

Planetary Centrifugal Mixer

THINKY MIXER

ARE-310

Instruction Manual



! WARNING

- For your safety, read this manual carefully before starting the operation of the unit and be sure to understand the contents.
- Always keep this manual in the designated place for easy access when needed.

Introduction

THINKY MIXER "ARE-310" (hereafter called as "UNIT") is a de-foaming mixer which we designed and developed for mixing various kind of liquid or powder materials and de-foaming them at the same time.

Read carefully this manual and understand the contents before using UNIT.

There are high voltage electrical portion and high speed rotation portion inside of UNIT.

UNIT is designed to prevent from the dangers but it may cause serious accident by damage of protection function if you do not comply with the way of use described in warning or safety clause.

If you have any questions or require further information about this manual, Contact THINKY CORPORATION or your distributor. Do not use UNIT if any point is unclear.

●Contact

Dealer or THINKY Sales Representative or
THINKY CORPORATION

Marketing Office Tokyo, Japan (HQ) :




3-7-16 Iwamoto-cho, Chiyoda-ku, Tokyo, #101-0032 Japan

TEL: +81-3-5821-7455 FAX: +81-3-3865-7833

● Indications used in this manual




Safety precautions are classified into the following three levels only to prevent possible accidents based on mishandling or incorrect operation.

Read carefully these safety precautions and understand the contents before using UNIT.

Symbol	Definitions
	If the warning is ignored, it will result in death or serious injury.
	If the warning is ignored, it may result in death or serious injury.
	If the clause is ignored, it may result in minor or moderate injury.

In addition to the above symbols, this manual carries the following symbol throughout.

Be sure to note the following explanations for correctly handling UNIT.

Symbol	Definitions
	Recommended safety practices for use. If the clause is ignored, UNIT could be damaged.
	The information for reference to use.
	Indication for sections and items to be referred to.

- THINKY CORPORATION shall not be responsible for any results of operation not as described in this manual or of use not conforming to the unit's intended use.
- The contents of this manual are subject to change, associated with continual improvement of the unit, without notice.
- Copying this manual in whole or in part, without written authorization from THINKY, is strictly prohibited.
- Upon resale or rental of the unit to another party, make sure to enclose this manual and any other documents supplied at initial delivery.
- Comply with national and local laws and regulations for installation and operation procedures of this unit, and disposal of its components.
- Contact THINKY for how to disassemble the unit for disposal.

Limitation of the Warranty and Liability

Customers are kindly requested to agree to the following conditions and the extent of THINKY's warranty and liability for use of this unit:

THINKY warrants all THINKY products to be free from hardware defects in material and workmanship within 12 months from the date of delivery (inspection).

The date of delivery (inspection) will be determined by a written warranty or other valid proof of purchase or by the product purchase history database maintained by THINKY.

For the failure caused during the warranty period, THINKY will repair or replace any defective component, at THINKY's discretion, free of charge, subject to the limitations and requirements listed on the next page.

Returns for the reason other than repair or replacement are not acceptable.

THE FOLLOWING ARE REQUIRED BY THINKY when requesting warranty service:

- Units or components for return shall be sent back to the location designated by THINKY or an authorized distributor, together with documents certifying the return policy time period.
- The product shall be packed in its original shipping carton or in suitable packing offering a similar degree of protection.
- DO NOT forget to place bubble wrap sheet between the unit and the lid, and tape the lid on the unit so that the lid will not open.
- To avoid scratches or other damage to the product during shipping, accessories such as power cables shall be protected by packing materials and placed in the same package.

The limited warranty provided by THINKY does not cover:

1. The costs of returning the product to THINKY (i.e., such costs shall be borne by users).
2. Second-hand unit NOT purchased through THINKY's distribution. For those purchased from THINKY, the warranty conditions shall be subject to each purchase contract.
3. Any unit distributed by unauthorized distributors in the area.
4. THINKY is not liable to any failure, damage or defect caused by those components and/or accessories the end user installed in the unit, even though they are procured from sources designated by THINKY.
5. Any unit with serial number removed or identification altered in any way
6. Any failure, damage or defect caused by or resulting from: improper installation or usage of the unit, improper operation of the unit due to incorrect voltage or power supply, improper service by an unauthorized service facility, abuse, neglect, accident, misuse, fire, flood, or act of God, unauthorized modification by the end user or any other events similar thereto.
7. Any failure, damage or defect caused by hazardous or inflammable material spillage and/or accidental dropping of materials, containers or adapters into the mixer, and/or excessive use or careless handling, and/or any other damage caused by user's misuse.
8. Any failure, damage or defect caused by the spare parts or expendables which are not covered by this Limited Warranty.
9. Any failure, damage or defect apparently caused prior to delivery must be claimed within 5 days after the unit is received, for insurance claims even if they are found after inspection.
10. Any failure, damage or defect caused by scattering or spillage of mixing substances or solvent.
11. Damages resulting from flaws, dents or external hit in or to the unit during operation.
12. Breakage, physical loss of mixed materials, and/or costs of temporary replacement unit or spare, and/or lost profit of the user, and/or any other incidental or consequential loss in general caused by this unit or its failure to work.
13. Quality problem or damage of the materials or products mixed by this unit.
14. The following expendables are beyond the scope of the warranty.
 - Containers
 - Drive belts
 - Fuse

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1. Safety Precautions

1-1 Safety Precautions

1-1-1 General



- Do not use UNIT for an purpose other than mixing and de-foaming.
- Do not disassemble or modify UNIT.
- Do not use UNIT under the following circumstances:
 - In a volatile atmosphere or where gas or steam is remained
 - Around flammable substances
- Do not handle the power plug with wet hands.
- Connect Earth terminal of the plug to that of Power outlet.
- Operations for volatile organic solvent, dangerous drug/poison or strong acid/alkaline are prohibited.
* Contact your distributor or THINKY when such an operation is inevitable.



- Do not step onto UNIT.
- Do not place anything onto UNIT.
- Do not insert your fingers or any other thing into the opening.
- Do not place anything inside or spill liquid over UNIT.
- Do not splash water over UNIT or wet it.
- Do not use UNIT if the exterior has any damage such as a rupture or large dent.
- Do not obstruct the radiation of heat.
- Do not operate UNIT continuously for a long time. Keep some cooling time.
- While not using UNIT for a long time, keep disconnect the plug from the wall outlet.
- When disconnecting the plug, do not pull the cable but the power plug.
- Do not supply any voltage other than as rated.

1-1-2 Installation



- Do not install or use UNIT in any of the following environments:
 - Unstable location
 - Vibration or impact is possible
 - Presence of moisture, oil or chemicals, or presence of excessive dust, metal powder or salt
 - Excessive humidity or dew condensation due to abrupt temperature change
 - Direct sunlight or rain
 - Working environmental conditions or ambient environment is not as designated
(See 2-2 Specifications “Working environmental conditions” and “Working ambient environment”)
- Turn off Power switch and disconnect the plug in dismounting or mounting the shipping lock.
- Do not damage, modify or forcibly bend or pull the power cable. Do not place anything on the power cable.
- Do not use a damaged power cable.

1-1-3 Operation



- Do not use UNIT to mix dangerous, toxic and/or poisonous substances.
 - Do not use UNIT to mix any substances harmful and/or detrimental to human.
 - UNIT is not explosion-proof. Be extremely cautious that a substance (especially low-boiling solvent) in container may ignite or explode when it leaks inside UNIT due to evaporation or chemical reactions causing high-temperature and expansion.



- Do not open the lid during operation.
- Do not operate UNIT with the lid open.



- Do not operate UNIT with wet hands.
- Do not shake or relocate UNIT during operation.
- If abnormal vibration, noise, smell or smoke is observed, press the START/STOP button immediately, stop the operation and disconnect the plug.
- Turn off Power switch in case of power failure.
- Do not insert your finger between rotating tray and machine frame.

1-1-4 Maintenance



- Before opening the machine panels for the purpose of a service, be sure to turn OFF Power switch and disconnect the plug.
- Do not disassemble any part for your own inspection or repair.

1-1-5 Handling of Materials



- Always obtain a Material Safety Data Sheet (MSDS) for all the materials from the suppliers and handle them only after the characteristics and safety measures are fully understood.
- Always use adequate protective equipment or cloth as specified in the applicable MSDS to handle the material.
- Disposal of the material must comply with national and local laws and regulations where the device is used.

1-1-6 Disposal



- Disposal of UNIT and consumables must comply with national and local laws and regulations where the device is used.

1-2 Labels

UNIT has the following labels on it. Understand the contents of these labels fully before using UNIT.

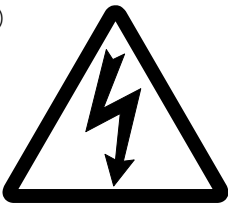
If any label is dirty, damaged or illegible, contact the distributor or THINKY immediately and request new labels (fee charged).



• Do not remove or stain any label.

1-2-1 Stickers and Warning Labels

①



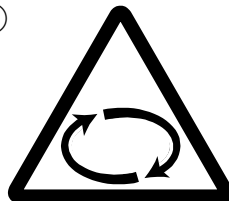
②



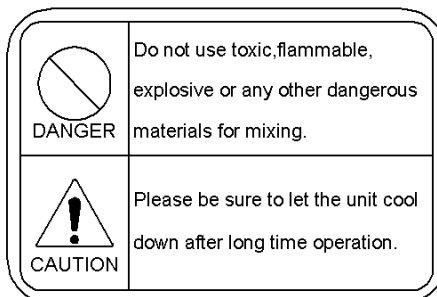
③



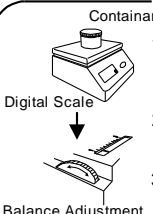
④



⑤



⑥



Container

Digital Scale

Balance Adjustment

CAUTION on Operations

1. Please measure total gross weight of materials with container and adaptor on digital scale.
2. Please adjust balance according to the gross weight.
3. Please use only designated containers and adaptors.

Disregarding above CAUTION will cause severe damage to the machine.

⑦

AWATORI RENTARO

MODEL ARE-310

SERIAL NO.

