

067-0554-00 CALIBRATION FIXTURE

Tunnel Diode Pulser



The 067-0554-00 Tunnel Diode Pulser provides a fast-rise pulse for adjusting the transient response of high-frequency units such as the Tektronix Types 82, 86, 10A2A and 453.

The 067-0554-00 must be driven by a 100 volt square pulse such as a 1 kHz amplitude calibrator signal available from most Tektronix oscilloscopes. A Tektronix Type 106 Squarewave Generator should be used only at repetition rates of 1 kHz and higher. Higher repetition rates will provide a brighter CRT display when fast sweep rates are used.

CHARACTERISTICS

Electrical

Output Signal

Amplitude	200 mV, within 10% into 50 Ω
Risetime	1 ns or less into 50 Ω
Abberations	+2%, -2%, total 4% P-P

Input Signal

Amplitude	+ or - 100 V, supplying at least 10 mA
Frequency	at least 1 kHz

OPERATING INSTRUCTIONS

General Information

The 067-0554-00 Tunnel Diode Pulser provides a fast-rise pulse for adjusting the transient response of high-frequency units such as the Tektronix Types 82, 86, 10A2A and 453.

The 067-0554-00 must be driven by a 100 volt square pulse with a repetition rate of 1 kHz or higher. The pulse may be positive such as the 1 kHz amplitude calibrator signal available from most Tektronix oscilloscopes, or negative such as the square pulse from the Tektronix Type 106 Square Wave Generator. Higher repetition rates of the Type 106 will provide a brighter CRT Display when fast sweep rates are used. (The amplitude calibrator in the Type 560 - Series, Type 647, and Type RM 647 Oscilloscopes will not switch the 067-0554-00.)

Connecting the 067-0554-00 to the Plug-In Unit

Whenever possible, use the connection method shown in Fig. 2. Connect the termination as close as possible to the input of the plug-in to reduce undesirable reactances and provide a clean step-function at the input to the plug-in unit.

Turn off the oscilloscope Amplitude Calibrator while connecting the Pulser to or disconnecting the Pulser from the BNC cable. The 100 volts from the calibrator could cause a slight shock.

Setting the 067-0554-00 Bias

The knob on the Pulser sets bias on the tunnel diode. The bias should be set each time the Pulser is used. Set the bias as follows:

1. With the Pulser and termination connected as shown in Fig. 2, set the bias control fully counterclockwise and the oscilloscope Amplitude Calibrator for a 100 volt pulse output.
2. Set the oscilloscope vertical sensitivity at 0.1 volts/div. and the sweep rate a 0.2 millisecond/div.
3. Set the time-base triggering controls for a stable display. With the bias control set fully counterclockwise, the tunnel diode will not switch due to insufficient current. However, there will be about a 50 mV waveform on the crt. This is the calibrator signal feeding through the Pulser and not the fast-rise output signal that occurs when the tunnel diode is switching.
4. Slowly turn the bias control clockwise until the waveform amplitude suddenly increases to about 2 divisions (see Fig. 3). This point is the proper bias setting.

Note:

If 10X attenuator is used,
insert between 067-0554-00
and Termination.

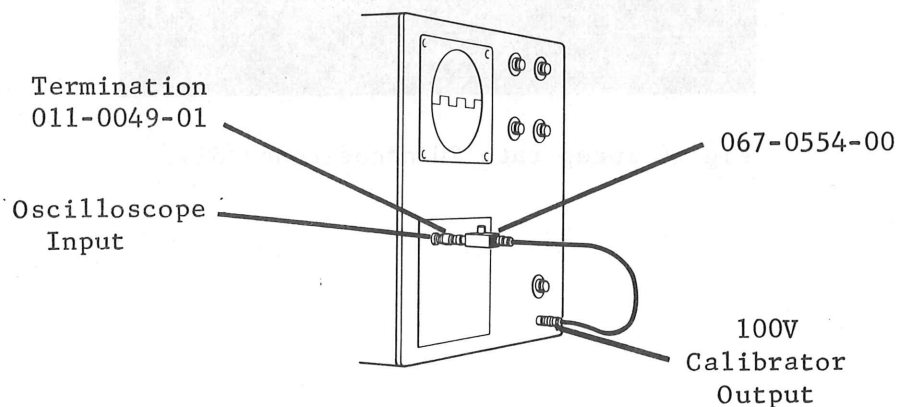


Fig. 2 Proper connection of the 067-0554-00 and Termination to the oscilloscope Input and Calibrator.

Output Waveforms

Figs. 3 and 4 show typical output signals from the Pulser at various sweep rates. The small intensified portion at the base of each pulse shown in Fig. 3 is the relatively slow rising portion of the calibrator signal just before the tunnel diode switches.

