HUNTRON
Access Explore Discover

Huntron Access

Automated Probing Station

USER'S MANUAL

P/N 21-1328
Rev. 2, 9/03

Thank you for purchasing a Huntron Access !

Contacting Huntron

To obtain information about service, accessories and other products, contact:

Huntron Inc.
15720 Mill Creek Blvd., Suite#100
Mill Creek, WA 98012
USA

In North America, call 800-426-9265 or 425-743-3171.

Huntron is also accessible by:

- FAX: 425-743-1360
- Internet E-mail: info@huntron.com
- Internet Home Page: www.huntron.com

HUNTRON, INC.
LIMITED WARRANTY

Huntron, Inc. believes in the quality of its products. Accordingly, Huntron provides the following non-transferable warranties for the benefit of the original end-use purchaser of the Huntron Access Prober.

Huntron warrants that the Huntron Access Prober hardware shall be free from defects in material and workmanship for one (1) year from the date of purchase. The above warranties are in lieu of all other warranties, express or implied, including all warranties of merchantability and/or fitness for a particular purpose. Huntron's liability under these warranties, including any damages sustained by the customer through malfunction or failure of the Huntron software, shall not exceed the amount of the purchase price of the Huntron Access Prober, regardless of the extent of any such damage, including any special, consequential, or incidental damages of any kind.

These warranties shall only apply to products in ordinary use. Huntron shall have no obligation under these warranties with respect to damage caused by accident, transportation, neglect, misuse, unauthorized alterations or repair, improper installation, or operating conditions.

Products purchased in the United States are to be returned to Huntron, Inc. at its factory, transportation prepaid. Products purchased outside the United States are to be returned to the source of purchase for Warranty repair.

Written notice of, and an explanation of the circumstances of, any defect believed to be covered by this agreement shall be provided promptly to Huntron by the customer following discovery of the defect. In satisfaction of its warranty liability, Huntron agrees to take reasonable and prompt action to correct the defect, either by repair or replacement, at its option.

LICENSE

Huntron hereby grants the customer a non-transferable, non-exclusive license to use the Labview Drivers and related software provided with the Huntron Access Prober. The license is perpetual as long as the customer abides by the terms and conditions of this agreement. The customer shall not remove or obscure any copyright notice or notices included on or as part of the Huntron software.

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SECTION 1
INTRODUCTION

1-1 What is a Huntron Access Prober?

A Huntron Access Prober is a universal test fixture for accessing test points on printed circuit assemblies. The Huntron Access provides physical access to fine pitched Printed Circuit Assemblies (PCAs). When combined with any test instrument like a Digitizing multi-meter, Oscilloscope, Signal Generator, LCR meter, Functional Tester, In-circuit Tester, Analog Signature Analyser or any custom test instrument that uses Labview Drivers,the Huntron Access allows test engineers and technicians to test and troubleshoot their difficult and elusive problems on PCAs. Using industry standard Labview drivers, users can customize their test applications using National Instruments Labview and Lab-Windows. Full control of all the working functions of the Huntron Access is available via Labview and Lab-Windows/CVI.

The user can replace the built-in test probe with a custom probe suitable for the user's custom application. The Z-axis consisting of the Probe, Motor Electronics and Camera, can be replaced by a user specified Z-axis.

1-2 How does it work?

The Huntron Access Prober basically consists of three axis which moves a test probe along an XY plane. Once the probe reaches an XY co-ordinate, an up or down Z movement can be initiated so that the test probe makes contact with a test point on the target printed circuit board. Each X, Y and Z stage is stepper motor driven.

The color camera installed on the Z axis displays a high resolution image of the printed circuit assembly on the PC monitor. Using Linear encoders and micro-stepping, accurate and repeatible movements can be achieved, thus allowing CAD data from other software packages to be imported. XY location of test points are then accessible, resulting in minimum user error.

1-3 HARDWARE FEATURES

A complete troubleshooting workstation consists of a PC, Huntron Access Prober and a Test Instrument. The Test Instrument is customer defined and should have Labview drivers allowing integration

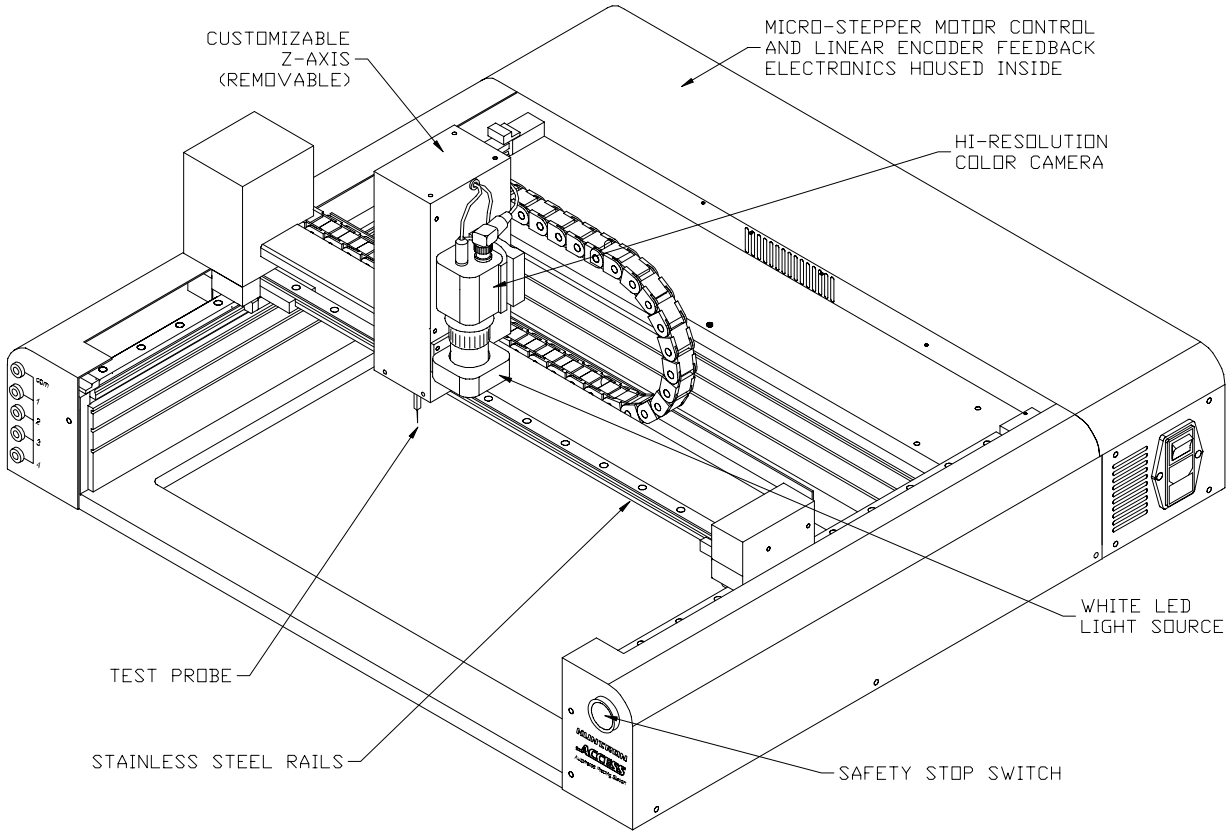
New Hardware Features of the Huntron Access Prober

- The XYZ stages are stainless steel linear raceways providing an accurate means of moving a light load.
- Uses linear encoders for the X and Y axis which provide feedback for error correction
- The linear stages use fine pitched toothed timing belts which are driven by stepper motors.
- Micro-stepping drivers can micro-step the stepper motors to 4000 steps/revolution allowing a 0.3937 mil or 10 microns resolution. The Micro-stepping mode is automatically selected depending on the distance moved.
- A versatile clamping system provides an easy means of clamping the printed circuit assembly so that the moving probe can access either the solder or component side without the need for additional fixturing.
- Connection to any external tester is via two BNC connectors mounted at the back of the Prober. One BNC connector is for the Signal from the external tester, and the other is for Common to the external tester.
- The Signal BNC connector is routed to the test probe via a flexible low impedance co-axial cable.
- A camera mounted on the Z axis produces a digitized color image of an area of the printed circuit assembly on the PC monitor. A high-resolution color camera with adjustable focus and aperture is used.
- Magnetic proximity limit switches are used to define the “home” position.
- The test probe tip mounted on the Z axis is removable, allowing standard “bed-of-nails” type spring loaded probe tips to be used. Different probe tips are supplied covering conformal coating applications to fine pitched crown pointed tips.
- A Frame Grabber is used to display live images of the printed circuit assembly on the PC monitor. Digitizing test points then involves clicking on the pixels of the camera image.
- An optional Compact-PCI/PXI Frame Grabber card can also be used for PXI based computers.
- The Base Cover of the system can be removed for convenient access to components and other test points, allowing the printed circuit assembly to be powered by a customer supplied power supply.
- Custom printed circuit assembly fixtures for accessing the bottom of the printed circuit assembly can be mounted into the universal board clamping system. The Probing station can be raised 6” higher for mounting these fixtures.
- The Spring loaded probe on the Z axis can be directly wired to any Oscilloscope probe via a optional clamping system mounted on the Z axis. Custom cables from the customer’s test equipment can also be wired to connect to the probe pin.
- All flexible cables are shielded.

- An emergency STOP switch allows immediate suspension of Prober operation.
- There are 5 Common connectors accessible at the front panel which allows connection to the printed circuit assembly signal reference points.

Software applications for the Huntron Access Prober

- Labview drivers allow control of the machine.
- A user who is familiar with National Instruments Labview can control the motion system and use the camera image for digitizing the xy location of test points.
- Using a customer defined test instrument supported by Labview will allow the Prober to access test points on the printed circuit assembly.
- Labview and LabWindows CVI driver allows you to develop your own applications.



Huntron Access Prober.

1-4 Huntron Access Prober Specifications.

