



SELF-CONTAINED CUBER

SERVICE MANUAL

**IM-21CNE-HC
IM-30CNE-HC
IM-30CWNE-HC
IM-45CNE-HC
IM-45NE-HC
IM-45WNE-HC
IM-65NE-HC
IM-65WNE-HC
IM-100CNE-HC
IM-100NE-HC
IM-100WNE-HC
IM-130NE-HC
IM-130WNE-HC
IM-240NE-HC
IM-240WNE-HC**

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I. SPECIFICATIONS

1. DIMENSIONS/SPECIFICATIONS

[a] IM-21CNE-HC

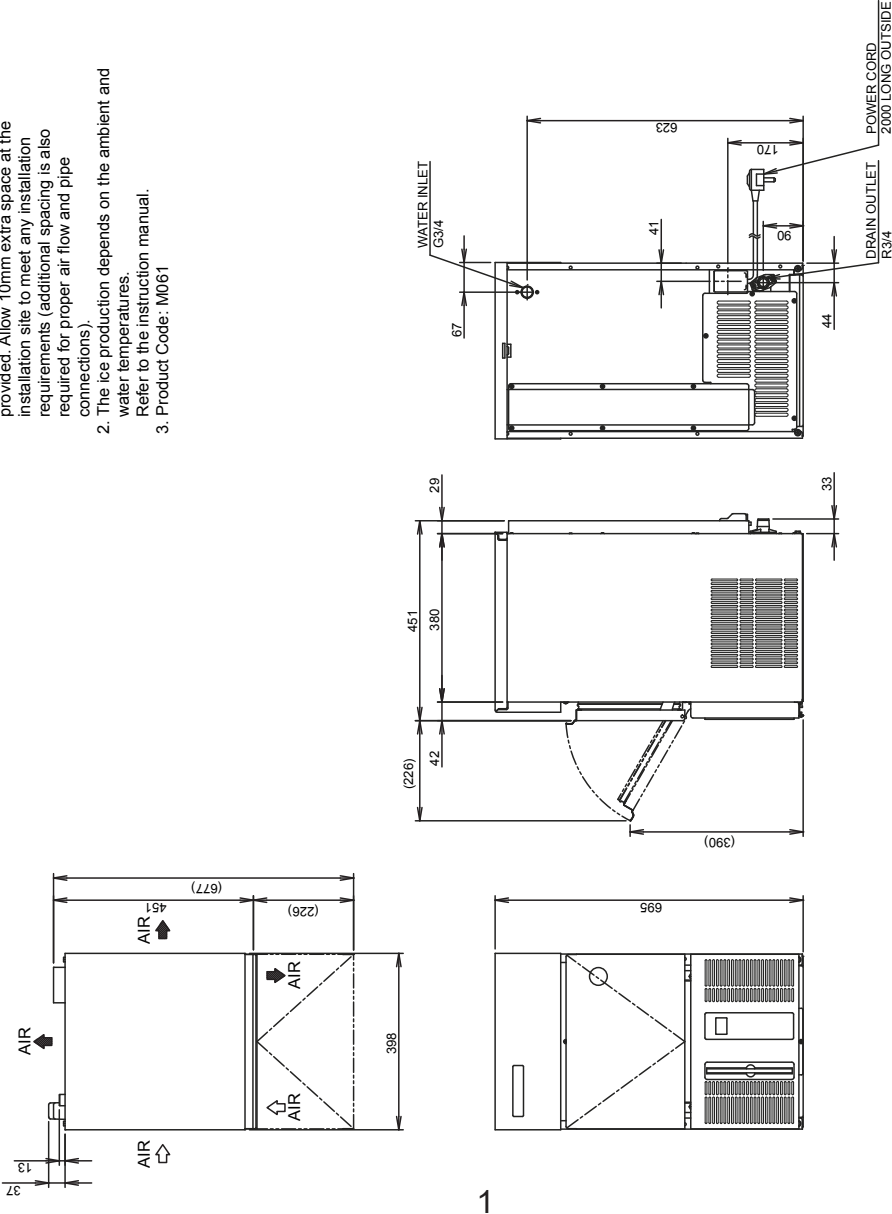
ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-21CNE-HC
POWER SUPPLY	1 PHASE 220-240V 50Hz Capacity: Min. 0.51kVA (2.2A)
AMPERAGE	Running: 1.6A Rated Motor: 1.6A Starting: 8A
ELECTRIC CONSUMPTION	Rated Motor: 225W (Power factor: 59%)
ICE PRODUCTION PER 24h	Approx. 23kg (5nm)/25kg (15nm) (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 22kg (5nm)/24kg (15nm) (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 20kg (5nm)/22kg (15nm) (Ambient Temp. 32°C, Water Temp. 21°C) Approx. 0.10m³ (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 0.08m³ (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 0.05m³ (Ambient Temp. 32°C, Water Temp. 21°C)
WATER CONSUMPTION PER 24h	Approx. 0.10m³ (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 0.08m³ (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 0.05m³ (Ambient Temp. 32°C, Water Temp. 21°C)
SHAPE OF ICE	Cube Approx. 28 × 28 × 32mm
FREEZE CYCLE TIME	Approx. 19min (Ambient Temp. 21°C, Water Temp. 15°C)
ICE PRODUCTION PER CYCLE	Approx. 0.4kg/18sec (Ambient Temp. 21°C, Water Temp. 15°C)
MAX STORAGE CAPACITY	Approx. 11.5kg (Bin Control Setting Approx. 6kg)
OUTSIDE DIMENSIONS	388mm (W) × 451mm (D) × 695mm (H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION BLOWING AGENT	Water Blown
CONNECTIONS-ELECTRIC	X-Type Con. (with CONT. Plug)
CONNECTIONS-WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS-DRAIN	Outlet R3/4 (connected at rear side)
ICE MAKING SYSTEM	Cell type
HARVESTING SYSTEM	Hd. Gas Defrost
COMPRESSOR	Hermetic
CONDENSER	Fin and Tube type, Air-cooled
HEAT REJECTION	510W (440kcal/h) (Ambient Temp. 32°C, Water Temp. 21°C)
EVAPORATOR	Electroless Nickel Plated Copper Tube on Sheet and Cells
REFRIGERANT CONTROL	Capillary Tube
REFRIGERANT CHARGE	R290/55g
ICE MAKING CONTROL	Thermistor, Timer
HARVESTING CONTROL	Thermistor
BIN CONTROL	Microswitch (with Time Delay)
ICE MAKING WATER CONTROL	Timer, Water Pan's Movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Overload Protector (Auto-reset)
ICE MAKER PROTECTION	Pressure Switch (Auto-reset)
INTERLOCK by Controller Board	Interlock by Controller Board
WEIGHT	34kg (Gross 39kg)
PACKAGE	Carton 505mm (W) × 575mm (D) × 862mm (H)
ACCESSORIES	Scoop, Installation Kit
OPERATING CONDITIONS	Ambient Temp.: 1-40°C Water Supply Temp.: 5-35°C Water Supply Pressure: 0.07-0.8MPa (0.7-8bar) Voltage Range: Rated Voltage±6%

※ We reserve the right to make changes in specifications and design without prior notice.

1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).

2. The ice production depends on the ambient and water temperatures. Refer to the instruction manual.

3. Product Code: M061

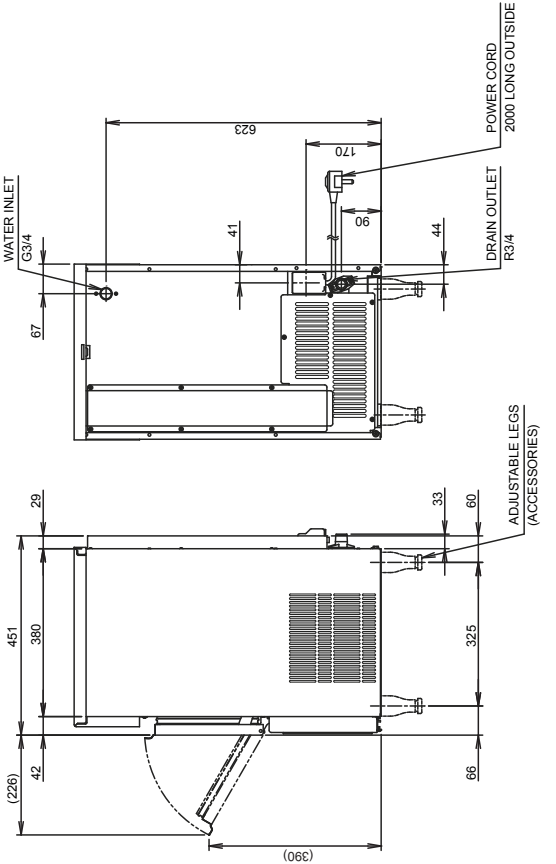
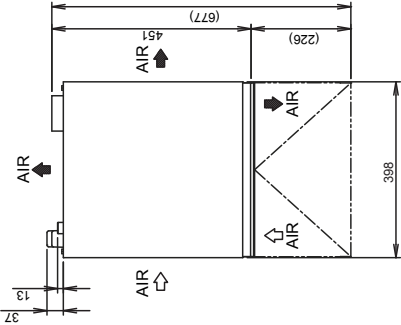


[b] IM-30CNE-HC

ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-30CNE-HC
POWER SUPPLY	1 PHASE 220-240V 50Hz Capacity: Min. 0.51kVA (2.2A)
AMPERAGE	Running: 1.6A Rated Motor: 1.6A Starting: 8A
ELECTRIC CONSUMPTION	Rated Motor: 230W (Power factor: 60%)
ICE PRODUCTION PER 24h	Approx. 25kg (5mm)/30kg (15mm) (Ambient Temp.10°C, Water Temp.10°C) Approx. 24kg (5mm)/28kg (15mm) (Ambient Temp.21°C, Water Temp.15°C) Approx. 22kg (5mm)/24kg (15mm) (Ambient Temp.32°C, Water Temp.21°C)
WATER CONSUMPTION PER 24h	Approx. 0.11m³ (Ambient Temp.10°C, Water Temp.10°C) Approx. 0.07m³ (Ambient Temp.21°C, Water Temp.15°C) Approx. 0.06m³ (Ambient Temp.32°C, Water Temp.21°C)
SHAPE OF ICE	Cube Approx. 28 x 28 x 32mm
FREEZE CYCLE TIME	Approx. 18min (Ambient Temp.21°C, Water Temp.15°C)
ICE PRODUCTION PER CYCLE	Approx. 0.4kg/18pos. (Ambient Temp.21°C, Water Temp.15°C)
MAX STORAGE CAPACITY	Approx. 11.5kg (Bin Control Setting Approx. 6kg)
OUTSIDE DIMENSIONS	398mm (W) x 451mm (D) x 695mm (H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION FOAM BLOWING AGENT	Water Blown
CONNECTIONS-ELECTRIC	X-Type Con. (with CONT. Plug)
CONNECTIONS-WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS-DRAIN	Outlet R3/4 (connected at rear side)
ICE MAKING SYSTEM	Cell Type
HARVESTING SYSTEM	Hot Gas Defrost
COMPRESSOR	Hermetic
HEAT REJECTION	Fin and Tube type, Air-cooled 540W (470kcal/h) (Ambient Temp.32°C, Water Temp.21°C)
EVAPORATOR	Electroless Nickel Plated Copper Tube on Sheet and Cells
REFRIGERANT CONTROL	Capillary Tube
REFRIGERANT CHARGE	R290/65g
ICE MAKING CONTROL	Thermistor, Timer
HARVESTING CONTROL	Thermistor
BIN CONTROL	Microswitch (with Time Delay)
ICE MAKING WATER CONTROL	Timer, Water Pan's Movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Overload Protector (Auto-reset) Pressure Switch (Auto-reset)
ICE MAKER PROTECTION	Interlock by Controller Board
WEIGHT	34kg (Gross 39kg)
PACKAGE	Carton 505mm (W) x 575mm (D) x 862mm (H)
ACCESSORIES	Scoop, Leg, Installation Kit
OPERATING CONDITIONS	Ambient Temp.: 1-40°C Water Supply Temp.: 5-35°C Water Supply Pressure: 0.07-0.8MPa (0.7-8bar) Voltage Range: Rated Voltage±6%

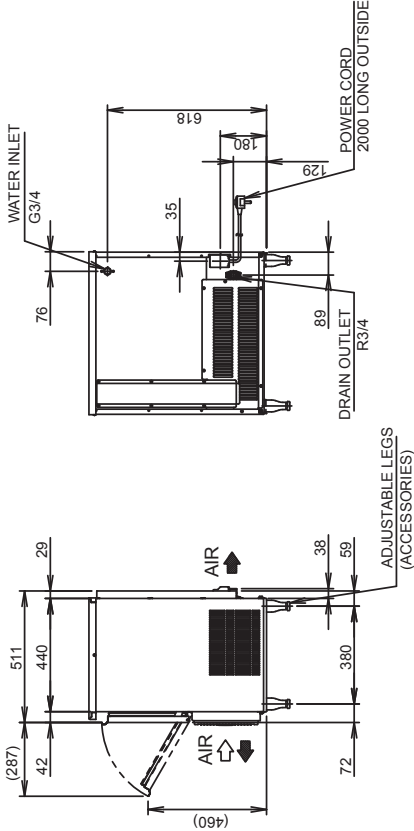
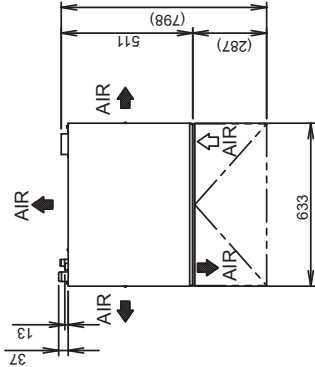
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1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).
2. The ice production depends on the ambient and water temperatures.
Refer to the instruction manual.
3. Product Code: M062



[c] IM-45CNE-HC

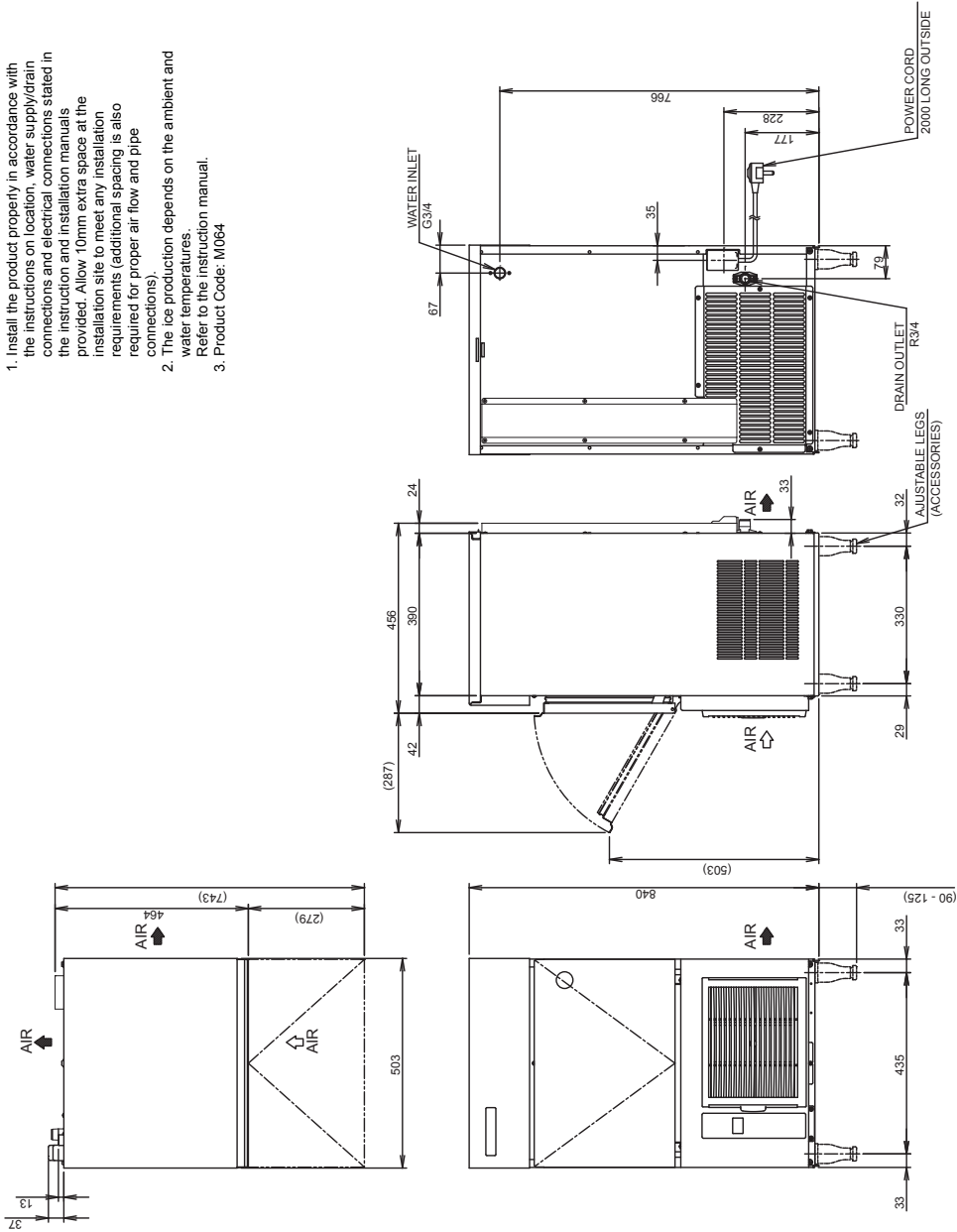
1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).
2. The ice production depends on the ambient and water temperatures.
Refer to the instruction manual.
3. Product Code: M065



ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-45CNE-HC
POWER SUPPLY	1 PHASE 220-240V 50Hz Capacity: Min. 0.57kVA (2.4A)
AMPERAGE	Running: 1.9A Rated Motor: 1.9A Starting: 9A
ELECTRIC CONSUMPTION	Rated Motor: 275W (Power factor: 60%) Approx. 40kg (5mm)/48kg (15mm) (Ambient Temp.10°C, Water Temp.10°C) Approx. 36kg (5mm)/44kg (15mm) (Ambient Temp.21°C, Water Temp.15°C) Approx. 30kg (5mm)/36kg (15mm) (Ambient Temp.32°C, Water Temp.21°C)
ICE PRODUCTION PER 24h	Approx. 0.18m³ (Ambient Temp.10°C, Water Temp.10°C) Approx. 0.11m³ (Ambient Temp.21°C, Water Temp.15°C) Approx. 0.10m³ (Ambient Temp.32°C, Water Temp.21°C)
WATER CONSUMPTION PER 24h	Cube Approx. 28 × 28 × 32mm
SHAPE OF ICE	Approx. 24min (Ambient Temp.21°C, Water Temp.15°C)
FREEZE CYCLE TIME	Approx. 0.87kg/30pcs (Ambient Temp.21°C, Water Temp.15°C)
ICE PRODUCTION PER CYCLE	Approx. 15kg (Bin Control Setting Approx. 8kg)
MAX STORAGE CAPACITY	633mm (W) × 511mm (D) × 600mm (H)
OUTSIDE DIMENSIONS	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION/FOAM BOMB/AGENT	Water Blown
CONNECTIONS-ELECTRIC	X-Type Con. (with CONT. Plug)
CONNECTIONS-WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS-DRAIN	Outlet R3/4 (connected at rear side)
ICE MAKING SYSTEM	Coil type
HARVESTING SYSTEM	Hot Gas Defrost
COMPRESSOR	Hermatic
CONDENSER	Fin and Tube type, Air-cooled
HEAT REJECTION	655W (685kcal/h) (Ambient Temp.32°C, Water Temp.21°C)
EVAPORATOR	Electrobrass Nickel Plated Copper Tube on Sheet Coils
REFRIGERANT CONTROL	Capillary Tube
REFRIGERANT CHARGE	R290/70g
ICE MAKING CONTROL	Thermistor, Timer
HARVESTING CONTROL	Thermistor
ICE MAKING WATER CONTROL	Microswitch (with Time Delay)
ELECTRICAL PROTECTION	Timer, Water Pan's Movement
ICE MAKER PROTECTION	Class I Appliance, 5A Fuse
PACKAGE WEIGHT	Overload Protector (Auto reset) Pressure Switch (Auto reset)
ACCESSORIES	Interlock by Controller Board
OPERATING CONDITIONS	45kg (Gross 55kg) Carbon 735mm (W) × 570mm (D) × 864mm (H) Scrub. Leg. Installation Kit Ambient Temp.: 1-40°C Water Supply Temp.: 5-35°C Water Supply Pressure: 0.07-0.8MPa (0.7-8bar) Voltage Range: Rated Voltage±6%

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[d] IM-45NE-HC



ITEM	IM-45NE-HC
MODEL	IM-45NE-HC
POWER SUPPLY	PHASE: 220-240V, 60Hz Capacity: 1.9A, 0.57A/VA (24A)
AMPERAGE	Running: 1.9A, Rated Motor: 1.9A Starting: 9A
ELECTRIC CONSUMPTION	Rated Motor: 275W (Power factor: 60%) Approx. 40kg (6mm)/46kg (15mm) (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 39kg (6mm)/42kg (15mm) (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 38kg (6mm)/40kg (15mm) (Ambient Temp. 32°C, Water Temp. 21°C)
ICE PRODUCTION PER 24h	Approx. 0.18m³ (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 0.17m³ (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 0.16m³ (Ambient Temp. 32°C, Water Temp. 21°C)
WATER CONSUMPTION PER 24h	Approx. 0.18m³ (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 0.17m³ (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 0.16m³ (Ambient Temp. 32°C, Water Temp. 21°C)
SHAPE OF ICE	Cube Approx. 28 × 28 × 32mm
FREEZE CYCLE TIME	Approx. 45min (Ambient Temp. 21°C, Water Temp. 15°C)
ICE PRODUCTION PER CYCLE	Approx. 0.67kg/39pcs. (Ambient Temp. 21°C, Water Temp. 15°C)
MAX STORAGE CAPACITY	Approx. 18kg (Bin Control) Setting Approx. 10kg
OUTSIDE DIMENSIONS	503mm (W) × 456mm (D) × 840mm (H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION FOAM BLOWING AGENT	Water Blown
CONNECTIONS-ELECTRIC	X-1 type Con. (with CONT. Plug)
CONNECTIONS-WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS DRAIN	Outlet R3/4 (connected at rear side)
ICE MAKING SYSTEM	Cell Type
HARVESTING SYSTEM	Hot Gas Defrost
COMPRESSOR	Hermetic
CONDENSER	Fin and Tube Type Air-cooled
HEAT REJECTION	655W (355kcal/h) 2°C, Water Temp. 21°C (Ambient Temp. 32°C, Water Temp. 21°C)
EVAPORATOR	Electroless Nickel Plated Copper Tube on Sheet and Cells
REFRIGERANT CONTROL	Capillary Tube
REFRIGERANT CHARGE	R290/70g
ICE MAKING CONTROL	Thermistor, Timer
HARVESTING CONTROL	Thermistor
BIN CONTROL	Microswitch (with Time Delay)
ICE MAKING WATER CONTROL	Timer, Water Pan's Movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Overload Protector (Auto-reset)
ICE MAKER PROTECTION	Pressure Switch (Auto-reset)
WEIGHT	Interlock by Controller Board
PACKAGE	44kg (Gross 50kg)
ACCESSORIES	Carton 635mm (W) × 520mm (D) × 1007mm (H)
OPERATING CONDITIONS	Scoop, Leg, Installation Kit Ambient Temp.: 1-40°C Water Supply Temp.: 5-35°C Water Pressure: 0.07-0.8MPa (0.7-8bar) Voltage Range: Rated Voltage±8%

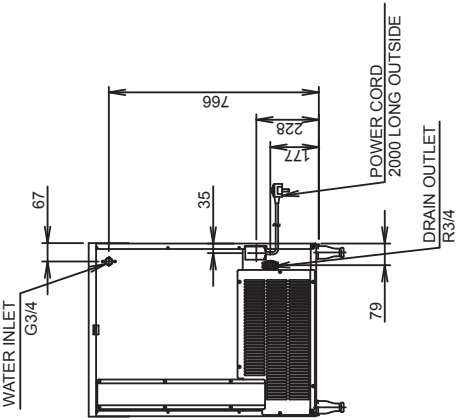
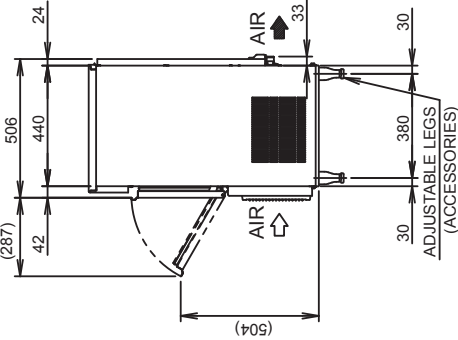
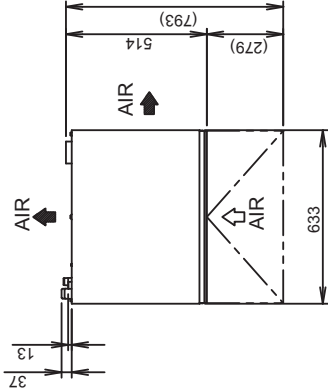
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[e] IM-65NE-HC

ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-65NE-HC
POWER SUPPLY	1 PHASE 220-240V 50Hz Capacity: Min. 0.68kVA (2.9A)
AMPERAGE	Running: 2.5A Rated Motor: 2.5A Starting: 11A
ELECTRIC CONSUMPTION	Rated Motor: 320W (Power factor: 53%)
ICE PRODUCTION PER 24h	Approx. 52kg (5mm)/62kg (15mm) (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 47kg (5mm)/56kg (15mm) (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 39kg (5mm)/46kg (15mm) (Ambient Temp. 32°C, Water Temp. 21°C)
WATER CONSUMPTION PER 24h	Approx. 0.21m ³ (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 0.14m ³ (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 0.12m ³ (Ambient Temp. 32°C, Water Temp. 21°C)
SHAPE OF ICE	Cube Approx. 28 × 28 × 32mm
FREEZE CYCLE TIME	Approx. 25min (Ambient Temp. 21°C, Water Temp. 15°C)
ICE PRODUCTION PER CYCLE	Approx. 0.94kg/42pcs. (Ambient Temp. 21°C, Water Temp. 15°C)
MAX STORAGE CAPACITY	Approx. 26kg (Bin Control Setting Approx. 18kg)
OUTSIDE DIMENSIONS	633mm (W) × 506mm (D) × 840mm (H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION FOAM BLOWING AGENT	Water Blown
CONNECTIONS: ELECTRIC	X-Type Con. (with CONT. Plug)
CONNECTIONS: WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS: DRAIN	Outlet R3/4 (connected at rear side)
ICE MAKING SYSTEM	Cell type
HARVESTING SYSTEM	Hot Gas Defrost
COMPRESSOR	Hermetic
CONDENSER	Fin and Tube type, Air-cooled
HEAT REJECTION	815W (705kcal/h) (Ambient Temp. 32°C, Water Temp. 21°C)
EVAPORATOR	Electroless Nickel Plated Copper Tube on Sheet and Cells
REFRIGERANT CONTROL	Capillary Tube
REFRIGERANT CHARGE	R290/110g
ICE MAKING CONTROL	Thermistor, Timer
HARVESTING CONTROL	Thermistor
ICE CONTROL	Microswitch (with Time Delay)
ICE MAKING WATER CONTROL	Timer, Water Pan's Movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Overload Protector (Auto-reset)
ICE MAKER PROTECTION	Pressure Switch (Auto-reset)
WEIGHT	Interlock by Controller Board
PACKAGE	50kg (Gross 60kg)
ACCESSORIES	Carton 735mm (W) × 570mm (D) × 1012mm (H) Scoop, Leg, Installation Kit
OPERATING CONDITIONS	Ambient Temp.: 1-40°C Water Supply Temp.: 5-35°C Water Supply Pressure: 0.07-0.8MPa (0.7-8bar) Voltage Range: Rated Voltage±6%

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1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).
2. The ice production depends on the ambient and water temperatures. Refer to the instruction manual.
3. Product Code: M066

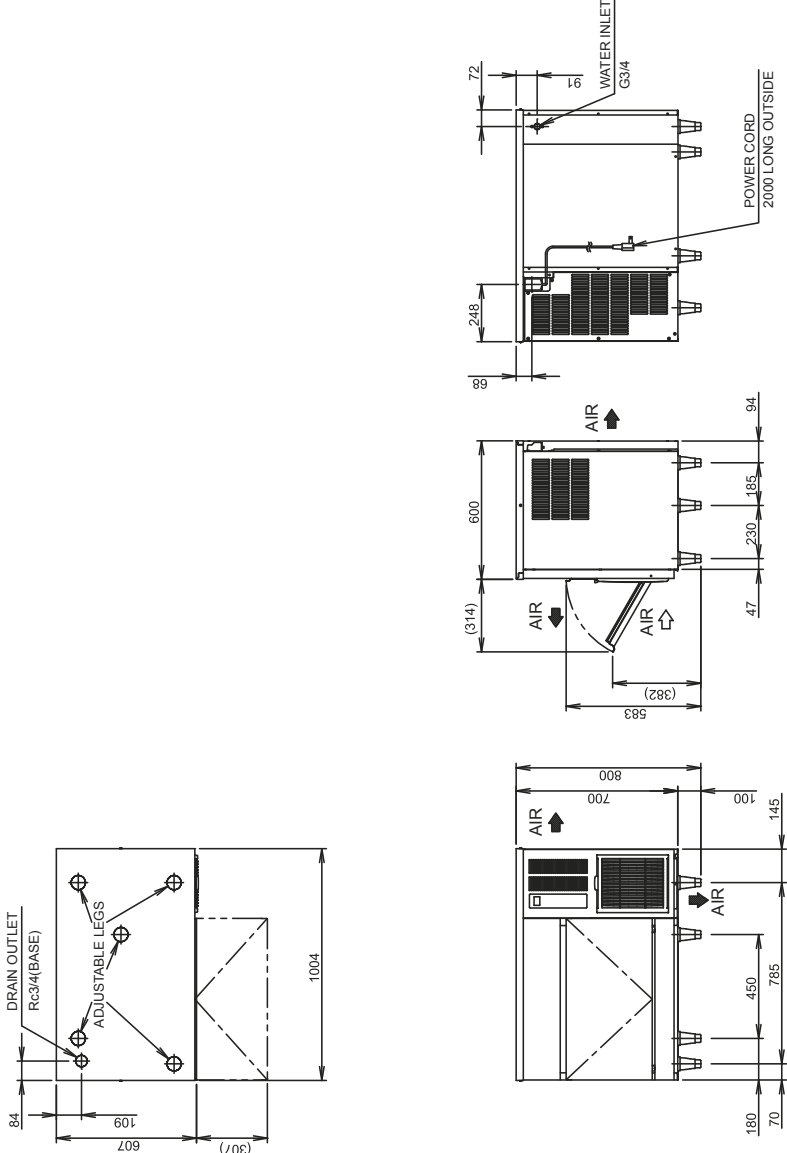


[f] IM-100CNE-HC

ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-100CNE-HC
POWER SUPPLY	1 PHASE 220-240V 50Hz Capacity: Min. 1.10kVA (4.6A)
AMPERAGE	Running: 3.5A Rated Motor: 3.5A Starting: 15A
ELECTRIC CONSUMPTION	Rated Motor: 500W (Power factor: 58%)
ICE PRODUCTION PER 24h	Approx. 92kg (5mm) (105kg (15mm) (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 94kg (5mm) (106kg (15mm) (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 75kg (5mm) (84kg (15mm) (Ambient Temp. 32°C, Water Temp. 21°C)
WATER CONSUMPTION PER 24h	Approx. 0.47m ³ (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 0.22m ³ (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 0.18m ³ (Ambient Temp. 32°C, Water Temp. 21°C)
SHAPE OF ICE	Cube Approx. 28 x 28 x 32mm
FREEZE CYCLE TIME	Approx. 26min (Ambient Temp. 21°C, Water Temp. 15°C)
ICE PRODUCTION PER CYCLE	Approx. 1.8kg/80pos. (Ambient Temp. 21°C, Water Temp. 15°C)
MAX STORAGE CAPACITY	Approx. 38kg (Bin Control Setting Approx. 23kg)
OUTSIDE DIMENSIONS	1004mm (W) x 600mm (D) x 800 (790 - 830)mm (H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION FLOWING AGENT	Water Blown
CONNECTIONS-ELECTRIC	X-Type Con. (with CONT. Plug)
CONNECTIONS-WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS-DRAIN	Outlet Rc3/4 (connected at bottom)
ICE MAKING SYSTEM	Cell type
HARVESTING SYSTEM	Hot Gas Defrost
COMPRESSOR	Hermetic
CONDENSER	Air-cooled
HEAT REJECTION	1150W (Ambient Temp. 32°C, Water Temp. 21°C)
EVAPORATOR	Electroless Nickel Plated Copper Tube on Sheet and Cells
REFRIGERANT CONTROL	Thermostatic Expansion Valve
REFRIGERANT CHARGE	R290/125g
ICE MAKING CONTROL	Thermistor, Timer
HARVESTING CONTROL	Thermistor
BIN CONTROL	Microswitch (with Time Delay)
ICE MAKING WATER CONTROL	Timer, Water Pan's Movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Overload Protector (Auto-reset) Pressure Switch (Auto-reset)
ICE MAKER PROTECTION	Interlock by Controller Board
GAS LEAK DETECTION	Gas Sensor
LEG	Plastic Adjustable from 90 to 130mm
WEIGHT	77kg (Gross 88kg)
PACKAGE	Carton 1110mm (W) x 700mm (D) x 875mm (H)
ACCESSORIES	Scoop, Installation Kit
OPERATING CONDITIONS	Ambient Temp.: 1 - 40°C Water Supply Temp.: 5-35°C Water Supply Pressure: 0.07-0.8MPa (0.7-8bar) Voltage Range: Rated Voltage±8%

※ We reserve the right to make changes in specifications and design without prior notice.

1. Install the ice maker properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).
2. The ice production depends on the ambient and water temperatures.
Refer to the instruction manual.
3. Product Code: M068

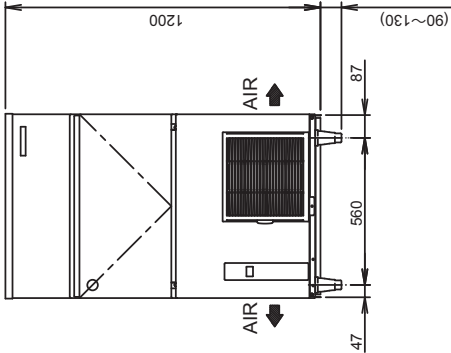
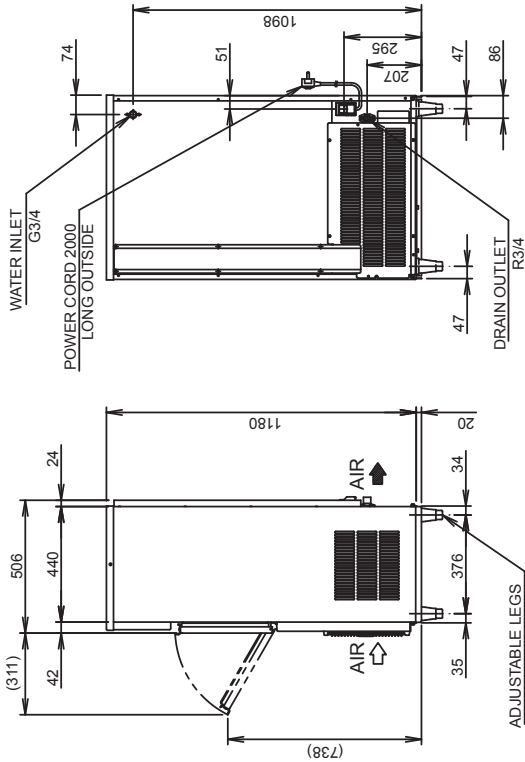
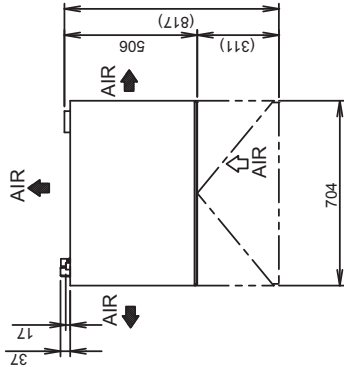


[g] IM-100NE-HC

ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-100NE-HC
POWER SUPPLY	1 PHASE 220-240V 50Hz Capacity: Min. 0.97kVA (4-1A)
AMPERAGE	Running: 3.7A Rated Motor: 3.7A Starting: 15A
ELECTRIC CONSUMPTION	Rated Motor: 555W (Power factor: 62%)
ICE PRODUCTION PER 24h	Approx. 92kg(5mm)/105kg(15mm) (AT 10°C, WT 10°C) Approx. 90kg(5mm)/95kg(15mm) (AT 21°C, WT 15°C) Approx. 78kg(5mm)/86kg(15mm) (AT 32°C, WT 21°C)
WATER CONSUMPTION PER 24h	Approx. 0.45m ³ (AT 10°C, WT 10°C) Approx. 0.21m ³ (AT 15°C, WT 15°C) Approx. 0.18m ³ (AT 32°C, WT 21°C)
SHAPE OF ICE	Cube Approx. 28×28×32mm
FREEZE CYCLE TIME PER CYCLE	Approx. 28min (AT 21°C, WT 15°C)
ICE PRODUCTION PER CYCLE	Approx. 1.8kg/80pcs (AT 21°C, WT 15°C)
MAX STORAGE CAPACITY	Approx. 50.0kg (Bin Control Setting Approx. 28kg) (Bin Control Setting Approx. 28kg)
DIMENSIONS	704mm(W)×506mm(D)×1200mm(H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION FOAM BLOWING AGENT	Water Blown
CONNECTIONS-ELECTRIC	X-Type Con. (with CONT. Plug)
CONNECTIONS-WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS-DRAIN	Outlet R3/4 (connected at rear side)
ICE MAKING SYSTEM	Cell type
HARVESTING SYSTEM	Hot Gas Defrost
COMPRESSOR	Hermetic
CONDENSER	Air-cooled, Spiral tube type
HEAT REJECTION	1180W (AT 32°C, WT 21°C) Electrical Nickel Plated Copper Tube on Sheet and Cells
EVAPORATOR	Thermostatic Expansion Valve
REFRIGERANT CONTROL	R290 120g
ICE MAKING CONTROL SYSTEM	Thermistor, Timer
HARVESTING CONTROL SYSTEM	Thermistor
BIN MAKING WATER CONTROL SYSTEM	Microswitch (with Time Delay) Timer, Water Pan's movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Overload Protector (Auto-reset) Pressure Switch (Auto-reset)
ICE MAKER PROTECTION	Interlock by Controller Board
GAS LEAK DETECTION	Gas Sensor
WEIGHT	Net weight 78kg/Gross weight 84kg
PACKAGE	Carton 805mm(W)×580mm(D)×1375mm(H)
ACCESSORIES	Scoop, Leg, Installation Kit
OPERATING CONDITIONS	Ambient Temp.: 1-40°C Water Supply Temp.: 5-35°C Water Supply Pressure: 0.07-0.8MPa (0.7-8bar), Voltage Range: Rated Voltage±6%

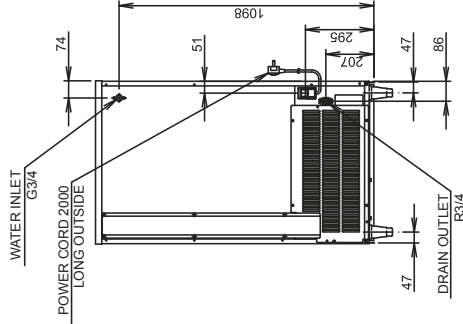
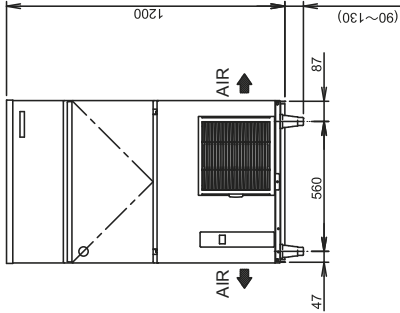
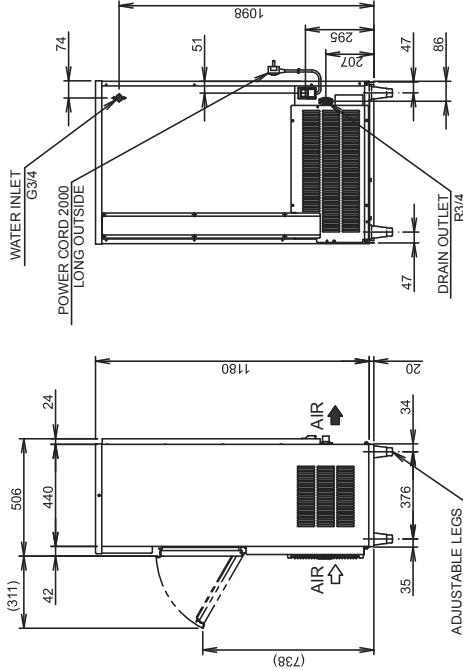
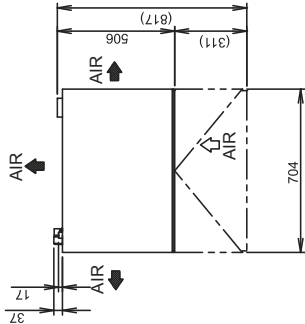
※ We reserve the right to make changes in specifications and design without prior notice.

