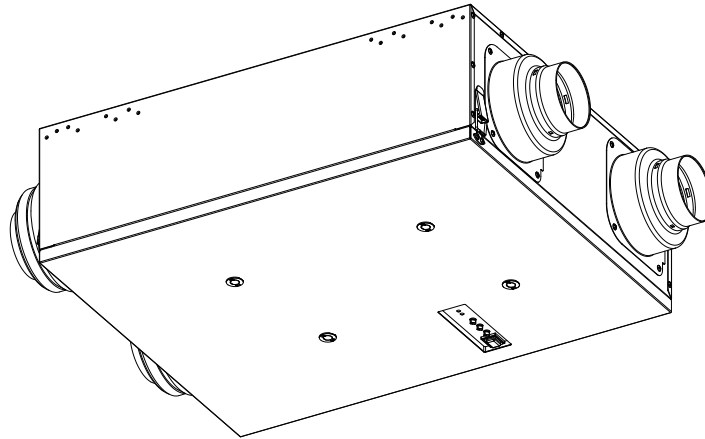


# Service Manual

Energy Recovery Ventilator  
(North America Market)

FV-10VEC2RH



## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacture.

We suggest to handle such parts after the static electricity prevention.

It is forbidden to touch the PCB parts by bare hands during the repairing process.

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# 1. Specifications

## <Ventilation Performance>

Model No.	Air direction	Voltage (V)	Frequency (Hz)	Duct	Static pressure	Net air flow (CFM)		Power consumption (W)	Weight lb.(.)
						Exhaust	Supply	Fan unit	
FV-10VEC2RH	Exhaust & Supply	120	60	4"/6"	0.1"WG	100	100	81	50 (22.4)
					0.4"WG	100	100	90	