Specification	Access Prober P/N 99-0376-30	Comments
Physical Dimensions	26.5" W, 24.5" D, 13" H 67.31 cm W, 62.3 cm D, 33.02 cm H	
Max. board-under-test size	19.4" W by 14" D (49.276 cm W by 35.56 cm D)	Max thickness is 100 mils (2.54mm)
Max board probing area	15.3" W by 12.9" D (38.86 cm W by 32.77 cm D)	Area of the board that the probe can reach without re-adjusting the position of the board
Max allowable component height	2.375" H (6.03 cm)	Measured from the lowest slot
# of pcb guide slots	3	
Max Z Travel	2.21" (5.61 cm)	Maximum allowable up/down movement
Linear speed	5 inches/sec (12.7 cm/SEC)	Speed in the X or Y direction
Minimum resolution	0.3937 mil (0.0003937") (10 microns)	Minimum allowable movement in the X or Y direction
Probing Accuracy	+/- 0.7874 mil (0.0007874") (20 microns)	Over a travel distance of 10" (25.4 cm)
Vision system	CCD 811(H) x 508(V) Color	
Light Source	White LED array w/adjustable Intensity	
Lens system	25mm Focal Length C mount with adjustable focus and aperture	
Frame Grabber	Color, PCI , PXI or Compact PCI Bus with 754 x 480 Pixels (NTSC, RS-170) maximum resolution.	Requires full height PCI slot in computer. PXI or Compact PCI bus card requires a PXI chassis or Compact PCI chassis with a 3U, 32 bit, 33 MHz slot. Type of card must be chosen from Huntron approved list and is priced separately from Access.
Linear Encoder	Resolution 0.3937 mils (10 microns)	
Microstepping	Automatically adjusted. 4000 micro-steps per revolution	
Weight	63 lbs (28.64 kg)	Unit only
Mechanical Drive System	6 mm Wide steel reinforced Timing belt. Steel linear raceways.	
Power requirements	115VAC or 230VAC,50Hz or 60HZ ,100W Max	
Computer interfaces	RS232 and PCI or PXI/Compact PCI camera interface	PCI or PXI/Compact PCI interface is on the frame grabber.
Operating temperature	59 degrees F to 86 degrees F (+15 degrees C to +30 degrees C)	
Storage temperature	-58 degrees F to 140 degrees F (-50 degrees C to +60 degrees C)	
Humidity	0 to 50% R.H.	
Safety considerations	Front panel STOP switch for emergency stop	CE mark and ETL listed

1-5 SAFETY INFORMATION

Symbols:

The following symbols are used either in this manual or on the unit:

CAUTION
Refer to Manual

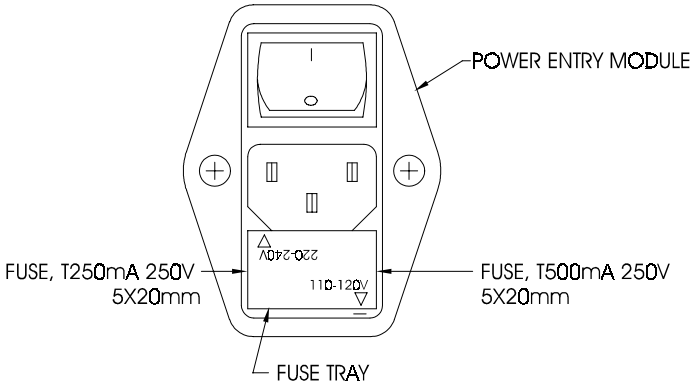
Protective Ground
(Earth) Terminal

The Access Prober conforms to the following European Directives:
Low Voltage Directive 73/23/EEC
Low Voltage Directive 93/68/EEC
EMC Directive 89/336/EEC

Meets ETL Standard for Electrical Equipment for Laboratory Use: Part 1: General Requirements (UL 61010A-1, 1st Edition, 01/30/2002) and Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements (CAN/CAS C22.2 No. 1010.1-92)

⚠ Line Fuse Replacement:

Voltage Select/Line Fuse tray: The power entry module on all Probers includes the power switch (0 = OFF, 1 = ON), power cord connector, and a removable tray which selects the line voltage and holds the line fuses.



Make sure that replacement fuses are of the type and current rating specified. If necessary, insert the specified fuse (T250mA or T500mA according to IEC 127) that matches the line voltage setting into the fuse tray.

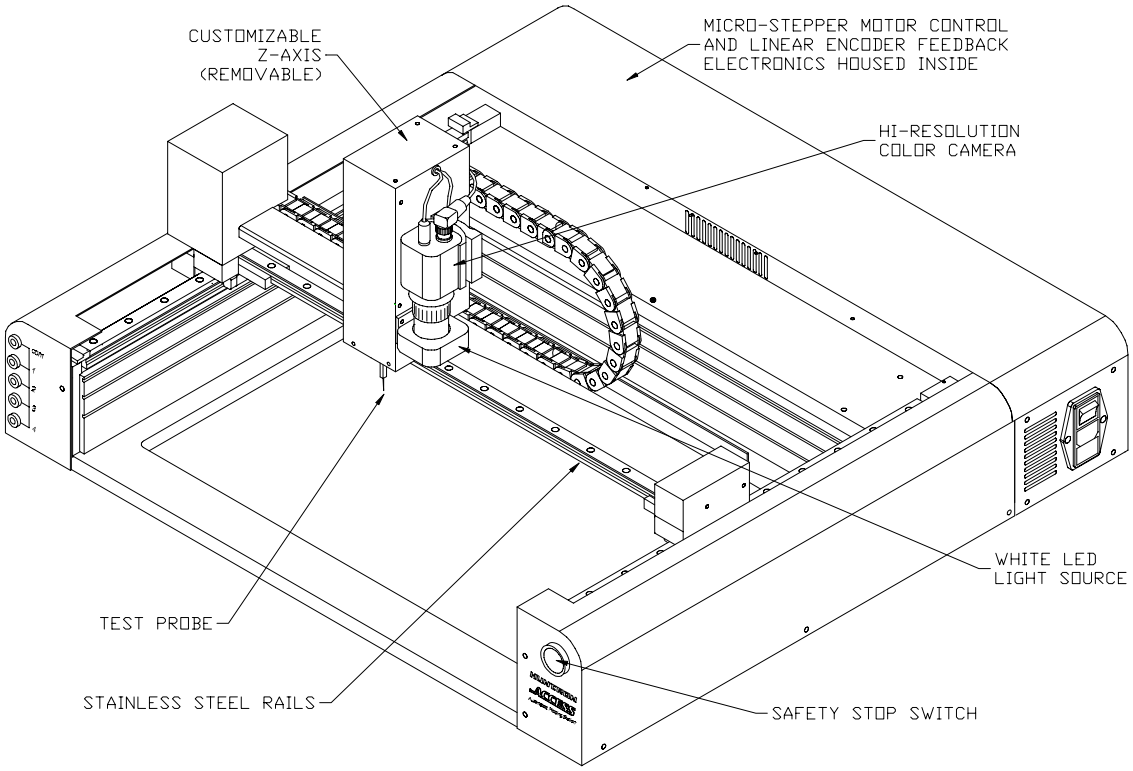
SECTION 2
THEORY OF OPERATION

2-1 INTRODUCTION

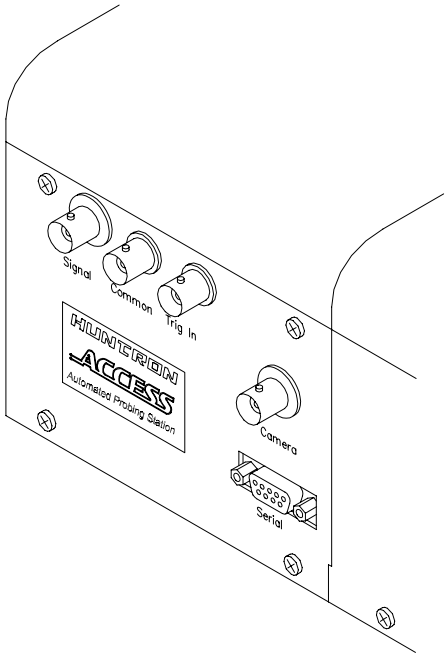
The purpose of this section is to simply explain the functional characteristics of the main components of the Prober system.

2-2 FUNCTIONAL OVERVIEW

The following figure shows the components of the Prober system.



The probe connected to the Z axis is directly connected to the BNC Signal connector located at the Prober back or side panel. The vision system displays an image of a small area of the printed circuit assembly on the PC monitor for setting up the XY locations of test points.



2-3 STEPPER MOTOR CONTROLLER

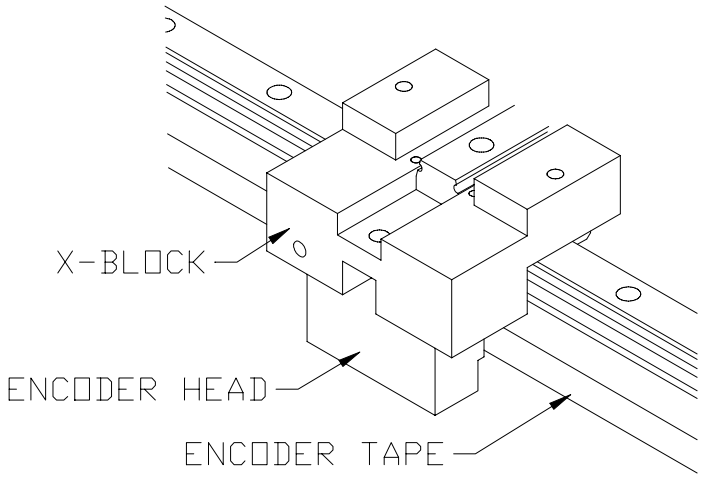
The Stepper Motor Controller receives ASCII commands from the PC.
The controller applies direction pulses for clockwise or counter-clockwise rotation and step pulses at different frequencies to the motor driver

2-4 STEPPER MOTOR DRIVERS

The purpose of the Motor Drivers is to supply sufficient and regulated current to each phase of the motor winding. . The Motor driver uses micro-stepping, dividing each motor step into fractional steps, thus allowing very small movements useful for accuracy and error correction. Each 0.9 degree step of the stepper motor can be further subdivided into 4000 micro-steps, resulting in a minimum movement of 10 microns or 0.3937 mils.

2-5 LINEAR ENCODER

Linear encoders are used to report to the system the exact location of the Z axis housing which holds the test probe. Optical readers mounted in each axis reads the engraved lines on a metal tape. These lines are spaced 10 microns or 0.3937 mils apart. The optical reader automatically outputs quadrature signals to the controller, thus reporting its position after every movement. The reported position is then compared to the theoretical position and corrections are made automatically by the controller and the associated software. The linear encoder serves as the most important function for maintaining accuracy of movements.

