

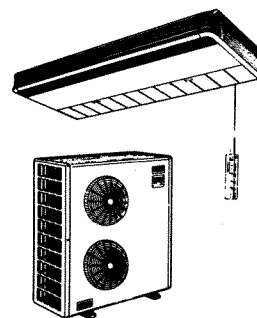


SPLIT-TYPE HEAT-PUMPS & AIR CONDITIONERS

TECHNICAL & SERVICE MANUAL

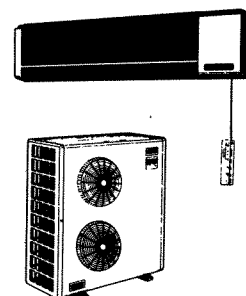
Series PCH Ceiling Suspended

Models **PCH-3AG/PUH-3G₆**
PCH-4AG/PUH-4G₆
PCH-5AG/PUH-5G₆
PCH-5AG/PUH-5TG₆



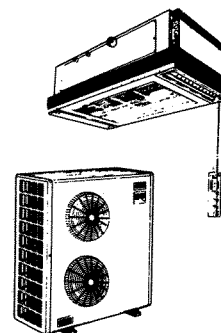
Series PKH Wall Mounted

Models **PKH-18AG/PUH-18G₆**
PKH-24AG/PUH-24G₆
PKH-30AG/PUH-30G₆



Series PJH T-Bar Zone Module

Models **PJH-18AG.US/PUH-18G₆.US**
PJH-24AG.US/PUH-24G₆.US
PJHX-36AG.US/PUHX-36G₆.US
PJHX-48AG.US/PUHX-48TG₆.US



The Slim Line.
From Mitsubishi Electric.

Mr. SLIM

CONTENTS

1. SPECIFICATIONS & DATA	1
2. REFRIGERANT SYSTEM DIAGRAMS	37
3. CIRCUIT DIAGRAMS	40
4. MICROPROCESSOR CONTROL	44
4.1 OUTLINE OF MICROPROCESSOR CONTROL (PCH·PKH·PJH)	44
4.2 OUTLINE OF MICROPROCESSOR CONTROL (PJX)	45
4.3 EASY OPERATION BY REMOTE CONTROLLER	46
4.4 SEQUENCE OF OPERATION	47
4.5 SYSTEM CONTROL (MODE SWITCH FUNCTION)	47
4.6 SYSTEM CONTROL	48
4.7 AUTOMATIC COOLING/HEATING CHANGEOVER OPERATION.....	50
4.8 ROLES PLAYED BY MICROPROCESSORS	51
4.9 OUTDOOR UNIT	52
4.10 TROUBLE-SHOOTING PUH-5G ₆ ·US COMPRESSOR	53
4.11 DIP SWITCH SETTINGS.....	54
4.12 EMERGENCY OPERATION	54
4.13 SELF-DIAGNOSTIC TROUBLE-SHOOTING FUNCTION	55
4.14 SELF-DIAGNOSTIC TROUBLE-SHOOTING FUNCTION OF OUTDOOR BOARD.....	57
5. DRAIN LIFT-UP MECHANISM	58
6. OPTIONAL PARTS	60
7. DISASSEMBLY PROCEDURE	61

1.1 SPECIFICATIONS

Item			Models	PCH-3AG	PCH-4AG	PCH-5AG	PCH-5AG-T
Capacity	Cooling	* 1 BTU/h	26,000	36,500	47,000	47,000	
	Heating	* 1,3 BTU/h	29,000(34,000/35,500)	39,800(46,700/48,200)	51,000(58,600/60,400)	51,000(58,600/60,400)	
	Heating	* 2,3 BTU/h	18,300(23,600/24,800)	24,400(31,300/32,800)	30,000(37,600/39,400)	30,000(37,600/39,400)	
Power consumption	Cooling	* 1 W	3,200	4,490	5,500	5,280	
	Heating	* 1,3 W	3,250(4,850/5,200)	4,410(6,460/6,910)	5,200(7,450/8,000)	4,820(7,070/7,620)	
	Heating	* 2,3 W	2,550(4,150/4,550)	3,460(5,510/5,960)	3,850(6,100/6,650)	3,520(5,770/6,320)	
EER		* 1	8.1	8.1	8.5	8.9	
SEER			8.5	8.6	8.7	9.0	
COP		* 1	2.6	2.6	2.9	3.1	
		* 2	2.1	2.1	2.3	2.5	
INDOOR UNIT MODEL			PCH-3AG.US	PCH-4AG.US	PCH-5AG.US	PCH-5AG.US	
External finish			Munsell 2.5Y 8/0.3 & 10YR-2.5/1				
Power supply V, phase, Hz			208/230, 1, 60				
Max. fuse size (time delay) A			20	25	25	25	
Min. ampacity			12	15	17	17	
Fan motor F.L.A.			1.0	0.7	1.3	1.3	
Auxiliary heater A(kW)			7.6/8.4(1.6/1.95)	9.8/10.8(2.05/2.5)	10.8/12.0(2.25/2.8)	10.8/12.0(2.25/2.8)	
Airflow Lo-Hi Dry (Wet) CFM			530-706 (400-510)	706-883 (580-720)	953-1200 (770-970)	953-1200 (770-970)	
Cond. drain conn. OD in.			1	1	1	1	
Dimensions	W	in.	50-11/16	50-13/16	62-1/4	62-1/4	
	D	in.	22-11/16	25-5/8	25-5/8	25-5/8	
	H	in.	7	9-1/2	9-1/2	9-1/2	
Weight lbs			86	99	112	112	
OUTDOOR UNIT MODEL			PUH-3G _s .US	PUH-4G _s .US	PUH-5G _s .US	PUH-5T _s .US	
External finish			Munsell 5Y 7/1				
Power supply V, phase, Hz			208/230, 1, 60				
Max. fuse size (time delay) A			30	40	50	40	
Min. ampacity			19	27	38	24	
Fan motor F.L.A.			0.5+0.4	0.9+0.7	0.9+0.7	0.9+0.7	
Compressor	Model (type)		NH470NNC (rotary)	NH510NNC (rotary)	JH512NEL (reciprocate)	JH512TEL (reciprocate)	
	Winding resistance (Ω at 68°F)		C-R 0.64 C-S 1.37	C-R 0.48 C-S 1.13	C-R 0.44 C-S 1.98	0.68	
	R.L.A.		14	20	28.2	17	
	L.R.A.		77	86	130	126	
Crankcase heater A(W)			0.11/0.12(23/28)	0.16/0.17(32/39)	0.21/0.23(44/53)	0.21/0.23(44/53)	
Refrigerant control			Capillary tube				
Defrost method			Reverse cycle				
Dimensions	W	in.	31-1/2	37-7/16	37-7/16	37-7/16	
	D	* 4 in.	12-5/8(13-3/4)	15-3/8(16-9/16)	15-3/8(16-9/16)	15-3/8(16-9/16)	
	H	in.	33-1/2	45-5/16	45-5/16	45-5/16	
Weight lbs			176	245	304	304	
REMOTE CONTROLLER			With indoor unit				
Control voltage (by built-in transformer)			Indoor unit-remote controller : DC 24V, Indoor unit-outdoor unit : DC 12V is polar.				
REFRIGERANT PIPING			Not supplied (optional parts)				
Pipe size	Liquid	in.	3/8	1/2	1/2	1/2	
	Gas	in.	5/8	3/4	3/4	3/4	
Connection method	Indoors		Flared				
	Outdoors		Flared				
Between the indoor & outdoor units	Height difference	ft	Max. 65	Max. 100	Max. 100	Max. 100	
	Pipina length	ft	Max. 100	Max. 130	Max. 150	Max. 150	

- Notes: * 1. Rating conditions (cooling) — indoor: 80°F DB, 67°F WB outdoor: 95°F DB, 75°F WB
 (heating) — indoor: 70°F DB, 60°F WB outdoor: 47°F DB, 43°F WB
 * 2. Rating conditions (heating) — indoor: 70°F DB, 60°F WB outdoor: 17°F DB, 15°F WB
 * 3. Heating capacity and power consumption in () include auxiliary electric heater operation at 208/230V.
 * 4. Depth of outdoor unit () includes thickness of grille fan.

