

# **SERVICE MANUAL**



## **Model ISI-161 Soft Serve Freezers**

**Original Service Instructions**

**8/25/23 (Original Publication)  
Revised 7/22/24 for North  
America**

# Table of Contents

---

## Section 1: Introduction

Safety . . . . .	1-2
Model ISI-161 Specifications . . . . .	1-5
Running Specifications . . . . .	1-7
General Installation Instructions . . . . .	1-8
Environmental Notices . . . . .	1-12
User Interface . . . . .	1-13

## Section 2: Controls

Description of the functional buttons . . . . .	2-2
Explanation of the button function . . . . .	2-7
Refrigeration Schematic. . . . .	2-23

## Section 3: Troubleshooting

General Troubleshooting Guide . . . . .	3-2
Bacteria Troubleshooting . . . . .	3-5

## Section 4: Parts

Parts Warranty Explanation . . . . .	4-2
Model ISI-161 Exploded View . . . . .	4-3
Operator Parts (Model ISI-161). . . . .	4-6
ASSY TOTAL CONTROL BOX(Model ISI-161TH) . . . . .	4-7
ASSY CSR BOX. . . . .	4-8
DASHER ASSY(Model ISI-161). . . . .	4-9
DISPLAY PANEL ASSY. . . . .	4-10
ASSY PISTON SENSOR. . . . .	4-11
Accessories . . . . .	4-12
Brushes. . . . .	4-13
Repair for refrigerant Lines . . . . .	4-14
Replacement the parts . . . . .	4-15

## Section 5: Part List

## Section 6: Wiring Diagrams

## **Section 1: Introduction**

- **Safety**
- **Model ISI-161 Specifications**
- **Running Specifications**
- **General Installation Instructions**
- **Environmental Notices**
- **User Interface**

## Safety

These are safety related items. So, comply with them at all times!  
They are meant to protect the safety of users and prevent property damages.  
Please, read the cautionary items carefully for correct use.

1



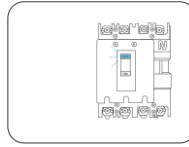
**Danger** If violated, it can cause death or severe injury.



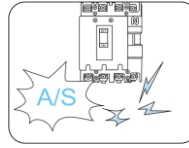
**Warning** If violated, it can cause severe physical injury or property damages.



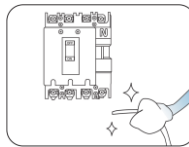
**Caution** If violated, it can cause slight physical injury or property damages.



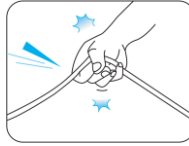
**!** If you want to leave it unused for a long time, turn off the earth leakage circuit breaker. It can cause electrical shocks or fires.



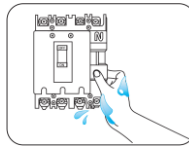
**!** If the power cable is damaged, then do not replace it on your own. Call the service center for cable replacement. It can cause electrical shocks or fires.



**!** Use a power cable larger than 2.5mm<sup>2</sup>. The control box for the product should be grounded. It can cause electrical shocks or fires.

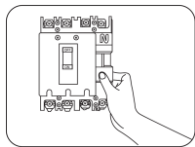


**!** Do not pull on the power cord. It can cause electrical shocks or fires.

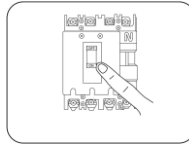


**!** Do not touch the earth leakage circuit breaker with your wet hands. It can cause electrical shocks or fires.

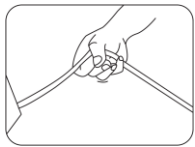
### Power supply related items



**!** Install it independently with an earth leakage circuit breaker with more than 20~50[A]. It can cause electrical shocks or fire.



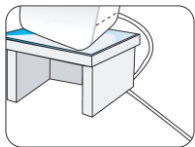
**!** Do not turn the power on/off with the circuit breaker continuously. It can cause electrical shocks or fires.



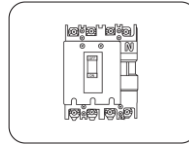
**!** Do not move the product by pulling on the power cord. It can cause electrical shocks or fires.



**!** When you repair or inspect the product or replace any parts, turn off the earth leakage circuit breaker. It can cause electrical shocks or fires.



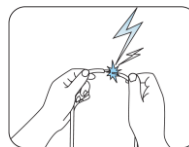
**!** Do not bend the power cord too much or cause damages or deformation by pressing it under a heavy object. It can cause electrical shocks or fires.



**!** Do not connect many electrical products to the earth leakage circuit breaker. Use it individually. It can cause fires.

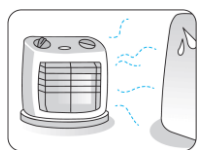


**!** If there is water inside the earth leakage circuit breaker, turn off the earth leakage circuit breaker and dry it before use. It can cause electrical shocks or fires.



**!** Do not arbitrarily connect the power cord or process it for use. It can cause fires.

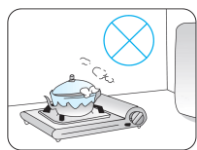
## Installation related items



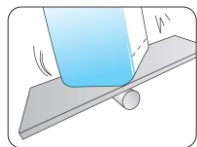
- ! Do not install it near a heating device.  
It can cause fires.



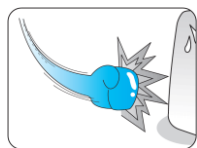
- ! Do not install it near dust, moisture or rainwater (water popping).  
It can cause electrical shocks or fires.



- ! Do not use or store inflammable gas or material near the product. It can cause electrical shocks or fires.



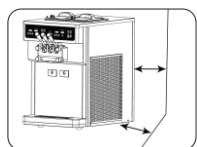
- ! Do not install it on a tilt. "the appliance has to be placed in a horizontal position" is sufficient.  
It can cause physical injury or product damages.



- ! Do not apply excessive force or impact to the product.  
It can cause damages to the product.



This product shows the best performance at temperature of 10~30°C

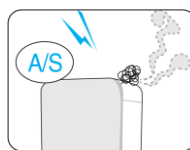


The side and rear of the product should be maintained at least 30cm from the wall.

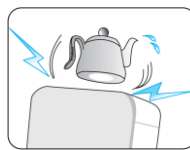
## During use



- ! Do not place candle lights or cigarettes light on top of the product.  
It can cause fires.



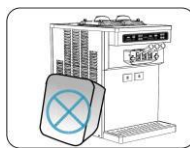
- ! If the product has weird sounds or burning smell or smoke, turn off the earth leakage circuit breaker immediately and call the service center.  
It can cause electrical shocks or fires.



- ! Do not place water containers, medicine, foods, small metal parts or inflammable material on top of the product.  
If they go inside the product, it can cause electrical shocks, fire and damages.



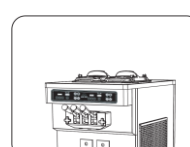
- ! Please do not press "WASH" button during empty condition which the cylinder doesn't contain any ingredients or water.  
The bearing of drum can be frayed because there is no lubrication.



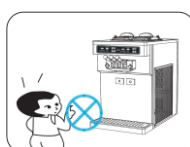
- ! Do not obstruct the entrance of the air vent.  
If so, the performance will be degraded.



- ! To have good quality soft cream, it is recommended to clean it everyday.  
Otherwise, the ingredients can decay.



While operating the product, please completely close the upper cap.  
Bugs or alien substances can enter the product.



Don't let a person who was not educated the product or a child touch or operate the machine.  
Comply with the user guideline suggested by the maker.  
Otherwise, it can cause malfunctions



- Clean the filter periodically. Otherwise, the cooling performance will degrade.
- Comply with the user guideline suggested by the maker.  
Otherwise, it can cause malfunctions. Don't let a person who was not educated.

# INTRODUCTION

---

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

1

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

This appliance shall be installed in locations where it can be overseen by trained personnel.

This appliance shall be that access to the service area is restricted to persons having knowledge and practical experience of the appliance, in particular as far as safety and hygiene are concerned.

# Model ISI-161 Specifications

## Freezing Cylinder

One, 1.5 qt. (1.4 L)

## Mix Hopper

One, 3.2 qt. (3 L)

## Dasher Motor

One, 0.5 hp

## Refrigeration Machine

One, approximately 9,500 BTU/hr compressors  
Refrigerant R404A.

## Electrical

Electrical	Maximum Fuse Size	Minimum Circuit Ampacity
115/60/1 Air	25	15~20
208-230/60/1 Air	15	11.0
220-240/50/1 Air	10	8.8

This machine may be manufactured in other electrical characteristics. Refer to the local Taylor distributor for availability. (For exact electrical information, always see the data label of the machine.)

## Air-Cooled

Clearance: A minimum of 50 in. (500 mm) is required from the top (AIR VENT.)

## Dimensions

Width: 11-13/16 in. (300 mm)

Height: 29-1/2 in. (750 mm)

Depth: 29-1/2 in. (750 mm)

## Approximate Weights

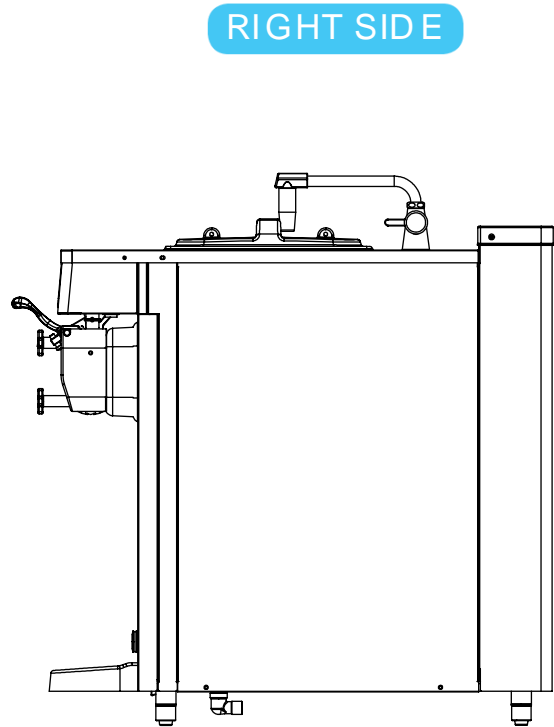
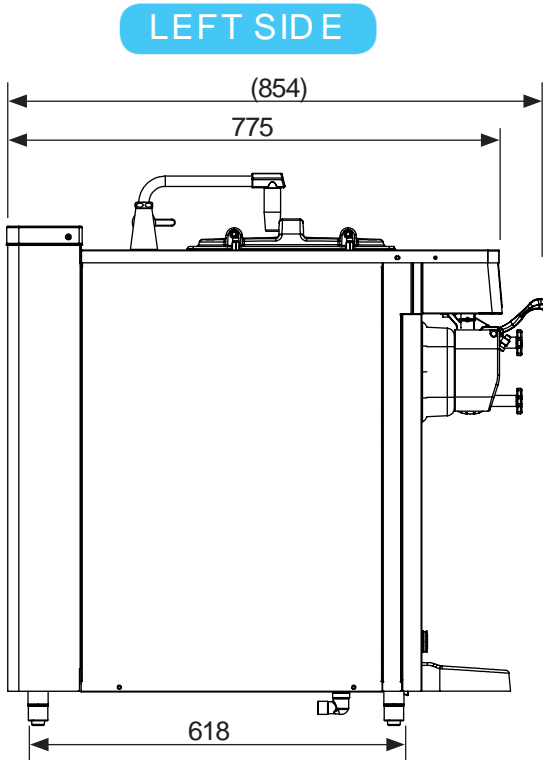
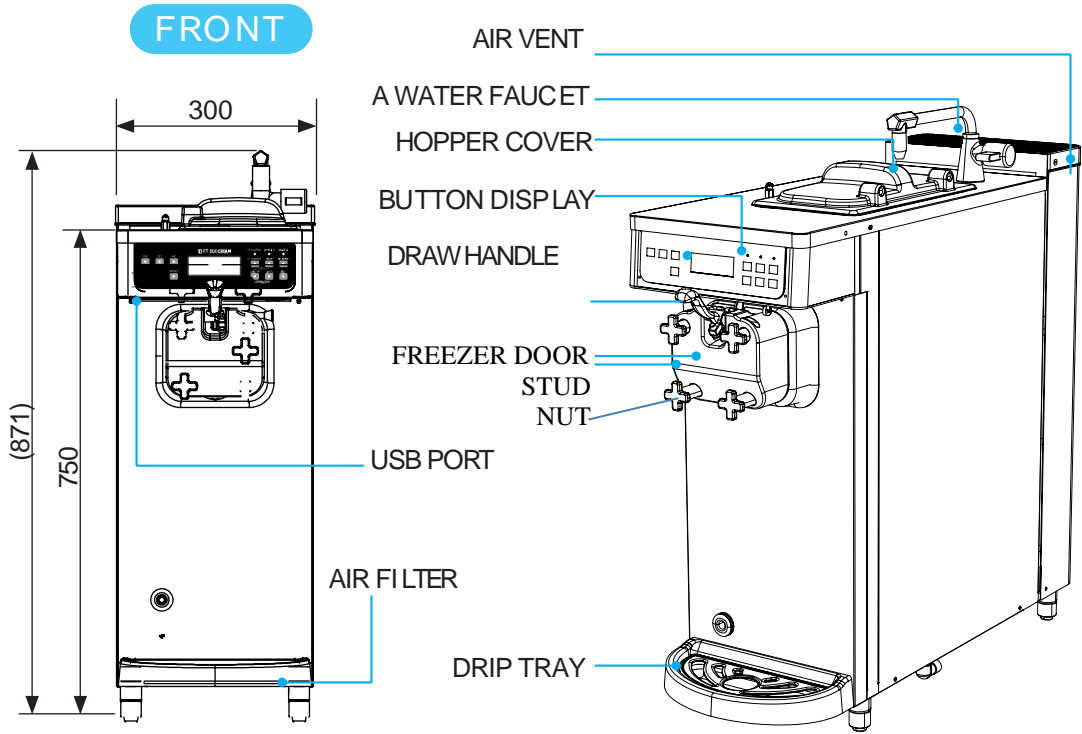
Net: 198 lbs. (90 kgs)

Crated: 209 lbs. (95 kgs)

Volume: 6 cu. ft. (0.17 cu m)

# INTRODUCTION

1





# Running Specifications

## Pressures/Temperatures

The following are the recommended settings for various components within these models. The freezers in this manual use refrigerant R404A.

### Expansion Valve (AXV)

Air-Cooled - 21 psi (145 kPa)  
for a normal product of 16°F to 18°F (-8.8°C to -7.7°C)

### Expansion Valve Adjustment (AXV)

Place your gauge on the access valve on the suction line (located at the compressor).

Adjust the pressure higher or lower by turning the adjustment screw. Clockwise turns raise the pressure and counterclockwise turns lower the pressure.

*Note: Make expansion valve adjustments with mix in the cylinder and the freezer in the Auto mode. Be sure to allow adequate time for the pressure to stabilize.*

### Capillary(unit : mm)

To Hopper(Basket Milk) : ID 1.2 \* L1500(OD 2.1)  
To Accumulator : ID 0.9 \* L1500(OD 2.6)

### High Pressure Switch

On : 2.45MPa(355.3psi)  
Off : 2.94MPa(426.4psi)

### Fan Switch(Pressure Interlock)

On : 2.06MPa(298.8psi)  
Off : 1.67MPa(242.2psi)

### Low Side (Suction)

Suction pressure equals expansion valve setting.

### High Side (Discharge)

High side pressure varies for air-cooled machines, depending on the ambient temperature.

#### 220~240V/50Hz

Ambient Temperature		Normal Operating Head Pressures
F	C	PSI
50°	10°	310 ~ 340 (2,137kPa ~ 2,344kPa)
80.6°	27°	300 ~ 330 (2,068kPa ~ 2,275kPa)
100.4°	38°	350 ~ 380 (2,413kPa ~ 2,620kPa)

#### 208~230V/60Hz

Ambient Temperature		Normal Operating Head Pressures
F	C	PSI
50°	10°	310 ~ 340 (2,137kPa ~ 2,344kPa)
80.6°	27°	300 ~ 330 (2,068kPa ~ 2,275kPa)
100.4°	38°	325 ~ 355 (2,241kPa ~ 2,448kPa)

#### 115V/60Hz

Ambient Temperature		Normal Operating Head Pressures
F	C	PSI
50°	10°	274 ~ 304 (1,889kPa ~ 2,096kPa)
80.6°	27°	296 ~ 326 (2,041kPa ~ 2,248kPa)
100.4°	38°	325 ~ 355 (2,241kPa ~ 2,448kPa)



# General Installation Instructions

**NOTICE!** Only trained, authorized service technicians should install this machine. Failure to comply will void the factory warranty.

1

The following are general installation instructions. For complete installation details, please see the checkout card.



**IMPORTANT!** All wiring and plumbing must conform to national and local codes.



**IN STALL POTABLE WATER CONNECTION WITH ADEQUATE BACKFLOW PROTECTION TO COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES**

## Site Preparation

Review the area where the machine is to be installed before uncrating the machine. Make sure that all possible hazards to the user and the equipment have been addressed.

### Clearance: Air-Cooled Machines

This machine requires a minimum of 3 in. (76 mm) air clearance around all sides. DO NOT obstruct air intake and discharge openings. Install the deflector provided to prevent recirculation of warm air. Failure to allow proper clearance and airflow may cause poor freezer performance and damage to the machine. For Indoor Use Only: This machine is designed to operate indoors, under normal ambient temperatures of 70°F to 75°F (21°C to 24°C). The freezer has successfully performed in high ambient temperatures of 104°F (40°C) at reduced capacities.



**WARNING!** This machine must NOT be installed in an area where a water jet or hose can be used. Never use a water jet or hose to rinse or clean this machine. Using a water jet or hose on or around this machine may result in the electrocution of the user or damage to the machine.



**CAUTION!** This machine must be installed on a level surface to avoid the hazard of tipping. Extreme care should be taken in moving this machine for any reason. Two or more persons are required to safely move this machine. Failure to comply may result in personal injury or machine damage.

Uncrate the machine. Inspect the machine for damage. Report any damage to the Taylor factory immediately. This machine is made in the USA and has USA sizes of hardware. All metric conversions are approximate and vary in size.

## Installer Safety



**IMPORTANT!** In all areas of the world, the machine should be installed in accordance with existing local codes. Please contact your local authorities if you have any questions.

Care should be taken to ensure that all basic safety practices are followed during the installation and servicing activities related to the installation and service of Taylor machines.

- Only authorized Taylor service personnel should perform installation and repairs on the machine.
- Authorized service personnel should consult OSHA Standard 29CFR1910.147 or the applicable code of the local area for the industry standards on lockout/tagout procedures before beginning any installation or repairs.

- Authorized service personnel must ensure that the proper personal protective equipment (PPE) is available and worn when required during installation and service.
- Authorized service personnel must remove all metal jewelry, rings, and watches before working on electrical equipment.



**WARNING!** This machine has many sharp edges that can cause severe injuries.

**Examples:**

- Scraper blades
- Condenser fins
- Cup/cone dispenser (if applicable)

## Electrical Connections



**IMPORTANT!** In the United States, this machine is intended to be installed in accordance with the National Electrical Code (NEC), ANSI/NFPA 701987. The purpose of the NEC code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This code contains provisions considered necessary for safety. In all other areas of the world, the machine should be installed in accordance with the existing local codes. Please contact your local authorities if you have any questions. Each machine requires one power supply for each data label on the machine. Check the data label(s) on the machine for branch circuit overcurrent protection or fuse, circuit ampacity, and other electrical specifications. See the wiring diagram provided inside the electrical box for proper power connections.



**FOLLOW YOUR LOCAL ELECTRICAL CODES.**



**WARNING!** This machine must be properly grounded! Failure to do so can result in severe personal injury from electrical shock!



**IMPORTANT!** This machine is provided with an equipotential grounding lug that is to be properly attached to the rear of the frame by the authorized installer. The installation location is marked by the equipotential bonding symbol (5021 of IEC 60417-1) on the removable panel and the frame.