THINKY Corporation **MADE IN JAPAN**

⑧

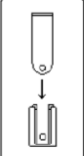
10A

⑨

120V AC

50/60Hz

⑩

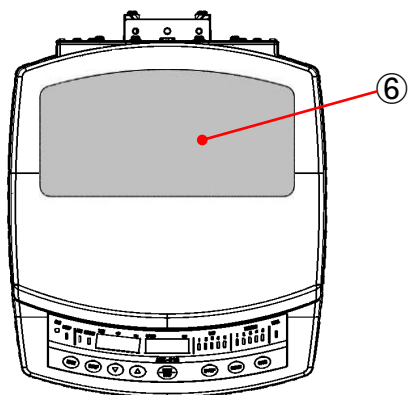


Door Unlock Tool

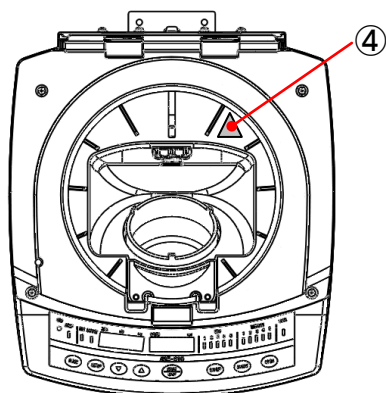
Insert the tool into the Door Unlock Slot on the front panel in case of no power supply.

1-2-2 Locations of Stickers and Labels

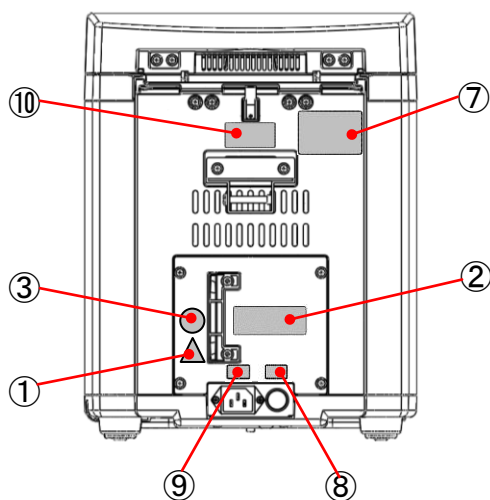
<Top>



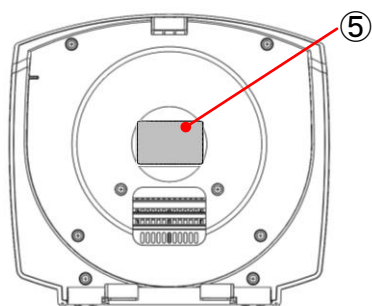
<Inner Upper Section>



<Rear>



<Lid Back>



2. Overview and Specifications

2-1 Overview

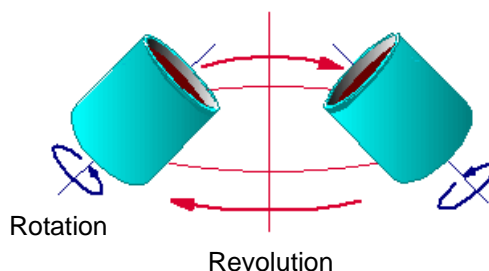
- Purpose of UNIT

UNIT is a mixer/de-foamer developed for mixing various materials (liquid, powder, etc.) quickly and de-foaming them at the same time.

- Principle of operation

The container loaded with materials rotates while orbiting (revolving alone) at a certain radius around an axis.

This makes a big centrifugal force uninterruptedly, which compresses air bubbles, being created or already exists there, out of the materials and mixes them at the same time.



- Features

- Materials less than 250 ml/250 g (net weight) can be mixed at one time in a special container.
- The mixing mode for rotation (maximum 800 rpm)/revolution (maximum 2,000 rpm) and the de-foaming mode for rotation (maximum 60 rpm)/ revolution (maximum 2,200 rpm) can be set independently. Continuous operation is also possible.
- Non-contact method (with no mixing blade), prevents material deterioration.
- Highly constant reproducibility can be expected in mixing with no variation, regardless of the operator.

2-2 Specifications

Product		Planetary centrifugal mixer "THINKY MIXER"
Model		ARE-310
Method		Planetary, propeller-less mixing method
Operating time setting range		0 second – 30 minutes (Maximum 30 minutes run/Setting in UNIT of 1 second)
Mixing mode	Revolution speed	Maximum 2,000 rpm (STD Mode : fixed at 2,000rpm) (STEP Mode : 0 rpm and 200 rpm – 2,000 rpm, Setting in UNIT of 10 rpm)
	Rotation speed	Maximum 800 rpm (1/2.5 of revolution speed)
De-foaming mode	Revolution speed	Maximum 2,200 rpm (STD Mode : fixed at 2,200 rpm) (STEP Mode : 0 rpm and 400 rpm – 2,200 rpm, Setting in UNIT of 10 rpm)
	Rotation speed	Maximum 60 rpm (1/36.7 of revolution speed)
Standard container		Inner volume: 300 ml and 150 ml, Material: HDPE
Max. mixing volume		For 300 ml container: 250 ml, 250 g (net weight) 250 ml, 310 g (gross weight) For 150 ml container: 120 ml, 200 g (net weight) 120 ml, 240 g (gross weight, *excluding the adapter)
Supply power	Voltage	Single phase, AC120V±10%, 50/60 Hz
	Consumption power	At standby: 50 VA, During operation: Max. 900 VA
Working environmental conditions		Only for indoors, Altitude: Within 2,000 m, Pollution degree: 2 ^(*)
Working ambient environment		10 – 35 °C, 35 – 85% RH (without condensation)
External dimensions		390 mm (H)×300 mm (W)×340 mm (D)
UNIT weight		approx. 21 kg

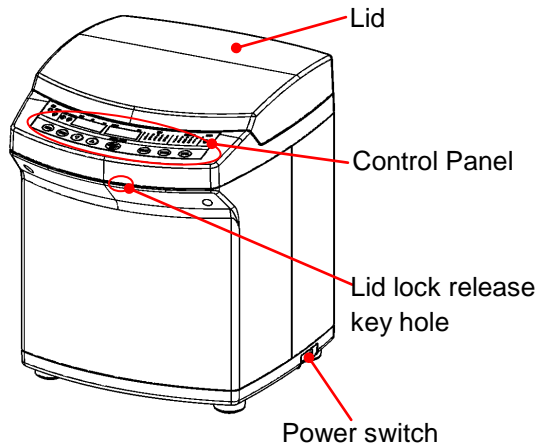


*: Pollution degree 2

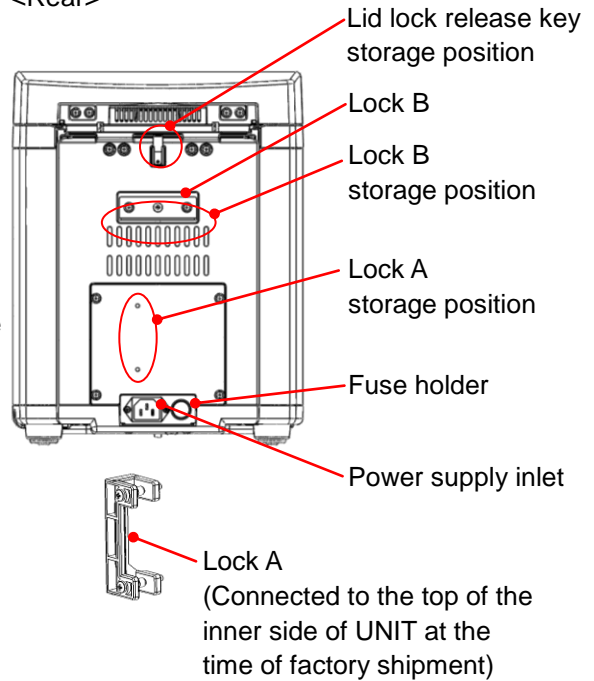
In general, only nonconductive pollution occurs. In some cases, however, conductivity temporarily caused by dew condensation needs to be predicted.
(Example: Products used in ordinary office environments)

2-3 Components

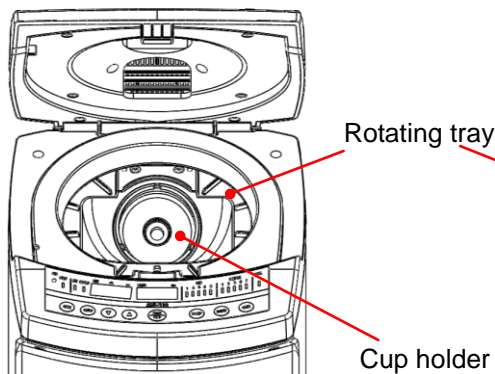
<Front>



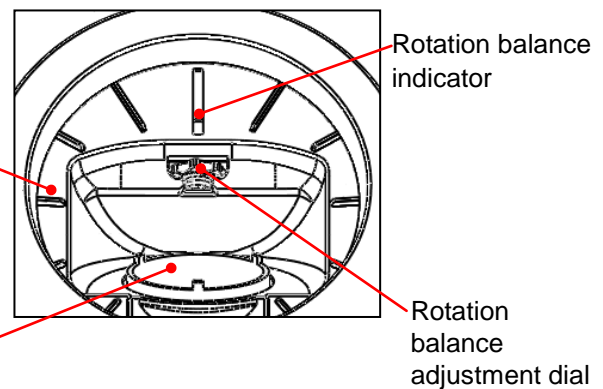
<Rear>



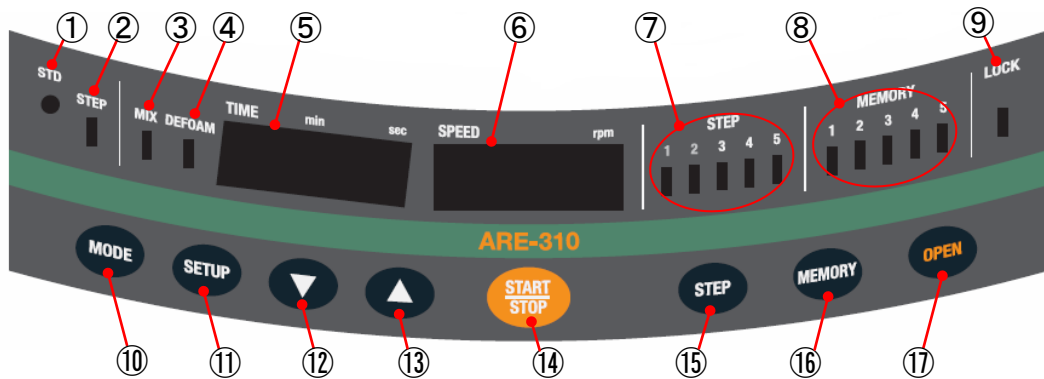
<Opening>



<Inside (rotating section)>



<Control panel>



No.	Name	Function
①	STD lamp	Glows during the STD (Standard) mode operation.
②	STEP lamp	Glows during the STEP mode operation.
③	MIX lamp	Glows at the time of setting and during the mixing operation.
④	DEFOAM lamp	Glows at the time of setting and during the de-foaming operation.
⑤	TIME indicator	Displays the operating time within the range of 00 min. 00 sec. through 30 minutes 00 seconds
⑥	SPEED indicator	Indicates the revolution speed by 0 or within the range of 200 rpm through 2,200 rpm.
⑦	STEP number indication lamp (1 – 5)	Glows to indicate a selected STEP number.
⑧	Memory number indication lamp (1 – 5)	Glows to indicate a selected memory number.
⑨	LOCK lamp	Light when the lid is locked.
⑩	MODE button	Used for switching between STD mode and STEP mode.
⑪	SETUP button	Used for setting operating conditions. Press to change over the operation mode (between mixing and de-foaming) in each STEP.
⑫	DOWN button	Used for decreasing the value when setting the operating time or revolution speed.
⑬	UP button	Used for increasing the value when setting operating time or revolution speed.
⑭	START/STOP button	Used for starting operation or stopping operation in an emergency.

