

July 2014

SERVICE MANUAL

R410A
No. OCH527
REVISED EDITION-C

Outdoor unit
[Model Name]

PUHZ-ZRP35VKA
PUHZ-ZRP50VKA
PUHZ-ZRP60VHA
PUHZ-ZRP71VHA
PUHZ-ZRP100VKA
PUHZ-ZRP125VKA
PUHZ-ZRP140VKA
PUHZ-ZRP100YKA
PUHZ-ZRP125YKA
PUHZ-ZRP140YKA

[Service Ref.]
Refer to page 2.

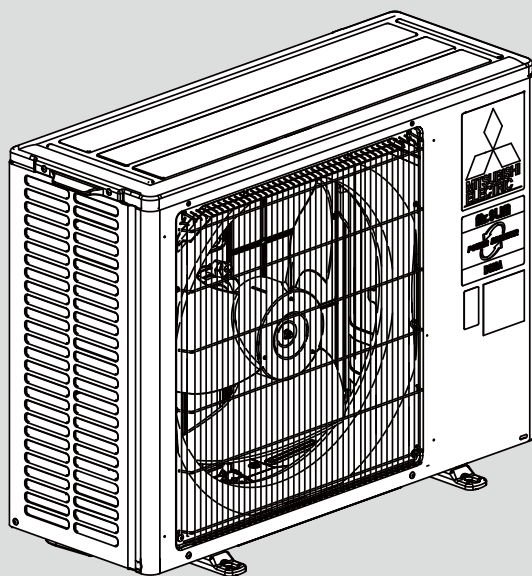
Revision:

- Added
PUHZ-ZRP35VKAR1,
PUHZ-ZRP35VKAR1-ER,
PUHZ-ZRP35VKAR1-ET,
PUHZ-ZRP50VKAR1,
PUHZ-ZRP50VKAR1-ER,
PUHZ-ZRP50VKAR1-ET,
PUHZ-ZRP60VHAR1,
PUHZ-ZRP60VHAR1-ER,
PUHZ-ZRP60VHAR1-ET,
PUHZ-ZRP71VHAR1,
PUHZ-ZRP71VHAR1-ER and
PUHZ-ZRP71VHAR1-ET in
REVISED EDITION-C.
- Some descriptions have been modified.

- Please void OCH527
REVISED EDITION-B.

Note:

- This manual describes service data of the outdoor units only.



PUHZ-ZRP35VKA
PUHZ-ZRP50VKA

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PARTS CATALOG (OCB527)
Mr. SLIM

[Service Ref.]

PUHZ-ZRP35VKA
PUHZ-ZRP35VKAR1
PUHZ-ZRP35VKAR1-ER
PUHZ-ZRP35VKAR1-ET
PUHZ-ZRP50VKA
PUHZ-ZRP50VKAR1
PUHZ-ZRP50VKAR1-ER
PUHZ-ZRP50VKAR1-ET
PUHZ-ZRP60VHA
PUHZ-ZRP60VHAR1
PUHZ-ZRP60VHAR1-ER
PUHZ-ZRP60VHAR1-ET
PUHZ-ZRP71VHA
PUHZ-ZRP71VHAR1
PUHZ-ZRP71VHAR1-ER
PUHZ-ZRP71VHAR1-ET

PUHZ-ZRP100VKA
PUHZ-ZRP125VKA
PUHZ-ZRP140VKA
PUHZ-ZRP100YKA
PUHZ-ZRP100YKAR1
PUHZ-ZRP125YKA
PUHZ-ZRP125YKAR1
PUHZ-ZRP140YKA
PUHZ-ZRP140YKAR1

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TECHNICAL CHANGES

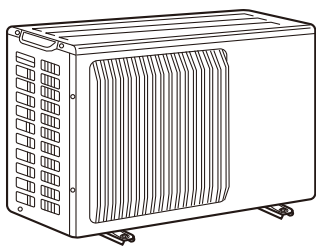
Service ref. have been changed as follows.

PUHZ-ZRP35VKA	➔	PUHZ-ZRP35VKAR1(-ER/-ET)
PUHZ-ZRP50VKA	➔	PUHZ-ZRP50VKAR1(-ER/-ET)
PUHZ-ZRP60VKA	➔	PUHZ-ZRP60VHAR1(-ER/-ET)
PUHZ-ZRP71VKA	➔	PUHZ-ZRP71VHAR1(-ER/-ET)

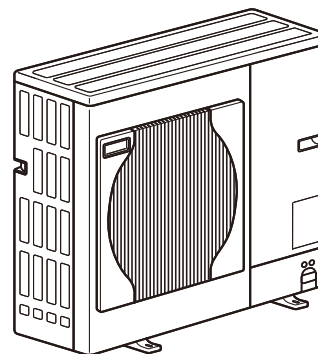
• S/W (for dual set temperature) has been changed.

