Technical Bulletin TB/1 Issue Date : 01/01/2009 Revision No. : 0 Revision Date: 01/01/2009	Miraco Technical Support / Marketing Dept. RLC Products

☐ GENERAL ■ PRODUCT ☐ SERVICE & PARTS	Technical Support / Marketing Director. Mohamed Yehia

Subject:	*xpression* HI-WALL SPLIT ROOM AIR CONDITIONERS Sizes 18K – 24K – 30K – 36K 220-240V/1Ph/50Hz nominal power supply. R22 Refrigerant. Heat Pump & Cool Only.		
Reference Product Manuals		Sizes 18K – 24K	Sizes 30K – 36K
	(1) Owner's Manual	P/N 03500463	P/N 03501028
	(2) Installation Manual	P/N 03500464	P/N 03501029
	(3) Spare Parts manual	P/N 03502523	P/N 03502524
	(4) Service & Maintenance Manual	P/N 03502424	P/N 03502586

PRODUCT FEATURES:

1. Innovative Modern Design
with attractive appearance, compact dimensions and light weight

2. Super Efficient Cooling & Heating with minimum electrical consumption

3. Super Quiet Operation with minimum sound levels

4. Super Complete Control Functions for efficient operation

5. Super Complete Safety Protections for safe operation

6. Efficient Air Filtration System for clean and healthy air

7. Durable for long life and corrosion resistant

8. Super Easy and Flexible Installation

9. Super Easy Service and Maintenance

10. System test function which is used through remote control by installer
and also by serviceman to check correct operation of air conditioner

11. Complete self diagnostic function which is used by installer
and also by serviceman to detect and correct malfunctions

(1) INNOVATIVE MODERN DESIGN

1. Modern grille design fits any interior decor with space saving.
2. Meets the demanding needs of Carrier customers.
3. Unique design is elegant, functional, light weight and compact.
4. Smart display on the front of indoor unit indicates operation status and detects malfunctions.
5. Indoor units sizes 18K – 24K have same compact dimensions.
6. Indoor units sizes 30K – 36K have same compact dimensions.
7. Outdoor units sizes 18K – 24K – 30K have same compact dimensions.

Dimensions & Weights of Indoor Units

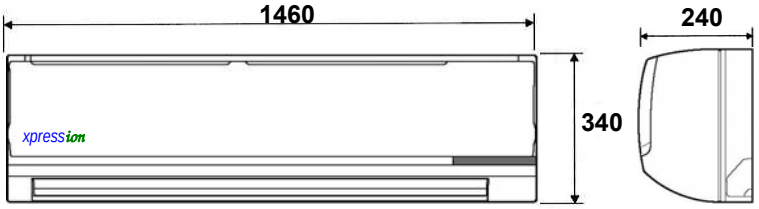
Weight

Model	Kg
42QPC18	14
42QPC24	14

Sizes 18K – 24K

Weight

Model	Kg
42XP100	23

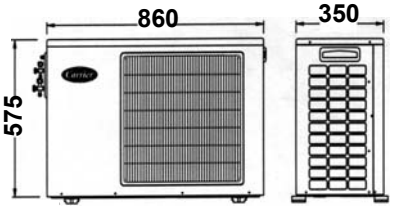


Sizes 30K – 36K

Dimensions & Weights of Outdoor Units

Weight

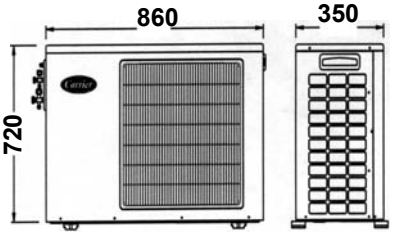
Model	Kg
38QPC18	52.8
38QPC24	58.5
38QH30B	62.4



Sizes 18K – 24K – 30K

Weight

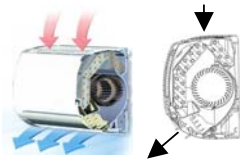
Model	Kg
38QH36B	79



Size 36K

(2) SUPER EFFICIENT COOLING & HEATING WITH MINIMUM ELECTRICAL CONSUMPTION

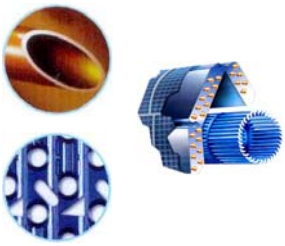
2-1 SUPER EFFICIENT INDOOR UNIT



❑ **Super efficient Hi Tech AMS (Air Management System) with maximum air flow for increased air throw distance and minimized cold or warm air draft**

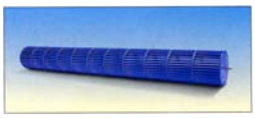
- Super location of blower with respect to blower housing and indoor coil.
- Super return air paths to unit front and top though optimum design of return air grille.
- Super efficient and quiet air path drawn through coil.
- Super efficient and quiet supply air path through optimum design of supply air dual flaps with enlarged curvature.
- Super efficient design of blower housing.

❑ **Super efficient indoor coil with Innovative Carrier heat transfer technology for maximum heat transfer and minimum power consumption**



- 2 (Two) bend coil with Super efficient and large heat transfer surface.
- 7 mm cross hatch inner grooved copper tubing. for maximum heat transfer.
- Lanced sine wave aluminum fins. for maximum heat transfer.
- Precoated hydrophilic aluminum fins to protect coil against corrosion and to allow easy and quick removal of condensate water to increase airflow, improve efficiency of heat exchange and accelerate cooling process.

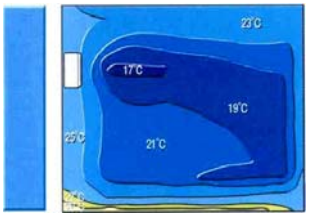
❑ **Super efficient blower at all speeds with maximum air flow**

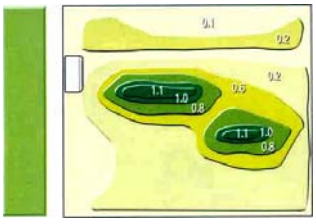


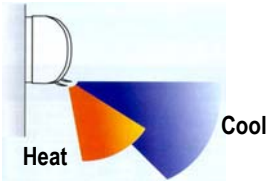
- Innovative Carrier uneven aerofoil tangential blower technology.
- Mounted on resilient rubber isolators.

❑ **Optimum uniform distribution of supply air temperature and supply air velocity inside the space to be air-conditioned.**

- Motorized horizontal supply air flaps and manually adjusted vertical deflectors for sizes 18K – 24K.
- Motorized horizontal supply air flaps and motorized vertical deflectors for sizes 30K – 36K.







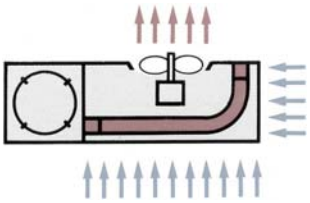
SUPER EFFICIENT COOLING & HEATING WITH MINIMUM ELECTRICAL CONSUM (Cont.)

2-2 SUPER EFFICIENT OUTDOOR UNIT

❑ **Super efficient propeller with maximum air flow**

- Innovative Carrier axial fans technology.
- Super efficient Elephant Ear – 4 blades design with large diameter and pitch running by high efficiency fan motor.

❑ **Super efficient Hi Tech AMS (Air Management System) with maximum air flow**



- Super efficient location of propeller with respect to bell mouth and outdoor coil.
- Super efficient inlet air path. from back and right side.
- Super efficient air path drawn through coil.
- Super efficient bell mouth.
- Super efficient discharge air path through optimum design of square guard grille.

❑ **Super efficient outdoor coil with Carrier Innovative heat transfer technology with maximum heat transfer and minimum power consumption**

- One bend coil with super efficient and large heat transfer surface.
- 3/8“ cross hatch inner grooved copper tubing. for maximum heat transfer.
- Sine wave aluminum fins for maximum heat transfer.

❑ **Super efficient compressor with high Energy Efficiency Ratio (EER) and minimum electrical consumption**

Rotary
18K – 24K

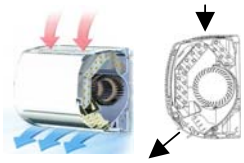
Reciprocating
30K – 36K

- High efficiency Compressors.
- Compressor cooling capacity is larger than actual system cooling capacity leading to true powerful system cooling.

Size	System Cooling Capacity Btu/hr	Application	Compressor		
			Type	Cooling Capacity Btu/hr	EER Btu/wh
18K	18000	MA	Rotary	19210	10.24
18K	18000	HA	Rotary *	19175	10.74
24K	24000	MA	Rotary	26000	10.20
24K	24000	HA	Rotary *	26785	10.44
30K	30000	MA	Rotary	31800	10.71
30K	30000	HA	Reciprocating	31200	9.8
36K	36000	MA & HA	Reciprocating	40800	10.1

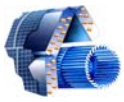
HA = High Ambient
MA = Mild Ambient
* = Super Tropical

(3) SUPER QUIET OPERATION WITH MINIMUM SOUND LEVELS



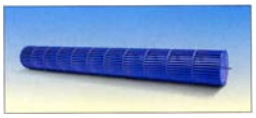
3-1 SUPER QUIET INDOOR UNIT

❑ **Super quiet Hi Tech AMS (Air Management System) with minimum air resistance and smooth air flow**



- Super quiet location of blower with respect to blower housing and indoor coil.
- Super quiet return air paths to unit front and top though optimum design of return air grille.
- Super quiet and quiet air path drawn through coil.
- Super quiet and quiet supply air path through optimum design of supply air dual flaps with enlarged curvature.
- Super quiet design blower housing.