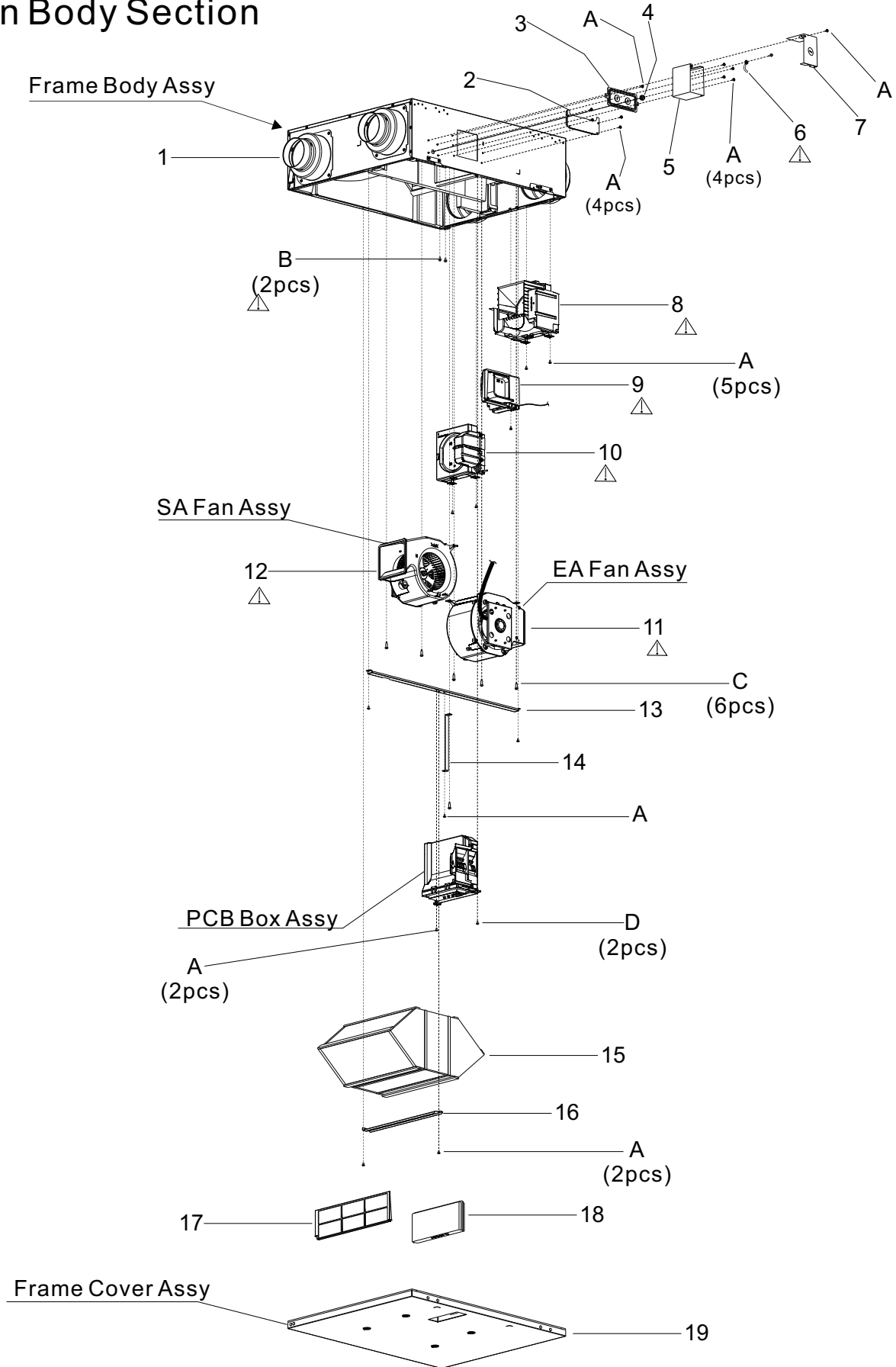
## <Energy Performance>

Model No.	Mode	Supply temperature		Net air flow		Power consumption (W)	Sensible recovery efficiency	Apparent sensible effectiveness	Net moisture transfer	
		°F	°C	L/s	CFM					
FV-10VEC2RH	Heating	32	0	25	53	29	80%	83%	0.78	
		32	0	31	66	39	77%	81%	0.74	
		32	0	40	85	68	73%	77%	0.71	
		-13	-25	27	57	77	65%	67%	0.71	
		-13	-25	30	64	100	56%	60%	0.58	
	Cooling	Total recovery efficiency								
		95	35	23	49	32	60%			
	95	35	31	66	42	55%				

