

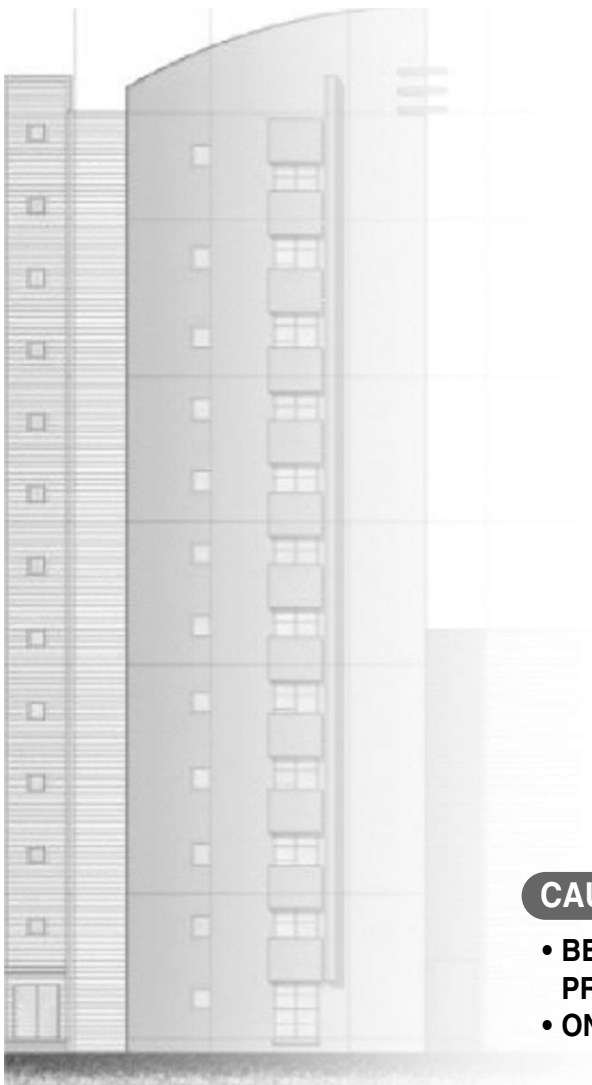


website <http://www.lgservice.com>

LG

MULTI VTM **SPACE** System Air Conditioner ***SERVICE MANUAL R410A***

***MODELS: ARUN/ARUV Series
ARNU Series***



CAUTION

- **BEFORE SERVICING THE UNIT, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.**
- **ONLY FOR AUTHORIZED SERVICE PERSONNEL.**

TABLE OF CONTENTS

Safety Precautions	3
Model Names	11
External Appearance	12
Nomenclature	14
Outdoor Units Information	15
Indoor Units	17
Ceiling Mounted Cassette Type (4 way).....	19
Art Cool Type	31
Art Cool Type(Wide).....	45
Ceiling Concealed Duct Type (Low static)	58
Ceiling Concealed Duct Type (High static).....	68
Outdoor Units	79
Trouble shooting guide	113
Exploded View & Replacement Parts List	183

Safety Precautions



To prevent injury to the user or other people and property damage, the following instructions must be followed.

■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠ WARNING This symbol indicates the possibility of death or serious injury.

⚠ CAUTION This symbol indicates the possibility of injury or damage to properties only.

■ Meanings of symbols used in this manual are as shown below.

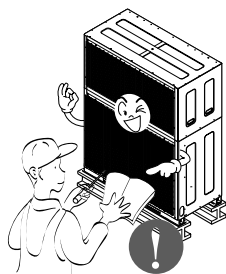
	Be sure not to do.
	Be sure to follow the instruction.

⚠ WARNING

■ Installation

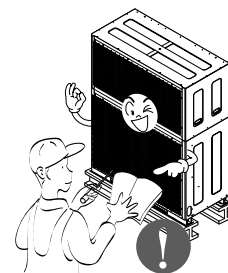
Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard" and "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit.

- If the power source capacity is inadequate or electric work is performed improperly, electric shock and fire may result.



Ask the dealer or an authorized technician to install the air conditioner.

- Improper installation by the user may result in water leakage, electric shock, or fire.



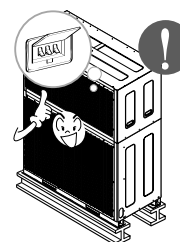
Always ground the product.

- There is risk of fire or electric shock.



Always install a dedicated circuit and breaker.

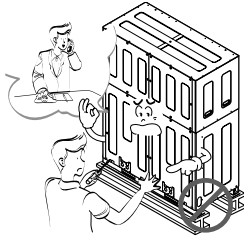
- Improper wiring or installation may cause fire or electric shock.



Safety Precautions

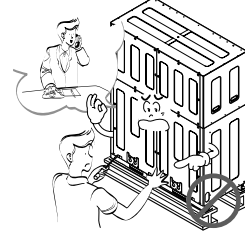
For re-installation of the installed product, always contact a dealer or an Authorized Service Center.

- There is risk of fire, electric shock, explosion, or injury.



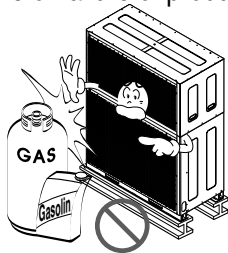
Do not install, remove, or re-install the unit by yourself (customer).

- There is risk of fire, electric shock, explosion, or injury.



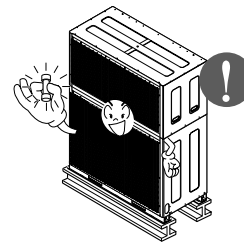
Do not store or use flammable gas or combustibles near the air conditioner.

- There is risk of fire or failure of product.



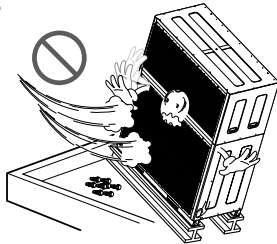
Use the correctly rated breaker or fuse.

- There is risk of fire or electric shock.



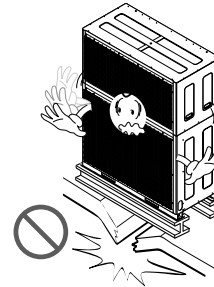
Prepare for typhoons and other strong winds and earthquakes and install the unit at the specified place.

- Improper installation may cause the unit to topple and result in injury.



Do not install the product on a defective installation stand.

- It may cause injury, accident, or damage to the product.



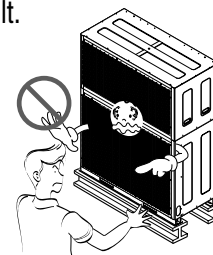
When installing and moving the air conditioner to another site, do not charge it with a different refrigerant from the refrigerant specified on the unit.

- If a different refrigerant or air is mixed with the original refrigerant, the refrigerant cycle may malfunction and the unit may be damaged.



Do not reconstruct to change the settings of the protection devices.

- If the pressure switch, thermal switch, or other protection device is shorted and operated forcibly, or parts other than those specified by LGE are used, fire or explosion may result.



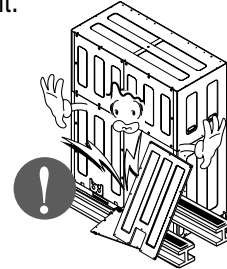
Ventilate before operating air conditioner when gas goes out.

- It may cause explosion, fire, and burn.



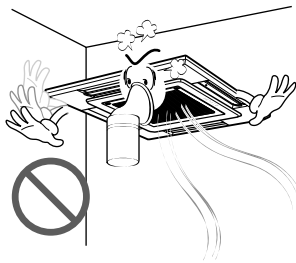
Securely install the cover of control box and the panel.

- If the cover and panel are installed securely, dust or water may enter the outdoor unit and fire or electric shock may result.



If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit when the refrigerant leaks.

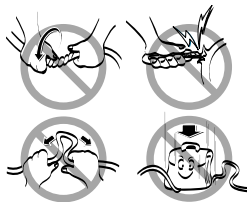
- Consult the dealer regarding the appropriate measures to prevent the safety limit from being exceeded. Should the refrigerant leak and cause the safety limit to be exceeded, hazards due to lack of oxygen in the room could result.



■ Operation

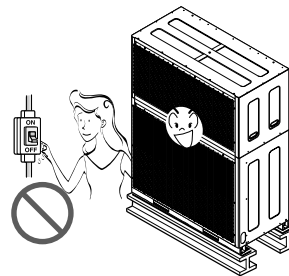
Do not damage or use an unspecified power cord.

- There is risk of fire, electric shock, explosion, or injury.



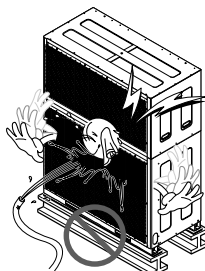
Use a dedicated outlet for this appliance.

- There is risk of fire or electrical shock.



Be cautious that water could not enter the product.

- There is risk of fire, electric shock, or product damage.



Do not touch the power switch with wet hands.

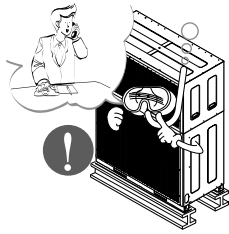
- There is risk of fire, electric shock, explosion, or injury.



Safety Precautions

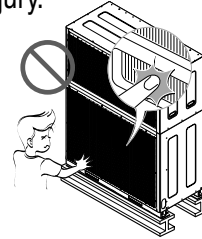
When the product is soaked (flooded or submerged), contact an Authorized Service Center.

- There is risk of fire or electric shock.



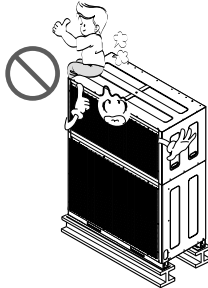
Be cautious not to touch the sharp edges when installing.

- It may cause injury.



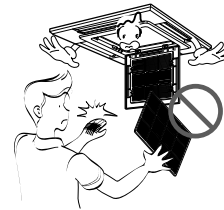
Take care to ensure that nobody could step on or fall onto the outdoor unit.

- This could result in personal injury and product damage.



Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)

- There is risk of physical injury, electric shock, or product failure.

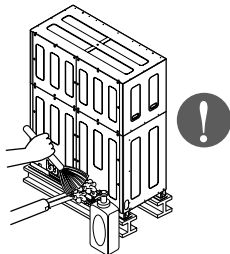


CAUTION

Installation

Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.



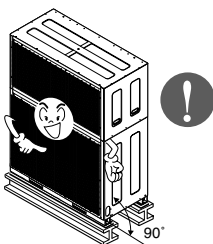
Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.

- It may cause a problem for your neighbors.



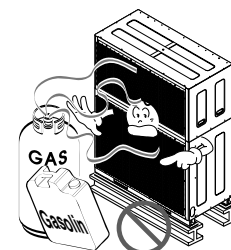
Keep level even when installing the product.

- To avoid vibration or water leakage.



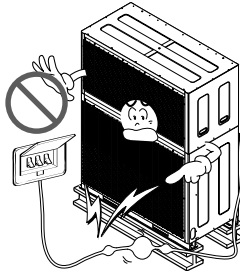
Do not install the unit where combustible gas may leak.

- If the gas leaks and accumulates around the unit, an explosion may result.



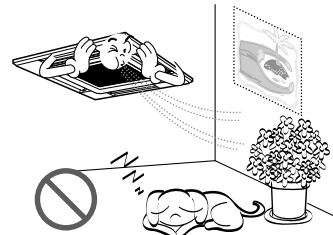
Use power cables of sufficient current carrying capacity and rating.

- Cables that are too small may leak, generate heat, and cause a fire.



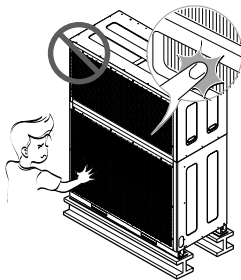
Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigeration system.

- There is risk of damage or loss of property.



Keep the unit away from children. The heat exchanger is very sharp.

- It can cause the injury, such as cutting the finger. Also the damaged fin may result in degradation of capacity.



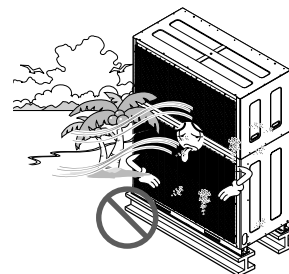
When installing the unit in a hospital, communication station, or similar place, provide sufficient protection against noise.

- The inverter equipment, private power generator, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to operate erroneously, or fail to operate. On the other hand, the air conditioner may affect such equipment by creating noise that disturbs medical treatment or image broadcasting.



Do not install the product where it will be exposed to sea wind (salt spray) directly.

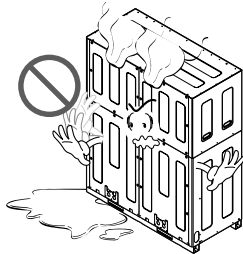
- It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.



■ Operation

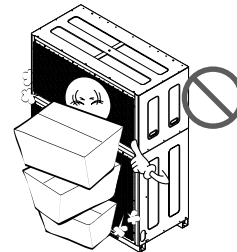
Do not use the air conditioner in special environments.

- Oil, steam, sulfuric smoke, etc. can significantly reduce the performance of the air conditioner or damage its parts.



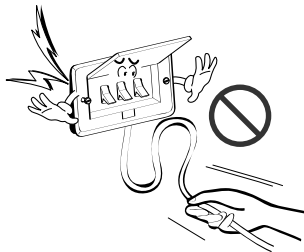
Do not block the inlet or outlet.

- It may cause failure of appliance or accident.



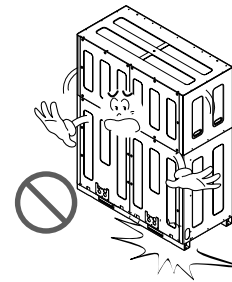
Make the connections securely so that the outside force of the cable is not applied to the terminals.

- Inadequate connection and fastening may generate heat and cause a fire.



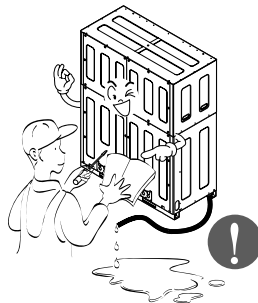
Be sure the installation area does not deteriorate with age.

- If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.



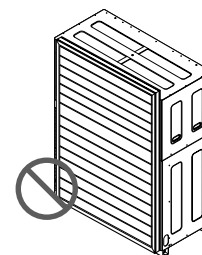
Install and insulate the drain hose to ensure that water is drained away properly based on the installation manual.

- A bad connection may cause water leakage.



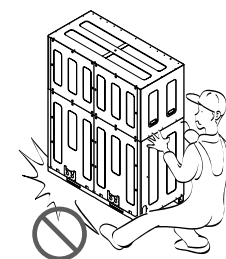
Do not operate with "System louver" closed.

- It may cause failure of appliance or accident.



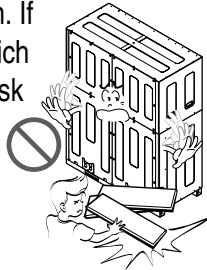
Be very careful about product transportation.

- Only one person should not carry the product if it weighs more than 20 kg.
- Some products use PP bands for packaging. Do not use any PP bands for a means of transportation. It is dangerous.
- Do not touch the heat exchanger fins. Doing so may cut your fingers.
- When transporting the Outdoor Unit, suspending it at the specified positions on the unit base. Also support the Outdoor Unit at four points so that it cannot slip sideways.



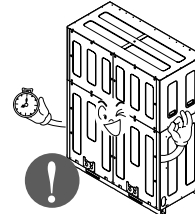
Safely dispose of the packing materials.

- Packing materials, such as mails and other metal or wooden parts, may cause stabs or other injuries.
- Tear apart and throw away plastic packaging bags so that children will not play with them. If children play with a plastic bag which was not torn apart, they face the risk of suffocation.



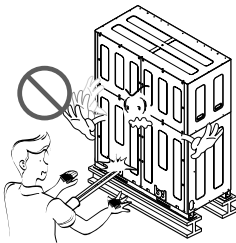
Turn on the power at least 2 hours before starting operation.(In case of outdoor temperature 5°C below)

- Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.



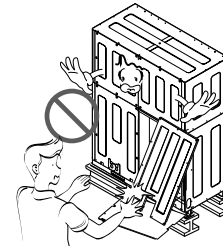
Do not touch any of the refrigerant piping during and after operation.

- It can cause a burn or frostbite.



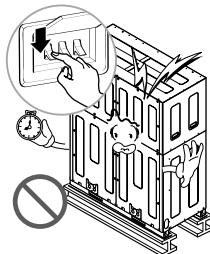
Do not operate the air conditioner with the panels and guards removed.

- Rotating, hot, or high-voltage parts can cause injuries.

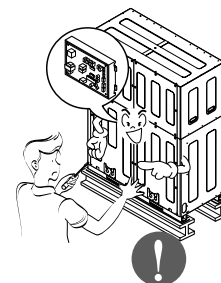


Do not directly turn off the main power switch after stopping operation.

- Wait at least more than 5 minutes before turning off the main power switch. Otherwise it may result in water leakage or other problems.

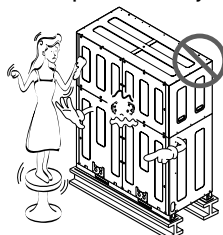


Auto-addressing should be done in condition of connecting the power of all indoor and outdoor units. Auto-addressing should also be done in case of changing the Indoor Unit board(PCB).



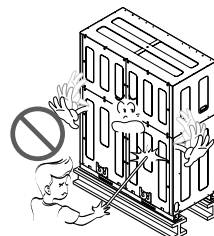
Use a firm stool or ladder when cleaning or maintaining the air conditioner.

- Be careful and avoid personal injury.



Do not insert hands or other objects through the air inlet or outlet while the air conditioner is plugged in.

- There are sharp and moving parts that could cause personal injury.



Part 1

General Information

1. Model Names	11
1.1 Indoor Unit	11
1.2 Outdoor Unit	11
2. External Appearance	12
2.1 Indoor Unit	12
2.2 Outdoor Unit	13
3. Nomenclature	14
3.1 Indoor Unit	14
3.2 Outdoor Unit	14
4. Outdoor Units information	15

1. Model Names

1.1 Indoor Unit






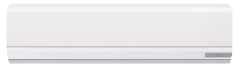






Category	Chassis Name	Capacity(Btu/h(kW))								
		7k (2.2)	9k (2.8)	12k (3.6)	18k (5.6)	24k (7.1)	28k (8.2)	36k (10.6)	42k (12.3)	48k (14.1)
Wall Mounted (General)	SE	ARNU07GSE*0	ARNU09GSE*0	ARNU12GSE*0						
	S5				ARNU18GS5*0	ARNU24GS5*0				
ART COOL	Mirror	SE	ARNU07GSE*0	ARNU09GSE*0	ARNU12GSE*0					
		S3				ARNU18GS3*0	ARNU24GS3*0			
	ART COOL	SP	ARNU07GSP*0	ARNU09GSP*0	ARNU12GSP*0					
	ART COOL Wide	SV				ARNU18GSV*0				
Ceiling Cassette	1 Way	TJ	ARNU07GTJ*0	ARNU09GTJ*0	ARNU12GTJ*0					
	2 Way	TL				ARNU18GTL*0	ARNU24GTL*0			
	4 Way	TE		ARNU09GTE*0	ARNU12GTE*0	ARNU18GTE*0				
		TH					ARNU24GTH*0	ARNU28GTH*0		
		TD							ARNU36GTD*0	ARNU42GTD*0
Ceiling Concealed Duct	High Static	BH				ARNU18GBHA0	ARNU24GBHA0			
		BG						ARNU28GBGA0	ARNU36GBGA0	ARNU42GBGA0
		BR								
	Low Static	B1	ARNU07GB1G0	ARNU09GB1G0	ARNU12GB1G0					
		B2				ARNU18GB2G0	ARNU24GB2G0			
	Built-in	B1	ARNU07GB1G0 PBSGB10	ARNU09GB1G0 PBSGB10	ARNU12GB1G0 PBSGB10					
B2					ARNU18GB2G0 PBSGB20	ARNU24GB2G0 PBSGB20				
Ceiling & Floor	VE		ARNU09GVEA0	ARNU12GVEA0						
Ceiling Suspended	VJ				ARNU18GVJA0	ARNU24GVJA0				
Floor Standing	With Case	CE	ARNU07GCEA0	ARNU09GCEA0	ARNU12GCEA0					
		CF				ARNU18GCFA0	ARNU24GCFA0			
	Without Case	CE	ARNU07GCEU0	ARNU09GCEU0	ARNU12GCEU0					
		CF				ARNU18GCFU0	ARNU24GCFU0			

※ * ART COOL- Color, Ceiling Cassette- A:Basic C:Plasma, Wall Mounted- A:Basic L:Plasma

Power Supply	10HP Heat Pump
3Ø, 380 ~ 415V, 50Hz	ARUN1008F20

2. External Appearance

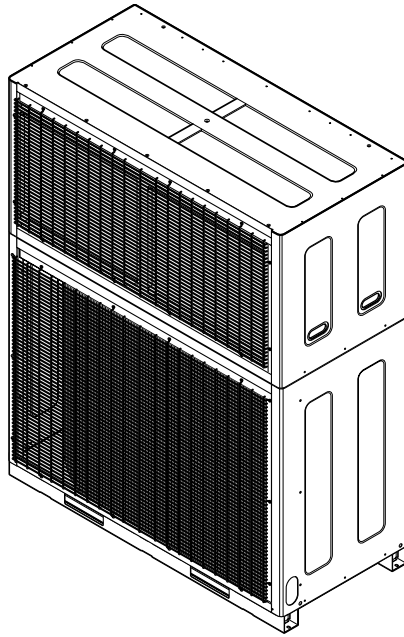
2.1 Indoor Units

<p>Ceiling Cassette- 1Way ARNU07GTJ*0 ARNU09GTJ*0 ARNU12GTJ*0</p>  <p>* A:Basic, C:Plasma</p>	<p>Ceiling Cassette -2Way ARNU18GTL*0 ARNU24GTL*0</p>  <p>* A:Basic, C:Plasma</p>
<p>Ceiling Cassette- 4Way ARNU09GTE*0 ARNU12GTE*0 ARNU18GTE*0 ARNU24GTH*0 ARNU28GTH*0 ARNU36GTD*0 ARNU42GTD*0 ARNU48GTD*0</p>  <p>* A:Basic, C:Plasma</p>	<p>Ceiling Concealed Duct - High Static ARNU18GBHA0 ARNU24GBHA0 ARNU28GBGA0 ARNU36GBGA0 ARNU42GBGA0 ARNU48GBRA0</p> 
<p>Ceiling Concealed Duct - Low Static ARNU07GB1G0 ARNU09GB1G0 ARNU12GB1G0 ARNU18GB2G0 ARNU24GB2G0</p> 	<p>Wall Mounted ARNU07GSE*0 ARNU09GSE*0 ARNU12GSE*0 ARNU18GS5*0 ARNU24GS5*0</p>  <p>* A:Basic, L:Plasma</p>
<p>ART COOL Mirror ARNU07GSE*0 S3:* B : Blue SE:* R:Mirror ARNU09GSE*0 M : Metal V:Silver ARNU12GSE*0 D : Wood B : Blue ARNU18GS3*0 R : Mirror ARNU24GS3*0 C : Cherry W : White</p> 	<p>ART COOL ARNU07GSP*0 ARNU09GSP*0 ARNU12GSP*0</p>  <p>* B : Blue M : Metal D : Wood W : White</p>
<p>ART COOL Wide ARNU18GSV*0</p> <p>* B : Blue M : Metal D : Wood W : White</p> 	<p>Ceiling Concealed Duct-Built in ARNU07GB1G0+PBSGB10(Acc'y) ARNU09GB1G0+PBSGB10(Acc'y) ARNU12GB1G0+PBSGB10(Acc'y) ARNU18GB2G0+PBSGB20(Acc'y) ARNU24GB2G0+PBSGB20(Acc'y)</p> 
<p>Ceiling & Floor ARNU09GVEA0 ARNU12GVEA0</p>  <p>Ceiling Suspended ARNU18GVJA0 ARNU24GVJA0</p>	<p>Floor Standing</p> <p>With case ARNU07GCEA0 ARNU09GCEA0 ARNU12GCEA0 ARNU18GCFA0 ARNU24GCFA0</p> <p>Without case ARNU07GCEU0 ARNU09GCEU0 ARNU12GCEU0 ARNU18GCFU0 ARNU24GCFU0</p> 

※ These are model names of the basic function.

2.2 Outdoor Units

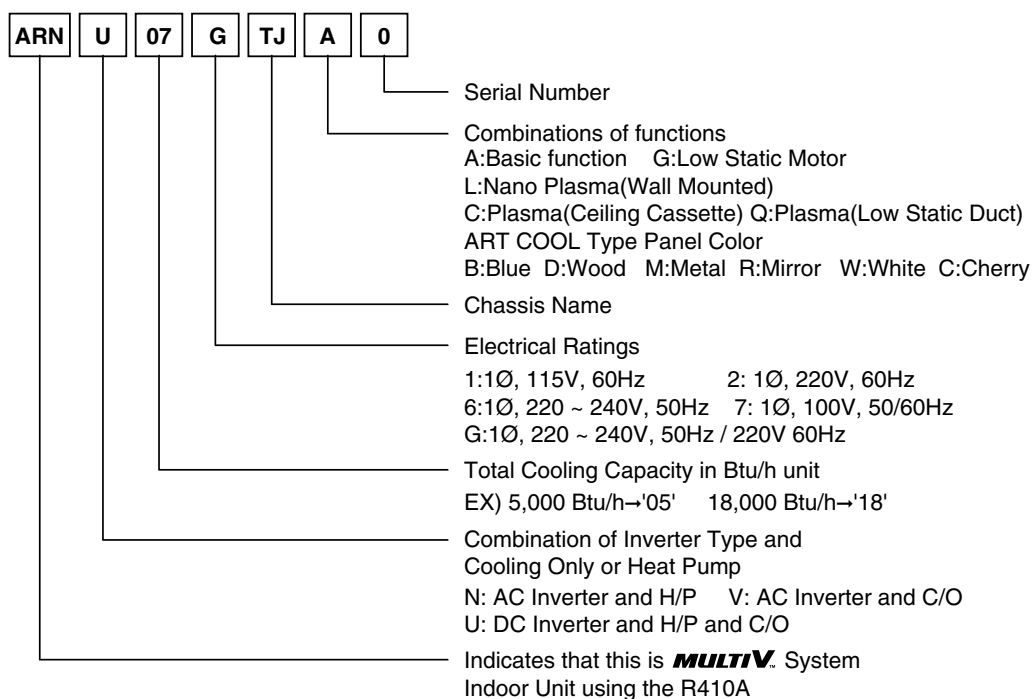
ARUN1008F20



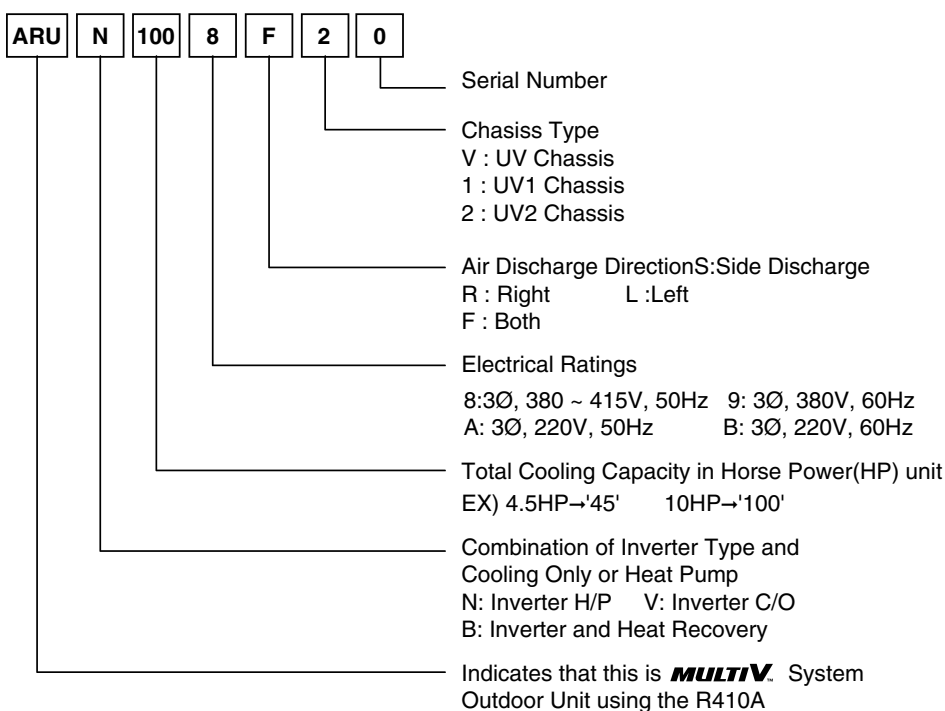
10HP

3. Nomenclature

3.1 Indoor Unit



3.2 Outdoor Unit



4. Outdoor Units Information



CAUTION: A ratio of the connectable Indoor Units with the Outdoor: Within 50 ~ 130%
 A ratio of the running Indoor Units with the Outdoor: Within 10 ~ 100%
 130% combination ratio cause a reduction of capacity.

Power Supply: Outdoor Unit (3Ø, 380 ~ 415V, 50Hz)

■ Heat Pump

System(HP)		10
Model		ARUN1008F20
Product Charge	kg	9.5
CF(Correction Factor)	kg	0
Max. Connectable No. of Indoor Units		16
Net Weight	kg	350
	lbs	771.6
Dimensions (W*H*D)	mm	1400*1790*650
	inch	55.1*70.5*25.6
Connecting Pipes	Liquid Pipes[mm(inch)]	Ø9.52(3/8)
	Gas Pipes[mm(inch)]	Ø22.2(7/8)

Indoor Units

Ceiling Mounted Cassette Type (4Way)

1. Specifications	20
2. Functions	23
3. Operation Details.....	24
4. Dimensions	26
5. Piping Diagrams	28
6. Wiring Diagrams.....	29

1. Specification

Type Model		Unit	4 Way Ceiling Cassette			
			ARNU09GTEA0	ARNU12GTEA0	ARNU18GTEA0	
Cooling Capacity	W		2,800	3,600	5,600	
	kcal/h		2,400	3,100	4,800	
	Btu/h		9,600	12,300	19,100	
Heating Capacity	W		3,200	4,000	6,300	
	kcal/h		2,800	3,400	5,400	
	Btu/h		10,900	13,600	21,500	
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions (W*D*H)	Body	mm	570x570x269	570x570x269	570x570x269	
		inch	22.4x22.4x10.5	22.4x22.4x10.5	22.4x22.4x10.5	
	Front Panel	mm	670x670x30	670x670x30	670x670x30	
		inch	26.4x26.4x1.2	26.4x26.4x1.2	26.4x26.4x1.2	
Coil	Rows x Columns x FPI		2x11x18	2x11x18	2x11x18	
	Face Area	m ²	0.32	0.32	0.32	
Fan	Type		Turbo Fan	Turbo Fan	Turbo Fan	
	Motor Output x Number	W	35	35	35	
	Running Current	A	0.18	0.18	0.18	
	Air Flow Rate(H/M/L)	cmm		9/8/7	11/10/9	13/12/10
		cfm		318/282/247	389/353/318	459/424/353
	Drive		Direct	Direct	Direct	
Motor type		BLDC	BLDC	BLDC		
Temperature Control			Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	
Sound Absorbing Thermal Insulation Material			Foamed polystyrene	Foamed polystyrene	Foamed polystyrene	
Safety Device			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	
Pipe Connections	Liquid Side	mm(inch)	Ø6.35(1/4)	Ø6.35(1/4)	Ø6.35(1/4)	
	Gas Side	mm(inch)	Ø12.7(1/2)	Ø12.7(1/2)	Ø12.7(1/2)	
	Drain Pipe(Internal Dia.)	mm	25.0	25.0	25.0	
Net Weight		kg(lbs)	19(41.9)	19(41.9)	19(41.9)	
Noise Level(Sound Press, 1.5m, H/M/L)		dBA±3	39/33/30	41/35/32	43/37/35	
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50	1, 220 ~ 240, 50	1, 220 ~ 240, 50	
			1, 220, 60	1, 220, 60	1, 220, 60	
Refrigerant Control			LEV	LEV	LEV	
Power cable		mm ²	CV2.0 X 3C	CV2.0 X 3C	CV2.0 X 3C	
Transmission cable		mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	
Panel Color			Morning fog	Morning fog	Morning fog	

Notes:-

1. Capacities are based on the following conditions:

- Cooling
 - Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
 - Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.:Linear Expansion Valve

5. To be added for more available Models

Conversion Formula

kcal/h= kW x 860
 Btu/h = kW x 3412
 cfm = m³/min x 35.3

Type		4 Way Ceiling Cassette			
Model	Unit	ARNU24GTHA0	ARNU28GTHA0	ARNU36GTDA0	
Cooling Capacity	W	7,100	8,200	10,600	
	kcal/h	6,100	7,100	9,100	
	Btu/h	24,200	28,000	36,200	
Heating Capacity	W	8,000	9,200	11,900	
	kcal/h	6,900	8,000	10,200	
	Btu/h	27,300	31,500	40,600	
Casing		Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions (W*D*H)	Body	mm	840x840x255	840x840x255	840x840x288
		inch	33.0x33.0x10	33.0x33.0x10	33.0x33.0x11.3
	Front Panel	mm	950x950x30	950x950x30	950x950x30
		inch	37.4x37.4x1.2	37.4x37.4x1.2	37.4x37.4x1.2
Coil	Rows x Columns x FPI	2x9x18	2x9x18	2x9x18	
	Face Area	m ²	0.43	0.43	0.57
Fan	Type	Turbo Fan	Turbo Fan	Turbo Fan	
	Motor Output x Number	W	30	30	135
	Running Current	A	0.15	0.15	0.56
	Air Flow Rate(H/M/L)	cmm	17/15/13	19/16/14	25/21/19
		cfm	600/529/459	671/565/494	883/742/671
	Drive	Direct	Direct	Direct	
Motor type	BLDC	BLDC	BLDC		
Temperature Control		Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	
Sound Absorbing Thermal Insulation Material		Foamed polystyrene	Foamed polystyrene	Foamed polystyrene	
Safety Device		Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	
Pipe Connections	Liquid Side	mm(inch)	Ø9.52(3/8)	Ø9.52(3/8)	Ø9.52(3/8)
	Gas Side	mm(inch)	Ø15.88(5/8)	Ø15.88(5/8)	Ø15.88(5/8)
	Drain Pipe(Internal Dia.)	mm	25.0	25.0	25.0
Net Weight	kg(lbs)	24(52.9)	24(52.9)	32(70.5)	
Noise Level(Sound Press, 1.5m, H/M/L)	dBA±3	38/35/31	39/38/32	43/40/39	
Power Supply	Ø / V / Hz	1, 220 ~ 240, 50	1, 220 ~ 240, 50	1, 220 ~ 240, 50	
		1, 220, 60	1, 220, 60	1, 220, 60	
Refrigerant Control		LEV	LEV	LEV	
Power cable	mm ²	CV2.0 X 3C	CV2.0 X 3C	CV2.0 X 3C	
Transmission cable	mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	
Panel Color		Morning fog	Morning fog	Morning fog	

Notes:-

1. Capacities are based on the following conditions:

- Cooling
 - Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
 - Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.:Linear Expansion Valve

5. To be added for more available Models

Conversion Formula

kcal/h= kW x 860
 Btu/h = kW x 3412
 cfm = m³/min x 35.3

Specification

Type			4 Way Ceiling Cassette		
Model	Unit		ARNU42GTDA0	ARNU48GTDA0	
Cooling Capacity	W		12,300	14,100	
	kcal/h		10,600	12,100	
	Btu/h		42,000	48,100	
Heating Capacity	W		13,800	15,900	
	kcal/h		11,000	13,200	
	Btu/h		43,800	51,200	
Casing			Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions (W*D*H)	Body	mm	840x840x288	840x840x288	
		inch	33.0x33.0x11.3	33.0x33.0x11.3	
	Front Panel	mm	950x950x30	950x950x30	
		inch	37.4x37.4x1.2	37.4x37.4x1.2	
Coil	Rows x Columns x FPI		2x9x12	2x9x12	
	Face Area	m ²	0.57	0.57	
Fan	Type		Turbo Fan	Turbo Fan	
	Motor Output x Number	W	135	135	
	Running Current	A	0.56	0.56	
	Air Flow Rate(H/M/L)	cmm		30/27/24	31/29/27
		cfm		1059/954/848	1095/1024/954
	Drive		Direct	Direct	
Motor type		BLDC	BLDC		
Temperature Control			Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	
Sound Absorbing Thermal Insulation Material			Foamed polystyrene	Foamed polystyrene	
Safety Device			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	
Pipe Connections	Liquid Side	mm(inch)	Ø9.52(3/8)	Ø9.52(3/8)	
	Gas Side	mm(inch)	Ø15.88(5/8)	Ø15.88(5/8)	
	Drain Pipe(Internal Dia.)	mm	25.0	25.0	
Net Weight		kg(lbs)	32(70.5)	32(70.5)	
Noise Level(Sound Press, 1.5m, H/M/L)		dBA±3	44/42/40	45/43/41	
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60	
Refrigerant Control			LEV	LEV	
Power cable		mm ²	CV2.0 X 3C	CV2.0 X 3C	
Transmission cable		mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	
Panel Color			Morning fog	Morning fog	

Notes:-

- Capacities are based on the following conditions:
 - Cooling
 - Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
 - Heating
 - Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Capacities are net capacities
- Due to our policy of innovation some specifications may be changed without notification
- L.E.V.:Linear Expansion Valve
- To be added for more available Models

Conversion Formula

kcal/h= kW x 860
Btu/h = kW x 3412
cfm = m³/min x 35.3

2. Functions

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (Thermistor)

Room temperature control

- Maintains the room temperature in accordance with the Setting Temperature.

Starting Current Control

- Indoor fan is delayed for 5 seconds at the starting.

Time Delay Safety Control

- Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

- Jet, High, Med, Low, Lolow

Soft Dry Operation Mode

- Intermittent operation of fan at low speed.

Airflow Direction Control

- The louver can be set at swing up and down automatically.

Auto Restart

- Although the air-conditioner is turned off by a power failure, it is restarted automatically previous operation mode after power supply.

Deice (defrost) control (Heating)

- Both the indoor and outdoor fan stops during defrosting.
- Hot start after defrost ends.

Hot-start Control (Heating)

- The indoor fan does not rotate until the evaporator piping temperature will be reached at 25°C.

Compact and light design

- To install a unit is very convenient because of smaller size than textile.

Low noise

- The most advanced low-noise design.
- The adoption of turbo fan and round type heat exchanger give the quietest operation.

Long life filter

- Long life wrinkle(type) and washable and anti-bacteria filter is adopted.

High head Drain pump

- Built-in drain pump automatically drains water.
- A standard drain-head height of up to 700mm is possible.

High-Ceiling corresponding Function

- According to the height of ceiling, the RPM of indoor fan motor is selected to increase air reaching distance.

Central Control(Optional)

- It is operating individually or totally by central control function.

Swirl Swing Control

- It is operating swirl swing

3. Operation Detail

(1) The function of main control

■ Time Delay Safety Control

- 5 sec... Vertical air flow direction control louvers open in 5 seconds to prevent noise between louvers and wind.
- 5 sec... The 4-way valve is ceased for 5 sec. to prevent the refrigerant-gas abnormal noise when the Heating operation is OFF or switched to the other operation mode when compress is off.
While compressor is running, it takes 3~5 seconds to switch.

■ Auto Swing Control

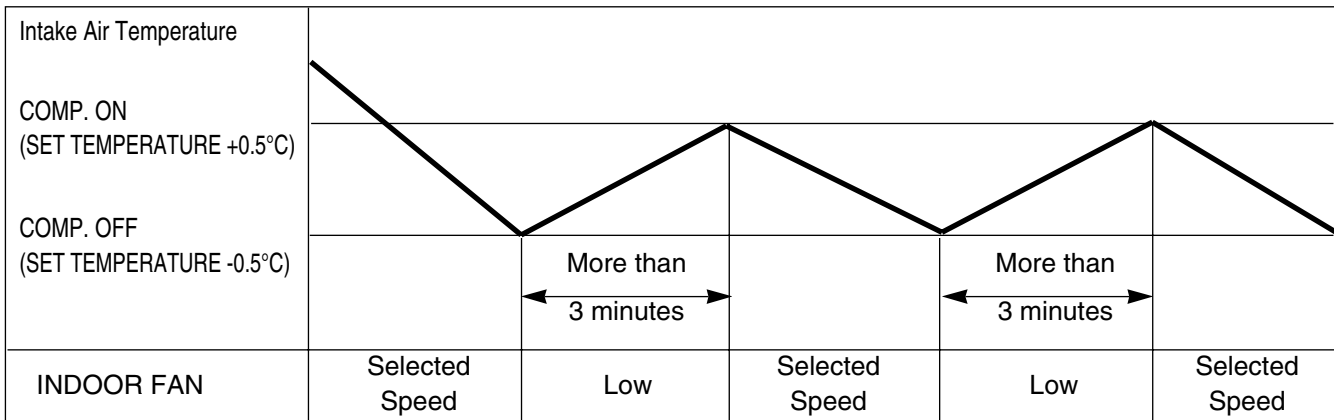
- This function is to swing the louver up and down automatically.

■ Soft-Dry Operation

- The indoor fan speed is automatically set to the low, so the shift of the indoor fan speed is impossible because of already being set to the best speed for Dry Operation by microcontroller control.

■ Cooling Mode Operation

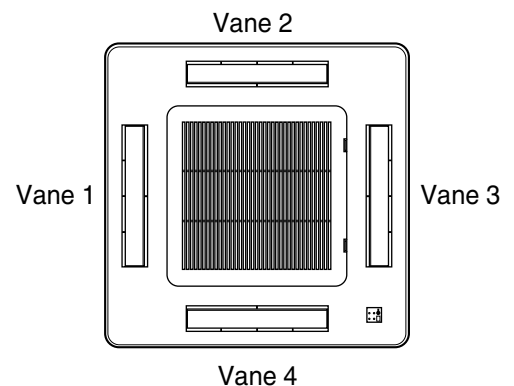
- When selecting the Cooling(*) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following



■ Swirl Swing Control

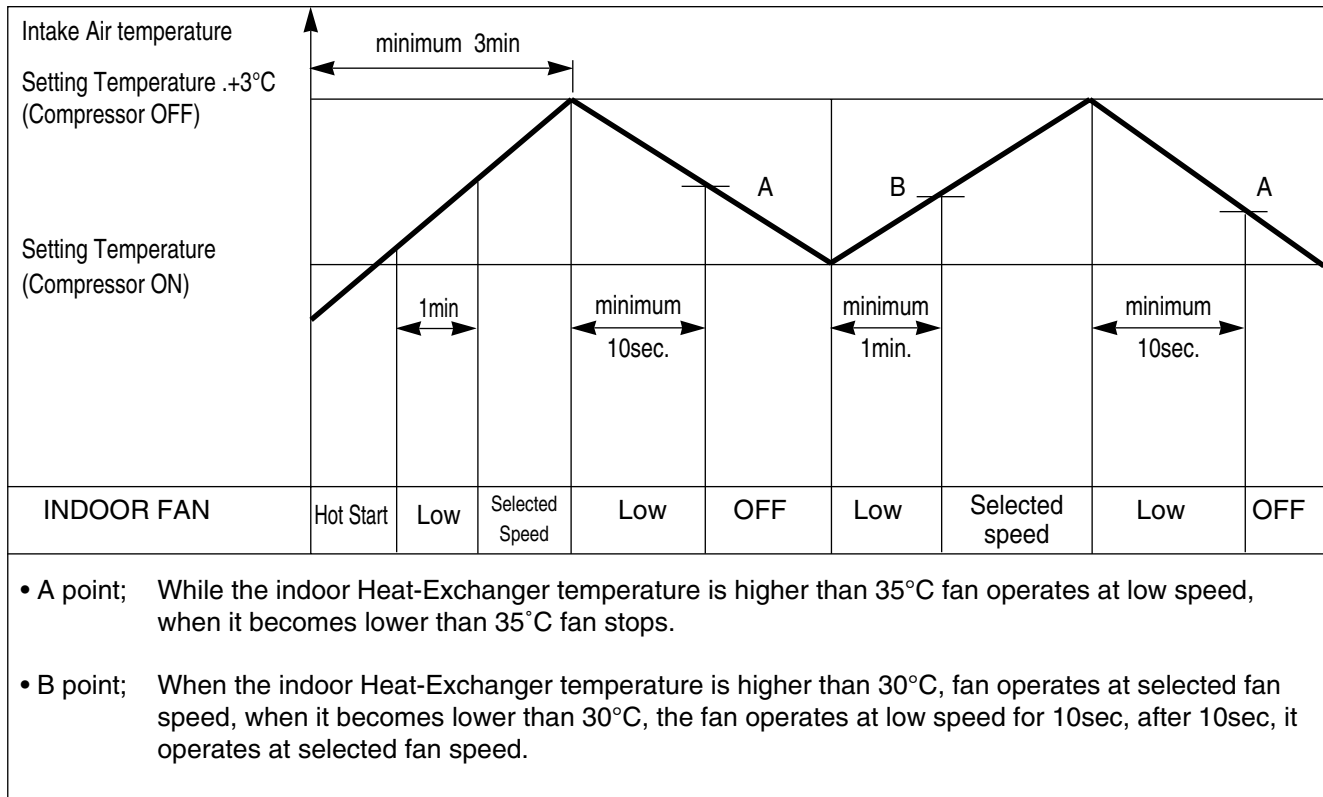
Vane 2, 4 is almost vane closed while vane1, 3 is opened.

Vane 1, 3 and vane 2,4 turn over minutely



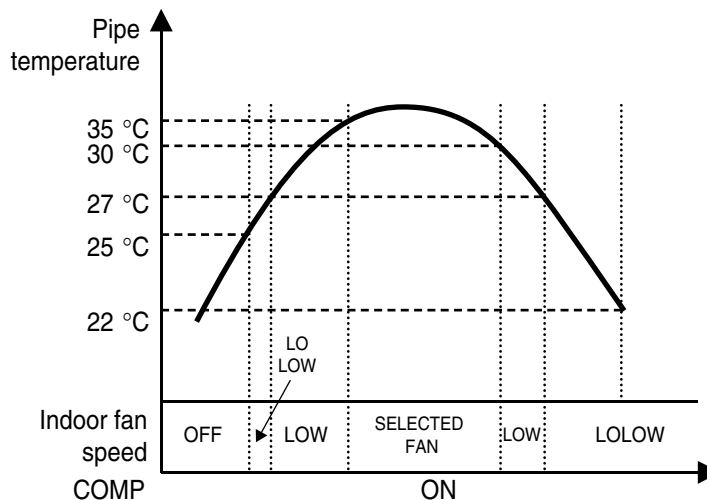
■ Heating Mode Operation

The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



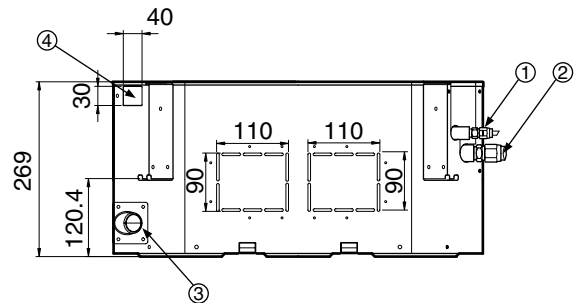
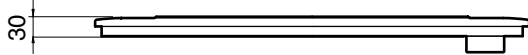
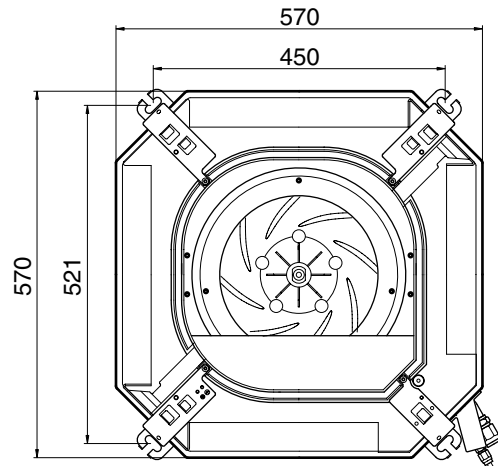
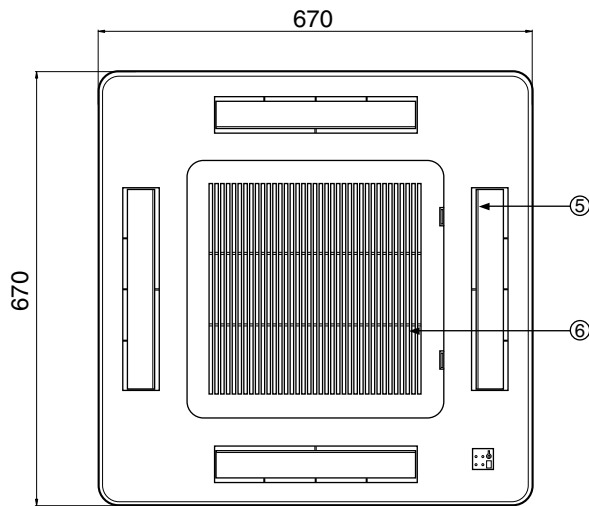
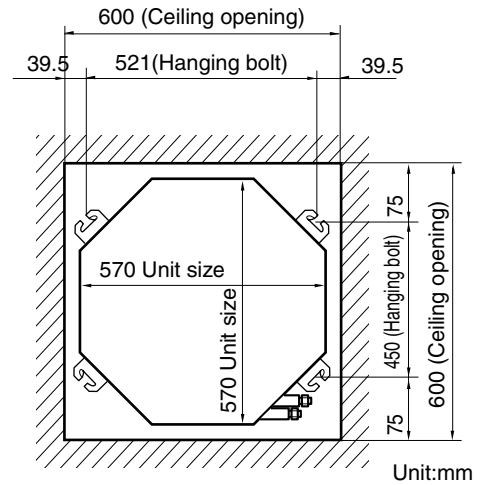
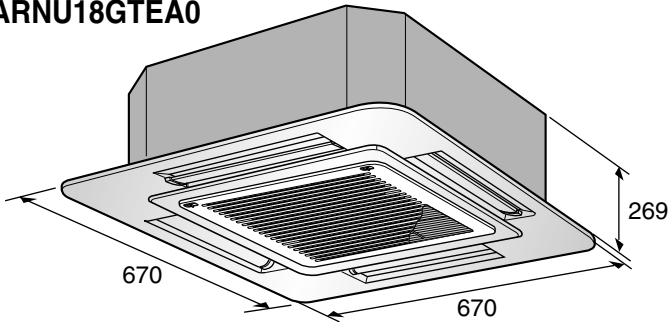
■ Hot-start Control

- The indoor fan does not rotate until the evaporator piping temperature will be reached to 25°C.
- The operation diagram is as following.



4. Dimensions

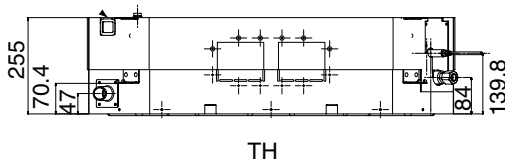
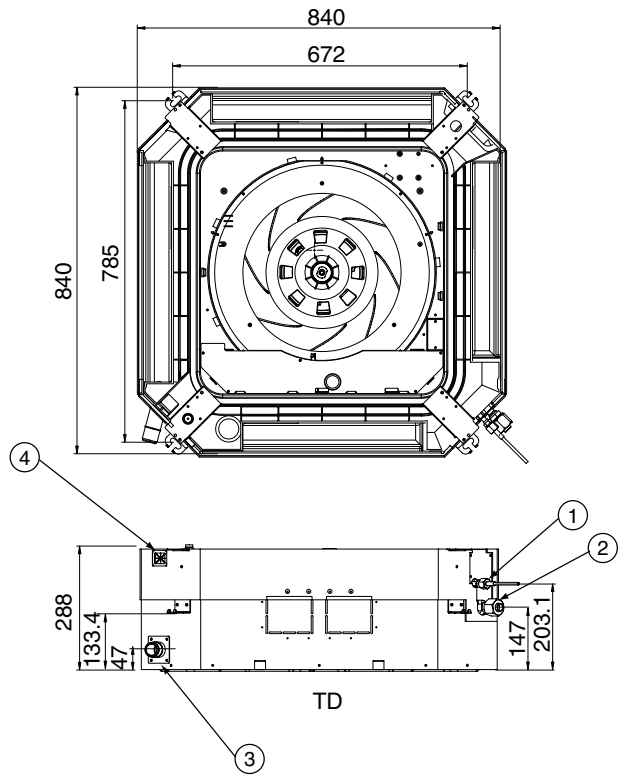
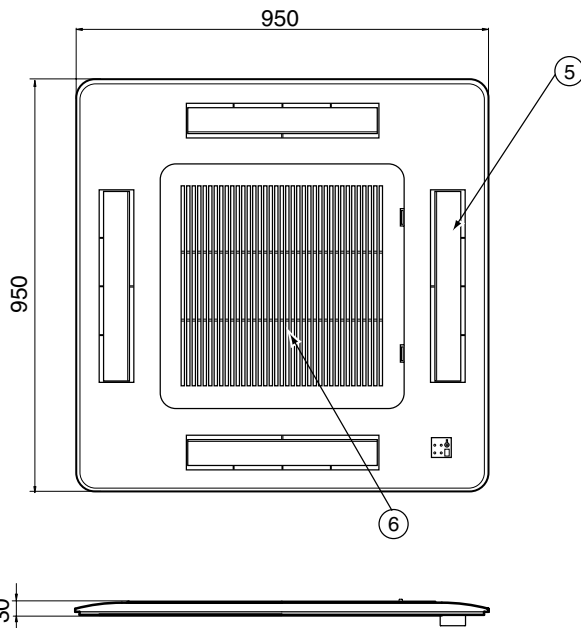
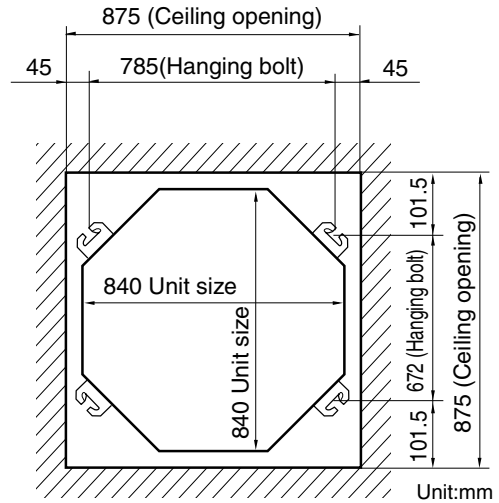
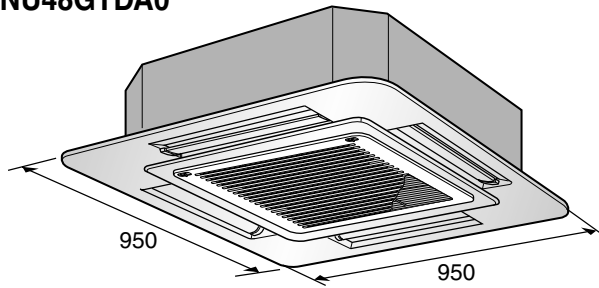
ARNU09GTEA0
ARNU12GTEA0
ARNU18GTEA0



(unit : mm)

Number	Name	Description
1	Liquid pipe connection	Unit size(9k, 12k, 18k):Ø6.35
2	Gas pipe connection	Unit size(9k, 12k, 18k):Ø12.7
3	Drain pipe connection	
4	Power supply connection	
5	Air discharge grill	
6	Air suction grill	

ARNU24GTHA0
 ARNU28GTHA0
 ARNU36GTDA0
 ARNU38GTDA0
 ARNU42GTDA0
 ARNU48GTDA0



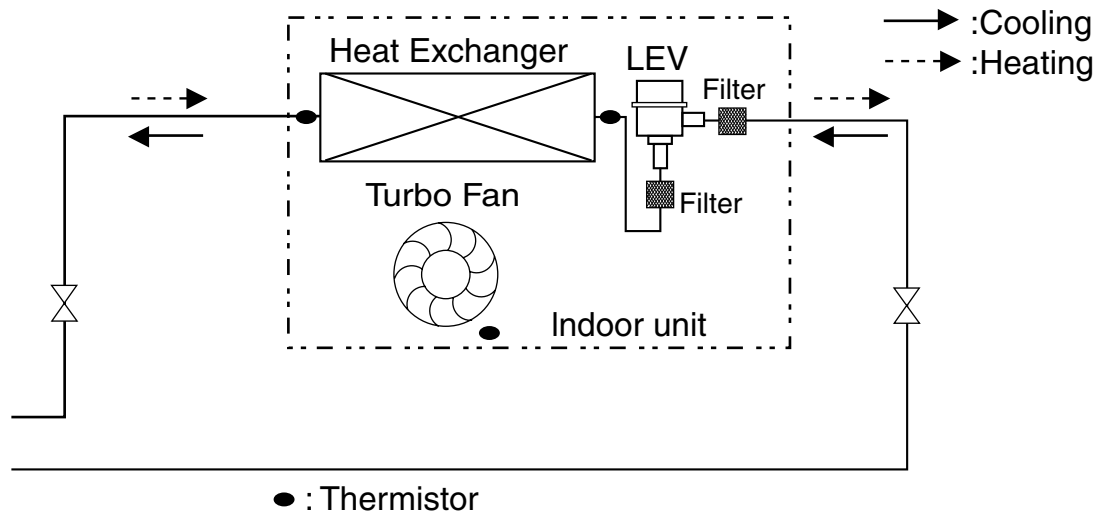
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(unit : mm)

Number	Name	Description
1	Liquid pipe connection	Unit Size (24k, 28k, 36k, 42k, 48k):Ø9.52
2	Gas pipe connection	Unit Size(24k, 28k, 36k, 42k, 48k):Ø15.88
3	Drain pipe connection	
4	Power supply connection	
5	Air discharge grill	
6	Air suction grill	

5. Piping Diagrams



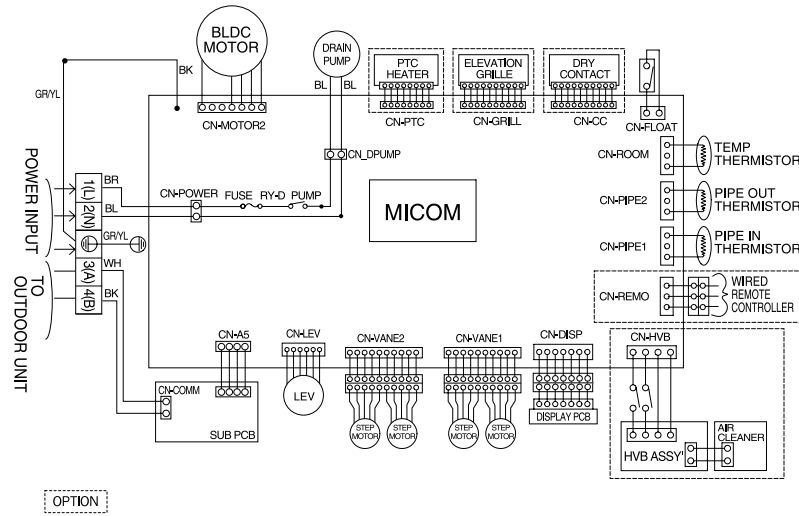
Refrigerant pipe connection port diameter

[unit: mm(inch)]

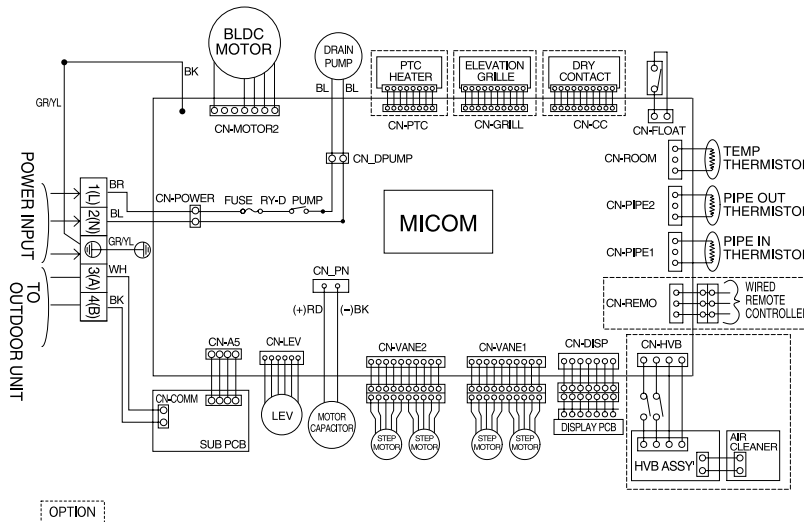
Model	Gas	Liquid
ARNU09GTEA0	Ø12.7(1/2)	Ø6.35(1/4)
ARNU12GTEA0	Ø12.7(1/2)	Ø6.35(1/4)
ARNU18GTEA0	Ø12.7(1/2)	Ø6.35(1/4)
ARNU24GTHA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU28GTHA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU36GTDA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU42GTDA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU48GTDA0	Ø15.88(5/8)	Ø9.52(3/8)

6. Wiring Diagrams

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CONNECTOR NUMBER	SPEC	DESCRIPTION
CN-POWER	AC POWER SUPPLY	AC POWER LINE INPUT FOR INDOOR CONTROLLER
CN-MOTOR2	FAN MOTOR OUTPUT	MOTOR OUTPUT OF BLDC
CN-D/PUMP	DRAIN PUMP OUTPUT	AC OUTPUT FOR DRAIN PUMP
CN-COMM	COMMUNICATION	CONNECTION BETWEEN INDOOR AND OUTDOOR
CN-DISP1	DISPLAY	DISPLAY OF INDOOR STATUS
CN-LEV	LEV OUTPUT	LEV CONTROL OUTPUT
CN-STEP/M1	STEP MOTOR	STEP MOTOR OUTPUT
CN-FLOAT	FLOAT SWITCH INPUT	FLOAT SWITCH SENSING
CN-PIPE	PIPE SENSOR	PIPE THERMISTOR
CN-PIPE/O	DISCHARGE PIPE SENSOR	DISCHARGE PIPE THERMISTOR
CN-ROOM	ROOM SENSOR	ROOM THERMISTOR
CN-REMO	REMOTE CONTROLLER	REMOTE CONTROL LINE

Art Cool Type

1. Specification	32
2. Functions	33
3. Operation Details.....	34
4. Dimensions	41
5. Piping Diagrams	42
6. Wiring Diagrams	43

1. Specification

Type			ARTCOOL			
Model		Unit	ARNU07GSP*0	ARNU09GSP*0	ARNU12GSP*0	
Cooling Capacity	W		2,200	2,800	3,600	
	kcal/h		1,900	2,400	3,100	
	Btu/h		7,500	9,600	12,300	
Heating Capacity	W		2,500	3,200	4,000	
	kcal/h		2,200	2,800	3,400	
	Btu/h		8,500	10,900	13,600	
Dimensions (W*D*H)	Body	mm	570x137x568	570x137x568	570x137x568	
		inch	22.4x5.4x22.3	22.4x5.4x22.3	22.4x5.4x22.3	
Coil	Rows x Columns x FPI		2x20x20	2x20x20	2x20x20	
	Face Area	m ²	0.16	0.16	0.16	
Fan	Type		Turbo Fan	Turbo Fan	Turbo Fan	
	Motor Output x Number	W	24	24	24	
	Running Current	A	0.14	0.14	0.14	
	Air Flow Rate(H/M/L)	cmm		6/5.5/5	7/ 6.5 /6	8.7/ 8.1 /7.5
		cfm		212/194/177	247/230/212	307/286/265
	Drive		Direct	Direct	Direct	
Motor type		BLDC	BLDC	BLDC		
Temperature Control			Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	
Sound Absorbing Thermal Insulation Material			Foamed polystyrene	Foamed polystyrene	Foamed polystyrene	
Air Filter			Resin	Resin	Resin	
Safety Device			Net(washable)	Net(washable)	Net(washable)	
Pipe Connections	Liquid Side	mm(inch)	Ø6.35(1/4)	Ø6.35(1/4)	Ø6.35(1/4)	
	Gas Side	mm(inch)	Ø12.7(1/2)	Ø12.7(1/2)	Ø12.7(1/2)	
	Drain Pipe(Internal Dia.)	mm	12.2	12.2	12.2	
Net Weight		kg(lbs)	12(26.5)	12(26.5)	12(26.5)	
Noise Level(Sound Press, 1m, H/M/L)		dBA±3	38/34/32	40/36/33	42/38/36	
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60	
Refrigerant Control			LEV	LEV	LEV	
Power cable		mm ²	CV2.0 X 3C	CV2.0 X 3C	CV2.0 X 3C	
Transmission cable		mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	
Front Panel(** Position)			M: Metal, D: Wood, B: Blue, W: White			

Notes:-

1. Capacities are based on the following conditions:

- Cooling
 - Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
 - Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.: Linear Expansion Valve

5. To be added for more available Models

Conversion Formula
kcal/h= kW x 860
Btu/h = kW x 3412
cfm = m ³ /min x 35.3

2. Functions

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (THERMISTOR)

Room temperature control

- Maintains the room temperature in accordance with the Setting temperature

Starting Current Control

- Indoor fan is delayed for 5 sec at the starting.

