MITSUBISHI ELECTRIC

SPLIT-TYPE,HEAT PUMP AIR CONDITIONERS

1997

No. OC148

TECHNICAL & SERVICE MANUAL

Series PLH Ceiling Cassettes

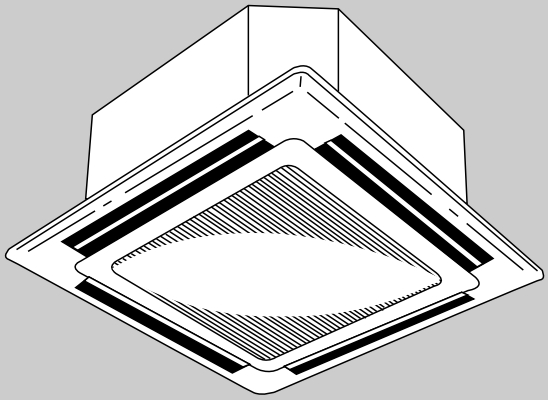
[Model names]

PLH-3GK(H)B
PLH-4GK(H)SB
PLH-5GK(H)SB
PLH-6GK(H)SB

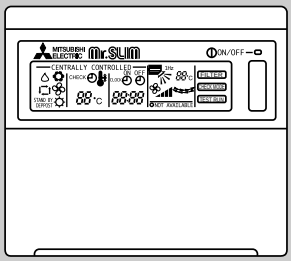
[Service Ref.]

PLH-3GK(H)B$_1$.UK
PLH-4GK(H)SB$_1$.UK
PLH-5GK(H)SB$_1$.UK
PLH-6GK(H)SB$_1$.UK

This manual does not cover the following outdoor units. When servicing them, please refer to the service manual No.OC150 and this manual in a set.
[Service Ref.]
PUH-3YKA$_2$.UK
PUH-3VKA$_2$.UK
PUH-4YKSA$_2$.UK
PUH-5YKSA$_2$.UK
PUH-6YKSA$_2$.UK



INDOOR UNIT



REMOTE CONTROLLER

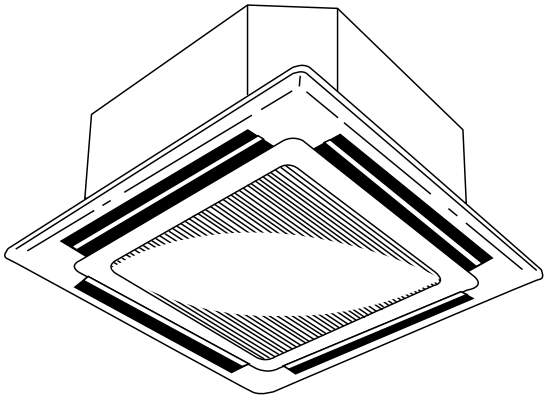
CONTENTS

The Slim Line.
From Mitsubishi Electric.

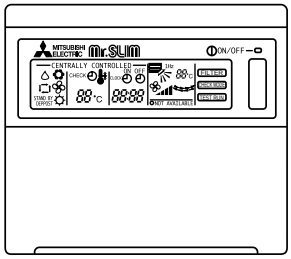
Mr.SLIM™

1 FEATURES

Series PLH Ceiling Cassettes



Indoor unit



Remote controller

Service Ref.	Cooling capacity/Heating capacity	
	Btu/h	W
PLH-3GK(H)B1.UK	26,300/28,700[35,800]	7,700/ 8,400[10,500]
PLH-4GK(H)SB1.UK	33,100/35,500[44,400]	9,700/10,400[13,000]
PLH-5GK(H)SB1.UK	42,300/45,700[56,000]	12,400/13,400[16,400]
PLH-6GK(H)SB1.UK	46,100/54,300[64,500]	13,500/15,900[18,900]

1.THE QUIETEST PERFORMANCE IN THE FIELD-39 PHONS(PLH-3GK(H)B.UK)

Excellent noise suppression is achieved because of the turbofan's large diameter. Also wing-shaped vanes and a low-resistance air flow desigh help to suppress noise.

2.FAN CONTROL ELIMINATES SUDDEN,SHARP NOISES

Sudden,sharp noises are eliminated by a fan control mechanism that smoothly and gradually increases rpms when the thermostat switches the heater on or when the air conditioners in the dehumidifying"dry"mode.

3.VERSATILE AIR FLOW

Fan phase control and computer control allow a wide variety of air flow configurations. The optimal blown-air volume can be chosen in accordance with the ceilling height and number of air vents at specific settings.

4.AUTOMATIC SETTING OF THE OPTIMAL AIR OUTLET ANGLE

The air outlet angle is altered automatically,to an almost horizontal angle of 20˚during cooling and an almost perpendicular angle of 65˚during heating,to deliver the most comfort possible.This mechanism gives an even greater control over air flow.

5.NEXT-GENERATION AIR -CONDITIONING VENTILATION INTERLOCK SYSTEM "Mr.SLIM" + "LOSSNAY"

Proper ventilation is important to improve the quality of indoor environments. It eliminates unclean air,which is not only unpleasant,but also unhealthy.

The"Mr.SLM"+"LOSSNAY"ventilation interlocking system achieves high air quality with minimum energy consumption. LOSSNAY´s unique total heat exchanger reduces heating and cooling expenses by about 25 percent annually(in comparison with our exisiting models). In addition,its mechanism of simultaneous forced air supply and exhaust enables it to deliver high quality air.

Together the"Mr.SLIM"+"LOSSNAY"system makes next-generation air conditioning possible. This system is both people-and environmental-friendly.

6.FLUCTUATING AIR CONTROL THAT ELIMINATES DRAFTS

A computerized fluctuating air control mechanism automatically controls the flow of air so that it feels natural and free of drafts. Linkage with a swing mechanism sends a refreshing and natural breeze throughout the room. <Cooling><Air flow>

7.INCREASED DEHUMIDIFICATION WITH FAN PHASE CONTROL NEW ELECTRONIC DEHUMIDI-FIER OPERATION

A new electronic dehumidifier mode,where fan speed is controlled precisely by fan phase control,increases dehumidification volume and raises dehumidifying effectiveness.This results in a pleasant environment all-year around,even during extended rainy seasons.

8. A90°GRILL SWITCHING MECHANISM MAKES INSTALLATION CONSIDERABLY EASIER (3HP)

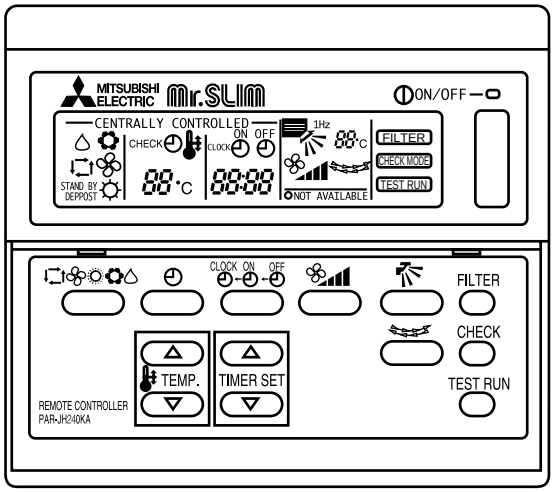
The direction of the panel designs can be adjusted to match the interior desigh of the space in which tyey are being used. This allows for greater flexibillty in air conditioning space and plumbing work.

9.HIGH-PERFORMANCE FILTER(colorimetric method:65%)OPTION

A high-performance filter can be installed(colorimetric method:65%)by setting the blown-air volume switch SWC.

10.OUTSIDE AIR INCORPORATION

Installation of an outside air intake casement(option)allows fresh air from outside to be incorporated with limited pressure loss.



11.ADVANCED MICROPROCESSOR

(1)Easy to use microprocessor

1)Ultra-thin remote controller

The streamlinde,square controller is designed to blend well with any interior.Also,the sophisticated microproceeor allows you to easily carry out a wide range of operations.

2)Attractive liquid crystal display(LCD)

The unit´s operation mode,set temperature,room temperature,timer setting,fan speed,louver oper-ation,and air flow direction are displayed on the remote controller´s easy-to-read Liquid Crystal Dis-play(LCD).

3)Convenient 24-hour ON-OFF timer

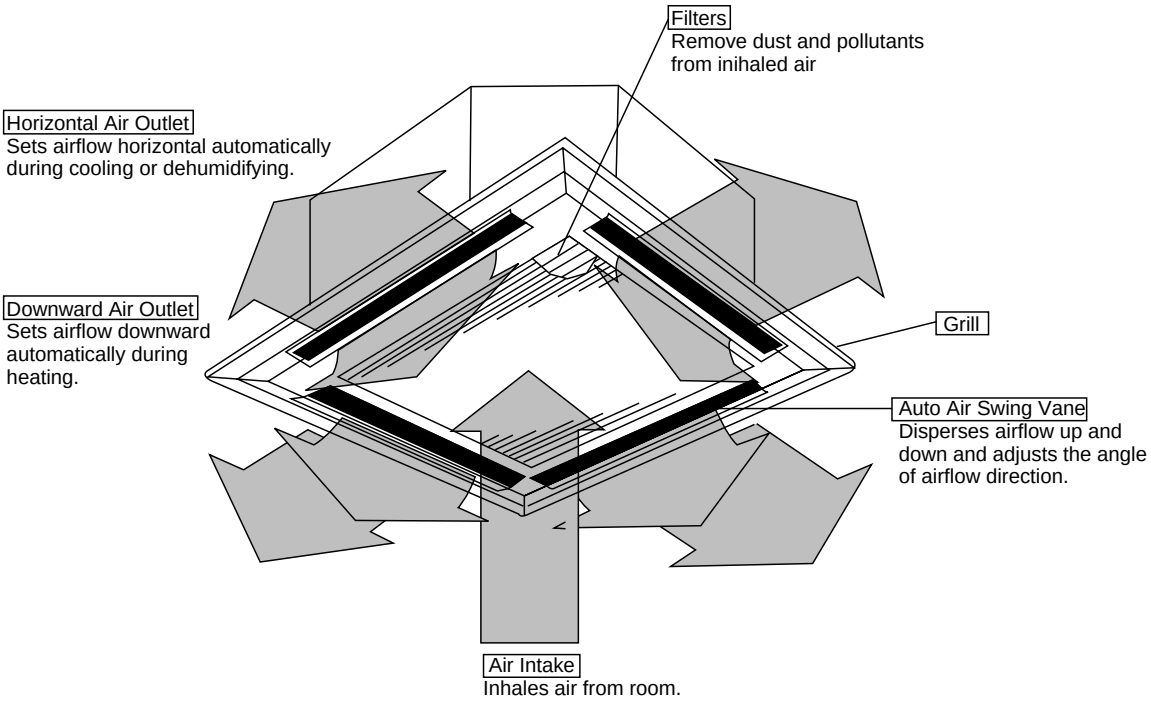
The timer switches Mr.SLIM on and off automati-cally at the time you set. Once the timer is set,the remaining time is shown on the LCD.

12.INNOVATIVE SYSTEM CONTROL BY MICROPROCESSORS

The most significant feature of the series PLH-GK(H)(S)B is the advanced microprocessor control. The development of this system is due to the recent world-wide trend in the air conditioning of larger buildings. They are moving away from centralized duct systems and using individual split type units instead. There are a number of reasons for this change. First of all,the duct´s costly,and troublesome installation is eliminated. Second,the overall air conditioning balance is excellent in split type units. Lastly,the operation costs are low due to the flexible control of each unit. This system was developed exclusively by Mitsubishi Electric because of high demand. The microprocessor control makes individual control,group control,control using two remote controllers,and remote on/off and individual control possible without trouble-some equipment modifications.

2 PART NAMES AND FUNCTIONS

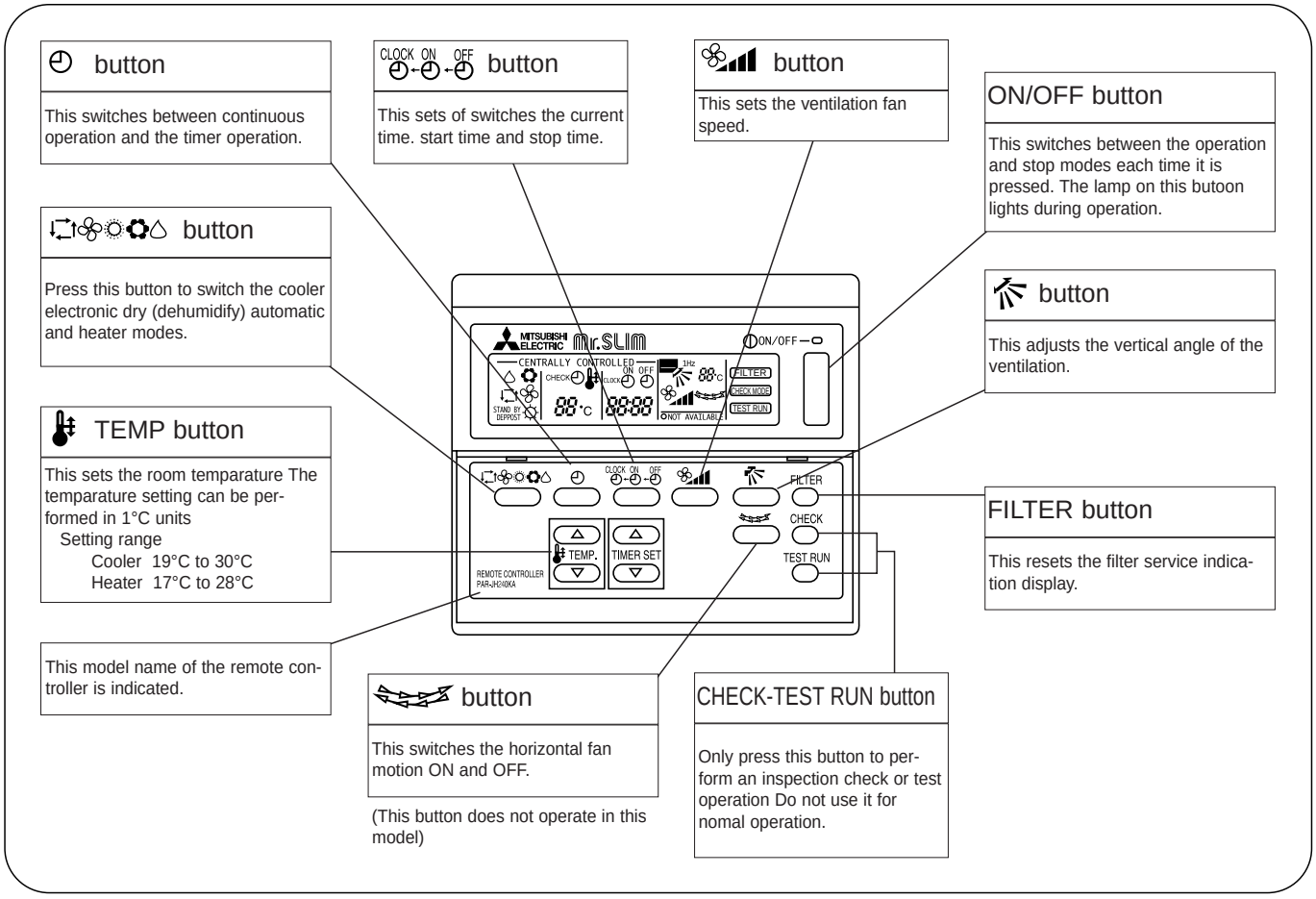
● Indoor (Main) Unit



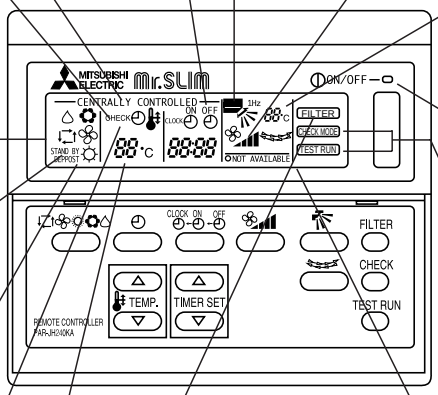
● Remote controller

On the controls are set, the same operation mode can be repeated by simply pressing the ON/OFF button.

● Operation buttons



● Display



CENTRALLY CONTROLLED display

This indicates when the unit is controlled by optional features such as central control type remote controller.

CLOCK ON OFF display

The current time , start time and stop time can be displayed in tensecond intervals by pressing the time switch button. The start time or stop time is always displayed during the timer operation.

In this display example on the bottom left, a condition where all display lamps light is shown for explanation purposes although this differs from actual operation.

display

The selected fan speed is displayed.

display

This displays the air direction.

display

This indicates when the continous operation and time operation modes are set.
It also display the time for the timer operation at the same time as when it is set.

—88°C display

The temperature of the suction air is displayed during operation. The display range is 8° to 39°C. The display flashes 8°C when the actual temperature is less than 8° and flashes 39°C when the actual temperature is greater than 39°C.

OPERATION MODE display

This indicates the operation mode.

Operation lamp

This lamp lights during operation, goes off when the unit stops and flashes when amalfunction occurs.

STANDBY display

This indicates when the standby mode is set from the time the sleep operation starts until the heating air is discharged.

CHECK MODE / TEST RUN display

This display lights in the check mode or when a test operation is performed.

FILTER display

This lamp lights when the filter need to be cleaned.

DEFROST display

This indicates when the defrost operation is performed.

CHECK display

This indicates when a malfunction has occurred in the unit which should be checked.

—88°C display

This displays the selected setting temperature.

⊙display

This lamp lights when electricity is supplied to the unit.

Caution

- Only the ⊙ display lights when the unit is stopped and power supplied to the unit.
- When power is turned ON for the first time the (CENTRAL CTRL) display appears to go off momentarily but this is not a malfunction.
- When the central control remote control unit, which is sold separately, is used the ON-OFF button, button and TEMP button do not operate.
- “NOT AVAILABLE” is displayed when the button are pressed.This indicates that this room unit is not equipped with the fan direction adjustment function and the louver function.

3 SPECIFICATIONS

Item / Service Ref.				PLH-3GK(H)B.UK	
Function				Cooling	Heating
Capacity			Btu/h	26,300	28,700[35,800]
			W	7,700	8,400[10,500]
Total input			kW	3.31	3.10[5.20]
INDOOR UNIT	**Service Ref.**			**PLH-3GK(H)B$_1$.UK**	
	Power supply(phase, cycle,voltage)			Single, 50Hz, 220-240V	
		Input	kW	0.16	0.16[2.26]
		Running current	A	0.72	0.72[9.5]
		Starting current	A	1.00	1.00[9.8]
	External finish			Galvanized sheets with gray heat insulation	
	Heat exchanger			Plate fin coil	
		Fan(drive) x No.		Turbo fan (direct) x 1	
		Fan motor output	kW	0.050	
		Airflow(Low-High)	m³/ min (CFM)	14-18(495-640)	
		External static pressure	Pa(mmAq)	0(direct blow)	
	Booster heater		kW	[2.1]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB(A)	32-39	
	Cond. drain conn. O.D.		mm,(in)	30(1-1/4)	
	Dimensions	W	mm,(in)	UNIT : 820(32-1/4)	PANEL : 950(37-3/8)
		D	mm,(in)	UNIT : 820(32-1/4)	PANEL : 950(37-3/8)
		H	mm,(in)	UNIT : 258(10-1/8)	PANEL : 65(2-9/16)
	Weight		kg,(lbs)	UNIT : 29(64)	PANEL : 7(16)
OUTDOOR UNIT	**Service Ref.**			**PUH-3VKA$_2$.UK/PUH-3YKA$_2$.UK**	
	Power supply (phase, cycle, voltage)			Single, 50Hz, 220-240V/3, 50Hz, 380-415V(4wires)	
		Input	kW	3.15	2.94
		Running current	A	13.82/5.16	12.89/4.81
		Starting current	A	58/37	58/37
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
		Model		NH52VND/NH52YDA	
		Motor output	kW	2.2/2.4	
		Starter type		Line start	
		Protection devices		※1	
	Heat exchanger			Plate fin coil	
		Fan(drive) x No.		Propeller (direct) x1	
		Fan motor output	kW	0.085	
		Airflow	m³/ min (CFM)	50(1764)	
	Defrost method			Reverse cycle	
	Noise level		dB(A)	52	
	Dimensions	W	mm,(in)	870(34-1/4)	
		D	mm,(in)	295+24 (11-5/8 add 1)	
		H	mm,(in)	850(33-1/4)	
	Weight		kg,(lbs)	75(165)	
REFRIGERANT PIPING	Refrigerant			R-22	
		Charge	kg,(lbs)	3.2(7.1)	
	Pipe size O.D.	Liquid	mm,(in)	9.52 (3/8)	
		Gas	mm,(in)	15.88(5/8)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

※ V ⋯Internal Thermostat, HP switch
Y ⋯Anti-phase protector, thermal relay, thermal switch, HP switch

Item \ Service Ref.				PLH-4GK(H)SB1.UK	
Function				Cooling	Heating
Capacity			Btu/h	33,100	35,500[44,400]
			W	9,700	10,400[13,000]
Total input			kW	3.46	3.45[6.05]
INDOOR UNIT	**Service Ref.**			**PLH-4GK(H)SB1.UK**	
	Power supply(phase, cycle,voltage)			Single, 50Hz, 220-240V	
	Input		kW	0.26	0.26[2.86]
	Running current		A	1.18	1.18[12.0]
	Starting current		A	1.50	1.50[12.3]
	External finish			Galvanized sheets with gray heat insulation	
	Heat exchanger			Plate fin coil	
	Fan(drive) x No.			Turbo fan (direct) x 2	
	Fan motor output		kW	0.050+0.050	
	Airflow(Low-High)		m³/ min (CFM)	23-32(810-1130)	
	External static pressure		Pa(mmAq)	0(direct blow)	
	Booster heater		kW	[2.6]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB(A)	34-42	
	Cond. drain conn. O.D.		mm,(in)	30(1-1/4)	
	Dimensions	W	mm,(in)	UNIT : 1340(52-3/4)	PANEL : 1470(57-7/8)
		D	mm,(in)	UNIT : 820(32-1/4)	PANEL : 950(37-3/8)
		H	mm,(in)	UNIT : 258(10-1/8)	PANEL : 65(2-9/16)
	Weight		kg,(lbs)	UNIT : 45(99)	PANEL :10(22)
OUTDOOR UNIT	**Service Ref.**			**PUH-4YKSA2.UK**	
	Power supply (phase, cycle, voltage)			3, 50Hz, 380-415V(4wire)	
	Input		kW	3.20	3.19
	Running current		A	5.24	5.22
	Starting current		A	40	40
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
	Model			NH56YDA	
	Motor output		kW	2.7	
	Starter type			Line start	
	Protection devices			Anti-phasa protector, Thermal relay, Thermal switch, HP switch	
	Heat exchanger			Plate fin coil	
	Fan(drive) x No.			Propeller (direct) x2	
	Fan motor output		kW	0.065+0.065	
	Airflow		m³/ min (CFM)	95(3550)	
	Defrost method			Reverse cycle	
	Noise level		dB(A)	54	
	Dimensions	W	mm,(in)	870(34-1/4)	
		D	mm,(in)	295+24(11-5/8 add 1)	
		H	mm,(in)	1258(49-1/2)	
	Weight		kg,(lbs)	94(207)	
REFRIGERANT PIPING	Refrigerant			R-22	
	Charge		kg,(lbs)	4.2(9.2)	
	Pipe size O.D.	Liquid	mm,(in)	9.52(3/8)	
		Gas	mm,(in)	19.05(3/4)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

Item / Service Ref.				PLH-5GK(H)SB1.UK	
Function				Cooling	Heating
Capacity			Btu/h	42,300	45,700[56,000]
			W	12,400	13,400[16,400]
Total input			kW	4.49	4.44[7.44]
INDOOR UNIT	**Service Ref.**			**PLH-5GK(H)SB1.UK**	
	Power supply(phase, cycle,voltage)			Single, 50Hz, 220-240V	
	Input		kW	0.28	0.28[3.28]
	Running current		A	1.27	1.27[13.8]
	Starting current		A	1.50	1.50[14.0]
	External finish			Galvanized sheets with gray heat insulation	
	Heat exchanger			Plate fin coil	
	Fan(drive) x No.			Turbo fan (direct) x 2	
	Fan motor output		kW	0.050+0.050	
	Airflow(Low-High)		m³/ min (CFM)	24-33(850-1165)	
	External static pressure		Pa(mmAq)	0(direct blow)	
	Booster heater		kW	[3.0]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB(A)	36-43	
	Cond. drain conn. O.D.		mm,(in)	30(1-1/4)	
	Dimensions	W	mm,(in)	UNIT : 1340(52-3/4)	PANEL : 1470(57-7/8)
		D	mm,(in)	UNIT : 820(32-1/4)	PANEL : 950(37-3/8)
		H	mm,(in)	UNIT : 258(10-1/8)	PANEL : 65(2-9/16)
	Weight		kg,(lbs)	UNIT : 45(99)	PANEL :10(22)
OUTDOOR UNIT	**Service Ref.**			**PUH-5YKSA2.UK**	
	Power supply (phase, cycle, voltage)			3, 50Hz, 380-415V(4wire)	
	Input		kW	4.21	4.16
	Running current		A	6.89	6.81
	Starting current		A	53	53
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
	Model			ZR61K3-TFD	
	Motor output		kW	3.5	
	Starter type			Line start	
	Protection devices			Internal thermostat, Anti-phasa protector, Thermal switch, HP switch	
	Heat exchanger			Plate fin coil	
	Fan(drive) x No.			Propeller (direct) x2	
	Fan motor output		kW	0.085+0.085	
	Airflow		m³/ min (CFM)	95(3550)	
	Defrost method			Reverse cycle	
	Noise level		dB(A)	55	
	Dimensions	W	mm,(in)	970(38-3/16)	
		D	mm,(in)	345+24(13-9/16 add 1)	
		H	mm,(in)	1258(49-1/2)	
	Weight		kg,(lbs)	114(251)	
REFRIGERANT PIPING	Refrigerant			R-22	
	Charge		kg,(lbs)	5.4(11.9)	
	Pipe size O.D.	Liquid	mm,(in)	9.52(3/8)	
		Gas	mm,(in)	19.05(3/4)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

Item / Service Ref.				PLH-6GK(H)SB1.UK	
Function				Cooling	Heating
Capacity			Btu/h	46,100	54,300[64,500]
			W	13,500	15,900[18,900]
Total input			kW	5.03	4.88[7.88]
INDOOR UNIT	**Service Ref.**			**PLH-6GK(H)SB1.UK**	
	Power supply(phase, cycle,voltage)			Single, 50Hz, 220-240V	
	Input		kW	0.30	0.30[3.30]
	Running current		A	1.36	1.36[13.9]
	Starting current		A	1.50	1.50[14.0]
	External finish			Galvanized sheets with gray heat insulation	
	Heat exchanger			Plate fin coil	
	Fan(drive) x No.			Turbo fan (direct) x 2	
	Fan motor output		kW	0.050+0.050	
	Airflow(Low-High)		m³/ min (CFM)	25-35(880-1235)	
	External static pressure		Pa(mmAq)	0(direct blow)	
	Booster heater		kW	[3.0]	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB(A)	38-45	
	Cond. drain conn. O.D.		mm,(in)	30(1-1/4)	
	Dimensions	W	mm,(in)	UNIT : 1340(52-3/4)	PANEL : 1470(57-7/8)
		D	mm,(in)	UNIT : 820(32-1/4)	PANEL : 950(37-3/8)
		H	mm,(in)	UNIT : 258(10-1/8)	PANEL : 65(2-9/16)
	Weight		kg,(lbs)	UNIT : 45(99)	PANEL :10(22)
OUTDOOR UNIT	**Service Ref.**			**PUH-6YKSA2.UK**	
	Power supply (phase, cycle, voltage)			3, 50Hz, 380-415V(4wire)	
	Input		kW	4.73	4.58
	Running current		A	7.74	7.50
	Starting current		A	74	74
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
	Model			ZR68KC-TFD	
	Motor output		kW	4.0	
	Starter type			Line start	
	Protection devices			Internal thermostat, Anti-phasa protector, Thermal switch, HP switch	
	Heat exchanger			Plate fin coil	
	Fan(drive) x No.			Propeller (direct) x2	
	Fan motor output		kW	0.10+0.10	
	Airflow		m³/ min (CFM)	100(3530)	
	Defrost method			Reverse cycle	
	Noise level		dB(A)	56	
	Dimensions	W	mm,(in)	970(38-3/16)	
		D	mm,(in)	345+24(13-9/16 add 1)	
		H	mm,(in)	1258(49-1/2)	
	Weight		kg,(lbs)	117(258)	
REFRIGERANT PIPING	Refrigerant			R-22	
	Charge		kg,(lbs)	5.0(11.0)	
	Pipe size O.D.	Liquid	mm,(in)	9.52(3/8)	
		Gas	mm,(in)	19.05(3/4)	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor units	Height difference		Max. 50m	
		Piping length		Max. 50m	

4 DATA

1. PERFORMANCE DATA

1) COOLING CAPACITY

Service Ref.	Indoor intake air WB°C	Outdoor intake air DB°C															
		20		25		30		35		40		45		50		52	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PLH-3GK(H)B1.UK	16	7,768	2.65	7,555	2.77	7,278	2.98	6,983	3.19	6,671	3.41	6,342	3.62	5,995	3.84	5,852	3.93
	18	8,271	2.71	8,053	2.82	7,760	3.05	7,452	3.27	7,130	3.49	6,793	3.72	6,442	3.94	6,293	4.03
	20	8,779	2.76	5,573	2.88	8,267	3.11	7,948	3.35	7,616	3.59	7,270	3.83	6,912	4.07	6,765	4.17
	22	9,293	2.81	9,115	2.94	8,799	3.18	8,470	3.43	8,128	3.69	7,773	3.96	7,405	4.23	7,254	4.35
PLH-4GK(H)SB1.UK	16	9,786	2.77	9,518	2.89	9,168	3.11	8,797	3.34	8,404	3.56	7,989	3.79	7,552	4.02	7,371	4.11
	18	10,419	2.83	10,145	2.95	9,775	3.18	9,388	3.42	8,982	3.65	8,558	3.89	8,115	4.12	7,927	4.22
	20	11,060	2.88	10,800	3.01	10,414	3.25	10,012	3.50	9,594	3.75	9,159	4.00	8,707	4.26	8,522	4.36
	22	11,707	2.94	11,482	3.07	11,085	3.32	10,670	3.59	10,240	3.86	9,792	4.14	9,329	4.43	9,138	4.54
PLH-5GK(H)SB1.UK	16	12,510	3.60	12,167	3.75	11,720	4.04	11,245	4.33	10,771	4.62	10,249	4.91	9,654	5.21	9,423	5.33
	18	13,319	3.67	12,969	3.83	12,496	4.13	12,001	4.44	11,497	4.74	10,964	5.04	10,374	5.35	10,134	5.47
	20	14,138	3.74	13,806	3.91	13,313	4.22	12,799	4.54	12,266	4.87	11,720	5.19	11,131	5.53	10,894	5.66
	22	14,965	3.81	14,679	3.98	14,170	4.31	13,640	4.65	13,078	5.00	12,516	5.36	11,925	5.74	11,682	5.90
PLH-6GK(H)SB1.UK	16	13,619	4.03	13,246	4.20	12,760	4.53	12,243	4.85	11,726	5.18	11,159	5.51	10,511	5.84	10,259	5.97
	18	14,501	4.11	14,119	4.29	13,605	4.63	13,065	4.97	12,517	5.31	11,937	5.65	11,294	5.99	11,033	6.13
	20	15,392	4.19	15,031	4.37	14,494	4.73	13,935	5.09	13,355	5.45	12,759	5.82	12,118	6.19	11,860	6.34
	22	16,293	4.27	15,981	4.46	15,427	4.83	14,851	5.21	14,238	5.60	13,626	6.01	12,983	6.43	12,718	6.60

Note C A :Capacity (W)
P.C.:Power consumption (kW)

Cooling capacity correction factors

Service Ref.	Refrigerant piping length(one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PLH-3GK(H)B1.UK	1.00	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PLH-4GK(H)SB1.UK	1.00	0.989	0.980	0.970	0.960	0.950	0.940	0.930	0.920	0.910
PLH-5GK(H)SB1.UK	1.00	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PLH-6GK(H)SB1.UK	1.00	0.975	0.955	0.935	0.918	0.900	0.884	0.869	0.855	0.840

2) HEATING CAPACITY

Service Ref.	Indoor intake air WB°C	Outdoor intake air DB°C											
		-10		-5		0		5		10		15	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PLH-3GK(H)B1.UK	15	5,752	2.11	6,593	2.34	7,514	2.57	8,516	2.83	9,595	3.09	10,752	3.37
	20	5,508	2.28	6,334	2.52	7,231	2.77	8,198	3.04	9,235	3.33	10,340	3.63
	25	5,293	2.42	6,077	2.68	6,944	2.97	7,895	3.26	8,928	3.57	10,044	3.89
PLH-4GK(H)SB1.UK	15	7,122	2.35	8,163	2.60	9,303	2.86	10,543	3.14	11,880	3.44	13,312	3.75
	20	6,820	2.54	7,842	2.80	8,953	3.09	10,150	3.39	11,434	3.70	12,802	4.04
	25	6,554	2.69	7,524	2.99	8,597	3.30	9,774	3.63	11,054	3.97	12,435	4.33
PLH-5GK(H)SB1.UK	15	9,177	3.03	10,517	3.35	11,987	3.69	13,584	4.05	15,307	4.43	17,152	4.83
	20	8,787	3.26	10,104	3.61	11,535	3.97	13,078	4.36	14,732	4.77	16,494	5.20
	25	8,444	3.46	9,694	3.85	11,077	4.25	12,594	4.67	14,242	5.11	16,022	5.57
PLH-6GK(H)SB1.UK	15	10,889	3.33	12,479	3.68	14,224	4.05	16,119	4.45	18,163	4.86	20,352	2.30
	20	10,426	3.59	11,989	3.97	13,687	4.37	15,518	4.79	17,480	5.24	19,572	5.71
	25	10,020	3.81	11,502	4.23	13,144	4.67	14,943	5.13	16,900	5.62	19,011	6.13

Note C A :Capacity (W)
P.C.:Power consumption (kW)

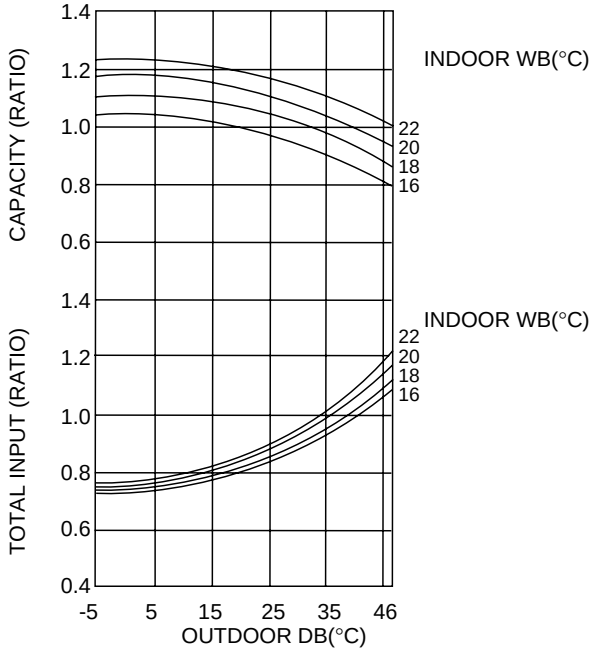
Heating capacity correction factors

Service Ref.	Refrigerant piping length(one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PLH-3GK(H)B1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PLH-4GK(H)SB1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PLH-5GK(H)SB1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PLH-6GK(H)SB1.UK	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990

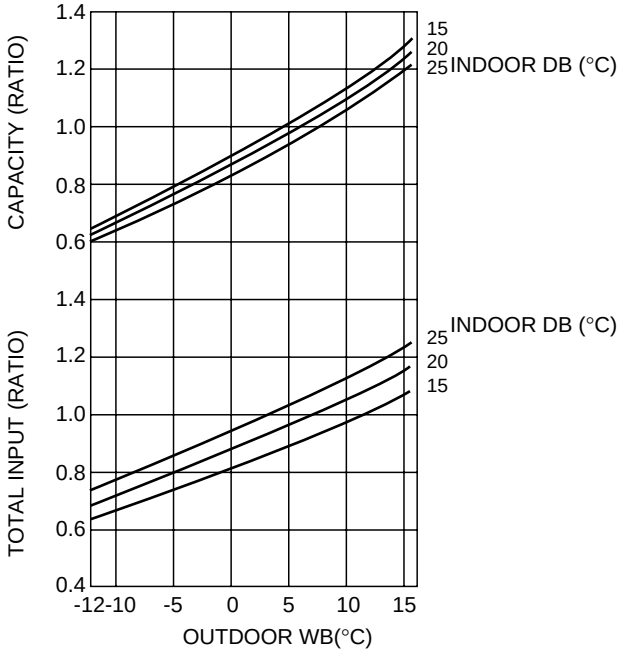
2. PERFORMANCE CURVE

PLH-3GK(H)B1.UK
PLH-4GK(H)SB1.UK/PLH-5GK(H)SB1.UK/PLH-6GK(H)SB1.UK

Cooling



Heating



3. ELECTRICAL DATA

Indoor unit … 220V 50Hz 1phase
Outdoor unit…220V 50Hz 1phase / 380V 50Hz 3phase

Service Ref.		PLH-3GK(H)B1.UK		PLH-4GK(H)SB1.UK		PLH-5GK(H)SB1.UK		PLH-6GK(H)SB1.UK	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity (W)		7,500	8,200 [9,950]	9,500	10,200 [12,400]	12,200	13,100 [15,620]	13,300	15,500 [18,020]
Total Input (kW)		3.29	3.08 [4.83]	3.43	3.42 [5.62]	4.47	4.41 [6.93]	4.94	4.86 [7.38]
Indoor	Input (kW)	0.16	0.16 [1.91]	0.26	0.26 [2.46]	0.28	0.28 [2.80]	0.30	0.30 [2.82]
	Current (A)	0.72	0.72 [8.7]	1.18	1.18 [11.2]	1.27	1.27 [12.7]	1.36	1.36 [12.8]
	Starting current (A)	1.0	1.0 [9.0]	1.5	1.5 [11.5]	1.5	1.5 [13.0]	1.5	1.5 [13.0]
Outdoor	Input (kW)	3.13	2.92	3.17	3.16	4.19	4.13	4.64	4.56
	Current (A)	14.67/5.23	13.68/4.88	5.29	5.28	7.32	7.21	8.10	7.96
	Starting current (A)	54/34	54/34	37	37	49	49	68	68