# 2. Parts Identification

FV-10VEC2RH

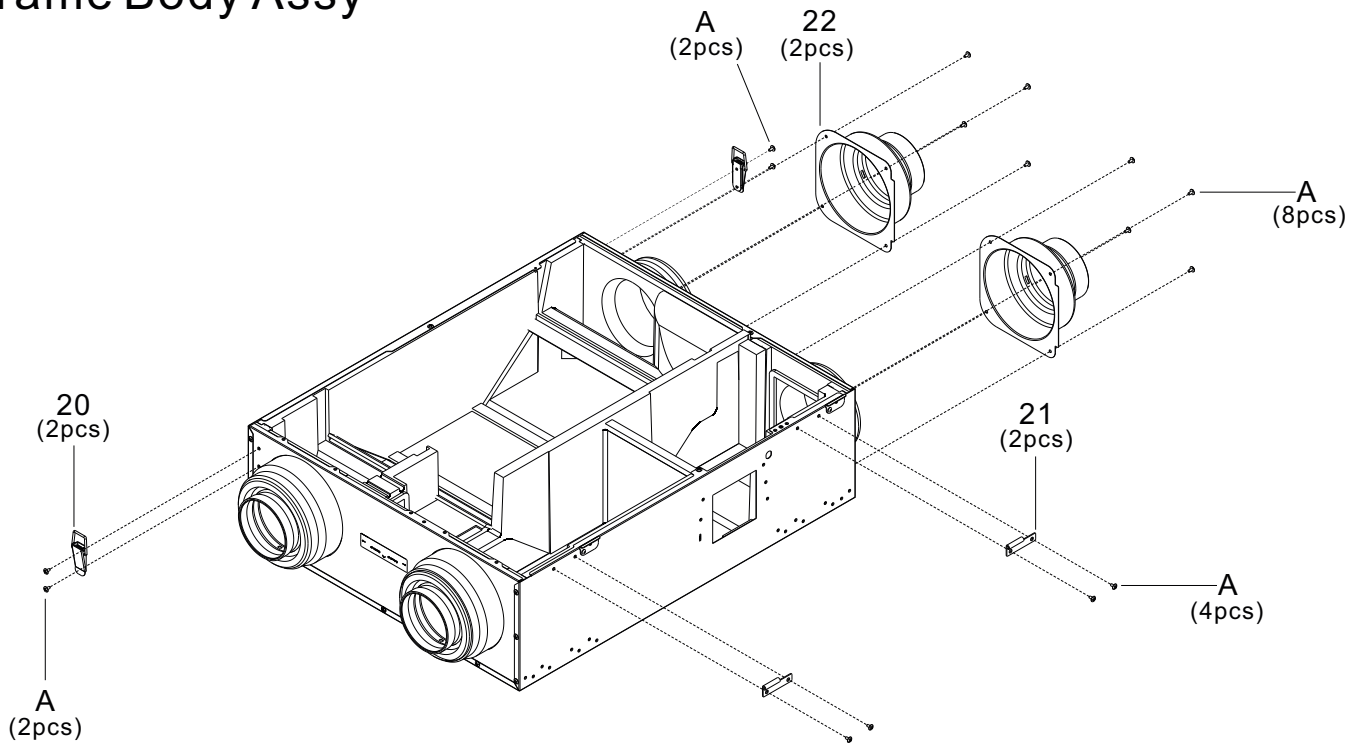
## Main Body Section



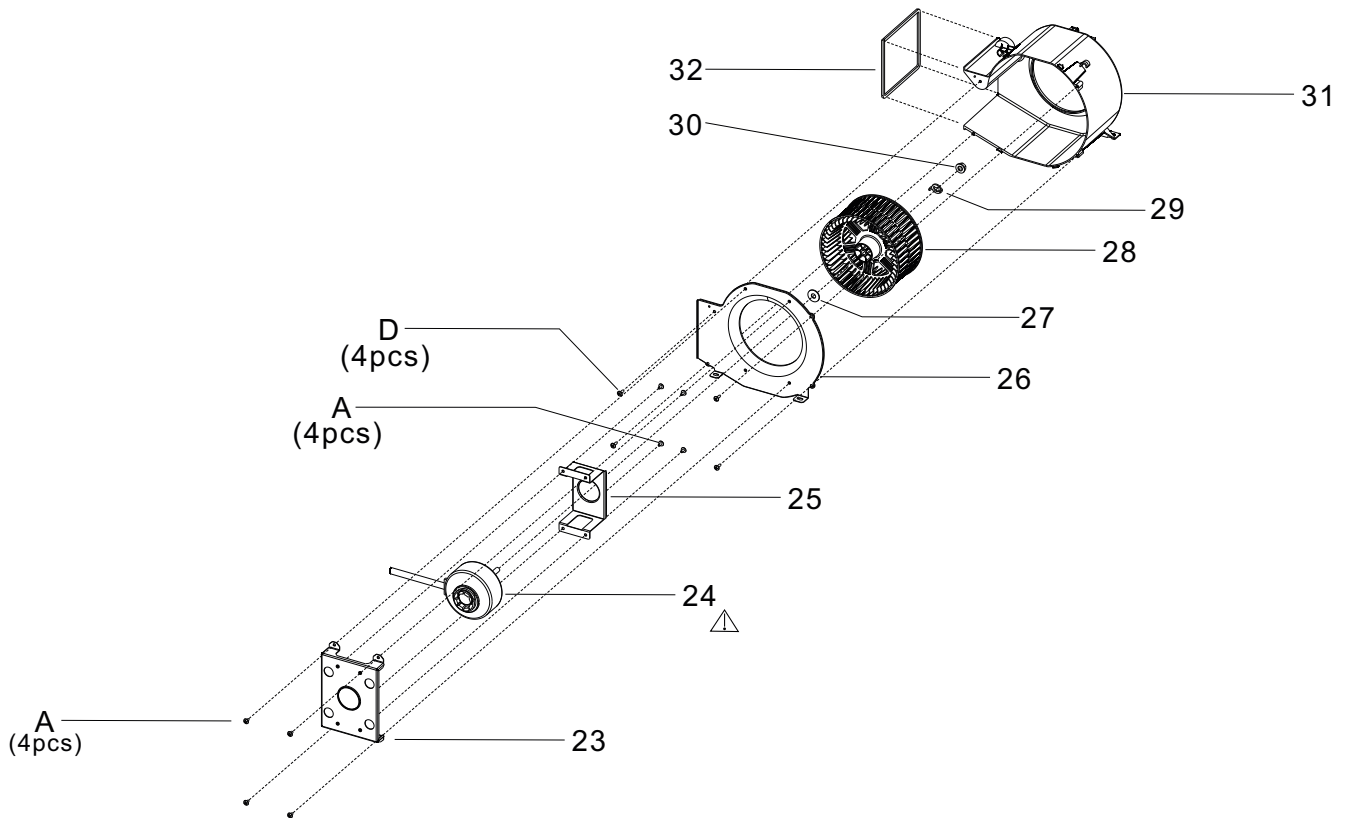
## 2. Parts Identification

FV-10VEC2RH

### Frame Body Assy



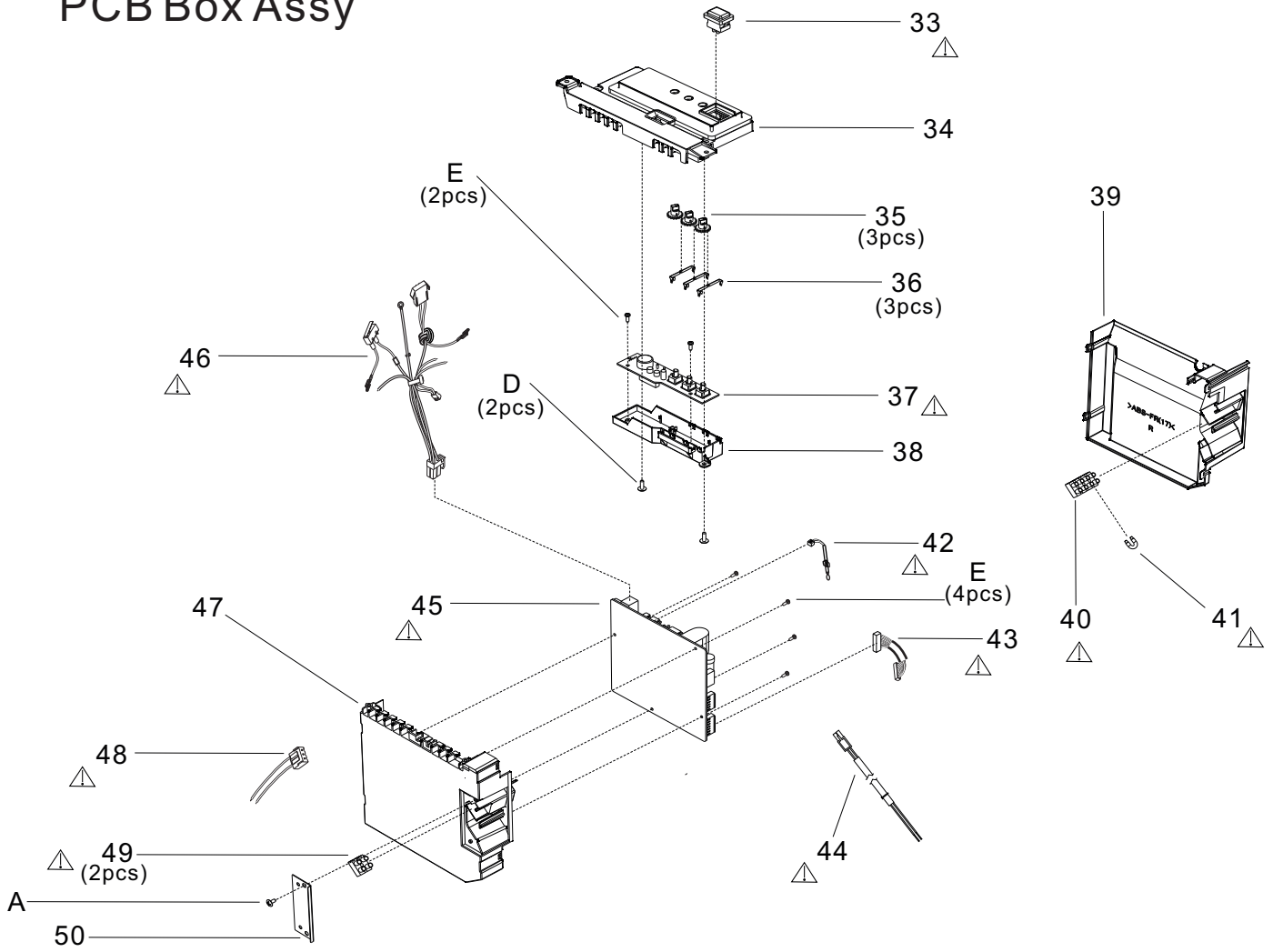
### SA Fan Assy / EA Fan Assy



# 2. Parts Identification

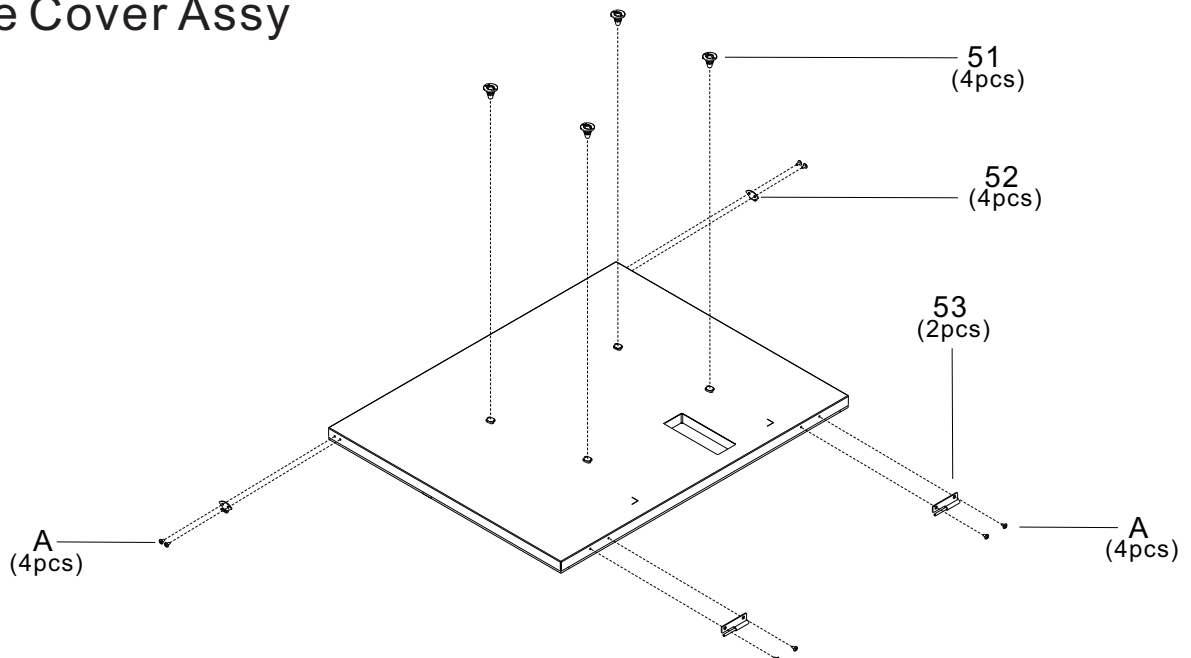
FV-10VEC2RH

## PCB Box Assy



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## Frame Cover Assy



# 2. Parts Identification

FV-10VEC2RH

## Main Labels

**CAUTION**

- Electric shock may result. Disconnect power by switching off main switch first, then unplug before working on unit when it is in default mode. (Fig.1)
- Electric shock may result. Disconnect power by switching off wall switch first, then main switch and unplug before working on unit when replacing the jumper cable with wall switch.
- The installation direction should refer to Fig.2 when wall mounting.
- Routine maintenance must be performed every 2 or 3 months, clogged filters may cause condensation on the unit due to air flow reduction.
- Please wear gloves to avoid pinching fingers during maintenance.
- Please pay attention to dust, condensation water or parts that may drop down when the cover is opened.

