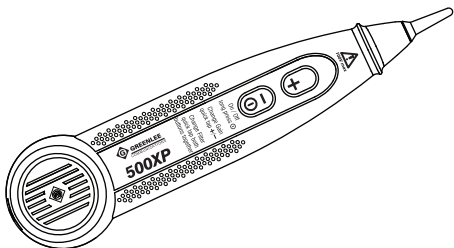


INSTRUCTION MANUAL



GREENLEE®
COMMUNICATIONS
A Textron Company



500XP and 500FP Tone Probes

Nautilus
r a n g e



⚠ WARNING

Read and understand this material before operating or servicing this equipment. Failure to understand how to safely operate this tool could result in an accident causing serious injury or death.

Register this product at www.greenlee.com

Description

The Greenlee Communications 500XP and 500FP Tone Probes are intended to identify and trace wires or cables within a group without damaging the insulation.

Features include:

- Tough, waterproof, ergonomic design
- Replaceable tip
- Clearly distinguishable audio output tones
- Headset output level electronically limited for safety
- 500XP includes (US patent 8754629B2) acAlert® feature to warn of possible power cross or similar faults; if the active probe is brought near a source of potentially hazardous AC voltage of 50 or 60 Hz, the tool will attempt to warn the user.

Safety

Safety is essential in the use and maintenance of Greenlee tools and equipment. This instruction manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

Purpose of This Manual

This instruction manual is intended to familiarize all personnel with the safe operation and maintenance procedures for the Greenlee Communications 500XP/FP Tone Probe.

Keep this manual available to all personnel. Replacement manuals are available upon request at no charge at www.greenlee.com.



Do not discard this product or throw away!

For recycling information, go to www.greenlee.com.

Important Safety Information



SAFETY ALERT SYMBOL

This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.

DANGER

Immediate hazards which, if not avoided, **WILL** result in severe injury or death.

WARNING

Hazards which, if not avoided, **COULD** result in severe injury or death.

CAUTION


Hazards or unsafe practices which, if not avoided, **MAY** result in injury or property damage.

All specifications are nominal and may change as design improvements occur. Greenlee Textron Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

® Registered: The color green for electrical test instruments, Sidekick, and acAlert are registered trademarks of Textron Innovations Inc.

KEEP THIS MANUAL

Important Safety Information

	⚠ WARNING
	<p>Electric shock hazard:</p> <ul style="list-style-type: none">• Do not expose this unit to rain or moisture. Contact with live circuits could result in severe injury or death.• If the tool becomes wet, clean and dry it before use. Dampness reduces performance, as the tip is unable to detect the electric field properly. Water may short the headset connections. <p>Failure to observe these warnings could result in severe injury or death.</p>

⚠ WARNING
<p>Electric shock hazard:</p> <ul style="list-style-type: none">• Do not use this unit if the casing is cracked.• Use this unit for the manufacturer's intended purpose only, as described in this manual. Any other use can impair the protection provided by the unit. <p>Failure to observe these warnings could result in severe injury or death.</p>

Important Safety Information

⚠ WARNING

Electric shock hazard:



- This unit is intended for use **only within measurement category 0** and for measurements performed on circuits not directly connected to AC mains power.



- **Do not trace live AC mains power circuits.**
- This tool is not intended as a replacement for a multimeter, test-lamp, or specially engineered AC mains power detector. This tool has conductive tips which may cause a short circuit resulting in a dangerous arc flash.
- This unit does not detect potentially hazardous direct current (DC) or alternating current (AC) with frequencies beyond 50 or 60 Hz. Always use a suitably rated multimeter or test-lamp to check by direct connection that a circuit is safe to touch.

Failure to observe these warnings could result in severe injury or death.

Important Safety Information

⚠ CAUTION

Loud sound hazard:

- Do not operate with the loudspeaker less than 30 cm (12") from your ear.
- Do not use with the headset at high sound levels for extended periods.

Failure to observe these precautions may result in injury.

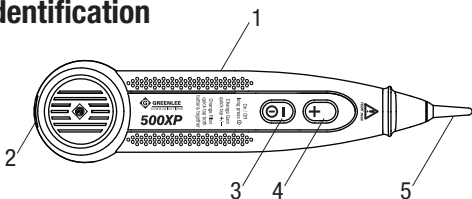
⚠ CAUTION

Electric shock hazard:

- Do not attempt to repair this unit. It contains no user-serviceable parts.
- Use only with accessories and replacement parts recommended by Greenlee.
- Do not expose the unit to extreme temperatures or high humidity. Refer to "Specifications."
- Beware ringing voltage that may be present on telecommunication circuits.
- Do not use anti-static surface treatments, e.g., cleaners or polishes; these can leave the surface slightly conductive, which may pose a safety risk allowing higher voltages accidentally encountered to track over the surface to your hand.

