personnel. Specific warnings and cautions will be found throughout the manual where they apply, but may not appear in this summary.

TERMS

In This Manual

CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

As Marked on Equipment

CAUTION indicates a personal injury hazard not immediately accessible as one reads the marking, or a hazard to property including the equipment itself.

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

SYMBOLS

In This Manual

This symbol indicates where applicable cautionary or other information is to be found.

As Marked on Equipment

DANGER—High voltage.

Protective ground (earth) terminal.

ATTENTION—refer to manual.

Power Source

This product is intended to operate from a power source that will not apply more than 250 volts rms between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Danger Arising From Loss of Ground

Upon loss of the protective-ground connection, all accessible conductive parts (including knobs and controls that may appear to be insulating) can render an electric shock.

Use the Proper Power Cord

Use only the power cord and connector specified for your product.

Use only a power cord that is in good condition.

Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse of correct type, voltage rating and current rating as specified in the parts list for your product.

Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

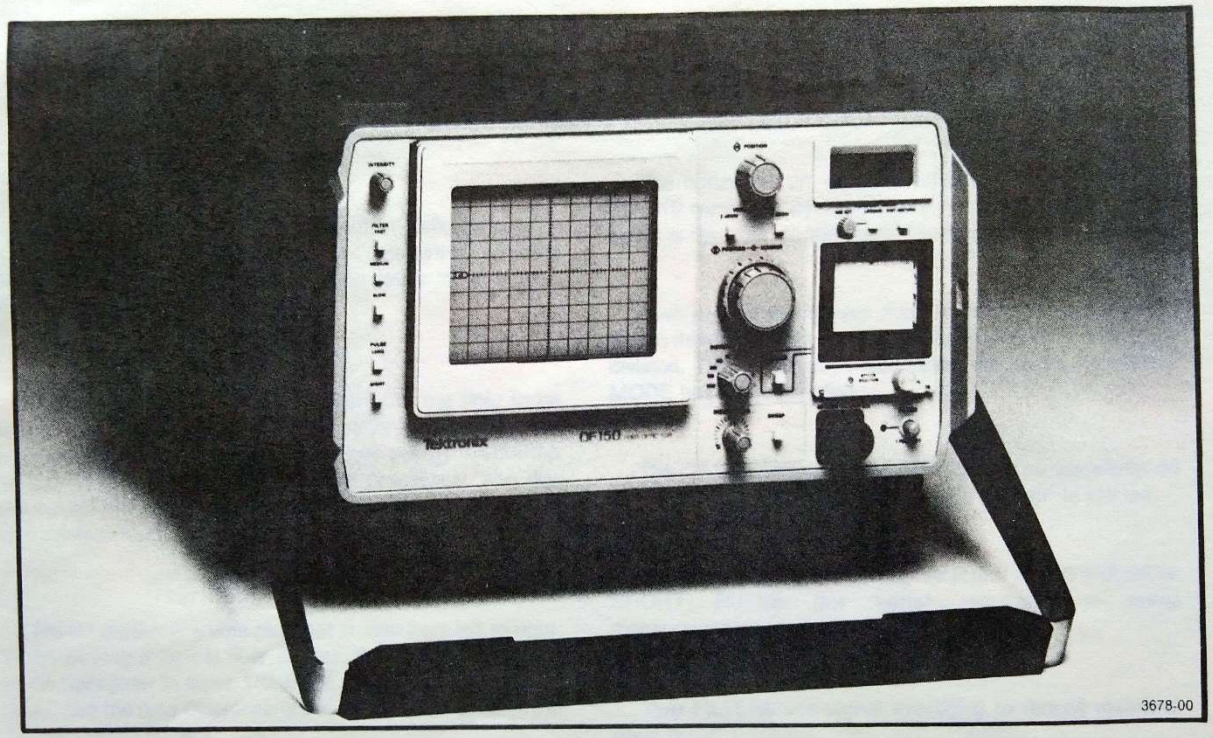
To avoid explosion, do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

Do Not Remove Covers or Panels

To avoid personal injury, do not remove the product covers or panels. Do not operate the product without the covers and panels properly installed.

Optical Output

Avoid eye exposure to the output of open-ended fibers by covering the end, or directing the output at a non-reflective surface. Do not attempt to defeat the interlock on the OPTICAL OUTPUT connector.



OF150 Time Domain Reflectometer.

GENERAL INFORMATION

Product Description

The TEKTRONIX OF150 Time Domain Reflectometer is an optical fiber tester that is capable of measuring loss characteristics, and detecting and locating faults in multimode fibers.

The OF150 applies a pulse of energy to the fiber to be tested via the OPTICAL OUTPUT connector. When the pulse is traveling through the fiber, some energy is reflected to the OF150. These reflections are processed, and displayed on the cathode ray tube (crt), where distance and loss measurements can be made using a marker technique.

The crt display is a time-plot that is read from left to right. When viewing a typical fiber display, the reflections appear to the right (later in time). The trace starts with the outgoing pulse, and the time difference is converted to distance in the measurement process.

