

# IS-1000L & X BGA Video Inspection System

## Operation Manual



ASG Division of Jergens Inc.  
Jergens Way  
15700 S. Waterloo Road  
Cleveland, OH 44110-3898  
TEL: (216) 486-6163  
FAX: (216)481-4519

## Index

---

|   |       |
|---|-------|
| <b>INTRODUCTION</b> .....                             | 3     |
| <b>WARNINGS</b> .....                                 | 4     |
| <b>CAUTIONS</b> .....                                 | 5-6   |
| <b>CONFIGURATIONS AND SPECIFICATIONS</b> .....        | 7     |
| <b>SET-UP PROCEDURE</b> .....                         | 8     |
| <u>NAMES AND FUNCTIONS</u> .....                      | 8     |
| <u>CONNECTION PROCEDURE</u> .....                     | 8     |
| <u>OBSERVATION PROCEDURE</u> .....                    | 9-12  |
| <i>Magnification Adjustment (IS-1000X Only)</i> ..... | 12    |
| <i>Surface Mounted Components</i> .....               | 12    |
| <b>MAINTENANCE</b> .....                              | 13    |
| <u>CHANGING PRISMS</u> .....                          | 13    |
| <b>TROUBLESHOOTING</b> .....                          | 14-15 |

## Troubleshooting

---

### Out of Focus

- Check that the focusing is properly adjusted by turning the focus control knob.
- Check that the angular prism is mounted at the correct position with proper angle.
- Check that the angular prism is free from oil or contamination.
- Check that the angular prism is not damaged.

### Reversed Picture

While observing components with the angular prism removed, the picture is seen with the left and the right reversed. Since the primary function is using the angular prism to observe BGA components, the images are re-

# No Picture on the Screen

- Check that the AC adapter is inserted into the outlets.
- Check that the switch on the camera cable distributor is turned to the “ON” position.
- Check that the power plug of the AC adapter is inserted into the camera cable distributor.
- Check that the RCA cable is inserted into the camera cable distributor.
- Check that the monitor is switched to “video input”.
- Check that the camera cable is inserted into the IS-1000 main body.
- Check that the angular prism is mounted in the correct posi-

# Dark Picture

- Check that the angular prism is mounted properly in the IS-1000.
- Check that the angular prism is free from oil or other contamination.

Thank you for purchasing our IS-1000 BGA Video Inspection System. The following sections describe WARNINGS and CAUTIONS for using this product. Make sure to read these sections before using the IS-1000. If you handle it inappropriately, it could result in a fatal accident, bodily injury, damage to the IS-1000 or other property. In addition to these sections, carefully read the Set-up Procedure section that describes the Connection and Observation Procedure to ensure the product is being used properly.

In this document, the following symbols are used to represent the following.

## WARNING

This indicates a potentially hazardous situation, which if handled inappropriately, could result in death or serious injury.

## CAUTION

This indicates a potentially hazardous situation, which if handled inappropriately, may result in an injury or property damage.



This symbol represents DANGER, WARNING or CAUTION.



This symbol represents a prohibited action.

## Warning

### Make sure to read this section

If these instructions are ignored, and the product is inappropriately handled, death or serious injury could potentially occur.



Do not disassemble or make any modifications to the IS-1000 BGA Video Inspection System:

The main system, and AC Adapter has a high electric voltage inside, which could cause an electric shock, failure or fire. Never disassemble, or modify these products.



If an abnormal smell, unusual sound or smoke is observed; stop using the product immediately:

The main system, and AC adapter could cause fire when an abnormal smell or abnormal sound is observed. In such a case, stop using the product and contact your ASG representative immediately.



Do not allow any type of liquid to come in contact with any part of the system:

When liquid comes in contact with the main system, it could result in an electrical shock or fire. Pull out the AC adapter and power plug and stop using the system immediately.



Fully insert all plugs into their proper receptacle:

Insufficient contact may generate heat that could result in a fire or electrical shock. Fully insert the AC adapter and other plugs when using the product.



Remove all dust from plugs before using the system. Do not bring any metal in contact with the product:

Dust or metal may cause a short-circuit, which could result in a fire or electrical shock. Remove all dust and never bring any metal article close to the product.



Do not fold, bend, or impose excessive force on the cord:

Excessive force on the cord may cause a short-circuit, which could result in a fire or electrical shock. Never fold or forcibly bend the cord.

When inserting or removing the cords, make sure to hold the plugs:

During insertion and removal don't pull the cord itself. This action could result in a disconnection or a broken plug. Make sure to hold the plug section during insertion and removal.

## Maintenance

When the images get hazy, gently wipe off the viewing surface of the prism using the enclosed cloth. If the smear can not be removed, moisten the cloth with ethyl alcohol and try again. (Be careful that the ethyl alcohol does not enter inside the device.)

### Changing Prisms

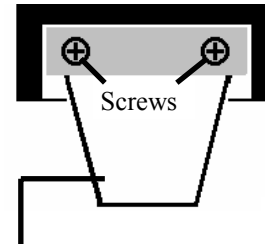


Figure 4

#### IS-1000L & X

The prism is held by two screws located on the front of the prism. Remove these two screws and the prism can be taken off the camera. Put the new prism in, lining up the holes and tightening the screws.