Operating range

		Indoor air intake temperature	Outdoor air intake temperature
Cooling	Maximum	95°F DB, 71°F WB	115°F DB
	Minimum	67°F DB, 57°F WB	32°F DB
Heating	Maximum	80°F DB, 67°F WB	75°F DB, 65°F WB
	Minimum	70°F DB, 60°F WB	17°F DB, 15°F WB

1.2 OPERATING RANGE

1) POWER SUPPLY

208/230V 1 phase 60Hz
Guaranteed voltage range



2) OPERATION

Function	Entering air temp.	Indoor		Outdoor	
	Condition	DB (°F)	WB (°F)	DB (°F)	WB (°F)
Cooling	Standard temp.	80	67	95	—
	Maximum temp.	95	71	115	—
	Minimum temp.	67	57	32	—
	Maximum humidity	80	75	80	—
Heating	High temp.	70	60	47	43
	Low temp. (Minimum temp.)	70	60	17	15
	Maximum temp.	80	—	75	65

1.3 OUTLET AIR SPEED AND COVERAGE RANGE (DRY COIL)

Models	Airflow (CFM)	Air speed (ft/sec)	Coverage range (ft)
PCH-3AG	706	11	32
PCH-4AG	883	11.8	39
PCH-5AG	1,200	14	48
PCH-5AG-T	1,200	14	48

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

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

1.4 REFRIGERANT CHARGE (R-22 (OZ))

Models	Outdoor unit precharged (up to 25 ft)	Refrigerant piping length (one way)								
		25 ft	40 ft	55 ft	70 ft	85 ft	100 ft	115 ft	130 ft	150 ft
PCH-3AG	7 lbs. 1oz	0	11	21	32	42	53	—	—	—
PCH-4AG	8 lbs. 6oz	0	20	39	59	78	98	117	137	—
PCH-5AG	9 lbs. 11 oz	0	20	39	59	78	98	117	137	163
PCH-5AG-T	9 lbs. 11 oz	0	20	39	59	78	98	117	137	163

1. PERFORMANCE DATA

1) COOLING CAPACITY

Models	Indoor air		Temperature air entering outdoor coil DB (F)														
	Airflow (CFM) BF	EWB(F)	75			85			95			105			115		
			TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
PCH-3AG	706 0.20	71	30.3	15.4	2.77	29.2	14.9	3.05	27.9	14.4	3.34	26.7	13.9	3.62	25.3	13.4	3.93
		67	28.1	17.8	2.71	27.1	17.4	2.98	26.0	16.9	3.20	24.8	16.4	3.54	23.6	15.9	3.82
		63	26.1	20.3	2.65	25.1	19.9	2.91	24.1	19.4	3.17	23.1	18.9	3.44	21.9	18.4	3.73
PCH-4AG	883 0.16	71	41.8	21.0	3.82	40.4	20.4	4.21	38.8	19.8	4.61	37.2	19.1	5.04	35.5	18.4	5.48
		67	38.8	24.3	3.71	37.5	23.7	4.10	36.5	23.0	4.49	34.5	22.4	4.90	32.9	21.7	5.32
		63	36.0	27.5	3.62	34.8	26.9	3.99	33.4	26.3	4.38	32.0	25.6	4.77	30.5	25.0	5.17
PCH-5AG	1,200 0.15	71	55.5	28.0	5.14	53.3	27.2	5.47	51.0	26.2	5.83	48.6	25.3	6.22	45.9	24.3	6.66
		67	51.1	32.4	4.99	49.2	31.5	5.27	47.0	30.6	5.50	44.7	29.7	5.95	42.4	28.7	6.34
		63	47.1	36.7	4.84	45.3	35.9	5.09	43.4	35.0	5.37	41.3	34.0	5.69	38.9	33.0	6.06

- Notes 1. BF : Bypass Factor, EWB : Entering Wet-Bulb.
 TC : Total Capacity ($\times 10^3$ BTU/h), SHC : Sensible Heat Capacity ($\times 10^3$ BTU/h)
 TPC : Total Power Consumption (kW).
 2. SHC is based on 80°F DB temperature of air entering indoor coil.
 3. Cooling capacity correction factors and Refrigerant piping length (One way) range.

Models	Refrigerant piping length (one way)								
	25ft(std)	40ft	55ft	70ft	85ft	100ft	115ft	130ft	150ft
PCH-3AG	1.0	0.979	0.960	0.942	0.925	0.908	—	—	—
PCH-4AG	1.0	0.986	0.973	0.960	0.947	0.935	0.924	0.913	—
PCH-5AG	1.0	0.979	0.960	0.942	0.925	0.908	0.893	0.878	0.860

2) HEATING CAPACITY

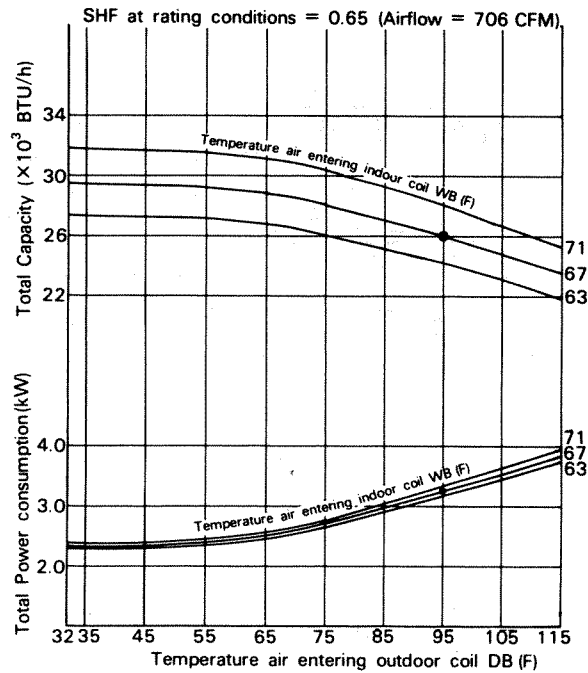
Models	Indoor air		Temperature air entering outdoor coil WB (F)												Auxiliary heater (208V 230V)	
	Airflow (CFM)	EDB (F)	15		25		35		45		55		65			
			CA	PC	CA	PC	CA	PC	CA	PC	CA	PC	CA	PC	CA	PC
PCH-3AG	706	75	17.9	2.60	21.7	2.88	24.0	3.00	29.7	3.44	33.8	3.79	38.1	4.17	5.3	1.6
		70	18.0	2.50	21.8	2.77	24.2	2.90	29.8	3.31	34.0	3.68	38.4	4.06		
		65	18.1	2.41	21.9	2.67	24.3	2.77	29.9	3.21	34.2	3.54	38.7	3.91	6.5	1.95
PCH-4AG	883	75	23.9	3.54	27.1	3.89	31.8	4.16	39.9	4.76	45.7	5.32	52.0	5.95	6.9	2.05
		70	24.0	3.40	27.2	3.73	32.0	4.00	40.1	4.58	46.0	5.13	52.5	5.74		
		65	24.1	3.27	27.3	3.59	32.1	3.85	40.3	4.41	46.3	4.95	52.9	5.54	8.4	2.5
PCH-5AG	1,200	75	29.3	3.80	35.0	4.15	41.1	4.70	51.0	5.55	59.6	6.43	69.3	7.52	7.6	2.25
		70	29.8	3.80	35.5	4.12	41.8	4.58	52.3	5.40	60.6	6.24	70.5	7.28		
		65	30.2	3.80	36.1	4.09	42.4	4.55	52.3	5.33	61.4	6.09	71.4	7.08	9.4	2.8

- Notes 1. EDB : Entering Dry-Bulb.
 CA : Capacity ($\times 10^3$ BTU/h), PC : Power Consumption (kW)
 2. In case auxiliary electric heater is "on", total capacity and total power consumption should be added the figures described in auxiliary heater column.
 * "ON" operation of auxiliary electric heater : Thermostat set temp. — Room temp is greater than 5.4deg.
 "OFF" operation of auxiliary electric heater : Thermostat set temp — Room temp. is less than 3.6deg.
 3. Heating capacity correction factors.

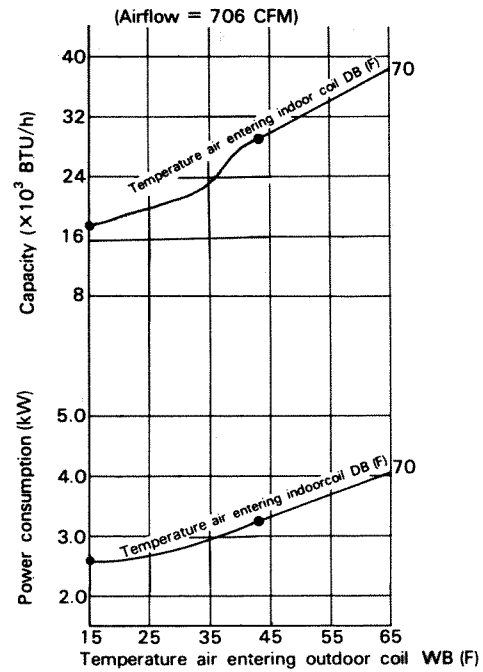
Models	Refrigerant piping length (one way)		
	$\leq 100\text{ft}$	$\leq 130\text{ft}$	$\leq 150\text{ft}$
PCH-3AG	1.0	—	—
PCH-4AG	1.0	0.995	—
PCH-5AG	1.0	0.995	0.995

