

SINCE 1889



# Organic Solvent Recovery Unit

Model

# RT200

## Instruction Manual

- First Edition -

- Thank you for purchasing "Organic Solvent Recovery Unit, RT200" of Yamato Scientific Co., Ltd.
- To use this unit properly, read this "Instruction Manual" thoroughly before using this unit. Keep this instruction manual around this unit for referring at anytime.



**WARNING!**

Carefully read and thoroughly understand the important warning items described in this

**Yamato Scientific Co. LTD.**

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## Explanation


### MEANING OF ILLUSTRATED SYMBOLS


#### Illustrated Symbols

Various symbols are used in this safety manual in order to use the unit without danger of injury and damage of the unit. A list of problems caused by ignoring the warnings and improper handling is divided as shown below. Be sure that you understand the warnings and cautions in this manual before operating the unit.

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 **WARNING!** If the warning is ignored, there is the danger of a problem that may cause a serious accident or even fatality.

 **CAUTION!** If the caution is ignored, there is the danger of a problem that may cause injury/damage to property or the unit itself.

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#### Meaning of Symbols



This symbol indicates items that urge the warning (including the caution). A detailed warning message is shown adjacent to the symbol.



This symbol indicates items that are strictly prohibited. A detailed message is shown adjacent to the symbol with specific actions not to perform.



This symbol indicates items that should be always performed. A detailed message with instructions is shown adjacent to the symbol.

# Cautions in Using with Safety

## Table of Illustrated Symbols

### Warning



Warning,  
generally



Warning,  
high voltage



Warning,  
high temperature



Warning,  
drive train



Warning,  
explosive

### Caution



Caution,  
generally



Caution,  
electrical shock



Caution,  
scald



Caution,  
no road heating



Caution,  
not to drench



Caution,  
water only



Caution,  
deadly poison

### Prohibit



Prohibit,  
generally



Prohibit,  
inflammable



Prohibit,  
to disassemble



Prohibit,  
to touch

### Compulsion



Compulsion,  
generally



Compulsion,  
connect to the  
grounding  
terminal



Compulsion,  
install on a flat  
surface



Compulsion,  
disconnect the  
power plug



Compulsion,  
periodical  
inspection

## Fundamental Matters of "WARNING!" and "CAUTION!"

### **WARNING!**

#### **Do not use this unit in an area where there is flammable or explosive gas**

Never use this unit in an area where there is flammable or explosive gas. This unit is not explosion-proof. An arc may be generated when the power switch is turned on or off, and fire/explosion may result. (Refer to page 12 "List of Dangerous Substances".)

#### **Substances that can not be used**

Never use explosive substances, flammable substances and substances that include explosive or flammable ingredients in this unit. Explosion or fire may occur. (Refer to page 12 "List of Dangerous Substances".)

#### **Do not disassemble or modify this unit**

Do not disassemble or modify this unit. Fire or electrical shock or failure may be caused.

### **CAUTION!**

#### **Choose a proper place for installation**

- Do not install this unit in a place where:
  - ◆ Rough or dirty surface.
  - ◆ Flammable gas or corrosive gas is generated.
  - ◆ Ambient temperature above 35°C.
  - ◆ Ambient temperature fluctuates violently.
  - ◆ There is direct sunlight.
  - ◆ There is excessive humidity and dust.
  - ◆ There is a constant vibration.
  - ◆ Without a ventilation system.