No.	Name	Function
⑮	STEP button	Used for selecting a STEP number. Press to change the STEP number in the order from STEP 1 through STEP 5.
⑯	MEMORY button	Used for registering operating conditions and selected an operating condition already registered. Press the memory number in the order from memory 1 through 5. Push it over one second registered operating conditions.
⑰	OPEN button	Used for releasing Lid lock.

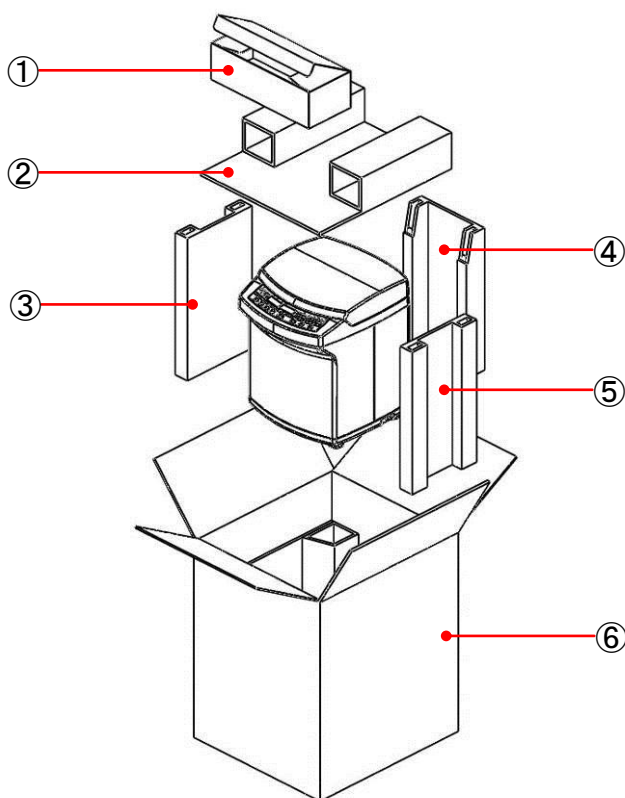
3. Installation

3-1 Unpacking

UNIT is packed as shown below. Remove the packing bands to unpack the box, referring to this illustration. In case of re-shipping, pack UNIT and fix with packing bands in the following procedure:



The outer cases and packing materials will be needed for re-shipping, so they must be carefully protected.



- | | |
|------------------|----------------|
| ① Accessory case | ④ Side board B |
| ② Top board | ⑤ Side board C |
| ③ Side board A | ⑥ Outer case |

3-2 Accessories

UNIT is packed together with the following accessories in addition to UNIT. Check the contents immediately after unpacking the case.

Instruction manual (this manual)	1	
Power cable (including 3Pin-2Pin conversion plug)	1	
300 ml container No.002	3	
150 ml container	1	
Adapter for 150 ml container 250AD-201	1	
Rubber ring for 150 ml container (for replacement)	1	
Lid lock release key	1	Storage position at the rear of UNIT.
Shipping Lock A for top of inner side	1	Fixed to the bottom and rear side of UNIT when unpacking it.
Shipping Lock B for rear side	1	
M4×15 Phillips-head screw	2	
M4×35 Phillips-head screw	2	
M5×40 Phillips-head screw	1	

3-3 Required Hand Tools

For installation of UNIT, suitable Philips screwdrivers fitting the above mentioned 3 types of screws are required.

3-4 Unlocking Shipping Locks

UNIT is fitted with shipping locks for fixing UNIT's rotating mechanism and preventing damage during shipment.

After installing UNIT, remove these locks, as shown below:




- The detached shipping lock fasteners and screws to fix them shall be used when "MIXER" is transported again. Be sure to keep them in the specified position to avoid loss or damage.
- Be sure to re-mount the removed shipping locks as specified. Otherwise, the rotating mechanism will be exposed and may cause hazards. Make sure to attach them to specified position in the rear panel.
- For relocation of UNIT after installation, shipping locks (fasteners) kept with UNIT shall be re-attached with screws retained.
- Attach all the shipping locks on the back sides in the reverse order of removal.

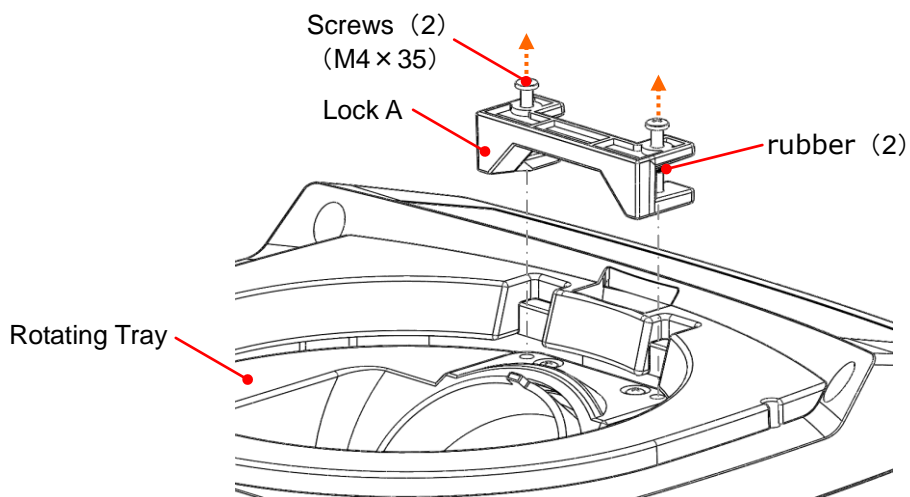


Do not fail to remove the shipping locks before using UNIT.

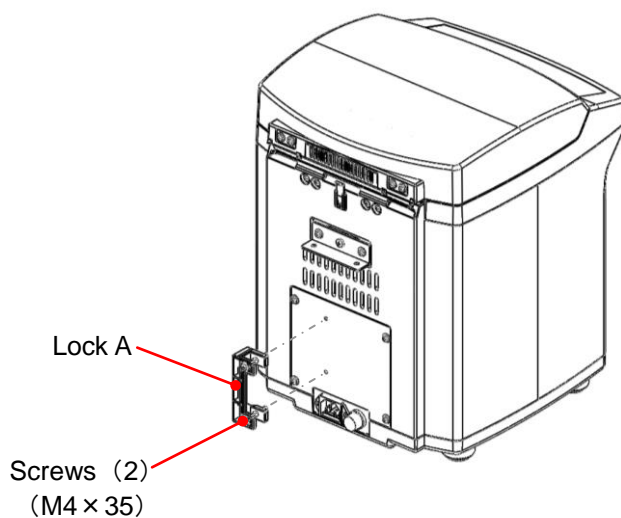
Otherwise the error "Err3" appears on the indicator and UNIT cannot start.

- 1) Remove Lock A which is in the top of the inner part.
 - ① Insert the attached lid lock release key into the key hole to release lid lock.
  See "4-1-4 Opening Lid" for details.
 - ② Open lid of UNIT.

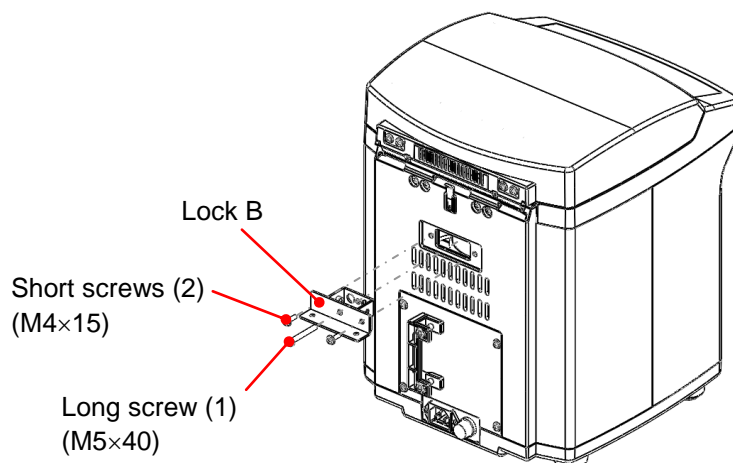
- ③ Remove Lock A with lifting up the two screws after loosening.



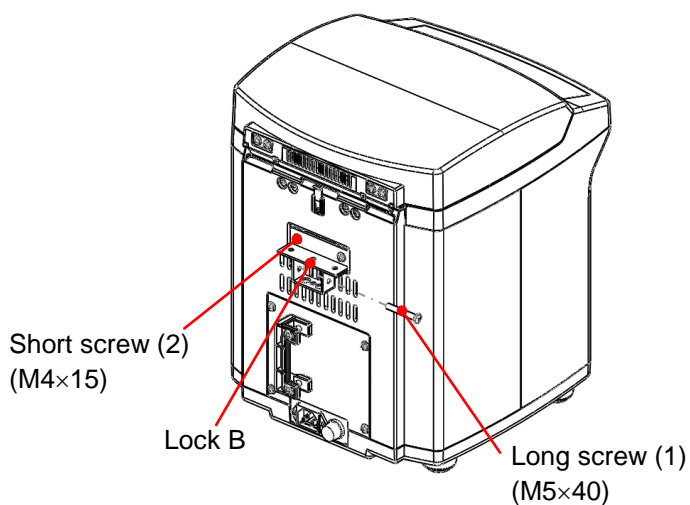
- 2) Place the removed Lock A and two (2) screws on the storage position on the rear side.



- 3) Remove all three screws (short: 2, long: 1) to remove the Lock B, which is on the rear.

