

For

Instruction Manual

TYPE: UVX-01008T1NT03

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Warning

1. For the safe use of the equipment

* The symbols shown below are described as below.



High temperature



Electric shock



Protective glasses



Pinching



Caution

“Warning” indicates possible situations such as a risk of death or serious injury for the operator when the equipment is operated in inappropriate ways.

1-1. Inherent risks and safety precautions of the equipment



High temperature

This equipment irradiates intense light, and it could cause of over heat, emit of smoke, ignition, and spreading fire depending on exposure of irradiation. Set the proper intensity of irradiation in advance.

In addition, supervise the process of irradiation until the shutter closes after the object pass through in the irradiating light. It could cause of the fire and fire spread.

Note: When the shutter opening/ closing is not completed within 2 seconds after accepting the printing command, the equipment detects troubles/failures and put the light off.



Electric shock

Turn off the equipment main breaker before performing the lamp replacement.

In addition, touching energized part could cause of electrical shock when the covers for the power panel and lamp fitting are removed. Turn off the equipment main breaker before performing in the necessity that you remove the covers.

Also do not touch the condenser and connecting parts of the lamp terminal block within 10 minutes after putting the light off to discharge electricity.



UV light

The leakage of the UV light harms your eyes and skin at short time. Wear protective glasses and few exposed clothe when you work near the leakage of the UV light.



Burn

Touching the lamp fitting, duct and blower during use/immediately after use could cause of burn.

Perform maintenance and inspection after confirming the equipment is cooled-down.



Fallen screw(s)

The fallen screw(s) could cause of damage for rollers and other parts when the UV irradiation equipment is installed on the printer and other objects. Tighten the screw when performing maintenance and inspections.



Burst of lamp

Stop the operation and the room has to be ventilated promptly when the lamp bursts caused by interruption of the work, and so on.

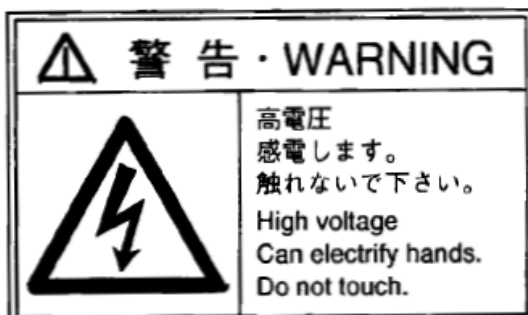


Pinching

The bladed wheel and V-belt rotate at high speed. Handle the equipment with care during operation to avoid pinching by bladed wheel and V-belt.

1-2. Warning labels

Warning of high voltage



Warning of hazardous UV light



Warning of pinching



1. Cautions for installation

To avoid troubles, check the following items.

1-1. Power panel

Install the power panel in cold and free from moisture place (0-40 degrees C).

Drive terminal screws in tightly.

Power supply must be single phase and 100V.

The equipment is common use for 50Hz and 60Hz. Select a frequency according to the instruction manual.

If the main transformer and choke transformer frequencies are not proper, troubles and failures are caused with excess or deficiency of input power.

1-2. Lamp fitting

The lamp fitting is designed to horizontal irradiation. Install the lamp fitting +/- 10-degree or less. If the lamp fitting is tilted +/- 10-degree or more, it causes short life of the lamp fitting.

Protect your eyes and skin from the leakage of UV light from work inlet/outlet.

Dirt and dust on the mirrors cause of performance decrement. Keep the mirrors clean or replace it regularly.

1-3. Lamp

We recommend not using any lamps except our company products. Other manufactures lamps may cause instable condition, short life of the lamp or overheating due to different electric property/nonstandard.

Do not touch the arc tube with bare hands, and hold the both bases of the lamp. If you touch the arc tube with bare hands, fingerprints are left on the arc tube when the lamp is lighted. In the case the fingerprints are put on the arc tube, wipe it with alcohol-soaked gauze, and rub with a dry cloth.

1-4. Fan (For lamp cooling)

Do not place any objects preventing the exhaust air from the fan.

Fix the fan securely to resist the vibration occurred by fan in use.

1-5. Others

The heat-sensitive works (thermal paper, films) may have shrinking, burnt deposit or allochroism.

If the works processed with the label-printing machine is irradiated with UV light, the work is peeled from mounting and the lamp fitting vacuum up the work frequently.

2. Components

The equipment components are as below.