1. Install the ice maker properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).
2. The ice production depends on the ambient and water temperatures.
Refer to the instruction manual.
3. Product Code: M036



[h] IM-130NE-HC

1. Install the ice maker properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).
2. The ice production depends on the ambient and water temperatures.
Refer to the instruction manual.
3. Product Code: M069

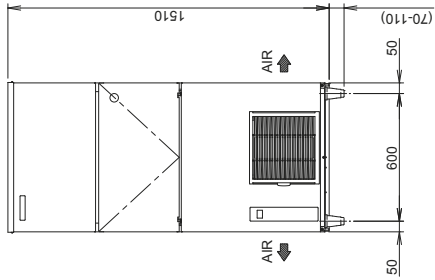
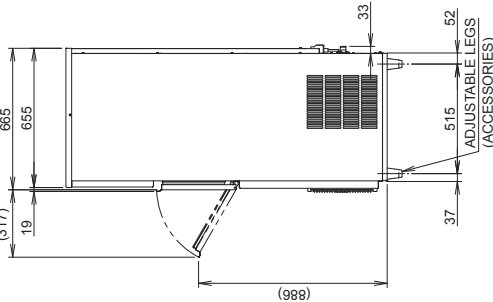
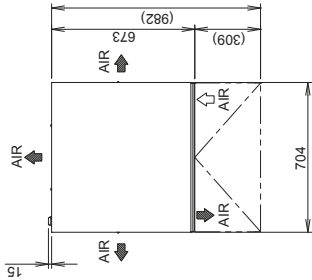


ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-130NE-HC
POWER SUPPLY	1 PHASE 220-240V 50Hz Capacity: Min. 1.40kVA (5.8A)
AMPERAGE	Running: 4.4A Rated Motor: 4.4A Starting: 19A
ELECTRIC CONSUMPTION	Rated Motor: 615W (Power factor: 58%)
ICE PRODUCTION PER 24h	Approx. 110kg (5mm)/120kg (15mm) (AT:10°C, WT:10°C) Approx. 104kg (5mm)/107kg (15mm) (AT:21°C, WT:15°C) Approx. 86kg (5mm)/91kg (15mm) (AT:32°C, WT:21°C)
WATER CONSUMPTION PER 24h	Approx. 0.52m ³ (AT:10°C, WT:10°C) Approx. 0.26m ³ (AT:21°C, WT:15°C) Approx. 0.22m ³ (AT:32°C, WT:21°C) Cube: Approx. 28 x 28 x 32mm
SHAPE OF ICE	Approx. 23mm (AT:21°C, WT:15°C)
FREEZE CYCLE TIME PER CYCLE	Approx. 1.8kg/80pcs. (AT:21°C, WT:15°C)
MAX STORAGE CAPACITY	Approx. 50kg (Bin Control Setting: Approx. 28kg)
DIMENSIONS	704mm(W) x 506mm(D) x 1200mm(H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION FOAM BLOWING AGENT	Water Blown
CONNECTIONS-ELECTRIC	X-Type Cont. (with CONT. Plug)
CONNECTIONS-WATER SUPPLY	Inlet G3/4 (connected at rear side)
CONNECTIONS-DRAIN	Outlet R3/4 (connected at rear side)
ICE MAKING SYSTEM	Cell type
HARVESTING SYSTEM	Hot Gas Defrost
COMPRESSOR	Hermetic
CONDENSER	Air-cooled, Spiral tube type
HEAT REJECTION	1450W (AT:32°C, WT:21°C)
EVAPORATOR	Electroless Nickel Plated Copper Tube on Sheet and Cells
REFRIGERANT CONTROL	Thermostatic Expansion Valve
REFRIGERANT CHARGE	R290/100g
ICE MAKING CONTROL SYSTEM	Thermistor, Timer
HARVESTING CONTROL SYSTEM	Thermistor
BIN CONTROL SYSTEM	Microswitch (with Time Delay)
ICE MAKING WATER CONTROL SYSTEM	Timer, Water Pan's movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Overload Protector (Auto-reset) Pressure Switch (Auto-reset)
ICE MAKER PROTECTION	Interlock by Controller Board
GAS LEAK DETECTION	Gas Sensor
WEIGHT	Net weight 76kg/Gross weight 85kg
PACKAGE	Carton 805mm(W) x 580mm(D) x 1375mm(H)
ACCESSORIES	Scoop, Leg, Installation Kit
OPERATING CONDITIONS	Ambient Temp.: 1~40°C Water Supply Temp.: 5~35°C Water Supply Pressure: 0.07~0.8MPa (0.7~8bar), Voltage Range: Rated Voltage±5%

※ We reserve the right to make changes in specifications and design without prior notice.

[i] IM-240NE-HC

1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction manual provided.
Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections).
2. The ice production depends on the ambient and water temperatures.
Refer to the instruction manual.
3. Product Code: M070

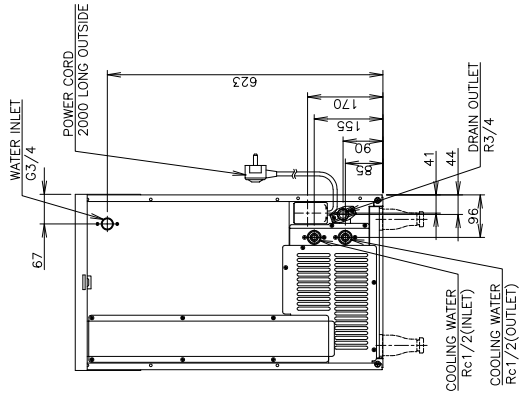
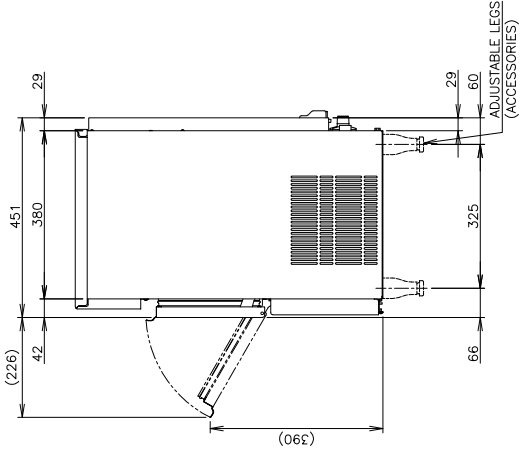
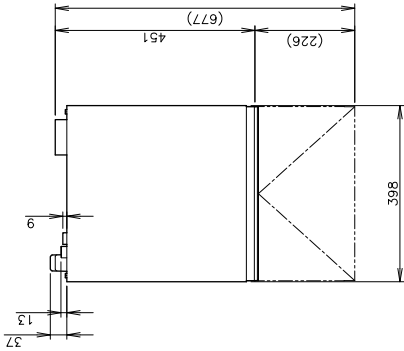


ITEM	Hoshizaki Cube Ice Maker
MODEL	IM-240NE-HC
POWER SUPPLY	1 PHASE 220-240V, 50Hz Capacity: Min. 1.7kVA (7.4A)
AMPERAGE	Running: 4.0A Rated Motor: 4.0A Starting: 27A
ELECTRIC CONSUMPTION	Rated Motor: 930W (Power factor: 97%)
ICE PRODUCTION PER 24h	Approx. 195kg (5mm)/210kg (15mm) (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 180kg (5mm)/195kg (15mm) (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 160kg (5mm)/175kg (15mm) (Ambient Temp. 32°C, Water Temp. 21°C)
WATER CONSUMPTION PER 24h	Approx. 0.67m ³ (Ambient Temp. 10°C, Water Temp. 10°C) Approx. 0.32m ³ (Ambient Temp. 21°C, Water Temp. 15°C) Approx. 0.29m ³ (Ambient Temp. 32°C, Water Temp. 21°C)
SHAPE OF ICE	Cube Approx. 28 x 28 x 32mm
FREEZE CYCLE TIME	Approx. 21min (Ambient Temp. 21°C, Water Temp. 15°C)
ICE PRODUCTION PER CYCLE	Approx. 3.2kg/140pcs (Ambient Temp. 21°C, Water Temp. 15°C)
MAX STORAGE CAPACITY	Approx. 110kg (Bin Control Setting Approx. 80kg)
OUTSIDE DIMENSIONS	704mm(W) x 665mm(D) x 1510mm(H)
EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
INSULATION	Polyurethane Foam
INSULATION FOAM BLOWING AGENT	Water Blown
INSULATION FOAM BLOWING AGENT ELECTRIC	X-Type Con. (with CONT. Plug)
CONNECTIONS-DRAIN	Inlet G3/4 (connected at rear side)
ICE MAKING SYSTEM	Outlet R3/4 (connected at rear side)
HARVESTING SYSTEM	Cell type
COMPRESSOR	Hot Gas Defrost Hermatic
CONDENSER	Fin and Tube type, Air-cooled
HEAT REJECTION	2330W (Ambient Temp. 32°C, Water Temp. 21°C)
EVAPORATOR	Electroless Nickel Plated Copper Tube on Sheet and Cells
REFRIGERANT CONTROL	Thermostatic Expansion Valve
REFRIGERANT CHARGE	R290/147g
ICE MAKING CONTROL	Thermistor, Timer
HARVESTING CONTROL	Thermistor
BIN CONTROL	Microswitch (with Time Delay)
ICE MAKING WATER CONTROL	Timer, Water Pan's Movement
ELECTRICAL PROTECTION	Class I Appliance, 5A Fuse
COMPRESSOR PROTECTION	Auto-reset Overload Protector
ICE MAKING PROTECTION	Interlock by Controller Board
WEIGHT	107kg (Gross 120kg)
PACKAGE	Carton 805mm(W) x 760mm(D) x 1684mm(H)
ACCESSORIES	Scoop, Leg, Installation Kit
OPERATING CONDITIONS	Ambient Temp.: 1-40°C Water Supply Temp.: 5-35°C Water Supply Pressure: 0.07-0.8MPa (0.7-8bar) Voltage Range: Rated Voltage±5%

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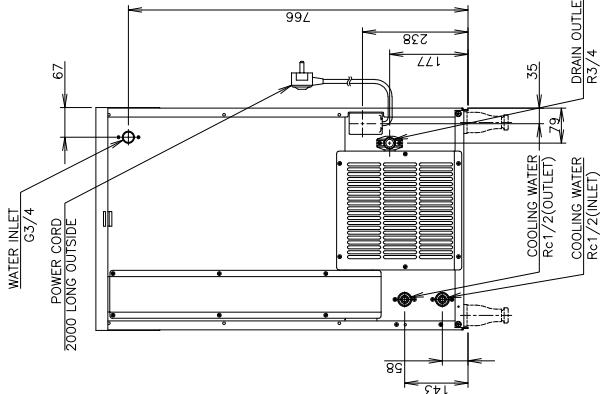
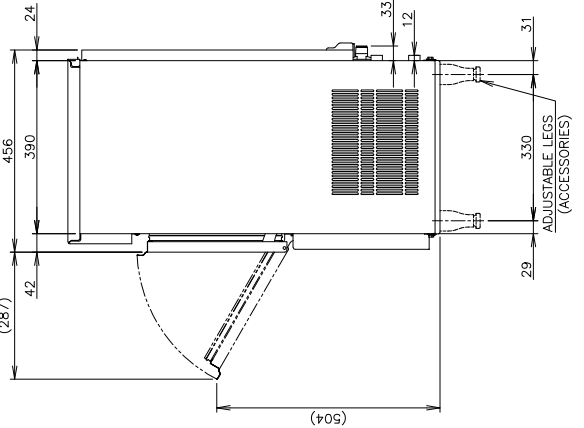
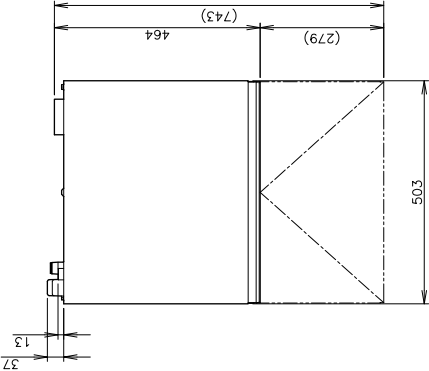
[J] IM-30CWNE-HC

OPERATING CONDITIONS	ITEM	
Ambient Temp: 1 ~ 40°C, Water Supply Temp: 5~35°C Water Supply Pressure: 0.07~0.8MPa (0.7~8bar) Voltage Range: Rated Voltage±5%	MODEL	Hashizaki Cube Ice Maker IM-30CWNE-HC
*We reserve the right to make changes in specifications and design without prior notice. 1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections). 2. The ice production depends on the ambient and water temperatures. Refer to the instruction manual. 3. Product Code: M062-D002	POWER SUPPLY	1 PHASE 220~240V 50Hz Capacity: Min. 0.51kVA (2.2A) Running: 1.4A Rated Motor: 1.4A Starting: 8A
	AMPERAGE	
	ELECTRIC CONSUMPTION	Rated Motor: 190W (Power factor: 56%) Approx. 27kg (5mm)/30kg (15mm) (At:10°C, Wt:10°C) Approx. 26kg (5mm)/28kg (15mm) (At:21°C, Wt:15°C) Approx. 24kg (5mm)/26kg (15mm) (At:32°C, Wt:21°C)
	ICE PRODUCTION PER 24h	
	POTABLE WATER CONSUMPTION PER 24h	Approx. 0.10m³ (At: 10°C, Wt: 10°C) Approx. 0.06m³ (At: 21°C, Wt: 15°C) Approx. 0.05m³ (At: 32°C, Wt: 21°C)
	CONDENSER WATER CONSUMPTION PER 24h	Approx. 0.16m³ (At: 10°C, Wt: 10°C) Approx. 0.28m³ (At: 21°C, Wt: 15°C) Approx. 0.45m³ (At: 32°C, Wt: 21°C)
	SHAPE OF ICE	Cube Approx. 28 x 28 x 32mm
	FREEZE CYCLE TIME	Approx. 22min (At:21°C, Wt:15°C)
	ICE PRODUCTION PER CYCLE	Approx. 0.43kg/18pcs. (At:21°C, Wt:15°C)
	MAX STORAGE CAPACITY	Approx. 11.5kg (Bin Control Setting Approx. 6kg)
	OUTSIDE DIMENSIONS	398mm (W) x 451mm (D) x 695mm (H)
	EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
	INSULATION	Polyurethane Foam
	INSULATION FOAM BLOWING AGENT	Water Blown
	INSULATION FOAM BLOWING AGENT -ELECTRIC	X-Type Con. (with CONT. Plug)
	CONNECTIONS	Inlet G3/4 (connected at rear side)
	CONNECTIONS-DRAIN	Outlet R3/4 (connected at rear side)
	CONNECTIONS -COOLING WATER	Inlet Rc1/2 (connected at rear side) Outlet Rc1/2 (connected at rear side)
	ICE MAKING SYSTEM	Cell Type
	ICE MAKING SYSTEM	Hot Gas Defrost
	COMPRESSOR	Hermetic
	CONDENSER	Tube-in-Tube Type, Water-cooled
	HEAT REJECTION	360W (310kcal/h) (At:32°C, Wt:21°C)
	EVAPORATOR	Electroless nickel plated Copper Tube on Sheet and Cells
	REFRIGERANT CONTROL	Thermostatic Expansion Valve
	REFRIGERANT CHARGE	R290/70g
	ICE MAKING CONTROL	Thermistor, Timer
	HARVESTING CONTROL	Thermistor
	BIN CONTROL	Microswitch (with Time Delay)
	ICE MAKING	Timer, Water Pan's Movement
	WATER CONTROL	
	ELECTRIC CIRCUIT PROTECTION	Class I Appliance, 5A Fuse
	COMPRESSOR PROTECTION	Auto-reset Overload Protector
	ICE MAKER PROTECTION	Interlock by Controller Board
	WEIGHT	35kg (Gross 41kg)
	PACKAGE	Carton 505mm (W) x 575mm (D) x 862mm (H)
	ACCESSORIES	Scoop, Leg, Installation Kit



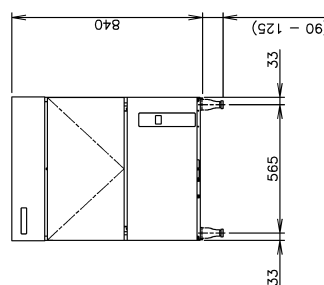
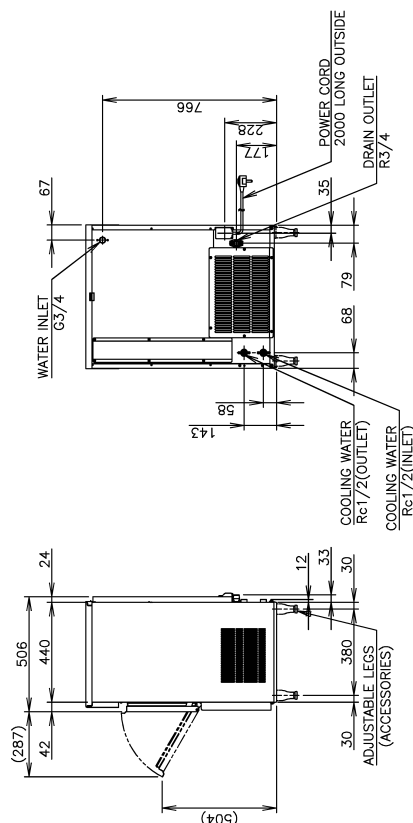
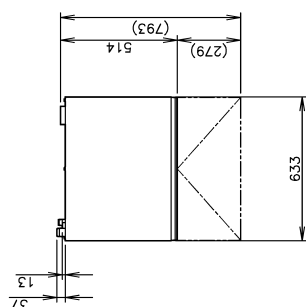
[k] IM-45WNE-HC

PACKAGE	Carton 635mm (W) x 520mm (D) x 1007mm (H)	ITEM	
ACCESSORIES	Scoop, Leg, Installation Kit	MODEL	IM-45WNE-HC
OPERATING CONDITIONS	Ambient Temp.: 1 – 40° C, Water Supply Temp.: 5–35° C Water Supply Pressure: 0.07–0.8MPa (0.7–8bar) Voltage Range: Rated Voltage±6% *We reserve the right to make changes in specifications and design without prior notice.	POWER SUPPLY	1 PHASE 220–240V 50Hz Capacity: Min. 0.57kVA (2.4A) Running: 1.6A Rated Motor: 1.6A Starting: 9A
1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections). 2. The ice production depends on the ambient and water temperatures. Refer to the instruction manual. 3. Product Code: M064–D002		AMPERAGE	Rated Motor: 240W (Power factor: 62%)
		ELECTRIC CONSUMPTION	Approx. 42kg (5mm)/45kg (15mm) (AT 10° C, WT.10° C) Approx. 38kg (5mm)/40kg (15mm) (AT 21° C, WT.15° C) Approx. 35kg (5mm)/37kg (15mm) (AT 32° C, WT.21° C)
		ICE PRODUCTION PER 24h	Approx. 0.17m ³ (AT: 10° C, WT. 10° C) Approx. 0.10m ³ (AT: 21° C, WT. 15° C) Approx. 0.09m ³ (AT: 32° C, WT. 21° C)
		POTABLE WATER CONSUMPTION PER 24h	Approx. 0.26m ³ (AT: 10° C, WT. 10° C) Approx. 0.38m ³ (AT: 21° C, WT. 15° C) Approx. 0.63m ³ (AT: 32° C, WT. 21° C)
		CONDENSER WATER CONSUMPTION PER 24h	
		SHAPE OF ICE	Cube Approx. 28 x 28 x 32mm
		FREEZE CYCLE TIME	Approx. 25min (AT: 21° C, WT.15° C)
		ICE PRODUCTION PER CYCLE	Approx. 0.73kg/30pcs. (AT: 21° C, WT.15° C)
		MAX STORAGE CAPACITY	Approx. 18kg (Bin Control Setting Approx. 10kg)
		OUTSIDE DIMENSIONS	503mm (W) x 456mm (D) x 840mm (H)
		EXTERIOR	Stainless Steel, Galvanized Steel (Rear)
		INSULATION	Polyurethane Foam
		INSULATION FOAM BLOWING AGENT	Water Blown
		CONNECTIONS – ELECTRIC	X–Type Con. (with CONT. Plug)
		CONNECTIONS – WATER SUPPLY	Inlet G3/4 (connected at rear side)
		CONNECTIONS – COOLING WATER	Outlet R3/4 (connected at rear side)
		CONNECTIONS – COOLING WATER	Inlet Rc1/2 (connected at rear side)
		CONNECTIONS – COOLING WATER	Outlet Rc1/2 (connected at rear side)
		ICE MAKING SYSTEM	Cell type
		HARVESTING SYSTEM	Hot Gas Defrost
		COMPRESSOR	Hermetic
		CONDENSER	Tube and Tube type, Water–cooled
		HEAT REJECTION	500W (430kcal/h) (AT 32° C, WT.21° C)
		EVAPORATOR	Electroless nickel plated Copper Tube on Sheet and Cells
		REFRIGERANT CONTROL	Thermostatic Expansion Valve
		REFRIGERANT CHARGE	R290 /90g
		ICE MAKING CONTROL	Thermistor, Timer
		HARVESTING CONTROL	Thermistor
		BIN CONTROL	Microswitch (with Time Delay)
		ICE MAKING WATER CONTROL	Timer, Water Pan's Movement
		ELECTRIC CIRCUIT PROTECTION	Class I Appliance, 5A Fuse
		COMPRESSOR PROTECTION	Auto–reset Overload Protector
		ICE MAKER PROTECTION	Interlock by Controller Board
		WEIGHT	45kg (Gross 53kg)

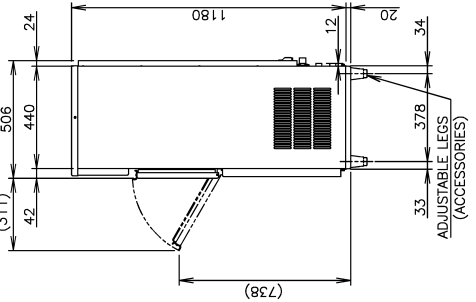
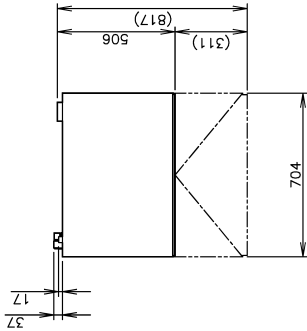


[I] IM-65WNE-HC

ACCESSORIES	Scoop, Installation Kit, Ice Chute	ITEM	Hoshizaki Cube Ice Maker
OPERATING CONDITIONS	Ambient Temp.: 1 ~ 40° C, Water Supply Temp.: 5~35° C Water Supply Pressure: 0.07~0.8MPa (0.7~8bar) Voltage Range: Rated Voltage±6%	MODEL	IM-65WNE-HC
We reserve the right to make changes in specifications and design without prior notice. 1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections). 2. The ice production depends on the ambient and water temperatures. 3. Refer to the instruction manual. 5. Product Code: M066-D013		POWER SUPPLY	1 PHASE 220~240V 50Hz Capacity: Min. 0.72kVA (3.0A)
		AMPERAGE	Starting: 2.1A Rated Motor: 2.1A Running: 1.1A
		ELECTRIC CONSUMPTION	Rated Motor: 300W (Power factor: 59%) Approx. 51kg (5mm)/60kg (15mm) (AT: 10° C, WT: 10° C) Approx. 47kg (5mm)/55kg (15mm) (AT: 21° C, WT: 15° C) Approx. 44kg (5mm)/50kg (15mm) (AT: 32° C, WT: 21° C)
		ICE PRODUCTION PER 24h	Approx. 0.13m³ (AT: 10° C, WT: 10° C) Approx. 0.12m³ (AT: 21° C, WT: 15° C) Approx. 0.11m³ (AT: 32° C, WT: 21° C)
		POTABLE WATER CONSUMPTION PER 24h	Approx. 0.31m³ (AT: 10° C, WT: 10° C) Approx. 0.48m³ (AT: 21° C, WT: 15° C) Approx. 0.85m³ (AT: 32° C, WT: 21° C)
		CONDENSER WATER CONSUMPTION PER 24h	Cube Approx. 28 x 28 x 32mm Approx. 29min (5ø) (AT: 21° C, WT: 15° C) Approx. 1.02kg/42pcs.(5ø) (AT: 21° C, WT: 15° C)
		SHAPE OF ICE	Approx. 26kg (Bin Control Setting Approx. 18kg)
		FREEZE CYCLE TIME	63.3mm (W) x 506mm (D) x 840mm (H)
		ICE PRODUCTION PER CYCLE	Stainless Steel, Galvanized Steel (Rear)
		MAX STORAGE CAPACITY	Polyurethane Foam
		OUTSIDE DIMENSIONS	Water Blown
		EXTERIOR INSULATION	X-Type Con. (with CONT. Plug)
		INSULATION BLOWING AGENT	Inlet G3/4 (connected at rear side)
		CONNECTIONS - ELECTRIC	Outlet R3/4 (connected at rear side)
		CONNECTIONS - WATER SUPPLY	Inlet Rc1/2 (connected at left side)
		CONNECTIONS - DRAIN	Outlet Rc1/2 (connected at left side)
		CONNECTIONS - COOLING WATER	Cell type
		ICE MAKING SYSTEM	Hot Gas Defrost
		ICE MAKING SYSTEM	Hermetic
		COMPRESSOR	Tube and Tube type, Water-cooled
		CONDENSER	500W (430kcal/h) (AT: 32° C, WT: 21° C)
		HEAT REJECTION	Electroless nickel plated Copper Tube on Sheet and Cells
		EVAPORATOR	Capillary Tube
		REFRIGERANT CONTROL	R290/110g
		REFRIGERANT CHARGE	Thermistor, Timer
		ICE MAKING CONTROL	Thermistor
		HARVESTING CONTROL	Microswitch (with Time Delay)
		BIN CONTROL	Controller Board
		ICE MAKING	Timer, Water Pan's Movement
		ELECTRIC CIRCUIT PROTECTION	Class I Appliance, 5A Fuse
		COMPRESSOR PROTECTION	Auto-reset Overload Protector
		ICE MAKER PROTECTION	Interlock by Controller Board
		WEIGHT	53kg (Gross 63kg)
		PACKAGE	Carbon 735mm (W) x 570mm (D) x 1012mm (H)

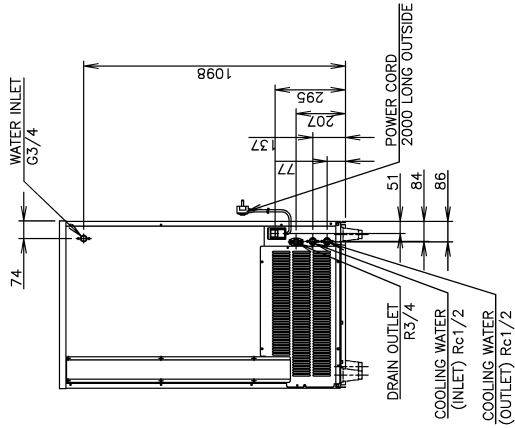
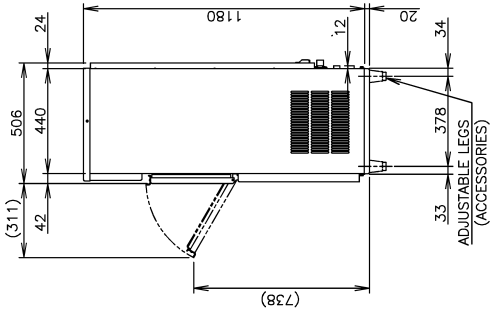
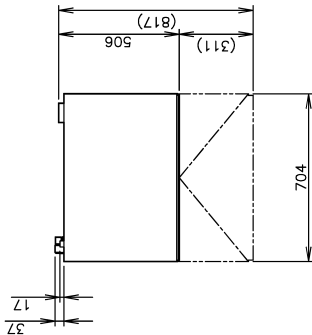


ACCESSORIES	Scoop, Leg, Installation Kit	ITEM	Hoshizaki Cube Ice Maker
OPERATING CONDITIONS	Ambient Temp.: 1 – 40° C, Water Supply Temp.: 5–35° C Water Supply Pressure: 0.07–0.8MPa (0.7–8bar) Voltage Range: Rated Voltage±6%	MODEL	IM–100WNE–HC
*We reserve the right to make changes in specifications and design without prior notice.	1. Install the ice maker properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections). 2. The ice production depends on the ambient and water temperatures. Refer to the instruction manual. 3. Product Code: M036–D004	POWER SUPPLY	1 PHASE 220–240V 50Hz Capacity: Min. 0.97kVA (4.1A)
		AMPERAGE	Rating: 3.2A Starting: 3.2A Rated Motor: 465W (Power factor: 60%)
		ELECTRIC CONSUMPTION	Approx. 80kg (5mm)/90kg (15mm) (At 10° C, WT. 10° C) Approx. 75kg (5mm)/85kg (15mm) (At 21° C, WT. 15° C) Approx. 70kg (5mm)/80kg (15mm) (At 32° C, WT. 21° C)
		POTABLE WATER CONSUMPTION PER 24h	Approx. 0.18m ³ (At 10° C, WT. 10° C) Approx. 0.17m ³ (At 21° C, WT. 15° C) Approx. 0.16m ³ (At 32° C, WT. 21° C)
		CONDENSER WATER CONSUMPTION PER 24h	Approx. 0.42m ³ (At 10° C, WT. 10° C) Approx. 0.55m ³ (At 21° C, WT. 15° C) Approx. 0.87m ³ (At 32° C, WT. 21° C)
		SHAPE OF ICE	Cube Approx. 28 x 28 x 32mm
		FREEZE CYCLE TIME PER CYCLE	Approx. 35min (5#) (At 21° C, WT. 15° C) Approx. 1.9kg/80pcs. (5#) (At 21° C, WT. 15° C)
		ICE PRODUCTION PER CYCLE	Approx. 50kg (Bin Control Setting Approx. 28kg)
		MAX STORAGE CAPACITY	704mm (W) x 506mm (D) x 1200mm (H)
		OUTSIDE DIMENSIONS	Stainless Steel, Galvanized Steel (Rear)
		EXTERIOR INSULATION	Polyurethane Foam
		INSULATION	Water Blown
		BLOWING AGENT	X–Type Con. (with CONT. Plug)
		CONNECTIONS – ELECTRIC	Inlet G3/4 (connected at rear side)
		CONNECTIONS – WATER SUPPLY	Outlet R3/4 (connected at rear side)
		CONNECTIONS – DRAIN	Inlet Rc1/2 (connected at left side)
		CONNECTIONS – COOLING WATER	Outlet Rc1/2 (connected at left side)
		ICE MAKING SYSTEM	Cell type
		HARVESTING SYSTEM	Hot Gas Defrost
		COMPRESSOR	Hermetic
		CONDENSER	Tube and Tube type, Water–cooled
		HEAT REJECTION	890W (770kcal/h) (At 32° C, WT. 21° C)
		EVAPORATOR	Electroless nickel plated Copper Tube on Sheet and Cells
		REFRIGERANT CONTROL	Thermostatic Expansion Valve
		REFRIGERANT CHARGE	R290/147g
		ICE MAKING CONTROL	Thermistor, Timer
		HARVESTING CONTROL	Thermistor
		BIN CONTROL	Microswitch (with Time Delay)
		ICE MAKING	Timer, Water Pan's Movement
		WATER CONTROL	Class I Appliance, 5A Fuse
		ELECTRIC CIRCUIT PROTECTION	Overload Protector (Auto–reset)
		COMPRESSOR PROTECTION	Pressure Switch (Auto–reset)
		ICE MAKER PROTECTION	Interlock by Controller Board
		WEIGHT	74kg (Gross 84kg)
		PACKAGE	Carton 805mm (W) x 580mm (D) x 1375mm (H)

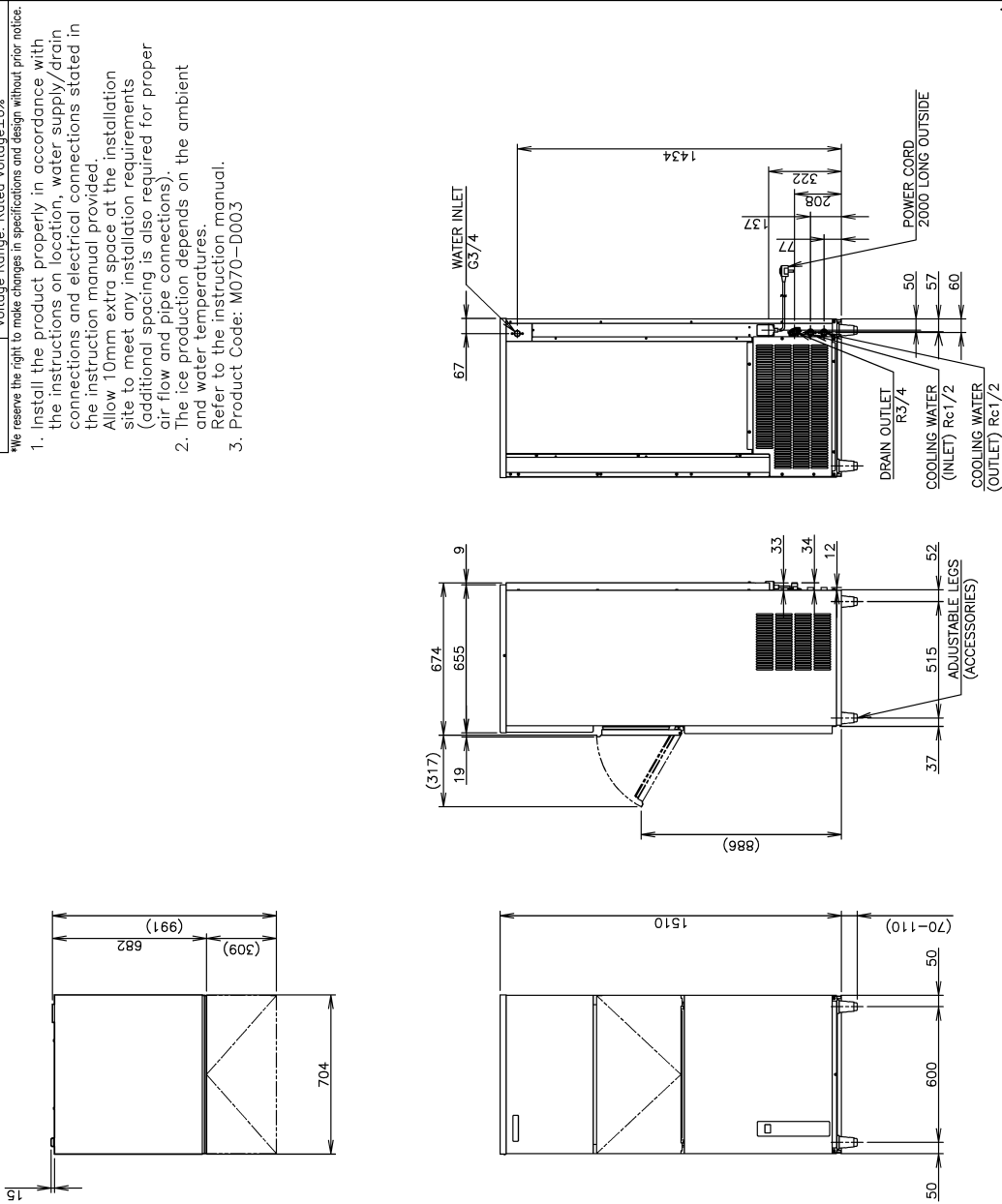


[n] IM-130WNE-HC

ACCESSORIES		Scoop, Leg, Installation Kit	ITEM
OPERATING CONDITIONS	Ambient Temp.: 1 ~ 40° C, Water Supply Temp.: 5~35° C	*We reserve the right to make changes in specifications and design without prior notice. 1. Install the ice maker properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction and installation manuals provided. Allow 10mm extra space at the installation site to meet any installation requirements (additional spacing is also required for proper air flow and pipe connections). 2. The ice production depends on the ambient and water temperatures. 3. Product Code: M069-D004	Hoshizaki Cube Ice Maker
	Water Supply Pressure: 0.07~0.8MPa (0.7~8bar)		IM-130WNE-HC
	Voltage Range: Rated Voltage±6%		1 PHASE 220~240V 50Hz Capacity: Min. 1.26kVA (5.3A)
			Running: 3.9A Rated Motor: 3.9A Starting: 19A
			Rated Motor: 550W (Power factor: 58%)
ICE PRODUCTION PER 24h	Approx. 100kg (5mm)/110kg (15mm) (AT.10° C, WT.10° C)		
	Approx. 90kg (5mm)/100kg (15mm) (AT.21° C, WT.15° C)		
POTABLE WATER CONSUMPTION PER 24h	Approx. 85kg (5mm)/90kg (15mm) (AT.32° C, WT.21° C)		
	Approx. 0.24m³ (AT. 10° C, WT. 10° C)		
CONDENSER WATER CONSUMPTION PER 24h	Approx. 0.20m³ (AT. 21° C, WT. 15° C)		
	Approx. 0.19m³ (AT. 32° C, WT. 21° C)		
SHAPE OF ICE	Approx. 0.56m³ (AT. 10° C, WT. 10° C)		
	Approx. 0.78m³ (AT. 21° C, WT. 15° C)		
FREEZE CYCLE TIME PER CYCLE	Approx. 1.04m³ (AT. 32° C, WT. 21° C)		
	Cube Approx. 28 x 28 x 32mm		
MAX STORAGE CAPACITY	Approx. 28min (5φ) (AT.21° C, WT.15° C)		
	Approx. 1.9kg/80pcs. (5φ) (AT.21° C, WT.15° C)		
			Approx. 50kg (Bin Control Setting Approx. 28kg)
			704mm (W) x 506mm (D) x 1200mm (H)
			Stainless Steel, Galvanized Steel (Rear)
			Polyurethane Foam
			Water Blown
			X-Type Con. (with CONT. Plug)
			Inlet G3/4 (connected at rear side)
			Outlet R3/4 (connected at rear side)
			Inlet Rc1/2 (connected at left side)
			Outlet Rc1/2 (connected at left side)
			Cell type
			Hot Gas Defrost
			Hermetic
			Tube and Tube type, Water-cooled
			930W (800kcal/h) (AT.32° C, WT.21° C)
			Electroless nickel plated Copper Tube on Sheet and Cells
			Thermostatic Expansion Valve
			R290/147g
			Thermistor, Timer
			Thermistor
			Microswitch (with Time Delay)
			Timer, Water Pan's Movement
			Class I Appliance, 5A Fuse
			Overload Protector (Auto-reset)
			Pressure Switch (Auto-reset)
			Interlock by Controller Board
			74kg (Gross 84kg)
			Carton 805mm (W) x 580mm (D) x 1375mm (H)



