

iShot[®] Weld-i[®]

iShot Weld-i 1000-S Automated Weld Monitoring System



Operation and Service Manual



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To avoid injury, read and understand documentation prior to operation. Direct any questions about operation to InterTest® at (908) 496-8008 or service@intertest.com

Introduction

Congratulations on your investment in our Weld-i 1000-S camera system! We are pleased that you selected the Weld-i 1000-S from iShot Imaging for your in process weld monitoring needs. The Weld-i 1000-S represents one of the finest weld monitoring systems in the world for quality, construction and performance.

Many additional features of the Weld-i 1000-S will enhance your “in-process” inspection. Call your InterTest Sales Representative for more information at 908-496-8008.

User Interchangeable Filters

By offering a variety of user changeable neutral density and spot filters, the Weld-i 1000-S can adapt to different or changing “in-process conditions”. Quick and simple replacement reduces costly downtime.

User Interchangeable Side Viewing Optics

When space does not permit a direct view configuration the user can change to a side viewing head quickly and simply.

Gas or Water Cooling

In order to protect the sensitive internal components, cooling channels are provided to deliver either gas or water depending upon the in process temperatures. Air – 300 degrees, Water – 500 degrees.

Auxiliary Lighting

The conveniently adjustable auxiliary lighting fixture of the Weld-i 1000-S head is a mini halogen lamp which provides illumination during dark setup conditions.

Intuitive Control Box

The incredibly simple and intuitive control box allows the user to adjust the Weld-i 1000-S camera head during use. Placed at the operator’s fingertips, all control knobs and rocker switches are safely away from the harmful environment where the camera head operates.

Customer Support

Service and support for all InterTest® and iShot® Imaging products is available by calling (908) 496-8008. We also welcome comments, suggestions and technical inquiries by fax at (908) 496-8004 or E-mail at mail@intertest.com.

Page 5 explains InterTest's one-year limited warranty on parts and materials. Be sure to read all warranty information, register your product on-line at www.intertest.com and save this manual for future reference.

If your system requires service, please contact Customer Service at service@intertest.com or (908) 496-8008. In order to return a product for service you must have an RMA (Return Merchandise Authorization) number. To obtain one, please contact the Customer Service Team at the number above. You will need to have the product name and any corresponding serial numbers ready for the Customer Service Representative. All RMA numbers must appear on any related paperwork and be clearly marked on the outside of the box when shipped.

Warranty

Warranty Statement

InterTest, Inc. guarantees the custom products manufactured by InterTest, Inc. to be free from defects in materials and workmanship for a period of one (1) year, from the date of original purchase. Any and all other products not manufactured by InterTest, Inc. will carry the OEM's limited warranty, which will be passed to the purchaser through and supported by InterTest, Inc. InterTest, Inc.'s obligation under this limited warranty shall be confined to the repair or exchange of any part, or parts thereof, that prove defective under normal use and service for which the product was intended and/or designed for.

This limited warranty covers conditions that upon our examination, at our facility, shall disclose, to our satisfaction, to be defective.

This limited warranty is in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness for use and of all other obligations or liabilities on our part, and we neither assume, nor authorize any other person to assume for us, any other liabilities in connection with the sale of InterTest, Inc. equipment. This warranty shall not apply to any equipment that has been subject to accident, negligence, alteration, abuse, unauthorized repair, improper storage, or other misuse.

This limited warranty applies only to the original purchaser and cannot be assigned or transferred to any third party without express written consent from InterTest, Inc.

This limited warranty does not apply to consumable items, expendable items or normal wear and tear, nor does it apply to failure due to radiation, overheating and / or below freezing temperatures.

Additionally, InterTest, Inc. assumes no responsibility, either expressed or implied, regarding the improper usage of this equipment or interpretation of test data derived from this product. InterTest, Inc.'s responsibility and obligations, in all cases, are limited strictly to the repair and/or replacement costs outlined above. All sales will be considered final and all orders are non-cancellable, non-returnable and non-refundable.