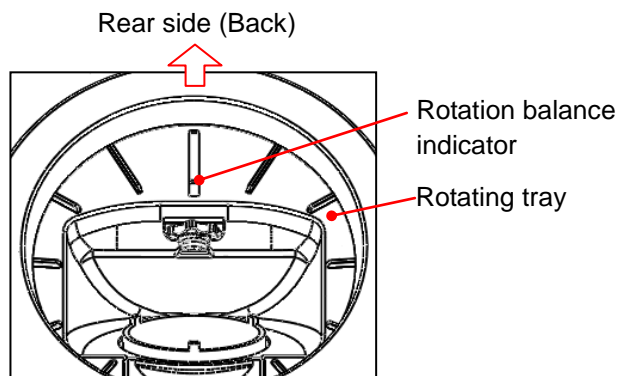


- 4) Place the removed Lock B and three screws on the storage position on the rear side.

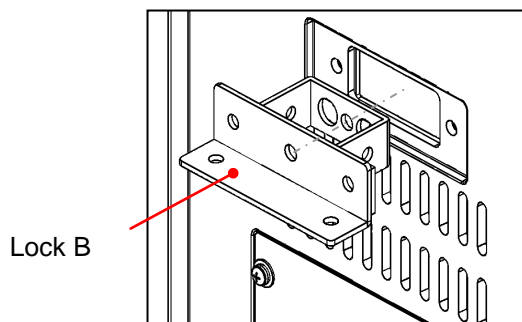
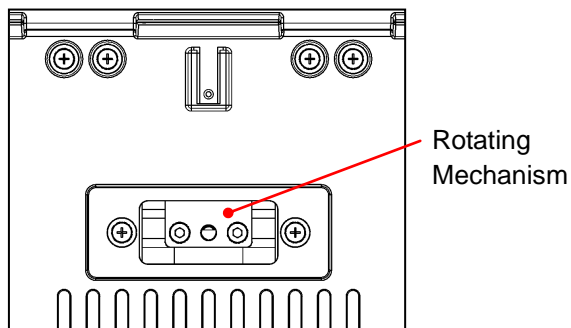




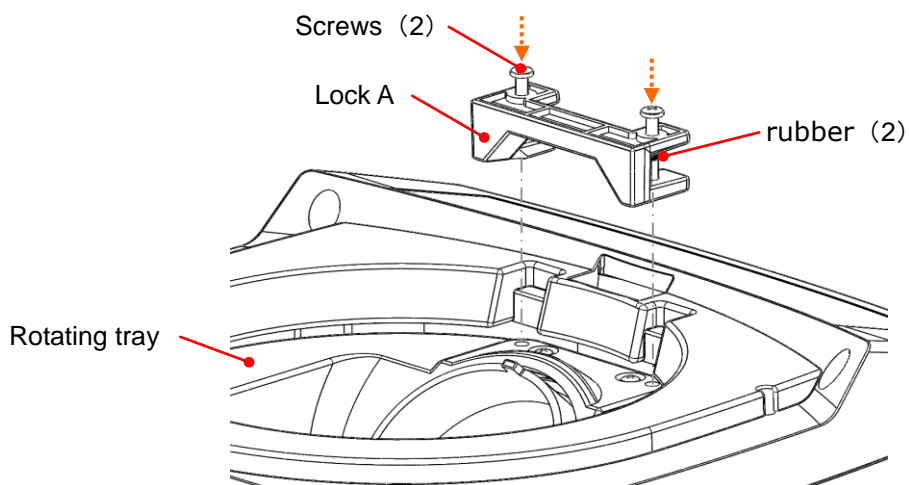
- Removed shipping locks and screws are necessary for transporting UNIT again. Make sure to place and keep them at the storage position on the rear of UNIT not to lose them.
- When transporting UNIT again, make sure to mount the shipping locks to fix the rotating mechanism.
- Mount Lock B, using the following procedure:
 - 1) Remove Lock B from the storage position.
 - 2) Manually turn the rotating tray until the rotation balance indicator comes to the rear (back) side of UNIT.



- 3) Install Lock B adjusting a rotating mechanism screw hole seen inside of the rear opening and Lock B screw hole to fit.



- Mount Lock A, using the following procedure:
 - 1) Remove Lock A from the storage position.
 - 2) Align the rotating tray screw holes and the Lock A screw holes to fit, and install Lock A, adjusting its position on the top of the inner side.



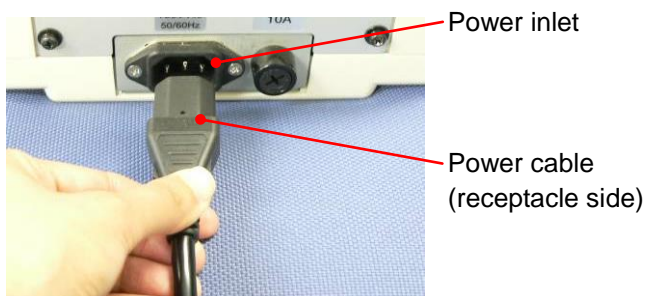
3-5 Power Connection

After removing the shipping lock, connect Power cable, using the following procedure:



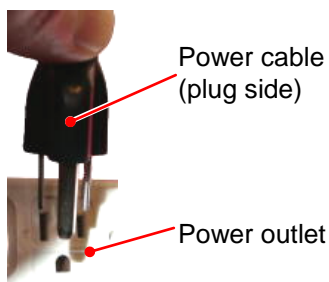
- Do not plug in or unplug the power plug using wet hands. This may cause electric shock.

- 1) Insert the receptacle of the attached Power cable into Power inlet on the rear side of UNIT.



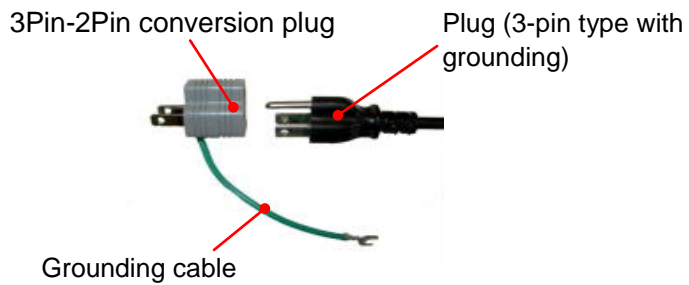
- 2) Insert the plug of Power cable into Power outlet.

<Example>





- The shape of the plug differs depending on the specifications.
- If the plug shape is a 3-pin type with grounding and the power outlet has no ground terminal hole, use the accompanying 3Pin-2Pin conversion plug.

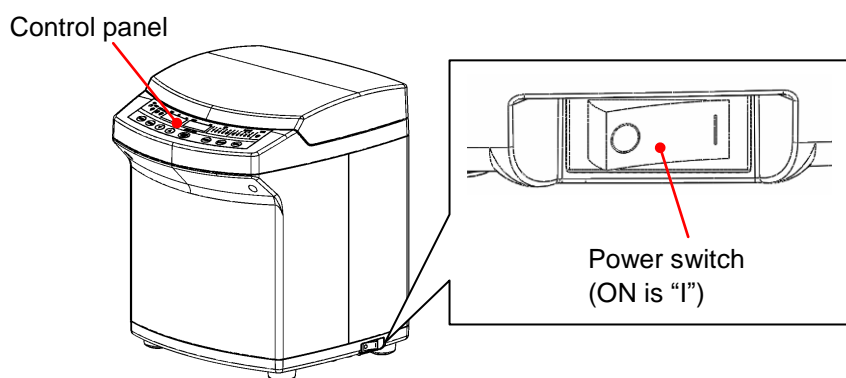


Mount the 3Pin-2Pin conversion plug onto the plug before inserting the plug into the power outlet.

Connect the grounding cable to the ground terminal.

4. Operation

4-1 Turning Power on/off



4-1-1 Turning Power on

Turn on the power to UNIT, using the following procedure:

- 1) Connect one power cable to the power inlet and the of UNIT power outlet of UNIT.



For details, see "3-5 Power Connection".

- 2) Turn Power switch ON (I).
 - When the power is supplied, the MIX lamp, the memory number indication lamp, which was displayed last time, one of the lamps to show operation mode (STD lamp or STEP lamp) and indicators on the control panel light.

4-1-2 Turning Power off

Turn off the power to UNIT using the following procedure:

- 1) Turn Power switch OFF (O).
 - The lamps and the indicators on the control panel extinguish.
- 2) Disconnect the power plug from the power outlet.

4-2 Preparation



- Read the Material Safety Data Sheet (MSDS) of the material for use and handle them only after the characteristics and safety measures are fully comprehended.
- Always wear adequate protective cloth as specified in the applicable MSDS when handling the material.
- Put regulated amount materials in the container.
- Putting container in and out, do not insert your finger between the rotating tray and machine frame.

4-2-1 Container and Rated Amount

The rated amounts of the materials to be put in the standard containers are as shown below:

Be sure never to load the amount exceeding this rated range.

The following volume or weight in container is shown below.

Container Type	Material Amount	
	Volume	Weight
300 ml container	120 to 250 ml	50 to 250 g
150 ml container	0 to 120 ml	0 to 200 g

4-2-2 Preparation of Materials and Container

Have the materials to mix and de-foam and suitable container ready.



- Use only designated container.
Only standard containers (for 150 ml and 300 ml) and designated plastic containers are to be used.
- When the weight of materials is less than 50g, use the 150 ml container.



Prior to using containers other than the standard ones, consult the dealer where you purchased UNIT or THINKY.

4-2-3 Supplying Materials

Supply materials into the container, using the procedure below:

- 1) Open the outer lid of the container and remove the inside plug.
- 2) Put the materials into the container.



Keep the supply materials from adhering around the container's lip.

When adhered, dispose such material as specified in the MSDS of the material in use. Where a cloth, rag or paper towel is used, such a cloth, rag or paper towel after use must be disposed in accordance with national and local laws and regulations.



For higher mixing efficiency, place the materials as follows:

- Put liquid and paste materials first, followed by powder materials.
- Put the materials of a lighter specific gravity first, followed by materials of a heavier specific gravity.
- Put the materials of a lower viscosity first, followed by ones of a higher viscosity.

3) Close the inner plug and outer lid of the container tight.



- Be sure to tighten securely the inner plug and outer lid of the container so they will not loosen or become removed during revolution.
- Confirm that the thread section of the container is free from dirt, wear or damage.
- Do not use any container that is damaged or with a lid cannot be closed securely.

