

PK18FL3 PK24FL3 PK30FL3 PK36FL3

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PK18FL₁ → PK18FL3

PK24FL₁ → PK24FL3

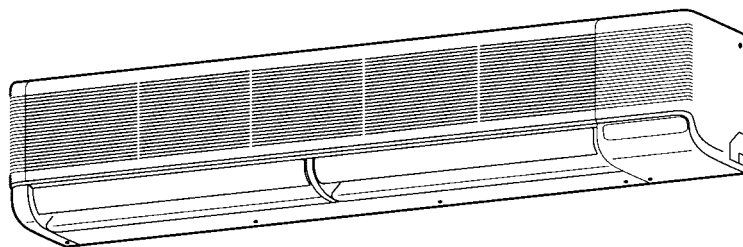
PK30FL₁ → PK30FL3

PK36FL₁ → PK36FL3

● REMOTE CONTROLLER has changed.

● INDOOR CONTROLLER BOARD has changed accordance with remote controller change.

- 1) From TRANSFORMER to POWER BOARD.
- 2) SW1 changed from function selector to mode selector.
- 3) SW2 changed from unit selector to address selector.
- 4) The number of switches of SW3 changed from 3 to 2 pieces.
- 5) Function of jumper wire for JR is blotted out and SW5 for model selector, SW6 for address selector, SW7 for model selector, SW8 for option and SW9 for model selector are added.



Indoor unit



Wireless Remote controller

Models	Cooling capacity	SEER
PK18FL3	18,500 Btu/h	11.3
PK24FL3	24,000 Btu/h	10.6
PK30FL3	30,000 Btu/h	10.7
PK36FL3	34,200 Btu/h	10.2

1. COMPACT DESIGN

The PK series models have been downsized and now require such minimal wall space that they can even be installed above windows.

2. LCD WIRELESS REMOTE CONTROLLER

The new wireless remote controller has a larger easy-to-read temperature display, and executes ON/OFF commands and temperature settings with a press of the button.

3. AUTO FLAP SHUTTER

With a simple flick of the OFF switch the air outlet can be closed off with a shutter. The shutter also functions as a flap during operation to adjust the air flow angle, with "Auto Angle 1" securing a comfortable air flow.

4. INSTALLATION : FAST AND EASILY ADAPTABLE

(1) Multi-directional piping

Multi directional drain and refrigerant piping radically improves flexibility in selecting installation layouts. PK18/24/30/36FL3 models boast refrigerant piping in 4 directions and drain piping in 2 directions.

(2) Back plate installation guide

The back plate installation guide gives clear instructions on installation positions. The enlarged back plate secures the unit firmly to the wall, while the support piece which lifts the unit makes left side piping work much easier.

(3) Easily removable filter and convenient wireless remote controller

The presence of thumb screws on the filters means that the filters can be quickly and smoothly removed.

5. HIGH RELIABILITY AND EASY SERVICING

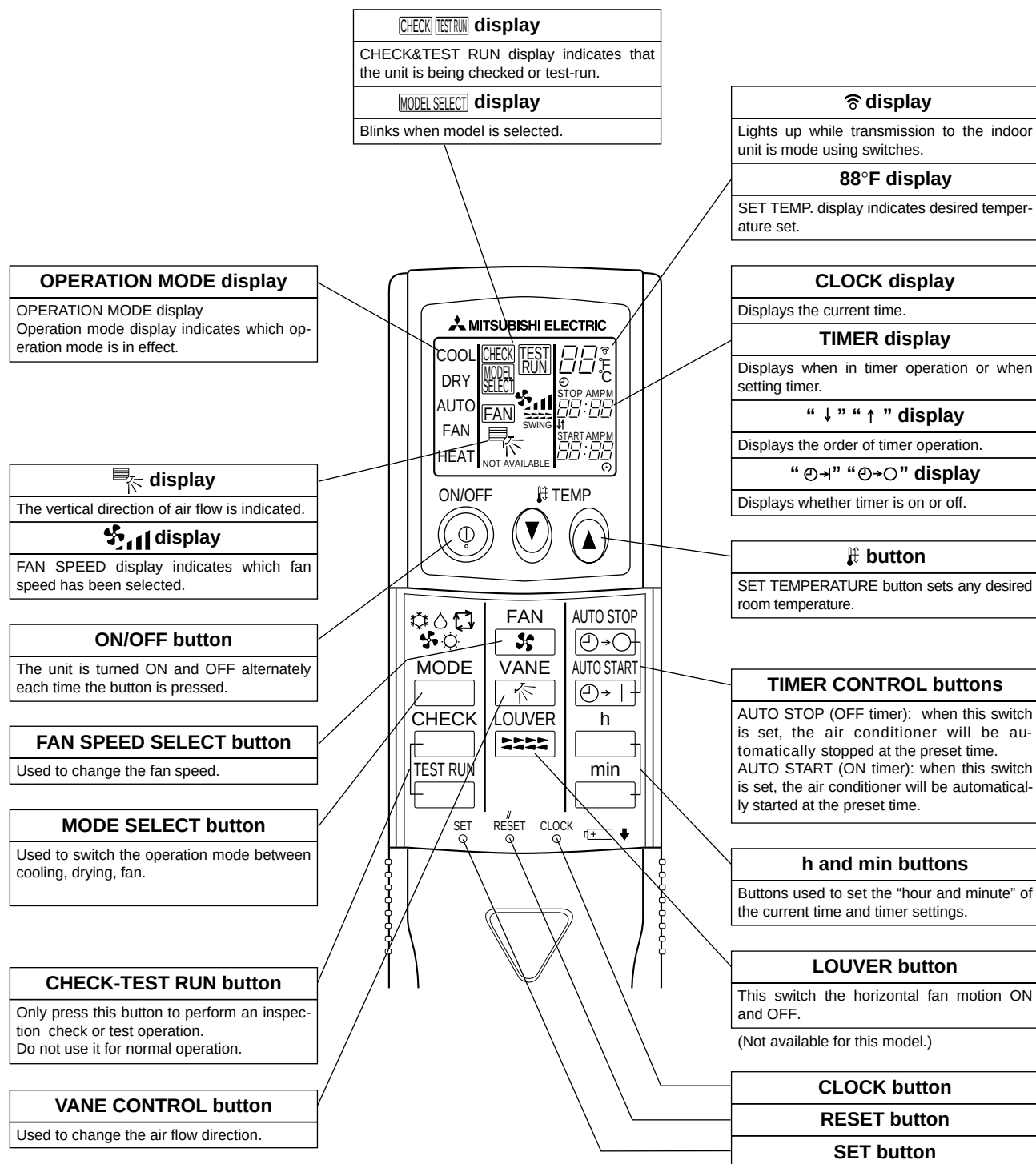
In addition to the self-diagnostic function, units are also equipped with a 3-minute time delay mechanism (cooling), an auto restart function, an emergency operation function, a test run switch, etc., to assure high reliability and easy servicing.

6. NITROGEN GAS IS CHARGED TO INDOOR UNIT

Indoor unit and refrigerant pipes are charged with nitrogen gas (N₂) instead of R22 before shipment from the factory.

●Wireless remote controller

- When cover is open.



Model			PK18FL3	PK24FL3	PK30FL3	PK36FL3
Item						
Capacity	❁ 1	Btu/h	18,500	24,000	30,000	34,200
Power consumption	❁ 1	kW	1.75	2.34	3.06	3.47
EER	❁ 1		10.6	10.3	9.8	9.9
SEER			11.3	10.6	10.7	10.2
INDOOR UNIT MODEL			PK18FL3	PK24FL3	PK30FL3	PK36FL3
External finish			Munsell 3.4Y7.7/0.8			
Power supply V, Phase, Hz			115, 1, 60			
Max. fuse size (time delay) A			15	15	15	15
Min ampacity A			1	1	2	2
Fan motor F.L.A.			0.7	0.7	1.0	1.0
Airflow Hi-Lo	Dry	CFM	710-530	710-530	990-780	990-780
	Wet	CFM	640-480	640-480	890-700	890-700
Moisture removal Pints/h			5.3	7.2	9.6	10.5
Sound level Hi-Lo dB			48-41	48-41	49-44	49-44
Unit drain pipe I.D. in.			1-1/16	1-1/16	1-1/16	1-1/16
Dimensions	W	in.	55-1/8		66-5/32	
	D	in.	9-1/4			
	H	in.	13-3/8			
Weight lb.			53	53	62	62
OUTDOOR UNIT MODEL			PU18EK ₁	PU24EK ₁	PU30EK ₁	PU36EK ₁
External finish			Munsell 5Y7/1			
Power supply V, Phase, Hz			208/230, 1, 60			
Max. fuse size (time delay) A			20	20	30	30
Min. ampacity A			16	16	20	22
Fan motor F.L.A.			0.75	0.65+0.65	0.65+0.65	0.75+0.75
Compressor	Model		RH247NAB	NH33NBD	NH41NAD	NH47NAD
		R.L.A	12.0	11.5	14.0	17.5
		L.R.A	37	54	73	87
Crankcase heater A(W)			0.11/0.12 (23/28)	0.16/0.17 (33/39)	0.16/0.17 (33/39)	0.16/0.17 (33/39)
Refrigerant control			Capillary tube			
Sound level dB			53	55	55	55
Dimensions	W	in.	34-1/4		38-3/16	
	D	in.	11-5/8		13-9/16	
	H	in.	33-1/2	49-9/16		
Weight lb.			154	207	208	220
REMOTE CONTROLLER			With indoor unit			
Control voltage (by built-in transformer)			Indoor unit - outdoor unit : DC12V			
REFRIGERANT PIPING			Not supplied (optional parts)			
Pipe size	Liquid	in.	3/8		1/2	
	Gas	in.	5/8		3/4	
Connection method	Indoors		Flared			
	Outdoors		Flared			
Between the indoor & outdoor units	Height	ft	130	164		
	Piping length	fr	130	164		
Refrigerant charge –			5 lbs 8 oz	9 lbs 15 oz	10 lbs 2 oz	10 lbs 9 oz
Refrigerant oil cc <Model>			520 <MS-56>	1200 <MS32N-1>	1300 <MS32N-1>	

NOTES : ❁ 1. Rating conditions —indoor : 80°FDB, 67°FWB outdoor : 95°FDB, 75°FWB.

Operating range

		Indoor intake air temperature	Outdoor intake air temperature
Cooling	Maximum	DB 95°F, WB 71°F	DB 115°F
	Minimum	DB 67°F, WB 57°F	DB 0°F *

* In case of the wind baffle is installed.

(In case of the wind baffle is not installed, the minimum temperature will be DB 23°F.)

1. PERFORMANCE DATA

1) COOLING CAPACITY

Models	Indoor air		IWB (°F)	Outdoor intake air DB temperature (°F)														
	Airflow (CFM)			75			85			95			105			115		
	B.F			TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
PK18FL3	710	DB 80°F	71	21.5	14.8	1.52	20.8	14.3	1.65	19.9	13.7	1.80	19.0	13.0	1.95	18.1	12.4	2.10
			67	20.1	16.5	1.49	19.3	15.8	1.61	18.5	15.2	1.75	17.6	14.4	1.89	16.7	13.7	2.03
			63	18.8	17.9	1.46	18.0	17.2	1.57	17.2	16.4	1.70	16.4	15.6	1.83	15.5	14.8	1.96
	0.14	DB75°F(50%RH)	62.5	18.6	16.0	1.45	17.9	15.4	1.57	17.1	14.7	1.70	16.2	13.9	1.83	15.4	13.2	1.96
		DB72°F(50%RH)	60	17.8	15.6	1.43	17.1	15.0	1.55	16.3	14.3	1.67	15.5	13.6	1.79	14.6	12.8	1.92
		DB70°F(50%RH)	59	17.4	15.0	1.43	16.7	14.4	1.54	16.0	13.8	1.66	15.1	13.1	1.78	14.3	12.4	1.90
PK24FL3	710	DB 80°F	71	27.9	16.4	2.04	26.9	15.8	2.21	25.8	15.1	2.40	24.6	14.4	2.61	23.4	13.7	2.81
			67	26.1	18.8	1.99	25.1	18.1	2.16	24.0	17.3	2.34	22.9	16.5	2.53	21.7	15.6	2.71
			63	24.3	20.7	1.95	23.4	20.0	2.11	22.4	19.1	2.28	21.3	18.2	2.45	20.1	17.2	2.62
	0.14	DB75°F(50%RH)	62.5	24.1	18.3	1.94	23.2	17.6	2.10	22.2	16.8	2.27	21.1	16.0	2.44	19.9	15.1	2.62
		DB72°F(50%RH)	60	23.0	17.8	1.92	22.1	17.1	2.07	21.1	16.4	2.23	20.0	15.5	2.40	18.9	14.7	2.56
		DB70°F(50%RH)	59	22.6	17.3	1.91	21.7	16.6	2.05	20.7	15.8	2.22	19.6	15.0	2.38	18.5	14.1	2.54
PK30FL3	990	DB 80°F	71	34.9	21.5	2.66	33.7	20.8	2.89	32.3	19.9	3.14	30.8	19.0	3.41	29.3	18.1	3.68
			67	32.6	24.5	2.61	31.4	23.6	2.82	30.0	22.5	3.06	28.6	21.5	3.30	27.1	20.3	3.54
			63	30.4	26.9	2.55	29.2	25.8	2.75	27.9	24.6	2.98	26.6	23.5	3.21	25.1	22.2	3.43
	0.15	DB75°F(50%RH)	62.5	30.2	23.8	2.54	29.0	22.9	2.75	27.7	21.9	2.97	26.3	20.7	3.20	24.9	19.6	3.42
		DB72°F(50%RH)	60	28.8	23.2	2.51	27.7	22.3	2.70	26.4	21.3	2.92	25.1	20.2	3.14	23.7	19.1	3.35
		DB70°F(50%RH)	59	28.3	22.5	2.49	27.1	21.5	2.69	25.9	20.6	2.90	24.6	19.5	3.11	23.2	18.4	3.32
PK36FL3	990	DB 80°F	71	39.8	23.0	3.02	38.4	22.1	3.28	36.8	21.2	3.57	35.1	20.2	3.87	33.4	19.3	4.17
			67	37.1	26.3	2.96	35.7	25.3	3.20	34.2	24.3	3.47	32.6	23.1	3.74	30.9	21.9	4.02
			63	34.7	29.3	2.89	33.3	28.1	3.12	31.9	26.9	3.38	30.3	25.6	3.64	28.7	24.2	3.89
	0.15	DB75°F(50%RH)	62.5	34.4	25.8	2.88	33.1	24.8	3.11	31.6	23.7	3.37	30.0	22.5	3.63	28.4	21.3	3.88
		DB72°F(50%RH)	60	32.8	25.1	2.84	31.5	24.1	3.07	30.1	23.0	3.31	28.6	21.9	3.56	27.0	20.7	3.80
		DB70°F(50%RH)	59	32.2	24.3	2.83	30.9	23.3	3.05	29.5	22.3	3.29	28.0	21.1	3.53	26.4	19.9	3.77

Notes 1. B.F. : Bypass Factor, IWB : Intake air wet-bulb temperature

TC : Total Capacity (x10³ Btu/h), SHC : Sensible Heat Capacity (x10³ Btu/h)

TPC : Total Power Consumption (kW)