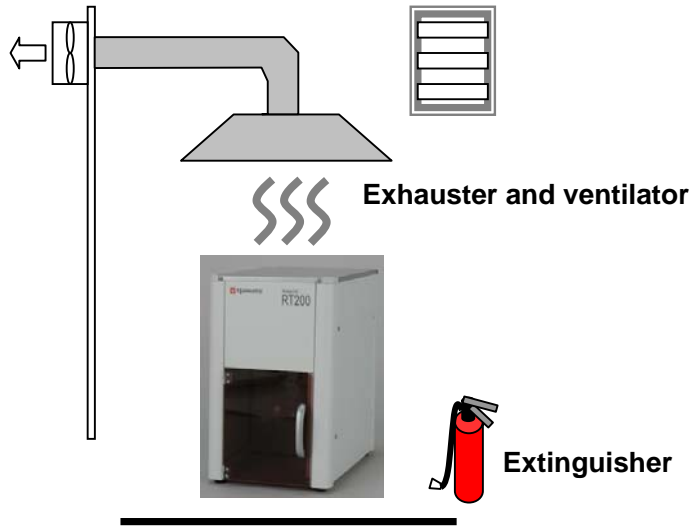
## Requirements for Installation

### **WARNING!**

#### 1. Do not use this unit in an area where there is flammable or explosive gas / Install exhauster and ventilator



- Never use this unit in an area where there is flammable or explosive gas.
- Place an exhauster, ventilator and fire extinguisher near the equipment because the toxic gas may generat



#### 2. Do not modify



- Modification of this unit is strictly prohibited. This could cause a failure.

Modification



### **CAUTION!**

#### 3. Installation on horizontal surface



- Place this unit as flat a place as possible. If the four rubber feet are not in uniform contact with the floor surface, noise or vibration may result. Additionally, the unit may cause a problem or malfunction.



#### 4. Before/after installing

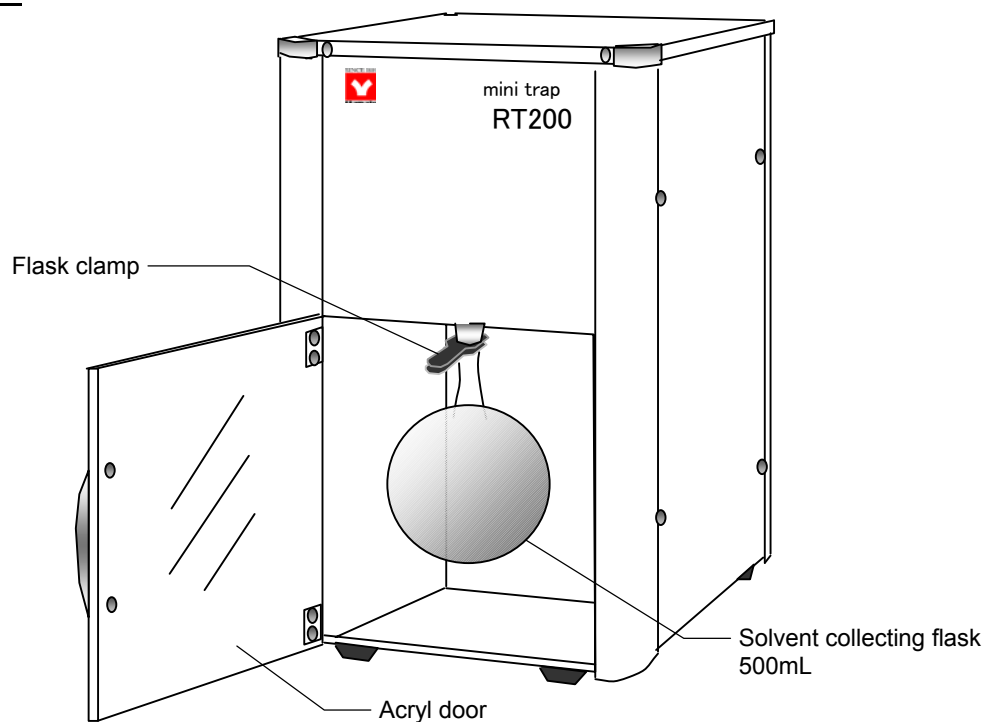


- It may cause injure to a person if this unit falls down or moves by the earthquake and the impact. etc..To prevent, take measures that the unit cannot fall down, and not install to busy place.

