
TEK INSTRUCTION
MANUAL

PART NO. 070-4431-00
PRODUCT GROUP 60

P6122

10X PASSIVE PROBE

Please check for change information at the rear of this manual.

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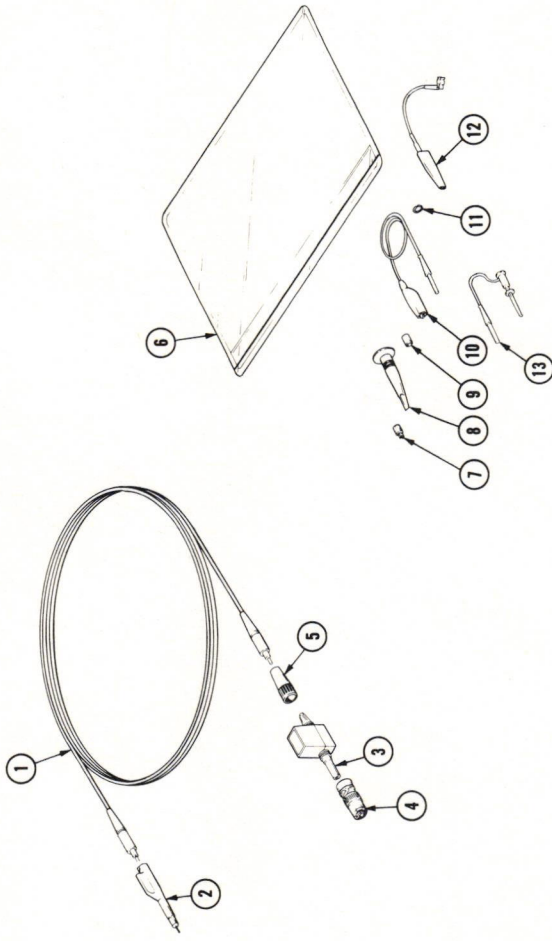


Figure 6-1. Exploded View

CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip
80009	TEKTRONIX, INC.	P O BOX 500	BEAVERTON, OR 97077
95712	BENDIX CORP., THE ELECTRICAL COMPONENTS DIV., MICROWAVE DEVICES PLANT	HURRICANE ROAD	FRANKLIN, IN 46131

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff Dscont	Qty	1	2	3	4	5	Name & Description	Mfr	
										Code	Mfr Part Number
1-	010-6122-01		1						PROBE, VOLTAGE: P6122, 1.5 METER, 10X W/ACCESS	80009	010-6122-01
	010-6122-00		1						. PROBE, VOLTAGE: P6122, 1.5 METER, 10X	80009	010-6122-00
-1	175-3217-00		1						. . CABLE ASSY, RF: 70 OHM PER FOOT COAX, 62.124 L	80009	175-3217-00
-2	206-0214-00		1						. . HEAD, PROBE: 1.214 L	80009	206-0214-00
-3	206-0289-00		1						. . COMP BOX: 1.5 METER	80009	206-0289-00
-4	134-0044-00		1						. . . SHELL, ELEC CONN: FEMALE BNC PLUG	95712	33600-1
-5	200-2547-02		1						. . . COVER, CABLE NIP: ACETAL, CHARCOAL GRAY	800009	200-2547-02
STANDARD ACCESSORIES											
	070-4431-00		1						MANUAL, TECH: INSTR, 010-6122-01	80009	070-4431-00
-6	016-0708-00		1						POUCH, ACCESSORY:	80009	016-0708-00
-7	-----		1						TIP, TEST PROD: 1C TEST		
-8	013-0107-04		1						TIP, PROBE: RETRACTABLE HOOK ASSY	80009	013-0107-04
-9	166-0404-01		1						TUBE, INSULATOR:	80009	166-0404-01
-10	195-1870-00		1						LEAD, ELECTRICAL: 26 AWG, 8.812 L	80009	195-1870-00
-11	334-2794-02		1						BAND, MARKER: 0.371 DIA, SILVER GRAY, PLASTIC	80009	334-2794-02
-12	195-6176-00		1						LEAD, ELECTRICAL: 23 AWG, 3.5 L, BLACK	80009	195-6176-00
OPTIONAL ACCESSORIES											
-13	195-4104-01		1						LEAD, ELECTRICAL: 23 AWG, 6.3 L	80009	195-4104-01
	013-0191-00		1						TIP, PROBE: W/ACTUATOR	80009	013-0191-00
	015-0201-04		1						TIP, PROBE: 1C, PKG OF 10	80009	015-0201-04
	015-0201-05		1						TIP, PROBE: 1C, PKG OF 100	80009	015-0201-05