1) Power panel (MB-801 / 1H0A-NT01)		1
2) Lamp fitting (UVH-800H / LC0-NT01)		1
3) Lamp (UVL-800-O1)		1
4) Fan (UVA-801 / 1H0LC0-LA)		1
5) Cord set		(1 Complete set)
5-1) Cord for input	5m	1
5-2) Cord for lamp	5m	1
5-3) Cord for external signal	5m	1

3. Specifications

1) Main irradiation wavelength band	200~450nm
2) Lamp input control	Lamp electric power 80W / cm
3) Direction of radiation	Downward and lateral direction
4) Time to stable	Within 3 min.
5) Re-lighting time	More than 5 min.
6) Indication light	
6-1) Receiving (LED: WHITE), Lighting (LED: RED)	
7) Main operation	
7-1) Breaker	
7-2) External lighting command signal ON	
7-3) External lighting command signal OFF	

8) Dimensions

Power panel	Dimension	360W × 460D × 258H (including knobs)
	Weight	Approximately 40kg
	Painting color	Newton gray
Lamp fitting (With fan)	Exterior	Hammer tone gray C
	Dimension	310W × 160D × 273H
	Weight	4.5kg
Lamp	Dimension	225L × OD 25
	Light emitting length	100mm
	Type	High-pressure mercury vapor lamp

4. Conditions for use

1) Operation rating	Continuous
2) Ambient air temperature	0-40deg C
3) Ambient humidity	70% or less
4) Cleanliness	More than average business office

* Unusable in the corrosive environment

* In the case exhaust air from blower is connected with collective duct, or eject the exhaust air outside of the room with 2m long or more flexible duct, the lamp fitting housing may have heat more than usually or the lamp fitting temperature anomaly. When the conditions like these, the possible cause is insufficiency of lamp cooling. For corrective action, install B-type duct on the exhaust opening. In the case the exhaust air is ejected from B-type duct constantly after installing B-type duct, capacity of the collective duct is insufficient as a possible cause. Check the capacity expansion of collective duct.

5. Utility and interface

a) Power supply	AC100V \pm 10V Single Phase 50Hz (Or 60Hz) 10.5A Cable termination/ Round terminal * 15A is used for the circuit breaker of this power supply. Prepare the breaker for 15A or more in your company.
b) Grounding	Third-class grounding
c) Air volume displacement	Within 1.9m ³ / within min (Per one lamp fitting)

6. Instructions of the equipment

6-1. Installation

6-1-1. Power panel

Install the power panel in dry place. The front and rear of the power panel are inlet/outlet of cooling air for power supply. Do not place any objects within 15cm from inlet/outlet preventing the exhaust air.

Also if the power panel is set inside of the equipment, avoid entering the exhausted hot air to inlet.

6-1-2. The lamp fitting

The lamp fitting is designed to horizontal irradiation. Install the lamp fitting \pm 2-degree or less (The lamp shaft is 10-degree or less). The lamp fitting is tilted \pm 2-degree or more, short life of the lamp fitting and failure of the shutter are occurred.

6-2. Names for each power supply part

6-2-1. Names for each part (Power supply)