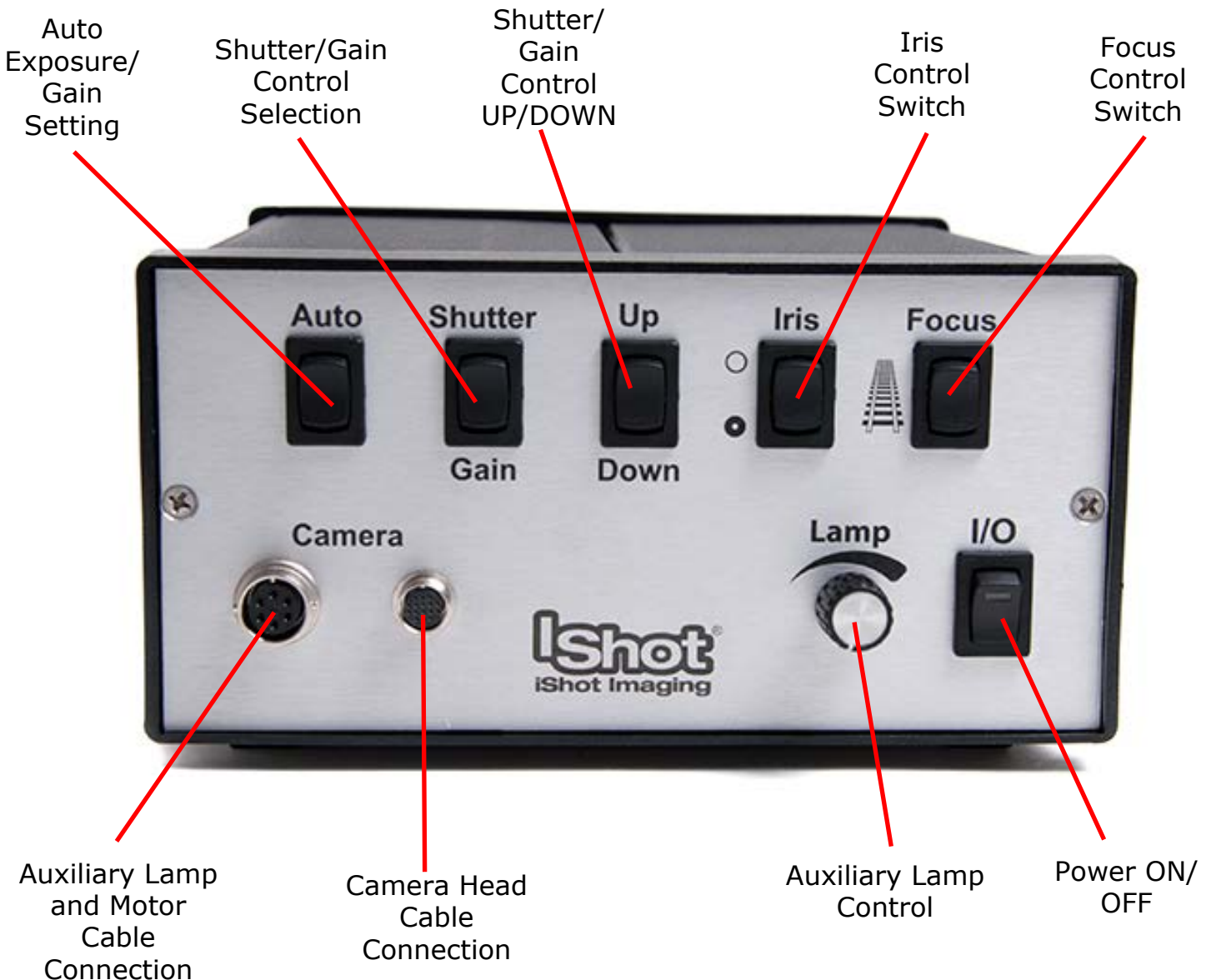
The laws of the State of New Jersey shall govern this warranty.