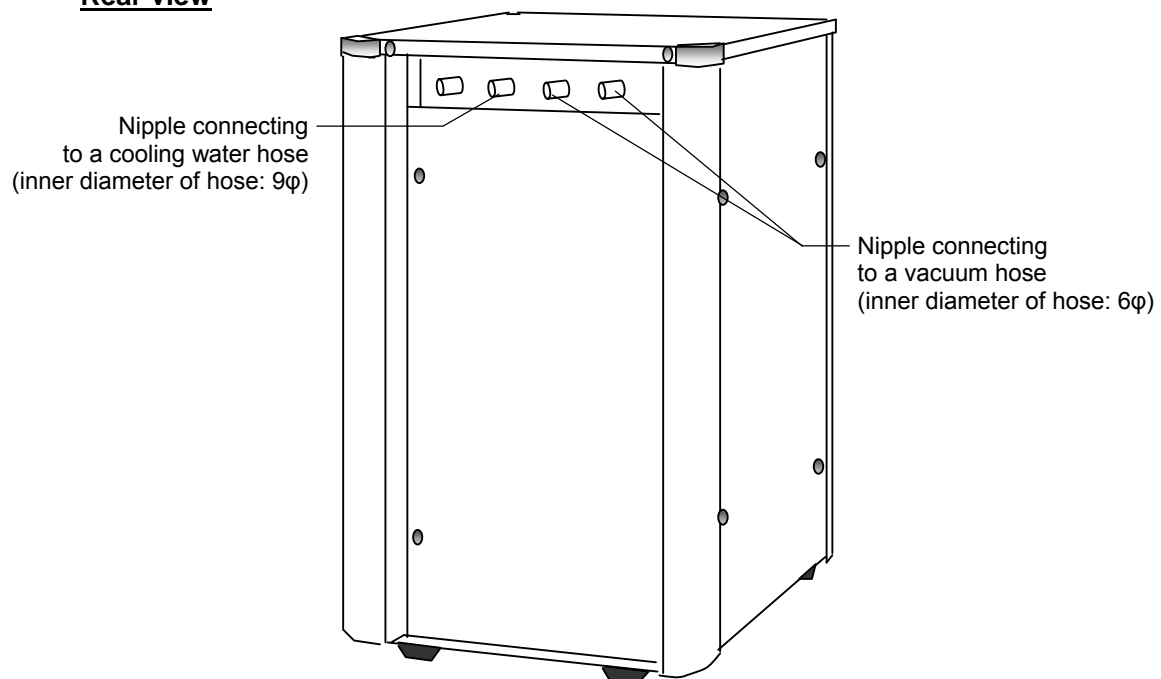
# Description and Function of Each Part

## Main Unit

### Front view



### Rear view



This equipment is used to collect the solvent in the rotary evaporator.