Receiving for Indicators

Signal tower

Breaker

Ground terminal

Power cord

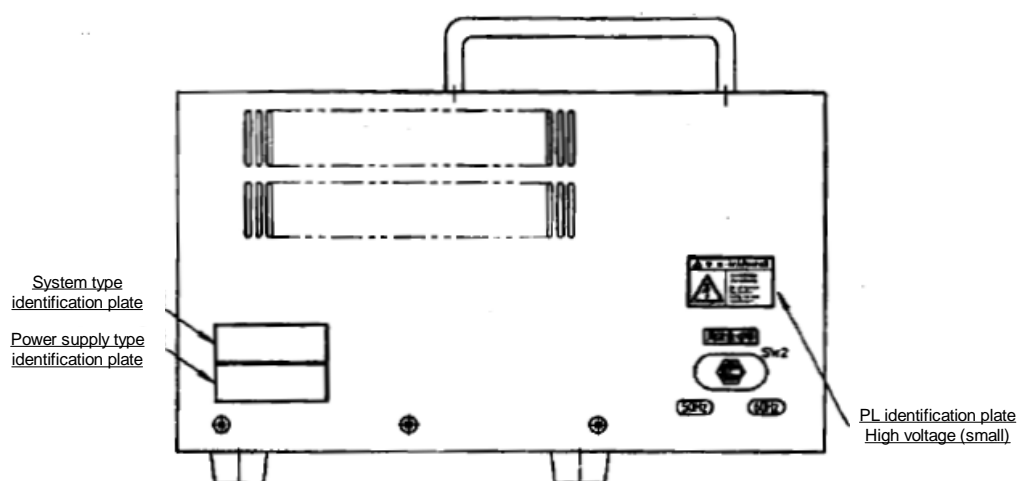
Output connector

Cord for external signal

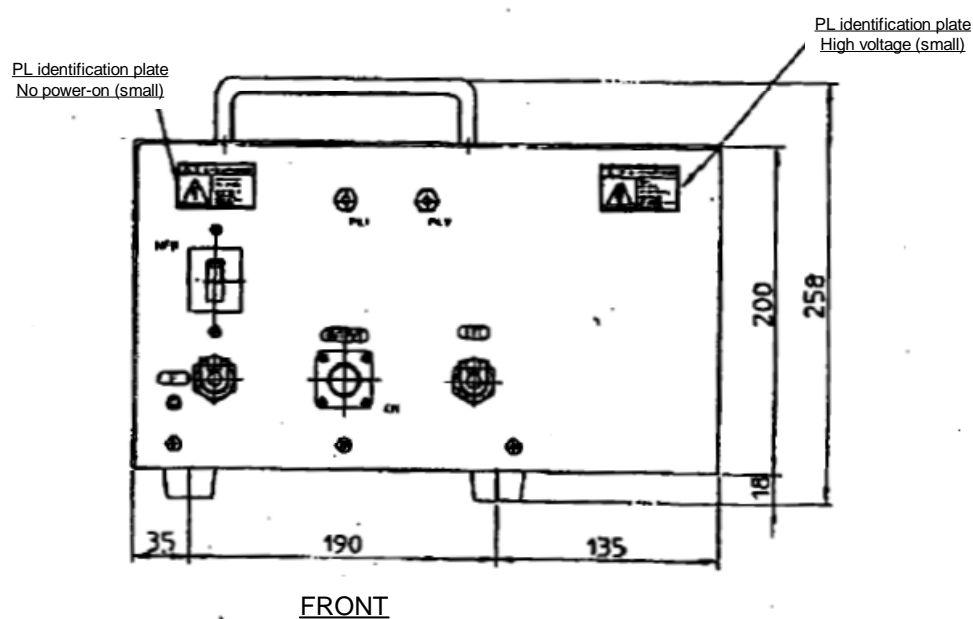
Knob

Frequency conversion switch

Identification plate

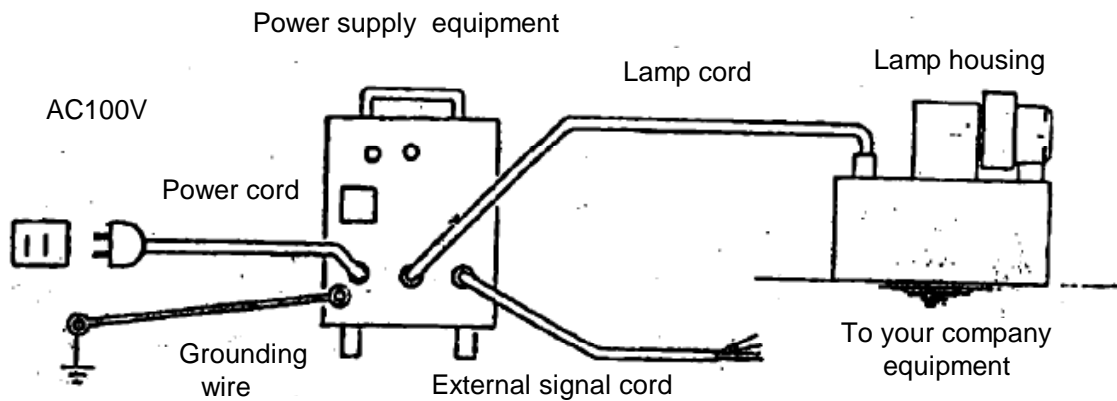


View on arrow A REAR



FRONT

6-3. Wiring



- Connect the cords, and , shown figure above. Be sure to ground.
- Each signal cables are shown below table.

Wire No.	Remarks
C	Signal for lighting
2	
8	Electric current detection for blower (Seizing signal for blower)
9	
10	Lighting detection
11	
12	Power ON detection
B	Power voltage for the lamp Output terminal
G	
E	E

Wire No. B-G is output terminal for power voltage of the lamp. To connect a voltage indicator, use full-scale 300V or more.