2. PERFORMANCE CURVE

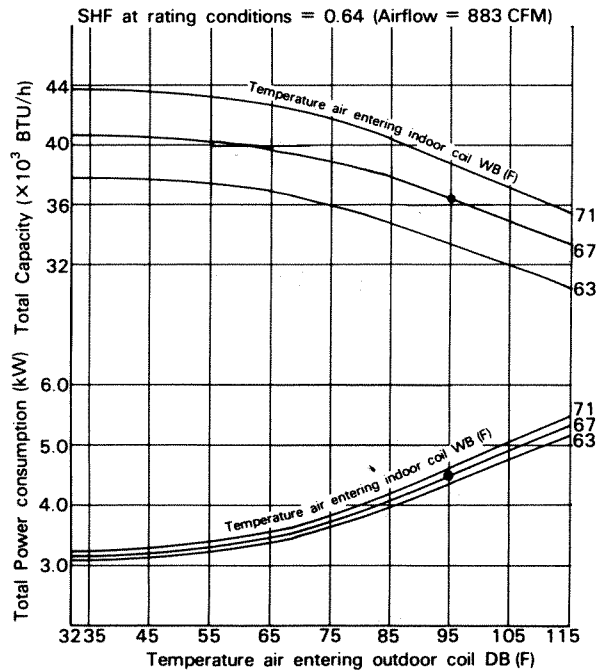
PCH-3AG Cooling capacity



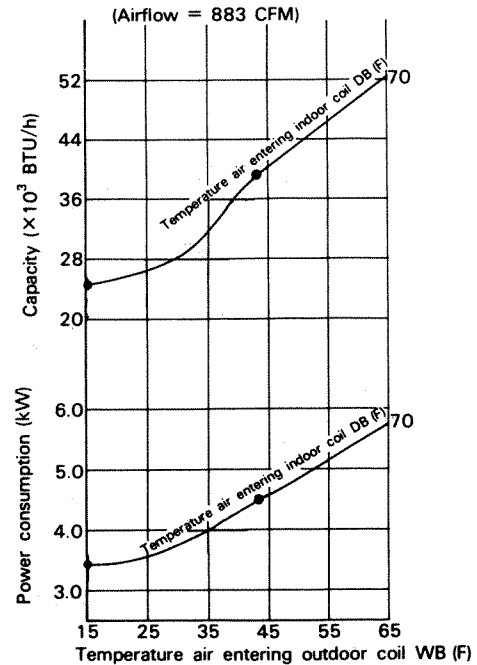
PCH-3AG Heating capacity



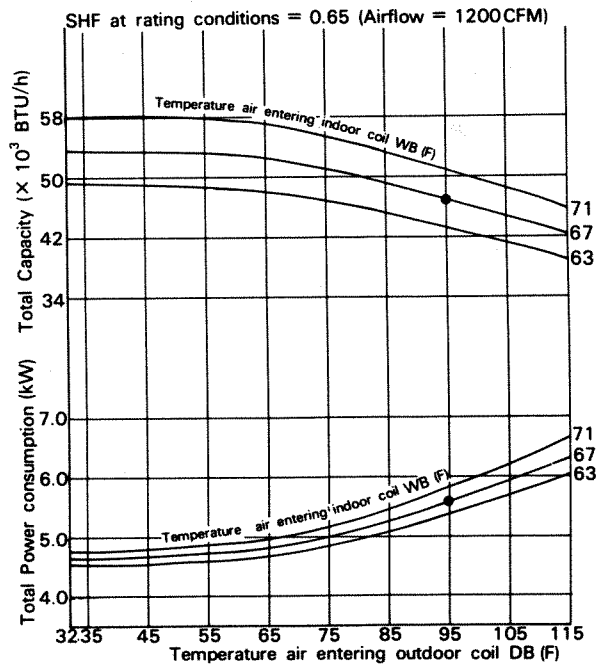
PCH-4AG Cooling capacity



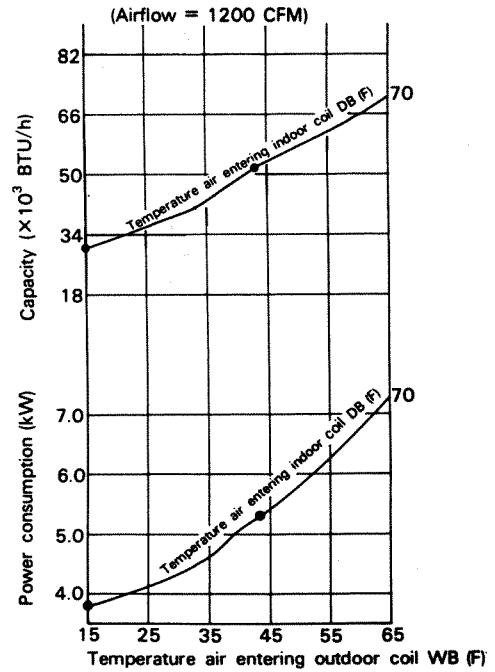
PCH-4AG Heating capacity



PCH-5AG Cooling capacity



PCH-5AG Heating capacity



1. PERFORMANCE DATA

1) COOLING CAPACITY

Models	Indoor air		Temperature air entering outdoor coil DB (°F)														
	Airflow (CFM) BF	EWB (°F)	75			85			95			105			115		
			TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
PCH-5AGT	1,200 0.15	71	55.5	28.0	4.82	53.3	27.2	5.15	51.0	26.2	5.51	48.6	25.3	5.90	45.9	24.3	6.34
		67	51.1	32.4	4.67	49.2	31.5	4.95	47.0	30.6	5.28	44.7	29.7	5.63	42.4	28.7	6.02
		63	47.1	36.7	4.52	45.3	35.9	4.77	43.4	35.0	5.05	41.3	34.0	5.37	38.9	33.0	5.74

Notes 1. BF: Bypass Factor. EWB: Entering Wet-Bulb.

TC: Total Capacity ($\times 10^3$ BTU/h). SHC: Sensible Heat Capacity ($\times 10^3$ BTU/h). TPC: Total Power Consumption (kW).

2. SHC is based on 80°F DB temperature of air entering indoor coil.

3. Cooling capacity correction factors and Refrigerant piping length (One way) range.

Models	Refrigerant piping length (one way)								
	25ft (std)	40ft	55ft	70ft	85ft	100ft	115ft	130ft	150ft
PCH-5AGT	1.0	0.979	0.960	0.942	0.925	0.908	0.893	0.878	0.860

2) HEATING CAPACITY

Models	Indoor air		Temperature air entering outdoor coil WB (°F)												Auxiliary heater 208V/230V	
	Airflow (CFM)	EDB (°F)	15		25		35		45		55		65			
			CA	PC	CA	PC	CA	PC	CA	PC	CA	PC	CA	PC	CA	PC
PCH-5AGT	1,200	75	27.5	3.43	33.5	3.77	40.1	4.32	51.0	5.17	59.6	6.05	69.3	7.14	7.6	2.25
		70	28.0	3.42	34.0	3.74	40.8	4.24	51.7	5.06	60.6	5.86	70.5	6.90		
		65	28.4	3.41	34.6	3.71	41.4	4.17	52.3	4.95	61.4	5.71	71.4	6.70	9.4	2.8

Notes 1. EDB: Entering Dry-Bulb. CA: Capacity ($\times 10^3$ BTU/h). PC: Power Consumption (kW).

2. In case auxiliary electric heater is "on", total capacity and total power consumption should be added the figures described in auxiliary heater column.

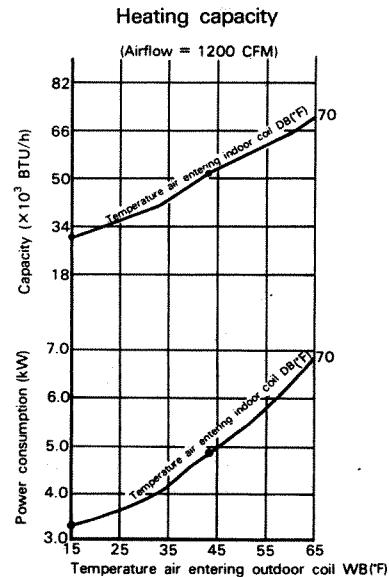
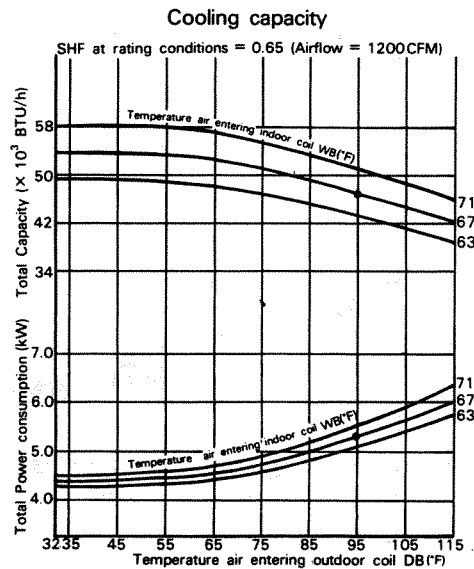
* "ON" operation of auxiliary electric heater: Thermostat set temp. - Room temp. is greater than 5.4 deg.

"OFF" operation of auxiliary electric heater: Thermostat set temp. - Room temp. is less than 3.6 deg.

