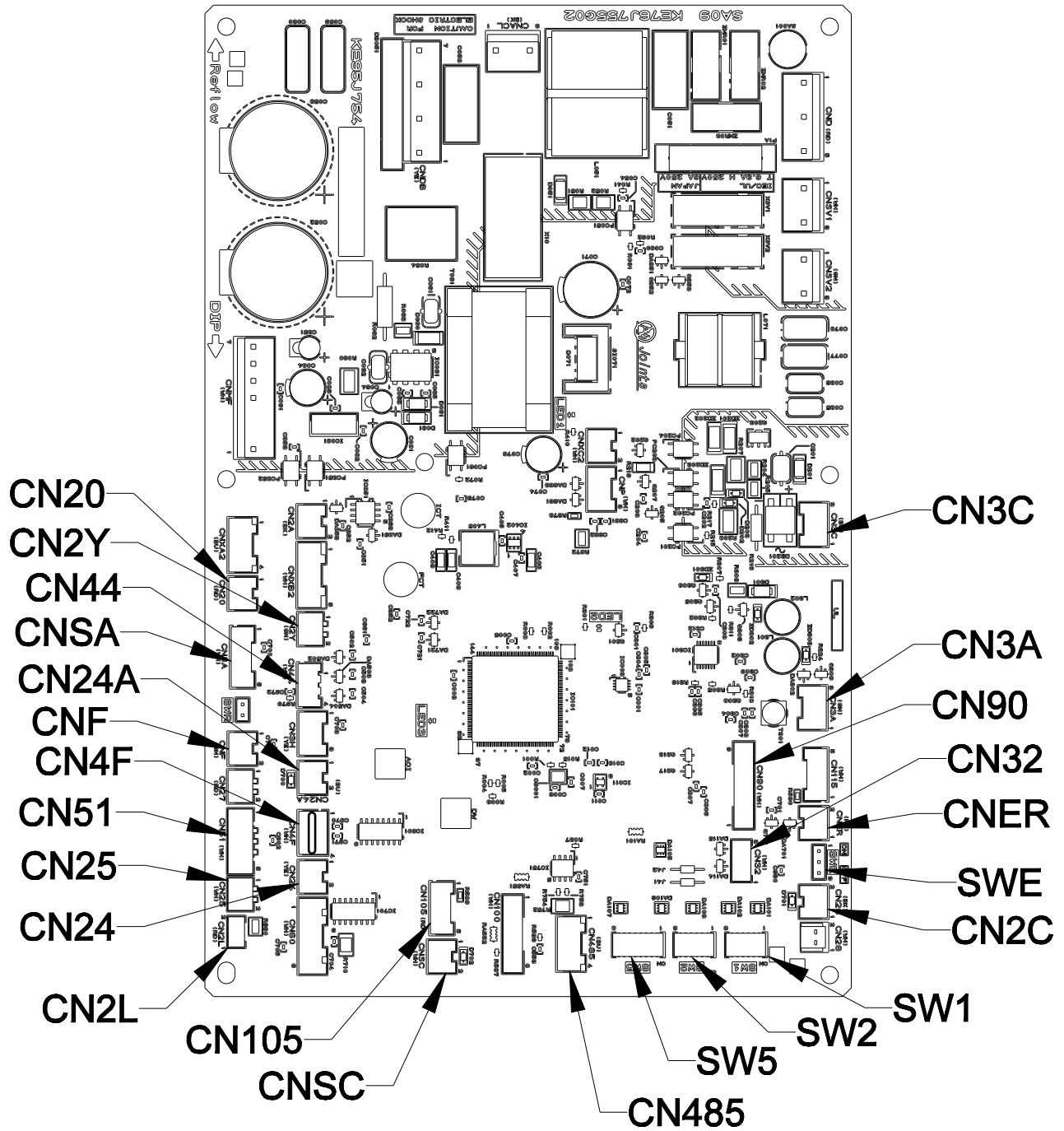
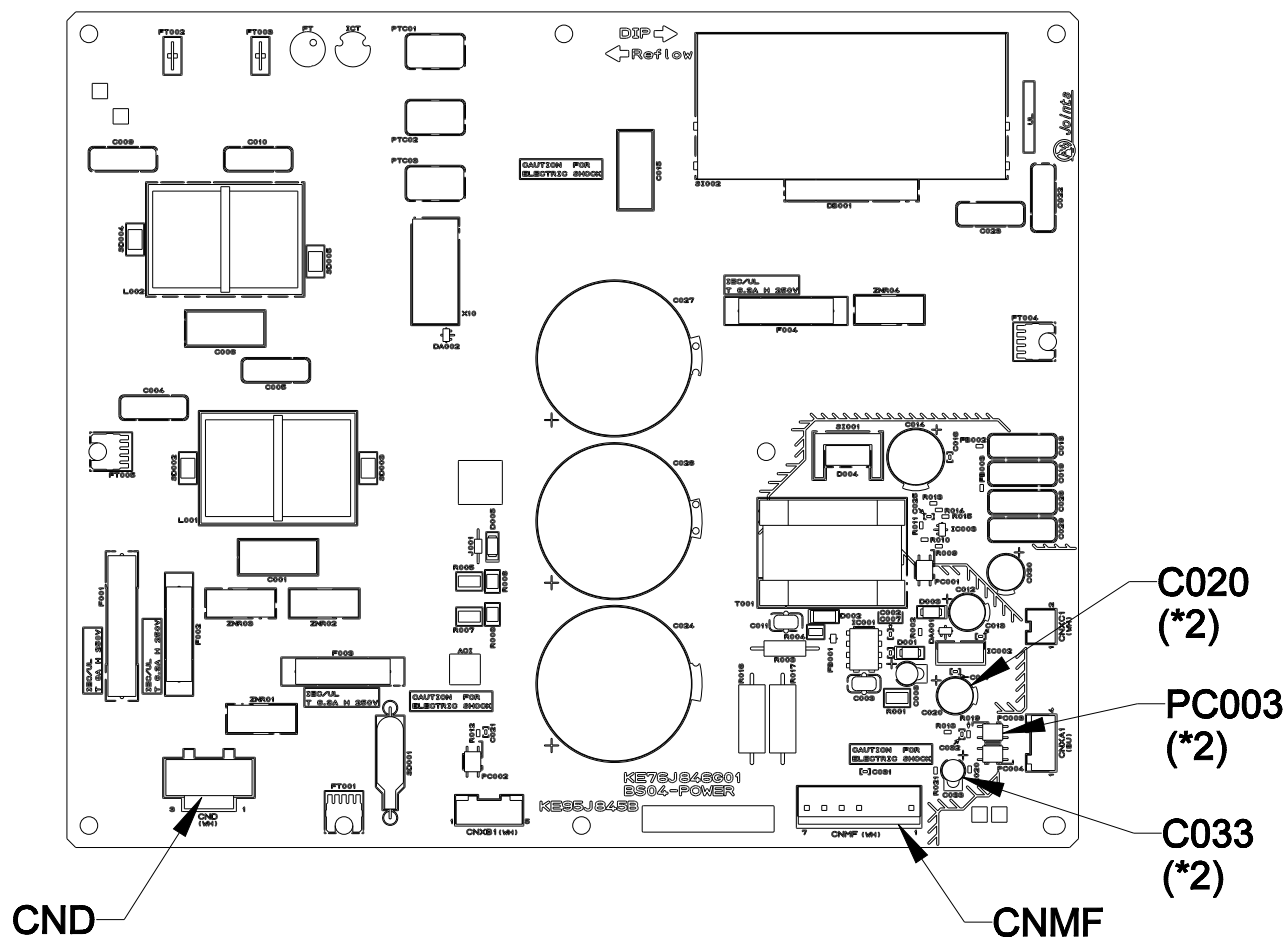


