

Carrier Enterprise

Carrier & Bryant Ductless Service Manual



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1st Steps for DLS Troubleshooting

If error is already displayed, make note of it. If Multi-Zone check each Indoor Unit for error. If no error displayed, wait up to 5 minutes for error to reappear. Some errors are constant retry and will only appear every 3 to 5 minutes to display again. During this time either a normal display or an “88” will be seen.

If the system is a Multi-Zone 38MGR36 or 48 go to the outdoor unit and pull the last error code from the Main PCB. Procedure is towards the back of this guide. After code is retrieved go to next step.

Recycle power and try system again. Give the system a minimum of 10 minutes for error to appear again.

If error appears again, go to the flow chart for the error displayed and work the error.

Things to check during any troubleshooting service call.

- Power to the units? Within limits?
- All wire harness connected and fully seated in their sockets?
- Is the end user operating the system correctly?
- Raise or lower the set point (Heat vs. Cool) 5 or more degrees, wait 10 minutes, system come ON?

On Multi-Zone systems, operate each zone independently first. Check Heating & Cooling if temperature permits. This will help rule out cross piping and wiring. Even if the system has been installed for some time, still check this. It is often missed at the time of start up.

1st Steps for DLS Troubleshooting (cont.)

If system has no error but still not performing well, remove the refrigerant charge (weighing it out) and recharge the system. Make sure to check the additional charge calculation if one is needed.

If the end user's complaint is related to over or under shooting temperature of the space, the sizing of the equipment to the application should be checked. Keeping in mind the below.

- Minimum BTU output of the equipment
- Size of the head and the BTU requirements of the space it is located within.

In some cases the Heating or Cooling Compensation setting can be adjusted to help offset the temperature over or under shooting. Explanation and instructions are in this guide.

For Defrost issues the following should be checked first.

- Refrigerant charge
- Equipment sizing to the application

For Defrost issues on systems with a 24-Volt Interface installed

Any outdoor unit made prior to 2.01.2021 may need a main PCB upgrade. If your unit's serial number starts 0421V or lower an upgrade may be needed. Check with CE Tech Support.



1st Steps for DLS Troubleshooting (end)

Tools/Material required for DLS Troubleshooting & Servicing.

All the same tools required for properly installing Ductless equipment. See CE's Ductless Install Training for more details.

In addition to the above, the following are a must have.

- A Megger – This is crucial for checking out a compressor. An Ohm meter is useful, but a Megger is essential.
- Conductive Grease – This is needed when replacing some of the PCB's in the outdoor units. This can be purchased through CE or online.
- A spare wireless remote control, part numbers:
RG57 – 17317000A34063
RG10 – 17317000A59628
RG66 – 17317000A45681
- Support material from CE or Carrier. Service Manuals, Product Data. Download to your electronic device before going to the site.



All Models

Indoor Outdoor Unit Communication Error E1 (page 1 of 3)

Error Code	E1 – Indoor / Outdoor Unit Communication Error
Indoor Unit or Wired Control Display – E1	Dr. Smart Display (Debugger) – E1
Malfunction decision conditions	The indoor unit cannot communicate with the outdoor unit
Supposed Causes	<ul style="list-style-type: none">• Wiring mistake• Short-circuited component• Indoor Unit PCB• Outdoor PCB

Troubleshooting: Error is only displayed every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

E1 is often seen on the day of start up for a new system. Typically due to an electrical issue with the field installed wire between the Indoor & Outdoor units. There should be no solid wire installed between the Indoor & Outdoor, if this was done change this out first. Also make sure all wire stands are landed in the terminal. Repair connections due to over stripped wires.

Is there a Condensate Pump Safety Switch tied in? Check this first, make sure it has not tripped and opened up it's normally closed contacts. The switch can break “L1” or “L2”, do not break “S”.

If E1 still present, turn power OFF and disconnect the field supplied “S” or “3” wire from both ends. Reapply power and check for induced voltage on the communication wire. With a meter measure the field supplied “S” or “3” wire to ground. Zero voltage on the communication wire is preferred. If 20 or more volts are measured and Communication Errors persists, fix or replace all 4 wires.

Once all you have verified the above, proceed below.

DO NOT CHECK IN STANDBY, system must be ON and calling for Heat or Cool.

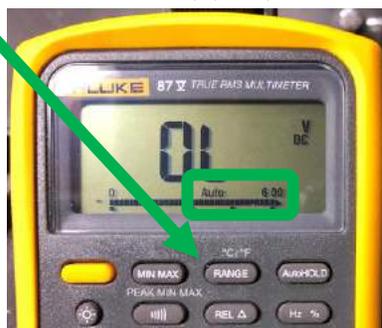
Set your multimeter to **DC Volts**.

If no error is displayed, wait a minimum of 8 minutes for error to appear or measuring voltage.

Measure DC voltage, making sure Black Lead from Meter is on N/L2/2, Red Lead is on S/3.

This is very important to do as stated, if not followed the flow chart will not point you in the proper direction.

If your meter defaults to an Auto Ranging Scale, change to Manual before proceeding, press your meter's Range button to select an appropriate scale.



Continued on next page

All Models

Indoor Outdoor Unit Communication Error E1 (page 2 of 3)

Under normal operation voltage will alternate from approximately -50 Volts to +50 Volts.



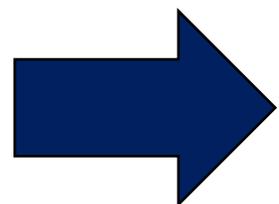
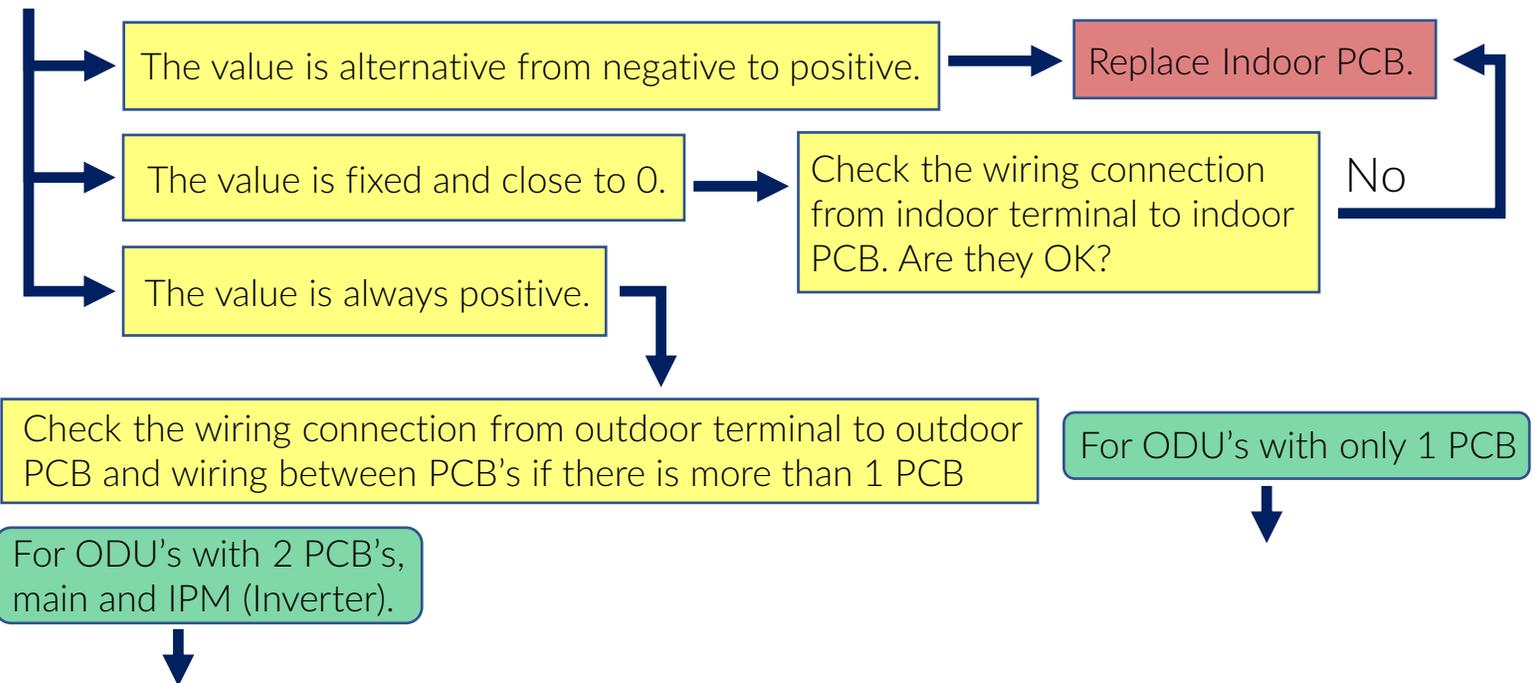
If your meter has a MIN/MAX setting, we recommend using this. It can quickly show you the top and bottom of the alternating range.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if E1 is displayed, procedure below.



Go to ODU and Measure the DC voltage between “N/L2/2” and “S/3”
Black Lead to N/L2/2, Red Lead to S/3

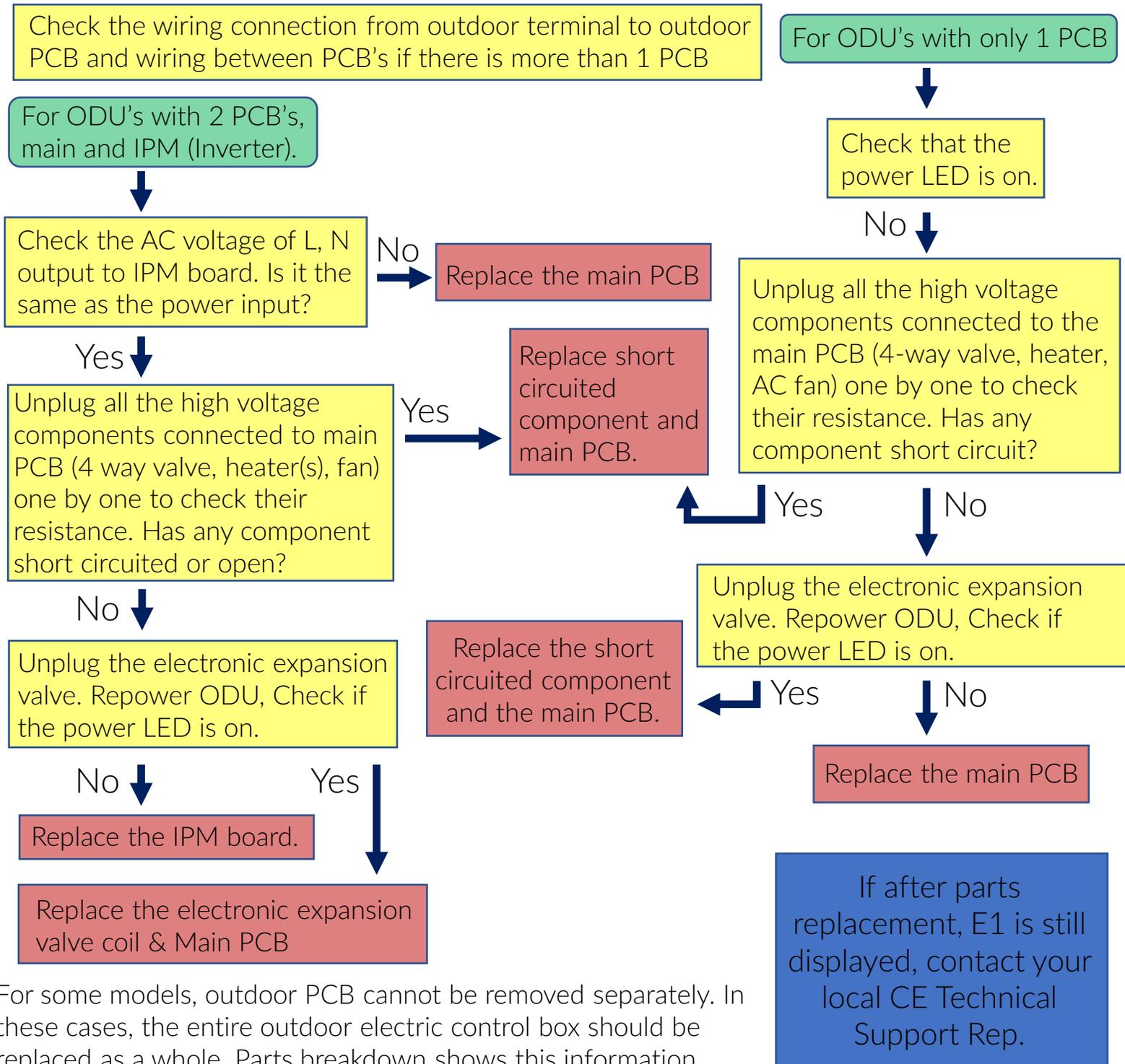
Note: Terminals may be referred to in one of three ways.
L, N, S Or L1, L2, S Or 1, 2, 3



Continued on next page

All Models

Indoor Outdoor Unit Communication Error E1 (page 3 of 3)



For some models, outdoor PCB cannot be removed separately. In these cases, the entire outdoor electric control box should be replaced as a whole. Parts breakdown shows this information.

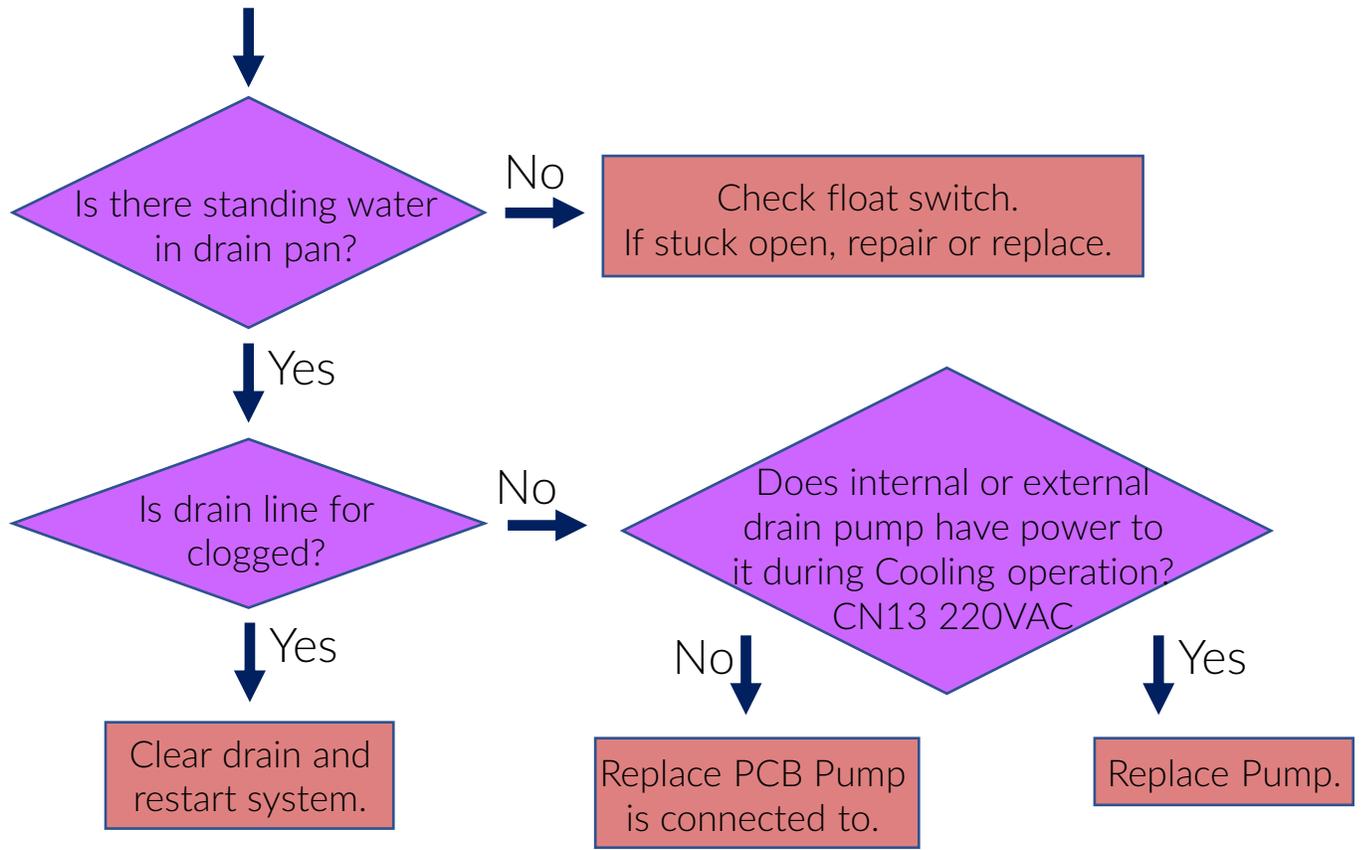


40MBDQ09~58--3 Ducted Water Level Alarm EE

Error Code	EE – Water Level Switch Activated
Indoor Unit or Wired Control Display EE	Dr. Smart Display (Debugger) No Error Displayed
Malfunction decision conditions	If the sampling voltage is not 5V
Supposed Causes	<ul style="list-style-type: none"> • Drain clogged • Water level switch stuck/bad • Water pump faulty • Water indoor unit PCB

Troubleshooting: EE error will lock out the system and display EE until error is fixed or system restarted

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.



If after parts replacement, error is still displayed, contact your local CE Technical Support Rep.

40MAQ High Wall

Indoor Fan Error – E3 (page 1 of 2)

Error Code	E3 – Indoor Fan Problem
Indoor Unit or Wired Control Display – E3	Dr. Smart Display (Debugger) – E3
Malfunction decision conditions	When the indoor fan speed is too slow (300 RPM or less) for 3 minutes or more, the unit stops and the LED displays the Error Code for 30 seconds. Then retries until locks out.
Supposed Causes	<ul style="list-style-type: none">• Wiring mistake• Fan motor stalled or faulty• PCB faulty

Troubleshooting: E3 error on a MAQ will lock out the system and display E3 until error is fixed or system restarted

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.



Shut OFF the power supply.
Rotate the Indoor fan by hand.
Does the fan rotate freely?

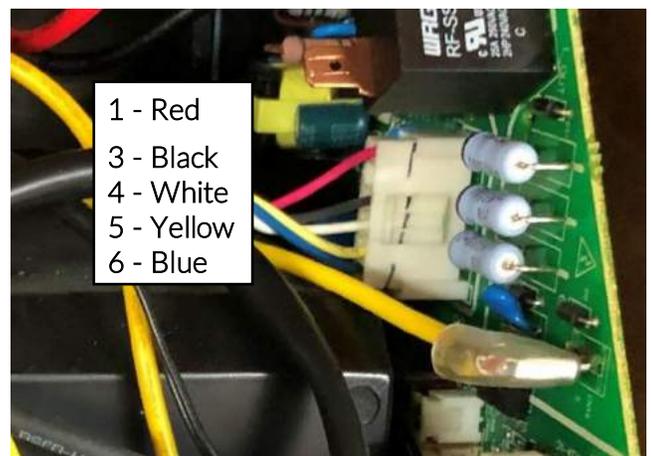
No

Free up, replace any broken parts so fan spins freely

Yes

With power still OFF, open MAQ, remove outer cover and electrical cover.

Locate Fan Harness



Continued on next page

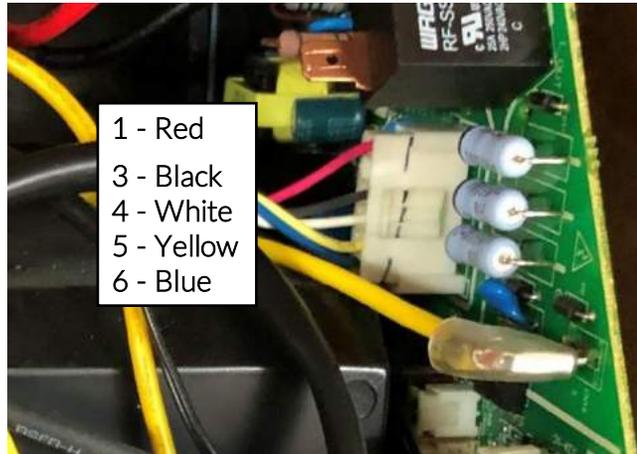
40MAQ High Wall

Indoor Fan Error – E3 (page 2 of 2)

Turn ON power



Set your multimeter to Volts DC and carefully measure voltage between PINs 1 - 3 & 4 - 3. Keep black lead of meter on 3



208/220 Volt Indoor Units
Was PINs 1 - 3 voltage between 280~380VDC?
Was PINs 4 - 3 voltage between 14~17.5VDC?

120 Volt Indoor Units
Was PINs 1 - 3 voltage between 140~190VDC?
Was PINs 4 - 3 voltage between 14~17.5VDC?

No

Replace motor & PCB

Yes

Replace motor



If after parts replacement, E3 is still displayed, contact your local CE Technical Support Rep.

40MBDQ09~58--3 Ducted Indoor Fan Error – E3 (page 1 of 2)

Error Code	E3 – Indoor Fan Problem
Indoor Unit or Wired Control Display – E3	Dr. Smart Display (Debugger) – E3
Malfunction decision conditions	When the indoor fan speed is too slow (300 RPM or less) for 3 minutes or more, the unit stops and the LED displays the Error Code for 30 seconds. Then retries until locks out.
Supposed Causes	<ul style="list-style-type: none"> • Wiring mistake • Fan motor faulty • PCB faulty • Reactor faulty

Troubleshooting: Error may only displayed every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.

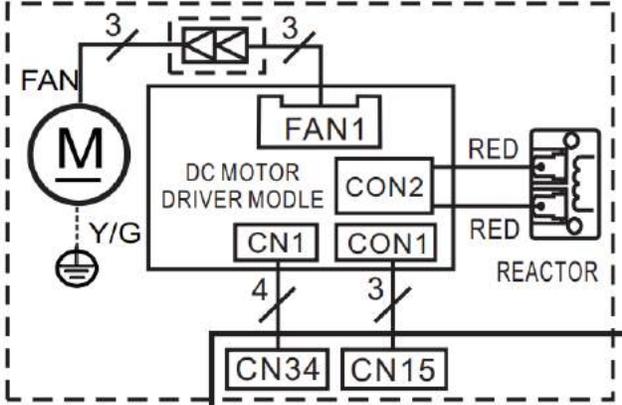


Shut OFF the power supply. Rotate the Indoor fan by hand. Does the fan rotate freely?

No → Free up, replace any broken parts so fan spins freely

Yes ↓

Ohm out reactor, remove wires first. Reading should be close to Zero between terminals. Also check each connection to ground, this should be open. If not replace.



Check fan motor connections, some units also have fan driver board, check these as well. Were any connections loose or off?