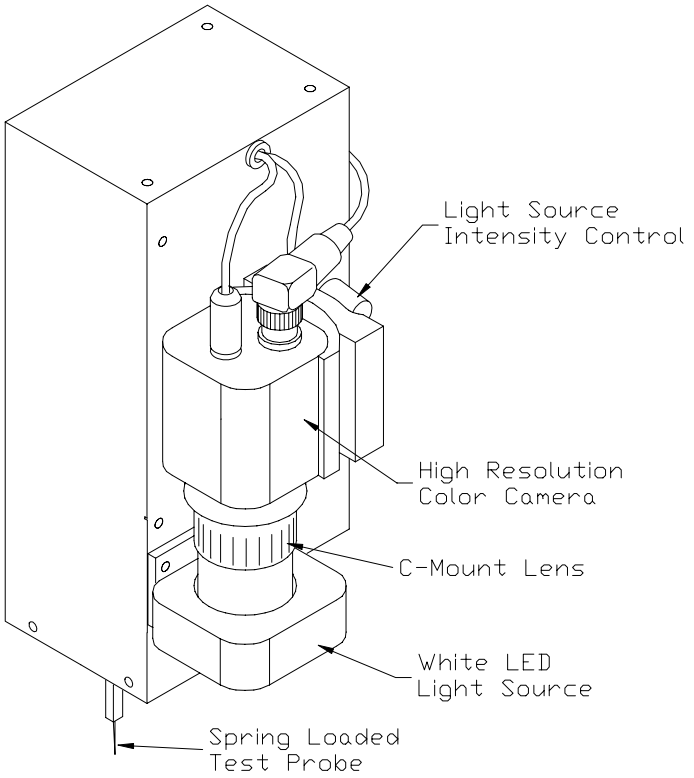


2-6 VISION SYSTEM

The vision systems consist of a high-resolution color analoge camera mounted on the Z-axis. The color camera is capable of 480 lines of horizontal resolution in the NTSC (rs-170) format. It has automatic background compensation, which allows for digital brightness control on low or highlighting conditions. The camera uses a standard 25 mm C mount lens that has aperture and focus control. The aperture and focus adjustments can be locked into position via setscrews or knobs.

The camera output is available via a co-axial cable with a BNC connector. The output is fed into a frame grabber which is installed in the computer. The frame grabber is capable of displaying 60 frames per sec on the PC monitor. Images are in full color.

A Ring light source with intensity control is mounted in front of the camera. It uses 8 super bright white LEDs, which produce, diffuse and evenly distributed white light.



SECTION 3
INSTALLATION

3-1 PC Requirements

The following requirements are provided to assist you in purchasing the correct computer system to use with the Huntron Access Prober.

These are the recommended minimum computer requirements:

- Windows 16 bit or greater color capable VGA graphics.
- VGA color monitor.
- 1 Free Serial (RS232) port for communicating with the Access Prober.
- One free full height PCI slot or Compact PCI/PXI slot for the Camera Frame Grabber card.

3-2 Software

The Huntron Access and it's software drivers allow the design and implementation of custom test stations. Software Drivers are provided for custom application development in National Instruments Labview or LabWindows/CVI.

Refer to Labview or Labwindows/CVI documentation for proper use of the drivers on the CD provided.

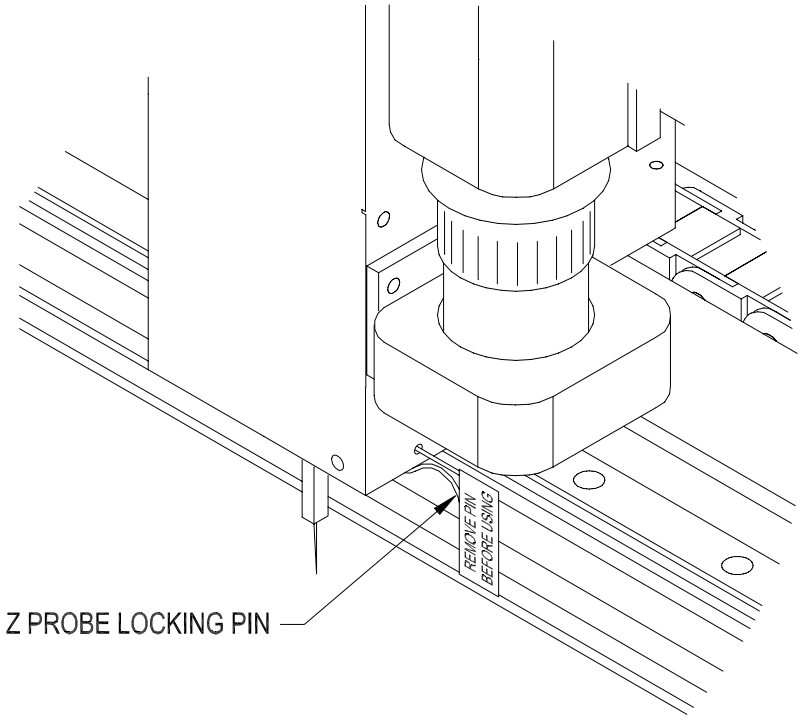
For Driver and related software installation instructions, refer to the Readme file on the CD.

3-3 Installing the Hardware

1. Open the Prober box, **top side up** and locate the unpacking sheet.
2. Follow the unpacking steps as outlined in the unpacking sheet.
3. Place the Prober on a firm table or desk.
4. Remove the **red shipping stoppers** using the Hex Allen tool supplied in the tool

kit. Do not discard these blocks. You will need them again if you transport the Prober to another location.

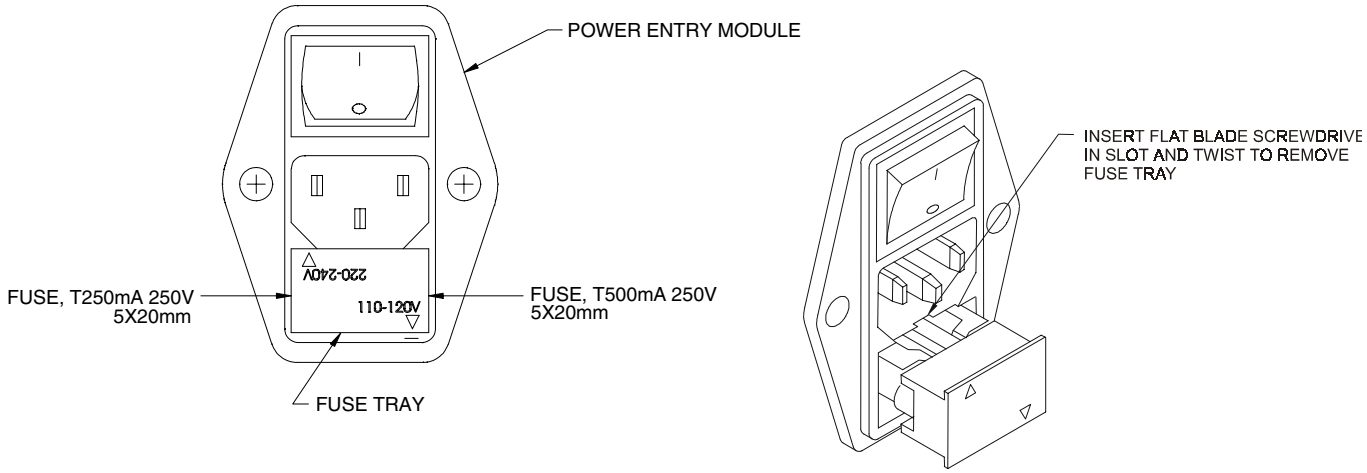
5. Remove the **Z locking pin** located near the Probe tip. Do not discard this pin. You will need this pin for locking the probe head when transporting the unit.



CAUTION: Remove Z Lock Pin before powering up this unit.

Note: To reinstall Locking Pin for repacking, push the Z probe all the way up first, then install pin.

6. **Voltage Select/Line Fuse tray:** The power entry module on all Probers includes the power switch (0 = OFF, 1 = ON), power cord connector, and a removable tray which selects the line voltage and holds the line fuses.



220-240VAC Voltage Selection.

NOTE: The above voltage setting indicates **110-120V AC power (arrow pointing towards the — mark.) If your line voltage is 220–240VAC, you will need to change the Voltage Select/Line Fuse Tray setting.** Remove the AC power cord. There is a slot below the AC ground terminal. Insert a flat screw driver into the slot and pull the tray out. Make sure that replacement fuses are of the type and current rating specified. If necessary, insert the specified fuse (T250mA or T500mA according to IEC 127) that matches the line voltage setting into the fuse tray. Insert the tray into the power module so that the 220-240VAC arrow points to the **—** mark. Insert the AC power cord and connect to a 220-240 Volt AC supply.

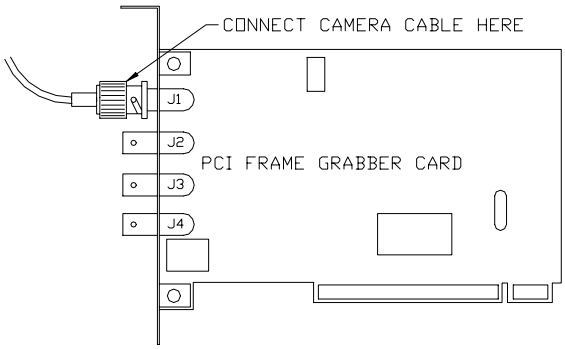
3-4 Installing the PCI or Compact PCI/PXI Frame Grabber Card

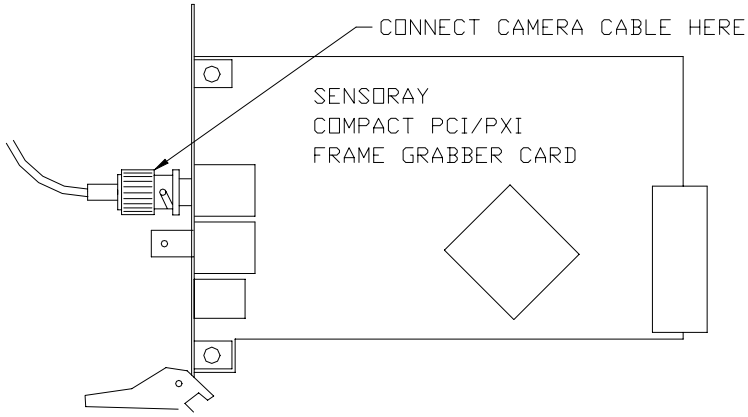
With the computer power turned off, install the appropriate Frame Grabber card into the computer. There is no need to set any addresses or interrupts. Secure the camera card to the computer back panel using available screws.

3-5 Connecting the Camera system to the Sensoray Frame Grabber Card.

Note: If your system was purchased with the Sensoray Frame Grabber card, follow the instructions below. For the National Instruments Frame Grabber card, refer to section 3-6.