2. Cooling capacity correction factors and Refrigerant piping length (one way) range.

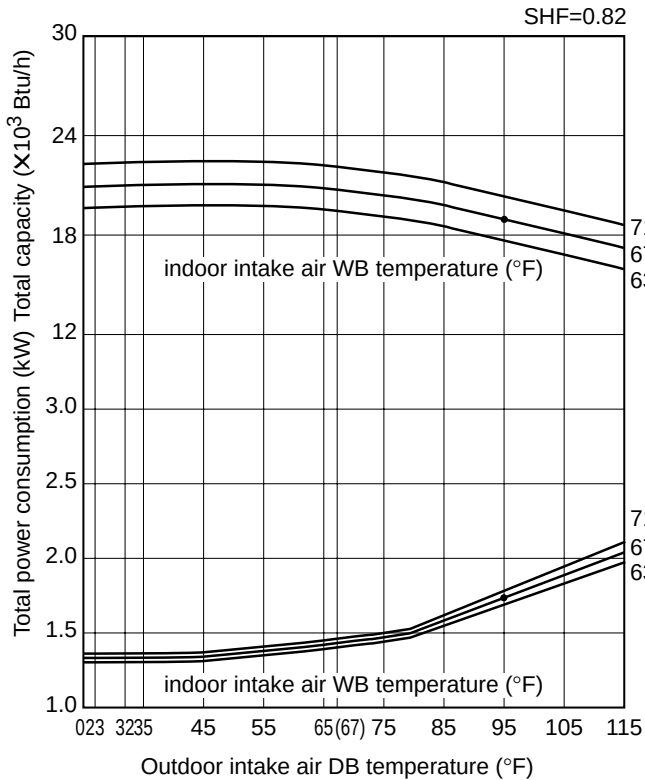
2) COOLING CAPACITY CORRECTIONS

MODEL	Refrigerant piping length (one way)									
	25ft	40ft	55ft	70ft	85ft	100ft	115ft	130ft	150ft	164ft
PK18FL3	1.0	0.992	0.983	0.978	0.966	0.959	0.950	0.945	—	—
PK24FL3	1.0	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PK30FL3	1.0	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PK36FL3	1.0	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874

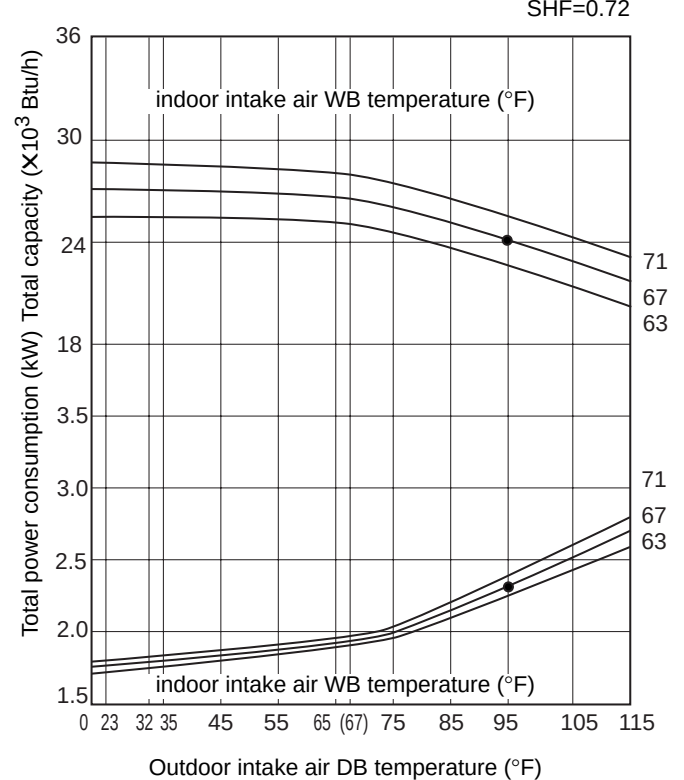
2. PERFORMANCE CURVE

NOTE : A point on the curve shows the reference point.

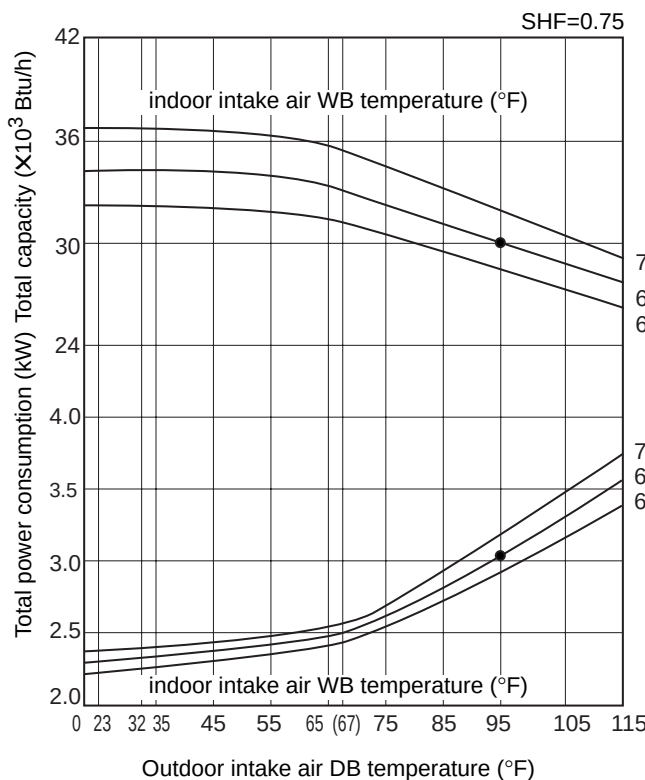
PK18FL3 COOLING CAPACITY



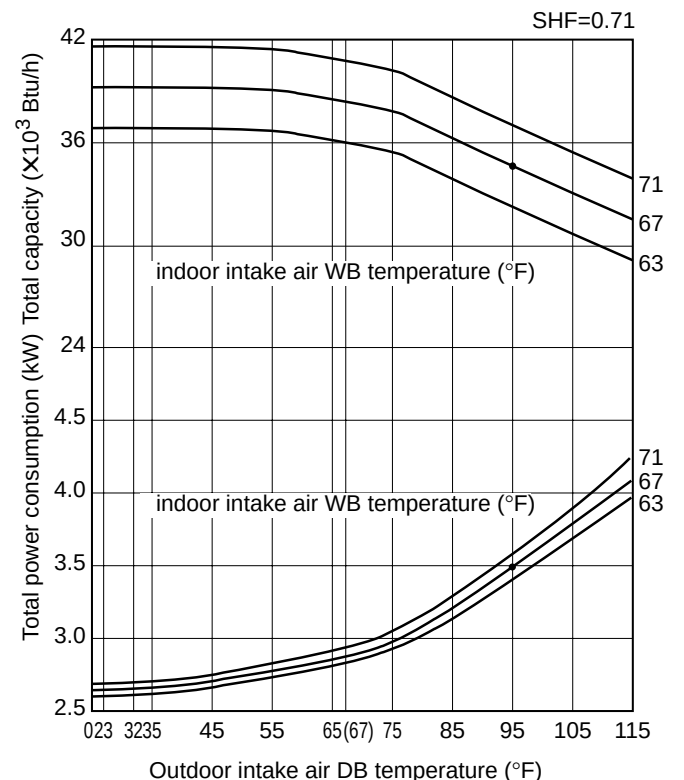
PK24FL3 COOLING CAPACITY



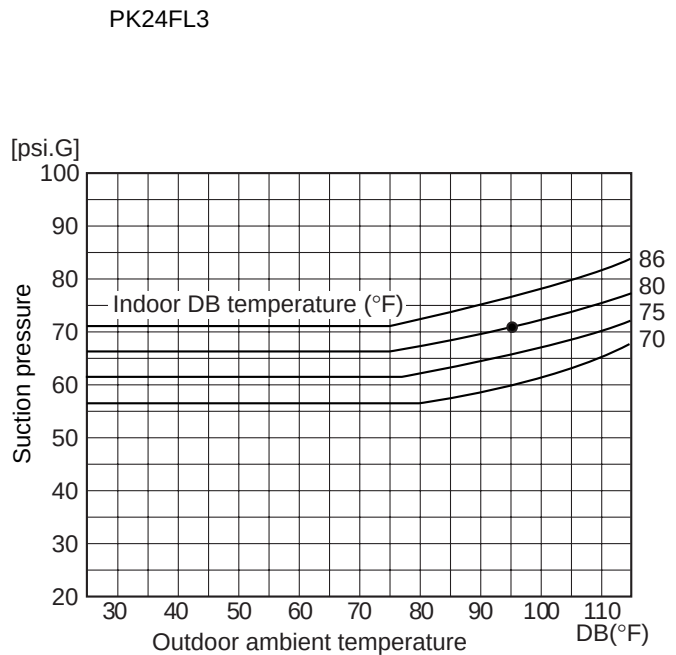
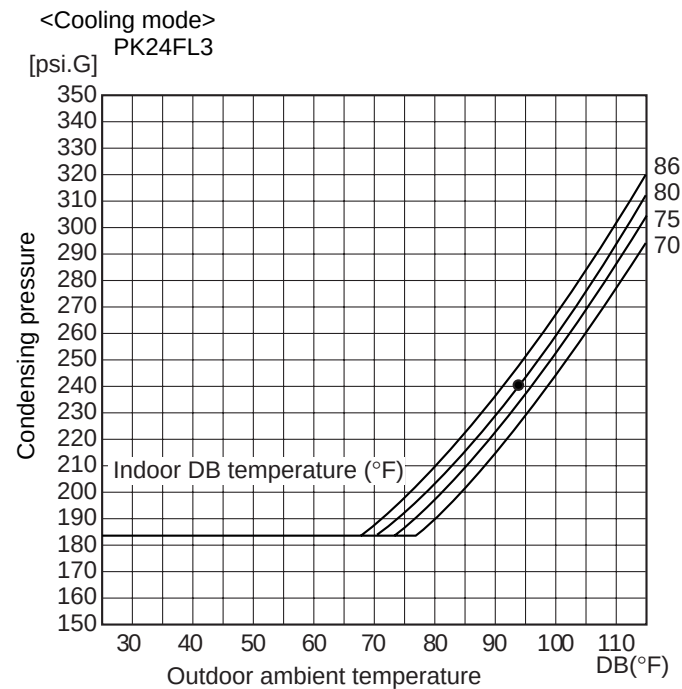
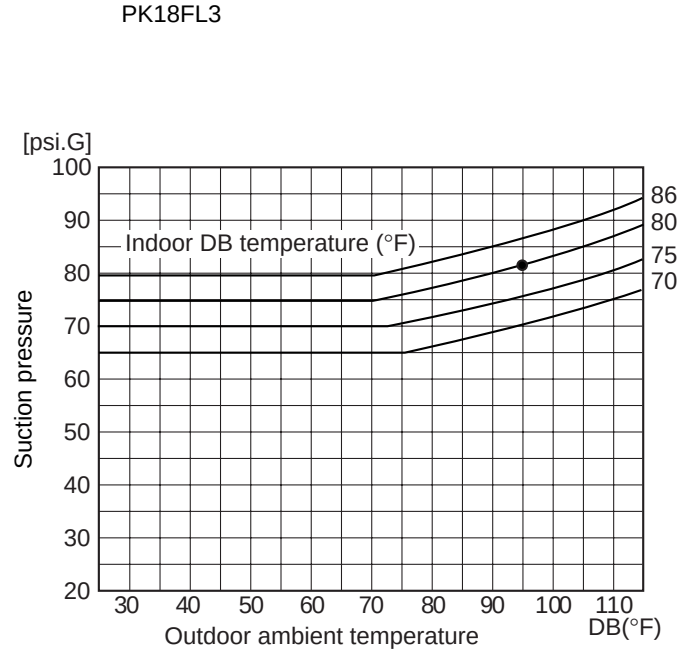
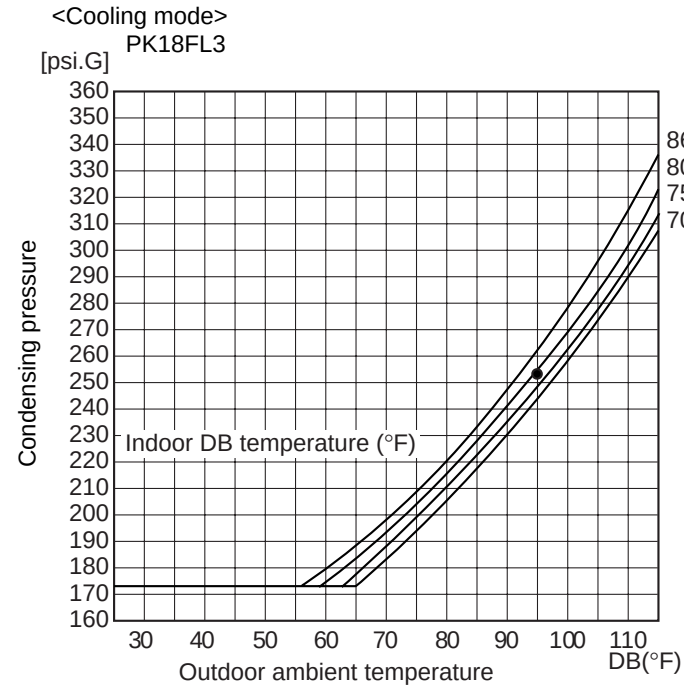
PK30FL3 COOLING CAPACITY



PK36FL3 COOLING CAPACITY

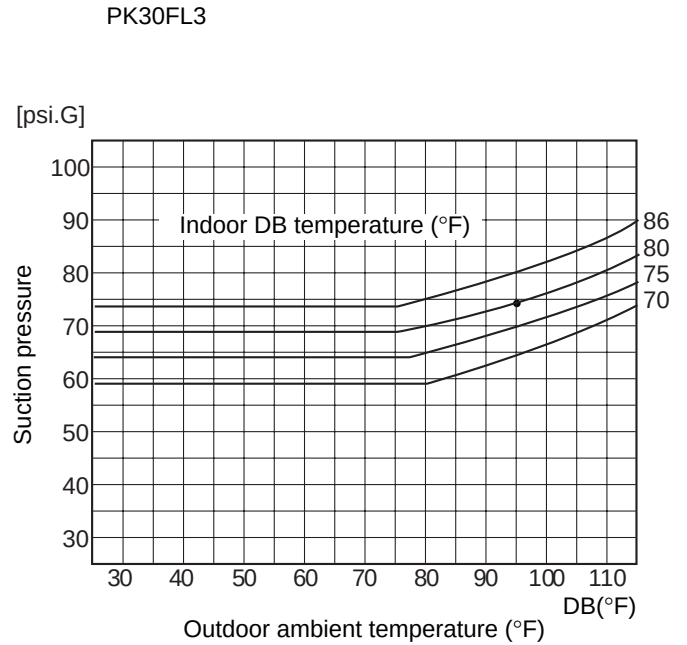
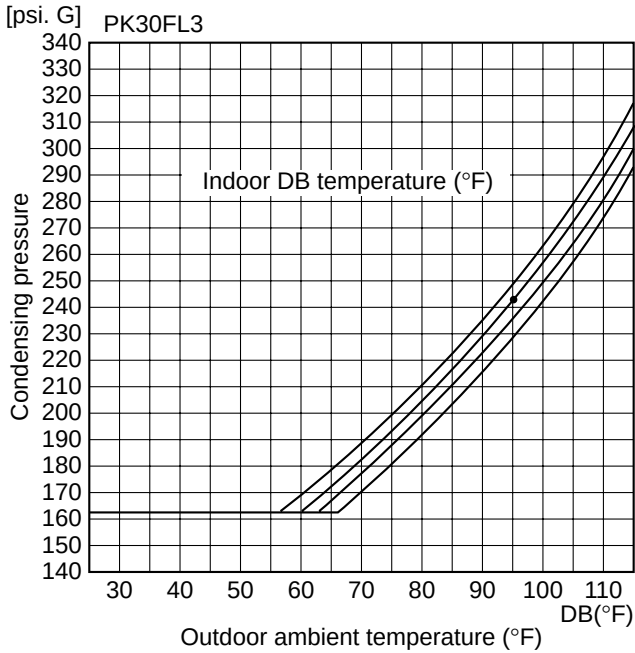


Data is based on the condition under indoor humidity 50%.
 Air flow should be set at HI.
 A point on the curve shows the reference point.