No → Replace Motor, Main PCB & Fan Inverter (Driver) PCB

Yes ↓

Reseat/Reconnect fan wires, retry system operation

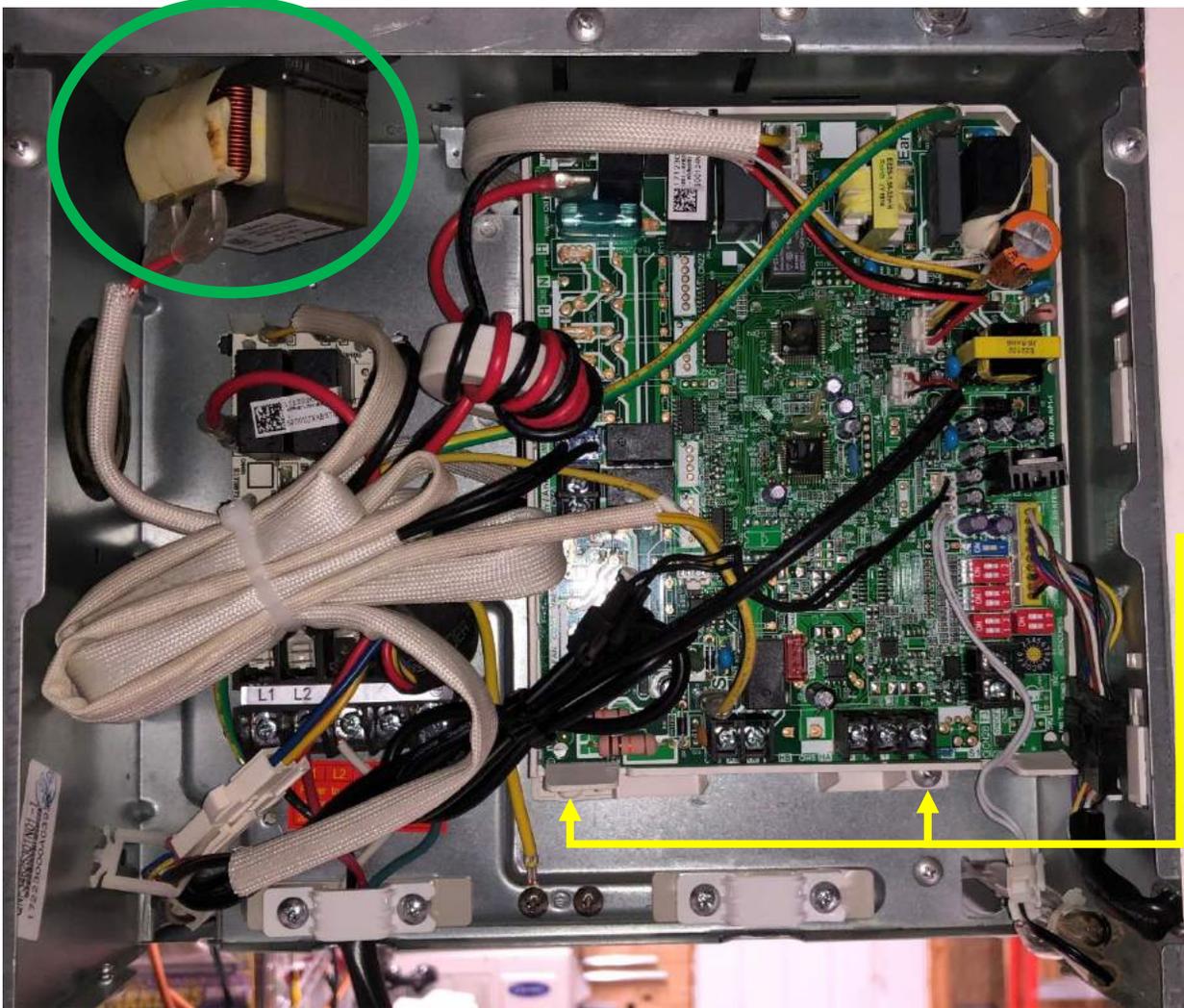
If after parts replacement, E3 is still displayed, contact your local CE Technical Support Rep.



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40MBDQ09~58--3 Ducted Indoor Fan Error – E3 (page 2 of 2)

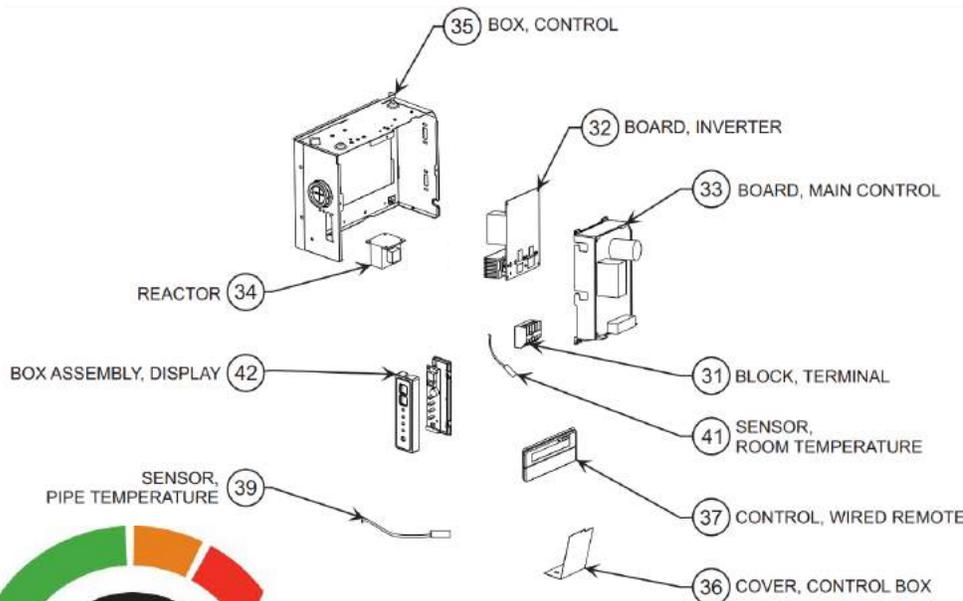
Reactor



Fan Inverter PCB is under Main PCB.

Turn OFF power to outdoor unit.

Remove 2 screws underneath and carefully lean out top assembly to change Inverter PCB.



40MBQB09~48--3 Ducted

Indoor Fan Error – E3 (page 1 of 2)

Error Code	E3 – Indoor Fan Problem
Indoor Unit or Wired Control Display – E3	Dr. Smart Display (Debugger) – E3
Malfunction decision conditions	When the indoor fan speed is too slow (300 RPM or less) for 3 minutes or more, the unit stops and the LED displays the Error Code for 30 seconds. Then retries until locks out.
Supposed Causes	<ul style="list-style-type: none"> • Wiring mistake • Fan motor faulty • PCB faulty • Reactor faulty

Troubleshooting: Error may only displayed every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.



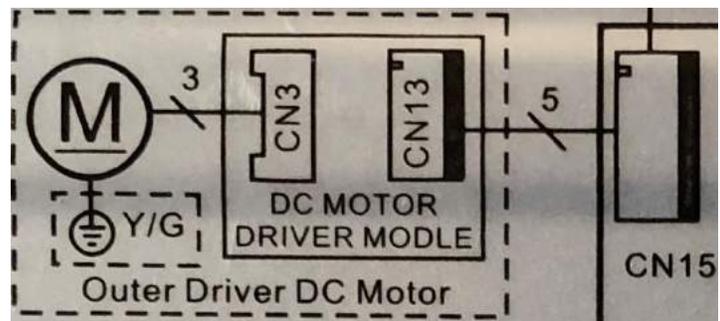
Shut OFF the power supply. Rotate the Indoor fan by hand. Does the fan rotate freely?

No

Free up, replace any broken parts so fan spins freely

Yes

Ohm out reactor, remove wires first. Reading should be close to Zero between terminals. Also check each connection to ground, this should be open. If not replace.



Check fan motor connections, some units also have fan driver board, check these as well. Were any connections loose or off?

No

Replace Motor, Main PCB & Fan Inverter (Driver) PCB

Yes

Reseat/Reconnect fan wires, retry system operation

If after parts replacement, E3 is still displayed, contact your local CE Technical Support Rep.

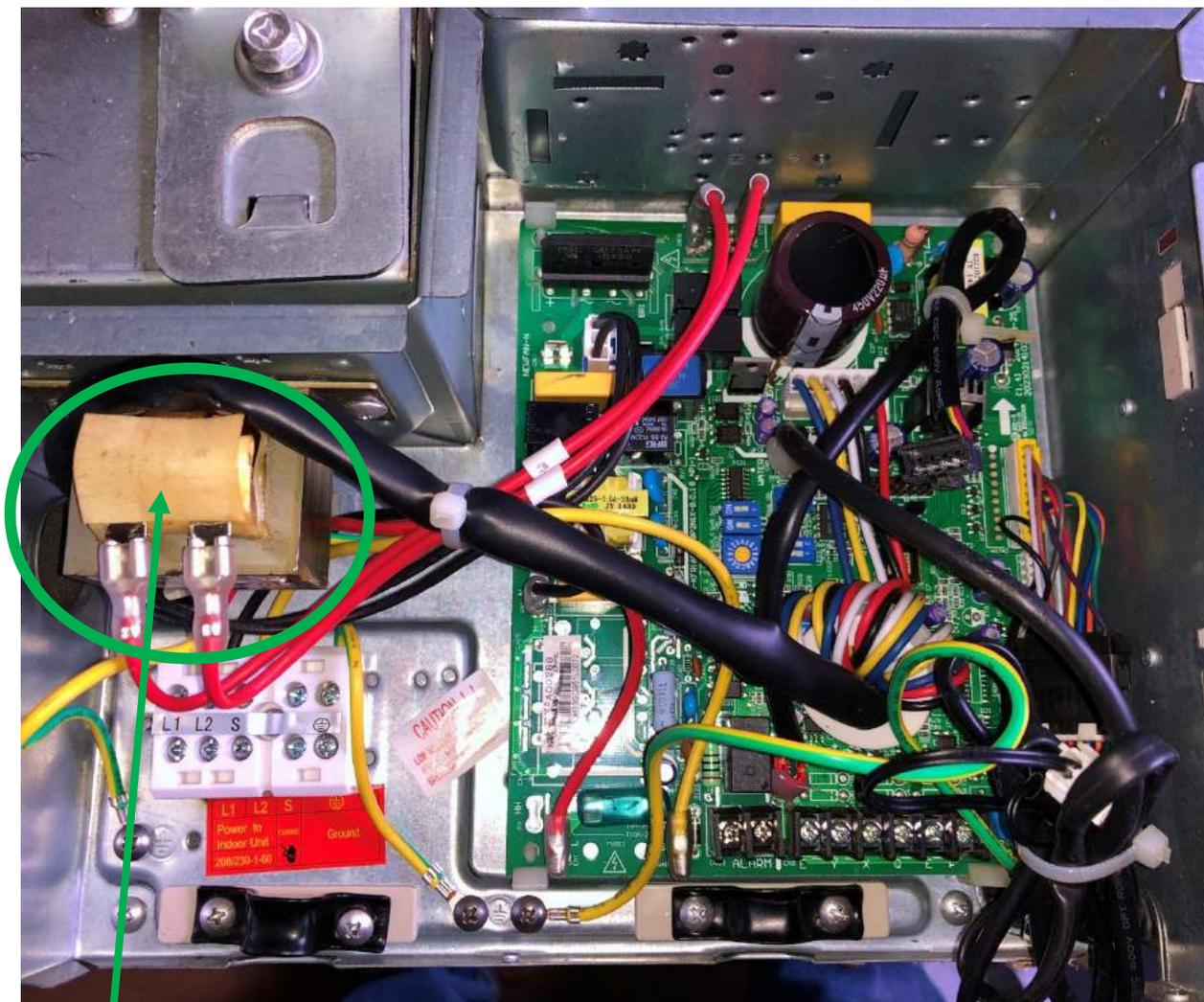


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40MBQB09~48--3 Ducted Indoor Fan Error – E3 (page 2 of 2)

Turn OFF
power to
outdoor unit
before
Servicing.

Fan Inverter
(Driver) PCB
is located in
Blower
section of
the indoor
unit.



Reactor



Access
through back
return of unit



Fan Inverter (Driver) PCB



MAQ High Wall, MBD/MBQ Ducted, MBF Floor, MBC Cassette Sensor Error E4 / E5 (page 1 of 3)

Error Code	E4 / E5 – Sensor Problem
Indoor Unit or Wired Control Display E4 / E5	Dr. Smart Display (Debugger) E60 / E61
Malfunction decision conditions	If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED displays the failure.
Supposed Causes	<ul style="list-style-type: none"> • Wiring mistake • Sensor faulty • PCB faulty

Troubleshooting: Error may only display every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.



Check the connection between the temperature sensor and the PCB.

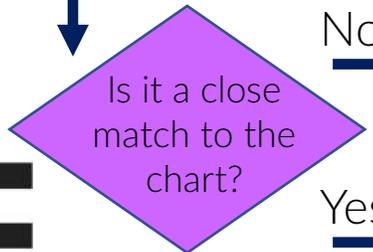
Error to Sensor Location

E4 (E60) – T1 Return Sensor IDU
E5 (E61) – T2 Outlet Evap. Sensor IDU



Reseat/Reconnect Sensor connections and retest system

Measure the sensor's resistance value. Charts on next 3 pages.



Replace sensor

Replace PCB Sensor is connected to

If after parts replacement, error is still displayed, contact your local CE Technical Support Rep.



Continued on next page

MAQ High Wall, MBD/MBQ Ducted, MBF Floor, MBC Cassette Sensor Error E4 / E5 (page 2 of 3)

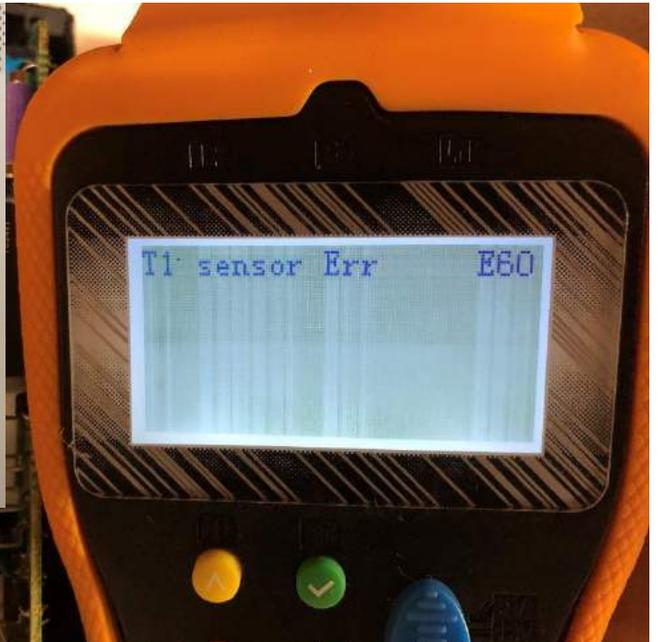


Table 13—Temperature Sensor Resistance Va

mm	°C	°F	K Ohm	°
266	20	68	12.6431	6
146	21	70	12.0561	6
517	22	72	11.5	6
423	23	73	10.9731	6
265	24	75	10.4726	6

If the resistance value is close to the chart consider the sensor good.



Continued on next page

MAQ High Wall, MBD/MBQ Ducted, MBF Floor, MBC Cassette Sensor Error E4 / E5 (page 3 of 3)

Temperature Sensor Resistance Value Table for; Return Air T1 & Evap. Coil T2

°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm
-20	-4	115.266	20	68	12.6431	60	140	2.35774	100	212	0.62973
-19	-2	108.146	21	70	12.0561	61	142	2.27249	101	214	0.61148
-18	0	101.517	22	72	11.5	62	144	2.19073	102	216	0.59386
-17	1	96.3423	23	73	10.9731	63	145	2.11241	103	217	0.57683
-16	3	89.5865	24	75	10.4736	64	147	2.03732	104	219	0.56038
-15	5	84.219	25	77	10	65	149	1.96532	105	221	0.54448
-14	7	79.311	26	79	9.55074	66	151	1.89627	106	223	0.52912
-13	9	74.536	27	81	9.12445	67	153	1.83003	107	225	0.51426
-12	10	70.1698	28	82	8.71983	68	154	1.76647	108	226	0.49989
-11	12	66.0898	29	84	8.33566	69	156	1.70547	109	228	0.486
-10	14	62.2756	30	86	7.97078	70	158	1.64691	110	230	0.47256
-9	16	58.7079	31	88	7.62411	71	160	1.59068	111	232	0.45957
-8	18	56.3694	32	90	7.29464	72	162	1.53668	112	234	0.44699
-7	19	52.2438	33	91	6.98142	73	163	1.48481	113	235	0.43482
-6	21	49.3161	34	93	6.68355	74	165	1.43498	114	237	0.42304
-5	23	46.5725	35	95	6.40021	75	167	1.38703	115	239	0.41164
-4	25	44	36	97	6.13059	76	169	1.34105	116	241	0.4006
-3	27	41.5878	37	99	5.87359	77	171	1.29078	117	243	0.38991
-2	28	39.8239	38	100	5.62961	78	172	1.25423	118	244	0.37956
-1	30	37.1988	39	102	5.39689	79	174	1.2133	119	246	0.36954
0	32	35.2024	40	104	5.17519	80	176	1.17393	120	248	0.35982
1	34	33.3269	41	106	4.96392	81	178	1.13604	121	250	0.35042
2	36	31.5635	42	108	4.76253	82	180	1.09958	122	252	0.3413
3	37	29.9058	43	109	4.5705	83	181	1.06448	123	253	0.33246
4	39	28.3459	44	111	4.38736	84	183	1.03069	124	255	0.3239
5	41	26.8778	45	113	4.21263	85	185	0.99815	125	257	0.31559
6	43	25.4954	46	115	4.04589	86	187	0.96681	126	259	0.30754
7	45	24.1932	47	117	3.88673	87	189	0.93662	127	261	0.29974
8	46	22.5662	48	118	3.73476	88	190	0.90753	128	262	0.29216
9	48	21.8094	49	120	3.58962	89	192	0.8795	129	264	0.28482
10	50	20.7184	50	122	3.45097	90	194	0.85248	130	266	0.2777
11	52	19.6891	51	124	3.31847	91	196	0.82643	131	268	0.27078
12	54	18.7177	52	126	3.19183	92	198	0.80132	132	270	0.26408
13	55	17.8005	53	127	3.07075	93	199	0.77709	133	271	0.25757
14	57	16.9341	54	129	2.95896	94	201	0.75373	134	273	0.25125
15	59	16.1156	55	131	2.84421	95	203	0.73119	135	275	0.24512
16	61	15.3418	56	133	2.73823	96	205	0.70944	136	277	0.23916
17	63	14.6181	57	135	2.63682	97	207	0.68844	137	279	0.23338
18	64	13.918	58	136	2.53973	98	208	0.66818	138	280	0.22776
19	66	13.2631	59	138	2.44677	99	210	0.64862	139	282	0.22231



Sensor Error F1 / F2 / F3 (page 1 of 4)

Error Code	F1 / F2 / F3 – Sensor Problem
Indoor Unit or Wired Control Display F1 / F2 / F3	Dr. Smart Display (Debugger) E5 & E53 / E5 & E52 / E5 & E54
Malfunction decision conditions	If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED displays the failure.
Supposed Causes	<ul style="list-style-type: none"> • Wiring mistake • Sensor faulty • PCB faulty

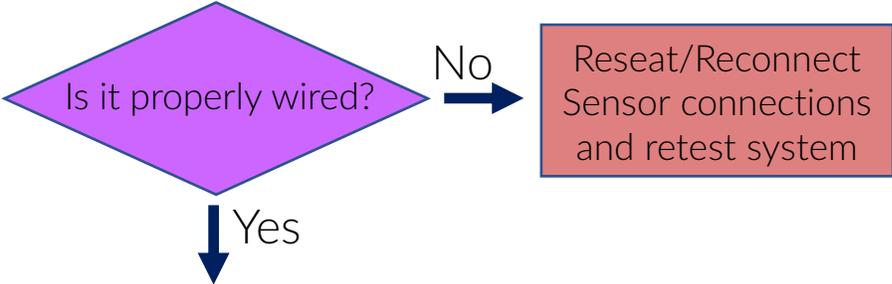
Troubleshooting: Error may only display every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.

Check the connection between the temperature sensor and the PCB.

Error to Sensor Location

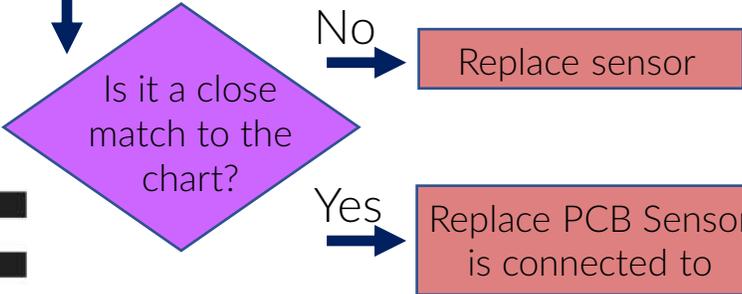
F1 (E53) – T4 Outdoor Ambient Temp
 F2 (E52) – T3 Condenser Temp ODU
 F3 (E54) – TP (T5) Comp. Discharge Temp



No → Reseat/Reconnect Sensor connections and retest system

Yes ↓

Measure the sensor’s resistance value.
Charts on next 3 pages.



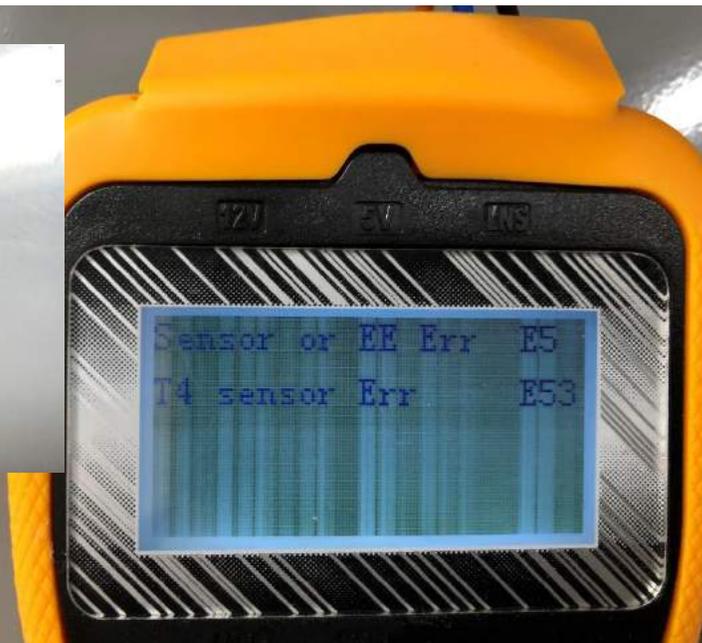
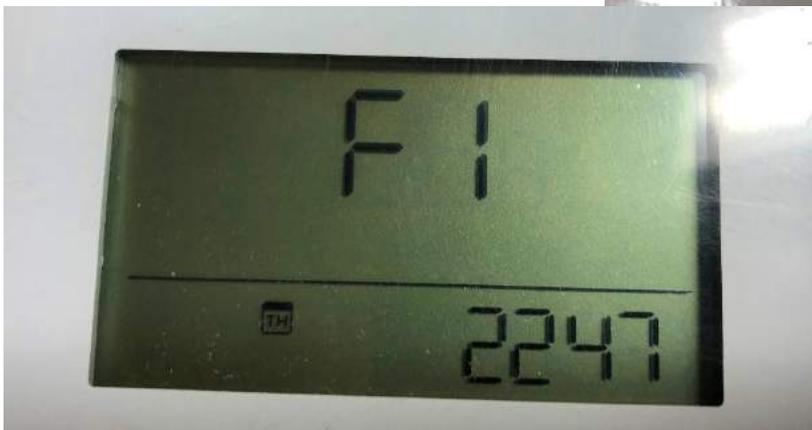
No → Replace sensor

Yes → Replace PCB Sensor is connected to

If after parts replacement, error is still displayed, contact your local CE Technical Support Rep.



38MAQB18~48K, 38MAQB09~36R-3, 38MARBQ09~36AA3 Outdoor Units Sensor Error F1 / F2 / F3 (page 2 of 4)



01	15.5410	
63	14.6181	
64	13.918	
66	13.2631	

If the resistance value is close to the chart consider the sensor good.



