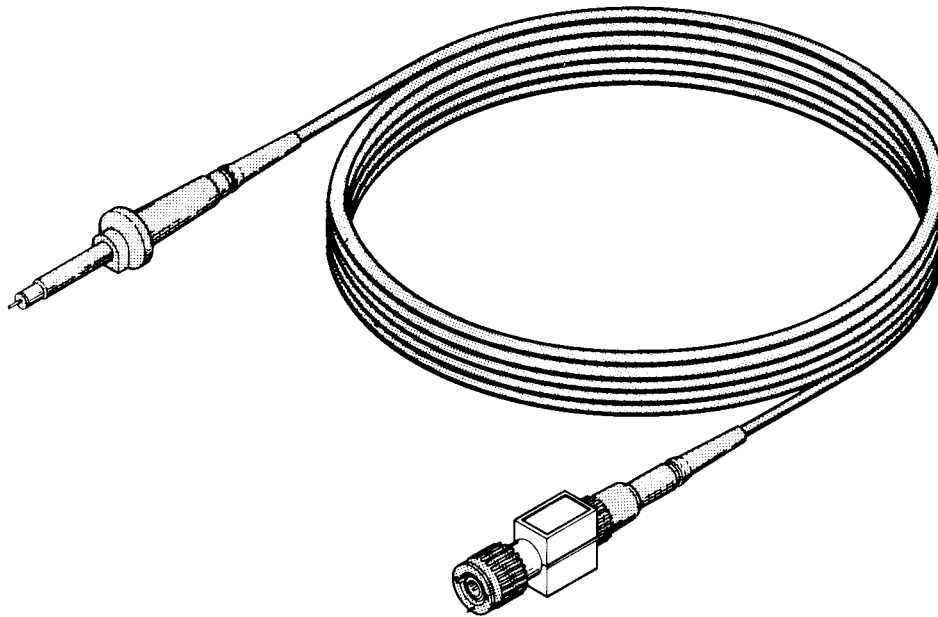


P6105 PASSIVE PROBE



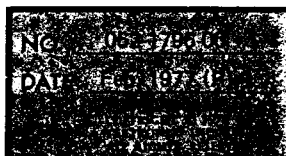
The P6105 Probe is a miniature, 10X, passive probe for use with dc to 100 MHz oscilloscopes with an input capacitance range of 15-47 pF and an input resistance of 1 M Ω .

A ground reference push button on the probe head permits the user to obtain a ground reference or to determine a trace in a multitrace display. A coding pin on the BNC output connector actuates the Volts/Div readout encoding of the oscilloscope to include the 10X attenuation of the probe.

WARNING

To avoid shock, do not disassemble when connected to voltage source. Disassembly is a service operation only. Refer servicing to qualified service personnel.

The compensating box houses a network that provides optimum transient response when used with 100 MHz oscilloscopes. Modular construction of the probe simplifies repairs, as both probe head and compensating box can be unplugged from the cable assembly. The P6105 Probe is available in three lengths and is identified by the colored strain relief at each end of the cable: blue = 1 meter (3.3 ft), yellow = 2 meter (6.6 ft), red = 3 meter (9.9 ft).



WARRANTY

All TEKTRONIX instruments are warranted against defective materials and workmanship for one year. Any questions with respect to the warranty should be taken up with your TEKTRONIX Field Engineer or representative.

All requests for repairs and replacement parts should be directed to the TEKTRONIX Field Office or representative in your area. This will assure you the fastest possible service. Please include the instrument Type Number or Part Number and Serial Number with all requests for parts or service.

Specifications and price change privileges reserved.

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U.S.A. and foreign Tektronix products covered by U.S. and foreign patents and/or patents pending.

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SPECIFICATIONS

Electrical:

Attenuation: 10X within 3% (oscilloscope input, 1 MΩ within 2%).

Input Resistance: 10 MΩ within 0.5% (oscilloscope input, 1 MΩ within 2%).

Approximate Input Capacitance:

| | | |
|--------------------------|----------------------------|-------------------------|
| 1 Meter (3.3 ft) Blue | 2 Meter (6.6 ft) Yellow | 3 Meter (9.9 ft) Red |
| ≈ 10.5 pF | ≈ 13.0 pF | ≈ 15.5 pF |

See Fig. 1 and 2. Typical parallel reactance (X_p) and resistance (R_p) vs. frequency.

Compensation Range: 15 pF to 47 pF.

Bandwidth (-3 dB): At least 100 MHz for the 1 and 2 meter, and at least 95 MHz for the 3 meter.

