

# Pro-Built Tools

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## User's Guide

- ☐ PB Mycro
- ☐ PB2000
- ☐ PB2400ES
- ☐ PB3600ES

- ☐ 100'
- ☐ 130'
- ☐ 150'
- ☐ 200'
- ☐ 250'

- ☐ 275'
- ☐ 300'
- ☐ 400'
- ☐ 500'
- ☐ —





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# DIAGRAM & SPECIFICATIONS

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- A. Camera Head
- B. Patch Cord Input (Reel Side)
- C. Cable Guide
- D. Powder Coated Frame
- E. Heat Treated Epoxy Sealed SV Cable
- F. Rubber Feet

Included Not Pictured  
- Control Box - See Page 7 Diagram  
- CAT-6 Patch Cord.



# EQUIPMENT SPECIFICATIONS

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- **Pro-Built Standard Fixed Head**

Dimension: 1.29" Diameter

Pipe Size: 2" Pipe + (2" Pipe Depends on Condition of Pipe)

- **Pro-Built Self Leveling Head**

Dimension: 1.95" Diameter

Pipe Size: 3" Pipe + (3" Pipe Depends on Condition of Pipe)

- **High Tension Pro-Built Inspection Cable** Push Capacity:  
100' – 500' (depending on condition of line)

- **Steel Reel**

16" -36" in Diameter Depending on Model Purchased

- **Camera Material**

Air Craft Aluminum

- **Depth Rated**

Submersible to 500'

# SAFETY INSTRUCTIONS

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1.) Keep all buttons, handles, switches clean of oils & grease.  
Please avoid setting control box directly in water.

2.) Prior to use inspect all buttons, handles, switches to make sure they are in working order. If equipment is malfunctioning please do not operate. See trouble shooting guidelines in back of manual.

# CONTROL PANEL

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Main Controls:

Power – On/Off Switch

Dimmer Control – Dim LED Lights as Needed

Connection to Reel – Input Cat 6 Patch Cord

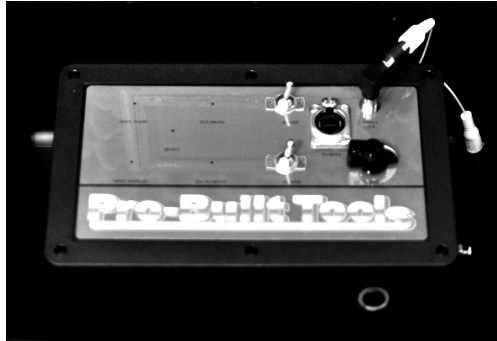
Video Output – Input any monitoring device

Sonde – Turn on to activate 512 Hz Sonde

Power Cord – Plug into 110-240 Volt grounded outlet

Inductive Locator Connection – Used to energize high tension inspection cable – see locator manual if applicable.

Digital Footage Counter Controls (optional depending on model purchased)



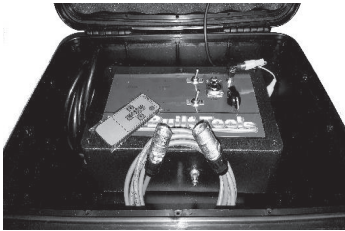
# INITIAL SETUP GUIDE

**Models: PB2000, PB-Mycro, PB2400ES, PB3600ES**

Upon initial receipt of your equipment, first check that your shipment has arrived intact. Please note any physical damages to the shipping box and/or equipment. Any such damages should be reported immediately so that a shipping claim can be made.

Package contents (not including any upgrades) are as follows:

- 1) Sewer Camera Reel with Camera Head Installed (Sonde is located in the spring behind the head)
- 2) Control Box
  - a) Main Controller
  - b) Power Supply/Cord
  - c) 7" Color LCD with Remote
  - d) 6' Reel to Controller Patch Cable



Equipment check & basic startup instructions:

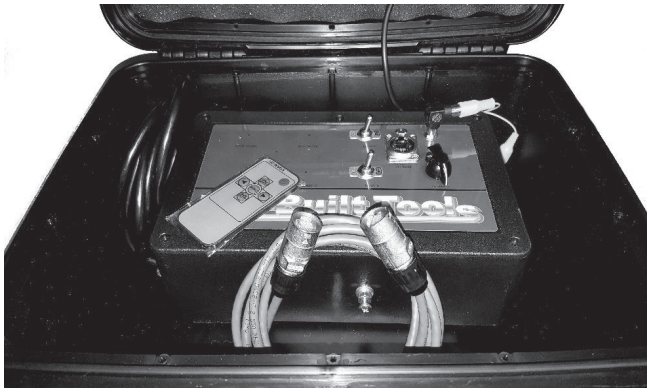
- 1) Plug the 6' Reel to Controller Patch cable from the reel to the controller (both sides identical)
  - a) Line up the notch in the cable housing end to the push-tab on the RJ45 Receptacle
  - b) Push the connectors in on each end to lock
- 2) Plug Power Supply/Cord into 110v-240v AC wall receptacle
- 3) Check that a Yellow RCA plug is routed to the "video out" jack on the top of your controller
- 4) Make sure that your "sonde" switch is in the "off" position
- 5) Power on the system by turning the "power" switch to the "on" position
  - a) If the LCD does not turn on automatically, press the power button on the LCD
  - b) If the LCD begins with a Blue Screen, Change the LCD input (V1/V2) in the LCD Menu

# LOCATING YOUR CAMERA

Models: PB2000, PB-Mycro, PB2400ES, PB3600ES

After you've pushed your camera through the pipe and have decided that you are at a point where you would like to determine the location and depth of your camera head, please follow these steps:

- 1) Turn on your "Sonde" by pressing the "Sonde" switch to the "on" position. (The "Sonde" toggle switch is located just above the "Power" toggle switch on the controller)
  - a) Note: This will make you either lose video (blue screen) or get horizontal lines over your video – This is normal and means that your sonde is functioning.
  - b) Note: If you have a Digital On-Screen Footage Counter installed on you system, you will instead see a black screen with only the footage showing – This is normal and means that your sonde is functioning.

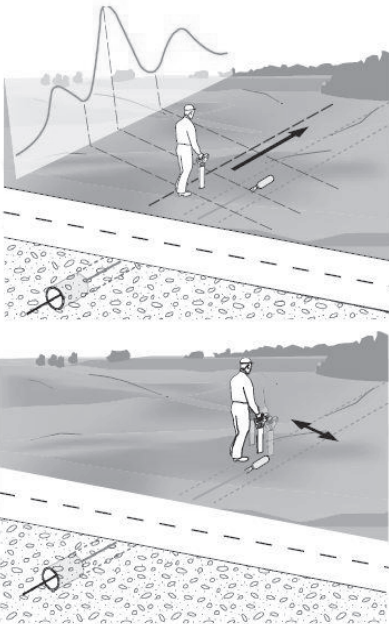


# LOCATING YOUR CAMERA

Models: PB2000, PB-Mycro, PB2400ES, PB3600ES

- 2) After your sonde is activated, it is time to use your locator. This page specifically shows how to use your PB550SL Digital Locator Wand in conjunction with your PB Series sewer camera.
  - a) Turn on your locator by depressing the yellow button in the handle grip.
    - i) NOTE: The locator will only remain on while this button is depressed.
    - ii) Letting go of the handle will automatically power off the locator.
  - b) You may change the active frequency by pressing the "F" button on the face of the locator.
    - i) NOTE: Each press will toggle the active frequency to the next on the list.
    - ii) 512Hz is the active frequency for your PB Series sewer camera system.
  - c) Facing the SAME DIRECTION as the pipe, begin to walk towards your camera as shown:

## How to Locate a Service Using the Sonde



1. Walk in line with the suspected direction of travel observing the display. The signal strength indicator will rise and fall as you pass over the ghost signal at the back of the Sonde, the peak signal directly over the Sonde and the ghost signal at the front. The numeric signal strength indicator will display its highest value when detecting the peak signal.
2. Retrace your steps and position the locator directly over the peak signal. Move the locator left and right until the highest numeric reading is obtained. This reading will indicate the Sonde's precise location.



- d) The most important number to look at on the locator is the "peak" number on the lower-right of the screen. Once that number is at its highest possible point AT THAT JOB, then you are directly above the sonde and in-line with it.
- e) When directly above the sonde, press and HOLD DOWN the red "i" button on the face of the locator. After approximately 2 seconds, it will beep and show you your depth measurement.