**WARNING! Avoid injury.**

- **DO NOT** attempt any repairs unless the main power supply to the machine has been disconnected.
- **DO NOT** operate the machine with larger fuses than specified on the data label.
- Stationary machines which are not equipped with a power cord and plug or other device to disconnect the machine from the power source must have an all-pole disconnecting device with a contact gap of at least 0.125 in. (3 mm) installed in the external installation.
- Machines that are permanently connected to fixed wiring and for which leakage currents may exceed 10 mA, particularly when disconnected, not used for long periods, or during initial installation, shall have protective devices to protect against the leakage of current, such as a GFI, and be installed by authorized personnel to the local codes.
- Supply cords used with this machine shall be oil-resistant, sheathed flexible cable, not lighter than ordinary polychloroprene or other equivalent synthetic elastomer-sheathed cord (code designation 60245 IEC 57) installed with the proper cord anchorage to relieve conductors from strain, including twisting, at the terminals and protect the insulation of the conductors from abrasion.
- **For Cord-Connected Machines:** Only authorized Taylor service technicians may install a plug on this machine.

Failure to follow these instructions may result in electrocution or equipment damage.

# INTRODUCTION

---

## Disconnect Switch

If the machine has no plug, a separate disconnect switch must be installed, or another alternate means to disconnect power must be implemented.

1

## Water Connections

### Water-Cooled Machines, Only

An adequate cold water supply must be provided with a hand shut-off valve. The water inlet and drain connections are located on the right side or the underside of the base. These connections are either 3/8 in. or 1/2 in. FTP, depending on the model of the machine. (Refer to "Model Specifications.")

Flexible lines are recommended, if local codes permit. In Europe, hose sets for connection of appliances to the water mains must comply to the International IEC 61770 standard.

The water expansion valve setting should be set at 255 PSIG (1758 kPa).

Depending on local water conditions, it may be advisable to install a water strainer to prevent foreign substances from clogging the automatic water valve. There will be only one water in and one water out connection.

**DO NOT** install a hand shutoff valve on the water **out** line. Water should always flow in this order: First, through the automatic water valve; second, through the condenser; and third, through the outlet fitting to an **open trap drain**.



**IMPORTANT!** A backflow prevention device is required on the incoming water connection side. Please see the applicable national, state, and local codes for determining the proper configuration.

## Refrigeration



**CAUTION!** In consideration of our environment, Taylor uses only earth-friendly HFC refrigerants. The HFC refrigerant used in this machine is R404A. This refrigerant is generally considered nontoxic and nonflammable, with an ozone-depleting potential (ODP) of zero (0). However, any gas under pressure is potentially hazardous and must be handled with caution.

**NEVER** fill any refrigerant cylinder completely with liquid. Filling the cylinder to approximately 80% will allow for normal expansion.



**CAUTION!** Use only R404A refrigerant that conforms to the AHRI standard 700 specification. The use of any other refrigerant may expose users and operators to unexpected safety hazards.



**WARNING!** Refrigerant liquid sprayed onto the skin may cause serious damage to tissue. Keep eyes and skin protected. If refrigerant burns should occur, flush the area immediately with cold water. If burns are severe, apply ice packs and contact a physician immediately.



**NOTICE!** Taylor reminds technicians to be aware of government laws regarding refrigerant recovery, recycling, and reclaiming systems. If you have any questions regarding these laws, please contact the factory service department.



**IMPORTANT!** R404A refrigerant used in conjunction with polyolester oils is extremely moisture absorbent. When opening a refrigeration system, the maximum time the system is open must not exceed 15 minutes. Cap all open tubing to prevent humid air or water from being absorbed by the oil.

### Gear Alignment and Rear Shell Bearing

1. Make sure the drive shaft(s) can easily slide in and out of the female socket on the gear unit(s).
2. If a drive shaft is binding, the gear unit could be out of alignment (loose). Check the bolts on the gear unit to make sure they are tight.
3. Inspect the rear shell bearing for tightness. Make sure the locking tab has been folded over to prevent the nut from loosening.

### Dasher Rotation



**NOTICE!** Beater rotation must be clockwise as viewed looking into the freezing cylinder.



**DANGER!** The main power supply(s) to the machine must be disconnected prior to performing any repairs. Failure to follow this instruction may result in personal injury or death from electrical shock or hazardous moving parts, as well as poor performance or damage to the machine.

1. Remove the door assembly, beater, and scraper blades.
2. Place a magnet over the door switch in the front panel. This deactivates the safety feature, which prevents the operation of the machine when the door is not installed.

3. Place the power switch in the ON position.
4. Press the Wash symbol. This activates the beater motor only.
5. Look into the freezing cylinder. The drive shaft should be turning clockwise.
6. Press the Wash symbol again to stop the beater motor.

To correct rotation on a single-phase machine, exchange leads inside the beater motor. (Follow the diagram printed on the motor.)

To correct rotation on a three-phase machine, interchange any two incoming power supply lines at freezer main terminal block only.



**DANGER!** The main power supply(s) to the machine must be disconnected prior to performing any repairs. Failure to follow this instruction may result in personal injury or death from electrical shock or hazardous moving parts, as well as poor performance or damage to the machine.

### Pump Motor Rotation

1. Remove the air/mix pump assembly.
2. Connect power to the freezer and place the power switch in the ON position.
3. Press the Mix Pump button. This will activate the pump motor only.
4. Observe the pump ball crank. It should be rotating counterclockwise.

If rotation is not correct, see the wiring diagram on the pump motor and re-wire accordingly.



**DANGER!** The main power supply(s) to the machine must be disconnected prior to performing any repairs. Failure to follow this instruction may result in personal injury or death from electrical shock or hazardous moving parts, as well as poor performance or damage to the machine.

### Environnemental Notices



**1 CAUTION!** In consideration of our environment, Taylor uses only earth-friendly HFC refrigerants. The HFC refrigerant used in this machine is R404A. This refrigerant is generally considered nontoxic and nonflammable, with an ozone-depleting potential (ODP) of zero (0). However, any gas under pressure is potentially hazardous and must be handled with caution. NEVER fill any refrigerant cylinder completely with liquid. Filling the cylinder to approximately 80% will allow for normal expansion.



**IMPORTANT!** If the crossed-out waste container symbol is affixed to this product, it signifies that this product is compliant with the EU Directive as well as other similar legislation in effect after August 13, 2005. Therefore, it must be collected separately after its use is completed, and cannot be disposed as unsorted municipal waste.

*The user is responsible for delivering the product to the appropriate collection facility, as specified by your local code.*

For additional information regarding applicable local laws, please contact the municipal facility and/or local distributor.

**NOISE LEVEL:** Airborne noise emission does not exceed 78 dB(A) when measured at a distance of 1.0 meter from the surface of the machine at a height of 1.6 meters from the floor.

## Button Display Names and Functions

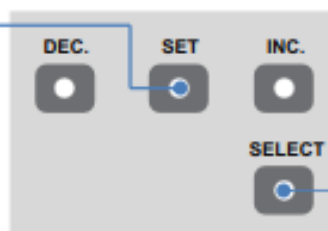
### 'DISPLAY WINDOW'

- Displays the progress of soft serve formation in operation.



### 'SET'

- Button is used to change the setting. Press the 'DEC.' & 'INC.' buttons at the same time for five seconds to lock or unlock the touch buttons.



### 'SELECT'

- Press SELECT button for three seconds to check temperature, heat treatment success or failure, cleaning success or failure and error record and logs.

### 'WASH'

- Button is for wash function.

### 'PASTEURIZE'

(Heating, Heat)

- Used when pasteurizing the soft serve product or ingredients in the hopper.

### 'BOILING'

('DEFROST' + 'WASH')

- Raises water temperature to kill bacteria and sanitize while cleaning the system.

### 'DEFROST'

('DEFROST' + 'AUTO')

- Used when defrosting the unit.

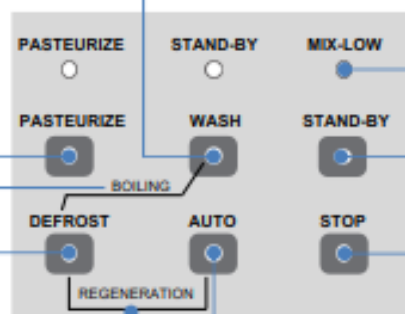
### 'REGENERATION'

('DEFROST' + 'AUTO')

- Used when the soft serve product appears watery.

### 'AUTO'

- Sets mode to automatically make soft serve products.



### 'MIX-LOW'

- Light blinks when ingredient level is running low.
- Light remains on if ingredients are empty.

### 'STAND-BY'

- While the ingredients in the drum and hopper are being refrigerated.

### 'STOP'

- Button is used to stop all the functions.



# INTRODUCTION

---

## Power Switch

When placed in the ON position, the power switch allows control panel operation.

## Liquid Crystal Display (LCD)

The liquid crystal display (LCD) is located on the front control panel. During normal operation, the display is blank. The display is used to show menu options and notifies the operator if a fault is detected. On international models, the display will indicate the temperature of the mix in the hopper.

## Indicator Lights

**MIX LOW** - When the Mix Low indicator is blinking, the mix hopper has a low supply of mix and should be refilled as soon as possible.

When the Mix Low indicator is illuminated, the mix hopper has been almost completely exhausted and has an insufficient supply of mix to operate the freezer. At this time, the Auto mode is locked out and the freezer will be placed in the Standby mode. To initiate the refrigeration system, add mix to the mix hopper and touch the Auto button. The freezer will automatically begin operation.

## Adjustable Draw Handle

This machine features an adjustable draw handle to provide the best portion control, giving a better, consistent quality to your product and controlling costs. To **increase the flow rate**, turn the **screw counter clockwise**, and **clockwise** to **decrease the flow rate**. (See

Figure 1-4.)

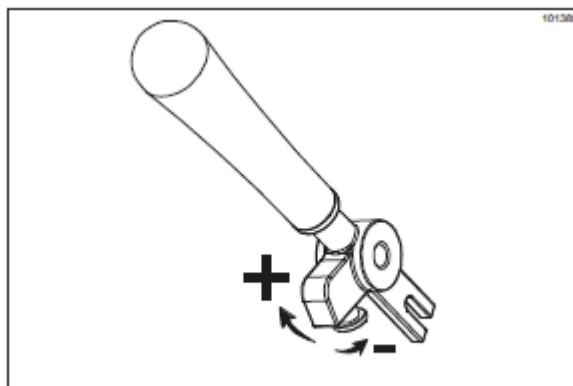


Figure 1-4

## **Section 2: Controls**

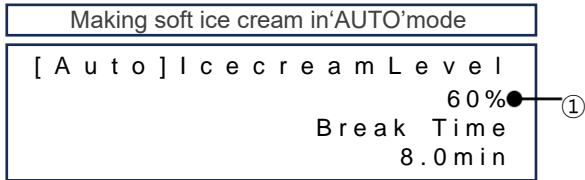
- **Description of the functional buttons**
- **Explanation of the button function**

## Description of the functional buttons

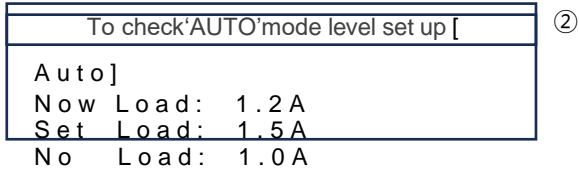
### Detail description of each mode

Pour the raw material in the mixing tank and press the 'AUTO' button. The following status display will be shown.

- ① Current level of soft ice cream is indicated.

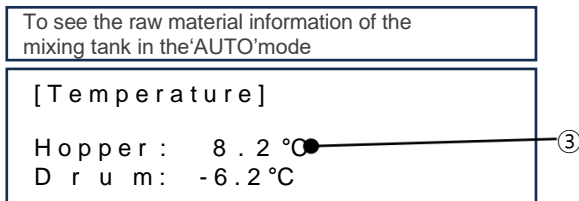


- ② Press the 'SELECT' button to display the level setting (Current, Set-up, No-load) of soft ice cream. To change soft ice cream level setting, press the 'SET' button for three seconds. (For further details, see 'Adjusting Setting Value' section.)



To see the information of the raw material in the hopper, Press 'SET' button:

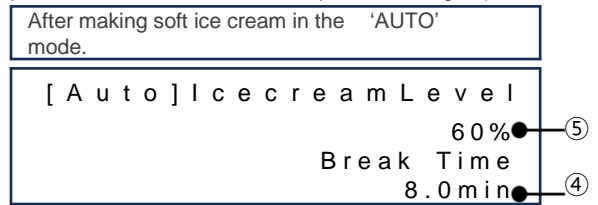
- ③ Information including the temperature of the hopper and cylinder can be obtained. To change temperature, press the 'SET' button for three seconds. (For further details, see 'Adjusting Setting Value' section.)



When soft ice cream has been produced, the compressor will be shutdown for a while, and the status will be displayed as shown to the right.

- ④ The time remaining until the restarting of the compressor will be displayed in Min unit. (If the ambient temperature is high, the compressor may start up earlier than the indicated time.)
- ⑤ Soft ice cream level is indicated.

(After indicating 100%, the value will decrease as time passes, faster if the ambient temperature is higher).



The soft ice cream level is set to the default by the manufacturer. Depending on the types of ingredients and the abrasion of the blade, it should be adjusted properly.

When installing this equipment, the settings for the ingredients should be based on the suggestion by the installation technician.

When changing the ingredients, consult with a professional to adjust the setting.

If the soft ice cream is not used for a long time, then its shape will be degraded. In this case, you can use the 'Regeneration' function to make it look better. Press the 'DEFROST' + 'AUTO' button at the same time for more than 2seconds, the status display window shown in the right figure will appear.



**Caution:** Activated under the operation conditions only.

- ① : It displays the current temperature of the soft ice cream.
- ② : It displays the temperature setting of the cylinder.
- ③ : It displays the duration of time (by minute) to maintain the set temperature(②) after the current temperature(①) reaches the set temperature.

"REGENERATION"mode	
[ Regnr. ] Cylinder	
Now	: -6.2 °C ● ————— ①
Set	: 8.0 °C ● ————— ②
Remain	: 1 min ● ————— ③

As the duration of the temperature(③) maintenance expires after the current temperature(①) reaches the

target temperature(②), it will automatically enter into 'AUTO' mode to make soft ice cream.



The 'Regeneration' function refers to a process where the soft ice cream is liquidized and then Process of producing soft ice cream; operable in "AUTO" mode only. It takes about 20 to 30 minutes.

Use the 'DEFROST' function to melt the soft ice cream in the cylinder.

"DEFROST"mode	
[ Defrost ] Cylinder	
Now	: -6.2 °C
Set	: 8.0 °C
Remain	: 1 min

It is used to operate the impeller of the hopper and the dasher motor of the cylinder. Mainly, the washing function is used to remove the water or the liquid raw material.

- ④ : It displays the present current value of the dasher motor.

"WASH"mode	
[ Washing ]	
Now	: 0.5 A ● ————— ④
Hopper	: 8.0 °C
Drum	: -5.0 °C

Heat the raw material or water in the cylinder and the hopper to reach the set temperature in order to wash with hot water. Press both 'DEFROST' + 'WASH' buttons for longer than 1seconds to display the state window shown in the picture on the right.

- ⑤ : The set temperature of the cylinder is displayed.
- ⑥ : The current soft ice cream temperature is displayed.
- ⑦ : The retention time (minutes) is displayed, after the current temperature(⑥) reaches the set temperature(⑤).

"BOILING"mode	
[ Boiling ] Cylinder	
Now	: -6.2 °C ● ————— ⑥
Set	: 60.0 °C ● ————— ⑤
Remain	: 10 min ● ————— ⑦

After the current temperature(⑥) reaches the set temperature(⑤), when the retention time(⑦) passes, the operation halts.

## CONTROLS

If pasteurization is not done every day, and the ingredients are stored at a temperature below 5°C, after 2 or 3 days, it can cause deformation or decay.

To prevent decay and to maintain the initial refreshing soft ice cream ingredients, then you should heat it at 68~70°C for more than 30minutes every day.

"PASTEURIZE" mode	
[Heat]	Hopper Temp
30/30:	56.2 °C
Remain:	Cylinder Temp
30/30:	65.2 °C

2

Current temperature and the time (Min.) for pasteurization process are indicated, as shown in the top right.

Press 'SELECT' button to display the Control Temperature in the hopper and cylinder.

To check 'PASTEURIZE' mode temperature setting	
[Heat] Setting Temp	
Hopper:	70.0 °C
& :	↓
Drum :	68.0 °C

After pasteurization, this stage refrigerates the raw material in the hopper and cylinder to keep it cool. Refrigeration process is applied to the hopper first and the cylinder next, as shown to the right.

Standby-by the hopper after completing 'PASTEURIZE'	
[HeatStandby] Hopper	
Now :	36.2 °C
Set :	5.0 °C
Remain :	60 min

Standby-by the cylinder after completing 'PASTEURIZE'	
[HeatStandby] Drum	
Now :	66.2 °C
Set :	5.0 °C

When the hopper and the cylinder are refrigerated simultaneously, the temperatures of the hopper and cylinder are indicated as shown in the bottom right.

Standby-by the hopper and cylinder simultaneously after completing 'PASTEURIZE'	
[HeatStandby] At Once	
Hopper:	56.2 °C
Drum :	56.2 °C



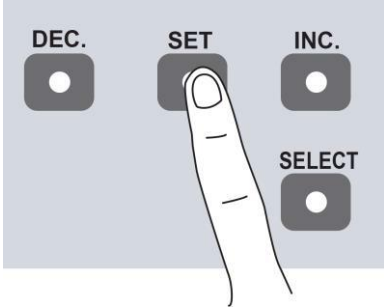
While the 'PASTEURIZE' function operates, do not touch the dasher cover and the hopper cover because they are hot. Do not disassemble or modify. The hot ingredient can cause you burn injuries.



If the 'PASTEURIZE' function has not been operated, then you should remove the original liquid in the hopper and the soft ice cream and perform cleaning job.

## Check the setting

Press the "SET" button to shift to the mode of checking the values of the maker.  
 Press "INC" or "DEC" after shifting to this mode to check the configured values in the following order:



The configured temperatures of the hopper and cylinder are displayed.

```
[Temperature]
Hopper:      8.2°C
Drum   :     -6.2°C
```

The rated voltage, frequency and current of the freezer are displayed.

```
[Power]
Voltage  :           220V
Frequency:           60Hz
Current  :           1.2A
```

The versions of programs for the main PCB, vend PCB, and control PCB in the product are displayed.

```
[Version]
Main:    1.0
Control: 1.0
```

The time and date set for the product are displayed.

```
[Current time]
2012. 12. 03
17: 01: 02
```

The unloaded current value of the dasher motor is displayed.

First : Unloaded current for the initial control of ice cream making

Run : Unloaded current for the control of ice cream during operation

Draw : Unloaded current for discharging the ice cream

After Draw: Unloaded current after draw

```
[No load Current 1]
First   : 3.0A
Run     : 3.0A
Draw    : 2.1A
```

```
[No load Current 2]
After   : 3.0A
Draw    : 3.0A
```

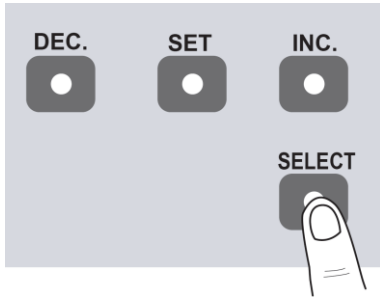
# CONTROLS

## Check the record

Press and hold down "SELECT" for more than 3 seconds to check the records in order of "PASTEURIZE - WASH - ERROR."

The displayed item can be changed with the "DEC" and "INC" buttons. To check the recorded date, there must be more than one record. Press "SELECT" to display the year, month, and date as the lowest part. If there are multiple records, press "DEC" or "INC" to check the records alternately.