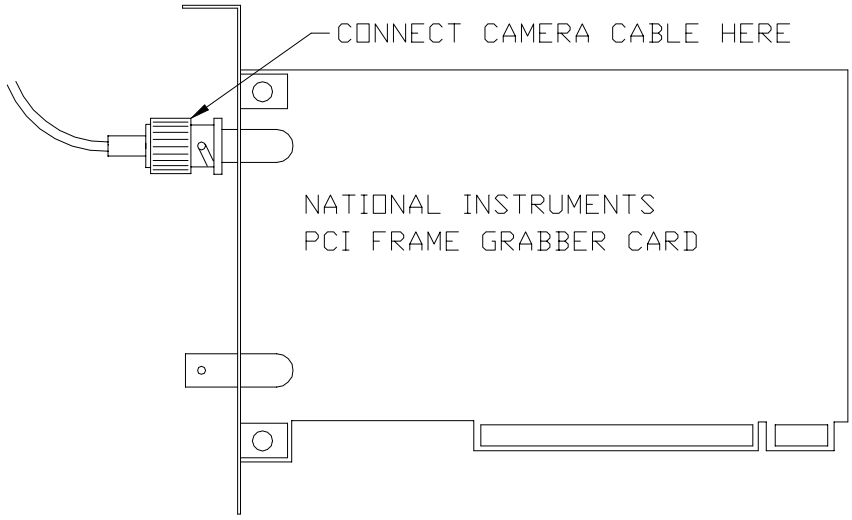
A co-axial cable is supplied with the Huntron Access Prober. The Sensoray PCI camera card has four BNC connectors allowing up to 4 cameras to be connected. The Sensoray Compact PCI/PXI Camera card has 2 BNC connectors. Connect one end to the top BNC connector as shown. Connect the other end to the BNC port on the Prober marked **"Camera"**

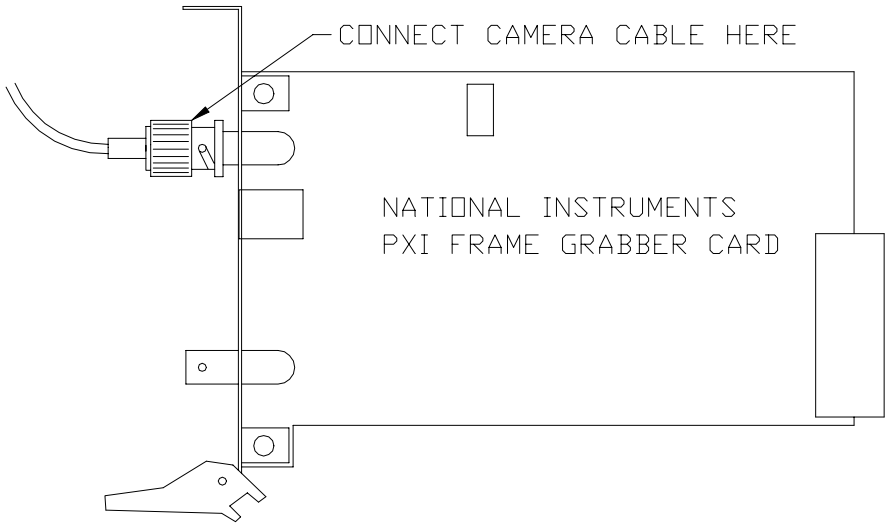




3-6 Connecting the Camera system to the National Instruments Frame Grabber card.

A co-axial cable is supplied with the Huntron Access Prober**.** The National Instruments card has two formats, PCI and PXI. Connect one end of the supplied co-axial cable to the top BNC connector as shown below.





3-7 Connecting the Prober Serial Interface to the Computer

If your computer does not have a mouse port, you will need two serial ports, one for the Huntron Access Prober and the other for a serial mouse or trackball. If you have another type of port (USB) for the mouse, then you will need only 1 serial port for the Huntron Access Prober.

Locate the serial cable and connect the correct end to the Prober Serial port. Connect the other end to the appropriate serial port on the computer (COM1, COM2, COM3 or COM4).

3-8 Power-up sequence.

Power up the computer first. New drivers will be automatically installed. Follow the software instructions in the readme.txt file on the software CD.

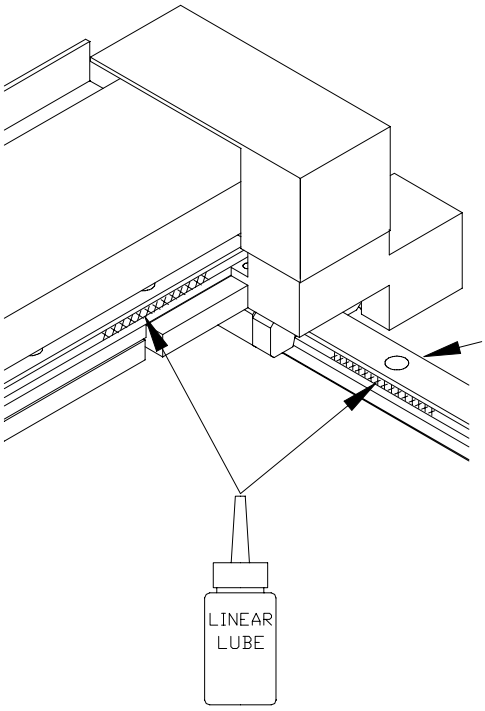
Power up the Huntron Access Prober. The green light in the stop switch housing will stay on. The Z probe assembly will automatically move upward to it's Z home position. The camera light source will be on. The camera will automatically power on.

If you need further assistance, call the Huntron Technical Support at
1-(800)-426-9265 or (425) 743 3171.
Email: support@huntron.com

SECTION 4
GENERAL HARDWARE MAINTENANCE

4-1 RAIL LUBRICATION

The linear raceways have to be lubricated using the supplied “linear lube” which is included in your Tool kit. Do not experiment with any other lubricant. Turn the Prober power off. Apply a generous amount of lubricant along each side of the rail as shown below. Manually move the Z axis left and right and then back and forth in order to spread the lubricant along the raceways.



We recommend lubricating the rails at least once a month. You should wipe clean the rail surface with a lint-free cloth if excessive dust is visible prior to lubricating rails.

4-2 CALIBRATION REQUIREMENTS.

Under normal operating conditions, there are no other customer calibration requirements. The unit is already factory calibrated. If the unit is out of calibration which can be determined by simply digitizing a few xy test point locations and accessing those points repeatedly. The camera image should show that those test points are consistently and accurately accessed. The cross-hair on the camera image should be accurately positioned over the center of every test point previously set up.

If the unit is out of calibration, please call Huntron Technical Support for further instructions.

4-3 SPRING CONTACT TEST PROBES

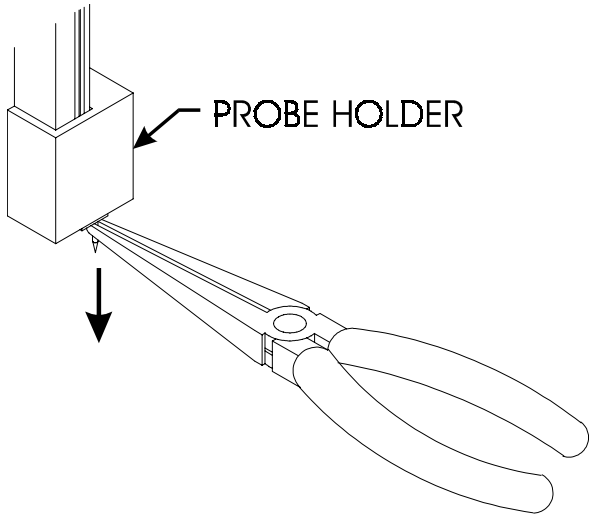
The Prober uses a spring loaded probe for making contact with a test point. Various probe styles are available depending on the type of components tested. These probes are commonly used in bed-of-nails fixtures and are readily available from a large number of manufacturers. Since the probe fits into a specific receptacle, only specific probe sizes can be used. The receptacle is press-fitted into the probe holder. It is a widely used industry standard size, so finding probes that fit into this receptacle should not be a problem. Manufacturers of these probes and the receptacle specifications are listed at the end of this section.

LIFE EXPECTANCY OF SPRING CONTACT PROBES

Generally, quality probes like those from Interconnect Devices Inc. (IDI) are rated at 1,000,000 cycles minimum. The life expectancy depends on proper use and maintenance of the probe. We recommend that you change the test probe once a month.

4-4 REPLACING THE PROBE

Use the needle nose pliers supplied with the Prober tool kit to pull the probe out of the receptacle. **It is not necessary to remove the probe holder to do this**. Simply grip the probe tip with the pliers and pull straight downward. The probe should come out easily.

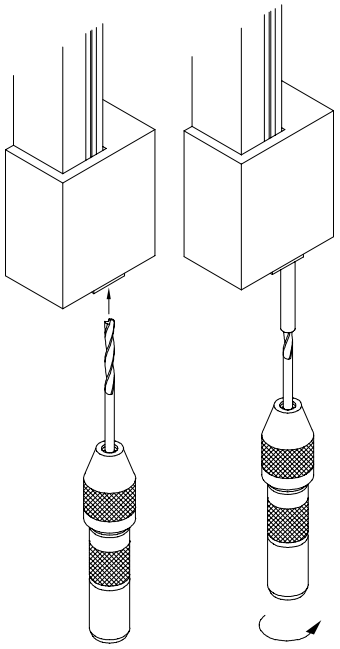


Note: Changing the probe may cause the distance from the center of the probe to the center of the camera to change. Make sure the developed application has a way of compensating for this change.

4-5 REPLACING BROKEN PROBE TIPS

It is not necessary to disassemble any parts for this operation. The probe tip may break off from the probe holder in such a way that you are unable to remove the entire part with needle nose pliers.

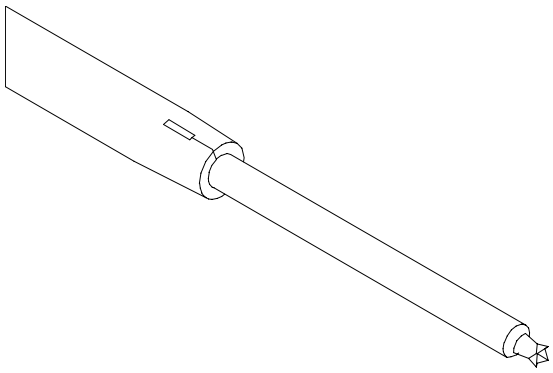
A small drill bit is provided. Simply rotate the drill bit a few revolutions and when you feel some resistance, just pull downward. The rest of the broken tip will come out.



4-6 PROBE STYLES

A probe kit (P/N 98-0126) is supplied with the Prober. 5 of each of the following probes are included in this kit.

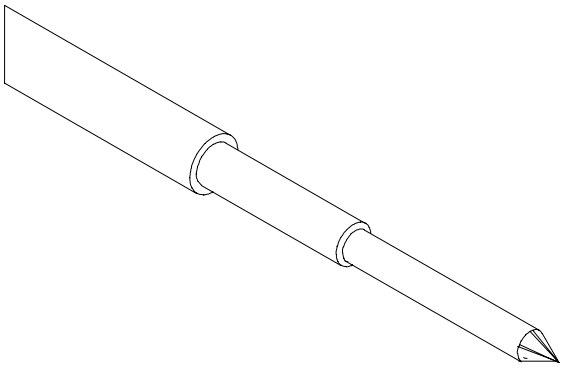
ICT, 4 POINT CROWN PROBE



Use this probe for fine pitched devices. (tip diameter = 18 mils) Best pointing accuracy of any probe.