**MAINTENANCE PROCEDURE**

- Open the frame cover by unlocking the latches, If not convenient for maintenance you also can turn the lock plate 90° and remove the frame cover. (Fig.3)
- Remove OA filter and RA filter to clean with vacuum cleaner. (Fig.4)
- Clean energy recovery core with vacuum cleaner. (Fig.5)
- Replace the OA and RA filters. Make sure the RA filter adapts to the convex and the direction of the arrow on the OA filter is in the same direction as the air flow displayed on the nearby label. (Fig.6)
- Reinstall and close frame cover by locking the latches then reset the lock plate. (Fig.7)
- Connect power, press filter reset button with sound of "beep" then filter indicator and buzzer sound will be off. (Fig.8)

**ATTENTION**

- Risque de choc électrique. Coupez l'alimentation avec l'interrupteur principal d'abord, puis débranchez avant de travailler sur l'appareil lorsqu'il est en mode par défaut. (Fig.1)
- Risque de choc électrique. Coupez l'alimentation avec l'interrupteur mural d'abord, puis l'interrupteur principal et débranchez avant de travailler sur l'appareil pour remplacer la connexion temporaire par un interrupteur mural.
- Le sens d'installation doit se rapporter à la Fig.2 lors de la fixation murale.
- Une maintenance périodique doit être réalisée tous les 2 à 3 mois, car des filtres obstrués peuvent entraîner de la condensation dans l'unité à cause de la réduction du flux d'air.
- Veillez porter des gants pour éviter de vous pincer les doigts pendant la maintenance.
- Veillez faire attention à la poussière, à la condensation ou aux pièces qui pourraient tomber lorsque vous ouvrez le couvercle.

**PROCÉDURE DE MAINTENANCE**

- Ouvrez le couvercle en déverrouillant les verrous. Si cela n'est pas pratique pour la maintenance, vous pouvez également tourner la plaque de verrouillage à 90° et retirer le couvercle. (Fig.3)
- Enlevez les filtres AA et AR pour les nettoyer avec un aspirateur. (Fig.4)
- Nettoyez le noyau de récupération avec un aspirateur. (Fig.5)
- Remplacez les filtres AA et AR. Assurez-vous que le filtre AR s'adapte au convexe et que le sens de la flèche sur le filtre AA est dans la direction du flux d'air affiché sur l'étiquette juste à côté. (Fig.6)
- Reinstallez le couvercle puis verrouillez les verrous et fermez la plaque de verrouillage. (Fig.7)
- Branchez l'appareil, appuyez sur le bouton de réinitialisation, un bip "beep" se fait entendre: le voyant du filtre et le son sont désactivés. (Fig.8)

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

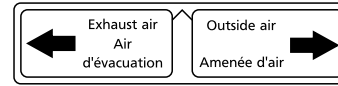
The relation between volume and differential pressure (reference)  
La relation entre le débit et la pression différentielle (référence)

Check the differential pressure with a manometer.  
Vérifier la pression différentielle avec manomètre.

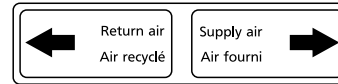
The numbers in this table are the values after installation.  
Les chiffres indiqués dans ce tableau correspondent aux valeurs après l'installation.

Volume (CFM)	Fresh Air (Pa)	Stale Air (Pa)
Débit (pi <sup>3</sup> /min)	FV-10VEC2R / FV-10VEC2RH	
50	30	55
60	35	65
70	45	85
80	55	115
90	65	150
100	80	180