Time Delay Safety Control

- Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

- High, Med, Low, CHAOS

Operation indication Lamps (LED)

Signal Receptor

Receives the signals from the remote control.(Signal receiving sound: two short beeps or one long beep.)

Operation Indication Lamps

- ① On/Off : Lights up during the system operation.
- ☆ Sleep Mode : Lights up during Sleep Mode Auto operation.
- ⌚ Timer : Lights up during Timer operation.
- * Defrost Mode : Lights up during Defrost Mode or Hot Start operation.
- BB Temperature : Indicate the setting temperature.

Soft Dry Operation Mode

- Intermittent operation of fan at low speed.

Sleep Mode Auto Control

- The fan is switched to low(Cooling), med(Heating) speed.
- The unit will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.

Natural Air Control by CHAOS Logic

- The fan is switched to intermittent or irregular operation
- The fan speed is automatically switched from high to low speed.

Airflow Direction Control

- The louver can be set at the desired position or swing up and down automatically.

Defrost(Deice) control (Heating)

- Both the indoor and outdoor fan stops during defrosting.

Hot-start Control (Heating)

- The indoor fan does not rotate until the evaporator pipe temperature will be reached at 28°C.

3. Operation Details

Function of Controls

DISPLAY

(1) High quality LCD remote controller supplied

Operation Indicator

- On while in appliance operation, off while in appliance pause

Timer(on/off) and Sleep timer Indicator

- On while in timer mode (on/off) and in sleep timer mode, off when timer mode is completed or canceled

Defrost Indicator

- Off except when hot start during heating mode operation or while in defrost control.

Plasma Indicator

- On while in plasma mode, off while plasma mode is canceled.

Auto restart

- In case the power comes on again after a power failure, Auto Restarting Operation is the function to operate procedures automatically to the previous operating conditions.
If you want to use this operation, press the Auto Restart Button.

Power(Forced Operation)

- Operation starts, when this button is pressed and stops when you press the button again.

■ Cooling Mode Operation

- When the intake air temperature reaches 0.5°C below the setting temp, the compressor and the outdoor fan stop.
- When it reaches 0.5°C above the setting temp, they start to operate again.
Compressor ON Temp=> Setting Temp+0.5°C
Compressor OFF Temp => Setting Temp-0.5°C
- While in compressor running, operating with the airflow speed set by the remote controller. While in compressor not running, operating with the low airflow speed regardless of the setting.

■ Healthy Dehumidification Mode

- When the dehumidification operation input by the remote controller is received, the intake air temperature is detected and the setting temp is automatically set according to the intake air temperature.
 - $26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$
 - $24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} - 1^{\circ}\text{C}$
 - $18^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} - 0.5^{\circ}\text{C}$
 - $\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$
- While in compressor off, the indoor fan repeats low airflow speed and pause.
- While the intake air temp is between compressor on temp. and compressor off temp., 10-min dehumidification operation and 4-min compressor off repeat
 - Compressor ON Temp. \Rightarrow Setting Temp $+0.5^{\circ}\text{C}$
 - Compressor OFF Temp. \Rightarrow Setting Temp -0.5°C
- In 10-min dehumidification operation, the indoor fan operates with the low airflow speed.

■ Heating Mode Operation

- When the intake air temp reaches $+3^{\circ}\text{C}$ above the setting temp, the compressor is turned off. When below the setting temp, the compressor is turned on.
 - Compressor ON Temp. \Rightarrow Setting Temp. $+2^{\circ}\text{C}$
 - Compressor OFF Temp. \Rightarrow Setting Temp. -4°C
- While in compressor on, the indoor fan is off when the indoor pipe temp. is below 26°C , when above 28°C , it operates with the low or setting airflow speed (while in sleep mode, with the medium airflow speed).
- While in compressor off, the indoor fan is off when the indoor pipe temp is below 33°C , when above 35°C , it operates with the low airflow speed.
- If overloaded while in heating mode operation, in order to prevent the compressor from OLP operation, the outdoor fan is turned on/off according to the indoor pipe temp.
- While in defrost control, both of the indoor and outdoor fans are turned off.

■ Defrost Control

- While in heating mode operation in order to protect the evaporator pipe of outdoor unit from freezing, reversed to cooling cycle to defrost the evaporator pipe of the outdoor unit.
- Defrost control is available 30 minutes later since heating mode operation started, and it will not prolong over 6 minutes.
- Deicing starts only when the outdoor pipe temperature falls below -6°C after 30 minutes passed from starting of heating operating and more than 10 minutes operation of compressor.
- Deicing ends after 6 minutes passed from starting of deice operation or when the outdoor pipe temperature rises over 12°C even if before 6 minutes.

■ Fuzzy Operation (Outdoor unit C/O Model)

- According to the temperature set by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
 - Compressor ON Temp \Rightarrow Setting Temp $+0.5^{\circ}\text{C}$
 - Compressor OFF Temp \Rightarrow Setting Temp $+0.5^{\circ}\text{C}$
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.

$26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$
 $24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 1^{\circ}\text{C}$
 $22^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 $18^{\circ}\text{C} \leq \text{Intake Air Temp} < 22^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}$
 $\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$

- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically selected according to the temperature

■ Fuzzy Operation (Outdoor unit H/P Model)

- When any of operation mode is not selected like the moment of the power on or when 3 hrs has passed since the operation off, the operation mode is selected.
- When determining the operation mode, the compressor, the outdoor fan, and the 4 way valve are off and only the indoor fan is operated for 15 seconds. Then an operation mode is selected according to the intake air temp at that moment as follows.
 $24^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow \text{Fuzzy Operation for Cooling}$
 $21^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Fuzzy Operation for Dehumidification}$
 $\text{Intake Air Temp} < 21^{\circ}\text{C} \Rightarrow \text{Fuzzy Operation for Heating}$
- If any of the operation modes among cooling / dehumidification / heating mode operations is carried out for 10 sec or longer before Fuzzy operation, the mode before Fuzzy operation is operated.

1) Fuzzy Operation for Cooling

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
Compressor ON Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$
Compressor OFF Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
 $26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$
 $24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 1^{\circ}\text{C}$
 $22^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 $18^{\circ}\text{C} \leq \text{Intake Air Temp} < 22^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}$
 $\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically selected according to the temperature.

2) Fuzzy Operation for Dehumidification

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
Compressor ON Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$
Compressor OFF Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$

- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
 - $26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$
 - $24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 1^{\circ}\text{C}$
 - $22^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 - $18^{\circ}\text{C} \leq \text{Intake Air Temp} < 22^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}$
 - $\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan repeats the low airflow speed or pause as in dehumidification operation.

3) Fuzzy Operation for Heating

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 3°C or more above the setting temp, the compressor is turned off. When below the setting temp, the compressor is turned on.
 - Compressor ON Temp \Rightarrow Setting Temp. $+2^{\circ}\text{C}$
 - Compressor OFF Temp \Rightarrow Setting Temp. $+4^{\circ}\text{C}$
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
 - $20^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 - $\text{Intake Air Temp} < 20^{\circ}\text{C} \Rightarrow 20^{\circ}\text{C}$
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is set to the high or the medium according to the intake air temperature and the setting temperature.

■ Airflow Speed Selection

- The airflow speed of the indoor fan is set to high, medium, low, or chaos by the input of the airflow speed selection key on the remote controller.

■ On-Timer Operation

- When the set time is reached after the time is input by the remote controller, the appliance starts to operate.
- The timer LED is on when the on-timer is input. It is off when the time set by the timer is reached.
- If the appliance is operating at the time set by the timer, the operation continues.

■ Off-Timer Operation

- When the set time is reached after the time is input by the remote controller, the appliance stops operating.
- The timer LED is on when the off-timer is input. It is off when the time set by the timer is reached.
- If the appliance is on pause at the time set by the timer, the pause continues.

■ Off-Timer <=> On-Timer Operation

- When the set time is reached after the on/off time is input by the remote controller, the on/off-timer operation is carried out according to the set time.

■ Sleep Timer Operation

- When the sleep time is reached after <1,2,3,4,5,6,7,0(cancel) hr> is input by the remote controller while in appliance operation, the operation of the appliance stops.
- While the appliance is on pause, the sleep timer mode cannot be input.
- While in cooling mode operation, 30 min later since the start of the sleep timer, the setting temperature increases by 1°C. After another 30 min elapse, it increases by 1°C again.
- When the sleep timer mode is input while in cooling cycle mode, the airflow speed of the indoor fan is set to the low.
- When the sleep timer mode is input while in heating cycle mode, the airflow speed of the indoor fan is set to the medium.

■ Chaos Swing Mode

- By the Chaos Swing key input, the vane automatically operates with the Chaos Swing or they are fixed to the desired direction.

■ Chaos Natural Wind Mode

- When the Chaos Natural Wind mode is selected and then operated, the high, medium, or low speed of the airflow mode is operated for 2~15 sec randomly by the Chaos Simulation.”

■ Jet Cool Mode Operation (Outdoor unit C/O Model)

- If the Jet Cool key is input at any operation mode while in appliance operation, the Jet Cool mode operates.
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- During the JET COOL function at any moment, the A/C starts to blow the cool air with side louvers closed at extremely high speed for 30 minutes setting the room temp. automatically to 18°C.

■ Jet Cool Mode Operation (Outdoor unit H/P Model)

- While in heating mode or Fuzzy operation, the Jet Cool key cannot be input. When it is input while in the other mode operation (cooling, dehumidification, ventilation), the Jet Cool mode is operated.”
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- During the JET HEAT function at any moment, the A/C starts to blow the hot air with side louvers closed at extremely high speed for 60 minutes setting the room temp. automatically to 30°C.

■ Auto Restarting Operation

- When the power is restored after a sudden power failure while in appliance operation, the mode before the power failure is kept on the memory and the appliance automatically operates in the mode on the memory.
- Operation Mode that is kept on the memory
 - State of Operation ON/OFF

- Operation Mode/Setting Temp/Selected Airflow Speed
- Sleep Timer Mode/Remaining Time of Sleep Timer (unit of hour)

■ Forced Operation

- Operation procedures when the remote control can't be used.
- The operation will be started if the power button is pressed.
- If you want to stop operation, re-press the button.

	Cooling Model	Heat pump Model		
		Room Temp. $\geq 24^{\circ}\text{C}$	$21^{\circ}\text{C} \leq \text{Room Temp.} < 24^{\circ}\text{C}$	Room Temp. $< 21^{\circ}\text{C}$
Operating mode	Cooling	Cooling	Healthy Dehumidification	Heating
Indoor Fan Speed	High	High	High	High
Setting Temperature	22°C	22°C	23°C	24°C

- While in forced operation, the key input by the remote control has no effect and the buzzer sounds 10 times to indicate the forced operation.

■ Test operation

- During the TEST OPERATION, the unit operates in cooling mode at high speed fan, regardless of room temperature and resets in 18 ± 1 minutes.
- During test operation, if remote controller signal is received, the unit operates as remote controller sets. If you want to use this operation, Press and hold ON/OFF button 3~5 seconds, then the buzzer sound 1 "beep".
- If you want to stop the operation, re-press the button.

■ Protection of the evaporator pipe from frosting

- If the indoor pipe temp is below 0°C in 7 min. after the compressor operates without any pause while in cooling cycle operation mode, the compressor and the outdoor fan are turned off in order to protect the indoor evaporator pipe from frosting.
- When the indoor pipe temp is 7°C or higher after 3 min. pause of the compressor, the compressor and the outdoor fan is turned on according to the condition of the room temperature.

■ Buzzer Sounding Operation

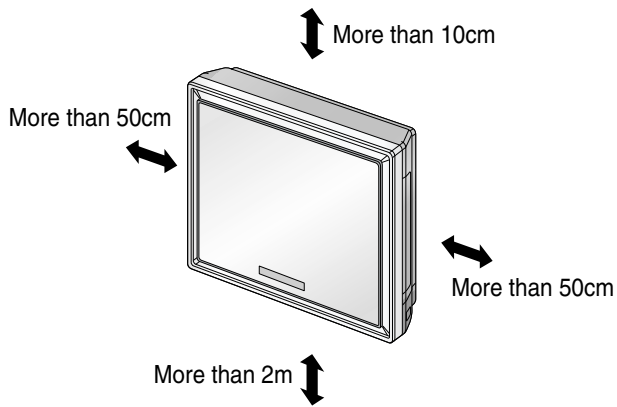
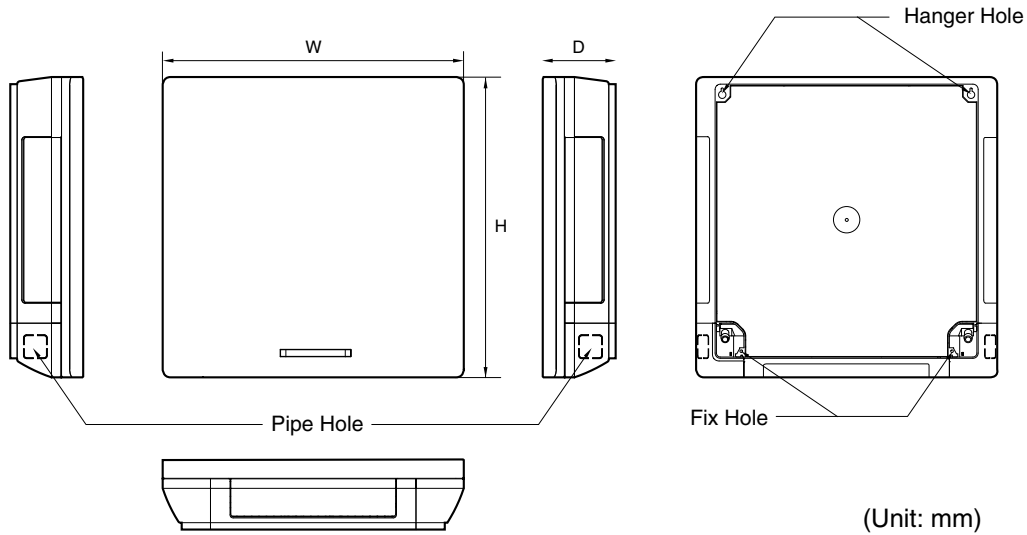
- When the appliance-operation key is input by the remote control, the short "beep-beep-" sounds.
- When the appliance-pause key is input by the remote control, the long "beep—" sounds.
- When a key is input by the remote control while the slide switch on the main unit of the appliance is on the forced operation position, the error sound "beep-beep-beep-beep-beep-" is made 10 times to indicate that the remote control signal cannot be received.

■ Air Cleaner Operation

- When an air cleaner function is selected during Air Conditioner operation
 - Plasma air cleaner function will be operated while in any operation mode with selecting the function.
 - The function is to be stopped while it is operating with selecting the function.
- When an air cleaner function is selected during operation off
 - The function will be only operated.
- When inlet grille of air conditioner is opened during plasma operation, High Voltage Generator(H.V.B) is to be stopped. When inlet grille of air conditioner is closed during plasma operation, High Voltage Generator(H.V.B) will be operated again.

4. Dimensions

ARNU07GSP*0
 ARNU09GSP*0
 ARNU12GSP*0

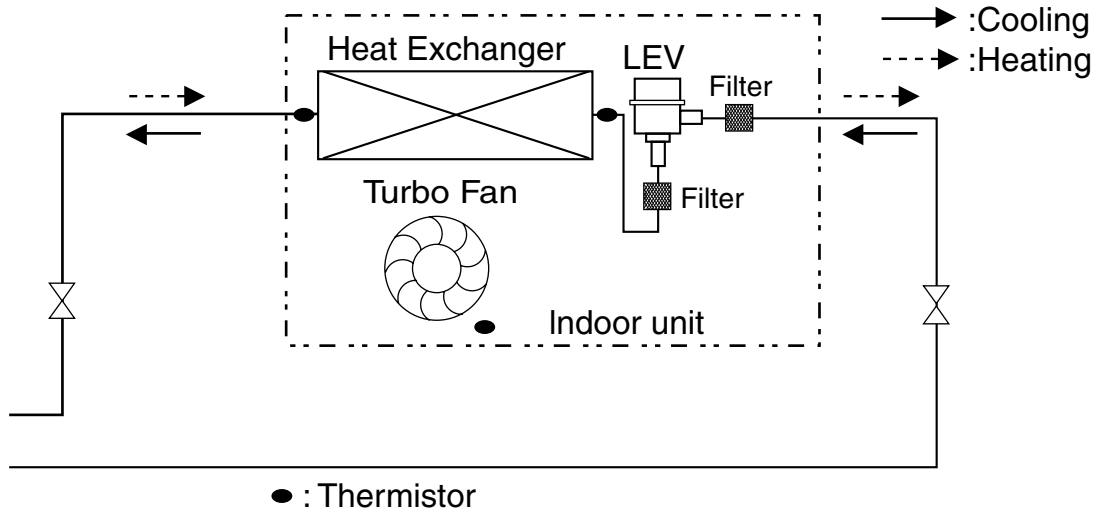


Note:
 1. Pipe Specification(mm)

Model	Liquid	Gas
9, 12k	Ø 6.35	Ø 9.52

Model	W	H	D
ARNU07GSP*0 ARNU09GSP*0 ARNU12GSP*0	570	568	137

5. Piping Diagrams



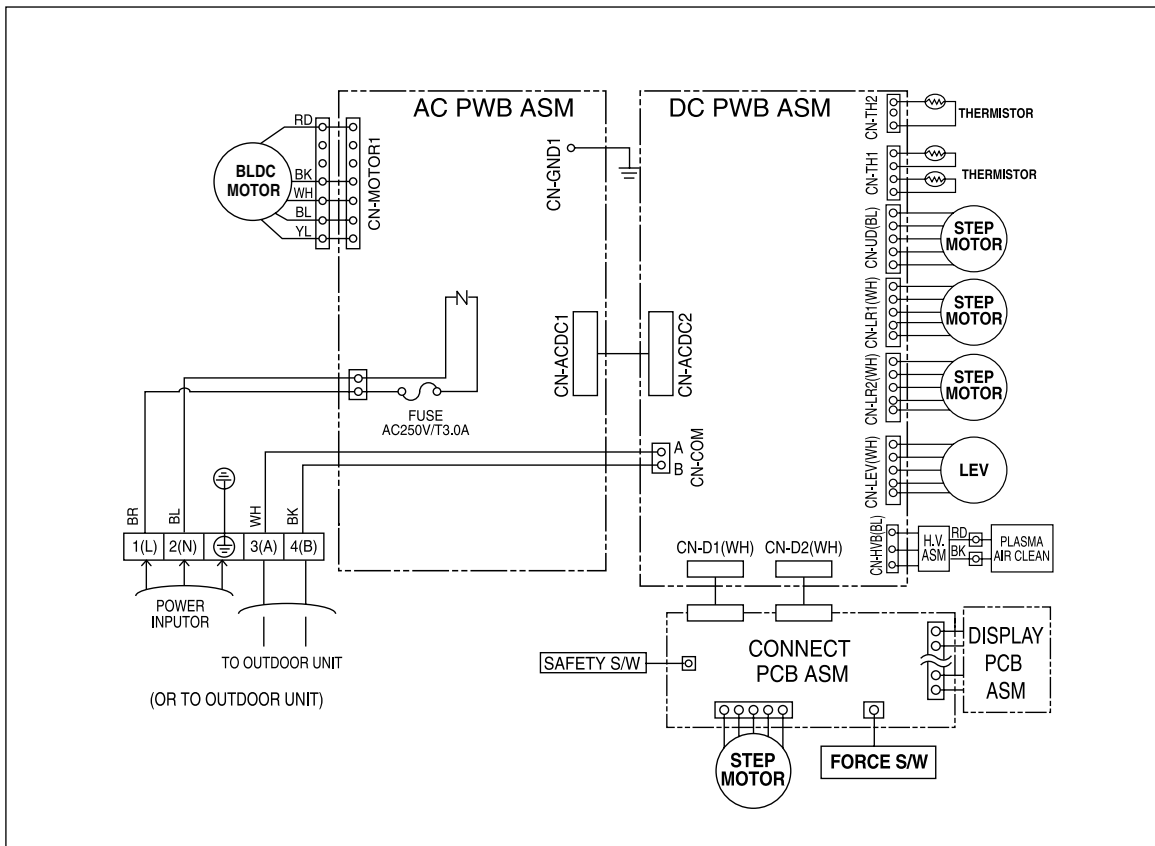
Refrigerant pipe connection port diameter

[unit: mm(inch)]

Model	Gas	Liquid
ARNU07GSP*0 ARNU09GSP*0 ARNU12GSP*0	12.7(1/2)	6.35(1/4)

*(Color): M(Metal), D(Wood), B(Blue), W(White)

6. Wiring Diagrams



CONNECTOR NUMBER	SPEC	DESCRIPTION
CN-POWER	AC POWER SUPPLY	AC POWER LINE INPUT FOR INDOOR CONTROLLER
CN-MOTOR2	FAN MOTOR OUTPUT	MOTOR OUTPUT OF BLDC
CN-COM	COMMUNICATION	COMMUNICATION BETWEEN INDOOR AND OUTDOOR
CN-LEV	LEV OUTPUT	LEV CONTROL OUTPUT
CN-D1	DISPLAY	DISPLAY OF INDOOR STATUS
CN-D2	DISPLAY	DISPLAY OF INDOOR STATUS
CN-LR1	STEP MOTOR	STEP MOTOR OUTPUT FOR LEFT/RIGHT
CN-LR2	STEP MOTOR	STEP MOTOR OUTPUT FOR LEFT/RIGHT
CN-UD	STEP MOTOR	STEP MOTOR OUTPUT
CN-TH1	ROOM/PIPE SENSOR	ROOM AND PIPE THERMISTOR
CN-TH2	DISCHARGE PIPE SENSOR	DISCHARGE PIPE THERMISTOR

Art Cool Type(Wide)

1. Specification	46
2. Installation.....	47
3. Operation Details.....	48
4. Dimensions	55
5. Piping Diagrams	56
6. Wiring Diagrams	57

1. Specification

Type			ARTCOOL Wide
Model		Unit	ARNU18GSV*0
Cooling Capacity	W		5,600
	kcal/h		4,800
	Btu/h		19,100
Heating Capacity	W		6,300
	kcal/h		5,400
	Btu/h		21,500
Dimensions (W*D*H)	Body	mm	928x147x522
		inch	36.5x5.8x20.6
Coil	Rows x Columns x FPI		2x16x20
	Face Area	m ²	0.24
Fan	Type		Turbo Fan
	Motor Output x Number	W	80
	Running Current	A	0.60
	Air Flow Rate(H/M/L)	cmm	13.5/11.4 /10.4
		cfm	477/403/367.5
	Drive	Direct	
Motor type	BLDC		
Temperature Control			Microprocessor, Thermostat for cooling and heating
Sound Absorbing Thermal Insulation Material			Foamed polystyrene
Air Filter			Resin
Safety Device			Net(washable)
Pipe Connections	Liquid Side	mm(inch)	Ø6.35(1/4)
	Gas Side	mm(inch)	Ø12.7(1/2)
	Drain Pipe(Internal Dia.)	mm	12.2
Net Weight		kg(lbs)	15(33)
Noise Level(Sound Press, 1m, H/M/L)		dBA±3	44/39/34
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50 1, 220, 60
Refrigerant Control			LEV
Power cable		mm ²	CV2.0 X 3C
Transmission cable		mm ²	CVV-SB 1.25 X 2C
Front Panel(** Position)			M: Metal, D: White, B: Blue, W: White

Notes:-

1. Capacities are based on the following conditions:

- Cooling
- Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
- Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.: Linear Expansion Valve

5. To be added for more available Models

Conversion Formula

kcal/h= kW x 860
Btu/h = kW x 3412
cfm = m³/min x 35.3

2. Functions

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (THERMISTOR)

Room temperature control

- Maintains the room temperature in accordance with the Setting Temp.

Starting Current Control

- Indoor fan is delayed for 5 sec at the starting.

Time Delay Safety Control

- Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

- High, Med, Low, CHAOS

Operation indication Lamps (LED)

Signal Receptor

Receives the signals from the remote control.(Signal receiving sound: two short beeps or one long beep.)

Operation Indication Lamps

- ⓘ On/Off : Lights up during the system operation.
- ☆ Sleep Mode : Lights up during Sleep Mode Auto operation.
- ⌚ Timer : Lights up during Timer operation.
- * Defrost Mode : Lights up during Defrost Mode or Hot Start operation.

Soft Dry Operation Mode

- Intermittent operation of fan at low speed.

Sleep Mode Auto Control

- The fan is switched to low(Cooling), med(Heating) speed.
- The unit will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.

Natural Air Control by CHAOS Logic

- The fan is switched to intermittent or irregular operation
- The fan speed is automatically switched from high to low speed.

Airflow Direction Control

- The louver can be set at the desired position or swing up and down automatically.

Defrost(Deice) control (Heating)

- Both the indoor and outdoor fan stops during defrosting.

Hot-start Control (Heating)

- The indoor fan does not rotate until the evaporator pipe temperature will be reached at 28°C.

3. Operation Details

Function of Controls

DISPLAY

1) High quality LCD remote controller supplied

Operation Indicator

- On while in appliance operation, off while in appliance pause

Timer Indicator

- On while in timer mode (on/off) and in sleep timer mode, off when timer mode is completed or canceled

Defrost Indicator

- Off except when hot start during heating mode operation or while in defrost control.

Plasma Indicator

- On while in plasma mode, off while plasma mode is canceled.

Auto restart Indicator

- On while auto restart mode, off while auto restart mode is canceled.

Auto restart

- In case the power comes on again after a power failure, Auto Restarting Operation is the function to operate procedures automatically to the previous operating conditions.
If you want to use this operation, press the Auto Restart Button.

Power(Forced Operation)

- Operation starts, when this button is pressed and stops when you press the button again.

■ Cooling Mode Operation

- When the intake air temperature reaches 0.5°C below the setting temp, the compressor and the outdoor fan stop.
- When it reaches 0.5°C above the setting temp, they start to operate again.

Compressor ON Temp=> Setting Temp+0.5°C

Compressor OFF Temp => Setting Temp-0.5°C

- While in compressor running, operating with the airflow speed set by the remote controller. While in compressor not running, operating with the low airflow speed regardless of the setting.

■ Healthy Dehumidification Mode

- When the dehumidification operation input by the remote controller is received, the intake air temperature is detected and the setting temp is automatically set according to the intake air temperature.

$26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$

$24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}-1^{\circ}\text{C}$

$18^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}-0.5^{\circ}\text{C}$

$\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$

- While in compressor off, the indoor fan repeats low airflow speed and pause.
- While the intake air temp is between compressor on temp. and compressor off temp., 10-min dehumidification operation and 4-min compressor off repeat
Compressor ON Temp. \Rightarrow Setting Temp+0.5°C
Compressor OFF Temp. \Rightarrow Setting Temp-0.5°C
- In 10-min dehumidification operation, the indoor fan operates with the low airflow speed.

■ Heating Mode Operation

- When the intake air temp reaches +3°C above the setting temp, the compressor is turned off. When below the setting temp, the compressor is turned on.
Compressor ON Temp. \Rightarrow Setting Temp. +2°C
Compressor OFF Temp. \Rightarrow Setting Temp.+4°C
- While in compressor on, the indoor fan is off when the indoor pipe temp. is below 26°C, when above 28°C, it operates with the low or setting airflow speed (while in sleep mode, with the medium airflow speed).
- While in compressor off, the indoor fan is off when the indoor pipe temp is below 33°C, when above 35°C, it operates with the low airflow speed.
- If overloaded while in heating mode operation, in order to prevent the compressor from OLP operation, the outdoor fan is turned on/off according to the indoor pipe temp.
- While in defrost control, both of the indoor and outdoor fans are turned off.

■ Defrost Control

- While in heating mode operation in order to protect the evaporator pipe of outdoor unit from freezing, reversed to cooling cycle to defrost the evaporator pipe of the outdoor unit.
- Defrost control is available 30 minutes later since heating mode operation started, and it will not prolong over 6 minutes.
- Deicing starts only when the outdoor pipe temperature falls below -6°C after 30 minutes passed from starting of heating operating and more than 10 minutes operation of compressor.
- Deicing ends after 6 minutes passed from starting of deice operation or when the outdoor pipe temperature rises over 12°C even if before 6 minutes.

■ Fuzzy Operation (Outdoor unit C/O Model)

- According to the temperature set by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
Compressor ON Temp \Rightarrow Setting Temp+0.5°C
Compressor OFF Temp \Rightarrow Setting Temp+0.5°C
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.

Operation Details

$26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$
 $24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 1^{\circ}\text{C}$
 $22^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 $18^{\circ}\text{C} \leq \text{Intake Air Temp} < 22^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}$
 $\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$

- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically selected according to the temperature

■ Fuzzy Operation (Outdoor unit H/P Model)

- When any of operation mode is not selected like the moment of the power on or when 3 hrs has passed since the operation off, the operation mode is selected.
- When determining the operation mode, the compressor, the outdoor fan, and the 4 way valve are off and only the indoor fan is operated for 15 seconds. Then an operation mode is selected according to the intake air temp at that moment as follows.
 $24^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow \text{Fuzzy Operation for Cooling}$
 $21^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Fuzzy Operation for Dehumidification}$
 $\text{Intake Air Temp} < 21^{\circ}\text{C} \Rightarrow \text{Fuzzy Operation for Heating}$
- If any of the operation modes among cooling / dehumidification / heating mode operations is carried out for 10 sec or longer before Fuzzy operation, the mode before Fuzzy operation is operated.

1) Fuzzy Operation for Cooling

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
Compressor ON Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$
Compressor OFF Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
 $26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$
 $24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 1^{\circ}\text{C}$
 $22^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 $18^{\circ}\text{C} \leq \text{Intake Air Temp} < 22^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}$
 $\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically selected according to the temperature.

2) Fuzzy Operation for Dehumidification

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.
Compressor ON Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$
Compressor OFF Temp $\Rightarrow \text{Setting Temp} + 0.5^{\circ}\text{C}$

- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
 - $26^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow 25^{\circ}\text{C}$
 - $24^{\circ}\text{C} \leq \text{Intake Air Temp} < 26^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 1^{\circ}\text{C}$
 - $22^{\circ}\text{C} \leq \text{Intake Air Temp} < 24^{\circ}\text{C} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 - $18^{\circ}\text{C} \leq \text{Intake Air Temp} < 22^{\circ}\text{C} \Rightarrow \text{Intake Air Temp}$
 - $\text{Intake Air Temp} < 18^{\circ}\text{C} \Rightarrow 18^{\circ}\text{C}$
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan repeats the low airflow speed or pause as in dehumidification operation.

3) Fuzzy Operation for Heating

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 3°C or more above the setting temp, the compressor is turned off. When below the setting temp, the compressor is turned on.
 - Compressor ON Temp \Rightarrow Setting Temp + 2°C
 - Compressor OFF Temp \Rightarrow Setting Temp + 4°C
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.
 - $20^{\circ}\text{C} \leq \text{Intake Air Temp} \Rightarrow \text{Intake Air Temp} + 0.5^{\circ}\text{C}$
 - $\text{Intake Air Temp} < 20^{\circ}\text{C} \Rightarrow 20^{\circ}\text{C}$
- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is set to the high or the medium according to the intake air temperature and the setting temperature.

■ Airflow Speed Selection

- The airflow speed of the indoor fan is set to high, medium, low, or chaos by the input of the airflow speed selection key on the remote controller.

■ On-Timer Operation

- When the set time is reached after the time is input by the remote controller, the appliance starts to operate.
- The timer LED is on when the on-timer is input. It is off when the time set by the timer is reached.
- If the appliance is operating at the time set by the timer, the operation continues.

■ Off-Timer Operation

- When the set time is reached after the time is input by the remote controller, the appliance stops operating.
- The timer LED is on when the off-timer is input. It is off when the time set by the timer is reached.
- If the appliance is on pause at the time set by the timer, the pause continues.

■ Off-Timer <=> On-Timer Operation

- When the set time is reached after the on/off time is input by the remote controller, the on/off-timer operation is carried out according to the set time.

■ Sleep Timer Operation

- When the sleep time is reached after <1,2,3,4,5,6,7,0(cancel) hr> is input by the remote controller while in appliance operation, the operation of the appliance stops.
- While the appliance is on pause, the sleep timer mode cannot be input.
- While in cooling mode operation, 30 min later since the start of the sleep timer, the setting temperature increases by 1°C. After another 30 min elapse, it increases by 1°C again.
- When the sleep timer mode is input while in cooling cycle mode, the airflow speed of the indoor fan is set to the low.
- When the sleep timer mode is input while in heating cycle mode, the airflow speed of the indoor fan is set to the medium.

■ Chaos Swing Mode

- By the Chaos Swing key input, the vane automatically operates with the Chaos Swing or they are fixed to the desired direction.

■ Chaos Natural Wind Mode

- When the Chaos Natural Wind mode is selected and then operated, the high, medium, or low speed of the airflow mode is operated for 2~15 sec randomly by the Chaos Simulation.”

■ Jet Cool Mode Operation (Outdoor unit C/O Model)

- If the Jet Cool key is input at any operation mode while in appliance operation, the Jet Cool mode operates.
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- When the Jet Cool key is input, the upper/lower vanes are reset to those of the initial cooling mode and then operated in order that the air outflow could reach further.

■ Jet Cool Mode Operation (Outdoor unit H/P Model)

- While in heating mode or Fuzzy operation, the Jet Cool key cannot be input. When it is input while in the other mode operation (cooling, dehumidification, ventilation), the Jet Cool mode is operated.”
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- When the Jet Cool key is input, the upper/lower vanes are reset to those of the initial cooling mode and then operated in order that the air outflow could reach further.

■ Auto Restarting Operation

- When the power is restored after a sudden power failure while in appliance operation, the mode before the power failure is kept on the memory and the appliance automatically operates in the mode on the memory.
- Operation Mode that is kept on the memory

- State of Operation ON/OFF
- Operation Mode/Setting Temp/Selected Airflow Speed
- Sleep Timer Mode/Remaining Time of Sleep Timer (unit of hour)

■ Forced Operation (Outdoor unit C/O Model)

- To operate the appliance by force in case that the remote controller is lost, the forced operation button is on the main unit of the appliance to operate the appliance in the standard conditions.
- Press the forced operation button, the forced operation is carried out.
- Press the forced operation button once again to stop operation.
- The forced operation is carried out in cooling mode with the setting temperature 22°C and the high speed of airflow.

■ Forced Operation (Outdoor unit H/P Model)

- To operate the appliance by force in case that the remote controller is lost, the forced operation selection switch is on the main unit of the appliance to operate the appliance in the standard conditions.
- Press the forced operation button, the forced operation is carried out.
- Press the forced operation button once again to stop operation.
- In the forced operation mode, the indoor fan is operated at low speed for around 15 sec and then the operation condition is set according to the intake air temperature as follows.
 - 24°C ≤ Intake Air Temp => Cooling Mode Operation, 22°C, High Speed
 - 21°C ≤ Intake Air Temp < 24°C => Dehumidification Operation, 23°C, High Speed
 - Intake Air Temp < 21°C => Heating Mode Operation, 24°C, High Speed

■ Test Operation Control

- To check the condition of the installation when installing the appliance, the appliance is operated at cooling mode, high speed of airflow, compressor-on for 18 min without controlling the room temperature.
- After supplying power to the main body, keep pressing the forced operation button for about 3 seconds.
- While in test operation, a key can be input by the remote controller.
When a key (operation start/stop, operation mode selection, airflow speed selection, temperature control, Jet Cool) is input by the remote controller, the test operation is canceled and the appliance is operated according to the setting by the remote controller.

■ Protection of the evaporator pipe from frosting

- In the temperature of the indoor pipe is below 0°C after 7 minutes from starting the compressor, the compressor and outdoor fan are stopped, and 3 minutes delay of operating of the compressor, when the temperature of the indoor pipe is over 7°C, the compressor and the outdoor fan are reoperated.
- Outdoor fan motor stops when indoor pipe temperature is below 3°C and restarts at the pipe temperature above 6°C or after 90 seconds, if the pipe temperature does not rise to 6°C, outdoor fan motor runs continuously at even below 3°C.

■ Buzzer Sounding Operation

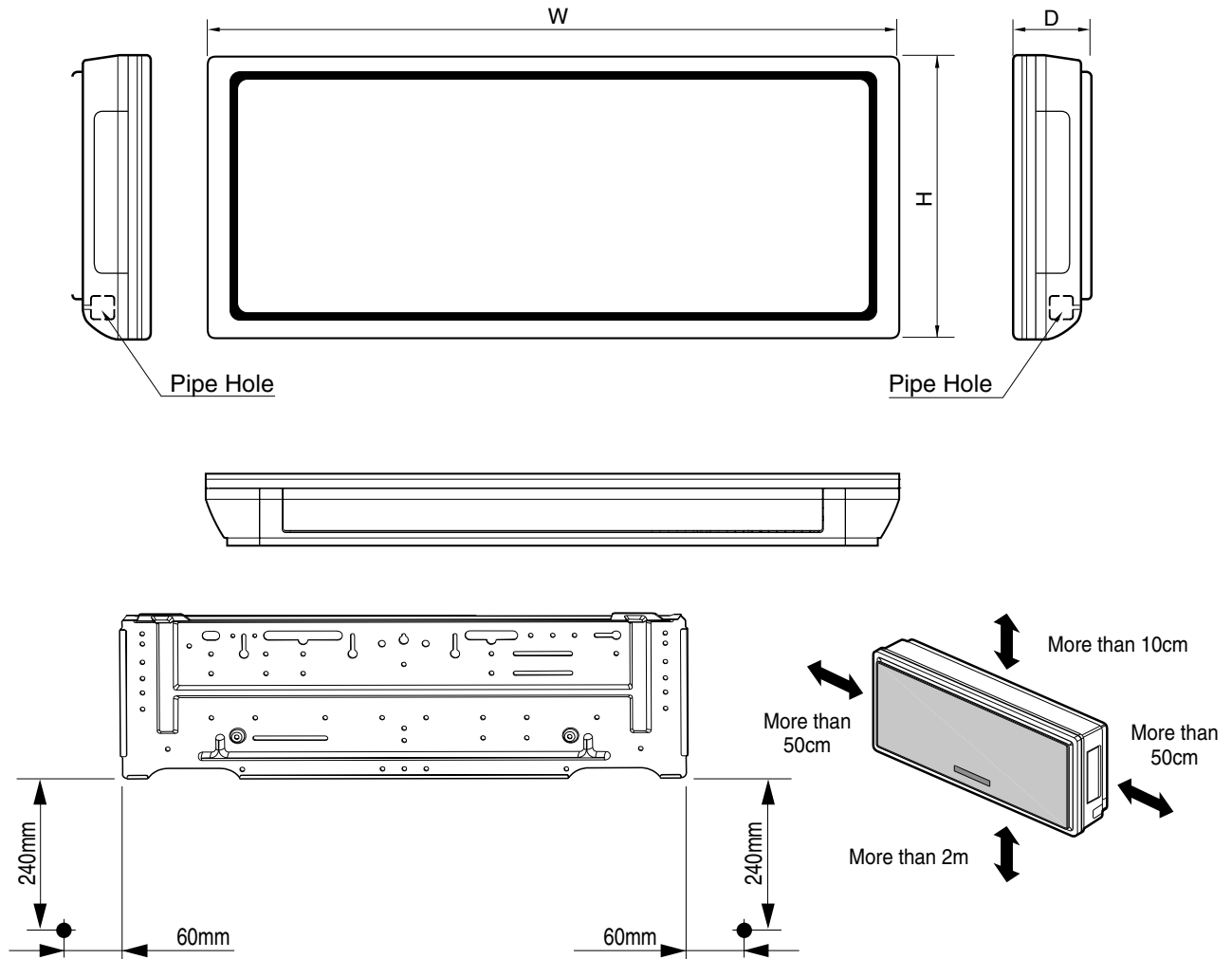
- When the appliance-operation key is input by the remote controller, the short “beep-beep-” sounds.
- When the appliance-pause key is input by the remote controller, the long “beep—” sounds.

■ Air Cleaner Operation

- When an air cleaner function is selected during Air Conditioner operation
 - Plasma air cleaner function will be operated while in any operation mode with selecting the function.
 - The function is to be stopped while it is operating with selecting the function.
- When an air cleaner function is selected during operation off
 - The function will be only operated.
- When inlet grille of air conditioner is opened during plasma operation, High Voltage Generator(H.V.B) is to be stopped. When inlet grille of air conditioner is closed during plasma operation, High Voltage Generator(H.V.B) will be operated again.

4. Dimensions

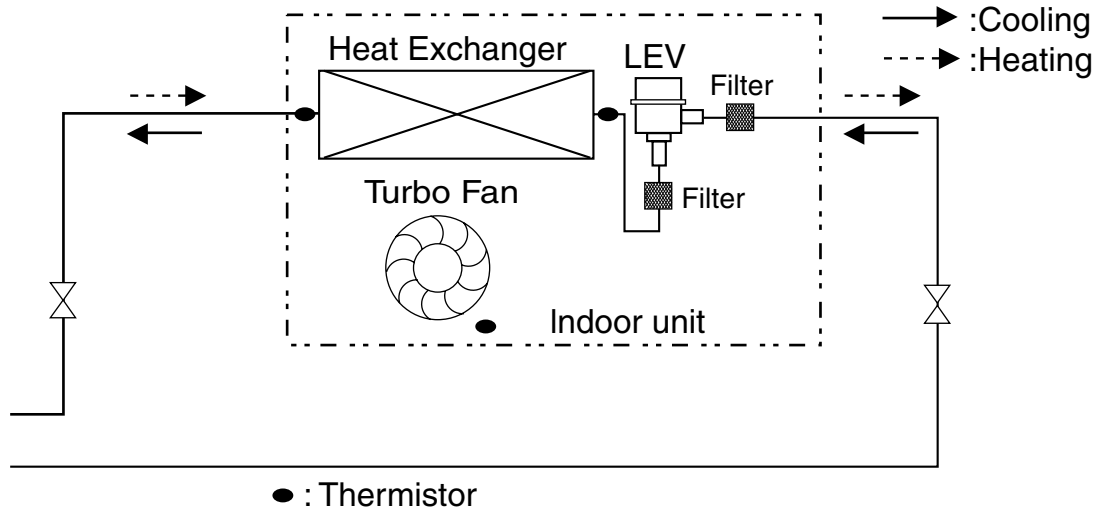
ARNU18GSV*0



(Unit: mm)

Model	W	H	D
ARNU18GSV*0	928	522	147

5. Piping Diagrams



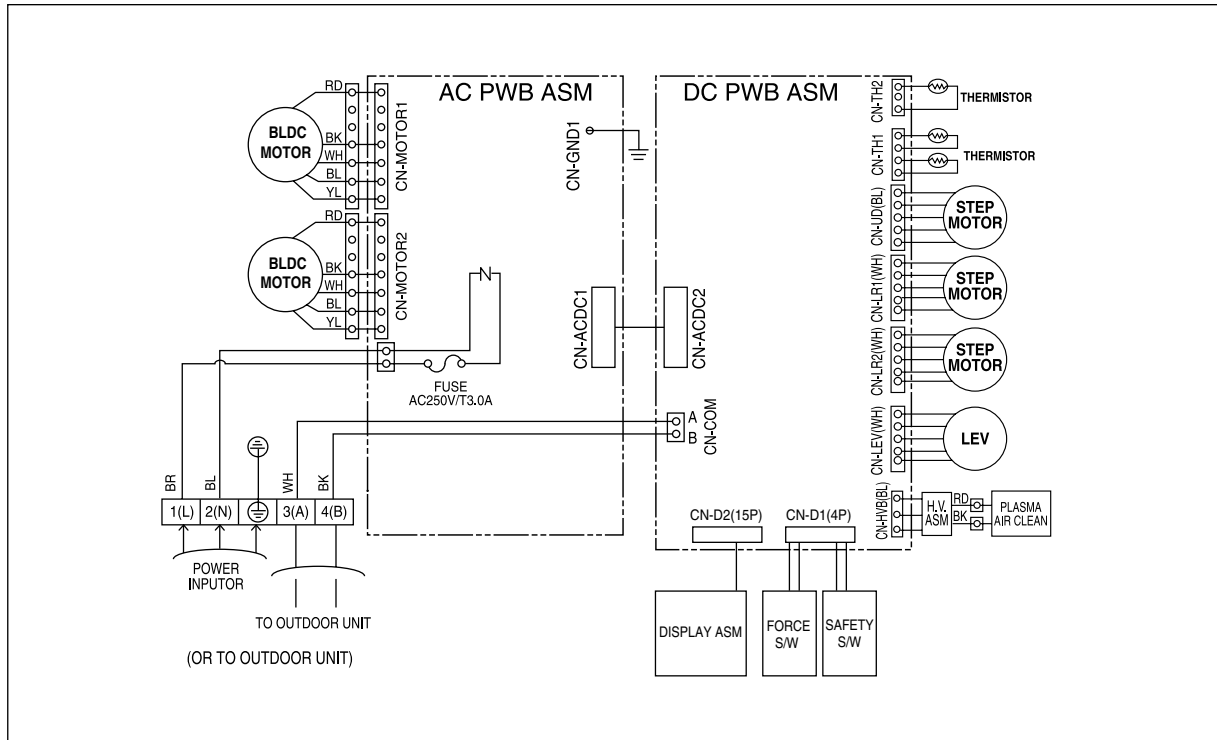
Refrigerant pipe connection port diameter

[unit: mm(inch)]

Model	Gas	Liquid
ARNU18GSV*0	Ø12.7(1/2)	Ø6.35(1/4)

*(Color): M(Metal), D(Wood), B(Blue), W(White)

6. Wiring Diagrams



CONNECTOR NUMBER	SPEC	DESCRIPTION
CN-POWER	AC POWER SUPPLY	AC POWER LINE INPUT FOR INDOOR CONTROLLER
CN-MOTOR2	FAN MOTOR OUTPUT	MOTOR OUTPUT OF BLDC
CN-COM	COMMUNICATION	COMMUNICATION BETWEEN INDOOR AND OUTDOOR
CN-LEV	LEV OUTPUT	LEV CONTROL OUTPUT
CN-D1	DISPLAY	DISPLAY OF INDOOR STATUS
CN-D2	DISPLAY	DISPLAY OF INDOOR STATUS
CN-LR1	STEP MOTOR	STEP MOTOR OUTPUT FOR LEFT/RIGHT
CN-LR2	STEP MOTOR	STEP MOTOR OUTPUT FOR LEFT/RIGHT
CN-UD	STEP MOTOR	STEP MOTOR OUTPUT
CN-TH1	ROOM/PIPE SENSOR	ROOM AND PIPE THERMISTOR
CN-TH2	DISCHARGE PIPE SENSOR	DISCHARGE PIPE THERMISTOR
CN-MOTOR1	AC FAN MOTOR OUTPUT	MOTOR OUTPUT OF PHASE CONTROL

Ceiling Concealed Duct Type (Low static)

1. Specifications	59
2. Funtion	61
3. Operation Details.....	62
4. Dimensions	65
5. Piping Diagrams	66
6. Wiring Diagrams	67

1. Specification

Type			Ceiling Concealed Duct (Low Static)(Preliminary)			
Model		Unit	ARNU07GB1G0	ARNU09GB1G0	ARNU12GB1G0	
Cooling Capacity		W	2,200	2,800	3,600	
		kcal/h	1,900	2,400	3,100	
		Btu/h	7,500	9,600	12,300	
Heating Capacity		W	2,500	3,200	4,000	
		kcal/h	2,200	2,800	3,400	
		Btu/h	8,500	10,900	13,600	
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions (W*D*H)	Body	mm	820 x 575 x 190	820 x 575 x 190	820 x 575 x 190	
		inch	32.3 x 21.7 x 7.5	32.3 x 21.7 x 7.5	32.3 x 21.7 x 7.5	
Coil	Rows x Columns x FPI		2x12x19	2x12x19	2x12x19	
	Face Area	m ²	0.16	0.16	0.16	
Fan	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan	
	Motor Output x Number	W	30	30	30	
	Running Current	A	1 0.1	0.1	0.1	
	Air Flow Rate(H/M/L)	cmm		8.5/7.5/6.5	9.5/8.5/7.5	10.5/9.5/8.5
		cfm		300.2 / 264.9 / 229.6	335.5 / 300.2 / 264.9	370.9 / 335.5 / 300.2
	External Static Pressure	Pa		19.6	19.6	19.6
	Drive			Direct	Direct	Direct
Motor type			BLDC	BLDC	BLDC	
Temperature Control			Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	
Sound Absorbing Thermal Insulation Material			Foamed polystyrene	Foamed polystyrene	Foamed polystyrene	
Air Filter			-	-	-	
Safety Device			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	
Pipe Connections	Liquid Side	mm(inch)	Ø6.35(1/4)	Ø6.35(1/4)	Ø6.35(1/4)	
	Gas Side	mm(inch)	Ø12.7(1/2)	Ø12.7(1/2)	Ø12.7(1/2)	
	Drain Pipe(Outer Dia.)	mm	25.4	25.4	25.4	
Net Weight		kg(lbs)	17(37.5)	17(37.5)	17(37.5)	
Noise Level(Sound Press, 1m, H/M/L)		dBA±3	35/33/31	36/34/32	37/35/33	
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50	1, 220 ~ 240, 50	1, 220 ~ 240, 50	
			1, 220, 60	1, 220, 60	1, 220, 60	
Refrigerant Control			LEV	LEV	LEV	
Power cable		mm ²	CV2.0 X 3C	CV2.0 X 3C	CV2.0 X 3C	
Transmission cable		mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	

Notes:-

1. Capacities are based on the following conditions:

- Cooling
- Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
- Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.: Linear Expansion Valve

5. To be added for more available Models

Specification

Type			Ceiling Concealed Duct (Low Static)(Preliminary)	
Model		Unit	ARNU18GB2G0	ARNU24GB2G0
Cooling Capacity	W		5,600	7,000
	kcal/h		4,800	6,100
	Btu/h		19,100	24,200
Heating Capacity	W		6,300	8,000
	kcal/h		5,400	6,900
	Btu/h		21,500	27,300
Casing			Galvanized Steel Plate	Galvanized Steel Plate
Dimensions (W*D*H)	Body	mm	1100 x 575 x 190	1100 x 575 x 190
		inch	43.3 x 21.7 x 7.5	43.3 x 21.7 x 7.5
Coil	Rows x Columns x FPI		2x12x19	2x12x19
	Face Area	m ²	0.23	0.23
Fan	Type		Sirocco Fan	Sirocco Fan
	Motor Output x Number	W	80	80
	Running Current	A	0.24	0.24
	Air Flow Rate(H/M/L)	cmm	16 / 14 / 12	19 / 17 / 15
		cfm	565 / 494.4 / 423.8	671 / 600.4 / 529.8
	External Static Pressure	Pa	19.6	19.6
	Drive		Direct	Direct
Motor type		BLDC	BLDC	
Temperature Control			Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating
Sound Absorbing Thermal Insulation Material			Foamed polystrene	Foamed polystrene
Air Filter			-	-
Safety Device			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Pipe Connections	Liquid Side	mm(inch)	Ø6.35(1/4)	Ø9.52(3/8)
	Gas Side	mm(inch)	Ø12.7(1/2)	Ø15.88(5/8)
	Drain Pipe(Outer Dia.)	mm	25.4	25.4
Net Weight		kg(lbs)	21(46.3)	21(46.3)
Noise Level(Sound Press, 1m, H/M/L)		dBA±3	40/37/34	43/40/37
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60
Refrigerant Control			LEV	LEV
Power cable		mm ²	CV2.0 X 3C	CV2.0 X 3C
Transmission cable		mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C

Notes:-

1. Capacities are based on the following conditions:

- Cooling
- Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
- Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.: Linear Expansion Valve

5. To be added for more available Models

Conversion Formula

kcal/h= kW x 860
Btu/h = kW x 3412
cfm = m³/min x 35.3

2. Function

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (Thermistor)

Room temperature control

- Maintains the room temperature in accordance with the Setting Temperature.

Starting Current Control

- Indoor fan is delayed for 5 seconds at the starting.

Time Delay Safety Control

- Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

- High, Med, Low

Soft Dry Operation Mode

- Intermittent operation of fan at low speed.

Auto Restart

- Although the air-conditioner is turned off by a power failure, it is restarted automatically previous operation mode after power supply.

Deice (defrost) control (Heating)

- Both the indoor and outdoor fan stops during defrosting.
- Hot start after defrost ends.

Hot-start Control (Heating)

- The indoor fan does not rotate until the evaporator piping temperature reaches 25°C.

High head height Drain pump

- A standard drain-head height of up to 700mm is possible.

Central Control(Optional)

- It is operating individually or totally by central control function.

3. Operation Details

(1) The function of main control

■ Time Delay safety Control

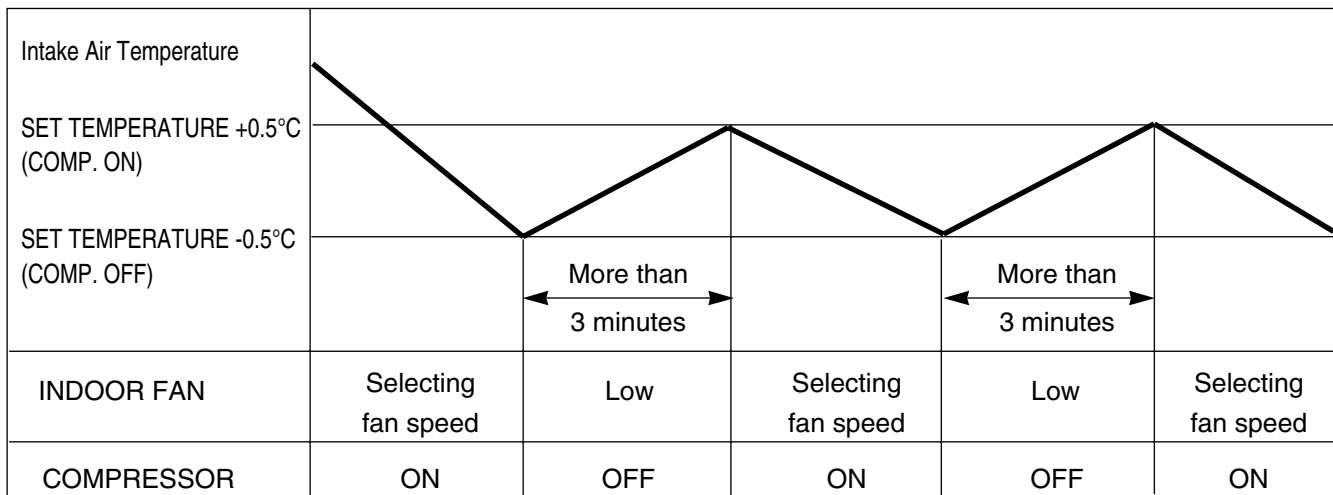
- 30sec... The 4-way valve is ceased for 30sec. to prevent the refrigerant-gas abnormal noise when the Heating operation is OFF or switched to the other operation mode while compress is off.
While compressor is running, it takes 3~5 seconds to switch to another mode.

■ Soft-Dry Operation

- The indoor fan speed is automatically set to the low, so the shift of the indoor fan speed is impossible because of already being set to the best speed for Dry Operation by microcontroller control.

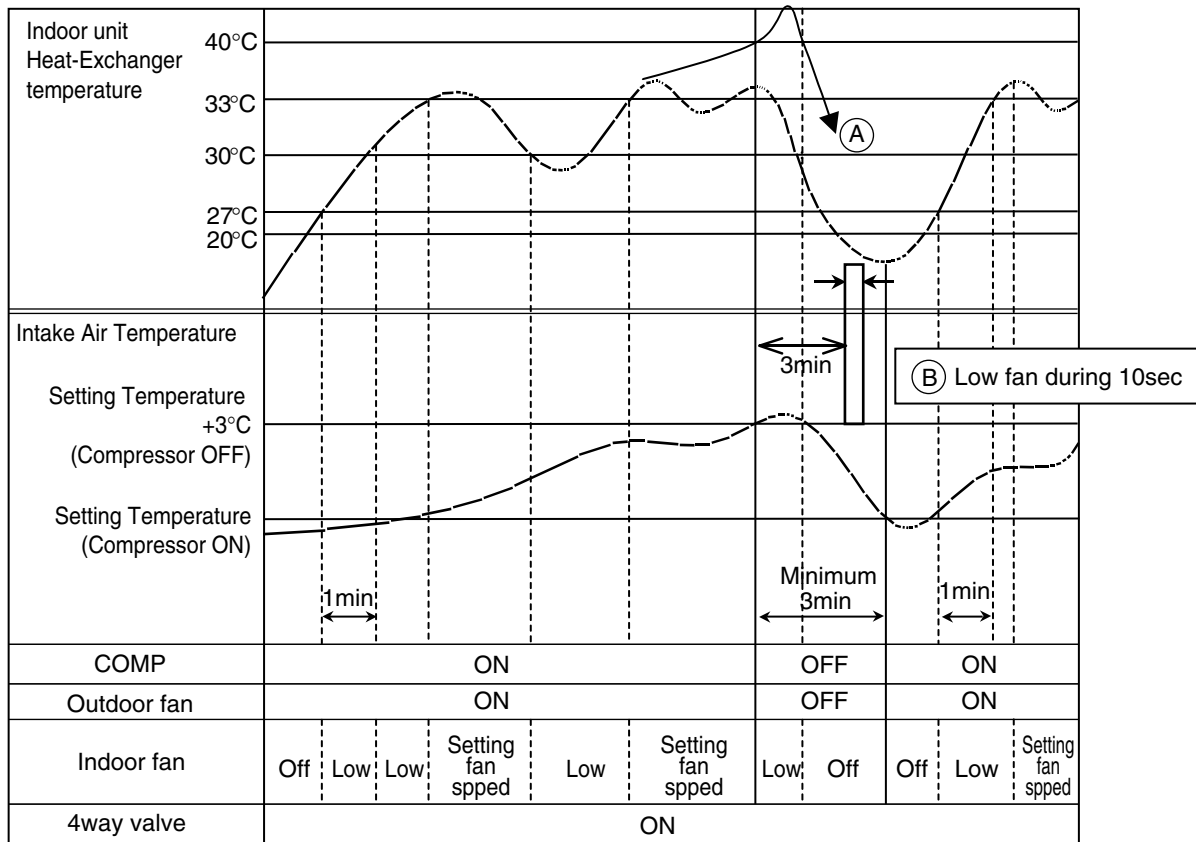
■ Cooling Mode Operation

- When selecting the Cooling(※) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following.



■ Heating Mode Operation

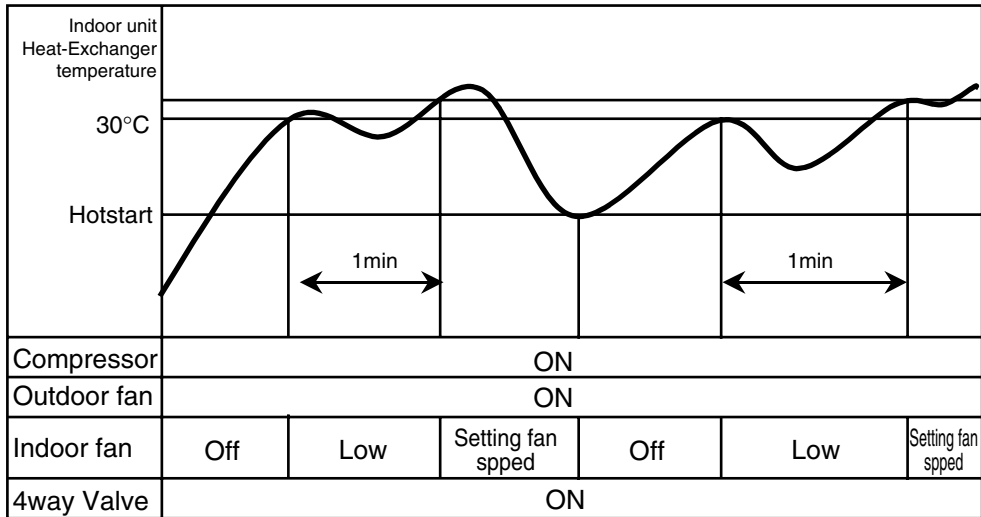
The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



- **Compressor-off interval :** - (A) While the indoor Heat-Exchanger temperature is higher than 40°C, fan operates at low speed, when it becomes lower than 40°C fan stops.
- (B) For eliminating latent heat-loss, fan operates at low speed for 10 seconds periodically.

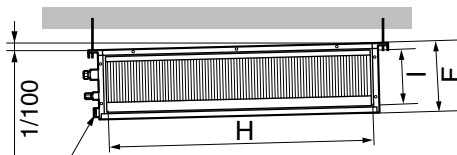
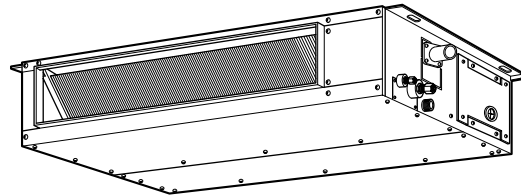
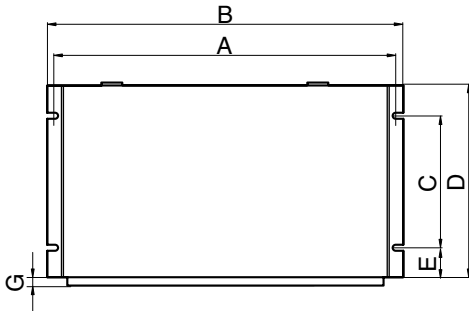
■ Hot-Start Control

- The indoor fan does not rotate until the indoor unit Hex-Exchanger temperature reaches 30°C.
- The operation diagram is as following.



