Instruction Manual

P6006 PROBE

010-0127-00

NOV 25

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070-0381-00

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Tektronix, Inc.
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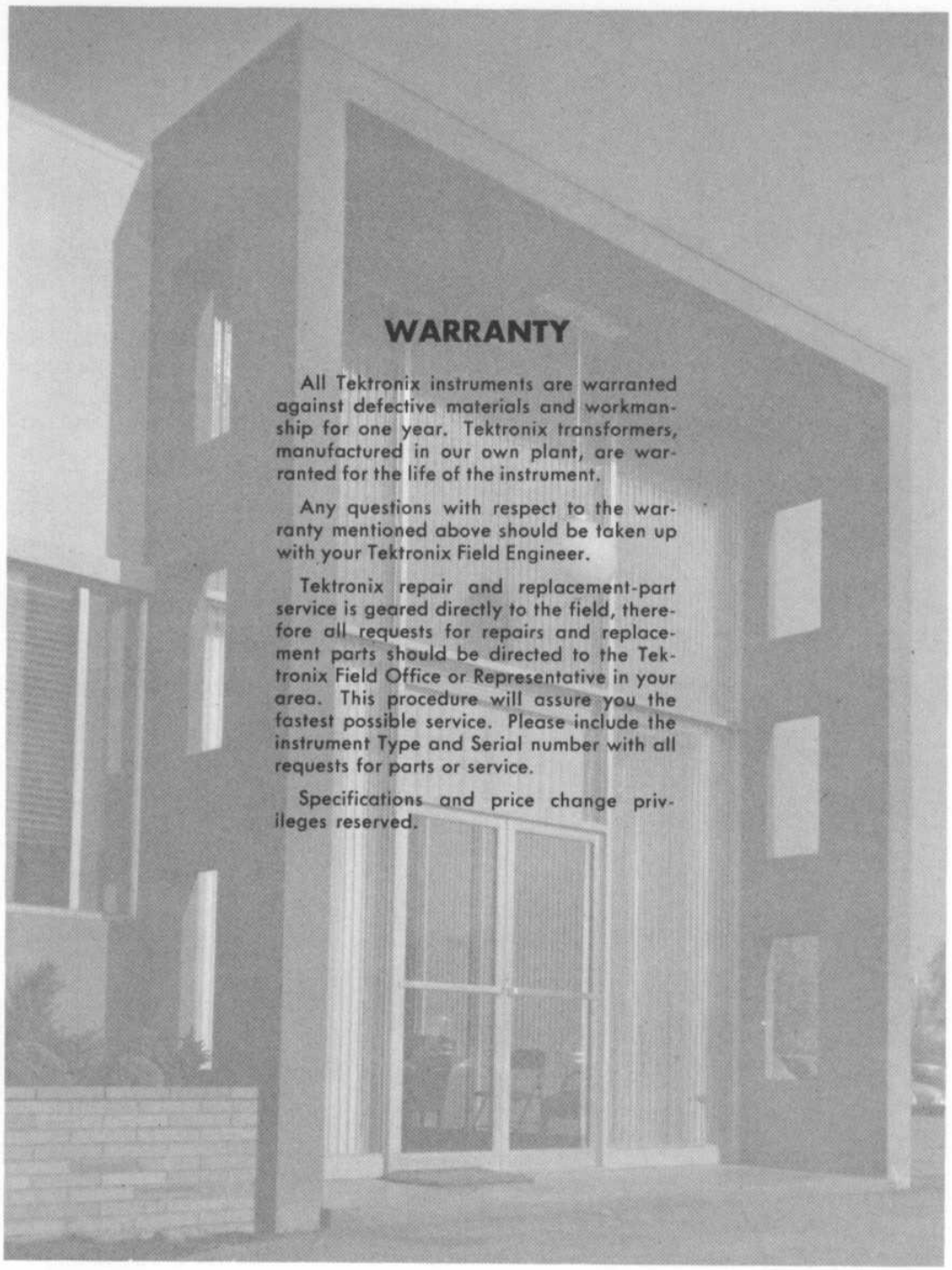


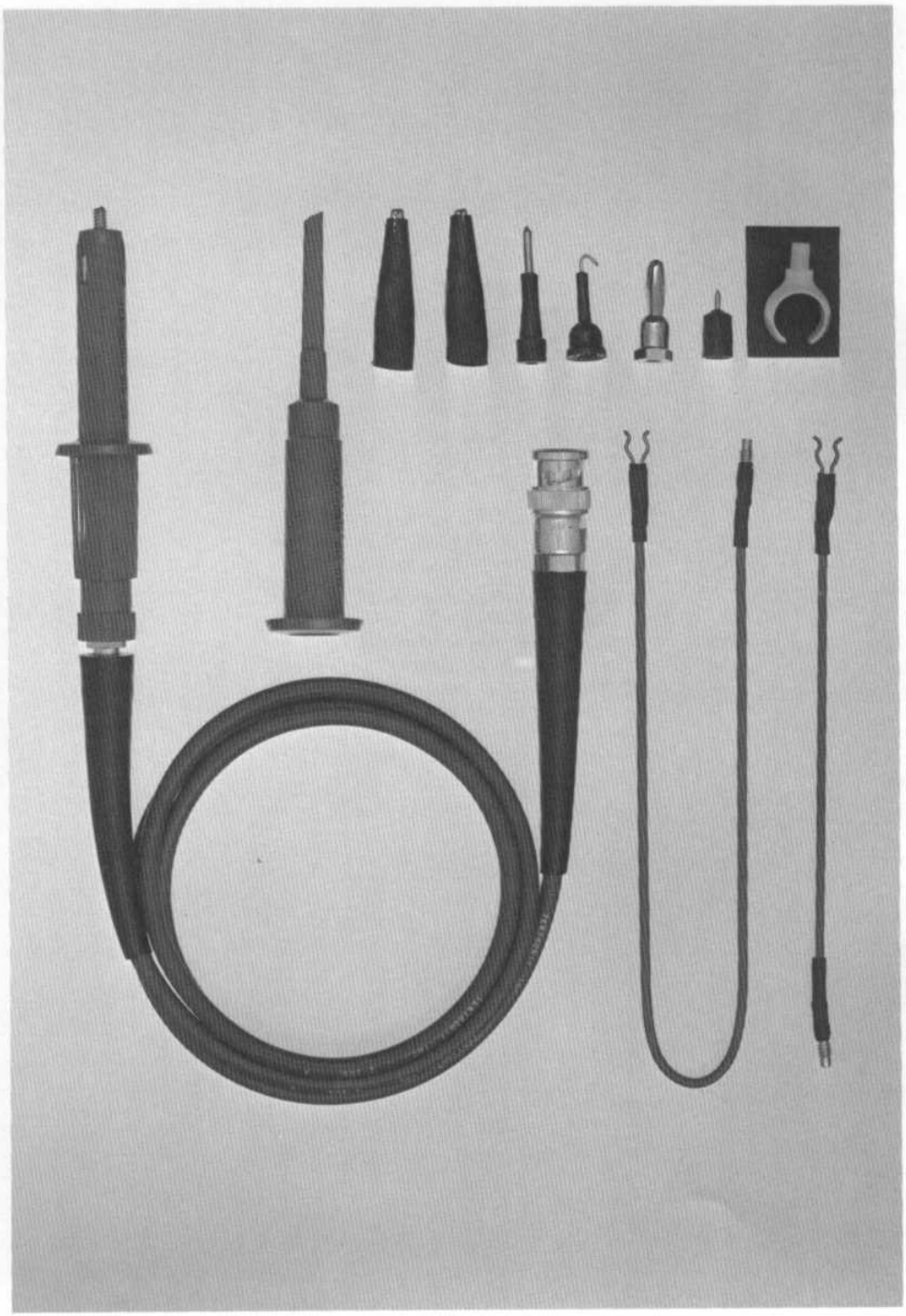
WARRANTY

All Tektronix instruments are warranted against defective materials and workmanship for one year. Tektronix transformers, manufactured in our own plant, are warranted for the life of the instrument.

Any questions with respect to the warranty mentioned above should be taken up with your Tektronix Field Engineer.

Tektronix repair and replacement-part service is geared directly to the field, therefore all requests for repairs and replacement parts should be directed to the Tektronix Field Office or Representative in your area. This procedure will assure you the fastest possible service. Please include the instrument Type and Serial number with all requests for parts or service.

Specifications and price change privileges reserved.



P6006 Probe

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P6006 PROBE

Introduction

The P6006 Probe is a passive probe with 10X attenuation, designed for oscilloscopes having an input resistance of 1 megohm and input capacitance of up to 55 picofarads (pf). The probe decreases resistive and capacitive loading on the circuit under test.

