

***Installation,
Operation,
&
Maintenance
Manual***

WelkerScope[®]

***Model
WS-2000A***

The information in this manual has been carefully checked for accuracy and is intended to be used as a guide to operations. Correct operating and/or installation techniques, however, are the responsibility of the end user. Welker reserves the right to make changes to this and all products to improve performance and reliability.

13839 West Belfort
Sugar Land, Texas 77498-1671
Tel.: (800) 776-7267
Tel.: (281) 491-2331
Fax: (281) 491-8344
www.welkereng.com

Table of Contents

1. GENERAL	3
1.1 Introduction	3
1.2 Specifications	3
2. INSTALLATION INSTRUCTIONS	4
2.1 Installing the WelkerScope®	4
3. OPERATION	7
3.1 Instructions	7
4. MAINTENANCE	8
4.1 Instructions	8

Welker®, Welker Jet®, and WelkerScope® are Registered Trademarks owned by Welker, Inc.

1. GENERAL

1.1 Introduction

We appreciate your business and your choice of Welker products. The Installation, Operation, and Maintenance liability for this product becomes that of the purchaser at the time of receipt. Reading the applicable IO&M Manual prior to installation and operation of this equipment is required so that you have a full understanding of its application and performance prior to use. If you have any questions, please call 1-800-776-7267 or 281-491-2331 in the USA.

- The WelkerScope[®] is a liquid gel illuminated inspection device that provides a means of inspecting meter tubes or other piping configurations without having to disassemble them.
- The WelkerScope[®] should be powered by a 120 VAC / 60 Hz power source.
- The power unit is equipped with a thermostat inside its explosion-proof box that cuts off the power to the system if the temperature inside the box gets too high.
- The optical insertion probe has an inverted image with a 1.5 times magnification and can be focused from 4 inches to infinity.

1.2 Specifications

Materials of Construction:	316 stainless steel and aluminum
Insertion Length:	8 – 10"
Temperature Range:	-20°F to 104°F (-28.9°C to 40°C)
Maximum Line Pressure:	Atmospheric
Pipeline Connection:	½" NPT or larger coupling
Power Connection:	120 VAC
Area Classification:	Class 1, Division 1, Groups C & D

2. INSTALLATION INSTRUCTIONS

2.1 Installing the WelkerScope®

2.1.1 After unpacking the unit, check it for compliance and any damages that may have occurred during shipment.

NOTE: Claims for damages caused during shipment must be initiated by the receiver to the carrier. Welker is not responsible for any damages caused from mishandling by the shipping company.

NOTE: When sealing fittings with PTFE tape, refer to the proper sealing instructions for the tape used.

2.1.2 The portion of the pipeline to be inspected must be blown down and purged prior to use of the WelkerScope®.

2.1.3 Prior to inserting the optical insertion probe, the lock collar should be set so that the insertion depth is correct for the diameter of tube being inspected. For example, if the diameter of the tube is 8", then the lock collar should be set so that approximately 5" of the probe will be inserted into the line (4" for the pipeline and 1" for the coupling).

NOTE: If possible, the light probe should be inserted on the opposite side of the portion to be inspected as the optical probe. Take care not to shine the light directly into the eyepiece. If both probes are used on the same end, the light probe should be in front of the optical probe and slightly higher (see Figure 1).

