

SPECIFICATIONS (All Options)

Description

The P6133 is a 150 MHz, 10X, 2-meter, passive voltage probe designed specifically for use with the TEKTRONIX 2400 Series oscilloscopes having bandwidths less than or equal to 150 MHz. The P6133 comes standard with a 2 meter length (1.3 meter and 3 meter lengths available) and the Tektronix *subminiature* -size probe tip/hybrid assembly which is fully compatible with the Tektronix *subminiature* family of accessories. The new *compact* series probe tip/hybrid assembly comes standard on the P6133 Option 25 (only available in a 1.3 meter length). The *compact* size probe tip/hybrid assembly is slightly larger in diameter than the *subminiature*, which offers a greater durability and ruggedness in those environments and applications where required. The *compact* tip is not compatible with the subminiature series and is supplied with complementing accessories. Optional accessories are available for both sizes of tips. The *subminiature* and *compact* probe tip/hybrid assemblies may be converted to the Tektronix miniature series probe tip by using the subminiature/compact to miniature probe tip adapter (see optional accessories sections for each probe).

Electrical Characteristics

(Probe Installed On 2400 Series Oscilloscopes Of ≤ 150 MHz)

Attenuational (System): 10X $\pm 1\%$ at dc.

Input Resistance (System): 10 M Ω $\pm 1\%$ at dc. (See Figure 1.)

Input Capacitance (See Figure 1.):

1.3 meter: ≈ 11.4 pF

2 meter: ≈ 12.7 pF

3 meter: ≈ 14.5 pF

Compensation Range: 10 pF to 25 pF.

Signal Delay: Delay difference between any two probes is < 200 ps.

Maximum System Bandwidth (-3 dB):

1.3 meter: 150 MHz

2 meter: 150 MHz

3 meter: 120 MHz

Maximum Nondestructive Input Voltage:

500 V (dc + peak ac) to 1.3 MHz. (See Figure 2 for voltage derating curve.)

Environmental Characteristics

Temperature Range (Operating): -15°C to 75°C ($+5^{\circ}\text{F}$ to 167°F).

Temperature Range (Nonoperating): -62°C to 85°C (-80°F to 185°F).

Humidity:

Five cycles (120 hr) at 95% to 97% relative humidity. Per Tek Standard 062-2847-00, Class 3.

Ref to MIL-E-16400F, paragraph 4.5.9 through 4.5.9.5.1, class 4.

Physical Characteristics

Net Weight (Includes Accessories): 1.3 meter, 108 g (3.8 oz); .2 meter, 129 g (4.8 oz); 3 meter, 159 g (5.9 oz).

Probe Cable Length: 1.3 m (4.3 ft), 2 meter (6.6ft), 3 meter (9.8 ft).

Safety

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

The P6133 is UL listed.

INSTRUCTION
SHEET
070-5795-01
PRODUCT GROUP 60

TEK PROBE
AND ACCESSORIES

P6133

10X PASSIVE PROBE

STANDARD AND OPTIONS 01, 03 AND 25
FOR 2400 SERIES OSCILLOSCOPES

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COMMITTED TO EXCELLENCE

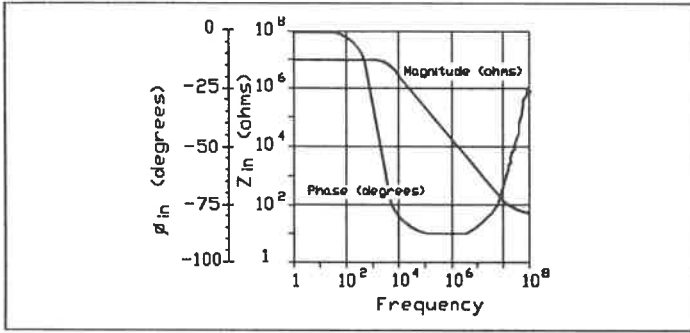


Figure 1. Typical Input Impedance.

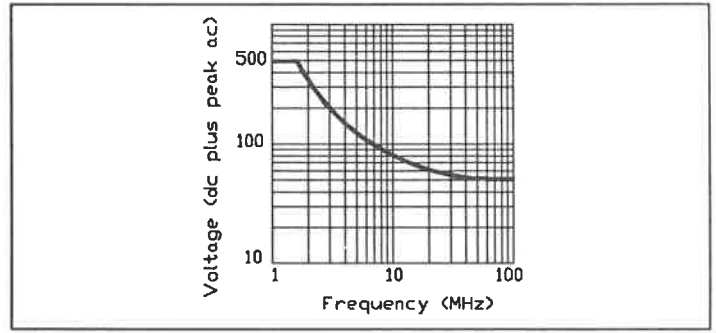


Figure 2. Typical Voltage Derating.

