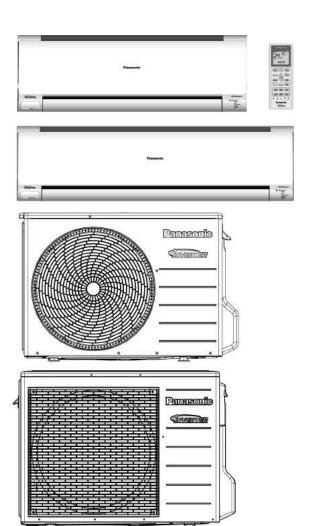
Service Manua

Air Conditioner



Indoor Unit Outdoor Unit CS-E7NKR **CU-E7NKR** CS-E9NKR **CU-E9NKR** CS-E12NKR **CU-E12NKR** CS-E15NKR **CU-E15NKR** CS-E18NKR **CU-E18NKR** CS-E21NKR **CU-E21NKR** CS-E24NKR **CU-E24NKR CU-E28NKR** CS-E28NKR

/!\WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the products dealt with in this service information by anyone else could result in serious injury or death.

PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigerant circuit.

nasonic

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1. Safety Precautions

- Read the following "SAFETY PRECAUTIONS" carefully before perform any servicing.
- Electrical work must be installed or serviced by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation or servicing due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

	WARNING	This indication shows the possibility of causing death or serious injury.
\triangle	CAUTION	This indication shows the possibility of causing injury or damage to properties.

The items to be followed are classified by the symbols:

\bigcirc	This symbol denotes item that is PROHIBITED from doing.

Carry out test running to confirm that no abnormality occurs after the servicing. Then, explain to user the
operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating
instructions for future reference.

instructions for future reference.	
⚠ WARNING	
Do not modify the machine, part, material during repairing service.	
2. If wiring unit is supplied as repairing part, do not repair or connect the wire even only partial w	ire break. Exchange the whole wiring unit.
Do not wrench the fasten terminal. Pull it out or insert it straightly.	
 Engage authorized dealer or specialist for installation and servicing. If installation or servicing water leakage, electrical shock or fire. 	done by the user is defective, it will cause
5. Install according to this installation instructions strictly. If installation is defective, it will cause v	vater leakage, electric shock or fire.
Use the attached accessories parts and specified parts for installation and servicing. Otherwis or electrical shock.	e, it will cause the set to fall, water leakage, fire
7. Install at a strong and firm location which is able to withstand the set's weight. If the strength is the set will drop and cause injury.	s not enough or installation is not properly done,
For electrical work, follow the local national wiring standard, regulation and the installation ins must be used. If electrical circuit capacity is not enough or defect found in electrical work, it wi	truction. An independent circuit and single outlet II cause electrical shock or fire.
 This equipment is strongly recommended to install with Earth Leakage Circuit Breaker (ELCB may cause electrical shock and fire in case equipment breakdown or insulation breakdown. 	or Residual Current Device (RCD). Otherwise, i
10. Do not use joint cable for indoor/outdoor connection cable. Use the specified indoor/outdoor connection CONNECT THE CABLE TO THE INDOOR UNIT and connect tightly for indoor/outdoor connewill be acted on the terminal. If connection or fixing is not perfect, it will cause heat up or fire a	ction. Clamp the cable so that no external force
11. Wire routing must be properly arranged so that control board cover is fixed properly. If control heat-up or fire at the connection point of terminal, fire or electrical shock.	board cover is not fixed perfectly, it will cause
12. When install or relocate air conditioner, do not let any substance other than the specified refrig cycle (piping). (Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and r	
13. Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit at vera outdoor unit and cross over the handrail and causing accident.	
14. This equipment must be properly earthed. Earth line must not be connected to gas pipe, wate telephone. Otherwise, it may cause electric shock in case equipment breakdown or insulation	
15. Keep away from small children, the thin film may cling to nose and mouth and prevent breathi	ng.
16. Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord other electrical appliances. Poor contact, poor insulation or over current will cause electrical s	
17. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-may break and cause refrigerant gas leakage.	tightened, after a long period, the flare
18. For R410A models, when connecting the piping, do not use any existing (R22) pipes and flare abnormally high pressure in the refrigeration cycle (piping), and possibly result in explosion ar Thickness of copper pipes used with R410A must be more than 0.8mm. Never use copper pip It is desirable that the amount of residual oil is less than 40 mg/10m.	nd injury. Use only R410A materials.

Ŵ	WARNING
<u>/!\</u>	WARNING

- 19. During installation, install the refrigerant piping properly before run the compressor. (Operation of compressor without fixing refrigeration piping and valves at opened condition will caused suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc).
- 20. During pump down operation, stop the compressor before remove the refrigeration piping. (Removal of compressor while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.)
- 21. After completion of installation or service, confirm there is no leakage or refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.
- 22. Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when refrigerant contacts with fire.
- 23. Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.



- 24. Must not use other parts except original parts described in catalog and manual.
- 25. Using of refrigerant other than the specified type may cause product damage, burst and injury etc.

CAUTION

1. Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.



- Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
- 3. Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.
- 4. Do not touch outdoor unit air inlet and aluminium fin. It may cause injury.



- 5. Select an installation location which is easy for maintenance.
- 6. Pb free solder has a higher melting point than standard solder; typically the melting point is 50°F 70°F (30°C 40°C) higher. Please use a high temperature solder iron. In case of the soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C). Pb free solder will tend to splash when heated too high (about 1100°F / 600°C).
- 7. Power supply connection to the air conditioner. Connect the power supply cord of the air conditioner to the mains using one of the following methods

Power supply point shall be the place where there is ease for access for the power disconnection in case of emergency. In some countries, permanent connection of this room air conditioner to the power supply is prohibited.

- i. Power supply connection to the receptacle using a power plug. Use an approved 15/16A (3/4~1.75HP) or 16A (2.0HP) or 20A (2.5HP) or 25A (3.0HP) power plug with earth pin for the connection to the socket.
- ii. Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A (3/4~2.0HP), 20A (2.5HP) or 25A (3.0HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap.
- Do not release refrigerant during piping work for installation, servicing, reinstallation and during repairing a refrigerant parts.Take care of the liquid refrigerant, it may cause frostbite.



- 9. Installation or servicing work: It may need two people to carry out the installation or servicing work.
- 10. Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.



11. Do not sit or step on the unit, you may fall down accidentally.



- 12. Do not touch the sharp aluminium fins or edges of metal parts.
 - If you are required to handle sharp parts during installation or servicing, please wear hand glove. Sharp parts may cause injury.



2. Specification

	Mo	del	Indoor			CS-E	7NKR		
	1410	-doi	Outdoor	CU-E7NKR					
	Perfo	rmance Test Cor	ndition			Α	S		
	Power	Supply	Phase, Hz			Singl	e, 50		
	rowei	Зирріу	V		230			240	
				Min.	Mid.	Max.	Min.	Mid.	Max.
			kW	0.85	2.05	2.40	0.85	2.05	2.40
	Ca	apacity	BTU/h	2900	6990	8180	2900	6990	8180
			kcal/h	730	1760	2060	730	1760	2060
	Runnii	ng Current	А	-	2.2	-	-	2.2	-
	Inpu	ıt Power	W	200	460	590	200	460	590
0			W/W	4.25	4.46	4.07	4.25	4.46	4.07
Cooling	ı	EER	BTU/hW	14.50	15.20	13.86	14.50	15.20	13.86
ၓ			kcal/hW	3.65	3.83	3.49	3.65	3.83	3.49
	Powe	er Factor	%	-	91	-	-	87	-
			dB-A		37 / 24 / 21			37 / 24 / 21	
	Indoor Nois	se (H / L / QLo)	Power Level dB					53 / 40 / 37	
			dB-A				45 / - / -		
	Outdoor No	ise (H / L / QLo)	Power Level dB				60 / - / -		
			kW	0.70	2.80	4.00	0.70	2.80	4.00
	Ca	apacity	BTU/h	2390	9550	13600	2390	9550	13600
			kcal/h	600	2410	3440	600	2410	3440
	Runnii	ng Current	А	-	2.9	-	-	2.8	-
	Inpu	ıt Power	W	160	620	1.02k	160	620	1.02k
D			W/W	4.38	4.52	3.92	4.38	4.52	3.92
Heating	(COP	BTU/hW	14.94	15.40	13.33	14.94	15.40	13.33
Ĭ			kcal/hW	3.75	3.89	3.37	3.75	3.89	3.37
	Powe	er Factor	%	-	93	-	-	92	-
	la da an Nais	(/ /	dB-A	38 / 25 / 21			38 / 25 / 21		
	indoor Nois	se (H / L / QLo)	Power Level dB		54 / 41 / 37		54 / 41 / 37		
	Outdoor No	ise (H / L / QLo)	dB-A	46 / - / -			46 / - / -		
	Outdoor No	ise (n / L / QLo)	Power Level dB	61 / - / -					
		Capacity	kW			2.	.9		
	H2	Input Power	W			0.0	90		
		COP	W/W			3.2	22		
		Capacity	kW			4.	10		
Ро	werful Heat	Input Power	W			1.0)5k		
		COP	W/W			3.9	90		
	Max Currer	nt (A) / Max Input	t Power (W)	4.8 / 1.03k					
	S	tarting Current (A	A)	2.9					
		Туре				Hermeti	c Motor		
Со	mpressor	Motor Type				Brushless	(6 poles)		
		Output Power	W			65	50		

	Туре			Cross-Flow Fan			
	Material			ASG20K1			
	М	otor Typ	oe .		Transistor (8-poles)		
	In	Input Power		W	47.3 - 47.3		
	Output Power		W	40			
		QLo	Cool	rpm	630		
an		QLO	Heat	rpm	650		
Indoor Fan		Lo	Cool	rpm	710		
lug		Ц	Heat	rpm	760		
	Speed	Me	Cool	rpm	900		
	Speed	IVIE	Heat	rpm	950		
	Ì	Hi	Cool	rpm	1090		
		'"	Heat	rpm	1150		
		SHi	Cool	rpm	1190		
		Orn	Heat	rpm	1250		
		Type			Propeller Fan		
_		Material	l		PP		
Fan	М	otor Typ	ре		DC Motor (8-poles)		
Outdoor Fan	In	put Pow	er er	W	-		
Out	Ou	tput Pov	wer	W	40		
	Speed	Hi	Cool	rpm	790		
	0,000	Heat		rpm	770		
	Moistu	re Remo	oval	L/h (Pt/h)	1.3 (2.7)		
		QLo Lo	Cool	m³/min (ft³/min)	5.33 (188)		
			Heat	m³/min (ft³/min)	5.80 (205)		
			Cool	m³/min (ft³/min)	6.38 (225)		
	,		Heat	m³/min (ft³/min)	7.01 (247)		
	Indoor Airflow	Me	Cool	m³/min (ft³/min)	8.44 (298)		
4	AITTIOW		Heat	m³/min (ft³/min)	9.10 (321)		
		Hi	Cool	m³/min (ft³/min)			
	,		Heat	m³/min (ft³/min)	11.3 (400)		
		SHi	Cool	m³/min (ft³/min)	11.65 (411)		
-			Heat	m³/min (ft³/min)	12.40 (438)		
	Outdoor Airflow	Hi	Cool	m³/min (ft³/min)	28.9 (1020)		
	AIIIIOW	_	Heat	m³/min (ft³/min)	28.9 (1020)		
Ref	rigeration		ol Device	3	Check Valve & Capillary Tube		
	Cycle		erant Oil	cm ³	FV50S (320)		
-			erant Type	g (oz)	R410A, 880 (31.1)		
			(I/D / O/D)	mm (inch)	290 (11-7/16) / 619 (24-3/8)		
Di	mension		(I/D / O/D)	mm (inch)	870 (34-9/32) / 824 (32-15/32)		
<u>.</u>			(I/D / O/D)	mm (inch)	214 (8-7/16) / 299 (11-25/32)		
— 1	Neight D:		/D / O/D)	kg (lb)	9 (20) / 32 (71)		
			quid / Gas)		6.35 (1/4) / 9.52 (3/8)		
		ndard le		m (ft)	7.5 (24.6)		
Piping	Length ra			m (ft)	3 (9.8) ~ 15 (49.2)		
۵			t different	m (ft)	15 (49.2)		
			Amount	g/m (oz/ft)	20 (0.2)		
Ш	Length fo	or Additi	onal Gas	m (ft)	7.5 (24.6)		

Drain Hose	Inner Diameter	mm	1	6			
Dialii Hose	Length	mm	650				
	Fin Material		Aluminium (Pre Coat)				
Indoor Heat	Fin Type		Slit	Slit Fin			
Exchanger	Row x Stage x FPI		2 x 15	5 x 21			
	Size (W x H x L)	mm	610 x 31	5 x 25.4			
	Fin Material		Aluminium (E	Blue Coated)			
Outdoor Heat	Fin Type		Corruga	ated Fin			
Exchanger	Row x Stage x FPI		2 x 28	3 x 17			
	Size (W x H x L)	mm	36.4 x 58	8 x 606.6			
Air Filter	Material		Polypropelene				
All I litel	Туре		One-touch				
Pov	wer Supply		Outdoor Power Supply				
Power	Supply Cord	Α	Nil				
Th	nermostat		Electronic Contol				
Prote	ection Device		Electronic Contol				
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operatior		Minimum	16	11			
Range	Heating	Maximum	30	•			
	rieating	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operatior		Minimum	5	4			
Range	Heating	Maximum	24	18			
	пеашу	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, least Bourg and COD massured at 200 V in the street of 20°C and 15.20°C.

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement.

			Indoor	CS-E9NKR					
Model Outdoo						CU-E	9NKR		
	Perfo	rmance Test Cor	ndition			A	S		
Power Supply Phase, Hz				Single, 50					
	Power	Supply	V		230			240	
			,	Min.	Mid.	Max.	Min.	Mid.	Max.
			kW	0.90	2.60	3.00	0.90	2.60	3.00
	Ca	apacity	BTU/h	3070	8870	10200	3070	8870	10200
			kcal/h	770	2240	2580	770	2240	2580
}	Runnii	ng Current	А	-	2.6	-	-	2.5	-
}	Inpu	ıt Power	W	210	550	780	210	550	780
g			W/W	4.29	4.73	3.85	4.29	4.73	3.85
Cooling	1	EER	BTU/hW	14.62	16.13	13.08	14.62	16.13	13.08
ŏ			kcal/hW	3.67	4.07	3.31	3.67	4.07	3.31
	Powe	er Factor	%	-	92	-	-	92	=
		### ### #	dB-A		41 / 25 / 21			41 / 25 / 21	
	Indoor Nois	se (H / L / QLo)	Power Level dB		57 / 41 / 37			57 / 41 / 37	
			dB-A		46 / - / -		46 / - / -		
	Outdoor No	ise (H / L / QLo)	Power Level dB	61/-/-					
			kW	0.80	3.60	4.70	0.80	3.60	4.70
	Ca	apacity	BTU/h	2730	12300	16000	2730	12300	16000
			kcal/h	690	3100	4040	690	3100	4040
	Runnii	ng Current	Α	-	3.5	-	-	3.4	-
	Inpu	ıt Power	W	175	750	1.23k	175	750	1.23k
g			W/W	4.57	4.80	3.82	4.57	4.80	3.82
Heating	(COP	BTU/hW	15.60	16.40	13.01	15.60	16.40	13.01
Ĭ			kcal/hW	3.94	4.13	3.28	3.94	4.13	3.28
	Powe	er Factor	%	-	93	-	1	92	-
	Indoor Nois	se (H / L / QLo)	dB-A	39 / 27 / 21			39 / 27 / 21		
	mador Nois	3C (117 E 7 QEO)	Power Level dB	55 / 43 / 37			55 / 43 / 37		
	Outdoor No	ise (H / L / QLo)	dB-A		46 / - / -			46 / - / -	
	Outdoor 140	100 (117 E7 QE0)	Power Level dB		61 / - / -			61 / - / -	
		Capacity	kW			3.	.4		
	H2	Input Power	W			1.0)9k		
		COP	W/W			3.	12		
		Capacity	kW			5.0	00		
Po	werful Heat	Input Power	W			1.3			
		COP	W/W	3.68					
	Max Currer	nt (A) / Max Inpu	Power (W)	6.2 / 1.38k					
	S	tarting Current (A	A)			3.	5		
		Туре				Hermetic Mo			
Co	mpressor	Motor Type				Brushless			
		Output Power	W			70	00		

	Type		Туре		Cross-Flow Fan	
	Material				ASG20K1	
		otor Typ			Transistor (8-poles)	
		put Pow		W	47.3 - 47.3	
		Output Power		W	40	
			Cool	rpm	630	
an		QLo	Heat	rpm	690	
Indoor Fan			Cool	rpm	740	
Indo		Lo	Heat	rpm	820	
			Cool	rpm	940	
	Speed	Me	Heat	rpm	1010	
		Hi	Cool	rpm	1140	
		П	Heat	rpm	1200	
		SHi	Cool	rpm	1240	
		5	Heat	rpm	1300	
		Туре			Propeller Fan	
		Material			PP	
Outdoor Fan	М	otor Typ	е		DC Motor (8-poles)	
door	In	put Pow	er	W	-	
Outc	Ou	tput Pov	ver	W	40	
	Speed	Hi	Cool	rpm	800	
	Орсса	Heat		rpm	780	
	Moistu	re Remo	oval	L/h (Pt/h)	1.6 (3.4)	
		QLo Lo	Cool	m ³ /min (ft ³ /min)	5.33 (225)	
			Heat	m ³ /min (ft ³ /min)	6.37 (225)	
			Cool	m ³ /min (ft ³ /min)	6.58 (232)	
			Heat	m ³ /min (ft ³ /min)	7.83 (276)	
	Indoor	Me	Cool	m ³ /min (ft ³ /min)	9.12 (322)	
	Airflow		Heat	m ³ /min (ft ³ /min)	9.97 (352)	
		Hi	Cool	m³/min (ft³/min)	10.9 (385)	
			Heat	m³/min (ft³/min)	12.1 (425)	
		SHi	Cool	m³/min (ft³/min)	12.24 (432)	
			Heat	m³/min (ft³/min)	13.01 (459)	
	Outdoor Airflow	Hi	Cool	m³/min (ft³/min)	32.2 (1135)	
	Allilow	_	Heat	m ³ /min (ft ³ /min)	32.2 (1135)	
Ref	rigeration		ol Device	3	Check Valve & Capillary Tube	
	Cycle		erant Oil	cm ³	FV50S (320)	
-			rant Type	g (oz)	R410A, 1.05k (37.1)	
Γ.			I/D / O/D)	mm (inch)	290 (11-7/16) / 619 (24-3/8)	
Di	mension		I/D / O/D)	mm (inch)	870 (34-9/32) / 824 (32-15/32)	
<u>.</u>			(I/D / O/D)	mm (inch)	214 (8-7/16) / 299 (11-25/32)	
	Weight	,	(D / O/D)	kg (lb)	9 (20) / 33 (73)	
			quid / Gas)		6.35 (1/4) / 9.52 (3/8)	
		ndard lei		m (ft)	7.5 (24.6)	
Piping	Length ra			m (ft)	3 (9.8) ~ 15 (49.2)	
۵	I/D & O/[m (ft)	15 (49.2)	
	Addition			g/m (oz/ft)	20 (0.2)	
Ш	∟ength fo	or Additio	onal Gas	m (ft)	7.5 (24.6)	

Drain Hose	Inner Diameter	mm	1	6			
Drain Hose	Length	mm	69	650			
	Fin Material		Aluminium (Pre Coat)				
Indoor Heat	Fin Type		Slit	Fin			
Exchanger	Row x Stage x FPI		2 x 15	5 x 21			
	Size (W x H x L)	mm	610 x 31	5 x 25.4			
	Fin Material		Aluminium (F	Blue Coated)			
Outdoor Heat	Fin Type		Corruga	ated Fin			
Exchanger	Row x Stage x FPI		2 x 28	3 x 17			
	Size (W x H x L)	mm	36.4 x 588 x	781.3:752.7			
Air Filter	Material		Polypropelene				
All Filler	Type		One-touch				
Pov	ver Supply		Outdoor Power Supply				
Power	Supply Cord	Α	Nil				
Th	ermostat		Electronic Contol				
Prote	ction Device		Electronic Contol				
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operation		Minimum	16	11			
Range	Heating	Maximum	30	-			
	rieating	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operation	_	Minimum	5	4			
Range	Heating	Maximum	24	18			
1 0 1	ricating	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F WET BULB)

Heating low temperature capacity least Bulb (200 processed COD processe

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement.

			Indoor			CS-E1	2NKR		
	Mc	odel	Outdoor			CU-E1	2NKR		
	Perfo	rmance Test Cor	ndition			А	S		
			Phase, Hz			Singl	e, 50		
	Power	Supply	V		230			240	
			'	Min.	Mid.	Max.	Min.	Mid.	Max.
			kW	0.90	3.50	4.00	0.90	3.50	4.00
	Ca	apacity	BTU/h	3070	11900	13600	3070	11900	13600
			kcal/h	770	3010	3440	770	3010	3440
	Runni	ng Current	А	-	3.9	-	-	3.8	-
	Inpu	ut Power	W	210	830	1.10k	210	830	1.10k
6			W/W	4.29	4.22	3.64	4.29	4.22	3.64
Cooling		EER	BTU/hW	14.62	14.34	12.36	14.62	14.34	12.36
ပိ			kcal/hW	3.67	3.63	3.13	3.67	3.63	3.13
	Pow	er Factor	%	-	93	-	-	91	-
			dB-A		41 / 26 / 21			41 / 26 / 21	
	Indoor Nois	se (H / L / QLo)	Power Level dB	57 / 42 / 37 57 / 42 / 37					
			dB-A		48 / - / -		48 / - / -		
	Outdoor No	ise (H / L / QLo)	Power Level dB		63 / - / -			63 / - / -	
			kW	0.80	4.90	5.40	0.80	4.90	5.40
	Ca	apacity	BTU/h	2730	16700	18400	2730	16700	18400
			kcal/h	690	4210	4640	690	4210	4640
	Runni	ng Current	А	-	5.6	-	-	5.5	-
	Inpu	ut Power	W	175	1.22k	1.42k	175	1.22k	1.42k
ō			W/W	4.57	4.02	3.80	4.57	4.02	3.80
Heating		COP	BTU/hW	15.60	13.69	12.96	15.60	13.69	12.96
Ĭ			kcal/hW	3.94	3.45	3.27	3.94	3.45	3.27
	Pow	er Factor	%	-	95	-	-	92	-
	Indoor Nois	se (H / L / QLo)	dB-A		44 / 29 / 26			44 / 29 / 26	
	ITIGOOT NOIS	se (H / L / QLU)	Power Level dB		60 / 45 / 42			60 / 45 / 42	
	Outdoor No	ise (H / L / QLo)	dB-A		49 / - / -			49 / - / -	
	Outdoor No	iise (II7 L7 QL0)	Power Level dB		64 / - / -			64 / - / -	
		Capacity	kW			3.9	92		
	H2	Input Power	W			1.2	6k		
		COP	W/W			3.	11		
		Capacity	kW			6.7	70		
Po	werful Heat	Input Power	W			1.8	9k		
		COP	W/W	3.54					
	Max Currer	nt (A) / Max Input	Power (W)			7.8 /	1.71k		
	S	Starting Current (A)			5.	6		
		Туре				Hermetic Mo	otor (Rotary)		
Co	ompressor	Motor Type				Brushless	(6 poles)		
		Output Power	W			70	00		

		Туре			Cross-Flow Fan
ŀ		Material			ASG20K1
	М	otor Typ	ре		Transistor (8-poles)
	In	put Pow	er	W	47.3 - 47.3
	Ou	tput Pov	wer	W	40
		QLo	Cool	rpm	650
-an		QLO	Heat	rpm	770
Indoor Fan	,	Lo	Cool	rpm	760
Inde		Lo	Heat	rpm	870
	Speed	Me	Cool	rpm	990
	Speed	IVIE	Heat	rpm	1090
	ì	Hi	Cool	rpm	1220
		1 "	Heat	rpm	1320
		SHi	Cool	rpm	1320
		5111	Heat	rpm	1360
		Type			Propeller Fan
		Material			РР
Fan	М	otor Typ	ре		DC Motor (8-poles)
Outdoor Fan	In	put Pow	er	W	-
Outc	Ou	tput Pov	wer	W	40
	Speed	Hi	Cool	rpm	870
	Орсса	- "	Heat	rpm	860
	Moistu	re Remo	oval	L/h (Pt/h)	2.0 (4.2)
		QLo	Cool	m ³ /min (ft ³ /min)	5.81 (205)
		QLO	Heat	m ³ /min (ft ³ /min)	7.08 (250)
		Lo	Cool	m ³ /min (ft ³ /min)	7.03 (248)
			Heat	m ³ /min (ft ³ /min)	8.18 (289)
	Indoor	Me	Cool	m ³ /min (ft ³ /min)	9.56 (338)
4	Airflow	1110	Heat	m ³ /min (ft ³ /min)	10.58 (374)
		Hi	Cool	m ³ /min (ft ³ /min)	12.1 (425)
			Heat	m³/min (ft³/min)	13.1 (460)
		SHi	Cool	m³/min (ft³/min)	13.26 (468)
			Heat	m³/min (ft³/min)	13.53 (478)
	Outdoor	Hi	Cool	m³/min (ft³/min)	35.1 (1240)
	Airflow		Heat	m³/min (ft³/min)	35.1 (1240)
Pof	rigeration		ol Device		Check Valve & Capillary Tube
IXCI	Cycle		erant Oil	cm ³	FV50S (320)
			rant Type	g (oz)	R410A, 1.10k (38.8)
	,		(I/D / O/D)	mm (inch)	290 (11-7/16) / 619 (24-3/8)
Di	mension		(I/D / O/D)	mm (inch)	870 (34-9/32) / 824 (32-15/32)
			(I/D / O/D)	mm (inch)	214 (8-7/16) / 299 (11-25/32)
-	Weight		/D / O/D)	kg (lb)	9 (20) / 33 (73)
			quid / Gas)		6.35 (1/4) / 12.70 (1/2)
		ndard lei		m (ft)	7.5 (24.6)
Piping	Length ra			m (ft)	3 (9.8) ~ 15 (49.2)
ΙĠ			different	m (ft)	15 (49.2)
			Amount	g/m (oz/ft)	20 (0.2)
	Length fo	or Additi	onal Gas	m (ft)	7.5 (24.6)

Drain Hose	Inner Diameter	mm	1	6			
Diain nose	Length	mm	65	50			
	Fin Material		Aluminium	(Pre Coat)			
Indoor Heat	Fin Type		Slit Fin				
Exchanger	Row x Stage x FPI		2 x 15 x 21				
	Size (W x H x L)	mm	610 x 31	5 x 25.4			
	Fin Material		Aluminium (E	Blue Coated)			
Outdoor Heat	Fin Type		Corruga	ated Fin			
Exchanger	Row x Stage x FPI		2 x 28	3 x 17			
	Size (W x H x L)	mm	36.4 x 588 x	781.3:752.7			
Air Filter	Material		Polypropelene				
All Filler	Туре		One-touch				
Pov	ver Supply		Outdoor Po	wer Supply			
Power	Supply Cord	Α	N	lil			
Th	nermostat		Electronic Contol				
Prote	ction Device		Electronic Contol				
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operation	_	Minimum	16	11			
Range	Heating	Maximum	30	-			
	rieating	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operation	_	Minimum	5	4			
Range	Heating	Maximum	24	18			
	nealing	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement.

		4.1	Indoor			CS-E1	5NKR		
	Мо	del	Outdoor			CU-E1	5NKR		
	Perfor	mance Test Cor	ndition			A	S		
	D	0	Phase, Hz			Single	e, 50		
	Power	Supply	V		230			240	
				Min.	Mid.	Max.	Min.	Mid.	Max.
			kW	0.90	4.40	5.00	0.90	4.40	5.00
	Ca	pacity	BTU/h	3070	15000	17100	3070	15000	17100
			kcal/h	770	3780	4300	770	3780	4300
	Runnir	ng Current	Α	-	5.5	-	-	5.3	-
	Inpu	t Power	W	215	1.20k	1.60k	215	1.20k	1.60k
g			W/W	4.19	3.67	3.13	4.19	3.67	3.13
Cooling	E	EER	BTU/hW	14.28	12.50	10.69	14.28	12.50	10.69
ŏ			kcal/hW	3.58	3.15	2.69	3.58	3.15	2.69
	Powe	er Factor	%	-	95	-	-	94	-
	La da an Niata	- (11 / 1 / 01 -)	dB-A		45 / 30 / 23			45 / 30 / 23	
	Indoor Nois	se (H / L / QLo)	Power Level dB	61 / 46 / 39 61 / 46 /			61 / 46 / 39		
	0 ()		dB-A		46 / - / 41		46 / - / 41		
	Outdoor Noise (H / L / QLo)		Power Level dB	61 / - / 56 61 /				61 / - / 56	
			kW	0.90	5.50	5.60	0.90	5.50	5.60
	Ca	Capacity		3070	18800	19100	3070	18800	19100
			kcal/h	770	4730	4820	770	4730	4820
	Runnir	ng Current	Α	-	6.7	-	-	6.5	-
	Inpu	t Power	W	245	1.47k	1.53k	245	1.47k	1.53k
g			W/W	3.67	3.74	3.66	3.67	3.74	3.66
Heating	(COP	BTU/hW	12.53	12.79	12.48	12.53	12.79	12.48
Ĭ			kcal/hW	3.14	3.22	3.15	3.14	3.22	3.15
	Powe	er Factor	%	-	95	-	-	94	-
	Indoor Nois	se (H / L / QLo)	dB-A		43 / 31 / 27			43 / 31 / 27	
	IIIdooi IVoid	oc (II7 L7 QLO)	Power Level dB		59 / 47 / 43			59 / 47 / 43	
	Outdoor Noi	ise (H / L / QLo)	dB-A		46 / - / 41			46 / - / 41	
	Guidooi itol	(117 27 420)	Power Level dB		61 / - / 56			61 / - / 56	
		Capacity	kW			4.0)5		
	H2	Input Power	W			1.3	5k		
		COP	W/W			3.0	00		
		Capacity	kW			7.	10		
Po	werful Heat	Input Power	W			2.2			
		COP	W/W			3.′	16		
	Max Curren	it (A) / Max Input	Power (W)			10.2 /	2.32k		
	S	tarting Current (A	A)			6.	7		
		Туре				Hermetic Mo	otor (Rotary)		
Co	mpressor	Motor Type				Brushless			
		Output Power	W			90	0		

		Туре			Cross-FI	ow Fan	
		Material			ASG2	20K1	
	M	lotor Typ	е		Transistor	(8-poles)	
	In	put Pow	er	W	94.8 -	94.8	
	Ou	tput Pov	ver	W	40)	
		QLo	Cool	rpm	64	0	
Fan		QL0	Heat	rpm	79	0	
Indoor Fan		Lo	Cool	rpm	83	0	
luc			Heat	rpm	90	0	
	Speed	Me	Cool	rpm	109	90	
			Heat	rpm	113		
		Hi	Cool	rpm	138		
			Heat	rpm	137		
		SHi	Cool	rpm	1370		
			Heat	rpm	137		
		Туре			Propello		
Fan		Material			Pi		
00r		lotor Typ			Induction	(6-poles)	
Outdoor Fan		put Pow		W	-		
	Output Power Speed Hi			W	<u>40</u> 530 - 550		
				rpm			
	Moisture Removal		L/h (Pt/h) m³/min (ft³/min)	2.4 (
		QLo	Cool Heat	m ³ /min (ft ³ /min)	5.69 (7.49 (
			Cool	m ³ /min (ft ³ /min)	7.78 (
		Lo	Heat	m ³ /min (ft ³ /min)	8.72 (
	Indoor		Cool	m ³ /min (ft ³ /min)	10.64		
	Indoor Airflow	Me	Heat	m ³ /min (ft ³ /min)	11.30		
			Cool	m ³ /min (ft ³ /min)	13.5 (
		Hi		m ³ /min (ft ³ /min)	14.0 (
			Cool	m ³ /min (ft ³ /min)	13.96		
		SHi	Heat	m ³ /min (ft ³ /min)	14.00 (495)		
	Outdoor		Cool	m³/min (ft³/min)	40.3 (1425)	41.9 (1480)	
	Airflow	Hi	Heat	m³/min (ft³/min)	40.3 (1425)	41.9 (1480)	
		Contro	ol Device		Expansio	n Valve	
Ref	rigeration Cycle	Refrig	erant Oil	cm ³	FV50S	(450)	
	.,	Refrige	rant Type	g (oz)	R410A, 1.1	2k (39.5)	
		Height(I/D / O/D)	mm (inch)	290 (11-7/16) /	795 (31-5/16)	
Di	mension	Width (I/D / O/D)	mm (inch)	870 (34-9/32) /	875 (34-15/32)	
		Depth (I/D / O/D)	mm (inch)	214 (8-7/16) /	320 (12-5/8)	
	Weight	Net (I/	D / O/D)	kg (lb)	9 (20) / 5	51 (112)	
	Pipe Diam	eter (Lic	ιuid / Gas)	mm (inch)	6.35 (1/4) /	12.70 (1/2)	
		ndard lei		m (ft)	7.5 (2	24.6)	
Piping	Length ra			m (ft)	3 (9.8) ~ 1		
Ρį	I/D & O/[m (ft)	15 (4		
		nal Gas		g/m (oz/ft)	20 ((
Ш	Length fo	or Additi	onal Gas	m (ft)	7.5 (2	24.6)	

Drain Hose	Inner Diameter	mm	1	6			
Drain Hose	Length	mm	65	50			
	Fin Material		Aluminium	(Pre Coat)			
Indoor Heat	Fin Type		Slit Fin				
Exchanger	Row x Stage x FPI		2 x 15 x 21				
	Size (W x H x L)	mm	610 x 31	5 x 25.4			
	Fin Material		Aluminium (E	Blue Coated)			
Outdoor Heat	Fin Type		Corruga	ated Fin			
Exchanger	Row x Stage x FPI		2 x 36	5 x 19			
	Size (W x H x L)	mm	36.4 x 7	56 x 620			
Air Filter	Material		Polypropelene				
All Filler	Type		One-touch				
Pov	ver Supply		Outdoor Po	wer Supply			
Power	Supply Cord	Α	Nil				
Th	ermostat		Electronic Contol				
Prote	ction Device		Electroni	c Contol			
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operation		Minimum	16	11			
Range	Heating	Maximum	30	-			
	rieating	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operation	_	Minimum	5	4			
Range	Heating	Maximum	24	18			
	rieating	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, leaves and COD managed at 200 V in the street of 20°C and 15.0°C.

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement.

			Indoor			CS-E1	8NKR		
	Mc	odel	Outdoor			CU-E1	8NKR		
	Perfo	rmance Test Cor	ndition			А	S		
			Phase, Hz			Singl	e, 50		
	Power	Supply	V		230			240	
			'	Min.	Mid.	Max.	Min.	Mid.	Max.
			kW	0.90	5.00	6.00	0.90	5.00	6.00
	Ca	apacity	BTU/h	3070	17100	20500	3070	17100	20500
			kcal/h	770	4300	5160	770	4300	5160
	Runni	ng Current	А	-	6.1	-	-	5.9	-
	Inpu	ıt Power	W	230	1.30k	2.05k	230	1.30k	2.05k
6			W/W	3.91	3.85	2.93	3.91	3.85	2.93
Cooling		EER	BTU/hW	13.35	13.15	10.00	13.35	13.15	10.00
ပိ			kcal/hW	3.35	3.31	2.52	3.35	3.31	2.52
	Pow	er Factor	%	-	93	-	-	92	-
			dB-A		45 / 34 / 31			45 / 34 / 31	
	Indoor Nois	se (H / L / QLo)	Power Level dB		61 / 50 / 47			61 / 50 / 47	
			dB-A		47 / - / 42		47 / - / 42		
	Outdoor No	ise (H / L / QLo)	Power Level dB	61 / - / 56 61 / - /				61 / - / 56	
			kW	0.90	6.35	6.40	0.90	6.35	6.40
	Ca	apacity	BTU/h	3070	21700	21800	3070	21700	21800
			kcal/h	770	5460	5500	770	5460	5500
	Runni	ng Current	А	-	7.8	-	-	7.6	-
	Inpu	ıt Power	W	260	1.69k	1.71k	260	1.69k	1.71k
g			W/W	3.46	3.76	3.74	3.46	3.76	3.74
Heating		COP	BTU/hW	11.81	12.84	12.75	11.81	12.84	12.75
Ĭ			kcal/hW	2.96	3.23	3.22	2.96	3.23	3.22
	Pow	er Factor	%	-	94	-	-	93	=
	Indoor Nois	se (H / L / QLo)	dB-A		42 / 33 / 29			42 / 33 / 29	
	muoon nois	se (II/ L/ QLO)	Power Level dB		58 / 49 / 45		58 / 49 / 45		
	Outdoor No	ise (H / L / QLo)	dB-A		47 / - / 42			47 / - / 42	
	Outdoor 110		Power Level dB		61 / - / 56			61 / - / 56	
		Capacity	kW			4.	6		
	H2	Input Power	W			1.5	i1k		
		COP	W/W			3.0	05		
		Capacity	kW			8.0	00		
Po	werful Heat	Input Power	W			2.6	5k		
		COP	W/W			3.0	02		
	Max Currer	nt (A) / Max Input	t Power (W)			11.9 /	2.65k		
	S	tarting Current (A	A)			7.	8		
		Туре				Hermetic Mo	otor (Rotary)		
Co	mpressor	Motor Type				Brushless	(6 poles)		
		Output Power	W			90	00		

Martical More Mo			T			O			
Motor Type									
Parameter Pa									
No									
Mate		In	put Pow	er	W	94.8 -	94.8		
		Ou	tput Pov	wer	W	40)		
Mate			OLo	Cool	rpm	87	0		
	-an		3	Heat	rpm	85	0		
	oor		10	Cool	rpm	95	0		
Speed Me	lug		LO	Heat	rpm	97	0		
Heat rpm 1130 1280 1300 1280 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400 1400		Casad	Ma	Cool	rpm	111	0		
Note		Speed	ivie	Heat	rpm	113	30		
				Cool	rpm	128	30		
			HI	Heat	rpm	130	00		
Note				Cool	rpm	1400			
Potential Pot					rpm	142	20		
Potential Pot			Туре		-	Propelle	er Fan		
Motor Type Note Note	_					PF)		
Super	r Fai								
Super	tdoo				W	-	` '		
Sped Hi rpm 580 - 600	Out					40)		
Moisture Moistu				1		580 -	600		
$ \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		-			•				
Heat		Wiolota	TO TROTTIC	r					
Refrigeration February Feb			QLo						
Heat m³/min (tf³/min) 12.68 (448) Heat m³/min (tf³/min) 14.46 (511) Heat m³/min (tf³/min) 15.19 (536) Heat m³/min (tf³/min) 17.0 (600) Heat m³/min (tf³/min) 17.7 (625) Heat m³/min (tf³/min) 17.7 (625) Heat m³/min (tf³/min) 18.92 (668) Heat m³/min (tf³/min) 20.05 (708) Heat m³/min (tf³/min) 46.7 (1650) 48.4 (1710) Heat m³/min (tf³/min) 46.7 (1650) 48.4 (1710)									
Indoor Airflow Airf			Lo						
Heat m³/min (ft³/min) 15.19 (536) Heat m³/min (ft³/min) 17.0 (600) Heat m³/min (ft³/min) 17.7 (625) Heat m³/min (ft³/min) 18.92 (668) Heat m³/min (ft³/min) 20.05 (708) Heat m³/min (ft³/min) 46.7 (1650) 48.4 (1710) Heat m³/m									
			Me						
Heat							, ,		
SHi			Hi						
Note									
Outdoor Airflow Hi Cool Maynin (ft³/min) 46.7 (1650) 48.4 (1710) Refrigeration Cycle Expansion Valve Dimension Refrigerant Oil Cycle Control Device Expansion Valve Dimension Refrigerant Oil Cycle Control Device Expansion Valve Dimension Height(I/D / O/D) Price Refrigerant Oil Cycle Cm³ Refrigerant Oil Cycle Refrigerant Oil Cycle Refrigerant Oil Cycle Refrigerant Oil Cycle Cm³ Refrigerant Oil Cycle Refrigerant Oil Cycle Cm³ Refrigerant Oil Cycle Refrigerant Oil Cycle Cm³ Refrigerant Oil Cycle Cm³ Refrigerant Oil Cycle Refrigerant Oil Cycle Cm³ Refrigerant Oil Cycle Refrigerant Oil Cycle<			SHi						
Heat m³/min (ft³/min) 46.7 (1650) 48.4 (1710)									
Refrigeration Control Device Expansion Valve			Hi		` ′	` '			
Refrigeration Cycle Refrigerant Oil cm³ FV50S (450) Dimension Refrigerant Type g (oz) R410A, 1.31k (46.2) Weight Height(I/D / O/D) mm (inch) 290 (11-7/16) / 795 (31-5/16) Weight Width (I/D / O/D) mm (inch) 1070 (42-5/32) / 875 (34-15/32) Depth (I/D / O/D) kg (lb) 240 (9-15/32) / 320 (12-5/8) Weight Net (I/D / O/D) kg (lb) Standard length mm (inch) 6.35 (1/4) / 12.70 (1/2) Standard length m (ft) 5.0 (16.4) Length range (min - max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)			•		m'/min (it'/min)				
Type g (oz) R410A, 1.31k (46.2) Dimension Height(I/D / O/D) mm (inch) 290 (11-7/16) / 795 (31-5/16) Weight Weight Net (I/D / O/D) mm (inch) 240 (9-15/32) / 320 (12-5/8) Pipe Diameter (Liquid / Gas) mm (inch) 6.35 (1/4) / 12.70 (1/2) Standard length m (ft) 5.0 (16.4) Length range (min – max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)	Re	frigeration			3				
Height(I/D / O/D) mm (inch) 290 (11-7/16) / 795 (31-5/16) Width (I/D / O/D) mm (inch) 1070 (42-5/32) / 875 (34-15/32) Depth (I/D / O/D) mm (inch) 240 (9-15/32) / 320 (12-5/8) Weight Net (I/D / O/D) kg (Ib) 12 (26) / 52 (115) Pipe Diameter (Liquid / Gas) mm (inch) 6.35 (1/4) / 12.70 (1/2) Standard length m (ft) 5.0 (16.4) Length range (min − max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)		Cycle					<u> </u>		
Dimension Width (I/D / O/D) mm (inch) 1070 (42-5/32) / 875 (34-15/32) Depth (I/D / O/D) mm (inch) 240 (9-15/32) / 320 (12-5/8) Weight Net (I/D / O/D) kg (Ib) 12 (26) / 52 (115) Pipe Diameter (Liquid / Gas) mm (inch) 6.35 (1/4) / 12.70 (1/2) Standard length m (ft) 5.0 (16.4) Length range (min - max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)	_								
Depth (I/D / O/D) mm (inch) 240 (9-15/32) / 320 (12-5/8) Weight Net (I/D / O/D) kg (Ib) 12 (26) / 52 (115) Pipe Diameter (Liquid / Gas) mm (inch) 6.35 (1/4) / 12.70 (1/2) Standard length m (ft) 5.0 (16.4) Length range (min − max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)					` ′				
Weight Net (I/D / O/D) kg (Ib) 12 (26) / 52 (115) Pipe Diameter (Liquid / Gas) mm (inch) 6.35 (1/4) / 12.70 (1/2) Standard length m (ft) 5.0 (16.4) Length range (min – max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)	Di	mension			mm (inch)				
Pipe Diameter (Liquid / Gas) mm (inch) 6.35 (1/4) / 12.70 (1/2) Standard length m (ft) 5.0 (16.4) Length range (min – max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)				· · · · · ·	mm (inch)				
Standard length m (ft) 5.0 (16.4) Length range (min – max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)	_	_							
Length range (min – max) m (ft) 3 (9.8) ~ 20 (65.6) I/D & O/D Height different m (ft) 15 (49.2) Additional Gas Amount g/m (oz/ft) 20 (0.2)		Pipe Diam	eter (Lic	quid / Gas)	mm (inch)	6.35 (1/4) /	12.70 (1/2)		
Additional Gas Amount g/m (oz/ft) 20 (0.2)		Star	ndard lei	ngth	m (ft)	5.0 (1	6.4)		
Additional Gas Amount g/m (oz/ft) 20 (0.2)	ing	Length ra	ange (mi	in – max)	m (ft)	3 (9.8) ~ 2	20 (65.6)		
	Pip	I/D & O/I) Height	different	m (ft)	15 (4	9.2)		
Length for Additional Gas m (ft) 10 (32.8)		Addition	nal Gas	Amount	g/m (oz/ft)	20 (0	0.2)		
		Length fo	or Additi	onal Gas	m (ft)	10 (3	2.8)		

Drain Hose	Inner Diameter	mm	1	6			
Diain nose	Length	mm	65	50			
	Fin Material		Aluminium	(Pre Coat)			
Indoor Heat	Fin Type		Slit Fin				
Exchanger	Row x Stage x FPI		2 x 15 x 19				
	Size (W x H x L)	mm	810 x 31	5 x 25.4			
	Fin Material		Aluminium (E	Blue Coated)			
Outdoor Heat	Fin Type		Corruga	ated Fin			
Exchanger	Row x Stage x FPI		2 x 36	5 x 18			
	Size (W x H x L)	mm	36.4 x 756	x 839:810.6			
Air Filter	Material		Polypropelene				
All Filler	Type		One-touch				
Pov	wer Supply		Outdoor Po	wer Supply			
Power	Supply Cord	Α	N	lil			
Th	nermostat		Electronic Contol				
Prote	ction Device		Electronic Contol				
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operation	_	Minimum	16	11			
Range	Heating	Maximum	30	-			
	неаші	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operation	_	Minimum	5	4			
Range	Heating	Maximum	24	18			
	nealing	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement.