4. Dimensional Drawings

ARNU07GB1G(A)0 / ARNU09GB1G(A)0 / ARNU12GB1G(A)0
 ARNU18GB2G(A)0 / ARNU24GB2G(A)0

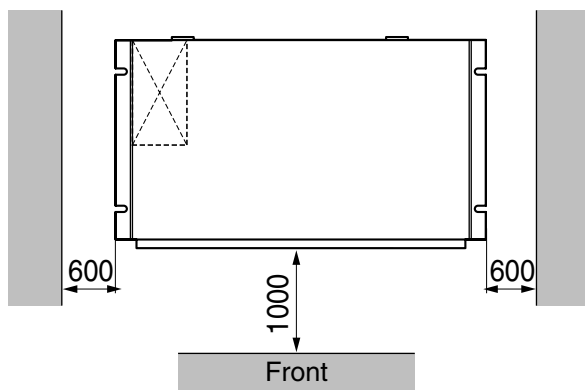


Drainage hole

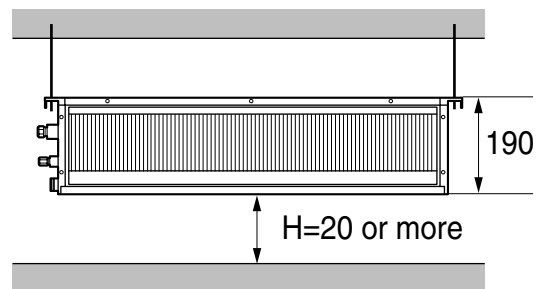
Dimension Capacity	A	B	C	D	E	F	G	H	I
7/9/12k BTU/h	850	900	383	570	93.5	190	20.6	795	163
18/24k BTU/h	1130	1180	383	570	93.5	190	20.6	1065	163

(unit: mm)

Top view
(unit: mm)

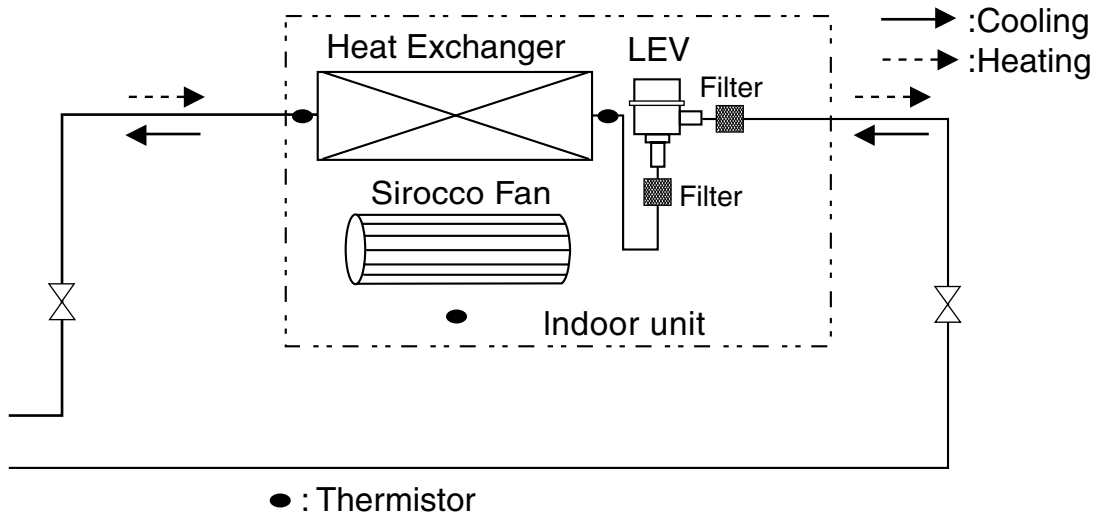


Front view



* Suitable dimension "H" is necessary to get a slope to drain as figure

5. Piping Diagrams

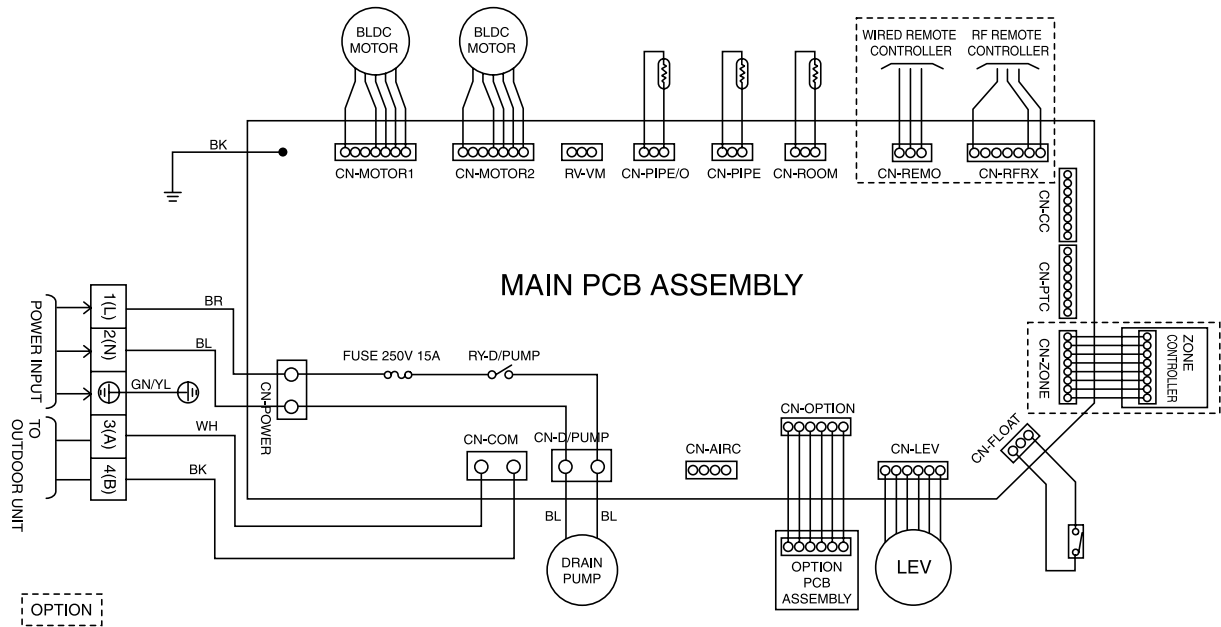


Refrigerant pipe connection port diameter

[unit: mm(inch)]

MODEL	GAS	LIQUID
ARNU07GB1G(A)0 / ARNU09GB1G(A)0 ARNU12GB1G(A)0 / ARNU18GB2G(A)0 / ARNU24GB2G(A)0	Ø12.7(1/2)	Ø6.35(1/4)
	Ø15.88(5/8)	Ø9.52(3/8)

6. Wiring Diagrams



CONNECTOR NUMBER	SPEC.	COLOR	DESCRIPTION
CN-MOTOR1	AC FAN MOTOR OUTPUT	WHITE	MOTOR OUTPUT OF PHASE CONTROL
CN-MOTOR2	AC FAN MOTOR OUTPUT	WHITE	MOTOR OUTPUT OF PHASE CONTROL
CN-PIPE/O	DISCHARGE PIPE THERMISTOR	RED	DISCHARGE PIPE THERMISTOR
CN-PIPE	PIPE SENSOR	WHITE	PIPE THERMISTOR
CN-ROOM	ROOM SENSOR	YELLOW	ROOM THERMISTOR
CN-REMO	REMOTE CONTROLLER	WHITE	REMOTE CONTROL LINE
CN-FLOAT	FLOAT SWITCH INPUT	BLUE	FLOAT SWITCH SENSING
CN-LEV	LEV OUTPUT	WHITE	LEV CONTROL OUTPUT
CN-D/PUMP	DRAIN PUMP OUTPUT	WHITE	AC OUTPUT FOR DRAIN PUMP
CN-OPTION	OPTION PWB.	WHITE	COMMUNICATION BETWEEN MAIN AND OPTION
CN-COM	COMMUNICATION	WHITE	COMMUNICATION BETWEEN INDOOR AND OUTDOOR
CN-D/PUMP	DRAIN PUMP OUTPUT	WHITE	AC OUTPUT FOR DRAIN PUMP
CN-POWER	AC POWER SUPPLY	WHITE	AC POWER LINE INPUT FOR INDOOR CONTROLLER

Ceiling Concealed Duct Type (High Static)

1. Specifications	69
2. Funtion	71
3. Operation Details.....	72
4. Dimensions	75
5. Piping Diagrams	76
6. Wiring Diagrams	77

1. Specification

Type			Ceiling Concealed Duct(High Static)(Preliminary)		
Model		Unit	ARNU18GBHA0	ARNU24GBHA0	ARNU28GBGA0
Cooling Capacity	W		5,600	7,100	8,200
	kcal/h		4,800	6,100	7,100
	Btu/h		19,100	24,200	28,000
Heating Capacity	W		6,300	8,000	9,200
	kcal/h		5,400	6,900	8,000
	Btu/h		21,500	27,300	31,500
Casing			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions (W*D*H)	Body	mm	882x450x260	882x450x260	1182x450x298
		inch	34.7x17.7x10.2	34.7x17.7x10.2	46.5x17.7x10.2
Coil	Rows x Columns x FPI		2x10x21	3x10x21	3x12x21
	Face Area	m ²	0.15	0.15	0.26
Fan	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output x Number	W	118	118	390
	Running Current	A	0.92	0.92	2.30
	Air Flow Rate(H/M/L)	cmm	15.3/13.6/10.3	16.0/14.1/11.1	25.3/21.8/17.6
		cfm	540/480/364	565/498/392	893/770/622
	External Static Pressure	Pa	58.8	58.8	78.5
	Drive		Direct	Direct	Direct
Motor type		BLDC	BLDC	BLDC	
Temperature Control			Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating
Sound Absorbing Thermal Insulation Material			Foamed polystyrene	Foamed polystyrene	Foamed polystyrene
Air Filter			-	-	-
Safety Device			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Pipe Connections	Liquid Side	mm(inch)	Ø6.35(1/4)	Ø9.52(3/8)	Ø9.52(3/8)
	Gas Side	mm(inch)	Ø12.7(1/2)	Ø15.88(5/8)	Ø15.88(5/8)
	Drain Pipe(Internal Dia.)	mm	25.0	25.0	25.0
Net Weight		kg(lbs)	35(77.2)	35(77.2)	38(83.8)
Noise Level(Sound Press, 1.5m, H/M/L)		dBA±3	39/36/34	40/38/35	42/40/38
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60
Refrigerant Control			LEV	LEV	LEV
Power cable		mm ²	CV2.0 X 3C	CV2.0 X 3C	CV2.0 X 3C
Transmission cable		mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C

Notes:-

1. Capacities are based on the following conditions:

- Cooling
- Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
- Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.: Linear Expansion Valve

5. To be added for more available Models

Conversion Formula

kcal/h= kW x 860
Btu/h = kW x 3412
cfm = m³/min x 35.3

Specifications

Type		Ceiling Concealed Duct(High Static)(Preliminary)			
Model	Unit	ARNU36GBGA0	ARNU42GBGA0	ARNU48GBRA0	
Cooling Capacity	W	10,600	12,300	14,100	
	kcal/h	9,100	10,600	12,100	
	Btu/h	36,200	42,000	48,100	
Heating Capacity	W	11,900	13,800	15,900	
	kcal/h	10,200	11,000	13,200	
	Btu/h	40,600	43,800	51,200	
Casing		Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions (W*D*H)	Body	mm	1182x450x298	1182x450x298	1230x590x380
		inch	46.5x17.7x10.2	46.5x17.7x10.2	48.4x23.2x15
Coil	Rows x Columns x FPI		3x12x21	3x12x21	3x13x19
	Face Area	m ²	0.26	0.26	0.38
Fan	Type		Sirocco Fan	Sirocco Fan	Sirocco Fan
	Motor Output x Number	W	390	390	390
	Running Current	A	2.3	2.30	2.30
	Air Flow Rate(H/M/L)	cmm	28.4/25.3/21.8	32.0/28.4/27.2	45/40/34
		cfm	1003/893/770	1130/1003/960	1589/1413/1201
	External Static Pressure	Pa	78.5	78.5	98.1
	Drive		Direct	Direct	Direct
Motor type		BLDC	BLDC	BLDC	
Temperature Control			Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating	Microprocessor, Thermostat for cooling and heating
Sound Absorbing Thermal Insulation Material			Foamed polystyrene	Foamed polystyrene	Foamed polystyrene
Air Filter			-	-	-
Safety Device			Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor	Fuse, Thermal Fuse for Fan Motor
Pipe Connections	Liquid Side	mm(inch)	Ø9.52(3/8)	Ø9.52(3/8)	Ø9.52(3/8)
	Gas Side	mm(inch)	Ø15.88(5/8)	Ø15.88(5/8)	Ø15.88(5/8)
	Drain Pipe(Internal Dia.)	mm	25	25.0	25.0
Net Weight		kg(lbs)	38(83.8)	38(83.8)	53(117)
Noise Level(Sound Press, 1.5m, H/M/L)		dBA±3	44/42/40	46/44/42	48/46/44
Power Supply		Ø / V / Hz	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60	1, 220 ~ 240, 50 1, 220, 60
Refrigerant Control			LEV	LEV	LEV
Power cable		mm ²	CV2.0 X 3C	CV2.0 X 3C	CV2.0 X 3C
Transmission cable		mm ²	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C	CVV-SB 1.25 X 2C

Notes:-

1. Capacities are based on the following conditions:

- Cooling
 - Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero
- Heating
 - Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - Interconnecting Piping Length 7.5m
 - Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.: Linear Expansion Valve

5. To be added for more available Models

Conversion Formula

$$\begin{aligned} \text{kcal/h} &= \text{kW} \times 860 \\ \text{Btu/h} &= \text{kW} \times 3412 \\ \text{cfm} &= \text{m}^3/\text{min} \times 35.3 \end{aligned}$$

2. Funtion

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (Thermistor)

Room temperature control

- Maintains the room temperature in accordance with the Setting Temperature.

Starting Current Control

- Indoor fan is delayed for 5 seconds at the starting.

Time Delay Safety Control

- Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

- High, Med, Low

Soft Dry Operation Mode

- Intermittent operation of fan at low speed.

Auto Restart

- Although the air-conditioner is turned off by a power failure, it is restarted automatically previous operation mode after power supply.

Deice (defrost) control (Heating)

- Both the indoor and outdoor fan stops during defrosting.
- Hot start after defrost ends.

Hot-start Control (Heating)

- The indoor fan does not rotate until the evaporator piping temperature reaches 25°C.

High head height Drain pump

- A standard drain-head height of up to 700mm is possible.

Central Control(Optional)

- It is operating individually or totally by central control function.

3. Operation Details

(1) The function of main control

■ Time Delay safety Control

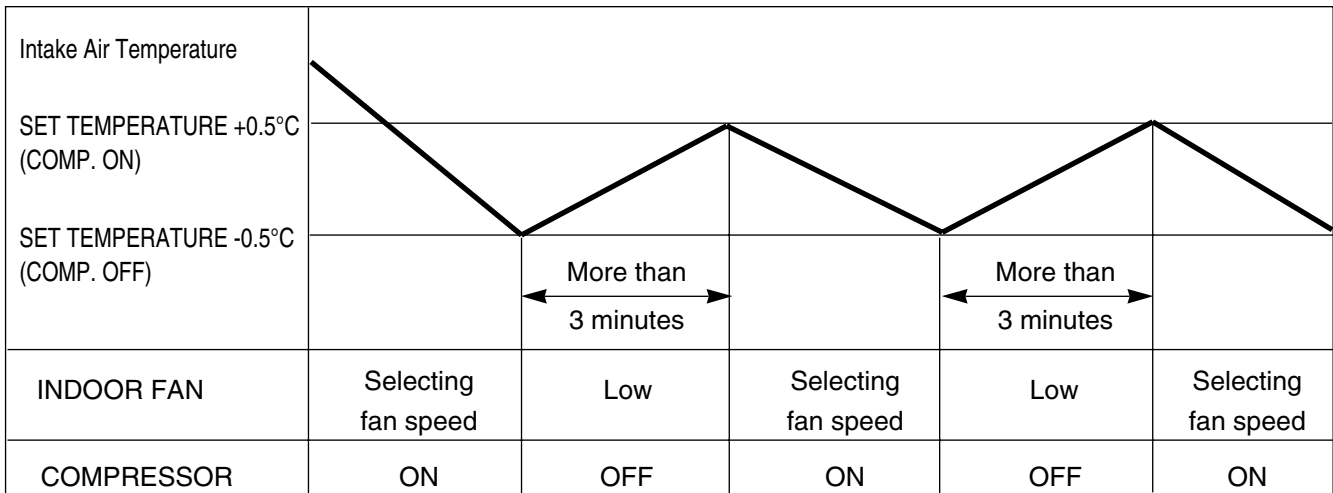
- 30sec... The 4-way valve is ceased for 30sec. to prevent the refrigerant-gas abnormal noise when the Heating operation is OFF or switched to the other operation mode while compress is off.
While compressor is running, it takes 3~5 seconds to switch to another mode.

■ Soft-Dry Operation

- The indoor fan speed is automatically set to the low, so the shift of the indoor fan speed is impossible because of already being set to the best speed for Dry Operation by microcontroller control.

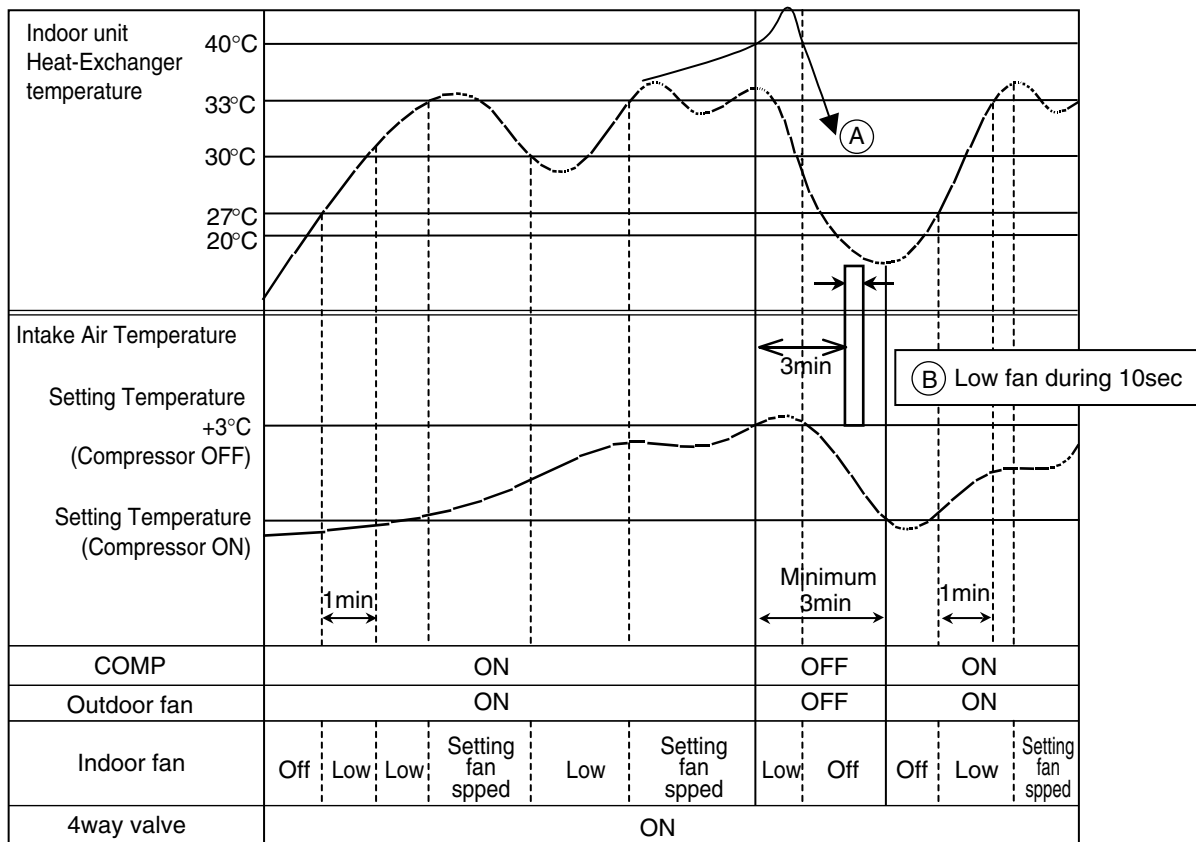
■ Cooling Mode Operation

- When selecting the Cooling(※) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following.



■ Heating Mode Operation

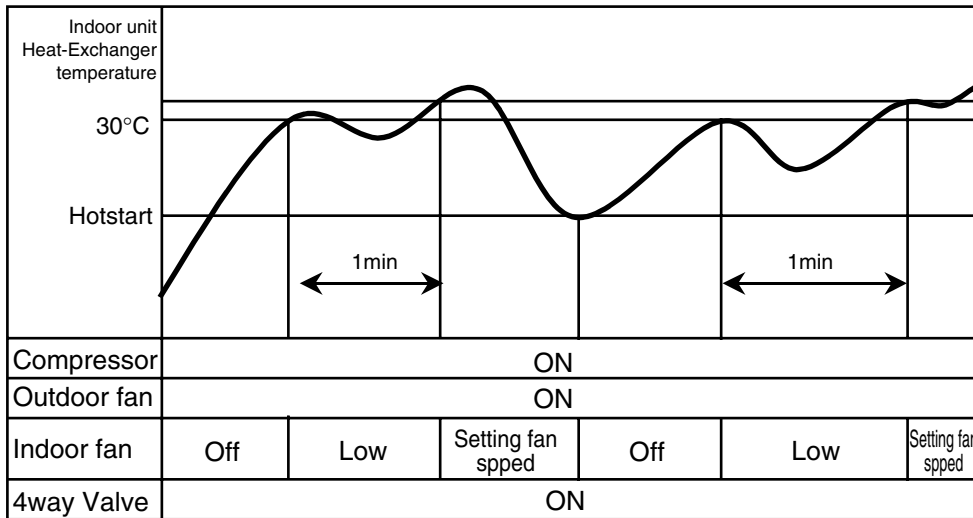
The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



- **Compressor-off interval :** - (A) While the indoor Heat-Exchanger temperature is higher than 40°C, fan operates at low speed, when it becomes lower than 40°C fan stops.
- (B) For eliminating latent heat-loss, fan operates at low speed for 10 seconds periodically.

■ Hot-Start Control

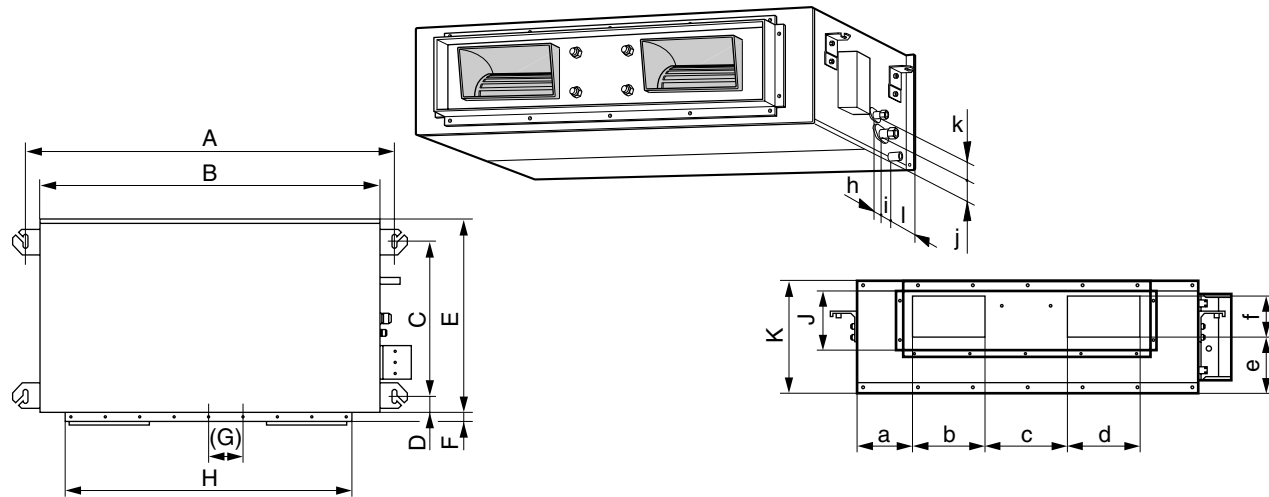
- The indoor fan does not rotate until the indoor unit Hex-Exchanger temperature reaches 30°C.
- The operation diagram is as following.



4. Dimensional Drawings

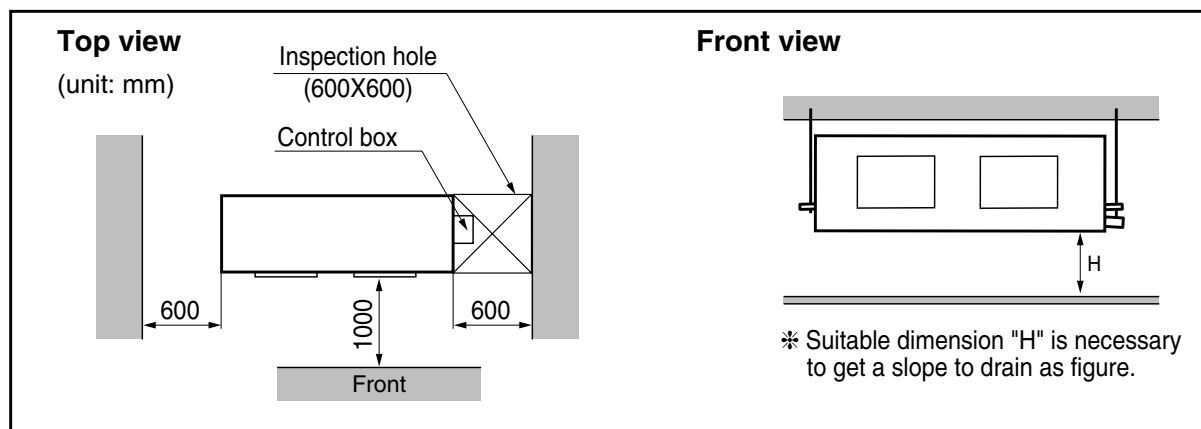
ARNU18GBHA0
 ARNU24GBHA0
 ARNU28GBGA0
 ARNU36GBGA0

ARNU42GBGA0
 ARNU48GBRA0

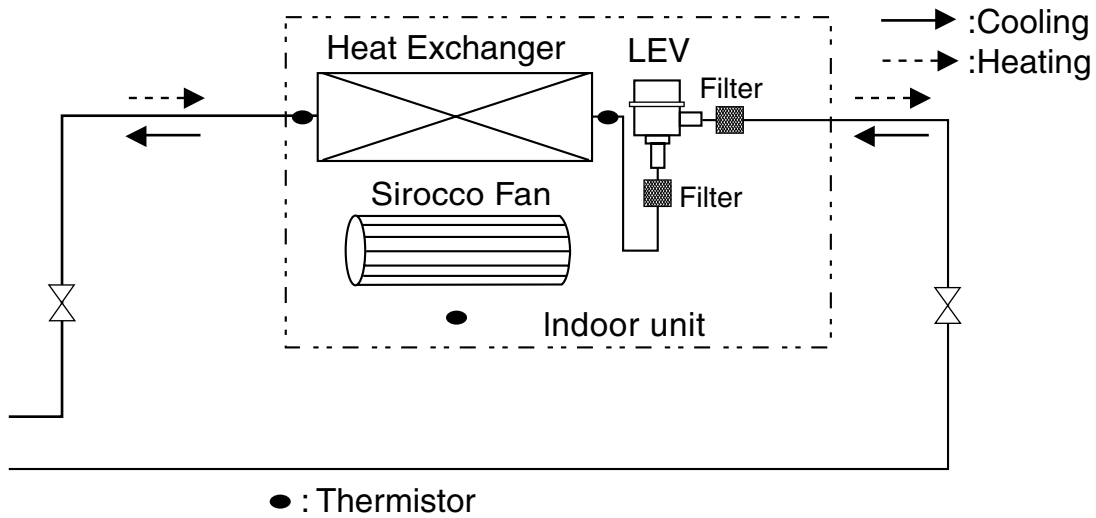


(Unit: mm)

Model	A	B	C	D	E	F	(G)	H	J	K	a	b	c	d	e	f	h	i	j	k	l
18/24k BH	932	882	355	47	450	30	87	750	158	260	64	243	212	243	106	130	52	65	83	19	165
28/36/42k BG	1232	1182	355	47	450	30	87	830	186	298	232	243	232	243	116	160	53	65	83	19	165
48k BR	1282	1230	477	56	590	30	120	1006	294	380	215	279	241	279	185	168	51	98	83	17	172



5. Piping Diagrams



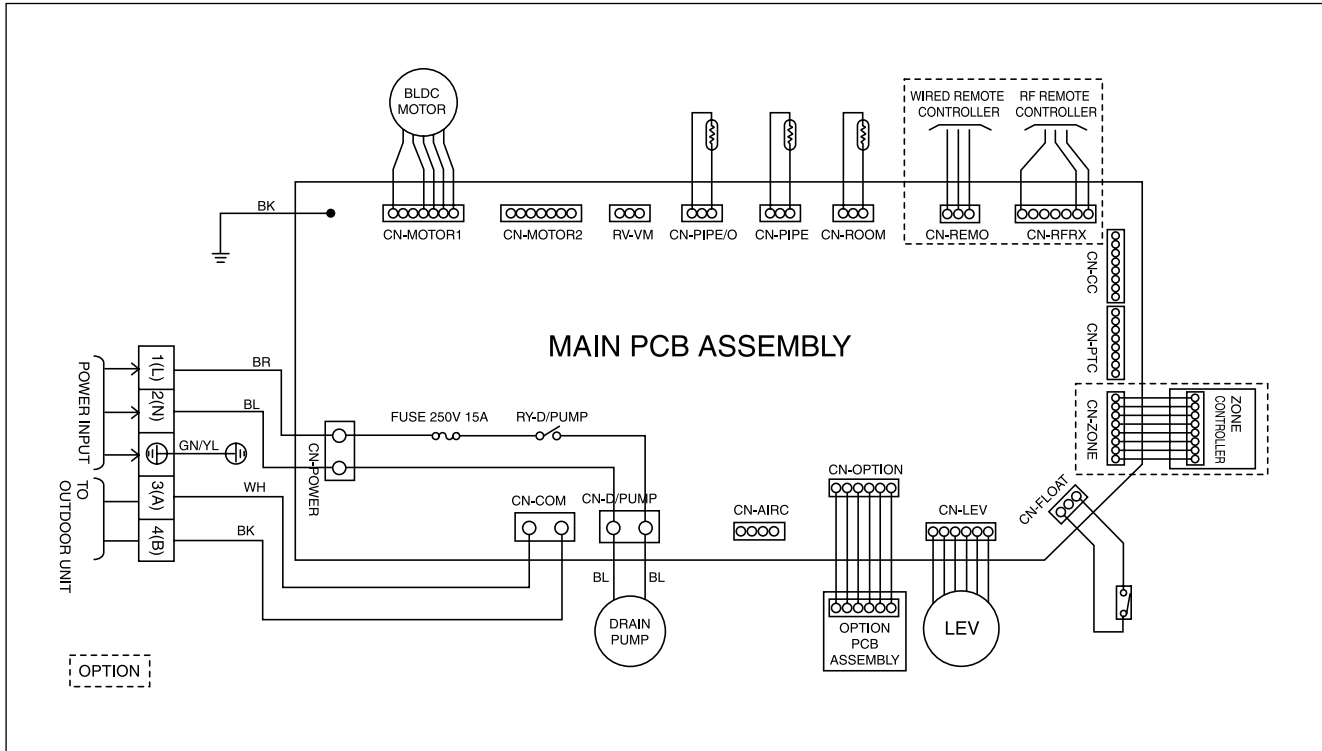
Refrigerant pipe connection port diameter

[unit: mm(inch)]

MODEL	GAS	LIQUID
ARNU18GBHA0	Ø12.7(1/2)	Ø6.35(1/4)
ARNU24GBHA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU28GBGA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU36GBGA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU42GBGA0	Ø15.88(5/8)	Ø9.52(3/8)
ARNU48GBRA0	Ø15.88(5/8)	Ø9.52(3/8)

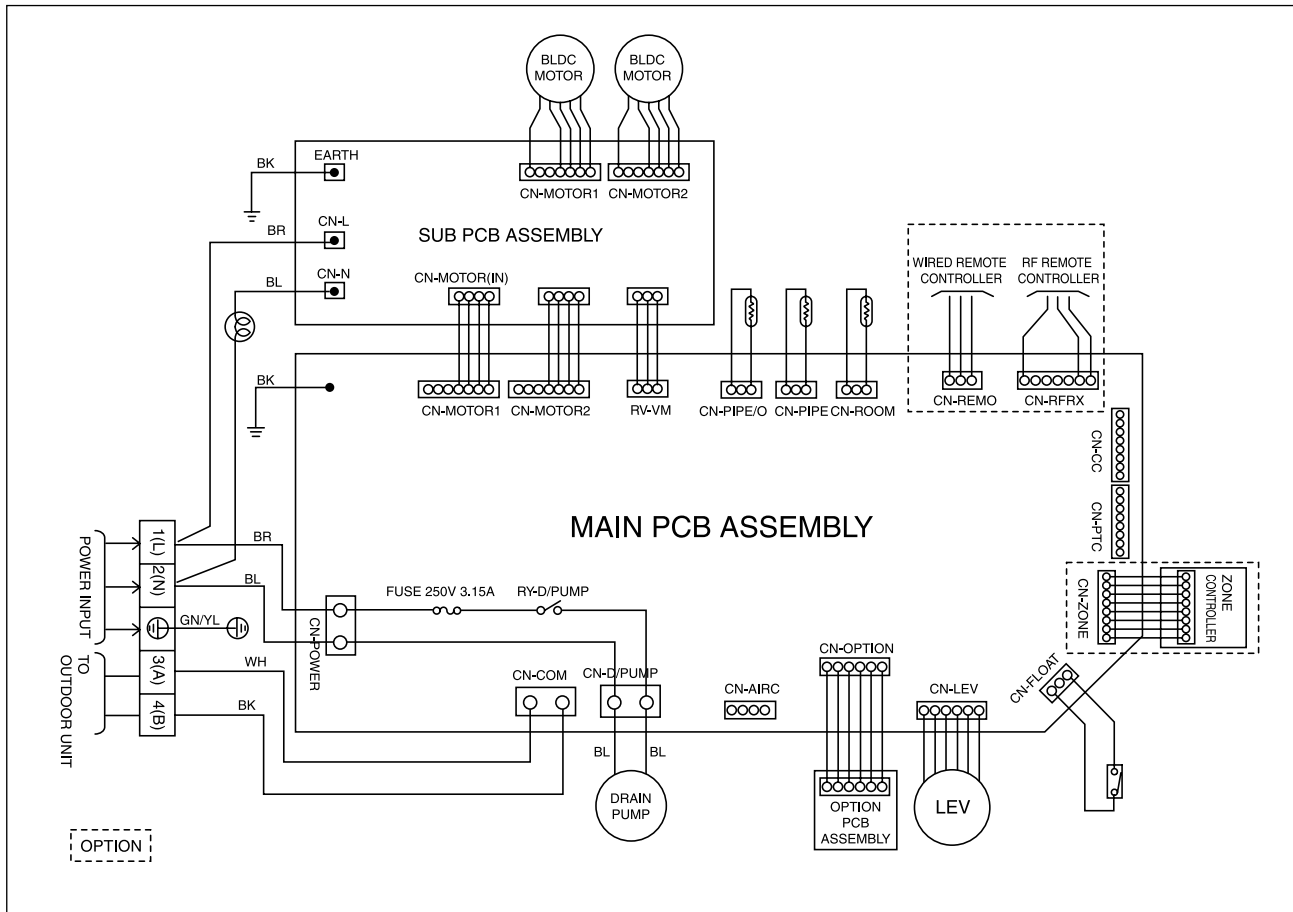
6. Wiring Diagrams

BH Chassis



CONNECTOR NUMBER	LOCATION POINT	FUNCTION
CN-POWER	AC POWER SUPPLY	AC POWER LINE INPUT FOR INDOOR CONTROLLER
CN-MOTOR2	FAN MOTOR OUTPUT	MOTOR OUTPUT OF BLDC
CN-D/PUMP	DRAIN PUMP OUTPUT	AC OUTPUT FOR DRAIN PUMP
CN-COMM	COMMUNICATION	CONNECTION BETWEEN INDOOR AND OUTDOOR
CN-LEV	LEV OUTPUT	LEV CONTROL OUTPUT
CN-FLOAT	FLOAT SWITCH INPUT	FLOAT SWITCH SENSING
CN-PIPE	PIPE SENSOR	PIPE THERMISTOR
CN-PIPE/O	DISCHARGE PIPE SENSOR	DISCHARGE PIPE THERMISTOR
CN-ROOM	ROOM SENSOR	ROOM THERMISTOR
CN-REMO	REMOTE CONTROLLER	REMOTE CONTROL LINE

BG/BR Chassis



CONNECTOR NUMBER	LOCATION POINT	FUNCTION
CN-POWER	AC POWER SUPPLY	AC POWER LINE INPUT FOR INDOOR CONTROLLER
CN-MOTOR2	FAN MOTOR OUTPUT	MOTOR OUTPUT OF BLDC
CN-D/PUMP	DRAIN PUMP OUTPUT	AC OUTPUT FOR DRAIN PUMP
CN-COMM	COMMUNICATION	CONNECTION BETWEEN INDOOR AND OUTDOOR
CN-LEV	LEV OUTPUT	LEV CONTROL OUTPUT
CN-FLOAT	FLOAT SWITCH INPUT	FLOAT SWITCH SENSING
CN-PIPE	PIPE SENSOR	PIPE THERMISTOR
CN-PIPE/O	DISCHARGE PIPE SENSOR	DISCHARGE PIPE THERMISTOR
CN-ROOM	ROOM SENSOR	ROOM THERMISTOR
CN-REMO	REMOTE CONTROLLER	REMOTE CONTROL LINE
CN-INFANSUB	STARTING SIGNAL CONTROL	STARTING SIGNAL CONTROL

Outdoor unit

ARUN Series

1. Specifications	81
2. Parts.....	82
3. Dimensions	85
4. Piping Diagrams	86
5. Wiring Diagrams	87
6. Function	90
7. Test Run	104

1. Specification

Heat Pump(50Hz)

HP			10
Model Name			ARUN1008F20
Capacity	Cooling	W	28,000
		kcal/h	24,100
		Btu/h	95,500
	Heating	W	31,500
		kcal/h	27,100
		Btu/h	107,500
Input	Cooling	kW	7.18
	Heating	kW	7.69
Casing Color			WARM GRAY
Heat Exchanger			Louver Fin
Compressor	Type		Rotary
	Maker		Matsushita
	Piston Displacement	cm ³ /rev	42.4*2
	Number of Revolution	r.p.m	3450*2
	Motor Output x Number	W	4500*2
	Starting Method		Direct on Line
	Oil Type		FV50S(PVE)
Oil Charge		CC	1300*2
Fan	Type		Siroco Fan
	Motor Output x Number	W	840*2
	Air Flow Rate(High)	cmm	170
		cfm	6,004
	Drive		Inverter
Discharge		Front	
Pipe Connctions	Liquid Pipes	mm(inch)	Ø9.52(3/8)
	Gas Pipes	mm(inch)	Ø22.2(7/8)
Dimensions (W*H*D)		mm	1400*1790*650
		inch	55.1*70.5*25.6
Net Weight		kg	350
		lbs	771.6
Transmission Cable		mm ²	CVV-SB 1.25X2C
Refrigerant	Refrigerant name		R410A
	Control		L.E.V
Power Supply		Ø / V / Hz	3 / 380 ~ 415 / 50

Notes:

- Capacities are based on the following conditions:
 - Cooling * Indoor temp. 27°C[80.6°F]DB/ 19°C[66.2°F]WB
 - * Outdoor temp. 35°C[95°F]DB/ 24°C[75.2°F]WB
 - * Interconnecting Piping Length 7.5m
 - * Level Difference of Zero
 - Heating * Indoor temp. 20°C[68°F]DB/ 15°C[59°F]WB
 - * Outdoor temp. 7°C[44.6°F]DB/ 6°C[42.8°F]WB
 - * Interconnecting Piping Length 7.5m
 - * Level Difference of Zero

2. Capacities are net capacities

3. Due to our policy of innovation some specifications may be changed without notification

4. L.E.V.:Linear Expansion Valve

Conversion Formula

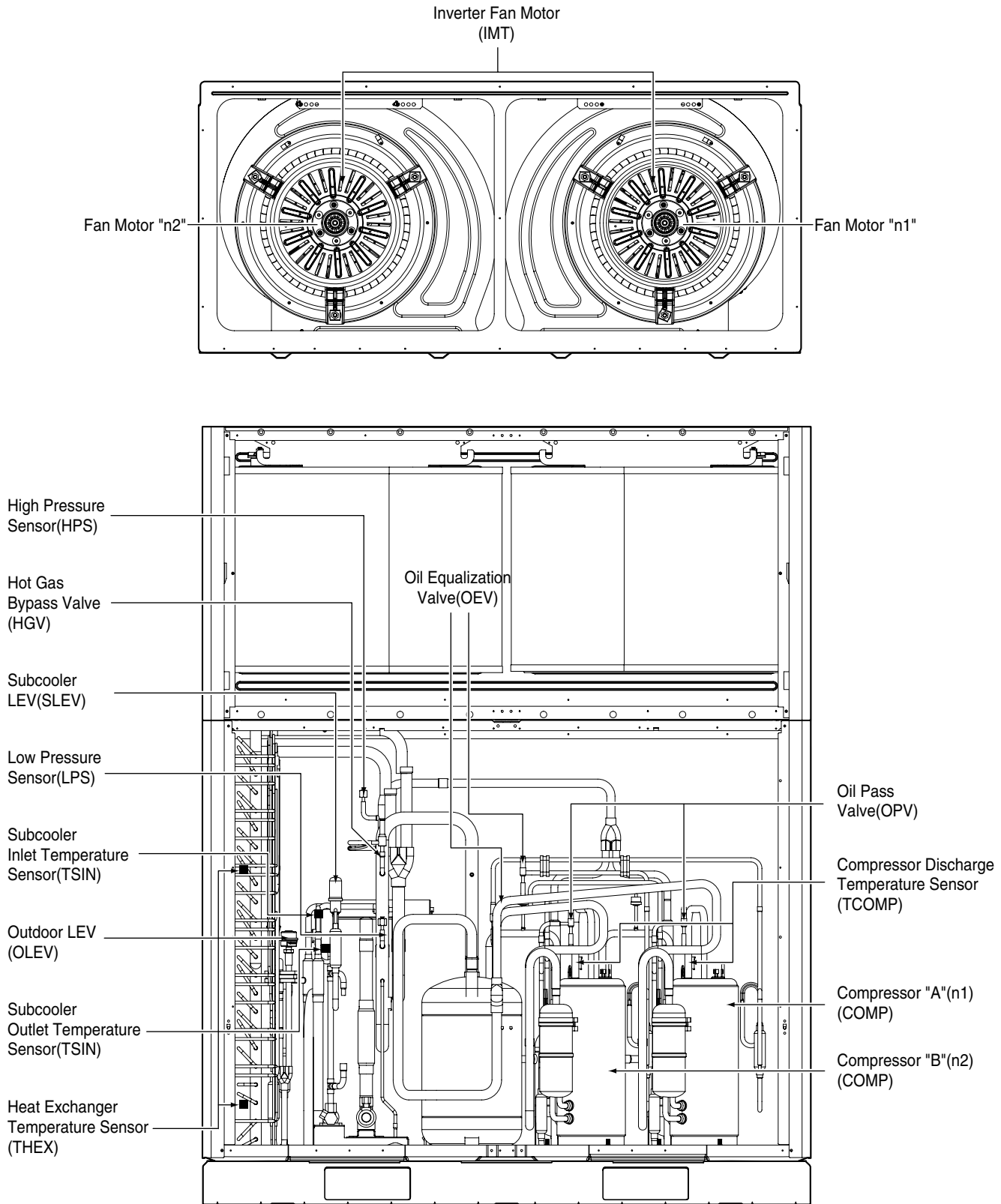
Kcal/h= kW x 860
 Btu/h = kW x 3412
 cfm = m³/min x 35.3

2. Parts

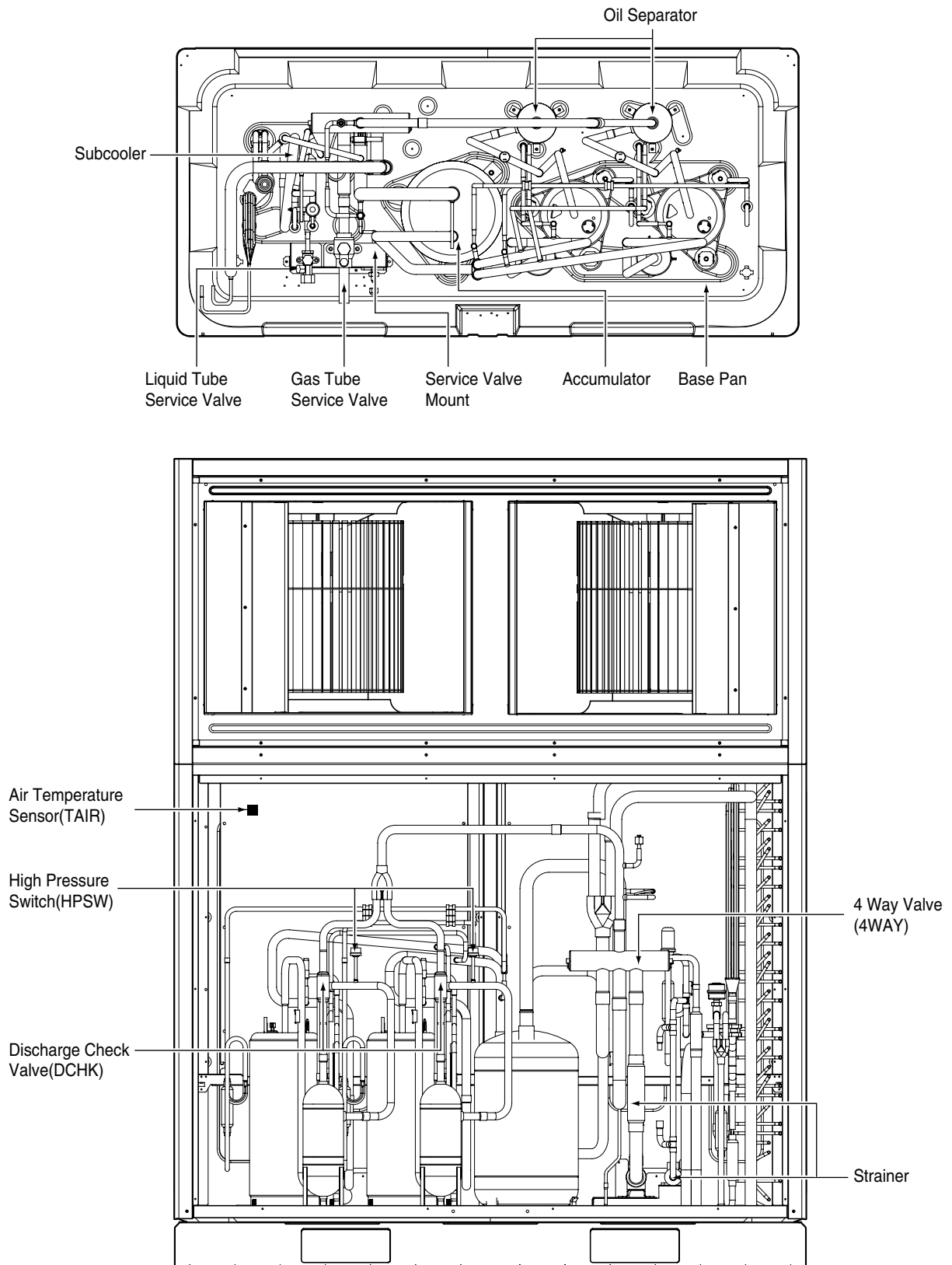
2.1 10HP Parts Function

Parts Name	Symbol	Major Function
Compressor	COMP.	Operated up to 20Hz~100Hz by inverter operation. Pressurize high temperature, low pressure refrigerant to high temperature, high pressure.
Inverter fan motor	IMT	Adjust outdoor wind quantity while varying the outdoor fan by 0~65Hz.
Outdoor LEV	OLEV	Adjust flow quantity depending on overheat level of refrigerant in the outdoor side in heat status.
Subcooler LEV	SLEV	Adjust flow quantity depending on overheat level of the outlet of the excessive cold heat exchanger in cold status.
Oil Pass Valve	OPV	
Oil Equalization Valve	OEV	
Hot gas bypass valve	HGV	Stabilize the system by high pressure gas to the low pressure part after opening when bypass and low pressure of refrigerant rapidly reduces to less than the valve valve.
4 Way valve	4 WAY	Cut-off the outdoor heat exchanger with the evaporator or condenser depending on operation of the indoor unit.
Outdoor check valve	OCHK	Used to obtain flow quantity of refrigerant in cold condition.
Discharge check valve	DCHK	Prevent reverse flow of high pressure refrigerant into the compressor.
High pressure S/W	HPSW	Mechanically stop the compressor where the compressor rises to the high pressure limit valve due to abnormal operation.
High pressure sensor	HPS	Measure high pressure of the system.
Low pressure sensor	LPS	Measure low pressure of the system.
Heat exchanger temperature sensor	THEX	Used for control by measuring temperature of the outdoor heat exchanger.
Compressor discharge temperature sensor	TCOMP	Used for protecting and controlling the compressor by measuring discharger temperature.
Air temperature sensor	TAIR	Measure outdoor temperature.
Suction temperature sensor	TSUC	Used for controlling super heat level by measuring refrigerant temperature of the suction pipe.
Liquid tube temperature sensor	TLIQ	Used for controlling sub cool level by measuring refrigerant temperature of the liquid pipe.
Subcooler outlet temperature sensor	TSOUT	Used for controlling super heat level by measuring outlet temperature of the subcooler circuit.
Subcooler inlet temperature sensor	TSIN	Used for controlling super heat level by measuring outlet temperature of the subcooler circuit.

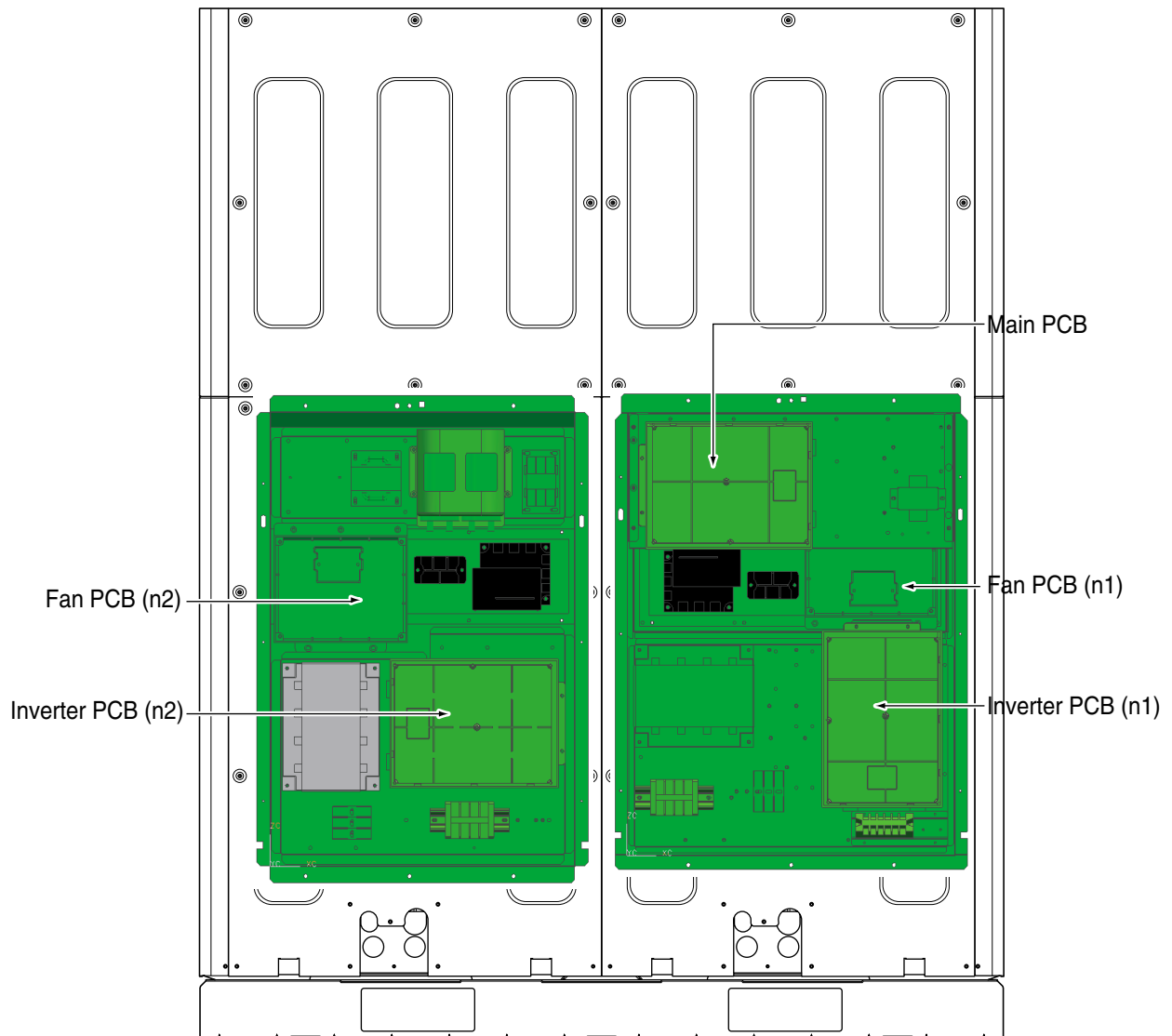
2.1 10HP Parts Layout Drawing (sensor, etc)



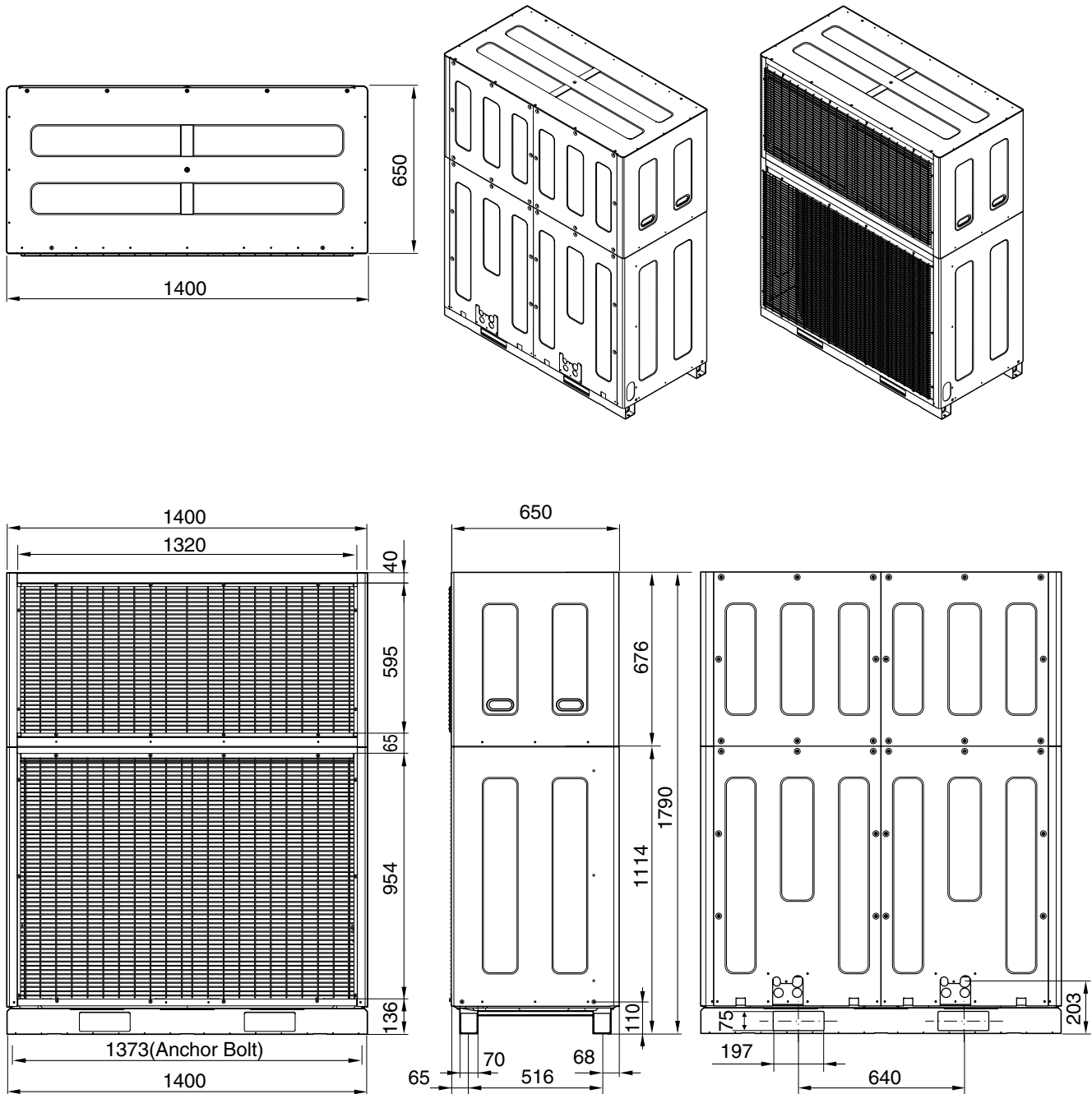
2.2 10HP Parts Layout Drawing (Tool Part)



2.3 10HP Parts Layout Drawing (Control Part)

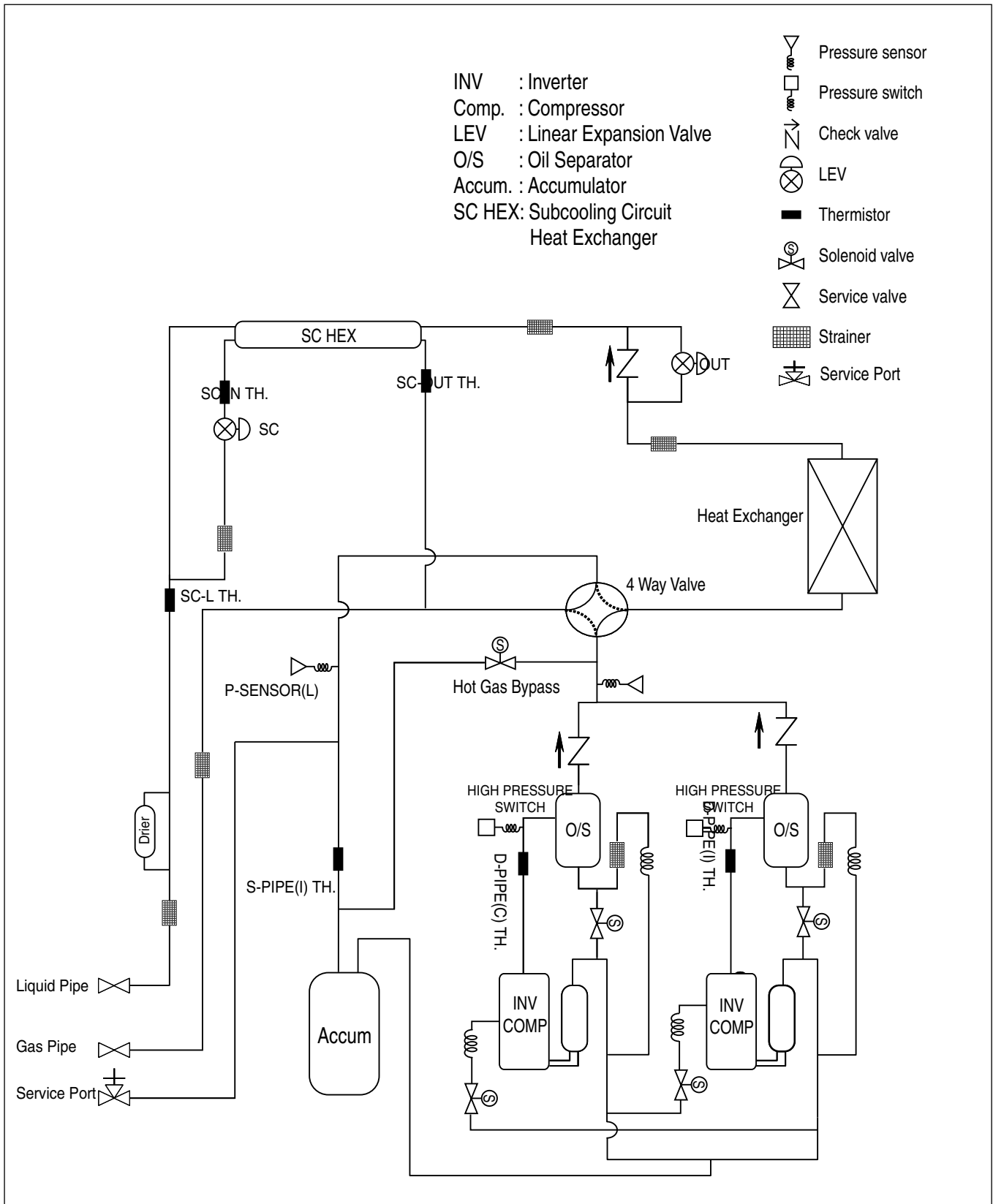


3. Dimensions

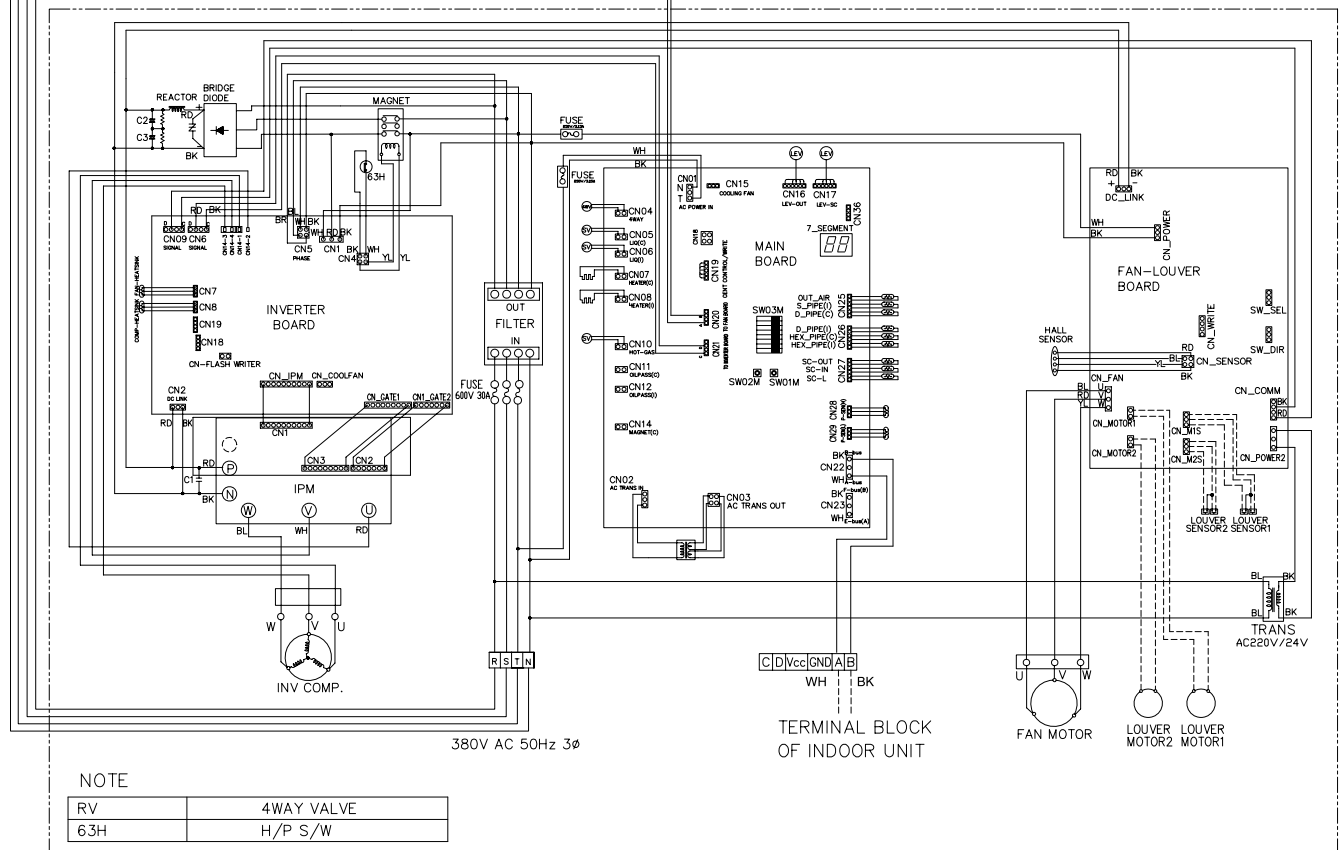
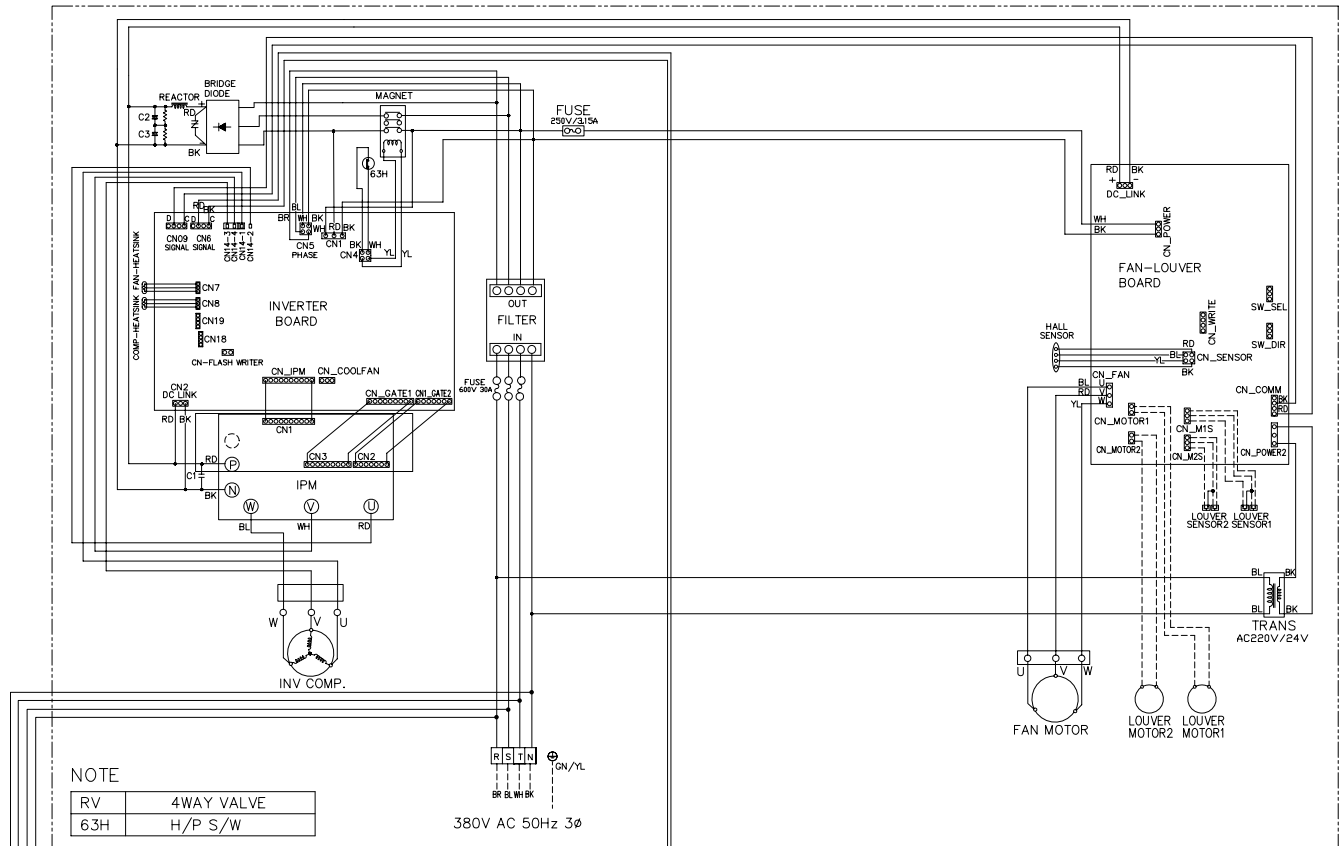


4. Piping Diagrams

10HP



5. Wiring Diagrams



Inverter Board

CONNECTOR No.	SPEC	DESCRIPTION
CN1	POWER	AC POWER
CN2	DC-LINK	DC LINK VOLTAGE DETECT
CN4	H/P, M	HIGH PRESSURE MAGNETIC SWITCH
CN5	PHASE	3 PHASE DETECT
CN6	COMMUNICATION	COMMUNICATION SIGNAL WITH MAIN PCB
CN7	FAN HEATSINK	FAN HEATSINK TEMPERATURE SENSOR
CN8	INV. HEATSINK	INV. HEATSINK TEMPERATURE SWNSOR
CN9	COMMUNICATION	COMMUNICATION SIGNAL WITH FAN PCB
CN114-1,2	COMP. IPM	POWER CABLE FROM IPM TO COMP.
CN15	INPUT CURRENT	INPUT CURRENT SENSING
CN18	ON-BOARD	ON-BOARD WRITING PORT
CN_COOLFAN	COOLFAN	COOLING FAN OF HEATSINK
CN_IPM	IPM	CONTROL SIGNAL FOR PWM
CN_GATE, CN_GATE1	IPM	PWM CONTROL POWER
CN_MOTOR1	FAN MOTOR	FAN OF OUTDOOR UNIT

Main Board

CONNECTOR No.	SPEC	DESCRIPTION
CN01	AC POWER IN	AC POWER
CN02	AC TRANS IN	AC POWER TO TRANS
CN03	AC TRANS OUT	AC POWER FROM TRANS
CN04	4WAY	4WAY REVERSING VALVE
CN05	LIQ(I)	INVERTER COMP LIQUID INJECTION VALVE
CN06	LIQ(C)	CONSTANT COMP LIQUID INJECTION VALVE
CN07	HEATER(I)	INVERTER COMP CRANK HEATER
CN08	HEATER(C)	CONSTANT COMP CRANK HEATER
CN10	HOT-GAS	HOT GAS BYPASS VALVE
CN11	OILPASS(I)	NOT USE
CN12	OILPASS(C)	NOT USE
CN14	MAGNET(C)	MAGNETIC SWITCH
CN15	COOLING FAN	HEATSINK FAN
CN16	LEV-OUT	LINEAR EXPANSION VALVE(MAIN)
CN17	LEV-SC	LINEAR EXPANSION VALVE(SUBCOOLING CIRCUIT)
CN18	TO-JIG	TRANSMISSION WITH JIG
CN19	CEN-CONTROL/WRITE	TRANSMISSION WITH CENTRAL CONTROLLER
CN20	TO FAN BOARD	TRANSMISSION WITH FAN BOARD
CN21	TO INVERTER BOARD	TRANSMISSION WITH INVERTER BOARD
CN22	TO INDOOR UNIT	TRANSMISSION WITH INDOOR UNIT
CN23	TO SUB OUTDOOR	TRANSMISSION WITH SUB OUTDOOR UNIT
CN25	OUT-AIR	OUTDOOR AIR THERMISTOR
	S_PIPE(I)	INVERTER COMP SUCTION PIPE THERMISTOR
	D_PIPE(C)	CONSTANT COMP DISCHARGE PIPE THERMISTOR
CN26	D_PIPE(I)	INVERTER COMP DISCHARGE PIPE THERMISTOR
	HEX_PIPE(C)	CONDENSOR PIPE THERMISTOR(C)
	HEX_PIPE(I)	CONDENSOR PIPE THERMISTOR(I)
CN27	SC-OUT	SUBCOOLING CIRCUIT OUTLET PIPE THERMISTOR
	SC-IN	SUBCOOLING CIRCUIT INLET PIPE THERMISTOR
	SC-L	SUBCOOLING CIRCUIT LIQUID PIPE THERMISTOR
CN28	P-SEN(H)	HIGH PRESSURE SENSOR
CN29	P-SEN(L)	LOW PRESSURE SENSOR
JIG 1	JIG	JIG POWER
JIG 2	JIG	JIG POWER
CN36	LEV-HOUT	LINEAR EXPANSION VALVE(MAIN)
CN24	DRY CONTACT	OPERATING MODE LOCKING(COOL, HOT ,GENERAL)
CN34	DRY CONTACT	OPERATING MODE LOCKING(COOL, HOT ,GENERAL)

Fan Board

CONNECTOR No.	SPEC	DESCRIPTION
CN_POWER	POWER 1	AC POWER(220V)
CN_POWER 2	POWER 2	AC POWER(24V)
CN_MOTOR 1	LOUVER MOTOR 1	LOUVER MOTOR 1
CN_MOTOR 2	LOUVER MOTOR 2	LOUVER MOTOR 2
CN_COMM	SIGNAL (TO INV PCB)	TRANSMISSION WITH INVERTER BOARD
CN_DCLINK	DC LINK	DC LINK
SW_SEL		SELECTION OF AUTOMATIC/MANUAL LOUVER
SW_DIR	DIRECTION	DIRECTION OF MOTOR ROTATION
CN_M1S, CN_M2S		LOUVER MOTOR LIMIT S/W
CN_FAN		TO FAN MOTOR
CN_SENSOR		HALL SENSOR
CN_WRITE		ONBOARD WRITING

6. Function

1. Basic control	92
1.1 Normal operation	92
1.2 Compressor control.....	92
1.3 Main and sub unit's LEV control.....	92
1.4 Fan control	92
2. Special control	93
2.1 Oil return control	93
2.2 Defrost control.....	95
2.3 Oil equalizing control.....	96
2.4 Stopping operation	96
3. Protection control	97
3.1 Pressure protection control	97
3.2 Discharge temperature control.....	99
3.3 Inverter protection control	99
3.4 Liquid back control	100
3.5 Phase detection	100
4. Other control	101
4.1 Initial setup.....	101
4.2 Instant indoor unit checking mode	103
4.3 Emergency operation.....	104

1. Basic control

1.1 Normal operation

Actuator	Cooling operation	Heating operation	Stop state
Compressor	Fuzzy control	Fuzzy control	stop
Fan	Fuzzy control	Fuzzy control	stop
Main LEV	Full open	Fuzzy control	After 15min, min. pulse
4 way valve	Off	On	After 15min, Off
Subcooling LEV	Fuzzy control	min.	After 15min, min. pulse

Note: Heating operation is not functional at an outdoor air temperature of 27°C or more

1.2 Compressor control

Fuzzy control : Maintain evaporating temperature(T_e) to be constant on cooling mode and condensing temperature(T_c) on heating mode by Fuzzy control to ensure the stable system performance.
(T_c :47 ~51°C, T_e :2 ~ 5°C)

(1) Cooling mode

T_e can be set by initial dip switch setting. (Normal mode, capacity up mode, and energy save mode)

(2) Heating mode

T_c can be set by initial dip switch setting. (Normal mode, capacity up mode, and energy save mode)

1.3 Main LEV control

Main LEV operates with fuzzy control rules to keep the degree of super Heat(Superheat) (about 3°C) at the evaporator outlet stable during heating mode

The degree of Superheat = $T_{\text{suction}} - T_{\text{evaporation}}$

T_{suction} : temperature at suction pipe sensor(°C)

$T_{\text{evaporation}}$: evaporation temperature equivalent to low pressure(°C)

1.4 Fan control

The fan motors of the main unit are operated by the inverter drive with fuzzy control rules.