2



```
[Wash Succ]
Total:    0
```

```
[Wash Fail]
Total:    0
```

```
[Error]
Total:    0
```

```
[Heat Succ]
Total:    1
```

```
[Heat Succ]
Total:    1
      2012.09.22.
      15:15 Success
```

```
[Heat Fail]
Total:    0
```

# Explanation of the button function

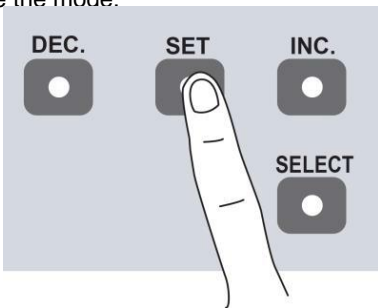
## Change the setting

“Press and hold down the “SET” button for more than 3 seconds to shift to the mode for changing the configured values.

Press “DEC” or “INC” to switch among items. Press “SET” at the item to check; when the value blinks, press “DEC” or “INC” to change the value, and then press “SET” to move on to another item.

Press “SET” to switch among multiple items; the screen switches to the first item after change is made to the last item.

Press and hold down “SET” for about 3 seconds to save and leave the mode.



### 3-1 : Changing the ice cream level

This item controls the current value for soft ice cream making - higher value means higher level, and lower value means lower level. If the level is too high, the available amount of ice cream to make may decrease.

- ① The level is applied for the initial making of ice cream by high speed in ② is applied for making ice cream.
- ③ is applied for discharging ice cream.
- ④ is applied for the after draw making of ice cream by high speed.
- ⑤ is delay time after reaching ① level.
- ⑥ is delay time after reaching ④ level.

```
[3-1]Setting Current
First :      0 . 8 A ●———①
Run   :      1 . 1 A ●———②
Draw  :      1 . 8 A ●———③
```

```
[3-2]Setting Current
After :      0 . 7 A ●———④
Draw  :
```

```
[3-3]Setting Current
First :      2 sec ●———⑤
After :
Draw  :      5 sec ●———⑥
```

### 3-4 : Controlling the hopper temperature

This item controls the temperature of the hopper to store the ingredient at low temperature. Higher value means higher temperature, and lower value means lower temperature. If the temperature is too low, the ingredient in the hopper may become frozen. If it is too high, the ingredient may go bad.

```
[3-4]ControlTemp.
Hopper(AUTO+STANDBY)
      4 . 0 C
```

### 3-5 : You can opt to use voice service and set its volume and time.

```
[3-5]VoiceService
1 . Service :      On
2 . Volume  :      5
```

### 3-6 : Set the time and date of the maker here.

You should set the time and date exactly. If you want to use the "Auto Pasteurization" Function

```
[3-6]Time Setting
External clock : On
                2012.06.26
                19:32:00
```

2

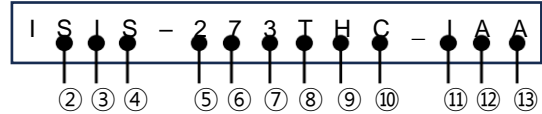


## Explanation of the button function

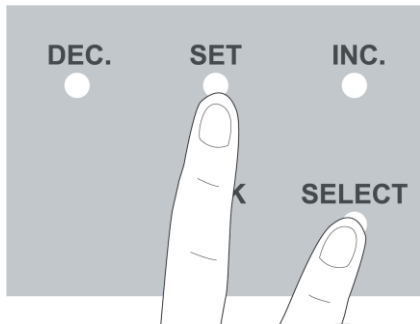
### Set by an Administrator

Only experts that have been designated by the main office shall adjust this category.

A service charge will be applied if problems occur due to unapproved alterations.



- 2** Press 'SET' + 'SELECT' buttons for 2 seconds to enter The stage of inputting the password. Password has 4 digits and input begins from the left And the relevant digit blinks. Select the number by 'DEC.' or 'INC.' buttons and press 'SET' button to move to the next digit. Input the 4 digit password in this way. Do not let anyone without professional education know The 4 digit password under any circumstances.



- ② S : Soft
- ③ I : Icecream
- ④ S : S – Self machine, V – Vending machine  
M – Manual
- ⑤ 2 : Cylinder capacity(Two digits)
- ⑥ 7 : Cylinder capacity(Single digit)
- ⑦ 1 : Number of discharge ports(1 : 1EA, 3 : 3EA)
- ⑧ T : T – Table type, S – Standing type
- ⑨ H : H – Heating, S – No Heating
- ⑩ C : Cups, S : Self
- ⑪ I : I – Inverter using, S – No Inverter
- ⑫ A : A – Alone(Operation of individual systems)  
T – Together(Operation of both of the left and right systems simultaneously)
- ⑬ A : W – Water Cool type, A – Air Cool type

4-0: This is the category that can be selected according to the characteristic and model of the product and that has a meaning that is different from the model name of the product. When the model is changed in this category, the content in Category '4' is reset to the default setting.

```
[ 4 - 0 ] Model Select
        I S I S - 2 7 3 T H C _ I A A
```

## 4-1: Break time setting

This is the function to allow the compressor to rest for a certain period of time by minute after the soft ice cream is made. Adjust this category carefully as it can make the soft ice cream melt quickly.

```
[ 4 - 1 ] Break Time
Cylinder (AUTO)
          : 8.0 min
```

## 4-2: Set the compressor to restart temperature

This remembers the temperature at the time of making soft ice cream. When the temperature rises above the temperature that was set in this category, the compressor is restarted.

The rest time of the compressor can be extended when the temperature in this category is increased.

```
[ 4 - 2 ] Operate Temp.
Cylinder (AUTO)
          : 2.0 c
```

## 4-3: Hopper management temperature setting

This sets the management temperature to refrigerate the raw material in the hopper.

The temperature set in this category is managed as the value added from the value in Categories '3 - 4'.

For example, if '3 - 4' is 2°C and '4 - 3' is 2°C, the management temperature of the hopper is maintained at 2~4°C.

```
[ 4 - 3 ] Operate Temp.
Hopper (AUTO+STANDBY)
          : 4.0 c
```

## 4-4: Standby OFF temperature setting

This sets the cylinder's raw material storage temperature in the standby mode. When the temperature of this category is too low, the raw material inside the cylinder freezer and soft ice cream can become like porridge.

```
[ 4 - 4 ] Control Temp.
Cylinder (STANDBY)
          : 6.0 c
```

## 4-5: Standby management temperature setting

This sets the management temperature to refrigerate the raw material in the hopper. The temperature set in this category is managed the value added from the value in Categories '3 - 4'.

For example, if '3 - 4' is 2°C and '4 - 3' is 2°C, the management temperature of the hopper is maintained at 6 ~ 8°C.

```
[ 4 - 5 ] Operate Temp.
Cylinder (STANDBY)
          : 2.0 c
```

## 4-6: Standby reset time setting

This sets the motor's operation cycle to the standby mode.

When one is satisfied with the temperature value of '4-4' + '4-5' and the time of this category, the motor and compressor are operated.

```
[ 4 - 6 ] Break Time.
Cylinder (STANDBY)
          : 8.0 min
```

## 4-7: 1°C rise level calculation

When the soft ice cream is made, 100% is displayed on the LCD window and the percentage value is deducted from the compressor rest time. At this time, when 1°C is added to the temperature at which the soft ice cream is made, the value set for this category is deducted from the percentage and is then displayed. 30°C seconds pass level calculation

When the soft ice cream is made, 100% is displayed on the LCD window and the percentage value is deducted from the compressor rest time. At this time, the value set for this category is deducted from the percentage every 30 seconds after the making of the soft ice cream and displayed.

```
[ 4 - 7 ] Level Calculate
(AUTO)
          : 5 % / 1 C , 1 % / 30 sec
```

## 4-8: Upper limit current setting

This category sets the maximum value when adjusting the hardness of the soft ice cream in Category '3-1'.

This category value needs to be set within the range, in which excessive current does not flow on the motor

```
[ 4 - 8 ] Limit Level
(AUTO)
          : +0.8 A
```

## CONTROLS

### 4-9-1: Selection of pasteurization

This selects the function to pasteurize the raw material and the soft ice cream in the hopper and the cylinder.

The model with the pasteurization function is on and the model without the pasteurization function is off.

For the model with sterilization function, the functions of water boiling, defrosting, and regeneration may be used when the sterilization function is turned off.

```
[ 4 - 9 ] Heating
1 . Working ?      :      On
2 . ControlTemp   :      6 7 . 0 C
3 . OperateTemp   :      1 0 . 0 C
```

### 4-9-2: Control temperature setting during pasteurization

This sets the highest temperature to pasteurize the raw material and the soft ice cream in the hopper and the cylinder. When lowering the value in this category, pasteurization may not work.

When increasing the value in this category, the raw material may become carbonized and the taste of the soft ice cream may change.

### 4-9-3: Management temperature during pasteurization

This indicates the temperature deducted by the temperature set for this category from the temperature of '4-9-2'. For example, if '4-9-2' is 70°C and '4-9-3' is 2°C, the raw material in the hopper and the cylinder is maintained at 68-70°C.

### 4-9-4: Pasteurization maintenance time setting

This sets the time to maintain the temperature for '4-9-2' and '4-9-3' during pasteurization.

The time set for this category can be reduced or extended in order to control the time to maintain the effect of pasteurization.

```
[ 4 - 9 ] Heating
4 . HoldTime      :      3 0 m i n
5 . LimitTime     :      4 h o u r
6 . NOHeatAlarm   :      3 d a y
```

### 4-9-5: Maximum pasteurization time setting

This sets the maximum operation time for the pasteurization time of '4-9-2' ~ '4-9-4'.

It is set to stop pasteurization when gas leaks or when problems occur in the pasteurization device. If pasteurization continues until the time set for this category, pasteurization failure is recorded and the machine needs to be checked for problems

### 4-9-6: Designation of a warning date when pasteurization is not performed

When the date set in this category is passed when pasteurization failure is recorded, an alarm (Voice Supported Model) is set off for not performing pasteurization.

Therefore, perform pasteurization daily.

### 4-9-7: Selection of auto pasteurization

Choose ON for auto pasteurization and choose OFF for no auto pasteurization.

When ON is selected, the following categories are activated.

```
[ 4 - 9 ] Heating
7 . AutoHeat      :      o n
8 . HeatCycle     :      1 d a y
9 . StartHour     :      0 4
```

### 4-9-8: Auto pasteurization cycle setting

Execute auto pasteurization according to the date set in this category.

For example, '1day' is everyday, '2day' is every other day, and '3day' is every three days.

Auto pasteurization is always executed in the auto mode and the standby mode and is not executed in any other mode.

### 4-9-9: Auto pasteurization start time setting

This sets the time to start auto pasteurization. Set the hour for this category.

### 4-9-10: Auto pasteurization start time setting

This sets the time to start auto pasteurization. Minutes are set in this category.

```
[ 4 - 9 ] Heating
10 . StartMinute  :      0 0
11 . Auto "Auto"  :      O n
```

### 4-9-11: Auto set after pasteurization

Select whether to execute auto when stand by has completed after pasteurization.

Set this category as ON and execute auto and make sure to open the carburetor hole.

### 4-10: Select between Celsius and Fahrenheit

Select between Celsius (°C) and Fahrenheit (°F)

```
[ 4 - 10 ] Temp . Unit
Celsius      /      Fahrenheit
              : C
```

4-11: Environmental temperature detect function setting  
The function to detect the environmental temperature can be turned ON/OFF.

Environmental temperature is the temperature of the air coming into the compressor.

Therefore, the temperature for this category can be high and a warning message can be given if the place of installation is small and has no ventilation.

Then the installation environment must be improved.

```
[ 4 - 1 1 ] AmbientTemp .
           : On
```

4-12: No load detection function setting

The no load detection function can be turned ON/OFF.

'No load' means the raw material inside the cylinder exists in a liquid condition.

The motor current is then called 'no load current'

If this function is set to on, power is allowed to the product and the no load current is remembered when the temperature of the cylinder is higher than 5°C.

```
[ 4 - 1 2 ] CurrentSet
           : On
```

4-13-1: Supply power standard value setting

Set the voltage and frequency standard of supply power.

When this function is on, the following category appears.

```
[ 4 - 1 3 ] Power ( Left )
1. PowerCheck :      On
2. Voltage    :      220 V
3. Hertz      :      60 Hz
```

4-13-2: Voltage standard value setting

Measure the voltage at the place of installation and enter the standard value.

This product guarantees ±10% of the supply power.

When it is outside of the range a warning sound is given. If used continually, the product can have problems.

As for voltage of single phase, it is required to measure voltage of L and N.

When voltage is 3W, 3 phases, voltage shall be adjusted based on the phase voltage.

4-13-3: Frequency standard value setting

Set the frequency standard of the supply power.

When the standard value of this category is wrongly selected, the present supply voltage of '1-3' can be displayed differently.

4-16: Current value compensation setting

This is the function for performing overall compensation when the measured current is different from the actual measurement value.

```
[ 4 - 1 6 ] CurrentCorrect
           : 0.0 A
```

4-17-1: Air pump selection

If the model has an air pump, this category can be turned on to control the operation of the air pump.

```
[ 4 - 1 7 ] AirPump ( Left )
1. Working?    :      Off
2. InitialTime :      30 min
3. DrawDelay   :      15 sec
```

4-17-2: Operation time setting during the initial operation

Set the operation time of the air pump when beginning initial operation.

4-17-3: Operation time setting after sales

Set the operation delay time of the air pump sales. After the motor operation is stopped, the air pump is additionally operated according to the time set for this category.

4-17-4: Operation time set after button input

(Applying the relevant model)

Set the time that the air pump operates every time the button is pushed.

```
[ 4 - 1 7 ] AirPump ( Left )
4. ButtonInput :      15 sec
```

4-18-1: Select the use of refresh.

```
[ 4 - 1 8 ] Refresh
1. Working?    :      On
2. ButtonInput :      20 sec
3. ButtonBan   :      60 sec
```

4-18-2: Refresh time setting

Set the refresh's Operating time.

## CONTROLS

### 4-18-3: Set the refresh's work limit time

Set the limit time in order to prevent continuous operation after refresh movement.  
Refresh can be used again when the time set for this category has passed.

### 4-20: Calibration of voltage measurement value

The function aligns voltage measured during installation of the product with voltage indicated on [ POWER ] on the information checking window. The two voltages shall be kept identical to each other with this function.

```
[ 4 - 2 0 ] Voltage  
          Calibration  
          : 0 V
```

### 4-21: Dasher motor delay time setting

Sets the motors operation delay time after making soft ice cream.

```
[ 4 - 2 1 ] Motor  
          Delay Time  
1. Initial      : 300 sec  
2. Not Initial : 10 sec
```

### 4-22: Compressor delay time setting

This sets the compressor's operation delay time after making soft ice cream. If this category is given much time, soft ice cream can be frozen too much and problems can occur to the product.

```
[ 4 - 2 2 ] Comp . Delay  
          : 0 sec
```

### 4-23-1: Selection of the compressor forced operation

This is the function for forcibly operating the compressor during rest time when the compressor is not operating.

The following categories appear when this category is turned on.

```
[ 4 - 2 3 ] Comp .  
          Run by force  
1. Working?      : Off  
2. SensingTime  : 4 min
```

### 4-23-2: Temperature detection time setting after stop

This chooses the time to determine the temperature during the rest time.

In case '4min' is chosen, it means, detecting temperature 4minutes after rest.

It sets the temperature for operating the compressor. The compressor is operated when the temperature reaches the temperature that has been set for this category.

### 4-23-3: Operation temperature selection

This detects the temperature at the time set in Category ' 4-23-3' and sets the temperature at which the compressor can be operated.

The compressor is operated when the temperature reaches the temperature that was set for this category.

```
[ 4 - 2 3 ] Comp .  
          Run by force  
3. SensingTemp  : - 8 . 0 C  
4. RunTime      : 15 sec
```

### 4-23-4: Operation time control

In case the temperature reaches the temperature of ' 4-23-3' at the time of ' 4-23-2' , it sets the time for compressor operation.

### 4-24-1: Wash detection function setting

This is the category to select the wash detection function.

```
[ 4 - 2 4 ] Sensing  
          Cleaning  
1. Working?     : On  
2. SensingTime  : 10 . 0 C
```

### 4-24-2: Determine the temperature setting during washing

This adjusts the detection temperature in the cylinder and thehopper during washing when ' 4-24-1' is activated.

### 4-24-3: Dasher cover separation time setting during washing

This sets the separation time of the dasher cover during washing. Be careful as a 'wash failure' is recorded when the dasher cover is attached within the time set for this category.

The time for this category means, the minimum time necessary to clean the parts inside the cylinder such as the dasher, the blade, and so forth.

```
[ 4 - 2 4 ] Sensing  
          Cleaning  
3. Disassemble  : 3 min  
4. WarningWash : 7 day
```

### 4-24-4: No wash warning date setting

An alarm(Voice Supported Model) is set off when washing is not performed within the value(days) set within this category.

```
[ 4 - 2 4 ] Sensing  
          Cleaning  
5. LockFreezer : off
```

## 4-24-5: No wash lock setting

The product cannot be used when no washing is performed within the days set for this category. If this product cannot be used due to no washing, perform cleaning according to the method indicated in the manual.

```
[ 4 - 2 4 ] Sensing
              Cleaning
5 . Lock Freezer :      off
```

## 4-25-1: Selecting the operation mode of the impeller in the mix tank

The impeller in the reservoir bin operates depending on the ON/OFF adjustment of the sensor of raw material temperature in accordance with the following items:

“COMP” : Activated only when the compressor operates

“TIME” : Operating in accordance with time (4-25-2, 4-25-3) setting independent from the operation of the compressor

“Co.t” : Operating in the same way as the compressor, also activated by time setting (4-25) after the materials in the reservoir bin reach the temperature setting

```
[ 4 - 2 5 ] Working
              Agitator
1 . Condition   :      Co . t i
2 . Working Time :      1 m i n
```

## 4-25-2: Operation maximum time setting

This is the function to limit the impeller operation time by providing the maximum operation time under the condition of impeller operation. It is usually used when a lot of foam is created by raw material. When the agitator operation time is short, ice may form on the wall of the hopper.

```
[ 4 - 2 5 ] Working
              Agitator
3 . Break Time  :      2 0 m i n
```

## 4-25-3: Maximum rest time setting

The impeller stops when the raw material in the hopper reaches the set temperature, and the impeller operates when the temperature reaches the operation temperature.

At this time, the temperature distribution in the hopper may not be even when it takes a long time to reach the operation temperature.

Then setting the rest time for the agitator can control it.

## 4-26: Hopper temperature compensation function setting

The temperature in the hopper is measured with the temperature sensor on the floor of the hopper.

The temperature is correct in the models having an impeller, however it may have deviation in the models without impeller.

As such, the temperature has to be corrected.

### 4-26-1: Temperature compensation value setting for 10°C or lower

This sets the temperature compensation value of the hopper to the environmental temperature of 10°C or lower.

```
[ 4 - 2 6 ] Hopper
              Temp . Correct
1 . Below 10 C :      0 . 0 C
2 . Below 20 C :      - 1 . 0 C
```

### 4-26-2: Temperature compensation value setting for 20°C or lower

This sets the temperature compensation value of the hopper to the environmental temperature of 20°C or lower.

### 4-26-3: Temperature compensation value setting for 30°C or lower

This sets the temperature compensation value of the hopper to the environmental temperature of 30°C or lower.

```
[ 4 - 2 6 ] Hopper
              Temp . Correct
3 . Below 30 C :      - 2 . 0 C
4 . Below 40 C :      - 4 . 0 C
```

### 4-26-4: Temperature compensation value setting for 4°C or lower

This sets the temperature compensation value of the hopper to the environmental temperature of 40°C or lower.

### 4-26-5: Temperature compensation value setting for 40°C or higher

This sets the temperature compensation value of the hopper to the environmental temperature of 40°C or higher.

```
[ 4 - 2 6 ] Hopper
              Temp . Correct
5 . Over 40 C  :      - 5 . 0 C
```

## CONTROLS

### 4-27: Sale lever no return judgment time setting

When the lever does not return to the original position after the ejection of the soft ice cream, an alarm is set off after the time that was set for this category.

[ 4 - 27 ] Sensing Draw Lever : 30 sec : 30 sec
--

### 4-28-1: Defrost function selection

The action function can be set to ON/OFF.

