Solid State Portable Headlight System
REF 46070, 46072, 46074, 46076, 46070R, 46072R, 46074R, 46076R

Guidelines for the safe use of the Solid State Portable Headlight

General practices to minimize risk of harm to the skin from optical radiation hazards include: minimizing illumination intensity at the tissue examination site, minimizing exposure times, and taking additional precautions when skin sensitivity has been altered through tissue trauma or the use of anesthesia. General good practices to minimize risk of harm to the eyes from optical radiation hazards include: avoiding looking at bright light sources and their reflections, and protecting eyes where normal pupil sizes and accommodation responses are not present.

Introduction

Thank you for purchasing the Solid State Portable Headlight by Welch Allyn, the worldwide leader in illuminated medical diagnostic instrumentation. Following the use and care guidelines supplied in this owner’s manual, you will enjoy years of dependable, trouble-free service from your new headlight.

This headlight is designed to meet the various needs of a physician’s office, hospital environment, and wherever compact, portable illumination will enjoy years of dependable, trouble-free service from your new headlight.

Components

Standard Parts List

Solid State Portable Headlight and Power Cord/Charger

Rigid Headband model: 46070R (Domestic) 46072R (European) 46074R (U.K.) 46076R (Australia)

Terrycloth Headband model: 46070 (Domestic) 46072 (European) 46074 (U.K.) 46076 (Australia)

Warnings & Cautions

ATTENTION: Read Operating Manual for Warnings, Cautions, and Instructions for Use.

FXD: Not protected against the ingress of water.

WARNING: Solid State Portable Headlight is not suitable for use in the presence of a flammable anesthetic mixture with air or oxygen or nitrous oxide. An explosion may result.

INTENSE LIGHT: Lamp is bright. Do not stare at the lamp when in use. May be harmful to eyes.

Lamp On

Lamp Off

Maintenance

Each month examine cords and connections. The user can perform battery replacement or headband replacement on an as needed basis. Return the unit to an authorized Welch Allyn Technical Service Department or distributor for additional servicing. See “Service and Warranty Information” section.

Battery Charging

The fully discharged battery will reach a 90% charge retention in approximately three hours of continuous charging. This is approximately 25% longer if the charging is happening at a temperature less than 15°C. Proportional usage will require a proportional charge time such as if the product is used for 15 minutes, charge the battery for 45 minutes to reach a 90% capacity. Overnight charging brings the battery to its 100% full capacity.

Charging the unit while operating will significantly increase the charge time to over 12 hours to obtain a 90% charge level. This battery pack does not exhibit any memory problems that exist with NiCad batteries. However, like other products where batteries are used, remove the battery from the product when the product is in storage or when not in use for extended periods beyond 6 months. If the battery is left in the product for extended periods of time, the battery will drain down to an unusable level and require charging prior to use.

Direct Power Source/Charger:

Model 74170 Domestic
Model 74172 European
Model 74174 U.K.
Model 74176 Australia

Troubleshooting

No Light Output

Dead battery or battery not connected properly

Verify that the unit operates on direct power source. If yes, insure that the battery is connected properly; refer to the battery replacement section for further instructions on connecting the battery. If the battery is connected properly, replace the battery.

Low Light Output

Low charge on battery

Verify that the unit operates on direct power source. If yes, recharge or replace battery.

Specifications

- **Ref Model**: 46070, 46072, 46074, 46076
- **Input Voltage**: 120VAC ± 5%/60Hz, 230VAC ± 5%/60Hz
- **Output Voltage**: 5 volts vdc
- **Leakage Current**: <10 uA

Cleaning (Recommended monthly)

1. Unplug the unit prior to cleaning.
2. Wipe down the entire luminaire with a cloth slightly dampened with a mild solution of detergent. The Terry cloth headband is removable and is machine washable.
3. Do not operate the light until the light is thoroughly dry.

NOTE: Do not sterilize the unit.

CAUTION: Do not immerse the luminaire in cleaning solutions.

Battery Replacement

Drop the battery pack into the luminaire visor and plug into the connector.