❑ **Super quiet blower at all speeds with minimum air resistance and smooth air flow**



- Innovative Carrier uneven aerofoil tangential blower technology.
- Mounted on resilient rubber isolators.

❑ **Super quiet motor with minimum vibrations.**

- Totally enclosed.
- Sleeve bearings.
- Mounted in a closed compartment away from the air path.
- Mounted on resilient rubber isolators.

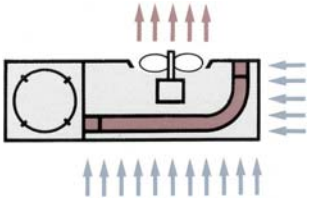
SUPER QUIET OPERATION WITH MINIMUM SOUND LEVELS (Cont.)

3-2 SUPER QUIET OUTDOOR UNIT

❑ Super quiet propeller with minimum air resistance and smooth air flow

- Innovative Carrier axial fans technology.
- Super quiet Elephant Ear – 4 blades design with large diameter and pitch running by high efficiency fan motor.

❑ Super quiet Hi Tech AMS (Air Management System) with maximum air flow, minimum air resistance and smooth air flow



- Super quiet location of propeller with respect to bell mouse and outdoor coil.
- Super quiet inlet air path. from back and right side.
- Super quiet air path drawn through coil.
- Super quiet bell mouth.
- Super quiet discharge air path through optimum design of square guard grille.

❑ Super quiet rotary compressor with minimum vibrations and minimum sound level

- Mounted on spring shaped, soft resilient, large surface mount grommets.
- Optimum design of suction and discharge lines for minimum vibrations.

Rotary
18K – 24K

❑ Super quiet reciprocating compressor with minimum vibrations and minimum sound level

- Twin cylinder design for knock prevention during compressor stopping.
- Internal discharge muffler. for minimum pulsations of discharge gas.
- Internal spring mounting.
- Mounted on soft resilient, large surface mount grommets.
- Optimum design of suction and discharge lines for minimum vibrations.

Reciprocating
30K – 36K

❑ Super quiet motor with minimum vibrations.

- Totally enclosed.
- Sleeve bearings.
- Low speed (860 RPM).

❑ Standard 4 (Four) rubber isolators, factory mounted under the unit base.

❑ Capillary tubes installed inside outdoor unit with minimum refrigerant sound.


18K – 24K


30K – 36K

(4) SUPER COMPLETE CONTROL FUNCTIONS FOR EFFICIENT OPERATION

4-1 Innovative My Comfort Smart Wireless Remote Control

- Liquid Crystal Display (LCD) wireless remote control.
- Advanced Control Printed Circuit Board (PCB) installed in the indoor unit and contains the following highly sensitive electronic components:
  - Microprocessor which controls the system operation, memorizes and Carrier out all the functions programmed.
  - Room air sensor installed above the fins of indoor coil to sense the temperature of return air to indoor unit.
  - Indoor coil sensor installed on the tubes of indoor coil to sense the temperature of indoor coil tubes.
  - Outdoor coil sensor installed on the tubes of outdoor coil to sense the temperature of outdoor coil tube (in case of heat pump system)
- Vertical up / down auto air swing for sizes 18K – 24K
- Vertical up / down and horizontal auto air swing for sizes 30K – 36K
- Accurate setting temperature from 17ºC to 32ºC as per requirement.
- 5 (Five) operating mode selections for Heat Pump: Auto, Cool, Heat and Dry mode.
  3 (Three) operating mode selections for Cool Only: Cool, Dry and Fan only.
- Fan speed selections: Auto, High, Medium and Low.
- Eco (Sleep) function for healthy sleep and energy saving to control automatically the room temperature and stop automatically the operation of the air conditioner after certain set OFF time has been reached.
- OFF timer function to stop automatically the operation of the air conditioner at certain set OFF time.
- On timer function to start automatically the operation of the air conditioner at certain set ON time.
- Combined OFF timer function and ON timer function respectively to stop automatically the operation of the air conditioner at certain set OFF time and then to start automatically the operation of the air conditioner at certain set ON time.
- Combined ON timer function and OFF timer function respectively to start automatically the operation of the air conditioner at certain set ON time, and then to stop automatically the operation of the air conditioner at certain set OFF time.
- Everyday combined OFF timer function and ON timer function respectively.
- Everyday combined ON timer function and OFF timer function respectively.

MY COMFORT WIRELESS REMOTE CONTROL

Sizes 18K – 24K

1 ON/OFF button

Push the button to start operation, push the button again to stop operation.

2 MODE select button

By pressing this button, the Mode is selected as per the following sequence:

	Ventilation (fan only)
	Heating (only for heat pump system)
A	Automatic Cooling / Heating (only for heat pump system)
	Cooling with dehumidification
	Dehumidification only

3 Temperature buttons

Λ Temperature increase button
By pressing this button, the set temperature is increased to 32°C.

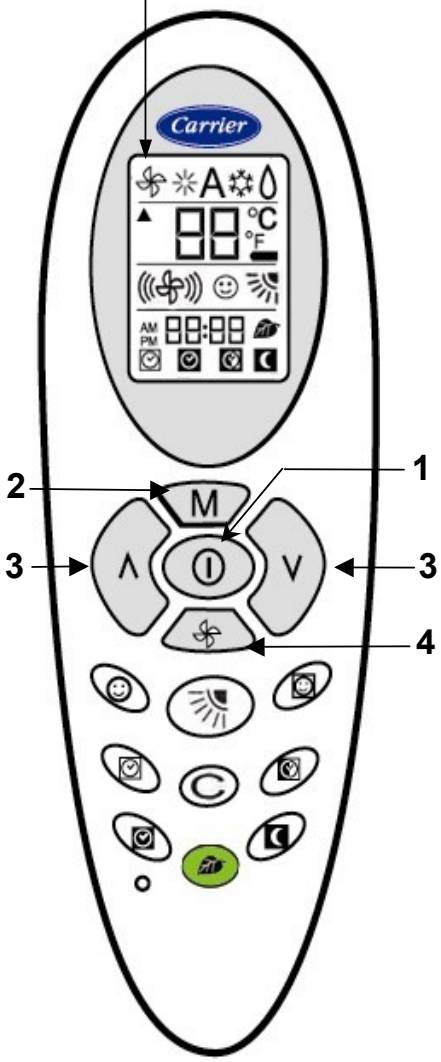
V Temperature decrease button
By pressing this button, the set temperature is decreased to 17°C.

4 FAN SPEED button

By pressing this button, the Fan Speed is selected as per the following sequence:

	Low speed (for night operation).
	Medium speed.
	High speed (at start-up, to reach temperature).
	Automatic (fan speed will automatically switch to the value required for optimum comfort).

DISPLAY OF SELECTED FUNCTIONS

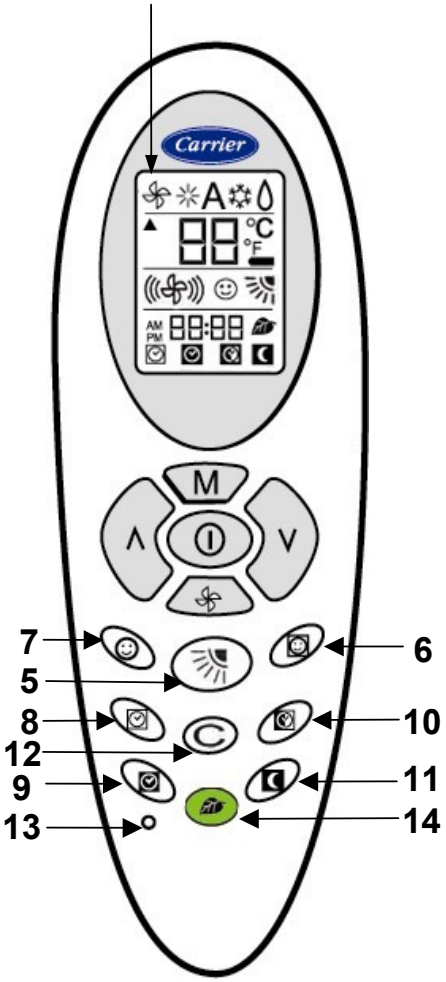


MY COMFORT WIRELESS REMOTE CONTROL (Cont.)