Failure to observe these precautions may result in injury and can damage the instrument.

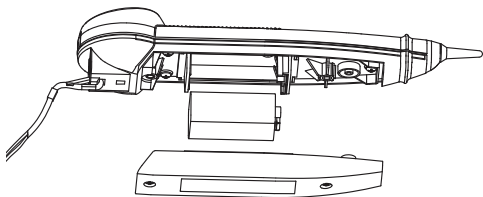
Identification



- | | |
|------------------------|------------------------|
| 1. Battery Compartment | 3. ON/OFF and – Button |
| 2. Headset Connection | 4. + Button and LEDs |
| | 5. Replaceable Tip |

Installing the Battery




Only open the battery cover in clean and dry conditions; the battery terminals may be contaminated or corrode if dirt and moisture are present.



1. Loosen the two captive screws.
2. Observing polarity, install a new alkaline 9 V battery. Check that the seal is clean and in place around the battery compartment.
3. Replace the cover and finger-tighten the two screws, being careful not to cross-thread them.

Operation

Power On







Press and hold the  button until you hear the power-on beep and see the red LED  light; release the button. Then you will hear the self-test tone for one second during which time the green LED  should be lit.

Change Gain

Short taps of the + or – buttons will increase or decrease the gain in single steps. At each step, a tone is produced at a level slightly different to the previous one. At maximum gain a high pitched beep is generated, and at minimum gain a low pitched beep is generated.

Change Filter Mode

Quickly tap both + and – buttons simultaneously to step the unit through the three main operating modes:

		<i>Basic</i>
		<i>Mains hum reject</i> (default power-on mode)
		<i>Precision tone</i> (500XP only)

LED and Tone Indications

Mode

- *Basic* – “beep” and red LED flashes.
- *Mains hum reject* – “beep-beep” and green LED flashes.
- *Precision tone* (500XP only) – “beep-beep-beep” and both LEDs flash.

Signal Level

- *Basic* – red LED brightness is proportional to signal received.
- *Mains hum reject* – green LED brightness is proportional to signal without AC mains power.

Operation (cont.)

- *Precision tone* (500XP only) – red and green LED brightness is proportional to 577 Hz and 983 Hz, respectively.

acAlert® Hazardous AC Voltage Warning

The 500XP is not an AC mains power detector. This warning feature is included only as an aid to safety. This product is not intended to be used with AC mains power but should indicate if near a hazardous AC voltage.

Available in selected programs of the 500XP only (not 500FP), the acAlert® feature is important in the filtered modes where there is little hum from the loudspeaker. Should AC at 50 Hz or 60 Hz be detected, the probe will rapidly flash the red and green LEDs alternately and generate a “boop-(audio)-boop” warning sound. Pair tracing tones can be heard during the pauses. The warning tone may be overridden for 30 seconds by pressing both buttons while the tone is being generated.

Program Options

The configuration of the *mains power hum* and *precision tone* filters and acAlert® warning can be adjusted if required. There are five settings; 1 is the default that should suit most situations. The chosen setting is stored in non-volatile memory.

Programming Option	Start-up Mode	acAlert®	Power Hum Reject (Hz)	Precision Tones (Hz)	Comment
1	Hum rejection	Off	50 & 60	577 & 983	Default
2		Lights only			acAlert® muted
3		Full			acAlert® on
4	Basic	Full	60	577	200XP
5			50	983	200XP/50

Operation (cont.)



To enter programming mode (500XP only): With the unit operating, press and hold both buttons for more than ten seconds. A melody of three tones will be heard followed by a number of beeps that represent the currently chosen setting. Pressing + or – allows adjustment of the setting.



To confirm the setting, press and hold both buttons for more than two seconds. A two tone melody will confirm exit of programming mode.

Low Battery Warning

If the battery drops below 6.5 V, you will hear three tones of falling frequency. Typically, with an alkaline battery, two hours of use remain after the first warning is given.

Battery Saver Timeout

If the 500XP/FP is operating and neither button is pressed for five minutes, the unit will switch off to save power. This is preceded by three warning beeps and the power-off tone of “beep-beep-beep-boop”.



Press the Ⓞ button for more than 0.5 seconds. The unit will produce a single lower pitched tone and switch off.

Techniques

Visit www.greenlee.com for more information about Greenlee's pair tracing products.

Telephone Pair Identification

Connect an oscillator across the pair to be traced and switch its tone output on. Check that tone is detected at the oscillator before leaving. If the oscillator has the facility, check that there is no indication of a short on the pair. If there is a short, there may be little or no signal to detect.

Move to the other end of the cable and use the 500XP/FP to find the pair with the tone on it. Starting with higher gain, find the general bundle of the wires that contains the tone. Gradually reduce the sensitivity until you positively detect the tone on just one pair of wires. If you can move this pair of wires away from the bundle and spread them out, there should be a distinct null in the detected signal roughly midway between the two.

