



**MODEL NO OMT-100A/OMT-200A**

**OIL MIST TRAP**

**INSTRUCTION MANUAL**

*Be sure to read this manual before using this instrument and keep it in your file for future reference.*

*The contents of this manual are subject to change without notice for improvement.*

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**0. INTRODUCTION**

0.1 Before Using This Unit

Upon receipt of this unit, check that the delivered unit is the correct model you ordered and that there is no damage in transit.

For the names of components of the oil mist trap in this manual, refer to "8. EXPLODED VIEW".

**⚠ WARNING**

**Before installation, inspection and maintenance, carefully read this manual and fully understand the specifications, operating procedure and safety cautions.**

**⚠ NOTE**

**No part of this manual may be reproduced for use by a third party without written consent by ULVAC KIKO.**

0.2 Denotations in This Manual

The following denotations are used throughout this manual to call operator's attention to safety.

The denotations are classified into the following categories.

**⚠ DANGER**

**Failure to comply with DANGER involves the possibility of impending loss of life or serious personal injury.**

**⚠ WARNING**

**Failure to comply with WARNING involves the possibility of loss of life or serious injury.**

**⚠ CAUTION**

**Failure to comply with CAUTION involves the possibility of medium degree of personal injury or serious damage to the equipment.**

**⚠ NOTE**

**Failure to comply with NOTE involves the possibility of damage to the equipment or malfunction of the equipment.**

### 0.3 Safety Cautions

#### **⚠ DANGER**

If the vacuum pump is used to pump toxic gas, the pump oil will be toxic, not to mention oil mist trap itself. Take care in maintenance.

#### **⚠ WARNING**

Do not use the oil mist trap in an explosive atmosphere. Injury or fire can result.

#### **⚠ WARNING**

Always use the oil mist trap at below the maximum flow rate. Otherwise, the internal pressure will rise and the oil mist trap will fail. The maximum flow rate is 120 L/min for the OMT-100A and 240 L/min for the OMT-200A.

#### **⚠ WARNING**

Do not use the oil mist trap for inflammable gas. Injury or fire can result.

#### **⚠ WARNING**

Do not touch or replace an element during vacuum pump operation or immediately after the pump is shut down. It is very hot and can cause burn.

#### **⚠ WARNING**

Do not plug the exhaust port nor attach a device that interferes with the passage of gas to the exhaust port when the unit is operated. The pressure in the oil mist trap will rise and the unit may be damaged or fail. Note that the unit is not explosion-proof.

#### **⚠ CAUTION**

If the oil mist trap is damaged, immediately turn off the switch for the vacuum pump and remove the power plug. If a damaged oil mist trap is used, oil mist may come out or internal pressure may rise. For safety, contact your local distributor.

#### **⚠ CAUTION**

Do not use the oil mist trap for corrosive gas. Damage or failure can result.

#### **⚠ CAUTION**

Do not modify the oil mist trap. If modified, troubles of the oil mist trap will not be covered by warranty. Also it can generate oil mist or cause internal pressure rise.

### 0.4 Receipt and Storage of Oil Mist Trap

#### 0.4.1 Receipt of oil mist trap

Every care has been taken before shipping the oil mist trap, but check the following after unpacking it.

- (1) Is the unit the correct mode you ordered?
- (2) Are the prescribed accessories (O-ring P-41) supplied?
- (3) Is any part damaged in transit?
- (4) Is any part off position?

If any problem is found, contact your local ULVAC KIKO representative.

#### 0.4.2 Storage, installation and environmental conditions during operation

Meet the following conditions during storage, installation and operation.

- (1) Ambient temperature during operation : 7°C to 40°C
- (2) Surface temperature during operation : Cannot be used at above 80°C
- (3) Others (during storage and operation)
  - a) To be free from corrosive or explosive gas
  - b) Not to be condensing dew on the oil mist trap
  - c) To be free from dust and dirt
  - d) To be indoors
  - e) Do not turn the oil mist trap sideways.
  - f) Do not expose to direct sunlight.
  - g) To be away from heat source
  - h) Not dry atmosphere  
(Store the unit at a relative humidity of 10% or more.)

#### **⚠ NOTE**

Do not give impact to the oil mist trap. Damage or failure can result.

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## WARRANTY

## 1. FOR SAFE OPERATION

### 1.1 Danger Inherent to This Unit and Safety Action

Before operating or checking this unit, carefully read this section and fully understand potential hazards and preventive actions.