OPERATING CONSIDERATIONS

Probe Compensation. Due to variations in oscilloscope input characteristics, probe low-frequency compensation should be checked and adjusted after moving the probe from one input to another. To adjust low-frequency compensation, apply a 1 kHz square-wave signal (such as an oscilloscope calibrator output) to the probe tip. Using a non-conductive low-reactance alignment tool, adjust the probe's compensation capacitor through the hole in the compensation box to obtain the squarest waveform at front corner.

Inductive Effects of Probe Grounding. Ground Lead inductance can significantly reduce the performance of a probe. As shown

in the model (Figure 3), the ground lead inserts a series inductance into the signal path forming a series-resonant circuit consisting of C_{in} of the probe and ground lead inductance, with only R_{source} as damping. This forms a resonant circuit with $f_0 = 1 / (2\pi \sqrt{LC})$. A six-inch ground lead has ≈ 150 nH of inductance causing an f_0 of ≈ 130 MHz, which is within the frequency response of the instrument. This greatly degrades risetime, bandwidth, and transient accuracy (Figure 4). For best results, make sure that the ground lead inductance is at a minimum. Three methods for doing so are described in figure 5.

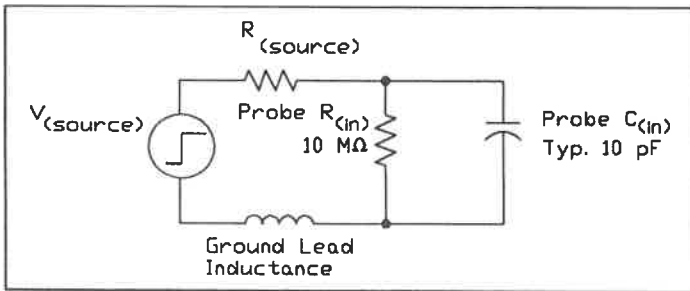


Figure 3. Circuit Model: Test Point and Probe Input.

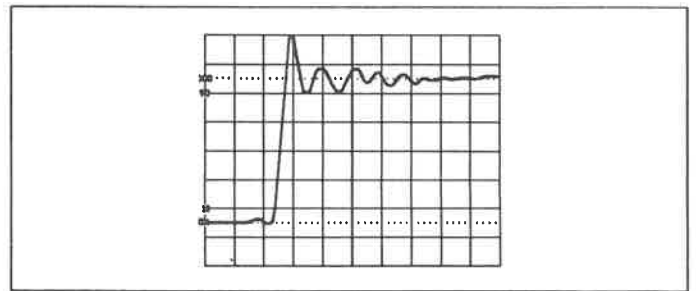


Figure 4. Typical Step Response With a 6" Ground Lead.

ECB to Probe-Tip Adapters provide high quality connection test points when installed on circuit boards. The ribbed-plastic tip shell on the probe must be removed. The probe will then plug into the test point directly. Adapters are available in packages of 100, for both the compact probe tip and the subminiature probe tip (see "Replaceable Parts").

The Low-Inductance Lead provided with all Tek P6133 probes allow for a substantial reduction of ground-lead inductance (≈ 32 nH instead of 150 nH). To use, unscrew and remove the ribbed tip shell and slide off the ground collar with ground lead. Slip on the low-inductance ground lead collar (1) and reinstall the ribbed plastic tip cover. Install the low-inductance lead (2) from the accessory pack.

The Tektronix Klipkit (optional, see "Replaceable Parts"), (useable on all options except option 25) provides a hands-off connection of signal and ground to an IC (up to 16 pins). Klipkit ground is acquired by inserting a connecting pin (included) into the Klipkit at the proper pin location. The probe body, with the ribbed shell tip removed, will then make ground contact when inserted into the other contact locations.

Figure 5. Methods Of Reducing The Effect Of Ground-Lead Inductance.

P6133 SERVICE INFORMATION

WARNING

The following servicing instructions are for use by qualified personnel only. To avoid electric shock, do not disassemble the probe or perform any probe maintenance while the probe is connected to a signal source.

Table 1
Test Equipment Required

Item Number and Description	Minimum Specification	Example of Test Equipment
1. Oscilloscope	Input Resistance: 1 M Ω \pm 0.5% Input Capacitance: 10 pF -25 pF Bandwidth (-3dB): 150 MHz.	Tektronix , 2445A or 2430A.
2. Calibration Generator	Pulse risetime: <1 ns Amplitude: 0.5 V into 50 Ω Rep rate: 100 kHz.	Tektronix PG506.
3. Leveled Sine-Wave Generator.	Amplitude adjustable up to at least 1V p-p into 50 Ω , Frequency range must exceed 150 MHz, fixed 50 KHz ref.	Tektronix SG503.
4. Precision Coaxial	50 Ω , 36 inch, BNC.	Tektronix Part Number: 012-0482-00.
5. 10X Attenuator	50 Ω , BNC.	Tektronix Part Number: 011-0059-02.
6. Adapters	For Subminiature tips use: Subminiature-to-GR, 50 Ω terminated BNC-to-GR.	Tektronix Part Number: 017-0063-00, 017-0520-00.
	For Compact tips use: Compact-to-BNC, 50 Ω terminated BNC-Female-to-BNC-Female.	Tektronix Part Number: 013-0227-00 103-0028-00.
7. Low Reactance Adjustment Tool	Insulated, low reactance.	Tektronix Part Number: 003-1364-00, 003-1364-01.

