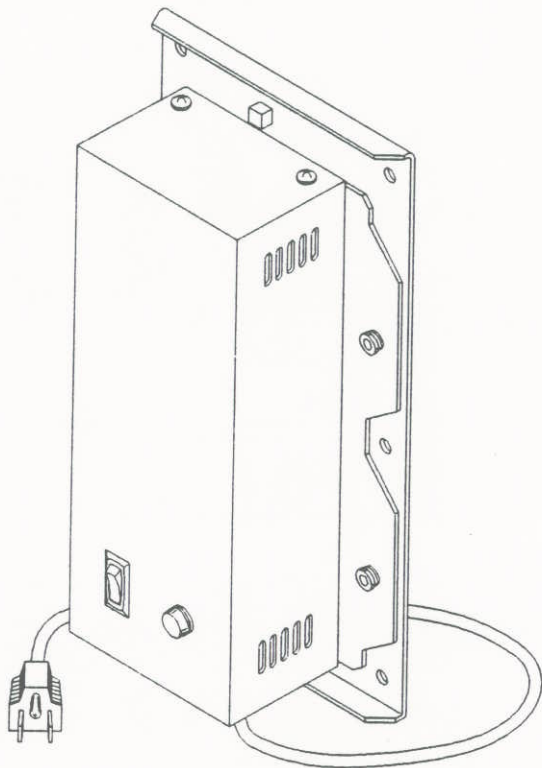


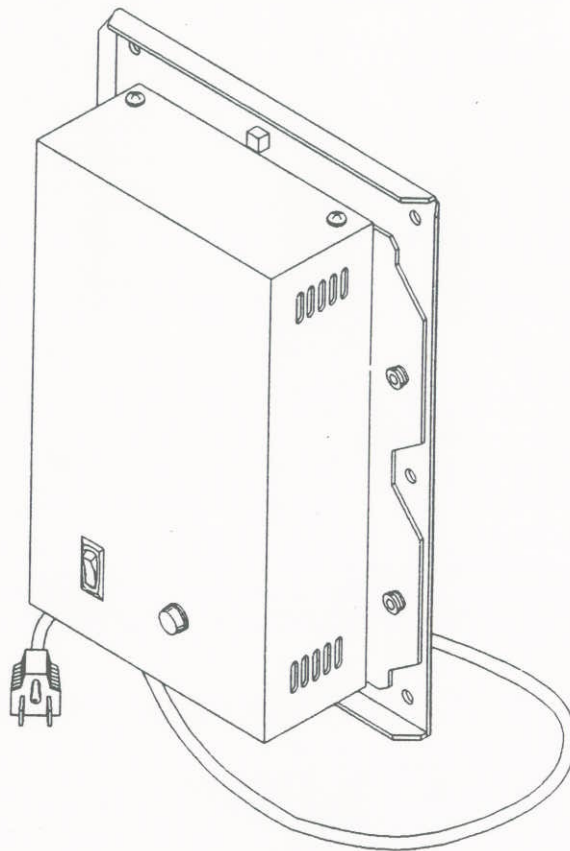
The Source of Quality Air

by: **TRIMED**

INSTALLATION, OPERATION AND MAINTENANCE MANUAL



**UVF-1 Plus
UVF-1 Super**



**UVF-2 Plus
UVF-2 Super**

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INTRODUCTION

Congratulations on your purchase of this state of the art air purification system for the purpose of controlling airborne bacteria, molds, and organic odors.