	Model		Indoor			CS-E2	1NKR			
	IVIC	odei	Outdoor			CU-E2	1NKR			
	Perfo	rmance Test Cor	ndition			А	S			
	Dower	Cumply	Phase, Hz			Singl	e, 50			
	Power	Supply	V		230			240		
				Min.	Mid.	Max.	Min.	Mid.	Max.	
			kW	1.70	6.30	7.10	1.70	6.30	7.10	
	Ca	apacity	BTU/h	5800	21500	24200	5800	21500	24200	
			kcal/h	1460	5420	6110	1460	5420	6110	
	Running Current		А	-	8.3	-	-	8.1	-	
	Inpu	ıt Power	W	440	1.80k	2.20k	440	1.80k	2.20k	
b			W/W	3.86	3.50	3.23	3.86	3.50	3.23	
Cooling	1	EER	BTU/hW	13.18	11.94	11.00	13.18	11.94	11.00	
ŏ			kcal/hW	3.32	3.01	2.78	3.32	3.01	2.78	
	Powe	er Factor	%	-	94	-	-	93	-	
		(11/11/01)	dB-A		45 / 36 / 33			45 / 36 / 33		
	Indoor Nois	se (H / L / QLo)	Power Level dB		61 / 52 / 49			61 / 52 / 49		
	0.11		dB-A		52 / - / 47			52 / - / 47		
	Outdoor Noise (H / L / QLo)		Power Level dB		66 / - / 61			66 / - / 61		
			kW	1.70	7.20	7.70	1.70	7.20	7.70	
	Capacity		BTU/h	5800	24600	26300	5800	24600	26300	
			kcal/h	1460	6190	6620	1460	6190	6620	
	Runnii	ng Current	А	-	8.9	-	-	8.6	-	
	Inpu	ıt Power	W	400	1.98k	2.17k	400	1.98k	2.17k	
g			W/W	4.25	3.64	3.55	4.25	3.64	3.55	
Heating	(COP	BTU/hW	14.50	12.42	12.12	14.50	12.42	12.12	
Ĭ			kcal/hW	3.65	3.13	3.05	3.65	3.13	3.05	
	Pow	er Factor	%	-	97	-	-	96	-	
	Indoor Nois	se (H / L / QLo)	dB-A		45 / 35 / 32			45 / 35 / 32		
	mador real	30 (117 E 7 QEO)	Power Level dB		61 / 51 / 48			61 / 51 / 48		
	Outdoor No	ise (H / L / QLo)	dB-A		52 / - / 47			52 / - / 47		
	0 414001 110		Power Level dB		66 / - / 61			66 / - / 61		
		Capacity	kW			5.	6			
	H2	Input Power	W			1.9	2k			
		COP	W/W			2.9	92			
		Capacity	kW			8.5	50			
Po	werful Heat	Input Power	W			2.5				
		COP	W/W			3.4				
		nt (A) / Max Input				12.2 /				
	S	tarting Current (A	\)			8.				
		Туре				Hermetic Mo				
Co	mpressor	Motor Type				Brushless				
		Output Power	W			1.7	'0k			

		Туре			Cross-Fl	ow Fan	
		Material			ASG	30K1	
	M	otor Typ	ре		Transistor	(8-poles)	
	In	put Pow	er	W	94.8 -	94.8	
	Ou	tput Pov	ver	W	40	0	
		QLo	Cool	rpm	86	50	
Fan		X	Heat	rpm	91	0	
Indoor Fan		Lo	Cool	rpm	96	50	
lnd			Heat	rpm	100	00	
	Speed	Me	Cool	rpm	119	50	
	·		Heat	rpm	11!		
		Hi	Cool	rpm	13:		
			Heat	rpm	139		
		SHi	Cool	rpm	1400		
			Heat	rpm			
		Туре			Propell		
Fan		Material			Pl		
oor		otor Typ			Induction	(6-poles)	
Outdoor Fan		put Pow		W	-	2	
	Output Power Speed Hi			W	80 690 - 720		
	-			rpm			
	Moisture Removal		L/h (Pt/h) m³/min (ft³/min)	3.5 (
		QLo	Cool Heat	m ³ /min (ft ³ /min)	10.07		
			Cool	m ³ /min (ft ³ /min)	11.46		
		Lo	Heat	m ³ /min (ft ³ /min)	11.29 (399)		
	Indoor		Cool	m ³ /min (ft ³ /min)	14.11		
	Indoor Airflow	Me	Me Heat m³/min (ft²				
			Cool	m ³ /min (ft ³ /min)	16.9 (, ,	
		l Hi L L		m ³ /min (ft ³ /min)	16.4 (
			Cool	m ³ /min (ft ³ /min)	17.60		
		SHi	Heat	m ³ /min (ft ³ /min)	17.71	(625)	
	Outdoor		Cool	m³/min (ft³/min)	54.5 (1925)	56.5 (1995)	
	Airflow	Hi	Heat	m³/min (ft³/min)	54.5 (1925)	56.5 (1995)	
		Contro	ol Device		Expansio	on Valve	
Ref	frigeration Cycle	Refrig	erant Oil	cm ³	FV50S	(800)	
	, ,	Refrige	rant Type	g (oz)	R410A, 1.6	60k (56.5)	
		Height(I/D / O/D)	mm (inch)	290 (11-7/16) /	795 (31-5/16)	
Di	mension	Width (I/D / O/D)	mm (inch)	1070 (42-5/32) /	875 (34-15/32)	
		Depth ((I/D / O/D)	mm (inch)	240 (9-15/32)	/ 320 (12-5/8)	
	Weight	Net (I/	/D / O/D)	kg (lb)	12 (26) /	59 (130)	
	Pipe Diam	eter (Lic	quid / Gas)	mm (inch)	6.35 (1/4) /	12.70 (1/2)	
		ndard lei		m (ft)	5.0 (1	(6.4)	
Piping	Length ra			m (ft)	3 (9.8) ~ 3	20 (65.6)	
PiĘ	I/D & O/[m (ft)	15 (4		
			Amount	g/m (oz/ft)	20 (·	
	Length fo	or Additi	onal Gas	m (ft)	10 (3	(2.8)	

Drain Hose	Inner Diameter	mm	1	6			
Drain Hose	Length	mm	69	50			
	Fin Material		Aluminium	(Pre Coat)			
Indoor Heat	Fin Type		Slit Fin				
Exchanger	Row x Stage x FPI		2 x 15 x 21				
	Size (W x H x L)	mm	810 x 31	5 x 25.4			
	Fin Material		Aluminium (F	Blue Coated)			
Outdoor Heat	Fin Type		Corruga	ated Fin			
Exchanger	Row x Stage x FPI		2 x 30	0 x 19			
	Size (W x H x L)	mm	38.1 x 762 x	895.8:865.8			
Air Filter	Material		Polypropelene				
All Filler	Type		One-touch				
Pov	ver Supply		Outdoor Po	ower Supply			
Power	Supply Cord	Α	Nil				
Th	ermostat		Electronic Contol				
Prote	ction Device		Electron	Contol			
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operation		Minimum	16	11			
Range	Heating	Maximum	30	-			
	rieating	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operation	_	Minimum	5	4			
Range	Heating	Maximum	24	18			
1 0 1	ricating	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and

outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement.

Model Indoor				CS-E24NKR					
	Мо	del	Outdoor	CU-E24NKR					
Performance Test Condition				AS					
			Phase, Hz			Singl	e, 50		
	Power	Supply	V		230	3	240		
				Min.	Mid.	Max.	Min.	Mid.	Max.
			kW	1.70	7.10	8.10	1.70	7.10	8.10
	Ca	pacity	BTU/h	5800	24200	27600	5800	24200	27600
			kcal/h	1460	6110	6970	1460	6110	6970
	Runnir	ng Current	Α	-	9.7	-	-	9.4	-
	Inpu	t Power	W	430	2.11k	2.48k	430	2.11k	2.48k
0			W/W	3.95	3.36	3.27	3.95	3.36	3.27
Cooling		EER	BTU/hW	13.49	11.47	11.13	13.49	11.47	11.13
ပိ			kcal/hW	3.40	2.90	2.81	3.40	2.90	2.81
	Powe	er Factor	%	-	95	-	-	94	-
			dB-A		47 / 37 / 34			47 / 37 / 34	
	Indoor Nois	se (H / L / QLo)	Power Level dB					63 / 53 / 50	
			dB-A				53 / - / 48		
	Outdoor Noi	ise (H / L / QLo)	Power Level dB		67 / - / 62			67 / - / 62	
	Capacity		kW	1.70	8.00	8.56	1.70	8.00	8.56
			BTU/h	5800	27300	29200	5800	27300	29200
			kcal/h	1460	6880	7360	1460	6880	7360
	Runnir	ng Current	Α	-	10.2	-	-	9.9	-
	Inpu	t Power	W	380	2.21k	2.37k	380	2.21k	2.37k
Б			W/W	4.47	3.62	3.61	4.47	3.62	3.61
Heating	(COP	BTU/hW	15.26	12.35	12.32	15.26	12.35	12.32
Ĭ			kcal/hW	3.84	3.11	3.11	3.84	3.11	3.11
	Powe	er Factor	%	-	94	-	-	93	-
	Indoor Nois	se (H / L / QLo)	dB-A		47 / 37 / 34 47 /		47 / 37 / 34	/ 37 / 34	
	ITIQUOT INOIS	e (n / L / QLo)	Power Level dB	63 / 53 / 50		63 / 53 / 50			
	Outdoor No	se (H / I / OLo)	dB-A		53 / - / 48			53 / - / 48	
	Outdoor No	Outdoor Noise (H / L / QLo)			67 / - / 62			67 / - / 62	
		Capacity	kW			6.	2		
	H2	Input Power	kW	2.10					
		COP	W/W			2.9	95		
		Capacity	kW			9.9	90		
Po	werful Heat	Input Power	kW			3.0	00		
	COP		W/W	3.30					
	Max Current (A) / Max Input Power (W)			14.6 / 3.20k					
	Starting Current (A)			10.2					
		Type				Hermetic Mo	otor (Rotary)		
Co	mpressor	Motor Type				Brushless	(4 poles)		
		Output Power	W			1.7	'0k		

	Туре				Cross-Flow Fan	
	Material				ASG30K1	
	М	otor Typ	ре		Transistor (8-poles)	
	Input Power			W	94.8 - 94.8	
	Output Power			W	40	
		QLo	Cool	rpm	890	
-an		QLO	Heat	rpm	960	
Indoor Fan	Speed	Lo	Cool	rpm	990	
Inde		Lo	Heat	rpm	1060	
		Me	Cool	rpm	1230	
	Speed	ivie	Heat	rpm	1250	
	ì	Hi	Cool	rpm	1470	
		'"	Heat	rpm	1440	
		SHi	Cool	rpm	1530	
		5111	Heat	rpm	1540	
		Type			Propeller Fan	
		Material	I		PP	
Fan	М	otor Typ	ре		DC Motor (8-poles)	
Outdoor Fan	In	put Pow	er er	W	-	
Out	Ou	tput Pov	wer	W	60	
	Speed	Hi	Cool	rpm	700	
	Ороса	• • •	Heat	rpm	700	
	Moistu	ture Removal		L/h (Pt/h)	4.1 (8.7)	
		QLo	Cool	m ³ /min (ft ³ /min)	11.07 (391)	
		Q 20	Heat	m³/min (ft³/min)	12.42 (439)	
		Lo	Cool	m³/min (ft³/min)	12.54 (443)	
			Heat	m³/min (ft³/min)	13.98 (494)	
	Indoor	Me	Cool	m³/min (ft³/min)	16.07 (567)	
,	Airflow		Heat	m³/min (ft³/min)	16.94 (598)	
		Hi	Cool	m³/min (ft³/min)	19.6 (690)	
	•		Heat	m³/min (ft³/min)	20.3 (715)	
		SHi	Cool	m ³ /min (ft ³ /min)	20.40 (720)	
			Heat	m³/min (ft³/min)	20.82 (735)	
	Outdoor Airflow	Hi	Cool	m³/min (ft³/min)	56.5 (1995)	
Ľ	Allilow		Heat	m³/min (ft³/min)	56.5 (1995)	
Ref	rigeration		ol Device	2	Check Valve & Capillary Tube	
1 (0)	Cycle		erant Oil	cm ³	FV50S (800)	
			erant Type	g (oz)	R410A, 1.70k (60.0)	
	_	Height(I/D / O/D)		mm (inch)	290 (11-7/16) / 795 (31-5/16)	
Di	mension	Width (I/D / O/D)		mm (inch)	1070 (42-5/32) / 875 (34-15/32)	
			(I/D / O/D)	mm (inch)	240 (9-15/32) / 320 (12-5/8)	
-	Weight Net (I/D / O/D)		kg (lb)	12 (26) / 60 (132)		
	Pipe Diameter (Liquid / Gas)			6.35 (1/4) / 15.88 (5/8)		
	Standard length		m (ft)	5.0 (16.4)		
Piping	Length ra			m (ft)	3 (9.8) ~ 30 (98.4)	
Ē			m (ft)	20 (65.6)		
	Additional Gas Amount g/m (oz/ft)				30 (0.3)	
	Length for Additional Gas			m (ft)	10 (32.8)	

Drain Hose	Inner Diameter	mm	1	6			
Drain Hose	Length	mm	65	50			
	Fin Material		Aluminium (Pre Coat)				
Indoor Heat	Fin Type		Slit Fin				
Exchanger	Row x Stage x FPI		2 x 15 x 21				
	Size (W x H x L)	mm	25.4 x 315 x 810				
	Fin Material		Aluminium (Blue Coated)				
Outdoor Heat	Fin Type		Corrugated Fin				
Exchanger	Row x Stage x FPI		2 x 30 x 19				
	Size (W x H x L)	mm	38.1 x 762 x 895.8:865.8				
Air Filter	Material		Polypropelene				
All Filler	Туре		One-touch				
Pov	wer Supply		Outdoor Power Supply				
Power	Supply Cord	Α	Nil				
Th	nermostat		Electronic Contol				
Prote	ction Device		Electronic Contol				
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operation		Minimum	16	11			
Range	Heating	Maximum	30	-			
	пеаші	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operation	_	Minimum	5	4			
Range	Heating	Maximum	24	18			
	пеаціід	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C

Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C

Specifications are subjected to change without prior notice for further improvement.

Model			Indoor	CS-E28NKR						
	Model Outo			CS-E28NKR						
	Perfor	mance Test Cor	ndition	AS						
	D	0	Phase, Hz	Single, 50						
	Power	Supply	V		230			240		
				Min.	Mid.	Max.	Min.	Mid.	Max.	
			kW	2.30	8.00	8.60	2.30	8.00	8.60	
	Ca	pacity	BTU/h	7840	27300	29300	7840	27300	29300	
			kcal/h	1980	6880	7400	1980	6880	7400	
	Runnir	ng Current	Α	-	11.2	-	-	10.9	-	
	Inpu	t Power	W	460	2.39k	2.70k	460	2.39k	2.70k	
o O			W/W	5.00	3.35	3.19	5.00	3.35	3.19	
Cooling	E	EER	BTU/hW	17.04	11.42	10.85	17.04	11.42	10.85	
ŏ			kcal/hW	4.30	2.88	2.74	4.30	2.88	2.74	
	Powe	er Factor	%	-	93	-	-	91	=	
		(11/11/01)	dB-A	49 / 38 / 35			49 / 38 / 35			
	Indoor Nois	se (H / L / QLo)	Power Level dB		65 / 54 / 51			65 / 54 / 51		
			dB-A	53 / - / 48		53 / - / 48				
	Outdoor Noi	ise (H / L / QLo)	Power Level dB		71 / - / 66			71 / - / 66		
			kW	2.20	9.00	10.21	2.20	9.00	10.21	
	Capacity		BTU/h	7500	30700	34800	7500	30700	34800	
			kcal/h	1890	7740	8780	1890	7740	8780	
	Runnir	ng Current	Α	-	12.2	-	-	11.9	-	
	Inpu	t Power	W	500	2.63k	2.99k	500	2.63k	2.99k	
g			W/W	4.40	3.42	3.41	4.40	3.42	3.41	
Heating	(COP	BTU/hW	15.00	11.67	11.64	15.00	11.67	11.64	
Ĭ			kcal/hW	3.78	2.94	2.94	3.78	2.94	2.94	
	Powe	er Factor	%	-	94	-	1	92	-	
	Indoor Nois	se (H / L / QLo)	dB-A	48 / 38 / 35		48 / 38 / 35				
	mador Nois	oc (II7 L7 QLO)	Power Level dB	64 / 54 / 51			64 / 54 / 51			
	Outdoor Noi	ise (H / L / OLo)	dB-A		53 / - / 48			53 / - / 48		
	Guidooi ivoi	Outdoor Noise (H / L / QLo)			71 / - / 66			71 / - / 66		
		Capacity	kW			7.	4			
	H2	Input Power	kW			2.6	65			
		COP	W/W			2.7	.79			
		Capacity	kW	kW		11.	1.00			
Po	werful Heat	Input Power	kW			3.0				
		COP	W/W	3.33						
	Max Current (A) / Max Input Power			15.9 / 3.79k						
	S	tarting Current (A	A)	12.2						
		Туре		Hermetic Motor (Rotary)						
Co	mpressor	Motor Type				Brushless				
		Output Power	W			1.7	'0k			

	Туре				Cross-Flow Fan	
	Material				ASG30K1	
	M	otor Typ	е		Transistor (8-poles)	
	Input Power			W	94.8 - 94.8	
	Output Power			W	40	
		QLo	Cool	rpm	970	
-an		QLO	Heat	rpm	1000	
Indoor Fan		Lo	Cool	rpm	1070	
Inde		LO	Heat	rpm	1100	
	Speed	Me	Cool	rpm	1300	
	Speed	IVIE	Heat	rpm	1330	
		Hi	Cool	rpm	1530	
		- "	Heat	rpm	1560	
		SHi	Cool	rpm	1570	
		Orn	Heat	rpm	1570	
		Type			Propeller Fan	
_		Material			PP	
Fan	M	otor Typ	ре		DC Motor (8-poles)	
Outdoor Fan	In	put Pow	er	W	-	
Out	Ou	tput Pov	ver	W	44 x 2	
	Speed	Hi	Cool	rpm	610 - 650	
	-p		Heat	rpm	690 - 730	
	Moistu	re Removal		L/h (Pt/h)	4.7 (9.9)	
		QLo	Cool	m ³ /min (ft ³ /min)	12.20 (431)	
			Heat	m ³ /min (ft ³ /min)	12.67 (447)	
		Lo	Cool	m ³ /min (ft ³ /min)	13.66 (482)	
			Heat	m ³ /min (ft ³ /min)	14.14 (499)	
	Indoor	Me	Cool	m³/min (ft³/min)	17.03 (601)	
l '	Airflow		Heat	m³/min (ft³/min)	18.01 (636)	
		Hi	Cool	m³/min (ft³/min)	20.4 (720)	
			Heat	m³/min (ft³/min)	20.9 (740)	
		SHi	Cool	m³/min (ft³/min)	20.99 (741)	
-			Heat	m³/min (ft³/min)	21.55 (761)	
	Outdoor Airflow	Hi	Cool	m³/min (ft³/min)	75.0 (2650)	
_	Allilow	_	Heat	m ³ /min (ft ³ /min)	75.0 (2650)	
Ref	rigeration	Control Device		3	Check Valve & Capillary Tube	
	Cycle		erant Oil	cm ³	FV50S (800)	
			rant Type	g (oz)	R410A, 2.15k (75.9)	
			I/D / O/D)	mm (inch)	290 (11-7/16) / 1170 (46-3/32)	
Di	mension		I/D / O/D)	mm (inch)	1070 (42-5/32) / 900 (35-7/16)	
<u>.</u>			(I/D / O/D)	mm (inch)	240 (9-15/32) / 320 (12-5/8)	
—	Weight Net (I/D / O/D)		kg (lb)	12 (26) / 74 (163)		
	Pipe Diameter (Liquid / Gas)		mm (inch)	6.35 (1/4) / 15.88 (5/8)		
	Standard length		m (ft)	5.0 (16.4)		
Piping	Length ra			m (ft)	3 (9.8) ~ 30 (98.4)	
ď	I/D & O/D Height different			m (ft)	20 (65.6)	
				g/m (oz/ft)	30 (0.3)	
Ш	Length for Additional Gas			m (ft)	10 (32.8)	

Drain Hose	Inner Diameter	mm	16				
Drain Hose	Length	mm	650				
	Fin Material		Aluminium (Pre Coat)				
Indoor Heat	Fin Type		Slit Fin				
Exchanger	Row x Stage x FPI		2 x 15	5 x 21			
	Size (W x H x L)	mm	25.4 x 315 x 810				
	Fin Material		Aluminium (Blue Coated)				
Outdoor Heat	Fin Type		Corrugated Fin				
Exchanger	Row x Stage x FPI		2 x 44 x 19				
	Size (W x H x L)	mm	38.1 x 1117.6 x 863.8:833.8				
Air Filter	Material		Polypropelene				
All Filler	Туре		One-touch				
Pov	ver Supply		Outdoor Power Supply				
Power	Supply Cord	Α	Nil				
Th	ermostat		Electronic Contol				
Prote	ction Device		Electronic Contol				
			DRY BULB	WET BULB			
	Cooling	Maximum	32	23			
Indoor Operation	•	Minimum	16	11			
Range	Heating	Maximum	30	-			
	пеанну	Minimum	16	-			
	Cooling	Maximum	46	26			
Outdoor Operation		Minimum	16	11			
Range	Heating	Maximum	24	18			
1 0 1	ricating	Minimum	-15	-16			

Cooling capacities are based on indoor temperature of 27°C DRY BULB (80.6°F DRY BULB), 19.0°C WET BULB (66°F WET BULB) and

outdoor air temperature of 35°C DRY BULB (95°F DRY BULB), 24°C WET BULB (75.2°F WET BULB)

Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)

Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C Specifications are subjected to change without prior notice for further improvement.

3. Features

Inverter Technology

- Wider output power range
- Energy saving
- o Quick Cooling
- Quick Heating
- o More precise temperature control

E-ion Air Purifying System with Patrol Sensor

Active e-ions are released to catch dust particles and bring them back the large positively charged filter

• Environment Protection

o Non-ozone depletion substances refrigerant (R410A)

Long Installation Piping

 Long piping up to 15 meters (0.75 ~ 1.75HP), 20 meters (2.0 ~ 2.25HP) and 30 meters (2.5 ~ 3.0HP) during single split connection only

Easy to use remote control

Quality Improvement

- o Random auto restart after power failure for safety restart operation
- Gas leakage protection
- Prevent compressor reverse cycle
- Inner protector to protect compressor
- Noise prevention during soft dry operation

• Operation Improvement

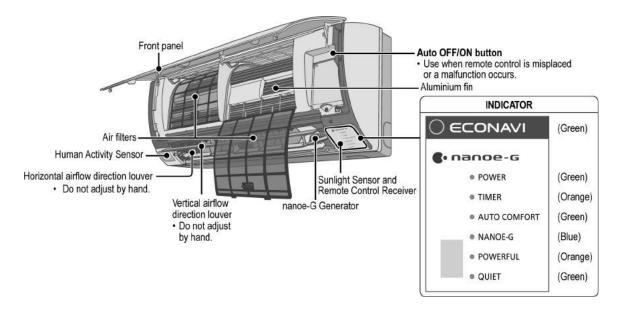
- o Quiet mode to reduce the indoor unit operating sound
- o Powerful mode to reach the desired room temperature quickly
- o 24-hour timer setting

Serviceability Improvement

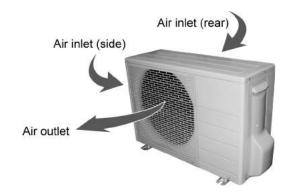
o Breakdown Self Diagnosis function

4. Location of Controls and Components

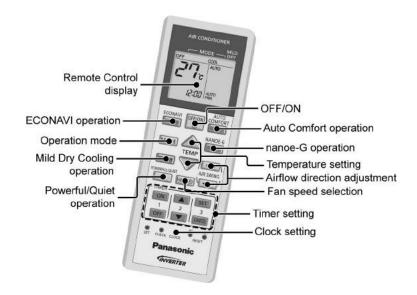
4.1 Indoor Unit



4.2 Outdoor Unit



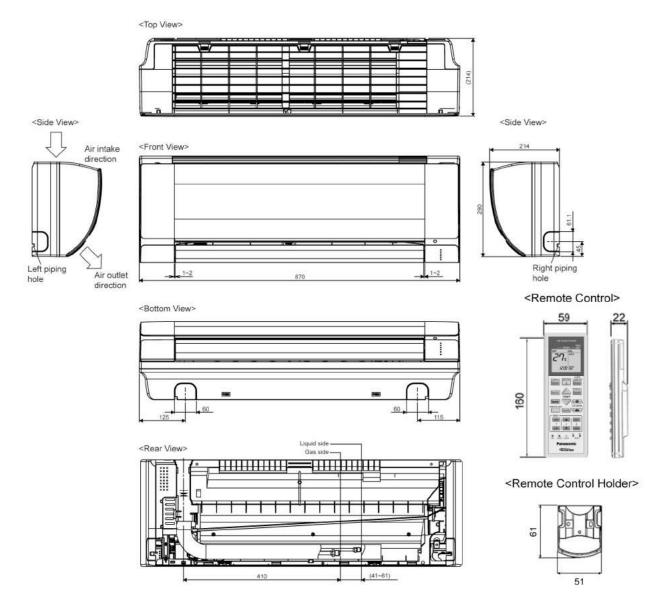
4.3 Remote Control



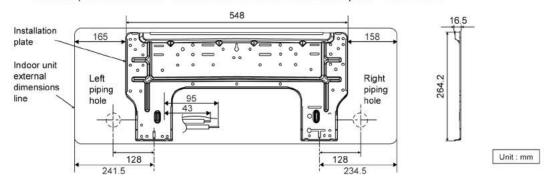
5. Dimensions

5.1 Indoor Unit

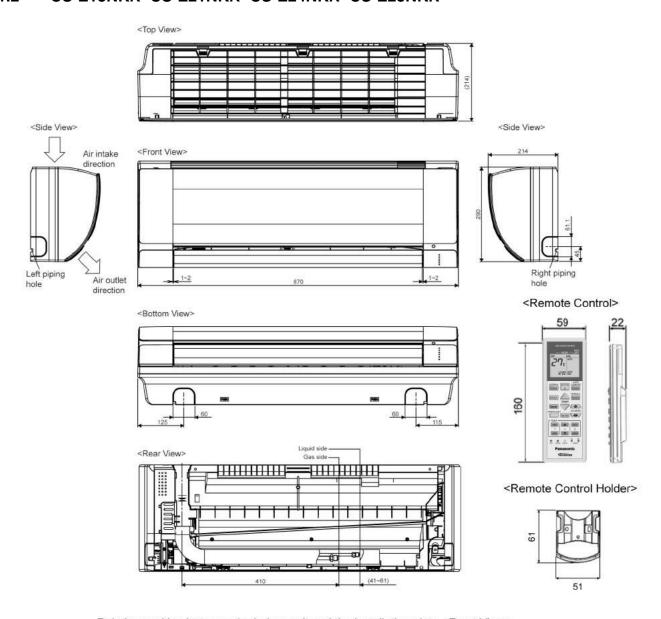
5.1.1 CS-E7NKR CS-E9NKR CS-E12NKR CS-E15NKR



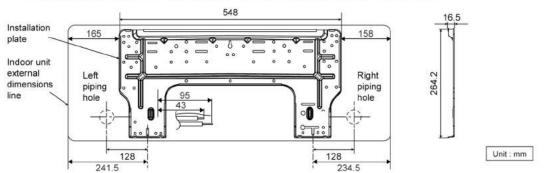
Relative position between the indoor unit and the installation plate <Front View>



5.1.2 CS-E18NKR CS-E21NKR CS-E24NKR CS-E28NKR

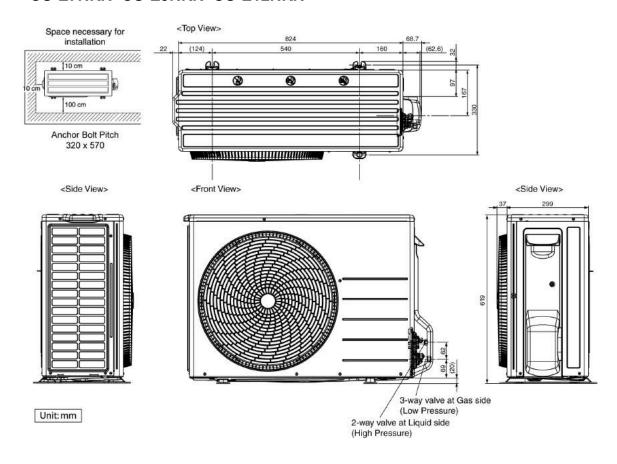


Relative position between the indoor unit and the installation plate <Front View>