#### 1.1.1 ⚠ DANGER Hazardous gas, hazardous material

Hazard	Preventive actions
<b>You may be injured by contact with pump oil that has been turned toxic in the oil mist trap or with toxic substance on the unit.</b>	<b>1) Put on protective wear against toxic substances when inspecting the unit.</b> <b>2) When repairing the unit or discarding toxic substances, have a wastes treatment specialist render it non-toxic.</b> <b>3) Have wastes disposed of by authorized waste treatment specialist.</b>

## 2. OVERVIEW OF OIL MIST TRAP

### 2.1 Design Basis

The Model OMT-100A/OMT-200A oil mist trap separates oil mist discharged from an oil rotary pump during operation to reduce the discharge of oil mist. The oil that has collected in the oil mist trap is returned into the pump case. Being small in size, light in weight, and simple in structure, the unit can be easily maintained and repaired.

Table.1 Design Basis

Model No	OMT-100A	OMT-200A
<b>Name</b>	<b>Oil mist trap</b>	
<b>Weight (kg)</b>	<b>0.43</b>	<b>0.55</b>
<b>Outside dimensions (mm)</b>	<b>113 diameter × 135 H</b>	
<b>Mounting position</b>	<b>Vertical</b>	
<b>Connecting screw</b>	<b>G-1</b>	

### 2.2 Functions of Relief valve

Clogged element will narrow the flow path and increase the inner pressure of the pump. If the inner pressure rises to  $9.8 \times 10^{-2}$ MPa(G), the relief valve will automatically be opened to prevent pressure rise.

If the relief valve is opened, it means that the element is not functioning properly. In this case, oil mist will be generated. Replace the element.

**NOTE**

**Replace the element if it is clogged with dust or the like. Otherwise, oil mist may be discharged.**

2.3 Dimensional Drawing

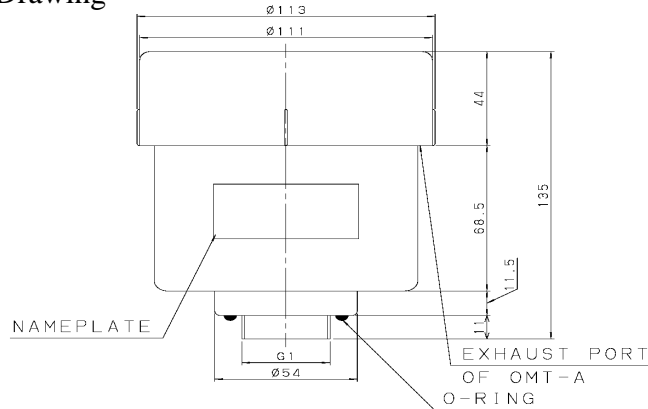


Fig. 1 Dimensional drawing for OMT-100A/OMT-200A

**3. INSTALLATION**

3.1 Installation

Select a place as free from dust and moisture as possible, where the oil mist trap can be easily installed, removed, checked, and cleaned, and install the unit perpendicularly to the pump.

The connecting screw for this unit is G1 by the ISO standard. Select a pump of which exhaust port connection is compatible with this standard.

Refer to "0.4.2 Storage, installation and environmental conditions during operation" for environmental conditions.

**WARNING**

**The unit may be ruptured if the maximum flow rate of the unit is exceeded. The maximum flow rate for the OMT-100A is 120 L/min and that for the OMT-200A is 240 L/min.**

**WARNING**

**Do not plug the exhaust port nor operate the unit with a device that interferes with the passage of a gas connected to the exhaust port. The internal pressure of the oil mist trap will rise and the unit may be damaged or fail. This unit is not explosion proof.**

**NOTE**

**If the oil mist trap is tilted or turned sideways or installed upside down, oil may overflow or gush out. Install it perpendicularly to the pump exhaust port.**

3.2 Installing the Unit on ULVAC KIKO Vacuum Pump

Table 2 gives ULVAC KIKO vacuum pumps on which the OMT-100A/OMT-200A can be mounted.

Table 2 ULVAC KIKO Vacuum Pumps to which OMT-100A or OMT-200A can be Attached

Model No	OMT-100A	OMT-200A
Model No of ULVAC KIKO pump	G-101S/D GHD-100A/B/C/D	GLD-136A/C GLD-201A/B

3.3 Installation and Removal

- (1) Make sure that the pump is at stop.
- (2) Mount an O-ring (P-41, accessory) in the connection of the oil mist trap.
- (3) Attach the oil mist trap to the pump exhaust port of which connection is compatible with the oil mist trap and turn it clockwise holding the case at the side. (See Fig. 2.)
- (4) Before removing the oil mist trap, make sure that the pump is at stop and turn it counterclockwise holding the case at the side.