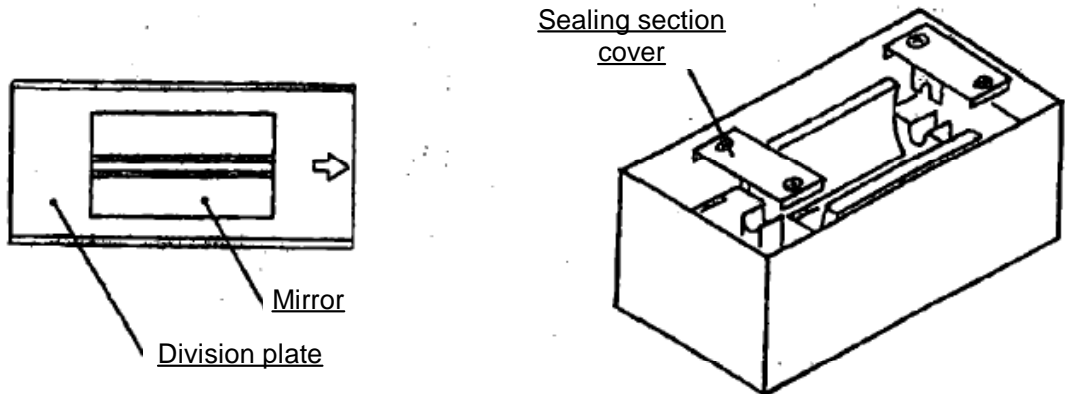
6-4. Lamp installation and replacement

1) Attachment/detachment of the lamp

Turn up the lamp fitting irradiation side.

Slide a division plate to arrow direction, and remove it.

Loosen the attaching screws of sealing section cover.



Uncase the lamp from the container box.

Hold the base of the lamp. Do not touch transparent area (Quarts).

Clean off the fingerprints and dirt lightly with soft cloth impregnated alcohol (such as gauze). After then, rub it with a dry cloth.

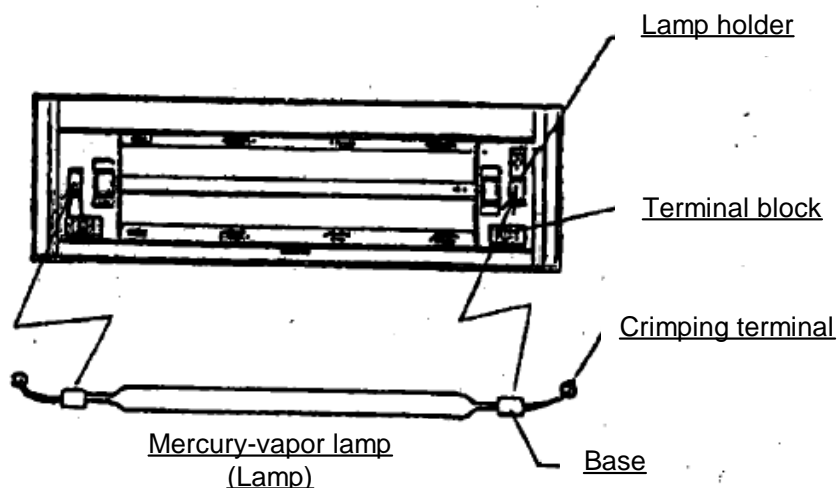
Attach the lamp to the lamp fitting as shown below. Holding the both bases of the lamp, fit the lamp to the center of the lamp fitting and then attach it.

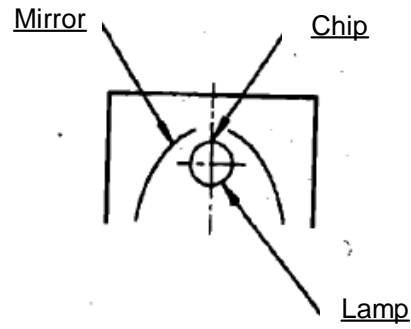
To a long side of the lamp fitting, the lamp has to be at the center.

Connect the crimping terminal of the lamp lead wires to the screw bolts of terminal block with nuts.

Turn the chip to mirror side.

Tighten the attaching screws of sealing section cover.





