The Great Lakes Construction Co.

TRANSMITTAL
No. 178

925 Laidlaw Ave.
Cincinnati, Ohio 45237

PROJECT: ODOT 150085 HAM 71-1.34

DATE: December 5, 2017

TO: ODOT District 8
505 South SR 741
Lebanon, OH 45036

REF: HVAC O&M
Line Item: #415.00

ATTN: Marvin Lennon

WE ARE SENDING		SUBMITTED FOR:		ACTION TAKEN:	
	Shop Drawings		Approval		Approved as Submitted
	Letter	X	Your Use		Approved as Needed
	Prints		As Requested		Returned after Loan
	Change Order		Review and Comment		Resubmit
	Plans			X	Submit
	Samples	**SENT VIA:**			Returned
	Specifications	X	Attached		Returned for Correction
X	Other: HVAC O&M		Separate Cover:		Due Date:

SUBMITTAL	COPIES	DATE	DESCRIPTION
TR85.15-178	1 pdf	12/5/2017	HVAC O&M, per sheet 380/555, Section 3.1.A

REMARKS

CC: Joe Smithson, ODOT D8

Signed: 

Jacob D. Elmore.

READ AND SAVE THESE INSTRUCTIONS

PN 453078

GREENHECK
Building Value in Air.

Model BSQ Belt Drive Centrifugal Inline Fan

Installation, Operation, and Maintenance Manual

Upon receiving unit, check for any damage and report it immediately to the shipper. Also check to see that all accessory items are accounted for.

Move fan to desired location and determine position of access panels and motor. Make sure inlet and outlet have at least 2.5 times the wheel diameter (duct diameter) before any obstructions like an elbow or transaction. Attach the fan to a suitable framework as specified, (hanging or base vibration isolators are recommended). See chart below for dimensions of vibration isolator centerlines (Fig. 1). See Fig. 2 for physical dimensions.

The motor's amperage and voltage ratings must be checked for compatibility to supply voltage prior to final electrical connection. Electrical lead in wires are then connected to the factory supplied safety disconnect switch. All wiring must conform to local and national codes.

VIBRATION ISOLATOR DIMENSIONAL DATA

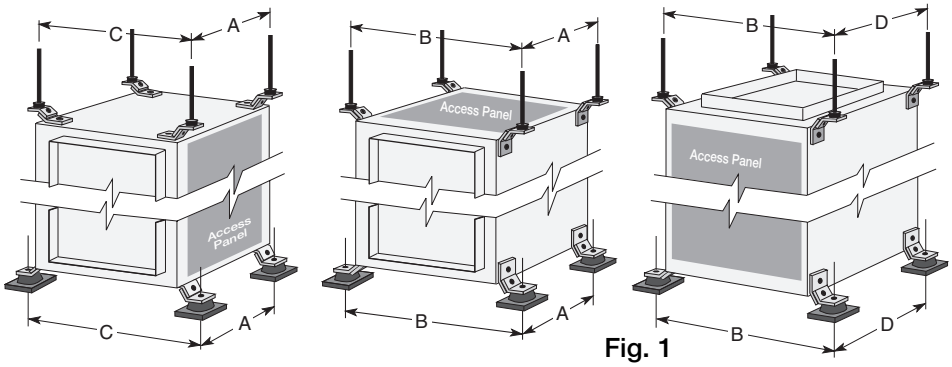


Fig. 1

Unit Size	A	B	C	D
70-90	18 5/8	19 3/4	17 1/2	11 7/8
100	18 5/8	21 3/4	19 1/2	13 7/8
120	18 5/8	23 3/4	21 1/2	15 7/8
130-130HP	18 5/8	25 3/4	23 1/2	17 7/8
140-140HP	19 5/8	27 3/4	25 1/2	19 7/8
160-160HP	23 1/2	31	28 1/2	22 7/8
180-180HP	25 1/2	33	28 3/8	22 3/4
200-200HP	29 1/4	37	32 3/8	26 7/8
240-240HP	31 5/8	44	39 3/8	33 7/8
300-300HP	35	51	46 3/8	40 7/8
360-360HP	39 1/4	57	52 3/8	46 7/8
420	47 1/4	63	58 3/8	52 3/4

All dimensions are in inches.

DIMENSIONAL DATA

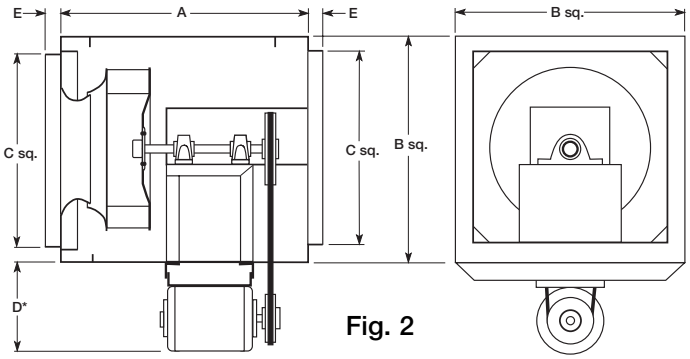


Fig. 2

Unit Size	A	B	C	D*	E	Material Thickness (ga.)	Approx. Unit Weight (lbs.)
70-80-90	21	15	11 7/8	9	1	20	75
100	21	17	13 7/8	9	1	20	85
120	21	19	15 7/8	9	1	20	95
130-130HP	21	21	17 7/8	9	1	20	110
140-140HP	22	23	19 7/8	9	1	18	140
160-160HP	26	26	22 7/8	11	1	18	160
180-180HP	28	28	23 7/8	11	1 1/2	18	190
200-200HP	32	32	27 7/8	13	1 1/2	18	220
240-240HP	34	39	34 7/8	13	1 1/2	18	320
300-300HP	38	46	41 7/8	13	1 1/2	16	420
360-360HP	42	52	47 7/8	13	1 1/2	16	600
420	50	58	53 7/8	13	1 1/2	14	720

All dimensions are in inches. *May vary depending on motor size.

DUCT LENGTH

The inlet and outlet duct length should be approximately two to three wheel diameters long before and after the fan to achieve cataloged performance.

SIDE DISCHARGE

Make sure discharge is orientated in the same direction as originally ordered, performance will change with different discharge positions. Refer to Fig. 3 for proper side discharge definition. Refer to the CAPS program or consult factory for performance corrections.

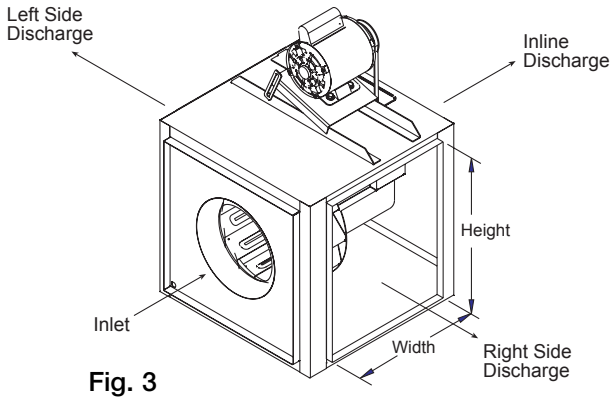


Fig. 3

Side Discharge Duct Openings

Unit Size	Width	Height
70-80-90	11 7/8	11 7/8
100	13 7/8	13 7/8
120	15 7/8	15 7/8
130-130HP	17 7/8	17 7/8
140-140HP	19 7/8	19 7/8
160-160HP	22 7/8	22 7/8
180-180HP	23 7/8	23 7/8
200-200HP	27 7/8	27 7/8
240-240HP	28 7/8	34 7/8
300-300HP	31 7/8	41 7/8
360-360HP	32 7/8	37 7/8
420	34 7/8	43 7/8

All dimensions are in inches.

PRE START-UP CHECKS

Check all fasteners for tightness. The wheel should rotate freely and be aligned as shown in Fig. 4. Wheel position is preset and the unit is test run at the factory. Movement may occur during shipment, and realignment may be necessary. Centering can be accomplished by loosening the bolts holding the inlet (venturi) panel and repositioning. Wheel and inlet cone overlap can be adjusted by loosening the set screws in the wheel and moving the wheel to the desired position.

WHEEL OVERLAP DIMENSIONS

Model	G
70-160	1/4 in.
180-240	3/8 in.
300-420	1/2 in.

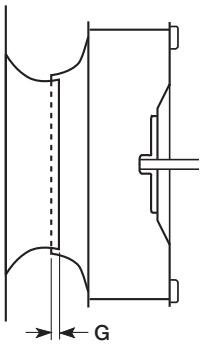


Fig. 4

WHEEL ROTATION

Direction of wheel rotation is critical. Reversed rotation will result in poor air performance, motor overloading and possible burnout. Check wheel rotation (all BSQ fans have CW wheel rotation when viewed from top of fan) by momentarily energizing the unit. Rotation should be clockwise as shown in Fig. 5 and correspond to the rotation decal on the unit.

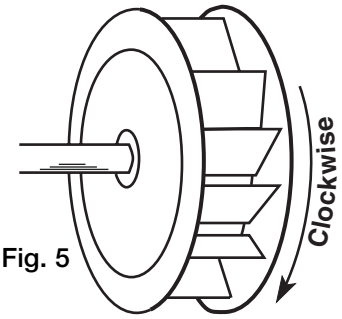
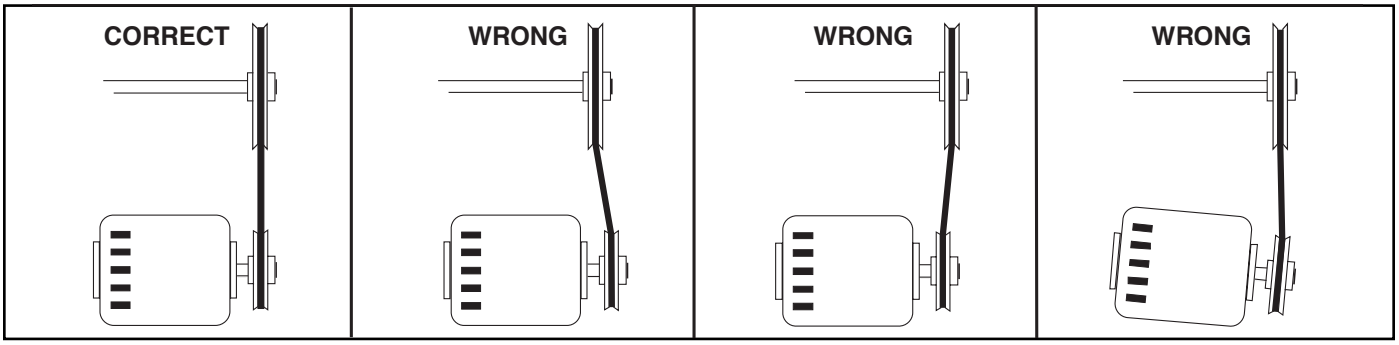


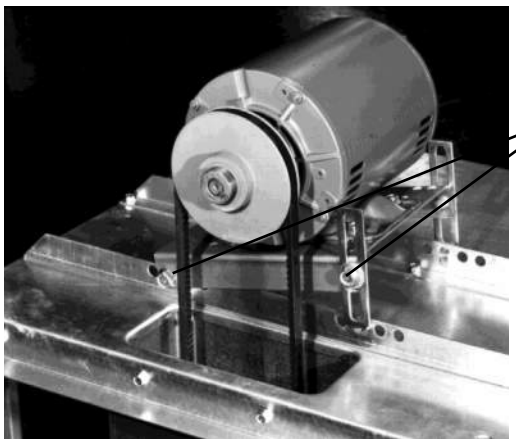
Fig. 5

Fig. 6



If adjustments are made, it is very important to check the pulleys for proper alignment. Misaligned pulleys lead to excessive belt wear, vibration, noise and power loss. (See Fig. 6)

Belt tension can be adjusted by loosening four fasteners (marked “R”, Fig. 7) on the drive frame. For all BSQ units, the motor plate slides on the slotted adjusting arms (see Fig. 7). Belt tension should be adjusted to allow 1/64 inch of deflection per inch of belt span. For example, a 15 inch belt span should have 15/64 inch (or about 1/4 inch) of deflection with moderate thumb pressure at mid-point between pulleys (See Fig. 8). Overtightening will cause excessive bearing wear and noise. Too little tension will cause slippage at startup and uneven wear.



NOTE:
Identical fasteners on opposing side must also be loosened.

Fig. 7

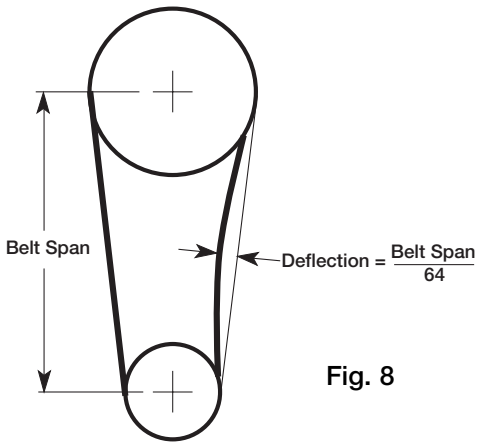


Fig. 8

The adjustable motor pulley is factory set for the RPM specified. Speed can be increased by closing or decreased by opening the adjustable motor sheave. Two groove variable pitch pulleys must be adjusted an equal number of turns open or closed. Any increase in speed represents a substantial increase in the horsepower required by a unit. Motor amperage should always be checked to avoid serious damage to the motor when speed is varied.

MAINTENANCE

Belts tend to stretch after a period of time. They should be checked periodically for wear and tightness. When replacing belts, use the same type as supplied with the unit. Matched belts should always be used on units with multigroove pulleys. For belt replacement, loosen the tensioning device far enough to allow removal of the belt by hand. Do not force belts on or off. This may cause cords to break, leading to premature belt failure. Once installed, adjust belts as shown in "Pre-Starting Checks."

Shaft bearings can be classified in two groups: relubricating and non-relubricating. All bearings on standard Model BSQ fans are factory lubricated and require no further lubrication under normal use (between -20°F and 180°F in a relatively clean environment). Units installed in hot, humid or dirty locations should be equipped with special bearings. These bearings will require frequent lubrication. Caution should be employed to prevent overpacking or contamination. Grease fittings should be wiped clean. The unit should be in operation while lubricating. Extreme care should be used around moving parts. Grease should be pumped in very slowly until a slight bead forms around the seal. A high grade lithium base grease is recommended.

Motor maintenance is generally limited to cleaning and lubrication (where applicable). Cleaning should be limited to exterior surfaces only. Removing dust buildup on motor housing ensures proper motor cooling. Greasing of motors is only intended when fittings are provided. Many fractional motors are permanently lubricated and should not be lubricated further. Motors supplied with grease fittings should be greased in accordance with manufacturer's recommendations. Where motor temperatures do not exceed 104°F (40°C), the grease should be replaced after 2000 hours of running time as a general rule.

Wheels require very little attention when moving clean air. Occasionally, oil and dust may accumulate causing imbalance. When this occurs, the wheel and housing should be cleaned to ensure smooth and safe operation.

The unit should be made non-functional when cleaning the wheel or housing (fuses removed, disconnect locked off, etc.).

All fasteners should be checked for tightness each time maintenance checks are performed prior to restarting unit.

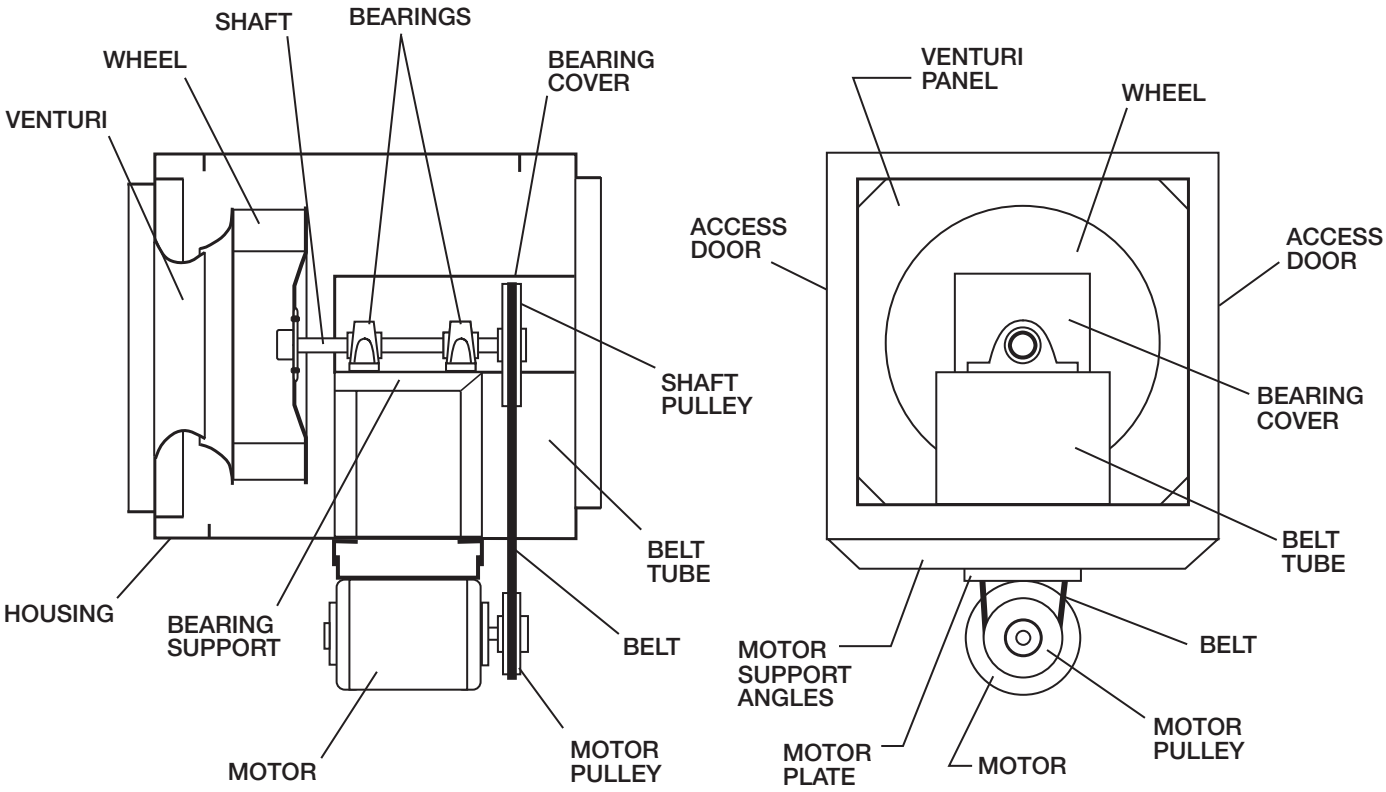
A proper maintenance program will help these units deliver years of dependable service.

TROUBLESHOOTING

NOTE: Before taking any corrective action, make certain unit is not capable of operation during repairs.

PROBLEM	CAUSE	CORRECTIVE ACTION
REDUCED AIRFLOW	System resistance too high	Check system: Proper operation of backdraft or control dampers, obstruction in ductwork, etc.
	Unit running backwards	Correct as shown in Fig. 5.
	Excessive dirt buildup on wheels	Clean wheel.
	Improper wheel alignment	Center wheel on inlets.
EXCESSIVE NOISE OR VIBRATION	Bad bearings	Replace.
	Belts too tight or too loose	Refer to Fig. 8 and adjust tension.
	Wheel improperly aligned and rubbing	Center wheel on inlets. See Fig. 4.
	Loose drive or motor pulleys	Align and tighten. See "Pre Start-Up Checks."
	Foreign objects in wheel or housing	Remove objects, check for damage or unbalance.
	Unbalance of wheel caused by excessive dirt and grease buildup	Remove buildup.

PARTS LIST



NOTE: *Each fan bears a manufacturer's nameplate with model number and serial number embossed. This information will assist the local Greenheck representative and the factory in providing service and replacement parts.*

CAUTION: A fan manufactured with explosion resistant motors does not certify the entire unit to be explosion proof. Refer to UL Listing Mark for the fans approved usage.

WARRANTY

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the purchase date. Any units or parts which prove to be defective during the warranty period will be replaced at our option when returned to our factory, transportation prepaid. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by Greenheck prove defective during this period, they should be returned to the nearest authorized motor service station. Greenheck will not be responsible for any removal or installation costs.

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

GREENHECK
P.O. BOX 410 SCHOFIELD, WISCONSIN 54476-0410
PH. 715-359-6171
www.greenheck.com

IOM BSQ FS
Rev. 4 June 2005

GREENHECK
Building Value in Air.

VENCO

Document 481319
Fire and Combination Fire Smoke Dampers
DFDR-XXX, FDR-XXX, FSDR-XXX, SEDFDR-XXX, SEFSDR-XXX, SSDFDR-XXX, SSFDR-XXX SSFSDR-XXX Series
1½ Hour
Vertical and Horizontal Mount

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage!

These instructions apply to 1½ hour rated fire and combination fire smoke dampers mounted in: 1) masonry, block, or stud walls and 2) concrete floors or ceilings. Specific requirements in these instructions are mandatory. Dampers must be installed in accordance with these instructions to meet the requirements of UL 555 and/or UL 555S.

c UL US

Table of Contents

Receiving and Handling

Upon receiving dampers, check for both obvious and hidden damage. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment, including accessories, are accounted for.

Dampers must be kept dry and clean. Indoor storage and protection from dirt, dust and the weather is highly recommended. Do not store at temperatures in excess of 100°F (38°C).

Safety Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

This manual is the property of the owner and is required for future maintenance. Please leave it with the owner when the jobs is complete.

General Information

"UL CLASSIFIED (see complete marking on product)"
"UL CLASSIFIED to Canadian safety standards (see complete marking on product)"
Standard 555 & 555S (Listing #R13317)

Installation Supplements only available on greenheck.com

- Steel Deck Supplement

Electrical Guidelines

Electrical Guidelines

All wiring shall be done in accordance with the National Electrical Code ANSI/NFPA-70 latest edition, any local codes that may apply, and wiring diagrams developed in compliance with the job or project design and specifications.

Important!

Electrical input may be needed for this equipment. This work should be performed by a qualified electrician. Verify power before wiring actuator. Greenheck is not responsible for any damage to, or failure of the unit caused by incorrect field wiring. To avoid causing death or serious bodily harm to building occupants, follow all instructions carefully. Dampers must close completely to preserve the integrity of the fire smoke separation.

Pre-Installation Guidelines

The following items will aid in completing the damper installation in a timely and effective manner.

1) Check the drawings for proper damper locations within the building. Visually inspect the damper for damage and verify that the Reusable Resettable Link (RRL) is in place and has not activated if provided. These electric links have a button for resetting. Visually inspect the link to verify its not missing or broken. Replace link as necessary.
2) Lift or handle damper using sleeve or frame. Do not lift damper using blades or actuators.
3) Damper has label on outside of sleeve indicating a 'No Screw' area. Do not install screws into this area as screws may interfere with unexposed blade linkage and prevent damper blades from opening and/or closing.
4) Damper has label indicating position of damper and sleeve assembly in the wall. Install accordingly to comply with manufacturer's appropriate UL Classification file number.
5) Damper must be installed into duct or opening square and free of twist or other misalignment. Out of square, racked, twisted or misaligned installations can cause excessive leakage and/or torque requirements to exceed damper/actuator design.
6) Damper and actuator must be kept clean and protected from dirt, dust and other foreign materials prior to and after installation. Examples of such foreign materials include but are not limited to:
    a) Mortar dust
    b) Drywall dust
    c) Firesafing materials
    d) Wall texture
    e) Paint overspray
7) Damper should be sufficiently covered as to prevent overspray if wall texturing or spray painting will be performed within 5 feet of the damper. Excessive dirt or foreign material deposits on the damper can cause excessive leakage and/or torque requirements to exceed damper/actuator design.
8) Caulking is not necessary, nor is it allowed, between the damper sleeve and the wall or floor opening (annular space). However, caulking may be applied to the retaining angles.
9) ACCESS: Suitable access (such that RRL's and actuators can be maintained, etc.) must be provided for damper inspection and servicing. Where it is not possible to achieve sufficient size access, it will be necessary to install a removable section of duct. (Refer to NFPA 90A).
10) The Code Authority Having Jurisdiction (AHJ) must evaluate and provide approval of final installation where variations to these instructions are necessary.

Preparation of Openings

- Frame wall openings as shown below (**see Figure 1 & 2**).
- Gypsum wall board must be fastened 12 in. (305mm) on center to all stud and runner flanges surrounding opening.
- Prepare opening between studs and sleeve assembly as shown below (**see Figure 3**).
- All construction and fasteners must meet the requirements of the appropriate wall design (See UL Fire Resistance Directory) and/or local codes.

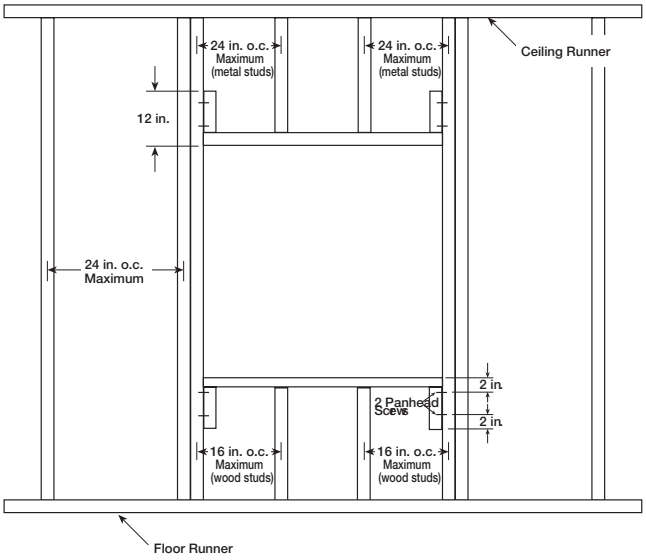
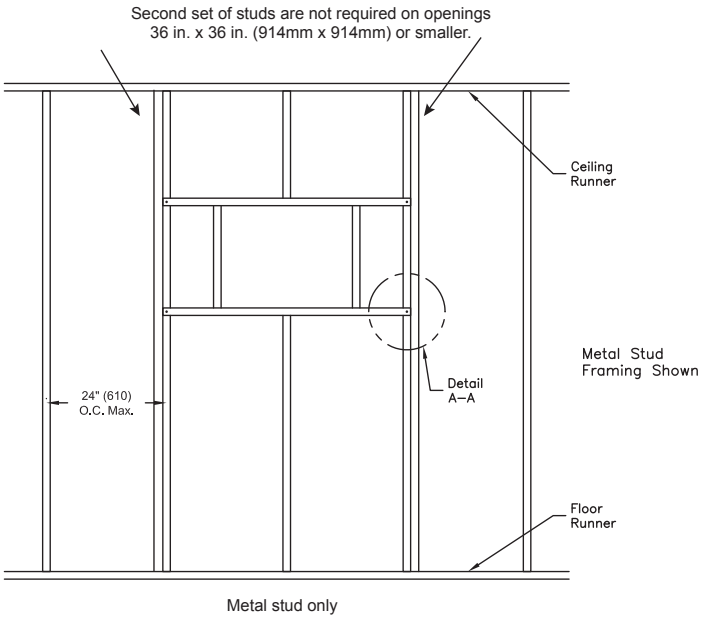
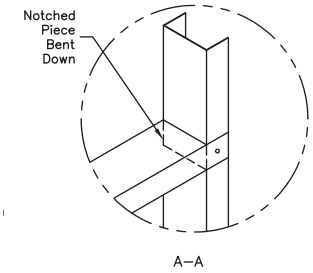


Figure 1



Metal stud only

Figure 2



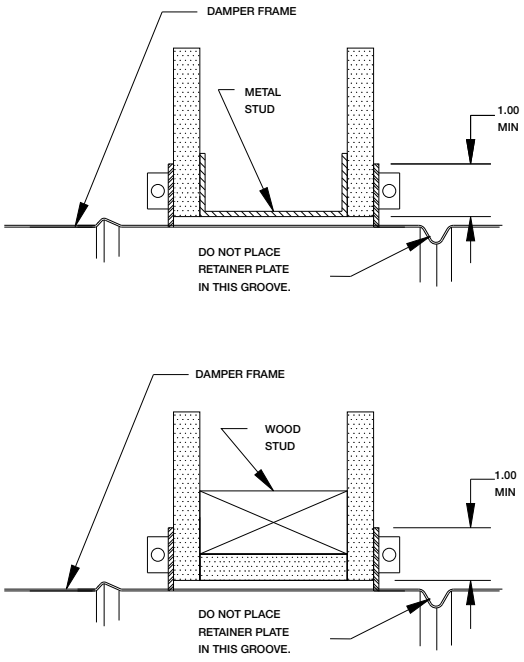


Figure 3

Clearances Required Between Damper Sleeves and Wall/Floor Openings

Fire damper assemblies expand during periods of intense heat. Therefore, it is essential that openings in walls or floors be larger than the fire or combination fire smoke damper assembly to allow for this expansion. The wall/floor opening must be a minimum of ⅞ in. (22mm) larger than the outside diameter of the damper.

Maximum Size Table

Damper Model	Maximum Size
DFDR-510	24 in. (610mm)
FDR-510	
FSDR-511	
FSDR-512	
SEDFDR-510	
SEFSDR-511	
SSDFDR-510	
SSFDR-510	
SSFSDR-511	

Inserting Damper into Wall/Floor Openings

Insert the damper assembly into the prepared opening, to appropriate depth (see **Figure 3 & 4**).

Recommended maximum and minimum insertion depth can be exceeded if:

Special attention must be paid to ensure the following:

1) The ℄ (centerline) of the damper frame remains within the plane of the wall or floor
2) The sleeve does not extend more than 16 in. (406mm) beyond the wall or floor on the actuator side of the damper and 6 in. (152mm) on the side opposite the actuator. The sleeve may also extend up to 16 in. (406mm) beyond the wall or floor if the damper has a factory supplied access door.

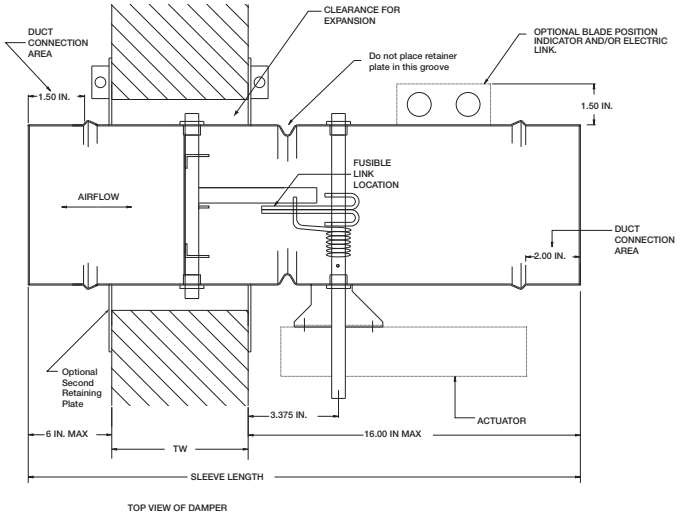


Figure 3: FSDR/SEFSDR/SSFSDR

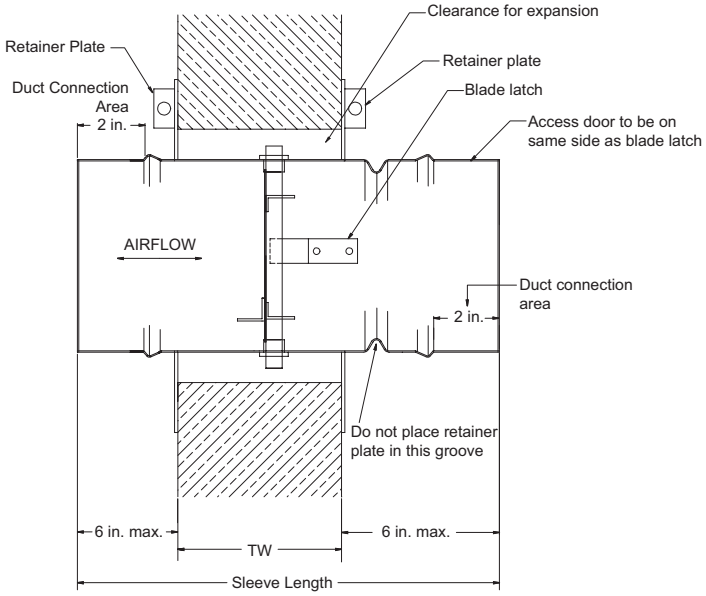


Figure 4: DFDR/FDR/SEDFDR/SSDFDR/SSFDR

Securing the Damper/Sleeve Assembly to Wall and Floor Openings

Damper assemblies must be installed in wall and floor openings using a single retaining plate on either side of the wall/floor or by using a retaining plate on both sides of the wall/floor. The use of a second retaining plate is provided with the dampers. A second retaining plate can be ordered as an option.

- The retaining plate(s) will open up for easy installation when the clamping screw is loosened. If necessary, remove the clamping screw and nut (see **Figure 5**).
- Position the retaining plate between the blade axle and the actuator shaft as shown in **Figure 3 & 4**. Do not place the retaining plate in the groove. IMPORTANT: The clamping mechanism should face away from the wall/floor.
- Place the damper and attached retainer plate into the wall/floor opening.
- If a second retaining plate is being used, secure it on the opposite side of the wall/floor.
- Verify position, blade orientation, and actuator clearance then tighten the retainer plate clamping screws.
- The retainer plate(s) must overlap the wall/floor opening a minimum of 1 inch (25mm).
- Secure the retainer plate(s) to the wall at the four corners of each plate when two retainer plates are used and also within ¾ in. (19mm) of the center of each side when one retainer plate is used. The following fasteners shall be used:
  - #8 or #10 screws of a length such that the screw engages the steel stud/track by ½ in. (13mm)(steel framing).
  - #8 or #10 screws of a length such that screw engages the wood stud by 1¾ in. (44mm) (wood framing)
  - Steel anchors or self tapping concrete screws penetrating masonry or block by 1¼ in. (32mm).

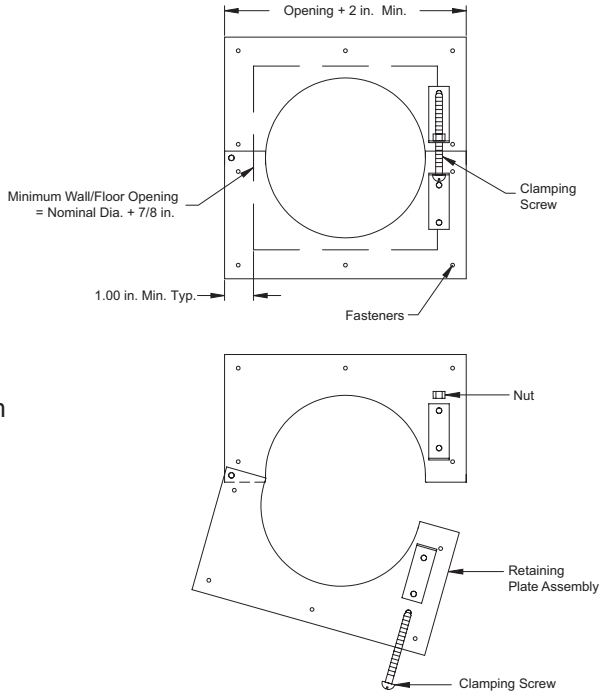


Figure 5: Retaining Plates

Duct to Sleeve Connections

Sleeve Gauge and Connection Type Requirements

Round duct connections to shall be attached with #8 or #10 sheet metal screws as follows:

- Ducts 22 in. (558mm) dia. and smaller shall have three screws.
- Ducts larger than 22 in. (558mm) dia. up to and iincluding 24 in. (610mm) dia. shall have five screws.

Note: All connections described may have duct sealant, PA2084T duct sealant adhesive manufactured by Precision, DP1010 water base duct sealant manufactured by Design Polymetrics, Grey Pookie, Ductmate PROseal®, or CL Ward S Seal applied in accordance with SMACNA recommendations.

Actuator and Temperature Response Device Connections

Actuator Connections

Electrical and/or pneumatic connections to damper actuators should be made in accordance with wiring and piping diagrams developed in compliance with applicable codes, ordinances and regulations (see **Electrical Guidelines**).

Temperature Response Device Connections

RRL - The RRL (resettable link device) incorporates a single thermostat. When the thermostat temperature is reached, the sensor interrupts power to the actuator and the actuator's spring return mechanism causes the damper to close. Refer to **Figure 6** for wiring of the RRL thermostat.

OCI - The OCI (open or closed indicator) option contains two single pole single throw switches used to indicate the damper blade position. The switches provide a positive open and closed signal and can be used in conjunction with remote indicator lights. Refer to **Figure 7** for wiring of the OCI option.

RRL /OCI - The RRL/OCI performs the function of an RRL and OCI (see description above). Refer to **Figure 8** for wiring of the RRL/OCI option.

TOR - The TOR (temperature override device) option incorporates two thermostats with fixed settings (usually 165°F [74°C] and 350°F [177°C]). The primary sensor (the sensor with the lower temperature setting) can be bypassed by an external contact closure allowing the damper to reopen until the secondary temperature is reached (the sensor with the higher temperature setting). See **Figure 9.**

The TOR assembly contains two single pole single throw switches used to indicate damper blade position. The switches provide a positive open and closed signal and can be used in conjunction with remote indicator lights. See **Figure 25** for wiring of the TOR thermostats and indicator switches.

If either the TOR or the RRL is ordered with a pneumatic actuator, an EP switch is required with an appropriate electric power circuit to allow the electric thermostat to control the pneumatic actuator.

Ratings (Figure 6, 7, 8, & 9)

Integral Switch Type: Single Pole, double throw

Electrical Capacity: 10 Amps, 1/3 hp, 120 or 240 Vac
½ Amp, 125 Vdc;
¼ Amp 250 Vdc
5 Amps, 120 Vac “L” (lamp load)
1.0 Amps, 24 Vac
1.5 Amps, 24 Vdc

Temperature Limit: 165° F (standard primary sensor)
212° F (optional primary sensor)
250° F (secondary sensor)*
350º F (secondary sensor)*

* based on actuator temperature rating

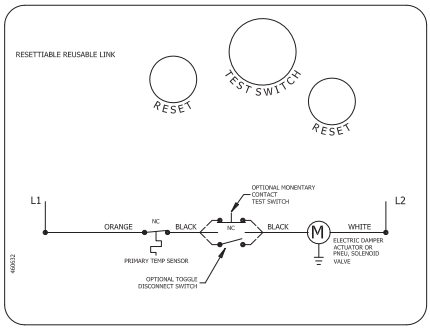


Figure 6: RRL Wiring

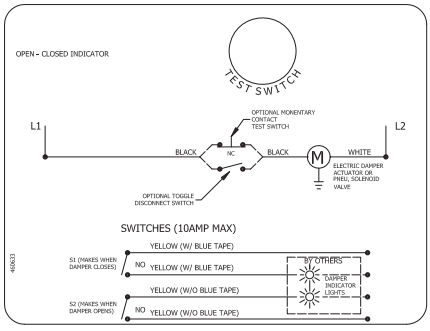


Figure 7: OCI

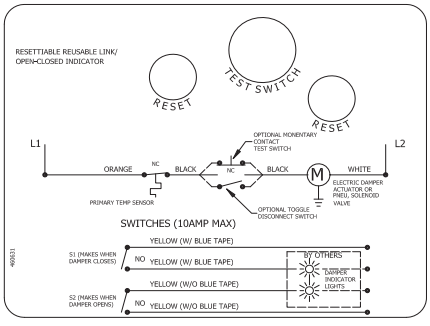


Figure 8: RRL/OCI

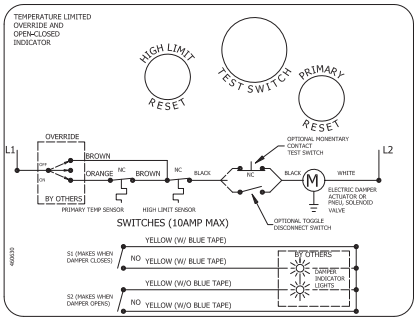
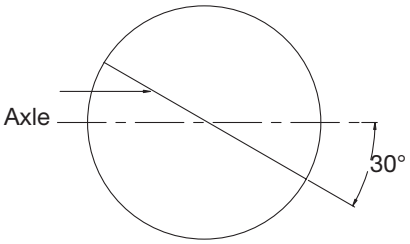
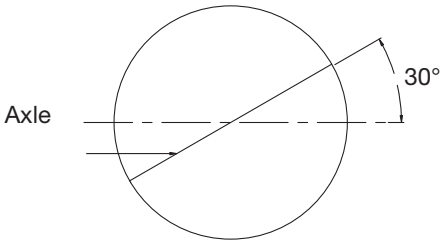


Figure 9: TOR

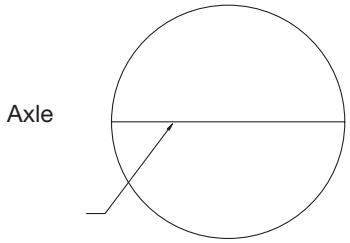
Blade Orientation



30° Off Horizontal (Maximum)



30° Off Horizontal (Maximum)



Normal

Damper Maintenance

Dampers do not typically require maintenance as long as they are kept dry and clean. If cleaning is necessary, use mild detergents or solvents. If lubrication is desired for components such as axle bearings, jackshaft bearings and jamb seals, do not use oil-based lubricants or any other lubricants that attract contaminants such as dust.

Dampers and their actuator(s) must be maintained, cycled, and tested a minimum in accordance with:

- The latest editions of NFPA 80, 90A, 92A, 92B, 101, 105, UL864, AMCA 503-03 and local codes.
- Actuator manufacturer recommendations.

Damper Troubleshooting

The following is a possible cause and correction list for common concerns with dampers.

Symptom	Possible Cause	Corrective Action
Damper does not fully open and/or close	Frame is 'racked' causing blades to bind on jamb seals	Adjust frame such that it is square and plumb
	Actuator linkage loose	Close damper, disconnect power, adjust and tighten linkage
	Defective motor	Replace
	Screws in damper linkage	Damper installed too far into wall. Move out to line as designated on damper label
	Contaminants on damper	Clean with a non-oil based solvent (see Damper Maintenance)
RRL or TOR sensor tripped	Heat	Push reset button located on backside of RRL or TOR
Damper does not operate	No power supplied to the actuator	Add power supply

Notes

Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Specific Greenheck product warranties are located on greenheck.com within the product area tabs and in the Library under Warranties.

GREENHECK
Building Value in Air.

Phone: 715.359.6171 • Fax: 715.355.2399 • Parts: 800.355.5354 • E-mail: gfcinfo@greenheck.com • Website: www.greenheck.com

GREENHECK
Building Value in Air.

Document 481318
MULTI-BLADE FIRE AND COMBINATION FIRE SMOKE DAMPERS

DFD-XXX, DFDAF-XXX, DFDTF-XXX, FSD-XXX, FSD-XXXV, IMO-XXX,SEDFD-XXX, SEFSD-XXX, AND SSFSD-XXX
1½ and 3 Hour Fire & Combination Fire Smoke Dampers
(with factory installed sleeve and actuator)
Vertical and Horizontal Mount

Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage!

These instructions apply to 1½ and 3 hour rated fire and combination fire smoke dampers mounted in: 1) masonry, block, or stud walls and 2) concrete floors. Specific requirements in these instructions are mandatory. Dampers must be installed in accordance with these instructions to meet the requirements of UL 555 and/or UL 555S.

Note: Combination fire smoke and fire dampers are manufactured and labeled for either vertical or horizontal installation. The dampers must be installed in accordance with labeling.

Table of Contents

Receiving and Handling

Upon receiving dampers, check for both obvious and hidden damage. If damage is found, record all necessary information on the bill of lading and file a claim with the final carrier. Check to be sure that all parts of the shipment, including accessories, are accounted for.

Dampers must be kept dry and clean. Indoor storage and protection from dirt, dust and the weather is highly recommended. Do not store at temperatures in excess of 100°F (38°C).

Safety Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

This manual is the property of the owner and is required for future maintenance. Please leave it with the owner when the jobs is complete.

General Information

"UL CLASSIFIED (see complete marking on product)"
"UL CLASSIFIED to Canadian safety standards (see complete marking on product)"
Standard 555 & 555S (Listing #R13317)

Installation Supplements

Refer to the appropriate Greenheck installation supplements for special requirements:

- Concrete Floor with Steel Deck
- Drive Slip Breakaway Connection
- Field Installed Sleeve
- Fire Resistant Ventilated Duct Assembly
- Firestop Material
- Fusible Link Replacement
- Greenheck Test Switch
- Grille Installation
- Metal Stud in Shaftwall Partition
- Non-Concrete Horizontal Mount
- Open or Close Indicator (OCI)
- Quick Connect Breakaway Connection
- Resettable Link (RRL)
- Resettable Link with Blade Indicator (RRL/OCI)
- Sealant Supplement
- Single 3-Sided Retaining Angle Supplement
- Sleeve Extension
- Smoke Detector - Various Types
- Temperature Limited Override (TOR)
- Tunnel Corridor

Installation supplements available at www.greenheck.com.

Electrical Guidelines

Electrical Guidelines

All wiring shall be done in accordance with the National Electrical Code ANSI/NFPA-70 latest edition, any local codes that may apply, and wiring diagrams developed in compliance with the job or project design and specifications.

Important!

Electrical input may be needed for this equipment. This work should be performed by a qualified electrician. Verify power before wiring actuator. Greenheck is not responsible for any damage to, or failure of the unit caused by incorrect field wiring. To avoid causing death or serious bodily harm to building occupants, follow all instructions carefully. Dampers must close completely to preserve the integrity of the fire smoke separation.

Pre-Installation Guidelines

The following items will aid in completing the damper installation in a timely and effective manner.

1) Check the drawings for proper damper locations within the building. Visually inspect the damper for damage and verify that the Reusable Resettable Link (RRL) is in place and has not activated if provided. These electric links have a button for resetting. Visually inspect the link to verify its not missing or broken. Replace link as necessary.
2) Lift or handle damper using sleeve or frame. Do not lift damper using blades or actuators.
3) Damper has label on outside of sleeve indicating a 'No Screw' area. Do not install screws into this area as screws may interfere with unexposed blade linkage and prevent damper blades from opening and/or closing.
4) Damper has label indicating position of damper and sleeve assembly in the wall. Install accordingly to comply with manufacturer's appropriate UL Classification file number.
5) Damper must be installed into duct or opening square and free of twist or other misalignment. Out of square, racked, twisted or misaligned installations can cause excessive leakage and/or torque requirements to exceed damper/actuator design.
6) Damper and actuator must be kept clean and protected from dirt, dust and other foreign materials prior to and after installation. Examples of such foreign materials include but are not limited to:
    a) Mortar dust
    b) Drywall dust
    c) Firesafing materials
    d) Wall texture
    e) Paint overspray
7) Damper should be sufficiently covered as to prevent overspray if wall texturing or spray painting will be performed within 5 feet of the damper. Excessive dirt or foreign material deposits on the damper can cause excessive leakage and/or torque requirements to exceed damper/actuator design.
8) Caulking is not necessary, nor is it allowed, between the damper sleeve and the wall or floor opening (annular space). However, caulking may be applied to the retaining angles.
9) ACCESS: Suitable access (such that RRL's and actuators can be maintained, etc.) must be provided for damper inspection and servicing. Where it is not possible to achieve sufficient size access, it will be necessary to install a removable section of duct. (Refer to NFPA 90A).
10) The Code Authority Having Jurisdiction (AHJ) must evaluate and provide approval of final installation where variations to these instructions are necessary.

Preparation of Openings

- Frame wall openings as shown below (**see Figure 1 & 2**).
- Gypsum wall board must be fastened 12 in. (305mm) on center to all stud and runner flanges surrounding opening.
- Prepare opening between studs and sleeve assembly as shown below (**see Figure 3 & 4**).
- All construction and fasteners must meet the requirements of the appropriate wall design (See UL Fire Resistance Directory) and/or local codes.