Headband Replacement

Holding the luminaire with the on/off switch in the up position, place the visor section of the luminaire into the openings located in the front section of the Terry cloth headband.

Symbols & Descriptions

- **WARNING**: Consult user’s Manual for additional information
- **ATTENTION**:
- **CAUTION**: Do not immerse in cleaning solutions.
- **NOTE**: Follow the assembly instructions listed below and the corresponding photographs.
The REF 46000 is intended for use in the electromagnetic environment specified below. The customer or user of the REF 46000 should ensure that it is used in such an environment.

### Environmental Conditions

- **Temperature:** Operating: 32°F - +104°F (0°C - +40°C)
- **Humidity:** 10% - 95% RH Max continuous
- **Vibration:** 5 Hz to 200 Hz (0.003 g RMS)
- **Power Frequency:** 60 Hz
- **Magnetic Field:** 0.1 A/m
- **Surge Voltage:** ± 15kV Air
- **Conducted RF Immunity:** ± 3kV

### Dimensions

- **Headband Adjustment Range:** Small, Medium, Large

### Illumination System

- **1 watt Solid State Lamp**
- **Color Temperature:** 5500 Degree Kelvin
- **20 Lumens**
- **LED Life:** > 10,000 hours
- **Color Temperature:** 5500 Degree Kelvin
- **Illumination System:** 1 watt Solid State Lamp
- **Headband Adjustment Range:** Small, Medium, Large

### Approvals

- **CERTIFIED TO:** CAN/CSA STD C22.2 No. 601.1, CONFORMS TO: IEC 60601-1, IEC 60601-1-2, UL STD 60601-1, ANSI Z790.1
- **VDE Certified**
- **UL Listed 20061-1, CAN/CSA C22.2 No. 601.1**
- **VOE Certified IEC 60601-1, EN 60601-1, VDE 0760**

### Service Information

- **Technical Support:** Tel: +1 800 535 6663 or +1 315 685 4560
- **Sales:** Tel: +1 800 535 6663 or +1 315 685 4560

### Warranty

Instrumentation purchased new from Welch Allyn, Inc. Welch Allyn is warranted to be free from original defects in material and workmanship under normal use and service for a period of one year for the Solid State Portable Headlight from the date of first shipment from Welch Allyn. This warranty shall be fulfilled by Welch Allyn or its authorized representative repairing or replacing at Welch Allyn’s discretion, any such defect, free of charge for parts and labor.

Welch Allyn should be notified via telephone of any defective product and the item should be immediately returned, securely packaged and postage prepaid to Welch Allyn. Loss or damage in shipment shall be at the purchaser’s risk.

Welch Allyn will not be responsible for loss associated with the use of any Welch Allyn product that (I) has had the serial number, if any, altered, (II) has been repaired by anyone other than an authorized Welch Allyn Service Representative, (III) has been altered, or (IV) has been in a manner other than in accordance with the instructions.

### Power Sources

- **UL Recognized US/Canada UL2601-1, CAN/CSA C22.2 No. 601.1**
- **VOE Certified IEC 60601-1, EN 60601-1, VDE 0760**

### Guidance and Manufacturer’s Declaration - Emissions

Radiated and Conducted Emissions were tested on the FRIWO 15.1504 power supply. It complies with the EN55022 Class B limits; same limits specified below. The customer or user of the REF 46000 should ensure that it is used in such an environment.

- **Conducted RF Field Strength:**
  - EMI: ± 3kV
  - Radiated EMI: ± 3kV

### Guidance and Manufacturer’s Declaration - Immunity

Conducted RF and Radiated RF testing was performed on a FRWIO 15.1504 power supply, monitoring the output for drops in voltage; none were detected.

- **Immunity Test:**
  - EMI: ± 15kV Air
  - Radiated RF: ± 3kV

### Guidance and Manufacturer’s Declaration - Safety

- **VDE Certified**
- **UL Listed 20061-1, CAN/CSA C22.2 No. 601.1**
- **VOE Certified IEC 60601-1, EN 60601-1, VDE 0760**