Sensor Error F1 / F2 (page 3 of 4)

Temperature Sensor Resistance Value Table for;
Outdoor Ambient T4 & Cond. Coil Temp T3

°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm
-20	-4	115.266	20	68	12.6431	60	140	2.35774	100	212	0.62973
-19	-2	108.146	21	70	12.0561	61	142	2.27249	101	214	0.61148
-18	0	101.517	22	72	11.5	62	144	2.19073	102	216	0.59386
-17	1	96.3423	23	73	10.9731	63	145	2.11241	103	217	0.57683
-16	3	89.5865	24	75	10.4736	64	147	2.03732	104	219	0.56038
-15	5	84.219	25	77	10	65	149	1.96532	105	221	0.54448
-14	7	79.311	26	79	9.55074	66	151	1.89627	106	223	0.52912
-13	9	74.536	27	81	9.12445	67	153	1.83003	107	225	0.51426
-12	10	70.1698	28	82	8.71983	68	154	1.76647	108	226	0.49989
-11	12	66.0898	29	84	8.33566	69	156	1.70547	109	228	0.486
-10	14	62.2756	30	86	7.97078	70	158	1.64691	110	230	0.47256
-9	16	58.7079	31	88	7.62411	71	160	1.59068	111	232	0.45957
-8	18	56.3694	32	90	7.29464	72	162	1.53668	112	234	0.44699
-7	19	52.2438	33	91	6.98142	73	163	1.48481	113	235	0.43482
-6	21	49.3161	34	93	6.68355	74	165	1.43498	114	237	0.42304
-5	23	46.5725	35	95	6.40021	75	167	1.38703	115	239	0.41164
-4	25	44	36	97	6.13059	76	169	1.34105	116	241	0.4006
-3	27	41.5878	37	99	5.87359	77	171	1.29078	117	243	0.38991
-2	28	39.8239	38	100	5.62961	78	172	1.25423	118	244	0.37956
-1	30	37.1988	39	102	5.39689	79	174	1.2133	119	246	0.36954
0	32	35.2024	40	104	5.17519	80	176	1.17393	120	248	0.35982
1	34	33.3269	41	106	4.96392	81	178	1.13604	121	250	0.35042
2	36	31.5635	42	108	4.76253	82	180	1.09958	122	252	0.3413
3	37	29.9058	43	109	4.5705	83	181	1.06448	123	253	0.33246
4	39	28.3459	44	111	4.38736	84	183	1.03069	124	255	0.3239
5	41	26.8778	45	113	4.21263	85	185	0.99815	125	257	0.31559
6	43	25.4954	46	115	4.04589	86	187	0.96681	126	259	0.30754
7	45	24.1932	47	117	3.88673	87	189	0.93662	127	261	0.29974
8	46	22.5662	48	118	3.73476	88	190	0.90753	128	262	0.29216
9	48	21.8094	49	120	3.58962	89	192	0.8795	129	264	0.28482
10	50	20.7184	50	122	3.45097	90	194	0.85248	130	266	0.2777
11	52	19.6891	51	124	3.31847	91	196	0.82643	131	268	0.27078
12	54	18.7177	52	126	3.19183	92	198	0.80132	132	270	0.26408
13	55	17.8005	53	127	3.07075	93	199	0.77709	133	271	0.25757
14	57	16.9341	54	129	2.95896	94	201	0.75373	134	273	0.25125
15	59	16.1156	55	131	2.84421	95	203	0.73119	135	275	0.24512
16	61	15.3418	56	133	2.73823	96	205	0.70944	136	277	0.23916
17	63	14.6181	57	135	2.63682	97	207	0.68844	137	279	0.23338
18	64	13.918	58	136	2.53973	98	208	0.66818	138	280	0.22776
19	66	13.2631	59	138	2.44677	99	210	0.64862	139	282	0.22231



Continued on next page

Sensor Error F3 (page 4 of 4)

Temperature Sensor Resistance Value Table for Compressor Discharge Sensor TP (T5)

°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm
-20	-4	542.7	20	68	68.66	60	140	13.59	100	212	3.702
-19	-2	511.9	21	70	65.62	61	142	13.11	101	214	3.595
-18	0	483	22	72	62.73	62	144	12.65	102	216	3.492
-17	1	455.9	23	73	59.98	63	145	12.21	103	217	3.392
-16	3	430.5	24	75	57.37	64	147	11.79	104	219	3.296
-15	5	406.7	25	77	54.89	65	149	11.38	105	221	3.203
-14	7	384.3	26	79	52.53	66	151	10.99	106	223	3.113
-13	9	363.3	27	81	50.28	67	153	10.61	107	225	3.025
-12	10	343.6	28	82	48.14	68	154	10.25	108	226	2.941
-11	12	325.1	29	84	46.11	69	156	9.902	109	228	2.86
-10	14	307.7	30	86	44.17	70	158	9.569	110	230	2.781
-9	16	291.3	31	88	42.33	71	160	9.248	111	232	2.704
-8	18	275.9	32	90	40.57	72	162	8.94	112	234	2.63
-7	19	261.4	33	91	38.89	73	163	8.643	113	235	2.559
-6	21	247.8	34	93	37.3	74	165	8.358	114	237	2.489
-5	23	234.9	35	95	35.78	75	167	8.084	115	239	2.422
-4	25	222.8	36	97	34.32	76	169	7.82	116	241	2.357
-3	27	211.4	37	99	32.94	77	171	7.566	117	243	2.294
-2	28	200.7	38	100	31.62	78	172	7.321	118	244	2.233
-1	30	190.5	39	102	30.36	79	174	7.086	119	246	2.174
0	32	180.9	40	104	29.15	80	176	6.859	120	248	2.117
1	34	171.9	41	106	28	81	178	6.641	121	250	2.061
2	36	163.3	42	108	26.9	82	180	6.43	122	252	2.007
3	37	155.2	43	109	25.86	83	181	6.228	123	253	1.955
4	39	147.6	44	111	24.85	84	183	6.033	124	255	1.905
5	41	140.4	45	113	23.89	85	185	5.844	125	257	1.856
6	43	133.5	46	115	22.89	86	187	5.663	126	259	1.808
7	45	127.1	47	117	22.1	87	189	5.488	127	261	1.762
8	46	121	48	118	21.26	88	190	5.32	128	262	1.717
9	48	115.2	49	120	20.46	89	192	5.157	129	264	1.674
10	50	109.8	50	122	19.69	90	194	5	130	266	1.632
11	52	104.6	51	124	18.96	91	196	4.849			
12	54	99.69	52	126	18.26	92	198	4.703			
13	55	95.05	53	127	17.58	93	199	4.562			
14	57	90.66	54	129	16.94	94	201	4.426			
15	59	86.49	55	131	16.32	95	203	4.294			
16	61	82.54	56	133	15.73	96	205	4.167			
17	63	78.79	57	135	15.16	97	207	4.045			
18	64	75.24	58	136	14.62	98	208	3.927			
19	66	71.86	59	138	14.09	99	210	3.812			



38MAQB18~30K Outdoor Unit

Outdoor Fan Error – F5 (page 1 of 2)

Error Code	F5 – Outdoor Fan Problem
Indoor Unit or Wired Control Display – F5	Dr. Smart Display (Debugger) – E7 & E71
Malfunction decision conditions	When the Outdoor fan speed is too slow (300 RPM or less) for 3 minutes or more, the unit stops and the LED displays the Error Code for 30 seconds. Then retries until locks out.
Supposed Causes	<ul style="list-style-type: none">• Wiring mistake• Fan motor faulty• PCB faulty

Troubleshooting: Error may only displayed every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.



Shut OFF the power supply.
Rotate the Indoor fan by hand.
Does the fan rotate freely?

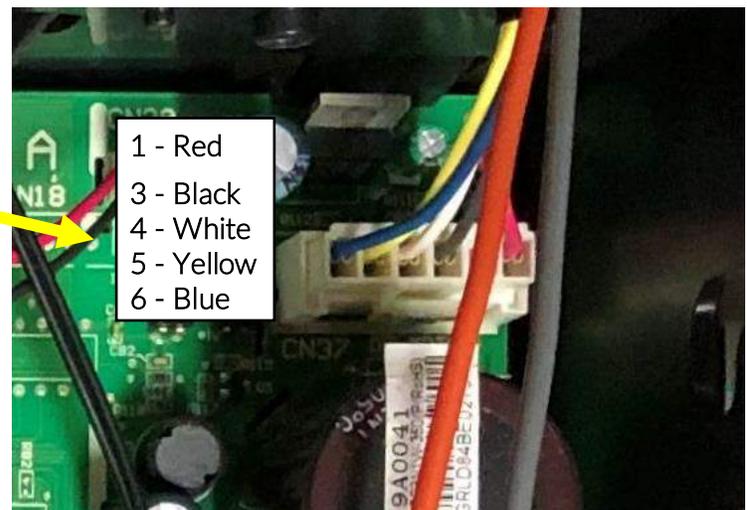
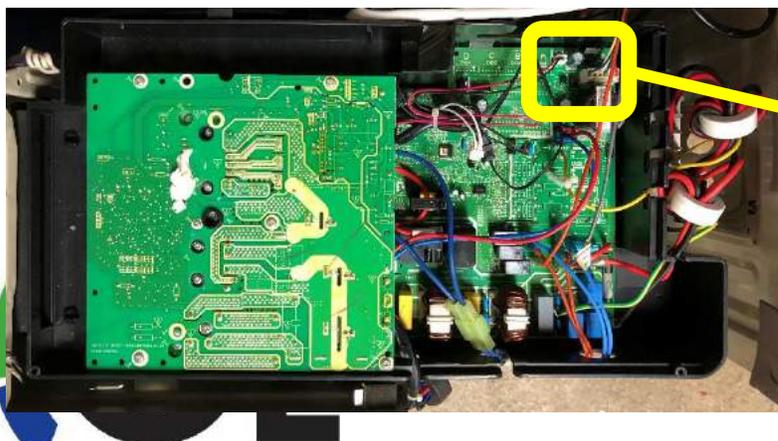
No

Free up, replace any broken parts so fan spins freely

Yes

With power still OFF, open ODU, remove top cover and top control box cover.

Locate Fan Harness



Continued on next page

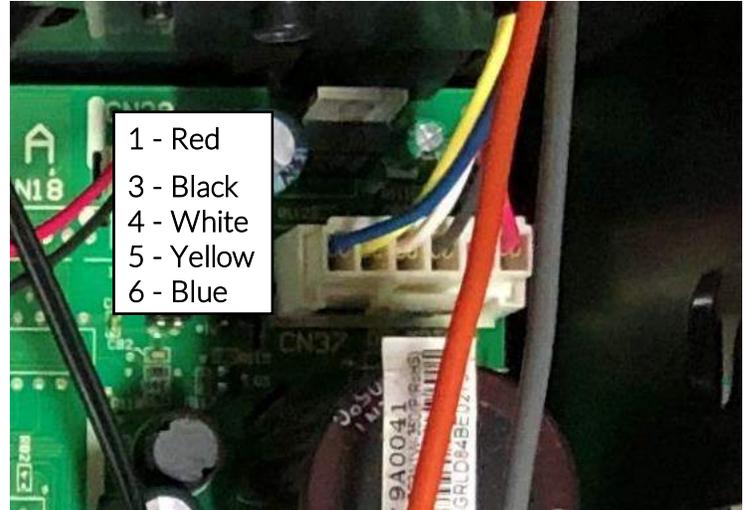
38MAQB18~30K Outdoor Unit

Outdoor Fan Error – F5 (page 2 of 2)

Turn ON power



Set your multimeter to Volts DC and carefully measure voltage between PINs 1 - 3 & 4 - 3. Keep black lead of meter on 3



208/220 Volt Outdoor Units
Was PINs 1 - 3 voltage between 280~380VDC?
Was PINs 4 - 3 voltage between 14~17.5VDC?

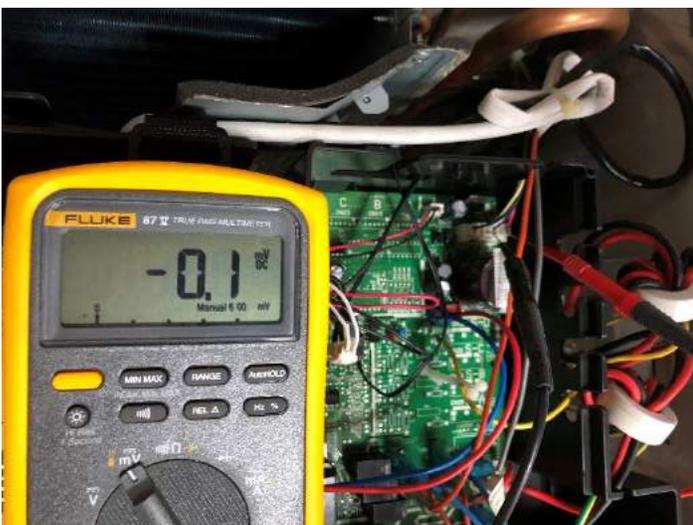
120 Volt Outdoor Units
Was PINs 1 - 3 voltage between 140~190VDC?
Was PINs 4 - 3 voltage between 14~17.5VDC?

No

Replace motor & PCB

Yes

Replace motor



If after parts replacement, F5 is still displayed, contact your local CE Technical Support Rep.

38MAQB09~36R--3 Outdoor Units

Outdoor Fan Error F5

Error Code	F5 – Outdoor Fan Problem
Indoor Unit or Wired Control Display – F5	Dr. Smart Display (Debugger) – E7 & E71
Malfunction decision conditions	When the indoor fan speed is too slow (300 RPM or less) for 3 minutes or more, the unit stops and the LED displays the Error Code for 30 seconds. Then retries until locks out.
Supposed Causes	<ul style="list-style-type: none">• Wiring mistake• Fan motor faulty• PCB faulty

Troubleshooting: Error may only displayed every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.



Shut OFF the power supply.
Rotate the Indoor fan by hand.
Does the fan rotate freely?

No

Free up, replace any broken parts so fan spins freely

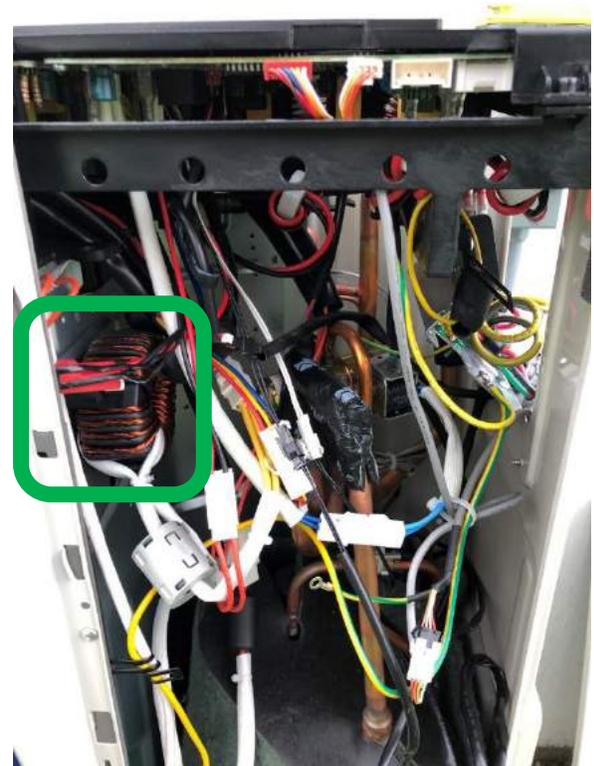
Yes

Ohm out reactor, remove wires first.
Reading should be close to Zero between terminals. Also check each connection to ground, this should be open. If not replace.

Reactor Location

Replace fan motor and Main PCB

For Instructions on how to change Main PCB, see Table of Contents in beginning of this guide



If after parts replacement, F5 is still displayed, contact your local CE Technical Support Rep.



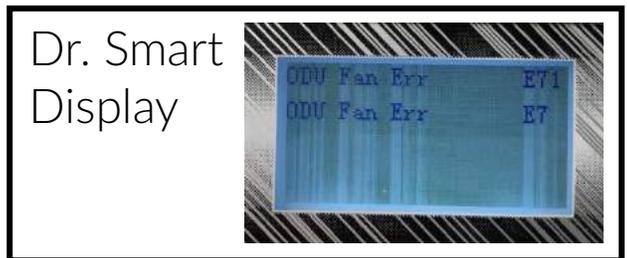
38MARBQ09~36AA3 Outdoor Units

Outdoor Fan Error F5

Error Code	F5 – Outdoor Fan Problem
Indoor Unit or Wired Control Display – F5	Dr. Smart Display (Debugger) – E7 & E71
Malfunction decision conditions	When the indoor fan speed is too slow (300 RPM or less) for 3 minutes or more, the unit stops and the LED displays the Error Code for 30 seconds. Then retries until locks out.
Supposed Causes	<ul style="list-style-type: none">• Wiring mistake• Fan motor faulty• PCB faulty

Troubleshooting: Error may only displayed every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.

Follow the “1st Steps for DLS Troubleshooting” in the beginning of this guide, if you have an active error, procedure below.



Shut OFF the power supply.
Rotate the Indoor fan by hand.
Does the fan rotate freely?

No

Free up, replace any broken parts so fan spins freely

Yes

18K ONLY - Ohm out reactor, remove wires first. Reading should be close to Zero between terminals. Also check each connection to ground, this should be open. If not replace.

Carrier Factory Authorized Parts
38AQ680001 Conductive Grease



Replace fan motor and Control Box Assembly or Main PCB

9K, 12K (120 & 220-Volt) 18K,
Replace Entire Control Box Assembly
24K, 30K, 36K
Replace Main PCB ONLY

For Instructions on how to change Control Box or Main PCB, see Table of Contents in beginning of this guide



Attention:

When replacing Main PCB ONLY, you will need Conductive Grease.

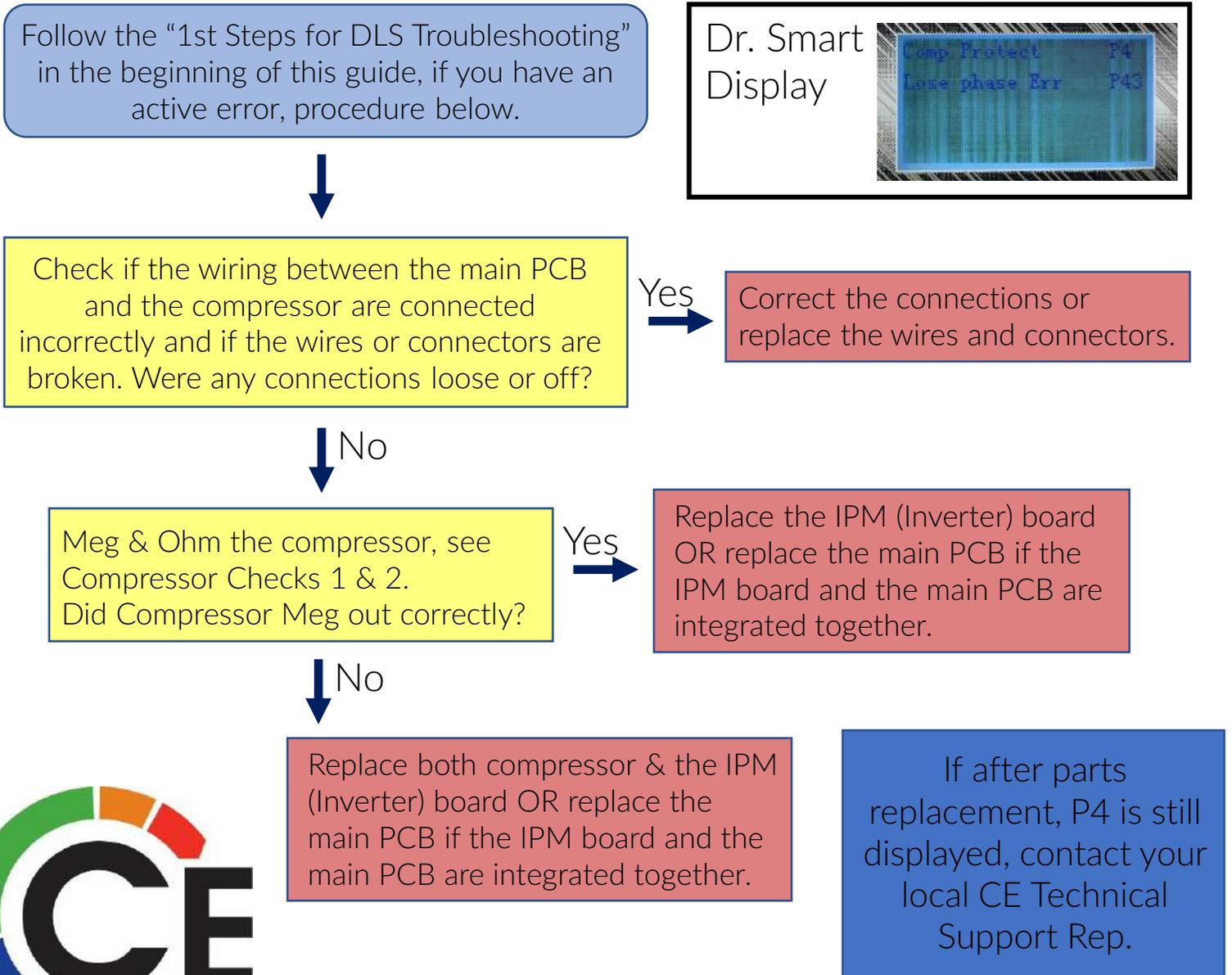
If after parts replacement, F5 is still displayed, contact your local CE Technical Support Rep.

All Single Zone Outdoor Units

Inverter Compressor Drive Error P4

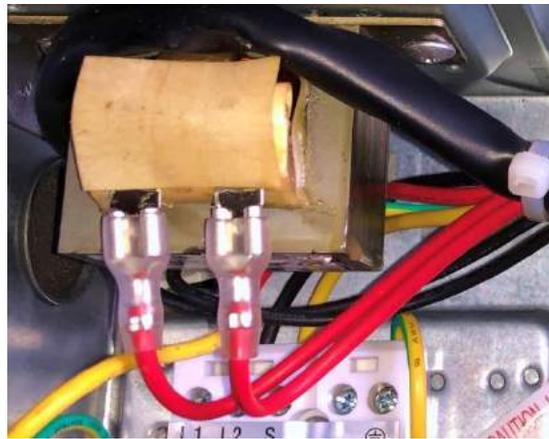
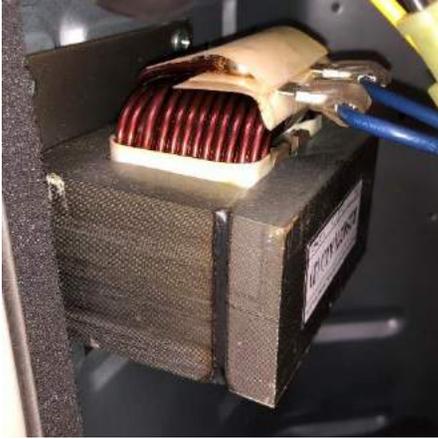
Error Code	P4 – Compressor and/or Inverter Problem
Indoor Unit or Wired Control Display – P4	Dr. Smart Display (Debugger) – P4, P43
Malfunction decision conditions	An abnormal inverter compressor drive is detected by a special detection circuit, including communication signal detection, voltage detection and compressor rotation speed signal detection.
Supposed Causes	<ul style="list-style-type: none"> • Wiring mistake • IPM malfunction • Outdoor fan assembly fault • Compressor malfunction • Outdoor PCB faulty

Troubleshooting: Error is only displayed every 3 minutes, during this time you may see either “normal display” or “88” on indoor unit or wired control.