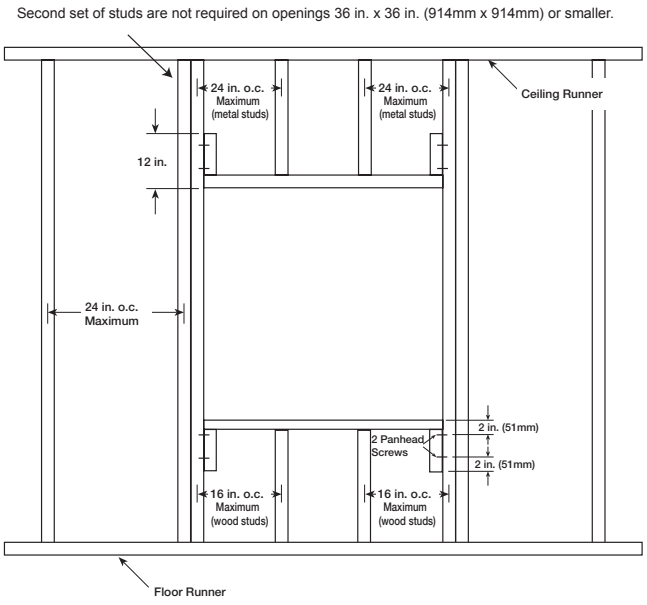


Figure 1

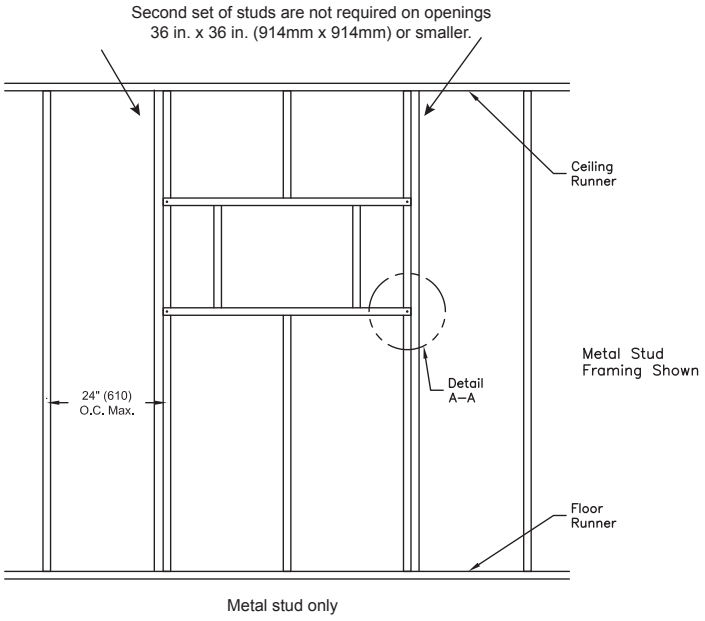
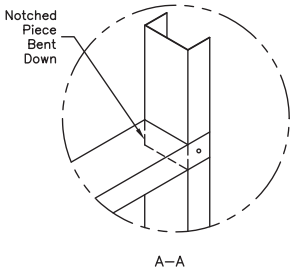


Figure 2



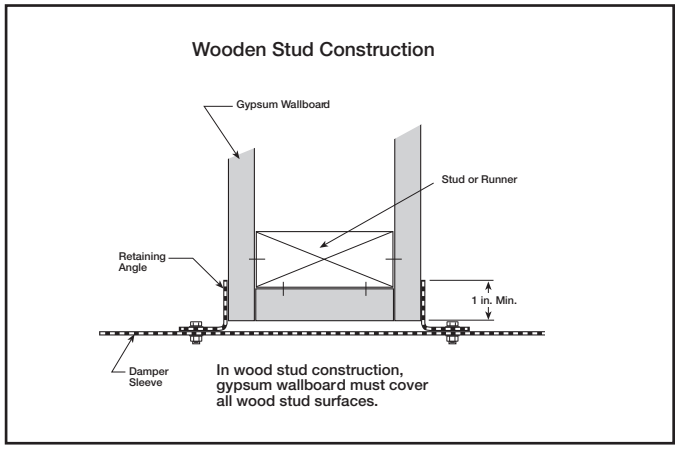


Figure 3 (2 sided angle installation shown)

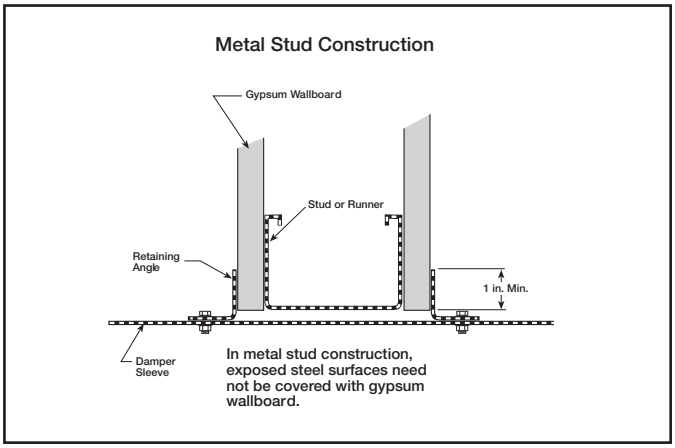


Figure 4 (2 sided angle installation shown)

Clearances Required Between Damper Sleeves & Wall/Floor Openings

Two-sided Angle Installation

Two sided angle installations require clearances for thermal expansion between the damper sleeve and the wall/floor opening. The minimum required clearances are:

- For galvanized steel fire dampers and sleeves: ⅛ in. per foot (3mm per .3 m) of damper width and ⅛ in. per foot (3mm per .3 m) height with a minimum clearance of ¼ in. (6mm), maximum of 1½ in. (38mm).
- For stainless steel fire/smoke dampers and stainless steel or galvanized sleeves: 3⁄16 in. per foot (5mm per .3 m) of damper width and height with a minimum clearance of ¼ in. (6mm), maximum of 2 in. (51mm).

These are total clearances (ignoring fastener heads) and do not need to be equally spaced around the damper.

Example:

A 12 in. x 12 in. (305mm x 305mm) will require a minimum clearance of ¼ in. (6mm) width and ¼ in. (6mm) on height

A 48 in. x 12 in. (1219mm x 305mm) damper will required a minimum clearance of ½ in. (13mm) on width and ¼ in. (13mm) on height.

Although the minimum requirements are listed above, for ease of installation the following are the recommended clearances for galvanized dampers:

- Width/Height of 48 in. (1219 mm) or less - ½ in. (13mm) clearance
- Width/Height between 48.01 in. (1220 mm) and 96 in. (2438 mm): 1 in. (25mm) clearance
- Width/Height greater than 96 in. (2438 mm): 1½ in. (38 mm) clearance

Single Side Angle Installation

On vertical mount single side angle installations there are no minimum clearance requirements between the wall opening and the damper sleeve. However, to facilitate installation, clearances between the wall opening and the damper sleeve are recommended.

On horizontal mount single side angle installations a minimum clearance is required between the outside of the damper sleeve and the floor opening of ⅛ in. per foot (3mm per .3m) of damper width and ⅛ in. per foot (3mm per .3m) height with a minimum clearance of ¼ in. (6mm).

Installing Multiple Section Damper Assemblies

A damper assembly is not restricted to a maximum number of sections, but must not exceed the section sizes and overall sizes shown (see chart below).

Some multiple section high damper assemblies require additional structural support between the damper frames. The following multiple section high damper assemblies require the use of either a support mullion between the damper frames as shown in **Figure 5** or individual sleeves around each row of dampers as shown in **Figure 6**:

- All horizontal mount dampers
- All vertical mount dampers over 72 in. (1829mm) high and greater than 2 sections wide
- All vertical mount dampers rated for more than 4 in. wg (1 kPa)
- All vertical mount dampers that use fusible links as a closure device

The damper sections must be attached together with #10 (¾ in. max. [19mm]) sheet metal screws, ¼ in. (6mm) diameter nuts and bolts, tack or spot welds, or 3⁄16 in. (48mm) diameter steel pop rivets. Attachments must be spaced a maximum of 6 in. (152mm) on centers and a maximum of 2 in. (51mm) from corners. Attachments must be made on front face and back face (air entering and air exiting side) of damper sections.

Note: Dampers ordered for individual installation may not be installed together. The full assembly size must be specified at the time the dampers are ordered.

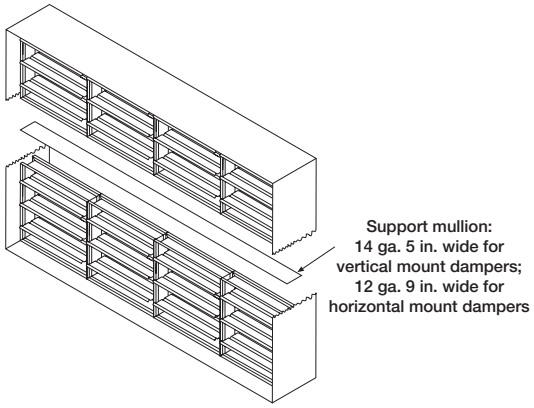


Figure 5: Single sleeve around outside with support mullion

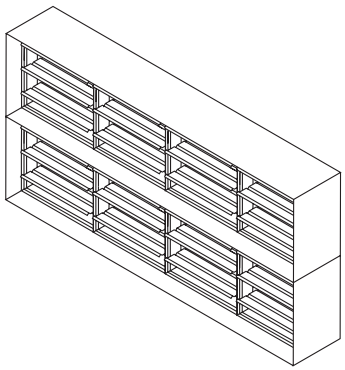


Figure 6: Two individually sleeved units with no mullions

Maximum Assembly Tables

Horizontal Mount

Damper Model	Maximum Single Section Size (inches)	Maximum Overall Size for Multi-Section Dampers (inches)
DFD-210	36 x 36 or 32 x 50	128 x 96
DFD-230	36 x 36 or 32 x 48	72 x 48
DFDAF-310	32 x 50	144 x 96
DFDTF-210	32 x 36	96 x 72
	32 x 48	64 x 48 or 32 x 96
FSD-211, 212, 213	36 x 48 or 32 x 50	144 x 96
FSD-211M, 212M	30 x 36	144 x 72
FSD-231	36 x 36 or 32 x 48	72 x 48
FSD-231M	36 x 36	72 x 48
FSD-311, 312	32 x 50	144 x 96
FSD-311M, 312M	32 x 50	128 x 96
FSD-331, DFDAF-330	30 x 48	144 x 96
IMO-310	32 x 50	NA
IMO-311	32 x 50	NA
SEDFD-210, SEFSD-211	24 x 30	48 x 30
SSFSD-211	24 x 30	48 x 30

Vertical Mount

Damper Model	Maximum Single Section Size (inches)	Maximum Overall Size for Multi-section Dampers (inches)
DFD-210	36 x 36 or 32 x 50	128 x 100
DFD-230	36 x 36 or 32 x 50	72 x 48
DFDAF-310	32 x 50	128 x 100
DFDTF-210	32 x 36	96 x 72
	32 x 50	64 x 50
FSD-211, 212, 213	36 x 48 or 32 x 50	128 x 100
FSD-231	36 x 36 or 32 x 48	72 x 48
FSD-311, 311M, 312, 312M	32 x 50	128 x 100
FSD-311V	50 X 32	100 x 32
FSD-331, DFDAF-330	32 x 36 or 30 x 48	120 x 96
IMO-311	32 x 50	NA
	32 x 50	NA
SEDFD-210, SSDFD-210	24 x 30 or 22 x 36	48 x 30
SEFSD-211 SSFSD-211	24 x 30 or 22 x 36	88 x 72

Note: FSD model dampers fitted with a fusible link closure device are limited to single section sizes.

Inserting Damper into Wall/Floor Openings

Insert the sleeved damper assembly into the prepared opening. Refer to label on outside of sleeve for the recommended location of the damper in the wall or floor (see Dimension A and Detail 1, **Figure 7**).

Special attention must be paid to ensure the following:

1) The ℄ (centerline) of the damper frame remains within the plane of the wall or floor
2) Attachments made through the retaining angle do not penetrate the 'No Screw' area designated on the damper sleeve.
3) The sleeve does not extend more than 16 in. (406mm) beyond the wall or floor on the actuator side of the damper and 6 in. (152mm) on the side opposite the actuator. The sleeve may also extend up to 16 in. (406mm) beyond the wall or floor if the damper has a factory supplied access door.

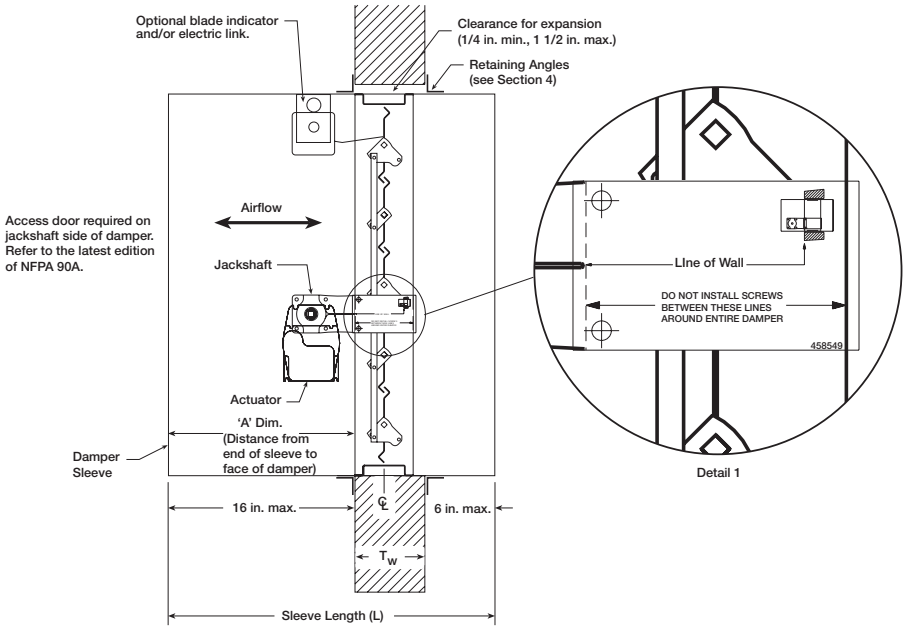


Figure 7: Properly Installed Combination fire smoke damper

Most fire and combination fire smoke dampers come with factory supplied sleeves. For field supplied sleeves, see the Field Supplied Sleeves supplement at www.greenheck.com. The following are recommended sleeve lengths for various wall thicknesses:

Wall Thickness Dimension (T_W)	Recommended Sleeve Length Dimension (L)
4 - 6 in. (102mm - 152mm)	16 in. (406mm)
7 - 10 in. (178mm - 254mm)	21 in. (533mm)
11 - 13 in. (279mm - 330mm)	24 in. (610mm)

Securing the Damper/Sleeve Assembly to Wall/Floor Openings

All fire and combination fire smoke dampers may utilize the two sided angle installation method described below. 1½ hour rated fire and combination fire smoke dampers may use the single sided angle installation method up to the following maximum sizes:

- Vertical mount: 80 in. W x 50. in. H (2032mm W x 1270mm H), 50 in. W x 80 in. H (1270mm W x 2032mm H), or 40 in. W x 100 in. H (1016mm W x 2540mm).
- Horizontal mount: 144 in. W x 96 in. H (3658mm W x 2438mm H)

- **Retaining Angle Gauge**: Retaining angles for 1½ hour rated dampers with a width and height 48 in. (1219mm) or less must be a minimum of 20 ga. (1mm). Retaining angles for all 3 hour rated dampers and all dampers with a width or height greater than 48 in. (1219mm) must be a minimum of 16 gauge (1.5mm).
- **Retaining Angle Size:** The leg of the retaining angle on the damper sleeve shall be a minimum of 1¼ in. (32mm). The leg of the retaining angle on the wall/floor shall be long enough to cover the annular space and overlap the wall/floor by a minimum of 1 in. (25mm).
- **Retaining Angle Attachment to Sleeve:** Retaining angles must be attached to the damper using one or more of the following methods of attachment (refer to label on outside of sleeve for 'No Screw' area):
  - Tack or spot welds
  - #10 (¾ in. [19mm] max.) sheet metal screws
  - ¼ in. (6mm) bolts and nuts
  - 3⁄16 in. (5mm) steel pop rivets

A minimum of two connections per side, top, and bottom, 12 in. (305mm) O.C. maximum for openings of 48 in. W x 36 in. H (1219mm x 914mm) and less. Dampers greater than 48 in. wide (1219mm) or 36 in. high (914mm) require the connections to be no more than 6 in. (152mm) O.C.

The angles must be attached to all 4 sides of the sleeve. Ensure that fasteners do not interfere with the operation of the damper. The angles need not be attached to each other at the corners.

- **Retaining Angle Attachment to Wall/Floor:**

  Two sided Angle Method: For two sided angle installations the retaining angles shall not be attached to the wall/floor (**see Figure 8**).

  Single Sided Angle Method: For single side installations the retaining angles must be attached to the wall/floor (see **Figures 9-12**). For metal stud partitions only, the single-side mounting angle may be directly attached to the metal stud prior to the installation of the drywall.

  - Retaining angles must be attached to the partition using one of the methods shown below:
    - Drywall screws of a length such that the screw engages the steel stud/track by ½ in. (13mm) (steel framing).
    - Drywall screws of a length such that the screw engages the wood stud by 1¾ in. (44mm) (wood framing).
    - Steel anchors or self tapping concrete screws penetrating masonry or block 1¼ in. (31mm).
  - A minimum of two connections per side are required. Additional connections made at a maximum of 12 in. (305mm) O.C. maximum for openings of 48 in. W x 36 in. H (1219mm x 914mm) and less. Dampers greater than 48 in. wide (1219mm) or 36 in. high (914mm) require the connections to be no more than 6 in. (152mm) O.C.

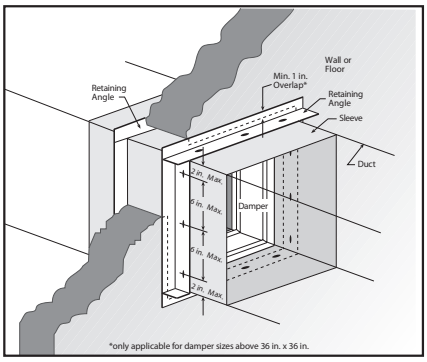


Figure 8: 2 sided angle installation method

Securing the Damper/Sleeve Assembly to Wall/Floor Openings cont.....

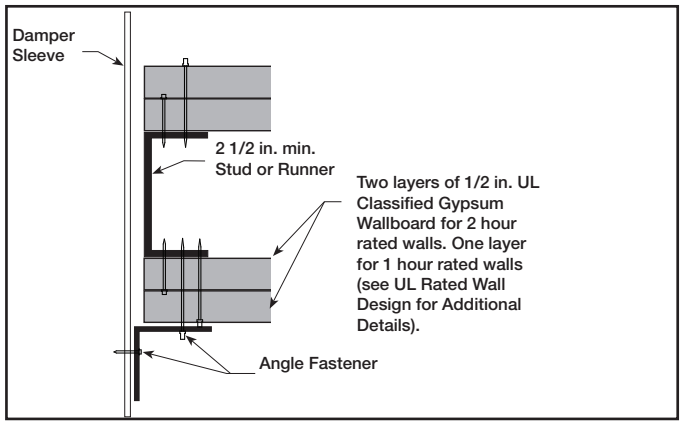


Figure 9: Single Side Angle With Steel Stud Wall - Angle Over Wallboard

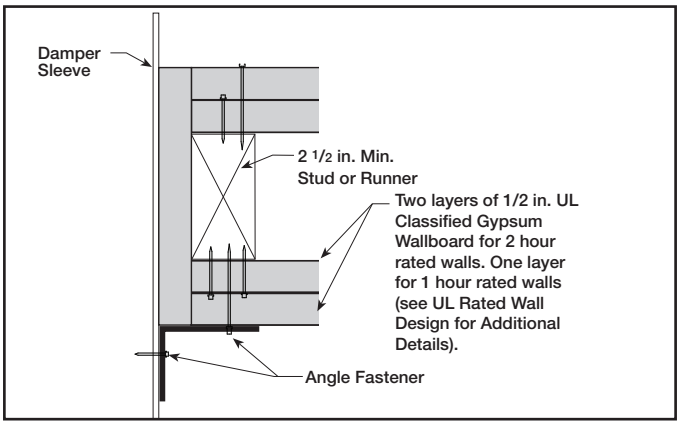


Figure 10: Single Side Angle With Wood Stud Wall

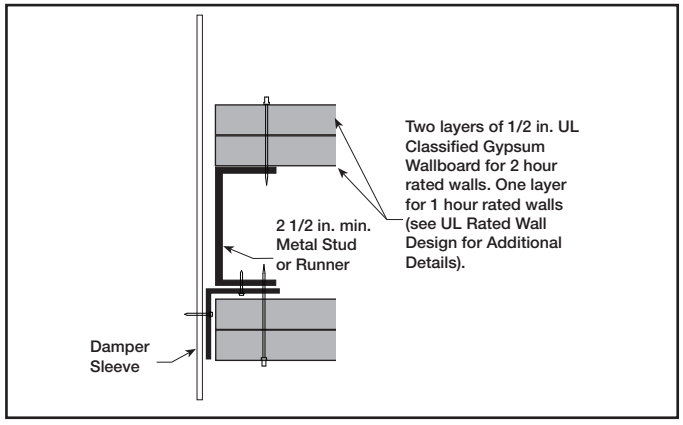


Figure 11: Single Side Angle With Steel Stud Wall - Angle Under Wallboard

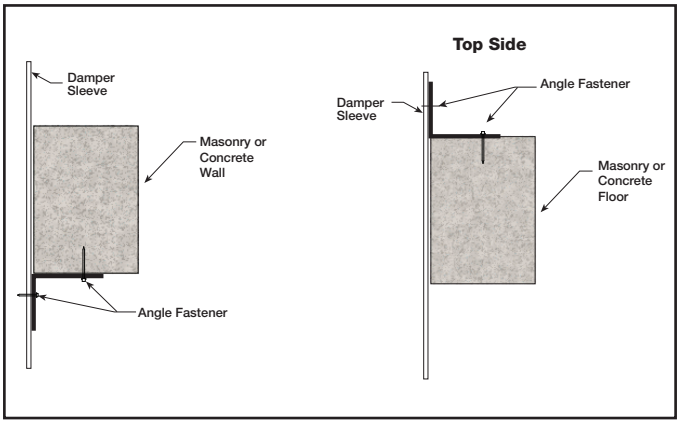


Figure 12: Single Side Angle With Masonry or Concrete Wall and Floor

Grille Installations (Dampers up to 36 in. x 36 in. [914mm x 914mm])

Retaining angles used in conjunction with grille installations must be a minimum of ⅝ in. x 1 in. (15mm x 25mm) 16 gauge (1.5mm) steel. Space screws a maximum of 6 in. (152mm) on center and a maximum of 2 in. (51mm) from the corners (minimum of 2 screws per side). See **Figure 13** and **Figure 14.**

Note: Screws used to attach grille are allowed to penetrate reversed angle leg.

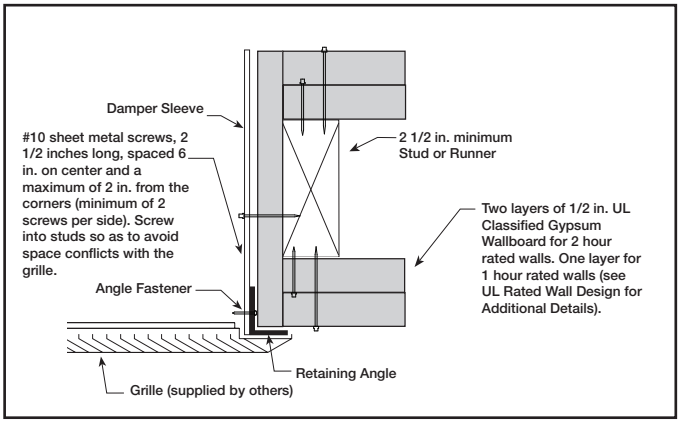


Figure 13: Wood Stud - Grille

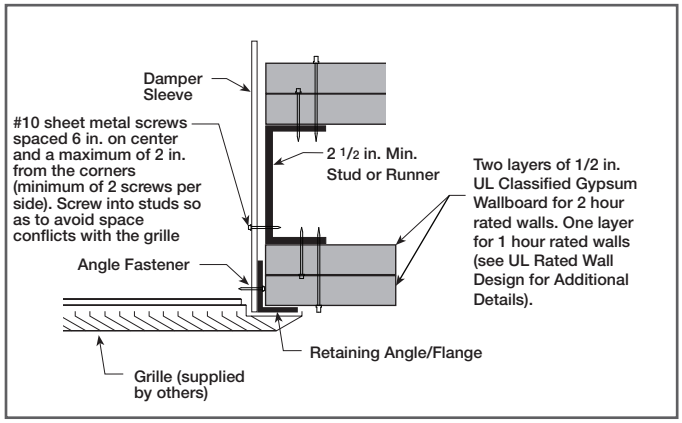


Figure 14: Metal Stud - Grille

Duct to Sleeve Connection

Sleeve Gauge and Connection Type Requirements

The size of the damper/duct determines the required sleeve gauge and the required duct to sleeve connection (see table to the right). The sleeve thickness must also not be less than the gauge of the connecting duct. Any duct connection other than the breakaway connections described below are considered rigid.

Sleeve Gauge	Duct Dimension	Type of Duct to Sleeve Connection Permitted
14 ga. (0.075 in.) - 10 ga. (0.138 in.) [2mm - 3.5mm]	All duct sizes	Rigid or Breakaway
16 ga. (0.060 in.) [1.5mm]	36 in. (914mm) max. width 24 in. (610mm) max. height 24 in. (610mm) diameter	Rigid or Breakaway
16 ga. (0.060 in.) [1.5mm]	All duct sizes	Breakaway only
18 ga. (0.048 in.) [1.2mm]	85 in. (2159mm) wide and over	
20 ga. (0.036 in.) [0.9mm]	55 in. - 84 in. wide (1397mm - 2134mm)	
22 ga. (.030 in.) [0.76mm]	31 in. - 54 in. wide (787mm - 1372mm)	
24 ga. (0.024) [0.6mm]	13 in. - 30 in. wide (330mm - 762mm)	
26 ga. (0.018 in.) [0.46mm]	12 in. wide and under (305mm)	
See Breakaway Connection section for additional information. UL Standard 555 requires all ducts to terminate at fire damper sleeves.		

Approved Breakaway Connections

All breakaway connections described below may utilize the following duct sealants: PA2084T duct sealant adhesive manufactured by Precision, DP1010 water base duct sealant manufactured by Design Polymetrics, Grey Pookie, Ductmate PROseal®, or CL Ward S Seal in accordance with SMACNA recommendations.

Transverse Joints

The transverse joints shown below are approved as breakaway connections.

- A maximum of two #10 (19mm) sheet metal screws on each side and on the bottom may be used. The screws should be located in the center of the slip pocket and penetrate both sides of the slip pocket.
- Dampers up to 20 inches (508mm) high may use transverse joints on the top and bottom and Drive Slip joints (**see Figure 16**) on the sides.

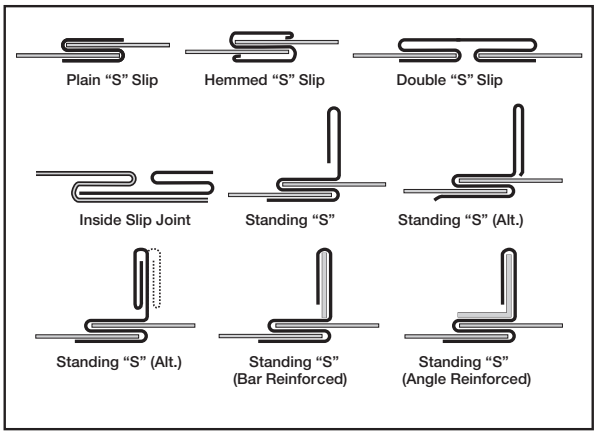


Figure 15 - Transverse Joints

Figure 16

Approved Breakaway Connections....

Round and Oval Duct Breakaway Connections

Factory furnished duct collars, type R and O, are also considered breakaway **(see Figure 17)**.

Round or flat oval ducts connected to Type R or O damper collars shall be attached with #10 (19mm) sheet metal screws as follows:

- Ducts up to 22 in. (558mm) wide (or dia.) and less shall have three screws.
- Ducts larger than 22 in. (558mm) wide (or dia.) up to and including 36 in. (914mm) wide (or dia.) shall have five screws.

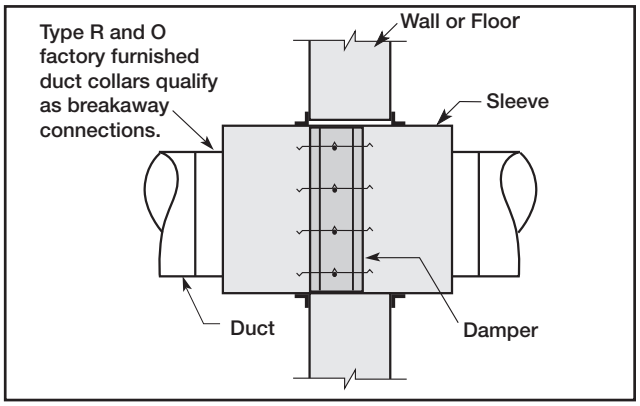


Figure 17: Type R and O Transition

Manufactured Flanged System Breakaway Connections

Flanged connection systems manufactured by Ductmate, Durodyne, Ward, Nexus, Radiant T-35m, and MEZ are approved as breakaway connections when installed as illustrated (**see Figure 18**).

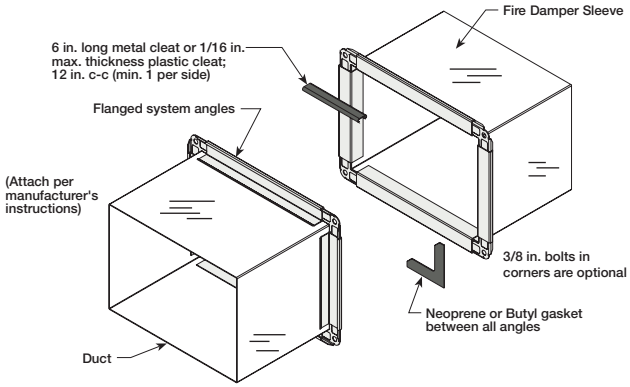


Figure 18

Proprietary Flange System Breakaway Connections

(TDC by Lockformer, TDF by Engle)

TDC and TDF systems are approved as breakaway connections when installed as described in the TDC or TDF addendum to the SMACNA Duct Construction. Standard 6 in. (152mm) metal clip may be used with spacing as shown in diagram (**see Figure 19 & 20**). 3⅜ in. (9.5mm) metal bolts and nuts may be used to fasten together corner pieces (**see Figure 21**).

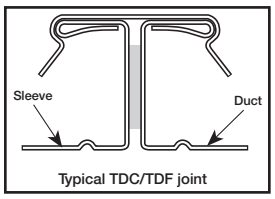


Figure 19

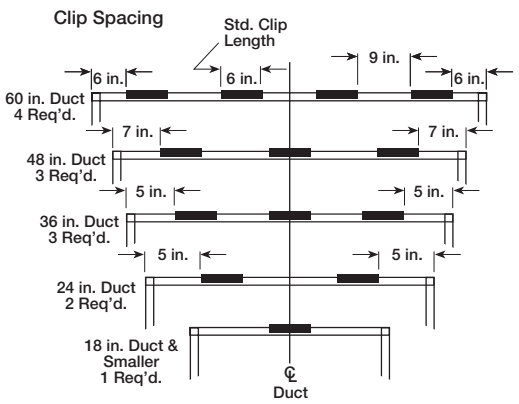


Figure 20

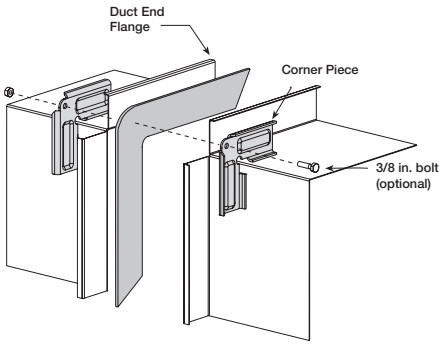


Figure 21

Actuator Connections

Electrical and/or pneumatic connections to damper actuators should be made in accordance with wiring and piping diagrams developed in compliance with applicable codes, ordinances and regulations (see **Electrical Guidelines**).

Temperature Response Device Connections

RRL - The RRL (resettable link device) incorporates a single thermostat. When the thermostat temperature is reached the sensor interrupts power to the actuator and the actuator's spring return mechanism causes the damper to close. Refer to **Figure 22** for wiring of the RRL thermostat.

OCI - The OCI (open or closed indicator) option contains two single pole single throw switches used to indicate the damper blade position. The switches provide a positive open and closed signal and can be used in conjunction with remote indicator lights. Refer to **Figure 23** for wiring of the OCI option.

RRL /OCI - The RRL/OCI performs the function of an RRL and OCI (see description above). Refer to **Figure 24** for wiring of the RRL/OCI option.

TOR - The TOR (temperature override device) option incorporates two thermostats with fixed settings (usually 165°F [74°C] and 350°F [177°C]). The primary sensor (the sensor with the lower temperature setting) can be bypassed by an external contact closure allowing the damper to reopen until the secondary temperature is reached (the sensor with the higher temperature setting). See **Figure 25.**

The TOR assembly contains two single pole single throw switches used to indicate damper blade position. The switches provide a positive open and closed signal and can be used in conjunction with remote indicator lights. See **Figure 25** for wiring of the TOR thermostats and indicator switches.

If either the TOR or the RRL is ordered with a pneumatic actuator, an EP switch is required with an appropriate electric power circuit to allow the electric thermostat to control the pneumatic actuator.

Ratings (Figure 22, 23, 24, & 25)

Integral Switch Type: Single Pole, double throw

Electrical Capacity: 10 Amps, 1/3 hp, 120 or 240 Vac
½ Amp, 125 Vdc;
¼ Amp 250 Vdc
5 Amps, 120 Vac “L” (lamp load)
1.0 Amps, 24 Vac
1.5 Amps, 24 Vdc

Temperature Limit: 165° F (standard primary sensor)
212° F (optional primary sensor)
250° F (secondary sensor)*
350° F (secondary sensor)*

* based on actuator temperature rating

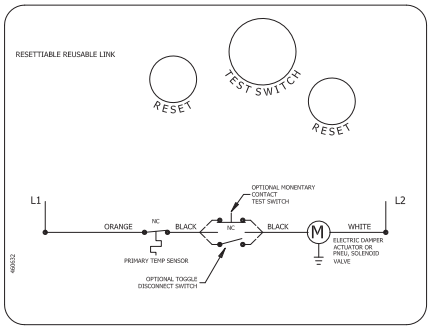


Figure 22: RRL Wiring

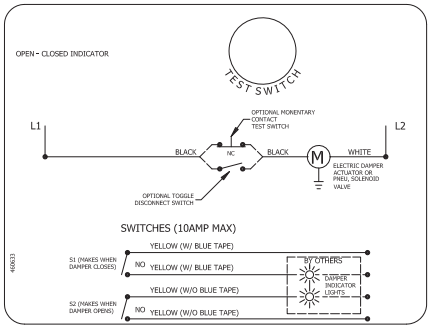


Figure 23: OCI

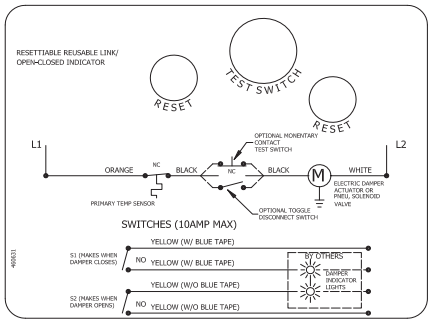


Figure 24: RRL/OCI

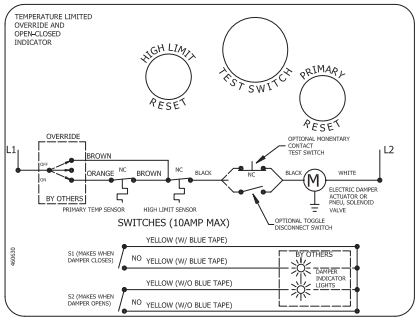


Figure 25: TOR

Damper Maintenance

Dampers do not typically require maintenance as long as they are kept dry and clean. If cleaning is necessary, use mild detergents or solvents. If lubrication is desired for components such as axle bearings, jackshaft bearings and jamb seals, do not use oil-based lubricants or any other lubricants that attract contaminants such as dust.

Dampers and their actuator(s) must be maintained, cycled, and tested a minimum in accordance with:

- The latest editions of NFPA 80, 90A, 92A, 92B, 101, 105, UL864, AMCA 503-03 and local codes.
- Actuator manufacturer recommendations.

Damper Troubleshooting

The following is a possible cause and correction list for common concerns with the dampers.

Symptom	Possible Cause	Corrective Action
Damper does not fully open and/or close	Frame is 'racked' causing blades to bind on jamb seals	Adjust frame such that it is square and plumb
	Actuator linkage loose	Close damper, disconnect power, adjust and tighten linkage
	Defective motor	Replace
	Screws in damper linkage	Damper installed too far into wall. Move out to line as designated on damper label
	Contaminants on damper	Clean with a non-oil based solvent (see Damper Maintenance)
RRL or TOR sensor tripped	Heat	Push reset button located on backside of RRL or TOR
Damper does not operate	No power supplied to the actuator	Add power supply

Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.
Specific Greenheck product warranties can be located on greenheck.com within the product area tabs and listed in the Library under Warranties.

GREENHECK
Building Value in Air.

Phone: (715) 359-6171 • Fax: (715) 355-2399 • E-mail: gfcinfo@greenheck.com • Website: www.greenheck.com

MITSUBISHI ELECTRIC

Mr.SLIM

SPLIT-SYSTEM HEAT PUMP
PKA-A·KA7
PCA-A·KA7

OPERATION MANUAL

FOR USER

For safe and correct use, please read this operation manual thoroughly before operating the air-conditioner unit.

English

MANUEL D'UTILISATION

POUR L'UTILISATEUR

Pour une utilisation correcte sans risques, veuillez lire le manuel d'utilisation en entier avant de vous servir du climatiseur.

Français

MANUAL DE INSTRUCCIONES

PARA EL USUARIO

Lea este manual de instrucciones hasta el final antes de poner en marcha la unidad de aire acondicionado para garantizar un uso seguro y correcto.

Español

Contents

1. Safety Precautions

►Before installing the unit, make sure you read all the "Safety Precautions".
►The "Safety Precautions" provide very important points regarding safety. Make sure you follow them.
►Please report to or take consent by the supply authority before connection to the system.

Symbols used in the text

⚠ Warning:
Describes precautions that should be observed to prevent danger of injury or death to the user.

⚠ Caution:
Describes precautions that should be observed to prevent damage to the unit.

Symbols used in the illustrations

⏚ : Indicates a part which must be grounded.

⚠ Warning:
- **For appliances not accessible to the general public.**
- **The unit must not be installed by the user. Ask the dealer or an authorized company to install the unit. If the unit is installed improperly, water leakage, electric shock or fire may result.**
- **Do not stand on, or place any items on the unit.**
- **Do not splash water over the unit and do not touch the unit with wet hands. An electric shock may result.**
- **Do not spray combustible gas close to the unit. Fire may result.**
- **Do not place a gas heater or any other open-flame appliance where it will be exposed to the air discharged from the unit. Incomplete combustion may result.**
- **Do not remove the front panel or the fan guard from the outdoor unit when it is running.**
- **When you notice exceptionally abnormal noise or vibration, stop operation, turn off the power switch, and contact your dealer.**
- **Never insert fingers, sticks etc. into the air intakes or outlets.**
- **If you detect odd smells, stop using the unit, turn off the power switch and consult your dealer. Otherwise, a breakdown, electric shock or fire may result.**
- **This air conditioner is NOT intended for use by children or infirm persons without supervision.**
- **Young children must be supervised to ensure that they do not play with the air conditioner.**
- **If the refrigeration gas blows out or leaks, stop the operation of the air conditioner, thoroughly ventilate the room, and contact your dealer.**
- **When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R410A) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.**
  If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
  The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

⚠ Caution:
- **Do not use any sharp object to push the buttons, as this may damage the remote controller.**
- **Never block or cover the indoor or outdoor unit's air intakes or outlets.**

Disposing of the unit

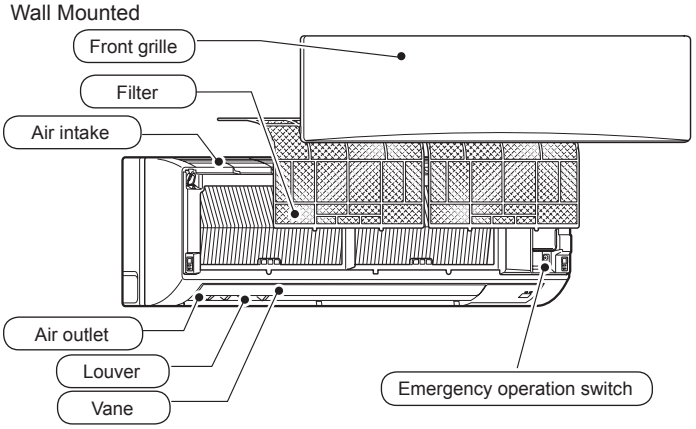
When you need to dispose of the unit, consult your dealer.

2. Parts Names

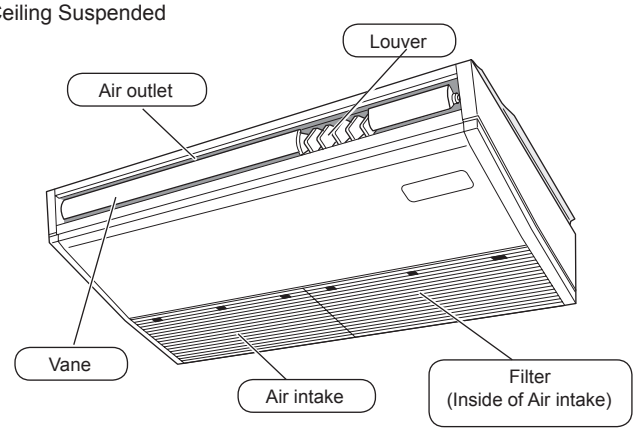
■ Indoor Unit

	PKA-A·KA7	PCA-A·KA7
Fan speed	3 speeds + Auto	4 speeds + Auto
Vane	Auto with swing	Auto with swing
Louver	Manual	Manual
Filter	Normal	Long-life
Filter cleaning indication	100 hr	2,500 hr

■ PKA-A·KA7
Wall Mounted

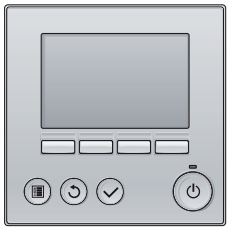
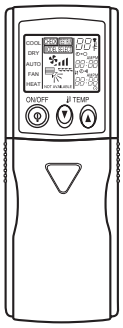


■ PCA-A·KA7
Ceiling Suspended



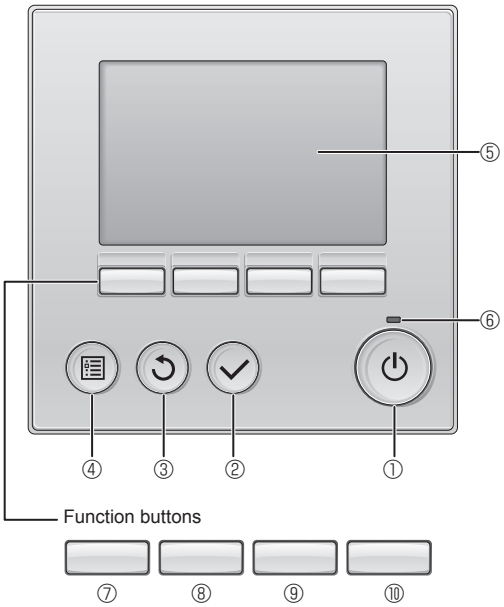
2. Parts Names

■ **Remote controller (Optional parts)**

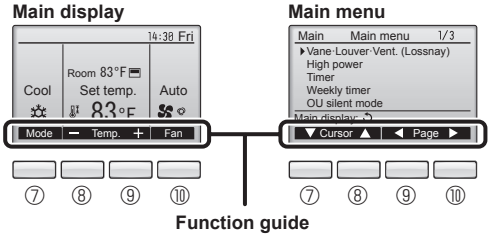
Wired remote controller	IR wireless remote controller
	

■ **Wired Remote Controller**

Controller interface



The functions of the function buttons change depending on the screen.
Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.
When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① [ON/OFF] button

Press to turn ON/OFF the indoor unit.

② [SELECT] button

Press to save the setting.

③ [RETURN] button

Press to return to the previous screen.

④ [MENU] button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.

When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

⑥ ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button [F1]

Main display: Press to change the operation mode.

Main menu: Press to move the cursor down.

⑧ Function button [F2]

Main display: Press to decrease temperature.

Main menu: Press to move the cursor up.

⑨ Function button [F3]

Main display: Press to increase temperature.

Main menu: Press to go to the previous page.

⑩ Function button [F4]

Main display: Press to change the fan speed.

Main menu: Press to go to the next page.

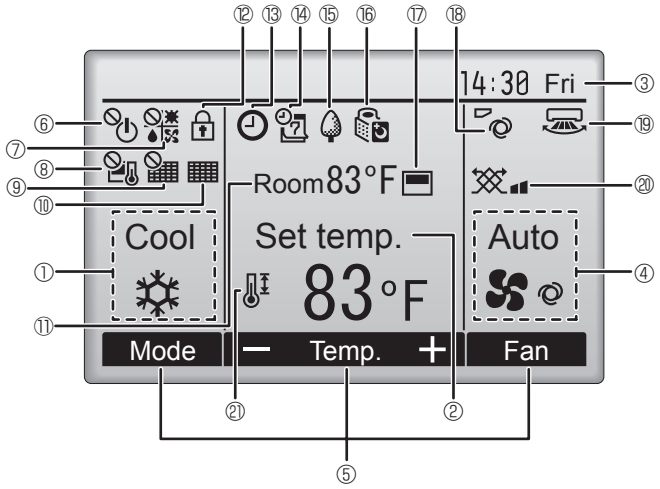
2. Parts Names

Display

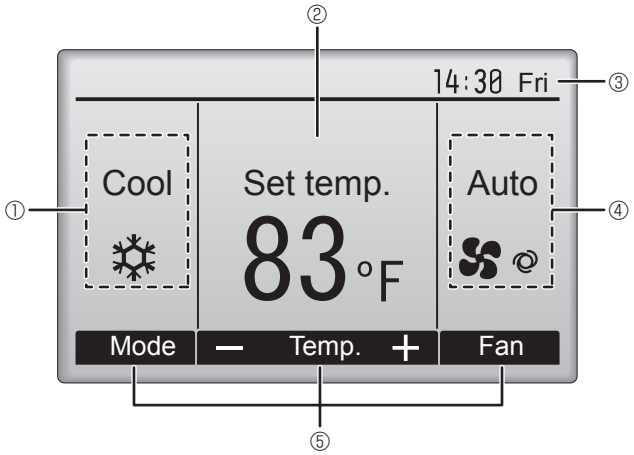
The main display can be displayed in two different modes: “Full” and “Basic”. The factory setting is “Full”. To switch to the “Basic” mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

<Full mode>

* All icons are displayed for explanation.



<Basic mode>



① Operation mode

Indoor unit operation mode appears here.

② Preset temperature

Preset temperature appears here.

③ Clock (See the Installation Manual.)

Current time appears here.

④ Fan speed

Fan speed setting appears here.

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the preset temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

⑪ Room temperature (See the Installation Manual.)

Current room temperature appears here.

⑫

Appears when the buttons are locked.

⑬

Appears when the On/Off timer, Night setback, or Auto-off timer function is enabled.

appears when the timer is disabled by the centralized control system.

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy-save mode. (Will not appear on some models of indoor units)

⑯

Appears while the outdoor units are operated in the silent mode.

⑰

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (⑪).

appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑱

Indicates the vane setting.

⑲

Indicates the louver setting.
(This indication is not available for this model.)

⑳

Indicates the ventilation setting.

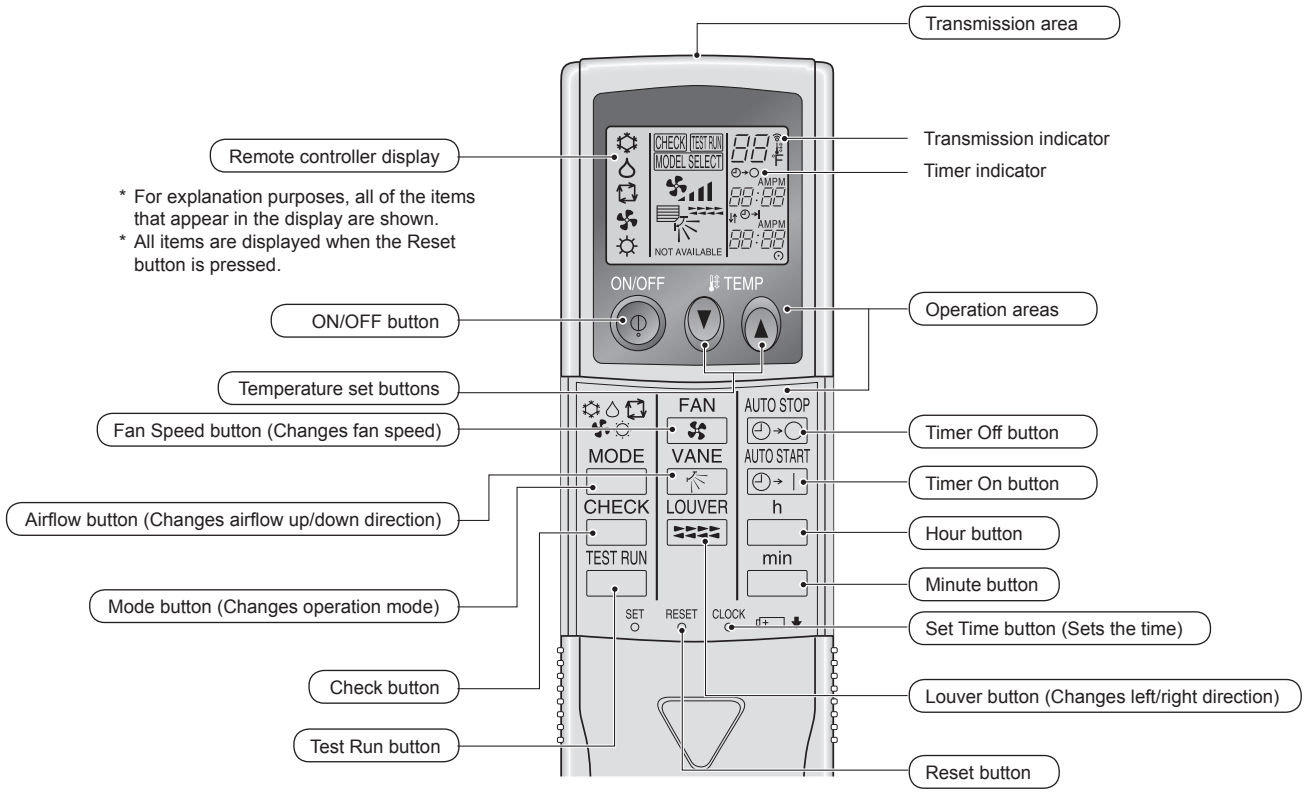
㉑

Appears when the preset temperature range is restricted.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Menu screen. (Refer to operation manual included with remote controller.)

2. Parts Names

■ **IR Wireless Remote-Controller**

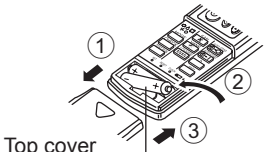


Note: (Only for IR wireless remote controller)

- When using the IR wireless remote controller, point it towards the receiver on the indoor unit.
- If the IR wireless remote controller is operated within approximately two minutes after power is supplied to the indoor unit, the indoor unit may beep twice as the unit is performing the initial automatic check.
- The indoor unit beeps to confirm that the signal transmitted from the IR wireless remote controller has been received. Signals can be received up to approximately 7 meters, 275 19/32 inch in a direct line from the indoor unit in an area 45° to the left and right of the unit. However, illumination such as fluorescent lights and strong light can affect the ability of the indoor unit to receive signals.
- If the operation lamp near the receiver on the indoor unit is flashing, the unit needs to be inspected. Consult your dealer for service.
- Handle the IR wireless remote controller carefully! Do not drop the IR wireless remote controller or subject it to strong shocks. In addition, do not get the IR wireless remote controller wet or leave it in a location with high humidity.
- To avoid misplacing the IR wireless remote controller, install the holder included with the IR wireless remote controller on a wall and be sure to always place the IR wireless remote controller in the holder after use.