# DIGITAL ON-SCREEN FOOTAGE COUNTER

Models: PB2000, PB-Mycro, PB2400ES, PB3600ES

Your installed Digital On-Screen Footage Counter will display on the screen as follows:



The control panel for the Digital On-Screen Footage Counter is on the left half of your main controller:



The controls are as follows:

- 1) Reset – Will reset the on-screen footage count to 000.0
- 2) Hide Name – Will toggle the display of the name/phone number at the bottom-center of the screen on/off (if pre-programmed)
- 3) Hide Display – Will toggle the entire text overlay (date, time, count, name) on/off the screen
- 4) Set/Move – Use to set the date/time
- 5) Increment – Use to set the date/time

How to set the date/time:

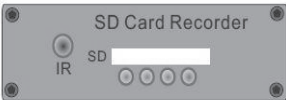
- 1) Hold down the “Set/Move” button for approximately 7 seconds until “Set Month” appears on the screen
- 2) Press the “Increment” button to raise the value of the high-lighted field +1
- 3) Press the “Set/Move” button to move to the next field, in this order: Month, Date, Years, Hours, Minutes, Seconds, Hour Mode
  - a) Hour Mode – Allows for 12 hour clock (AM/PM) or 24 hour clock
  - b) Seconds – Pressing the “Increment” button while on “Seconds” will reset to zero seconds
  - c) Pressing the “Set/Move” button after the “Hour Mode” field will remove you from programming mode.

# SD RECORDER SETUP & USE GUIDE

Models: PB2000, PB-Mycro, PB2400ES, PB3600ES

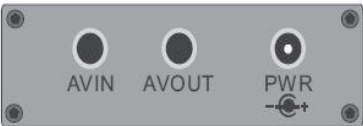
If you purchased your SD Card Recorder as an option along with your camera system, it will already be installed into your Control Box. Please refer to the end of this guide for installation instructions if purchased separately.

## FRONT PANEL



IR	IR led for remote control
SD	SD card slot, 32GB max.
1st Green Led(from left)	menu led, constant on when in menu mode; blinks when in playback mode
2nd Green Led	review led, constant on when in review mode; blinks when reading SD card
3rd Green Led	record led, blinks when recording
4th Green Led	power led, blinks when working

## REAR PANEL

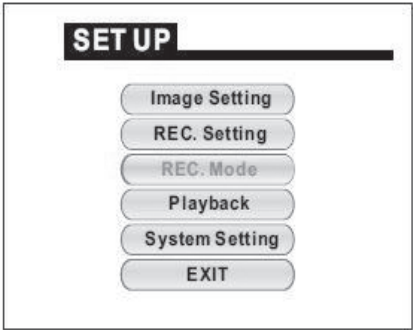


AVIN	video input
AVOUT	video output
PWR	power plug-in(5-30V)

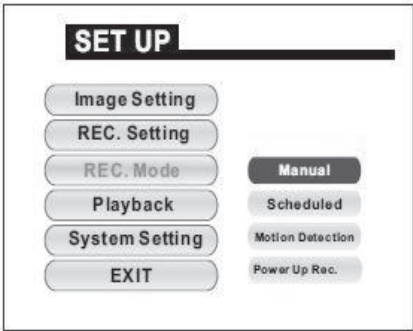
## RECORDER & REMOTE



The SD Card Recorder has options to record on power-up or by manually beginning and ending the recording. You may adjust those in the menu as shown:



set the recording mode for system



choose a mode first:

**Manual:**  
under this mode, press "OK" to start recording, and "STOP" to stop recording

**Scheduled:**  
system starts and stops recording according to the scheduled period preset

**Motion Detection:**  
system starts recording automatically by detecting motions in the area preset;  
\*2.5min section recording time is fixed