IDI part number ICT-S25UR-5.5DGD-S
(Huntron P/N 07-2112)

FLEX TIP SPEAR PROBE

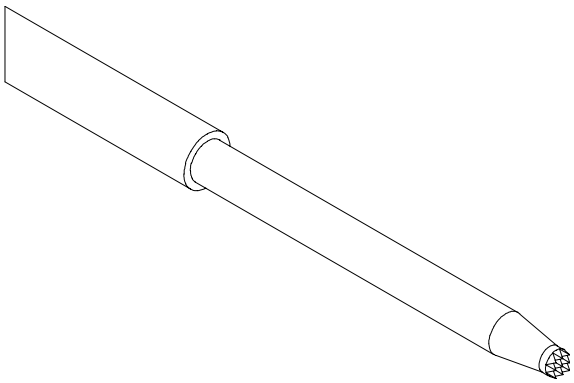


Used for testing contaminated boards or conformal coatings.

Fine pitch devices can also be tested with this probe.

IDI part number S25FX-5.5DS
(Huntron P/N 07-2111)

9 POINT TAPERED SERRATED PROBE



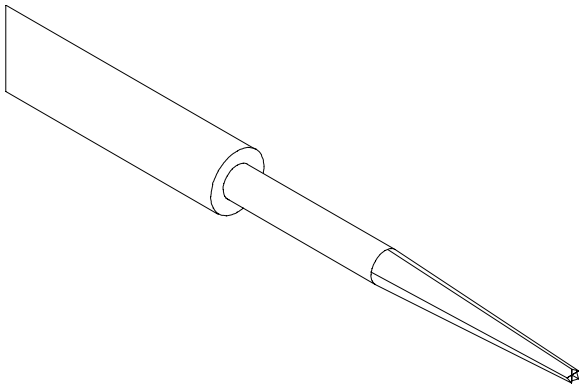
Used to test leads, lands and pads.

Used for densely populated boards and fine pitched devices.

Best for 50 mils or wider spaced leads or pads (tip diameter = 25 mils).

IDI part number S25HT-10DS
(Huntron P/N 07-2107)

4 POINT TAPERED CROWN PROBE

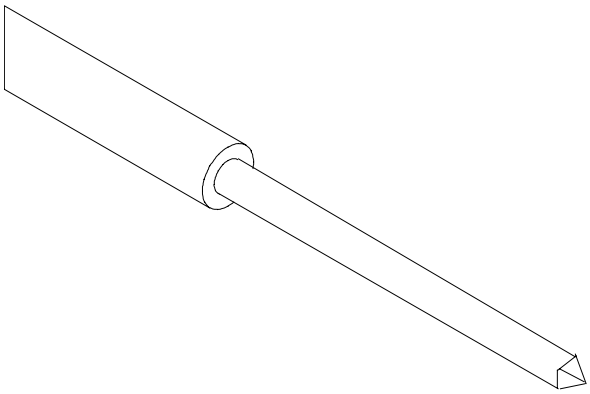


Used to test leads, land and pads on densely populated boards.

Best for small pad or SMD testing (tip diameter = 11 mils).

IDI part number S25UT-6.7G
(Huntron P/N 07-2120)

30 DEGREE SPEAR POINT PROBE

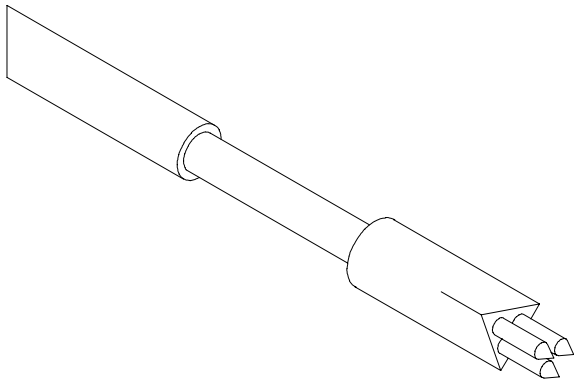


Use this probe for testing land pads and plated through holes. The spear point penetrates thin layers of oxides or contaminates.

Extended length for densely packed components.

IDI part number SR25B-6.3D
(Huntron P/N 07-2106)

TRI-NEEDLE PROBE

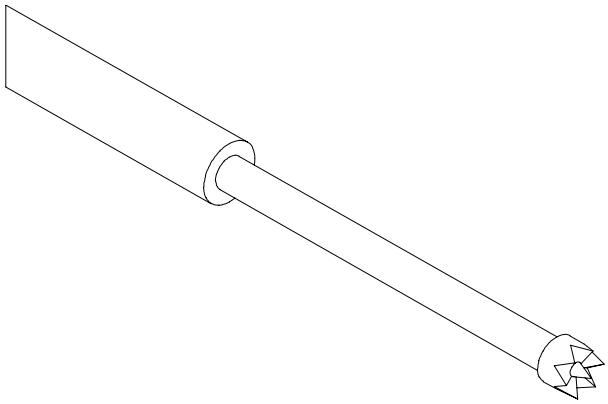


Used to test contaminated boards or pierce conformal coatings.

Best for 100 mils or wider spaced leads or pads.

IDI part number 25TN-6.7EN
(Huntron P/N 07-2108)

TULIP PROBE

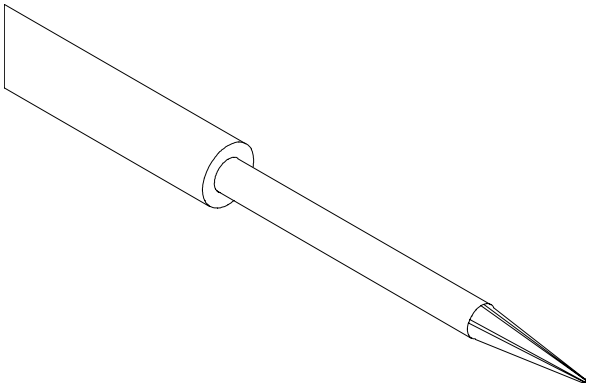


Used to test long leads, terminals and wire wrap posts.

Best for 100 mils or wider spaced leads or pads (tip diameter = 55 mils).

IDI part number SR25Y-6.3D
(Huntron P/N 07-2113)

SINGLE NEEDLE FLUX PENETRATING PROBE



Used for penetrating flux and conformal coated boards.

IDI part number S25SN-10DS
(Huntron P/N 07-2136)

4-7 SPECIFICATIONS FOR THE PROBE RECEPTACLE

The general specifications for the probe receptacle, which is press fitted into the Prober probe holder, are as follows:

The IDI part number of this receptacle is R-25-SC (Huntron P/N 07-2109).

Receptacle Size:	25
Connection Style:	SC - solder cup
Material:	Nickel/silver, gold plated
Total Length:	1.165 inch (29.59mm)
Overall Outside Diameter:	0.066 inch (1.68mm) outside
Use Spring Probes Size:	0.054 inch (1.37mm)

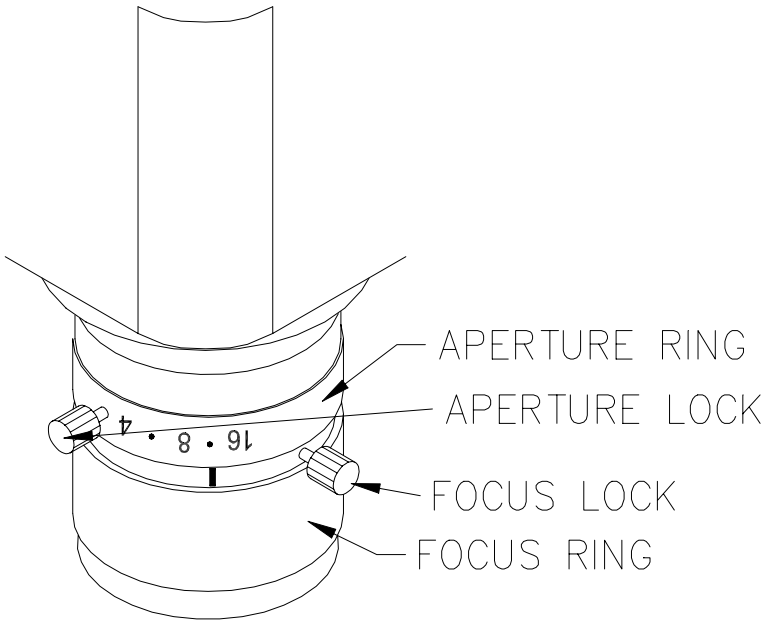
4-8 MANUFACTURERS OF CONTACT SPRING PROBES

Interconnect Devices, Inc. (IDI)
5101 Richland Avenue
Kansas City, Kansas 66106
Phone: (913) 342-5544 FAX: (913) 342-7043

*IDI part numbers are subject to change. If any of the above probes are not available, contact IDI for an equivalent or better part. To order from Huntron, please use the Huntron part number.

4-9 Focus and aperture adjustments

The camera lens on the color camera has a separate focus and aperture adjustment ring. These adjustment rings can be locked via a locking screw. The aperture setting is factory set and will be in the locked position. The setting is shown below. If the camera image appears dark even with maximum light intensity, it may be necessary to adjust the aperture. By using a larger aperture, more light will enter the lens but the depth of field will be smaller. Components at various heights will appear unfocused. The best setting is to have the smallest aperture (F16) and some external bright evenly distributed light. A small florescent lamp would be sufficient as an additional external light source.



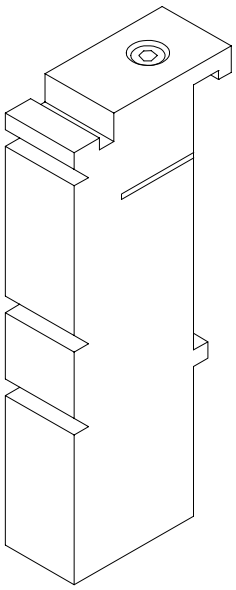
Note: Changing the Focus or Aperture may cause the distance from the center of the probe to the center of the camera to change. Make sure the developed application has a way of compensating for this change.