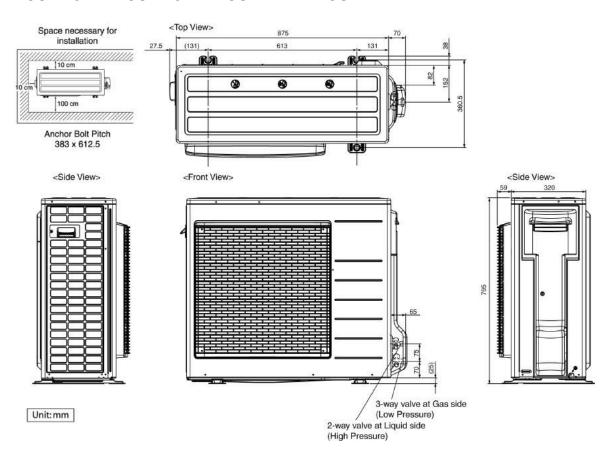


5.2 Outdoor Unit

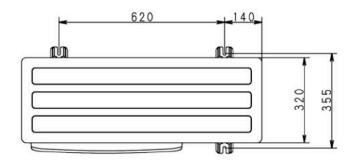
5.2.1 CU-E7NKR CU-E9NKR CU-E12NKR

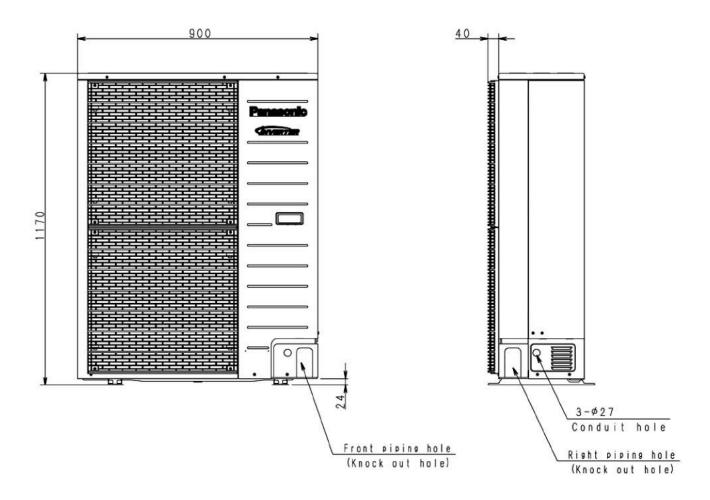


5.2.2 CU-E15NKR CU-E18NKR CU-E21NKR CU-E24NKR



5.2.3 **CU-E28NKR**

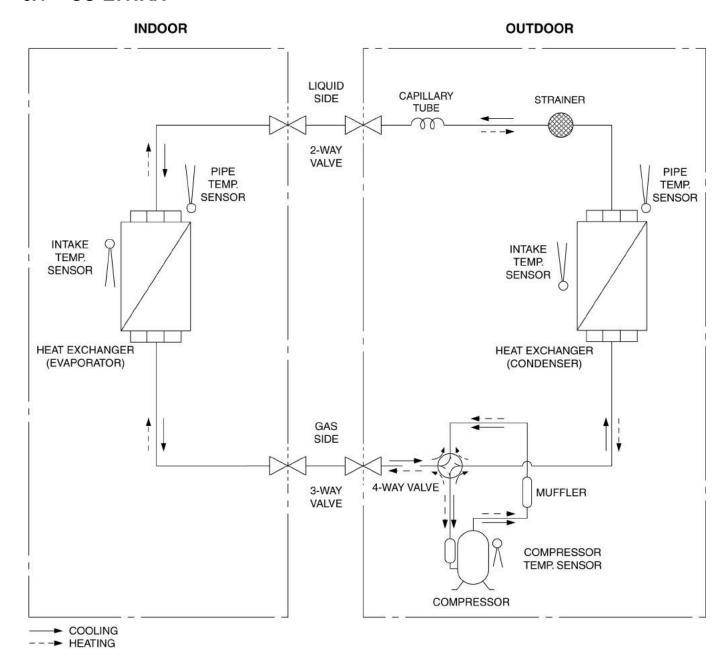




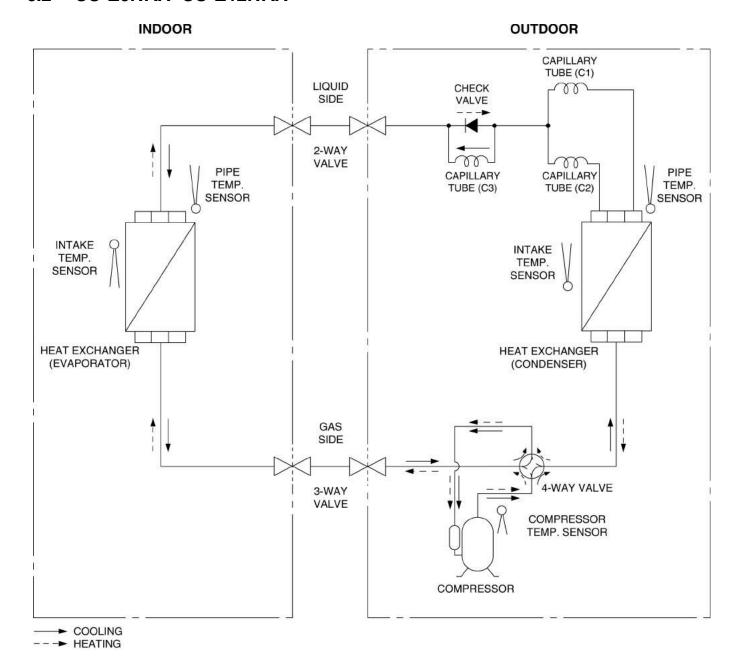
Unit:mm

6. Refrigeration Cycle Diagram

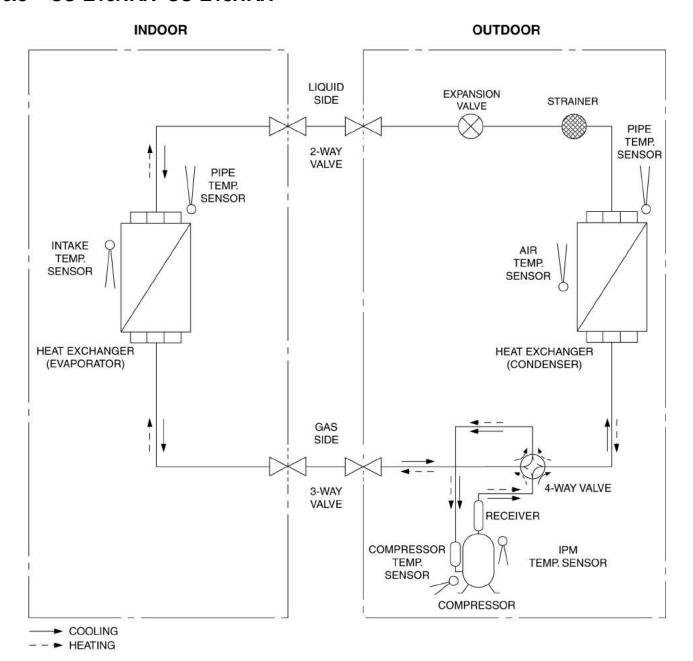
6.1 CU-E7NKR



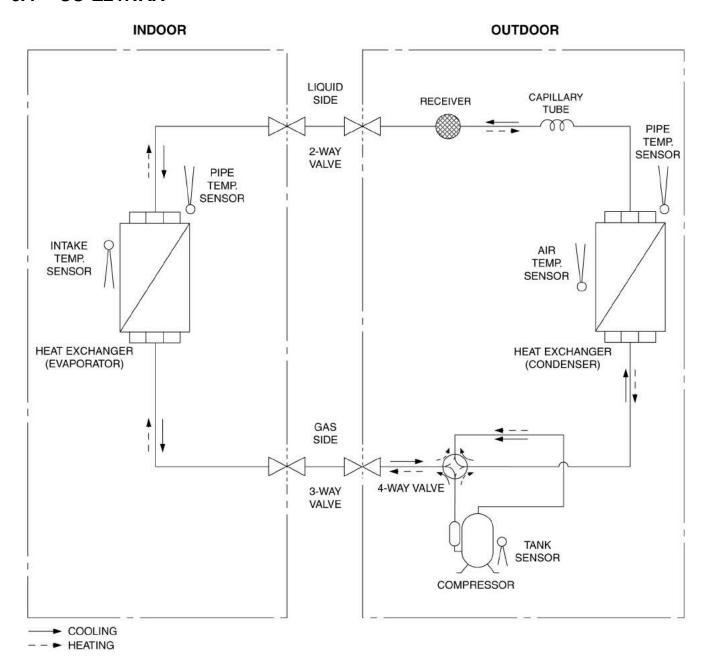
6.2 CU-E9NKR CU-E12NKR



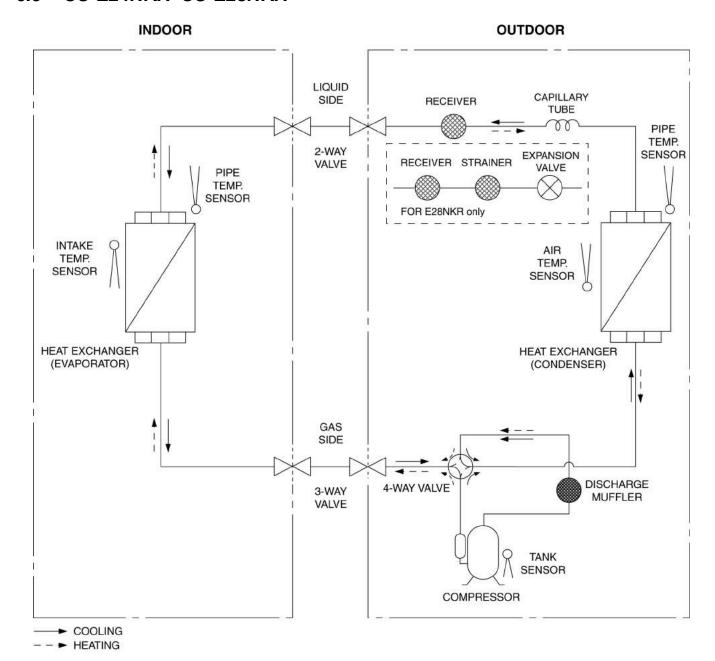
6.3 CU-E15NKR CU-E18NKR



6.4 CU-E21NKR

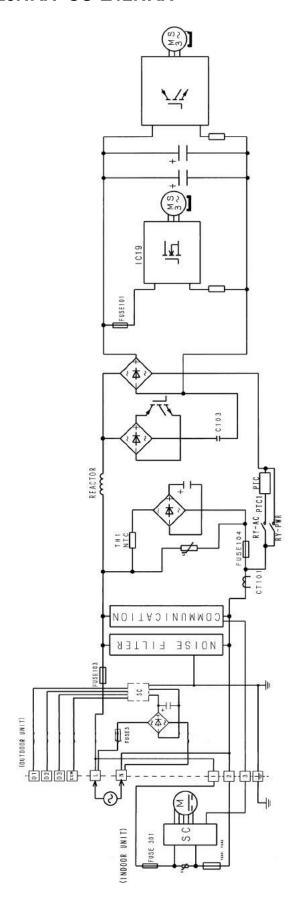


6.5 CU-E24NKR CU-E28NKR

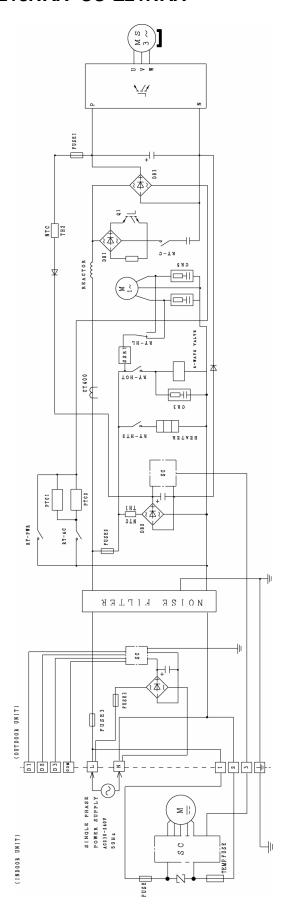


7. Block Diagram

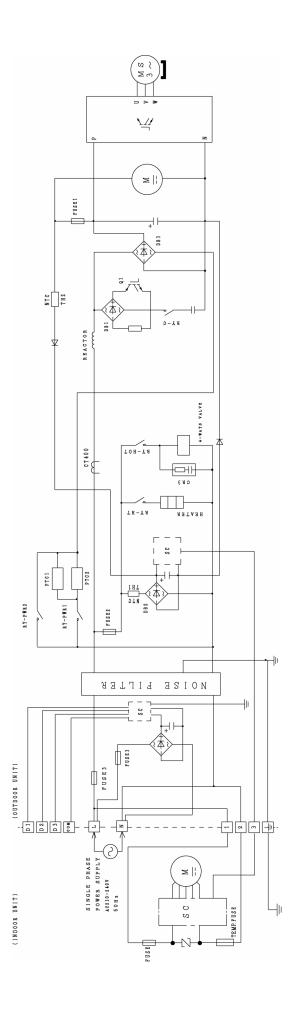
7.1 CU-E7NKR CU-E9NKR CU-E12NKR



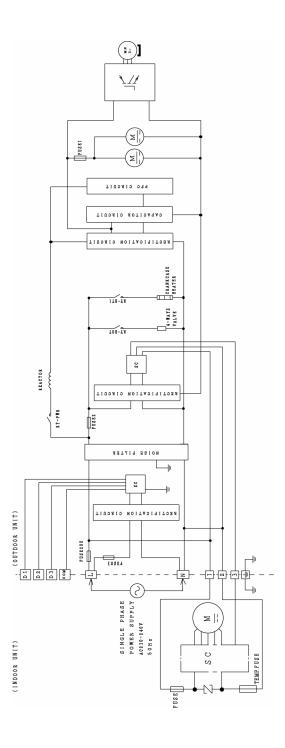
7.2 CU-E15NKR CU-E18NKR CU-E21NKR



7.3 CU-E24NKR

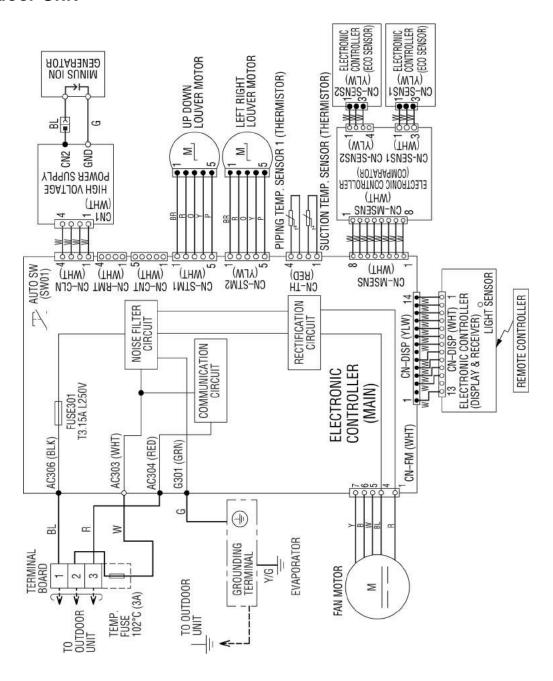


7.4 CU-E28NKR



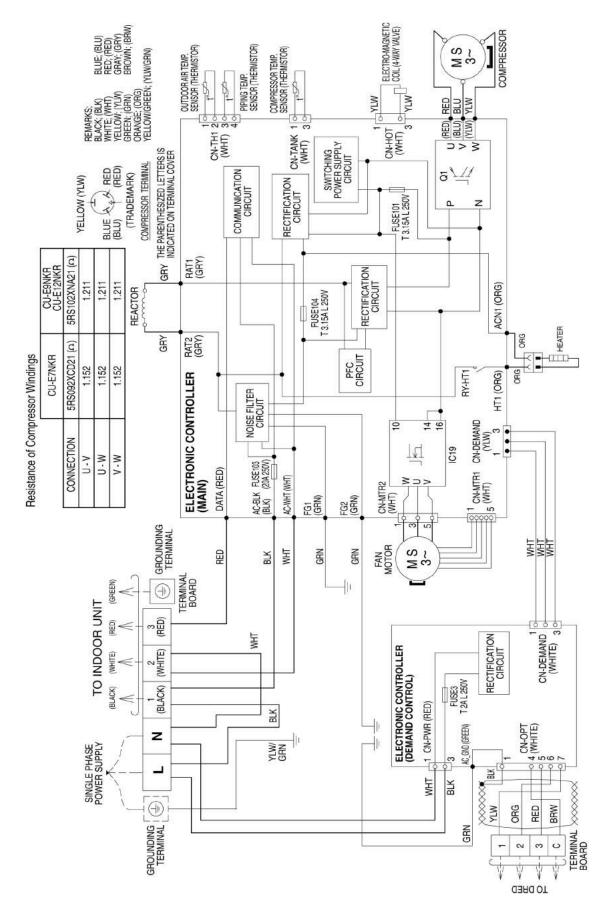
8. Wiring Connection Diagram

8.1 Indoor Unit

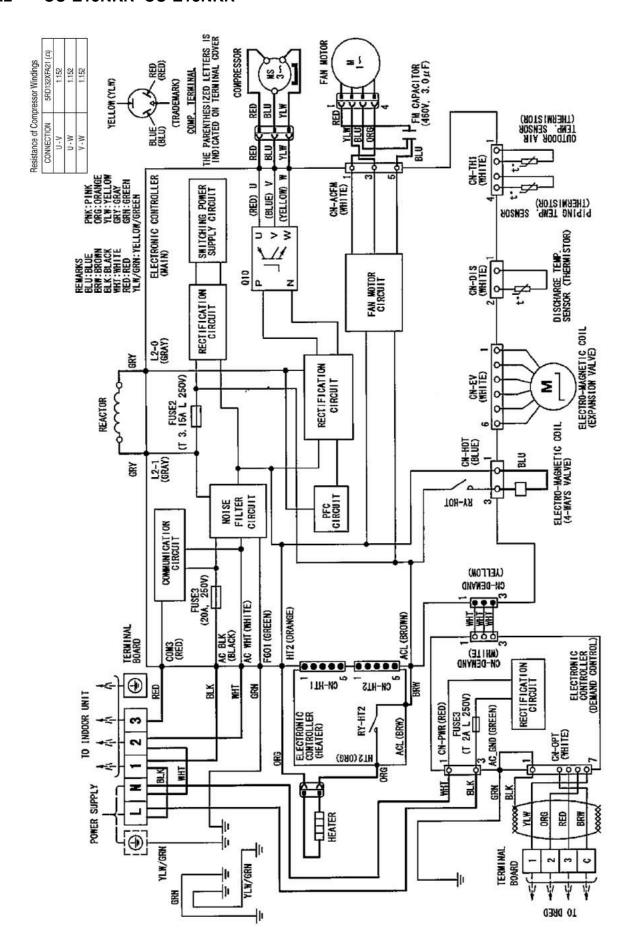


8.2 Outdoor Unit

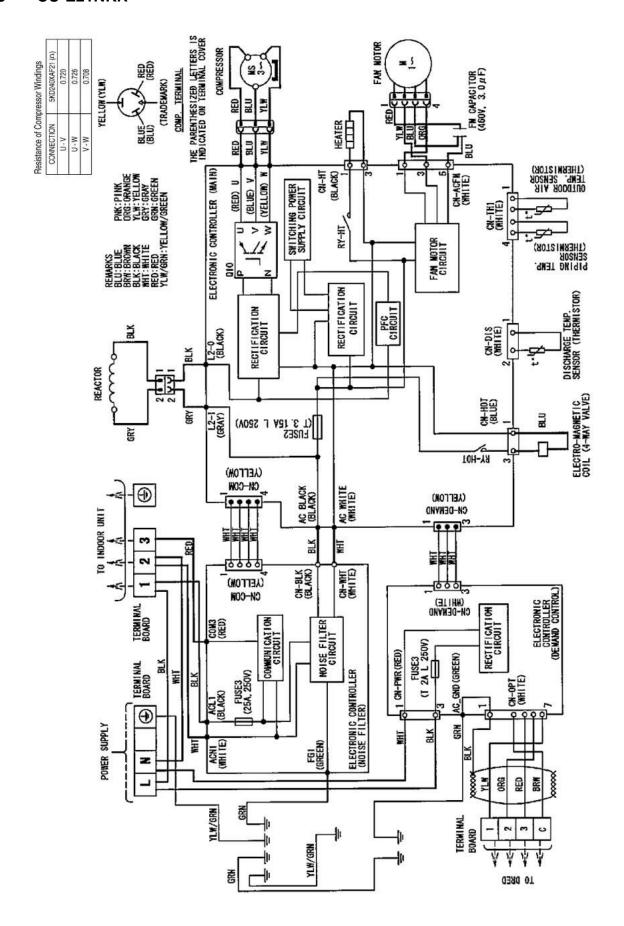
8.2.1 CU-E7NKR CU-E9NKR CU-E12NKR



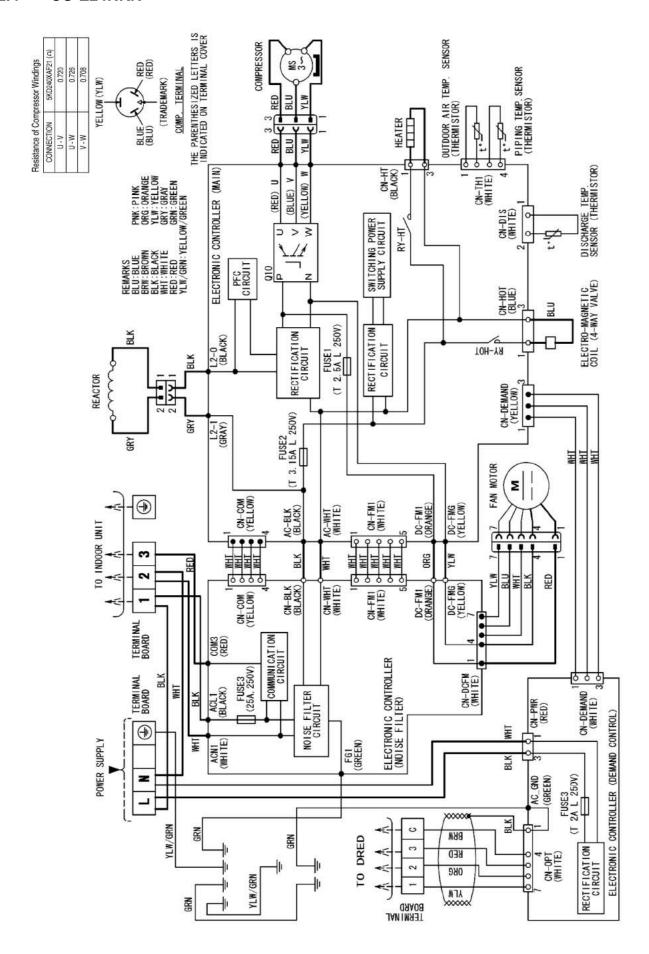
8.2.2 CU-E15NKR CU-E18NKR



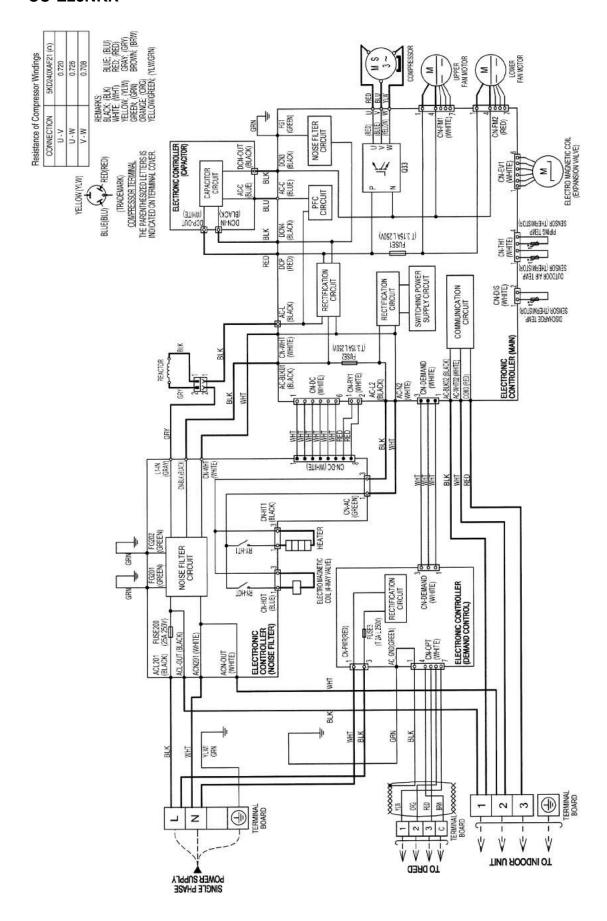
8.2.3 CU-E21NKR



8.2.4 CU-E24NKR

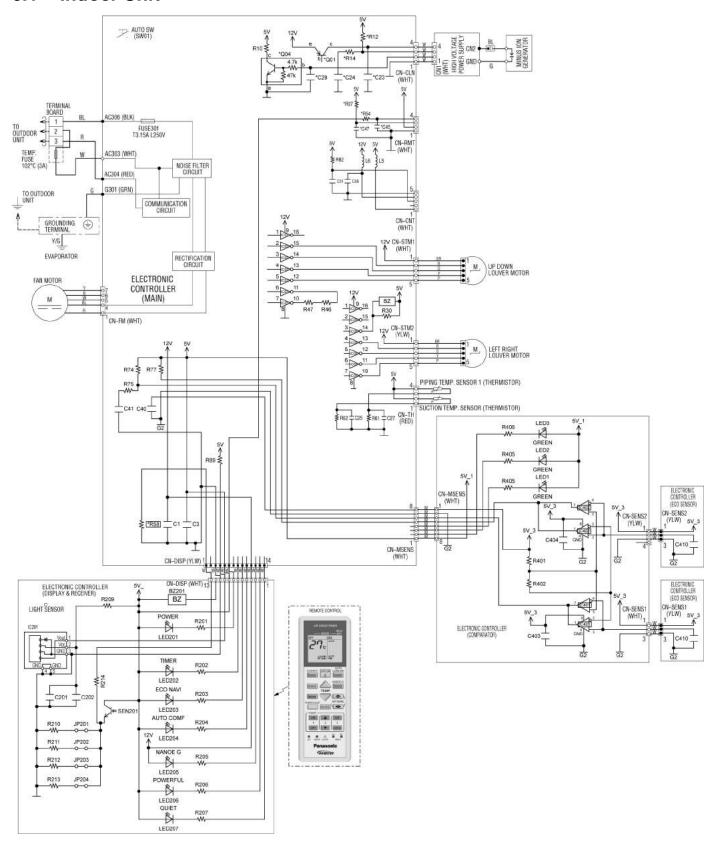


8.2.5 CU-E28NKR



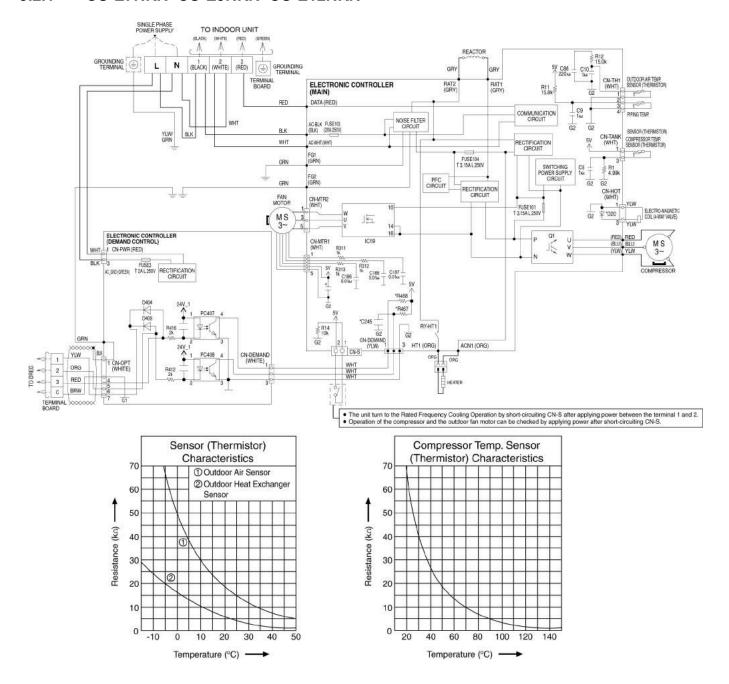
9. Electronic Circuit Diagram

9.1 Indoor Unit

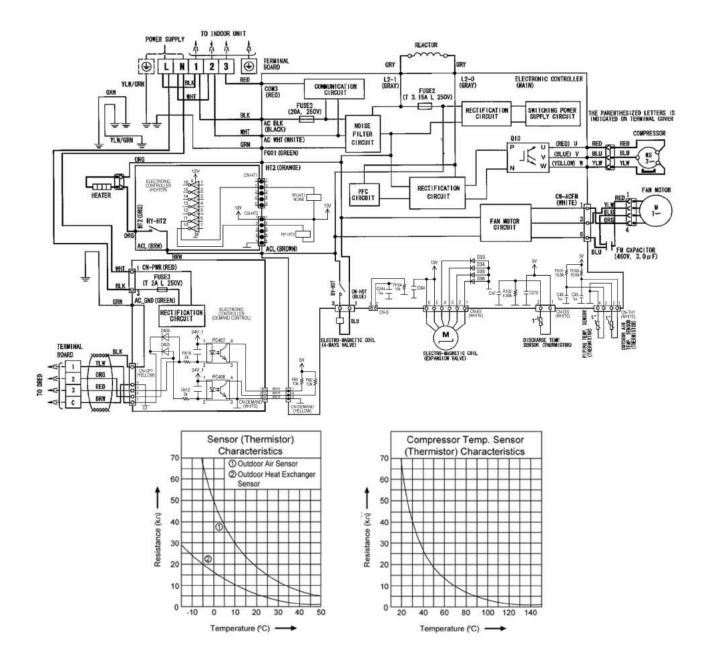


9.2 Outdoor Unit

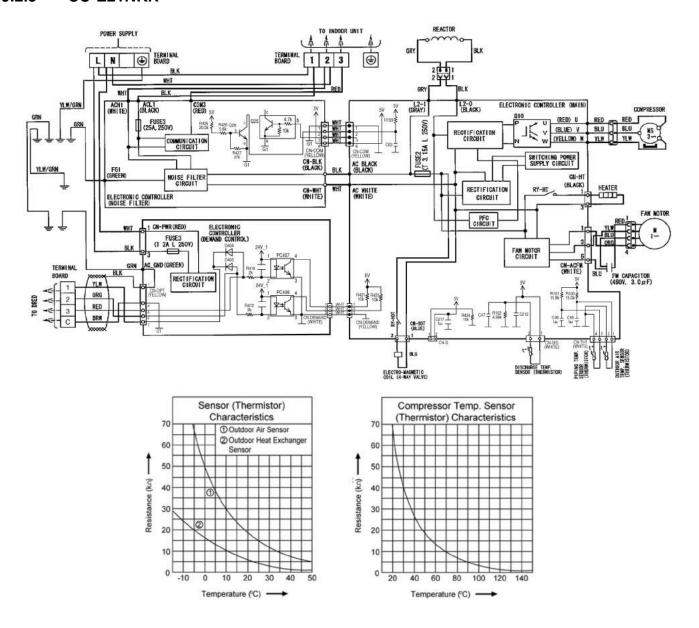
9.2.1 CU-E7NKR CU-E9NKR CU-E12NKR



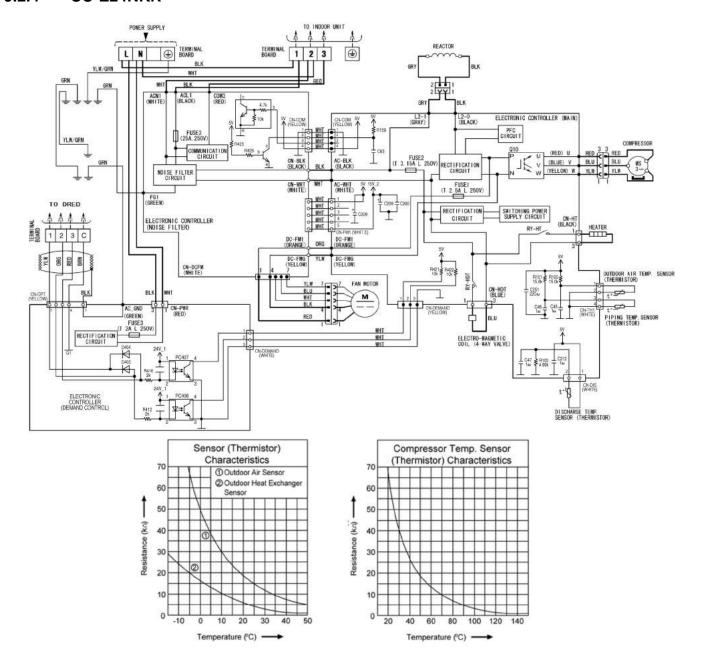
9.2.2 CU-E15NKR CU-E18NKR



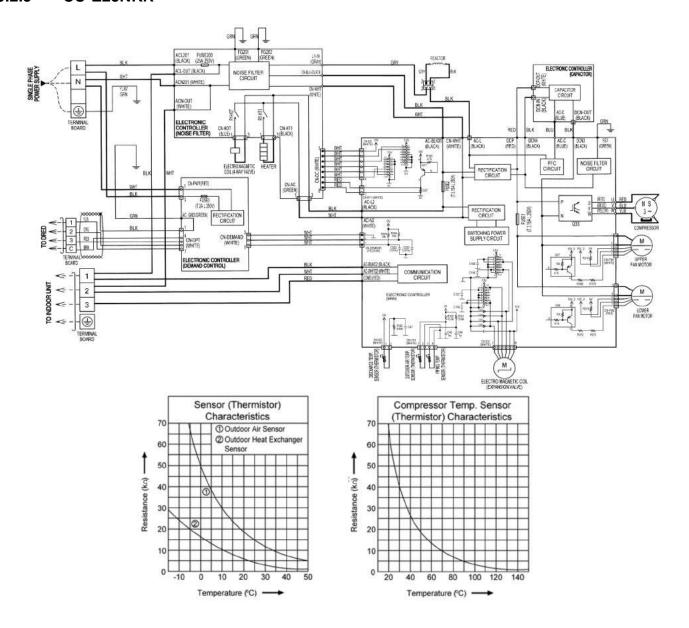
9.2.3 CU-E21NKR



9.2.4 CU-E24NKR



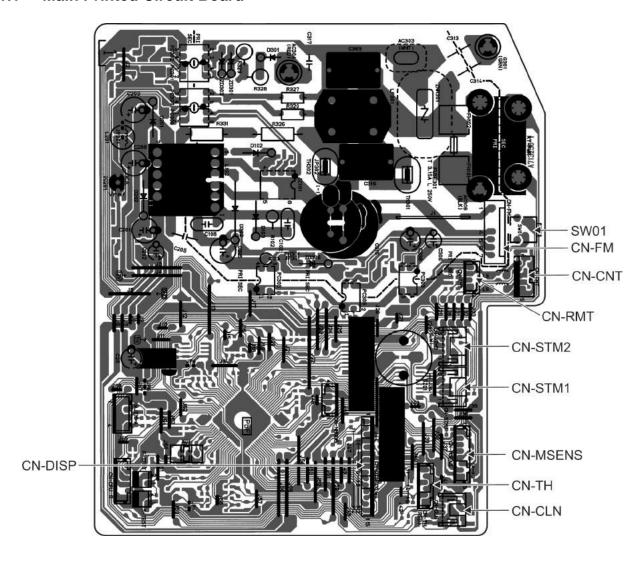
9.2.5 **CU-E28NKR**



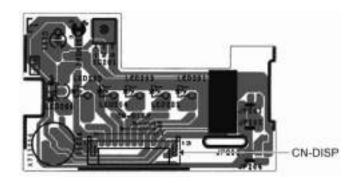
10. Printed Circuit Board

10.1 Indoor Unit

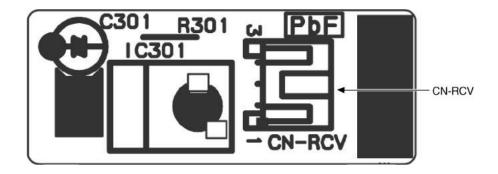
10.1.1 Main Printed Circuit Board



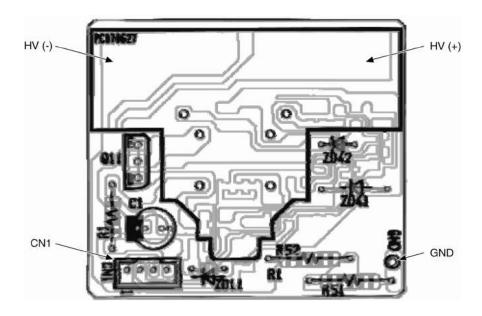
10.1.2 Indicator Printed Circuit Board



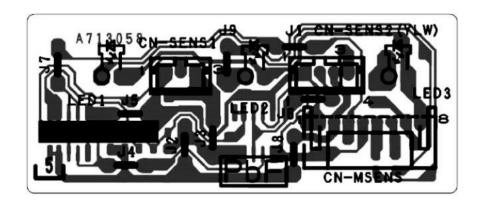
10.1.3 Receiver Printed Circuit Board



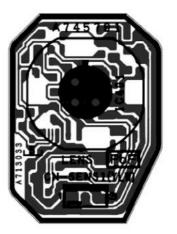
10.1.4 High Voltage Power Supply Printed Circuit Board

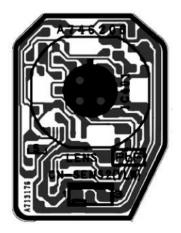


10.1.5 Comparator Printed Circuit Board



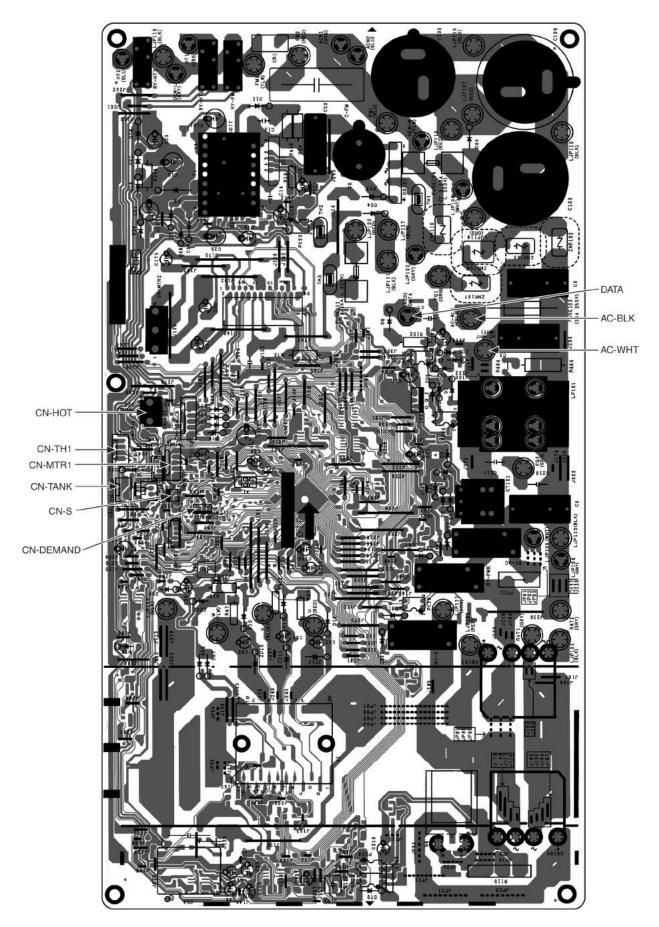
10.1.6 Human Activity Sensor Printed Circuit Board



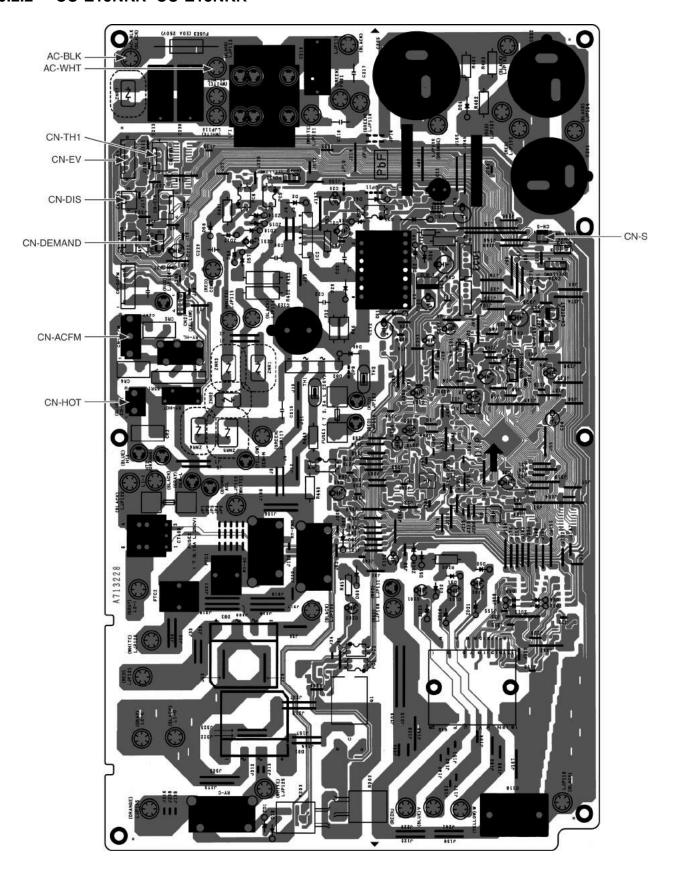


10.2 Outdoor Unit

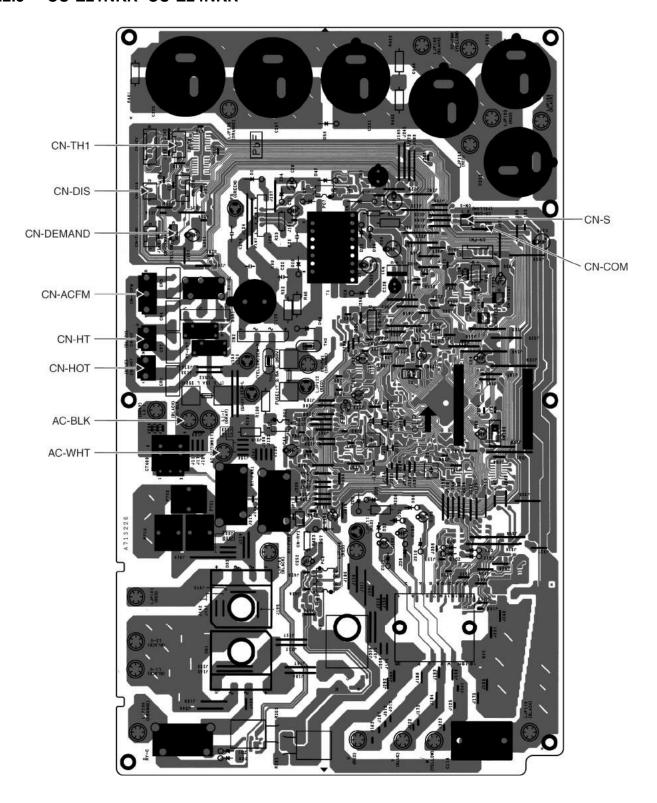
10.2.1 CU-E7NKR CU-E9NKR CU-E12NKR



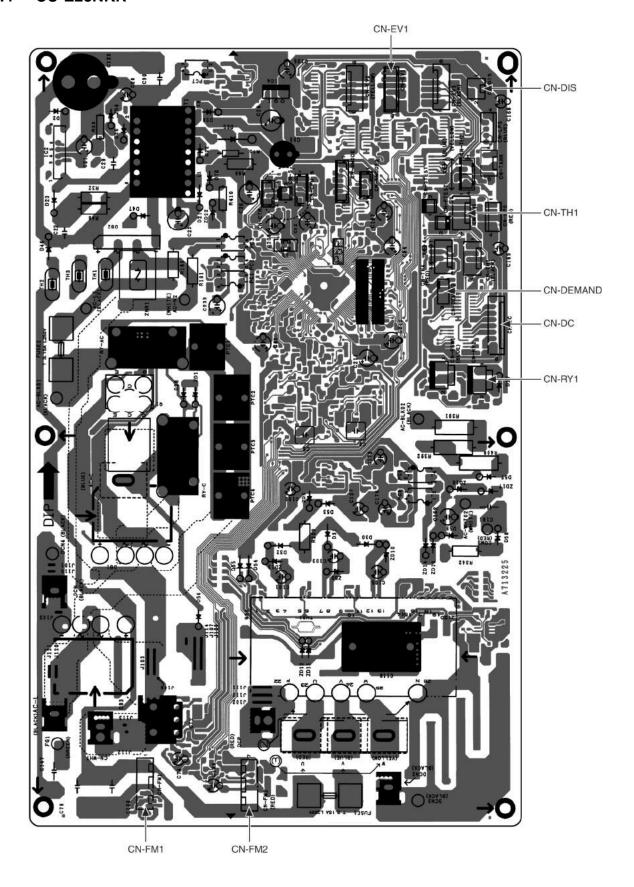
10.2.2 CU-E15NKR CU-E18NKR



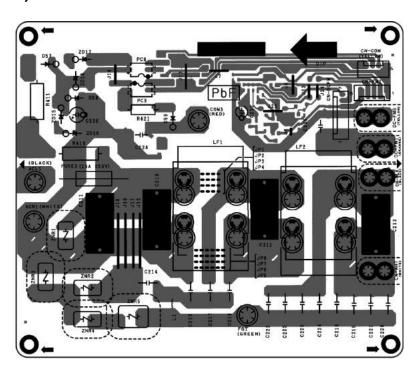
10.2.3 CU-E21NKR CU-E24NKR



10.2.4 CU-E28NKR



10.2.5 Noise Filter Printed Board (CU-E21NKR)



11. Installation Instruction

11.1 Select the Best Location

(For E7/9/12/15/18/21/24NKR only)

11.1.1 Indoor Unit

- Do not install the unit in excessive oil fume area such as kitchen, workshop and etc.
- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Recommended installation height for indoor unit shall be at least 2.5 m.

11.1.2 Outdoor Unit

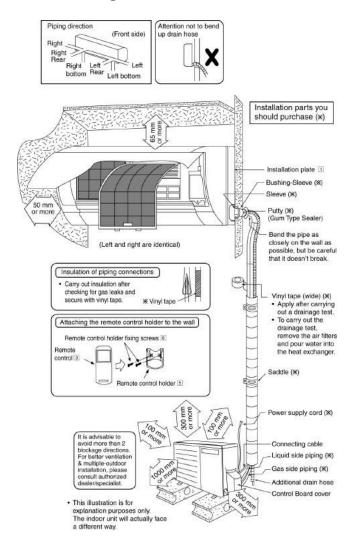
- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If piping length is over the [piping length for additional gas], additional refrigerant should be added as shown in the table.

Model	Horse Power (HP)	Piping size		Std.	Max. Elevation	Min. Piping	Max. Piping	Additional Refrigerant	Piping Length	
		Gas	Liquid	(m)	(m)	Length (m)	Length (m)	(g/m)	for add. gas (m)	
E7***	3/4~ 1.75HP 2.0~ 2.25HP	9.52mm		15	3	15	20	7.5		
E9***		(3/8")		7.5	15	3	15	20	7.5	
E12***		1.75HP		'	7.5	15	3	15	20	7.5
E15***		12.7mm	6.35mm		15	3	15	20	7.5	
E18***		2.0~	(1/2")	(1/4*)		15	3	20	20	10
E21***		0.000		5	15	3	20	20	10	
E24***	2.5HP	15.88mm (5/8")		3	20	3	30	30	10	

Example: For E9***

If the unit is installed at 10 m distance, the quantity of additional refrigerant should be 50 g (10-7.5) m x 20 g/m = 50 g.

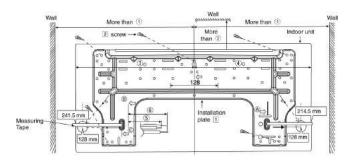
11.1.3 Indoor/Outdoor Unit Installation Diagram



11.2 Indoor Unit

11.2.1 How to Fix Installation Plate

The mounting wall shall be strong and solid enough to prevent it from vibration.



	Dimension							
Model	1	(2)	(3)	4	(5)	6		
E7***, E9***, E12***, E15***	490 mm	82 mm	439 mm	432 mm	43 mm	95 mm		
E18***, E21***, E24***	590 mm	82 mm	539 mm	532 mm	169 mm	219 mm		

The center of installation plate should be at more than ① at right and left of the wall.

The distance from installation plate edge to ceiling should more than ②.

From installation plate left edge to unit's left side is ③. From installation plate right edge to unit's right side is ④.

- (B) : For left side piping, piping connection for liquid should be about (5) from this line.
 - : For left side piping, piping connection for gas should be about © from this line.
 - Mount the installation plate on the wall with 5 screws or more (at least 5 screws).
 (If mounting the unit on the concrete wall, consider using anchor bolts.)
 - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.
 - Drill the piping plate hole with Ø70 mm holecore drill.
 - Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively.
 - Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side.

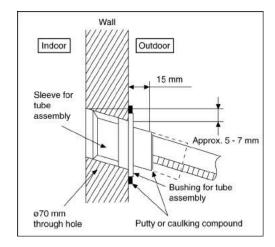
11.2.2 To Drill a Hole in the Wall and Install a Sleeve of Piping

- 1 Insert the piping sleeve to the hole.
- 2 Fix the bushing to the sleeve.
- 3 Cut the sleeve until it extrudes about 15 mm from the wall.

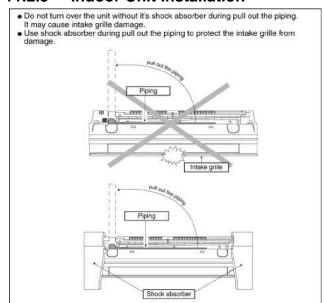
⚠ CAUTION

When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

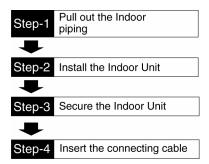
4 Finish by sealing the sleeve with putty or caulking compound at the final stage.



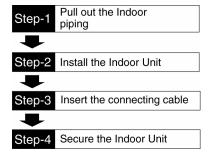
11.2.3 Indoor Unit Installation



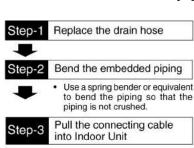
11.2.3.1 For the right rear piping



11.2.3.2 For the right and right bottom piping



11.2.3.3 For the embedded piping



 The inside and outside connecting cable can be connected without removing the front grille.

Step-4 Cut and flare the embedded piping

• When determining the dimensions of the piping, slide the unit all the way to the left on

the installation plate.

Refer to the section "Cutting and flaring the piping".

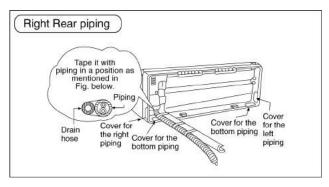
Step-5 Install the Indoor Unit

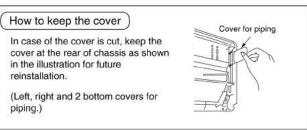
Step-6

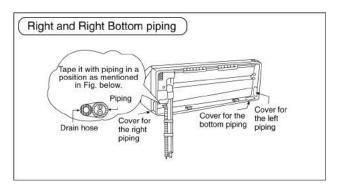
Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)

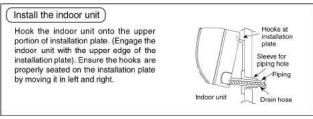
Step-7 Insulate and finish the piping
 Please refer to "Piping and finishing" column of outdoor section and "Insulation of piping connection" column as mentioned in indoor/outdoor unit installation.

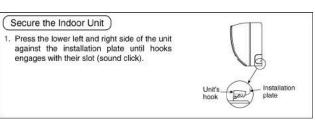
Step-8 Secure the Indoor Unit

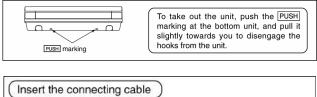


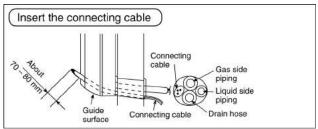




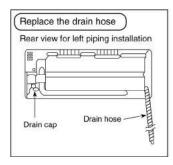


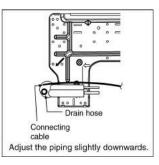


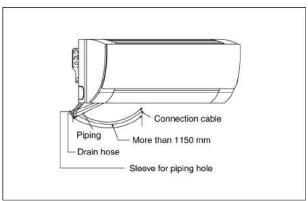


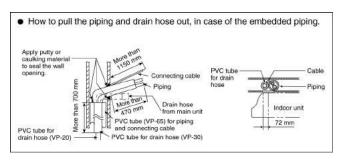


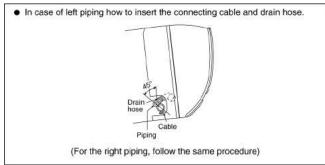
(This can be used for left rear piping and bottom piping also.)





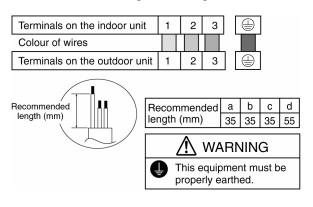


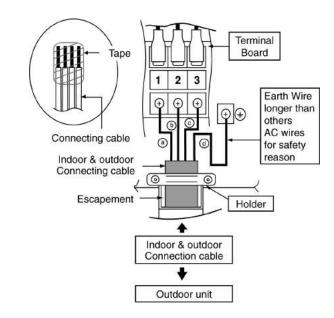




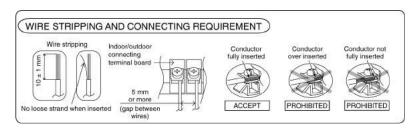
11.2.4 Connect the Cable to the Indoor Unit

- 1 The inside and outside connecting cable can be connected without removing the front grille.
- 2 Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² flexible cord, type designation 245 IEC 57 or heavier cord.
- 3 Bind all the indoor and outdoor connecting cable with tape and route the connecting cable via the escapement.
- 4 Remove the tapes and connect the connecting cable between indoor unit and outdoor unit according to the diagram below.



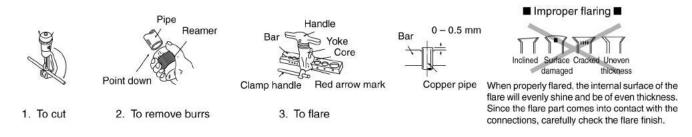


- Secure the connecting cable onto the control board with the holder (clamper).
 - Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
 - Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.



11.2.4.1 Cutting and flaring the piping

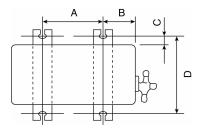
- 1 Please cut using pipe cutter and then remove the burrs.
- Remove the burs by using reamer. If burs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
- 3 Please make flare after inserting the flare nut onto the copper pipes.



11.3 Outdoor Unit

11.3.1 Install the Outdoor Unit

- After selecting the best location, start installation to Indoor/Outdoor Unit Installation Diagram.
 - 1 Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut (Ø10 mm).
 - When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.



Model	Α	В	С	D	
E7***	540 mm	160 mm	18.5 mm	330 mm	
E9***, E12***	3 4 0 IIIIII	100 111111	10.5 11111	330 11111	
E15***					
E18***, E21***	613 mm	360.5 mm			
E24***					

11.3.2 Connect the Piping

Connecting the piping to indoor

Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)

Connect the piping

- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

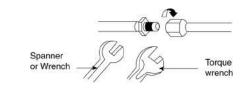
Connecting the piping to outdoor

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge.

Make flare after inserting the flare nut (locate at valve) onto the copper pipe.

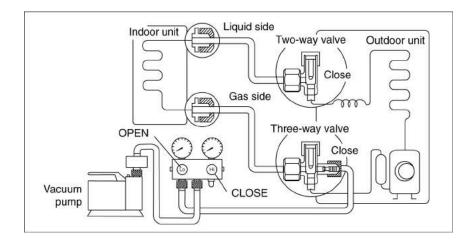
Align center of piping to valve and then tighten with torque wrench to the specified torque as stated in the table.

Do not overtighten, overtightening may cause gas leakage.						
Piping size Torque						
6.35 mm (1/4")	[18 N•m (1.8 kgf.m)]					
9.52 mm (3/8")	[42 N•m (4.3 kgf.m)]					
12.7 mm (1/2")	[55 N•m (5.6 kgf.m)]					
15.88 mm (5/8")	[65 N•m (6.6 kgf.m)]					
19.05 mm (3/4")	[100 N•m (10.2 kgf.m)]					



11.3.3 Evacuation of the Equipment

WHEN INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.



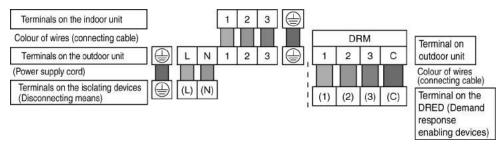
- 1 Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
 - Be sure to connect the end of the charging hose with the push pin to the service port.
- 2 Connect the center hose of the charging set to a vacuum pump.
- 3 Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.

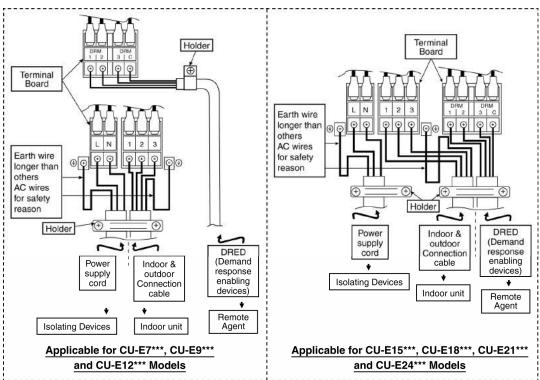
- 4 Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
- Note: BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERENT GAS LEAKAGE.

 5 Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
- 6 Tighten the service port caps of the 3-way valve at a torque of 18 N•m with a torque wrench.
- 7 Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to "OPEN" using a hexagonal wrench (4 mm).
- 8 Mount valve caps onto the 2-way valve and the 3-way valve.
 - Be sure to check for gas leakage.
 - If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in the step ③ above take the following measure:
 - If the leak stops when the piping connections are tightened further, continue working from step ③.
 - If the leak does not stop when the connections are retightened, repair location of leak.
 - Do not release refrigerant during piping work for installation and reinstallation.
 - Take care of the liquid refrigerant, it may cause frostbite.

11.3.4 Connect the cable to the Outdoor Unit

- 1 Remove the control board cover from the unit by loosening the screw.
- 2 Cable connection to the power supply through Isolating Devices (Disconnecting means).
 - Connect approved type polychloroprene sheathed power supply cord 3 x 1.5 mm² (3/4 ~ 1.75HP) or 3 x 2.5 mm² (2.0 ~ 2.5HP) type designation 245 IEC 57 or heavier cord to the terminal board, and connect the others end of the cord to Isolating Devices (Disconnecting means).
- 3 **Connecting cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² flexible cord, type designation 245 IEC 57 or heavier cord.
- 4 **Connecting cable** between outdoor unit and **DRED** (Demand response enabling devices) shall be double insulation layer, polychloroprene sheathed (>50V) with size 4 x (0.5 mm² to 2.0 mm²) cable or flexible cord, where the maximum allowable length is 30m.
- 5 Connect the power supply cord and connecting cable between indoor unit and outdoor unit according to the diagram below.





- 6 Secure the power supply cord and connecting cable onto the control board with the holder.
- 7 Attach the control board cover back to the original position with the screw.
- 8 For wire stripping and connection requirement, refer to instruction 11.2.4 of the indoor unit.

⚠ WARNING This equipment must be properly earthed.

- Note: Isolating Devices (Disconnecting means) should have minimum 3.0 mm contact gap.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.
- Always ensure all above connections compliant with national wire rules.

11.3.5 Piping Insulation

- Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
- 2 If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

12. Installation Instruction

12.1 Select the Best Location

(For E28NKR only)

12.1.1 Indoor Unit

- Do not install the unit in excessive oil fume area such as kitchen, workshop and etc.
- There should not be any heat source or steam near the unit.
- There should not be any obstacles blocking the air circulation.
- A place where air circulation in the room is good.
- A place where drainage can be easily done.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.
- Recommended installation height for indoor unit shall be at least 2.5 m.

12.1.2 Outdoor Unit

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- There should not be any animal or plant which could be affected by hot air discharged.
- Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- If piping length is over the [piping length for additional gas], additional refrigerant should be added as shown in the table.

Model	Horse Power (HP)	Piping size		Std.	Max. Elevation	Min. Piping	Max. Piping	Additional Refrigerant	Piping Length
		Gas	Liquid	(m)	(m)	Length (m)	Length (m)	(g/m)	for add. gas (m)
E28***	3.0HP	15.88mm (5/8*)	6.35mm (1/4°)	5	20	3	30	30	10

Example: E28***

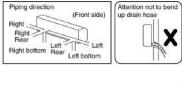
If the unit is installed at 12 m distance, the quantity of additional refrigerant should be $60 \text{ g} \dots (12-10) \text{ m x}$ 30 g/m = 60 g.

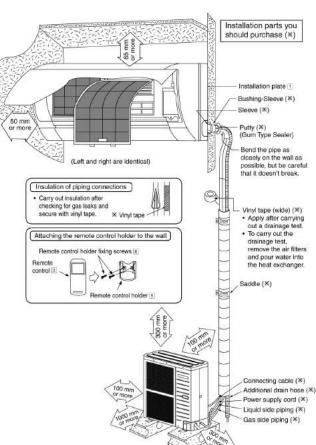
REGARDING HANDLING

Handling the unit by hold the handle at compressor side and hold the basepan bottom at fan side.



12.1.3 Indoor/Outdoor Unit Installation Diagram

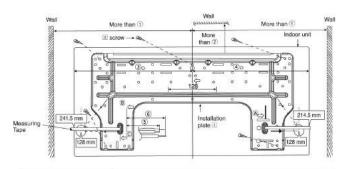




12.2 Indoor Unit

12.2.1 How to Fix Installation Plate

The mounting wall shall be strong and solid enough to prevent it from vibration.



	fodel	Dimension					
IV.	10dei	①	(2)	(3)	(4)	(5)	(8)
E28***		590 mm	82 mm	539 mm	532 mm	169 mm	219 mm

The center of installation plate should be at more than ① at right and left of the wall.

The distance from installation plate edge to ceiling should more than ②.

From installation plate left edge to unit's left side is ③. From installation plate right edge to unit's right side is ④.

- (B) : For left side piping, piping connection for liquid should be about ⑤ from this line.
 - : For left side piping, piping connection for gas should be about **©** from this line.
 - Mount the installation plate on the wall with 5 screws or more (at least 5 screws).
 (If mounting the unit on the concrete wall, consider using anchor bolts.)
 - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.
 - 2 Drill the piping plate hole with Ø70 mm holecore drill.
 - Line according to the left and right side of the installation plate. The meeting point of the extended line is the center of the hole. Another method is by putting measuring tape at position as shown in the diagram above. The hole center is obtained by measuring the distance namely 128 mm for left and right hole respectively.
 - Drill the piping hole at either the right or the left and the hole should be slightly slanting to the outdoor side.

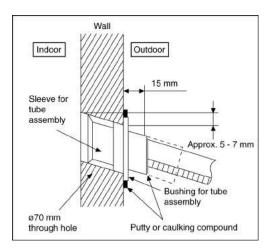
12.2.2 To Drill a Hole in the Wall and Install a Sleeve of Piping

- 1 Insert the piping sleeve to the hole.
- 2 Fix the bushing to the sleeve.
- 3 Cut the sleeve until it extrudes about 15 mm from the wall.

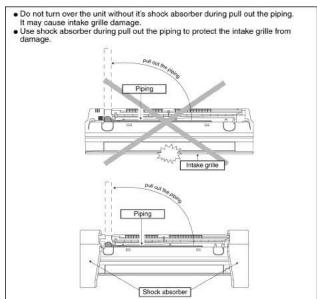
⚠ CAUTION

When the wall is hollow, please be sure to use the sleeve for tube assembly to prevent dangers caused by mice biting the connection cable.

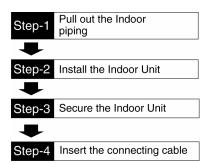
4 Finish by sealing the sleeve with putty or caulking compound at the final stage.



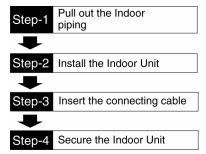
12.2.3 Indoor Unit Installation



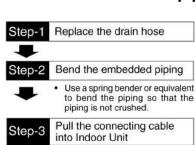
12.2.3.1 For the right rear piping

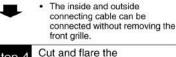


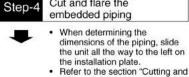
12.2.3.2 For the right and right bottom piping

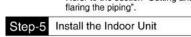


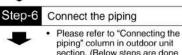
12.2.3.3 For the embedded piping



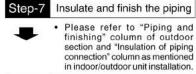




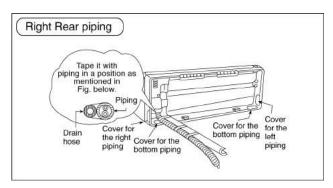


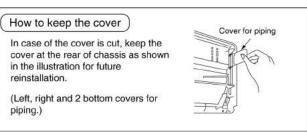


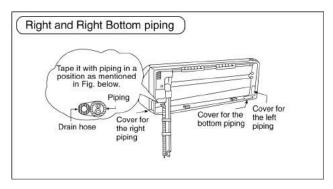
 Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)

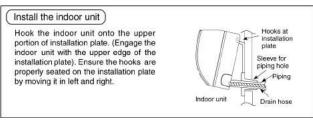


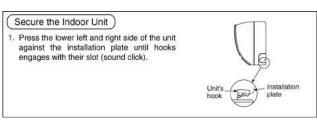
Step-8 Secure the Indoor Unit





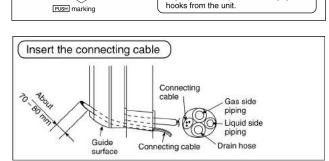




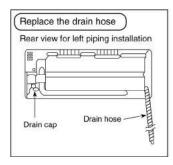


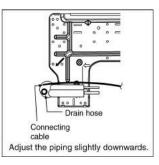
To take out the unit, push the PUSH

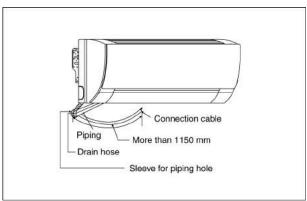
marking at the bottom unit, and pull it slightly towards you to disengage the

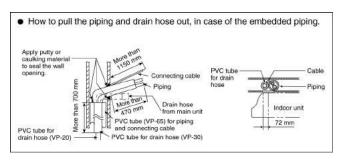


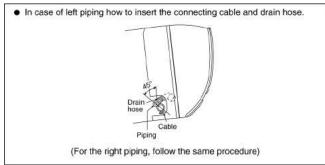
(This can be used for left rear piping and bottom piping also.)





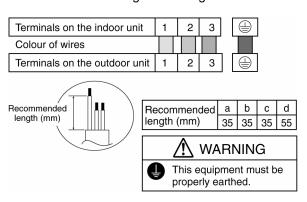


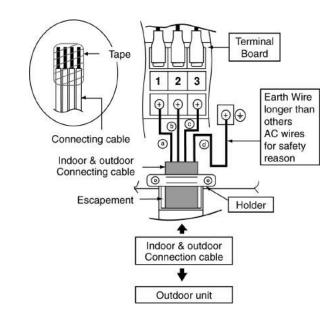




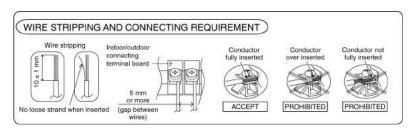
12.2.4 Connect the Cable to the Indoor Unit

- 1 The inside and outside connecting cable can be connected without removing the front grille.
- 2 Connection cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² flexible cord, type designation 245 IEC 57 or heavier cord.
- 3 Bind all the indoor and outdoor connecting cable with tape and route the connecting cable via the escapement.
- 4 Remove the tapes and connect the connecting cable between indoor unit and outdoor unit according to the diagram below.



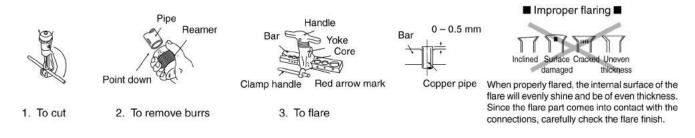


- 5 Secure the connecting cable onto the control board with the holder (clamper).
 - Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
 - Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.