**NOTE**

**When installing and removing the oil mist trap, do not turn it by holding the top cover. Damage or failure can result.**

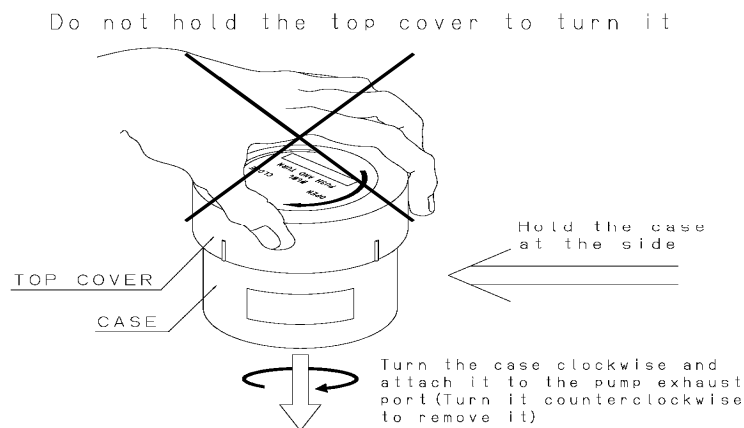


Fig. 2 Installation of oil mist trap

#### 4. PERFORMANCE OF OIL MIST TRAP

##### 4.1 Limit of Pump Operation Hours

The pump operating time is limited when the pump is operated continuously at a high suction pressure.

Table 3 gives the relationship between the continuous operating time and the suction pressure of the pump.

Stop the pump once for more than five minutes within this time so that oil returns to the pump.

If the pump is continuously operated at a high pressure, oil may gush out through the exhaust port.

Table 3 Relationship between Continuous Operating Time and Suction Pressure of Vacuum Pump

Continuous suction pressure	Maximum operating time
13.3 to 12 KPa	Within 3 hours
12 to 10 KPa	Within 5 hours
10 to 8 KPa	Within 8 hours
8 to 6 KPa	Within 15 hours
6 to 4 KPa	Within 22 hours
4 to 2 KPa	Within 33 hours
2 to 1 KPa	Within 55 hours

NOTE: This table gives reference values, which vary with the pump throughput and operating conditions.

When the vacuum pump is pumped to below 40 Pa, the oil collected in the oil mist trap automatically returns to the pump case. The time required for the oil to return to the pump is more than 10 minutes.

#### 5. INSPECTION AND MAINTENANCE

##### 5.1 Maintenance

Check the following once a day during operation.

- (1) Oil leak in the connection with the vacuum pump.
- (2) Oil mist or oil gushing out from the case.
- (3) Unusual sound.

If any problem is found, take actions according to Table 6 Troubleshooting Checklist.

##### 5.2 Scheduled Inspection

Check items should be changed according to the operating conditions of the oil mist trap, but check the following periodically. Scheduled inspection will serve to prevent troubles and prolong the life of the oil mist trap.

#### ⚠ NOTE

**Be sure to turn off the power to the vacuum pump before inspection. Never turn on the power during inspection. The vacuum pump may generate oil mist or cause injury.**

##### (1) Checking the oil mist trap

If there is an oil leak in the connection with the pump or a large volume of oil mist or oil gush out from the case, stop the pump and restart it more than 30 minutes later. If a large volume of oil mist or oil gush out from the case again, replace the element with a new one.

##### (2) Scheduled replacement of element

The oil mist separating capacity of the element is limited. Replace the element before it fails referring to Table 4. Scheduled replacement will serve to reduce oil mist.

If gas containing dust, dirt water or the like is pumped for an extended time, the element will be clogged and will not function.

Table 4 Frequency of Element Replacement

Model No	Frequency of element replacement
OMT-100A	1500 to 2000 hours
OMT-200A	1000 to 1500 hours

If pumping is continued for a long time or if the oil mist trap is severely contaminated with suction gas, it is recommended to disassemble and clean it, in addition to the above checks, to maintain performance. For disassembly, contact your local ULVAC KIKO representative.

### 5.3 Consumables

Table 5 List of Consumables

	Description	Q'ty
OMT-100A	Element	1
	Relief valve spring	1
OMT-200A	Element	1
	Relief valve spring	1
Common parts	Check valve spring	1
	O-ring (P-41)	1

### 5.4 Replacement of Element

If the element is clogged, the trap cannot separate oil mist completely. If much oil mist is discharged when restarting the pump after a pause for more than 30 minutes, replace the element. Scheduled replacement is recommended according to the element replacement frequency in Table 4.