Battery installation/replacement

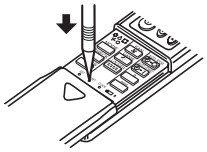
1. Remove the top cover, insert two AAA batteries, and then install the top cover.



Top cover

Two AAA batteries
Insert the negative (–) end of each battery first. Install the batteries in the correct directions (+, –)!

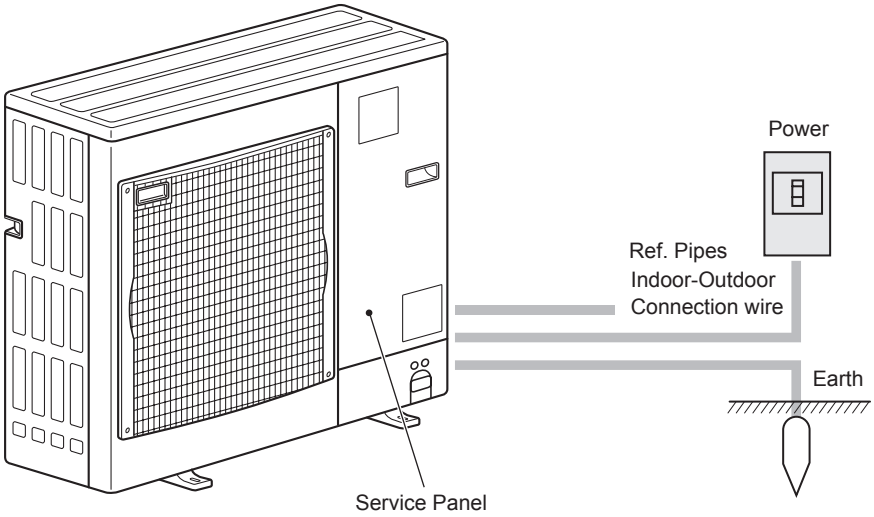
2. Press the Reset button.



Press the Reset button with an object that has a narrow end.

2. Parts Names

■ **Outdoor unit**

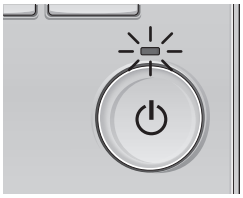


3. Operation

■ **About the operation method, refer to the operation manual that comes with each remote controller.**

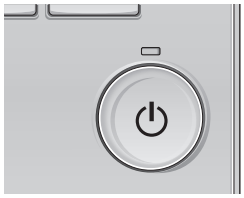
3.1. Turning ON/OFF

[ON]



Press the [ON/OFF] button.
The ON/OFF lamp will light up in green, and the operation will start.

[OFF]



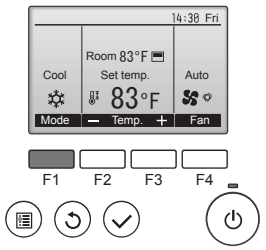
Press the [ON/OFF] button again.
The ON/OFF lamp will come off, and the operation will stop.

Note:
Even if you press the ON/OFF button immediately after shutting down the operation is progress, the air conditioner will not start for about 3 minutes. This is to prevent the internal components from being damaged.

■ **Settable preset temperature range**

Operation mode	Preset temperature range
Cool/Dry	67 ~ 87 ºF (19 ~ 30 ºC)
Heat	63 ~ 83 ºF (17 ~ 28 ºC)
Auto	67 ~ 83 ºF (19 ~ 28 ºC)
Fan/Ventilation	Not settable

3.2. Mode Selection



Press the [F1] button to go through the operation modes in the order of “Cool”, “Dry”, “Fan”, “Auto”, and “Heat”. Select the desired operation mode.

Cool Dry Fan
Auto Heat

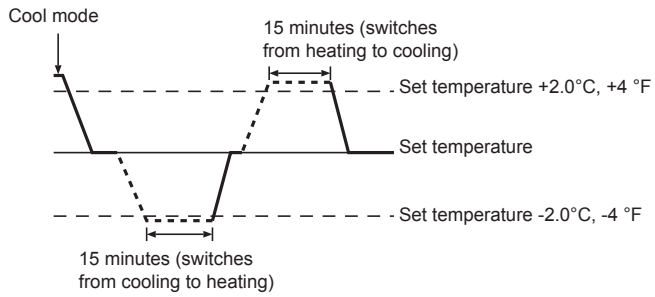
- Operation modes that are not available to the connected outdoor unit models will not appear on the display.

What the blinking mode icon means
The mode icon will blink when other indoor units in the same refrigerant system (connected to the same outdoor unit) are already operated in a different mode. In this case, the rest of the unit in the same group can only be operated in the same mode.

Automatic operation

■ According to a set temperature, cooling operation starts if the room temperature is too hot and heating operation starts if the room temperature is too cold.

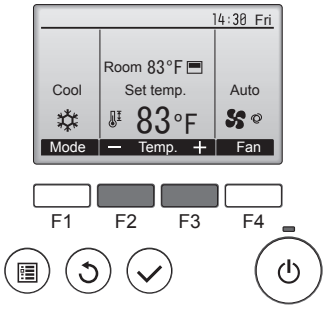
■ During automatic operation, if the room temperature changes and remains 2.0 °C, 4 °F or more above the set temperature for 15 minutes, the air conditioner switches to cool mode. In the same way, if the room temperature remains 2.0 °C, 4 °F or more below the set temperature for 15 minutes, the air conditioner switches to heat mode.

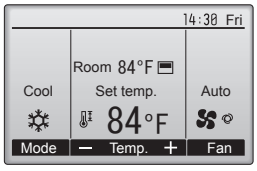


■ Because the room temperature is automatically adjusted in order to maintain a fixed effective temperature, cooling operation is performed a few degrees warmer and heating operation is performed a few degrees cooler than the set room temperature once the temperature is reached (automatic energy-saving operation).

3.3. Temperature setting

<Cool, Dry, Heat, and Auto>





Example display
(Centigrade in 0.5-degree increments)

Press the [F2] button to decrease the preset temperature, and press the [F3] button to increase.

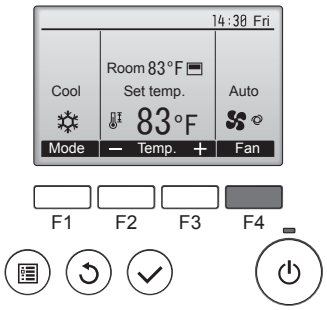
- Refer to the table on this page for the settable temperature range for different operation modes.
- Preset temperature range cannot be set for Fan/Ventilation operation.
- Preset temperature will be displayed either in Centigrade in 0.5- or 1-degree increments, or in Fahrenheit, depending on the indoor unit model and the display mode setting on the remote controller.

<For IR wireless remote controller>

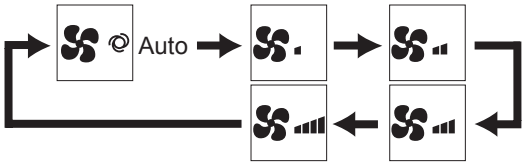
▶ **To decrease the room temperature:**
Press ▼ button ③ to set the desired temperature.
The selected temperature is displayed.

▶ **To increase the room temperature:**
Press ▲ button ③ to set the desired temperature.
The selected temperature is displayed.

3.4. Fan speed setting



Press the [F4] button to go through the fan speeds in the following order.



- The available fan speeds depend on the models of connected indoor units.

Note:

- **The number of available fan speeds depends on the type of unit connected. Note also that some units do not provide an "Auto" setting.**
- **In the following cases, the actual fan speed generated by the unit will differ from the speed shown the remote controller display.**
  1. **While the display is showing "STAND BY" or "DEFROST".**
  2. **When the temperature of the heat exchanger is low in the heat mode. (e.g. immediately after heat operation starts)**
  3. **In HEAT mode, when room temperature is higher than the temperature setting.**
  4. **When the unit is in DRY mode.**

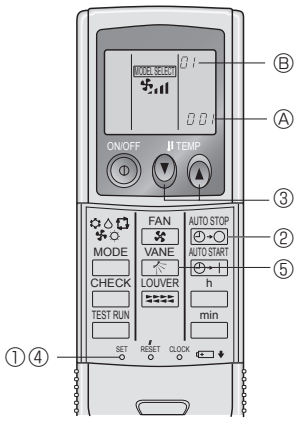
■ Automatic fan speed setting (For wireless remote controller)
It is necessary to set for wireless remote controller only when automatic fan speed is not set at default setting.
It is not necessary to set for wired remote controller with automatic fan speed at default setting.

① Press the SET button with something sharp at the end.
Operate when display of remote controller is off.
MODEL SELECT blinks and Model No. is lighted Ⓐ.

② Press the AUTO STOP button.
blinks and setting No. is lighted Ⓑ.
(Setting No.01: without automatic fan speed)

③ Press the temp. buttons to set the setting No.02.
(Setting No.02:with automatic fan speed)
If you mistook the operation, press the ON/OFF button and operate again from procedure ②.

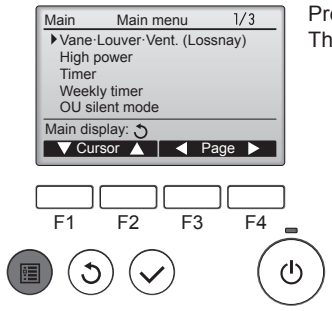
④ Press the SET button with something sharp at the end.
MODEL SELECT and Model No. are lighted for 3 seconds, then turned off.



3.5. Airflow up/down direction setting

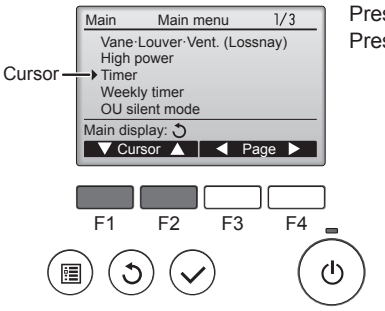
3.5.1 Navigating through the Main menu

<Accessing the Main menu>



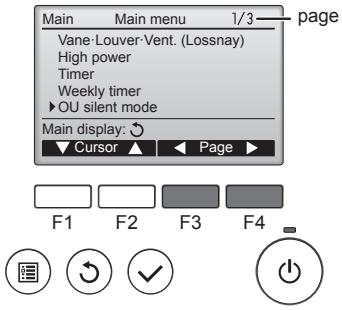
Press the [MENU] button.
The Main menu will appear.

<Item selection>



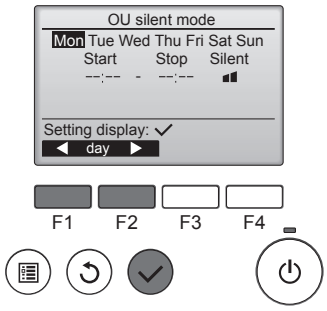
Press [F1] to move the cursor down.
Press [F2] to move the cursor up.

<Navigating through the pages>



Press [F3] to go to the previous page.
Press [F4] to go to the next page.

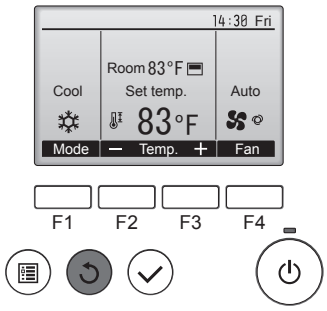
<Saving the settings>



Select the desired item, and press the [SELECT] button.

The screen to set the selected item will appear.

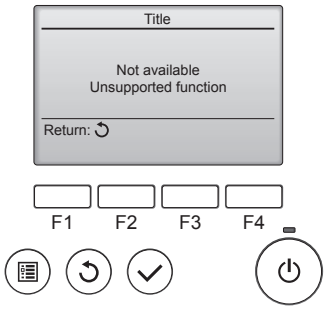
<Exiting the Main menu screen>



Press the [RETURN] button to exit the Main menu and return to the Main display.

If no buttons are touched for 10 minutes, the screen will automatically return to the Main display. Any settings that have not been saved will be lost.

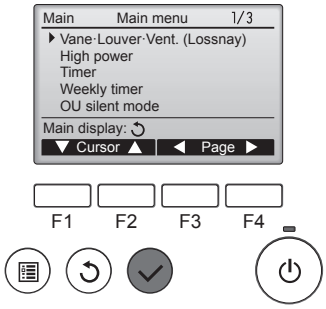
<Display of unsupported functions>



The message at left will appear if the user selects a function not supported by the corresponding indoor unit model.

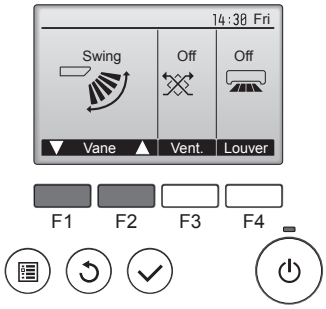
3.5.2 Vane·Vent. (Lossnay)

<Accessing the menu>

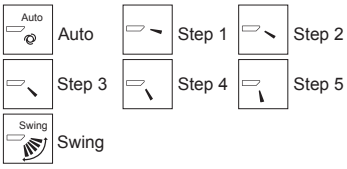


Select "Vane·Louver·Vent. (Lossnay)" from the Main menu (refer to page 8), and press the [SELECT] button.

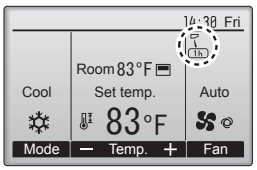
<Vane setting>



Press the [F1] or [F2] button to go through the vane setting options: "Auto", "Step 1", "Step 2", "Step 3", "Step 4", "Step 5" and "Swing".
Select the desired setting.

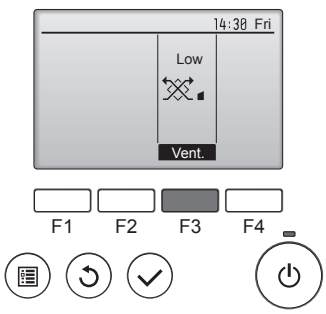


Select "Swing" to move the vanes up and down automatically.
When set to "Step 1" through "Step 5", the vane will be fixed at the selected angle.



- 1h under the vane setting icon
  This icon will appear when the vane is set to "Step 2" to "Step 5" and the fan operates at "Mid 1" to "Low" speed during cooling or dry operation (depends on the model).
  The icon will go off in an hour, and the vane setting will automatically change.

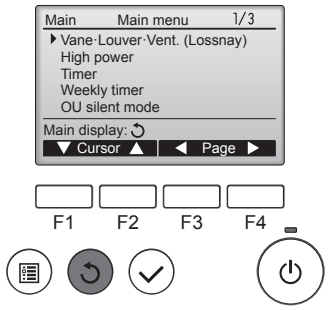
<Vent. setting>



Press the [F3] button to go through the ventilation setting options in the order of "Off", "Low", and "High".
* Settable only when LOSSNAY unit is connected.

- The fan on some models of indoor units may be interlocked with certain models of ventilation units.

<Returning to the Main menu>



Press the [RETURN] button to go back to the Main menu.

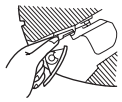
<To Change the Airflow's Up/Down Direction> (for IR wireless remote controller)

■ With the unit running, press the Airflow Up/Down button ⑤ as necessary.
- Each press changes the direction. The current direction is shown at display.

Note:
- **During swing operation, the directional indication on the screen does not change in sync with the directional vanes on the unit.**
- **Available directions depend on the type of unit connected.**
- **In the following cases, the actual air direction will differ from the direction indicated on the remote controller display.**
  1. **While the display is in "STAND BY" or "DEFROST" states.**
  2. **Immediately after starting heat mode (while the system is waiting for the mode change to take effect).**
  3. **In heat mode, when room temperature is higher than the temperature setting.**

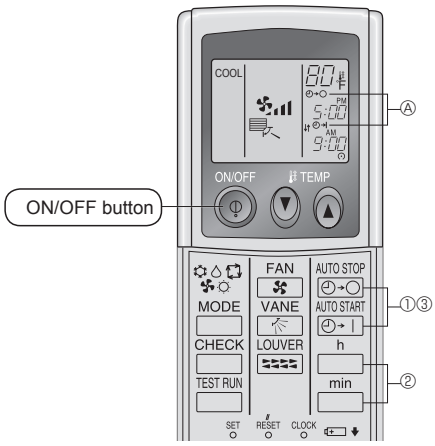
<[Manual] To Change the Airflow's Left/Right Direction>

* The louver button cannot be used.
- Stop the unit operation, hold the lever of the louver, and adjust to the desired direction.
  * Do not set to the inside direction when the unit is in the cooling or drying mode because there is a risk of condensation and water dripping.



⚠ Caution:
To prevent falls, maintain a stable footing when operating the unit.

3.6. Timer



① Press the AUTO STOP or AUTO START button (TIMER SET).

- Time can be set while the following symbol is blinking.
  OFF timer: A is blinking.
  ON timer: A is blinking.
  ② Use the h and min buttons to set the desired time.
  ③ Cancelling the timer.
  To cancel the OFF timer, press the AUTO STOP button.
  To cancel the ON timer, press the AUTO START button.

- It is possible to combine both OFF and ON timers.
- Pressing the ON/OFF button of the remote controller during timer mode to stop the unit will cancel the timers.
- If the current time has not been set, the timer operation cannot be used.

3.7. Ventilation

For LOSSNAY combination

■ The following 2 patterns of operation is available.
- Run the ventilator together with indoor unit.
- Run the ventilator independently.

Note:

- **With some model configurations, the fan on the indoor unit may come on even when you set the ventilator to run independently.**

For IR wireless remote controller and RF thermostat

- **Running the ventilator independently is not available.**
- **No indication on the remote controller.**

4. Emergency Operation for IR Wireless Remote Controller

(For PKA-A·KA7)

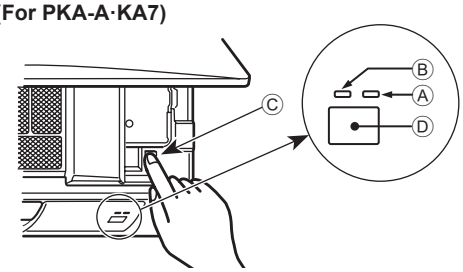


Fig. 4-1

(For PCA-A·KA7)

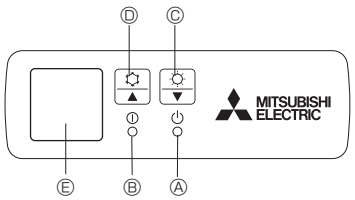


Fig. 4-2

When the IR wireless remote controller cannot be used
When the batteries of the IR wireless remote controller run out or the IR wireless remote controller malfunctions, the emergency operation can be done using the emergency buttons.

[Fig. 4-1] Ⓐ DEFROST/STAND BY lamp (Orange)
Ⓑ Operation lamp (Green)
Ⓒ Emergency operation switch (cooling/heating)
Ⓓ Receiver

- Each press of the emergency operation switch will toggle the operation mode.
- Check “COOL/HEAT” with the operation monitor display. (The display will appear orange for 5 seconds after the switch operation.)

[Fig. 4-2] Ⓐ DEFROST/STAND BY lamp
Ⓑ Operation lamp
Ⓒ Emergency operation switch (heating)
Ⓓ Emergency operation switch (cooling)
Ⓔ Receiver

Starting operation
- To operate the cooling mode, press the ☼ button Ⓓ for more than 2 seconds.
- To operate the heating mode, press the ☼ button Ⓒ for more than 2 seconds.

Stopping operation
- To stop operation, press the ☼ button Ⓓ or the ☼ button Ⓒ for more than 2 seconds.

[Heat pump type]

Cooling → Heating → Stop

[Cooling Only type]

Cooling → Stop

Operation Monitor Display

	GREEN	ORANGE	
STOP	○	○	The display will appear orange for 5 seconds following the switch operation as indicated at the left, and then it will return to the regular display.
COOL	●	○	
HEAT	●	●	

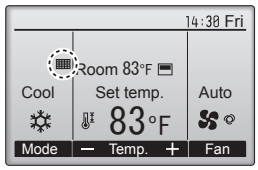
○ Turning off ● Lighting

* Operation details at the time of emergency operation are as shown below.
Note that over the first 30 minutes or so, the temperature adjustment will not function and the unit will be in continuous operation with the fan on high.

Operation Mode	COOL	HEAT
Set Temperature	24°C, 75°F	24°C, 75°F
Fan Speed	High	High
Airflow Direction Up and Down	Step 1	Step 5

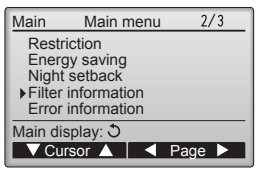
5. Care and Cleaning

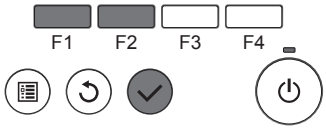
■ **Filter information**



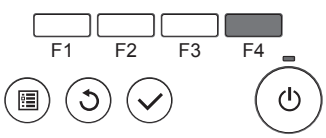
will appear on the Main display in the Full mode when it is time to clean the filters.

Wash, clean, or replace the filters when this sign appears.
Refer to the indoor unit Instructions Manual for details.

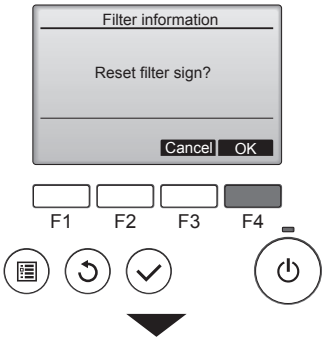




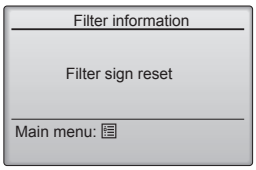
Select "Filter information" from the Main menu (refer to page 8), and press the [SELECT] button.



Press the [F4] button to reset filter sign.
Refer to the indoor unit Instructions Manual for how to clean the filter.

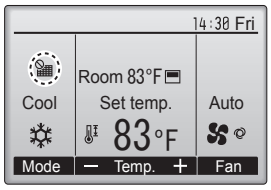


Select "OK" with the [F4] button.



A confirmation screen will appear.

Navigating through the screens
- To go back to the Main menu ..... [MENU] button
- To return to the previous screen ..... [RETURN] button



When the is displayed on the Main display in the Full mode, the system is centrally controlled and the filter sign cannot be reset.

If two or more indoor units are connected, filter cleaning timing for each unit may be different, depending on the filter type.

The icon will appear when the filter on the main unit is due for cleaning.

When the filter sign is reset, the cumulative operation time of all units will be reset.

The icon is scheduled to appear after a certain duration of operation, based on the premise that the indoor units are installed in a space with ordinary air quality. Depending on the air quality, the filter may require more frequent cleaning.

The cumulative time at which filter needs cleaning depends on the model.
- This indication is not available for wireless remote controller.

►Cleaning the filters
- Clean the filters using a vacuum cleaner. If you do not have a vacuum cleaner, tap the filters against a solid object to knock off dirt and dust.
- If the filters are especially dirty, wash them in lukewarm water. Take care to rinse off any detergent thoroughly and allow the filters to dry completely before putting them back into the unit.

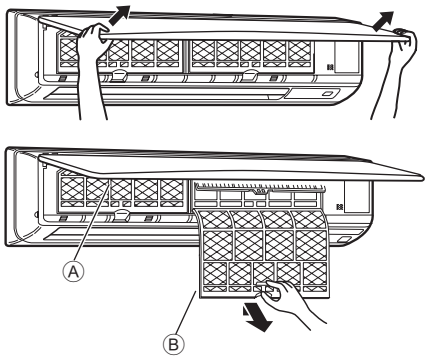
⚠ Caution:
- **Do not dry the filters in direct sunlight or by using a heat source, such as an electric heater: this may warp them.**
- **Do not wash the filters in hot water (above 50°C, 122°F), as this may warp them.**
- **Make sure that the air filters are always installed. Operating the unit without air filters can cause malfunction.**

⚠ Caution:
- **Before you start cleaning, stop operation and turn OFF the power supply.**
- **Indoor units are equipped with filters to remove the dust of sucked-in air. Clean the filters using the methods shown in the following sketches.**

►Filter removal

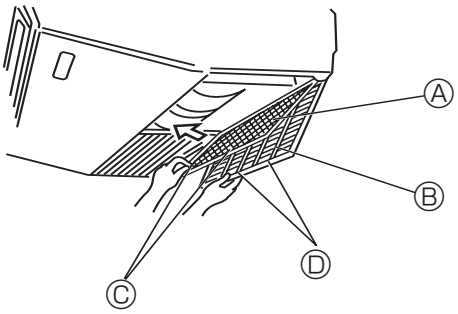
⚠ Caution:
- **In removing the filter, precautions must be taken to protect your eyes from dust. Also, if you have to climb up on a stool to do the job, be careful not to fall.**
- **When the filter is removed, do not touch the metallic parts inside the indoor unit, otherwise injury may result.**

■ PKA-A·KA7



① Using both hands, pull both the bottom corners of the intake grille to open the grille, then lift the filter until it clicks at the stop position.
② Hold the knobs on the filter and pull the filter up, then pull it out downward.
(Located in two places, on the left and right.)
Ⓐ Front grille
Ⓑ Filter

■ PCA-A·KA7



① Open the intake grille.
② Hold the knob on the filter then pull the filter up in the direction of an arrow. To replace the filter after cleaning, be sure to insert the filter far enough until it fits into the stopper.
Ⓐ Filter Ⓑ Intake Grille Ⓒ Knob Ⓓ Stopper

6. Troubleshooting

Having trouble?	Here is the solution. (Unit is operating normally.)
Air conditioner does not heat or cool well.	■ Clean the filter. (Airflow is reduced when the filter is dirty or clogged.) ■ Check the temperature adjustment and adjust the set temperature. ■ Make sure that there is plenty of space around the outdoor unit. Is the indoor unit air intake or outlet blocked? ■ Has a door or window been left open?
When heating operation starts, warm air does not blow from the indoor unit soon.	■ Warm air does not blow until the indoor unit has sufficiently warmed up.
During heating mode, the air conditioner stops before the set room temperature is reached.	■ When the outdoor temperature is low and the humidity is high, frost may form on the outdoor unit. If this occurs, the outdoor unit performs a defrosting operation. Normal operation should begin after approximately 10 minutes.
Airflow up/down direction changes during operation or airflow up/down direction cannot be set.	■ During cooling mode, the vanes automatically move to the horizontal (down) position after 1 hour when the down (horizontal) airflow up/down direction is selected. This is to prevent water from forming and dripping from the vanes. ■ During heating mode, the vanes automatically move to the horizontal airflow up/down direction when the airflow temperature is low or during defrosting mode.
When the airflow up/down direction is changed, the vanes always move up and down past the set position before finally stopping at the position.	■ When the airflow up/down direction is changed, the vanes move to the set position after detecting the base position.
A flowing water sound or occasional hissing sound is heard.	■ These sounds can be heard when refrigerant is flowing in the air conditioner or when the refrigerant flow is changing.
A cracking or creaking sound is heard.	■ These sounds can be heard when parts rub against each due to expansion and contraction from temperature changes.
The room has an unpleasant odor.	■ The indoor unit draws in air that contains gases produced from the walls, carpeting, and furniture as well as odors trapped in clothing, and then blows this air back into the room.
A white mist or vapor is emitted from the indoor unit.	■ If the indoor temperature and the humidity are high, this condition may occur when operation starts. ■ During defrosting mode, cool airflow may blow down and appear like a mist.
Water or vapor is emitted from the outdoor unit.	■ During cooling mode, water may form and drip from the cool pipes and joints. ■ During heating mode, water may form and drip from the heat exchanger. ■ During defrosting mode, water on the heat exchanger evaporates and water vapor may be emitted.
" ⊘ " appears in the wired remote controller display. (*1)	■ During central control, " ⊘ " appears in the wired remote controller display and air conditioner operation cannot be started or stopped using the wired remote controller.
When restarting the air conditioner soon after stopping it, it does not operate even though the ON/OFF button is pressed.	■ Wait approximately 3 minutes. (Operation has stopped to protect the air conditioner.)
Air conditioner operates without the ON/OFF button being pressed. (*1)	■ Is the on timer set? Press the ON/OFF button to stop operation. ■ Is the air conditioner connected to a central wired remote controller? Consult the concerned people who control the air conditioner. ■ Does " ⊘ " appear in the wired remote controller display? Consult the concerned people who control the air conditioner. ■ Has the auto recovery feature from power failures been set? Press the ON/OFF button to stop operation.
Air conditioner stops without the ON/OFF button being pressed. (*1)	■ Is the off timer set? Press the ON/OFF button to restart operation. ■ Is the air conditioner connected to a central wired remote controller? Consult the concerned people who control the air conditioner. ■ Does " ⊘ " appear in the wired remote controller display? Consult the concerned people who control the air conditioner.
Wired remote controller timer operation cannot be set. (*1)	■ Are timer settings invalid? If the timer can be set, ⏲ or ◷ appears in the wired remote controller display.
"PLEASE WAIT" appears in the wired remote controller display. (*1)	■ The initial settings are being performed. Wait approximately 3 minutes.
An error code appears in the remote controller display.	■ The protection devices have operated to protect the air conditioner. ■ Do not attempt to repair this equipment by yourself. Turn off the power switch immediately and consult your dealer. Be sure to provide the dealer with the model name and information that appeared in the remote controller display.

6. Troubleshooting

<table>
<tr><th>Having trouble?</th><th>Here is the solution. (Unit is operating normally.)</th></tr>
<tr><td>Draining water or motor rotation sound is heard.</td><td>■ When cooling operation stops, the drain pump operates and then stops. Wait approximately 3 minutes.</td></tr>
<tr><td>When dry mode starts, the set temperature changes.</td><td>■ When Dry mode starts, the set temperature automatically changes to the optimum initial set temperature.</td></tr>
<tr><td>Noise is louder than specifications.</td><td>■ The indoor operation sound level is affected by the acoustics of the particular room as shown in the following table and will be higher than the noise specification, which was measured in an echo-free room.
<table>
<tr><td></td><td>High sound-absorbing rooms</td><td>Normal rooms</td><td>Low sound-absorbing rooms</td></tr>
<tr><td>Location examples</td><td>Broadcasting studio, music room, etc.</td><td>Reception room, hotel lobby, etc.</td><td>Office, hotel room</td></tr>
<tr><td>Noise levels</td><td>3 to 7 dB</td><td>6 to 10 dB</td><td>9 to 13 dB</td></tr>
</table></td></tr>
<tr><td>Nothing appears in the IR wireless remote controller display, the display is faint, or signals are not received by the indoor unit unless the IR wireless remote controller is close. (*2)</td><td>■ The batteries are low.
Replace the batteries and press the Reset button.
■ If nothing appears even after the batteries are replaced, make sure that the batteries are installed in the correct directions (+, –).</td></tr>
<tr><td>The operation lamp near the receiver for the IR wireless remote controller on the indoor unit is blinking. (*2)</td><td>■ The self diagnosis function has operated to protect the air conditioner.
■ Do not attempt to repair this equipment by yourself.
Turn off the power switch immediately and consult your dealer. Be sure to provide the dealer with the model name.</td></tr>
</table>

*1: Only for wired remote controller.

*2: Only for IR wireless remote controller.

7. Specifications

Model		PKA-A24KA7	PKA-A30KA7	PKA-A36KA7
Power source (Phase, voltage <V>, Frequency <Hz>)		Single, 208/230, 60		
Rated Input (Indoor only)	<kW>	0.05	0.05	0.08
Rated Current (Indoor only)	<A>	0.36	0.36	0.57
Heater	<kW>	–	–	–
Dimension (Height)	<inch>	14-3/8		
Dimension (Width)	<inch>	46-1/16		
Dimension (Depth)	<inch>	11-5/8		
Airflow (Low-Middle-High)	<CFM>	635-705-775		705-810-920
Noise level (Low-Middle-High)	<dB>	39-42-45		41-45-49
Net weight	<lbs>	46		

Model		PCA-A24KA7	PCA-A30KA7	PCA-A36KA7	PCA-A42KA7
Power source (Phase, Voltage <V>, Frequency <Hz>)		Single, 208/230, 60			
Fan motor	<FLA>	0.54		0.97	
MCA	<A>	1		2	
MOCP	<A>	15			
Dimension (Height)	<inch>	9-1/16			
Dimension (Width)	<inch>	50-3/8		63	
Dimension (Depth)	<inch>	26-3/4			
Airflow (Low-Middle2-Middle1-High)	DRY <CFM>	530-565-600-670	565-600-635-705	775-850-920-990	810-885-955-1025
	WET <CFM>	495-530-565-635	530-565-600-670	705-775-850-920	740-810-885-955
Noise level (Low-Middle2-Middle1-High)	<dB>	33-35-37-40	35-37-39-41	37-39-41-43	39-41-43-45
Net weight	<lbs>	71		79	86

Index

1. Consignes de sécurité

► Avant d'installer le climatiseur, lire attentivement toutes les "Consignes de sécurité".

► Les "Consignes de sécurité" reprennent des points très importants concernant la sécurité. Veillez bien à les suivre.

► Veuillez consulter ou obtenir la permission votre compagnie d'électricité avant de connecter votre système.

Symboles utilisés dans le texte

⚠ Avertissement:
Précautions à suivre pour éviter tout danger de blessure ou de décès de l'utilisateur.

⚠ Précaution:
Décrit les précautions qui doivent être prises pour éviter d'endommager l'appareil.

Symboles utilisés dans les illustrations

⏚ : Indique un élément qui doit être mis à la terre.

⚠ Avertissement:

- **Pour les appareils non disponibles au grand public.**
- **Cet appareil ne doit pas être installé par l'utilisateur. Demander au revendeur ou à une société agréée de l'installer. Si l'appareil n'est pas correctement installé il peut y avoir un risque de fuite d'eau, d'électrocution ou d'incendie.**
- **Ne pas marcher sur l'appareil ni y déposer des objets.**
- **Ne jamais éclabousser l'appareil ni le toucher avec des mains humides. Il pourrait en résulter un risque d'électrocution.**
- **Ne pas vaporiser de gaz inflammable à proximité de l'appareil sous risque d'incendie.**
- **Ne pas placer de chauffage au gaz ou tout autre appareil fonctionnant avec une flamme vive là où il serait exposé à l'échappement d'air du climatiseur. Cela risquerait de provoquer une mauvaise combustion.**
- **Ne pas retirer la face avant ou la protection du ventilateur de l'appareil extérieur pendant son fonctionnement.**
- **Si vous remarquez des vibrations ou des bruits particulièrement anormaux, arrêter l'appareil, éteindre l'interrupteur et prendre contact avec le revendeur.**
- **Si vous remarquez des vibrations ou des bruits particulièrement anormaux, arrêter l'appareil, éteindre l'interrupteur et prendre contact avec le revendeur.**
- **Ne jamais mettre des doigts, des bâtons, etc. dans les entrées et sorties d'air.**
- **Ne jamais mettre des doigts, des bâtons, etc. dans les admissions et sorties d'air.**
- **Si vous sentez des odeurs étranges, arrêter l'appareil, le mettre hors tension et contacter le revendeur. Si vous ne procédez pas de cette façon, il pourrait y avoir risque de panne, d'électrocution ou d'incendie.**
- **Ne JAMAIS laisser des enfants ou des personnes handicapées utiliser le climatiseur sans surveillance.**
- **Toujours surveiller que les jeunes enfants ne jouent pas avec le climatiseur.**
- **Si le gaz de réfrigérant fuit, arrêter le fonctionnement du climatiseur, aérer convenablement la pièce et prendre contact avec le revendeur.**
- **Lors de l'installation, du déplacement ou de l'entretien du climatiseur, n'utilisez que le réfrigérant spécifié (R410A) pour remplir les tuyaux de réfrigérant. Ne pas le mélanger avec un autre réfrigérant et faire le vide d'air dans les tuyaux.**
  Si du réfrigérant est mélangé avec de l'air, cela peut provoquer des pointes de pression dans les tuyaux de réfrigérant et entraîner une explosion et d'autres risques.
  L'utilisation d'un réfrigérant différent de celui spécifié pour le climatiseur peut entraîner des défaillances mécaniques, des dysfonctionnements du système ou une panne de l'appareil. Dans le pire des cas, cela peut entraîner un obstacle à la mise en sécurité du produit.

⚠ Précaution:

- **Ne pas utiliser d'objet pointu pour enfoncer les boutons car cela risquerait d'endommager la commande à distance.**
- **Ne jamais obstruer les entrées et sorties des appareils extérieurs et intérieurs.**

Rangement de l'appareil

Lorsque vous devez ranger l'appareil, veuillez consulter votre revendeur.

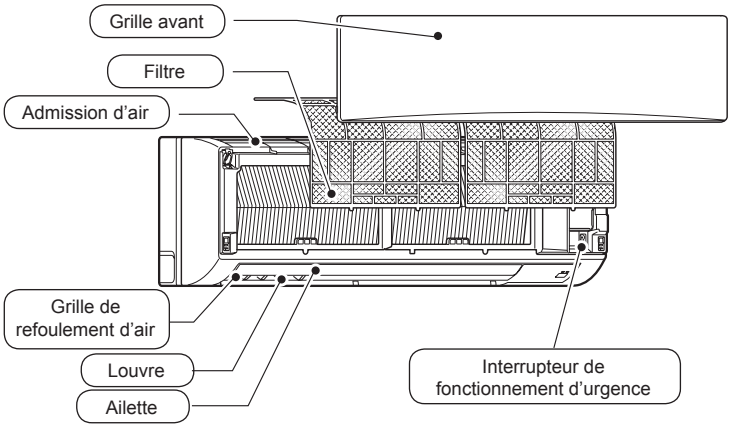
2. Nomenclature

■ Unité interne

	PKA-A·KA7	PCA-A·KA7
Vitesse du ventilateur	3 vitesses + Auto	4 vitesses + Auto
Ailette	Auto avec variation	Auto avec variation
Louvre	Manuel	Manuel
Filtre	Normal	Longue durée
Témoin de nettoyage du filtre	100 heures	2.500 heures

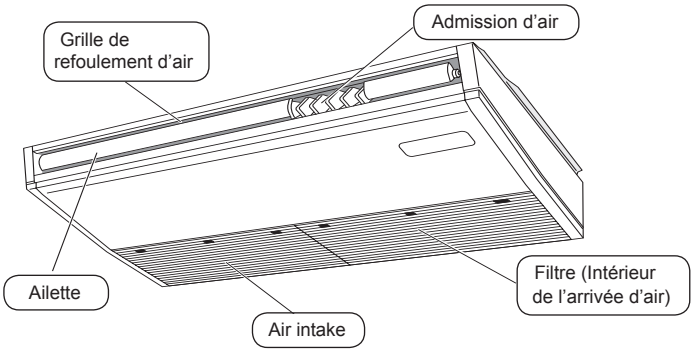
■ PKA-A·KA7

Fixé au Mur



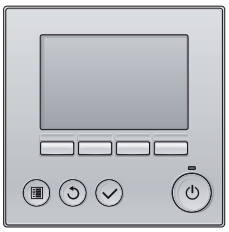
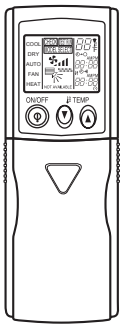
■ PCA-A·KA7

Suspendu au Plafond



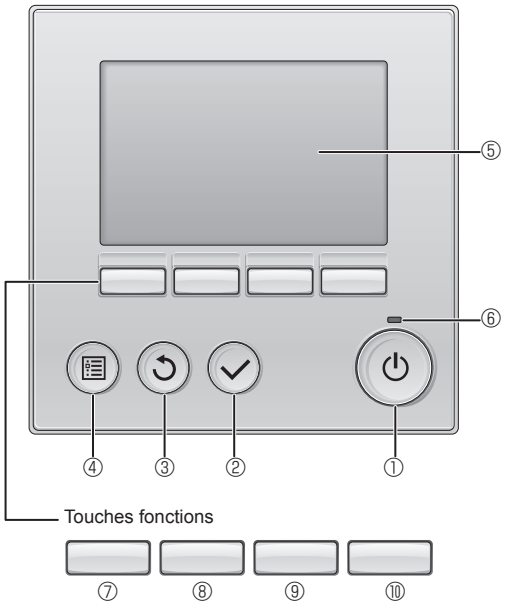
2. Nomenclature

■ **Télécommande à distance (Pièces en option)**

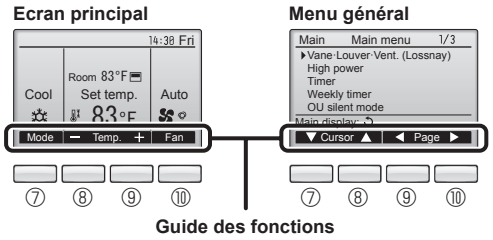
Télécommande à fil	Télécommande sans fil infrarouge
	

■ **Télécommande filaire**

Interface de la télécommande



Les fonctions réalisées par les touches varient en fonction de l'écran.
Consultez le guide des touches en bas de l'écran LCD pour voir les fonctions correspondant à un écran donné.
Lorsque le système est piloté à distance, le guide de fonction des touches n'apparaît pas pour les touches verrouillées.



① Touche [MARCHE / ARRÊT]

Pressez pour allumer ou éteindre l'appareil intérieur.

② Touche [CHOIX]

Pressez pour enregistrer les paramètres.

③ Touche [RETOUR]

Pressez pour revenir à l'écran précédent.

④ Touche [MENU]

Pressez pour ouvrir le Menu général.

⑤ Écran LCD rétroéclairé

Les paramètres de fonctionnement s'affichent.

Lorsque le rétroéclairage est éteint, appuyer sur une touche l'allume, et il reste allumé pendant un certain temps en fonction de l'affichage.

Lorsque le rétroéclairage est éteint, appuyer sur une touche ne fait que l'allumer, sans exécuter la fonction. (à l'exception du bouton [MARCHE / ARRÊT])

⑥ Voyant Marche / Arrêt

Cette lampe s'allume en vert lorsque le système est en fonctionnement. Elle clignote lorsque la télécommande est en cours de démarrage ou en cas d'erreur.

⑦ Touche fonction [F1]

Ecran principal : Pressez pour régler le mode de fonctionnement.

Menu général : Pressez pour faire descendre le curseur.

⑧ Touche fonction [F2]

Ecran principal : Pressez pour diminuer la température.

Menu général : Pressez pour faire monter le curseur.

⑨ Touche fonction [F3]

Ecran principal : Pressez pour augmenter la température.

Menu général : Pressez pour revenir à l'écran précédent.

⑩ Touche fonction [F4]

Ecran principal : Pressez pour changer la vitesse du ventilateur.

Menu général : Pressez pour aller à la page suivante.

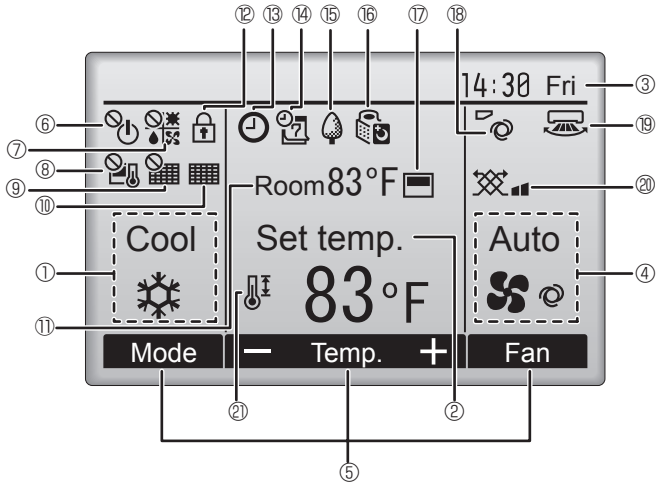
2. Nomenclature

Afficheur

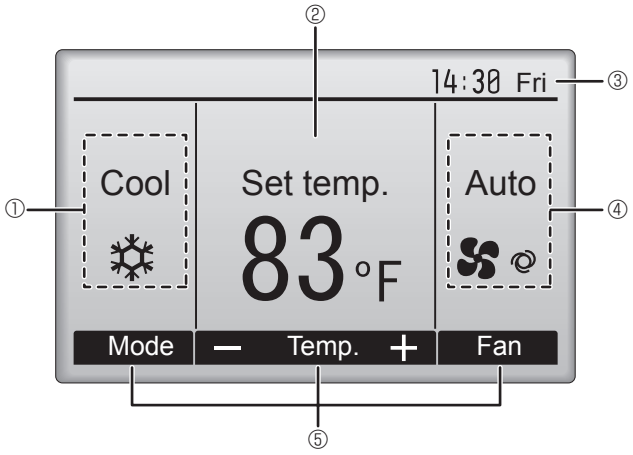
L'écran principal peut être affiché dans deux modes différents : "complet" et "basic". Le réglage usine est "complet". Pour passer au mode "basic", changez-le dans l'écran principal. (Reportez-vous au manuel d'utilisation inclus avec la télécommande.)

<Mode complet>

* Toutes les icônes sont affichées pour la compréhension.



<Mode basic>



① Mode de fonctionnement

Le mode de fonctionnement de l'appareil intérieur s'affiche ici.

② Température programmée

La température programmée s'affiche ici.

③ Horloge (Voir le manuel d'installation.)

L'heure actuelle s'affiche ici.

④ Vitesse du ventilateur

Le réglage de la vitesse de ventilation apparaît ici.

⑤ Guide des fonctions des touches

Les fonctions correspondant aux touches s'affichent ici.

⑥

S'affiche lorsque la marche et l'arrêt sont pilotés de façon centralisée.

⑦

S'affiche lorsque le mode de fonctionnement est piloté de façon centralisée.

⑧

S'affiche lorsque la température sélectionnée est pilotée de façon centralisée.

⑨

S'affiche si la remise à zéro du filtre est pilotée de façon centralisée.

⑩

Indique si le filtre a besoin d'entretien.

⑪ Température de la pièce (Voir le manuel d'installation.)

La température actuelle de la pièce s'affiche ici.

⑫

S'affiche lorsque les touches sont verrouillées.

⑬

Apparaît lorsque la fonction "ON/OFF timer", "Réduit de nuit" ou "Arrêt Auto" timer est activée.

apparaît lorsque le timer est désactivé par le système de contrôle centralisé.

⑭

S'affiche si le programmateur hebdomadaire est activé.

⑮

S'affiche lorsque le système est en mode économie d'énergie. (Ceci n'apparaîtra pas sur certains modèles d'unités intérieures)

⑯

S'affiche lorsque les appareils extérieurs sont en mode silencieux.

⑰

S'affiche lorsque la thermistance intégrée à la télécommande est utilisée pour mesurer la température de la pièce (⑪).

s'affiche lorsque la thermistance de l'appareil intérieur est utilisée pour mesurer la température de la pièce.

⑱

Indique le réglage du déflecteur.

⑲

Indique le réglage des ailettes.
(Cette indication n'est pas disponible pour ce modèle.)

⑳

Indique les réglages de la ventilation.

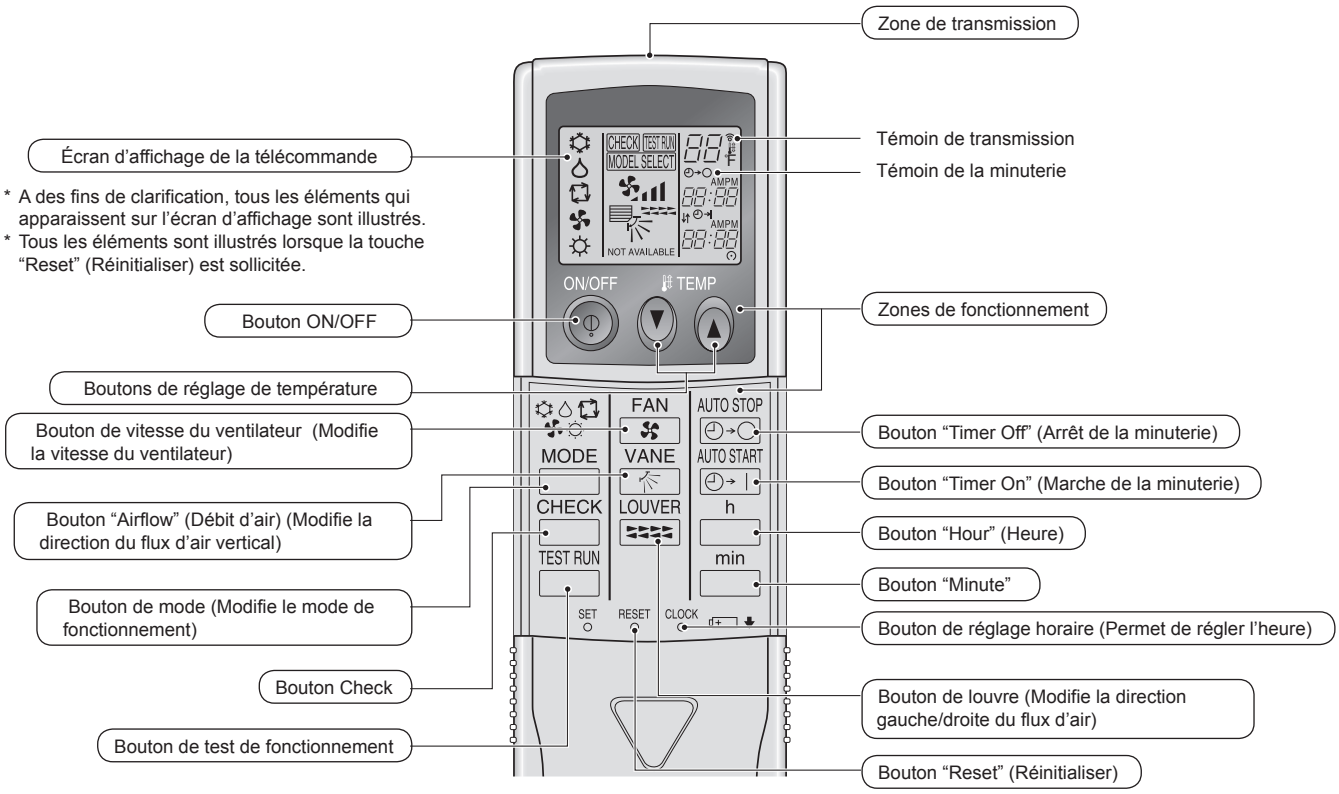
㉑

S'affiche lorsque la plage de température de réglage est réduite.