Maximum Input Voltage: 500 Volts (dc + peak ac), derated with frequency.

See Fig 3, Voltage vs Frequency Derating.

Environmental:

Probe operates within specifications over the following ranges:

Temperature: -15 C (+5 F) to +75 C (+167 F).

Altitude: To 15,000 feet.

Physical:

Net Weight (including accessories):

1 Meter (3.3 ft) Probe: 105.8 grams (3.7 oz.)

2 Meter (6.6 ft) Probe: 130.4 grams (4.6 oz.)

3 Meter (9.9 ft) Probe: 153.0 grams (5.4 oz.)

OPERATING CONSIDERATIONS

Probe Grounding

A passive probe is a capacitive divider for high-frequency components. Inductance introduced by a long signal or ground lead will form a series resonant circuit that will "ring" if driven by a signal containing significant frequency components at or above circuit resonance. These oscillations can appear on the oscilloscope display and distort the true waveform. Ground leads and probe tip connections should be kept as short as possible to maintain the best fidelity.

WARNING

To avoid shock, do not disassemble the probe when connected to a signal or voltage source.

PROBE COMPENSATION

Due to slight variations in the input capacitance, it is usually necessary to compensate the probe whenever it is transferred from one instrument to another, or from one channel to another for dual (multitrace) units.

Procedure

1. Touch probe tip to oscilloscope calibrator output connector and display several cycles of calibrator square wave at approximately 4 divisions in amplitude.
2. Adjust probe compensation through hole in compensation box for best flat top on display.

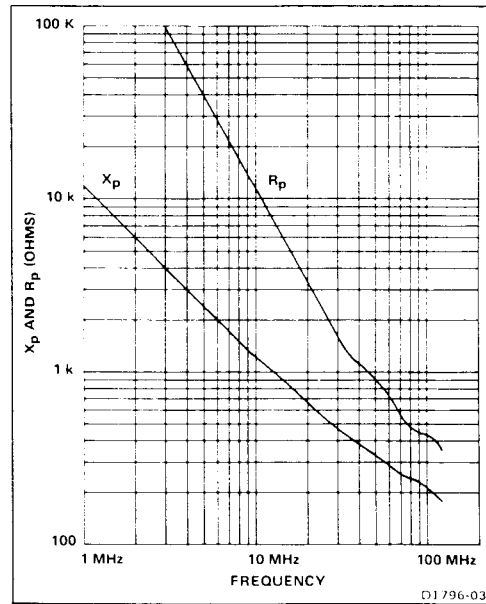
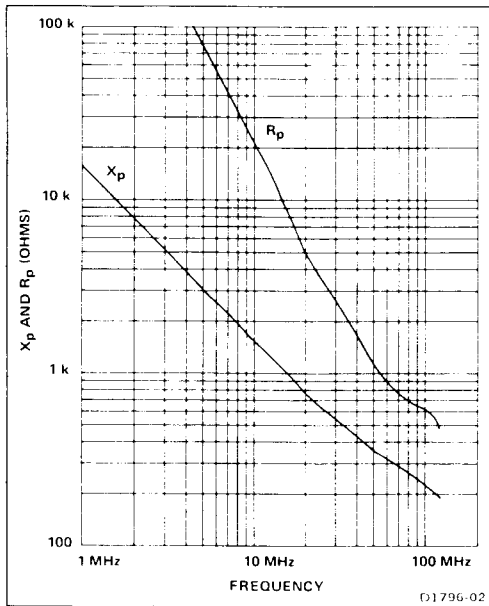


Fig. 1. Typical parallel reactance (X_p) and resistance (R_p) vs. frequency for 1 meter (3.3 ft) probe.

Fig. 2. Typical parallel reactance (X_p) and resistance (R_p) vs. frequency for 2 meter (6.6 ft) and 3 meter (9.9 ft) probes.

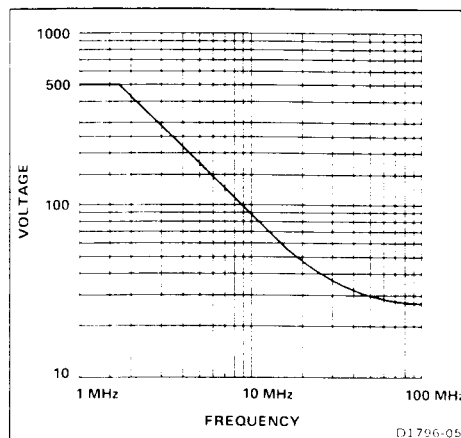


Fig. 3. Voltage vs. frequency derating.