Note: In the event that the equipment can not be returned to InterTest, Inc., for whatever reason, the customer agrees to pay for all travel and living expenses incurred to have an InterTest, Inc. Representative evaluate, assess or affect a warranty repair in the field.

System Overview

Make all necessary cable connections to the Control Box and Camera Head prior to powering the system 'On' to prevent any damage to the system.

Control Box:



System Overview

Make all necessary cable connections to the Control Box and Camera Head prior to powering the system 'On' to prevent any damage to the system.

Camera Head:



Assembly

General Assembly:

Included in your Weld-i 1000-S system are the camera head with auxiliary lighting module, control box, camera cable, AC power supply, your selected filters, a BNC video cable and a S-Video cable.

Camera Head/Control Box Assembly:

- 1) Mount the camera head in the desired position using the mounting screw on the bottom of the Auxiliary Lamp Ring. Hardware not included (Figure 1)
- 2) Setup the control box within the distance of the camera cable.
- 3) Connect the camera cable to the control box and the camera head pigtail. (Figures 2 & 3)
- 4) Connect the Auxiliary Lamp cable to the control box and the camera head pigtail. (Figures 4 & 5)
- 5) Connect your gas or water lines to a supply, not included. (Figure 6)
- 6) Make the desired video connection from the control box to a video display, not included. (Figures 7 and/or 8)
- 7) Plug the power cable into the back of the Control Box and to the main power. (Figure 9)
- 8) Power the system 'On'. (Figure 10)

Figure 1.



Figure 2.



Figure 3.



Figure 4.



Figure 5.



Figure 6.



Figure 7.



Figure 8.



Figure 9.



Figure 10.



Assembly

Filter Installation:

If you purchased additional filters for your Weld-i 1000-S (Spot and Neutral Density filters) you will be required to change them properly to operate the system successfully.
Included in the shipment is a Filter Spanner Wrench. (Figure 13)

Filter Installation:

- 1) Ensure that the system is on and there is an image on the video display.
- 2) Remove the Side-View camera head if installed. (See Side-View installation section for removal instructions.)
- 3) Make sure that there is not a filter in the camera head already. (Figure 11)
- 3) Select the filter best suited for the current conditions (additional filters sold separately).
- 4) Locate the filter spanner wrench. (Figure 12)
- 5) Thread the filter into the front of the camera with your fingers. (Figure 13)
- 6) Adjust the filter in the camera head using the filter wrench until the proper size is obtained. **DO NOT OVERTIGHTEN** (Figure 14)
- 7) Replace the Side-View head if previously installed. (See Side-View installation section for installation instructions.)

Note: It may take several attempts to select the proper filter based upon your in-process conditions.

Figure 11.



Figure 12.



Figure 13.



Figure 14.



Assembly

Filter Adjustment:

It may take some time to position the filter for your application depending upon the in-process conditions. Use the Filter Spanner Wrench to make the adjustments below while watching the live display for proper sizing. (Figures 15 & 16)

Figure 15. Increasing Spot Size

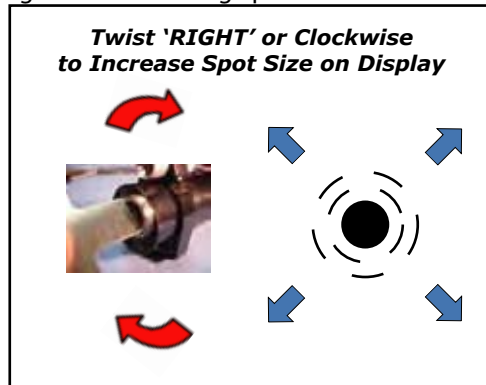
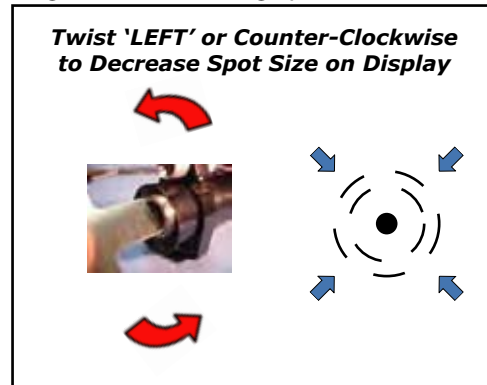


Figure 16. Decreasing Spot Size



Auxiliary Lighting Module Removal:

Removal of the Auxiliary light is required when attaching the Side-View head assembly. Installation of this module is done by reversing these instructions.