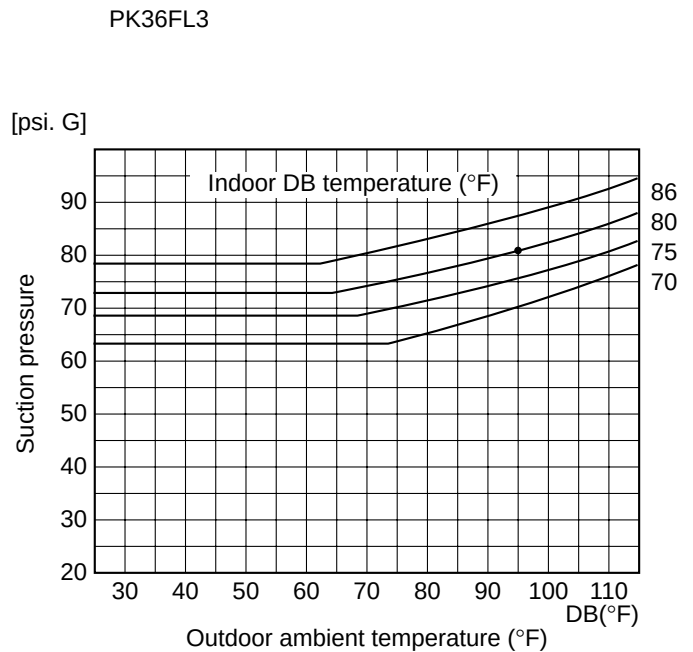
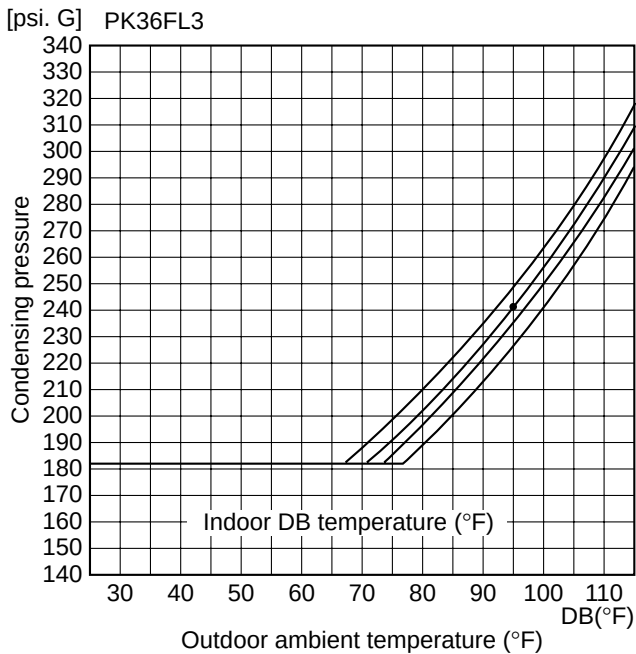


Data is based on the condition under indoor humidity 50%.
 Air flow should be set at HI.
 A point on the curve shows the reference point.

<Cooling mode>



<Cooling mode>



3. STANDARD OPERATION DATA

Model			PK18FL3	PK24FL3		PK30FL3		PK36FL3	
Item		Unit	Cooling	Cooling		Cooling		Cooling	
Total	Capacity	Btu / h	18,500	24,000		30,000		34,200	
	SHF	—	0.82	0.72		0.75		0.71	
	Input	kW	1.75	2.34		3.06		3.47	
Electrical circuit	INDOOR UNIT MODEL		PK18FL3	PK24FL3		PK30FL3		PK36FL3	
	Power supply (V, phase, Hz)		115, 1, 60	115, 1, 60		115, 1, 60		115, 1, 60	
	Input	kW	0.09	0.09		0.12		0.12	
	Fan current	A	0.7	0.7		1.0		1.0	
	OUTDOOR UNIT MODEL		PU18EK ₁	PU24EK ₁		PU30EK ₁		PU36EK ₁	
	Power supply (V, phase, Hz)		208/230, 1, 60	208/230, 1, 60		208/230, 1, 60		208/230, 1, 60	
	Input	kW	1.66	2.25		2.94		3.35	
	Comp. current	A	12.0	11.5		14.0		17.5	
	Fan current	A	0.75	0.65+0.65		0.65+0.65		0.75+0.75	
Refrigerant circuit	Condensing pressure	psi-G	255	240		247		247	
	Suction pressure	psi-G	82	74		77		73	
	Discharge temp.	°F	171	155		163		163	
	Condensing temp.	°F	118	114		116		116	
	Suction temp.	°F	51	44		46		43	
	Ref. pipe length	ft	25	25		25		25	
Indoor side	Intake air temperature	DB	°F	80	80		80		80
		WB	°F	67	67		67		67
	Discharge air temperature	DB	°F	61	58		59		58
		WB	°F	59	56		58		56
	Fan speed (High)	rpm	1,300	1,300		1,380		1,380	
	Airflow (High)	CFM	710	710		990		990	
Outdoor side	Intake air temperature	DB	°F	95	95		95		95
		WB	°F	75	75		75		75
	Fan speed upper / lower	rpm	790	750	750	750	750	760	760
	Airflow	CFM	1,590	3,170		3,170		3,350	

4. OPERATING RANGE

1) POWER SUPPLY

	Rating	Allowable voltage
Indoor unit	115V 1 phase 60Hz	Min. 103V — Max. 127V
Outdoor unit	208/230V 1 phase 60Hz	Min. 198V — Max. 253V

2) OPERATION

Function	Intake air temperature Condition	Indoor		Outdoor	
		DB (°F)	WB (°F)	DB (°F)	WB (°F)
Cooling	Standard temperature	80	67	95	75
	Maximum temperature	95	71	115	75
	Minimum temperature	67	57	0	—
	Maximum humidity	80	75	80	75

5. OUTLET AIR SPEED AND COVERAGE RANGE

		PK18FL3	PK24FL3	PK30FL3	PK36FL3
Standard height (8.2ft)	Airflow (CFM)	710	710	990	990
	Air speed (ft / sec.)	16.1	16.1	17.7	17.7
	Coverage range (ft)	41	41	50	50

- The air coverage range is the value up to the position where the air speed is 0.8ft/sec. when air is blown out horizontally from the unit at the High fan setting.

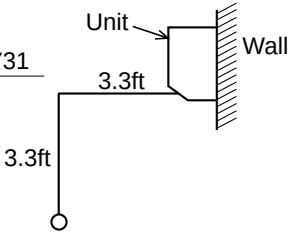
The coverage range should be used only as a general guideline since it varies according to the size of the room and furniture installed inside the room.

6. ADDITIONAL REFRIGERANT CHARGE (R22 (OZ))

Model	Outdoor unit precharged (up to 100ft)	Refrigerant piping length (over way)									
		25ft	40ft	55ft	70ft	85ft	100ft	115ft	130ft	150ft	164ft
PK18FL3	5 lbs 8 oz	0	0	0	0	0	0	2	4	—	—
PK24FL3	9 lbs 15 oz	0	0	0	0	0	0	2	4	7	9
PK30FL3	10 lbs 2 oz	0	0	0	0	0	0	5	10	16	20
PK36FL3	10 lbs 9 oz	0	0	0	0	0	0	5	10	16	20