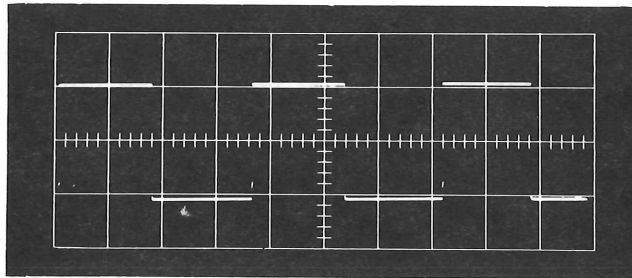


Fig. 3 Sweep rate 0.2 millisecond/div.

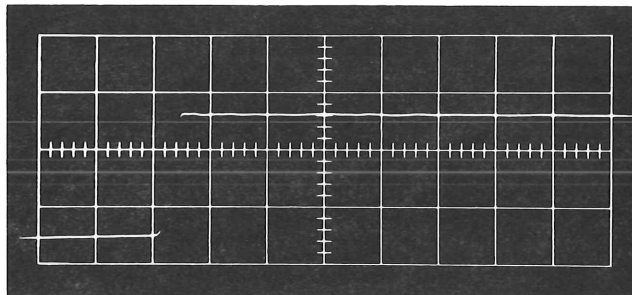
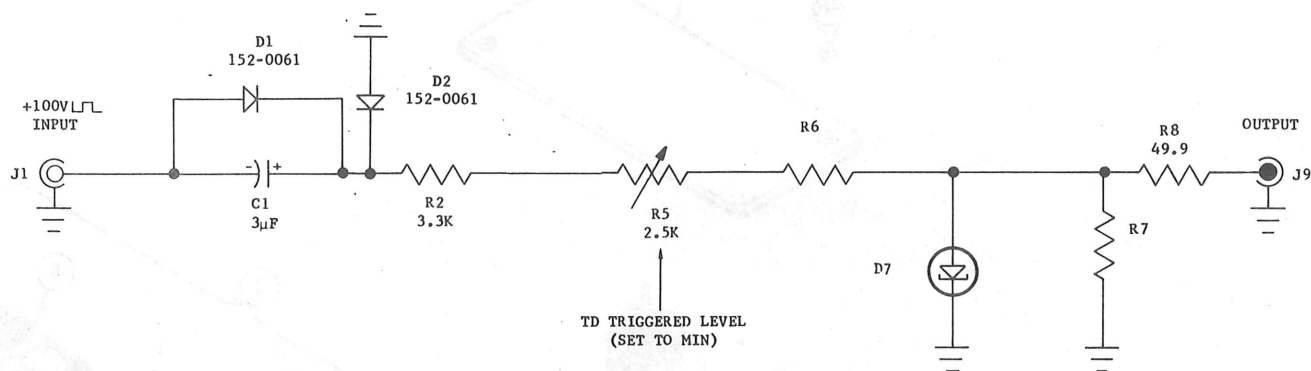


Fig. 4 Sweep rate 20 nanoseconds/div.