- 1) Loosen the Allen screws on the side of the lamp ring that secure the lighting module. (Figure 17)
- 2) Slide the lamp mount ring off the main camera body towards the front of the camera head. (Figure 18)
Note: It may be required to untwist the lighting cable to provide enough slack to remove the lamp ring.
- 3) Loosen the Allen screws on the bottom of the lamp mount ring. (Figure 19)
- 4) Remove the lighting module by sliding it backwards and out of the lamp ring.
- 5) Store the lamp ring in a safe place for future use. (Figure 20)

Figure 17.



Figure 18.



Figure 19.



Figure 20.



Assembly

Side-Viewing Attachment:

A side-viewing (90-degree) head is available for the Weld-i 1000-S series of cameras. This head is used when the available space for the camera is limited. With this head installed, it turns the view from straight off to the side. The side-viewing attachment uses a roof prism to deliver a 'corrected' image (not mirrored) to the video display to prevent any navigational confusion during operation.

To Install the Side-View Head:

- 1) Ensure that the correct filter is installed prior to using the side-viewing head.
- 2) Remove the auxiliary lighting module from the main camera body. (See Auxiliary Lighting Module Removal instructions)
- 3) Locate the side-view module. (Figure 21)
- 4) Line up the screws that come through the side-view head with the holes on the main camera body. (Figure 22)
- 5) Using the supplied Allen key, thread and tighten the screws securing the side-view head to the main camera body. (Figure 23)
- 6) Slide the Auxiliary Lighting Module into the top cradle on the side-view head from the rear. (Figure 24)
Note: It may be required to untwist the lighting cable to provide enough slack to reach the side-view Head.
- 7) Align the face of the Auxiliary Lighting Module flush with the face of the side-viewing head. (Figure 25)
- 8) Tighten the set screw to secure the Auxiliary Lighting Module in place. (Figure 26)

Figure 21.



Figure 22.



Figure 23.



Figure 24.



Figure 25.



Figure 26.



Operation

Iris Control:

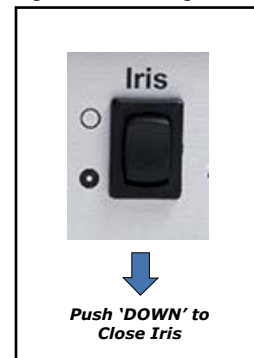
When the system is not in use under weld conditions (especially during weld setup) it is best to open the iris which allows more light to pass to the camera sensor. To open the iris, push UP and hold on the rocker switch labeled 'Iris'. (Figure 27)

During weld conditions you will need to close the iris which restricts amount of light passing to the camera sensor. To close the iris, push DOWN on the rocker switch labeled 'Iris'. (Figure 28) Push DOWN in increments to slowly close the iris until the best image is obtained.

Figure 27 - Opening the Iris



Figure 28 - Closing the Iris



Focus Control:

Once the camera head has been mounted in place the system will need to be focused to deliver a clear, crisp image to the display. To focus the system FAR (on objects farther away from the camera head) push UP and hold on the rocker switch labeled 'Focus' until the image is clear. (Figure 29)

To focus the system NEAR (on objects closer to the camera head) push DOWN and hold on the rocker switch labeled 'Focus' until the image is clear. (Figure 30)

You will need to adjust the focus initially after setup of the system and then when the tip to target distance (from the camera head to the subject material) changes.