Indoor unit … 230V 50Hz 1phase
Outdoor unit…230V 50Hz 1phase / 400V 50Hz 3phase

Service Ref.		PLH-3GK(H)B1.UK		PLH-4GK(H)SB1.UK		PLH-5GK(H)SB1.UK		PLH-6GK(H)SB1.UK	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity (W)		7,600	8,300 [10,200]	9,600	10,300 [12,700]	12,300	13,250 [16,010]	13,400	15,700 [18,450]
Total Input (kW)		3.30	3.09 [4.99]	3.45	3.44 [5.84]	4.48	4.43 [7.18]	4.99	4.87 [7.62]
Indoor	Input (kW)	0.16	0.16 [2.06]	0.26	0.26 [2.66]	0.28	0.28 [3.03]	0.30	0.30 [3.05]
	Current (A)	0.72	0.72 [9.0]	1.18	1.18 [11.6]	1.27	1.27 [13.2]	1.36	1.36 [13.3]
	Starting current (A)	1.0	1.0 [9.3]	1.5	1.5 [11.9]	1.5	1.5 [13.5]	1.5	1.5 [13.5]
Outdoor	Input (kW)	3.14	2.93	3.19	3.18	4.20	4.15	4.69	4.57
	Current (A)	14.22/5.21	13.27/4.86	5.23	5.22	7.05	6.97	7.87	7.67
	Starting current (A)	56/36	56/36	39	39	51	51	71	71

Indoor unit …240V 50Hz 1phase
Outdoor unit…240V 50Hz 1phase / 415V 50Hz 3phase

Service Ref.		PLH-3GK(H)B1.UK		PLH-4GK(H)SB1.UK		PLH-5GK(H)SB1.UK		PLH-6GK(H)SB1.UK	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity (W)		7,700	8,400 [10,500]	9,700	10,400 [13,000]	12,400	13,400 [16,400]	13,500	15,900 [18,900]
Total Input (kW)		3.31	3.10 [5.20]	3.46	3.45 [6.05]	4.49	4.44 [7.44]	5.03	4.88 [7.88]
Indoor	Input (kW)	0.16	0.16 [2.26]	0.26	0.26 [2.86]	0.28	0.28 [3.28]	0.30	0.30 [3.30]
	Current (A)	0.72	0.72 [9.5]	1.18	1.18 [12.0]	1.27	1.27 [13.8]	1.36	1.36 [13.9]
	Starting current (A)	1.0	1.0 [9.8]	1.5	1.5 [12.3]	1.5	1.5 [14.0]	1.5	1.5 [14.0]
Outdoor	Input (kW)	3.15	2.94	3.20	3.19	4.21	4.16	4.73	4.58
	Current (A)	13.82/5.16	12.89/4.81	5.24	5.22	6.89	6.81	7.74	7.50
	Starting current (A)	58/37	58/37	40	40	53	53	74	74

4. STANDARD OPERATION DATA

Service Ref.			PLH-3GK(H)B1.UK		PLH-4GK(H)SB1.UK		PLH-5GK(H)SB1.UK		PLH-6GK(H)SB1.UK	
Mode			Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity	W	7,700	8,400	9,700	10,400	12,400	13,400	13,500	15,900
	Input	kW	3.31	3.10	3.46	3.45	4.49	4.44	5.03	4.48
	Indoor unit Service Ref.		**PLH-3GK(H)B1.UK**		**PLH-4GK(H)SB1.UK**		**PLH-5GK(H)SB1.UK**		**PLH-6GK(H)SB1.UK**	
Electrical circuit	Phase,Hz		1,50		1,50		1,50		1,50	
	Volts	V	240		240		240		240	
	Amperes	A	0.72	0.72	1.18	1.18	1.27	1.27	1.36	1.36
	Outdoor unit Service Ref.		**PUH-3VKA2.UK PUH-3YKA2.UK**		**PUH-4YKSA2.UK**		**PUH-5YKSA2.UK**		**PUH-6YKSA2.UK**	
	Phase,Hz		1/3,50		3,50		3,50		3,50	
	Volts	V	240/415		415		415		415	
	Amperes	A	13.82/5.16	12.89/4.81	5.24	5.22	6.89	6.81	7.74	7.50
Refrigeran circuit	Discharge pressure	MPa·G (kgf/㎠·G)	2.06 (21.0)	1.86 (18.9)	1.80 (18.4)	1.61 (16.4)	1.88 (19.2)	1.88 (19.2)	1.76 (18.0)	1.79 (18.3)
	Suction pressure	MPa·G (kgf/㎠·G)	0.46 (4.69)	0.34 (3.47)	0.53 (5.41)	0.36 (3.67)	0.48 (7.96)	0.37 (3.77)	0.46 (4.69)	0.37 (3.77)
	Discharge temperature	°C	88.0	83.4	74.2	69.8	79.7	83.8	78.4	81.3
	Condensing temperature	°C	53.5	—	48.3	—	49.8	—	46.9	—
	Suction temperature	°C	4.6	-2.8	8.1	-1.3	5.1	-1.4	4.4	-1.0
	Ref. pipe length	m	5	5	5	5	5	5	5	5
Indoor side	Intake air temperature	DB°C	27	20	27	20	27	20	27	20
		WB°C	19	15	19	15	19	15	19	15
	Discharge air temperature	DB°C	12.6	42.9	14.7	36.5	13.2	42.3	12.4	42.9
Outdoor side	Intake air temperature	DB°C	35	7	35	7	35	7	35	7
		WB°C	24	6	24	6	24	6	24	6
			0.67	—	0.78	—	0.74	—	0.70	—
			0.24	—	0.15	—	0.13	—	0.11	—

The unit of pressure has been changed to Mpa based on the international SI system.
The conversion factor is : 1(Mpa·G)=10.2(kgf/㎠·G)

5. OUTLET AIR SPEED AND COVERAGE RANGE

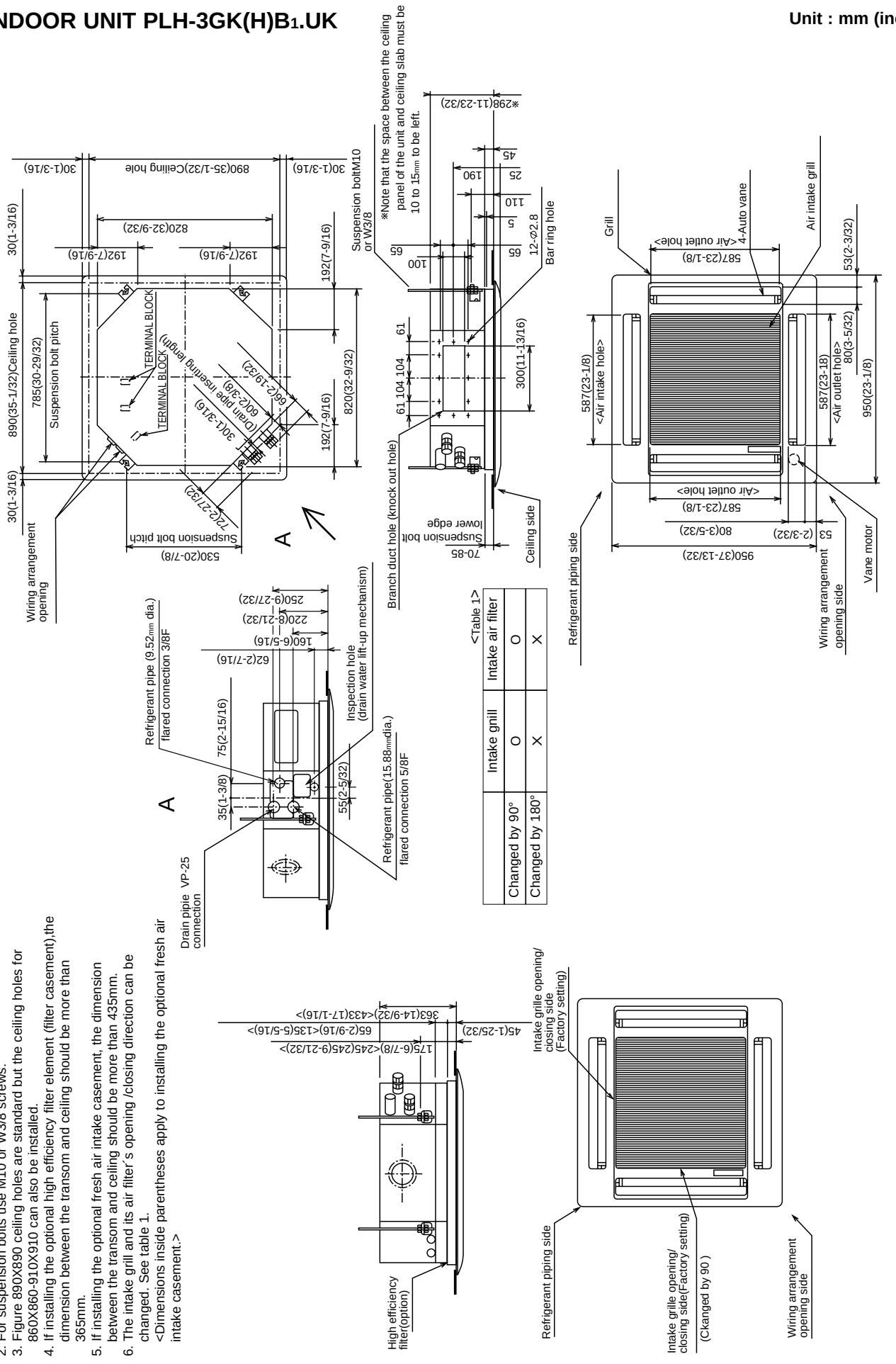
			PLH-3GK(H)B1.UK	PLH-4GK(H)SB1.UK	PLH-5GK(H)SB1.UK	PLH-6GK(H)SB1.UK
Standard	Air flow	m³/s	18	32	33	35
	Air speed	m/sec	5.3	5.2	5.4	5.7
	Coverage rangem	m	6.5	8.5	8.7	9.0

※The air coverage range is the value up to the position where the air speed is 0.25m/sec.
When air is blown out horizontally from the unit at the Hi notch position.
The coverage range should be used only as a general guideline since it varies according to the size of the room and the furniture inside the room.

5 OUTLINES AND DIMENSIONS

1. INDOOR UNIT PLH-3GK(H)B1.UK

Unit : mm (inch)

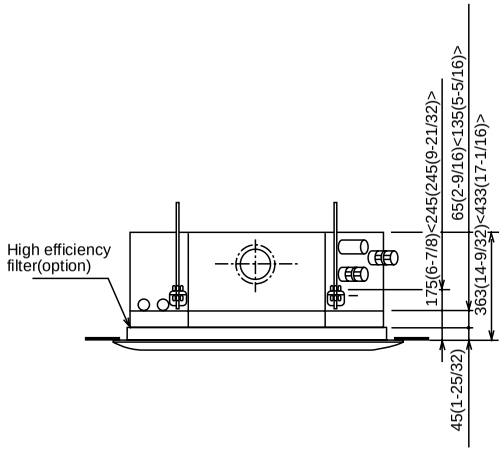


Note

1. For drainage piping use VP-25 PVC piping.
2. For suspension bolts use M10 or W3/8 screws.
3. Figure 890X890 ceiling holes are standard but the ceiling holes for 860X860-910X910 can also be installed.
4. If installing the optional high efficiency filter element (filter casement),the dimension between the transom and ceiling should be more than 365mm.
5. If installing the optional fresh air intake casement, the dimension between the transom and ceiling should be more than 435mm.
6. The intake grill and its air filter´s opening /closing direction can be changed. See table 1.
   <Dimensions inside parentheses apply to installing the optional fresh air intake casement.>

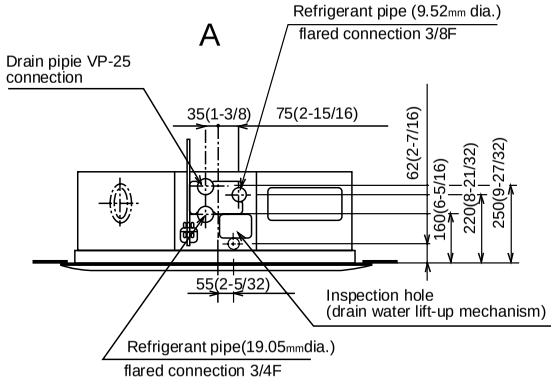
Note

1. For drainage piping use VP-25 PVC piping.
2. For suspension bolts use M10 or W3/8 screws.
3. Figure 890X1,410 ceiling holes are standard but the ceiling holes for 860X1,380-910X1,430 can also be installed.
4. If installing the optional high efficiency filter element (filter casement),the dimension between the transom and ceiling should be more than 365mm.
5. If installing the optional fresh air intake casement, the dimension between the transom and ceiling should be more than 435mm.
6. The intake grill and its air filter´s opening /closing direction can be changed. See table 1.
   <Dimensions inside parentheses apply to installing the optional fresh air intake casement.>

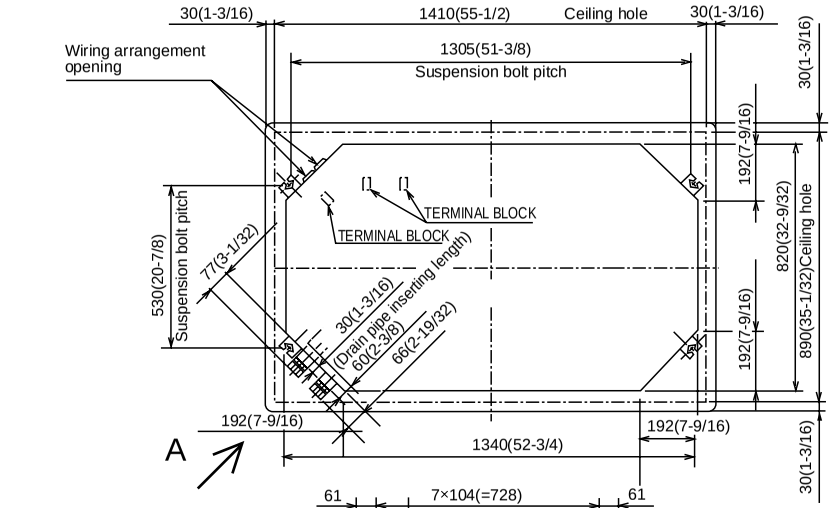


<Table 1>

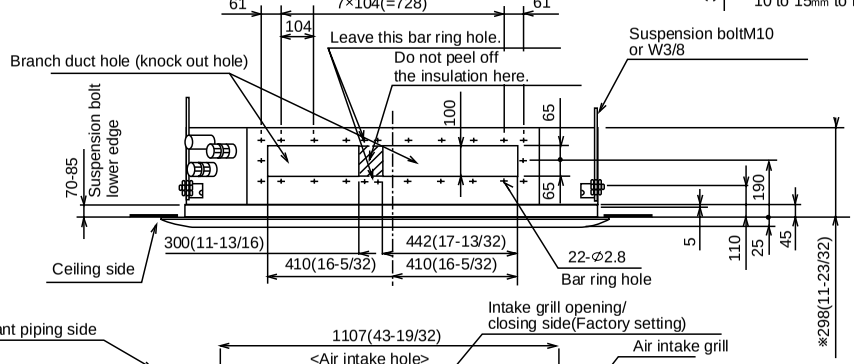
	Intake gnill	Intake air filter
Changed by 90°	X	X
Changed by 180°	O	O

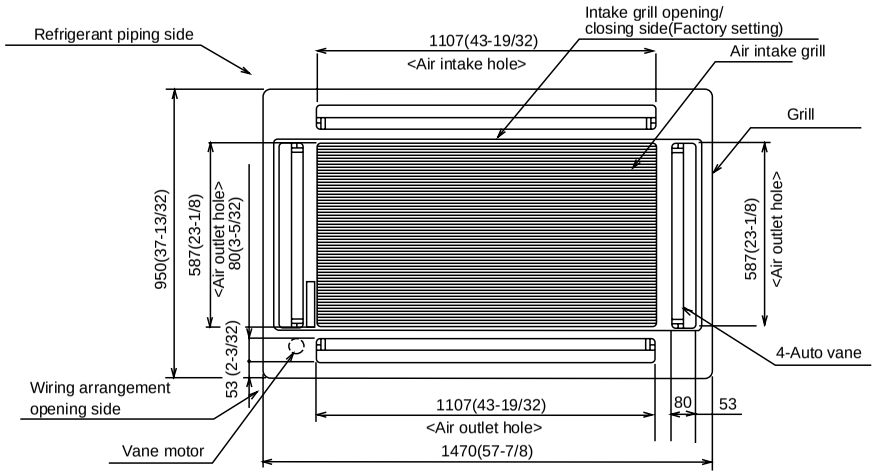


PLH-4GK(H)SB1.UK
PLH-5GK(H)SB1.UK
PLH-6GK(H)SB1.UK



※Note that the space between the ceiling panel of the unit and ceiling slab must be 10 to 15mm to be left.

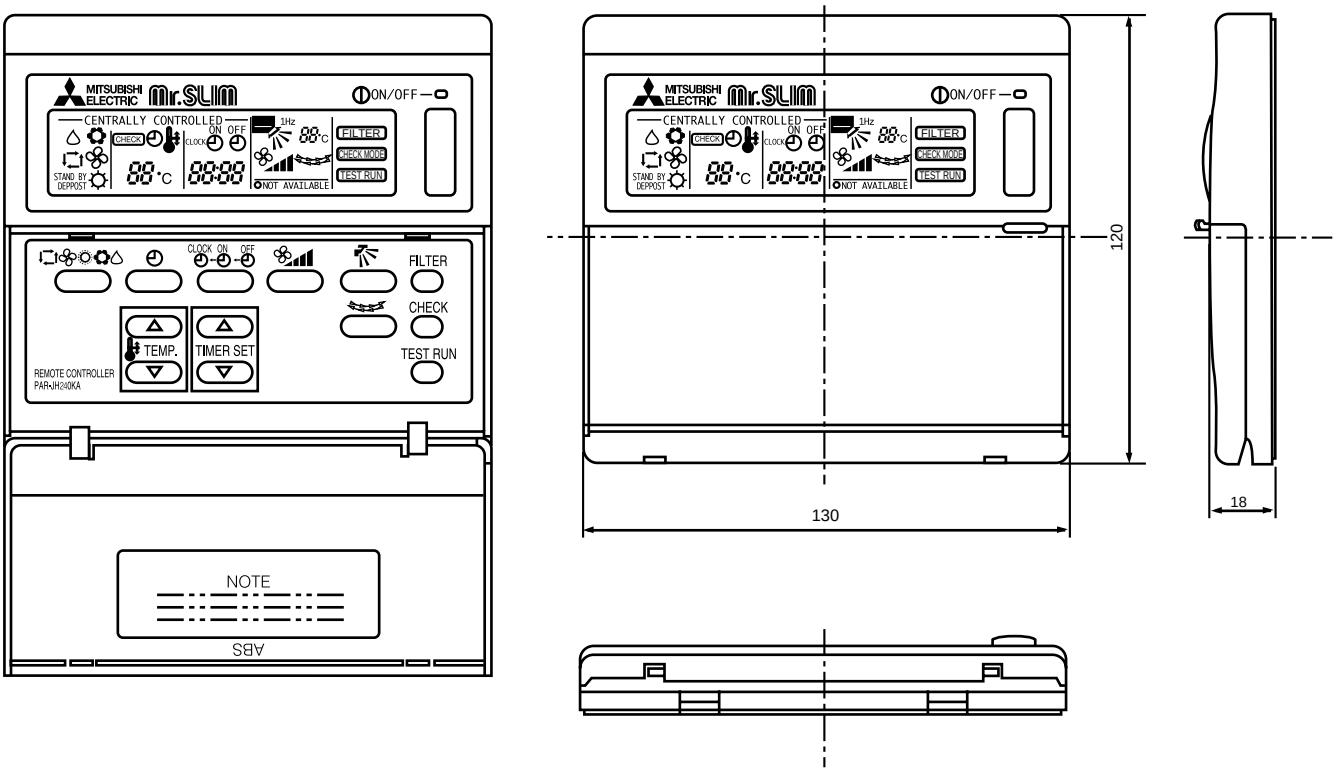


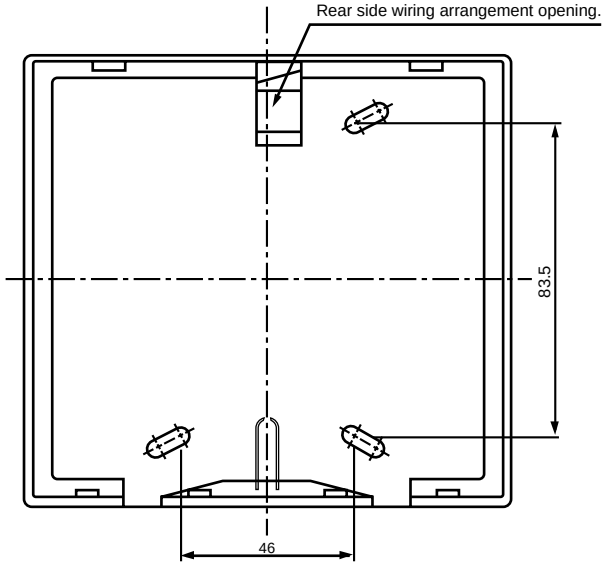


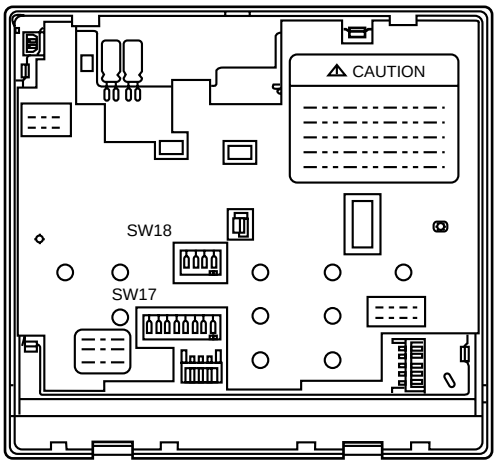
Unit : mm (inch)

2. REMOTE CONTROLLER

Unit : mm

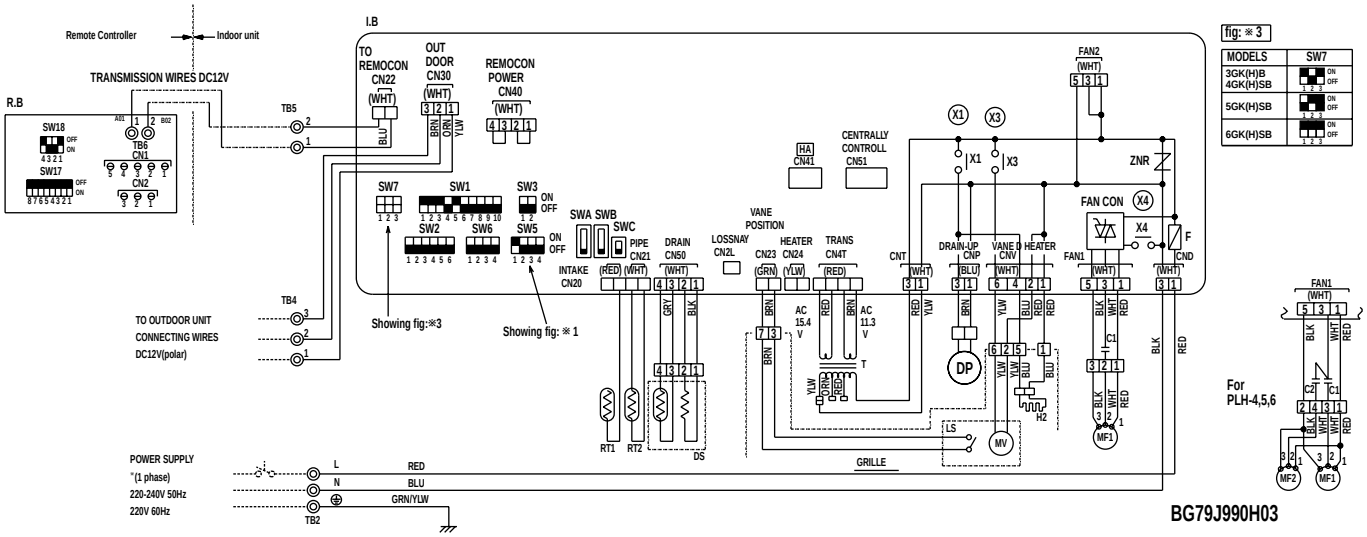






6 WIRING DIAGRAM

PLH-3GK(H)B1.UK/PLH-5GK(H)SB1.UK
PLH-4GK(H)SB1.UK/PLH-6GK(H)SB1.UK



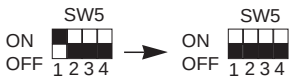
BG79J990H03

NOTES :

1. Since the indoor fan motor (MF 1.2) is connected with 230~240V power. If 220V power is used. change the dip switch (SW5<1.B>)on the indoor controller board showing fig: ※1.

fig ※1

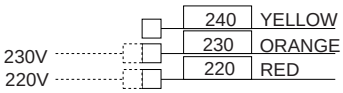
Indoor fan motor (MF1.2)for 220V.



2. Since the indoor transformer (T)is connected with 240V power.if 220.230V power is used. Change the wiring connection showing fig: ※2.
3. Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.

fig ※2

When power supply is



4. Indoor and outdoor connecting wires are made with polarities. make wiring matching terminal numbers.
5. Symbols used in wiring diagram above are.
   □□ : Connector, ◎ : Terminal block. ▭ :PC board insertion tab.
5. Emergency operation
   If a trouble occurs with either the remote controller or the indoor microcomputer no other truble exists. emergency operation for cooling or heating can be performed by changing the setting of dip switch (SW3<I.B>) on the indoor controller board.
   (emergency dry operation is not possible.)

[Check items]

(1)Make sure that no other trouble exist the outdoor unit. Trouble with the outdoor unit prevents emergency operation.
   (If any trouble exists the outdoor unit error code “P8”will be displayed on the remote controller and the trouble position will be shown on the outdoor controller LED. See electric wiring diagram of the outdoor unit for details.)
(2)Make sure that there is no trouble with the indoor fan.
   Emergency operation will be continuous run with power ON/OFF (ON/OFF with the remote controller is not possible).

[Emergency operation procedure]

(1)Switch the fan connector on the indoor controller board from FAN 1 to FAN 2.
(2)Set the dip switch (SW3<I.B>) on the indoor controller board to 1 on and 2 off for cooling and 1 - 2 on for heating.
(3)Turn on the outdoor unit side circuit breaker, then the indoor unit side circuit breaker.
(4)During emergency operation indoor fan runs at High speed but auto-vane does not work.
(5)Thermostat will not function. Cold air belows out for defrosting during heating thus do not operate defrosting for a long time.
(6)Emergency cooling should be limited to 10 hours maximum.
   (The indoor unit heat exchanger may freeze).
(7)After every emergency operation, switch the fan connector to FAN1, and set all dip switches (SW3<I.B>) to OFF.

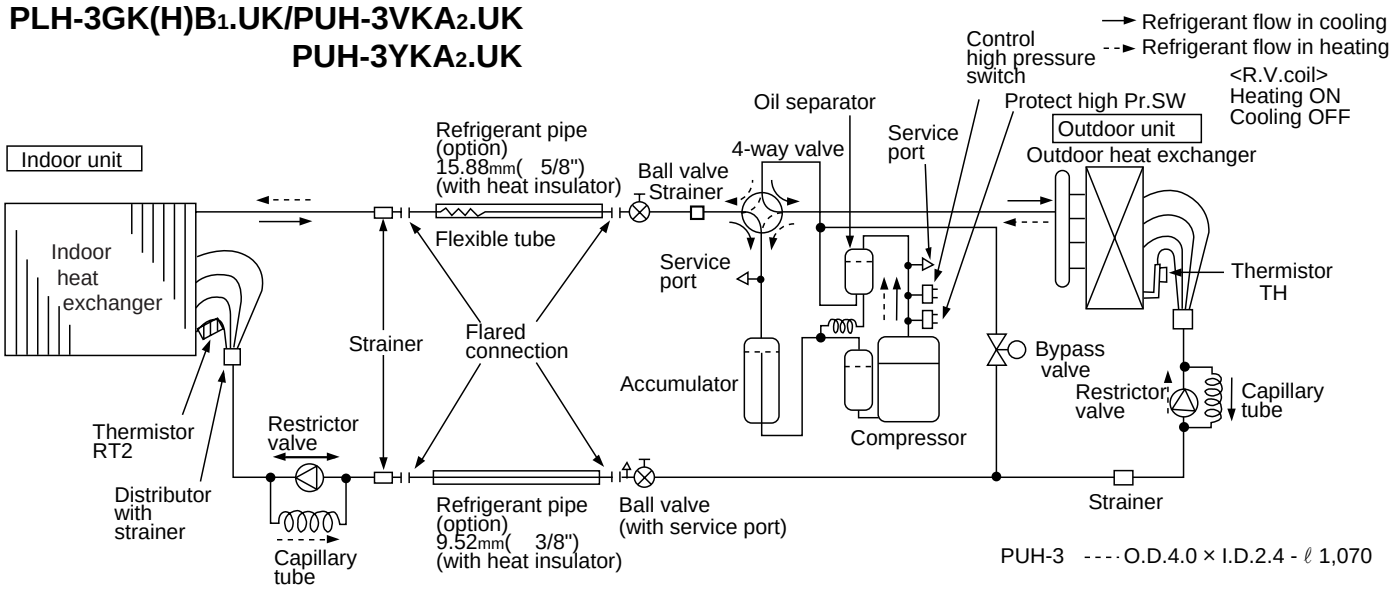
NOTE: If the drain water lift up mechanism is identified to be defective with the microcomputer doctor during cooling, do not use emergency operation (it causes drain overflow)

SYMBOL	NAME	SYMBOL	NAME
C1.2	FAN MOTOR CAPACITOR	SW1<I.B>	MODE SELECTOR
CN1<R.B>	PROGRAM TIMER CONNECTOR	SW2<I.B>	ADDRESS SELECTOR
CN2<R.B>	REMOTE SWITCH CONNECTOR	SW3<I.B>	EMERGENCY OPERATION SWITCH
CN2L<I.B>	LOSSNAY CONNECTOR	SW6<I.B>	ADDRESS SELECTOR
CN51<I.B>	CENTRALLY CONTROL CONNECTOR	SW5,7<I.B>	MODEL SELECTOR
OP	DRAIN WATER LIFT-UP MECHANISM	SWA<I.B>	HIGH CEILING TYPE SWITCH
DS	DRAIN SENSOR	SWB<I.B>	OUTLETS OF THE NUMBER OF DISCHERGE OUTRETS SWITCH
F<I.B>	FUSE(6A)		
F.C<I.B>	FAN PHASE CONTROL	SWC<R.B>	COMPATIBLE WITH OPTION SWITCH
FS1.2	THERMAL FUSE	SW17<I.B>	ADDRESS SELECTOR
H1	HEATER	SW18<I.B>	FUNCTION SELECTOR
H2	DEW PREVENTION HEATER	T	TRANSFORMER
I.B	INDOOR CONTROLLER BOARD	TB2~5	TERMINAL BLOCK
LS	LIMIT SWITCH	X1<I.B>	DRAIN WATER LIFT-UP MECHANISUM
MF1.2	FAN MOTOR (INNER THERMOSTAT)		DEW PREVENTION HEATER RELAY
MV	VANE MOTOR	X3<I.B>	VANE MOTOR RELAY
RB	REMOTE CONTROLLER BOARD	X4<I.B>	FAN MOTOR RELAY
RT1	ROOM TEMPERATURE THEARMISTOR (0°C/15kΩ,25°C/5.4kΩ)	ZNR	VARISTOR
		26H	HEATER THERMAL SWITCH
RT2	INDOOR COIL THEARMISTOR (0°C/15kΩ,25°C/5.4kΩ)	88H	HEATER CONNECTOR

7 REFRIGERANT SYSTEM DIAGRAM

Unit : mm

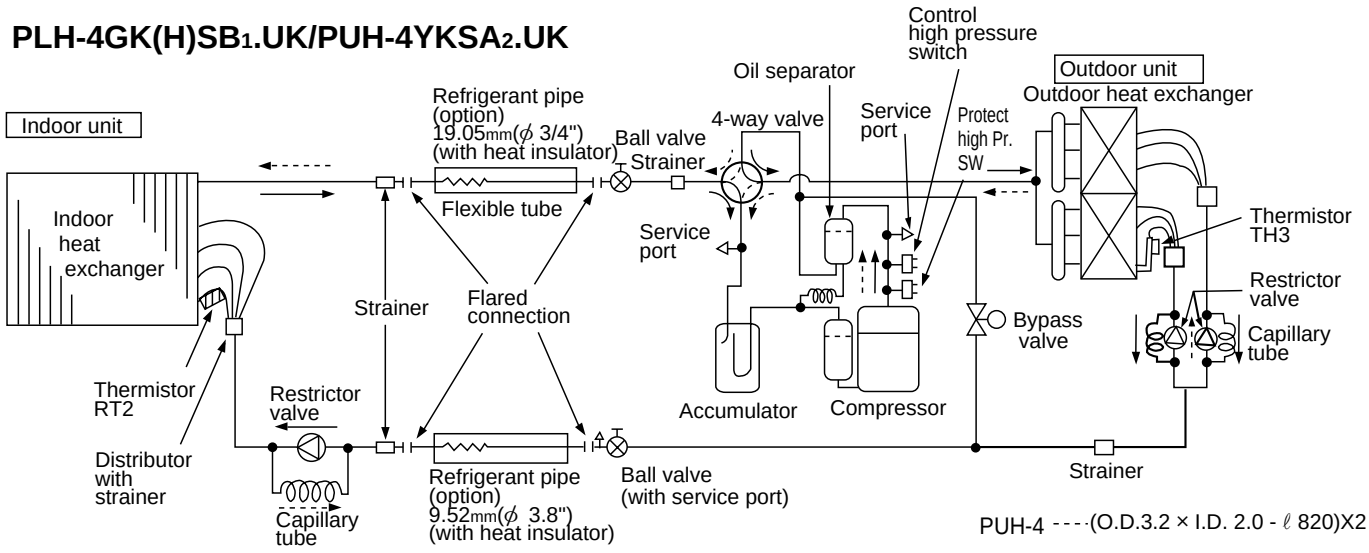
PLH-3GK(H)B1.UK/PUH-3VKA2.UK
PUH-3YKA2.UK



PUH-3 ---- O.D.4.0 × I.D.2.4 - ℓ 1,070

PLH-3 ---- O.D.3.2 × I.D.2.0 - ℓ 400

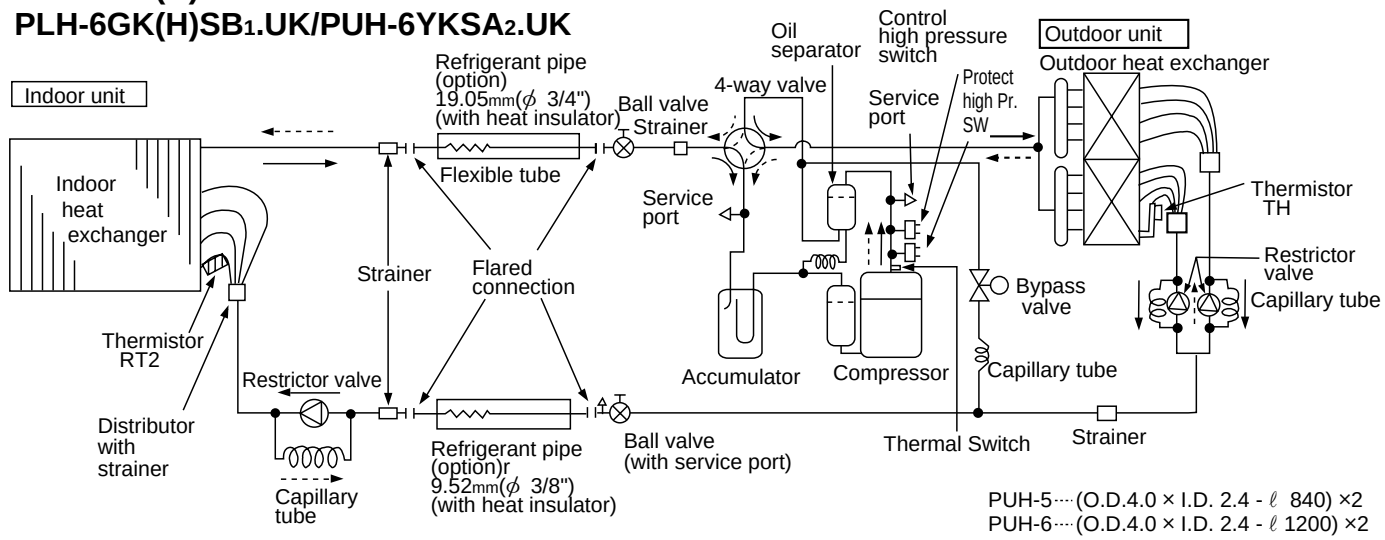
PLH-4GK(H)SB1.UK/PUH-4YKSA2.UK



PUH-4 ----(O.D.3.2 × I.D. 2.0 - ℓ 820)X2

(O.D.3.2 × I.D. 2.0 - ℓ 250)