Characteristics

Attenuation Factor	10X, ±3%
*Input Resistance	10 megohms, ±2%
Probe Resistance	9 megohms, ±2%
*Input Capacitance, Risetime	See Table 1
Maximum Voltage Rating	600 vdc or 600 vac peak-to-peak or 600 v peak and dc combined. Maximum voltage must be derated at higher frequencies; see "Derating Curves".
Cable Length	Nominally 3.5′, 6′, 9′, or 12′ measured between the bases of the cable strain reliefs.
Environmental Capacitance	The 9-megohm resistor has been factory installed for best transient response. To replace the 9-megohm resistor, a new probe body must be ordered through your local Tektronix Field Office.
Operating Temperature	The probe will operate normally at temperatures up to 75° C.

*See the input R_p and X_p vs frequency curves.

TABLE 1

Cable Length	Input Capacitance With 20 pf Plug-In	Input Capacitance With 47 pf Plug-In	Risetime Probe Alone	Risetime With 540-Series Oscilloscope and K Unit
3.5 ft	≈ 7.5 pf	≈ 9.5 pf	≈ 5 nsec	≈ 13 nsec
6 ft	≈ 8.5 pf	≈ 11 pf	≈ 7 nsec	≈ 14 nsec
9 ft	≈ 11 pf	≈ 13.5 pf	≈ 7 nsec	≈ 14 nsec
12 ft	≈ 13 pf	≈ 15.5 pf	≈ 14 nsec	≈ 18 nsec

Compensation

The P6006 Probe should be compensated each time it is transferred from one oscilloscope or plug-in unit to another. This will ensure accurate attenuation of transient and sine-wave signals.

To compensate the probe, touch the probe tip to the oscilloscope calibrator output connector and display several cycles of the signal. Loosen the flanged locking sleeve several turns. See Fig. 1(a). Adjust for the correct waveform by turning the probe body and tip assembly while holding the knurled section at the base of the probe. Fig. 1 (b) shows waveforms for a line-frequency oscilloscope calibrator, and Fig. 1 (c) shows waveforms for a 1-kc oscilloscope calibrator. After obtaining the correct waveform, hold the probe body and tip assembly and carefully tighten the locking sleeve. Make the final adjustment by holding the locking sleeve and probe body while turning the probe base.

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Derating Curves

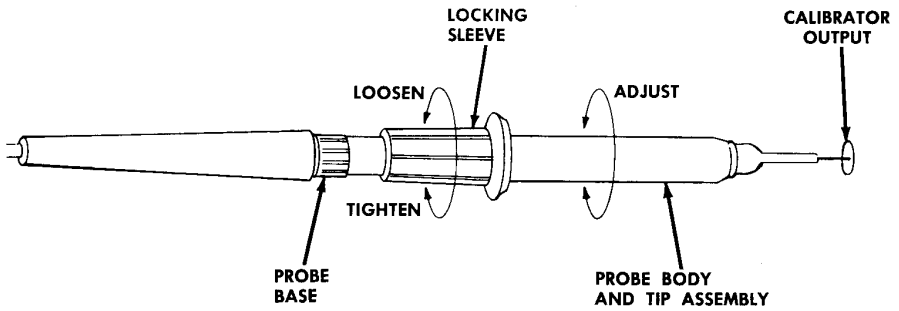
The derating curves show the maximum continuous-wave voltages that can be applied to the P6006 Probe at higher frequencies. To observe pulses with a given duty cycle and repetition rate, use the following information to determine the maximum peak voltage of the probe.

Maximum applied voltage at a particular frequency, E:

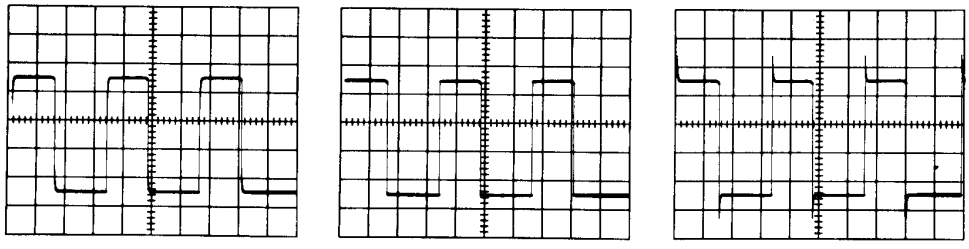
$$E = \frac{\text{Voltage from curve at CW frequency}}{\sqrt{\text{Duty Factor}}}$$

where: $\text{Duty Factor} = \frac{\text{pulse duration}}{\text{pulse period}}$

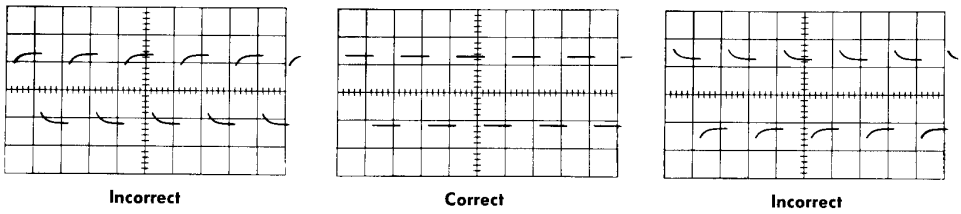
For pulse durations longer than 1 second, consider the signal as dc.



(a) Probe adjustments



(b) Waveforms from line-frequency oscilloscope calibrator



(c) Waveforms from 1-kc oscilloscope calibrator

Fig. 1. Probe compensation.

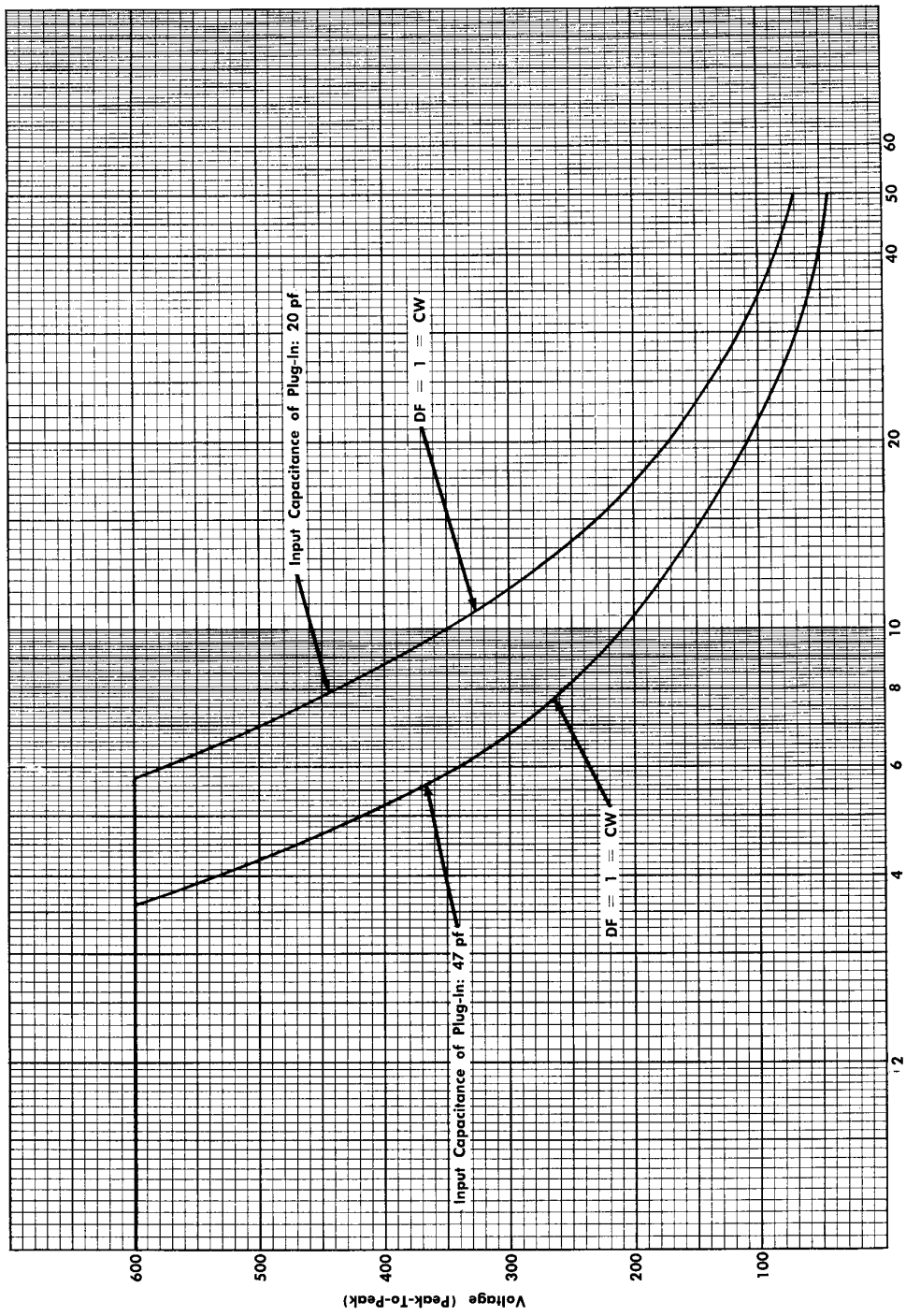


Fig. 2. P6006 derating curves (3.5-ft cable).