[ 4 - 28 ] Defrost 1. Working? : On 2. SensingTemp : 10.0 C 3. KeepingTime : 3 min
---

### 4-28-2: Cylinder temperature setting during defrost

Defrosting the soft freezer inside the cylinder to the temperature that was set for this category.

### 4-28-3: Maintenance time setting during defrost

It sets the delay time after reaching the temperature of '4-28-2'.

### 4-29-1: Water boiling function

Water boiling function can be set to ON/OFF.

[ 4 - 29 ] Boiling 1. Working? : On 2. SensingTemp : 60.0 C 3. ControlTemp : 2.0 C
---

### 4-29-2: Heating temperature setting during water boiling

It sets the temperature of raw material in the cylinder and hopper during water boiling.

### 4-29-3: Management temperature setting during water boiling

It maintains the temperature of the cylinder and the hopper set at this category from the temperature set at '4-29-2'.

### 4-29-4: Management time setting during water boiling

It sets the time necessary to maintain the management temperature of '4-29-2' and '4-29-3'.

[ 4 - 29 ] Boiling 4. KeepingTime : 10 min
---

### 4-30-1: Refrigeration value delay function setting

It is the function that is used to make soft ice cream faster by delaying the operation of refrigeration value when making soft ice cream.

[ 4 - 30 ] Delay Ref. Valve 1. Working? : On 2. DelayTime : 60 min
---

### 4-30-2: Refrigeration value delay time setting

It sets the time of refrigeration value closure at the time of initial operation, and this time loses its effect after soft ice cream is made. Therefore, it sets the time to keep the refrigeration value closed before the making of soft ice cream.

### 4-31-1: Cylinder refrigerants temperature use selection

It can select the use of cylinder refrigerants temperature sensor. It is the function to detect and limit the temperature of refrigerants inside the cylinder when performing pasteurization without any raw material.

[ 4 - 31 ] Temp. of Discharge 1. Sensing : Off 2. LimitTemp : 100.0 C
--

### 4-31-2: Cylinder refrigerants maximum temperature setting

It is the function to prevent the temperature of the refrigerants inside the cylinder from rising above this value set at this category.

### 4-31-3: Cylinder refrigerants management temperature setting

It manages the temperature of refrigerants inside the cylinder by reducing the value of this category from the temperature of the category '4-31-2'.

[ 4 - 31 ] Temp. of Discharge 3. ControlTemp : 2.0 C
--

### 4-32-1: MIX OUT function selection

When this category is activated, all operations are stopped in case there is no raw material.

[ 4 - 32 ] Sensing Mix 1. MixLowLevel : On 2. MixOutLevel : On
---

4-32-2: MIX OUT function selection

4-33-1: Auto recycling function setting

Activate this category when auto recycling is needed.  
Make sure to block the carburetor hole when performing auto recycling.

```
[ 4 - 3 3 ] A u t o
           R e g e n e r a t i o n
1 . W o r k i n g ?       :           O f f
2 . S t a r t T i m e   :           3 h o u r
```

4-33-2 : Auto recycling judgment time setting

Auto recycling is performed when the time set at this category is passed under auto.

4-33-3: First auto recycling limit time setting

Set up the time while auto-regeneration is not carried out.

```
[ 4 - 3 3 ] A u t o
           R e g e n e r a t i o n
3 . 1 s t P r o h i b i t T i m e
   1 1 : 0 0 ~ 1 4 : 0 0
```

4-33-4: Second auto recycling limit time setting

Set up the time while auto-regeneration is not carried out.

```
[ 4 - 3 3 ] A u t o
           R e g e n e r a t i o n
4 . 2 n d P r o h i b i t T i m e
   1 7 : 0 0 ~ 1 9 : 0 0
```

4-35-1: Standby auto shift selection

It selects the function to set standby automatically when the machine stops due to high pressure or cover error.

When this category is turned on, standby is activated.

When it is turned off, the operation before error is executed after error is lifted.

```
[ 4 - 3 5 ] A u t o
           S t a n d b y
1 . H i g h P r e s s u r e &
   N o C o v e r           :           O f f
```

4-35-2: Standby auto shift selection

It selects the function to set standby automatically when '4-32-1' (MIX OUT function) is activated and no raw material is detected.

```
[ 4 - 3 5 ] A u t o
           S t a n d b y
2 . M i x O u t           :           O n
3 . V e n d E r r o r     :           O n
```

4-35-3: Standby auto shift selection

It selects the function to set standby automatically when dispenser error (Er27, Er28, Er29, Er30, Er33, Er34) appears.

4-35-4: Standby auto shift selection

It selects the function to set auto under auto and standby under pasteurization and standby when the power is allowed after being turned off during operation.

```
[ 4 - 3 5 ] A u t o
           S t a n d b y
4 . P o w e r S h u t D o w n
                               :           O n
```

4-36: Auto selection(It applies to the fully automatic vending machine, not to the manual system.)

This selects the function to set standby when the category '4-35-1' and '4-35-2' are activated or automatically set auto when supplying raw material or cup during operation.

```
[ 4 - 3 6 ] A u t o R e s t a r t
                               :           O f f
```

4-37-1: Excessive current detection function selection

This category is the function to select the protection function by detecting the excessive current of the dasher motor.

```
[ 4 - 3 7 ] O v e r
           C u r r e n t
1 . S e n s i n g         :           O n
2 . D e l a y T i m e     :           5 s e c
```

4-37-2: No current detection is performed during the time set at this category.

4-37-3: Excessive current detection current setting

Soft ice cream is controlled by the value set at '3-1' and the machine is operated normally.

When troubles (lack of raw material and so forth) happen and motor stops, this function detects it.

The value set at this category is added to the value of '3-1', and the function begins to be operated when the set value is reached.

```
[ 4 - 3 7 ] O v e r
           C u r r e n t
3 . O v e r C u r r e n t :           1 . 0 A
4 . O v e r T i m e      :           5 s e c
```



## CONTROLS

4-37-4: Excessive current detection delay time setting  
Excessive current detection function is operated when more than the value of '4-37-3' is detected and the time set at this category is passed.

4-37-5: Reset function selection  
This category selects reset function when abnormal Operations(excessive current, TP on peration, inverter trouble and so forth) occur in the motor.

```
[ 4 - 3 7 ] O v e r
           C u r r e n t
5 . A u t o R e s e t       :           O n
6 . R e s e t C o u n t   :           2
```

4-37-6: Reset number setting  
When category ' 4-37-5' is activated, it selects the number of resets.

4-37-7: Recycle after the number of resets is terminated.  
It selects the function to recycle automatically when an error occurs even after auto reset.

```
[ 4 - 3 7 ] A u t o
           C u r r e n t
7 . R e s e t F A I L a f t e r
  R e g e n e r a t i o n :           O n
```

4-37-8: Recycling number setting  
When category ' 4-37-7' is activated, it selects the number of recyclings.

```
[ 4 - 3 7 ] A u t o
           C u r r e n t
8 . R e g e n e r a t i o n C o u n t
                               :           2
```

4-37-9: Standby in case of defrost / auto error  
It selects the function to set final standby when the processes from ' 4-37-5' to ' 4-37-8' all failed.

```
[ 4 - 3 7 ] O v e r
           C u r r e n t
9 . R e g e n e r a t i o n F A I L
  a f t e r S a n d b y :           O n
```

4-38-1: Select whether to use 'Standby' button  
When this category is activated, press the ' refresh' button for longer than 3 seconds to operate the standby function.

```
[ 4 - 3 8 ] S t a n d b y
1 . B u t t o n U s e       :           O n
2 . A u t o S t a n d b y  :           O n
3 . S t a n d b y C y c l e :           1 d a y
```

4-38-2: Selection of auto ' Standby'  
Choose ON for auto Standby and choose OFF for no auto Standby.  
When ON is selected, the following categories are activated.

```
[ 4 - 3 8 ] S t a n d b y ( R i g h t)
                               :           O f f
```

4-38-3: Auto ' Standby' cycle setting  
Execute auto Standby according to the date set in this category.  
For example, '1day' is everyday, '2day' is every other day, and '3day' is every three days.  
Auto Standby is always executed in the auto mode and the standby mode and is not executed in any other mode.

4-38-4: Auto ' Standby' start time setting  
This sets the time to start auto Standby.  
Set the hour for this category.

```
[ 4 - 3 8 ] S t a n d b y
4 . S t a r t H o u r       :           2 0
5 . S t a r t M i n u t e  :           0 0
6 . F i n i s h H o u r    :           0 7
```

4-38-5: Auto ' Standby ' start time setting  
This sets the time to start auto Standby.  
Minutes are set in this category.

4-38-6: Auto 'Standby' finish time setting  
This sets the time to start auto Standby. Set the hour for this category.

4-38-7: Auto ' Standby ' finish time setting  
This sets the time to start auto Standby.  
Minutes are set in this category.

```
[ 4 - 3 8 ] S t a n d b y
7 . F i n i s h M i n u t e :           0 0
8 . A f t e r S t a n d b y :           A U T O
```

## 4-38-8: Auto set after ' Standby '

Select whether to execute auto when stand by has completed after Standby .

Set this category as AUTO and execute auto and make sure to open the carburetor hole.

Select whether to execute auto when stand by has completed after Standby .

Set this category as HEAT and execute auto Pasteurization.

Select whether to execute auto when stand by has completed after Standby .

Set this category as STAN and execute auto stand by.

## 4-39-1: Refrigeration valve operation selection

It selects the use of operation time of refrigeration valve that refrigerate the raw material in the hopper.

Activate this category when refrigerating the cylinder and the hopper with a single compressor.

```
[ 4 - 3 9 ] W o r k
           R e f . V a l v e
1 . W o r k i n g ?       :           O n
2 . O n T i m e         :       2 4 0 s e c
```

## 4-39-2: Refrigeration valve operation time setting

It sets the operation time of refrigeration valve that refrigerates the raw material in the hopper.

Be careful as ice can be formed on the wall of the hopper when the time of this category is adjusted too much.

## 4-39-3: Refrigeration valve rest time setting

It sets the rest time of refrigeration valve that refrigerates the raw material in the hopper.

soft ice can be formed on the wall of the hopper when the time of this category is too short, and the raw material in the hopper may not be refrigerated when the time of this category is too long.

```
[ 4 - 3 9 ] W o r k
           R e f . V a l v e
3 . O f f T i m e       :           0 s e c
4 . C o n d i t i o n   :           E i t h e r
```

## 4-39-4: By choosing refrigeration valve operation mode, effective storage of ingredient can be done.

Either : At the operation of either the freezing valve or refrigeration valve, the compressor starts to operate.

Drum on : Only when the freezing valve operates, refrigeration valve starts to operate.

## 4-40: Set up compressor cooling fan delay time

This function sets up the delay time in compressor cooling fan start-up.

```
[ 4 - 4 0 ] F a n D e l a y T i m e
                :       6 0 s e c
```

## 4-41: Set up hot gas valve operation in standby mode

Set up the operation of the hot gas valve during standby status.

```
[ 4 - 4 1 ] A t S t a n d b y
           H o t g a s V a l v e
                :       F u l l O n
```

## 4-42: Set up hot gas valve operation in 'AUTO' mode

Set up the operation of the hot gas valve during AUTO status.

```
[ 4 - 4 2 ] A t A u t o
           H o t g a s V a l v e
                :       F u l l O n
```

## Explanation of the button function

### Set by a user

Only experts that have been designated by the main office or by those who received professional education and received approval from the main office shall adjust this category.

A service charge will be applied if problems occur due to unapproved alterations.

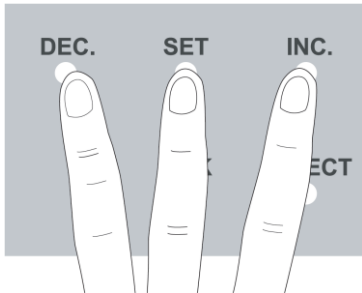
2

Press 'DEC.' + 'SET' + 'INC.' buttons for 2 seconds to enter the stage of inputting the password.

Password has 4 digits and input begins from the left and the relevant digit blinks.

Select the number by 'INC.' and 'DEC.' buttons and press 'SET' button to move to the next digit. Input the 4 digit password in this way.

Our engineer knows the password, and password input window will not appear. if you set 9-19-2 items as 'OFF'.



9-1-1: Pressure stabilization function selection after pasteurization

```
[ 9 - 1 ] Pressure
      Equalizer
1. Working?      :      Off
2. Valve Open   :      60 sec
```

9-1-2 : Value open time setting

It sets the operation time of related valve in order to stabilize the pressure in the cylinder and the hopper.

9-1-3 : Value block time selection

It sets the block time of the related valve in order to stabilize the pressure in the cylinder and the hopper.

```
[ 9 - 1 ] Pressure
      Equalizer
3. Valve Close   :      1 min
4. Comp. Work    :      0 sec
```

9-1-4 : Compressor operation time setting

9-1-5 : Compressor rest time setting

9-1-6 : Final Compressor rest time setting

```
[ 9 - 1 ] Pressure
      Equalizer
5. Comp. Break   :      1 min
6. Last Break    :      1 min
```

9-2-1 : Hopper refrigeration operation time setting after pasteurization

It sets the maximum operation time when refrigerating the hopper after pasteurization.

```
[ 9 - 2 ] Heating
after Hopper STANDBY
1. Limit Time   :      60 min
2. Ending Temp  :      5.0 °C
```

9-2-2 : Set refrigeration temperature in the hopper after pasteurization

It sets the target temperature when refrigerating the hopper after pasteurization.

If one is satisfied between '9-2-1' and '9-2-2', hopper refrigeration after pasteurization is terminated.

9-4-1 : Refrigeration valve operation selection

(Apply during refrigeration after)

It selects the use of operation time of refrigeration valve that refrigerate the raw material in the hopper. Activate this category when refrigerating the cylinder and the hopper with a single compressor.

```
[ 9 - 4 ] Heating
after Refri. Valve
1. Working?     :      On
2. Valve Open   :      60 sec
```

9-4-2: Refrigeration valve operation time setting

It sets the operation time of refrigeration valve that refrigerates the raw material in the hopper. Be careful as ice can be formed on the wall of the hopper when the time of this category is adjusted too much.

9-4-3: Refrigeration valve rest time setting

It sets the rest time of refrigeration valve that refrigerates the raw material in the hopper. Ice can be formed on the wall of the hopper when the time of this category is too short, and the raw material in the hopper may not be refrigerated when the time of this category is too short.

```
[ 9 - 4 ] Heating
      after Refri. Valve
3. ValveClose : 120sec
4. V/VFullON : YES
```

9-4-4: Set up refrigeration valve ' Full OPEN'

Set up valve Full Open while refrigerating the raw material in the hopper.

9-5-1: Refrigerants temperature use

Refrigerants temperature use can be set to ON/OFF. This category needs to be activated first in order to activate the category ' 4-31'. When this category is activated and category ' 4-31' is not activated, the refrigerants temperature of ' 2-4' may display error.

```
[ 9 - 5 ] Sensing
      Discharge Temp
1. Working? : On
2. ControlTemp : 100.0°C
```

9-5-2: Refrigerants detection control temperature

When ' 9-5-1' is activated, the temperature of the refrigerants set at this category is checked. If the temperature is hotter, the operation of the compressor is stopped.

9-5-3: Refrigerants detection management temperature

When temperature reaches the reduced temperature by the value set at these categories (9-5-2, 9-5-3) after the compressor stopped at the value set at ' 9-5-2', the compressor is operated again.

```
[ 9 - 5 ] Sensing
      Discharge Temp
3. OperateTemp : 10.0°C
```

9-7-1: 'LOW' output use setting

Soft ice cream reaches the set value after the machine is operated. When it does not reach the controlled value due to other reasons (lack of raw material supply and so forth), LOW message is displayed.

This category decides output.

```
[ 9 - 7 ] "LOW"
      Function
1. Display? : On
2. Initial : 3min
```

9-7-2: Initial 'LOW' output time

When operating the machine for the first time, if soft ice cream is not made 100% within the time set at this category from the moment of 0.2A(9-7-6) increase from no load current (1-2), LOW is displayed.(ex L90%)

9-7-3: Set up the time criteria for deciding 'LOW' in resale

Set up the reference time for deciding 'LOW' in resale

```
[ 9 - 7 ] "LOW"
      Function
3. Drawafter : 2min
4. BreakTime : 1min
```

9-7-4: Rest time setting when LOW appears

When LOW appears, the rest time set at this category is applied instead of the rest time set at category ' 4-1'.

9-7-5: High speed rotation time setting when LOW appears

When LOW appears, it sets the time for high speed rotation after the rest time of the category '9-7-4'.

```
[ 9 - 7 ] "LOW"
      Function
5. Highspeed : 10sec
6. SetCurrent : 0.2A
```

9-7-6: Set up the reference current for deciding 'LOW' in resale

Set up the reference current for deciding 'LOW' in resale

## CONTROLS

9-8-1: Cold storage preferred refrigeration set up after pasteurization  
It selects the use of hot gas valve during standby after pasteurization. It is applied to the refrigeration of hopper after pasteurization, and refrigeration valve works even when this category is not activated.

```
[ 9 - 8 ] Heating
      after Refri. Hotgas
1. Working?   :      Off
2. Valve Open :      50 sec
```

9-8-2: Hot gas valve operation time  
It sets the operation time of hot gas valve during the refrigeration of hopper after pasteurization.

9-8-3: Hot gas valve rest time  
It sets the rest time of hot gas valve during the refrigeration of hopper after pasteurization.

```
[ 9 - 8 ] Heating
      after Refri. Hotgas
3. Close Time : 0 sec
```

9-9-1: Freezing preferred refrigeration set up after pasteurization  
Selection of hot gas valve use during standby after pasteurization. It is applied to the refrigeration of the cylinder after pasteurization.  
Refrigeration valve works even when this category is not activated.

```
[ 9 - 9 ] Heating
      after Freezer Hotgas
1. Working?   :      On
2. Open Time  :      10 sec
```

9-9-2: Initial Hot gas valve operation time  
It sets the operation time of hot gas valve during the refrigeration of cylinder after pasteurization.

9-9-3: Initial Hot gas valve rest time  
It sets the rest time of hot gas valve during the refrigeration of cylinder after pasteurization.

```
[ 9 - 9 ] Heating
      after Freezer Hotgas
3. Close Time : 30 sec
4. Apply Time : 120 sec
```

9-9-4: Initial hot gas valve cycle operating time set up  
Set up the time applied to the cycle operation of '9-9-2' and '9-9-3'.

9-9-5: Second Hot gas valve operating time set up  
Set up the valve operating time after the cycle operation of '9-9-4'.

```
[ 9 - 9 ] Heating
      after Freezer Hotgas
5. Open Time  :      50 sec
6. Close Time :      10 sec
```

9-9-6: Second Hot gas valve resting time set up  
Set up the valve resting time after the cycle operation of '9-9-4'.

9-10: Pasteurization prevention function selection during 'MIX LOW'  
When this category is activated, pasteurization is not performed during 'MIX LOW'.

```
[ 9 - 10 ] Mix " LOW "
           Heating
           : On
```

9-11-1: No formation judgment current  
It is the category to control the error conditions that can cause the failure of soft freezer making, and it occurs when the current does not rise above the value set at this category from no load current during operation.

```
[ 9 - 11 ] NO make
           Icecream
1. Setting   : + 0.2 A
2. Sensing Time : 50 min
```

9-11-2: No formation judgment time  
It is the category to control the error conditions that can cause the failure of soft ice cream making, and it occurs when the time of this category is passed while not reaching the current value set at '9-11-1'.

9-12: Compressor operation judgment current  
In case of typical 'ON/OFF' in auto mode, it sets the current value of the motor that is needed to operate the compressor. When the present current is lower than the current value after deducting the current value of this category from the current set at '1-1', compressor is operated.  
Otherwise, the compressor is not operated.

```
[ 9 - 12 ] Comp. Start
           Current
           : - 0.2 A
```

## 9-13: Inverter use setting

This category is activated in models with inverter.

```
[ 9 - 13 ] Inverter Use
          : YES
```

## 9-14: Refrigeration priority setting after pasteurization

This category is to set the priority in refrigerating the hopper and the cylinder after pasteurization.

```
[ 9 - 14 ] Heating after
          STANDBY Priority
          : Hopper
```

## 9-15-1: Current compensation value in case of no sale during operation

When soft ice cream is not sold for a long period of time, it becomes thin and ejection amount tends to be large.