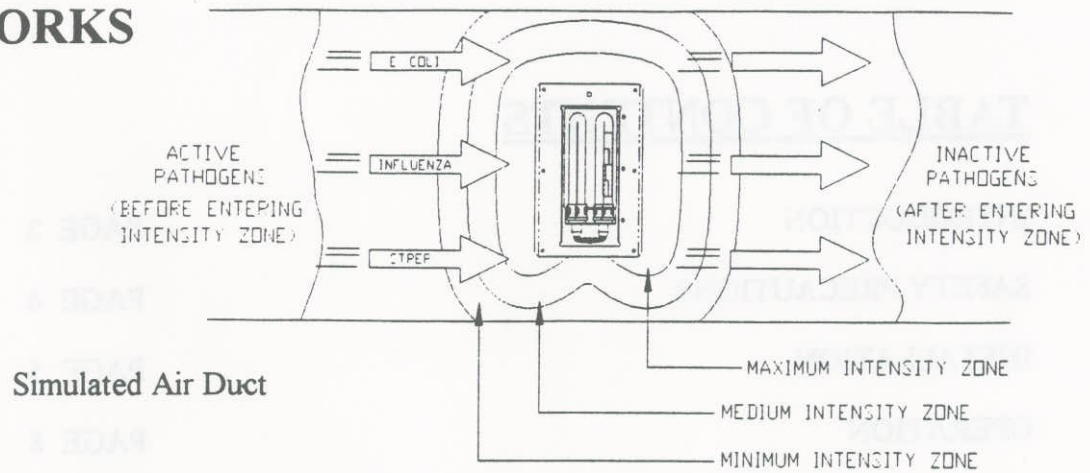
In today's homes, businesses and health care facilities, clear air does not always mean clean air. As buildings have been sealed tighter and tighter, contaminants, which used to expell through leaks or open windows, now are trapped and recirculated. Elimination of these pollutants has become a greater concern for those who care about their health. The unit you have purchased will help eliminate the concern over the air you breathe by deactivating the infectious organisms, and controlling mold sporulation that are now present in your indoor environment.

The method is simple, outside mother nature provides for air cleaning with the various wavelengths of energy provided by the sun. However, energy from sunlight varies enormously with the hour of the day and the time of the year. Our specially designed germicidal lamps, however, produce ultraviolet energy continuously, regardless of other environmental conditions creating a deactivation chamber against circulating microbials.

Your air purifier is equipped with one or more UV/photolysis emitter lamp(s). Each lamp is designed to emit a predetermined amount of energy at predetermined wavelengths. The primary wavelength (254 nanometers) is effective against airborne bacteria, and virus while the other wavelength (189 nanometers) creates a photolysis reaction to oxidize odors and reduce mold sporulation.

These lamps are equipped with a patented UV limiter, that controls the amount of each UV wavelength produced. This feature enables the installer to maximize the air purification capabilities of the unit within safe guidelines for the specific size of a particular home or area.

HOW IT WORKS



GERMICIDAL EFFECTIVENESS

Total effective bacteria kill is dependent on type of organism(s) and air velocity. Below is a sample list of organisms vs. kill zone time & intensity required to deactivate 90% of organisms in a single pass. Tri-Med UV systems provides the industry's highest intensity lamps and when applied as a system, delivers the biggest deactivation zone in their category. Actual uv-sec/cm² values for your installation can be provided if HVAC system parameters are known and supplied to the factory for calculation.

ORGANISM	ENERGY (uw-sec/cm ²)	YEAST	ENERGY (uw-sec/cm ²)	
Bacteria				
Bacillus anthracis	4520	Saccharomyces ellipsoideus	6000	
S. enteritidis	4000	Saccharomyces sp.	8000	
B. megatherium sp. (veg.)	1300	Saccharomyces cerevisiae	6000	
B. megatherium sp. (spores)	2730	Brewer's yeast	3300	
B. paratyphosus	3200	Bakers' yeast	3900	
B. subtilis	7100	Common yeast cake	6000	
B. subtilis spores	12000			
Corynebacterium diphtheriae	3370	MOLD SPORES	COLOR	ENERGY (uw-sec/cm²)
Eberthella typhosa	2140	Penicillium roqueforti	Green	13000
Escherichia coli	3000	Penicillium expansum	Olive	13000
Micrococcus candidus	6050	Penicillium digitatum	Olive	44000
Micrococcus sphaeroides	10000	Aspergillus glaucus	Bluish green	44000
Neisseria catarrhalis	4400	Aspergillus flavus	Yellowish green	60000
Phytomonas tumefaciens	4400	Aspergillus niger	Black	132000
Proteus vulgaris	2640	Rhizopus nigricans	Black	111000
Pseudomonas aeruginosa	5500	Mucor racemosus A	White gray	17000
Pseudomonas fluorescens	3500	Mucor racemosus B	White gray	17000
S. typhimurium	8000	Oospora lactis	White	5000
Sarcina lutea	19700			
Serratia marcescens	2420			
Dysentery bacilli	2200			
Shigella paradysenteriae	1680			
Spirillum rubrum	4400			
Staphylococcus albus	1840			
Staphylococcus aureus	2600			
Streptococcus hemolyticus	2160			
Streptococcus lactis	6150			
Streptococcus viridans	2000			

Note: uw-sec/cm² - is a total single pass exposure level based on the uw output of a lamp and the contact time an organism is exposed to as a result of air velocity.