12.2.4.1 Cutting and flaring the piping

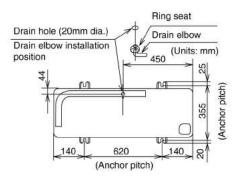
- 1 Please cut using pipe cutter and then remove the burrs.
- Remove the burs by using reamer. If burs is not removed, gas leakage may be caused. Turn the piping end down to avoid the metal powder entering the pipe.
- 3 Please make flare after inserting the flare nut onto the copper pipes.



12.3 Outdoor Unit

12.3.1 Install the Outdoor Unit

- After selecting the best location, start installation to Indoor/Outdoor Unit Installation Diagram.
 - 1 If installing the unit to a concrete base or other solid base, use M10 or W3/8 bolts and nuts to secure the unit, and ensure that the unit is fully upright and level.
 - (The anchor bolt positions are shown in the diagram at the right side.)
 - In particular, install the unit at a distance from the neighbouring building which conforms to regulations specified by local noise emission regulation standards.
 - 2 Do not install the outdoor unit to the building's roof.
 - 3 If there is a possibility that vibration may be transmitted to the rooms of the building, place rubber insulation between the unit and the installation surface.



When installing the product in a place where it will be affected by typhoon or strong wind such as wind blowing between buildings, including the rooftop of a building and a place where there is no building in surroundings, fix the product with an overturn prevention wire, etc. (Overturn prevention fitting model number; K-KYZP15C)



12.3.2 Connect the Piping

Connecting the piping to indoor

Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)

Connect the piping

- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

Connecting the piping to outdoor

Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (locates abnormal at valve) onto the copper pipe.

Align center of piping to valves and then tighten with torque wrench to the specified torque as stated in the table.

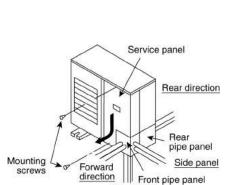
Local pipes can project in any of four directions.

- Make holes in the pipe panels for the pipes to pass through.
- Be sure to install the pipe panels to prevent rain from getting inside the outdoor unit. [Removing the service panel].
 - (1) Remove the two mounting screws.
 - (2) Slide the service panel downward to release the pawls.

After this, pull the service panel toward you to remove it.

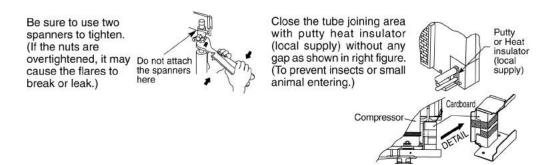
Do not overtighten, overtightening may cause gas leakage.				
Piping size	Torque			
6.35 mm (1/4")	[18 N•m (1.8 kgf.m)]			
9.52 mm (3/8")	[42 N•m (4.3 kgf.m)]			
12.7 mm (1/2")	[55 N•m (5.6 kgf.m)]			
15.88 mm (5/8")	[65 N•m (6.6 kgf.m)]			
19.05 mm (3/4")	[100 N•m (10.2 kgf.m)]			

Torque



Downward

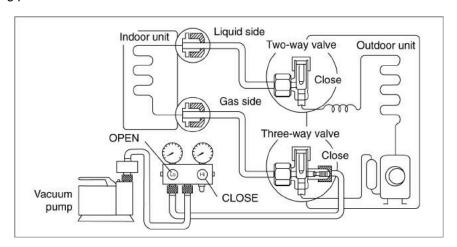
direction



The cardboard must be removed before installation of piping work.

12.3.3 Evacuation of the Equipment

WHEN INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.

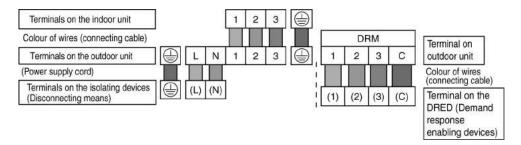


- 1 Connect a charging hose with a push pin to the Low side of a charging set and the service port of the 3-way valve.
 - o Be sure to connect the end of the charging hose with the push pin to the service port.
- 2 Connect the center hose of the charging set to a vacuum pump.
- 3 Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.
- 4 Close the Low side valve of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
 - Note: BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERENT GAS LEAKAGE.
- 5 Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.
- 6 Tighten the service port caps of the 3-way valve at a torque of 18 N•m with a torque wrench.
- 7 Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to "OPEN" using a hexagonal wrench (4 mm).
- 8 Mount valve caps onto the 2-way valve and the 3-way valve.
 - o Be sure to check for gas leakage.
 - If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in the step ③ above take the following measure:
 - If the leak stops when the piping connections are tightened further, continue working from step ③.
 - If the leak does not stop when the connections are retightened, repair location of leak.
 - Do not release refrigerant during piping work for installation and reinstallation.
 - Take care of the liquid refrigerant, it may cause frostbite.

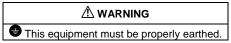
12.3.4 Connect the cable to the Outdoor Unit

- 1 Remove the control board cover from the unit by loosening the screw.
- 2 Cable connection to the power supply through Isolating Devices (Disconnecting means).
 - o Connect approved type polychloroprene sheathed **power supply cord** 3 x 4.0 mm² (3.0HP) type designation 245 IEC 57 or heavier cord to the terminal board, and connect the others end of the cord to Isolating Devices (Disconnecting means).
- 3 **Connecting cable** between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 x 1.5 mm² flexible cord, type designation 245 IEC 57 or heavier cord.

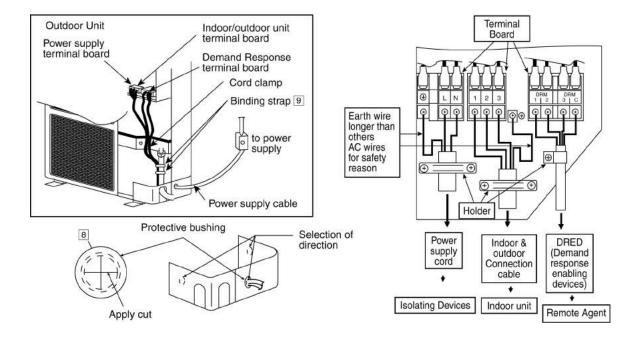
- 4 **Connecting cable** between outdoor unit and **DRED** (Demand response enabling devices) shall be double insulation layer, polychloroprene sheathed (>50V) with size 4 x (0.5 mm² to 2.0 mm²) cable or flexible cord, where the maximum allowable length is 30m.
- 5 Connect the power supply cord and connecting cable between indoor unit and outdoor unit according to the diagram below.



- 6 Secure the power supply cord and connecting cable onto the control board with the holder.
- 7 Select required direction and apply protective bushing provided in accessories to protect cables from sharp edges.
- 8 Once all wiring work has been completed, tie the wires and cords together with the binding strap so that they do not touch other parts such as the compressor and pipes.
- 9 Attach the control board cover back to the original position with screw.
- 10 For wire stripping and connection requirement, refer to instruction 12.2.4 of indoor unit.



- Note: Isolating Devices (Disconnecting means) should have minimum 3.0 mm contact gap.
- Earth wire shall be Yellow/Green (Y/G) in colour and longer than other AC wires for safety reason.
- Always ensure all above connections compliant with national wire rules.



12.3.5 Piping Insulation

- 1 Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
- 2 If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

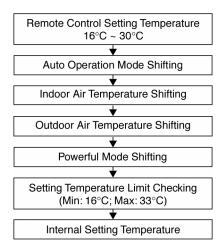
13. Operation Control

13.1 Basic Function

Inverter control, which equipped with a microcomputer in determining the most suitable operating mode as time passes, automatically adjusts output power for maximum comfort always. In order to achieve the suitable operating mode, the microcomputer maintains the set temperature by measuring the temperature of the environment and performing temperature shifting. The compressor at outdoor unit is operating following the frequency instructed by the microcomputer at indoor unit that judging the condition according to internal setting temperature and intake air temperature.

13.1.1 Internal Setting Temperature

Once the operation starts, remote control setting temperature will be taken as base value for temperature shifting processes. These shifting processes are depending on the air conditioner settings and the operation environment. The final shifted value will be used as internal setting temperature and it is updated continuously whenever the electrical power is supplied to the unit.



13.1.2 Cooling Operation

13.1.2.1 Thermostat control

- Compressor is OFF when Intake Air Temperature Internal Setting Temperature < -1.5°C continue for 3 minutes.
- Compressor is ON after waiting for 3 minutes, if the Intake Air Temperature Internal Setting Temperature > Compressor OFF point.

13.1.3 Soft Dry Operation

13.1.3.1 Thermostat control

- Compressor is OFF when Intake Air Temperature Internal Setting Temperature < -2.0°C continue for 3 minutes.
- Compressor is ON after waiting for 3 minutes, if the Intake Air Temperature Internal Setting Temperature > Compressor OFF point.

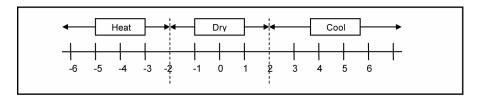
13.1.4 Heating Operation

13.1.4.1 Thermostat control

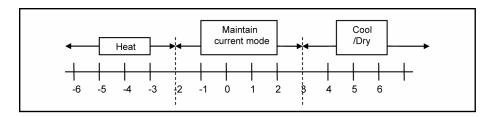
- Compressor is OFF when Intake Air Temperature Internal Setting Temperature > +2.0°C continue for 3 minutes.
- Compressor is ON after waiting for 3 minutes, if the Intake Air Temperature Internal Setting Temperature Compressor OFF point.

13.1.5 Automatic Operation

- This mode can be set using remote control and the operation is decided by remote control setting temperature, remote control operation mode and indoor intake air temperature.
- During operation mode judgment, indoor fan motor (with speed of Lo-) is running for 30 seconds to detect the indoor intake air temperature.
- Every 10 minutes, the indoor temperature is judged.
- For the 1st judgment
 - o If indoor intake temperature remote control setting temperature ≥ 2°C, COOL mode is decided.
 - o If -2°C ≤ indoor intake temperature remote control setting temperature < 2°C, DRY mode is decided.
 - o If indoor intake temperature remote control setting temperature < -2°C, HEAT mode is decided.



- For the 2nd judgment onwards
 - o If indoor intake temperature remote control setting temperature ≥ 3°C, if previous operate in DRY mode, then continue in DRY mode, otherwise COOL mode is decided.
 - o If -2°C ≤ indoor intake temperature remote control setting temperature < 3°C, maintain with previous mode.
 - o If indoor intake temperature remote control setting temperature < -2°C, HEAT mode is decided.



13.1.6 Fan Operation

- Fan operation is used to circulate air in the room.
- During operation, indoor fan run continuously but outdoor fan and compressor stop.
- Temperature setting is not applicable.

13.2 Indoor Fan Motor Operation

13.2.1 Basic Rotation Speed (rpm)

- Manual Fan Speed [Cooling, Dry]
 - Fan motor's number of rotation is determined according to remote control setting.

Remote control	0	0	0	0	0
Tab	Hi	Me+	Me	Me-	Lo

[Heating]

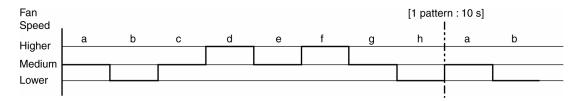
Fan motor's number of rotation is determined according to remote control setting.

Remote control	0	0	0	0	0
Tab	SHi	Me+	Me	Me-	Lo

 Auto Fan Speed [Cooling, Dry]

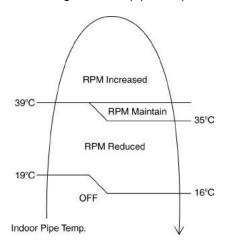
According to room temperature and setting temperature, indoor fan speed is determined automatically.

o The indoor fan will operate according to pattern below.



[Heating]

According to indoor pipe temperature, automatic heating fan speed is determined as follows.

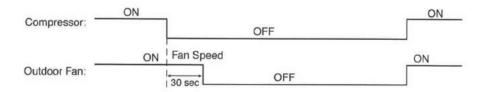


13.2.2 Feedback control

- Immediately after the fan motor started, feedback control is performed once every second.
- During fan motor on, if fan motor feedback ≥ 2550 rpm or < 50 rpm continue for 10 seconds, then fan motor error counter increase, fan motor is then stop and restart. If the fan motor counter becomes 7 times, then H19 - fan motor error is detected. Operation stops and cannot on back.

13.3 Outdoor Fan Motor Operation

Outdoor fan motor is operated with one fan speed only. It starts when compressor starts operation and it stops 30 seconds after compressor stops operation.



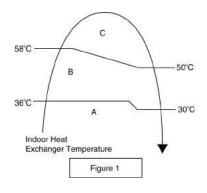
13.4 Airflow Direction

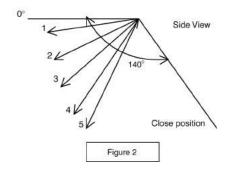
- There are two types of airflow, vertical airflow (directed by horizontal vane) and horizontal airflow (directed by vertical vanes).
- Control of airflow direction can be automatic (angles of direction is determined by operation mode, heat exchanger temperature and intake air temperature) and manual (angles of direction can be adjusted using remote control).

13.4.1 Vertical Flow

Operation Made	Airflow Direction		Vane Angle (°)					
Operation Mode	Allilow Direction)()	1	2	3	4	5	
	Anda Hard Freshanner	Α	20					
Hooting	Auto Heat Exchanger Temperature	В		57 (45 : E18/21/24/28NK)				
Heating	Temperature	С	32					
	Manual	20	32	45	57	68		
Cooling and Ion	Cooling and Inc. Auto		20 ~ 45					
Cooling and ion	Manual			26	32	37	45	
Soft Dry	Auto		20 ~ 45					
Solt Diy	Manual		20	26	32	37	45	

- Automatic vertical airflow direction can be set using remote control; the vane swings up and down within the
 angles as stated above. For heating mode operation, the angle of the vane depends on the indoor heat
 exchanger temperature as Figure 1 below. It does not swing during fan motor stop. When the air conditioner is
 stopped using remote control, the vane will shift to close position.
- Manual vertical airflow direction can be set using remote control; the angles of the vane are as stated above and
 the positions of the vane are as Figure 2 below. When the air conditioner is stopped using remote control, the
 vane will shift to close position.

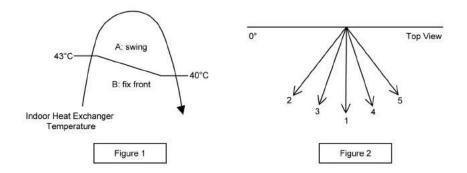




13.4.2 Horizontal Airflow

Automatic horizontal airflow direction can be set using remote control; the vane swings left and right within the
angles as stated below. For heating mode operation, the angle of the vane depends on the indoor heat
exchanger temperature as Figure 1 below. It does not swing during fan motor stop.

Operation Mode		Vane Angle (°)
Heating, with heat exchanger temperature		68 ~112
		90
Cooling and soft dry		68 ~112



 Manual horizontal airflow direction can be set using remote control; the angles of the vane are as stated below and the positions of the vane are as Figure 2 above.

Pattern	1	2	3	4	5
Airflow Direction Patterns at Remote Control			7		
Vane Angle (°)	90	68	78	102	112

13.5 Quiet operation (Cooling Mode/Cooling area of Dry Mode)

- Purpose
 - o To provide quiet cooling operation compare to normal operation.
- Control condition
 - Quiet operation start condition
 - When "POWERFUL/QUIET" button at remote control is pressed twice.
 POWERFUL/QUIET LED illuminates (low intensity).
 - Quiet operation stop condition
 - When one of the following conditions is satisfied, quiet operation stops:
 - POWERFUL/QUIET button is pressed again.
 - Stop by OFF/ON switch.
 - Timer "off" activates.
 - AUTO COMFORT button is pressed.
 - ECONAVI button is pressed.
 - Mild Dry Cooling button is pressed.
 - When quiet operation is stopped, operation is shifted to normal operation with previous setting.
 - When fan speed is changed, quiet operation is shifted to quiet operation of the new fan speed.
 - When operation mode is changed, quiet operation is shifted to quiet operation of the new mode.
 - During quiet operation, if timer "on" activates, quiet operation maintains.
 - After off, when on back, quiet operation is not memorised.
- Control contents
 - Fan speed is changed from normal setting to quiet setting of respective fan speed.
 This is to reduce sound of Hi, Me, Lo for 3dB (some models more than 3dB).
 - o Fan speed for quiet operation is reduced from setting fan speed.

13.6 Quiet operation (Heating)

- Purpose
 - To provide quiet heating operation compare to normal operation.
- Control condition
 - Quiet operation start condition
 - When "POWERFUL/QUIET" button at remote control is pressed.
 POWERFUL/QUIET LED illuminates. (low intensity)
 - Quiet operation stop condition
 - When one of the following conditions is satisfied, quiet operation stops:
 - POWERFUL/QUIET button is pressed again.
 - Stop by OFF/ON switch.
 - Timer "off" activates.
 - AUTO COMFORT button is pressed.
 - ECONAVI button is pressed.
 - Mild Dry Cooling button is pressed.
 - When quiet operation is stopped, operation is shifted to normal operation with previous setting.
 - When fan speed is changed, quiet operation is shifted to quiet operation of the new fan speed.
 - When operation mode is changed, quiet operation is shifted to quiet operation of the new mode, except fan mode only.
 - During quiet operation, if timer "on" activates, quiet operation maintains.
 - After off, when on back, quiet operation is not memorised.

- Control contents
 - o Fan speed manual
 - Fan speed is changed from normal setting to quiet setting of respective fan speed.
 This is to reduce sound of Hi, Me, Lo for 3dB.
 - Fan speed for quiet operation is reduced from setting fan speed.
 - Fan Speed Auto
 - Indoor FM RPM depends on pipe temp sensor of indoor heat exchanger.

13.7 Powerful Mode Operation

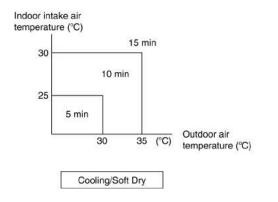
When the powerful mode is selected, the internal setting temperature will shift lower up to 2°C (for Cooling/Soft Dry) or higher up to 3.5°C (for Heating) than remote control setting temperature for 20 minutes to achieve the setting temperature quickly.

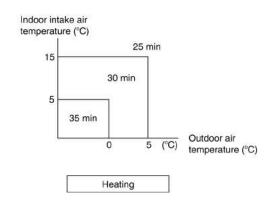
13.8 Timer Control

- There are 2 sets of ON and OFF timer available to turn the unit ON or OFF at different preset time.
- If more than one timer had been set, the upcoming timer will be displayed and will activate in sequence.

13.8.1 ON Timer Control

- ON timer 1 and ON timer 2 can be set using remote control, the unit with timer set will start operate earlier than
 the setting time.
 - This is to provide a comfortable environment when reaching the set ON time.
- 60 minutes before the set time, indoor (at fan speed of Lo-) and outdoor fan motor start operate for 30 seconds to
 determine the indoor intake air temperature and outdoor air temperature in order to judge the operation starting
 time
- From the above judgment, the decided operation will start operate earlier than the set time as shown below.





13.8.2 OFF Timer Control

OFF timer 1 and OFF timer 2 can be set using remote control, the unit with timer set will stop operate at set time.

13.9 Auto Restart Control

- When the power supply is cut off during the operation of air conditioner, the compressor will re-operate within three to four minutes (there are 10 patterns between 2 minutes 58 seconds and 3 minutes 52 seconds to be selected randomly) after power supply resumes.
- This type of control is not applicable during ON/OFF Timer setting.
- This control can be omitted by open the circuit of JP1 at indoor unit printed circuit board.

13.10 Indication Panel

LED	POWER	TIMER	POWERFUL	nanoe-G	AUTO COMFORT	QUIET
Color	Green	Orange	Orange	Blue	Green	Green
Light ON	Operation ON	Timer Setting ON	POWERFUL Mode ON	nanoe-G ON	AUTO COMFORT ON	QUIET Mode ON
Light OFF	Operation OFF	Timer Setting OFF	POWERFUL Mode OFF	nanoe-G OFF	AUTO COMFORT OFF	QUIET Mode OFF

Note:

- If POWER LED is blinking, the possible operation of the unit are Hot Start, during Deice operation, operation mode judgment, or ON timer sampling.
- If Timer LED is blinking, there is an abnormality operation occurs.

13.11 nanoe-G Operation

- This operation provides clean air by producing great amount of negative ions and distribute through the discharge airflow to capture or deactivate molds, bacteria or viruses.
- nanoe-G operation start condition
 - During unit running at any operation mode, if nanoe-G operation is activated, combination operation (operation mode + nanoe-G operation) starts.
 - During unit is OFF, if nanoe-G operation is activated, nanoe-G individual operation starts.
- nanoe-G operation stop condition
 - o When OFF/ON button is pressed to stop the operation.
 - When nanoe-G button is pressed.
 - When OFF Timer activates.
- nanoe-G operation pause condition
 - When indoor fan stop (during deice, odor cut control, thermostat off, etc.). nanoe-G operation resume after indoor fan restarts.
 - When indoor intake temperature ≥ 40°C. nanoe-G operation resume after indoor intake temperature ≤ 40°C continuously for 30 minutes.

Indoor fan control

- During any operation mode combines with nanoe-G operation, fan speed follows respective operation mode.
 However, nanoe-G system enabled when fan speed ≥ 500rpm to ensure proper negative ion distribution, nanoe-G system disabled when fan speed < 500 rpm.
- During nanoe-G individual operation, only Auto Fan Speed and no Powerful operation is allowed. Even if Fan Speed button is pressed, no signal is sent to the unit and no change on remote control display. Auto Fan Speed for nanoe-G operation changes from SHi to Hi after 4 hours of operation.

Airflow direction control

- o During any operation mode combines with nanoe-G operation, airflow direction follows respective operation
- During nanoe-G individual operation, only Auto Air Swing is allowed. Even if Air Swing button is pressed, no signal is sent to the unit and no change on remote control display.

Timer control

- When ON Timer activates when unit stops, previous operation resumes and restored last saved nanoe-G
 operation status.
- When ON Timer activates during any operation, no change on current operation.
- When OFF Timer activates during any operation, all operation stops and the latest nanoe-G operation status is saved.

Indicator

When nanoe-G starts, nanoe-G indicator ON.

• Remote Control Receiving Sound

- o Normal Operation
- o Nanoe-G Operation
- o Stop
- o Nanoe-G individual Operation

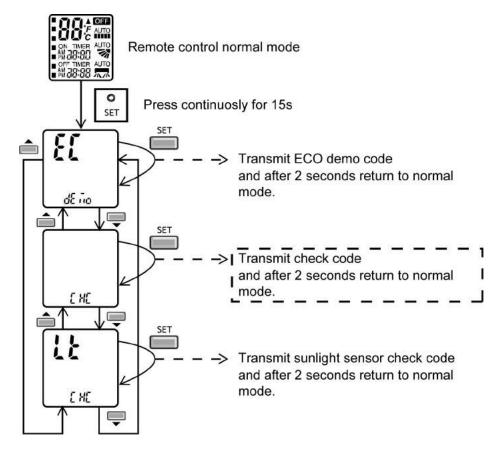
→ nanoe-G Operation
 → Normal Operation
 → nanoe-G individual Operation
 → Stop
 : Beep
 : Beep
 : Long Beep

Power failure

- During nanoe-G individual operation, if power failure occurs, after power resumes, nanoe-G individual operation resumes immediately.
- During combination operation, if power failure occurs, after power resumes, combination operation resume immediately.
- o nanoe-G operation status is not memorized after OFF the unit. After OFF the unit, when the operation is ON again, air conditioner operates without nanoe-G operation.

nanoe-G check mode

o To enable nanoe-G check mode, during nanoe-G operation ON:



o If there is abnormal discharge, nanoe-G indicator blinks immediately.

Error detection control

When nanoe-G indicator blinks, it indicates error listed below:

- o nanoe-G connector at main PCB open
 - Judgment method
 - During nanoe-G operation, nanoe-G connector at main PCB is opened.
 - Troubleshooting method
 - Connect the connector or stop operation to cancel the blinking
- Abnormal discharge error
 - Judgment method
 - During nanoe-G operation, the nanoe-G system has abnormal discharge due to short-circuit caused by water or dust adhesion and so forth, with Lo-feedback voltage (at microcontroller).
 - When abnormal discharge occurred, every 30 minutes the unit supplies power to the nanoe-G system.
 - When abnormal discharge occurs for 24 times continuously, nanoe-G indicator blinks.

- o Troubleshooting method
 - Press nanoe-G button or OFF/ON button to stop the operation and check the nanoe-G connector at PCB.
 - After that, press nanoe-G button again to confirm the nanoe-G indicator do not blinks.
 - The 24 timer counter will be clear after 10 minutes of normal operation or when operation stops.
- Error reset method
 - Press OFF/ON button to OFF the operation.
 - Press AUTO OFF/ON button at indoor unit to OFF the operation.
 - OFF Timer activates
 - Power supply reset.
- nanoe-G breakdown error
 - Judgment method
 - Hi-feedback voltage (at microcontroller) supplied to the nanoe-G system when nanoe-G operation is OFF; nanoe-G breakdown error show immediately.
 - It is due to indoor PCB or nanoe-G high voltage power supply damage.
 - Operations except nanoe-G continue. Both Timer indicator and nanoe-G indicator blink.
 - Troubleshooting method
 - Press nanoe-G button or OFF/ON button to stop the operation.
 - Change nanoe-G high voltage power supply or main PCB.
 - When Lo-feedback voltage supplied to nanoe-G system during nanoe-G operation ON, nanoe-G indicator and Timer indicator stop blinking.

13.12 Mild Dry Cooling Operation

- This operation helps to prevent decreases in room humidity while maintaining the setting temperature.
- During unit running at Cooling operation mode, if "Mild Dry Cooling" button is pressed, Mild Dry Cooling operation starts and Mild Dry Cooling indicators turns ON at remote control display.
- Mild dry cooling operation is unavailable when the unit is operating Auto mode and Soft Dry model operation.
- Mild dry cooling operation is cancelled when the unit turned OFF, Mild Dry Cooling button is pressed again or when the operation mode changed from Cooling to other mode.
- ECONAVI, Powerful, Quiet and Mild Dry Cooling mode cannot function at the same time, the unit will follows the operation according to the last signal received.
- During this operation, the compressor frequency changes according to operating condition to prevent room humidity decreases and when AUTO AIR SWING is set, the vertical airflow direction fixed at lower limit position.

13.13 AUTO COMFORT and ECO NAVI Operation

- Area of human availability, activity level and absent is judged based on pulses by using 2 infrared sensors. The
 internal setting temperature shift, fan speed and horizontal airflow direction are adjusted in order to provide
 comfort environment while maintain the energy saving level.
- AUTO COMFORT start condition:
 - o When AUTO COMF button is pressed.
- AUTO COMFORT stop conditions:
 - o When AUTO COMF button is pressed again.
 - When unit is OFF by OFF/ON button.
 - o When unit is OFF when OFF TIMER activates.
 - When unit is OFF by AUTO OFF/ON button at indoor unit.
 - When POWERFUL, QUIET operation activates.
 - When ◀► button is pressed.
- ECO NAVI start condition:
 - o When ECO NAVI button is pressed.

- ECO NAVI stop conditions:
 - When ECO NAVI button is pressed again.
 - When unit is OFF by OFF/ON button.
 - o When unit is OFF when OFF TIMER activates.
 - When unit is OFF by AUTO OFF/ON button at indoor unit.
 - o When POWERFUL, QUIET operation activates.
 - When ◀► button is pressed.

AUTO COMFORT / ECO NAVI initialization

	Initialize indication	Human Activity Sensor			
1	0 – 2 seconds				
2	2 – 3 seconds			•	
		I			
		II		•	
3	3 – 70 seconds	III			
		IV		•	
			Repeat S	tep I to IV	

^{* □} Indicator ON, ■ Indicator OFF

13.13.1 Human Activity Sensor

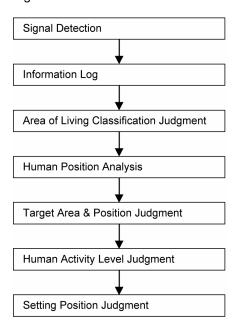
Area of human availability, activity level and absent is judged based on pulses by using 2 infrared sensors. The
internal setting temperature shift, fan speed and horizontal airflow direction are adjusted in order to provide
comfort environment while maintain the energy saving level.

AUTO COMFPRT / ECO NAVI initialization

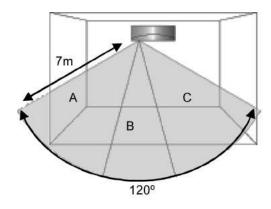
	Initialize indication	Human Activity Sensor			
1	0 – 2 seconds				
2	2 – 3 seconds				
		I			
		II			
3	3 – 70 seconds	III			
		IV			
			Repeat S	tep I to IV	

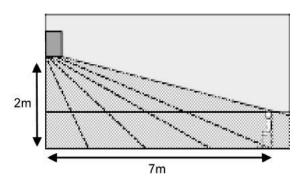
^{* □} Indicator ON, ■ Indicator OFF

Human activity judgment is as following



13.13.1.1 Signal Detection





Human Activity sensor will turns on according to infrared sensors signal detection.

Signal o	letection	Possible detected human	Human Activity Indicator		tor
Sensor 1	Sensor 2	position area	Left	Center	Right
1	0	С			
0	1	Α			
		В			
		A & C			
1	1	B&C			
		A & C			
		A, B & C			
0	0	1		•	

^{* □} Indicator ON, ■ Indicator OFF

However, once the Human Activity Indicator is ON, it will maintain ON status for 5 seconds. If there is no signal
detection from either infrared sensor, the final display condition will be kept until absence status.

13.13.1.2 Information Log

• The signal from Infrared sensors will be log to human activity database for further analysis.

13.13.1.3 Area of Living Classification Judgment

- The system is able to judge area of living according to human activity database, classified as following:
 - Living Area In front of television, dining table, etc.
 - Walkway Human detection is relatively less.
 - o Non-Living Area near windows, wall, etc.

13.13.1.4 Human Position Analysis

 According to Area of Living, frequency of activity and indoor unit intake temperature, the system will analyze the human position away from the indoor unit.

13.13.1.5 Target Area and Position Judgment

- The system will judge the indoor unit installation position according to human activity Non-Living Area:
 - o Non-Living Area at Position A Indoor unit installed at left side of the room.
 - Non-Living Area at Position C Indoor unit installed at right side of the room.
 - Other than above Indoor unit installed at center of the room.
- Every 4 hours, the Target Area and Position Judgment will restart.

13.13.1.6 Human Activity Level Judgment

- Human Activity Level is judged based on the frequency of pulses detected by the infrared sensors within a timeframe. The activity level will be categorized into High, Normal, Low level.
- When a pulse is detected within this timeframe, the status of human presence is judged.
- When there is no signal detection continues for 20 minutes or more, the status of human absence is judged.

13.13.1.7 Setting Position Judgment

 According to installation position when there is only one activity area detected, the horizontal airflow direction louver position is fixed according to chart below:

Torget eree	Horizontal airflow direction louver position					
Target area	Left installation	Center installation	Right installation			
Α	3	2	2			
В	1	1	1			
С	5	5	4			

- Louver position refer to horizontal airflow direction control.
- When 2 activity areas have been detected, according to Human Activity Level, the timing of horizontal airflow direction louver steps at the targeted activity areas is judged.

Operation mode	Activity level difference	Louver stop time
Cooling	1 level	Higher Activity level ≈ 60 seconds Lower Activity level ≈ 30 seconds
Cooling	2 levels	Higher Activity level ≈ 60 seconds Lower Activity level ≈ 8 seconds

 When 3 activity areas have been detected, according to Human Activity Level the timing of horizontal airflow louver steps at the targeted activity areas is judged.

Operation mode	Activity level	Louver stop time	
	Hi	≈ 45 seconds	
Cooling	Me	≈ 30 seconds	
_	Lo	≈ 20 seconds	

When 3 activity areas have same activity level, the horizontal airflow direction louver will swing left and right.

13.13.2 Setting Temperature and Fan Speed Shift

Cooling Dual Sensor

AUTO COMFORT ---- To optimize energy saving

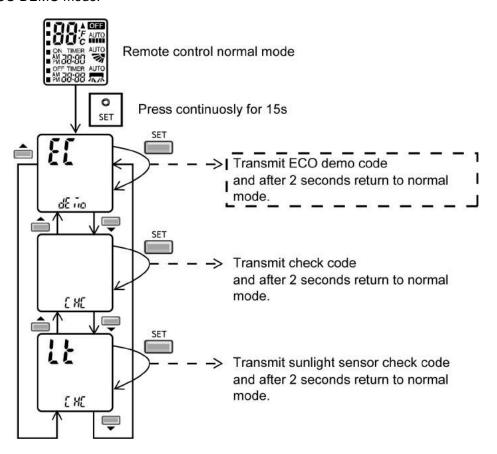
AUTO To maximize comfort

Heat Source & Movement	Low	High	Normal	None
Cool/Dry Mode Set Temperature	+1°C			+2°C
Set Fan Speed	+1 tap*	-1°C +1 tap		≤ Medium Fan
Heat Mode Set Temperature	+0.3°C)]		
Set Fan Speed		-2°C		

^{*} For first 15 minutes or until set temperature is reached.

13.13.2.1 ECONAVI Demo Mode

• To enable ECO DEMO mode:



- To disable ECO Demo MODE:
 - o Transmit ECO Demo signal again.
- Operation details

Infrared	sensor	Hu	man Activity Sen	sor	Vane position	Fan speed
Sensor 1	Sensor 2	Left	Center	Right	varie position	ran speed
1	0				5	HI
1	1				Auto Swing	HI
0	1				1	HI
0	0				Auto Swing	LO

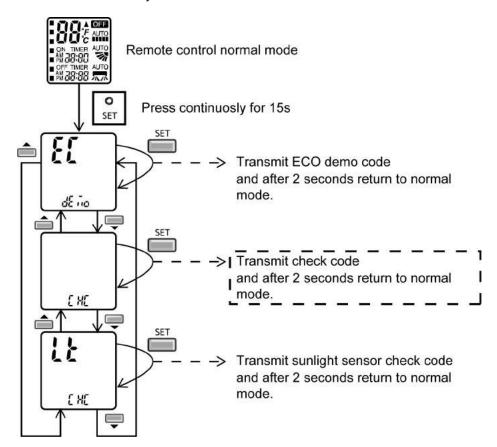
- The target area will maintain for 5 seconds before changeover to next detection.
- If no activity detection, the last action will maintain for 30 seconds before changeover to human absence status.

13.13.2.2 Infrared Sensor Abnormality

- Abnormality detection:
 - o Connector disconnection / Wire cut abnormality
 - Sensor judge Hi level continuously for 25 seconds
 - Circuit abnormality
 - 70 seconds after power ON, if infrared sensor judge Lo level continuously for 25 seconds
- Error Code judgment
 - When abnormality happened, internal counter increase by 1 time.
 - Infrared sensor power OFF, retry after 5 seconds.
 - o When the infrared sensor maintains normal condition for 120 seconds, the counter reset or AC reset.
 - When abnormality counter reached 4 times, H59 occurred No TIMER indicator blinking.
- When error code happened, the unit is able to operate without AUTO COMF / ECO NAVI.

13.13.2.3 Infrared Sensor Check Mode

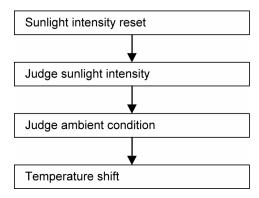
To enable Infrared sensor abnormality check mode:



- During ECO NAVI is ON, when CHECK signal received, if either sensors has abnormality, the 4 times abnormality counter is ignored, ECO NAVI Indicator will blink immediately and error code is memorized.
- The unit could operate without ECO NAVI or AUTO COMF.
- The ECO NAVI indicator blinking could be cancelled by pressing ECO NAVI button again.
- If the Infrared sensor has no abnormality, the CHECK process will end and continue with normal operation.

13.13.3 Sunlight Sensor

- During ECONAVI operation, the sunlight sensor detects sunlight intensity coming through windows and differentiates between sunny and cloudy or night to further optimize energy saving by adjusting the temperature.
- Sunlight judgment is as following

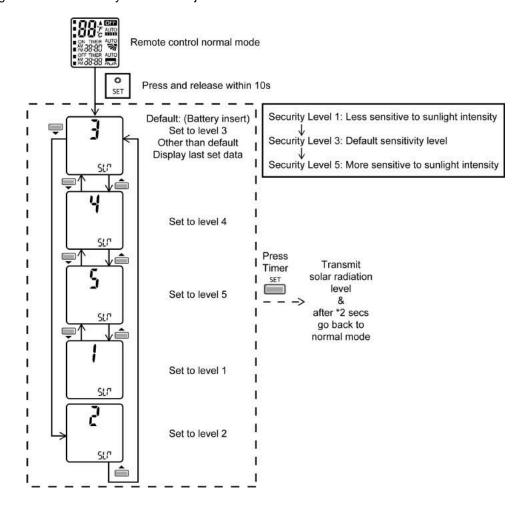


13.13.3.1 Sunlight Intensity Reset

- The sunlight intensity will to reset to zero (no sunlight condition) when
 - Each time ECONAVI is activated.
 - Setting temperature is changed.
 - Operation mode is changed.

13.13.3.2 Judge Sunlight Intensity

- Based on sunlight sensor output voltage, the sunlight intensity value will be computed and logged to sunlight intensity database.
- The sunlight sensor sensitivity could be adjusted:



13.13.3.3 Judge Ambient Condition

 According to sunlight intensity over a period of time, the system will analyze the ambient condition is sunny, cloudy or night.

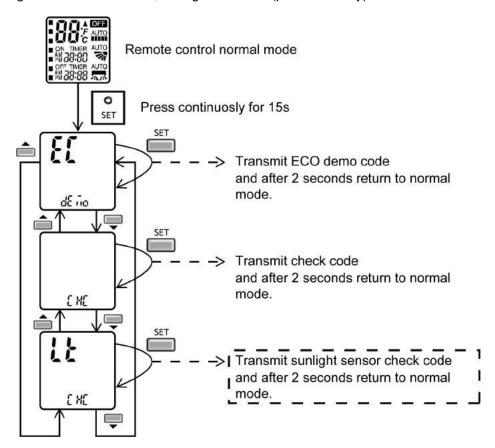
13.13.3.4 Temperature Shift

Ambient condition	Cloudy/ Night	Sunny	Cloudy/ Night	Sunny
COOL/DRY Mode Set Temperature	•		+1°C	٠,
HEAT Mode Set Temperature	•	٦٠ <u>٠ -۱°C</u>		-1°C

- ECONAVI is activated while it is cloudy / night
- ECONAVI is activated while it is sunny

13.13.3.5 Sunlight Sensor Check Mode

To enable sunlight sensor check mode, during unit is OFF (power standby):



- Operation details
 - o The sunlight sensor check mode will be operated for 5 minutes.
 - o During check mode, the ON and OFF timer will be memorized but it operation be ignored.
 - o During check mode, if the sunlight sensor check code is retransmitted, the 5 minutes counter will be reset.
 - During check mode, if sunlight sensor detected the sunlight intensity value above minimum level, the ECONAVI indicator turns ON. Else if sunlight sensor detected sunlight intensity value below minimum level, the ECONAVI indicator is OFF.
- To disable sunlight sensor check mode
 - After check mode is ended (5 minutes counter elapsed), press AUTO OFF/ON button at indoor unit.
 - If the sunlight sensor detected sunlight intensity is at abnormal range, the check mode will be ended.
 Please check for error code.

13.13.3.6 Sunlight Sensor Abnormality

- Abnormality detection:
 - When ECONAVI is ON, if the sunlight intensity value below minimum level continuously for 24 hours, the sunlight sensor disconnection error counter will increase by 1 time. If the ECONAVI is OFF, the 24 hours timer will be reset, but the sunlight sensor disconnection error counter will not be reset.
- Error Code judgment
 - o When sunlight sensor disconnection error counter reached 15 times. H70 occurred.
 - o No TIMER indicator or ECONAVI indicator blink.
- When error code happened, the unit is able to operate without sunlight sensor.

14. Protection Control

14.1 Protection Control For All Operations

14.1.1 Restart Control (Time Delay Safety Control)

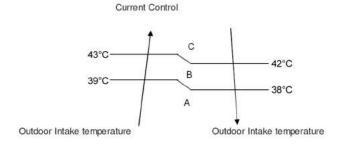
- The Compressor will not turn on within 3 minutes from the moment operation stops, although the unit is turned on again by pressing OFF/ON button at remote control within this period.
- This control is not applicable if the power supply is cut off and on again.
- This phenomenon is to balance the pressure inside the refrigerant cycle.

14.1.2 Total Running Current

- When the outdoor unit total running current (AC) exceeds X value, the frequency instructed for compressor operation will be decreased.
- If the running current does not exceed X value for 5 seconds, the frequency instructed will be increased.
- However, if total outdoor unit running current exceeds Y value, compressor will be stopped immediately for 3 minutes.

Model		E7NKR	E9NKR	E12NKR	E15NKR	E18NKR	E21NKR	E24NKR	E28NKR
	Α	3.95	4.29	6.57	9.07	10.07	11.80	12.48	12.48
Cooling / Soft Dry (X)	В	3.60	3.69	6.13	8.65	8.82	11.46	11.46	11.46
	С	3.60	3.69	6.13	8.05	8.05	10.49	10.12	10.12
Heating (X)		4.46	5.94	7.30	9.82	11.03	11.63	13.54	13.54
Y	·	15.00	15.00	15.00	15.00	15.00	15.00	19.00	19.00

• The first 30 minutes of cooling operation, (A) will be applied.

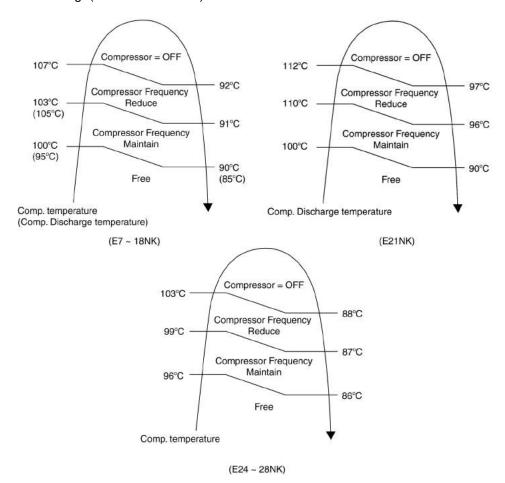


14.1.3 IPM (Power transistor) Prevention Control

- Overheating Prevention Control
 - When the IPM temperature rises to 120°C (E7 ~ 18NK) or 100°C (E21 ~ 24NK) or 120°C (E28NK), compressor operation will stop immediately.
 - Compressor operation restarts after 3 minutes the temperature decreases to 110°C (E7 ~ 18NK) or 95°C (E21 ~ 24NK) or 110°C (E28NK).
 - o If this condition repeats continuously 4 times within 20 minutes, timer LED will be blinking ("F96" is indicated).
- DC Peak Current Control
 - o When electric current to IPM exceeds set value of 18.5 A (E7 \sim 15NK) and 30.0 \pm 5.0A (E18 \sim 28NK), the compressor will stop operate. Then, operation will restart after 3 minutes.
 - If the set value is exceeded again more than 30 seconds after the compressor starts, the operation will restart after 1 minute.
 - If the set value exceeded again within 30 seconds after the compressor starts, the operation will restart after 1 minute. If this condition repeats continuously for 7 times, all indoor and outdoor relays will be cut off, timer LED will be blinking ("F99" is indicated).

14.1.4 Compressor Overheating Prevention Control

- Instructed frequency for compressor operation will be regulated by compressor discharge temperature. The changes of frequency are as below.
- If compressor discharge temperature exceeds 107°C, compressor will be stopped, occurs 4 times per 20 minutes, timer LED will be blinking. ("F97" is indicated.)



14.1.5 Low Pressure Prevention Control (Gas Leakage Detection)

- Control start conditions
 - For 5 minutes, the compressor continuously operates and outdoor total current is between 0.75A and 0.95A (E7/9/12/15NK), 1.38A and 1.65A (E18NK), 1.89A and 2.75A (E21NK), 1.88A and 2.85A (Cooling), 2.85A and 3.57A (Heating) (E24/28NK).
 - During Cooling and Soft Dry operations:
 Indoor suction temperature indoor piping temperature is below 4°C.
 - During Heating operations : Indoor piping temperature - indoor suction is under 5°C.
- Control contents
 - o Compressor stops (and restart after 3 minutes).
 - If the conditions above happen 2 times within 20 minutes, the unit will:
 - Stop operation
 - Timer LED blinks and "F91" indicated.

14.1.6 Low Frequency Protection Control 1

 When the compressor operate at frequency lower than 24 Hz continued for 20 minutes, the operation frequency will be changed to 23 Hz for 2 minutes.

14.1.7 Low Frequency Protection Control 2

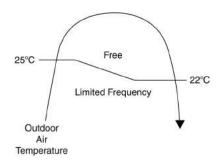
• When all the below conditions comply, the compressor frequency will change to lower frequency.

Temperature, T, for:	Cooling/Soft Dry	Heating
Indoor intake air (°C)	T < 14 or T ≥ 30	T < 14 or T ≥ 28
Outdoor air (°C)	T < 13 or T ≥ 38	T < 4 or T ≥ 24
Indoor heat exchanger (°C)	T < 30	T ≥ 0

14.2 Protection Control For Cooling & Soft Dry Operation

14.2.1 Outdoor Air Temperature Control

- The compressor operating frequency is regulated in accordance to the outdoor air temperature as shown in the diagram below.
- This control will begin 1 minute after the compressor starts.
- Compressor frequency will adjust base on outdoor air temperature.



14.2.2 Cooling Overload Control

- Detects the Outdoor pipe temperature and carry out below restriction/limitation (Limit the compressor Operation frequency).
- The compressor stop if outdoor pipe temperature exceeds 61°C (E7 ~ 15NK), 63°C (E18NK) and 65°C (E21 ~ 28NK).
- If the compressor stops 4 times in 20 minutes, Timer LED blinking (F95 indicated: outdoor high pressure rise protection).

14.2.3 Freeze Prevention Control 1

- When indoor heat exchanger temperature is lower than 0°C continuously for 6 minutes, compressor will stop operating.
- Compressor will resume its operation 3 minutes after the indoor heat exchanger is higher than 5°C.
- At the same time, indoor fan speed will be higher than during its normal operation.
- If indoor heat exchanger temperature is higher than 5°C for 5 minutes, the fan speed will return to its normal operation.

14.2.4 Freeze Prevention Control 2

- Control start conditions
 - o During Cooling operation and soft dry operation
 - During thermo OFF condition, indoor intake temperature is less than 10°C or
 - Compressor stops for freeze prevention control
 - Either one of the conditions above occurs 5 times in 60 minutes.
- Control contents
 - o Operation stops
 - Timer LED blinks and "H99" indicated

14.2.5 Dew Prevention Control 1

- To prevent dew formation at indoor unit discharge area.
- This control will be activated if:
 - Outdoor air temperature and Indoor pipe temperature judgment by microcontroller is fulfilled.
 - When Cooling or Dry mode is operated more than 20 minutes or more.
- This control stopped if:
 - o Compressor stopped.
 - o Remote control setting changed (fan speed / temperature).
 - o Outdoor air temperature and indoor intake temperature changed.
- Fan speed will be adjusted accordingly in this control.

14.2.6 Odor Cut Control

- To reduce the odor released from the unit.
 - Start Condition
 - AUTO FAN Speed is selected during COOL or DRY operation.
 - During freeze prevention control and timer preliminary operation, this control is not applicable.
 - Control content
 - Depends on compressor conditions:
 - 1. Compressor OFF → Compressor ON.
 - The indoor unit fan stops temporarily and then starts to blow at minimum airflow for 30 seconds.
 - 2. Compressor ON → Compressor OFF.
 - The indoor unit fan stops for 90 seconds and then blows at minimum airflow for 20 seconds.