La plupart des paramètres (à l'exception de la Marche / Arrêt, du mode, de la vitesse du ventilateur, de la température) peuvent être réglés à partir de l'écran du menu. (Reportez-vous au manuel d'utilisation inclus avec la télécommande.)

2. Nomenclature

■ **Pour la télécommande sans fil infrarouge**

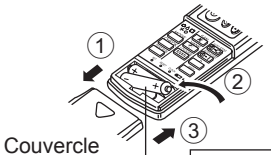


Remarque : (Uniquement pour les télécommandes sans fil infrarouge)

- Pour utiliser la télécommande sans fil infrarouge, pointez-la vers le récepteur de l'appareil intérieur.
- Si la télécommande sans fil infrarouge est utilisée dans les 2 minutes qui suivent l'alimentation de l'appareil intérieur, l'appareil peut émettre 2 bips successifs indiquant que le contrôle automatique est en cours.
- L'appareil intérieur émet des bips pour confirmer que le signal transmis par la télécommande sans fil infrarouge a été reçu. Les signaux peuvent être reçus jusqu'à 7 mètres, 275 19/32 inch environ en ligne droite à partir de l'appareil intérieur et dans une zone de 45° vers la gauche ou la droite de l'appareil. Cependant, une lumière vive ou fluorescente peut gêner la réception de signaux de l'appareil intérieur.
- Si le témoin de fonctionnement situé près du récepteur de l'appareil intérieur clignote, ceci signifie que l'appareil doit être inspecté. Consultez votre revendeur pour connaître les modalités d'entretien.
- Manipulez la télécommande sans fil infrarouge avec précaution ! Ne la faites pas tomber et ne lui infligez pas de chocs violents. De plus, évitez de mouiller la télécommande sans fil infrarouge et ne la laissez pas dans un endroit humide.
- Pour éviter de chercher la télécommande sans fil infrarouge, placez le support fourni avec la télécommande sans fil infrarouge sur un mur et veillez à replacer la télécommande sans fil infrarouge dans le support après chaque utilisation.

Insertion/remplacement de la pile

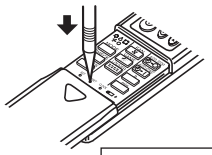
1. Retirez le couvercle supérieur, insérez deux piles AAA, puis reposer le couvercle.



Couvercle supérieur

Deux piles AAA
Insérez d'abord le pôle (–) négatif de chaque pile. Insérez les piles en respectant la polarité indiquée (+, –)!

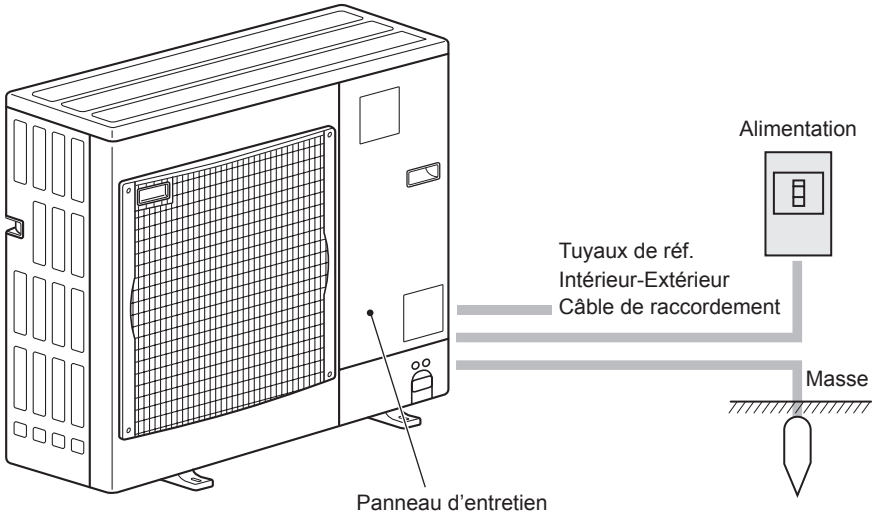
2. Appuyez sur la touche "Reset" (Réinitialiser).



Appuyez sur la touche "Reset" (Réinitialiser) avec un objet dont l'extrémité est étroite.

2. Nomenclature

■ **Unité externe**

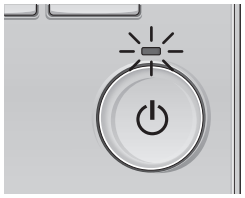


3. Fonctionnement

■ **Concernant le mode de fonctionnement, reportez-vous au manuel d'utilisation fourni avec chaque télécommande.**

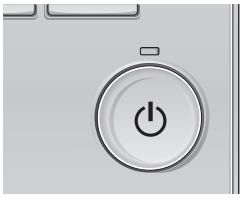
3.1. Marche/arrêt

[MARCHE]



Pressez la touche [MARCHE / ARRÊT].
La lampe Marche / Arrêt s'allume en vert, et l'appareil démarre.

[ARRÊT]



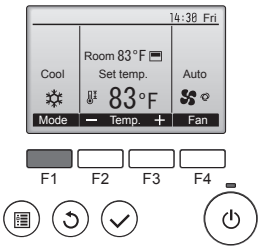
Pressez à nouveau la touche [MARCHE / ARRÊT].
La lampe Marche / Arrêt s'éteint, et l'appareil s'arrête.

Remarque :
Même si vous appuyez sur la touche Marche/Arrêt immédiatement après le début de la procédure d'arrêt, le climatiseur ne redémarrera pas avant 3 minutes environ. Ceci a pour but d'éviter le risque d'endommagement des composants internes.

■ **Plage de réglage de la température**

Mode de fonctionnement	Plage de réglage de la température
Froid / Déshu.	67 – 87ºF (19 – 30 ºC)
Chaud	63 – 83ºF (17 – 28 ºC)
Auto	67 – 83ºF (19 – 28 ºC)
Ventil.	Non réglable

3.2. Sélection du mode



Appuyez sur la touche [F1] pour balayer les modes de fonctionnement parmi : "Cool" (Froid), "Dry" (Déshu.), "Fan" (Ventil.), "Auto", et "Heat" (Chaud). Sélectionnez le mode de fonctionnement désiré.

Cool Dry Fan
Auto Heat

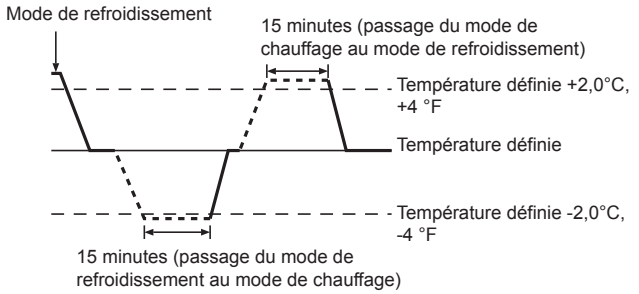
• Les modes de fonctionnement qui ne sont pas disponibles avec les modèles des unités externes utilisées n'apparaîtront pas sur l'affichage.

Que signifie le fait que l'icône du mode clignote
L'icône de mode clignote lorsque d'autres appareils intérieurs du même système réfrigérant (connectés au même appareil extérieur) sont déjà dans un mode différent. Dans ce cas, les autres appareils du même groupe ne peuvent fonctionner que dans le même mode.

Fonctionnement automatique

■ En fonction de la température définie préalablement, l'opération de refroidissement débutera si la température de la pièce est trop élevée ; à l'inverse, l'opération de chauffage débutera si la température de la pièce est trop basse.

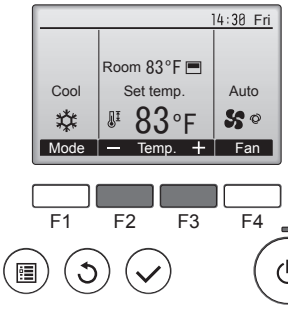
■ En mode de fonctionnement automatique, le climatiseur passera en mode de refroidissement si la température de la pièce varie et affiche 2,0 °C, 4 °F ou plus au-dessus de la température définie pendant 15 minutes. De la même façon, le climatiseur passera en mode de chauffage si la température de la pièce affiche 2,0 °C, 4 °F ou plus audessous de la température définie pendant 15 minutes.

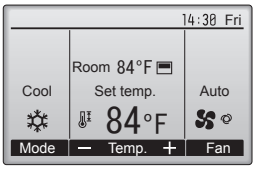


■ La température de la pièce étant ajustée automatiquement de façon à rester stable, l'opération de refroidissement se met en marche à quelques degrés au-dessus, et l'opération de chauffage à quelques degrés au-dessous, de la température définie lorsque cette dernière est atteinte (fonction automatique d'économie d'énergie).

3.3. Réglage de la température

<"Cool" (Froid), "Dry" (Déshu.), "Heat" (Chaud), et "Auto">





Exemple d'affichage
(Centigrade avec incréments de 0,5- degrés)

Appuyez sur la touche [F2] pour diminuer la température programmée, et la touche [F3] pour l'augmenter.

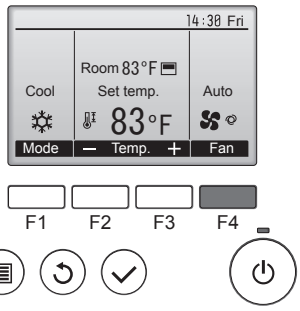
- Consultez le tableau de cette page pour la plage de température réglable en fonction du mode de fonctionnement.
- La plage de température ne peut pas être programmée en mode ventilation.
- Les températures programmées sont affichées soit en Centigrade avec incréments de 0,5- ou 1-degrés, soit en Fahrenheit, selon le modèle d'unité intérieure et le réglage du mode d'affichage sur la télécommande.

<Pour la télécommande sans fil infrarouge>

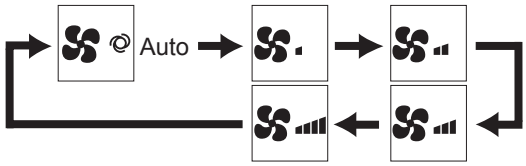
► **Pour réduire la température ambiante:**
Appuyer sur le bouton (▼) ③ pour sélectionner la température désirée.
La température sélectionnée est affichée.

► **Pour augmenter la température ambiante:**
Appuyer sur le bouton (▲) ③ pour sélectionner la température désirée.
La température sélectionnée est affichée.

3.4. Réglage de la vitesse du ventilateur



Pressez [F4] pour changer la vitesse du ventilateur, dans l'ordre suivant.



- Les vitesses de ventilation disponibles dépendent du modèle d'appareil intérieur.

Remarque :

- **Le nombre de ventilateurs disponible dépend du type d'unité connectée. Notez aussi que certaines unités ne permettent que le réglage "Auto".**
- **Dans les cas suivants, la vitesse de ventilation actuelle générée par l'unité différera de la vitesse indiquée au niveau de la commande à distance.**
  1. **Lorsque l'écran affiche "STAND BY" (ATTENTE) ou "DEFROST" (DEGIVRE).**
  2. **Lorsque la température de l'échangeur thermique est basse en mode de chauffage. (par ex. immédiatement après le lancement de l'opération de chauffage)**
  3. **En mode CHAUFFAGE, quand la température ambiante dans la pièce est supérieure à la température réglée.**
  4. **Quand l'unité est en mode DESHU.**

■ Réglage automatique de la vitesse du ventilateur (pour télécommande sans fil).

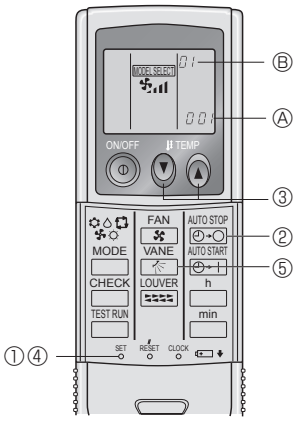
Il faut régler la télécommande sans fil uniquement lorsque la vitesse du ventilateur n'est pas automatiquement réglée par défaut.
Il n'est pas nécessaire de régler la vitesse automatique du ventilateur par défaut sur la télécommande avec fil.

① Appuyer sur le bouton SET à l'aide d'un objet pointu.
Intervenir lorsque l'affichage de la télécommande est éteint.
MODEL SELECT , clignote et le No de modèle est allumé Ⓐ.

② Appuyer sur la touche AUTO STOP .
, clignote et le No de configuration est allumé Ⓑ.
(Configuration No 01: sans vitesse automatique du ventilateur)

③ Appuyer sur les touches temp. pour régler la configuration No 02.
(Configuration No 02: avec vitesse automatique du ventilateur)
Si l'opération est erronée, appuyer sur la touche ON/OFF et recommencer à partir du point ②.

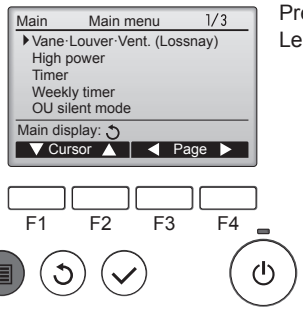
④ Appuyer sur le bouton SET à l'aide d'un objet pointu.
MODEL SELECT, et le No de modèle s'allume pendant 3 secondes, puis s'éteint.



3.5. Réglage de la direction du flux d'air montant/descendant

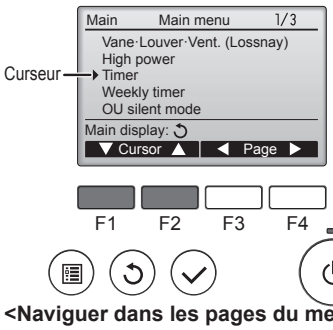
3.5.1 Naviguer dans le Menu général

<Menu général>



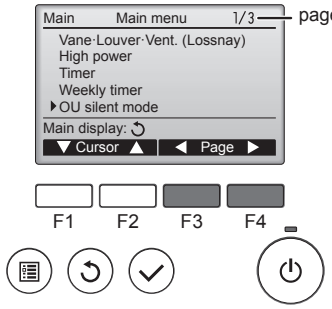
Pressez la touche [MENU].
Le Menu général apparaît.

<Choix de la fonction>



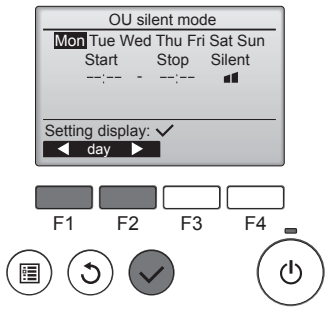
Pressez [F1] pour faire descendre le curseur.
Pressez [F2] pour faire monter le curseur.

<Naviguer dans les pages du menu>



Pressez [F3] pour revenir à l'écran précédent.
Pressez [F4] pour aller à la page suivante.

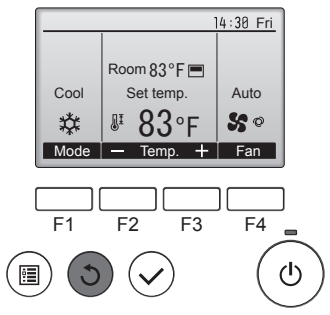
<Enregistrer les paramètres>



Sélectionnez l'élément désiré, et appuyez sur la touche [CHOIX].

L'écran correspondant s'affiche.

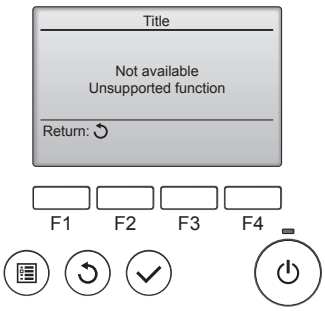
<Fermer le Menu général>



Pressez la touche [RETOUR] pour sortir du Menu général, et retourner sur l'écran principal.

Si aucune touche n'est appuyée pendant 10 minutes, l'affichage revient automatiquement à l'écran principal. Tous les paramètres qui n'ont pas été sauvegardés seront perdus.

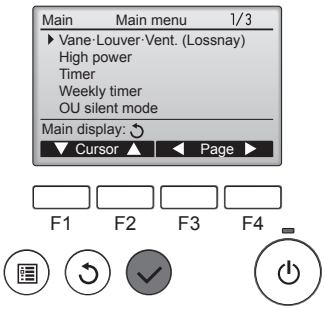
<Affichage des fonctions non prises en charge>



Le message à gauche s'affiche si l'utilisateur sélectionne une fonction non prise en charge par le modèle d'appareil intérieur considéré.

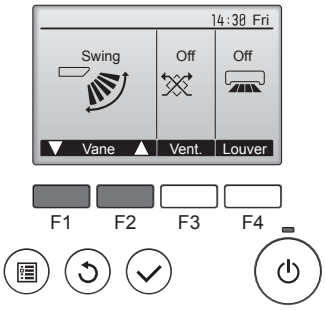
3.5.2 Vane·Vent (Lossnay)

<Accéder au menu>

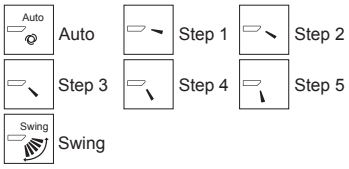


Sélectionnez "Vane·Louver·Vent. (Lossnay)" (Vane·Volet·Vent (Lossnay)) dans le Menu général (voir page 21), et appuyez sur la touche [CHOIX].

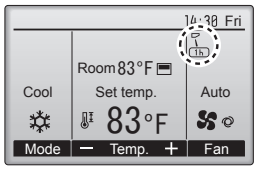
<Réglage du déflecteur>



Pressez sur la touche [F1] ou [F2] pour choisir le réglage du déflecteur : "Auto", "Step 1" (Étape 1), "Step 2" (Étape 2), "Step 3" (Étape 3), "Step 4" (Étape 4), "Step 5" (Étape 5), et "Swing" (Balayage). Choisissez le réglage désiré.

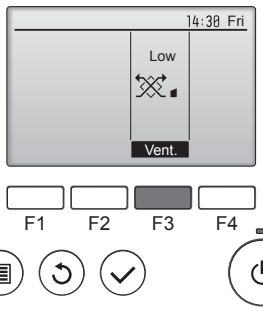


Choisissez "Swing" (Balayage) que le déflecteur bouge de haut en bas automatiquement.
Lorsqu'il est réglé sur "Step 1" (Étape 1) à "Step 5" (Étape 5), le déflecteur se positionne à l'angle choisi.



- 1h sous l'icône du déflecteur
  Cette icône s'affiche si le réglage de l'ailette est entre "Step 2" (Étape 2) et "Step 5" (Étape 5) et que le ventilateur fonctionne à une vitesse entre "Mid 1" (Moy 1) et "Low" (Lente) pendant le mode de refroidissement ou de déshumidification (selon le modèle).
  L'icône disparaît au bout d'une heure, et le déflecteur se repositionnera automatiquement.

<Réglage de la ventilation>

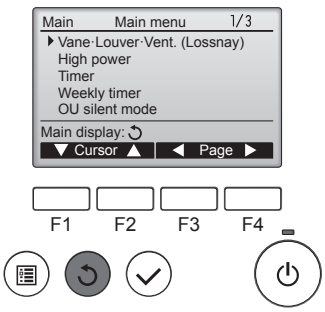


Pressez [F3] pour choisir l'option de ventilation parmi : "Off" (OFF), "Low" (Ptit) et "High" (Gd).

* Réglable seulement lorsque le Lossnay est connecté.

- Le ventilateur de certains modèles d'appareils intérieurs peut être synchronisé avec certains modèles d'appareils de ventilation.

<Retour au Menu général>



Appuyez sur la touche [RETOUR] pour revenir au Menu général.

<Pour changer la direction de l'air (montant/descendant)> (pour la télécommande sans fil infrarouge)

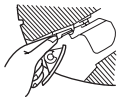
■ Quand l'unité est en fonction, appuyez sur le bouton ⑤ de ventilation montante/descendante autant de fois que nécessaire.
  • À chaque fois que vous appuyez sur le bouton, vous changez la direction. La direction actuelle est affichée sur l'écran.

Remarque:

- **Pendant l'oscillation, l'indication directionnelle à l'écran ne change pas en synchronisation avec les ailettes de l'unité.**
- **Les directions disponibles dépendent du type d'unités connectées.**
- **Dans les cas suivants, la direction actuelle de l'air différera de la direction indiquée au niveau de la commande à distance.**
  1. **Lorsque l'écran affiche "STAND BY" (ATTENTE) ou "DEFROST" (DEGIVRE).**
  2. **Immédiatement après le démarrage du mode CHAUFFAGE (alors que le système attend que le changement de mode se fasse).**
  3. **En mode chauffage, quand la température ambiante dans la pièce est supérieure à la température réglée.**

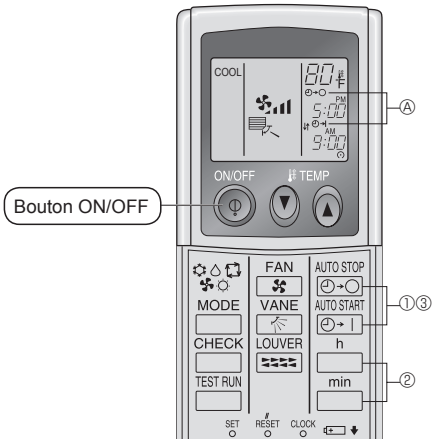
<[Manuel] Pour changer la direction droite/gauche du flux d'air>

* Le bouton de louvre n'est pas utilisable.
  • Arrêtez l'appareil, maintenez le levier du louvre et réglez la direction souhaitée.
  * Ne réglez pas vers l'intérieur lorsque l'appareil est en mode de refroidissement ou de déshumidification du fait du risque de condensation et de suintement.



⚠ Précaution :
Pour éviter les chutes, ayez une position stable lors de l'utilisation de l'appareil.

3.6. Minuterie



① Pousser le bouton arrêt ou marche (AUTO STOP ou AUTO START) (Réglage du minuteur).

- Vous pouvez régler l'heure lorsque le symbole suivant clignote.
  Minuteur d'arrêt: Ⓐ ◴→○ clignote.
  Minuteur de mise en marche: Ⓐ ◴→| clignote.

② Utiliser les boutons h et min pour régler l'heure.

③ Annuler le minuteur.
Pour annuler le minuteur d'arrêt, pousser le bouton AUTO STOP.

Pour annuler le minuteur de marche, pousser le bouton AUTO START.

- il est possible de combiner les minuteurs marche et arrêt (ON et OFF).
- Si l'on pousse le bouton marche/arrêt ON/OFF de la télécommande alors que le minuteur est actif, l'appareil annulera les minuteurs.
- Si l'horloge n'a pas été mise à l'heure, il n'est pas possible d'utiliser le minuteur.

3.7. Ventilation

Pour la combinaison LOSSNAY

■ Les 2 modèles de fonctionnement suivants sont disponibles.
- Fonctionnement du ventilateur avec l'appareil intérieur.
- Fonctionnement autonome du ventilateur.

Remarque :

- **Dans certaines configurations, la soufflerie de l'unité intérieure peut se mettre en marche même en cas d'activation du fonctionnement autonome du ventilateur.**

Remarque : (pour la télécommande sans fil infrarouge et le thermostat RF)

- **Impossible de faire fonctionner le ventilateur de façon autonome.**
- **Aucune indication sur la télécommande.**

4. Fonctionnement d'urgence de la télécommande sans fil infrarouge

(Pour PKA-A·KA7)

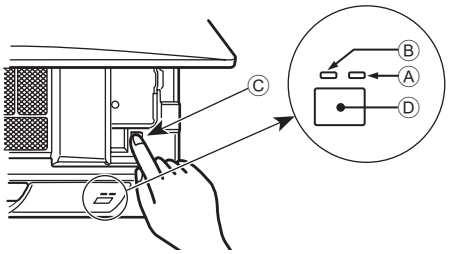


Fig. 4-1

(Pour PCA-A·KA7)

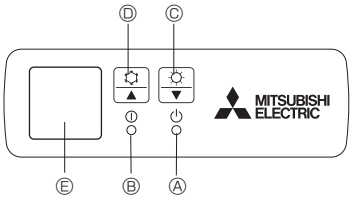


Fig. 4-2

Lorsqu'il n'est pas possible d'utiliser la télécommande sans fil infrarouge

Lorsque les piles de la télécommande sans fil infrarouge sont usées ou que la télécommande sans fil infrarouge ne fonctionne pas correctement, le mode de fonctionnement d'urgence peut être activé à l'aide des touches d'urgence.

[Fig. 4-1]

Ⓐ Témoin DEFROST/STAND BY (dégivrage/veilleuse) (Orange)
Ⓑ Témoin de fonctionnement (Vert)
Ⓒ Interrupteur de fonctionnement d'urgence (chauffage/refroidissement)
Ⓓ Capteur

- Chaque fois que vous appuyez sur l'interrupteur de fonctionnement d' urgence, le mode de fonctionnement change.
- Sélectionnez "FROID/CHAUD" sur le moniteur. (L'affichage est orange pendant 5 secondes après le basculement.)

[Fig. 4-2]

Ⓐ Témoin DEFROST/STAND BY (dégivrage/veilleuse)
Ⓑ Témoin de fonctionnement
Ⓒ Interrupteur de fonctionnement d'urgence (chauffage)
Ⓓ Interrupteur de fonctionnement d'urgence (refroidissement)
Ⓔ Capteur

Opération de mise en marche

- Appuyez plus de 2 secondes sur la touche ☼ Ⓓ pour utiliser le mode de refroidissement.
- Appuyez plus de 2 secondes sur la touche ☼ Ⓒ pour utiliser le mode de chauffage.

Pour arrêter le fonctionnement

- Pour arrêter l'appareil, appuyer plus de 2 secondes sur la touche ☼ Ⓓ ou sur la touche ☼ Ⓒ.

[Modèles de chauffage et de refroidissement]

Refroidissement → Chauffage → Arrêt

[Modèles de refroidissement seulement]

Refroidissement → Arrêt

Moniteur

	VERT	ORANGE	
ARRÊT	○	○	L'affichage est orange pendant 5 secondes après le basculement comme indiqué à gauche, puis il redevient normal.
FROID	●	○	
CHAUD	●	●	

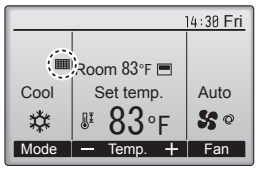
○ Éteint ● Allumé

* Les détails concernant le fonctionnement d'urgence sont tels qu'indiqués ci-dessous.
Notez que pendant les 30 premières minutes environ, le réglage de la température ne fonctionne pas et l'appareil tourne en mode continu avec le ventilateur, etc.

Mode de fonctionnement	FROID	CHAUD
Température définie	24°C, 75°F	24°C, 75°F
Vitesse de ventilateur	Élevée	Élevée
Témoin de direction du flux d'air vertical	"Step 1" (Étape 1)	"Step 5" (Étape 5)

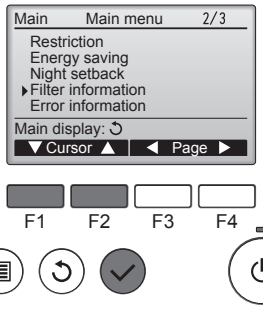
5. Entretien et nettoyage

■ Information filtre

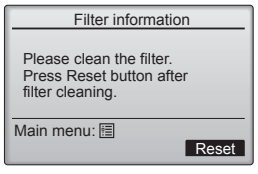


▦ apparaît sur l'écran principal dans en mode complet quand les filtres doivent être nettoyés.

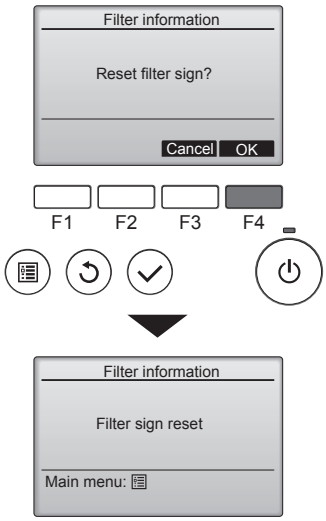
Lavez, nettoyez ou remplacez les filtres lorsque cette icône apparaît. Veuillez vous référer au mode d'emploi de l'appareil intérieur pour plus de détails.



Sélectionnez "Filter information" (Information filtre) dans le Menu général (voir page 21), et appuyez sur la touche [CHOIX].



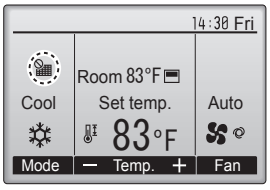
Appuyez sur la touche [F4] pour réinitialiser le témoin d'état du filtre. Reportez-vous au mode d'emploi de l'appareil intérieur pour savoir comment nettoyer le filtre.



Choisissez “OK” avec la touche [F4].

Un écran de confirmation s’affiche.

Naviguer dans les écrans
• Pour revenir au Menu général ..... Touche [MENU]
• Pour revenir à l’écran précédent ..... Touche [RETOUR]



Lorsque le est affiché sur l’écran principal en mode complet, le système est piloté de façon centralisée et le témoin d’état du filtre ne peut pas être remis à zéro.

Si deux ou plusieurs appareils intérieurs sont connectés, la fréquence de nettoyage du filtre de chaque appareil peut être différent, en fonction du le type de filtre.
L’icône s’affiche lorsque le filtre de l’appareil principale doit être nettoyé. Lorsque le témoin d’état du filtre est remis à zéro, le temps de fonctionnement cumulé de tous les appareils est réinitialisé.
L’icône doit apparaître après une certaine durée de fonctionnement, en fonction de l’hypothèse que les appareils intérieurs sont installées dans un espace avec une qualité d’air ordinaire. En fonction de la qualité de l’air, le filtre peut nécessiter un nettoyage plus fréquent.
Le temps cumulé au bout duquel le filtre doit être nettoyé dépend du modèle.
• Cette indication n’est pas disponible pour la télécommande sans fil.

►Nettoyage des filtres
- Nettoyer les filtres avec un aspirateur. Si vous ne possédez pas d’aspirateur, battre les filtres contre un objet dur afin de les secouer et de retirer toutes les saletés et la poussière.
- Si les filtres sont particulièrement sales, les laver à l’eau tiède. Veiller à rincer soigneusement toute trace de détergent et laisser sécher les filtres complètement avant de les remonter dans le climatiseur.

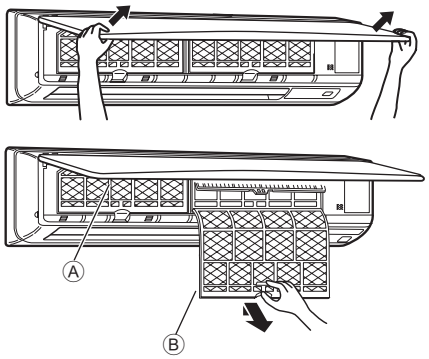
⚠ Précaution:
- **Ne jamais laisser sécher les filtres au soleil ni les sécher en utilisant une source de chaleur comme un chauffage électrique : vous risqueriez de les déformer.**
- **Ne jamais laver les filtres à l’eau chaude (au-dessus de 50 °C, 122 °F) car vous risqueriez de les faire gondoler.**
- **Veiller à ce que les filtres à air soient toujours en place. La mise en marche de l’appareil alors que les filtres sont retirés pourrait en effet être à l’origine d’un mauvais fonctionnement.**

⚠ Précaution:
- **Avant de commencer le nettoyage, arrêter l’appareil et couper l’alimentation.**
- **Les appareils intérieurs sont équipés de filtres servant à extraire les poussières de l’air aspiré. Nettoyer les filtres selon les méthodes illustrées ci-après.**

►Retrait du filtre

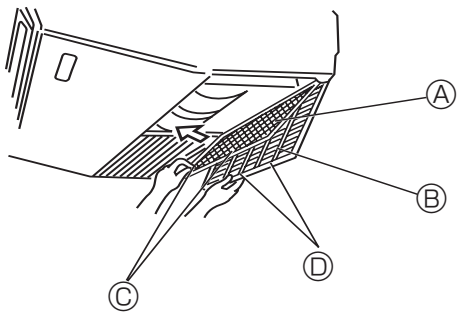
⚠ Précaution:
- **Lors du retrait du filtre, se protéger les yeux de la poussière. Si vous devez monter sur le rebord d’une fenêtre pour effectuer l’opération, attention de ne pas tomber.**
- **Une fois le filtre retiré, ne pas toucher les pièces métalliques internes de l’appareil intérieur sous peine de blessure.**

■ PKA-A·KA7



① Tirez sur les deux coins inférieurs de la grille d’aspiration des deux mains pour ouvrir la grille, puis levez le filtre jusqu’à ce qu’il se bloque en position d’arrêt.
② Maintenez enfoncés les boutons se trouvant sur le filtre et tirez le filtre vers le haut avant de le retirer complètement.
(Situé à deux endroits : droite et gauche.)
Ⓐ Grille avant
Ⓑ Filtre

■ PCA-A·KA7



① Ouvrir la grille d’aspiration.
② Tenir le bouton se trouvant sur le filtre puis tirer le filtre vers le haut dans la direction d’une flèche. Pour replacer le filtre après le nettoyage, assurez-vous d’insérer le filtre jusqu’à ce qu’il soit bien en place dans l’arrêtoir.
Ⓐ Filtre Ⓑ Grille d’aspiration Ⓒ Bouton Ⓓ Arrêtoir

6. Guide de dépannage

En cas de problème :	Voici la solution. (L'appareil fonctionne normalement.)
Le climatiseur ne chauffe ni ne refroidit correctement.	■ Nettoyez le filtre. (Le débit d'air est réduit lorsque le filtre est sale ou colmaté.) ■ Contrôlez la température et ajustez la température définie en conséquence. ■ Assurez-vous qu'il y a suffisamment d'espace autour de l'appareil extérieur. L'admission ou la sortie d'air de l'appareil intérieur est-elle bloquée ? ■ Une porte ou une fenêtre a-t-elle été laissée ouverte ?
Lorsque l'opération de chauffage débute, de l'air chaud n'est pas expulsé immédiatement de l'appareil intérieur.	■ De l'air chaud est expulsé uniquement lorsque l'appareil intérieur est suffisamment chaud.
En mode de chauffage, le climatiseur s'arrête avant que la température définie pour la pièce soit atteinte.	■ Lorsque la température extérieure est basse et l'humidité de l'air importante, du givre peut se former sur l'appareil extérieur. Dans ce cas, l'appareil extérieur procède à une opération de dégivrage. Un fonctionnement normal de l'appareil devrait débuter au bout de 10 minutes environ.
La direction du flux d'air vertical varie pendant l'opération ou la direction ne peut être définie.	■ En mode de refroidissement, les ailettes se placent automatiquement en position horizontale (basse) au bout d'une (1) heure lorsqu'une direction du flux d'air vertical basse (horizontale) est sélectionnée. Ceci évite la formation d'eau sur les ailettes et prévient tout suintement. ■ En mode de chauffage, les ailettes se placent automatiquement en position horizontale lorsque la température du flux d'air vertical est basse ou pendant le mode de dégivrage.
Lorsque la direction du flux d'air vertical est modifiée, les ailettes se déplacent toujours vers le haut et vers le bas au-delà de la position déterminée avant de s'arrêter sur la position souhaitée.	■ Lorsque la direction du flux d'air vertical est modifiée, les ailettes se placent sur la position déterminée après être passées par la position de base.
Un bruit d'eau qui ruisselle ou plus rarement un souffle peut être perçu.	■ Ces bruits peuvent être perçus lorsque le réfrigérant circule dans le climatiseur ou lorsque le flux du réfrigérant a été modifié.
Un craquement ou un grincement peut être perçu.	■ Ces bruits peuvent être perçus lorsque les pièces du climatiseur frottent les unes contre les autres en raison de l'expansion et de la contraction qui résultent des variations de température.
La pièce a une odeur désagréable.	■ L'appareil intérieur aspire de l'air qui contient des gaz produits par les murs, les moquettes et les meubles ainsi que des odeurs véhiculées par les vêtements, puis il les expulse à nouveau dans la pièce.
Une buée ou vapeur blanche sort de l'appareil intérieur.	■ Si la température intérieure et l'humidité de l'air sont élevées, cette situation peut se produire en début d'opération. ■ En mode de dégivrage, de l'air froid peut être expulsé et avoir l'apparence de la buée.
Le signe " ⊘ " apparaît sur l'écran de la télécommande à fil. (*1)	■ Lors du contrôle centralisé, le signe " ⊘ " apparaît sur l'écran de la télécommande à fil et le fonctionnement du climatiseur ne peut être lancé ou arrêté à l'aide de la télécommande à fil.
Lorsque le climatiseur est redémarré immédiatement après avoir été éteint, son fonctionnement est bloqué même si la touche "ON/OFF" (Marche/Arrêt) est sollicitée.	■ Patientez trois minutes environ. (Le fonctionnement s'est arrêté pour protéger le climatiseur.)
Le climatiseur fonctionne sans que la touche "ON/OFF" (Marche/Arrêt) soit sollicitée. (*1)	■ La fonction de marche de la minuterie a-t-elle été réglée ? Appuyez sur la touche "ON/OFF" (Marche/Arrêt) pour l'arrêter. ■ Le climatiseur est-il relié à une télécommande à fil centralisée ? Veuillez consulter les personnes responsables du contrôle du climatiseur. ■ Le signe " ⊘ " apparaît-il sur l'écran de la télécommande à fil ? Veuillez consulter les personnes responsables du contrôle du climatiseur. ■ La fonction de recouvrement auto en cas de coupure d'électricité a-t-elle été réglée ? Appuyez sur la touche "ON/OFF" (Marche/Arrêt) pour l'arrêter.
Le climatiseur s'arrête sans que la touche "ON/OFF" (Marche/Arrêt) soit sollicitée. (*1)	■ La fonction d'arrêt de la minuterie a-t-elle été réglée ? Appuyez sur la touche "ON/OFF" (Marche/Arrêt) pour relancer l'opération. ■ Le climatiseur est-il relié à une télécommande à fil centralisée ? Veuillez consulter les personnes responsables du contrôle du climatiseur. ■ Le signe " ⊘ " apparaît-il sur l'écran de la télécommande à fil ? Veuillez consulter les personnes responsables du contrôle du climatiseur.
Le fonctionnement de la minuterie de la télécommande à fil ne peut pas être réglé. (*1)	■ Les paramétrages de la minuterie sont-ils invalides ? Si la minuterie peut être réglée, les signes ⏲ ou 🕐 doivent apparaître sur l'écran de la télécommande à fil.
Le message "PLEASE WAIT" (VEUILLEZ PATIENTER) apparaît sur l'écran de la télécommande à fil. (*1)	■ Les paramétrages initiaux sont en cours d'exécution. Patientez 3 minutes environ.
Un code d'erreur apparaît sur l'écran de la télécommande.	■ Les dispositifs de protection ont fonctionné pour protéger le climatiseur. ■ N'essayez pas de réparer cet appareil vous-même. Mettez l'appareil hors tension immédiatement et consultez votre revendeur. Vous devrez fournir au revendeur le nom du modèle et les informations qui apparaissent sur l'écran de la télécommande.

6. Guide de dépannage

<table>
<tr><th>En cas de problème :</th><th>Voici la solution. (L'appareil fonctionne normalement.)</th></tr>
<tr><td>Un bruit de goutte à goutte ou de moteur qui tourne peut être perçu.</td><td>■ A l'arrêt de l'opération de refroidissement, la pompe de vidange se met en marche puis s'arrête. Patientez 3 minutes environ.</td></tr>
<tr><td>Au démarrage du mode de déshumidification, la température programmée est modifiée.</td><td>■ Au démarrage du mode de déshumidification, la température programmée est automatiquement modifiée pour devenir la température programmée initiale optimale.</td></tr>
<tr><td>Le bruit perçu est supérieur aux caractéristiques sonores.</td><td>■ Le niveau sonore du fonctionnement intérieur dépend de l'acoustique de la pièce dans laquelle l'appareil est installé (voir tableau suivant), et sera supérieur aux caractéristiques sonores (mesurées dans une pièce sans écho).
<table>
<tr><th></th><th>Pièces présentant une absorption phonique élevée</th><th>Pièces présentant une absorption phonique normale</th><th>Pièces présentant une absorption phonique faible</th></tr>
<tr><td>Exemples de pièce</td><td>Studio de radiodiffusion, salle de musique, etc.</td><td>Salle de réception, entrée d'hôtel, etc.</td><td>Bureau, chambre d'hôtel</td></tr>
<tr><td>Niveaux sonores</td><td>3 à 7 dB</td><td>6 à 10 dB</td><td>9 à 13 dB</td></tr>
</table></td></tr>
<tr><td>Rien n'apparaît sur l'écran de la télécommande sans fil infrarouge, l'écran est flou, ou l'appareil intérieur ne reçoit aucun signal sauf si la télécommande sans fil infrarouge est éteinte. (*2)</td><td>■ Les piles sont faibles.
Remplacez les piles et appuyez sur la touche "Reset" (Réinitialiser).
■ Si rien n'apparaît suite au remplacement des piles, assurez-vous que les piles sont insérées conformément à la polarité indiquée (+, –).</td></tr>
<tr><td>Le témoin de fonctionnement situé près du récepteur de la télécommande sans fil infrarouge sur l'appareil intérieur clignote. (*2)</td><td>■ La fonction d'auto-diagnostic a fonctionné pour protéger le climatiseur.
■ N'essayez pas de réparer cet appareil vous-même.
Mettez l'appareil hors tension immédiatement et consultez votre revendeur. Veuillez fournir au revendeur le nom du modèle.</td></tr>
</table>

*1: Uniquement pour la télécommande à fil.

*2: Uniquement pour la télécommande sans fil infrarouge.

7. Spécifications techniques

Modèle		PKA-A24KA7	PKA-A30KA7	PKA-A36KA7
Alimentation de l'appareil (Phase, Tension <V> / Fréquence <Hz>)		Monophasé 208/230, 60		
Puissance Absorbée Normale (Intérieur uniquement)	<kW>	0,05	0,05	0,08
Courant Assigné (Intérieur uniquement)	<A>	0,36	0,36	0,57
CHAUFFAGE	<kW>	–	–	–
Dimensions (Hauteur)	<inch>	14-3/8		
Dimensions (Largeur)	<inch>	46-1/16		
Dimensions (Profondeur)	<inch>	11-5/8		
Débit de la soufflerie (Faible-Moyenne-Elevé)	<CFM>	635-705-775		705-810-920
Niveau de bruit (Faible-Moyenne-Elevé)	<dB>	39-42-45		41-45-49
Poids net	<lbs>	46		

Modèle		PCA-A24KA7	PCA-A30KA7	PCA-A36KA7	PCA-A42KA7
Alimentation de l'appareil (Phase, Tension <V> / Fréquence <Hz>)		Monophasé 208/230, 60			
Moteur du ventilateur	<FLA>	0,54		0,97	
MCA	<A>	1		2	
MOCP	<A>	15			
Dimensions (Hauteur)	<inch>	9-1/6			
Dimensions (Largeur)	<inch>	50-3/8		63	
Dimensions (Profondeur)	<inch>	26-3/4			
Débit d'air (Faible-Moyenne 2-Moyenne 1-Elevé)	DRY <CFM>	530-565-600-670	565-600-635-705	775-850-920-990	810-885-955-1025
	WET <CFM>	495-530-565-635	530-565-600-670	705-775-850-920	740-810-885-955
Niveau de bruit (Faible-Moyenne 2-Moyenne 1-Elevé)	<dB>	33-35-37-40	35-37-39-41	37-39-41-43	39-41-43-45
Poids net	<lbs>	71		79	86

Contenido

1. Medidas de Seguridad

►Antes de instalar la unidad, asegúrese de haber leído el capítulo de "Medidas de seguridad".
►Las "Medidas de seguridad" señalan aspectos muy importantes sobre seguridad. Es importante que se cumplan todos.
►Antes de conectar el sistema, informe al servicio de suministro o pídale permiso para efectuar la conexión.

Símbolos utilizados en el texto

⚠ Atención:
Describe precauciones que deben tenerse en cuenta para evitar el riesgo de lesiones o muerte del usuario.

⚠ Cuidado:
Describe las precauciones que se deben tener para evitar daños en la unidad.

Símbolos utilizados en las ilustraciones

⏚ : Indica una pieza que debe estar conectada a tierra.

⚠ Atención:
- **Para aparatos no accesibles para el público en general.**
- **La unidad no debe ser instalada por el usuario. Pida a su distribuidor o a una empresa debidamente autorizada que se lo instale. La incorrecta instalación de la unidad puede dar lugar a goteo de agua, descarga eléctrica o fuego.**
- **No se suba encima ni coloque objetos sobre la unidad.**
- **No vierta agua sobre la unidad ni la toque con las manos húmedas. Puede producirse una descarga eléctrica.**
- **No rocíe gases combustibles en las proximidades de la unidad. Puede haber riesgo de incendio.**
- **No coloque calentadores de gas o cualquier otro aparato de llama abierta expuestos a la corriente de aire descargada por la unidad. Puede dar lugar a una combustión incompleta.**
- **No extraiga el panel frontal del ventilador de la unidad exterior mientras esté en funcionamiento.**
- **Cuando note ruidos o vibraciones que no sean normales, pare la unidad, desconecte la fuente de alimentación y póngase en contacto con su proveedor.**
- **No inserte nunca dedos, palos, etc. en las tomas o salidas de aire.**
- **Si detecta olores raros pare la unidad, desconecte el interruptor de red y consulte con su distribuidor. De lo contrario puede haber una rotura, una descarga eléctrica o fuego.**
- **Este aparato de aire acondicionado NO debe ser utilizado por niños ni por personas inválidas sin el control de una persona adulta.**
- **Los niños pequeños deben estar vigilados por personas adultas para impedir que jueguen con el equipo de aire acondicionado.**
- **Si se producen fugas de gas refrigerante, pare la unidad, ventile bien la habitación y avise a su proveedor.**
- **Cuando instale, mueva o revise el equipo de aire acondicionado, utilice solo el refrigerante indicado (R410A) para cargar los tubos del refrigerante. No lo mezcle con otro tipo de refrigerante y vacíe completamente de aire los tubos.**
  Si el aire se mezcla con el refrigerante, podría producir una tensión anormalmente alta en el tubo del refrigerante y ocasionar una explosión u otros peligros.
  Usar un refrigerante distinto al indicado para el sistema provocará un fallo mecánico, un funcionamiento defectuoso del sistema o la avería de la unidad. En el peor de los casos, podría suponer un grave impedimento para garantizar la seguridad del producto.

⚠ Cuidado:
- **No utilice objetos puntiagudos para apretar los botones ya que podría dañarse el controlador remoto.**
- **No bloquee ni cubra nunca las tomas y salidas de las unidades interior y exterior.**

Eliminación de la unidad

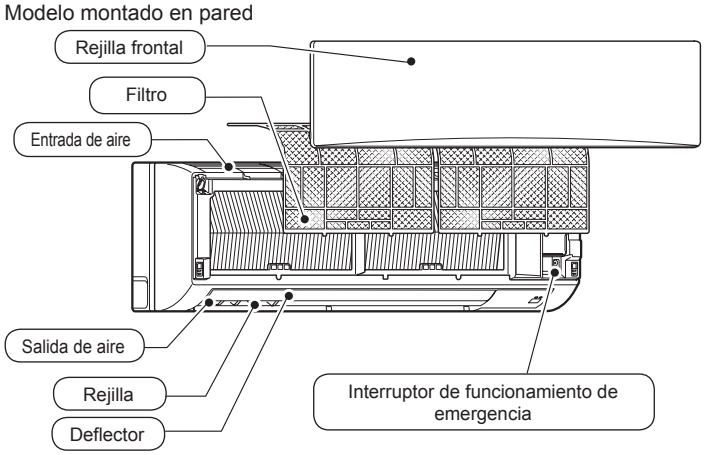
Cuando deba eliminar la unidad, consulte con su distribuidor.

2. Nombres de las piezas

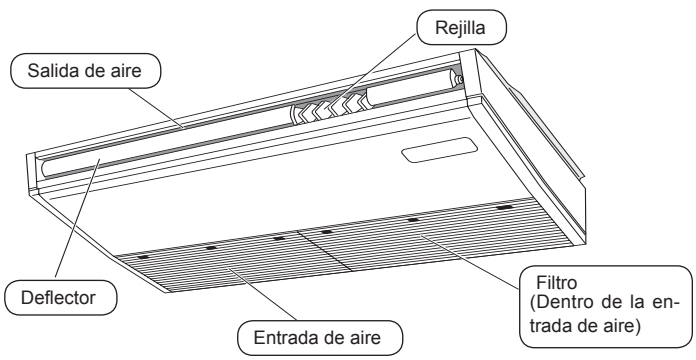
■ Unidad interior

	PKA-A·KA7	PCA-A·KA7
Velocidad del ventilador	3 velocidades + Automático	4 velocidades + Automático
Deflector	Automático oscilante	Automático oscilante
Rejilla	Manual	Manual
Filtro	Normal	Larga duración
Indicación de limpieza de filtro	100 horas	2.500 horas

■ PKA-A·KA7
Modelo montado en pared

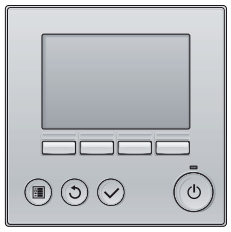
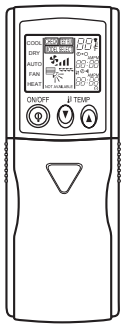


■ PCA-A·KA7
Modelo montado en techo



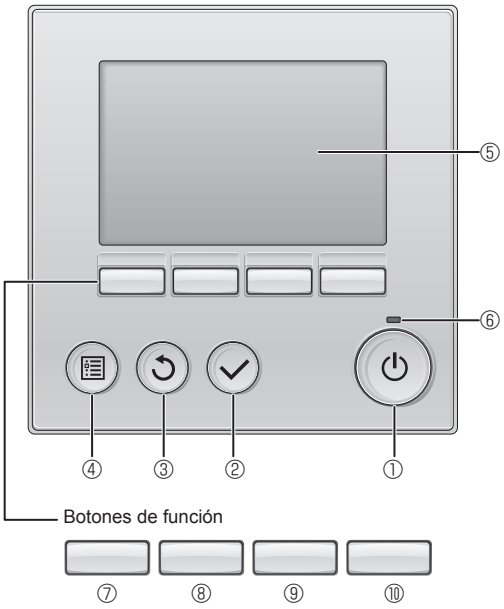
2. Nombres de las piezas

■ **Controlador remoto (piezas opcionales)**

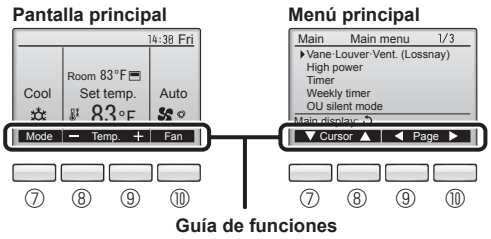
Controlador remoto cableado	Controlador remoto inalámbrico por infrarrojos
	

■ **Controlador remoto cableado**

Interfaz del controlador



Las funciones de los botones de función cambian dependiendo de la pantalla.
Consulte la guía de funciones de los botones que aparece en la parte inferior del LCD para ver las funciones que tienen en cada una de las pantallas. Cuando el sistema se controla a nivel central, la guía de función del botón que corresponde al botón bloqueado no aparecerá.