Sizes 18K – 24K

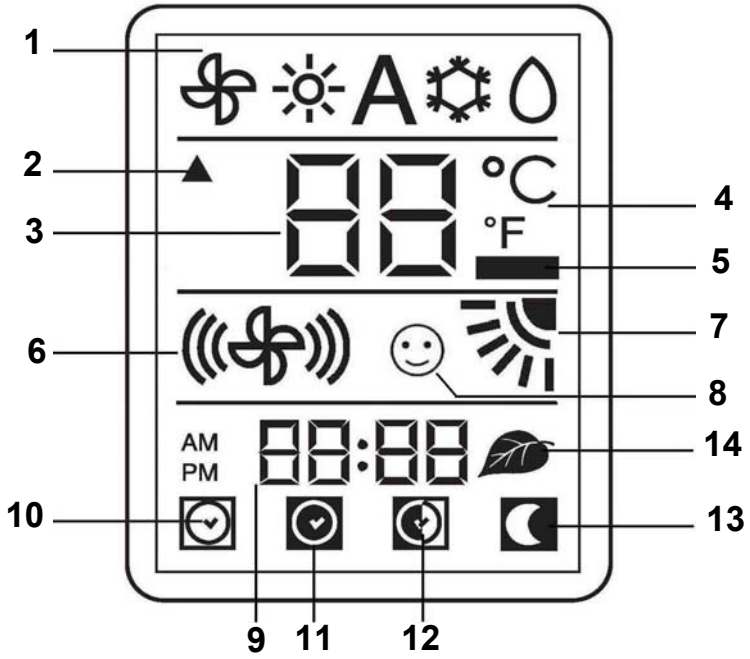
5	**Louver control button (Flap)** Push this button to swing louver. Push the button again to stop.
6	**My comfort setting button**
7	**My comfort recall button**
8	**ON timer function button** Push TIMER ON timer button to set the ON timer.
9	**OFF timer function button** Push TIMER OFF timer button to set the OFF timer.
10	**Daily timer function button**
11	**Eco (Sleep) function button**
12	**Cancel time function or current time adjusting button** Push this button to cancel ON timer and OFF timer.
13	**Reset button** When you push the RESET button, all current settings are cancelled and get into the condition of beginning. In the clock, the colon in ''0:00'' will flash, the mode display ''AUTO'', fan speed displays ''AUTO'' the temperature displays ''24''.
14	**Ionizer button**

DISPLAY OF SELECTED FUNCTIONS



DISPLAY OF MY COMFORT SMART REMOTE CONTROL

Sizes 18K – 24K



1	Operating mode	6	Fan speed selected
	Ventilation (fan only)	7	Horizontal flaps positioning indicator
	Heating (heat pump models only)	8	Personalization function (My comfort) active
A	Automatic (heat pump models only)	9	ON time or OFF time or Current time
	Cooling and dehumidification	10	ON timer function selected
	Dehumidification only	11	OFF timer function selected
2	Signal transmission symbol	12	Daily timer function selected
3	Temperature selected	13	Eco (Sleep) function selected
4	Temperature unit of measurement (ºC or ºF)	14	IONIZER function selected
5	Batteries exhausted indicator		

MY COMFORT SMART REMOTE CONTROL

Sizes 30K – 36K

Remote control description

1 ON/OFF Button

2 Mode selection button

3 Increase temperature button

4 Decrease temperature button

5 Fan speed selection button

6 Auto swing horizontal flaps button

7 Auto swing vertical flaps button

8 Personalization function button (My Comfort)

9 ON timer function button

10 OFF timer function button

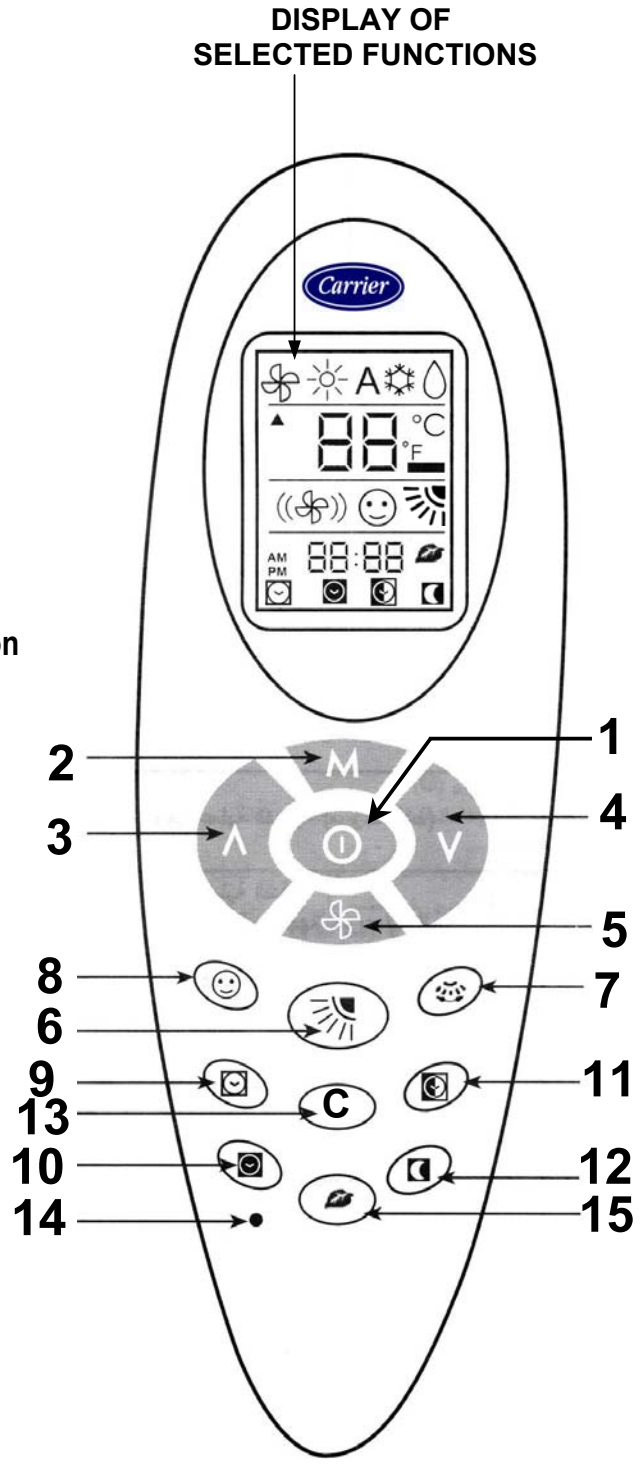
11 Daily timer function button

12 Eco (Sleep) function button

13 Cancel time function or current time adjusting button.

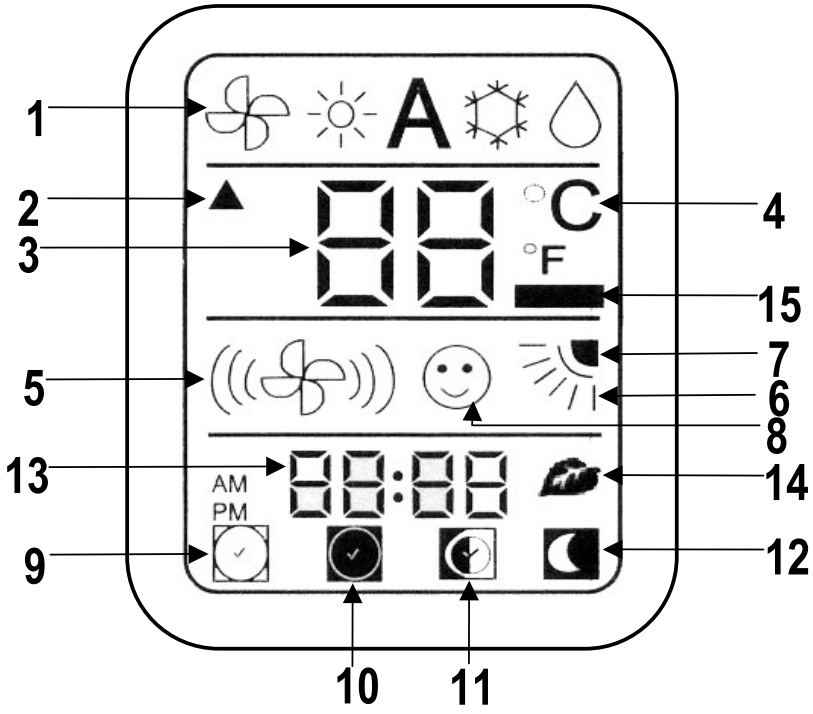
14 Reset button

15 Ionizer button



DISPLAY OF MY COMFORT SMART REMOTE CONTROL

Sizes 30K – 36K

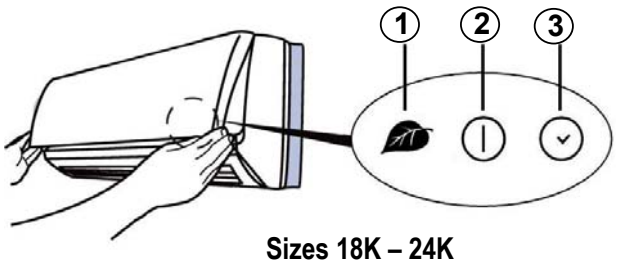


1	Operating mode	6	Horizontal flaps positioning indicator
	Ventilation (fan only)	7	Vertical louvers swing indicator
	Heating (heat pump models only)	8	Personalization function (My Comfort) active
	Automatic (heat pump models only)	9	ON timer function selected
	Cooling and dehumidification	10	OFF timer function selected
	Dehumidification only	11	Daily timer function selected
2	Signal transmission symbol	12	Eco (Sleep) function selected
3	Temperature selected	13	ON time or OFF time or Current time
4	Temperature unit of measurement (ºC or ºF)	14	IONIZER function selected
5	Fan speed selected	15	Batteries exhausted indicator

SUPER COMPLETE CONTROL FUNCTIONS FOR EFFICENT OPERATION (Cont.)

4-2 Intelligent Display On The Indoor Unit Indicates The Operation Status.