PUHZ-ZRP100YKA	➔	PUHZ-ZRP100YKAR1
PUHZ-ZRP125YKA	➔	PUHZ-ZRP125YKAR1
PUHZ-ZRP140YKA	➔	PUHZ-ZRP140YKAR1

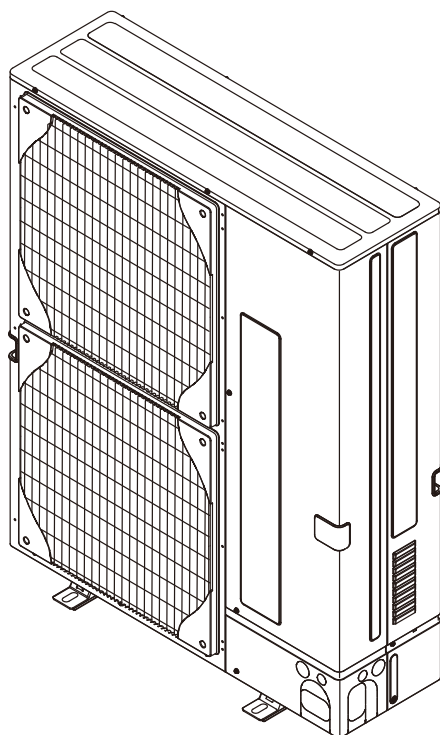
• Power circuit board (P.B.) has been changed.



PUHZ-ZRP35VKA
PUHZ-ZRP35VKAR1
PUHZ-ZRP35VKAR1-ER
PUHZ-ZRP35VKAR1-ET
PUHZ-ZRP50VKA
PUHZ-ZRP50VKAR1
PUHZ-ZRP50VKAR1-ER
PUHZ-ZRP50VKAR1-ET



PUHZ-ZRP60VHA
PUHZ-ZRP60VHAR1
PUHZ-ZRP60VHAR1-ER
PUHZ-ZRP60VHAR1-ET
PUHZ-ZRP71VHA
PUHZ-ZRP71VHAR1
PUHZ-ZRP71VHAR1-ER
PUHZ-ZRP71VHAR1-ET



PUHZ-ZRP100VKA
PUHZ-ZRP125VKA
PUHZ-ZRP140VKA
PUHZ-ZRP100YKA
PUHZ-ZRP100YKAR1
PUHZ-ZRP125YKA
PUHZ-ZRP125YKAR1
PUHZ-ZRP140YKA
PUHZ-ZRP140YKAR1

CHARGELESS SYSTEM

PRE-CHARGED REFRIGERANT IS SUPPLIED FOR PIPING LENGTH AT SHIPMENT

Maximum 30 m (PUHZ-ZRP35-140)

The refrigerant circuit with LEV (Linear Expansion Valve) and power receiver always control the optimal refrigerant level regardless of the length (30 m max. and 5 m min.) of piping. The additional refrigerant charging work during installation often causes problems. It is completely eliminated by chargeless system. This unique system improves the quality and reliability of the work done. It also helps to speed up the installation time.

REFRIGERANT LEAKAGE DETECTION FUNCTION

PUHZ-ZRP35-140 can detect refrigerant leakage which may happen during a long period of use.

Service Ref.				PUHZ-ZRP35VKA PUHZ-ZRP35VKAR1(-ER/-ET)		PUHZ-ZRP50VKA PUHZ-ZRP50VKAR1(-ER/-ET)	
Mode				Cooling	Heating	Cooling	Heating
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Single, 50Hz, 230V			
	Max. current	A		13		13	
	External finish			Munsell 3Y 7.8/1.1			
	Refrigerant control			Linear Expansion Valve			
	Compressor			Hermetic			
	Model			SNB092FGCM		SNB130FGCM2	
	Motor output	kW		0.6		1.1	
	Starter type			Inverter			
	Protection devices			HP switch Comp.shell thermo Discharge thermo			
	Crankcase heater	W		—			
	Heat exchanger			Plate fin coil			
	Fan	Fan(drive) × No.		Propeller fan × 1			
		Fan motor output	kW	0.046			
		Airflow	m³/min (CFM)	45 (1,590)			
	Defrost method			Reverse cycle			
	Noise level	Cooling	dB	44			
		Heating	dB	46			
	Dimensions	W	mm (in)	809+62 (31-13/16+2-7/16)			
		D	mm (in)	300 (11-3/16)			
		H	mm (in)	630 (24-13/16)			
	Weight	kg (lb)		43 (95)		46 (101)	
Refrigerant			R410A				
	Charge	kg (lb)	2.2 (4.8)		2.4 (5.3)		
	Oil (Model)	L	0.35 (FV50S)		0.50 (FV50S)		
REFRIGERANT PIPING	Pipe size O.D.	Liquid	mm (in)	6.35 (1/4)			
		Gas	mm (in)	12.7 (1/2)			
	Connection method	Indoor side		Flared			
		Outdoor side		Flared			
	Between the indoor & outdoor unit	Height difference		Maximum 30m			
		Piping length		Maximum 50m			

