

NUMBER: DATE:

TB09-001 July 5, 2007 SUBJECT: Intensilight & Intensilight-E FAQs

### INTENSILICHT

FAQs MBF72650 Intensilight & MBF72660 Intensilight-E

The following **FAQs** address a number of issues that have been reported by both end users and sales representatives. We have also included suggestions on how to get the optimal performance from the *Intensilight* system. A large percentage of the problems can be avoided or resolved by reading the following document.



# There have been reports of both overheating units as well as lamps shutting off soon after ignition.

In most cases, this is the result of a blocked or dirty air filter in front of the air intake cooling fan. Inside the Intensilight are two very powerful fans that must maintain a constant air flow to prevent the lamp from overheating. If this filter becomes clogged, the unit will overheat and the lamp will shut off. The overall life of the lamp can be reduced if the Intensilight is operated at elevated temperatures and could contribute to a physical failure of the lamp itself.

The air intake filter for both the manual and electronic models is located on the rear of the unit and it must be checked and cleaned regularly. If cleaned regularly with a vacuum cleaner, it is usually not necessary to replace it. If the filter remains clogged, it can be replaced by a qualified service representative.



In general, the proper clearance should be four inches on both sides and eight inches behind the case.

# When replacing an Intensilight lamp, is there a correct lamp orientation?

When mounting the Intensilight lamp, it is extremely important that the lamp be mounted correctly. <u>The lamp TOP is marked on the lamp and it must</u> face the top of the Intensilight after installation in the illuminator! See the diagram below.

If the lamp is not installed correctly, the proper operating temperature will not be maintained, the lamp intensity will be reduced, and the lamp cables may come in contact with the lamp itself, thus shortening the service life of the lamp.

When shipping the Intensilight, you must first remove the lamp from the illuminator and ship it in a separate box - preferably the original container.



#### There have been reports of reduced intensity with some "new" Intensilight systems shipped since August 2008 for use on Upright or Inverted Biological microscopes.

In all likelihood, the reduced intensity is the result of certain microscope adapters that were redesigned to include an internal diffuser to improve illumination uniformity. Unfortunately, the diffuser can reduce the amount of light by up to 30% in some cases, which can be significant in certain applications. The adapters affected are #MBF72300, #MBF72310, and #MBF72350, which are all for biological upright and inverted microscopes. Adapters for the Industrial LV-Series, SMZ epi-fluorescence, and AZ100 are unaffected. Even though the adapter product numbers did not change, they can be easily identified by holding them up to the light. If you can see a clear image through the adapter, then it is the older style and if the image is diffused, then it is the new style. Not all microscope and objective combinations exhibit an illumination uniformity problem, and the diffuser can be easily removed to determine this. It is important to note that adapters which do not have the diffuser cannot have one added.



Simply remove the three screws and retaining ring as shown below to detach the diffusion filter.

# There have been reports of non-uniform illumination as well as shading across the field sometimes visible in the eyepieces, but most often seen with low light level cameras.

There are a number of possible causes that could be responsible, including a defective or bent light guide, bulb variations, as well as adapter and illuminator design. In general, this is the reason for adding the diffuser to the adapter as discussed above. While there is a high degree of quality control in the manufacture of the lamps, there are always small variations which can affect illumination uniformity, especially with sensitive camera systems. It also has been found that if the liquid light guides are bent too sharply at the adapter or light source, uniformity can be affected. Severe bending can even contribute to the formation of a bubble in the light guide which can only be corrected with a new light guide. A gradual bend is best, and be very careful of pulling dust covers too tightly over the illuminator fiber or pushing the Intensilight against a wall. You can try rotating the guide or straightening the light guide to see if that improves the uniformity.

The factory is working on the next generation of illuminators to provide further improvements.

### There have been reports of defective Open/Close shutter blades on early shipments of Intensilight Illuminators.

It has been found that earlier models of Intensilight illuminators with serial number series 870000 & 970000 and below 670318 <u>may</u> have Open/Close shutter blades prone to overheating and failing to function. It is <u>NOT</u> necessary to replace the shutter blade simply based on the serial number, but if you do encounter this problem, you should contact your local distributor or the Nikon Service Center to determine the best option for correcting the problem.

### What can be done to optimize the brightness and life of the lamp, which if used properly will last for 2000 hours?

The lamp life is based on an average number of ignitions and each ignition will reduce the lamp life about 3-5 hours. If you plan to use the illuminator several times during the day, it is better to leave it on rather than turning it off and on every couple of hours. This is especially important in a multi-user lab.

Like any standard mercury lamp, it requires a minimum warm-up time of approximately 30 minutes to reach proper operating conditions and should not be turned off during this period or it will result in shortened lamp life.