Adjustment Procedure

Refer to Table 1 for equipment requirements.

1. Adjust Low-Frequency Compensation.

a. Connect the P6133 to the oscilloscope CH 1 input. Set oscilloscope controls for 100 mV (includes probe 10X attenuation), 1 ms and DC coupling. Connect the probe input (using the hook-tip) to the oscilloscope CALIBRATOR output. Set the triggering controls for a stable display, approximately 5 cycles of square wave, and an amplitude of 4 divisions (centered on the screen).

b. ADJUST—Low-Frequency compensation (LF COMP) using a low-reactance non-conductive adjustment tool for the squarest waveform front corner. See Figure 6. Disconnect the test setup.

2. Check/Adjust High-Frequency Compensation.

a. Connect the positive fast rise output of the calibration generator, through the BNC cable and the 10X attenuator to the oscilloscope CH 1 input. Set the oscilloscope controls for 10 mV and 20 ns, 50 Ω DC coupling. Adjust the pulse amplitude to produce a 5-division display on the oscilloscope. Set the triggering controls for a stable display and center the display. Note the system aberrations for comparison in part b.

b. Remove the 10X attenuator from the oscilloscope input and the calibration generator. Connect the probe to the oscilloscope CH 1 input. Connect the probe tip through the probe-tip-to-BNC 50 Ω adapter and the female BNC-to-BNC adapter (or the BNC-to-GR and the 50 Ω GR-to-probe tip adapter) to the positive fast rise output of the calibration generator. Set the oscilloscope coupling to the 1 M Ω DC position. Check high frequency aberrations in the first 30 ns (in addition to system aberrations noted in part 2a). If probe aberrations are excessive, (typically $\leq \pm 4\%$, 6% p-p) proceed to part 2c. If they are not, proceed with part d.

c. To remove the plastic cover from the probe compensation box, first disconnect the probe from the signal source and the oscilloscope. Unscrew the compensation box retainer nut about two complete turns and lift the cover out and up, then re-tighten the retainer. Reconnect the probe (as in part 2b). See Figure 6 for the location of all adjustments, and Figure 7 for identification of the waveform area affected by each adjustment. ADJUST R1 for best overall flat response. ADJUST R2 for best corner response. The high-frequency adjustments affect the probe bandwidth. A small overshoot on the leading edge of the pulse may be necessary to meet the bandwidth specification. Reinstall the compensation box cover by reversing the procedure described above.

d. Disconnect the test setup.

3. Bandwidth Check.

Connect the P6133 probe output to the oscilloscope CH 1 input. Connect the probe tip through the 50 Ω adapters and BNC cable (used in part 2b), to the output of the Leveled Sine Wave Generator described in Table 1. Set the oscilloscope controls for 100 mV (includes probe 10X attenuation), 1 ms, and 1 M Ω DC coupling. Set the leveled sine wave generator frequency to 50 kHz. Adjust the generator output amplitude to produce a 6-division display on the oscilloscope. Center the display on the screen. Set the generator frequency-range switch to the high-frequency position and slowly increase the setting of the variable frequency control until the display amplitude decreases to 4.2 divisions (-3dB). Check the sine-wave generator frequency readout. The frequency must be greater than or equal to the P6133's specified system bandwidth. If the reading is less than the required value, repeat the adjustments in part 2.

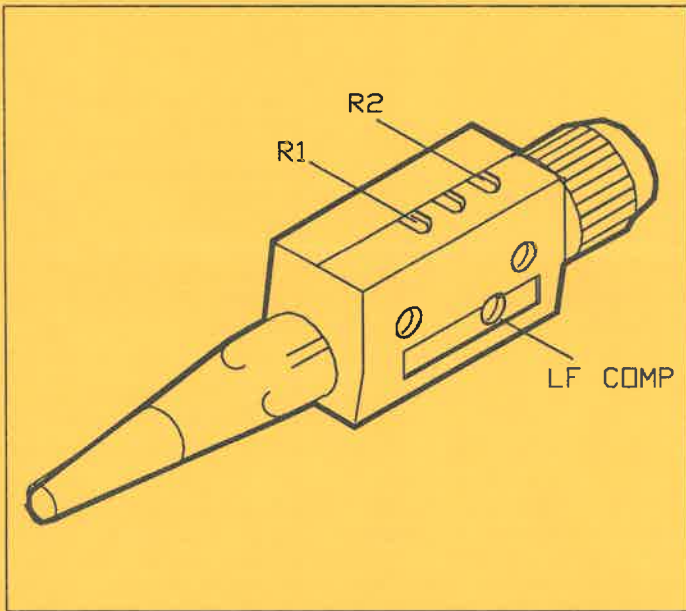


Figure 6. High-Frequency Adjustment Locations.