After a long period of time without sale, it makes soft ice cream a little harder by adding the value of this category to the value set at '3-1'.

```
[ 9 - 15 ] Correct (Left)
          Setting Current
1. Setting      : +0.1 A
2. Sensing Time : 60 min
```

## 9-15-2: Judgment time setting in case of no sale during operation

When soft ice cream is not sold for a long period of time, it becomes thin and ejection amount tends to be large.

After a long period of time without sale, it makes soft freezer a little harder by adding the value of this category to the value set at '9-15-1'.

## 9-16-1: Set up cup holder travel stroke

Set up the travel distance from the soft ice cream discharge port to the cup discharge port of the cup dispenser.

```
[ 9 - 16 ] Step Motor Set
1. Moving Distance
   Left   Middle   Right
   146    190     146
```

## 9-16-2: Set up cup holder travel speed

Set up the travel speed of the cup holder.

```
[ 9 - 16 ] Step Motor Set
2. Speed Control : 1 8
3. Position Set  : Off
```

## 9-16-3: Adjust cup discharge port position

For fine adjustment of the cup holder, change the setting value at '9-16-1'.

Activate (ON) the item, and adjust the position of the cup holder using the '-' and '+' buttons to the left and right, respectively.

※ '9-16': It applies to the fully automatic vending machine, not to the manual system.)

## 9-17-1: Set up dasher motor speed (At the start of producing ice cream) set the frequency of the inverter to run the dasher motor at the start of ice cream producing.

```
[ 9 - 17 ]
          Inverter Speed
1. Low Speed   : 40 Hz
2. High Speed  : 140 Hz
```

## 9-17-2: Adjust dasher motor speed (For the operation stage) set the frequency of the inverter to run the dasher motor for the stage after the start of the ice cream production.

## 9-17-3: Adjust dasher motor speed (at dispensing)

The inverter which runs the dasher motor operates at the frequency set up in this item when dispensing soft ice cream

```
[ 9 - 17 ]
          Inverter Speed
3. High Speed  : 140 Hz
4. Thaw Speed  : 30 Hz
```

## 9-17-4: Adjust dasher motor speed (at pasteurization and refrigeration)

The inverter operates at the frequency set up in this item when pasteurizing and refrigerating the hopper and the cylinder.

## 9-18: Time Adjust brightness of LCD BACK LIGHT

Adjust the LCD BACK LIGHT time

Kept lighted if set up as 'FULL ON'.

```
[ 9 - 18 ] LCD Back Light
1. Bright     : Full On
```

## 9-19-1: Set up password

Set up the password required for administrator mode (Item No4)

```
[ 9 - 19 ] Pass Word
1. Item - 4   : On
               1 1 1 1
2. Item - 9   : Off
```

## CONTROLS

---

### 9-19-2: Set up use-or-not of administrator's password

Set up use-or-not of the password required for Technician mode.

If this item is 'ON' the password will be set up automatically, and no more items can be checked out.

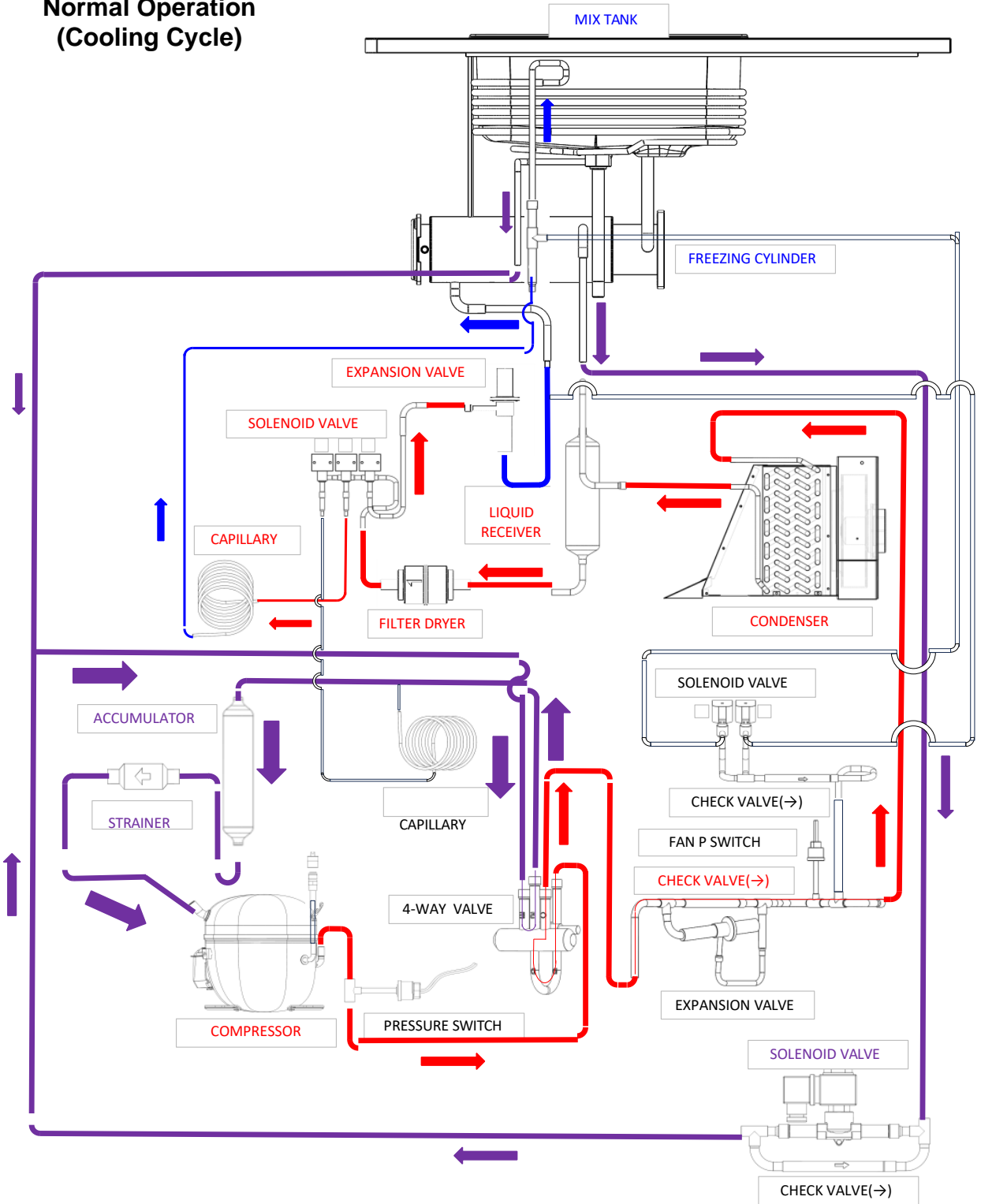
## 2

- When soft ice cream is not sold and becomes thin, it cannot be returned to the original ice quality. By using recycling function, soft ice cream can become similar to its original ice quality. When recycled, however, overrun can drop and ejection amount can be different.

- The password of this item can be assigned to the technicians authorized by the manufacturer under proper security procedures. Releasing the password can be subject to legal punishment.

# Refrigeration Schematic I

Normal Operation  
(Cooling Cycle)

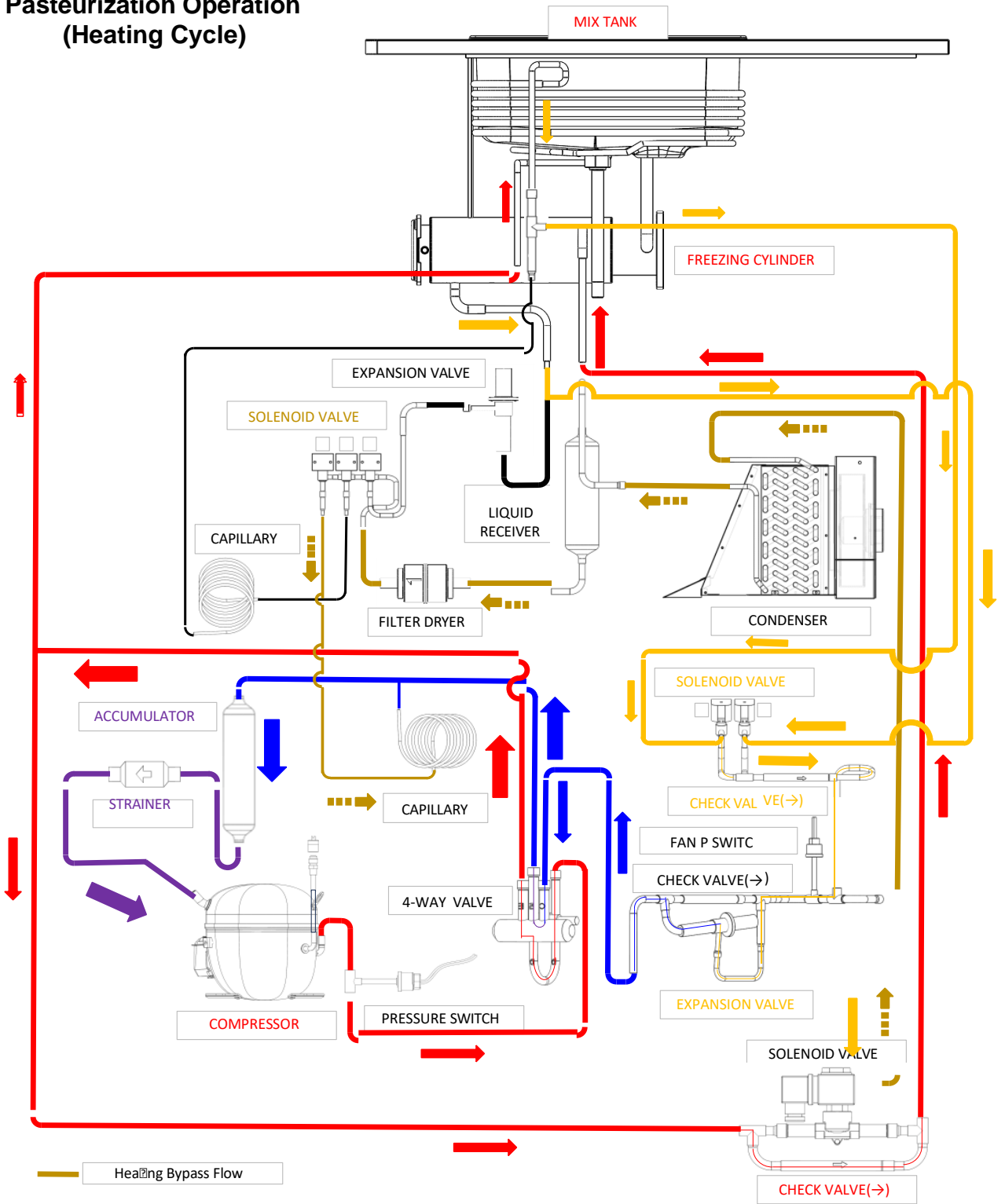


2



### Pasteurization Operation (Heating Cycle)

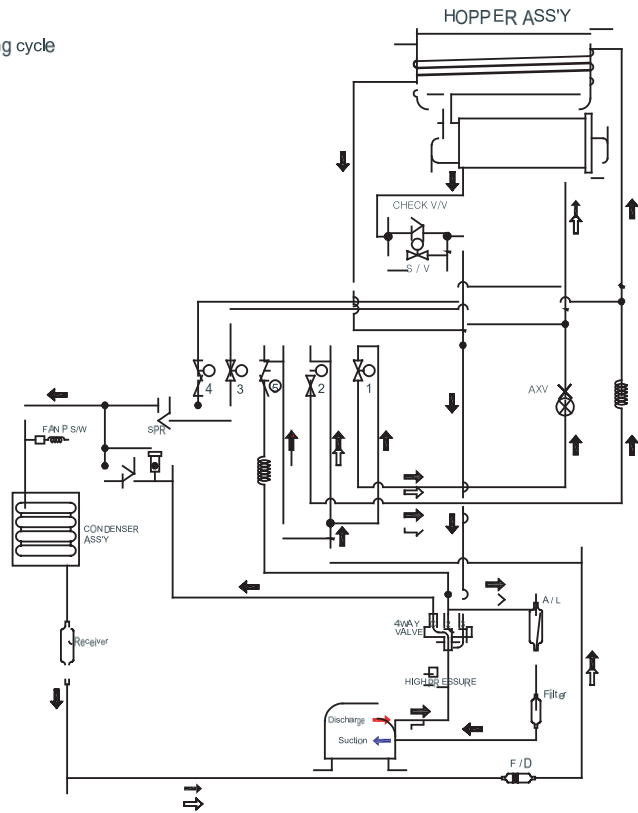
2



# Refrigeration Schematic II

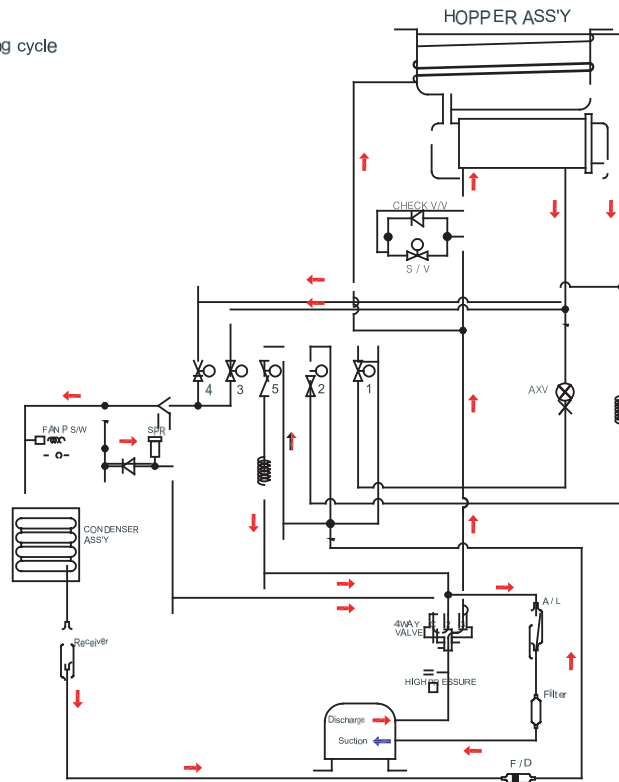
Normal operation

⇄ Cooling cycle



Sterilization operation

→ Heating cycle



2



## **Section 3: Troubleshooting**

- **General Troubleshooting Guide**
- **Bacteria Troubleshooting**

**General Troubleshooting Guide(Error Code)**

Error code		Cause	Troubleshooting	Deactivation	Operation
Er00	Mix Out	No ingredient	Refill the hopper with ingredient.	Automatically deactivated	Stop
Er01	Hop. Sensor Op.	Cooling(Hopper) sensor OPEN	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Stop
Er02	Hop. Sensor St.	Cooling(Hopper) sensor SHORT	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Stop
Er03	Cyl. Sensor Op.	Drum(Cylinder) sensor OPEN	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Stop
Er04	Cyl. Sensor St.	Drum(Cylinder) sensor SHORT	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Stop
Er05	Air. Sensor Op.	Condenser sensor OPEN	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Operation
Er06	Air. Sensor St.	Condenser sensor SHORT	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Operation
Er07	EOCR	Overcurrent detected with the motor (over freezing)	Melt the ice cream and run the maker again.	Deactivated after resetting	Resetting
Er08	High Pressure	Overvoltage detected	Check the ventilation hole and water supply.	Automatically deactivated	Stop
Er09	noLA	Not forming	Take action regarding refrigerant.	Automatically deactivated	Operation
Er10	Low Voltage	Supplied voltage exceeded more than 15%	Check the outlet power voltage.	Automatically deactivated	Stop
Er11	High Voltage	Supplied voltage exceeded more than 15%	Check the outlet power voltage.	Automatically deactivated	Stop
Er12	Draw Switch Er.	Outlet lever error	Raise the outlet lever.	Automatically deactivated	Operation
Er13	Condensor OH	Condenser temperature too high	Check if the ventilation hole is clogged.	Automatically deactivated	Operation
Er14	Motor Belt Er.	Power axis issue	Melt the ice cream and run the maker again.	Deactivated after resetting	Resetting
Er15	EEPROM Error	EEPROM issue	Replace the main pcb	Reset power	Operation
Er16	Reverse Phase	Negative phase detected	Check the power outlet.	Automatically deactivated	Stop
Er17	Heating Error	Pasteurization issue	Replace the ingredient and clean the product.	Abnormal operation	Operation
Er18	Cover Error	Dasher cover issue	Make sure the cover is correctly assembled.	Automatically deactivated	Stop
Er19	Eva. Sensor Op.	EVA sensor OPEN	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Operation
Er20	Eva. Sensor St.	EVA sensor SHORT	If there is no problem with the connection, replace the sensor.	Automatically deactivated	Operation

Error code		Cause	Troubleshooting	Deactivation	Operation
Er21	Motor Power Er.	Motor current not detected	Replace the motor	Deactivated after resetting	Resetting
Er22	Power Fail Er.	Power goes off.	Power blackout (No action to be taken.)	Deactivated after resetting	Operation
Er22	Motor TP Er.	Motor over heat	Let the motor cool down.	Automatically deactivated	Stop
Er30	Vend Error	Product issue	General inspection of the product	Deactivated after resetting	Stop
Er31	Top Sensor Er.	Top sensor issue	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er32	Down Sensor Er.	DOWN sensor error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er33	Piston NO Er.	No input from piston	If there is no problem with the connection, replace the sensor.	Deactivated after resetting	Stop
Er34	Piston NC Er.	Nc input from piston	If there is no problem with the connection, replace the sensor.	Deactivated after resetting	Stop
Er35	Cup Ring Sensor	Cup-ring sensor input error	Remove foreign object from the cup holder.	Automatically deactivated	Stop
Er36	Cup Out Sensor	Cup outlet sensor input error	Remove foreign object from the cup outlet part.	Automatically deactivated	Stop
Er37	Step Origin Er.	Motor's starting point input error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er38	Step Reduce Er.	Motor deceleration input error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er39	Step Motor Er.	Step motor error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er40	Cup Empty Er.	No cup	Refill cup.	Automatically deactivated	Stop
Er41	Cup Drop Er.	Cup outlet error	Not used.	Deactivated after resetting	Stop
Er42	Cup Position Er.	Cup outlet error	Remove foreign object from the cup holder.	Deactivated after resetting	Stop
Er43	Cup Empty Er.	NO CUP switch OPEN	Refill cup.	Automatically deactivated	Stop
Er44	Vend Comm.	Vend PCB communication error	If the wiring is ok, replace the Vend PCB.	Automatically deactivated	Stop
Er45	Door Open Er.	Door open error	Remove foreign object from the door.	Reset power	Stop
Er46	Door Close Er.	Door close error	Remove foreign object from the door.	Reset power	Stop
Er47	Coin Mechanism	Coin part error	Empty coins.	Reset power	Stop
Er48	Bill Validator	Bill part error	Empty bills.	Reset power	Stop

## TROUBLESHOOTING

Er49	Door Comm. Er.	Door PCB communication error	If the wiring is ok, replace the Door PCB.	Automatically deactivated	Stop
Er50	Invertor COM Er.	Invertor communication error	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er51	Invertor OC	invertor overcurrent	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er52	Invertor OE	invertor overvoltage	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er53	Invertor OH	invertor overheat	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er54	Invertor LU	invertor low voltage	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er55	Invertor TH	invertor temperature sensor error	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er56	Invertor Etc.	Other invertor problems	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er57	Invertor OL	Average overcurrent detected	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er60	Invertor Comm.	Invertor communication error	If the wiring is ok, replace the invertor.	Automatically deactivated	Stop
Er61	Control Comm.	Control PCB communication error	If the wiring is ok, replace the Control PCB.	Automatically deactivated	Stop

3

## Bacteria Troubleshooting

Periodic product sampling is taken by a sanitarian. Bacteria counts should not exceed the following figures:

Standard Plate Count (SPC)	50,000.
Coliform	10

If the counts exceed the numbers listed, steps should be taken to locate the cause. Failure to solve the high counts will result in an unsafe product for consumption. Educate

the operator about how to prevent high bacteria counts.