Prevent oil or other contaminants from coming into contact with this surface, because it may be seen in the picture and affect the video quality. Gently wipe off the surface with the enclosed cloth.

## CAUTION

- The prism is fragile. Use caution when viewing components. Make sure that there are no obstructions when moving or repositioning the probe. Obstruction could cause damage to the prism making the images difficult the view.
- The end of the angular prism has a sharp edge. Carefully handle it during adjustment to prevent injury.
- Half of the angular prism is covered with Teflon film for protection of the prism itself and for the protection of the circuit board, and it should not be removed.

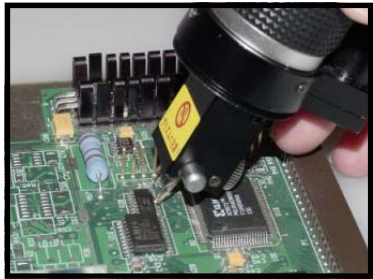
## Observation Procedure

### Surface Mounted Components

There are two different ways to view surface mounted components.



**1.** Remove the angular prism before using the probe. Keep a distance of 4 to 5 cm from the component and observe it by adjusting the focus control knob. In particular, you can observe the solder joint of the surface mounted components.



**2.** A straight lens is also available for viewing surface mounted components. You can place the lens directly above the component and observe the soldering joints by adjusting the focus control knob.

Note: When observing surface mounted components remove the angular prism. When observing these components the left and right are reversed, because of the mirror located in the camera.

## Caution

If these instructions are ignored and the product is inappropriately handled, bodily injury or property damage could potentially occur.

- Do not place the product in an unstable location. Dropping the system could result in bodily injury or failure of the unit.
- Do not place or store the system in a location with moisture or dust, to prevent possible fire or failure.
- When moving the product, make sure to turn off the power and remove the AC adapter and power plugs.
- When a prism becomes damaged, stop using it immediately and replace it with a new prism.
- Use a dry cloth for ordinary maintenance, and use the enclosed cleaning cloth for the prisms.
- Using any other cloth than the one that is included could damage the prism. Make sure to use the specialized cleaning cloth for the prism.
- Before maintenance, make sure to turn off the power and remove the AC adapter and power plugs from the outlet.
- For parts replacement, make sure to use our specified parts. Never use any substitution parts.

## Caution

If these instructions are ignored and the product is inappropriately handled, bodily injury or property damage could potentially occur.

- Use the product within the rated range of temperature and humidity as follows:
  - Temperature range: 0° to 40° C
  - Humidity range: 40 to 80%, No dewing
- This product is a precision device. Excess force to the IS-1000, may result in bodily injury or failure of the product.
- Immediately replace any broken prisms. Broken prism could cause bodily injury or damage to the inspected part. Stop using a broken prism, and replace it with a new prism.
- This product is not designed for inspection of the human body. Never use it for inspection of the human body.
- Never stare at the light emitting from the end of the prisms.



If any of the described events, or any other troubles/failures should occur, immediately stop using the product, turn off the power and contact us. Continued use of the product without taking any preventative measures could increase the chance of a failure and result in an accident.

## Observation Procedure

### CAUTION

Note: When adjusting the Video Inspection System, pay sufficient attention not to have the prism hit the mounted components. This could damage the prisms and the mounted components.

8. Push the probe slightly forward to view the lower joints.

9. Pull the probe slightly back to view the upper joints.

10. After completing the inspection, re-cover the prism with the protection cover, make sure the main switch is in the "OFF" position, and unplug AC adapter from the outlet.



Note: Carefully support the probe with your hand. Never apply any force to the prism or camera. Any force applied to the prism may cause damage. When any component is mounted at a position close to the angular prism, twisting of the probe could damage the prism, as well as the mounted component.

## Observation Procedure

6. Set the prism into the proper position on the side of the part the inspector wants to observe (see the illustration below).

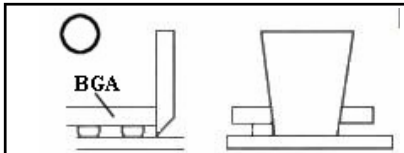


Figure 2

Proper example of using Prism (see Figure 2):

- The prism should make contact with the BGA board forming a right angle.
- The prism's edge should be flat and horizontal to the BGA component.

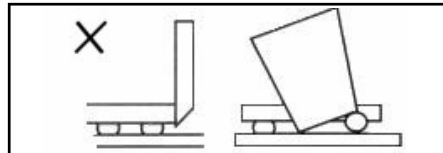


Figure 3

Improper example of using Prism (see Figure 3):

- The prism should not be lifted off the board.
- The prism should not be placed on a slant or angled in reference to the BGA component.

7. Adjust the focus by turning the focus control knob.

**Note:** Magnification on the IS-1000X can be adjusted by rotating the magnification control knob. Magnification can be adjusted between 70—130 times.