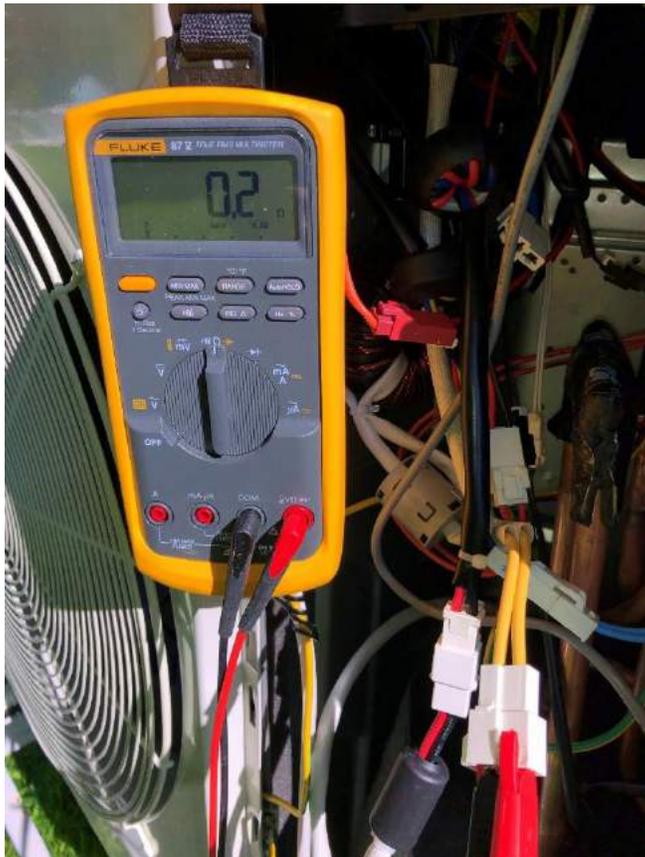
Reactor Check – Ohming a Reactor

Different styles of Reactors in Ductless Equipment



Two checks should be done when testing a Reactor. The first step for both tests is to isolate the reactor, either by removing the wires directly from the Reactor or separating the wire harness if available.

Test 1 – Ohm between the terminals. Value should be near Zero.



Test 2 – Ohm between each terminal and Ground. Values should be Open.



Compressor Check 1 – How Meg a Compressor

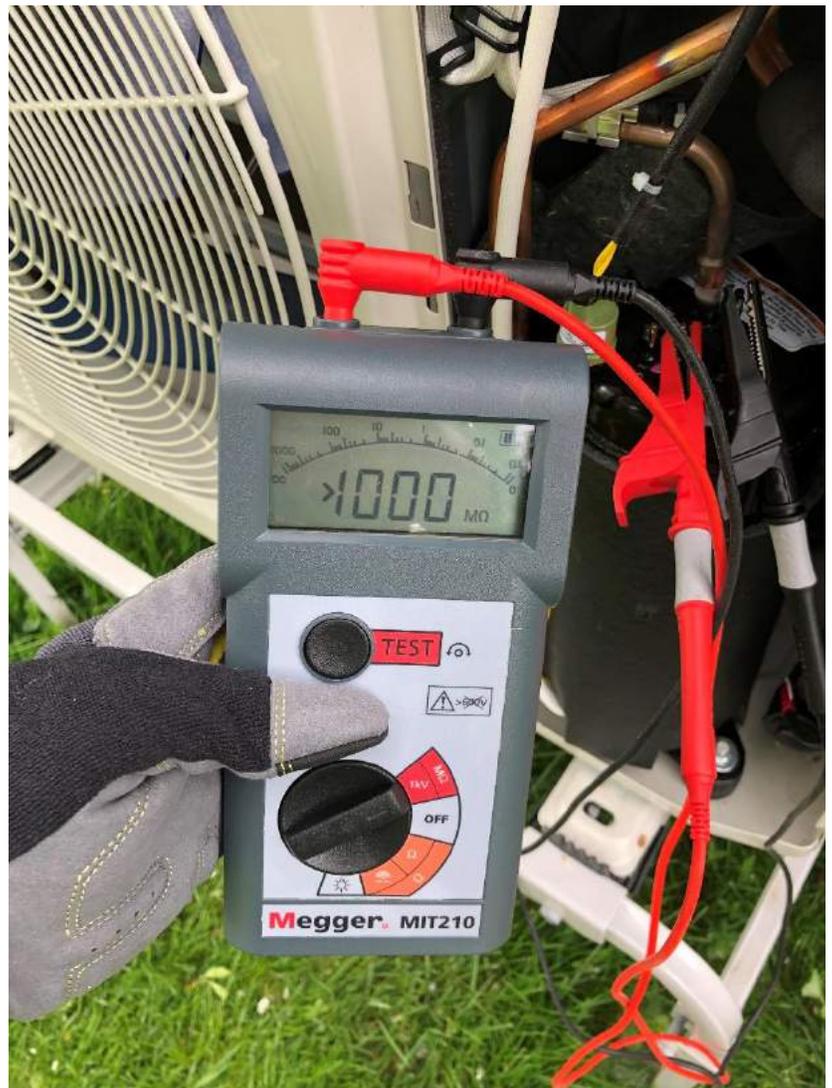


Shown here is a basic Megger Meter.

- 2 Leads
- 1 Meg Test Setting
- 1 Ohm Setting
- 1 Continuity Setting

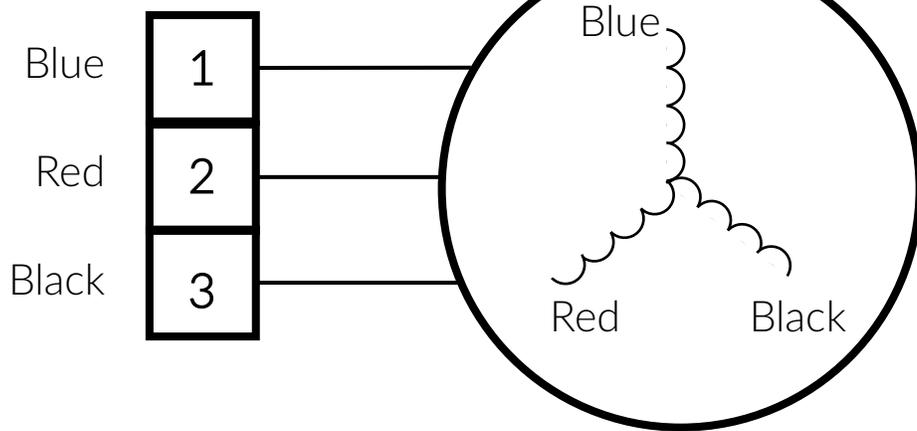
Disconnect Power to ODU. Ground the Black Lead directly to compressor shell. Attach Red Lead to one of the three terminals. Select MΩ Scale. Press and hold the Test Button until test completes. If 20MΩ or higher it's good.

Between 10 & 20MΩ it's going bad. Less than 10MΩ, Open or Continuity replace compressor.



Compressor Check 2 – Ohming a Compressor

Input Terminal



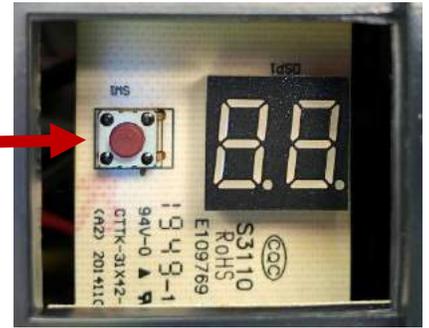
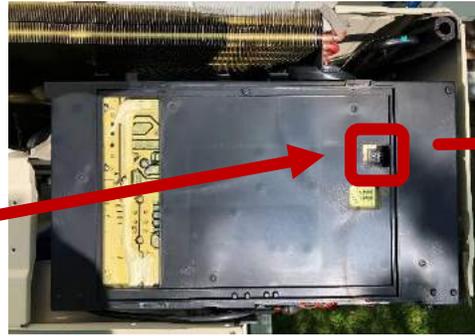
No combination should equal 0 or Open. All combinations should show a resistance value and each of the three values should be very close to each other.



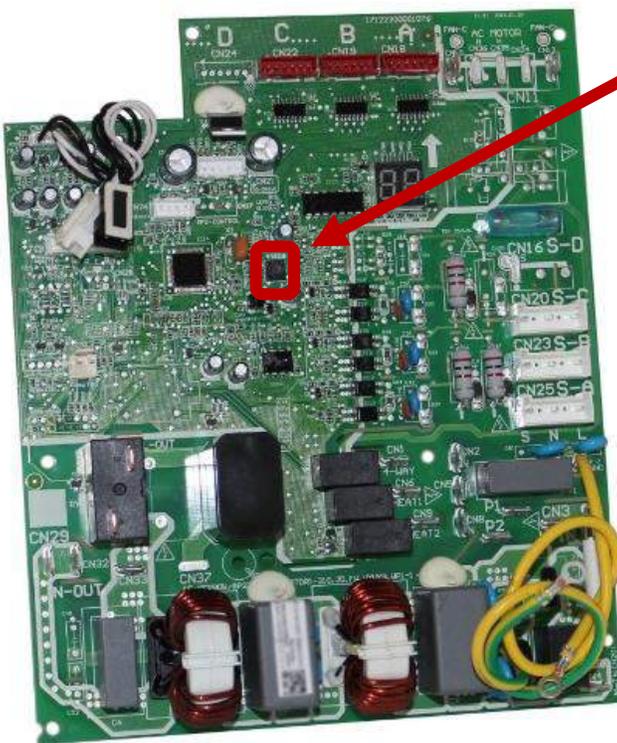
38MGR Error Code Retrieval

- Push SW1 (ODU PCB) to check the unit's status while running. The digital display displays codes each time the SW1 is pressed.
- For the last error code, press 45 times.
- Error code will display on the digital display.
- For information on what the other codes can tell you see next page.

MGR30K PCB, SW1 button/display under top cover of control box



MGR18 & 24K PCB's



SW1 Button

MGR36 & 48K PCB's



Continued on next page

38MGR Diagnostic Codes

No. of Presses	Display	Remark		
0	Normal Display	Displays running frequency, running state, or malfunction code		
1	Quantity of indoor units with working connection	Actual Data		
		Display	Number of Indoor Units	
		1	1	
		2	2	
		3	3	
2	Outdoor unit running mode code	Off: 0, Fan only: 1, Cooling: 2, Heating: 3, Forced cooling: 4. Forced defrost: A		
3	Indoor unit A capacity	The capacity unit is horse power. If the indoor unit is not connected, the digital display shows the following: "--" (9K:1HP,12K:1.2HP,18K:1.5HP)		
4	Indoor unit B capacity			
5	Indoor unit C capacity			
6	Indoor unit D capacity			
7	Indoor unit E capacity			
8	Indoor unit A capacity demand code	Norm code *HP (9K: 1HP,12K: 1.2HP,18K: 1.5HP)		
9	Indoor unit B capacity demand code			
10	Indoor unit C capacity demand code			
11	Indoor unit D capacity demand code			
12	Indoor unit E capacity demand code			
13	Outdoor unit amendatory capacity demand code			
14	The frequency corresponding to the total indoor units' amendatory capacity demand			
15	The frequency after the frequency limit			
16	The frequency sending to compressor control chip			
17	Indoor unit A evaporator outlet temperature (T2BA)	If the temperature is lower than -9 °C, the digital display shows "-9." If the temperature is higher than 70 °C, the digital display shows "70." If the indoor unit is not connected, the digital display shows: "--"		
18	Indoor unit B evaporator outlet temperature (T2BB)			
19	Indoor unit C evaporator outlet temperature (T2BC)			
20	Indoor unit D evaporator outlet temperature (T2BD)			
21	Indoor unit E evaporator outlet temperature (T2BE)			
22	Indoor unit A room temperature (T1A)	If the temperature is lower than 0 °C, the digital display shows "0." If the temperature is higher than 50 °C, the digital display shows "50." If the indoor unit is not connected, the digital display shows: "--"		
23	Indoor unit B room temperature (T1B)			
24	Indoor unit C room temperature (T1C)			
25	Indoor unit D room temperature (T1D)			
26	Indoor unit E room temperature (T1E)			
27	Indoor unit A evaporator temperature (T2A)	If the temperature is lower than -9 °C, the digital display shows "-9." If the temperature is higher than 70 °C, the digital display shows "70." If the indoor unit is not connected, the digital display shows: "--"		
28	Indoor unit B evaporator temperature (T2B)			
29	Indoor unit C evaporator temperature (T2C)			
30	Indoor unit D evaporator temperature (T2D)			
31	Indoor unit E evaporator temperature (T2E)			
32	Condenser pipe temperature (T3)			
33	Outdoor ambient temperature (T4)			
34	Compressor discharge temperature (TP)	The display value is between 30–129 °C. If the temperature is lower than 30 °C, the digital display shows "30." If the temperature is higher than 99 °C, the digital display shows single and double digits. For example, if the digital display shows "0.5", the compressor discharge temperature is 105 °C.		
35	AD value of current	The display value is a hex number. For example, the digital display tube shows "Cd", it means AD value is 205.		
36	AD value of voltage			
37	EXV open angle for A indoor unit	Actual data/4. If the value is higher than 99, the digital display shows single and double digits. For example, if the digital display shows "2.0", the EXV open angle is 120×4=480p.		
38	EXV open angle for B indoor unit			
39	EXV open angle for C indoor unit			
40	EXV open angle for D indoor unit			
41	EXV open angle for E indoor unit			
42	Frequency limit symbol	Bit7	Frequency limit caused by IGBT radiator	The display value is a hexadecimal number. For example, the digital display show 2A, then Bit5=1, Bit3=1, and Bit1=1. This means that a frequency limit may be caused by T4, T3, or the current.
		Bit6	Frequency limit caused by PFC	
		Bit5	Frequency limit caused by T4.	
		Bit4	Frequency limit caused by T2.	
		Bit3	Frequency limit caused by T3.	
		Bit2	Frequency limit caused by T5.	
		Bit1	Frequency limit caused by current	
Bit0	Frequency limit caused by voltage			
43	Average value of T2	(Sum T2 value of all indoor units)/(number of indoor units in good connection)		
44	Outdoor unit fan motor state	Off: 0, High speed:1, Med speed: 2, Low speed: 3, Breeze:4, Super breeze: 5		
45	The last error or protection code	00 means No Malfunction and Protection		
46	F indoor unit capacity			
47	F indoor unit capacity demand code			
48	F indoor unit evaporator outlet temperature (T2BF)			
49	F indoor unit room temperature (T1F)			
50	F indoor unit evaporator temperature (T2F)			
51	EXV open angle for F indoor unit			

Heating & Cooling Compensation

The temperature swings for every mode of operation are based on Service Settings F2 & F7.

Ductless equipment thinks in C degree.

Note: When Follow Me (FM) is active, T1 is sensed at the wall or wireless control. In both of these cases F2 & F7 both = "0C"

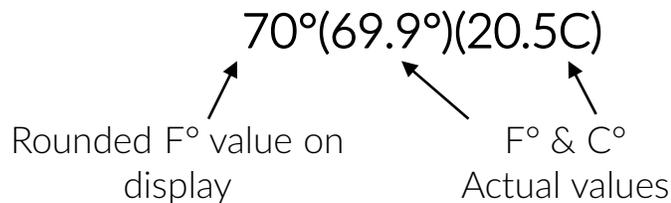
Default Indoor Unit Compensation Settings/Values

Indoor Unit Type	Units	Heating Temperature Compensation F2	Cooling Temperature Compensation F7
High Wall	40MHH	2C	-2C
	40MPHA/619PHA 40MAHB/619AHB	2C	0C
Ducted	40MBDQ	4C	-2C
Cassette	40MBCQ	6C	-2C
Floor Console & Underceiling	40MBFQ	0C	-2C

40MBA exempt, due to built-in 24-Volt Interface.

24-Volt Interface does not utilize F2 & F7 settings to achieve set point, but do use these settings internally for compressor and EEV values during operation.

When Carrier DLS controls are set to F or C degree, you will see a rounded value on the display.



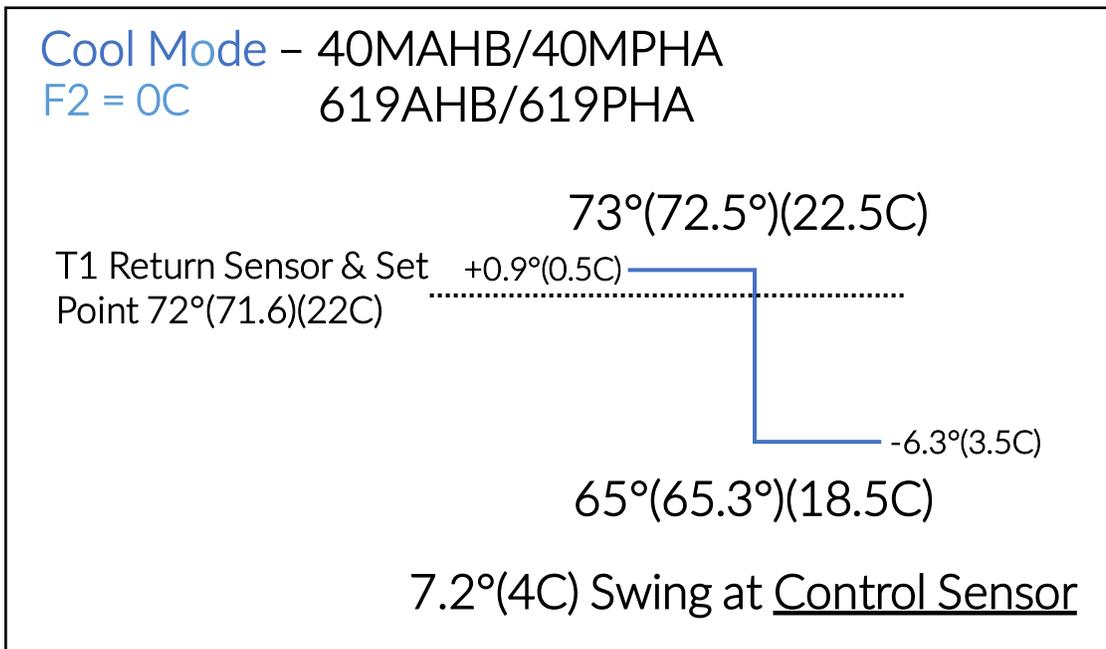
The only place 0.5 increments of Celsius can be seen is with the RG10 Wireless Controller & the DLS Debugger Tool. Except in FM mode, in this mode Debugger sees rounded value.

➡ Continued on next page

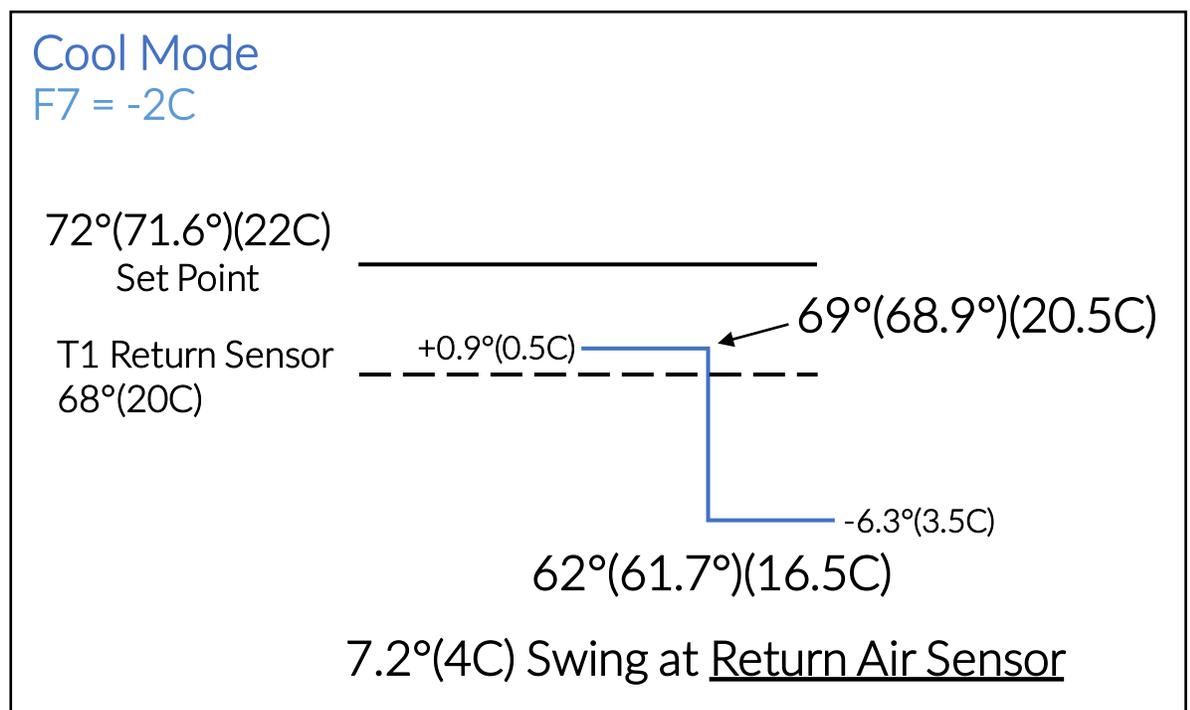
Heating & Cooling Compensation

Examples of how the Cooling Compensation setting moves the entire swing up or down.

Default F7 for AHB & PHA High Wall Units:



If you change F2 to -2C, the entire swing moves down 2C(3.6F)



Service Settings – Wireless Remote RG10

Service Settings are only accessible through the wireless remote control.

Caution: Read and understand the function changes you wish to make in advance. The remote will not read the parameters in the unit.

While many settings can be accessed, we find only the ones listed below may need adjustment from default.

F1 Auto-Start – Turn OFF or turn back ON

F2 Heating Temperature Compensation – Adjust an offset based on thermal stratification within the space.

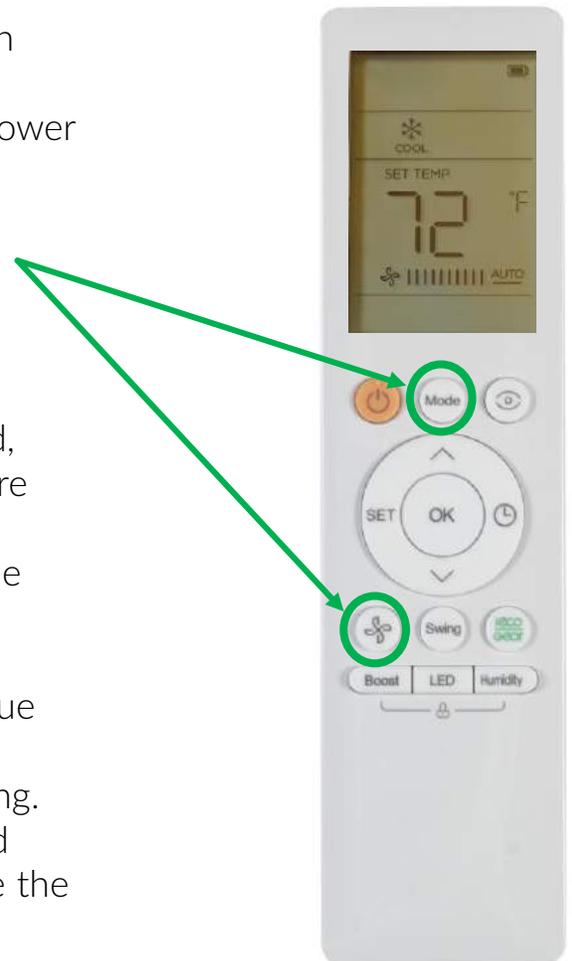
F4 Indoor Fan Motor Speed Control after Set Point is Reached – Changes Heat fan speed after set point is reached.

F7 Cooling Temperature Compensation – Adjust an offset based on thermal stratification within the space.

d4 Automatic Airflow Adjustments – for 40MBA Air Handler & 40MBDQ Ducted Units Only.

E9 Manual Static Pressure Setting – for 40MBA Air Handler & 40MBDQ Ducted Units Only.