MAINTENANCE

WARNING

To avoid shock, do not disassemble probe when connected to voltage source. Only qualified service personnel should use the following service instructions. Unless you are qualified to do so, perform no servicing except that contained in the preceding operating instructions.

The P6105 Probe is designed to withstand normal operation and handling. However, if the probe fails or breaks, replacement parts are available. See Replaceable Parts List for part numbers.

Replacing a Probe Assembly:

If the coaxial cable, probe head, or compensation box should fail, the assemblies are available. When replacing probe assemblies, make sure to use the proper probe head and/or compensation box for the length of cable being used (check that colors on the probe head ground collar, and compensation box retainer nut match with the cable strain reliefs).

Removing Probe Tip:

See Fig 4 for probe tip removal and replacement.

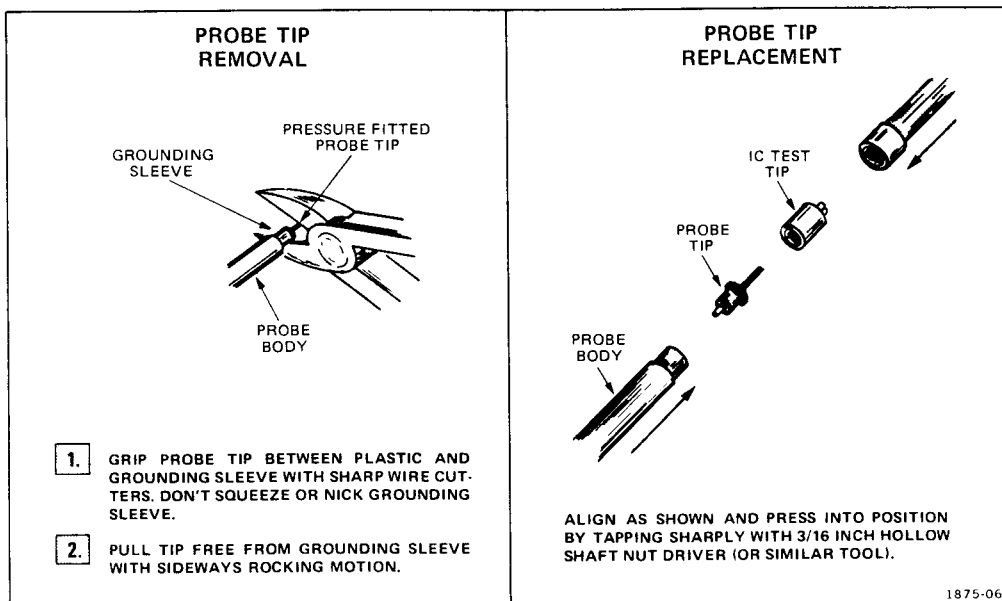
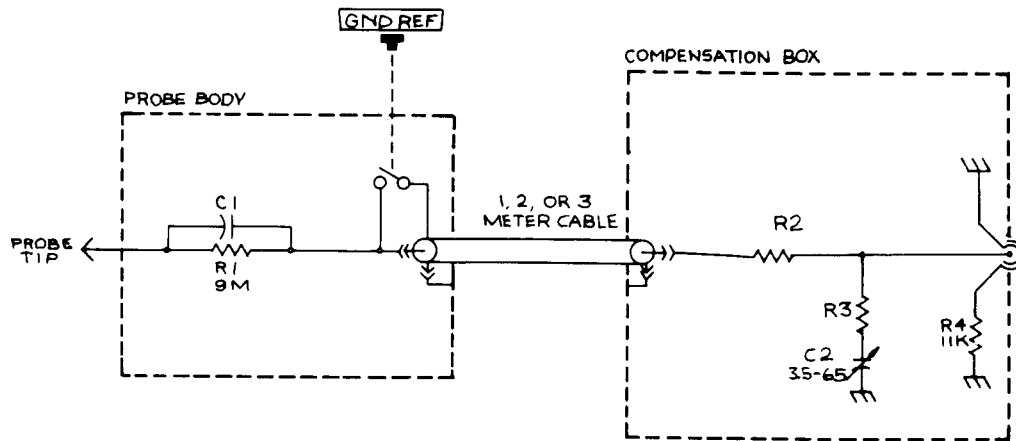


Fig. 4. Probe tip removal and replacement.