PLH-5GK(H)SB1.UK/PUH-5YKSA2.UK
PLH-6GK(H)SB1.UK/PUH-6YKSA2.UK

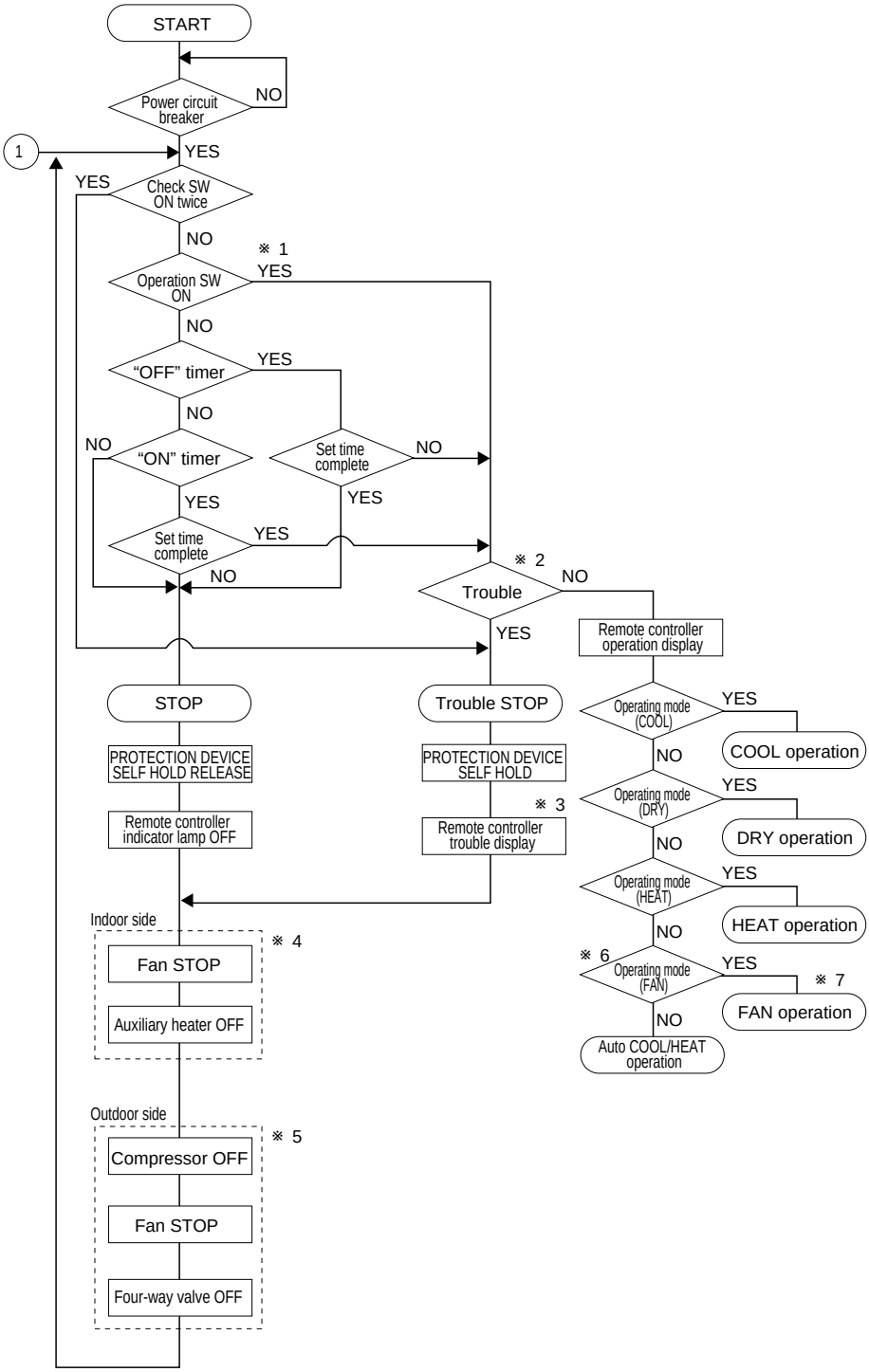


PUH-5···· (O.D.4.0 × I.D. 2.4 - ℓ 840) ×2
PUH-6···· (O.D.4.0 × I.D. 2.4 - ℓ 1200) ×2

PLH-5 ···· O.D.4.0 × I.D.2.4 - ℓ 350
PLH-6 ···· O.D.4.0 × I.D. 2.4 - ℓ 300

8 OPERATION FLOW-CHART

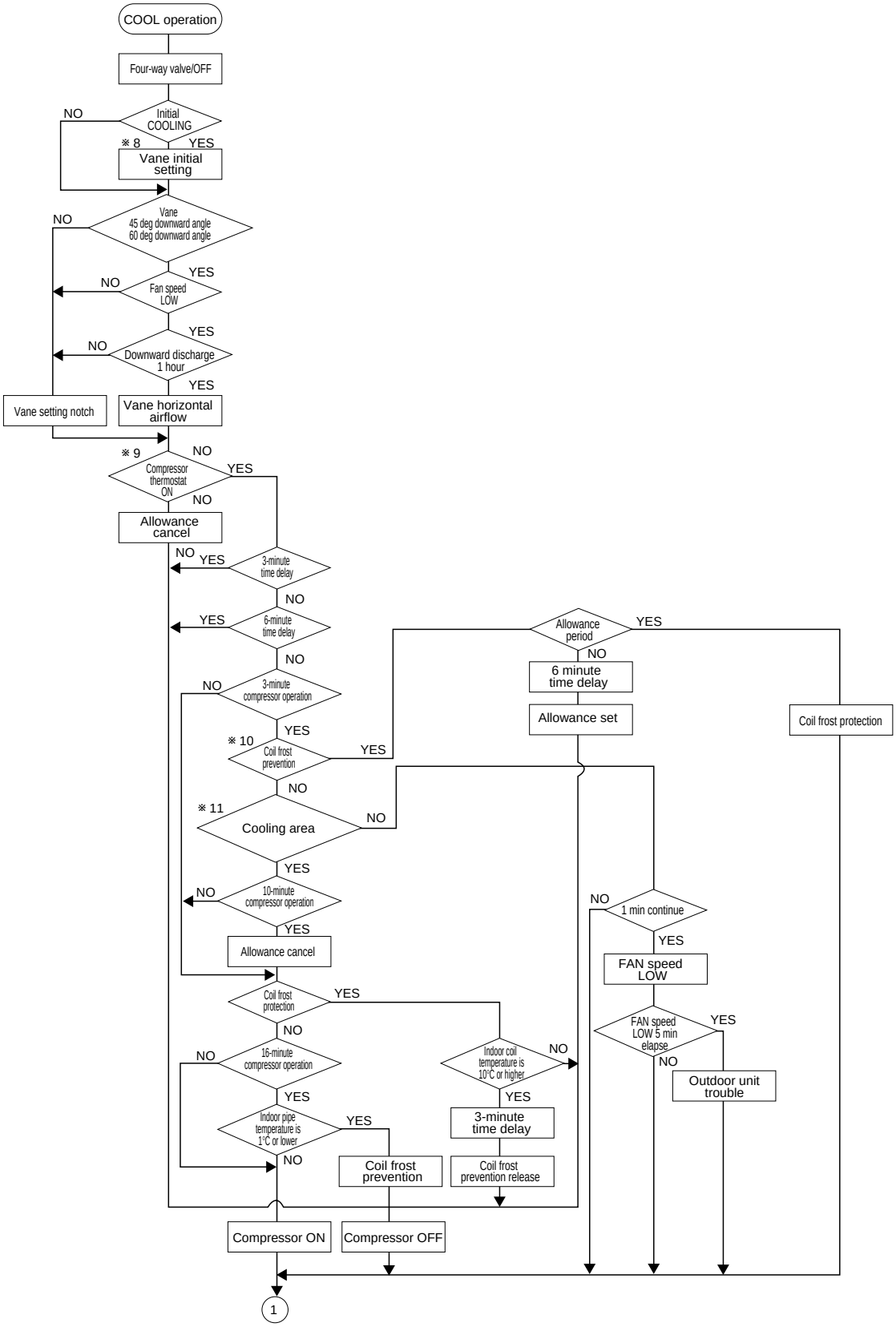
MAIN OPERATION



※1 In addition, the centralized 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 malfanction
- P4-Drain sensor malfunction
- P5-Drain overflow
- P6-Coil frost/overheat protection
- P7-System error
- P8-Outdoor unit trouble

※3 The CHECK swich will show if an error has occurred in the past.
※4 Fan runs on low speed for 1 minute in order to remove overheat air.
※5 The 3-minute (6 minutes ··· heating mode) time-delay functions after compressor stops.
※6 FAN or AUTO mode is selected by the indoor dipswitch setting.
※7 In FAN mode, fan speed and vane operation depend on the remote controller setting. (Compressor is OFF.)

COOLING OPERATION



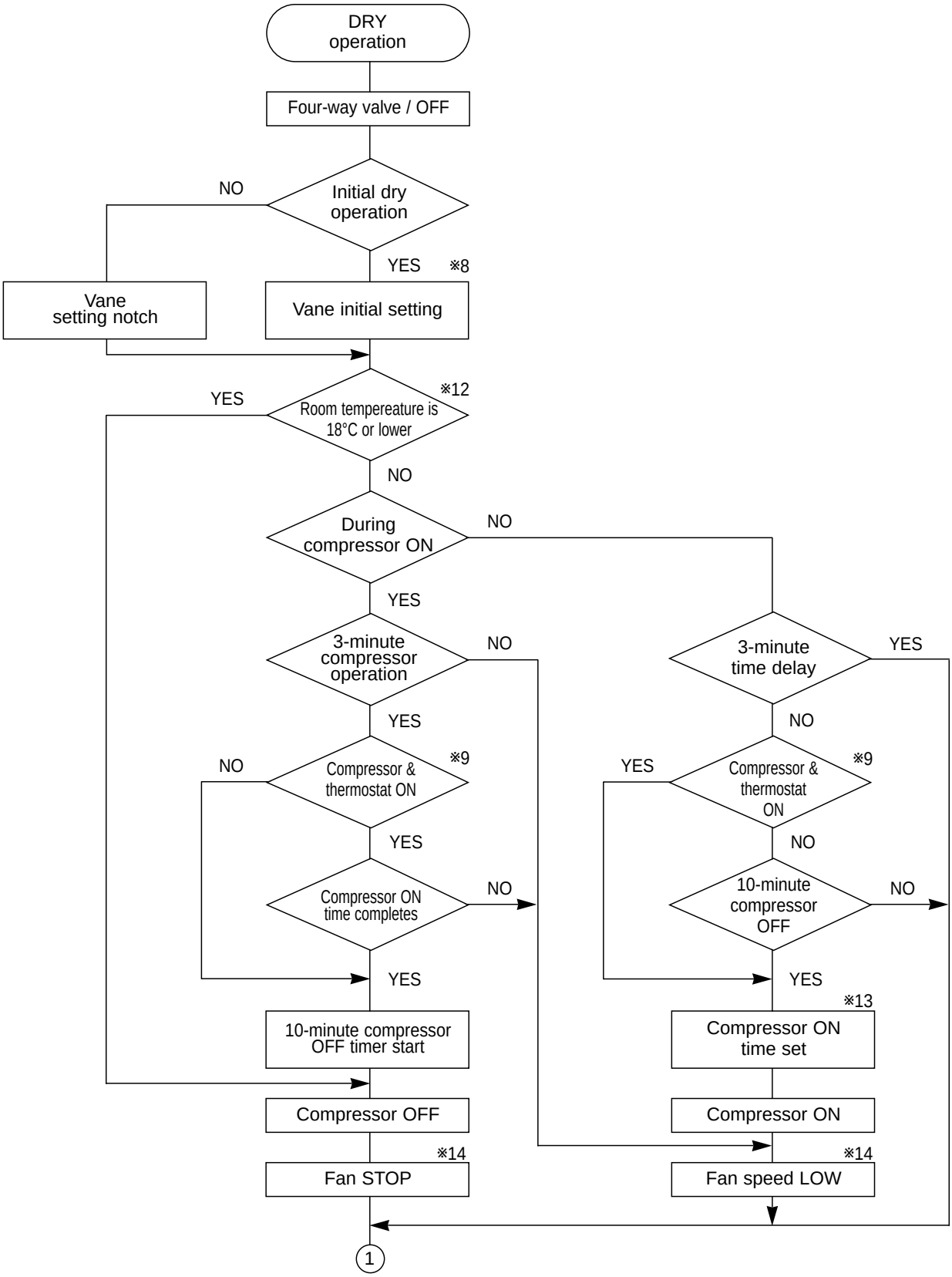
※8 When operation stops or changes to cooling or dry mode, the auto vane turns to a horizontal angle. If operation changes during auto vane SWING, the auto vane will continue to swing.

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

※10After 3 minute compressor operation, if the indoor coil thermistor reads -15°C or below for 3 minutes, the compressor will stop for 6 minutes.

※11Cooling area : Indoor coil temperature is more than 5 degrees above the room temperature.
Heating area : Indoor coil temperature is more than 5 degrees below the room temperature.
FAN area : Indoor coil temperature is within 5 degrees either way of the room temperature.

DRY OPERATION



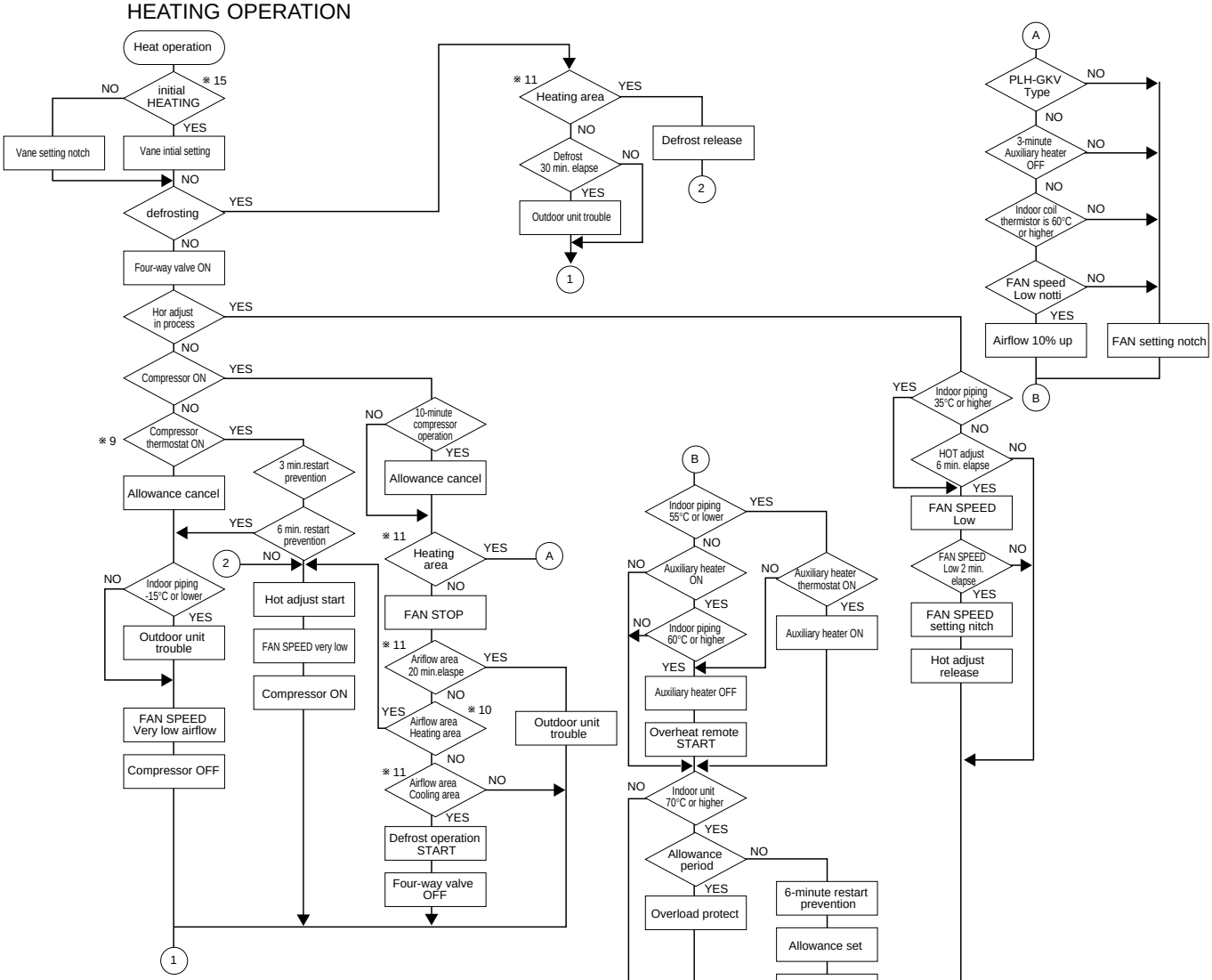
※8—9 Refer to page 28~29.

※12 When room temperature is 18°C or below, the compressor cannot operate.
When room temperature rises over 18°C, the compressor starts after a 3-minute time delay.

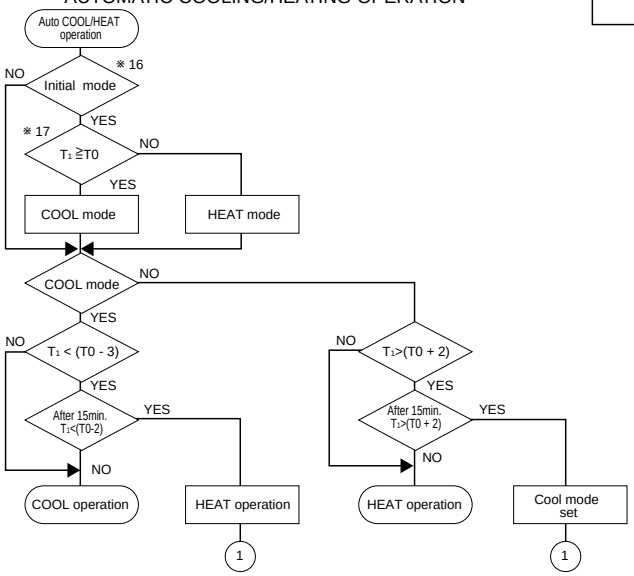
※13 Compressor ON time is decided by room temperature. Refer to page 28~29.

※14 In dry operation, compressor ON makes the fan speed LOW and compressor OFF stops the fan.
It is not possible to set the fan speed with the remote controller

HEATING OPERATION



AUTOMATIC COOLING/HEATING OPERATION



※15 (i) Until Low airflow is set while in hot adjustment
(ii)While defrosting (FAN STOP)
(iii)When thermostat is OFF
In the case of(i), (ii) and (iii) above, airflow is horizontal regardless the VANE setting.
※16 When AUTO operation is started, COOL or HEAT mode is selected automatically.
※17 T1 : Room temperature.
To : Set temperature

9 MICROPROCESSOR CONTROL

1. OUTLINE OF MICROPROCESSOR CONTROL

INPUT to remote controller

- OFF-ON switching.
- COOL/DRY-AUTO-HEAT selector switching.
- Thermostat setting.
- TIMER mode selector-switching and Timer setting.
- HIGH-LOW fan speed switching.
- AUTO Vane selector (AIR DISCHARGE) switching.
- TEST RUN switching.
- CHECK mode switching. (Self diagnostic trouble shooting)

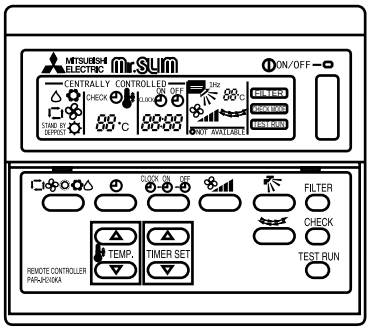
Remote controller board

- Processes and transmits orders.

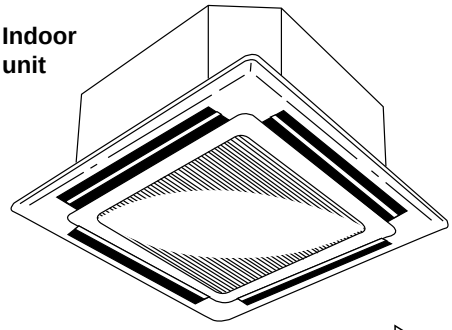
OUTPUT to remote controller

Remote controller

- LCD indicator



Indoor unit



12VDC

Non-polar, two-wire cable maximum length 500 meters

Signal

INPUT from indoor unit

- Room temperature thermistor (RT1)
- Indoor coil thermistor (RT2)
- Drain sensor

Indoor controller board

- Receives orders from remote controller and temperature data from indoor unit.
- Processes orders and data.
- Controls indoor and outdoor operation.
- Self diagnostic function.

※ System control operation.
※ Emergency operation.
※ Set by dipswitch on indoor controller board.

- Transmits the power to remote controller.

1 2 3

OUTPUT to indoor unit

- Autovane's angle setting.
- Booster heater ON-OFF Control.
- Drain pump : ON-OFF.
- Emergency stop.

Polar three-wire cable

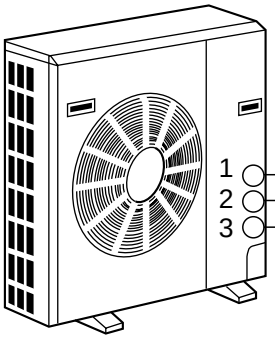
OUTPUT to outdoor unit

- Compressor and outdoor fan : ON-OFF
- Operation mode change :COOL-HEAT.

Independent Control of Outdoor Unit

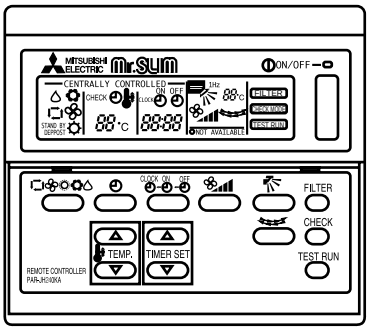
- Compressor protection device working
- Defrosting START-STOP
- Fan speed control.
- Crankcase heater control ON-OFF.
- Self diagnostic function

Outdoor unit



2. INDOOR UNIT CONTROL

2-1 COOL operation



<How to operate>

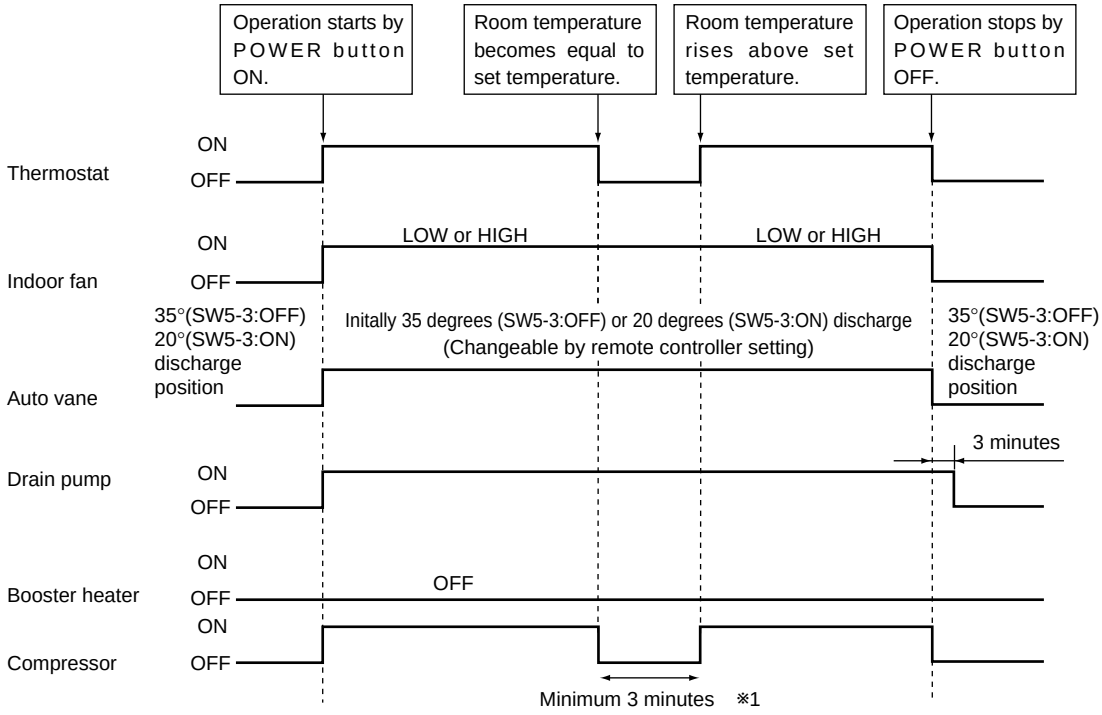
① Press POWER ON/OFF button.

② Press the button to display ✿

③ Press the TEMP button to set the desired temperature.

NOTE: Set temperature changes 1°C when the △ or ▽ button is pressed one time.
Cooling 19 to 30°C

<COOL operation time chart>



※1 Even if the room temperature rise 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.

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 1°C or below after the compressor has been continuously operated for at least 16 minutes or more. When the indoor coil temperature rises to 10°C or above, the compressor will start after a 3-minute time delay.
NOTE : By turning OFF the dipswitch SW1-5 on indoor controller board, the start temperature of coil frost prevention changes from 1°C to -3°C.

⑤ Coil frost protection

When indoor coil temperatuer becomes -15°C 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 -15° 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"P8"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 LOW/HIGH 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 LOW/HIGH depends on the remote controller setting regardless of the thermostat ON/OFF.

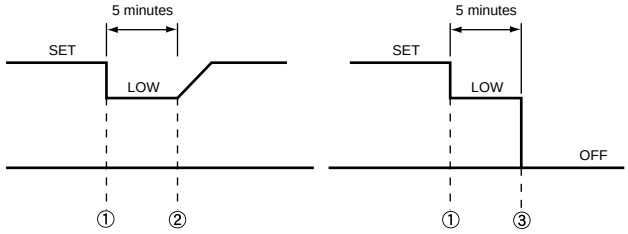
(ii) Fan speed will remain on LOW if an abnormality in outdoor unit is detected. (5 minutes)

When the abnormality detection is released, the fan speed returns to the set speed through the quiet cycle control.

(b)Quiet cycle control

To prevent noise due to a sudden rise in fan output,the fan output rise is controlled by 1 step per 1 second.

(i) When the outdoor unit abnormality detection is released and the fan speed changes from LOW to the set speed,the quiet cycle control will work.



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 : Quiet cycle control does not work when the fan speed is lowered.

NOTE 2 : Fan stops immediately if the unit stops or the check mode is started.

NOTE 3 : During normal operation,except the above case,the fan speed changes immediately according to the remote controller setting.

(c) Fluctuate operation

(i) Start condition

- ●Turning ON the dipswitch SW1-2 enables the indoor fan to fluctuate by"SWING ON"command from the remote controller.

(ii) Operation

- ●The fan output step changes by 1 step per 1 second in a 90-second cycle.
- ●The thermostat ON/OFF does not influence the fluctuate operation.
- ●When the fan speed is changed with the remote controller,the current output step will immediately change to the output step of the set speed. After,the fluctuate operation will restart from the initial value.
- ●If an outdoor unit abnormality is detected,the indoor fan will run on LOW speed without a fluctuate operation. After the abnormality is corrected,the fluctuate operation will restart from the initial value.
- ●When the unit stops running or enters the check mode,the indoor fan will turn OFF immediately.

(iii) Auto vane

The auto vane operates independently of the fluctuate operation. While the fluctuate operation is selected,the auto vane is continuously ON.

(3) Auto vane control

Auto vane position is set to 35degrees(SW5-3:OFF) or 20 degrees(SW5-3:ON) airflow at the start-up of COOL operation. It can then be changed by the remote controller.

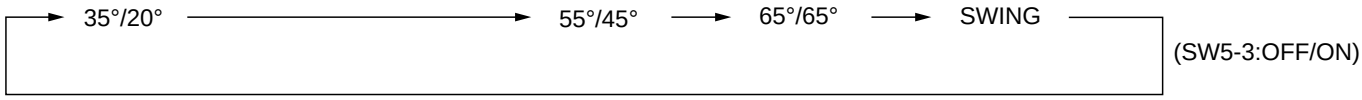
Auto vane operation can be changed between STOP mode (fixed operation) and SWINGmode by AIR DISCHARGE SWING/STOP button on the remote controller.

(a) Stop mode (fixed operation)

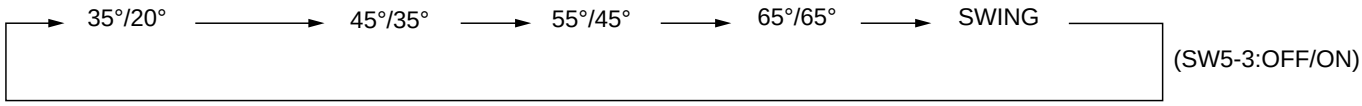
(i) At start-up of COOL operation, the auto vane is set to 10 degrees airflow direction.

(ii) Airflow direction can be changed with button.

① Fan speed : LOW



② Fan speed : HIGH



(b) SWING mode.

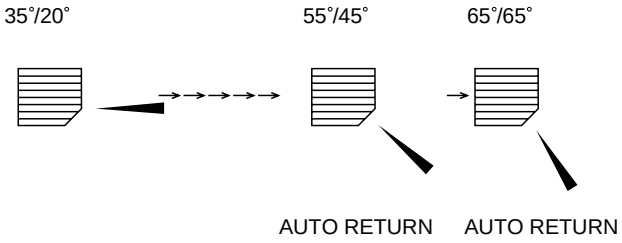
(i) The vane motor turns ON when the SWING mode is selected.
The vane motor is continuously ON during SWING mode.

(ii) The operation in SWING mode can be changed to the fluctuant operation by turning ON the dipswitch SW1-2.

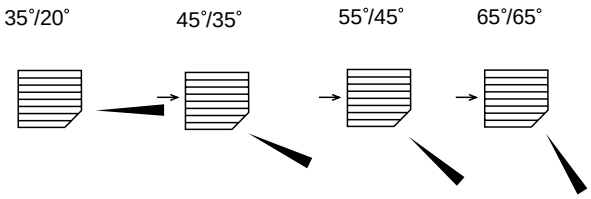
(iii) When SWING mode is changed to STOP mode, the airflow direction returns to the position of the last STOP mode.

<AUTO RETURN>

① Fan speed : LOW



② Fan speed : HIGH



When 55°/45 degrees or 65°/65 degrees airflow is selected with the LOW fan speed in COOL operation, “AUTO RETURN” will appear below the temperature display. One hour later, the airflow direction returns to 35/25 degrees automatically and “AUTO RETURN” will disappear. If the airflow direction is set to 35/20 degrees during “AUTO RETURN” indication, the time counting for AUTO RETURN is cancelled.

<Auto vane drive>
(a) The auto vane is driven by a 2.5 rpm motor.
(b) Discharge direction can be selected between the No.1 and No.2 setting. (Initial setting is No.1)

Discharge direction		①	②	③	④
No.1	SW5-3 : OFF	35°	45°	55°	65°
No.2	SW5-3 : ON	20°	35°	45°	65°

(c) Vane motor drive time

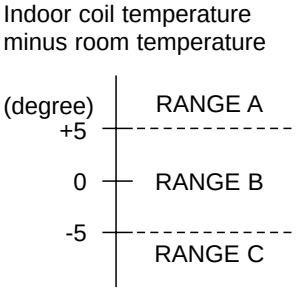
Unit : sec

Discharge direction change	No.1 setting (SW5-3 : OFF)	No.2 setting (SW5-3 : ON)
	50Hz	50Hz
Downward C → Horizontal ④→①	Rise → 3.3	Rise
Horizontal → Downward A ①→②	2.0	3.3
Downward A → Downward B ②→③	1.4	2.0
Downward B → Downward C ③→④	2.3	3.7

(d) Discharge direction is based on the horizontal position detected by the vane motor limit switch. When the horizontal position can not be determined, the vane motor will remain ON until it is determined.
① If the horizontal position still can not be detected, despite the 10minute detection, the vane motor will turn OFF. Remote controller indication continues.
② After, if the vane motor receives the “auto vane ON” command again, it will restart detecting the horizontal position. If the horizontal position still can not be determined, despite the 10-minute detection, the vane motor will turn OFF.

(4) Detecting abnormalities in the outdoor unit

After the compressor has been continuously operated for 3 minutes, if the difference between the indoor coil temperature and room temperature is out of RANGE C for 1 minute, the indoor fan speed will turn to LOW. Five minutes later, if the difference is still out of RANGE C,the outdoor unit is functioning abnormally. Thus, the compressor stops and check code “P8” appears on remote controler.
RANGE A : Indoor coil temperature is more than 5 degrees above room temperature.
RANGE B : Indoor coil temperature is within 5 degrees either way of room temperature.
RANGE C : Indoor coil temperature is more than 5 degrees below room tempetature.



(5) Drain pump control

The drain pump works in COOL or DRY operation. When operation stops or changes to HEAT mode, the drain pump continues to operate for 3 more minutes. The drain pump does not work in check mode.

<Drain sensor>

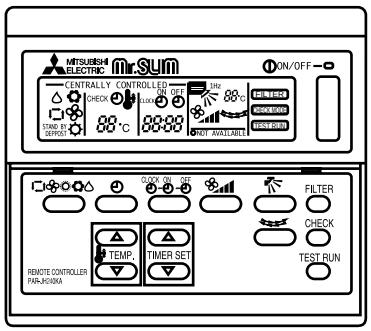
When both the drain pump and unit are operating, the drain sensor detects the temperature. This temperature tells whether the drain water level is above or under the drain sensor. If the drain water level rises above the drain sensor due to a drain pump malfunction, the unit will stop operating in order to prevent drain from overflowing. The check code “P5” on the remote controller will display this occurrence. When either of the following conditions are satisfied, the drain sensor is determined to be under water.

- Though the drain sensor has been heated by the drain sensor heater for more than 40 seconds, its temperature rise is less than 20 degrees.
- The drain sensor temperature is below 63°C.

(6) Dew prevention heater

To prevent dew from accumulating on the grill, the dew prevention heater is continuously ON during COOL operation. It is independant of the thermostat ON/OFF.

2-2 DRY operation



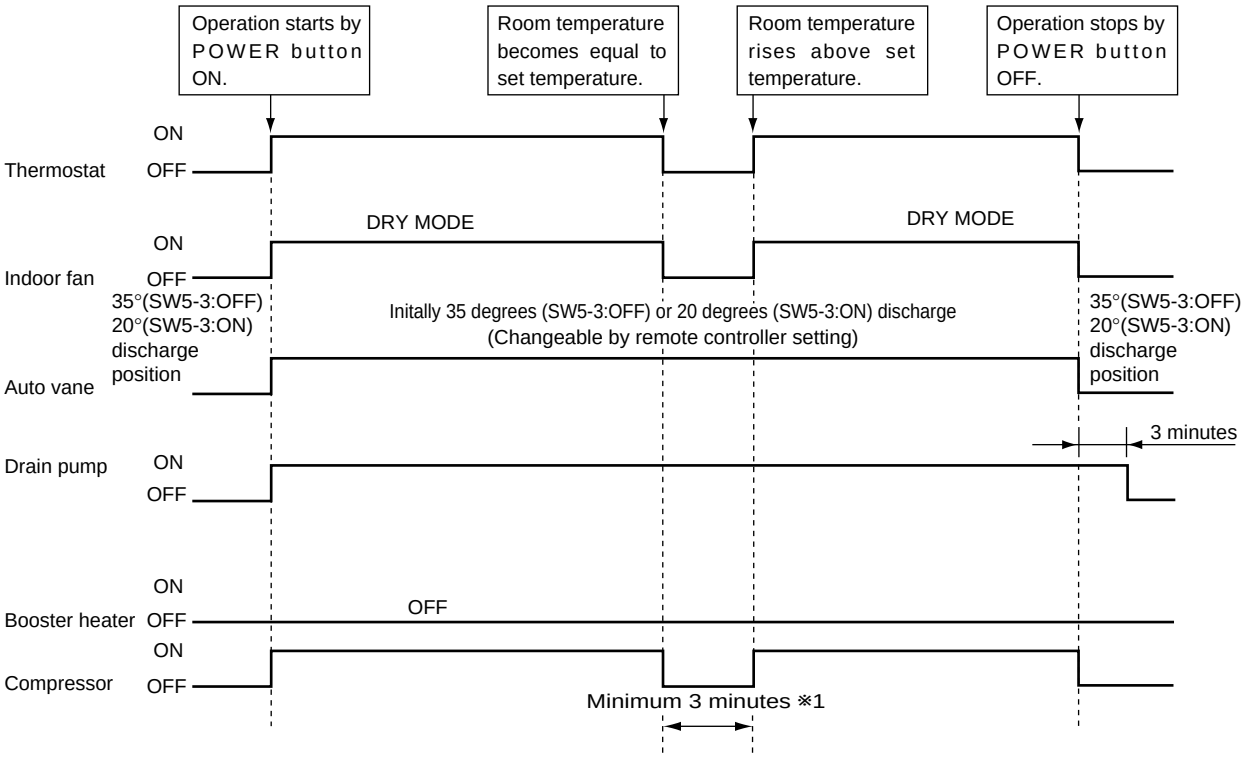
<How to operate>

① Press POWER ON/OFF button.

② Press the button to display "△"

③ Press the TEMP button to set the desired temperature.
NOTE: The set temperature changes 1°C when the △ or ▽ button is pressed one time.
Dry 19 to 30°C

<DRY 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

①3-minute time delay
To prevent overload, the compressor will not start within 3 minutes after stop.

②The 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.

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

④The compressor will not start when the room temperature is below 18°C.
The compressor starts intermittent operation when the power is turned ON with room temperature above 18°C. The compressor ON/OFF time depends on the thermostat ON/OFF and the following room temperatures.After 3-minute compressor operation,

- If the room temperature thermistor reads above 28°C with thermostat ON, the compressor will operate for 6 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads 26°C~28°C with thermostat ON, the compressor will operate for 4 more minutes and then stop for 3 minutes.
- If the room themperature thermistor reads 24°C~26°C with thermostat ON, the compressor will operate for 2 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads below 24°C 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.

⑤Coil frost protection
Coil frost protection in DRY operation is the same as in COOL operation.
⑥Coil frost prevention
Coil frost 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 indoor fan does not run during compressor OFF.

- The fluctuate operation will not work in DRY operation.

(a)During compressor OFF

- When the indoor coil temperature is 6°C or above, the indoor fan will stop.
- When the indoor coil temperature is below 6°C, the indoor fan will run in DRY mode.

(b)During compressor ON

- The indoor fan runs on EXTRA-LOW speed for the first 1 minute after the compressor is turned on.
- After, the indoor fan runs in DRY mode.

<Dry mode>
The fan notch is controlled by the indoor coil temperature every 30 seconds.

Indoor coil temperature	Fan operation
Below -10°C	LOW speed
-10 to 0°C	EXTRA-LOW speed
Above 0°C	Dry mode

During compressor OFF, when the indoor coil temperature becomes 6°C or above, the indoor fan turns OFF immediately.

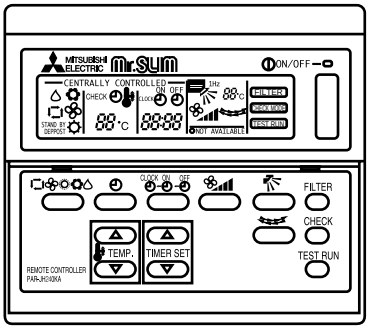
(c)Quiet cycle control
The quiet cycle control works, when the indoor fan operation changes { from DRY mode to EXTRA-LOW speed. / from DRY mode to LOW speed. / from EXTRA-LOW speed to LOW speed.

The quiet cycle control does not work when the fan speed is lowered.

(3) Auto vane & drain pump controls
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 HEAT operation



<How to operate>

① Press POWER ON/OFF button.

② Press the ↕ button to display "☼"

③ Press the TEMP button to set the desired temperature.

NOTE: The set temperature changes 1°C when the △ or ▽ button is pressed one time.