4-2-4 Opening Lid

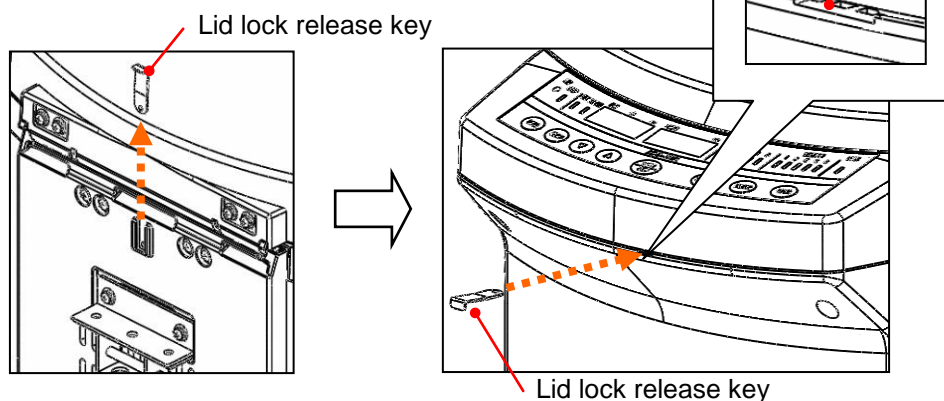
Open lid of UNIT in the procedure below:



- The lid locks on closure. Unless the lock is released, the lid would not open.

● Power is not ON:

- 1) Take the lid lock release key from its storage position at the rear of UNIT.
- 2) Insert the release key into the lid lock release key hole in the front side of UNIT.
 - The lid lock will be released.
- 3) Open lid of UNIT.



● Power is already on.



- 1) Press OPEN button.
 - The door lock will be released and LOCK lamp extinguishes.
- 2) Open lid of UNIT.

4-2-5 Setting Container

Set the container loaded with materials into UNIT, as follows:

- Setting a provided 150 ml container

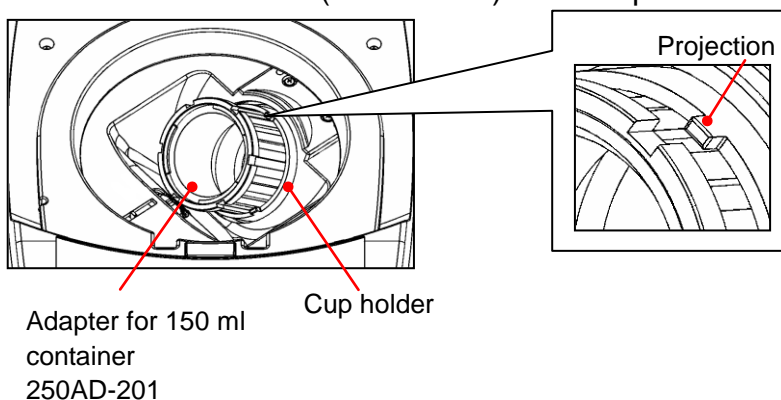
- 1) Weigh the 150 ml container with materials and the adapter 250AD-201 for the 150 ml container.



Total weight is:

150 ml container + material weight capacity + adapter for 150 ml container (250AD-201(including Rubber ring))

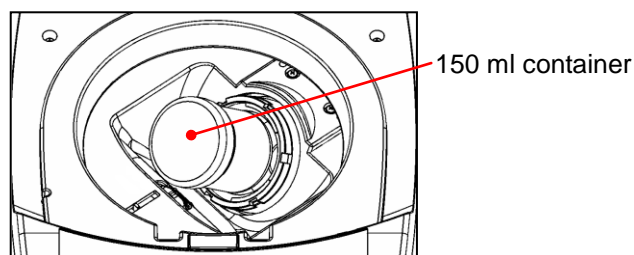
- 2) Adjust the keyways (at 3 positions) to the projections (at 3 positions) of the cup holder, and put the adapter for the 150 ml container (250AD-201) in the cup holder.



- 3) Put the 150 ml container with materials in the adapter for 150 ml container 250AD-201.

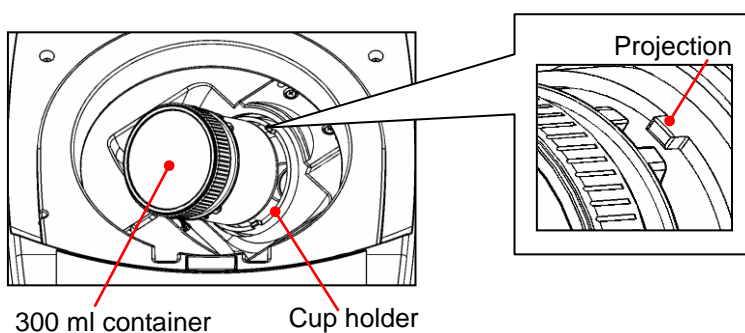


Push it until it comes into contact with the rear end.



● Setting 300 ml container

- 1) Weigh the 300 ml container with materials.
- 2) Adjust the keyways (at 3 positions) to the projections (at 3 positions) of the cup holder, and insert the adapter for the 300 ml container into the cup holder.



4-2-6 Adjustment of Revolution Balance

After setting the container, adjust the revolution balance.



Before starting the operation, make sure to adjust the revolution balance.

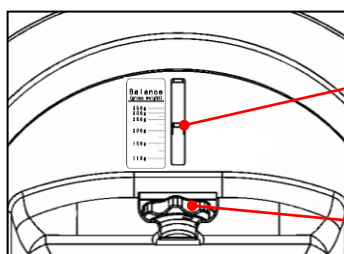
UNIT is designed with the container to be set only on one side of the revolution section. Therefore, a variable-type dummy weight is added on the opposite side of the cup holder to maintain balance at high speed.

If this adjustment is incorrect, the revolution balance is disrupted and vibration or abnormal noise will rise, imposing excessive loads on the revolution mechanism, and this will damage UNIT.



The revolution balance is sensitively reacted by material gravity and use of adapter and so on. If it rock violently after setting a correct balance, please find the best balance position with the least vibration by adjusting the revolution balance adjustment dial.

Turn the revolution balance adjustment dial for adjusting the indicator to a weight measured in the step 1 described in “4-2-5 Setting Container”.



Revolution balance indicator

Revolution balance adjustment dial

4-2-7 Closing Lid

After adjusting the revolution balance, close the lid of UNIT.

- The lid locks upon closing.



Check that no part of the cloth or foreign matter is pinched anywhere on UNIT at this time.

4-3 Operation

4-3-1 Setting of Operating Conditions

After turning on the power, set the operating conditions.

UNIT has two operating condition modes – STD (Standard) mode and STEP mode.

- STD mode: Only mixing and de-foaming time can be set; revolution speed is fixed. Only STEP 1 can be set.
- STEP mode: Mixing/ de-foaming time and revolution speed can be set.

Up to 5 steps can be set.

UNIT has two modes of operation modes – mixing mode and de-foaming mode.

Both modes can be operated individually or together.

When both modes are selected, the mixing mode is operated first and the de-foaming mode starts as soon as the mixing mode has finished.



- The mixing mode is good for de-foaming. The de-foaming mode, however, offers more effective de-aeration.
- Select only the mixing mode for preparing ointment.

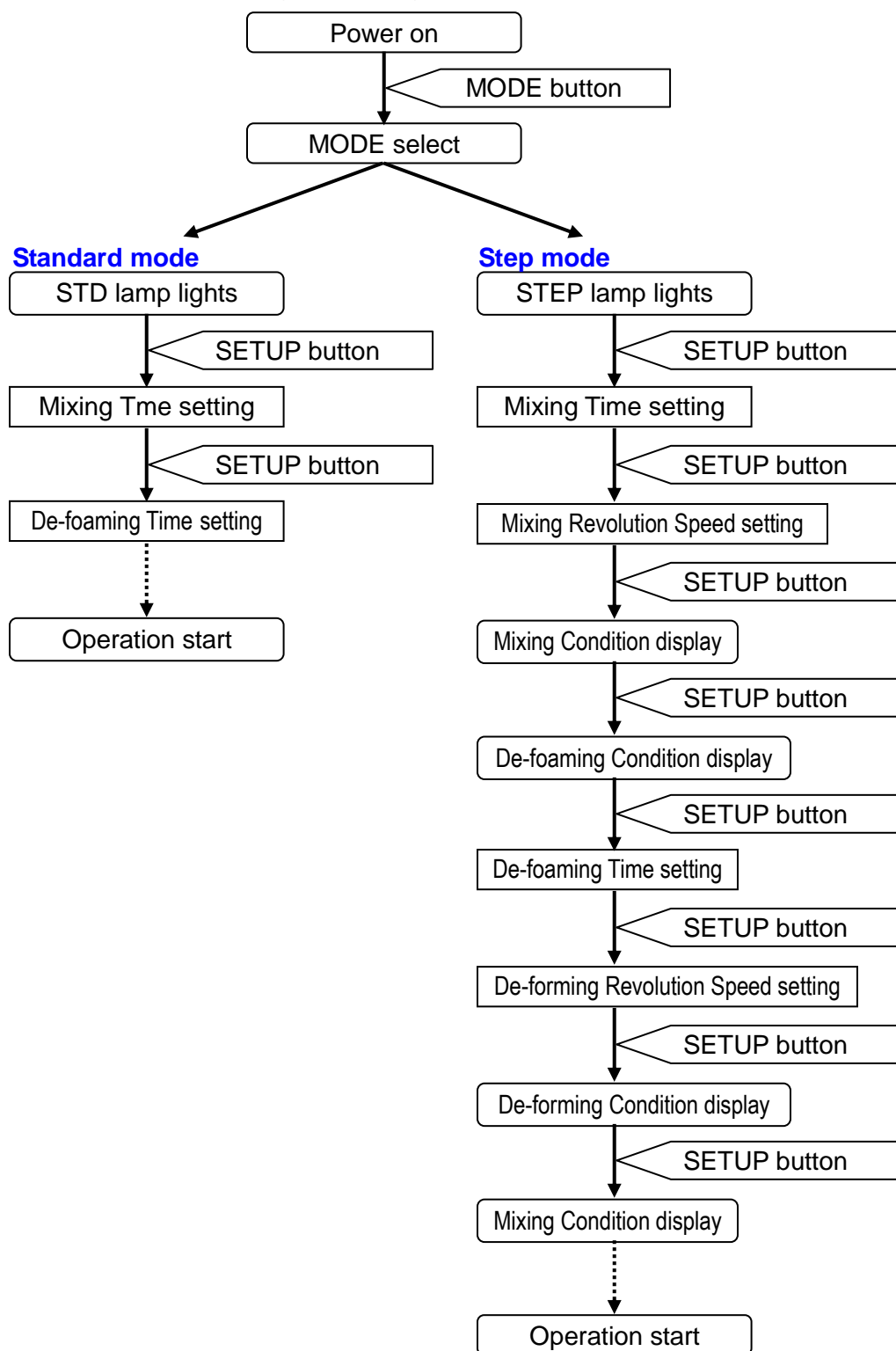
Operating conditions to set are as shown below:

- Mixing time: Set the time for mixing.
- Mixing revolution speed: Set the revolution speed for mixing.
- De-foaming time: Set the time for de-foaming.
- De-foaming revolution speed: Set the revolution speed for de-foaming.