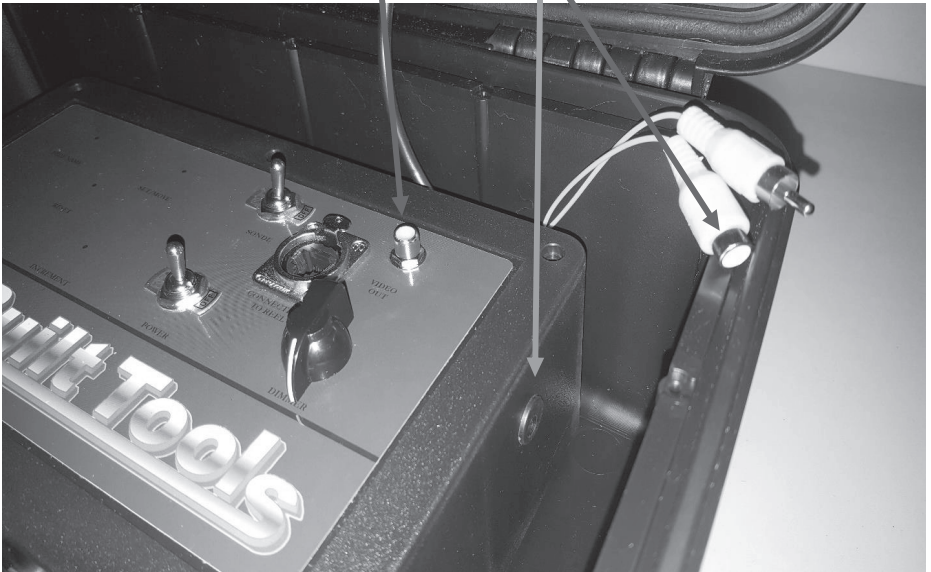
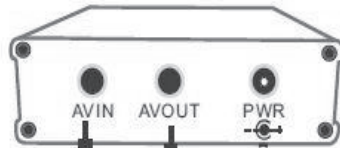
**Power Up Rec.:**  
system starts to record as soon as the power is on

"Manual" is the preferred method for setting up a recording. After applying the setting (which will be saved in the device memory), simply point your remote at the recorder and press "OK" to start recording and "STOP" to end recording. Once the recording is ended, the video file is automatically saved to your SD Memory Card.



### INSTALLING THE SD RECORDER TO YOUR SYSTEM

- 1) Route an RCA Cable from your SILVER "Video Out" jack on the top of the control box to the WHITE "Video IN" plug on the back of the recorder.
- 2) Route the WHITE "Video OUT" plug from the back of the recorder to the YELLOW RCA jack behind your Controller.
- 3) Apply a 12v power supply to the SD Card Recorder
  - a) Use the available 12v out jack on the right side of your recorder or,
  - b) Use the supplied 12v power supply to plug directly into a 110v wall receptacle



# TIPS IN THE FIELD

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- 1.) Run water down line to keep sapphire window clean and clear. Jiggle the head a little bit in the water for best clarity.
- 2.) If you stand too far back while pushing cable it may cause the cable to kink. Give your self enough room to push but not too much slack.
- 3.) DO NOT FORCE camera or cable down line. If you feel it just doesn't want to push stop pushing. It is for this reason cable will snap or fail.
- 4.) In some cases it is necessary to give the camera a little more momentum to go through certain areas of a pipe. Back up the camera holding one hand at the entry point and gathering up slack with the other as it feeds from the reel. With the slack make a figure eight with cable and twist back and fourth. This will pop the camera through. Please see diagram below.



## TIPS IN THE FIELD cont.

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5.) DO NOT hammer or slam the camera into pipe where it is just not pushing through. Use the technique described on tip 4. After you are comfortable with your system it may be easier to push thru the pipe fast and slowly pull back for your actual inspection. Pulling the camera back is always easier than pushing it through

6.) Pro-Built Tools Camera Systems have an automatic light adjustment. If the automatic light adjustment is not enough due to unusual circumstances in different or difficult pipe use your dimmer control knob to adjust for better picture quality.

7.) This camera is made to function through several bends and 90 degree angles. If it is resisting in any T or P-Trap do not force the unit. If you do manage to get through a tough T be careful not bend the camera head back on itself, as it may cause damage to the unit.

8.) After using your camera in a pipe pull it out and wipe the cable and head down with a moist warm towel and regular household detergent or soap. This will keep your equipment functioning longer.