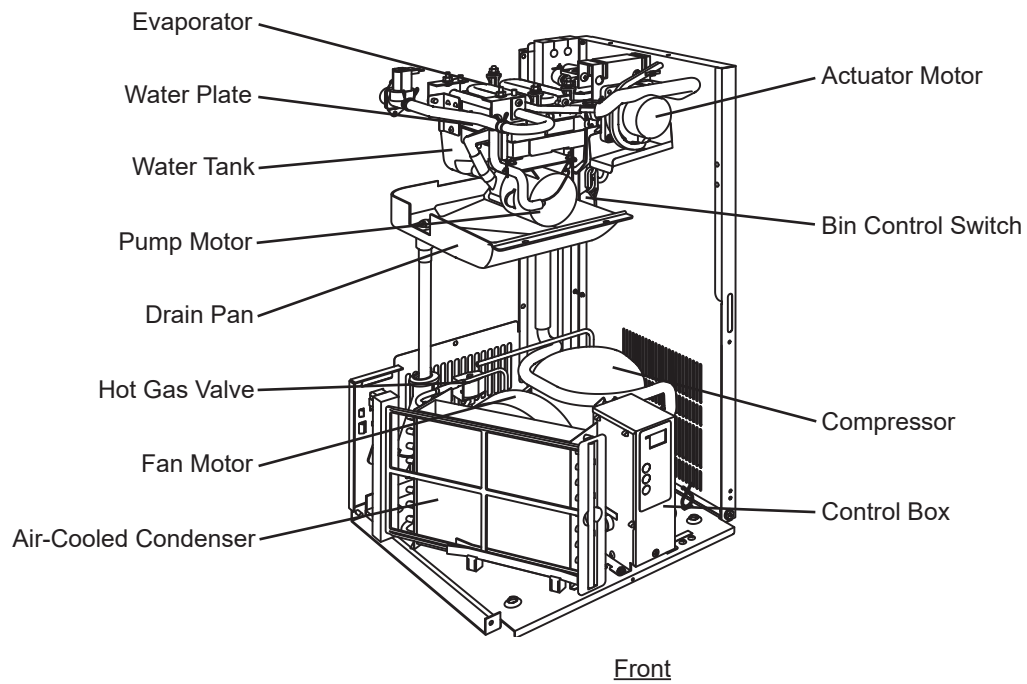
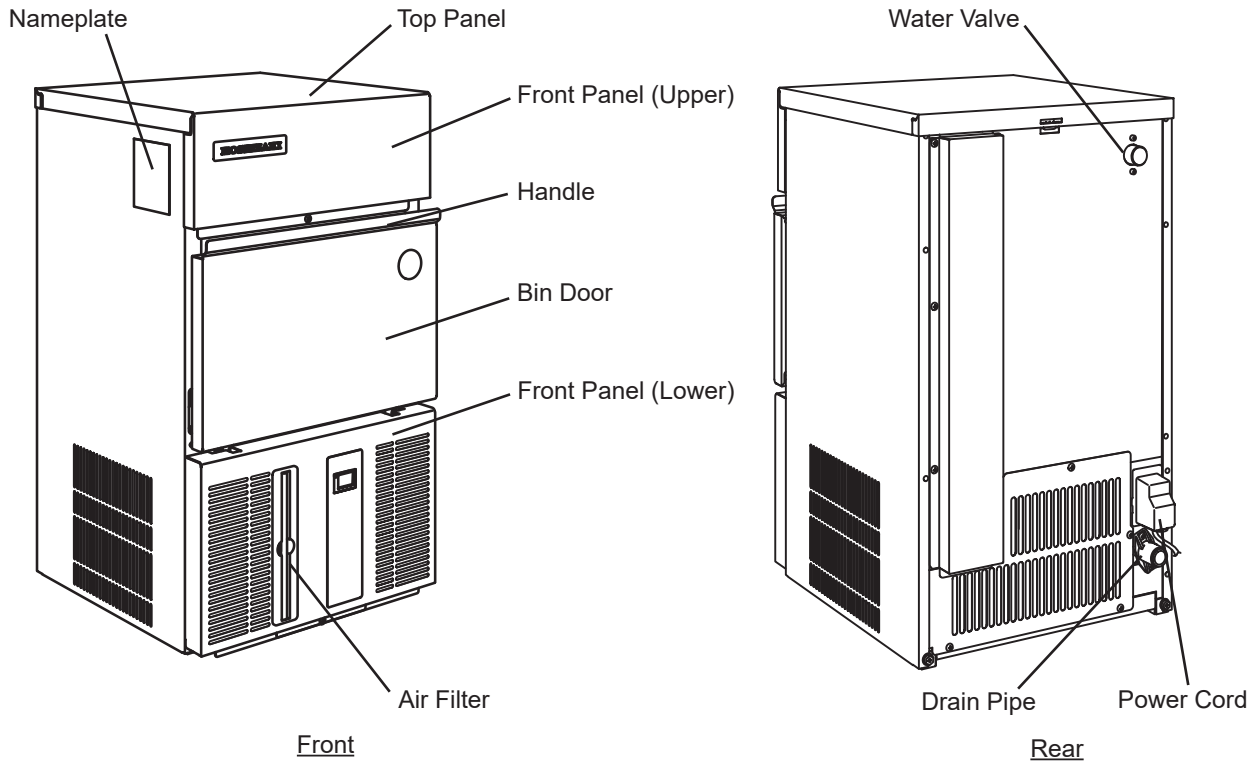
ACCESSORIES	Scoop, Leg, Installation Kit	ITEM
OPERATING CONDITIONS	Ambient Temp.: 1 ~ 40° C, Water Supply Temp.: 5~35° C Water Supply Pressure: 0.07~0.8MPa (0.7~8bar) Voltage Range: Rated Voltage±6%	MODEL IM-240WNE-HC
*We reserve the right to make changes in specifications and design without prior notice.		POWER SUPPLY 1 PHASE 220~240V 50Hz Capacity: Min. 1.77kVA (7.4A)
1. Install the product properly in accordance with the instructions on location, water supply/drain connections and electrical connections stated in the instruction manual provided. Allow 10mm extra space at the installation site to meet any installation required for proper air flow and pipe connections).		AMPERAGE Running: 3.6A Rated Motor: 3.6A Starting: 27A
2. The ice production depends on the ambient and water temperatures. Refer to the instruction manual.		ELECTRIC Rated Motor: 810W (Power factor: 94%)
3. Product Code: M070-D003		ICE PRODUCTION PER 24h Approx. 188kg (5mm)/207kg (15mm) (AT.10° C, WT.10° C) Approx. 178kg (5mm)/193kg (15mm) (AT.21° C, WT.15° C) Approx. 163kg (5mm)/178kg (15mm) (AT.32° C, WT.21° C)
		POTABLE WATER CONSUMPTION PER 24h Approx. 0.38m³ (AT.10° C, WT.10° C) Approx. 0.35m³ (AT.21° C, WT.15° C) Approx. 0.32m³ (AT.32° C, WT.21° C)
		CONDENSER WATER CONSUMPTION PER 24h Approx. 0.90m³ (AT. 10°C, WT. 10°C) Approx. 1.10m³ (AT. 21°C, WT. 15°C) Approx. 1.30m³ (AT. 32°C, WT. 21°C)
		SHAPE OF ICE Cube Approx. 28 x 28 x 23mm
		FREEZE CYCLE TIME Approx. 25min (AT.21° C, WT.15° C)
		ICE PRODUCTION PER CYCLE Approx. 3.4kg/140pcs. (AT.21° C, WT.15° C)
		MAX STORAGE CAPACITY Approx. 110kg (Bin Control Setting Approx. 80kg)
		OUTSIDE DIMENSIONS 704mm(W) x 665mm(D) x 1510mm(H)
		EXTERIOR Stainless Steel, Galvanized Steel (Rear)
		INSULATION Polyurethane Foam
		INSULATION FOAM BLOWING AGENT Water Blown
		CONNECTIONS - ELECTRIC X-Type Con. (with CONT. Plug)
		CONNECTIONS - WATER SUPPLY Inlet G3/4 (connected at rear side)
		CONNECTIONS-DRAIN Outlet R3/4 (connected at rear side)
		CONNECTIONS Inlet Rc1/2 (connected at left side)
		- COOLING WATER Outlet Rc1/2 (connected at left side)
		ICE MAKING SYSTEM Cell type
		HARVESTING SYSTEM Hot Gas Defrost
		COMPRESSOR Hermetic
		CONDENSER Tube in Tube type, Water-Cooled
		HEAT REJECTION 1640W (1410kcal/h) (AT.32° C, WT.21° C)
		EVAPORATOR Electroless nickel plated Copper Tube on Sheet and Cells
		REFRIGERANT CONTROL Thermostatic Expansion Valve
		REFRIGERANT CHARGE R290/147g
		ICE MAKING CONTROL Thermistor, Timer
		HARVESTING CONTROL Thermistor
		BIN CONTROL Microswitch (with Time Delay)
		ICE MAKING Timer, Water Pan's Movement
		WATER CONTROL Class I Appliance, 5A Fuse
		ELECTRIC CIRCUIT PROTECTION Overload Protector (Auto-reset)
		COMPRESSOR PROTECTION Pressure Switch (Auto-reset)
		ICE MAKER PROTECTION Interlock by Controller Board
		WEIGHT 103kg (Gross 118kg)
		PACKAGE Carton 805mm(W) x 760mm(D) x 1684mm(H)



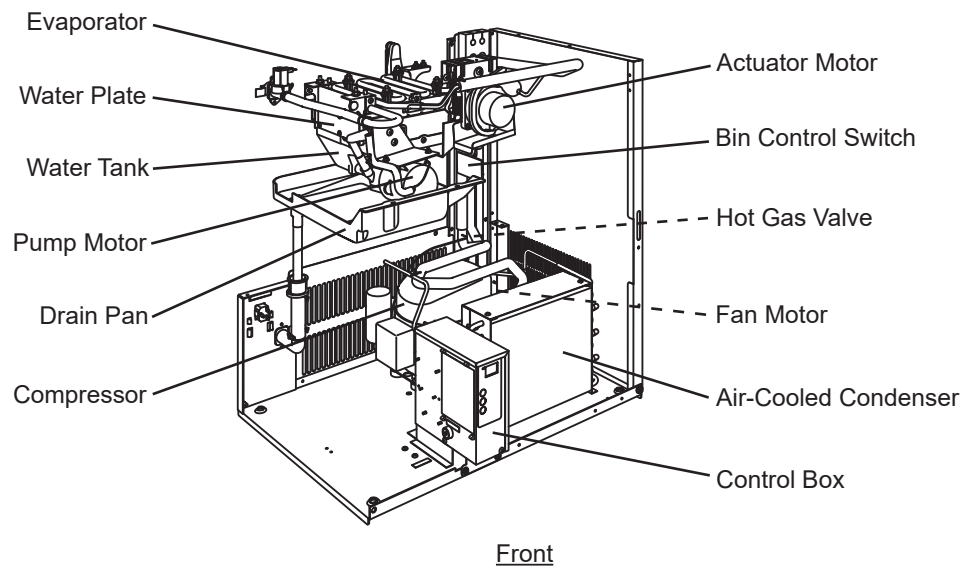
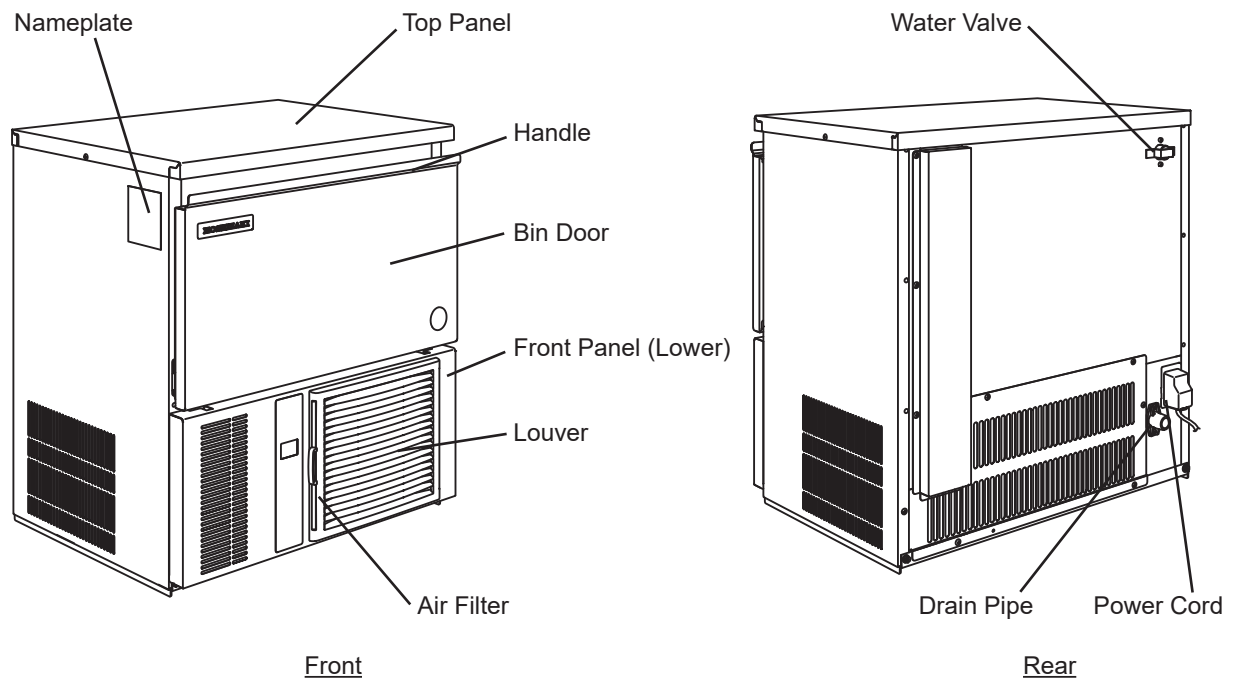
II. GENERAL INFORMATION

1. CONSTRUCTION

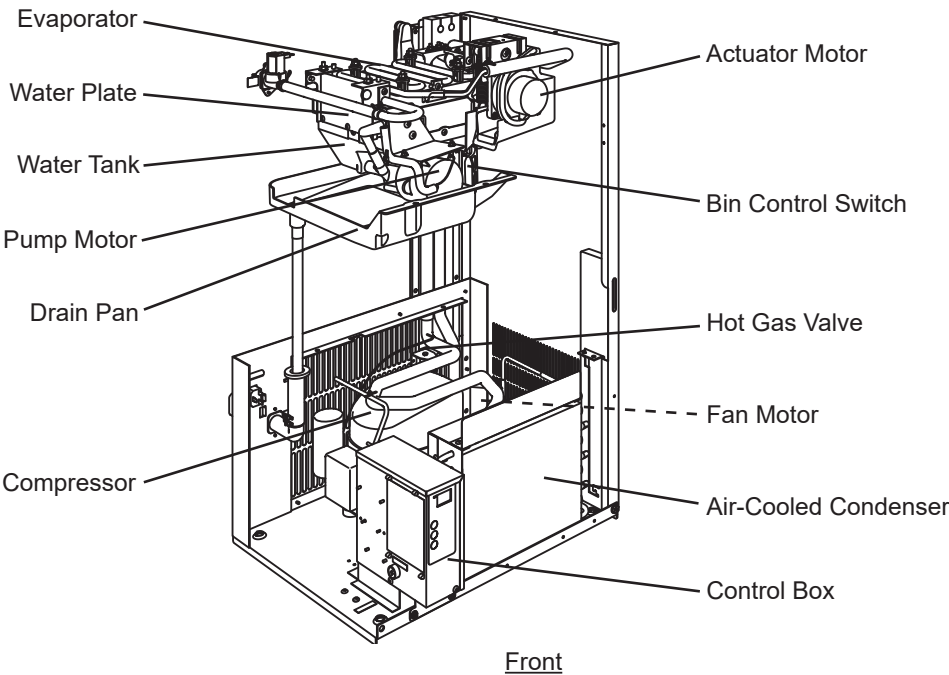
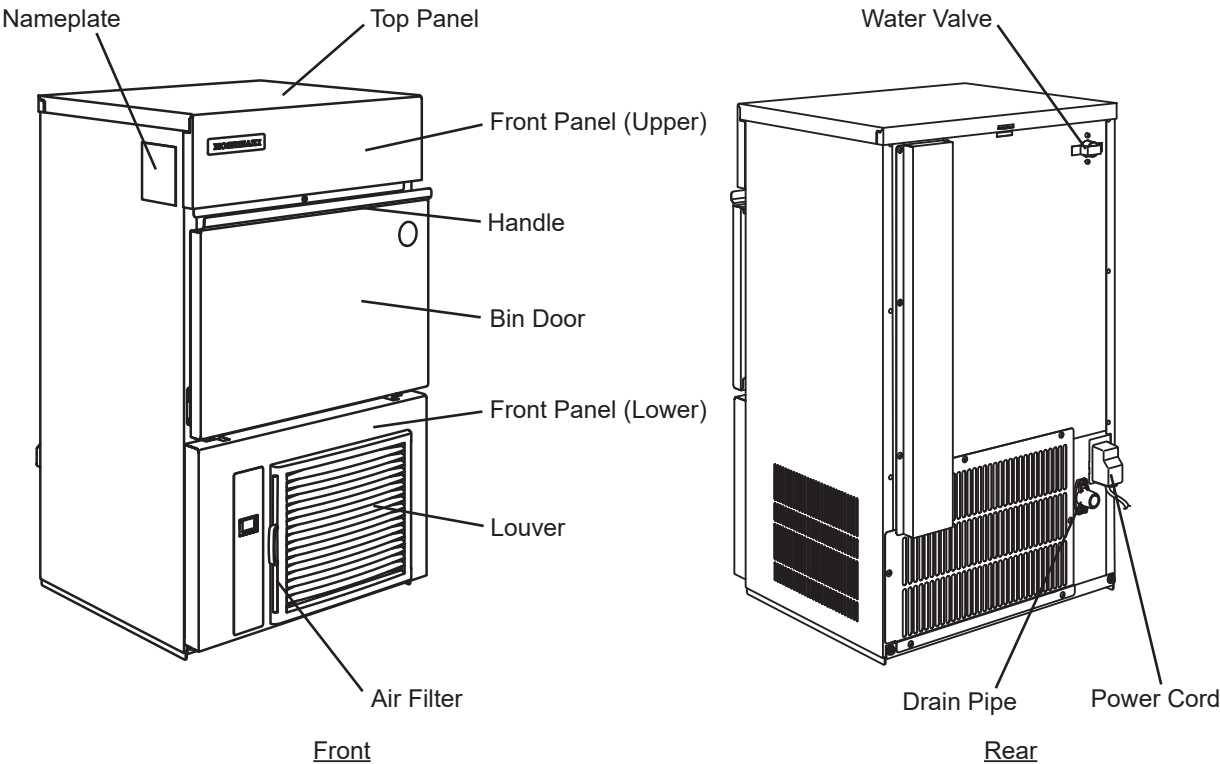
[a] IM-21CNE-HC, IM-30CNE-HC



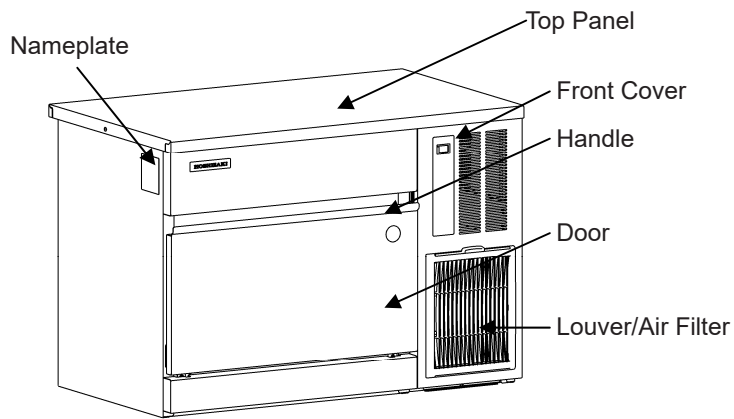
[b] IM-45CNE-HC



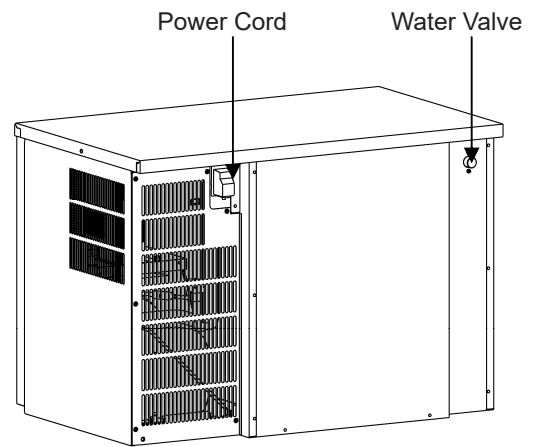
[c] IM-45NE-HC, IM-65NE-HC



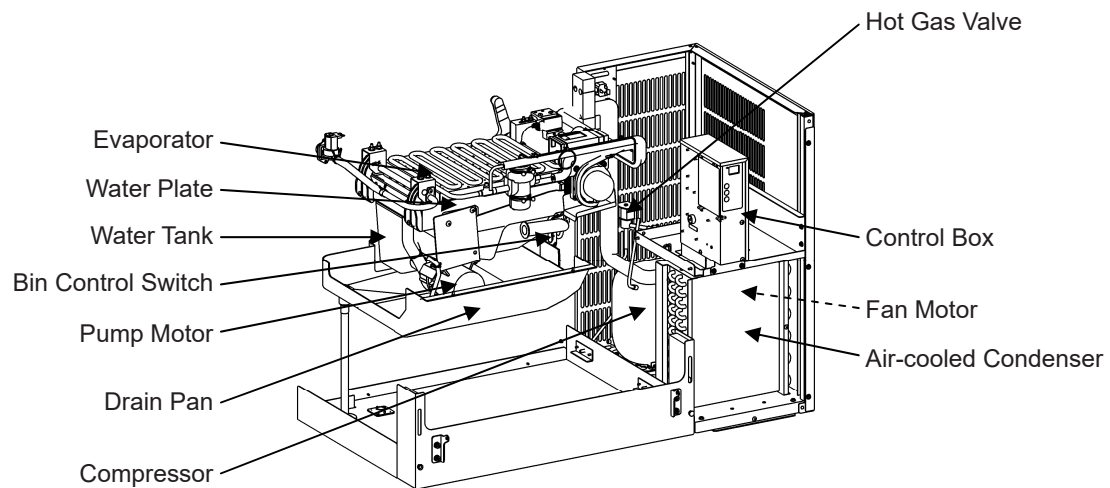
[d] IM-100CNE-HC



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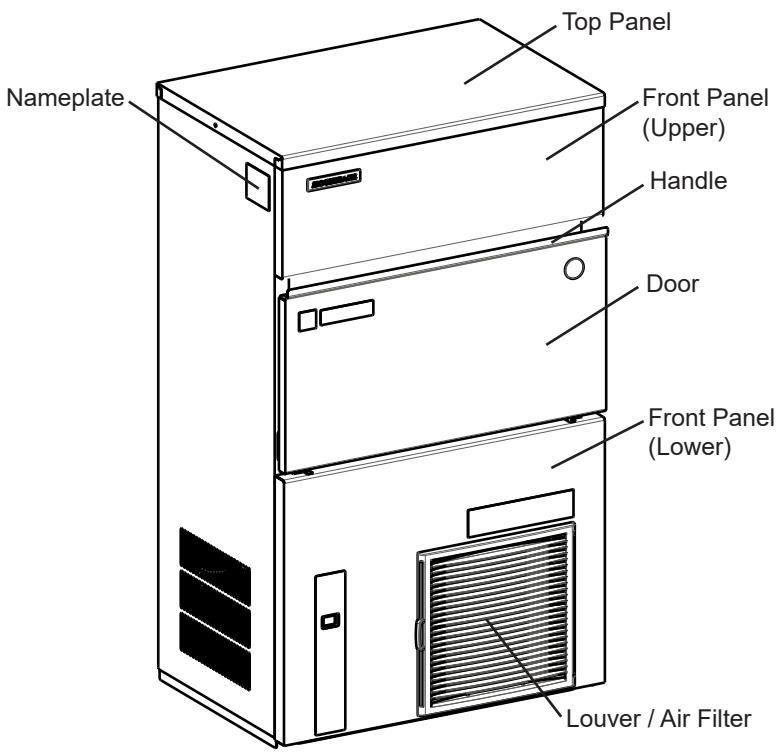


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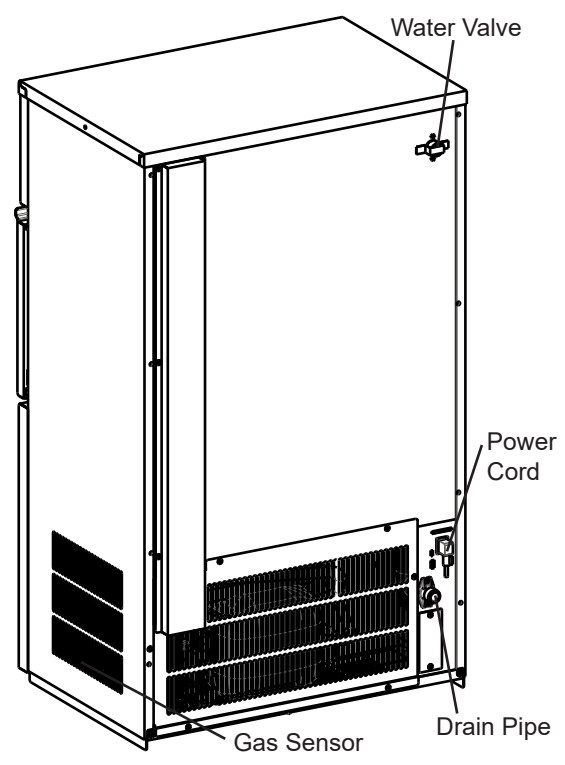


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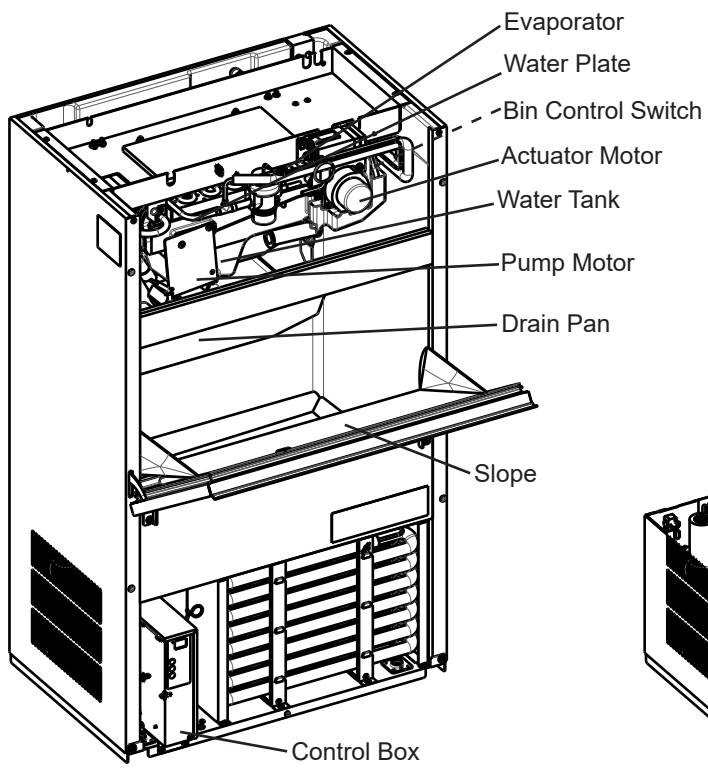
[e] IM-100NE-HC, IM-130NE-HC



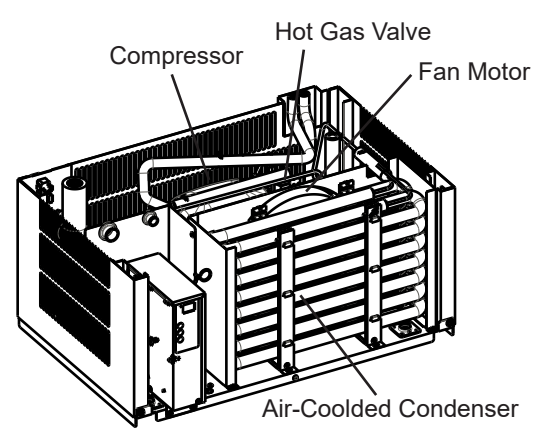
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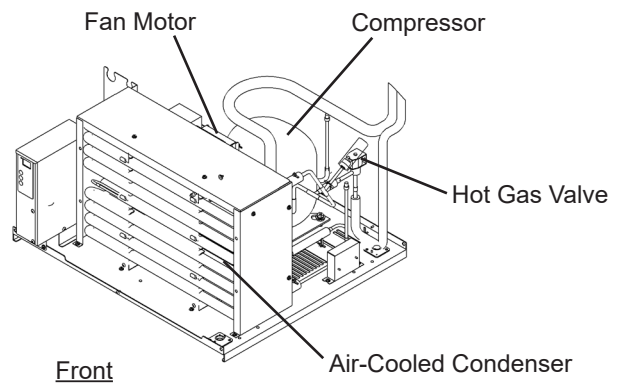
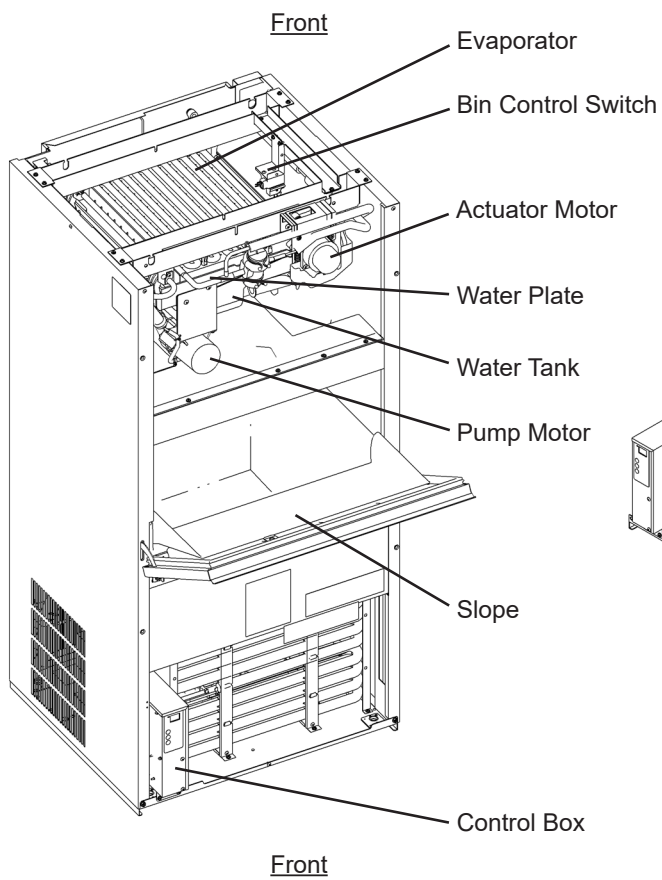
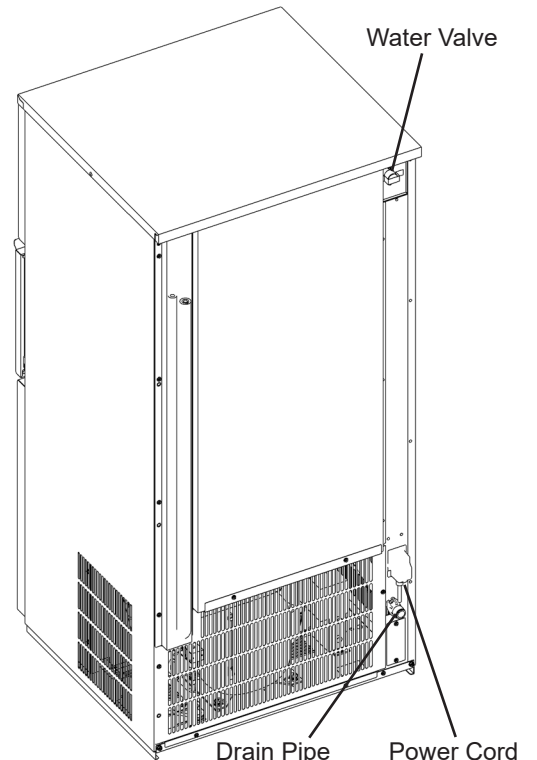
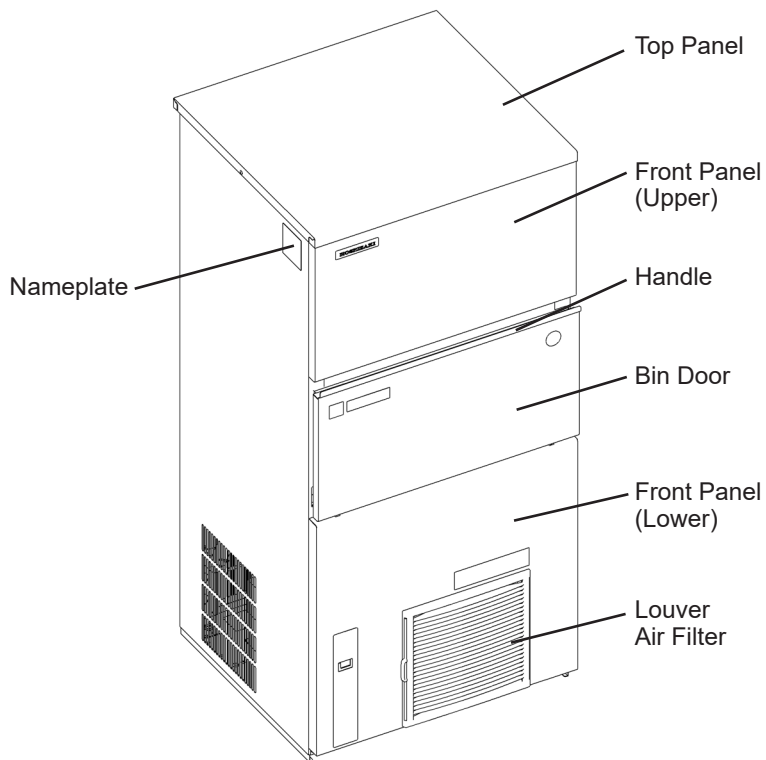
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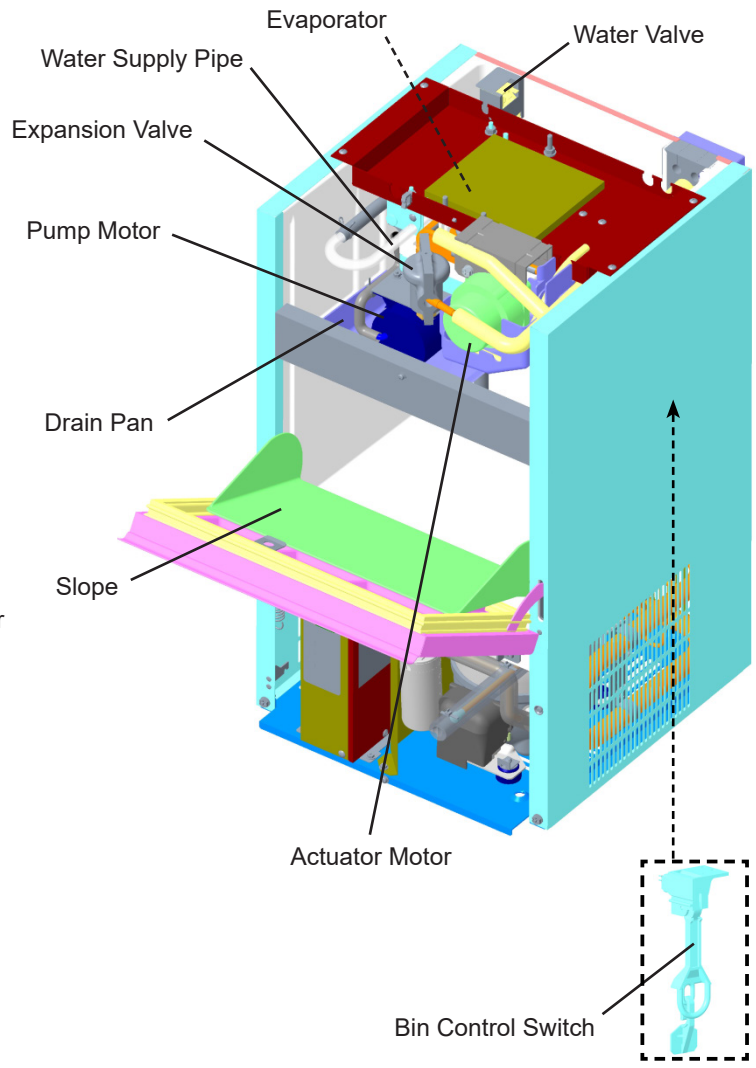
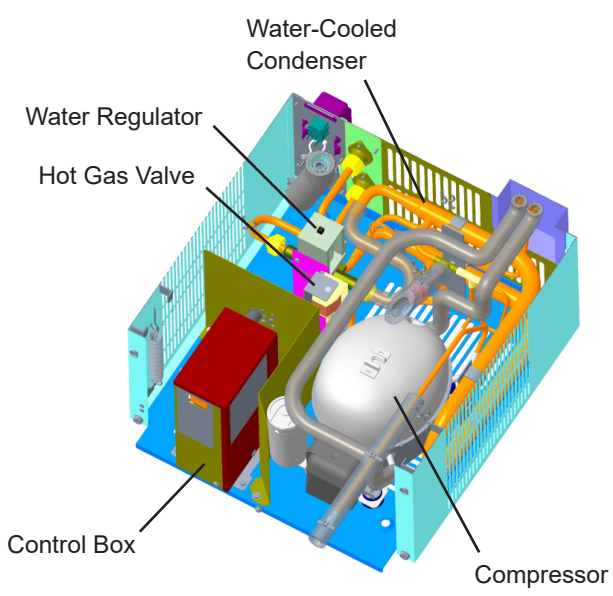
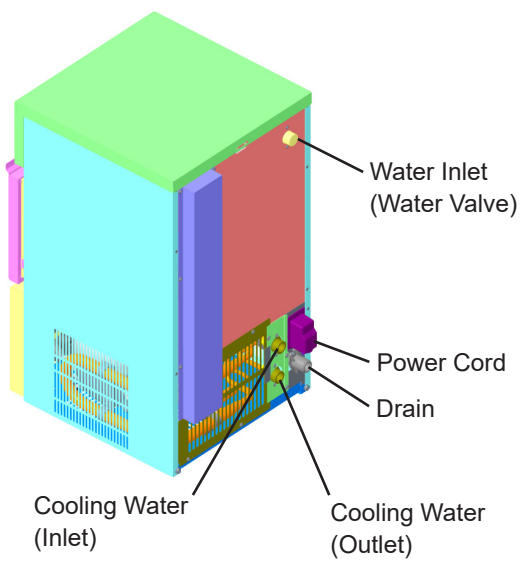
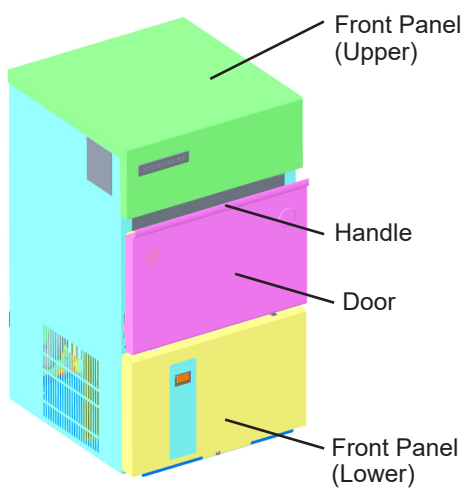
Front



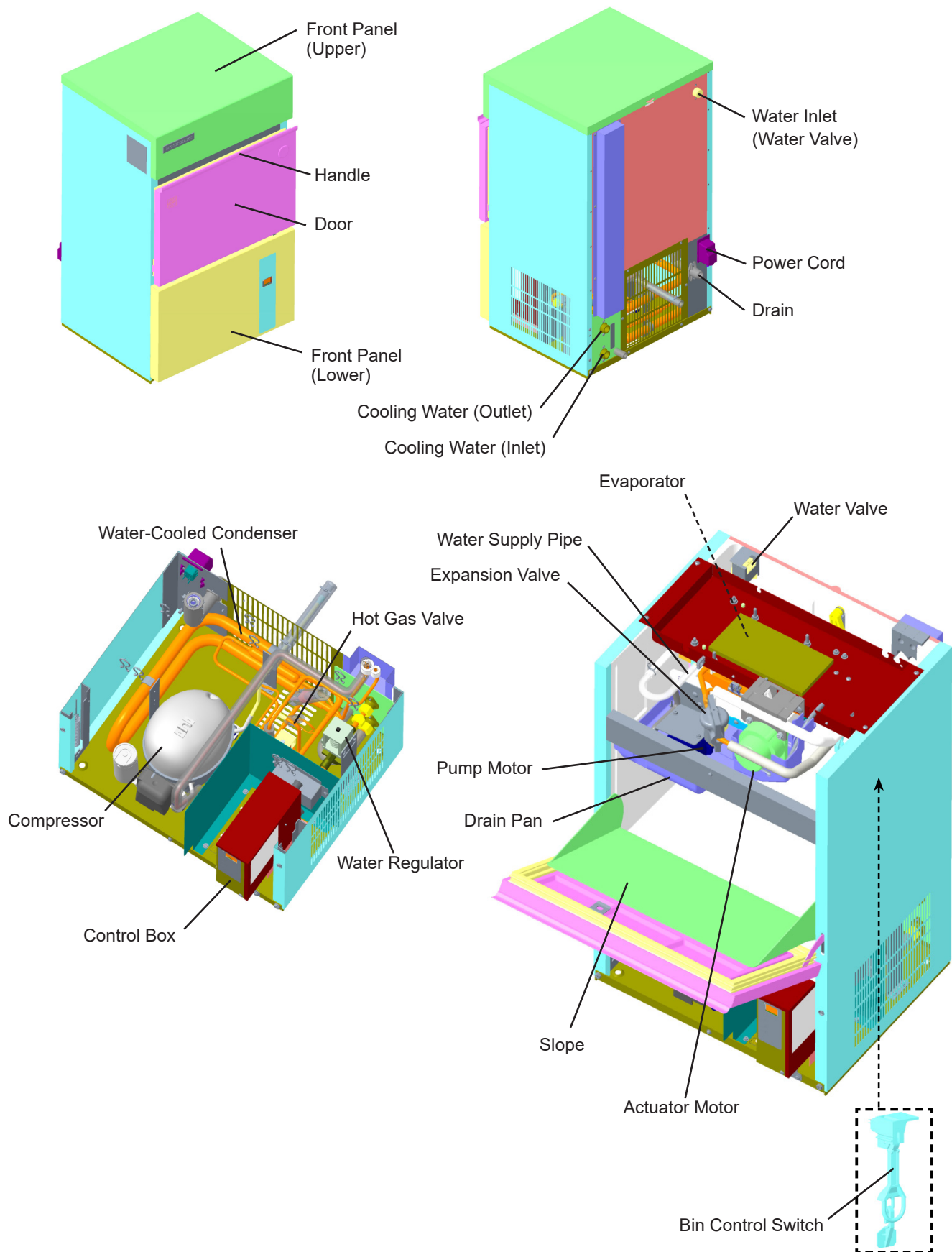
[f] IM-240NE-HC



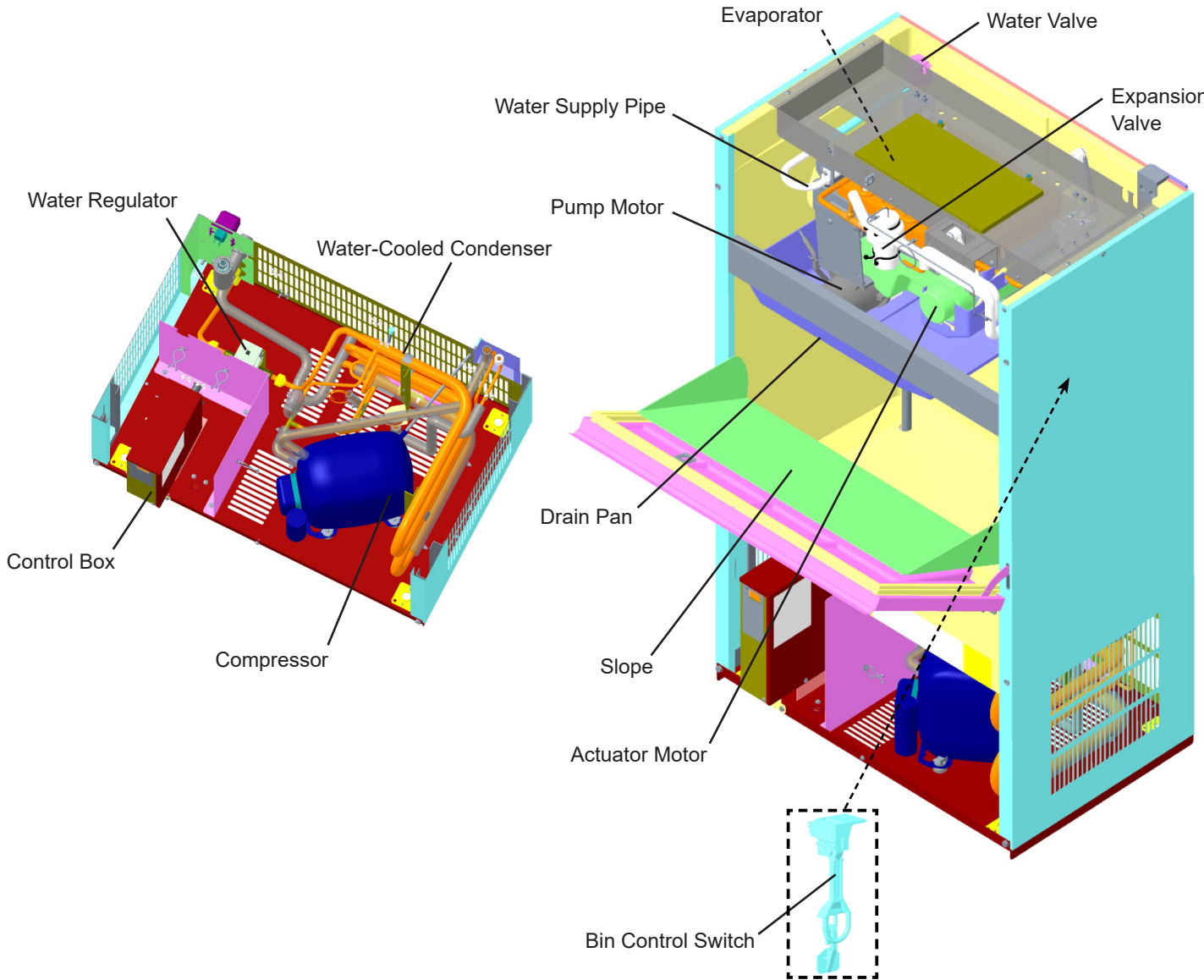
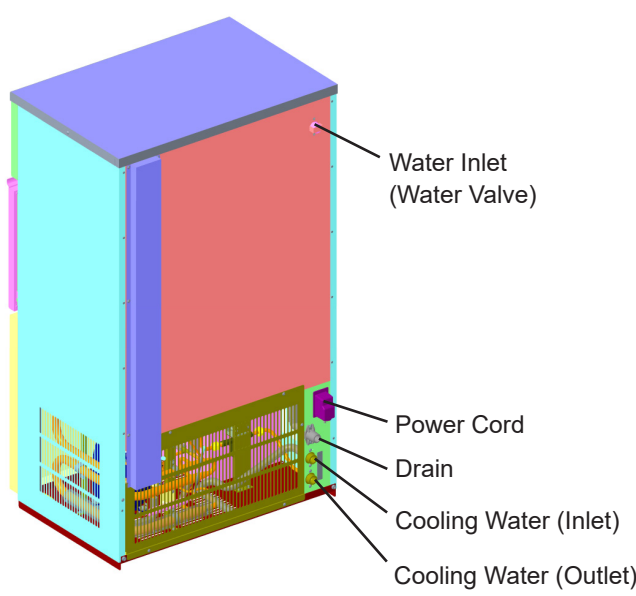
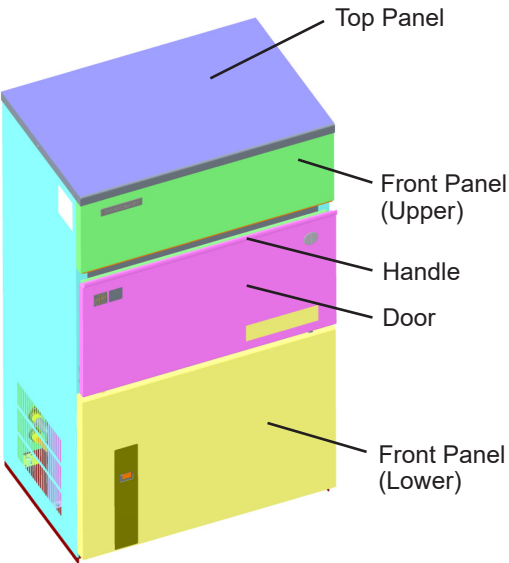
[g] IM-30CWNE-HC