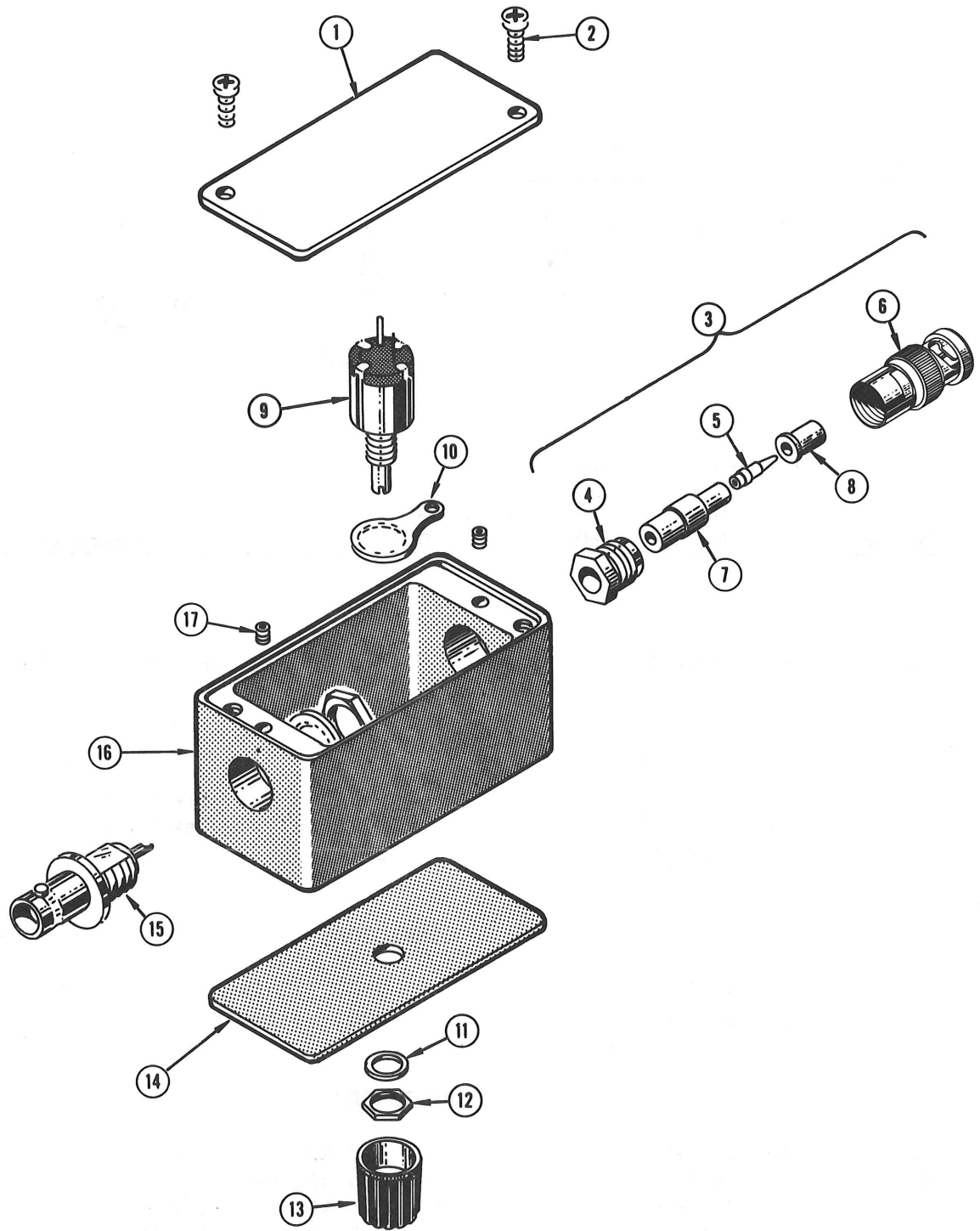
ELECTRICAL PARTS LIST 067-0554-00



Values are fixed unless marked Variable.

Ckt. No.	Tektronix Part No.	Serial/Model No. Eff	Disc	Description
CAPACITOR				
C1	290-0305-00		3 μ F	Elect. 150 V 20%
DIODES				
D1	*152-0061-00		Silicon	Tek Spec
D2	*152-0061-00		Silicon	Tek Spec
D7	153-0038-00		Selected	
CONNECTORS				
J1	131-0342-00		BNC, female	
J9	131-0428-00		BNC, assembly	
RESISTORS				
R2	301-0332-00		3.3 k Ω	1/2 W 5%
R5	311-0433-00		2.5 k Ω , Var	5%
R6	301-0392-00	7001	3.9 k Ω	1/2 W 5%
R6	Selected	7002	3.3 k Ω	1/2 W 5%
R7	Selected			
R8	321-0068-00		49.9 Ω	1/8 W Prec 1%

EXPLODED



MECHANICAL PARTS LIST 067-0554-00

Fig. & Index No.	Tektronix Part No.	Serial/Model Eff	No. Disc	Q † y	1	2	3	4	5	Description
1	334-1169-00			1						PLATE, identification
	- - - - -			-						mounting hardware: (not included w/plate)
2	213-0141-00			2						SCREW, thread forming, 4-40 x 1/4 inch, PHS
3	131-0428-00			1						ASSEMBLY, connector, BNC
	- - - - -			-						assembly includes:
4	132-0081-00			1						NUT, BNC
5	214-0109-01			1						PIN, contact, male
6	134-0044-00			1						PLUG, BNC
7	166-0217-00			1						TUBE, spacer, plastic, 5/8 inch long
8	358-0072-00			1						BUSHING, insulator, 0.323 inch long
9	- - - - -			1						RESISTOR, variable
	- - - - -			-						mounting hardware: (not included w/resistor)
10	210-0223-00			1						LUG, solder, 1/4 ID x 7/16 inch OD
11	210-0940-00			1						WASHER, flat, 1/4 ID x 3/8 inch OD
12	210-0583-00			1						NUT, hex., 1/4-32 x 5/16 inch
13	366-0203-00			1						KNOB, gray
	- - - - -			-						knob includes:
	213-0004-00			1						SCREW, set, 6-32 x 3/16 inch, HSS
14	386-1342-00			1						PLATE, mounting
15	131-0342-00			1						CONNECTOR, BNC, female, w/hardware
16	202-0054-00			1						BOX, pulser
17	213-0048-00			2						SCREW, set, 4-40 x 1/8 inch, HSS