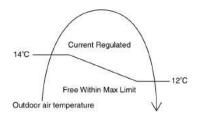
14.3 Protection Control For Heating Operation

14.3.1 Intake Air Temperature Control

Compressor will operate at limited freq., if indoor intake air temperature is 30°C or above.

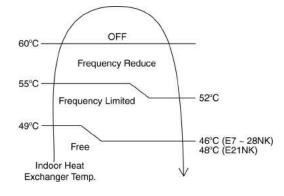
14.3.2 Outdoor Air Temperature Control

The Max current value is regulated when the outdoor air temperature rise above 16°C (E7 ~ 15NK) and 14°C (E18 ~ 28NK) in order to avoid compressor overloading.



14.3.3 Overload Protection Control

- The compressor operating frequency is regulated in accordance to indoor heat exchanger temperature as shown below.
- If the heat exchanger temperature exceeds 60°C, compressor will stop.



14.3.4 Low Temperature Compressor Oil Return Control

• In heating operation, if the outdoor temperature falls below -10°C (E7 ~ 18NK), -8°C (E21 ~ 28NK) when compressor starts, the compressor frequency will be regulated up to 600 seconds.

14.3.5 Cold Draught Prevention Control

When indoor pipe temperature is low, cold draught operation starts where indoor fan speed will be reduced.

14.3.6 Deice Operation

• When outdoor pipe temperature and outdoor air temperature is low, deice operation start where indoor fan motor and outdoor fan motor stop and operation LED blinks.

14.3.7 Demand Control

• When the air-conditioner connected to Demand Response Enabling Devices (DRED), the power consumption especially during peak hours could be controlled.

	Relay 1	O DRM1
	Relay 2	O DRM2
	Relay 3	O DRM3
		O COM
		- 001111
DRED	Α	IR-CONDITIONER

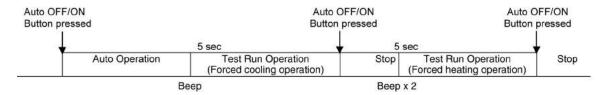
- Three Demand response modes (DRM) are available
 - o DRM1 = Compressor cut off
 - o DRM2 = Operate at 50% of rated input power
 - o DRM3 = Operate at 75% of rated input power
- During DRM, the Power Indicator blinks (3 seconds ON and 0.5 seconds OFF) to indicate the compressor cut off status.

14.3.8 Pump down Operation by CN-S

- A convenience method to activate pump down operation.
- Control start condition:
 - o During power standby condition, short CN-S continuously between 1 second and 10 seconds.
- Control stop condition:
 - 480 seconds after pump down operation starts.
 - CN-S is shorted again during pump down operation.

15. Servicing Mode

15.1 Auto OFF/ON Button



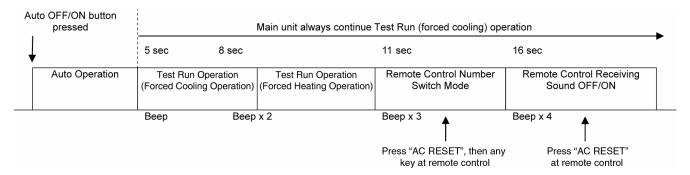
1 AUTO OPERATION MODE

The Auto operation will be activated immediately once the Auto OFF/ON button is pressed. This operation can be used to operate air conditioner with limited function if remote control is misplaced or malfunction.

2 TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)

The Test Run operation will be activated if the Auto OFF/ON button is pressed continuously for more than 5 seconds. A "beep" sound will heard at the fifth seconds, in order to identify the starting of Test Run operation (Forced cooling operation). Within 5 minutes after Forced cooling operation start, the Auto OFF/ON button is pressed for more than 5 seconds. A 2 "beep" sounds will heard at the fifth seconds, in order to identify the starting of Forced heating operation.

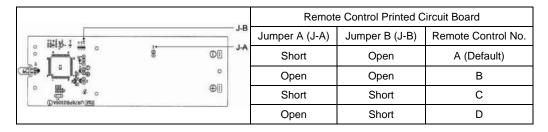
The Auto OFF/ON button may be used together with remote control to set / change the advance setting of air conditioner operation.



3 REMOTE CONTROL NUMBER SWITCH MODE

The Remote Control Number Switch Mode will be activated if the Auto OFF/ON button is pressed continuously for more than 11 seconds (3 "beep" sounds will occur at 11th seconds to identify the Remote Control Number Switch Mode is in standby condition) and press "AC RESET" button and then press any button at remote control to transmit and store the desired transmission code to the EEPROM.

There are 4 types of remote control transmission code could be selected and stored in EEPROM of indoor unit. The indoor unit will only operate when received signal with same transmission code from remote control. This could prevent signal interference when there are 2 or more indoor units installed nearby together. To change remote control transmission code, short or open jumpers at the remote control printed circuit board.



 During Remote Control Number Switch Mode, press any button at remote control to transmit and store the transmission code to the EEPROM.

4 REMOTE CONTROL RECEIVING SOUND OFF/ON MODE

The Remote Control Receiving Sound OFF/ON Mode will be activated if the Auto OFF/ON button is pressed continuously for more than 16 seconds (4 "beep" sounds will occur at 16th seconds to identify the Remote Control Receiving Sound Off/On Mode is in standby condition) and press "AC Reset" button at remote control.

Press "Auto OFF/ON button" to toggle remote control receiving sound.

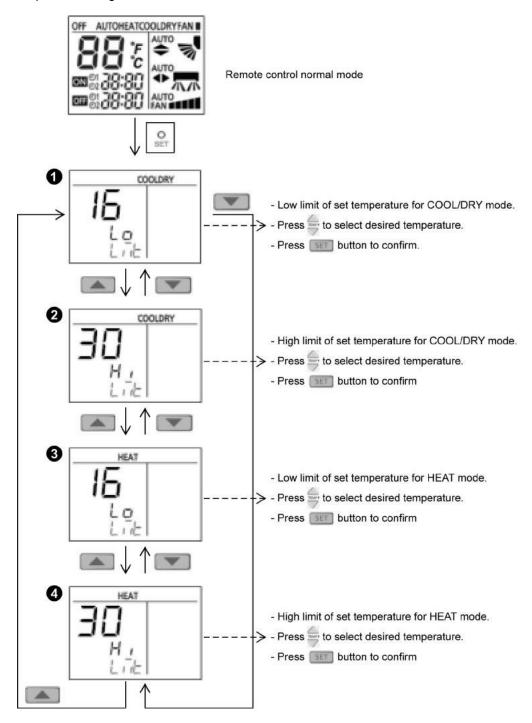
- Short "beep": Turn OFF remote control receiving sound.
- Long "beep": Turn ON remote control receiving sound.

After Auto OFF/ON Button is pressed, the 20 seconds counter for Remote Control Receiving Sound OFF/ON Mode is restarted.

15.2 Remote Control Button

15.2.1 SET Button

To limit set temperature range for COOL/DRY and HEAT mode.



15.2.2 RESET (RC)

- To clear and restore the remote control setting to factory default.
 - o Press once to clear the memory

15.2.3 RESET (AC)

- To restore the unit's setting to factory default
 - Press once to restore the unit's setting.

15.2.4 TIMER ▲

- To change indoor unit indicator's LED intensity
 - o Press continuously for 5 seconds.

15.2.5 TIMER ▼

- To change remote control display from Degree Celsius (°C) to Degree Fahrenheit (°F)
 - o Press continuously for 10 seconds.

16. Troubleshooting Guide

16.1 Refrigeration cycle system

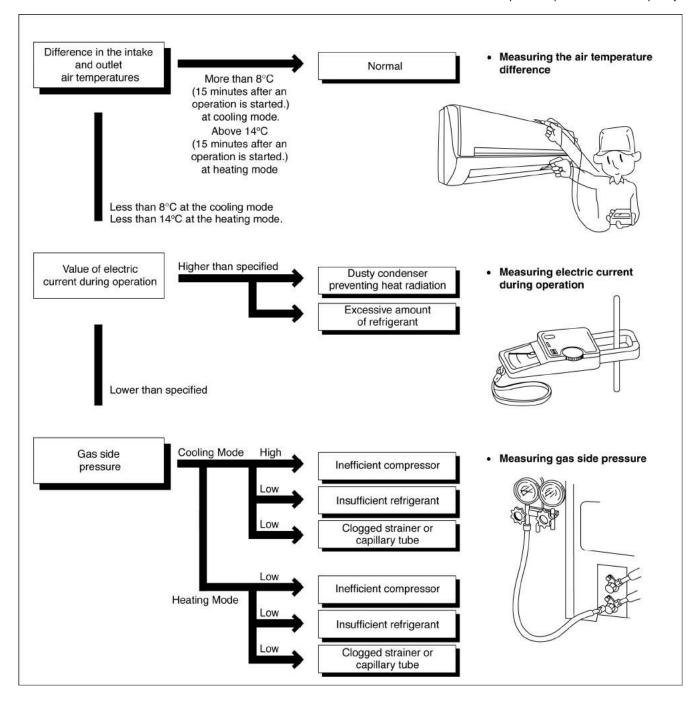
In order to diagnose malfunctions, make sure that there are no electrical problems before inspecting the refrigeration cycle. Such problems include insufficient insulation, problem with the power source, malfunction of a compressor and a fan.

The normal outlet air temperature and pressure of the refrigeration cycle depends on various conditions, the standard values for them are shown in the table on the right.

Mormal	Praccura	and Outlet	Air Temperature	(Standard)

	Gas Pressure	Outlet air
	Mpa (kg/cm²G)	Temperature (°C)
Cooling Mode	0.9 ~ 1.2 (9 ~ 12)	12 ~ 16
Heating Mode	2.3 ~ 2.9 (23 ~ 29)	36 ~ 45

- *Condition: Indoor fan speed = High
 - Outdoor temperature 35°C at the cooling mode and 7°C at the heating mode
 - · Compressor operates at rated frequency



16.1.1 Relationship between the condition of the air conditioner and pressure and electric current

0 199 64	Cooling Mode			Heating Mode		
Condition of the air conditioner	Low Pressure	High Pressure	Electric current during operation	Low Pressure	High Pressure	Electric current during operation
Insufficient refrigerant (gas leakage)	Ä	y .	n n	Ä	y .	y .
Clogged capillary tube or strainer	Ä	Ŋ	ä	7	Я	Я
Short circuit in the indoor unit	Ä	Ä	Ä	7	Я	7
Heat radiation deficiency of the outdoor unit	7	7	7	Ä	Ä	Ä
Inefficient compression	7	Ä	Ä	7	Ä	Ä

[•] Carry out the measurement of pressure, electric current, and temperature fifteen minutes after an operation is started.

16.2 Breakdown Self Diagnosis Function

16.2.1 Self Diagnosis Function (Three Digits Alphanumeric Code)

- Once abnormality has occurred during operation, the unit will stop its operation, and Timer LED blinks.
- Although Timer LED goes off when power supply is turned off, if the unit is operated under a breakdown condition, the LED will light up again.
- In operation after breakdown repair, the Timer LED will no more blink. The last error code (abnormality) will be stored in IC memory.

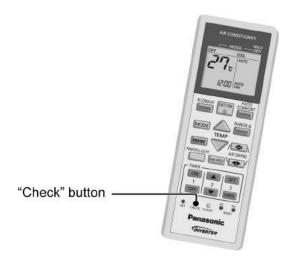
16.2.2 To Make a Diagnosis

- 1 Timer LED start to blink and the unit automatically stops the operation.
- 2 Press the CHECK button on the remote controller continuously for 5 seconds.
- 3 "- -" will be displayed on the remote controller display.
 - Note: Display only for "- -". (No transmitting signal, no receiving sound and no Power LED blinking.)
- 4 Press the "TIMER" ▲ or ▼ button on the remote controller. The code "H00" (no abnormality) will be displayed and signal will be transmitted to the main unit.
- 5 Every press of the button (up or down) will increase abnormality numbers and transmit abnormality code signal to the main unit.
- When the latest abnormality code on the main unit and code transmitted from the remote controller are matched, power LED will light up for 30 seconds and a beep sound (continuously for 4 seconds) will be heard. If no codes are matched, power LED will light up for 0.5 seconds and no sound will be heard.
- 7 The breakdown diagnosis mode will be canceled unless pressing the CHECK button continuously for 5 seconds or operating the unit for 30 seconds.
- 8 The LED will be off if the unit is turned off or the RESET button on the main unit is pressed.

16.2.3 To Display Memorized Error Code (Protective Operation)

- 1 Turn power on.
- 2 Press the CHECK button on the remote controller continuously for 5 seconds.
- 3 "- -" will be displayed on the remote controller display.
 - Note: Display only for "- -". (No transmitting signal, no receiving sound and no Power LED blinking.)
- 4 Press the "TIMER" ▲ or ▼ button on the remote controller. The code "H00" (no abnormality) will be displayed and signal will be transmitted to the main unit. The power LED lights up. If no abnormality is stored in the memory, three beeps sound will be heard.
- 5 Every press of the button (up or down) will increase abnormality numbers and transmit abnormality code signal to the main unit.

- 6 When the latest abnormality code on the main unit and code transmitted from the remote controller are matched, power LED will light up for 30 seconds and a beep sound (continuously for 4 seconds) will be heard. If no codes are matched, power LED will light up for 0.5 seconds and no sound will be heard.
- 7 The breakdown diagnosis mode will be canceled unless pressing the CHECK button continuously for 5 seconds or operating the unit for 30 seconds.
- 8 The same diagnosis can be repeated by turning power on again.



16.2.4 To Clear Memorized Error Code after Repair (Protective Operation)

- 1 Turn power on (in standby condition).
- 2 Press the AUTO button for 5 seconds (A beep receiving sound) on the main unit to operate the unit at Forced Cooling Operation modes.
- Press the CHECK button on the remote controller for about 1 second with a pointed object to transmit signal to main unit. A beep sound is heard from main unit and the data is cleared.

16.2.5 Temporary Operation (Depending On Breakdown Status)

- 1 Press the AUTO button (A beep receiving sound) on the main unit to operate the unit. (Remote control will become possible.)
- 2 The unit can temporarily be used until repaired.

16.3 Error Code Table

Diagnosis display	Abnormality / Protection control	Abnormality Judgement	Protection operation	Problem	Check location
H00	No memory of failure	 :	Normal operation	_	-
H11	Indoor/outdoor abnormal communication	After operation for 1 minute	Indoor fan only operation can start by entering into force cooling operation	Indoor/outdoor communication not establish	Indoor/outdoor wire terminal Indoor/outdoor PCB Indoor/outdoor connection wire
H12	Indoor unit capacity unmatched	90s after power supply	_	Total indoor capability more than maximum limit or less than minimum limit, or number of indoor unit less than two.	Indoor/outdoor connection wire Indoor/outdoor PCB Specification and combination table in catalogue
H14	Indoor intake air temperature sensor abnormality	Continuous for 5s	7 4	Indoor intake air temperature sensor open or short circuit	Indoor intake air temperature sensor lead wire and connector
H15	Compressor temperature sensor abnormality	Continuous for 5s		Compressor temperature sensor open or short circuit	Compressor temperature sensor lead wire and connector
H16	Outdoor current transformer (CT) abnormality	##	2=)	Current transformer faulty or compressor faulty	Outdoor PCB faulty or compressor faulty
H19	Indoor fan motor merchanism lock	Continuous happen for 7 times	-	Indoor fan motor lock or feedback abnormal	Fan motor lead wire and connector Fan motor lock or block
H23	Indoor heat exchanger temperature sensor abnormality	Continuous for 5s	-	Indoor heat exchanger temperature sensor open or short circuit	Indoor heat exchanger temperature sensor lead wire and connector
H25	Indoor E-Ion abnormality	Port is ON for 10s during E-lon off	a - R	×	• E-lon PCB
H27	Outdoor air temperature sensor abnormality	Continuous for 5s		Outdoor air temperature sensor open or short circuit	Outdoor air temperature sensor lead wire and connector
H28	Outdoor heat exchanger temperature sensor 1 abnormality	Continuous for 5s		Outdoor heat exchanger temperature sensor 1 open or short circuit	Outdoor heat exchanger temperature sensor 1 lead wire and connector
H30	Outdoor discharge pipe temperature sensor abnormality	Continuous for 5s	-	Outdoor discharge pipe temperature sensor open or short circuit	Outdoor discharge pipe temperature sensor lead wire and connector
H32	Outdoor heat exchanger temperature sensor 2 abnormality	Continuous for 5s		Outdoor heat exchanger temperature sensor 2 open or short circuit	Outdoor heat exchanger temperature sensor 2 lead wire and connector
H33	Indoor / outdoor misconnection abnormality	-	-	Indoor and outdoor rated voltage different	Indoor and outdoor units check
H34	Outdoor heat sink temperature sensor abnormality	Continuous for 2s		Outdoor heat sink temperature sensor open or short circuit	Outdoor heat sink sensor
H36	Outdoor gas pipe temperature sensor abnormality	Continuous for 5s	Heating protection operation only	Outdoor gas pipe temperature sensor open or short circuit	Outdoor gas pipe temperature sensor lead wire and connector
H37	Outdoor liquid pipe temperature sensor abnormality	Continuous for 5s	Cooling protection operation only	Outdoor liquid pipe temperature sensor open or short circuit	Outdoor liquid pipe temperature sensor lead wire and connector
H38	Indoor/Outdoor mismatch (brand code)	_	_	Brand code not match	Check indoor unit and outdoor unit.

Diagnosis display	Abnormality / Protection control	Abnormality Judgement	Protection operation	Problem	Check location	
H39	Abnormal indoor operating unit or standby units	3 times happen within 40 minutes	-	Wrong wiring and connecting pipe, expansion valve abnormality, indoor heat exchanger sensor open circuit	Check indoor/outdoor connection wire and connection pipe Indoor heat exchanger sensor lead wire and connector Expansion valve and lead wire and connector	
H41	Abnormal wiring or piping connection). 	 	Wrong wiring and connecting pipe, expansion valve abnormality	 Check indoor/outdoor connection wire and connection pipe Expansion valve and lead wire and connector. 	
H59	ECO patrol sensor abnormality	Continuous for 70s	85 	ECO patrol sensor open or short circuit	ECO patrol sensor ECO patrol and Indoor PCB	
H64	Outdoor high pressure sensor abnormality	Continuous for 1 minutes	: 	High pressure sensor open circuit during compressor stop	High pressure sensor Lead wire and connector	
H97	Outdoor fan motor mechanism lock	2 times happen within 30 minutes	** <u></u>	Outdoor fan motor lock or feedback abnormal	Outdoor fan motor lead wire and connector Fan motor lock or block	
H98	Indoor high pressure protection); 	3 	Indoor high pressure protection (Heating)	Check indoor heat exchanger Air filter dirty Air circulation short circuit	
H99	Indoor operating unit freeze protection	-	-	Indoor freeze protection (Cooling)	Check indoor heat exchanger Air filter dirty Air circulation short circuit	
F11	4-way valve switching abnormality	4 times happen within 30 minutes	2	4-way valve switching abnormal	4-way valve Lead wire and connector.	
F17	Indoor standby units freezing abnormality	3 times happen within 40 minutes	-	Wrong wiring and connecting pipe, expansion valve leakage, indoor heat exchanger sensor open circuit	Check indoor/outdoor connection wire and pipe Indoor heat exchanger sensor lead wire and connector Expansion valve lead wire and connector.	
F90	Power factor correction (PFC) circuit protection	4 times happen within 10 minutes	() 	Power factor correction circuit abnormal	Outdoor PCB faulty	
F91	Refrigeration cycle abnormality	2 times happen within 20 minutes	12 1-11	Refrigeration cycle abnormal	Insufficient refrigerant or valve close	
F93	Compressor abnormal revolution	4 times happen within 20 minutes	% 	Compressor abnormal revolution	Power transistor module faulty or compressor lock	
F94	Compressor discharge pressure overshoot protection	4 times happen within 30 minutes)77 <u></u>	Compressor discharge pressure overshoot	Check refrigeration system	
F95	Outdoor cooling high pressure protection	4 times happen within 20 minutes	8-	Cooling high pressure protection	Check refrigeration system Outdoor air circuit	
F96	Power transistor module overheating protection	4 times happen within 30 minutes	77 <u>-12</u>	Power transistor module overheat	PCB faulty Outdoor air circuit (fan motor)	
F97	Compressor overheating protection	3 times happen within 30 minutes	-	Compressor overheat	Insufficient refrigerant	
F98	Total running current protection	3 times happen within 20 minutes	8 	Total current protection	Check refrigeration system Power source or compressor lock	
F99	Outdoor direct current (DC) peak detection	Continuous happen for 7 times	32 -73	Power transistor module current protection	Power transistor module faulty or compressor lock	

16.4 Self-diagnosis Method

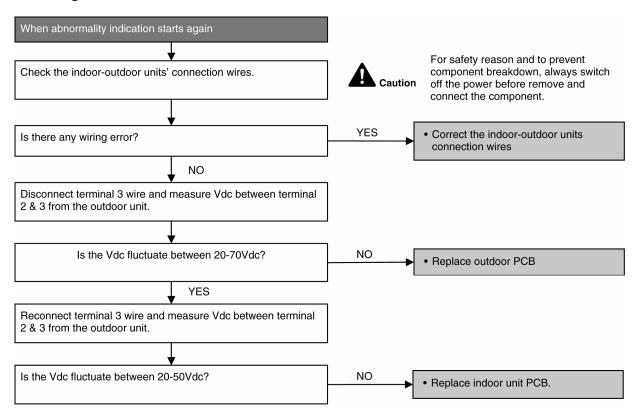
16.4.1 H11 (Indoor/Outdoor Abnormal Communication)

Malfunction Decision Conditions

 During startup and operation of cooling and heating, the data received from outdoor unit in indoor unit signal transmission is checked whether it is normal.

Malfunction Caused

- Faulty indoor unit PCB.
- Faulty outdoor unit PCB.
- Indoor unit-outdoor unit signal transmission error due to wrong wiring.
- Indoor unit-outdoor unit signal transmission error due to breaking of wire in the connection wires between the indoor and outdoor units.
- Indoor unit-outdoor unit signal transmission error due to disturbed power supply waveform.



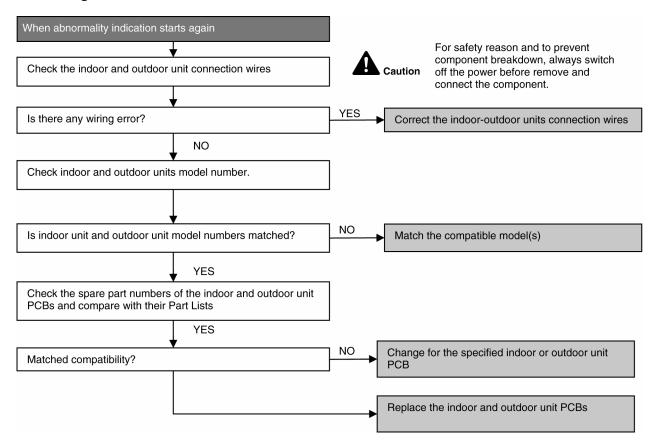
16.4.2 H12 (Indoor/Outdoor Capacity Rank Mismatched)

Malfunction Decision Conditions

• During startup, error code appears when different types of indoor and outdoor units are interconnected.

Malfunction Caused

- Wrong models interconnected.
- Wrong indoor unit or outdoor unit PCBs mounted.
- Indoor unit or outdoor unit PCBs defective.
- Indoor-outdoor unit signal transmission error due to wrong wiring.
- Indoor-outdoor unit signal transmission error due to breaking of wire 3 in the connection wires between the indoor and outdoor units.



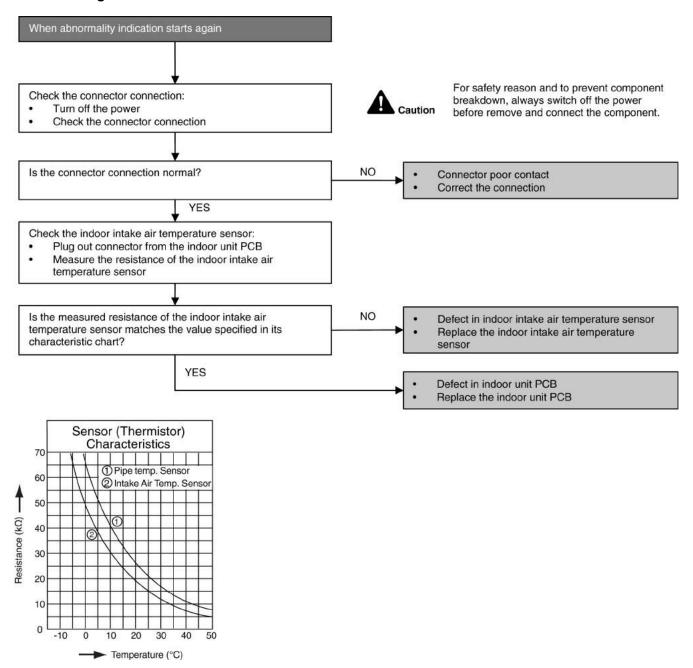
16.4.3 H14 (Indoor Intake Air Temperature Sensor Abnormality)

Malfunction Decision Conditions

 During startup and operation of cooling and heating, the temperatures detected by the indoor intake air temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



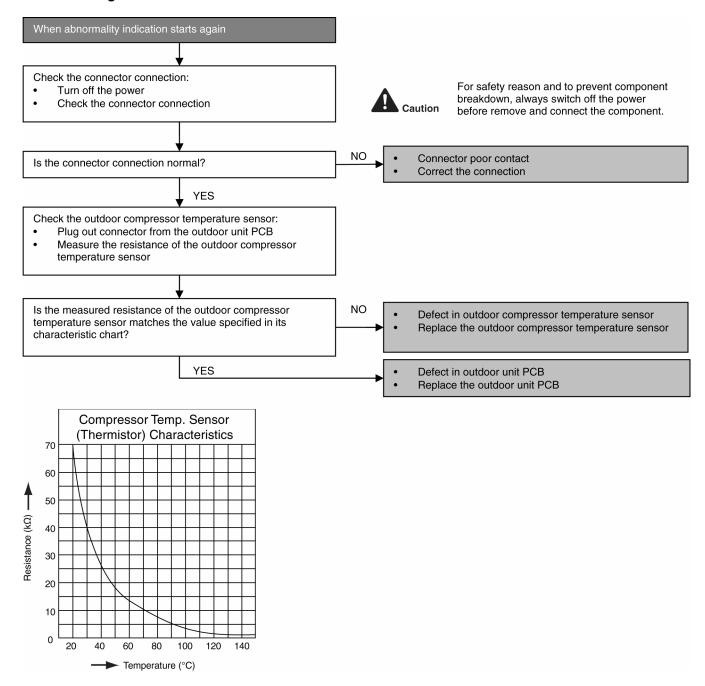
16.4.4 H15 (Compressor Temperature Sensor Abnormality)

Malfunction Decision Conditions

• During startup and operation of cooling and heating, the temperatures detected by the outdoor compressor temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



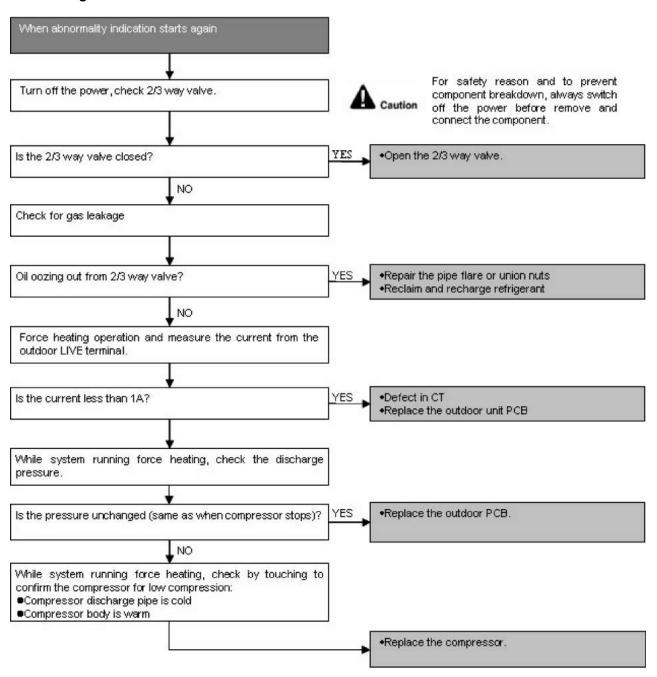
16.4.5 H16 (Outdoor Current Transformer Open Circuit)

Malfunction Decision Conditions

 A current transformer (CT) is detected by checking the compressor running frequency (≥ rated frequency) and CT detected input current (less than 0.65A) for continuously 20 seconds.

Malfunction Caused

- CT defective
- Outdoor PCB defective
- Compressor defective (low compression)



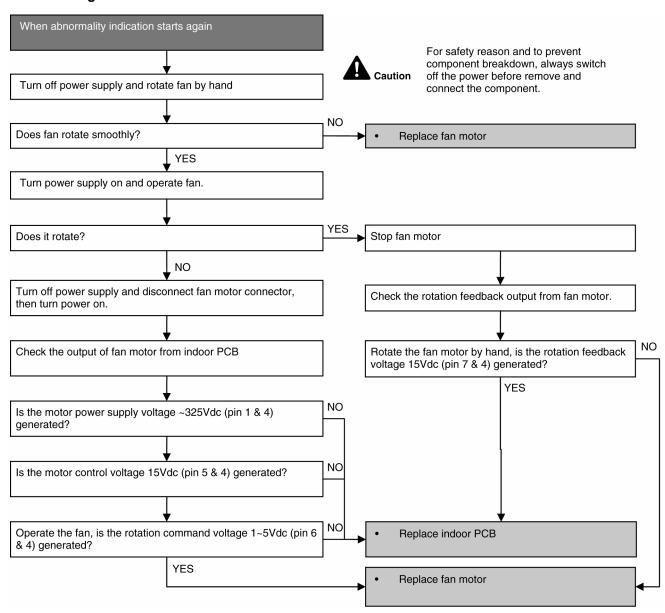
16.4.6 H19 (Indoor Fan Motor – DC Motor Mechanism Locked)

Malfunction Decision Conditions

 The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor (feedback of rotation > 2550rpm or < 50rpm)

Malfunction Caused

- Operation stops due to short circuit inside the fan motor winding.
- Operation stops due to breaking of wire inside the fan motor.
- Operation stops due to breaking of fan motor lead wires.
- Operation stops due to Hall IC malfunction.
- Operation error due to faulty indoor unit PCB.



16.4.7 H23 (Indoor Pipe Temperature Sensor Abnormality)

Malfunction Decision Conditions

 During startup and operation of cooling and heating, the temperatures detected by the indoor heat exchanger temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.

Troubleshooting

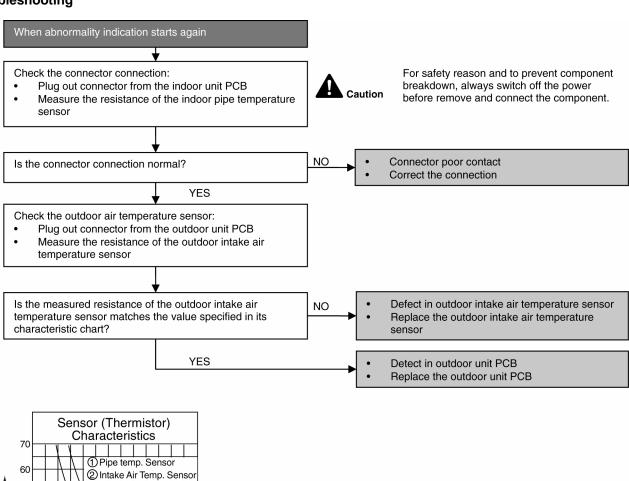
Resistance (kΩ)

40302010

-10

10 20 30

Temperature (°C)



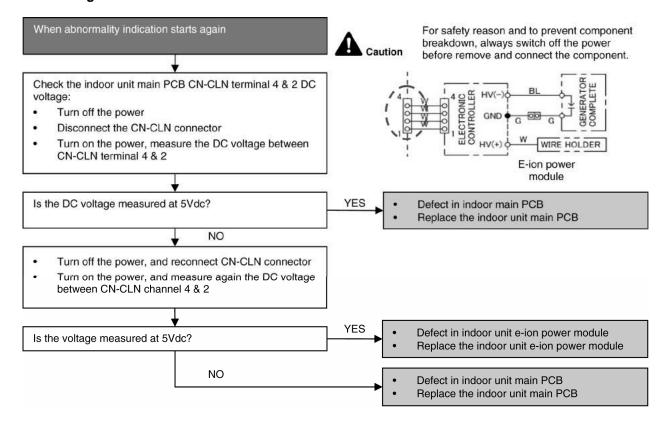
16.4.8 H25 (e-ion Air Purifying System Abnormal)

Malfunction Decision Conditions

• During standby of cooling and heating operation, e-ion breakdown occurs and air conditioner stops operation.

Malfunction Caused

- Faulty indoor main PCB.
- Faulty indoor e-ion power module.



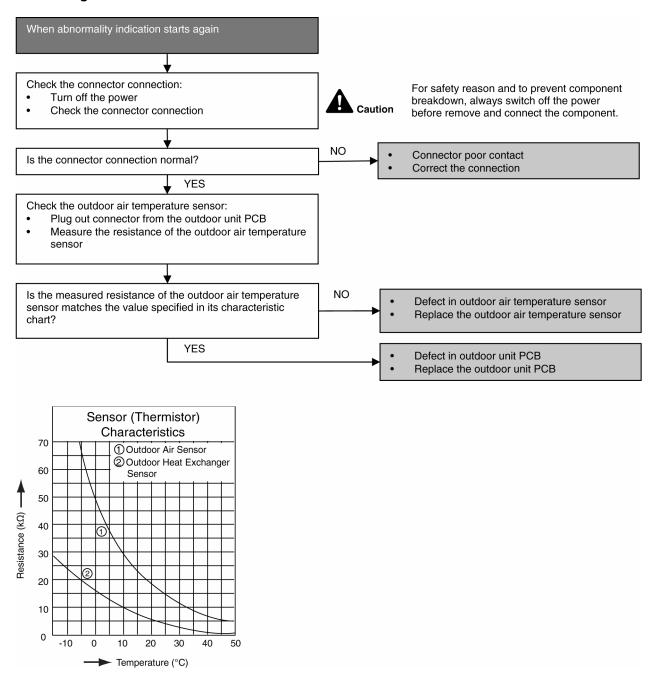
16.4.9 H27 (Outdoor Air Temperature Sensor Abnormality)

Malfunction Decision Conditions

 During startup and operation of cooling and heating, the temperatures detected by the outdoor air temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



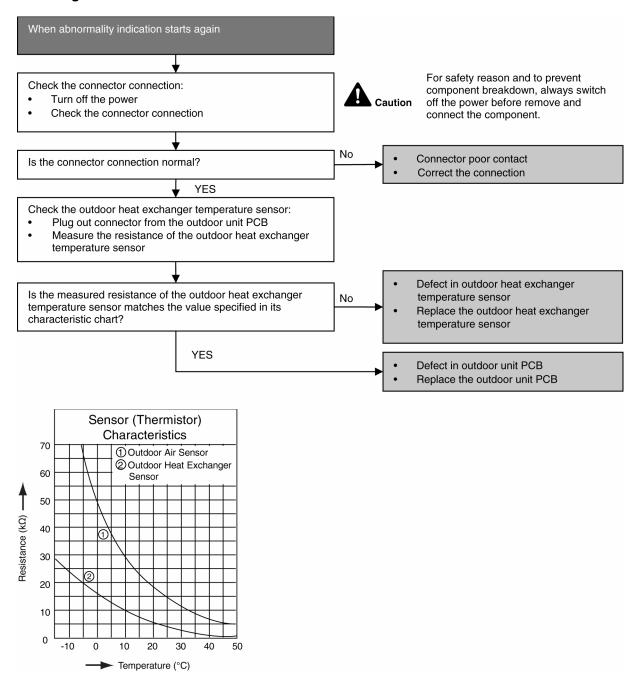
16.4.10 H28 (Outdoor Pipe Temperature Sensor Abnormality)

Malfunction Decision Conditions

• During startup and operation of cooling and heating, the temperatures detected by the outdoor pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



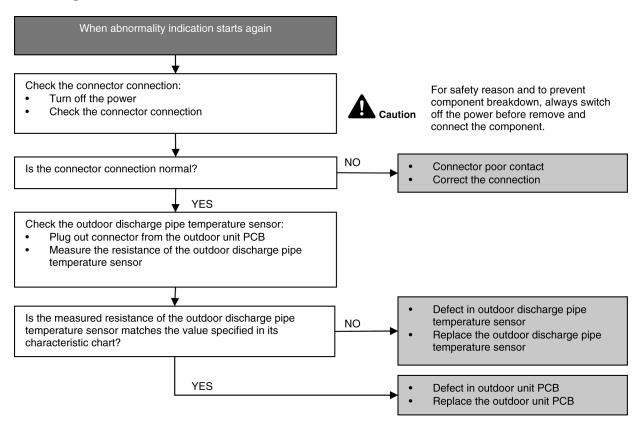
16.4.11 H30 (Compressor Discharge Temperature Sensor Abnormality)

Malfunction Decision Conditions

 During startup and operation of cooling and heating, the temperatures detected by the outdoor discharge pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



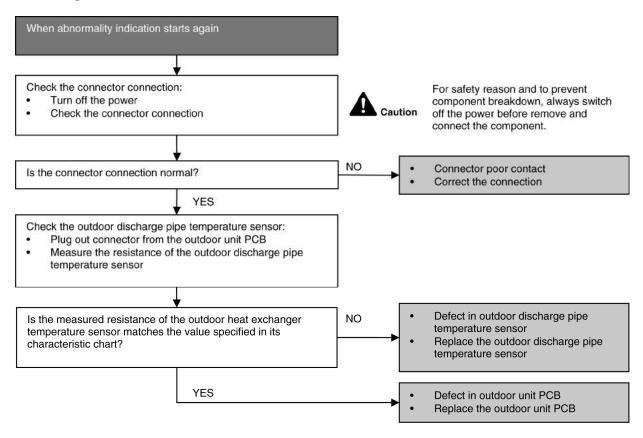
16.4.12 H32 (Outdoor Heat Exchanger Temperature Sensor 2 Abnormality)

Malfunction Decision Conditions

• During startup and operation of cooling and heating, the temperatures detected by the outdoor heat exchanger temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



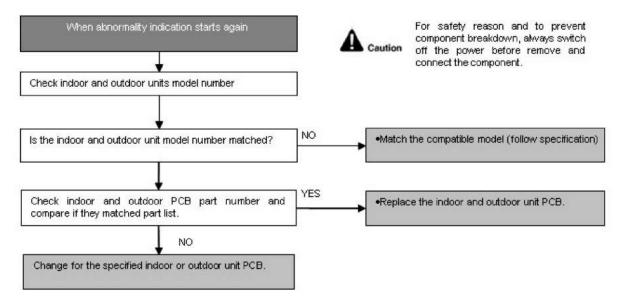
16.4.13 H33 (Unspecified Voltage between Indoor and Outdoor)

Malfunction Decision Conditions

• The supply power is detected for its requirement by the indoor/outdoor transmission.

Malfunction Caused

- Wrong models interconnected.
- Wrong indoor unit and outdoor unit PCBs used.
- Indoor unit or outdoor unit PCB defective.



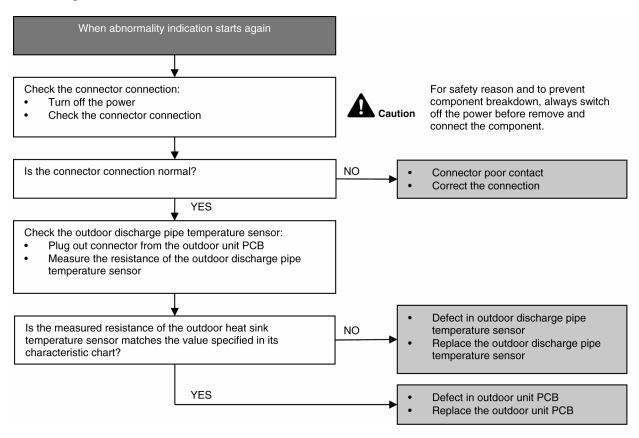
16.4.14 H34 (Outdoor Heat Sink Temperature Sensor Abnormality)

Malfunction Decision Conditions

• During startup and operation of cooling and heating, the temperatures detected by the outdoor heat sink temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



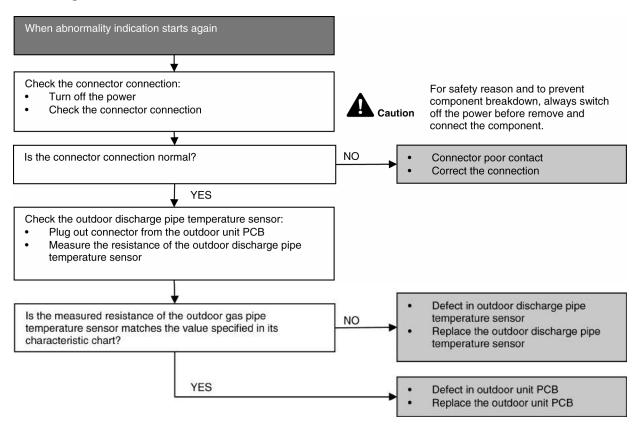
16.4.15 H36 (Outdoor Gas Pipe Sensor Abnormality)

Malfunction Decision Conditions

 During startup and operation of cooling and heating, the temperatures detected by the outdoor gas pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



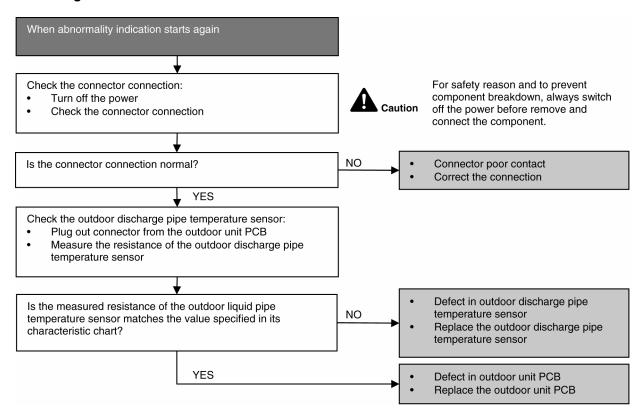
16.4.16 H37 (Outdoor Liquid Pipe Temperature Sensor Abnormality)

Malfunction Decision Conditions

 During startup and operation of cooling and heating, the temperatures detected by the outdoor liquid pipe temperature sensor are used to determine sensor errors.

Malfunction Caused

- Faulty connector connection.
- Faulty sensor.
- Faulty PCB.



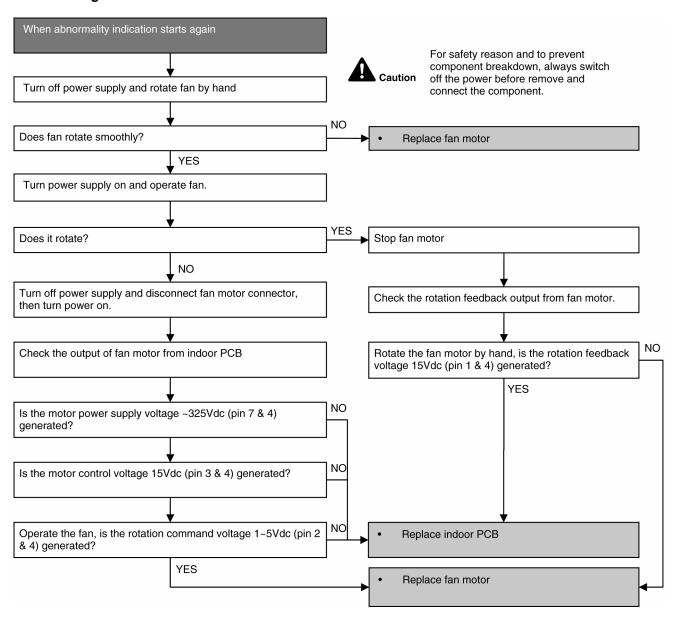
16.4.17 H97 (Outdoor Fan Motor – DC Motor Mechanism Locked)

Malfunction Decision Conditions

• The rotation speed detected by the Hall IC during fan motor operation is used to determine abnormal fan motor.

Malfunction Caused

- Operation stops due to short circuit inside the fan motor winding.
- Operation stops due to breaking of wire inside the fan motor.
- Operation stops due to breaking of fan motor lead wires.
- Operation stops due to Hall IC malfunction.
- Operation error due to faulty outdoor unit PCB.



16.4.18 H98 (Indoor High Pressure Protection)

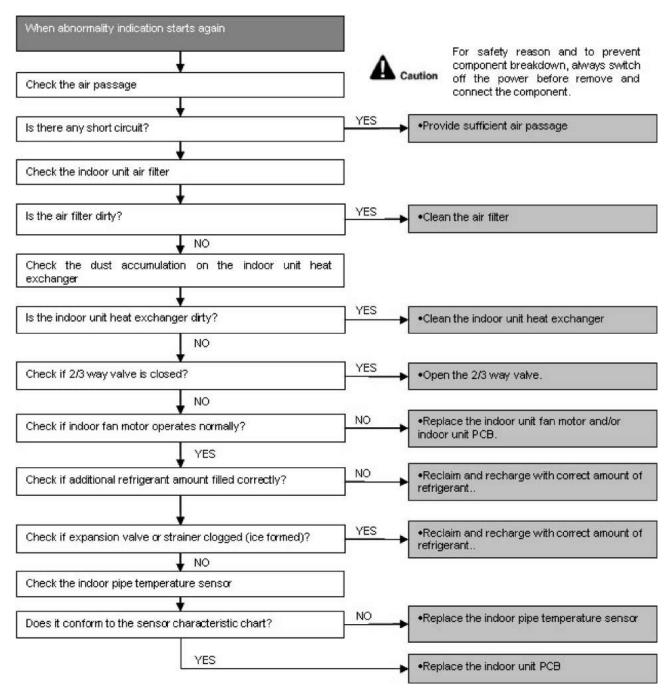
Error Code will not display (no Timer LED blinking) but store in EEPROM

Malfunction Decision Conditions

During heating operation, the temperature detected by the indoor pipe temperature sensor is above 60°C.