Service Ref.				PUHZ-ZRP60VHA PUHZ-ZRP60VHAR1(-ER/-ET)		PUHZ-ZRP71VHA PUHZ-ZRP71VHAR1(-ER/-ET)	
Mode				Cooling	Heating	Cooling	Heating
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Single, 50Hz, 230V			
	Max. current		A	19			
	External finish			Munsell 3Y 7.8/1.1			
	Refrigerant control			Linear Expansion Valve			
	Compressor			Hermetic			
	Model			SNB130FGCM1		SNB172FSHM1	
	Motor output		kW	1.2		1.3	
	Starter type			Inverter			
	Protection devices			HP switch Comp.shell thermo Discharge thermo			
	Crankcase heater		W	—			
	Heat exchanger			Plate fin coil			
	Fan	Fan(drive) × No.		Propeller fan × 1			
		Fan motor output		kW	0.06		
	Airflow		m³/min (CFM)	55 (1,940)			
	Defrost method			Reverse cycle			
	Noise level	Cooling	dB	47			
		Heating	dB	48			
Dimensions	W	mm (in)	950 (37-3/8)				
	D	mm (in)	330+30 (13+1-3/16)				
	H	mm (in)	943 (37-1/8)				
Weight		kg (lb)	67 (148)				
Refrigerant			R410A				
	Charge		kg (lb)	3.5 (7.7)			
	Oil (Model)		L	0.65 (FV50S)		0.70 (FV50S)	
REFRIGERANT PIPING	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 unit	Height difference		Maximum 30m			
		Piping length		Maximum 50m			

Service Ref.				PUHZ-ZRP100VKA		PUHZ-ZRP125VKA		PUHZ-ZRP140VKA	
Mode				Cooling	Heating	Cooling	Heating	Cooling	Heating
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Single 50Hz, 230V					
	Max. current		A	26.5				28	
	External finish			Munsell 3Y 7.8/1.1					
	Refrigerant control			Linear Expansion Valve					
	Compressor			Hermetic					
	Model			ANB33FNFMT					
	Motor output		kW	2.2		3.3		3.3	
	Starter type			Inverter					
	Protection devices			HP switch Comp.shell thermo Discharge thermo					
	Crankcase heater		W	—					
	Heat exchanger			Plate fin coil					
	Fan	Fan(drive) × No.		Propeller fan × 2					
		Fan motor output		kW	0.060+0.060				
	Airflow		m³/min (CFM)	110 (3,880)		120 (4,230)			
	Defrost method			Reverse cycle					
	Noise level	Cooling	dB	49		50			
		Heating	dB	51		52			
	Dimensions	W	mm (in)	1,050 (41-5/16)					
		D	mm (in)	330+30 (13+1-3/16)					
		H	mm (in)	1,338 (52-11/16)					
Weight		kg (lb)	116 (256)				119 (262)		
Refrigerant			R410A						
	Charge		kg (lb)	5.0 (11.0)					
	Oil (Model)		L	1.40 (FV50S)					
	Pipe size O.D.		Liquid	mm (in)	9.52 (3/8)				
REFRIGERANT PIPING			Gas	mm (in)	15.88 (5/8)				
	Connection method		Indoor side	Flared					
			Outdoor side	Flared					
	Between the indoor & outdoor unit		Height difference	Maximum 30m					
			Piping length	Maximum 75m					

Service Ref.				PUHZ-ZRP100YKA PUHZ-ZRP100YKAR1		PUHZ-ZRP125YKA PUHZ-ZRP125YKAR1		PUHZ-ZRP140YKA PUHZ-ZRP140YKAR1		
Mode				Cooling	Heating	Cooling	Heating	Cooling	Heating	
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			3phase, 50Hz, 400V						
	Max. current	A		8		9.5		11		
	External finish			Munsell 3Y 7.8/1.1						
	Refrigerant control			Linear Expansion Valve						
	Compressor			Hermetic						
	Model			ANB33FNCMT						
	Motor output	kW		2.2		3.3		3.3		
	Starter type			Inverter						
	Protection devices			HP switch Comp.shell thermo Discharge thermo						
	Crankcase heater		W	—						
	Heat exchanger			Plate fin coil						
	Fan	Fan(drive) × No.		Propeller fan × 2						
		Fan motor output		kW	0.060+0.060					
		Airflow	m³/min (CFM)	110 (3,880)		120 (4,230)				
	Defrost method			Reverse cycle						
	Noise level	Cooling	dB	49		50				
		Heating	dB	51		52				
	Dimensions	W	mm (in)	1,050 (41-5/16)						
		D	mm (in)	330+30 (13+1-3/16)						
		H	mm (in)	1,338 (52-11/16)						
Weight		kg (lb)	124 (273)		126 (278)		132 (291)			
Refrigerant			R410A							
	Charge		kg (lb)	5.0 (11.0)						
	Oil (Model)		L	1.40 (FV50S)						
	Pipe size O.D.	Liquid	mm (in)	9.52 (3/8)						
Gas		mm (in)	15.88 (5/8)							
REFRIGERANT PIPING	Connection method		Indoor side	Flared						
			Outdoor side	Flared						
	Between the indoor & outdoor unit		Height difference	Maximum 30m						
			Piping length	Maximum 75m						