Enclosed in this manual are the guidelines for proper installation, operation, maintenance and troubleshooting procedures (in the event of a problem). *PLEASE read the complete manual before beginning installation, including all safety precautions and warnings.*

Your **Tri-Med** in duct air purifier utilizes scientifically proven germicidal ultraviolet irradiation, and over 20 years of experience in the air handling industry to provide you with quality breathable air.

PRODUCT USAGE GUIDELINES

UVF-1Plus	Up to 1200 square feet *	UVF-2 Plus	Up to 3250 square feet*
UVF-1 Super	Up to 2400 square feet *	UVF-2 Super	Up to 4000 square feet*

*THIS RECOMMENDATION IS BASED ON TYPICAL BUILDING CONDITIONS, STANDARD 8 FOOT CEILINGS. ACTUAL SIZING COULD VARY BASED ON ACTUAL AIR VOLUME, OCCUPANCY, AIRBORNE POLLUTANTS (COMMERCIAL APPLICATIONS) AND OTHER USAGE FACTORS.

SAFETY PRECAUTIONS

WARNING

NEVER OPERATE THESE UNITS OUTSIDE THE DUCT WITHOUT THE PROPER PERSONAL PROTECTION! GERMICIDAL UV CAN CAUSE SKIN BURNS OR DAMAGE TO THE EYES. WITHIN A 2 FT. DISTANCE FROM THE UNIT, UNPROTECTED SKIN CAN BURN IN 1 MINUTE.

THE UNITS ARE PROVIDED WITH AN INTERLOCKING SAFETY SWITCH TO TURN THE LAMP(S) "OFF" WHEN THE UNITS ARE OPENED FOR SERVICE. **THIS SWITCH SHOULD NOT BE BYPASSED UNDER ANY CIRCUMSTANCES!**

THE UNITS ARE CONNECTED TO HIGH VOLTAGE. ELECTRICAL SHOCK OR DEATH COULD OCCUR! **DISCONNECT POWER BEFORE PERFORMING ANY SERVICE.**

CAUTION

THE PHOTOLYSIS EMITTING LAMP CAN CAUSE THE PRODUCTION OF OZONE. OZONE CAN BE A RESPIRATORY IRRITANT IN HIGH QUANTITIES. FEDERAL AGENCIES LIKE OSHA AND THE FDA ALLOW A LEVEL OF .05 PPM FOR 24 HOUR CONTINUOUS EXPOSURE. THE UVF-1 AND UVF-2 ARE DESIGNED AND TESTED TO KEEP THE INDOOR ENVIRONMENT AT LEVELS CONSIDERABLY BELOW THESE GUIDELINES. CONSULT YOUR AUTHORIZED DEALER IF YOU HAVE ANY QUESTIONS.

NOTICE

THE UNIT(S) SHOULD BE TURNED "OFF" WHENEVER THERE IS ANY MAINTENANCE OR SERVICE WORK BEING PERFORMED ON THE HVAC SYSTEM. THIS INCLUDES THE CHANGING OF FILTER(S). SEE SAFETY PRECAUTIONS.