#### ⚠ DANGER

If the vacuum pump is used to pump toxic gas, pump oil as well as oil mist trap will be toxic. Beware of it in maintenance.

#### ⚠ CAUTION

When replacing the element, wear rubber gloves, goggles and other protective wear. If your hand is stained with vacuum pump oil, wash the stained portion with water and soap. If oil is admitted into your eye, wash your eye with clean water for at least 15 minutes and then see doctor for treatment.

### <Replacement of element>

Refer to "7. EXPLODED VIEW" for the names of components.

- (1) Make sure that the pump is shut down.
- (2) Remove the top cover as shown in Fig. 3.

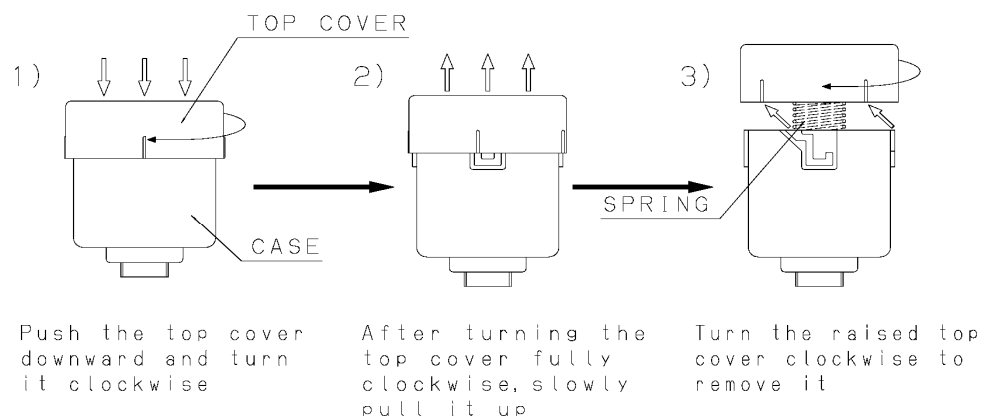


Fig. 3 Removal of top cover

- (3) Remove the relief valve spring, OMT retainer and element from the case in that order.
- (4) Replace the element with a new one and center it with the OMS receiver to install it.

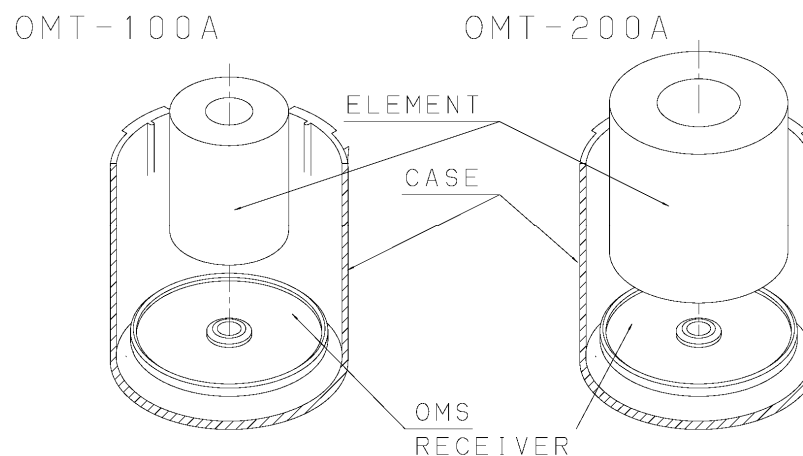


Fig. 4 Installation of element

- (5) Mount the OMS retainer on the element with the surface on which the model no of the oil mist trap is inscribed facing upward, as shown in Fig. 5.