6-1. REFILLING REFRIGERANT CHARGE (R410A: kg) PUAZ-ZRP35-140

Service Ref.	Piping length (one way)							Initial charged
	10 m	20 m	30 m	40 m	50 m	60 m	75 m	
PUHZ-ZRP35VKA PUHZ-ZRP35VKAR1 PUHZ-ZRP35VKAR1-ER PUHZ-ZRP35VKAR1-ET	1.8	2.0	2.2	2.4	2.6	—	—	2.2
PUHZ-ZRP50VKA PUHZ-ZRP50VKAR1 PUHZ-ZRP50VKAR1-ER PUHZ-ZRP50VKAR1-ET	2.0	2.2	2.4	2.6	2.8	—	—	2.4
PUHZ-ZRP60VHA PUHZ-ZRP60VHAR1 PUHZ-ZRP60VHAR1-ER PUHZ-ZRP60VHAR1-ET	3.1	3.3	3.5	4.1	4.7	—	—	3.5
PUHZ-ZRP71VHA PUHZ-ZRP71VHAR1 PUHZ-ZRP71VHAR1-ER PUHZ-ZRP71VHAR1-ET	3.1	3.3	3.5	4.1	4.7	—	—	3.5
PUHZ-ZRP100VKA PUHZ-ZRP100YKA PUHZ-ZRP100YKAR1	4.6	4.8	5.0	5.6	6.2	6.8	7.4	5.0
PUHZ-ZRP125VKA PUHZ-ZRP125YKA PUHZ-ZRP125YKAR1	4.6	4.8	5.0	5.6	6.2	6.8	7.4	5.0
PUHZ-ZRP140VKA PUHZ-ZRP140YKA PUHZ-ZRP140YKAR1	4.6	4.8	5.0	5.6	6.2	6.8	7.4	5.0

Additional charge is required for pipes longer than 30 m.

6-2. COMPRESSOR TECHNICAL DATA

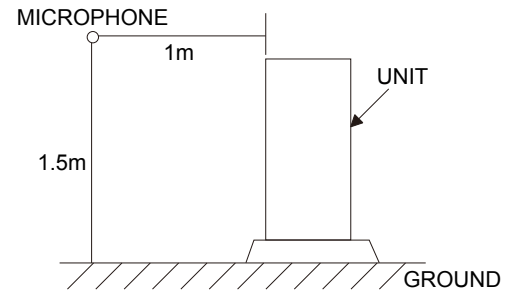
(at 20°C)

Service Ref.		PUHZ-ZRP35VKA PUHZ-ZRP35VKAR1 PUHZ-ZRP35VKAR1-ER PUHZ-ZRP35VKAR1-ET	PUHZ-ZRP50VKA PUHZ-ZRP50VKAR1 PUHZ-ZRP50VKAR1-ER PUHZ-ZRP50VKAR1-ET	PUHZ-ZRP60VHA PUHZ-ZRP60VHAR1 PUHZ-ZRP60VHAR1-ER PUHZ-ZRP60VHAR1-ET
Compressor model		SNB092FGCM	SNB130FGCM2	SNB130FGCM1
Winding Resistance (Ω)	U-V	0.64	0.64	0.64
	U-W	0.64	0.64	0.64
	W-V	0.64	0.64	0.64

(at 20°C)

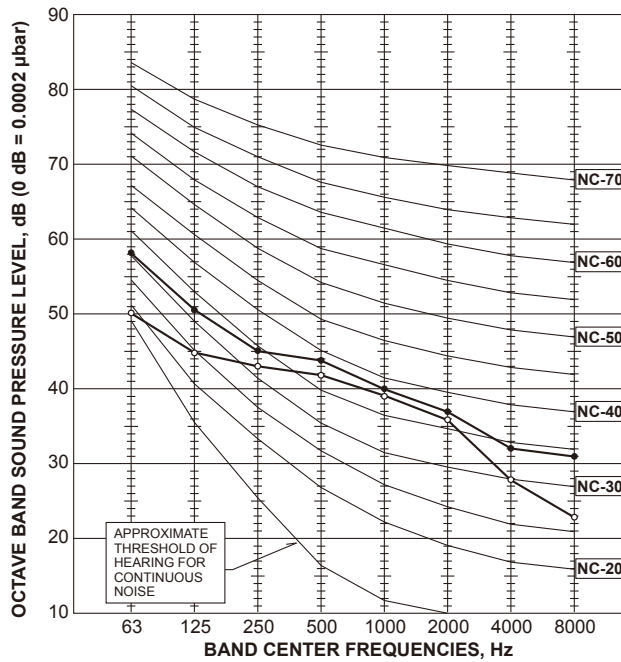
Service Ref.		PUHZ-ZRP71VHA PUHZ-ZRP71VHAR1 PUHZ-ZRP71VHA-ER PUHZ-ZRP71VHA-ET	PUHZ-ZRP100/125/140VKA	PUHZ-ZRP100/125/140YKA PUHZ-ZRP100/125/140YKAR1
Compressor model		SNB172FSHM1	ANB33FNMT	ANB33FNCMT
Winding Resistance (Ω)	U-V	1.34	0.466	1.20
	U-W	1.34	0.466	1.20
	W-V	1.34	0.466	1.20