The horizontal crt scale is calibrated in distance units from 10 meters to 20,000 meters in a 1-2-5 sequence. Distance is read out on the liquid crystal display (lcd).

Loss measurements are made on the vertical crt scale. These measurements can be displayed in 2 dB or 10 dB per division. The lcd displays loss when the LOSS READOUT MODE has been selected.

The OF150 display is digitally stored. The waveform on the screen changes only when a new "sweep" is started.

Two outgoing pulses can be selected: LONG PULSE or SHORT PULSE (for better resolution in some measurements).

Two FILTERs use signal averaging to reduce measurement noise.

The OF150 has a chart recorder that is useful for documenting fiber conditions.

This instrument may be operated from an ac power source, or a 12 volt battery.

An interlock feature prevents any optical output until a fiber is connected to the instrument.

The OPTICAL OUTPUT connector is configured for quick replacement of its lens assembly by the operator, when deterioration occurs due to contamination or extensive use.

Accessories

The OF150 is shipped with these Standard Accessories.

1 Instruction Manual
1 Operator's Handbook
1 AC Power Cord
1 Battery Power Cord
1 Roll of Chart Recorder Paper
1 Optical Fiber Interface Cable, 1 meter long, Deutsch connector on one end, protective cover on the other end
1 Interlock Contact Ring
1 Replacement Lens Assembly

Instrument Characteristics

The following list of instrument characteristics and features apply to the OF150 after a 15 minute warmup. For complete instrument specifications, see Section 1 of the OF150 Instruction Manual.

Table 1-1
ELECTRICAL CHARACTERISTICS

Characteristic	Description
Test signal wavelength	820 nm (nominal)
Sweep time	0.15 seconds (FAST) 3.15 seconds (MEDIUM) 55 seconds (SLOW)
dB Scale accuracy	±0.5 dB over any 10 dB increment from +20 dB to +70 dB, relative to bottom of display range
Incremental dB scale accuracy	±0.05 dB (typical) over any 1 dB increment from +10 dB to +70 dB, relative to bottom of display range
Maximum round trip fiber loss for fiber end detection	85 dB (typical)
Maximum round trip fiber loss for ±0.1 dB scattering signal measurements	43 dB (typical)
Distance measurement accuracy	±0.3% (instrument timing plus DISTANCE CAL factor indication error), ± the uncertainty in fiber cal factor
On-screen distance calibration	4.88 ns/meter

Table 1-1 (cont)

Characteristic	Description
Power requirements	
AC operation	90 to 132 V ac, 45-440 Hz 180 to 250 V ac, 45-440 Hz 24 Watts nominal (55 Watts max)
DC operation	10 to 16 V dc 20 Watts nominal (33 Watts max)

Table 1-2
ENVIRONMENTAL CHARACTERISTICS

Characteristic	Description
Altitude	
Operating	4600 meters (15,000 feet)
Non-operating	12000 meters (40,000 feet)
Temperature	
Operating	−15°C to 55°C
Non-operating	−62°C to 85°C

The OF150 meets Class I Laser Product safety classification under Radiation Control for Health and Safety Act of 1968.

An optical output connector interlock prevents optical output when the interlock is open.

The OF150 meets the specifications of MIL-T-28800B, Type III, Class 3, Style C except for Radiated Emission specification RE-01.

Power Source and Power Requirements

The OF150 is intended to be operated from a power source that will not apply more than 250 volts rms between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is essential for safe operation.

The ac power connector is a three-wide polarized plug-in with the ground (earth) lead connected directly to the instrument frame to provide electrical shock protection. If the unit is connected to any other power source, the unit frame must be connected to an earth ground.

Power and voltage requirements are printed on the back panel. The OF150 can be operated from either 115 V ac or 230 V ac nominal line voltage, at 48 to 440 Hz; or a 12 V dc supply.

Power-source selection can be made with switches on the OF150 back panel. When operating at an ac voltage, selection of a HI or LO range within the specified voltage range may be made.

For ac operation, set the range and the HI-LO switches to correspond to the available line voltage as follows:

115 LO: 90-110 V ac
115 HI: 108-132 V ac
230 LO: 180-220 V ac
230 HI: 216-250 V ac

When changing from 115 V ac to 230 V ac, make sure a fuse of the correct rating is in place.

OPERATING INSTRUCTIONS

CAUTION

The OF150 has been classified as a Class I Laser Product under the Radiation Control for the Health and Safety Act of 1968.

It is important that the information in this manual for setting up and operating the instrument be followed.

Do not attempt to defeat the interlock on the OPTICAL OUTPUT connector. Avoid eye exposure to the output of open-ended fibers by covering the end, or directing the output at a non-reflective surface.

USING THE OF150

Fiber Connector

The OF150 uses a high performance fiber connector manufactured by the Deutsch Company of Los Angeles, California. The connector consists of two parts: a fluid-filled lens assmbly labeled OPTICAL OUTPUT on the instrument, and a connector plug that holds the fiber.