Figure 29 - FAR Focus

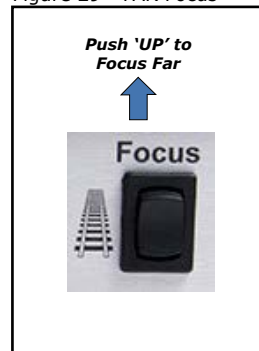
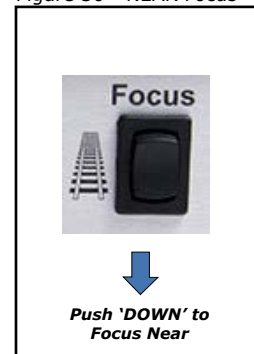


Figure 30 - NEAR Focus

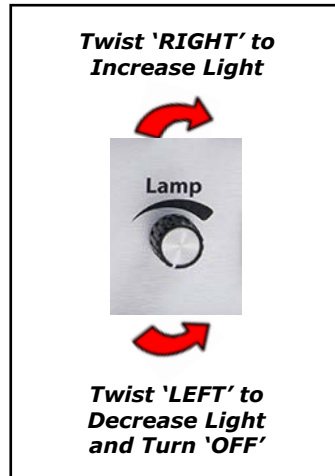


Operation

Lamp Control:

Intensity is adjusted using the control knob on the front panel of the Control Box labeled 'Lamp Intensity'. (Figure 31) Twisting the knob to the 'RIGHT' will increase intensity while twisting the knob to the 'LEFT' will decrease the intensity.

Figure 31 - Auxiliary Lamp Control



Shutter Control:

Shutter Speed is how quickly the shutter is opening and closing and affects how much motion blur is in each frame of video. To change Shutter, first push UP on the rocker switch labeled 'Shutter/Gain' (Figure 32). Then, to increase Shutter Speed, push UP on the rocker switch labeled 'Up/Down' (Figure 33). To decrease Shutter Speed, push DOWN incrementally on the rocker switch labeled 'Up/Down' (Figure 34).

Gain Control:

Gain relates to how much perceived light there is in the picture without adjusting the Iris. When an application doesn't have sufficient overall light in the target area, adjust Gain accordingly. To change Gain, first push DOWN on the rocker switch labeled 'Shutter/Gain' (Figure 32). Then, to increase Gain, push UP incrementally on the rocker switch labeled 'Up/Down' (Figure 33). To decrease Gain, push DOWN incrementally on the rocker switch labeled 'Up/Down' (Figure 34).

Figure 32 - Shutter/Gain Control

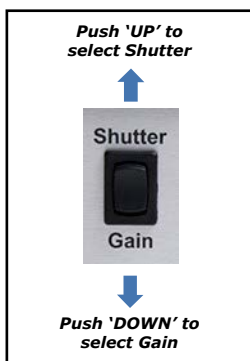


Figure 33 - UP (increase)

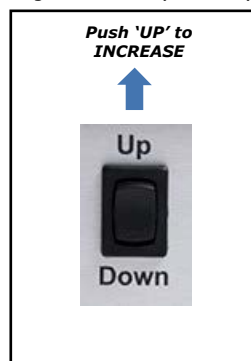
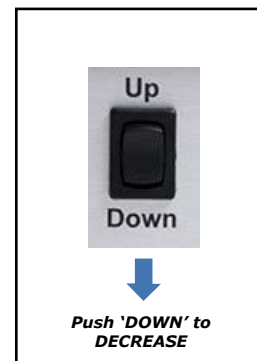


Figure 34 - DOWN (decrease)



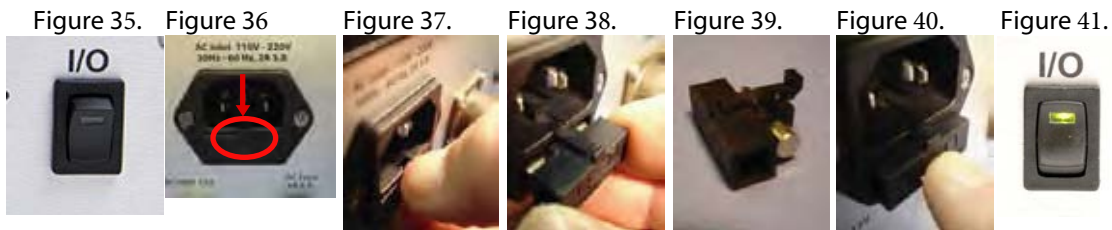
Care & Maintenance

General Care:

To ensure a long life for your Weld-i 1000-S it is important to keep it clean and free of corrosive materials. Wipe down the camera head and cable regularly, inspect gaskets around the lamp and camera windows for wear and tear, and always follow the instructions as described in this manual.

For AC Fuse Replacement:

- 1) Turn the power to the system 'Off' using the rocker switch on the front panel of the Control Box. (Figure 35)
- 2) Unplug the cable from main power and from the back panel.
- 3) Push down on the fuse holder located on the bottom of the plug receptacle on the rear of the Control Box. (Figure 36 & 37)
- 4) Remove the fuse holder and remove the defective fuse. (Figure 38)
- 5) Replace the fuse with a new 2 amp Slow Blow fuse. (Figure 39)
- 6) Push the fuse holder back into place. (Figure 40)
- 7) Plug the power cable into receptacle and into the main power.
- 8) Power the system 'On' and resume inspection. (Figure 41)



Weld-i® 1000-S Component & Accessory Part Numbers

A.



Camera Assembly

Weld-i Camera Video Format

A. NTSC Camera Head - EM19770

Weld-i Camera Head Lens Assemblies

B. 12 mm Lens - EM19526

7" " \$'a a '@bg!'9A%)(, \$



B. - C.

Controller Boxes

E. - I



E. Controller for 2 m - EM19777

F. Controller for 3 m - EM19778

G. Controller for 5 m - EM197-

H" Controller for 10 m - EM19780

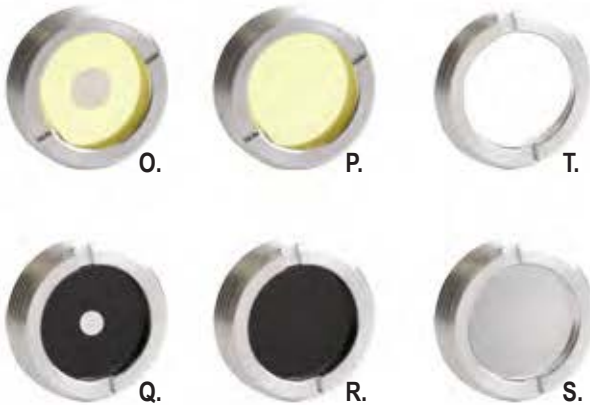
I. Controller for 20 m - EM19781

Weld-i® 1000-S Component & Accessory Part Numbers



Cables

- J. 2 meter Cable - EM19771
- K. 3 - meter Cable - EM19772
- L. 5 - meter Cable - EM19773
- M. 10 - meter Cable - EM19774
- N. 20 - meter Cable - EM19775



Filters

- O. UV Yellow Spot Filter Assembly - EM41408
- P. UV Yellow Filter Assembly - EM14637
- Q. Dark Filter with Spot Assembly - EM14518
- R. Dark Filter Assembly - EM14638
- S. Polarized Filter Assembly - EM105891
- T. Spatter Shield Assembly - EM14021
- U. 9 Piece Filter and Key Set - EM14634



Right Angle Adapters

- V. Right Angle Viewing Attachment Over - EM13441
- W. Right Angle Viewing Attachment Side - EM14014



Weld-i® 1000-S Component & Accessory Part Numbers



X.



Y.

Miscellaneous Accessories

X. Spatter Shield and Holder with
Spanner Wrench - EM42355

Y. Sony LCD Monitor - EM1-- , -

Z. Replacement Lamp for 6-watt
Halogen Auxiliary Light - EM19989

**See www.intertest.com or
call (908) 496-8008 for
more product information**

Z.