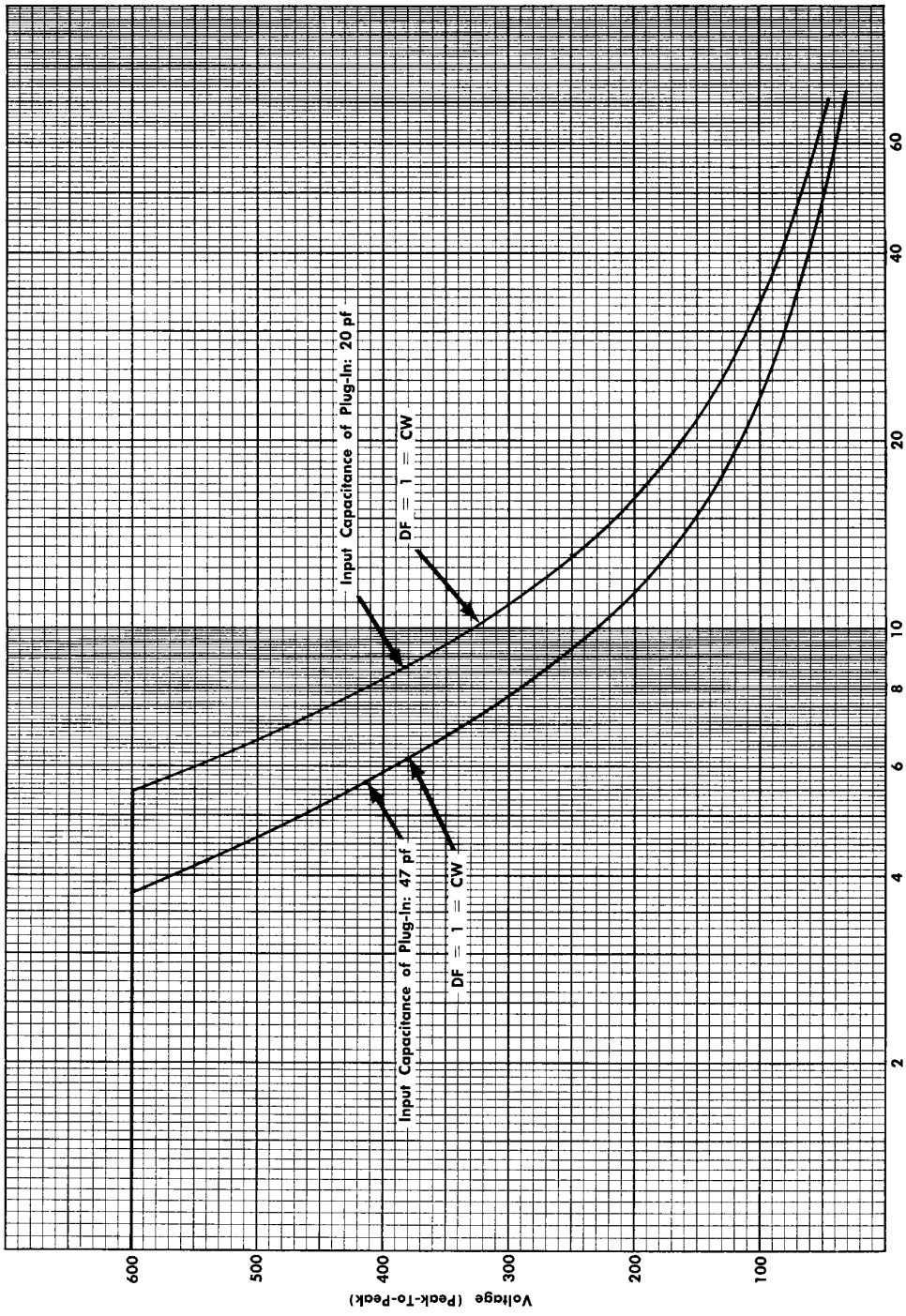


Fig. 3. P6006 derating curves (6-ft cable).

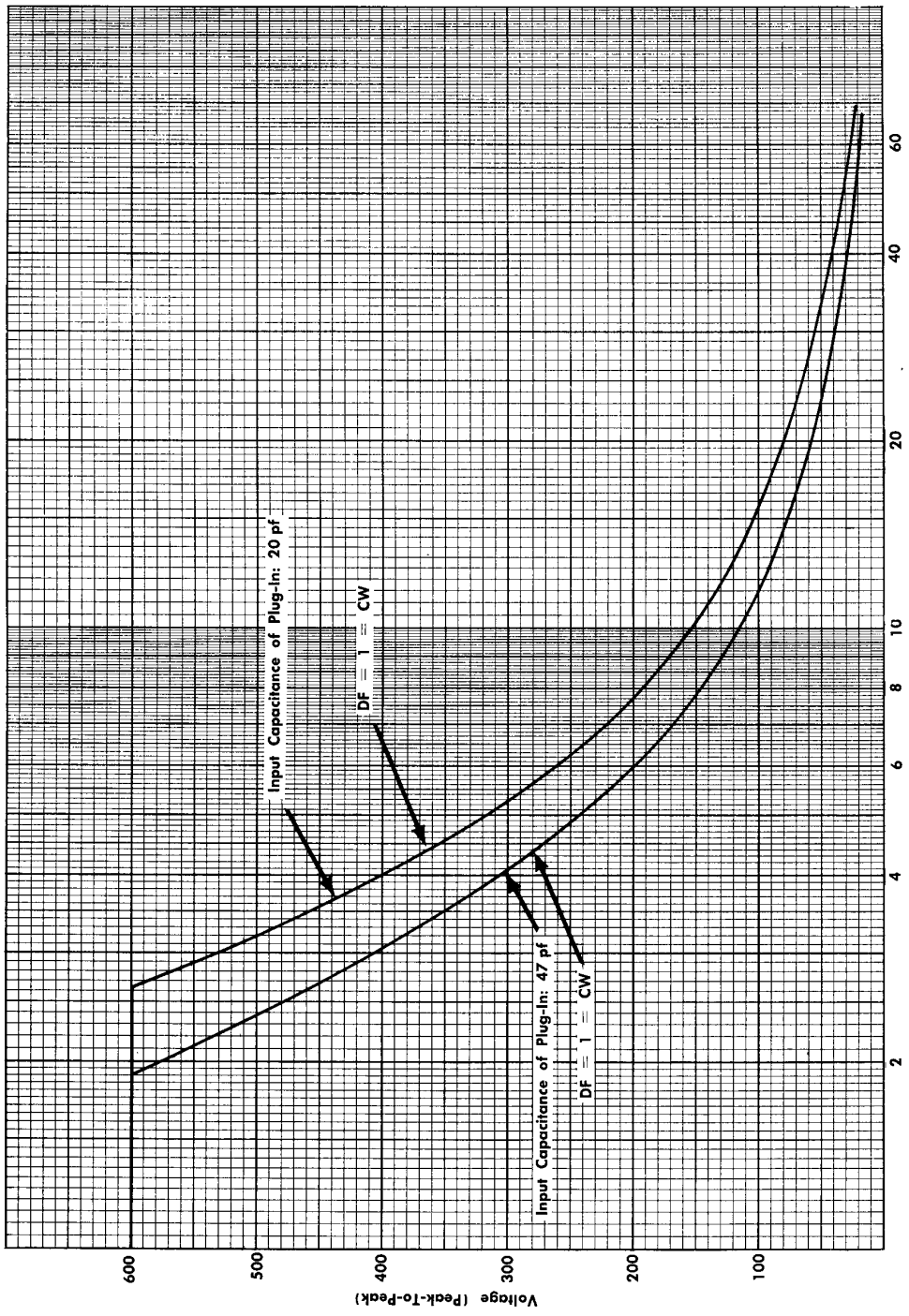


Fig. 4. P6006 derating curves (9-ft cable).