Maintenance

Cleaning. Accumulated dirt can be removed with a soft cloth dampened with a nonresidue type cleaner, preferably isopropyl alcohol. Before using any other type of cleaner, consult your Tektronix Service Center or representative. In particular, avoid benzene, toluene, xylene, acetone, or similar solvents.

Probe Module Replacement. Modular construction has been used to simplify repair. The probe tip assembly, compensation box, and cable are available as separate units through your local Tektronix Field Office or representative. Individual components within the compensation box are not replaceable. The probe tip assembly unscrews from the probe head/cable assembly. To disconnect the cable from the compensation box, unscrew the compensation box retainer nut about two complete turns and pull out the cable until it separates from the compensation box. Reconnect the cable to the compensation box by reversing the procedure described above.

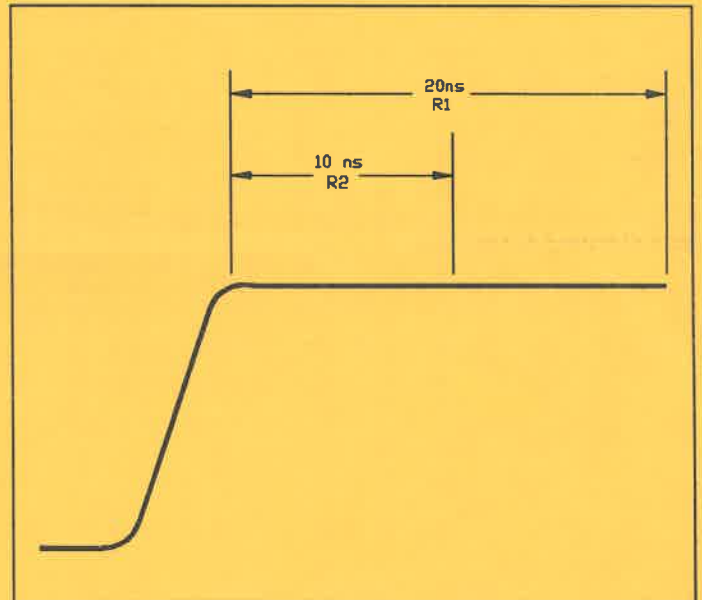


Figure 7. High-Frequency Adjustments Relative To Affected Areas Of The Waveform.

P6133

REPLACEABLE PARTS LIST

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CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
24931	SPECIALTY CONNECTOR CO INC	2100 EARLYWOOD DR PO BOX 547	FRANKLIN IN 46131
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500 MS 53-111	BEAVERTON OR 97707-0001
TK1473 TK1556	RICHARD HIRSCMANN OF AMERICA CONSOLIDATED VINYL SALES	PO BOX 229/INDUSTRIAL ROW 1237 S SAN GABRIEL BLVD	RIVERDALE NJ 07457 SAN GABRIEL CA 91776