Replaceable Parts—P6122

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REPLACEABLE PARTS

PARTS ORDERING INFORMATION

Replacement parts are available from or through your local Tektronix, Inc. Field Office or representative.

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available, and to give you the benefit of the latest circuit improvements developed in our engineering department. It is therefore important, when ordering parts, to include the following information in your order: Part number, instrument type or number, serial number, and modification number if applicable.

If a part you have ordered has been replaced with a new or improved part, your local Tektronix, Inc. Field Office or representative will contact you concerning any change in part number.

FIGURE AND INDEX NUMBERS

Items in this section are referenced by figure and index numbers to the illustrations.

ITEM NAME

In the Parts List, an Item Name is separated from the description by a colon (:). Because of space limitations, an Item Name may sometimes appear as incomplete. For further Item Name identification, the U.S. Federal Cataloging Handbook H6-1 can be utilized where possible.

INDENTATION SYSTEM

This mechanical parts list is indented to indicate item relationships. Following is an example of the indentation system used in the description column.

1	2	3	4	5	Name & Description
					<i>Assembly and/or Component</i>
					<i>Attaching parts for Assembly and/or Component</i>
				---	*
					<i>Detail Part of Assembly and/or Component</i>
					<i>Attaching parts for Detail Part</i>
				---	*
					<i>Parts of Detail Part</i>
					<i>Attaching parts for Parts of Detail Part</i>
				---	*

Attaching Parts always appear in the same indentation as the item it mounts, while the detail parts are indented to the right. Indented items are part of, and included with, the next higher indentation. The separation symbol --- * --- indicates the end of attaching parts.

Attaching parts must be purchased separately, unless otherwise specified.