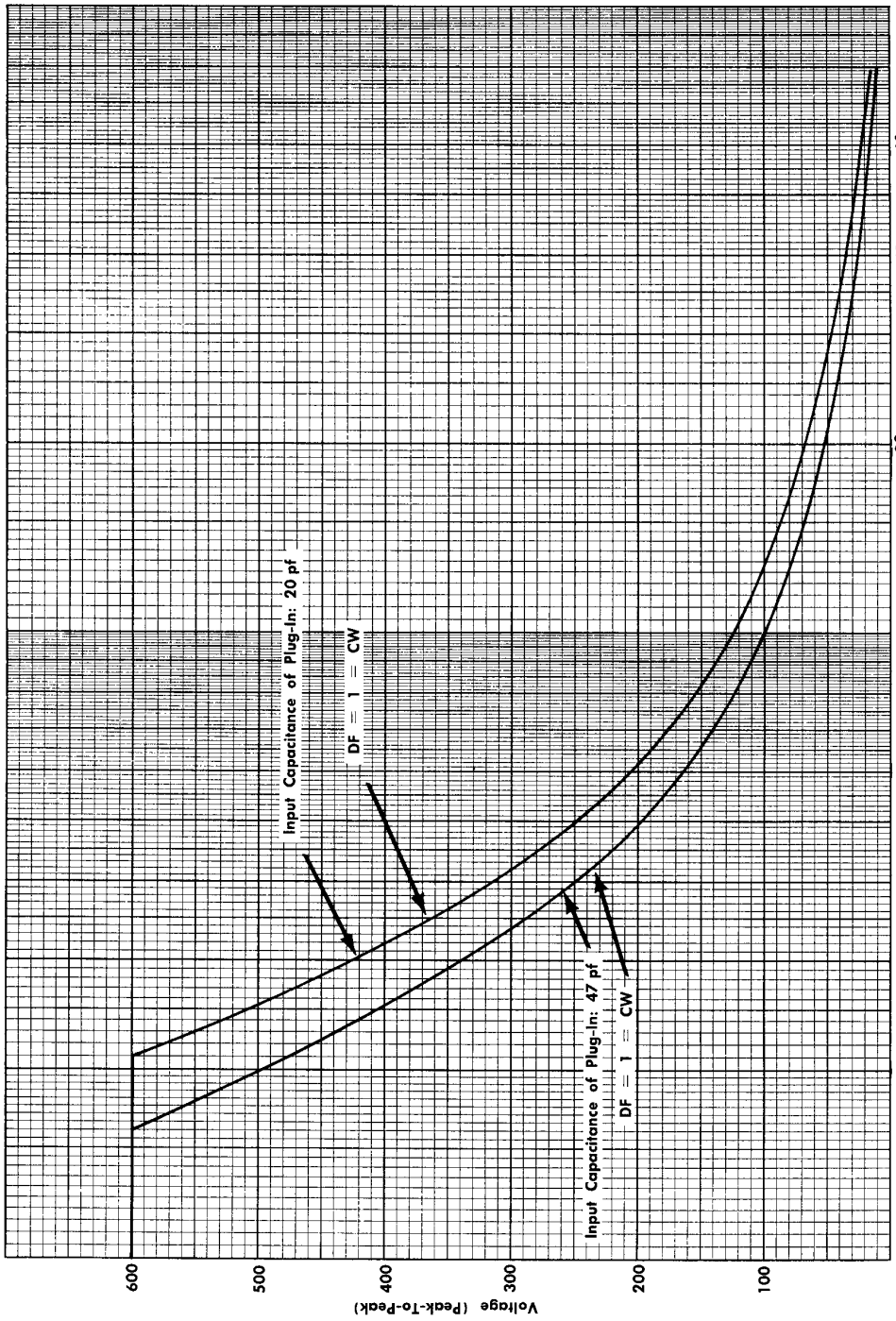


Fig. 5. P6006 derating curves (12-ft cable).

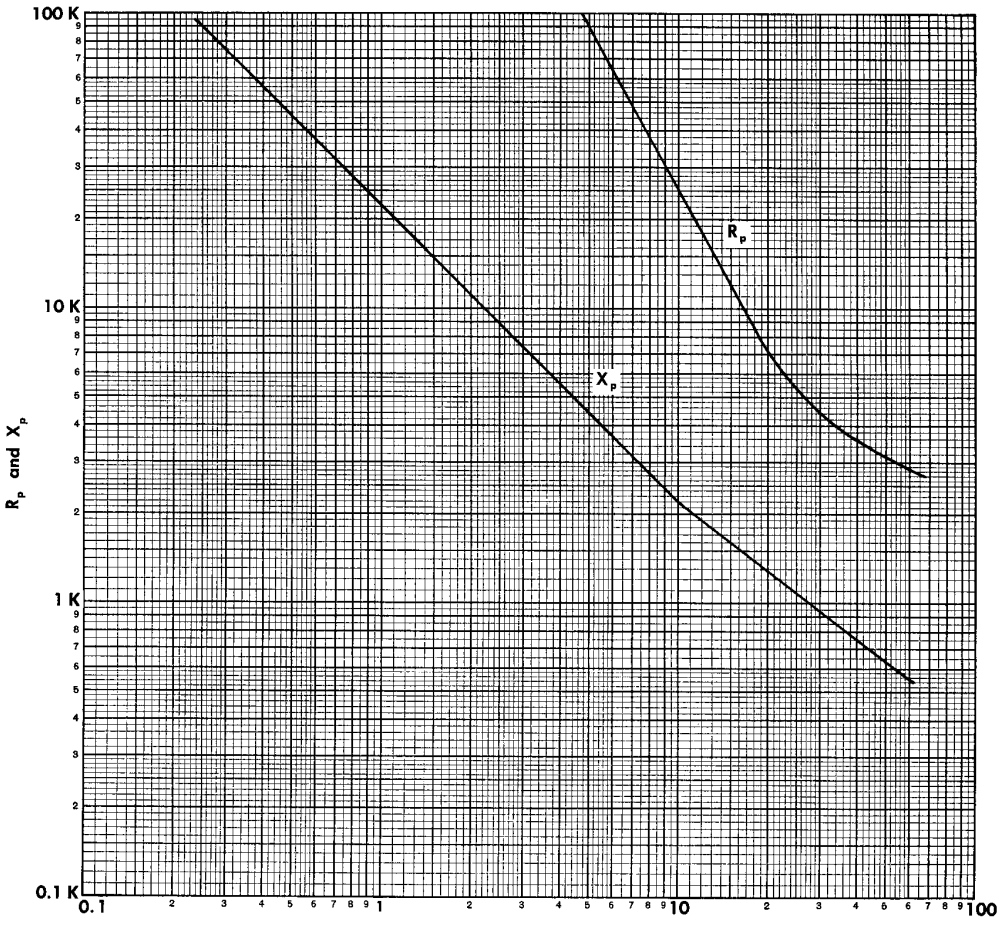


Fig. 6. P6006 input R_p and X_p vs frequency curves (3.5-ft cable).

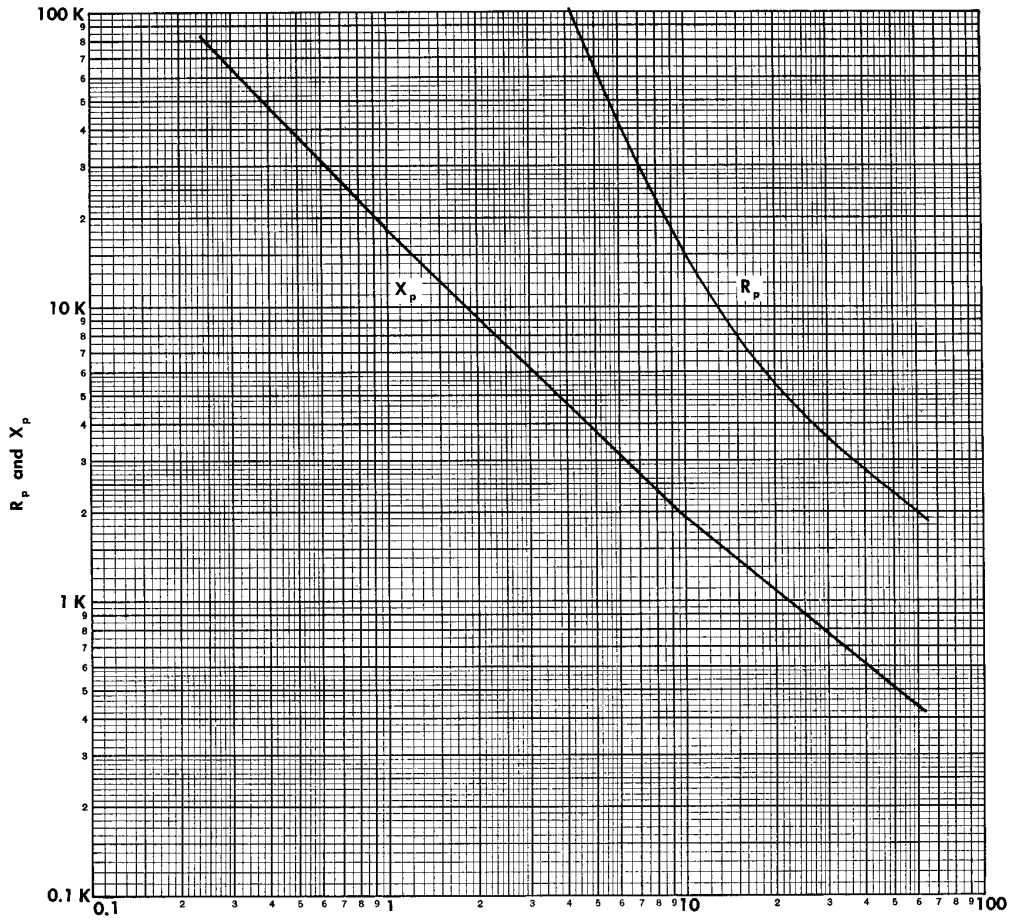


Fig. 7. P6006 input R_p and X_p vs frequency curves (6-ft cable).