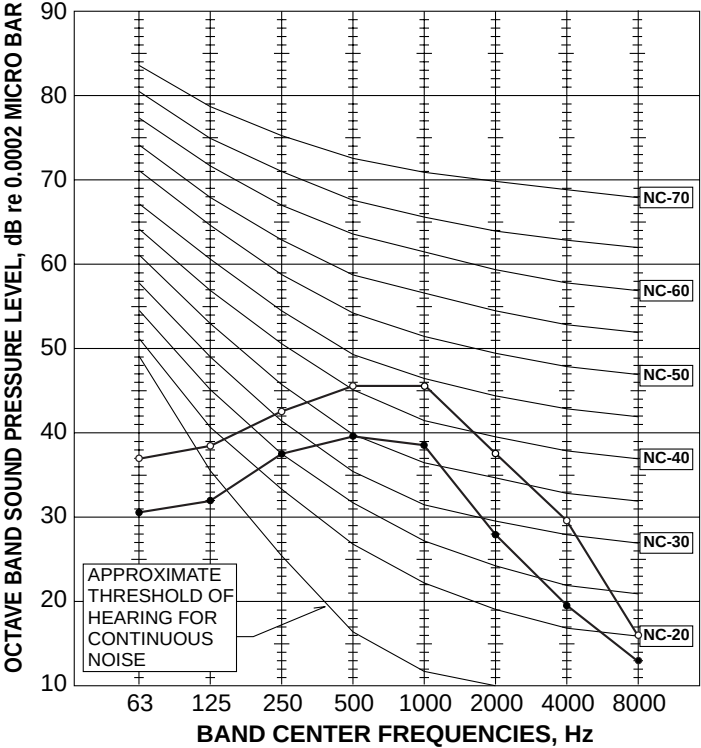
7. NOISE CRITERION CURVES

Ambient temperature 80°F
Test conditions are based on JIS Z8731



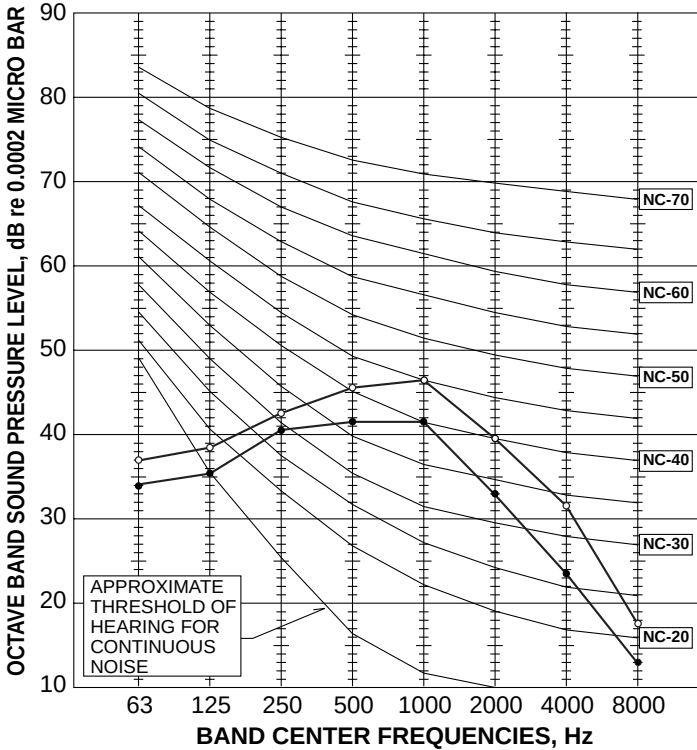
PK18FL3
PK24FL3

NOTCH	SPL(dB)	LINE
Hi	48	○—○
Lo	41	●—●

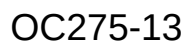


PK30FL3
PK36FL3

NOTCH	SPL(dB)	LINE
Hi	49	○—○
Lo	44	●—●

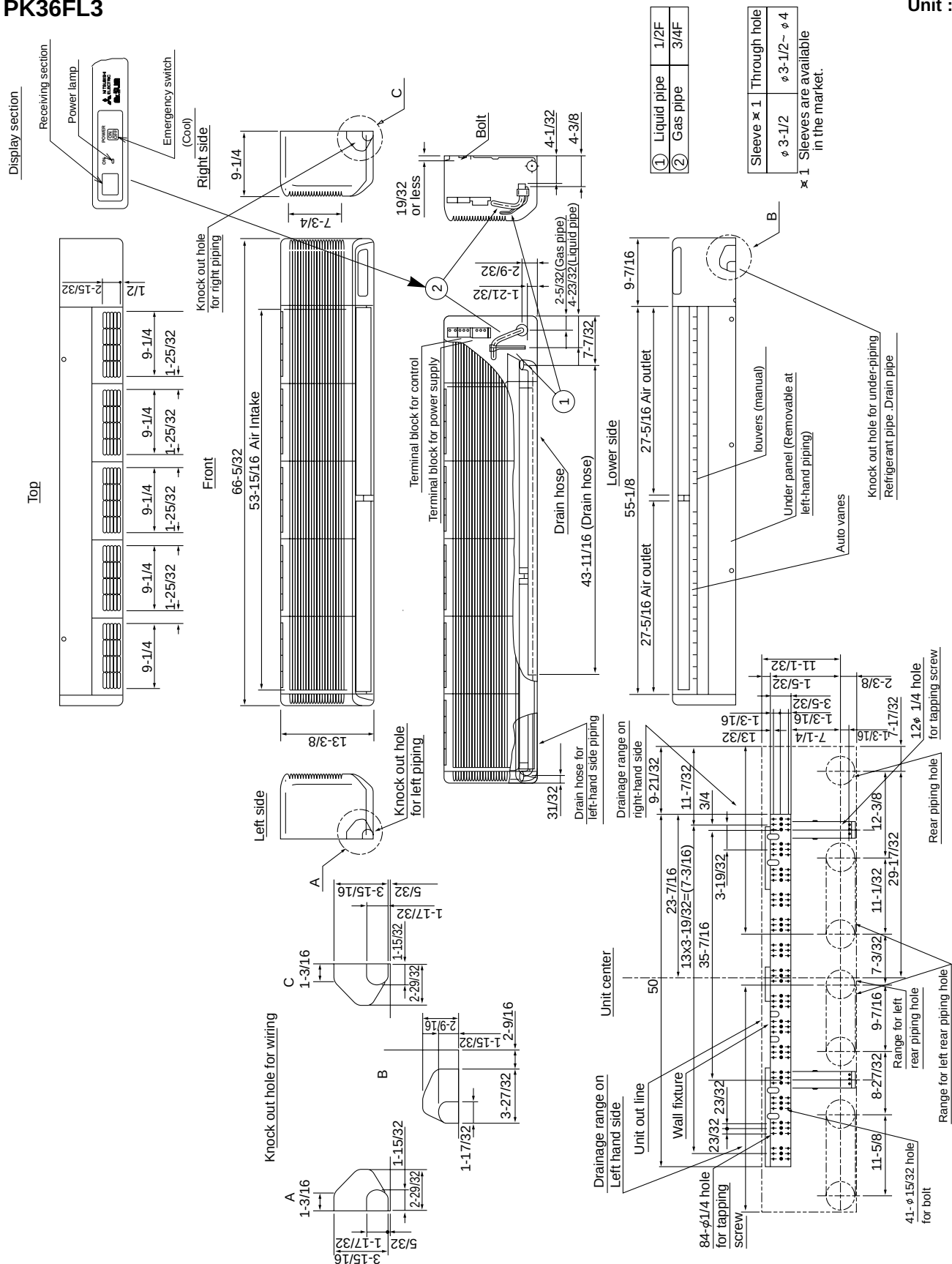


Unit : inch



PK30FL3
PK36FL3

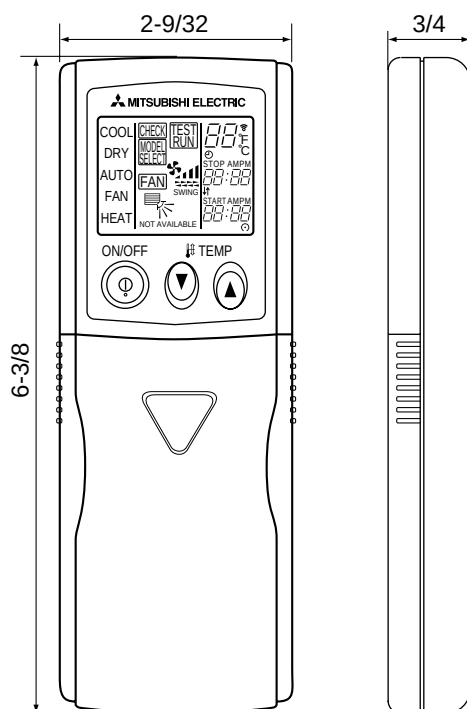
Unit : inch



5.2. Remote controller

Unit : inch

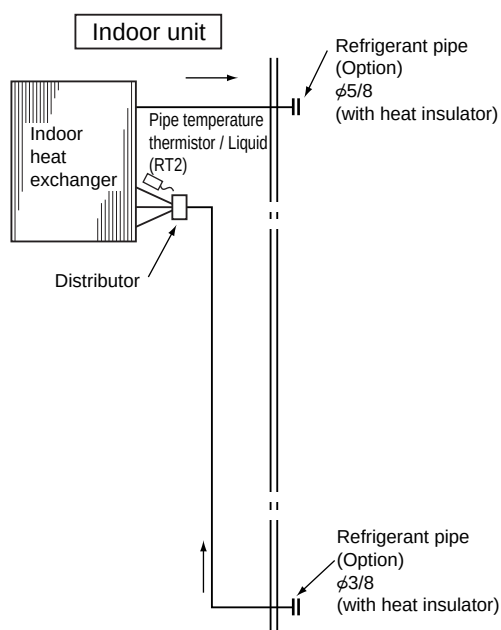
WIRELESS REMOTE CONTROLLER



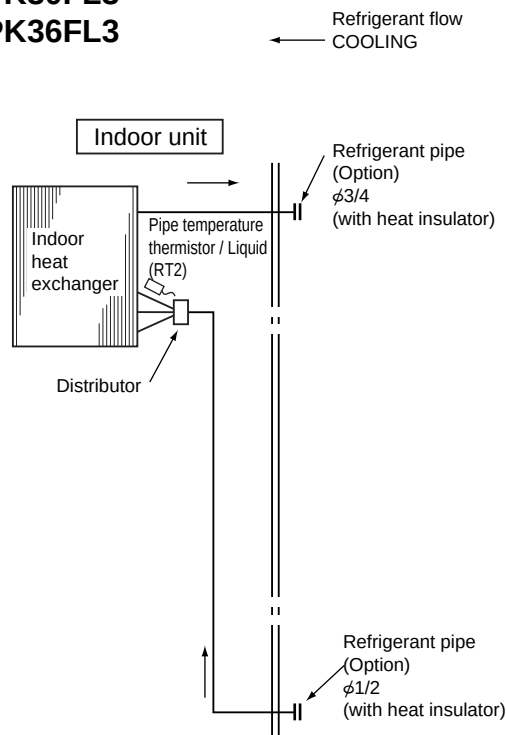
7

REFRIGERANT SYSTEM DIAGRAM

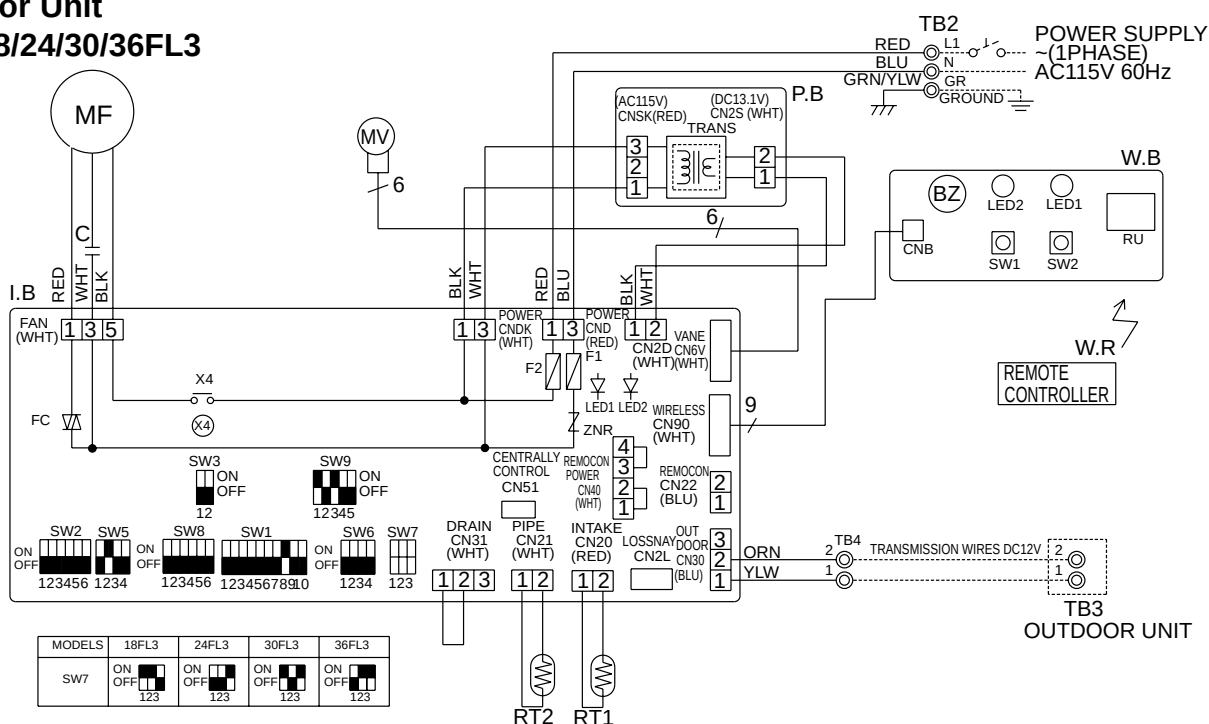
PK18FL3
PK24FL3



PK30FL3
PK36FL3



Indoor Unit PK18/24/30/36FL3



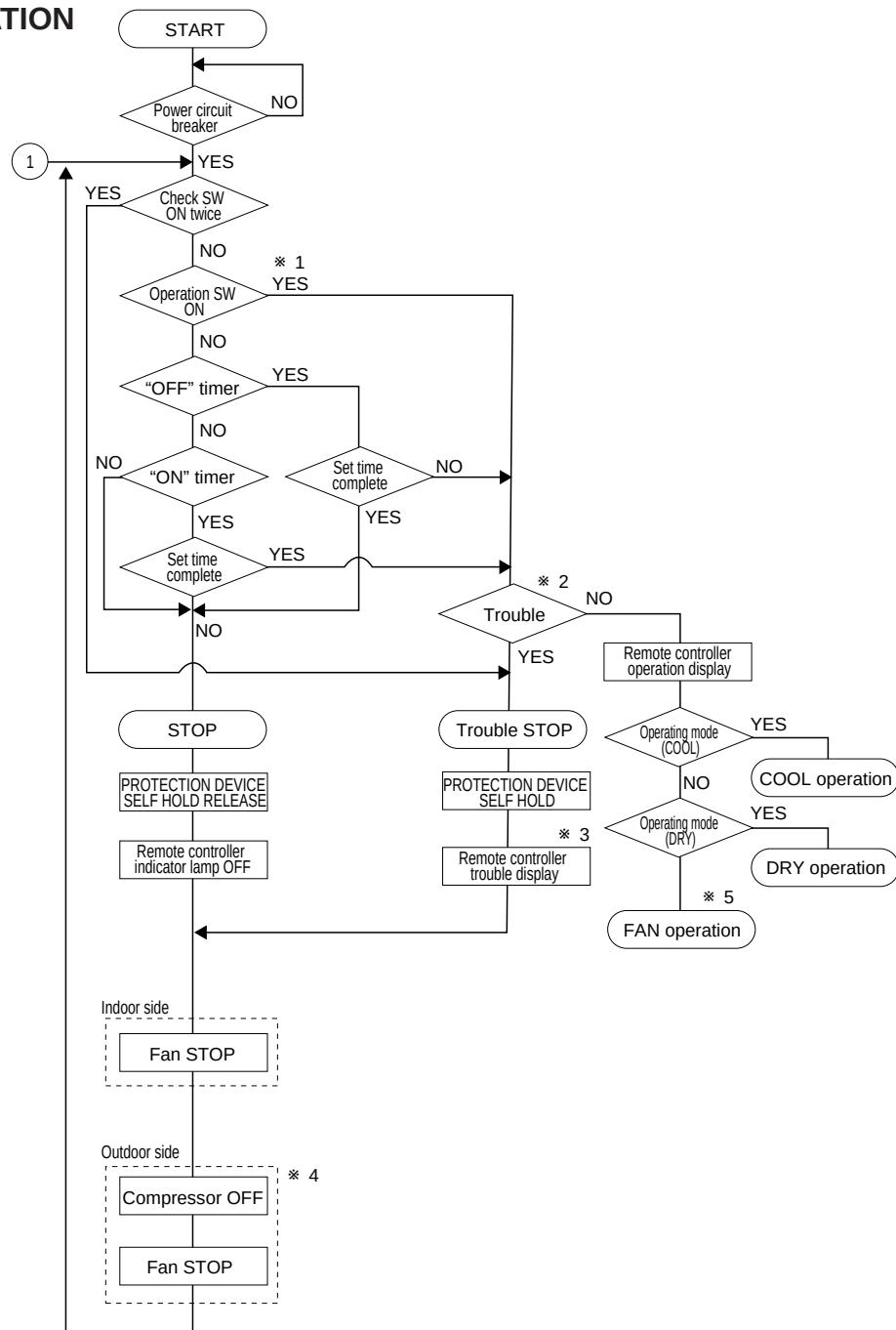
[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
P.B	INDOOR POWER BOARD	C	CAPACITOR(FAN MOTOR)
I.B	INDOOR CONTROLLER BOARD	MF	FAN MOTOR
CN2L	CONNECTOR(LOSSNAY)	MV	VANE MOTOR
CN51	CONNECTOR(CENTRALLY CONTROL)	TB2-TB6	TERMINAL BLOCK
FC	FAN PHASE CONTROL	RT1	ROOM TEMP.THERMISTOR (32°F/15kΩ, 77°F/5.4kΩ DETECT)
SW1	SWITCH(FUNCTION SELECTOR)	RT2	PIPE TEMP.THERMISTOR/LIQUID (32°F/15kΩ, 77°F/5.4kΩ DETECT)
SW2	SWITCH(ADDRESS SELECTOR)	W.R	WIRELESS REMOTE CONTROLLER
SW3	SWITCH(EMERGENCY OPERATION)	W.B	REMOTE CONTROLLER BOARD
SW5	SWITCH(MODEL SELECTOR)	RU	RECEIVING UNIT
SW6	SWITCH(TWIN/TRIPLE SELECTOR)	BZ	BUZZER
SW7	SWITCH(MODEL SELECTOR)	LED1	LED(RUN INDICATOR)
SW8	SWITCH(OPTION)	SW2	SWITCH(COOLING ON/OFF)
SW9	SWITCH(MODEL SELECTOR)		
X4	RELAY(FAN MOTOR)		
F1,F2	FUSE(6A/250V)		
ZNR	VARIATOR		
LED1	LED(DC12V POWER)		
LED2	LED(DC5V POWER)		

NOTES:

- Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.
- Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers.
- Symbols used in wiring diagram above are, □:Connector, ⊙:Terminal block.
- Emergency operation
If remote controller or microcomputer fails but there is no other trouble, emergency operation is possible by setting dip switch(SW3<I.B>) on the indoor controller board.
[Check items]
(1)Make sure that no other trouble exist the outdoor unit.Trouble with the outdoor unit prevents emergency operation.
(2)Make sure that there is no trouble with the indoor fan.
Emergency operation will be continuous run with the power ON/OFF(ON/OFF with the remote controller is not possible).
[Emergency operation procedure]
(1)Set the dip switch(SW3<I.B>)on the indoor controller board to ① on and ② off for cooling.
(2)Turn on outdoor unit side circuit breaker,then indoor unit side circuit breaker.
(3)During emergency operation indoor fan runs at high speed but auto-vane does not work.
(4)Thermostat will not function.
(5)Emergency cooling should be limited to 10 hours maximum (the indoor unit heat exchanger may freeze).
(6)After every emergency operation,set all dip switches(SW3<I.B>) to OFF.
(7)Movement of the vanes does not work in emergency operation,therefore you have to slowly set them manually to the appropriate position.

MAIN OPERATION



※1 In addition, the centralised control and remote control can be operated.

※2 The modes which indicate the sources of trouble are listed below.

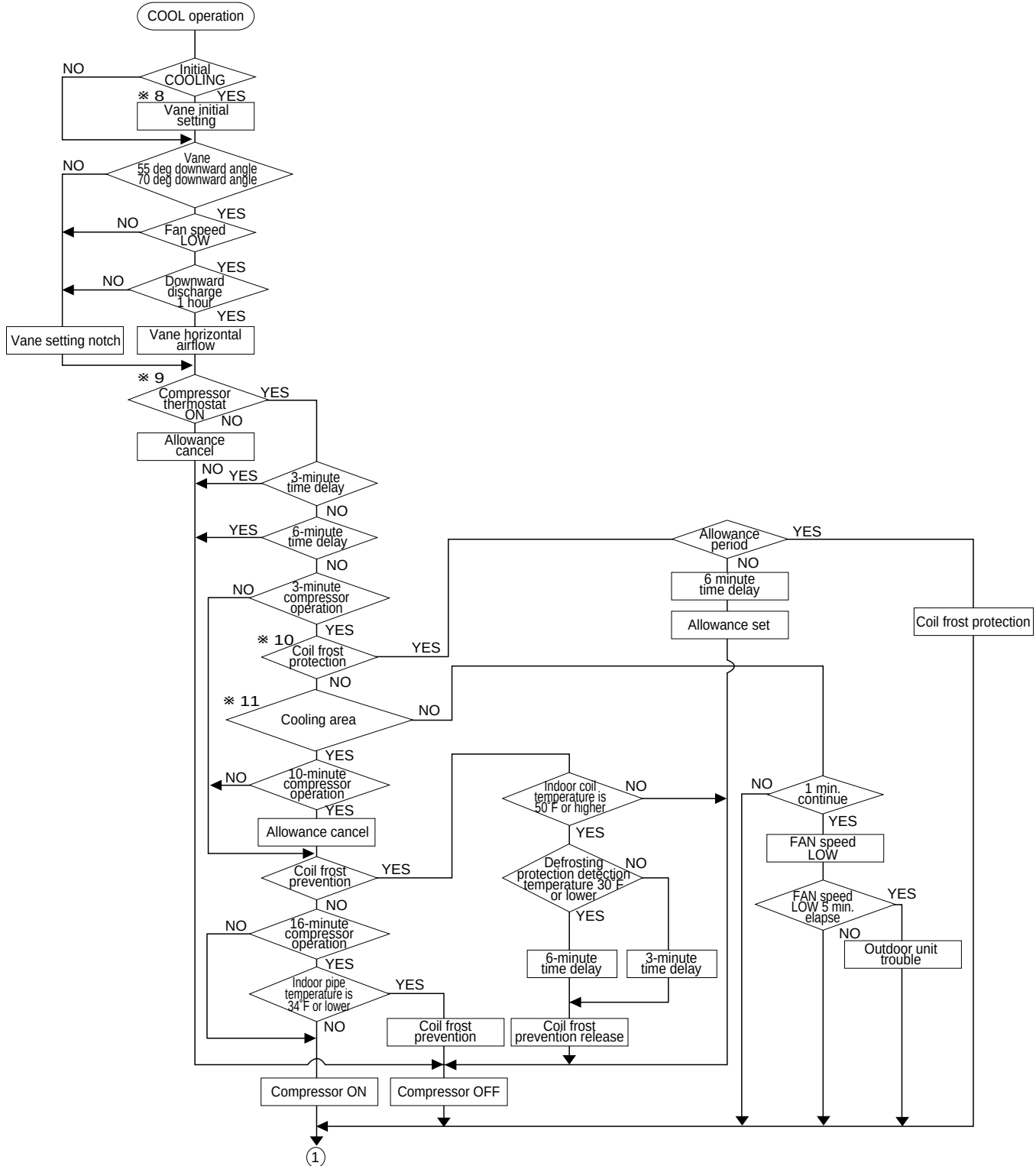
- EO-Signal transmitting/receiving error
- P1-Room temperature thermistor malfunction
- P2-Indoor coil thermistor malfunction
- P4-Drain sensor malfunction
- P5-Drain overflow
- P6-Coil frost/overheat protection
- P7-System error
- P8-Outdoor unit trouble

※3 The CHECK switch will show if an error has occurred in the past.

