
PCL 600

INDUSTRIAL

(Pipe & Cable Locator)

Manufactured By
White's Electronics, Inc.



CAUTION: DO NOT CLIP TO LIVE ELECTRICAL LINES!

1. For tracing metal lines follow "Preferred Method" (printed on RECEIVER).
 2. For more difficult lines and in-depth information, refer to the instructions (printed inside the lid of the carry case).
 3. For further details refer to the instructions within this instruction manual.
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White's Limited Warranty

If within two years (24 months) from the original date of purchase, your White's detector fails due to defects in either material or workmanship, White's will repair or replace at its option, all necessary parts without charge for parts or labor.

Simply return the complete detector to the Dealer where you purchased it, or to your nearest Authorized Service Center. The unit must be accompanied by a detailed explanation of the symptoms of the failure. You must provide proof of date-of-purchase before the unit is serviced.

This is a transferable manufacturer warranty, which covers the instrument two years from the original purchase date, regardless of the owner.

Items excluded from the warranty are non-rechargeable batteries, accessories that are not standard equipment, shipping / handling costs outside the continental USA, Special Delivery costs (Air Freight, Next Day, 2nd Day, Packaging Services, etc.) and all shipping / handling costs inside the continental USA 90 days after purchase.

Your White's Dealer has completed a Sales Registration Card and sent it to the factory address soon after original purchase for the purpose of recording this information and keeping you up-to-date regarding White's ongoing research & development.

The warranty does not cover damage caused by accident, shipping damage, misuse, neglect, alterations, modifications, unauthorized service, or prolonged exposure to corrosive compounds, including salt.

Duration of any implied warranty (e.g., merchantability and fitness for a particular purpose) shall not be longer than the stated warranty. Neither the manufacturer or the retailer shall be liable for any incidental or consequential damages. Some states, however, do not allow the limitation on the length of implied warranties, or the exclusion of incidental or consequential damages. Therefore, the above limitations may not apply to you.

In addition, the stated warranty gives you specific legal rights, and you may have other rights which vary from state-to-state.

The foregoing is the only warranty provided by White's as the manufacturer of your metal detector. Any "extended warranty" period beyond two years, which may be provided by a Dealer or other third party on your detector, may be without White's authority involvement and consent, and might not be honored by White's.



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Parts Identification



INSTRUCTIONS ON TRANSMITTER

INSTRUCTIONS INSIDE CARRY CASE

INDUCTIVE ANTENNA/CASE PLUG-IN WIRE



RECEIVER

RED CLIP-ON

METAL GROUND STAKE

BLACK GROUND WIRE

HEADPHONE JACK 1/4" STEREO

(2)



Caring For Your PCL 600



1) Weather

- A. Do not expose your PCL 600 to prolonged winter and/or summer extremes.
- B. Protect the PCL 600 from direct sunlight during storage.
- C. The PCL 600 must be protected from heavy rain and mud (the lid may be unlatched yet pushed closed, during use).

2) Cleaning

- A. The Transmitter, Receiver, Carry Case and electronics inside the carry case are not waterproof and must be kept dry. Do not submerge, as it will be damaging to the PCL 600.
- B. A damp cotton cloth can be used to wipe off dirt/mud (no other cleaning is recommended).

3) Storage

- A. When the instrument is not in use, make sure the Transmitter & Receiver are both turned OFF (no flashing lights).
- B. If storing for over three days, remove the batteries from the Transmitter and the Receiver, and place in carry case slots located above the Transmitter.
- C. Store the instrument in an area where it will be protected from extreme temperatures, humidity and abuse. Do not stack heavy objects on top of the PCL 600 case.



Operating Basics



- 1) **The PCL 600** provides both a Transmitter that generates an electronic signature near 187 kHz. and a Receiver that is tuned to locate/trace that particular electronic signature.

- 2) **The Preferred METHOD (Conductive Clip-On)** typically provides superior performance levels and greater isolation of multiple lines in the area. The Transmitter connected directly to a metal line energizes it (and everything conductive connected to it) with an electronic signature. The metal line acts as a radiant antenna for the Transmitter. The Receiver is used to locate/follow this electronic signature/line. A ground connection is necessary to complete the circuit in this mode. Earth ground using the provided steel stake, service panel ground clip-on, or any large metal object clip-on nearby are preferred. If no other ground is available, laying the ground lead out on the surface at a right angle to the line to be traced is often sufficient.