① Botón [ENCENDIDO/APAGADO]

Presione para ENCENDER/APAGAR la unidad interior.

② Botón [ACEPTAR]

Presione para guardar la configuración.

③ Botón [VOLVER]

Pulse para volver a la pantalla anterior.

④ Botón [MENÚ]

Presione para ir al Menú principal.

⑤ LCD con iluminación de fondo

Aparecerá la configuración de operaciones.

Cuando la luz de fondo esté apagada, al presionar cualquier botón se ilumina la luz de fondo y permanece encendida durante un periodo de tiempo determinado dependiendo de la pantalla.

Cuando la luz de fondo está apagada, la luz se enciende al presionar cualquier botón, que no realizará su función. (salvo el botón [ENCENDIDO/APAGADO])

⑥ Lámpara de ENCENDIDO/APAGADO

Esta lámpara se ilumina en verde mientras la unidad esté en funcionamiento. Parpadea cuando se está iniciando el controlador remoto o cuando hay un error.

⑦ Botón de función [F1]

Pantalla principal: Presione para cambiar el modo de operación.

Menú principal: Presione para mover el cursor hacia abajo.

⑧ Botón de función [F2]

Pantalla principal: Presione para disminuir la temperatura.

Menú principal: Presione para mover el cursor hacia arriba.

⑨ Botón de función [F3]

Pantalla principal: Presione para aumentar la temperatura.

Menú principal: Presione para ir a la página anterior.

⑩ Botón de función [F4]

Pantalla principal: Presione para cambiar la velocidad del ventilador.

Menú principal: Presione para ir a la página anterior.

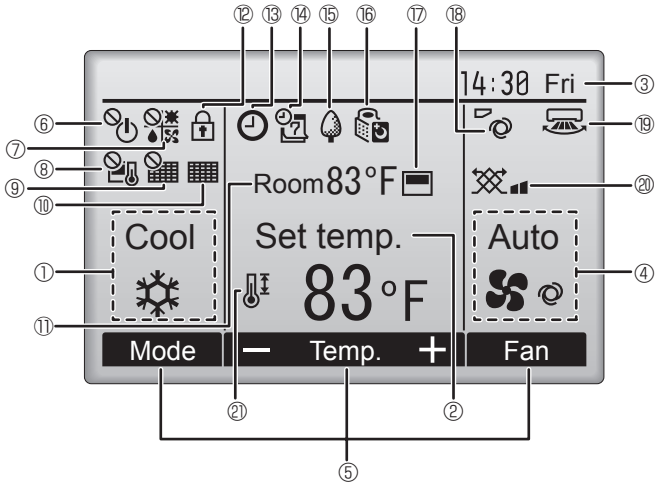
2. Nombres de las piezas

Pantalla

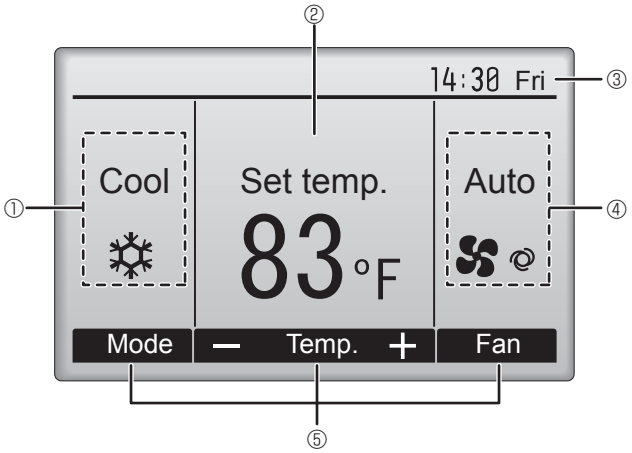
La pantalla principal se puede visualizar en dos modos diferentes: “Completo” y “Básico”. Por defecto, viene configurada a “Completo”. Para cambiar al modo “Básico”, cambie la configuración en la configuración de la pantalla principal. (Consulte el manual de instrucciones incluido con el controlador remoto.)

<Modo completo>

* Todos los iconos se muestran para explicar su significado.



<Modo básico>



① Modo de operación

Aquí aparece el modo de funcionamiento de la unidad interior.

② Temperatura predeterminada

Aquí aparece la configuración predeterminada de temperatura.

③ Hora (Consultar el Manual de instalación)

Aquí aparece la hora actual.

④ Velocidad del ventilador

La configuración de la velocidad del ventilador aparece aquí.

⑤ Guía de funciones del botón

Aquí aparecen las funciones de los botones correspondientes.

⑥

Aparece cuando el ENCENDIDO/APAGAO se controla a nivel central.

⑦

Aparece cuando el modo de funcionamiento se opera a nivel central.

⑧

Aparece cuando la temperatura predeterminada se controla a nivel central.

⑨

Aparece cuando la función de restauración del filtro se controla a nivel central.

⑩

Indica cuando necesita mantenimiento el filtro.

⑪ Temperatura de la habitación (Consultar el Manual de instalación)

Aquí aparece la temperatura actual de la habitación.

⑫

Aparece cuando los botones están bloqueados.

⑬

Aparece cuando está habilitada la función “Program. On/Off”, “Modo noche” o programador “Auto-Off”.

aparece al deshabilitar el programador mediante el sistema de control centralizado.

⑭

Aparece cuando se activa el programador semanal.

⑮

Aparece mientras la unidad está funcionando en modo ahorro de energía. (No aparecerá en algunos modelos de unidades interiores)

⑯

Aparece mientras las unidades exteriores están funcionando en modo silencioso.

⑰

Aparece cuando el termistor incorporado en el controlador remoto está activado para controlar la temperatura de la habitación (⑪).

aparece cuando el termistor de la unidad interior está activado para controlar la temperatura de la habitación.

⑱

Indica la configuración del álabe.

⑲

Indica la configuración de la tablilla.
(Esta indicación no está disponible para este modelo.)

⑳

Indica la configuración de la ventilación.

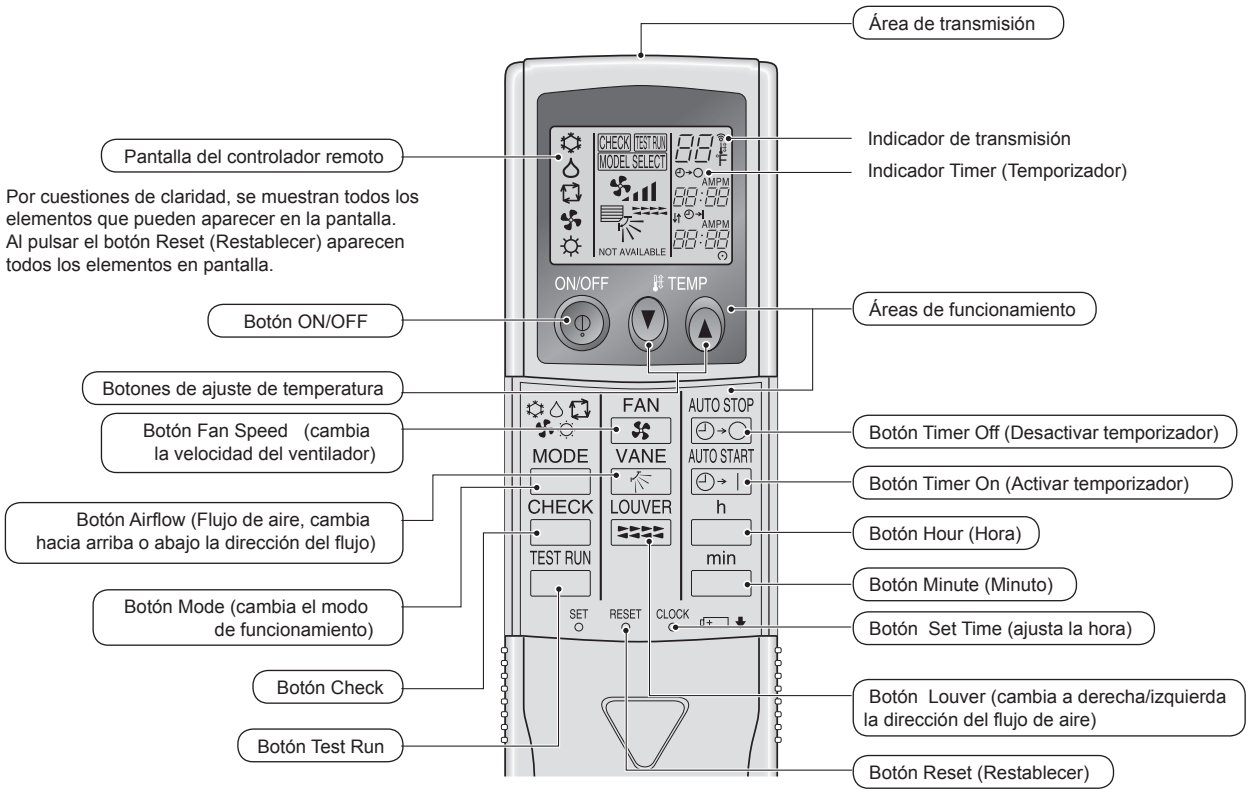
㉑

Aparece cuando se restringe el rango de temperatura predeterminada.

La mayoría de las configuraciones (excepto ENCENDER/APAGAR, modo, velocidad del ventilador, temperatura) pueden realizarse desde la pantalla Menú. (Consulte el manual de instrucciones incluido con el controlador remoto.)

2. Nombres de las piezas

■ **Para el controlador remoto inalámbrico por infrarrojos**

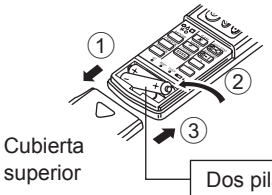


Nota: (sólo para el controlador remoto inalámbrico por infrarrojos)

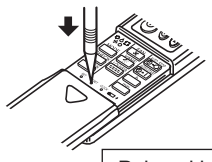
- Si se utiliza un controlador remoto inalámbrico por infrarrojos, apunte con él hacia el receptor de la unidad interior.
- Si el controlador remoto inalámbrico por infrarrojos se utiliza en menos de 2 minutos después de haber encendido la unidad interior, dicha unidad podría pitar 2 veces, ya que estaría realizando la comprobación automática inicial.
- La unidad interior pitará para confirmar que ha recibido la señal transmitida desde el controlador remoto inalámbrico por infrarrojos. La unidad interior puede recibir señales emitidas a un máximo de 7 metros, 275 19/32 inch en línea recta en un rango de 45° a derecha e izquierda de la unidad. Sin embargo, ciertos sistemas de iluminación, con fluorescentes o luces fuertes, pueden afectar a la capacidad de recepción de señal de la unidad interior.
- Si la luz de funcionamiento situada cerca del receptor de la unidad interior parpadea, será necesario inspeccionar la unidad. Consulte a su representante del servicio técnico.
- ¡Maneje el controlador remoto inalámbrico por infrarrojos con cuidado! Evite que se caiga o que sufra golpes fuertes. Además, no moje el controlador remoto inalámbrico por infrarrojos ni lo deje en un lugar con un alto grado de humedad.
- Para no extraviar el controlador remoto inalámbrico por infrarrojos, instale el soporte incluido con el controlador remoto inalámbrico por infrarrojos en una pared y asegúrese de colocar siempre el controlador remoto inalámbrico por infrarrojos en el soporte tras su uso.

Instalación/sustitución de pilas

1. Retire la cubierta superior, inserte dos pilas AAA y vuelva a colocar la cubierta.

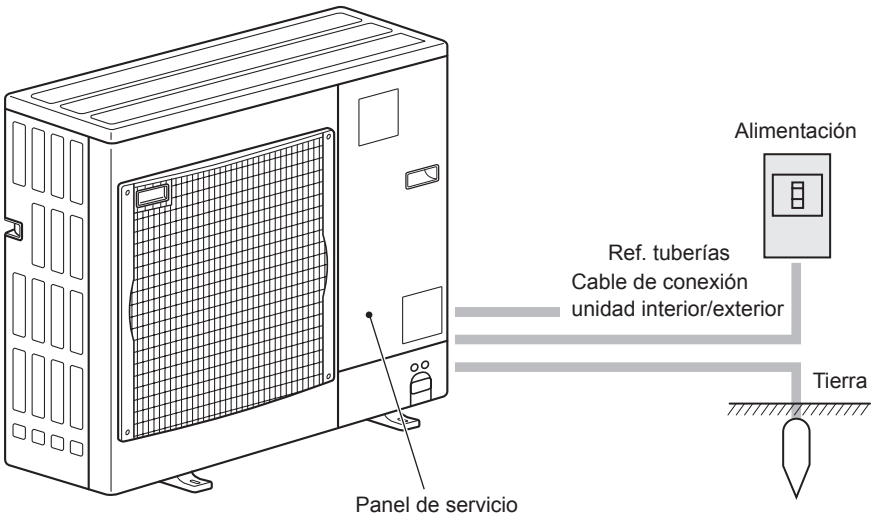


2. Pulse el botón Reset (Restablecer).



2. Nombres de las piezas

■ **Unidad exterior**

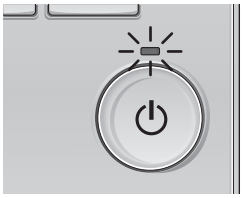


3. Manejo

■ **Para obtener información sobre el método de funcionamiento, consulte el manual de instrucciones suministrado con cada controlador remoto.**

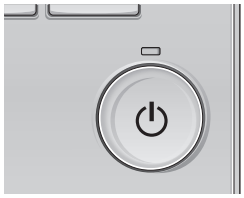
3.1. Encendido/Apagado del sistema

[ENCENDER]



Presione el botón [ENCENDIDO/APAGADO].
La lámpara de ENCENDIDO/APAGADO se iluminará en verde y comenzará a funcionar la unidad.

[APAGAR]



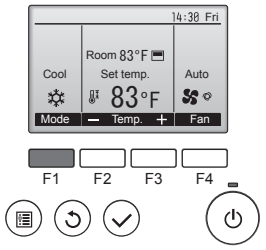
Presione de nuevo el botón de [ENCENDIDO/APAGADO].
La lámpara de ENCENDIDO/APAGADO se apagará y la unidad dejará de funcionar.

Nota:
Aunque pulse el botón ENCENDIDO/APAGADO inmediatamente después de terminar la operación en curso, el aire acondicionado no se iniciará durante unos 3 minutos.
Ello sirve para evitar daños en los componentes internos.

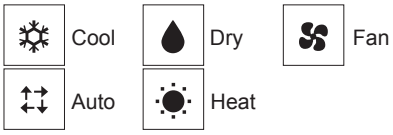
■ **Rango de temperatura predeterminada configurable**

Modo de funcionamiento	Rango de temperatura predeterminada
Frío/Secar	67 – 87ºF (19 – 30 ºC)
Calor	63 – 83ºF (17 – 28 ºC)
Auto	67 – 83ºF (19 – 28 ºC)
Ventilador/Ventilación	No se puede configurar

3.2. Selección Modo



Presione el botón [F1] para ver los modos de operación en el orden de: “Cool” (Frío), “Dry” (Secar), “Fan” (Vent.), “Auto” y “Heat” (Calor)”. Seleccione el modo de funcionamiento deseado.



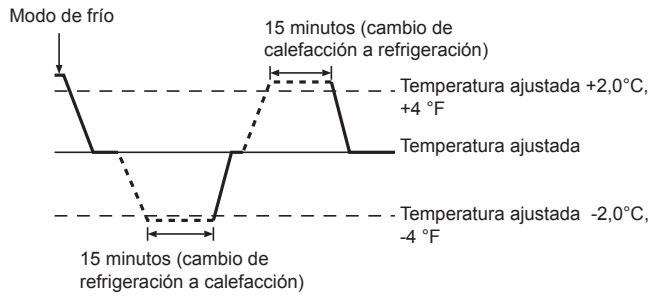
- Los modos de funcionamiento no disponibles para los modelos de unidad exterior conectados no aparecerán en pantalla.

Qué significa que parpadee el icono de modo
El icono de modo parpadeará cuando las otras unidades en el mismo sistema de refrigeración (conectado a la misma unidad exterior) están funcionando ya en un modo diferente. En este caso, el resto de la unidad en el mismo grupo podrá funcionar solamente en el mismo modo.

Funcionamiento automático

■ De acuerdo con la temperatura ajustada, el funcionamiento de refrigeración comenzará si la temperatura de la sala es demasiado alta. El modo de calefacción comenzará si la temperatura de la sala es demasiado baja.

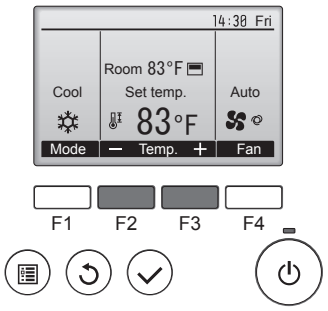
■ Durante el funcionamiento automático, si la temperatura de la sala cambia y permanece 2,0 °C, 4 °F o más por encima de la temperatura ajustada durante 15 minutos, el acondicionador de aire cambiará a modo de frío. Asimismo, si la temperatura permanece 2,0 °C, 4 °F o más por debajo de la temperatura ajustada durante 15 minutos, el acondicionador de aire cambiará a modo de calor.

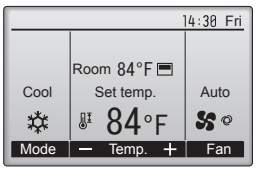


■ Como la temperatura ambiente se ajusta automáticamente para mantener una temperatura efectiva fija, el modo de refrigeración se activa un par de grados por encima de la temperatura ajustada (y el modo de calefacción, un par de grados por debajo) una vez alcanzada dicha temperatura (modo automático de ahorro de energía).

3.3. Ajuste de la temperatura

<“Cool” (Frío), “Dry” (Secar), “Heat” (Calor), y “Auto”>





Ejemplo de visualización
(Centígrados en incrementos de 0,5 grados)

Pulse el botón [F2] para disminuir la temperatura preestablecida y pulse el botón [F3] para aumentarla.

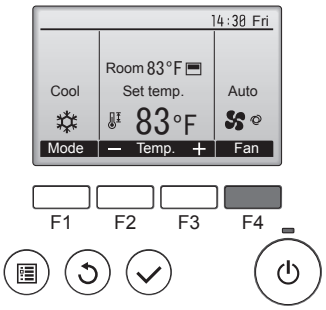
- Consulte la tabla en esta página para ver el rango de temperatura seleccionable para los diferentes modos de funcionamiento.
- El rango de temperatura predeterminada no se puede configurar para el funcionamiento del Ventilador/Ventilación.
- La temperatura preestablecida será visualizada en Centígrados en incrementos de 0,5 o 1 grado, o en Fahrenheit, dependiendo del modelo de unidad interior y del ajuste del modo de pantalla del control remoto.

<Para el controlador remoto inalámbrico por infrarrojos>

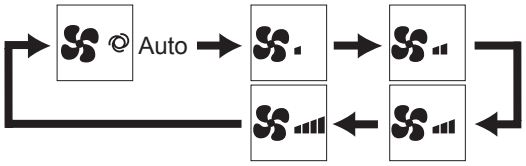
► **Para disminuir la temperatura de la habitación:**
Pulse el botón ▼ ③ para fijar la temperatura deseada. En el visor aparecerá la temperatura seleccionada.

► **Para aumentar la temperatura de la habitación:**
Pulse el botón ▲ ③ para fijar la temperatura deseada.
En el visor aparecerá la temperatura seleccionada.

3.4. Ajuste de la velocidad del ventilador



Presione el botón [F4] para ver las velocidades del ventilador en el siguiente orden.



- Las velocidades de ventilador disponibles dependen de los modelos de unidades interiores conectados.

Nota:

- **El número de velocidades del ventilador disponibles depende del tipo de unidad conectada. Recuerde, además, que algunas unidades no ofrecen ajuste "Automático".**
- **En los siguientes casos, la velocidad real del ventilador generada por la unidad diferirá de la velocidad mostrada en la pantalla del mando a distancia.**
  1. **Cuando la pantalla está en los estados "STAND BY" (RESERVA) o "DEFROST" (DESCONGELACIÓN).**
  2. **Cuando la temperatura del intercambiador de calor es baja en modo de calefacción (por ejemplo, inmediatamente después de que se active el modo de calefacción).**
  3. **En modo HEAT, cuando la temperatura ambiente de la habitación es superior al valor de configuración de la temperatura.**
  4. **Cuando la unidad esté en modo DRY.**

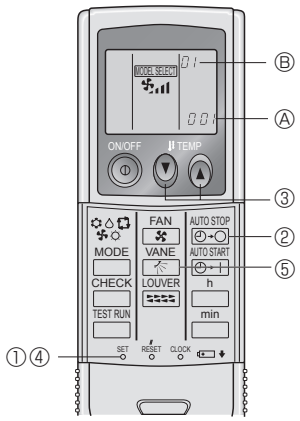
■ Ajuste automático de la velocidad del ventilador (controlador remoto inalámbrico)
El ajuste se ha de efectuar en el controlador remoto inalámbrico solo cuando el ventilador no está ajustado a la velocidad predeterminada.
El ajuste no se ha de efectuar en el controlador remoto cableado cuando el ventilador está ajustado a la velocidad predeterminada.

① Pulse el botón SET con un objeto afilado.
Continúe la operación cuando se apague la pantalla del controlador remoto.
MODEL SELECT parpadea y se ilumina el nº de modelo Ⓐ .

② Pulse el botón AUTO STOP .
parpadea y se ilumina el nº de ajuste Ⓑ.
(ajuste nº 01: sin ventilador en velocidad automática)

③ Pulse los botones TEMP para poner el nº de ajuste 02.
(nº ajuste 02: con ventilador en velocidad automática)
Si se ha equivocado al efectuar la operación, pulse el botón ON/OFF y vuelva a empezar desde el procedimiento ②.

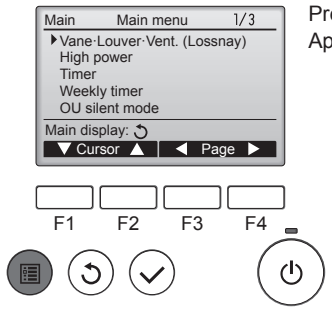
④ Pulse el botón SET con un objeto afilado.
MODEL SELECT y el nº de modelo se iluminan durante 3 segundos y a continuación se apagan.



3.5. Ajuste de la dirección del flujo de aire hacia arriba/abajo

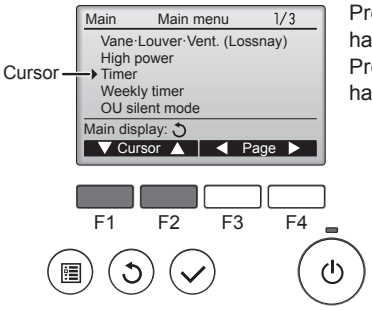
3.5.1 Navegación por el Menú principal

<Acceder al Menú principal>



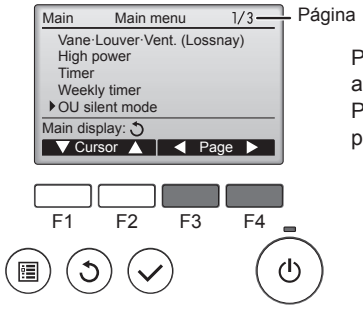
Presione el botón [MENÚ].
Aparecerá el Menú principal.

<Selección del elemento>



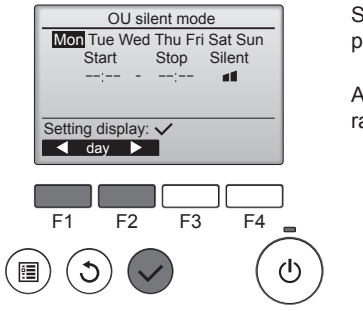
Presione [F1] para mover el cursor hacia abajo.
Presione [F2] para mover el cursor hacia arriba.

<Navegación por las páginas>



Presione [F3] para ir a la página anterior.
Presione [F4] para ir a la siguiente página.

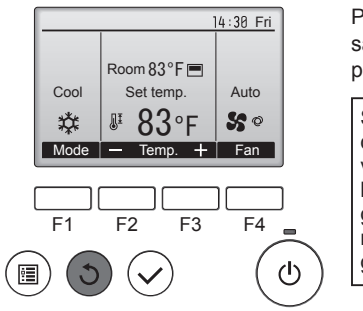
<Guardar la configuración>



Seleccione el elementos deseado y presione el botón [ACEPTAR].

Aparecerá la pantalla para configurar el elemento seleccionado.

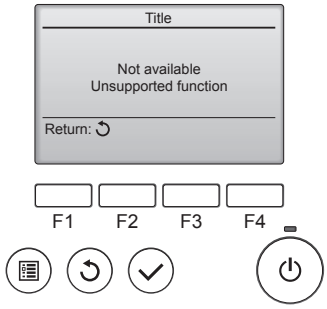
<Salir de la pantalla del Menú principal>



Presione el botón [VOLVER] para salir del Menú principal y volver a la pantalla principal.

Si no se toca ningún botón durante 10 minutos, la pantalla volverá automáticamente a la Pantalla principal. No se guardará ninguno de los cambios realizados que no se hayan guardado.

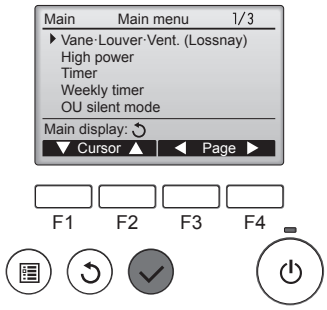
<Visualización de las funciones no admitidas>



Aparecerá un mensaje a la izquierda si el usuario selecciona una función no admitida por el modelo de unidad interior correspondiente.

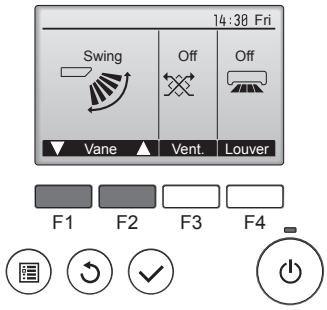
3.5.2 Lama·Vent. (Lossnay)

<Acceder al menú>

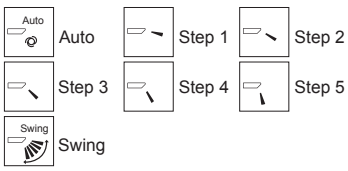


Seleccione "Vane·Louver·Vent. (Lossnay)" (Lama·Deflector·Vent. (Lossnay)) en el Menú principal (consultar la página 34), y presione el botón [ACEPTAR].

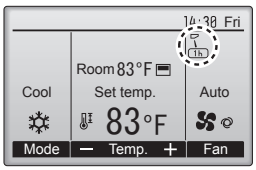
<Configuración del álabe>



Presione los botones [F1] o [F2] para ver las diferentes opciones de configuración del álabe: "Auto", "Step 1" (Posición 1), "Step 2" (Posición 2), "Step 3" (Posición 3), "Step 4" (Posición 4), "Step 5" (Posición 5) y "Swing" (Oscilación).
Seleccione la configuración deseada.

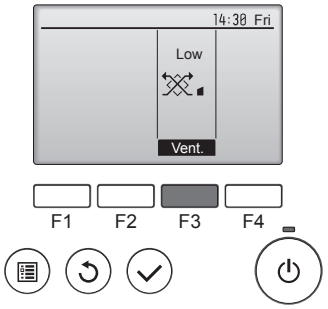


Seleccione "Swing" (Oscilación) para que los álabes se muevan hacia arriba y hacia abajo automáticamente.
Cuando configure de "Step 1" (Posición 1) a "Step 5" (Posición 5), el álabe estará fijo en el ángulo seleccionado.



• 1h bajo el icono de configuración del álabe
Este icono aparece cuando el álabe está configurado entre "Step 2" (Posición 2) y "Step 5" (Posición 5) y el ventilador funciona a una velocidad entre "Mid 1" (Media 1) y "Low" (Bajo) durante el funcionamiento en frío o en seco (dependiendo del modelo).
El icono desaparecerá en una hora y la configuración cambiará automáticamente.

<Configuración de la ventilación>

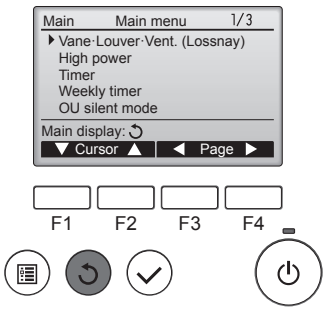


Presione el botón [F3] para pasar por las opciones de configuración de la ventilación en el siguiente orden: "Off", "Low" (Baja) y "High" (Alta).

* Solamente se puede configurar cuando está conectada la unidad LOSSNAY.

• El ventilador en algunos modelos de unidades interiores puede bloquearse con ciertos modelos de unidades de ventilación.

<Volver al Menú principal>



Presione el botón [VOLVER] para volver al Menú principal.

<Para cambiar la dirección de circulación del aire hacia arriba/abajo> (para el controlador remoto inalámbrico por infrarrojos)

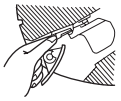
■ Con la unidad en funcionamiento, pulse el botón Airflow arriba/abajo ⑤ tantas veces como sea necesario.
• Cada pulsación cambia la dirección. La dirección actual se muestra en la pantalla.

Nota:

- **Durante la operación de oscilación, la indicación de dirección en la pantalla no cambia al mismo tiempo que los deflectores direccionales de la unidad.**
- **Las direcciones disponibles dependen del tipo de unidad conectada.**
- **En los siguientes casos, la dirección real del aire diferirá de la dirección indicada en la pantalla del mando a distancia.**
  1. **Cuando la pantalla está en los estados "STAND BY" (RESERVA) o "DEFROST" (DESCONGELACIÓN).**
  2. **Inmediatamente después de iniciar el modo calentador (durante la espera para la realización del cambio).**
  3. **En modo calentador, cuando la temperatura ambiente de la sala sea superior a la configuración de la temperatura.**

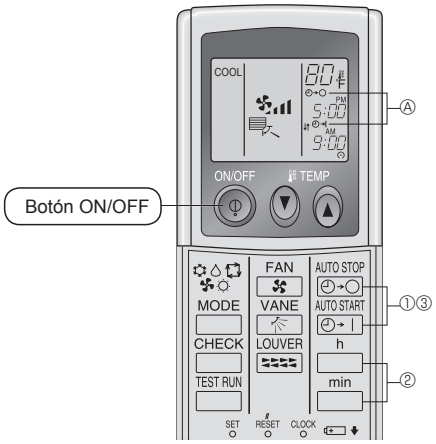
<[Manual] Para cambiar la dirección del aire Derecha/Izquierda>

* El botón Louver no se puede utilizar.
• Detenga el funcionamiento de la unidad, sujete la palanca de la rejilla y ajústela en la dirección deseada.
* No los ajuste hacia adentro cuando la unidad esté en modo de refrigeración o secado, porque existe el riesgo de que se produzca condensación y gotee agua.



⚠ Cuidado:
Para evitar caídas, mantenga un buen equilibrio a la hora de manejar la unidad.

3.6. Temporizador



① Presione el botón AUTO STOP o AUTO START (TIMER SET).

- Se puede fijar la hora mientras parpadee el símbolo siguiente.
  Temporizador de apagado: Parpadea Ⓐ.
  Temporizador de encendido: Parpadea Ⓐ.
  ② Use los botones h y min para fijar la hora deseada.
  ③ Cancelación del temporizador.
  Para cancelar el temporizador de apagado, presione el botón AUTO STOP.
  Para cancelar el temporizador de encendido, presione el botón AUTO START.

- Es posible combinar el temporizador de encendido con el de apagado.
- Al presionar el botón ON/OFF del mando a distancia durante el modo de temporizador para parar la unidad se cancelarán los temporizadores.
- Si no ha ajustado la hora actual, no podrá utilizar la función del temporizador.

3.7. Ventilación

Para la combinación LOSSNAY

■ Están disponibles los siguientes 2 modelos de funcionamiento.
- Funcionamiento del ventilador y de la unidad interior simultáneamente.
- Funcionamiento independiente del ventilador.

Nota:

- **En las configuraciones de algunos modelos, la unidad interior puede activarse incluso aunque el ventilador se haya configurado para funcionar de forma independiente.**

Nota: (para el controlador remoto inalámbrico por infrarrojos y el termostato de radiofrecuencia)

- **El funcionamiento independiente del ventilador no está disponible.**
- **No aparece ninguna indicación en el controlador remoto.**

4. Funcionamiento de emergencia del controlador remoto inalámbrico por infrarrojos

(Para PKA-A·KA7)

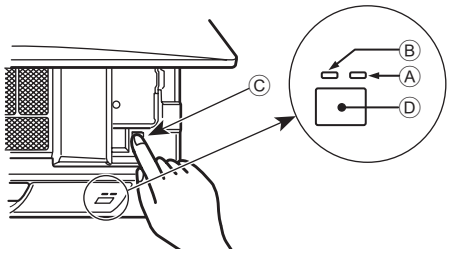


Fig. 4-1

(Para PCA-A·KA7)

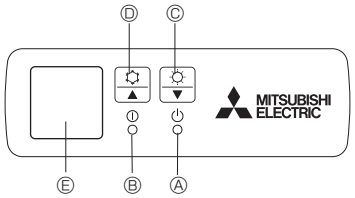


Fig. 4-2

Si no se puede utilizar el controlador remoto inalámbrico por infrarrojos

Si se estropea el controlador remoto inalámbrico por infrarrojos o se agotan sus pilas, se puede efectuar un accionamiento de emergencia mediante los botones destinados a este fin.

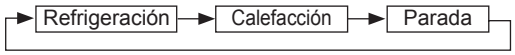
[Fig. 4-1]
Ⓐ Luz DEFROST/STAND BY (DESCONGELACIÓN/RESERVA) (Naranja)
Ⓑ Luz de funcionamiento (Verde)
Ⓒ Interruptor de funcionamiento de emergencia (calefacción/refrigeración)
Ⓓ Receptor
- Cada vez que se pulsa el interruptor de funcionamiento de emergencia, se cambia de modo de funcionamiento.
- Compruebe “COOL/HEAT” con la pantalla del monitor de funcionamiento. (La pantalla aparecerá de color naranja durante 5 segundos tras el accionamiento del interruptor.)

[Fig. 4-2]
Ⓐ Luz DEFROST/STAND BY (DESCONGELACIÓN/RESERVA)
Ⓑ Luz de funcionamiento
Ⓒ Interruptor de funcionamiento de emergencia (calefacción)
Ⓓ Interruptor de funcionamiento de emergencia (refrigeración)
Ⓔ Receptor

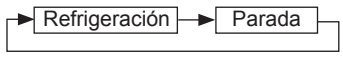
Inicio del funcionamiento
- Para poner en funcionamiento el modo de enfriamiento, mantenga apretado el botón ☼ Ⓓ durante más de 2 segundos.
- Para poner en funcionamiento el modo de calefacción, mantenga apretado el botón ☼ Ⓒ durante más de 2 segundos.

Parada del funcionamiento
- Para detener el funcionamiento, pulse el botón ☼ Ⓓ o el botón ☼ Ⓒ durante más de 2 segundos.

[Modelos con combinación de refrigeración y calefacción]



[Modelos con sólo refrigeración]



Pantalla del monitor de funcionamiento

	VERDE	NARANJA	
STOP	○	○	La pantalla aparecerá en naranja durante 5 segundos después de accionar el interruptor como se indica a la izquierda, y luego volverá a aparecer la pantalla normal.
COOL	●	○	
HEAT	●	●	

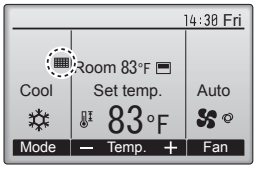
○ Apagado ● Encendido

* Los detalles de funcionamiento en el momento del funcionamiento de emergencia aparecen a continuación.
Tenga en cuenta que, en los primeros 30 minutos aproximadamente, el ajuste de temperatura no funcionará y la unidad estará en funcionamiento continuo con el ventilador a velocidad alta.

Modo de funcionamiento	COOL	HEAT
Temperatura ajustada	24°C, 75°F	24°C, 75°F
Velocidad del ventilador	Alta	Alta
Dirección arriba/abajo del flujo de aire	“Step 1” (Posición 1)	“Step 5” (Posición 5)

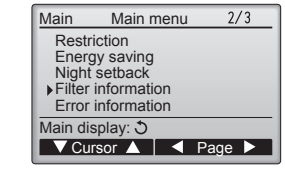
5. Mantenimiento y limpieza

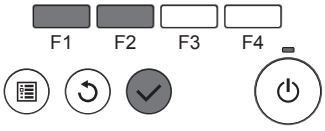
■ Información Filtros



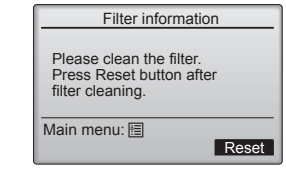
▦ aparecerá en la pantalla principal en modo Completo cuando llegue el momento de limpiar los filtros.

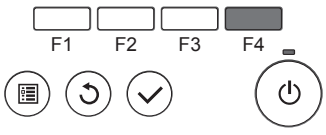
Limpie, lave o cambie los filtros cuando aparezca esta señal. Consulte el Manual de instalación de la unidad interior para obtener más detalles.



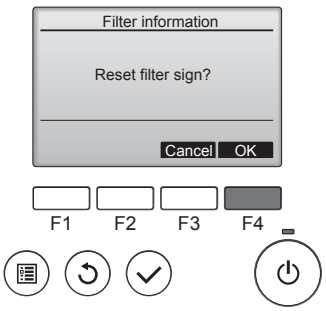


Seleccione “Filter information” (Información Filtros) en el Menú principal (consulte la página 34) y presione el botón [ACEPTAR].

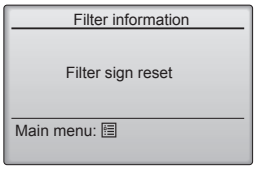




Presione el botón [F4] para restaurar la señal de filtro.
Consulte el manual de Instrucciones de la unidad interior para ver cómo se limpia el filtro.

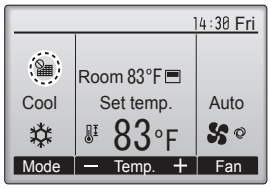


Seleccione “OK” con el botón [F4].



Aparecerá una ventana de confirmación.

Navegación por las pantallas
• Para volver al Menú principal ..... Botón [MENÚ]
• Para volver a la pantalla anterior ..... Botón [VOLVER]



Cuando se muestra en la pantalla principal en el modo Completa, el sistema está controlado a nivel central y no se puede restaurar la señal.

Si hay dos o más unidades interiores conectadas, el momento de cambiar el filtro para cada unidad puede ser diferente, dependiendo del tipo de filtro.

Aparecerá el icono cuando haya que limpiar el filtro en la unidad principal.

Cuando se restaura la señal del filtro, se restaurará el tiempo de funcionamiento acumulativo de todas las unidades.

El icono está programado para aparecer tras un determinado periodo de funcionamiento, partiendo de la base que las unidades interiores están ubicadas en un espacio con calidad de aire normal.Dependiendo de la calidad del aire, puede que haya que cambiar el filtro con más frecuencia.

El tiempo acumulativo en el cual hay que cambiar el filtro depende del modelo.
• Esta indicación no está disponible para el controlador remoto inalámbrico.

►Limpieza de los filtros
- Limpie los filtros con ayuda de una aspiradora. Si no tiene aspiradora, golpee suavemente los filtros contra un objeto sólido para desprender el polvo y la suciedad.
- Si los filtros están especialmente sucios, lávelos con agua tibia. Tenga cuidado de aclarar bien cualquier resto de detergente y deje que los filtros se sequen completamente antes de volver a ponerlos en la unidad.

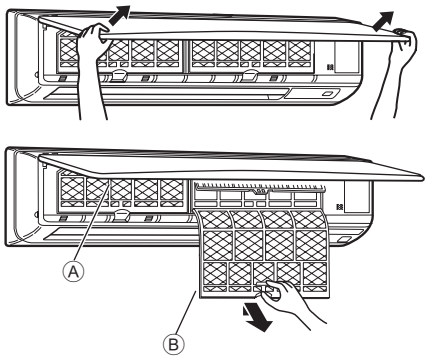
⚠ Cuidado:
- **No seque los filtros colocándolos al sol o con una fuente de calor como el de una estufa eléctrica; podrían deformarse.**
- **No lave los filtros en agua caliente (más de 50 °C, 122 °F) ya que se deformarían.**
- **Cerciórese de que los filtros están siempre instalados. El funcionamiento de la unidad sin filtros puede provocar un mal funcionamiento.**

⚠ Cuidado:
- **Antes de empezar la limpieza, apague la fuente de alimentación.**
- **Las unidades interiores están equipadas con un filtro que elimina el polvo del aire aspirado. Limpie el filtro usando los métodos indicados en las ilustraciones siguientes.**

►Retirada del filtro

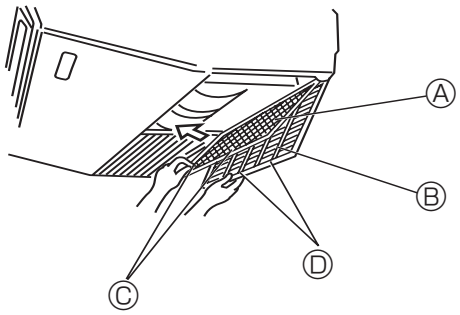
⚠ Cuidado:
- **Al retirar el filtro, tenga cuidado de protegerse los ojos del polvo. Asimismo, si para hacerlo tiene que subirse a un taburete, tenga cuidado de no caerse.**
- **Una vez retirado el filtro, no toque las partes metálicas que hay en la unidad interior, ya que puede causarle heridas.**

■ PKA-A·KA7



① Con ambas manos, tire hacia afuera de las esquinas inferiores de la rejilla de entrada para abrirla y levante el filtro hasta que encaje en la posición de tope.
② Sujete los tiradores del filtro, tire del filtro hacia arriba y extráigalo hacia abajo.
(Ubicado en dos lugares: a la izquierda y a la derecha.)
Ⓐ Rejilla frontal
Ⓑ Filtro

■ PCA-A·KA7



① Abra la rejilla de admisión.
② Sujete la perilla del filtro y luego tire del filtro hacia arriba en la dirección de la flecha. Al colocar el filtro después de la limpieza, asegúrese de introducir el filtro lo suficiente hasta que encaje en el tope.
Ⓐ Filtro Ⓑ Rejilla de admisión Ⓒ Perilla Ⓓ Tope

6. Localización de fallos

¿Problemas?	Aquí tiene la solución. (La unidad funciona normalmente).
El acondicionador de aire no calienta o refrigera bien.	■ Limpie el filtro (el flujo de aire se reduce cuando el filtro está sucio o atascado). ■ Compruebe el ajuste de temperatura y modifique la temperatura ajustada. ■ Asegúrese de que hay espacio suficiente alrededor de la unidad exterior. ¿Está bloqueada la entrada o la salida de aire de la unidad interior? ■ ¿Ha dejado abierta una puerta o ventana?
Cuando comienza el modo de calefacción, al principio no sale aire caliente de la unidad interior.	■ El aire caliente no empieza a salir hasta que la unidad interior se ha calentado lo suficiente.
Durante el modo de calor, el acondicionador de aire se detiene antes de alcanzar la temperatura ajustada para la habitación.	■ Cuando la temperatura exterior es baja y la humedad es alta, puede formarse escarcha en la unidad exterior. Si esto sucede, la unidad exterior iniciará la operación de descongelación. Una vez transcurridos unos 10 minutos, se reanudará el funcionamiento normal.
La dirección arriba/abajo del flujo de aire cambia durante el funcionamiento o no es posible cambiar la dirección del flujo de aire.	■ Durante el modo de frío, los deflectores se mueven automáticamente a la posición horizontal (inferior) tras 1 hora cuando se ha seleccionado la dirección de flujo de aire inferior (horizontal). De esta forma se evita que se acumule agua y caiga desde los deflectores. ■ Durante el modo de calor, los deflectores se mueven automáticamente a la posición de flujo de aire horizontal si la temperatura del flujo de aire es baja o durante el modo de descongelación.
Cuando cambia la dirección arriba/abajo del flujo de aire, los deflectores siempre se mueven arriba y abajo antes de detenerse en la posición ajustada.	■ Cuando cambia la dirección arriba/abajo del flujo de aire, los deflectores se mueven a la posición ajustada tras haber detectado la posición base.
Se oye un sonido de agua fluyendo o, en ocasiones, una especie de silbido.	■ Estos sonidos se pueden oír cuando el refrigerante fluye por el acondicionador de aire o cuando cambia el flujo del refrigerante.
Se oye un traqueteo o un chirrido.	■ Estos ruidos se oyen cuando las piezas rozan entre sí debido a la expansión y contracción provocadas por los cambios de temperatura.
Hay un olor desagradable en la sala.	■ La unidad interior recoge aire que contiene gases producidos por las paredes, moquetas y muebles, así como olores atrapados en las ropas y después lo devuelve a la sala.
La unidad interior expulsa un vaho o humo blanco.	■ Si la temperatura y la humedad de la unidad interior son altas, esto puede suceder inmediatamente tras encender el acondicionador de aire. ■ Durante el modo de descongelación, el aire frío puede salir hacia abajo con la apariencia de vaho.
La unidad exterior expulsa agua o vapor.	■ Durante el modo de frío, puede acumularse agua y gotear de las tuberías y juntas de refrigeración. ■ Durante el modo de calor, puede acumularse agua y gotear del intercambiador de calor. ■ Durante el modo de descongelación, el agua del intercambiador de calor se evapora, por lo que se emite vapor de agua.
" " aparece en la pantalla del controlador remoto cableado. (*1)	■ Durante el control central, " " aparece en la pantalla del controlador remoto cableado y no se puede iniciar ni detener el funcionamiento del acondicionador de aire utilizando el controlador remoto cableado.
Al reiniciar el acondicionador de aire poco después de apagarlo, no funciona al pulsar el botón ON/OFF (ENCENDIDO/APAGADO).	■ Espere unos tres minutos. (El funcionamiento se ha detenido para proteger el acondicionador de aire).
El acondicionador de aire funciona sin haber pulsado el botón ON/OFF (ENCENDIDO/APAGADO). (*1)	■ ¿Está ajustado el temporizador de encendido? Pulse el botón ON/OFF (ENCENDIDO/APAGADO) para detener el funcionamiento. ■ ¿El acondicionador de aire está conectado a un controlador remoto cableado central? Consulte a la persona encargada de controlar el acondicionador de aire. ■ ¿Aparece " " en la pantalla del controlador remoto cableado? Consulte a la persona encargada de controlar el acondicionador de aire. ■ ¿Se ha ajustado la función de auto-recuperación para caídas de tensión? Pulse el botón ON/OFF (ENCENDIDO/APAGADO) para detener el funcionamiento.
El acondicionador de aire se detiene sin haber pulsado el botón ON/OFF (ENCENDIDO/APAGADO). (*1)	■ ¿Está ajustado el temporizador de apagado? Pulse el botón ON/OFF (ENCENDIDO/APAGADO) para reiniciar el funcionamiento. ■ ¿El acondicionador de aire está conectado a un controlador remoto cableado central? Consulte a la persona encargada de controlar el acondicionador de aire. ■ ¿Aparece " " en la pantalla del controlador remoto cableado? Consulte a la persona encargada de controlar el acondicionador de aire.
No es posible establecer el funcionamiento del temporizador del controlador remoto cableado. (*1)	■ ¿Los ajustes del temporizador no son válidos? Si es posible establecer el temporizador, en la pantalla del controlador remoto cableado aparecerá o .
En la pantalla del controlador remoto cableado aparecerá "PLEASE WAIT". (*1)	■ Se han realizado los ajustes iniciales. Espere unos 3 minutos.
En la pantalla del controlador remoto aparece un código de error.	■ Los dispositivos de protección se han activado para proteger el acondicionador de aire. ■ No intente reparar el equipo usted mismo. Apague inmediatamente el acondicionador de aire y póngase en contacto con su distribuidor. Asegúrese de indicar al distribuidor el nombre del modelo y la información que aparecía en la pantalla del controlador remoto.