CAUTION

It is important to keep the OPTICAL OUTPUT connector, and the connector plug, clean at all times. Dust and dirt will affect the optical output power. The connector should be capped when not in use.

The lens assembly is fluid filled to facilitate the connection between the fiber being tested, and the fiber in the OF150. This fluid is subject to deterioration due to contamination from dirt and wear from different fibers being connected. Consequently, the lens assembly needs to be replaced periodically, as part of general instrument maintenance. This procedure can be performed in the field. Information and instructions on lens assembly replacement are provided in this section of the manual under the heading Replacement of the Lens Assembly.

Instructions on installing a fiber in the connector plug, and tools necessary for this operation, are available from the Deutsch Company.

Connecting a Fiber to the OF150

Fibers to be tested may be connected to the OF150 in two ways: directly by using a mating Deutsch connector plug, or indirectly via the Optical Interface Cable, which is supplied with the instrument as a standard accessory.

The direct method is recommended whenever practical, especially when testing bare (uncabled) fibers.

The Optical Fiber Interface Cable can be outfitted with any desired connector or splicing scheme at its free end, to form an adapter cable. This introduces loss (from the extra connector), but facilitates working with pre-terminated fibers.

The OF150 connector is designed to accept 125 μ (outside diameter) fibers. If one desires to connect a different size fiber to the instrument, the Interface Cable must be used.

Before plugging a fiber onto the instrument, the Interlock Contact Ring (which is supplied as a standard accessory) must be installed on the Deutsch connector plug. Push the ring over the plug so that its metal ring will make contact with the two pins on the OPTICAL OUTPUT connector. Do not touch the end of the connector plug in order to not damage the fiber.

To mate the connector plug to the OPTICAL OUTPUT connector, align the tab on the plug to the notch in the connector. Push in the plug while turning the Interlock Contact Ring clockwise until it is snug.

No optical output is emitted from the OPTICAL OUTPUT connector unless the Interlock Contact Ring on the connector plug is in place. To avoid exposure to the infrared light generated by the instrument, DO NOT attempt to defeat this interlock.

Setting up the Fiber Display

After connecting a fiber to the OPTICAL OUTPUT connector, set the VERTICAL SCALE to 10 dB/DIV, PULSE to LONG, and FILTER to MEDIUM. Push READOUT MODE DIST. Increase the DIST/DIV setting and move the◁▷POSITION control counterclockwise so the entire fiber is shown on the crt. Set the bottom of the noise to the bottom of the screen with the △▽ POSITION control. These settings are a good starting point for an initial view of the fiber.

Figure 2-1 shows a sample display. The outgoing pulse is shown at the left side of the screen, followed by a gradually down-sloping trace called the backscattering signal. The backscattering signal is a weak reflection that occurs as the energy of the outgoing pulse travels down the fiber. The further the energy travels, the weaker the reflection. At the end of the fiber, a pulse appears.

The height of the pulse showing a break is dependent on the quality of the break, and is no indication of the amount of loss in the fiber. Ragged breaks may not produce a pulse at all, but will show up only as a drop in the backscattering signal.

A Closer View of a Discontinuity

To see a close-up of a particular point in the fiber, set the Marker near this point, and then decrease the DIST/DIV.

MEDIUM or SLOW FILTER may be used to decrease the noise on the trace, and make the discontinuity stand out more clearly.

Also, if the change in the fiber is a small drop in the backscattering signal, the VERTICAL SCALE 2 dB/DIV may be used for magnification.

In some instances, PULSE SHORT will provide better resolution in the backscattering signal, though signal amplitude will be less than when PULSE LONG is used.

Use the◁▷POSITION control to move the display window along the fiber in one-division steps.

Measuring Distance

To measure the distance to a discontinuity, set the READOUT MODE to DIST (METERS).