#### What should be done if a lamp suddenly breaks?

The Intensilight lamp is a mercury vapor type bulb. If it does break, care should be taken, because some mercury vapor can be vented into the room. Each facility normally has specific rules and regulations regarding mercury lamps and you should be aware of them in case a lamp fails. Below are some general guidelines in case your institution does not have regulations in place.

### WARNING-

#### Mercury lamp (HG lamp) burst and gas leak

If the lamp is scratched or used over the life, the lamp may burst or gas may leak from the lamp.

If the lamp bursts, the broken glass may be scattered and hurt human beings and/or the product. Besides, the gas inside the lamp (vaporized mercury and Ar inert gas) is released into the air bringing about the danger of inhaling the gas. To avoid these dangers and to cope effectively with these abnormal situations, please read the articles below before using the product. For details about the lamp handling, refer to page 7, "3. When handling mercury lamp" and follow the instructions.

- The inorganic mercury is said to be less harmful and less absorbed by human beings than the organic mercury (methyl mercury), but sill is harmful and an utmost care is needed in handling them.
- If the lamp bursts or the gas leaks, all the personnel must immediately leave the room so as not to inhale the mercury vapor. Further, thoroughly ventilate the room for at least 30 minutes.
- If you happen to inhale the mercury vapor, immediately rinse your mouth and throat with a plenty amount
  of water. If mercury or mercury vapor contacts on your skin or gets into your eyes, wash it off with a plenty
  amount of water likewise. If you feel sick, or notice any sign of illness, please at once consult your doctor.
- Before cleaning up the mess, wait till the lamp and the surrounding parts cool down.
- To gather the scattered liquid mercury, use a special material for absorbing the mercury (available from vendors handling experimental materials). Dispose of them as the special industrial waste or dispose of them according to the laws or rules of your local waste system.
- Pick up the broken pieces of glass with the greatest care so as not to cut your fingers. Put the broken
  pieces of glass in a hard container and dispose of them as the special industrial waste or dispose of them
  according to the laws or rules of your local waste system.
- Because safety is a top priority in the design of Nikon products, the hazards described above should not
  pose any danger as long as you heed all of the warnings and cautions in the manuals and use the system
  only for its intended purpose. However, the hazards described above could lead to an accident if you fail to
  heed all of the warnings and cautions in the manuals, if you strike the system, or if you attempt to
  disassemble the system. Therefore, always be sure to heed all of the warnings and cautions.
- If the lamp bursts, contact your nearest Nikon representative immediately. Never continue to use the product in "as is" condition, because some glass shreds may remain in the product.

#### 3. When handling mercury lamp

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When handling the mercury lamp, follow the guidelines given below and take enough care in order to avoid accidents and injury caused by the lamp burst.

- · Do not subject the lamp to shock or vibration.
- · Do not allow dirt or fingerprints to get on the inner surface of the reflector.
- · Do not scratch the inner surface of the reflector.
- Do not exert excessive force on the electrode or the reflector. (Particularly when installing the lamp into the socket.)
- When attaching the lamp into the lamp holder, insert the lamp as far as it goes and fix the lamp with the wire form hooked.
- · When connecting the lamp cord, securely insert the connector.
- · Take care not to cut your hands when cleaning up the glass shreds of the burst lamp.
- Do not use a lamp beyond its life expectancy.
- Store lamps in a proper storage environment. Storage of the lamp in an inappropriate environment may
  cause the lamp to burst.

<Storage conditions>

Temperature: -20 to +60°C

Humidity: relative humidity 90% maximum (no condensation)

Miscellaneous: Do not subject the lamp to vibration or shock as these may cause the lamp to burst or shorten its life expectancy.

Do not break the used up lamps, but dispose of them as the special industrial waste or dispose of them
according to the laws or rules of your local waste system.

#### <Supplemental notes>

- If fingerprints or dirt stuck on the reflector surface, wipe them with a piece of soft, clean cotton cloth or gauze lightly dampened with absolute alcohol.
- · The glass shards should be placed in a hard container for disposal.
- If you notice an abnormality while using a lamp, immediately stop operation and contact your nearest Nikon representative.
- The product is designed to keep the glass shreds within the product even if the lamp bursts during
  illumination (when a burst occurs inside the product).
- If the lamp bursts during illumination, wait till the periphery of the lamp cools sufficiently before cleaning up.
- · For details on installing a lamp, see page 14, "Installing/replacing the mercury lamp."

#### Ozone

It is assumed that a small amount of ozone is produced during mercury lamp illumination. Since ozone can irritate the mucous membranes of the eyes and nose upon contact, be sure to provide sufficient ventilation while the lamp is illuminated. Never inhale the air exhausted from the mercury lamp directly, or never let the same air hit your face.