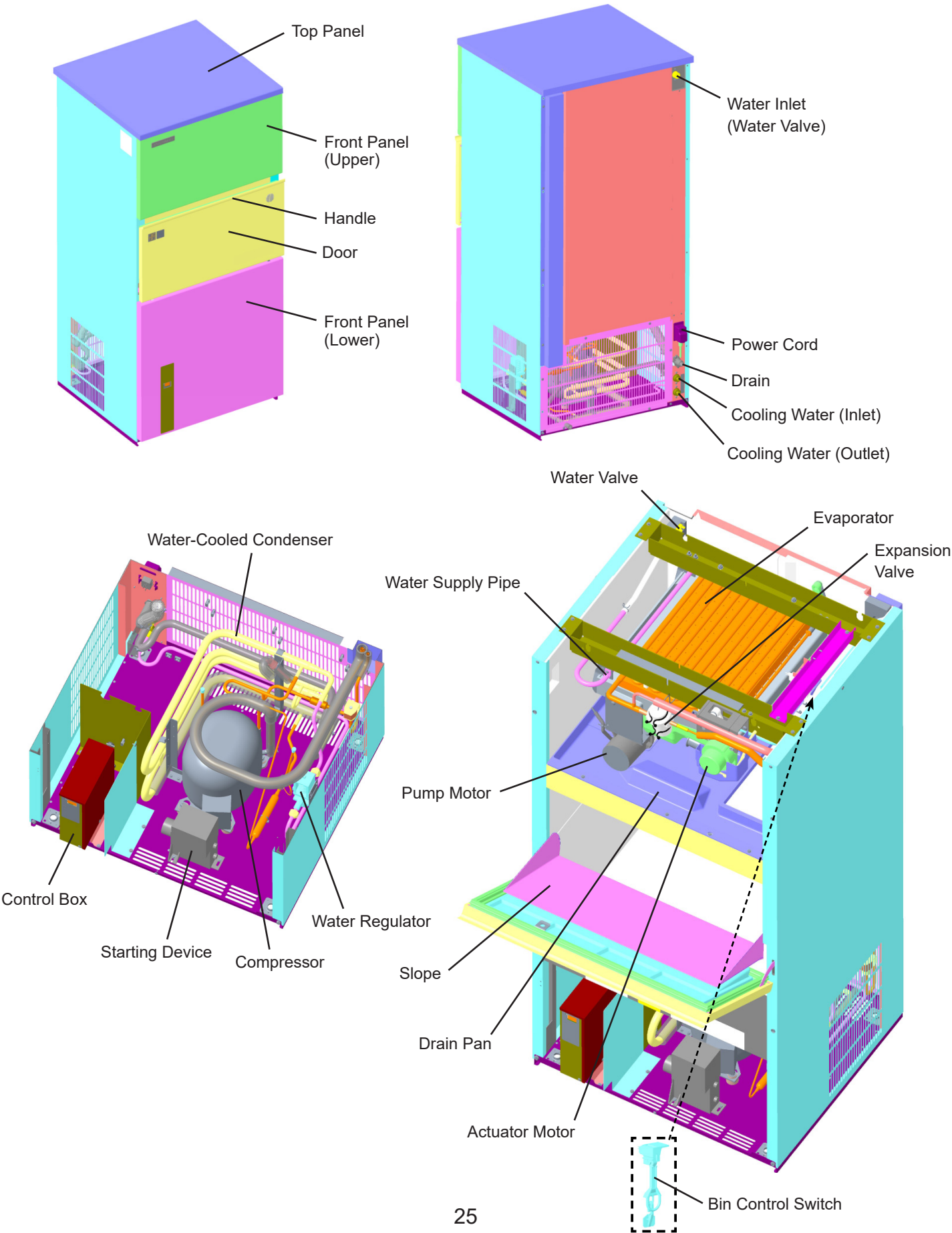
[h] IM-45WNE-HC, IM-65WNE-HC



[i] IM-100WNE-HC, IM-130WNE-HC



[J] IM-240WNE-HC



2. CONTROLLER BOARD

Note: Refer to the controller board service manual.

IMPORTANT

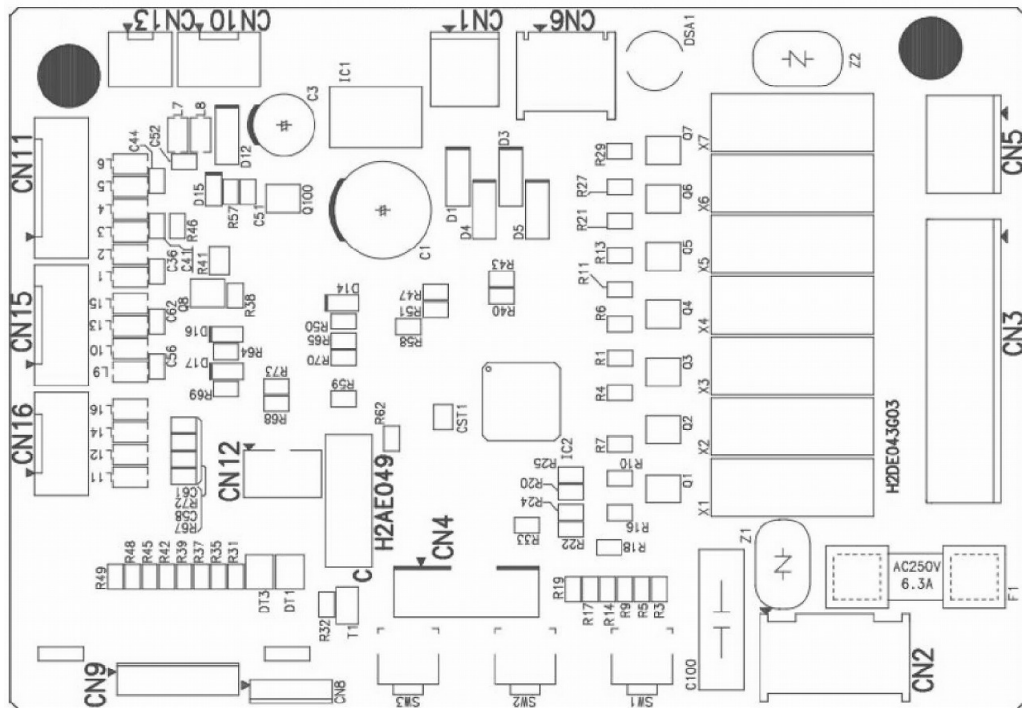
If receiving a service call, ask the user to turn off the power to the icemaker and turn it on again, while watching the icemaker. This will reset the controller, and in some cases normal operation will resume.

NOTICE

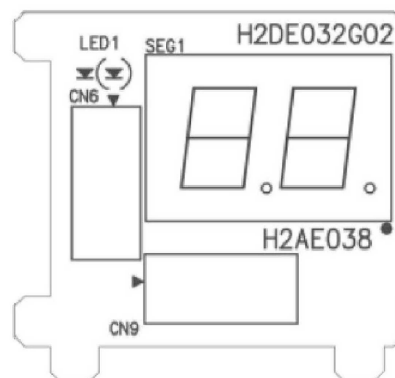
1. Check that the icemaker has been earthed properly. If not, the controller board will not work properly.
2. Do not change wiring and connections, or the controller board will not work properly.
3. Do not touch the reverse side of the controller board and tiny electronic devices on it.
4. Do not repair the electronic devices and parts on the controller board in the field (except for fuse replacement). Replace the whole board assembly when it fails.
5. To get static free, always touch the metal part of the icemaker before servicing. Electrostatic discharge will cause severe damage to the controller board.
6. The signal ground wire must be connected to the control box when replacing the controller board after service.
7. The controller board is fragile. Handle with care.
 - * Do not drop the board on the floor.
 - * Make sure that the board is placed correctly into the guides in the control box.
 - * Handle the board by the edges only. Do not touch the electric parts and devices.

[a] CONTROLLER BOARD LAYOUT

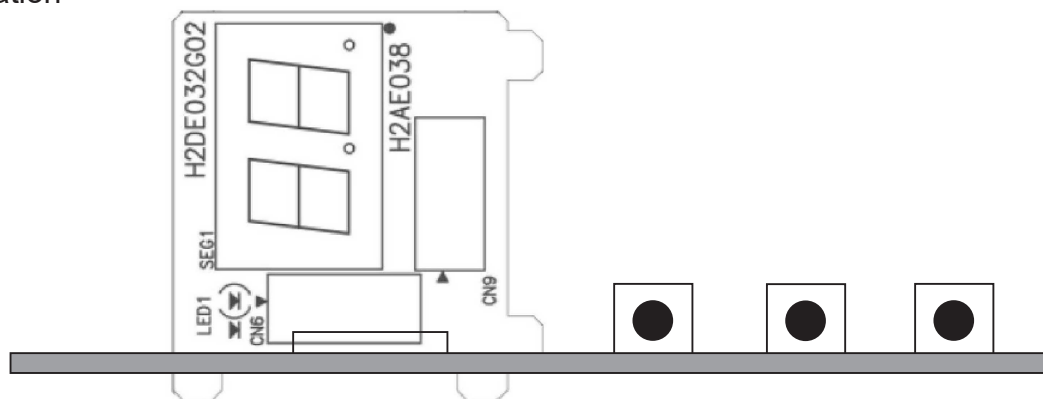
Main Board



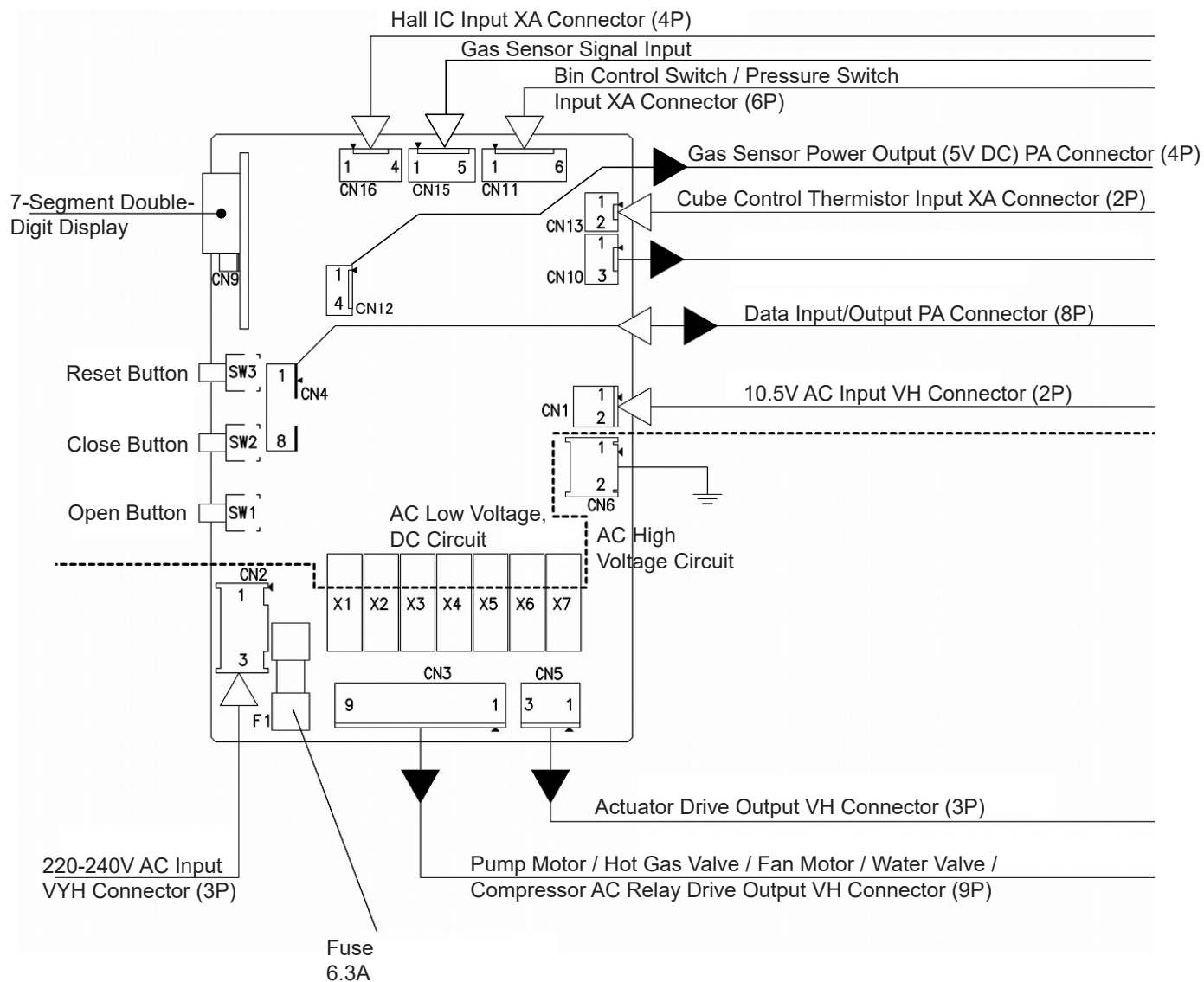
Sub Board



Combination

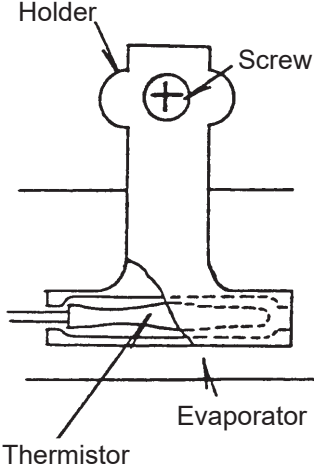


[b] INPUT/OUTPUT LAYOUT



[c] BEFORE CHECKING CONTROLLER BOARD

Check the power source voltage and the components as shown in the table below.

Component	Procedure	Normal
1. Thermistor (on evaporator) 	NOTICE Thermistor sensor part is fragile, glass sealed. Handle with care. * Disconnect the connector CN13 on the board. * Remove the screw and the thermistor holder on the evaporator. * Immerse the sensor part in a glass containing ice and water for 5 minutes. * Check the resistance between CN13 connector pins. * Replace the thermistor in its correct position. * Connect CN13.	5 -7 kilohms
2. Bin Control Switch	Manually set the micro switch in the TRIP and RESET positions, and check the period.	Approx. TRIP(Closed) 10 sec. RESET(Open) 80 sec.

III. OPERATING INSTRUCTIONS

WARNING

The use of any electrical equipment involves the observance of some fundamental rules. In particular:

- * Instances of high humidity and moisture increase the risk of electrical short circuits and potential electrical shocks. If in doubt, disconnect the icemaker.
- * Do not damage the power cord or pull it in order to disconnect the icemaker from the electrical supply network.
- * Do not touch the electrical parts or operate the switches with damp hands.
- * 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.
- * Do not attempt to modify the icemaker. Only qualified personnel may disassemble or repair the appliance.

CAUTION

Do not put your hands into the back of the storage bin or the ice chute on top of the storage bin. Ice may drop off the icemaker, a hard block of ice may suddenly break down, or the icemaking mechanism may suddenly move, resulting in injury.

NOTICE

1. All parts are factory-adjusted. Improper adjustments may result in failure.
2. If the unit is turned off, wait for at least 3 minutes before restarting the icemaker to prevent damage to the compressor.

HYGIENE

This icemaker is designed to produce and store edible ice. To keep the icemaker hygienic:

- * Wash your hands before removing ice. Use the plastic scoop provided (accessory).
- * The storage bin is for ice use only. Do not store anything else in the bin.
- * Clean the storage bin before use (see “ IV. 1. PERIODICAL CLEANING”).

- * Keep the scoop clean. Clean it by using a neutral cleaner and rinse thoroughly.
- * Close the door after removing ice to prevent entrance of dirt, dust or insects into the storage bin.

1. START UP

- 1) Disconnect the power supply.
- 2) Open the water tap.
- 3) Connect the power supply and energise.
- 4) The following should occur in sequence:
 - a) Hot gas valve will open.
 - b) Compressor will start.
 - c) Water pan will fully open.
 - d) Water valve will open.
 - e) Water pan will start to close (hot gas valve closed).
 - f) Water pan fully closed - pump motor will start.
 - g) Water valve will close.

2. PREPARING THE ICEMAKER FOR LONG STORAGE

⚠ WARNING

Drain the icemaker to prevent damage to the water supply line at subfreezing temperatures, using air or carbon dioxide. Shut off the icemaker until proper air temperature is resumed.

[a] IM-21, 30, 45, 65

- 1) Close the water supply tap, and remove the inlet hose.
- 2) Remove the front panel.
- 3) Push the reset switch. The water pan will start to open.

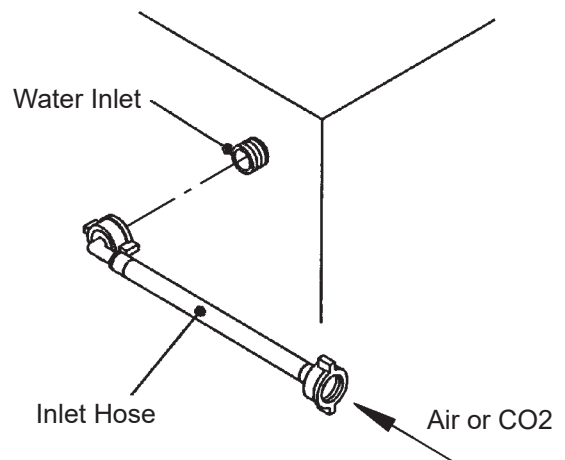


Fig. 1

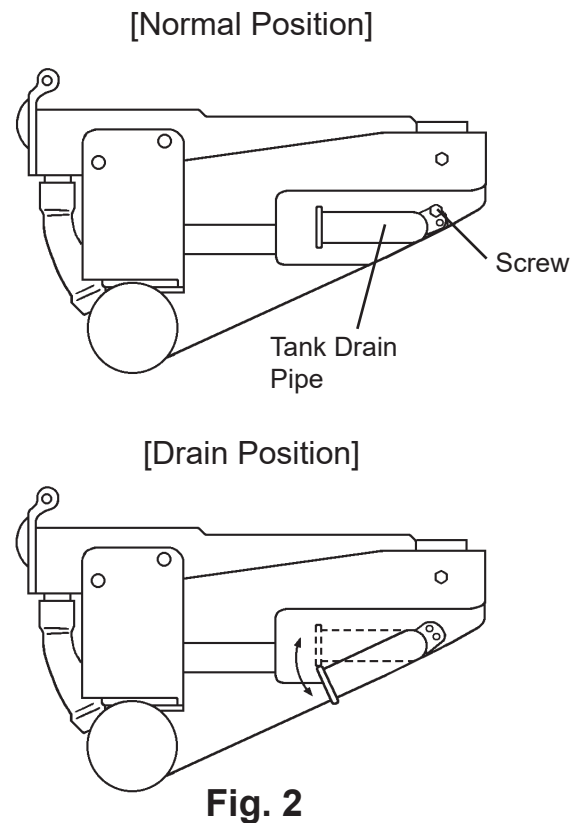
- 4) Blow out the water supply line immediately after the water pan has opened.

Note: This procedure is necessary to protect the icemaker from freezing up at subfreezing temperature.

- 5) Unplug the icemaker or disconnect the power source when the water pan has fully opened.
- 6) Remove all ice from the storage bin, and clean the bin.
- 7) Replace the front panel in its correct position.
- 8) Replace the inlet hose in its correct position.

[b] IM-100, 130, 240

- 1) Close the water supply tap, and remove the inlet hose.
- 2) Remove the front panel.
- 3) Remove the screw located on the front of the water tank.
- 4) Move the tank drain pipe to the drain position. See Fig. 2.
- 5) Push the reset switch. The water pan will start to open.
- 6) Blow out the water supply line immediately after the water pan has opened.



Note: This procedure is necessary to protect the icemaker from freezing up at subfreezing temperature.

- 7) Unplug the icemaker or disconnect the power source when the water pan has fully opened.
- 8) Move the tank drain pipe to the normal position, and secure it with the screw.
- 9) Remove all ice from the storage bin, and clean the bin.
- 10) Replace the front panel in its correct position.
- 11) Replace the inlet hose in its correct position.

3. BIN CONTROL

Bin control switch is mounted on the upper side of the storage bin. This switch will turn off the unit automatically when the storage bin is full of ice.

Handle the bin control switch carefully, because the switch assembly is fragile. Especially on removing ice, do not touch or poke with a scoop.

Keep away from the water plate or drain pan to prevent jamming.

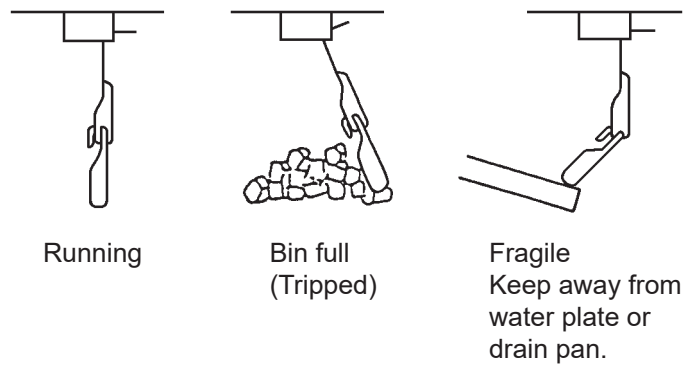


Fig. 3

[a] BIN CONTROL SWITCH ASSEMBLY

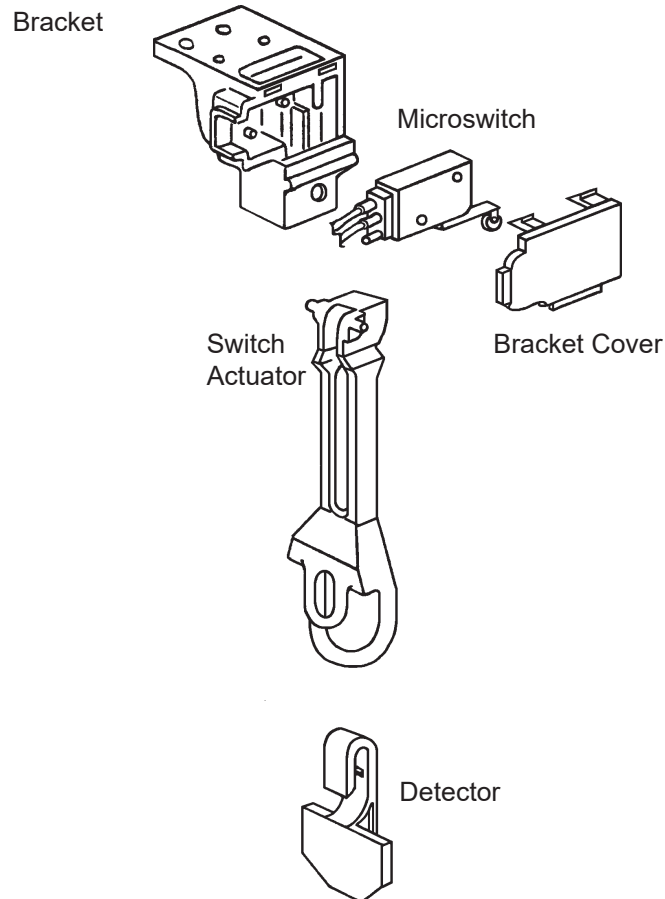


Fig. 4

[b] REMOVAL

BRACKET COVER

Push the two pawls and remove the bracket cover.

SWITCH

Pull out the switch, holding the rubber leads cap. Handle with care.

SWITCH ACTUATOR

Insert a flat blade screwdriver and wrench it slightly to pull out the switch actuator. Handle with care to prevent damage to the cam surface of the actuator.

DETECTOR

Push out the detector, holding the switch actuator.

[c] REASSEMBLING

SWITCH ACTUATOR

Insert the lower shaft and push it along the U notch. Check that the switch actuator moves free.

SWITCH & BRACKET COVER

Place the switch lever first, and then attach the switch in position. Insert the guide and push the bracket cover to lock.

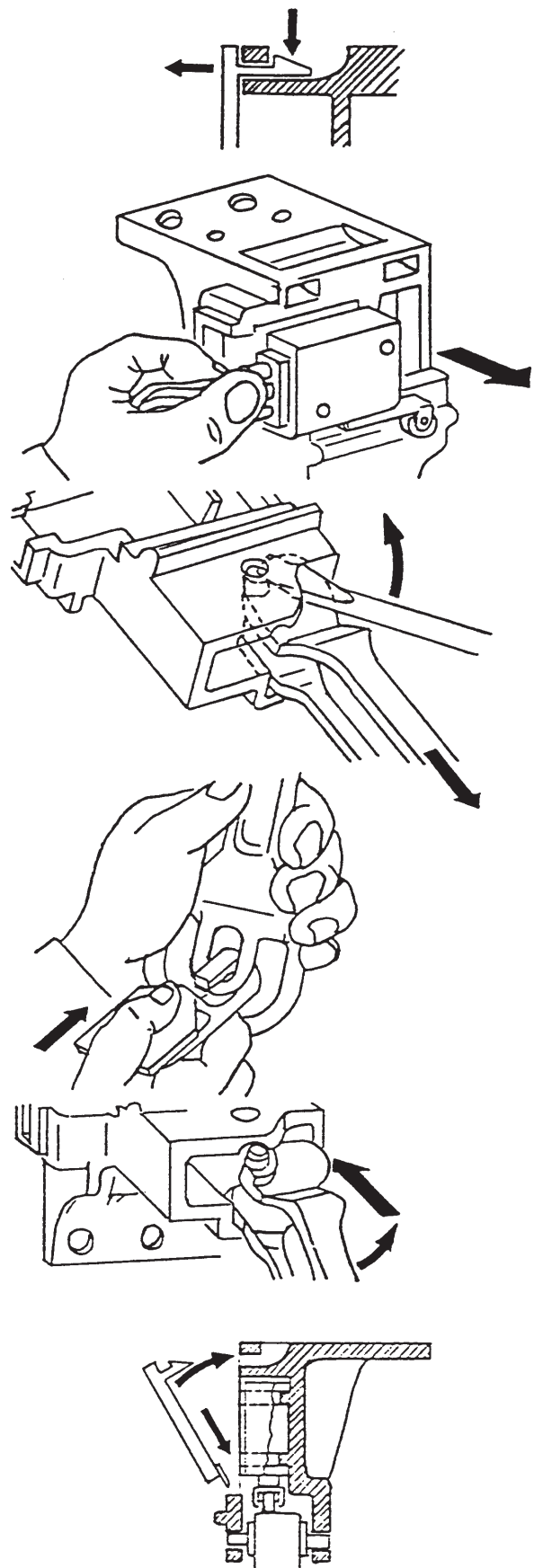


Fig. 5

IV. MAINTENANCE INSTRUCTIONS

WARNING

1. Before carrying out any cleaning or maintenance operations, unplug the icemaker from the electrical supply network.
2. This appliance must not be cleaned by use of a water jet.

CAUTION

Before handling or using cleaning solutions, check the guidelines on the product for advice on suitable personal protective clothing, gloves, goggles, etc.

NOTICE

1. Clean and sanitize the icemaker water system at least twice a year, and check and clean the condenser at least once a year.
2. To prevent possible damage, do not clean the plastic parts with water above 40°C or in a dishwasher.

1. PERIODICAL CLEANING

[1] Machine and Bin Exterior

Wipe the exterior at least once per week with a clean, soft cloth. Use a damp cloth containing a neutral cleaner to wipe off grease or dirt.

[2] Scoop and Storage Bin Handle Cleaning/Sanitisation (Daily)

- 1) Either mix 1 litre of water with 4 ml of 5.25% sodium hypochlorite solution in a suitable container, or the recommended Hoshizaki sanitiser as directed.
- 2) Soak the scoop in the solution for more than 3 minutes. Rinse thoroughly, and shake to remove surplus liquid.

Note: Using a cloth to dry may re-contaminate.

- 3) Use a neutral cleaner to wash the storage bin handle. Rinse thoroughly.
- 4) Soak a clean cloth with the sanitising solution, and wipe the handle. Use fresh water and a clean cloth to rinse/dry.

[3] Storage Bin Interior Cleaning/Sanitisation (Weekly)

- 1) Open the storage bin door, and remove all ice.
- 2) Wash the bin liner with a neutral non-abrasive cleaner. Rinse thoroughly.
- 3) Soak a clean cloth with the neutral cleaner, and wipe both sides of the slope and the door inner surface. Wipe off the cleaner with a clean damp cloth.
- 4) Either mix 5 litres of water with 18 ml of 5.25% sodium hypochlorite solution in a suitable container, or the recommended Hoshizaki sanitiser as directed.
- 5) Soak a clean sponge or cloth with the solution, and wipe the bin liner, bin door and slope.
- 6) The remaining solution can be used to sanitise utensils.

Note: Do not wipe dry or rinse after sanitising, but allow to air dry.

[4] Air Filter

Plastic mesh air filters remove dirt or dust from the air, and keep the condenser from getting clogged. If the filters get clogged, the icemaker's performance will be reduced. Remove and clean the air filters at least twice per month:

- 1) Slide the air filter off the filter guide [IM-21CNE/30CNE-HC] or the louver [IM-45CNE/45NE/65NE/100CNE/100NE/130NE/240NE-HC].

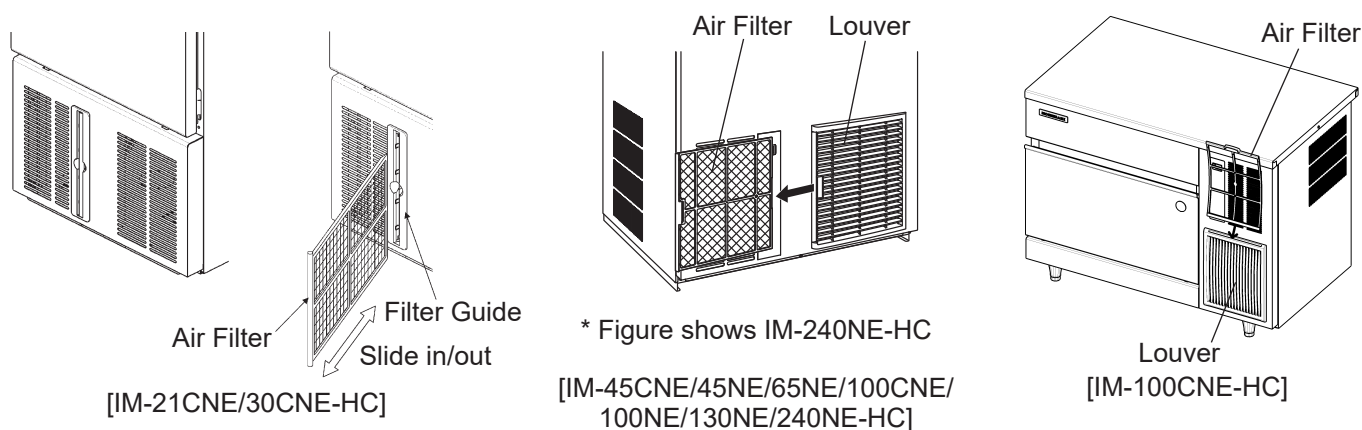


Fig. 6

- 2) Clean the air filter by using a vacuum cleaner. When severely clogged, use warm water and a neutral cleaner to wash the air filter.
- 3) Rinse and dry the air filter thoroughly.

NOTICE

After cleaning, be sure to place the air filter back in position.

2. WATER VALVE

- 1) Unplug the icemaker or disconnect the power source.
- 2) Close the water supply tap.
- 3) Remove the top panel and front panel.
- 4) Disconnect the inlet hose from the water valve.
- 5) Remove the mesh filter from the water valve.
- 6) Clean the mesh using a brush.
- 7) Replace the mesh and inlet hose in their correct positions.
- 8) Open the shut-off valve.
- 9) Plug in the icemaker or connect the power source.
- 10) Check for leaks.
- 11) Replace the panels in their correct positions.

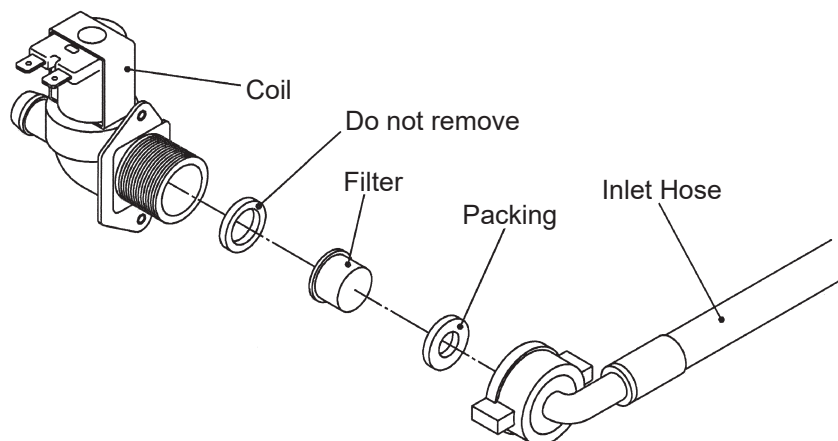


Fig. 7

3. WATER-COOLED CONDENSER

Deposits inside the water circuit of the water-cooled condenser decrease cooling performance. Clean inside of the condenser by circulating a cleaning solution.

1) Prepare the following:

Cleaning solution [Read and follow any instructions on label or bottle.]

Pump Container for solution

Hose

Hose bands

Two fittings [R1/2 - 3/8"DIA]

Two fittings [3/8" flare - 3/8"DIA]

CAUTION

Do not use a cleaning solution that will corrode the copper tubing. In case of contact with the solution, flush with water.

- 2) Remove the panels and check for leaks from the water line.
- 3) Unplug the icemaker or disconnect the power source, and close the water supply tap.
- 4) Disconnect the cooling water inlet and outlet pipings and attach fittings to connect hoses.
- 5) Disconnect the inlet and outlet tubings of the water regulator and replace the water regulator by fittings.
- 6) Connect hoses as shown in Fig. 8 and secure them by hose bands.

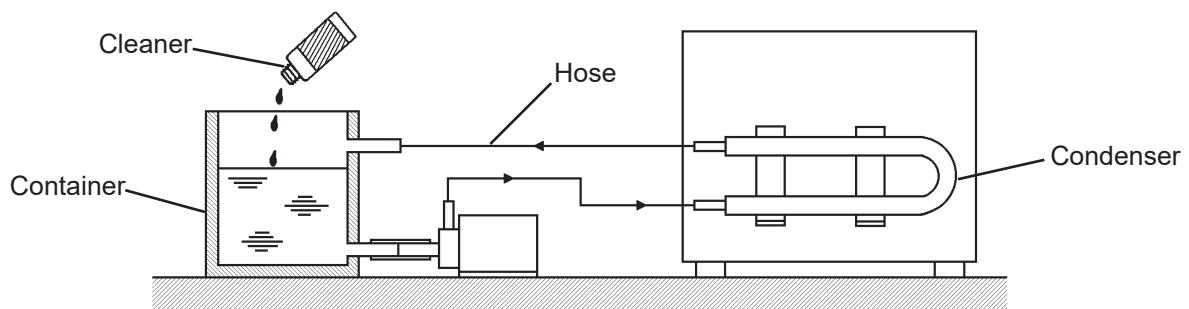


Fig. 8

- 7) Fill the container with the cleaning solution.
- 8) Run the pump motor and circulate the solution for a period recommended in the instructions on label or bottle of the cleaner.
- 9) Rinse the water circuit.

10) Reverse the above procedure in steps 2) through 6).

11) Check the icemaking capacity referring to “V. 3. PERFORMANCE DATA”.

4. ICEMAKING WATER SYSTEM

To keep the icemaker hygienic, clean and sanitize the icemaking water system at least once every six months. More frequent cleaning and sanitizing may be required depending on the water quality.

CAUTION

Always wear rubber gloves, eye protectors, apron, etc. for safe handling of the cleaner and sanitizer.

NOTICE

1. Use the cleaners and sanitizers recommended by Hoshizaki. Contact your local Hoshizaki office for further details. (The instructions below give an example of those recommended cleaners and sanitizers.)
2. Never mix cleaning and sanitizing solutions in an attempt to shorten cleaning time.
3. Wipe off any splashed or spilt cleaner/sanitizer immediately.
4. Do not use any ammonia type cleaners on any part of the icemaker.
5. When the ambient and water temperatures are 10°C or below, the water pan may remain open. Warm the icemaking compartment up to 20°C around the thermistor.
6. Be sure to follow the cleaning and sanitizing instructions below.

- 1) Use a suitable container to dilute 236 ml of the cleaner (“Nickel-Safe Ice Machine Cleaner” by The Rectorseal Corporation) with 11.4 lit. of water.
- 2) Open the storage bin door, and remove all the ice to avoid contaminating by the cleaner.
- 3) Remove the front and top panels.
- 4) If the icemaker is in a defrost cycle, wait until a freeze cycle starts.