## Specifications for built-in condenser and flask

Condenser: Hard glass, Surface area of condenser

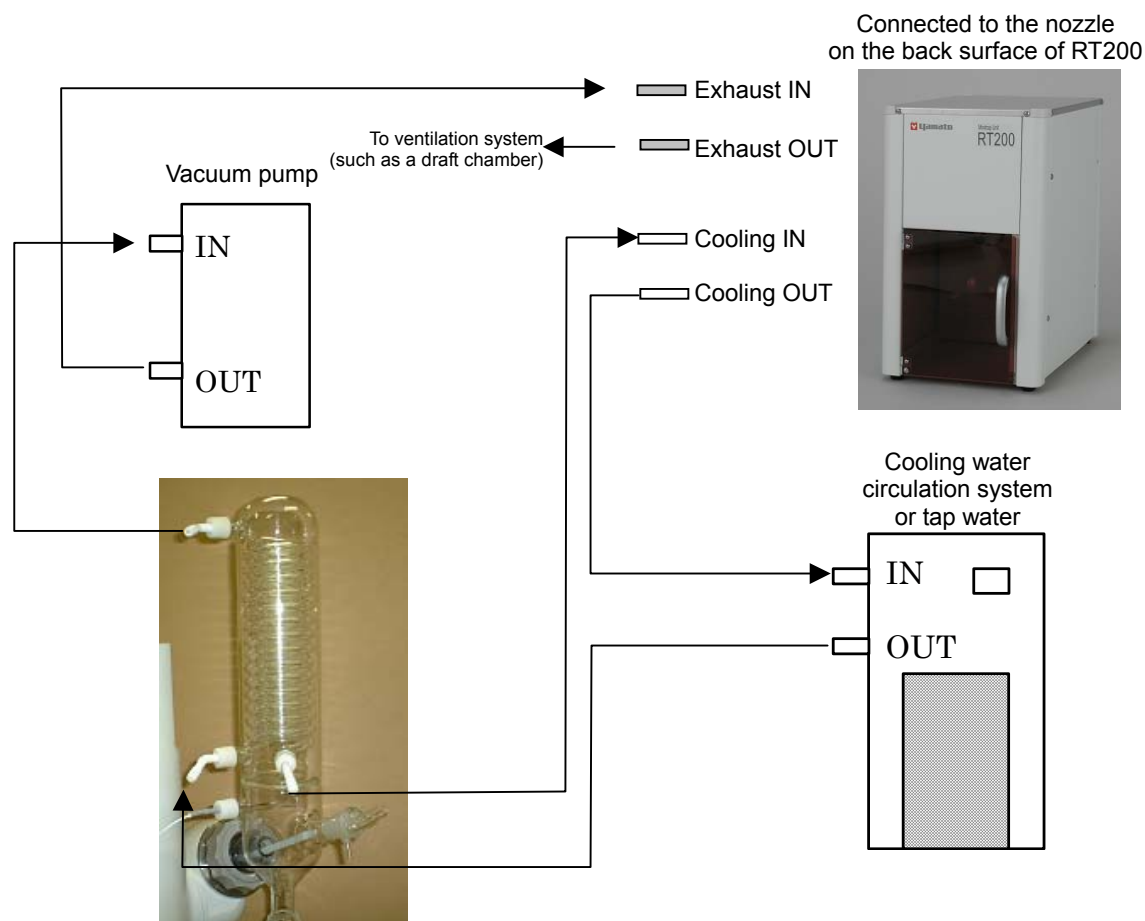
Flask: Hard glass, 500ml round flask

## Installation method

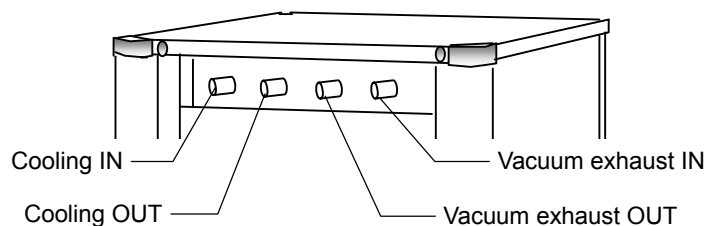
The normal installation method is shown below.

A cooling water circulation system and vacuum pump are required in use in addition to the RE main unit.

Connect the vacuum hose between the exhaust nozzle of vacuum pump and IN nipple on the RT200, as shown in the figure. The end connection of exhaust piping and cooling water piping on the RT200 model are placed on the back surface of main unit.



## Location of nipple connecting with the hose







## Handling Precautions

### **WARNING!**


#### **Substances that cannot be used**

-  Never use explosive substances, flammable substances and substances that include explosive or flammable ingredients in this unit. Explosion or fire may occur. (Refer to page 12 "List of Dangerous Substances".)

#### **If a problem occurs**

-  If an abnormality such as strong odor of the solvent is found, please request a checkout of equipment from selling office or sales office of Yamato Scientific. Co., Ltd. The fire disaster or bombing may occur if the abnormality is left. Do not try to repair the equipment by yourselves for your own safety.

#### **Do not disassemble or modify this unit**

-  Do not disassemble or modify this unit. Fire or electrical shock or failure may be caused.

## Maintenance Method

### **Daily Inspection and Maintenance**

For the safety use of this unit, please perform the daily inspection and maintenance without fail.

### **CAUTION!**

- Wipe the dirt with soft cloth wrung out with mild detergent. Do not use benzene, thinner or cleanser, or do not scrub it with a scrubbing brush. Deformation, deterioration or discoloration may result in.

## Long storage and disposal

### When not using this unit for long term / When disposing

#### **CAUTION!**

##### When not using this unit for long term...

- Turn off the power and disconnect the power cord.

#### **WARNING!**

##### When disposing...

- Keep out of reach of children.
- Remove the residual solvent inside the equipment before disposing it. Consult with the specialized disposal services when disposing the equipment.

#### ***Environmental protection should be considered***

We request you to disassemble this unit as possible and recycle the reusable parts considering to the environmental protection. The feature components of this unit and materials used are listed below.