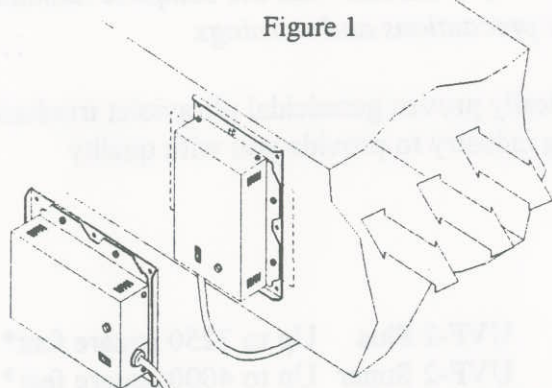


Figure 1

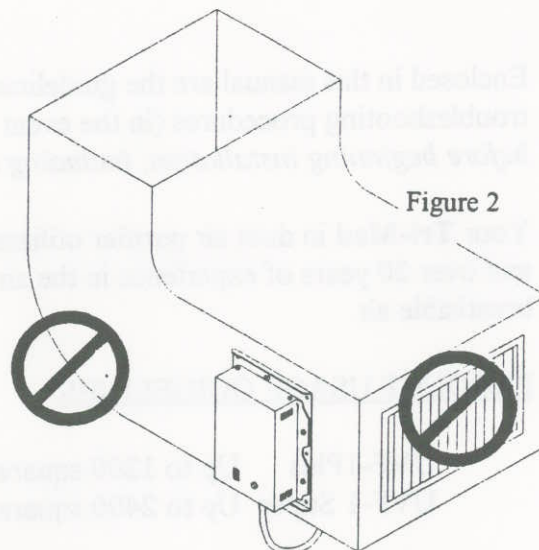


Figure 2

(UVF-2 shown)

INSTALLATION - (Applies to either UVF-1 or UVF-2 Models)

This product is designed to be used on residential or light-commercial forced air heating, ventilation and air conditioning (HVAC) systems.

Note: The person performing the installation must be a trained TRI MED technician. Local requirements may include installation by a licensed HVAC technician.

LOCATION

Recommended location will vary depending on the application. The unit must be installed on the return side of the air handling system. This allows the lamps to operate at a stable temperature and humidity range while allowing the maximum benefit from the photolysis process. If the unit is installed on the supply side, large fluctuations in temperature from the heating or cooling coils will vary the output of these lamps and reduce their effectiveness.

The unit can be mounted either vertically or horizontally in the duct. (See Figure 1) It is recommended that the lamps be mounted perpendicular to the air flow.

IMPORTANT

IF THE AIR TO BE TREATED CONTAINS A HIGH CONCENTRATION OF PARTICULATE (FROM TAR & NICATINE OR COMMERCIAL PARTICULATES) MATTER, AN ADDITIONAL FILTER(S) SHOULD BE INSTALLED UPSTREAM (IN FRONT OF THE UNIT) TO HELP KEEP THE LAMPS AS CLEAN AS POSSIBLE

NOTICE

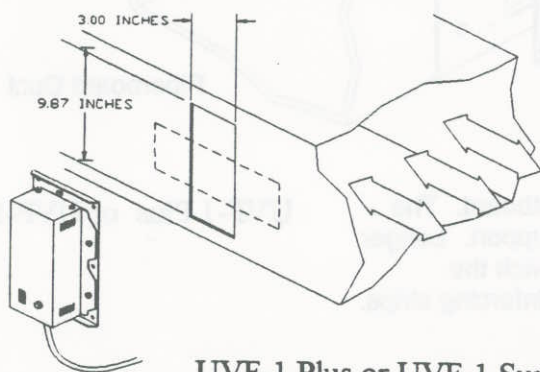
AFTER THE UNIT IS INSTALLED AND TURNED "ON", YOU MAY FIND AREAS WHERE THERE ARE LIGHT LEAKS FROM YOUR FURNACE. FILL IN THESE AREAS WITH AN OPAQUE WEATHER-RESISTANT OUTDOOR CAULKING. IF THE UNIT IS MOUNTED INTO A FIBERBOARD DUCT, ADDITIONAL SUPPORT WILL BE NECESSARY. SEE FIGURE 4

The unit should not be placed where the actual lamp is in sight from any inlet/outlet grilles or openings.

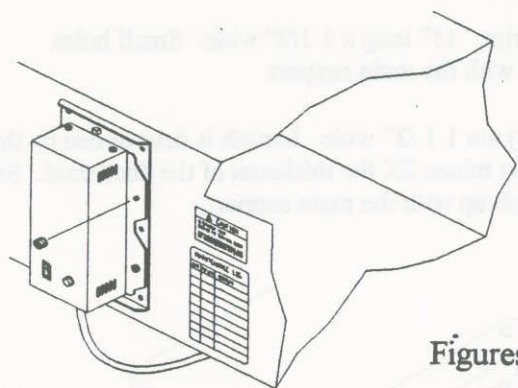
(See Figure 2) If this cannot be accomplished, then some type of light-shielding material must be employed. Contact your authorized dealer for assistance.