- 3) **The ALTERNATE METHOD (Induce Plug-In Case Antenna)**. An "on board" antenna is located inside the lid of the carry case. When it is not possible to clip the Transmitter directly to the metal line, the Transmitter can be connected to the Case Antenna. With the case positioned over the area where the metal line is suspected and the Transmitter's INDUCTIVE mode selected, the Case Antenna will radiate the transmitter's electronic signature some distance, energizing any metal line within range (and everything conductive connected to it) . No grounding is advised for operation in this mode. The case lid can be closed in wet weather.

- 4) **Headphones**. 1/4" stereo headphones between 8-100 ohms are recommended for use with the PCL 600 Receiver. The headphone jack is located on the left side of the Receiver. Remove the dust cover for use, replace the dust cover when not in use. Headphones increase battery life of the Receiver and allow the operator to hear the PCL 600 in high noise areas. **Use headphones cautiously in construction areas.**



Operating Basics Continued



- 5) **Location depth and trace distance.** Location depth and trace distance will vary a great deal with the size and alloy of the line, and with many other factors. The greater the distance from the Transmitter, the higher the Receiver's sensitivity will need to be to locate the line. If you run out of sensitivity range and need further trace distance, move the Transmitter to a location closer to the area you are currently working. As the Receiver nears the Transmitter, reduced Sensitivity is required.
- 6) **Connections.** When using the Preferred Method Conductive "Clip-On" mode, it is critically important to obtain a good ground and good electrical clip-on connection.
- 7) **The Alternate Method.** This method can be useful for extended trace distance, moving the Transmitter closer to the area currently being worked. However, there is a limit as to the distance (depth) a line can be and still accept enough of the electronic signature from the case antenna to be located.
- 8) **Electrical Interference.** Because the PCL 600 both transmits and receives an electronic signature, it is vulnerable to accepting some types of external electrical interference. When tracing within structures, some high power devices may need to be temporarily turned off for accurate tracing.
- 9) **Grounding Systems.** When working in or around structures, some grounding systems may need to be temporarily disconnected during tracing. For example, if tracing water lines and electrical systems create tracing difficulties, temporarily disconnecting any electrical-to-water systems ground may be necessary. Another example is when tracing in a steel frame building, it may be necessary to temporarily disconnect any ground to the steel frame to trace electrical and/or water systems.



Safety



1) Electrical Systems:

CAUTION: DO NOT CLIP TO LIVE ELECTRICAL LINES!

- A. Always turn electricity off prior to "clipping on" the PCL 600 to electrical lines (Preferred Method). Protect yourself and the PCL 600 from high current/voltage.
- B. It is not necessary to turn off the electricity when using the Case Antenna "Alternate Method".
- C. Do not ground the Transmitter to hot or neutral electrical systems.
- D. Dedicated electrical ground leads of a live system can be used to ground the Transmitter.

2) Natural Gas & Propane Systems:

- A. It is not necessary to turn off Natural Gas or Propane systems during clip-on or tracing, if they are leak free. Caution: Leaking systems need to be turned off and well ventilated prior to tracing.
- B. Live gas systems (leak-free) can be used as a ground for the Transmitter when other lines (different systems) are being traced in the area.

3) Water/Sewer Systems:

- A. It is not necessary to turn off water/sewer systems during tracing. In many cases these lines locate better with water running through the system.
- B. Natural gas/methane can build up naturally within sewer systems. Take necessary precautions regarding combustible/explosive gas, as well as lowoxygen levels, when working underground.



Safety Continued



4) Digging:

- A. Use **extreme caution** when digging any line! Pinpoint can vary from one side to the other with corrosion, ground and ground water factors.
- B. Most lines are dangerous. Never assume yours is the only line in the area. There may be other lines in the area the PCL 600 did not locate if you have not taken the necessary steps to locate those systems.
- C. If you are not a professional, there are laws governing location/digging on public lands. Please consult your local building/planning office.

5) Travel:

- A. The PCL 600 operates at 187 kHz. It may interfere with some localized aircraft navigation systems.
- B. Do not use or turn on the PCL 600 on an aircraft during airline travel.
- C. During airline travel remove the batteries from both the Transmitter and the Receiver.
- D. Consult aviation specialists prior to using the PCL 600 on and around airports with jet airline traffic.