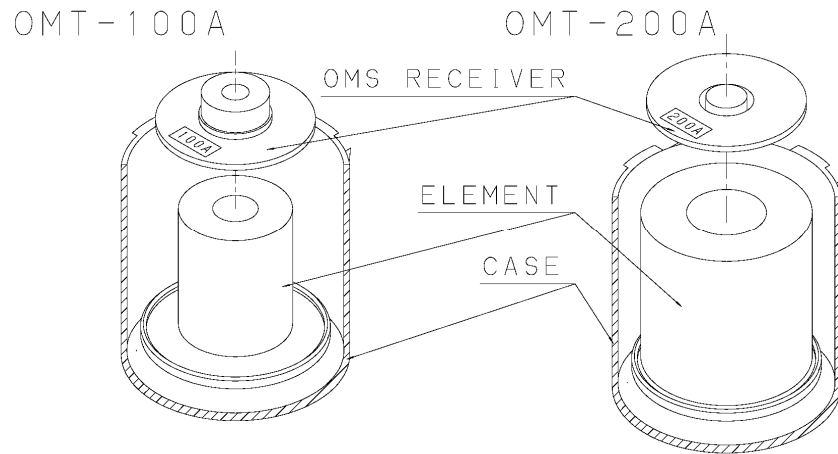


Fig. 5 Mounting the OMS retainer

- (6) Center the relief valve spring with the OMS retainer to mount it.  
 (7) To mount the top cover, match the stops on the inside wall of the top cover with the fitting notches on the outer periphery of the case as shown in Fig. 6 and mount it by reversing the removing procedure.

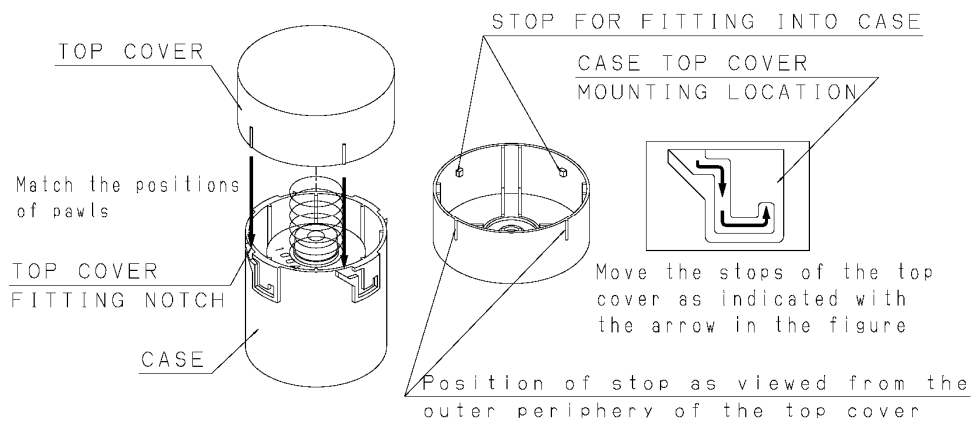


Fig. 6 Mounting the top cover in position

## 5.5 Troubleshooting

Table 6 Troubleshooting Checklist

Symptom	Cause	Corrective action	See
Much oil mist and oil are discharged.	1) Element life is expired.	1) Replace element.	5.4
	2) The element is clogged with dust and dirt.	2) Replace or clean the element.	5.4
	3) The element is not reassembled properly.	3) Replace the element by reassembling the oil mist trap.	5.4
	4) The maximum flow rate of the oil mist trap is exceeded.	4) Lower the pump throughput to below the max. flow rate of oil mist trap.	
	5) The check valve is not functioning properly.	5) Repair or clean the check valve.	
Oil is not recovered into the pump case.	1) The pump is running continuously at a high suction pressure.	1) Stop the pump temporarily (for five minutes). Or lower the pump intake pressure to below 40 Pa.	4.1
	2) Foreign matter is contained in the check valve area.	2) Repair or clean the check valve area.	
Unusual sound is heard.	1) Foreign matter is trapped in the oil mist trap.	1) Repair or clean the oil mist trap.	5.4
	2) Element is not properly reassembled.	2) Replace the element by reassembling the oil mist trap.	
Oil leaks from the oil mist trap.	1) The O-ring is deteriorated.	1) Replace the O-ring.	3.3
	2) The oil mist trap is not securely mounted to the pump.	2) Securely mount the oil mist trap to the pump.	
	3) The maximum flow rate of the oil mist trap is exceeded.	3) Lower the pump throughput to below the max. flow rate of the oil mist trap.	5.4
	4) The element life is expired or the element is clogged.	4) Replace or clean the element.	
	5) The oil mist trap was not reassembled properly when the element was replaced.	5) Replace the element by reassembling the oil mist trap.	5.4