# GUIDE TO “NO VIDEO/SIGNAL”

Models: PB2000, PB-Mycro, PB2400ES, PB3600ES

## “BLUE SCREEN”

- 1) Check that your camera head LEDs are powered on.
  - a) If they are not, and your LCD is “Blue Screen”, check that your pin connector is still plugged into the back of your camera head. (Refer to Head Removal/Installation Guide – NON MYCRO ONLY).
  - b) Check that your 6’ Reel to Control Box Patch Cable is completely plugged into both the Reel Side Box and the Control Panel. You may double check this cable by using any other standard CAT-5 or CAT-6 patch cable (same as your would use to plug your computer into an internet access <wall, router, etc>).
  - c) If they are not, and your LCD is “Black Screen”, refer to “BLACK SCREEN” section of this guide.
  - d) If they are on, proceed to next step.
- 2) Having lights on the head, but a “Blue Screen” on the LCD, check next the following:
  - a) Check that your 6-pin connection from the LCD to the controller is securely pushed in
    - i) NOTE: This connection is located INSIDE your Main Controller. Please call for technical assistance for properly accessing this connection.
    - ii) NOTE: This connection is a PUSH/PULL connector – DO NOT TWIST CONNECTION
    - iii) NOTE: Check the NOTCH PATTERN to ensure that the connector is plugged in correctly. DO NOT FORCE CONNECTOR TOGETHER.
  - b) Check your YELLOW RCA connector from your LCD is plugged into the SILVER video jack on the face of your control panel (either directly or via an RCA connector – both are correct)
    - i) NOTE: You have 2x YELLOW RCA connectors from the LCD. One is for V1 Channel and the other is for V2 Channel. Try both to the SILVER video jack.
    - ii) NOTE: If still not video, change the setting on the LCD from V1 to V2 (or vice versa) and retest each of the 2 YELLOW RCA connectors to your SILVER video jack.
- 3) Still having lights on the head, but a “Blue Screen”, route your video signal to a known working monitor/television. Simply run an RCA cable from the SILVER video jack on your control panel to the VIDEO INPUT of any television. Switch the active input on the TV to that input and see if you now have video on THAT screen.
  - a) If you do get video on a separate TV, then a problem may exist in your LCD or harness.
  - b) If you do not get video on a separate TV, then a problem may exist in your camera head, control board, or wiring in between.
  - c) In either of these cases, please call for technical assistance.
- 4) If you are still experiencing a “BLUE SCREEN”, please call for technical assistance.

# GUIDE TO “NO VIDEO/SIGNAL”

Models: PB2000, PB-Mycro, PB2400ES, PB3600ES

## “BLACK SCREEN”

- 1) Check that your camera head LEDs are powered on.
  - a) If they are not, and your LCD is “Black Screen”:
    - i) Make sure that your power supply is plugged into a wall receptacle that has confirmed good power.
    - ii) Make sure that your “Power” switch is in the “on” position.
    - iii) Check that your pin connector is still plugged into the back of your camera head (Refer to Head Removal/Installation Guide – NON MYCRO ONLY)
    - iv) If you still have “Black Screen” AND no power to your LEDs, please call for technical assistance.
  - b) If the LEDs are on, proceed to next step.
- 2) Press the Power Button on your LCD. If this does not turn it on, try pressing the Power Button on your remote control. If your LCD still does not turn on, proceed to the next step.
- 3) Check that your 6-pin connection from the LCD to the controller is securely pushed in
  - a) NOTE: This connection is located INSIDE your Main Controller. Please call for technical assistance for properly accessing this connection.
  - b) This connection is a PUSH/PULL connector – DO NOT TWIST CONNECTION
  - c) Check the NOTCH PATTERN to ensure that the connector is plugged in correctly. DO NOT FORCE CONNECTOR TOGETHER.
  - d) Again, try to turn on your LCD with the Power Switch. If this does not work, try pressing the Power Button on your remote control.
- 4) Still having lights on the head, but a “Black Screen”, route your video signal to a known working monitor/television. Simply run an RCA cable from the SILVER video jack on your control panel to the VIDEO INPUT of any television. Switch the active input on the TV to that input and see if you now have video on THAT screen.
  - a) If you do get video on a separate TV, then a problem may exist in your LCD or harness.
  - b) If you do not get video on a separate TV, then a problem may exist in your camera head, control board, or wiring in between.
  - c) In either of these cases, please call for technical assistance.
- 5) If you are still experiencing a “BLACK SCREEN”, please call for technical assistance.