6. Localización de fallos

<table>
<tr><th>¿Problemas?</th><th>Aquí tiene la solución. (La unidad funciona normalmente).</th></tr>
<tr><td>Se oye un ruido de drenaje de agua o rotación de motor.</td><td>■ Cuando se detiene el funcionamiento de refrigeración, la bomba de drenaje se activa y luego se detiene. Espere unos 3 minutos.</td></tr>
<tr><td>Cuando comienza el modo de deshumidificación, la temperatura establecida cambia.</td><td>■ Cuando comienza el modo de deshumidificación, la temperatura cambia automáticamente a la temperatura óptima inicialmente establecida.</td></tr>
<tr><td>El ruido es mayor de lo indicado en las especificaciones.</td><td>■ El nivel de ruido del funcionamiento interior depende de la acústica de la sala en cuestión tal y como se indica en la siguiente tabla, por lo que puede ser superior a los valores de las especificaciones, que se midieron en salas sin eco.
<table>
<tr><td></td><td>Salas de alta absorbencia del sonido</td><td>Salas normales</td><td>Salas de baja absorbencia del sonido</td></tr>
<tr><td>Ejemplos de lugares</td><td>Estudio de radiotransmisión, salas de mezclas, etc.</td><td>Sala de recepción, hall de un hotel, etc.</td><td>Oficina, habitación de hotel</td></tr>
<tr><td>Niveles de ruido</td><td>3 a 7 dB</td><td>6 a 10 dB</td><td>9 a 13 dB</td></tr>
</table></td></tr>
<tr><td>En la pantalla del controlador remoto inalámbrico por infrarrojos no aparece nada, la pantalla está débil o no se reciben señales de la unidad interior a menos que el controlador remoto inalámbrico por infrarrojos esté cerca. (*2)</td><td>■ Las pilas apenas tienen carga.
Sustitúyalas y pulse el botón Reset (Restablecimiento).
■ Si la situación no cambia al sustituir las pilas, asegúrese de que están colocadas con la polaridad correcta (+, –).</td></tr>
<tr><td>La luz de funcionamiento cerca del receptor del controlador remoto inalámbrico por infrarrojos de la unidad interior está parpadeando. (*2)</td><td>■ La función de autodiagnóstico se ha activado para proteger el acondicionador de aire.
■ No intente reparar el equipo usted mismo.
Apague inmediatamente el acondicionador de aire y póngase en contacto con su distribuidor. Asegúrese de indicar al distribuidor el nombre del modelo.</td></tr>
</table>

*1: Sólo para el controlador remoto cableado.

*2: Sólo para el controlador remoto inalámbrico por infrarrojos.

7. Especificaciones

Modelo		PKA-A24KA7	PKA-A30KA7	PKA-A36KA7
Alimentación (Fase, Voltaje <V>/Frecuencia <Hz>)		Monofase 208/230, 60		
Entrada nominal (sólo en la unidad interior)	<kW>	0,05	0,05	0,08
Corriente nominal (sólo en la unidad interior)	<A>	0,36	0,36	0,57
CALEFACTOR	<kW>	–	–	–
Dimensión (altura)	<inch>	14-3/8		
Dimensión (ancho)	<inch>	46-1/16		
Dimensión (profundidad)	<inch>	11-5/8		
Régimen de flujo de aire del ventilador (bajo-Media-alto)	<CFM>	635-705-775		705-810-920
Nivel de ruido (bajo-Media-alto)	<dB>	39-42-45		41-45-49
Peso neto	<lbs>	46		

Modelo		PCA-A24KA7	PCA-A30KA7	PCA-A36KA7	PCA-A42KA7
Alimentación (Fase, Voltaje <V>/Frecuencia <Hz>)		Monofase 208/230, 60			
Motor del ventilador	<FLA>	0,54		0,97	
MCA	<A>	1		2	
MOCP	<A>	15			
Dimensión (altura)	<inch>	9-1/6			
Dimensión (ancho)	<inch>	50-3/8		63	
Dimensión (profundidad)	<inch>	26-3/4			
Flujo de aire(Bajo-Media 2-Media 1-Alto)	DRY <CFM>	530-565-600-670	565-600-635-705	775-850-920-990	810-885-955-1025
	WET <CFM>	495-530-565-635	530-565-600-670	705-775-850-920	740-810-885-955
Nivel de ruido (Bajo-Media 2-Media 1-Alto)	<dB>	33-35-37-40	35-37-39-41	37-39-41-43	39-41-43-45
Peso neto	<lbs>	71		79	86

This product is designed and intended for use in the residential, commercial and light-industrial environment.

Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

RG79Y860H01

Printed in Thailand

MITSUBISHI ELECTRIC

SPLIT-SYSTEM HEAT PUMP

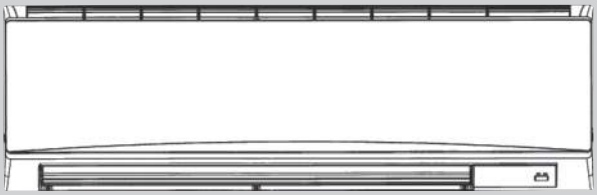
October 2016
No. OCH639

SERVICE MANUAL

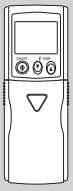
Series PKA Wall Mounted R410A

Indoor unit [Model Name]	[Service Ref.]
PKA-A24KA7	PKA-A24KA7.TH
PKA-A30KA7	PKA-A30KA7.TH
PKA-A36KA7	PKA-A36KA7.TH

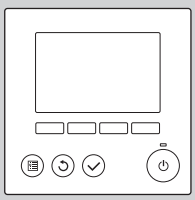
Notes:
- This manual describes service data of the indoor units only.
- RoHS compliant products have <G> mark on the spec name plate.



INDOOR UNIT



IR WIRELESS REMOTE CONTROLLER (Option)



WIRED REMOTE CONTROLLER (Option)

CONTENTS

PARTS CATALOG (OCB639)

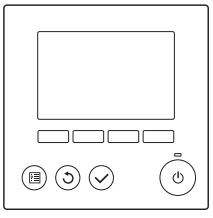
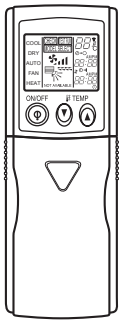
Mr.SLIM

1 REFERENCE MANUAL

OUTDOOR UNIT SERVICE MANUAL

Model Name	Service Ref.	Service Manual No.
PUZ-A24/30NHA7 PUZ-A36NKA7 PUZ-A24/30NHA7-BS PUZ-A36NKA7-BS	PUZ-A24/30NHA7 PUZ-A36NKA7 PUZ-A24/30NHA7-BS PUZ-A36NKA7-BS	OCH636 OCB636
PUY-A24/30NHA7 PUY-A36NKA7 PUY-A24/30NHA7-BS PUY-A36NKA7-BS	PUY-A24/30NHA7 PUY-A36NKA7 PUY-A24/30NHA7-BS PUY-A36NKA7-BS	
PUZ-HA30/36NHA5	PUZ-HA30/36NHA5	OCH607/OCB607

■ **Remote controller (Optional parts)**

Wired remote controller	IR wireless remote controller
	

2 SAFETY PRECAUTION

2-1. ALWAYS OBSERVE FOR SAFETY

Before obtaining access to terminal, all supply circuits must be disconnected.

2-2. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilising refrigerant R410A

Use new refrigerant pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contaminants such as sulfur, oxides, dirt, shaving particles, etc, which are hazards to refrigerant cycle.
In addition, use pipes with specified thickness.

Contamination inside refrigerant piping can cause deterioration of refrigerant oil, etc.

Store the piping indoors, and both ends of the piping sealed until just before brazing.
(Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

The refrigerant oil applied to flare and flange connections must be ester oil, ether oil or alkylbenzene oil in a small amount.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil, etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22, etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil, etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil, etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

Use the specified refrigerant only.

Never use any refrigerant other than that specified.
Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.
Correct refrigerant is specified in the manuals and on the spec labels provided with our products.
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

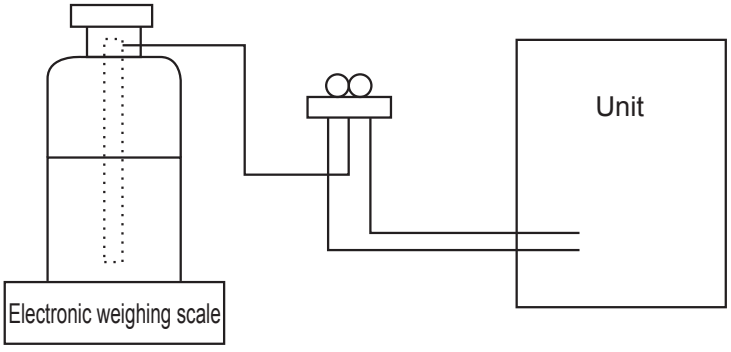
[1] Cautions for service

(1) Perform service after recovering the refrigerant left in unit completely.
(2) Do not release refrigerant in the air.
(3) After completing service, charge the cycle with specified amount of refrigerant.
(4) If moisture or foreign matter might have entered the refrigerant piping during service, ensure to remove them.

[2] Additional refrigerant charge

When charging directly from cylinder

(1) Check that cylinder for R410A on the market is a syphon type.
(2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



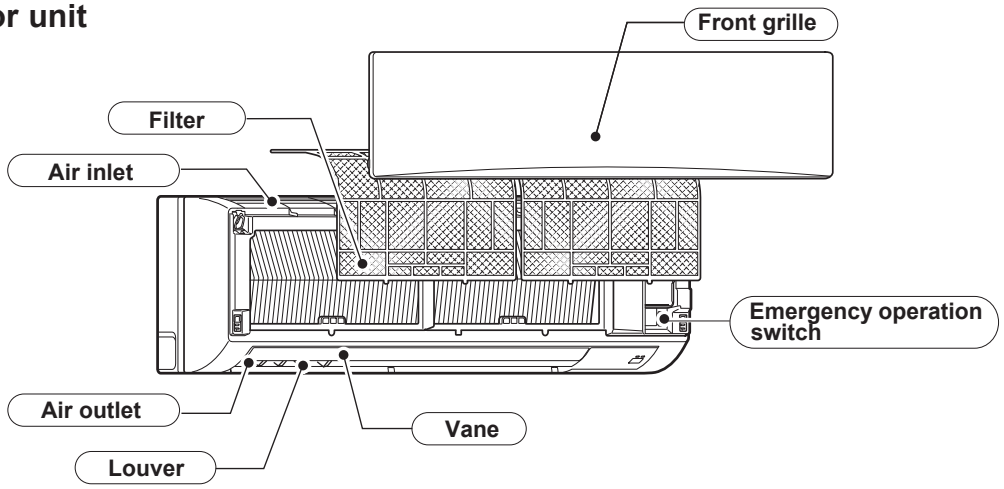
[3] Service tools

Use the below service tools as exclusive tools for R410A refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	· Only for R410A
		· Use the existing fitting specifications. (UNF1/2)
		· Use high-tension side pressure of 768.7 PSIG [5.3 MPa.G] or over.
②	Charge hose	· Only for R410A
		· Use pressure performance of 738.2 PSIG [5.09MPa.G] or over.
③	Electronic scale	—
④	Gas leak detector	· Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· Only for R410A · Top of cylinder (Pink) · Cylinder with syphon
⑧	Refrigerant recovery equipment	—

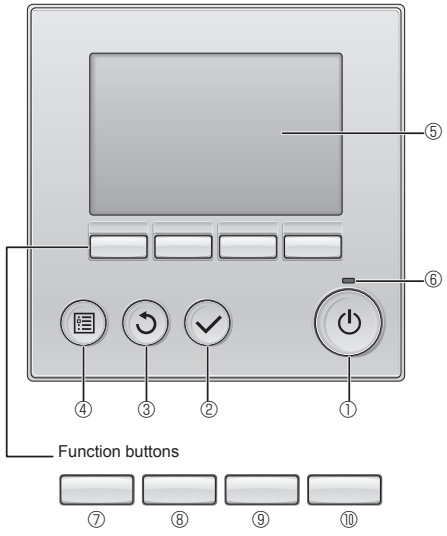
3 PARTS NAMES AND FUNCTIONS

3-1. Indoor unit

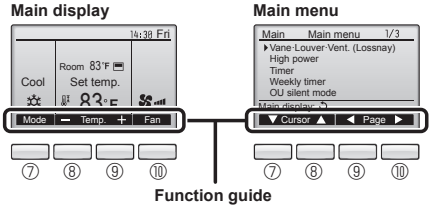


3-2. Wired remote controller (Option)

Controller interface



The functions of the function buttons change depending on the screen.
Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.
When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① [ON/OFF] button
Press to turn ON/OFF the indoor unit.

② [SELECT] button
Press to save the setting.

③ [RETURN] button
Press to return to the previous screen.

④ [MENU] button
Press to bring up the Main menu.

⑤ Backlit LCD
Operation settings will appear.

When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

⑥ ON/OFF lamp
This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button [F1]
Main display: Press to change the operation mode.

Main menu: Press to move the cursor down.

⑧ Function button [F2]
Main display: Press to decrease temperature.

Main menu: Press to move the cursor up.

⑨ Function button [F3]
Main display: Press to increase temperature.

Main menu: Press to go to the previous page.

⑩ Function button [F4]
Main display: Press to change the fan speed.

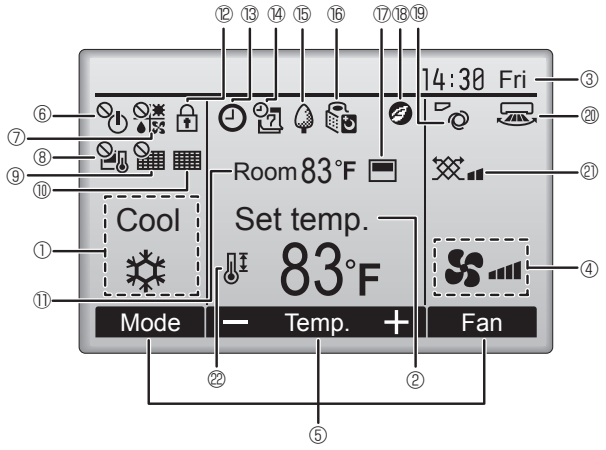
Main menu: Press to go to the next page.

Display

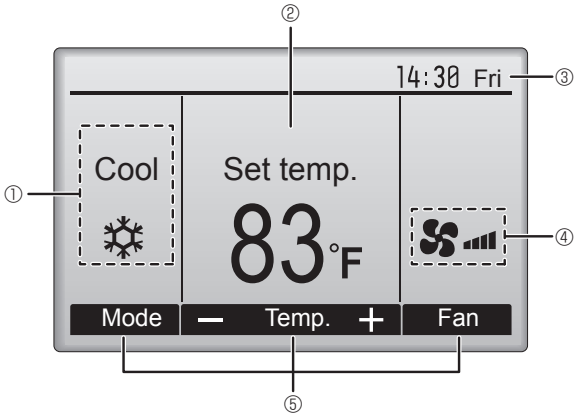
The main display can be displayed in 2 different modes: “Full” and “Basic”. The initial setting is “Full”. To switch to the “Basic” mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

<Full mode>

* All icons are displayed for explanation.



<Basic mode>



① Operation mode

Indoor unit operation mode appears here.

② Preset temperature

Preset temperature appears here.

③ Clock (See the Installation Manual.)

Current time appears here.

④ Fan speed

Fan speed setting appears here.

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the preset temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Appears when filter needs maintenance.

⑪ Room temperature (See the Installation Manual.)

Current room temperature appears here.

⑫

Appears when the buttons are locked.

⑬

Appears when the ON/OFF timer, Night setback, or Auto-OFF timer function is enabled.

appears when the timer is disabled by the centralized control system.

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy-save mode. (Will not appear on some models of indoor units)

⑯

Appears while the outdoor units are operated in the silent mode.

⑰

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (⑪).

appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑱

Appears when the units are operated in the energy-save mode with 3D i-see Sensor.

⑲

Indicates the vane setting.

⑳

Indicates the louver setting. (This indication is not available for this model.)

㉑

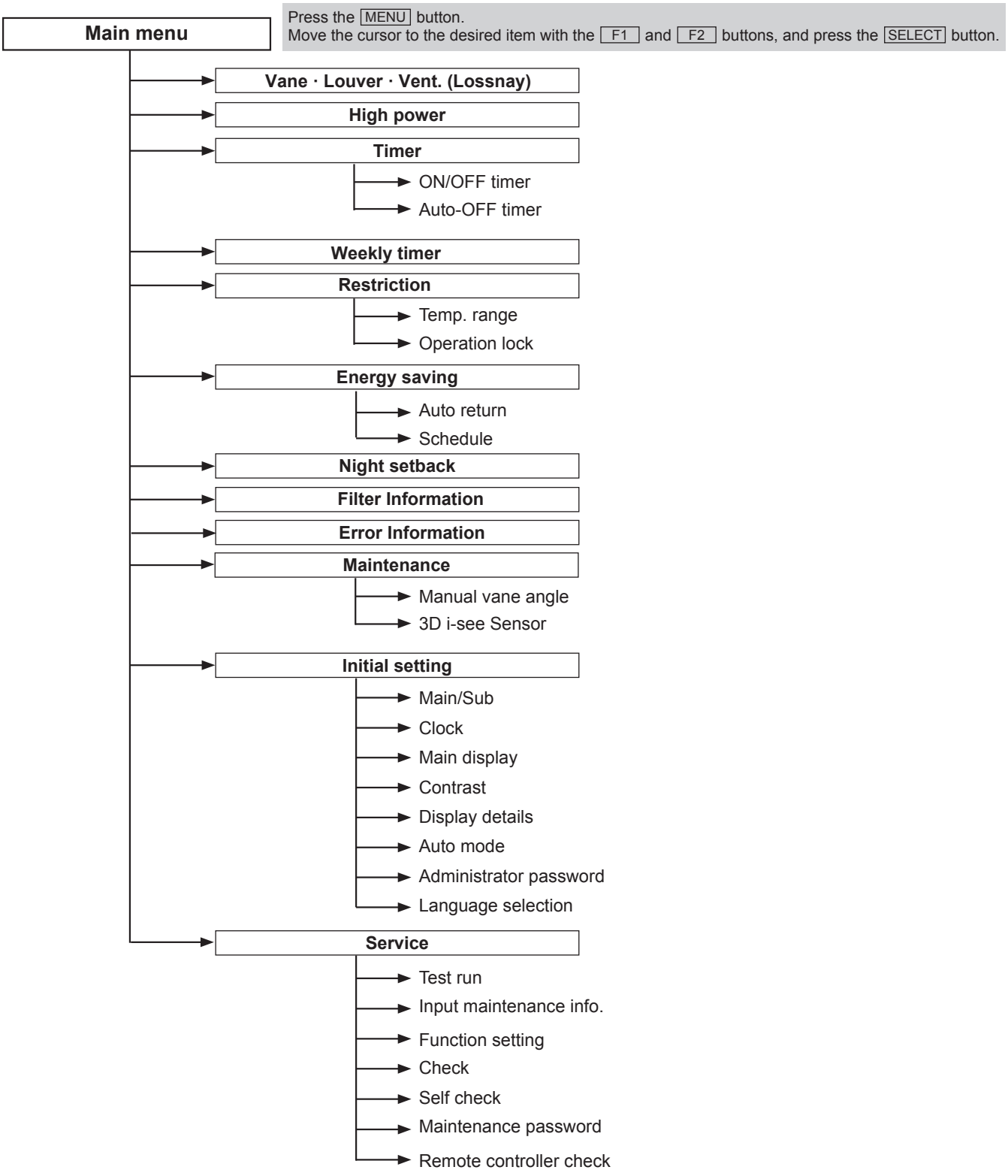
Indicates the ventilation setting.

㉒

Appears when the preset temperature range is restricted.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Menu screen. (Refer to operation manual included with remote controller.)

Menu structure



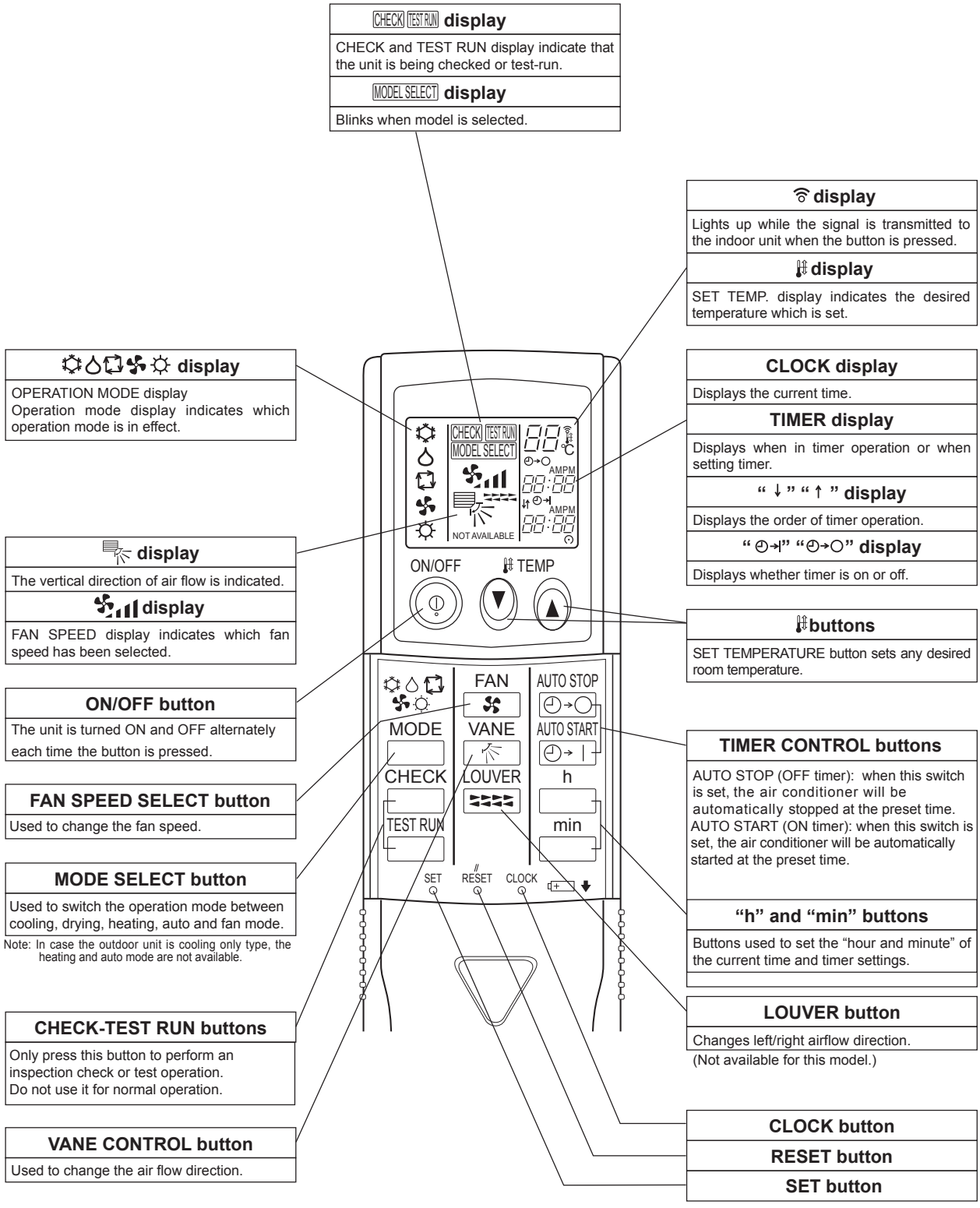
Not all functions are available on all models of indoor units.

Main menu list

Setting and display items		Setting details
Vane · Louver · Vent. (Lossnay)		**Use to set the vane angle.** • Select a desired vane setting from 5 different settings. **Use to turn ON/OFF the louver.** • Select a desired setting from "ON" and "OFF." **Use to set the amount of ventilation.** • Select a desired setting from "Off," "Low," and "High."
High power		**Use to reach the comfortable room temperature quickly.** • Units can be operated in the High-power mode for up to 30 minutes.
Timer	**ON/OFF timer***	**Use to set the operation ON/OFF times.** • Time can be set in 5-minute increments.
	Auto-OFF timer	**Use to set the Auto-OFF time.** • Time can be set to a value from 30 to 240 in 10-minute increments.
Weekly timer*		**Use to set the weekly operation ON/OFF times.** • Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)
Restriction	**Temp. range**	**Use to restrict the preset temperature range.** • Different temperature ranges can be set for different operation modes.
	Operation lock	**Use to lock selected functions.** • The locked functions cannot be operated.
Energy saving	**Auto return**	**Use to get the units to operate at the preset temperature after performing energy-save operation for a specified time period.** • Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.)
	Schedule*	**Set the start/stop times to operate the units in the energy-save mode for each day of the week, and set the energy-saving rate.** • Up to 4 energy-save operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy-saving rate can be set to a value from 0% or 50 to 90% in 10% increments.
Night setback*		**Use to make Night setback settings.** • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set.
Filter information		**Use to check the filter status.** • The filter sign can be reset.
Error information		**Use to check error information when an error occurs.** • Check code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. (The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.)
Maintenance	**Manual vane angle**	**Use to set the vane angle for each vane to a fixed position.**
	3D i-see Sensor	**Use to set the following functions for 3D i-see Sensor.** • Air distribution • Energy saving option • Seasonal airflow
Initial setting	**Main/Sub**	**When connecting 2 remote controllers, one of them needs to be designated as a sub controller.**
	Clock	**Use to set the current time.**
	Main display	**Use to switch between "Full" and "Basic" modes for the Main display.** • The initial setting is "Full."
	Contrast	**Use to adjust screen contrast.**
	Display details	**Make the settings for the remote controller related items as necessary.** **Clock:** The initial settings are "Yes" and "24h" format. **Temperature:** Set either Celsius (°C) or Fahrenheit (°F). **Room temp. :** Set Show or Hide. **Auto mode:** Set the Auto mode display or Only Auto display.
	Auto mode	**Whether or not to use the Auto mode can be selected by using the button.** **This setting is valid only when indoor units with the Auto mode function are connected.**
	Administrator password	**The administrator password is required to make the settings for the following items.** • Timer setting • Energy-save setting • Weekly timer setting • Restriction setting • Outdoor unit silent mode setting • Night set back
	Language selection	**Use to select the desired language.**
Service	**Test run**	**Select "Test run" from the Service menu to bring up the Test run menu.** • Test run • Drain pump test run
	Input maintenance	**Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen.** **The following settings can be made from the Maintenance Information screen.** • Model name input • Serial No. input • Dealer information input
	Function setting	**Make the settings for the indoor unit functions via the remote controller as necessary.**
	Check	**Error history:** Display the error history and execute “delete error history”. **Refrigerant leak check:** Refrigerant leaks can be judged. **Smooth maintenance:** The indoor and outdoor maintenance data can be displayed. **Request code:** Details of the operation data including each thermistor temperature and error history can be checked.
	Self check	**Error history of each unit can be checked via the remote controller.**
	Maintenance password	**Use to change the maintenance password.**
	Remote controller check	**When the remote controller does not work properly, use the remote controller checking function to trouble-shoot the problem.**

* Clock setting is required.

3-3. IR wireless remote controller (Option)



4 SPECIFICATIONS

INDOOR UNIT	**Service Ref.**				**PKA-A24KA7.TH**
	Power supply(phase, cycle, voltage)				1 phase, 60Hz, 208/230V
		Max. Fuse Size		A	15
		Min.Circuit Ampacity		A	1
	External finish				White Munsell 1.0Y 9.2/0.2
	Heat exchanger				Plate fin coil
	Fan	Fan(drive) × No.			Line flow fan (direct) × 1
		Fan motor output		kW	0.056
		Fan motor		F.L.A	0.36
		Airflow(Low-Middle-High)		CFM (m³/min)	Dry: 635-705-775 (18-20-22)
					Wet: 570-635-700 (16-18-20)
		External static pressure		Pa (mmAq)	0(direct blow)
	Operation control & Thermostat				Remote controller & built-in
	Noise level(Low-Middle-High)			dB	39-42-45
	Field drain pipe I.D.			inch (mm)	5/8 (16)
	Dimensions		W	inch (mm)	46-1/16 (1170)
			D	inch (mm)	11-5/8 (295)
			H	inch (mm)	14-3/8 (365)
	Weight			lb (kg)	46 (21)

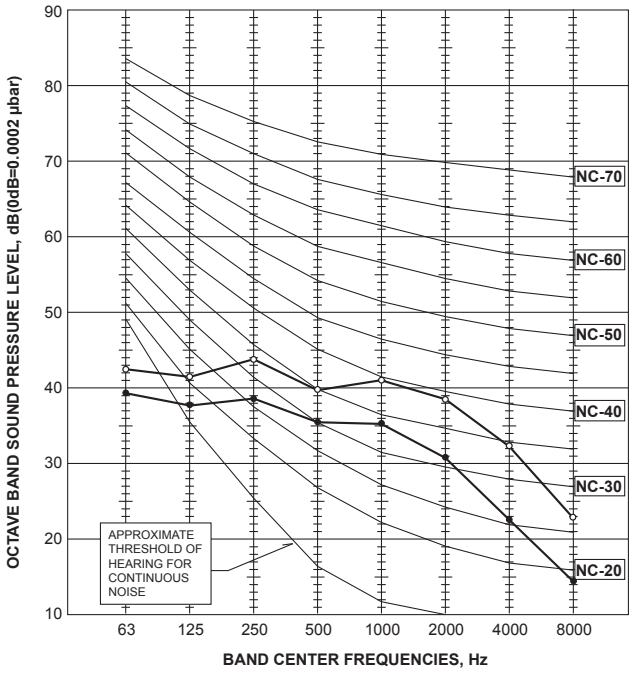
INDOOR UNIT	**Service Ref.**				**PKA-A30KA7.TH**
	Power supply(phase, cycle, voltage)				1 phase, 60Hz, 208/230V
		Max. Fuse Size		A	15
		Min.Circuit Ampacity		A	1
	External finish				White Munsell 1.0Y 9.2/0.2
	Heat exchanger				Plate fin coil
	Fan	Fan(drive) × No.			Line flow fan (direct) × 1
		Fan motor output		kW	0.056
		Fan motor		F.L.A	0.36
		Airflow(Low-Middle-High)		CFM (m³/min)	Dry: 635-705-775 (18-20-22)
					Wet: 570-635-700 (16-18-20)
		External static pressure		Pa (mmAq)	0 (direct blow)
	Operation control & Thermostat				Remote controller & built-in
	Noise level(Low-Middle-High)			dB	39-42-45
	Field drain pipe I.D.			inch (mm)	5/8 (16)
	Dimensions		W	inch (mm)	46-1/16 (1170)
			D	inch (mm)	11-5/8 (295)
			H	inch (mm)	14-3/8 (365)
	Weight			lb (kg)	46 (21)

INDOOR UNIT	**Service Ref.**				**PKA-A36KA7.TH**
	Power supply(phase, cycle, voltage)				1 phase, 60Hz, 208/230V
		Max. Fuse Size		A	15
		Min.Circuit Ampacity		A	1
	External finish				White Munsell 1.0Y 9.2/0.2
	Heat exchanger				Plate fin coil
	Fan	Fan(drive) × No.			Line flow fan (direct) × 1
		Fan motor output		kW	0.056
		Fan motor		F.L.A	0.57
		Airflow(Low-Middle-High)		CFM (m³/min)	Dry: 705-810-920 (20-23-26)
					Wet: 635-730-830 (18-21-23)
		External static pressure		Pa (mmAq)	0 (direct blow)
	Operation control & Thermostat				Remote controller & built-in
	Noise level(Low-Middle-High)			dB	43-46-49
	Field drain pipe I.D.			inch (mm)	5/8 (16)
	Dimensions		W	inch (mm)	46-1/16 (1170)
			D	inch (mm)	11-5/8 (295)
			H	inch (mm)	14-3/8 (365)
	Weight			lb (kg)	46 (21)

5 NOISE CRITERION CURVES

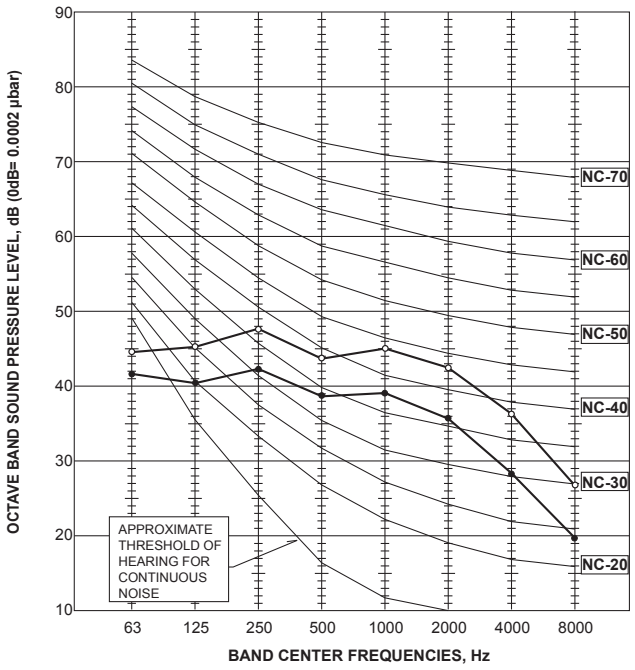
PKA-A24KA7.TH
PKA-A30KA7.TH

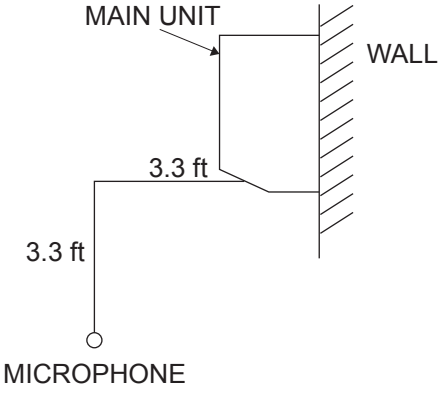
NOTCH	SPL(dB)	LINE
High	45	
Low	39	



PKA-A36KA7.TH

NOTCH	SPL(dB)	LINE
High	49	
Low	43	

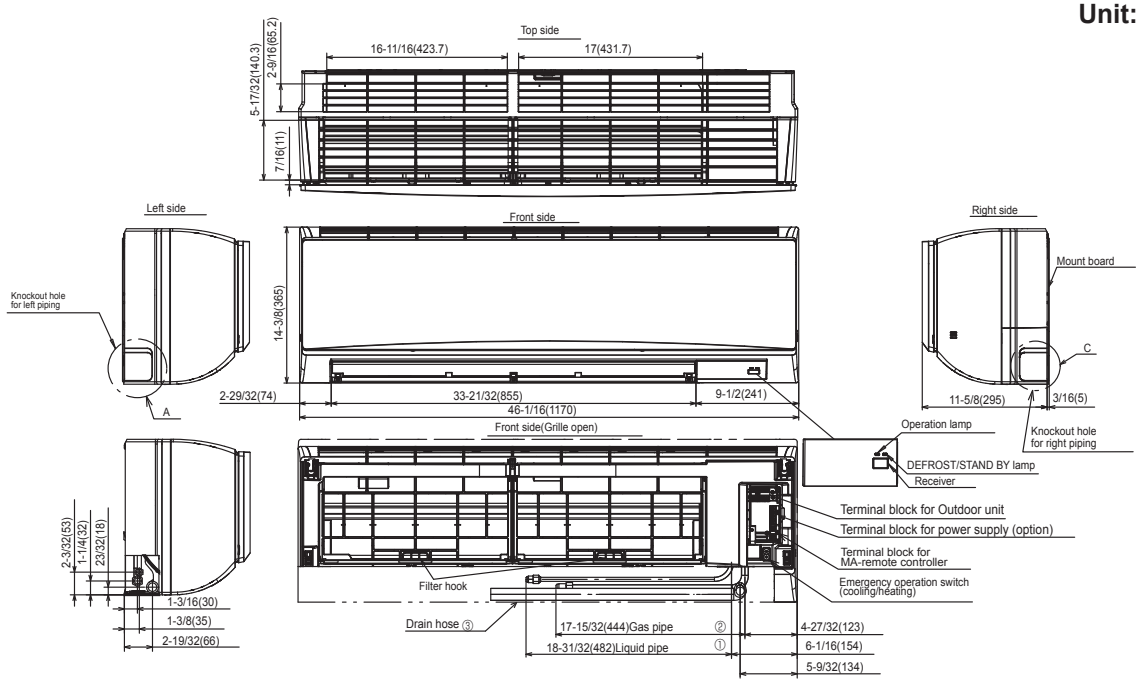




6 OUTLINES AND DIMENSIONS

PKA-A24KA7.TH PKA-A30KA7.TH PKA-A36KA7.TH

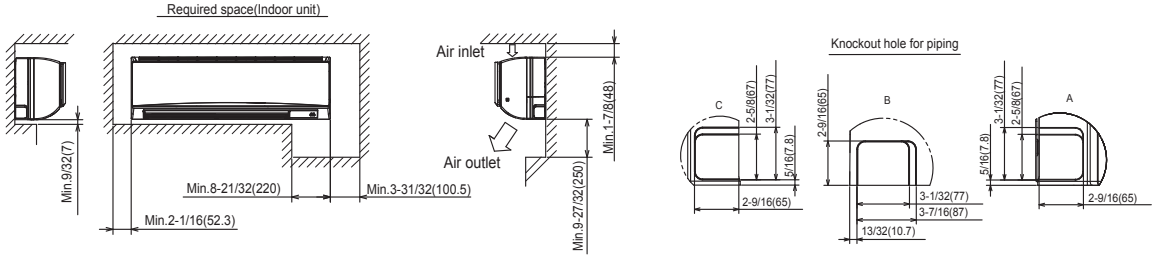
Unit: inch (mm)

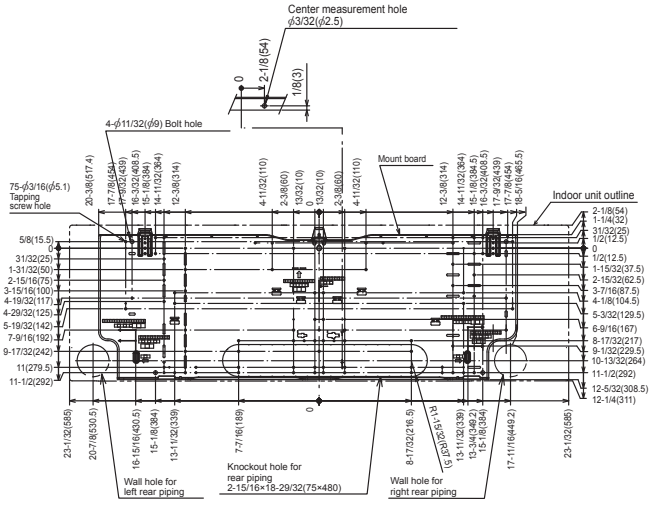


Sleeve (purchased locally)	Through hole
ϕ2-15/16 (ϕ75)	ϕ2-15/16~ϕ3-5/32 (ϕ75~ϕ80)

Piping connection

① Liquid pipe	Refrigerant pipe: 3/8 O.D(ϕ9.52) Flared connection: 3/8F
② Gas pipe	Refrigerant pipe: 5/8 O.D(ϕ15.88) Flared connection: 5/8F
③ Drain hose	5/8(ϕ16) O.D Effective length: 23-1/32 (585)



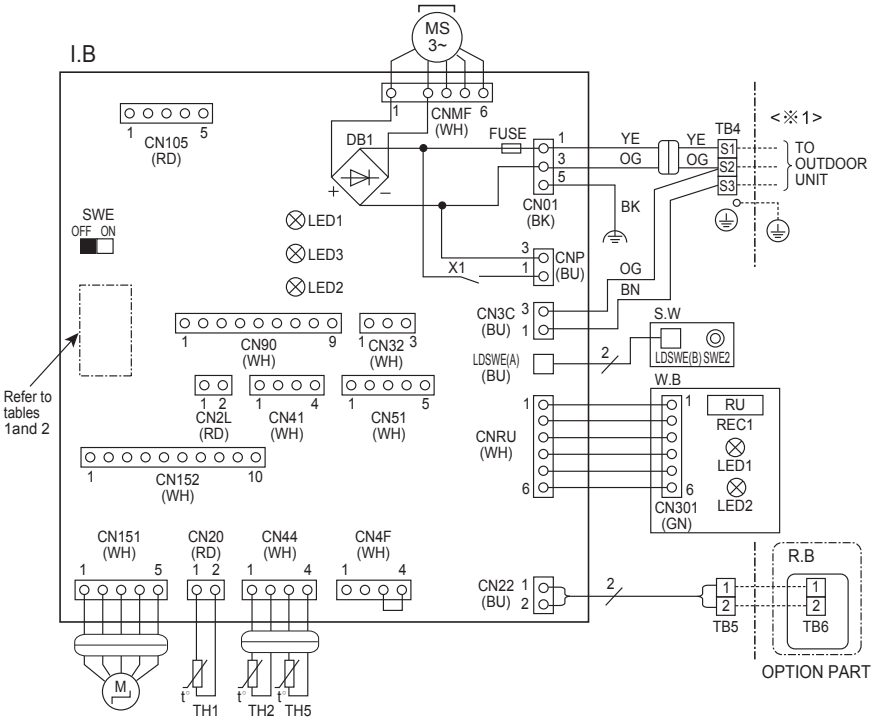


7 WIRING DIAGRAM

PKA-A24KA7.TH PKA-A30KA7.TH PKA-A36KA7.TH

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	M	VANE MOTOR
CN2L	CONNECTOR (LOSSNAY)	MS	FAN MOTOR
CN32	CONNECTOR (REMOTE SWITCH)	S.W	SWITCH BOARD
CN41	CONNECTOR (HA TERMINAL-A)	SWE2	EMERGENCY OPERATION
CN51	CONNECTOR (CENTRALLY CONTROL)	TB4	TERMINAL BLOCK (INDOOR/OUTDOOR CONNECTING LINE)
CN90	CONNECTOR (REMOTE OPERATION ADAPTER)		
CN105	CONNECTOR	TB5	TERMINAL BLOCK (REMOTE CONTROLLER TRANSMISSION LINE)
CN152	CONNECTOR (BACK-UP HEATING)		
FUSE	FUSE(T3.15AL250V)	TH1	ROOM TEMP. THERMISTOR (32˚F/15KΩ, 77˚F/5.4KΩ DETECT)
LED1	POWER SUPPLY (I.B)		
LED2	POWER SUPPLY (R.B)	TH2	PIPE TEMP. THERMISTOR/LIQUID (32˚F/15KΩ, 77˚F/5.4KΩ DETECT)
LED3	TRANSMISSION (INDOOR-OUTDOOR)		
SW1	SWITCH (MODEL SELECTION) Refer to <Table 1>.	TH5	COND./EVA. TEMP. THERMISTOR (32˚F/15KΩ, 77˚F/5.4KΩ DETECT)
SW2	SWITCH (CAPACITY CODE)Refer to <Table 2>.		
SWE	CONNECTOR (EMERGENCY OPERATION)	W.B	PCB FOR IR WIRELESS REMOTE CONTROLLER
R.B	WIRED REMOTE CONTROLLER BOARD	LED1	LED (OPERATION INDICATION : GREEN)
TB6	TERMINAL BLOCK (REMOTE CONTROLLER TRANSMISSION LINE)	LED2	LED (PREPARATION FOR HEATING: ORANGE)
		REC1	RECEIVING UNIT



<Table 1>
SW1 (MODEL SELECTION)

SETTING
1 2 3 4 5 ON OFF

<Table 2>
SW2 (CAPACITY CODE)

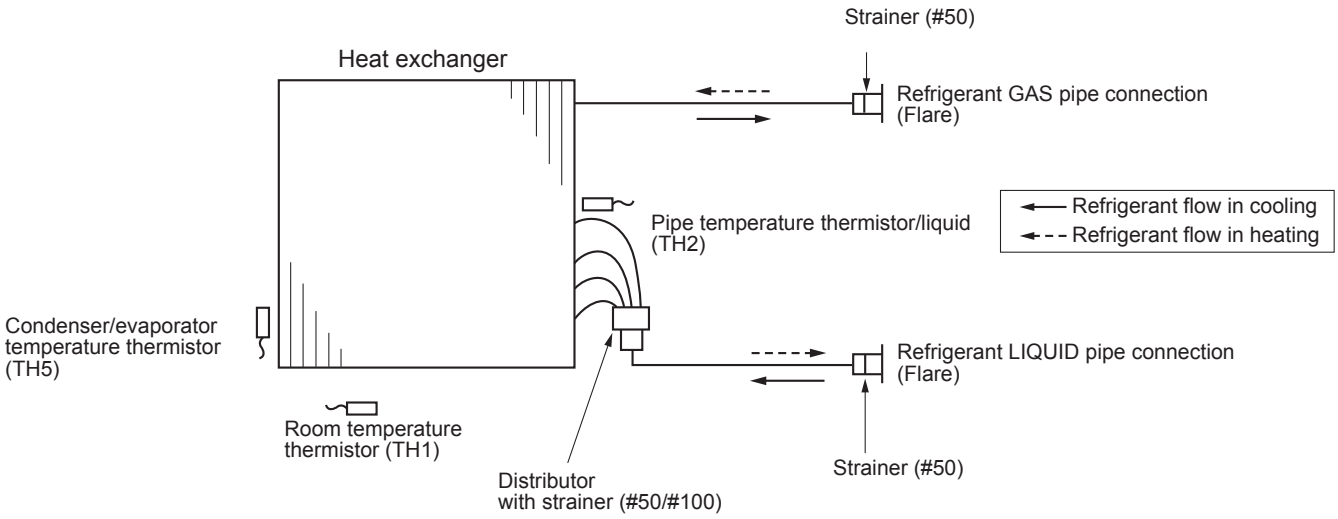
MODELS	SETTING	MODELS	SETTING	MODELS	SETTING
PKA-A24KA	1 2 3 4 5 ON OFF	PKA-A30KA	1 2 3 4 5 ON OFF	PKA-A36KA	1 2 3 4 5 ON OFF

The black square(■) indicates a switch position.

Notes:
1.Symbols used in wiring diagram above are, ○○○ :Connector,□□□ :Terminal (block).
2.Indoor and outdoor connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3)for correct wirings.
3.Since the outdoor side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for servicing.
4.This diagram shows the wiring of indoor and outdoor connecting wires.(specification of 208V/230V), adopting superimposed system of power and signal.
● For power supply system of this unit, refer to the caution label located near this diagram.
※1: Use copper supply wires.
Utilisez des fils d'alimentation en cuivre.

8 REFRIGERANT SYSTEM DIAGRAM

PKA-A24KA7.TH PKA-A30KA7.TH PKA-A36KA7.TH



9 TROUBLESHOOTING

9-1. TROUBLESHOOTING

<Check code displayed by self-diagnosis and actions to be taken for service (summary)>
Present and past check codes are logged, and they can be displayed on the wired remote controller and control board of outdoor unit. Actions to be taken for service, which depends on whether or not the trouble is reoccurring in the field, are summarized in the table below. Check the contents below before investigating details.

Unit conditions at service	Check code	Actions to be taken for service (summary)
The trouble is reoccurring.	Displayed	Judge what is wrong and take a corrective action according to “9-3. SELF-DIAGNOSIS ACTION TABLE”.
	Not displayed	Conduct troubleshooting and ascertain the cause of the trouble according to “9-4. TROUBLESHOOTING BY INFERIOR PHENOMENA”.
The trouble is not reoccurring.	Logged	① Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise, etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the trouble occurred, matters related to wiring, etc. ② Reset error code logs and restart the unit after finishing service. ③ There is no abnormality in electrical component, controller board,remote controller, etc.
	Not logged	① Re-check the abnormal symptom. ② Conduct trouble shooting and ascertain the cause of the trouble according to “9-4. TROUBLESHOOTING BY INFERIOR PHENOMENA”. ③ Continue to operate unit for the time being if the cause is not ascertained. ④ There is no abnormality concerning of parts such as electrical component, controller board, remote controller, etc.

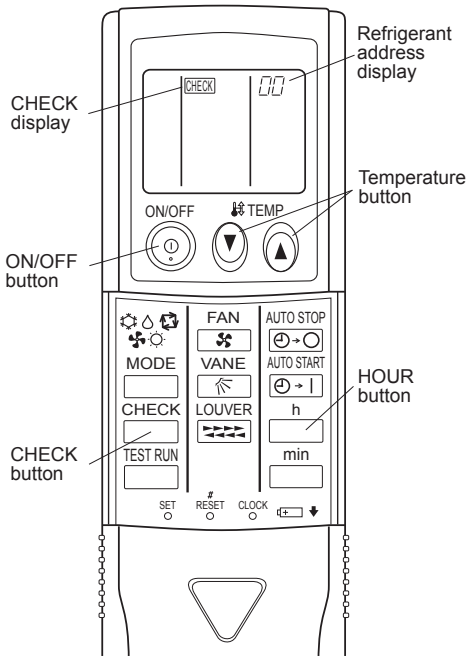
9-2. MALFUNCTION-DIAGNOSIS METHOD BY REMOTE CONTROLLER

<In case of trouble during operation>

When a malfunction occurs to air conditioner, both indoor unit and outdoor unit will stop and operation lamp blinks to inform unusual stop.

<Malfunction-diagnosis method at maintenance service>

■ IR wireless remote controller



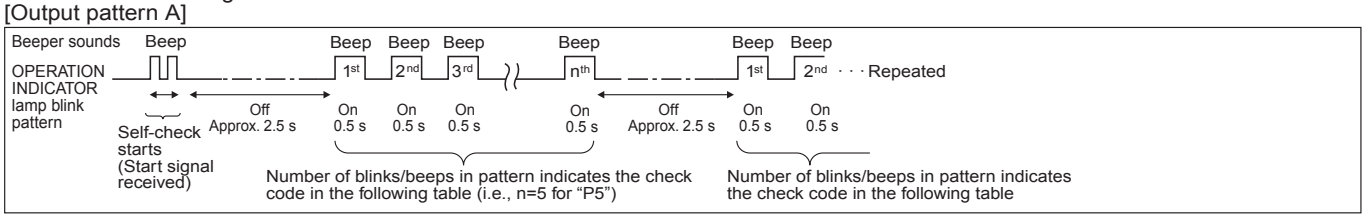
[Procedure]

1. Press the CHECK button twice.
   - "CHECK" lights, and refrigerant address "00" blinks.
   - Check that the remote controller's display has stopped before continuing.
2. Press the TEMP ▼ ▲ buttons.
   - Select the refrigerant address of the indoor unit for the self-diagnosis.

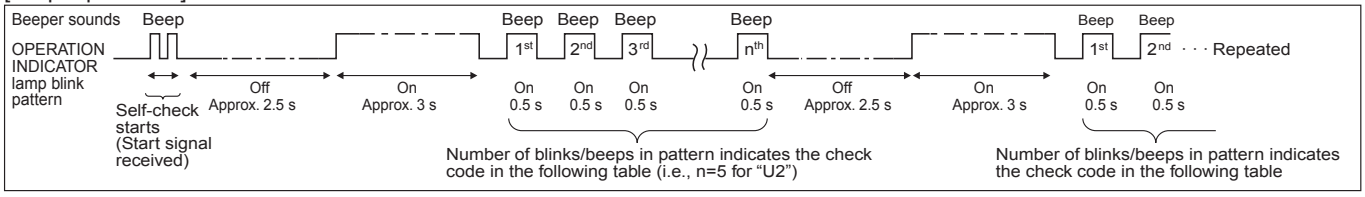
   Note: Set refrigerant address using the outdoor unit's DIP switch (SW1). (For more information, see the outdoor unit installation manual.)
3. Point the remote controller at the sensor on the indoor unit and press the HOUR button.
   - If an air conditioner error occurs, the indoor unit's sensor emits an intermittent buzzer sound, the operation lamp blinks, and the check code is output. (It takes 3 seconds at most for check code to appear.)
4. Point the remote controller at the sensor on the indoor unit and press the ON/OFF button.
   - The check mode is cancelled.