**P6133 Replaceable Parts
Standard, Option 01 and Option 03
(Subminiature Tip)
With Standard Accessories**

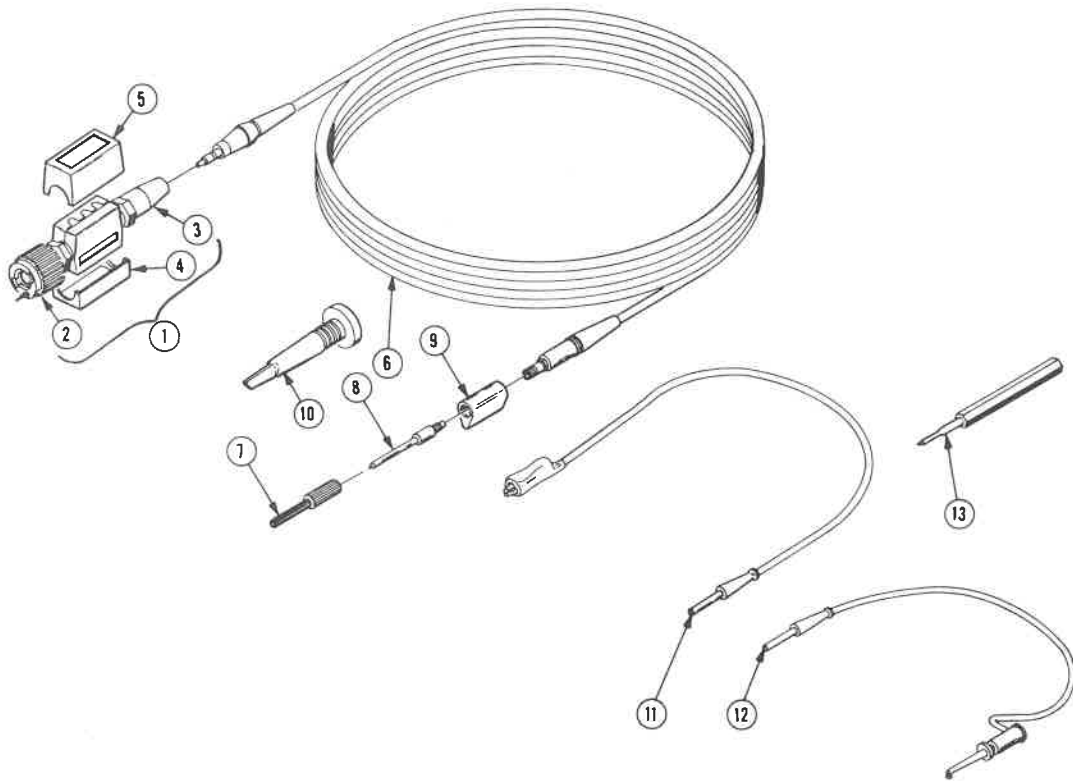


Figure 1

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective Dscnt		Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
P6133							
1-							
-1	206-0350-00			1	COMP BOX ASSY:2M	80009	206-0350-00
-2	131-3219-00			1	.CONN,RCPT,ELEC:BNC,MALE	80009	131-3219-00
-3	200-3018-00			1	.COVER,CABLE NIP:COMP BOX	80009	200-3018-00
-4	200-3017-00			1	.COVER,COMP BOX:BOTTOM,ABS SLATE GRAY	80009	200-3017-00
-5	200-3016-26			1	.COVER,COMP BOX:TOP	80009	200-3016-26
-6	174-0073-00		8817	1	CABLE ASSY,RF:39 OHM COAX,2.0M	80009	174-0073-00
	174-0971-00	8818		1	CABLE ASSY,RF:39 OHM COAX,2.0M	80009	174-0971-00
-7	204-0925-01			1	BODY SHL,PROBE:	80009	204-0925-01
-8	206-0265-02		8627	1	TIP,PROBE:P6131,2.0 METER CABLE	80009	206-0265-02
	206-0265-12	8628		1	TIP,PROBE:10X,12.5PF,CLEAR YELLOW	80009	206-0265-12
P6133 OPTION 01							
-1	206-0349-00			1	COMP BOX ASSY:1.3M	80009	206-0349-00
-2	131-3219-00			1	.CONN,RCPT,ELEC:BNC,MALE	80009	131-3219-00
-3	200-3018-00			1	.COVER,CABLE NIP:COMP BOX	80009	200-3018-00
-4	200-3017-00			1	.COVER,COMP BOX:BOTTOM,ABS SLATE GRAY	80009	200-3017-00
-5	200-3016-25			1	.COVER,COMP BOX:TOP	80009	200-3016-25
-6	174-0075-00		8804	1	CABLE ASSY,RF:39 OHM COAX,1.3M	80009	174-0075-00
	174-0973-00	8805		1	CABLE ASSY,RF:39 OHM COAX,1.3M	80009	174-0973-00
-7	204-0925-01			1	BODY SHL,PROBE:	80009	204-0925-01
-8	206-0265-03		8627	1	TIP,PROBE:10X,1.3 METER CABLE,H951	80009	206-0265-03
	206-0265-13	8628		1	TIP,PROBE:10X,11.3PF,CLEAR/CLEAR	80009	206-0265-13
P6133 OPTION 03							
-1	206-0351-00			1	COMP BOX ASSY:3M	80009	206-0351-00
-2	131-3219-00			1	.CONN,RCPT,ELEC:BNC,MALE	80009	131-3219-00
-3	200-3018-00			1	.COVER,CABLE NIP:COMP BOX	80009	200-3018-00
-4	200-3017-00			1	.COVER,COMP BOX:BOTTOM,ABS SLATE GRAY	80009	200-3017-00
-5	200-3016-27			1	.COVER,COMP BOX:TOP	80009	200-3016-27
-6	174-0074-00		8818	1	CABLE ASSY,RF:39 OHM COAX,3.0M	80009	174-0074-00
	174-0972-00	8819		1	CABLE ASSY,RF:39 OHM COAX,3.0M	80009	174-0972-00
-7	204-0925-01			1	BODY SHL,PROBE:	80009	204-0925-01
-8	206-0265-01		8627	1	TIP,PROBE:10X,P6131,3.0 METER CABLE	80009	206-0265-01
	206-0265-11	8628		1	TIP,PROBE:10X,14.6PF,CLEAR/RED	80009	206-0265-11
P6133, P6133 OPTION 01, P6133 OPTION 03 STANDARD ACCESSORIES							
-9	343-1003-01			1	COLLAR,GND:	80009	343-1003-01
-10	013-0208-00		8627	1	TIP,PROBE:RETRACTABLE HOOK	80009	013-0208-00
	013-0208-01	8628	8819	1	TIP,PROBE:RETRACTABLE HOOK	80009	013-0208-01
	013-0208-02	8820		1	TIP,PROBE:SUBMINIATURE SIZE,RETRACTABLE HOO K ASSEMBLY	80009	013-0208-02
-11	195-1870-00			1	LEAD,ELECTRICAL:26 AWG,8.812 L,0-N	80009	195-1870-00
-12	195-4104-00			1	LEAD,ELECTRICAL:23 AWG,6.3 L,0-N	80009	195-4104-00
-13	003-1364-00		8605	1	SCREWDRIVER:ADJ TOOL,METAL TIP	80009	003-1364-00
	003-1364-01	8606		1	SCREWDRIVER:ADJUSTABLE TOOL,PLASTIC TIP	80009	003-1364-01
	070-5795-01			1	SHEET,TECHNICAL:INSTR,P6133	80009	070-5795-01
	195-4240-00	8822		1	LEAD,ELECTRICAL:0.025 DIA,COPPER,2.3 L	80009	195-4240-00