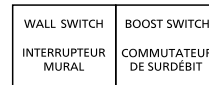
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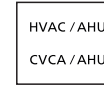
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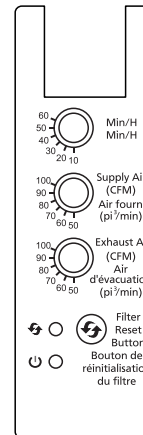
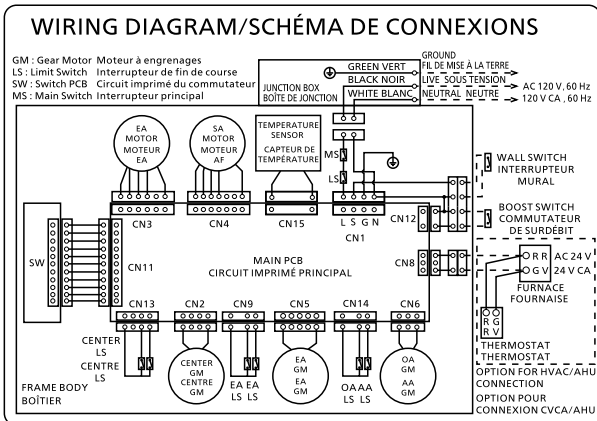
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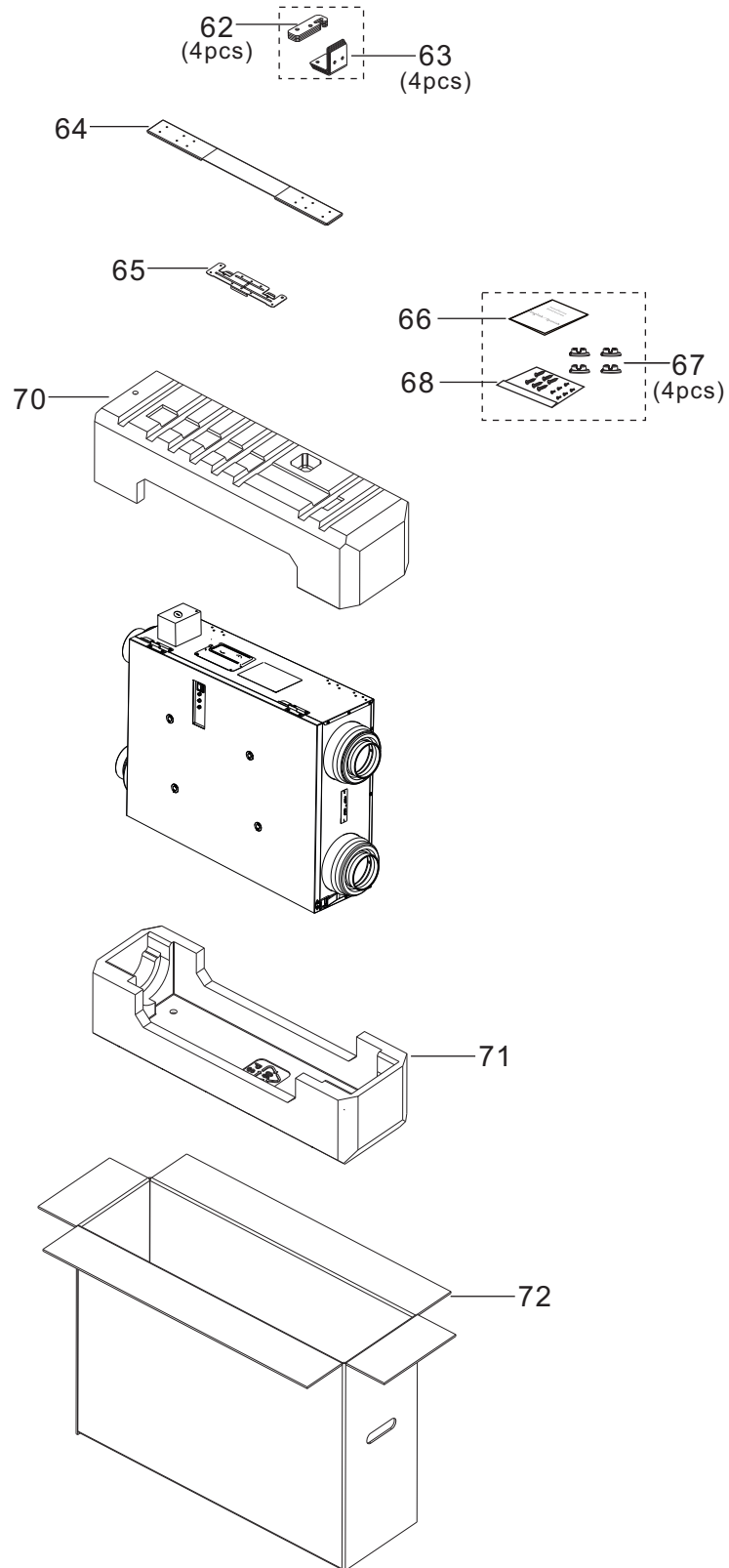
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# 2. Parts Identification