## CAUTION

- The prism is fragile, use extreme caution when positioning the probe.
- The end of the prism is sharp. Carefully handle it during adjustment and replacement to prevent injury.
- When the prism is contaminated with oil, gently wipe it off with the enclosed cloth.

## Configurations and Specifications

This section outlines the ways to connect and operate your new IS-1000 BGA Video Inspection System. For safe and proper use, carefully read the set-up procedure before using the camera.

### Configurations

Breakdown:

|                                  |   |
|----------------------------------|---|
| IS-1000L or X Probe              | 1 |
| 2 mm Angular Prism               | 1 |
| 1 mm Angular Prism               | 1 |
| Camera Cable                     | 1 |
| AC Adapter                       | 1 |
| RCA Cable                        | 1 |
| Specialized Prism Cleaning Cloth | 1 |
| Protection Cover                 | 1 |

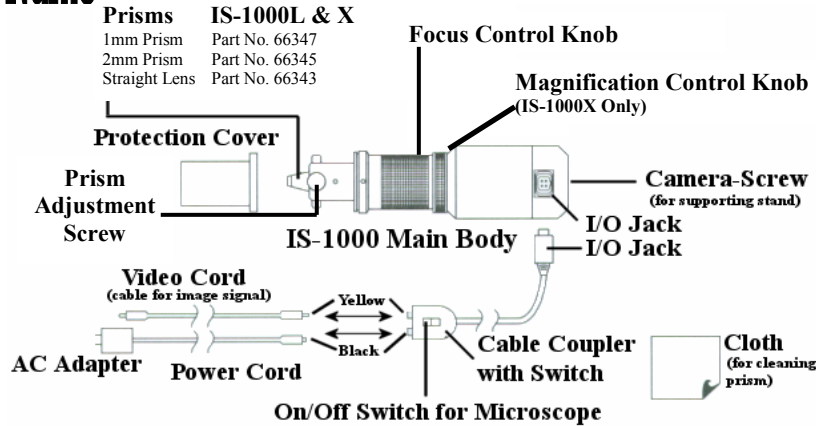
Please check parts prior to use. If anything is missing or damaged, contact your local ASG representative.

### Specifications

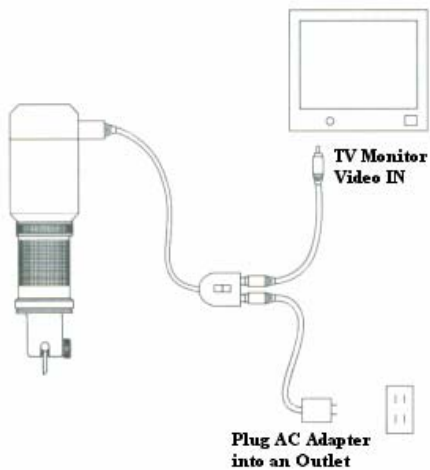
|                        |  |
|------------------------|--|
| Image Capture Element: | 1/4" Color CCD Camera                      |
| Image Output:          | NTSC Format System (RCA Plug)              |
| Image Magnification:   | Depends on the IS-1000 Model               |
| Illumination:          | High Intensity White LEDs                  |
| AC Power Adapter :     | AC 100~240V 50/60 Hz                       |
| Camera Cable:          | 1.2 M                                      |
| Operating Temperature: | 0-40°C                                     |
| Relative Humidity:     | 40-80%<br>(Under no moisture Condensation) |
| Camera Length:         | 152 mm                                     |
| Camera Weight:         | 180 g                                      |

## Set-Up Procedure

### Names and Functions



### Connection Procedure



1. Keep the Cable Coupler's switch in the "OFF" position.
2. Connect the square end of the Camera Cable cord into the back of the IS-1000 Main Body; make sure the arrow is facing up.
3. Connect one end of Video Cord into the Cable Coupler (yellow); connect the other end into the TV Monitor's (Video Printer, Video Capture Card, etc.).
4. Connect the AC Adapter's Main Plug into the Cable Coupler (Black).
5. Connect the AC Adapter into the outlet just before the operation.

**Note:** If the monitor's connection plug is BNC, a RCA to BNC Adapter will be required.

## Observation Procedure

1. Switch "ON" the TV monitor (Video Printer, Video Capture Card etc.) and select the VIDEO-IN setting.
2. Plug the AC adapter into an AC100~240V outlet.
3. Switch the cable coupler to the "ON" position.
4. Remove the protection cover.

Prism Adjustment for IS-1000L & X

5. With no picture on the monitor, rotate the focus control knob on the IS-1000L or X to adjust the focus. A white line should appear on the screen. This line is the end of the prism. Adjust the position of the prism by turning the set screw on the back of the camera. By turning the set screw the white line (prism) will move up or down on the screen, while keeping the Prism perfectly vertical. The prism should be adjusted so that the line is positioned on the bottom of the screen at a distance corresponding to one fourth of the screen height. (see Figure 1)

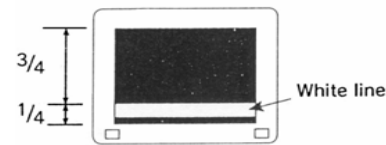


Figure 1