Model code 60



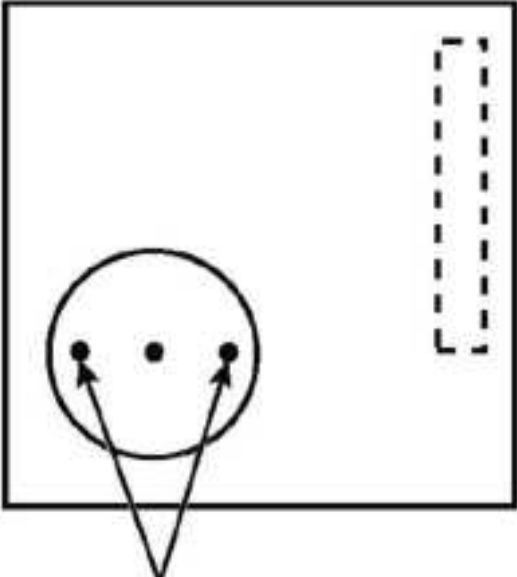


- (2*)
 - V_{FB} : Voltage on the (-) side of PC003 and C020
 - (same with the voltage between 7 (+) and 4 (-) of CNMF)
 - V_{DC} : Voltage between the C020 pins 15 VDC
 - (same with the voltage between 5 (+) and 4 (-) of CNMF)
 - V_{ap} : Voltage between the C033 pins
 - 0 VDC (with the fan stopped)
 - 1 - 6.5 VDC (with fan operating)
 - (same with the voltage between 6 (+) and 4 (-) of CNMF)