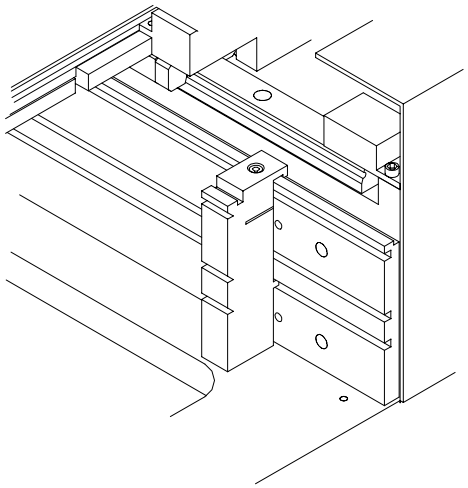
SECTION 5
HUNTRON ACCESS PROBER TEST BOARD SUPPORT ACCESSORIES

PROBER TEST BOARD SUPPORT ACCESSORIES

This section describes the test board support accessories for use with a Huntron Access Prober. These accessories are used in various combinations to hold different types of boards in the Prober. The description of each accessory includes an illustration and some examples of typical uses. Huntron part numbers are shown at the end of this section.

5-1 BOARD SPACER

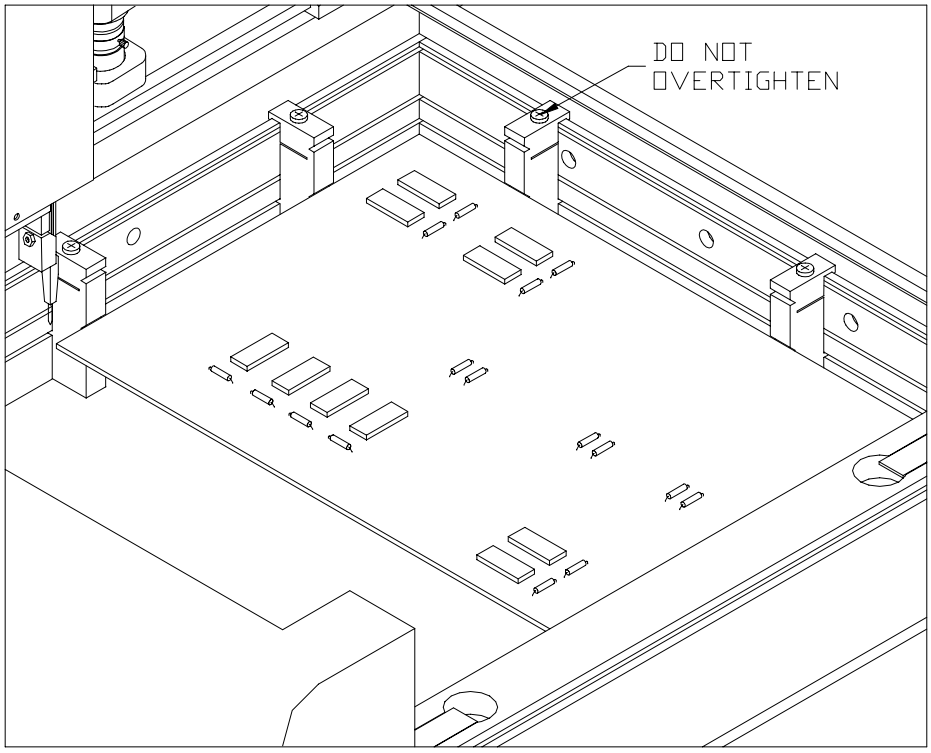




Board Spacer p/n 98-0111

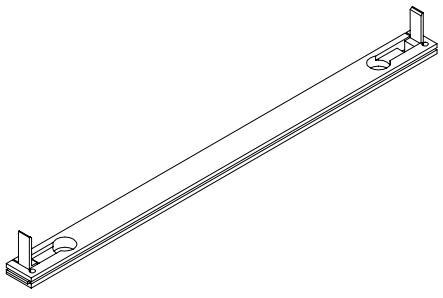
Board Spacers move the test board away from the slotted walls. The Prober can only probe components that are approximately 0.6" (15mm) away from the slotted walls of the Prober.

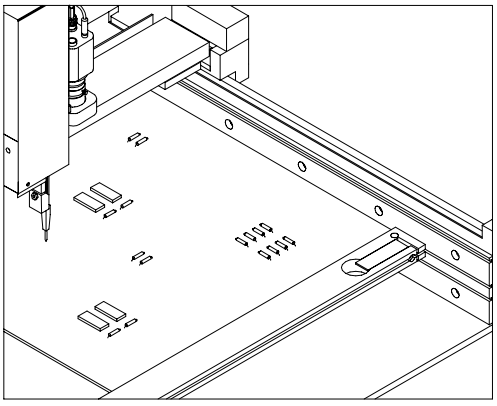
Board Spacers snap onto and slide along the slotted walls. They allow the probing of components on the edge of boards and the supporting of boards with protruding components. (4 board spacers are included in the Prober package)



5-2 CROSSBAR

The Crossbar is normally used to hold the front side of the test board.
(1 Crossbar is included in the Prober package)

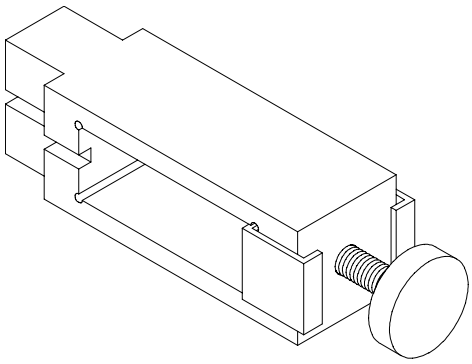




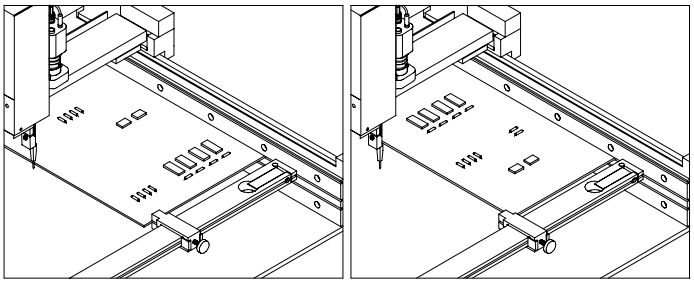
Cross Bar w/locks p/n 98-0393

5-3 SLIDE BAR

The Slide Bar mounted on a Crossbar holds the left front corner of the Printed Circuit Assembly. The front of a Slide Bar on a Crossbar can hold the test board away from the Crossbar to allow components on the front edge of the board to be reached by the probe tip. Use a Slide Bar and a Slide Bar Extension mounted on a Crossbar to hold the unsupported side of the test board. (1 Slide Bar is included in the Prober package)

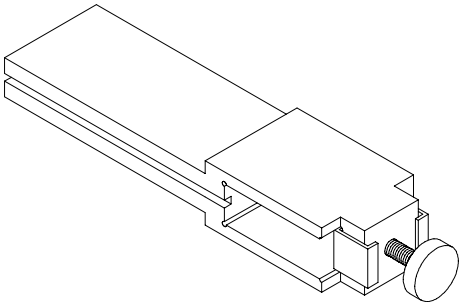


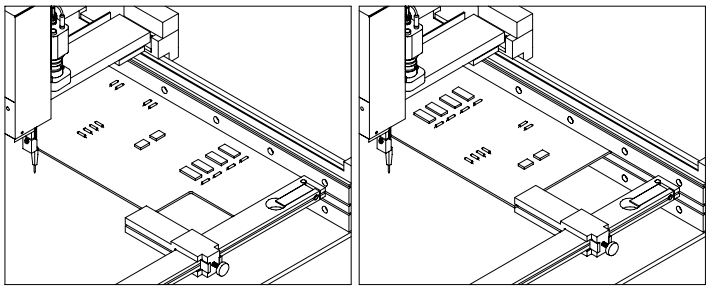
Silde Bar P/N 98-0109



5-4 Slide Bar Extension

The Slide Bar Extension mounted on a Crossbar can hold the unsupported side of the test board. The Slide Bar Extension can also be configured with a Slide Bar for additional support of the side of the test board.
(1 Slide Bar Extension is included in the Prober package)