6) Liability

- A. White's Electronics, Inc. shall not be liable for any injury to persons or property, for removal or installation cost, or consequential or contingent expenses of any other nature, by reason of the use of any White's product.



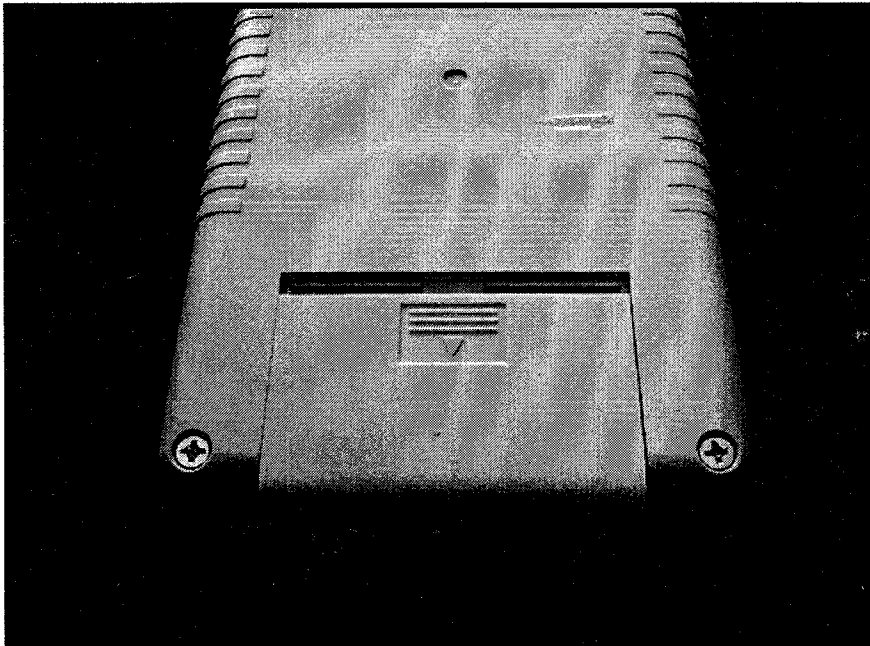
Batteries



- 1) Both the Transmitter and the Receiver require a nine volt transistor battery to operate. The Plug-In Case Antenna does not require a battery.

- 2) On the bottom of the Transmitter and on the bottom of the Receiver, slide open the battery compartment door. Snap battery lead to nine volt transistor battery (only fits one way). Install battery in compartment and slide the battery door closed.

- 3) Remove the batteries from the Transmitter and remove from the Receiver, during storage (three or more days). Locations are provided within the carry case above the Transmitter for two batteries. Batteries left in the Transmitter and Receiver will weaken with time more quickly than when disconnected.





Batteries Continued

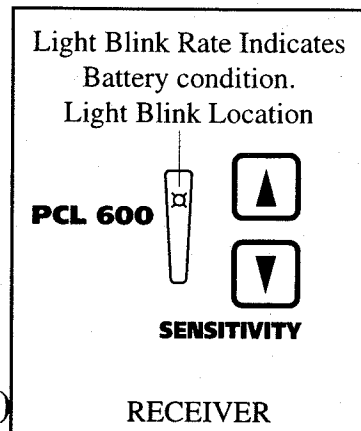
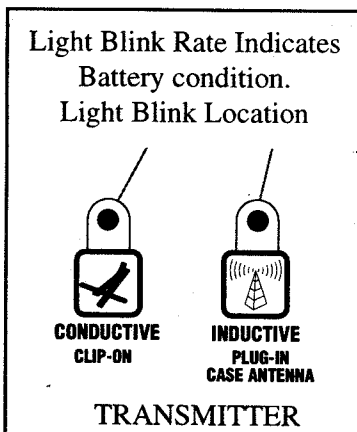


4) Heavy Duty type transistor batteries, supplied with the PCL 600 when new, provide about 10 hours of use.

5) Alkalines are recommended and provide about 20 hours of use. Alkalines are particularly recommended for use in cooler temperatures (50°F and below). With good batteries, the PCL 600 will operate under a wide temperature range. Some performance degradation may be expected if the Transmitter and Receiver are at opposite temperature extremes (Transmitter is very warm and Receiver is very cold).