3. Heating capacity correction factors.

Models	Refrigerant piping length (one way)		
	equal or less than 100ft	equal or less than 130ft	equal or less than 150ft
PCH-5AGT	1.0	0.995	0.995

2. PERFORMANCE CURVE



1.5 STANDARD OPERATION DATA

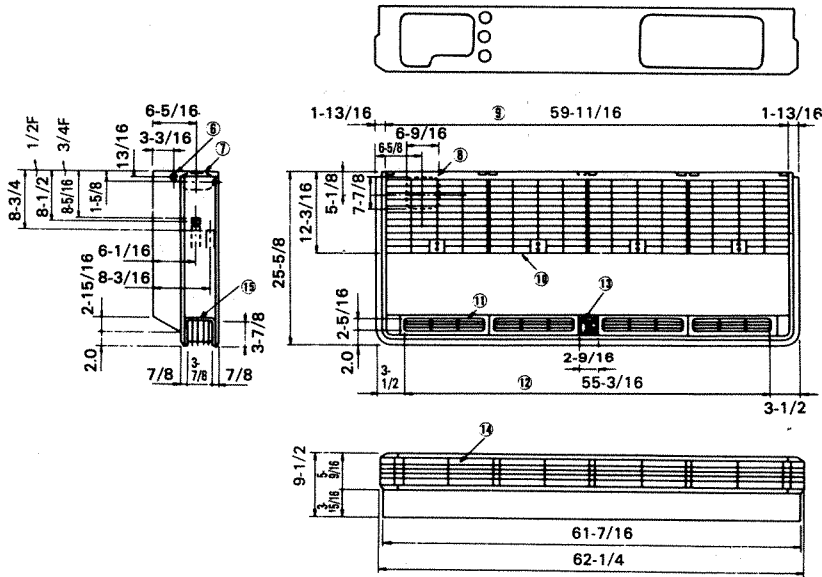
Models			PCH-3AG				PCH-4AG				PCH-5AG				
Item		Unit	Cooling		Heating		Cooling		Heating		Cooling		Heating		
Electrical circuit	Voltage	V	208	230	208	230	208	230	208	230	208	230	208	230	
	Frequency	Hz	60				60				60				
	Total current	A	15.5	14.3	16.1	14.9	21.7	19.8	21.3	19.4	27.0	24.8	25.4	23.4	
	Total input	kW	3.20		3.25		4.49		4.41		5.5		5.2		
	Total power factor	%	99.5	97.5	97.0	94.8	99.7	98.8	99.7	98.8	97.9	96.2	98.4	96.8	
	I.D. fan current	A	1.0	0.9	1.0	0.9	0.7	0.7	0.7	0.7	1.3	1.2	1.3	1.2	
	Aux. heater current	A	—	—	(7.6)	(8.4)	—	—	(9.8)	(10.8)	—	—	(10.8)	(12.0)	
	O.D. fan current	A	0.5/0.4	0.5/0.4	0.5/0.4	0.5/0.4	0.9/0.7	0.9/0.7	0.9/0.7	0.9/0.7	0.9/0.7	0.9/0.7	0.9/0.7	0.9/0.7	
	Comp. current	A	13.8	12.7	14.2	13.1	19.4	17.5	19.4	17.5	24.6	22.5	23.0	21.0	
Refrigerant circuit	Condensing pressure	PSIG	271		285		267		258		267		264		
	Suction pressure	PSIG	64		51		68		50		67		52		
	Discharge temp.	°F	194		198		201		192		200		190		
	Condensing temp.	°F	108		115		103		109		108		101		
	Suction temp.	°F	41		29		44		27		40		29		
	Comp. shell bottom temp.	°F	186		189		196		185		126		110		
	Ref. pipe length	ft	25				25				25				
	Refrigerant charge	—	7 lbs. 1 oz				8 lbs. 6 oz				9 lbs. 11 oz				
Indoor side	Entering	DB	°F	80		70		80		70		80		70	
	air temp.	WB	°F	67		60		67		60		67		60	
	Discharge	DB	°F	57		109		55		112		56		109	
	air temp.	WB	°F	55		—		53		—		54		—	
	Fan speed	r.p.m		1,930				1,515				1,540			
	Airflow (High)	CFM		530/706				700/883				950/1,200			
Outdoor side	Entering	DB	°F	95		47		95		47		95		47	
	air temp.	WB	°F	—		43		—		43		—		43	
	Fan speed Upper/Lower	r.p.m		1,310/1,225				1,020/920				1,020/920			
	Airflow	CFM		1,870				3,400				3,400			
Capacity		BTU/h	26,000		29,000		36,500		39,800		47,000		51,000		
SHF		—	0.65		—		0.64		—		0.65		—		

1.6 STANDARD OPERATION DATA

Models			PCH-5AG-T				
Item		Unit	Cooling		Heating		
Electrical circuit	Voltage	V	208	230	208	230	
	Frequency	Hz	60				
	Total current	A	15.9	14.4	14.7	13.3	
	Total input	kW	5.28		4.82		
	Total power factor	%	92		91		
	I.D. fan current	A	1.3	1.2	1.3	1.2	
	Aux. heater current	A	—	—	(10.8)	(12.0)	
	O.D. fan current	A	0.9/0.7	0.9/0.7	0.9/0.7	0.9/0.7	
	Comp. current	A	13.0	11.6	11.8	10.5	
Refrigerant circuit	Condensing pressure	PSIG	273		277		
	Suction pressure	PSIG	68		53		
	Discharge temp.	°F	199		187		
	Condensing temp.	°F	120		104		
	Suction temp.	°F	42		30		
	Comp. shell bottom temp.	°F	127		96		
	Ref. pipe length	ft	25				
	Refrigerant charge	—	9 lbs. 11 oz				
Indoor side	Entering air temp.	DB WB °F	80 67		70 60		
	Discharge air temp.	DB WB °F	56 54		109 —		
	Fan speed	R.P.M	1,540				
	Airflow (High)	CFM	950/1,200				
	Outdoor side	Entering air temp.	DB WB °F	95 —		47 43	
		Fan speed upper/lower	R.P.M	1,020/920			
Airflow		CFM	3,400				
Capacity		BTU/h	47,000		51,000		
SHF		—	0.65		—		

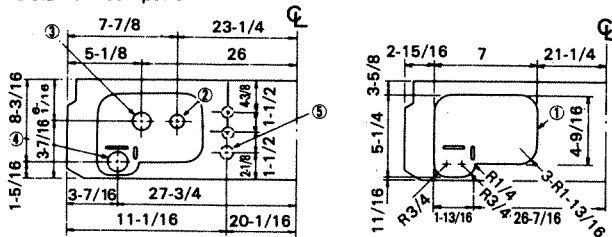
PCH-5AG.US INDOOR UNIT

Rear view

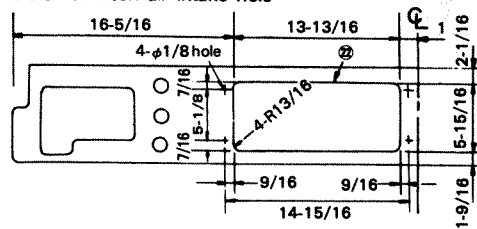


Mark	Name
①	Connection hole for rear piping arrangement (Knock out hole)
②	Refrigerant-pipe flared connection 1/2F
③	Refrigerant-pipe flared connection 3/4F
④	Drainage pipe connection $\phi 1"$
⑤	Wiring hole (Knock out hole)
⑥	Side wiring hole (Knock out hole)
⑦	Connection hole for side piping arrangement 2-3/8x11-13/16 knock out hole
⑧	Connection hole for upper piping arrangement 7-7/8x6-9/16 knock out hole
⑨	Air intake
⑩	Air intake grille
⑪	Bottom air outlet grille
⑫	Bottom air outlet
⑬	Alarm lamp
⑭	Front air outlet grille
⑮	Side air outlet
⑯	Space for installation Min. 2
⑰	Space for air intake Min. 20
⑱	Space for servicing Min. 17-3/4
⑲	Mounting plate
⑳	Suspension bolt 4- ϕ 3/8
㉑	Suspension bolt Max. 1-9/16
㉒	Fresh air intake hole (Knock out)

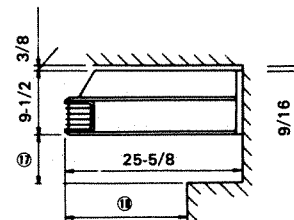
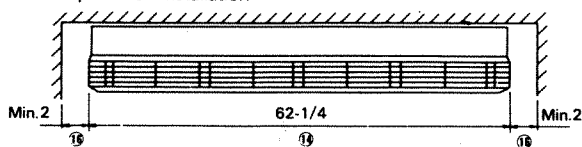
Detail of rear panel



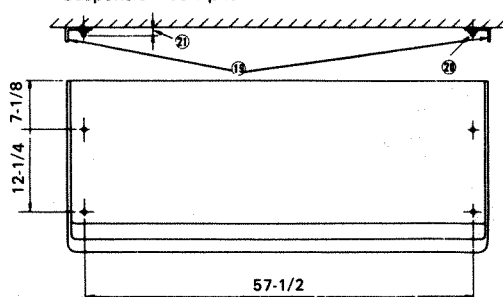
Detail of fresh air intake hole



Space for installation

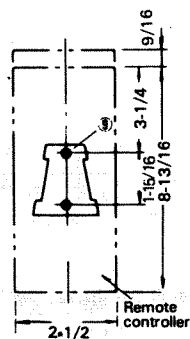
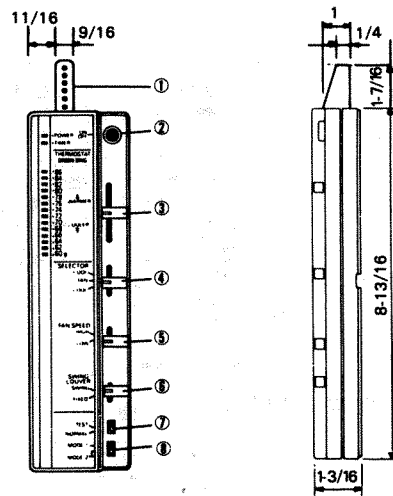