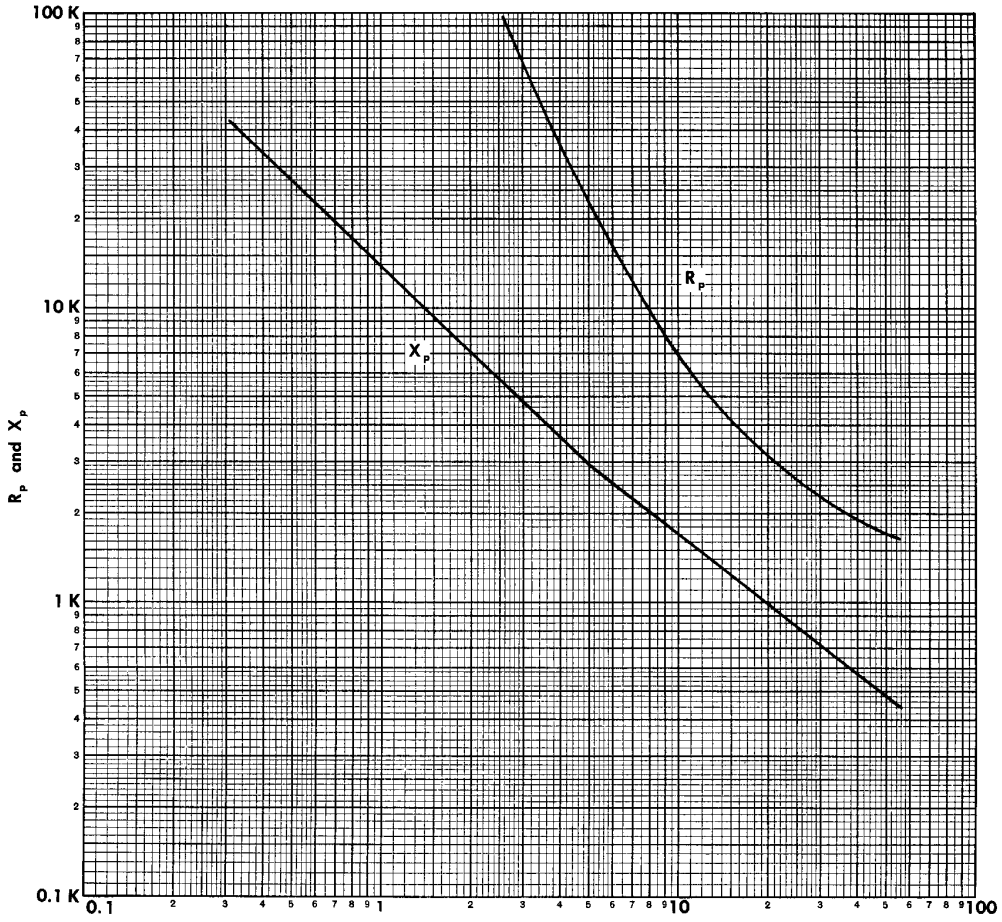


Fig. 8. P6006 input R_p and X_p vs frequency curves (9-ft cable).

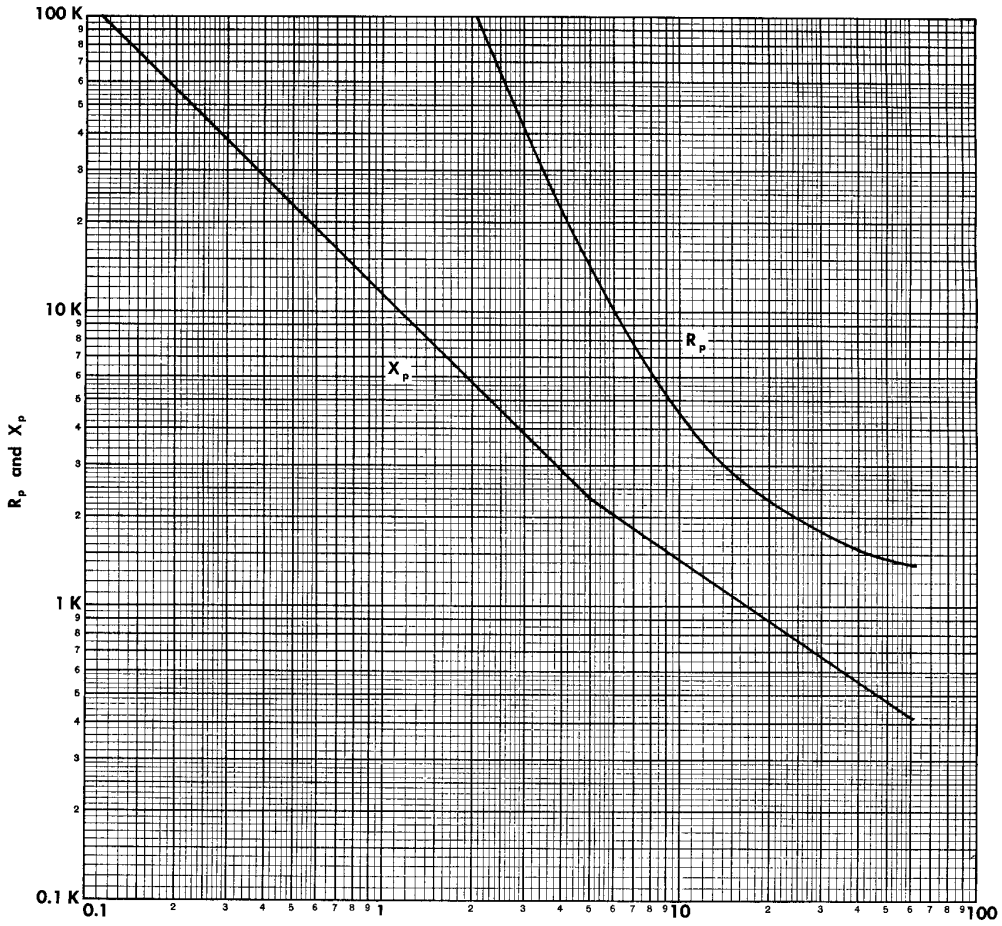
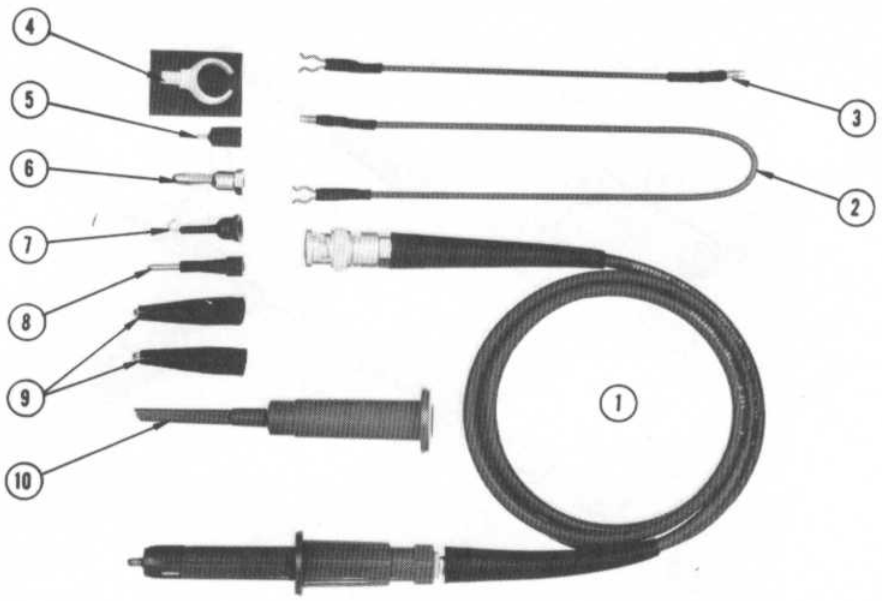


Fig. 9. P6006 input R_p and X_p vs frequency curves (12-ft cable).