Care should be taken not to locate the unit immediately after a curve (See Figure 2) or within 15" of any non-metallic filter that might be in the duct. Some non-metallic materials may deteriorate while in the continuous presence of intense UV light. Contact your authorized dealer if you have any questions.

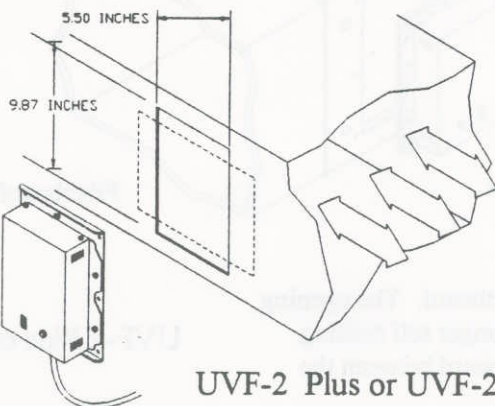
Duct construction should be of material equivalent to 0.023 inches (24 gauge) thick (minimum) galvanized steel.



UVF-1 Plus or UVF-1 Super



Figures 3



UVF-2 Plus or UVF-2 Super

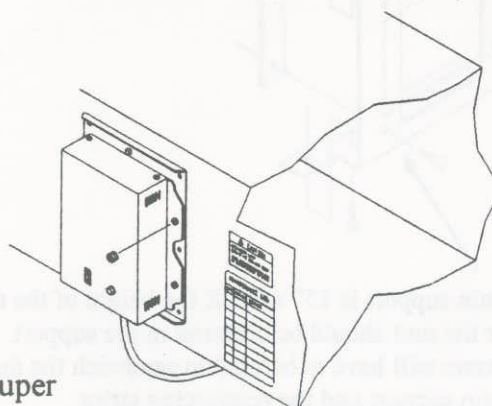
If your system is constructed of duct board, see Figure 4 in the Mounting Section of this manual.

Step 1: Mark the opening in the duct to the size shown in Figure 3. Cut along the edges of your mark using sheet metal shears taking care not to drop metal pieces into the duct. It is recommended that a saw not be used due to the filings that are created.

Step 2: Locate the unit over the opening and fasten it in place using six #10 x .75 long self drilling screws. Tighten them so that the gasket is compressed to approximately 1/2 its original thickness. Take care not to over-tighten the screws or they may strip out the metal.

Step 3: Install the lamp into the unit by removing the two brass thumb screws and opening the unit. With clean hands, remove the lamp from its packing and align the base of the lamp with the lamp socket. Insert the lamp into the socket then slide the clear glass part of the lamp into the retaining clip. Apply the enclosed Maintenance Log decal on the duct along side the unit. It will be used to record any maintenance performed to the

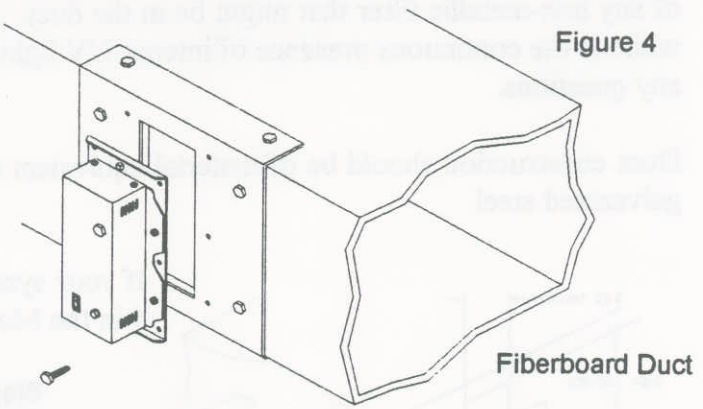
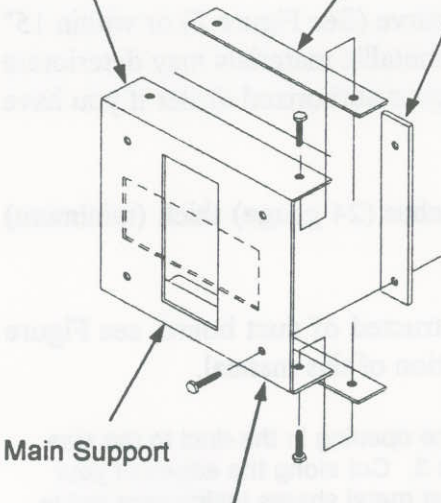
unit. Also apply the UV Light Caution decal.



