IMPORTANT - PLEASE READ ALL INSTRUCTIONS BEFORE ATTEMPTING TO USE.
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UNPACKING

Please carefully unpack and note the following parts of a complete Model 770 U lamphouse.

1. Main body of lamphouse without microscope adaptor.
2. "L" shaped bulb mounting arm (already mounted).
3. An appropriate collector lens. **MAY ALREADY BE IN PLACE**
4. One (1) 3/32” allen wrench. This is used for mounting bulbs.
   ALSO INCLUDED: (1) .050” & (1) 9/64” wrench for various other fasteners.

FEATURES

The Model 770 U lamphouse has several unique features.

**Infrared heat baffles** - the inside of the lamphouse has two complete sets of infrared heat baffles which absorb the infrared before it can reach the outer surface of the lamphouse. These baffles prevent the lamphouse from becoming uncomfortably warm. A combination of vents and louvers provide cooling air to these baffles and vent the heated air through the top of the lamphouse. Bottom vents extend below the lamphouse in order to prevent the blockage of ingoing cooling air.

**Moveable top shutters** - moveable top shutters are designed to close in case of a violent failure in order to direct all debris downwards.

**High Quality focusable mirror** - a high quality, fully adjustable spherical mirror greatly increases the amount of useable light the lamphouse can provide.

FEATURES continued

**Simplified bulb mounting system** - this lamphouse has a new and simplified method of mounting individual arc lamps. An "L" shaped bracket holds any of the arc lamps that the Opti-Quip Model 1600 power supplies can operate. One side of the lamphouse removes completely to facilitate bulb mounting.

**Interchangeable microscope adaptors** - interchangeable microscope adaptors allow the lamphouse to be used with a variety of makes and models of microscopes.
Model 770 U S.I. (safety interlock) - this lamphouse is optionally equipped with a safety interlock switch which will shut down the power supply if someone inadvertently tries to open the lamphouse while it is operating. This feature is operative with the model 1605 power supply.

INITIAL SET-UP

1. Observe slot in collector lens assembly. Insert collector lens assembly into sleeve of microscope adaptor. Withdraw spring loaded focusing eccentric. Position collector such that eccentric can engage slot.

Check travel of collector for absence of binding.

2. Remove side panel of lamphouse. Panel is held in place with two SOUTHCO ADJUSTABLE GRIP LATCHES. The black plastic knob rotates and loosens or tightens the clamping pawl. Its position is shown by the indicator just beneath the plastic knob. A full 90 degree quarter turn of the pawl is necessary to fasten or remove the side panel.

INITIAL SET-UP continued

3. Observe "L" shaped bracket - It may be rotated by removing (2) mounting screws with black handled 3/32" allen wrench, then rotating arm 180° and replacing the two screws.

If a mercury bulb is to be used rotate the arm so the bulb bushing will be held at its bottom. Tighten clamp and insert bottom of bushing in holder. Connect trigger wire to top of mercury bulb. Plug other end of trigger wire into the receptacle near bottom of bulb.
If a xenon bulb is to be used rotate the arm so the bulb will be held at its top. Insert top of bulb in holder. Position seal off nub on bulb so that it faces either toward or away from panel. Tighten clamp. Plug other end of trigger wire into the receptacle near bottom of bulb.

**Important - the base of either a xenon or mercury bulb must be down when run.**

HOWEVER, sometimes the engraving is on the top. **MAKE SURE THE BASE OF THE BULB IS DOWN.** Failure to observe these simple instructions can result in running a lamp either upside down or with reversed polarity either of which will result in extremely abbreviated life expectancy. Should either occur, the tip of the smaller electrode will melt.

It is important that the center of the arc in the lamphouse be located directly over the optical center of the lamphouse. This is marked on the arm.

When inserting bulb in the "L" shaped bracket sight between the electrodes and clamp bulb such that alignment is kept as close as possible.

In some cases, it may be necessary to loosen the stop screw on the clamp, or possible not fully insert bulb until it bottoms against stop screw.

**NOTE:** Trigger leads carry very high voltages during ignition. Position these leads and any slack present to maximize air space around them.

**Loud snapping noises:** These noises indicate that the slack is excessive and needs to be positioned away from lamphouse internal parts.