• Refer to the following tables for details on the check codes.

[Output pattern A]



[Output pattern B]



[Output pattern A] Errors detected by indoor unit

IR wireless remote controller / Wired remote controller

Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	① Check code	Symptom	Remark
1	P1	Intake sensor error	———
2	P2	Pipe (TH2) sensor error	
	P9	Pipe (TH5) sensor error	
3	E6,E7	Indoor/outdoor unit communication error	
4	P4	Float switch connector (CN4F) open	
5	P5	Drain pump error	
	PA	Forced compressor stop(due to water leakage abnormality)	
6	P6	Freezing/Overheating protection operation	
7	EE	Communication error between indoor and outdoor units	
8	P8	Pipe temperature error	
9	E4, E5	Remote controller signal receiving error	
10	–	–	
11	PB (Pb)	Indoor fan motor error	
12	FB (Fb)	Indoor unit control system error (memory error, etc.)	
14	PL	Abnormality of refrigerant circuit	
–	E0, E3	Remote controller transmission error	
–	E1, E2	Remote controller control board error	

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

IR wireless remote controller / Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Wired remote controller ① Check code	Symptom	Remark
1	E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	For details, check the LED display of the outdoor controller board. As for outdoor unit, refer to outdoor unit's service manual.
2	UP	Compressor overcurrent interruption	
3	U3,U4	Open/short of outdoor unit thermistors	
4	UF	Compressor overcurrent interruption (When compressor locked)	
5	U2	Abnormal high discharging temperature/49C operated/ insufficient refrigerant	
6	U1,Ud	Abnormal high pressure (63H operated)/Overheating protection operation	
7	U5	Abnormal temperature of heatsink	
8	U8	Outdoor unit fan protection stop	
9	U6	Compressor overcurrent interruption/Abnormal of power module	
10	U7	Abnormality of superheat due to low discharge temperature	
11	U9,UH	Abnormality such as overvoltage or undervoltage and abnormal synchronous signal to main circuit/Current sensor error	
12	–	–	
13	–	–	
14	Others	Other errors (Refer to the technical manual for the outdoor unit.)	

Notes:

1 . If the beeper does not sound again after the initial 2 beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.

2 . If the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 seconds)" after the initial 2 beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.

• On IR wireless remote controller
The continuous buzzer sounds from receiving section of indoor unit.
Blink of operation lamp
• On wired remote controller
① Check code displayed in the LCD. (Refer to the previous page, ① check code.)

• If the unit cannot be operated properly after the test run, refer to the following table to find out the cause.

Symptom			Cause
Wired remote controller		LED 1, 2 (PCB in outdoor unit)	
PLEASE WAIT	For about 2 minutes after power-on	After LED 1, 2 are lighted, LED 2 is turned off, then only LED 1 is lighted. (Correct operation)	• For about 2 minutes following power-on,operation of the remote controller is not possible due to system start-up. (Correct operation)
PLEASE WAIT → Check code	Subsequent to about 2 minutes after power-on	Only LED 1 is lighted. → LED 1, 2 blink.	• Connector for the outdoor unit's protection device is not connected. • Reverse or open phase wiring for the outdoor unit's power terminal block (L1, L2, GR)
Display messages do not appear even when operation switch is turned ON (operation lamp does not light up).		Only LED 1 is lighted. → LED 1 blinks twice, LED 2 blinks once.	• Incorrect wiring between indoor and outdoor units (incorrect polarity of S1, S2, S3) • Remote controller wire short

On the IR wireless remote controller with condition above, following phenomena take place.
• No signals from the remote controller can be received.
• OPE lamp is blinking.
• The buzzer makes a short ping sound.

Note:
Operation is not possible for about 30 seconds after cancellation of function selection. (Correct operation)

For description of each LED (LED1, 2, 3) provided on the indoor controller, refer to the following table.

LED1 (power for microprocessor)	Indicates whether control power is supplied. Make sure that this LED is always lit.
LED2 (power for wired remote controller)	Indicates whether power is supplied to the wired remote controller. This LED lights only in the case of the indoor unit which is connected to the outdoor unit refrigerant addresses "0".
LED3 (communication between indoor and outdoor units)	Indicates state of communication between the indoor and outdoor units. Make sure that this LED is always blinking.

9-3. SELF-DIAGNOSIS ACTION TABLE

Note:
Errors to be detected in outdoor unit, such as codes starting with F, U or E (excluding E0 to E7), are not covered in this document. Please refer to the outdoor unit service manual for the details.

Check code	Abnormal point and detection method	Cause	Countermeasure
P1	**Room temperature thermistor (TH1)** ① The unit is in 3-minute resume prevention mode if short/open of thermistor is detected. Abnormal if the unit does not reset normally after 3 minutes. (The unit returns to normal operation, if it has been reset normally.) ② Constantly detected during cooling, drying, and heating operation. Short: 194°F [90℃] or more Open: −40°F [−40℃] or less	① Defective thermistor characteristics ② Contact failure of connector (CN20) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Defective indoor controller board	①–③ Check resistance value of thermistor. 32°F [0℃]....15.0 kΩ 50°F [10℃].....9.6 kΩ 68°F [20℃].....6.3 kΩ 86°F [30℃].....4.3 kΩ 104°F [40℃].....3.0 kΩ If you put force on (draw or bend) the lead wire with measuring resistance value of thermistor, breaking of wire or contact failure can be detected. ② Check contact failure of connector (CN20) on the indoor controller board. Refer to "9-7. TEST POINT DIAGRAM". Turn the power on again and check restart after inserting connector again. ④ Check room temperature display on remote controller. Replace indoor controller board if there is abnormal difference with actual room temperature. Turn the power off, and on again to operate after check.
P2	**Pipe temperature thermistor/liquid (TH2)** ① The unit is in 3-minute resume prevention mode if short/open of thermistor is detected. Abnormal if the unit does not reset normally after 3 minutes. (The unit returns to normal operation, if it has been reset normally.) ② Constantly detected during cooling, drying, and heating (except defrosting) operation Short: 194°F [90℃] or more Open: −40°F [−40℃] or less Note: When all of the following conditions are satisfied, the error is not detected: 1) During cooling operation, or for 3 minutes after cooling operation is stopped. 2) Up to 16 minutes from 10 seconds after cooling operation is started. 3) Outside temperature < −22°F [−30℃]	① Defective thermistor characteristics ② Contact failure of connector (CN44) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Defective refrigerant circuit is causing thermistor temperature of 194°F [90℃] or more, or −40°F [−40℃] or less. ⑤ Defective indoor controller board	①–③ Check resistance value of thermistor. For characteristics, refer to (P1) above. ② Check contact failure of connector (CN44) on the indoor controller board. Refer to "9-7. TEST POINT DIAGRAM". Turn the power on and check restart after inserting connector again. ④ Check pipe <liquid> temperature with remote controller in test run mode. If pipe <liquid> temperature is extremely low (in cooling mode) or high (in heating mode), refrigerant circuit may have defective. ⑤ Check pipe <liquid> temperature with remote controller in test run mode. If there is extremely difference with actual pipe <liquid> temperature, replace indoor controller board. Turn the power off, and on again to operate after check.
P4	**Contact failure of drain float switch (CN4F)** • Extract when the connector of drain float switch is disconnected. (③ and ④ of connector CN4F is not short-circuited.) • Constantly detected during operation	① Contact failure of connector (Insert failure) ② Defective indoor controller board	① Check contact failure of float switch connector. Turn the power on again and check after inserting connector again. ② Operate with connector (CN4F) short-circuited. Replace indoor controller board if abnormality reappears.
P5	**Drain over flow protection operation** ① Suspensive abnormality, if drain float switch is detected to be underwater for 1 minute and 30 seconds continuously with drain pump on. Compressor and indoor fan will be turned off. ② Drain pump is abnormal if the condition above is detected during suspensive abnormality. ③ Constantly detected during drain pump operation	① Malfunction of drain pump ② Defective drain Clogged drain pump Clogged drain pipe ③ Defective drain float switch Catch of drain float switch or malfunction of moving parts cause drain float switch to be detected under water (Switch On) ④ Defective indoor-controller board	① Check if drain-up machine works. ② Check drain function. ③ Remove drain float switch connector CN4F and check if it is short (Switch On) with the moving part of float switch UP, or OPEN with the moving part of float switch down. Replace float switch if it is short with the moving part of float switch down. ④ Replace indoor controller board if it is short-circuited between ③–④ of the drain float switch connector CN4F and abnormality reappears. It is not abnormal if there is no problem about the above-mentioned ①–④. Turn the power off, and on again to operate after check.

Check code	Abnormal point and detection method	Cause	Countermeasure
P6	**Freezing/overheating protection is working** ① Freezing protection (Cooling mode) • In case when outside temperature > −4°F [−20℃] The unit is in 6-minute resume prevention mode if pipe <liquid or condenser/evaporator> temperature stays under −5°F [−15℃] for 3 minutes, 3 minutes after the compressor started. Abnormal if it stays under −5°F [−15℃] for 3 minutes again within 16 minutes after 6-minute resume prevention mode. • In case when outside temperature ≦ −4°F [−20℃] The unit is in 6-minute resume prevention mode if pipe <liquid or condenser/evaporator> temperature stays under −31°F [−35℃] for 3 minutes, 3 minutes after the compressor started. Abnormal if it stays under −31°F [−35℃] for 3 minutes again within 16 minutes after 6-minute resume prevention mode. ② Overheating protection (Heating mode) The unit is in 6-minute resume prevention mode if pipe <liquid or condenser/evaporator> temperature is detected as over 158°F [70℃] after the compressor started. Abnormal if the temperature of over 158°F [70℃] is detected again within 30 minutes after 6-minute resume prevention mode.	(Cooling or drying mode) ① Clogged filter (reduced airflow) ② Short cycle of air path ③ Low-load (low temperature) operation out of the tolerance range ④ Defective indoor fan motor • Fan motor is defective. • Indoor controller board is defective. ⑤ Defective outdoor fan control ⑥ Overcharge of refrigerant ⑦ Defective refrigerant circuit (clogs) (Heating mode) ① Clogged filter (reduced airflow) ② Short cycle of air path ③ Over-load (high temperature) operation out of the tolerance range ④ Defective indoor fan motor • Fan motor is defective. • Indoor controller board is defective. ⑤ Defective outdoor fan control ⑥ Overcharge of refrigerant ⑦ Defective refrigerant circuit (clogs) ⑧ Bypass circuit of outdoor unit is defective.	(Cooling or drying mode) ① Check clogs of the filter. ② Remove shields. ④ Refer to "9-6. HOW TO CHECK THE PARTS". ⑤ Check outdoor fan motor. ⑥⑦ Check operating condition of refrigerant circuit. (Heating mode) ① Check clogs of the filter. ② Remove shields. ④ Refer to "9-6. HOW TO CHECK THE PARTS". ⑤ Check outdoor fan motor. ⑥–⑧Check operating condition of refrigerant circuit.
P8	**Pipe temperature** <Cooling mode> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes after compressor start and 6 minutes after the liquid or condenser/evaporator pipe is out of cooling range. Note 1: It takes at least 9 minutes to detect. Note 2: Abnormality P8 is not detected in drying mode. Cooling range: −5.4°F [−3°C] ≧ (TH−TH1) TH: Lower temperature between liquid pipe temperature (TH2) and condenser/evaporator temperature (TH5) TH1: Intake temperature <Heating mode> When 10 seconds have passed after the compressor starts operation and the hot adjustment mode has finished, the unit is detected as abnormal when condenser/evaporator pipe temperature is not in heating range within 20 minutes. Note 3: It takes at least 27 minutes to detect abnormality. Note 4: It excludes the period of defrosting. (Detection restarts when defrosting mode is over.) Heating range: 5.4°F [3°C] ≦ (TH5−TH1)	① Slight temperature difference between indoor room temperature and pipe <liquid or condenser/evaporator> temperature thermistor • Shortage of refrigerant • Disconnected holder of pipe <liquid or condenser/evaporator> thermistor • Defective refrigerant circuit ② Converse connection of extension pipe (on plural units connection) ③ Converse wiring of indoor/outdoor unit connecting wire (on plural units connection) ④ Defective detection of indoor room temperature and pipe <condenser/evaporator> temperature thermistor ⑤ Stop valve is not opened completely.	①–④ Check pipe <liquid or condenser/evaporator> temperature with room temperature display on remote controller and outdoor controller circuit board. Pipe <liquid or condenser/evaporator> temperature display is indicated by setting SW2 of outdoor controller circuit board as follows. (Conduct temperature check with outdoor controller circuit board after connecting 'A-Control Service Tool(PAC-SK52ST)'.) ②③Check converse connection of extension pipe or converse wiring of indoor/outdoor unit connecting wire.

Check code	Abnormal point and detection method	Cause	Countermeasure
P9	**Condenser/evaporator temperature thermistor (TH5)** ① The unit is in 3-minute resume protection mode if short/open of thermistor is detected. Abnormal if the unit does not get back to normal within 3 minutes. (The unit returns to normal operation, if it has been reset normally.) ② Constantly detected during cooling, drying, and heating operation (except defrosting) Short: 194°F [90℃] or more Open: −40°F [−40℃] or less Note: When all of the following conditions are satisfied, the error is not detected: 1) During cooling operation, or for 3 minutes after cooling operation is stopped. 2) Up to 16 minutes from 10 seconds after cooling operation is started. 3) Outside temperature < −22°F [−30℃]	① Defective thermistor characteristics ② Contact failure of connector (CN44) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Temperature of thermistor is 194°F [90℃] or more or −40°F [−40℃] or less caused by defective refrigerant circuit. ⑤ Defective indoor controller board	①–③ Check resistance value of thermistor. For characteristics, refer to (P1) above. ② Check contact failure of connector (CN44) on the indoor controller board. Refer to "9-7. TEST POINT DIAGRAM". Turn the power on and check restart after inserting connector again. ④ Operate in test run mode and check pipe <condenser/evaporator> temperature with outdoor controller circuit board. If pipe <condenser/evaporator> temperature is extremely low (in cooling mode) or high (in heating mode), refrigerant circuit may have defect. ⑤ Operate in test run mode and check pipe <condenser/evaporator> temperature with outdoor control circuit board. If there is extreme difference with actual pipe <condenser/evaporator> temperature, replace indoor controller board. There is no abnormality if none of above comes within the unit. Turn the power off and on again to operate. (In case of checking pipe temperature with outdoor controller circuit board, be sure to connect A-control service tool (PAC-SK52ST).)
PA	**Forced compressor stop (due to water leakage abnormality)** ① The unit has a water leakage abnormality when the following conditions, a) and b), are satisfied while the above-mentioned detection is performed. a) The intake temperature subtracted with liquid pipe temperature detects to be less than 14°F [−10°C] for a total of 30 minutes. (When the drain sensor is detected to be NOT soaked in the water, the detection record of a) and b) will be cleared.) b) Drain float switch detects to be in the water for more than 15 minutes. Note: Once the water leakage abnormality is detected, abnormality state will not be released until the main power is reset.	① Drain pump trouble ② Drain defective · Drain pump clogging · Drain pipe clogging ③ Open circuit of float switch ④ Contact failure of float switch connector ⑤ Dew condensation on float switch · Drain water descends along lead wire. · Drain water is waving due to filter clogging. ⑥ Extension piping connection difference at twin, triple or quadruple system ⑦ Miswiring of indoor/outdoor connecting at twin, triple or quadruple system ⑧ Room temperature thermistor/liquid pipe temperature thermistor detection is defective.	① Check the drain pump. ② Check whether water can be drained. ③ Check the resistance of the float switch. ④ Check the connector contact failure. ⑤ Check the float switch leadwire mounted. Check the filter clogging. ⑥ Check the piping connection. ⑦ Check the indoor/outdoor connecting wires. ⑧ Check the room temperature display of remote controller. Check the indoor liquid pipe temperature display of outdoor controller board.
PB (Pb)	**Fan motor trouble**	① Defective fan motor ② Defective indoor controller board	①② Refer to "9-6-2. DC fan motor (fan motor/indoor controller circuit board".
E0 or E4	**Remote controller transmission error(E0)/signal receiving error(E4)** ① Abnormal if main or sub remote controller cannot receive any transmission normally from indoor unit of refrigerant address “0” for 3 minutes. (Check code: E0) ② Abnormal if sub remote controller could not receive any signal for 2 minutes. (Check code: E0) ① Abnormal if indoor controller board can not receive any data normally from remote controller board or from other indoor controller board for 3 minutes. (Check code: E4) ② Indoor controller board cannot receive any signal from remote controller for 2 minutes. (Check code: E4)	① Contact failure at transmission wire of remote controller ② All remote controllers are set as “sub” remote controller. In this case, E0 is displayed on remote controller, and E4 is displayed at LED (LED1, LED2) on the outdoor controller circuit board. ③ Miswiring of remote controller ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board of refrigerant addresses “0”. ⑥ Noise has entered into the transmission wire of remote controller.	① Check disconnection or looseness of indoor unit or transmission wire of remote controller. ② Set one of the remote controllers “main” if there is no problem with the action above. ③ Check wiring of remote controller. • Total wiring length: max. 500 m (Do not use cable x 3 or more.) • The number of connecting indoor units: max. 16 units • The number of connecting remote controller: max. 2 units If the cause of trouble is not in above ①–③, ④ Diagnose remote controllers. a) When “RC OK” is displayed, Remote controllers have no problem. Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board. b) When “RC NG” is displayed, Replace remote controller. c)When “RC E3” or “ERC 00-66” is displayed, noise may be causing abnormality. Note: If the unit is not normal after replacing indoor controller board in group control, indoor controller board of address “0” may be abnormal.

Check code	Abnormal point and detection method	Cause	Countermeasure
E3 or E5	**Remote controller transmission error(E3)/signal receiving error(E5)** ① Abnormal if remote controller could not find blank of transmission path for 6 seconds and could not transmit. (Check code: E3) ② Remote controller receives transmitted data at the same time and compares the received and transmitted data. Abnormal if these data are judged to be different 30 continuous times. (Check code: E3) ① Abnormal if indoor controller board could not find blank of transmission path. (Check code: E5) ② Indoor controller board receives transmitted data at the same time and compares the received and transmitted data. Abnormal if these data are judged to be different 30 continuous times. (Check code: E5)	① 2 remote controllers are set as "main." (In case of 2 remote controllers) ② Remote controller is connected with 2 indoor units or more. ③ Repetition of refrigerant address ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board ⑥ Noise has entered into transmission wire of remote controller.	① Set a remote controller to main, and the other to sub. ② Remote controller is connected with only one indoor unit. ③ The address changes to a separate setting. ④–⑥ Diagnose remote controller. a) When "RC OK" is displayed, remote controllers have no problem. Turn the power off,and on again to check. When becoming abnormal again, replace indoor controller board. b) When "RC NG" is displayed, replace remote controller. c) When "RC E3" or "ERC 00-66" is displayed, noise may be causing abnormality.
E6	**Indoor/outdoor unit communication error (Signal receiving error)** ① Abnormal if indoor controller board cannot receive any signal normally for 6 minutes after turning the power on. ② Abnormal if indoor controller board cannot receive any signal normally for 3 minutes. ③ Consider the unit abnormal under the following condition: When 2 or more indoor units are connected to an outdoor unit, indoor controller board cannot receive a signal for 3 minutes from outdoor controller circuit board, a signal which allows outdoor controller circuit board to transmit signals.	① Contact failure, short circuit or, miswiring (converse wiring) of indoor/outdoor unit connecting wire ② Defective transmitting receiving circuit of indoor controller board ③ Defective transmitting receiving circuit of indoor controller board ④ Noise has entered into indoor/ outdoor unit connecting wire.	Check LED display on the outdoor control circuit board. (Connect A-control service tool, PAC-SK52ST.) Refer to outdoor unit service manual. ① Check disconnection or looseness of indoor/ outdoor unit connecting wire of indoor unit or outdoor unit. Check all the units in case of twin triple indoor unit system. ②–④ Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board or outdoor controller circuit board. Note: Other indoor controller board may have defect in the case of twin triple indoor unit system.
E7	**Indoor/outdoor unit communication error (Transmitting error)** Abnormal if "1" receiving is detected 30 times continuously though indoor controller board has transmitted "0".	① Defective transmitting receiving circuit of indoor controller board ② Noise has entered into power supply. ③ Noise has entered into outdoor control wire.	①–③ Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board.
FB (Fb)	**Indoor controller board** Abnormal if data cannot be read normally from the nonvolatile memory of the indoor controller board.	① Defective indoor controller board	① Replace indoor controller board.
E1 or E2	**Remote controller control board** ① Abnormal if data cannot be read normally from the nonvolatile memory of the remote controller control board. (Check code: E1) ② Abnormal if the clock function of remote controller cannot be operated normally. (Check code: E2)	① Defective remote controller	① Replace remote controller.
PL	**Abnormal refrigerant circuit** During Cooling, Dry, or Auto Cooling operation, the following conditions are regarded as failures when detected for 1 second. a)The compressor continues to run for 30 or more seconds. b)The liquid pipe temperature or the condenser/evaporator temperature is 167°F [75°C] or more. **<u>These detected errors will not be cancelled until the power source is reset.</u>**	① Abnormal operation of 4-way valve ② Disconnection of or leakage in refrigerant pipes ③ Air into refrigerant piping ④ Abnormal operation (no rotation) of indoor fan · Defective fan motor · Defective indoor control board ⑤ Defective refrigerant circuit (clogging)	① **<u>When this error occurs, be sure to replace the 4-way valve.</u>** ② Check refrigerant pipes for disconnection or leakage. ③ After the recovery of refrigerant, vacuum dry the whole refrigerant circuit. ④Refer to "9-6-2. DC fan motor (fan motor/ indoor controller circuit board". ⑤ Check refrigerant circuit for operation. **<u>To avoid entry of moisture or air into refrigerant circuit which could cause abnormal high pressure, purge air in refrigerant circuit or replace refrigerant.</u>**

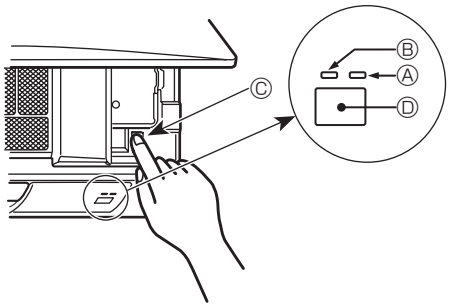
9-4. TROUBLESHOOTING BY INFERIOR PHENOMENA

Note: Refer to the manual of outdoor unit for the detail of remote controller.

Phenomena	Cause	Countermeasure
(1)Upward/downward vane performance failure	① The vane is not downward during defrosting and heat preparation and when the thermostat is OFF in HEAT mode. (Working of COOL protection function) ② Vane motor does not rotate. • Defective vane motor • Breaking of wire or connection failure of connector ③ Upward/downward vane does not work. • The vane is set to fixed position.	① Normal operation (The vane is set to horizontal regardless of remote control.) ② Check ② (left). • Check the vane motor. (Refer to "9-6. HOW TO CHECK THE PARTS".) • Check for breaking of wire or connection failure of connector. ③ Normal operation (Each connector on vane motor side is disconnected or setting the fixed vanes by wired remote controller.)
(2)Receiver for IR wireless remote controller	① Weak batteries of IR wireless remote controller ② Contact failure of connector (CNB) on IR wireless remote controller board (Insert failure) ③ Contact failure of connector (CN90) on indoor controller board (Insert failure) ④ Contact failure of connector between IR wireless remote controller board and indoor controller board	① Replace batteries of IR wireless remote controller. ②–④ Check contact failure of each connector. If no problems are found of connector, replace indoor controller board. When the same trouble occurs even if indoor controller board is replaced, replace IR wireless remote controller board.

9-5. EMERGENCY OPERATION

9-5-1. When IR wireless remote controller fails or its battery is exhausted



When the remote controller cannot be used

When the batteries of the remote controller run out or the remote controller malfunctions, the emergency operation can be done using the emergency buttons.

Ⓐ DEFROST/STAND BY lamp (ORANGE)
Ⓑ Operation lamp (GREEN)
Ⓒ Emergency operation switch (cooling/heating)
Ⓓ Receiver

- Each press of the emergency operation switch will toggle the operation mode.
- Check "COOL/HEAT" with the operation monitor display. (The display will appear orange for 5 seconds after pressing the emergency operation switch.)

[Heat pump type]

Cooling → Heating → Stop

[Cooling Only type]

Cooling → Stop

Operation Monitor Display

	GREEN	ORANGE	
STOP	○	○	The orange lamp follows the switch operation as indicated at the left for 5 sedonds, and then it will return to the normal display.
COOL	●	○	
HEAT	●	●	

○ OFF ● ON

Details of emergency mode are as shown below.

Operation Mode	COOL	HEAT
Set Temperature	75°F [24°C]	75°F [24°C]
Fan Speed	High	High
Airflow Direction Up and Down	Horizontal	Downward

9-5-2. When wired remote controller or indoor unit microprocessor fails

1. When the wired remote control or the indoor unit microcomputer has failed, but all other components work properly, if you set the switch (SWE) on the indoor controller board ON, the indoor unit will begin Emergency Operation. When Emergency Operation is activated, the indoor unit operates as follows:

(1) Indoor fan is running at high speed.
Note on the IR wireless remote control:
When the remote control does not function, it is possible to activate Emergency Operation by using the indoor unit Emergency Operation switch.
However, if the indoor unit microprocessor has failed, it is necessary to proceed with points 2 and 3 below as in the case of the wired remote control.

2. When you activate Emergency Operation of the cooling or heating, you have to set the switch (SWE) on the indoor controller board and activate Emergency Operation of the outdoor unit.
For details on how to activate Emergency Operation of the outdoor unit, refer to the outdoor unit wiring diagram.

3. Before you activate Emergency Operation, check the following points:

(1) Emergency operation cannot be activated when:
• the outdoor unit malfunctions. • the indoor fan malfunctions.
• when it has detected the malfunction of drain pump during self-diagnosing.

(2) Emergency Operation becomes continuous only by switching the power source on/off.
ON/OFF on the remote control or temperature control etc. does not function.

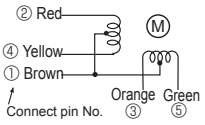
(3) Avoid operating for a long time when the outdoor unit begins defrosting while Emergency Operation of the heating is activated, because it will start to blow cold air.

(4) Emergency cooling should be limited to 10 hours maximum (The indoor unit heat exchanger may freeze).

(5) After Emergency Operation has been deactivated, set the switches etc. to their original positions.

(6) Movement of the vanes does not work in Emergency Operation, therefore you have to slowly set them manually to the appropriate position.

9-6. HOW TO CHECK THE PARTS
PKA-A24KA7.TH PKA-A30KA7H.TH PKA-A36KA7.TH

<table>
<tr><th>Parts name</th><th>Check points</th></tr>
<tr><td>Room temperature thermistor (TH1)
Pipe temperature thermistor/liquid (TH2)
Condenser/evaporator temperature thermistor (TH5)</td><td>Disconnect the connector then measure the resistance using a tester.
(At the ambient temperature 50 to 86˚F [10 to 30˚C])
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3 to 9.6 kΩ</td><td>Open or short</td></tr></table>Refer to “9-6-1. Thermistor”.</td></tr>
<tr><td>Vane motor (MV)
 
</td><td>Measure the resistance between the terminals using a tester. (Coil temperature 68°F)
<table><tr><th colspan="4">Normal</th><th>Abnormal</th></tr><tr><td>①-②
Brown-Red</td><td>①-③
Brown-Orange</td><td>①-④
Brown-Yellow</td><td>①-⑤
Brown-Green</td><td rowspan="2">Open or short</td></tr><tr><td colspan="4">250 Ω ± 7%</td></tr></table></td></tr>
<tr><td>Fan motor (MF)</td><td>Refer to “9-6-2. DC Fan Motor (fan motor/indoor controller circuit board)”.</td></tr>
</table>

9-6-1. Thermistor

<Thermistor characteristic graph>

Thermistor for lower temperature

Room temperature thermistor (TH1)
Pipe temperature thermistor/liquid (TH2)
Condenser/evaporator temperature thermistor (TH5)

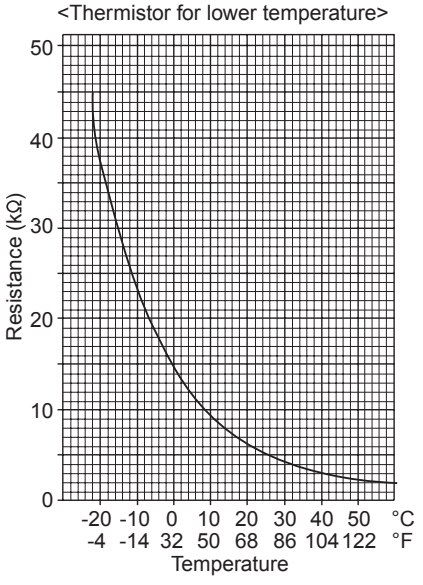
Thermistor R_0=15 kΩ ± 3%
Fixed number of B=3480 ± 2%

$$t(℃)Rt=15\exp\{3480(\frac{1}{273+t}-\frac{1}{273})\}$$

$$T(˚F)Rt=15\exp\{3480(\frac{1}{273+\frac{T-32}{1.8}}-\frac{1}{273})\}$$

32°F [0°C]	15 kΩ
50°F [10°C]	9.6 kΩ
68°F [20°C]	6.3 kΩ
77°F [25°C]	5.4 kΩ
86°F [30°C]	4.3 kΩ
104°F [40°C]	3.0 kΩ

<Thermistor for lower temperature>



9-6-2. DC Fan Motor (fan motor/indoor controller circuit board)

Check method of DC fan motor (fan motor/indoor controller circuit board)

① Notes

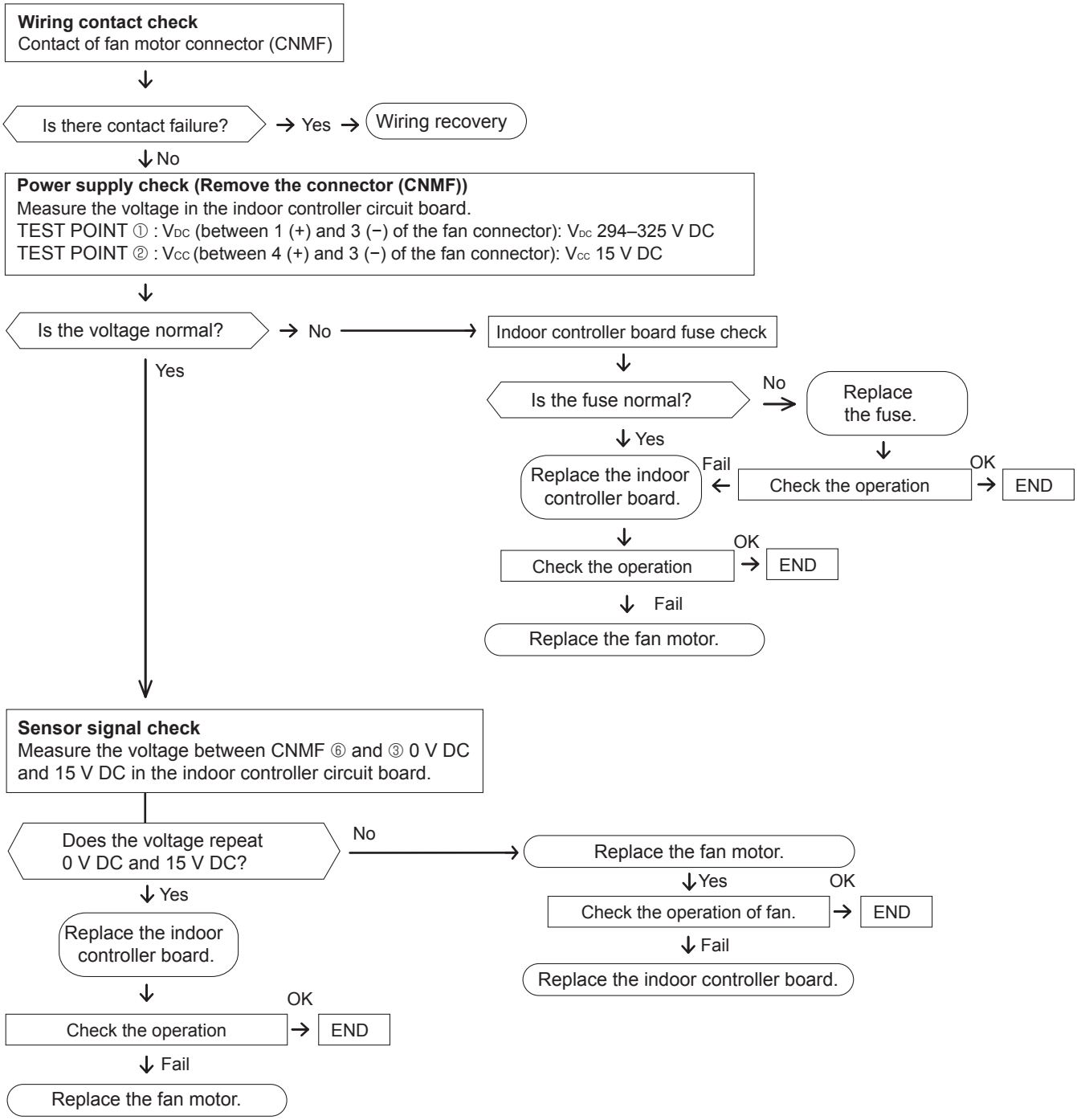
· High voltage is applied to the connecter (CNMF) for the fan motor. Pay attention to the service.

· Do not pull out the connector (CNMF) for the motor with the power supply on.

(It causes trouble of the indoor controller circuit board and fan motor.)

② Self check

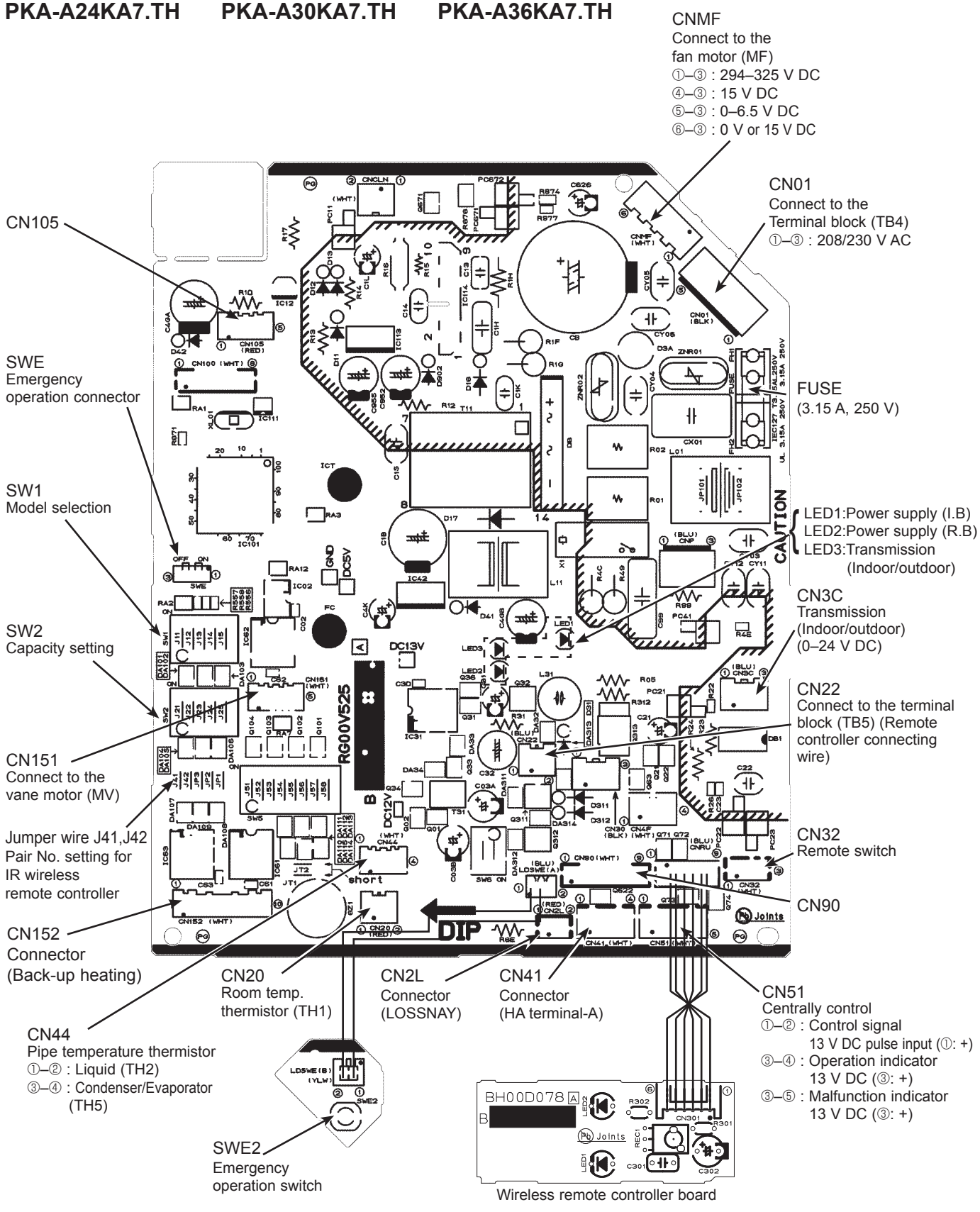
Symptom : The indoor fan cannot rotate.



9-7. TEST POINT DIAGRAM

Indoor controller board

PKA-A24KA7.TH PKA-A30KA7.TH PKA-A36KA7.TH



9-8. FUNCTIONS OF DIP SWITCH AND JUMPER WIRE

Each function is controlled by the DIP switch and the jumper wire on indoor controller board.

PKA-A24KA7.TH PKA-A30KA7.TH PKA-A36KA7.TH

The black square (■) indicates a switch position.

<table>
<tr><th>Jumper wire</th><th>Functions</th><th>Setting by the DIP switch and jumper wire</th><th>Remarks</th></tr>
<tr><td>SW1</td><td>Model settings</td><td>
<table>
<tr><th>MODEL</th><th>SETTING</th></tr>
<tr><td>PKA-A·KA7</td><td> 
</td></tr>
</table>
</td><td></td></tr>
<tr><td>SW2</td><td>Capacity settings</td><td>
<table>
<tr><th>MODEL</th><th>SETTING</th></tr>
<tr><td>PKA-A24KA7</td><td> 
</td></tr>
<tr><td>PKA-A30KA7</td><td> 
</td></tr>
<tr><td>PKA-A36KA7</td><td> 
</td></tr>
</table>
</td><td></td></tr>
<tr><td>J41
J42</td><td>Pair number setting with wireless remote controller</td><td>
<table>
<tr><th rowspan="2">Wireless remote controller setting</th><th colspan="2">Control PCB setting</th></tr>
<tr><th>J41</th><th>J42</th></tr>
<tr><td>0</td><td>○</td><td>○</td></tr>
<tr><td>1</td><td>×</td><td>○</td></tr>
<tr><td>2</td><td>○</td><td>×</td></tr>
<tr><td>3–9</td><td>×</td><td>×</td></tr>
</table>
Jumper wire (○: Short ×: Open)
</td><td><Initial setting>
Wireless remote controller: 0
Control PCB: ○ (for both J41 and J42)
4 pair number settings are supported.
The pair number settings of the wireless remote controller and indoor control PCB (J41/J42) are given in the table on the left.
('×' in the table indicates the jumper wire is disconnected.)</td></tr>
<tr><td>JP3</td><td>Indoor controller board type setting</td><td>
<table>
<tr><th>Indoor controller board type</th><th>JP3</th></tr>
<tr><td>For product</td><td>○</td></tr>
<tr><td>Spare parts</td><td>○</td></tr>
</table>
</td><td>○ : With JP3
× : Without JP3</td></tr>
</table>

10 FUNCTION SETTING

10-1. UNIT FUNCTION SETTING BY THE REMOTE CONTROLLER

Each function can be set as necessary using the remote controller. The setting of function for each unit can only be done by the remote controller.

(1) Functions available when setting the unit number to 00
Refer to the service manual that comes with each outdoor unit.

(2) Functions available when setting the unit number to 01–03 or AL (07 in case of wireless remote controller)

Function	Settings	Mode No.	Setting No.	Initial setting	Setting
Filter sign	100 Hr	07	1	○	
	2500 Hr		2		
	No filter sign indicator		3		
Fan speed	Silent	08	1	–	
	Standard		2	○	
	High ceiling		3	–	

11 SPECIAL FUNCTION

11-1. Rotation Function (and back-up function, 2nd stage cut-in function)

This function is only available when using wired remote controller.

11-1-1. Operation

(1) Rotation function (and Back-up function)

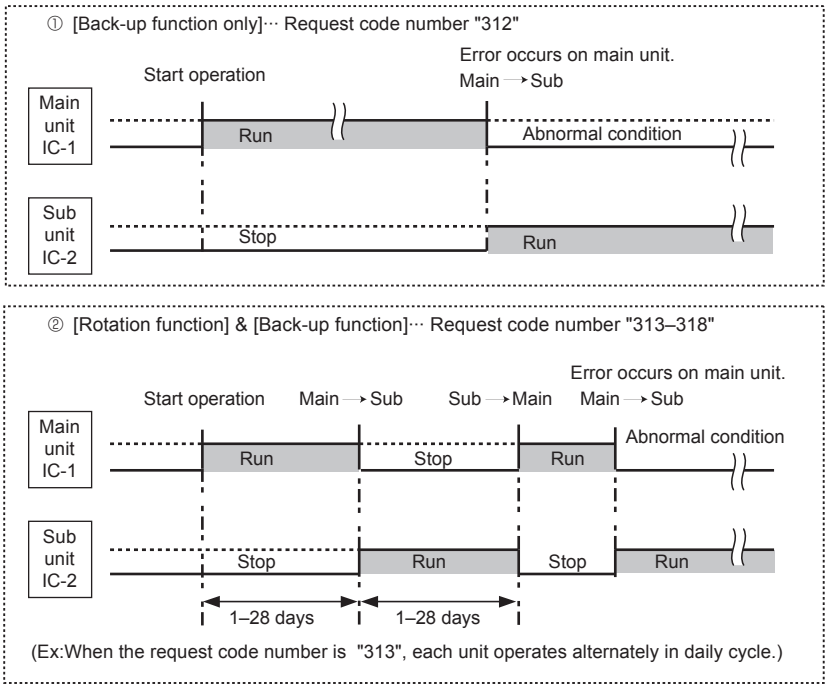
• Outline of functions

- Main and sub units operate alternately according to the interval of rotation setting.
  Note: Main and sub unit should be set by refrigerant address. (Outdoor DIP switch setting)
  Refrigerant address "00" ⟶ Main unit
  Refrigerant address "01" ⟶ Sub unit
- When error occurs to one unit, another unit will start operation. (Back-up function)

• System constraint

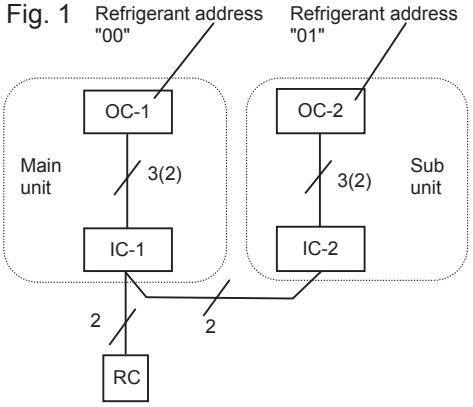
- This function is available only by the grouping control system (INDOOR UNIT: OUTDOOR UNIT=1:1) of 2 refrigerant groups. (Refer to Fig. 1)
- Main indoor unit should be connected for wired remote controller and the transmission line (TB5) for main and sub unit should also be connected. (Refer to Fig. 1)
  (This function cannot be set by wireless remote controller.)
- Set refrigerant address of each unit. (DIP switch on the outdoor unit ··· Refrigerant address 00/01)

Operation pattern



(Ex:When the request code number is "313", each unit operates alternately in daily cycle.)

Fig. 1



OC : Outdoor unit
IC : Indoor unit
RC : Wired remote controller

Note:

- When the unit is restarted to operate after turning off the power or OFF operation, the unit which was operating will start operation.
- To operate the main unit, refer to "11-1-2. How to set rotation function (Back-up function, 2nd stage cut-in function)", and set the request code No. which is not the same as the current one, and set again the former request code No.

(2) 2nd stage cut-in function

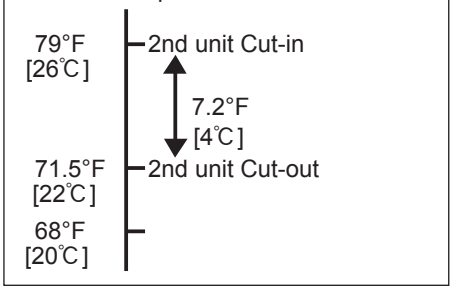
• Outline of functions

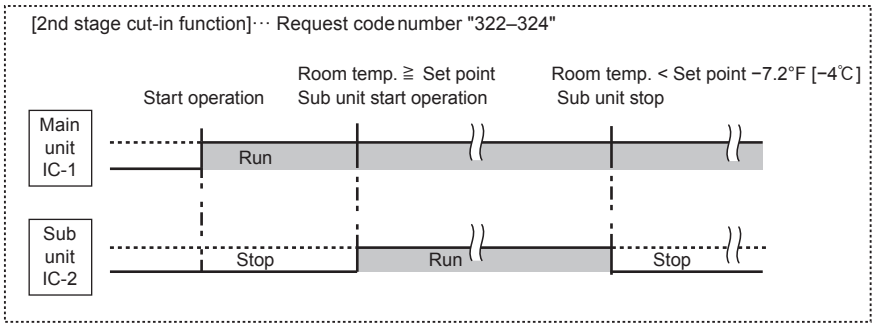
- When the 1st unit can NOT supply with sufficient capacity for exceptionally high-demand conditions and the actual room temperature reaches set point *, the 2nd unit starts operation in conjunction with the 1st unit.
- Once the actual room temperature goes down to 7.2°F [4℃] below set point*, the 2nd unit stops operation automatically.
  (* set point = set temperature by R/C (remote controller) + 7.2, 10.8, 14.4°F [4, 6, 8℃] (selectable))
- Number of operating units is determined according to the room temperature and set point.
- When room temperature becomes higher than set point, standby unit starts. (2 units operation)
- When room temperature falls below set point −7.2°F [−4℃], standby unit stops. (1 unit operation)

• System constraint

• This function is available only in cooling mode.

Ex.) Set temp. by R/C = 68°F [20℃]
Set point = 79°F [26℃]
When request code number is “323”.





11-1-2. How to set rotation function (Back-up function, 2nd stage cut-in function)

You can set these functions by wired remote controller. (Maintenance monitor)

NOTE

Both main and sub unit should be set in same setting.
Every time replacing indoor controller board for servicing, the function should be set again.

(1) Request Code List

Rotation setting

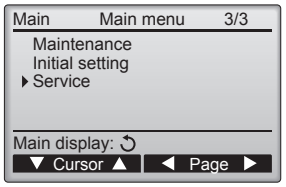
Setting No. (Request code)	Setting contents	Initial setting
No.1 (310)	Monitoring the request code of current setting	
No.2 (311)	Rotation and Back-up OFF (Normal group control operation)	◎
No.3 (312)	Back-up function only	
No.4 (313)	Rotation ON (Alternating interval = 1 day) and back up function	
No.5 (314)	Rotation ON (Alternating interval = 3 day) and back up function	
No.6 (315)	Rotation ON (Alternating interval = 5 day) and back up function	
No.7 (316)	Rotation ON (Alternating interval = 7 day) and back up function	
No.8 (317)	Rotation ON (Alternating interval = 14 day) and back up function	
No.9 (318)	Rotation ON (Alternating interval = 28 day) and back up function	

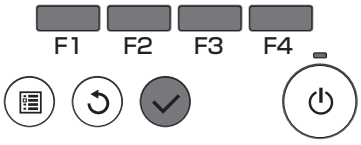
2nd stage cut-in setting

Setting No. (Request code)	Setting contents	Initial setting
No.1 (320)	Monitoring the request code of current setting	
No.2 (321)	Cut-in function OFF	◎
No.3 (322)	Cut-in Function ON (Set point = Set temp.+ 7.2°F [4°C])	
No.4 (323)	Cut-in Function ON (Set point = Set temp.+ 10.8°F [6°C])	
No.5 (324)	Cut-in Function ON (Set point = Set temp.+ 14.4°F [8°C])	

(2) Rotation and back up operation

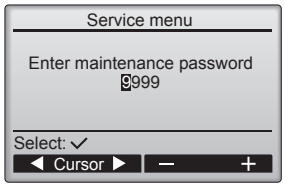
PAR-3xMAA ("x" represents 0 or later)





① Press the ▣ button.

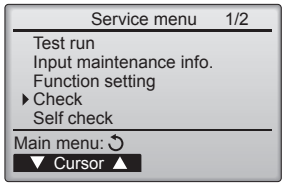
② Select "Service" with the [Cursor] buttons (F1 and F2) or the [Page] buttons (F3 and F4), and press the ⊙ button.



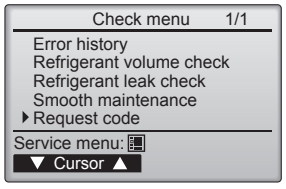
③ Enter the current maintenance password (4 numerical digits).
- Move cursor to the digit you want to change with the F1 or F2 button.
- Set each number (0 through 9) with the F3 or F4 button.

(Note: The initial maintenance password is "9999".)

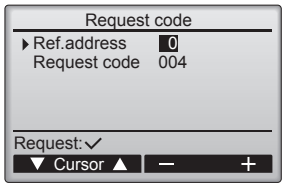
④ Then, press the ⊙ button.