Component Name	Material
<b>Exterior Parts</b>	
Outer and inner covering	Steel printed coating, ABS resin
Door	Acryl resin
Handle	Zinc alloy chrome-plating
<b>Main Parts</b>	
Condenser, Solvent collecting flask	Hard glass
Nipple connecting to a hose	Stainless steel and brass
Hose	Silicon hose and rubber hose
Heat insulation material	Expanded polyethylene, polypropylene and polyurethane
Sticker	Resin material

## Trouble Shooting

Phenomenon	Check point
The equipment fails to collect the solvent.	<ul style="list-style-type: none"><li>• The cooling water temperature is too high.</li><li>• Check if the vacuum pump is actuated.</li><li>• Check if the piping is correct.</li></ul>
Solvent odor	

In the case if the error other than listed above occurred, turn off the power and disconnect the power cord immediately. Contact the shop of your purchase or nearest Yamato Scientific Service Office.

### In Case of Request for Repair

If the failure occurs, stop the operation, turn OFF the power switch, and unplug the power plug. Please contact the sales agency that this unit was purchased, or the Yamato Scientific's sales office.

#### < Check following items before contact >

- ◆ Model Name of Product
  - ◆ Production Number
  - ◆ Purchase Date
  - ◆ About Trouble (in detail as possible)
- } See the production plate attached to this unit.

### Minimum Retention Period of Performance Parts for Repair

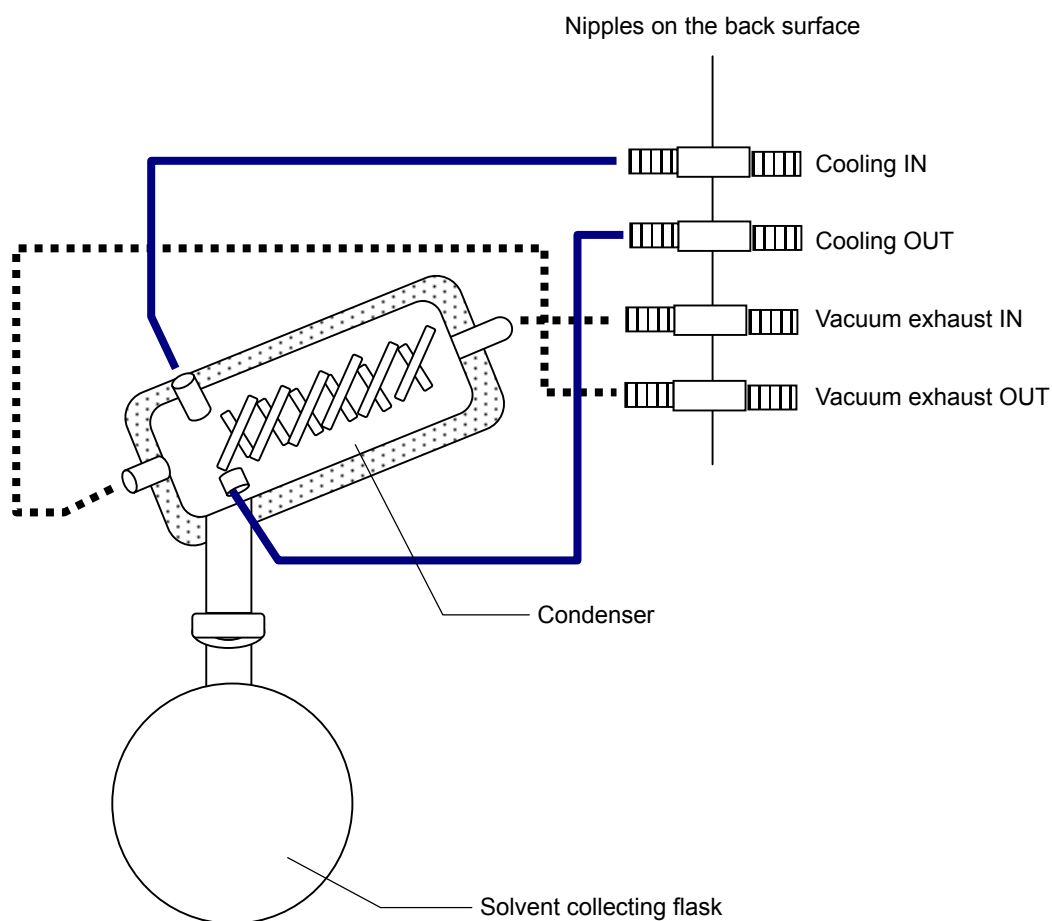
The minimum retention period of performance parts for repair of this unit is 7 years after discontinuance of this unit.