**P6133 Optional Accessories
Standard Option 01 and Option 03
(Subminiature Tip)**

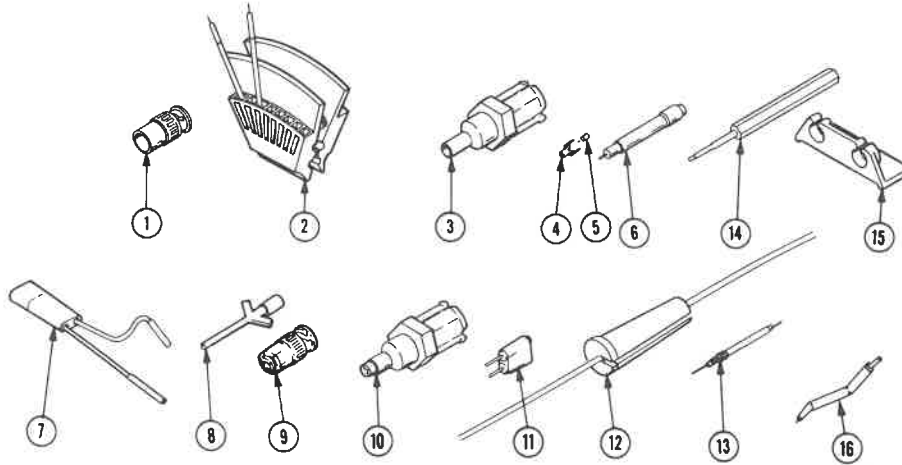


Figure 2

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Discont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
2-					P6133, P6133 OPTION 01, P6133 OPTION 03 OPTIONAL ACCESSORIES		
-1	013-0195-00			1	ADAPTER, CONN: BNC TO PROBE	80009	013-0195-00
-2	013-0197-00			1	KLIPKIT: (2) 16 PIN CLIP W/ (4) CONTACT GROUND	80009	013-0197-00
-3	017-0520-00			1	CONN, PLUG, ELEC: 50 OHM COAX	80009	017-0520-00
-4	131-2766-01			1	CONNECTOR, PROBE: PACKAGE OF 100	80009	131-2766-01
-5	136-0352-02			1	SOCKET, PIN TERM: PKG OF 100	80009	136-0352-02
-6	013-0202-01		8726	1	ADAPTER, PROBE: MINIATURE PROBE	80009	013-0202-01
	013-0202-02	8727		1	ADAPTER, PROBE: SUBMINIATURE/COMPACT TO	80009	013-0202-02
					NOTE; ITEMS 7 THRU 11 ARE USEABLE WHEN THE SUBMINIATURE/COMPACT TO MINIATURE PROBE TIP ADAPTER IS USED. (ITEM 6)		
-7	015-0325-00			1	ADAPTER, PROBE: PROBE TO CONNECTOR PINS	80009	015-0325-00
-8	206-0364-00			1	TIP, PROBE: MICROCKT TEST, 0.05 CTR	80009	206-0364-00
-9	013-0084-01			1	ADAPTER, CONN: BNC TO PROBE	24931	28P156-1
-10	017-0088-00			1	CONN, PLUG, ELEC: 50 OHM, GR	80009	017-0088-00
-11	013-0085-00			1	TIP, PROBE: GROUNDING	80009	013-0085-00
-12	352-0670-00			1	HOLDER, PROBE: ATTENUATOR TIPS (3)	80009	352-0670-00
-13	206-0268-00			1	TIP ASSY, PROBE: 1X, SUBMINIATURE	80009	206-0268-00
-14	003-1364-02			1	SCREWDRIVER: ADJ TOOL, PLSTC TIP, PKG OF 10	80009	003-1364-02
-15	352-0687-00			1	HOLDER, PROBE: SLATE GRAY ABS	80009	352-0687-00
-16	195-4240-00		8822	1	LEAD, ELECTRICAL: 0.025 DIA, COPPER, 2.3 L	80009	195-4240-00
	016-0633-00			1	MARKER SET, CA: 2 EA VARIOUS COLORS	80009	016-0633-00
	016-0708-00			1	POUCH, ACCESSORY:	TK1556	ZIP-6. 25X9. 25ID
	200-2747-01			1	COVER, PROBE TIP:	80009	200-2747-01