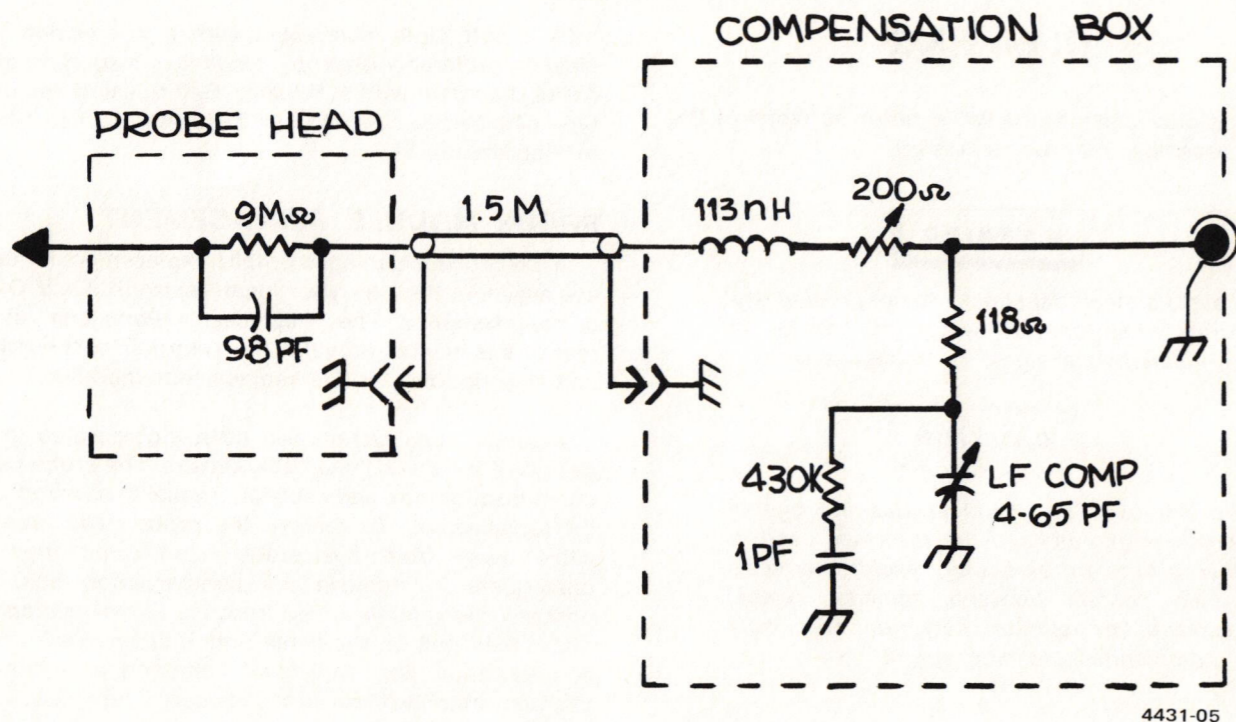


Figure 5-1. Schematic diagram for the P6122.