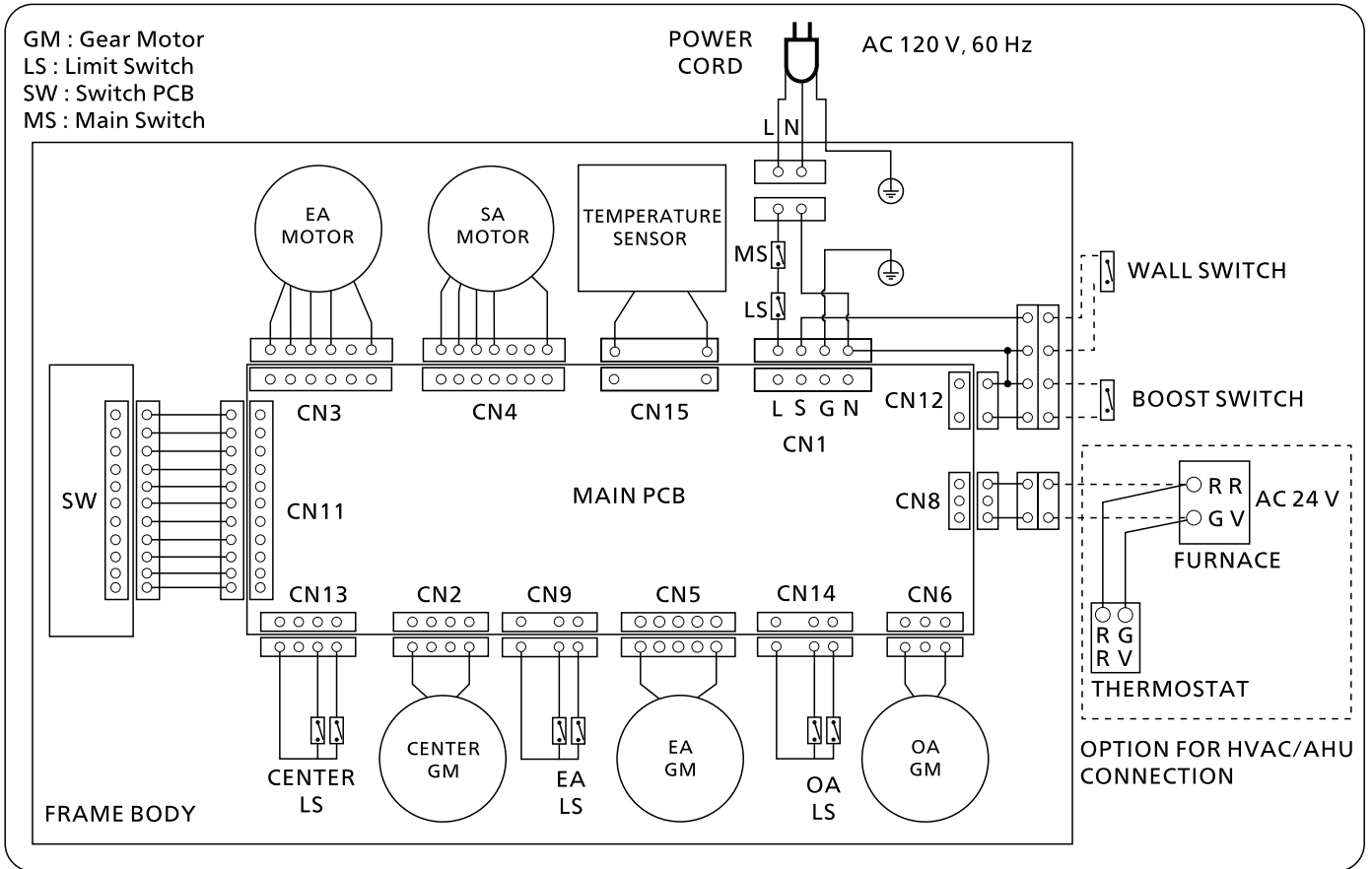
FV-10VEC2RH

## Packing Case Assy



# 3. Wiring diagram

FV-10VEC2RH





## 4. Troubleshooting

FV-10VEC2RH

If a problem is encountered, please investigate it by going through the following items.  
If the problem still persists, please disconnect the power and contact the dealer for repair.








Problem	Display		Action
	Running indicator (Green)	Filter indicator (Red)	
1.The ERV doesn't work.	Off	Off	<ul style="list-style-type: none"> <li>■ Check the power cord is connected.</li> <li>■ Check the frame cover is closed.</li> <li>■ Check the main switch in product body is on.</li> <li>■ Check if the spring on the inside of frame cover is damaged or deformed.</li> </ul>
	On	Off	<ul style="list-style-type: none"> <li>■ ERV running interval according to the ASHRAE time setting.</li> <li>■ When outdoor temperature is low (<math>\leq -22\text{ }^{\circ}\text{F}</math> (<math>-30\text{ }^{\circ}\text{C}</math>), ERV stops operating automatically.</li> <li>■ Damper may be frozen shut, please wait for maximum 24 hours for defrosting.</li> </ul>
2.The HVAC/AHU doesn't work when ERV works.	On	Off	<ul style="list-style-type: none"> <li>■ Please disconnect the power and contact the dealer to check the HVAC/AHU wiring connect.</li> </ul>
3.Buzzer sound (10 sec in a hour) and ERV works.	On	On	<ul style="list-style-type: none"> <li>■ The RA filter and OA filter need to be maintained. If you do not want the buzzer notification, please long press the filter reset button for 3 sec to cancel it.</li> </ul>
4.Buzzer sound (30 sec in a hour) and ERV doesn't work.	Blink* (0.5 s)	Off	<ul style="list-style-type: none"> <li>■ SA motor error, please disconnect the power and contact the dealer for repair.</li> </ul>
	Blink* (2 s)	Off	<ul style="list-style-type: none"> <li>■ EA motor error, please disconnect the power and contact the dealer for repair.</li> </ul>
	Off	Blink* (0.5 s)	<ul style="list-style-type: none"> <li>■ OA damper error, please disconnect the power and contact the dealer for repair.</li> </ul>
	Off	Blink* (2 s)	<ul style="list-style-type: none"> <li>■ EA damper error, please disconnect the power and contact the dealer for repair.</li> </ul>
	Off	Blink* (4 s)	<ul style="list-style-type: none"> <li>■ Center damper error, please disconnect the power and contact the dealer for repair.</li> </ul>
	Blink* (0.5 s)	On	<ul style="list-style-type: none"> <li>■ Temperature sensor error, please disconnect the power and contact the dealer for repair.</li> </ul>
	On	Blink* (0.5 s)	<ul style="list-style-type: none"> <li>■ PCB board error, please disconnect the power and contact the dealer for repair.</li> </ul>
5.ERV doesn't work base on the setting air volume.	On	Off	<ul style="list-style-type: none"> <li>■ When product runs in circulation mode for defrosting, the air volume will be more than setting and sound will be slightly louder than normal operation.</li> <li>■ When outdoor temperature is less than <math>14\text{ }^{\circ}\text{F}</math> (<math>-10\text{ }^{\circ}\text{C}</math>), the product will restrict air volume automatically to protect energy recovery core.</li> </ul>

\*The time under "Blink" means the frequency of blink.