Heating 17 19 to 28°C

<Display in HEAT operation>

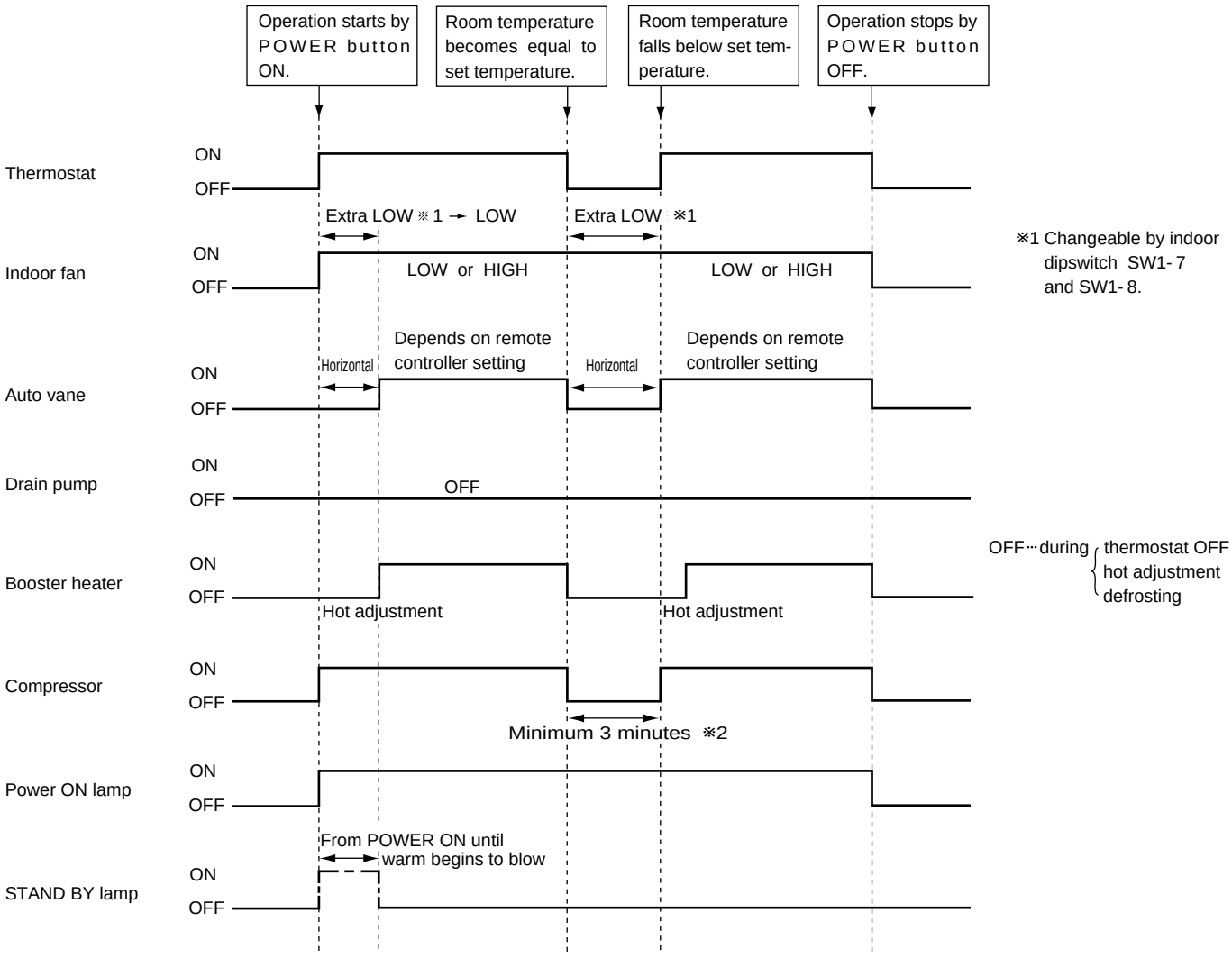
[DEFROST]

The [DEFROST] symbol is only displayed during the defrost operation.

[STANDBY]

The [STANDBY] symbol is only displayed from the time the heating operation starts until the heated air begins to blow.

<HEAT operation time chart>



※2 Even if the room temperature falls below the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

①3-minute time delay

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

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

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

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

④Overheat protection

<Start condition>

When the indoor coil thermistor reads 70°C or above, the overheat protection will start.

<Overheat protection>

The compressor stops for 6 minutes, and then restarts.

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

<Termination conditions>

Overheat protection is terminated when the start condition is not satisfied again during the allowance (10-minute compressor operation), when operation mode changes to other mode, or when thermostat turns OFF.

(2) Indoor fan control

(a) Normal control

(i)The indoor fan runs on EXTRA-LOW speed during the thermostat OFF.

EXTRA-LOW speed can be changed to LOW or HIGH speed by setting the dipswitch SW1-7 and SW1-8.

If the indoor coil temperature becomes more than 5 degrees below the room temperature during the thermostat OFF, the indoor fan will stop. After, when the indoor coil temperature becomes within 5 degrees of room temperature, the indoor fan will run on EXTRA-LOW speed.

(ii)Hot adjustment

Hot adjustment is a warm-up for HEAT operation

<Start conditions>

The hot adjustment works under any of the follwing conditions.

- HEAT operation starts.
- Defrosting ends.
- Thermostat turns ON.

[Hot adjustment]

Initially, the indoor fan runs on EXTRA-LOW speed. When 5 minutes have passed or the indoor coil temperature exceeds 35°C, the fan speed changes to LOW. Two minutes later, the hot adjustment ends. Then, the fan speed depends on the remote controller setting.

(iii)The indoor fan stops when the indoor coil temperature is within 5 degrees either way of room temperature.

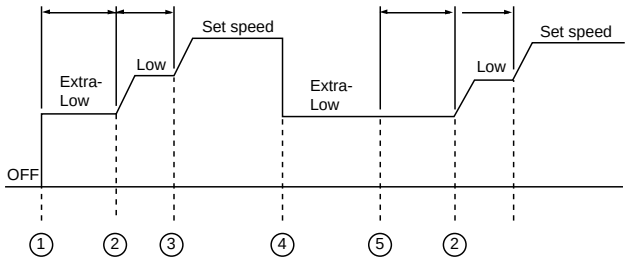
(iv)To eliminate the remaining heat, the indoor fan runs for the first 1 minute after the booster heater is turned OFF.

(b) Quiet cycle control

(i)Quiet cycle control in hot adjustment

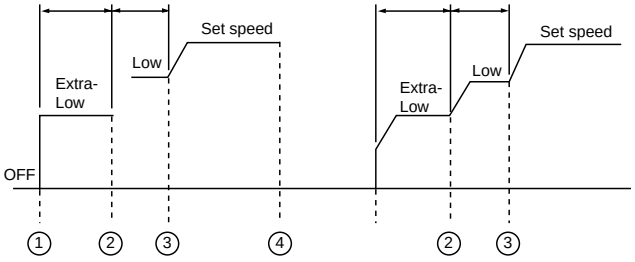
<Heating starts and thermostat returns ON>

①HEAT operation starts.
②Indoor coil temperature becomes 35°C or over, or 5 minutes have passed.
③2 minutes have passed.
④Thermostat turns OFF.
⑤Thermostat turns ON.



<Heating starts and defrosting has ended. >

①HEAT operation starts.
②Indoor coil temperature becomes 35°C or over, or 5 minutes have passed.
③2 minutes have passed.
④Defrosting starts.
⑤Defrosting has ended.



- The indoor fan runs on EXTRA-LOW speed at the start-up of HEAT operation.
- The indoor fan runs at a minimum air flow amount afaer defrosting.
- When the indoor coil temperature becomes 35°C or over during the quiet cycle control,the indoor fan speed will change to LOW speed.

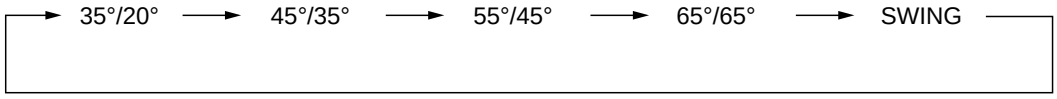
NOTE1:The quiet cycle control does not work when the fan speed is lowered.
The indoor fan stops immediately when the operation stops,except to eleminate the remaining heat.
NOTE2:When the fan speed is changed with the remote controller during the set speed operation,the fan speed will change immediately.

(c) Fluctuant operation
The fluctuant operation will not work in HEAT operation.

(3) Auto vane control

Auto vane operation can be changed between STOP mode (fixed operation) and SWING mode by AIR DISCHRGE SWING/STOP button on the remote controller.

(a) STOP mode (fixed operation)
(i) The airflow direction at the start-up of HEAT operation is the same as that of the previous operation.
(ii) The airflow direction can be charged by the remote controller setting.



(SW5-3 : OFF/ON)

In the following cases, airflow direction becomes 35°/20° regardless of the remote controller setting.
① During the hot adjustment with fan speed at EXTRA-LOW
② During defrosting with indoor fan OFF
③ During the thermostat OFF

(b) SWING mode
(i) The vane motor turns ON when the SWING mode is selected.
The vane motor is continuously ON during SWING mode.
(ii) When SWING mode is changed to STOP mode, the airflow direction returns to the position of the last STOP mode.
(iii) In the following cases, the discharge direction is 35°/20° regardless of the remote controller setting.
① During the hot adjustment with fan speed at EXTRA-LOW
② During defrosting with indoor fan OFF
③ During thermostat OFF

(4) Booster heater control (PLH-3GKHB$_1$, PLH-4GKHSB$_1$, PLH-5GKHSB$_1$, PLH-6GKHSB$_1$)

When the room temperature is 3 degrees below the set temperature, the booster heater will turn ON.
When the room temperature is equal to the set temperature, booster heater will turn OFF.
During the hot adjustment, the booster heater will not work.
<Overheat prevention>
When the indoor coil thermistor rises to 60°C or above, the booster heater cannot work.
When the indoor coil thermistor falls to 55°C or below, the booster heater can work.

(5) Detecting abnormalities in the outdoor unit

When the outdoor unit is determined to be abnormal by the following causes, the compressor will stop and the check code " P8 " will appear on the remote controller display.

① During compressor ON after hot adjustment ※1 (See the next page.)
① If the difference between the indoor coil temperature and room temperature is in the RANGE B, the indoor fan will stop.
② Within 20 minutes after entering RANGE B (except for the first 10 seconds),
a) If the temperature difference enters RANGE A, the hot adjustment stasrts,
b) If the temperature difference is still in RANGE B, the outdoor unit is deemed abnormal.
c) If the temperature difference enters RANGE C, defrosting starts.
Within 20 minutes after entering RANGE C,
●If the temperature difference does not return to RANGE B,the outdoor unit is deemed abnormal.
●If the temperature difference returns to RANGE B, the next 20 minutes is an allowance period. If the difference enter RANGE A during the allowance, defrosting ends and the hot adjustment starts. If the difference does not enter RANGE A during the allowance, the outdoor unit is deemed abnormal.

② During compressor ON in hot adjustment
After 20 minutes of defrosting in hot adjustment, if the temperature difference is still in RANGE C, the outdoor unit is determined to be abnormal.

③ During compressor OFF
After 20 minutes of thermostat OFF, if the indoor coil thermistor reads -25°C or below, the outdoor unit is determined to be abnormal.

(6) Indoor coil thermistor abnormality detection

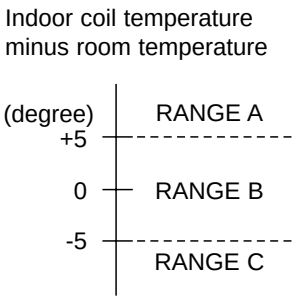
An abnormality can be detected during compressor ON, except for the following.

- ●For the first 20 minutes after the temperature difference between the indoor coil temperature and room temperature enters the RANGE C.
- ●When the temperature difference enters the RANGE C until it moves to the RANGE B.

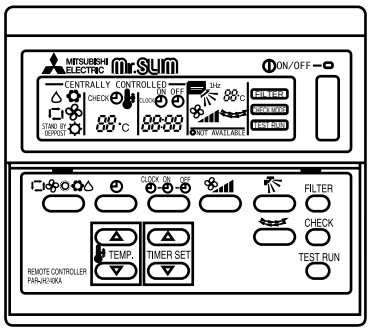
(7) Defrosting operation

After the outdoor unit starts the defrosting operation, when the temperature difference beetween the indoor coil temperature and room temperature gets out of RANGE A and into RANGE B, the indoor unit starts the defrosting mode. After the outdoor unit stops the defrosting operation, when the temperature difference returns to the RANGE A, the indoor unit stops the defrosting mode. While the indoor unit is in the defrosting mode, the indoor fan and the booster heater stop.

※1 RANGE A : Indoor coil temperature is more than 5 degrees above room temperataure.
RANGE B : Indoor coil temperature is within 5 degrees either way of room temperature.
RANGE C : Indoor coil temperature is more than 5 degrees below room temperature



2-4 AUTO operation (Automatic COOL/HEAT change over operation)



<How to operate>

① Press POWER ON/OFF button.

② Press the ↻ button to display " ↻ "

③ Press the TEMP button to set the desired temperature.

NOTE: The set temperature changes 1°C when the △ or ▽ button is pressed one time.
Automatic 19 to 28°C

●"AUTOMATIC" works to change by itself the operation mode either to cooling or heating according to the room temperature.

(1) Initial mode

① When AUTO operation starts after unit OFF.

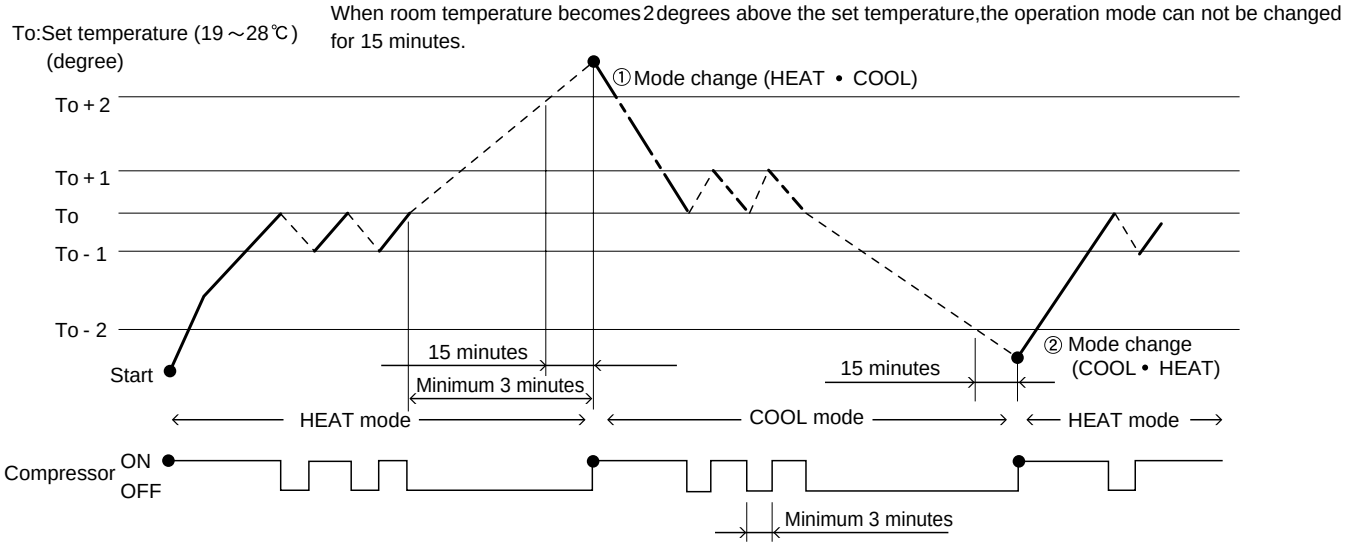
- If the room temperature is higher than the set temperature, operation starts in COOL mode.
- If the room temperature is equal to or lower than the set temperature, operation starts HEAT mode.

② When AUTO operation starts after COOL or HEAT operation, the previous mode continues.

(2) Mode change

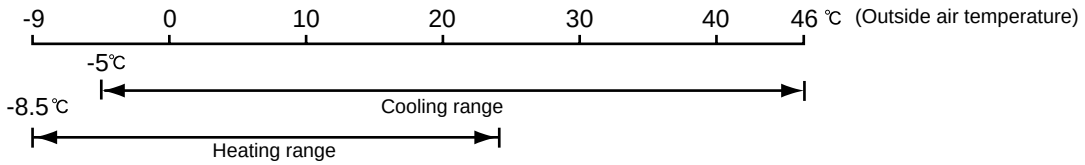
① HEAT mode changes to cool mode when 15 minutes have passed since the room temperature became 2 degrees above the set temperature.

② COOL mode changes to HEAT mode when 15 minutes have passed since the room temperature became 2 degrees below the set temperature.

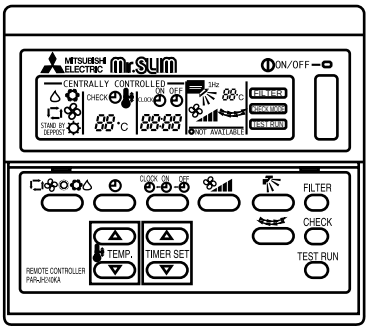


(3) Temperature range

AUTO operation is available under the outside air temperatures as follows.



2-5 Auto vane control

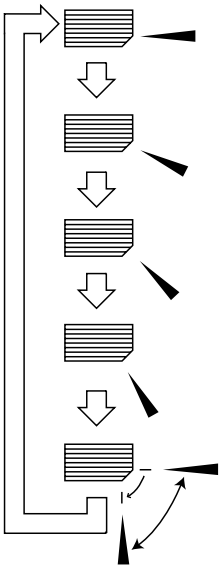


<How to operate>

To change the air flow direction, press button.

NOTE: Discharge direction can be set by the indoor dipswitch SW5-3.

Dipswitch	①	②	③	④
SW5-3:OFF	35°	45°	55°	65°
SW5-3:ON	20°	35°	45°	65°



Changes by pressing the button.

Available in COOL operation with fan speed on HIGH or in HEAT operation.
Unavailable in DRY operation.
If fan speed changes from LOW to HIGH during 45°/35° downward airflow in COOL mode, the direction automatically changes to 35°/20°.

(1) COOL/DRY operation

At the start-up of COOL or DRY operation, the airflow direction in automatically set to 35°/20°. After, it can be changed to another direction with button on the remote controller.

<Auto return>

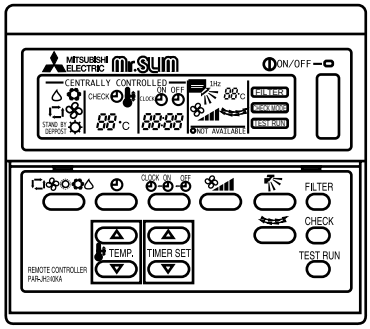
When 55°/45° or 65°/65° airflow is set with fan speed in LOW, “AUTO RETURN” appears below the room temperature display. One hour later the direction changes to 35/20 degrees, automatically and “AUTO RETURN” disappears.

(2) HEAT operation

At the start-up of HEAT operation, airflow direction depends on the setting of the last operation.
After, it can be changed to another direction with button. The airflow direction shifts to 35°/20° regardless of the remote controller settings under any of the following conditions.

- Thermostat OFF
- Defrosting
- Indoor fan speed EXTRA-LOW in hot adjustment

2-6 TIMER operation



<Timer function>

AUTO STOP ·····The air conditioner stops after the set time lapses.
AUTO START ·····The air conditioner starts after the set time lapses.
AUTO OFF ·····Timer is not active.

<How to operate>

1. Press POWER ON/OFF button.
2. Press "◴" button to select AUTO STOP or AUTO START.
3. Press "CLOCK ON ◴-◴-OFF ◴" button to set desired time.
   Time setting is in 1 hour units for up to 24 hours.
   Each time HOURS button is pressed, set time increases by 1 hour.
   When HOURS button is pressed and held, the set time increases by 1 hour every 0.5 seconds.
4. To cancel the timer operation, press POWER ON/OFF button.

<Timer setting example>

This setting will stop the air conditioner in 8 hours.
With the lapse of time, time display changes in 1 hour units, showing remaining time.

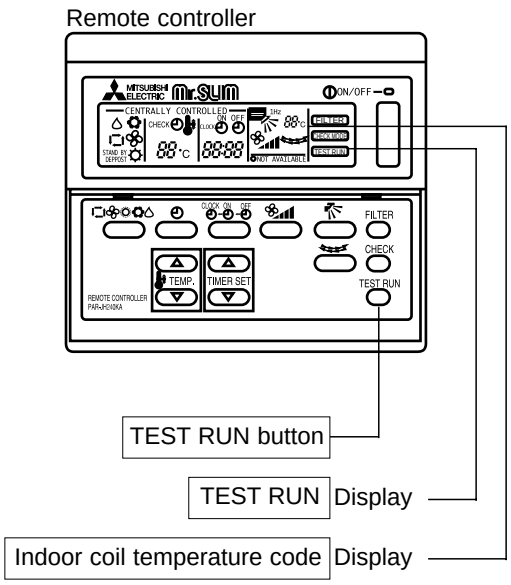
2-7 Test run

<Before test run>

- After installing, wiring, and piping the indoor and outdoor units, check for refrigerant leakage, looseness in power supply or contorol wiring, and mistaken polarity.
- Use a 500-volt megger to check the resistance between the power supply terminal block and ground to make sure that it is at least 1.0MΩ.

Attention:

Do not use the air conditioner if resistance is less than 1.0MΩ.



*The above figure shows the state of TEST RUN at cooling operation.

1	Turn on main switch.12 hours before proceeding to step 2 to allow for crankcase heater operation.
2	Push the TEST RUN button twice and indication of TEST RUN will be shown on the liquid crystal display.
3	Press the ⇅❀☼✿♺ button to display ⇅, COOL/DRY(or HEAT)to confirm that cool (or warm) air is blown out. (At heating operation, there may be a short delay before warm air begins to blow out.)
4	Push ❀ button LOW/HIGH to check that the fan speed changes properly.
5	Check the operation of outdoor unit fans.This unit controls the rotation speed and performance capacity of fans.In some cases,it may rotate at low speed as the condition of outside air requires and the speed will be kept unless the performance has become deficient. Therefore,when the condition of outside air demands,there may be such cases as the fan stops or rotates reversely. Please note that these symptoms are not mulfunction.
6	After the check is finished leave the test run mode, push the power ON/OFF button. It can also be stopped by pushing the timer MODE button.

●When a TEST RUN is started,the timer shall be set to 2 hours. The unit will automatically turn off after 2 hours.

(1) Indoor coil temperature code

During the test run, the indoor coil temperature code from 1 to 15 is displayed on the remote controller instead of room temperature. The code should fall with the lapse of time in normal COOL operation, and should rise in normal HEAT operation.

Code	1	2	3	4	5	6	7	8
Indoor coil temperature	-40~1°C	~10°C	~15°C	~20°C	~25°C	~30°C	~35°C	~40°C
Code	9	10	11	12	13	14	15	
Indoor coil temperature	~45°C	~50°C	~55°C	~60°C	~70°C	~90°C	Termistor abnormality	

(2) Trouble during test run

- If the unit malfunctions during the test run, refer to section 10 in this manual entitled “TROUBLESHOOTING.”
- When the optional program timer is connected to the conditioner, refer to its operating instructions.

2-8 Emergency operation

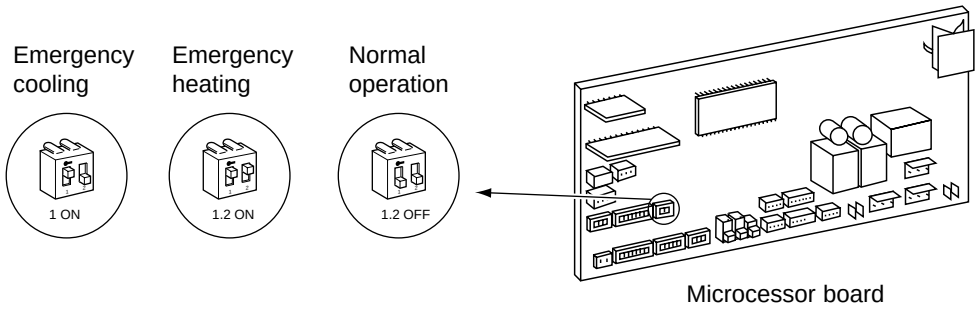
When the remote controller or microprocessor malfunctions but all other parts are normal, emergency operation is started by setting the dipswitch SW3 on the indoor controller board.

<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 dipswitch SW3-1 to ON and SW3-2 to OFF.
   For emergency heating, set the dipswitch SW3-1,2 to ON.



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, but the swing louvers and the auto vanes do not operate.
4. To stop emergency operation, turn OFF the indoor unit breaker.

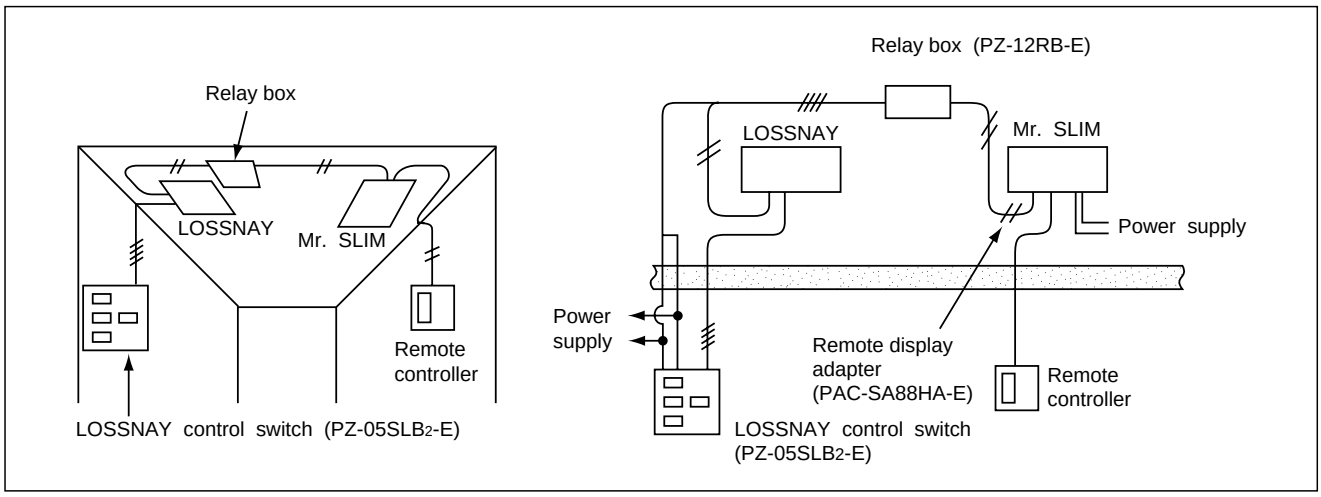
NOTE: The remote controller POWER ON/OFF button can not start/stop emergency operations.

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

2-9 Interlock with ventilation system (LOSSNAY)

Mr. SLIM/LOSSNAY interlock operation is available by using the optional parts listed below.

(1) System organization



(2) LOSSNAY models connectable to Mr. SLIM are: LGH-15RS-E, LGH-50RS-E
LGH-25RS-E, LGH-80RS-E
LGH-35RS-E, LGH-100RS-E

(3) Reqired parts are:

- Relay box (PZ-12RB-E)···Contact capacity 10A
- Remote display adapter (PAC-SA88HA-E)···An optional part for Mr. SLIM
- LOSSNAY control switch (PZ-05SLB2-E)···For LOSSNAY individual operation

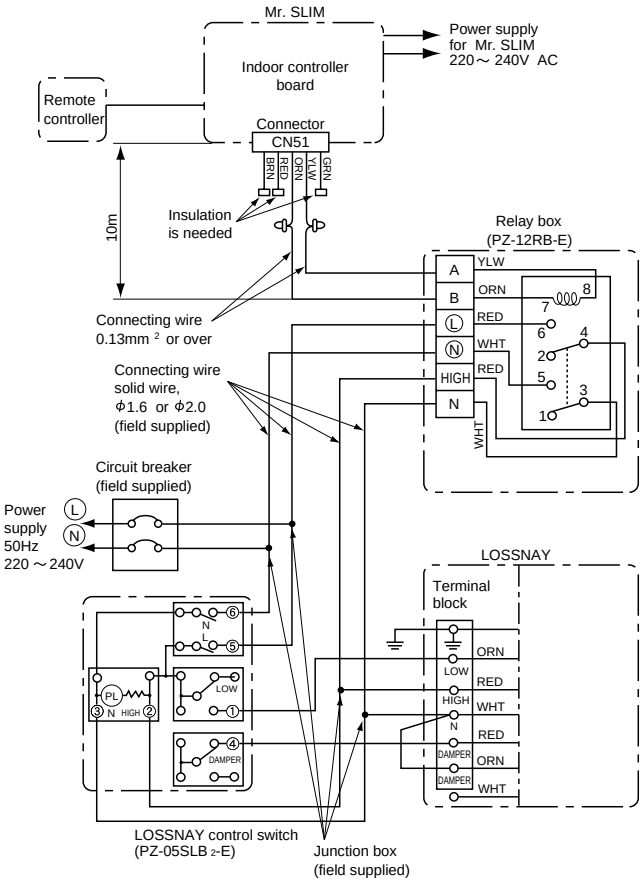
(4) Operation

①LOSSNAY turns ON/OFF according to Mr. SLIM ON/OFF

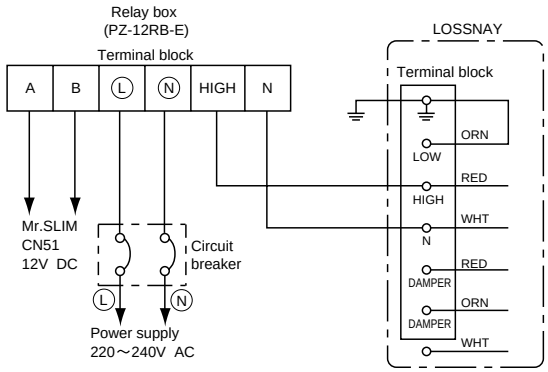
②While Mr. SLIM is OFF, LOSSNAY individual operation is available by using the LOSSNAY control switch. When Mr. SLIM turns OFF with the LOSSNAY control switch at ON, LOSSNAY will continue to operate.

(5) Wiring.

①When the LOSSNAY control switch is used



②When the LOSSNAY control switch is not used:



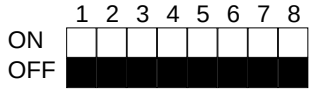
NOTE: For further information, refer to the LOSSNAY technical & service manual.

2-10 Dip switch functions

Each figure shows the initial factory setting.

1. On remote controller board

(1) SW17(Address selector)

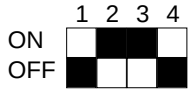


SW17-1~6) For address setting

SW17-7) When two remote controllers are used,this switch sets the controller function.
OFF:The remote controller is set as a main controller.
ON:The remote controller is set as a sub controller.

SW17-8) Switch for system back-up (This switch is unavailable for PLH-GKHB.UK Keep this switch at OFF.)
OFF:Without back-up
ON:With back-up

(2) SW18(Function selector)



SW18-1) Switch for timer
OFF:Single day ON:timer every day

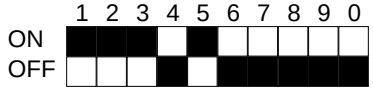
SW18-2) Switch for filter sign
OFF:filter sign adsent
ON:filter sign present

SW18-3) Switch for filter sign time setting.
OFF:100Hr ON:2500Hr

SW18-4) Not yet used.

2. On indoor controller board

(1) SW1 (Mode selector)



SW1-1) Switch that changes between FAN mode and AUTO mode
OFF:Fan mode for models without heat pump
ON:AUTO mode for models with heat pump

SW1-2) Switch for indoor fan fluctuate operaton
OFF:Without fluctuation
ON:With fluctuation

SW1-3) Switch for auto vanes
OFF:Unit without auto vanes
ON:Unit with auto vanes

SW1-4) Switch for drain pump
OFF:The drain pump works in only COOL operation.
ON:The drain pump works in both COOL and HEAT operation.

SW1-5) Switch to change the temperature to start coil frost prevention
OFF:-3°(For previous special models)
ON:1°(For all current models)

SW1-6) Switch for set temperature adjustment in HEAT mode
During HEAT operation,warm air collects near the ceiling.When the indoor unit is installed near the ceiling,the temperature read by room temperature thermistor differs from the actual living-space temperature by about 4 degrees. Therefore,the room temperature read by room temperature thermistor must be lowered by 4 degrees.
OFF:4-degree adjustment
ON:NO adjustment

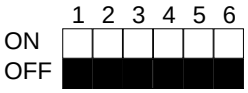
SW1-7) Switch for fan speed during thermostat OFF in HEAT operation
OFF:EXTRA LOW
ON:LOW

SW1-8) Switch for fan speed during thermostat OFF in HEAT operation
OFF:EXTRA LOW or LOW(set with SW1-7)
ON:LOW or HIGH(set with remote controller)

SW1-9) Switch for detecting abnormalities in the outdoor unit abnoamality detection
OFF:When an abnormality occurs,it is detected.
ON:Even if an abnormality occurs,it can not be detected.

SW1-10) Switch for auto restart function
OFF:This function does not work
ON:This function works.

(2) SW2 (Address selector)

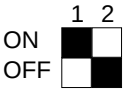


Used in setting the unit-address for group control.
For further information,refer to page 61.

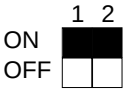
(3) SW3 (Emergency operation switch)

Normal operation

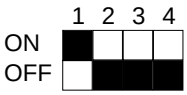
For emergency cooling



For emergency heating

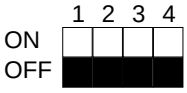


(4) SW5 (Model selector)



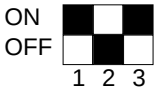
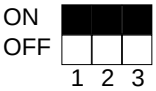
SW5-1) OFF:For 220V power supply
ON: For 240,230V power supply
SW5-2) OFF:For models with heat pump
ON: For models without heat pump
SW5-3) OFF:Auto vane angle 35˚→45˚→55˚→65˚
ON: Auto vane angle 20˚→35˚→45˚→65˚
SW5-4) This switch is unavailable for PLH-GKHB.UK.Keep this switch at OFF.

(5) SW6 (Address selector)

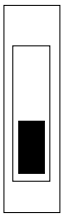


	Single control	Twin control	Triple control
SW6-1	OFF	ON(Twin NO.1)	ON(Triple NO.1)
SW6-2	OFF	ON(Twin NO.2)	ON(Triple NO.2)
SW6-3	OFF	OFF	ON(Triple NO.3)
SW6-4	OFF	OFF	ON

(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.

Service Ref.	PLH-3GK(H)B1.UK PLH-4GK(H)SB1.UK	PLH-5GK(H)SB1.UK	PLH-6GK(H)SB1.UK
SW7			

(7) SWA (High ceiling type switch)



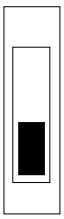
High ceiling ②
High ceiling ①
Standard

Ceiling height & discharge direction

(Unit : m)

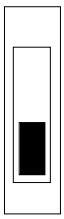
SWB \ SWA	Standard	High ceiling ①	High ceiling ②
4-direction airflow	2.7	3.0	3.5
3-direction airflow	3.0	3.3	3.5
2-direction airflow	3.5	3.8	3.8

(8) SWB (Discharge outlet number selector)



2-direction discharge
3-direction discharge
4-direction discharge
(Standard)

(9) SWC (Option selector)



Option

Standard

When mounting the optional high efficiency filter, set this switch to “option”

2-11. INDOOR FAN CONTROL

(1) Fan motor max. rotational frequency for PLH-GKHV

Service Ref.	Voltage [V]	100% rotational frequency(rpm) 50Hz
PLH-3GK(H)B1.UK	220	692
	230	711
	240	738
PLH-4GK(H)SB1.UK	220	675
PLH-5GK(H)SB1.UK	230	704
PLH-6GK(H)SB1.UK	240	731

(2) Quiet cycle control

To prevent noise due to the sudden rise in fan output, output is controlled to rise by 1 step per 1 second. Quiet cycle control works in the following modes.

①COOL operation

After the abnormality in the outdoor unit are detected.

②DRY operation

When the indoor fan operation changes { from DRY mode to EXTRA-LOW speed / from DRY mode to LOW speed / from EXTRA-LOW speed to LOW speed

③FAN operation

Quiet cycle control is unavailable.

④Heat operation

When indoor fan speed changes from EXTRA-LOW to LOW in the hot adjustment, or from LOW to the set speed after the hot adjustment.

NOTE:The quiet cycle control does not work when the fan speed is lowered.
For further information, refer to the description of each operation control.

(3) Indoor fan relay output

(a)During fan ON

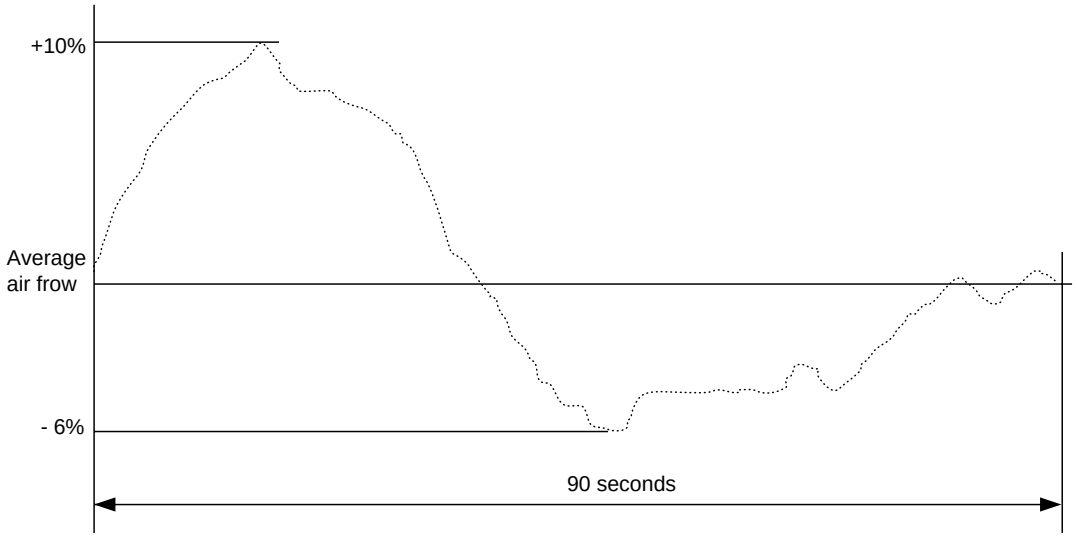
The indoor fan relay turns ON. One second later, the phase control will start.

(b)During fan OFF

The phase control turns OFF. One second later, the indoor fan relay will turn OFF.

(4) Fluctuate operation

Fig. Fluctuate rotational frequency



3. OUTDOOR UNIT CONTROL

3-1 Outdoor fan control

The rotational frequency of outdoor fan is phase-controlled according to the outdoor coil temperature. This control allows the cooling operation even with the low outside-air temperature and the heating operation even with the high outside-air temperature.