Malfunction Caused

- Air short circuit at indoor unit
- Clogged indoor unit air filter
- Dust accumulation on the indoor unit heat exchanger
- 2/3 way valve closed
- Faulty indoor unit fan motor
- Excessive refrigerant
- Clogged expansion valve or strainer
- Faulty indoor pipe temperature sensor
- Faulty indoor unit PCB



16.4.19 H99 (Indoor Freeze Prevention Protection: Cooling or Soft Dry)

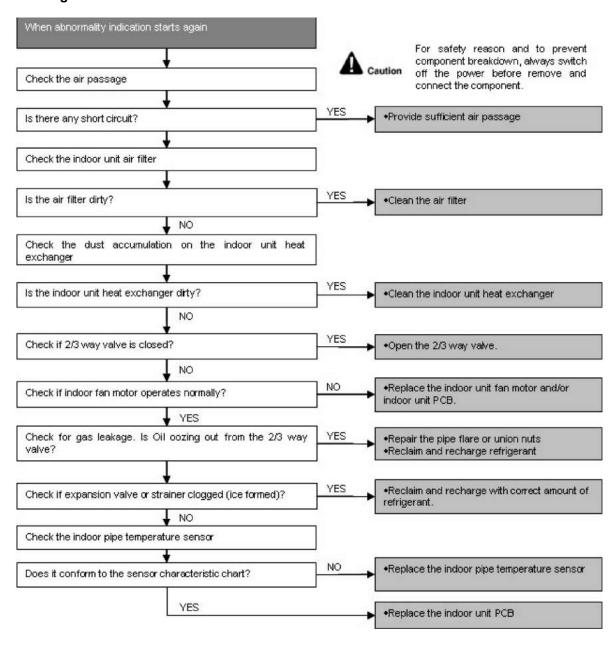
Error Code will not display (no Timer LED blinking) but store in EEPROM

Malfunction Decision Conditions

Freeze prevention control takes place (when indoor pipe temperature is lower than 2°C)

Malfunction Caused

- Air short circuit at indoor unit
- Clogged indoor unit air filter
- Dust accumulation on the indoor unit heat exchanger
- 2/3 way valve closed
- Faulty indoor unit fan motor
- Refrigerant shortage (refrigerant leakage)
- Clogged expansion valve or strainer
- Faulty indoor pipe temperature sensor
- Faulty indoor unit PCB



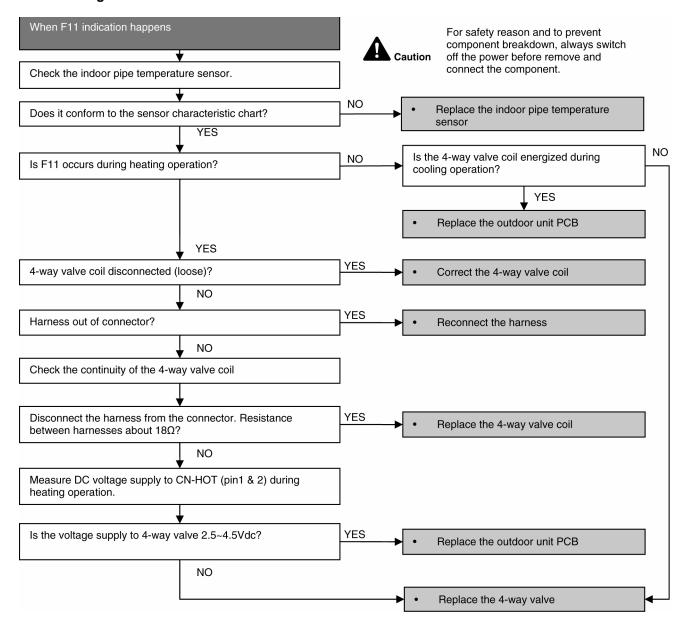
16.4.20 F11 (4-way valve Abnormality)

Malfunction Decision Conditions

- When heating operation, when indoor pipe temperature is below 10°C
- When cooling operation, when indoor pipe temperature is above 45°C

Malfunction Caused

- Connector in poor contact
- Faulty sensor
- Faulty outdoor unit PCB
- 4-way valve defective



16.4.21 F17 (Indoor Standby Units Freezing Abnormality)

Malfunction Decision Conditions

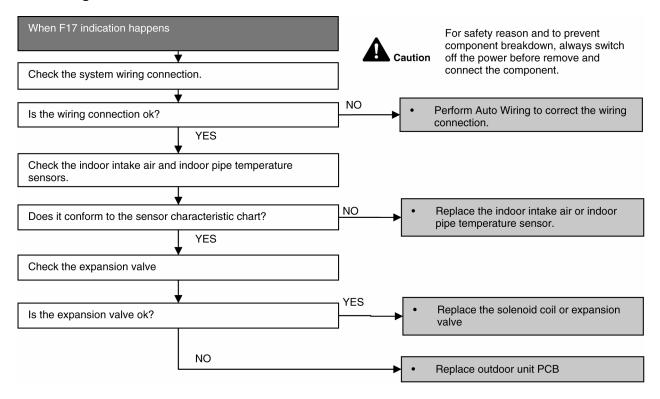
 When the different between indoor intake air temperature and indoor pipe temperature is above 10°C or indoor pipe temperature is below -1.0°C

Remark:

When the indoor standby unit is freezing, the outdoor unit transfers F17 error code to the corresponding indoor unit and H39 to other indoor unit(s).

Malfunction Caused

- Wrong wiring connection
- Faulty sensor
- Faulty expansion valve



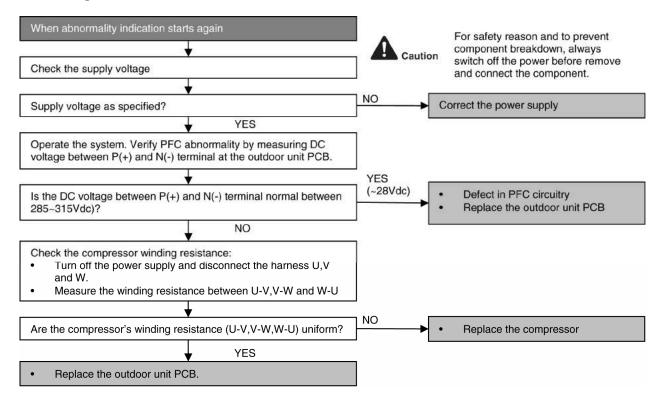
16.4.22 F90 (Power Factor Correction Protection)

Malfunction Decision Conditions

• During startup and operation of cooling and heating, when Power Factor Correction (PFC) protection circuitry at the outdoor unit main PCB senses abnormal high DC voltage level.

Malfunction Caused

- DC voltage peak due to power supply surge.
- DC voltage peak due to compressor windings not uniform.
- Faulty outdoor PCB.



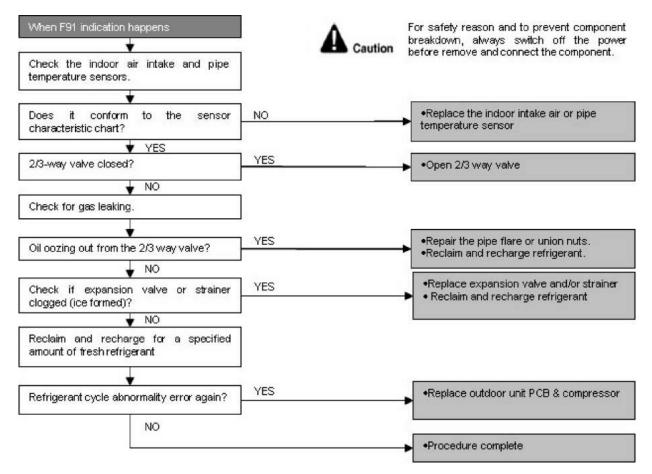
16.4.23 F91 (Refrigeration Cycle Abnormality)

Malfunction Decision Conditions

- During cooling, compressor frequency = Fcmax.
- During heating, compressor frequency > Fhrated.
- During cooling and heating operation, running current: 0.65A < I < 1.65A.
- During cooling, indoor intake indoor pipe < 4°C
- During heating, indoor pipe indoor intake < 5°C Multi Models Only
 - Gas shortage detection 1: A gas shortage is detected by checking the CT-detected input current value and the compressor running frequency. During startup and operating of cooling and heating, input current < 8.78/256 (A/Hz) x compressor running frequency + 0.25.
 - Gas shortage detection 2: A gas shortage is detected by checking the difference between indoor pipe temperature and indoor intake air temperature during cooling and heating.

Malfunction Caused

- Faulty indoor intake air or pipe temperature sensor
- 2/3 way valve closed
- Refrigerant shortage (refrigerant leakage)
- Clogged expansion valve or strainer
- Faulty outdoor unit
- Poor compression of compressor



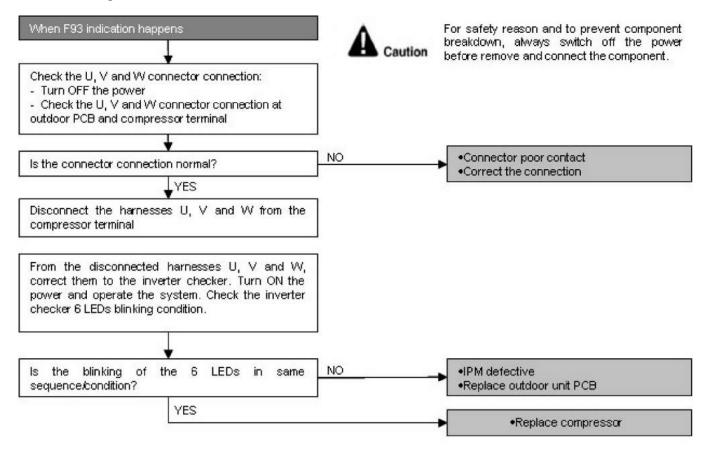
16.4.24 F93 (Compressor Rotation Failure)

Malfunction Decision Conditions

 A compressor rotation failure is detected by checking the compressor running condition through the position detection circuit.

Malfunction Caused

- Compressor terminal disconnect
- Faulty Outdoor PCB
- Faulty compressor



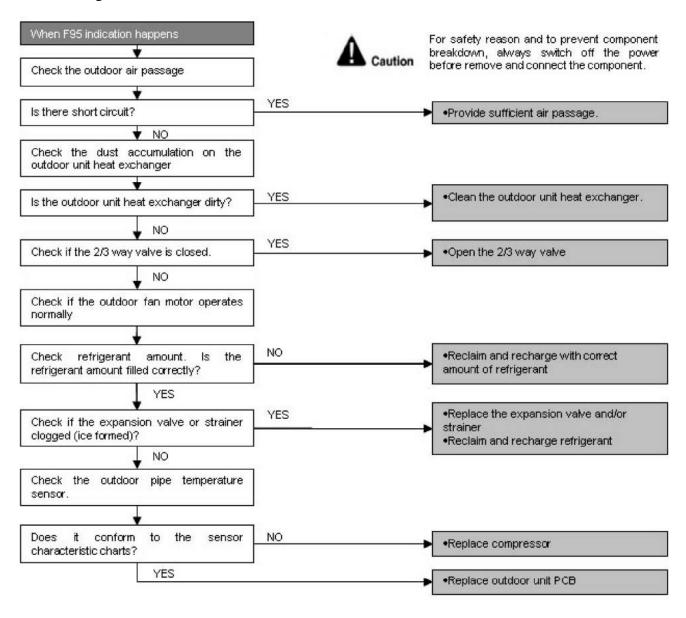
16.4.25 F95 (Cooling High Pressure Abnormality)

Malfunction Decision Conditions

• During operation of cooling, when outdoor unit heat exchanger high temperature data (61°C) is detected by the outdoor pipe temperature sensor.

Malfunction Caused

- Air short circuit at indoor unit
- Dust accumulation on the indoor unit heat exchanger
- 2/3 way valve closed
- Faulty outdoor unit fan motor
- Excessive refrigerant
- Clogged expansion valve or strainer
- Faulty outdoor pipe temperature sensor
- Faulty outdoor unit PCB



16.4.26 F96 (IPM Overheating)

Malfunction Decision Conditions

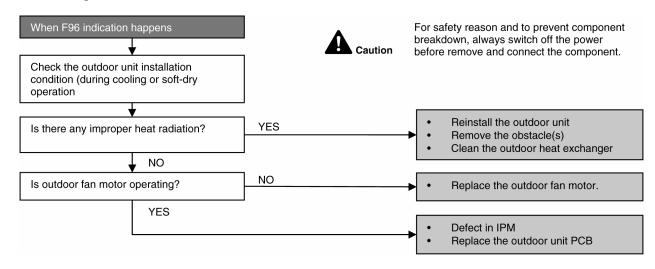
 During operating of cooling and heating, when IPM temperature data (100°C) is detected by the IPM temperature sensor.

Multi models only

- Compressor Overheating: During operation of cooling and heating, when the compressor OL is activated.
- Heat Sink Overheating: During operation of cooling and heating, when heat sink temperature data (90°C) is detected by the heat sink temperature sensor.

Malfunction Caused

- IPM overheats due to short circuit of hot discharge air flow.
- IPM overheats due to defective of outdoor fan motor.
- IPM overheats due to defective of internal circuitry of IPM.
- IPM overheats due to defective IPM temperature sensor.
 Multi Models Only
 - Compressor OL connector poor contact.
 - o Compressor OL faulty.



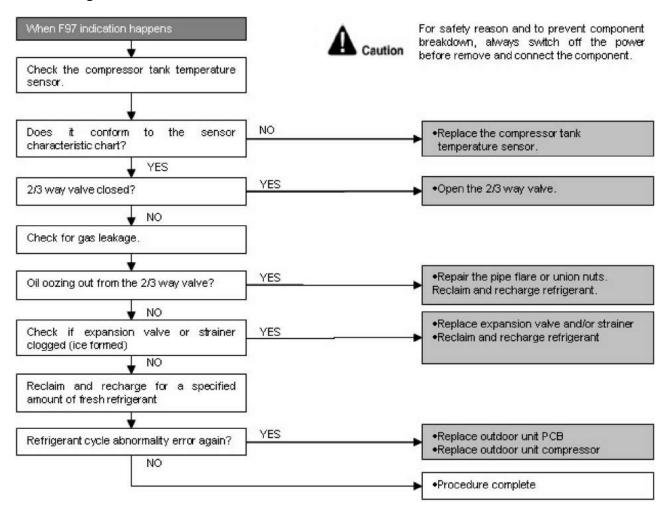
16.4.27 F97 (Compressor Overheating)

Malfunction Decision Conditions

• During operation of cooling and heating, when compressor tank temperature data (112°C) is detected by the compressor tank temperature sensor.

Malfunction Caused

- Faulty compressor tank temperature sensor
- 2/3 way valve closed
- Refrigerant shortage (refrigerant leakage)
- Faulty outdoor unit PCB
- Faulty compressor



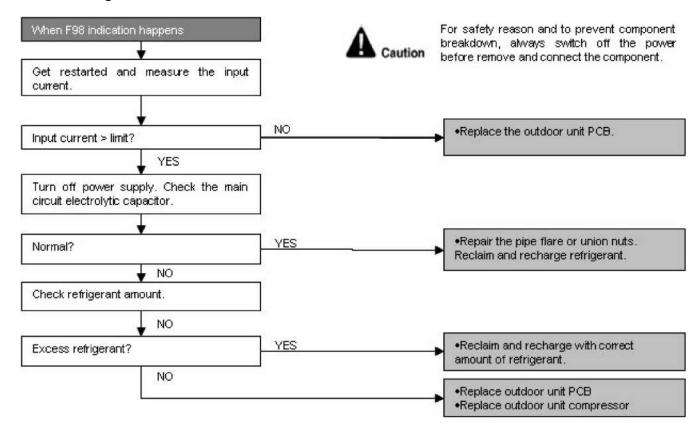
16.4.28 F98 (Input Over Current Detection)

Malfunction Decision Conditions

 During operation of cooling and heating, when an input over-current (X value in Total Running Current Control) is detected by checking the input current value being detected by current transformer (CT) with the compressor running.

Malfunction Caused

- Excessive refrigerant.
- Faulty outdoor unit PCB.



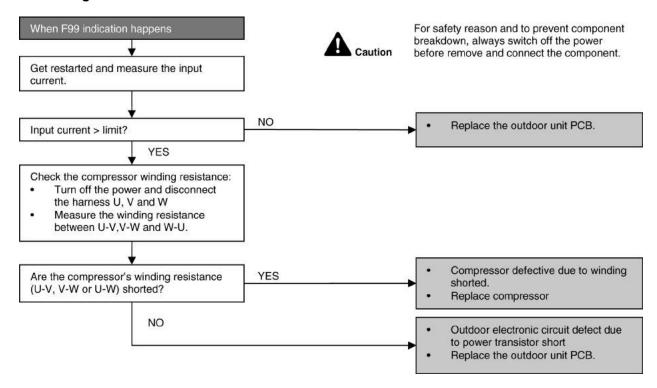
16.4.29 F99 (Output Over Current Detection)

Malfunction Decision Conditions

 During operation of cooling and heating, when an output over-current (DC peak current value at IPM Prevention Control) is detected by checking the current that flows in the inverter DC peak sensing circuitry.

Malfunction Caused

- Faulty outdoor unit PCB
- Faulty compressor



- Checking the power transistor
- Never touch any live parts for at least 10 minutes after turning off the circuit breaker.
- If unavoidable necessary to touch a live part, make sure the power transistor's supply voltage is below 50V using the tester.
- For the UVW, make measurement at the Faston terminal on the board of the relay connector.

Tester's negative terminal	Power transistor (+)	UVW	Power transistor (-)	UVW		
Tester's positive terminal	UVW	Power transistor (+)	UVW	Power transistor (-)		
Normal resistance	Several k Ω to several M Ω					
Abnormal resistance	0 or ∞					

17. Disassembly and Assembly Instructions



High Voltage is generated in the electrical parts area by the capacitor. Ensure that the capacitor has discharged sufficiently before proceeding with repair work. Failure to heed this caution may result in electric shocks.

17.1 CS-E7NK CS-E9NK CS-E12NK CS-E15NK

17.1.1 Indoor Electronic Controllers, Cross Flow Fan and Indoor Fan Motor Removal Procedures

17.1.1.1 To remove front grille

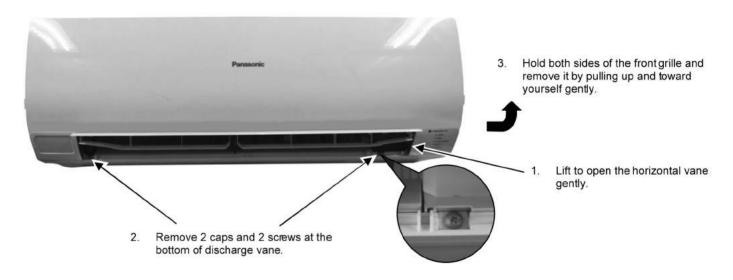


Figure 1

17.1.1.2 To remove power electronic controller

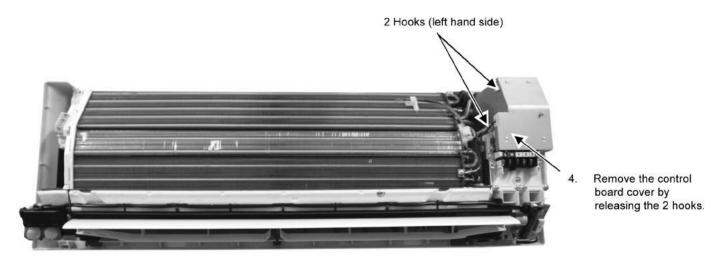


Figure 2

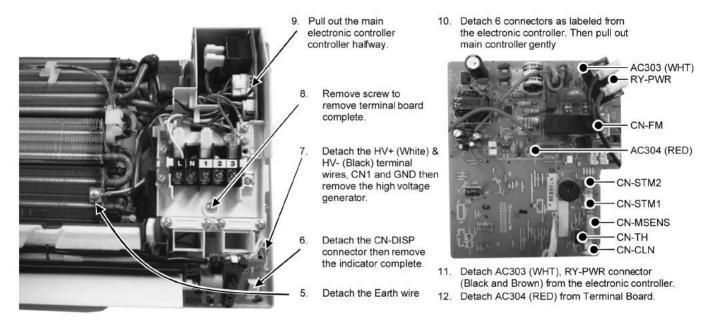


Figure 3 Figure 4

17.1.1.3 To remove discharge grille

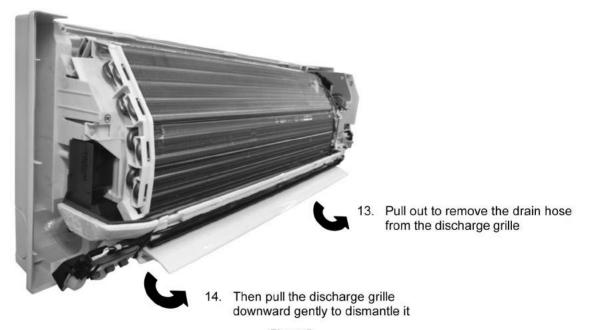
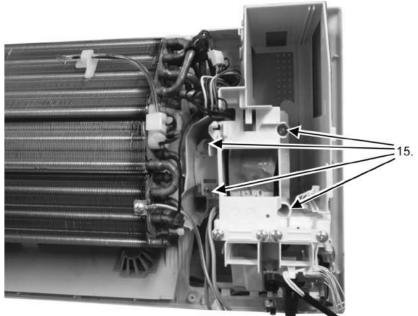


Figure 5

17.1.1.4 To remove control board



Remove 4 screws holding the control board then pull out the control board.

Figure 6

17.1.1.5 To remove cross flow fan and indoor fan motor

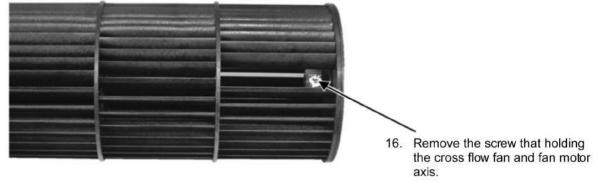


Figure 7

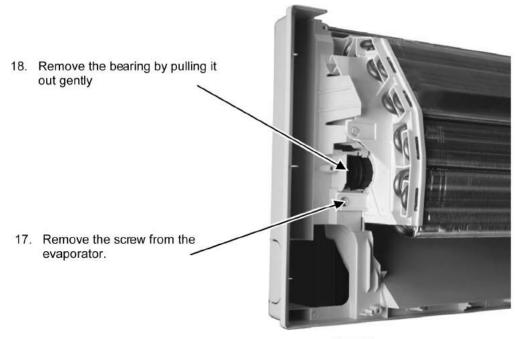


Figure 8

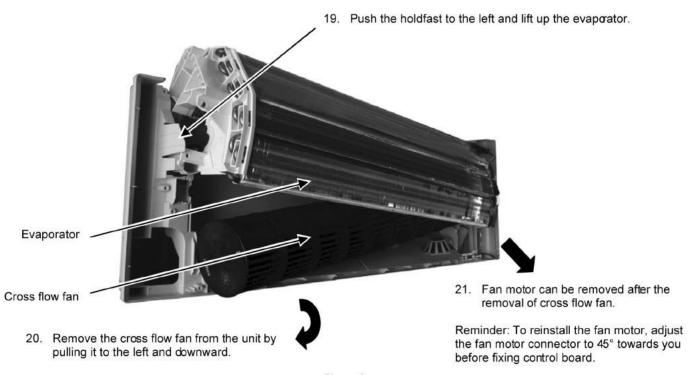
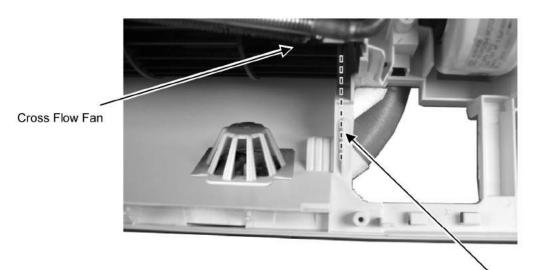


Figure 9



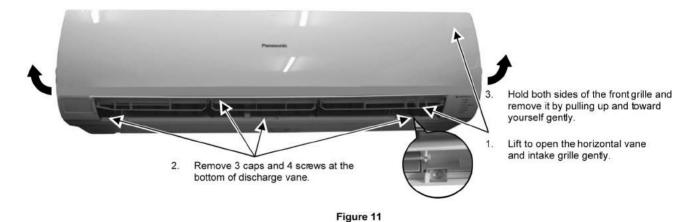
Reminder: To reinstall the cross flow fan, ensure cross flow fan is in line as shown in figure 10.

Figure 10

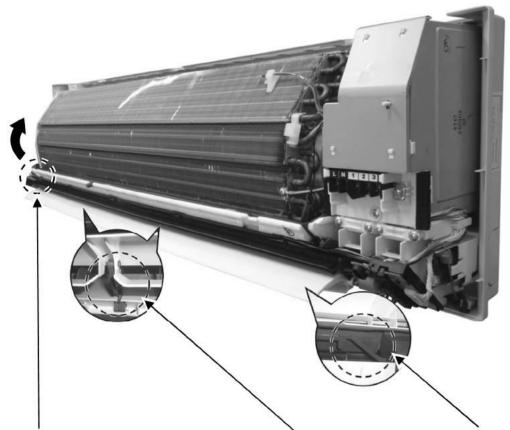
17.2 CS-E18NK CS-E21NK CS-E24NK CS-E28NK

17.2.1 Indoor Electronic Controllers, Cross Flow Fan and Indoor Fan Motor Removal Procedures

17.2.1.1 To remove front grille



17.2.1.2 To remove horizontal vane



- Bend the horizontal vane slightly to remove vane's shaft from bdy.
- Release the hooks from 2 fulcrums.
 - Figure 12
- Release the hook that holds the vertical vanes.

17.2.1.3 To remove power electronic controller

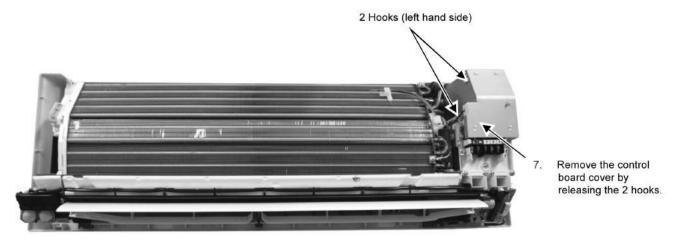


Figure 13

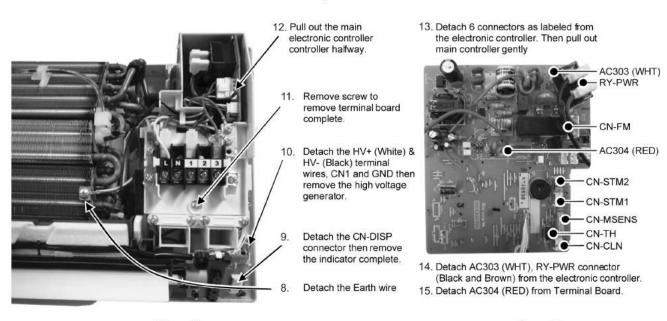


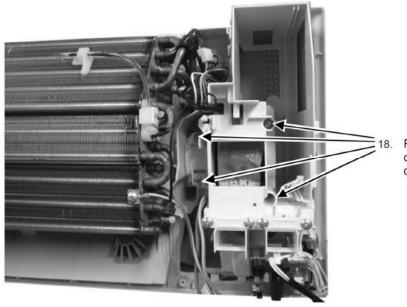
Figure 14 Figure 15

17.2.1.4 To remove discharge grille



Figure 16

17.2.1.5 To remove control board



Remove 4 screws holding the control board then pull out the control board.

Figure 17

17.2.1.6 To remove cross flow fan and indoor fan motor

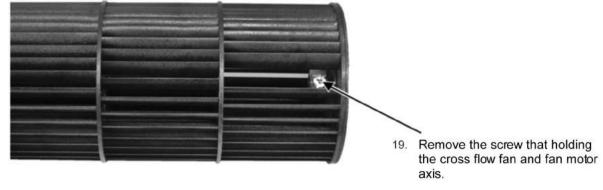
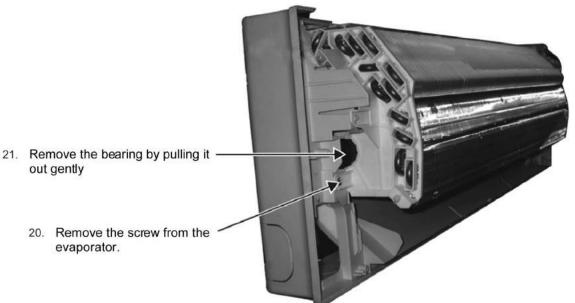


Figure 18



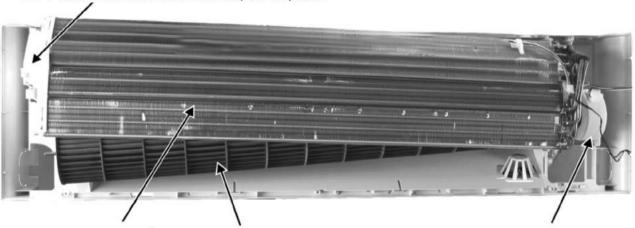
20. Remove the screw from the

evaporator.

out gently

Figure 19

22. Push the holdfast to the left and lift up the evaporator.



Evaporator

- Remove the cross flow fan from the unit by pulling it to the left and downward.
- 24. Fan motor can be removed after the removal of cross flow fan.

Reminder: To reinstall the fan motor, adjust the fan motor connector to 45° towards you before fixing control board.

Figure 20

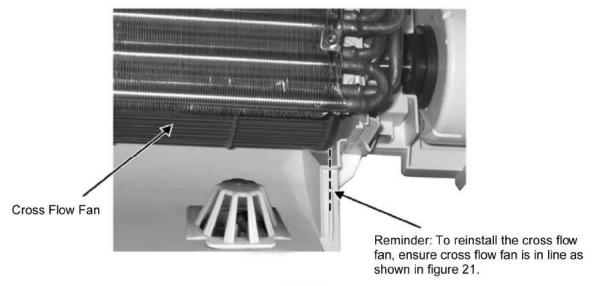
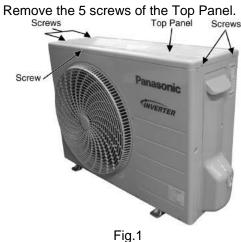


Figure 21

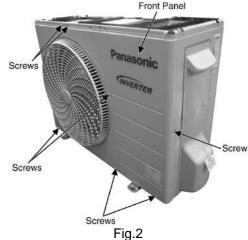
17.3 Outdoor Electronic Controller Removal Procedure

17.3.1 CU-E7NKR CU-E9NKR CU-E12NKR

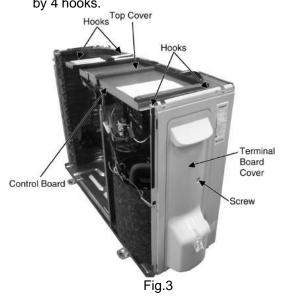
⚠ Caution! When handling electronic controller, be careful of electrostatic discharge.



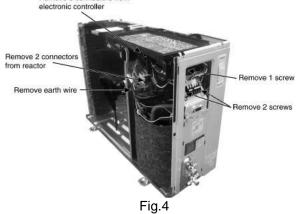
Remove the 8 screws of the Front Panel.



- Remove the screw of the Terminal Board Cover.
- Remove the Top Cover of the Control Board by 4 hooks.



Remove the Control Board as follows:



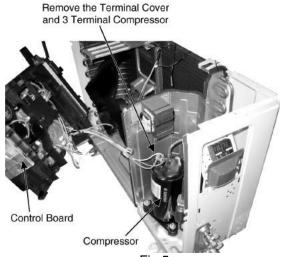


Fig.5

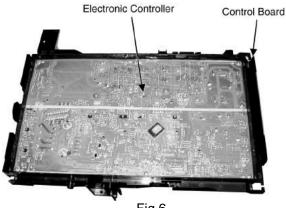


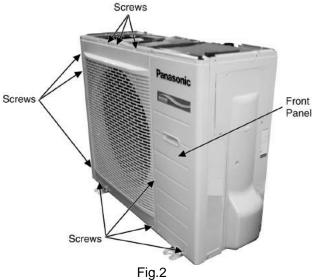
Fig.6

17.3.2 CU-E15NKR CU-E18NKR CU-E21NKR

1 Remove the 4 screws of the Top Panel.



2 Remove the 10 screws of the Front Panel.

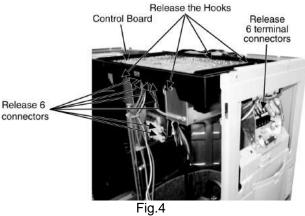


Remove the Top Cover of the Electronic Controller.

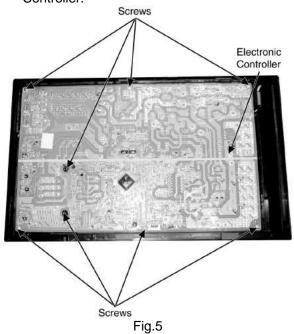


Fig.3

Remove the Control Board.



Remove the 8 screws of the Electronic Controller.



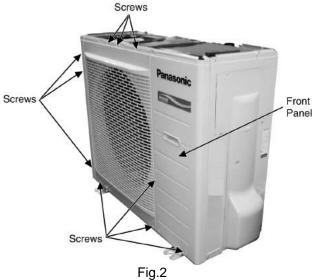
⚠ Caution! When handling electronic controller, be careful of electrostatic discharge.

17.3.3 CU-E24NKR

1 Remove the 4 screws of the Top Panel.



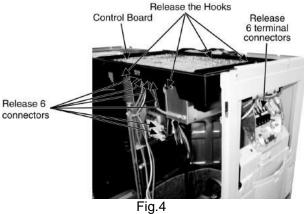
2 Remove the 10 screws of the Front Panel.



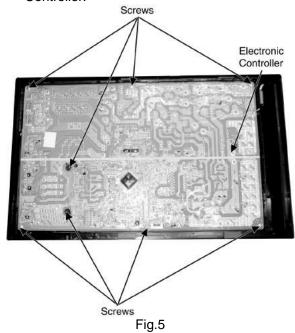
3 Remove the Top Cover of the Electronic Controller.



4 Remove the Control Board.



5 Remove the 8 screws of the Electronic Controller.



⚠ Caution! When handling electronic controller, be careful of electrostatic discharge.

18. **Technical Data**

18.1 Operation Characteristics

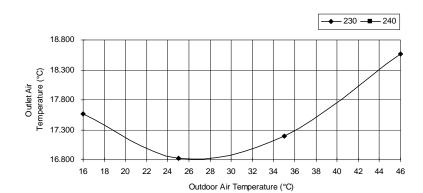
18.1.1 **CU-E7NKR**

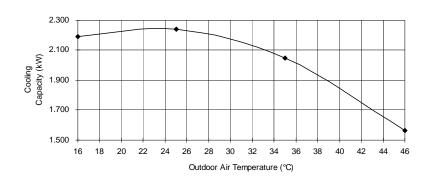
Cooling Characteristic

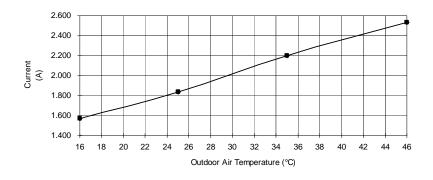
[Condition] Indoor temperature: 27/19°C

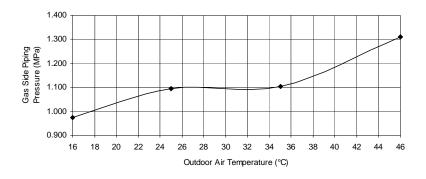
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 7.5m

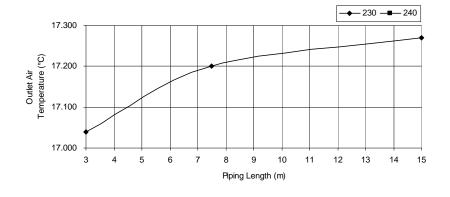


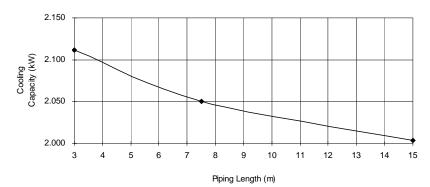


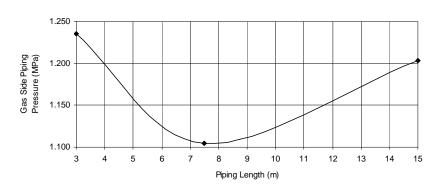


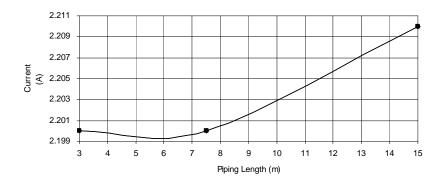


• Piping Length Characteristic [Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







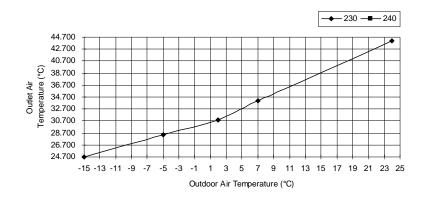


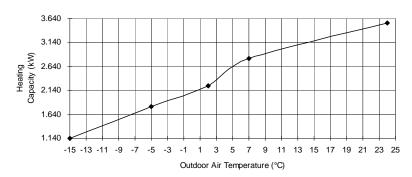
Heating Characteristic

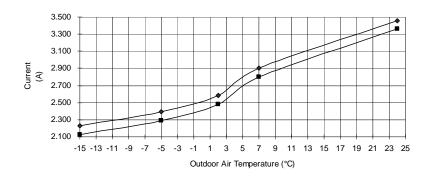
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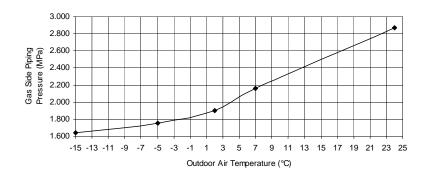
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 7.5m

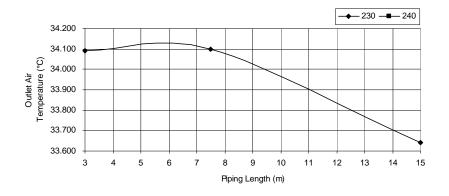


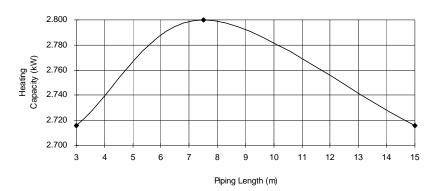


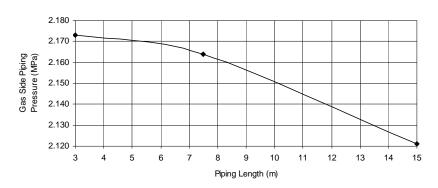


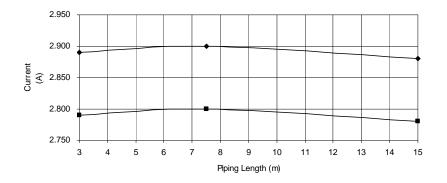


[Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed









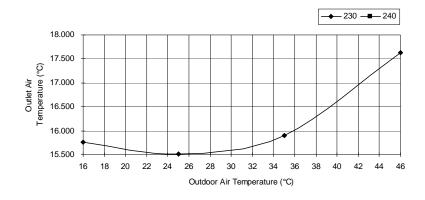
18.1.2 CU-E9NKR

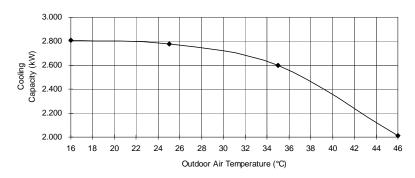
Cooling Characteristic

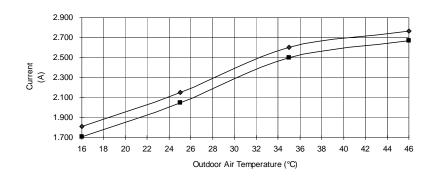
[Condition] Indoor temperature: 27/19°C

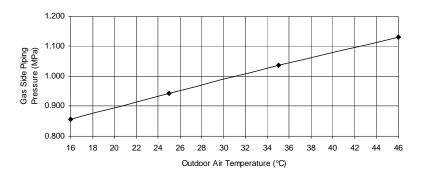
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 7.5m

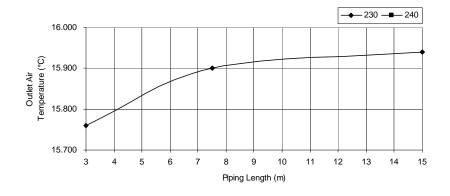


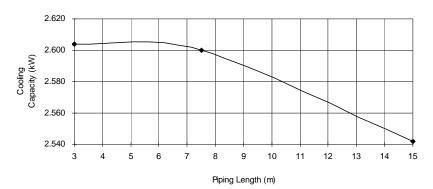


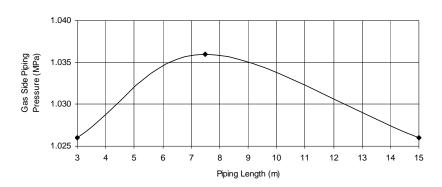


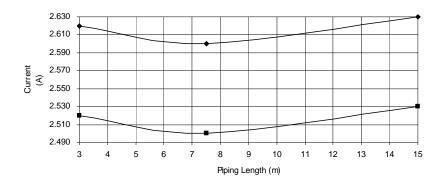


• Piping Length Characteristic [Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







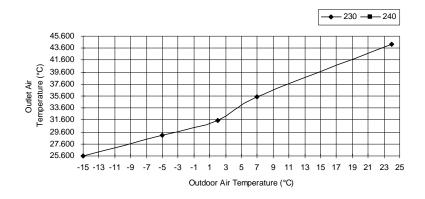


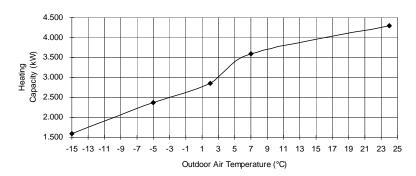
Heating Characteristic

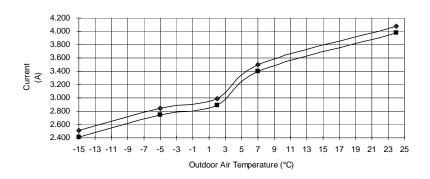
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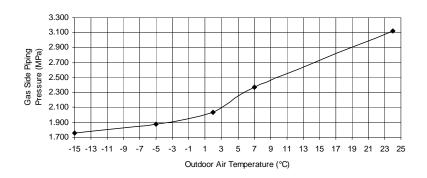
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 7.5m

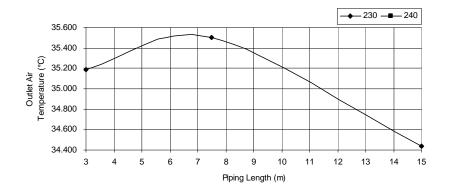


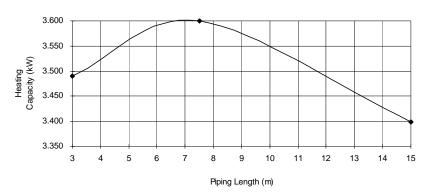


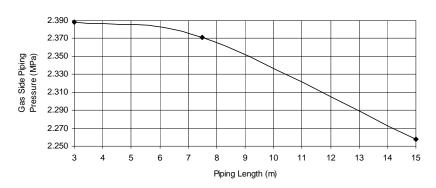


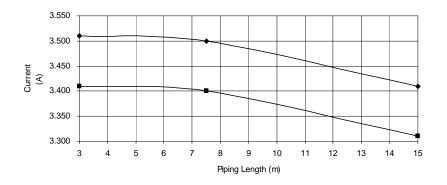


• Piping Length Characteristic [Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed









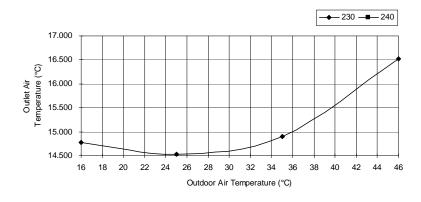
18.1.3 CU-E12NKR

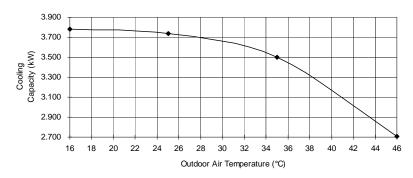
Cooling Characteristic

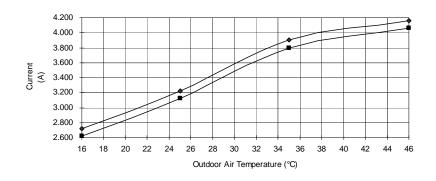
[Condition] Indoor temperature: 27/19°C

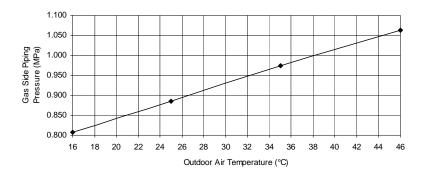
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 7.5m

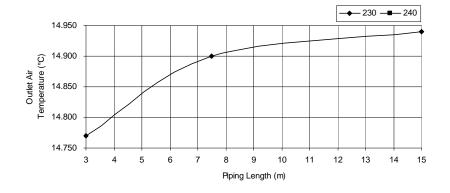


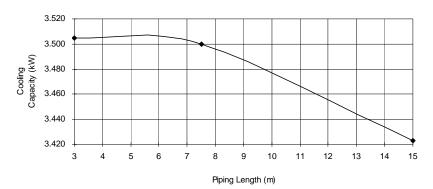


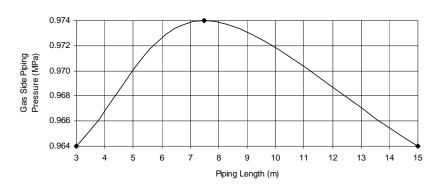


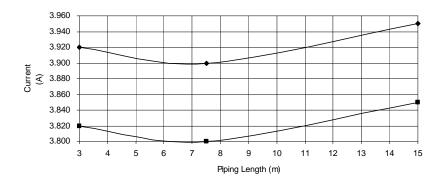


[Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







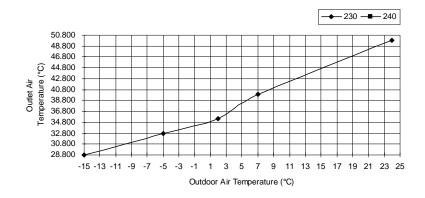


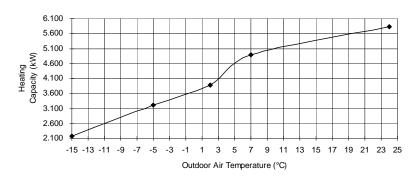
Heating Characteristic

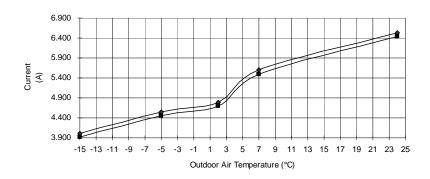
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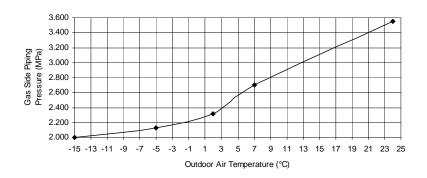
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 7.5m

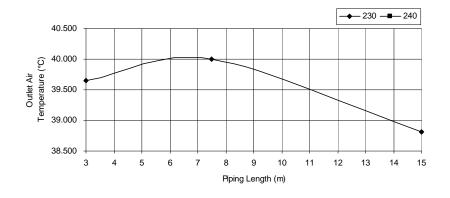


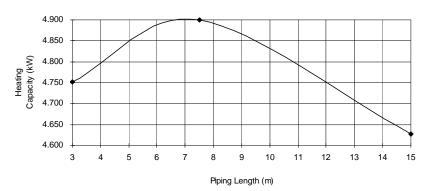


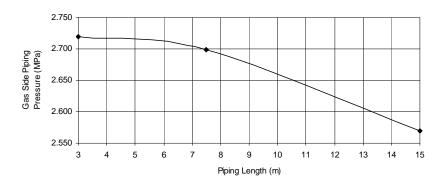


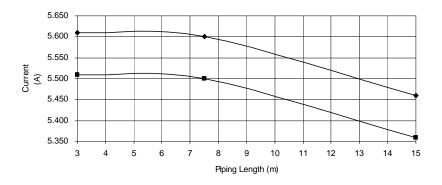


[Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed









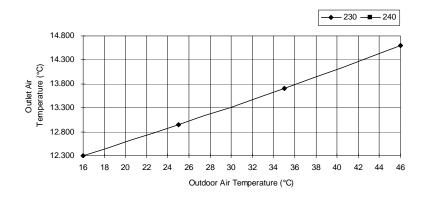
18.1.4 CU-E15NKR

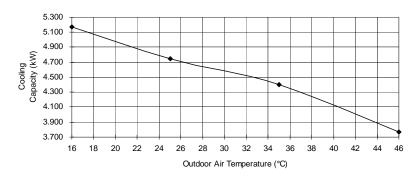
Cooling Characteristic

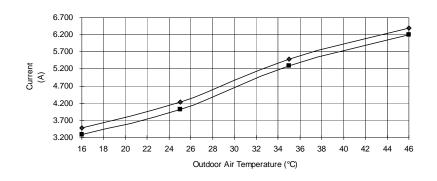
[Condition] Indoor temperature: 27/19°C

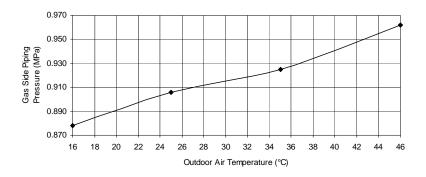
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 5m