2. Special control

2.1 Oil return control

2.1.1 Oil return control on cooling mode

■ High pressure limit

Pressure range	Compressor combination
Low pressure \leq 3189 kpa	Refer to combination table
Low pressure \geq 3189 kpa	Normal

■ Low pressure limit

Pressure range	Compressor combination
Low pressure \leq 229 kpa	Refer to combination table
Low pressure \geq 242 kpa	Normal

Component		Starting	Running	Ending
Inv Compressor	Normal	37Hz + 37Hz	90Hz + 90Hz	20Hz + 20Hz
	Pressure limit	30Hz + 30Hz	50Hz + 50Hz	20Hz + 20Hz
Sub unit compressor		All off	On	Off
Fan		0Hz	High pressure control	High pressure control
Main LEV		Full open	Full open	Full open
4 way valve		Off	Off	Off
Subcooling LEV		min.	min.	min.
Hot gas bypass valve		Off	Suction pipe temp. control	Off

Indoor unit	Starting	Running	Ending
Fan	Keep state	Keep state	Keep state
Thermo on unit LEV	Oil return pulse	Oil return operation pulse	Return to base pulse
Thermo off unit LEV	Close pulse	Oil return operation pulse	Close pulse

- Oil return operation time : 4 min for running step
- Starting condition: every 6 hours operate

2.1.2 Oil return control on heating mode

■ High pressure limit

Pressure range	Compressor combination
Low pressure ≤ 3189 kpa	Refer to combination table
Low pressure ≥ 3189 kpa	Normal

■ Low pressure limit

Pressure range	Compressor combination
Low pressure ≤ 229 kpa	Refer to combination table
Low pressure ≥ 242 kpa	Normal

Component		Starting	Running	Ending
Inv Compressor	Normal	37Hz + 37Hz	90Hz + 90Hz	20Hz + 20Hz
	Pressure limit	30Hz + 30Hz	80Hz + 80Hz	20Hz + 20Hz
Sub unit compressor		All off	On	Off
Fan		0Hz	High pressure control	High pressure control
Main LEV		Full open	Full open	Base pulse
4 way valve		On → off	Off	On
Subcooling LEV		min.	min.	min.
Hot gas bypass valve		On	On	On

Indoor unit		Starting	Running	Ending
Fan		Off	Off	Off
Thermo on unit LEV		Oil return pulse	Oil return operation pulse	Return to base pulse
Thermo off unit LEV		Heating close pulse	Oil return operation pulse	Heating close pulse

- Oil return operation time : 4 min for running step
- Starting condition:same as cooling mode

2.2 Defrost control

Start conditions

Defrost control starts if one of below conditions are satisfied.

- 1) Case 1 : DIP switch 1,2 ON
 - 2°C ≤ air temp. : hex pipe temp < -7°C
 - 7°C < air temp. < -2°C : hex pipe temp < (air temp. -9°C)
 - air temp. ≤ -7°C : hex pipe temp < (air temp. -11°C)
- 2) Case 2 : DIP switch 1 or 2 OFF
 - 0°C ≤ air temp. : hex pipe temp < -7°C
 - 5°C < air temp. < 0°C : hex pipe temp < (air temp. -9°C)
 - air temp. ≤ -5°C : hex pipe temp < (air temp. -11°C)

Component	Starting	Running	Ending
Inv Compressor	37Hz + 37Hz	90Hz + 90Hz	20Hz + 20Hz
Fan	0Hz	High pressure control	High pressure control
Main LEV	Full open	Full open	Base pulse
4way valve	On → off	Off	On
Subcooling LEV	min.	min.	min.
Hot gas bypass valve	On	On	On

Indoor unit	Starting	Running	Ending
Fan	Off	Off	Off
Thermo on unit LEV	Oil return pulse	Oil return operation pulse	Return to base pulse
Thermo off unit LEV	Heating close pulse	Oil return operation pulse	Heating close pulse

■ Ending condition

- 1) All Heat exchanger pipe temperature are above 15°C for 30 sec.
- 2) The running time of defrost operation is over 30% of the total heating time

2.3 Oil equalizing control

- Equalizing operation of Compressor's oil operates for 2minutes every 60 minutes.

2.4 Stopping operation

2.4.1 Stopping operation on cooling mode

Component	Operation	Note
Inv Compressor	0Hz	-
Fan	0Hz	-
Main LEV	170 PLS	-
4way valve	Off	Off
Subcooling LEV	35 PLS	-
Hot gas bypass	On	After 15 min from stop, Off

2.4.2 Stopping operation on heating mode

Component	Operation	Note
Inv Compressor	0Hz	-
Fan	0Hz	-
Main LEV	170 PLS	-
4way valve	On	After 15 min from stop, off
Subcooling LEV	35 PLS	-
Hot gas bypass	On	After 15 min from stop, Off

3. Protection control

3.1 Pressure protection control

3.1.1 Pressure control on cooling mode

■ High pressure control

Pressure Range	Compressor	Fan	Hot gas
$P_d \geq 3513 \text{ kPa}$	Stop	Stop	
$P_d > 3382 \text{ kPa}$	-5Hz/2sec.	+10Hz/2sec.	
$P_d \geq 3186 \text{ kPa}$	Frequency holding	Normal control	

■ Low pressure control

Pressure Range	Compressor	Fan	Hot gas
$P_s \leq 203 \text{ kPa}$ after 1min	Stop	Stop	On
$P_s \leq 203 \text{ kPa}$ before 1min	-5 Hz/2sec.	-10Hz/2sec.	
$P_s \leq 216 \text{ kPa}$	Normal control	Frequency holding	
$P_s \geq 373 \text{ kPa}$	Normal control		Off

3.1.2 Pressure control on heating mode

■ High pressure control

Pressure Range	Compressor	Fan	Hot gas
$P_d \geq 3513 \text{ Pa}$	Stop	Stop	On
$P_d \geq 3317 \text{ kPa}$	-5Hz/2sec.	-5Hz/2sec.	On
$P_d \leq 3186 \text{ kPa}$	Normal control	Frequency holding	
$P_d \leq \text{Target press} -5$	Normal control		off

■ Low pressure control

Pressure Range	Compressor	Fan	Hot gas
$P_s \leq 203 \text{ kPa}$ after 1min	Stop	Stop	On
$P_s \leq 203 \text{ kPa}$ before 1min	-5 Hz/2sec.	+10Hz/2sec.	
$P_s \leq 216 \text{ kPa}$	Frequency holding	Normal control	
$P_s \leq 242 \text{ kPa}$	Normal control		Off
$P_s \geq 281 \text{ kPa}$			

3.2 Discharge temperature control

Discharge Temp.	Comp	Main LEV	Subcooler LEV	Indoor Unit
$T_d \geq 115^\circ\text{C}$	System Stop			
$T_d \geq 110^\circ\text{C}$ (low press. $\leq 529\text{kPa}$)		5% open (every control time)		
$T_d \geq 108^\circ\text{C}$				Liquid gathering operation(heating) ending : $T_d < 103^\circ\text{C}$
$T_d \geq 106^\circ\text{C}$	1~5% down / 30 sec. After operating in 20+20Hz for 60sec. System off/restart after 3min. ending: $T_d < 101^\circ\text{C}$ for 30sec.			
$T_d \geq 105^\circ\text{C}$ (low press. $> 529\text{kPa}$)		5% open (every control time)		
$T_d \geq 102^\circ\text{C}$	Do not increase Hz Ending : $T_d \leq 95^\circ\text{C}$			
$T_d \geq 100^\circ\text{C}$				Decrease Indoor superheat Ending : $T_d < 95^\circ\text{C}$
$T_d > 95^\circ\text{C}$		Adjust target suction superheat 1.5°C , minimum suction superheat 0.5°C (only heating mode)	+10pulse / 10sec. (only cooling mode)	
$T_d > 85^\circ\text{C}$			Control LEV to set "Subcooler out temp. - evaporating temp = 8°C "(only heating mode & Main LEV $\geq 800\text{pls}$)	
$T_d \geq 70^\circ\text{C}$				Off indoor unit LEV 130 (Only Heating mode) Ending : $T_d \leq 65^\circ\text{C}$

3.3 Inverter protection control

item	control
Current $> 23\text{A}$	System stop
Current $> 20\text{A}$	Inv compressor 5Hz down/3 sec
Current $> 17\text{A}$	Inv. compressor no frequency up
Current $< 17\text{A}$	Inv. Compressor normal control
DC Peak	System stop
High pressure switch	System stop
Low voltage	System stop

3.4 Liquid back control

■ Cooling mode

Discharge temperature	Indoor unit's LEV
$T_{dis} < T_c + 12^{\circ}\text{C}$	SH increasing control
$T_{dis} > T_c + 16^{\circ}\text{C}$	Normal SH control

■ Heating mode

Discharge temperature	Outdoor unit's LEV
$T_{dis} < T_c + 16^{\circ}\text{C}$	SH increasing control
$T_{dis} > T_c + 17^{\circ}\text{C}$	Normal SH control

* The logic starts after 9 min. on heating mode and 4 min. on cooling mode from the compressor running.

3.5 Phase detection

- Inverter PCB has phase fault detection circuit. If a phase is missed, error LED(red) flickers once per second when power is on.

4. Other control

4.1 Initial setup

There are 4 initial setup steps before running.
All DIP switch setting must be completed before initial setup.

1) Step 1 : factory setting value display

Factory setting value is displayed in 7 segment on PCB for 24sec.
All dip switches must be set properly before step 1.

Power is on	
Model code is displayed (3sec)	88
Total capacity including sub units is displayed (2sec)	80
Running option(save, capacity up) is Display (2sec). 2 is default	82 (normal)
Factory setting(25 is normal)	25 (normal)
Refrigerant display	98

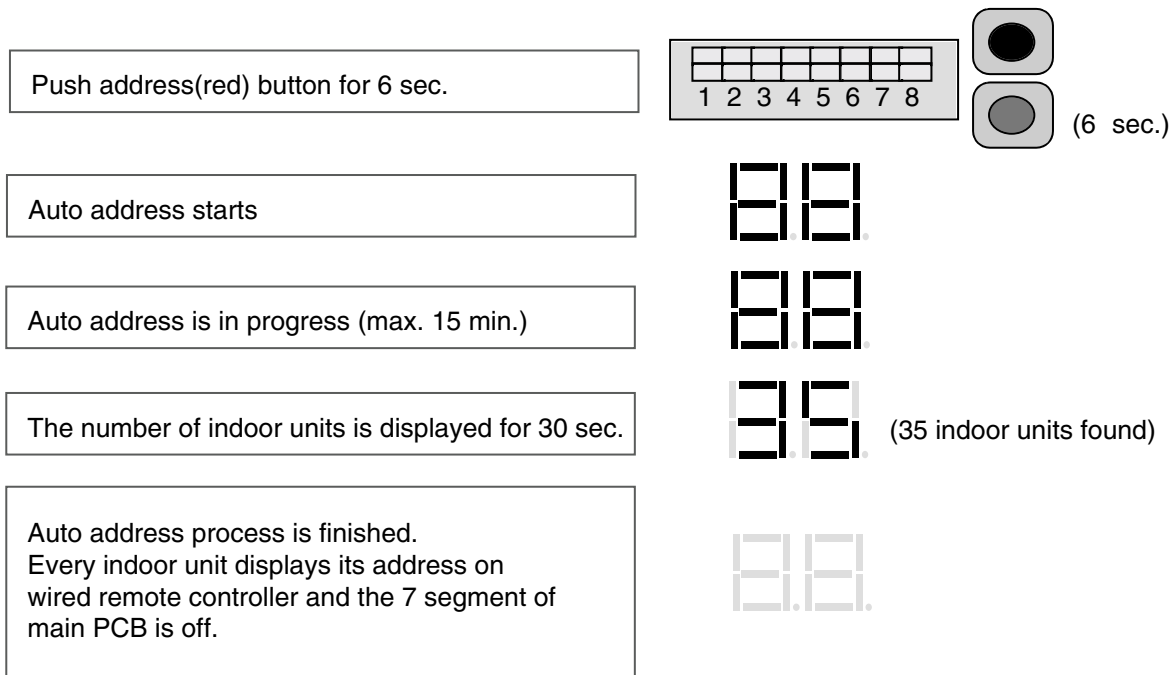
Function

2) Step 2 : PCB error check

- After 40 sec, error check begins.
- All errors of units including sub units are displayed in 7 segment.
- If communication with the inverter fan PCB and that with the inverter compressor PCB are normal, 2 LED's on the main PCB are blink.
LED01k represents the communication state with the inverter compressor PCB.
LED02k represents the communication state with the inverter fan PCB.

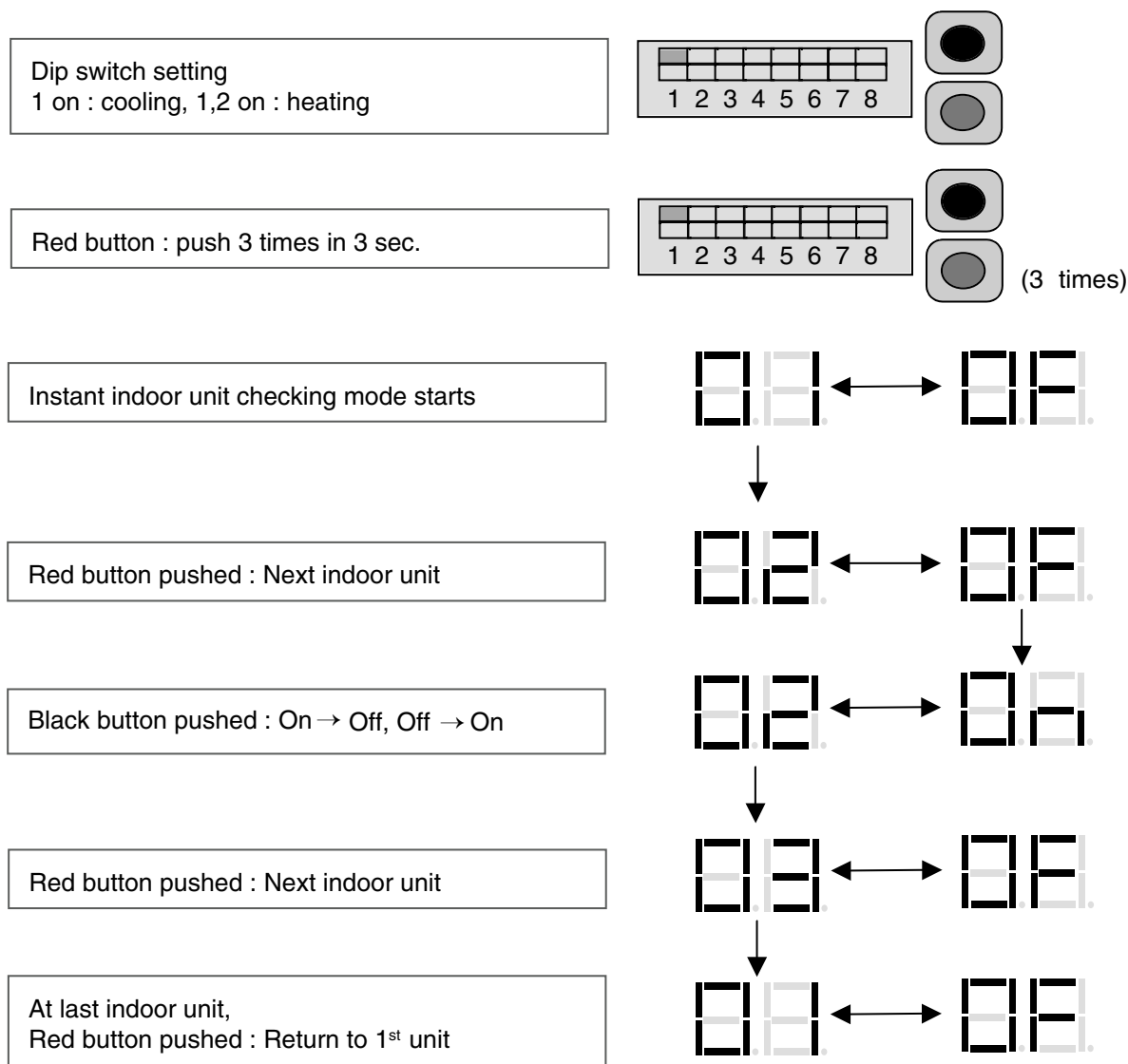
3) Step 3 : Auto addressing of indoor units

- Auto addressing begins when address(red) button in Main PCB is pressed for 6 sec.
- During auto addressing, 7 segment on main PCB displays "88"
- After auto addressing, the number of indoor units is displayed in 7 segment for 30 sec. The address of each indoor unit is displayed on each wired remote controller.



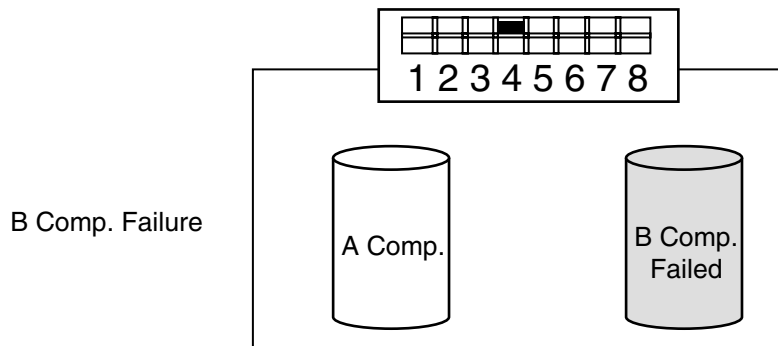
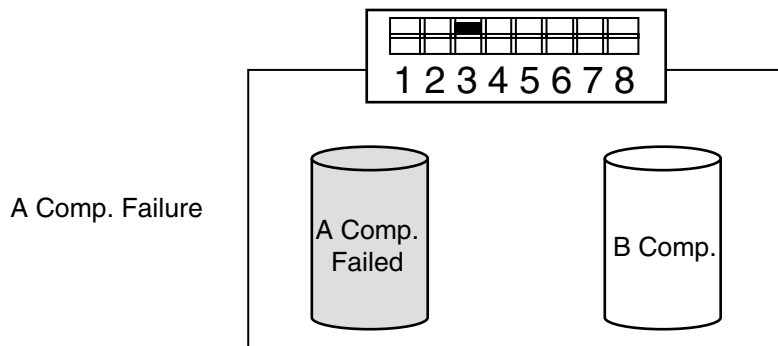
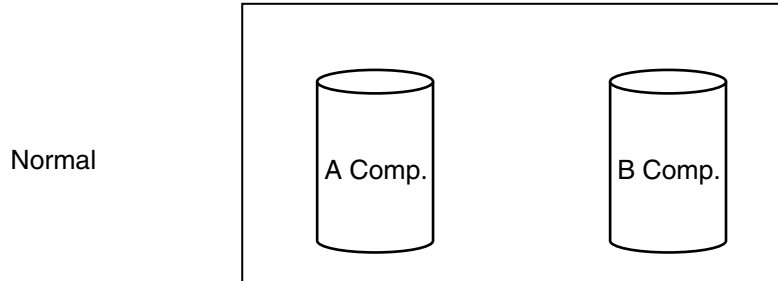
4.2 Instant indoor unit checking mode

- Indoor units can be turned on/off by outdoor unit without central controller or central control address setting with this function.
- All indoor units will be turned off and be wait for 3 min. at the beginning.
- All indoor units can be run on only one mode, cooling or heating by dip switch setting.
- In instant indoor unit checking mode, the indoor unit cannot be controlled by the wired remote controller and there is no display in indoor unit's remote controller. If the indoor unit is turned on/off by the remote controller, it has no effect on the unit.



4.3 Emergency operation

- If a compressor is out of order, the system can be run except the defective compressor by backup function.
To set backup function, set DIP switch like following pictures.



7. Test Run

7.1 Checks Before Test Run

1	Check to see whether there is any refrigerant leakage, and slack of power or transmission cable.
2	<p>Confirm that 500 V megger shows 2.0 MΩ or more between power supply terminal block and ground. Do not operate in the case of 2.0 MΩ or less.</p> <p>NOTE: Never carry out megaohm check over terminal control board. Otherwise the control board would be broken.</p> <p>Immediately after mounting the unit or after leaving it turned off for an extended length of time, the resistance of the insulation between the power supply terminal board and the ground may decrease to approx. 2 MΩ as a result of refrigerant accumulating in the internal compressor. If the insulation resistance is less than 2 MΩ, turning on the main power supply and energizing the crankcase heater for more than 6 hours will cause the refrigerant to evaporate, increasing the insulation resistance.</p>
3	<p>Check if high/low pressure common pipe, liquid pipe and gas pipe valves are fully opened.</p> <p>NOTE: Be sure to tighten caps.</p>
4	<p>Check if there are any problems in automatic addressing or not:</p> <p>Check and confirm that there are no error messages in the display of indoor units or remote controls and LED in outdoor units.</p>



CAUTION

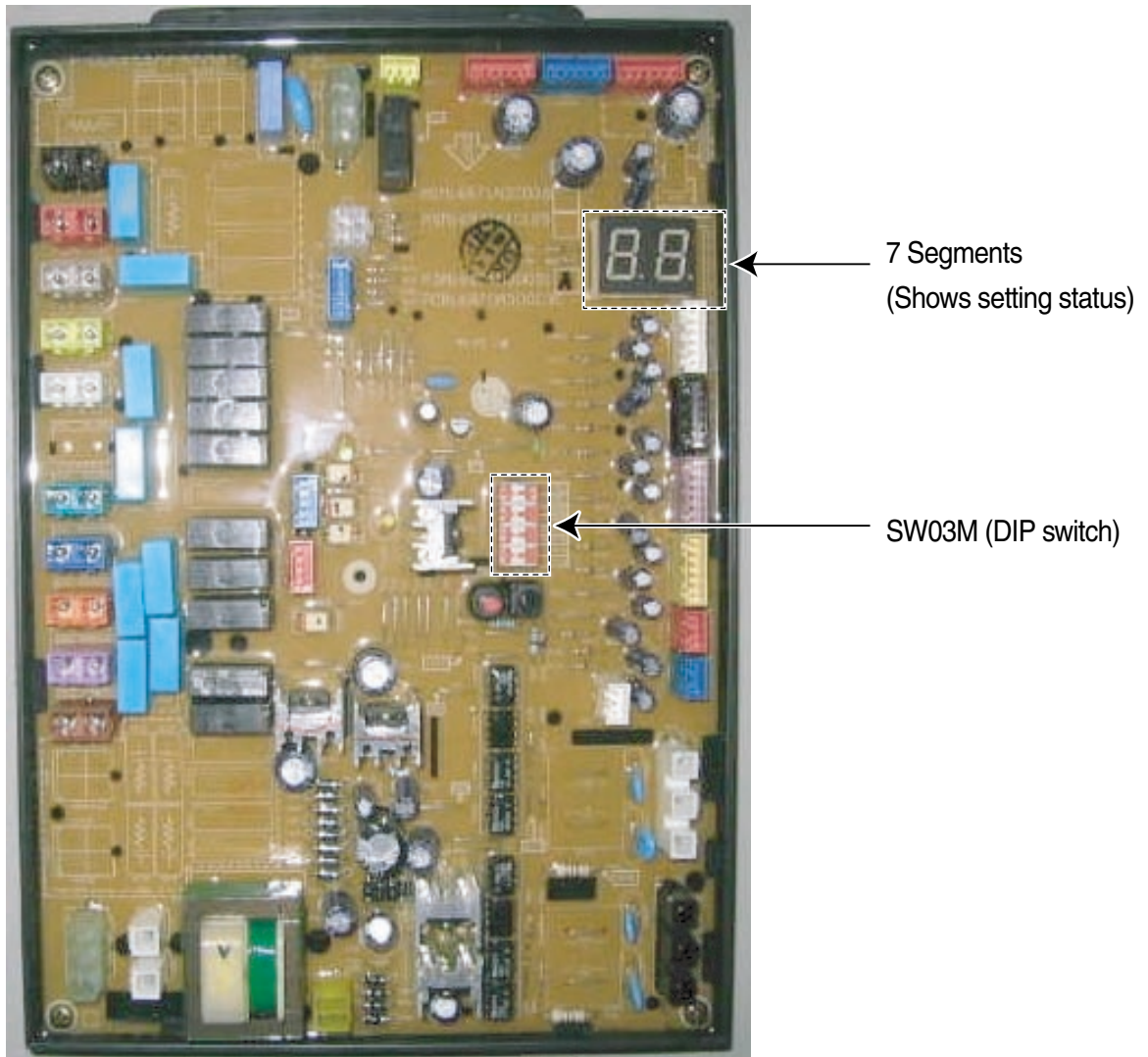
when cutting main power of the Multi V

- Always apply main power of the outdoor unit during use of product (cooling season/heating season).
- Always apply power before 6 hours to heat the crank case heater where performing test run after installation of product. It may result in burning out of the compressor if not preheating the crank case with the electrical heater for more than 6 hours.(In case of the outdoor temperature below 10°C)

7.2 DIP Switch Setting

7.2.1 Location of setting Switch

Main PCB



■ Checking according to dip switch setting

1. You can check the setting values of the outdoor unit from the 7 segment LED.
The dip switch setting should be changed when the power is OFF.
2. It checks whether the input is properly performed without the bad contact of the dip switch or not

■ Checking the setting of the Outdoor unit

The number is sequentially appeared at the 7 segment in 5 seconds after applying the power.
This number represents the setting condition. (For example, represents R410A 10HP) model code →
Total capacity → 2 → 25 → 41

1 ~255 : model code Refer to table code

5~10 : HP number

0 : cooling only 2 : heat pump

25 : normal 41 : R410A model

22 : R22 model



CAUTION

Product may not properly operate if the relevant DIP switch is not properly setup.

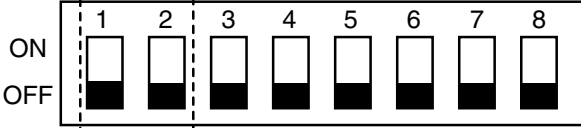
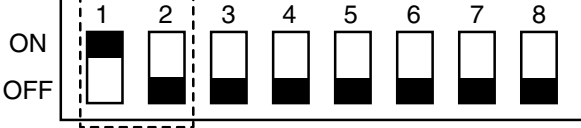
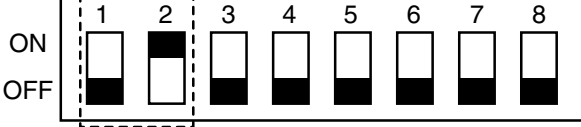
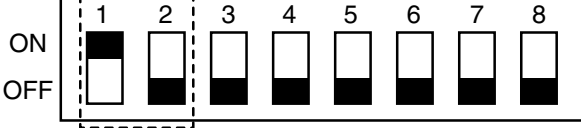
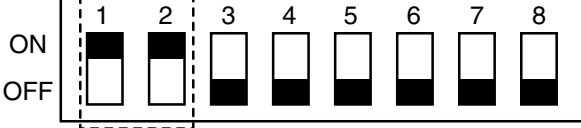
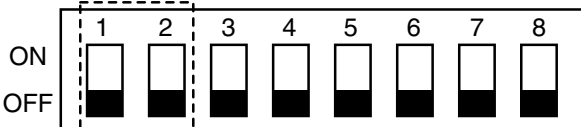
Model Code

Model Code	Unit (HP)	Ref.
60	5	410A
63	10	

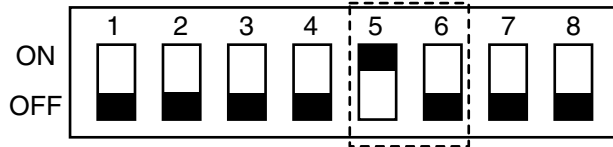
■ Setting the DIP switch (SW03M)

- Set the dip switch with the power turned off. If you change the setting when the power is on, the changed setting is not applied immediately. The changed setting is applied at the moment that the power is on.
- Instant indoor unit checking, data display mode, and forced oil collecting operation are used when the units are running. If you don't have to use those functions after using them, restore the dip switch setting.

1. Settings of main outdoor unit

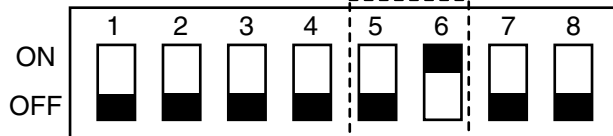
<p>1) Standard mode(default)</p> 	<p>Set before applying the power</p> <p>When the installation condition is normal (almost all cases), use standard mode.</p>
<p>2) Save mode</p> 	<p>Set before applying the power</p>
<p>3) Capacity up</p> 	<p>Set before applying the power</p>
<p>4) Instant indoor unit checking: Cooling mode</p>  <div style="display: flex; align-items: center; margin-left: 20px;"> <div style="margin-right: 10px;"> <input type="radio"/> data <input checked="" type="radio"/> address </div> </div>	<p>With dip switch setting as left side, push address(red) button 3 times in 3 sec.</p> <p>With data button, select the indoor unit that you want to turn on/off. Push address button for 3 sec, and the indoor unit will be turned on/off.</p> <p>After using, restore the dip switch setting.</p>
<p>5) Instant indoor unit checking: Heating mode</p>  <div style="display: flex; align-items: center; margin-left: 20px;"> <div style="margin-right: 10px;"> <input type="radio"/> data <input checked="" type="radio"/> address </div> </div>	<p>With dip switch setting as left side, push address(red) button 3 times in 3 sec.</p> <p>With data button, select the indoor unit that you want to turn on/off. Push address button for 3 sec, and the indoor unit will be turned on/off.</p> <p>After using, restore the dip switch setting.</p>
<p>6) Instant indoor unit checking: Restoring</p> 	<p>If you set the dip switch #1 and #2 off during the instant indoor checking mode, the mode is ended. After that, restore the dip switch setting.</p>

7) Mode locking: Cooling mode only



Set before applying the power

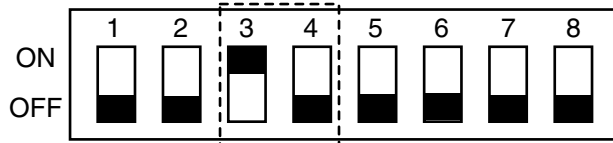
8) Mode locking: Heating mode only



Set before applying the power

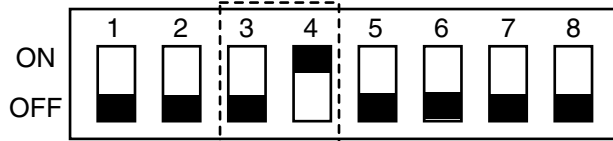
9) Backup operation:

A Comp. backup



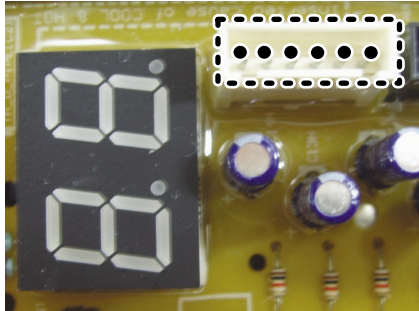
Set before applying the power

B Comp. backup



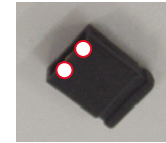
■ Setting the E.S.P (External static pressure)

- Set the connector like the following table when external static pressure is applied on the outdoor unit. If you set the connector, the RPM of outdoor unit's fans will be changed properly.



• Housing (in the Main PCB)

Insert connector on following table



• Connector
(In the bag with installation manual)

1) External Static Pressure 0 ~ 3 mmAq	
2) External Static Pressure 3 ~ 6 mmAq	
3) External Static Pressure 6 ~ 8 mmAq	
4) External Static Pressure 8 ~ 10 mmAq	
5) External Static Pressure 10 ~ 12 mmAq	
6) External Static Pressure 12 ~ 14 mmAq	

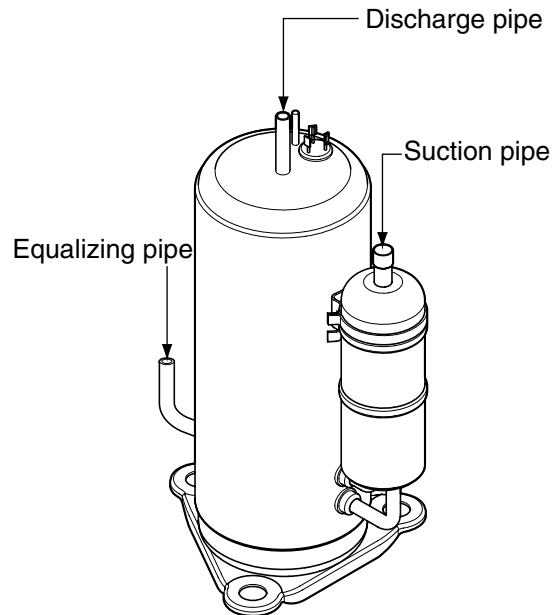


CAUTION

- The product may not properly operate if the connector is not properly setup.

Replacement procedure for Compressor

- 1) **Collect the refrigerant by using refrigerant recovery unit**
(Since the setting on outdoor unit PCB is required for refrigerant recovery, refer to the warning plate "Precautions in service work" attached on the switch box cover)
- 2) **Remove the sound insulator mat covering the faulty compressor, and disconnect the power**
- 3) **Disconnect the brazing sections of suction pipe and discharge pipe by using brazing torch after the refrigerant has been collected completely.**
- 4) **Remove equalizing pipe.**
- 5) **Remove three bolts at cushion rubber section to take out the faulty compressor outside the unit.**
- 6) **Install the new compressor in the unit. (Be sure to insert the cushion rubbers before tightening the fixing bolts of compressor.)**
- 7) **Remove the rubber caps put on the suction and discharge pipe of the new compressor to release the sealing nitrogen gas. (Take note that oil may spout due to the pipe inside pressure if the plug put on the equalizing seat is removed before removing of rubber cap.)**
- 8) **Braze equalizing pipe with nut.**
- 9) **Braze the suction and discharge pipe with brazing torch to the compressor.**



Cut section

- 10) **Conduct air tight test to check the piping system is free from leakage.**
- 11) **Connect power cable to the terminal board of compressor and cover the compressor with sound insulator mat.**
- 12) **Conduct vacuum drying. (Since the setting on outdoor unit PCB is required for vacuum drying, refer to the warning plate precautions in service work" attached on the switch box cover.)**
- 13) **Charge refrigerant after the completion of vacuum drying, and check the function of compressor with cooling or heating operation.**

Trouble shooting guide

Trouble shooting guide

1. The phenomena from main component failure	113
2. Checking Method for Key Components	
2.1 Compressor.....	114
2.2 Fan Motor	115
2.3 Linear Expansion Valve	116
2.4 3Phase Bridge Diode.....	119
2.5 IPM(Integrated Power Module).....	120
2.6 Other.....	121
3. Self-diagnosis function	122

1. The phenomena from main component failure

The phenomena from main component failure

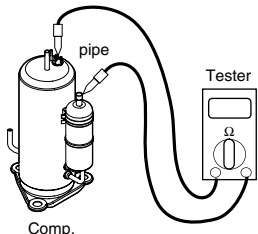
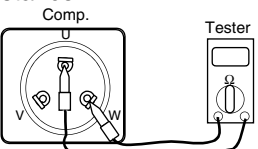
Component	Phenomenon	Cause	Check method and Trouble shooting
Compressor	Not operating	Motor insulation broken	Check resistance between terminals and chassis
	Stop during running	Motor insulation failure	Check resistance between terminals and chassis
	Loud noise during running	Phase sequence fault	Check wiring(R, S, T) sequence, or inter change last two phase connection.
Outdoor fan	High pressure error at cooling	Motor failure, bad ventilation around outdoor heat exchanger	Check the outdoor fan operation after being turned the outdoor units off for some time. Remove obstacles around the outdoor units
Outdoor LEV	Heating failure, frequent defrosting	Bad connector contact	Check connector
	No operating sound at applying power	Coil failure	Check resistance between terminals
	Heating failure, frozen outdoor heat exchanger part	LEV clogged	Service necessary
	Low pressure error or discharge temperature error	LEV clogged	Service necessary

When system fault occurs, the error code is displayed at indoor unit display or remote control display, the trouble shooting guide is in the service manual

2. Checking Method for Key Component

2.1 Compressor

Check and ensure in following order when error related with the compressor or error related with power occurs during operation:

No.	Checking Item	Symptom	Countermeasure
1	Is how long power on during operation?	1) Power on for 12 hours or more	* Go to No.2.
		2) Power on for 12 hours or less	* Go to No.2 after applying power for designated time (12 hours).
2	Does failure appears again when starting operation? Method to measure insulation resistance  Figure 1. Method to measure coil resistance  Figure 2.	1) The compressor stops and same error appears again.	* Check IMP may fail.
		2) If output voltage of the inverter is stable *1	* Check coil resistor and insulation resistor. If normal, restart the unit. If same symptom occurs, replace the compressor. * Insulation resistor: 2MW or more Coil resistor: U-V: 1.083Ω V-W: 1.123Ω W-U: 1.096Ω
		3) If output voltage of the inverter is unstable or it is 0V. (When incapable of using a digital tester)	* Check the IPM. If the IPM is normal, replace the inverter board. * Check coil resistor and insulation resistor.

[Cautions when measuring voltage and current of inverter power circuit]

Measuring values may differ depending on measuring tools and measuring circuits since voltage, current in the power supply or output side of the inverter has no sine waveform.

Especially, output voltage changes when output voltage of the inverter has a pattern of pulse wave.

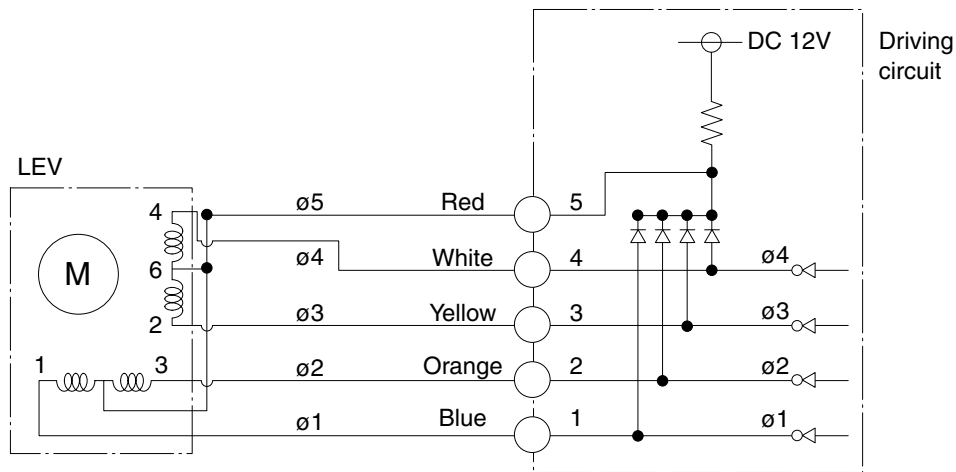
In addition, measuring values appear largely differently depending on measuring tools.

- 1) If using a movable tester when checking that output voltage of the inverter is constant (when comparing relative voltage between lines), always use an analog tester. Especially exercise particular caution if the output frequency of the inverter is low, when using a movable tester, where change of measured voltage values is large between other lines, when virtually same values appear actually or where there is danger to determine that failure of the inverter occurred.
- 2) You can use rectification voltmeter (→+) if using commercial frequency tester when measuring output values of the inverter (when measuring absolute values). Accurate measuring values cannot be obtained with a general movable tester (For analog and digital mode).

2.2 Fan Motor

Checking Item	Symptom	Countermeasure
<p>(1) The fan motor does not operate. Does failure appears again when starting operation?</p> <p>(2) Vibration of the fan motor is large.</p>	1) When power supply is abnormal	<p>* Modify connection status in front of or at the rear of the breaker, or if the power terminal console is at frosting condition.</p> <p>* Modify the power supply voltage is beyond specified scope.</p>
	2) For wrong wiring	<p>* For following wiring.</p> <ol style="list-style-type: none"> 1. Check connection status. 2. Check contact of the connector. 3. Check that parts are firmly secured by tightening screws. 4. Check connection of polarity. 5. Check short circuit and grounding.
	3) For failure of motor	<p>* Measure winding resistance of the motor coils. 8.9Ω ±5%(75°C)</p>
	4) For defective fuse 5) For failure of circuit board	<p>* Replace the fuse if there is defect (Fuse 800V 30A). Replace the circuit board in following procedures if problems occur again when powering on and if there are no matters equivalent to items as specified in above 1) through 4). (Carefully check both connector and grounding wires when replacing the circuit board.)</p> <ol style="list-style-type: none"> 1. Replace only fan control boards. If starting is done, it means that the fan control board has defect. 2. Replace both fan control board and the main board. If starting is done, it means that the main board has defect. 3. If problems continue to occur even after countermeasure of No.1 and No.2, it means that both boards has defect.

2.3 Linear Expansions Valve



• Pulse signal output value and valve operation

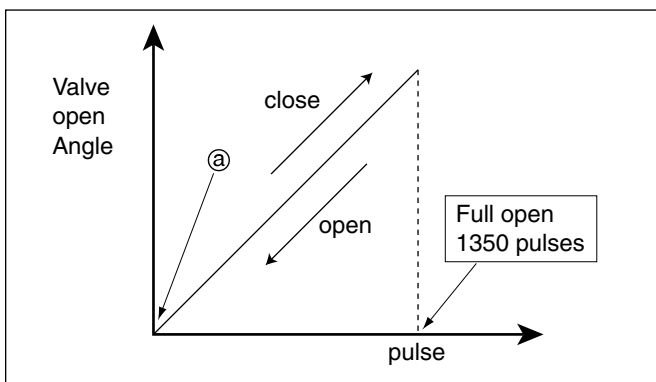
Output(ø) No.	Output state							
	1	2	3	4	5	6	7	8
ø1	ON	OFF	OFF	OFF	OFF	OFF	ON	ON
ø2	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
ø3	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
ø4	OFF	OFF	OFF	OFF	ON	ON	ON	OFF

• Output pulse sequence

- In valve close state: 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1
- In valve open state: 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8

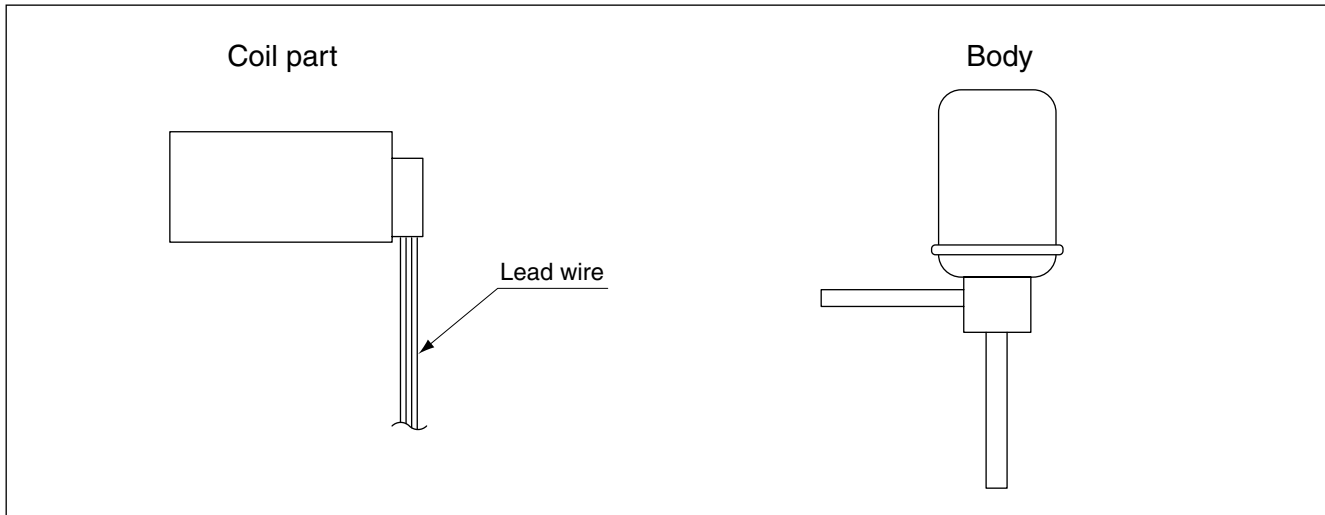
- * 1. If LEV open angle is not changed, all of output phase will be OFF
- 2. If output phase is different or continuously in the ON state, motor will not operate smoothly and start vibrating.

• LEV valve operation

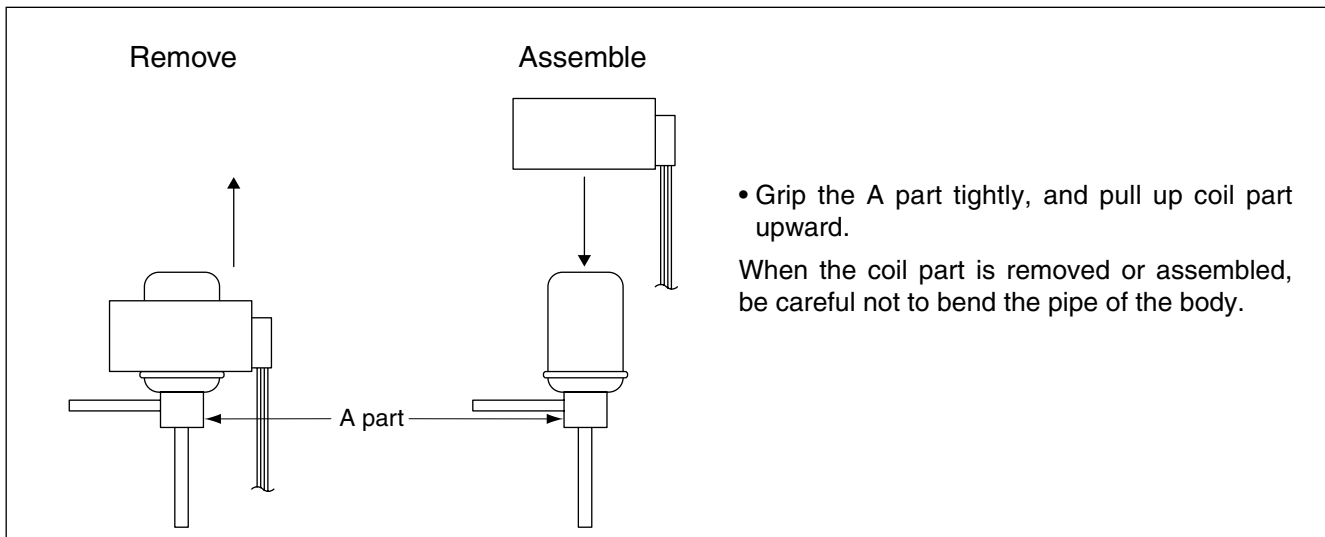


- At power ON, open angle signal of 1400 pulses output and valve position is set to @
- If valve is operated smoothly, no noise and vibration is occurred and if valve is closed. noise occurs.
- If you contact screw driver to LEV, and contact your ear to driver hand grip. you can confirm the noise from LEV.
- If liquid refrigerant is in LEV, the noise is lower.

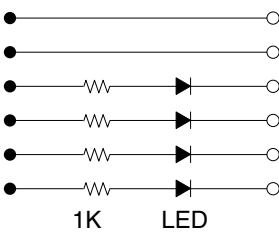
• LEV Coil and body(Outdoor unit)



• Remove and assemble the coil

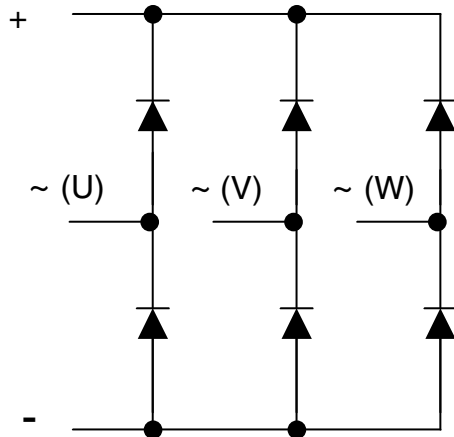


• LEV failure check method

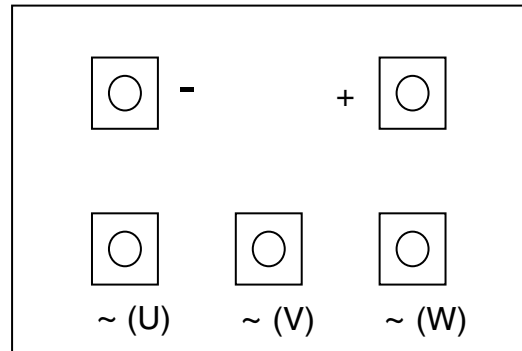
Failure mode	Diagnosis	Repair process	Unit
Microcomputer Driving circuit failure	<p>1. Disconnect the LEV connector form control board and connect testing LED</p>  <p style="text-align: center;">1K LED</p> <p>2. Main power ON, pulse signal is out from LEV for 17 sec. If LEDs do not turn on, or are in on state continuously, then driving circuit is abnormal</p>	Check and replace Indoor unit control board	Indoor unit
LEV locking	1. If LEV is locked, in no load state, the driving motor rotate, and clicking sound always occurs	Replace LEV	Indoor / Outdoor unit
LEV Motor coil short or misconnection	<p>1. Check the resistance between coil terminal (red-white, red-yellow, red-orange, red-blue)</p> <p>2. If the estimated resistance value is in $52 \pm 3\Omega$ then the LEV is normal</p>	Replace LEV	Outdoor unit
	<p>1. Check the resistance between coil terminal (brown-white, brown-yellow, brown-orange, brown-blue)</p> <p>2. If the estimated resistance value is in $150 \pm 10\Omega$ then the LEV is normal</p>	Replace LEV	Indoor unit
Full closing (valve leakage)	<p>1. Operate indoor unit with FAN mode and operate another indoor unit with COOLING mode</p> <p>2. Check indoor unit(FAN mode) liquid pipe temperature (from operation monitor of outdoor unit control board)</p> <p>3. When fan rotate and LEV is fully closed, if there is any leakage, then the temperature is down</p> <p>If estimated temperature is very low in comparison with suction temperature which is displayed at remote controller then the valve is not fully closed</p>	If the amount of leakage is much, Replace LEV	Indoor unit

2.4 3Phase Bridge Diode

Internal circuit diagram



Appearance



1. Unplug the + terminal of electrolytic capacitor from the + terminal of 3phase bridge diode
2. Set the multi meter to resistance mode
Check and estimate the resistance between each pair of terminal (+, -), (+, ~(U)), (+, ~(V)), (+, ~(W)), (~(U), -), (~(V), -), (~(W), -), the estimated value should be large enough to Mega Ohm unit.
3. Set the multi meter to diode mode, and estimate between each pair of terminal (~(U), +), (~(V), +), (~(W), +), (-, ~(U)), (-, ~(V)), (-, ~(W)), the estimated value should be stable and be in between 0 to 1. (ex: 0.35, 0.46 etc.)



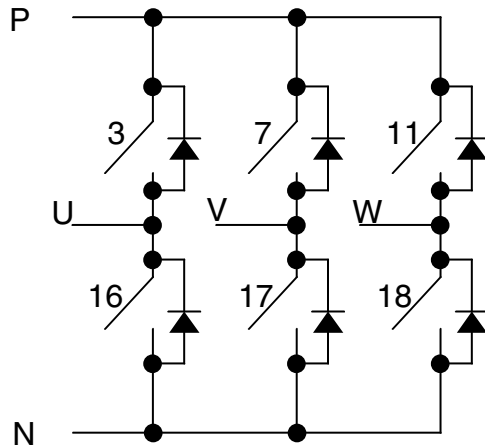
If one of the above articles is not satisfied, bridge diode must be inferior and to be replaced

Caution

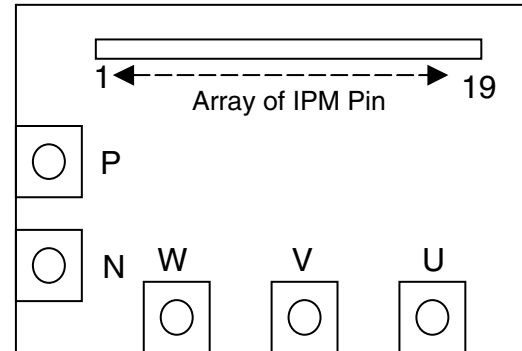
In case that the control box is opened and before checking electrical parts, it should be checked that the LED 01Y (in inverter board, refer to page 172) turned off (wait 3 minutes after main power OFF), otherwise it may cause electrical shock.

2.5 IPM(Integrated Power Module)

Internal circuit diagram



Appearance



1. Unplug the +, - terminal of electrolytic capacitor from the P and N terminal of IPM
2. Set the multi meter to resistance mode
Check and estimate the resistance between each pair of terminal **(P, N), (P, U), (P, V), (P, W), (U, N), (V, N), (W, N)**, the estimated value should be large enough to Mega Ohm unit.
3. Set the multi meter to resistance mode
Check and estimate the resistance between each pair of terminal **(3, U), (7, V), (11, W), (16, N), (17, N), (18, N)**, the estimated value should be large enough to Mega Ohm unit.
the check point is inside of the screw hole **(U, V, W, N)**, if check points are plate face of the terminal, then estimated values are gate resistance.
4. Set the multi meter to diode mode, and estimate between each pair of terminal **(U, P), (V, P), (W, P), (N, U), (N, V), (N, W)**, the estimated value should be stable and be in between 0 to 1. (ex: 0.35, 0.46 etc.)



If one of the above articles is not satisfied, IPM must be inferior and is to be replaced

Caution

In case that the control box is opened and before checking electrical parts, it should be checked that the LED 01Y (in inverter board, refer to page 172) turned off (wait 3 minutes after main power OFF), otherwise it may cause electrical shock.

2.6 Other

Electrolytic capacitor and resistor for voltage distribution

- 1) Disconnect an terminal of voltage distribution resistor from each DC link electrolytic capacitor
- 2) Set the multi meter to resistance mode, connect the probe to +,- terminal of the capacitor. If the estimated resistance value is increase continuously without short(value is 0), then the resistor is normal
- 3) Set the multi meter to resistance mode, confirm that the resistance value of the resistor is around 270 kOhm



Check and replace inferior components

Caution

In case that the control box is opened and before checking electrical parts, it should be checked that the LED 01Y turned off (wait 3 minutes after main power OFF), otherwise it may cause electrical shock.

3. Self-diagnosis function

Self-Diagnosis Function

Error Indicator

- This function indicates types of failure in self-diagnosis and occurrence of failure for air condition.
- Error mark is displayed on display window of indoor units and wired remote controller, and 7-segment LED of outdoor unit control board as shown in the table.
- If more than two troubles occur simultaneously, lower number of error code is first displayed.
- After error occurrence, if error is released, error LED is also released simultaneously.

	Display		Title	Cause of Error
Indoor unit related error	0	1	Air temperature sensor of indoor unit	Air temperature sensor of indoor unit is open or short
	0	2	Inlet pipe temperature sensor of indoor unit	Inlet pipe temperature sensor of indoor unit is open or short
	0	3	Transmission error : wired remote controller ↔ indoor unit	Failing to receive wired remote controller signal at indoor unit PCB
	0	4	Drain pump	Malfunction of drain pump
	0	5	Transmission error : outdoor unit ↔ indoor unit	Failing to receive outdoor unit signal at indoor unit PCB
	0	6	Outlet pipe temperature sensor of indoor unit	Outlet pipe temperature sensor of indoor unit is open or short
	0	7	Different operation mode	Operation mode between indoor unit and outdoor unit is different
	0	8	Indoor LEV	Malfunction of indoor LEV
	0	9	Serial No.	In the case that the serial number marked on EEPROM of indoor unit is 0 or FFFFFF
	1	0	Poor fan moto operation	Disconnecting the fan motor connector/Failure or indoor fan motor lock.
	1	1	Transmission error : indoor unit → main PCB of outdoor.	When the addressing signal doesn't come out for 3mins. suddenly, while the indoor unit gets the calling signal coming from the outdoor unit.
Power related error	2	1	DC peak	IPM fault or overcurrent to compressor
	2	2	Overcurrent of inverter comp.	Overcurrent flows to inverter compressor
	2	3	Poor voltage charge for driving INV compressor	DC charging is not performed after starting relay turn on
	2	4	High pressure switch	System is off by high pressure switch
	2	5	Low/Over voltage	Input voltage is out of tolerable range.
Compressor related error	3	2	Discharge temperature (INV compressor A)	System is off due to rising of INV compressor A discharge temperature
	3	3	Discharge temperature (INV compressor B)	System is off due to rising of INV compressor B discharge temperature
	3	4	High pressure	System is off by excessive increase of high pressure
	3	5	Low pressure	System is off by excessive decrease of low pressure

	Display		Title	Cause of Error
Outdoor unit related error	4	0	Current sensor of inverter compressor	Current sensor of inverter compressor is open or short
	4	1	Discharge temperature sensor of inverter compressor A	Discharge temperature sensor of inverter compressor A is open or short
	4	2	Low pressure sensor	Low pressure sensor is open or short
	4	3	High pressure sensor	High pressure sensor is open or short
	4	4	Air temperature sensor	Air temperature sensor is open or short
	4	5	Temperature sensor of Upper-part heat exchanger	Temperature sensor of Upper-part heat exchanger is open or short
	4	6	Suction temperature sensor of main outdoor unit	Suction temperature sensor of main outdoor unit is open or short
	4	7	Discharge temperature sensor of inverter compressor B	Discharge temperature sensor of inverter compressor B is open or short.
	4	8	Temperature sensor of Lower-part heat exchanger	Temperature sensor of Lower-part heat exchanger is open or short
	4	9	Outdoor voltage sensing error	1. Abnormal input voltage 2. Outdoor line fuse damage 3. Defective outdoor main PCB
Transmission related error	5	1	Excessive capacity of indoor units	Excessive connection of indoor units compared to capacity of outdoor unit
	5	2	Transmission error : inverter PCB → main PCB	Failing to receive inverter signal at main PCB
	5	3	Transmission error : indoor unit → main PCB of outdoor unit	Failing to receive indoor unit signal at main PCB of outdoor unit
	5	4	Reverse connection of R, S, T power of main outdoor unit	Reverse connection or omitting connection of R, S, T power of main outdoor unit
	5	7	Transmission error : main PCB → inverter PCB	Failing to receive main PCB signal at inverter PCB
Outdoor unit related error	6	2	Overheat of inverter heatsink	Overheat of inverter heatsink
	6	5	Temperature sensor of heatsink	Temperature sensor of heatsink is open or short

Self-diagnosis function

	Display			Title	Cause of Error
Transmission related error	1	0	5	Transmission error : fan PCB → main PCB	Failing to receive fan signal at main PCB
	1	0	6	Over-current of fan motor (IPM fault)	Over-current of fan motor (IPM fault)
	1	0	7	Low voltage of fan motor driver	Low voltage of fan motor driver
	1	0	8	Transmission error : main PCB → fan PCB	Failing to receive main signal at fan PCB
Outdoor unit related error	1	1	3	Liquid pipe temperature sensor	Liquid pipe temperature sensor is open or short
	1	1	4	Subcooling inlet temperature sensor	Subcooling inlet temperature sensor is open or short
	1	1	5	Subcooling outlet temperature sensor	Subcooling outlet temperature sensor is open or short
	1	5	1	Failure of operation mode conversion	Pressure unbalance between outdoor units

■ Please refer to trouble shooting guide in service manual for each error title



CAUTION

In case that the control box is opened and before checking electrical parts, it should be checked that the LED 01M (Refer to next page) turned off (wait 3 minutes after main power OFF), otherwise, it may cause electrical shock.