- 5) Close the water supply tap.
- 6) [IM-100, 130, 240 only]
Remove the screw, and move the tank drain pipe to the drain position. See Fig. 2.
- 7) Push the reset switch to open the water pan.
- 8) Unplug the icemaker or disconnect the power source when the water pan has fully opened.
- 9) After the water has completely drained out, plug in the icemaker or connect the power source. When the 7-segment display on the controller board turns on, press DOWN on the controller board for 3 seconds to start the flush mode. (See the controller board service manual for further details.)
- 10) When the flush mode has started, pour the cleaning solution prepared in 1) carefully into the water tank within 60 seconds before the pump motor starts. Do not splash or spill the solution onto the other parts.
- 11) Circulate the cleaning solution for 30 minutes. Push the reset switch to open the water pan. Unplug the icemaker or disconnect the power source when the water pan has fully opened. Wait until the cleaning solution has completely drained out.
- 12) Open the water supply tap, and repeat the above step 9). Since the water supply tap is open this time, water is supplied as in the normal freeze cycle.
- 13) When the water pan closes again, pour clean water into the water pan until it floods from the overflow pipe, and circulate the water for 5 minutes.
- 14) Push the reset switch to open the water pan and drain the water. This time the water does not drain out completely.
- 15) Repeat the above steps 13) and 14) at least three times to rinse thoroughly. To drain the rinse water completely, unplug the icemaker or disconnect the power source when the water pan has fully opened.

SANITIZING INSTRUCTIONS

Note: Sanitizing should always be completed after cleaning or alternately as an individual procedure if conditions exist to make it necessary.

- 16) Use a suitable container to dilute 44 ml of 5.25% sodium hypochlorite solution with 11.4 lit. of water.

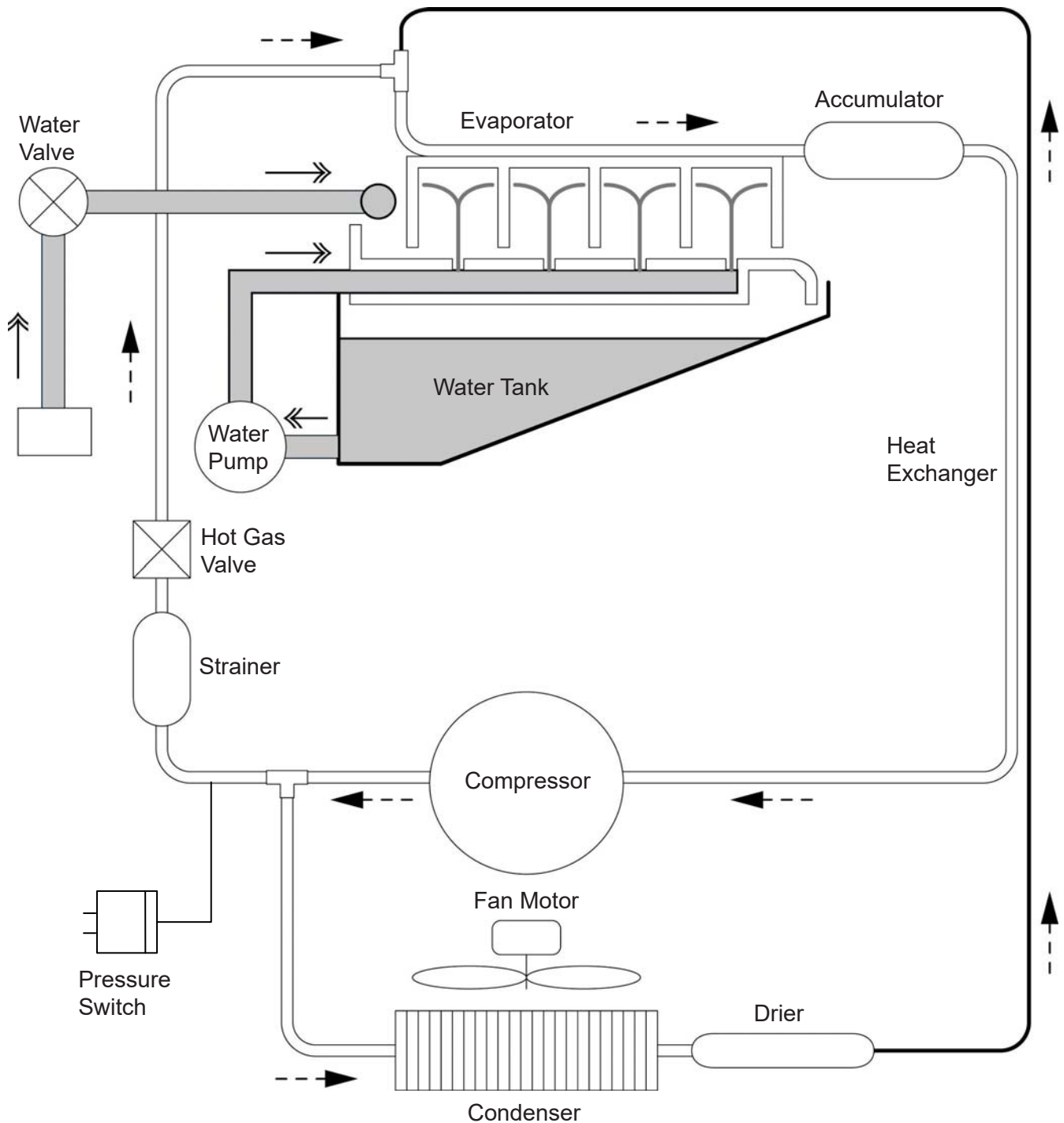
* Alternatively use the Hoshizaki recommended sanitizer as directed by the relevant instructions.

- 17) Close the water supply tap. Plug in the icemaker or connect the power source. When the 7-segment display on the controller board turns on, press DOWN on the controller board for 3 seconds to start the flush mode.
- 18) When the flush mode has started, pour the cleaning solution prepared in 16) carefully into the water tank within 60 seconds before the pump motor starts. Do not splash or spill the solution onto the other parts.
- 19) Circulate the sanitizing solution for 15 minutes. Push the reset switch to open the water pan. Unplug the icemaker or disconnect the power source when the water pan has fully opened. Wait until the sanitizing solution has completely drained out.
- 20) Open the water supply tap, and repeat the above step 9). Since the water supply tap is open this time, water is supplied as in the normal freeze cycle.
- 21) When the water pan closes again, pour clean water into the water pan until it floods from the overflow pipe, and circulate the water for 5 minutes.
- 22) Push the reset switch to open the water pan and drain the water. This time the water does not drain out completely.
- 23) Repeat the above steps 21) and 22) at least three times to rinse thoroughly. To drain the rinse water completely, unplug the icemaker or disconnect the power source when the water pan has fully opened.
- 24) [IM-100, 130, 240 only]
Move the tank drain pipe to the normal position, and secure it with the screw. See Fig. 2.
- 25) Plug in the icemaker or connect the power source. Check for proper icemaking operation.
- 26) Replace the front panel and top panel in their correct positions.
- 27) Complete storage bin cleaning as detailed in IV. 1. [3].

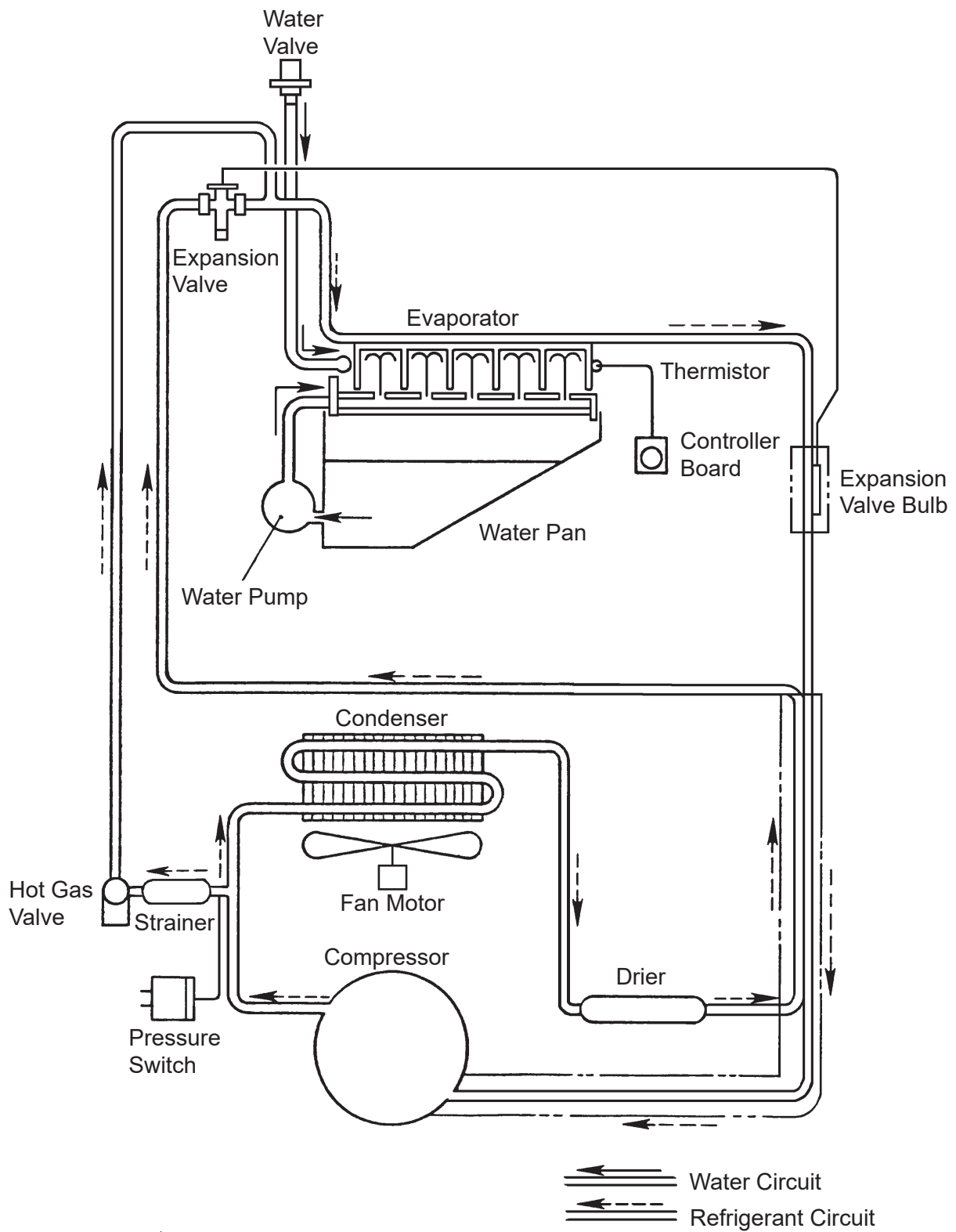
V. TECHNICAL INFORMATION

1. WATER CIRCUIT AND REFRIGERANT CIRCUIT

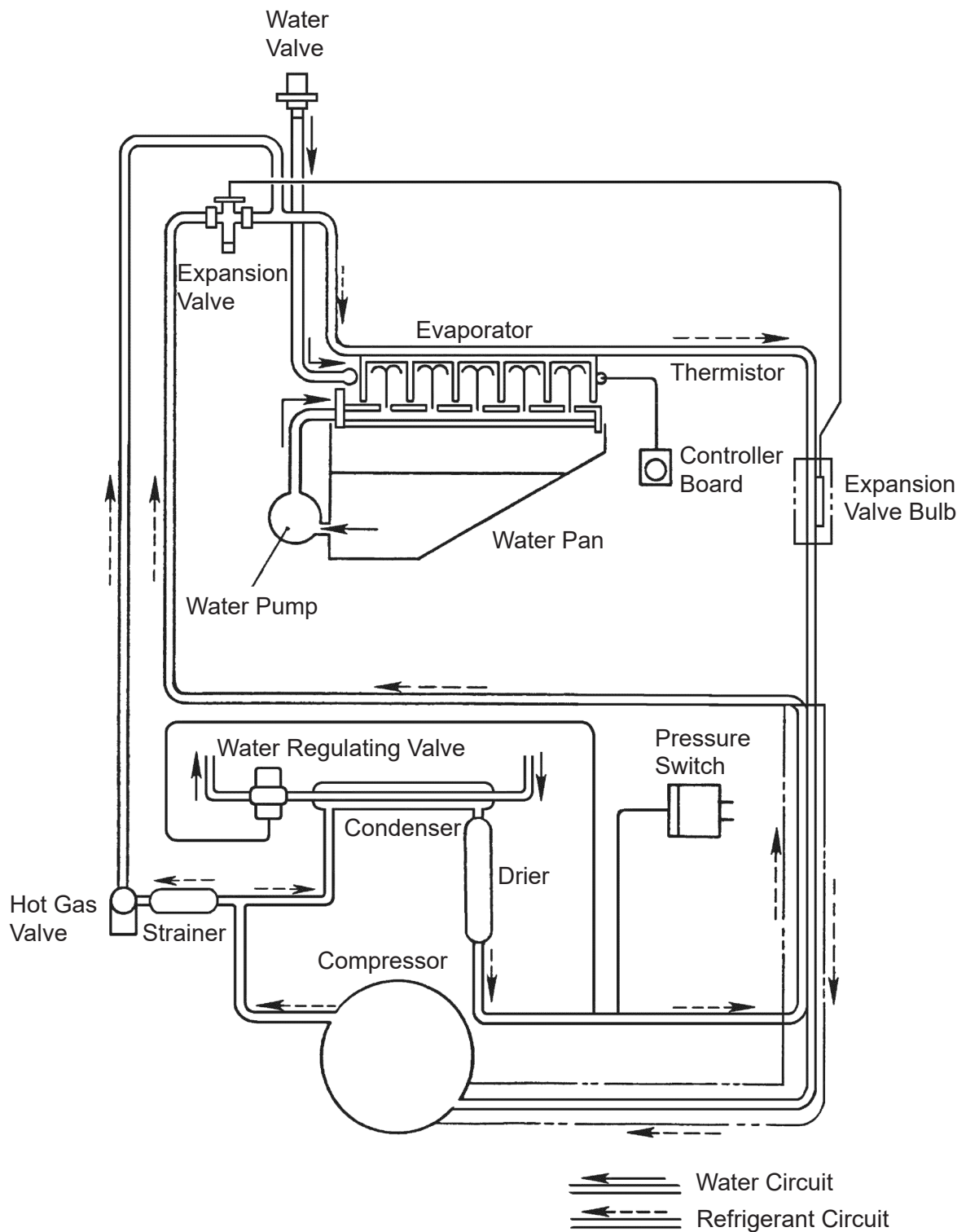
[a] IM-21CNE-HC, IM-30CNE-HC, IM-45CNE-HC, IM-45NE-HC, IM-65NE-HC (Air-cooled)



[b] IM-100CNE-HC, IM-100NE-HC, IM-130NE-HC, IM-240NE-HC (Air-cooled)

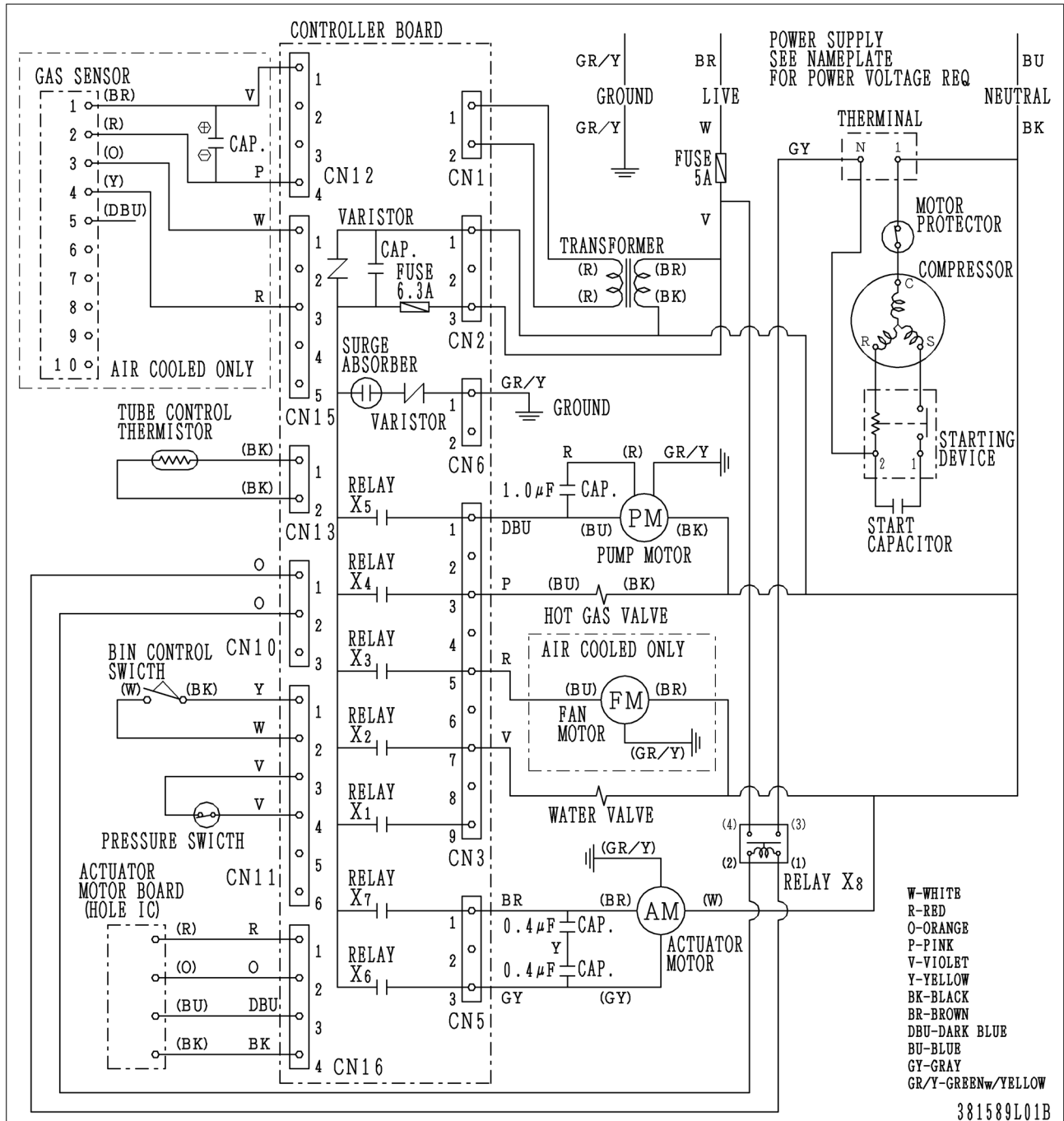


[c] IM-30CWNE-HC, IM-45WNE-HC, IM-65WNE-HC, IM-100WNE-HC, IM-130WNE-HC, IM-240WNE-HC (Water-cooled)

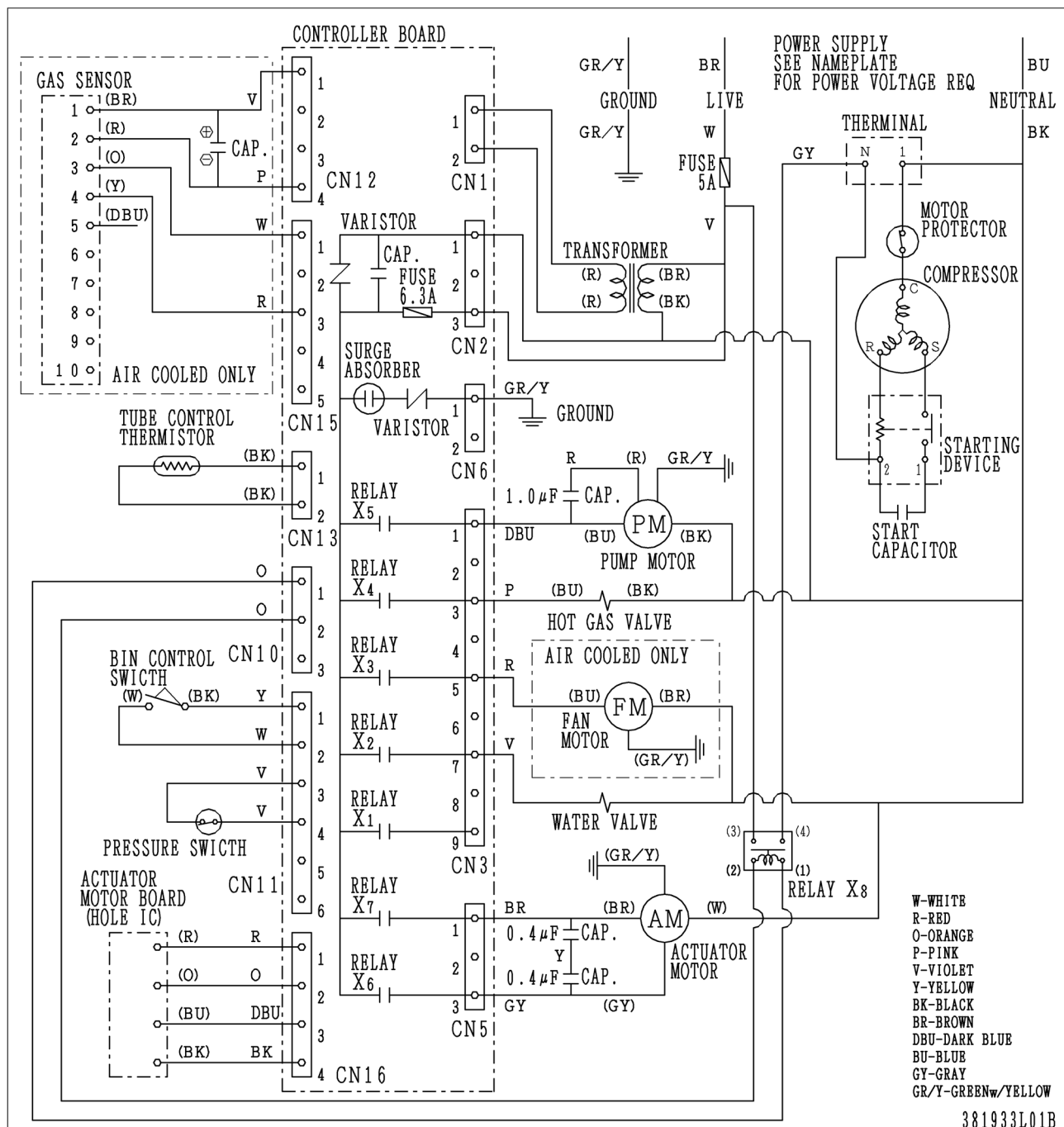


2. WIRING DIAGRAM

[a] IM-21CNE-HC, IM-30CNE-HC, IM-30CWNE-HC

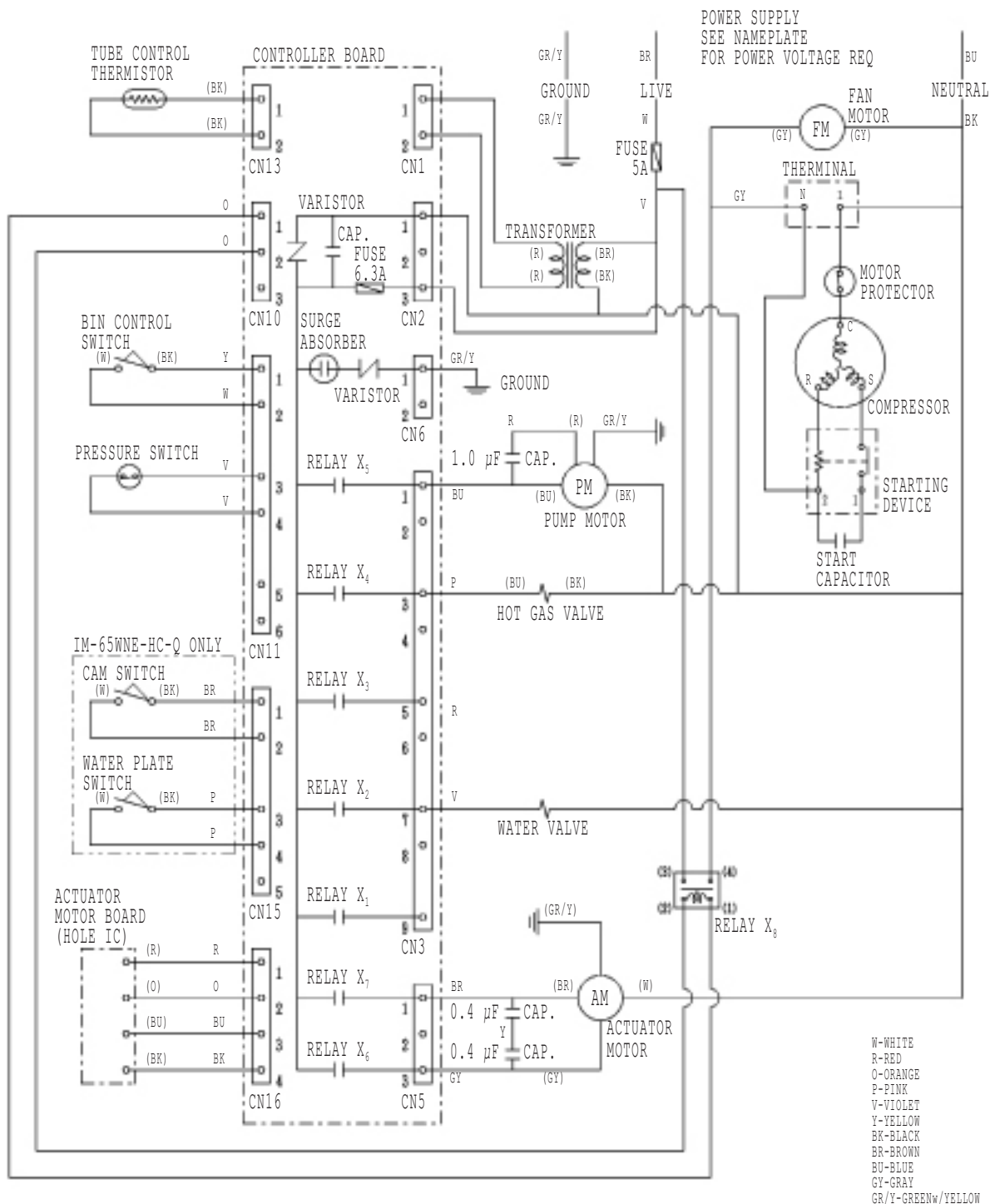


[b] IM-45CNE-HC, IM-45NE-HC, IM-45WNE-HC, IM-65NE-HC



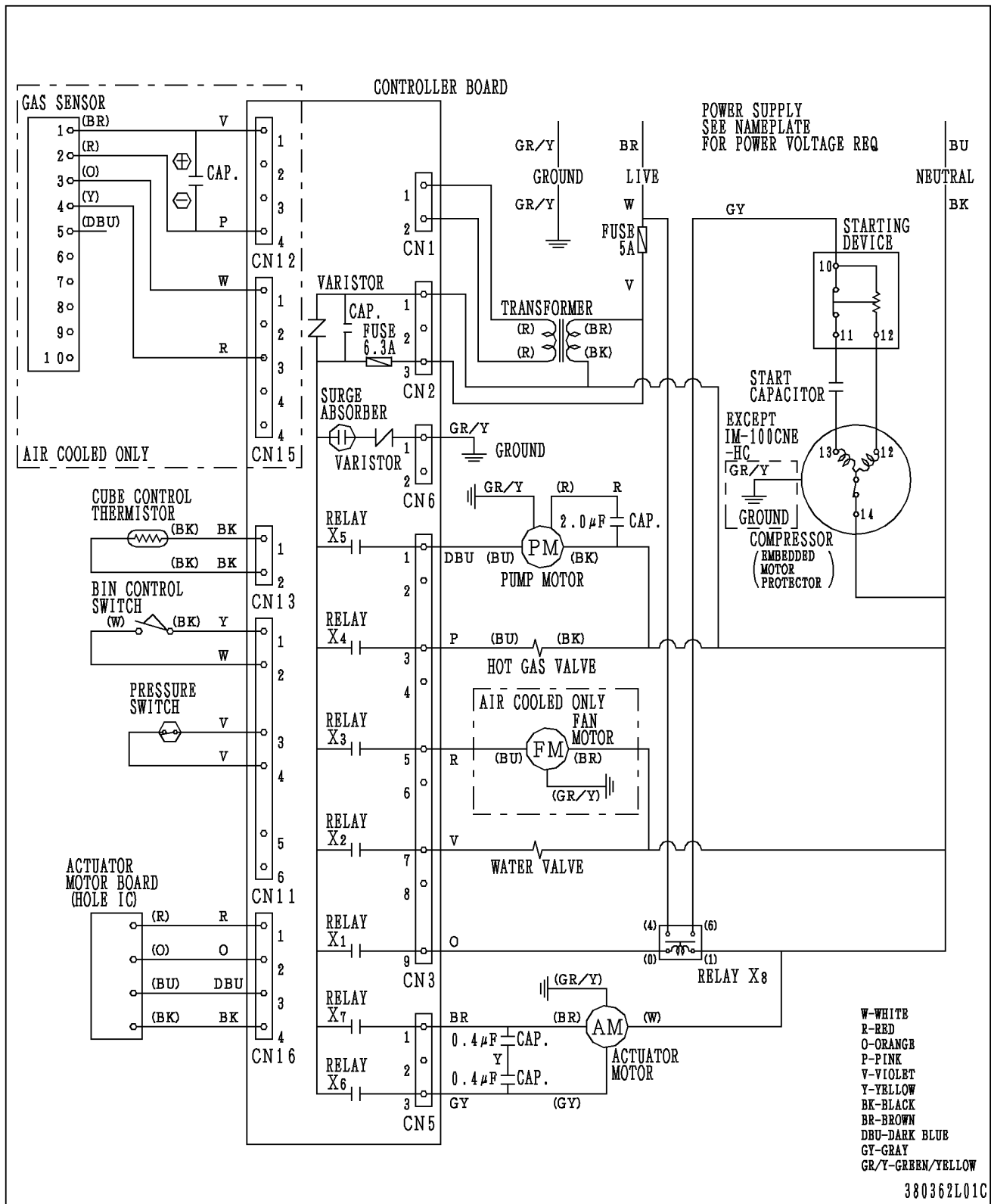
[c] IM-65WNE-HC

WIRING DIAGRAM

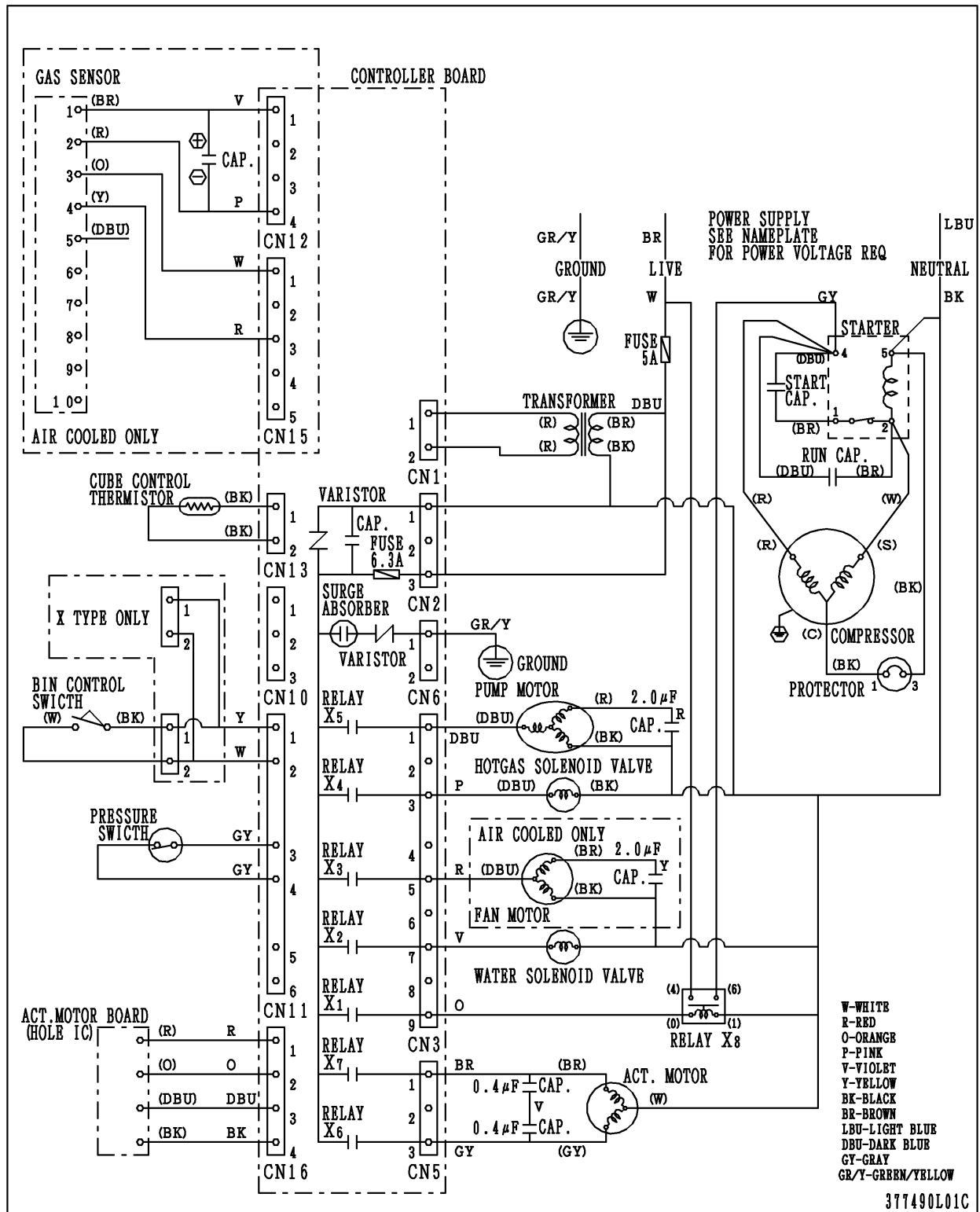


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[d] IM-100CNE-HC, IM-100NE-HC, IM-100WNE-HC, IM-130NE-HC, IM-130WNE-HC



[e] IM-240NE-HC, IM-240WNE-HC



Ice Production = Capacity when shipped from factory

Cube Hole Diameter: 5mm (15mm) for -23, -C 5mm (12mm) for -25 3mm (7mm) for -21
6mm (15mm) for -32 6mm for -Q ball ice (45mm dia) 10mm for -LM, -LM103
5mm for -S star ice, -H heart ice

50

IM-45NE-HC	Ice Production	(kg/d)	40 (46)	36 (42)	30 (34)	25 (28)
	Freeze Cycle Time	(min)	18.6 (14.9)	23.3 (18.0)	29.7 (23.6)	36.4 (27.7)
	Defrost Cycle Time	(min)	5.5 (3.9)	3.5 (2.6)	2.5 (1.9)	2.2 (1.8)
	Water Consumption	(lit/h)	7.8 (9.8)	4.3 (5.6)	3.6 (4.5)	3.0 (3.8)
	Electric Consumption	(W)	220	240	275	300
	Head Pressure [peak]	(bar)	9.0	12.0	16.0	19.0
IM-45NE-HC-25	Ice Production	(kg/d)	35 (39)	32 (35)	27 (28)	24 (25)
	Freeze Cycle Time	(min)	17.7 (13.1)	21.6 (16.6)	27.1 (22.0)	31.1 (25.3)
	Defrost Cycle Time	(min)	4.9 (4.3)	3.2 (2.8)	2.2 (2.2)	1.9 (1.8)
	Water Consumption	(lit/h)	8.3 (10.8)	4.7 (6.0)	4.0 (4.8)	3.5 (4.3)
	Electric Consumption	(W)	230	250	275	300
	Head Pressure [peak]	(bar)	9.0	12.0	16.0	19.0
IM-45WNE-HC	Ice Production	(kg/d)	42 (45)	38 (40)	35 (37)	32 (-)
	Freeze Cycle Time	(min)	22.2 (19.4)	25.2 (22.2)	27.8 (24.7)	30.9 (-)
	Defrost Cycle Time	(min)	2.8 (2.4)	2.5 (2.2)	2.2 (1.8)	2.0 (-)
	Water Consumption	(lit/h)	7.1 (8.1)	4.0 (4.4)	3.7 (4.1)	3.4 (-)
	Electric Consumption	(W)	225 (235)	230 (240)	240 (250)	250 (260)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-45WNE-HC-25	Ice Production	(kg/d)	42 (45)	38 (40)	35 (37)	35 (-)
	Freeze Cycle Time	(min)	19.3 (18.7)	21.2 (18.6)	22.9 (20.8)	24.5 (-)
	Defrost Cycle Time	(min)	2.1 (1.7)	1.5 (1.3)	1.3 (1.0)	1.1 (-)
	Water Consumption	(lit/h)	8.5 (8.6)	4.8 (8.5)	4.5 (5.0)	4.3 (-)
	Electric Consumption	(W)	218 (221)	226 (233)	235 (251)	248 (-)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-65NE-HC	Ice Production	(kg/d)	52 (62)	47 (56)	39 (46)	32 (39)
	Freeze Cycle Time	(min)	21.7 (15.8)	25.6 (19.7)	31.7 (24.5)	39.6 (27.5)
	Defrost Cycle Time	(min)	4.3 (3.9)	3.2 (2.1)	3.0 (2.2)	2.7 (2.0)
	Water Consumption	(lit/h)	7.5 (9.2)	4.7 (6.0)	3.9 (5.0)	3.2 (4.4)
	Electric Consumption	(W)	270	290	320	350
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	17.0
IM-65NE-HC-25	Ice Production	(kg/d)	45 (56)	44 (49)	36 (41)	34 (37)
	Freeze Cycle Time	(min)	19.0 (13.3)	20.6 (17.3)	26.1 (21.4)	28.3 (24.2)
	Defrost Cycle Time	(min)	4.1 (3.9)	3.0 (2.4)	2.7 (2.1)	2.2 (2.1)
	Water Consumption	(lit/h)	9.0 (9.9)	6.6 (8.1)	5.5 (6.7)	5.2 (6.0)
	Electric Consumption	(W)	275	295	330	355
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	18.0
IM-65NE-HC-LM	Ice Production	(kg/d)	43	35	29	25
	Freeze Cycle Time	(min)	39.7	55.2	68.0	80.4
	Defrost Cycle Time	(min)	8.5	5.5	3.5	2.5
	Water Consumption	(lit/h)	0.93	0.08	0.07	0.06
	Electric Consumption	(W)	255	275	310	330
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	17.0
IM-65NE-HC-LM103	Ice Production	(kg/d)	39	32	25	22
	Freeze Cycle Time	(min)	44.2	59.3	78.4	91.3
	Defrost Cycle Time	(min)	9.0	5.5	4.5	3.0
	Water Consumption	(lit/h)	0.81	0.07	0.06	0.05
	Electric Consumption	(W)	255	275	295	335
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	17.0
IM-65NE-HC-S	Ice Production	(kg/d)	20	20	19	17
	Freeze Cycle Time	(min)	15.9	20.4	23.8	27.5
	Defrost Cycle Time	(min)	10.0	5.5	3.5	3.0
	Water Consumption	(lit/h)	0.41	0.15	0.12	0.11
	Electric Consumption	(W)	250	270	295	315
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	17.0