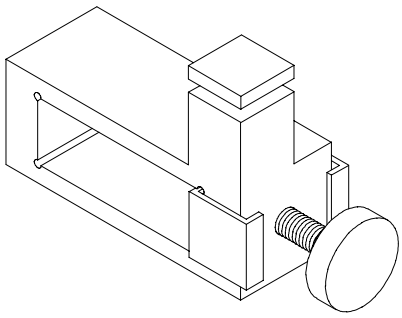


Slide Bar Entension

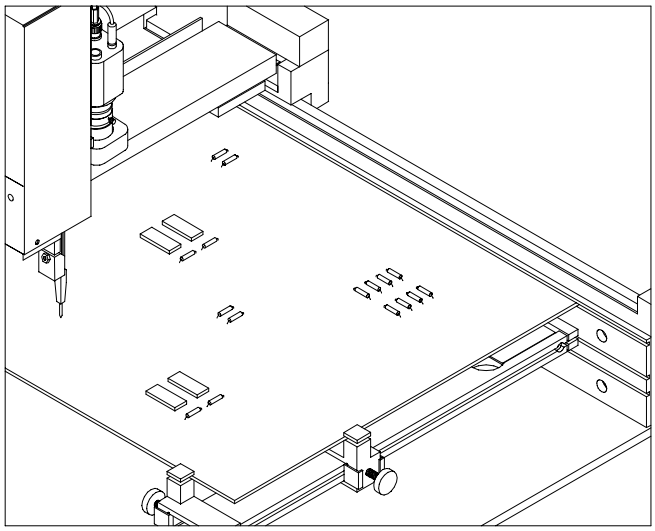
P/N 98-0132

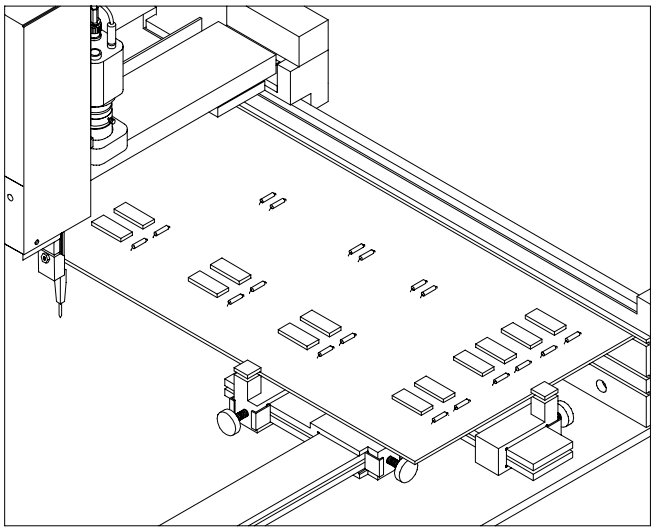
5-5 EXTENDED SLIDE BAR

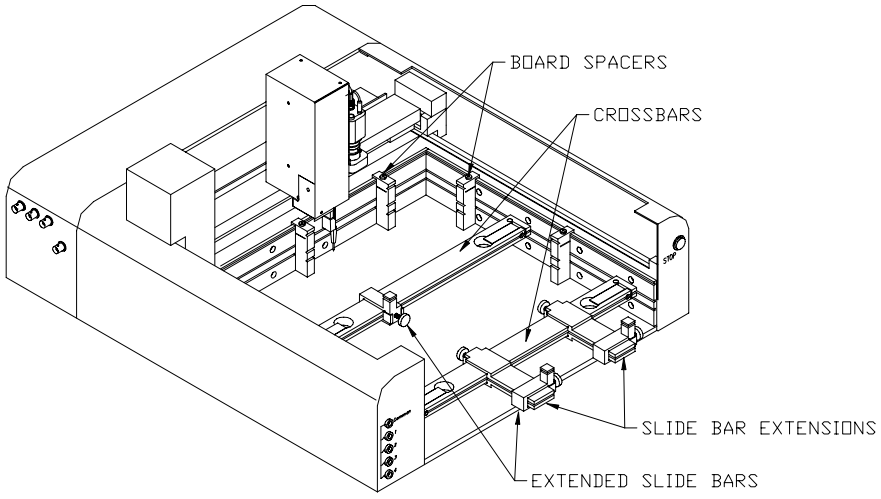
A Crossbar in the middle slot underneath the test board with an Extended Slide Bar can give support to the unsupported side of the test board. Also, a Crossbar in the middle slot is the main support for holding test boards in the top slot that protrude from the front of the Prober. In this case, use the Crossbar with two Slide Bar Extensions and two Extended Slide Bars. (1 Extended Slide Bar is included in the Prober package)



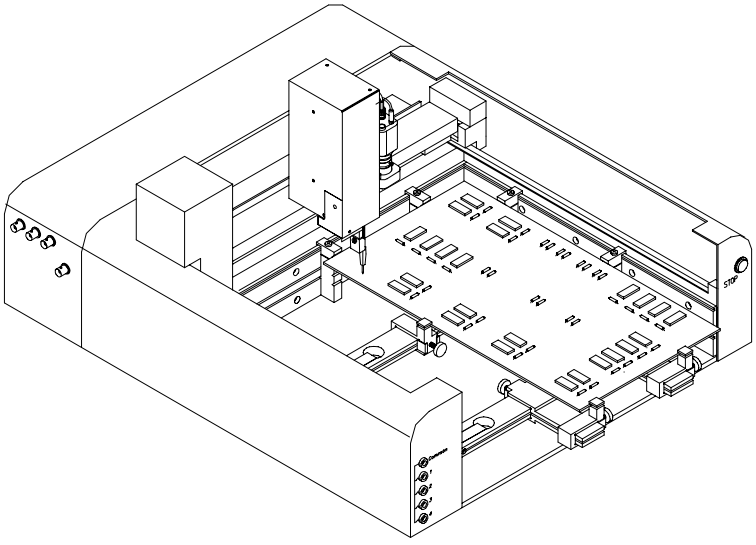
Extended Slide Bar p/n 98-0133



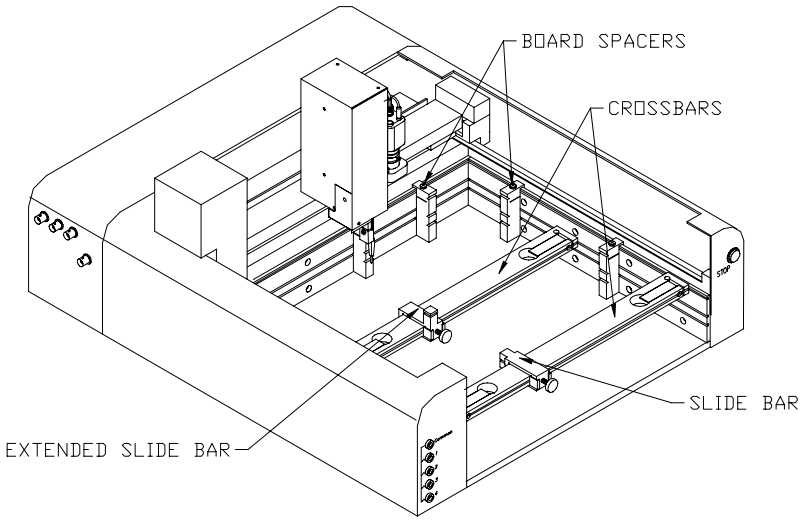




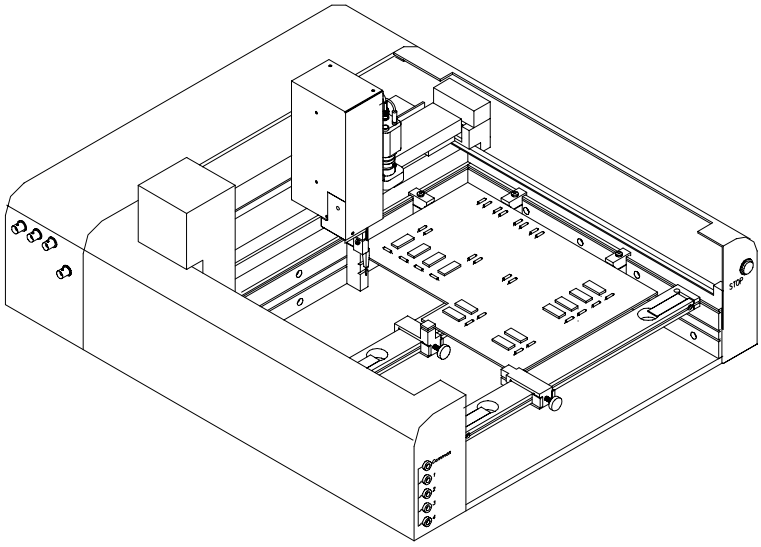
This figure shows how to mount a board that is larger than the normal clamping area. By using Slide Bar Extensions and Extended Slide Bars, the effective clamping area increases. While the clamping area will be increased, the probing area will not change. The additional Crossbar and Extended Slide Bar holds the middle of the unsupported edge of the board and prevent the board from flexing while being probed.



When using Extended Slide Bars, the board must be mounted in the top slot of the Prober. The Crossbars (which hold the Slide Bar Extensions and Extended Slide Bars) are then mounted in the middle slot.



This figure shows how to mount either an irregularly shaped board or a long and narrow board. The additional Crossbar and Extended Slide Bar hold the middle of the unsupported edge of the board and prevent the board from flexing while being probed. The Board Spacers allow the Prober to probe components that are mounted within 0.6" (15mm) of the slotted wall edge of the board.



When using the Extended Slide Bar, the board must be mounted in the top slot of the Prober. The additional Crossbar (which holds the Extended Slide Bar) is then mounted in the middle slot.

5-6 AUXILIARY PROBE ACCESSORY KIT

How to use the Auxiliary Probe Accessory kit for connecting an oscilloscope to a Huntron Access Prober.

Introduction

A Huntron Access Prober has a spring loaded test probe attached to the Z axis. This probe is directly connected to a flexible coaxial cable which is terminated with a BNC connector at the Prober back panel. An oscilloscope can be directly connected to the BNC connector allowing test signals to be displayed on the oscilloscope CRT. However, due to the length of the coaxial cable and the high cable capacitance, high frequency measurements (greater than 10 Mhz) may not be possible in this configuration. For typical signal analysis using a 100 MHz oscilloscope, it will be necessary to use a 10X oscilloscope probe.

This accessory kit allows the connection of an oscilloscope probe to the spring loaded test probe on the Huntron Prober. The long coaxial cable in the Prober is essentially replaced with your oscilloscope probe cable and a much shorter coaxial cable.

The Auxiliary Probe Accessory P/N 98-0266 kit consists of the following parts:

Description	Huntron P/N
1 Auxiliary Probe Holder	01-1239
1 Coaxial Cable Assembly, F/M	06-4147
1 BNC Adapter	07-1338
2 Screws, 4-40 x 1/2" Philips PH w/washer	07-3085
2 Cable Ties, black, 4"	07-3094
1 Thumb Screw Knob	07-3108
1 Spiral Wrap, 1/2" OD	07-3153
1 Cable Clamp, 1"	07-3207
1 Plastic Bag	20-1027
1 Box	20-1071
1 Auxiliary Probe Instruction Sheet	21-2117
1 Bubble Pack	30-2037

The Auxiliary Probe Holder is used for attaching your oscilloscope probe to the Prober Z axis. The BNC Adapter plugs into the oscilloscope probe tip.
A short coaxial cable is used to connect the BNC Adapter to the Prober's spring loaded probe.

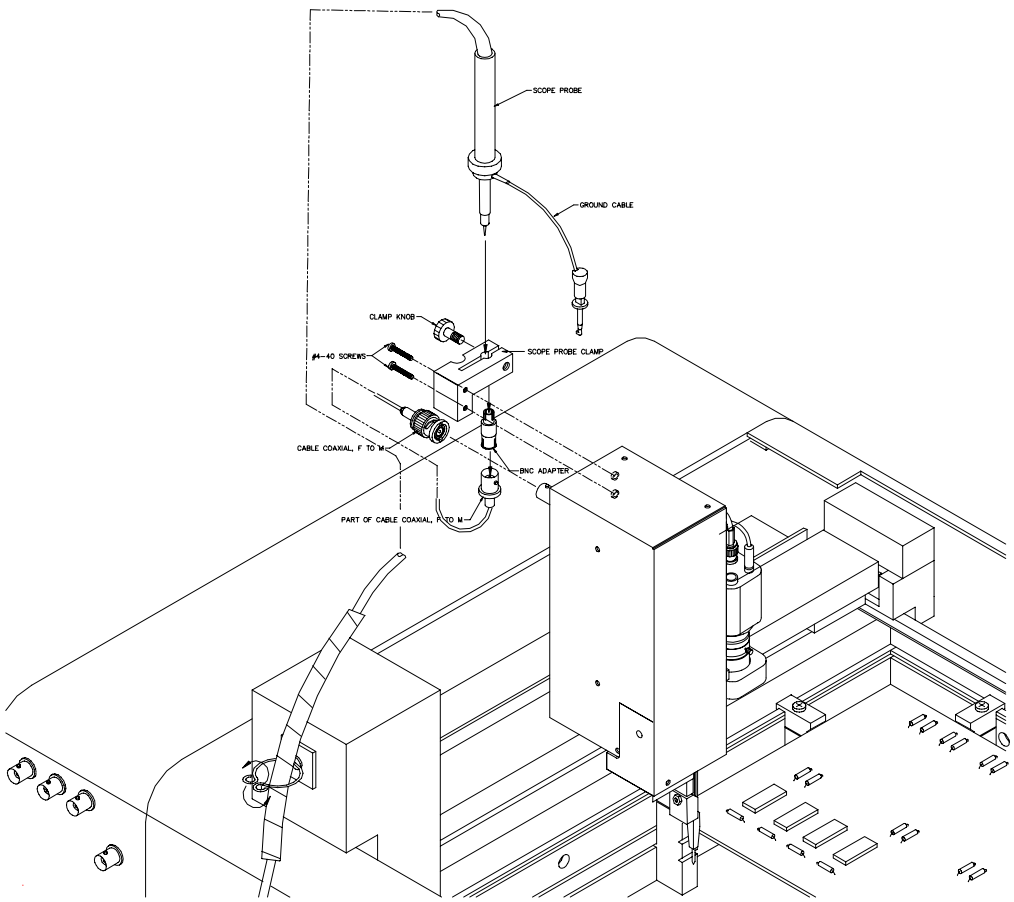


Figure 1. Installation of the Auxiliary Probe Kit

Installation of the Auxiliary Probe kit. (Refer to Figure 1)

1. Install the Auxiliary Probe Holder using the 2 supplied screws.

2. Insert your oscilloscope probe (not supplied with this kit) into the clamp hole of the Auxiliary Probe Holder and tighten the Thumb Screw Knob. The oscilloscope probe should now be firmly attached to the Prober Z axis.