REPLACEABLE ELECTRICAL PARTS

| Ckt No. | Tektronix Part No. | Serial/Model No. Eff | Dscont | Name & Description | Mfr Code | Mfr Part Number |
|-----------------|--------------------|----------------------|--------|------------------------------------|----------|-----------------|
| C1 ¹ | ----- | ----- | | CAP., FXD, CER DI: | | |
| C2 ² | ----- | ----- | | CAP., VAR, PLSTC:3.5-65PF,100V | | |
| R1 ¹ | ----- | ----- | | RES., FXD, FILM: | | |
| R2 ³ | ----- | ----- | | RES., FXD, FILM:162 OHM,1%,0.125W | 91637 | MFF1421G162ROF |
| R2 ⁴ | ----- | ----- | | RES., FXD, FILM:133 OHM,1%,0.125W | 75042 | CEATO-1330F |
| R2 ⁵ | ----- | ----- | | RES., FXD, FILM:75 OHM,1%,0.25W | 75042 | CEATO-75ROOF |
| R3 ³ | ----- | ----- | | RES., FXD, FILM:75 OHM,1%,0.125W | 75042 | CEBTO-75ROOF |
| R3 ⁴ | ----- | ----- | | RES., FXD, FILM:130 OHM,1%,0.125W | 75042 | CEBTO-130OF |
| R3 ⁵ | ----- | ----- | | RES., FXD, FILM:187 OHM,1%,0.125W | 75042 | CEATO-1870F |
| R4 ² | ----- | ----- | | RES., FXD, CMPSN:11K OHM,5%,0.125W | 01121 | BB1135 |

¹Replaceable under 206-0216-00, 1 Meter, 206-0217-00, 2 Meter, 206-0218-00, 3 Meter Assemblies

²Replaceable under 206-0219-00, 1 Meter, 206-0220-00, 2 Meter, 206-0221-00, 3 Meter Assemblies

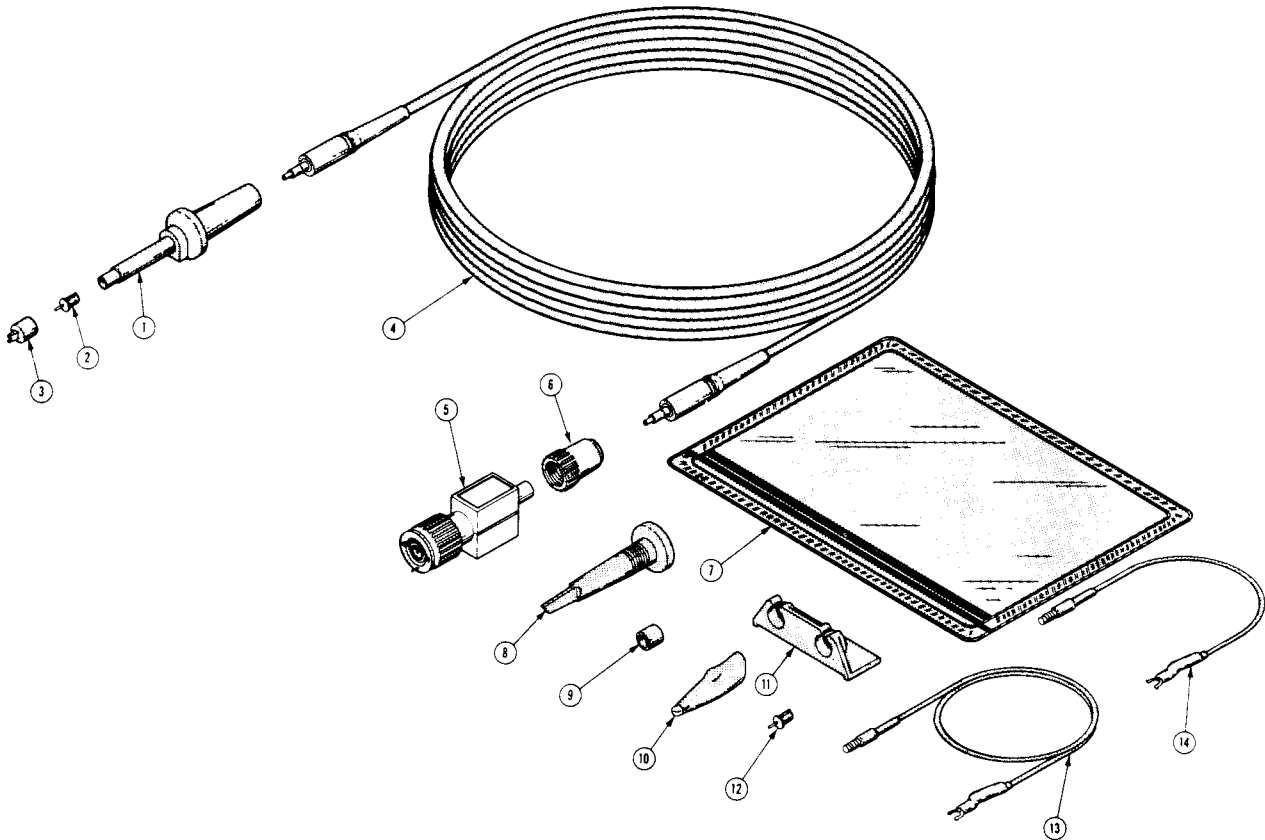
³Replaceable under 206-0219-00, 1 Meter Assembly only.