1 : Blue Led For Ionizer
2 : Green Led For Operation
3 : Orange Led For Timer



Sizes 18K – 24K

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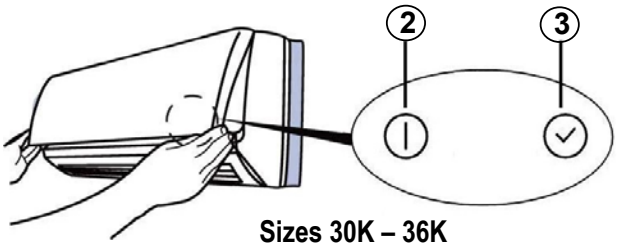
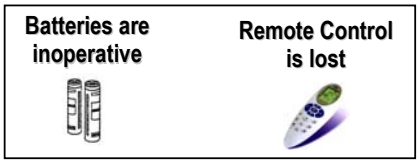
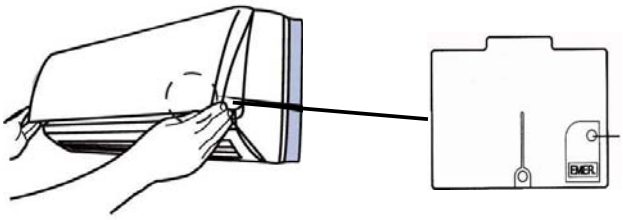
2 : Green Led For Operation
3 : Orange Led For Timer



Sizes 30K – 36K

4-3 Emergency function which is used when the remote control is lost or in operative. Also it is used when the batteries are exhausted and required to be replaced.





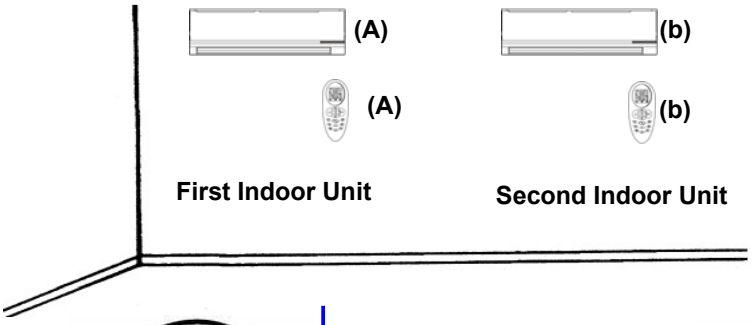
Emergency Button

SUPER COMPLETE CONTROL FUNCTIONS FOR EFFICENT OPERATION (Cont.)

4-4 ADDRESS CONFIGURATION

Sizes 18K – 24K

If you are installing two indoor units in the same room, it is necessary for you to assign each unit its own address so each can be operated by its own remote control. One address selector is in the PCB side and the other is configured by remote controller. The address selector is set to A when you purchase the unit.

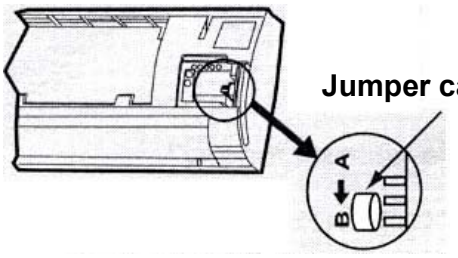


First Remote Control

Second Remote Control

CONFIGURATION OF THE SECOND INDOOR UNIT.

- Turn off the unit and pull out the power plug.
- Remove the insert grille and terminal block cover.
- Assign the address selector of one indoor unit as B.

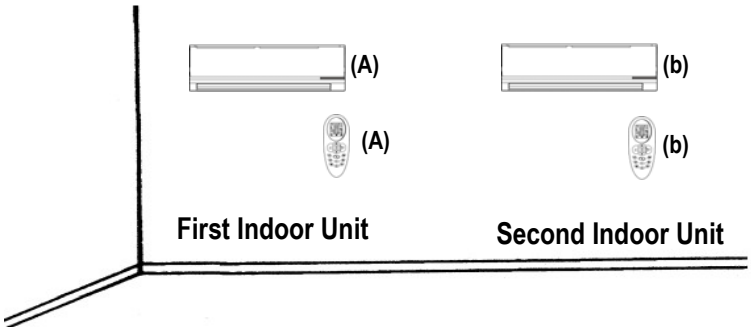


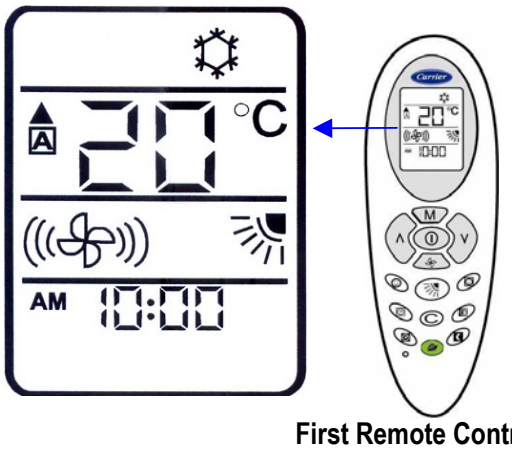
SUPER COMPLETE CONTROL FUNCTIONS FOR EFFICENT OPERATION (Cont.)

ADDRESS CONFIGURATION (Cont.)

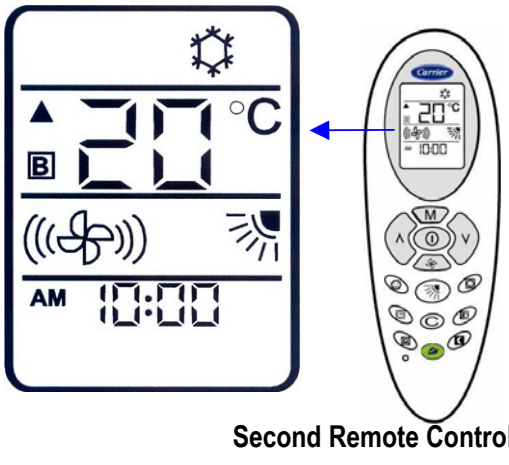
Sizes 30K – 36K

Address function when two indoor units installed very close to each other in the same room. It will be necessary to determine each remote control with its relative indoor unit by assigning address to the remote control to operate its relative indoor unit.





First Remote Control



Second Remote Control

(5) SUPER COMPLETE SAFTY PROTECTIONS FOR SAFE OPERATION.

5-1 Safety protections built in the system control

❑ For Heat Pump and Cool only Systems

- Auto restart Feature with backup memory.
  When the power failure is happened during system operation, the micro of printed circuit board will memorize the operation setting.
  After the power is recovered, the system operates automatically (without remote control after compressor time delay), according to the previous operation settings.
- 3 (Three) minutes time delay between compressor turning off and turning on.
- 3 (Three) minutes minimum operation time between compressor turning on and turning off during Cool or Dry mode to allow sufficient time for lubricating oil to return back to compressor.
  3 to 6 (Three to Six minutes) minimum operation time between compressor turning on and turning off during Heat mode to allow sufficient time for lubricating oil return back to compressor.
- Refrigerant leak protection by sensitive thermistors mounted on the indoor and outdoor coils.
- Frost prevention of indoor coil when the system is operating in cool mode with excessive dirt on the indoor coil and / or clogged air filters and when the system is operating in cool mode at low ambient temperature.
- Battery warning sign appears on the display of remote control to remind the customer that the batteries in the remote control are running down.
- Complete Self-diagnostic function to detect malfunctions due to incorrect installation or abnormal use.
  When the system is on and in a malfunction, the fault code will be flashed out on the unit display located on the indoor unit.

❑ For Heat Pump Systems

- Cold draft protection when the system is operating in heat mode to prevent cold air from blowing into the space to be air-conditioned and also to speed up the heating.
- Defrost protection of outdoor coil when the system is operating in heat mode at very low ambient temperatures.
- High temperature protection of outdoor coil when the system is operating in heat mode at high ambient temperature.

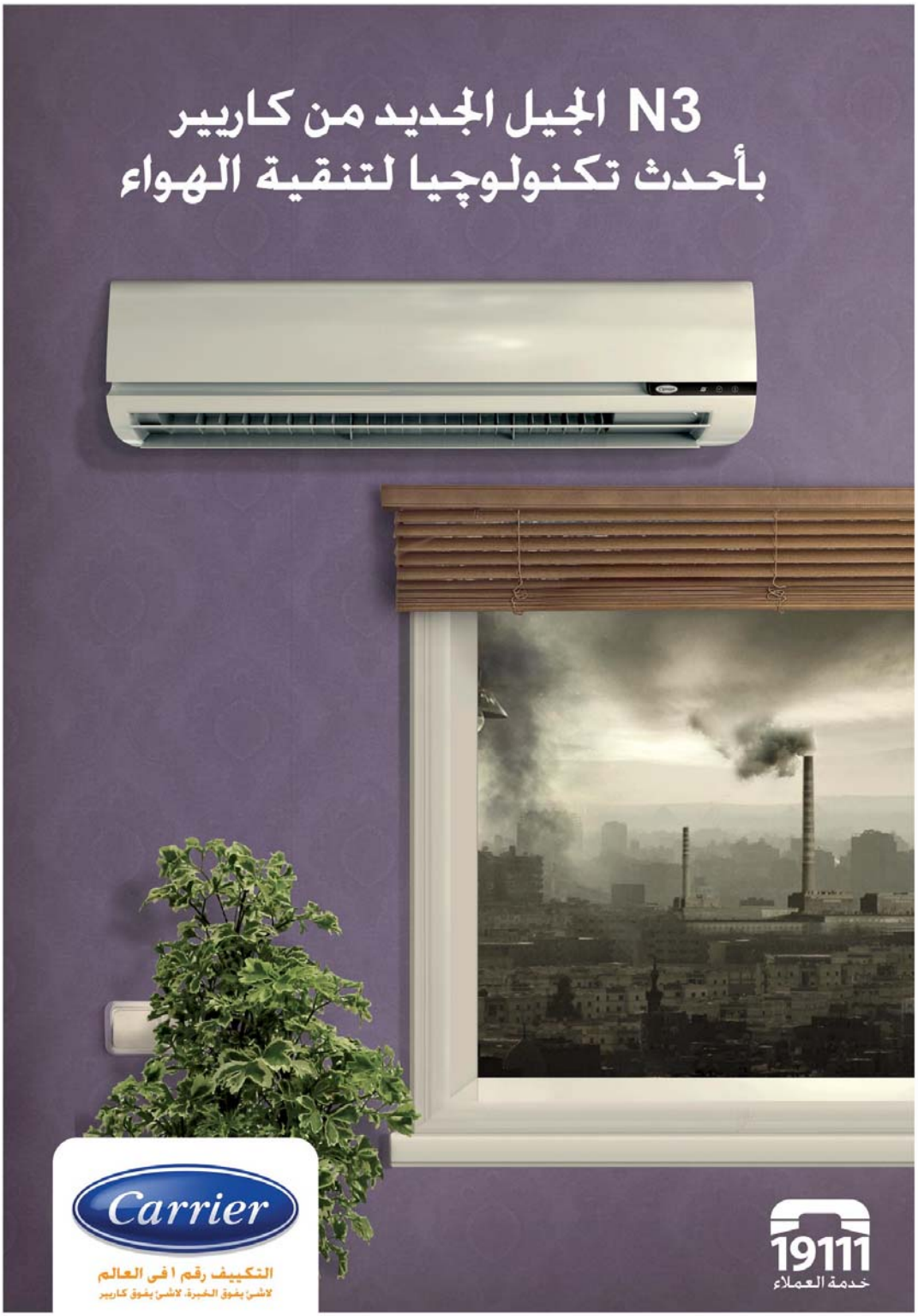
5-2 Safety protections built in the components of outdoor unit