IM-65NE-HC-H	Ice Production	(kg/d)	33	29	25	22
	Freeze Cycle Time	(min)	15.9	19.0	24.7	29.1
	Defrost Cycle Time	(min)	5.5	5.3	3.5	3.0
	Water Consumption	(lit/h)	0.13	0.11	0.09	0.08
	Electric Consumption	(W)	250	265	300	325
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	17.0
IM-65NE-HC-C	Ice Production	(kg/d)	55 (56)	45 (48)	35 (38)	33
	Freeze Cycle Time	(min)	25.2 (21.3)	34.7 (32.2)	46.3 (43.3)	49.8 (-)
	Defrost Cycle Time	(min)	6.5 (7.5)	4.0 (3.0)	3.5 (2.0)	3.0 (-)
	Water Consumption	(lit/h)	0.35 (0.35)	0.10 (0.12)	0.08 (0.10)	0.07 (-)
	Electric Consumption	(W)	245 (-)	270 (-)	305 (-)	240 (-)
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	17.0
IM-65NE-HC-Q	Ice Production	(kg/d)	28	26	21	19
	Freeze Cycle Time	(min)	27.0	30.6	40.4	45.8
	Defrost Cycle Time	(min)	7.5	6.5	5.5	5.0
	Water Consumption	(lit/h)	0.97	0.72	0.45	-
	Electric Consumption	(W)	255	275	305	330
	Head Pressure [peak]	(bar)	8.0	11.0	14.0	17.0
IM-65WNE-HC	Ice Production	(kg/d)	51 (60)	47 (55)	44 (50)	32 (-)
	Freeze Cycle Time	(min)	25.8 (21.6)	28.8 (23.9)	31.4 (26.7)	43.9 (-)
	Defrost Cycle Time	(min)	3.0 (2.2)	2.5 (2.0)	2.0 (1.8)	2.0 (-)
	Water Consumption	(lit/h)	5.1 (6.0)	4.7 (5.6)	4.4 (5.2)	3.2 (-)
	Electric Consumption	(W)	290 (300)	295 (305)	300 (310)	310 (-)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-65WNE-HC-25	Ice Production	(kg/d)	53 (57)	50 (52)	45 (48)	43 (-)
	Freeze Cycle Time	(min)	20.0 (18.0)	22.1 (20.5)	24.3 (22.6)	26.3 (-)
	Defrost Cycle Time	(min)	2.0 (1.8)	1.85 (1.55)	1.55 (1.42)	1.2 (-)
	Water Consumption	(lit/h)	6.75 (7.5)	6.2 (6.7)	5.7 (6.2)	5.4 (-)
	Electric Consumption	(W)	266 (267)	269 (275)	271 (280)	287 (-)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-100CNE-HC	Ice Production	(kg/d)	92 (105)	90 (95)	75 (84)	63 (71)
	Freeze Cycle Time	(min)	23.1 (19.8)	26.6 (22.9)	32.3 (26.5)	39.0 (32.0)
	Defrost Cycle Time	(min)	3.9 (3.1)	2.2 (1.8)	2.2 (1.8)	2.1 (1.7)
	Water Consumption	(lit/h)	19.6 (24.6)	9.4 (10.9)	7.3 (8.9)	6.8 (8.3)
	Electric Consumption	(W)	440	470	500	530
	Head Pressure [peak]	(bar)	8.7	11.6	15.2	17.6
IM-100CNE-HC-23	Ice Production	(kg/d)	72 (79)	71 (77)	67 (70)	57 (60)
	Freeze Cycle Time	(min)	20.3 (18.5)	23.7 (21.2)	29.6 (26.9)	35.1 (31.9)
	Defrost Cycle Time	(min)	4.1 (3.2)	2.1 (1.9)	1.9 (1.7)	1.6 (1.4)
	Water Consumption	(lit/h)	21.4 (24.0)	9.8 (10.9)	8.4 (9.2)	6.9 (7.6)
	Electric Consumption	(W)	445	465	505	520
	Head Pressure [peak]	(bar)	8.7	11.6	15.2	17.6
IM-100CNE-HC-32	Ice Production	(kg/d)	90 (100)	85 (93)	70 (80)	58 (70)
	Freeze Cycle Time	(min)	24.8 (22.3)	28.5 (24.4)	36.5 (29.9)	45.0 (34.2)
	Defrost Cycle Time	(min)	5.3 (3.0)	3.5 (3.0)	2.4 (2.0)	2.2 (2.0)
	Water Consumption	(lit/h)	17.1 (20.2)	7.7 (9.0)	6.4 (7.8)	5.2 (6.8)
	Electric Consumption	(W)	405	435	460	472
	Head Pressure [peak]	(bar)	8.5	12.0	15.2	17.6
IM-100NE-HC	Ice Production	(kg/d)	92 (105)	90 (95)	76 (86)	65 (70)
	Freeze Cycle Time	(min)	23.5 (19.0)	27.0 (23.0)	32.0 (28.0)	38.0 (32.0)
	Defrost Cycle Time	(min)	6.0 (4.0)	3.0 (2.5)	2.5 (2.0)	2.0 (1.8)
	Water Consumption	(lit/h)	19.2 (23.5)	9.0 (10.1)	7.6 (9.3)	6.5 (7.6)
	Electric Consumption	(W)	495	525	555	580
	Head Pressure [peak]	(bar)	8.8	12.0	16.5	19.5

IM-100NE-HC-23	Ice Production	(kg/d)	83 (85)	80 (83)	70 (76)	60 (65)
	Freeze Cycle Time	(min)	17.5 (15.5)	20.5 (18.0)	25.3 (21.5)	30.2 (25.0)
	Defrost Cycle Time	(min)	5.0 (4.5)	2.7 (2.5)	2.1 (1.7)	1.8 (1.6)
	Water Consumption	(lit/h)	24.5 (27.6)	11.6 (13.0)	9.4 (11.4)	8.3 (9.9)
	Electric Consumption	(W)	450	470	520	550
	Head Pressure [peak]	(bar)	8.8	12.0	16.5	19.5
IM-100NE-HC-21	Ice Production	(kg/d)	83 (85)	80 (83)	70 (76)	60 (65)
	Freeze Cycle Time	(min)	17.5 (15.5)	20.5 (18.0)	25.3 (21.5)	30.2 (25.0)
	Defrost Cycle Time	(min)	5.0 (4.5)	2.7 (2.5)	2.1 (1.7)	1.8 (1.6)
	Water Consumption	(lit/h)	24.5 (27.6)	11.6 (13.0)	9.4 (11.4)	8.3 (9.9)
	Electric Consumption	(W)	450	470	520	550
	Head Pressure [peak]	(bar)	8.8	12	16.5	19.5
IM-100NE-HC-32	Ice Production	(kg/d)	84 (94)	80 (84)	68 (74)	60
	Freeze Cycle Time	(min)	27.9 (24.1)	32.1 (29.1)	38.9 (33.9)	45.0 (-)
	Defrost Cycle Time	(min)	6.0 (4.5)	3.5 (3.0)	3.0 (2.5)	2.5 (-)
	Water Consumption	(lit/h)	0.39 (0.45)	0.22 (0.25)	0.19 (0.21)	0.17
	Electric Consumption	(W)	425 (425)	465 (460)	485 (495)	520 (-)
	Head Pressure [peak]	(bar)	8.8	12.0	16.5	19.5
IM-100NE-HC-C	Ice Production	(kg/d)	90 (95)	80 (90)	70 (75)	60 (-)
	Freeze Cycle Time	(min)	24.5 (20.5)	28.2 (24.0)	36.0 (29.0)	42.5 (-)
	Defrost Cycle Time	(min)	5.7 (5.0)	3.2 (2.7)	2.1 (1.8)	2.0 (-)
	Water Consumption	(lit/h)	17.0 (20.0)	8.0 (9.3)	6.5 (8.0)	5.5 (-)
	Electric Consumption	(W)	430 (440)	455 (465)	490 (505)	510 (-)
	Head Pressure [peak]	(bar)	8.8	12.0	16.5	19.5
IM-100WNE-HC	Ice Production	(kg/d)	80 (90)	75 (85)	70 (80)	65 (-)
	Freeze Cycle Time	(min)	31.1 (26.8)	34.4 (28.8)	37.0 (30.9)	40.0 (-)
	Defrost Cycle Time	(min)	3.5 (2.5)	2.5 (2.2)	2.5 (2.0)	2.5 (-)
	Water Consumption	(lit/h)	7.1 (8.2)	6.7 (7.9)	6.3 (7.5)	5.8 (-)
	Electric Consumption	(W)	450 (460)	460 (470)	465 (475)	470 (480)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-100WNE-HC-23	Ice Production	(kg/d)	80 (85)	75 (85)	70 (75)	65 (-)
	Freeze Cycle Time	(min)	23.0 (20.0)	25.0 (22.5)	27.5 (23.5)	29.0 (-)
	Defrost Cycle Time	(min)	3.8 (3.0)	3.0 (2.7)	2.5 (2.1)	1.7 (-)
	Water Consumption	(lit/h)	9.3 (10.8)	9.0 (9.9)	8.3 (9.7)	8.1 (-)
	Electric Consumption	(W)	380 (395)	385 (400)	445 (460)	465 (-)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-100WNE-HC-21	Ice Production	(kg/d)	90 (95)	80 (85)	75 (80)	73 (-)
	Freeze Cycle Time	(min)	17.0 (16.5)	20.0 (18.5)	22.0 (20.5)	24 (-)
	Defrost Cycle Time	(min)	1.8 (1.8)	1.7 (1.5)	1.2 (1.5)	1.1 (-)
	Water Consumption	(lit/h)	13.0 (14.0)	12.0 (12.5)	10.7 (11.2)	9.8 (-)
	Electric Consumption	(W)	450 (460)	450 (455)	455 (460)	460 (-)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-130NE-HC	Ice Production	(kg/d)	110 (125)	104 (112)	86 (96)	75 (84)
	Freeze Cycle Time	(min)	20.1 (17.7)	23.2 (20.5)	28.0 (24.2)	32.8 (28.3)
	Defrost Cycle Time	(min)	4.0 (3.1)	2.2 (2.0)	2.4 (2.0)	2.1 (1.7)
	Water Consumption	(lit/h)	20.4 (23.4)	9.2 (10.4)	7.7 (8.9)	6.9 (8.0)
	Electric Consumption	(W)	555	590	615	685
	Head Pressure [peak]	(bar)	9.6	12.9	17.0	20.0
IM-130NE-HC-23	Ice Production	(kg/d)	90 (100)	86 (90)	75 (76)	67 (68)
	Freeze Cycle Time	(min)	17.3 (15.3)	19.9 (17.6)	24.1 (21.0)	28.6 (24.9)
	Defrost Cycle Time	(min)	3.7 (3.4)	2.4 (2.1)	2.2 (1.8)	1.8 (1.5)
	Water Consumption	(lit/h)	24.3 (27.3)	11.0 (12.5)	9.4 (10.8)	8.1 (9.3)
	Electric Consumption	(W)	555	585	620	655
	Head Pressure [peak]	(bar)	9.6	12.9	17.0	20.0

IM-130NE-HC-32	Ice Production	(kg/d)	95 (100)	90 (95)	80 (85)	70 (-)
	Freeze Cycle Time	(min)	25.5 (23.4)	28.7 (25.8)	33.1 (29.7)	38.7 (-)
	Defrost Cycle Time	(min)	4.5 (3.5)	3.0 (2.5)	2.5 (2.0)	2.0 (-)
	Water Consumption	(lit/h)	0.45 (0.50)	0.22 (0.25)	0.19 (0.22)	0.15 (-)
	Electric Consumption	(W)	480 (530)	520 (510)	585 (595)	610 (-)
	Head Pressure [peak]	(bar)	9.6	12.9	17.0	20.0
IM-130WNE-HC	Ice Production	(kg/d)	100 (110)	90 (100)	85 (90)	80 (-)
	Freeze Cycle Time	(min)	23.6 (20.7)	27.5 (23.9)	29.7 (27.1)	32.3 (-)
	Defrost Cycle Time	(min)	4.0 (3.5)	3.2 (2.7)	2.8 (2.5)	2.3 (-)
	Water Consumption	(lit/h)	8.9 (10.2)	8.0 (9.3)	7.6 (8.3)	7.1 (-)
	Electric Consumption	(W)	545 (555)	545 (555)	550 (560)	560 (570)
	Head Pressure [peak]	(bar)	14	14	14	14
IM-130WNE-HC-23	Ice Production	(kg/d)	90 (95)	85 (95)	80 (90)	75 (-)
	Freeze Cycle Time	(min)	19.2 (16.7)	21.0 (17.4)	22.7 (19.1)	25.8 (-)
	Defrost Cycle Time	(min)	3.6 (3.2)	2.9 (2.8)	2.5 (2.3)	2.1 (-)
	Water Consumption	(lit/h)	10.9 (12.5)	10.4 (12.3)	9.8 (11.6)	8.9 (-)
	Electric Consumption	(W)	530 (545)	535 (540)	540 (560)	560 (-)
	Head Pressure [peak]	(bar)	14	14	14	14
IM-240NE-HC	Ice Production	(kg/d)	195 (210)	180 (195)	160 (175)	144 (155)
	Freeze Cycle Time	(min)	19.8 (17.6)	23.4 (20.3)	27.7 (23.9)	30.6 (26.5)
	Defrost Cycle Time	(min)	5.0 (4.0)	3.5 (3.0)	2.5 (2.0)	3.0 (2.5)
	Water Consumption	(lit/h)	24.0 (26.4)	11.6 (13.1)	10.3 (12.0)	9.3 (11.0)
	Electric Consumption	(W)	750	825	910	1105
	Head Pressure [peak]	(bar)	10.4	13.7	17.6	20.3
IM-240NE-HC-23	Ice Production	(kg/d)	95 (100)	90 (95)	80 (85)	70 (-)
	Freeze Cycle Time	(min)	25.5 (23.4)	28.7 (25.8)	33.1 (29.7)	38.7 (-)
	Defrost Cycle Time	(min)	4.5 (3.5)	3.0 (2.5)	2.5 (2.0)	2.0 (-)
	Water Consumption	(lit/h)	0.45 (0.50)	0.22 (0.25)	0.19 (0.22)	0.15 (-)
	Electric Consumption	(W)	480 (530)	520 (510)	585 (595)	610 (-)
	Head Pressure [peak]	(bar)	10.4	13.7	17.6	20.3
IM-240WNE-HC	Ice Production	(kg/d)	190 (205)	175 (190)	160 (175)	150 (-)
	Freeze Cycle Time	(min)	21.8 (19.1)	24.4 (21.4)	27.2 (23.4)	30.0 (-)
	Defrost Cycle Time	(min)	3.7 (3.0)	3.2 (2.5)	3.0 (2.5)	2.3 (-)
	Water Consumption	(lit/h)	15.5 (17.9)	14.3 (16.6)	13.1 (15.2)	12.3 (-)
	Electric Consumption	(W)	790 (800)	800 (810)	810 (820)	820 (830)
	Head Pressure [peak]	(bar)	15	15	15	15
IM-240WNE-HC-23	Ice Production	(kg/d)	170 (193)	160 (180)	150 (165)	130 (-)
	Freeze Cycle Time	(min)	18.6 (16.0)	20.5 (17.5)	23.0 (19.0)	26.0 (-)
	Defrost Cycle Time	(min)	2.5 (2.0)	2.0 (1.7)	2.0 (1.5)	1.5 (-)
	Water Consumption	(lit/h)	21.0 (26.0)	20.0 (23.5)	18.0 (22.0)	16.0 (-)
	Electric Consumption	(W)	735 (750)	750 (800)	775 (810)	810 (-)
	Head Pressure [peak]	(bar)	15	15	15	15

Suction Pressure and Evaporator Temp.

50/60Hz

Model	Ambient Temp.	(°C)	10	21	32	38
	Water Temp.	(°C)	10	15	21	32
IM-21CNE-HC	Suction Pressure [peak]	(bar)	2.0	2.4	3.0	3.8
	Evaporator Inlet Temp.	(°C)	-19	-17	-14	-13
IM-30CNE-HC IM-30CNE-HC-25	Suction Pressure [peak]	(bar)	2.2	2.8	3.6	4.3
	Evaporator Inlet Temp.	(°C)	-20	-17	-14	-13
IM-30CWNE-HC IM-30CWNE-HC-25	Suction Pressure [peak]	(bar)	2.2	2.8	3.6	4.2
	Evaporator Inlet Temp.	(°C)	-22	-21	-20	-20
IM-45NE-HC IM-45NE-HC-25 IM-45CNE-HC IM-45CNE-HC-25	Suction Pressure [peak]	(bar)	2.4	2.8	3.4	4.2
	Evaporator Inlet Temp.	(°C)	-19	-17	-15	-13
IM-45WNE-HC IM-45WNE-HC-25	Suction Pressure [peak]	(bar)	2.2	2.8	3.6	4.2
	Evaporator Inlet Temp.	(°C)	-22	-21	-20	-20
IM-65NE-HC IM-65NE-HC-25 IM-65NE-HC-LM IM-65NE-HC-LM103 IM-65NE-HC-S IM-65NE-HC-H IM-65NE-HC-C IM-65NE-HC-Q	Suction Pressure [peak]	(bar)	2.4	2.8	3.4	4.1
	Evaporator Inlet Temp.	(°C)	-18	-17	-15	-14
IM-65WNE-HC IM-65WNE-HC-25	Suction Pressure [peak]	(bar)	3.0	3.4	4.0	4.8
	Evaporator Inlet Temp.	(°C)	-22	-21	-20	-20
IM-100CNE-HC IM-100CNE-HC-23 IM-100CNE-HC-32 IM-100NE-HC IM-100NE-HC-23 IM-100NE-HC-32 IM-100NE-HC-C	Suction Pressure [peak]	(bar)	2.8	3.2	4.0	4.5
	Evaporator Inlet Temp.	(°C)	-17	-16	-15	-15
IM-100WNE-HC IM-100WNE-HC-23 IM-100WNE-HC-21	Suction Pressure [peak]	(bar)	3.0	3.5	4.0	4.7
	Evaporator Inlet Temp.	(°C)	-18	-18	-18	-18
IM-130NE-HC IM-130NE-HC-23 IM-130NE-HC-32	Suction Pressure [peak]	(bar)	2.7	3.0	3.7	4.4
	Evaporator Inlet Temp.	(°C)	-18	-16	-15	-15
IM-130WNE-HC IM-130WNE-HC-23	Suction Pressure [peak]	(bar)	2.7	3	3.7	4.4
	Evaporator Inlet Temp.	(°C)	-20	-20	-19	-19
IIM-240NE-HC IM-240NE-HC-23	Suction Pressure [peak]	(bar)	2.6	3.0	3.6	4.3
	Evaporator Inlet Temp.	(°C)	-20	-20	-19	-18
IM-240WNE-HC IM-240WNE-HC-23	Suction Pressure [peak]	(bar)	2.6	2.8	3.2	3
	Evaporator Inlet Temp.	(°C)	-20	-20	-19	-19

Note: The above data are only for reference in servicing. Actual readings may be slightly different for each product.

Suction Pressure = Peak readings in freezing cycle

Evaporator Inlet Temp. = 5 minutes before completion of freezing cycle

VI. SERVICE DIAGNOSIS

1. ERROR CODE INDICATION

* See the controller board service manual for detailed diagnosis and remedies.

* The error and caution codes other than E1, E2, EF, AI and A2 are indicated as “EE” in the 7-segment display at the time of occurrence. But the error history is recorded as the actual error codes in parenthesis, and a maximum of five errors are indicated from the latest entry.

Error	Item	Description	Operation	Reset
E1	Freeze error	Freeze backup timer (45/60 minutes) counts up before freeze cycle completes, and evaporator temperature is 0°C or higher.	Shut down	Press reset switch
E2	Defrost error	Defrost backup timer (30 minutes) counts up before defrost cycle completes.	Shut down	Press reset switch
EE (E3)	Water pan opening error	Water pan has not fully opened within 60 seconds, and 3 minutes have passed even with opening failure control. Unit resumes operation after 60 minutes and repeats the above error.	Halt Shut down	Press reset switch
EE (E4)	Water pan closing error	[Controller board before ver. 1.6A] Water pan has not fully closed within 60 seconds, and 3 minutes have passed even with closing failure control. [Controller board ver. 1.6A and later] Water pan has not fully closed within 50 seconds, opened and started to close again, but failed to close fully within 50 seconds. Unit resumes operation after 60 minutes and repeats the above error.	Halt Shut down	Press reset switch
EE (E5)	High temperature error	Evaporator temperature stays 60°C or higher for 5 seconds or more.	Shut down	Press reset switch
EE (E9)	Condenser thermistor error	Condenser thermistor circuit is open or shorted for 2 seconds.	Shut down	Replace thermistor
EE (EA)	Data error	Model setting data memory IC is defective.	Shut down	Replace controller board
EE (EC)	Cube control thermistor error	Cube control thermistor circuit is open or shorted for 2 seconds.	Shut down	Replace thermistor
EE (Ed)	Water regulator error	Cooling water cannot stop by water regulator error, and thermistor senses set point or lower temperature.	Continue	Press reset switch
EF	Gas leakage	Gas sensor detects gas leakage and error occurs in icemaking performance (E1 or E2).	Fan motor runs continuously and unit shuts down	Press reset switch

Caution	Item	Description	Operation	Reset
EE (C2)	High pressure	[Air-cooled] Condenser thermistor senses 63°C or higher temperature. [Water-cooled] Pressure switch senses 2.65MPa or higher pressure.	Compressor stops	After 5 minutes, condensing temperature 50°C or lower, pressure 1.96MPa or lower

Alarm	Item	Description	Operation	Reset
A1	Sensor sensitivity abnormal	Sensor has abnormal sensitivity and sends false signal.	Fan motor runs continuously and icemaking operation continues.	Replace sensor
A2	Sensor circuit open	Sensor circuit is open and cannot detect gas leakage.	Fan motor runs continuously and icemaking operation continues.	Replace sensor

2. NO ERROR CODE INDICATION

Problem	Check	Possible Cause	Remedy
Icemaker will not start.	Power source	Turned off.	Turn on.
		Supply voltage too low.	Remove cause
		Power failure	Wait until power is resumed.
	Transformer	Defective.	Replace.
	Power cord	Not connected properly.	Reconnect.
		Open circuit (damaged).	Replace.
	Controller board	Defective.	Replace.
	Fuse	Blown out.	Check for cause. Replace.
	Bin control switch	Stuck on other parts (e.g. ice guide).	Remove ice.
		Short circuit (display shows "on").	Replace.
Slab does not break into separate cubes.	Extension spring	Over-extended.	Replace.
	Water plate	Obstacle caught between evaporator and water plate.	Remove obstacle.
Icemaker will not stop when bin is filled with ice.	Bin control switch actuator	Out of position.	Place in position.
		Broken.	Replace.
	Bin control switch	Out of position.	Place in position.
		Broken.	Replace.
	Bin control switch detector	Out of position.	Place in position.
		Broken.	Replace.
	Bin control micro switch	Disconnected from switch box.	Reconnect.
		Seizing with open contacts.	Replace.
Controller board	Controller board	Defective.	Replace.
Cloudy cubes.	Water quality	High hardness.	Set hard water control.
			Switch to full drain flush (see note below).
	Ice condition	Slush ice.	Set slush ice control.
Abnormal noise	Pump motor	Bearing worn out.	Replace.
		Vapor lock.	Clean water valve filter.
			Check water supply cycle time setting.
	Fan motor	Bearing worn out.	Replace.
		Fan touching obstacle.	Remove obstacle.
	Actuator motor	Gear worn out.	Replace.
Cubes drop separately.	Refrigeration circuit	Gas leaks (long defrost cycle).	Repair.
	Cam arm	Worn out.	Replace.

Note:

Full drain flush - After a freeze cycle ends, the unit drains all the remaining water in the tank and refills the tank in the next freeze cycle.

Partial drain flush (default setting) - After a freeze cycle ends, the unit leaves the remaining water in the tank and adds some water to fill the tank in the next freeze cycle.

Problem	Check	Possible Cause	Remedy
Imperfect ice production.	Insufficient water supply	Water valve filter clogged.	Clean.
		Water supply cycle too short.	Extend.
		Water supply pressure too low.	Remove cause.
	Water leaks from water tank or water plate	Water tank broken.	Replace.
		Water plate broken.	Replace.
		Icemaker not level.	Adjust.
	Water valve	Water leaks valve body.	Replace.
		Water leaks from water supply pipe joint.	Check hose clamp. Replace connection hose.
		Water plate	Spray holes clogged.
Large-hole cubes.	Pump motor	Defective.	Unclog. Replace.
	Refrigeration circuit	Gas leaks (low refrigeration capacity).	Repair.
	Condenser	Not clean (low condensing capacity).	Clean.
		Filter clogged.	Clean.
	Fan motor	Defective.	Replace.
	Installation site	No clearance at right side and rear (air-cooled model only).	Ensure clearance.
		Ambient temperature above 40°C.	Ensure ventilation to lower temperature.
	Power supply	Supply voltage too low (low refrigeration capacity).	Remove cause.
	Water valve	Water leaks.	Replace.
Freeze cycle time is too long.	Insufficient water supply	Water supply pressure too low.	Remove cause.
	Installation site	Ambient temperature too high.	Ensure ventilation to lower temperature.
	Condenser	Not clean (low condensing capacity).	Clean.
		Filter clogged.	Clean.
	Fan motor	Defective.	Replace.
	Refrigeration circuit	Gas leaks (low refrigeration capacity).	Repair.

VII. ADJUSTMENT

1. EXPANSION VALVE

⚠ WARNING

To prevent possible refrigerant leakage, do not make adjustments while the unit is running. Stop the unit before making adjustments

The expansion valve is factory-adjusted. Do not adjust it except at replacement or service. Adjust the valve setting, if necessary, as follows:

- 1) Remove the cap nut.
- 2) Rotate the adjust screw by using a flat blade screwdriver.
- 3) Watch holes of ice cubes produced. Standard setting is that evaporator inlet side and outlet side cubes have almost the same diameters. To make the inlet side larger, rotate 90 - 180° clockwise. Smaller, counterclockwise. Do not rotate more than 180° at a time.
- 4) Secure the cap nut tightly.

NOTICE

Over adjustment of the valve may result in liquid refrigerant return causing freezing to the suction line and severe damage to the compressor.

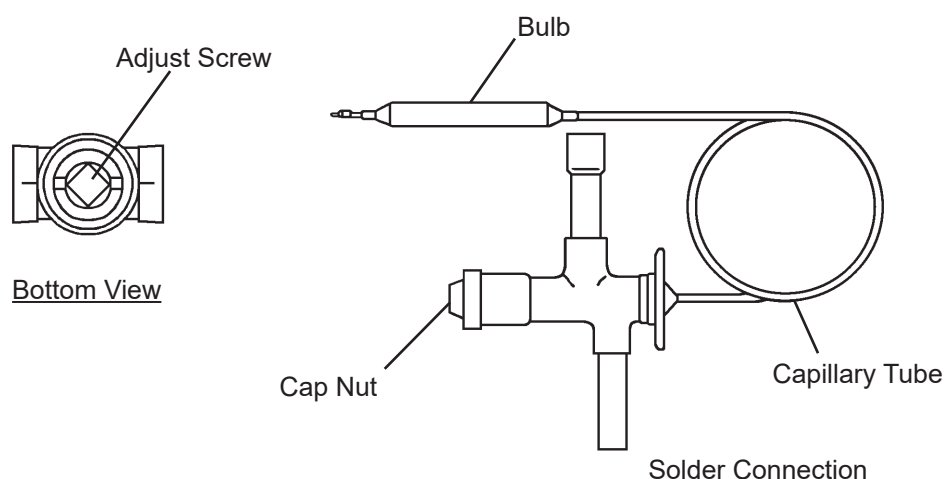


Fig. 9

2. WATER REGULATING VALVE - WATER-COOLED MODEL ONLY

The water regulating valve is factory-adjusted. Do not adjust it except at replacement or service. Adjust the valve setting, if necessary, as follows:

- 1) Attach a pressure gauge to high-side line, or prepare a thermometer to check condenser drain temperature.
- 2) Rotate the adjust screw using a flat blade screwdriver so that the pressure gauge shows 10 bar (IM-30/45/100) / 16 bar (IM-130) / 19 bar (IM-240), or the thermometer reads 30 - 40°C (IM-30/45/100) / 35 - 40°C (IM-130) / 45 - 50°C (IM-240), 5 minutes after freeze cycle starts.
When the pressure or temperature exceeds the above, rotate the adjust screw counterclockwise.
- 3) Check that the pressure or temperature holds.

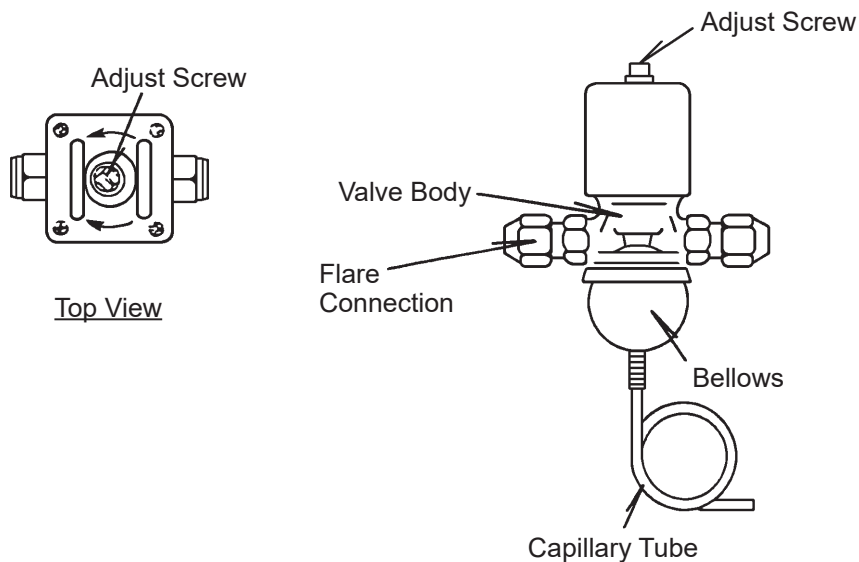


Fig. 10

3. FULL DRAIN FLUSH

In some hard water areas, white ice and scaling can be caused. In such case, install a filter or softener, and change the flush mode from “partial drain flush” to “full drain flush” according to the following instructions.

Full drain flush – After a freeze cycle ends, the unit drains all the remaining water in the tank and refills the tank in the next freeze cycle.

Partial drain flush (default setting) – After a freeze cycle ends, the unit leaves the remaining water in the tank and adds some water to fill the tank in the next freeze cycle.

- 1) Remove the screw located on the front of the water tank. Move the tank drain pipe to the drain position (see Fig. 11). Secure the tank drain pipe with the screw.

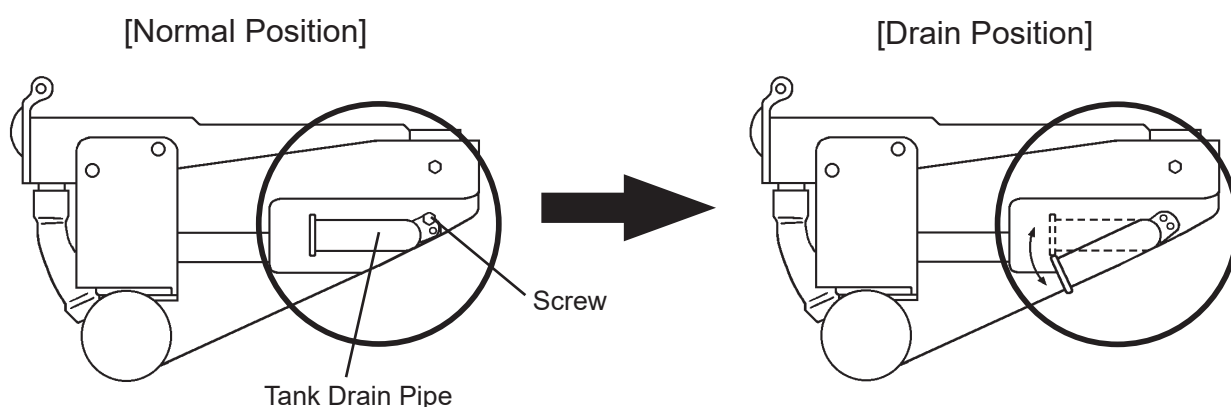


Fig. 11

- 2) Change the following controller board settings from “partial drain flush” to “full drain flush”, referring to “3. [b] MAINTENANCE MODE” in the IM-N series controller board service manual (E1CK-811).

Full / partial drain flush selection – Maintenance mode No. 14 (0: full, 1: partial)

Icemaking water supply time – Maintenance mode No. 12

Additional icemaking water supply time – Maintenance mode No. 15

4. DIMPLE DIAMETER

See “2. [i] DIMPLE DIAMETER SETTING” in the IM-N series controller board service manual (E1CK-811).

VIII. REMOVAL AND REPLACEMENT

WARNING

Only trained service engineer can service the R290 refrigeration unit.

1. SERVICE FOR REFRIGERANT LINES

[a] SERVICE INFORMATION

1) Allowable Compressor Opening Time and Prevention of Lubricant Mixture [R290]

The compressor must not be opened more than 30 minutes in replacement or service. Do not mix lubricants of different compressors even if both are charged with the same refrigerant, except when they use the same lubricant.

2) Treatment for Refrigerant Leak [R290]

If a refrigerant leak occurs in the low side of an ice maker, air may be drawn in. Even if the low side pressure is higher than the atmospheric pressure in normal operation, a continuous refrigerant leak will eventually reduce the low side pressure below the atmospheric pressure and will cause air suction. Air contains a large amount of moisture, and ester oil easily absorbs a lot of moisture. If an ice maker charged with R290 has possibly drawn in air, the drier must be replaced. Be sure to use a drier designed for R290.

3) Handling of Handy Flux [R290]

Brazing is needed to connect the refrigeration circuit pipes. It is no problem to use the same handy flux that has been used for the current refrigerants. However, its entrance into the refrigerant circuit should be avoided as much as possible.

4) Oil for Processing of Copper Tubing [R290]

When processing the copper tubing for service, wipe off oil, if any used, by using alcohol or the like. Do not use too much oil or let it into the tubing, as wax contained in the oil will clog the capillary tubing.

5) Service Parts for R290

Some parts used for refrigerants other than R290 are similar to those for R290. But never use any parts unless they are specified for R290 because their endurance against the refrigerant has not been evaluated. Also, for R290, do not use any parts that have been used for other refrigerants. Otherwise, wax and chlorine remaining on the parts may adversely affect the R290.

6) Replacement Copper Tubing [R290]

The copper tubes currently in use are suitable for R290. But do not use them if oily inside. The residual oil in copper tubes should be as little as possible. (Low residual oil type copper tubes are used in the shipped units.)

7) Evacuation, Vacuum Pump and Refrigerant Charge [R290]

Never allow the oil in the vacuum pump to flow backward. The vacuum level and vacuum pump may be the same as those for the current refrigerants. However, the rubber hose and gauge manifold to be used for evacuation and refrigerant charge should be exclusively for R290.

8) Refrigerant Leak Check

Refrigerant leaks can be detected by charging the unit with a little refrigerant, raising the pressure with nitrogen and using an electronic detector. Do not use air or oxygen instead of nitrogen for this purpose, or rise in pressure as well as in temperature may cause R290 to suddenly react with oxygen and explode. Be sure to use nitrogen to prevent explosion.

[b] REFRIGERANT RECOVERY

WARNING

Do not recover the R290 refrigerant in a refrigerant recovery cylinder for R404A or R134a.

The R290 refrigerant has almost no effect on global warming, so can be released to outdoors atmosphere without risk to the environment. Recovery should only be considered if the unit cannot be taken outdoors to evacuate the circuit.

If R290 is recovered in a refrigerant recovery cylinder for R404A or R134a, there is a risk of ignition and a refrigerant destruction operator may reject collection.

[c] REFRIGERANT REMOVAL

WARNING

Remove the R290 refrigerant from the unit in an area well-ventilated and free from open flames.

When removing the refrigerant from the unit, be sure the surrounding area is well-ventilated and free from open flames. Discharge refrigerant in small amounts into the atmosphere. If the surrounding area is not well-ventilated and exposed to open flames, recover the refrigerant in a refrigerant recovery cylinder and discharge it in small amounts into the atmosphere outdoors.

[d] EVACUATION AND RECHARGE

- 1) Attach charging hoses, service manifold and vacuum pump to the low-side and high-side (to be fitted by service engineer) access valves.
- 2) Turn on the vacuum pump.
- 3) Allow the vacuum pump to pull down to a 760 mmHg vacuum. Evacuating period depends on the pump capacity.
- 4) Close the low-side and high-side valves on the service manifold.
- 5) Disconnect the vacuum pump, and attach a refrigerant charging cylinder to accurately weigh in the liquid charge. Remember to purge any air from the charging hose. See the nameplate for the required refrigerant charge.
- 6) Open the high-side valve on the gauge manifold, and accurately measure in the liquid charge. Close the valve on the charging cylinder before closing the high-side manifold valve. Any remaining liquid in the line can be charged into the low side.
- 7) Do not charge more than 150 g of R290.
- 8) Turn on the icemaker. Release the high-side access connector, and allow pressure in the charging line to slowly enter the low side of the system. Cap off the high-side access valve. When pressure reduces on the low side, disconnect the low side charging line and cap off the access valve.
- 9) Always cap the access valves to prevent a refrigerant leak.
- 10) Always thoroughly leak test all joints and valve caps.
- 11) Avoid charging large quantities of liquid into the low side in case of damage to the compressor.

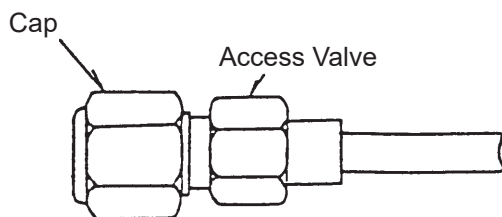
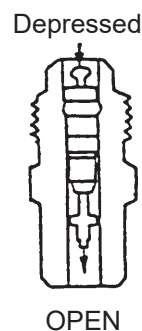


Fig. 12



2. WELDING REPAIR FOR R290 REFRIGERATION CIRCUIT

- 1) Make sure the surrounding area of the unit to be repaired is free from ignition sources.
- 2) Open the window or operate the ventilator to make the surrounding area well-ventilated.
- 3) Connect the piercing valve. Recover the refrigerant in the specified manner or discharge it into the atmosphere.
- 4) The refrigeration circuit pressure is back to atmospheric pressure. Pressurize the circuit using nitrogen.
- 5) Discharge the pressurized nitrogen and recover the refrigeration circuit to atmospheric pressure.
- 6) Repeat 4) and 5) above. Use a gas detector at the open end of refrigeration circuit to detect any gas left inside the circuit.
- 7) Evacuate the refrigeration circuit for 30 minutes to remove any gas left inside the circuit.

WARNING

Remove the R290 refrigerant from the unit in an area well-ventilated and free from open flames.

Note: Attach an access valve for recharging the unit charged by a lock ring.

3. COMPRESSOR

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the front and rear panels.
- 3) Remove the refrigerant from the unit and then any residual refrigerant still existing in the unit to allow welding process. (See “2. WELDING REPAIR FOR R290 REFRIGERATION CIRCUIT”).
- 4) Remove the terminal cover on the compressor, and disconnect solderless terminals.
- 5) Disconnect the discharge and suction pipes using a pipe cutter near the compressor to keep the pipe length as much as possible. If needed, expand the end of disconnected pipes using a pipe expander to connect with the new compressor.

 WARNING

When it is required to disconnect the pipes using brazing equipment, be careful that the refrigerant in the oil left inside the pipes may burn.

- 6) Remove the hold-down bolts, washers and rubber grommets.
- 7) Slide and remove the compressor. Unpack the new compressor package.
- 8) Attach the rubber grommets of the previous compressor.
- 9) Clean the suction and discharge pipes with an abrasive cloth/paper.
- 10) Place the compressor in position, and secure it using the bolts and washers.
- 11) Remove plugs from the compressor suction and discharge pipes.
- 12) Adjust the pipes to fit the compressor. Braze or solder the access, suction and discharge lines (Do not change this order), with nitrogen gas flowing at the pressure of 0.2 - 0.3 bar.
- 13) Install the new drier (See “4. DRIER”).
- 14) Check for leaks using nitrogen gas (10 bar) and soap bubbles.
- 15) Evacuate the system and charge it with refrigerant (See “1. [d] EVACUATION AND RECHARGE”).
- 16) Connect the solderless terminals and replace the terminal cover in its correct position.
- 17) Replace the panels in their correct positions.
- 18) Plug in the icemaker or connect the power source.

Note: Hoshizaki recommends that compressor starting electrics are always replaced at the same time as the compressor.

4. DRIER

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the front and rear panels.

- 3) Remove the refrigerant from the unit and then any residual refrigerant still existing in the unit to allow welding process. (See "2. WELDING REPAIR FOR R290 REFRIGERATION CIRCUIT".)
- 4) Remove the drier holder, if any, and pull the drier toward you for easy service.
- 5) Disconnect the outlet and inlet of drier using a pipe cutter near the drier to keep the pipe length as much as possible. If needed, expand the end of disconnected pipes using a pipe expander to connect with the new drier.

⚠ WARNING

Remove the R290 refrigerant from the unit in an area well-ventilated and free from open flames.

- 6) Braze or solder the new drier, with the arrow on the drier in the direction of the refrigerant flow. Adjust the pipes to fit the drier. Use nitrogen gas at the pressure of 0.2 - 0.3 bar when brazing tubings.
- 7) Check for leaks using nitrogen gas (10 bar) and soap bubbles.
- 8) Evacuate the system and charge it with refrigerant (See "1. [d] EVACUATION AND RECHARGE").
- 9) Replace the panels in their correct positions.
- 10) Plug in the icemaker or connect the power source.

Note: Always use a drier of the correct capacity and refrigerant type.

5. EXPANSION VALVE

IMPORTANT

Always install a new drier every time the sealed refrigeration system is opened. Do not replace the drier until after all other repair or replacement has been made.

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the top, front and rear panels.

- 3) Remove the refrigerant from the unit and then any residual refrigerant still existing in the unit to allow welding process. (See “2. WELDING REPAIR FOR R290 REFRIGERATION CIRCUIT”.)
- 4) Disconnect the outlet and inlet of expansion valve using a pipe cutter. Disconnect the inlet side near the expansion valve to keep the pipe length as much as possible. Disconnect the outlet side at the broken line in Fig. 13. If needed, expand the end of disconnected pipes using a pipe expander to connect with the new expansion valve.

⚠ WARNING

When it is required to disconnect the pipes using brazing equipment, be careful that the refrigerant in the oil left inside the pipes may burn. Protect the evaporator and pipes from excessive heat with damp cloths or similar.

- 5) Remove the expansion valve sensor (bulb).
- 6) Remove the drier (See “4. DRIER”).
- 7) Braze in the new expansion valve. Adjust the pipes to fit the expansion valve. Protect the body of the valve from excessive heat, and use nitrogen at a pressure of 0.2 - 0.3 bar when brazing.
- 8) Braze or solder the new drier (See “4. DRIER”).
- 9) Check for leaks using nitrogen gas (10 bar) and soap bubbles.
- 10) Evacuate the system and charge it with refrigerant (See “1. [d] EVACUATION AND RECHARGE”).
- 11) Attach the bulb to the suction line in position. Be sure to secure it using a wire or clamp and replace the insulation.
- 12) Replace the panels in their correct positions.
- 13) Plug in the icemaker or connect the power source.