Top and bottom flanges should be a minimum of 2 1/2" wide.

Top and bottom reinforcing strips. 12" long x 1 1/2" wide. Small holes can be pre-drilled to match up with the main support.

Side reinforcing strips (2) are 1/2" wide. Length is determined by the in side height of the main support minus 2X the thickness of the ductboard. Small holes can be pre-drilled to match up with the main support.



Main Support

Figure 4

Fiberboard Duct

UVF-1 Plus or UVF-1 Super

Main support is 12" wide X the height of the ductboard. The opening for the unit should be centered in the support. Longer self drilling screws will have to be used to sandwich the ductboard between the main support and the reinforcing strips.

Top and bottom flanges should be a minimum of 2 1/2" wide.

Top and bottom reinforcing strips. 15" long x 1 1/2" wide. Small holes can be pre-drilled to match up with the main support.

Side reinforcing strips (2) are 1 1/2" wide. Length is determined by the in side height of the main support minus 2X the thickness of the ductboard. Small holes can be pre-drilled to match up with the main support.

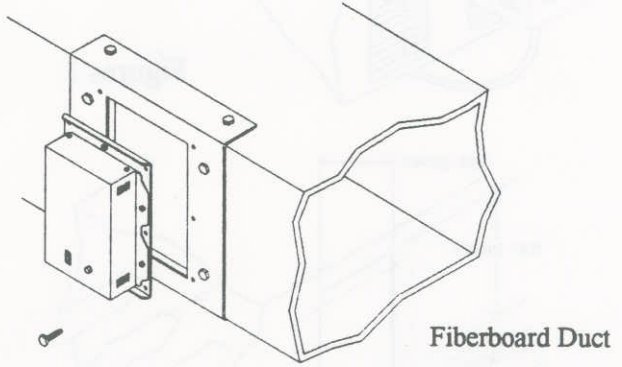
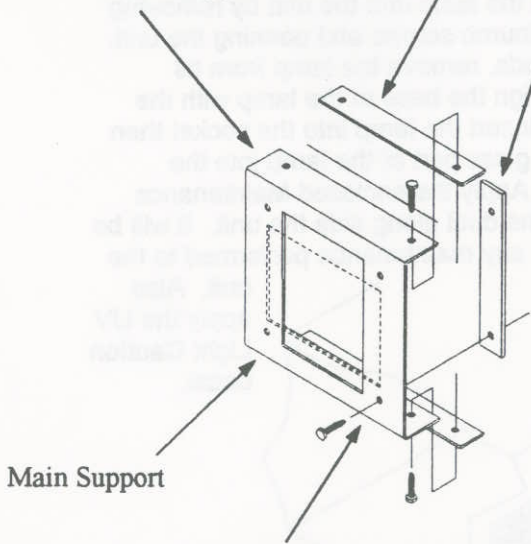


Figure 4

Fiberboard Duct

UVF-2 Plus or UVF-2 Super

Main support is 15" wide X the height of the ductboard. The opening for the unit should be centered in the support. Longer self drilling screws will have to be used to sandwich the ductboard between the main support and the reinforcing strips.

ELECTRICAL

Required is a single 120VAC, single phase grounded outlet installed per local electrical codes. Each lamp uses less than 50 watts. The unit can be connected to the 120VAC leg brought into the air handler, if a standard 120VAC receptacle is utilized allowing for the **TRI MED** unit to utilize it's three prong plug, assuring ETL compliance.

