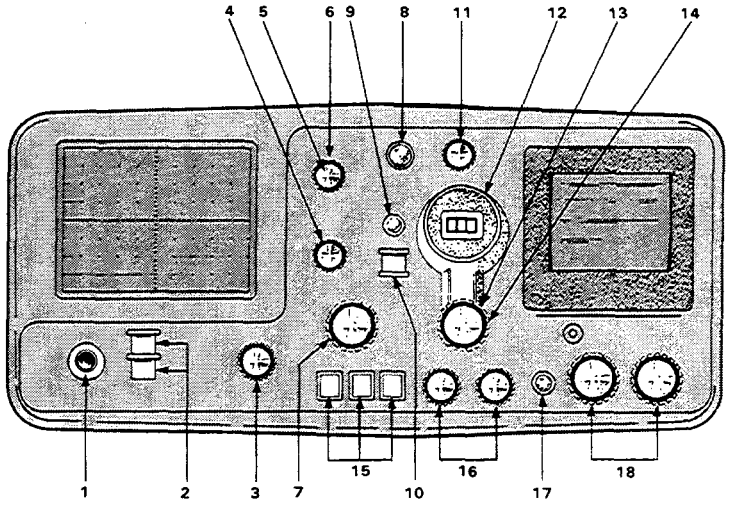


Figure A-1. T.D.R. Front Panel Controls

1.	CABLE	Used to connect test cable.
2.	IMPEDANCE SELECTORS	Set to 75 ohms for 584 R.I.O. cables.
3.	FOCUS	Controls sharpness.
4.	FINE POSITION	Controls fine vertical adjustment of display.
5.	ZERO REF CHECK	Quick check to see position of impulse waveform baseline when not on screen.
6.	ZERO REF SET	Horizontal pulse position control for CRT display. Sets test signal edge to a vertical reference line on the CRT when the DISTANCE dial is at 000 or the ZERO REF CHECK button is pushed.
7.	SENSITIVITY	Selects dB reference level of the reflected signal. 0 dB to 60 dB in seven calibrated steps. FINE adds 0-18 dB to selected steps.
8.	POWER	Pull-on, push-off switch. Does not affect battery charging circuits.

9.	0 dB SET	Screwdriver adjust for 0 dB reference level. Used to set amplitude of test pulse.
10.	NOISE FILTER	Reduces displayed noise. Display sweep rate is reduced by a factor of ten.
11.	BATTERY	Indicates relative charge of power pack.
12.	DISTANCE	Indicates the distance from 1503 to a point on the test cable; 0 to 25000 feet (0 to 500 meters) at X100 (X10). Disabled when the FEET/DIV (METERS/DIV) control is set to 50 (100) and the multiplier is set to X100 (X10). Accuracy is ± 2%.
13.	X10 (X1) X100 (X10)	Two-position switch for X10 (X1) or X100 (X10) multiplier. Affects both DISTANCE dial and FEET/DIV (METERS/DIV) control.
14.	FEET/DIV (METERS/DIV)	Selects horizontal deflection factor. X10 (X1) = 5 to 500 feet/div (1 to 100 meters/div). X100 (X10) = 50 to 5000 feet/div (10 to 1000 meters/div).
15.	IMPLS WIDTH	Selects width of test impulse for 10, 100, or 1000 ns.
16.	DISTANCE CAL	Two potentiometers select proper velocity of propagation for cable under test.
17.	RECORD	Two-position toggle switch. Used to start an X-Y recorder pr TEKTRONIX Y-T chart recorder. Push up and hold momentarily to preheat stylus; then release to start chart recorder.
18.	AC LINE FUSES	Protection fuses for the battery charger circuits.

T.D.R. Operational Checkout

1. Use the step-by-step procedure for an operational check of the 1503. First, set the controls as follows:

FOCUS	Midrange
INTENSITY	Fully clockwise
ZERO REF	Fully clockwise
RET LOSS (dB)	0 dB
DISTANCE	000
NOISE FILTER	Out
FEET/DIV	5
(Meters/DIV)	(10)
X10-X100	X10
(X1-X10)	(X1)
DISTANCE CAL	TXM speed
IMPLS WIDTH	100
50/75	50

2. Adjust the INTENSITY and FOCUS controls for a clear, bright trace.

3. Adjust the POSITION control to set the trace on the horizontal center line.

4. Attach the 50 ohm terminator to the CABLE connector.

5. Turn the ZERO REF SET button counter clockwise until the test pulse's leading edge is located on a vertical reference line. The vertical reference line can be any vertical line you choose on the CRT gradicule. Adjust the 0 dB SET control for a two division display.

NOTE

Always use the leading edge at the baseline of the pulse for setting reference.

6. Adjust the ZERO REF SET button throughout its range to see that the test pulse edge can be set on any vertical gradicule line. Set the test pulse edge on the vertical reference line.

7. Set the DISTANCE dial to 010. Press the ZERO REF CHECK button, and check that the test pulse edge returns to the vertical reference line of the gradicule. Reset the DISTANCE dial to 000.

8. Change the RET LOSS control to 10 dB, and adjust the POSITION control so that the horizontal baseline is on the bottom CRT gradicule line.