13.6. Trouble criterion of main parts

Part name	Check method and criterion	
Room temperature thermistor (TH1)	Measure the resistance with a tester. (Part temperature 10C (50F) ~ 30C (86F))	
Pipe temperature thermistor / liquid (TH2)		
	Normal	Abnormal
	4.3k~9.6k	Opened or short-circuited

Part name	Check method and criterion
Condenser / evaporator temperature thermistor (TH5)	
Wiring diagram	The diagram illustrates the electrical connections for a motor control system. On the left, four input terminals are shown: Vm (Power supply for motor), Vcc (Power supply for control), Vsp (Speed command voltage), and PG (Pulse output for rotation). These are connected to a central 'Board with build-in motor'. Inside this board, a 'Regulator' is connected to Vm and Vcc. A 'Hall IC' is connected to Vcc and the PG terminal. The 'Power device' is connected to Vm, Vcc, and the Hall IC. A 'Pre driver' is connected to the Power device and the PG terminal. A 'Current detecting resistor' is connected between the Power device and the Pre driver. The output of the Pre driver is connected to the 'Motor winding', which is represented by a coil symbol. The entire system is grounded (GND).

Part name	Check method and criterion				
Refrigerant leak sensor	Measure the resistance between the terminals with a multimeter. <table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>Below 10</td><td>Open (10 or more)</td></tr></table> After turning off the indoor unit breaker and leaving it for 5 minutes, measure the resistance value between the sensor terminals. Back side of the sensor  Measure across both sides of the sensor pin	Normal	Abnormal	Below 10	Open (10 or more)
Normal	Abnormal				
Below 10	Open (10 or more)				

13.7. Thermistor

<Thermistor Characteristic graph>

Thermistor for
lower temperature

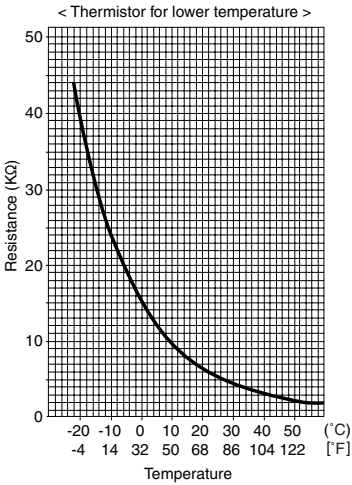
Room temperature thermistor (TH1)
Pipe temperature thermistor (TH2)
Condenser/evaporator temperature
thermistor (TH5)

Thermistor $R_0 = 15 \text{ k}\Omega \pm 3\%$

Fixed number of $B = 3480 \text{ k}\Omega \pm 2\%$

$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C	(32°F)	15 kΩ
10°C	(50°F)	9.6 kΩ
20°C	(68°F)	6.3 kΩ
25°C	(77°F)	5.2 kΩ
30°C	(86°F)	4.3 kΩ
40°C	(104°F)	3.0 kΩ