1. Before using the service functions of the remote, turn OFF the indoor unit with the remote.
2. Remove batteries from Wireless Controller, recycle power to system and reinstall batteries.
3. Simultaneously press MODE and FAN for 5 seconds. When the display reads “F1” you are in SERVICE FUNCTION mode.
4. Use the UP/DOWN arrows to find and display the parameter you want to change.
5. When the parameter you want to change is displayed, press SET (parameters displayed after pressing SET are NOT the values stored in the controller).
6. To change the parameter use the UP/DOWN until the value you want is displayed.
7. Pointing the Wireless Controller at the Indoor unit’s receiver and press OK to confirm the new setting value and transmit it to the Indoor Unit.
8. Repeat steps for any other parameter you are changing.
9. When finished remove batteries from the remote and press any button to clear the screen and then replace the batteries and operate the system normally.



Continued on next page

Service Settings – Wireless Remote RG10 (end)

Service Settings are only accessible through the wireless remote control.

Default Values for Service Settings

Description	Remote Code	High Wall	Cassette	Ducted	Floor Console
Auto–Start Function	F1	ON	ON	ON	ON
Heating Temperature Compensation	F2	2C	6C	4C	0C
Anti–Cold Air Function	F3	NORMAL	NORMAL	NORMAL	NORMAL
Indoor Fan Motor Speed Control after Set Temperature is Reached	F4	LOWEST SPEED	SET SPEED	SET SPEED	SET SPEED
Louver Angle Memory Function	F5	ON	N/A	N/A	N/A
Heating Only or Cooling and Heating Setting	F6	CH	CH	CH	CH
Cooling Temperature Compensation	F7	–2C	–2C	–2C	–2C
Refrigerant Leakage Detection	F8	ON	ON	ON	ON
Cleaning Filter Reminder	F9	OFF	OFF	OFF	OFF
Filter Replacement Reminder	E1	OFF	OFF	OFF	OFF
Lowest Temperature Setting	E2	17C	17C	17C	17C
Highest Temperature Setting	E3	30C	30C	30C	30C
Special Anti–Cold Air Function Setting	E4	N/A	N/A	N/A	N/A
Priority Setting of Heating or Cooling (Multi–Zone Systems only)	E5	H	H	H	H
Network Address Setting	E6	N/A	N/A	N/A	N/A
Capacity Code Selection	E7	N/A	N/A	N/A	N/A
Twins Setting	E8	N/A	N/A	N/A	N/A
Static Pressure Setting	E9	N/A	N/A	0	N/A
Automatic Airflow Adjustment	d4	N/A	N/A	N/A	N/A

As of 5/2021 The RG10 Remote Service Manual has not been released.



Service Settings – Wireless Remote RG57

Service Settings are only accessible through the wireless remote control.

Caution: Read and understand the function changes you wish to make in advance. The remote will not read the parameters in the unit.

While many settings can be accessed, we find only the ones listed below may need adjustment from default.

F1 Auto-Start – Turn OFF or turn back ON

F2 Heating Temperature Compensation – Adjust an offset based on thermal stratification within the space.

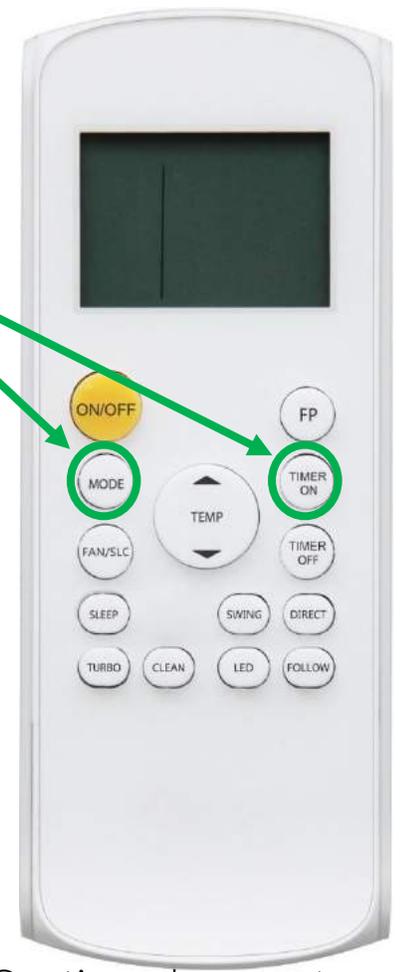
F4 Indoor Fan Motor Speed Control after Set Point is Reached – Changes Heat fan speed after set point is reached.

F7 Cooling Temperature Compensation – Adjust an offset based on thermal stratification within the space.

d4 Automatic Airflow Adjustments – for 40MBA Air Handler & 40MBDQ Ducted Units Only.

E9 Manual Static Pressure Setting – for 40MBA Air Handler & 40MBDQ Ducted Units Only.

1. Before using the service functions of the remote, turn OFF the indoor unit with the remote.
2. Remove batteries from Wireless Controller, recycle power to system and reinstall batteries.
3. Pointing the Wireless Controller at the Indoor unit's receiver, simultaneously press MODE and TIMER ON for 5 seconds. When the display reads "F1" you are in SERVICE FUNCTION mode.
4. Use TEMP UP/DOWN to find and display the parameter you want to change.
5. When the parameter you want to change is displayed, press MODE (parameters displayed after pressing MODE are default values only, NOT the values stored in the controller).
6. To change the parameter use the TEMP UP/DOWN until the value you want is displayed.
7. Press TIMER ON to confirm the new setting value and transmit it to the Indoor Unit.
8. Repeat steps for any other parameter you are changing.
9. When finished, remove batteries from the remote and press any button to clear the screen and then replace the batteries and operate the system normally.



Continued on next page

Service Settings – Wireless Remote RG57 (end)

Service Settings are only accessible through the wireless remote control.

Default Values for Service Settings

Description	Remote Code	High Wall	Cassette	Ducted	Floor Console
Auto–Start Function	F1	ON	ON	ON	ON
Heating Temperature Compensation	F2	2C	6C	4C	0C
Anti–Cold Air Function	F3	NORMAL	NORMAL	NORMAL	NORMAL
Indoor Fan Motor Speed Control after Set Temperature is Reached	F4	LOWEST SPEED	SET SPEED	SET SPEED	SET SPEED
Louver Angle Memory Function	F5	ON	N/A	N/A	N/A
Heating Only or Cooling and Heating Setting	F6	CH	CH	CH	CH
Cooling Temperature Compensation	F7	–2C	–2C	–2C	–2C
Refrigerant Leakage Detection	F8	ON	ON	ON	ON
Cleaning Filter Reminder	F9	OFF	OFF	OFF	OFF
Filter Replacement Reminder	E1	OFF	OFF	OFF	OFF
Lowest Temperature Setting	E2	17C	17C	17C	17C
Highest Temperature Setting	E3	30C	30C	30C	30C
Special Anti–Cold Air Function Setting	E4	N/A	N/A	N/A	N/A
Priority Setting of Heating or Cooling (Multi–Zone Systems only)	E5	H	H	H	H
Network Address Setting	E6	N/A	N/A	N/A	N/A
Capacity Code Selection	E7	N/A	N/A	N/A	N/A
Twins Setting	E8	N/A	N/A	N/A	N/A
Static Pressure Setting	E9	N/A	N/A	0	N/A

Automatic Airflow Adjustment	d4	N/A	N/A	N/A	N/A
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As of 4/2021 Automatic Airflow Adjustment is not listed in the Remote Service Manual.



Service Settings – Wireless Remote RG66

Service Settings are only accessible through the wireless remote control.

Caution: Read and understand the function changes you wish to make in advance. The remote will not read the parameters in the unit.

While many settings can be accessed, we find only the ones listed below may need adjustment from default.

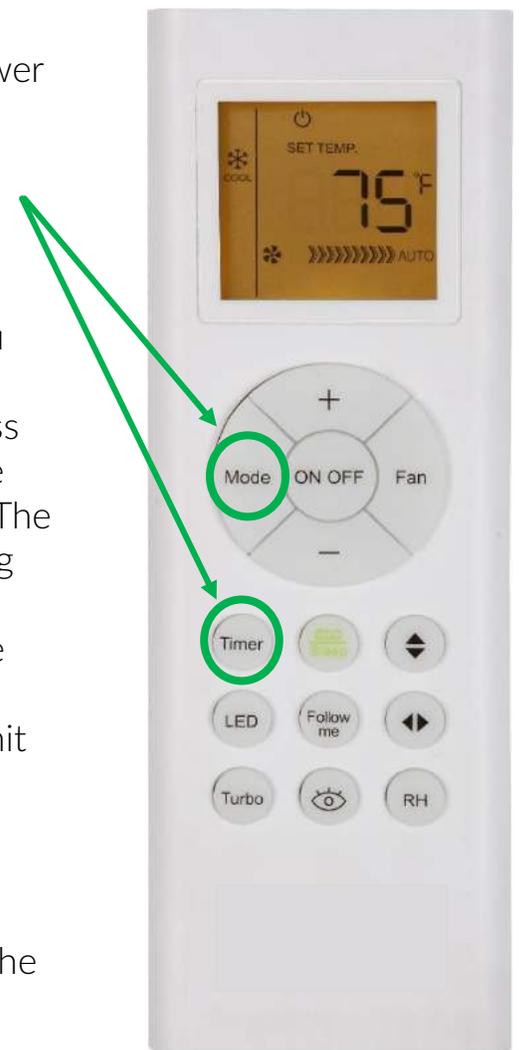
F1 Auto-Start – Turn OFF or turn back ON

F2 Heating Temperature Compensation – Adjust an offset based on thermal stratification within the space.

F4 Indoor Fan Motor Speed Control after Set Point is Reached – Changes Heat fan speed after set point is reached.

F7 Cooling Temperature Compensation – Adjust an offset based on thermal stratification within the space.

1. Before using the service functions of the remote, turn OFF the indoor unit with the remote.
2. Remove batteries from Wireless Controller, recycle power to system and reinstall batteries.
3. Pointing the Wireless Controller at the Indoor unit's receiver, simultaneously press MODE and TIMER ON for 5 seconds. When the display reads "F1" you are in SERVICE FUNCTION mode.
4. Use TEMP + or – to find and display the parameter you want to change.
5. When the parameter you want to change appears, press MODE (parameters displayed after pressing MODE are default values only, NOT the values stored in the unit. The values are stored in the unit, not the controller. Pressing MODE only displays the default value for that setting.).
6. To change the parameter use the TEMP + or – until the value you want appears.
7. Press FAN to confirm the new setting value and transmit it to the Indoor Unit.
8. Repeat steps 3 thru 6 for any other parameter you are changing.
9. When finished, remove batteries from the remote and press any button to clear the screen and then replace the batteries and operate the system normally.



Service Settings – Wireless Remote RG66 (end)

Service Settings are only accessible through the wireless remote control.

Default Values for Service Settings

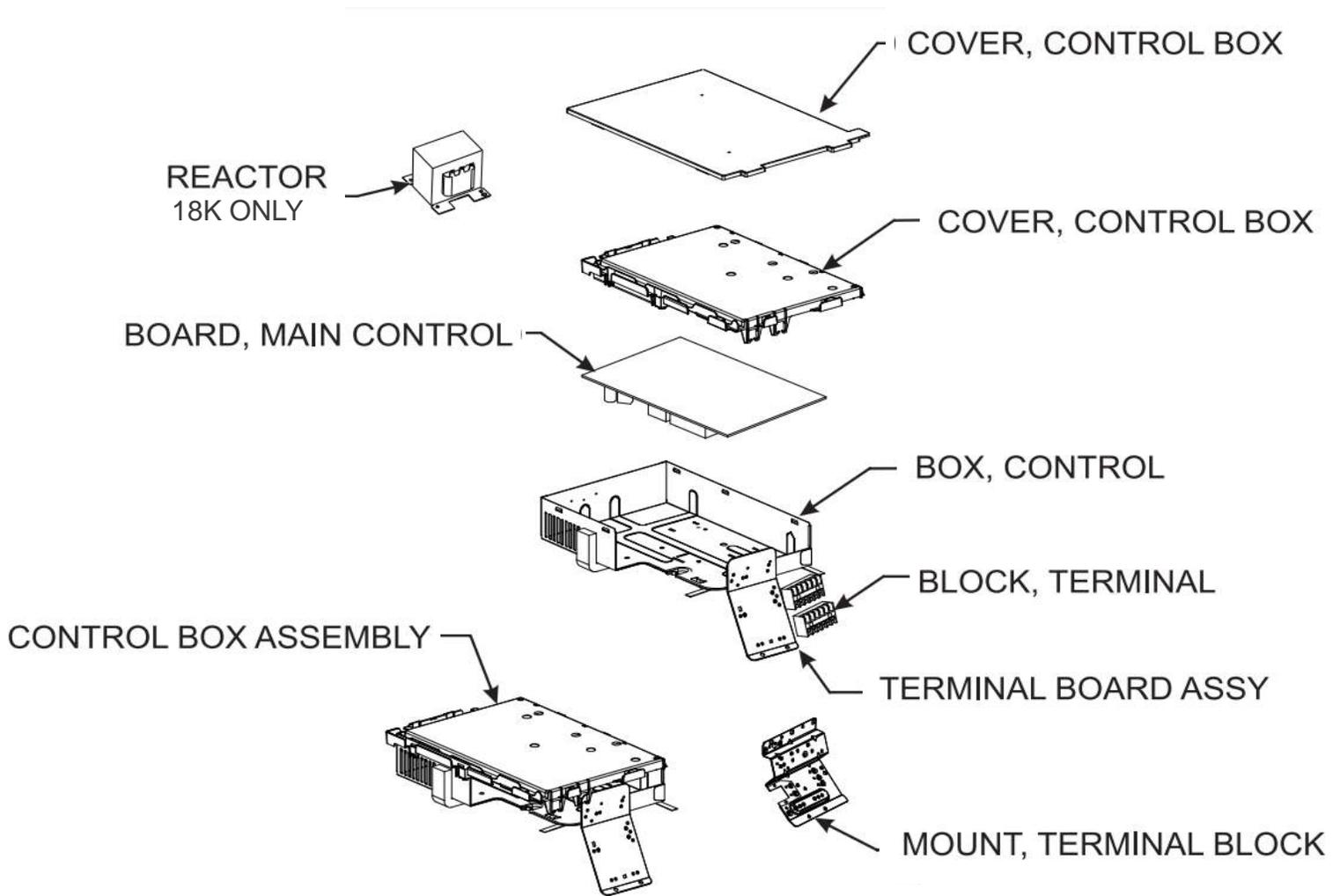
Description	Remote Code	High Wall
Auto–Start Function	F1	ON
Heating Temperature Compensation	F2	2C
Anti–Cold Air Function	F3	NORMAL
Indoor Fan Motor Speed Control after Set Temperature is Reached	F4	LOWEST SPEED
Louver Angle Memory Function	F5	ON
Heating Only or Cooling and Heating Setting	F6	CH
Cooling Temperature Compensation	F7	–2C
Refrigerant Leakage Detection	F8	ON
Cleaning Filter Reminder	F9	OFF
Filter Replacement Reminder	E1	OFF
Lowest Temperature Setting	E2	17C
Highest Temperature Setting	E3	30C
Special Anti–Cold Air Function Setting	E4	N/A
Priority Setting of Heating or Cooling (Multi–Zone Systems only)	E5	H
Network Address Setting	E6	N/A
Capacity Code Selection	E7	N/A
Twins Setting	E8	N/A
Static Pressure Setting	E9	N/A



38MARBQ09~18AA3 Outdoor Units Control Box & Main PCB Removal (page 1 of 3)

9K, 12K (120 & 220-Volt) 18K,
Replace Entire Control Box Assembly

Helpful Hint!
Take a picture or two of the
wires to help when reinstalling.



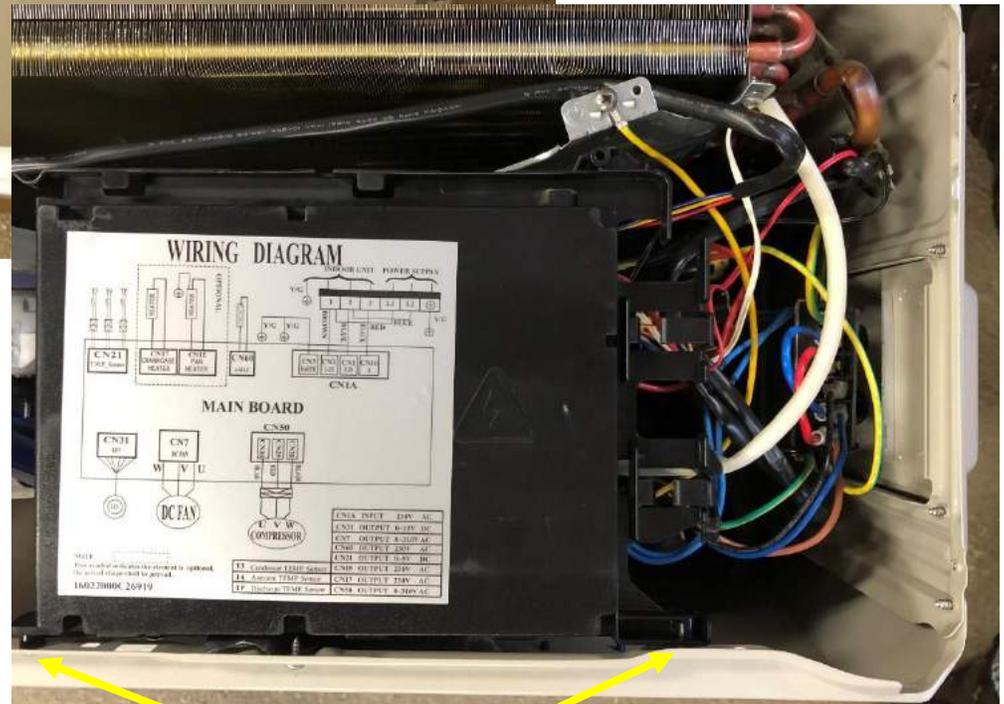
Continued on next page

38MARBQ09~18AA3 Outdoor Units Control Box & Main PCB Removal (page 2 of 3)

PCB Removal for 9, 12 & 18K Units

Turn Power OFF First!

Open top cover of unit.
Remove all wires from side trays



Remove screws holding
Control Box

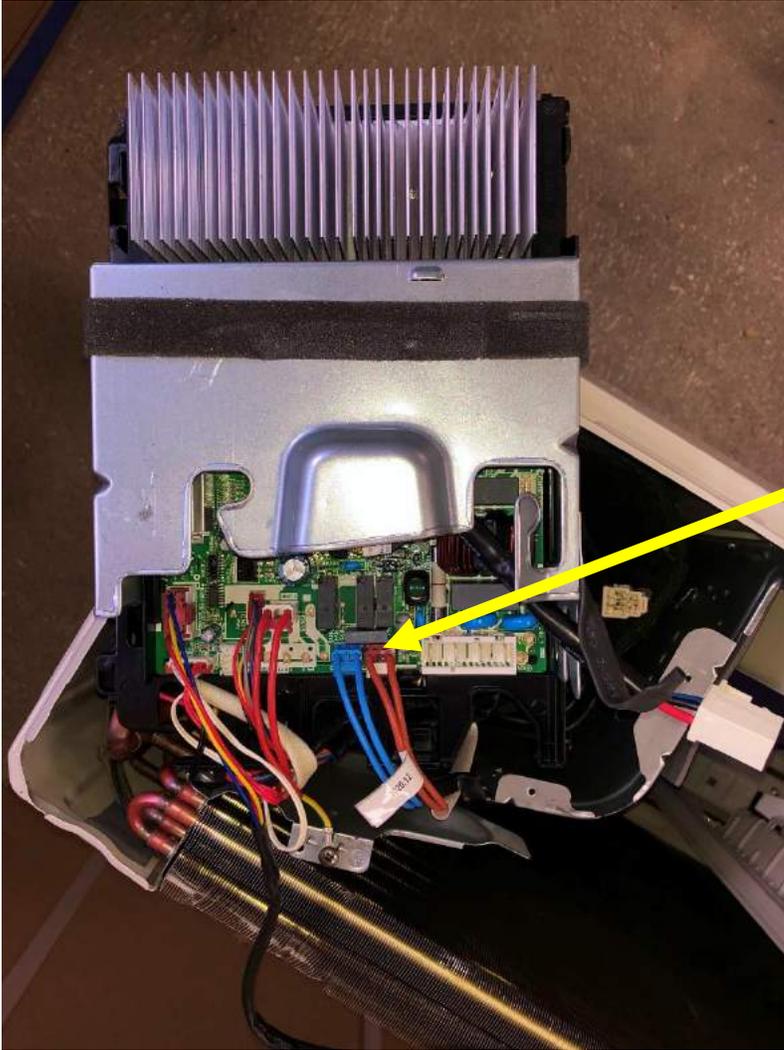
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next page



38MARBQ09~18AA3 Outdoor Units Control Box & Main PCB Removal (page 3 of 3)

PCB Removal for 9, 12 & 18K Units

Lean Control box out while you disconnect all wire harnesses.



Some connections have small keepers holding them in place, these do not have to be reinstalled. Use small screw driver to pop out.

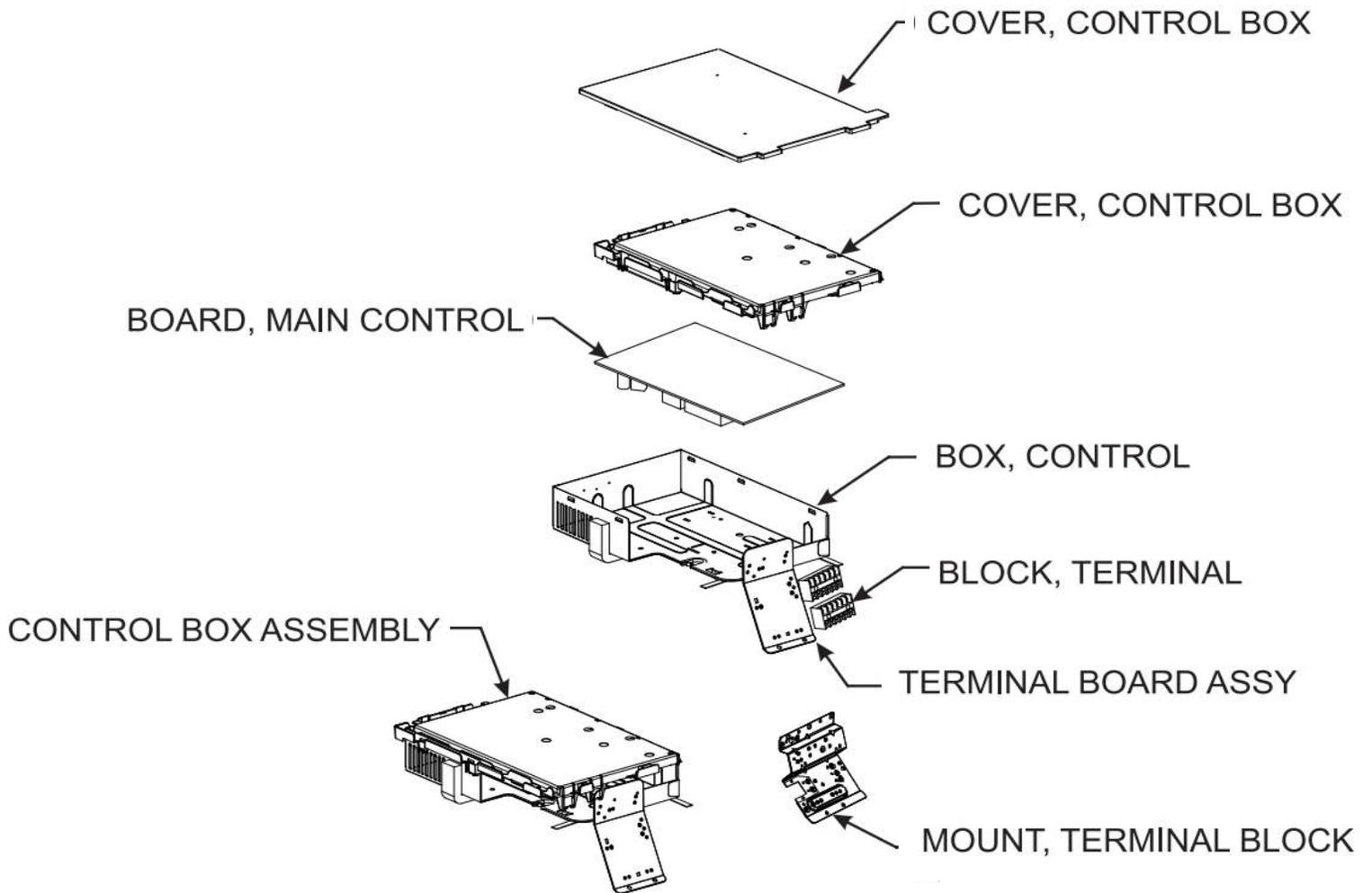


Some wires will be reused when replacing PCB

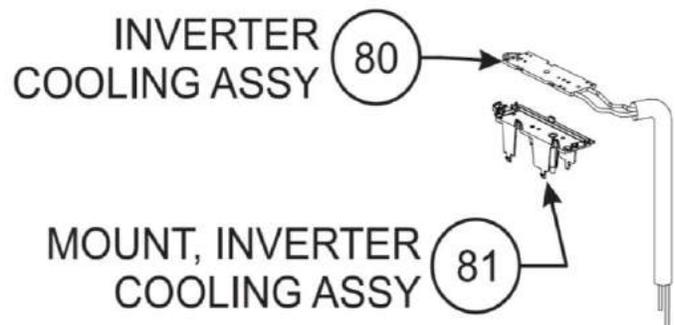
38MARBQ24~36AA3 Outdoor Units Control Box & Main PCB Removal (page 1 of 5)

24K, 30K, 36K
Replace Main PCB **ONLY**

Helpful Hint!
Take a picture or two of the wires to help when reinstalling.