6-3. NOISE CRITERION CURVES



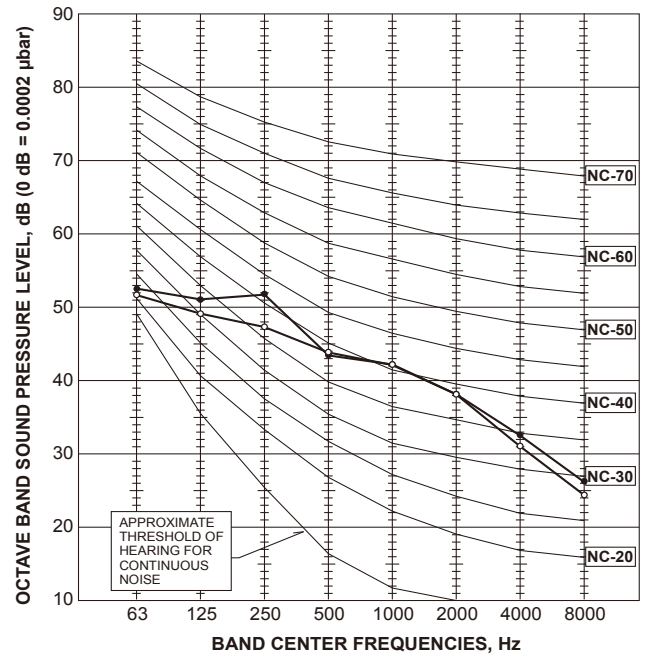
PUHZ-ZRP35VKA
PUHZ-ZRP35VKAR1(-ER/-ET)
PUHZ-ZRP50VKA
PUHZ-ZRP50VKAR1(-ER/-ET)

MODE	SPL(dB)	LINE
COOLING	44	○—○
HEATING	46	●—●



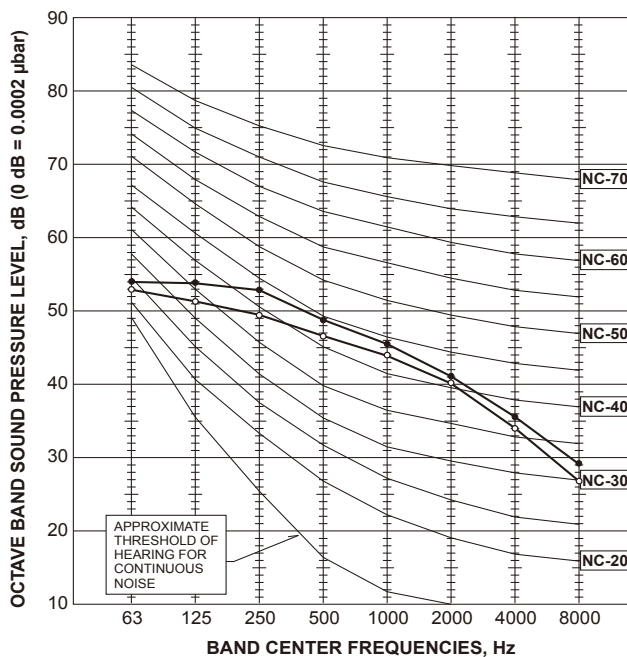
PUHZ-ZRP60VHA
PUHZ-ZRP60VHAR1(-ER/-ET)
PUHZ-ZRP71VHA
PUHZ-ZRP71VHAR1(-ER/-ET)

MODE	SPL(dB)	LINE
COOLING	47	○—○
HEATING	48	●—●



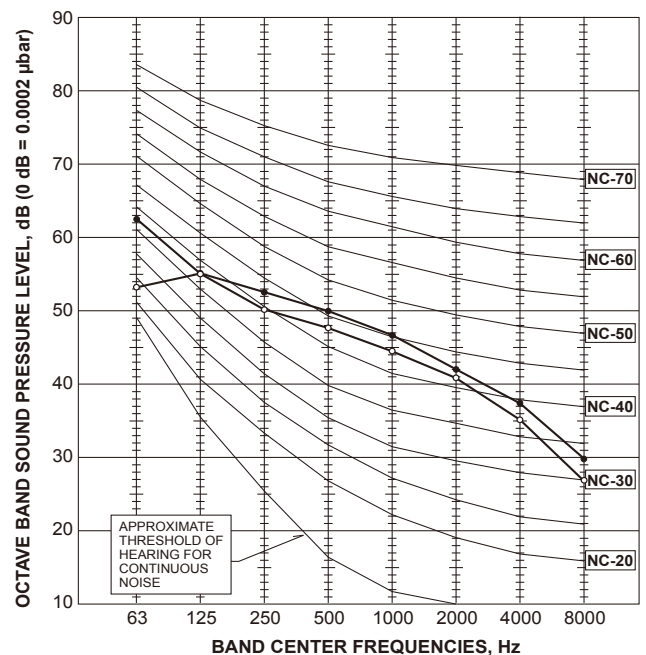
PUHZ-ZRP100VKA
PUHZ-ZRP100YKA
PUHZ-ZRP100YKAR1

MODE	SPL(dB)	LINE
COOLING	49	○—○
HEATING	51	●—●



PUHZ-ZRP125/140VKA
PUHZ-ZRP125/140YKA
PUHZ-ZRP125/140YKAR1

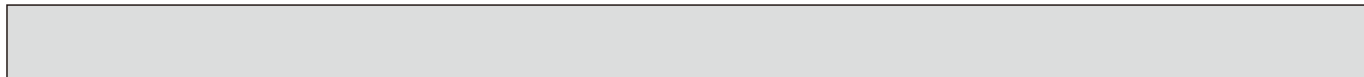
MODE	SPL(dB)	LINE
COOLING	50	○—○
HEATING	52	●—●