Error Code	Error Contents	Meaning	Main Causes	Error display position
01	Indoor Unit room temp.sensor error	Indoor Unit sensor open or short	1. Sensor wrong connection 2. Sensor open/Short 3. Defective Indoor Unit PCB 4. Defective Sensor	Concerned Remote controller Panel Display
02	Unit inlet pipe temp.sensor error (Indoor Unit)			
06	Outlet pipe temp. sensor error (Indoor Unit)			

■ Defect inspection method :

- 1) Check the connecting point of the sensor with the PCB (Sensor's Connector).
Is the sensor connecting condition correct ? Otherwise, reconnect the sensor at the correct position.
 - 2) Remove the sensor and measure its resistance with a tester.
Room temp sensor : 10°C = 20.7kΩ : 25°C = 10kΩ : 50°C = 3.4kΩ
Pipe temp sensor : 10°C = 10kΩ : 25°C= 5kΩ : 50°C = 1.8kΩ
 - 3) Replace the sensor if it is not having a correct resistance value.
 - 4) If there is no problem with the sensor and the sensor connection then replace the Indoor Unit PCB.
- Panel Display indication method : Error code and the LED blinking counts are indication.

Error Code	Error Contents	Meaning	Main Causes	Error display position
03	Communication error between Indoor Unit and the Wired Remote Controller	In case the wired Remote Controller cant receive the signal from the Indoor Unit	1. Defective wired Remote controller. 2. Defective Indoor Unit PCB . 3. Defective Connector connection 4. Defective wire of the Wired Remote Controller	Concerned Remote Controller Panel Display

■ Defect inspection method :

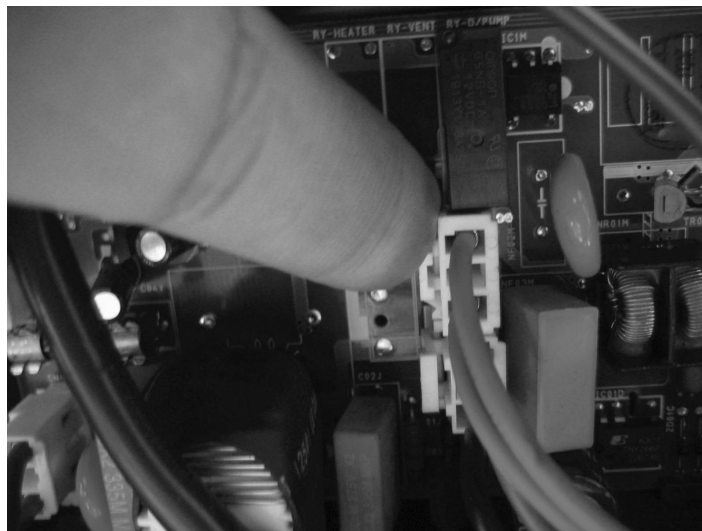
- 1) Check the connection point of the Wired Remote Controller (Connecting Connector).
- 2) In case the Wired Remote Controller's cable is installed near the AC power line, then they must be separated by distance of at least 30cm.
- 3) In case the replaced Remote Controller has no defect, then the originally installed Remote Controller is defective.
- 4) In case the error code exists even after the replacement of the Remote Controller, then the Remote Controller is not defective and hence only Indoor Unit PCB should be replaced.
- 5) In case error code exists even after the replacement of the Wired Remote Controller and the Indoor Unit PCB, then replace the cable connecting the Wired Remote Controller and Indoor Unit.

Troubleshooting Guide

Error Code	Error Contents	Meaning	Main Causes	Error display position
04	Indoor Unit drain pump error	In case of the Indoor Unit drain pump defect the condensed water level rises and float switch (sensor) detects the error .	1. Defective drain pump / float switch 2. Defective drain (hose chocked / improper inclination) 3. Defective PCB in the Indoor Unit	Concerned Remote controller Panel Display

■ Defect inspection method :

- 1) Check the proper functioning of the drain pump in case of any drain water? (Functioning sound / check the water flowing)
- 2) In case the drain pump is not working properly, then check the 220V power supply at the drain pump terminal with a tester.
In case the drain pump do not function properly after power supply to the to the PCB, then replace the drain pump.
- 3) In case of no power at the PCB terminal, then replace the Indoor Unit PCB.
- 4) In case the drain pump is OK, then check whether the hose is chocked or the drain pipe is improper and make sure to correct the drain flow error if any.
- 5) In case the drain pump is OK and there is no drain water in drain pan and still the error code is displayed? Then check whether the float sensor is touching the chassis. In case the float switch sensor is not touching the chassis and still the error code exists, then the float switch has the error. In such a case, the drain pump assembly must be replaced.



Drain Pump connector

Error Code	Error Contents	Meaning	Main Causes	Error display position
05	Communication error between the Outdoor and Indoor Unit	In case the Indoor Unit does not receive any signal from the Outdoor Unit .	<ol style="list-style-type: none"> 1. Defective "Auto-Addressing" 2. Defective communication connections between Indoor and Outdoor Unit 3. Communication cable is open or short 4. Defective Indoor Unit communication circuit 5. Defective outdoor unit communication circuit 6. Insufficient distance between the power line and the communication cable 7. Outdoor main power Line Fuse damage. 	<p>Concerned Remote controller</p> <p>Panel Display</p>

■ Defect inspection method :

[In case all Indoor Units display 'ch05' error code]

- 1) Check whether the "Auto-Addressing" was in operation or not.
- 2) Check whether the Outdoor Unit power is off .
If the Outdoor Unit power is Off then check the cause and put the power On. (Cause : Comp electric leakage or damage, ELB (breaker) defect, electric short between the power line etc)
- 3) Check whether the outdoor control box communication wire is connected properly at the terminal
- 4) Check whether the communication wire is open or short , in such a case remove the defect cause.(Wire open confirmation : After power Off, short the communication wire with each other and measure the resistance of the communication wire by a tester › In case the resistance is above 5Ω, then the wire is open (Wire short confirmation : After power Off, separate the communication wire and measure the resistance of the communication wire by a tester › In case the resistance is below 5Ω, then the the wire is short)
- 5) In case the causes mentioned in clause 1)~3) does not exists, then all communication wire of the Indoor Unit must be separated and the all Indoor Unit communication wire by connecting to the Outdoor Unit one by one . (Defective Indoor Unit PCB connection can cause the communication error) › Replace the concerned Indoor Unit PCB.

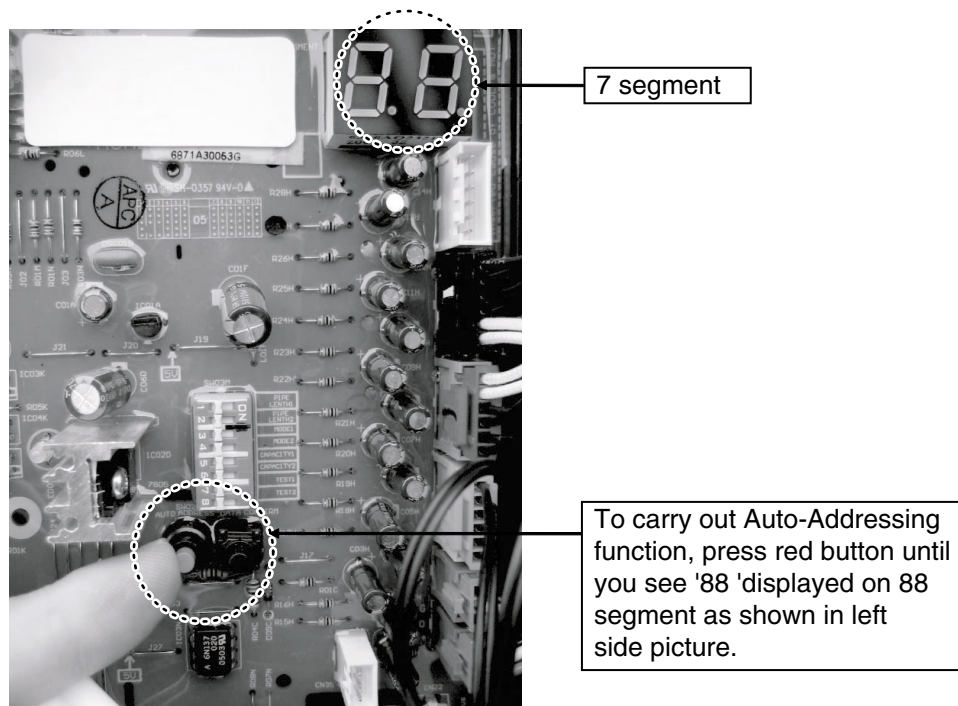
Troubleshooting Guide

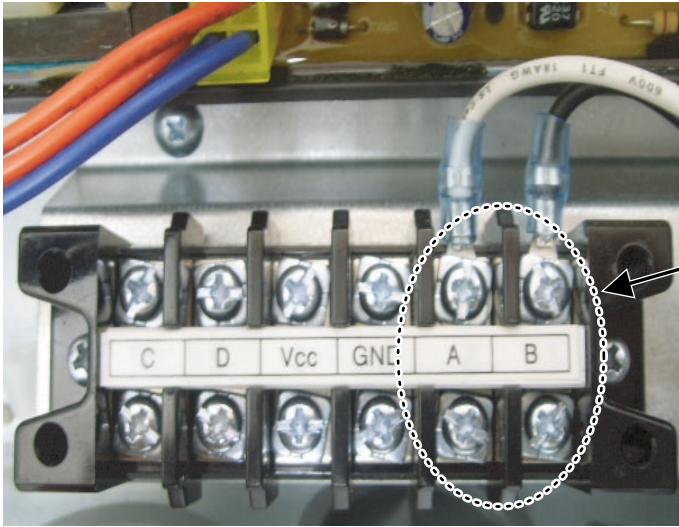
[In case only one Indoor Unit or only few Indoor Units display 'ch05' error]

- 1) Re-operate the Auto-Addressing function and then confirm the Auto-Addressing in all Indoor Units. Auto-Addressing can be confirmed at the Wired Remote Controller.
In case of the Indoor Units not having the Wired Remote Controller, check the blinking counts of the Indoor Unit panel (Auto-Addressing must be operated after minimum 1 minute of power On) › Check the Indoor Unit not having Auto-Addressing and replace the concerned unit PCB if required.
- 2) Make sure to separate the communication wire and the power line (AC220/380V) by a distance of minimum 30 cm.

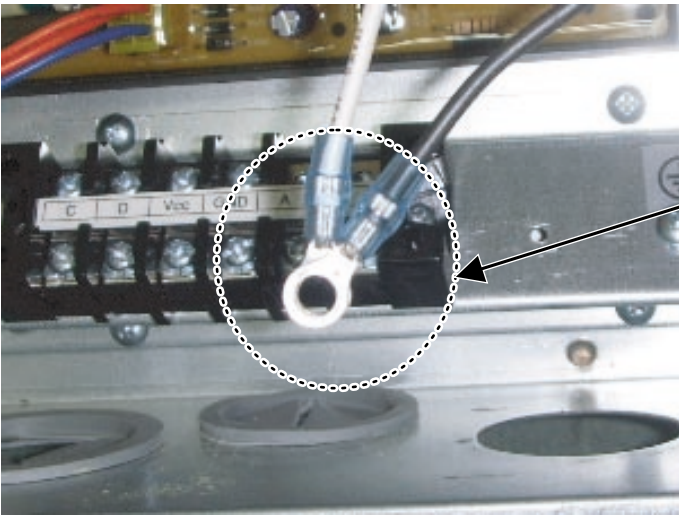
CAUTION

- In case you replace the communication wire by power 220V line, then the connected PCB gets damaged or burnt.



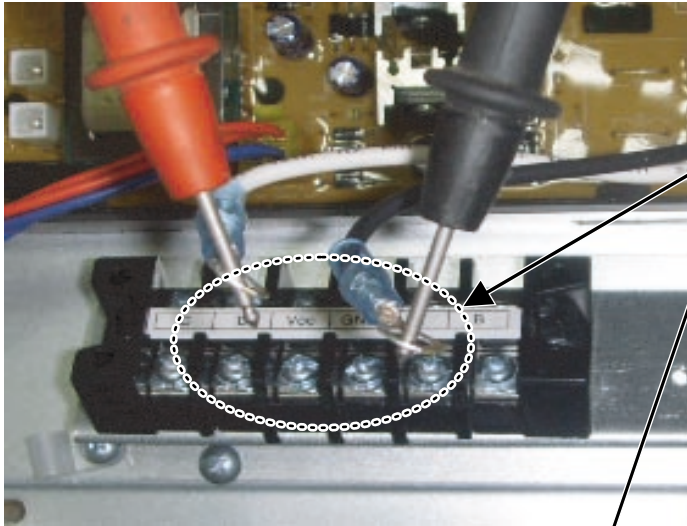


Terminal A, B :
- Communication terminal between outdoor & indoor

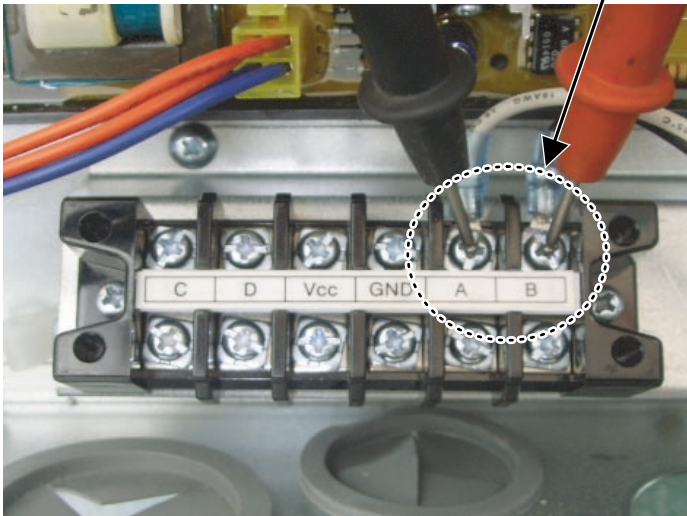


Short the communication wire with each other

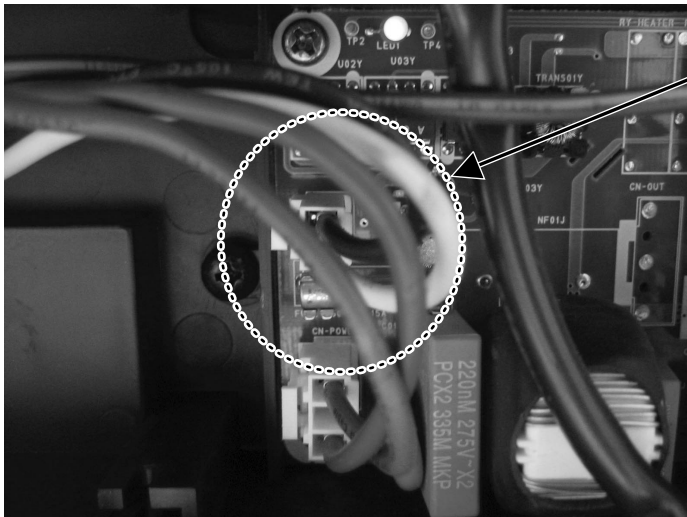
► Communication wire & terminal in the outdoor



Measure resistance



► Communication wire & terminal in the indoor



Communication terminal
In the indoor.

Error Code	Error Contents	Meaning	Main Causes	Error display position
06	Indoor Unit outlet pipe temp. sensor error	Indoor Unit sensor open or short	Refer to CH01	

Error Code	Error Contents	Meaning	Main Causes	Error display position
07	All Indoor Units are not running in the same mode(All units must run either in heating or cooling mode)	The Indoor Unit later started is in different mode than the unit started at first .	<ol style="list-style-type: none"> 1. The Indoor Units are in a different operation mode. 2. The error display will be in the Wired Remote Controller of the unit started later. 	<p>Concerned Remote controller</p> <p>Panel Display</p>

■ Defect inspection method :

- 1) Error removal method : Press the On/Off button on the Wired Remote controller. The error code will be removed automatically after a few seconds.
- 2) Immediately change the operation mode after the pressing the On/Off button. (The same operation mode as in the original Indoor Unit started at first (other than the defective unit mode) (heating /cooling)

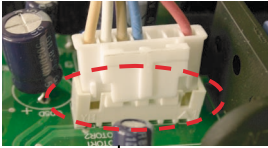
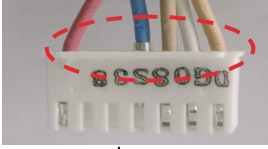
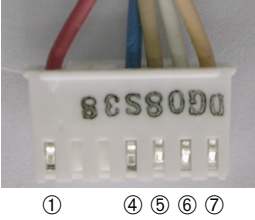
Error Code	Error Contents	Meaning	Main Causes	Error display position
09	Indoor Unit EEPROM error	Problem developed in the EEPROM inside the PCB of the Indoor Unit	<ol style="list-style-type: none"> 1. Error developed in communication between the Microprocessor and the EEPROM on the surface of the PCB. 2. ERROR due to the EEPROM damage 	<p>Concerned Remote controller</p> <p>Panel Display</p>

■ Defect inspection method :

- 1) Check whether there is some stains at the EEPROM PIN (Lead remnants) . Remove this unwanted material and re-operate the "Auto-Addressing".
- 2) Replace the Indoor Unit PCB.

Troubleshooting Guide

Error Code	Error Contents	Meaning	Main Causes	Error display position
10	Indoor unit related error	Failure of the fan motor operation	Disconnecting the fan motor connector / failure	Concerned Remote controller Panel Display

Cause of problem	Checking method	Measures																								
<p>■ The fan is locked by an interference with another object.</p> <p>↓</p> <p>1) Remove motor connector</p>  <p>↓</p> <p>2) Remove housing terminal</p>  <p>↓</p> <p>3) Disconnected or crushed wired</p> <p>↓</p> <p>■ Burn out of PCB within the motor etc.</p>  <p>↓</p> <p>■ Failure capacitor part (TD chassis)</p> <p>↓</p> <p>■ PCB indoor unit</p>	<p>■ Turn the fan with hand and check whether it is locked</p> <p>1) Check with naked eye</p> <p>2) Check with naked eye</p> <p>3) Check with naked eye</p> <p>■ Check the resistance value of each terminal with the tester</p> <table border="1"> <thead> <tr> <th colspan="2">Tester</th> <th colspan="2">Normal resistance (±10%)</th> </tr> <tr> <th>+</th> <th>-</th> <th>TH chassis</th> <th>TD chassis</th> </tr> </thead> <tbody> <tr> <td>①</td> <td>④</td> <td>∞</td> <td>∞</td> </tr> <tr> <td>⑤</td> <td>④</td> <td>102kΩ</td> <td>5MΩ ~ 30MΩ</td> </tr> <tr> <td>⑥</td> <td>④</td> <td>∞</td> <td>∞</td> </tr> <tr> <td>⑦</td> <td>④</td> <td>235kΩ</td> <td>251kΩ</td> </tr> </tbody> </table> <p>■ Check the resistance of both ends of the capacitor (Normal : ∞)</p>	Tester		Normal resistance (±10%)		+	-	TH chassis	TD chassis	①	④	∞	∞	⑤	④	102kΩ	5MΩ ~ 30MΩ	⑥	④	∞	∞	⑦	④	235kΩ	251kΩ	<p>■ Unlock by reassembling etc.</p> <p>■ Repair or exchange motor</p> <p>■ Exchange motor</p> <p>■ Exchange capacitor</p> <p>■ Exchange capacitor</p>
Tester		Normal resistance (±10%)																								
+	-	TH chassis	TD chassis																							
①	④	∞	∞																							
⑤	④	102kΩ	5MΩ ~ 30MΩ																							
⑥	④	∞	∞																							
⑦	④	235kΩ	251kΩ																							

Error Code	Error Contents	Meaning	Main Causes	Error display position
11	Indoor unit related error	Outdoor unit cannot recognize the indoor unit	Auto addressing does not work after exchanging to new PCB	Concerned Remote controller Panel Display

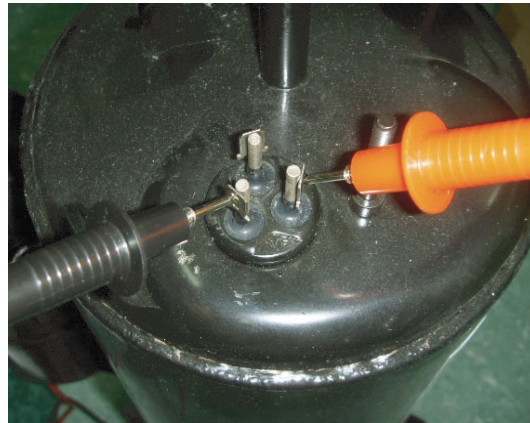
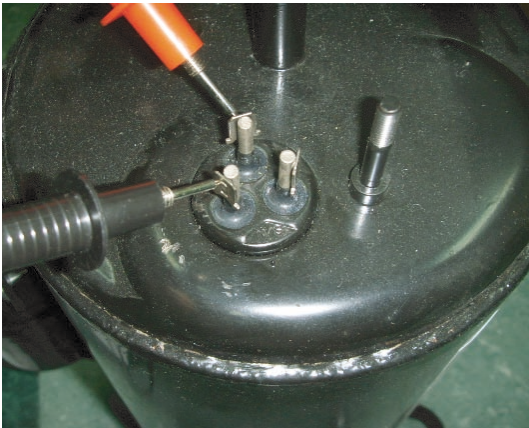
■ **Auto addressing for outdoor unit**

Error Code	Error Contents	Meaning	Main Causes	Error display position
21	Protection of Inverter compressor from over current (Detection of over 80A per 1.8ms IPM)	Defective inverter compressor, Inverter element (IPM) defect	1. Over current detection at the inverter compressor (U,V,W) 2. IPM Overheating . 3. Insulation damage of the compressor / motor damage 5. Low input voltage at the outdoor 6. Inverter compressor terminal disconnected or loose . 7. Inverter PCB/IPM PCB defect	Concerned Remote controller Panel Display Outdoor unit

■ Defect inspection method :

- 1) Check whether the insulation of the compressor, motor coil resistance is normal ? Otherwise, replace the compressor .
 - Motor Coil resistance normalcy : Resistance between each terminal of Inverter compressor = $1.33\Omega \pm 7\%$, Resistance between the each terminal of the constant speed compressor = $1.83\Omega \pm 7\%$ (The 3 measured value must be similar)
 - Insulation normalcy : Resistance between the compressor terminal and the product body = Above $2M\Omega$ (Measured within specified time after the compressor stop)
- 2) Check whether the IPM/3 phase rectification Diode is normal ? Otherwise, replace the IPM/ Diode .
 - Tester : After setting the Diode mode , test with the tester probe in + , - sequence.
 - IPM:'U-P/V-P/W-P' measurement : 0.3~0.6 V, Reverse polarity measurement : Above 2.6 V
 'N-U/N-V/N-W' measurement : 0.3~0.6 V, Reverse polarity measurement : Above 2.6 V
 - 3 phase rectification diode : ~ & + / ~ & + / ~ & + ' sequential measurement : 0.3~0.6 V, Reverse polarity measurement : Above 2.6V
- 3) Check whether the input voltage is 360V~410V(AC).
- 4) Check the balance between each phase at the main breaker of the building (phase distribution) (Below 5~10V).
- 5) Check whether the terminal connection is normal ?
(Comp connecting terminal, IPM connecting terminal, diode connecting terminal, capacitor connecting terminal)
- 6) Check whether the IPM Pin connecting to PCB soldering is normal ?
(Dismantle the PCB and check the soldering at the back side of the PCB .)
In case if any abnormality please replace the IPM PCB.
- 7) Check whether the Outdoor Unit fan is working ? In case of any abnormality please check the outdoor fan (Refer to CH105~CH108)
- 8) Check whether the supplied power is normal or insufficient.
- 9) After the inspection, check whether the input power to the IPM during the trial run is 450V~560V(DC).
(Set the tester at the DC mode)
Check the IPM terminal connecting condition.
(Comp connecting terminal, IPM connecting terminal, diode connecting terminal, capacitor connecting terminal)
- 10) Measure the current at each phase (U,V,W) of the inverter compressor during the trial run after the completion of the inspection.
In case the deviation between the current in each phase is above 1.5A then replace the PCB .

► Resistance measure between phases of compressor

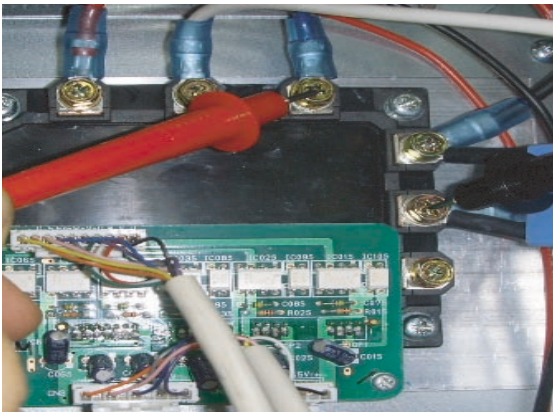
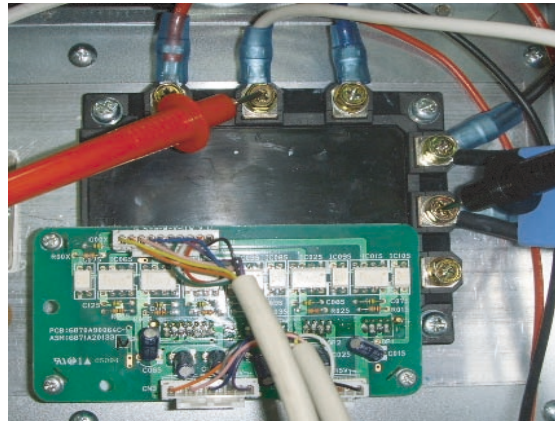
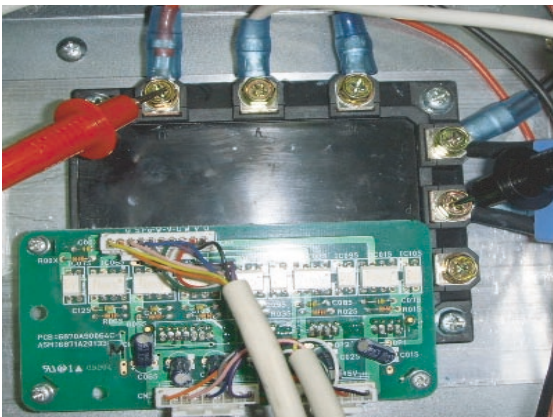


Troubleshooting Guide

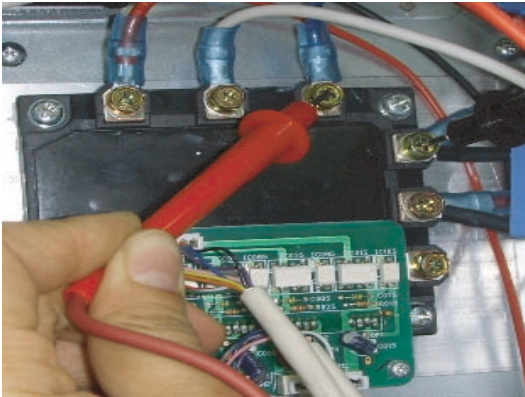
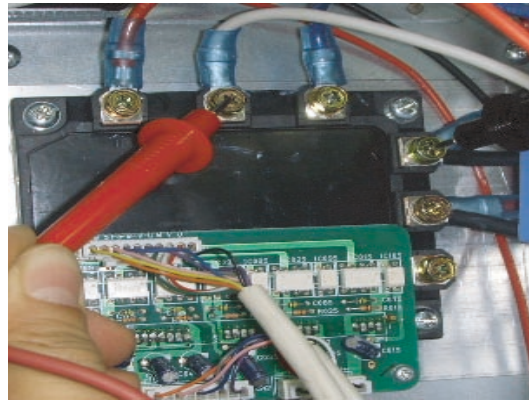
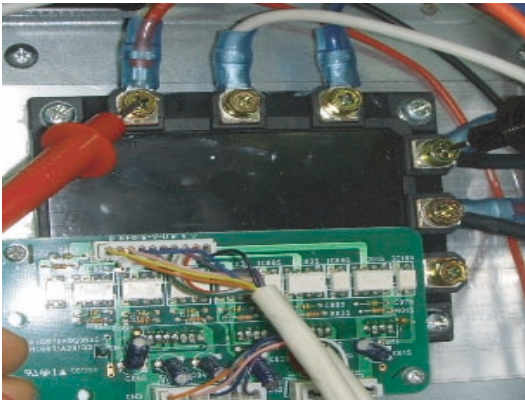
► Resistance measure between phase and body of compressor



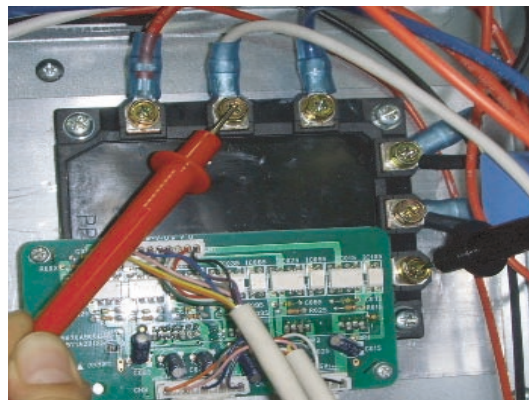
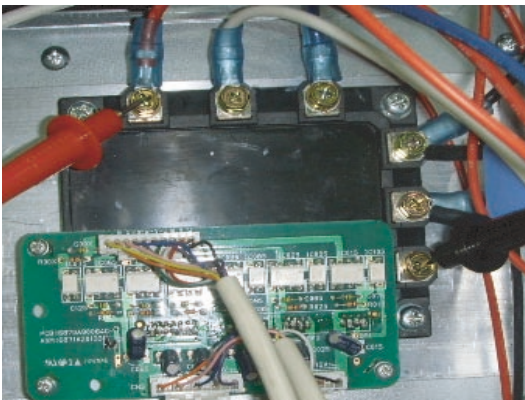
► Check IPM/3 phase rectification Diode : P-U/V/W



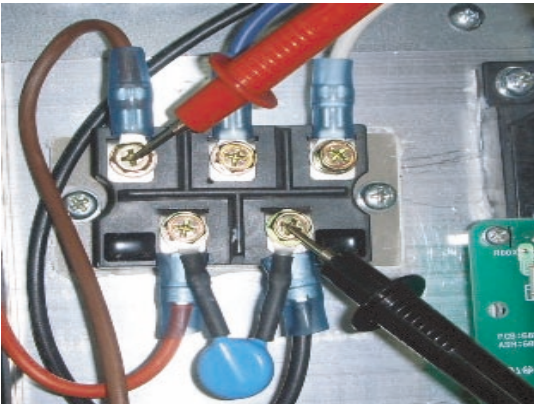
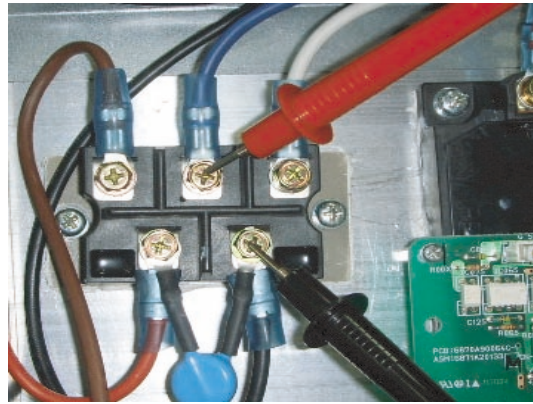
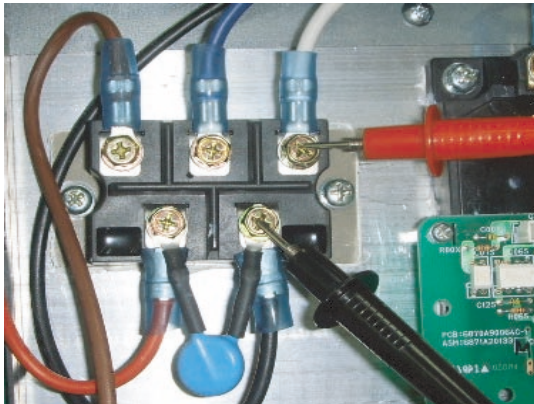
► Check IPM/3 phase rectification Diode : U/V/W-N



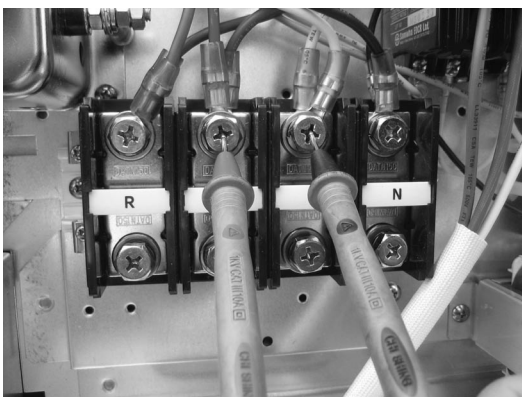
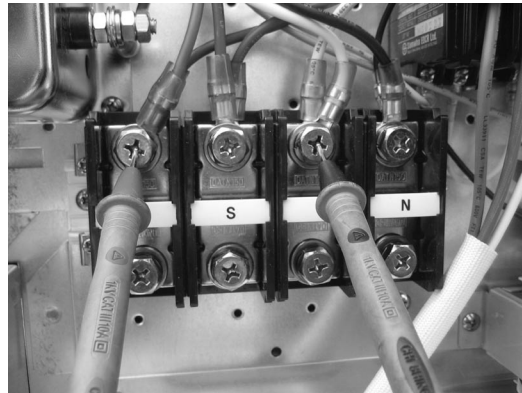
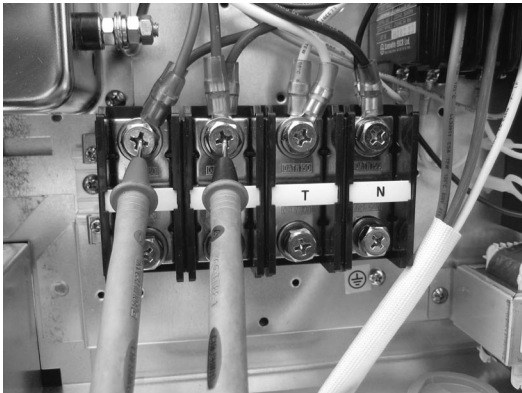
► Check 3 phase rectification diode : ~+~



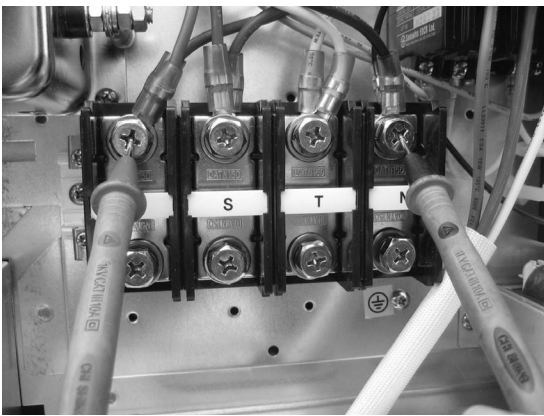
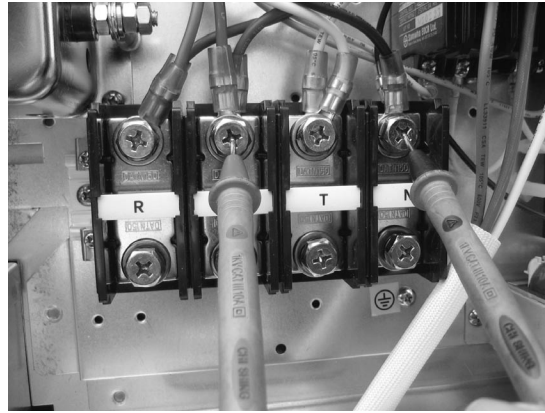
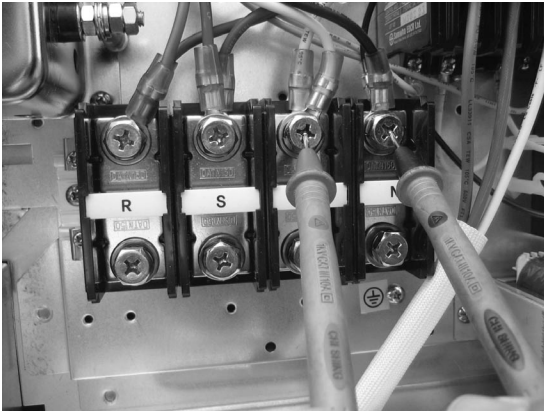
► Check 3 phase rectification diode : ---



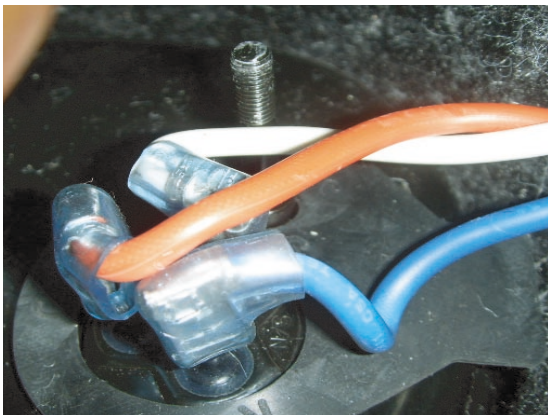
► Measure input power between phases (R-S, R-T, S-T)



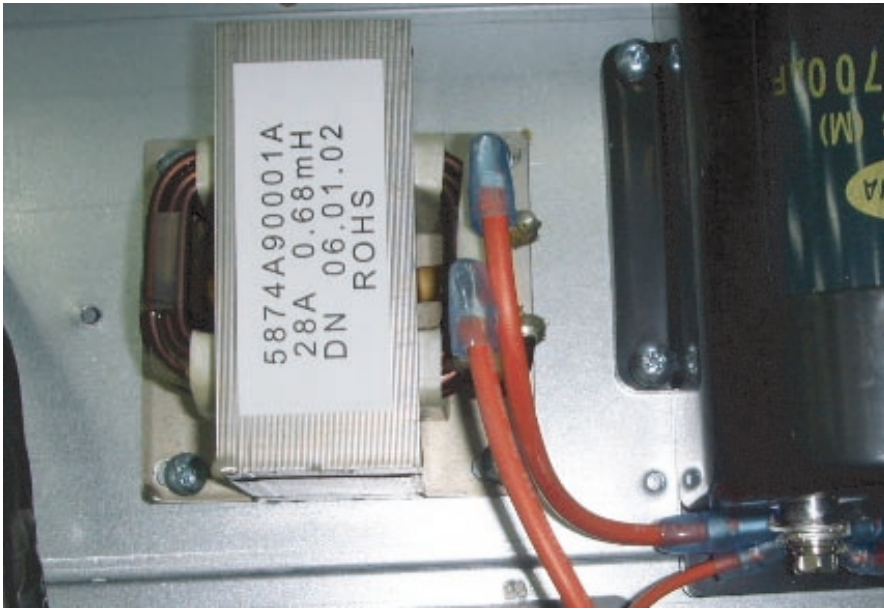
► Measure input power of one phase(R, S, T)



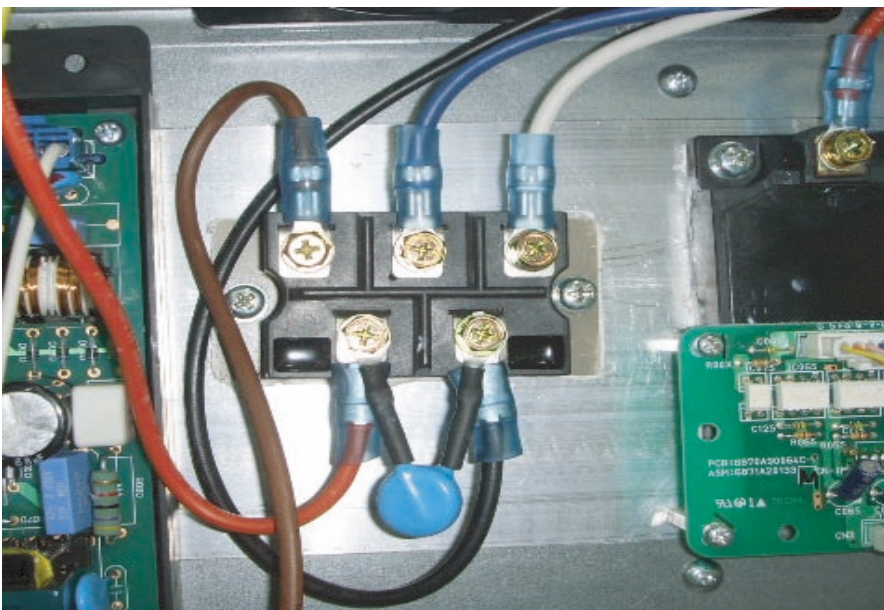
► Connector of compressor



► Connector of reactor



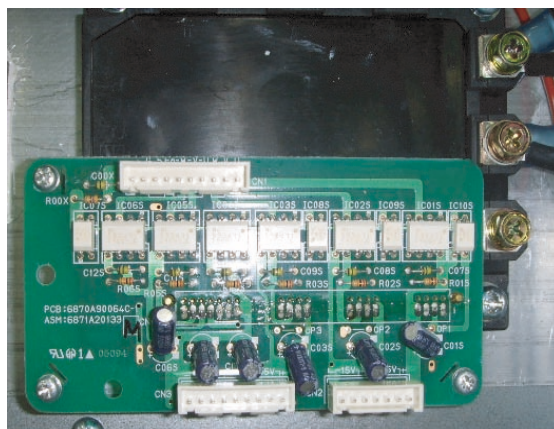
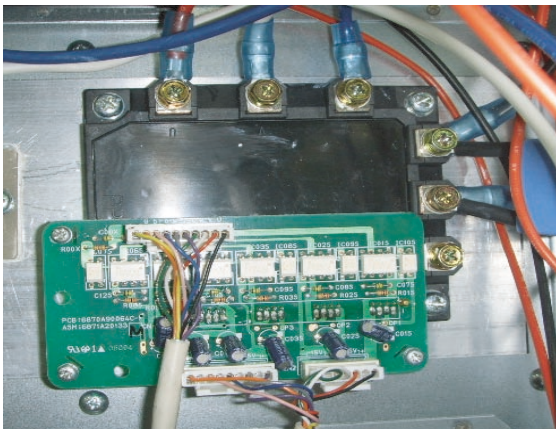
► Connectors of 3phase diode



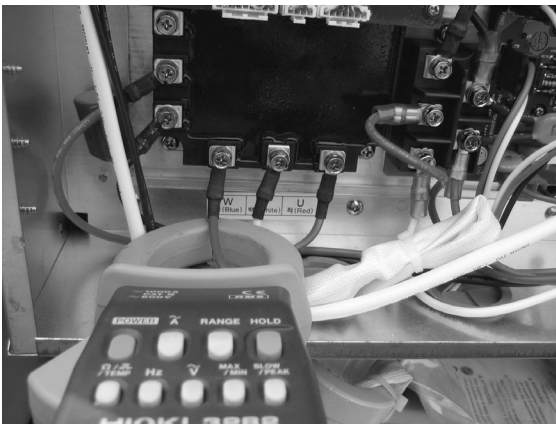
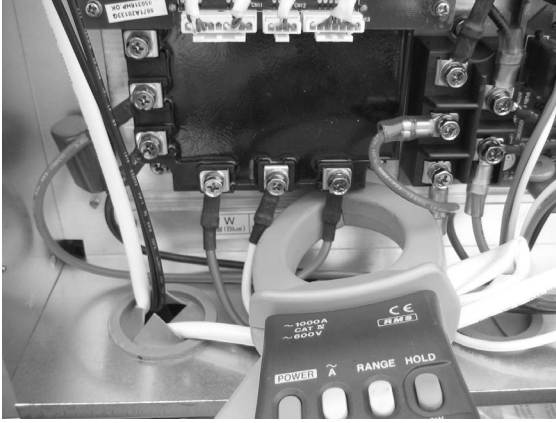
► Connectors of capacitor



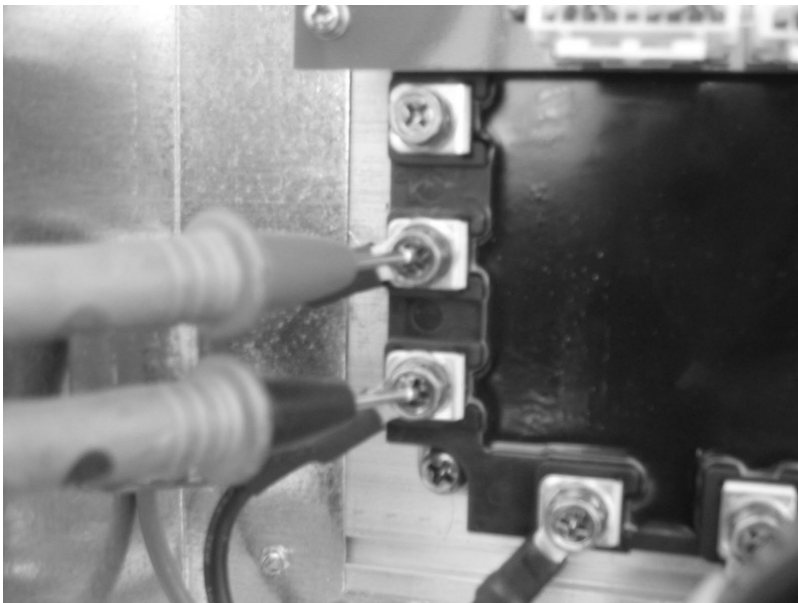
► Check IPM PCB



► Measure current of IPM U-V-W



► Measure voltage of IPM P-N

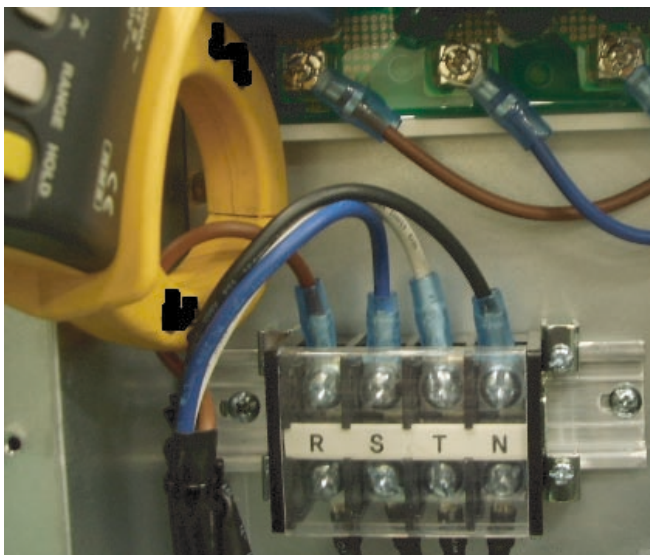


Error Code	Error Contents	Meaning	Main Causes	Error display position
22	Maximum over current (MAX CT)	The current flowing at the CT sensing circuit should be more than the maximum value of the current tolerance for the product .	1. Comp. damage 2. Current sensing sensor damage (CT) 3. Low input voltage 4. Comp. terminal is disconnected or loose . 5. Abnormality at the Outdoor /Indoor Unit fan 7. Cover or chocking (Outdoor Unit covering during cooling mode / Filter chocked at the Indoor during heating mode) 6. Defective inverter PCB/IPM PCB .	Concerned Remote controller Panel Display Outdoor unit

■ Defect inspection method : Refer error code 21

- 1) Check whether the current measured at the R phase during operation is above 18~20A ?
 In case the current measurement is normal (During compressor operation :3~16A), Replace the inverter PCB.
- 2) In case the current is above 18~20A, check the comp. insulation and the motor coil resistance (Refer error code 21) → In case the resistance is abnormal, then replace the comp.
- 3) Check whether the Main input power is 360Vac~410Vac.
 Check whether a deviation exists between the main power voltage of each phase (Below 5~10V)?
 In case there is a deviation in the required power supply in each phase or the abnormality of the input voltage, then please request the building electricity in charge to change the power supply accordingly.
- 4) Please remove any obstacle in path of the outdoor heat exchange and also clean the Indoor filter.
- 5) Check whether the IPM Pin connecting PCB soldering is normal ?
 (Check the PCB soldering at the back side of PCB after dismantling the PCB)
 In case of any abnormality, then please replace the IPM PCB .
- 6) Measure the current between each phase of the inverter comp (U,V,W) during the trial run after the inspection .
 In case of current deviation between each phase is above 1.5A, then replace the inverter PCB.

▶ Measure current of Phase 'R'

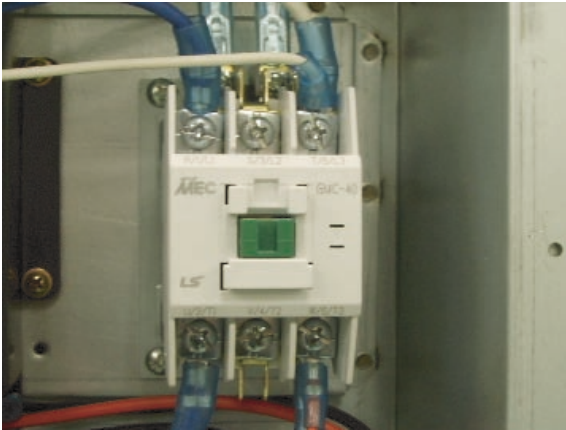


Error Code	Error Contents	Meaning	Main Causes	Error display position
23	Inverter comp. driving voltage charging defect	Problem in DC charging voltage after operating relay On	1. Looseness of DC link terminal . 2. Damage operating relay 3. Capacitor damage 4. Three phase current diode damage 5. Abnormal power voltage 6. IPM damage 7. Defective sensing circuit of the invert PCB	Concerned Remote controller Panel Display Outdoor unit

■ Defect inspection method : Refer error code 21

- 1) Check whether the starting relay / magnetic contactor at the control box are normal ?
(After about 30 seconds of operation the voltage at the IPM P/N terminal should be above 450Vdc)
- 2) In case the voltage is below 450Vdc,
 - Make sure that the outdoor main input voltage is (360Vac~410Vac),
 - Make sure that the magnetic contactor coil resistance (400~700Ω) when the power is Off and also check the connecting conditions,
 - Check whether the comp capacitor connection and the outer shape is normal.
(In case of any abnormality there is a shape change or expansion of the capacitor outer body)
- 3) Compressor insulation and the coil resistance and 3 phase rectification diode should also be checked.
(Refer error code 21).
- 4) In case the error code is still displayed after solving the issue from clause 1)~3), then replace the inverter PCB.

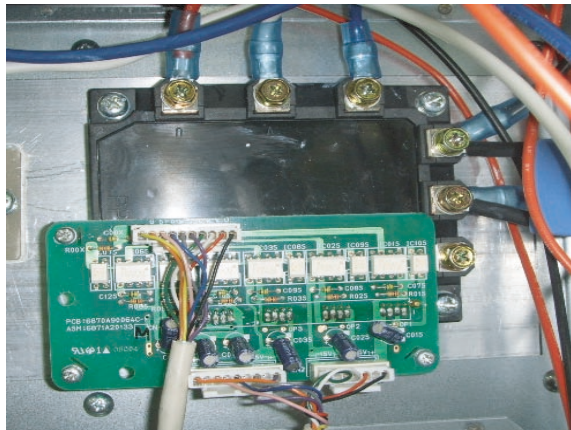
► Measure resistance of magnetic contactor coil



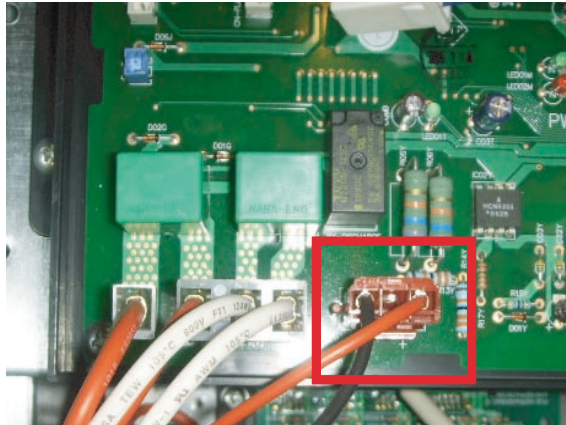
► Capacitor of compressor



► Inverter IPM



► P-N connector of IPM

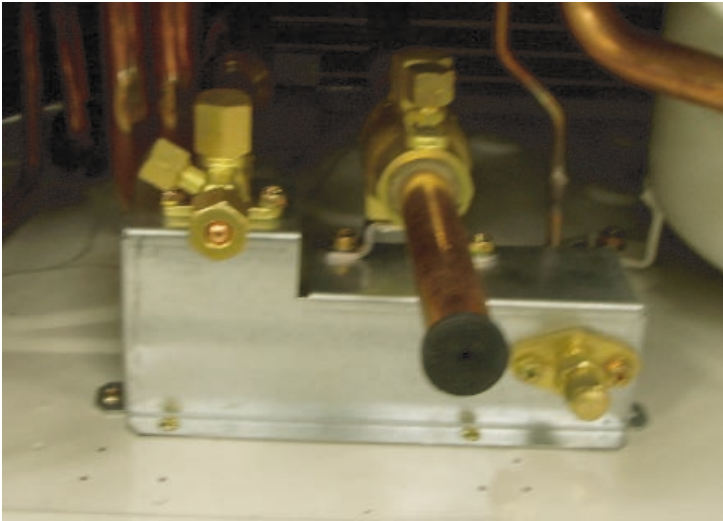


Error Code	Error Contents	Meaning	Main Causes	Error display position
24	Excessive rise in outdoor high pressure	Compressor Off due to the high pressure switch in outdoor unit	1. Defective high pressure switch 2. Defective Indoor or Outdoor fan 3. Chocked compressor check valve 4. Pipe chocked due to the pipe damage 5. Refrigerant overcharge 6. Defective LEV at the Indoor or Outdoor Unit . 7. Covering or chocking (Outdoor covering during the cooling mode / Indoor Unit filter chocking during the heating mode) 8. SVC valve chocking 9. Defective Outdoor PCB	Concerned Remote controller Panel Display Outdoor unit

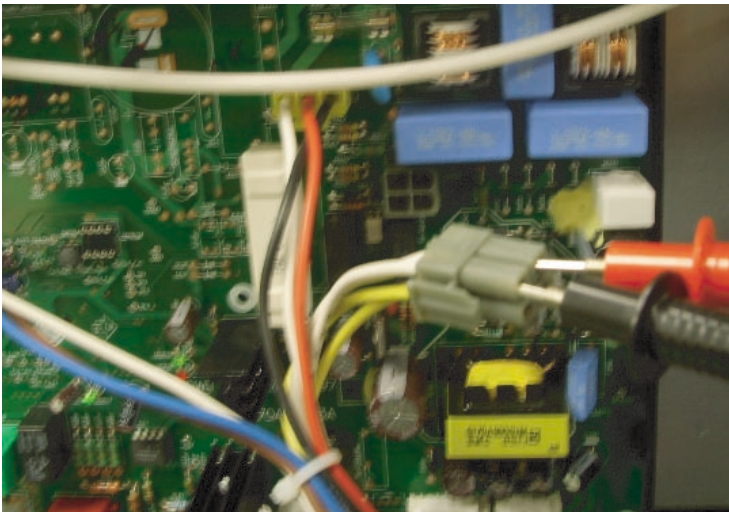
■ Defect inspection method

- 1) In case the Indoor / Outdoor Unit fan is not working normally, please check and replace them if required. (Refer to CH105~CH108)
- 2) Check whether Indoor / Outdoor Unit heat exchange is being accomplished successfully. Otherwise, check and modify the installation condition as per the required heat exchange. In case of heat exchanger covering please remove the outdoor condenser covering and also check the Indoor Unit filter.
- 3) Is the actual pressure reached high enough for the high pressure switch to be operational. Connect the manifold gauge at the high pressure service valve and compare the value of the high pressure sensor.
- 4) Check whether the SVC valve is open and other conditions(fold, dent etc) .
- 5) In case the pressure is not high enough for the high pressure switch to come into action, then please check the high pressure switch.
 In case, after temporary shorting of the pressure switch of the inverter and constant speed compressor on one by one if there is no error code display, then please replace the concerned high pressure switch.
 In case the error code is displayed after shorting the high pressure switch, then please replace the concerned PCB.
- 6) Required refrigerant re-calculation and check the refrigerant recharging condition.
- 7) Check whether the temperature of the both ends of the check valve are similar ?
 In case a temperature difference is sensed, then please replace the check valve.

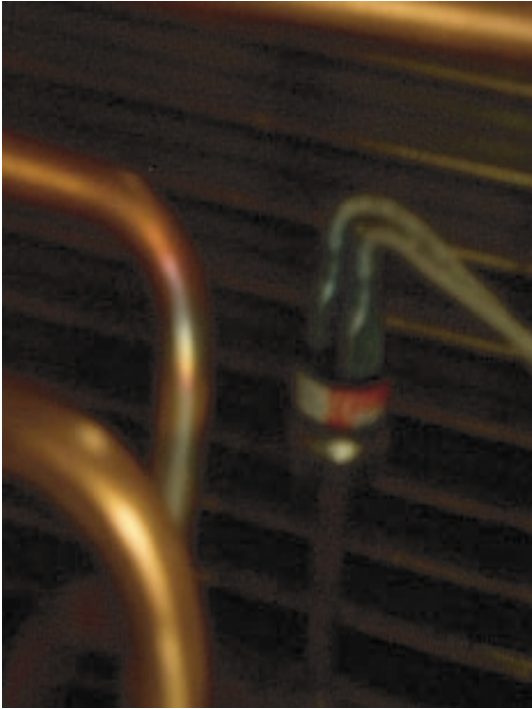
► SVC valve



► Measure resistance on the pressure switch connector



► Pressure switch



► CHECK VALVE

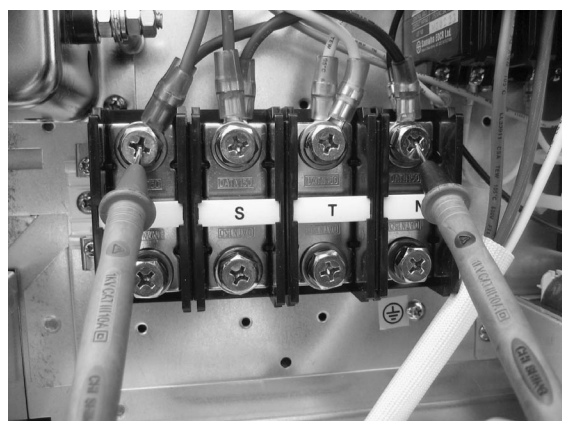
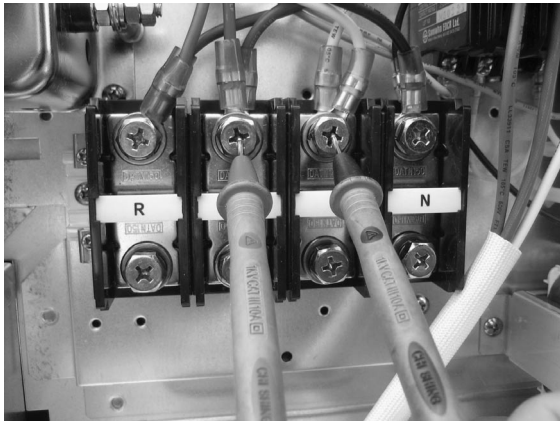
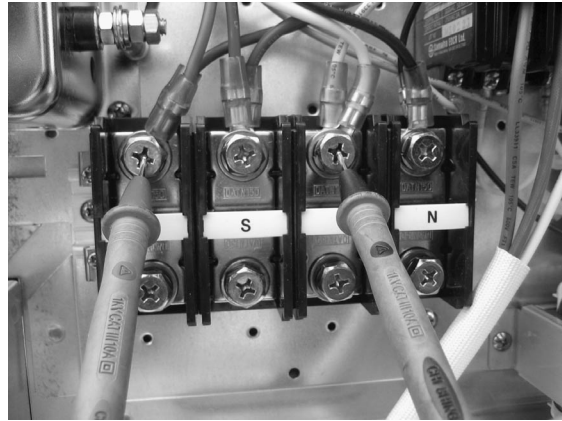
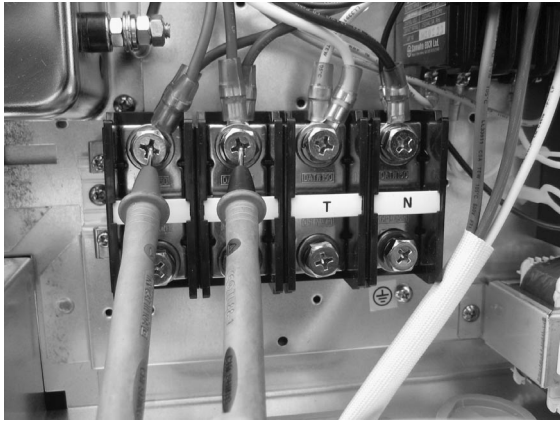


Error Code	Error Contents	Meaning	Main Causes	Error display position
25	Low voltage / High voltage	1. Input voltage in the installation region= 3 phase 380-10%, 415+10% 2. Single phase = 220-10%, 240+10%	1. Abnormality of the input voltage 2. Outdoor Unit main line fuse damage 3. Outdoor Unit main PCB defect	Concerned Remote controller Panel Display Outdoor unit

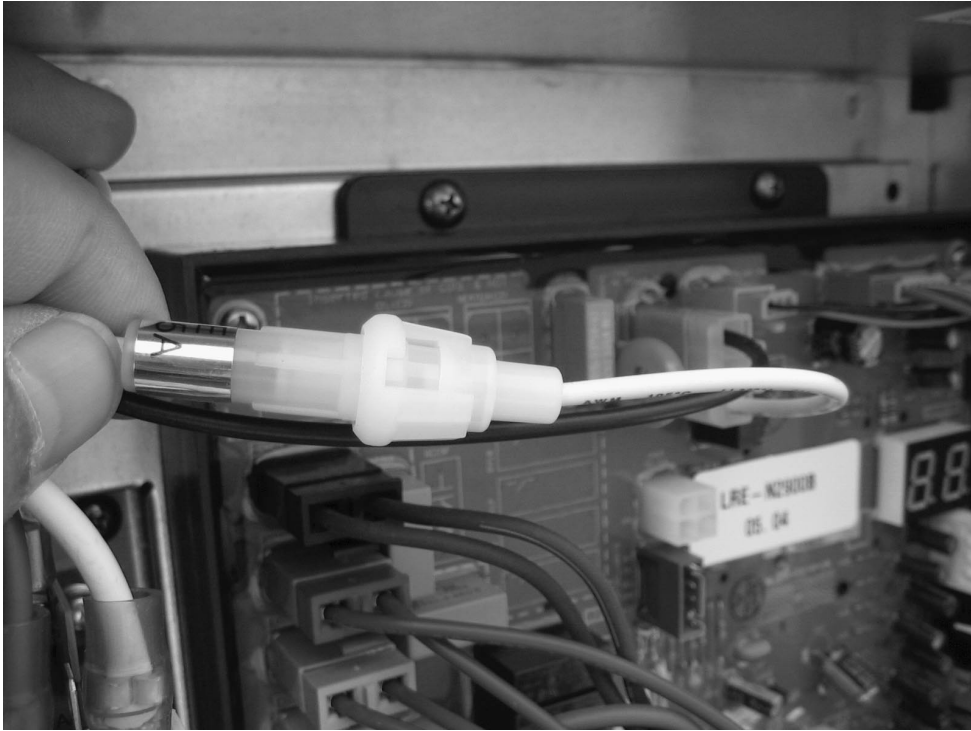
■ Defect inspection method

- 1) Check whether the input power (3 phase = 380V-10% ~ 415+10% single phase = 220V-10% ~ 240+10%). In case there is a deviation from the required power in each phase or is not the rated voltage, then please request the building electricity in charge to supply the required power.
- 2) Check whether the Outdoor Unit PCB power input is 220V-10%, 240+10%. Otherwise, Outdoor Unit line fuse be installed and required input voltage should be supplied.
- 3) In case the Outdoor Unit PCB power input is normal then replace the PCB.