※4 The 3-minute time-delay functions after compressor stops.

※5 In FAN mode, fan speed and vane operation depend on the remote controller setting. (Compressor is OFF.)

COOLING OPERATION



※8 When operation stops or changes to cooling or dry mode, the auto vane turns to a horizontal angle. If operation changes during auto vane SWING, the auto vane will continue to swing.

※9 When operating TEST RUN, the thermostat will be continuously ON.

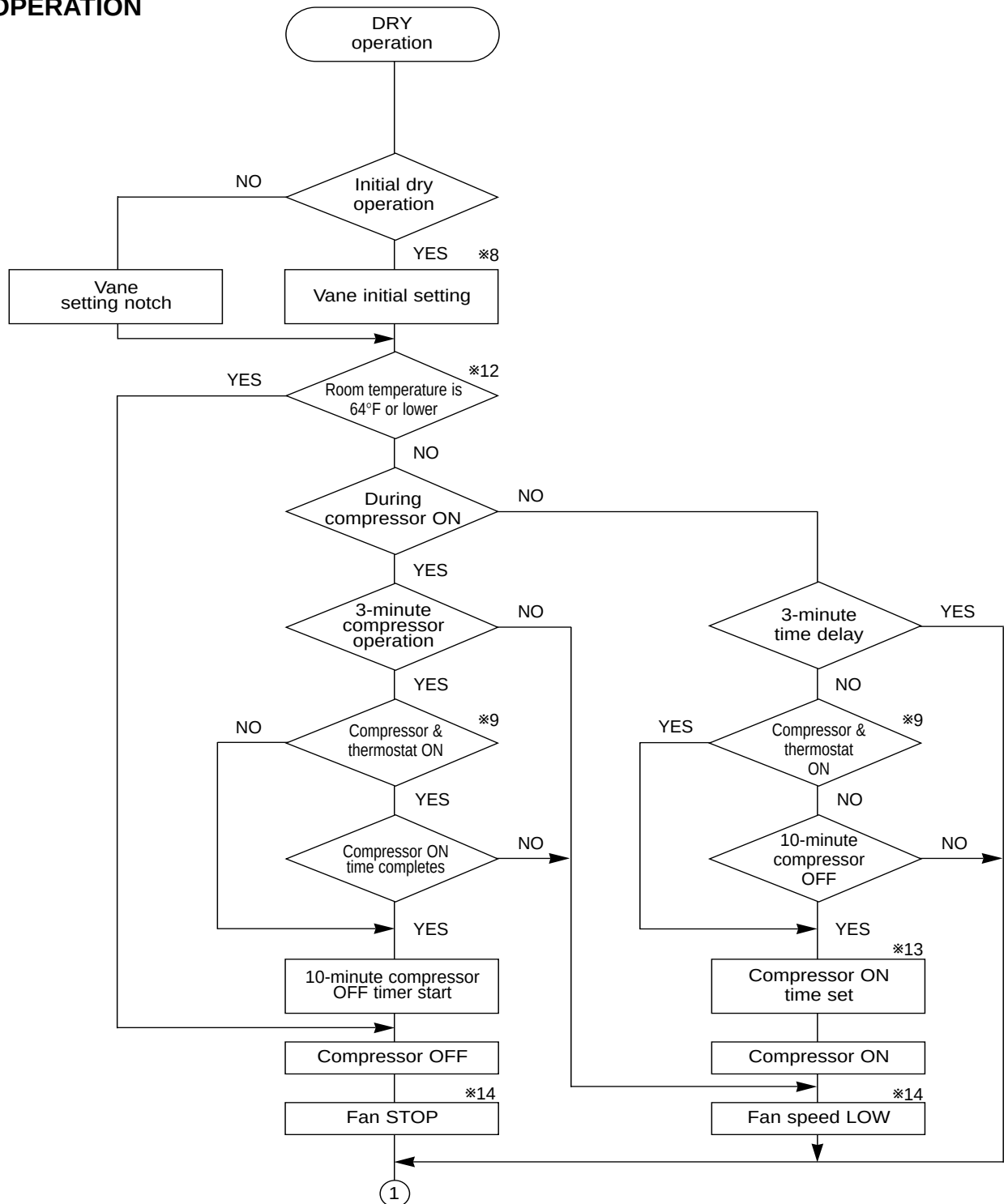
※10 After 3 minute compressor operation, if the indoor coil thermistor reads 5°F or below for 3 minutes, the compressor will stop for 6 minutes.

※11 Heating area : Indoor coil temperature is more than 9 degrees above the room temperature.

Cooling area : Indoor coil temperature is more than 9 degrees below the room temperature.

FAN area : Indoor coil temperature is within 9 degrees either way of the room temperature.

DRY OPERATION



*8—9 Refer to page OC275-18.

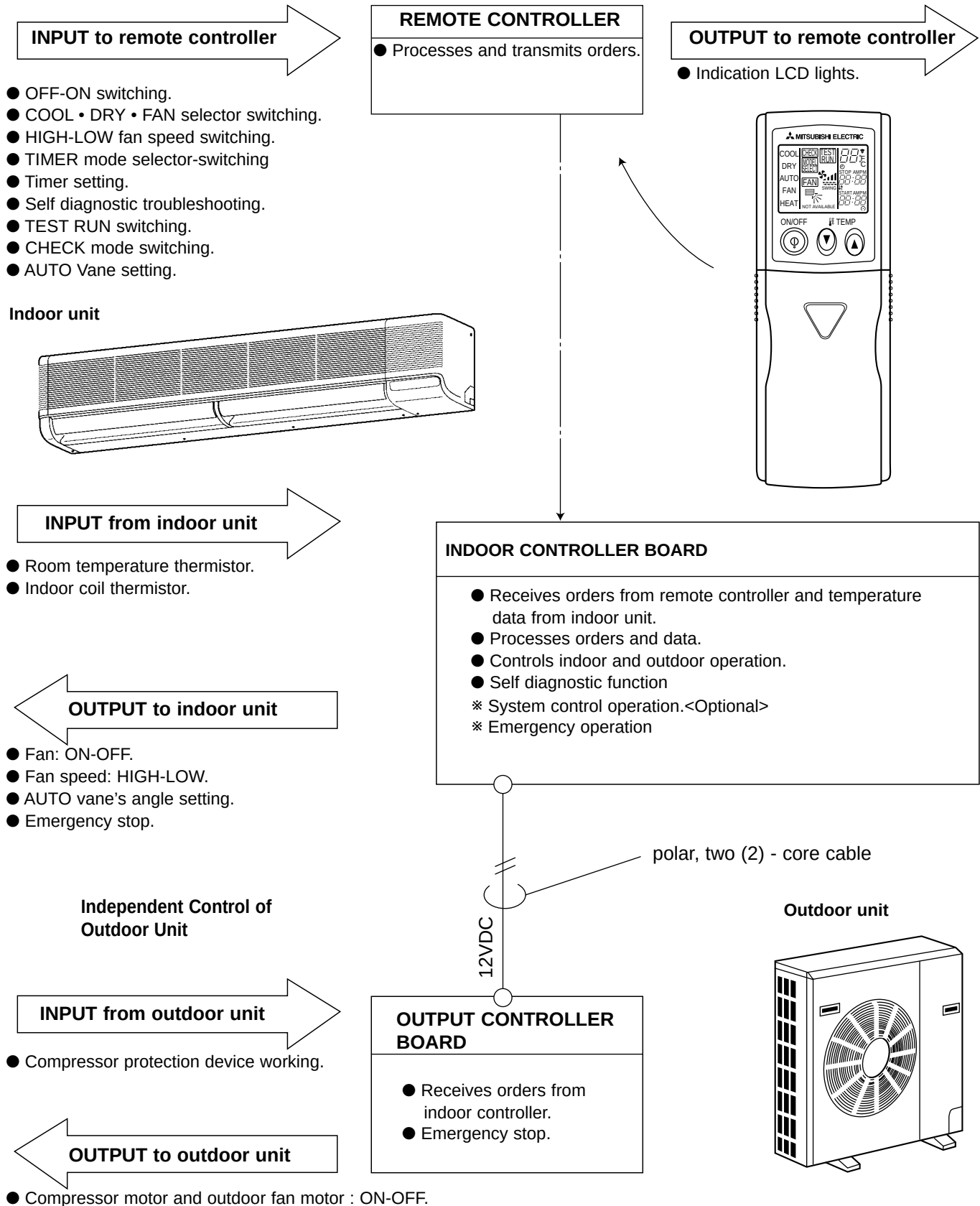
*12 When room temperature is 64°F or below, the compressor cannot operate.
When room temperature rises over 64°F the compressor starts after a 3-minute time delay.

*13 Compressor ON time is decided by room temperature. Refer to page OC275-24.

*14 In dry operation, compressor ON makes the fan speed LOW. Also, when the compressor OFF and the pipe temperature is 79°F or less, the fan stops, or when the compressor OFF and the pipe temperature is below 43°F the fan speed changes to LOW mode.

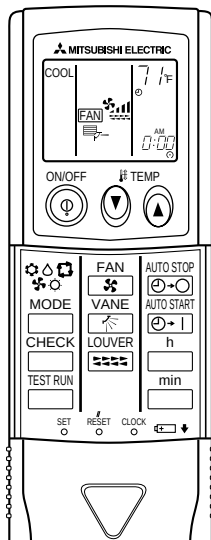
It is not possible to set the fan speed with the remote controller

1. OUTLINE OF MICROPROCESSOR CONTROL



2. INDOOR UNIT CONTROL

2-1COOL operation

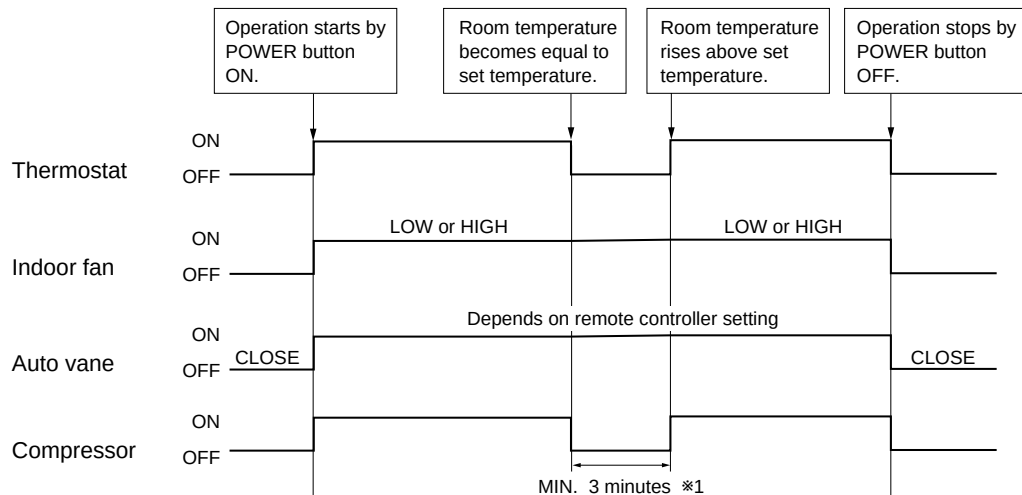


<How to operate>

- ① Press POWER ON/OFF button.
- ② Press MODE button to set operation mode to COOL.
- ③ Set desired temperature with or button.

NOTE: 1. Set temperature changes by 2 °F in the range 65~87 °F each TEMP or button is pressed.
2. Set temperature is displayed on the LCD.

<COOL operation time chart>



※1 Even if the room temperature rises above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when room temperature is higher than set temperature.

The compressor stops when room temperature is equal to or lower than the set temperature.

The compressor maintains the previous state when the room temperature minus the set temperature is 0 degrees or more, or lower than 2 degrees.

③ The compressor stops in check mode or during protective functions.

④ Coil frost prevention

To prevent indoor coil frost, the compressor will stop when the indoor coil thermistor (RT2) reads 34°F or below after the compressor has been continuously operated for at least 16 minutes or more. When the indoor coil temperature rises to 50°F or above, the compressor will start in a 3-minute(*2) time delay.

*2 When the indoor coil temperature is 30°F or less, the compressor starts in 6 minutes.

NOTE : By turning OFF the dip switch SW1-3 on indoor controller board, the start temperature of coil frost prevention changes from 34°F to 36°F.

⑤ Coil frost protection

When indoor coil temperature becomes 5°F or below, coil frost protection will proceed as follows.

<Start condition>

After the compressor has been continuously operated for 3 minutes or more, and the indoor coil temperature has been 5°F or below for 3 minutes, the coil frost protection will start.

<Coil frost protection>

Compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again during the first 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of "P6" on the remote controller.

<Termination conditions>

Coil frost protection is released when the start condition is not satisfied again during the allowance, or when the COOL mode stops or changes to another mode.

(2) Indoor fan control

Indoor fan speed depends on the remote controller setting.

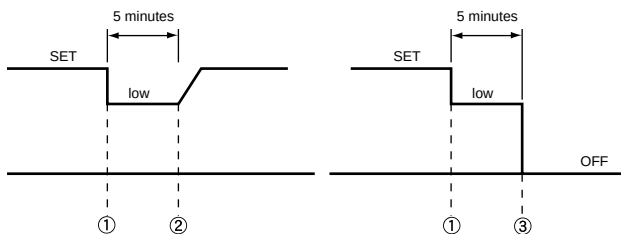
However, if an outdoor unit abnormality is detected, the indoor fan speed will be low, regardless of the remote controller setting.

When the outdoor unit abnormality detection is released and the fan speed returns to the set speed, the quiet cycle control will work.

(a) Normal control

(i) Fan speed depends on the remote controller setting regardless of the thermostat on/off.

(ii) Fan speed will remain on low if an abnormality in outdoor unit is detected. (5 minutes)



- ① Start-up of outdoor unit abnormality detection.
- ② Release of outdoor unit abnormality detection.
- ③ Unit stop due to outdoor unit abnormality with P8 indication.

NOTE 1 : Fan stops immediately if the unit stops or the check mode is started.