⑤ Select "Check" with the F1 or F2 button, and press the ⊙ button.



⑥ Select "Request code" with the F1 or F2 button, and press the ⊙ button.



⑦ Set the Refrigerant address and Request code.
- Select the item to be changed with the F1 or F2 button.
- Select the required setting with the F3 or F4 button.

⑧ Press the F3 or F4 button to set the Refrigerant address "0".

⑨ Press the F3 or F4 button to set the desired request code No.
- Rotation & Back up operation: Enter one request code from 311–318.
- 2nd stage cut-in operation: Enter one request code from 321–324.

⑩ Press the ⊙ button. Data will be collected and displayed.

⑪ Press the F3 or F4 button to set the Refrigerant address "1". Set above ⑨–⑩.

⑫ To return to the Main menu, press the ▣ button.

11-2. BACK-UP HEATING FUNCTION

11-2-1. Operation

The back-up heater turns ON when both of the following conditions have been satisfied:

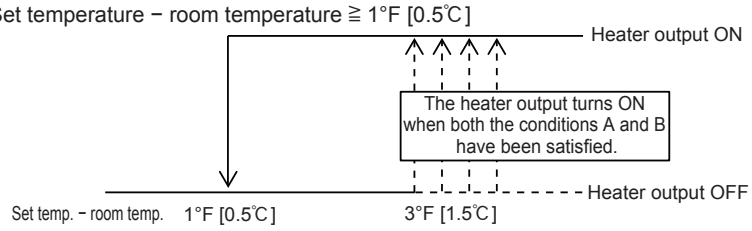
A) When the room temperature has not risen after the heater ON delay time has passed.

Note: The heater ON delay time starts when the condition of “set temperature − room temperature > 1°F [0.5℃]” has been satisfied.

B) Set temperature − room temperature ≧ 3°F [1.5℃]

The back-up heater turns OFF when the following condition has been satisfied:

• Set temperature − room temperature ≧ 1°F [0.5℃]



11-2-2. How to change the heater ON delay time

You can set these function by wired remote controller.

Note that the change can be made only by the wired remote controller PAR-32MAA.

Notes:

1. Both main and sub unit should be set in the same setting.
2. Every time replacing indoor controller board for serving, the function should be set again.
3. Stop the air-conditioner operation before changing the heater ON delay time.

Request code list

Setting No. (Request code)	Setting contents	Initial setting
No.1 (390)	Monitoring the request code of current setting	
No.2 (391)	10 minutes	
No.3 (392)	15 minutes	
No.4 (393)	20 minutes	○
No.5 (394)	25 minutes	

11-2-3. How to connect

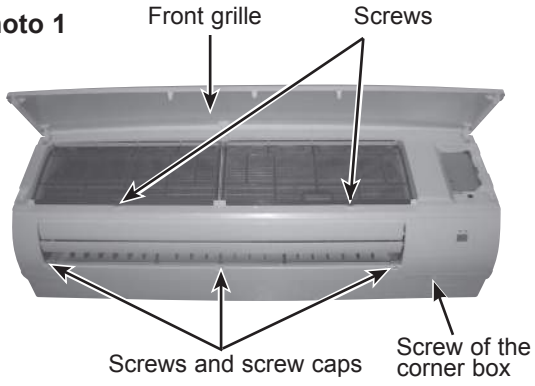
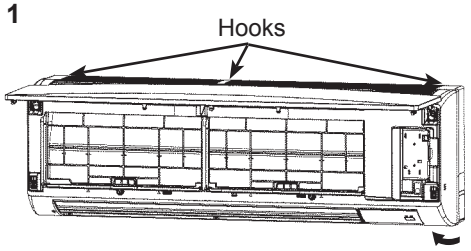
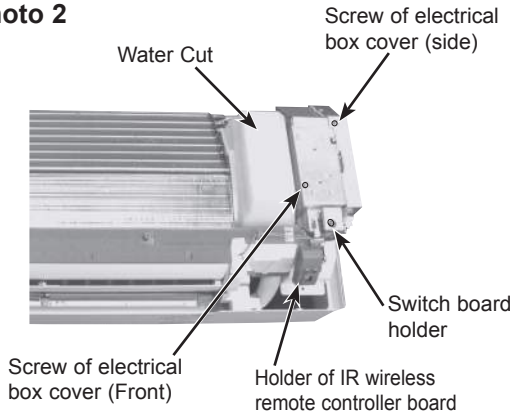
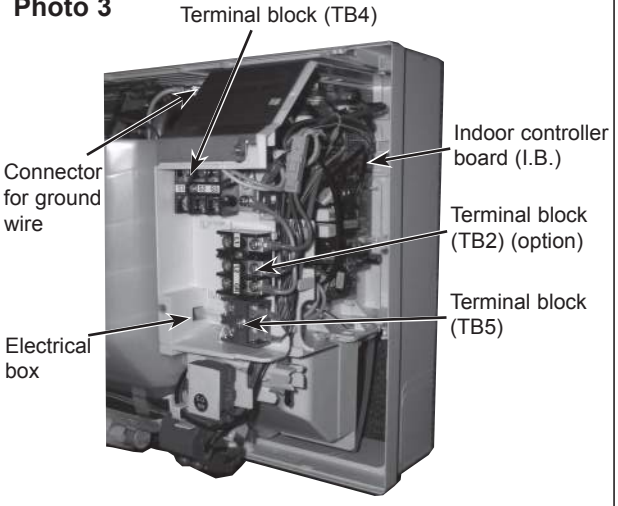
When connecting to the connector CN152 of the indoor unit, use PAC-SE59RA-E (optional parts).

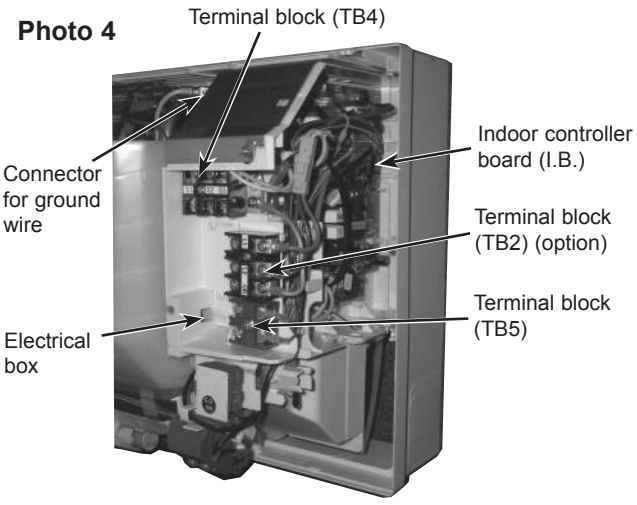
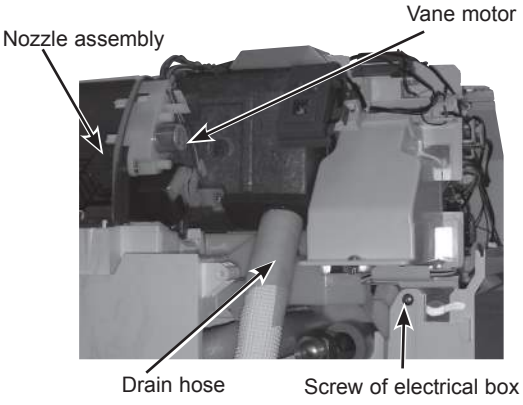
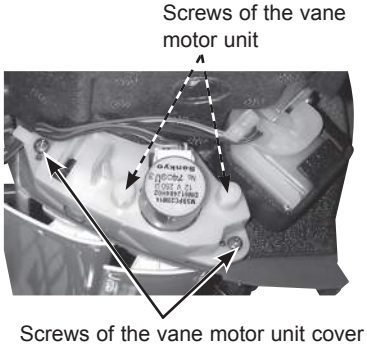
Note: For a twin indoor unit system, connect to the CN152 of the indoor unit that the remote controller is connected to.

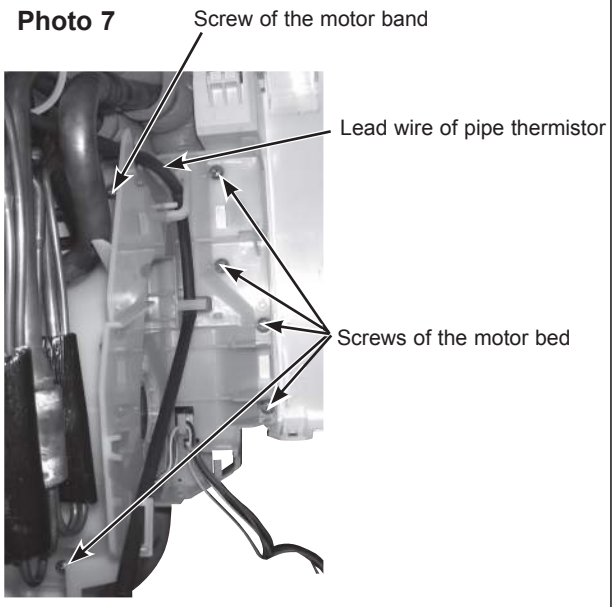
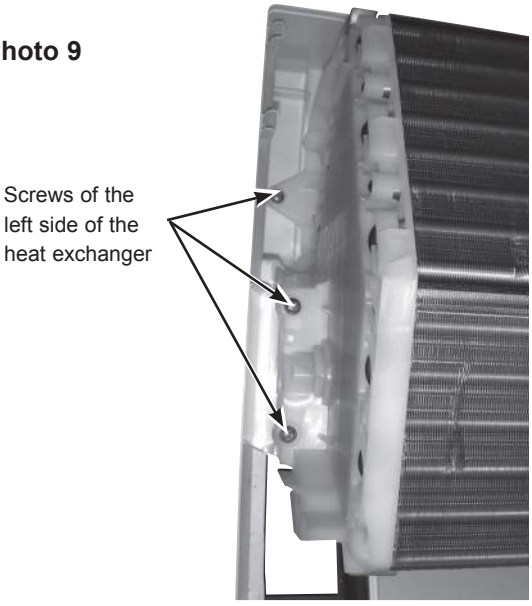
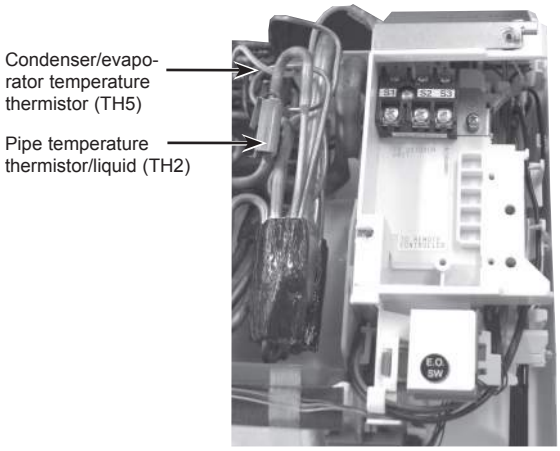
12 DISASSEMBLY PROCEDURE

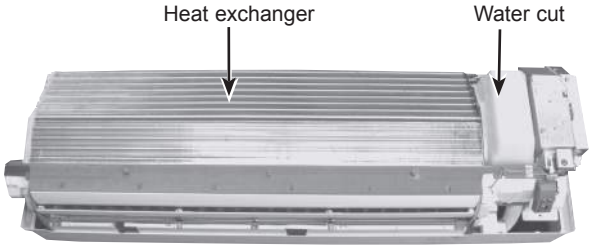
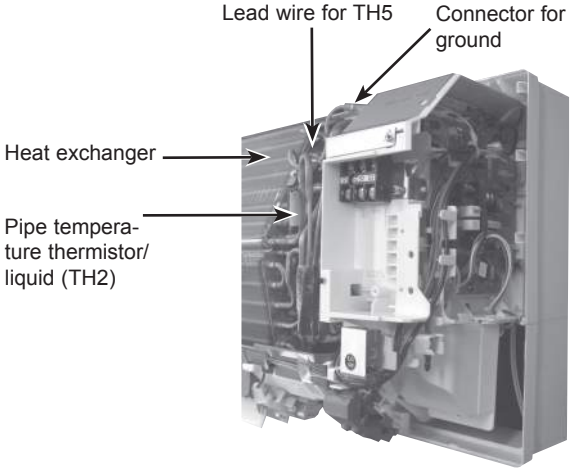
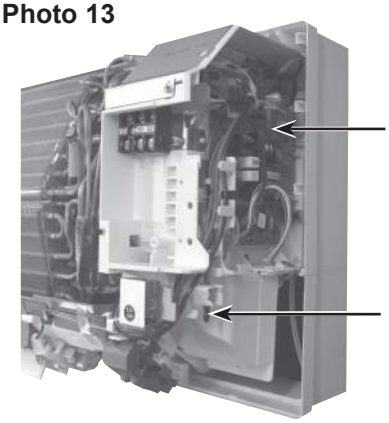
PKA-A24KA7.TH PKA-A30KA7.TH PKA-A36KA7.TH

Be careful when removing heavy parts.

OPERATION PROCEDURE	PHOTOS & ILLUSTRATIONS
1. Removing the panel (1) Press and unlock the knobs on both sides of the front grille and lift the front grille until it is level. Pull the hinges forward to remove the front grille. (See Photo 1) (2) Remove 3 screw caps of the panel. Remove 5 screws. (See Photo 1) (3) Unfix 3 hooks. (See Figure 1) (4) Hold the lower part of both ends of the panel and pull it slightly toward you, and then remove the panel by pushing it upward. (5) Remove the screw of the corner box. (See Photo 1) Remove the corner box.	**Photo 1**  **Figure 1** 
2. Removing the indoor controller board and the wireless controller board (1) Remove the panel and the corner box. (Refer to step 1) (2) Remove the front and side electrical box covers (each 1 screw). (See Photo 2) (3) Disconnect the connectors on the indoor controller board. (See Photo 3) (4) Remove the switch board holder and open the cover. (5) Pull out the indoor controller board toward you then remove the indoor controller board and switch board. (See Photo 3) (6) Remove the holder of IR wireless remote controller board. (7) Disconnect the connector of IR wireless remote controller board and remove the IR wireless remote controller board from the holder.	**Photo 2**  **Photo 3** 

OPERATION PROCEDURE	PHOTOS
3. Removing the electrical box (1) Remove the panel and the corner box. (Refer to step 1) (2) Remove the front and side electrical box covers (each 1 screw). (3) Remove the indoor / outdoor connecting wire from terminal block (TB4). (4) Disconnect the connectors on the indoor controller board. (5) Disconnect the connector for ground wire. (6) Remove the screw on lower side of the electrical box. (See Photo 5) (7) Push up the upper fixture catch to remove the box, then remove it from the box fixture.	**Photo 4** 
4. Removing the nozzle assembly (with vane and vane motor) and drain hose (1) Remove the panel and corner box. (Refer to step 1) (2) Remove the electrical box covers. (Refer to step 2) (3) Disconnect the vane motor connector (CN151) on the indoor controller board. (4) Pull out the drain hose from the nozzle assembly, and remove nozzle assembly. (See Photo 5)	**Photo 5** (see the bottom) 
5. Removing the vane motor (1) Remove the nozzle assembly. (Refer to step 4) (2) Remove 2 screws of the vane motor unit cover, and pull out the vane motor unit. (3) Remove 2 screws of the vane motor unit. (4) Remove the vane motor from the vane motor unit. (5) Disconnect the connector from the vane motor.	**Photo 6** 

OPERATION PROCEDURE	PHOTOS
6. Removing the indoor fan motor and the line flow fan (1) Remove the panel and the corner box. (Refer to step 1) (2) Remove the electrical box (Refer to step 2) and the nozzle assembly (Refer to step 3). (3) Remove the water cut. (See Photo 2) (4) Remove the screw fixing the line flow fan. (See Photo 8) (5) Remove 5 screws fixing the motor bed. (See Photo 7) (6) Remove the lead wire of pipe thermistor from the hook of motor bed. (See Photo 7) (7) Remove the screw fixing motor band. (See Photo 7) (8) Remove the motor bed together with fan motor and motor band. (9) Remove 3 screws fixing the left side of the heat exchanger. (See Photo 9) (10) Lift the heat exchanger, and pull out the line flow fan to the lower-left.	**Photo 7** 
Photo 9  	**Photo 8** 
7. Removing the pipe temperature thermistor/liquid (TH2) and the condenser/evaporator temperature thermistor (TH5) (1) Remove the panel and the corner box. (Refer to step 1) (2) Remove the electrical box covers. (Refer to step 2) (3) Remove the water cut. (See Photo 2) (4) Remove the pipe temperature thermistor/liquid and the condenser/evaporator temperature thermistor. (5) Disconnect the connector (CN44) on the indoor controller board.	**Photo 10** 

OPERATION PROCEDURE	PHOTOS
8. Removing the heat exchanger (1) Remove the panel and the corner box. (Refer to step 1) (2) Remove the electrical box (Refer to step 3) and the nozzle assembly (Refer to step 4). (3) Remove the water cut. (4) Remove the pipe thermistors from each holder. (5) Disconnect the connector for ground wire. (6) Remove 3 screws fixing the left side of the heat exchanger. (See Photo 9) (7) Remove the heat exchanger.	**Photo 11**  **Photo 12** 
9. Removing the room temperature thermistor (1) Remove the panel and corner box. (Refer to step 1) (2) Remove the electrical box covers. (3) Remove the room temperature thermistor. (4) Disconnect the connector (CN20) on the indoor controller board.	**Photo 13** 

Mr.SLIM

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

Published: Oct. 2016 No.OCH639
Made in Japan

UHIR Series

Horizontal or Vertical Mounting
Industrial / Commercial Electric Unit Heater

Owner's Manual

This manual covers installation, maintenance and repair parts. Read carefully before attempting to install, operate or service the UHIR Series Unit Heater.

IMPORTANT INSTRUCTIONS

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

INDUSTRIAL ENGINEERING & EQUIPMENT COMPANY
425 HANLEY INDUSTRIAL COURT • ST. LOUIS, MO 63144
314-644-4300 • 800-243-8162 • FAX: 314-644-5332
www.indeeco.com • sales@indeeco.com

IMPORTANT INSTRUCTIONS

Installation and maintenance personnel should familiarize themselves with this manual and all the **IMPORTANT INSTRUCTIONS** before installing or working on this heater to avoid potential unsafe conditions, severe property damage, personal injury or death.

1. Read all instructions before using this heater.
2. Verify that the supply voltage and phase to the heater matches the nameplate rating before energizing.
3. Potentially lethal voltages are present. Be sure to lock the branch circuit disconnect switch in the OFF position and tag the circuit "Out for Maintenance" before working on this equipment.
4. Keep electrical enclosure cover tightly closed while in operation.
5. Hazard of Electric Shock. Heater must be grounded in accordance with both local and national codes.
6. This heater should be installed by a licensed electrician familiar with all applicable national and local codes having jurisdiction. It is the responsibility of the installer to verify the safety and suitability of the installation.
7. Disassembly of the unit for installation is not required or authorized.
8. Replacement electrical components must be obtained from the factory in order to maintain any applicable Agency Listings.
9. Use this heater only as described in this manual. Any other use is not recommended by the manufacturer and may result in fire, electric shock or personal injury.
10. The heater and discharge air are hot when in use. To avoid burns, do not let bare skin touch hot surfaces.
11. To prevent a possible fire, do not block or allow foreign objects to enter air intakes or exhaust in any manner.
12. Risk of fire due to high temperatures. Keep electrical cords, drapery, furnishings, insulation and other combustibles at least 3 feet (0.9m) from the front of the heater and away from the sides, rear and top.
13. Installation minimum mounting clearances specified both on heater nameplate and in this owner's manual must be maintained.
14. Use copper wire rated 75°C min. for supply connections according to size specified on heater nameplate.
15. Do not attempt to override louver stops. Do not operate unit with louvers turned above level of unit.
16. This heater should not be used in potentially explosive atmospheres. Do not use in areas where gasoline, paint, or flammable liquids are used or stored.
17. This heater should not be used in outdoor, wet and/or corrosive locations.
18. Risk of fire. Do not use as a residential or household heater.
19. Do not operate heater after it malfunctions. Disconnect power at service panel and have heater inspected by a reputable electrician before reusing.
20. **SAVE THESE INSTRUCTIONS.**

WARRANTY WILL BE VOID IF INSTRUCTIONS ARE NOT FOLLOWED

INSTALLATION INSTRUCTIONS


RISK OF FIRE / EXPLOSION

- This heater should not be used in potentially explosive atmospheres. Do not use in areas where gasoline, paint or flammable liquids are used or stored.
- Keep electrical cords, drapery, furnishings, insulation and other combustibles at least 3 feet (0.9m) from the front of the heater and away from the sides, rear and top.
- Installation minimum clearances specified both on the heater nameplate and in the owner's manual must be maintained.
- Do not use as a residential or household heater.

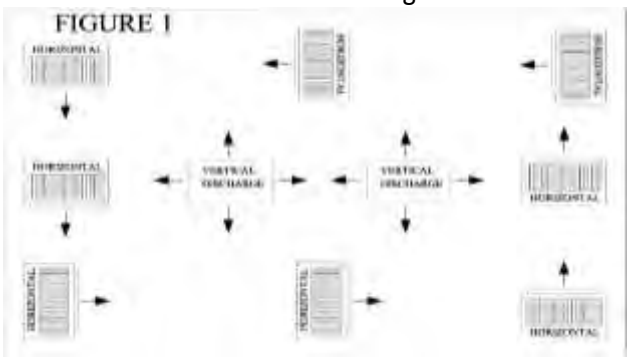
The air heaters are designed for comfort heating and should not be used in ambient temperatures exceeding 104ºF (40ºC). They are to be permanently mounted to the wall or ceiling for either horizontal or vertical discharge. The unit is designed to give years of safe, trouble-free operation when properly installed and maintained.

A. Site Selection:

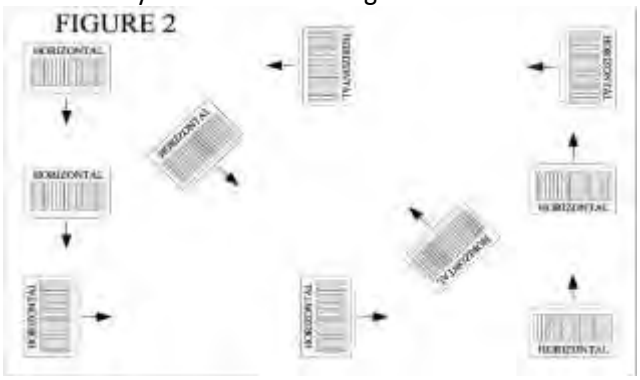
The Heaters should not be mounted close to insulation, drapery or similar materials which could come in contact with the cabinet, or block the inlet or outlet of the heater. The heaters are intended for elevated mounting locations so that they blow warm air down to the floor area. A mounting height should be selected so that the heater is out of the way of possible moving equipment or personnel, yet low enough to deliver warm air to the selected area. See the mechanical installation section for recommended installation heights.

Heater airflow should be directed to areas of greatest heat loss. In general, greater numbers of small heaters will provide more uniform and even heat distributions than a few large ones. In order to help move heated air around the room, multiple heaters should be spaced out and direct air in a circular pattern around the room perimeter such that each heater supports the next heater's airstreams. Additional vertical discharge heaters with appropriate diffusers can be located to direct heated air to the room center and offset any ceiling heat losses. See the figures below for some typical airflow pattern arrangements:

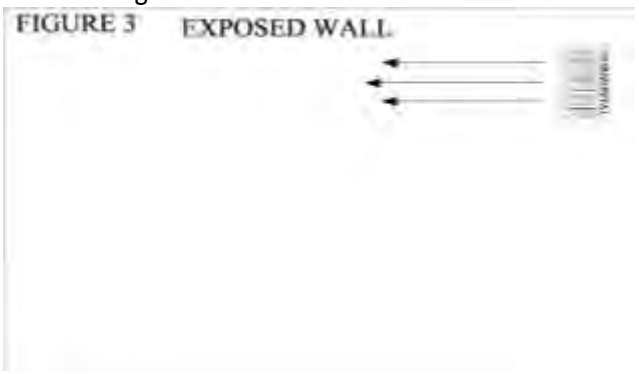
Large room with exposed walls and roof – both horizontal and vertical discharge heaters:



Large room with exposed walls and roof - only horizontal discharge heaters:



Small room with one exposed wall – horizontal discharge heater:



INSTALLATION INSTRUCTIONS – Continued

B. Mechanical Installation:

These heaters may be mounted for either horizontal or vertical discharge by means of threaded rods (supplied by others). The heaters may also be mounted by means of an optional mounting kit which includes a bracket and cantilever arm which allows horizontal pivoting of the heater. Lock washers should be used on all mounting nuts and bolts to ensure they don't vibrate or work loose due to fan vibration or other vibration transmitted to the heater.

The supporting structure that the heater is attached to must have adequate strength to safely support the heater. The heater dimensions and maximum unit weights are:

TABLE 1:

KW	Cabinet Size	W	H	Depth	Weight
<=5	1	12.875" (327mm)	17.750" (450mm)	7.625" (194mm)	25 lbs (11.3 kg)
5.1 to 10	2	16.875" (429mm)	24.250" (616mm)	7.625" (194mm)	40 lbs (18.2 kg)
10.1 to 20	3	16.875" (429mm)	24.250" (616mm)	11.375" (289mm)	55 lbs (25.0 kg)
20.1 to 50	4	26.937" (684mm)	35.500" (902mm)	15.625" (397mm)	155 lbs (70.3 kg)

These heaters are provided with either directional louvers, a radial diffuser or an anemostat diffuser. Select an installation location such that the outlet air is not directed at an adjacent wall.
Once an acceptable location has been determined, see the following instructions to complete the mechanical installation:

Horizontal Discharge:

1. To ensure proper heating of floor surfaces, observe the following recommended mounting height limitations (to bottom of heater):

TABLE 2:

Maximum Mounting Height from Floor, feet (m)			
<= 5 KW	5.1 to 10 KW	10.1 to 20 KW	20.1 to 50 KW
10' (3m)	15' (4.6m)	20' (6.1m)	25' (7.6m)

The minimum mounting distance from the floor to the bottom of the heater is 8 feet (2.4m).

2. Remove the four bolts located in the top of the heater and install four threaded rods (not supplied by INDEECO) using locknuts to secure. Do not remove the four bolts from the back of the heater case.
3. Secure the four threaded rods to the ceiling using locknuts to complete the installation.
4. Refer to table 3 and figure 4 below for minimum mounting clearances to the walls and ceiling:

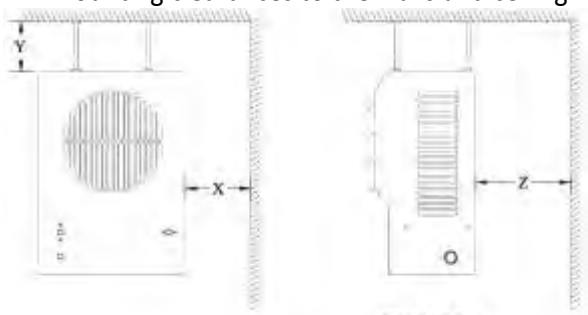


FIGURE 4

TABLE 3:

Minimum Clearances – Horizontal Discharge, inches (mm)			
KW	X	Y	Z
<= 5	6 (152)	10 (254)	6 (152)
5.1 to 10	6 (152)	10 (254)	6 (152)
10.1 to 20	6 (152)	12 (305)	6 (152)
20.1 to 50	6 (152)	12 (305)	6 (152)

5. Refer to the table and figure below for mounting point size and locations:

FIGURE 5

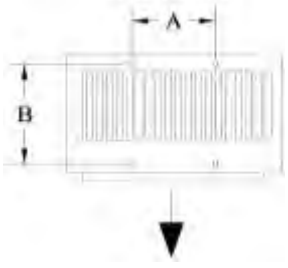


TABLE 4:

KW	Thread Size	A, in (mm)	B, in (mm)
<= 5	3/8 – 16	5 (127)	6.44 (164)
5.1 to 10	3/8 – 16	5 (127)	6.44 (164)
10.1 to 20	3/8 – 16	5 (127)	10.13 (257)
20.1 to 50	3/8 – 16	7 (178)	12.92 (328)

6. Adjustable louvers should be set to achieve the desired airflow direction.

Vertical Discharge:

1. When mounting for vertical discharge, ensure there is enough clearance to the wall to fully open the access cover to the wiring compartment.
2. To ensure proper heating of floor surfaces, observe the following recommended mounting height limitations (to bottom of heater):

TABLE 5:

Maximum Mounting Height from Floor, feet (m)				
KW	No Louvers	Standard Louvers	Anemostat Diffuser	Radial Diffuser
<= 5	10' (3.0m)	10' (3.0m)	9' (2.7m)	10' (3.0m)
5.1 to 10	15' (4.6m)	15' (4.6m)	13' (4.0m)	15' (4.6m)
10.1 to 20	20' (6.1m)	20' (6.1m)	17' (5.2m)	20' (6.1m)
20.1 to 50	25' (7.6m)	25' (7.6m)	21' (6.4m)	25' (7.6m)

The minimum mounting distance from the floor to the bottom of the heater is 8 feet (2.4m).

3. Remove the four bolts from back of heater cabinet and install four threaded rods (not supplied by INDEECO) using locknuts to secure. Do not remove the four bolts from the top of the heater cabinet.
4. Secure the four threaded rods to the ceiling using locknuts to complete the installation.
5. Refer to the table and figures below for minimum mounting clearances to the walls and ceiling:

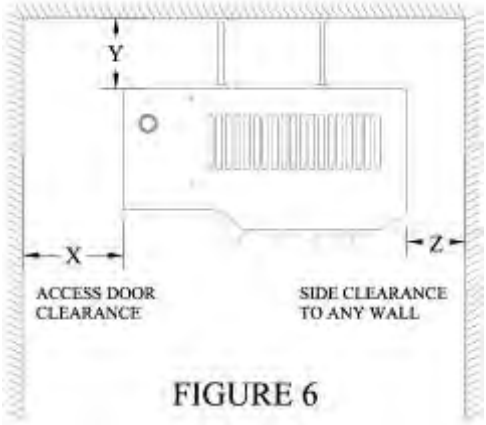


FIGURE 6

TABLE 6:

Minimum Clearances – Vertical Discharge, inches (mm)			
KW	X	Y	Z
<= 5	8 (203)	6 (152)	16 (406)
5.1 to 10	8 (203)	6 (152)	16 (406)
10.1 to 20	12 (305)	6 (152)	32 (813)
20.1 to 50	16 (406)	6 (152)	32 (813)

6. Refer to the table and figure below for threaded mounting point size and locations:

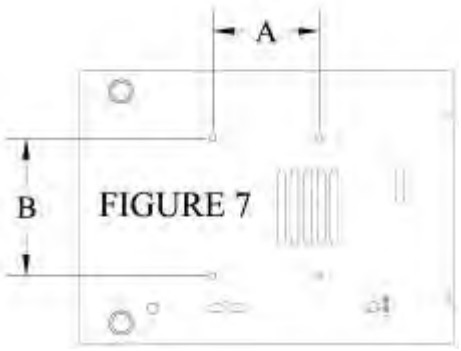


FIGURE 7

TABLE 7:

KW	Thread Size	A, in (mm)	B, in (mm)
<= 5	3/8 – 16	5 (127)	6.44 (164)
5.1 to 10	3/8 – 16	5 (127)	6.44 (164)
10.1 to 20	3/8 – 16	10.13 (527)	5 (127)
20.1 to 50	3/8 – 16	12.92 (328)	7 (178)

C. Electrical Installation:

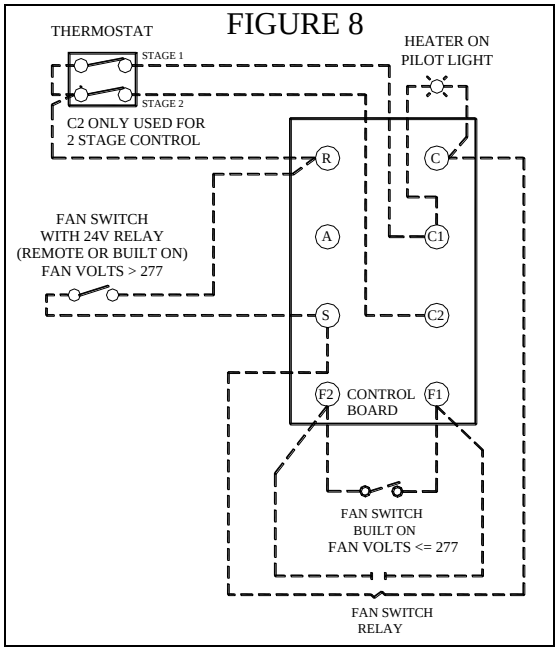
Follow these instructions to complete the electrical installation:

1. External branch circuit protection is required. See nameplate ratings and follow Code recommendations.
2. Follow the NEC and/or CEC and any local electrical and building codes related to the installation and intended use of the heater.
3. When doing any work on a heater, including the initial electrical connection, disconnect the electrical supply at the main branch circuit switch, and lock the switch in the off (open) position. Tag the circuit "Out for Maintenance" to prevent potential lethal shock hazards.
4. Confirm that the electrical power supply matches the nameplate voltage, phase, amperage and frequency rating of the heater to be connected.

INSTALLATION INSTRUCTIONS – Continued

5. Ensure conductors are of appropriate gauge size as specified on the heater nameplate. Use copper conductors rated 75°C minimum.
6. Proper installation of the heater requires that an adequate grounding conductor be connected to the ground terminal. This terminal marked with the letter “G” and is located on the inside of the control enclosure.
7. A wiring diagram is supplied with each heater. Optional electrical controls, either kits or factory installed, are connected to the control wiring board and are shown as dashed lines. The figure below shows control wiring board connections for field wired options:

FIGURE 8



8. Install any electrical option kits according to the instructions provided.
9. Use min. 600 volts, NEC Class 1 insulated wire for all control circuit wiring.
10. Check and confirm all connections are securely tightened. Remove any foreign objects from the control box and close access door.
11. On single phase heaters rated less than 5 KW that do not contain a contactor and transformer, any remote thermostat used must be rated for the full load of the heater as shown on the heater nameplate.
12. See section titled “operation” before energizing the heater.

OPERATING INSTRUCTIONS


RISK OF FIRE / EXPLOSION

- This heater should not be used in potentially explosive atmospheres. Do not use in areas where gasoline, paint or flammable liquids are used or stored.
- Keep electrical cords, drapery, furnishings, insulation and other combustibles at least 3 feet (0.9m) from the front of the heater and away from the sides, rear and top.
- To prevent a possible fire, do not block or allow foreign objects to enter air intakes or exhaust in any manner.


ELECTRIC SHOCK HAZARD

- Keep electrical enclosure cover tightly closed while in operation.
- Do not operate heater after a malfunction. Disconnect power at service panel and have heater inspected by a reputable electrician before reusing.
- Use this heater only as described in this manual. Any other use is not recommended by the manufacturer and may result in fire, electric shock or personal injury.


RISK OF INJURY / BURN

- The heater and discharge air are hot when in use. To avoid burns, do not let bare skin touch hot surfaces.
- Do not attempt to service or clean heater while unit is operating as there is a hazard from electric shock, injury from operating fan blade and burns from hot heating elements.

The unit heater may be operated normally at ambient temperatures of 104°F (40°C) or less. Each heater contains a normally open bimetal cutout which delays the fan motor until the heating elements have warmed up and also keeps the fan running after shutdown until the heating elements have cooled down.

A. Initial Operation:

Confirm proper mechanical and electrical installation before operation of the heater.

1.) Heaters without built on or remotely mounted fan switch:

a.) Set the temperature control thermostat to a setting above the current room temperature.

b.) Energize the heater electrical supply circuit.

c.) The heater should come on and the fan should start within approximately 1 to 2 minutes.

d.) During normal operation the limit controls are not supposed to cycle the heater ON and OFF. If frequent cycling of the limit occurs, verify the minimum mounting clearances are maintained, verify proper orientation of the room thermostat and there is no visible obstruction to the heater inlet or outlet. If this does not eliminate the limit control cycling then the heater must be examined by qualified service personnel before further operation to determine the cause.

e.) Heaters may be provided with a manual reset limit control (Optional with order code M for heaters less than 10KW). This limit control disables the electrical function of the heater whenever excessive temperatures are present. If the manual reset limit control is suspected of causing heater non-function then the heater must be disconnected from the heater electrical

OPERATING INSTRUCTIONS - Continued

supply and examined by qualified service personnel. The personnel must determine the cause of the excessive temperatures, verify the minimum mounting clearances, verify proper orientation of the heater, verify proper orientation of room thermostat, or determine if there are any obstructions or damage to the heater or heater inlet or heater outlet. The manual reset limit control may then be reset as described in the "Repair and Replacement Instructions".

f.) Check out and report any unusual or questionable operating characteristics, such as noise, vibration, etc.

g.) Set the temperature control thermostat to the desired room temperature setting.

h.) De-energize the heater electrical supply circuit until heater operation is required.

i.) Set the temperature control thermostat to a setting above the current room temperature.

j.) The heater should come on and the fan should energize in approximately 1 to 2 minutes. If the room ambient temperature is high or the heater is mounted too close to the ceiling or walls, the unit may cycle on the thermal high limits of the motor and/or the heater.

k.) Check out and report any unusual or questionable operating characteristics, such as noise, vibration, etc.

l.) Set the fan switch and temperature control thermostat to the desired operating positions.

2.) Heater with fan switch:

a.) Place the fan switch in the "ON" position.

b.) Set the temperature control thermostat to a setting below the current room temperature.

c.) Energize the heater electrical supply circuit.

d.) The heater fan should come on but the heater should remain off.

e.) Place the fan switch in the "OFF" position.

f.) The fan should go off.

B. Normal Operation:

Prior to the start of the heating season, perform the electrical and mechanical steps outlined in the section titled "MAINTENANCE INSTRUCTIONS".

a.) Perform the operation steps for the applicable temperature control option.

b.) Place all switches in their normal operating position and place the unit heater in service.

MAINTENANCE INSTRUCTIONS

ELECTRIC SHOCK HAZARD

- Potentially lethal voltages are present. Be sure to lock the branch circuit disconnect switch in the OFF position and tag the circuit “Out for Maintenance” before working on this equipment.

RISK OF INJURY / BURN

- Do not attempt to service or clean heater while unit is operating as there is a hazard from electric shock, injury from operating fan blade and burns from hot heating elements.
- Maintenance and repair must be performed by qualified personnel only.

A. Electrical:

1. Inspect all terminal connections, contactor and conductor insulation for damage, looseness, fraying, etc., as applicable. Tighten any loose terminals and replace or repair wire with damaged or deteriorated insulation. If contactor contacts are badly pitted, welded together, or burned, replace the contactor.
2. If reduced heat output is suspected, perform the mechanical checks. If low heat output is still suspected after completing the mechanical checks, verify the condition of the heating elements by visual inspection and by using an amperage meter to check the current draw of each input line. Adjust the room thermostat to its highest temperature to ensure all stages of heat are energized. All input lines should draw approximately equal current which should agree with the nameplate rating. If they do not, one or more of the heating elements could be burned out and should be replaced.

B. Mechanical:

1. Annually check the tightness of all visible bolts and nuts, in particular the support structure bolts and nuts. Similarly check the motor mounting bolts located in the top and back of the heater case.
2. Periodically, check the motor, fan, discharge openings, intake openings, heating elements and control compartment for cleanliness. If necessary, clean by using a vacuum or compressed air. Be careful not to bend the fan blade propeller.
3. Check motor and fan for smooth running operation. Any unusual noise or vibration must be investigated and rectified.
4. The electric motors are permanently lubricated and thermally protected. Check for smooth and quiet running at all inspections. Replace motor if excessive bearing play is detected.

REPAIR AND REPLACEMENT INSTRUCTIONS


RISK OF INJURY / BURN

- Maintenance and repair must be performed by qualified personnel only.

A. Replacing the High-Limit or Fan Delay Cutouts:

1. Disconnect the heater electrical power supply.
2. For horizontal discharge heaters, the heater will need to be disconnected and lowered.
3. For heaters with an optional "Heater On" pilot light, built on fan switch or built on room thermostat, mark wiring at control board and disconnect.
4. Remove any adjustable louvers and the front cabinet section to expose the fan motor and heating elements.
5. Remove the fan blade, careful not to bend.
6. The temperature high limit and fan delay are located on a stepped sheet metal bracket directly below the back heating element. The fan delay is the cutout directly against the heating element fin; the temperature high limit is approximately 5/8" below.
7. Mark and disconnect the appropriate wires.
8. Lower the cutout bracket by removing the side sheet metal screws.
9. Replace the appropriate cutout.
10. Reattach the sheet metal bracket and wiring.
11. Reinstall & verify the fan blade rotates freely.
12. Reassemble, remount and connect heater.
13. Reconnect any wires disconnected in step 3.
14. Perform steps in section titled "OPERATION" to verify heater performance.

B. Resetting the Optional Manual Cutout:

1. Disconnect the heater electrical power supply.
2. Determine the reason for the manual reset thermal cutout actuating and rectify the situation. See section titled "maintenance".
3. Reset the manual reset thermal cutout by pressing on the red button located in the back of the heater marked "RESET". It may be necessary to wait for the cutout to cool.
4. Energize the heater electrical supply circuit.
5. Perform the steps outlined in the section "OPERATION" to verify heater performance.
6. Check out and report any unusual or questionable operating characteristics, such as noise, vibration, etc.
7. If heater operation appears normal, place the unit into normal operation.

C. Replacing the Fan Motor and Blade:

The fan motor is permanently lubricated and does not require any maintenance. If the fan motor is defective, a replacement must be obtained from the factory.

1. Disconnect the electrical power supply.
2. For horizontal discharge heaters, the heater will need to be disconnected and lowered.
3. For heaters with an optional "Heater On" pilot light, built on fan switch or built on room thermostat, mark wiring at control board and disconnect.
4. Remove any louvers and the front cabinet section to expose the motor and blade.
5. Remove the fan blade, careful not to bend. If motor is not being replaced, skip to step 11.
6. Disconnect the motor supply wires, noting their location.
7. Remove motor mounting screws and lift motor out of heater assembly.
8. Install new motor to heater using existing motor mounting hardware.
9. Feed motor wires through snap bushing and into wiring compartment.
10. Reconnect motor wires.
11. Reinstall & verify the fan blade rotates freely.
12. Reassemble, remount and connect heater.
13. Reconnect any wires disconnected in step 3.
14. Perform steps in section titled OPERATION to verify heater performance.

REPLACEMENT PARTS

1. All replacements must be factory supplied to ensure safe heater operation.
2. Mark wires and refer to wiring diagram to ensure proper electrical connections.

Reference heater model number and the bubble number from the figures below when contacting factory for replacement parts. Contact factory for items not shown.

FIGURE 9 - CABINET, MOTOR AND HEATING ELEMENTS:

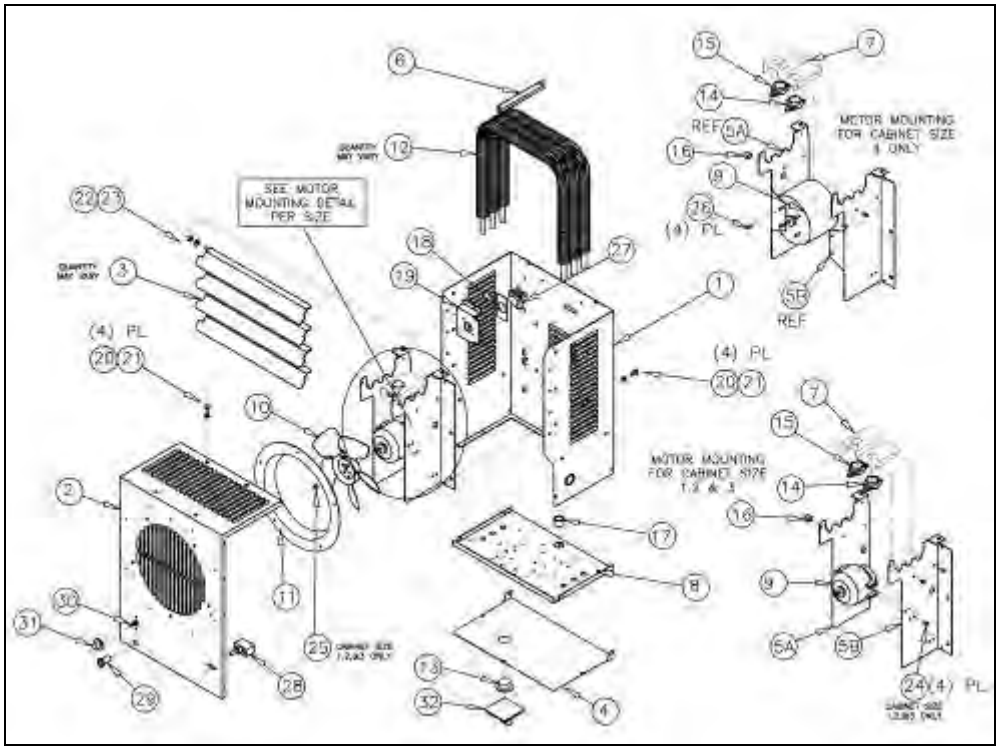


TABLE 8

BUBBLE	DESCRIPTION	Qty
01	Cabinet Back	1
02	Cabinet Front	1
03	Louver	A/R
04	Terminal Box Cover	1
5A	Element Support – Left	1
5B	Element Support – Right	1
06	Element Anchor	1
07	Thermal Cutout Bracket	1
08	Component Bridge	1
09	Motor	1
10	Fan Blade	1
11	Fan Ring	1
12	Heating Element	A/R
13	Plug	1
14	Automatic Reset Cutout	1
15	Fan Delay Cutout	1
16	Manual Wire Grommet	1

BUBBLE	DESCRIPTION	Qty
17	Wiring Grommet	1
18	Manual Cutout Barrier	1
19	Manual Reset Cutout Bracket	1
20	Bolt	8
21	Split Lockwasher	8
22	Neoprene Spacer	A/R
23	#10 Flat Washer	A/R
24	#8-36x1/2 Bolt	4
25	1/4-20 Keps Nut	1
26	10-32 Nut	4
27	Manual Reset Cutout – Optional	1
28	Fan Switch – Optional	1
29	Pilot Light – Optional	1
30	Built On Thermostat – Optional	1
31	Thermostat Knob – Optional	1
32	Disconnect Handle – Optional	1

REPLACEMENT PARTS - Continued

FIGURE 10 - ELECTRICAL COMPONENTS:

The figure below shows a typical layout of the heater electrical components for reference only. Locations and quantity of parts will vary.

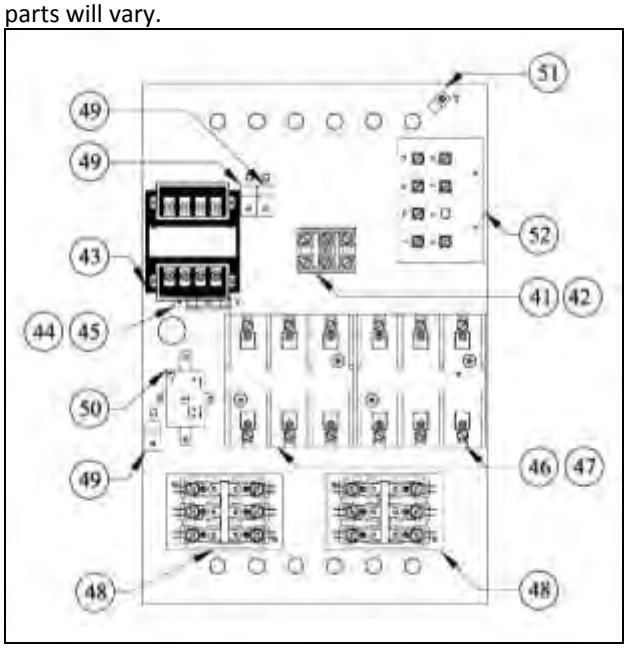


TABLE 9:

BUBBLE	DESCRIPTION
41	Disconnect Switch (not shown)
42	Power Terminal Block
43	Control Transformer
44	Secondary Transformer Fuse Block
45	Secondary Transformer Fuse
46	Power Fuse Block
47	Power Fuse
48	Control Contactor
49	Ground Lug
50	Fan Switch Relay
51	Thermostat Capillary Clamp
52	Motor Capacitor (not shown)

FIELD INSTALLABLE ACCESSORIES

The following items are available from the factory for field installation:

TABLE 11: Mechanical Accessories:

Item	Description
1024149	Universal wall & ceiling mounting bracket kit; <=10 KW
1024150	Universal wall & ceiling mounting bracket kit; 10< KW <=20
1024151	Universal wall & ceiling mounting bracket kit; > 20 KW
1024155	Anemostat (Cone) Diffuser <=5 KW
1024156	Anemostat (Cone) Diffuser 5< KW <=20
1024157	Anemostat (Cone) Diffuser >20 KW
1024152	Radial Diffuser <=5 KW
1024153	Radial Diffuser 5< KW <=20
1024154	Radial Diffuser >20 KW
1023941	Horizontal Dust Shield <=10 KW
1024059	Horizontal Dust Shield 10< KW <=20
1024060	Horizontal Dust Shield >20 KW

TABLE 12: Electrical Accessories:

Item	Description	Ratings
1024162	Disconnect Switch 32A	32 Amps, 600V, 3 Pole
1024163	Disconnect Switch 64A	64 Amps, 600V, 3 Pole
1024164	Disconnect Switch 80A	80 Amps, 600V, 3 Pole
1024166	Built On Thermostat Kit – 1 Stage	25A @ 240V, 22A @ 277V ; 125VA Pilot Duty
1024167	Built On Thermostat Kit – 2 Stage	25A @ 240V, 22A @ 277V ; 125VA Pilot Duty
1024168	“Heater On” Pilot Light – 24V	24 Vac Control Voltage
1024169	“Heater On” Pilot Light – 120V	120 Vac Control Voltage
1024170	Summer Fan Switch – Built On	Heater Voltage<= 277V
1024171	Summer Fan Switch with 24V Relay – Built On	24Vac Control, Heater Supply Voltage > 277V
1024172	Summer Fan Switch with 24V Relay – Remote	24Vac Control