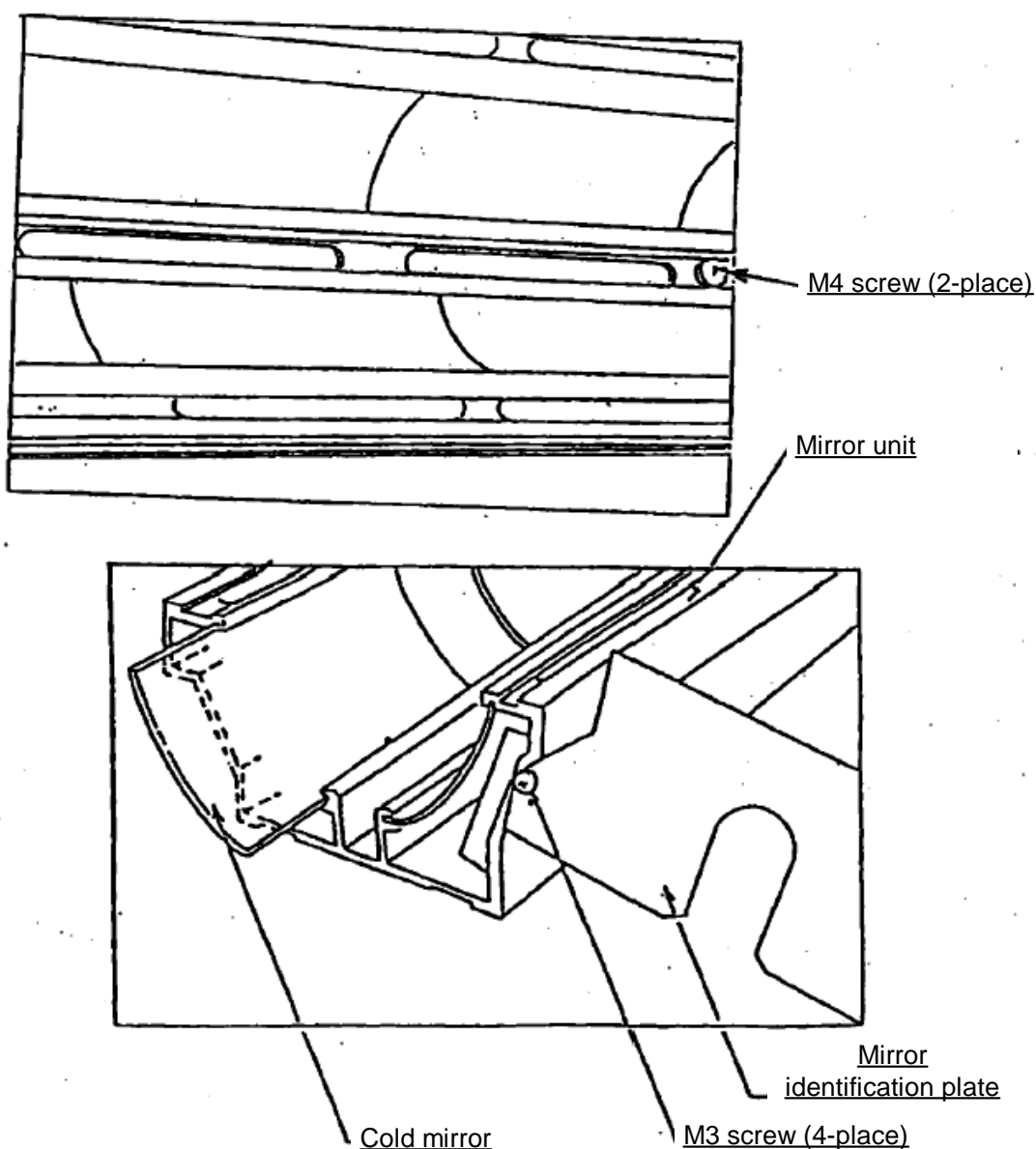
2) Switch frequency conversion

- The switch for frequency conversion is at the observers left of the power panel front side. Flick the switch to appropriate frequency side. Flick the switch left side is for 50Hz and opposite side (right side) is 60 Hz. In addition, the switch is on 50Hz side when the equipment is transport condition.

6-5. Replacement of cold mirror

- The mirror is cold mirror (Glass). Please handle it with care.
- (1) Remove the lamp following the procedure 6-4).
 - (2) Loosen M4 screws, and remove the lamp bracket.
 - (3) Place the removed bracket on the level place such as table.
 - (4) Loosen four screws to remove the end plate of the mirror.

Remove the mirror with a tweezers so that the mirror does not slide sideways. Wear the globes or using clean cloth when performing this work. To attach the mirror, perform opposite procedure.



7. Operation

7-1. Operating instruction

The wirings - for the lamp fitting, between the power supplies, and the input cord for power supply (AC100V) - are connected, receiving indicator is lighted.