# TROUBLE SHOOTING

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## **VIDEO WORKS–LIGHTS DON'T TURN ON**

Possible Problems:

- Lights Burnt out
- Dimmer Control Switch Turned Down
- Dimmer Control Switch Broken
- Broken or loose connection in or to Camera Head.

### **TRY THIS:**

- 1) Turn dimmer control all the way down and then all the way back up.
- 2) Bend spring back/forth behind camera head. If lights flicker, follow head removal/install guide to inspect.
- 3) If problem persists, please contact a technician at the number in the back of this manual.

## **NO LIGHTS - NO VIDEO**

Refer to “No Video/Signal” Guide

# TROUBLE SHOOTING

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## **HORIZONTAL WAVY LINES ACROSS SCREEN**

Possible Problems:

- 512 Hz Sonde Switch is in the ON position
  - Turn Switch to the OFF position
- Faulty Video Cable or Connector
  - Clean or replace video connectors/cables
- Dirty Monitor
  - Clean LCD (powered down) with damp cloth

If problem persists, please contact a technician at the number in the back of this manual.

# **TROUBLE SHOOTING**

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## **BLURRY / SCRAMBLED / DISTORTED PICTURE**

Possible Problems:

- Monitor Broken or Damaged
  - See “No Video/Signal” Guide
- Faulty Video Cable / Connection
  - See “No Video/Signal” Guide
- Moisture in Camera Head
  - Visually inspect camera head for signs of moisture inside of lens. DO NOT OPEN CAMERA HEAD. If head has been tampered with or abused, as seal may have been broken and allowed moisture into the head.

If problem persists, please call a technician at the number listed in the back of this manual.

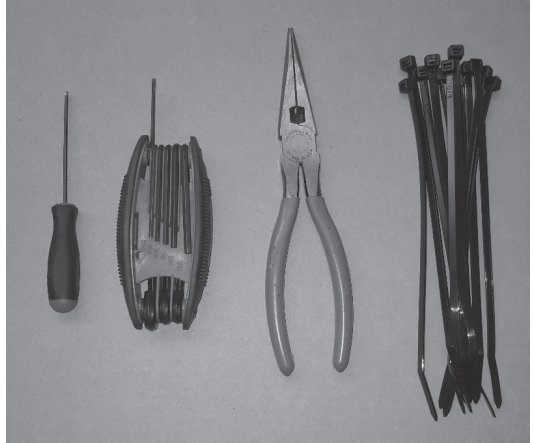


# HEAD REMOVAL & INSTALLATION GUIDE

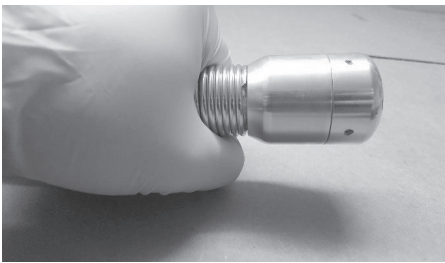
Models: PB2000, PB2400ES, PB3600ES

## TOOLS REQUIRED

- 1) Set of Needle Nose Pliers
- 2) 5/64" Allen Key
- 3) Zip Ties



- 1) Pull your camera head assembly from the reel and add a zip tie to the frame to secure the reel from spinning during the head removal process.
- 2) Note the rotation of the spring assembly towards the camera head.
- 3) Using your hands, rotate the spring in the SAME DIRECTION as the rungs (facing the camera head) and PULL the head from the spring - This motion DECOMPRESSES the spring from head.

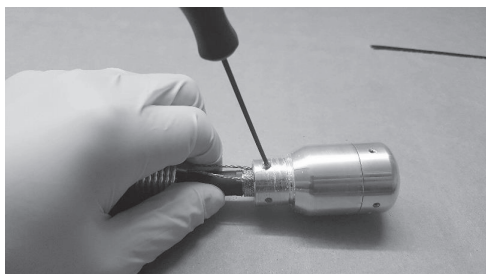


*NOTE: Pro-Built Tools recommends that you send your equipment to an authorized service center and have an authorized Pro-Built Tools Technician work on your product. Please contact a technician for further diagnosis and instructions.*