Suspension bolt pitch



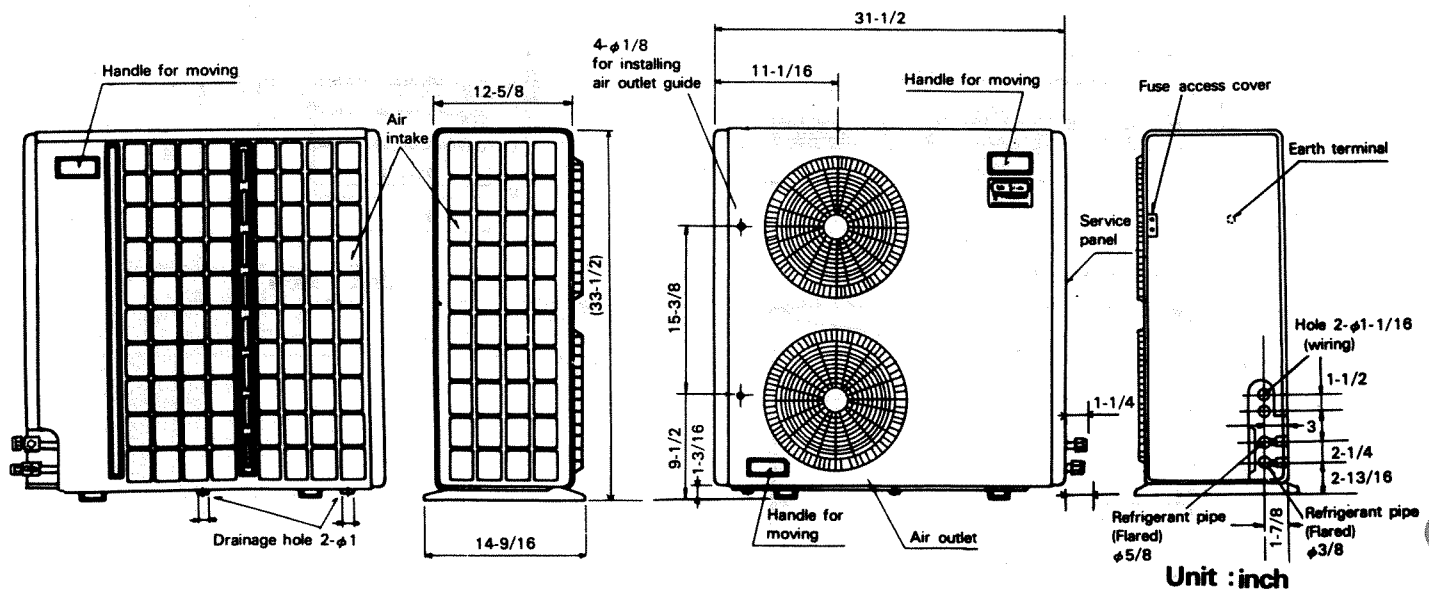
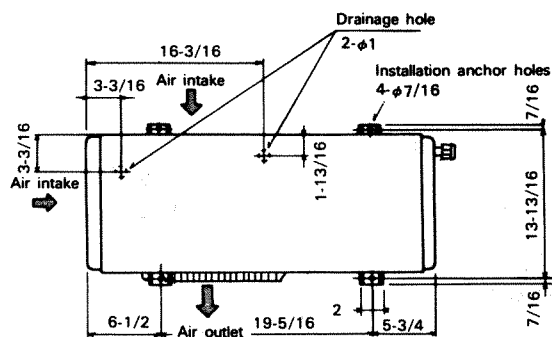
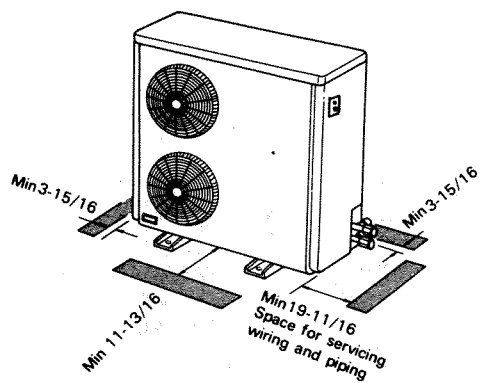
Unit : inch

REMOTE CONTROLLER

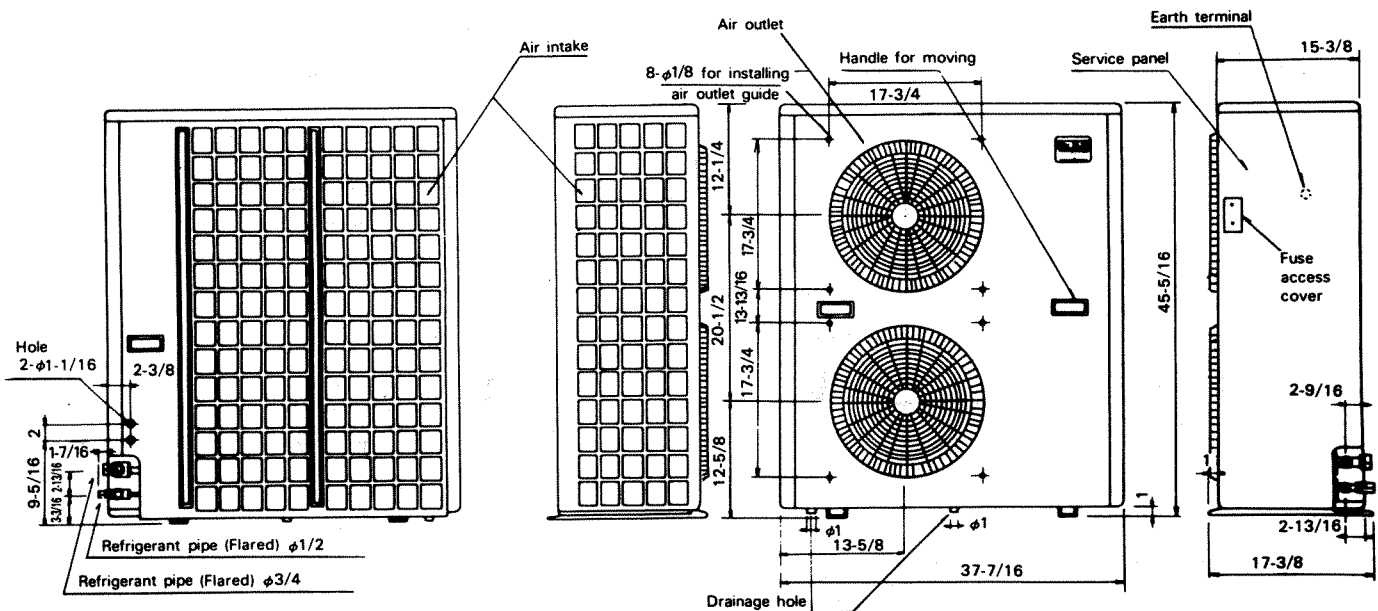
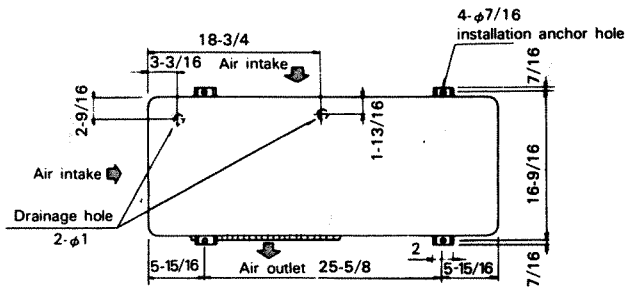
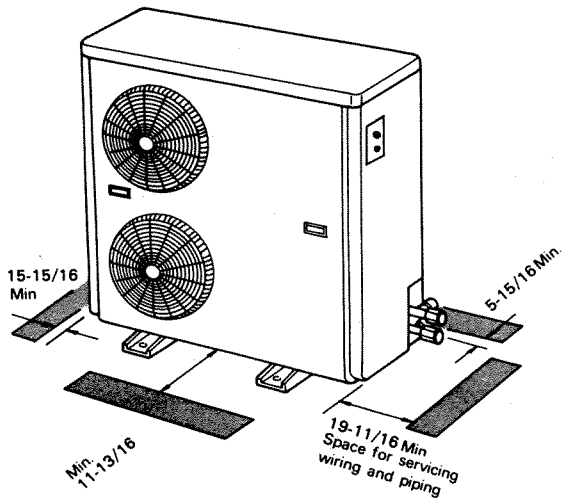