⁴Replaceable under 206-0220-00, 2 Meter Assembly only.

⁵Replaceable under 206-0221-00, 3 Meter Assembly only.

CROSS INDEX MFR. CODE NUMBER TO MANUFACTURER

| MFR.CODE | MANUFACTURER | ADDRESS | CITY,STATE,ZIP |
|----------|---|-------------------------|------------------------|
| 01121 | ALLEN-BRADLEY CO. | 1201 2ND ST. SOUTH | MILWAUKEE, WI 53204 |
| 05006 | TWENTIETH CENTURY PLASTICS INC. | 415 E. WASHINGTON BLVD. | LOS ANGELES, CA 90015 |
| 75042 | TRW ELECTRONIC COMPONENTS, IRC FIXED RESISTORS, PHILADELPHIA DIVISION | 401 N. BROAD ST. | PHILADELPHIA, PA 19108 |
| 80009 | TEKTRONIX, INC. | P. O. BOX 500 | BEAVERTON, OR 97005 |
| 80031 | ELECTRA-MIDLAND CORP., MEPCO DIV., A NORTH AMERICAN PHILIPS CO. | 22 COLUMBIA RD. | MORRISTOWN, NJ 07960 |
| 91637 | DALE ELECTRONICS, INC. | P. O. BOX 609 | COLUMBUS, NB 68601 |



REPLACEABLE MECHANICAL PARTS

| Index No. | Tektronix Part No. | Serial/Model No. Eff | No. Dscont | Qty | 1 | 2 | 3 | 4 | 5 | Name & Description | Mfr | |
|---------------|--------------------|----------------------|------------|-----|---|---|---|---|---|--|-------|-----------------|
| | | | | | | | | | | | Code | Mfr Part Number |
| 1 METER PROBE | | | | | | | | | | | | |
| | 010-6105-01 | | | 1 | | | | | | PROBE,VOLTAGE:10X,1M,W/ACCESSORIES | 80009 | 010-6105-01 |
| | 010-6105-00 | | | 1 | | | | | | PROBE,VOLTAGE:10X,1 METER | 80009 | 010-6105-00 |
| -1 | 206-0216-00 | | | 1 | | | | | | PROBE,HEAD:1 METER,BLUE | 80009 | 206-0216-00 |
| -2 | ----- | 1 | | 1 | | | | | | TIP,PROBE: | | |
| -3 | ----- | 2 | | 1 | | | | | | TIP,PROBE:IC TEST | | |
| -4 | 175-1661-00 | | | 1 | | | | | | CA ASSY,SP,ELEC:1 METER,BLUE | 80009 | 175-1661-00 |
| -5 | 206-0219-00 | | | 1 | | | | | | COMP BOX:1 METER | 80009 | 206-0219-00 |
| -6 | 343-0570-00 | | | 1 | | | | | | RETAINER,COVER:COMP BOX,1 METER,BLUE | 80009 | 343-0570-00 |
| 2 METER PROBE | | | | | | | | | | | | |
| | 010-6105-03 | | | 1 | | | | | | PROBE,VOLTAGE:10X,2M,W/ACCESSORIES | 80009 | 010-6105-03 |
| | 010-6105-02 | | | 1 | | | | | | PROBE,VOLTAGE:10X,2 METER | 80009 | 010-6105-02 |
| -1 | 206-0217-00 | | | 1 | | | | | | PROBE,HEAD:2 METER,YELLOW | 80009 | 206-0217-00 |
| -2 | ----- | 1 | | 1 | | | | | | TIP,PROBE: | | |
| -3 | ----- | 2 | | 1 | | | | | | TIP,PROBE:IC TEST | | |
| -4 | 175-1661-01 | | | 1 | | | | | | CA,ASSY,SP,ELEC:2 METER,YELLOW | 80009 | 175-1661-01 |
| -5 | 206-0220-00 | | | 1 | | | | | | COMP BOX:2 METER | 80009 | 206-0220-00 |
| -6 | 343-0570-01 | | | 1 | | | | | | RETAINER,COVER:COMP BOX,2 METER,YELLOW | 80009 | 343-0570-01 |

¹Available only in packs of 10, P.N. 206-0191-01.