- Internal overload to protect the compressor motor winding against excessive temperature and / or excessive current.
- Internal thermal overload to protect the outdoor motor winding against excessive temperature.
- Internal pressure sensitive interrupter to protect the dual run capacitor for both compressor and outdoor motor against short circuiting.
- Components of outdoor unit comply with international standards of performance, safety and reliability.

5-3 Safety protections built in the components of indoor unit

- Internal thermal overload to protect the indoor motor winding against excessive temperature.
- Internal pressure sensitive interrupter to protect the run capacitor for indoor motor against short- circuiting.
- Components of indoor unit comply with international standards of performance, safety and reliability.

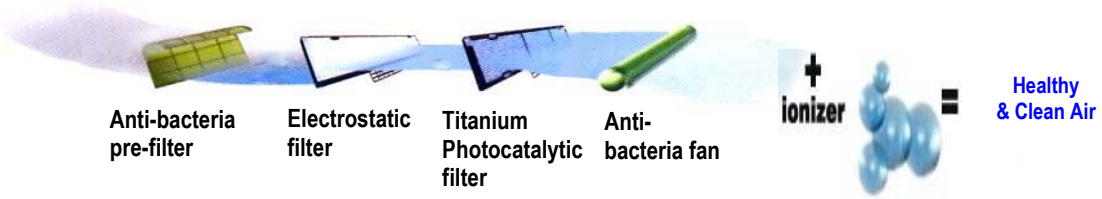
(6) EFFICIENT AIR FILTERATION SYSTEM FOR CLEAN AND HEALTHY AIR



EFFICIENT AIR FILTERATION SYSTEM FOR CLEAN AND HEALTHY AIR (Cont.)

6-1 For indoor Units Sizes 18K – 24K

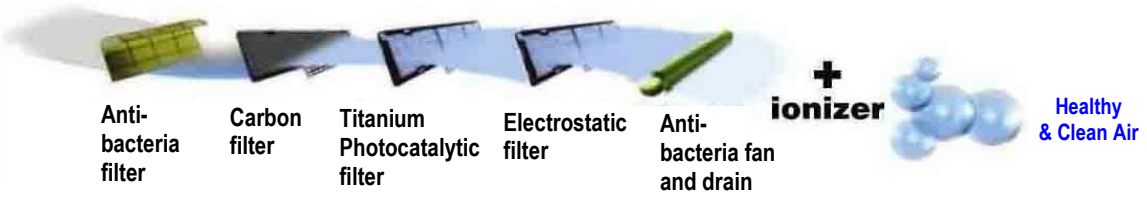
- Standard washable and anti bacteria air filters for dust and bacteria removal.
  Filters are treated with anti-mold chemicals to prevent mold or bacteria from occurring.
- Optional set of air filters consists of tow filters :
  - Optional Electrostatic air filter effectively eliminates microscopic dust.
  - Optional Photocatalytic air filter effectively eliminates cigarette smoke.
- Optional ionizer to generate large quantity of negative ions for refreshing air, killing germs and removing dust.



EFFICIENT AIR FILTERATION SYSTEM FOR CLEAN AND HEALTHY AIR (Cont.)

6-2 For indoor Units Sizes 30K – 36K

- Standard washable and anti bacteria air filters for dust and bacteria removal.
  Filters are treated with anti-mold chemicals to prevent mold or bacteria from occurring.
- Optional set of air filters consists of three filters:
  - Carbon filter remove odor and to deodorize unpleasant smell.
  - Titanium photocatalytic filter to completely remove odors such as smoke, frying and other food smells.
    Also it breaks down pollutants and eliminates bacteria down to 0.001-micron diameter.
  - Electrostatic filter to remove microscopic fine dust, spores and bacteria.
- Optional Ionizer to generate large quantity of negative ions for refreshing air, killing germs and removing dust.



(7) DURABLE FOR LONG LIFE AND CORROSION RESISTANT.

7-1 DURABLE OUTDOOR UNIT.

- Long life and corrosion resistant
  - Weather proof made of chemically treated, zinc coated steel sheet metal.
  - Powder painted with prefect adhesion of highly resistant polyester paint 60 microns thick, which is electrostatically applied and baked at temperature of 220°C .
  - Painted steel guard for outdoor coil.
  - Plastic guard for propeller.
  - Totally enclosed and self-lubricated fan motor for long life and Protection from wet conditions.


7-2 DURABLE INDOOR UNIT.

- Long life and corrosion resistant
- All unit parts are plastic parts except mounting bracket which made of zinc coated steel sheet metal.
- Totally enclosed and self-lubricated fan motor for long life and Protection from wet conditions.

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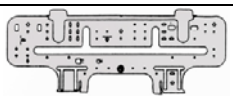
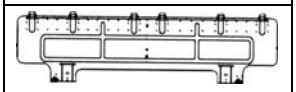
(8) SUPER EASY AND FLEXIBLE INSTALLATION

8-1 AVAILABILITY OF ALL STANDARD ACCESSORIES SUPPLIED FROM FACTORY

DESCREPTION	CONFIGURATION	QTY	USAGE
Battery 1.5 volt size AAA alkaline type		2	To operate the wireless remote control
Wireless remote control		1	To operate the air conditioner
Plastic holder for remote control		1	To mount remote control on the wall
Anchor screw and screw		1	To fix holder for remote control on the wall
Owner manual		1	To illustrate control functions of operation
Installation Manual		1	To illustrate installation instructions.
Wall hang bracket	 Sizes 18K – 24K  Sizes 30K – 36K	1	For indoor unit installation on the wall.
Self tapping screw 5 x L50		5	For wall hang bracket installation
Tapping Screws		2	For adjustment the gap between indoor unit and wall.
Drain Elbow		1	For outdoor unit condensate drain

SUPER EASY AND FLEXIBLE INSTALLATION (Cont.)

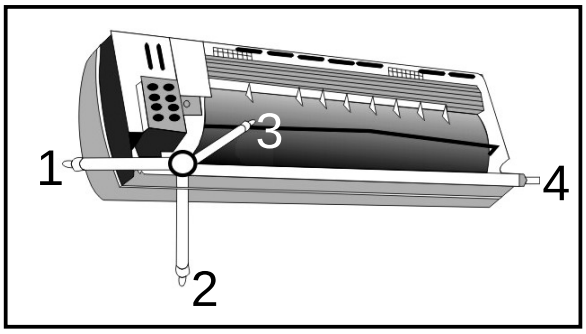
8-2 AVAILABILITY OF ALL OPTIONAL ACCESSRIES SUPPLIED FROM THE FACTORY AS PER THE REQUIREMENT

DESCREPTION	CONFIGURATION	QTY	USAGE
Insulated refrigerant piping lines with flare nuts of lengths 3-4-6-8-10-12 meter		1	To connect Freon between outdoor and indoor units and refrigerant piping lines
Optional air filters (Electrostatic Filter + Photocatalytic Filter)	 Sizes 18K - 24K	Set of 2	To eliminate microscopic dust and cigarette smoke respectively in the room air respectively.
Optional air filters (Electrostatic Filter + Active Carbon Filter + Photo Catalytic Filter)	 Sizes 30K - 36K	Set of 3	To eliminate microscopic dust, odor and cigarette smoke in the room air respectively.
Tele Carrier		1	Control the operation of the air conditioner by a simple phone call from outside
PTC starting device	 Sizes 18K - 24K	1	To start the compressor in outdoor unit at low voltage down 187V
PTC starting device	 Sizes 30K - 36K	1	To start the compressor in outdoor unit at low voltage down 198V

8-3 SUPER AND FLEXIBLE INSTALLATION

- **SUPER EASY AND FLEXIBLE INSTALLATION OF INDOOR UNIT.**
  - Easy unit handling due to compact dimensions and light weight.
  - Easy mounting of indoor unit on the wall mounting bracket by snap fitting
  - Multi directional outlet locations from the indoor unit to pass refrigerant piping lines, electrical cables and condensate drain line
  - Improves flexibility in selecting installation layouts.
  - Front location of electrical box inside the indoor unit, allows electrical wiring work to be performed easily even after the indoor unit has been fully installed.
  - All screws for the indoor unit can be tightened from the front side thus ensuring smooth installed.
  - The installation guide of back mounting bracket gives clear instructions on the installation positions.