## 4. Parts List

FFV-10VEC2RH

### Main Body Section

No.	Part No.	Part Name	Q'ty	Remark
1	FFV10C2RH9	Frame Body Assy	1	
2	FFV3740038M	Maintenance Plate	1	
3	FFV6710047M	Wiring Cover	1	
4	FFV07SR6R1	Cord Bushing	1	
5	FFVC2RH904	Junction Box	1	
6	FFV3450010S	Ground Wire	1	
7	FFV2800023S	Junction Cover	1	
8	FFV3402188M	EA Damper Assy	1	
9	FFV4710448M	Center Damper Assy	1	
10	FFV4300151M	OA Damper Assy	1	
11	FFV3402189M	EA Fan Assy	1	
12	FFV3702280M	SA Fan Assy	1	
13	FFV1600153M	Frame Bracket Assy	1	
14	FFV1600154M	Frame Bracket Hook	1	
15	FFV3402190M	Element Assy	1	
16	FFV3402191M	Element Holder	1	
17	FFV6730102S	RA Filter	1	
18	FFV4300152M	OA Filter M8	1	Merv 8
19	FFV1600175M	Frame Cover Assy	1	
A	FFV7000074S	Truss Tap Screw	22	
B	FFV7030008S	Pan Screw	2	
C	FFV7000224S	PS Screw	6	
D	FFV7000089S	Truss Tap Screw	2	

### Frame Body Assy

No.	Part No.	Part Name	Q'ty	Remark
20	FFV3440021S	Latch	2	
21	FFV2220075M	Hinge B	2	
22	FFV0000163M	Adapter	2	
A	FFV7000074S	Truss Tap Screw	16	

## 4. Parts List

FV-10VEC2RH

### SA Fan Assy/EA Fan Assy

No.	Part No.	Part Name	Q'ty	Remark
23	FFV3730127M	Motor Holder Plate	1	
24	FFV3402192M	EA Motor Assy	1	
(24)	FFV3702281M	SA Motor Assy	1	⚠
25	FFV3730128M	Motor Holder	1	⚠
26	FFV3730129M	Motor Base	1	
27	FFV7010055S	Washer	1	
28	FFV1610079M	Blade	1	
29	FFV10VC2R9	Fix Plate	1	
30	FFV7020022S	Nut	1	
31	FFV4710409M	Casing	1	
32	FFV4710408M	Casing Packing	1	
A	FFV7000074S	Truss Tap Screw	8	
D	FFV7000089S	Truss Tap Screw	4	

### PCB Box Assy

No.	Part No.	Part Name	Q'ty	Remark
33	FFV5580017S	Switch Assy	1	⚠
34	FFV5580016M	Switch PCB Cover Assy	1	
35	FFV5580010S	Switch Knob	3	
36	FFV5580011S	Switch Spring	3	
37	FFV5580018M	Switch PCB Assy	1	⚠
38	FFV5580019M	Switch PCB Box Assy	1	
39	FFV4690039M	PCB Cover	1	
40	FFV5820040S	Terminal	1	⚠
41	FFV2800028S	Jumper Cable	1	⚠
42	FFV5820037S	Temperature Sensor	1	⚠
43	FFV5580020S	Switch PCB Wire	1	⚠
44	FFV10C2RH2	Power Cord	1	⚠
45	FFV0VC2PCB	Main PCB Assy	1	⚠
46	FFV4690040M	Power Connect Wire	1	
47	FFV4690027M	PCB Box	1	⚠
48	FFV0000164M	AHU Wire	1	⚠
49	FFV5820038S	Terminal	1	
50	FFV4690028M	Partition Plate	1	
A	FFV7000074S	Truss Tap Screw	1	
D	FFV7000089S	Truss Tap Screw	2	
E	FFV7000102S	Pan Tap Screw	6	

## 4. Parts List

FFV-10VEC2RH

### Frame Cover Assy

No.	Part No.	Part Name	Q'ty	Remark
51	FFV2220076M	Hinge A	2	
52	FFV4620133S	Pressure Plug	4	
53	FFV3440022M	Latch Base	2	
A	FFV7000074S	Truss Tap Screw	8	

### Main Labels

No.	Part No.	Part Name	Q'ty	Remark
54	FFV10C2RH6	Maintenance Label	1	
55	FFV3402226M	EA OA Adapter Label	1	
56	FFV6730113M	RA SA Adapter Label	1	
57	FFV5580031M	Wall Switch Label	1	
58	FFV0000189M	AHU Label	1	
59	FFV2260002S	HVI Mark	1	
60	FFV10VE2H05	Wiring Label	1	
61	FFV5580022M	Switch Label	1	

### Packing Case Assy

No.	Part No.	Part Name	Q'ty	Remark
62	FFV4710410M	Ceiling Inst. Plate	4	
63	FFV3440023M	L Plate	4	
64	FFV6710049M	Wall Install Bracket	1	
65	FFV2220077M	Hanger	1	
66	FFVC2RH450	Install. Instructions (ES)	1	English/Spanish, For USA Market.
67	FFV5580023S	Screw Cover	4	
68	FFV0010253M	Accessory For Screws	1	
69	FFV4710411M	Packing Pad Top	1	
71	FFV4710412M	Packing Pad Bottom	1	
72	FFVC2RH420	Packing Case Assy	1	