4. Check control for raising and lowering bulb. This is the lower knob on panel. Motion is cyclical and should continue without any binding.

**INITIAL SET-UP continued**

5. Check control for side to side movement of bulb. It should be smooth and move from one limit to another.

6. Center side to side travel.

7. Replace lamphouse side panel.
a. To install side panel in lamphouse insert top of panel first into space just inside upper shutter frame. Raise slightly and insert bottom of panel just inside lower shutter frame. Release panel. Secure both locks.

b. Focus collector until electrodes are visible. (Secondary image from mirror may be visible at this time.) Center electrodes with controls on side of lamphouse. If secondary image is visible, center it with red knobs and controls on back of lamphouse. If secondary image is not visible go on to next step. Otherwise, fasten lamphouse to microscope.

OPERATION

To operate - before connecting to microscope, place lamphouse on a stable surface with collector lens facing a wall 5-15 feet distant. Ignite bulb. A low to warm up, about two minutes. Focus image of arc on wall. Using bulb positioning controls on side of lamphouse, center the arc as well as possible by eye. Now adjust mirror positioning screws until arc image is positioned as indicated below.
Three controls (note diagram below) are provided for positioning the mirror on the back of the lamphouse. Using the appropriate controls, bring the image of the area indicated with the dotted lines, to the position shown.

**CAUTION** Do not superimpose the two hot spots at tip of sharp electrode. Bulb envelope can be over heated.

- left & right
- focus
- up & down

Turn off power supply.

Connect lamphouse to microscope.

Re-ignite bulb.

Repeat the above procedure while observing arc at some point close to the back plane of the condenser. **Caution** during this procedure light is very bright - protect eyes from excessive light.

**VERY IMPORTANT - PLEASE READ INSTRUCTIONS**

**USHIO 200 W MERCURY/XENON LAMP (OPTI QUIP # BA-026)**

Congratulations on your choice of the USHIO 200 watt mercury/xenon lamp (Opti Quip #BA-026). We feel this lamp is the all around best choice for any fluorescence microscopy. This lamp offers the following features:

**Increased energy:** not only on the typical peaks for mercury, but also in valleys between those peaks.

**A two thousand hour life expectancy** makes this the least expensive illumination choice per hour of operation. Typically 1/3 the cost of a 100 watt mercury.

It’s 1.9mm arc length vs. 2.2mm for a standard mercury lamp is **more efficient** in terms of getting light into the microscope, yet long enough to totally fill the microscope field with even illumination with any objective and eye piece combination.
**VERY IMPORTANT TO READ THESE INSTRUCTIONS BEFORE INSTALLATION.**

To insure the maximum life for your new mercury/xenon lamp, we have included a **special heat sink** to be used on the + positive connection.

Note the clamping screw in the heat sink. Place the heat sink on the top of the lamp such that this set screw is offset towards the top of the lamp. **DO NOT FASTEN AT THIS TIME.**

Please note the heat sink has 4 fins. Insert the bulb in the clamping bracket such that the center two fins **straddle** the vertical member of the “L” shaped mounting arm.

As with any xenon lamp, the positive + electrode is **UP**. Make sure “L” shaped mounting arm holds the top of the lamp.

Tighten clamping bracket while observing that both the trigger wire, on bulb and seal off are at right angles to the optical axis of the system. Arc center should coincide with center of pivot of mounting arm,

Raise heat sink until it is in contact with the bulb mounting clamp. Tighten screw.

**Connect the negative side of the lamp with the short trigger lead marked “150” watt xenon”.

- **C** Set power supply switch to **“150 watt xenon”**.
- **C** Ignite lamp.
- **C** Set watt meter switch to “amps 0-10”.
- **C** Adjust current to 8.5 amps on meter **bottom scale**.
- **C** Switch to “watts” position on meter.

When warm, observe operating watts, if above 210, adjust down to 200. Total warm up may take about 15-25 minutes. If as the bulb ages, it is no longer possible to adjust to 200 watt, you can set the power switch to 100w xenon, and reset the power adjust control.

The lamp is considered to have reached the end of it’s useful life when the energy level at 365 nanometers drops by 40%. Nominally 2000 hours.