**Note:** *High bacteria counts in soft serve yogurt is normal and necessary. Coliform, however, cannot be accepted in any product. The following information will help solve high coliform count problems.*

**Note:** *If sample results indicate a problem, one of these areas may be a source of contamination.*

Table 3-4

Cause Of Contamination	Prevention
1. Human contamination.	<ul style="list-style-type: none"> <li>a. Wash hands and arms past elbows.</li> <li>b. Wear rubber gloves if cuts or skin conditions exist.</li> <li>c. Wash hands periodically throughout the day.</li> </ul>
2. Residue product deposits on mix contact surfaces (milkstone buildup).	<ul style="list-style-type: none"> <li>a. Provide the proper brushes.</li> <li>b. Brush clean all parts and components thoroughly. Ignoring this will allow formation of milkstone, a porous substance which will house bacteria and can lead to contamination of fresh mix.</li> </ul>
3. Worn, damaged, or cracked parts.	<ul style="list-style-type: none"> <li>a. Provide a food grade lubricant (Example: Taylor Lube).</li> <li>b. Inspect O-rings for holes or tears. O-rings, seals and other wear items must be supplied by the freezer company to meet food industry standards.</li> <li>c. During the operating hours, periodically inspect the rear drip pan for excessive leakage.</li> </ul>

## TROUBLESHOOTING

3

Cause Of Contamination	Prevention
4. Improper cleaning and sanitation procedures.	<ul style="list-style-type: none"><li>a. For cleaning procedures, scrub the sink and strainers thoroughly before each use. The level of solution in each basin must allow the largest component to be submerged. Sanitize and prime the freezer prior to freezing the product. After sanitizing a freezer, use fresh mix to flush remaining sanitizer from the freezing cylinder.</li><li>b. Provide the proper brushes, lubricants, and single-service towels.</li><li>c. Store sanitizer in a cool, dry place. Use chemicals according to their labels.</li><li>d. Use a few good employees to follow the cleaning procedure correctly and consistently. Allow the employee uninterrupted time to complete the cleaning procedure.</li><li>e. Hold sanitizing solution in the hopper and the freezing cylinder for 5 minutes.</li><li>f. Wash and sanitize the tube of lubricant; after each use, always recap the tube.</li><li>g. Parts, components, and brushes should be air-dried overnight. Never store the equipment in the storage cooler.</li><li>h. Do not neglect daily cleaning practices: wipe the external areas of the freezer periodically throughout the day, remove the design caps and sanitize the area, check the drip trays and splash shield.</li></ul>
5. Mix stored improperly.	<ul style="list-style-type: none"><li>a. Rotate stock to use older date code mix first. Shelf life of mix is normally 10 days.</li><li>b. Mix must never be stacked outside or under direct sunlight while waiting to be placed in the cooler.</li><li>c. Place the mix directly in the cooler. Always leave one inch between the mix and other products to allow air to circulate around the product.</li><li>d. Mix must not remain at room temperature for long periods of time.</li><li>e. Hopper storage must maintain a temperature of 39°F (3.9°C). Storage temperatures above 45°F (7.2°C). Will allow cell division in as little as 1 hour.</li><li>f. Once the mix is placed in the hopper, covers must be properly installed to maintain adequate refrigeration and to prevent airborne contaminants from entering the mix.</li></ul>





## **Section 4: Parts**

- **Parts Warranty Explanation**
- **Model ISI-161TH Exploded View**
- **Operator Parts(Model ISI-161TH)**
- **Assy Total Control Box(Model ISI-161TH)**
- **Assy CSR Box**
- **Dasher Assy(Model ISI-161))**
- **Display Panel Assy**
- **Assy Piston Sensor**

### Warranty

**CAUTION:** If the warranty policy or receipt has not been kept or is lost, or if it is hard to determine the date of purchase due to other reasons, warranty is applied after 6 months from the manufacturing date.

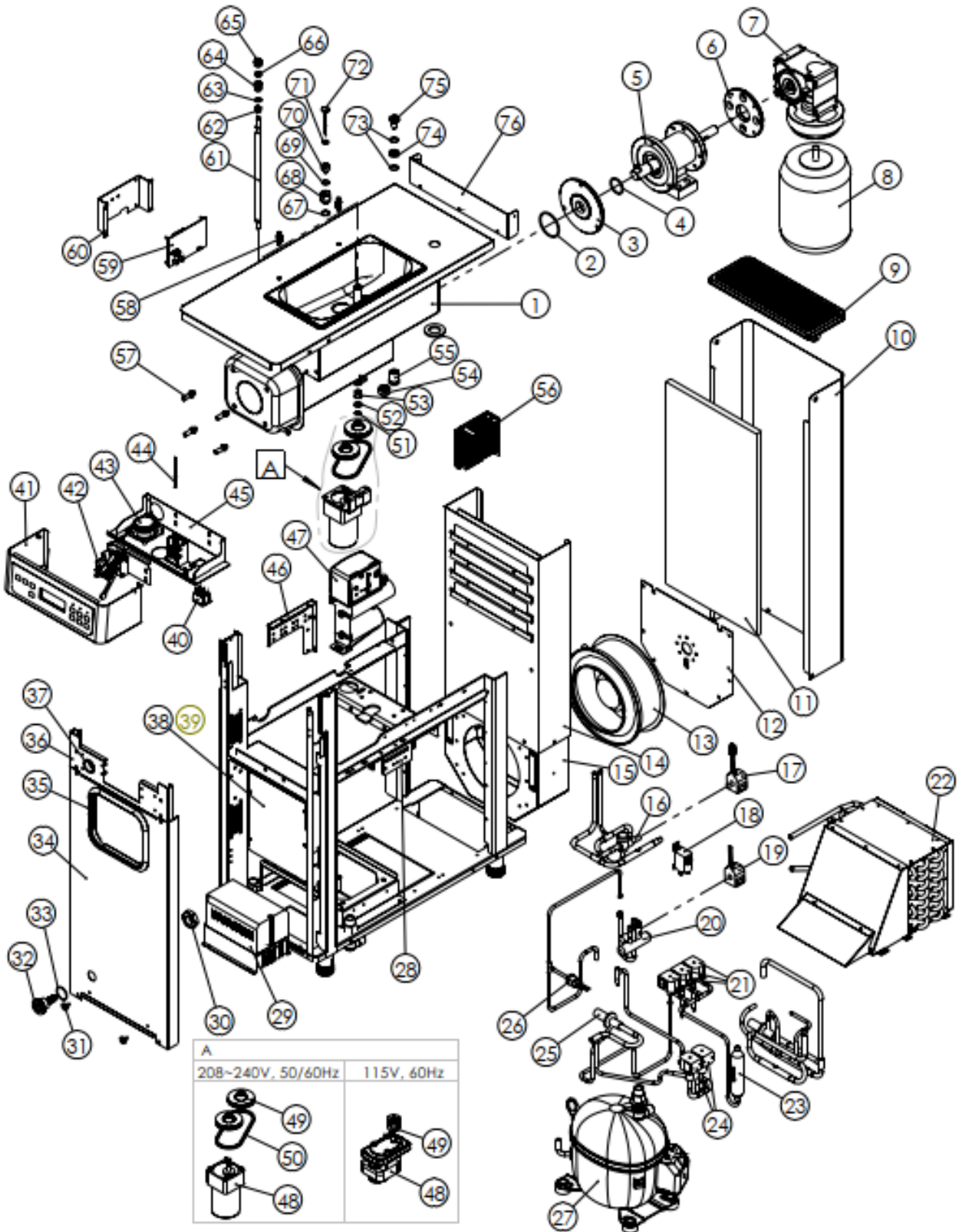
#### Free repair

- Error in performance or functionality during normal operation before the warranty expires

#### Billable repair

1. If the warranty has expired.
2. If installation is required again due to incorrect installation by the customer or the store.
3. If installation is required again due to relocation of the machine.
4. If the malfunction is not attributable to the machine.
5. If the wrong power specification is applied.
- 4 6. If damage is caused by using accessories that are not recommended by the manufacturer.
7. If damage is caused by external force or dropping of the machine.
8. If damage is caused by natural disaster, such as lightning, fire, earthquake, storm, typhoon, etc.
9. If any accessory or consumable becomes obsolete or its service life comes to an end. (Gaskets, O-rings, blades, cleaning brushes, etc.)
10. If foreign objects are put into the machine such as water, beverage, coffee, toy, etc.
11. If external force is applied during installation or usage, causing damage or malfunction.
12. If directions for installation or standards are not followed.
13. If the customer arbitrarily disassembled and lost or damaged any part.
14. If a person other than an authorized engineer from the manufacturer repairs or modifies the machine.
15. If malfunction is caused by failure to follow the "Safety warning / caution" on the user manual.

# Model ISI-161TH Exploded View



# PARTS

## Model ISI-161TH Exploded View Parts Identification

Item	Parts description	Part No.
1	SHELL AND HOPPER (115V, 60Hz)	410038800
2	FRONT SEAL OF POM FLANGE	229031000
3	POM FLANGE	397002400
4	BACK SEAL OF POM FLANGE	229031100
5	HOUSING OF SHAFT BEATER	430003600
6	HOUSING SHAFT FLANGE	397002502
7	GEAR-REDUCER(RATIO 12.5:1)	353031000
8	BEATER-MOTOR (60HZ/50HZ)	353032800
9	VENT. COVER	317185800
10	BACK PANEL	317180700
11	FOAM OF BACK PANEL	306040500
12	TURBO MOTOR FAN COVER (115V, 60Hz)	301161500
13	TURBO MOTOR FAN ASSEMBLY INCLUDING CONNECTOR	406023800
14	VENT. UPPER HOOD PANEL	301151900
15	VENT. LOWER HOOD PANEL	301161600
16	SOLENOID V/V BODY	340027600
17	SOLENOID VALVE COIL ASSEMBLY WITH RED CONNECTOR	429008800
18	FAN CYCLE(PRESSURE) SWITCH	355020100
19	SOLENOID VALVE COIL ASSEMBLY WITH WHITE CONNECTOR	429008700

Item	Parts description	Part No.
20	4 WAY VALVE BODY	340012400
21	SOLENOID VALVE ASSEMBLY(BLUE) SOLENOID VALVE ASSEMBLY(YELLOW) SOLENOID VALVE ASSEMBLY(WHITE)	429008400 429008500 429008600
22	CONDENSER ASSEMBLY	411029200
23	FILTER DRYER	372002601
24	SOLENOID VALVE ASSEMBLY(BROWN) SOLENOID VALVE ASSEMBLY(GREEN)	429008900 429009000
25	EXPANSION VALVE	340013200
26	HIGH PRESSURE CUT OUT/SRT1008	355015100
27	COMPRESSOR /NT6222GKV COMPRESSOR STARTER KIT OLP	394022600 426066400 658011400
28	SOLENOID VALVE BRACKET	317200200
29	INVERTER	500001300
30	VESSEL NUT	215020000
31	DRIP TRAY FIX BOLT	214029600
32	DRIP TRAY BUSING	336027600
33	PACKING S28	303034800
34	FRONT LOWER PANEL	317180200
35	NOSE CONE SEAL	303034400
36	FRONT UPPER PANEL	317180100
37	GROMMET BUSHING	232003500

## PARTS

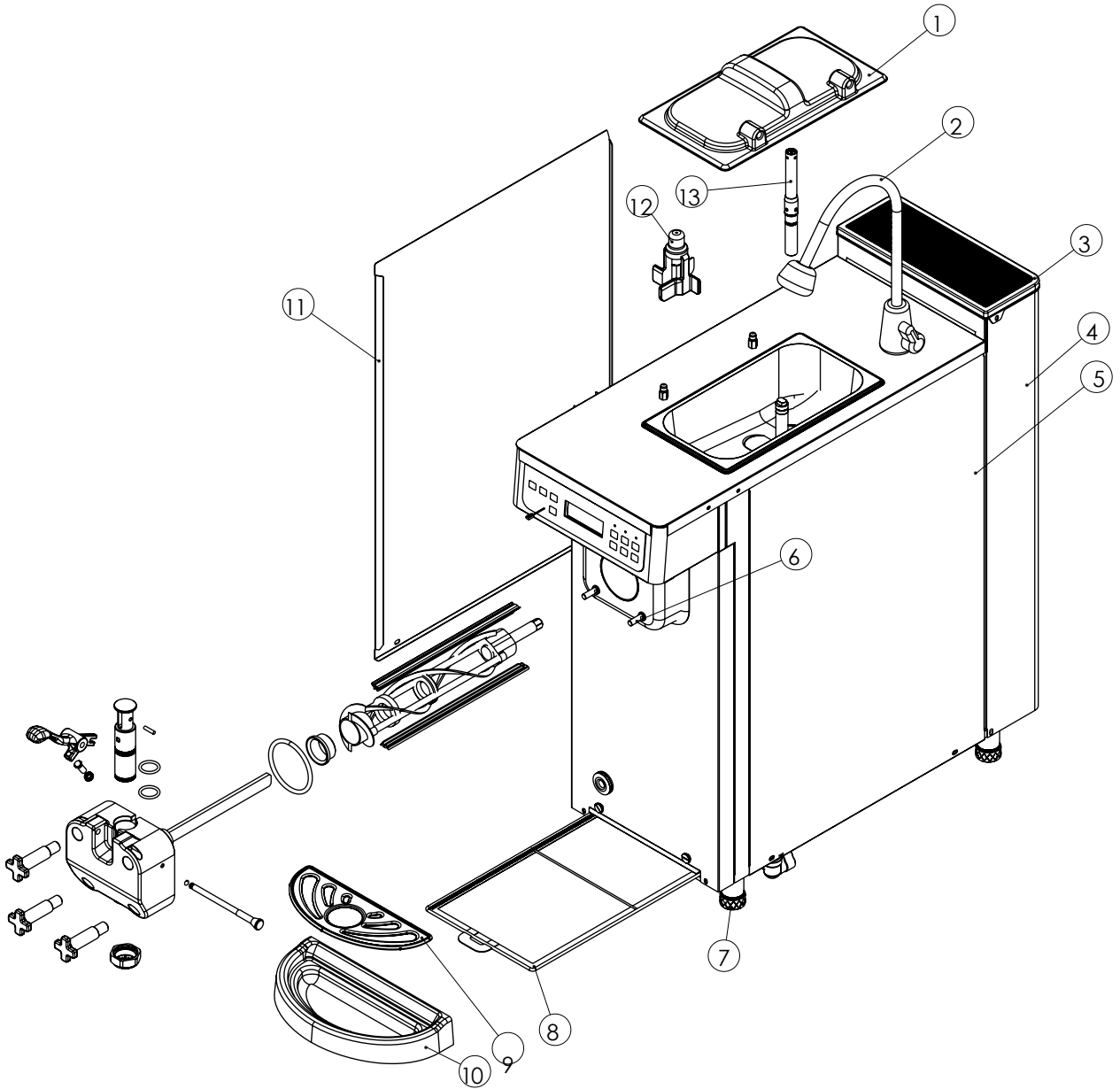
Item	Parts Description	Part No.
38	CONTROL BOX ASSEMBLY (115V, 60Hz)	426070500 See Pg 4-7
39	CONTROL BOX COVER	374139600
40	MAIN SWITCH	355012400
41	DISPLAY PANEL ASSEMBLY	420045020 See Pg 4-10
42	DRAW HANDLE SENSOR ASSEMBLY	430003701 See Pg 4-11
43	SPEAKER	633000300
44	ASSY SENSOR MAGNET	701002000
45	BUTTON DISPLAY BASE	349094000
46	SOL VALVE BRACKET 1	301151000
47	COMPRESSOR STARTER KIT (115V, 60Hz) See Pg 4-8	426066400 See Pg 4-8
48	AGITATOR MOTOR ASSEMBLY(1 115V, 60Hz)	406023600
49	COUPLING	612000700
51	E RING AGITATOR	303034900
52	WASHER BEARING	211003600
53	SHAFT DOWN BEARING	314013000

Item	Parts Description	Part No.
54	MIX SENSOR DOWN CAP	655010200
55	NUT SENSOR CAP	319008800
56	SMPS	629001300
57	STUD-NOSE CONE	317072600
58	PIN-RETAINING HOPPER COVER	314040100
59	USB DOWNLOAD PCB	367009304
60	BKT USB PCB	301151210
61	SHAFT AGITATOR-161TH	314040200
62	BUSH AGITATOR	336029000
63	AGITATOR TOP PACKING TWO	303018600
64	SHAFT TOP BEARING	314012900
65	SHAFT CAP	314012700
66	AGITATOR SEALING PACKING	303020700
67	PACKING PUMP BODY (P14)	303024800
68	WELDING HARNESS MIX OUT	409038200
69	O RING	303035000
70	MIX TOP CAP	655010400
71	MIX LOW PACKING ONE	303021300
72	MIX SENSOR SHAFT 161TH	655010701
73	PACKING PUMP BODY (P14)	303024800
74	SENSOR BASE	655010600
75	ASSY SENSOR CAP	319008900
76	TOP COVER DUCT GUIDE	317180800

4

# Operator Parts(Model ISI-161TH)

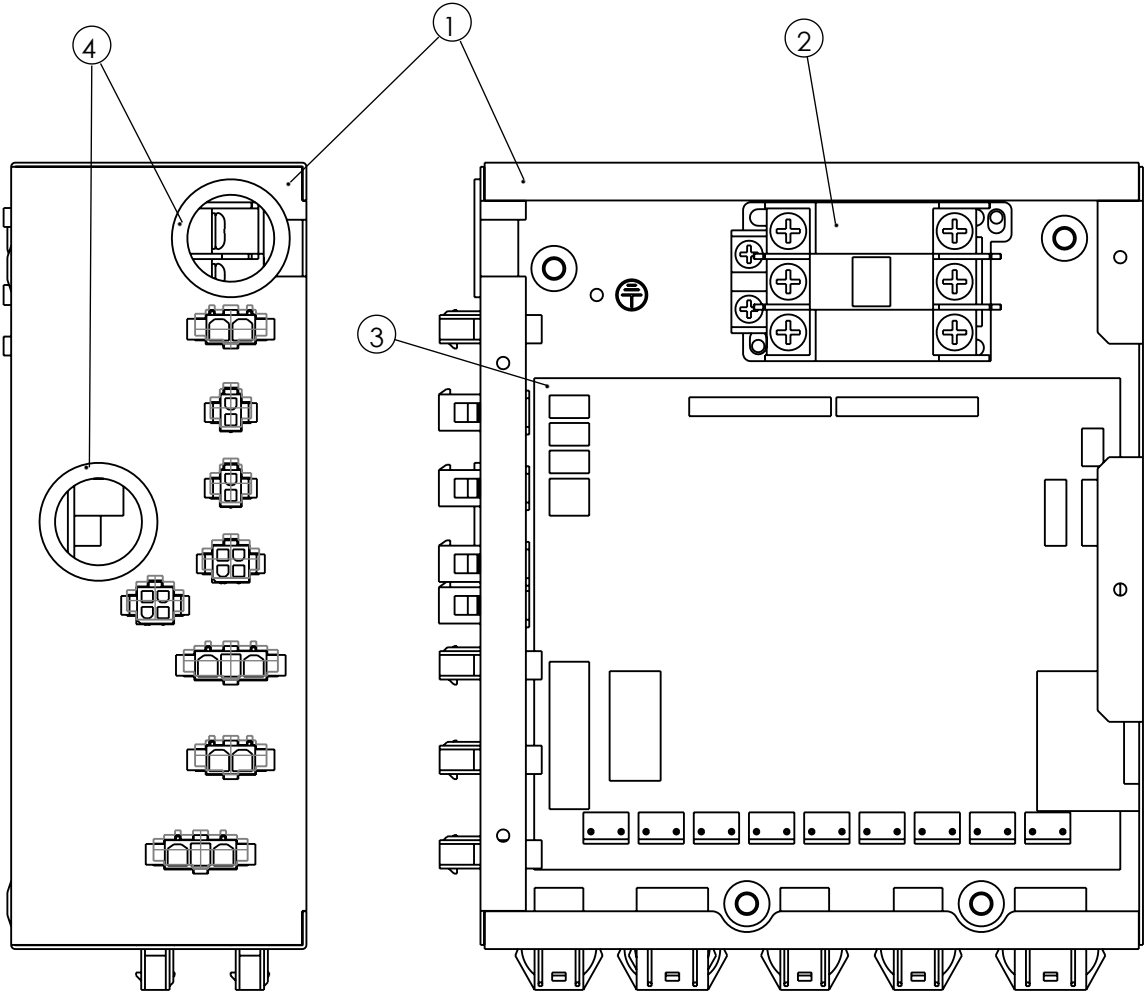
4



ITEM	DESCRIPTION	Part No.
1	Hopper Cover	317140700
2	Water Faucet	241000100
3	Air Vent	317185800
4	Back Panel	317180700
5	Side Panel - Right	317180600
6	Nose Cone Stud	317072600
7	Foot - Rubber	302006600