(3) Auto vane control

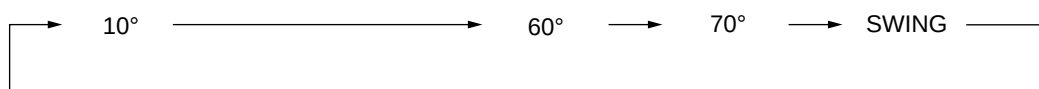
Auto vane position is set to 10 degrees airflow at the start-up of COOL operation. It can then be changed by the remote controller.

(a) Vane position set mode & swing mode.

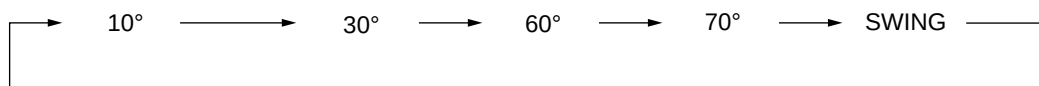
(i) Every time AIR DISCHARGE button is pressed, setting will be changed .

(ii) Airflow direction can be changed with AIR DISCHARGE button.

① Fan speed : LOW



② Fan speed : HIGH



<AUTO RETURN>

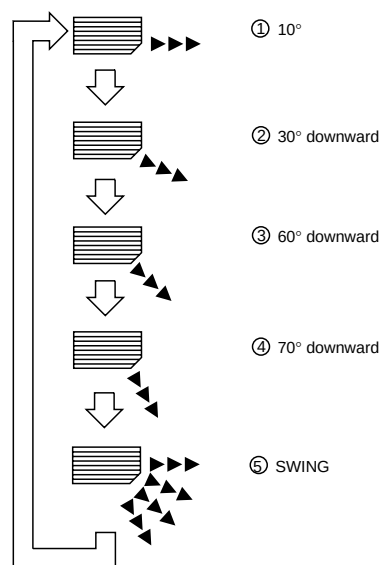
When discharge 60° or 70° continues for 1 hour with the fan speed at LOW, the discharge direction turns to the horizontal discharge automatically.

After that, 60° or 70° is available by setting with the remote controller, and it continues for 1 hour.

If the discharge direction changes from 60° or 70°, the direction returns to the horizontal discharge when 1 hour has passed since the discharge 60° started.

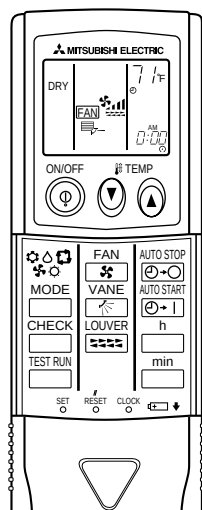
If the discharge direction changes from 60° (or 70°) to the horizontal discharge, the 1-hour timer to return the horizontal discharge is cancelled.

<Remote controller display>



Changes by pressing the AIR DISCHARGE button.

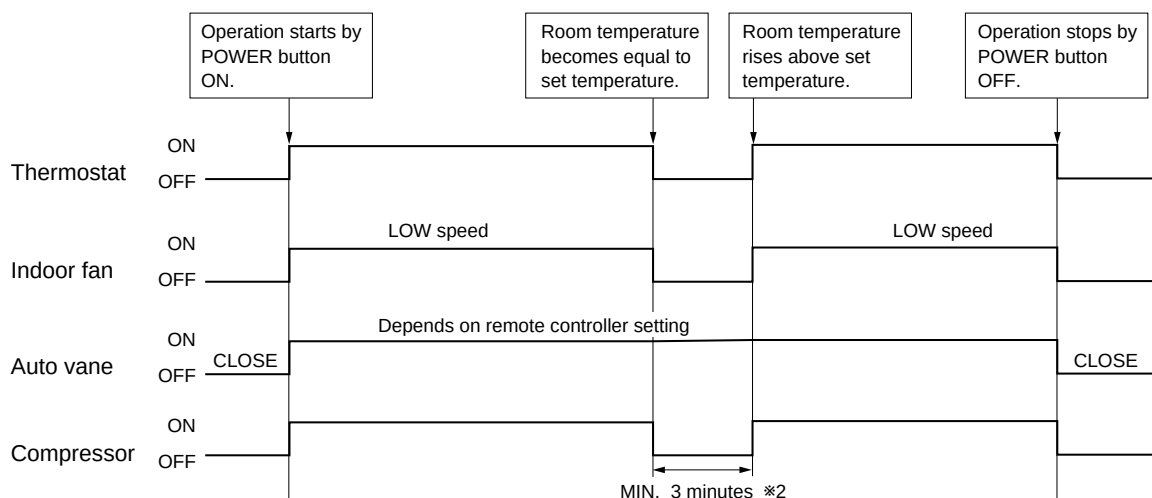
2-2 DRY operation



<How to operate>

- ① Press POWER ON/OFF button.
- ② Press MODE button to set operation mode to DRY.
- ③ Set desired temperature with $\uparrow$ or $\downarrow$ button.

NOTE: 1. Set temperature changes by 2 °F in the range 65~87 °F each TEMP $\uparrow$ or $\downarrow$ button is pressed.
2. Set temperature is displayed on the LCD.



*2 Even if the room temperature rises above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when the room temperature is higher than the set temperature.

The compressor stops when the room temperature is equal to or lower than the set temperature.

③ The compressor stops in check mode or during protective functions.

④ The compressor will not start when the room temperature is below 63 °F. The compressor starts intermittent operation when the power is turned ON with room temperature above 63 °F. The compressor ON/OFF time depends on the thermostat ON/OFF and the room temperature as follows.

After 3-minute compressor operation,

- If the room temperature thermistor reads above 83 °F with thermostat ON, the compressor will operate for 6 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads 79 °F to 83 °F with thermostat ON, the compressor will operate for 4 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads 75 °F to 79 °F with thermostat ON, the compressor will operate for 2 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads below 75 °F with thermostat ON, the compressor will stop for 3 minutes.
- If the thermostat is OFF, regardless of room temperature, the compressor will stop for 10 minutes.

⑤ Coil frost protection

Coil frost protection in DRY operation is the same as in COOL operation.

⑥ Coil freeze prevention

Coil freeze prevention does not operate in DRY operation.

(2) Indoor fan control

The indoor fan runs on LOW speed during compressor operation. The fan speed cannot be changed with the remote controller. Also, the fan runs on LOW speed when the pipe temperature is 43°F or more, or the compressor is OFF and the pipe temperature is below 43°F.

(a) During compressor OFF

- When the indoor coil temperature is 43°F or above, the indoor fan will stop.
- When the indoor coil temperature is below 43°F, the indoor fan will run on LOW speed.

(b) During compressor ON

- The indoor fan runs on LOW speed.

<Dry mode>

The fan notch is controlled by the indoor coil temperature every 30 seconds.

Fan control in DRY operation.

	Pipe temp.	Fan
Compressor OFF	43°F or more	STOP
	Below 43°F	LOW
Compressor ON	All	LOW

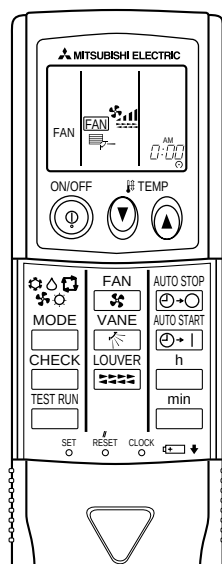
(3) Auto vane control

Same as in COOL operation

(4) Detecting abnormalities in the outdoor unit

An abnormality in the outdoor unit can not be detected in DRY operation.

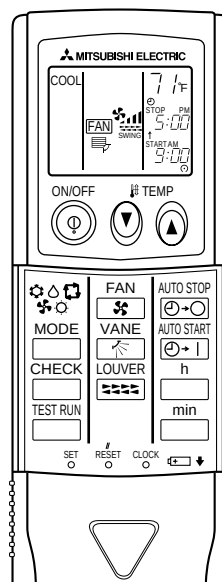
2-3 FAN operation



<How to operate>

- ① Press POWER ON/OFF button.
- ② Press MODE button to set operation mode to FAN.
 - (1) Indoor fan control
The indoor fan speed depends on the remote controller setting.
 - (2) Auto vane control
The auto vane position depends on the remote controller setting.

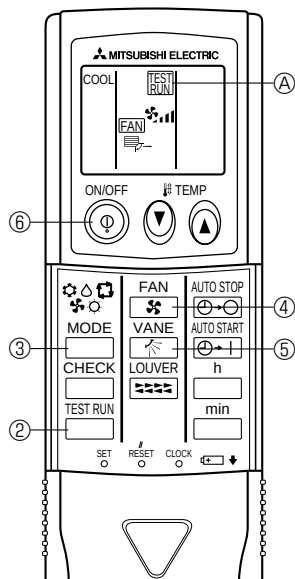
2-4 TIMER operation



<How to operate>

- ① Push POWER ON/OFF button.
- ② Check if or not the current time is correct.
- ③ Push the  or  button and select the desired time.
- ④ Set the timer time using HR and MIN buttons.

2-5 Test run



Test run

Measure an impedance between the power supply terminal block on the outdoor unit and ground with a 500V Megger and check that it is equal to or greater than 1.0MΩ.

- ① Turn on the main power to the unit.
- ② Press the  button twice continuously.
(Start this operation from the status of remote controller display turned off.)
- ③ Press the  () button to activate COOL mode, then check whether cool air is blown out from the unit.
- ④ Press the  button and check whether strong air is blown out from the unit.
- ⑤ Press the  button and check whether the auto vane operates properly.
- ⑥ Press the ON/OFF button to stop the test run.

Note:

- Point the remote controller towards the indoor unit receiver while following steps ② to ⑥.
- It is not possible to run the in FAN, DRY or AUTO mode.

2-6 Emergency operation

When the remote controller or microprocessor malfunctions but all other parts are normal, emergency operation is started by setting the dip switch SW3 on the indoor controller board.

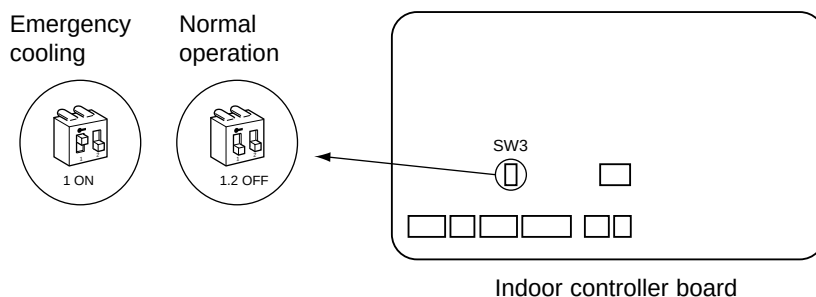
<Before emergency operation>

1. Make sure the compressor and the indoor fan are operating normally.
2. Locate the defect with the self-diagnostic function. When the self-diagnostic function indicates "protective function is working", release the protective function before starting the emergency operation.

CAUTION: When the self-diagnostic function indicates a check code of "P5" (drain pump malfunction), DO NOT start the emergency operation because the drain may overflow.

<How to operate>

1. For emergency cooling, set the dip switch SW3-1 to ON and SW3-2 to OFF.



2. Turn ON the outdoor unit breaker and then ON the indoor unit breaker.
Emergency operation will now start.
3. During emergency operation, the indoor fan operates on high speed, the auto vanes do not operate.
4. To stop emergency operation, turn OFF the indoor unit breaker.
5. Movements of the vanes do not work in emergency operation, therefore you have to slowly set them manually to the appropriate position.

NOTE: The remote controller POWER ON/OFF button can not start/stop emergency operations.

CAUTION: Do not use emergency cooling for more than 10 hours, as the indoor coil may freeze.

2-7 Dip switch functions

Each figure shows the initial factory setting.

1. On indoor controller board

(1) SW1 (Mode selector)

	1	2	3	4	5	6	7	8	9	10
ON	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐
OFF	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒

SW1-1) Switch that changes between FAN mode and AUTO mode

OFF:Not available

ON:Not available

SW1-2) Not for use.

SW1-3) Switch to change the temperature to start coil frost prevention

OFF:34°F

ON:36°F

SW1-4) Not for use.

SW1-5) Not for use.

SW1-6) Not for use.

SW1-7) Switch for detecting abnormalities in the outdoor unit abnormality detection

OFF:When an abnormality occurs,it is detected.

ON:Even if an abnormality occurs,it can not be detected.

SW1-8) Switch for auto restart function

OFF:This function does not work

ON:This function works.

SW1-9, 10) Not for use.

(2) SW2 (Address selector)

	1	2	3	4	5	6
ON	☐	☐	☐	☐	☐	☐
OFF	☒	☒	☒	☒	☒	☒

SW2-1~6) Not for use.

(3) SW3 (Emergency operation switch)

Normal operation

For emergency cooling

	1	2
ON	☐	☐
OFF	☒	☒

	1	2
ON	☒	☐
OFF	☐	☒

(4) SW5 (Model selector)

	1	2	3	4
ON	☐	☒	☐	☐
OFF	☒	☐	☒	☒

SW5-1) Not for use.

SW5-2) Leave this switch as it is.

SW5-3) Not for use.

SW5-4) Not for use.

(5) SW6 (Address selector)

	1	2	3	4
ON	☐	☐	☐	☐
OFF	☒	☒	☒	☒

This switch is not available for series PK.

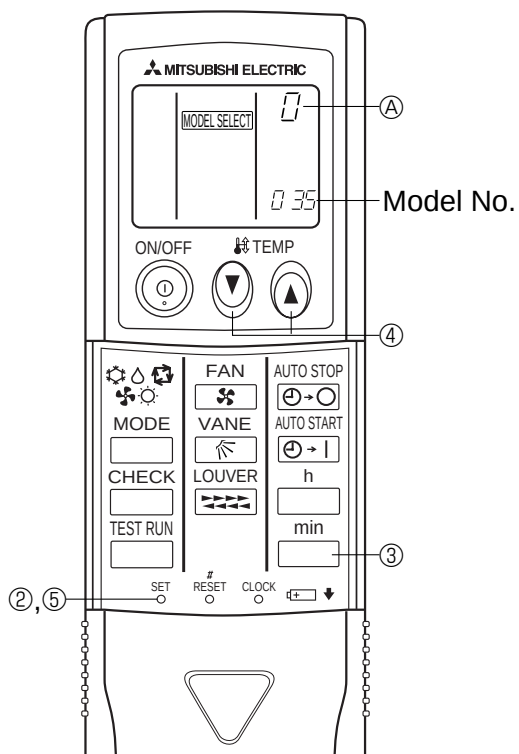
- (6) SW7 (Model selector)
 Switch to set the output of phase-controlled indoor fan motor.
 Address setting is available at any time.
 The initial factory setting by is based on each capacity.

Model	PK18FL3	PK24FL3	PK30FL3	PK36FL3
SW7	ON  OFF  1 2 3	ON  OFF  1 2 3	ON  OFF  1 2 3	ON  OFF  1 2 3

- (7) SW8 (Option)
- 1 2 3 4 5 6
 ON 
 OFF 
- SW8-1~2) Not for use.
 SW8-3~4) Not for use.
 SW8-5) Not for use.
 SW8-6) Not for use.

- (8) SW9 (Model selector)
- 1 2 3 4 5
 ON 
 OFF 
- SW9-1~5) Keep this switch.