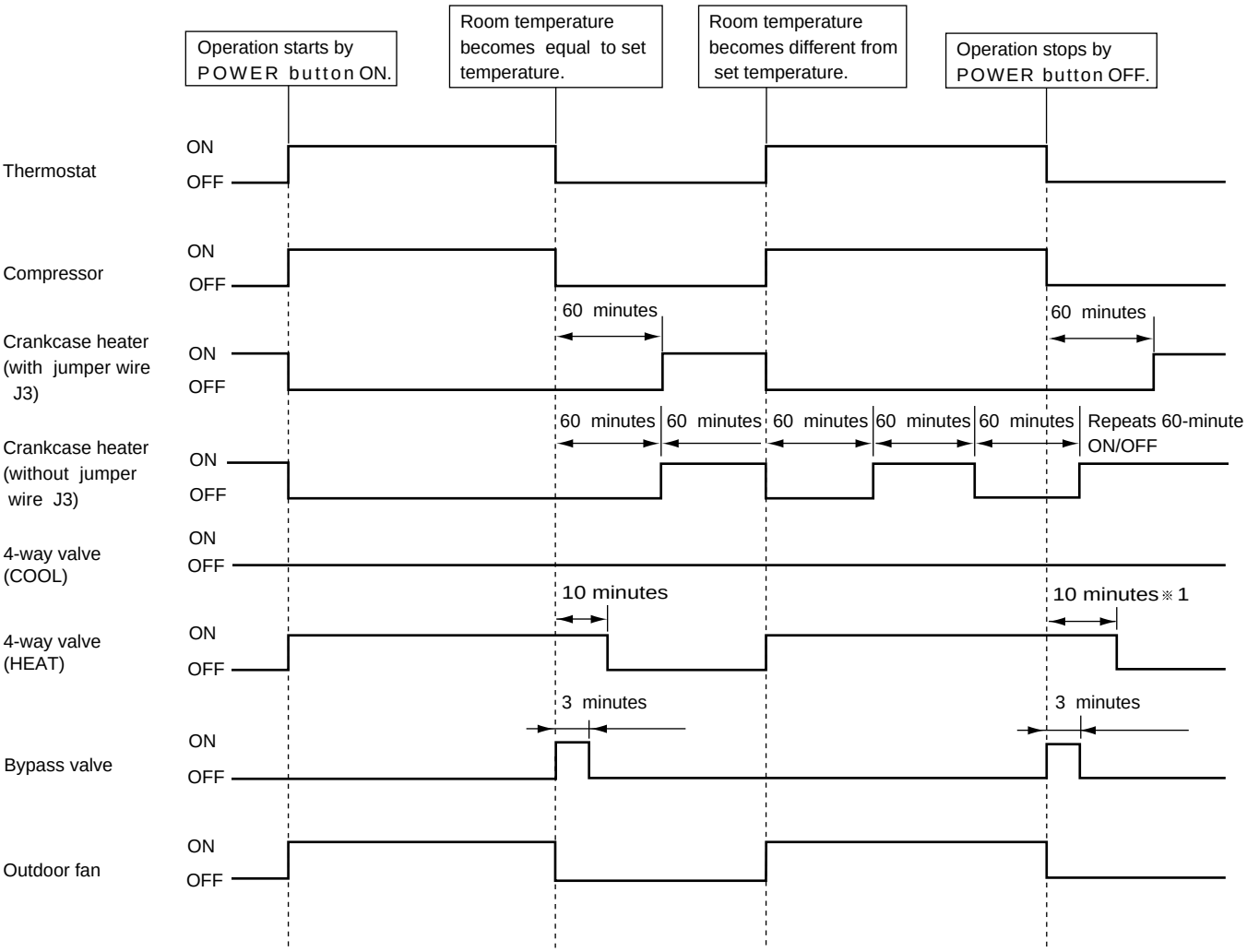
3-2 Outdoor unit control

The outdoor unit turns ON/OFF the cooling/heating operation according to orders given from the indoor unit.

3-3 Protective functions

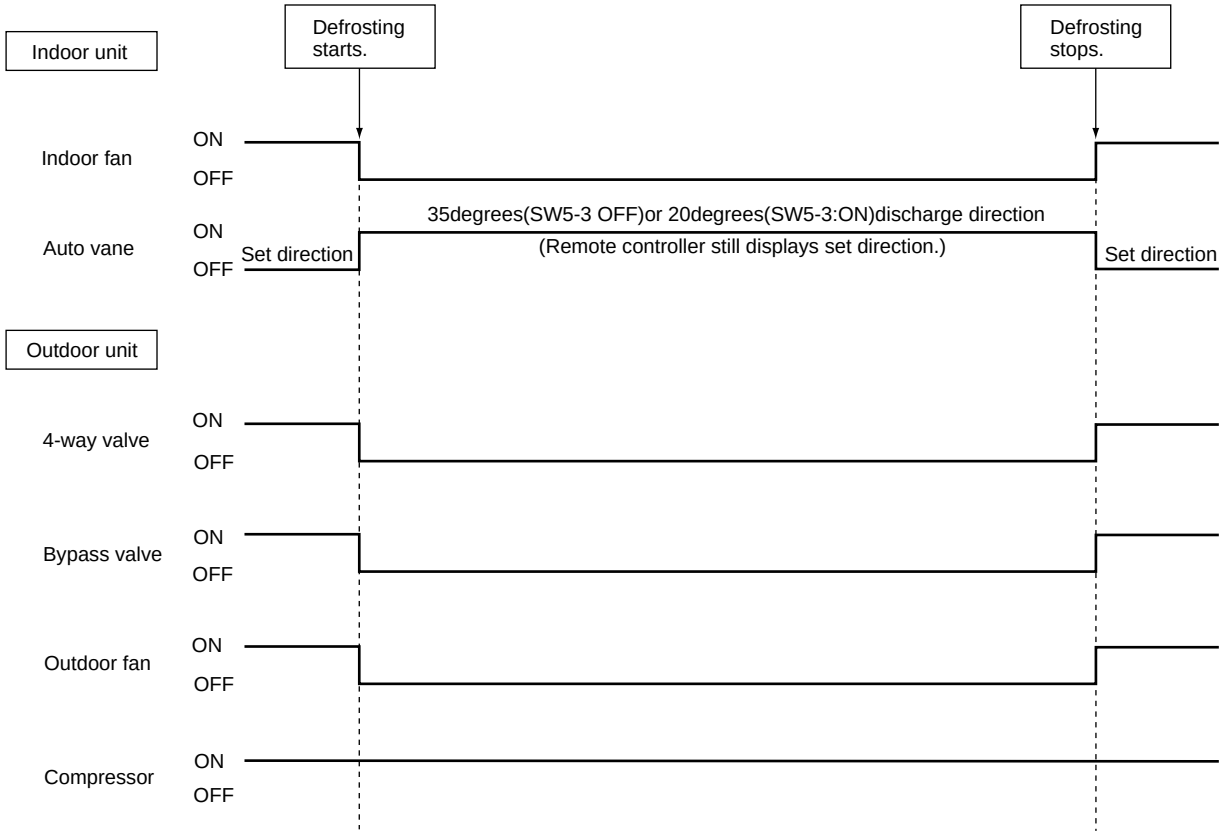
① If an reversed-phase, an open phase, or an indoor controller abnormality is detected, the outdoor unit will stop operation and the check mode will start. (For the check mode details, see page 46.)
② If a protective function works, the compressor will stop running. Three minutes later, the compressor will restart. If the protective function works again, the compressor will stop running and the check mode will start.
③ The protective function is memorized.
④ The memory is cleared when the POWER ON/OFF button on the remote controller is turned OFF. However, the check mode dispaly continues until the outdoor unit receives the “operation ON” command from the indoor unit.

3-4 COOL/HEAT operation time chart



※1 If compressor restarts within 10 minutes, 4-way valve remains ON.

3-5 Defrosting in HEAT mode
<Defrosting time chart>



(1) Start conditions

A. When all of the following conditions are satisfied, defrosting will start. However, when the bypass valve turns OFF, defrosting starts 10 minutes later.
   (a) More than seven minutes have passed since the compressor start-up.
   (b) The outdoor coil thermistor reads -5°C or below.
   (c) The outdoor fan motor output step is 100%
   (d) Total time of compressor operation exceeds 30 minutes, and the outdoor coil temperature has fallen by 8 degrees or more in comparison with that of 10 minutes after the compressor start-up.
      NOTE: The outdoor coil temperature of 10 munites after the compressor start-up is memorized until the defrosting operation has ended.

B. When all of the following conditions are satisfied, defrosting will start.
   (a) ~ (c) The same as above (a) ~ (c) in item A
   (d) Total time of compressor operation exceeds “defrost interval”.
      Further information on the defrost interval is described in (3).

C. After the total time of compressor operation exceeds the defrost interval, the thermostat repeats ON/OFF three times. Two minutes after the fourth “ON” of the thermostat, if the outdoor coil thermistor reads -5°C or below and the fan output output is 100%, defrosting will start.
   NOTE: The count of the thermostat ON/OFF is cleared by the compressor-OFF command or defrosting start-up.

(2) During defrosting

- Even if the thermostat turns OFF, defrosting continues.
- The 4-way valve, bypass valve, outdoor fan, and indoor fan are OFF.

(3) Defrost interval

The defrost interval time is determined as follows.

- Initial defrost interval is 50 minutes.
- The defrost interval after defrosting depends on the preceding defrosting time as shown below.

Defrosting operation time	Next defrost interval
3 minutes or below	120 minutes
3 to 7 minutes	80 minutes
7 to 10 minutes	60 minutes
10 to 15 minutes	40 minutes
15 minutes (Maximum)	30 minutes

NOTE1:If the unit stops during defrosting , the next defrost interval will be 50 minutes.

NOTE2:If a protection function works for the first time during defrosting, the compressor will stop.
After a 3-minute time delay, defrosting will restart. In this case, a 3-minute time delay is included with the defrosting time.
If the protection function works for the second time, the unit stops operation and displays the check code.
The next defrost interval will be 30 mimutes.

NOTE3:When the defrosting has ended, the total time of the compressor operation is cleard.

(4) Termination conditions

Defrosting finishes when any of the following conditions are satisfied.

①Defrosting has continued for 15 munites.
②Outdoor coil thermistor reads 22 C or above for the first 75 seconds after defrosting start-up.
③Outdoor coil thermistor reads 8 C or above after the 75-second defrosting.
④Power ON/OFF button is turned OFF during defrosting.

3-6 Actuators

(1) Bypass valve control

<Cooling mode>

①When the unit stops due to the coil frost prevention, the bypass valve turns ON. When one hour ahs passed since the compressor stopped, the bypass valve returns to OFF.
②When the compressor operates with the bypass valve at ON for more than 30 minutes, the bypass valve turns OFF.
③When the compressor stops with the bypass valve at OFF, the bypass valve turns ON and remains ON for three minutes.
※ PUH-6YKSA's bypass valve cannot open or close during cooling mode, therefore, the paragraph ① ~ ③ cannot be applied to the PUH-6YKSA.

<Heating mode>

①When the unit starts for the first time after the circuit breaker has been turned ON, or when it starts after the compressor OFF of 30 minutes or more, if the outdoor coil thermistor reads 12°C or more, the bypass valve turns ON.
②When the high pressure switch (63H1) works, the bypass valve turns ON.
③When the bypass has been ON for 30 minutes:
- If the high pressure switch has already returned, the bypass valve turns to OFF.
- If not, the fan output step keeps 70 for three minutes. Meanwhile, if the high pressure switch returns, the bypass valve turns OFF. Otherwise the normal fan control starts.

④When the operation mode changes or stops, the bypass valve turns ON and remains ON for three minutes.

<Defrosting operation>

①The bypass valve is OFF.

(2) Crankcase heater control

①With jumper wire J3
The crankcase heater is ON from when the power is turned ON until the compressor starts, and then turns ON one hour after the compressor stops.
②Without jumper wire J3
The crankcase heater is ON from when the power is turned ON until the compressor starts, and repeats 1-hour ON and 1-hour OFF.

3-7 Service functions

(1) Compulsory defrositng

①When all of the following conditions are satisfied, pressing SW2 starts the compulsory defrosting.

- During HEAT mode
- The compressor is ON.
- The outdoor coil temperature is being displayed by LED. (Outdoor controller board dip switch SW3-1 : OFF, SW3-2 : ON)
- The outdoor coil thermistor reads 8°C or below.

②The operation state and the termination conditions of the compulsory defrosting are the same as those of the normal defrosting. As an exception, the defrost interval after the defrosting completion is 50 minutes.

(2) Fixed fan-output

While the compressor is operating (exept during defrosting) and the fan output step is indicated by LED, pressing SW2 fixes the fan output. The fixed fan-output can be released when any of the following conditions are satisfied.

①SW2 is pressed again.
②SW3 setting is changed.
③The compressor stops.
④Defrosting operation starts.

(3) Function of switches on the outdoor controller board

SW1: Clears the check code memory (push-button switch)
SW2: Switches the output state indication and the check code display (push-button switch)
SW3-1,2: Switches the output state indication items (dip swtich)
For further information, refer to page 48.

(4) 100% fan output

Fan output is fixed to 100% by shorting the connector CN22. However, the fan stops during compressor OFF or defrosting. Open-circuit of CN22 restarts the normal fan control.

(5) Time shorterning

Short circuit of the connector CN21 shortens the time as follows

①Fan control period: 30 seconds → 3 seconds
②Three-minutes time delay function : 3 minites → 3 seconds
③Max. time of defrosting : 15 minites → 15 seconds
④Defrost interval : 30 ~ 120 minutes → 3 ~ 12 seconds
⑤Compressor ON/OFF time for bypass valve ON/OFF : 30 minutes → 3 seconds
⑥Compressor ON time to start other functions : x minutes → x seconds
⑦Crankcase heater operation : 1 hour → 6 seconds

10 TROUBLESHOOTING

1.TROUBLES IN TEST RUN

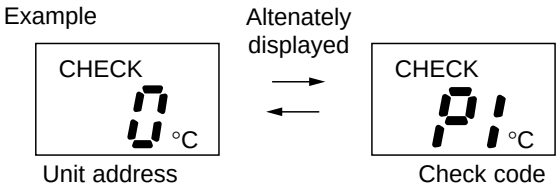
<table>
<tr><th>Symptom</th><th>Cause</th><th>Check points</th></tr>
<tr><td>The display “CENTRALLY CONTROLLED” on remote controller dose not disappear.</td><td>1) Wrong address setting of remote controller/indoor controller board.
2) Timer adapter is connected to the remote controller.
3) Singnal transmission error between indoor unit and remote controller.</td><td>1) Check the address setting of remote controller and indoor controller.
2) Make sure the timer adapter is used correctly.
3) ① Turn another remote controller’s DIP SW17-7 ON to make it sub controller.
② Connect the sub controller to the unit, and turn circuit breaker ON.
● If the display “centrally controlled” disappears, replace the original remote controller.
● If the display remains the same, replace the indoor controller board.</td></tr>
<tr><td>When remote controller POWER button is turned ON, the check code “EO”appears.</td><td>1) Signal transmission error between indoor unit and remote controller</td><td>1) ① Connect a sub remote controller.
② Turn circuit breaker ON.
If the display “centrally controlled” remains, replace the indoor controller board.
③ If the display disappears, turn the remote controller POWER button ON and check as follows.
<table>
<tr><th></th><th>Remote controller</th><th>Sub remote controller</th><th>Malfunction</th></tr>
<tr><td>1</td><td>Operating Display</td><td>EO Display</td><td>Malfunction of indoor Unit</td></tr>
<tr><td>2</td><td>Operating Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr>
<tr><td>3</td><td>No Display</td><td>EO Display</td><td>Malfunction of indoor Unit and Remote Controller</td></tr>
<tr><td>4</td><td>No Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr>
</table></td></tr>
<tr><td>When remote controller POWER button is turned ON, operating display appears, but disappears soon.</td><td>1) Short circuit of indoor/outdoor connecting wire
2) Short circuit of transmission wire.
3) Short circuit of drain sensor heater circuit.
4) Wrong operation of remote controller due to noise wave emitted by other appliances.</td><td>1), 2) Check the wire
3) Measure the resistance of the drain sensor connector CN50 ① ~ ③. Normal resistance should be 82Ω.
4) Turn the circuit breaker OFF, and then turn ON.
If the remote controller remains abnormal, despite the above measures, replace the indoor controller board.</td></tr>
<tr><td>Despite turning POWER button ON, the remote controller display does not appear.</td><td>1) Damaged remote controller.
2) Short circuit of transmission wire.
3) Bad contact of indoor CN40.
4) CN40 is attached to a sub unit.
5) Damaged transformer.
6) Bad contact of CN4T.
7) Blown fuse.
8) Circuit breaker OFF.</td><td>1) Measure the voltage between terminals of remote controller. If no voltage, remove the terminals and measure the voltage between wires. If the voltage is between 6VDC and 12V, replace the remote controller.
2) ~ 8) Check each point.
If it is not defective, replace the indoor controller board.</td></tr>
</table>

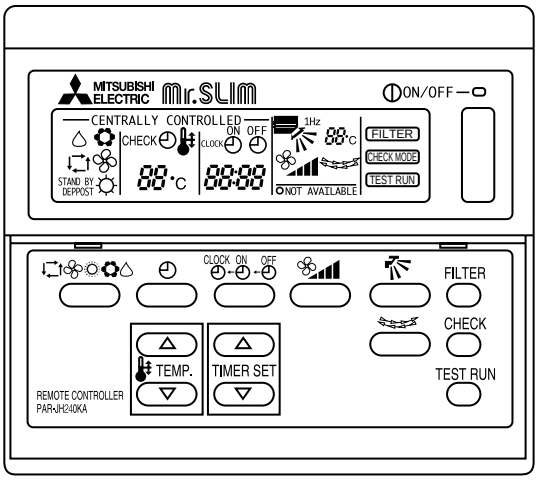
2. SELF DIAGNOSTIC FUNCTION WITH REMOTE CONTROLLER

2-1 When malfunction occurs during operation

When a malfunction occurs, the indoor and outdoor units stop and the malfunction is displayed on the LCD of the remote controller.

(1) ON the set temperature display part, “CHECK” appears, and the unit address and the check code are diplayed alternately at one-second intervals. (Check mode)





(2) When one remote controller controls several units in the group control, the LCD shows the unit address and check code of the first malfunctioning unit.

(3) To cancel the check mode, press the ⏻ON/OFF button. In remote ON/OFF control, press the remote ⏻ON/OFF switch. In centralized control, turn OFF the ⏻ON/OFF button of centralized controller.

NOTE: The latest check code is memorized, even if the check mode is cancelled by the way mentioned above. It takes 60 seconds maximum to display the memorized check code.

2-2 How to use the self diagnostic function for service

A. For normal control with one unit and one remote controller

(1) Pressing the ○CHECK button on the remote controller twice starts the self diagnostic function.

(2) During the self diagnostic function, “CHECK MODE” appears at two positions on the remote controller display. Then, at least 10 seconds later, the unit address and the check code is alternately displayed at one-second intervals.

(3) Check and repair the unit according to the check code. (Refer to the next page.)

2-3 For group control using one remote controller

(1) Press the ▲TEMP. button or ▼TEMP. button on the remote controller to advance or go back to the unit address. Each time ▲TEMP. button is pressed, the unit address advances by one. Each time ▼TEMP. button is pressed, the unit address goes back by one.
The check code and the unit address, appear alternately.

(2) The check code “U8” means no malfunction has occurred since installation.
The check code “EO” means the following conditions:
- The unit address displayed on the remote controller does not apply to any unit.
- power is not supplied to the unit.
- Signal transmitting/receiving circuit is abnormal.

(3) Check and repair the unit according to the check code. (Refer to the next page.)

Check code	Diagnosis of malfunction	Cause	Check points
EO	Signal transmitting/receiving error (Indoor controller does not respond to remote controller signal.)	During individual unit control 1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal.	1) Check the transmission wire. 2) Check with another remote controller. If “EO” is still indicated, replace the indoor controller board. If other check code appears. replace the original remote controller.
P1	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. 0 C ···15kΩ 30 C·····4.3kΩ 10 C·····9.6kΩ 40 C·····3.0kΩ 20 C·····6.3kΩ If the resistance is normal, replace the indoor controller board.
P2	Abnormality of indoor coil thermistor (RT2)		
P3	Signal transmission error (Remote controller does not respond to indoor controller signal.)	1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal. 3) Wrong operation due to noise wave emitted by other appliances	1) Check the transmission wire. 2) Check with another remote controller. If “P3” is still indicated, replace the indoor board. If other check code appears, replace the original remote controller. 3) Short-circuit between ① and ② of CN40 and attach CN40 to the following units. ● Second unit in twin control ● Second and third units in triple control ● Sub units in group control
P4	Abnormality of drain sensor	1) Bad contact of transmission wire 2) Damaged thermistor	1) Check the connector. 2) Measure the resistance of the thermistor ④ ~ ⑤. As for the normal resistance, refer to the case of P1. If the resistance is normal, replace the indoor controller board.
P5	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. If the resistance is normal, replace the indoor controller board.
P6	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.
P7	System error	1) Wrong address-setting 2) Signal transmitting/receiving circuit of remote controller is abnormal. 3) Wrong SW6-setting	1) Check the address-setting. 2) Check with another remote controller. If check code other than “P7” appears, replace the original remote controller. 3) Check SW6 setting.
P8	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.

3.SERVICE DATA INDICATION BY SWITCHES ON OUTDOOR CONTROLLER BOARD

Setting dip switchs SW2 and SW3 on the outdoor controller board enables LED to show the output state and check code. Output state is shown by LED lighting, and check code by blinking.

SW1 : Turning SW1 ON clears the check code. If SW1 is turned ON while the check code is blinking , the indication changes to output state indication.

NOTE : SW1 is usually available independant of SW3 setting. As an exception, when the check code shows a reversed phase or an open phase during the power-on-reset state, SW1 is not available.

SW2 : SW2 is turned ON by pressing, and OFF by releasing.

When SW3-1 and SW3-2 are OFF, pressing SW2 changes indication between output state and check code alternately.

When SW2 is turned On with SW3-1 OFF and SW3-2 ON, the compulsory defrosting starts.

SW3 : Output state indication items depend on the combination of SW3-1 ON/OFF and SW3-2 ON/OFF.

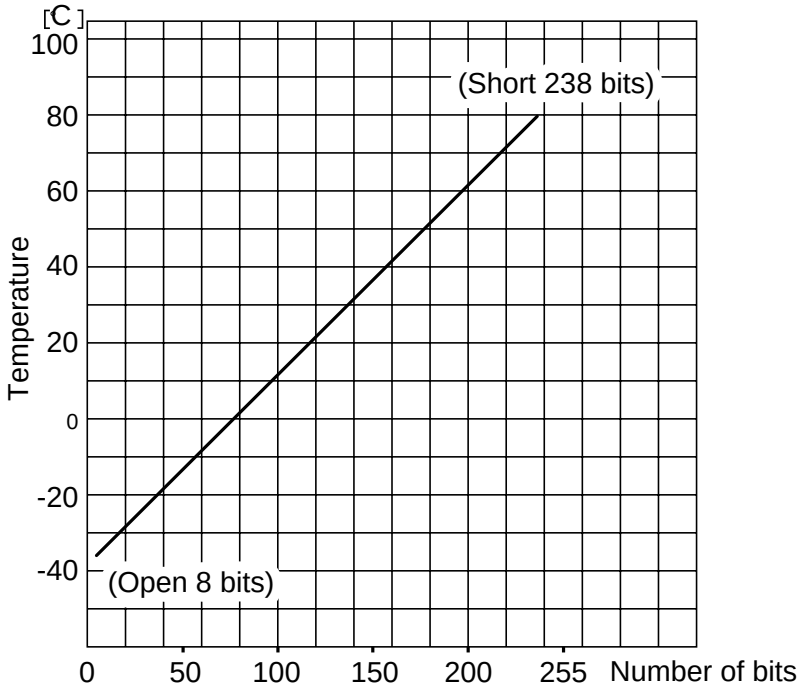
Changed alternately by pressing SW2.

	Check code	Output state	Outdoor coil temperature (bit)	Fan Output step (bit)	Total time of compressor operation(Hr)
SW3-1	OFF	OFF	OFF	ON	ON
SW3-2	OFF	OFF	ON	OFF	ON
LED	Blinking	Lighting			
LD1	Reversed phase	Compressor ON command from indoor controller	1	1	256
LD2	Open phase	Heating operation command from indoor controller	2	2	512
LD3	Outdoor coil thermistor is abnormal	During 63H1 function	4	4	1024
LD4	63H2 function	Compressor ON	8	8	2048
LD5	51C function	Outdoor fan ON	16	16	4096
LD6	26C function	4-way valve ON	32	32	8192
LD7	Overheat protection	Bypass valve ON ※	64	64	16384
LD8	Input circuit on controller board is abnormal	Crankcase heater ON	128	128	32768

※Regarding PUH-6YKSA$_1$, eventhough the LD7 is blinking during the cooler operation, the bypass valve cannot open

3-1 Outdoor coil temperature

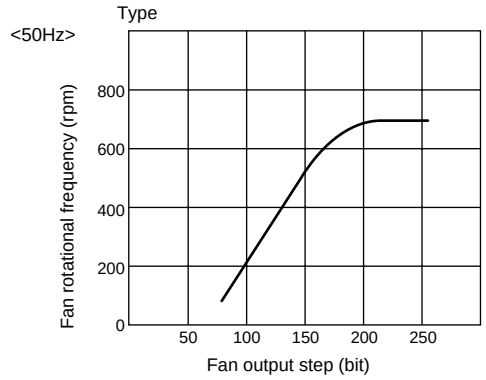
To obtain data on the outdoor coil temperature, add the number of bits of lighting LEDs, and see the graph below to find the temperature.



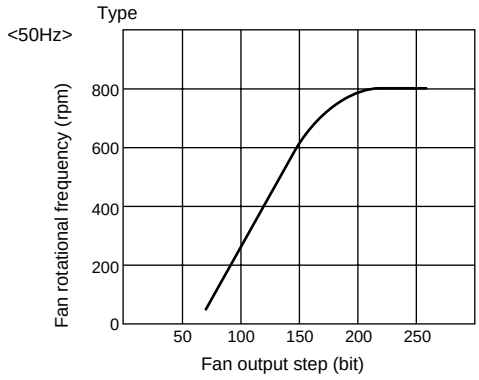
3-2 Fan output step

To obtain data on the fan output step, add the number of bits of lighting LEDs, and see the graph below to find the fan rotational frequency.

①PUH-4K type



②PUH-3.5.K type



3-3 Total time of compressor operation

Compressor operation time is indecated in 256 hour units. To obtain the compressor operation time, add the hours of lighting LEDs. During the compressor operation time indication, SW2 is not available.

3-4 Check code indication

- When a protection function works for the first time during operation, the operation stops and restarts after the 3-minutes time delay mode. When the protection function works again, the operation stops. (Check mode) When both SW3-1 and SW3-2 are OFF, the check code is indicated.
- If the outdoor controller board receives the compressor ON command from the indoor controller board during check mode the indication changes to output state indication.
- By pressing SW2 duirng normal operation. operation will continue.
- The latest check code is indicated.

4. TROUBLESHOOTING ACCORDING TO CHECK CODE

Blinking LED		Cause	Check point
LD1	Reversed phase	Phases L_1, L_2, and L_3 are connected improperly.	Check the power supply connection.
LD2	Open phase	● Phase L_2 is open. ● Contact of protector, such as thermal switch, opened when power was turned on.	● Check the power supply. ● Check each protector.
LD3	Outdoor coil thermistor is abnormal. (Open circuit or short circuit)	● Outdoor coil thermistor is broken. ● Thermistor was connected incorrectly.	● Measure the resistance of the thermistor. ● Check the thermistor. If normal, replace the outdoor controller board.
LD4	High pressure switch (63H2) function	● 62H2 was badly connected. ● 63H2 was working.	● Check 63H2 and the outdoor fan motor. ● Check if refrigerant supply is low. ● Check if air cycle is short-cycled.
LD5	Thermal relay (51C) function	● 51C was connected incorrectly. ● 51C was working.	● Check 51C, the compressor, and power supply.
LD6	Thermal switch (26C) function.	● 26C was connected incorrectly. ● 26C is working.	● Check 26C. ● Check if refrigerant supply is low. ● Check if the capillary tube is clogged.
LD7	Over heat protection	● The thermistor is broken. ● Coil temperature is over 67°C.	● Measure the resistance of the thermistor. ● Check the outdoor fan motor. ● Check if air cycle is short-cycled.
LD8	Input circuit of outdoor controller board is abnormal.	● Pulse input is abnormal.	● Replace the outdoor controller board.

5. WHEN OUTDOOR UNIT DOES NOT WORK

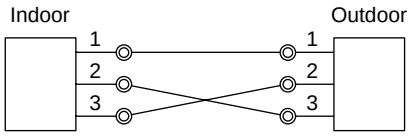
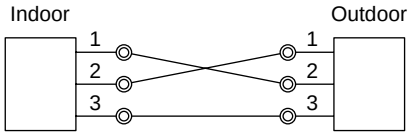
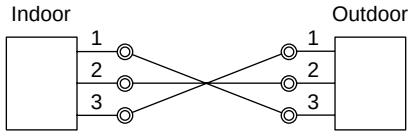
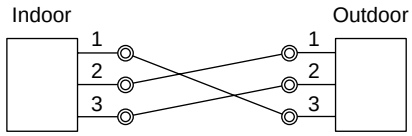
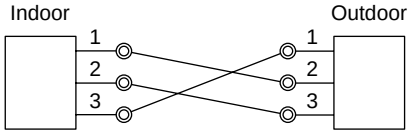
Cause	Check points
1) Indoor/outdoor connecting wires are poorly connected. (Refer to next page.)	1) Check the connecting wires.
2) Power supply is poorly connected.	2) Check the power supply.
3) Connector or transformer is broken.	3) Check connectors and transformers.
4) Fuse (6A) in the outdoor controller board is blown.	4) Check the fuse.

6. WRONG WIRING ON SITE

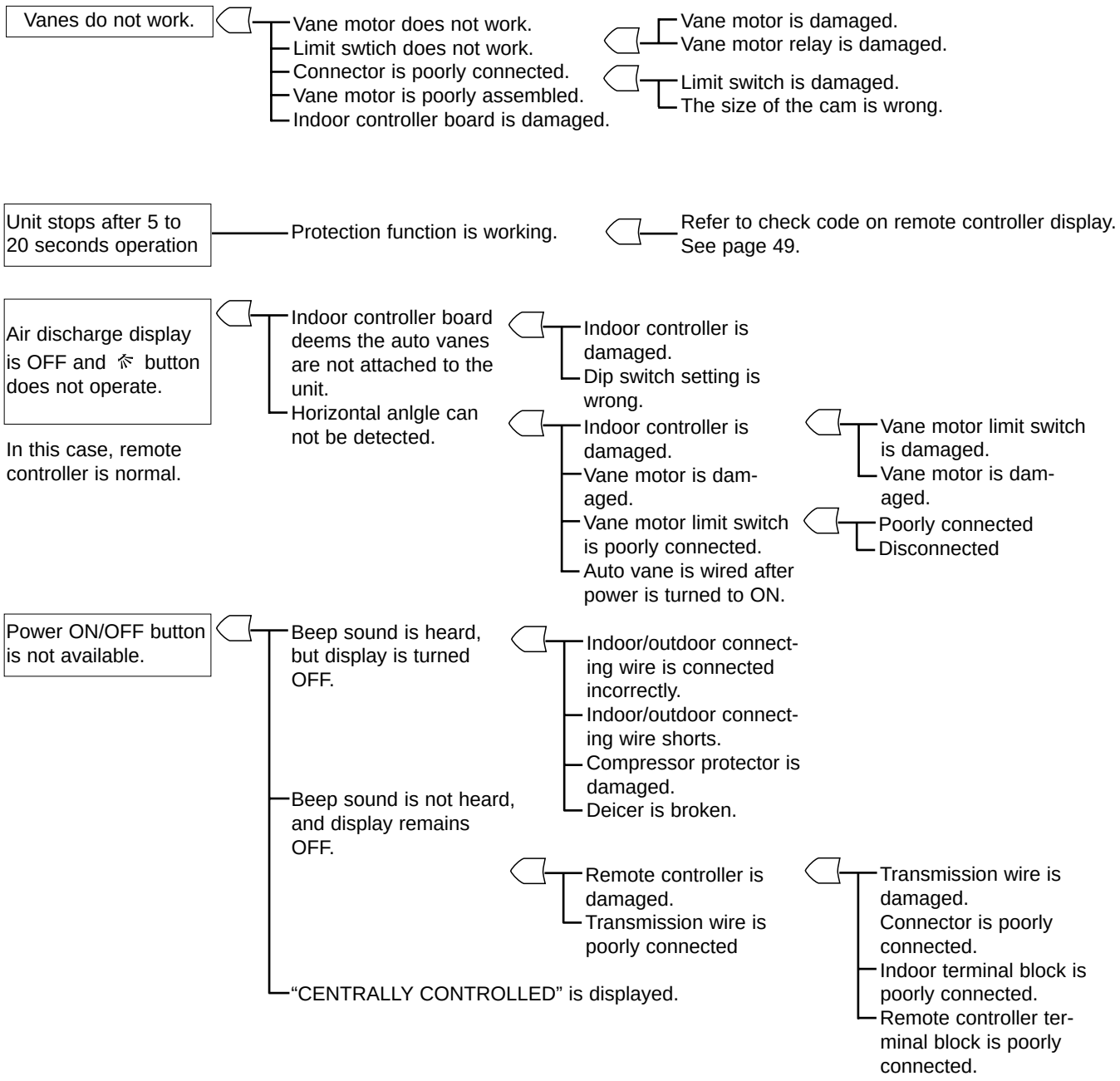
6-1 Between remote controller and indoor unit

If the wire is disconnected between the remote controller and the indoor unit, nothing is displayed on the remote controller when the POWER button is pressed. The beep sound will also not be heard.

6-2 Phenomenon due to wrong wiring between indoor and outdoor units

Wrong Wiring	Mode	Thermostat	Phenomenon
	COOL	OFF	Operation stops.
		ON	4-Way valve turns ON. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Cooling operation. Several minutes later, check code “P8” appears on remote controller display.
		ON	Normal operation.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code “P8” appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code “P8” appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops, 27 minutes later, check code “P8” appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check “P8” appears on remote controller display.
Disconnection between 1 and 1 or 2 and 2.	COOL	OFF	Operation stops.
		ON	Operation stops. 9 minutes later, check code “P8” appears on remote controller display.
	HEAT	OFF	Operation stops. 4-way valve turns OFF.
		ON	27 minutes later, check code “P8” appears on remote controller display.
Disconnection between 3 and 3.	COOL	–	Normal operation.
	HEAT	OFF	Operation stops. 4-way valve turns ON.
		ON	Operation stops. 27 minutes later check code “P8” appears on remote controller display.

7. OTHER TROUBLES AND CAUSES



8. MR. SLIM/LOSSNAY INTERLOCK OPERATION

<Symptoms that are not malfunctions>

If any of the following symptoms occur, they are not malfunctions.

Symptom	Cause
LOSSNAY control switch does not work.	LOSSNAY control switch can not work during interlock operation. LOSSNAY control switch is effective only while Mr. SLIM is not operating.
LOSSNAY air speed can not be controlled in interlock operation.	LOSSNAY fan speed is fixed to HIGH during interlock operation. LOSSNAY fan speed LOW/HIGH can be switched only during LOSSNAY individual operation with the LOSSNAY contorl switch.

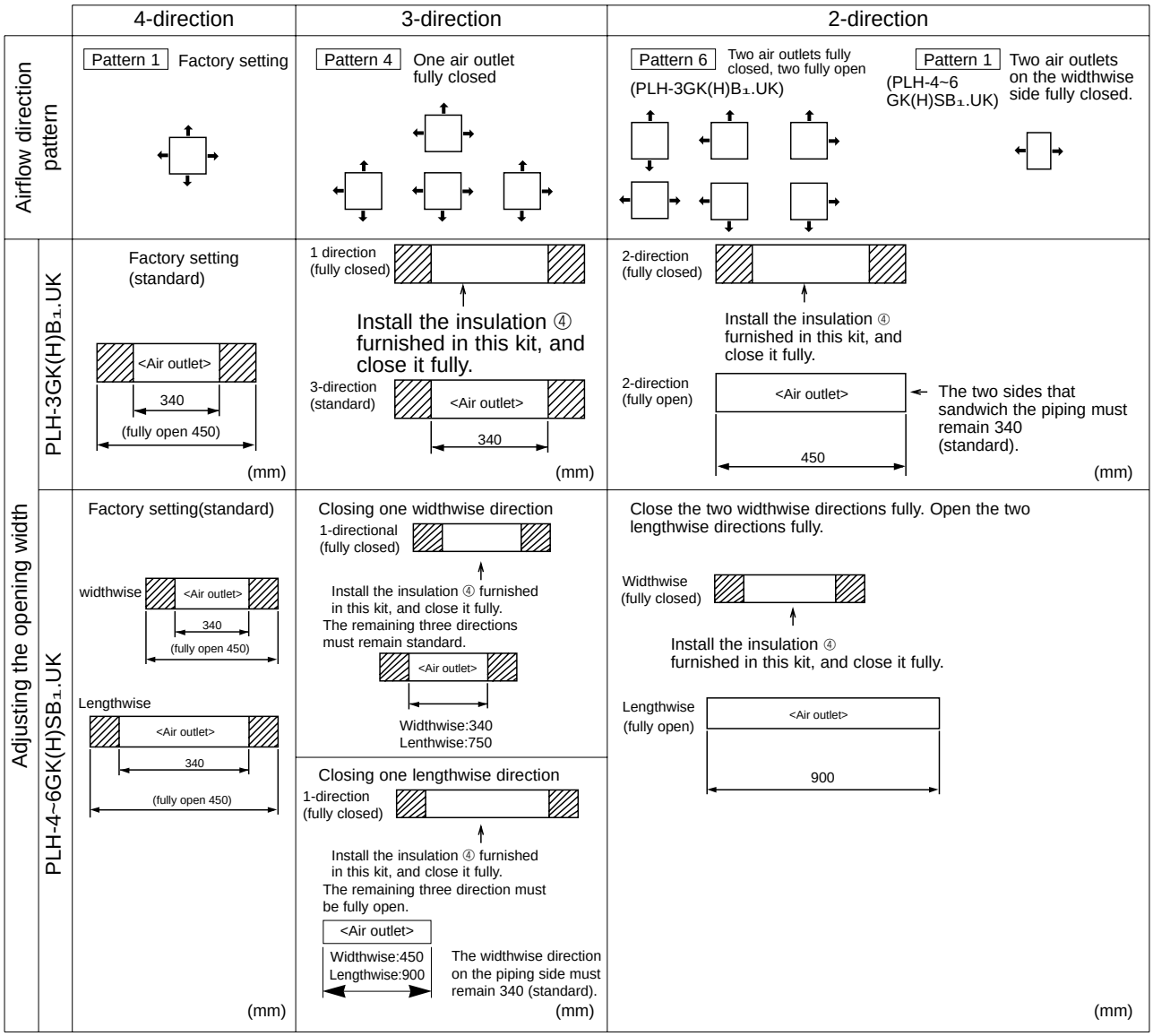
For LOSSNAY, troubleshooting refer to the LOSSNAY technical & service manual.