6-4. STANDARD OPERATION DATA

Representative matching			PLA-ZRP35BA		PLA-ZRP50BA		PLA-ZRP60BA		PLA-ZRP71BA		
Mode			Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	
Total	Capacity	W	3,600	4,100	5,000	6,000	6,100	7,000	7,100	8,000	
	Input	kW	0.79	0.86	1.43	1.57	1.78	2.04	1.77	1.99	
Electrical circuit	Indoor unit		PLA-ZRP35BA		PLA-ZRP50BA		PLA-ZRP60BA		PLA-ZRP71BA		
	Phase , Hz		1 , 50		1 , 50		1 , 50		1 , 50		
	Voltage	V	230		230		230		230		
	Current	A	0.28	0.25	0.30	0.27	0.30	0.27	0.45	0.41	
	Outdoor unit		PUHZ-ZRP35VKA		PUHZ-ZRP50VKA		PUHZ-ZRP60VHA		PUHZ-ZRP71VHA		
	Phase , Hz		1 , 50		1 , 50		1 , 50		1 , 50		
	Voltage	V	230		230		230		230		
	Current	A	3.58	3.97	6.23	6.90	7.72	8.92	7.63	8.65	
Refrigerant circuit	Discharge pressure	MPa	2.58	2.03	2.79	2.54	2.61	2.81	2.65	2.56	
	Suction pressure	MPa	1.11	0.74	0.95	0.69	0.90	0.72	1.01	0.70	
	Discharge temperature	℃	63	60	66	74	67	77	65	70	
	Condensing temperature	℃	44	34	46	43	45	47	45	43	
	Suction temperature	℃	14	4	9	2	9	3	11	1	
	Ref. pipe length	m	5	5	5	5	5	5	5	5	
Indoor side	Intake air temperature	D.B.	℃	27	20	27	20	27	20	27	20
		W.B.	℃	19	15	19	15	19	15	19	15
	Discharge air temperature	D.B.	℃	17.7	31.1	15.8	36.2	13.9	40.1	14.3	37.1
Outdoor side	Intake air temperature	D.B.	℃	35	7	35	7	35	7	35	7
		W.B.	℃	24	6	24	6	24	6	24	6
SHF			0.96	—	0.84	—	0.77	—	0.85	—	
BF			0.24	—	0.19	—	0.16	—	0.10	—	

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



Representative matching				PLA-ZRP100BA		PLA-ZRP125BA		PLA-ZRP140BA	
Mode				Cooling	Heating	Cooling	Heating	Cooling	Heating
Total	Capacity	W		10,000	11,200	12,500	14,000	13,400	16,000
	Input	kW		2.60	2.61	3.87	3.67	4.37	4.70
Electrical circuit	Indoor unit			PLA-ZRP100BA		PLA-ZRP125BA		PLA-ZRP140BA	
	Phase , Hz			1 , 50		1 , 50		1 , 50	
	Voltage	V		230		230		230	
	Current	A		0.74	0.66	0.80	0.71	1.07	0.95
	Outdoor unit			PUHZ-ZRP100VKA PUHZ-ZRP100YKA		PUHZ-ZRP125VKA PUHZ-ZRP125YKA		PUHZ-ZRP140VKA PUHZ-ZRP140YKA	
	Phase , Hz			1/3, 50		1/3, 50		1/3, 50	
	Voltage	V		230/400		230/400		230/400	
	Current	A		11.18/3.95	11.27/3.98	16.77/5.93	15.93/5.63	18.86/6.67	20.36/7.20
Refrigerant circuit	Discharge pressure	MPa		2.58	2.43	2.75	2.81	2.73	2.78
	Suction pressure	MPa		0.94	0.68	0.85	0.69	0.86	0.66
	Discharge temperature	°C		66	72	72	81	72	84
	Condensing temperature	°C		43	41	46	46	47	47
	Suction temperature	°C		12	5	8	5	8	4
	Ref. pipe length	m		5	5	5	5	5	5
Indoor side	Intake air temperature	D.B.	°C	27	20	27	20	27	20
		W.B.	°C	19	15	19	15	19	15
	Discharge air temperature	D.B.	°C	12.9	40.9	12.5	42.3	11.7	46.6
Outdoor side	Intake air temperature	D.B.	°C	35	7	35	7	35	7
		W.B.	°C	24	6	24	6	24	6
SHF				0.74	—	0.74	—	0.72	—
BF				0.21	—	0.18	—	0.12	—