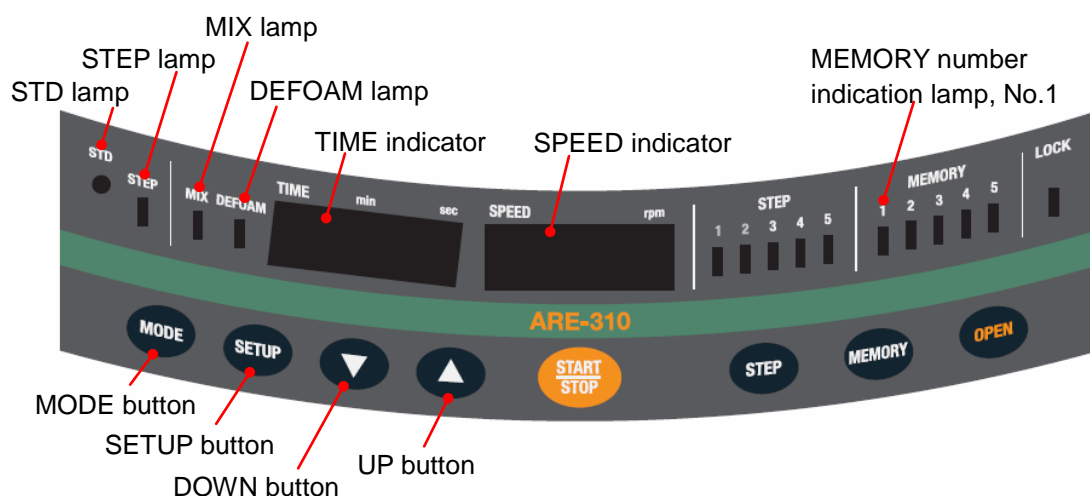
When not mixing or de-foaming any material, set the time and revolution speed of the mode to be used to "0".

● Flow of Setting Operating Conditions



● Procedure for setting operating conditions

Set all operating conditions, using the following procedure:



➤ STD (Standard) mode:

1) Turn the power ON.

- The MIX lamp and the memory number indication lamp, which was displayed last time, and one of the lamps to show operation mode (STD lamp or STEP lamp) light.
- The mixing condition values set previously are displayed on the TIME and SPEED indicators on the control panel.



- Default values are set at the factory as shown below when UNIT is delivered to a customer:

Memory No. 1				
STD mode	STEP1	Mixing	Revolution speed	2000 rpm
			Time	30 s
		De-foaming	Revolution speed	2200 rpm
			Time	30 s

* Other operating conditions in the memory have been set to "0".



For turning the power on, see "4-1-1 Turning Power on".



- 2) Press MODE button.
- STD mode and STEP mode can be switched.
 - Select STD mode.



- 3) Press SETUP button.
- The mixing time can be set.



- 4) Press UP or DOWN button to display the mixing time on the TIME indicator.



- Set "0", when not mixing anything.
- Pushing UP or DOWN button once increases/de- creases the operating time by 1 second.
Holding down either button increases/decreases the time by 30 seconds or 1 minute.
- The setting time is 30 minutes at maximum. Setting over 30 minutes displays "t t t t" to disable the setting. Push DOWN button to reset the indicator.



- 5) Press SETUP button.
- The MIX lamp turns off and the DEFOAM lamp gets lit.
 - The de-foaming time can be set.



6) Press UP or DOWN button to display the de-foaming time on the TIME indicator.



- Set “0”, when not de-foaming anything.
- Pushing UP or DOWN button once increases/de- creases the operating time by 1 second.
Holding down either button increases/decreases the time by 30 seconds or 1 minute.
- Setting time is Maximum 30 minutes. Setting over 30 minutes displays “**⏸ ⏸ ⏸ ⏸**” to disable the setting. Push DOWN button to reset the indicator.

➤ STEP (STEP) mode:

1) Turn the power on.

- The MIX lamp and the memory number indication lamp, which was displayed last time, and one of the lamps to show operation mode (STD lamp or STEP lamp) light.
- The mixing condition values set previously are displayed on the TIME and SPEED indicators on the control panel.



- Default values are set at the factory as shown below when UNIT is delivered to a customer:

Memory No. 1				
STEP mode	STEP1	Mixing	Revolution speed	2000 rpm
			Time	30 s
		De-foaming	Revolution speed	2200 rpm
			Time	30 s

* Other operating conditions in the memory have been set to “0”.



For turning the power on, see “4-1-1 Turning Power on”.



2) Press MODE button.

- STD mode and STEP mode can be switched.
- Select STEP mode.



- 3) Press SETUP button.
- The mixing time can be set.



- 4) Press UP or DOWN button to display the mixing time on the TIME indicator.



- Set "0", when not mixing anything.
- Pushing the UP or DOWN button once increases/decreases the operating time by 1 second. Holding down either button increases/decreases the time by 30 seconds or 1 minute.
- The setting time is 30 minutes at maximum. Setting over 30 minutes displays "t t t t" to disable the setting. Push DOWN button to reset the indicator.



- 5) Press SETUP button.
- The mixing time is fixed.
 - The mixing revolution speed can be set.



- 6) Press UP or DOWN button to display the mixing revolution speed on the SPEED indicator.



- Set "0", when not mixing anything.
- Pushing the UP or DOWN button once increases/decreases the revolution speed by 10 rpm.
- The setting revolution speed is 2000 rpm at maximum.



- 7) Press SETUP button.
- The mixing revolution speed is fixed.
 - Setting of the mixing operation condition is displayed on the TIME indicator and SPEED indicator.



8) Press SETUP button.

- The MIX lamp turns off and the DEFOAM lamp gets lit.
- The value for de-foaming operation condition which was displayed last time is displayed on the TIME indicator and SPEED indicator.



9) Press SETUP button.

- The de-foaming time can be set.



10) Press UP or DOWN button to display the de-foaming time on the TIME indicator.



- Set "0", when not de-foaming anything.
- Pushing the UP or DOWN button once increases/decreases the operating time by 1 second.
To keep pressing either button increases/decreases the time by 30 seconds or 1 minute.
- The setting time is 30 minutes at maximum. Setting over 30 minutes displays "t t t t" to disable the setting. Push DOWN button to reset it.



11) Press SETUP button.

- The de-foaming operation time is fixed.
- The de-foaming revolution time can be set.



12) Press UP or DOWN button to display the de-foaming revolution speed on the SPEED indicator.



- Set "0", when not de-foaming anything.
- Pushing the UP or DOWN button once increases/decreases the revolution speed by 10 rpm.
- The setting revolution speed is 2200 rpm at maximum.



13) Press SETUP button.

- The de-foaming revolution speed is fixed.
- Setting of the de-foaming operation condition is displayed on the TIME indicator and SPEED indicator.



14) Press SETUP button.

- The DEFORM lamp turns off and the MIX lamp gets lit.
- Setting of the mixing operation condition is displayed on the TIME indicator and SPEED indicator.

4-3-2 Operation



- When mixing heating materials, make sure to test-run UNIT for a short time first and check how the temperature rises before starting operation.
- Be careful not to spill or splatter any materials inside UNIT.



- The attached special container is made of HDPE, which may be softened or deformed at around 80°C. When using a large amount of high-viscosity materials and powders, make sure to test run UNIT for a short time (15 to 30 seconds) first to check how the temperature rises. Set the operating time within a range where containers may not be deformed. When materials include low-boiling point substances, in particular, be especially attentive to temperature rise during mixing.
- When using UNIT for the first time, test-run it for a short time (15 to 30 seconds) and check the material status. Determine the operating time afterwards.



- The lid locks when it closes, and as soon as UNIT gets started, the OPEN button is disabled. The lid cannot be opened until the operation is finished. To open the lid during operation, stop UNIT and press OPEN button to release the lock.
- If the power to UNIT is stopped because of a power failure or power cable disconnection, the brake cannot be applied to the revolution and the lid remains locked for safety and the OPEN button is kept disabled. To open the lid in this status, turn on the power again and press OPEN button. Otherwise, insert the lid lock release key into the key hole to release the lock and enable the lid to be opened.

- Starting operation

Start the operation, using the following procedure:

1) Check that the lid of UNIT is closed.



2) Press START/STOP button.

- The operating time displayed on the TIME indicator starts to count down.
- When only mixing or de-foaming is set, operation stops when the operating time display reaches “0”.
- When both mixing and de-foaming are set, mixing is done first. When the operating time display reaches “0”, revolution stops once and de-foaming starts automatically next. The operation finishes when the operating time display reaches “0”.
- When the operation finishes and the revolution stops completely, the alarm beeps.

- Stopping operation



To stop the operation halfway, press START/STOP button once again.

- The brake applies to the revolution and stops UNIT.

4-3-3 Removing the Container

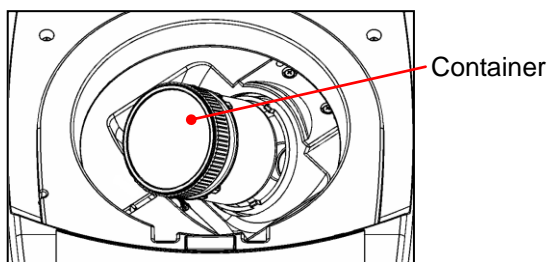
After the operation has finished, remove the container.



- 1) Press OPEN button.
 - The lid lock is released and the LOCK lamp extinguishes.
- 2) Open lid of UNIT.
- 3) Remove the container.



For the 150 ml container, turn it little by little to remove it from the adapter.



- 4) Open the outer lid of the container and remove the inner plug.
- 5) Check the finished status.



- If the finished status is insufficient, adjust the mixing time and de-foaming time and repeat mixing or de-foaming operation.
- The finished status varies depending on the type, viscosity and specific gravity of materials as well as property and amount of additives, even when the setting time is constant.
It is advisable to change the conditions several times and set the standard time.

4-4 Memory Registration

Five types of operating conditions for each of STD mode and STEP mode (STD mode: mixing/de-foaming time, STEP mode: mixing/de-foaming time and revolution speed) can be registered in the memory in advance.