    The enlarged mounting bracket secures the indoor unit firmly to the wall.



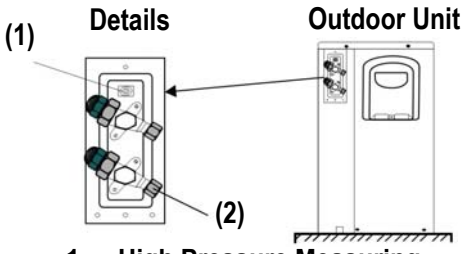
SR	OUTLET LOCATION
1	Right Side
2	Right Bottom
3	Right Back
4	Lift Side

SUPER EASY AND FLEXIBLE INSTALLATION (Cont.)

8-4 SUPER EASY AND FLEXIBLE INSTALLATION OF OUTDOOR UNIT.

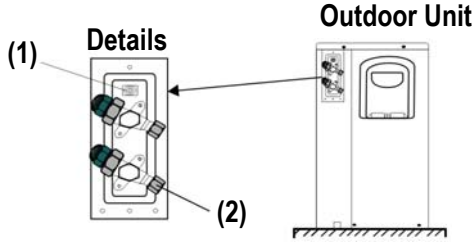
- Flexible unit installation on the wall or on the ground.
- Standard additional service valve to measure high pressure in cooling and to measure low pressure in heating.
- Standard 4 (four) rubber isolators, factory mounted under the unit base.
- All panels fitted to the unit are easily removable to give all round accessibility.
- Easy access to flare valves located on the top of unit side panel when connecting refrigerant piping lines to unit.
- Easy access to service valve located on the top of unit side panel when measuring pressures during test running.
- Easy access to terminal block located on the top of unit side panel by removing service door when connecting electrical wiring to unit.
- Easy access to propeller and motor by removing propeller guard and top cover.
  Easy access to compressor, tubing, reversing valve and outdoor coil by removing unit front and back panels.

COOLING TEST RUNNING

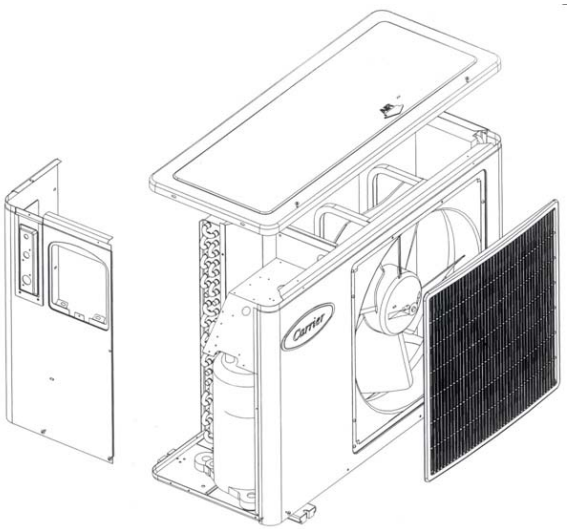


1. High Pressure Measuring.
2. Low Pressure Measuring.

HEATING TEST RUNNING



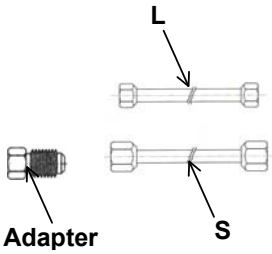
1. Low Pressure Measuring.
2. High Pressure Measuring.



SUPER EASY AND FLEXIBLE INSTALLATION (Cont.)

8-5 Diameters of suction and liquid piping for outdoor and indoor units are designed for long refrigerant piping lines connecting the units so that no need for changing lines diameters in the field for long lengths

Indoor Unit



Outdoor Unit

HEAT PUMP SYSTEMS

Outdoor Unit			Indoor Unit			Adapter Nut For Indoor Unit	Refrigerant Piping lines	
Model	S	L	Model	S	L		S	L
38QPC18-H	5/8”	1/4”	42QPC18-H	1/2”	1/4”	-	5/8”	1/4”
38QPC4-H	5/8”	1/4”	42QPC24-H	5/8”	1/4”	-	5/8”	1/4”
38QH30B-H	5/8”	3/8”	42XP100-H7	5/8”	3/8”	3/4" → 5/8”	5/8”	3/8’
38QH36B-H	3/4”	3/8”	42XP100-H7	3/4”	3/8”	-	3/4”	3/8’

COOL ONLY SYSTEMS

Outdoor Unit			Indoor Unit			Adapter Nut For Indoor Unit	Refrigerant Piping lines	
Model	S	L	Model	S	L		S	L
38QPC18-C	5/8”	1/4”	42QPC18-H	1/2”	1/4”	-	5/8”	1/4”
38QPC24-C	5/8”	1/4”	42QPC24-H	5/8”	1/4”	-	5/8”	1/4”
38QH30B-C	5/8”	3/8”	42XP100-C7	5/8”	3/8”	3/4" → 5/8”	5/8”	3/8’
38QH36B-C	3/4”	3/8”	42XP100-C7	3/4”	3/8”	-	3/4”	3/8’

NOTE: S= Suction Line
L= Liquid Line

NOTE:

1. For indoor unit 42XP100-H7 matched with outdoor unit 38QH30B-H, adaptor nut 3/4" → 5/8” is factory supplied sparately inside the outdoor unit to be mounted on the suction piping of indoor unit.

2. For indoor unit 42XP100-C7 matched with outdoor unit 38QH30B-C, adaptor nut 3/4" → 5/8” is factory supplied sparately inside the outdoor unit to be mounted on the suction piping of indoor unit.

SUPER EASY AND FLEXIBLE INSTALLATION (Cont.)

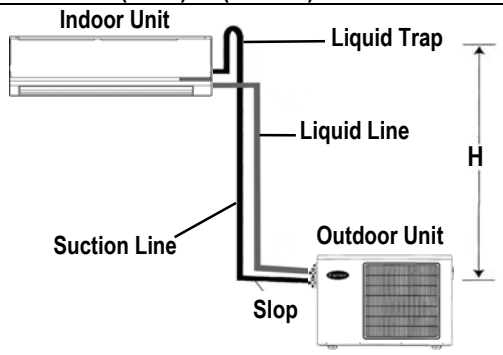
8-6 FLEXIBLE OUTDOOR UNIT LOCATION WITH RESPECT TO INDOOR UNIT LOCATION

The following data refers to the use of refrigerant piping lines of diameters equivalent to that use in units
where : L = Maximum length of refrigerant piping lines between outdoor and indoor unit.
H = Maximum vertical distance between outdoor and indoor units.

(A) OUTDOOR UNIT BELOW INDOOR UNIT :

a. Suction line should rise above height of Indoor unit to shape a liquid trap in an inverted loop before descending to outdoor unit to prevent liquid refrigerant from draining into compressor during shutdown.
b. Slop tubing towards the outdoor unit with a fall of at least (6mm) to (305mm).

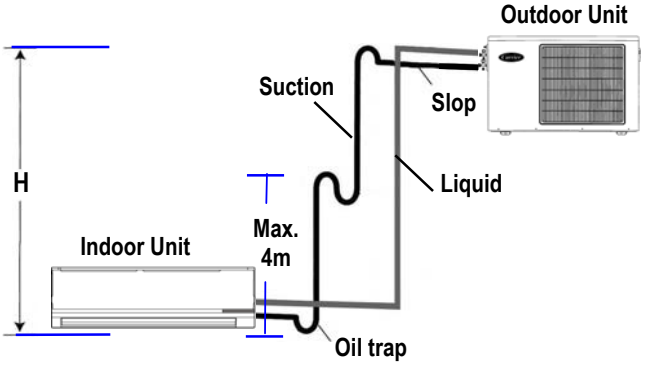
System Model	Meters	
	L	H
53QPC18	20	10
53QPC24	20	10
53QH30B	25	15
53QH36B	25	15



(B) OUTDOOR UNIT ABOVE INDOOR UNIT :

- If height is less than or equal 4 meters, one oil trap must be at the suction line at the base of suction riser near the Indoor unit to facilitate oil return to the compressor to ensure efficiency of compressor mechanical parts.
- If height is more than 4 meters, more than one oil trap must exist at the suction line, the first one will be at the suction line near to the indoor unit and the following one will be 4 meters from the first one and so on.

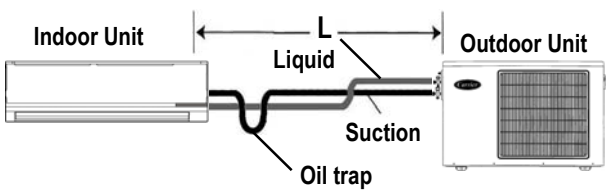
System Model	Meters	
	L	H
53QPC18	20	10
53QPC24	20	10
53QH30B	25	15
53QH36B	25	15



(C) OUTDOOR UNIT ON THE SAME LEVEL AS INDOOR UNIT:

An oil trap shall be at the suction line at the base of suction riser near the Indoor unit to facilitate oil return to the compressor to ensure efficiency of compressor mechanical parts.