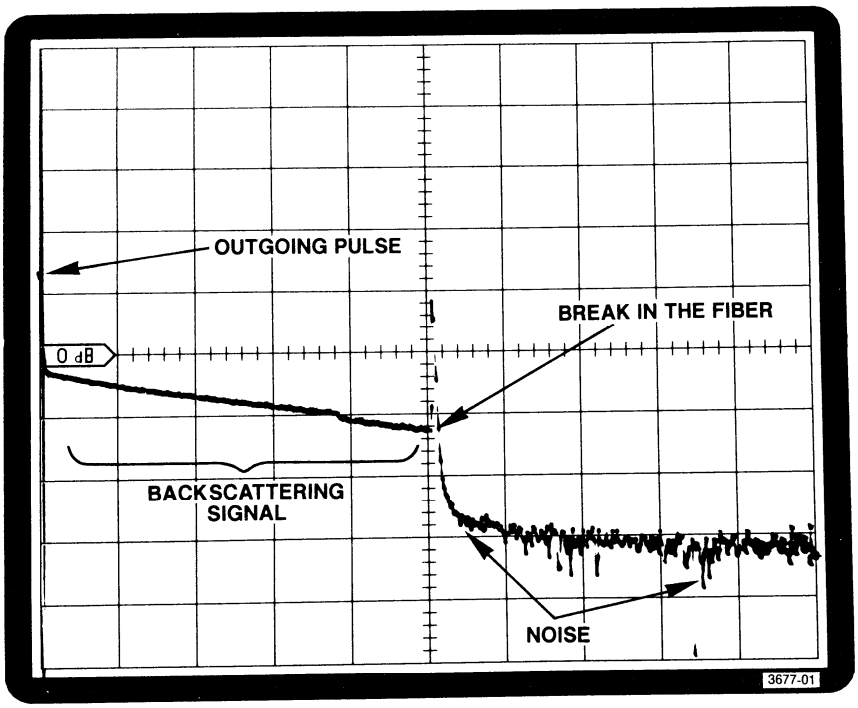


Fig. 2-1. Fiber display.

Line up the Marker with the beginning of the discontinuity (the left edge of a reflected pulse, or the beginning of a drop in the backscattering signal). See Fig. 2-2. Decrease the DIST/DIV setting for more precise Marker placement.

Distance from the instrument to the Marker is displayed on the lcd readout.

Distance Readout Calibration

Information on the propagation velocity of the fiber is usually available from the fiber manufacturer. When the propagation velocity (in nanoseconds per meter) is known, set the DISTANCE CAL control to the correct value.

When the propagation velocity is not known, and a precise measurement (better than 2%) needs to be made, the following calibration procedure can be used to adjust the DISTANCE CAL control to the correct setting.

1. Connect a known length of fiber to the OPTICAL OUTPUT.

2. Measure the length of fiber on the OF150. Adjust the DISTANCE CAL control until the lcd readout corresponds to the known length of the fiber.

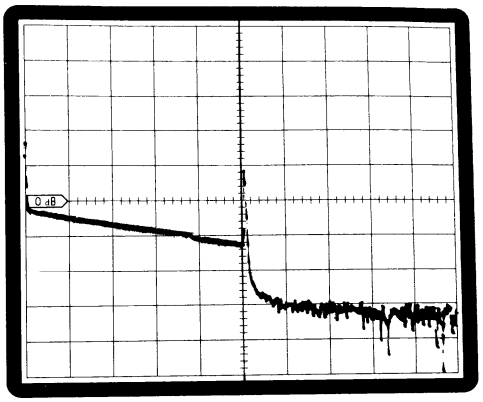


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Fig. 2-2. Measuring distance.

When 2% distance measurement accuracy is sufficient, set the DISTANCE CAL control to 4.9.

Measuring Loss

To measure loss, push the READOUT MODE LOSS (dB) button. The Marker will center horizontally on the 0 dB graticule line. Use the 0 dB SET control to adjust the Marker exactly on the 0 dB line.

Adjust the trace with the ⇕ POSITION control so the point from which the loss measurement will be made is on the 0 dB line. See Fig. 2-3A.

VERTICAL SCALE 2 dB/DIV should be selected for small measurements; use of the MEDIUM or SLOW FILTER will reduce noise on the trace and make the measurement more accurate if the signal is weak.

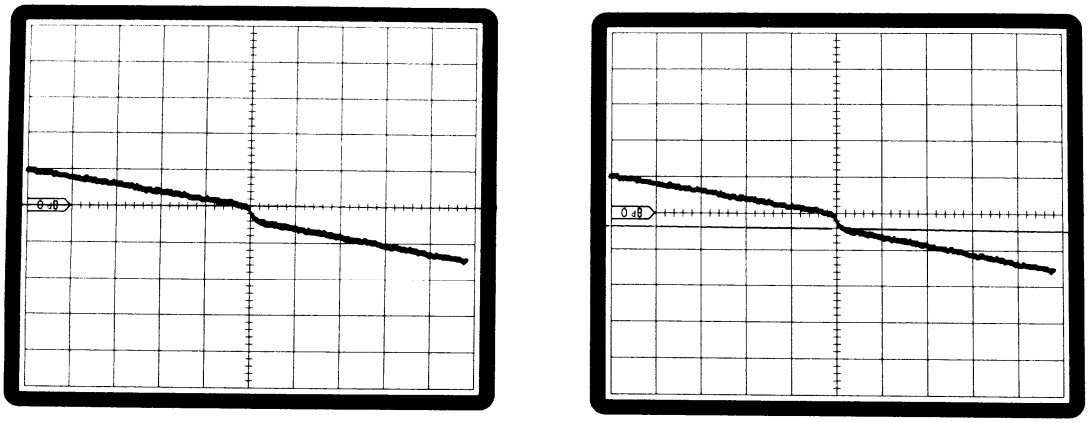

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Fig. 2-3a and b. Measuring loss.

Selecting PULSE SHORT instead of PULSE LONG sometimes results in better resolution in the backscattering signal. However, there is a drop in signal amplitude between these PULSE selections.