11 4-WAY AIR FLOW SYSTEM

1. Placement of the air outlets

●For this grill, the airflow direction comes in 11 patterns for PLH-3GK(H)B₁.UK and in 6 patterns for PLH-4~6GK(H)SB₁.UK. Also, by setting the dip switches (SWA and SWB)on the indoor board to the appropriate settings, you can adjust the air flow and speed. Select the settings that are needed from those in Tables 2 and 3 according to the place where you want to install the unit.

1) Decide on the pattern of the discharge direction. For 3-and 2-direction dischardge, adjust the width of the air outlet.



●To open or close the air outlets fully, see Item 2 on the next page entitled “Adjusting the width of the air outlets (opening or closing fully)”.

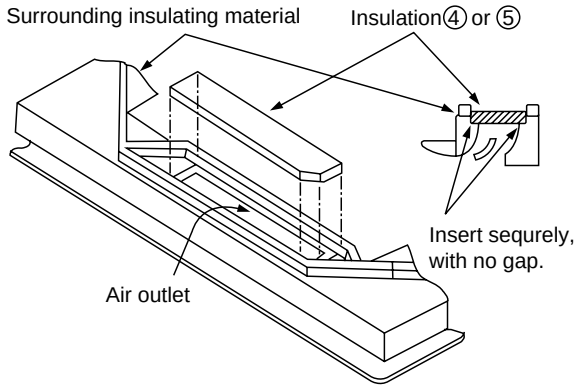
2) According to the number of air outlets and the height of the ceiling to install the unit, be sure to set the dip switches on the indoor controller board to the appropriate settings.

●Correspondence of ceiling heights to numbers of air outlets.

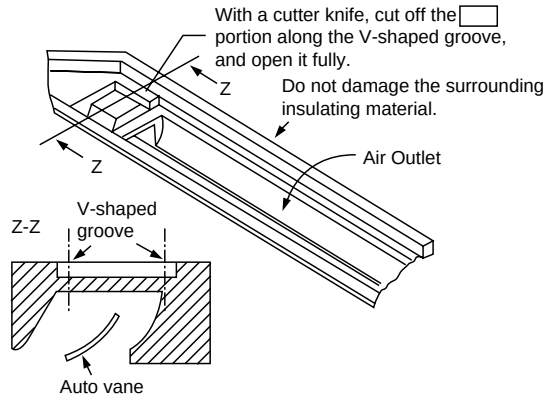
SWB \ SWA	Standard	High ceiling ①	High ceiling ②
4-directional	2.7m	3.0m	3.5m
3-directional	3.0m	3.3m	3.5m
2-directional	3.5m	3.8m	3.8m

2.Adjusting the width of the air outlets (opening or closing fully)

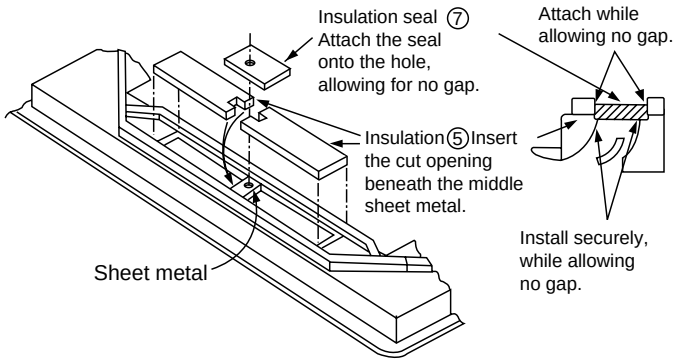
●For full closing···Install the insulation ④ or ⑤ furnished in this kit, from the rear of the panel.



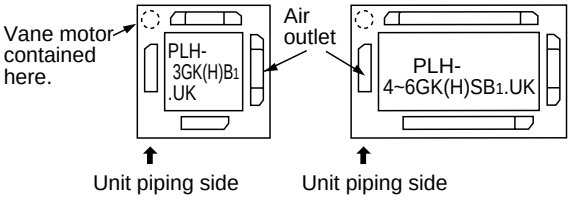
●For full opening…With a cutter knife or equivalent, cut off the Styrofoam.



<For the lengtwise side of PLH-4~6GK(H)SB1.UK>



●For the portion to be cut (V-shaped groove), see the figure below (as seen from the rear of the panel).



3.FRESH AIR INTAKE (Installation of site)

3-1 How to fix the duct flanges

(1)Decide the location where the duct flanges ④ should be fixed in the fresh air intake casement ①.

※1) Be careful not to fix the fresh air intake casement upside down.

2) The locations where the duct flanges can be fixed air:
PAC-SB50AM-E→···1 place
PAC-SB51AM-E→···2 places

(2)Drill the knockout holes for the installation of the fresh air intake casement.

(3)Fix the duct flanges ④, using screws ⑥, to the fresh air intake casement ①, and then apply the insulation material ⑤ over it so that no clearance in left between them. Align the head of screws and the through holes.

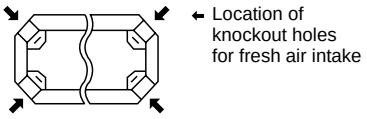


Fig-3. Machining of knockout holes

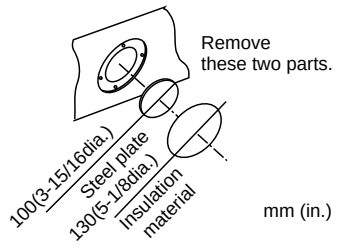
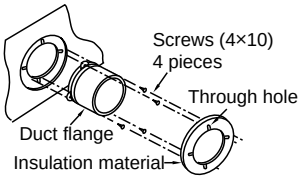
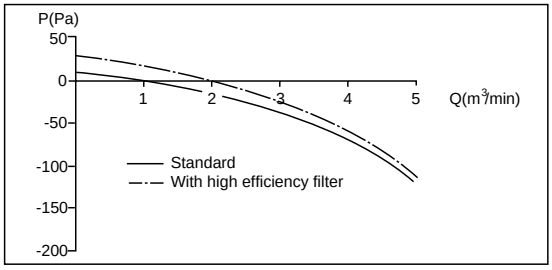


Fig-4. Installation of duct flange

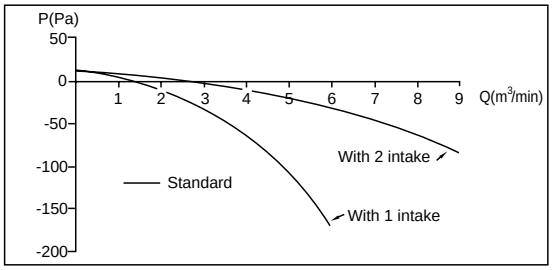


3-2 Fresh air intake amount & static pressure characteristics

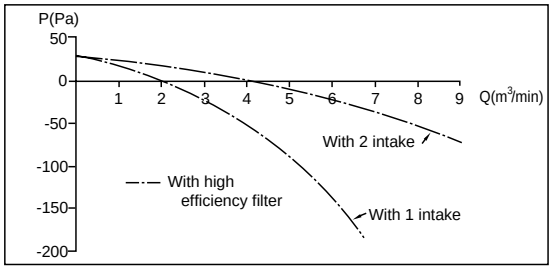
①PLH-3GK(H)B₁.UK (Standard / with the high efficiency filter)



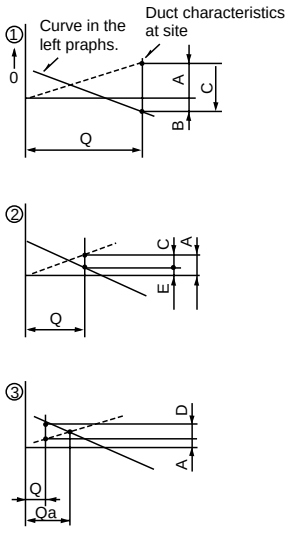
②PLH-4~6GK(H)SB₁.UK (Standard)



③PLH-4~6GK(H)SB₁.UK (with the high efficiency fil-



How to read curves



Q…Planned amount of fresh air intake <Pa>
A…Static pressure loss of fresh air intake duct system with air flow amount Q <Pa>
B…Forced static pressure at air conditioner inlet with air flow amount Q <Pa>
C…Static pressure of booster fan with air flow amount Q <Pa>
D…Static pressure loss increase amount of fresh air intake dust system for air flow amount Q <Pa>
E…Static pressure of indoor unit with air flow amount Q <Pa>
Qa…Estimated amount of fresh air intake with out D <m³/min>

3-3 Interlocking operation method with duct fan (Booster fan)

●Whenever the indoor unit is operating, the duct fun also operates.

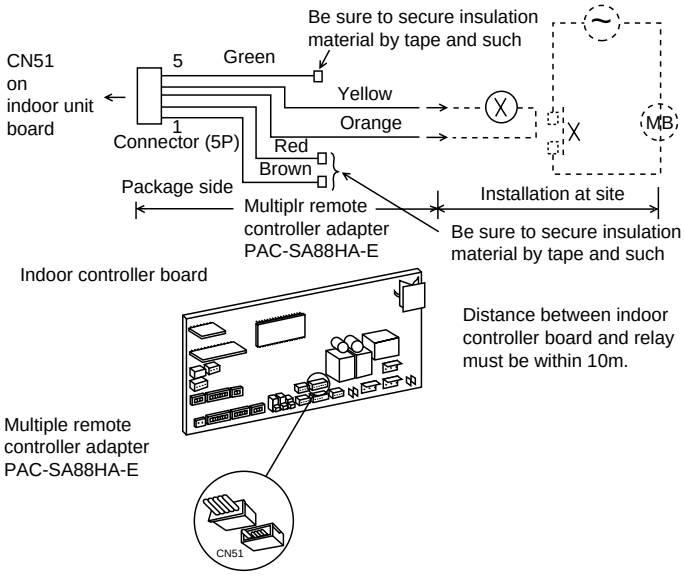
(1)Connect the optional multiple remote controller adapter(PAC-SA88HA-E)to the connector CN51 on the indoor controller board.

(2)Drive the relay after connecting the 12V DC relay between the Yellow and Orange connector lines.

(※)Use a relay under 1W.

MB: Electromagnetic switch power relay for duct fan.

X: Auxiliary relay (12V DC LY-1F)



4.BRANCH DUCT(Installation at site)

Discharge by branch duct becomes possible by installing a branch duce at site. Knockout holes on the wall panel of the indoor unit must be removed.

4-1 Branch Duct Installation Procedure

Install the branch duct at site by the following procedure

(1)Reverse the indoor unit, tear off the insulation material along the broken-lines on the unit surface. Cut out the knockout holes.

(2)Secure the flange, procured locally, with the twelve ST screws (4.0 dia).

(3)Connect the flange to the duct.

(4)Push the duct insulation material, into where unit the insulation material on the surface was removed, and secure it airtight.

Fig 1. Branch duct mounting position

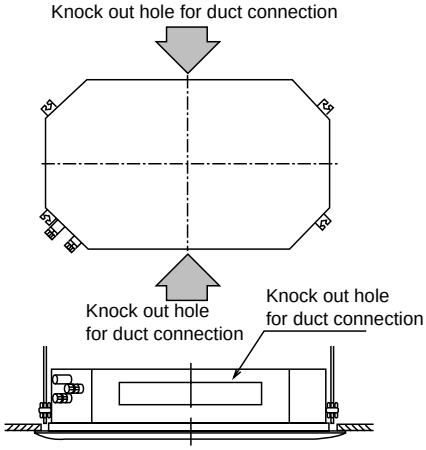
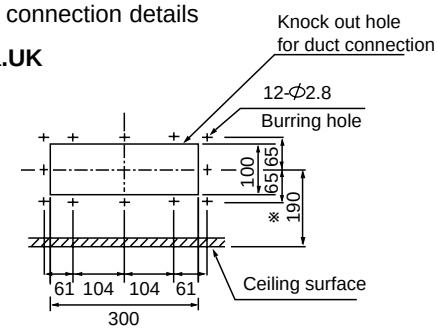
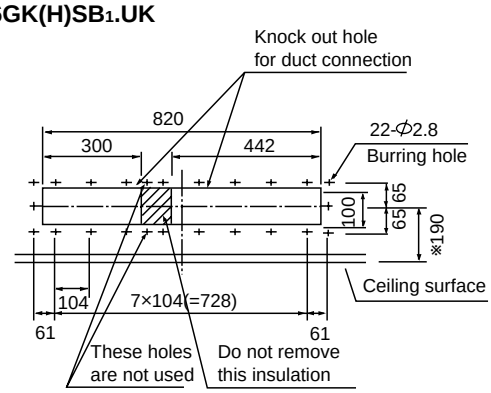


Fig 2. Branch duct connection details

PLH-3GK(H)B1.UK



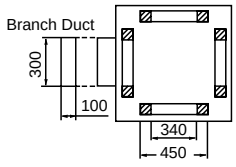
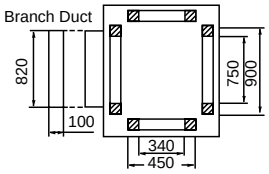
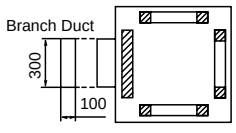
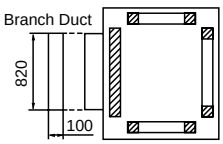
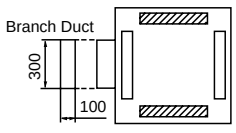
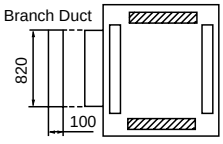
PLH-4~6GK(H)SB1.UK



※) Does not include the size of high efficiency filter.
When mounting high efficiency filter, add 60mm to this size.

4-2 Air flow & Static Pressure Characteristics of Branch Duct

(1)Discharge direction pattern

	PLH-3GK(H)B1.UK	PLH-4~6GK(H)SB1.UK
4-direction discharge		
3-direction discharge		
2-direction discharge		

(2)Branch duct characteristics

Air flow amount of PLH-GK(H)B.UK can be adjusted according to ceiling height and the number of air outlets with the air flow amount switches. (SWA and SWB)

Since the characteristics curves on the right are based on the standard condition, they must be corrected according to the setting of the air flow amount switches.

<Air flow amount switches>

SWA …Standard/High ceiling ①/High ceiling ②

SWB …4-direction discharge/3-direction discharge/ 2-direction discharge

SWC …Standard/Option

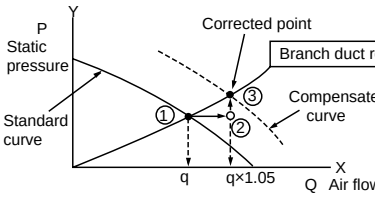
※Standard condtion

SWA is set to “Standard”

SWB is set according to the number of discharge directions.

<How to correct>

Ex. SWA High ceiling ① SWB 4-direction discharge



●Correction factors Unit : %

	Standard	High Ceiling ①	High Ceiling ②
4/3/2-direction discharge	100	105	110

Corrected air-flow amount = standard air-flow amount x correction factor

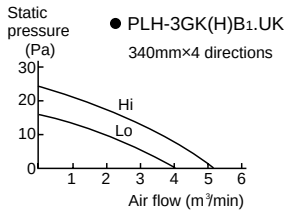
ⓐ Take a point q on the x-axis corresponding to the intersection ① of the standard characteristics curve and the branch duct resistance curve.
Multiply the air flow amount q by the correction factor 1.05.

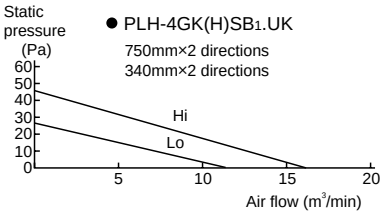
ⓑ Take a point ③ on the branch duct resistance curve corresponding to the air flow amount q x 1.05.
The point ③ is the corrected point.

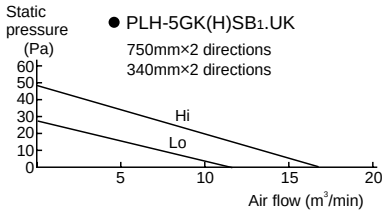
ⓒ Draw a curve similar to the standard characteristics curve passing througn the corrected point ③.
This curve is the corrected curve.

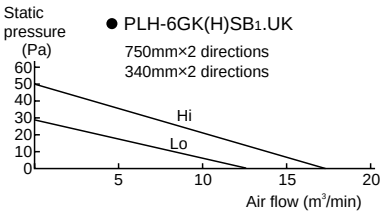
4-3 Air flow & Static pressure characteristics of Branch Duct (with SWA at “Standard”)

4 direction airflow

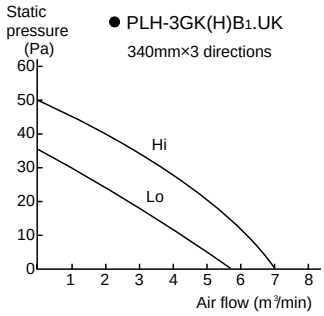


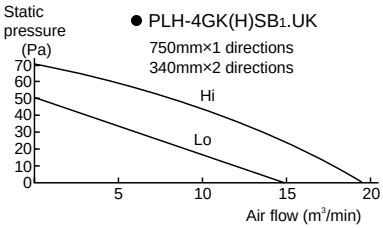


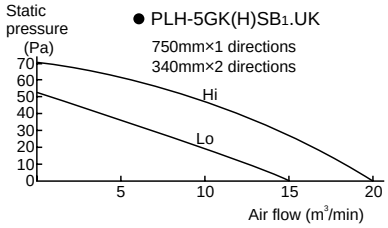


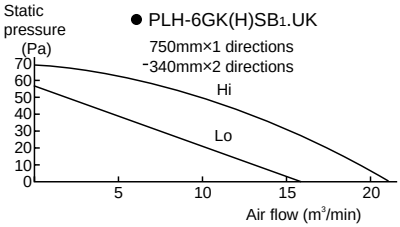


3 direction airflow

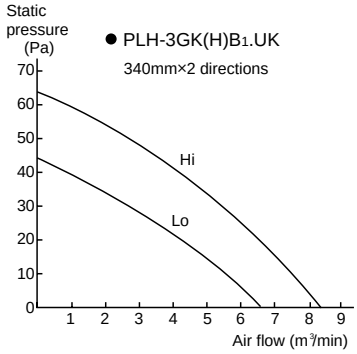


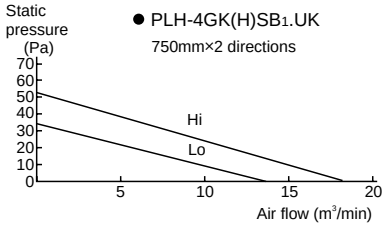


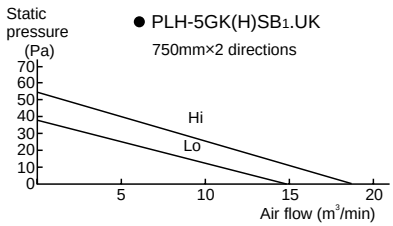


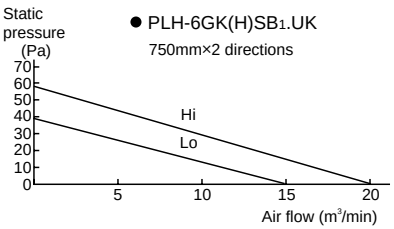


2 direction airflow



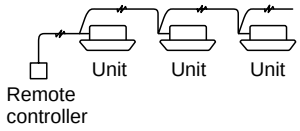
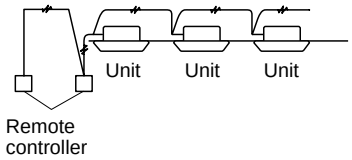
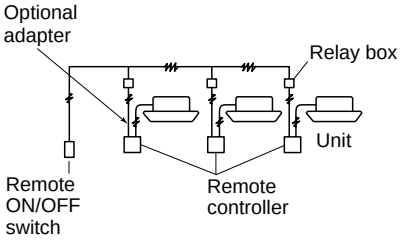
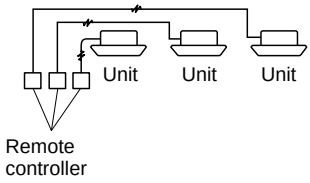
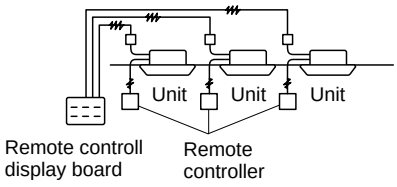
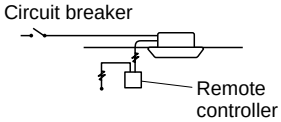






12 SYSTEM CONTROL

1. VARIETY OF SYSTEM CONTROL FUNCTIONS

1 Group control with a single remote controller (See page 61.)		Many units, installed at different locations, can be started and controlled with a aingle remote controller. The remote controller can be mounted in a different location using a non-polar two-wire cable, which can be extended up to 500m. A maximum of 50 units can be controlled with a single remote controller. All units operate in the same mode.
2 Control using two remote controllers (See page 62.)		Two remote controllers can be used to control either one unit or a group of units. Units can then be controlled from a distance or at close range. Units operate according to the latest command from either remote controller.
3 Both remote ON/OFF and individual controls (See page 62.) ※ Timer adapter (PAC-SA89TA-E) is needed.		All units can be turned on or off simultaneously using a remote ON-OFF switch. Also, each unit can be controlled individually by each remote controller. Duning remote ON-OFF control, a message of “CENTRALLY CONTROLLED” is displayed on the LCD of the remote controller. This is available for both one unit control and several units control.
4 Individual control by grouping remote controllers (See page 63.)		By grouping the remote controllers in one place, several units installed at different locations can be controlled individually, and operation conditions of all units are visible without a special control board. The control method is the same as that of the single unit with a single remote controller.
5 Multiple remote control display (See page 64.) ※ Multiple display adapter (PAC-SA88HA-E) is needed.		Several units can be controlled with a remote control display board. Operation conditions of all the units are visible with the remote control display board. Individual control by each remote controller is also possible.
6 Auto restart function (See page 64.)		A unit can be started or stopped with the circuit breaker on or off. Remote controller is also available. With this function, when the power is restored aftar power failure, the unit will restart automatically. (However, when the remote controller POWER ON/OFF button is OFF, the unit will not start.)

2. GROUP CONTROL WITH A SINGLE REMOTE CONTROLLER

A maximum of 50 units can be started in order according to the dip switch settings

2-1 How to wire

(1) Connect the remote controller to the double terminal block on the indoor controller board of the master unit (No.0 unit). (See Figure 1.)
(2) Connect the double terminal block of the master unit to the double terminal block of No.1 unit.
(3) Connect the double terminal block of No.1 unit to the double terminal block of No.2 unit.
(4) Continue the process until all the units are connected with two-wire cables. (See Figure 2.)
(5) Remove the connector CN40 from the indoor controller board of each unit except the master unit. (See Figure 3.)
(6) Set the unit-address of esch unit with SW2 on the indoor controller board following the instructions below.

2-2 How to set unit-address

The unit-address also serves as a successive-start timer which starts each unit at intervals of 1 second. If two or more units have the same unit-address in a group control, operation stops due to system error. Be sure to set SW2 correctly following the instructions below.

(1) Each lever of SW2 shows the number as follows.
SW2-1 : 1 SW2-4 : 8
SW2-2 : 2 SW2-5 : 16
SW2-3 : 4 SW2-6 : 32
(2) Total number of levers turned to ON shows the address of the unit.
For example, to set No.3 unit, turn ON SW2-1 and SW2-2.
(3) In this way, set from the. master unit to the last unit.
Do not forget to set the master (No. 0) unit.

Figure 1

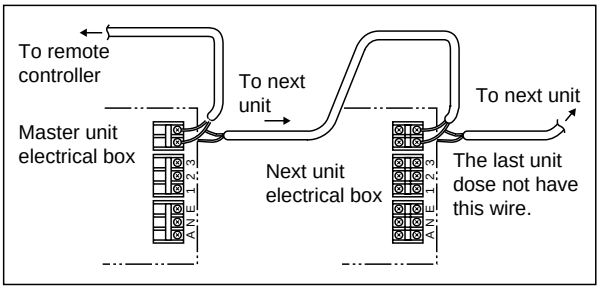


Figure 2

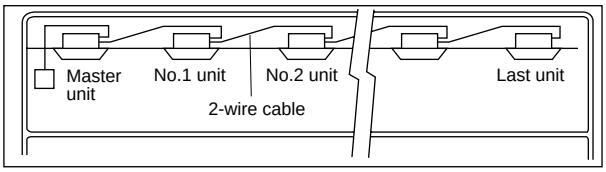
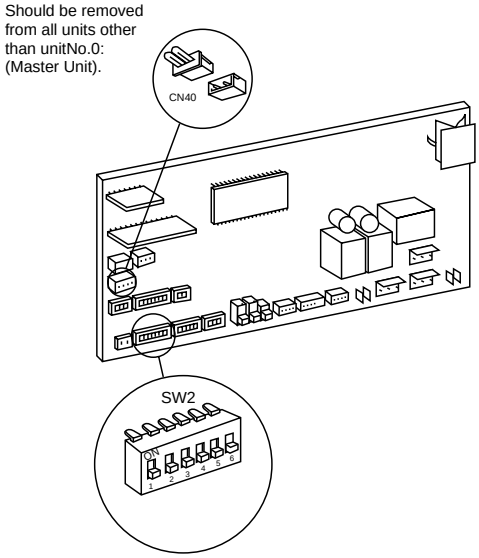


Figure 3

Indoor controller board ▼



Setting examples

	Master (No. 0) unit	No. 1 unit	No. 2 unit	No. 4 unit	No. 8 unit	No. 16 unit	No. 32 unit
SW2	ALL OFF	1 ON	2 ON	3 ON	4 ON	5 ON	6 ON
Unit address & start delay in seconds.	0	1	2	4	8	16	32

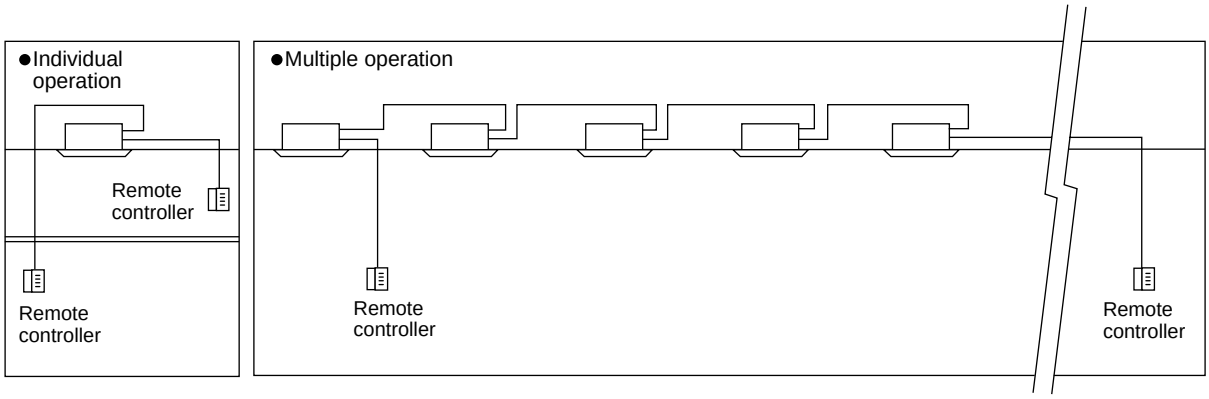
2-3 Unit control

The remote controller can control all units ON/OFF, temperature, air flow, and swing louver. However, the thermostat in each unit turns ON or OFF individually to adijust to the room temperature.

3. CONTROL USING TWO REMOTE CONTROLLERS : OPTIONAL REMOTE CNTROLLER (PAC-SK47RC)

Two remote controllers can be used to control either one unit or a group of units. Units operate according to the latest command from either of the two remote controllers.
Before operation, be sure to set one remote controller as the “main controller” and the other as the “sub controller”, using dip-switch SW17-7 of the remote controller.

Figure 4



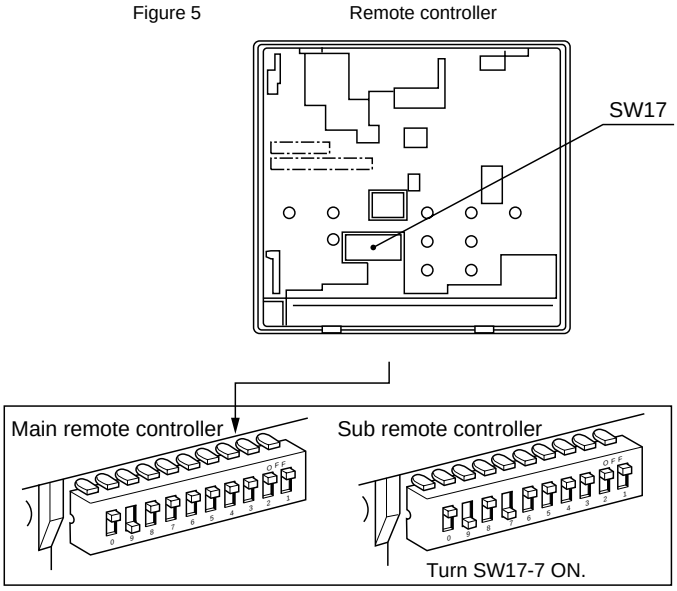
3-1 How to set SW17-7 (See Figure 5.)

(1) For the main remote controller, turn SW17-7 OFF.
(2) For the sub remote controller, turn SW17-7 ON.

3-2 Remote controller LCD indication

(1) The same indications always appear on both the main and sub remote controllers, except during the timer operations.
(2) Timer operations can be set with either of the two remote controllers. However, LCD indication appears only on the remote controller used for timer-settings.
(3)If both remote controllers are set for timer operation with different time-settings, the timer operation with the shorter remaining-time is effective.
(4) Self-diagnostic function is available with either of the two remote controllers. If one of the remote controllers is used for the self-diagnostic function, the other remote controller displays the check mode. If the self-diagnostic function is reset by either of the two remote controllers, both remote controllers are reset.

Figure 5



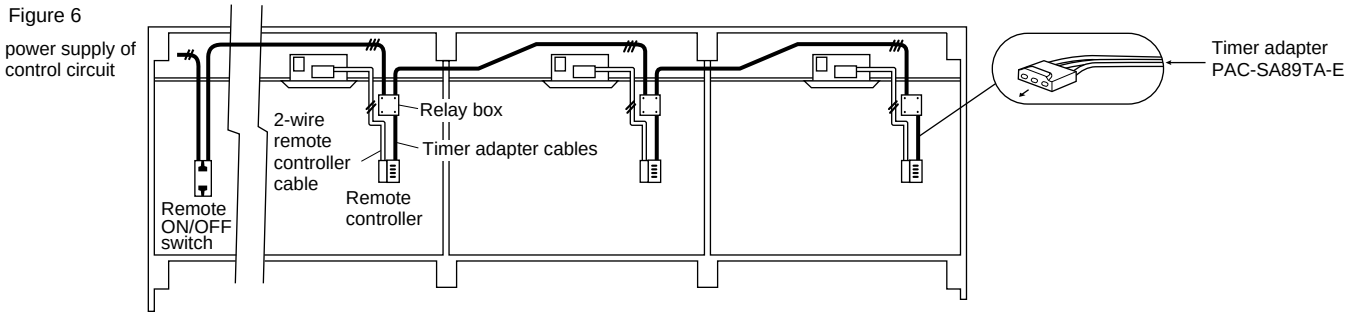
4. REMOTE ON-OFF AND INDIVIDUAL REMOTE CONTROLS

This method is available to control one unit or any number of units.
The following operations are available by connecting a relay, a timer adapter (PAC-SA89TA-E), and a remote ON/OFF switch to the system. Timer adapter is an optional part. Other parts are available on the market.
(A) To start all units in order by remote ON-OFF switch
(B) To stop all units simultaneously by remote ON-OFF switch
(C) To switch between the remote ON-OFF control and the individual remote control

4-1 System

Figure 6 shows the case of three units. The same is the case with any number of units.

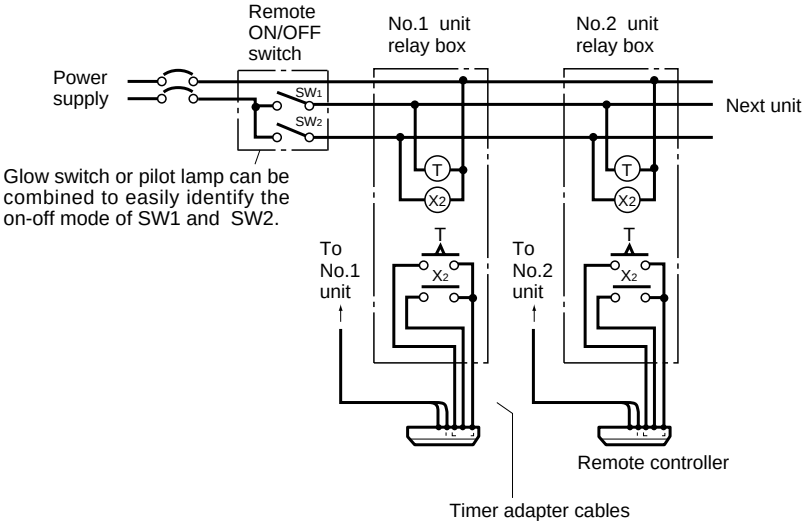
Figure 6



NOTE1 : Install the relay box where you can be serviced it easily.
NOTE2 : For control circuit wiring, use a wire of No. 14 AWG or a control cable according to the power supply of control circuit.
NOTE3 : When the power supply of the control circuit is 220/240V AC,
- ● Do not connect the control circuit wire to the remote controller cable directly.
- ● Do not place the control circuit wire and the remote controller cable into the same conduit tube.

4-2 Basic wiring

Caution : Before starting all units simultaneously by the remote ON-OFF switch, be sure to connect a sequence-start timer into the remote ON-OFF circuit. Otherwise, a rush of starting current may damage the power supply.



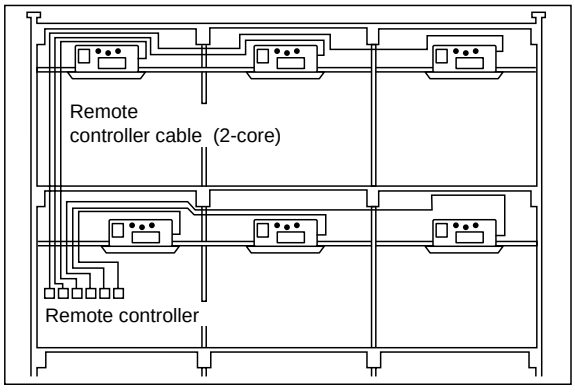
4-3 Switch function of remote ON-OFF switch

		SW2 (Switches between remote ON-OFF and individual control)	
		ON (Remote ON-OFF control)	OFF (Individual control)
SW1 (Switches between remote ON and OFF.)	ON (Start)	All units start together. ※1 Individual control is not available.	Each unit can be controlled by each remote controller. Remote ON-OFF switch is not available.
	OFF (Stop)	All units start together. ※2 Individual control is not available.	

※1After all units start together, if SW2 is turned OFF, each unit can be individually stopped by each remote controller.
※2After all units stop together, if SW2 is turned OFF, each unit can be individually started by each remote controller.

5. INDIVIDUAL CONTROL BY GROUPING THE REMOTE CONTROLLERS

- ● Grouping the remote controllers allows individual control and centralized monitoring of units installed in different places without a special control board.
- ● Remote control cables are extendable up to 500m. When the cable length exceeds 12m, use the double-insulated two-care cable such as Belden 9407. Also, the cable thickness must be No. 22 AWG or above.
- ● When gathering the power ON/OFF switches of air conditioners near the remote controllers, you should also install the power ON/OFF switch near each unit to prevent electric trouble during servicing.



6. MULTIPLE REMOTE CONTROL DISPLAY

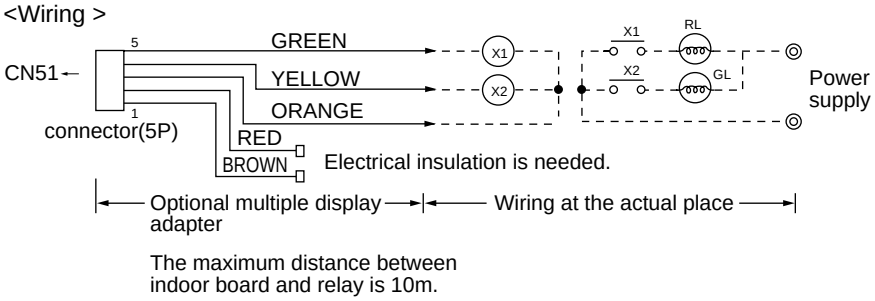
You can control serveral units with a multiple remote control display, by wiring an optional multiple display adapter (PAC-SA88HA-E) with relays and lamps on the market.

6-1 How to wire

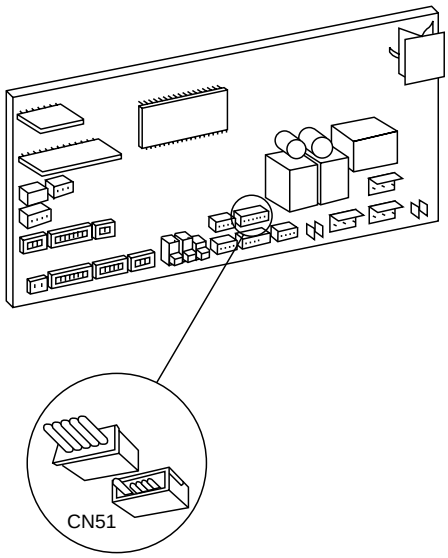
(1) Connect the multipe display adapter to the connector CN51 on the indoor controller board.

(2) Wire three of the five wires from the multiple display adapter as shown in the figure below.