Mark	Name
①	Thermistor box
②	ON/OFF switch
③	Temperature control switch
④	Selector switch
⑤	Fan speed selector switch
⑥	Swing louver switch
⑦	Test run switch
⑧	Mode selector switch
⑨	Mounting plate

PUH-3G, US OUTDOOR UNIT



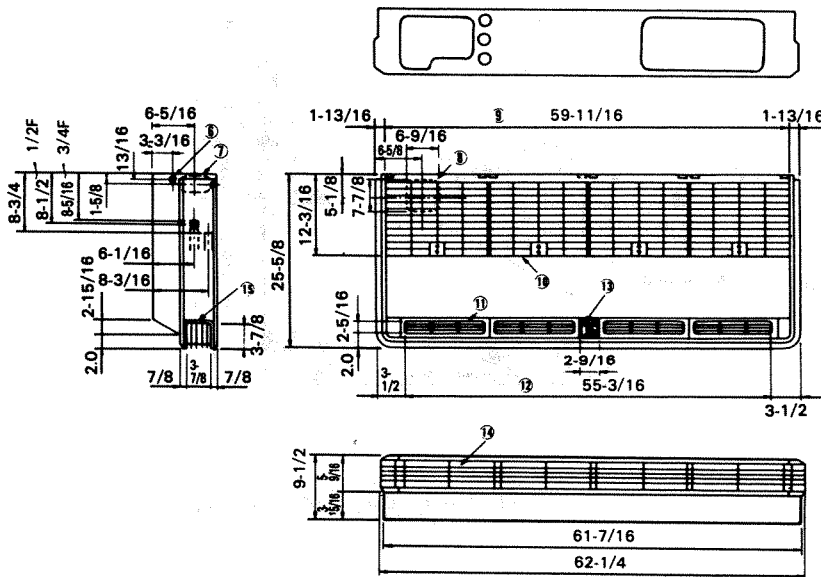
PUH-4G₆US/PUH-5G₆US OUTDOOR UNIT



Unit : inch

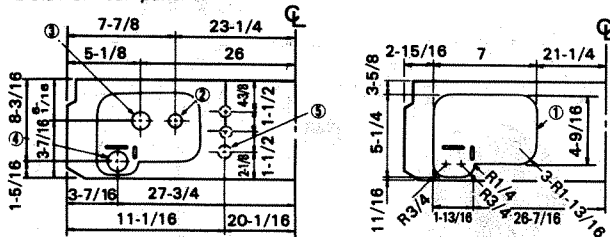
INDOOR UNIT

Rear view

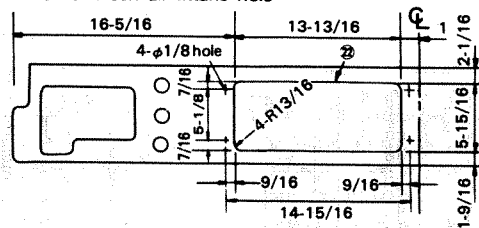


Mark	Name
①	Connection hole for rear piping arrangement (Knock out hole)
②	Refrigerant-pipe flared connection 1/2F
③	Refrigerant-pipe flared connection 3/4F
④	Drainage pipe connection ϕ 1"
⑤	Wiring hole (Knock out hole)
⑥	Side wiring hole (Knock out hole)
⑦	Connection hole for side piping arrangement 2-3/8 x 11-13/16 knock out hole
⑧	Connection hole for upper piping arrangement 7-7/8 x 6-9/16 knock out hole
⑨	Air intake
⑩	Air intake grille
⑪	Bottom air outlet grille
⑫	Bottom air outlet
⑬	Alarm lamp
⑭	Front air outlet grille
⑮	Side air outlet
⑯	Space for installation Min. 2
⑰	Space for intake Min. 20
⑱	Space for servicing Min 17-3/4
⑲	Mounting plate
⑳	Suspension bolt 4- ϕ 3/8
㉑	Suspension bolt Max. 1-9/16
㉒	Fresh air intake hole (Knock out)

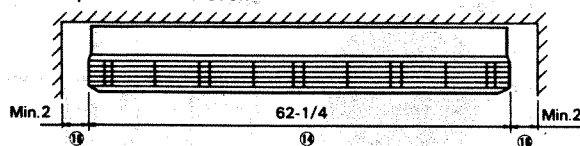
Detail of rear panel



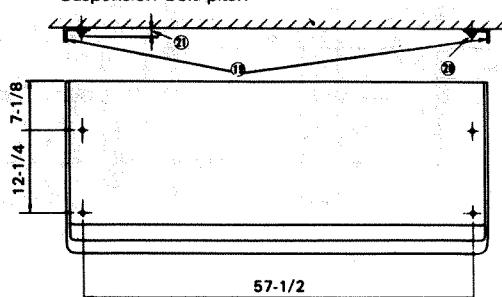
Detail of fresh air intake hole



Space for installation



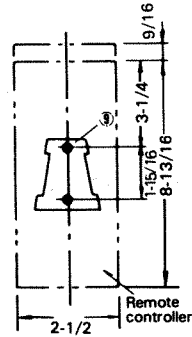
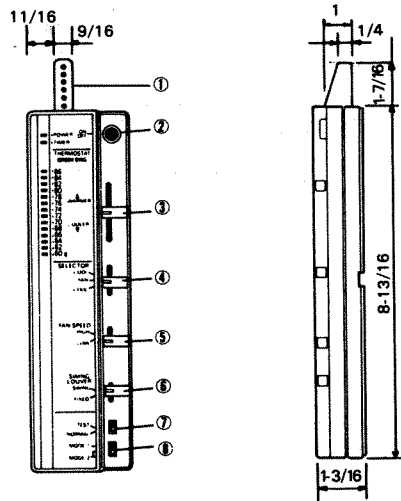
Suspension bolt pitch



Unit : inch

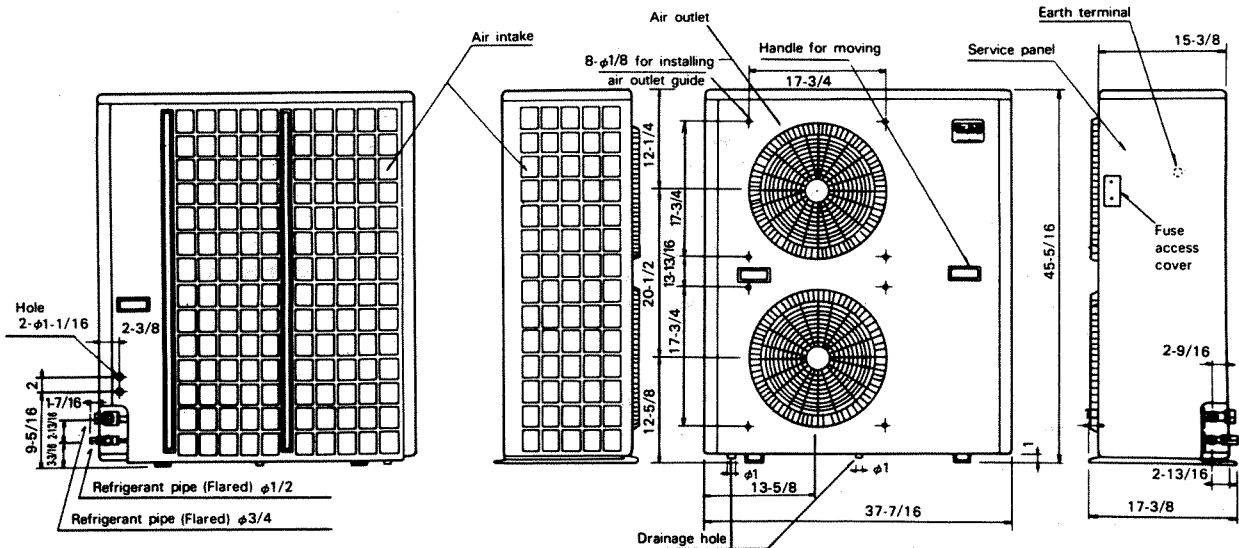
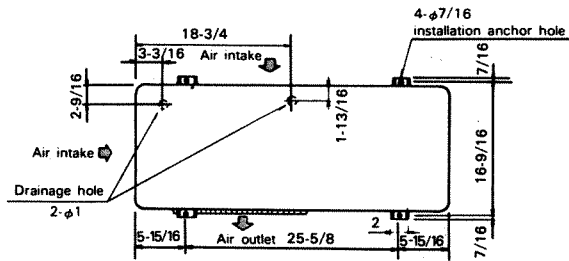
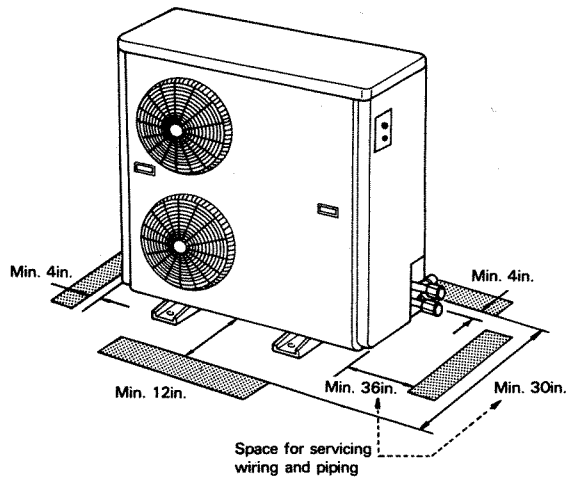
NOTE: The symbol ϕ indicates the hole diameter.