PROBE WITH ACCESSORIES



REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
PROBE PACKAGE					
1—10	010-0125-00				PROBE PACKAGE, P6006 (3.5 ft UHF)
	010-0127-00				PROBE PACKAGE, P6006 (3.5 ft BNC)
	010-0158-00				PROBE PACKAGE, P6006 (6 ft UHF)
	010-0160-00				PROBE PACKAGE, P6006 (6 ft BNC)
	010-0142-00				PROBE PACKAGE, P6006 (9 ft UHF)
	010-0146-00				PROBE PACKAGE, P6006 (9 ft BNC)
	010-0144-00				PROBE PACKAGE, P6006 (12 ft UHF)
	010-0148-00				PROBE PACKAGE, P6006 (12 ft BNC)
	- - - - - -				probe package includes:
PROBE ONLY					
1	010-0126-00				PROBE, P6006 (3.5 ft UHF)
	010-0128-00				PROBE, P6006 (3.5 ft BNC)
	010-0159-00				PROBE, P6006 (6 ft UHF
	010-0161-00				PROBE, P6006 (6 ft BNC)
	010-0143-00				PROBE, P6006 (9 ft UHF)
	010-0147-00				PROBE, P6006 (9 ft BNC)
	010-0145-00				PROBE, P6006 (12 ft UHF)
	010-0149-00				PROBE, P6006 (12 ft BNC)
STANDARD ACCESSORIES					
2	175-0125-00			1	CABLE, ground lead, 12 inches
3	175-0124-00			1	CABLE, ground lead, 5 inches
4	352-0068-00			1	HOLDER, probe
5	206-0015-00			1	TIP, straight, BNC
6	134-0013-00			1	PLUG, banana
7	206-0105-00			1	TIP, probe, hook
8	206-0060-00			1	TIP, probe, spring
9	344-0046-00			2	CLIP, probe
10	013-0071-00			1	PINCHER TIP
	070-0381-00			1	MANUAL, instruction (not shown)

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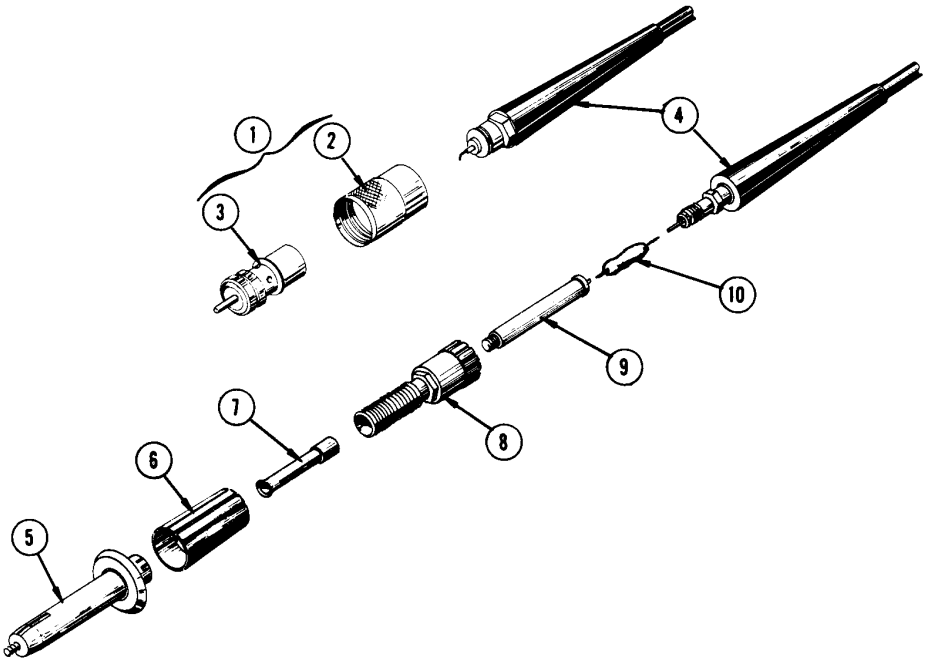
REPLACEABLE PARTS



NO. REF.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
	010-0126-00			1	PROBE, P6006 (3.5 ft, UHF)
	- - - - - -			-	probe includes:
1	131-0058-00			1	CONNECTOR, coaxial
	- - - - - -			-	connector includes:
2	200-0026-00			1	COVER, connector
3	131-0196-00			1	CONNECTOR, male
4	175-0261-00			1	CABLE ASSEMBLY
5	204-0143-00			1	BODY ASSEMBLY
	- - - - - -			-	body includes:
	- - - - - -			1	RESISTOR (R1)
6	166-0285-00			1	SLEEVE, locking
7	166-0282-00			1	SLEEVE
8	358-0194-00			1	BUSHING, base
9	358-0192-00			1	BUSHING, inner base
10	301-0361-00			1	RESISTOR, 360 Ω, ½ W, 5% (R2)

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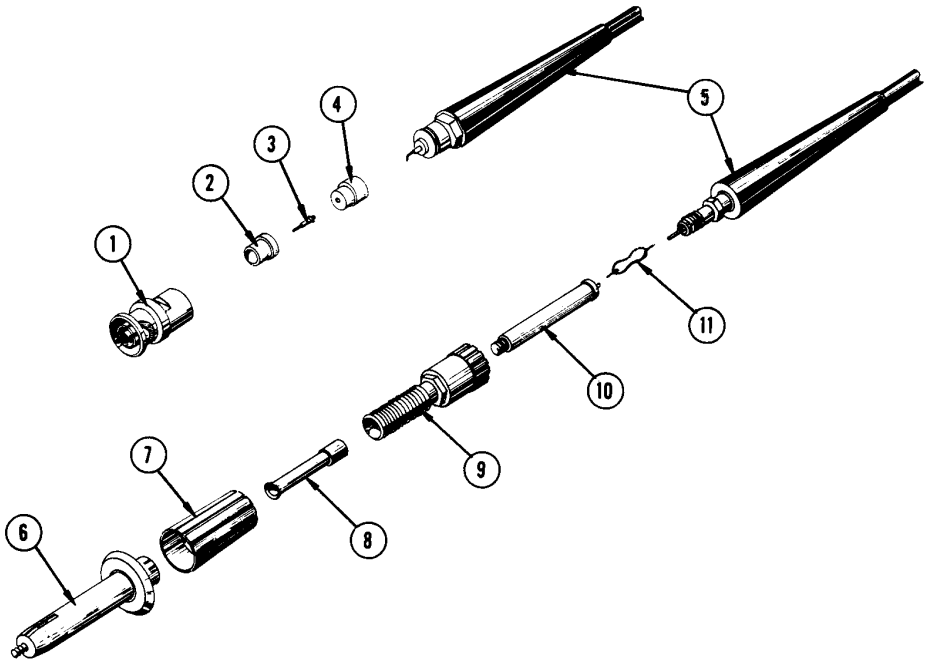
REPLACEABLE PARTS



REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
	010-0128-00			1	PROBE, P6006, (3.5 ft,, BNC)
	- - - - - -			-	probe includes:
1	134-0044-00			1	PLUG, probe
2	358-0072-00			1	BUSHING, insulator
3	214-0109-00			1	PIN, probe contact
4	361-0022-00			1	SPACER, with center hole
5	175-0272-00			1	CABLE ASSEMBLY
6	204-0142-00			1	BODY ASSEMBLY
	- - - - - -			-	body includes:
	- - - - - -			1	RESISTOR (R1)
7	166-0285-00			1	SLEEVE, locking
8	166-0282-00			1	SLEEVE
9	358-0194-00			1	BUSHING, base
10	358-0192-00			1	BUSHING, inner base
11	301-0361-00			1	RESISTOR, 360 Ω, ½ W, 5% (R2)