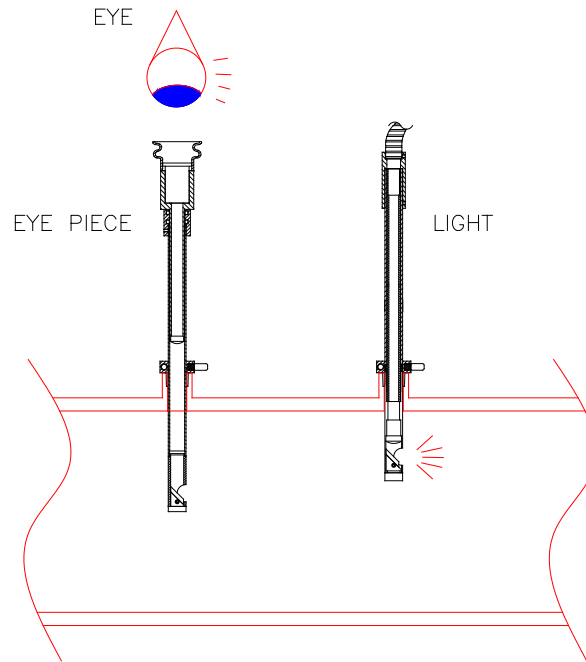
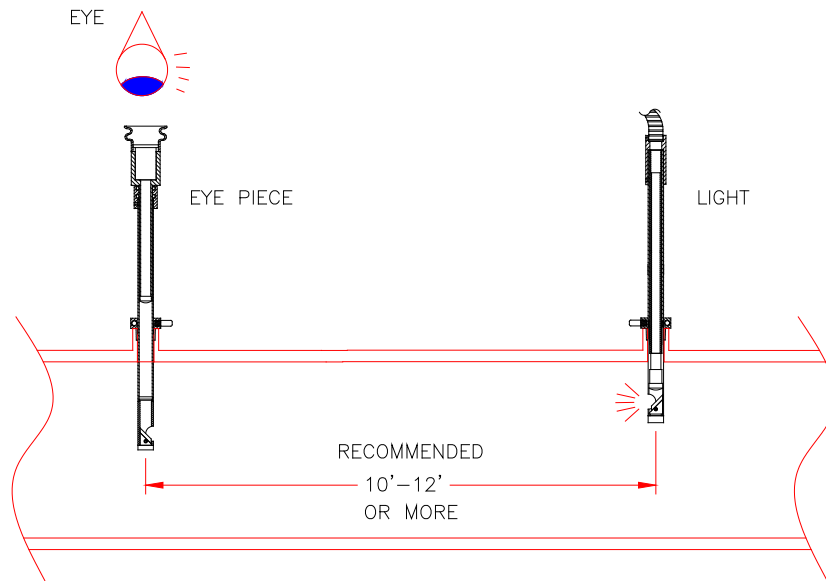


FIGURE 1

2.1.4 Insert the WelkerScope[®] probes through ½” NPT or larger couplings.

NOTE: Use care not to force the probe through a hole.

2.1.5 Plug in the standard 30’ electrical cord to an explosion-proof outlet.

2.1.6 The unit is now ready for operation.

NOTE: When transporting the unit, put a piece of tape over the mirror openings on both the optical and light probes. The WelkerScope[®] should be considered a valuable scientific instrument and be handled accordingly.

3. OPERATION

3.1 Instructions

3.1.1 After completing installation, push the start button. The unit transforms the primary voltage into 21 VAC, which operates the light source. The light source delivers an intensity of more than 10,000 foot candles.

3.1.2 Line up the light source and the visual image.

NOTE: It does take some practice to get the light and visual image pointing at the same spot.

3.1.3 Focus the image by moving the eye piece up and down. Again, this may take some practice.

4. MAINTENANCE

4.1 Instructions

Prior to maintenance or disassembly of the unit, it is advisable to have a repair kit handy for the system in case of unexpected wear or faulty seals.

We recommend the unit have annual maintenance under normal operating conditions. In the case of severe service, dirty conditions, excessive cycling usage or other unique applications that may subject the equipment to unpredictable circumstances, a more frequent maintenance schedule may be appropriate.

4.1.1 The optical components need to be cleaned periodically. This should be accomplished by using the appropriate lens cleaning fluid, paper and cotton swabs.

4.1.2 The mirrors are “First Surface Mirrors” that are aluminized on the surface nearest the incident light. They should be handled and cleaned with care using proper cleaning fluid and cotton swabs since they are vulnerable to scratching.

4.1.3 The light bulb should be changed in a non-hazardous area if it goes out. Use caution when changing a recently burned out bulb, as it could be very hot.

NOTE: A bulb has an expected life of 20 hours, but a spare bulb should always be kept on hand.

4.1.4 Handle the WelkerScope® with care.