The memory registrations are summarized as follows:

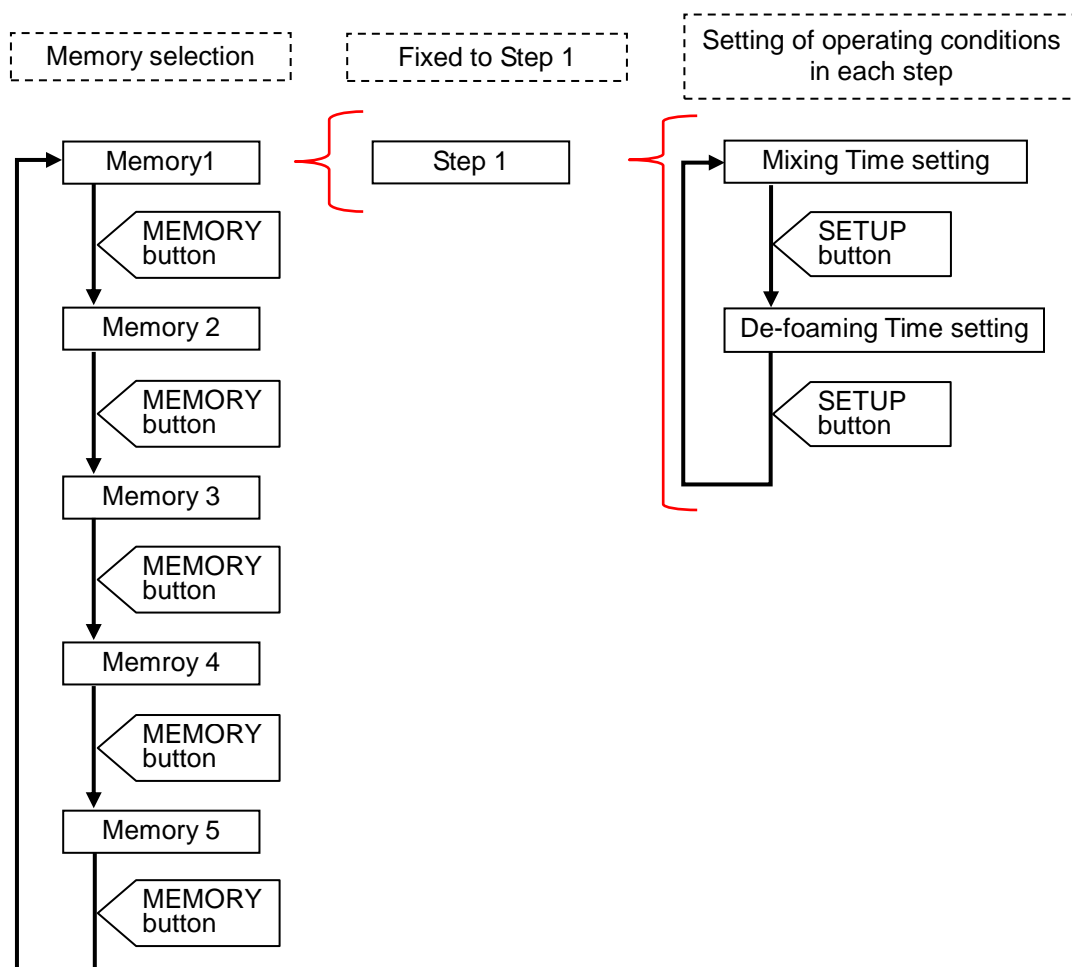
- Five types of operating conditions for STD mode and five types of operating conditions for STEP mode can be registered in the memory.
- STD mode: Only STEP 1 can be registered for one memory number.
STEP mode: A maximum five steps can be registered for one memory number.
- Operating conditions can be registered for each step.
- When one step has finished during step-wise operation, the next step is continuously executed.



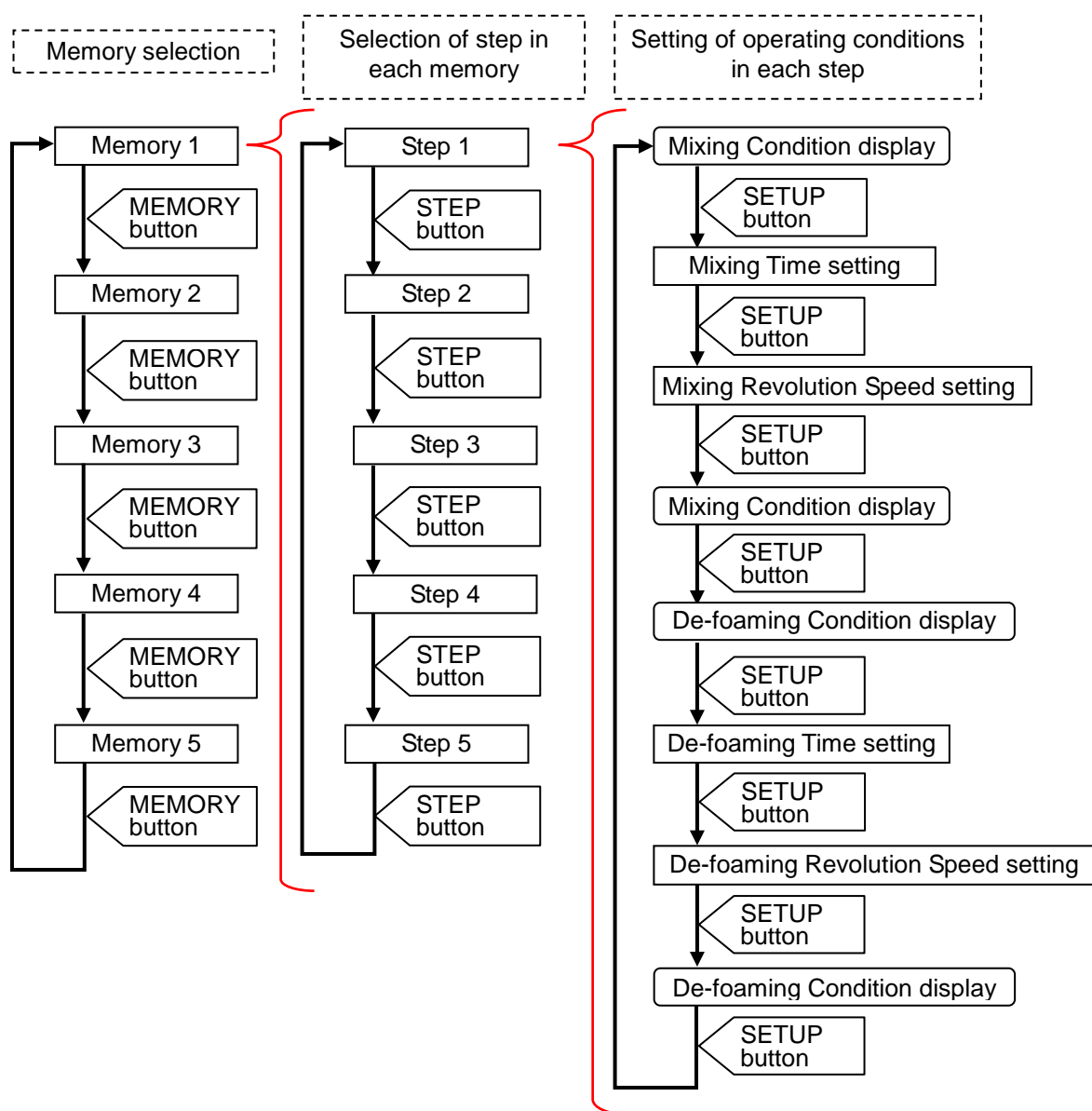
- The contents registered in the memory are not lost even when the power turns off.
- When contents are registered in each of the five memories for both the STD mode and STEP mode and further conditions are required for the operation, set another operating condition to execute operation irrespective of the selected memory number.
Such operating conditions, however, are lost once the power turns off or when another memory is called up.
To keep such operating conditions, register them in one of the five memories of either of the modes.

● Flow of Memory Registration

➤ STD (Standard) mode:

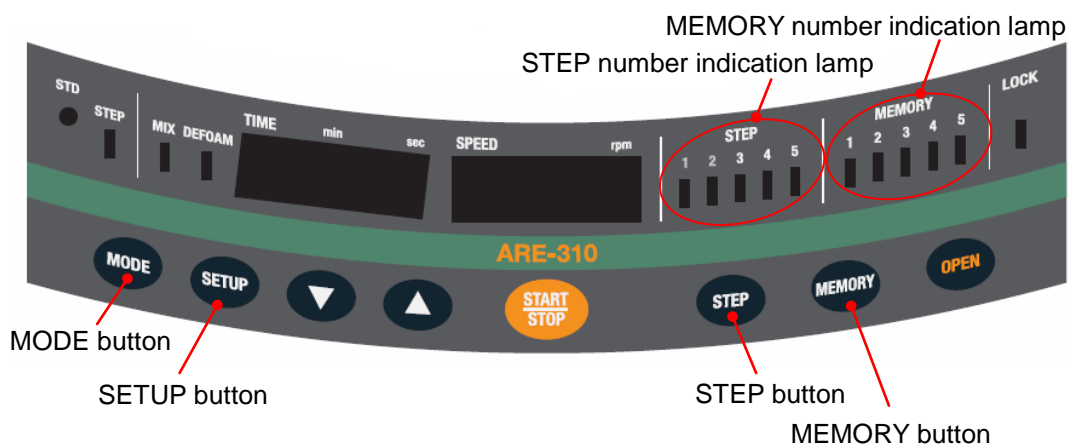


➤ STEP mode:



- Procedure for Memory Registration

Register memories, using the following procedure:



➤ STD (Standard) mode:



- 1) Press MODE button.
 - STD mode and STEP mode can be switched.
 - Select STD mode.



- 2) Press MEMORY button to light the lamp indicating the number of the memory to register.



The memory number indication lamp turns lit in order of the memory number 1→2→3→4→5 each time the MEMORY button is pressed.

- 3) Set the operating conditions.



For setting the operating conditions, see “4-3-1 Setting of Operating Conditions”.



4) Press MEMORY button for over 1 second.

- The setting operating condition (step) is set in the memory with a selected number.
- The MEMORY number indication lamp blinks and the alarm beeps.



The operating condition to be registered in the memory is "STEP 1" only.

To register it in the memory, make sure to display the operating conditions with the last number of "STEP 1" to register. The operating conditions with the following numbers are all deleted at the time of the memory registration.

➤ STEP mode:



1) Press MODE button.

- STD mode and STEP mode can be switched.
- Select STEP mode.



2) Press MEMORY button to light the lamp indicating the number of the memory to register.



The memory number indication lamp turns lit in order of the memory number 1→2→3→4→5 each time the MEMORY button is pressed.



3) Press STEP button to display a STEP number to set operating conditions on the STEP number indication lamp.



Each time the STEP button is pressed, the STEP number indication lamp changes in order of 1→2→3→4→5. After the STEP number is displayed, the operating condition registered to that STEP number is displayed.

4) Set the operating conditions.



For setting the operating conditions, refer to “4-3-1 Setting of Operating Conditions”.

5) Repeat the above steps 3) and 4) to set the operating conditions for all STEP numbers to set.



6) Press MEMORY button for over 1 second.