6) The condition of the batteries is continually monitored during use by the blinking light rate on the Receiver next to the SENSITIVITY control and the blinking light rate on the Transmitter above either the CONDUCTIVE or the INDUCTIVE buttons.

- A. Light blinking rate of one blink per second indicates "good batteries".
- B. Light blinking rate of one blink per every two seconds indicates "low batteries".

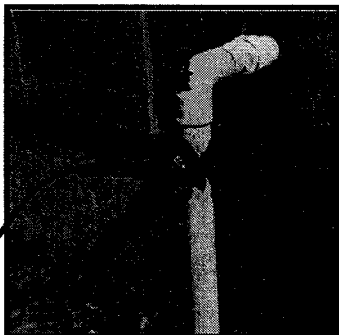
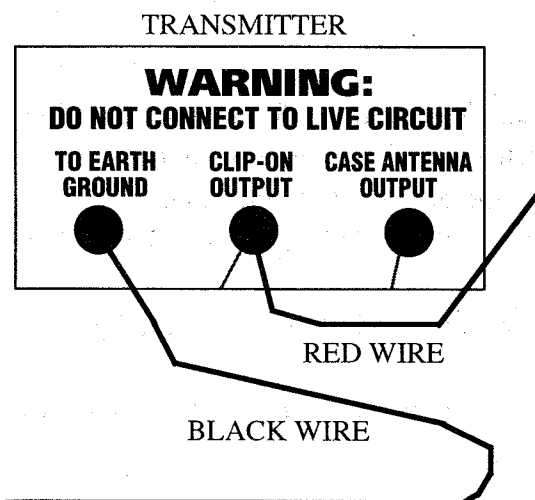




Preferred Method (Pipe & Cable Locating)



- 1) Using the red wire, connect the TRANSMITTER's Clip-on Output jack directly to exposed metal of the line to be traced.
- 2) Using the black wire, connect the TRANSMITTER's Earth Ground to metal stake pushed firmly into soil.





Preferred Method Continued



- 3) Press TRANSMITTER's ON/OFF. Press TRANSMITTER's Conductive.

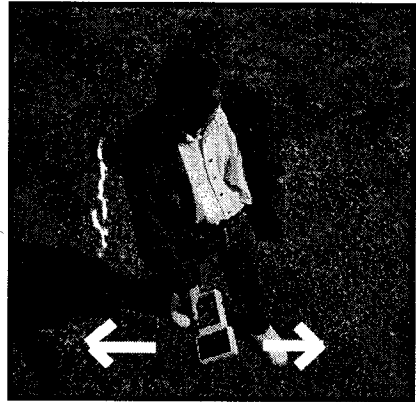
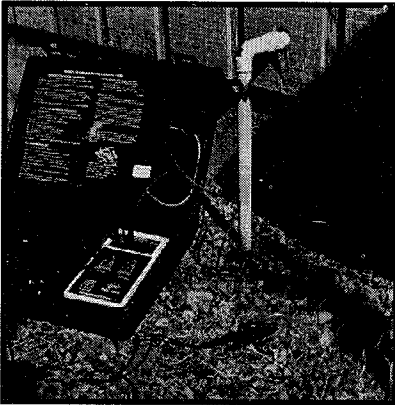
POWER



**CONDUCTIVE
CLIP-ON**

TRANSMITTER

- 4) Leave the TRANSMITTER box behind. Press RECEIVER's ON/OFF. Zigzag RECEIVER (with instruction decal facing skyward) a distance from TRANSMITTER, until you hear the "Beep". You are then on top of the line. Follow line. If the "Beep" fades, press Sensitivity UP.



- 5) Press Sensitivity DOWN to pinpoint or when RECEIVER is near TRANSMITTER.

FLASHING
LIGHT
LOCATION
INDICATES
SENSITIVITY
LEVEL.