9. Press the NOISE FILTER button, and check for a reduction in displayed noise as well as a reduction in scan rate. Reset the RET LOSS switch to 0 dB, and release the NOISE FILTER button (by depressing a second time).

10. Press IMPLS WIDTH (ns) 1000, and check for a 9 division (within 20%) wide pulse.

11. Press IMPLS WIDTH (ns) 10. Set FEET/DIV (METERS/DIV) to .5 (1), and check for a slightly greater than one division wide pulse.

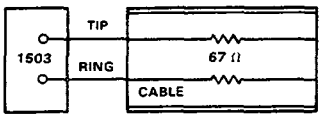
12. Lift up and hold the RECORD switch. Check that a bright spot appears at the left edge of the CRT.

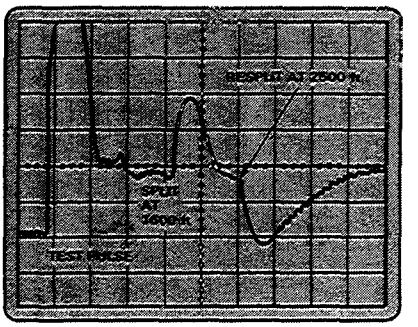
13. Release the RECORD switch. The spot will slowly trace the waveform. When the scan is complete, the 1503 will automatically return to its normal mode.

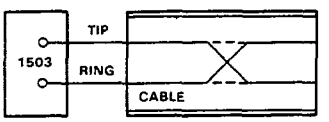
Locating a Discontinuity in a Cable

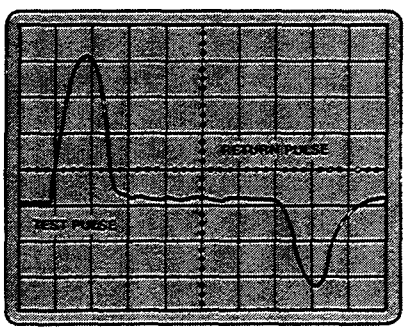
The DISTANCE dial and the FEET/DIV (METERS/DIV) control make it possible to evaluate cables as long as 50,000 feet (10,000 meters), subject to their transmission quality. The entire length can be displayed directly on the CRT if desired. If a chart recorder is used, only that portion of the trace seen on the CRT will be recorded on the graph.

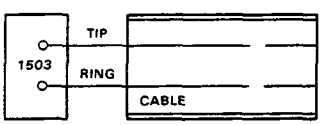
To check cables using only the CRT display, the FEET/DIV (METERS/DIV) control and the X10-X100 (X1-X10) control must be set so that the CRT display window is longer than the cable. For example, if the cable is 1500 feet (500 meters long, set the FEET/DIV (METERS/DIV) control to 25 (10) and the multiplier control to X10 (X10). See following examples.

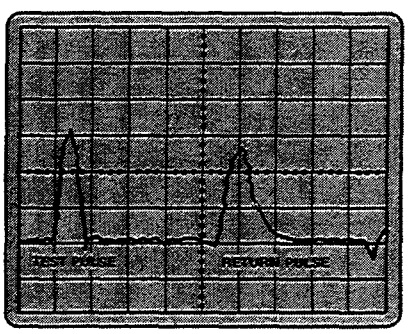




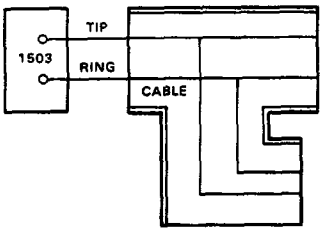


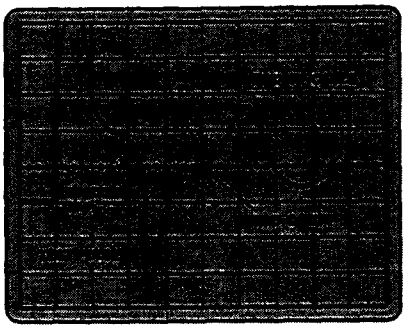


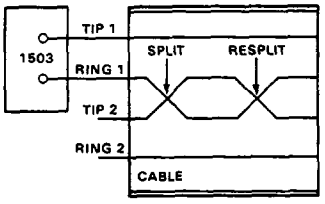


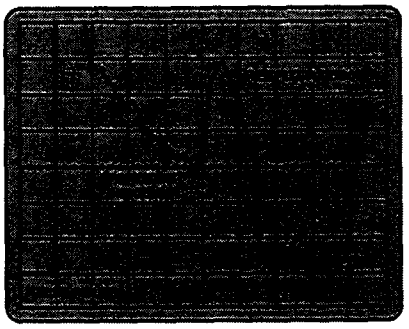


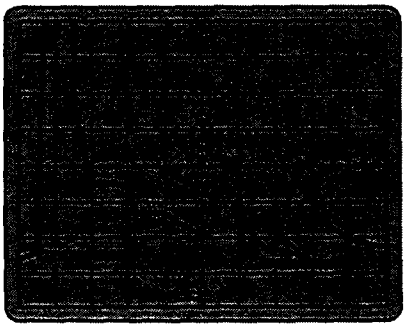
T.D.R. Display Examples

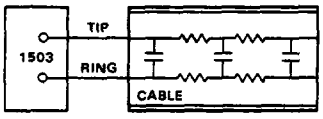












T.D.R. Display Examples