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

PUHZ-ZRP35VKA
 PUHZ-ZRP35VKAR1
 PUHZ-ZRP35VKAR1-ER
 PUHZ-ZRP35VKAR1-ET

PUHZ-ZRP50VKA
 PUHZ-ZRP50VKAR1
 PUHZ-ZRP50VKAR1-ER
 PUHZ-ZRP50VKAR1-ET

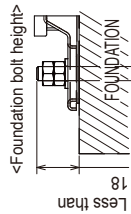
Unit: mm

PIPING-WIRING DIRECTION

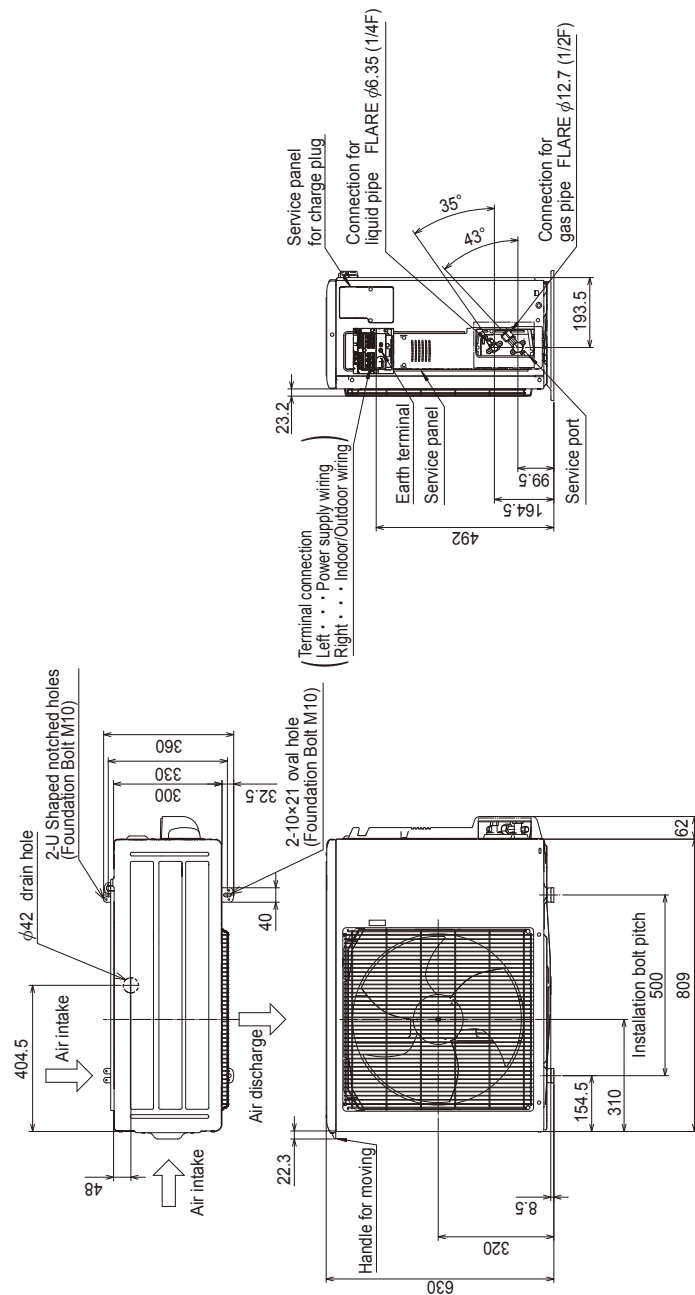
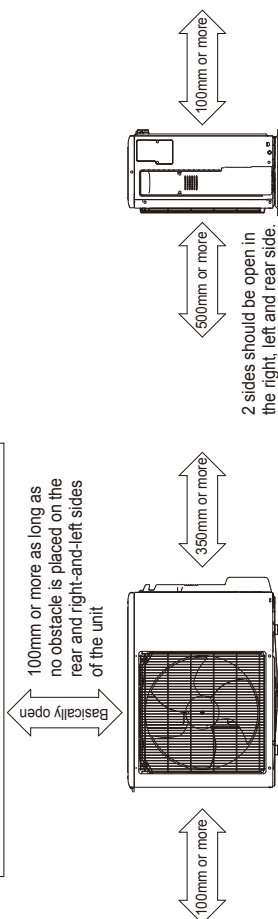
Piping and wiring connection can be made from the rear direction only.

FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10) bolts. (Bolts, washers and nut must be purchased locally).



Free space around the outdoor unit (basic example)



PUHZ-ZRP60VKA
 PUHZ-ZRP60VHAR1
 PUHZ-ZRP60VHAR1-ER
 PUHZ-ZRP60VHAR1-ET

PUHZ-ZRP71VHA
 PUHZ-ZRP71VHAR1
 PUHZ-ZRP71VHAR1-ER
 PUHZ-ZRP71VHAR1-ET

Unit: mm

4 PIPING-WIRING DIRECTIONS

Piping and wiring connections can be made from 4 directions: front, right, rear and below.

3 FOUNDATION BOLTS

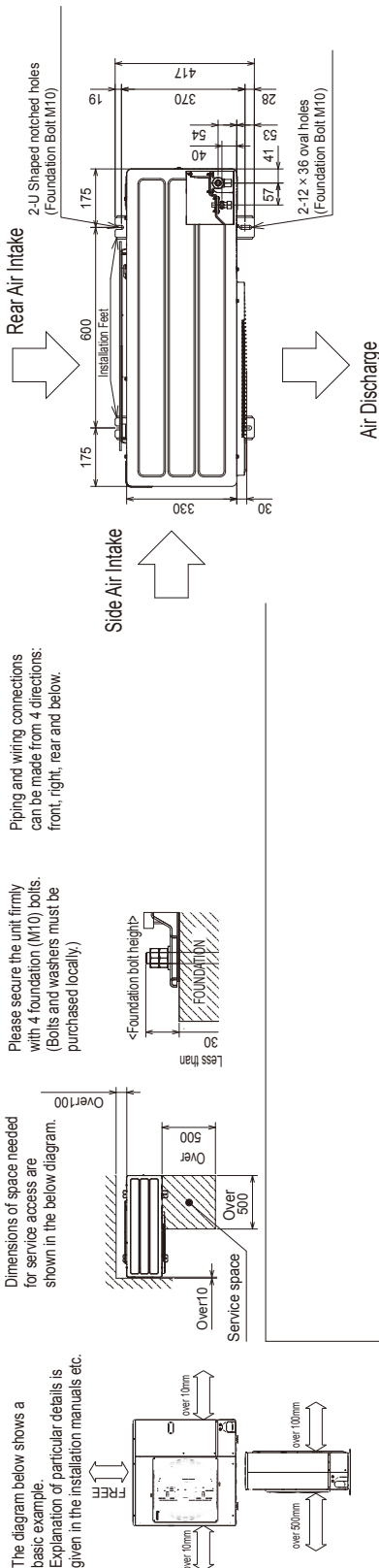
Please secure the unit firmly with 4 foundation (M10) bolts. (Bolts and washers must be purchased locally)

2 SERVICE SPACE

Dimensions of space needed for service access are shown in the below diagram.