P6133 Option 25 Replaceable Parts (Compact Tip)

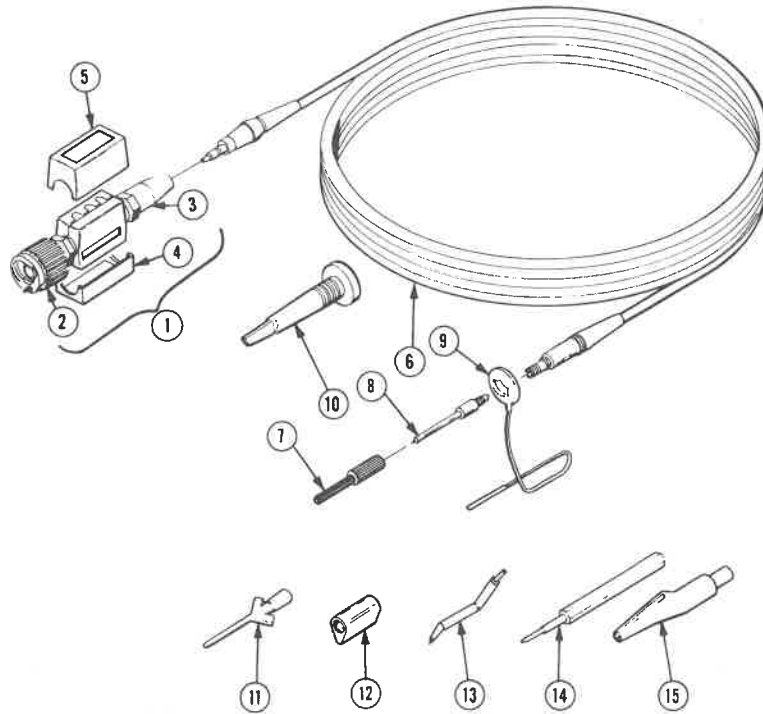


Figure 3

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Discort	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
3-					P6133 OPTION 25		
-1	206-0349-00			1	COMP BOX ASSY:1.3M	80009	206-0349-00
-2	131-3219-00			1	.CONN,RCPT,ELEC:BNC,MALE	80009	131-3219-00
-3	200-3018-00			1	.COVER,CABLE NIP:COMP BOX	80009	200-3018-00
-4	200-3017-00			1	.COVER,COMP BOX:BOTTOM,ABS SLATE GRAY	80009	200-3017-00
-5	200-3016-25			1	.COVER,COMP BOX:TOP	80009	200-3016-25
-6	174-0973-00			1	CABLE ASSY,RF:39 OHM COAX,1.3M	80009	174-0973-00
-7	204-1049-00			1	BODY SHELL,PROB:STANDARD	80009	204-1049-00
-8	206-0393-00		8815	1	PROBE TIP ASSY:10X,11.0PF,9M OHM,GRAY TIP,G RAY TAIL	80009	206-0393-00
	206-0393-01	8816		1	PROBE TIP ASSY:10X,11PF,GRAY TIP,GRAY TAIL	80009	206-0393-01
					P6133 OPTION 25 STANDARD ACCESSORIES		
-9	196-3113-00		8831	1	LEAD,ELECTRICAL:STRD,26 AWG,6.0 L,0-N W/CLR	80009	196-3113-00
	196-3113-02	8832		1	LEAD,ELECTRICAL:STRD,22 AWG,6.0 L,8-N	80009	196-3113-02
-10	013-0107-06			1	TIP,PROB:MINIATURE/COMPACT SIZE,RETRACTABL E HOOK ASSY	80009	013-0107-06
-11	013-0217-00		8820	1	GRABBER,IC LEAD:BLACK,2.047 L X 0.137 DIA	TK1473	973 592 500
	206-0364-00	8821		1	TIP,PROB:MICROCKT TEST,0.05 CTR	80009	206-0364-00
-12	343-1003-01			1	COLLAR,GND:	80009	343-1003-01
-13	195-4240-00			1	LEAD,ELECTRICAL:0.025 DIA,COPPER,2.3 L	80009	195-4240-00
-14	003-1364-01			1	SCREWDRIVER:ADJUSTABLE TOOL,PLASTIC TIP	80009	003-1364-01
-15	344-0398-00			1	CLIP,ELECTRICAL:ALLIGATOR,0.155 L,STL CS PL	80009	344-0398-00
	070-5795-01			1	SHEET,TECHNICAL:INSTR,P6133	80009	070-5795-01