13.8. DC Fan motor (fan motor/indoor controller board)

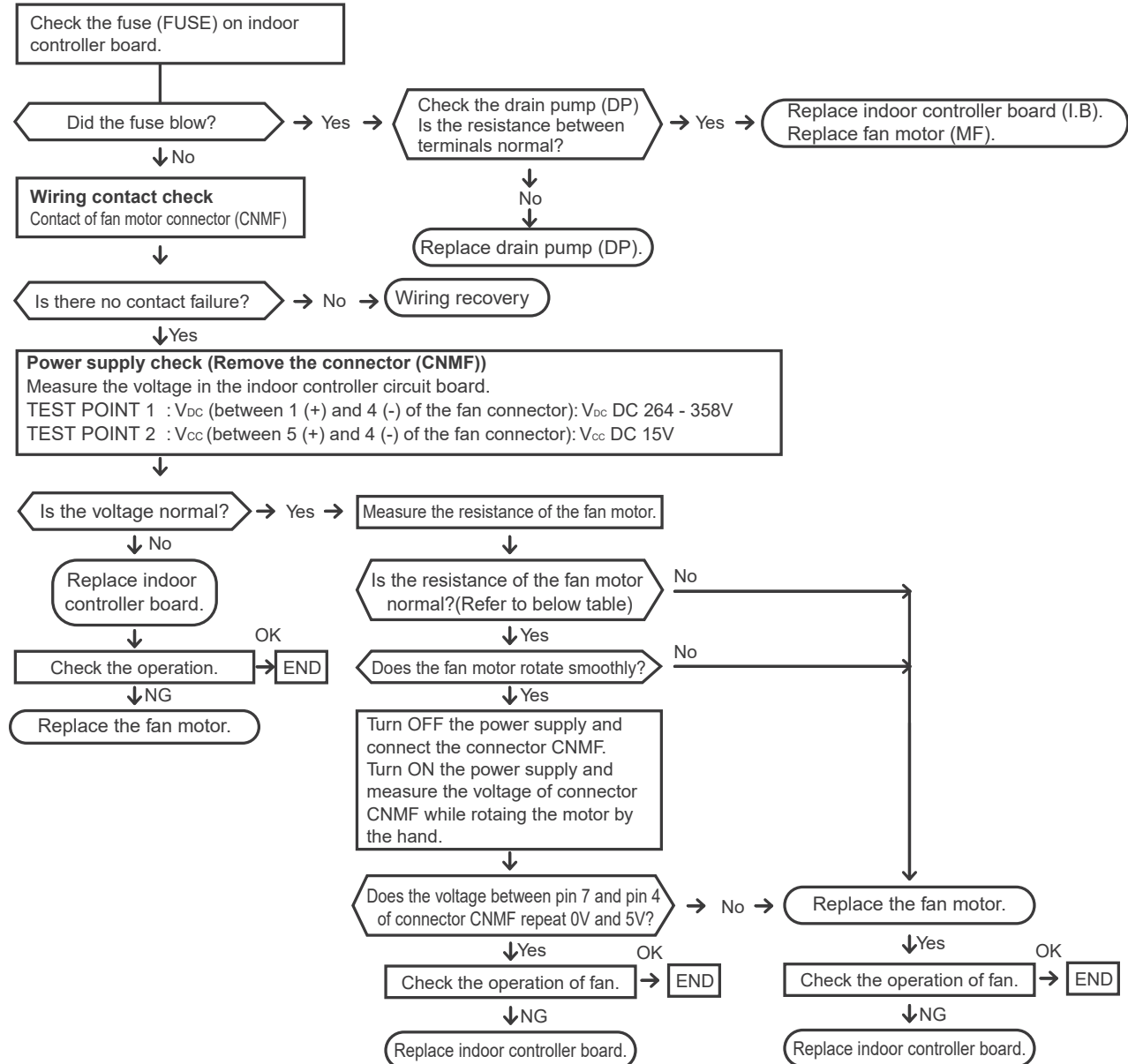
Check method of DC fan motor (fan motor/indoor controller circuit board)

1 Notes

- High voltage is applied to the connector (CNMF) for the fan motor. Give 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 turn around.



13.8.1. DC Fan motor measuring points

Model code	12, 18, 24, 30	36, 42, 48	60
Measuring points	Resistance		
pin 1 - pin 4	O.L.	1M kΩ	413.3 kΩ
pin 3 - pin 4	50 kΩ	47 kΩ	317.8 kΩ
pin 6 - pin 4	150 kΩ	143 kΩ	200 kΩ
pin 7 - pin 4	O.L.	O.L.	427.6 kΩ



NOTE

* To measure the resistance, unplug the CNMF wire from the control board, then connect the end of the tester to pin 4.

13.9. Functions of DIP switch and jumper wire

Each function is controlled by the dip switch and the jumper wire on control p.c. board. SW1 and SW2 are equipped only for service parts.

Model setting and capacity setting are memorized in the nonvolatile memory of the control p.c. board of the unit.

Jumper wire	Functions	Setting by the dip switch and jumper wire	Remarks
SW1	Model settings	for service board ON 1 2 3 4 5 6	