REMOTE CONTROLLER



Mark	Name
①	Thermistor box
②	ON/OFF switch
③	Temperature control switch
④	Selector switch
⑤	Fan speed selector switch
⑥	Swing louver switch
⑦	Test run switch
⑧	Mode selector switch
⑨	Mounting plate

PUH-5TG. US OUTDOOR UNIT



NOTE: The symbol ϕ indicates the hole diameter.

Unit : inch

2.1 SPECIFICATIONS

MODEL			PKH-18AG	PKH-24AG	PKH-30AG
Capacity	Cooling	* 1 BTU/h	18,000	23,100	30,000
	Heating	* 1,3 BTU/h	18,000(22,600/23,600)	24,700(30,100/31,200)	31,000(36,400/37,500)
	Heating	* 2,3 BTU/h	10,400(15,000/16,000)	14,500(19,900/21,000)	18,000(23,400/24,500)
Power consumption		* 1 kW	1.9	2.5	3.1
		* 1,3 kW	1.6(3.0/3.3)	2.3(3.9/4.2)	3.2(4.8/5.1)
		* 2,3 kW	1.4(2.8/3.1)	1.9(3.5/3.8)	2.4(4.0/4.3)
EER		* 1	9.5	9.2	9.7
SEER			9.8	9.6	10.0
COP		* 1	3.3	3.1	2.8
		* 2	2.2	2.2	2.2
INDOOR UNIT MODEL			PKH-18AG.US	PKH-24AG.US	PKH-30AG.US
External finish			Munsell 2.5Y 8/0.3 & 10YR 2.5/1		
Power supply V, phase, Hz			208/230, 1, 60		
Max. fuse size (time delay) A			15	15	15
Min. ampacity			10	12	12
Fan motor F.L.A.			0.5	0.5	0.5
Auxiliary heater A(kW)			6.5/7.2(1.4/1.7)	7.6/8.4(1.6/1.9)	7.6/8.4(1.6/1.9)
Airflow Lo-Hi Dry (Wet) CFM			510-600 (410-480)	580-800 (530-720)	580-800 (530-720)
Dimensions	W	in.	48-1/16	60-1/4	60-1/4
	D	in.	8-11/16	8-11/16	8-11/16
	H	in.	14-3/16	14-3/16	14-3/16
Weight lbs			60	71	72
OUTDOOR UNIT MODEL			PUH-18G6.US	PUH-24G6.US	PUH-30G6.US
External finish			Munsell 5Y 6.5/1		
Power supply V, phase, Hz			208/230, 1, 60		
Max. fuse size (time delay) A			20	20	30
Min. ampacity			16	16	20
Fan motor F.L.A.			0.8	0.5+0.4	0.9+0.7
Compressor	Model (type)		RH441NAA	NH456NF	NH470NCC
	Winding resistance (Ω at 68°F)		C-R 1.59 C-S 3.22	C-R 0.86 C-S 1.72	C-R 0.64 C-S 1.37
	* 5 R.L.A.		12.0	11.5	14.0
	L.R.A.		37	52	77
Crankcase heater A(W)			0.11/0.12(23/28)	0.16/0.17(32/39)	0.16/0.17(32/39)
Refrigerant control			Capillary tube		
Defrost method			Reverse cycle		
Dimensions	W	in.	33-1/2	31-1/2	37-7/16
	D	* 4 in.	11-7/16(12-5/8)	12-5/8(13-3/4)	15-3/8(16-9/16)
	H	in.	23-13/16	33-1/2	45-5/16
Weight lbs			138	176	245
REMOTE CONTROLLER			With indoor unit		
Control voltage (by built-in transformer)			Indoor unit-remote controller : DC 24V. Indoor unit-outdoor unit : DC 12V-polar		
REFRIGERANT PIPING			Not supplied (optional parts)		
Pipe size	Liquid	in.	3/8	3/8	1/2
	Gas	in.	5/8	5/8	3/4
Connection method	Indoors		Flared		
	Outdoors		Flared		
Between the indoor & outdoor units	Height difference	ft	Max. 50	Max. 65	Max. 100
	Piping length	ft	Max. 50	Max. 100	Max. 130

Notes *1. Rating conditions (cooling)—indoor:80°F DB, 67°F WB outdoor:95°F DB, 75°F WB

(heating)—indoor:70°F DB, 60°F WB outdoor:47°F DB, 43°F WB

*2. Rating conditions (heating)—indoor:70°F DB, 60°F WB outdoor:17°F DB, 15°F WB

*3. Heating capacity and power consumption in () include auxiliary electric heater operation at 208/230V.

*4. Depth of outdoor unit in () includes thickness of grille fan.

*5. Based on operating at A.R.I rating condition.

Operating range

		Indoor air intake temperature	Outdoor air intake temperature
Cooling	Maximum	95°F DB, 71°F WB	115°F DB
	Minimum	67°F DB, 57°F WB	32°F DB
Heating	Maximum	80°F DB, 67°F WB	75°F DB, 65°F WB
	Minimum	70°F DB, 60°F WB	17°F DB, 15°F WB

Units should be wired by licensed electric contractor accordingly to local code requirement.

2.2 OPERATING RANGE

1) POWER SUPPLY

208/230V 1 phase 60Hz
Guaranteed voltage range



2) OPERATION

Function	Entering air temp.	Indoor		Outdoor	
	Condition	DB (°F)	WB (°F)	DB (°F)	WB (°F)
Cooling	Standard temp.	80	67	95	—
	Maximum temp.	95	71	115	—
	Minimum temp.	67	57	32	—
	Maximum humidity	80	75	80	—
Heating	High temp. (Minimum temp.)	70	60	47	43
	Low temp. (Minimum temp.)	70	60	17	15
	Maximum temp.	80	67	75	65

2.3 OUTLET AIR SPEED AND COVERAGE RANGE (DRY COIL)

Models	Airflow (CFM)	Air speed (ft/sec)	Coverage range (ft)
PKH-18AG	600	17	39
PKH-24AG	800	17	44
PKH-30AG	800	17	44

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

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

2.4 REFRIGERANT CHARGE (R-22(oz))

Models	Outdoor unit precharged (up to 25 ft)	Refrigerant piping length (one way)								
		25 ft	40 ft	50 ft	55 ft	70 ft	85 ft	100 ft	115 ft	130 ft
PKH-18AG	3 lbs. 12oz	0	11	18	—	—	—	—	—	—
PKH-24AG	6 lbs. 14oz	0	11	18	21	32	42	53	—	—
PKH-30AG	7 lbs. 8 oz	0	19	32	38	58	77	96	115	134

2.5 MAX. REFRIGERANT PIPING LENGTH

Models	length (ft)
PKH-18AG	50
PKH-24AG	100
PKH-30AG	130

1. PERFORMANCE DATA

1) COOLING CAPACITY

Models	Indoor air		Temperature air entering outdoor coil DB (F)														
	Airflow (CFM) BF	EWB (F)	75			85			95			105			115		
			TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC	TC	SHC	TPC
PKH-18AG	500 0.15	71	21.4	11.0	1.53	20.4	10.6	1.74	19.4	10.2	1.95	18.3	9.8	2.17	17.2	9.4	2.39
		67	19.9	12.8	1.49	19.0	12.4	1.69	18.0	12.0	1.90	17.0	11.6	2.11	16.0	11.2	2.32
		63	18.5	14.7	1.47	17.6	14.3	1.66	16.7	13.9	1.85	15.7	13.5	2.06	14.8	13.0	2.26
PKH-24AG	750 0.17	71	27.0	14.6	2.07	26.0	14.2	2.30	24.9	13.8	2.55	23.7	13.4	2.80	22.6	13.0	3.06
		67	25.1	17.4	2.05	24.1	17.1	2.27	23.1	16.7	2.80	22.0	16.3	2.74	21.0	15.8	2.98
		63	23.3	20.3	2.03	22.4	19.9	2.24	21.4	19.5	2.45	20.5	19.1	2.68	19.4	18.6	2.91
PKH-30AG	720 0.18	71	34.8	17.6	2.60	33.6	17.1	2.87	32.3	16.6	3.16	30.9	16.0	3.45	29.5	15.5	3.75
		67	32.3	20.4	2.56	31.2	19.9	2.83	30.0	19.4	3.10	28.7	18.9	3.38	27.4	18.3	3.67
		63	29.9	23.2	2.52	28.9	22.7	2.78	27.8	22.2	3.04	26.7	21.7	3.32	25.5	21.2	3.59

Notes 1. BF: Bypass Factor, EWB: Entering Wet-Bulb.

TC: Total Capacity (x 10³ BTU/h), SHC: Sensible Heat Capacity (x 10³ BTU/h)

TPC: Total Power Consumption (kW).