LAN Cable Identification

Connect the oscillator to two wires of different pairs for an easier to detect signal. For example, connect one lead of the oscillator to Orange/White and the other terminal of the oscillator Blue/White.

Specifications

Maximum Voltage at Tip:

Never connect to AC mains power.

100 V dc or ac.

Maximum transient 500 V (1.2/50 μ s).

Sensitivity: Adjustable gain; 0 dB to > +60 dB.

Frequency Response:

Basic Mode: 200 Hz to 3 kHz.

Mains hum reject Mode: “Comb” filters remove harmonics of 50 Hz and 60 Hz.

Precision tone Mode (500XP only): Bandpass filters for 577 Hz and 983 Hz tones and mains hum rejection.

Environment:

Storage: IP67 (0.15 m for 10 minutes), -20 °C to +60 °C.

Operation: IP60 (may be used outdoors but must be dry for optimum performance and safety), -20 °C to +50 °C, maximum humidity 90%, no condensation, maximum altitude 2000 m.

Mechanical Protection:

Designed to survive multiple random orientation drops from 3 m (10 ft) onto concrete; note that the plastic may be damaged.

Casework is strong enough to be accidentally trodden on (90 kg/200 lb).

Casework material is compatible with chemicals commonly found in the telecom industry.

Hearing Protection: < 103 dB SPL (C) peak when used with Greenlee headsets.

Battery Life: More than 50 hours active (typical use; consumption at low signal levels is less than 10 mA) and more than three-years “off” (standby consumption is less than 5 μ A).

Patents: US5577099, US8754629B2.

Maintenance

Battery

Remove the battery if the 500XP/FP will not be used for a month or more. Damage caused by leaking batteries is not covered by the warranty.

Cleaning

Keep the 500XP/FP clear of grease and dust. Use a cloth dampened with isopropyl alcohol solution. Avoid aggressive solvents and strong detergents. Dry before use.

Service

For more information about service and repair contact Greenlee Communications.

Accessories

Accessories Included

Most 500XP/FP probe kits come fitted with a plastic tip and one metal spare as well as a wrist strap that may be fitted if needed.

Probe Tips

The probe tips can be simply unscrewed and swapped.

Optional Accessories

Headset

A headset or earbud with 2.5 mm jack plug (part numbers HS001 or EB001) may be used with the 500XP/FP. When plugged in, the loudspeaker is disabled and all sound is reproduced in the headset.

Use of any other headset may compromise user safety. The output level limiting built into 500XP/FP is tailored for Greenlee headsets. Use of other headsets may result in sound levels that could, with long-term exposure, cause hearing damage.

Complementary Products

The 500XP/FP can be used with any audio tone generator that produces a signal of a few volts or more in the frequency range 400 Hz to 3 kHz when in *basic* mode. For optimum performance in filtered modes, precision tone generators from Greenlee are recommended because they produce precise filtered frequencies of 577 Hz and 983 Hz, chosen as not being harmonics of AC mains power at 50 Hz or 60 Hz. Examples are 77GX, TG600J, 177, PE7780, and tone generator features of NC-100, NC-500, TM-700, and the Sidekick[®] range of testers.

Use with other oscillators in the filtered modes is possible but not recommended as their imprecisely controlled, low-cost circuitry may produce tones that are filtered out by 500XP/FP and may therefore not be audible when noise cancelling filters are active.

Warranty

The 500XP/FP is warranted to be free from defects of materials and workmanship for three years from date of purchase. Please retain proof of purchase for this period and preferably register your purchase at www.greenlee.com. Do not open the case beyond the battery cover; you will invalidate the warranty. Water damage is not covered if the casework is damaged or distorted. Note that claims for water damage will be assessed on a case by case basis.

Para obtener un manual de instrucciones en **Español**, visite www.greenlee.com. Haga clic en "Manuals" en la barra en la parte inferior de la pantalla. Ingrese "500XP" en el campo de búsqueda y luego haga clic en "SEARCH". Este manual aparecerá en la lista a continuación.

Pour obtenir un manuel d'instruction en **Français**, visitez le site www.greenlee.com. Cliquez sur « Manuals » dans la barre située au bas de l'écran. Saisissez "500XP" dans le champ de recherche et cliquez sur « SEARCH ». Le manuel apparaît dans la liste en dessous.

Die Bedienungsanleitung auf **Deutsch** finden Sie auf www.greenlee.com. Klicken Sie auf „Manuals“ in der Leiste unten auf dem Bildschirm. Geben Sie „500XP“ in das Suchfeld ein und klicken Sie auf „SEARCH“. Die Anleitung erscheint in der nachfolgenden Liste.



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