Turn the power switch (Breaker) on. The signals for output wire No. 11-12 are ON. Next, short-circuit the wire No. C-2 for external signal cord. It lights the indicator.

Also, the wire No. 10-11 for lighting signal for output (Contact point "a" of No-power voltage which is ON state during operation) is ON.

Approximately 4 minutes later, the cooling fan is activated and the wire No. 8-9 (Contact point "a" of No-power voltage which is ON state during operation) for the blower seizing signals is ON.

Approximately 5 minute later, the lamp condition become stable.

Cover your eyes and skin to avoid direct UV light.

To turn off the lights, turn off the wire No. C-2 for external signal cord. At the same time, the wire No.10-11 is turned OFF.

Within 3 minutes after the light is turned off, do not turn off the breaker. The cooling fan is active.

After the cooling fan is completely stopped, re-lighting is enabled. Blower seizing signal is turned OFF when the cooling fan is stopped.

Re-lighting is enabled 3 minutes later the lamp is lighted. If the light is not lighted, once turn off the switch and wait approximately 10 minutes.

Turn off the breaker and disconnect each connecting parts after use.

Time diagram

	AC100V Power ON	Switch for lighting ON	Switch for lighting OFF	AC100V Power OFF
(Distribution board ON) 1. Receiving				
2. Lamp				
3. Stability		5 minutes		
4. Lamp fitting fan		4 minutes	3 minutes	
5. Lighting signal				
6. Blower seizing signal				

7-2. Instruction for use

7-2-1. Power panel

- Connect the crimping terminals and connectors without loosening.

7-2-2. Lamp fitting

- Do not touch the mirror with bare hands. If the fingerprints are left, it may cause of the performance decrement.
- Protect your eyes and skin from the leakage of UV light from work inlet/outlet.
- Avoid using the lamp fitting in poor ventilation place such as well-closed container or box. The lamp fitting is heated and it may causes of troubles/failures.
- Do not place the cooling fan near the lamp fitting. Excessive lamp cooling causes voltage reduction, performance decrement, and the weakening of the lighting intensity.

Check the voltage and lighting intensity after cooling fan is installed.

7-2-3. Lamp

- Do not touch the arc tube with bare hands and hold the both bases of the lamp.
Wipe the lamp with alcohol-soaked gauze, and rub with a dry cloth.
- Do not touch or approximate objects lighting/after use lamp. It has high temperature (Approximately 800 deg C).
- The lamp is a glass product. Avoid shocks and shakes.

7-2-4. Fan

- Do not place any objects to prevent the exhaust air from the fan.

8. Maintenance and inspections

8-1. Consumable parts

Keep spares of consumable parts, such as the lamp and mirror.

Consumable parts list

Product name		Qty	Part No.	Type	Lifetime
Lamp		1	6000-4815	UVL-800-O1	1000hrs
Cold mirror	L=110	2	2935-9737	-	* (2000hrs)
	L=20	2	2935-9684	-	* (2000hrs)

*) The lifetime depends on use environment.

8-2. Daily check

- Check the lamp and mirror. Clean them according to the condition.

8-3. Regular inspection

Check the equipment at least once a month, however the regular inspection depends on operation frequency.

In the case the regular inspection is not conducted, it may have effect on the lamp lifetime.

8-3-1. Power panel

- Measurement and confirmation of the power supply voltage.
- The fan works when the power is turned on.
- Ascertain presence of abnormal sound/odor and heat.
- Ascertain presence of cracks of each cord.
- Operating condition of each switch.
- Lighting condition of each lights.
- Connector loosening.

8-3-2. Lamp fitting

- Clean the lamp and mirrors.
- Ascertain presence of lamp cracking.

8-3-3. Fan

- Ascertain presence of abnormal sounds during operation.

*If any troubles and failures are happened, contact at the following address.

Service section (E-MAIL : techsup@mail.ushio.co.jp)

9. Warranty

- If any troubles and failures are occurred with our defection, we accept repair without charge, or provide replacement parts for the lamp fitting and output cables for 1-year after delivered the equipment.
- The warranty applicable scope is for the equipment. The casualties induced by the equipment failure are not covered with warranty.
- The troubles and failures caused by using undesignated lamps lose coverage of warranty.
- The troubles and failures caused by conversion without authorization lose coverage.
- Outside drawing is subject to change except measure.

- Duct mounting

Lamp cooling

When the arc tube warm-up is insufficient, adhered mercury and metals on the inner wall of the arc tube are not evaporated, and power voltage is low. Therefore, the lamp immediately after turning on irradiates reduced UV light.