Item	PARTS Description	Part No.
8	AIR FILTER	640007800
9	SHEILD-SPLASH	336027900
10	TRAY-DRIP	336027800
11	SIDE PANEL L	317180500
12	AGITATOR PADDLE	390001400
13	FEED TUBE	729003500
	FEED T. BODY	729003600

# Control Box ASSEMBLY (Model ISI-161TH)

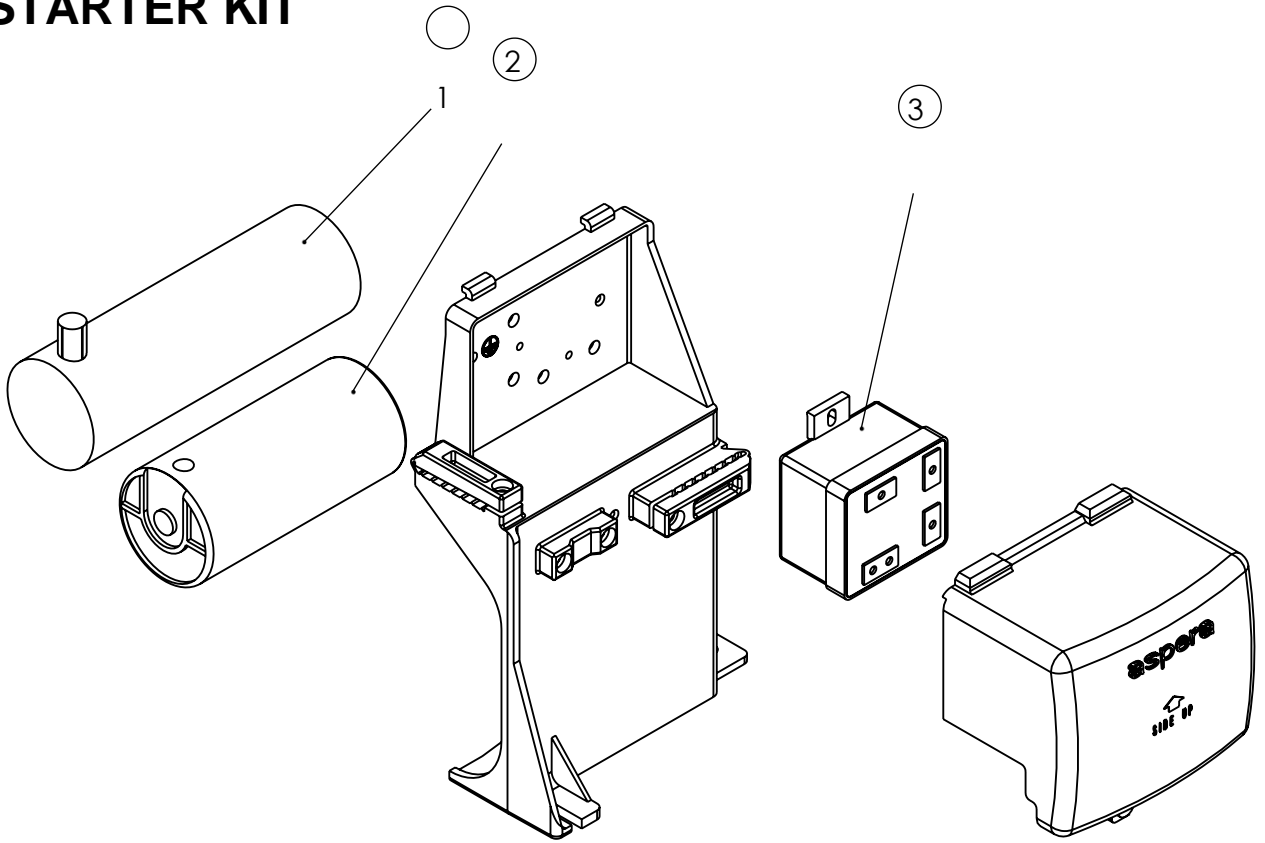


4

Item	Description	Part No.
1	CONTROL BOX	374139200
2	MAGNETIC CONTACTOR (115V, 60Hz)	322002201

Item	Description	Part No.
3	ASSY MAIN PCB	415010000
4	GROMMET BUSHING	232003500

# COMPRESSOR STARTER KIT

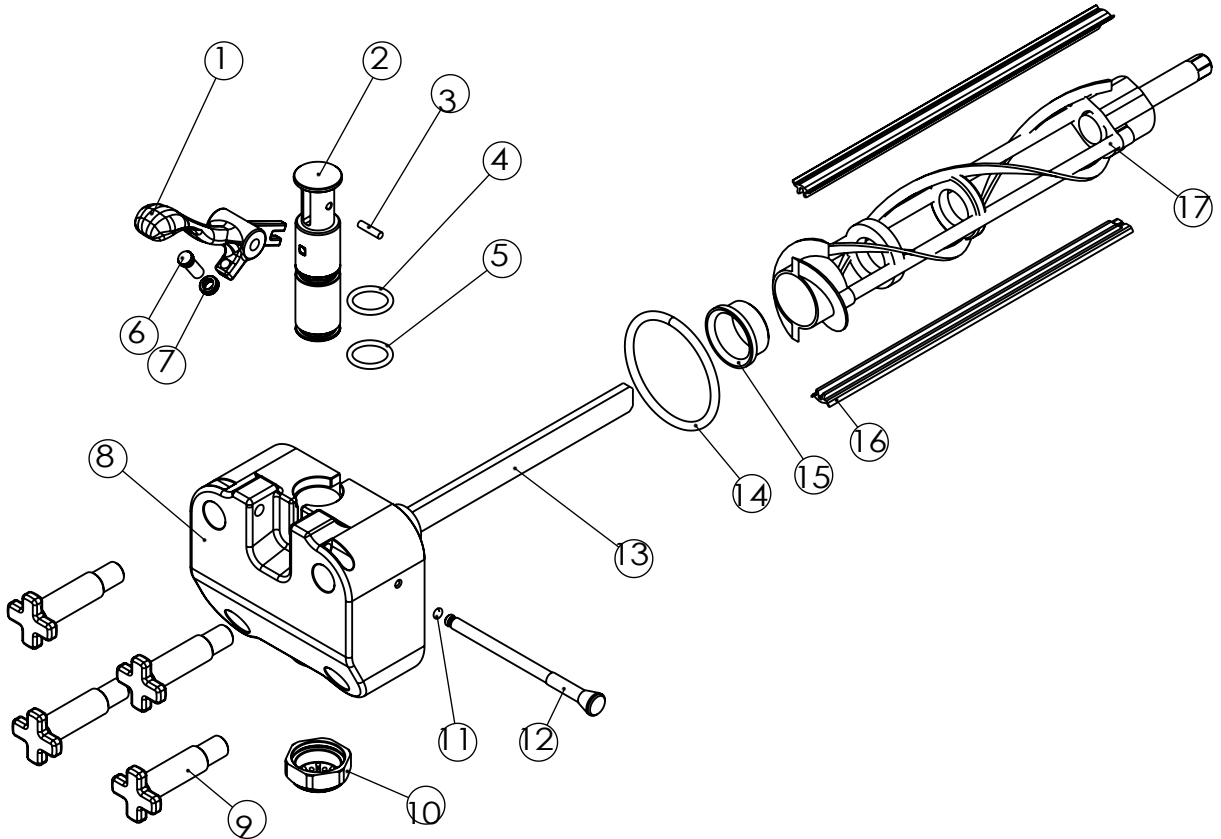


4

Item	Description	Part No.
	COMPRESSOR STARTER KIT (150V, 60Hz)	426066400
1	RUN CAPACITOR	659018900
2	START CAPACITOR	659019000
3	START-RELAY	357019500



# BEATER DOOR ASSEMBLY(Model ISI-161)

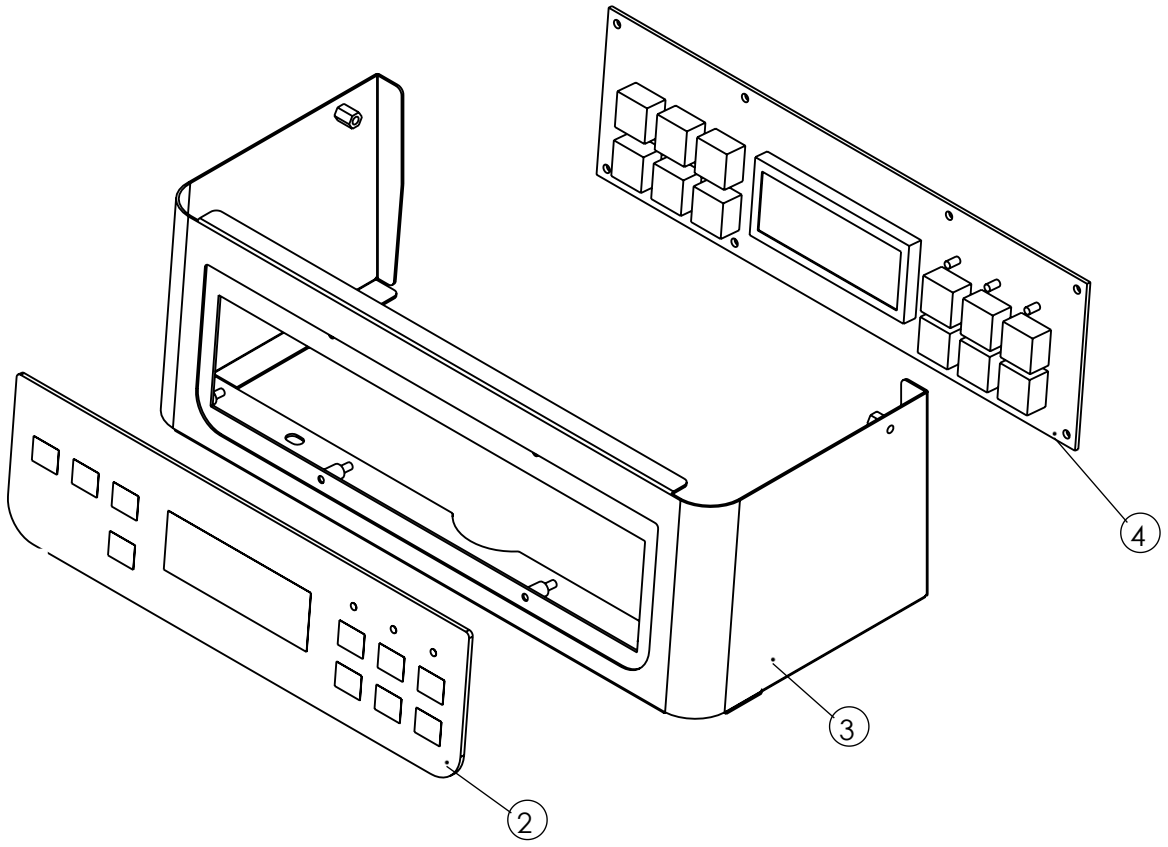


4

ITEM	DESCRIPTION	Part No.
1	Draw Handle	309005400
2	Draw Valve	303304600
3	Shaft - Pin	315002900
4	O-ring – Draw Valve, Upper	303039500
5	O-ring – Draw Valve, Lower	303041300
6	Screw - Adjustment	210818100
7	Hex Nut	215011000
8	Door – Freezing Cylinder	303018100
9	Nut - Stud	342004100

ITEM	DESCRIPTION	Part No.
10	Cap – Design	388008200
11	O-ring – Lever Shaft	303020000
12	Pin - Pivot	314040300
13	Baffle	314015601
14	Gasket - Door	303018100
15	Bearing – Door Hub	310003502
16	Scraper Blade	403015000
17	Beater	403022400

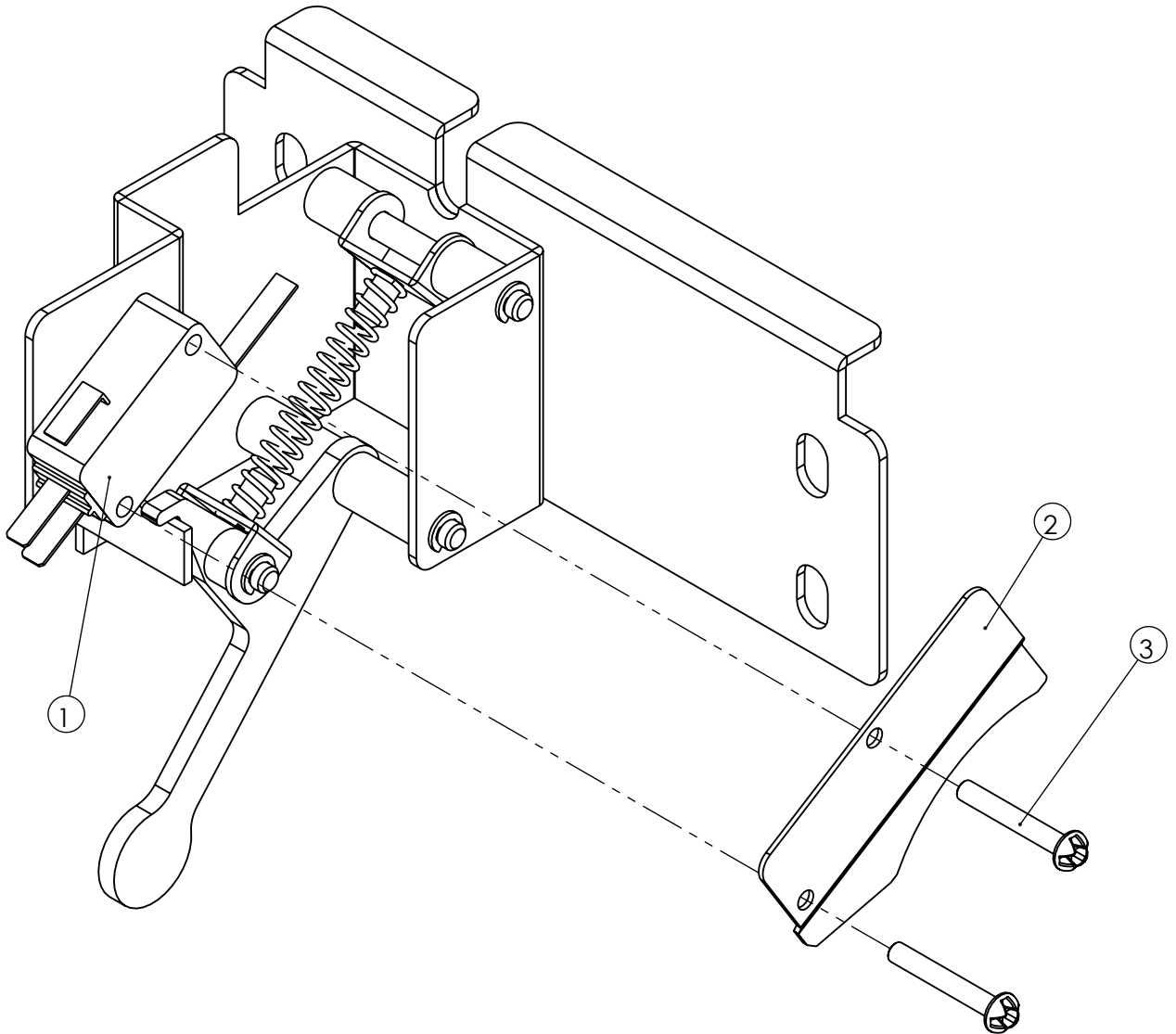
# Display Panel Assy



Item	Description	Part No.
2	BUTTON DISPLAY	440032202

Item	Description	Part No.
3	BUTTON DISPLAY PANEL	440032202
4	DISPLAY & BUTTON PCB	415010100

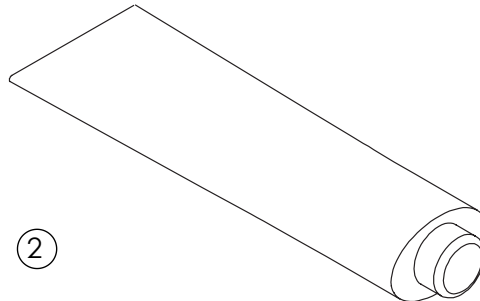
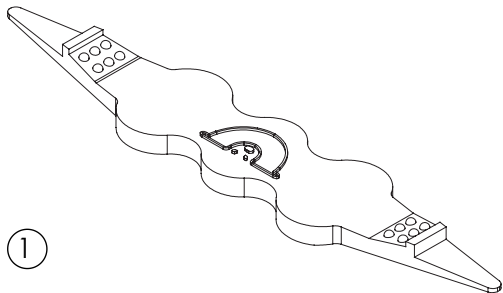
# DRAW HANDLE SENSOR ASSEMBLY



Item	Description	Part No.
1	MICRO SWITCH	355008200
2	BKT GUIDE SENSOR	301158900

Item	Description	Part No.
3	SCREW MACHINE	AAAA01060

# Accessories

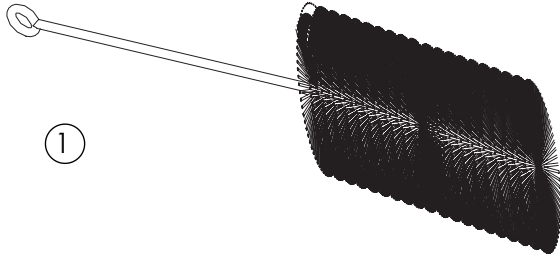


4

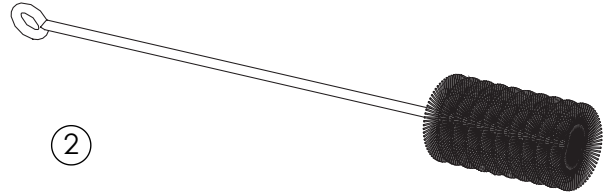
Item	Description	Part No.
1	O-RING REMOVAL TOOL	233000300

Item	Description	Part No.
2	LUB.	221000200

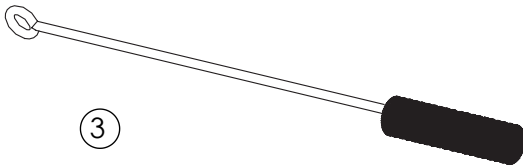
# Brushes



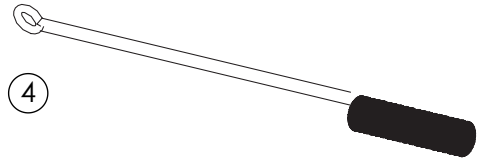
①



②



③



④

4

Item	Description	Part No.
1	BRUSH-BARREL	388004200
2	BRUSH-DOOR	388001800

Item	Description	Part No.
3	BRUSH 3-FEED TUBE	388001000
4	BRUSH-FEED TUBE BODY	388001900

## Repair for refrigerant Lines

### 1. Refrigerant Recovery

This ice cream vending machine has a refrigerant service valve (nipple).

Recover the refrigerant through this nipple and keep the recovered refrigerant in an approved storage bin. Never discharge the recovered refrigerant to the atmosphere.