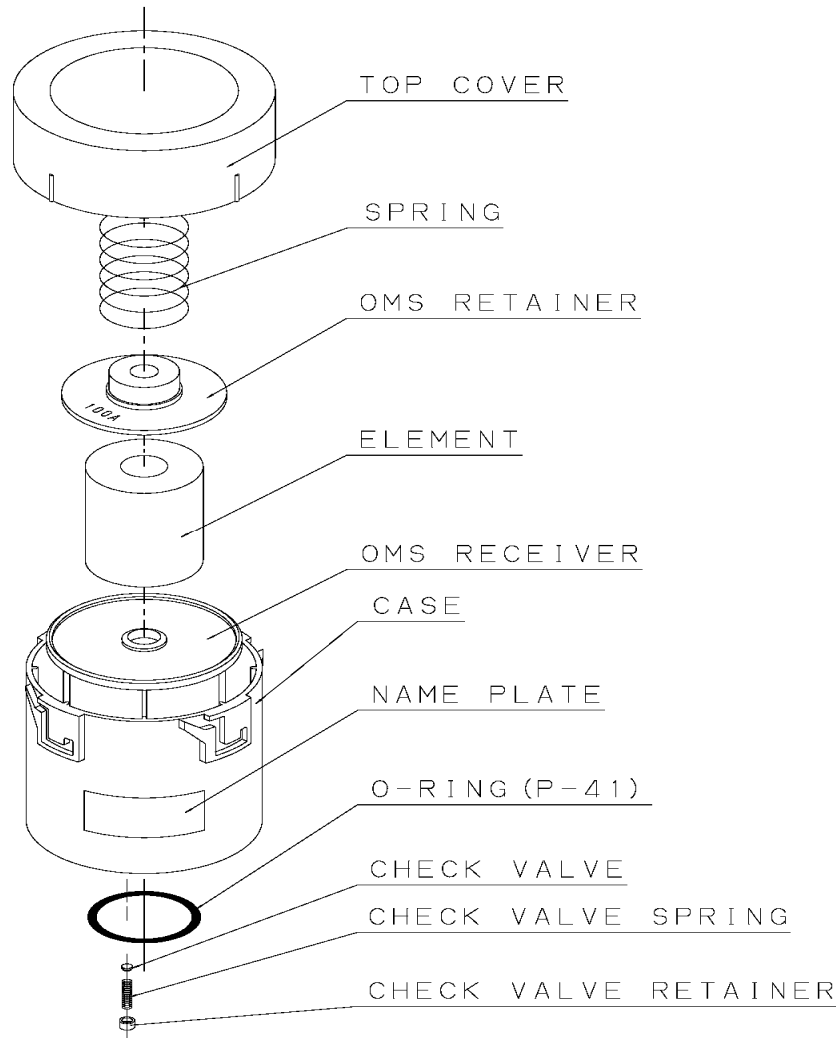
## 6. DISPOSAL

Dispose of the oil mist trap in accordance with your local applicable laws and regulations.

### ⚠ CAUTION

**If the oil mist trap was used to pump toxic gas that can be hazardous to human body, not only the oil mist trap, but also pump oil will be toxic. In that event, have it disposed of by specialist in waste treatment.**

## 7. EXPLODED VIEW



## Warranty

- (1) The warranty period of this oil mist trap is one year from shipment.
- (2) Any malfunctions or defects which occur under normal usage conditions during the warranty period will be repaired free of charge. Note, the warranty stated here is an individual warranty covering the oil mist trap. In addition, the scope of the warranty coverage concerning repairs is limited to the repair and/or replacement of parts.  
Normal usage conditions refer to the following:
  - a) Ambient temperature and humidity during operation: 7 - 40°C, below 85% RH
  - b) Operation in accordance with the user manual
- (3) Repair fees will incur during the warranty period for the following cases:
  - a) Malfunctions due to a natural disaster or fire.
  - b) Malfunctions caused by special atmospheric conditions, such as salt damage, inflammable
  - c) Malfunctions caused by usage conditions that differ from those stated in the user manual (performance specifications, maintenance and inspection, etc.).
  - d) Malfunctions caused by modifications or repairs carried out by a party other than the manufacturer, or by a service company not approved by the manufacturer.
  - h) Malfunctions that occur, when the oil mist trap is damaged as a result of being dropped or falling, etc.
  - i) Malfunctions which are determined by the manufacturer's technical personnel to be caused by conditions that do not comply with the usage conditions for this vacuum pump.
  - j) Malfunctions due to the replacement of consumables.
- (4) Disclaimer
  - a) We shall not be liable for any malfunctions of our products caused by the customer, regardless if the malfunction does not fall within the warranty period, nor shall we be liable for any loss of opportunity for the customer's clients or for compensation for any damages to other products, labor costs, production loss, transportation expenses and other related work.
  - b) We shall not be liable for any claims and patent infringements, including secondary damages, filed a claim by a third party against the customer.