Turn the MARKER control until the Marker is aligned with the point to be measured. See Fig. 2-3B. Read the difference in dB between the two points from the lcd readout. Using this measurement technique, a difference of −1.0 dB indicates that 1.0 dB of loss exists between the two selected points on the fiber.

The lcd readout automatically corrects for the fact that the backscattering signal has traveled through the fiber or splice twice (out and back), before being displayed on the screen. Readings on the lcd are exactly one half the drop shown on screen, giving one-way loss of the fiber or splice being measured.

Return the instrument to READOUT MODE DIST before attempting to move the display window to a new section of the fiber. This will make the Distance Marker visible, to facilitate the movement.

Replacement of the Lens Assembly

Occasional lens assembly replacement is a normal part of instrument use. When the lens assembly becomes contaminated with dirt or otherwise damaged, fiber coupling will be impaired and the backcattering signal will apper weaker (lower) on the screen.

When a fiber is connected to the instrument and the backscattering signal immediately following the outgoing pulse appears weaker than normal (below midscreen, with the bottom of the noise set to screen bottom), the lens assembly may need replacement. See Fig 2-4.

The fiber plug should first be re-terminated, since a bad fiber end can cause the same problem. If the backscattering signal continues to appear weak, a new lens assembly should be installed.

To replace, take out the two nylon screws that hold the lens assembly to the front panel. Lift out the assembly.

CAUTION

Use special care to keep dust and dirt away from the opening in the instrument panel.

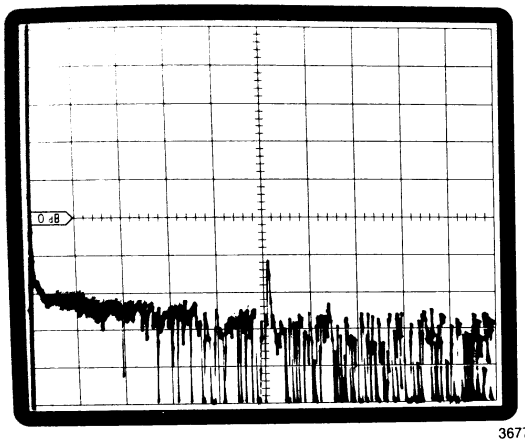


Fig. 2-4. Lens assembly needs replacement.

When installing a new lens assembly, the notch on the assembly should be aligned to the tab on the connector inside the instrument. Do not twist the lens assembly. Slowly push in and rock the new lens assembly to insure that it mates properly with the internal connector. Reinstall and tighten the screws.

The lens assembly is not covered under instrument warranty.

Chart Recorder

The OF150 Chart Recorder uses a heated stylus and 4 cm wide, heat sensitive chart paper to reproduce the crt display. The Chart Recorder records exactly the waveform that is shown on the crt, with ten horizontal and vertical divisions.

NOTE

If the displayed waveform contains extremely narrow pulses, they will not be recorded at full height on the chart paper.

Stylus Alignment

When the RECORD button is pushed, power is applied to the recorder stylus. The position of the stylus can then be aligned by adjusting the STYLUS POSITION screw. Align the stylus to the center graticule line on the paper.

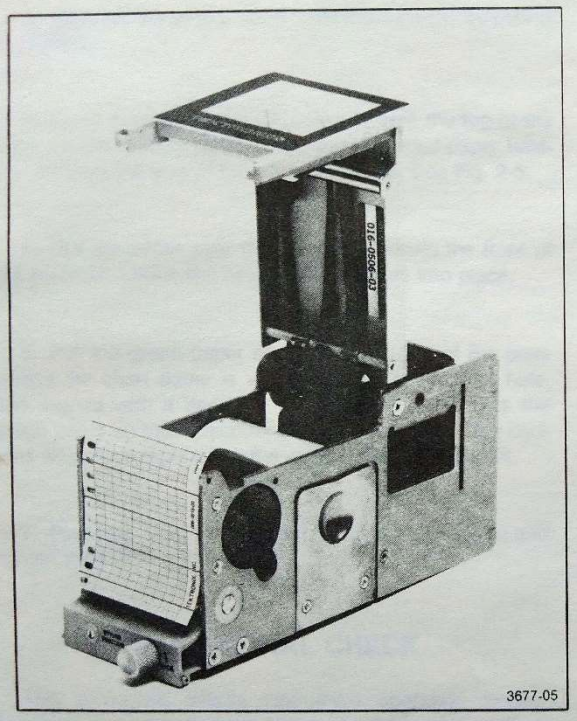


Fig. 2-5. Tektronix Y-T Chart Recorder.

Chart Paper Alignment

To align the chart horizontally, pull the paper until a dark line is aligned with the red reference line seen through the sprocket hole.

Record

When the RECORD switch is pushed and then released, a chart recording starts. The chart recording circuitry automatically shuts off when the recording is completed. Extra graph paper is run to allow removal of the recording. When removing the recording, tear the paper upward.