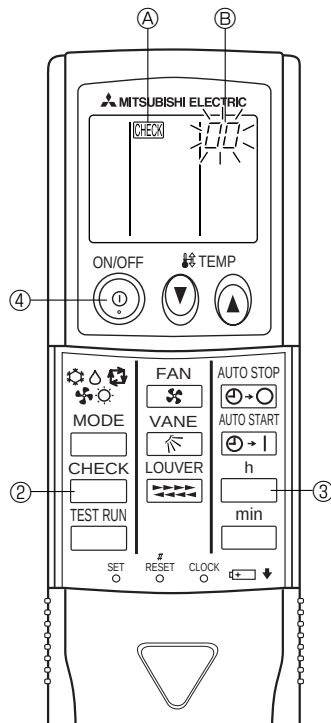
2-8 Wireless remote controller pair number setting operation



- ① Turn on the main power to the unit.
- ② Press the SET button with the point of a ball-point pen or the like.
Start this operation from the status of remote controller display turned off.
MODEL SELECT blinks and Model No. is lighted.
- ③ Press the min button twice continuously.
Pair No. "0" blinks.
- ④ Press the temp button to set the pair number you want to set.
- ⑤ Press the SET button with the point of a ball-point pen or the like.
Set pair number is lighted for three seconds then turned off.

Pair No. of wireless remote controller	Indoor PC board
0	Factory setting
1	Cut J41
2	Cut J42
3~9	Cut J41, J42

1. Self-diagnostic function

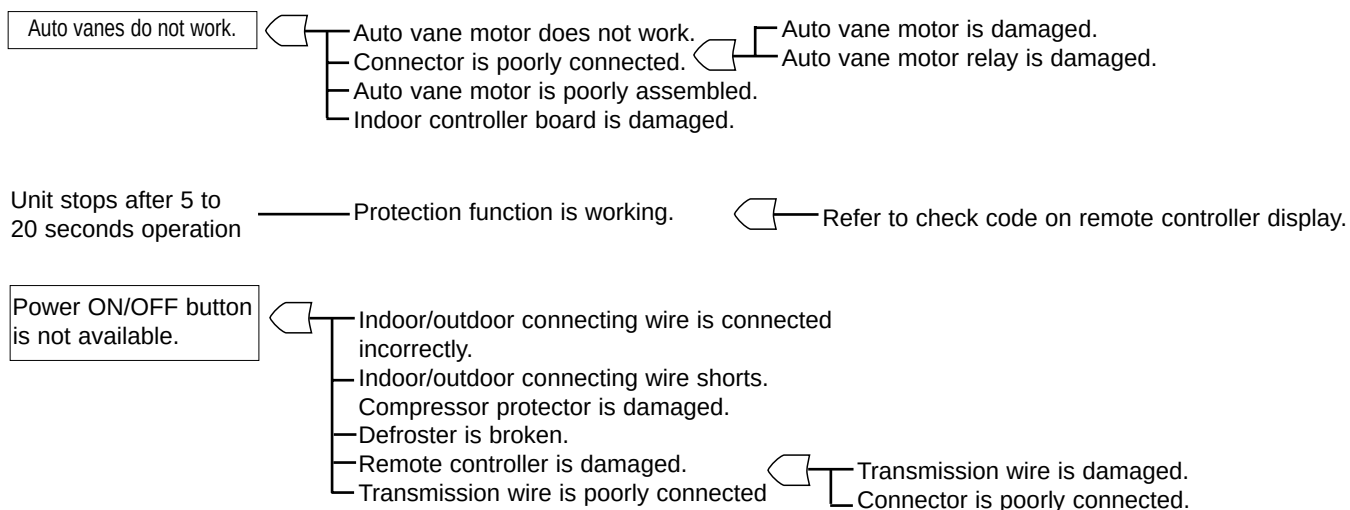


Self-check

- ① Turn on the main power to the unit.
- ② Press the  button twice continuously.
(Start this operation from the status of remote controller display turned off.)
 - Ⓐ  begins to light.
 - Ⓑ "00" begins to blink.
- ③ While pointing the remote controller toward the unit's receiver, press the  button. The check code will be indicated by the number of times that the buzzer sounds from the receiver section and the number of blinks of the operation lamp.
- ④ Press the ON/OFF button to stop the self-check.

Check Code	Alarm	Buzzer sound
1	Suction sensor alarm	Single beep × 1
2	Pipe sensor alarm	Single beep × 2
3	Transmission alarm	Single beep × 3
5	Drain sensor alarm	Single beep × 4
4	Drain pump alarm	Single beep × 5
6	Anti-freezing on	Single beep × 6
	Anti-overheat on	Single beep × 6
7	System error	Single beep × 7
8	Outdoor unit alarm	Single beep × 8
9	No alarm (no error)	Receiving signal only (no error alarm)

2. OTHER TROUBLES AND CAUSES

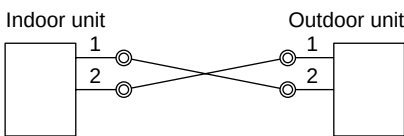


Check code	Diagnosis of malfunction	Cause	Check points
1	Abnormality of room temperature thermistor (RT1)	1) Bad contact of thermistor 2) Damaged thermistor	1) Check the thermistor. 2) Measure the resistance of the thermistor. Normal resistance should be as follows. 32°F.....15kΩ 86°F.....4.3kΩ 50°F.....9.6kΩ 104°F.....3.0kΩ 68°F.....6.3kΩ If the resistance is normal, replace the indoor controller board.
2	Abnormality of indoor coil thermistor (RT2)		
4	Abnormality of drain sensor	1) Bad contact of transmission wire 2) Damaged thermistor	1) Check the connector. 2) Measure the resistance of the thermistor (between ④ - ⑤ of CN50). As for the normal resistance, refer to the case of 1. If the resistance is normal, replace the indoor controller board.
5	Malfunction of drain pump	1) Malfunction of drain pump 2) Damaged drain sensor	1) Check the drain pump. 2) ● Check the drain sensor. ● Check the drain sensor heater. Normal resistance should be 82Ω. (between ① - ③ of CN50). If the resistance is normal, replace the indoor controller board.
6	Coil frost protection is working.	1) Short cycle of air cycle 2) Dirty air filter 3) Damaged fan 4) Abnormal refrigerant	1) Clear obstructions from the air cycle. 2) Clean the air filter 3) Check the fan. 4) Check the refrigerant temperature.
8	Abnormality in outdoor unit	1) Wrong wiring of indoor/outdoor connecting wire 2) Reversed phase 3) Protection device is working 4) Damaged outdoor coil thermistor	1) Check the indoor/outdoor connecting wire. 2) Change the connection of electric wiring. 3) Check the protection device. 4) Measure the resistance of the outdoor coil thermistor. If the resistance is normal, replace the outdoor controller board.

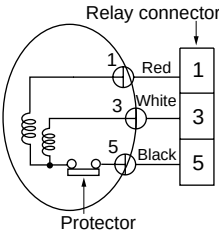
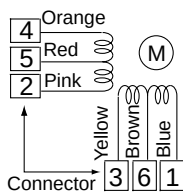
※ The number of check code shows times of Buzzer sound.

3. WRONG WIRING ON SITE

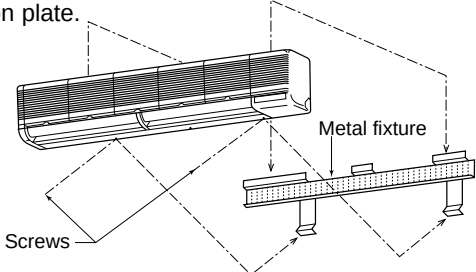
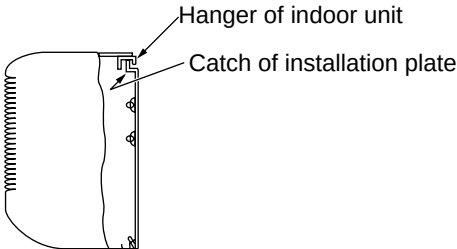
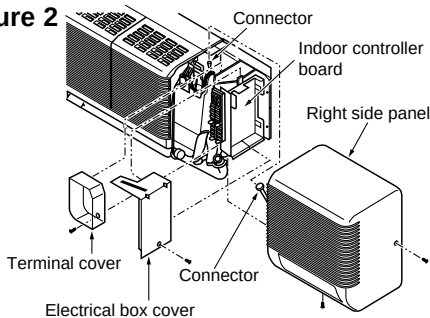
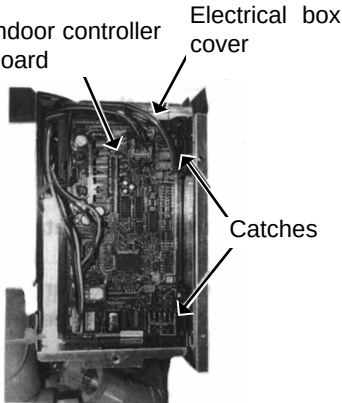
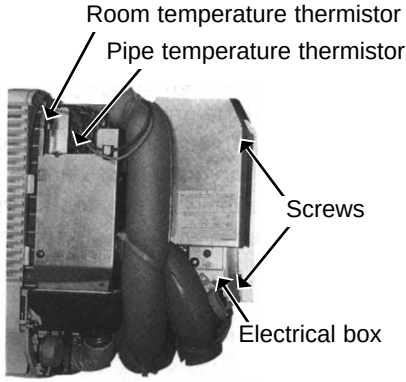
Symptom due to wrong wiring between indoor and outdoor units

Wrong wiring	Thermostat	Phenomena
	OFF	The outdoor unit stops.
	ON	Operation stops. 9 minutes later, the check code "P8" appears on the remote controller display.
Disconnect between 1 and 1 or 2 and 2.	OFF	Operation stops.
	ON	9 minutes later, the check code "P8" appears on the remote controller display.

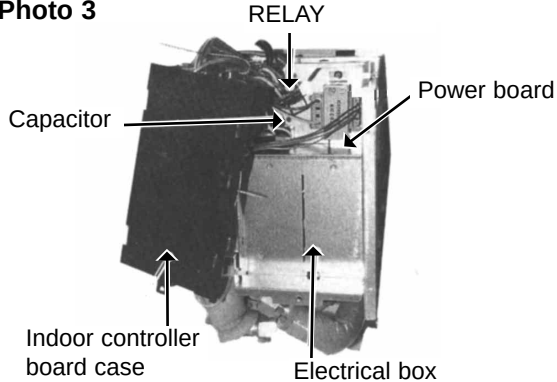
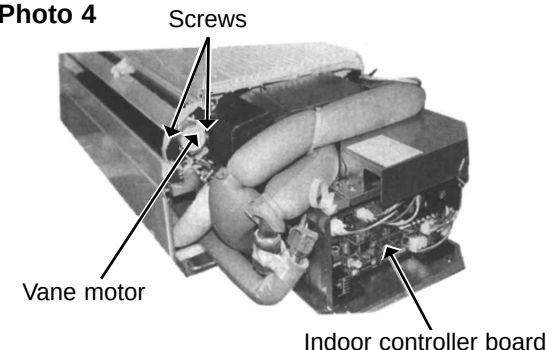
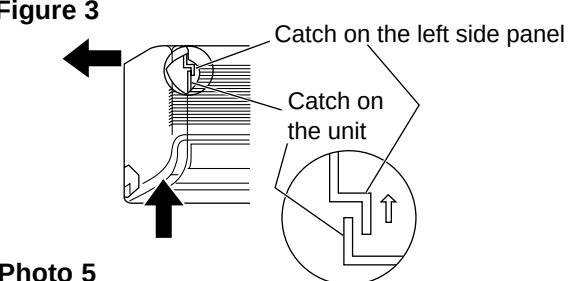
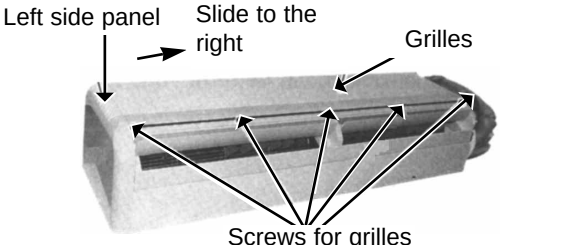
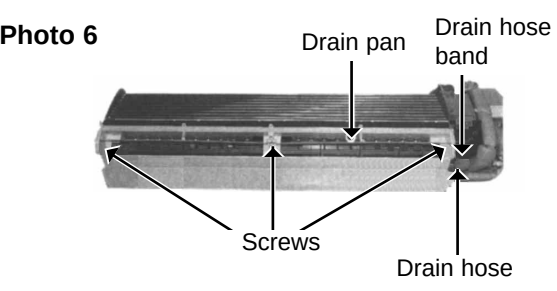
4. HOW TO CHECK THE PARTS

Parts name	Check points		
Room temperature thermistor (RT1) Pipe temperature thermistor (RT2)	Disconnect the connector, then measure the resistance using a tester. (Surrounding temperature 50°F to 86°F)		
	Normal	Abnormal	
	4.3kΩ to 9.6kΩ	Open or short	
Fan motor (MF)	Measure the resistance between the terminals using a tester.		
	Motor terminal or Relay connector	Normal	Abnormal
		PK	
		18,24FL3	30,36FL3
	Red-White	99.5Ω±10%	62.6Ω±10%
	White-Black	103.5Ω±10%	74.0Ω±10%
			Open or short
	Opening and closing temperature of protector. Open: 266±41°F (Fan motor OFF) Close: 176±68°F (Fan motor ON)		
Vane motor (MV)	Measure the resistance between the terminals using a tester. (Surrounding temperature 68°F to 86°F)		
		Normal	Abnormal
	Brown-Yellow	186 to 214Ω	Open or short
	Brown-Blue		
	Red-Orange		
	Red-Pink		

Indoor unit PK24FL3

OPERATING PROCEDURE	PHOTOS&ILLUSTRATION
1. Removing the lower side of the indoor unit from the installation plate (1) Remove the 2 screws. Hang the indoor unit hangers to the catches on the installation plate. 	Figure 1 
2. Removing the right side panel (1) Remove the 2 screws of the right side panel: one on the bottom and the other on the upper right-hand side. (2) Disconnect the connector from the adapter case. (3) Sliding the right side panel to the right, pull it out toward you.	Figure 2 
3. Removing the indoor controller board (1) Remove the right side panel. (2) Remove the screw of the electrical box cover, and remove the cover. (3) Disconnect the connectors on the indoor controller board. (4) To unhook the catches on the right-hand side of the indoor controller board, pull the left-hand side toward you and lift up the cover to the right. Then the indoor controller board can be removed.	Photo 1 
4. Removing the electrical box (1) Remove the right side panel. (2) Remove the screw of the electrical box cover, and remove the cover. (3) Remove the room temperature thermistor and the pipe temperature thermistor. (4) Disconnect the vane motor connector on the indoor controller board. (5) Remove the 2 screws of the electrical box. (6) Disconnect the connector of the heater lead wire connector. (7) Disconnect the connector of the fan motor lead wire. (8) Remove the electrical box.	Photo 2 



OPERATING PROCEDURE	PHOTOS&ILLUSTRATION
(8) Remove the screws of the indoor controller board case, and pull out the indoor controller board case. Then the transformer and the capacitor and relay can be serviced.	Photo 3 
5. Removing the vane motor (1) Remove the right side panel. (2) Remove the screw of the electrical box cover, and remove the cover. (3) Remove the 2 screws of the vane motor, and remove the motor from the shaft. (4) Disconnect the vane motor connector on the indoor controller board.	Photo 4 
6 Removing the intake grilles (1) Remove the right side panel. (2) To remove the left side panel, remove the screw on the bottom and the screw on the upper left-hand side. (See Figure 3.) 1. Press up this side of the left side panel to unhook the catch on the panel from the catch on the unit. 2. Slide the left side panel to the left to remove the panel. - Note: Fix the unit to the metal fixture securely (3) Remove the air filters. (4) Hold and press the center cover to remove. (5) Remove the screws of the grilles. (6) Pull the lower side of the grille toward you and slide the upper to the right to remove the grilles.	Figure 3  Photo 5 
7. Removing the drain pan (1) Remove the left and right side panels. (2) Remove the grilles. (3) Remove the electrical box cover. (4) Loosen the drain hose band to remove. (5) Remove the 3 screws of the drain pan, and slide the drain pan toward you to remove.	Photo 6 

OPERATING PROCEDURE

8. Removing the line flow fan and the fan motor

- (1) Remove the left and right side panels.
- (2) Remove the grilles.
- (3) Remove the electrical box.
- (4) Remove the drain pan.
- (5) Loosen the screw that fixes the line flow fan to the fan motor. (See Photo 7.)
- (6) Remove the 4 screws of the motor fixture, and remove the fan motor and the motor fixture at a time (See Photo 8.)
- (7) Remove the screws of the left and right motor supports, and remove the motor supports and the fan motor. (See Photo 9.)
- (8) Remove the 2 screws on the left and right sides of the heat exchanger, and pull the bearing support toward you. (See Photo 11.)
- (9) Remove the screw of the center support, and remove the support. (See Photo 10.)
- (10) Pull the left-hand side of the heat exchanger toward you, and remove the line flow fan.