²Available only in packs of 10, P.N. 015-0201-01, or 100, P.N. 015-0201-02.

| Fig. & Index No. | Tektronix Part No. | Serial/Model No. Eff Dscont | Qty | | | | | | Name & Description | Mfr | | |
|------------------------|-----------------------|--------------------------------|-----|---|---|---|---|---|---|-------|-----|-------------|
| | | | | 1 | 2 | 3 | 4 | 5 | | Code | Mfr | Part Number |
| | 010-6105-05 | | 1 | | | | | | PROBE,VOLTAGE:10X,3M,W/ACCESSORIES | 80009 | | 010-6105-05 |
| | 010-6105-04 | | 1 | | | | | | . PROBE,VOLTAGE:10X,3 METER | 80009 | | 010-6105-04 |
| -1 | 206-0218-00 | | 1 | | | | | | . . . PROBE,HEAD:3 METER RED | 80009 | | 206-0218-00 |
| -2 | ----- ¹ | | 1 | | | | | | TIP,PROBE: | | | |
| -3 | ----- ² | | 1 | | | | | | TIP,PROBE:IC TEST | | | |
| -4 | 175-1661-02 | | 1 | | | | | | . . . CA ASSY,SP,ELEC:3 METER,RED | 80009 | | 175-1661-02 |
| -5 | 206-0221-00 | | 1 | | | | | | . . . COMP,BOX:3 METER | 80009 | | 206-0221-00 |
| -6 | 343-0570-02 | | 1 | | | | | | RETAINER,COVER:COMP BOX,3 METER,RED | 80009 | | 343-0570-02 |
| ACCESSORIES | | | | | | | | | | | | |
| -7 | 016-0521-00 | | 1 | | | | | | POUCH,ACCESSORIES: | 05006 | | OBD |
| -8 | 013-0107-03 | | 1 | | | | | | TIP,TEST PROD:RET HOOK ASSY | 80009 | | 013-0107-03 |
| -9 | 166-0404-01 | | 1 | | | | | | INS SLV,ELEC:FOR 0.188 DIA PROBE BSHG | 80009 | | 166-0404-01 |
| -10 | 344-0046-00 | | 2 | | | | | | CLIP,ELECTRICAL:ALLIGATOR TYPE,W/COVER | 80009 | | 344-0046-00 |
| -11 | 352-0351-00 | | 1 | | | | | | HLDR,TEST PROD: | 80009 | | 352-0351-00 |
| -12 | ----- ¹ | | 2 | | | | | | TIP,PROBE: | | | |
| -13 | 175-0125-01 | | 1 | | | | | | LEAD,ELECTRICAL:PROBE GND,12 INCHES LONG | 80009 | | 175-0125-01 |
| -14 | 175-0124-01 | | 1 | | | | | | LEAD,ELECTRICAL:PROBE GND,5 INCHES LONG | 80009 | | 175-0124-01 |
| | 334-2794-00 | | 2 | | | | | | BAND,MARKER:0.371 DIA,BLACK,PLASTIC | 80009 | | 334-2794-00 |
| | 334-2794-01 | | 2 | | | | | | BAND,MARKER:0.371 DIA,WHITE,PLASTIC | 80009 | | 334-2794-01 |
| | 334-2794-02 | | 2 | | | | | | BAND,MARKER:0.371 DIA,SILVER,PLASTIC | 80009 | | 334-2794-02 |
| | 062-1803-00 | | 1 | | | | | | DATA CARD: | 80009 | | 062-1803-00 |
| | 062-1796-00 | | 1 | | | | | | DATA SHEET:P6105 PASSIVE PROBE | 80009 | | 062-1796-00 |

¹Available only in packs of 10, Part Number 206-0191-01.

²Available only in packs of 10, Part Number 015-0201-01, or 100, Part Number 015-0201-02.