OPERATION

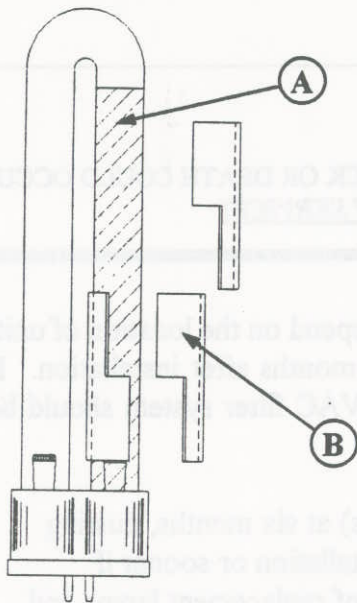
Once you turn either the UVF-1Plus, UVF-1 Super, UVF-2 Plus or UVF-2 Super "ON", let the unit run continuously. The life of the lamps will be reduced if the unit is stopped and started more than once every 8 hours.

Note: 9000 hour estimated lamp life is based on the lamps being turned "off" and "on" no more than an average of once every 8 hours.

Continuous operation is important because this unit is designed to deactivate the organisms in the air and this should be a continuous process. The fan for the HVAC system should be kept in the "ON" position at all times to improve circulation and conditioning of the air.

Note: Frequent "on/off" cycling of the HVAC blower can also result in reduced lamp life if the unit is wired to the fan.

PHOTOLYSIS ADJUSTMENT FOR ODOR AND MOLD CONTROL



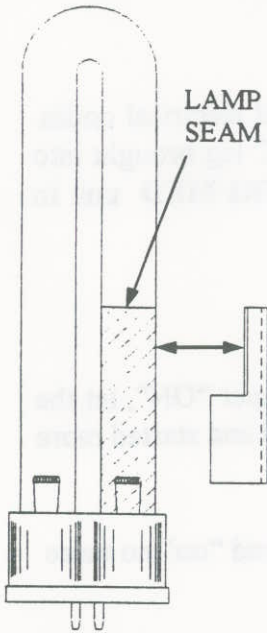
The UVF-1 Plus, UVF-1 Super, UVF-2 Plus or UVF-2 Super are equipped with one and two ultraviolet photolysis lamps respectively. Each photolysis lamp is a combination lamp which produces energy at dual UV wavelengths. One wavelength is to kill airborne bacteria, the other creates a photolysis reaction that oxidizes odor & prevents mold sporulation.

Each combination lamp is equipped with one or more patented UV limiter clips that controls the proper amount of UV energy to maximize the purifying effect in a specified area.

Each unit is factory set for an area of 1200 sq. ft. at normal indoor temperature and humidity levels. If this unit is to be placed in a larger area, the special plastic limiting clips can be removed per chart on page 7.

A - SHADED AREA ON LAMP INDICATES DUAL UV AREA AND IS ONLY SHADED FOR ILLUSTRATION PURPOSES.

B - PATENTED UV LIMITING DEVICE.



SQ. FEET	A/C TON	CFM	CLIPS* TO BE IN PLACE		
			UVF-1 Plus	UVF-1 Super UVF-2 Plus	UVF-2 Super
800 - 1,200	1 1/2	600 - 700	1	3	6
1,201 - 1,800	2	800 - 900	N/A	2	5
1,801 - 2,400	2 1/2	1,000 - 1,125	N/A	2	5
2,401 - 3,250	3 - 3 1/2	1,200 - 1,575	N/A	1	3
3,251 - 4,000	4	1,600 - 1,800	N/A	N/A	1

If the lamps have been in operation for more than six (6) months and there is a need for more photolysis, remove one clip more than specified above.

NOTICE: It is very important to stay within the parameters of the chart for maximum comfort & effectiveness. If there are any questions about the installation or adjustment of these lamps, please contact your authorized dealer or **TRI MED** Technical Support Department.

* The clips referenced are patented output control device(s). The actual configuration when installing should be based on the above operation chart. If more photolysis is needed, adjust clips to one size larger per square foot rating.

MAINTENANCE

WARNING

*THESE UNITS ARE CONNECTED TO HIGH VOLTAGE! ELECTRICAL SHOCK OR DEATH COULD OCCUR!
DISCONNECT POWER BEFORE PERFORMING ANY SERVICE!*

A regular maintenance schedule must be established. Intervals will depend on the location of unit. The initial inspection and cleaning of the unit should take place six months after installation. If there is excessive dirt noticed on the lamp(s), a higher efficiency HVAC filter system should be installed or the lamps should be inspected and cleaned more often.