System Model	Meters
	L
53QPC18	20
53QPC24	20
53QH30B	25
53QH36B	25



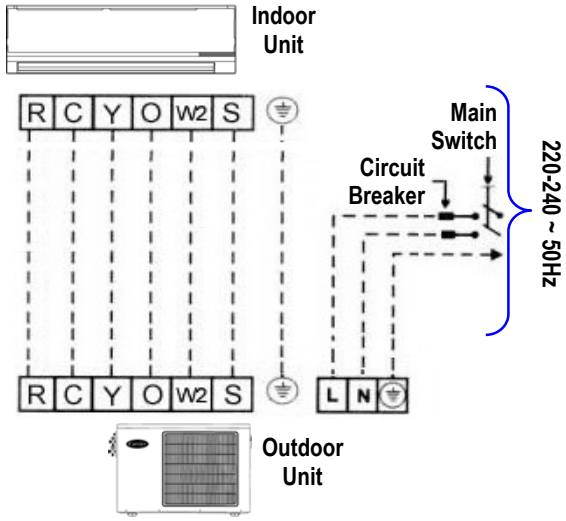
SUPER EASY AND FLEXIBLE INSTALLATION (Cont.)

8-7 EASY FILED ELECTRICAL WIRING BETWEEN POWER SUPPLY, CIRCIUT BREAKER, OUTDOOR AND INDOOR UNITS.

CONNECTING ELECTRICAL WIRING FOR HEAT PUMP SYSTEM

LEGEND

⏚	Earth
L	Live power supply.
N	Neutral power supply.
R	Live connection indoor/outdoor unit.
C	Neutral connection indoor/outdoor unit.
Y	Compressor control.
O	Reversing valve control.
W2	Outdoor fan motor control.
S	Outdoor coil sensor.



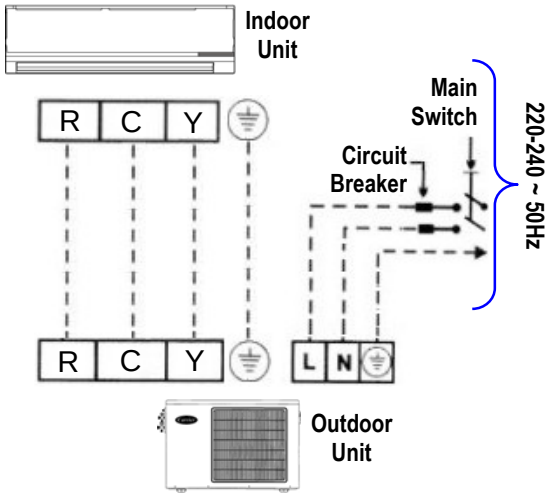
Sizes of electrical wires connecting outdoor and indoor units

R	C	Y	O	W2	S
1 mm^2	1 mm^2	1 mm^2	1 mm^2	1 mm^2	1 mm^2

CONNECTING ELECTRICAL WIRING FOR COOL ONLY SYSTEM

LEGEND

⏚	Earth
L	Live power supply.
N	Neutral power supply.
R	Live connection indoor/outdoor unit.
C	Neutral connection indoor/outdoor unit.
Y	Compressor control.



Sizes of electrical wires connecting outdoor and indoor units

R	C	Y
1 mm^2	1 mm^2	1 mm^2

Note:

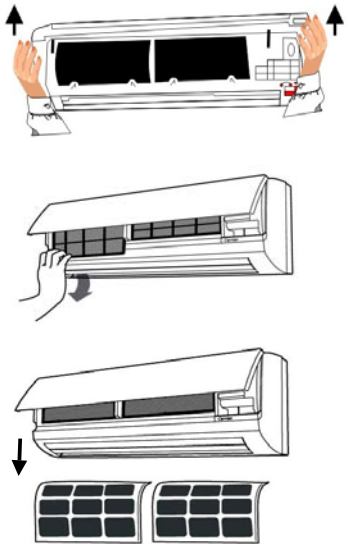
(1) Connect the power supply to the outdoor unit and then get the power required for the indoor unit from the outdoor unit.
(2) All dotted lines to be fitted by installer.
(3) Refer to wiring diagrams and stickers-caution sticked inside the outdoor & indoor units.

(9) EASY SERVICE & MAINTENANCE.

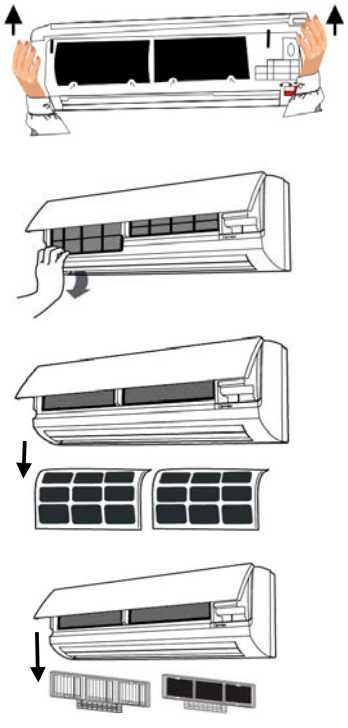
9-1 EASY SERVICE & MAINTENANCE OF INDOOR UNIT

- Easy unit handling due to compact dimensions and light weight.
- Easy removal of air filters for cleaning by opening the hinged front grille up and then pulling air filters down outside the unit.
- Easy removal of front grille for cleaning by disassembly of its engagement with front panel.
- Easy disassembly procedures of indoor unit.
  - All parts of indoor unit are plastic parts inserted into each other (snap fits) and fixed with minimum number of fixing screws.
  - All key components are easily accessible for service.
  - Mistake proofing concept applied in the design of assembled parts to ensure correct assembly and to eliminate miswriting problems.
- Common spare parts across product family.

STANDARD FILTERS REMOVAL



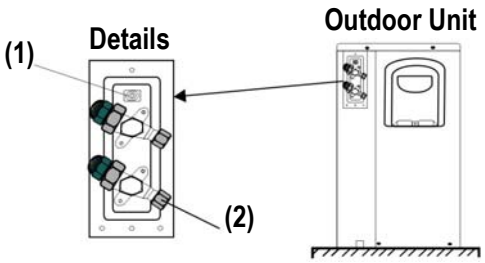
OPTION FILTERS REMOVAL



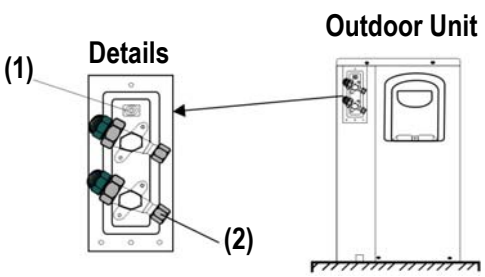
EASY SERVICE & MAINTENANCE (Cont.)

9-2 SUPER EASY SERVICE & MAINTENANCE OF OUTDOOR UNIT

- Easy unit handling due to compact dimensions and light weigh.
- Easy access to unit key components since all panels fitted to the outdoor unit are easily removable to give all round accessibility.
  - Easy access to flare valves located on the top of unit back panel when connecting refrigerant piping lines to unit.
  - Easy access to service valve located on the top of unit back panel when measuring pressures during test running.
  - Easy access to terminal block located on the top of unit side panel when connecting electrical wiring to unit.
  - Easy access to propeller and motor by removing propeller guard and top cover.
  - Easy access to compressor, tubing, reversing valve, coil and the sensor by removing unit front and back panels.
  - Easy access to electrical components (dual run capacitor, contactor) by removing top cover.
  - Common spare parts for outdoor units



3. High Pressure Measuring.
4. Low Pressure Measuring.



3. Low Pressure Measuring.
4. High Pressure Measuring.

(10) SYSTEM TEST FUNCTION, WHICH IS USED BY INSTALLER AND ALSO BY SERVICEMAN TO VERIFY THAT THE SYSTEM IS WORKING CORRECTLY.

This test initiated via the remote control regardless of set temperature and room air temperature.

The system test function is initiated via the remote control.

Test mode is used to put the system in demand regardless of set temperature and room air temperature.

For example, if the service man is installing a cool only system in the winter, and the room air temperature is 15 °C, the service man would have to return when the room air temperature was warmer. This test allows for the service man to test the system anytime by forcing demand.

When the remote control in off position, push once the buttons (Λ) and ( ) on the remote control for more than 5 seconds until symbol "Src" appears on the display this means test mode.

Then the three minutes time guard for compressor is ignored and the unit will start immediately based on the original setting before starting test mode.

Sizes 18K – 24K

Sizes 30K – 36K

11. COMPLETE SELF DIAGNOSTIC FUNCTION WHICH IS USED BY INSTALLER AND ALSO BY SERVICEMAN TO DETECT AND CORRECT MALFUNCTIONS

EXPLAINATION OF SELF-DIAGNOSTIC FUNCTION FOR SIZES 18K – 24K

- Self-diagnostic function is the key for success of air conditioner operation.
- The printed circuit boards existing inside the indoor unit are equipped with self-diagnostic function to detect malfunction and automatically stops the operation at the air conditioner.
- Once a malfunction is detected, the diagnostic control section will force the system mode to OFF for 3 minutes. After the OFF delay, system mode releases and allowed returning to its normal state. The system will be allowed to restart on its own.
- The diagnostic control section will allow the system to fail 5 consecutive times before shutting down the system. If the system is performing an active defrost, both the compressor drive and reversing valve malfunction test will be cancelled and reinitiated after the following compressor OFF-ON cycle.
- The Unit on lamp is scanned every half-second and the error codes are displayed by the flashing frequency of unit on lamp. The error codes are displayed during SHUT-OFF (3 minutes off and after the 5th retry failure).