2. SHC is based on 80°F DB temperature of air entering indoor coil.

3. Cooling capacity correction factors and Refrigerant piping length (One way) range.

Models	Refrigerant piping length (one way)								
	25ft	40ft	50ft	55ft	70ft	85ft	100ft	115ft	130ft
PKH-18AG	1.0	0.989	0.983	—	—	—	—	—	—
PKH-24AG	1.0	0.977	0.967	0.962	0.949	0.935	0.923	—	—
PKH-30AG	1.0	0.978	0.968	0.963	0.951	0.938	0.928	0.917	0.905

2) HEATING CAPACITY

Models	Indoor air		Temperature air entering outdoor coil WB (F)												Auxiliary heater (208V 230V)	
	Airflow (CFM)	EDB (F)	15		25		35		45		55		65			
			CA	PC	CA	PC	CA	PC	CA	PC	CA	PC	CA	PC		
PKH-18AG	600	75	11.2	1.37	13.4	1.49	15.8	1.60	18.5	1.70	21.4	1.81	24.4	1.97	4.6	1.4
		70	11.2	1.28	13.4	1.41	15.9	1.52	18.6	1.62	21.5	1.73	24.7	1.87		
		65	11.1	1.19	13.4	1.33	15.9	1.44	18.7	1.54	21.7	1.65	24.9	1.79		
PKH-24AG	800	75	16.1	1.92	18.8	2.10	21.8	2.27	25.2	2.43	29.0	2.61	33.2	2.83	5.4	1.6
		70	16.2	1.85	18.9	2.02	22.0	2.17	25.4	2.33	29.3	2.50	33.6	2.70		
		65	16.3	1.77	19.0	1.94	22.1	2.09	25.6	2.23	29.5	2.39	33.9	2.57		
PKH-30AG	800	75	20.3	2.53	23.7	2.81	27.5	3.08	31.6	3.38	35.8	3.71	40.2	4.04	5.4	1.6
		70	20.4	2.44	23.9	2.70	27.7	2.97	31.9	3.26	36.2	3.56	40.8	3.88		
		65	20.4	2.35	24.0	2.60	27.9	2.86	32.1	3.15	36.6	3.43	41.2	3.74		

Notes 1. EDB: Entering Dry-Bulb.

CA: Capacity (x 10³ BTU/h), PC: Power consumption (kW)

2. In case auxiliary electric heater is "on", total capacity and total power consumption should be added the figures described in auxiliary heater column.

* "ON" operation of auxiliary electric heater: Thermostat set temp.—Room temp is greater than 5.4deg F.

"OFF" operation of auxiliary electric heater: Thermostat set temp.—Room temp is less than 3.6deg F.

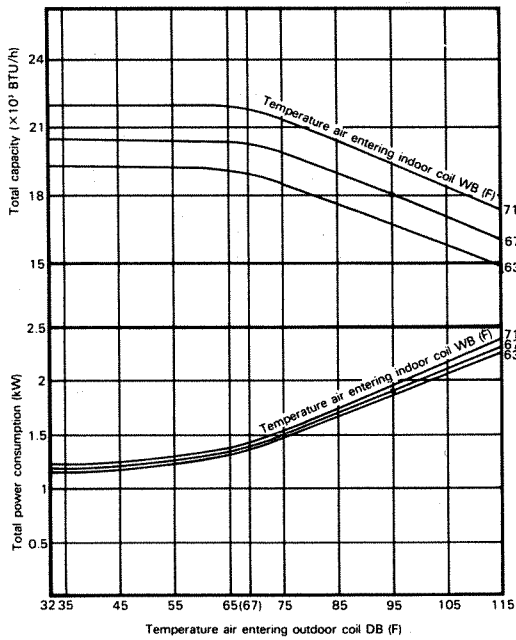
3. Heating capacity correction factors.

Models	Refrigerant piping length (one way)	
	≤ 100ft	≤ 130ft
PKH-18AG	1.0	—
PKH-24AG	1.0	—
PKH-30AG	1.0	0.995

2. PERFORMANCE CURVE

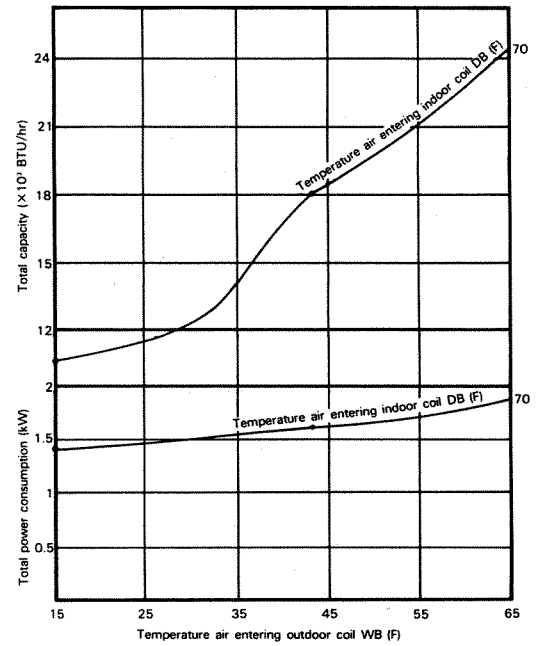
PKH-18AG Cooling capacity

SHF at rating condition = 0.68 (Airflow = 500 CFM)



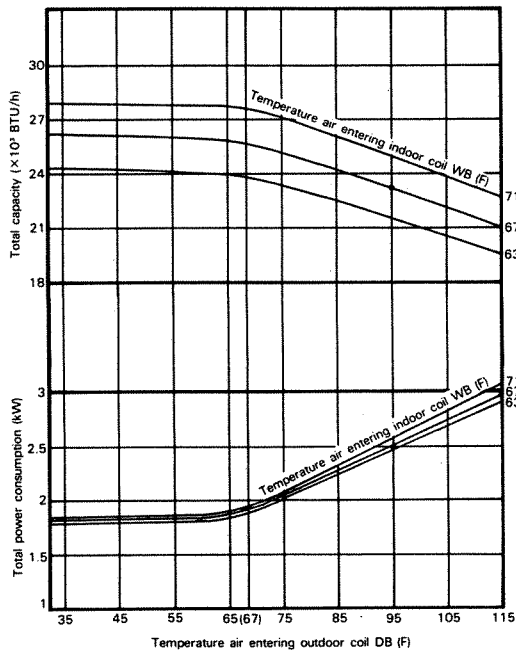
PKH-18AG Heating capacity

(Airflow = 600 CFM)



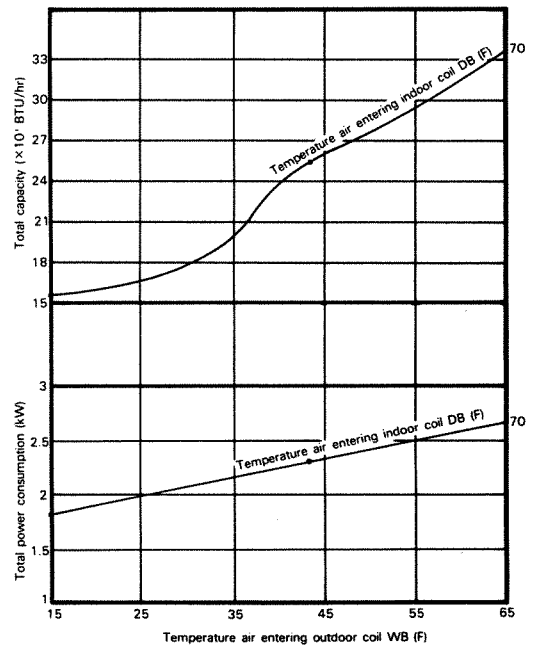
PKH-24AG Cooling capacity

SHF at rating condition = 0.72 (Airflow = 750 CFM)



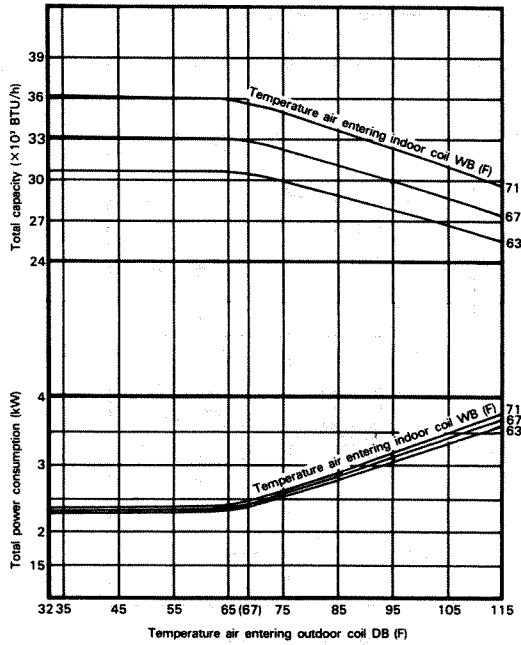
PKH-24AG Heating capacity

(Airflow = 800 CFM)



PKH-30AG Cooling capacity

SHF at rating condition = 0.64 (Air flow = 720 CFM)



PKH-30AG Heating capacity

(Airflow = 800 CFM)