24, 30 & 36K Units have
Inverter Cooling Assembly
under Main PCB



Attention:

When replacing Main PCB ONLY,
you will need Conductive Grease.



Continued on next page

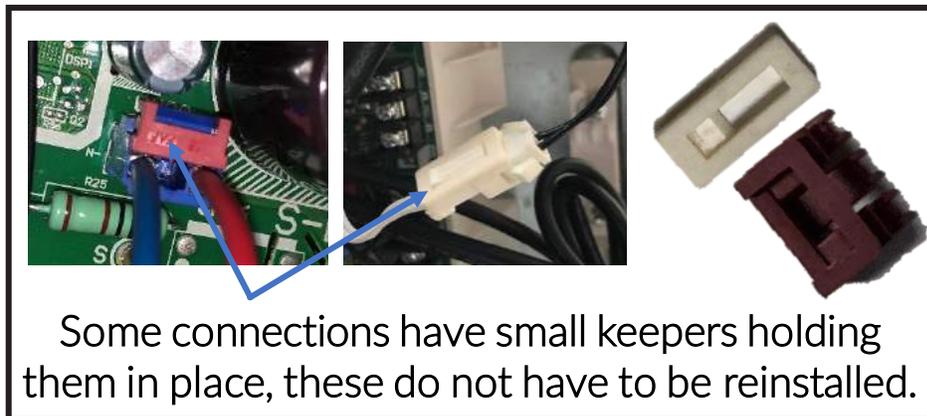
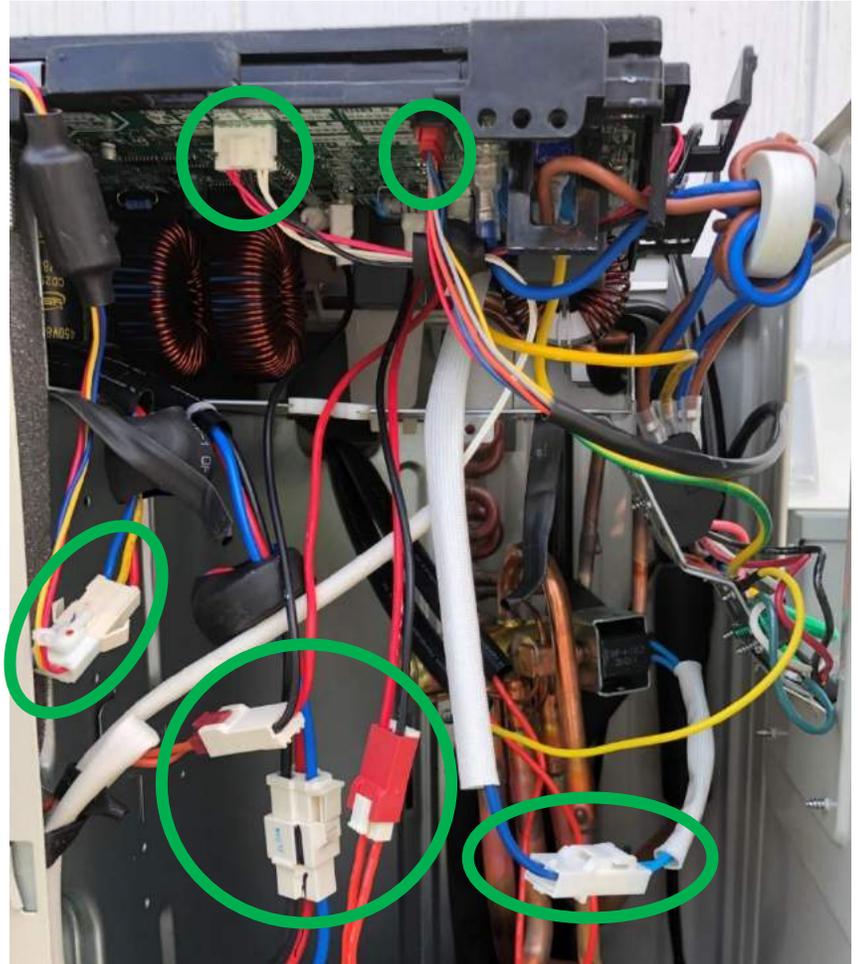
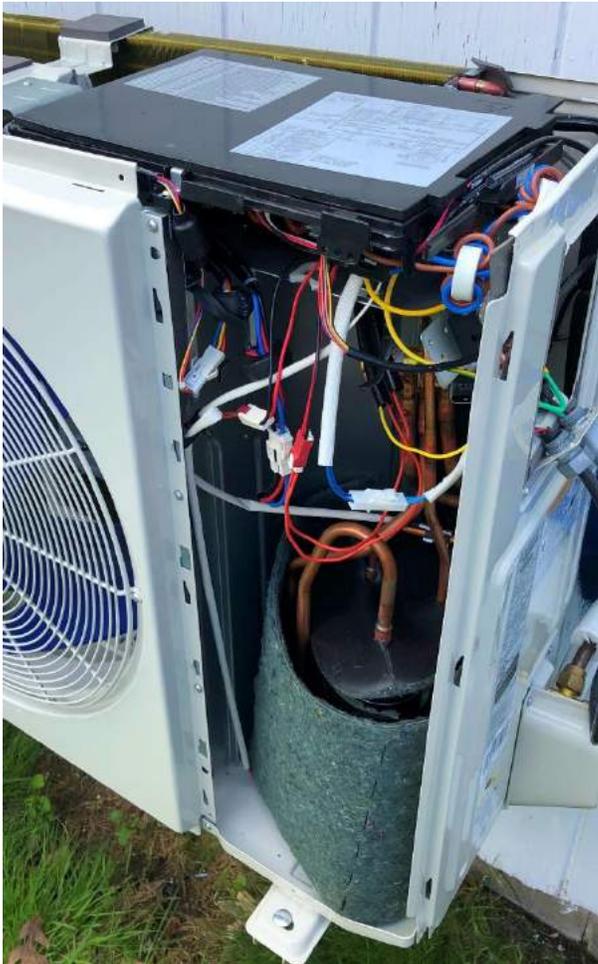
38MARBQ24~36AA3 Outdoor Units

Control Box & Main PCB Removal (page 2 of 5)

PCB Removal for 24, 30 & 36K Units

Turn Power OFF First!

Open electrical connection, top and front cover of unit.
Disconnect all wire harnesses, most have a short extension that you can separate instead of trying to disconnect directly from the PCB.



Some connections have small keepers holding them in place, these do not have to be reinstalled.

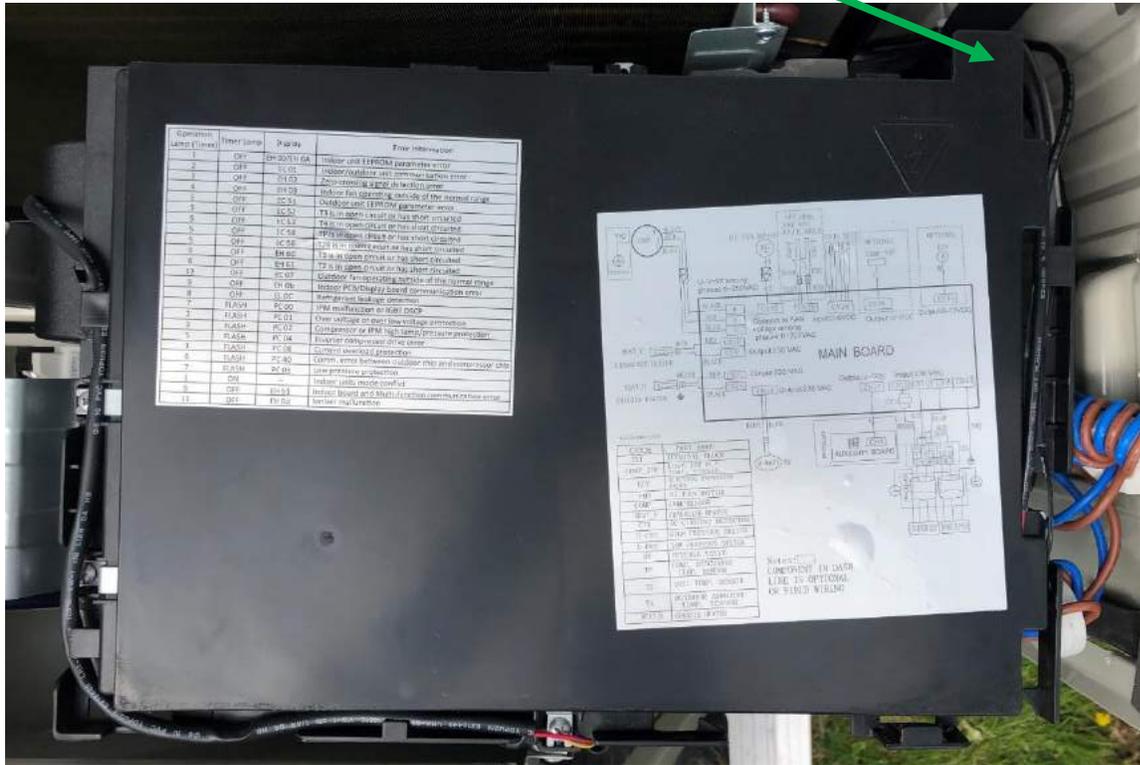
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next page



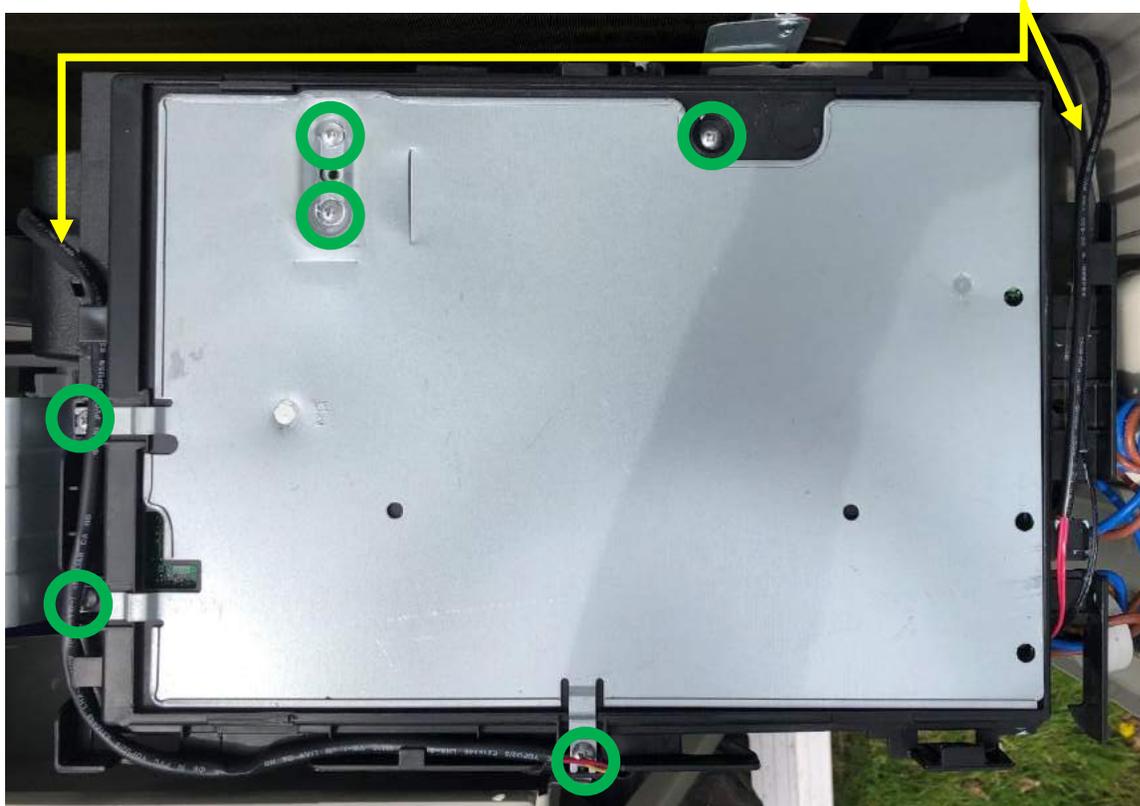
38MARBQ24~36AA3 Outdoor Units Control Box & Main PCB Removal (page 3 of 5)

PCB Removal for 24, 30 & 36K Units

Open Top and front of Outdoor Unit, left tab to remove cover



Remove 6 screws circled in Green, Remove wires from side trays



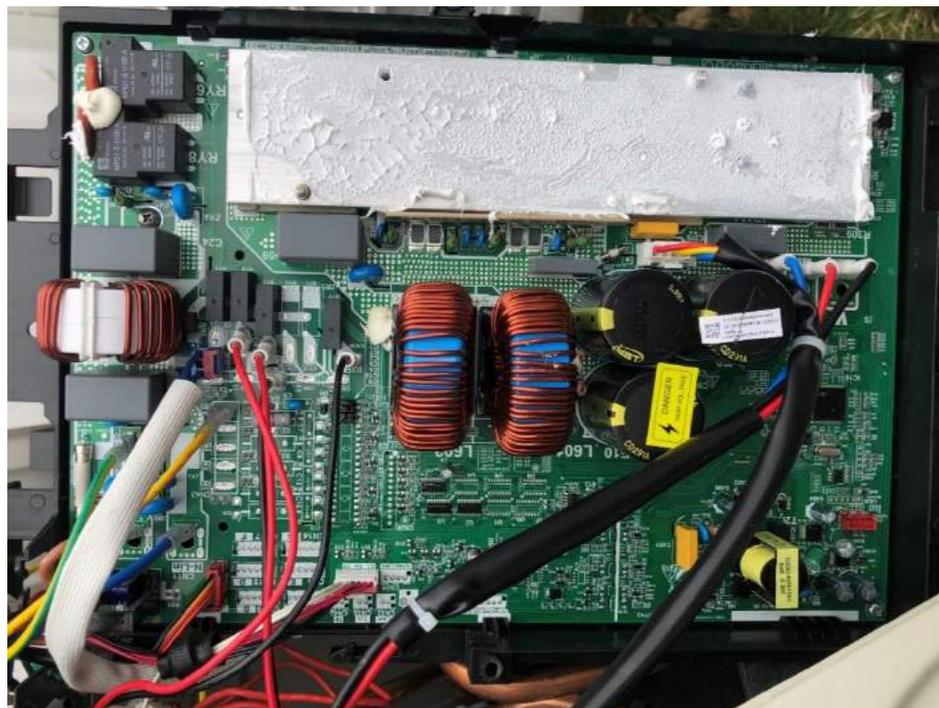
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38MARBQ24~36AA3 Outdoor Units

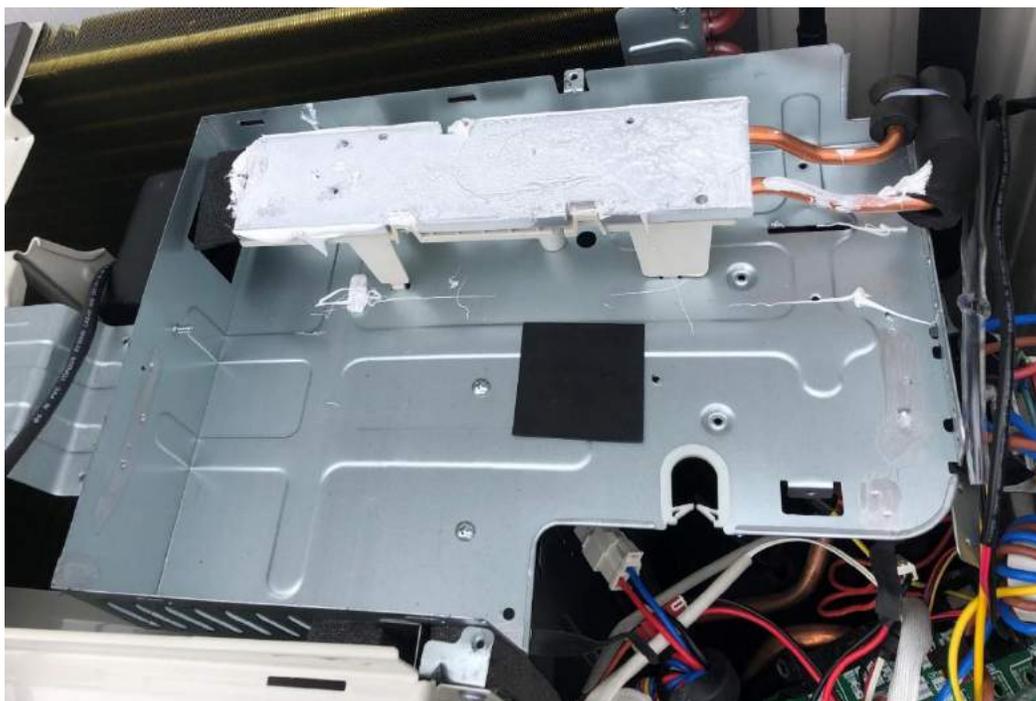
Control Box & Main PCB Removal (page 4 of 5)

PCB Removal for 24, 30 & 36K Units

Carefully lift off from the back first, working around the sides.
When is it colder outside, the separation can be more difficult.
Disconnect any remaining connected wires as you remove.



Clean off and apply new Conductive Grease prior to reassembling.
If this is not done overheating can occur.




Continued on
next page

38MARBQ24~36AA3 Outdoor Units Control Box & Main PCB Removal (page 5 of 5)

PCB Removal for 24, 30 & 36K Units

Clean off old Conductive Grease and apply new before reassembling.



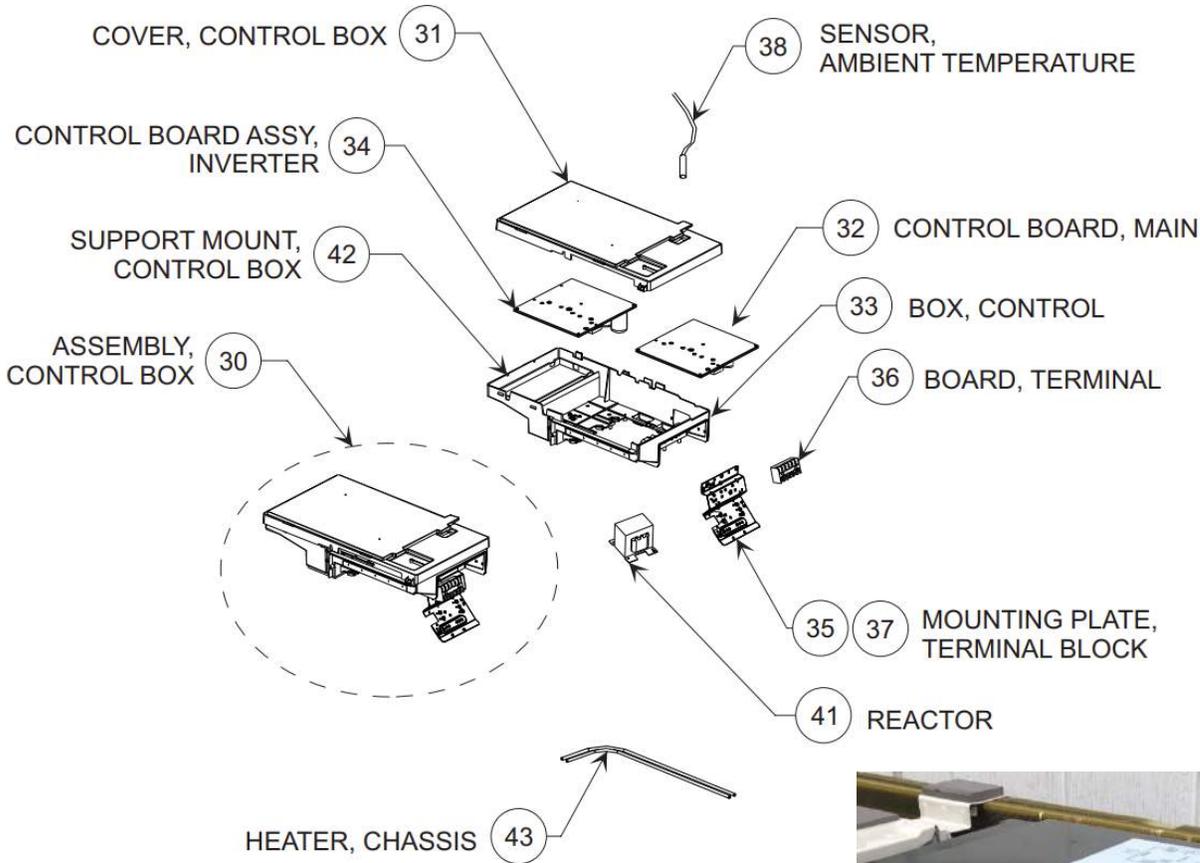
Some wires will be reused when replacing PCB.