### 2. Brazing



#### WARNING !

1. R-404A itself is not flammable at atmospheric pressure and temperatures when brazing, R404 temp must be kept under 176°F (80°C)
2. R-404A itself is not explosive or poisonous. However, when exposed to high temperatures (open flames), R-404A can be decomposed to form hydrofluoric acid and carbonyl fluoride both of which are hazardous.
3. Do not use silver alloy or copper alloy containing arsenic.
4. Use an electronic leak detector or soap bubbles to check for leaks. Add a then raise the pressure trace of refrigerant to the system (if using an electronic leak detector), and using nitrogen gas (140PSIG). DO NOT use R-404A as a mixture with pressurized air for leak testing

- 1) When brazing copper pipe, purge the pipe with nitrogen gas at pressure of 3~4 psig.



#### CAUTION!

1. Always install a new drier every time the sealed refrigeration system is opened.
  2. Do not replace the drier until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
  3. When brazing, protect the drier and 4-way valve by using a wet cloth to prevent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250°F (121°C)
- 2) Use an electronic leak detector or soap bubbles to check for leaks. Add a trace of refrigerant to the system (if using an electronic leak detector), and then raise the pressure using nitrogen gas (140PSIG). DO NOT use R-404A as a mixture with pressurized air for leak testing.

### 3. Vacuuming and recharging (R-404A)

- 1) Install the vacuum pump on the system. Connect the charging hoses on the charging nipples of both high-pressure and low-pressure ends.



#### IMPORTANT!

*The vacuum level and vacuum pump may be the same as those for current refrigerants. However, the rubber hose and gauge manifold to be used for evacuation and refrigerant charge should be exclusively for POE oils.*

- 2) Turn the vacuum pump on and open the manifold valve. The oil of the vacuum pump shall not be allowed to leak into the system.
- 3) Wait until the desired vacuum level is obtained. Vacuuming time may vary depending on the capacity of the vacuum pump.
- 4) Open the manifold valves on the high- and low-pressure ends.
- 5) Remove the manifold hose from the vacuum pump and connect the hose to the refrigerant service cylinder. Purge air from the hose with the hose kept slightly open. Use pure refrigerant with no foreign materials.
- 6) The use of liquid refrigerant is recommended. Turn the service cylinder upside down on a scale and open the manifold valve on the high-pressure end.
- 7) Wait until an adequate amount of refrigerant is injected.
- 8) If necessary, inject the remaining refrigerant into the low pressure-end. Inject refrigerant into the low-pressure end while the system operates.
- 9) Close the manifold valves on the high- and low-pressure ends. Remove the manifold hoses.
- 10) Reattach the caps on the nipples.

## Replacement the parts

### A. Removal and Replacement of Compressor



#### WARNING !

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the drier until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow.
3. When brazing, protect the drier and 4-way valve by using a wet cloth to prevent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250°F (121°C)

When replacing the compressor with defective winding, replace the start capacitor and the start relay as well.

The compressor shall be replaced and serviced within 15 minutes since the POE oil inside the compressor rapidly absorbs moisture.

- 1) Turn off the power of ELCB.
- 2) Open the side door.
- 3) Recover the refrigerant using an adequate vessel.
- 4) Remove the terminal cover of the compressor and disconnect the compressor cable.
- 5) Remove the discharge and the suction pipes.
- 6) Remove the bolts, washers, and rubber grommets from the compressor.
- 7) Remove the compressor. Remove the packaging of the new compressor.
- 8) Insert the rubber grommets in the new compressor.
- 9) Place the compressor on the system and assemble it on the system by tightening the bolts and the washers.
- 10) Replace the drier with a new one.
- 11) While purging with nitrogen gas at pressure of 3-4 psig, braze the copper connections.
- 12) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
- 13) Vacuum the system and inject the refrigerant.
- 14) Connect the terminal and assemble the terminal cover on its position.
- 15) Close the side door.
- 16) Turn on the power of ELCB.

### B. Removal and Replacement of Capillary Tube



#### WARNING !

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the drier until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow.
3. When brazing, protect the drier and 4-way valve by using a wet cloth to prevent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250°F (121°C)

- 1) Turn off the power of ELCB.
- 2) Open the side door.
- 3) Recover the refrigerant using an adequate vessel.
- 4) Remove the capillary tube and install a new one.
- 5) Replace the drier with a new one.
- 6) While purging with nitrogen gas at pressure of 3~4 psig, braze the copper connections.
- 7) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
- 8) Vacuum the system and inject the refrigerant.
- 9) Close the side door.
- 10) Turn on the power of ELCB.

## PARTS

### C. Removal and Replacement of Hot Gas Valve or Liquid Line Valve.



#### **IMPORTANT !**

1. Always use a copper tube of the same diameter and length when replacing the valve lines; otherwise, performance may be affected
2. Always replace the strainer when replacing the hot gas valve



#### **WARNING !**

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the drier until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow.
3. When brazing, protect the drier and 4-way valve by using a wet cloth to prevent the drier and 4-way valve from overheating. Do not allow the drier to exceed 250°F (121°C)

- 1) Turn off the power of ELCB.
- 2) Open the side door.
- 3) Recover the refrigerant using an adequate vessel.
- 4) Remove the bolts and the solenoid valves.
- 5) Disassemble the valve. When replacing the hot gas valve, replace the strainer as well.
- 6) Install the new valve and strainer.
- 7) Replace the drier with a new one.
- 8) While purging with nitrogen gas at pressure of 3~4 psig, braze the copper connections.
- 9) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
- 10) Vacuum the system and inject the refrigerant.
- 11) Connect a new solenoid valve.
- 12) Install the solenoid on the valve body and tighten the bolts.
- 13) Close the side door.
- 14) Turn on the power of ELCB.

### D. Removal and Replacement of Condenser



#### **WARNING !**

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the drier until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow.
3. When brazing, protect the drier and 4-way valve by using a wet cloth to prevent the drier and 4-way valve from overheating. Do not allow the drier to exceed 250°F (121°C)

- 1) Turn off the power of ELCB.
- 2) Open the side door.
- 3) Recover the refrigerant using an adequate vessel.
- 4) Remove the condenser filter, if any.
- 5) Remove the inlet and the outlet from the condenser.
- 6) Open the back panel cover.
- 7) Remove the harness from the fan motor.
- 8) Remove the four screws from the fan motor assembly.
- 9) Remove the screws fastening the bracket that fixes the condenser (total of 4 screws on the left and the right).
- 10) Replace the condenser with a new one.
- 11) Tighten the screws fastening the bracket that fixes the condenser (total of 4 screws on the left and the right).
- 12) Replace the drier with a new one.
- 13) While purging with nitrogen gas at pressure of 3~4 psig, braze the copper connections such as the condenser inlet and outlet.
- 14) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
- 15) Vacuum the system and inject the refrigerant.
- 16) Tighten the four screws from the fan motor assembly.
- 17) Connect the harness to the fan motor.
- 18) Tighten the screws on the back panel cover.
- 19) Close the side door.
- 20) Turn on the power of ELCB.



## E. Replacement of 4-way valve



### WARNING !

1. *Always install a new drier every time the sealed refrigeration system is opened.*
2. *Do not replace the drier until after all other repair or replacement has been made.*  
*Install the new drier with the arrow on the drier in the direction of the refrigerant flow.*
3. *When brazing, protect the drier and 4-way valve by using a wet cloth to prevent the drier and 4-way valve from overheating. Do not allow the drier to exceed 250°F (121°C)*

- 1) Turn off the power of ELCB.
- 2) Open the side door.
- 3) Recover the refrigerant using an adequate vessel.
- 4) Remove the insulator from the 4-way valve assembly.
- 5) Remove the harness from the 4-way valve.
- 6) Remove the solenoid coil from the 4-way valve (1 bolt).
- 7) Remove the 4-way valve (four brazing points).
- 8) While purging with nitrogen gas at pressure of 3–4 psig, braze a new 4-way valve.
- 9) Replace the drier with a new one.
- 10) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
- 11) Assemble the solenoid coil connected to the 4-way valve (1 bolt).
- 12) Assemble the harness on the 4-way valve.
- 13) Vacuum the system and inject refrigerant.
- 14) Close the side door.
- 15) Turn on the power of ELCB.

## F. Replacing the fan motor

- 1) Turn off the power of ELCB.
- 2) Open the back panel cover.
- 3) Remove the harness from the fan motor.
- 4) Remove the six screws from the duct out panel.
- 5) Remove the duct out panel.
- 6) Remove the seven screws from the fan motor cover.
- 7) Remove the fan motor and the fastening fan motor cover (total of four bolts).
- 8) Replace the motor with a new one.
- 9) Assemble the fan motor and the fastening fan motor cover (total of four bolts).
- 10) Tighten the seven screws from the fan motor cover.
- 11) Tighten the six screws from the duct out panel.
- 12) Connect the harness to the fan motor.
- 13) Tighten the screws on the back panel cover.
- 14) Turn on the power of ELCB.

## G. Replacing Dasher Motor

- 1) Turn off the power of ELCB.
- 2) Open the side door.
- 3) Open the back panel cover.
- 4) Remove the harness from the dasher motor.
- 5) Remove the six screws from the duct out panel.
- 6) Remove the duct out panel.
- 7) Remove the three bolts + two bolts from the assy housing shaft assembled with the machine.
- 8) Lift and Take out the dasher motor assy from the machine.
- 9) Remove the four nuts from the gear head.
- 10) Replace the motor with a new one.
- 11) At this time, the parts between the dasher motor and the gear head are transferred to a new dasher motor and assembled.
- 12) Once assembly of the new dasher motor and gear head is complete, reassemble them into the machine.
- 13) Tighten the six screws from the duct out panel.
- 14) Connect the harness to the fan motor.
- 15) Tighten the screws on the back panel cover.
- 16) Close the side door.
- 17) Turn on the power of ELCB.

## H. Replacing Agitator Motor

- 1) Turn off the power of ELCB.
- 2) Open the side door.
- 3) Remove the harness from the agitator motor.
- 4) Remove the tension adjustment bolt.
- 5) Remove the two screws from the bracket assembled with the machine.
- 6) Lift and Take out the agitator motor assy from the machine.
- 7) Remove the four nuts from bracket.
- 8) Replace the motor with a new one.
- 9) Tighten the two screws on bracket. Do not fully tighten at this time.
- 10) Tighten the tension adjustment bolt.
- 11) Fully tighten the two screws on the bracket.
- 12) Connect the harness to the fan motor.
- 13) Close the side door.
- 14) Turn on the power of ELCB.



## **Section 5: Parts List**

- **ISI-161TH**

## ISI-161TH

Description	Part Number	ISI-161TH- TRUS- 60-1-4 Qty.					Warr. Class	Remarks
4 WAY VALVE BODY	340012400	1						
4 WAY VALVE COIL	340013000							
AGITATOR SEALING PACKING	303020700	1						
AGITATOR TOP PACKING TWO	303018600	3						
ASSY AGITATOR MOTOR	406023600	1						
ASSY AGITATOR MOTOR	406009200							
ASSY CONDENSER	411029200	1						
ASSY CONDENSER	411027800							
ASSY CSR BOX	426066400	1						
START-RELAY	357019500	1						
START CAPACITOR	659019000	1						
RUN CAPACITOR	659018900	1						
ASSY CSR BOX	426066600							
START RELAY	357013800							
START CAPACITOR	659007200							
RUN-CAPACITOR	659010500							
ASSY CSR BOX	426066800							
START-RELAY	357018100							
START CAPACITOR	659017300							
RUN CAPACITOR	659016900							
ASSY DRUM FOAM 161TH	410038800	1						
ASSY DRUM FOAM 161TH	410035800							

Models ISI-161

Parts List

PARTS LIST

Description	Part Number	ISI-161TH-TRUS-60-1-4 Qty.						Remarks
ASSY HOUSING SHAFT	430003600	1						
ASSY PISTON SENSOR	430003701	1						
MICRO SWITCH	355008200	1						
BKT GUIDE SENSOR	301158900	1						
SCREW MACHINE	AAAA01060	2						
ASSY SENSOR CAP	319008900	1						
ASSY SENSOR MAGNET	701002000	1						
ASSY TOTAL CONTROL BOX	426070500	1						
CONTROL BOX	374139200	1						
MAGNETIC CONTACTOR	322002201	1						
ASSY MAIN PCB	415010000	1						
GROMMET BUSHING	232003500	2						
ASSY TOTAL CONTROL BOX	426066700							
CONTROL BOX	374139200							
MAGNET	322002300							
ASSY MAIN PCB	415010000							
GROMMET BUSHING	232003500							
BACK PANEL	317180700	1						
BASKET COVER STUD	314040100	2						
BELT V S	307005900							
BKT USB PCB	301151210	1						
BOLT DASHER COVER	317072600	4						

Description	Part Number	ISI-161TH- TRUS- 60-1-4 Qty.						Remarks
BUSH AGITATOR	336029000	1						
BUTTON DISPLAY BASE	349094000	1						
COMP/NT6222GKV	394022600	1						
COMP/NT6222GKV	394021100							
COMP/NT6224GK	394020800							
COND OUT DUCT	301161600	1						
COND OUT DUCT	301151500							
CONTROL BOX COVER	374139600	1						
COUPLING	612000700	1						
DASHER MOTOR	353032800	1						
DISPLAY PANEL ASSY	420045020	1						
BADGE-TAYLOR	380166900	1						
BUTTON DISPLAY	440032202	1						
ASSY BUTTON DISPLAY PANEL	420043700	1						
ASSY DISPLAY PCB	415010100	1						
DRAIN BUSING	336027600	1						
DRAIN FIX BOLT	214029600	2						
DUCT COVER ASSY	317185800	1						
DUCT OUT PANEL	301151900	1						
E RING AGITATOR	303034900	1						
EXPANSION VALVE	340013200	2						
FAN MOTOR ASSY (JH250B4E01)	406023700	1						

Description	Part Number	ISI-161TH- TRUS- 60-1-4 Qty.						Remarks
FAN MOTOR ASSY(JH225C4E02)	406021500							
FILTER DRYER	372002601	1						
FOAM BACK	306040400	1						
FRONT COVER DOWN	317180200	1						
FRONT TOP PANEL	317180100	1						
GEAR HEAD(RATIO 12.5:1)	353031000	1						
GEAR HEAD-161TH(RATIO 10:1)	353033300							
GROMMET BUSHING	232003500	1						
HOUSING SHAFT FLANGE	397002502	1						
INVERTER	500001300	1						
INVERTER	500001000							
MIX LOW PACKING ONE	303021300	1						
MIX SENSOR DOWN CAP	655010200	1						
MIX SENSOR SHAFT 161TH	655010701	1						
MIX TOP CAP	655010400	1						
NUT SENSOR CAP	319008800	1						
O RING	303035000	1						
PACKING BACK POM FLANGE	229031100	1						
PACKING FRONT COVER	303034400	1						
PACKING FRONT POM FLANGE	229031000	1						
PACKING PUMP BODY (P14)	303024800	3						
PACKING S28	303034800	1						

Description	Part Number	ISI-161TH- TRUS- 60-1-4 Qty.						Remarks
POM FLANGE	397002400	1						
PRESSURE SWITCH	355020100	1						
PRESSURE SWITCH/SRT1008	355015100	1						
PULLY R	307005800							
SENSOR BASE	655010600	1						
SHAFT AGITATOR-141TH	314040200	1						
SHAFT CAP	314012700	1						
SHAFT DOWN BEARING	314013000	1						
SHAFT TOP BEARING	314012900	1						
SMPS	629001300	1						
SOL VALVE BRACKET 1	301151000	1						
SOL VALVE BRACKET 2	301151100							
SOL VALVE BRACKET	317200200	1						
SOLENOID V/V BODY	340027600	1						
SOLENOID VALVE COIL	340029100	4						
SOLENOID VALVE COIL	340028500	3						
SOLENOID VALVE COIL	340013100							
SOLENOID VALVE COIL	340011600							
SPEAKER	633000300	1						
SWITCH	355012400	1						
TOP COVER DUCT GUIDE	317180800	1						

Description	Part Number	ISI-161TH- TRUS- 60-1-4 Qty.						Remarks
TURBO FAN MOTOR COVER	301161500	1						
TURBO FAN MOTOR COVER	301156000							
USB DOWNLOAD PCB	367009304	1						
VESSEL NUT	215020000	1						
WASHER BEARING	211003600	1						
WELDING HARNESS MIX OUT	409038200	1						

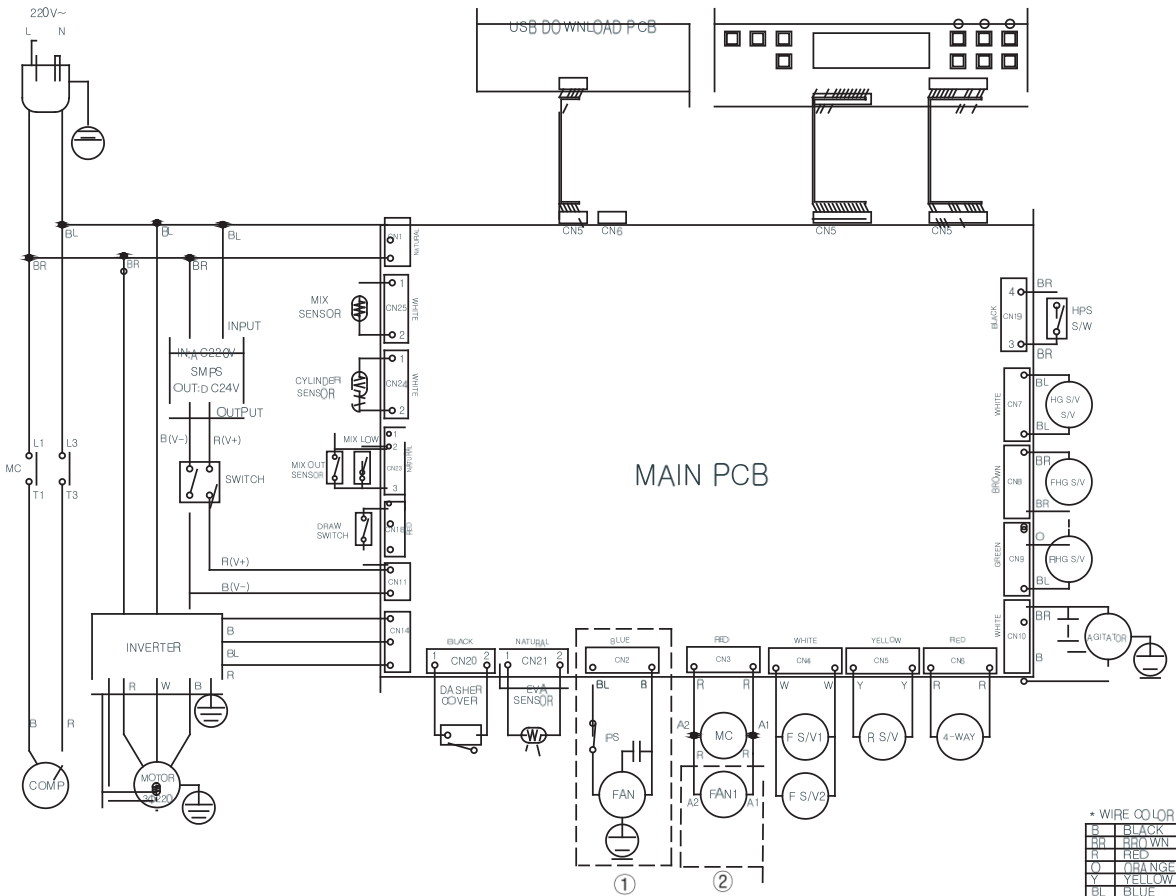




## **Section 6:    Wiring Diagrams**

3

## WIRING DIAGRAM



\* MODEL

Air Cooling Type	include ①
Water Cooling Type	include ②

\* WIRE COLOR

B	BLACK
BR	RED W/N
R	RED
O	ORANGE
Y	YELLOW
BL	BLUE
Y	VIOLET
GY	GRAY
W	WHITE
G	GREEN

CODE NO : 3801281-00