- The setting operating condition (step) is set in the memory with a selected number.
- The MEMORY number indication lamp blinks and the alarm beeps.



The operating conditions to be registered in the memory have numbers from [STEP 1] through [Currently displayed program number].

The operating conditions with the following STEP numbers are all deleted at the time of the memory registration.

To register them in the memory, make sure to display the operating conditions with the last number of the STEP to register.

- Change of Contents of Memory Registration

Registering them again can change the contents registered in the memory.

- Calling of Memory

When you operate UNIT under the registered condition, start UNIT after selecting the operation registered number.



- 1) Press MODE button.

- STD mode and STEP mode can be switched.
- Press button to light the lamp indicating the mode to execute (STD lamp or STEP lamp).



- 2) Press MEMORY button to light the lamp indicating the number of the memory to register.



The memory number indication lamp turns lit in order of the memory number 1→2→3→4→5 each time the MEMORY button is pressed.

- Checking Contents of Memory Registration

The contents registered in the memory (operating conditions registered in each STEP) can be checked.



1) Press MODE button.

- STD mode and STEP mode can be switched.
- Press button to light the lamp indicating the mode to check the content (STD lamp or STEP lamp).



2) Press MEMORY button and light the lamp indicating the number of the memory to check.



The memory number indication lamp turns lit in order of the memory number 1→2→3→4→5 each time the MEMORY button is pressed.



3) Press STEP button to light the STEP number to display the contents on the STEP number indication lamp.



Each time the STEP button is pressed, the STEP number indication lamp changes in order of 1→2→3→4→5. After the STEP number is displayed, the operating condition registered to that STEP number is displayed.



4) Press SETUP button to select a display and check the contents.



- When the SETUP button is pressed while the operating conditions are displayed, conditions in the mixing mode and de-foaming mode are displayed alternately.
- When the operating conditions in the mixing mode are displayed, the MIX lamp is lit. When the operating conditions in the de-foaming mode are displayed, the DEFOAM lamp is lit.

5. Maintenance



- When you take maintenance, don't insert your finger between rotating tray and machine frame.

5-1 Inspection

For using UNIT in a safe manner, perform inspections regularly.



- Disconnect the plug before performing inspection.

- Check if any materials or foreign objects are adhering inside or around the cup holder and rotary sections.
If any adhesion is observed, clean it.



For details of cleaning, refer to "5-2 Cleaning".

- Check whether or not UNIT exterior is damaged with a rupture or large dent.
Do not use UNIT whose exterior has any damage.

5-2 Cleaning

If UNIT becomes dirty, clean it in the procedure below:



- Do not touch the power plug with wet hands. It may cause an electric shock.
- Cleaning must be performed only after the power plug is detached.

1) Press POWER switch to turn the power OFF (O).

2) Disconnect the plug from the wall outlet.

3) Wipe off dirt (materials, etc.) from inside and around the cup holder, rotating tray, control panel, etc., using a cloth, waste cloth or paper towel.

If dirt or stain cannot be removed by dry cloth, use a cloth, waste cloth or paper towel moistened with water or ethanol, and swab.

Wipe with a dry cloth again.



- For cleaning, do not use benzine, thinner, alkaline detergent or bleach which may deteriorate or discolor UNIT.
- Do not splash UNIT directly with water or neutral detergent.
- Dispose such material as specified in the MSDS of the material in use.
- Where a cloth, rag or paper towel is used, such a cloth, waste cloth or paper towel after use shall be disposed in accordance with national and local laws and regulations.

5-3 Troubleshooting

If you have any troubles or problems with UNIT, check the followings first before asking for repair.

If the problem still cannot be cleared after checking, contact the dealer where you purchased UNIT or THINKY.



For details of contact, see “Introduction” in this Manual.

Phenomenon	Check Item	Reference
The power cannot be turned on.	Check if the power cable is connected in outlet and inlet correctly.	3-5 Power Connection
	Check if the power switch is turned to on (I).	4-1-1 Turning Power on
	Check if a fuse is blown. If so, replace it with a proper ones.	5-5 Fuse Change
Operation does not start when the START/STOP button is pressed.	Check if the START/STOP button was pressed with the lid open. Close the lid first.	4-3-2 Operation
	Check if the shipping locks are removed correctly. Otherwise, the revolution section is locked and operation cannot restart.	3-4 Unlocking shipping Locks
	Check if the mixing and de-foaming operation time is set to “0”.	4-3-1 Setting of Operating Conditions
Abnormal vibration or noise is observed.	The rotation balance must be adjusted properly. Otherwise, the rotation balance is disrupted, causing abnormal vibration or noise. (Undulation during operation is not abnormal.)	4-2-6 Adjustment of Revolution Balance

Phenomenon	Check Item	Reference
Mixing or de-foaming cannot be properly done.	Check if the mixing time and de-foaming time are set correctly.	4 Operation
	Check if the memory contents have been changed.	
	Check if the amount of each material is incorrect.	
The OPEN button is pressed but the lid does not open.	Check if the lid opens when the OPEN button is pressed when power is on. If it doesn't, see the procedure for opening the lid while power is not on.	4-2-4 Opening Lid.

5-4 Error Display

UNIT incorporates a lid sensor, vibration sensor and revolution sensor. If any abnormality occurs during revolution, a related message is displayed on the control panel and operation stops accordingly. Major possible causes and measures for correction are listed below:

If the cause is clear, remedy it and press any of the buttons on the control panel (except the START/STOP button). UNIT function can be restored.

If the cause is not clear and restoration is not achievable, directly contact the dealer where you purchased UNIT or THINKY.



For contact details, see “Introduction” in this Manual.

Error Display	Cause	Measures
Err1b	Operation started with the lid open.	Close the lid to operate.
	The lid opened during operation.	
Err1c	The lid lock is unlocked.	
Err2	Abnormal vibration occurs abruptly during operation.	Check if the container has been detached, flown away or any parts have been damaged.
	The vibration value exceeds the rated value.	Adjust the rotation balance.
Err3 to Err4 Err10 to Err11	Revolution speed won't increase after the operation has started.	Contact the dealer where you purchased UNIT or THINKY.
Err7 to Err9	All these are related to electronic circuit malfunction or the control software.	

5-5 Fuse Change

If a fuse has blown, replace as follows:



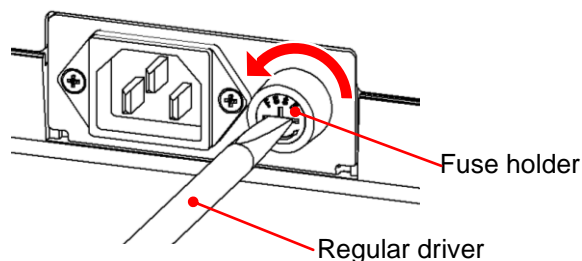
Use only a fuse with the following properties:

- Fuse rating: 250 V – 10 A
- Dimensions: $\phi 6.4 \times 30$ mm
- Breaking current: 300 A
- Breaking characteristic: Anti-rush current

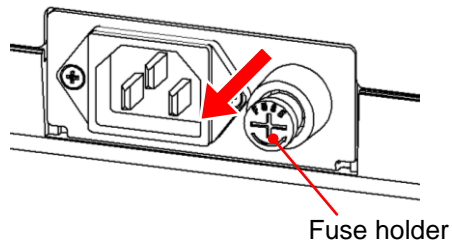


- When replacing a fuse, make sure to remove the power plug first.

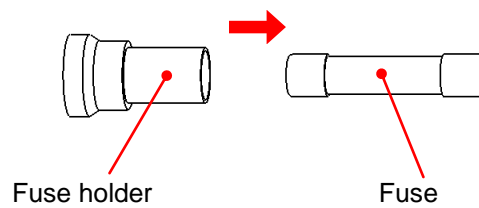
- 1) Press Power switch OFF (O).
- 2) Disconnect the plug from the wall outlet.
- 3) Turn the fuse holder on the rear of UNIT counterclockwise, using a regular driver.
 - Turning the fuse holder a little, causes it to be pushed out by a spring.



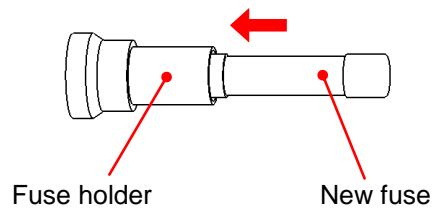
- 4) Manually pull out the pushed-out fuse holder.



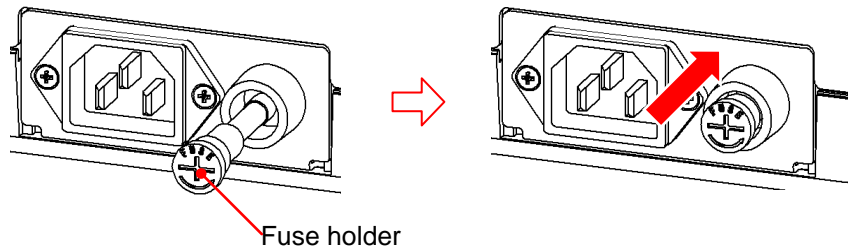
- 5) Remove the fuse from the fuse holder.



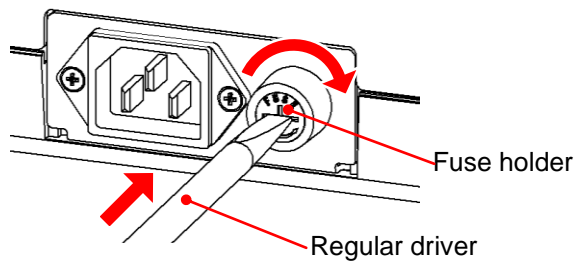
- 6) Insert a new fuse into the fuse holder.



- 7) Insert the fuse holder into the fuse mounting port.



- 8) Press in the fuse holder, using a regular driver, and turn it clockwise until it stops.



Blown fuses must be discarded in accordance with national and local laws and regulations.

5-6 Warranty and Service after the sales

Customers are kindly requested to contact THINKY or its dealers if there is anything unclear about the service after the sales including the warranty.

Refer to “Introduction” page for Contact information.

THINKY will repair or replace any defective component, at THINKY's discretion, free of charge under the conditions;

- Within warranty period,
- Operation in conformity with Operation Manual and other references officially issued by THINKY,
- Any defects in manufacturing caused by THINKY.

Warranty period is within 12 months from the date of purchase.

The warranty provided by THINKY, however, does not cover several conditions. For further details, refer to “Limitation of the Warranty and Liability” page.

ARE-310 Instruction Manual

Issued November 7, 2008

Revision 4.3
Revised March 26, 2015

Edition by THINKY CORPORATION

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