<Wiring >

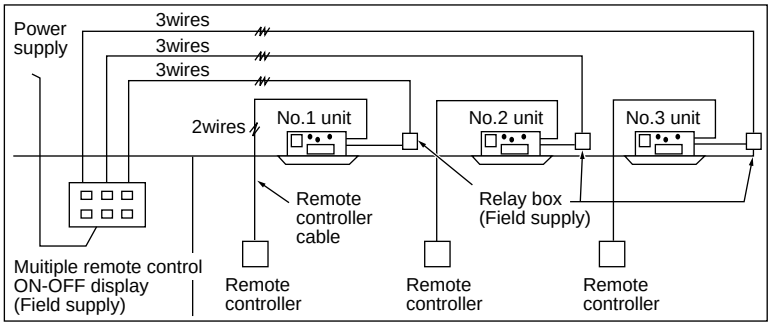


Indoor controller board



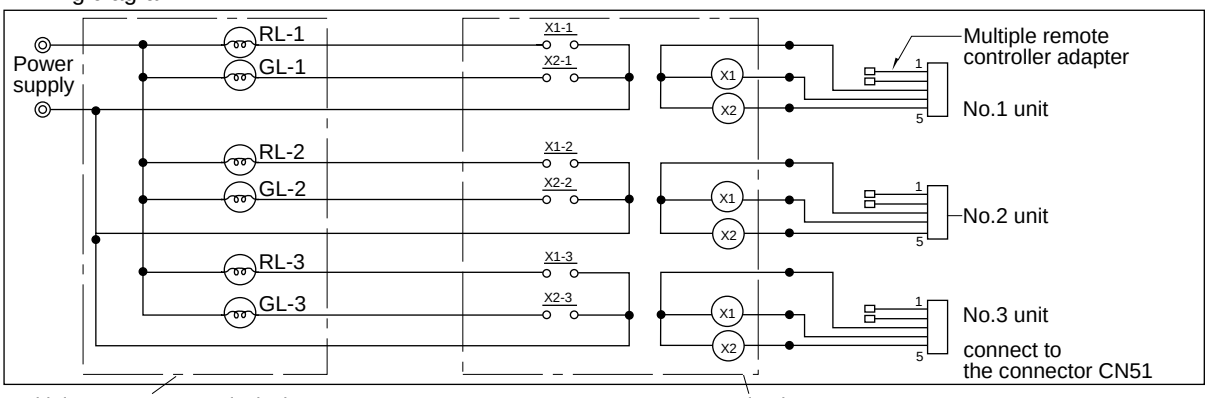
[Notes on Signs]
X1:Relay (for check lamp)
X2:Relay (for operation lamp)
RL:Check Lamp
GL:Operation Lamp
[Field supplied parts]
Relays:12V DC with rated coil power consumption below 0.9W.
Lamps:Matching to power supply voltage.

<System>



(Operation check)

<Wiring diagram>

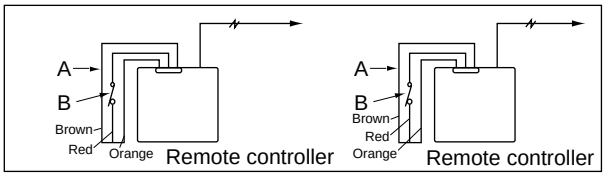


7. AUTO RESTART FUNCTION

By setting the diswich SW1-10 to ON, the air conditioner can be started/stopped by power supply ON/OFF.

If the air conditioner is OFF before the power failure, it will not start operation by power restore.

<Wiring>



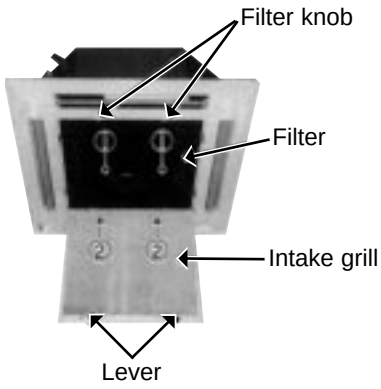
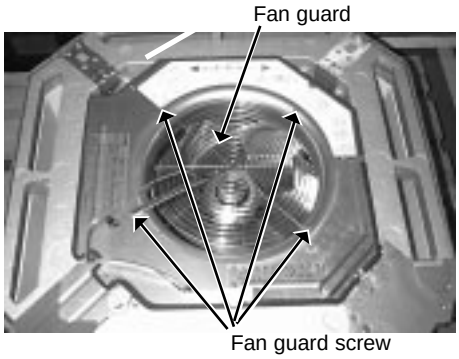
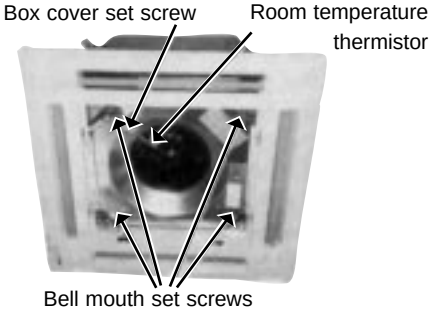
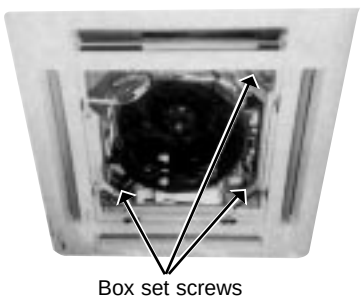
A : an optional timer adapter
B : a single-throw switch

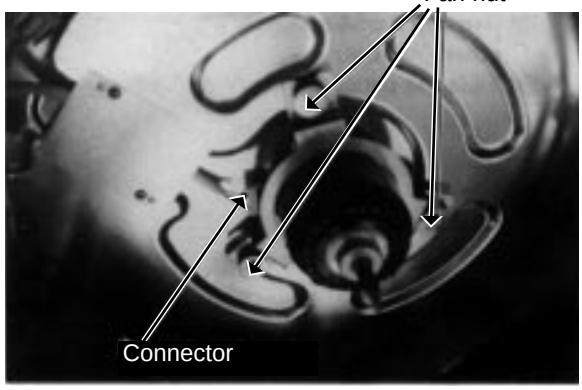
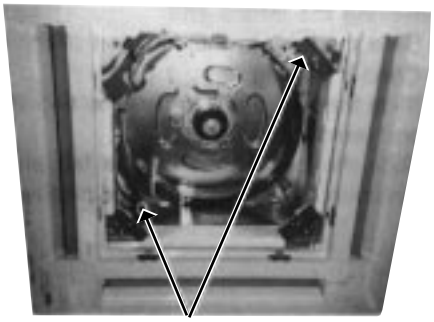
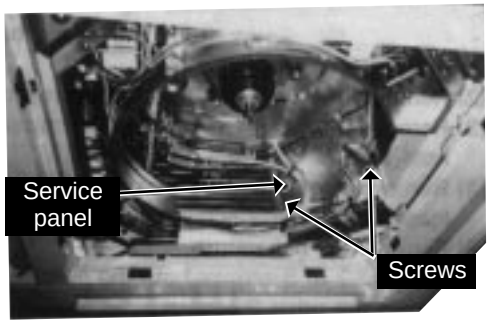
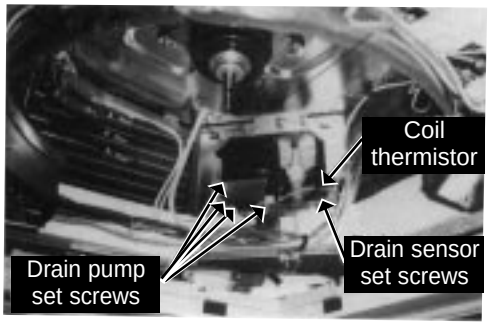
For remote control, connect the optional timer adapter (PAC-SA89TA-E)

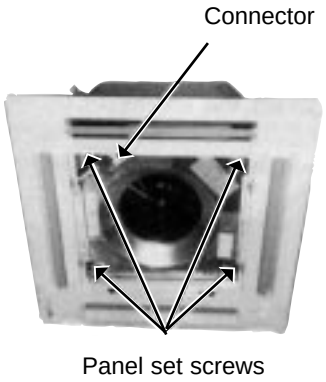
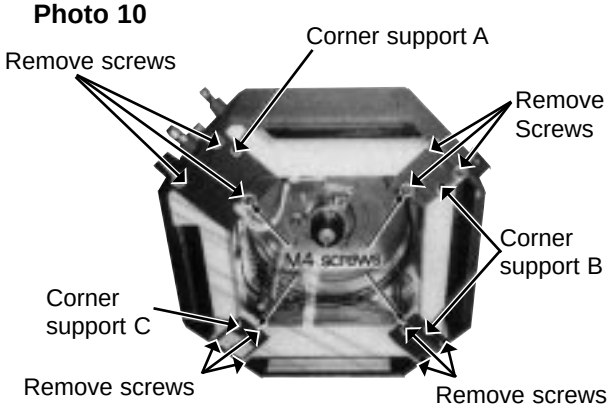
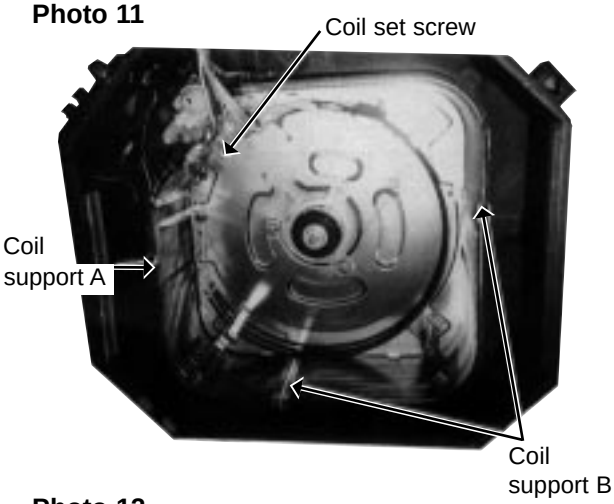
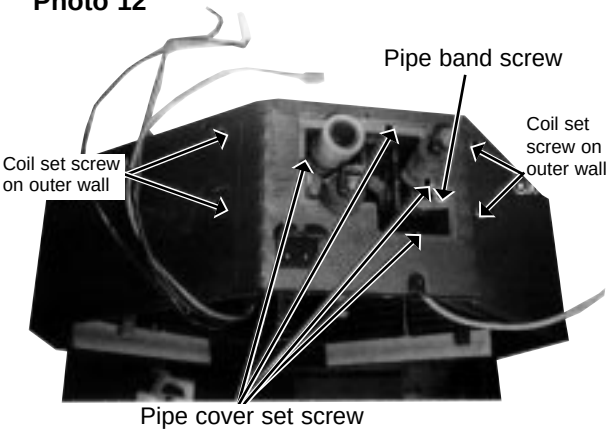
13 DISASSEMBLY PROCEDURE

PLH-3GK(H)B1.UK

Be careful on removing heavy parts.

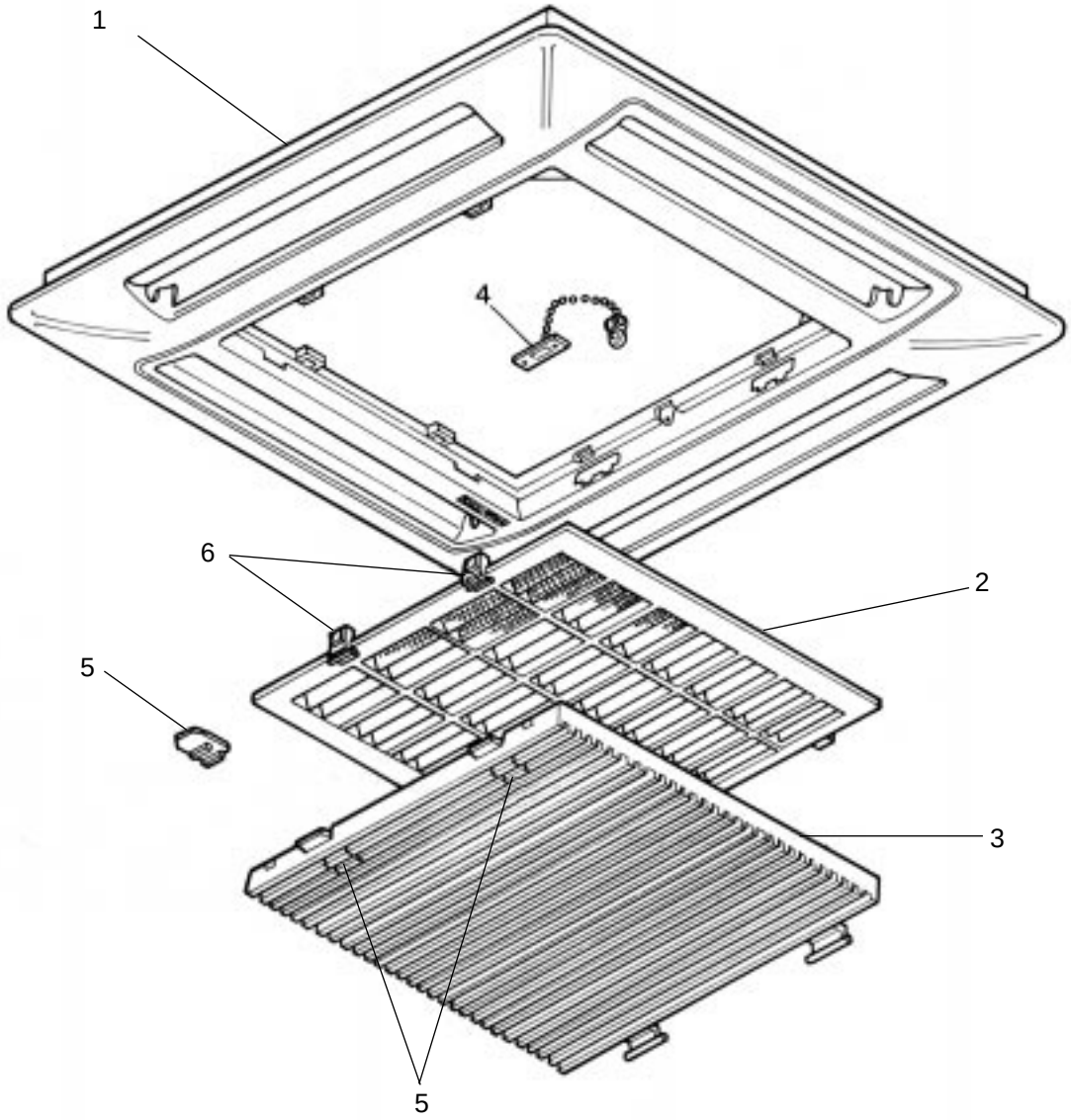
OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
1. Removing the intake grill (1) Slide the lever in the direction of the arrow ①. (2) Open it 90 deg. (3) Slide the intake grill in the direction of the arrow ② and remove it. (4) Slide the two knobs on the left and right in the direction of the arrow ③ and remove the filter.	**Photo 1** 
2. Removing the fan guard (1) Open the intake grill. (2) Remore the 4 screws of fan guard.	**Photo 2** 
3. Removing the electrical box (1) Remove the fan guard (2) Remove the screw from the room temperature thermistor holder. (3) Remove the room temperature thermistor holder. (4) Remove the room temperature thermistor from the holder. (5) Remove 2 of 4 screws from the bell mouth, and loosen the other 2 screws. (6) Remove the bell mouth. (7) Remove 1 of 3 screws from the electrical box, and loosen the other 2 screws. (8) Disconnect the connectors, and pull out the electrical box. Electrical parts in the electrical box Indoor controller board Transformer Relay (Only PLH-3GK(H)B1,4GK(H)SB1,5GK(H)SB1,6GK(H)SB1) Terminal block Capacitor	**Photo 3**  **Photo 4** 

OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
4. Remove the fan motor (1) Remove the fan guard. (2) Remove the turbo fan nut. (3) Pull out the turbo fan. (4) Disconnect the connector of the fan motor lead wire. (5) Remove the 3 nuts of the fan motor.	**Photo 5** 
5. Removing the heater **(Only PLH-3GK(H)B1, 4GK(H)SB1,** **PLH-5GK(H)SB1, 6GK(H)SB1)** (1) Remove the fan guard. (2) Remove the turbo fan nut and the turbo fan. (3) Remove the 2 screws of the heater support. (4) Pull out the heater assembly.	**Photo 6** 
6. Removing the drain pump, the drain sensor, and the indoor coil thermistor (1) Remove the fan guard. (2) Remove the turbo fan nut and the turbo fan. (3) Remove the 3 screws and the electrical box. (4) Remove the 2 screws of the service panel. (5) Holding the knob, remove the service panel. (6) Remove the 4 screws of the drain pump. (7) Remove the hose connecting nut. (8) Remove the drain pump. (9) Remove the screw of the drain sensor holder. (10) Remove the holder and the drain sensor. (11) Remove the indoor coil thermistor from the holder attached to the copper pipe.	**Photo 7**  **Photo 8** 

OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
7. Removing the panel (1) Disconnect the connector. (2) Remove 2 of 4 screws of the panel, and loosen the other 2 screws. (3) Slide the panel slightly to remove it.	**Photo 9** 
8. Removing the drain pan (1) Remove the panel. (2) Remove the fan guard. (3) Remove the bell mouth. (4) Remove the electrical box. (5) Remove the 3 screws each of the corner supports A,B and C.(Inner screws:M4) (6) Remove the corner supports A,B, and C. (7) Pull out the drain pan gradually with care not to crack it.	**Photo 10** 
9. Removing the heat exchanger (1) Remove the panel. (2) Remove the fan guard. (3) Remove the bell mouth. (4) Remove the turbo fan. (5) Remove the electrical box. (6) Remove the drain pan. (7) Remove the heater and the heater support. (8) Remove the coil support A and B. (9) Remove the coil set screw. (10) Remove the 4 screws of the pipe cover on the outer wall. (11) Remove the 2 pipe covers. (12) Remove the pipe band screw. (13) Remove the 4 screws of coil on the outer wall.	**Photo 11**  **Photo 12** 

14 PARTS LIST

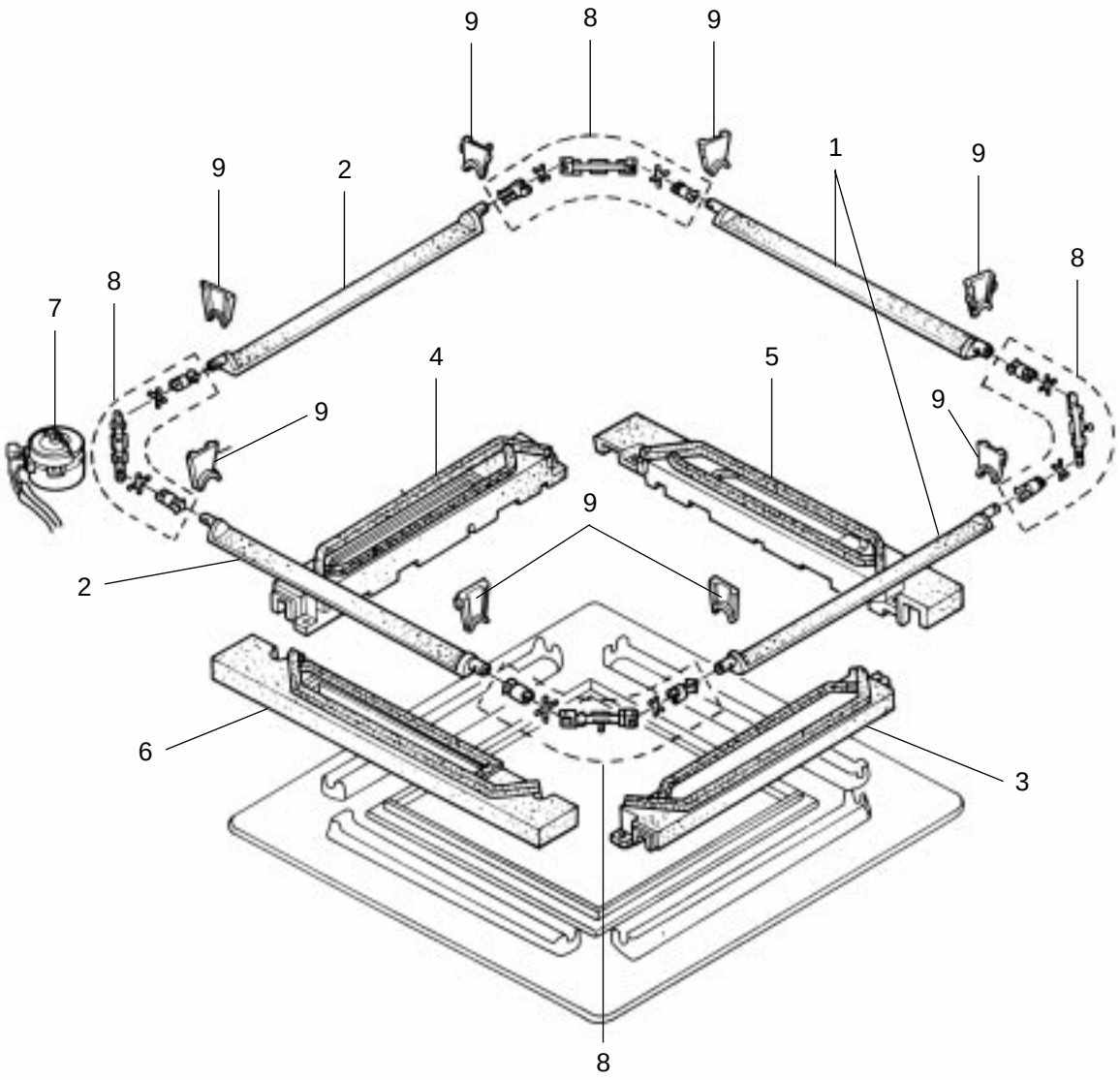
PANEL PARTS
PLH-3GKHB.UK
PLH-3GK(H)B1.UK



Part numbers that are circled are not shown in the figure.

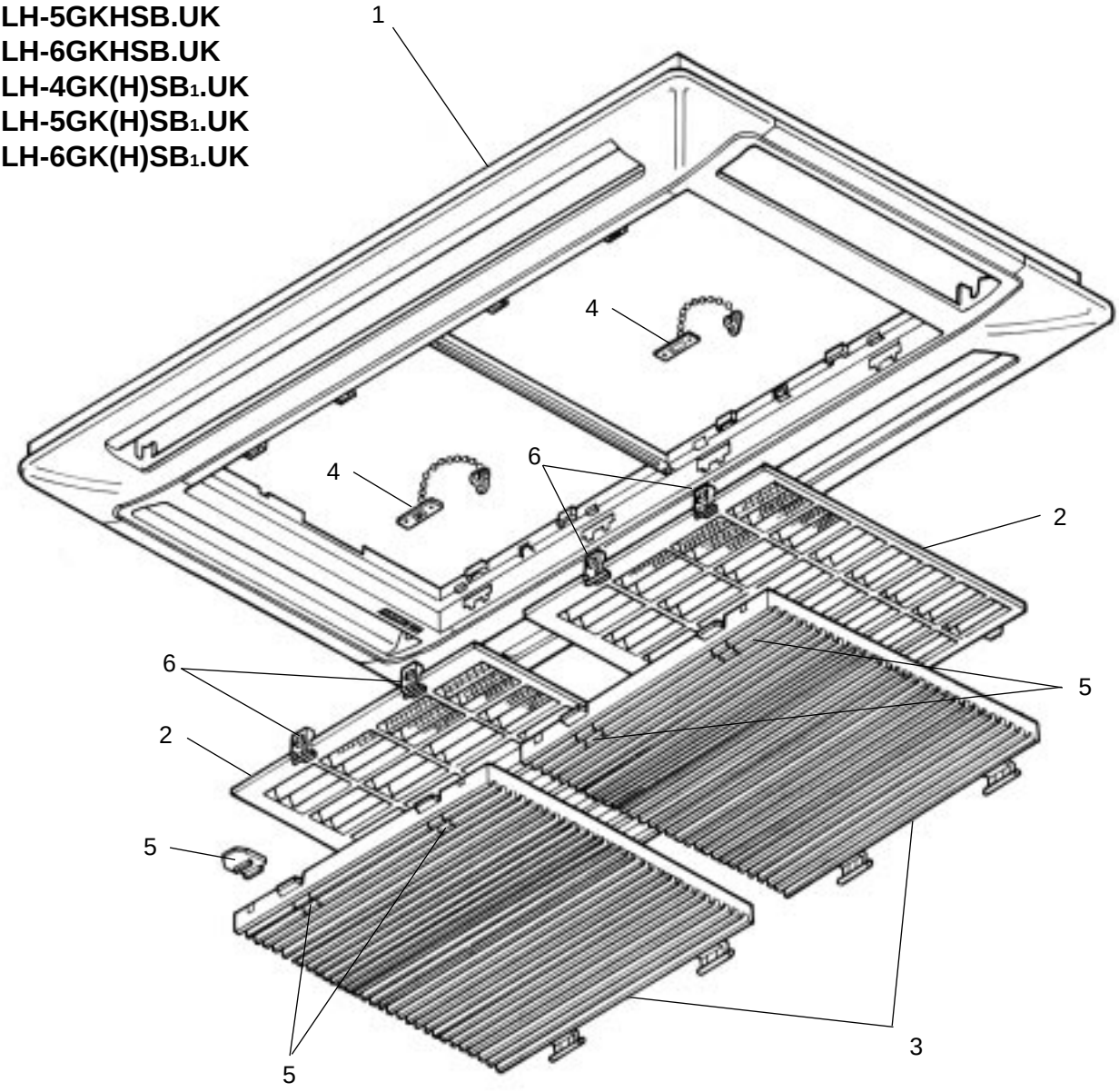
No.	Parts No.	Parts Name	Specification	Q'ty / set PLH-3 GKHB.UK GK(H)B1.UK	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price Unit	Price Amount
1	T7W 700 003	AIR OUTLET GRILLE	PANEL	1					
2	R01 W28 500	AIR FILTER		1					
3	R01 W28 691	INTAKE GRILLE		1					
4	R01 W28 098	HANGER G		1					
5	R01 W28 054	GRILLE CATCH		2					
6	R01 029 054	FILTER CATCH		2					
(7)	R01 W28 083	SHUTTER PLATE		1					
(8)	R01 W28 673	PANEL SCREW		1					

PANEL PARTS
PLH-3GKHB.UK
PLH-3GK(H)B1.UK



No.	Parts No.	Parts Name	Specification	Q'ty / set PLH-3 GKHB.UK GK(H)B1.UK	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price Unit	Price Amount
1	R01 W29 002	AUTO VANE(2)		2					
2	R01 W30 002	AUTO VANE(3)		2					
3	R01 W28 085	AIR GUIDE(1)		1					
4	R01 W28 086	AIR GUIDE(2)		1					
5	R01 W28 087	AIR GUIDE(3)		1					
6	R01 W28 088	AIR GUIDE(4)		1					
7	T7W 700 223	VANE MOTOR		1		MV			
8	R01 W28 063	VANE JOINT		4					
9	R01 W28 064	VANE BUSHING		8					

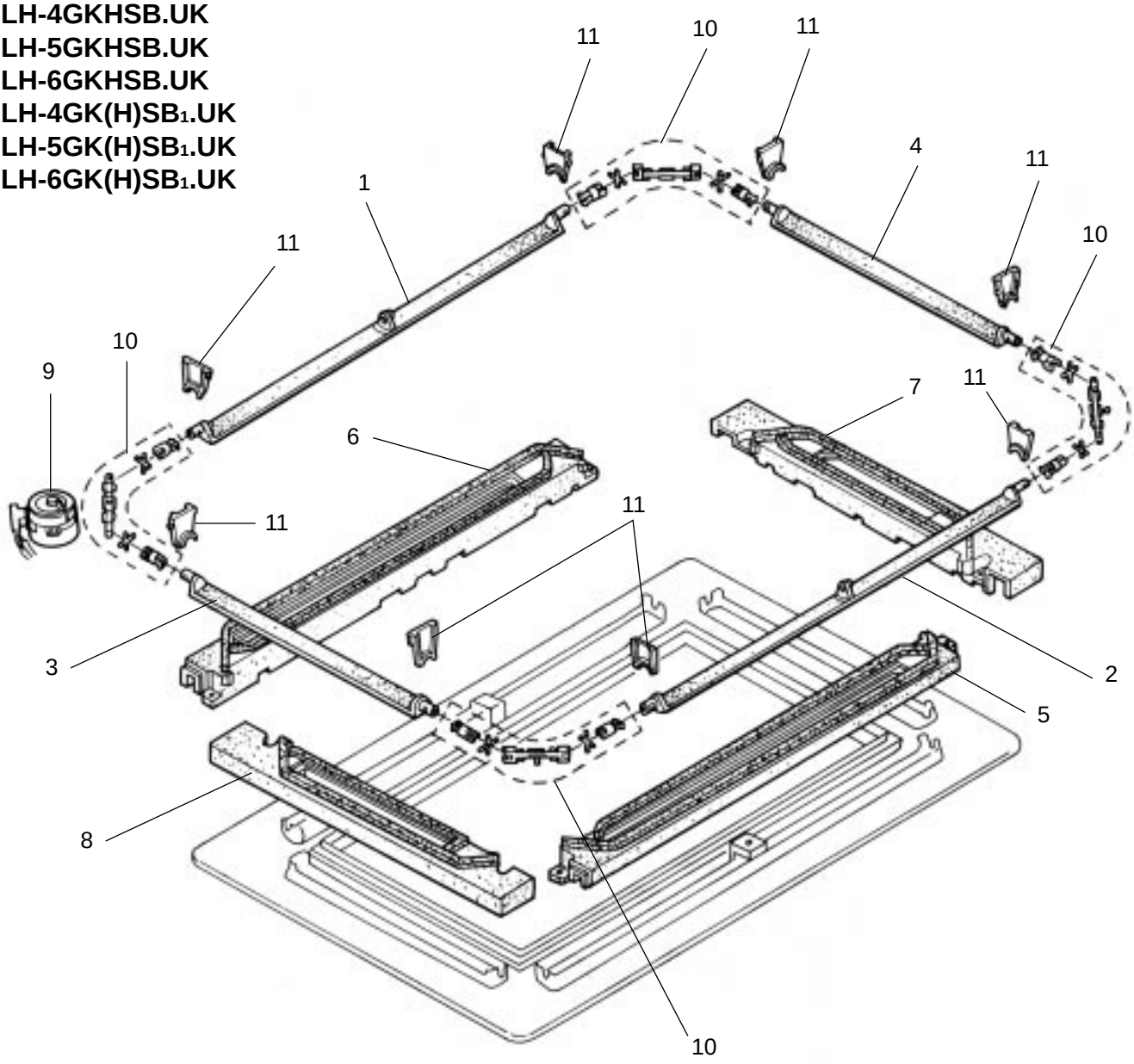
PANEL PARTS
PLH-4GKHSB.UK
PLH-5GKHSB.UK
PLH-6GKHSB.UK
PLH-4GK(H)SB1.UK
PLH-5GK(H)SB1.UK
PLH-6GK(H)SB1.UK



Part numbers that are circled are not shown in the figure.

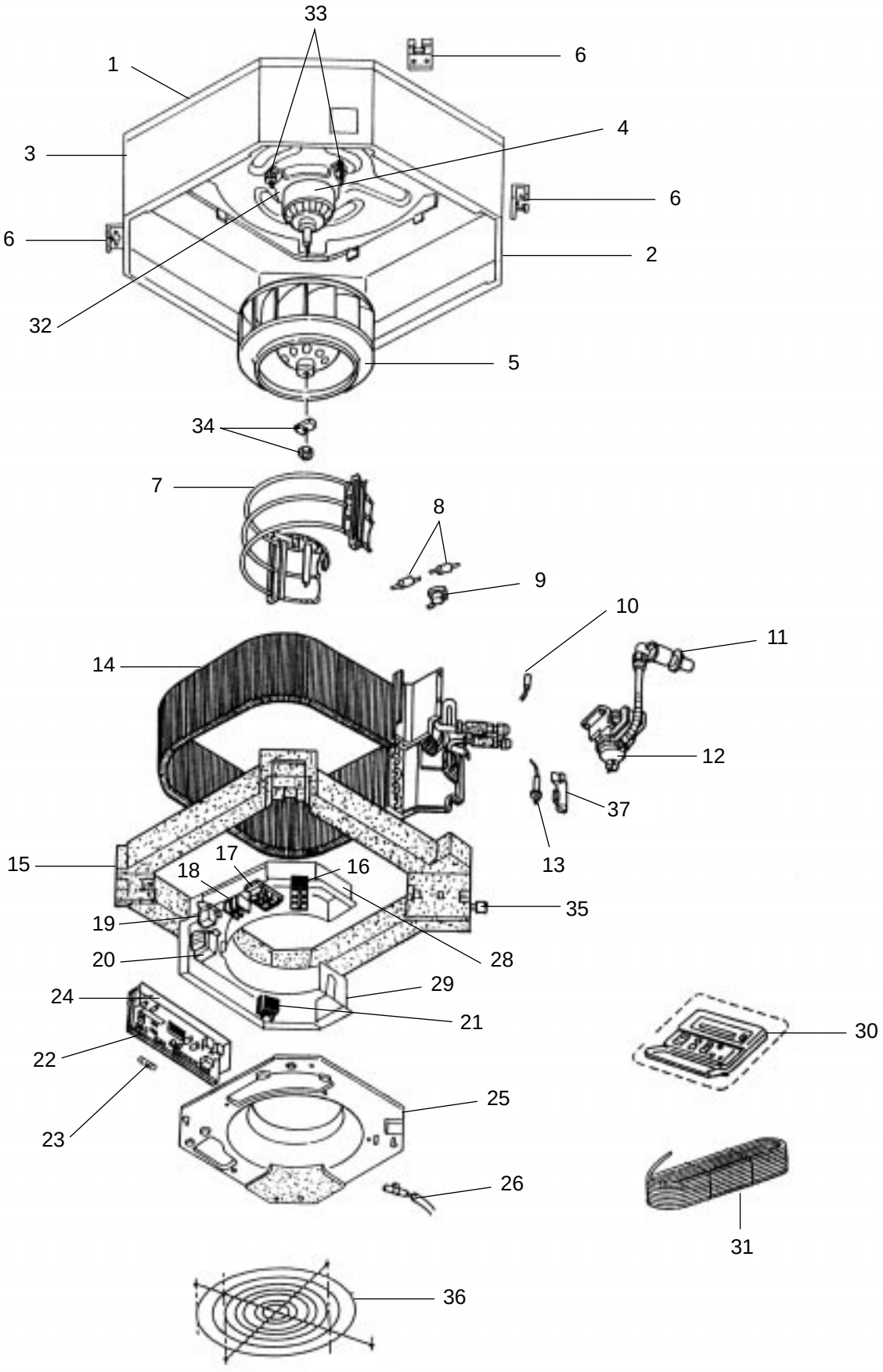
No.	Parts No.	Parts Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PLH-4	PLH-5	PLH-6				Unit	Amount
				GKHSB.UK GK(H)SB1.UK							
1	T7W 800 003	AIR OUTLET GRILLE	PANEL	1	1	1					
2	R01 W50 500	AIR FILTER		2	2	2					
3	R01 W50 691	INTAKE GRILLE		2	2	2					
4	R01 W28 098	HANGER G		2	2	2					
5	R01 W28 054	GRILLE CATCH		4	4	4					
6	R01 029 054	FILTER CATCH		4	4	4					
(7)	R01 W50 083	SHUTTER PLATE		1	1	1					
(8)	R01 W28 673	PANEL SCREW		1	1	1					

PANEL PARTS
PLH-4GKHSB.UK
PLH-5GKHSB.UK
PLH-6GKHSB.UK
PLH-4GK(H)SB$_1$.UK
PLH-5GK(H)SB$_1$.UK
PLH-6GK(H)SB$_1$.UK



No.	Parts No.	Parts Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty	Price	
				PLH-4	PLH-5	PLH-6				Unit	Amount
				GKHSB.UK GK(H)SB$_1$.UK							
1	R01 W50 002	AUTO VANE (L1)		1	1	1					
2	R01 W51 002	AUTO VANE (L2)		1	1	1					
3	R01 W29 002	AUTO VANE (2)		1	1	1					
4	R01 W28 002	AUTO VANE (3)		1	1	1					
5	R01 W50 085	AIR GUIDE (L1)		1	1	1					
6	R01 W50 086	AIR GUIDE (L2)		1	1	1					
7	R01 W28 087	AIR GUIDE (3)		1	1	1					
8	R01 W28 088	AIR GUIDE (4)		1	1	1					
9	T7W 700 223	VANE MOTOR		1	1	1		MV			
10	R01 W28 063	VANE JOINT		4	4	4					
11	R01 W28 064	VANE BUSHING		8	8	8					

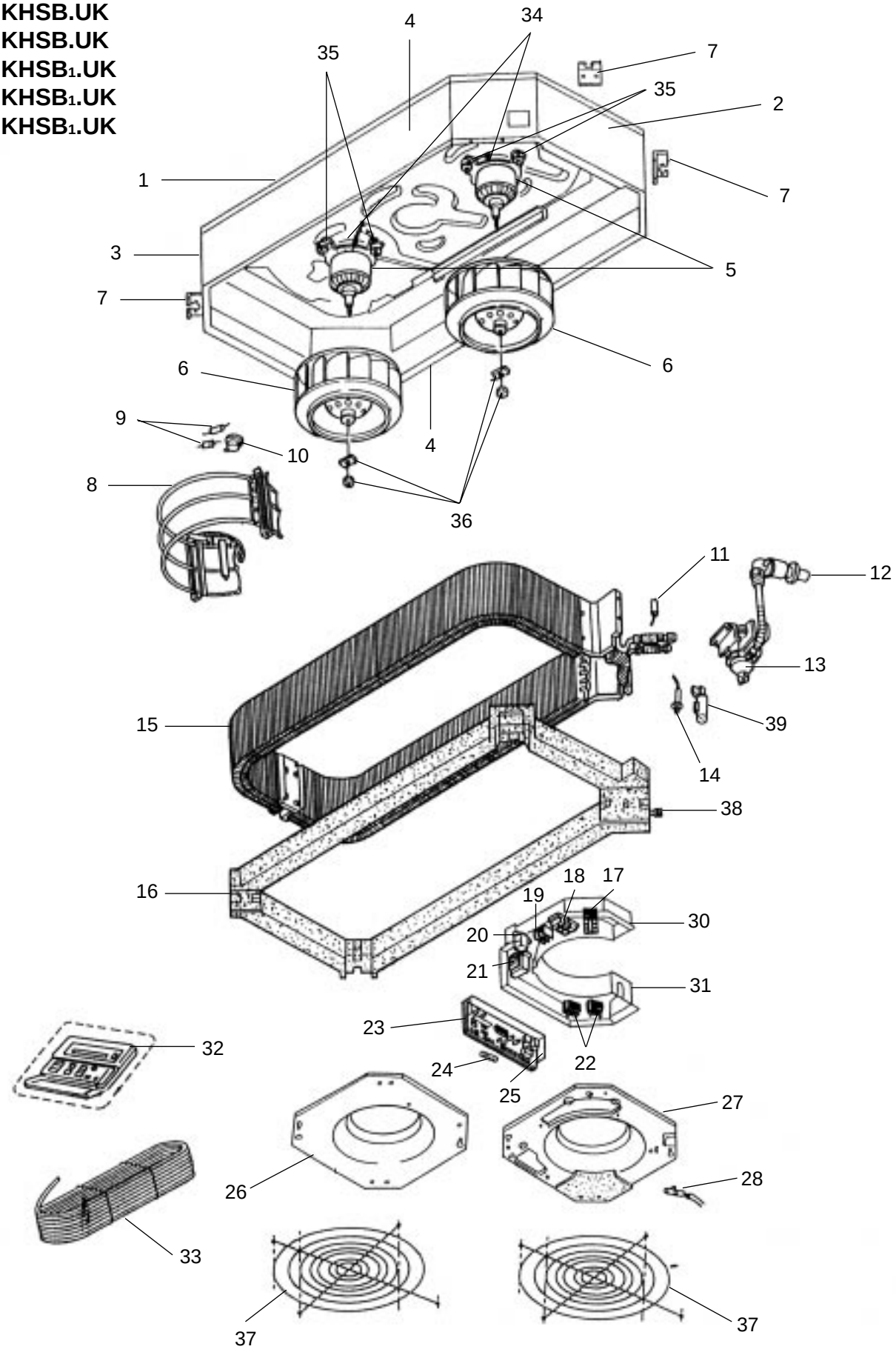
FUNCTIONAL PARTS
PLH-3GKHB.UK
PLH-3GK(H)B1.UK



Part numbers that are circled are not shown in the figure.