HIGH
SENSITIVITY

LOW
SENSITIVITY



HIGHER
SENSITIVITY



LOWER
SENSITIVITY

SENSITIVITY

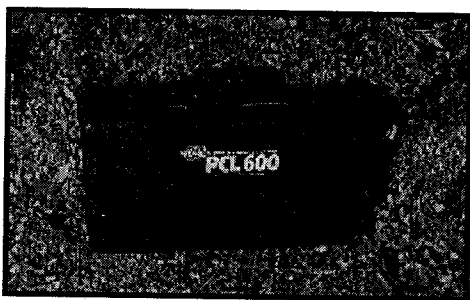
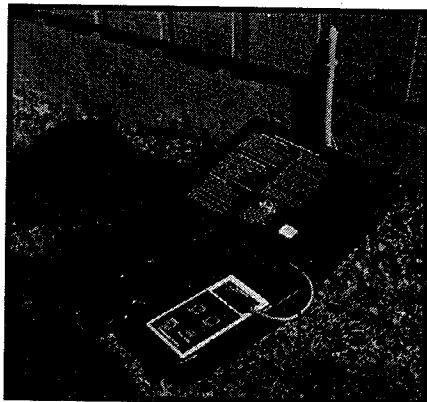
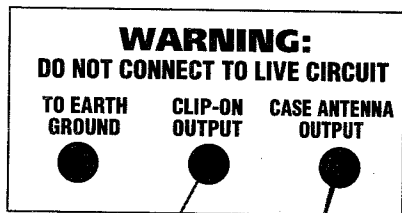
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Alternate Method



- 1) Connect TRANSMITTER's Case Antenna Output to wire from case. Close the case lid.
- 2) Place the case over an area you know the pipe or cable passes. No ground connection is required in this mode.



- 3) Press TRANSMITTER's ON/OFF. Press TRANSMITTER's Inductive.



TRANSMITTER



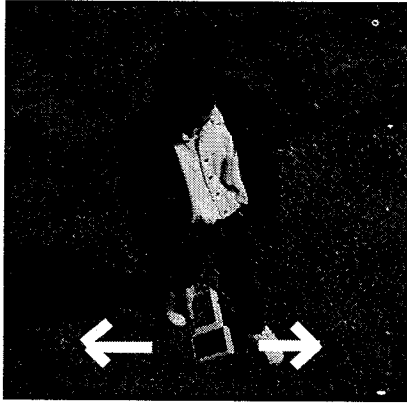
**INDUCTIVE
PLUG-IN
CASE ANTENNA**



Alternate Method Continued



- 4) Leave the TRANSMITTER box behind. Press RECEIVER's ON/OFF. Zigzag RECEIVER (with instruction decal facing skyward) a distance from TRANSMITTER, until you hear the "Beep". You are then on top of the line. Follow line. If the "Beep" fades, press Sensitivity UP.



- 5) Press Sensitivity down to pinpoint or when RECEIVER is near TRANSMITTER.

FLASHING LIGHT
LOCATION INDICATES
SENSITIVITY LEVEL.

HIGH
SENSITIVITY

LOW
SENSITIVITY



HIGHER
SENSITIVITY



LOWER
SENSITIVITY

SENSITIVITY



Tips



- 1) **If earth ground is not available.** Using the Black wire, connect Transmitter's Earth ground to an alternate ground (large metal or an electrical ground wire are best) or lay the black wire out over the surface opposing pipe or cable (90 degrees).
- 2) **Large Line.** If the line is too large to connect the clip on, wrap a bare metal wire around the line and clip onto that wire.
- 3) **If pipe is not metal.** Use the Preferred Method, substituting the trace wire commonly buried with nonmetal pipe as the line to be traced. Or insert a plumber's snake into a nonmetal pipe. Use the Preferred Method, substituting the snake as the line to be traced.
- 4) **Difficult lines.** There are situations that present locating challenges. Some lines are more difficult to trace than others. A good electrical connection is sometimes difficult due to use of teflon tape, dielectric unions, lines that begin as metal and then adapt to concrete or plastic, and household wiring grounded to water lines. Be aware of common grounds, neutral wires and steel pipes in direct contact with re-bar in concrete floors. These are the typical problem areas that can be difficult to determine.
- 5) **Safety.** Always turn off the electricity prior to clipping on the Transmitter. When dealing with electrical, gas, toxin and high pressure lines, always use extreme caution. Do not clip to live electrical lines. **Use extreme caution when digging all lines.**
- 6) **If you are not a Pipe & Cable Location professional.** Be aware there are laws pertaining to Pipe & Cable Location on public lands. Nonprofessionals, in most cases, are restricted to locating and tracing on private property. Public property generally requires consultation from a locating professional, as well as excavation permits.