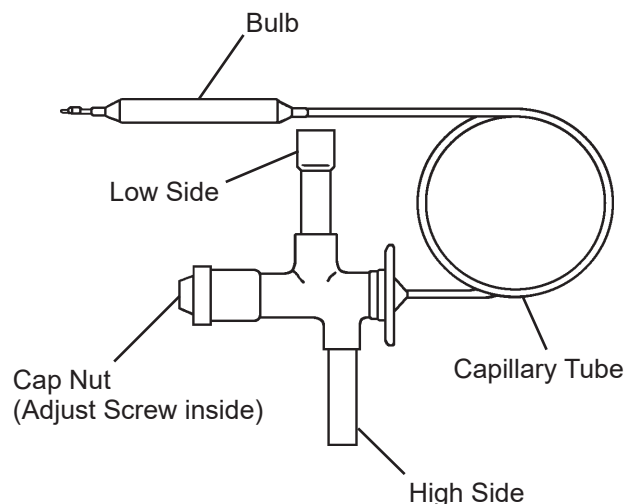


Fig. 13

6. EVAPORATOR

IMPORTANT

Always install a new drier every time the sealed refrigeration system is opened. Do not replace the drier until after all other repair or replacement has been made.

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the top, front and rear panels.
- 3) Remove the refrigerant from the unit and then any residual refrigerant still existing in the unit to allow welding process. (See "2. WELDING REPAIR FOR R290 REFRIGERATION CIRCUIT".)
- 4) Remove the water pan assembly, referring to "9. WATER PAN ASSEMBLY".
- 5) Disconnect the evaporator pipe using a pipe cutter.

WARNING

When it is required to disconnect the pipes using brazing equipment, be careful that the refrigerant in the oil left inside the pipes may burn. Protect the evaporator and pipes from excessive heat with damp cloths or similar.

- 6) Remove four nuts holding the evaporator.
- 7) Install the new evaporator, and secure it with the bolts, collars (spacer) and nuts. Adjust the length of the new evaporator pipe to fit the pipe disconnected in 5). If needed, expand the pipe using a pipe expander.
- 8) Install the new drier (See "4. DRIER").
- 9) Braze pipes, with nitrogen gas flowing at the pressure of 0.2 - 0.3 bar.
- 10) Check for leaks using nitrogen gas (10 bar) and soap bubbles.
- 11) Evacuate the system and charge it with refrigerant (See "1. [d] EVACUATION AND RECHARGE").
- 12) Replace the removed panels in their correct positions.
- 13) Plug in the icemaker or connect the power source.

7. HOT GAS VALVE

IMPORTANT

Always install a new drier every time the sealed refrigeration system is opened. Do not replace the drier until after all other repair or replacement has been made.

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the front and rear panels.
- 3) Remove the refrigerant from the unit and then any residual refrigerant still existing in the unit to allow welding process. (See "2. WELDING REPAIR FOR R290 REFRIGERATION CIRCUIT".)
- 4) Disconnect the hot gas valve leads.
- 5) Remove the screw and the solenoid coil.
- 6) Disconnect the outlet and inlet of hot gas valve using a pipe cutter near the hot gas valve to keep the pipe length as much as possible. If needed, expand the end of disconnected pipes using a pipe expander to connect with the new hot gas valve.

⚠ WARNING

When it is required to disconnect the pipes using brazing equipment, be careful that the refrigerant in the oil left inside the pipes may burn.

- 7) Adjust the pipes to fit the solenoid valve. Braze the new hot gas valve with nitrogen gas flowing at the pressure of 0.2 - 0.3 bar.

⚠ WARNING

Always protect the valve body by using a damp cloth to prevent the valve from overheating. Do not braze with the valve body exceeding 120°C.

- 8) Install the new drier (See "4. DRIER").
- 9) Check for leaks using nitrogen gas (10 bar) and soap bubbles.
- 10) Evacuate the system and charge it with refrigerant (See "1. [d] EVACUATION AND RECHARGE").

- 11) Attach the solenoid coil to the valve body, and secure it with the screw.
- 12) Connect the leads.
- 13) Replace the panels in their correct positions.
- 14) Plug in the icemaker or connect the power source.

8. WATER REGULATING VALVE - WATER-COOLED MODEL ONLY

[a] VALVE BODY

- 1) Unplug the icemaker or disconnect the power source.
- 2) Close the water supply tap.
- 3) Remove the front and rear panels.
- 4) Disconnect the flare connections of the water regulating valve.
- 5) Remove the valve from the bracket.
- 6) Install a new water regulating valve.
- 7) Connect the flare connections.
- 8) Open the water supply tap.
- 9) Check for water leaks.
- 10) Replace the panels in their correct positions.
- 11) Plug in the icemaker or connect the power source.

[b] WHOLE VALVE

IMPORTANT

Always install a new drier every time the sealed refrigeration system is opened. Do not replace the drier until after all other repair or replacement has been made.

- 1) Unplug the icemaker or disconnect the power source.

- 2) Close the water supply tap.
- 3) Remove the front and rear panels.
- 4) Recover the refrigerant and store it in a proper container, if required by an applicable law (See “1. [b] REFRIGERANT RECOVERY”).
- 5) Cut off the copper tube near the capillary tube solder connection, using a pipe cutter.
- 6) Cut off the capillary tubes of the valve and high-pressure switch, using a file and pliers. Be careful not to damage the capillary tube end.
- 7) Disconnect the flare connections from the bracket.
- 8) Remove the screws and the valve from the bracket.
- 9) Install the new valve, and insert the capillary tubes into the copper tube.
- 10) Web the copper tube end, and braze or solder the copper tube and capillary tubes together.
- 11) Install the new drier (See “4. DRIER”).
- 12) Check for leaks using nitrogen gas (10 bar) and soap bubbles.
- 13) Evacuate the system and charge it with refrigerant (See “1. [d] EVACUATION AND RECHARGE”).
- 14) Connect the flare connections.
- 15) Open the water supply tap.
- 16) Check for water leaks.
- 17) Replace the panels in their correct positions.
- 18) Plug in the icemaker or connect the power source.

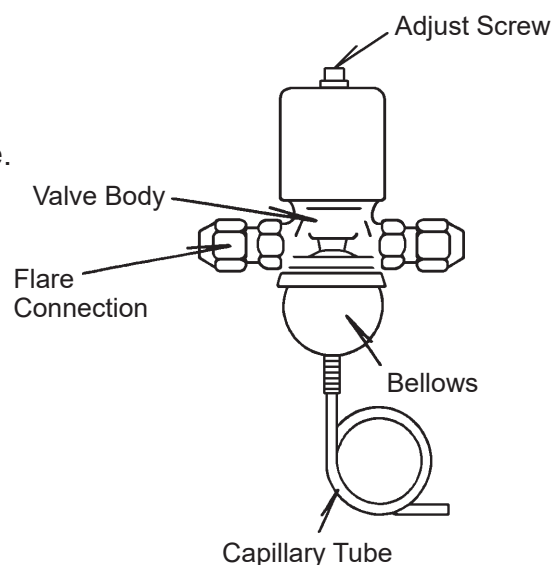


Fig. 14

9. WATER PAN ASSEMBLY

- 1) Remove the top and front panels.
- 2) Push the reset switch on the control box to open the water pan.
- 3) Unplug the icemaker or disconnect the power source.
- 4) Disconnect the pump motor leads in the wiring channel.
- 5) Remove the two extension springs from the cams.
- 6) Remove the water plate bracket and the water pan assembly.
- 7) Remove the two spring hook screws from the water tank.
- 8) Remove the screws and the water plate bracket.
- 9) Remove the pump suction and discharge tubings.
- 10) Remove the pump motor bracket from the water plate.
- 11) Install the new water plate or water tank in the reverse order of the removal procedure.
- 12) Replace the panels in their correct positions.
- 13) Plug in the icemaker or connect the power source.

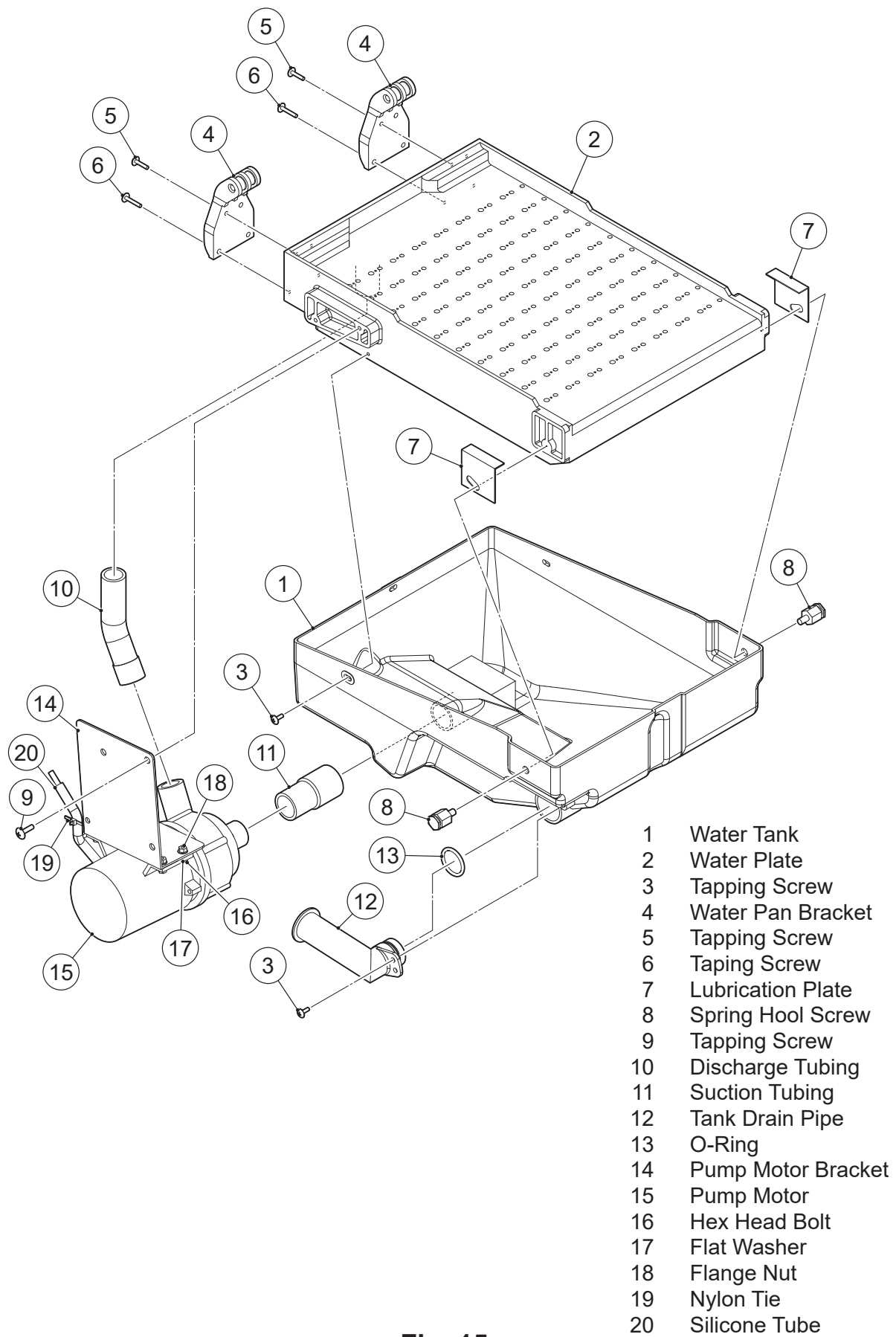


Fig. 15

10. PUMP MOTOR

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the top panel and front panel.
- 3) Disconnect the pump motor leads in the wiring channel.
- 4) Unscrew and remove the pump motor from the bracket.
- 5) Disconnect the pump suction and discharge tubings.
- 6) Install the new motor in the reverse order of the removal procedure.
- 7) Plug in the icemaker or connect the power source, and check for leaks.
- 8) Replace the panels in their correct positions.

11. WATER VALVE

- 1) Close the water supply tap.
- 2) Unplug the icemaker or disconnect the power source.
- 3) Remove the top panel and front panel.
- 4) Disconnect the receptacle (leads) from the water valve.
- 5) Remove the valve outlet tubing by releasing the clamp.
- 6) Remove the inlet hose and water valve.
- 7) Install the new valve in the reverse order of the removal procedure.
- 8) Open the water supply tap.
- 9) Plug in the icemaker or connect the power source.
- 10) Check for leaks.
- 11) Replace the panels in their correct positions.

Note: When replacing parts, disassemble as shown in Fig. 7 and replace the defective parts.

12. ACTUATOR MOTOR

- 1) Remove the top panel and front panel.
- 2) Push the reset switch on the control box to open the water pan.
- 3) Unplug the icemaker or disconnect the power source.
- 4) Remove the extension spring (actuator motor side) from the cam.
- 5) Disconnect the actuator motor leads in the wiring channel.
- 6) Remove the actuator motor bracket.
- 7) Remove the spring pin securing the shaft to the cam.

Note: The spring pin is not provided for the auxiliary code G1 or later of IM-100/130/240.

- 8) Remove the actuator motor.
- 9) Install the new actuator motor in the reverse order of the removal procedure.
- 10) Check that the cam can move in the proper range.
- 11) Replace the panels in their correct positions.
- 12) Plug in the icemaker or connect the power source.

- | | |
|---|------------------------|
| 1 | Actuator Motor |
| 2 | Cam (A) |
| 3 | Spring Pin |
| 4 | Spring |
| 5 | Actuator Motor Bracket |
| 6 | Hex Head Bolt |
| 7 | Truss Head Screw |
| 8 | Actuator Motor Cover |

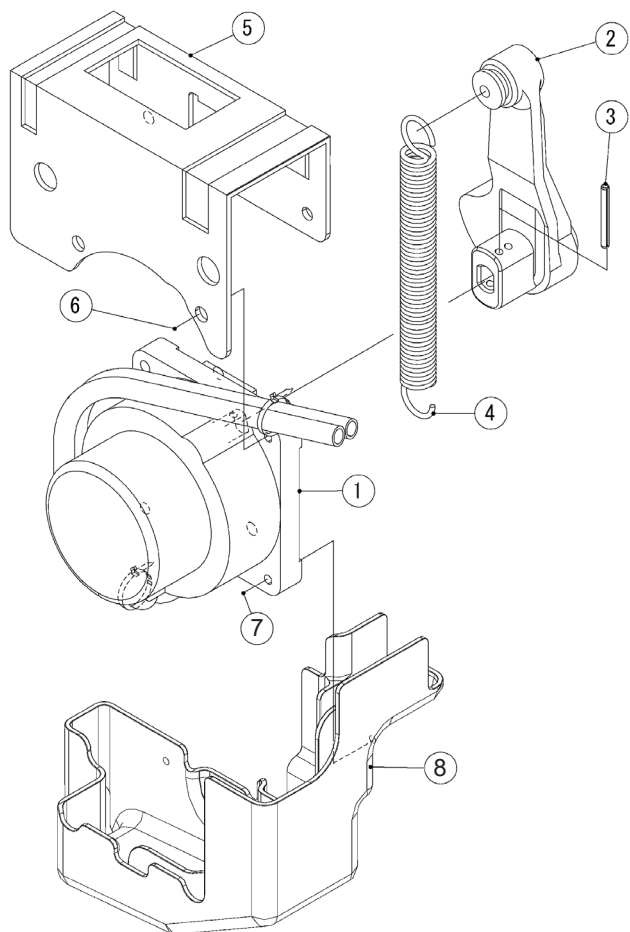


Fig. 16

13. CAM

[a] CAM (A) - ACTUATOR MOTOR SIDE

Refer to “12. ACTUATOR MOTOR”.

Note: The spring pin is not provided for the auxiliary code G1 or later of IM-100/130/240.

[b] CAM (B) - REAR SIDE

- 1) Remove the top panel and front panel.
- 2) Push the reset switch on the control box to open the water pan.
- 3) Unplug the icemaker or disconnect the power source.
- 4) Remove the extension spring from the cam (B).
- 5) Remove the split pin from the cam shaft.
- 6) Remove the cam (B).
- 7) Install the new cam in the reverse order of the removal procedure.
- 8) Replace the panels in their correct positions.
- 9) Plug in the icemaker or connect the power source.

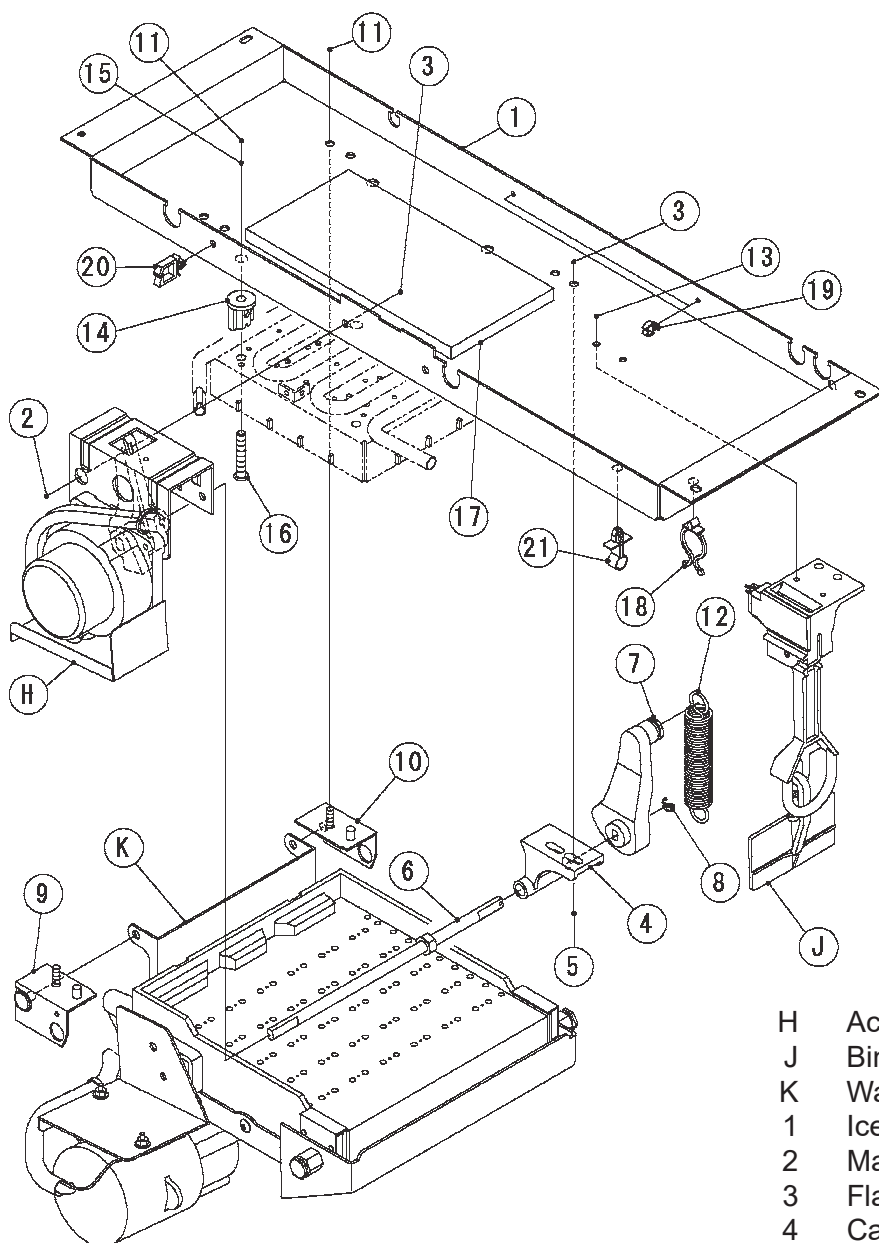


Fig. 17

- H Actuator Motor Assembly
- J Bin Switch Assembly
- K Water Pan Assembly
- 1 Ice Making Mechanism Bracket
- 2 Machine Screw
- 3 Flange Nut
- 4 Cam Shaft Bearing
- 5 Machine Screw
- 6 Cam Shaft
- 7 Cam (B)
- 8 Cotter Pin
- 9 Water Pan Bearing (Front)
- 10 Water Pan Bearing (Rear)
- 11 Flange Nut
- 12 Spring
- 13 Tapping Screw
- 14 Spacer
- 15 Washer
- 16 Evaporator Screw
- 17 Insulation (D)
- 18 Clamp
- 19 Clamp
- 20 Wire Saddle
- 21 Clamp

14. CONTROLLER BOARD

IMPORTANT

Some adjustment will be required for the controller board to fit the icemaker models. Do not repair any parts and electronic devices on the controller board in the field. Replace the whole board with a new service board.

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the front panel.
- 3) Unscrew and remove the control box cover.
- 4) Disconnect all the connectors from the controller board.
- 5) Remove the controller board from the four board supports for connection to the control box.
- 6) Install the new controller board in the reverse order of the removal procedure.
- 7) Replace the front panel in its correct position.
- 8) Plug in the icemaker or connect the power source.
- 9) The icemaker restarts in the model setting mode. Set the model code according to the controller board service manual.

IM-21CNE-HC, IM-30CNE-HC, IM-30CWNE-HC

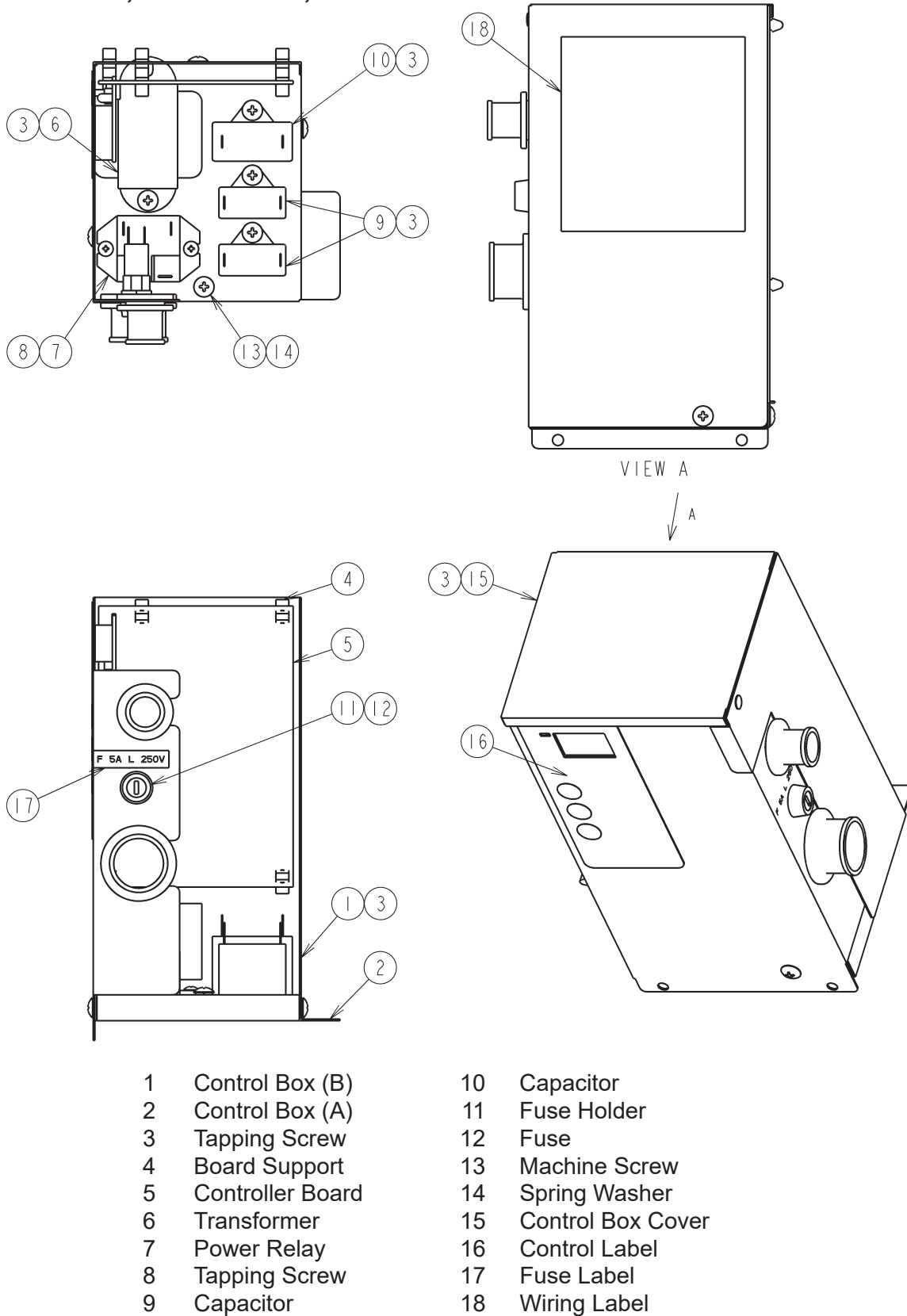


Fig. 18

IM-45CNE-HC, IM-45NE-HC, IM-45WNE-HC, IM-65NE-HC, IM-65WNE-HC

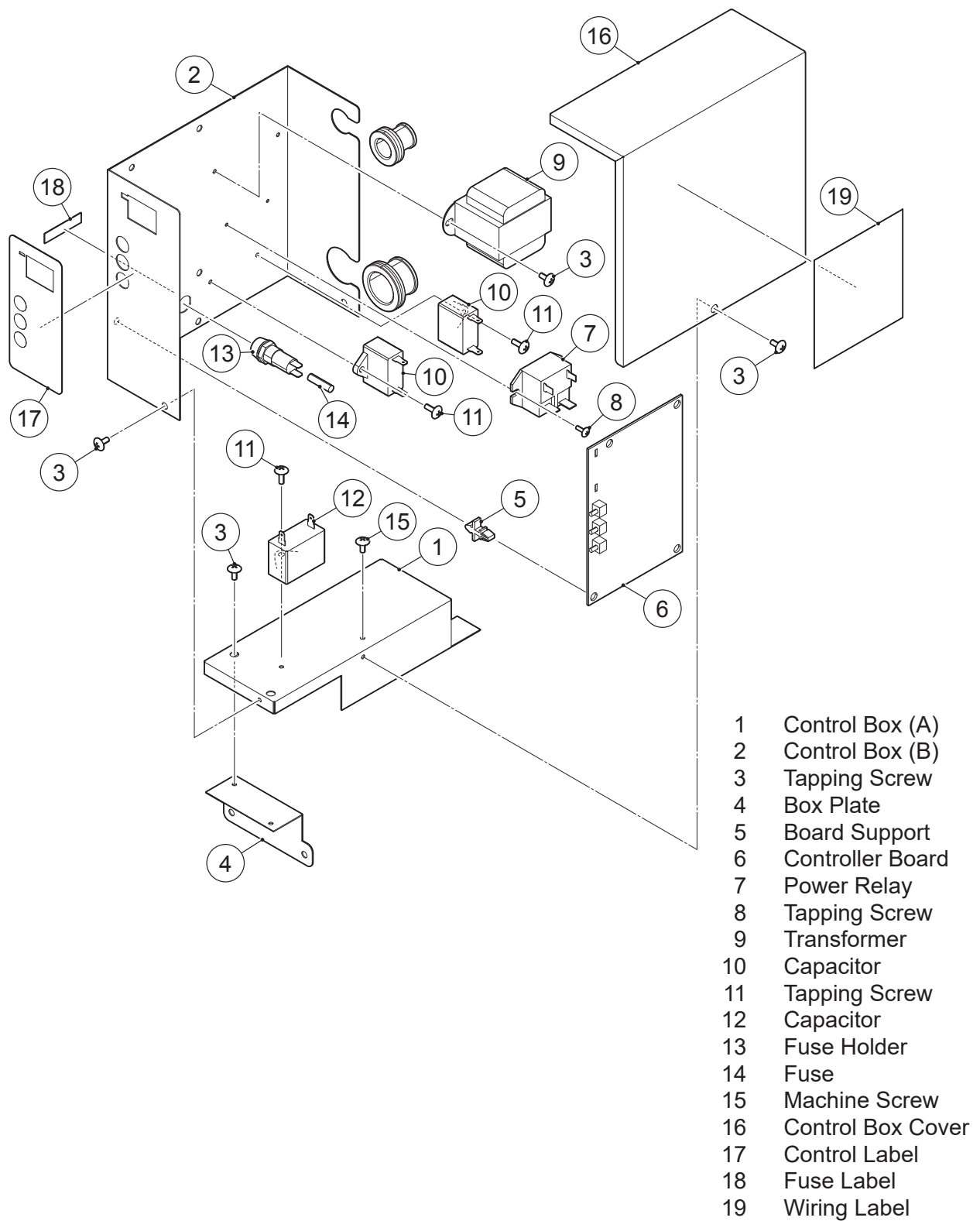


Fig. 19

IM-100CNE-HC, IM-100NE-HC, IM-100WNE-HC, IM-130NE-HC, IM-130WNE-HC

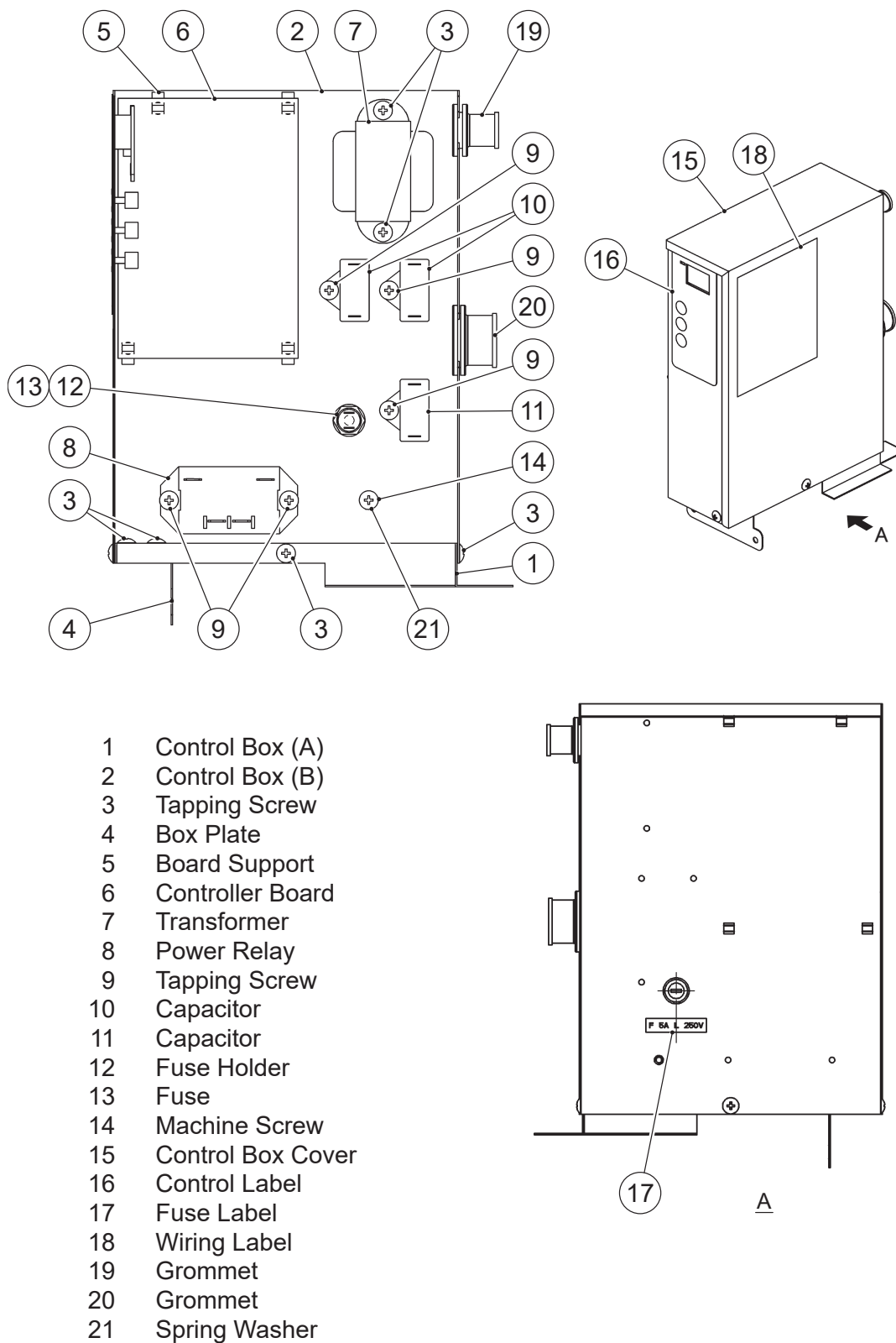
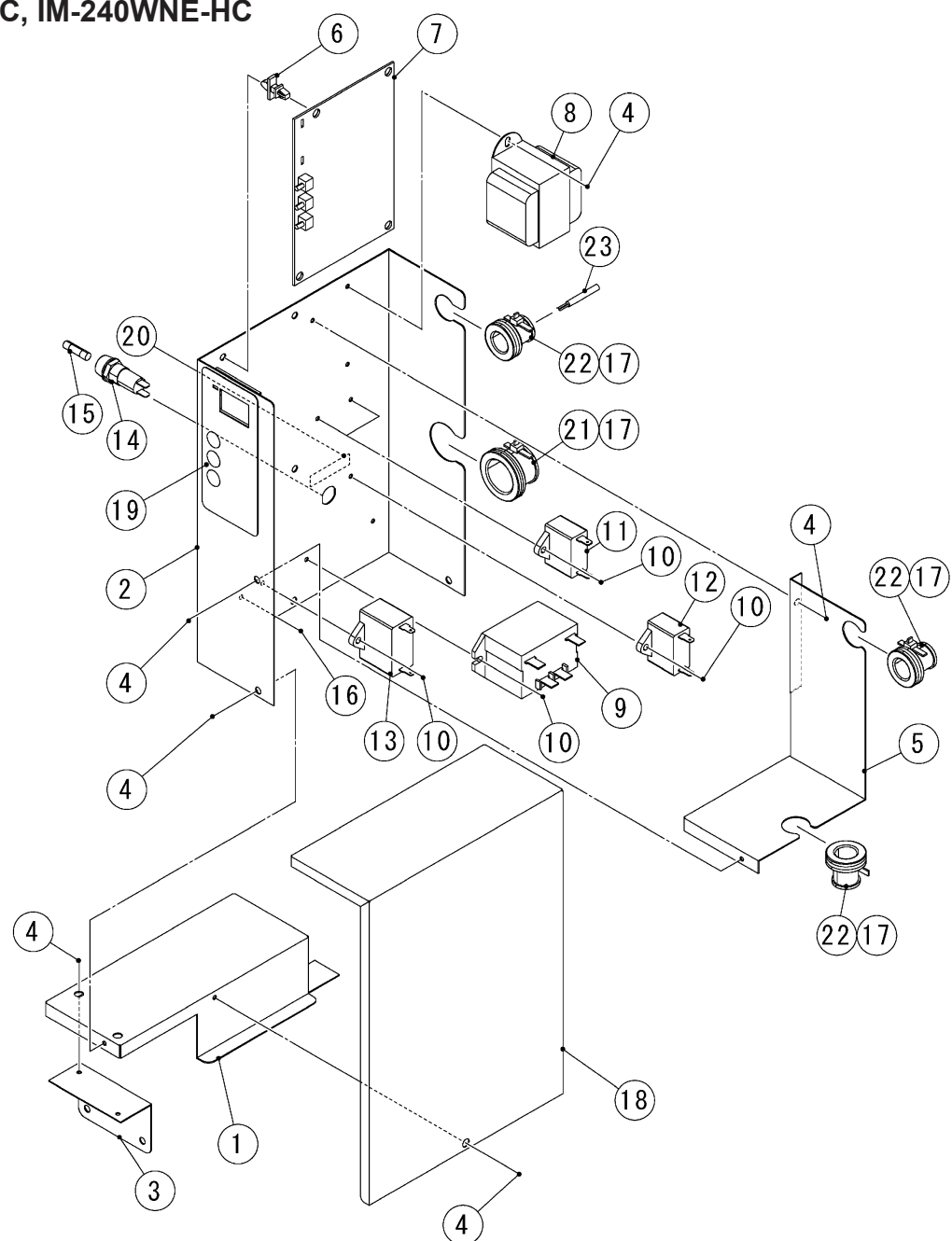


Fig. 20

IM-240NE-HC, IM-240WNE-HC



- | | | | |
|----|--------------------------|----|-------------------------|
| 1 | Control Box Base | 13 | Capacitor |
| 2 | Control Box (B) | 14 | Fuse Holder |
| 3 | Box Plate | 15 | Fuse |
| 4 | Truss Head Screw | 16 | Truss Head Screw |
| 5 | Box Separator | 17 | Tie |
| 6 | Board Support | 18 | Control Box Cover |
| 7 | Controller Board | 19 | Control Label |
| 8 | Transformer | 20 | Fuse Label |
| 9 | Power Relay | 21 | Grommet |
| 10 | Truss Head Tapping Screw | 22 | Grommet |
| 11 | Capacitor | 23 | Cube Control Thermistor |
| 12 | Capacitor | | |

Fig. 21

15. THERMISTOR FOR CUBE CONTROL

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the top and front panels.
- 3) Remove the connector CN13 on the controller board, referring to "14. CONTROLLER BOARD".
- 4) Unscrew and remove the thermistor holder and thermistor, located on the evaporator (front side).
- 5) Install the new thermistor in the reverse order of the removal procedure, by using a sealant (high-thermal conduct type). See Fig. 22.

Note: Recommended sealant is KE4560RTV, manufactured by Shin-Etsu Silicones. When other type of sealant used, the cube size and performance will be changed. Do not use silicone sealant as this will insulate the thermistor.

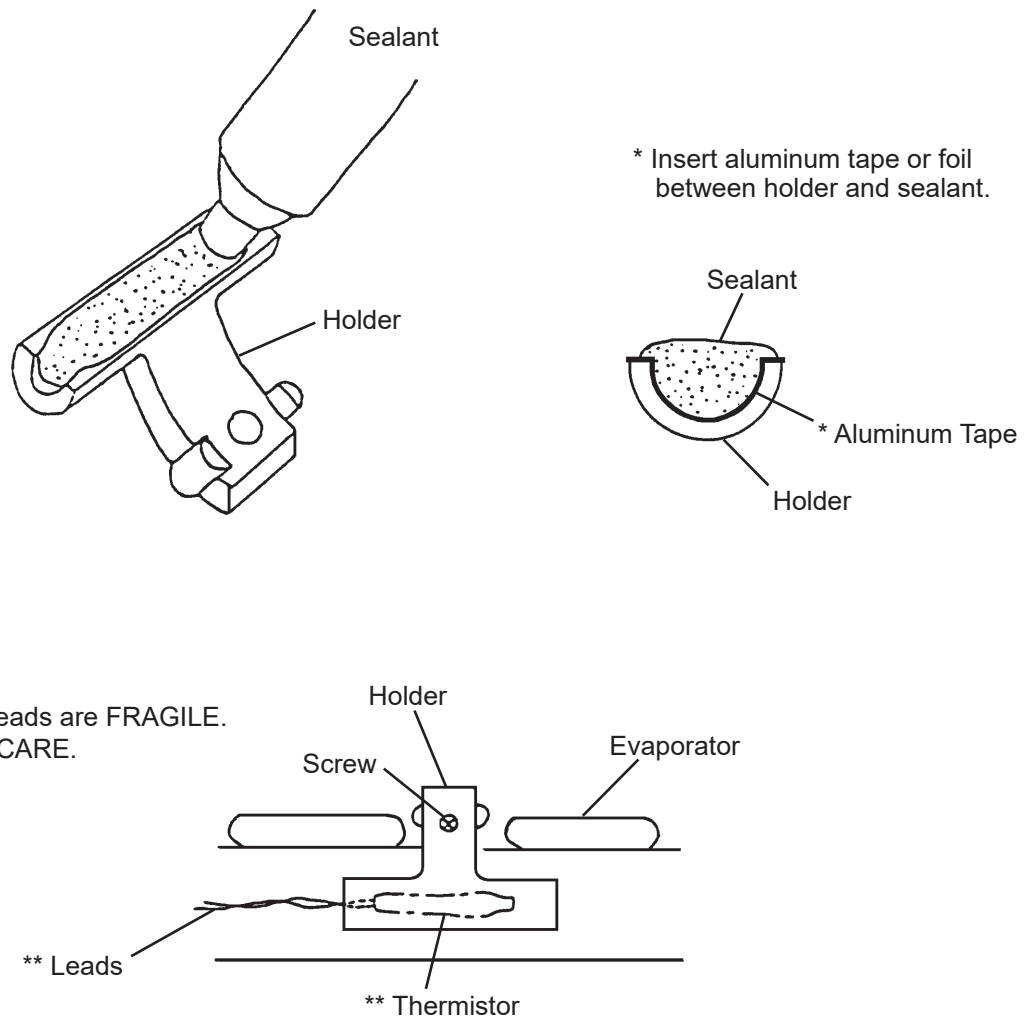


Fig. 22

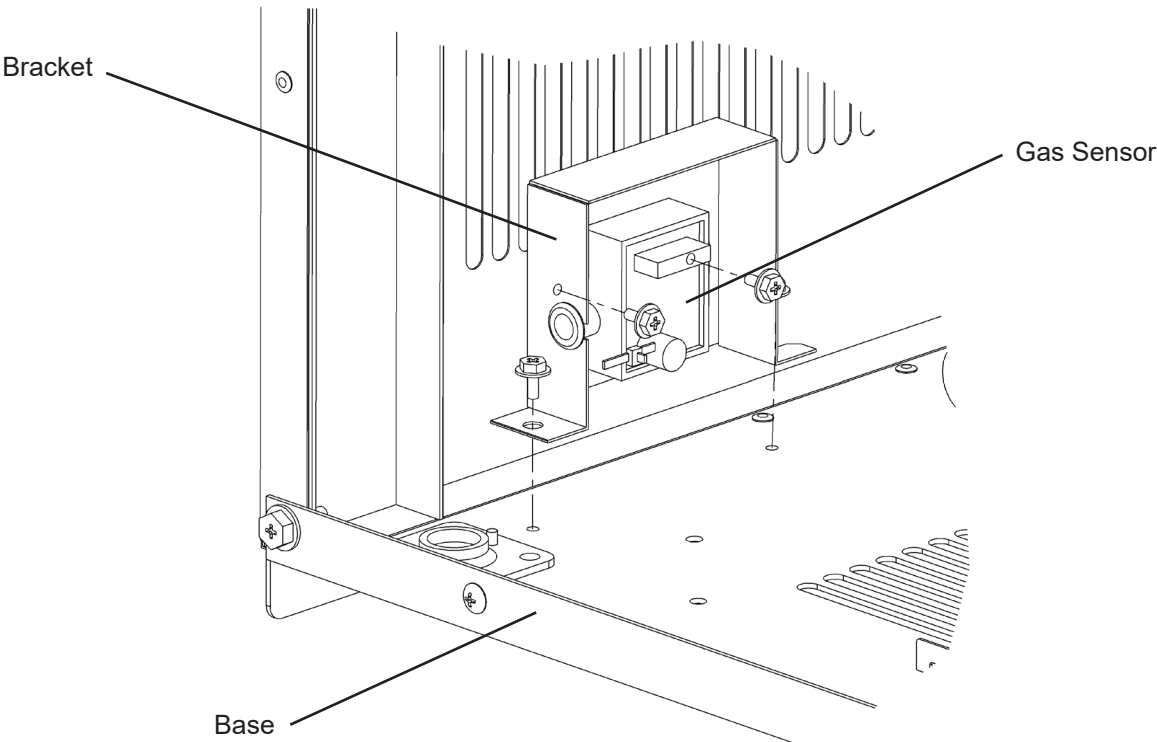
16. FAN MOTOR

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the front and rear panels.
- 3) Disconnect the connector of the fan motor.
- 4) Remove the fan motor bracket and the fan motor.
- 5) Cut the leads of the fan motor allowing enough lead length to reconnect using closed end connectors.
- 6) Install the new fan motor in the reverse order of the removal procedure.
- 7) Refit the panels in their correct positions.
- 8) Plug in the icemaker or connect the power source.