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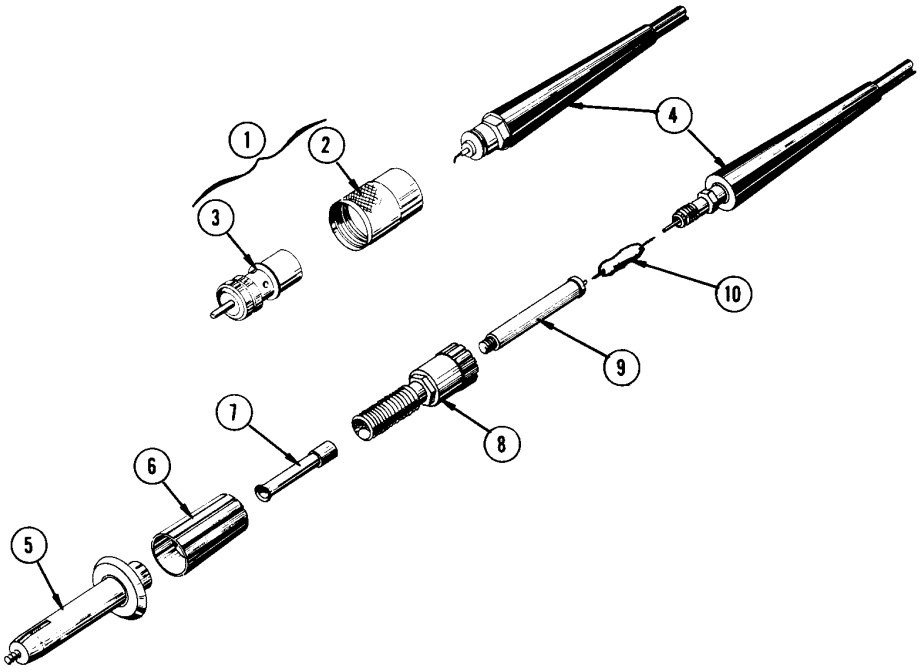
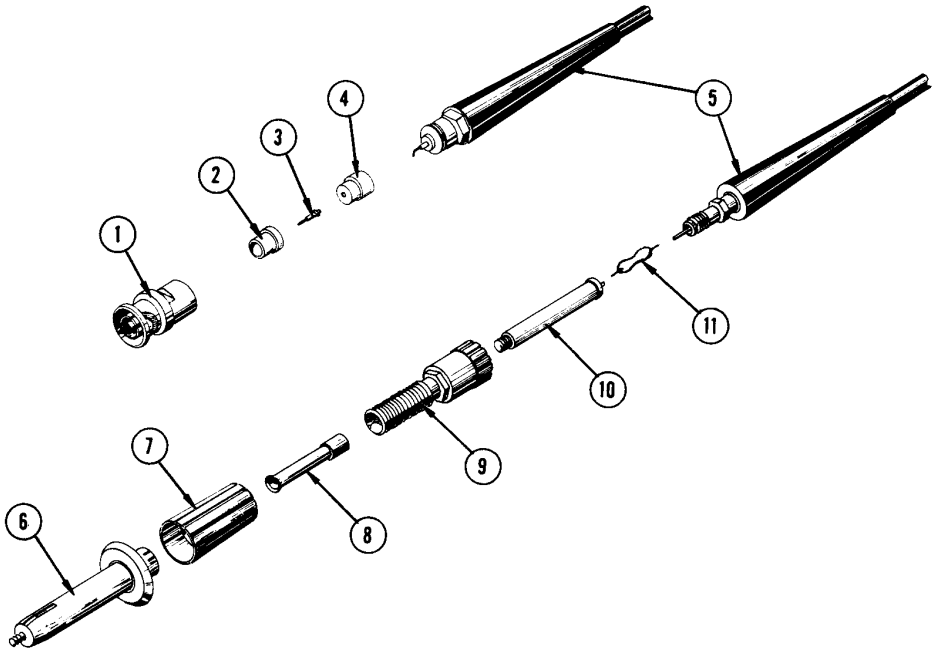
REPLACEABLE PARTS



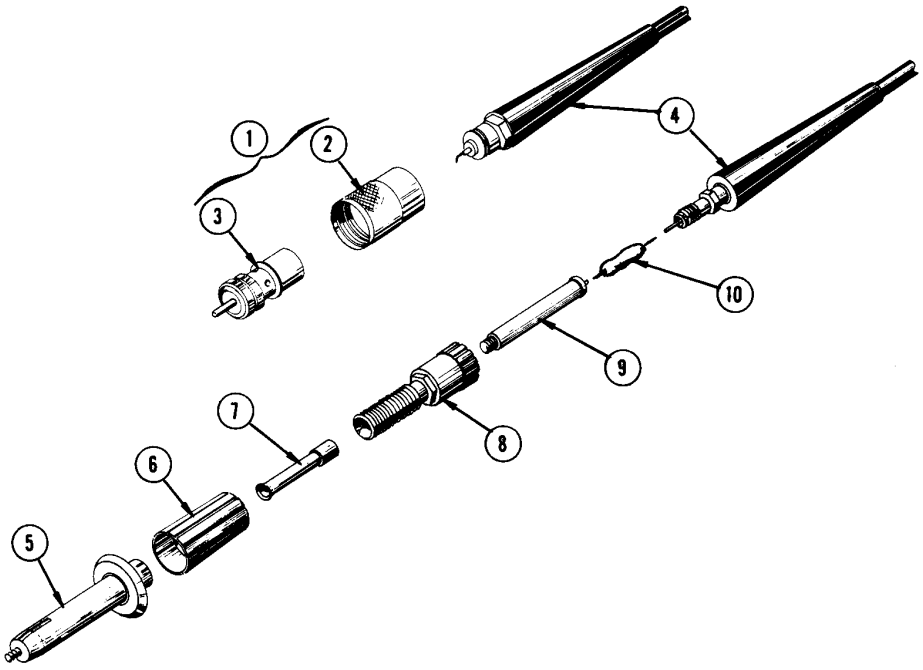
REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY.	DESCRIPTION 1 2 3 4 5
	010-0159-00			1	PROBE, P6006 (6 ft, UHF)
	- - - - - -			-	probe includes:
1	131-0058-00			1	CONNECTOR, coaxial
	- - - - - -			-	connector includes:
2	200-0026-00			1	COVER, connector
3	131-0196-00			1	CONNECTOR, male
4	175-0278-00			1	CABLE ASSEMBLY
5	204-0182-00			1	BODY ASSEMBLY
	- - - - - -			-	body includes:
	- - - - - -			1	RESISTOR (R1)
6	166-0285-00			1	SLEEVE, locking
7	166-0282-00			1	SLEEVE
8	358-0194-00			1	BUSHING, base
9	358-0192-00			1	BUSHING, inner base
10	302-0181-00			1	RESISTOR, 180 Ω, ½ W, 10% (R2)

REPLACEABLE PARTS



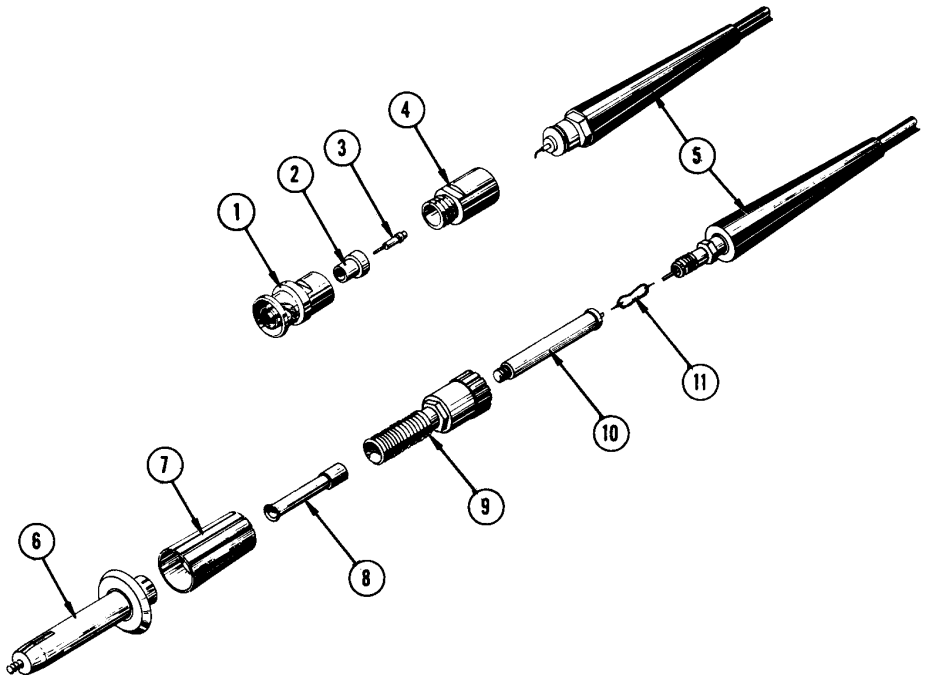
REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
	010-0161-00			1	PROBE, P6006, (6 ft, BNC)
	- - - - - -			-	probe includes:
1	134-0044-00			1	PLUG, probe
2	358-0072-00			1	BUSHING, insulator
3	214-0109-00			1	PIN, probe contact
4	361-0022-00			1	SPACER, with center hole
5	175-0279-00			1	CABLE ASSEMBLY
6	204-0185-00			1	BODY ASSEMBLY
	- - - - - -			-	body includes:
	- - - - - -			1	RESISTOR (R1)
7	166-0285-00			1	SLEEVE, locking
8	166-0282-00			1	SLEEVE
9	358-0194-00			1	BUSHING, base
10	358-0192-00			1	BUSHING, inner base
11	302-0181-00			1	RESISTOR, 180 Ω, ½ W, 10% (R2)