Tips Continued



7) **Certain alloys and devices**, such as antique chromium found on older automobiles, or coils/antennas commonly found in electronics, may extraordinarily accept the 187 kHz signature generated by the Transmitter. Even if clipping onto a line it may be necessary to move automobiles near the line to perform an accurate trace.

8) **Using the Preferred Method**, grounding the Transmitter (Black Wire) is critical to achieve good performance. Often above surface grounds such as a chain link fence or a large steel dumpster, provide the best ground. Anytime you are using the Preferred method look for the best available ground. If satisfactory results are not achieved, try a different ground. Underground systems that are not being traced are excellent grounds. For example if tracing water lines, and there are natural gas lines nearby, ground to the natural gas system when tracing the water lines, and ground to the water lines when tracing the natural gas lines.

9) **The Alternate Method** can be used to extend searches beyond obstacles such as dielectric unions or breaks in the line, as well as extend trace distance, moving the Transmitter closer to the area currently being searched.

10) **The PCL 600** is designed to locate and trace typical water, sewer, natural gas/propane and electrical lines at typical depths (three - five feet or less). It is not designed to trace fiber optic cable (although if buried with a trace wire it can locate and trace that wire). The PCL 600 is not designed to trace public utilities that are typically ten plus feet deep. More elaborate and expensive equipment is required to complete such public utility locating/tracing. The PCL 600 is ideal for residential and commercial tracing within access or service depths.



SERVICE



White's reputation has been built on quality products backed by quality service. Our Factory Authorized Service Centers are factory trained and equipped. They offer the same quality service as the factory. Service before and after the sale is the cornerstone of our customer relations.

- 1) Before shipping a detector for service:
 - A. Contact your Dealer. There may be a quick, simple fix or explanation that will prevent having to send the detector in for service.
 - B. Double check the obvious, batteries and clip-on wires.
 - C. Try the PCL 600 on a different line to be sure there is not a problem relating to that specific line rather than trouble with the unit.
 - D. Be sure to send **all** parts. Ship the PCL 600 with all the parts in the carry case.
 - E. Always include a letter of explanation about your concerns, even if you have talked to the Service Center by telephone.
 - F. Take care packaging and always insure your shipments.

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White's Electronics, Inc.
A message from...
Kenneth R. White

Congratulations, and thank you for choosing the PCL 600 Pipe & Cable Locator.

White's strives to achieve performance and reliability above and beyond your expectations.

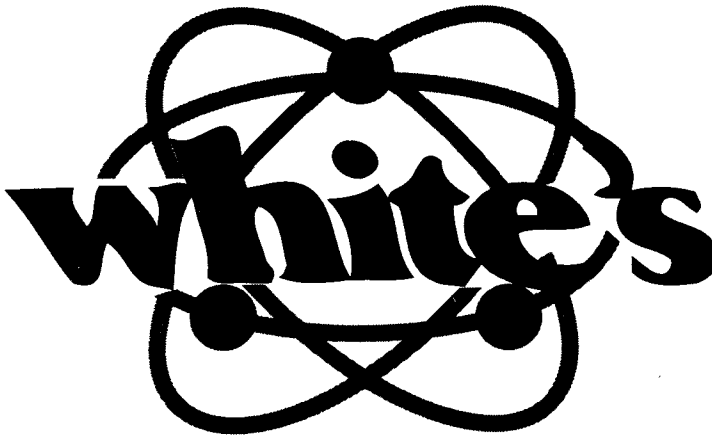
Your new PCL 600 has been hand-built and carefully tested. If properly cared for, it will last many years.

The following instructions are intended to familiarize you with this Pipe & Cable Locator, and give you a good understanding of the basics. Obviously, there are no substitutes for field experience. Practice using your PCL 600 in the field using known lines, and study this manual carefully. Before long you may be able to teach the experts a thing or two!

People locate with White's detectors every day. Regardless of a metal detector's performance, it is the operator who makes the critical decisions that result in accurate location. A Pipe & Cable Locator is simply a tool which greatly increases the capabilities of the user. Understanding your PCL 600 and using it safely are key elements to successful line tracing.

We are proud to continue White's tradition of performance and reliability with your PCL 600.

Kenneth R. White



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