After turning on the light, the temperature of arc tube raises. The adhered mercury and metals are evaporated, and power voltage increases.

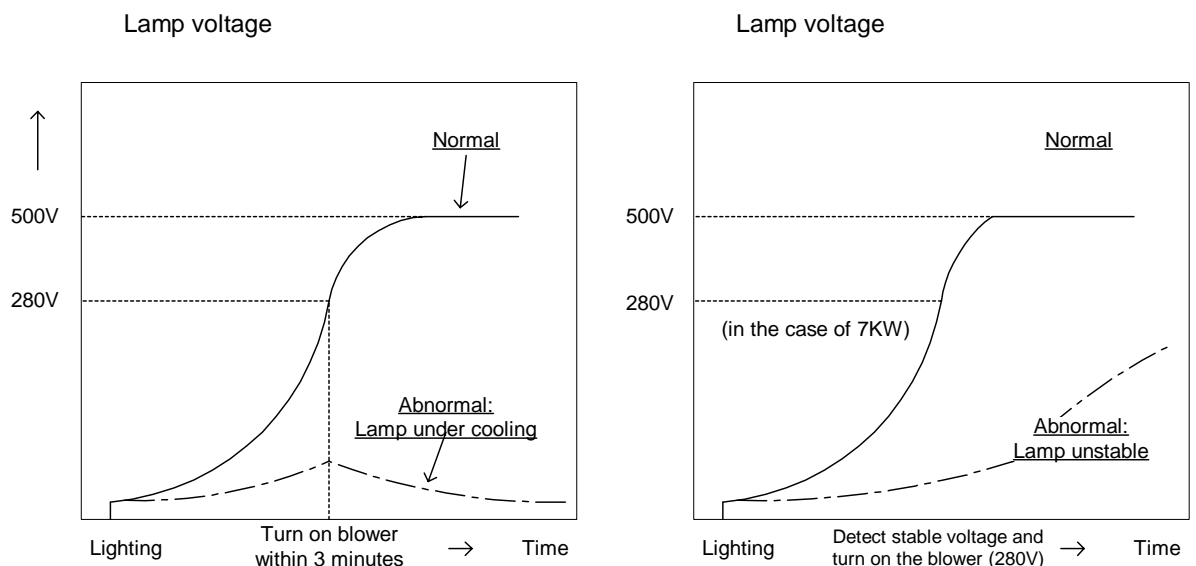
When the temperature of the arc tube has been stable, the lamp sensors or timers detect it and lamp cooling is started.

If the cooling is excess, the arc tube temperature falls. The vaporized mercury and metals adhere on the inner wall of the arc tube again and power voltage becomes low. In the case of insufficient cooling time, the lamp lifetime shortens by raised temperature. It also causes damage of the lamp.

When the lamp is cooled with forced-exhaust air from collective duct during increasing arc tube temperature, problems occur such as continuing unstable condition or taking time to be stable as shown below Fig.1.

To install collective ducts for the lamp cooling, take notice following item.

Inquire about unclear points or problems if any.



- Lighting intensity is declined when blower is turned on.
- Require time to be stable.
- Unstable condition leads to overheat of the lamp fitting because the blower does not send air.

Fig.1 The lamp voltage curve

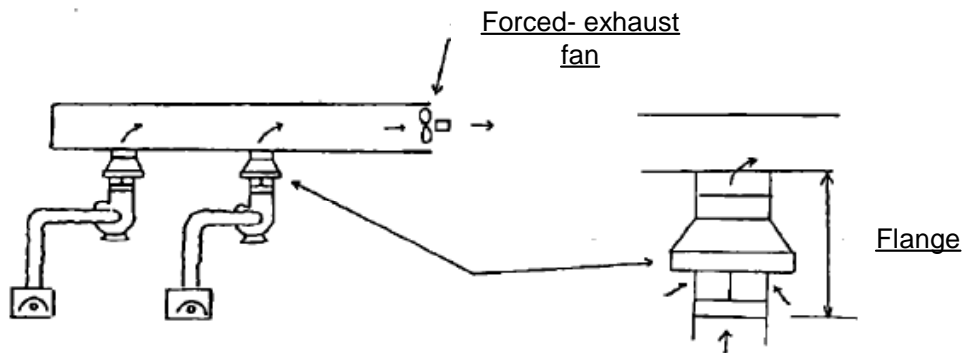
In the case of forced-exhausted collective duct

Troubles

- The lamp fittings are not stable.
- Require time to be stable.
- After it has been stabled, UV irradiation is insufficient cause of under cooling with the blower.