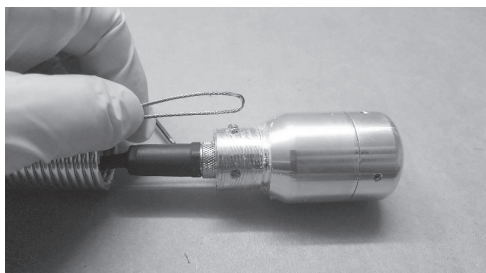
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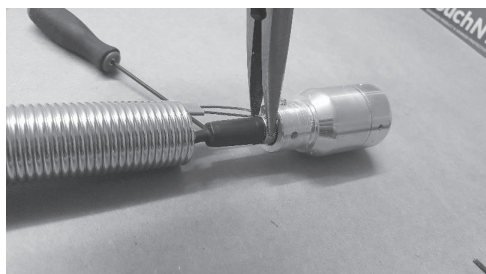
- 4) Once the head is removed from the spring, use a 5/64" Allen Key to back out the SINGLE set screw that lines up with the loop of the tension cable.



- 5) Once backed out (or removed completely), you may pull the tension cable from the head. If it does not pull out completely, that's OK. It can come out easily after the pin connector is removed (see ahead).



- 6) Use your needle nose pliers to unthread the KNURLED RING from the back of the camera head. DO NOT SPIN THE WIRES OR THE HEAD in this process. The threads on the knurled ring are a fine thread, so it will take several turns to completely back it out. Once unthreaded, it will pull back from the camera head VERY EASILY.

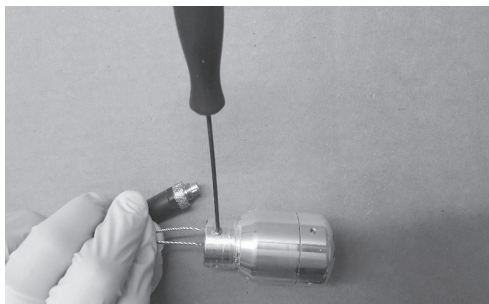


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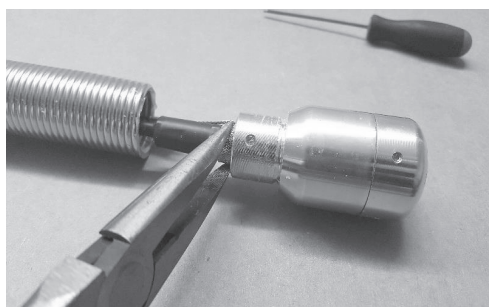
# HEAD REMOVAL & INSTALLATION GUIDE

Models: PB2000, PB2400ES, PB3600ES

- 7) To install a camera head, begin by installing the tension cable loop. Be sure that your set screw is going **THROUGH** the loop of the tension cable and not simply pinching it in place.



- 8) Line up the notch (key-way) from the pin connector to the matching notch (key-way) in the camera head. It is designed to only be installed in one orientation. **DO NOT FORCE IT INTO PLACE.** Once in place, use your needle nose pliers to tighten the pin connector to the camera head. Only tighten the pin connector to the head  $\frac{1}{2}$  turn past snug. **DO NOT OVERTIGHTEN.**



- 9) To attach the spring to the head, note the rotation of the spring assembly towards the camera head. Using your hands, rotate the spring in the **SAME DIRECTION** as the rungs (facing the camera head) and **PUSH** the head into the spring - This motion **DECOMPRESSES** the spring and allows the head to fit inside. Once you let go, the spring is recompressed to the head and the installation is complete.
- 10) Remove any zip ties applied to the reel for stabilization and return the camera head assembly to the reel.

*NOTE: Pro-Built Tools recommends that you send your equipment to an authorized service center and have an authorized Pro-Built Tools Technician work on your product. Please contact a technician for further diagnosis and instructions.*

# WARRANTY INFORMATION

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All ProBuilt Tools, Inc. Inspection Camera Systems are warranted by ProBuilt Tools, Inc for a period of five years from the purchase date. The warranty covers manufacturer defects - parts & labor. The warranty does not cover any shipping or handling charges incurred. ProBuilt Tools, Inc. does not assume any liability for damage caused by shipping, accidents, neglect, abuse, tampering, misuse, or repairs done by another person or entity. At no time is ProBuilt Tools, Inc. responsible for loss of work while equipment is in for service. For Warranty Work please contact our service center.

## CONTACT INFORMATION

Pro-Built Tools  
214-503-0402