SAFETY SUMMARY

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

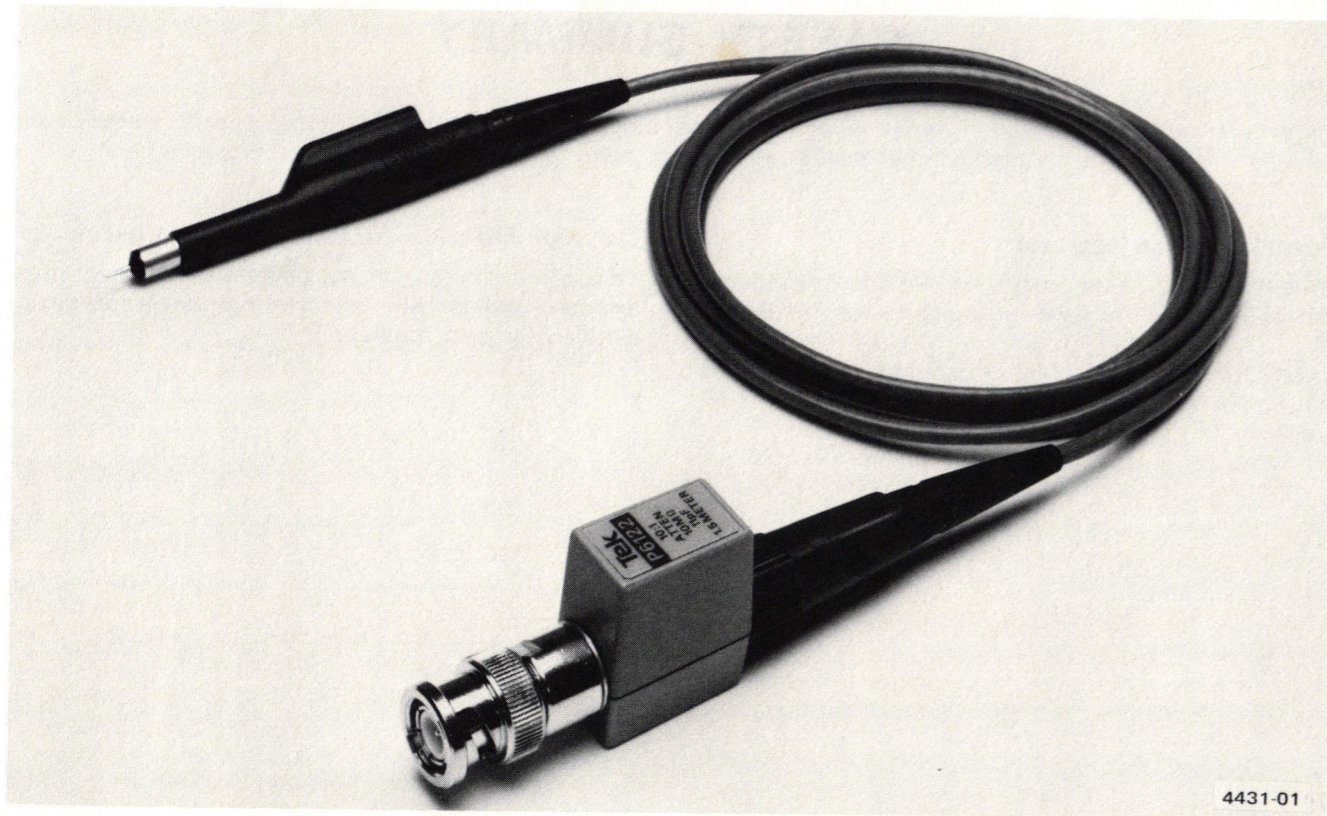
Terms in This Manual

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

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

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.



4431-01

The P6122 Probe.

MAINTENANCE

CLEANING

Occasional cleaning of the exterior surfaces of the probe assembly may be necessary.

WARNING

To avoid electrical shock, do not provide any probe maintenance while the probe is connected to a signal or voltage source.

CAUTION

Do not use any chemical cleaning agents which might damage the materials used in this probe. In particular, avoid chemicals which contain benzene, toluene, xylene, acetone, or similar solvents. Use only recommended cleaning agents.

Dirt that accumulates on the probe can be removed

with a soft cloth dampened with a nonresidue type cleaner, preferably isopropyl alcohol or a solution of 5% Kelite detergent with 95% water. Before using any other type of cleaner, consult your Tektronix Service Center or Representative.

PROBE MODULE REPLACEMENT

If the probe is damaged or fails, replacement modules are available through your local Tektronix Field Office or representative. The "Replaceable Parts List" at the rear of this manual provides the Tektronix part numbers and descriptions for the replacement modules.

Modular construction has been incorporated in the design of the P6122 to simplify repairs. The probe head, compensation box and cable are available as wired units for replacement. To remove the probe head, pull the cable away from the probe head until they are unplugged. To remove the compensation box, first unscrew the retainer cover from the compensation box body, then pull on the cable until it separates from the compensation box. Individual components within the compensation box are not considered replaceable. To install new modules, reverse the above procedures.

c. Set the calibration generator to produce a fast-rise output with a period (repetition rate) of 10 us (100 kHz) and adjust the amplitude control to produce a 5-division display on the test oscilloscope.

d. Set oscilloscope triggering controls for a stable display and center the display on the screen.

e. Note the pulse shape and system aberrations for comparison in part j.

f. Disconnect the signal from the oscilloscope input connector.

g. Remove the probe compensation box cover. First, unscrew the compensation box retainer about two complete turns. Lift the end of the cover (nearest the cable) straight up, then pull it back, freeing the cover. Assure that the cable connection is pressed in firmly and re-tighten the retainer.

h. Connect the probe output connector to the test oscilloscope vertical input connector.

i. Connect the probe tip, via a probe-tip-to-GR termination adapter, a GR-to-BNC female adapter, and a 50- coaxial cable, to the positive-going fast-rise output of the calibration generator.

j. CHECK—High-frequency aberrations do not exceed +3% (5.15 divisions), -3% (4.85 divisions), or 5% (0.25 divisions) p-p (in addition to system aberrations noted in part e).

If probe aberrations are within tolerance, proceed to part m. If they are not, proceed with part k.

k. ADJUST—R1011 for best overall flat response.

NOTE

The high-frequency compensation adjustments affect probe bandwidth. After making these adjustments, check probe bandwidth using the procedure given in Section 3. A small overshoot on the leading edge of the pulse may be necessary to enable meeting the bandwidth specification. However, overshoot should not exceed the typical aberrations described in part j.

l. Reinstall the compensation box cover by reversing the steps in part g.

m. Disconnect the test setup.

SPECIFICATIONS

DESCRIPTION

The TEKTRONIX P6122 is a miniature, 10X passive probe for use with dc to 100 MHz oscilloscopes with an input capacitance range of 15 to 35 pF and an input resistance of 1 M Ω .