Carrier Factory Authorized Parts
38AQ680001 Conductive Grease



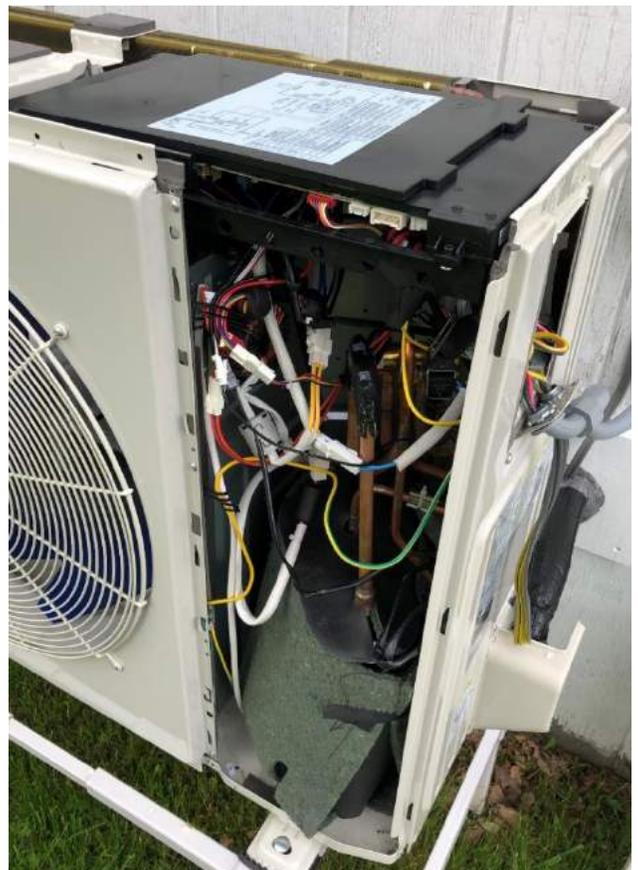
38MAQB09~36R--3 Outdoor Unit Inverter & Main PCB Removal (page 1 of 4)

Turn Power OFF First!



Helpful Hint!
Take a picture or two of the wires to help when reinstalling.

Open electrical connection,
top and front cover of unit.



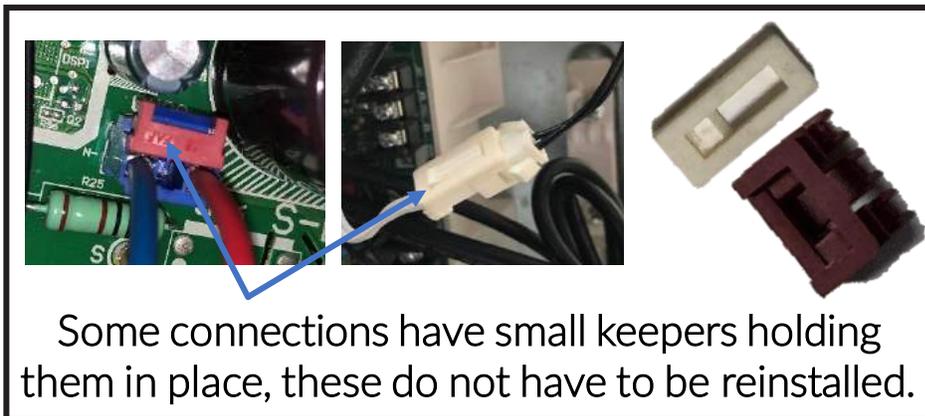
Continued on next page

38MAQB09~36R--3 Outdoor Unit Inverter & Main PCB Removal (page 2 of 4)

Remove **screw**. Disconnect all **wire harnesses** that connects to the Main PCB, most have a short extension that you can separate instead of trying to disconnect directly from the PCB.



Remove
Screw 1st



Some connections have small keepers holding them in place, these do not have to be reinstalled.



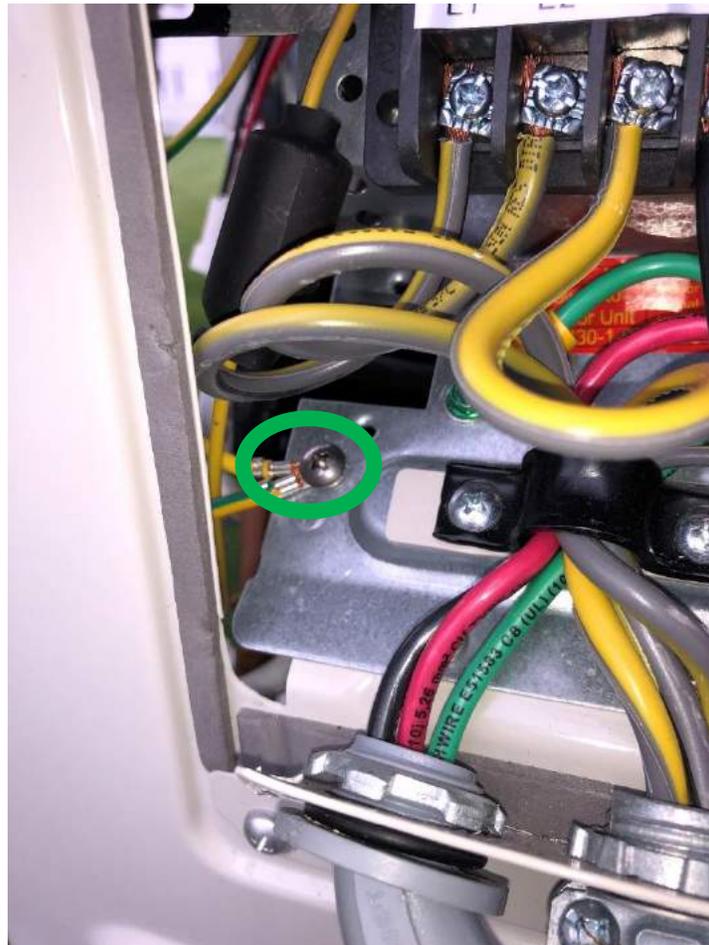

Continued on
next page

38MAQB09~36R--3 Outdoor Unit Inverter & Main PCB Removal (page 3 of 4)

Reach in and up to disconnect Red, Black & Yellow
 $\frac{1}{4}$ " spade connections



Remove
Ground wire
to Main PCB




Continued on
next page

38MAQB09~36R--3 Outdoor Unit Inverter & Main PCB Removal (page 4 of 4)

Carefully lift up from these two areas, guiding the loose wires up and out at the same time.

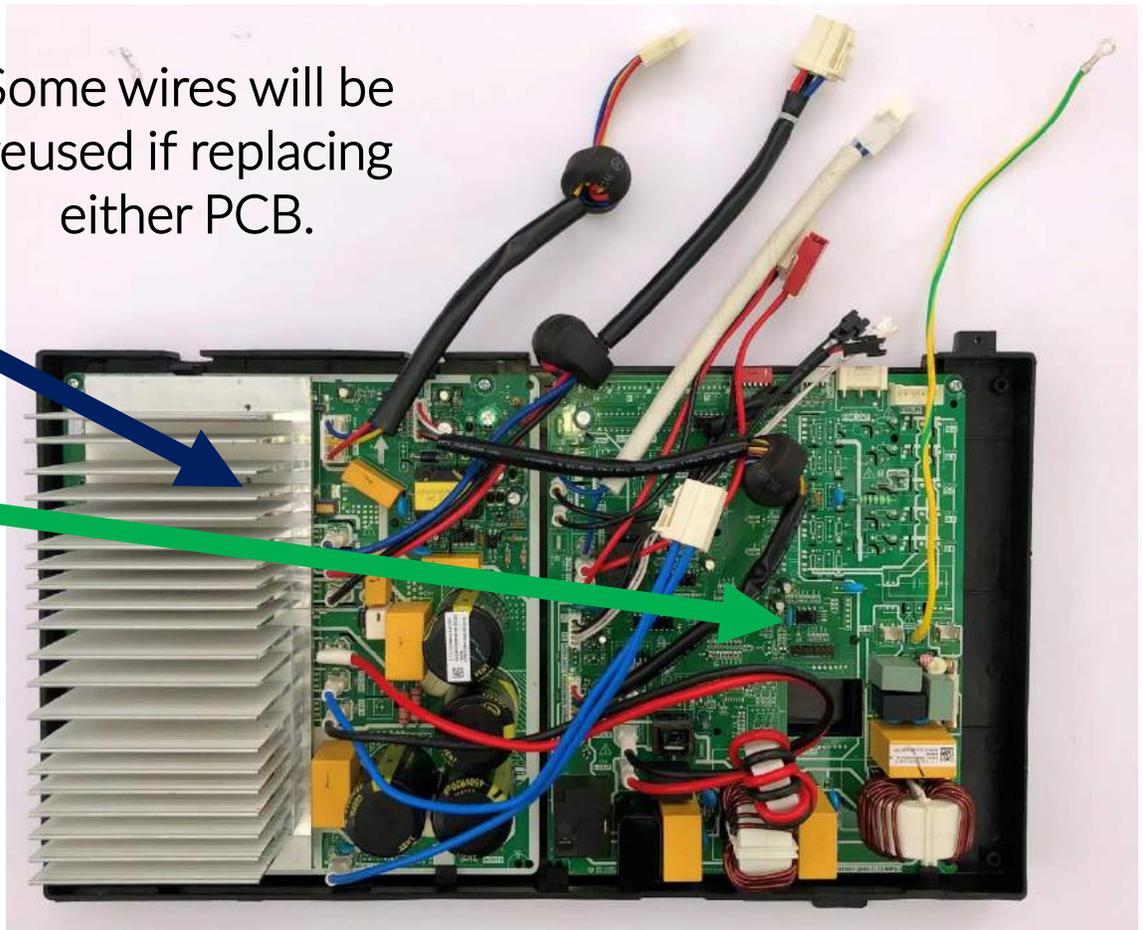


Reverse steps to reinstall.

Some wires will be reused if replacing either PCB.

Inverter PCB

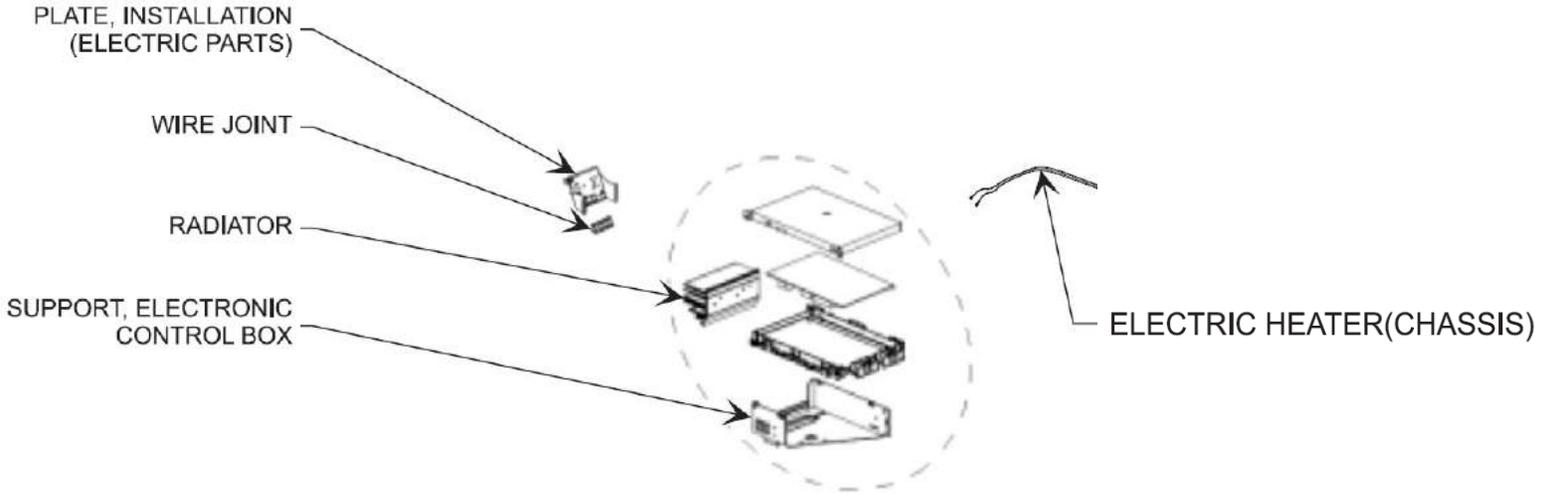
Main PCB



38MAQB09~12---1 Outdoor Unit Main PCB Removal (page 1 of 3)

For Sizes 9K & 12K 120 Volt

Turn Power OFF First!



Helpful Hint!

Take a picture or two of the wires to help when reinstalling.

Open electrical connection and top cover of unit.



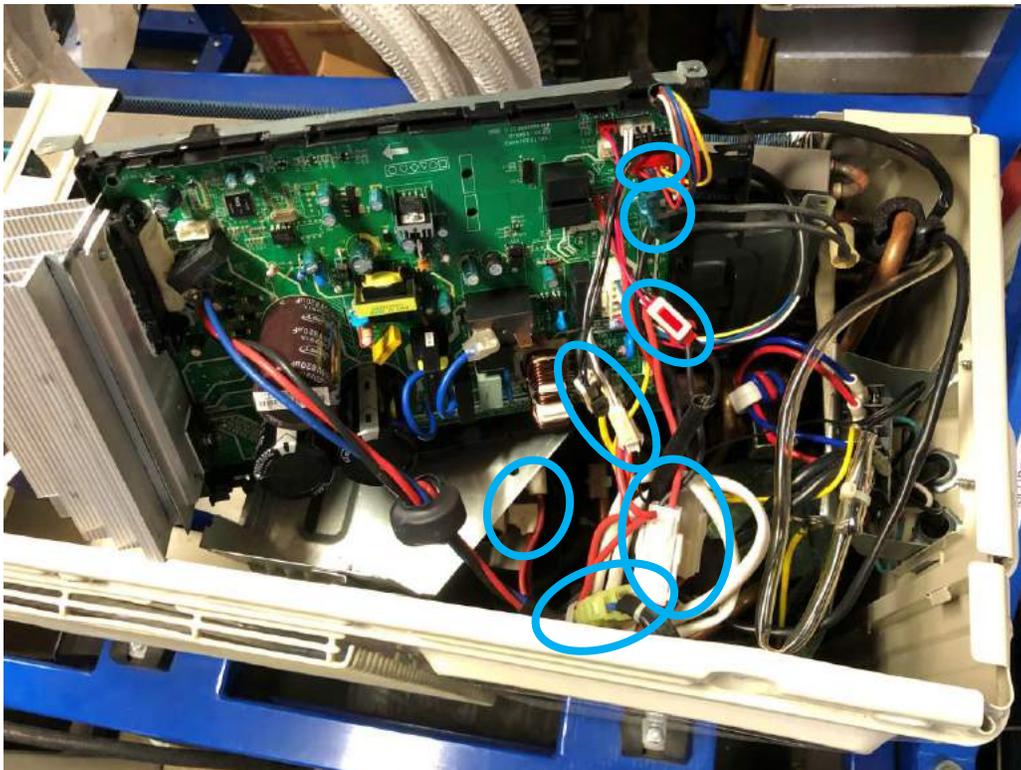
38MAQB09~12---1 Outdoor Unit
Main PCB Removal (page 2 of 3)

For Sizes 9K & 12K 120 Volt

Remove screws circled in Red.



Lift electrical box out carefully disconnecting wire harnesses along the way.

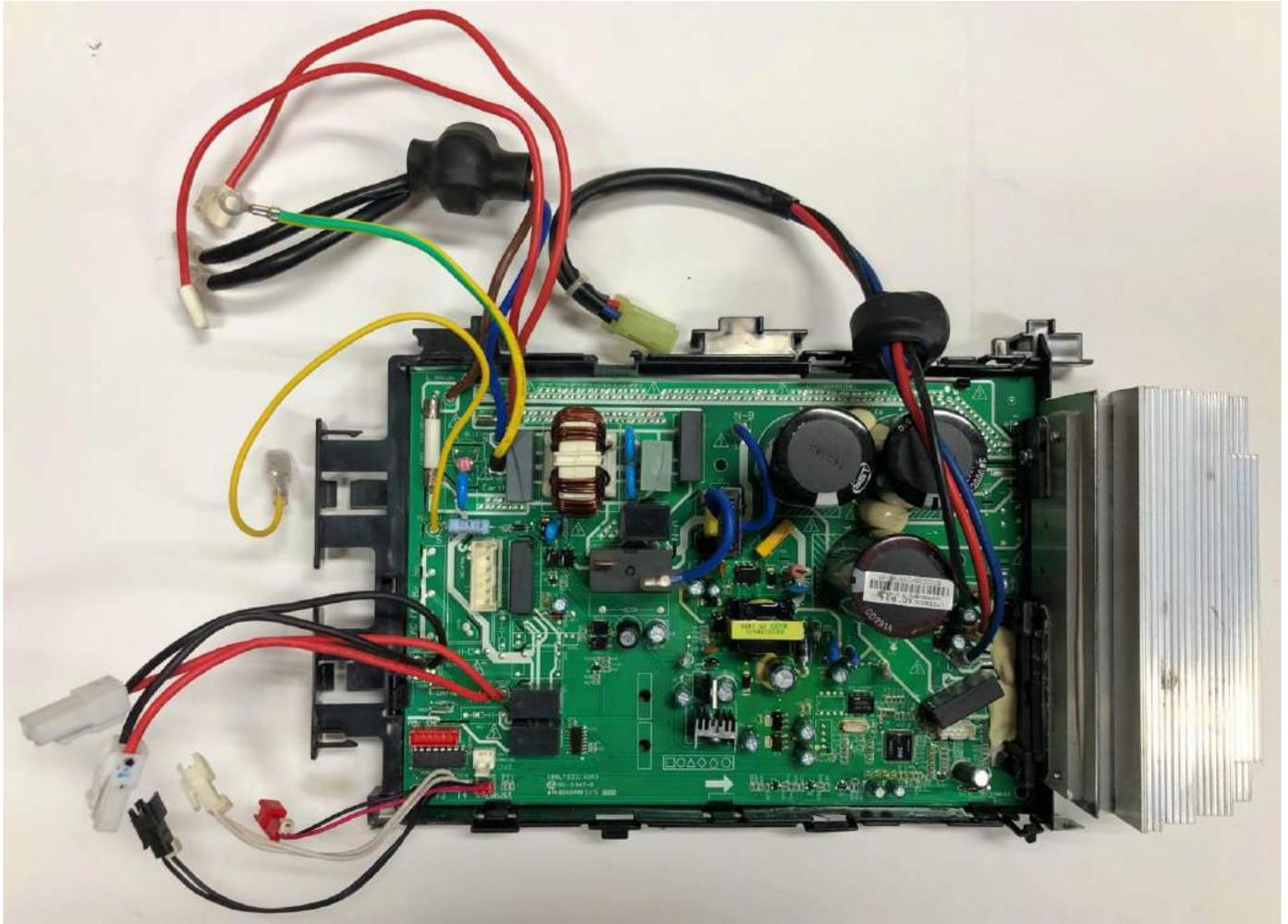


38MAQB09~12---1 Outdoor Unit
Main PCB Removal (page 3 of 3)

For Sizes 9K & 12K 120 Volt

Some wires will be reused
when replacing PCB.

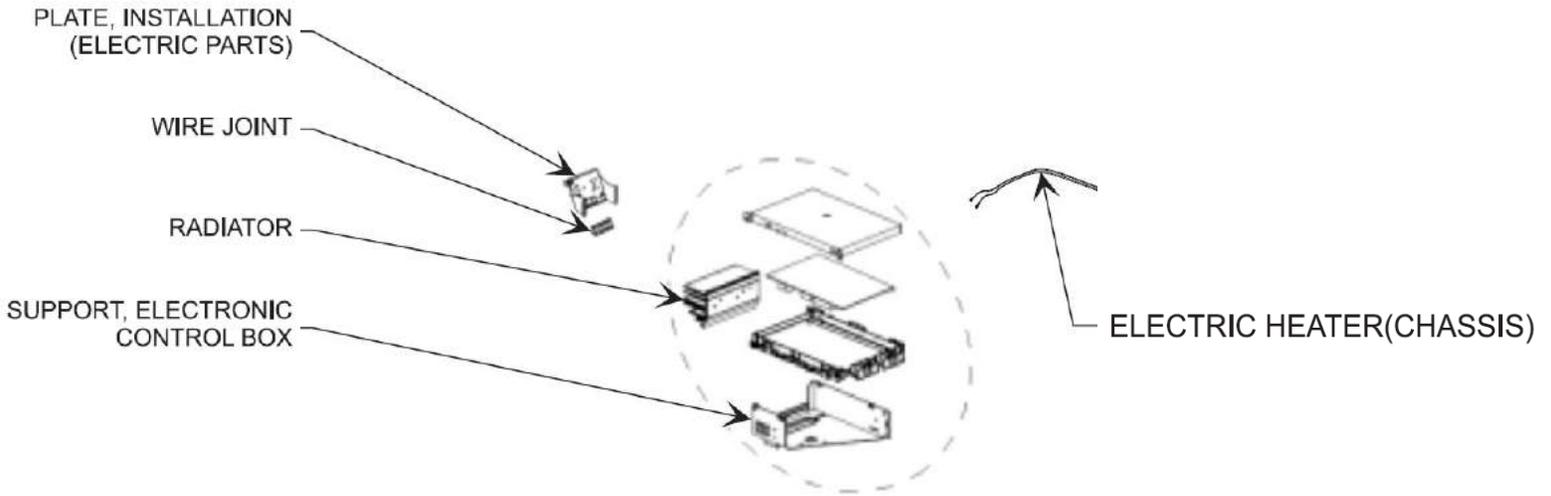
Reverse steps to reinstall.



38MAQB09~12---3 Outdoor Unit Main PCB Removal (page 1 of 3)

For Sizes 9K & 12K 208/230 Volt

Turn Power OFF First!



Helpful Hint!

Take a picture or two of the wires to help when reinstalling.

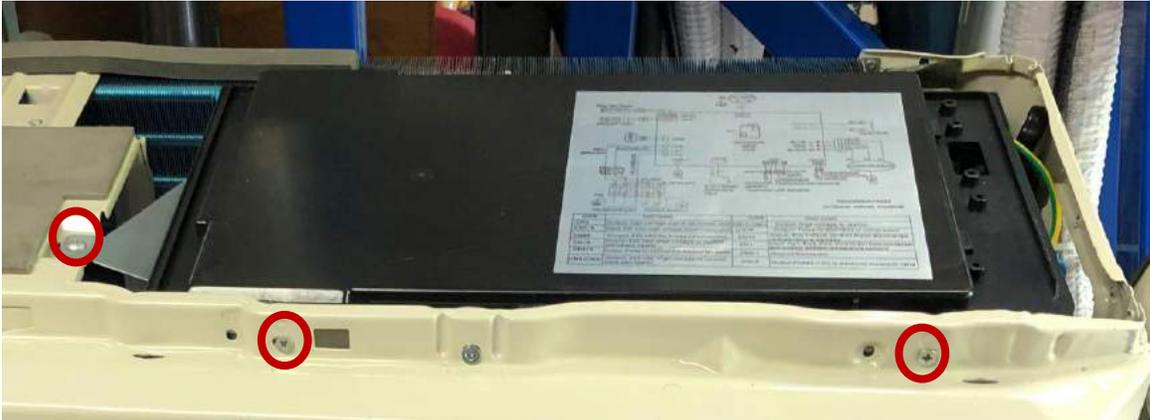
Open electrical connection and top cover of unit.