Install the unit in accordance with this manual, and inspect the lamp(s) at six months, dusting with a dry cloth if necessary. Replace the lamps 12 months after installation or sooner if necessary. Contact your authorized HVAC dealer for the purchase of replacement lamps and information.

TROUBLESHOOTING

The UVF-1 Plus, UVF-1 Super, UVF-2 Plus and UVF-2 Super units are designed and constructed with state-of-the-art materials. They are manufactured and assembled in the USA. Each unit is tested before shipping, including the lamps, to insure you get the highest quality product. *There is a 1 year limited warranty for all parts, except the lamps which have a 90 day warranty and a rated life of one year.* The lamps are warranted against manufacturers defects which would prevent the lamp operating for 100 hours.

There is always a chance for a component to fail prematurely and if that should happen then follow the troubleshooting steps below.

TROUBLESHOOTING CHECK LIST

<u>Symptom</u>	<u>Probable Cause</u>	<u>Solution</u>
Power "on" switch not illuminated	a) Unit not plugged in	a) Plug in unit
	b) Unit power switch not in the "on" position	b) Turn switch "on"
	c) Building electrical circuit breaker tripped	c) Reset breaker
	d) Fuse blown	d) Check fuse- if blown, replace with an AGC - 5 or equal
Unit power switch illuminated, but lamp(s) not illuminated	a) Unit not closed completely, safety interlock switch not depressed	a) Close completely & tighten thumb nuts
	b) Defective interlock switch	b) Contact your authorized dealer for repair
	c) Defective lamp(s)	c) Replace lamp(s)
	d) Defective ballast	d) Follow warranty instructions
Unit power switch turns on but instantly blows fuse	a) Electrical short in unit	a) Contact your authorized dealer for repair

NOTICE

If these solutions do not correct the problem, please contact your authorized HVAC dealer.

Dispose of lamps in accordance with all Federal, State and Local regulations.

LIMITED WARRANTY

TERMS AND CONDITIONS

The UVF-1 Plus, UVF-1 Super, UVF-2 Plus and UVF-2 Super units are provided with a comprehensive 1 year limited warranty to the original purchaser. Should the product covered under this warranty fail to perform by reason of improper workmanship or material, **TRI MED** at its option during the period of one year from the date of original purchase, will either, (1) replace the Product or (2) provide all necessary parts to repair the Product, without charge. This warranty is valid only under the following conditions:

- 1) **REGISTRATION:** The purchaser's or installing dealer's completion and mailing of the registration card to **TRI MED** within 30 days of original purchase.
- 2) **DEFECT RETURN:** Purchaser will contact **TRI MED** Service Department for a return goods authorization number and shipping address. Return of the complete unit or the affected parts will be at the discretion of **TRI MED**.
- 3) **SHIPPING:** All transportation charges on the product and or parts, submitted under this warranty shall be borne by purchaser. Returned product shall be shipped in either its original carton or in a carton assuring similar protection of the product, with the return authorization number clearly displayed on the outside of the carton.
- 4) **UNAUTHORIZED PARTS:** The product has not been altered, repaired or serviced by anyone other than an authorized service center or technician using original replacement parts. The purchaser is able to show that the Product has had only original parts in operation and maintenance.
- 5) **SERIAL NUMBER INTACT:** A showing by the purchaser that the Products serial number has not been altered or removed.
- 6) **MISUSE:** A showing by the original purchaser that the product has not been damaged, misused, installed improperly, abused or operated contrary to the instructions contained in this manual.

There are no other warranties, expressed or implied, including, but not limited to any implied warranties of merchantability or fitness for a particular purpose. *Routine maintenance parts (including but not limited to; filters, fuses, UVC lamps) are excluded except that they shall be new and properly working when placed into service.* The manufacturer shall not be liable for any loss of profits or any direct or consequential damages arising out of any defect in material or workmanship. Purchaser accepts the provisions of this warranty in lieu of all other warranties including purchaser's remedies pursuant to the Uniform Commercial Code.