The compensation box houses a network that provides optimum transient response. The probe can be low-frequency compensated by adjusting the variable capacitor through the opening in the compensation box housing.

The probe is only available with a 1.5-meter cable.

ACCESSORIES

The P6122 is shipped with the following standard accessories:

- 1 Instruction manual
- 1 Carrying pouch
- 1 Retractable hook tip
- 2 Ground leads with alligator clips
- 1 Set of cable markers (2, silver-gray)
- 1 Ground-Cover Sleeve
- 1 IC test tip

Use of these accessories is described in the "Operating Considerations" section of this manual. Part numbers are listed in the "Replaceable Parts List" near the back of this manual.

PERFORMANCE CONDITIONS

The electrical characteristics listed in Table 1-1 apply when a calibrated probe is used with a calibrated oscilloscope system operating within the environmental conditions stated in Table 1-2.

Items listed in the "Performance Requirement" column are verifiable qualitative or quantitative limits.

Items listed in the "Supplemental Information" column are not verified in the "Performance Check Procedure" (Section 3); they are either explanatory notes, calibration setup descriptions, performance characteristics for which no absolute limits are specified, or characteristics that are impractical to check.

Physical characteristics are listed in Table 1-3.

Table 1-1
Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Attenuation (system)	10X $\pm 3\%$ at dc.	Oscilloscope input resistance must be 1 M Ω $\pm 2\%$ at dc.
Input resistance (probe)	9 M Ω $\pm 0.3\%$ at dc.	Compensation box shorted, measured from probe tip to ground sleeve. Derate ± 100 ppm per degree C deviation from 25° C.
Input resistance (system)	10 M Ω $\pm 2\%$.	Oscilloscope input resistance must be 1 M Ω $\pm 2\%$ at dc.

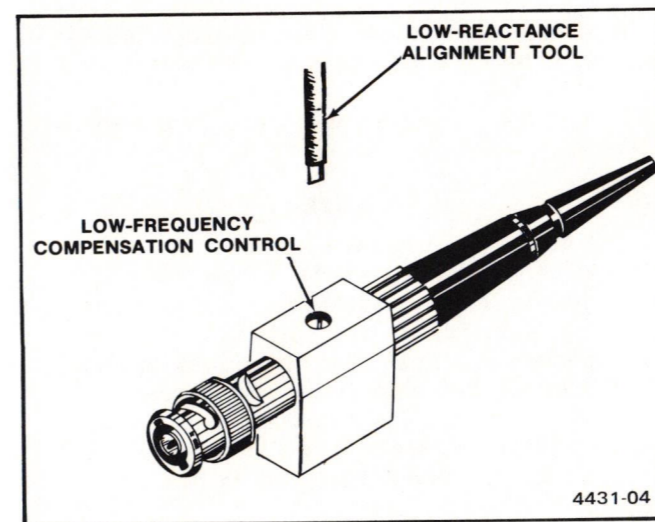


Figure 4-1. Low frequency adjustment.

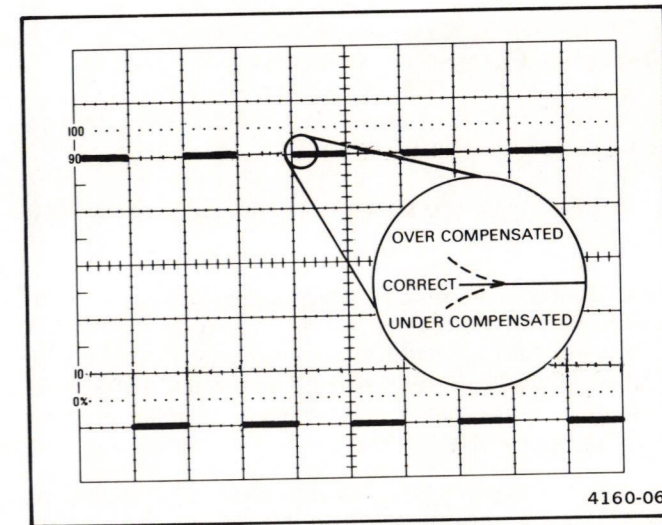


Figure 4-2. Low frequency compensation.