Installing Chart Recorder Paper

About 120 graphs can be made with one roll of chart recorder paper. Install a new roll of chart paper in the following manner:

1. Turn the LOCK knob counterclockwise several turns until it releases, and pull the chart recorder from the instrument.

2. Push down on the bottom edges of the bezel and lift upward.

3. Remove the empty spool from the recorder by pulling it upward.

4. Place a new roll of graph paper in from the top of the recorder, and push it between the spring-loaded paper holders. Be sure the grid of the paper faces up. See Fig. 2-5.

5. Pull the paper over the rollers and down the front of the recorder. Lower the bezel until it latches into place.

6. Pull the graph paper so that the red line of the plate behind the chart paper is visible through a sprocket hole, and aligned with a dark line on the paper. This sets the graph paper so that a recording will start at one of the dark lines which corresponds to the edge of the crt graticule.

7. Place the chart recorder back into the instrument and tighten the LOCK knob.

OPERATIONAL CHECK

This procedure checks instrument operating modes, functions, and basic performance, without use of test equipment. The procedure should satisfy most incoming inspection or pre-operational checkout requirements. A detailed Performance Check, which requires test equipment, is part of the Calibration Procedure in the service instructions. This operational check will also familiarize the user with the instrument.

Preliminary Procedure

Connect the Optical Fiber Interface Cable to the OPTICAL OUTPUT connector, with the Interlock Contact Ring in place. The far end of the cable should be enclosed in its protective cover. Avoid exposure to the open end of the Interface Cable.

Set the front-panel controls

POWER	on
FILTER	MEDIUM
PULSE	LONG
READOUT MODE	DIST (METERS)
VERTICAL SCALE	10 dB/DIV
DISTANCE CAL	4.9
DIST/DIV (METERS)	1000

Check Operation of Front-Panel Pushbuttons and Controls

1. Rotate the INTENSITY control through its range and note the change in brightness of the crt beam.

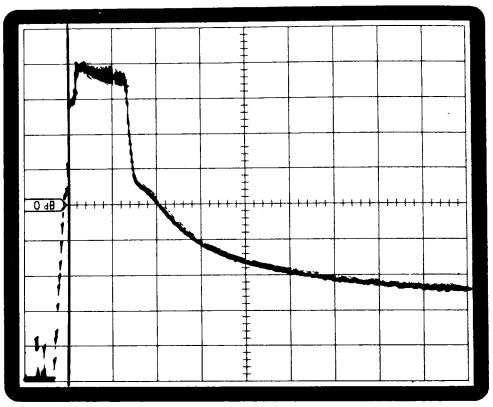
2. Move the bottom of the displayed noise to the bottom graticule line with the ⇕ POSITION control.

3. Position the Marker to the left edge of the screen, then turn the ◁▷POSITION control counterclockwise until the lcd readout indicates 0.

4. Decrease the DIST/DIV setting to 1.

5. Increase the DIST/DIV setting through its entire range, and observe the waveform decrease in width, and move to the left edge of the screen.

6. Set the DIST/DIV to 5. The display should resemble that shown in Fig. 2-6.



3677-06

Fig. 2-6. Long Pulse display.

7. Push the FILTER FAST button. A new waveform is acquired without noise filtering. The optical-output light flashes during the time that the waveform is acquired.

8. Push FILTER MEDIUM. A new waveform is acquired and noise is reduced. Acquisition time is approximately 4 seconds.

9. Push FILTER SLOW. The noise on the new waveform is reduced even further. Acquisition time is approximately 60 seconds.

10. Switch FILTER back to MEDIUM.

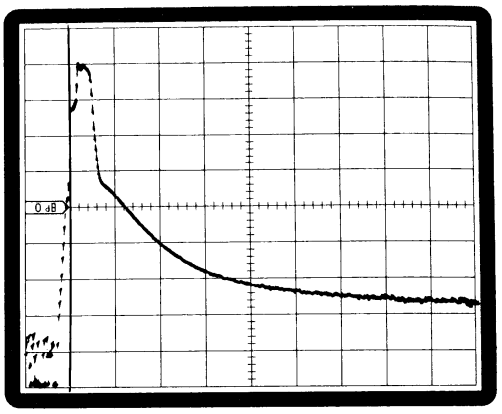
11. Push PULSE SHORT. The crt display should resemble that in Fig. 2-7.

12. Switch PULSE back to LONG.

13. Push the READOUT MODE LOSS (dB) button. A horizontal line (Marker) appears at the center graticule line. If the Marker is slightly off, adjust it to coincide with the center graticule line, using 0 dB SET control.

14. Turn the MARKER control counterclockwise until the Marker is on the bottom of the screen. The lcd readout should read −25.0.

15. Turn the MARKER control clockwise until the Marker is on the top of the screen. The lcd readout should read +25.0.



3677-07

Fig. 2-7. Short Pulse display.

16. Return to READOUT MODE DIST.

17. Push FILTER FAST.

18. Set the DIST/DIV to 1. The Marker is now on the vertical center graticule line and coincides with the start of the pulse. The lcd readout should be 0.