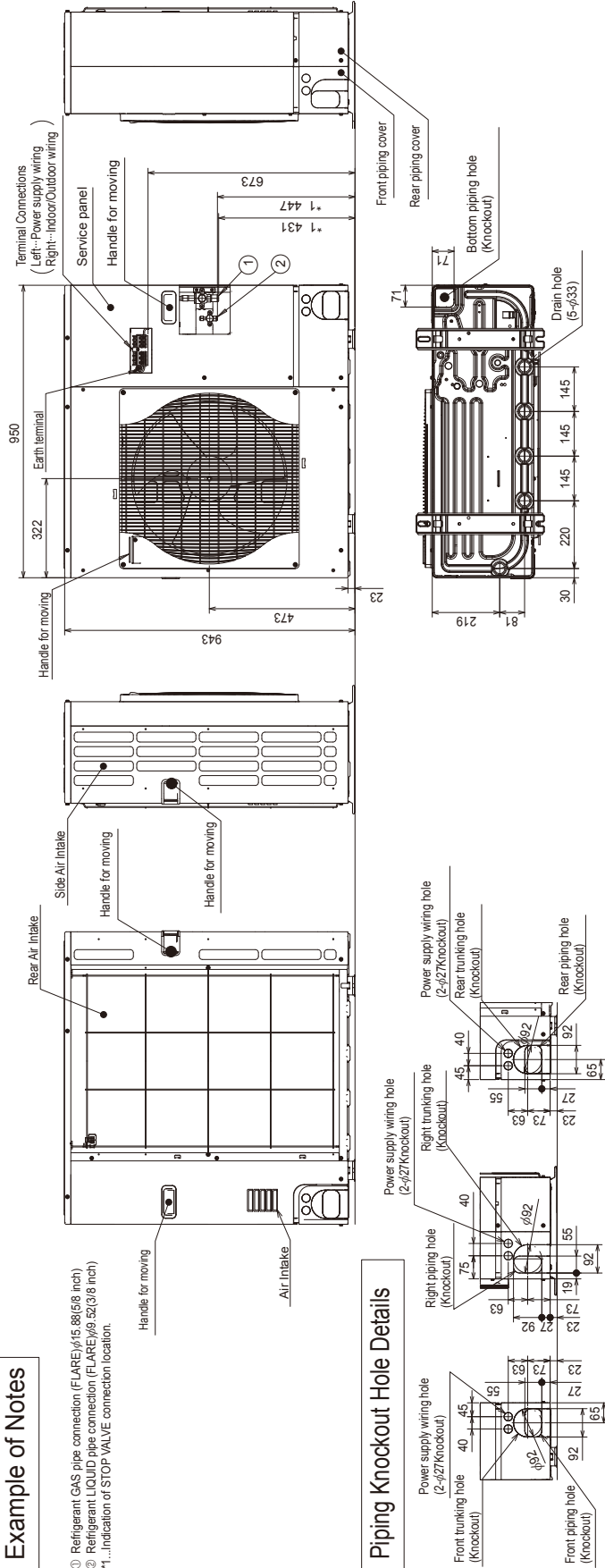
1 FREE SPACE (Around the unit)

The diagram below shows a basic example. Explanation of particular details is given in the installation manuals etc.

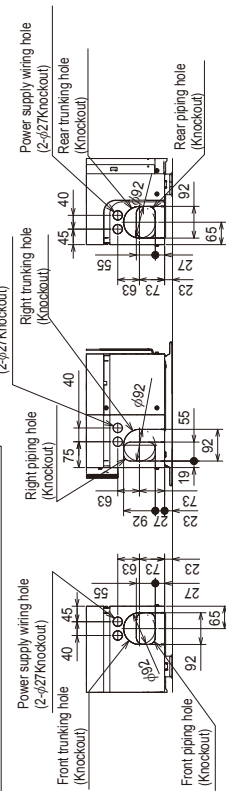


Example of Notes

- ① Refrigerant GAS pipe connection (FLARE) (1/5.88(5/8 inch))
- ② Refrigerant LIQUID pipe connection (FLARE) (1/8.52(3/8 inch))
- *1...Indication of STOP VALVE connection location.



Piping Knockout Hole Details



PUHZ-ZRP100VKA
 PUHZ-ZRP125VKA
 PUHZ-ZRP140VKA
 PUHZ-ZRP100YKA
 PUHZ-ZRP100YKAR1
 PUHZ-ZRP125YKA
 PUHZ-ZRP125YKAR1
 PUHZ-ZRP140YKA
 PUHZ-ZRP140YKAR1

Unit: mm