No.	Parts No.	Parts Name	Specifications	Q'ty/set PLH-3			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				GKHB.UK	GKHB$_1$.UK	GKB$_1$.UK				Unit	Amount
1	—	BASE		1	1	1	(BG00C305G21)				
2	—	DRAM (1)		1	1	1	(BG00A102G09)				
3	—	DRAM (2)		1	1	1	(BG00A101G08)				
4	T7W 703 762	FAN MOTOR	PM6V50-LA	1	1	1		MF1			
5	R01 W46 114	TURBO FAN		1	1	1					
6	—	LEG		4	4	4	(DB00H01G02)				
7	T7W 705 300	HEATER ELEMENT	240V 700W	3				H1			
	T7W A00 300	HEATER ELEMENT	240V 700W		3			H1			
8	R01 P02 706	THERMAL FUSE	250V 96°C 10A	2	2			FS1,2			
9	R01 046 700	THERMAL SWITCH	OFF 42°C ON 32°C	1	1			26H			
10	R01 W28 202	INDOOR COIL THERMISTOR		1	1	1		RT2			
11	R01 K01 523	DRAIN SOCKET		1	1	1					
12	T7W 11K 355	DRAIN PUMP		1	1	1		DP			
13	R01 W28 266	DRAIN SENSOR		1	1	1		DS			
14	R01 W44 480	HEAT EXCHANGER		1	1	1					
15	R01 W28 529	DRAIN PAN		1	1	1					
16	T7W 519 716	TERMINAL BLOCK	3P(L,N,⏚)	1	1	1		TB2			
17	T7W 518 716	TERMINAL BLOCK	3P(1,2,3)	1	1	1		TB4			
18	T7W 515 716	TERMINAL BLOCK	2P(1,2)	1	1	1		TB5			
19	R01 71G 215	RELAY	JC-1A 12V DC	1	1			88H			
20	T7W 700 799	TRANSFORMER		1	1	1		T			
21	R01 W28 255	RUN CAPACITOR	3μF 400V	1	1	1		C1			
22	T7W 57K 310	INDOOR CONTROLLER BOARD		1	1	1		I.B			
23	T7W 520 239	FUSE	250V 6.3A	1	1	1		F<I.B>			
24	—	CONTROLLER CASE		1	1	1	(BG25B226H03)				
25	—	BELL MOUTH		1	1	1	(BG00C321G79)				
26	R01 J01 202	ROOM TEMPERATURE THERMISTOR		1	1	1		RT1			
(27)	R01 W28 527	DRAIN HOSE		1	1	1					
28	—	ELECTRICAL BOX		1	1	1	(BG00D220G21)				
29	—	ELECTRICAL BOX		1	1	1	(BG00D221G11)				
30	T7W 14K 200	REMOTE CONTROLLER		1	1	1		R,B			
31	T7W 556 305	REMOTE CONTROLLER CABLE	10m	1	1	1					
32	R01 W46 130	MOTOR LEG		1	1	1					
33	R01 W28 105	RUBBER MOUNT		3	3	3					
34	R01 08K 097	SPL WASHER		1	1	1					
35	R01 A48 524	DRAIN PLUG		1	1	1					
36	T7W 11K 675	FAN GUARD		1	1	1					
37	R01 005 533	SENSOR HOLDER		1	1	1					

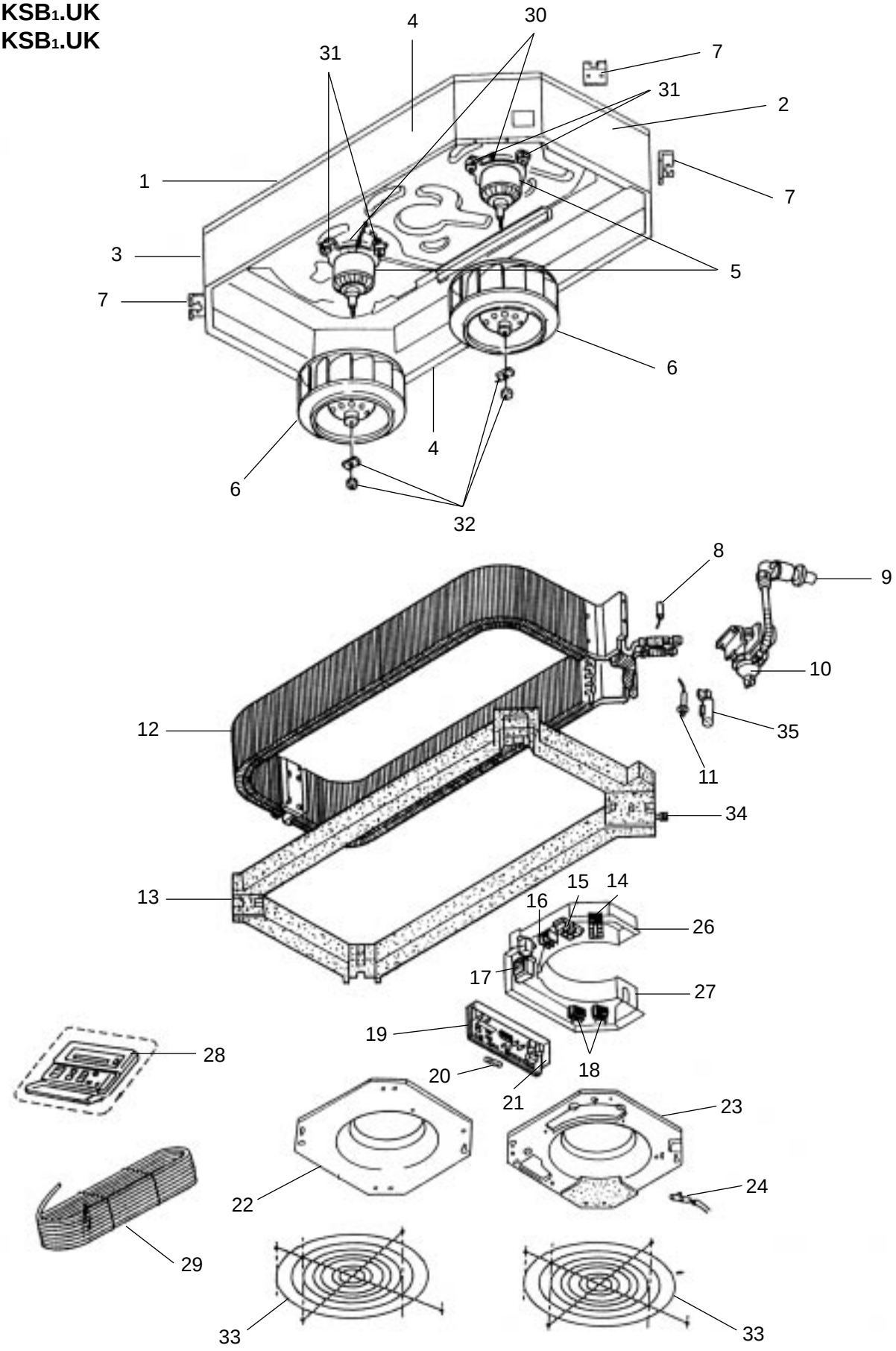
FUNCTIONAL PARTS
PLH-4GKHSB.UK
PLH-5GKHSB.UK
PLH-6GKHSB.UK
PLH-4GKHSB$_1$.UK
PLH-5GKHSB$_1$.UK
PLH-6GKHSB$_1$.UK



Part numbers that are circled are not shown in the figure.

No.	Parts No.	Parts Name	Specifications	PUH-4.UK		PUH-5.UK		PUH-6.UK		Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				GKHSB	GKHSB$_1$	GKHSB	GKHSB$_1$	GKHSB	GKHSB$_1$				Unit	Amount
1	—	BASE		1	1	1	1	1	1	(BG00C305G22)				
2	—	DRAM (1)		1	1	1	1	1	1	(BG00A102G09)				
3	—	DRAM (2)		1	1	1	1	1	1	(BG00A101G08)				
4	—	SEPARATOR		2	2	2	2	2	2	(BG00C324G07)				
5	T7W 703 762	FAN MOTOR	PM6V50-LA	2	2	2	2	2	2		MF1,2			
6	R01 W46 114	TURBO FAN		2	2	2	2	2	2					
7	—	LEG		4	4	4	4	4	4	(DB00H010G02)				
8	T7W 707 300	HEATER ELEMENT	240V 867W	3							H1			
	T7W 709 300	HEATER ELEMENT	240V 1000W			3		3			H1			
	T7W A01 300	HEATER ELEMENT	240V 867W		3						H1			
	T7W A02 300	HEATER ELEMENT	240V 1000W				3		3		H1			
9	T7W 509 706	THERMAL FUSE	250V 93°C 16A	2	2	2	2	2	2		FS1,2			
10	R01 046 700	THERMAL SWITCH	OFF 42°C ON 32°C	1		1		1			26H			
	T7W A00 700	THERMAL SWITCH	OFF 38°C ON 28°C		1		1		1		26H			
11	R01 W28 202	INDOOR COIL THERMISTOR		1	1	1	1	1	1		RT2			
12	R01 K01 523	DRAIN SOCKET		1	1	1	1	1	1					
13	T7W 11K 355	DRAIN PUMP		1	1	1	1	1	1		DP			
14	R01 W28 266	DRAIN SENSOR		1	1	1	1	1	1		DS			
15	T7W 590 480	HEAT EXCHANGER		1	1									
	T7W 591 480	HEAT EXCHANGER				1	1							
	T7W 592 480	HEAT EXCHANGER						1	1					
16	R01 W50 529	DRAIN PAN		1	1	1	1	1	1					
17	T7W 518 716	TERMINAL BLOCK	3P(L,N,⏚)	1	1	1	1	1	1		TB2			
18	T7W 519 716	TERMINAL BLOCK	3P(1,2,3)	1	1	1	1	1	1		TB4			
19	T7W 515 716	TERMINAL BLOCK	2P(1,2)	1	1	1	1	1	1		TB5			
20	R01 71G 215	RELAY	JC-1A 12V DC	1	1	1	1	1	1		88H			
21	T7W 700 799	TRANSFORMER		1	1	1	1	1	1		T			
22	R01 W28 255	RUN CAPACITOR	3μF 400V	2	2	2	2	2	2		C1,2			
23	T7W 57K 310	INDOOR CONTROLLER BOARD		1	1	1	1	1	1		I.B			
24	T7W 520 239	FUSE	250V 6.3A	1	1	1	1	1	1		F<I.B>			
25	—	INDOOR CONTROLLER CASE		1	1	1	1	1	1	(BG25B226H03)				
26	—	BELL MOUTH		1	1	1	1	1	1	(BG00C321G79)				
27	—	BELL MOUTH		1	1	1	1	1	1	(BG00C321G40)				
28	R01 J01 202	ROOM TEMPERATURE THERMISTOR		1	1	1	1	1	1		RT1			
(29)	R01 W28 527	DRAIN HOSE		1	1	1	1	1	1					
30	—	ELECTRICAL BOX		1	1	1	1	1	1	(BG00D220G21)				
31	—	ELECTRICAL BOX		1	1	1	1	1	1	(BG00D221G11)				
32	T7W 14K 200	REMOTE CONTROLLER		1	1	1	1	1	1		R,B			
33	T7W 556 305	REMOTE CONTROLLER CABLE	10m	1	1	1	1	1	1					
34	R01 W46 130	MOTOR LEG		2	2	2	2	2	2					
35	R01 W28 105	RUBBER MOUNT		6	6	6	6	6	6					
36	R01 08K 097	SPL WASHER		2	2	2	2	2	2					
37	T7W 11K 675	FAN GUARD		2	2	2	2	2	2					
38	R01 A48 524	DRAIN PLUG		1	1	1	1	1	1					
39	R01 005 533	SENSOR HOLDER		1	1	1	1	1	1					

FUNCTIONAL PARTS
PLH-4GKSB1.UK
PLH-5GKSB1.UK
PLH-6GKSB1.UK



Part numbers that are circled are not shown in the figure.

No.	Parts No.	Parts Name	Specifications	Q'ty/set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PLH-4	PLH-5	PLH-6				Unit	Amount
				GKSB1.UK							
1	—	BASE		1	1	1	(BG00C305G22)				
2	—	DRAM (1)		1	1	1	(BG00A102G09)				
3	—	DRAM (2)		1	1	1	(BG00A101G08)				
4	—	SEPARATOR		2	2	2	(BG00C324G07)				
5	T7W 703 762	FAN MOTOR	PM6V50-LA	2	2	2		MF1,2			
6	R01 W46 114	TURBO FAN		2	2	2					
7	—	LEG		4	4	4	(DB00H010G02)				
8	R01 W28 202	INDOOR COIL THERMISTOR		1	1	1		RT2			
9	R01 K01 523	DRAIN SOCKET		1	1	1					
10	T7W 11K 355	DRAIN PUMP		1	1	1		DP			
11	R01 W28 266	DRAIN SENSOR		1	1	1		DS			
12	T7W 590 480	HEAT EXCHANGER		1							
	T7W 591 480	HEAT EXCHANGER			1						
	T7W 592 480	HEAT EXCHANGER				1					
13	R01 W50 529	DRAIN PAN		1	1	1					
14	T7W 518 716	TERMINAL BLOCK	3P(L,N,⏚)	1	1	1		TB2			
15	T7W 519 716	TERMINAL BLOCK	3P(1,2,3)	1	1	1		TB4			
16	T7W 515 716	TERMINAL BLOCK	2P(1,2)	1	1	1		TB5			
17	T7W 700 799	TRANSFORMER		1	1	1		T			
18	R01 W28 255	RUN CAPACITOR	3μF 400V	2	2	2		C1,2			
19	T7W 57K 310	INDOOR CONTROLLER BOARD		1	1	1		I.B			
20	T7W 520 239	FUSE	250V 6.3A	1	1	1		F<I.B>			
21	—	INDOOR CONTROLLER CASE		1	1	1	(BG25B226H03)				
22	—	BELL MOUTH		1	1	1	(BG00C321G50)				
23	—	BELL MOUTH		1	1	1	(BG00C321G40)				
24	R01 J01 202	ROOM TEMPERATURE THERMISTOR		1	1	1		RT1			
(25)	R01 W28 527	DRAIN HOSE		1	1	1					
26	—	ELECTRICAL BOX		1	1	1	(BG00D220G21)				
27	—	ELECTRICAL BOX		1	1	1	(BG00D221G11)				
28	T7W 14K 200	REMOTE CONTROLLER		1	1	1		R,B			
29	T7W 556 305	REMOTE CONTROLLER CABLE	12m	1	1	1					
30	R01 W46 130	MOTOR LEG		2	2	2					
31	R01 W28 105	RUBBER MOUNT		6	6	6					
32	R01 08K 097	SPL WASHER		2	2	2					
33	T7W 11K 675	FAN GUARD		2	2	2					
34	R01 A48 524	DRAIN PLUG		1	1	1					
35	R01 005 533	SENSOR HOLDER		1	1	1					

15 OPTIONAL PARTS

1. REFRIGERANT PIPES

Service Ref. : PLH-3GK(H)B1.UK

Part No.	PAC-05FFS-E	PAC-07FFS-E	PAC-10FFS-E	PAC-15FFS-E
Pipe length	5m	7m	10m	15m
Pipe size O.D .	Liquid:ϕ9.52 Gas:ϕ15.88			
Connection method	Indoor unit: Flared Outdoor unit: Flared			

Service Ref. : PLH-4GK(H)SB1.UK,PLH-5GK(H)SB1.UK,PLH-6GK(H)SB1.UK

Part No.	PAC-PC51PI-E	PAC-SC52PI-E	PAC-SC53PI-E	PAC-SC54PI-E
Pipe length	5m	7m	10m	15m
Pipe size O.D.	Liquid:ϕ9.52 Gas:ϕ19.05			
Connection method	Indoor unit: Flared Outdoor unit: Flared			

Note 1. How to connect refrigerant pipes.
Factory supplied optional refrigerant pipings contain refrigerant at the above atmospheric pressures. As long as the connection takes no more than 5 minutes, no air will enter, and there will be no need for air purging.
Remove the blind caps and make the connections within 5 minutes. After the connections for the indoor and outdoor units are made, open the stop valve on the outdoor unit to allow refrigerant gas to flow.
If piping length exceeds 5m, an additional charge of refrigerant in needed.
Note 2. The following main parts are cntained in the optional refrigerant piping kit.
Heat insulating cover, vinyl tapes, nipples, sleeve and flange (for wall hole), connecting cables.

2. TIMER

When using a program timer, a program timer adapter (PAC-825AD) is also needed.

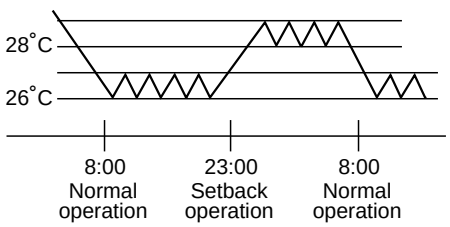
Part No.	PAC-SC32PTA (with set bak function)
Model Name	Program timer

2-1 Program timer specifications

Parts name	Program timer
Parts No.	PAC-SC32PTA
Exterior dimensions (inch)	5-4/32x4-23/32x23/32 (130x120x18mm)
Installation	Wall mount
Type of clock	Quartz
Clock accuracy	±50 second / month at 25°C
Display-Time -Week -Timer setting unit	Liquid crystal display Liquid crystal display Liquid crystal display
Program cycle	24 hours
Timer setting unit	30 minutes
No. of set points	48 / day
Power rating	5V DC ±5% (Supplyed by Remote Controller)

2-2 Feature of program timer

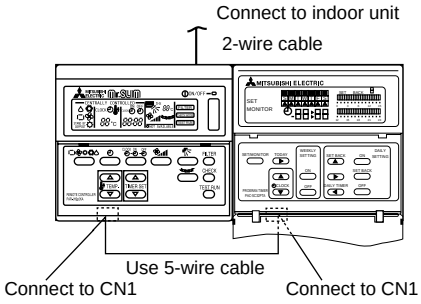
(1) Daily timer function
Daily timer can be set in 30 minutes units for up to 24 hours.
Each unit can be set for unit ON, unit OFF, or setback operation.
(2) Setback operation (PAC-SC32PT)
Set back operation is useful for reducing running costs
e.g. At a hotel with a 24-hour system
8:00~23:00 Cooling operation with set temperature at 26°C
23:00~8:00 Setback operation with 2 degrees of setback
As shown in the chart on the night, the set temperature rises 2 degrees automatically during the setback operation. When the setback operation ends, normal operation will begin.
(3) Weekly timer function
Daily timer function can apply to each day of the week.



2-3. How to connect program timer

(1) Install the program timer next to the remote controller the same way as the remote controller is installed.

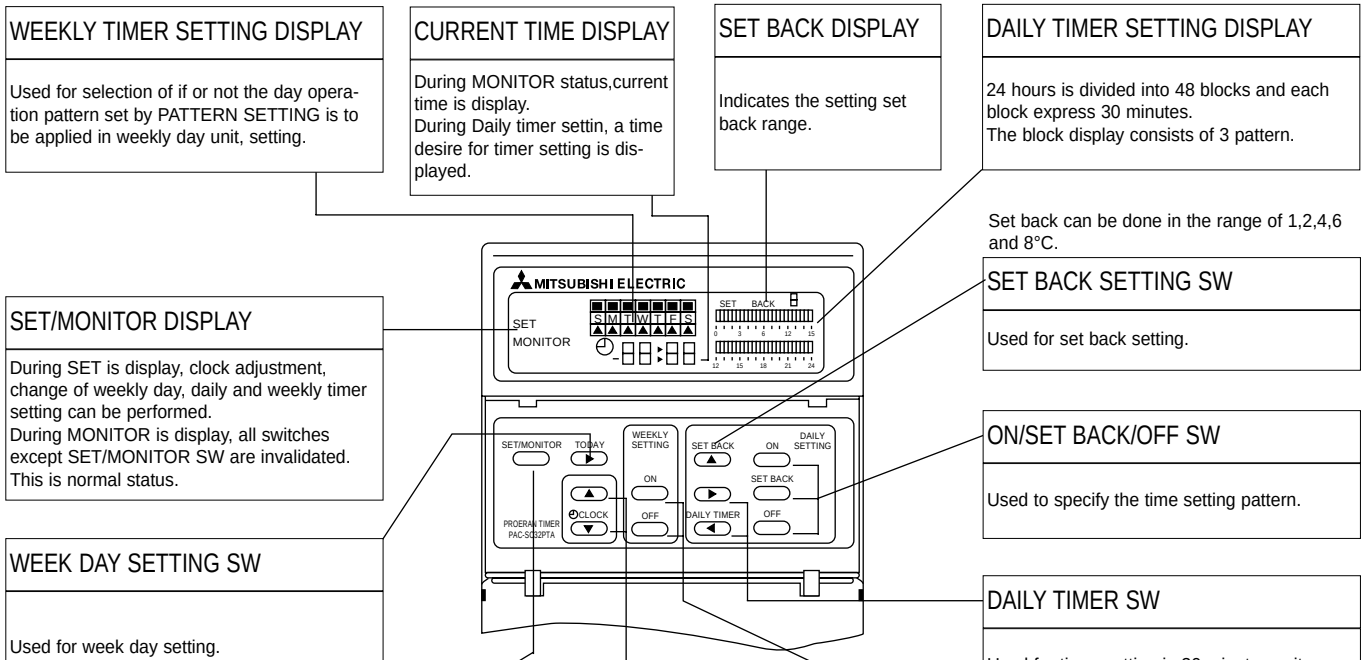
(2) Connect the program timer and the remote controller with a 6-wire cable as shown in the figure below



NOTE:While the program timer is connected to the remote controller, the 24hour ON/OFF timer on the remote controller will not operate.

2-4. Names and functions

<PAC-SC32PTA>



“MONITOR” :Indicates the current timer setting. All switch expect MODE SELECTOR SW are invalidated then.This is the normal status.

“SET”: Set to “SET” mode for clock adjustment, charge of week day, daily and weekly timer setting.

Push ▲ SW to advance the time. Each time the button is pushed the time advance by 1 minute, pushing continuously advances by 1 minute at 0.5 second interval, and when the lower digit of minute decomes 0 indication advances in 10 minutes unit.

▼ SW is used for reversing the time. Each time the button is pushed the time reverses by 1 minute, pushing continuously reverses the time by 1 minute at 0.5 second interval, and when the lower digit of minute decomes 0 indication reverses in 10 minutes unit.

Pushing ▶ SW moves the week day light display in order of

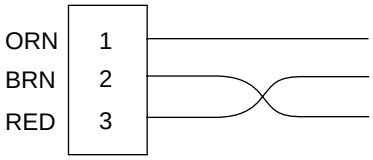
S → M → T → W ⋯

enabling to set the week day.

3. TIMER ADAPTER

This adapter is needed for system control and for operation via external contacts. Adapter connection is described on page 62.

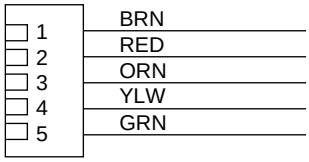
Part No.	PAC-SA89TA-E



4. MULTIPLE REMOTE CONTROLLER ADAPTER

This adapter is needed for remote indication (operation/check). Adapter connection is described on page 81.

Part No.	PAC-SA88HA-E



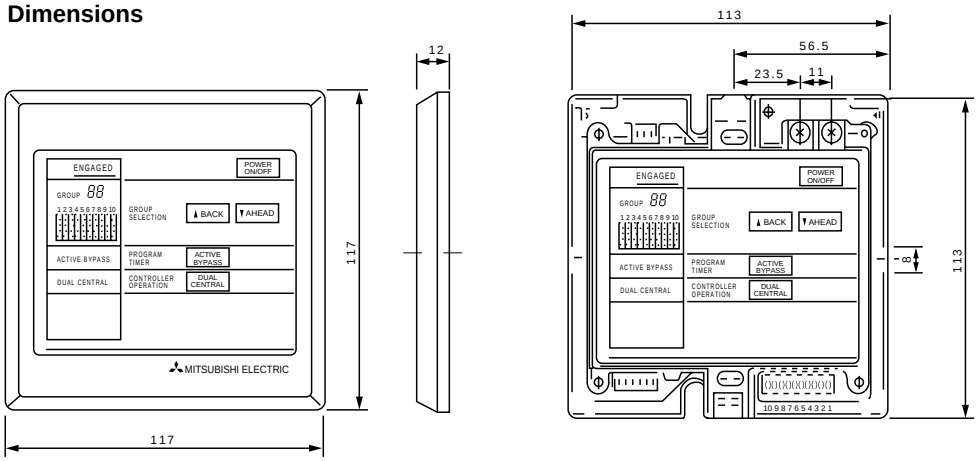
5. CENTRALIZED REMOTE CONTROLLER

Allows individual or combined control of up to 16 units. When using the PAC-805RC, the program timer adapter (PAC-825AD)is also needed. See page 81.

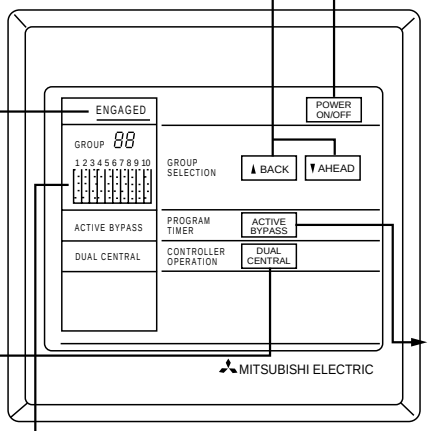
Part No.	PAC-805RC

Unit:mm

5-1. Dimensions



5-2. Functions



"ENGAGED" indicator
When this indicator is lit, transmission is in progress and all switches are inoperative.

DUAL/CENTRAL switch
This change-over switch governing the operation of the accessory remote controller.

"DUAL"
Instructions from both the accessory remote controller and the centralized remote controller are valid. (Priority given to the last instruction received.)

"CENTRAL"
ON/OFF switching by the accessory remote controller is invalidated. Control is by the centralized remote controller only.
Initial setting is "DUAL".

LCD Matrix Display
This display indicates the operational status of all connected units either by steady lighting or by flashing.

POWER ON/OFF switch
Operation ON/OFF switch.

▲BACK ▼AHEAD buttons
These buttons are used to designate the attached unit(s). (They designate the unit to be centrally controlled.)

●When group “00” is designated; collective ON/OFF instruction is sent to all units.

●When group “01”-“16“ is designated; ON/OFF instruction is sent to the designated units only.

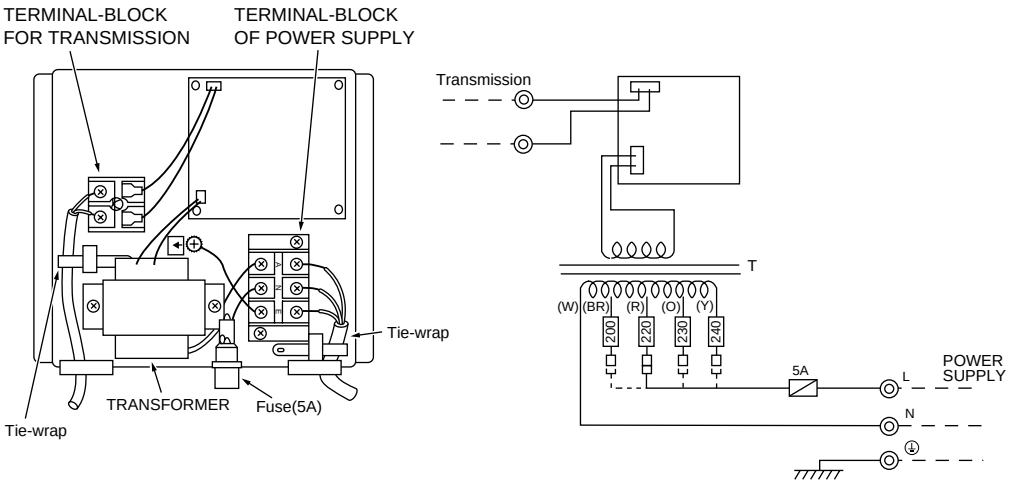
ACTIVE/BYPASS switch
This is a change-over switch for the program timer.
(It selects timer operation on the program timer.)
Use “BYPASS” when a program timer is not connected.
“ACTIVE”
The switch tums ON/OFF operational instructions from the program timer automatically.
“BYPASS”
ON/OFF Operation is by the centralized remote controller only.
Initial setting is “BYPASS”.

Independent “DUAL / CENTRAL” and “ACTIVE / BYPASS” setting of all the groups is possible. When the power supply to the centralized remote controller is cut due to power failure, all settings will return to original “DUAL” and “BYPASS”.

5-3 Connection method

(1) Connections in the power supply cord.

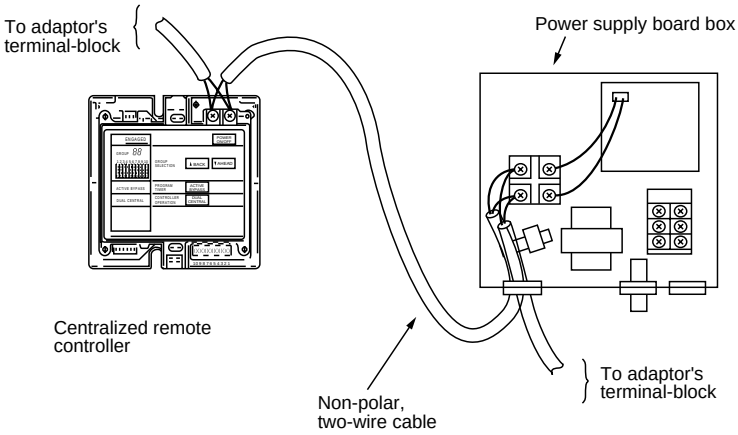
1. Connect the power supply cord to the power supply terminal-block and fix it in-place with a tie-wrap.
   Connect a single phase 200V AV (220, 230, 240V) to Ⓛ Ⓝ .
   As Ⓔ is the GND terminal, be sure to ground the earth wire.
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap.
   Use a Ω1.6 (AWG 14) or above two-wire cable for the transmission line.
   CAUTION : Never connect the power supply cord to the transmission terminal-block.



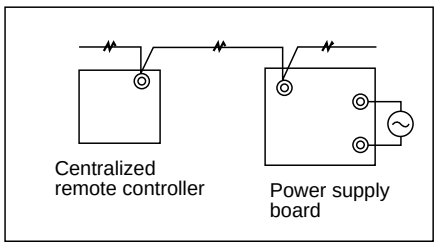
Wiring has to be changed when
a 200,230 or 240V power is used.

(2) Connection method of centralized remote controller and power supply board.

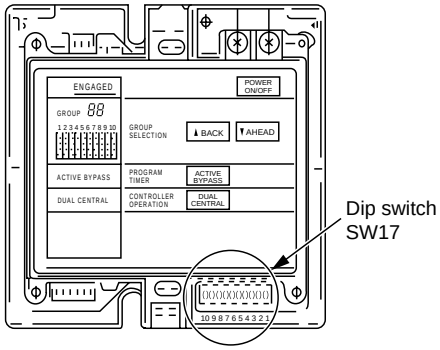
1. Connect the centralized remote controller and power supply board with a non-polar, two-wire cable.



2. Wiring diagram



3. Be sure to set the maximum address number with the dipswitch SW17 on the centralized remote controller.

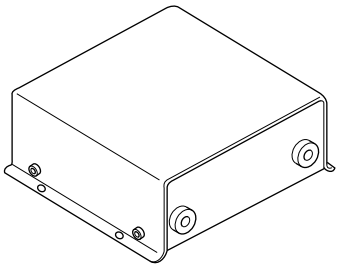
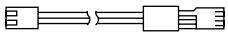
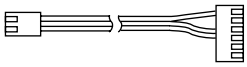
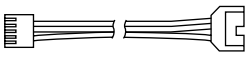
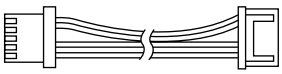


6. PROGRAM TIMER ADAPTER

This adapter is needed when a program timer(PAC-SK65PT)or a centralized remote controller(PAC-805RC)is used.

Part No.	PAC-825AD

6-1 Parts included

① ADAPTER ·····1P	② 3-core cable·····1P	③ 3-core cable·····1P
	 Length : 2m (6' 7")	 Length : 2m (6' 7")
	④ 4-core cable·····1P	⑤ 5-core cable·····1P
	 Length : 2m (6' 7")	 Length : 2m (6' 7")

6-2 Connection method

Connection and wiring methods differ with the type of the indoor unit used. Confirm the type before carrying out the work.

(1) Connections in the adapter box

1. Connect the power supply cord to the terminal-block and fix it in-place with a tie-wrap.
   Connect a single phase 200V (220, 230, 240V) AV to Ⓛ Ⓝ.
   As Ⓔ is the GND terminal, be sure to ground the earth wire.
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap (when a centralized remote controller is being used).
   CAUTION : Never connect the power supply cord to the transmission terminal-block

Fig-1

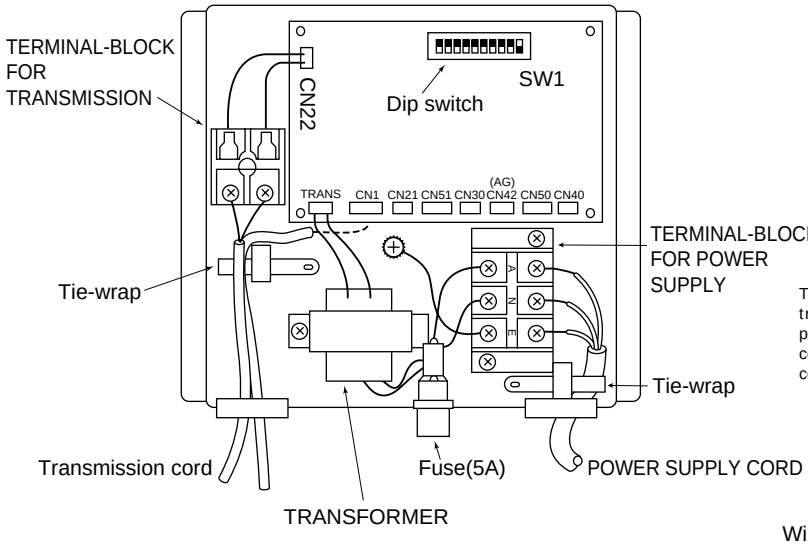
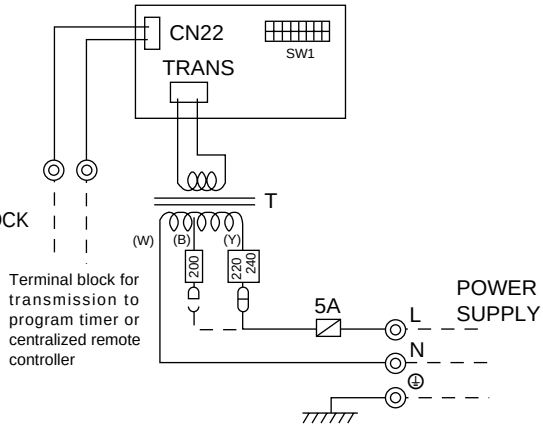


Fig-2

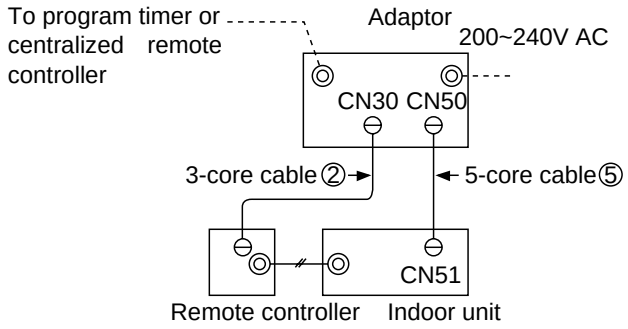


Wiring has to be changed when 200V power supply is used.

(2) When the centralized remote controller is used, set the address number with the dipswitch SW1 of the program timer adapter.

(3) Connections from adaptor

Fig.3

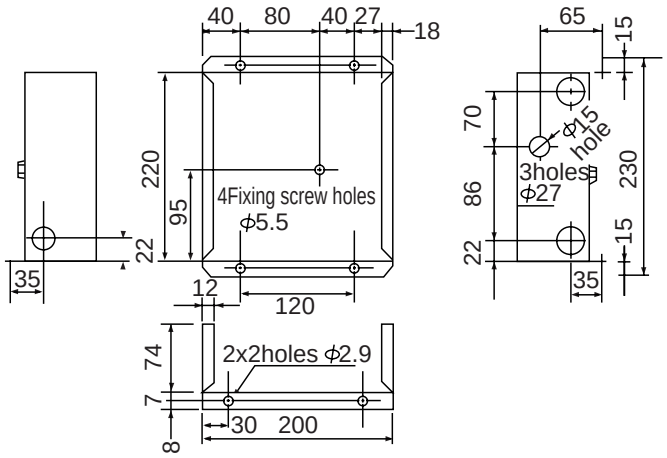


Max. length of each calbe is 10m.

6-3 Dimecsions

(Unit : mm)

Fig. 4



7. HIGH EFFICIENCY FILTER CASEMENT

Part No.	PAC-SB48AF-E	PAC-SB49AF-E
Applicable Service Ref.	PLH-3GK(H)B₁.UK	PLH-4/5/6GK(H)SB₁.UK

8. HIGH EFFICIENCY FILTER ELEMENT

Part No.	PAC-SB52KF-E	PAC-SB53KF-E
Applicable Service Ref.	PLH-3GK(H)B₁.UK	PLH-4/5/6GK(H)SB₁.UK

9. FRESH AIR INTAKE CASEMENT

Part No.	PAC-SB50AM-E	PAC-SB51AM-E
Applicable Service Ref.	PLH-3GK(H)B₁.UK	PLH-4/5/6GK(H)SB₁.UK

Mr.SLIM™

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