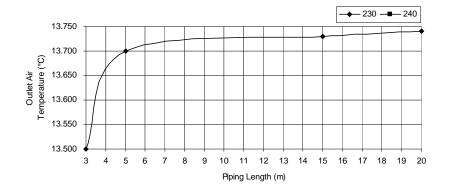


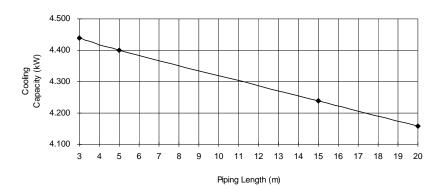


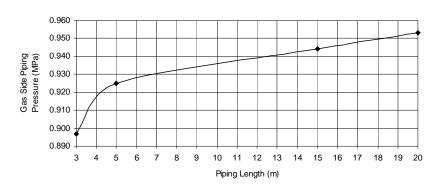


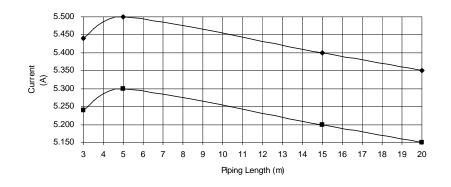


[Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







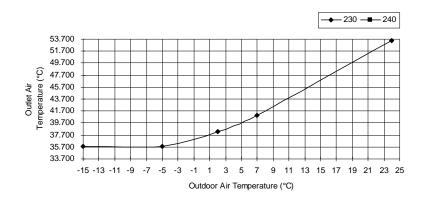


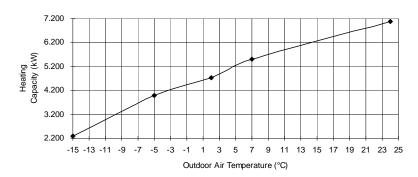
• Heating Characteristic

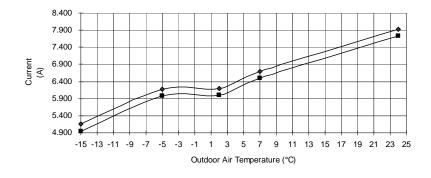
[Condition] Indoor temperature: 20/-°C

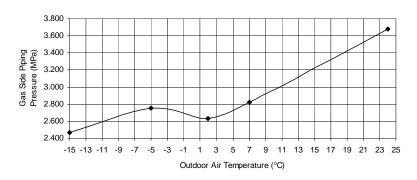
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 7.5m

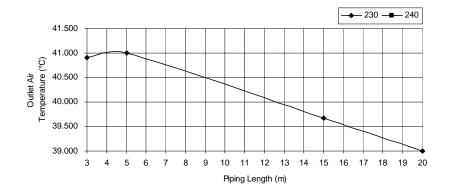


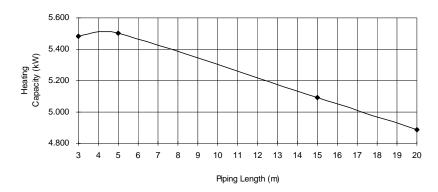


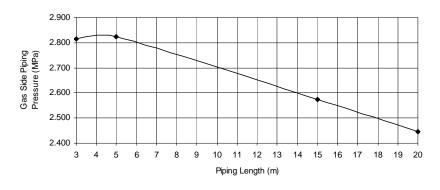


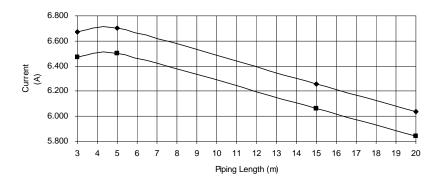


[Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed









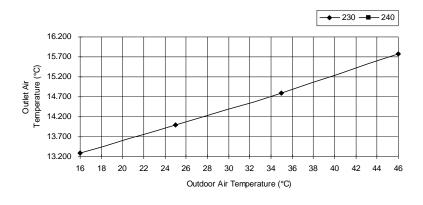
18.1.5 CU-E18NKR

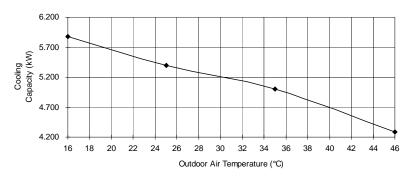
Cooling Characteristic

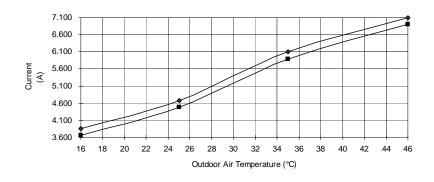
[Condition] Indoor temperature: 27/19°C

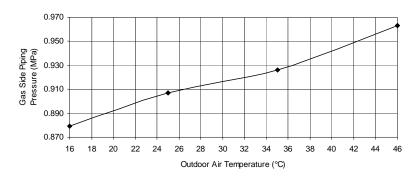
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 5m

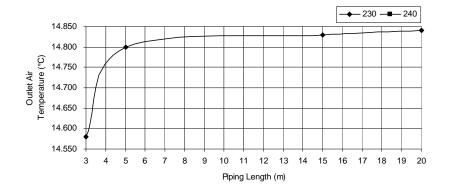


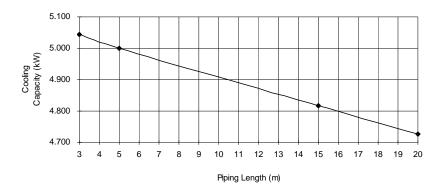


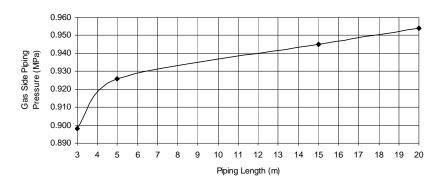


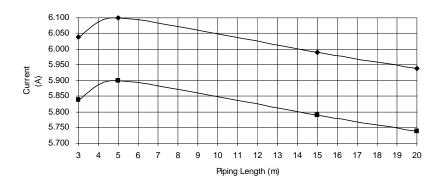


[Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







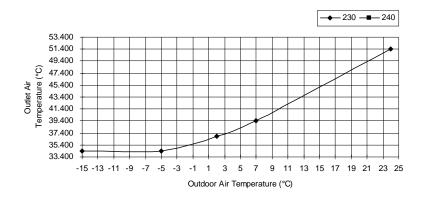


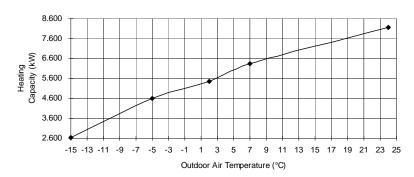
Heating Characteristic

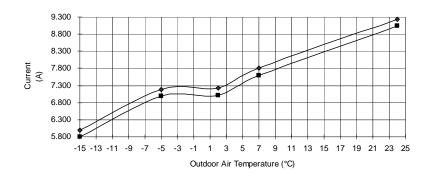
[Condition] Indoor temperature: 20/-°C

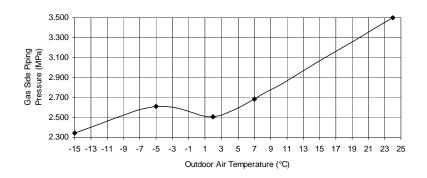
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 7.5m

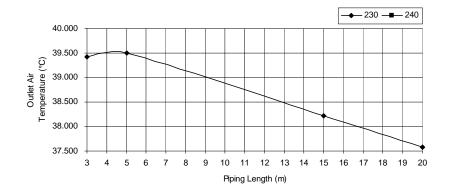


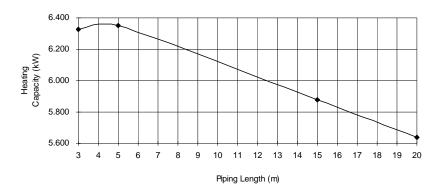


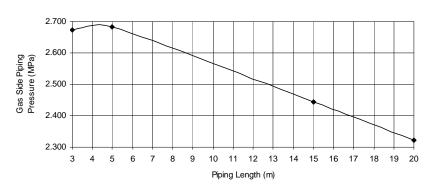


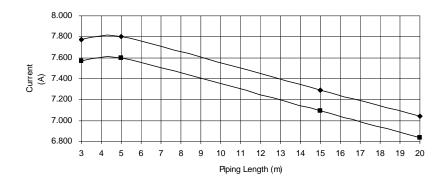


[Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed









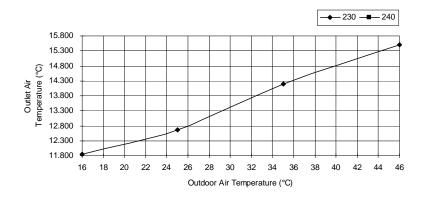
18.1.6 CU-E21NKR

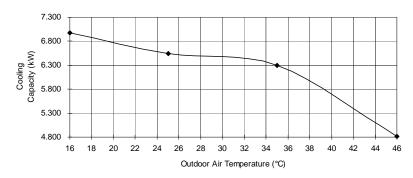
Cooling Characteristic

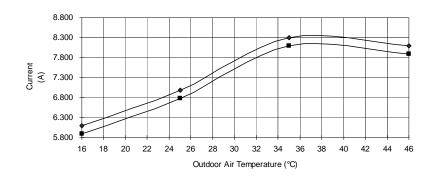
[Condition] Indoor temperature: 27/19°C

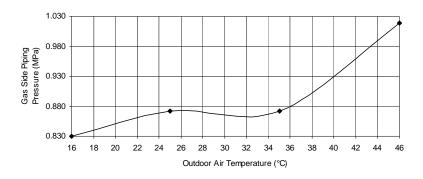
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 5m

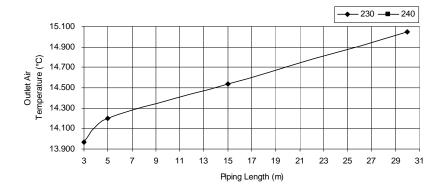


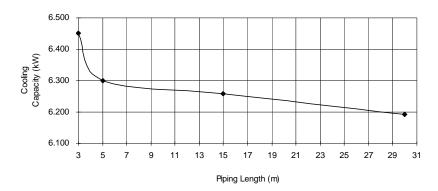


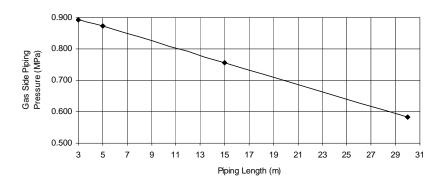


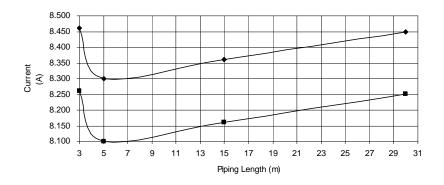


[Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







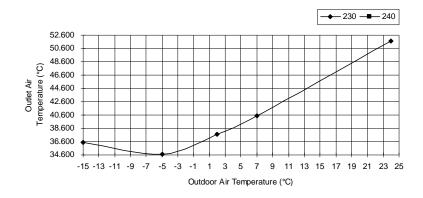


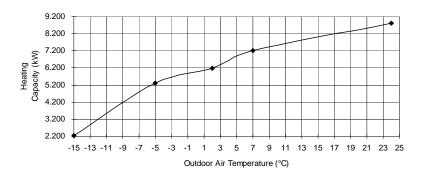
• Heating Characteristic

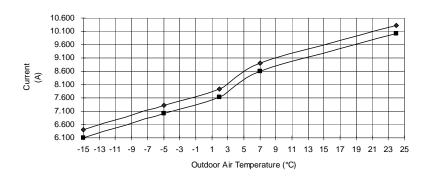
[Condition] Indoor temperature: 20/-°C

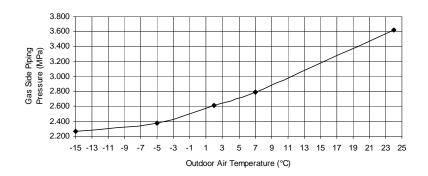
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 7.5m

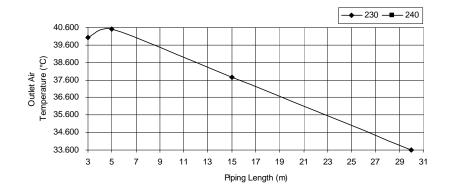


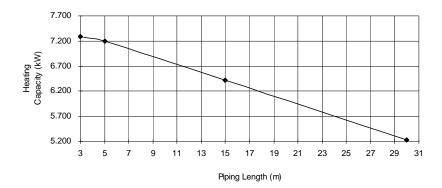


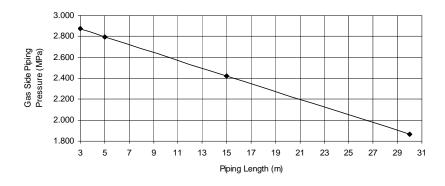


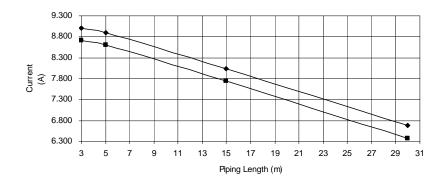


[Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed









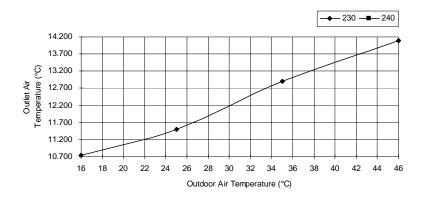
18.1.7 CU-E24NKR

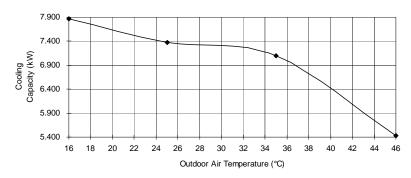
Cooling Characteristic

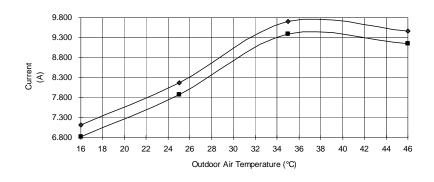
[Condition] Indoor temperature: 27/19°C

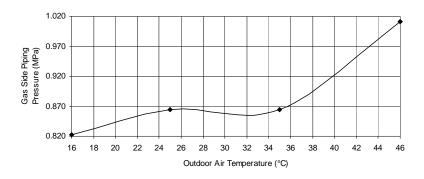
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 5m

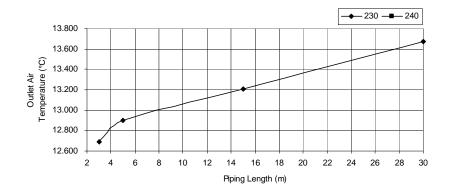


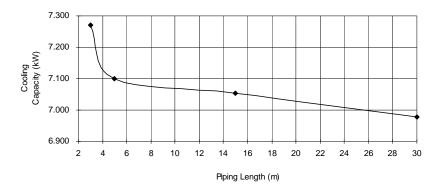


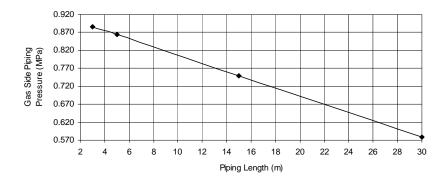


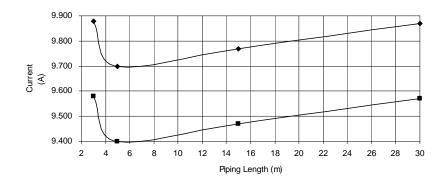


[Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







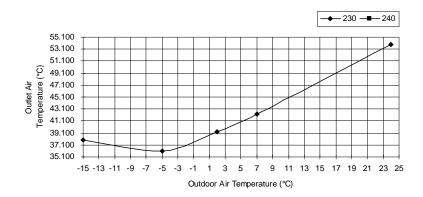


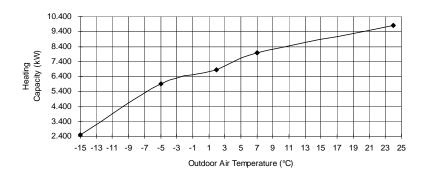
Heating Characteristic

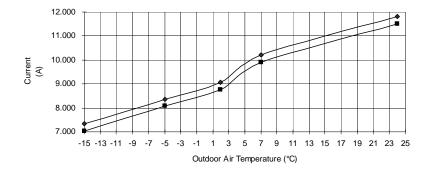
[Condition] Indoor temperature: 20/-°C

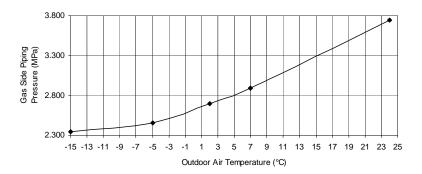
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 5m

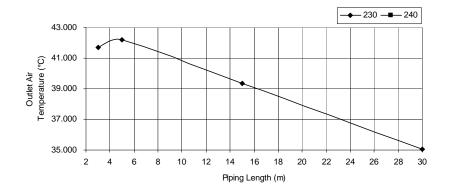


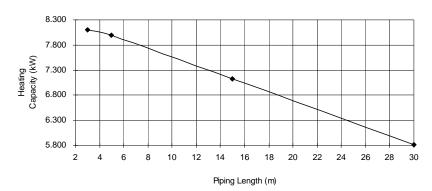


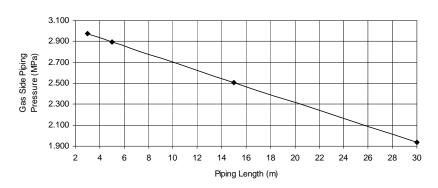


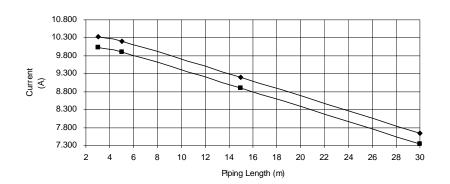


[Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed









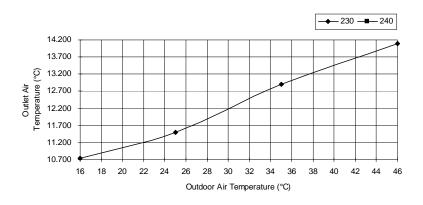
18.1.8 CU-E28NKR

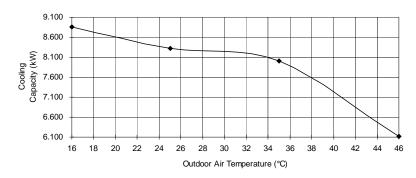
Cooling Characteristic

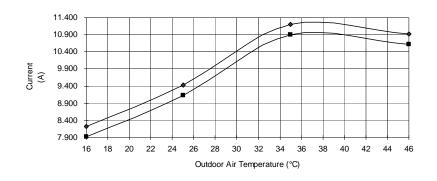
[Condition] Indoor temperature: 27/19°C

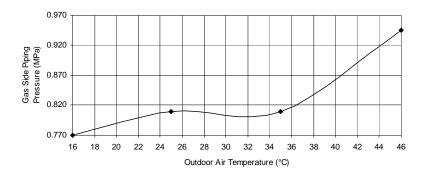
Remote condition: High fan speed

Comp. Hz: F_c Piping Length: 5m

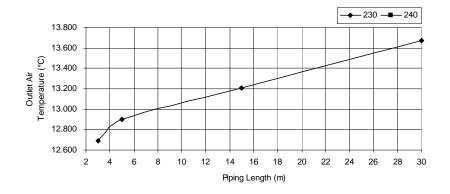


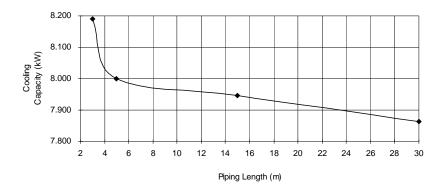




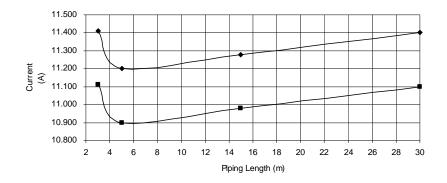


[Condition] Indoor temperature: 27/19°C, 35/-°C Remote condition: High fan speed







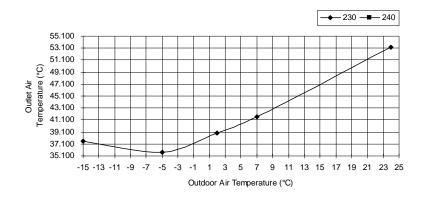


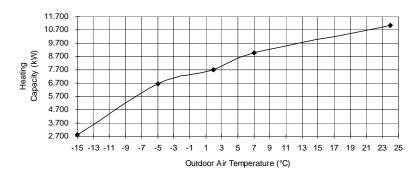
• Heating Characteristic

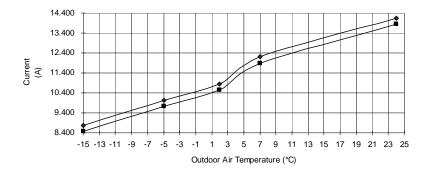
[Condition] Indoor temperature: 20/-°C

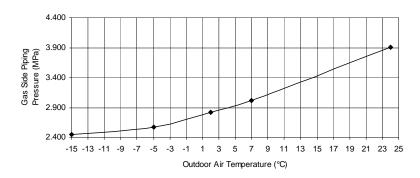
Remote condition: High fan speed

Comp. Hz: F_h Piping Length: 5m





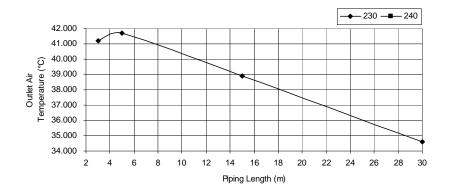


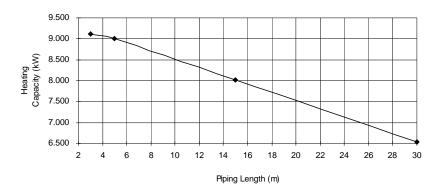


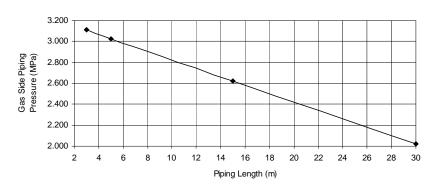
• Piping Length Characteristic

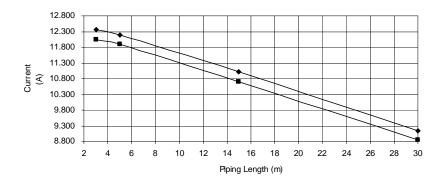
[Condition] Indoor temperature: 20/-°C, 7/6°C Remote condition: High fan speed

Comp. Hz: F_h









18.2 Sensible Capacity Chart

• CU-E7NKR

CU-E7NKR	INDO	OOR					OUTDOO	R TEMP	ERATURI	(°C DB)				
CU-E/INKK	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	1.99	1.98	0.36	2.01	1.91	0.39	1.95	1.89	0.42	1.91	1.87	0.43
54.1	16	22	2.10	1.95	0.36	2.10	1.88	0.39	2.03	1.86	0.42	1.99	1.86	0.44
50.0	17	24	2.17	1.97	0.36	2.17	1.91	0.39	2.10	1.90	0.43	2.06	1.89	0.44
50.9	18	25	2.20	2.02	0.36	2.19	1.96	0.39	2.13	1.94	0.43	2.08	1.94	0.44
47.1	19	27	2.24	2.11	0.36	2.24	2.08	0.39	2.18	2.03	0.43	2.13	2.03	0.44
50.1	22	30	2.38	2.03	0.36	2.38	1.98	0.40	2.32	1.97	0.43	2.27	1.96	0.44
51.9	24	32	2.47	1.97	0.37	2.48	1.92	0.40	2.41	1.91	0.43	2.37	1.91	0.44

CU-E7NKR	IND	OOR			OUT	DOOR TI	EMPERA	TURE (°C	DB)		
CO-L/INKK	EWB	EDB		35			40			46	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	1.83	1.83	0.45	1.64	1.64	0.49	1.18	1.18	0.53
54.1	16	22	1.92	1.81	0.46	1.73	1.73	0.49	1.37	1.37	0.53
50.0	17	24	2.00	1.85	0.46	1.80	1.78	0.49	1.37	1.37	0.53
50.9	18	25	2.02	1.89	0.46	1.82	1.82	0.49	1.44	1.44	0.53
47.1	19	27	2.05	1.99	0.46	1.86	1.86	0.49	1.56	1.56	0.53
50.1	22	30	2.21	1.94	0.46	2.00	1.88	0.50	1.84	1.84	0.54
51.9	24	32	2.30	1.88	0.47	2.09	1.83	0.50	1.67	1.67	0.54

• CU-E9NKR

CU-E9NKR	INDO	OOR					OUTDOC	R TEMP	ERATURI	E (°C DB)				
CO-ESINKK	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	2.48	2.44	0.39	2.49	2.36	0.42	2.43	2.32	0.46	2.40	2.31	0.47
54.1	16	22	2.63	2.40	0.39	2.60	2.32	0.42	2.54	2.29	0.46	2.50	2.29	0.48
50.0	17	24	2.72	2.43	0.39	2.69	2.35	0.43	2.62	2.34	0.46	2.58	2.33	0.48
50.9	18	25	2.74	2.49	0.39	2.72	2.41	0.43	2.65	2.40	0.46	2.61	2.39	0.48
47.1	19	27	2.80	2.60	0.39	2.78	2.53	0.43	2.72	2.51	0.46	2.68	2.50	0.48
50.1	22	30	2.97	2.50	0.40	2.95	2.44	0.43	2.89	2.42	0.47	2.85	2.42	0.48
51.9	24	32	3.09	2.43	0.40	3.07	2.37	0.44	3.01	2.36	0.47	2.97	2.35	0.48

CU-E9NKR	IND	OOR			OUT	DOOR T	EMPERA	TURE (°C	DB)		
CO-ESINKK	EWB	EDB		35			40			46	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	2.32	2.26	0.49	2.11	2.11	0.53	1.49	1.49	0.57
54.1	16	22	2.44	2.23	0.50	2.22	2.15	0.53	1.73	1.73	0.58
50.0	17	24	2.54	2.27	0.50	2.32	2.19	0.54	1.73	1.73	0.58
50.9	18	25	2.56	2.33	0.50	2.35	2.26	0.54	1.83	1.83	0.58
47.1	19	27	2.60	2.45	0.50	2.40	2.39	0.54	2.01	2.01	0.58
50.1	22	30	2.80	2.39	0.50	2.57	2.31	0.54	2.34	2.28	0.58
51.9	24	32	2.92	2.32	0.51	2.69	2.26	0.54	2.12	2.12	0.58

• CU-E12NKR

CU-E12NKR	IND	OOR					OUTDOO	R TEMP	ERATURI	E (°C DB)				
CU-E IZINKK	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	3.34	2.96	0.64	3.35	2.86	0.70	3.27	2.82	0.76	3.23	2.80	0.78
54.1	16	22	3.54	2.91	0.64	3.50	2.81	0.70	3.42	2.78	0.76	3.36	2.78	0.79
50.0	17	24	3.66	2.94	0.65	3.62	2.85	0.71	3.53	2.83	0.77	3.48	2.83	0.80
50.9	18	25	3.69	3.02	0.65	3.66	2.93	0.71	3.57	2.91	0.77	3.52	2.90	0.80
47.1	19	27	3.77	3.15	0.65	3.74	3.07	0.71	3.66	3.04	0.77	3.61	3.03	0.79
50.1	22	30	4.00	3.03	0.66	3.97	2.96	0.72	3.89	2.94	0.78	3.84	2.93	0.80
51.9	24	32	4.15	2.95	0.66	4.13	2.88	0.72	4.06	2.86	0.78	4.00	2.85	0.80

CU-E12NKR	INDO	OOR			OUT	DOOR T	EMPERA [*]	TURE (°C	DB)		
CU-E IZINKK	EWB	EDB		35			40			46	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	3.12	2.74	0.82	2.84	2.64	0.88	2.01	2.01	0.95
54.1	16	22	3.28	2.70	0.82	2.99	2.61	0.89	2.33	2.33	0.96
50.0	17	24	3.41	2.76	0.83	3.12	2.66	0.89	2.33	2.33	0.96
50.9	18	25	3.44	2.83	0.83	3.16	2.74	0.89	2.46	2.46	0.96
47.1	19	27	3.50	2.97	0.83	3.23	2.90	0.89	2.71	2.71	0.96
50.1	22	30	3.77	2.90	0.84	3.46	2.80	0.90	3.15	2.76	0.97
51.9	24	32	3.93	2.81	0.84	3.62	2.74	0.90	2.85	2.69	0.97

• CU-E15NKR

CU-E15NKR	IND	OOR					OUTDOC	R TEMP	ERATURI	E (°C DB)				
CO-E ISINKK	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	4.39	3.52	0.93	4.25	3.41	1.01	4.10	3.36	1.10	4.03	3.34	1.13
54.1	16	22	4.65	3.47	0.93	4.45	3.35	1.02	4.28	3.32	1.11	4.21	3.31	1.14
50.0	17	24	4.80	3.51	0.94	4.59	3.40	1.02	4.42	3.38	1.11	4.35	3.37	1.15
50.9	18	25	4.86	3.59	0.94	4.65	3.49	1.02	4.47	3.46	1.11	4.40	3.45	1.15
47.1	19	27	4.95	3.76	0.94	4.75	3.66	1.03	4.58	3.62	1.11	4.51	3.61	1.14
50.1	22	30	5.26	3.62	0.95	5.04	3.53	1.04	4.88	3.51	1.12	4.80	3.50	1.15
51.9	24	32	5.46	3.52	0.95	5.24	3.43	1.04	5.08	3.41	1.13	5.01	3.40	1.16

CU-E15NKR	INDO	OOR			OUT	DOOR TI	EMPERA	TURE (°C	DB)		
CO-E ISINKK	EWB	EDB		35			40			46	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	тс	SHC	PI
51.8	14	20	3.92	3.26	1.18	3.67	3.14	1.28	2.53	2.53	1.38
54.1	16	22	4.12	3.22	1.19	3.87	3.11	1.28	2.93	2.93	1.39
50.0	17	24	4.29	3.29	1.19	4.03	3.17	1.28	2.93	2.93	1.39
50.9	18	25	4.33	3.37	1.20	4.08	3.27	1.29	3.10	3.10	1.39
47.1	19	27	4.40	3.54	1.20	4.17	3.45	1.29	3.77	3.38	1.39
50.1	22	30	4.74	3.45	1.21	4.47	3.34	1.30	3.96	3.29	1.40
51.9	24	32	4.94	3.35	1.22	4.68	3.26	1.30	3.59	3.21	1.40

• CU-E18NKR

CU-E18NKR	INDO	OOR					OUTDOC	R TEMP	ERATURI	E (°C DB)				
CO-L TOINKIN	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	4.99	3.97	1.00	4.83	3.84	1.10	4.66	3.79	1.19	4.59	3.76	1.23
54.1	16	22	5.29	3.91	1.01	5.06	3.78	1.10	4.86	3.74	1.20	4.78	3.73	1.24
50.0	17	24	5.46	3.96	1.02	5.22	3.83	1.11	5.03	3.81	1.21	4.94	3.80	1.25
50.9	18	25	5.52	4.05	1.02	5.28	3.93	1.11	5.09	3.91	1.21	5.00	3.89	1.25
47.1	19	27	5.63	4.24	1.02	5.40	4.13	1.11	5.21	4.09	1.20	5.13	4.07	1.24
50.1	22	30	5.98	4.08	1.03	5.73	3.98	1.13	5.54	3.95	1.22	5.46	3.94	1.25
51.9	24	32	6.21	3.97	1.03	5.96	3.87	1.13	5.78	3.84	1.22	5.70	3.83	1.26

CU-E18NKR	INDO	OOR			OUT	DOOR TI	EMPERA [*]	TURE (°C	DB)		
CU-E IONKK	EWB	EDB		35			40			46	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	4.46	3.68	1.28	4.17	3.54	1.38	2.87	2.87	1.49
54.1	16	22	4.69	3.63	1.29	4.40	3.50	1.39	3.33	3.33	1.50
50.0	17	24	4.88	3.71	1.29	4.59	3.58	1.39	3.33	3.33	1.50
50.9	18	25	4.92	3.80	1.29	4.64	3.69	1.39	3.52	3.52	1.50
47.1	19	27	5.00	3.99	1.30	4.74	3.89	1.40	4.29	3.81	1.51
50.1	22	30	5.39	3.89	1.31	5.09	3.77	1.40	4.50	3.71	1.51
51.9	24	32	5.62	3.78	1.32	5.32	3.68	1.41	4.08	3.62	1.52

• CU-E21NKR

CU-E21NKR	IND	OOR					OUTDOO	R TEMP	ERATURI	E (°C DB)				
CU-EZ INKK	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	5.94	4.86	1.39	5.87	4.70	1.52	5.79	4.63	1.65	5.75	4.60	1.70
54.1	16	22	6.29	4.78	1.40	6.14	4.62	1.53	6.04	4.58	1.66	5.99	4.57	1.71
50.0	17	24	6.50	4.84	1.41	6.34	4.69	1.53	6.25	4.66	1.67	6.19	4.65	1.72
50.9	18	25	6.57	4.96	1.41	6.41	4.81	1.54	6.32	4.78	1.67	6.26	4.77	1.72
47.1	19	27	6.70	5.19	1.41	6.55	5.05	1.54	6.47	5.00	1.67	6.42	4.98	1.72
50.1	22	30	7.12	4.99	1.42	6.96	4.87	1.56	6.89	4.84	1.68	6.84	4.82	1.73
51.9	24	32	7.38	4.85	1.43	7.23	4.73	1.57	7.18	4.70	1.69	7.13	4.69	1.74

CU-E21NKR	IND	OOR			OUT	DOOR TI	EMPERA	TURE (°C	DB)		
CU-EZ INKK	EWB	EDB		35			40			46	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	5.61	4.50	1.78	5.17	4.34	1.91	3.62	3.62	2.06
54.1	16	22	5.90	4.44	1.79	5.45	4.29	1.92	4.20	4.19	2.08
50.0	17	24	6.14	4.54	1.79	5.69	4.38	1.93	4.20	4.20	2.08
50.9	18	25	6.20	4.65	1.79	5.76	4.51	1.93	4.43	4.41	2.08
47.1	19	27	6.30	4.88	1.80	5.88	4.77	1.94	4.82	4.67	2.09
50.1	22	30	6.79	4.77	1.81	6.31	4.61	1.94	5.67	4.54	2.10
51.9	24	32	7.07	4.62	1.82	6.59	4.50	1.95	5.14	4.43	2.10

CU-E24NKR

CU-E24NKR	IND	OOR					OUTDOO	R TEMP	ERATURI	E (°C DB)				
CU-EZ4INKK	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	6.70	5.28	1.63	6.61	5.11	1.78	6.52	5.03	1.93	6.48	5.00	1.99
54.1	16	22	7.09	5.20	1.64	6.92	5.02	1.79	6.81	4.97	1.94	6.75	4.96	2.00
50.0	17	24	7.33	5.26	1.65	7.15	5.10	1.80	7.04	5.07	1.96	6.98	5.05	2.02
50.9	18	25	7.41	5.39	1.65	7.22	5.23	1.80	7.12	5.19	1.96	7.06	5.18	2.02
47.1	19	27	7.55	5.64	1.65	7.38	5.49	1.81	7.29	5.43	1.95	7.23	5.41	2.01
50.1	22	30	8.02	5.42	1.67	7.85	5.29	1.83	7.76	5.26	1.97	7.71	5.24	2.03
51.9	24	32	8.32	5.27	1.68	8.15	5.14	1.84	8.09	5.11	1.98	8.04	5.10	2.04

CU-E24NKR	INDO	OOR		OUTDOOR TEMPERATURE (°C DB)									
CU-EZ4INKK	EWB	EDB		35			40			46			
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI		
51.8	14	20	6.33	4.89	2.08	5.82	4.71	2.24	4.08	4.08	2.42		
54.1	16	22	6.65	4.83	2.09	6.14	4.66	2.25	4.73	4.55	2.44		
50.0	17	24	6.92	4.93	2.10	6.41	4.76	2.26	4.73	4.68	2.44		
50.9	18	25	6.99	5.05	2.10	6.49	4.90	2.26	5.00	4.79	2.44		
47.1	19	27	7.10	5.30	2.11	6.62	5.18	2.27	5.43	5.07	2.45		
50.1	22	30	7.65	5.18	2.13	7.11	5.01	2.28	6.39	4.94	2.46		
51.9	24	32	7.97	5.02	2.14	7.43	4.89	2.29	5.79	4.81	2.47		

CU-E28NKR

CU-E28NKR	IND	OOR	OUTDOOR TEMPERATURE (°C DB)											
CU-EZONKK	EWB	EDB		20			25			30			32	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	7.54	5.68	1.85	7.45	5.49	2.02	7.35	5.41	2.19	7.30	5.38	2.26
54.1	16	22	7.99	5.59	1.86	7.79	5.40	2.03	7.67	5.35	2.20	7.60	5.33	2.27
50.0	17	24	8.26	5.66	1.87	8.06	5.48	2.03	7.94	5.45	2.22	7.86	5.43	2.29
50.9	18	25	8.34	5.80	1.87	8.14	5.62	2.04	8.02	5.58	2.22	7.95	5.57	2.29
47.1	19	27	8.51	6.06	1.87	8.32	5.90	2.05	8.22	5.84	2.21	8.15	5.82	2.28
50.1	22	30	9.04	5.83	1.89	8.84	5.69	2.07	8.74	5.65	2.23	8.69	5.64	2.30
51.9	24	32	9.38	5.67	1.90	9.18	5.53	2.08	9.11	5.49	2.24	9.06	5.48	2.31

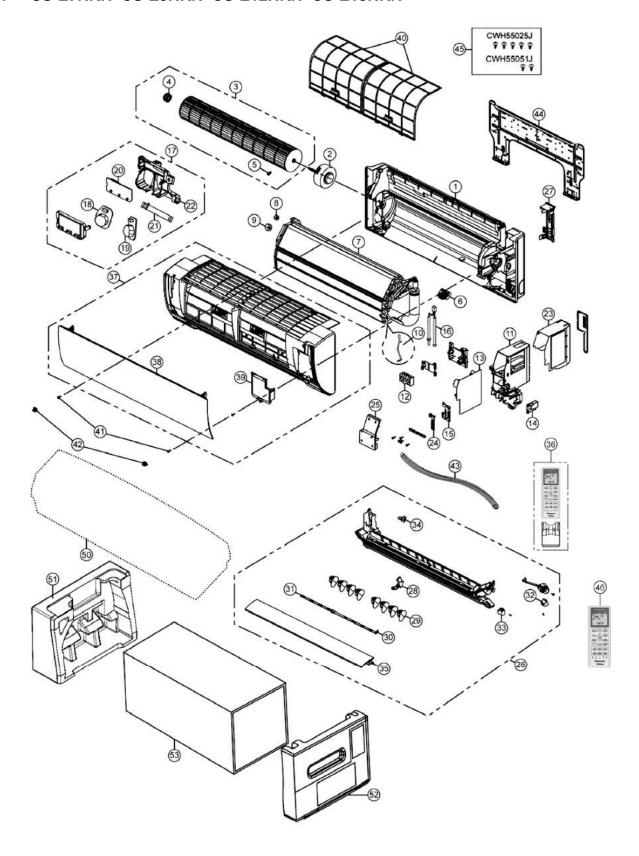
CU-E28NKR	INDO	OOR			OUT	DOOR TI	EMPERA [*]	TURE (°C	DB)		
CO-LZONKK	EWB	EDB		35			40			46	
%RH	°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
51.8	14	20	7.13	5.26	2.36	6.56	5.07	2.54	4.60	4.60	2.74
54.1	16	22	7.50	5.19	2.37	6.92	5.01	2.55	5.33	4.90	2.76
50.0	17	24	7.80	5.30	2.38	7.22	5.12	2.56	5.33	5.03	2.76
50.9	18	25	7.87	5.44	2.38	7.31	5.27	2.56	5.63	5.15	2.76
47.1	19	27	8.00	5.70	2.39	7.46	5.57	2.57	6.12	5.45	2.78
50.1	22	30	8.62	5.57	2.41	8.01	5.39	2.58	7.19	5.31	2.78
51.9	24	32	8.98	5.40	2.42	8.37	5.26	2.59	6.52	5.17	2.79

TC - Total Cooling Capacity (kW)
SHC - Sensible Heat Capacity (kW)
IP - Input Power (kW)

19. Exploded View and Replacement Parts List

19.1 Indoor Unit

19.1.1 CS-E7NKR CS-E9NKR CS-E12NKR CS-E15NKR



Note

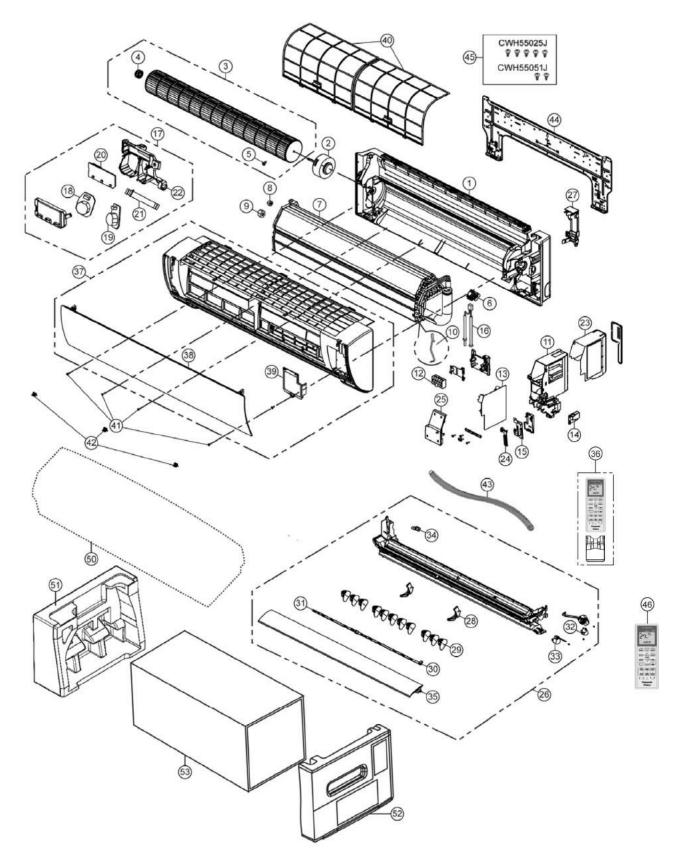
The above exploded view is for the purpose of parts disassembly and replacement.

The non-numbered parts are not kept as standard service parts.