The "performance part for repair" is the part that is required to maintain this unit.

## Specification

Product name	Organic solvent recovery unit
Model	RT200
Condenser	Hard glass
Solvent collecting flask	500mL hard glass
Outer covering	Print coating finish made from cold rolling steel sheet
Door	Acryl door
IN/OUT nipple connecting to a cooling water hose	Outer diameter: 9mm
IN/OUT nipple connecting to a vacuum water hose	Outer diameter: 6mm

## Piping Diagram



## Replacement Parts Table

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<b>Part Name</b>	<b>Code No.</b>	<b>Specification</b>	<b>Manufacturer</b>
Condenser	LT00016059	Hard glass	Yamato Scientific
Solvent collecting flask	LT00016180	Hard glass	Yamato Scientific
Flask clamp	F0410005	KS35B (black)	Yamato Scientific

## List of Dangerous Substances



Never use explosive substances, flammable substances and substances that include explosive or flammable ingredients in this unit.

### EXPLOSIVE

<b>EXPLOSIVE:</b>	Ethylene glycol dinitrate (nitro glycol), Glycerin trinitrate (nitroglycerine), Cellulose nitrate (nitrocellulose), and other explosive nitrate esters
	Trinitrobenzene, Trinitrotoluene, Trinitrophenol (picric acid), and other explosive nitro compounds
	Acetyl hidroperoxide (peracetic acid), Methyl ethyl ketone peroxide, Benzyl peroxide, and other organic peroxides

### FLAMMABLE

<b>IGNITING:</b>	Lithium (metal), Potassium (metal), Sodium (metal), Yellow phosphorus, Phosphorus sulfide, Red phosphorus, Celluloid compounds, Calcium carbide, Lime phosphate, Magnesium (powder), Aluminum (powder), Powder of metals other than magnesium and aluminum, Sodium hydrosulfite
<b>OXIDIZING:</b>	Potassium chlorate, Sodium chlorate, Ammonium chlorate, and other chlorate
	Potassium perchlorate, Sodium perchlorate, Ammonium perchlorate, and other perchlorate
	Potassium peroxide, Sodium peroxide, Barium peroxide, and other inorganic peroxide
	Potassium nitrate, Sodium nitrate, Ammonium nitrate, and other nitrate
	Sodium chlorite and other chlorites
	Calcium hypochlorite and other hypochlorites
<b>INFLAMMABLE LIQUID:</b>	Ethyl ether, Gasoline, Acetaldehyde, Propylene chloride, Carbon disulfide, and other flammable substances having a flash point of lower than -30°C
	Normal hexane, ethylene oxide, acetone, benzene, methyl ethyl ketone, and other flammable substances having a flash point of -30°C or higher but lower than 0°C
	Methanol, Ethanol, Xylene, Pentyl acetate (amyl acetate), and other flammable substances having a flash point of 0°C or higher but lower than 30°C
	Kerosene, Light oil (gas oil), Oil of turpentine, Isopentyl alcohol (isoamyl alcohol), Acetic acid, and other flammable substances having a flash point of 30°C or higher but lower than 65°C
<b>FLAMMABLE GAS:</b>	Hydrogen, Acetylene, Ethylene, Methane, Propane, Butane, and other flammable substances which assume a gaseous state at 15°C and 1 atm

(Source: Appendix Table 1 of Article 6 of the Industrial Safety and Health Order in Japan)

## Responsibility

Please follow the instructions in this document when using this unit. Yamato Scientific has no responsibility for the accidents or breakdown of device if it is used with a failure to comply. Never conduct what this document forbids. Unexpected accidents or breakdown may result in.

## Note

- ◆ The contents of this document may be changed in future without notice.
- ◆ Any books with missing pages or disorderly binding may be replaced.

Instruction Manual for  
**Organic Solvent Recovery Unit**  
**Model RT200**  
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