19. Turn the MARKER control clockwise in 1 step increments; the Marker should move one graticule line per step. The lcd readout should count up in whole numbers from 0 to 5, one number per step.

20. With the Marker at the right edge of the screen, turn the◁▷POSITION control clockwise. The waveform moves to the left, one horizontal division per control increment. It takes 5 control increments to move a waveform point from the center to the left edge of the screen. The lcd readout increases from 5 to 10, one number per control increment.

21. Set the DIST/DIV to 200; rotate the MARKER control clockwise to position the Marker at the center graticule line.

22. Set DIST/DIV to 10, and adjust the MARKER control for a lcd reading of 1000.

23. Rotate the DISTANCE CAL control counterclockwise, and watch the lcd readout increase to approximately 1020. The position of the Marker does not change.

24. Rotating the DISTANCE CAL control clockwise to 5.0 will result in a reading of approximately 980.

25. Reset the DISTANCE CAL to 4.9.

26. Increase the DIST/DIV setting to 500, and reposition the Marker for a readout of 0.

27. Decrease the DIST/DIV setting to 5. Push the VERTICAL SCALE 2 dB/DIV button. The display will be magnified vertically.

28. Set VERTICAL SCALE back to 10 dB/DIV.

29. Push and hold the SWEEP button. As long as the button is held down the display will sweep repeatedly. The optical-output light flashes as the display is being swept.

30. Push and hold the RECORD button for approximately one second, then release it. The crt will be blank as a chart recording of the display is made. When the recording is finished, the display will return on the crt.

This concludes the Operational Check.

CONTROLS, INDICATORS, AND CONNECTORS

The function of the controls, indicators, and connectors on the front panel of the OF150 is described below. Figure 2-8 illustrates their location.

CONTROLS

(1) **POWER**
Pull-type switch that turns the instrument on.

(2) **INTENSITY**
Controls the brightness of the crt trace.

(3) **FILTER**[1]
(FAST, MEDIUM, SLOW). Provides three degrees of noise reduction, and three corresponding sweep speeds.

FAST sweep time is approximately 1/5 second.

MEDIUM sweep time is approximately 4 seconds.

SLOW sweep time is approximately 60 seconds.

(4) **PULSE**[2]
(LONG, SHORT). Selects length of the optical pulse applied to the fiber to be tested.

(5) **DISTANCE CAL**
With this continuous vernier control, the lcd distance readout can be calibrated to the exact propagation velocity of the fiber under test.

(6) **READOUT MODE (LOSS, DIST)**
Mutually exclusive pushbuttons switch the lcd function from distance measurement to loss measurement. In the Distance mode, a vertical marker appears on the screen. In the Loss mode, a horizontal marker appears in place of the vertical marker.

(7) **MARKER**
A detented control. With the lcd readout in Distance mode, this control moves the Marker back and forth between the edges of the screen. Minimum movement is 1/25 of a division, or one meter of distance, whichever requires the greater movement on the screen. If this control is rotated rapidly, the speed of the Marker movement across the screen will "gear shift" to facilitate large movements.

When the lcd readout is in the Loss mode, this control moves the horizontal Loss Marker up and down between the top and bottom of the screen. Movement increment is 0.1 division, regardless of