REPLACEABLE PARTS



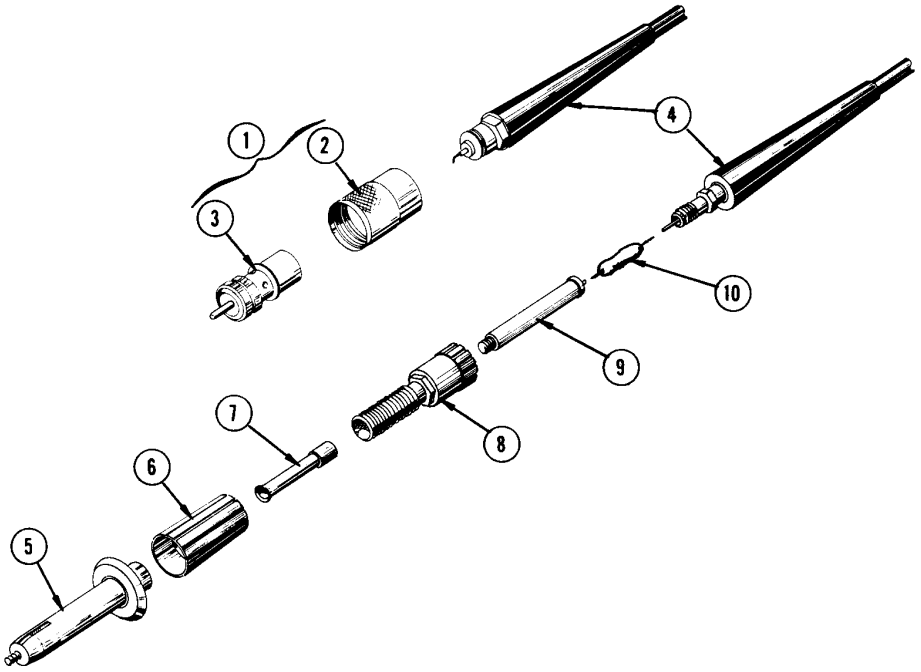
REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
	010-0143-00			1	PROBE, P6006, (9 ft, UHF)
	- - - - - -			-	probe includes:
1	131-0058-00			1	CONNECTOR, coaxial
	- - - - - -			-	connector includes:
2	200-0026-00			1	COVER, connector
3	131-0196-00			1	CONNECTOR, male
	108-0262-00			1	COIL, 0.6 μH (L1, not shown)
4	175-0266-00			1	CABLE ASSEMBLY
5	204-0183-00			1	BODY, ASSEMBLY
	- - - - - -			-	body includes:
	- - - - - -			1	RESISTOR (R1)
6	166-0285-00			1	SLEEVE, locking
7	166-0282-00			1	SLEEVE
8	358-0194-00			1	BUSHING, base
9	358-0192-00			1	BUSHING, inner base
10	301-0431-00			1	RESISTOR, 430 Ω, ½ W, 5% (R2)

REPLACEABLE PARTS



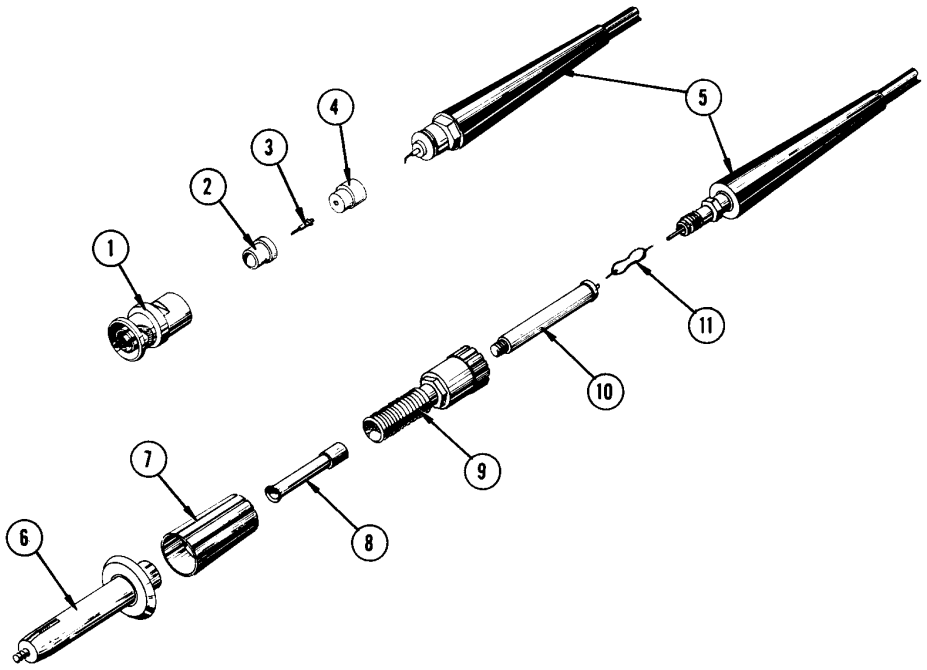
REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
	010-0147-00			1	PROBE, P6006, (9 ft, BNC)
	- - - - - -			-	probe includes:
1	134-0044-00			1	PLUG, probe
2	358-0072-00			1	BUSHING, insulator
3	214-0109-00			1	PIN, probe contact
4	131-0270-00			1	CONNECTOR, adapter
	166-0326-00			1	SLEEVE, adapter (not shown)
	108-0262-00			1	COIL, 0.6 μH (L1, not shown)
5	175-0280-00			1	CABLE ASSEMBLY
6	204-0186-00			1	BODY ASSEMBLY
	- - - - - -			-	body includes:
	- - - - - -			1	RESISTOR (R1)
7	166-0285-00			1	SLEEVE, locking
8	166-0282-00			1	SLEEVE
9	358-0194-00			1	BUSHING, base
10	358-0192-00			1	BUSHING, inner base
11	301-0431-00			1	RESISTOR, 430 Ω, ½ W, 5% (R2)

REPLACEABLE PARTS



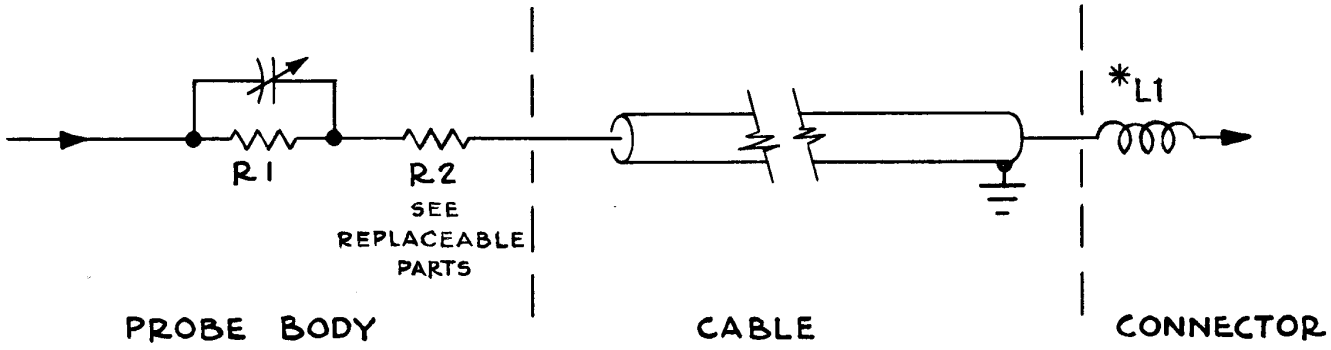
REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
	010-0145-00				PROBE, P6006, (12 ft, UHF)
	- - - - - -			-	probe includes:
1	131-0058-00			1	CONNECTOR, coaxial
	- - - - - -			-	connector includes:
2	200-0026-00			1	COVER, connector
3	131-0196-00			1	CONNECTOR, male
4	175-0267-00			1	CABLE ASSEMBLY
5	204-0184-00			1	BODY ASSEMBLY, (w/resistor)
6	166-0285-00			1	SLEEVE, locking
7	166-0340-00			1	SLEEVE
8	358-0194-00			1	BUSHING, base
9	358-0192-00			1	BUSHING, inner base
10	301-0361-00			1	RESISTOR, 360 Ω, ½ W, 5% (R2)

REPLACEABLE PARTS



REF. NO.	TEKTRONIX PART NO.	SERIAL/MODEL NO. EFF.	SERIAL/MODEL NO. DISC.	QTY. 1 2 3 4 5	DESCRIPTION
	010-0149-00			1	PROBE, P6006 (12 ft, BNC)
	- - - - - -			-	probe includes:
1	134-0044-00			1	PLUG, probe
2	358-0072-00			1	BUSHING, insulator
3	214-0109-00			1	PIN, probe contact
4	361-0022-00			1	SPACER, with center hole
5	175-0281-00			1	CABLE ASSEMBLY
6	204-0187-00			1	BODY ASSEMBLY (w/resistor)
7	166-0285-00			1	SLEEVE, locking
8	166-0340-00			1	SLEEVE
9	358-0194-00			1	BUSHING, base
10	358-0192-00			1	BUSHING, inner base
11	301-0361-00			1	RESISTOR, 360 Ω, ½ W, 5% (R2)

P6006



P6006 PROBE

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*9' CABLE ONLY