1	REF NO.	PART NAME & DESCRIPTION	QTY.	CS-E7NKR	CS-E9NKR	CS-E12NKR	CS-E15NKR	REMARK
3 CROSS FLOW FAN COMPLETE	1	CHASSIS COMPLETE	1	CWD50C1653	←	←	←	
4 BEARING ASSY	2	FAN MOTOR	1	ARW7628AC	←	←	ARW7627AC	0
5 SCREW - CROSS FLOW FAN	3	CROSS FLOW FAN COMPLETE	1	CWH02C1076	←	←	←	
6	4	BEARING ASS'Y	1	CWH64K1006	←	←	←	
Temperature	5	SCREW - CROSS FLOW FAN	1	CWH551146	←	←	←	
B FLARE NUT (LIQUID)	6	ION GENERATOR	1	CWH94C0043	←	←	←	
9 FLARE NUT (GAS) 1 CWT251031 ← CWT251073 ← 10 HOLDER SENSOR 1 CWT452143 ← − − − − − − − − − − − − − − − − − −	7	EVAPORATOR	1	CWB30C4225	CWB30C4210	CWB30C3741	CWB30C3363	
10 HOLDER SENSOR	8	FLARE NUT (LIQUID)	1	CWT251030	←	←	←	
11	9	FLARE NUT (GAS)	1	CWT251031	←	CWT251073	←	
12 TERMINAL BOARD COMPLETE	10	HOLDER SENSOR	1	CWH32143	←	←	←	
13 ELECTRONIC CONTROLLER - MAIN	11	CONTROL BOARD CASING	1	CWH102449	←	←	←	
14 ELECTRONIC CONTROLLER - HVU	12	TERMINAL BOARD COMPLETE	1	CWA28C2357	←	←	←	0
15 ELECTRONIC CO INDICATOR & RECEIVER 1 CWA746634	13	ELECTRONIC CONTROLLER - MAIN	1	CWA73C6997	CWA73C6998	CWA73C6999	CWA73C6937	0
16 SENSOR COMPLETE 1 CWA50C2122	14	ELECTRONIC CONTROLLER - HVU	1	N0GE1F000002	←	←	←	0
17 SENSOR COMPLETE (ECO)	15	ELECTRONIC CO INDICATOR & RECEIVER	1	CWA746634	←	←	←	0
18 ELECTRONIC CONTROLLER (ECO SENSOR-L) 1 CWA745791 — — — — O 19 ELECTRONIC CONTROLLER (ECO SENSOR-R) 1 CWA746206 — — — — O 20 ELECTRONIC CONTROLLER (COMPARATOR) 1 CWA746206 — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — — —	16	SENSOR COMPLETE	1	CWA50C2122	←	←	←	0
19 ELECTRONIC CONTROLLER (ECO SENSOR R) 1 CWA746206 ← ← ← ○ ○ ○ ○ ELECTRONIC CONTROLLER (COMPARATOR) 1 CWA746635 ← ← ← ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	17	SENSOR COMPLETE (ECO)	1	CWA50C2809	←	←	←	0
20 ELECTRONIC CONTROLLER (COMPARATOR) 1 CWA746653	18	ELECTRONIC CONTROLLER (ECO SENSOR-L)	1	CWA745791	←	←	←	0
21 LEAD WIRE - PCB ECO 1 CWA67C9785 ← ← ← 22 CONTROL BOARD CASING FOR PCB ECO 1 CWD933407 ← ← ← 24 INDICATOR HOLDER 1 CWH131467 ← ← ← 24 INDICATOR HOLDER 1 CWB933406 ← ← ← 25 CONTROL BOARD FRONT COVER 1 CWH13C1247 ← ← ← 26 DISCHARGE GRILLE COMPLETE 1 CWH13C1247 ← ← ← 27 BACK COVER CHASSIS 1 CWB293233 ← ← ← 28 FULCRUM 1 CWB621131 ← ← ← 29 VERTICAL VANE 8 CWE241374 ← ← ← 30 CONNECTING BAR 1 CWE261256 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1	19	ELECTRONIC CONTROLLER (ECO SENSOR-R)	1	CWA746206	←	←	←	0
22 CONTROL BOARD CASING FOR PCB ECO 1 CWD933407 ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←	20	ELECTRONIC CONTROLLER (COMPARATOR)	1	CWA746653	←	←	←	0
23 CONTROL BOARD TOP COVER 1 CWH131467 ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←	21	LEAD WIRE - PCB ECO	1	CWA67C9785	←	←	←	
24 INDICATOR HOLDER 1 CWD933406 ← ← ← 25 CONTROL BOARD FRONT COVER 1 CWH13C1247 ← ← ← 26 DISCHARGE GRILLE COMPLETE 1 CWE20C3235 ← ← ← 27 BACK COVER CHASSIS 1 CWD933223 ← ← ← 28 FULCRUM 1 CWH621131 ← ← ← 29 VERTICAL VANE 8 CWE241374 ← ← ← 30 CONNECTING BAR 1 CWE261250 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← O 33 AIR SWING MOTOR 1 CWB981264 ← ← ← ← O 34 CAP - DRAIN TRAY 1 CWE24C1385 ← ← ← ← ← ← <td>22</td> <td>CONTROL BOARD CASING FOR PCB ECO</td> <td>1</td> <td>CWD933407</td> <td>←</td> <td>←</td> <td>←</td> <td></td>	22	CONTROL BOARD CASING FOR PCB ECO	1	CWD933407	←	←	←	
25 CONTROL BOARD FRONT COVER 1 CWH13C1247 ← ← ← 26 DISCHARGE GRILLE COMPLETE 1 CWE20C3235 ← ← ← 27 BACK COVER CHASSIS 1 CWD933233 ← ← ← 28 FULCRUM 1 CWH621131 ← ← ← 29 VERTICAL VANE 8 CWE241374 ← ← ← 30 CONNECTING BAR 1 CWE261250 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← ← 32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← ← O 34 CAP - DRAIN TRAY 1 CWH521096 ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←	23	CONTROL BOARD TOP COVER	1	CWH131467	←	←	←	
26 DISCHARGE GRILLE COMPLETE 1 CWE20C3235 ← ← ← 27 BACK COVER CHASSIS 1 CWD933233 ← ← ← 28 FULCRUM 1 CWH621131 ← ← ← 29 VERTICAL VANE 8 CWE241374 ← ← ← 30 CONNECTING BAR 1 CWE261250 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1 CW261256 ← ← ← ← 32 AIR SWING MOTOR 1 CWA981264 ← ← ← ← O 34 CAP - DRAIN TRAY 1 CWE321096 ← ← ← ← ← ● ← ← ← ● ● ← ← ● ● ● ● ● ← ← ● ● ● ● ●	24	INDICATOR HOLDER	1	CWD933406	←	←	←	
27 BACK COVER CHASSIS 1 CWD933233 ← ← ← 28 FULCRUM 1 CWH6211311 ← ← ← 29 VERTICAL VANE 8 CWE261250 ← ← ← 30 CONNECTING BAR 1 CWE261250 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← ← 32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←<	25	CONTROL BOARD FRONT COVER	1	CWH13C1247	←	←	←	
28 FULCRUM 1 CWH621131 ← ← ← 29 VERTICAL VANE 8 CWE241374 ← ← ← 30 CONNECTING BAR 1 CWE261250 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← ● 33 AIR SWING MOTOR 1 CWA981264 ← ← ← ● ● ● ← ← ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	26	DISCHARGE GRILLE COMPLETE	1	CWE20C3235	←	←	←	
29 VERTICAL VANE 8 CWE241374 ← ← ← 30 CONNECTING BAR 1 CWE261250 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1 CWA981264 ← ← ← O 33 AIR SWING MOTOR 1 CWA981264 ← ← ← O 34 CAP - DRAIN TRAY 1 CWH521096 ← ← ← ← 35 HORIZONTAL VANE 1 CWE24C1385 ← ← ← ← 36 REMOTE CONTROL COMPLETE 1 CWA75C4143 ← ← ← ● ● ← ← ● ● ● ← ← ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	27	BACK COVER CHASSIS	1	CWD933233	←	←	←	
30 CONNECTING BAR 1 CWE261250 ← ← ← 31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← O 33 AIR SWING MOTOR 1 CWA981264 ← ← ← O 34 CAP - DRAIN TRAY 1 CWH521096 ← ← ← ← 35 HORIZONTAL VANE 1 CWE24C1385 ← ← ← ← 36 REMOTE CONTROL COMPLETE 1 CWE34C143 ← ← ← ● O 37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← ● O O 38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ● O ● ● ← ← ● ● ● ● ● ● ● ● ● <td>28</td> <td>FULCRUM</td> <td>1</td> <td>CWH621131</td> <td>←</td> <td>←</td> <td>←</td> <td></td>	28	FULCRUM	1	CWH621131	←	←	←	
31 CONNECTING BAR 1 CWE261256 ← ← ← 32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← 0 33 AIR SWING MOTOR 1 CWA981264 ← ← ← 0 34 CAP - DRAIN TRAY 1 CWH521096 ← ← ← ← 35 HORIZONTAL VANE 1 CWE24C1385 ← ← ← ← 36 REMOTE CONTROL COMPLETE 1 CWE75C4143 ← ← ← ● ● ● ← ← ● O 0 37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	29	VERTICAL VANE	8	CWE241374	←	←	←	
32 AIR SWING MOTOR 1 CWA98K1016 ← ← ← 0 33 AIR SWING MOTOR 1 CWA981264 ← ← ← ← 0 34 CAP - DRAIN TRAY 1 CWH521096 ← ← ← ← 35 HORIZONTAL VANE 1 CWE24C1385 ← ← ← ← 36 REMOTE CONTROL COMPLETE 1 CWE75C4143 ← ← ← ← ● 0 37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← ← ● 0 38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	30	CONNECTING BAR	1	CWE261250	←	←	←	
33 AIR SWING MOTOR 1 CWA981264 ← ← ← O 34 CAP - DRAIN TRAY 1 CWH521096 ← ← ← ← 35 HORIZONTAL VANE 1 CWE24C1385 ← ← ← ← 36 REMOTE CONTROL COMPLETE 1 CWA75C4143 ← ← ← ● O 37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← ● O 38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ● ● ● ← ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	31	CONNECTING BAR	1	CWE261256	←	←	←	
34 CAP - DRAIN TRAY 1 CWH521096 ← ← ← 35 HORIZONTAL VANE 1 CWE24C1385 ← ← ← 36 REMOTE CONTROL COMPLETE 1 CWE75C4143 ← ← ← O 37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← O 38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ← 39 GRILLE DOOR 1 CWE14C1090 ← ← ← ← 40 AIR FILTER 2 CWD001279 ← ← ← 41 SCREW - FRONT GRILLE 3 XTT4+16CFJ ← ← ← 42 CAP - FRONT GRILLE 2 CWH521227 ← ← ← 43 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH361134 ← ← ←	32	AIR SWING MOTOR	1	CWA98K1016	←	←	←	0
35 HORIZONTAL VANE 1 CWE24C1385 ← ← ← 36 REMOTE CONTROL COMPLETE 1 CWA75C4143 ← ← ← O 37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← ← O 38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ← 39 GRILLE DOOR 1 CWE14C1090 ← ← ← 40 AIR FILTER 2 CWD001279 ← ← ← 41 SCREW - FRONT GRILLE 3 XTT4+16CFJ ← ← ← 42 CAP - FRONT GRILLE 2 CWH521227 ← ← ← 43 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH82C1705 ← ← ← 45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← <td>33</td> <td>AIR SWING MOTOR</td> <td>1</td> <td>CWA981264</td> <td>←</td> <td>←</td> <td>←</td> <td>0</td>	33	AIR SWING MOTOR	1	CWA981264	←	←	←	0
36 REMOTE CONTROL COMPLETE 1 CWA75C4143 ← ← ← O 37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← O 38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ← 39 GRILLE DOOR 1 CWE14C1090 ← ← ← 40 AIR FILTER 2 CWD001279 ← ← ← 41 SCREW - FRONT GRILLE 3 XTT4+16CFJ ← ← ← 42 CAP - FRONT GRILLE 2 CWH521227 ← ← ← 42 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH361134 ← ← ← 45 BAG COMPLETE · INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ←	34	CAP - DRAIN TRAY	1	CWH521096	←	←	←	
37 FRONT GRILLE COMPLETE 1 CWE11C5445 ← ← ← O 38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ← 39 GRILLE DOOR 1 CWE14C1090 ← ← ← ← 40 AIR FILTER 2 CWD001279 ← ← ← 41 SCREW - FRONT GRILLE 3 XTT4+16CFJ ← ← ← 42 CAP - FRONT GRILLE 2 CWH521227 ← ← ← 43 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH361134 ← ← ← 45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWG75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ←	35	HORIZONTAL VANE	1	CWE24C1385	←	←	←	
38 INTAKE GRILLE COMPLETE 1 CWE22C1723 ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←	36	REMOTE CONTROL COMPLETE	1	CWA75C4143	←	←	←	0
39 GRILLE DOOR 1 CWE14C1090 ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←	37	FRONT GRILLE COMPLETE	1	CWE11C5445	←	←	←	0
40 AIR FILTER 2 CWD001279 ← ← ← 41 SCREW - FRONT GRILLE 3 XTT4+16CFJ ← ← ← 42 CAP - FRONT GRILLE 2 CWH521227 ← ← ← 43 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH361134 ← ← ← 45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	38	INTAKE GRILLE COMPLETE	1	CWE22C1723	←	←	←	
41 SCREW - FRONT GRILLE 3 XTT4+16CFJ ← ← ← 42 CAP - FRONT GRILLE 2 CWH521227 ← ← ← 43 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH361134 ← ← ← 45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	39	GRILLE DOOR	1	CWE14C1090	←	←	←	
42 CAP - FRONT GRILLE 2 CWH521227 ← ← ← 43 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH361134 ← ← ← 45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	40	AIR FILTER	2	CWD001279	←	←	←	
43 DRAIN HOSE 1 CWH851173 ← ← ← 44 INSTALLATION PLATE 1 CWH361134 ← ← ← 45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	41	SCREW - FRONT GRILLE	3	XTT4+16CFJ	←	←	←	
44 INSTALLATION PLATE 1 CWH361134 ← ← ← 45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	42	CAP - FRONT GRILLE	2	CWH521227	←	←	←	
45 BAG COMPLETE - INSTALLATION SCREW 1 CWH82C1705 ← ← ← 46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	43	DRAIN HOSE	1	CWH851173	←	←	←	
46 REMOTE CONTROL COMPLETE (BACKLIT) 1 CWA75C4151 ← ← ← 50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	44	INSTALLATION PLATE	1	CWH361134	←	←	←	
50 BAG 1 CWG861497 ← ← ← 51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	45	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	←	←	
51 SHOCK ABSORBER (LEFT) 1 CWG713386 ← ← ← 52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	46	REMOTE CONTROL COMPLETE (BACKLIT)	1	CWA75C4151	←	←	←	
52 SHOCK ABSORBER (RIGHT) 1 CWG713387 ← ← ←	50	BAG	1	CWG861497	←	←	←	
	51	SHOCK ABSORBER (LEFT)	1	CWG713386	←	←	←	
53 C.C. CASE 1 CWG567355 ← ← ←	52	SHOCK ABSORBER (RIGHT)	1	CWG713387	←	←	←	
	53	C.C. CASE	1	CWG567355	←	←	←	

[•] All parts are supplied from PAPAMY, Malaysia (Vendor Code: 00029488). "O" marked parts are recommended to be kept in stock.

19.1.2 CS-E18NKR CS-E21NKR CS-E24NKR CS-E28NKR



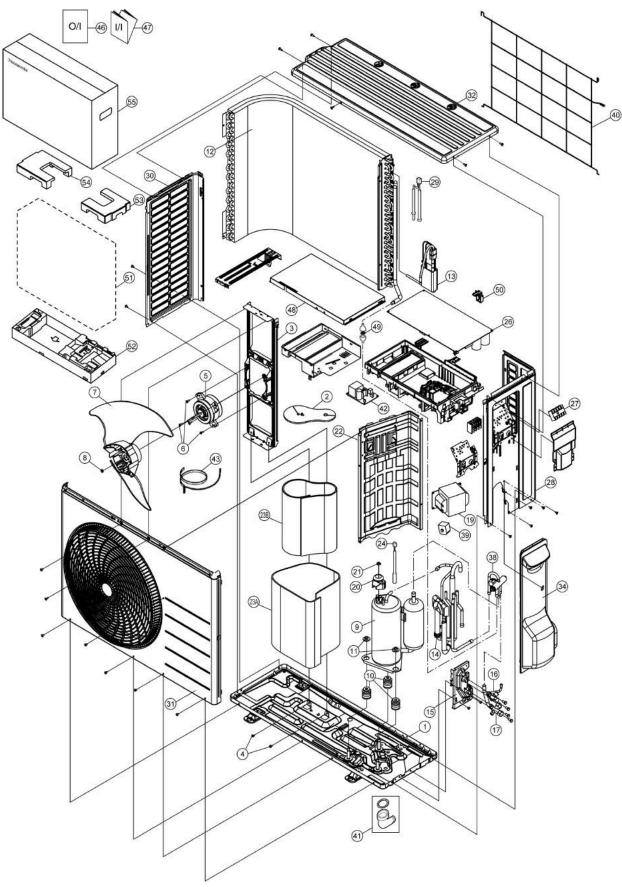
Note

REF NO.	PART NAME & DESCRIPTION	QTY.	CS-E18NKR	CS-E21NKR	CS-E24NKR	CS-E28NKR	REMARK
1	CHASSIS COMPLETE	1	CWD50C1623	←	←	←	
2	FAN MOTOR	1	ARW7627AC	←	←	←	0
3	CROSS FLOW FAN COMPLETE	1	CWH02C1077	←	←	←	
4	BEARING ASS'Y	1	CWH64K1006	←	←	←	
5	SCREW - CROSS FLOW FAN	1	CWH551146	←		←	
6	ION GENERATOR	1	CWH94C0043	←	←	←	
7	EVAPORATOR	1	CWB30C2900	CWB30C4226	CWB30C4227	CWB30C3855	
8	FLARE NUT (LIQUID)	1	CWT251030	←		←	
9	FLARE NUT (GAS)	1	CWT251032	←	CWT251033	←	
10	HOLDER SENSOR	1	CWH32143	←		←	
11	CONTROL BOARD CASING	1	CWH102449	←	←	←	
12	TERMINAL BOARD COMPLETE	1	CWA28C2357	←	←	←	0
13	ELECTRONIC CONTROLLER - MAIN	1	CWA73C6938	CWA73C6941	CWA73C6942	CWA73C6945	0
14	ELECTRONIC CONTROLLER - HVU	1	N0GE1F000002	←	←	←	0
15	ELECTRONIC CO INDICATOR & RECEIVER	1	CWA747271	←	←	←	0
16	SENSOR COMPLETE	1	CWA50C2122	←	CWA50C2782	←	0
17	SENSOR COMPLETE (ECO)	1	CWA50C2826	←	←	←	0
18	ELECTRONIC CONTROLLER (ECO SENSOR-L)	1	CWA745791	←	←	←	0
19	ELECTRONIC CONTROLLER (ECO SENSOR-R)	1	CWA746206	←	←	←	0
20	ELECTRONIC CONTROLLER (COMPARATOR)	1	CWA746653	←	←	←	0
21	LEAD WIRE - PCB ECO	1	CWA67C9934	←	←	←	
22	CONTROL BOARD CASING FOR PCB ECO	1	CWD933407A	←	←	←	
23	CONTROL BOARD TOP COVER	1	CWH131467	←	←	←	
24	INDICATOR HOLDER	1	CWD933406	←	←	←	
25	CONTROL BOARD FRONT COVER	1	CWH13C1247	←	←	←	
26	DISCHARGE GRILLE COMPLETE	1	CWE20C3242	←	←	←	
27	BACK COVER CHASSIS	1	CWD933031	←	←	←	
28	FULCRUM	2	CWH621138	←	←	←	
29	VERTICAL VANE	11	CWE241374	←	←	←	
30	CONNECTING BAR (RIGHT)	1	CWE261257	←	←	←	
31	CONNECTING BAR (LEFT)	1	CWE261258	←	←	←	
33	AIR SWING MOTOR	1	CWA98K1018	←	←	←	0
32	AIR SWING MOTOR	1	CWA981241	←	←	←	0
34	CAP - DRAIN TRAY	1	CWH521096	←	←	←	
35	HORIZONTAL VANE	1	CWE24C1392	←	←	←	
36	REMOTE CONTROL COMPLETE	1	CWA75C4143	←	←	←	0
37	FRONT GRILLE COMPLETE	1	CWE11C5452	CWE11C5446	←	←	0
38	INTAKE GRILLE COMPLETE	1	CWE22C1728	←	←	←	
39	GRILLE DOOR	1	CWE14C1090	←	←	←	
40	AIR FILTER	2	CWD001283	←	←	←	
41	SCREW - FRONT GRILLE	3	XTT4+16CFJ	←	←	←	
42	CAP - FRONT GRILLE	3	CWH521227	←	←	←	
43	DRAIN HOSE	1	CWH851173	←	←	←	
44	INSTALLATION PLATE	1	CWH361098	←	←	←	
45	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C1705	←	←	←	
46	REMOTE CONTROL COMPLETE (BACKLIT)	1	CWA75C4151	←	←	←	
50	BAG	1	CWG861498	←	←	←	
51	SHOCK ABSORBER (LEFT)	1	CWG713402	←	←	←	
52	SHOCK ABSORBER (RIGHT)	1	CWG713403	←	←	←	
53	C.C. CASE	1	CWG567455	←	←	←	

[•] All parts are supplied from PAPAMY, Malaysia (Vendor Code: 00029488). "O" marked parts are recommended to be kept in stock.

19.2 Outdoor Unit

CU-E7NKR CU-E9NKR CU-E12NKR 19.2.1

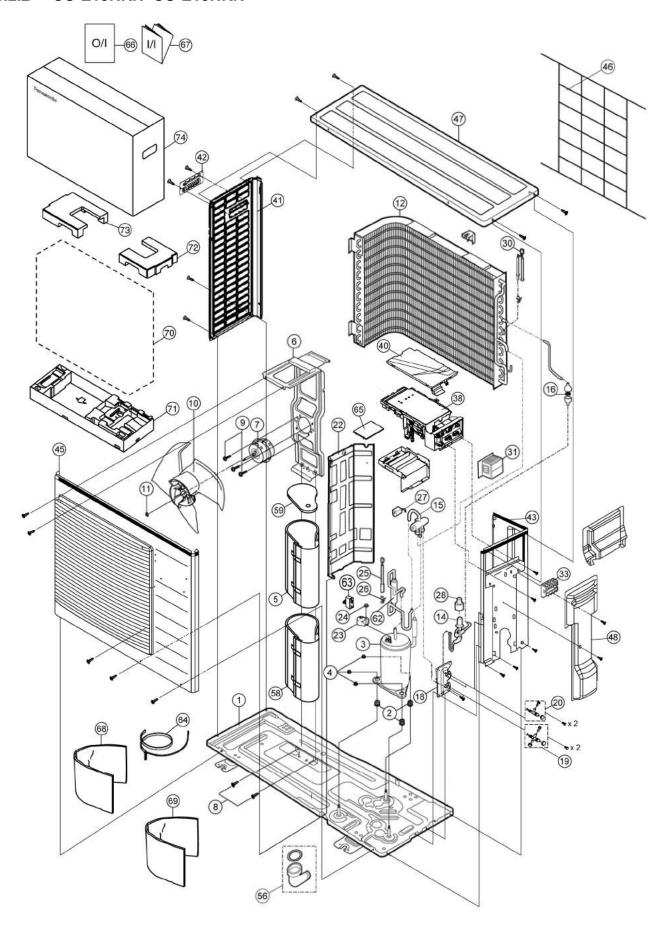


Note

REF. NO.	DESCRIPTION & NAME	QTY.	CU-E7NKR	CU-E9NKR	CU-E12NKR	REMARK
1	BASE PAN ASS'Y	1	CWD52K1277	←	←	
2	SOUND PROOF MATERIAL	1	CWG302314	CWG302719	←	
3	FAN MOTOR BRACKET	1	CWD541167	←	←	
4	SCREW - FAN MOTOR BRACKET	2	CWH551217	←	←	
5	FAN MOTOR	1	ARS6411AC	←	←	0
6	SCREW - FAN MOTOR MOUNT	4	CWH55252J	←	←	
7	PROPELLER FAN ASS'Y	1	CWH03K1066	←	←	
8	NUT - PROPELLER FAN	1	CWH56053J	←	←	
9	COMPRESSOR	1	5RS092XCD21	5RS102XNA21	←	0
10	ANTI - VIBRATION BUSHING	3	CWH50077	←	←	
11	NUT - COMPRESSOR MOUNT	3	CWH56000J	←	←	
12	CONDENSER COMPLETE	1	CWB32C3637	CWB32C3218	←	
13	CAPILLARY TUBE ASSY	1	CWB15K1398	CWT01C5681	CWT01C5680	
14	DISCHARGE MUFFLER	1	CWB121010	←	←	
15	HOLDER - COUPLING	1	CWH351233	←	←	
16	2 WAYS VALVE (LIQUID)	1	CWB021564	CWB021400	←	0
17	3 WAYS VALVE (GAS)	1	CWB011581	CWB011374	CWB011367	0
19	REACTOR	1	G0C193J00002	←	←	
20	TERMINAL COVER	1	CWH171039A	←	←	
21	NUT - TERMINAL COVER	1	CWH7080300J	←	←	
22	SOUND PROOF BOARD	1	CWH151274	←	←	
23A	SOUND PROOF MATERIAL	1	CWG302315	CWG302726	←	
23B	SOUND PROOF MATERIAL	1	CWG302316	CWG302701	←	
24	SENSOR CO COMP TEMP	1	CWA50C2830	←	←	0
26	ELECTRONIC CONTROLLER - MAIN	1	CWA73C7002R	CWA73C7003R	CWA73C7004R	0
27	TERMINAL BOARD ASSY	1	CWA28K1110J	←	←	0
28	CABINET SIDE PLATE (R)	1	CWE04C1296	←	←	
29	SENSOR CO AIR AND COND TEMP	1	CWA50C2825	←	←	0
30	CABINET SIDE PLATE (L)	1	CWE041580A	CWE041579A	←	
31	CABINET FRONT PLATE ASSY	1	CWE06C1360	←	←	
32	CABINET TOP PLATE	1	CWE031148A	←	←	
34	CONTROL BOARD COVER (R)	1	CWH13C1253	←	←	
38	4 WAYS VALVE	1	CWB001037J	←	←	
39	V-COIL COMPLETE	1	CWA43C2447	←	←	
40	WIRE NET	1	CWD041166A	←	←	
41	ACCESSORY CO. (DRAIN ELBOW)	1	CWG87C900	←	←	
42	ELECTRONIC CONT DEMAND	1	CWA746558	←	←	0
43	CRANKCASE HEATER	1	CWA341044	←	←	
46	OPERATING INSTRUCTION	1	CWF568746	←	←	
47	INSTALLATION INSTRUCTION	1	CWF615541	←	←	
48	CONTROL BOARD COVER (TOP)	1	CWH131473	←	←	
49	STRAINER	1	CWB11025	-	←	
50	HOLDER SENSOR	1	CWH32143	←	←	
51	BAG	1	CWG861078	←	←	
52	BASE BOARD - COMPLETE	1	CWG62C1144	←	←	
53	SHOCK ABSORBER (RIGHT)	1	CWG713415	←	←	
54	SHOCK ABSORBER (LEFT)	1	CWG713416	←	←	
55	C.C. CASE	1	CWG566848	←	←	

[•] All parts are supplied from PAPAMY, Malaysia (Vendor Code: 00029488). "O" marked parts are recommended to be kept in stock.

19.2.2 **CU-E15NKR CU-E18NKR**



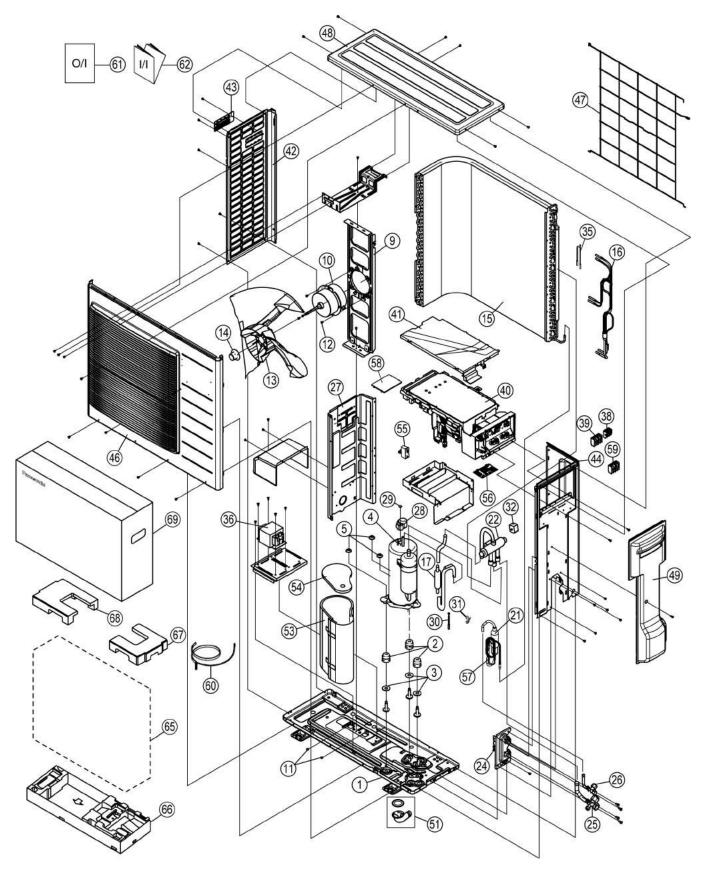
Note

REF. NO.	DESCRIPTION & NAME	QTY.	CU-E15NKR	CU-E18NKR	REMARK
1	BASE PAN ASS'Y	1	CWD52K1191	←	
2	ANTI - VIBRATION BUSHING	3	CWH50077	←	
3	COMPRESSOR	1	5RD132XFA21	←	0
4	NUT - COMPRESSOR MOUNT	3	CWH56000J	←	
5	SOUND PROOF MATERIAL	1	CWG302629	←	
6	FAN MOTOR BRACKET	1	CWD541126	←	
7	FAN MOTOR	1	CWA951620	←	0
8	SCREW - FAN MOTOR BRACKET	3	CWH551217	←	
9	SCREW - FAN MOTOR MOUNT	3	CWH551040J	←	
10	PROPELLER FAN ASS'Y	1	CWH001019	←	
11	NUT - PROPELLER FAN	1	CWH561092	←	
12	CONDENSER COMPLETE	1	CWB32C3229	CWB32C3230	
14	EXPANSION VALVE	1	CWB051016J	←	
15	4 WAYS VALVE	1	CWB001026J	←	
16	STRAINER	1	CWB11094	←	
18	HOLDER - COUPLING	1	CWH351227	←	
19	3 WAYS VALVE (GAS)	1	CWB011338	←	0
20	2 WAYS VALVE (LIQUID)	1	CWB021292	←	0
22	SOUND PROOF BOARD	1	CWH151198	←	
23	TERMINAL COVER	1	CWH171039A	←	
24	NUT - TERMINAL COVER	1	CWH7080300J	←	
25	SENSOR CO COMP TEMP	1	CWA50C2656	←	0
26	HOLDER SENSOR	1	CWH711010	←	
27	V-COIL COMPLETE - 4-WAY VALVE	1	CWA43C2169J	←	
28	V-COIL COMPLETE - EXP.VALVE	1	CWA43C2257	· ←	
30	SENSOR CO AIR AND COND TEMP	1	CWA50C2517	· ←	
31	REACTOR	1	G0C153J00007	· ←	
33	TERMINAL BOARD ASSY	1	CWA28K1110J	· ←	0
38	ELECTRONIC CONTROLLER - MAIN	1	CWA73C6862R	CWA73C6927R	0
40	CONTROL BOARD COVER (TOP)	1	CWH131333	<i>←</i>	
41	CABINET SIDE PLATE (L)	1	CWE041320A	CWE041317A	
42	HANDLE	1	CWE161010	- OWLOTISTIA	
43	CABINET SIDE PLATE (R)	1	CWE041318A	←	
45	CABINET FRONT PLATE ASSY	1	CWE06K1063	CWE06K1084	
46	WIRE NET	1	CWD041128A	←	
47	CABINET TOP PLATE	1	CWE031083A	←	
48	CONTROL BOARD COVER (R)	1	CWH13C1185	←	
56	ACCESSORY CO. (DRAIN ELBOW)	1	CWG87C900	←	1
58	SOUND PROOF MATERIAL	1	CWG302521		
59	SOUND PROOF MATERIAL	1	CWG302521 CWG302656	←	+
		1		←	+
62	RECEIVER	+ +	CWB14011	←	0
63	CAPACITOR - FM	1	DS461305QP-A	←	-
64	CRANKCASE HEATER	1	CWA341044	←	
65	ELECTRONIC CONTROLLER	1	CWE569746	←	0
66	OPERATING INSTRUCTION	1	CWF568746	←	
67	INSTALLATION INSTRUCTION	1	CWF615541	←	_
68	SOUND PROOF MATERIAL	1	CWG302766	← 	-
69	SOUND PROOF MATERIAL	1	-	CWG302636	-
70	BAG	1	CWG861154	←	
71	BASE BOARD - COMPLETE	1	CWG62C1082	←	
72	SHOCK ABSORBER (RIGHT)	1	CWG712879	←	

73	SHOCK ABSORBER (LEFT)	1	CWG712880	←	
74	C.C. CASE	1	CWG565614	←	

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 "O" marked parts are recommended to be kept in stock.

19.2.3 CU-E21NKR



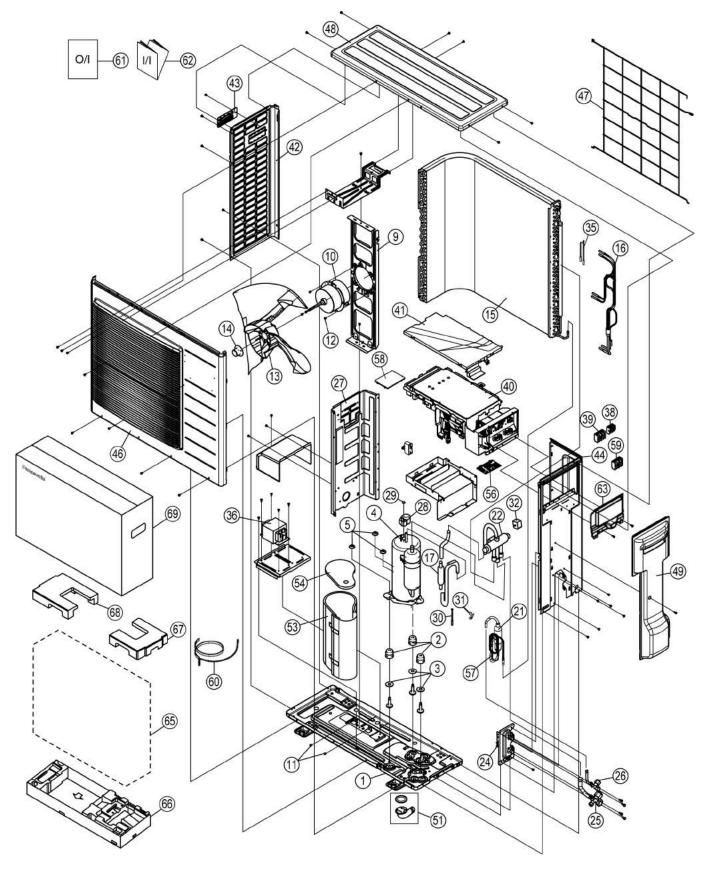
Note

REF. NO.	DESCRIPTION & NAME	QTY.	CU-E21NKR	REMARK
1	BASE PAN ASS'Y	1	CWD52K1190	
2	ANTI - VIBRATION BUSHING	3	CWH50055	
3	PACKING	3	CWB81043	
4	COMPRESSOR	1	5KD240XAF21	0
5	NUT - COMPRESSOR MOUNT	3	CWH561049	
9	FAN MOTOR BRACKET	1	CWD541126	
10	FAN MOTOR	1	CWA951671	0
11	SCREW - FAN MOTOR BRACKET	3	CWH551217	
12	SCREW - FAN MOTOR MOUNT	3	CWH551040J	
13	PROPELLER FAN ASS'Y	1	CWH001019	
14	NUT - PROPELLER FAN	1	CWH561092	
15	CONDENSER COMPLETE	1	CWB32C2440	
16	TUBE ASSY (CAP. TUBE)	1	CWT01C4686	
21	RECEIVER	1	CWB14030	
22	4 WAYS VALVE	1	CWB001026J	
24	HOLDER - COUPLING	1	CWH351057	
25	3 WAYS VALVE (GAS)	1	CWB011364	0
26	2 WAYS VALVE (LIQUID)	1	CWB021434	0
27	SOUND PROOF BOARD	1	CWH151277	
28	TERMINAL COVER	1	CWH171039A	
29	NUT - TERMINAL COVER	1	CWH7080300J	
30	SENSOR CO COMP TEMP	1	CWA50C2656	0
31	HOLDER SENSOR	1	CWH711010	
32	V-COIL COMPLETE	1	CWA43C2169J	
35	SENSOR CO AIR AND COND TEMP	1	CWA50C2517	0
36	REACTOR	1	G0C452J00002	
38	TERMINAL BOARD ASSY	1	CWA28K1076J	0
39	TERMINAL BOARD ASSY	1	CWA28K1162	0
40	ELECTRONIC CONTROLLER - MAIN	1	CWA73C6930R	0
40	CONTROL BOARD COVER (TOP)	1	CWA73C0930K	
41	CABINET SIDE PLATE (L)	1	CWF131333 CWE041317A	
	HANDLE	1		
43		-	CWE161010	
44	CABINET SIDE PLATE (R) CABINET FRONT PLATE ASSY	1	CWE041319A	
46		1	CWE06K1063	
47	WIRE NET	1	CWD041128A	
48	CABINET TOP PLATE	1	CWE031083A	
49	CONTROL BOARD COVER (R)	1	CWC97C000	
51	ACCESSORY CO. (DRAIN ELBOW)	1	CWG87C900	
53	SOUND PROOF MATERIAL	1	CWG302245	
54	SOUND PROOF MATERIAL	1	CWG302246	
55	CAPACITOR - FM	1	DS461305QP-A	0
56	ELECTRONIC CONT NOISE FILTER	1	CWA746646	
57	CAPILLARY TUBE ASSY	1	CWT027938	
58	ELECTRONIC CONTROLLER	1	CWH14C8772	0
59	TERMINAL BOARD ASSY	1	CWA28K1242	0
60	CRANKCASE HEATER	1	CWA341047	
61	OPERATING INSTRUCTION	1	CWF568746	
62	INSTALLATION INSTRUCTION	1	CWF615541	
65	BAG	1	CWG861154	
66	BASE BOARD - COMPLETE	1	CWG62C1082	
67	SHOCK ABSORBER (RIGHT)	1	CWG712879	

68	SHOCK ABSORBER (LEFT)	1	CWG712880	
69	C.C. CASE	1	CWG565614	

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19.2.4 **CU-E24NKR**



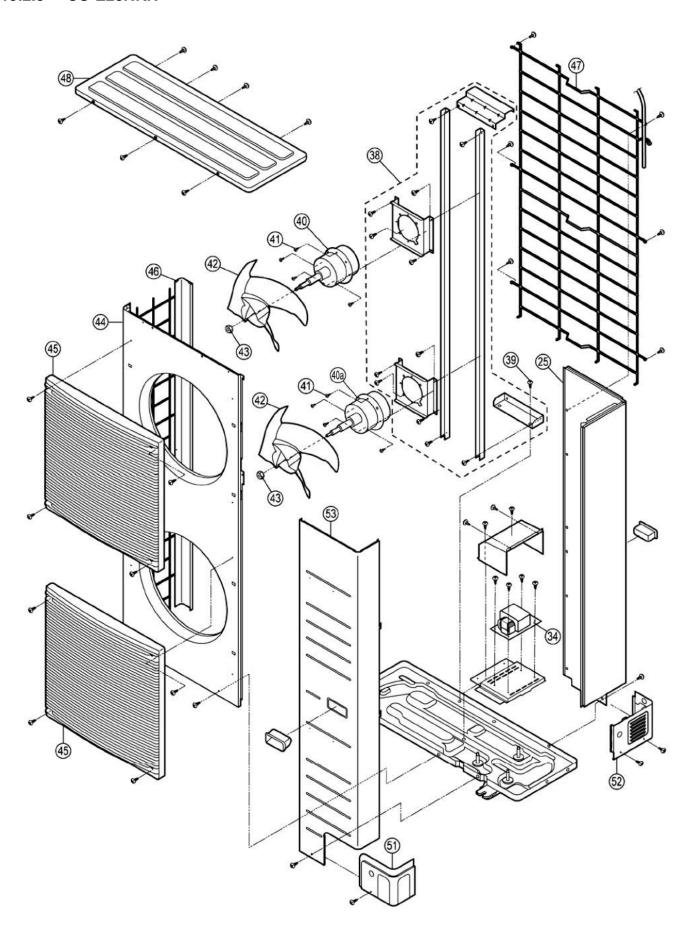
Note

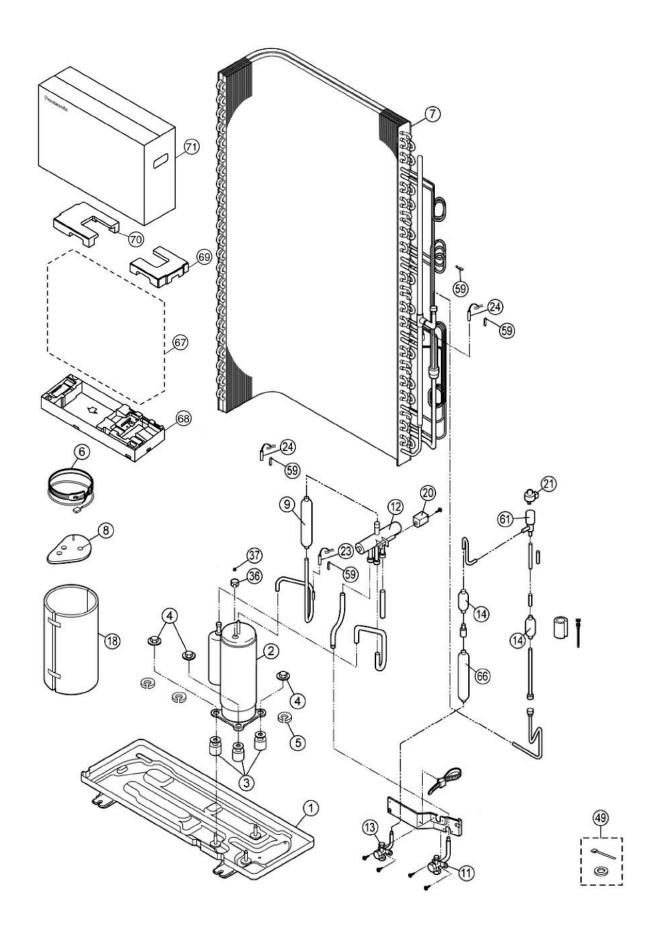
REF. NO.	DESCRIPTION & NAME	QTY.	CU-E24NKR	REMARI
1	BASE PAN ASS'Y	1	CWD52K1190	
2	ANTI - VIBRATION BUSHING	3	CWH50055	
3	PACKING	3	CWB81043	
4	COMPRESSOR	1	5KD240XAF21	0
5	NUT - COMPRESSOR MOUNT	3	CWH561049	
9	FAN MOTOR BRACKET	1	CWD541127	
10	FAN MOTOR	1	EHDS80C60AC	0
11	SCREW - FAN MOTOR BRACKET	3	CWH551217	
12	SCREW - FAN MOTOR MOUNT	3	CWH551323	
13	PROPELLER FAN ASS'Y	1	CWH00K1006	
14	NUT - PROPELLER FAN	1	CWH561092	
15	CONDENSER COMPLETE	1	CWB32C3295	
16	TUBE ASSY (CAP. TUBE)	1	CWT01C5849	
17	DISCHARGE MUFFLER	1	CWB121013	
21	RECEIVER	1	CWB14030	
22	4 WAYS VALVE	1	CWB001026J	
24	HOLDER - COUPLING	1	CWH351057	
25	3 WAYS VALVE (GAS)	1	CWB011363	0
26	2 WAYS VALVE (LIQUID)	1	CWB021464	0
27	SOUND PROOF BOARD	1	CWH151277	
28	TERMINAL COVER	1	CWH171039A	
29	NUT - TERMINAL COVER	1	CWH7080300J	
30	SENSOR CO COMP TEMP	1	CWA50C2656	0
31	HOLDER SENSOR	1	CWH711010	
32	V-COIL COMPLETE	1	CWA43C2169J	
35	SENSOR CO AIR AND COND TEMP	1	CWA50C2517	0
36	REACTOR	1	G0C452J00002	
38	TERMINAL BOARD ASSY	1	CWA28K1076J	0
39	TERMINAL BOARD ASSY	1	CWA28K1162	0
40	ELECTRONIC CONTROLLER - MAIN	1	CWA73C6931R	0
41	CONTROL BOARD COVER (TOP)	1	CWH131333	
42	CABINET SIDE PLATE (L)	1	CWE041317A	
43	HANDLE	1	CWE161010	
44	CABINET SIDE PLATE (R)	1	CWE041319A	
46	CABINET FRONT PLATE ASSY	1	CWE06K1063	
47	WIRE NET	1	CWD041128A	
48	CABINET TOP PLATE	1	CWE031083A	
49	CONTROL BOARD COVER (R)	1	CWH13C1185	
51	ACCESSORY CO. (DRAIN ELBOW)	1	CWG87C900	
53	SOUND PROOF MATERIAL	1	CWG302245	
54	SOUND PROOF MATERIAL	1	CWG302246	
56	ELECTRONIC CONT NOISE FILTER	1	CWA746792	0
57	TUBE ASSY (CAP. TUBE & RECEIVER)	1	CWT01C5851	
58	ELECTRONIC CONTROLLER	1	CWH14C8772	0
59	TERMINAL BOARD ASSY	1	CWA28K1281	0
60	CRANKCASE HEATER	1	CWA341047	
61	OPERATING INSTRUCTION	1	CWF568746	
62	INSTALLATION INSTRUCTION	1	CWC961154	
64	BAG BOARD COMPLETE	1	CWG861154	
65 66	BASE BOARD - COMPLETE SHOCK ABSORBER (RIGHT)	1 1	CWG62C1081 CWG712879	

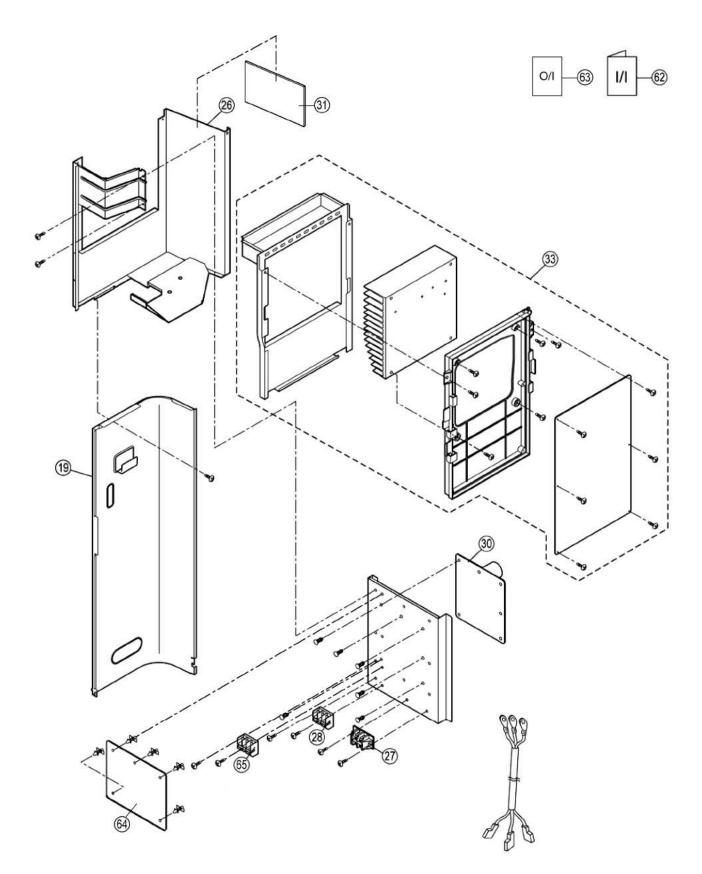
67	SHOCK ABSORBER (LEFT)	1	CWG712880	
68	C.C. CASE	1	CWG565546	

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 "O" marked parts are recommended to be kept in stock.

19.2.5 CU-E28NKR







REF. NO.	DESCRIPTION & NAME	QTY.	CU-E28NKR	REMARK
1	BASE PAN ASS'Y	1	CWD52K1295	
2	COMPRESSOR	1	5KD240XAF21	0
3	ANTI - VIBRATION BUSHING	3	CWH50055	
4	NUT - COMPRESSOR MOUNT	3	CWH561049	
5	PACKING	3	CWB811017	
6	CRANKCASE HEATER	1	CWA341080	
7	CONDENSER COMPLETE	1	CWB32C3300	
8	SOUND PROOF MATERIAL	1	CWG302246	
9	DISCHARGE MUFFLER	1	CWB121013	
11	3 WAYS VALVE (GAS)	1	CWB011251	0
12	4 WAYS VALVE	1	CWB001026J	
13	2 WAYS VALVE (LIQUID)	1	CWB021330	0
14	STRAINER	2	CWB111032	
18	SOUND PROOF MATERIAL	1	CWG302245	
19	SOUND PROOF BOARD	1	CWH151294	
20	V-COIL COMPLETE - 4-WAY VALVE	1	CWA43C2169J	
21	V-COIL COMPLETE - EXP.VALVE	1	CWA43C2128J	
23	SENSOR CO COMP TEMP	1	CWA50C2656	0
24	SENSOR CO AIR AND COND TEMP	1	CWA50C2652	0
25	CABINET REAR PLATE - COMPLETE	1	CWE02C1043	
26	CONTROL BOARD A'SSY	1	CWH10K1158	
27	TERMINAL BOARD ASSY	1	CWA28K1162	0
28	TERMINAL BOARD ASSY	1	CWA28K1076J	0
30	ELECTRONIC CONT CAPACITOR	1	CWA746775	0
31	ELECTRONIC CONTROLLER - NF	1	CWA746758	0
33	ELECTRONIC CONTROLLER - MAIN	1	CWA73C6934R	0
34	REACTOR	1	G0C452J00002	
36	TERMINAL COVER	1	CWH171039A	
37	NUT - TERMINAL COVER	1	CWH7080300J	
38	FAN MOTOR BRACKET	1	CWD54K1063	
39	SCREW - FAN MOTOR BRACKET	2	CWH551040J	
40	FAN MOTOR (UPPER)	1	ARW8405AC	0
40a	FAN MOTOR (BOTTOM)	1	ARW8406AC	0
41	SCREW - FAN MOTOR MOUNT	8	CWH55252J	
42	PROPELLER FAN ASS'Y	2	CWH03K1065	
43	NUT - PROPELLER FAN	2	CWH56053J	
44	CABINET FRONT PLATE ASSY	1	CWE06C1408	
45	DISCHARGE GRILLE	2	CWE201075	
46	CABINET SIDE PLATE ASS'Y	1	CWE04K1022A	
47	WIRE NET	1	CWD041129A	
48	CABINET TOP PLATE	1	CWE03C1095	
49	ACCESSORY CO. (DRAIN ELBOW)	1	CWG87C900	
51	L-SHAPED PLATE (FRONT)	1	CWD601074A	
52	L-SHAPED PLATE (FRONT)	1	CWD601074A	
53	CABINET FRONT PLATE	1	CWE061075A	
59	HOLDER SENSOR	3	CWL001092A CWH711010	
61	EXPANSION VALVE	1	CWB051018J	
62	INSTALLATION INSTRUCTION	1	CWF615542	
63	OPERATING INSTRUCTION	1	CWF568746	
64	ELECTRONIC CONTROLLER	1	CWA746558	0
65	TERMINAL BOARD ASSY	1	CWA746336 CWA28K1281	0
66	RECEIVER	1	CWA26K1261 CWB14017	
67	BAG	1	CWG861239	
68	BASE BOARD - COMPLETE	1	CWG62C1086	
	SHOCK ABSORBER (RIGHT)	2	CWG02C1060 CWG712852	
69	SHOOK ADSONDER (RIGHT)	۷	CVVG/ 12002	

70	SHOCK ABSORBER (LEFT)	1	CWG712854	
71	C.C.CASE	1	CWG567822	

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[&]quot;O" marked parts are recommended to be kept in stock.