17. GAS SENSOR (IM-100CNE-HC, IM-100NE-HC, IM-130NE-HC, IM-240NE-HC)

- 1) Unplug the icemaker or disconnect the power source.
- 2) Remove the rear panels.
- 3) Disconnect the connector.
- 4) Remove the bracket from the base and disconnect the gas sensor from the bracket.
- 5) Attach the new gas sensor to the bracket and reattach the bracket to the base.
- 6) Connect the gas sensor leads to the connector.
- 7) Refit the panels in the correct positions.
- 8) Plug in the icemaker or connect the power source.

IM-100NE-HC, IM-130NE-HC, IM-240NE-HC



IM-100CNE-HC

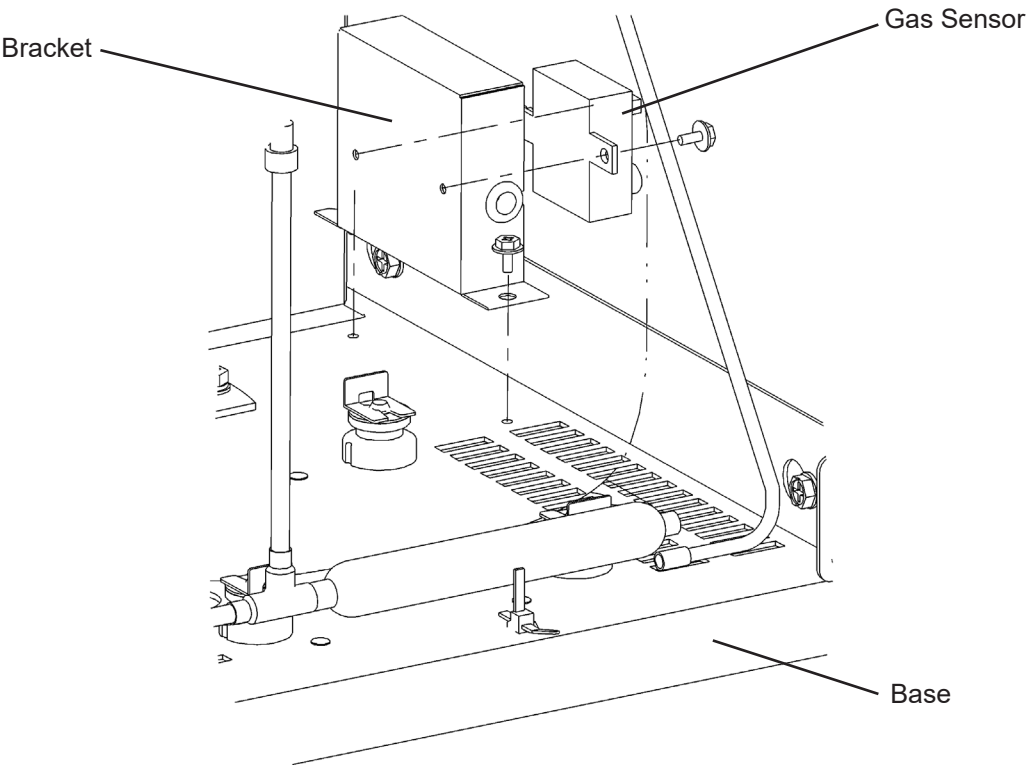


Fig. 23

IX. OPTIONAL PARTS - GAS SENSOR

1. APPLICABLE MODELS

IM-21CNE-HC
IM-30CNE-HC
IM-45CNE-HC
IM-45NE-HC
IM-65NE-HC

2. COMPONENTS

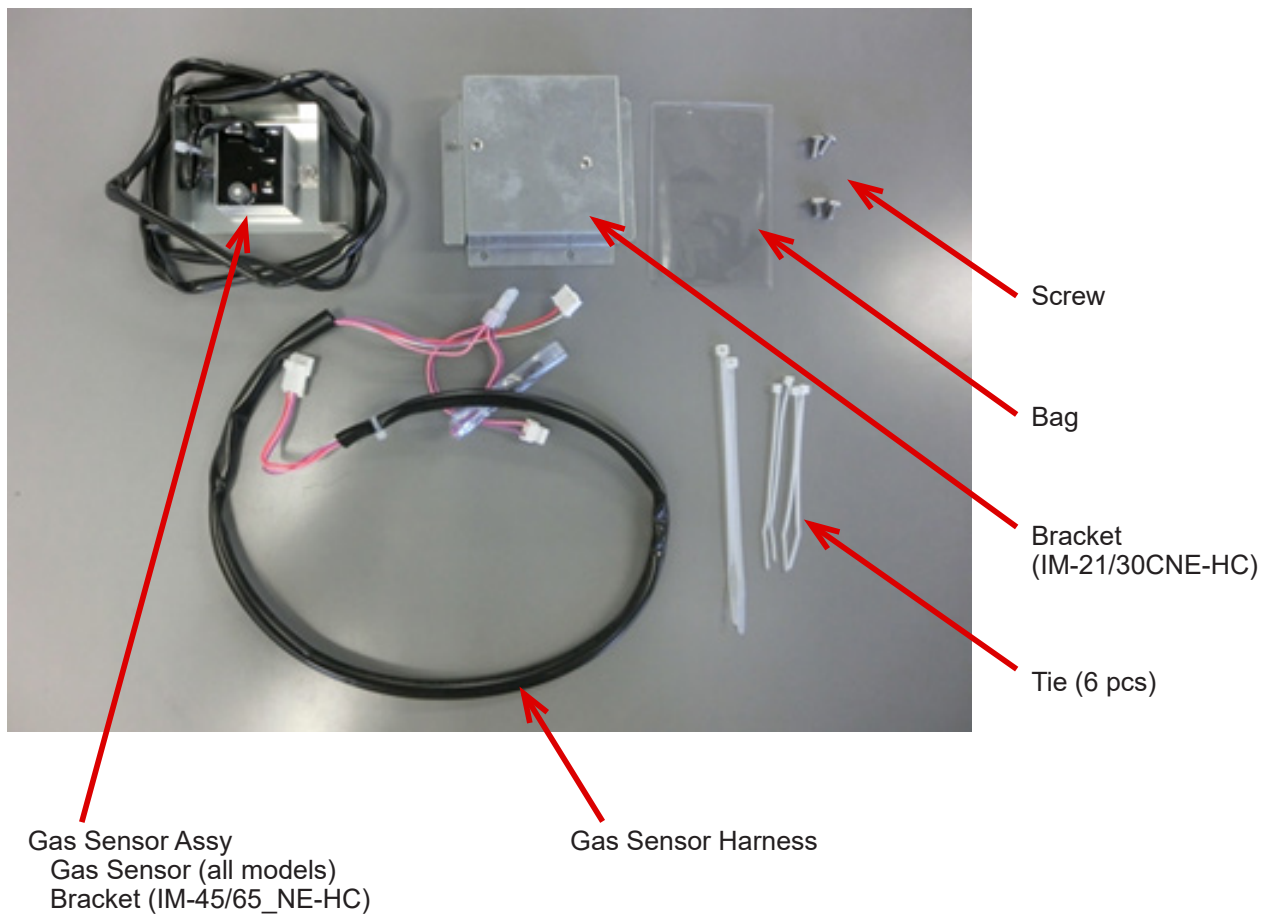


Fig. 24

3. INSTALLATION

- 1) Remove the front panel (lower).
- 2) Turn on the icemaker.
- 3) Press and hold the reset button for 3 seconds to enter the maintenance mode. The display shows "1".
- 4) Press the up or down button to show "90" on the display.
- 5) Press the reset button to show "0" on the display, press the up button to change the number to "1" and press the reset button again to set.
- 6) Turn off the icemaker and turn it back on. Check that the display shows "A2". See Fig. 25.
- 7) Turn off the icemaker.
- 8) Remove the control box, and take off the control box cover.



Display shows "A2" when setting is complete

Fig. 25

IM-21CNE-HC, IM-30CNE-HC

- 9) Remove the gas sensor from the gas sensor assy and attach it to the bracket for IM-21/30CNE-HC as shown in Fig. 26.
- 10) Follow the steps from A to D in Fig. 27 to attach the gas sensor harness included in the optional parts to the controller board.

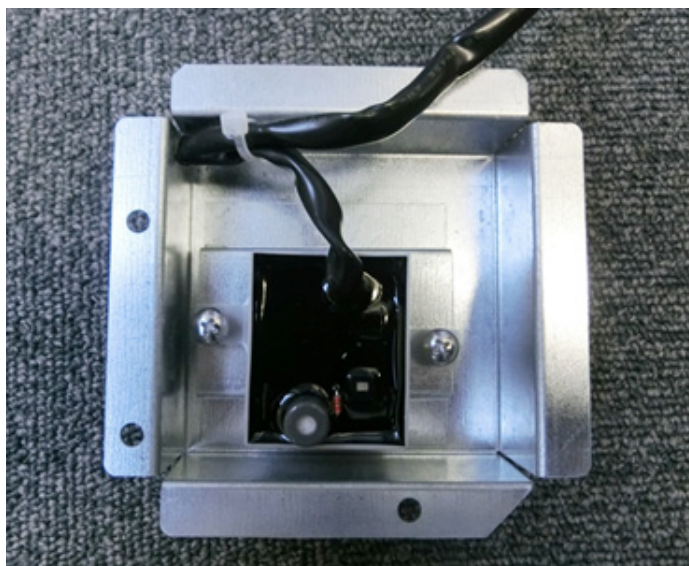
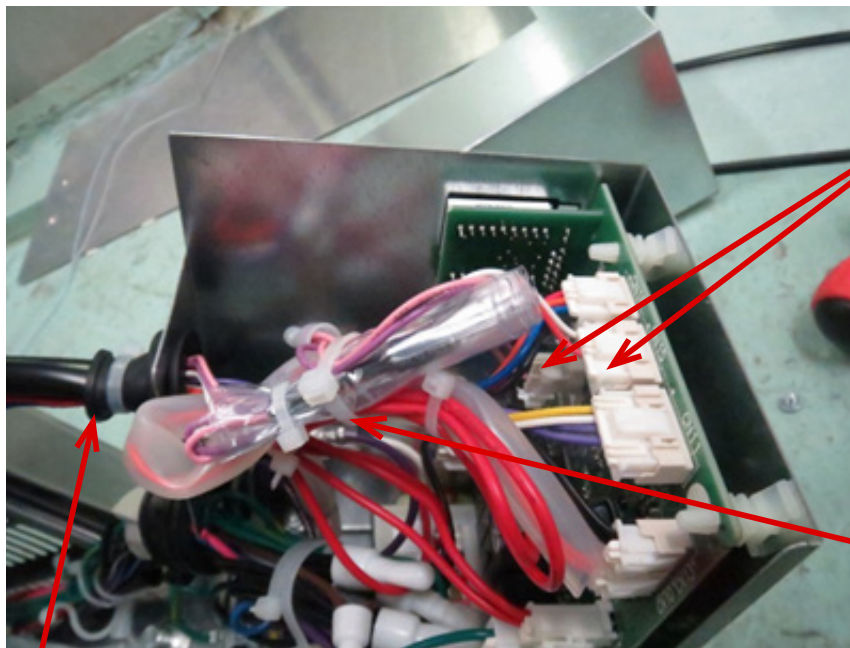


Fig. 26



B) Connect gas sensor harness connector to controller board (two places).

C) Use tie to bind gas sensor harness wiring.

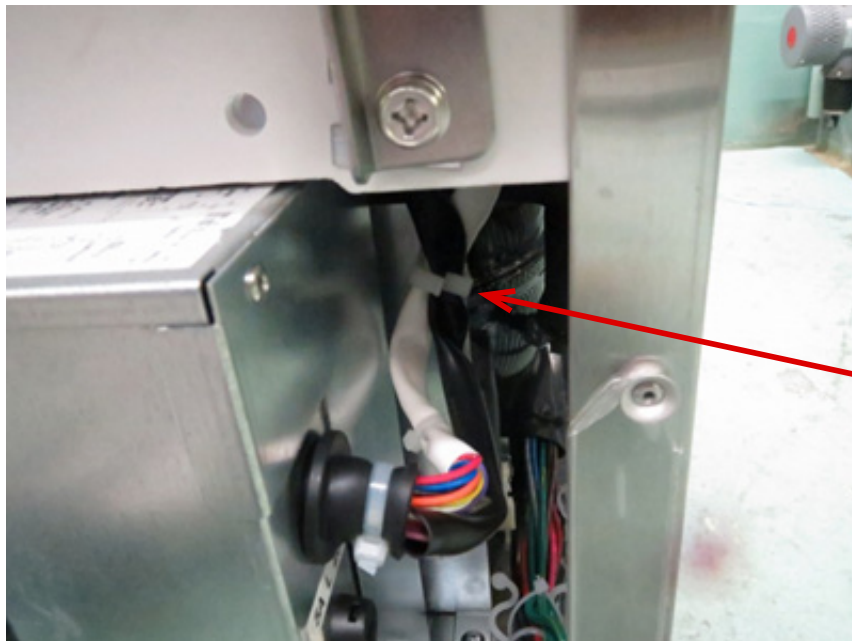
A) Remove tie from grommet and insert gas sensor harness.

D) Use tie to bind grommet and wiring.

Fig. 27

11) Attach the control box cover.

12) Fix the control box in position and secure the gas sensor harness to the wire saddle as shown in Fig. 28.



Wire Saddle

Fig. 28

13) Remove the rear panel and detach the part A as shown in Fig. 29.

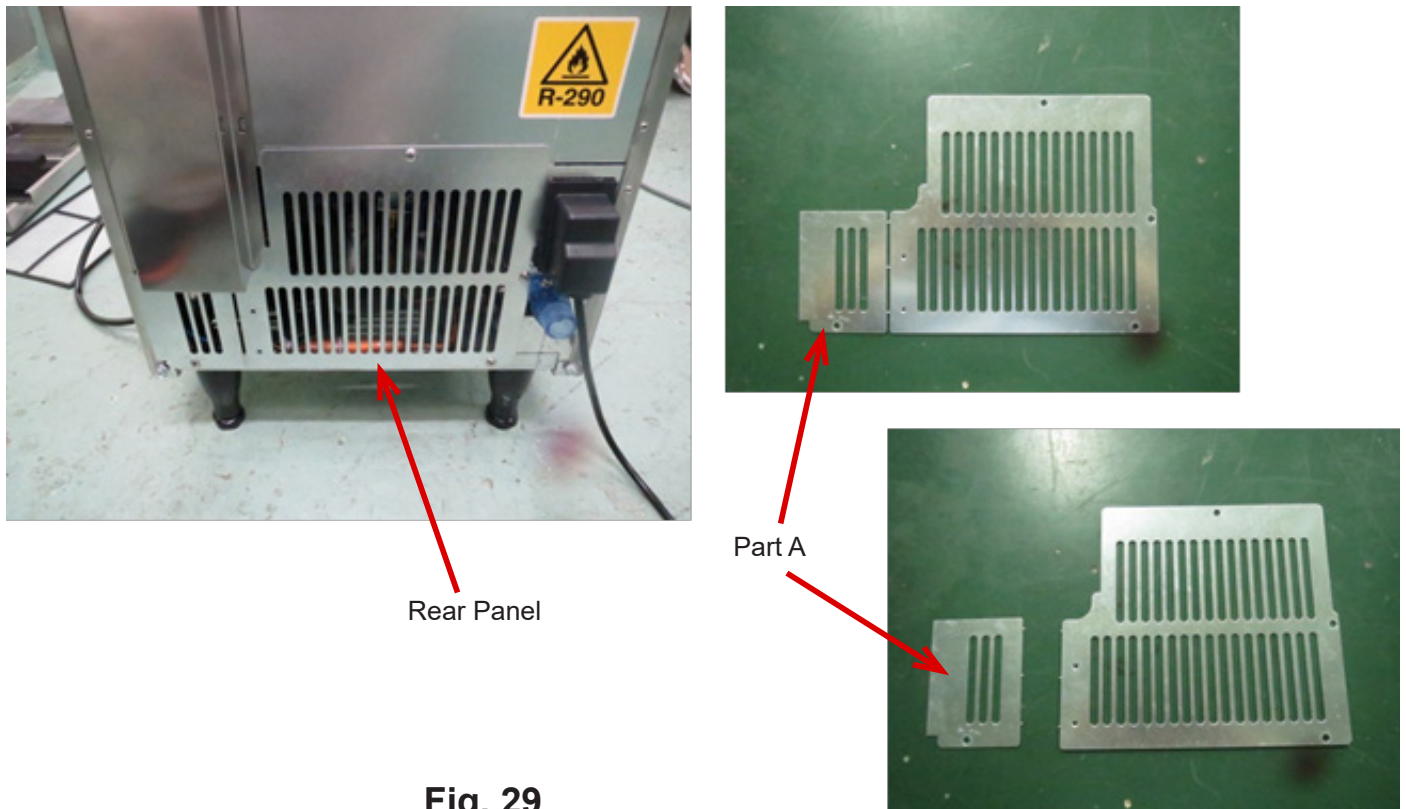


Fig. 29

14) Run the gas sensor harness attached in the step 10) through the rear of the unit and connect it to the gas sensor assy connector. Put the bag over the connector and fix it with the tie as shown in Fig. 30. Fix the gas sensor harness to the wire saddle as shown in Fig. 31.

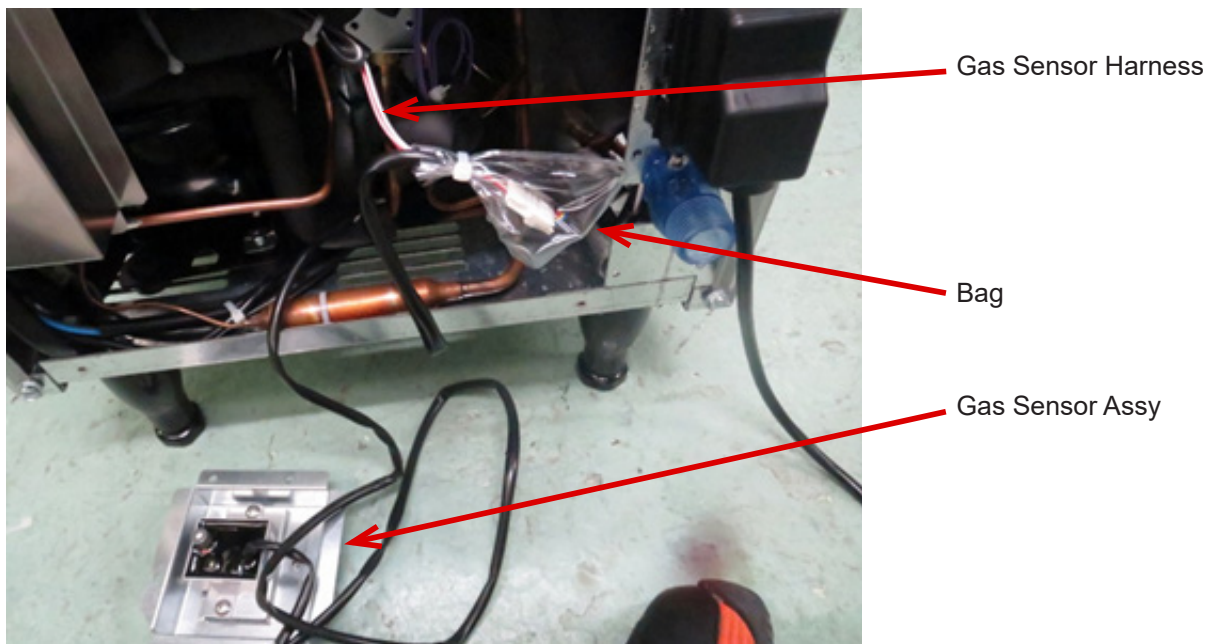


Fig. 30

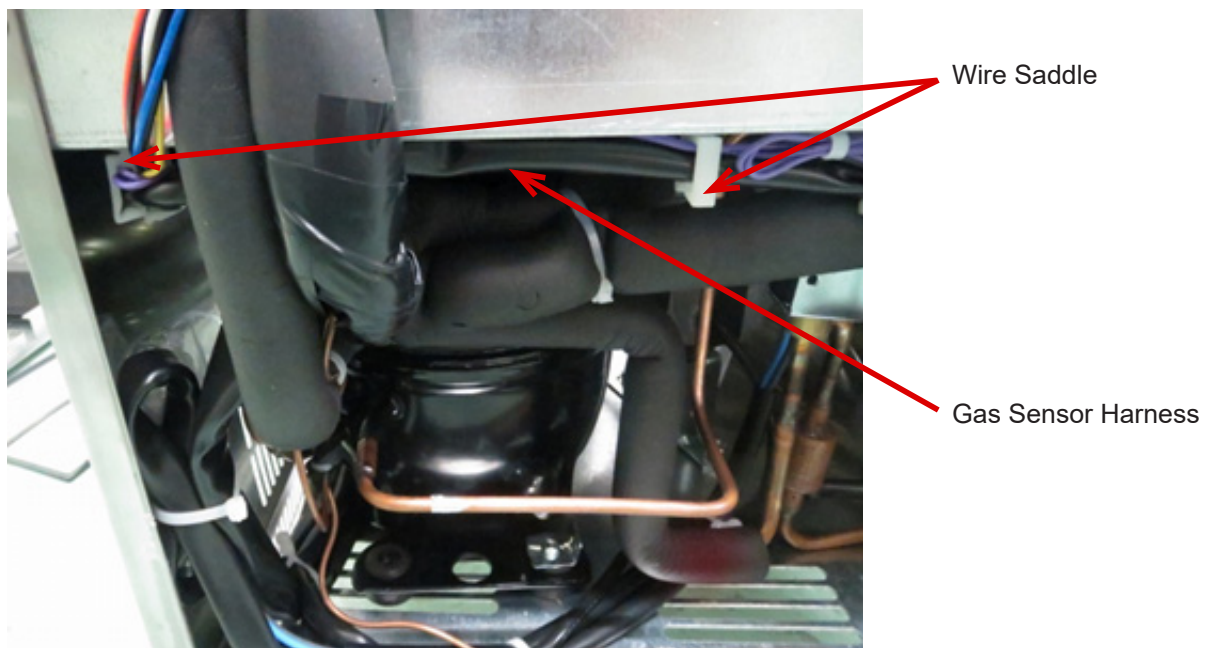


Fig. 31

15) Use the tie (adjust its length) to bind the gas sensor assy wiring as shown in Fig. 32.

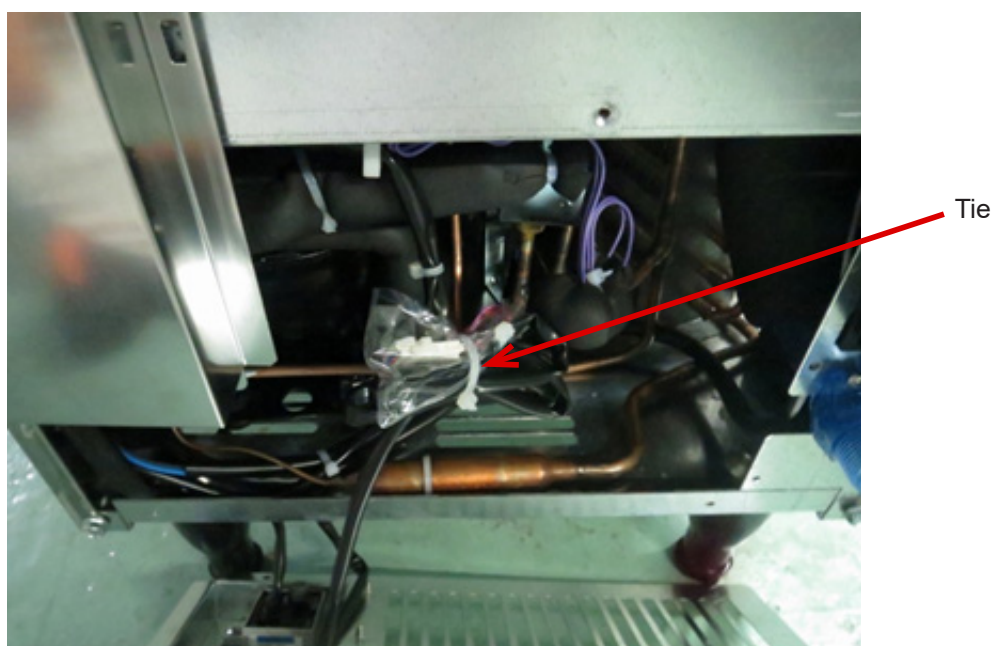


Fig. 32

16) Install the rear panel detached from the part A in the step 13) and the gas sensor assy as shown in Fig. 33.

17) Turn on the icemaker and check that the display shows "ON". Check for proper operation.

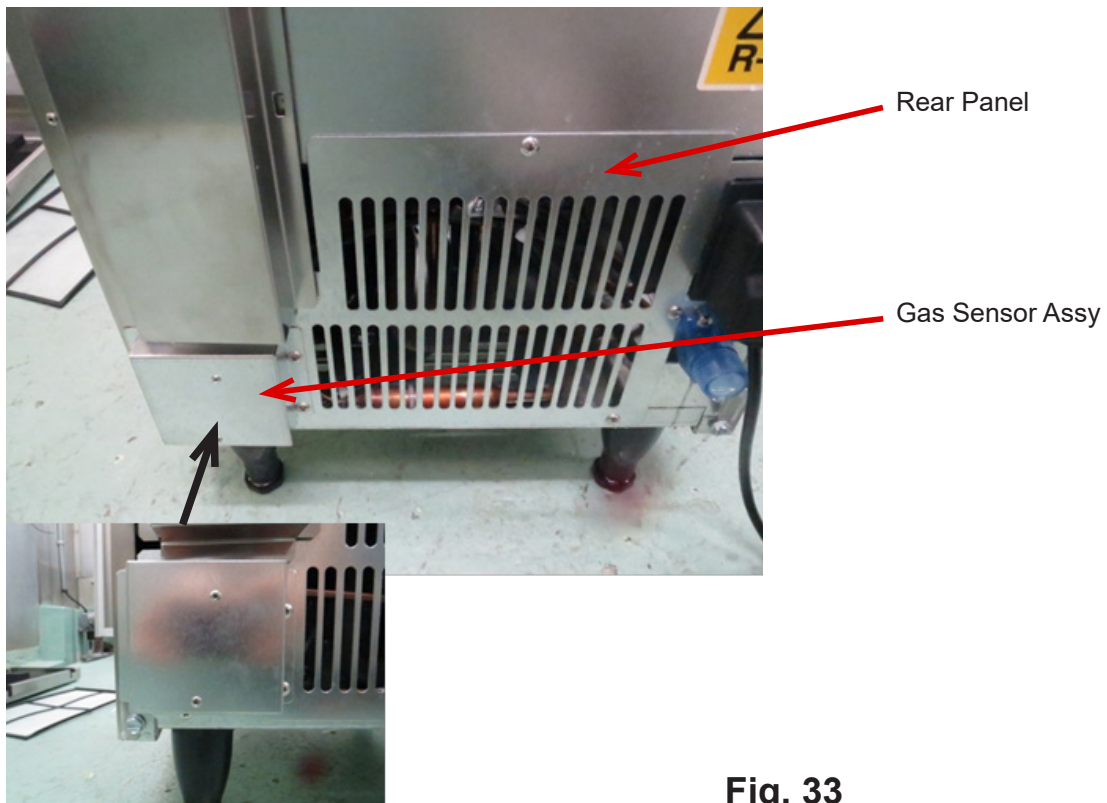


Fig. 33

IM-45CNE-HC, IM-45NE-HC, IM-65NE-HC

9) Follow the steps from A to D in Figs. 34 and 35 to attach the gas sensor harness included in the optional parts to the controller board.

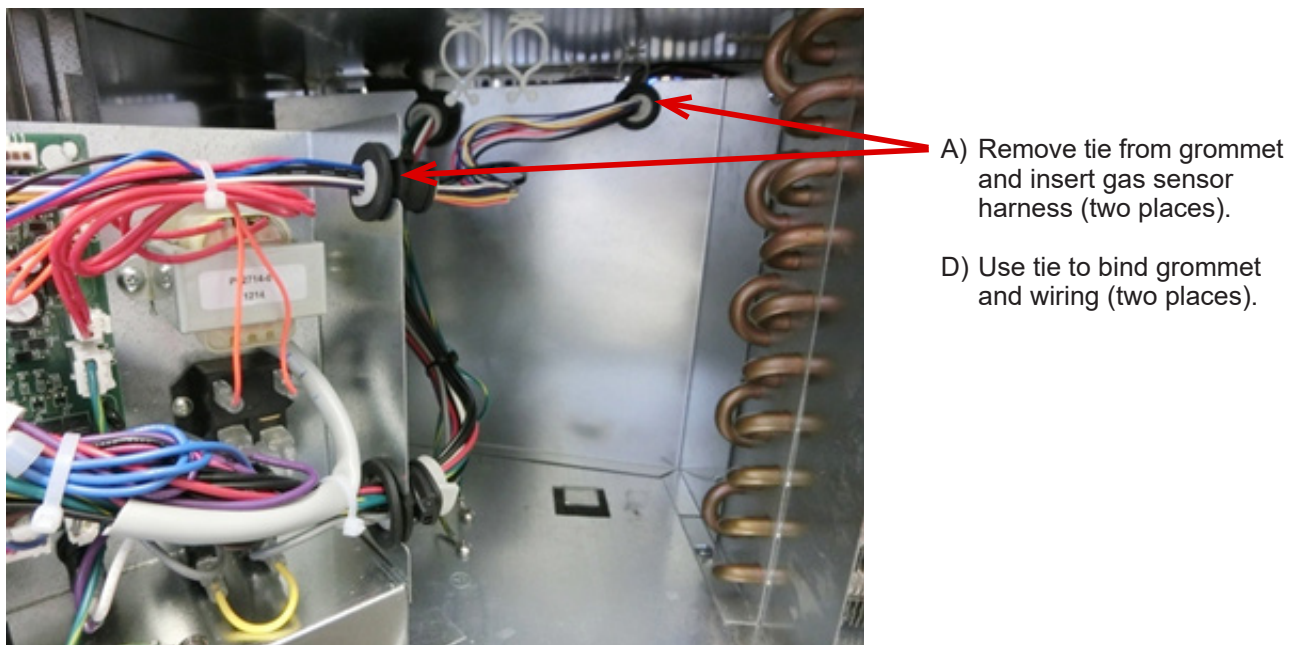


Fig. 34

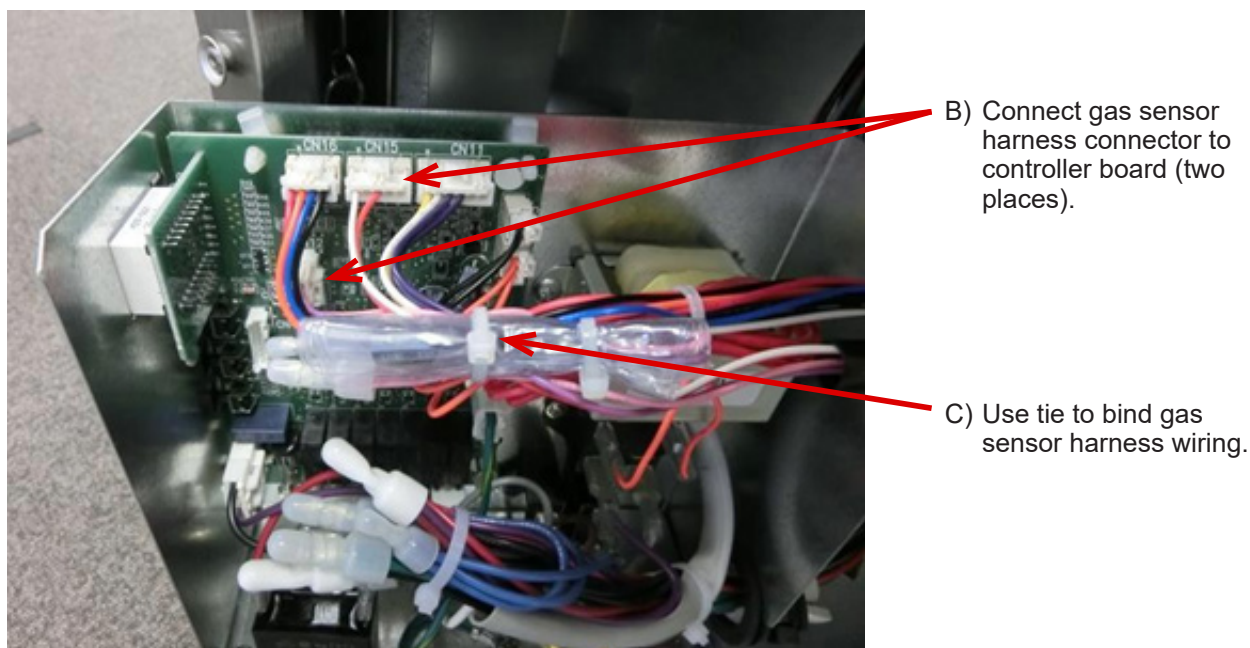


Fig. 35

10) Attach the control box cover.

11) Fix the control box and grommet as shown in Fig. 36.

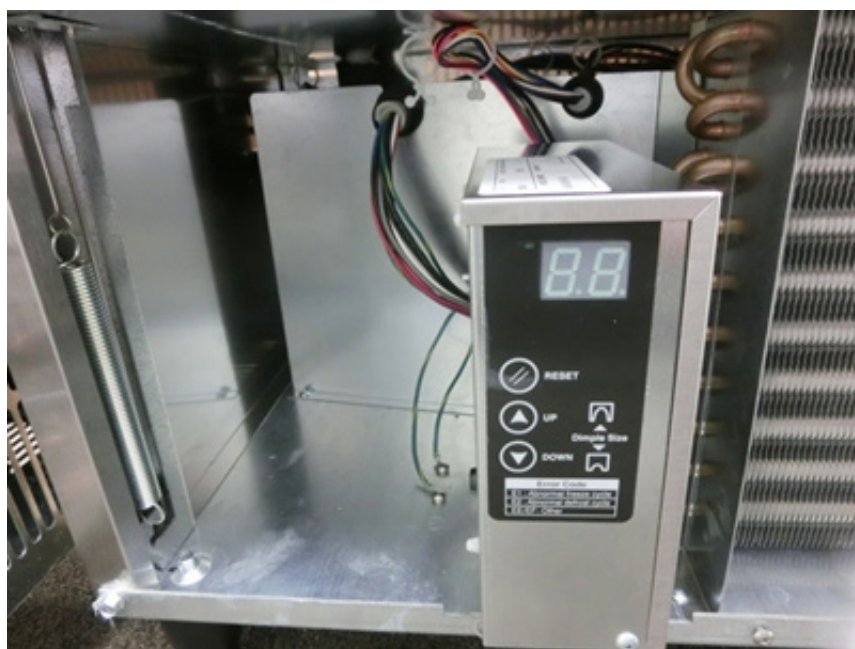


Fig. 36

12) Remove the rear panel.

13) Attach the gas sensor assy with screws on the base as shown in Fig. 37.

- 14) Run the gas sensor harness attached in the step 9) through the rear of the unit and connect it to the gas sensor assy connector. Put the bag over the connector and fix it with the tie as shown in Fig. 38.

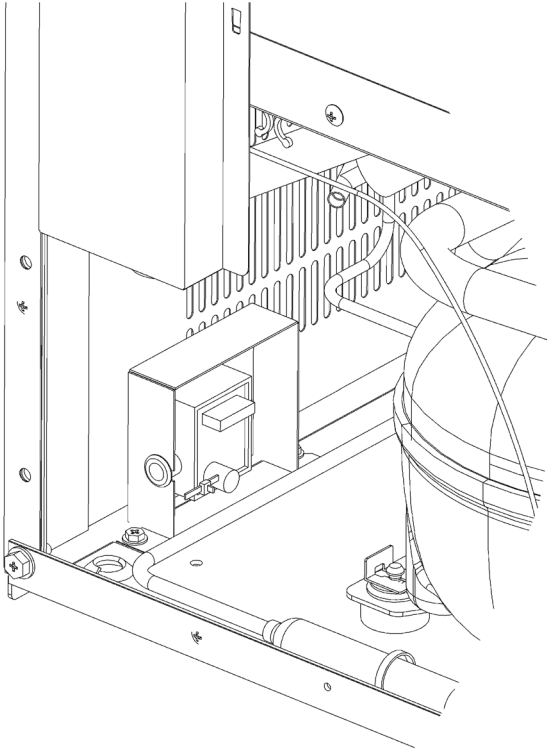


Fig. 37



Fig. 38

- 15) Use the tie (adjust its length) to bind the gas sensor assy wiring as shown in Fig. 39.



Fig. 39

16) Fix the gas sensor harness to the wire saddle as shown in Fig. 40.

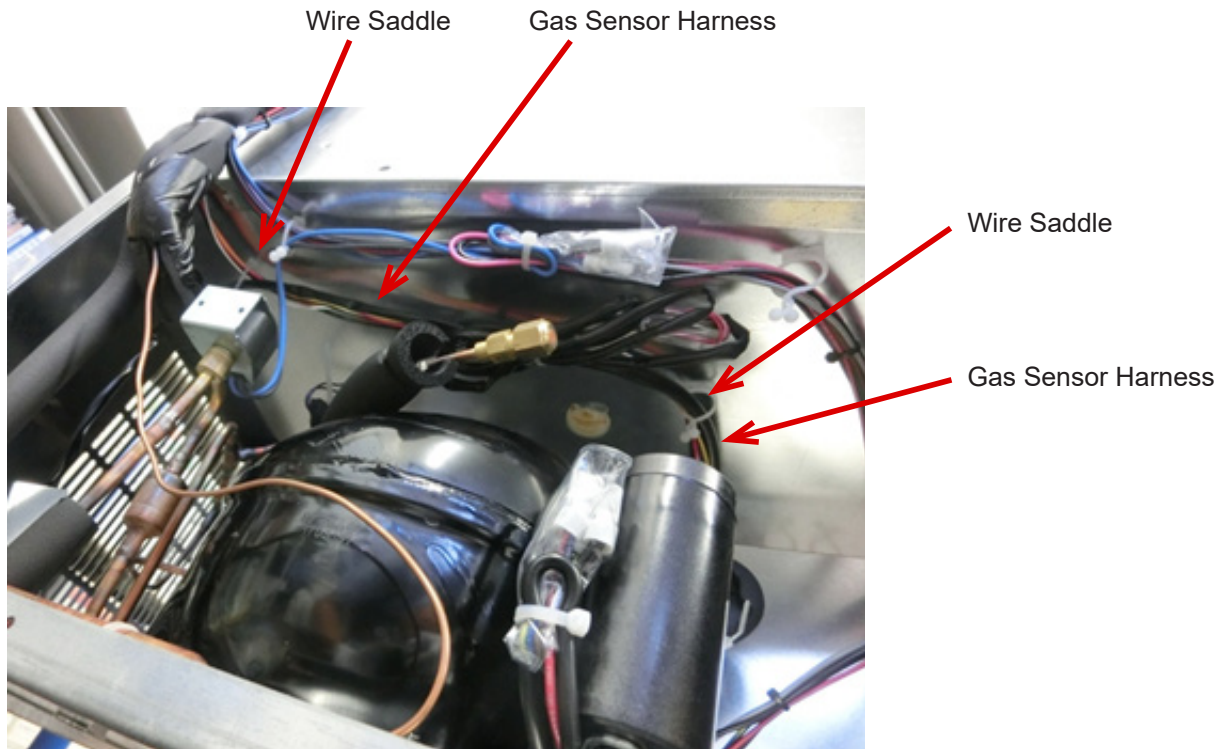


Fig. 40

17) Replace the panels in their correct positions.

18) Turn on the icemaker and check that the display shows “ON”. Check for proper operation.