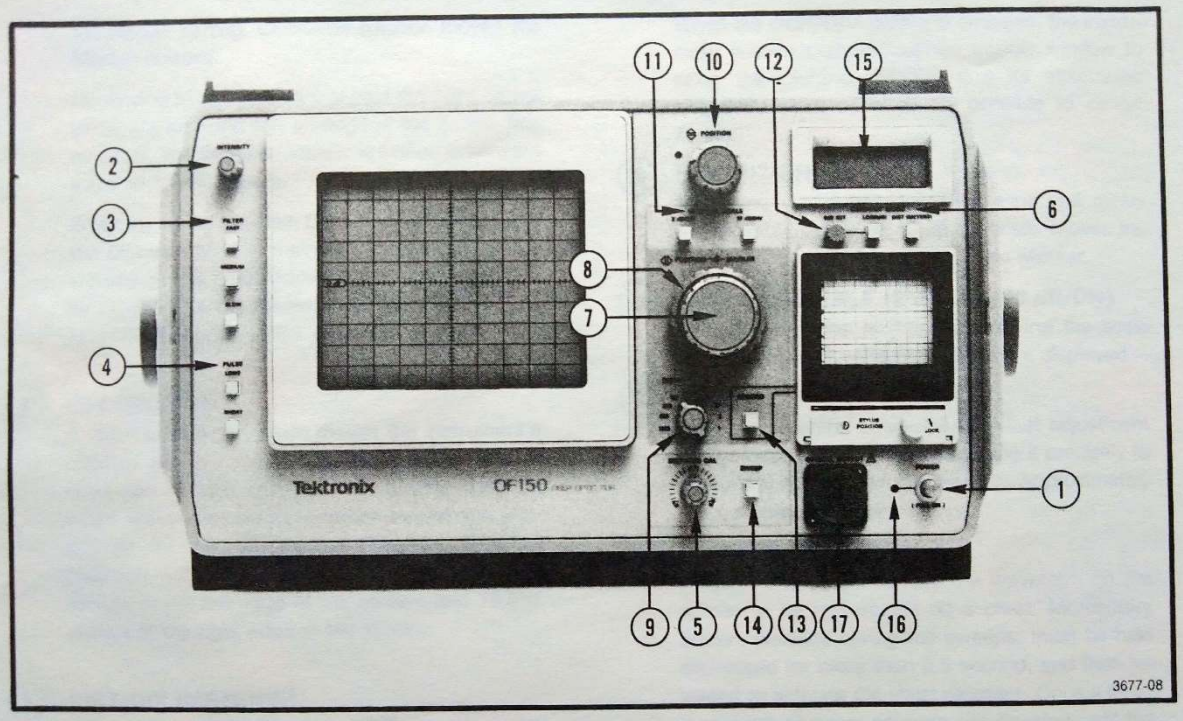


Fig. 2-8. Front-panel controls, indicators and connectors.

the dB/Div setting. Clockwise rotation moves the Marker upward.

Continuing to turn this control past the point where either Marker runs into an edge of the screen has no effect. The Distance Marker is limited in leftward travel to "zero" meters.

When switching between Distance and Loss mode, the Distance Marker maintains its position of the waveform. The Loss Marker is always initialized to its 0 dB (center-screen) position when the READOUT MODE LOSS is selected.

(8) ◁▷POSITION[2]

A detented control, which moves the instrument's "display window" along the fiber horizontally in one-major-division increments on any distance scale. Clockwise control rotation moves the window to the right and causes increasing distance readings. Limits of waveform movement are −5 meters at the left edge of the screen, and 19,961 meters at the right edge of the screen.

(9) DIST/DIV (METERS)[2]

Accurately calibrated in a 1-2-5 sequence for 4.883 ns/m fiber.

When the DIST/DIV setting is changed, the instrument automatically moves the display window to bring the Distance Marker and its associated waveform point as close as possible to center screen.

(10) △▽ POSITION

Multi-turn, non-detented control. Plus and minus five divisions range, on 10 dB/div scale. Moves the waveform; does not move the Loss Marker.

(11) VERTICAL SCALE (2 dB/Div, 10 dB/Div)

Mutually exclusive pushbuttons control the scale factor with which reflected signals are displayed.

(12) 0 dB SET

Single-turn control serves as an offset adjustment for the Loss Marker, to allow setting it precisely to midscreen for a zero dB reading. Approximately ±0.5 division range.

(13) RECORD

Pushing this button causes the waveform on the screen to be reproduced on a chart. Momentary button, disabled during the sweeps, must be held depressed for more than 0.5 second, and then released to activate the chart recorder. Once a chart is started, all panel controls are disabled until the chart is finished.

(14) SWEEP

Momentary contact initiates a new sweep at existing control settings, if a sweep is not already in process. If held down, repetitive sweeps are produced after a short delay. While a MEDIUM or SLOW sweep is in process, all panel controls except RECORD and SWEEP are enabled (some will interrupt and restart the sweep).

If the SWEEP button is held down as the instrument is turned on, the instrument will enter the Calibration Aid Mode. Refer to the service section of the OF150 Instruction Manual for details.

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[1]Initiates a new sweep, at the selected degree of filtering. If a MEDIUM or SLOW sweep is already in progress, a change at this control will complete the current sweep at the newly selected rate, rather than starting a new sweep.

[2]These controls initiate a new sweep, immediately. If MEDIUM or SLOW filtering is selected, a FAST sweep will precede the filtered sweep.

INDICATORS

(15) Liquid Crystal Display

In READOUT MODE DIST, this lcd indicates whole meters from 0 to 19999, with no decimal. Distance indicated is from the rising edge of the outgoing pulse to the Distance Marker. Note: the outgoing pulse is actually the front-panel connector reflection.

In the READOUT MODE LOSS, this lcd indicates decibels (dB) of one-way fiber loss represented between the center of the screen and any other point on the screen. One decimal place and + and − are displayed. Range: −25.0 to +25.0. Negative readings are shown for downward movement of the marker.

(16) Power Indicator

This light-emitting diode comes on with the POWER switch. This light flashes off and on during all sweeps to indicate that a new measurement is in progress and that the optical output is active.

CONNECTORS

(17) OPTICAL OUTPUT

⚠ Single fiber connector for 125 μ (outside diameter).

⚠

No optical output is emitted from this connector unless the Interlock Contact Ring, which is supplied as a Standard Accessory, is installed on the connector plug holding the fiber. To avoid eye exposure to the infrared light generated by the instrument, DO NOT attempt to defeat this interlock. Avoid eye exposure to the output of open-ended fibers by covering the end or directing the output at a non-reflective surface.

CAUTION

Keep the OPTICAL OUTPUT connector clean at all times. Dust and dirt will degrade the optical output power. Keep the connector capped when it is not being used.