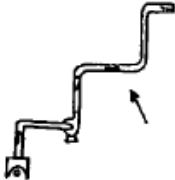
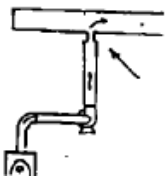
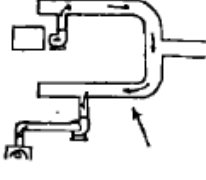
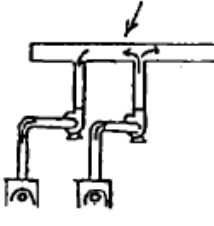
Coping strategy

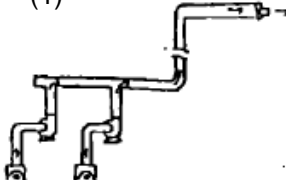
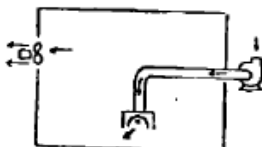
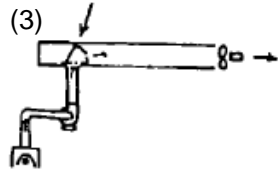
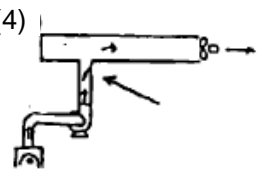
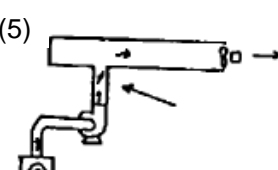
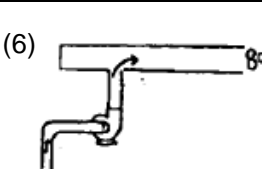
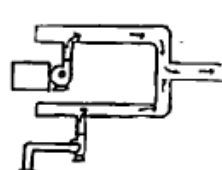
- a) In many cases, collective duct is used concomitantly with other equipment and has pressure fluctuation. Attach a flange with bypass shown below figure. The flange is option.



Note): When wind blows from the flange, the collective duct may have some problems. Check the collective duct.

Troubles cause of exhausted air duct

	Status of installation and condition	Detail of the trouble	
		Lamp fitting overheat Short life lamp	Unstable lamp Take time to be stable
Troubles cause of duct design	<p>(1)</p>  <p>Decreased airflow: Long duct has a small diameter creates high resistance.</p>		
	<p>(2)</p>  <p>Decreased airflow: The diameter of the connected part to the collective duct is small. It causes of creating resistance.</p>		
	<p>(3)</p>  <p>Back blow: Air blows back flowing through the duct to the UV equipment when other equipments are activate.</p>	(Mercury-vapor lamp)	
	<p>(4)</p>  <p>Back blow: As a result of the small diameter of the collective duct, the exhaust air for first stable lamp blows back to other lamp fittings partially after lighting.</p>	(Mercury-vapor lamp)	

	Status of installation and condition	Detail of the trouble	
		Lamp fitting overheat Short life lamp	Lamp fitting overheat Short life lamp
Troubles cause of forced-exhaust fan	(1)  <ul style="list-style-type: none"> - Continuing unstable condition during discharging air forcibly with exhaust fan. - Although it has the exhaust fan, sufficient air is not blown due to small diameter of the duct. 		
	(2)  <p>The room is ventilated with exhaust fan and the air intake from outside is small. It makes the room pressure negative. As the blower let the air from outside, the lamp is cooled down.</p>	(Mercury-vapor lamp)	
	(3)  <p>Decreased air flow: Although the operculiform damper is attached for the lamp stability during activating the forced-exhaust fan, it causes the resistance.</p>		
	(4)  <p>Decreased air flow: The hand-operated damper is installed to open if the lamp condition is stable. The damper has not opened, and it became cause of the resistance.</p>		
	(5)  <p>Decreased air flow: The hand-operated damper is adjusted to be stable at 80W, however it has high resistance at 120W (160W).</p>		
	(6)  <p>Decreased air flow: It has been set to operate exhaust fan after stabilizing the lamp, but it was not activated. As a result, the exhaust fan became the cause of resistance.</p>		
	(7)  <p>when the exhaust fans for other equipments are activate, the duct static sound pressure is changed with the exhaust air, and discharged airflow has effect of that.</p>		

Accompanying drawing list

[illegible]