PHOTOS

Photo 7

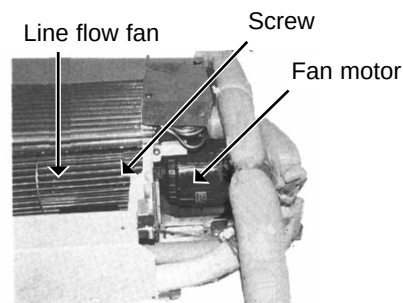


Photo 8

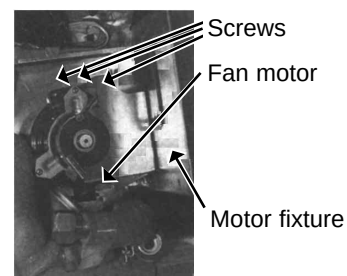


Photo 9

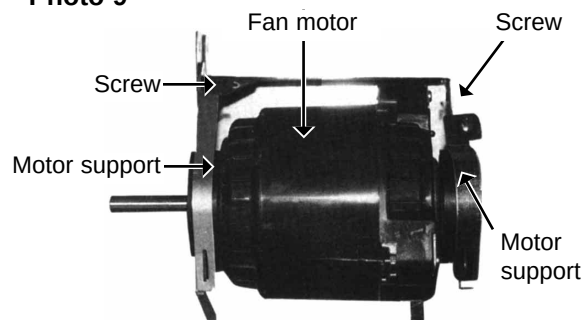


Photo 10

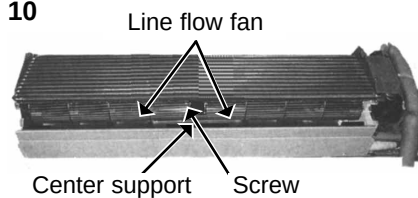
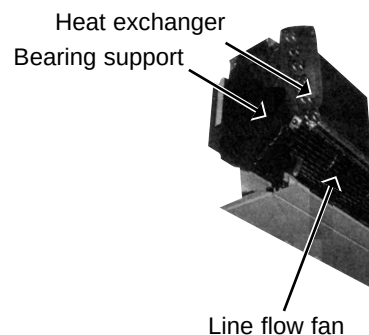


Photo 11



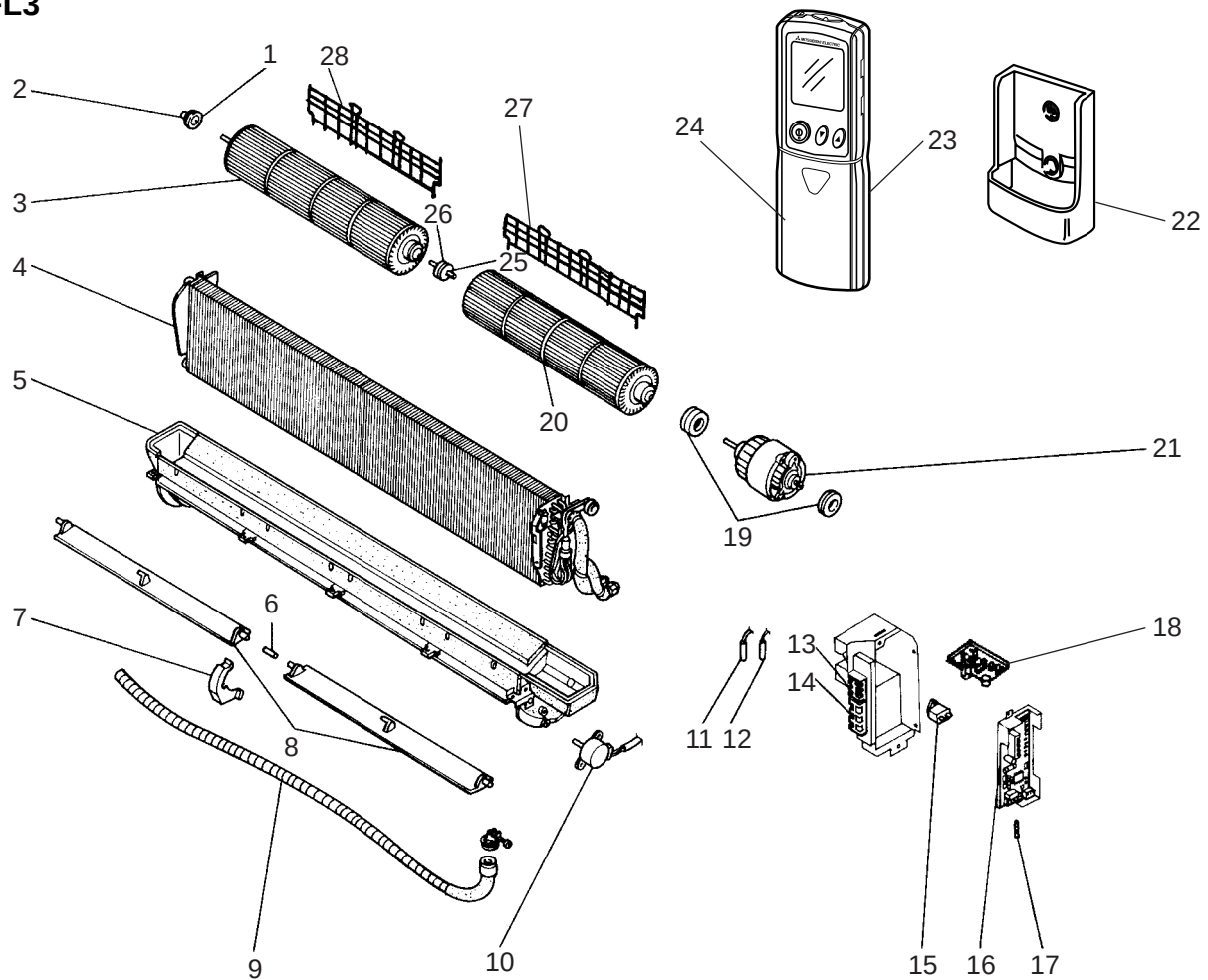
ELECTRICAL PARTS

PK18FL3

PK24FL3

PK30FL3

PK36FL3



No.	Parts No.	Parts Name	Specifications	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol
				PK					
				18FL3	24FL3	30FL3	36FL3		
1	R01 005 103	SLEEVE BEARING		1	1	1	1		
2	R01 Z61 102	BEARING MOUNT		1	1	1	1		
3	R01 13G 114	LINE FLOW FAN (L)		1	1				
	R01 17G 114	LINE FLOW FAN (L)				1	1		
4	T7W B04 480	HEAT EXCHANGER		1					
	T7W B06 480	HEAT EXCHANGER			1				
	T7W B05 480	HEAT EXCHANGER				1	1		
5	T7W E13 529	DRAIN PAN		1	1				
	T7W E14 529	DRAIN PAN				1	1		
6	R01 12G 063	JOINT SHAFT		1	1	1	1		



No.	Parts No.	Parts Name	Specifications	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol
				PK					
				18FL3	24FL3	30FL3	36FL3		
7	R01 12G 621	CENTER COVER		1	1	1	1		
8	R01 12G 002	AUTO VANE W		2	2				
	R01 16G 002	AUTO VANE W				2	2		
9	R01 KV5 527	DRAIN HOSE		1	1	1	1		
10	R01 12G 223	VANE MOTOR		1	1	1	1		MV
11	T7W E12 202	ROOM TEMPERATURE THERMISTOR		1	1	1	1		RT1
12	R01 E02 202	PIPE TEMPERATURE THERMISTOR		1	1	1	1		RT2
13	R01 556 246	TERMINAL BLOCK	2P(1,2)	1	1	1	1		TB4
14	T7W 410 716	TERMINAL BLOCK	3P(L1,N,GR)	1	1	1	1		TB2
15	T7W B02 255	FAN MOTOR CAPACITOR	8μF 220V	1	1	1	1		C
16	T7W E25 310	INDOOR CONTROLLER BOARD		1	1	1	1		I.B
17	T7W 410 239	FUSE	250V 6A	2	2	2	2		F1.2<I.B>
18	T7W E02 313	POWER BOARD		1	1	1	1		P.B
19	R01 12G 105	RUBBER MOUNT		2	2				
	R01 16G 105	RUBBER MOUNT				2	2		
20	R01 13G 115	LINE FLOW FAN (R)		1	1				
	R01 17G 115	LINE FLOW FAN (R)				1	1		
21	T7W B02 762	FAN MOTOR	PN4W40-K	1	1				MF
	T7W B03 762	FAN MOTOR	PN4W70-K			1	1		MF
22	R01 E00 075	WIRELESS REMOTE CONTROLLER HOLDER		1	1	1	1		
23	T7W E07 714	WIRELESS REMOTE CONTROLLER		1	1	1	1		W.R
24	R01 E01 049	REMOTE CONTROLLER DOOR		1	1	1	1		
25	R01 12G 103	SLEEVE BEARING		1	1	1	1		
26	R01 KV5 102	BEARING MOUNT		1	1	1	1		
27	T7W B03 675	FAN GUARD				2	2		
28	T7W B02 675	FAN GUARD		2	2				

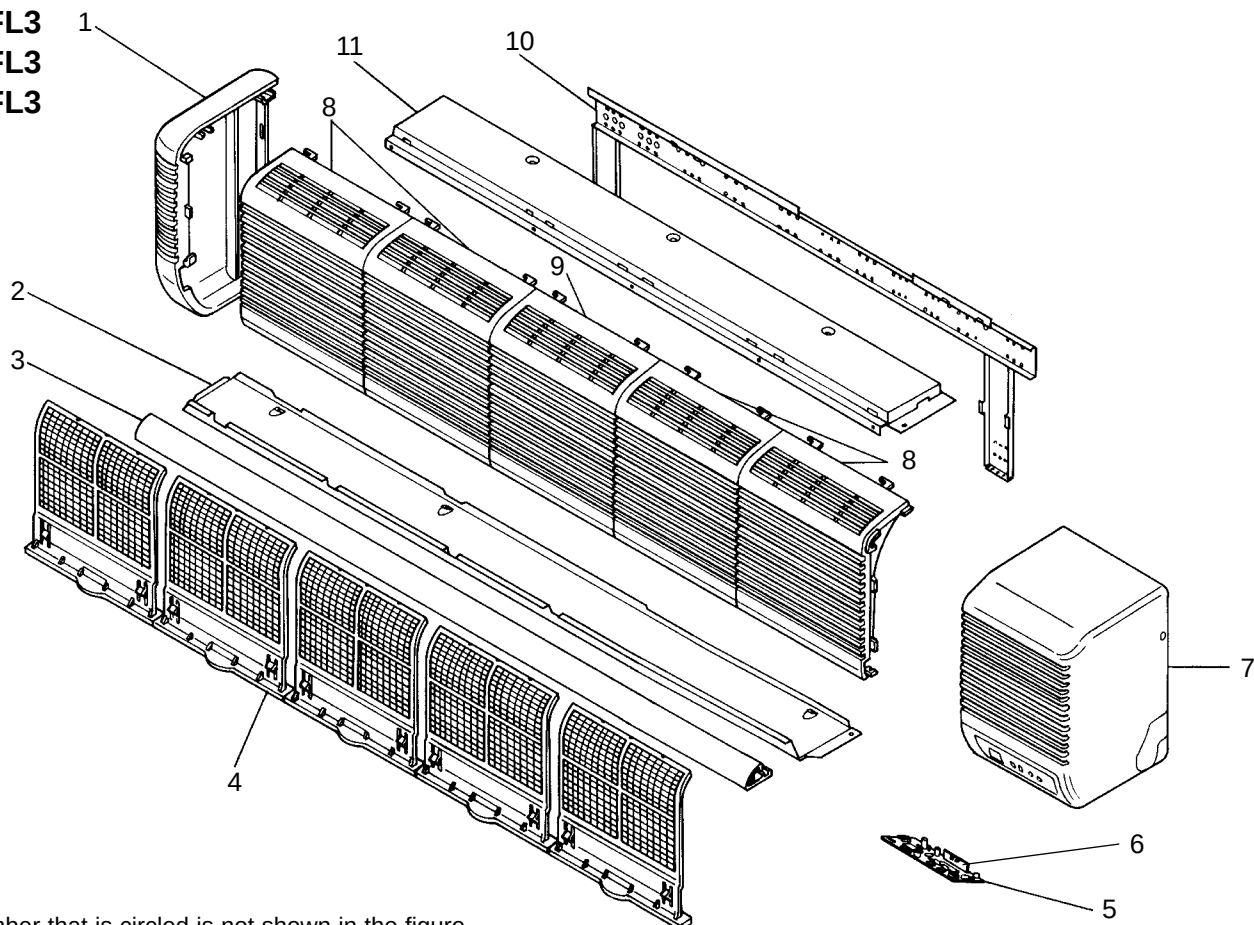
STRUCTURAL PARTS

PK18FL3

PK24FL3

PK30FL3

PK36FL3



Part number that is circled is not shown in the figure.

No.	Parts No.	Parts Name	Specifications	Q'ty / set				Remarks (Drawing No.)	Wiring Diagram Symbol
				PK					
				18FL3	24FL3	30FL3	36FL3		
1	R01 12G 662	SIDE PANEL (L) W		1	1	1	1		
2	R01 E01 812	UNDER PLATE		1	1				
	R01 E00 812	UNDER PLATE				1	1		
3	R01 E00 811	NOSE		1	1				
	R01 E01 811	NOSE				1	1		
4	R01 A17 500	FILTER		4	4	5	5		
5	R01 50J 317	W.A. CONT (A)		1	1	1	1		W.B
6	R01 24K 658	RECEIVER		1	1	1	1		RU<W.B>
7	T7W E00 661	SIDE PANEL (R)		1	1	1	1		
8	R01 12G 691	INTAKE GRILLE W		2	2	2	2		
9	R01 16G 692	INTAKE GRILLE W				1	1		
10	R01 12G 808	BACK PLATE		1	1				
	R01 16G 808	BACK PLATE				1	1		
11	R01 E01 641	TOP PLATE		1	1				
	R01 E00 641	TOP PLATE				1	1		
⑫	R01 12G 523	DRAIN SOCKET		1	1	1	1		



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