P6133 Option 25 Optional Accessories (Compact Tip)

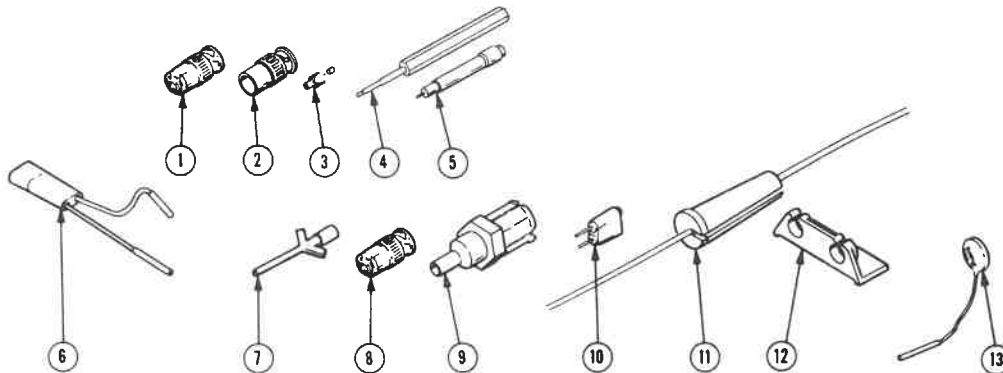


Figure 4

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Discont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
4-					P6133 OPTION 25 OPTIONAL ACCESSORIES		
-1	013-0226-00			1	CONNECTOR,BNC:BNC TO PROBE TIP ADAPTER	80009	013-0226-00
-2	013-0227-00			1	CONNECTOR,BNC:BNC TO PROBE TIP ADAPTER	80009	013-0227-00
-3	131-4244-00			1	CONN,PROBE:PKG OF 100 EACH	80009	131-4244-00
-4	003-1364-02			1	SCREWDRIVER:ADJ TOOL,PLSTC TIP,PKG OF 10	80009	003-1364-02
-5	013-0202-02			1	ADAPTER,PROBE:SUBMINIATURE/COMPACT TO	80009	013-0202-02
					NOTE; ITEMS 6 THRU 10 ARE USEABLE WHEN THE SUBMINIATURE/COMPACT TO MINIATURE PROBE TIP ADAPTER IS USED. (ITEM 5)		
-6	015-0325-00			1	ADAPTER,PROBE:PROBE TO CONNECTOR PINS	80009	015-0325-00
-7	206-0364-00			1	TIP,PROBE:MICROCKT TEST,0.05 CTR	80009	206-0364-00
-8	013-0084-01			1	ADAPTER,CONN:BNC TO PROBE	24931	28P156-1
-9	017-0088-00			1	CONN,PLUG,ELEC:50 OHM,GR	80009	017-0088-00
-10	013-0085-00			1	TIP,PROBE:GROUNDING	80009	013-0085-00
-11	352-0670-00			1	HOLDER,PROBE:ATTENUATOR TIPS (3)	80009	352-0670-00
-12	352-0687-00			1	HOLDER,PROBE:SLATE GRAY ABS	80009	352-0687-00
-13	196-3113-01			1	LEAD,ELECTRICAL:STRD,26 AWG,3.0 L,0-N W.CLR	80009	196-3113-01
	196-3113-03	8832		1	LEAD,ELECTRICAL:STRD,22 AWG,3.0 L,8-N	80009	196-3113-03
	015-0201-07			1	TIP,PROBE:IC TEST,PKG OF 10	80009	015-0201-07
	015-0201-08			1	TIP,PROBE:IC TEST,PKG OF 100	80009	015-0201-08
	016-0633-00			1	MARKER SET,CA:2 EA VARIOUS COLORS	80009	016-0633-00
	016-0708-00			1	POUCH,ACCESSORY:	TK1556	ZIP-6.25X9.25ID