3. Plug the supplied BNC Adapter into the tip of the oscilloscope probe.

4. Now plug the female end of the supplied Coaxial Cable Assembly into the other end of the BNC Adapter.

5. Disconnect the BNC connector on the right side of the Z axis cover. This cable will not be used for this application. Use a cable tie and attach the unused cable to a convenient place.

6. Connect the other end of the Coaxial Cable Assembly to the BNC connector on the right side of the Z Axis Cover.

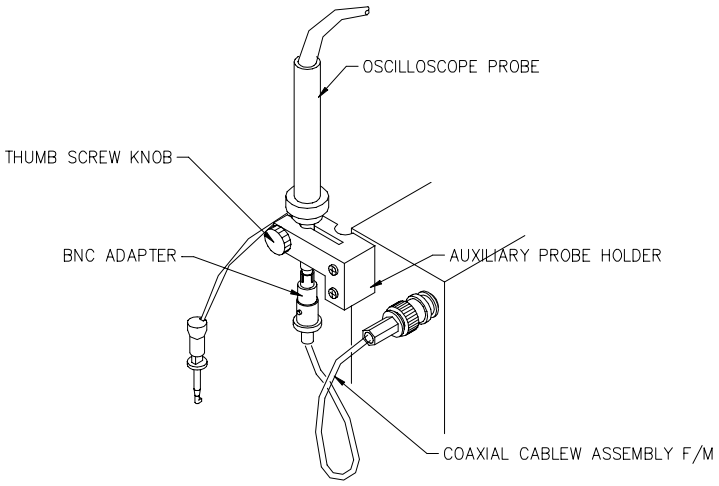
7. Attach the Spiral Wrap to the oscilloscope cable by twisting it so that it wraps around the cable as shown.

8. Install the adhesive backed cable clamp on the left side of the X-Motor Cover as shown. Attach the spiral wrapped oscilloscope cable to the clamp and twist the clamp teeth as shown.

9. Connect the BNC end of the oscilloscope cable to the oscilloscope.

10. Use the ground lead supplied with the oscilloscope to connect to the Ground or reference point of the printed circuit assembly.

You are now ready to use the system.



Rear view of assembled components

Please use these Huntron part numbers for ordering additional accessories.

	Huntron Access
Board Spacer	98-0111
Cross Bar w/Locks	98-0393
Slide Bar	98-0109
Slide Bar Extension	98-0132
Extended Slide Bar	98-0133
Auxiliary Probe Accessory Kit	98-0266

SECTION 6
APPLICATION NOTES

6-1 HOW TO USE THE FRONT PANEL COMMONS

The Huntron Access Prober front panel commons are marked Common, COM1, COM2, COM3 and COM4. These common terminals are used for applications requiring more than one Common connection to the printed circuit assembly. For example, you may want to setup a board so that some components are tested with respect to the Ground terminal and others with respect to Vcc or any other power supply rail. Even though no power source is applied to the printed circuit assembly, signatures may appear significantly different with respect to different Common references.

The main common terminal Common on the Huntron Access Huntron Access Prober front panel is directly connected to the common BNC jack on the Huntron Access Prober side or back panel.

NOTE: Even though 4 Commons are available for physical connection to the printed circuit assembly, only a combination of any 2 of those 4 Commons will get shorted to the main Common terminal. For example, connecting all the Commons to the board can allow the following test conditions:

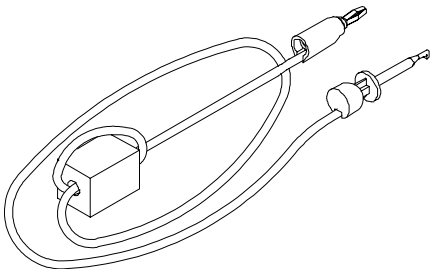
For example, component U1 can be tested relative to COM1 or COM2 or COM3 or COM4. You will have to set up 4 components, each with a different Common if you want to test it relative to all the above Commons.

Component U1 can be tested relative to COM1 and COM2. This will short COM1 and COM2 to the Common terminal. Any combination of **two** Commons can be set up in this way. This feature is useful when you want to short out the power supply rails to the Common circuit.

Component U1 could have been tested relative to COM1, and U2 relative to COM3 and COM4, and U3 relative to COM1 and COM2 etc. In each case, only two Commons are allowed to be shorted to the Common terminal..

6-2 USING THE COMMON CLIP CABLE WITH THE FERRITE NOISE SUPPRESSER

One of the Common cables supplied has a Ferrite suppresser looped around one end of the cable. Use this Common cable if you are testing at low voltages (below 3V). Low voltage testing is sensitive to external noise being coupled into the test system. This high frequency noise can be attenuated by using the ferrite coupled Common cable.



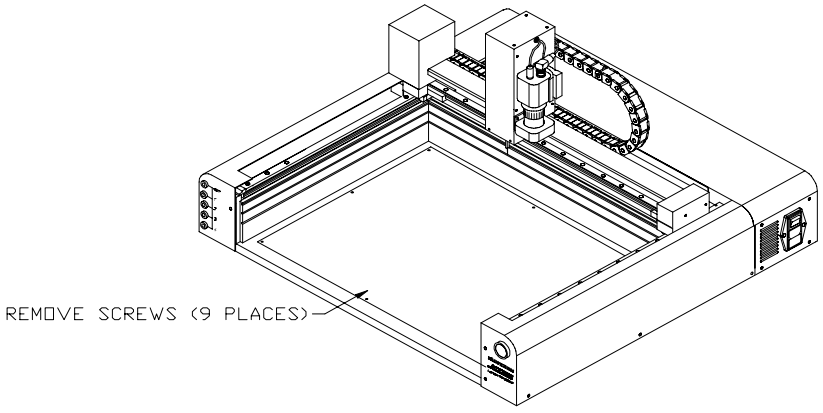
6-3 PROBING BOARDS WITH COMPONENTS THAT ARE MORE THAN 3 INCHES HIGH

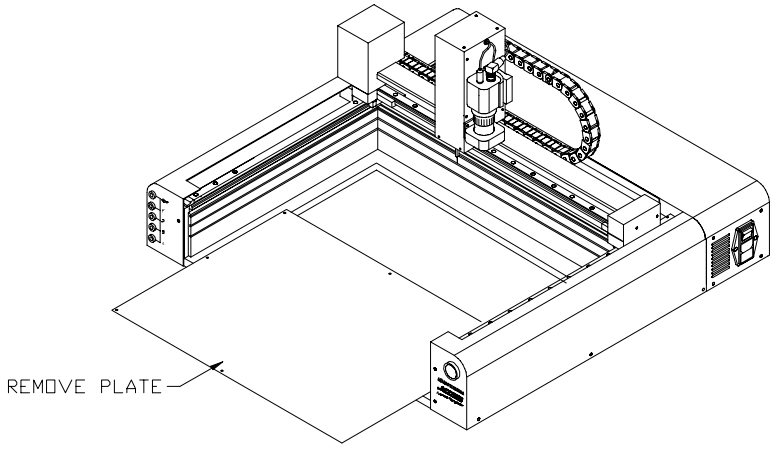
Some boards have components like capacitors, heat sinks, and transformers that are more than 3 inches high. Probing the component side of these boards is difficult due to the limited Z axis up/down travel. These boards have to be probed on the solder side. However, the component may be in the way when you try to clamp it into the board slot.

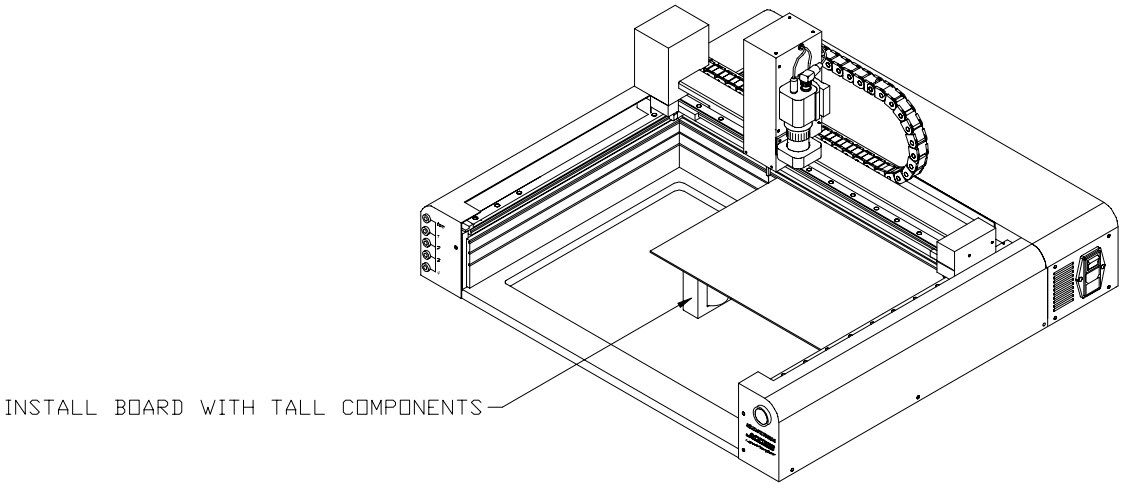
The Huntron Access Prober has an additional cutout in the base plate. This allows for additional clearance for the large components.

Remove the plate as shown below. Mount your board so that the large components are now positioned inside the cutout.

Sometimes, the Common or Reference connections to the board-under test is difficult. The additional clearance may also make it easier to access the Common connections.







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