► Measure power input of outdoor unit



▶ Measure power input of outdoor unit



Error Code	Error Contents	Meaning	Main Causes	Error display position
32	Excessive rise of the inverter comp.(A) discharge temp .	Inverter comp. Off due to the excessive rise in discharge temp	1. Inverter comp. discharge temp. sensor defect 2. Refrigerant shortage / leakage 3. Defective LEV 4. Defective Liquid Injection Valve 5. Defective Hot Gas Bypass Valve	Concerned Remote controller Panel Display Outdoor unit

■ Defect inspection method :

- 1) In case there is no actual rise of the discharge temp of the inverter comp.(A) but the sensor shows abnormal rise of the temp, then please replace the discharge pipe sensor
 - Discharge temp sensor 10°C = 362kΩ, 25°C = 200kΩ,
50°C = 82kΩ, 100°C = 18.5kΩ

In case there is no actual rise of the discharge temp of the inverter comp.(A), then please replace the outdoor MAIN PCB.
- 2) Check the indoor / outdoor LEV / Hot gas / Liquid Injection valve connector connecting condition.

Error Code	Error Contents	Meaning	Main Causes	Error display position
33	Excessive rise of the inverter comp.(B) discharge temp .	Inverter comp. Off due to the excessive rise in discharge temp	1. Inverter comp. discharge temp. sensor defect 2. Refrigerant shortage / leakage 3. Defective LEV 4. Defective Liquid Injection Valve 5. Defective Hot Gas Bypass Valve	Concerned Remote controller Panel Display Outdoor unit

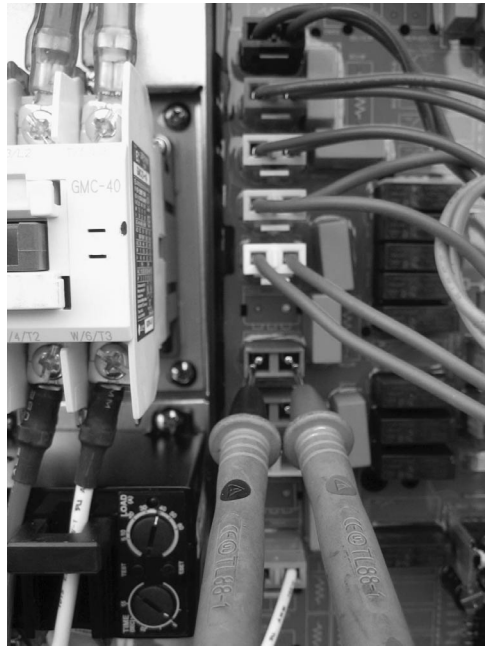
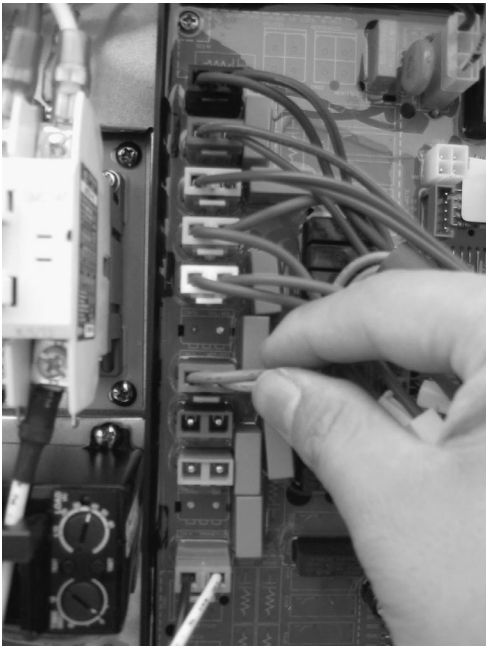
■ Defect inspection method :

- 1) In case there is no actual rise of the discharge temp of the inverter comp.(B) but the sensor shows abnormal rise of the temp, then please replace the discharge pipe sensor
 - Discharge temp sensor 10°C = 362kΩ, 25°C = 200kΩ,
50°C = 82kΩ, 100°C = 18.5kΩ

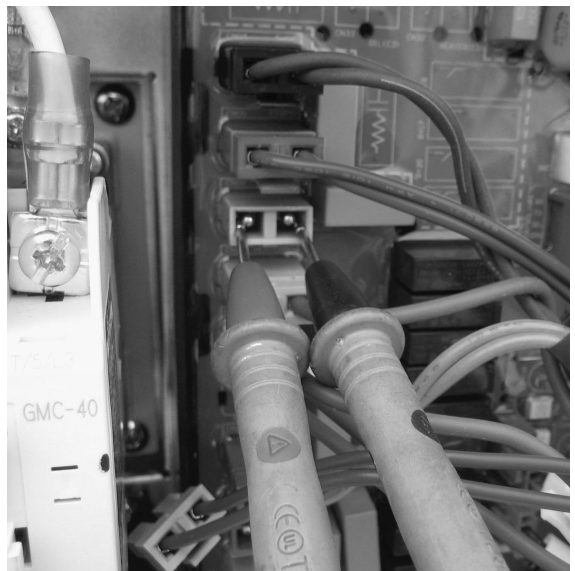
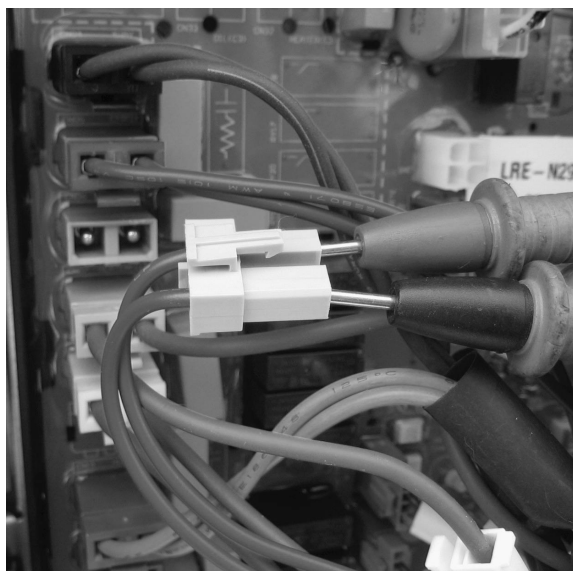
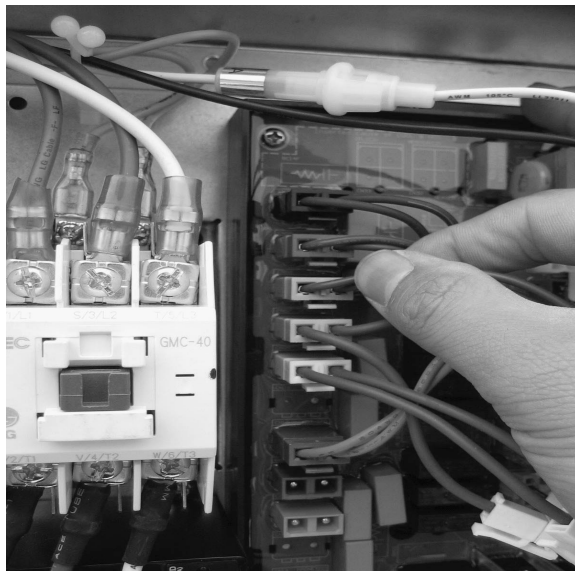
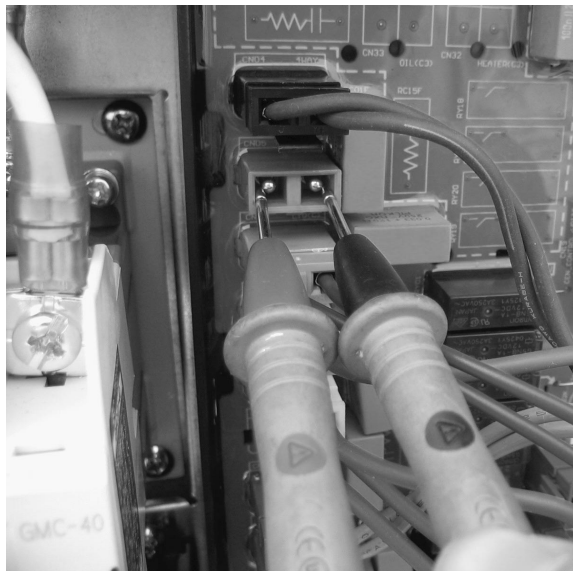
In case there is no actual rise of the discharge temp of the inverter comp.(B), then please replace the outdoor MAIN PCB.
- 2) Check the indoor / outdoor LEV / Hot gas / Liquid Injection valve connector connecting condition.

- 3) Check the LEV/Hot gas / Liquid Injection valve's coil resistance.
LEV normalcy : Resistance between each terminal of the LEV 45~90Ω
hot gas :
liquid injection :
In case the coil R is normal, then please check LEV/ Hot Gas /Liquid Injection Bypass Valve.
- 4) Recalculate the amount of refrigerant to be charged and check the charging condition.

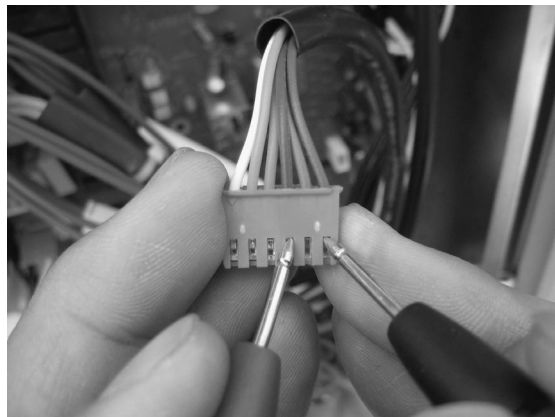
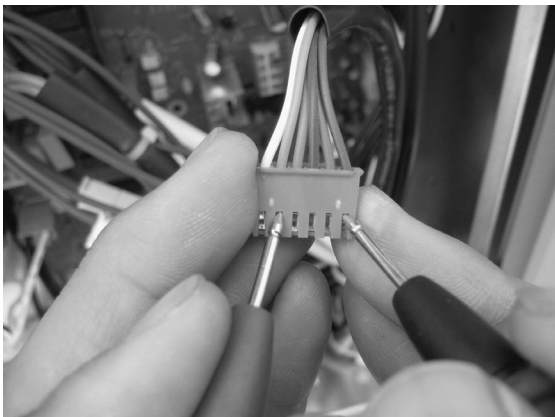
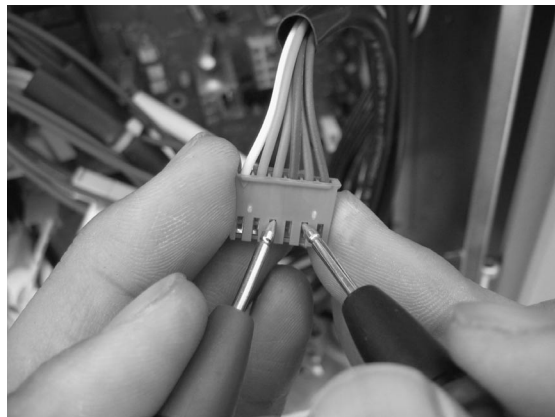
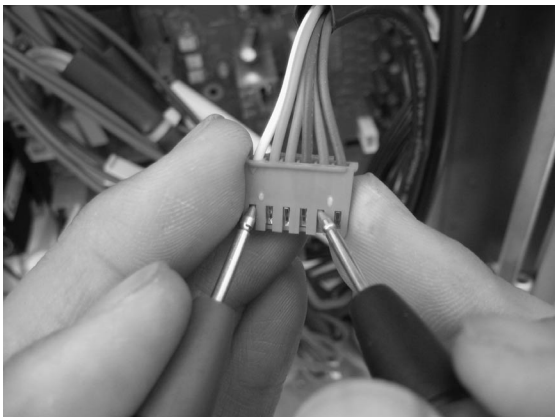
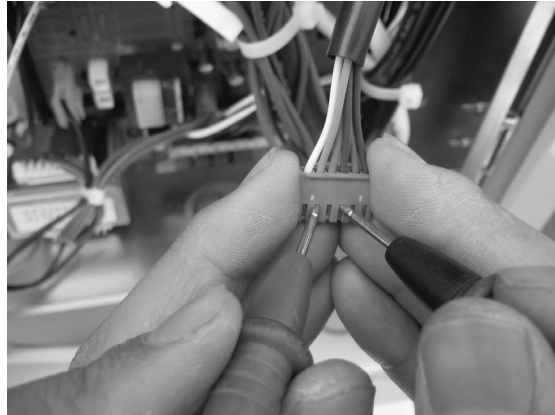
► Hot gas by pass connector



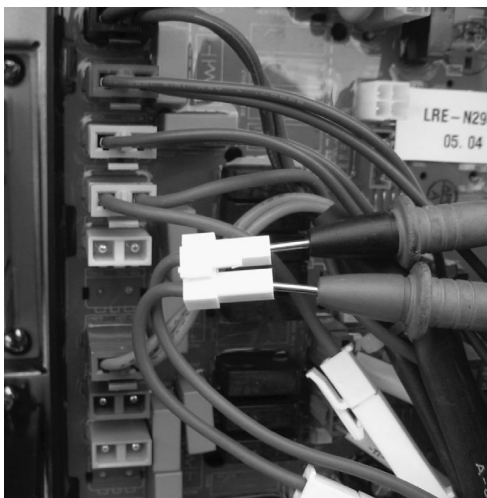
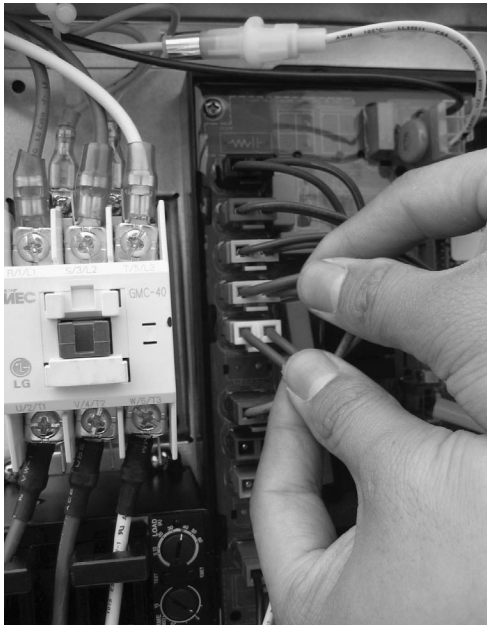
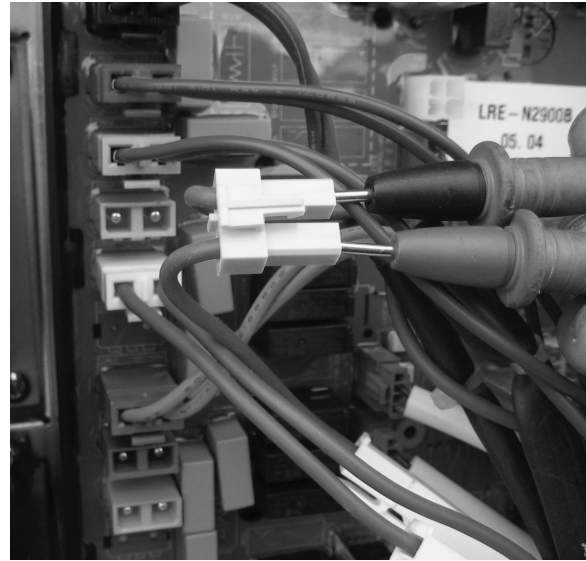
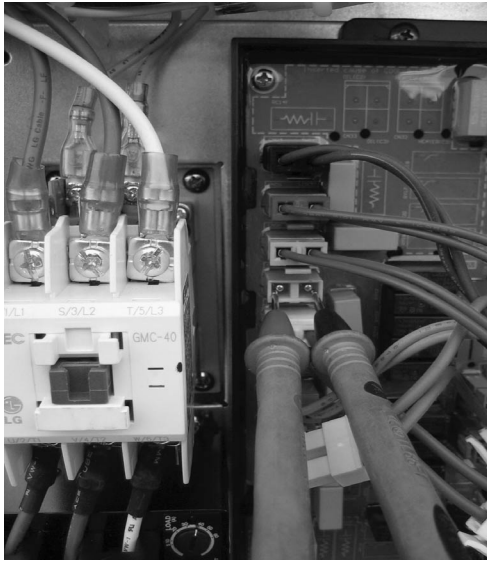
► Liquid injection by pass valve



► Measure resistance of LEV coil



► Heater



Error Code	Error Contents	Meaning	Main Causes	Error display position
34	Excessive rise in high pressure	Com. Off due to the high pressure sensor	<ol style="list-style-type: none"> 1. Defective high pressure sensor 2. Defective Indoor / Outdoor Unit fan 3. Change in shape of pipe due to the damage 4. Excessive refrigerant charging 5. Defective Indoor / Outdoor Unit LEV 6. Covering or chocking (Outdoor covering during the cooling mode / Indoor filter chocking during the heating mode) 7. SVC valve chocked . 8. Defective outdoor PCB 9. Defective Indoor Unit pipe temp. sensor 	<p>Concerned Remote controller</p> <p>Panel Display</p> <p>Outdoor unit</p>

Defect inspection method

- 1) Check the Indoor and Outdoor Unit fan and replace if required. (Refer to CH105~CH108)
 - 2) Check if the proper heat exchange is obtained in Indoor and Outdoor Unit
 Otherwise, modify the installation condition to get the proper heat exchange. Remove the outdoor cover (by dust etc) if any and also check the Indoor Unit filter also.
 - 3) Check the SVC valve Open and pipe condition (bent, dent etc) .
 - 4) Check whether the actual discharge pressure is high .
 Connect the manifold gauge to the svc valve and compare the high pressure reading .
 - 5) Check the Indoor / Outdoor Unit LEV connector connecting condition.
 - 6) Check the LEV / Hot gas valve's coil resistance .
 LEV : Resistance between each terminal of the LEV 45~90Ω
 hot gas :
 liquid injection :
- In case the coil resistance is normal then please check the LEV/ Hot Gas Valve. (Refer to Check!!)
- 7) Recalculate the refrigerant charging and Check the charging condition .
 - 8) Check the Indoor Unit pipe temp sensor connecting condition and temp sensor resistance.
 (Resistance measurement method : Refer to CH02/CH06)
 - 9) In case the above given contents are normal, then please replace the Outdoor Unit PCB.
 - 10) In case a similar error code exists even after the replacement of the PCB, then replace the high pressure sensor.

Error Code	Error Contents	Meaning	Main Causes	Error display position
35	Excessive low pressure drop	Comp. off due to the low pressure sensor	1. Defective low pressure sensor 2. Defective Indoor / Outdoor Unit fan 3. Refrigerant shortage or leakage 4. Pipe shape change due the damage 5. Defective indoor outdoor LEV 6. Covering or chocking (Outdoor covering during the cooling mode / Indoor filter chocking during the heating mode) 7. SVC valve chocking 8. Defective outdoor PCB 9. Defective indoor pipe temp. sensor	Concerned Remote controller Panel Display Outdoor unit

■ Defect inspection method

- 1) Check the indoor and outdoor fan and replace if required. (Refer to CH105~CH108)
- 2) Check if the proper heat exchange is obtained in Indoor and Outdoor Unit
 Otherwise, modify the installation condition to get the proper heat exchange.
 Remove the outdoor cover (by dust etc) if any and also check the Indoor Unit filter also.
- 3) Check the SVC valve open and pipe condition (bent, dent etc) .
- 4) Check whether the actual low pressure is excessively low.
 Connect the manifold gauge to the svc valve and compare the low pressure reading.
- 5) Check the Indoor / Outdoor Unit LEV connector connecting condition .
- 6) Check the LEV / Hot gas valve's coil resistance
 LEV : Resistance between each terminal of the LEV 45~90Ω
 hot gas :
 liquid injection :

In case the coil resistance is normal, then please check the LEV / Hot Gas Valve.
 (Refer to Check!!)

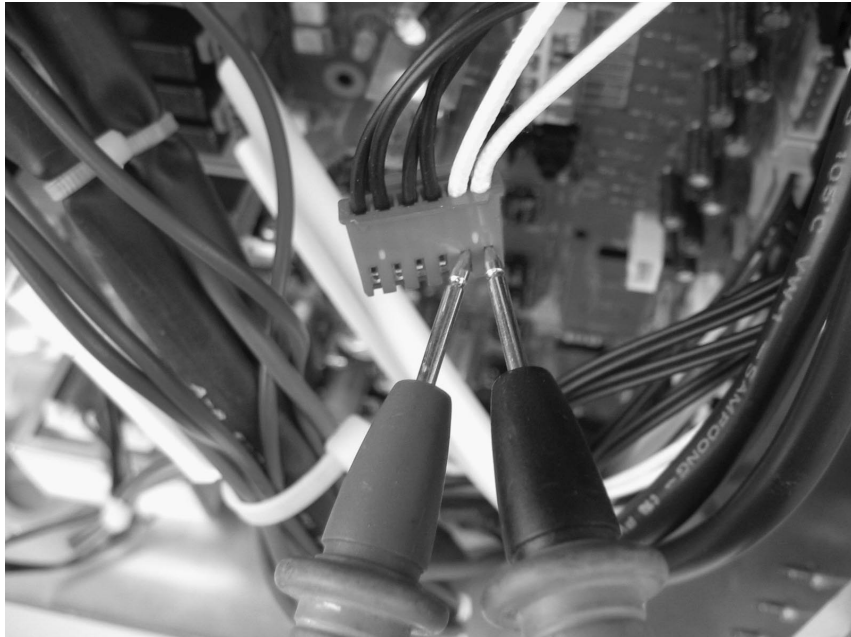
- 7) Recalculate the refrigerant charging and check the charging condition.
- 8) Check the Indoor Unit pipe temp. sensor connecting condition and temp. sensor resistance.
 (Resistance measurement method : Refer to CH02/CH06)
- 9) In case the above given contents are normal, then please replace the outdoor PCB.
- 10) In case a similar error code exists even after the replacement of the PCB, then replace the high pressure sensor.

Error Code	Error Contents	Meaning	Main Causes	Error display position
41	Comp. discharge pipe temp. sensor error	Sensor measurement value is abnormal (Open / Short)	1. Defective connection of the comp. discharge pipe temp. sensor 2. Defective discharge pipe temp. sensor of the comp (Open/Short) 3. Defective outdoor PCB	Concerned Remote controller Panel Display Outdoor unit

■ Defect inspection method

- 1) Check the comp. discharge pipe temp. sensor and the lead wire connecting condition.
- 2) Check whether the sensor resistance value is normal ? Otherwise, replace the sensor.
 - Comp. discharge pipe temp. sensor : 10°C = 362kΩ, 25°C = 200kΩ, 50°C = 82kΩ, 100°C = 18.5kΩ
- 3) In case the sensor connecting condition and the resistance value are normal, then please replace the outdoor PCB.
- 4) If "n1" is displayed at the 7 segment, check comp A
 If "n2" is displayed at the 7 segment, check comp B

- ▶ Check discharge temp sensor of inverter compressor



- ▶ Check discharge temp sensor of constant compressor

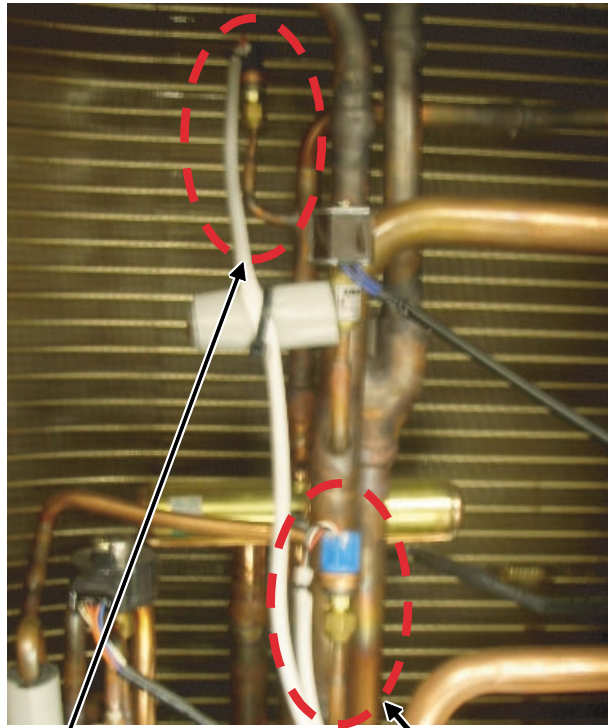


Error Code	Error Contents	Meaning	Main Causes	Error display position
42	Low pressure sensor error	Sensor measured value is not normal (Open / Short)	<ol style="list-style-type: none"> 1. Defective low pressure sensor connector 2. Defective low pressure sensor (Open/Short) 3. Defective outdoor PCB 	<p>Concerned Remote controller</p> <p>Panel Display</p> <p>Outdoor unit</p>

Error Code	Error Contents	Meaning	Main Causes	Error display position
43	High pressure sensor error	Sensor measured value is not normal (Open/Short)	<ol style="list-style-type: none"> 1. Defective high pressure sensor connector 2. Defective high pressure sensor error (Open/Short) 3. Outdoor PCB defect 	<p>Concerned Remote controller</p> <p>Panel Display</p> <p>Outdoor unit</p>

■ Defect inspection method

- 1) Check the pressure sensor connecting condition and lead wire connecting condition.
- 2) In case the above condition is normal then replace the outdoor PCB .
- 3) If the error code persists even after the replacement of PCB then replace the concerned pressure sensor



High pressure sensor

Low pressure sensor



Pressure sensor connector

Error Code	Error Contents	Meaning	Main Causes	Error display position
44	Outdoor Unit air temperature sensor error	Sensor measured value is not normal (Open/Short)	1. Defective connection of the temp. sensor 2. Defective temp. sensor (Open / Short) 3. Defective Outdoor Unit PCB	Concerned Remote controller Panel Display Outdoor unit

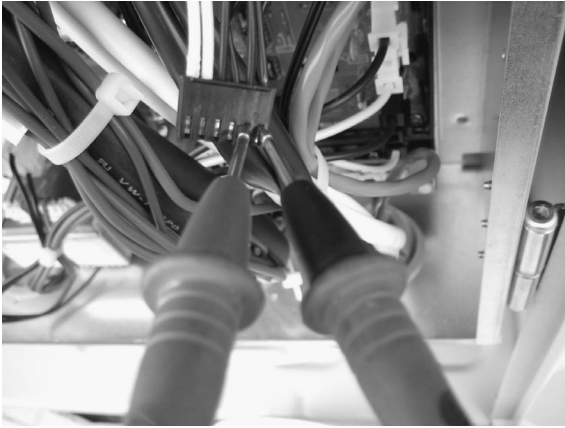
Error Code	Error Contents	Meaning	Main Causes	Error display position
45(Heat exchanger Upper parts) 48 (Heat exchanger Lower parts)	The pipe sensor error of the Outdoor Unit's heat exchanger	Sensor measured value is not normal (Open / Short)	1. Defective connection of the temp. sensor 2. Defective temp. sensor (Open / Short) 3. Defective Outdoor Unit PCB	Concerned Remote controller Panel Display Outdoor unit

Error Code	Error Contents	Meaning	Main Causes	Error display position
46	Comp. suction temp. sensor error	Sensor measured value is not normal (Open/Short)	1. Defective connection of the temp. sensor 2. Defective temp. sensor (Open / Short) 3. Defective Outdoor Unit PCB	Concerned Remote controller Panel Display Outdoor unit

Defect inspection method s

- 1) Check the temp. sensor connecting condition and also the lead wire connecting condition.
- 2) Check whether the temp. sensor resistance value is normal ? Otherwise, replace the sensor.
 - Air temp. sensor : 10°C = 20.7kΩ, 25°C = 10kΩ, 50°C = 3.4kΩ
 - Pipe temp. sensor : 10°C = 10kΩ, 25°C = 5kΩ, 50°C = 1.8kΩ
- 3) In case the sensor connection and the resistance value is normal, then please replace the outdoor PCB .

- ▶ Measure resistance of outdoor air temperature sensor



- ▶ Measure resistance of outdoor air temperature sensor



- ▶ Measure resistance of outdoor HEX(A) temperature sensor



- ▶ Measure resistance of outdoor HEX(B) temperature sensor



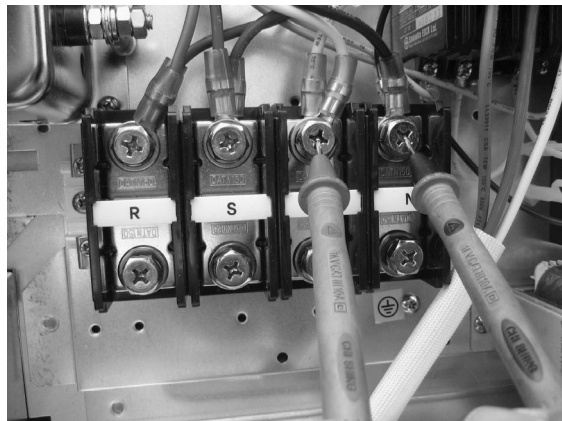
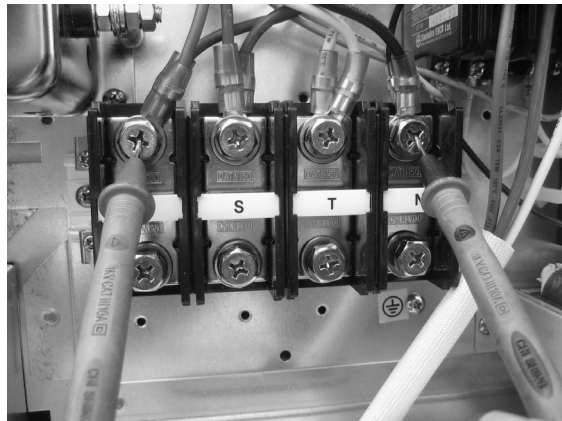
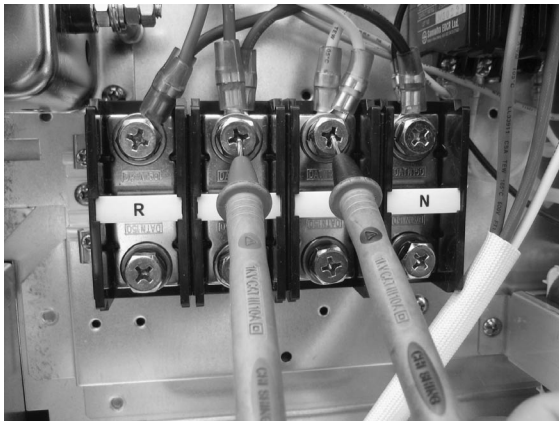
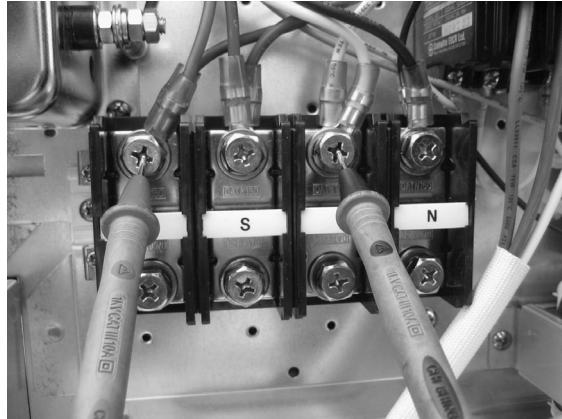
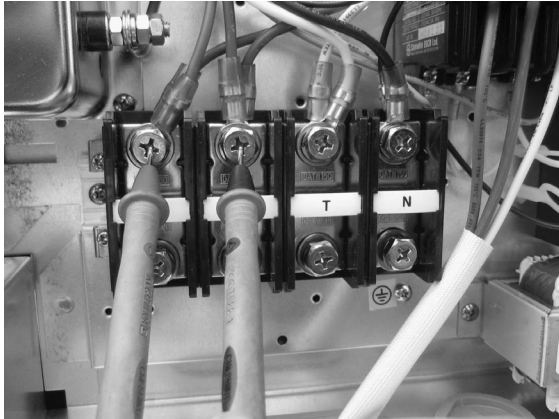
Error Code	Error Contents	Meaning	Main Causes	Error display position
48 (Heat exchanger B)	Outdoor heat exchanger (A,B) Pipe temp sensor error	The measured value of the sensor is not normal (Open/Short)		Refer to CH45

Error Code	Error Contents	Meaning	Main Causes	Error display position
49	Outdoor voltage sensing error	The measured value of the sensor is not normal (Open/Short)	1. Abnormal input voltage 2. Outdoor line fuse damage 3. Defective outdoor main PCB	Concerned Remote Controller

■ Defect inspection method

- 1) Check whether the input power (3 phase =380-10%, 415+10% single phase = 220-10%, 240+10%) is normal. In case of any deviation in supplied power or the rated power please request the the electric in charge of the building to supply the suitable power.
- 2) Is the power input to the the outdoor PCB 220-10%, 240+10%.
Otherwise, a outdoor line fuse or the required input power to be formed.
- 3) In case the the power input to the outdoor PCB is normal then please replace the PCB because PCB may be causing the voltage sensing error in the outdoor unit.

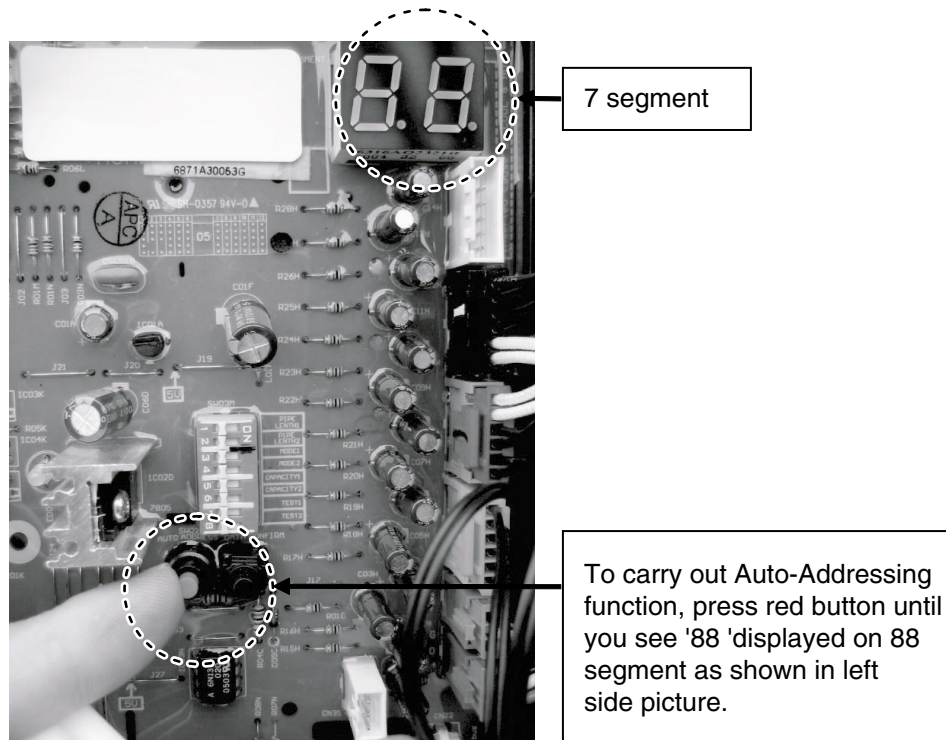
► Measure input power of outdoor unit



Error Code	Error Contents	Meaning	Main Causes	Error display position
51	Excessive capacity (Indoor capacity is in excess)	The combined spec of the indoor units exceed the capacity of the outdoor unit	<ol style="list-style-type: none"> 1. Excess of indoor capacities more than 130% of the outdoor unit 2. Auto-Addressing is not in operation 3. The communication cable connection error ie the indoor unit connected to some other outdoor unit has the communication cable mixed up or confused 	Concerned Remote Controller Outdoor unit

Defect inspection method

- 1) Check the total capacity of the all indoor units and compare it with the 130% of the capacity of the outdoor unit .
- 2) Check whether the communication cable of some of the indoor unit is connected to some other outdoor unit (Refer to CH05)
- 3) Please operate the Auto-Addressing.
- 4) In case the error code is still in display even when the above given contents are normal then please replace the PCB .
- 5) In case the error code exists even after the outdoor PCB is replaced then please check the indoor PCBs one by one

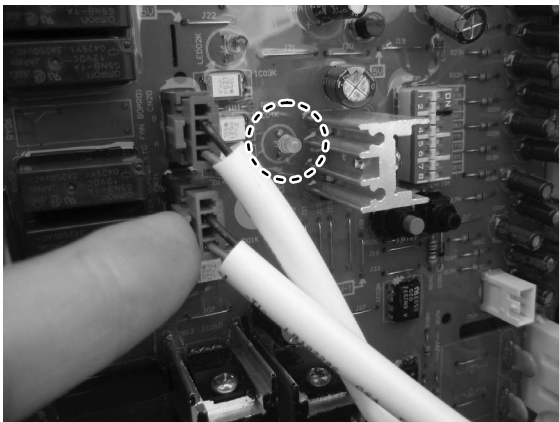


Error Code	Error Contents	Meaning	Main Causes	Error display position
52	Communication error (Inverter PCB ' Main PCB)	The inverter PCB cannot receive the signal from the Main PCB	<ol style="list-style-type: none"> 1. Power line or the communication line is not connected 2. Communication cable is Open/Short 3. Outdoor main fuse is damaged 4. Defective outdoor Main/inverter PCB. 	<p>Concerned Remote Controller</p> <p>Outdoor unit</p>

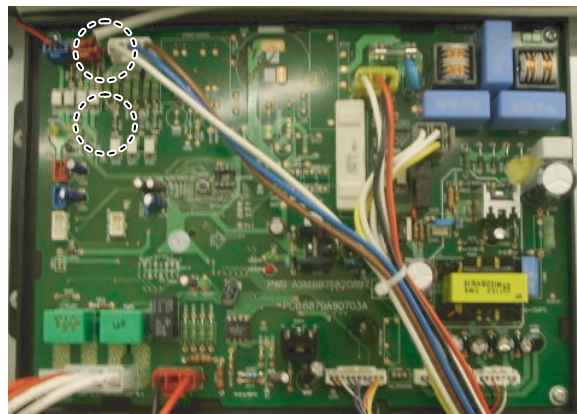
■ Defect inspection method

- 1) Check whether the communication cable connection is normal.
Otherwise, check the communication cable and replace if required.
- 2) Check whether the Outdoor Main /inverter PCB is working on power input
Check whether the PCB orange color LED is blinking.
(if the power input and the communication is normal then the LED is blinking)
- 3) Check the outdoor Main / inverter PCB and replace the PCB if required .

▶ Communication connector & LED in the main PCB



▶ Communication connector & LED in the inverter PCB



Error Code	Error Contents	Meaning	Main Causes	Error display position
53	Communication error (indoor › Main PCB)	The indoor cannot receive signal from the Main PCB	1. The communication cable is not connected 2. Communication cable is cut or short 3. Defective outdoor Main / indoor PCB	Concerned Remote Controller Outdoor unit

■ Defect inspection method

- 1) Check the indoor unit's control box's power supply and communication connecting condition (terminal block)
- 2) Check if the communication cable is short or open and remove the cause if any
(Open confirmation :
After the power OFF short the two cables with each other and measure the resistance with a tester ' If above 5Ω then it is Open)
(Short confirmation :After power OFF separate the cables and measure the resistance with a tester › If below 5Ω then it is short)
- 3) In case there is no error in above given cases 1~2 the separate all the communication cables and recheck after connecting the indoor units individually
(The error code is displayed when the defective PCB is connected to the indoor unit) › Replace the concerned indoor unit's PCB .
- 4) In case one indoor or a few indoor has 'CH53' error display :
Re operate the Auto-Addressing and check whether the all indoor units have Auto-Addressing setting .
(After the power ON, make sure to operate the Auto-Addressing after one minute)
› In case the any PCB has not got the Auto-Addressing then recheck the communication cable and replace the indoor PCB if required .
- 5) Make sure to separate the power line (AC220/380V) and the communication line by at least 30 cm

 **CAUTION**

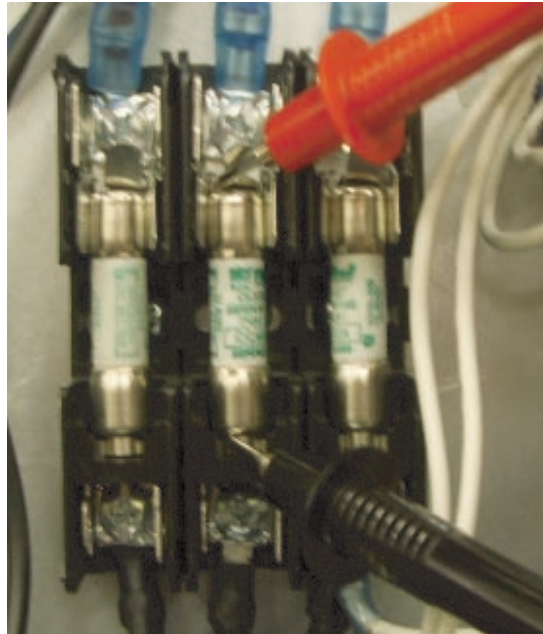
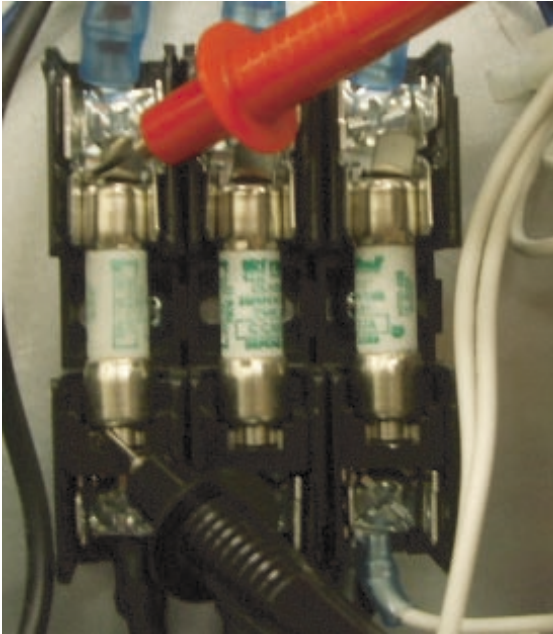
- In case you replace the communication cable with the power cable by mistake then al indoor units PCB can be damaged

Error Code	Error Contents	Meaning	Main Causes	Error display position
54	Outdoor 3 phase power supply wrong wiring (Phase omission)	Wrong wiring at the outdoor 3 phase (Phase omission)	1. Defective inverter PCB 2. R, S, T power not connected 3. Main Fuse damaged	Concerned Remote Controller Outdoor unit

■ Defect inspection method

- 1) Check the outdoor Main fuse .
- 2) If the error code exists even after replacing the outdoor PCB then request the building's electric in charge to recheck the power supplied.

▶ Check main fuse of out door unit



Error Code	Error Contents	Meaning	Main Causes	Error display position
57	Communication error (Main PCB , inverter PCB)	Main PCB cannot receive the signal from the inverter PCB		Refer to CH52

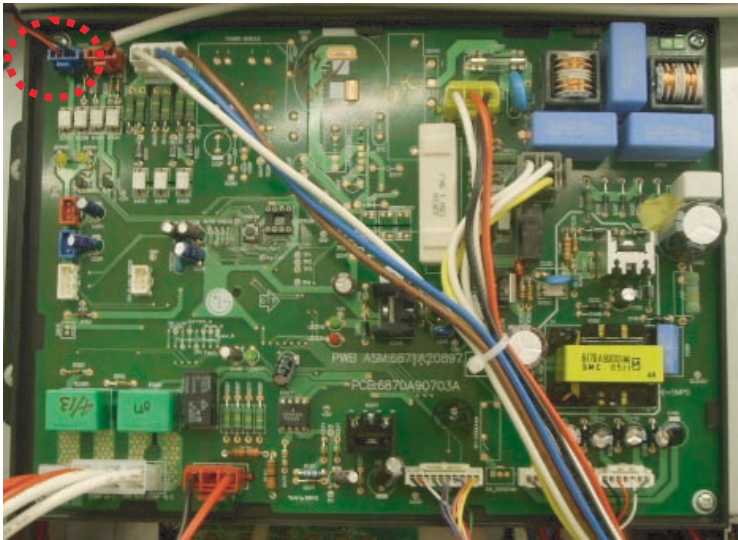
Error Code	Error Contents	Meaning	Main Causes	Error display position
62	Excess of heat in inverter PCB heat sink	Excessive rise of Inverter heat sink temperature	<ol style="list-style-type: none"> 1. Defective heat sink fan 2. Overheat of the inverter comp IPM 3. Inverter fan IPM overheat 4. Defective fan Main PCB 5. Defective heat sink region connection 6. Defective heat sink fan power supply terminal 	<p>Concerned Remote Controller</p> <p>Outdoor unit</p>

■ Defect inspection method

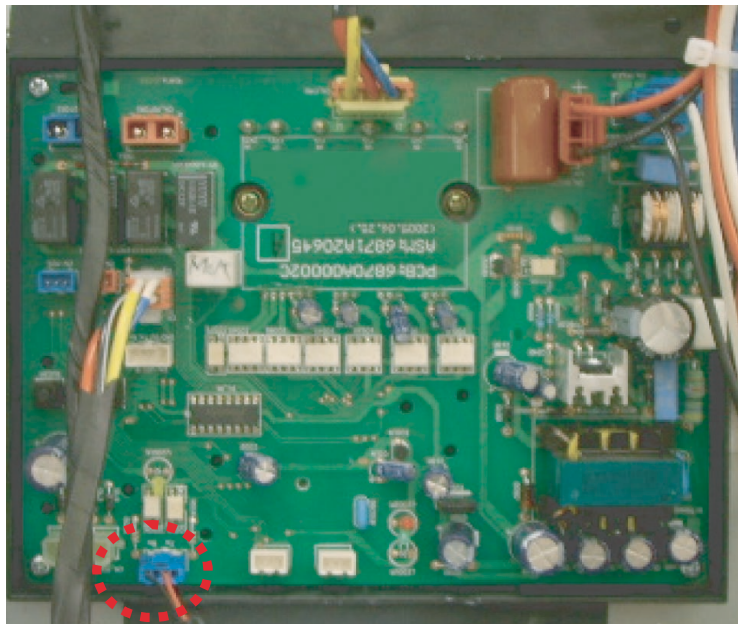
- 1) Check whether the heat sink cooling fan is normal ?
 Check the power supply connector to the cooling fan of the heat sink on the upper side of the Main PCB is 12Vdc (Always operating when the inverter comp is operating)
 Also check the heat sink cooling fan Lead-Wire
- 2) Check whether the air is coming out from the cooling fan of the heat sink on the upper side of the of the control box.
 Check the assembly condition in the surrounding of the heat sink
- 6) In case the above given 4,5, the fan is not working then replace the cooling fan.
- 7) Check the compressor IPM and replace of required.(refer: error code 21)
- 8) Check if the fan IPM is normal. Otherwise, replace the IPM .
- 9) In case the error persists even after the fan IPM is replaced then replace the fan main PCB .

Error Code	Error Contents	Meaning	Main Causes	Error display position
105 108	Communication error between the Inverter PCB and the fan PCB	Communication error between the Inverter PCB and the fan PCB (Fan > outdoor, outdoor > fan)	<ol style="list-style-type: none"> 1. Defective communication Cable connection 2. Communication cable Open/Short 3. Defective outdoor PCB 4. Defective fan PCB 	<p>Concerned Remote Controller</p> <p>Outdoor Unit</p>

► **Communication connector & LED between inverter PCB and fan PCB**



Inverter PCB



Fan PCB

If "n1" is displayed at the 7 segment in the main PCB, check Fan Motor "n1" or Fan PCB "n1"

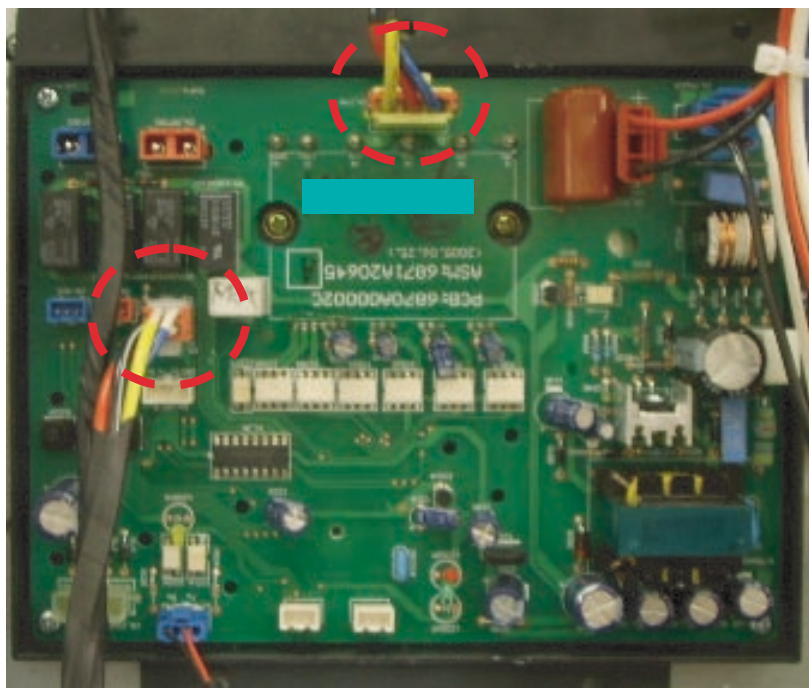
If "n2" is displayed at the 7 segment in the main PCB, check Fan Motor "n2" or Fan PCB "n2"

Error Code	Error Contents	Meaning	Main Causes	Error display position
106	Over current of Main outdoor Fan motor (Fan IPM error)	Over current of Main outdoor Fan motor	1. Defective fan motor connector connection 2. Fan Lock 3. Defective heat sink	Concerned Remote Controller Outdoor Unit

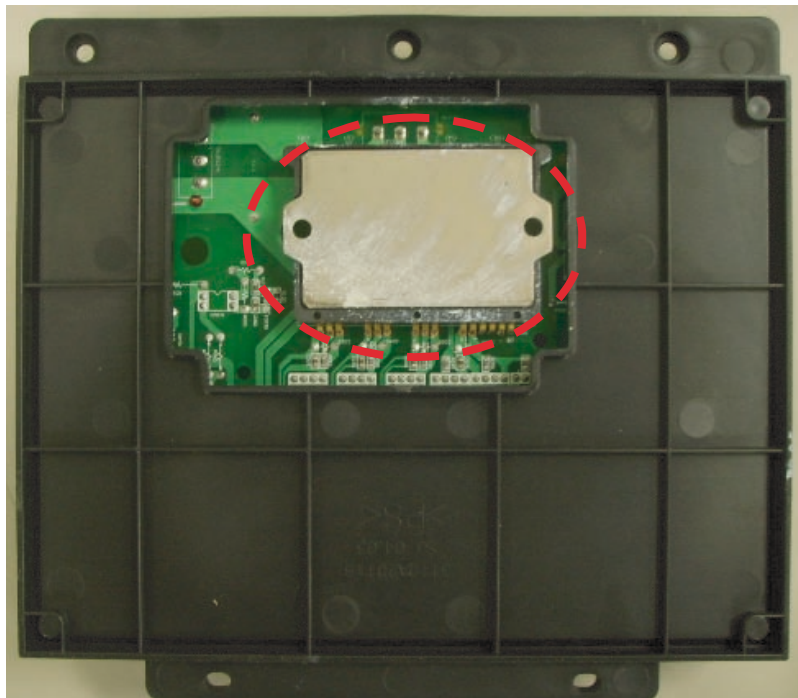
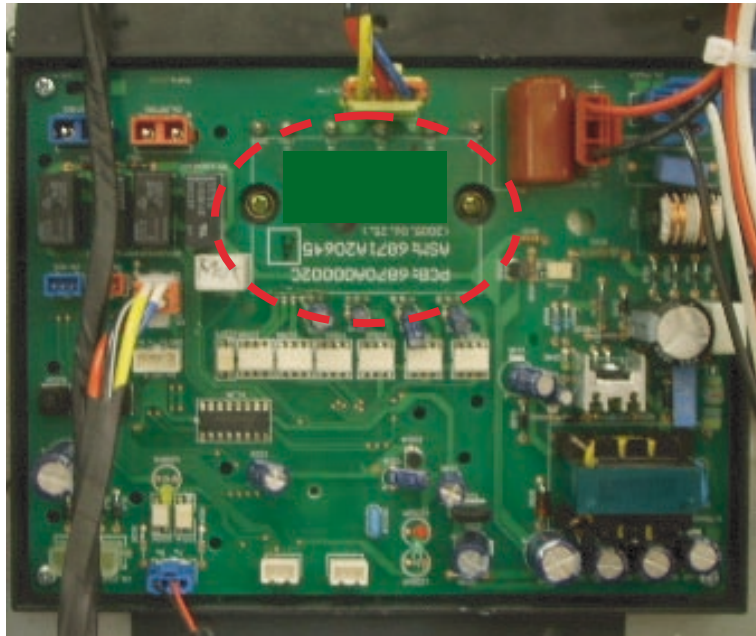
■ Defect inspection method

- 1) Check the fan motor connector connection .
- 2) Is outdoor fan in Fan Lock condition
 Otherwise, remove the LOCK causing obstacle (stick etc).
- 3) Check the heat sink fan operation .(Refer to CH62)
- 4) In case all of the above contents are normal and still the error code is displayed then please replace the fan IPM PCB .
- 5) In case the error code still persists even after replacing the fan IPM PCB then replace the fan Main PCB .

► Fan motor connector



► Fan IPM

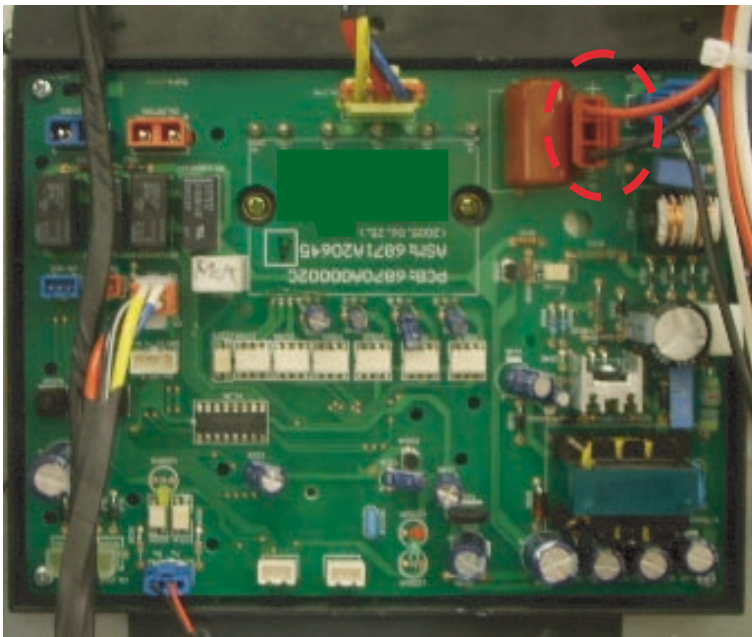


Error Code	Error Contents	Meaning	Main Causes	Error display position
107	Low voltage in the fan motor	Low voltage in the fan motor	<ol style="list-style-type: none"> 1. Defective fan PCB DC link voltage lead wire connection 2. Abnormal fan PCB Capacitor 3. Abnormal fan PCB input power 4. Fan PCB defect 	<p>Concerned Remote Controller</p> <p>Outdoor Unit</p>

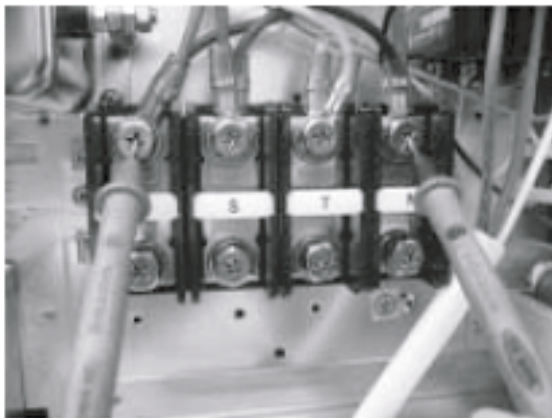
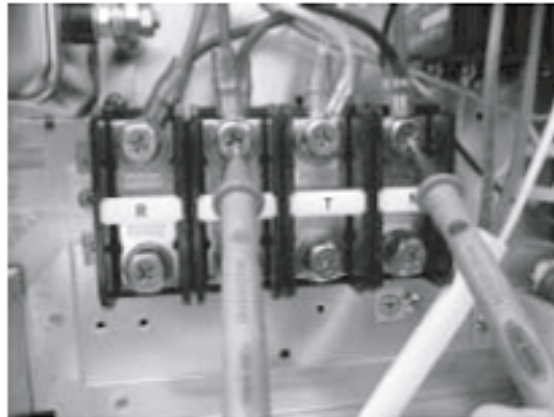
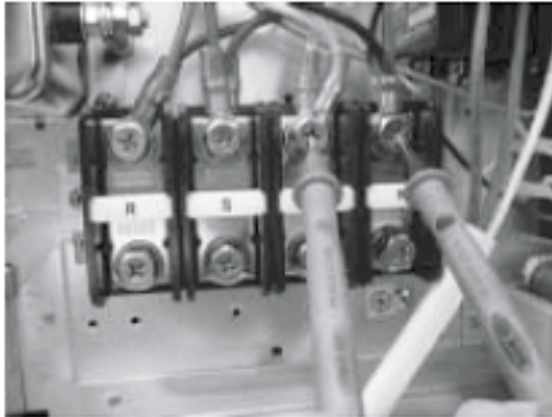
■ Defect inspection method

- 1) Check the fan PCB DC link voltage lead wire connecting condition .
- 2) Check Fan PCB input power voltage (normal : rated $\pm 10\%$)
- 3) Check whether the fan PCB Capacitor ahs any abnormality.
In case it is abnormal then outer shape is deformed (outer shape expansion).
- 4) In case of Capacitor abnormality replace the fan PCB .
- 5) In case the error code exists even after the PCB replacement then replace the fan IPM PCB

► DC link location of outdoor fan



▶ Measure input power of fan main PCB



Error Code	Error Contents	Meaning	Main Causes	Error display position
108	Communication error between the Main PCB and the fan PCB	Communication error between the Main PCB and the fan PCB (Fan › outdoor , outdoor › fan)		Refer to CH105

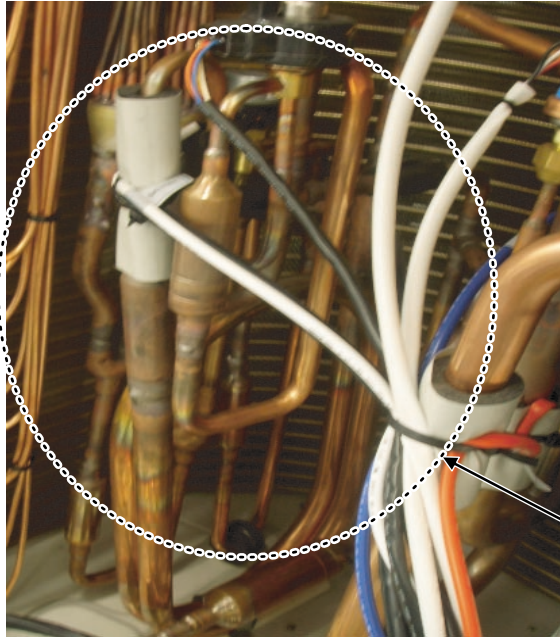
Error Code	Error Contents	Meaning	Main Causes	Error display position
113	Sensor error at the outdoor Liquid Refrigerant pipe	Abnormal value of Sensor measurement (Open/Short)	1. Defective temp sensor connector connection 2. Defective temp sensor Open/Short) 3. Defective outdoor PCB	Concerned Remote Controller Outdoor unit

Error Code	Error Contents	Meaning	Main Causes	Error display position
114(Main Sub cool inlet) 115(Main Sub cool outlet)	Sensor error at the outdoor sub cooling inlet or outlet	Abnormal value of the sensor measurement (Open/Short)	1. Defective temp sensor connector connection 2. Defective temp sensor (Open/Short) 3. Defective outdoor PCB	Concerned Remote Controller Outdoor unit

■ Defect inspection method

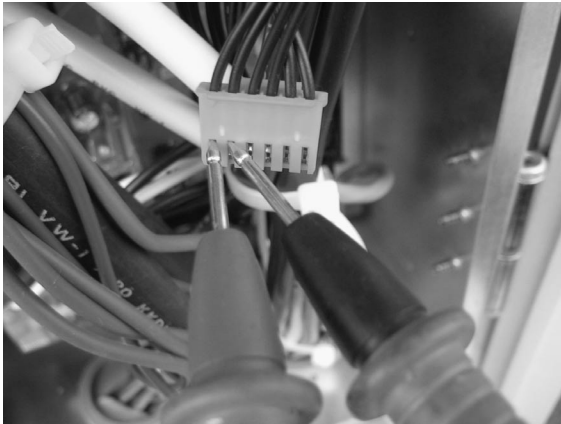
- 1) Check the temp sensor connector connecting condition and lead wire.
- 2) Is the temp sensor resistance value normal? Otherwise, replace the sensor
- Pipe temp sensor : 10°C = 10kΩ : 25°C = 5kΩ : 50°C = 1.8kΩ
- 3) In case the sensor connection and the resistance value is correct then replace the outdoor PCB .

▶ Measure resistance of LEV coil



Sub-cool circuit in the outdoor unit

▶ Measure temp sensor of liquid pipe



▶ Measure temp sensor of sub-cool inlet



▶ Measure temp sensor of sub-cool outlet



Error Code	Error Contents	Meaning	Main Causes	Error display position
151	Outdoor 4way (reversing valve) Switching Error	When the Main or the Sub outdoor has one of them having a 4way valve error	1. 4 way valve error due to the inlet of sludge into the valve 2. Comp damage leading to pressure change does not occur , 3. Wrong installation of common pipe between the outdoor units 4. 4way valve error	Concerned Remote Controller Outdoor unit

■ Defect inspection method

- 1) Check whether the piping between the outdoor units is normal
(liquid pipe should be connected to liquid pipe, common pipe be connected to common pipe) fi Pipe modification
- 2) Check whether the Main/Sub outdoor compressor is damaged or not.(Refer to CH21)
- 3) Please confirm the Main PCB's 4way valve terminal voltage (220V±10%).
In case of abnormal voltage please replace the outdoor main PCB
- 4) Check the outdoor PCB's 4way valve connector connections and coil connections.
- 5) Measure the 4way valve's coil resistance at the connector
Normal resistance :
- 6) In case the error still persists even after the all above conditions are normal then replace the 4way valve .