Indoor Unit
Sizes 18K- 24K

1 : Green led flashes
if there is a malfunction

Sr.	Malfunction Type	Flashing ⏻ Frequency	Allowed Modes
1	Return Air Sensor Malfunction	2	Fan Only
2	Indoor Coil Sensor Malfunction	3	Fan Only
3	Compressor Drive Malfunction	5	Fan Only
4	Reversing Valve Malfunction	6	Fan Only
5	Power Line Feedback (zero crossing)	9	-

Notes

1- Prior to the malfunction repair, disconnect the electrical mains supply by moving the circuit breaker to OFF position.
If the highest malfunction is cleared, the next malfunction is displayed.

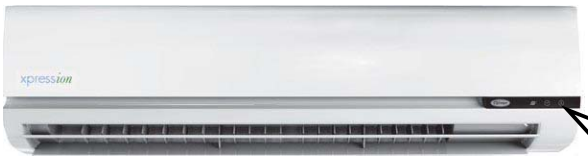
2- Prior to the malfunction repair, disconnect the electrical mains supply by moving the circuit breaker to OFF position.

3- After repairing the malfunction:
2-1 connect the electrical main supply by moving the circuit breaker to ON position
2-2 operate the air conditioner by using the wireless remote control.

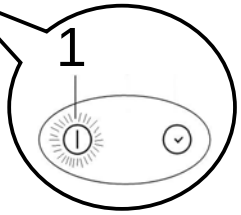
COMPLETE SELF DIAGNOSTIC FUNCTION WHICH IS USED BY INSTALLER AND ALSO BY SERVICEMAN TO DETECT AND CORRECT MALFUNCTIONS (Cont.)

EXPLAINATION OF SELF-DIAGNOSTIC FUNCTION FOR SIZES 30K – 36K

- Self-diagnostic function is the key for success of air conditioner operation
- The printed circuit boards existing inside the indoor unit are equipped with self-diagnostic function to detect malfunction and automatically stops the operation at the air conditioner.
- Once a malfunction is detected, the diagnostic control section will force the system mode to OFF for 3 minutes. After the OFF delay, system mode releases and allowed returning to its normal state. The system will be allowed to restart on its own.
- The diagnostic control section will allow the system to fail 5 consecutive times before shutting down the system. If the system is performing an active defrost, both the compressor drive and reversing valve malfunction test will be cancelled and reinitiated after the following compressor OFF-ON cycle.
- The Unit on lamp is scanned every half-second and the error codes are displayed by the flashing frequency of green led ⏻. The error codes are displayed during SHUT-OFF (3 minutes off and after the 5th retry failure).



Indoor Unit
Sizes 30K- 36K



1 : Green led flashes if there is a malfunction

Malfunction Reason	Flashing Frequency	Allowed Modes
Return Air Sensor	3	Fan Only Mode
Indoor Coil Sensor	4	Fan Only Mode
Compressor Drive	9	Fan Only Mode
Electronic Control PCB (EEPROM)	10	Fan Only Mode

Notes

1- Prior to the malfunction repair, disconnect the electrical mains supply by moving the circuit breaker to OFF position.

2- After repairing the malfunction
   2-1 connect the electrical main supply by moving the circuit breaker to ON position
   2-2 operate the air conditioner by using the wireless remote control.

OPERATING LIMITS*

COOLING

Difference	Dry Bulb Temp. C°	Wet Bulb Temp. C°
Indoor temperature Maximum Minimum	 32 21	 23 15
Outdoor temperature Maximum Minimum	 ** 20	 - -

HEATING

Difference	Dry Bulb Temp. C°	Wet Bulb Temp. C°
Indoor temperature Maximum	 27	 -
Outdoor temperature Maximum Minimum	 24 2	 18 1

MAIN POWER SUPPLY

Difference	Nominal 200-240V/1PH/50HZ
Min. Voltage	187
Max. Voltage	264

NOTES:

* When the unit is operated above or below these limits for a long time, system diagnostics may detect a malfunction and the unit will not operate properly.

** 46°C for System with Standard outdoor unit.
52°C for System with High ambient outdoor unit.

*** During heat pump operation, the system will undergo several defrost cycles to eliminate ice that might possibly collect on the outdoor unit in very low ambient temperatures.
After completions of defrost cycle, the system will normally operate

PRODUCT ORDERING DATA

Unit Model Identification For Sizes 18K – 24K:

38 / **42** = Outdoor Unit / Indoor Unit

QPC = Unit Family

18 = System Cooling Capacity At ISO Conditions
18 = 18,000 Btu/hr
24 = 24,000 Btu/hr

H / **C** = Unit Type
H = Heat Pump
C = Cool Only

Engineering Part Numbers for Units:

SPLIT SYSTEMS FOR LOCAL MARKET

HEAT PUMP	Indoor Unit		Outdoor Unit			
	Model	P/N	Model	P/N	Compressor	
					Type	Supplier
	42QCP18-H	46303131	**38QCP18-H**	46303132	Rotary	Hitachi
	42QCP24-H	46303134	**38QCP24-H**	46303135	Rotary	LG

SPLIT SYSTEMS FOR MILD AMBIENT EXPORT MARKETS

HEAT PUMP	Indoor Unit			Outdoor Unit			
	Model	P/N With Ionizer	P/N Without Ionizer	Model	P/N	Compressor	
						Type	Supplier
	42QCP18-H	46303231	46303634	**38QCP18-H**	46303649	Rotary	Hitachi
	42QCP24-H	46303234	46303636	**38QCP24-H**	46303650	Rotary	LG

COOL ONLY	Indoor Unit			Outdoor Unit			
	Model	P/N With Ionizer	P/N Without Ionizer	Model	P/N	Compressor	
						Type	Supplier
	42QCP18-C	46303235	46303635	**38QCP18-C**	46303236	Rotary	Mitsushita
	42QCP24-C	46303238	46303637	**38QCP24-C**	46303237	Rotary	Mitsushita

SPLIT SYSTEM FOR HIGH AMBIENT EXPORT MARKETS

HEAT PUMP	Indoor Unit			Outdoor Unit			
	Model	P/N With Ionizer	P/N Without Ionizer	Model	P/N	Compressor	
						Type	Supplier
	42QCP18-H	46303231	46303634	**38QCP18-H**	46303232	Rotary	Mitsushita
	42QCP24-H	46303234	46303636	**38QCP24-H**	46303233	Rotary	Mitsushita

COOL ONLY	Indoor Unit			Outdoor Unit			
	Model	P/N With Ionizer	P/N Without Ionizer	Model	P/N	Compressor	
						Type	Supplier
	42QCP18-C	46303235	46303635	**38QCP18-C**	46303236	Rotary	Mitsushita
	42QCP24-C	46303238	46303637	**38QCP24-C**	46303237	Rotary	Mitsushita

PRODUCT ORDERING DATA

Unit Model Identification For Sizes 30K – 36K:

38 42	QH	30	B	H C
38 = Outdoor Unit **42** = Indoor Unit	Unit Family	**System Cooling Capacity At ISO Conditions** **30** = 30,000 Btu/hr **36** = 36,000 Btu/hr	**version B**	**Unit Type** **H** = Heat Pump **C** = Cool Only

Engineering Part Numbers for Units:

SPLIT SYSTEMS FOR LOCAL MARKET

	Indoor Unit		Outdoor Unit			
HEAT PUMP	Model	P/N	Model	P/N	Compressor	
					Type	Supplier
	42XP100-H7	46303182	**38QH30B-H**	46302130	Rotary	Mitsubishi
	42XP100-H7	46303182	**38QH36B-H**	46302131	Recip.	Copeland

SPLIT SYSTEMS FOR MILD AMBIENT EXPORT MARKETS

	Indoor Unit		Outdoor Unit			
HEAT PUMP	Model	P/N	Model	P/N	Compressor	
					Type	Supplier
	42XP100-H7	46303184	**38QH30B-H**	46302267	Rotary	Mitsubishi
	42XP100-H7	46303184	**38QH36B-H**	46302139	Recip.	Copeland

	Indoor Unit		Outdoor Unit			
COOL ONLY	Model	P/N	Model	P/N	Compressor	
					Type	Supplier
	42XP100-C7	46303185	**38QH30B-C**	46302105	Recip.	Copeland
	42XP100-C7	46303185	**38QH36B-C**	46302133	Recip.	Copeland

SPLIT SYSTEM FOR HIGH AMBIENT EXPORT MARKETS

	Indoor Unit		Outdoor Unit			
HEAT PUMP	Model	P/N	Model	P/N	Compressor	
					Type	Supplier
	42XP100-H7	46303184	**38QH30B-H**	46302104	Recip.	Copeland
	42XP100-H7	46303184	**38QH36B-H**	46302139	Recip.	Copeland

	Indoor Unit		Outdoor Unit			
COOL ONLY	Model	P/N	Model	P/N	Compressor	
					Type	Supplier
	42XP100-C7	46303185	**38QH30B-C**	46302105	Recip.	Copeland
	42XP100-C7	46303185	**38QH36B-C**	46302133	Recip.	Copeland