Jumper wire	Functions	Setting by the dip switch and jumper wire	Remarks																	
SW2	Capacity settings	<table><tr><th>Model code</th><th>Service Board</th></tr><tr><td>12</td><td> ON SW2 1 2 3 4 5 6 </td></tr><tr><td>18</td><td> ON SW2 1 2 3 4 5 6 </td></tr><tr><td>24</td><td> ON SW2 1 2 3 4 5 6 </td></tr><tr><td>30</td><td> ON SW2 1 2 3 4 5 6 </td></tr><tr><td>36</td><td> ON SW2 1 2 3 4 5 6 </td></tr><tr><td>42</td><td> ON SW2 1 2 3 4 5 6 </td></tr></table>	Model code	Service Board	12	ON SW2 1 2 3 4 5 6	18	ON SW2 1 2 3 4 5 6	24	ON SW2 1 2 3 4 5 6	30	ON SW2 1 2 3 4 5 6	36	ON SW2 1 2 3 4 5 6	42	ON SW2 1 2 3 4 5 6				
		Model code	Service Board																	
12	ON SW2 1 2 3 4 5 6																			
18	ON SW2 1 2 3 4 5 6																			
24	ON SW2 1 2 3 4 5 6																			
30	ON SW2 1 2 3 4 5 6																			
36	ON SW2 1 2 3 4 5 6																			
42	ON SW2 1 2 3 4 5 6																			
48 SW2 1 2 3 4 5 6 60 ON OFF 1 2 3 4 5 6																				
J41 J42	Pair number setting with wireless remote controller	<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> ○ 1 </td><td> ○ </td></tr><tr><td>1</td><td> ✕ 2 </td><td> ○ </td></tr><tr><td>2</td><td> ○ </td><td> ✕ </td></tr><tr><td>3 ~ 9</td><td> ✕ </td><td> ✕ </td></tr></table> 1 ○ : Short 2 ✕ : Open	Wireless remote controller setting	Control PCB setting		J41	J42	0	○ 1	○	1	✕ 2	○	2	○	✕	3 ~ 9	✕	✕	<Settings at time of factory shipment> Wireless remote controller: 0 Control PCB: ○ (for both J41 and J42) Four pair number settings are supported. The pair number settings of the wireless remote controller and indoor controller PCB (J41/J42) are given in the table on the left. ✕ in the table indicates the jumper line is disconnected.
Wireless remote controller setting	Control PCB setting																			
	J41	J42																		
0	○ 1	○																		
1	✕ 2	○																		
2	○	✕																		
3 ~ 9	✕	✕																		

¹ : Short

2  : Open

14. Disassembly Procedure

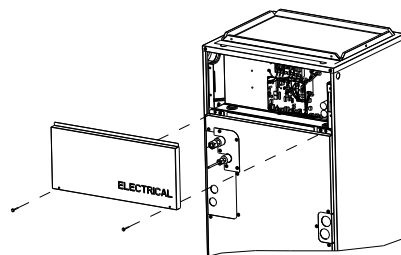


CAUTION

Exercise caution when removing heavy parts.

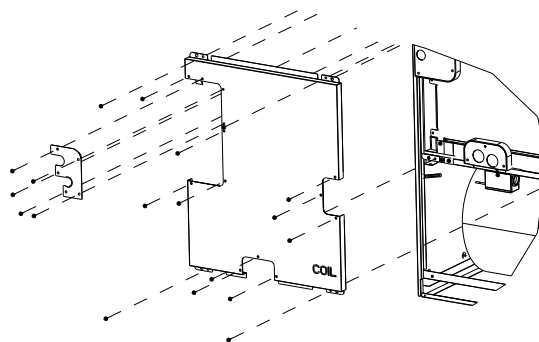
14.1. Control Box

1. Remove the electric panel (2 screws).

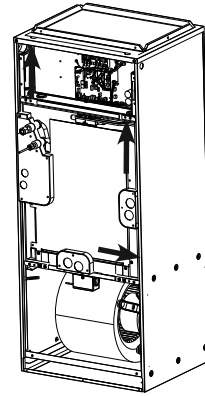


14.2. Coil Assembly

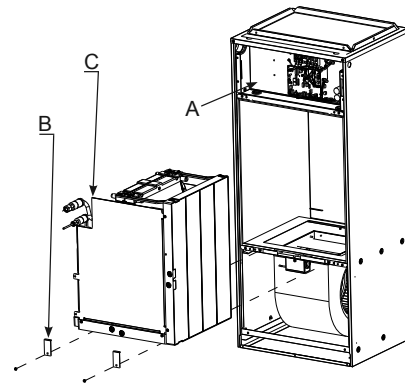
1. Remove the Electrical, Blower and Filter panel indicated in sections 1 and 2.
2. Remove the Coil panel by removing all of the screws securing it to the (3) smaller panels for refrigerant and drain lines.



3. Slide the smaller panels in the directions indicated and remove.



- 4a. Unplug the Thermistor (CN44) from the control board and route the harness from control box area out through the rubber grommet.
 - Unplug the refrigerant leak sensor (CNSA) from the control board and route the harness from control box out through the rubber grommet.
- 4b. Remove the brackets which secure the coil assembly.
- 4c. Slide the coil assembly out of the air handler cabinet.



5. Remove the plate covering the coil assembly to access the thermistors.