► 4way valve in the outdoor unit



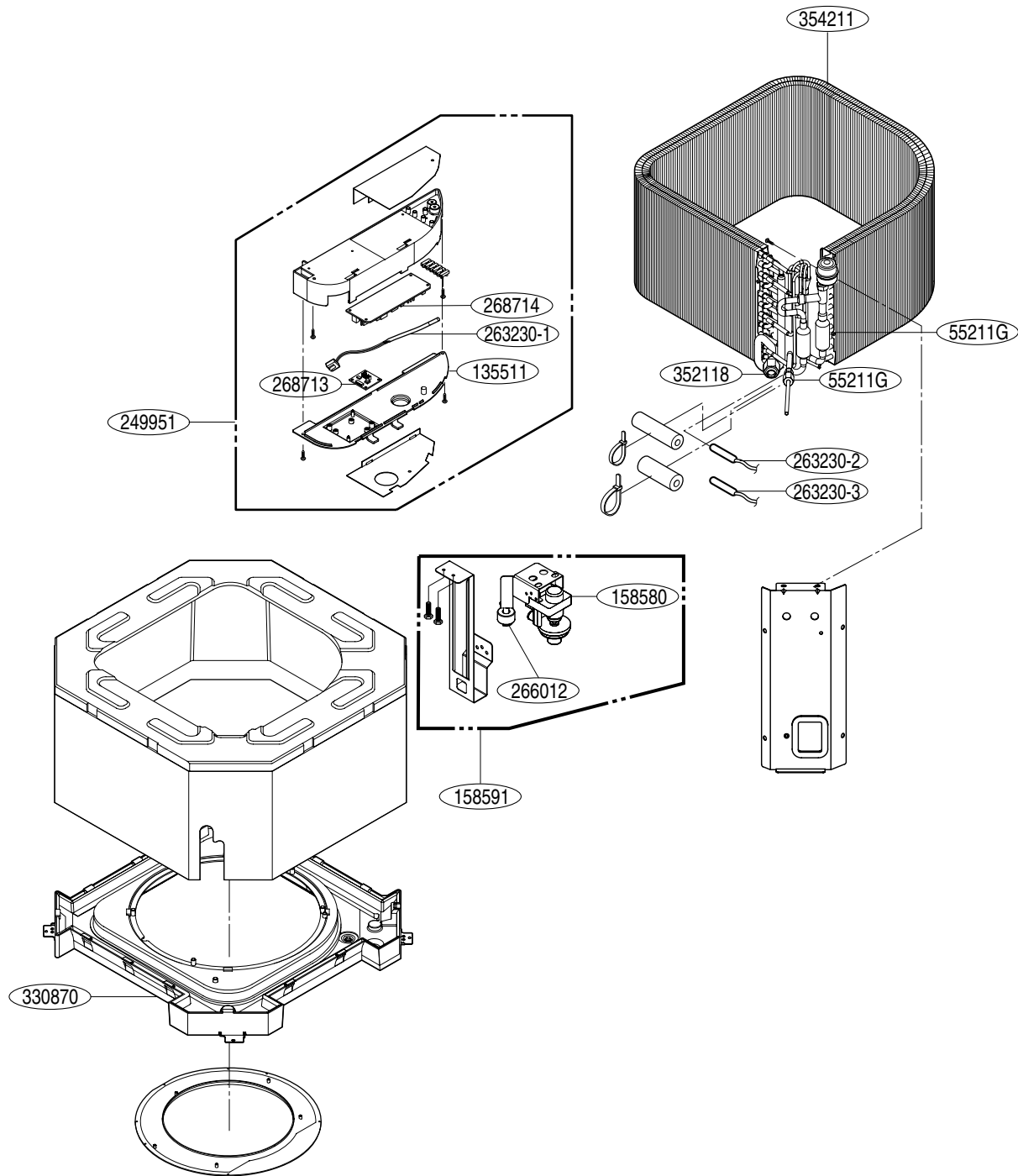
► 4way valve connector on the Main PCB



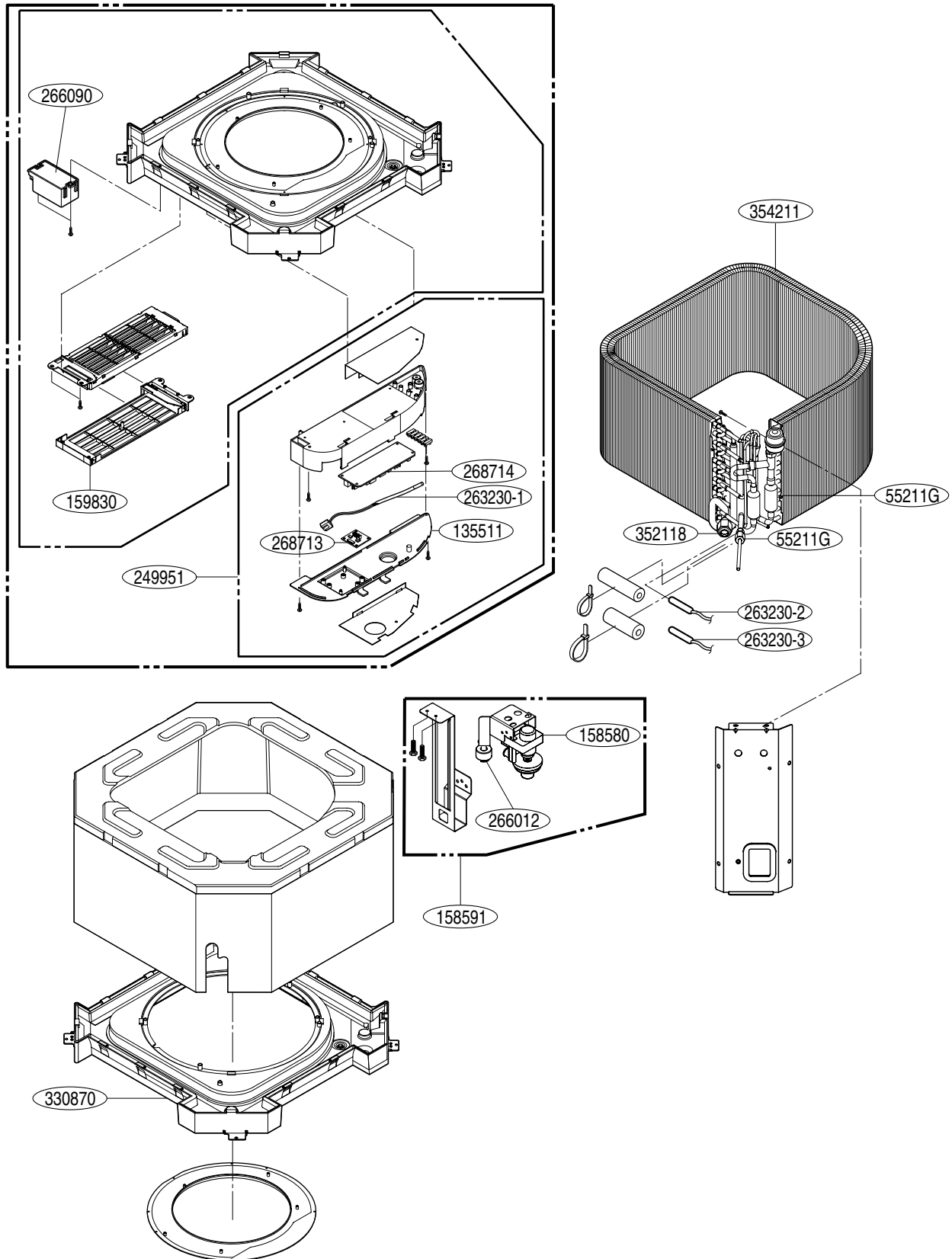
Exploded View & Replacement Parts List

7. Exploded View & Replacement Parts List

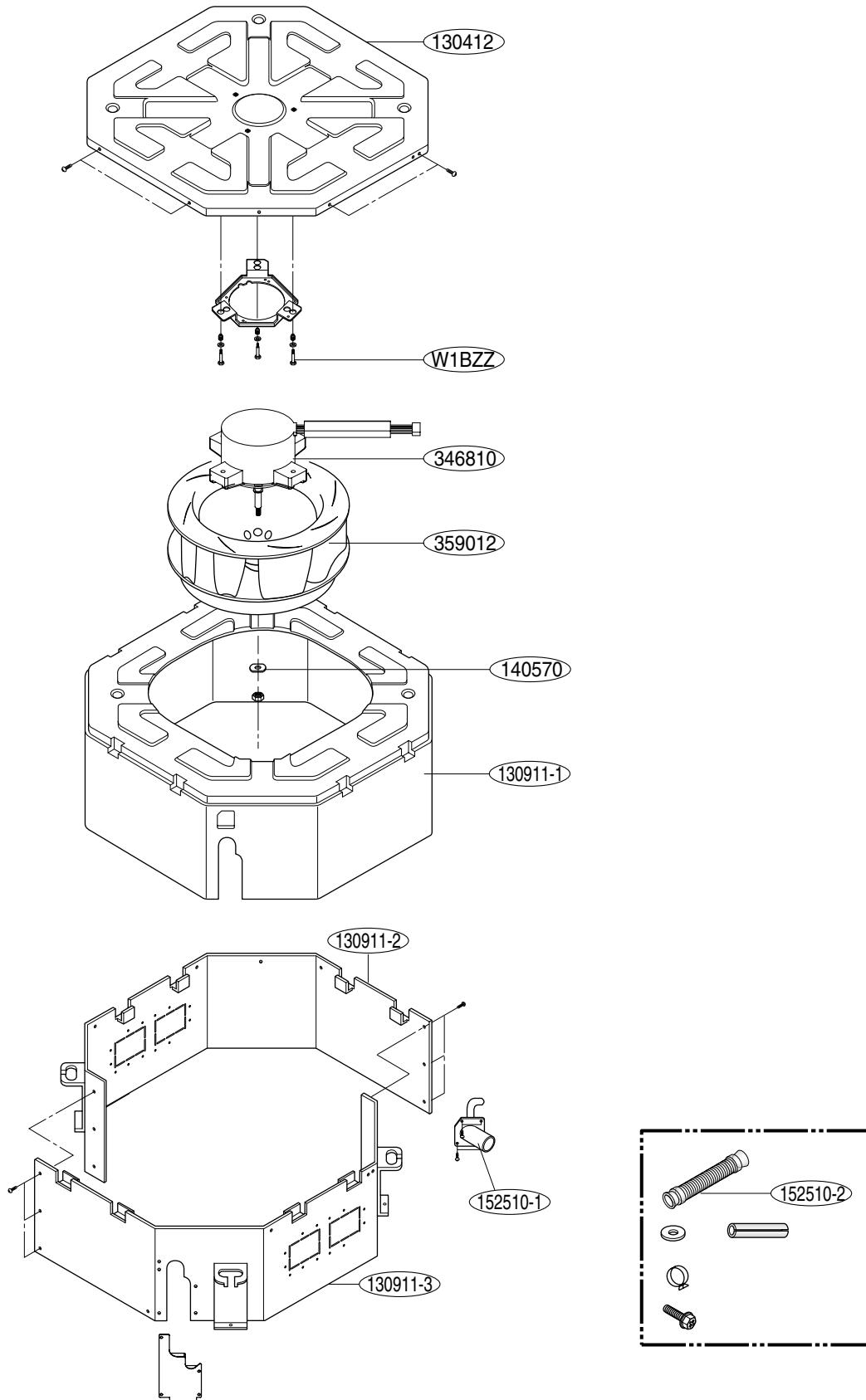
TE (Standard model)



TE (Plasma model)



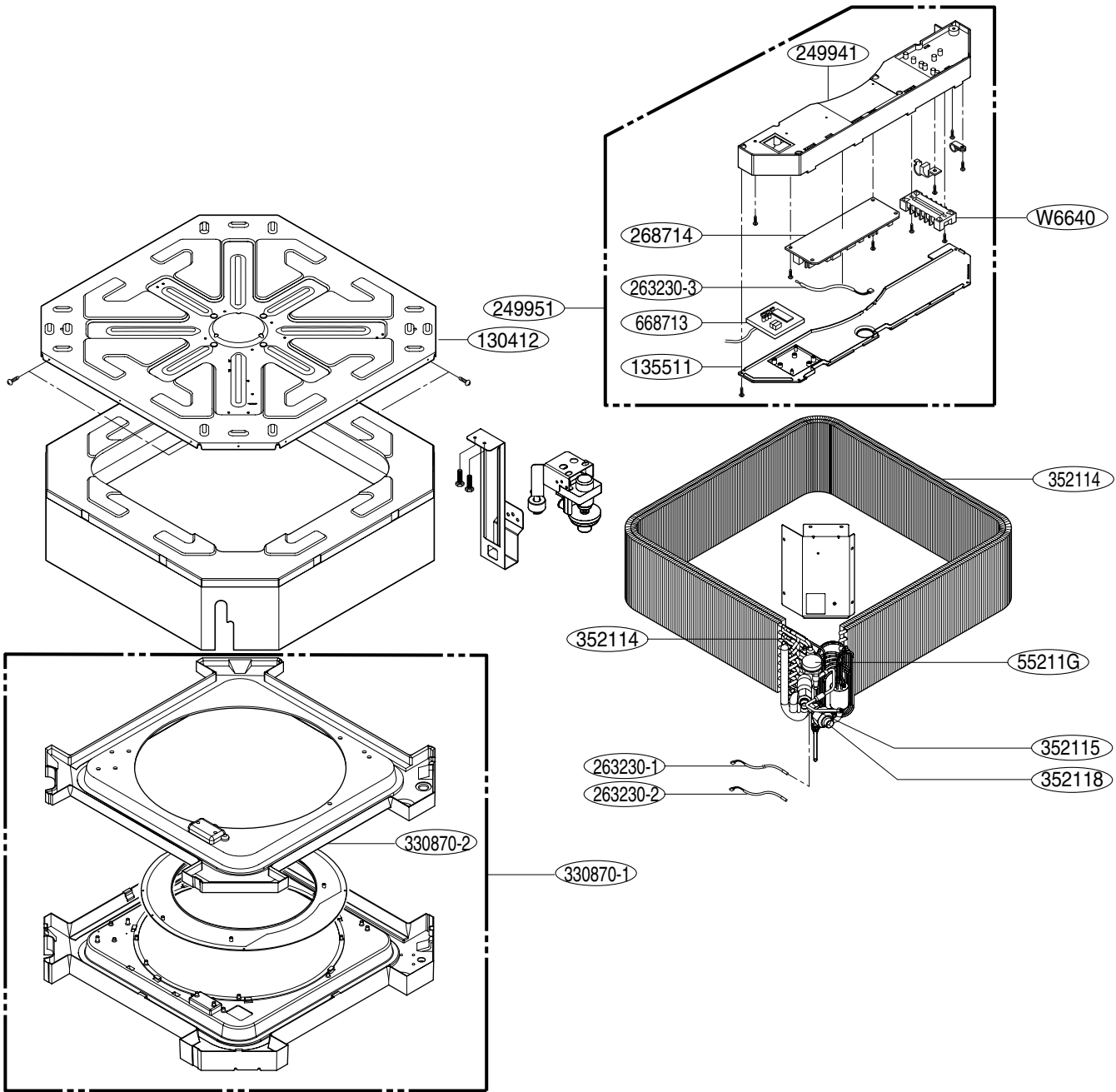
Exploded View & Replacement Parts List



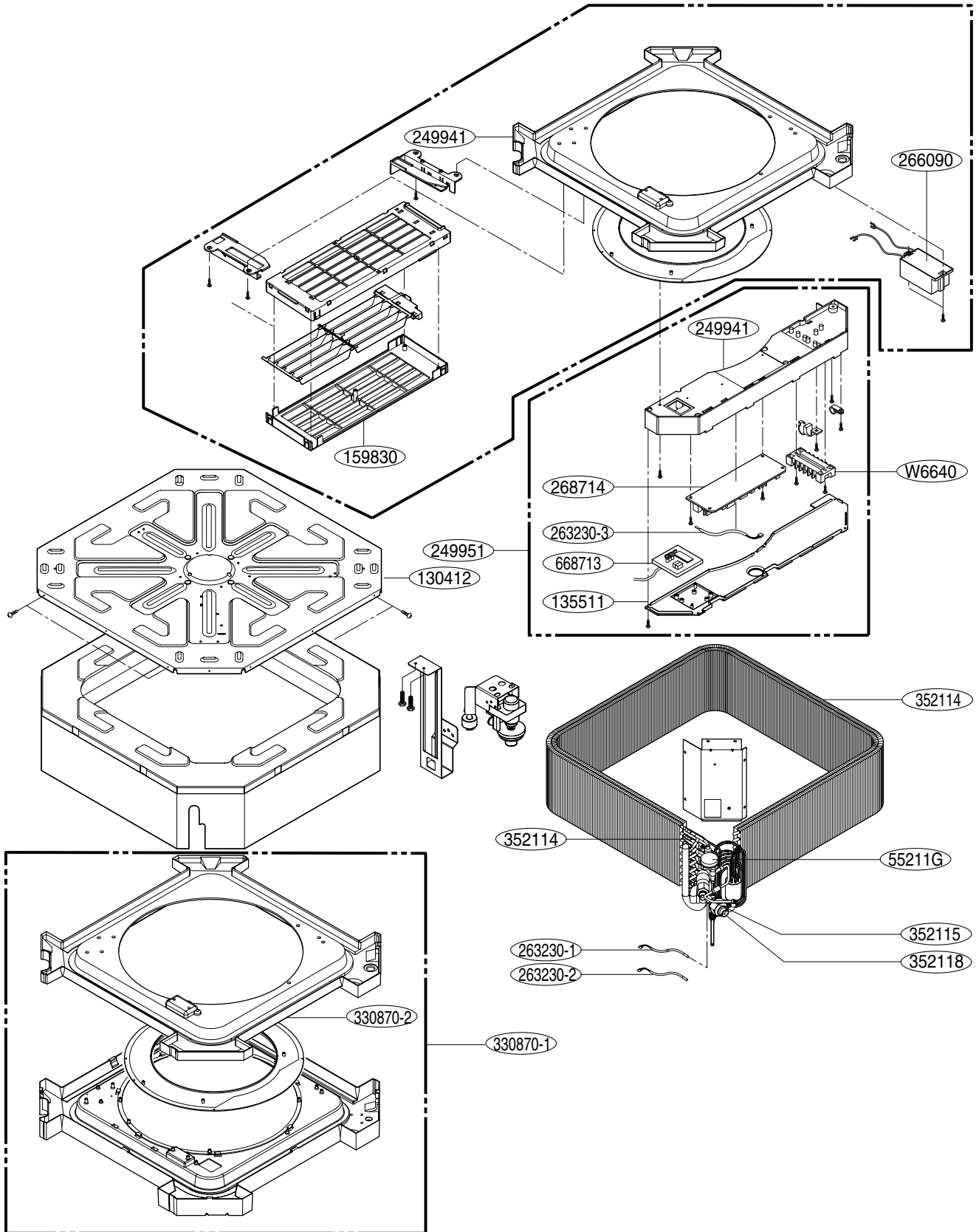
Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.						REMARK
		ARUN09GTEA0	ARNU12GTEA0	ARUN18GTEA0	ARNU09GTEC0	ARNU12GTEC0	ARNU18GTEC0	
130412	BASE ASSEMBLY,WELD[INDOOR]	3041A10073A	3041A10073A	3041A10073A	3041A10073A	3041A10073A	3041A10073A	
130911-1	CABINET ASSEMBLY,INDOOR	3091A10081A	3091A10081A	3091A10081A	3091A10081A	3091A10081A	3091A10081A	
130911-2	CABINET ASSEMBLY,INDOOR	3091A10023E	3091A10023E	3091A10023E	3091A10023E	3091A10023E	3091A10023E	
130911-3	CABINET ASSEMBLY,INDOOR	3091A10023F	3091A10023F	3091A10023F	3091A10023F	3091A10023F	3091A10023F	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A20627C	4995A20627B	4995A20627A	4995A20627C	4995A20627B	4995A20627A	
135511	COVER ASSEMBLY,CONTROL(INDOOR)	3551A20206B	3551A20206B	3551A20206B	3551A20206B	3551A20206B	3551A20206B	
330870	DRAIN PAN ASSEMBLY	3087A10030A	3087A10030A	3087A10030A	3087A10030C	3087A10030C	3087A10030C	
354211	EVAPORATOR ASSEMBLY,BENDING	5421A10060A	5421A10060A	5421A10060A	5421A10060A	5421A10060A	5421A10060A	
359012	FAN,TURBO	5900A20054A	5900A20054A	5900A20054A	5900A20054A	5900A20054A	5900A20054A	
152510-1	HOSE ASSEMBLY,DRAIN	5251A20012A	5251A20012A	5251A20012A	5251A20012A	5251A20012A	5251A20012A	
152510-2	HOSE ASSEMBLY,DRAIN	5251AP2984A	5251AP2984A	5251AP2984A	5251AP2984A	5251AP2984A	5251AP2984A	
266090	HVPS, DC/DC	-	-	-	6609A20009J	6609A20009J	6609A20009J	
140570	LOCKER ASSEMBLY	4A01405H	4A01405H	4A01405H	4A01405H	4A01405H	4A01405H	
346810	MOTOR ASSEMBLY,INDOOR	4681A20168B	4681A20168B	4681A20168B	4681A20168B	4681A20168B	4681A20168B	
158591	PUMP ASSEMBLY,WATER	5859A10007A	5859A10007A	5859A10007A	5859A10007A	5859A10007A	5859A10007A	
158580	PUMP,WATER	5858A10001G	5858A10001G	5858A10001G	5858A10001G	5858A10001G	5858A10001G	
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10231J	6871A10231K	6871A10231A	6871A10231J	6871A10231K	6871A10231A	
268713	PWB(PCB) ASSEMBLY,SUB	6871A20712A	6871A20712A	6871A20712A	6871A20712A	6871A20712A	6871A20712A	
266012	SWITCH ASSEMBLY,FLOAT	6601A20001K	6601A20001K	6601A20001K	6601A20001K	6601A20001K	6601A20001K	
263230-3	THERMISTOR ASSEMBLY	6323A10002B	6323A10002B	6323A10002B	6323A10002B	6323A10002B	6323A10002B	
263230-3	THERMISTOR ASSEMBLY	6323AQ3226F	6323AQ3226F	6323AQ3226F	6323AQ3226F	6323AQ3226F	6323AQ3226F	
263230-3	THERMISTOR ASSEMBLY	6323AQ3226T	6323AQ3226T	6323AQ3226T	6323AQ3226T	6323AQ3226T	6323AQ3226T	
55211G	TUBE ASSEMBLY,EVAPORATOR IN	5211A19005B	5211A19005B	5211A19005C	5211A19005B	5211A19005B	5211A19005C	
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A21463C	5211A21463C	5211A21463C	5211A21463C	5211A21463C	5211A21463C	
159830	FILTER ASSEMBLY,AIR CLEANER	-	-	-	5983A10002A	5983A10002A	5983A10002A	

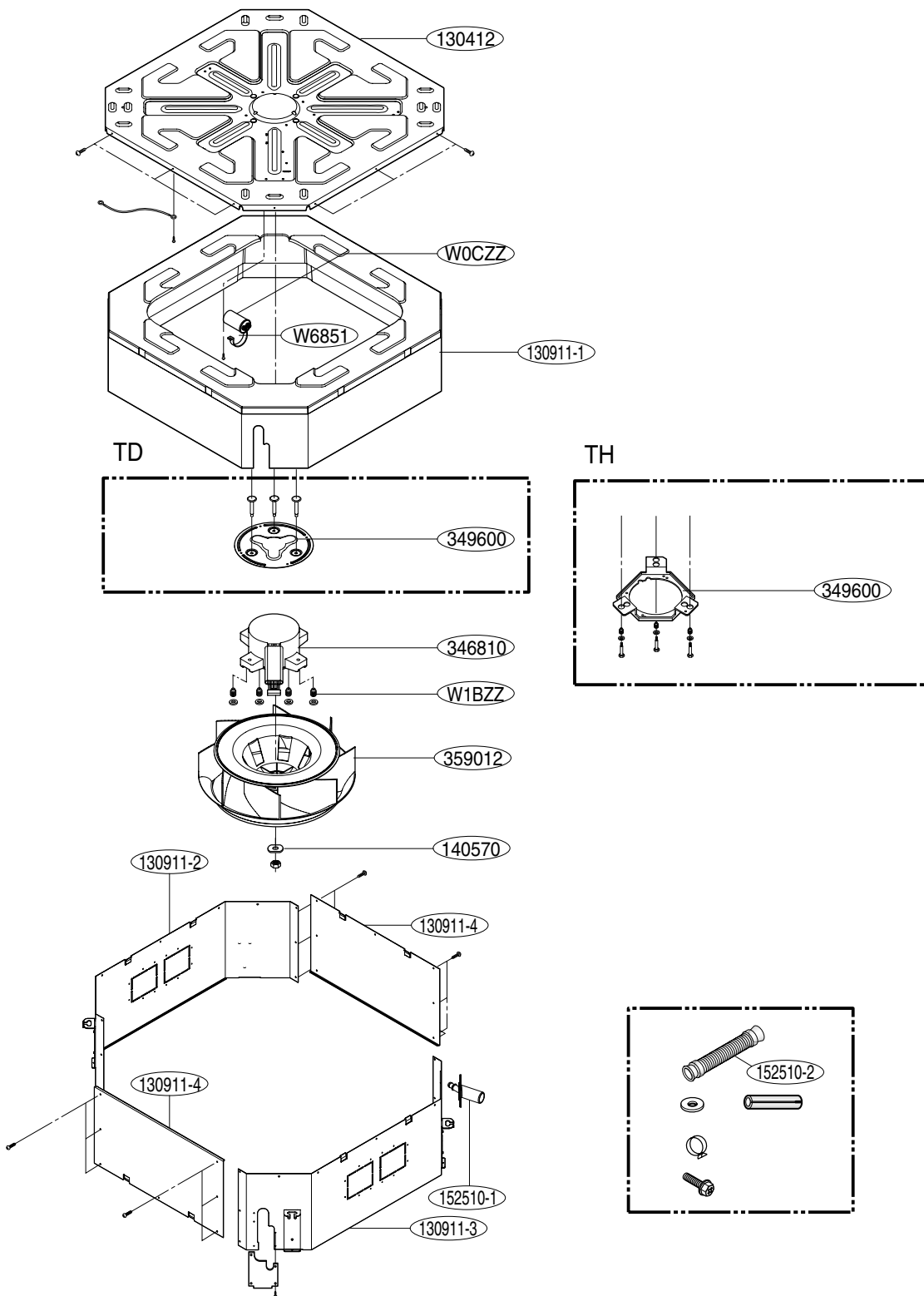
TH/TD (Standard model)



TH/TD (Plasma model)



Exploded View & Replacement Parts List



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.				REMARK
		ARNU24GTHA0	ARNU28GTHA0	ARNU24GTHC0	ARNU28GTHC0	
130412	BASE ASSEMBLY,WELD[INDOOR]	3041A10069A	3041A10069A	3041A10069A	3041A10069A	
W1BZZ	BOLT,DRAWING	3A00255D	3A00255D	3A00255D	3A00255D	
130911-1	CABINET ASSEMBLY,INDOOR	3091A10077A	3091A10077A	3091A10077A	3091A10077A	
130911-2	CABINET ASSEMBLY,INDOOR	3091A10075A	3091A10075A	3091A10075A	3091A10075A	
130911-3	CABINET ASSEMBLY,INDOOR	3091A10075B	3091A10075B	3091A10075B	3091A10075B	
130911-4	CABINET ASSEMBLY,INDOOR	3091A10085A	3091A10085A	3091A10085A	3091A10085A	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A10203B	4995A10203C	4995A10203B	4995A10203C	
135511	COVER ASSEMBLY,CONTROL(INDOOR)	3551A20206A	3551A20206A	3551A20206A	3551A20206A	
330870-1	DRAIN PAN ASSEMBLY	3087A10035E	3087A10035E	3087A10035D	3087A10035D	
330870-2	DRAIN PAN ASSEMBLY	3087A10029A	3087A10029A	3087A10029A	3087A10029A	
354211	EVAPORATOR ASSEMBLY,BENDING	5421A10061A	5421A10061A	5421A10061A	5421A10061A	
359012	FAN,TURBO	5900A10016A	5900A10016A	5900A10016A	5900A10016A	
152510-1	HOSE ASSEMBLY,DRAIN	5251A10003A	5251A10003A	5251A10003A	5251A10003A	
152510-2	HOSE ASSEMBLY,DRAIN	5251AP2984C	5251AP2984C	5251AP2984C	5251AP2984C	
266090	HVPS, DC/DC	-	-	6609A20009L	6609A20009L	
140570	LOCKER ASSEMBLY	4A01405C	4A01405C	4A01405C	4A01405C	
346810	MOTOR ASSEMBLY,INDOOR	4681A20168A	4681A20168A	4681A20168A	4681A20168A	
349480	ORIFICE	4948A20039A	4948A20039A	4948A20039A	4948A20039A	
158591	PUMP ASSEMBLY,WATER	5859A10006C	5859A10006C	5859A10006C	5859A10006C	
158580	PUMP,WATER	5858A10001F	5858A10001F	5858A10001F	5858A10001F	
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10231C	6871A10231D	6871A10231C	6871A10231D	
268713	PWB(PCB) ASSEMBLY,SUB	6871A20712A	6871A20712A	6871A20712A	6871A20712A	
266012	SWITCH ASSEMBLY,FLOAT	6601A20001K	6601A20001K	6601A20001K	6601A20001K	
263230-1	THERMISTOR ASSEMBLY	6323A30002A	6323A30002A	6323A30002A	6323A30002A	
263230-2	THERMISTOR ASSEMBLY	6323AQ3226W	6323AQ3226W	6323AQ3226W	6323AQ3226W	
263230-3	THERMISTOR ASSEMBLY	6323A10002B	6323A10002B	6323A10002B	6323A10002B	
55211G	TUBE ASSEMBLY,EXPANSION	5211A10298F	5211A10298E	5211A10298F	5211A10298E	
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A10600F	5211A10600F	5211A10600F	5211A10600F	

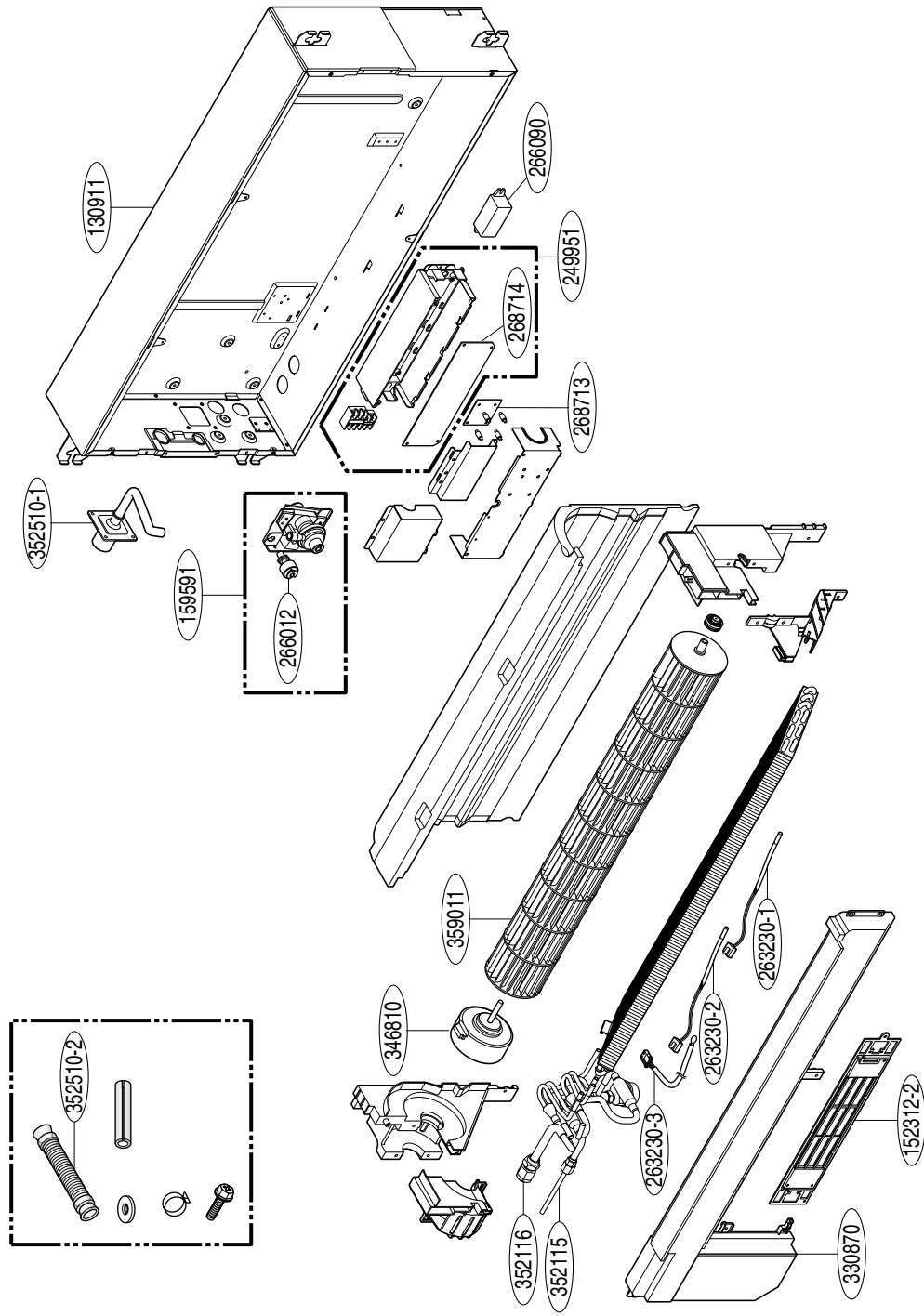
Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.				REMARK
		ARNU36GTDA0	ARNU38GTDA0	ARNU42GTDA0	ARNU48GTDA0	
130412	BASE ASSEMBLY,WELD[INDOOR]	3041A10075A	3041A10075A	3041A10075A	3041A10075A	
W1BZZ	BOLT,DRAWING	3A00255D	3A00255D	3A00255D	3A00255D	
130911-1	CABINET ASSEMBLY,INDOOR	3091A10078A	3091A10078A	3091A10078A	3091A10078A	
130911-2	CABINET ASSEMBLY,INDOOR	3091A10082A	3091A10082A	3091A10082A	3091A10082A	
130911-3	CABINET ASSEMBLY,INDOOR	3091A10082B	3091A10082B	3091A10082B	3091A10082B	
130911-4	CABINET ASSEMBLY,INDOOR	3091A10031J	3091A10031J	3091A10031J	3091A10031J	
W6851	CABLE ASSEMBLY	6851A20034A	6851A20034A	6851A20034A	6851A20034A	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A10203D	4995A10203E	4995A10203H	4995A10203G	
135511	COVER ASSEMBLY,CONTROL(INDOOR)	3551A20206A	3551A20206A	3551A20206A	3551A20206A	
330870-1	DRAIN PAN ASSEMBLY	3087A10035E	3087A10035E	3087A10035E	3087A10035E	
330870-2	DRAIN PAN ASSEMBLY	3087A10029A	3087A10029A	3087A10029A	3087A10029A	
354211	EVAPORATOR ASSEMBLY,BENDING	5421A10061B	5421A10061B	5421A10061B	5421A10061B	
359012	FAN,TURBO	5900A20055A	5900A20055A	5900A20055A	5900A20055A	
152510-1	HOSE ASSEMBLY,DRAIN	5251A10003B	5251A10003B	5251A10003B	5251A10003B	
152510-2	HOSE ASSEMBLY,DRAIN	5251AP2984C	5251AP2984C	5251AP2984C	5251AP2984C	
266090	HVPS,DC/DC	-	-	-	-	
140570	LOCKER ASSEMBLY	4A01405C	4A01405C	4A01405C	4A01405C	
346810	MOTOR ASSEMBLY,INDOOR	4681A20172A	4681A20172A	4681A20172A	4681A20172A	
349600	MOUNT ASSEMBLY,MOTOR(INDOOR)	4961A20038A	4961A20038A	4961A20038A	4961A20038A	
349480	ORIFICE	4948A20039A	4948A20039A	4948A20039A	4948A20039A	
158591	PUMP ASSEMBLY,WATER	5859A10006D	5859A10006D	5859A10006D	5859A10006D	
158580	PUMP,WATER	5858A10001F	5858A10001F	5858A10001F	5858A10001F	
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10231E	6871A10231F	6871A20231G	6871A10231H	
268713	PWB(PCB) ASSEMBLY,SUB	6871A20712A	6871A20712A	6871A20712A	6871A20712A	
266012	SWITCH ASSEMBLY,FLOAT	6601A20001L	6601A20001L	6601A20001L	6601A20001L	
263230-1	THERMISTOR ASSEMBLY	6323A30002A	6323A30002A	6323A30002A	6323A30002A	
263230-2	THERMISTOR ASSEMBLY	6323AQ3226W	6323AQ3226W	6323AQ3226W	6323AQ3226W	
263230	THERMISTOR ASSEMBLY	6323A10002B	6323A10002B	6323A10002B	6323A10002B	
55211G	TUBE ASSEMBLY,EVAPORATOR IN	5211A19006A	5211A19006A	5211A19006A	5211A19006A	
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A10600E	5211A10600E	5211A10600E	5211A10600E	

Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.				REMARK
		ARNU36GTDC0	ARNU38GTDC0	ARNU42GTDC0	ARNU48GTDC0	
130412	BASE ASSEMBLY,WELD[INDOOR]	3041A10075A	3041A10075A	3041A10075A	3041A10075A	
W1BZZ	BOLT,DRAWING	3A00255D	3A00255D	3A00255D	3A00255D	
130911-1	CABINET ASSEMBLY,INDOOR	3091A10078A	3091A10078A	3091A10078A	3091A10078A	
130911-2	CABINET ASSEMBLY,INDOOR	3091A10082A	3091A10082A	3091A10082A	3091A10082A	
130911-3	CABINET ASSEMBLY,INDOOR	3091A10082B	3091A10082B	3091A10082B	3091A10082B	
130911-4	CABINET ASSEMBLY,INDOOR	3091A10031J	3091A10031J	3091A10031J	3091A10031J	
W6851	CABLE ASSEMBLY	6851A20034A	6851A20034A	6851A20034A	6851A20034A	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A10203D	4995A10203E	4995A10203H	4995A10203G	
135511	COVER ASSEMBLY,CONTROL(INDOOR)	3551A20206A	3551A20206A	3551A20206A	3551A20206A	
330870-1	DRAIN PAN ASSEMBLY	3087A10035D	3087A10035D	3087A10035D	3087A10035D	
330870-2	DRAIN PAN ASSEMBLY	3087A10029A	3087A10029A	3087A10029A	3087A10029A	
354211	EVAPORATOR ASSEMBLY,BENDING	5421A10061B	5421A10061B	5421A10061B	5421A10061B	
359012	FAN,TURBO	5900A20055A	5900A20055A	5900A20055A	5900A20055A	
152510-1	HOSE ASSEMBLY,DRAIN	5251A10003B	5251A10003B	5251A10003B	5251A10003B	
152510-2	HOSE ASSEMBLY,DRAIN	5251AP2984C	5251AP2984C	5251AP2984C	5251AP2984C	
266090	HVPS,DC/DC	6609A20009L	6609A20009L	6609A20009L	6609A20009L	
140570	LOCKER ASSEMBLY	4A01405C	4A01405C	4A01405C	4A01405C	
346810	MOTOR ASSEMBLY,INDOOR	4681A20172A	4681A20172A	4681A20172A	4681A20172A	
349600	MOUNT ASSEMBLY,MOTOR(INDOOR)	4961A20038A	4961A20038A	4961A20038A	4961A20038A	
349480	ORIFICE	4948A20039A	4948A20039A	4948A20039A	4948A20039A	
158591	PUMP ASSEMBLY,WATER	5859A10006D	5859A10006D	5859A10006D	5859A10006D	
158580	PUMP,WATER	5858A10001F	5858A10001F	5858A10001F	5858A10001F	
268714	PWB(PCB) ASSEMBLY,MAIN	6871A10231E	6871A10231F	6871A20231G	6871A10231H	
268713	PWB(PCB) ASSEMBLY,SUB	6871A20712A	6871A20712A	6871A20712A	6871A20712A	
266012	SWITCH ASSEMBLY,FLOAT	6601A20001L	6601A20001L	6601A20001L	6601A20001L	
263230-1	THERMISTOR ASSEMBLY	6323A30002A	6323A30002A	6323A30002A	6323A30002A	
263230-2	THERMISTOR ASSEMBLY	6323AQ3226W	6323AQ3226W	6323AQ3226W	6323AQ3226W	
263230	THERMISTOR ASSEMBLY	6323A10002B	6323A10002B	6323A10002B	6323A10002B	
55211G	TUBE ASSEMBLY,EVAPORATOR IN	5211A19006A	5211A19006A	5211A19006A	5211A19006A	
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A10600E	5211A10600E	5211A10600E	5211A10600E	

TJ



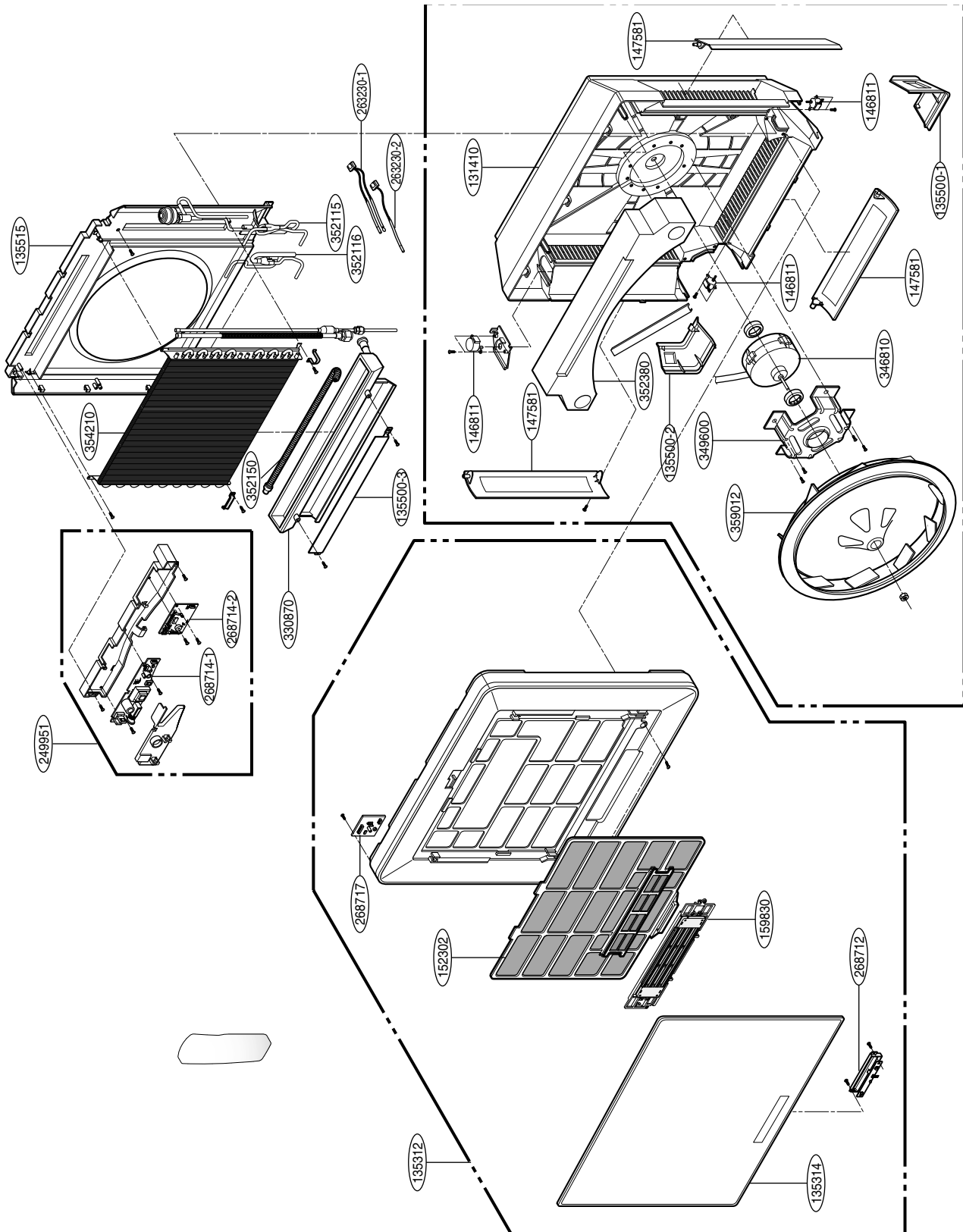
Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU07GTJA0	ARNU09GTJA0	ARNU12GTJA0	
130911	CABINET ASSEMBLY,INDOOR	3091A10087B	3091A10087B	3091A10087B	
158591	PUMP ASSEMBLY,WATER	5859A20005A	5859A20005A	5859A20005A	
249951	CASE ASSEMBLY,CONTROL(INDOOR)	4995A29009C	4995A29009D	4995A29009A	
263230-1	THERMISTOR,NTC	6323AQ3226E	6323AQ3226E	6323AQ3226E	EVA-IN
263230-2	THERMISTOR,NTC	6323AQ3226V	6323AQ3226V	6323AQ3226V	EVA-OUT
263230-3	THERMISTOR,NTC	6323A30004A	6323A30004A	6323A30004A	AIR
266012	SWITCH ASSEMBLY	6601A20001K	6601A20001K	6601A20001K	
268713	PCB ASSEMBLY,SUB	6871A20712A	6871A20712A	6871A20712A	
268714	PCB ASSEMBLY,MAIN	6871A10231M	6871A10231N	6871A10231P	
330870	PAN ASSEMBLY,DRAIN	3087A10033A	3087A10033A	3087A10033A	
346810	MOTOR,UNCLASSIFIED	4681A20091K	4681A20091K	4681A20091K	
352115	TUBE ASSEMBLY,EXPANSION	5211A29909A	5211A29909A	5211A29909A	EVA-IN
352116	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A29910A	5211A29910A	5211A29910A	EVA-OUT
352150-2	HOSE ASSEMBLY,DRAIN	5251AP2984C	5251AP2984C	5251AP2984C	
352510-1	HOSE ASSEMBLY,DRAIN	5251A20013A	5251A20013A	5251A20013A	
359011	FAN ASSEMBLY,CROSS FLOW	5901AR2441A	5901AR2441A	5901AR2441A	

Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU07GTJC0	ARNU09GTJC0	ARNU12GTJC0	
130911	CABINET ASSEMBLY,INDOOR	3091A10087C	3091A10087C	3091A10087C	
152312	FILTER ASSEMBLY,AIR CLEANER	5983A20017K	5983A20017K	5983A20017K	
158591	PUMP ASSEMBLY,WATER	5859A20005A	5859A20005A	5859A20005A	
249951	CASE ASSEMBLY,CONTROL(INDOOR)	4995A29009C	4995A29009D	4995A29009A	
263230-1	THERMISTOR,NTC	6323AQ3226E	6323AQ3226E	6323AQ3226E	EVA-IN
263230-2	THERMISTOR,NTC	6323AQ3226V	6323AQ3226V	6323AQ3226V	EVA-OUT
263230-3	THERMISTOR,NTC	6323A30004A	6323A30004A	6323A30004A	AIR
266012	SWITCH ASSEMBLY	6601A20001K	6601A20001K	6601A20001K	
266090	HVPS,DC/DC	6609A20009P	6609A20009P	6609A20009P	
268713	PCB ASSEMBLY,SUB	6871A20712A	6871A20712A	6871A20712A	
268714	PCB ASSEMBLY,MAIN	6871A10231M	6871A10231N	6871A10231P	
330870	PAN ASSEMBLY,DRAIN	3087A10033A	3087A10033A	3087A10033A	
346810	MOTOR,UNCLASSIFIED	4681A20091K	4681A20091K	4681A20091K	
352115	TUBE ASSEMBLY,EXPANSION	5211A29909A	5211A29909A	5211A29909A	EVA-IN
352116	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A29910A	5211A29910A	5211A29910A	EVA-OUT
352150-2	HOSE ASSEMBLY,DRAIN	5251AP2984C	5251AP2984C	5251AP2984C	
352510-1	HOSE ASSEMBLY,DRAIN	5251A20013A	5251A20013A	5251A20013A	
359011	FAN ASSEMBLY,CROSS FLOW	5901AR2441A	5901AR2441A	5901AR2441A	

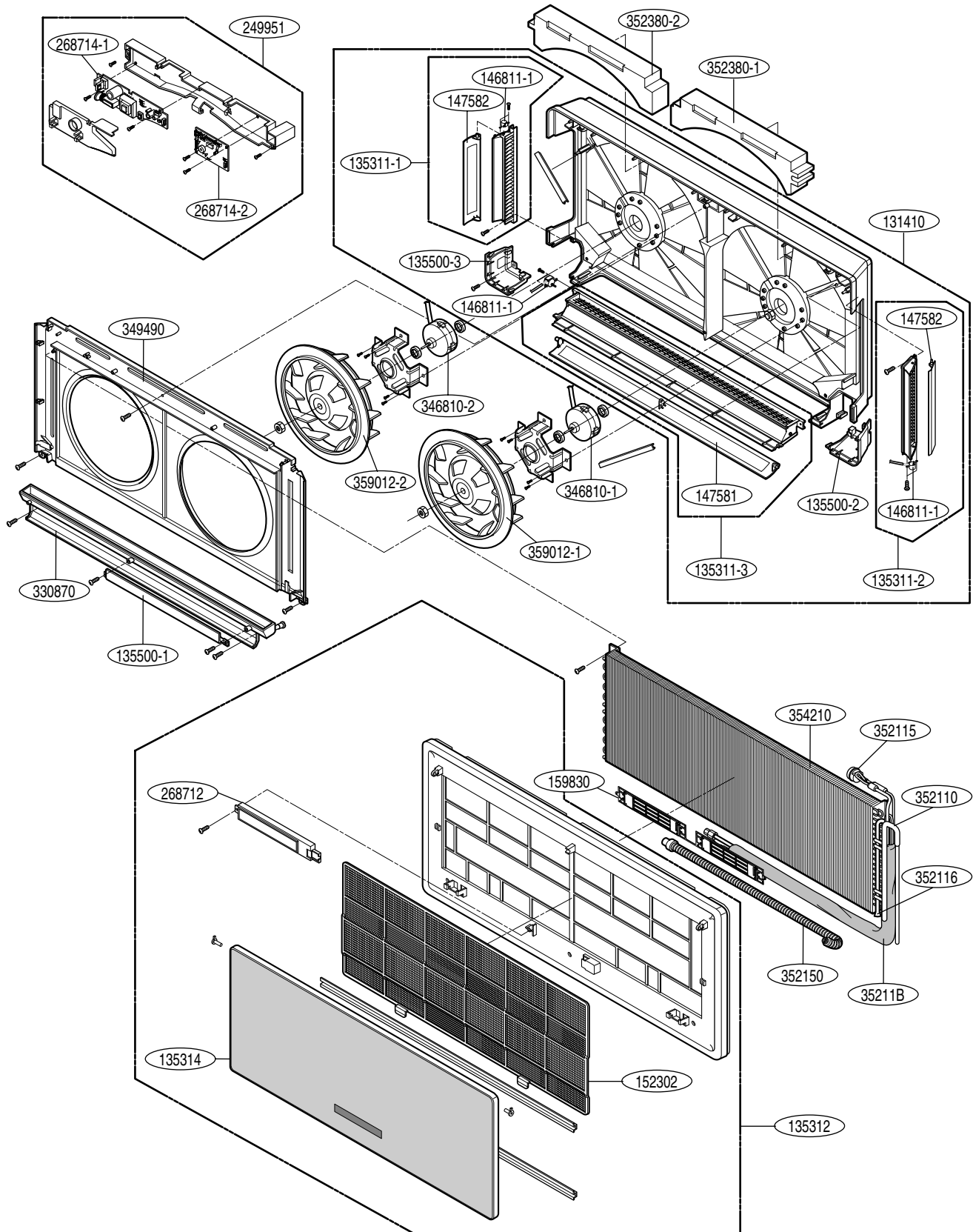
SP



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION		PART No.			REMARK
			ARNU07GSP*0	ARNU09GSP*0	ARNU12GSP*0	
131410	CHASSIS ASSEMBLY		3041A20030C	3041A20030C	3041A20030C	
135312	GRILLE ASSEMBLY, FRONT(INDOOR)	METAL	3531A20029S	3531A20029S	3531A20029S	
135314	GRILLE ASSEMBLY, INLET	BLUE	3531A20278B	3531A20278B	3531A20278B	
		METAL	3531A20278A	3531A20278A	3531A20278A	
		WHITE	-	-	-	
		WOOD	3531A20278C	3531A20278C	3531A20278C	
135500-1	COVER		3550A20123C	3550A20123C	3550A20123C	
135500-2	COVER		3550A20124B	3550A20124B	3550A20124B	
135500-3	COVER		3550A20060A	3550A20060A	3550A20060A	
135515	COVER ASSEMBLY, TOP(INDOOR)		3551A20031H	3551A20031H	3551A20031H	
146811	MOTOR ASSEMBLY, STEP		4681A20055A	4681A20055A	4681A20055A	
147581	LOUVER, HORIZONTAL		4758A20014B	4758A20014B	4758A20014B	
152302	FILTER(MECH), A/C		5230A20032A	5230A20032A	5230A20032A	
159830	AIR CLEANER ASSEMBLY		5983A20007T	5983A20007T	5983A20007T	
249951	CONTROL BOX ASSEMBLY, INDOOR		4995A20518G	4995A20518E	4995A20518F	
263230-1	THERMISTOR ASSEMBLY		6323A20004J	6323A20004J	6323A20004J	
263230-2	THERMISTOR ASSEMBLY		6323AQ3226W	6323AQ3226W	6323AQ3226W	
268712	PWB(PCB) ASSEMBLY, DISPLAY		6871A20462A	6871A20462A	6871A20462A	
268714-1	PWB(PCB) ASSEMBLY, MAIN		6871A20380A	6871A20380A	6871A20380A	
268714-2	PWB(PCB) ASSEMBLY, MAIN(DC)		6871A20700S	6871A20700G	6871A20700H	
330870	DRAIN PAN ASSEMBLY		3087A30004A	3087A30004A	3087A30004A	
346810	MOTOR ASSEMBLY, INDOOR		4681A20091A	4681A20091A	4681A20091A	
352115	TUBE ASSEMBLY, EVAPANSION		5211A10301B	5211A10301B	5211A10301B	
352116	TUBE ASSEMBLY, EVAPORATOR OUT		5211A20301K	5211A20301K	5211A20301K	
352150	HOSE ASSEMBLY, DRAIN		5251AR1222R	5251AR1222R	5251AR1222R	
352380	AIR GUIDE		5238A20034A	5238A20034A	5238A20034A	
354210	EVAPORATOR ASSEMBLY, FINAL		5421A20072C	5421A20072C	5421A20072C	
359012	FAN, TURBO		5900A00003A	5900A00003A	5900A00003A	
668713	PWB(PCB) ASSEMBLY, SUB		6871A20363F	6871A20363F	6871A20363F	
349600	MOUNT, MOTOR		4960A20016A	4960A20016A	4960A20016A	

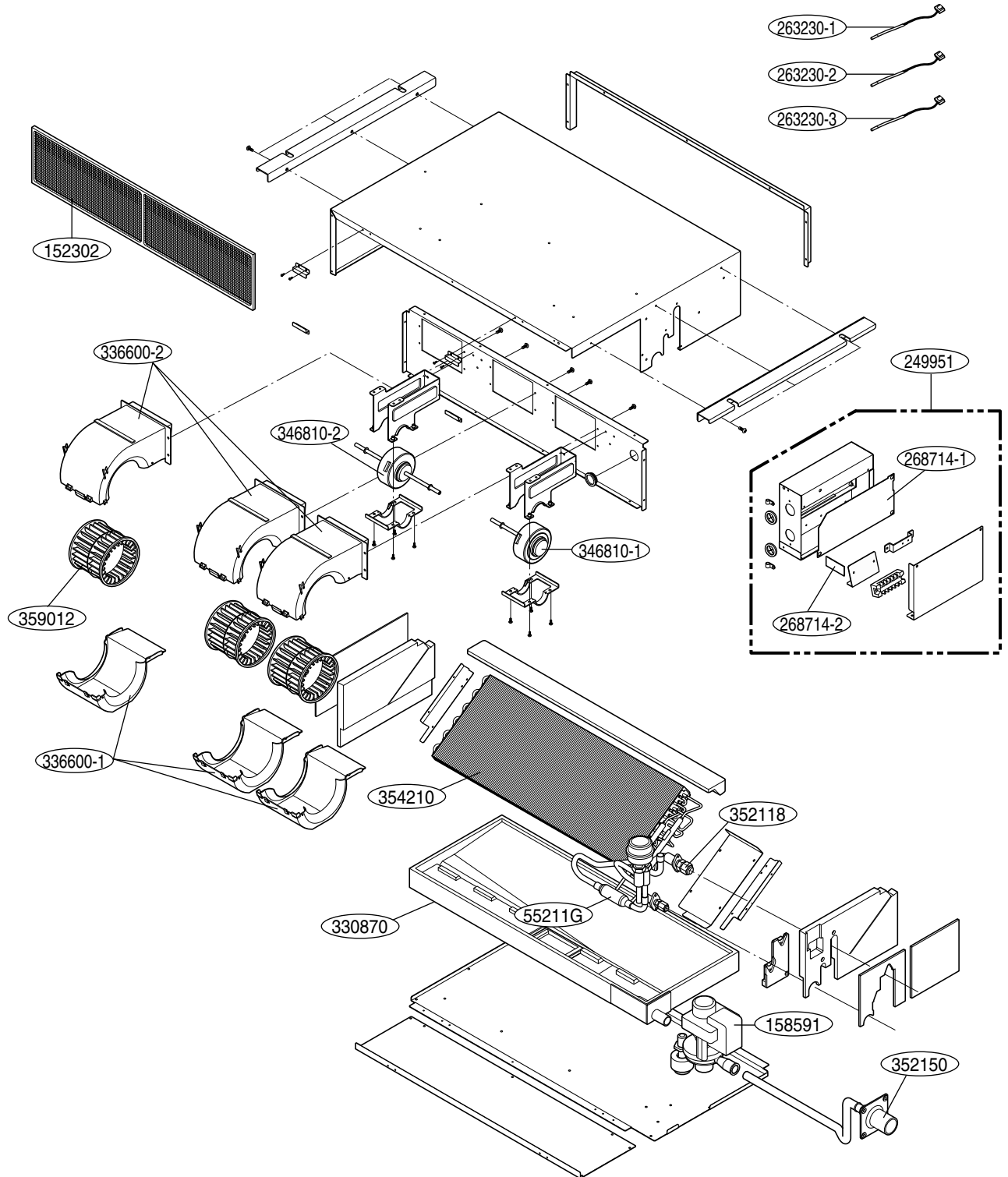
SV



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION		PART No.	REMARK
			ARNU18GSV*0	
131410	CHASSIS ASSEMBLY		3141A2008H	
135311-1	GRILLE ASSEMBLY,DISCHARGE(INDOOR)		3531A20124G	
135311-2	GRILLE ASSEMBLY,DISCHARGE(INDOOR)		3531A20124H	
135311-3	GRILLE ASSEMBLY,DISCHARGE(INDOOR)		3531A20125F	
135312	GRILLE ASSEMBLY,FRONT(INDOOR)	BLUE	3531A20301F	
		WOOD	3531A20301E	
		METAL	3531A20301G	
		WHITE	-	
135314	GRILLE ASSEMBLY,INLET	BLUE	3531A10270S	
		WOOD	3531A10270U	
		METAL	3531A10270T	
		WHITE	-	
135500-1	COVER		3550A20060A	
135500-2	COVER		3550A20120B	
135500-3	COVER		3550A20121B	
146811	MOTOR ASSEMBLY,STEP		4681A20055A	
147581	LOUVER,HORIZONTAL		4758A20033A	
147582	LOUVER,VERTICAL		4758A20034A	
152302	FILTER(MECH),A/C		5230A10011A	
159830	AIR CLEANER ASSEMBLY		5983A20006P	
249951	CONTROL BOX ASSEMBLY,INDOOR		4995A10098S	
263230	THERMISTOR ASSEMBLY		6323A20004J	
			6323AQ3226T	
266090	H.V ASSEMBLY		6609A10008A	
268712	PWB(PCB) ASSEMBLY,DISPLAY		6871A20462A	
268714-1	PWB(PCB) ASSEMBLY,MAIN		6871A20380F	
268714-2	PWB(PCB) ASSEMBLY,MAIN(DC)		6871A20380F	
330870	DRAIN PAN ASSEMBLY		3087A20013B	
346810	MOTOR ASSEMBLY,INDOOR		4681A20091A	
346810	MOTOR ASSEMBLY,INDOOR		4681A20091B	
349490	ORIFICE ASSEMBLY		4949A20002A	
35211B	TUBE ASSEMBLY,TUBING		5211A30038X	
352115	TUBE ASSEMBLY,EVAPORATOR IN		5211A29038A	
352116	TUBE ASSEMBLY,EVAPORATOR OUT		5211A21744A	
352150	HOSE ASSEMBLY,DRAIN		5251AR1222R	
352380	AIR GUIDE		5238A10009A	
352380	AIR GUIDE		5238A10010A	
354210	EVAPORATOR ASSEMBLY,FIRST		5421A20104E	
359012	FAN,TURBO		5900A00005A	
359012	FAN,TURBO		5900A00004A	

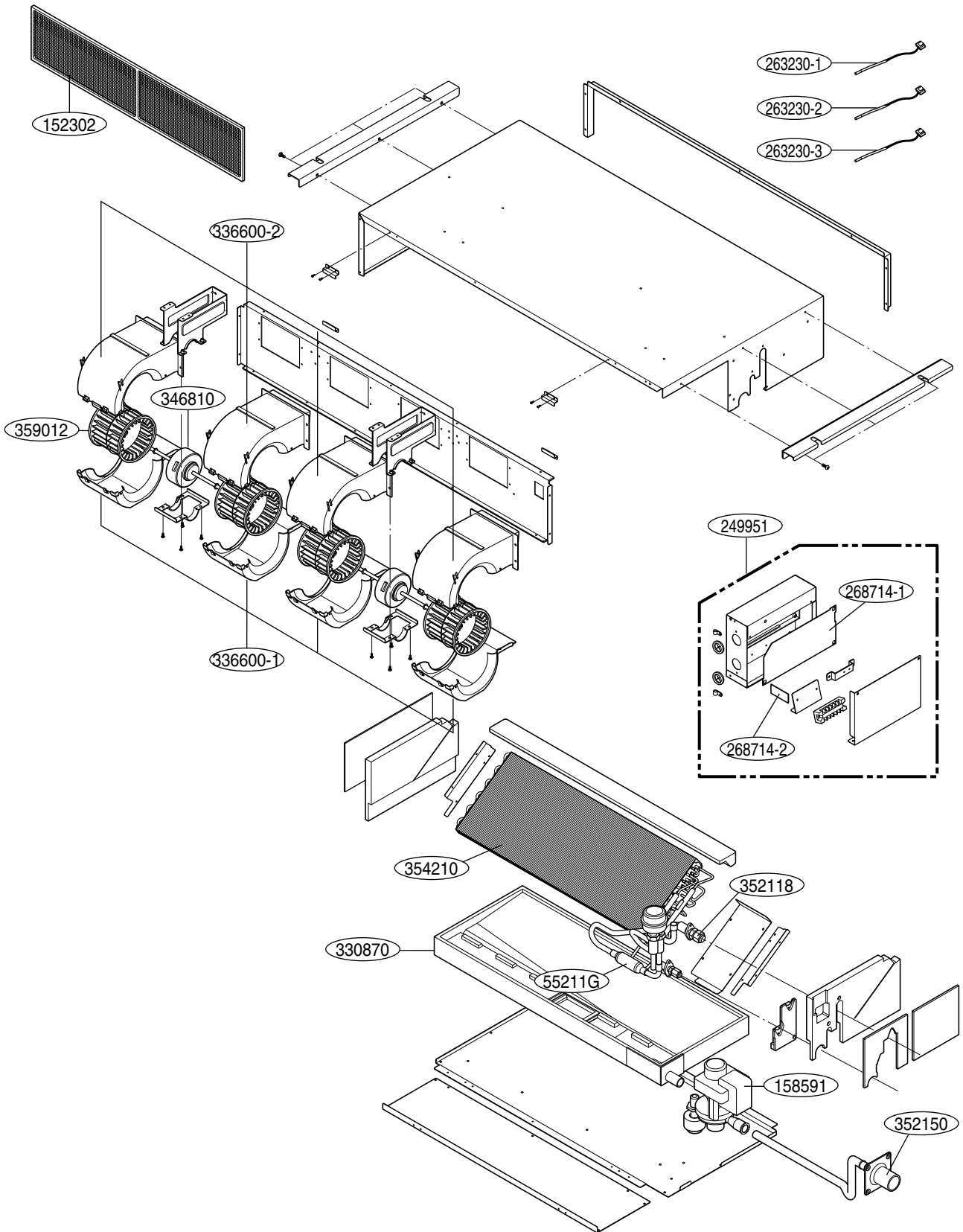
B1



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU07GB1G0	ARNU09GB1G0	LRNU12GB1G0	
249951	CONTROL BOX ASSEMBLY(INDOOR)	4995A20821A	4995A20821A	4995A20821A	
330870	DRAIN PAN ASSEMBLY	AGK30318401	AGK30318401	AGK30318401	
354210	EVAPORATOR ASSEMBLY, FIRST	5421A20279A	5421A20279A	5421A20279A	
359012	FAN ASSEMBLY, BLOWER	5901A20049A	5901A20049A	5901A20049A	
152302	FILTER(MECH), A/C	5231AP3330P	5231AP3330P	5231AP3330P	
352150	HOSE ASSEMBLY, DRIAN	5215A20008A	5215A20008A	5215A20008A	
336600-1	HOUSING(MECH), WRAPPER	3660A20059A	3660A20059A	3660A20059A	
336600-2	HOUSING(MECH), WRAPPER	3660A20060A	3660A20060A	3660A20060A	
346810-1	MOTOR ASSEMBLY, INDOOR	4681A20091L	4681A20091L	4681A20091L	
346810-2	MOTOR ASSEMBLY, INDOOR	4681A20198A	4681A20198A	4681A20198A	
158591	PUMP ASSEMBLY, BLOWER	5859A10008A	5859A10008A	5859A10008A	
268714-1	PWB(PCB) ASSEMBLY MAIN	6871A10354C	6871A10354C	6871A10354C	
268714-2	PWB(PCB) ASSEMBLY MAIN	6871A20740A	6871A20740B	6871A20740C	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226R	6323AQ3226R	6323AQ3226R	RED(EVA-OUT)
263230-2	THERMISTOR ASSEMBLY	6323AQ3226X	6323AQ3226X	6323AQ3226X	WHITE (AIR)
263230-3	THERMISTOR ASSEMBLY	6323A10002A	6323A10002A	6323A10002A	YELLOW (EVA-IN)
55211G	TUBE ASSEMBLY, EXPANTION	5211A11603A	5211A11603A	5211A11603A	
352118	TUBE ASSEMBLY,MENIFOLD	5211A11604A	5211A11604A	5211A11604A	

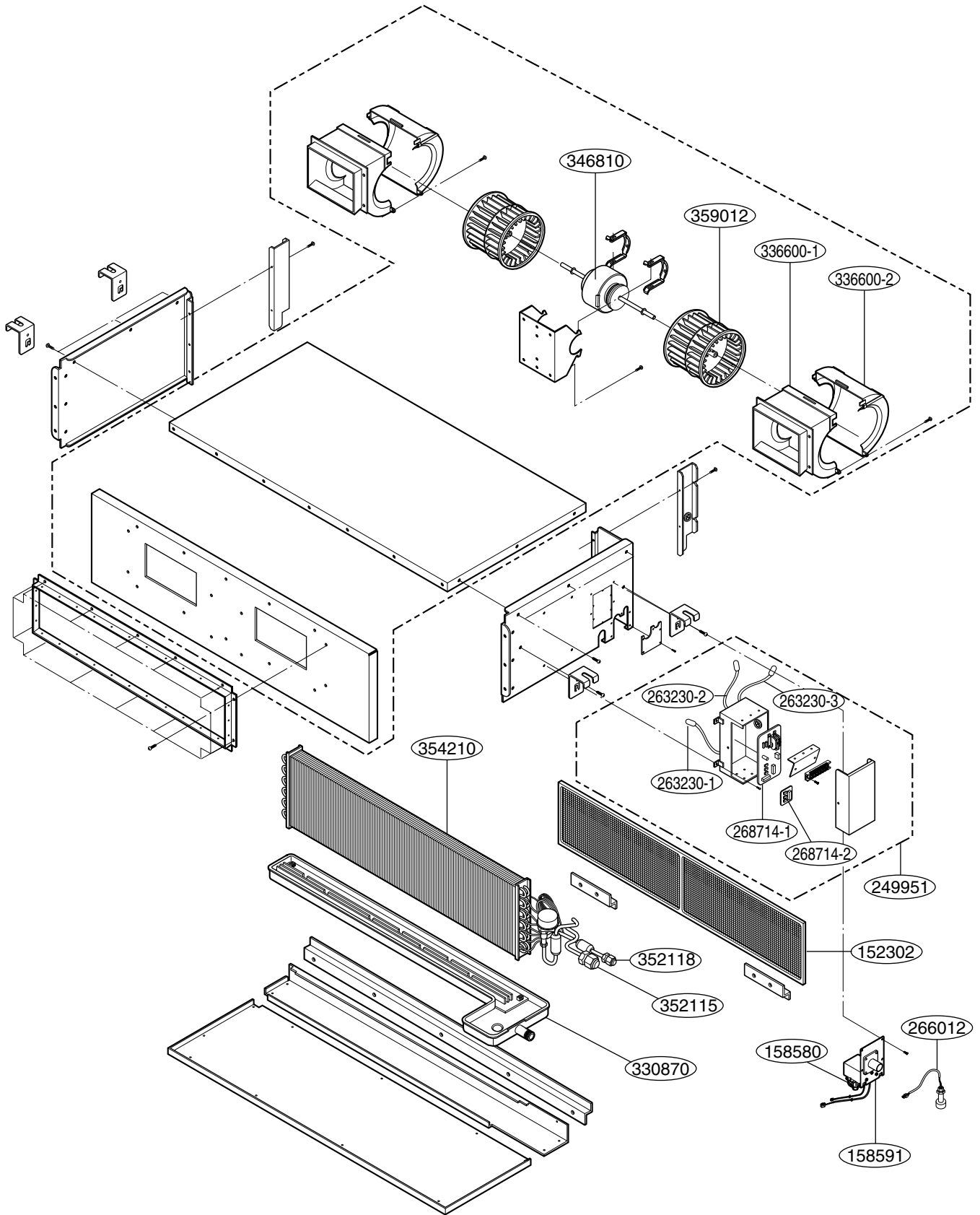
B2



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.		REMARK
		ARNU18GB2G0	ARNU24GB2G0	
249951	Case Assembly, Control(Indoor)	4995A20821A	4995A20821A	
354210	Evaporator Assembly, First	5421A20280A	5421A20280A	
359012	Fan Assembly, Blower	5901A20049A	5901A20049A	
152302	Filter Assembly, Air Cleaner	5231AP3330Q	5231AP3330Q	
352150	Hose Assembly, Drain	5215A20008A	5215A20008A	
336600-1	Housing, Wrapper	3660A20059A	3660A20059A	
336600-2	Housing, Wrapper	3660A20060A	3660A20060A	
346810	Motor Assembly, DC, Indoor	4681A20198A	4681A20198A	
330870	Pan, Drain	3086A20039A	3086A20039A	
268714-1	PCB Assembly, Main	6871A10354C	6871A10354C	
268714-2	PCB Assembly, Main	6871A20740E	6871A20740G	EEP-ROM PCB
158591	Pump Assembly, Water	5859A10008A	5859A10008A	
263230-1	Thermistor, NTC	6323AQ3226R	6323AQ3226R	RED(EVA-OUT)
263230-2	Thermistor, NTC	6323A10002A	6323A10002A	WHITE(AIR)
263230-3	Thermistor, NTC	6323AQ3226X	6323AQ3226X	YELLOW(EVA-IN)
55211G	Tube Assembly, Expansion	5211A11603C	5211A11603B	EVA-IN
352118	Tube Assembly, Menifold(Indoor)	5211A11604C	5211A11604B	EVA-OUT

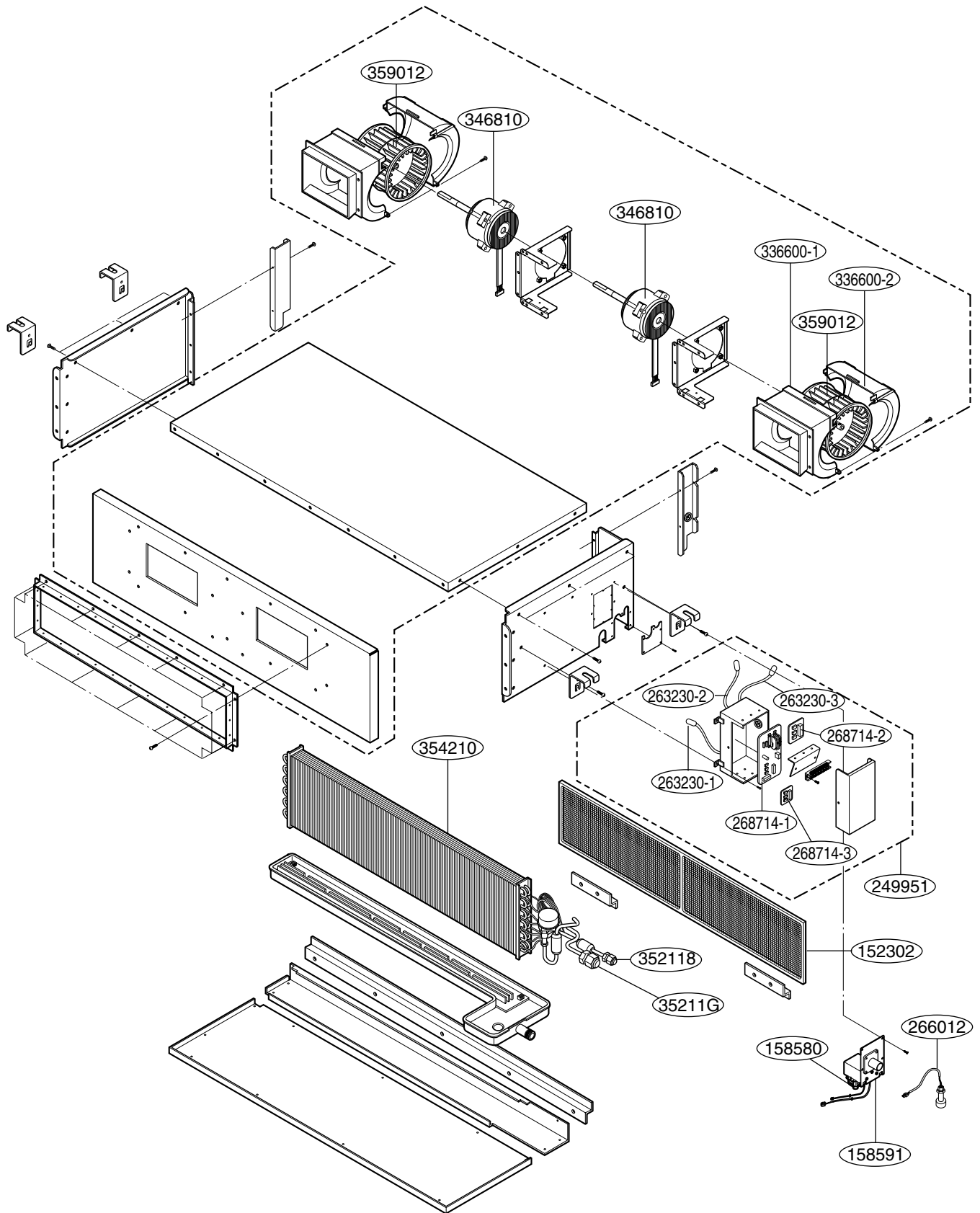
BH



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU18GBHA0	ARNU22GBHA0	ARNU24GBHA0	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A10215A	4995A10215A	4995A10215A	
330870	DRAIN PAN ASSEMBLY	3087A10008D	3087A10008D	3087A10008D	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20100B	5421A20100B	5421A20100B	
359012	FAN ASSEMBLY,BLOWER	5901A10026A	5901A10026A	5901A10026A	
152302	FILTER(MECH),A/C	5230A30001M	5230A30001M	5230A30001M	
336600-1	HOUSING (MECH),WRAPPER	3660A20017A	3660A20017A	3660A20017A	
336600-2	HOUSING (MECH),WRAPPER	3660A20018A	3660A20018A	3660A20018A	
346810	MOTOR ASSEMBLY,INDOOR	4681A20197A	4681A20197A	4681A20197A	
158591	PUMP ASSEMBLY,WATER	5859A20002C	5859A20002C	5859A20002C	
158580	PUMP,WATER	5858A10001L	5858A10001L	5858A10001L	
268714-1	PWB(PCB) ASSEMBLY,MAIN	6871A10354C	6871A10354C	6871A10354C	
268714-2	PWB(PCB) ASSEMBLY,MAIN(DC)	6871A20911H	6871A20911G	6871A20911F	
266012	SWITCH ASSEMBLY,FLOAT	6601A20001L	6601A20001L	6601A20001L	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226W	6323AQ3226W	6323AQ3226W	RED(EVA-OUT)
263230-2	THERMISTOR ASSEMBLY	6323AQ3226G	6323AQ3226G	6323AQ3226G	WHITE (EVA-IN)
263230-3	THERMISTOR ASSEMBLY	6323A30004D	6323A30004D	6323A30004D	YELLOW (AIR)
352115	TUBE ASSEMBLY,EVAPORATOR IN	5211A10305F	5211A10305E	5211A10305E	
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20465K	5211A20465D	5211A20465D	

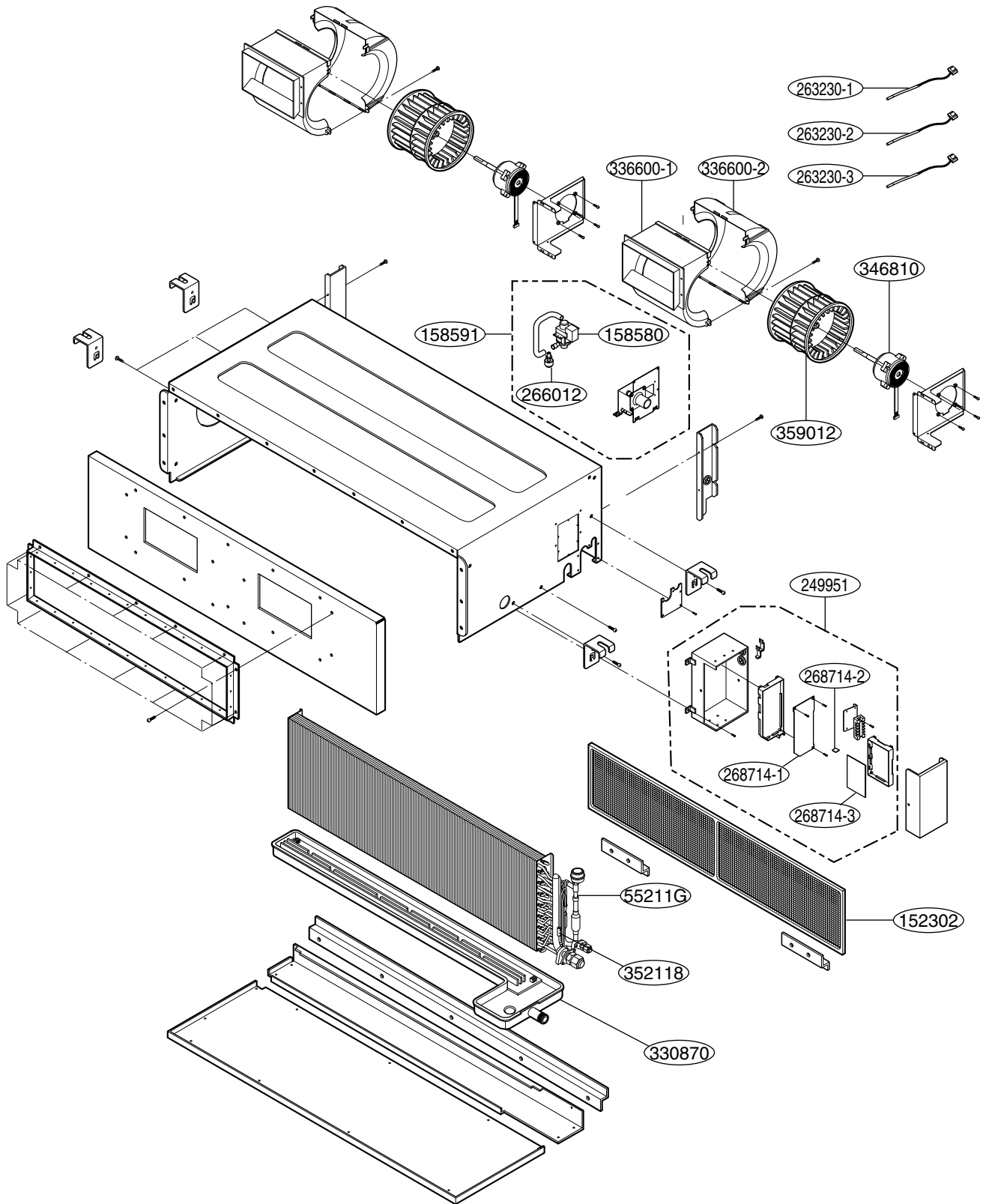
BG



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU28GBGA0	ARNU36GBGA0	ARNU42GBHA0	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A10209A	4995A10209A	4995A10209A	
330870	DRAIN PAN ASSEMBLY	3087A10008C	3087A10008C	3087A10008C	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A10027C	5421A10027C	5421A10027C	
359012	FAN,BLOWER	5901A10026A	5901A10026A	5901A10026A	
152302	FILTER(MECH),A/C	5230A30001L	5230A30001L	5230A30001L	
336600-1	HOUSING (MECH),WRAPPER	3660A20019A	3660A20019A	3660A20019A	
336600-2	HOUSING (MECH),WRAPPER	3660A20020A	3660A20020A	3660A20020A	
346810	MOTOR ASSEMBLY,INDOOR	4681A20169B	4681A20169B	4681A20169B	
158591	PUMP ASSEMBLY,WATER	5859A20002C	5859A20002C	5859A20002C	
158580	PUMP,WATER	5858A10001L	5858A10001L	5858A10001L	
268714-1	PWB(PCB) ASSEMBLY,MAIN	6871A10354C	6871A10354C	6871A10354C	
268714-2	PWB(PCB) ASSEMBLY,MAIN(AC)	6871A20912A	6871A20912A	6871A20912A	
268714-3	PWB(PCB) ASSEMBLY,MAIN(DC)	6871A20911E	6871A20911D	6871A20911C	EEPROM PCB
266012	SWITCH ASSEMBLY,FLOAT	6601A20001L	6601A20001L	6601A20001L	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226V	6323AQ3226V	6323AQ3226V	PIPE-OUT
263230-2	THERMISTOR ASSEMBLY	6323AQ3226G	6323AQ3226G	6323AQ3226G	PIPE-IN
263230-3	THERMISTOR ASSEMBLY	6323A30004D	6323A30004D	6323A30004D	ROOM SENSOR
35211G	TUBE ASSEMBLY,EVAPORATOR IN	5211A10426C	5211A10426C	5211A10426C	
352118	TUBE ASSEMBLY,MENIFOLD(INDOOR)	5211A20416G	5211A20416G	5211A20416G	

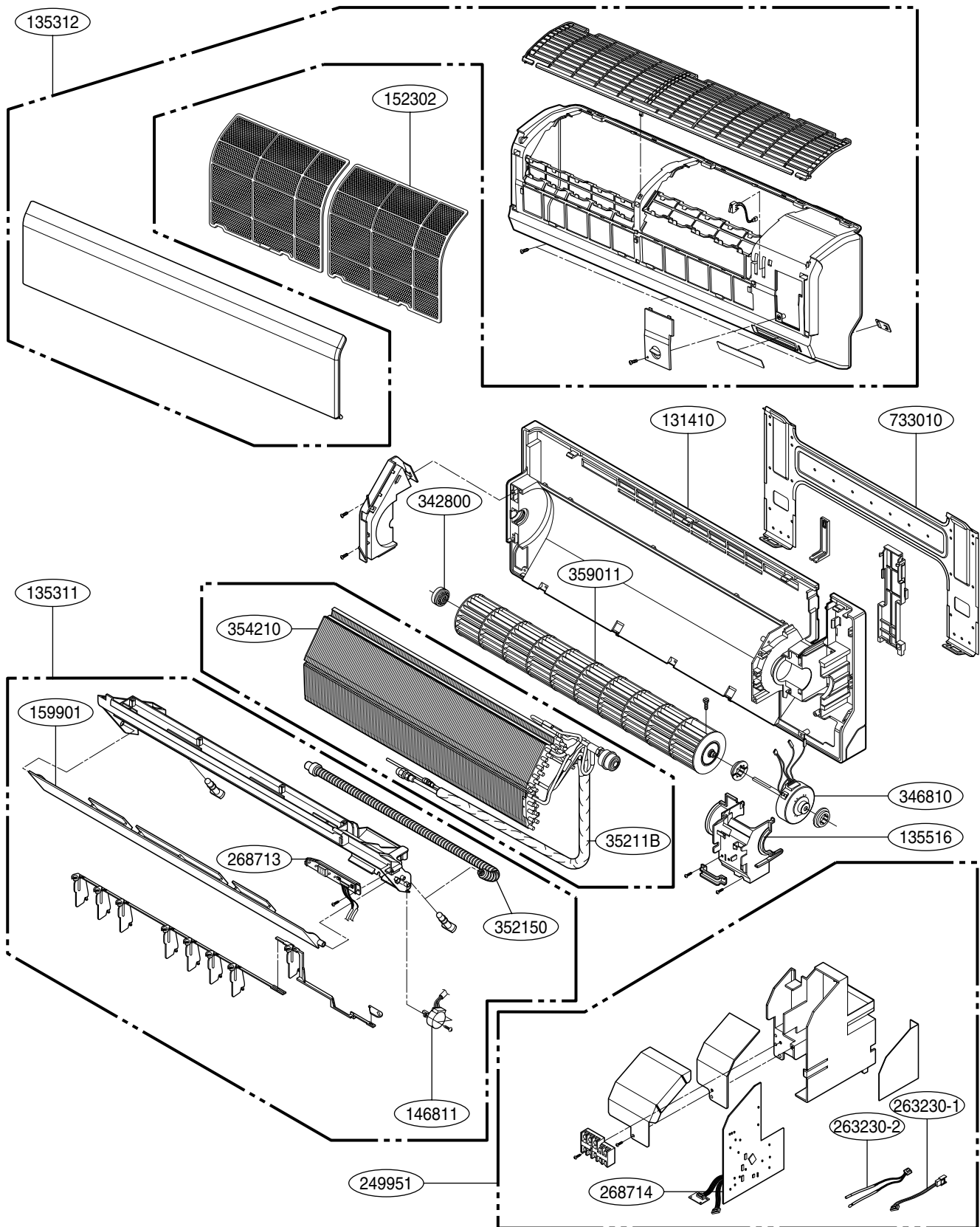
BR



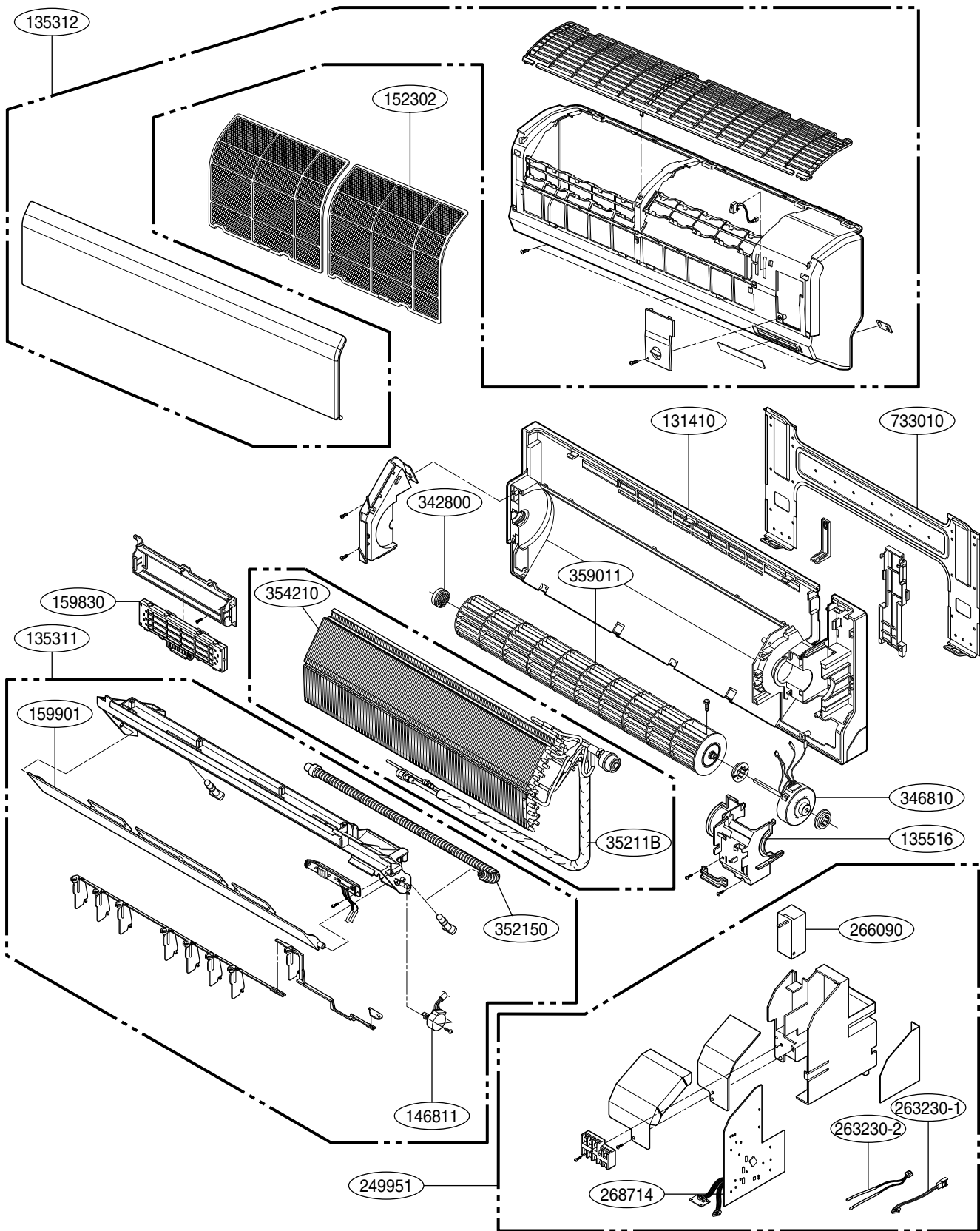
Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.	REMARK
		ARNU48GBRA0	
249951	CASE ASSEMBLY, CONTROL(INDOOR)	4995A10209B	
330870	DRAIN PAN ASSEMBLY	3087A20025B	
354210	EVAPORATOR ASSEMBLY, FIRST	5421A20273A	
359012	FAN ASSY, BLOWER	5901A10051A	
152302	FILTER(MECH), A/C	5230A30077A	
336600-1	HOUSING (MECH), WRAPPER	3660A20044A	
336600-2	HOUSING (MECH), WRAPPER	3660A20045A	
346810	MOTOR ASSEMBLY, INDOOR	4681A20169B	
158591	PUMP ASSEMBLY, WATER	5859A20002C	
158580	PUMP, WATER	5858A10001L	
268714-1	PWB(PCB) ASSEMBLY, MAIN	6871A10354C	
268714-2	PWB(PCB) ASSEMBLY, MAIN(AC)	6871A20912A	
268714-3	PWB(PCB) ASSEMBLY, MAIN(DC)	6871A20911K	EEPROM PCB
266012	SWITCH ASSEMBLY, FLOAT	6601A20001L	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226V	PIPE-OUT
263230-2	THERMISTOR ASSEMBLY	6323AQ3226E	PIPE-IN
263230-3	THERMISTOR ASSEMBLY	6323A30004D	ROOM SENSOR
35211G	TUBE ASSEMBLY, EVAPORATOR IN	5211A21810A	
352118	TUBE ASSEMBLY, MENIFOLD(INDOOR)	5211A21811B	

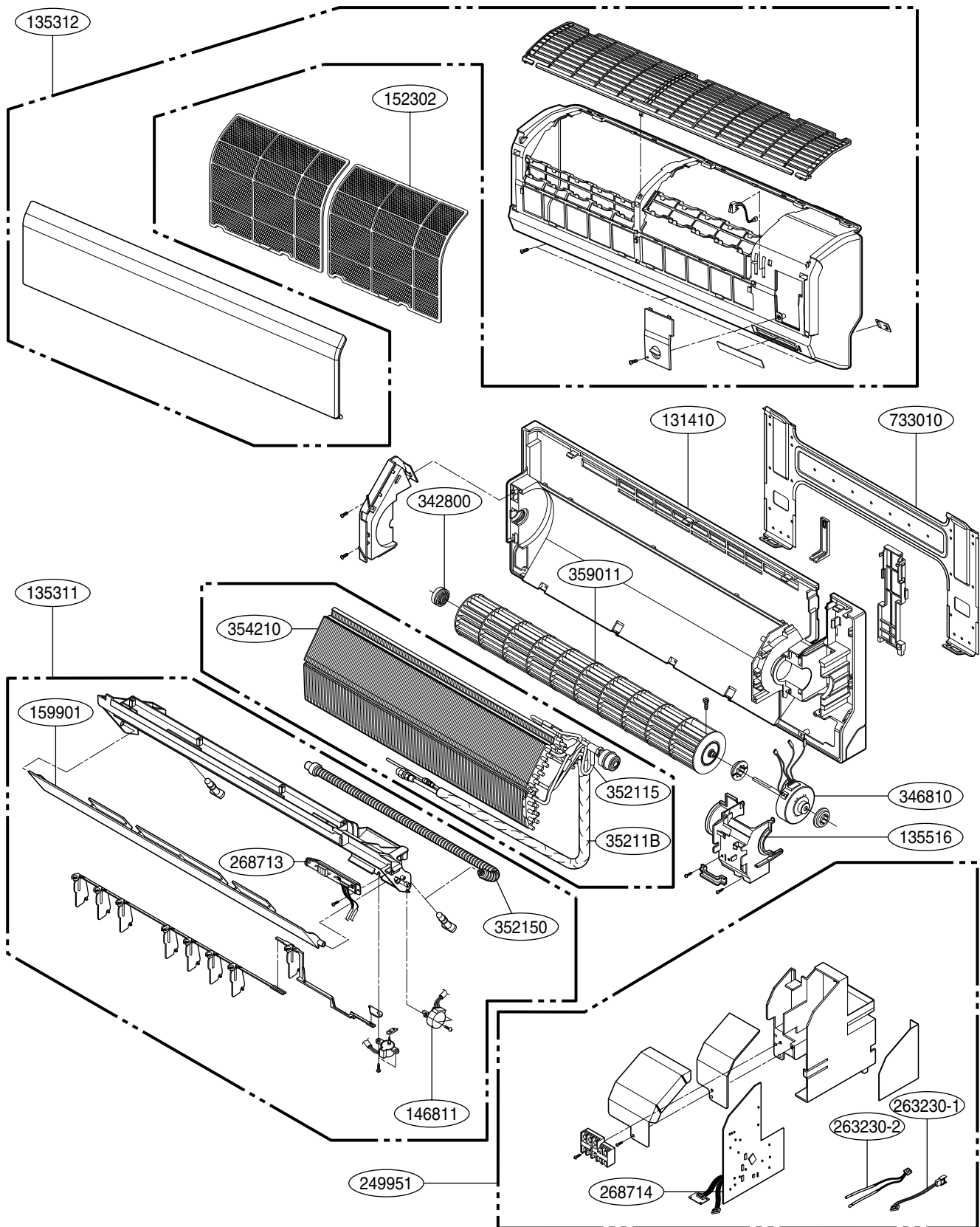
SE1 (Standard)



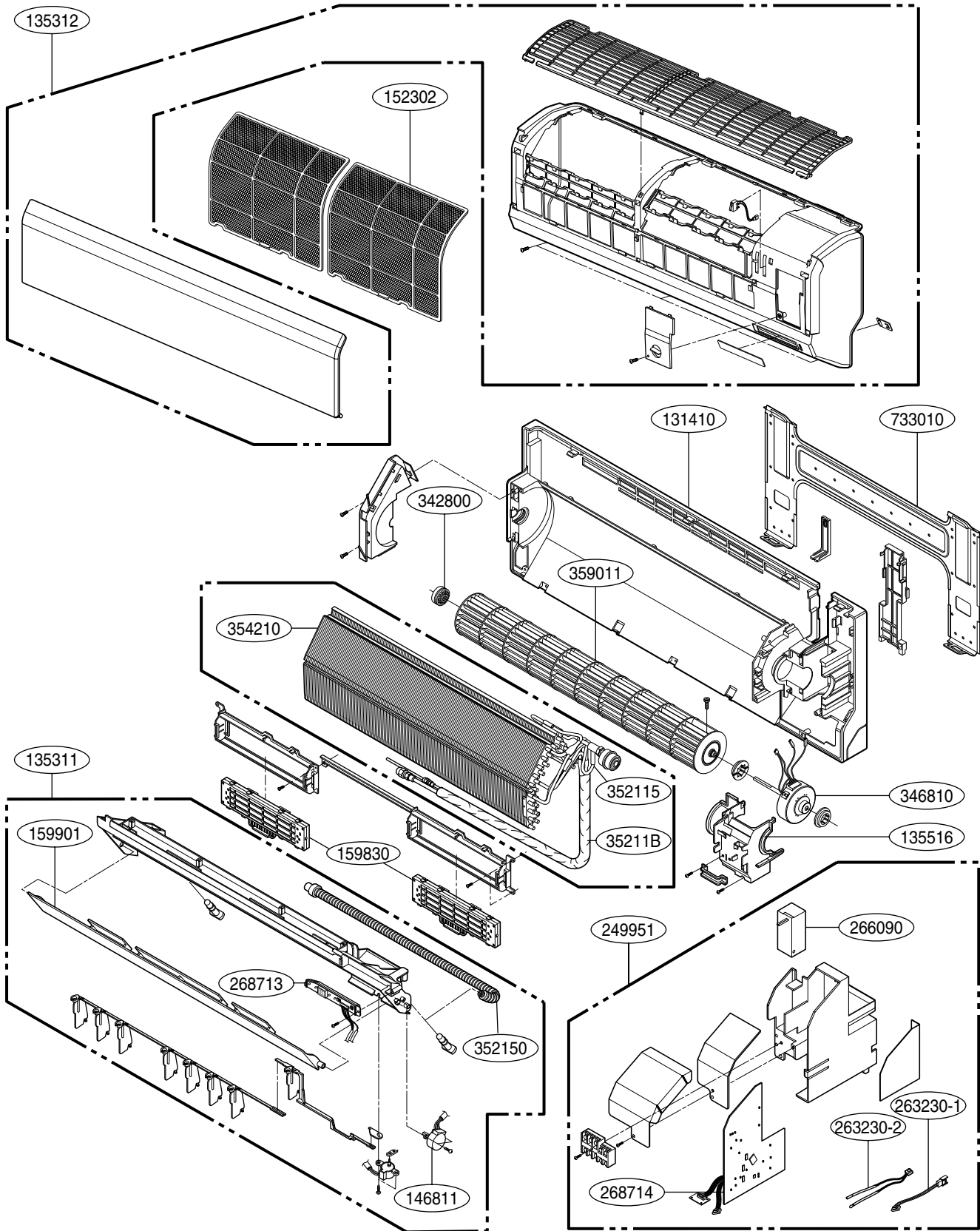
SE1 (Plasma)



S5 (Standard)



S5 (Plasma)



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU07GSEA0	ARNU07GSEL0	ARNU09GSEA0	
131410	CHASSIS ASSEMBLY	3141A20034B	3141A20034B	3141A20034B	
135311	GRILLE ASSEMBLY,DISCHARGE(INDOOR)	3531A10362G	3531A10362B	3531A10362G	
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	3531A18013K	3531A18013L	3531A18013K	
135516	COVER ASSEMBLY,MOTOR	3551A20156C	3551A20156C	3551A20156C	
145811	MOTOR ASEEMBLY,STEP	4681A20055A	4681A20055A	4681A20055A	
152302	FILTER(MECH),A/C	5230A20064A	5230A20064A	5230A20064A	
159901	VANE,HORIZONTAL	5990A20068A	5990A20068A	5990A20068A	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A22014G	4995A22014A	4995A22014J	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226T	6323AQ3226T	6323AQ3226T	EVA-OUT (RED)
263230-2	THERMISTOR ASSEMBLY	6323A20004G	6323A20004G	6323A20004G	AIR-EVA IN(BLACK)
266090	H.V ASSEMBLY	-	6609A10008A	-	
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871A20680D	6871A20680C	6871A20680D	
268714	PWB(PCB) ASSEMBLY,MAIN	6871A20902H	6871A20902H	6871A20902F	
342800	BEARING	4280A20004B	4280A20004B	4280A20004B	
346810	MOTOR ASSEMBLY,INDOOR	4681A20091J	4681A20091J	4681A20091J	
35211B	TUBE ASSEMBLY,TUBING	5211A22521A	5211A22521A	5211A22521A	
352150	HOSE ASSEMBLY,DRAIN	5251A20011G	5251A20011G	5251A20011G	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20258A	5421A20258A	5421A20258A	
359011	FAN ASSEMBLY,CROSS FLOW	5901A20017H	5901A20017H	5901A20017H	
733010	PLATE ASSEMBLY,INSTALL	3301A20020A	3301A20020A	3301A20020A	
159830	FILTER ASSEMBLY,AIR CLEANER	-	5983A20017F	-	

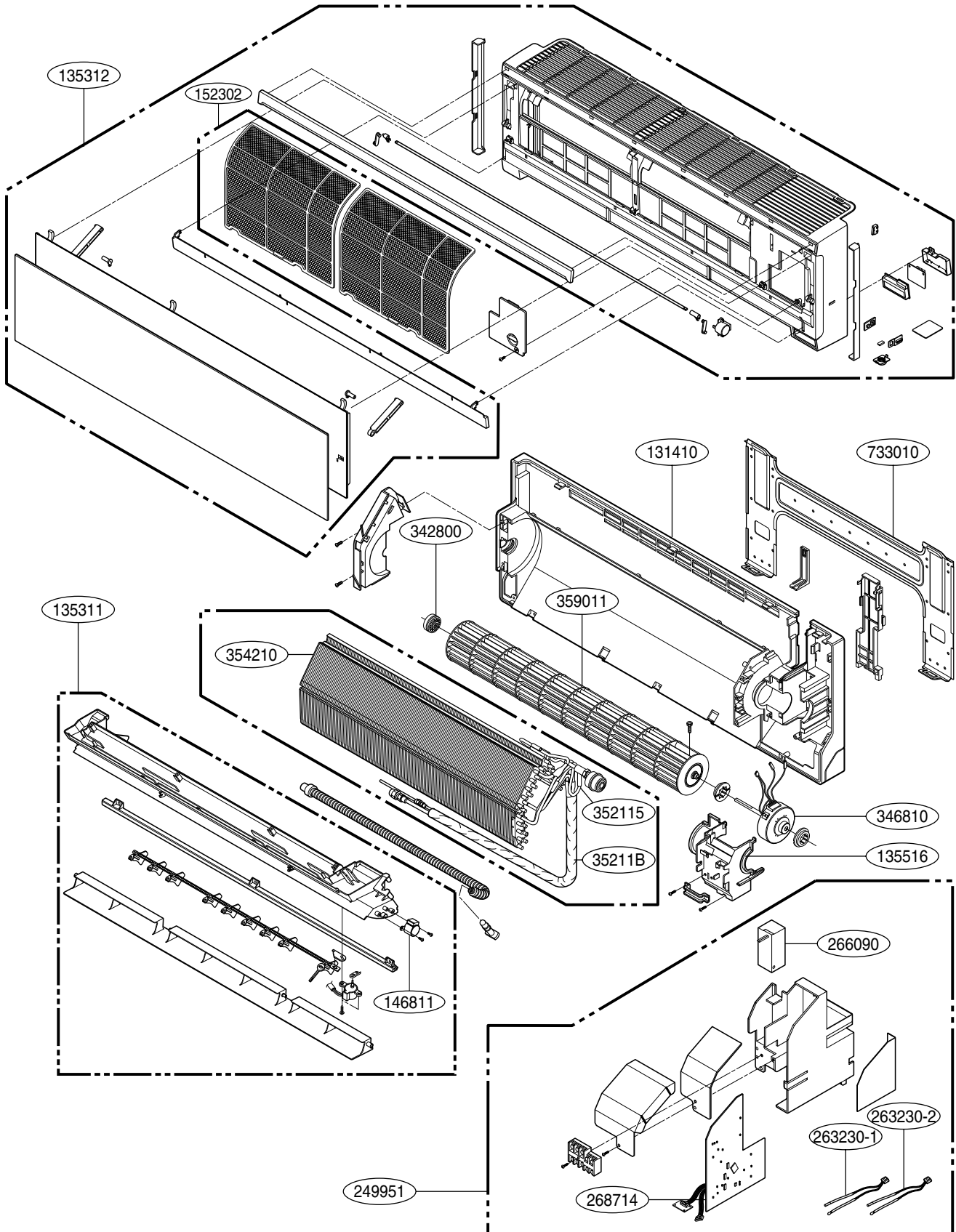
Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU09GSELO	ARNU12GSEA0	ARNU12GSELO	
131410	CHASSIS ASSEMBLY	3141A20034B	3141A20034B	3141A20034B	
135311	GRILLE ASSEMBLY,DISCHARGE(INDOOR)	3531A10362B	3531A10362G	3531A10362B	
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	3531A18013L	3531A18013K	3531A18013L	
135516	COVER ASSEMBLY,MOTOR	3551A20156C	3551A20156C	3551A20156C	
145811	MOTOR ASEEMBLY,STEP	4681A20055A	4681A20055A	4681A20055A	
152302	FILTER(MECH),A/C	5230A20064A	5230A20064A	5230A20064A	
159901	VANE,HORIZONTAL	5990A20068A	5990A20068A	5990A20068A	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A22014C	4995A22014L	4995A22014E	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226T	6323AQ3226T	6323AQ3226T	EVA-OUT (RED)
263230-2	THERMISTOR ASSEMBLY	6323A20004G	6323A20004G	6323A20004G	AIR-EVA IN(BLACK)
266090	H.V ASSEMBLY	6609A10008A	-	6609A10008A	
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871A20680C	6871A20680D	6871A20680C	
268714	PWB(PCB) ASSEMBLY,MAIN	6871A20902F	6871A20902J	6871A20902J	
342800	BEARING	4280A20004B	4280A20004B	4280A20004B	
346810	MOTOR ASSEMBLY,INDOOR	4681A20091J	4681A20091J	4681A20091J	
35211B	TUBE ASSEMBLY,TUBING	5211A22521A	5211A22521A	5211A22521A	
352150	HOSE ASSEMBLY,DRAIN	5251A20011G	5251A20011G	5251A20011G	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20258A	5421A20258A	5421A20258A	
359011	FAN ASSEMBLY,CROSS FLOW	5901A20017H	5901A20017H	5901A20017H	
733010	PLATE ASSEMBLY,INSTALL	3301A20020A	3301A20020A	3301A20020A	
159830	FILTER ASSEMBLY,AIR CLEANER	5983A20017F	-	5983A20017F	

Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.				REMARK
		ARNU18GS5A0	ARNU18GS5L0	ARNU24GS5A0	ARNU24GS5L0	
131410	CHASSIS ASSEMBLY	3141A20020F	3141A20020F	3141A20020F	3141A20020F	
135311	GRILLE ASSEMBLY,DISCHARGE(INDOOR)	3531A20252V	3531A20252L	3531A20252V	3531A20252L	
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	3531A23005T	3531A23005U	3531A23005T	3531A23005U	
135516	COVER ASSEMBLY,MOTOR	3551A20154A	3551A20154A	3551A20154A	3551A20154A	
145811	MOTOR ASESEMBLY,STEP	4681A20055A	4681A20055A	4681A20055A	4681A20055A	
152302	FILTER(MECH),A/C	5230A20052B	5230A20052B	5230A20052B	5230A20052B	
159901	VANE,HORIZONTAL	5990A20071A	5990A20071A	5990A20071A	5990A20071A	
249951	CONTROL BOX ASSEMBLY,INDOOR	4995A22016E	4995A22016B	4995A22016D	4995A22016A	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226T	6323AQ3226T	6323AQ3226T	6323AQ3226T	EVA-OUT (RED)
263230-2	THERMISTOR ASSEMBLY	6323A20004G	6323A20004G	6323A20004G	6323A20004G	AIR-EVA IN(BLACK)
266090	H.V ASSEMBLY	-	6609A10008A	-	6609A10008A	
268712	PWB(PCB) ASSEMBLY,DISPLAY	6871A20681D	6871A20681C	6871A20681D	6871A20681C	
268714	PWB(PCB) ASSEMBLY,MAIN	6871A20902B	6871A20902B	6871A20902A	6871A20902A	
342800	BEARING	4280A20004A	4280A20004A	4280A20004A	4280A20004A	
346810	MOTOR ASSEMBLY,INDOOR	4681A20091J	4681A20091J	4681A20091J	4681A20091J	
35211B	TUBE ASSEMBLY,TUBING	5211A23366B	5211A23366B	5211A23366A	5211A23366A	
352115	TUBE ASSEMBLY,EVAPORATOR IN	5211A19008B	5211A19008B	5211A19008A	5211A19008A	
352150	HOSE ASSEMBLY,DRAIN	5251A20011D	5251A20011D	5251A20011D	5251A20011D	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20220A	5421A20220A	5421A20220A	5421A20220A	
359011	FAN ASSEMBLY,CROSS FLOW	5901A92441E	5901A92441E	5901A92441E	5901A92441E	
733010	PLATE ASSEMBLY,INSTALL	3301A20020B	3301A20020B	3301A20020B	3301A20020B	
159830	FILTER ASSEMBLY,AIR CLEANER	-	5983A20018A	-	5983A20018A	

SE1(ARTCOOL DELUXE)



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU07GSE0	ARNU07GSEV0	ARNU07GSEB0	
131410	CHASSIS ASSEMBLY	3141A20034F	3141A20034F	3141A20034F	
359011	FAN ASSEMBLY,CROSS FLOW	5901A20017H	5901A20017H	5901A20017H	
346810	MOTOR,UNCLASSIFIED	4681A20091J	4681A20091J	4681A20091J	
342800	BEARING	4280A20004B	4280A20004B	4280A20004B	
135516	COVER ASSEMBLY,MOTOR	3551A20156B	3551A20156B	3551A20156B	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20258A	5421A20258A	5421A20258A	
35211B	TUBE ASSEMBLY,TUBING	5211A22521A	5211A22521A	5211A22521A	
135311	GRILLE ASSEMBLY,DISCHARGE(INDOOR)	3531A10373A	3531A10373A	3531A10373A	
145811	MOTOR,DC	4681A20055A	4681A20055A	4681A20055A	
249951	CASE ASSEMBLY,CONTROL(INDOOR)	4995A22014N	4995A22014N	4995A22014N	
268714	PCB ASSEMBLY,MAIN	6871A20932E	6871A20932E	6871A20932E	
152302	FILTER(MECH), A/C	5230A20064A	5230A20064A	5230A20064A	
733010	PLATE ASSEMBLY,INSTALLATION	3301A20020A	3301A20020A	3301A20020A	
135312	GRILLE ASSEMBLY,FRONT(INDOOR)	3531A10374S	3531A10374T	3531A10374U	
266090	H.V ASSEMBLY	6609A10008A	6609A10008A	6609A10008A	
352150	HOSE ASSEMBLY, DRAIN	5251A20011G	5251A20011G	5251A20011G	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226T	6323AQ3226T	6323AQ3226T	EVA-OUT(RED)
263230-2	THERMISTOR ASSEMBLY	6323A30002F	6323A30002F	6323A30002F	EVA-IN(BLACK)

Exploded View & Replacement Parts List

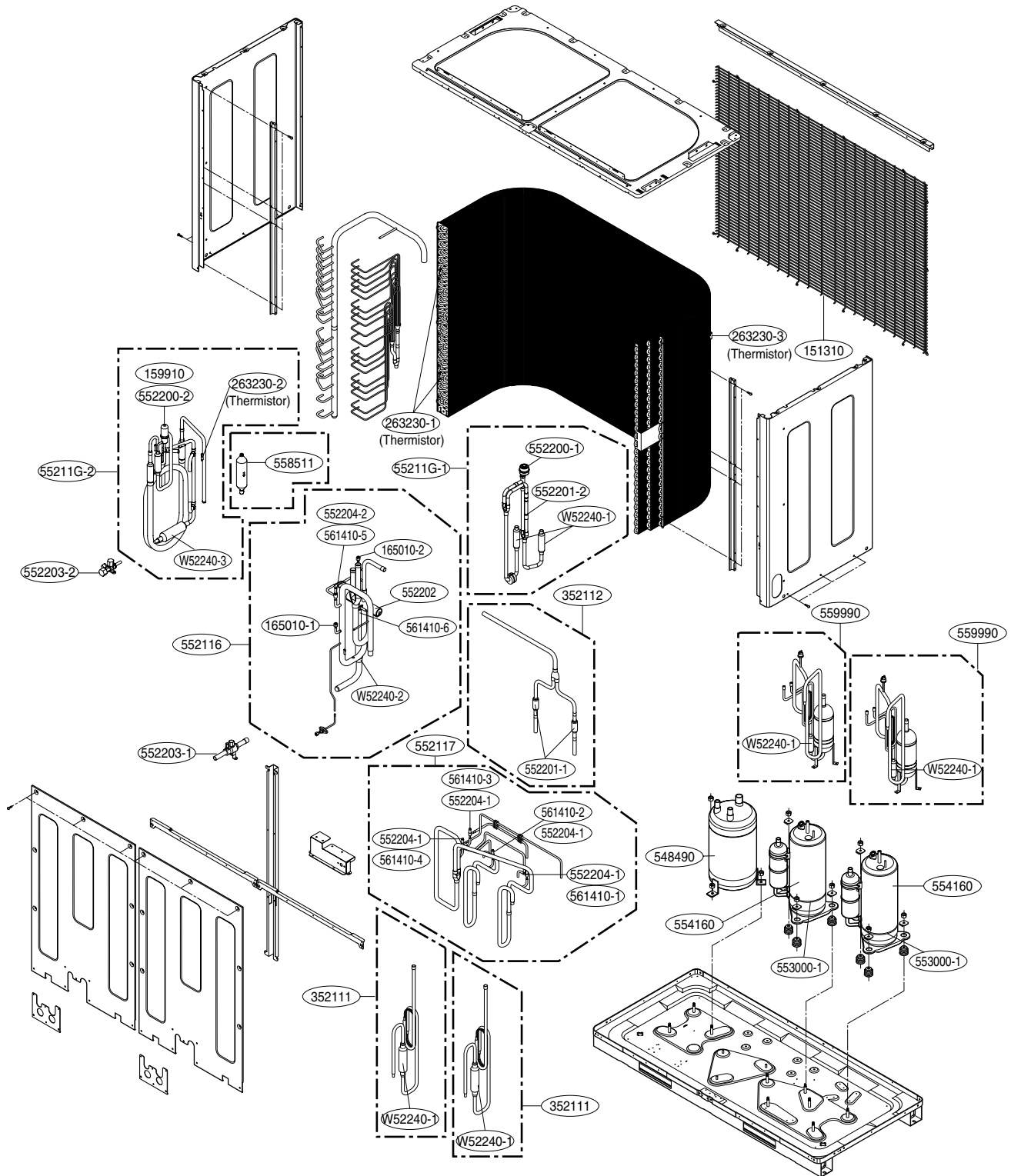
LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU09GSER0	ARNU09GSEV0	ARNU09GSEB0	
131410	CHASSIS ASSEMBLY	3141A20034F	3141A20034F	3141A20034F	
359011	FAN ASSEMBLY,CROSS FLOW	5901A20017H	5901A20017H	5901A20017H	
346810	MOTOR,UNCLASSIFIED	4681A20091J	4681A20091J	4681A20091J	
342800	BEARING	4280A20004B	4280A20004B	4280A20004B	
135516	COVER ASSEMBLY,MOTOR	3551A20156B	3551A20156B	3551A20156B	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20258A	5421A20258A	5421A20258A	
35211B	TUBE ASSEMBLY,TUBING	5211A22521A	5211A22521A	5211A22521A	
135311	GRILLE ASSEMBLY,DISCHARGE(INDOOR)	3531A10373A	3531A10373A	3531A10373A	
145811	MOTOR,DC	4681A20055A	4681A20055A	4681A20055A	
249951	CASE ASSEMBLY,CONTROL(INDOOR)	4995A22014P	4995A22014P	4995A22014P	
268714	PCB ASSEMBLY,MAIN	6871A20932C	6871A20932C	6871A20932C	
152302	FILTER(MECH), A/C	5230A20064A	5230A20064A	5230A20064A	
733010	PLATE ASSEMBLY,INSTALLATION	3301A20020A	3301A20020A	3301A20020A	
135312	GRILLE ASSEMBLY,FRONT(INDOOR)	3531A10374S	3531A10374T	3531A10374U	
266090	H.V ASSEMBLY	6609A10008A	6609A10008A	6609A10008A	
352150	HOSE ASSEMBLY, DRAIN	5251A20011G	5251A20011G	5251A20011G	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226T	6323AQ3226T	6323AQ3226T	EVA-OUT(RED)
263230-2	THERMISTOR ASSEMBLY	6323A30002F	6323A30002F	6323A30002F	EVA-IN(BLACK)

Exploded View & Replacement Parts List

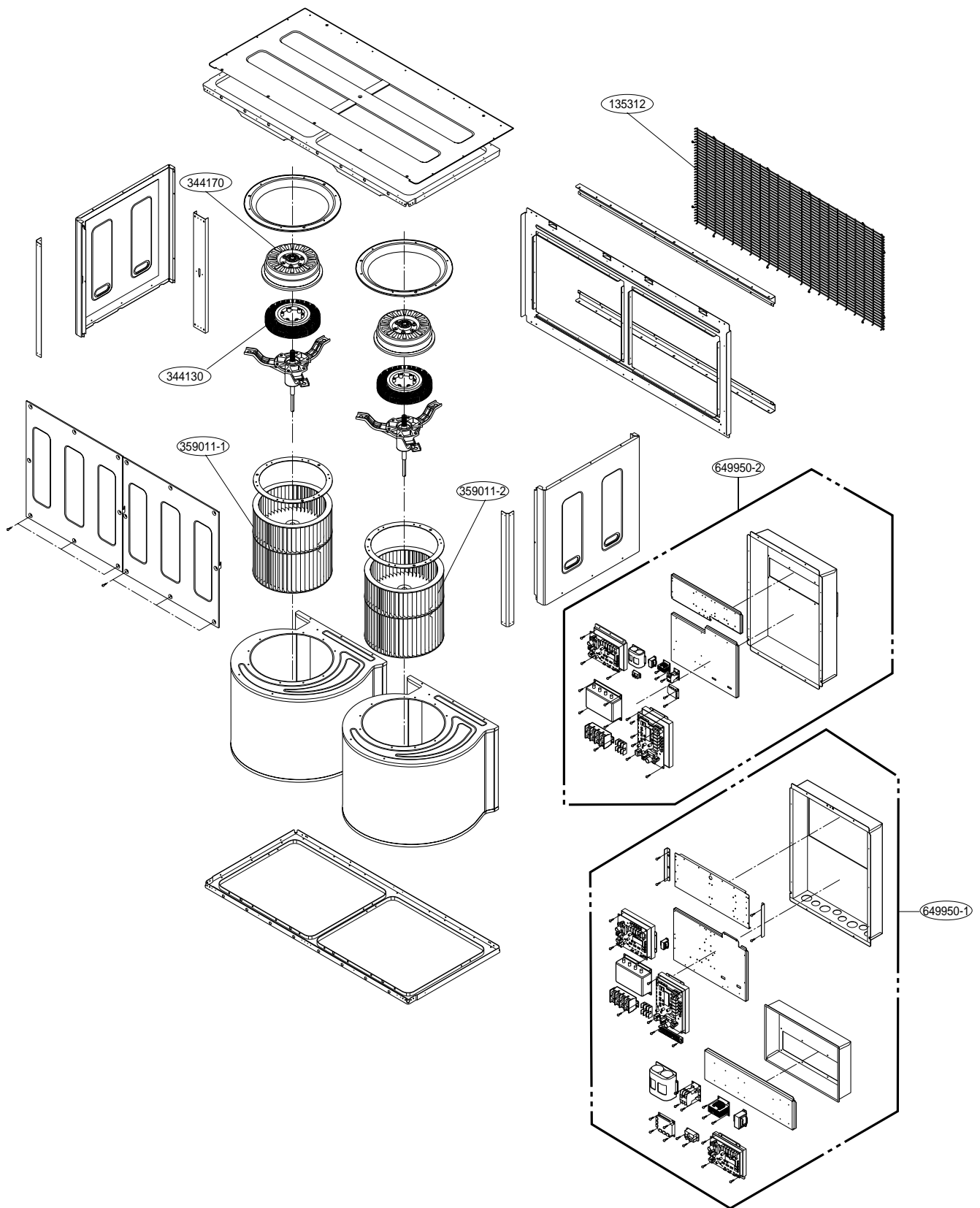
LOCATION No.	DESCRIPTION	PART No.			REMARK
		ARNU12GSER0	ARNU12GSEV0	ARNU12GSEB0	
131410	CHASSIS ASSEMBLY	3141A20034F	3141A20034F	3141A20034F	
359011	FAN ASSEMBLY,CROSS FLOW	5901A20017H	5901A20017H	5901A20017H	
346810	MOTOR,UNCLASSIFIED	4681A20091J	4681A20091J	4681A20091J	
342800	BEARING	4280A20004B	4280A20004B	4280A20004B	
135516	COVER ASSEMBLY,MOTOR	3551A20156B	3551A20156B	3551A20156B	
354210	EVAPORATOR ASSEMBLY,FIRST	5421A20258A	5421A20258A	5421A20258A	
35211B	TUBE ASSEMBLY,TUBING	5211A22521A	5211A22521A	5211A22521A	
135311	GRILLE ASSEMBLY,DISCHARGE(INDOOR)	3531A10373A	3531A10373A	3531A10373A	
145811	MOTOR,DC	4681A20055A	4681A20055A	4681A20055A	
249951	CASE ASSEMBLY,CONTROL(INDOOR)	4995A22014Q	4995A22014Q	4995A22014Q	
268714	PCB ASSEMBLY,MAIN	6871A20932A	6871A20932A	6871A20932A	
152302	FILTER(MECH), A/C	5230A20064A	5230A20064A	5230A20064A	
733010	PLATE ASSEMBLY,INSTALLATION	3301A20020A	3301A20020A	3301A20020A	
135312	GRILLE ASSEMBLY,FRONT(INDOOR)	3531A10374S	3531A10374T	3531A10374U	
266090	H.V ASSEMBLY	6609A10008A	6609A10008A	6609A10008A	
352150	HOSE ASSEMBLY, DRAIN	5251A20011G	5251A20011G	5251A20011G	
263230-1	THERMISTOR ASSEMBLY	6323AQ3226T	6323AQ3226T	6323AQ3226T	EVA-OUT(RED)
263230-2	THERMISTOR ASSEMBLY	6323A30002F	6323A30002F	6323A30002F	EVA-IN(BLACK)

UV2

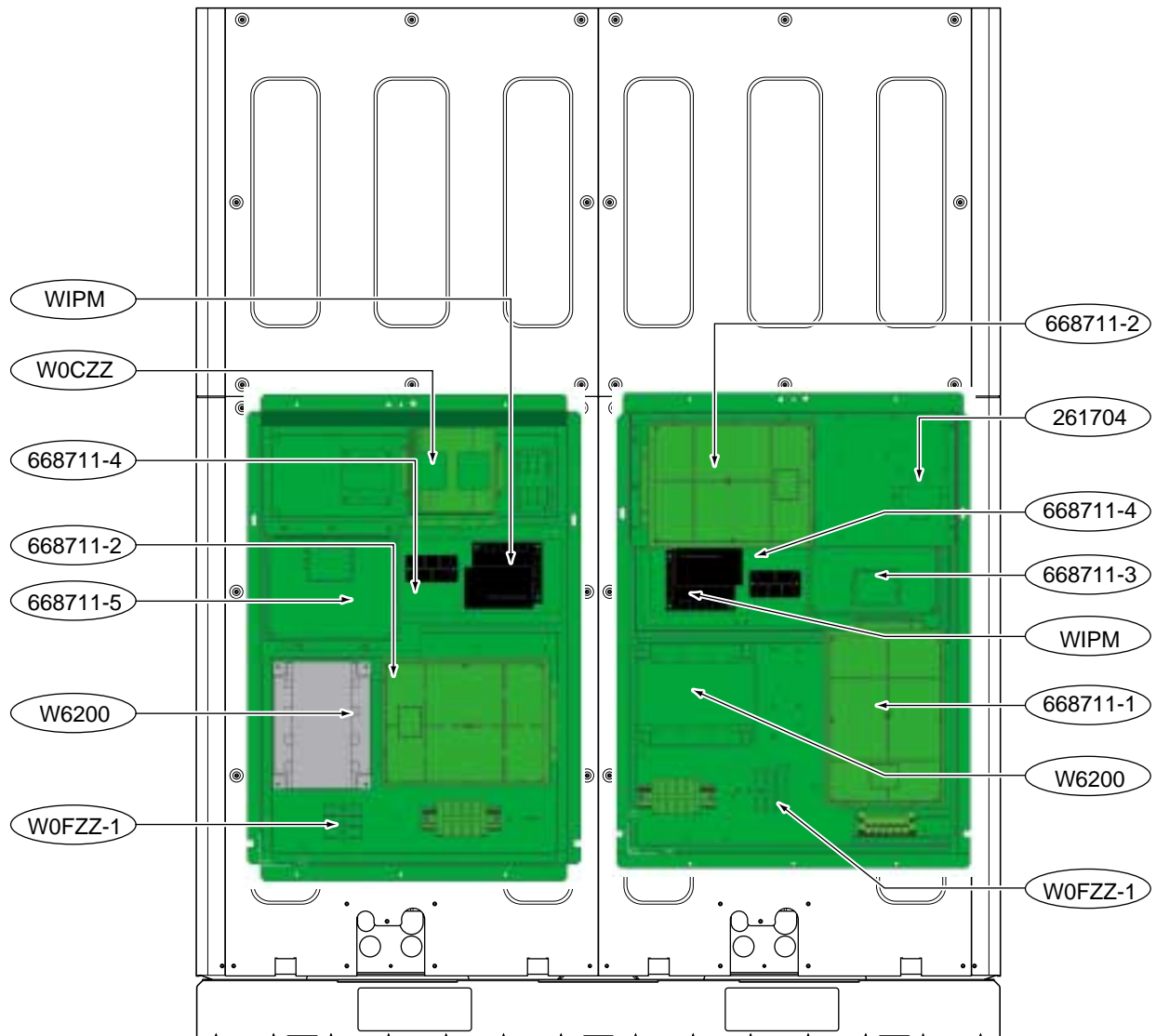
CYCLE PARTS



AIR HANDLER PARTS/CONTROL BOX PARTS



Exploded View & Replacement Parts List



Exploded View & Replacement Parts List

LOCATION No.	DESCRIPTION	PART No.	REMARK
		ARUN1008F20	
135310	GRILLE ASSEMBLY,FRONT(OUTDOOR)	3531A10375B	LOWER
566000	SWITCH,PRESSURE	6600L000013	
W52240-1	STRAINER	5224A20005N	
552114	TUBE ASSEMBLY,DISCHARGE(OUTDOOR)	5211A10671A	O/S
554160	COMPRESSOR	5416A90008K	
553000-1	HEATER,SUMP	2A00093V	
553000-2	HEATER,SUMP	2A00093W	
548490	ACCUMULATOR ASSEMBLY(MECH)	4849A10053A	
352112	TUBE ASSEMBLY,COUPLING	5211A17100A	C/V
552201-1	VALVE,CHECK	3A01020L	
352111	TUBE ASSEMBLY,CONNECTOR	5211A24135A	O/EQUAL
552117	TUBE ASSEMBLY,SUCTION(OUTDOOR)	5211A10670A	
552204-1	VALVE,SOLENOID	5220A90002H	
561410-1	COIL ASSEMBLY,SOLENOID	6141A20050D	BLUE
561410-2	COIL ASSEMBLY,SOLENOID	6141A20050E	ORANGE
561410-3	COIL ASSEMBLY,SOLENOID	6141A20050C	GRAY
561410-4	COIL ASSEMBLY,SOLENOID	6141A20050B	RED
552116	TUBE ASSEMBLY,REVERSING	5211A12100A	
W52240-2	STRAINER	5224A20005A	
561410-6	COIL ASSEMBLY,REVERSING VALVE	6141A20010F	
552202	VALVE,REVERSING	5220A20039A	
165010-1	SENSOR ASSEMBLY	6501A20004G	H/PRESS
165010-2	SENSOR ASSEMBLY	6501A20004H	L/PRESS
552204-2	VALVE,SOLENOID	5220A90007B	H/GAS
561410-5	COIL ASSEMBLY,SOLENOID	6141A20050A	GREEN
55211G-1	TUBE ASSEMBLY,EXPANSION	5211A10672A	MAIN
552200-1	VALVE,EXPANSION BODY	5224A20004H	
552201-2	VALVE,CHECK	3A01020D	
55211G-2	TUBE ASSEMBLY,EXPANSION	5211A11600A	SUBCOOLER
552200-2	VALVE,EXPANSION BODY	5220A20039A	SUBCOOLER
561411	COIL ASSEMBLY,EXPANSION	6141A20050A	SUBCOOLER
558511	DRIER ASSEMBLY	5851A20002A	
W52240-3	STRAINER	5220A20005D	
552203-1	VALVE,SERVICE	5220A90012M	
552203-2	VALVE,SERVICE	5220A90012K	
135312	GRILLE ASSEMBLY,DISCHARGE(INDOOR)	3531A10376B	
649950-1	CONTROL BOX ASSEMBLY,OUTDOOR	4995A10218A	
649950-2	CONTROL BOX ASSEMBLY,OUTDOOR	4995A10219A	
W0CZZ	CAPACITOR,DRAWING	OCZZA90001E	
WIPM	IPM	600200002A	
668711-5	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A20645B	FAN
668711-4	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A20133P	IPM
668711-3	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A20645C	FAN
668711-2	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A20897A	INV
668711-1	PWB(PCB) ASSEMBLY,MAIN(OUTDOOR)	6871A00036B	MAIN
W6200	FILTER(CIRC),EMC	6220J000158	
W0FZZ	FUSE,DRAWING	OFZZA90001N	
261704	TRANSFORMER,POWER	6170A20016E	
566001	SWITCH,MAGNET	6600B000048	
263230-1	THERMISTOR ASSEMBLY	6323A20009C	VIOLET
263230-2	THERMISTOR ASSEMBLY	6323A20025G	YELLOW
263230-3	THERMISTOR ASSEMBLY	6323A20025H	BLACK
344170	ROTOR ASEMBLY	4413A20001A	
344130	STATOR ASEMBLY	4417A20001A	
359011-1	FAN ASSEMBLY,BLOWER	5835A20003H	
359011-2	FAN ASSEMBLY,BLOWER	5835A20003J	



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