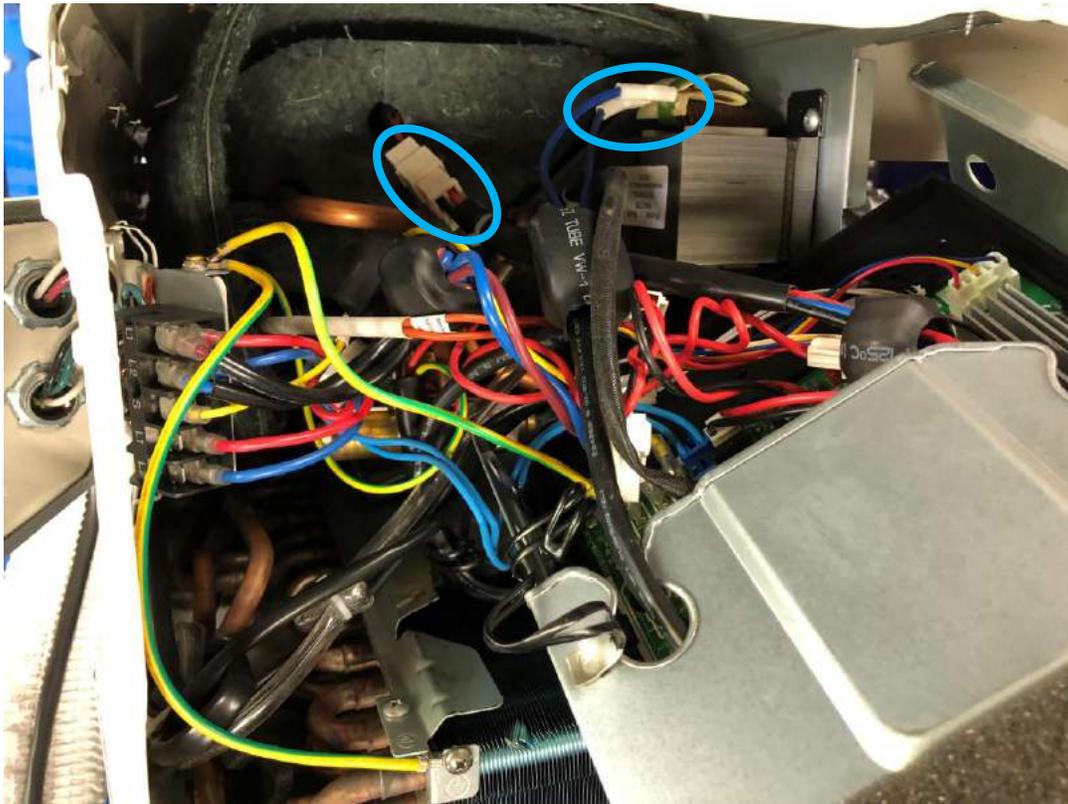
38MAQB09~12---3 Outdoor Unit
Main PCB Removal (page 2 of 3)

For Sizes 9K & 12K

Remove screws circled in Red.



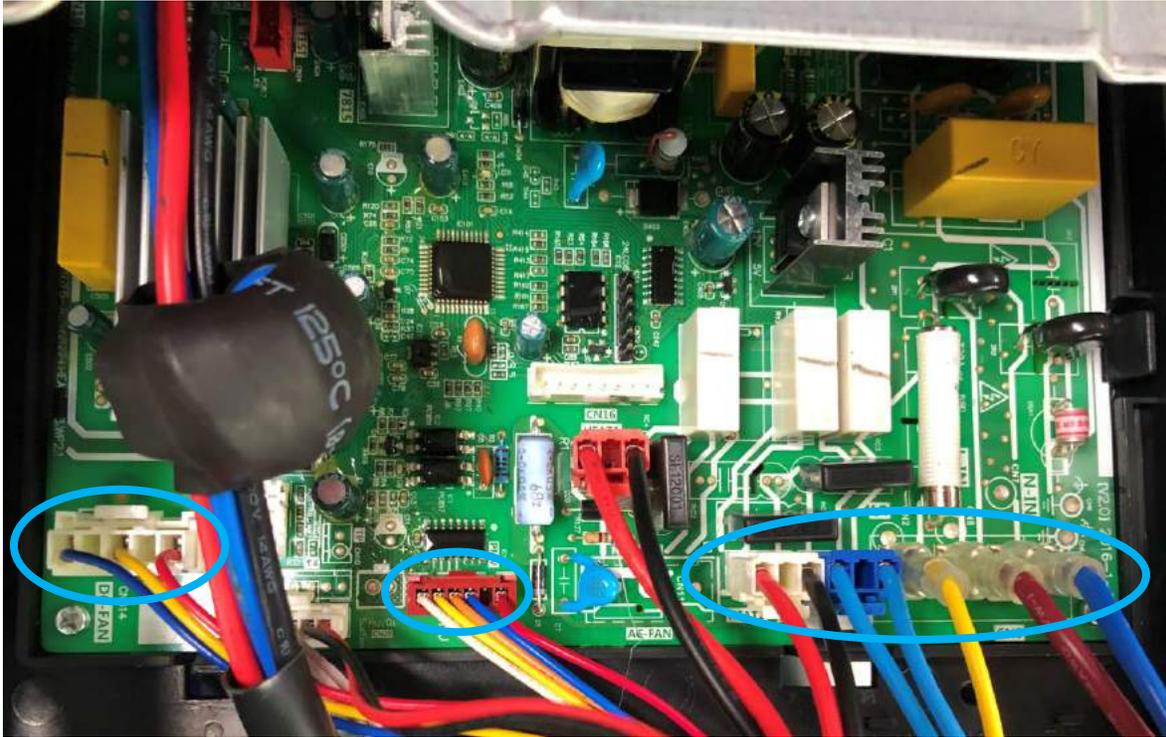
Lift electrical box out carefully disconnecting Compressor and Inductor wire harnesses along the way.



38MAQB09~12---3 Outdoor Unit Main PCB Removal (page 3 of 3)

For Sizes 9K & 12K

Remove remaining wires harness in **Blue**.



Some wires will be reused when replacing PCB.

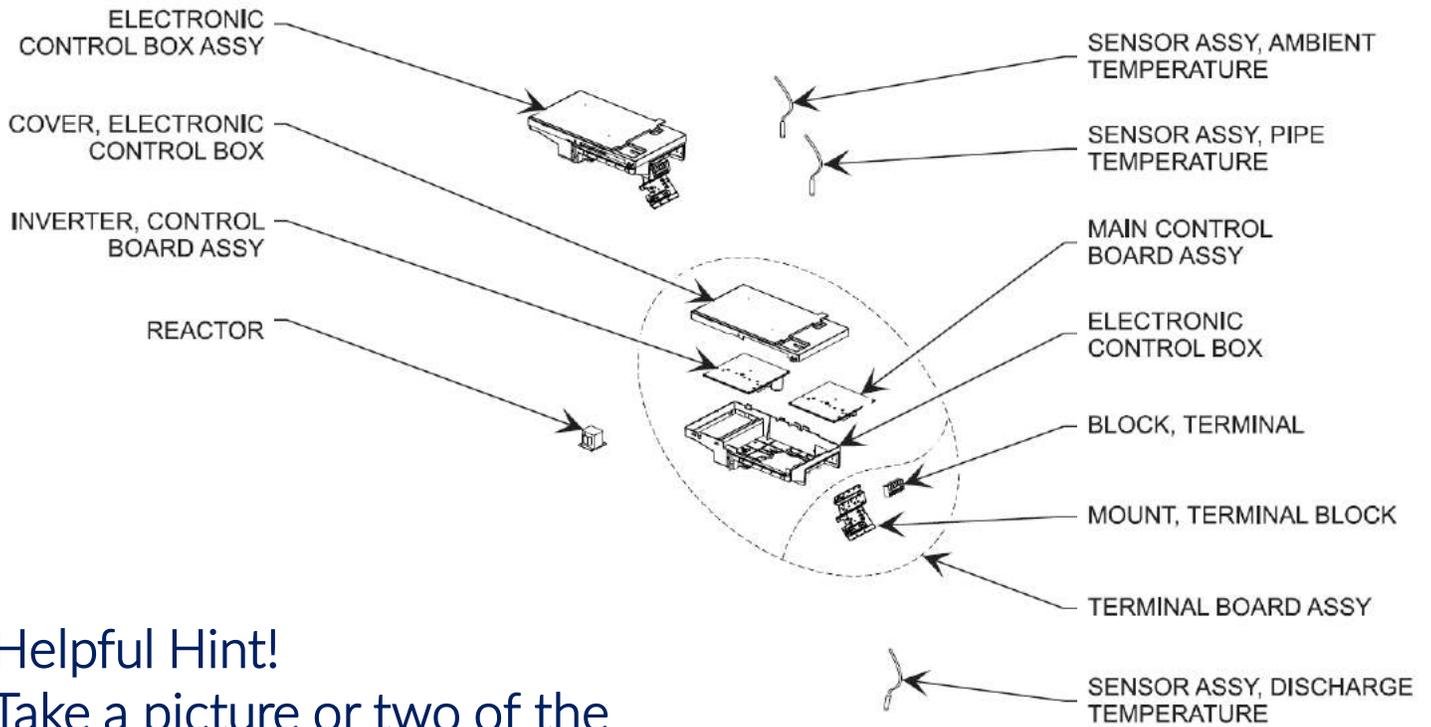
Reverse steps to reinstall.



38MAQB18~30---3 Outdoor Unit Inverter & Main PCB Removal (page 1 of 4)

For Sizes 18K, 24K, 30K

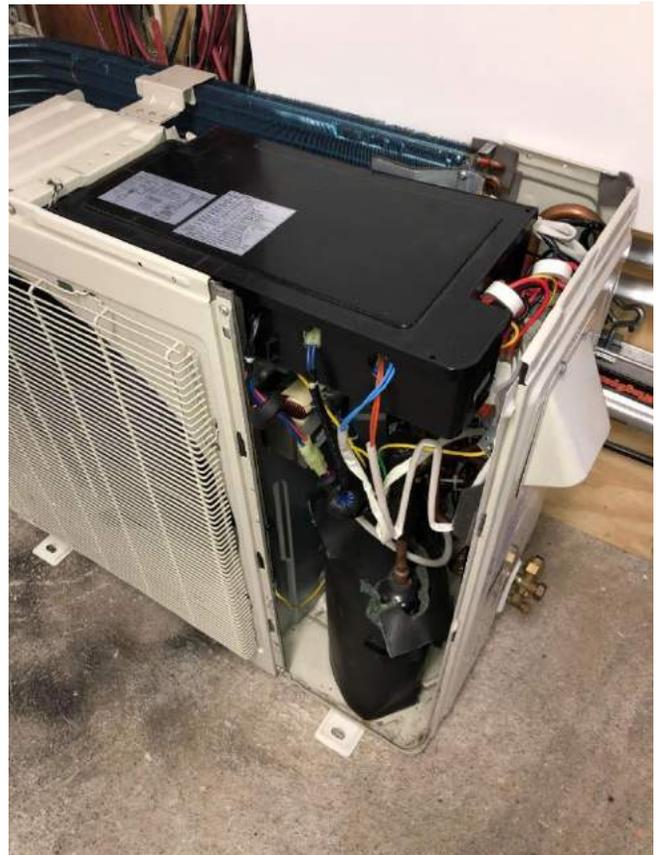
Turn Power OFF First!



Helpful Hint!

Take a picture or two of the wires to help when reinstalling.

Open electrical connection, top and front cover of unit.

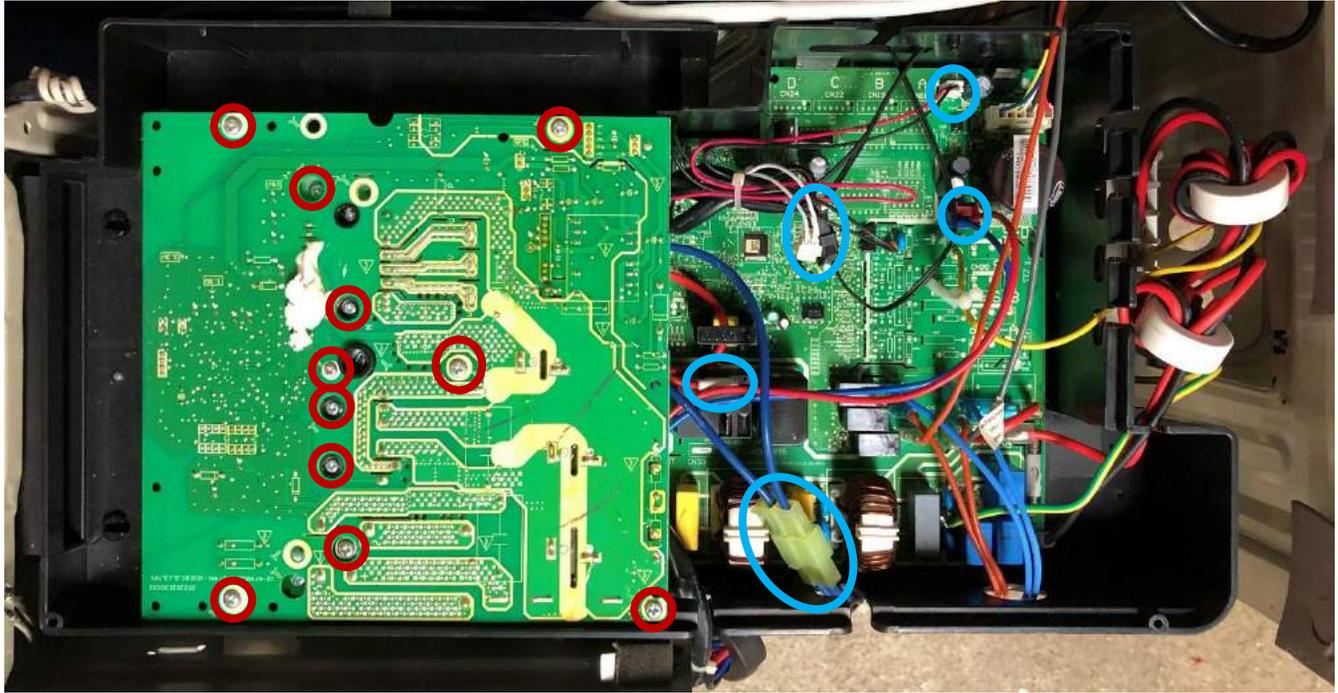


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38MAQB18~30---3 Outdoor Unit Inverter & Main PCB Removal (page 2 of 4)

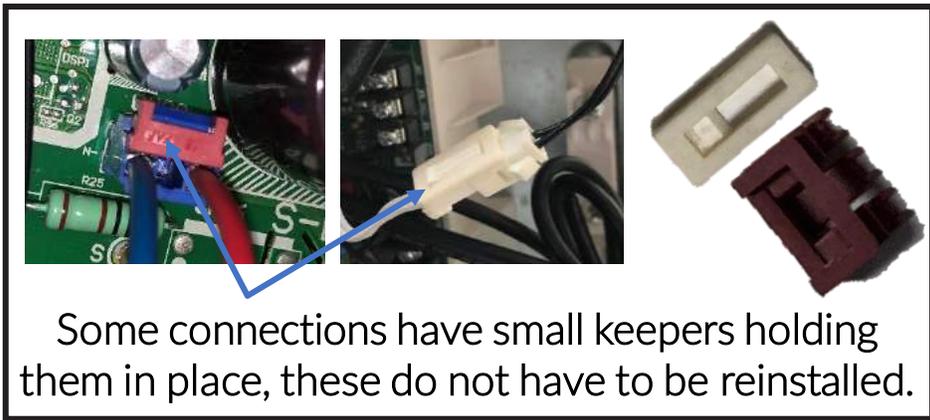
For Sizes 18K, 24K, 30K

Lift off PCB electrical box cover and remove screws circled in **Red**.
Disconnect any wires leading to the Inverter PCB, see **Blue**.



Inverter PCB

Main PCB



Some connections have small keepers holding them in place, these do not have to be reinstalled.



Disconnect
compressor
harness

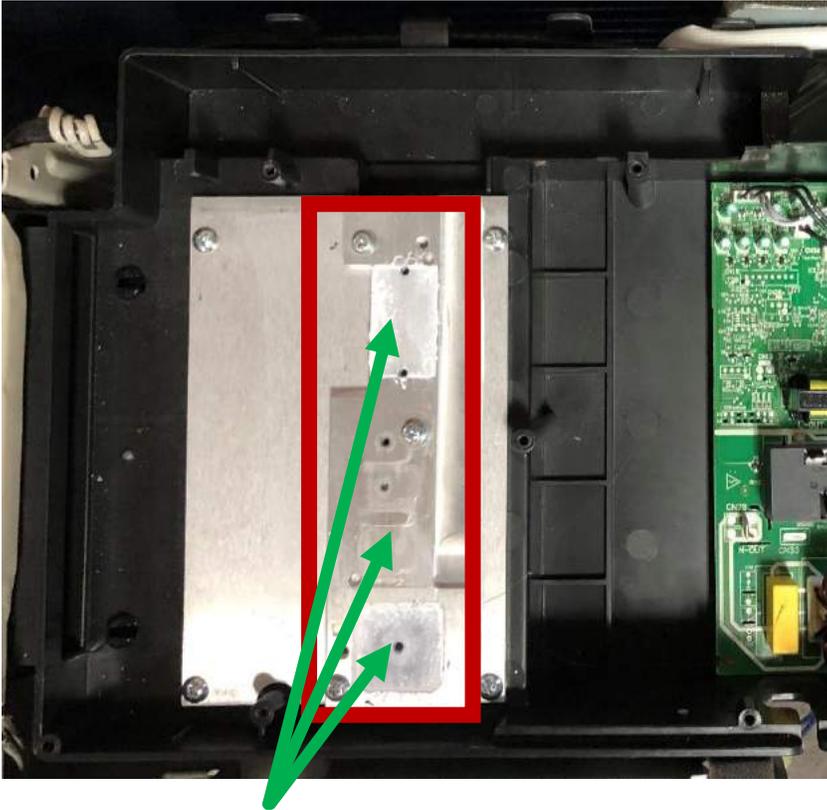


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38MAQB18~30---3 Outdoor Unit Inverter & Main PCB Removal (page 3 of 4)

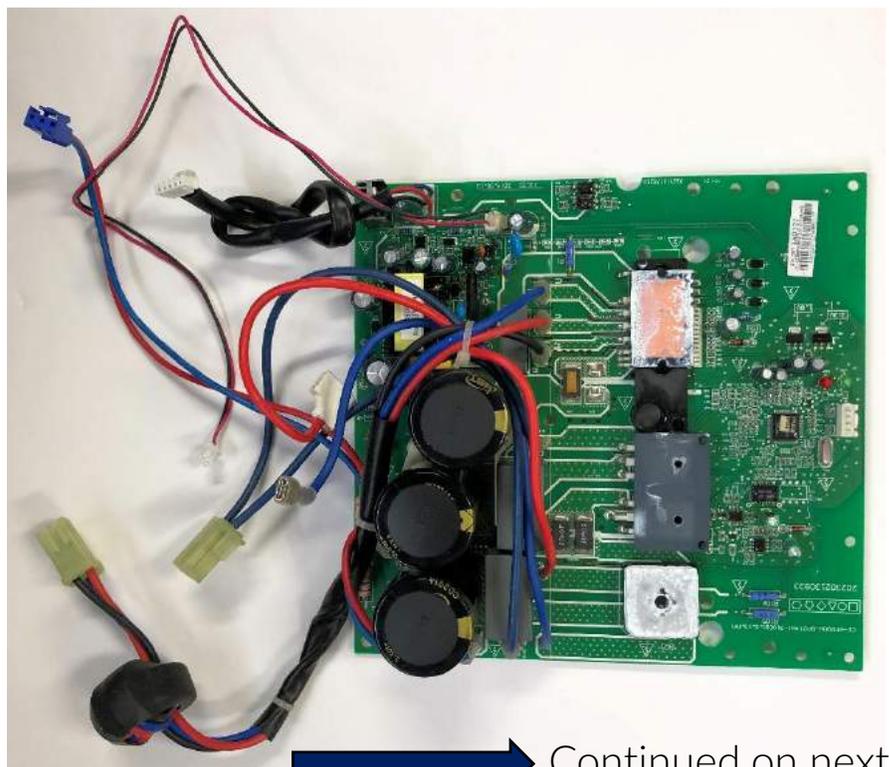
For Sizes 18K, 24K, 30K

Carefully lift up Inverter PCB off, guiding the loose wires up and out at the same time.



Some wires will be reused if replacing Inverter PCB.

Clean off old Conductive Grease and apply new before reassembling. If this is not done overheating can occur.

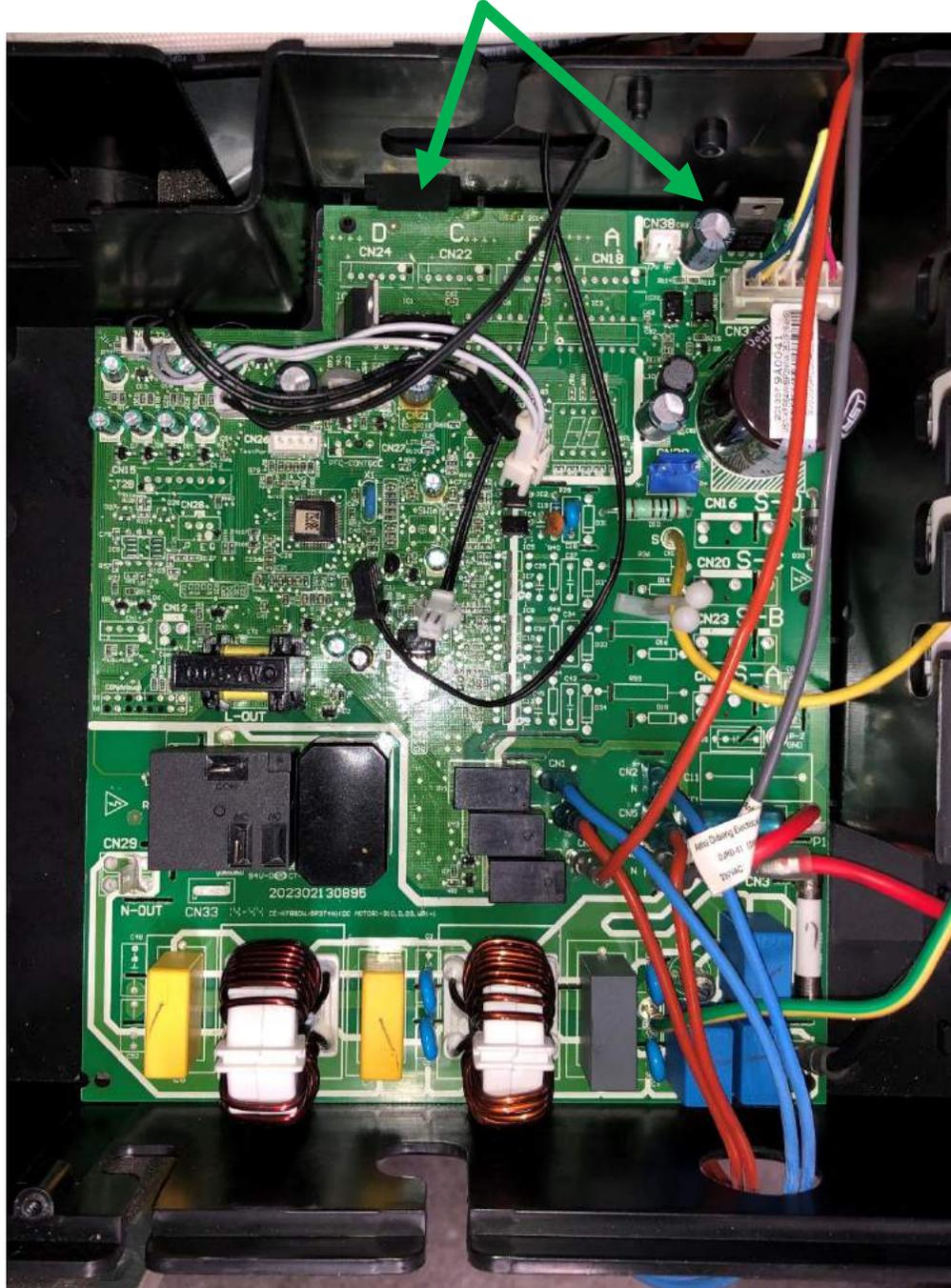


Continued on next page

38MAQB18~30---3 Outdoor Unit Inverter & Main PCB Removal (page 4 of 4)

For Sizes 18K, 24K, 30K

Remove wires first, then carefully push tabs out holding the PCB to release it.

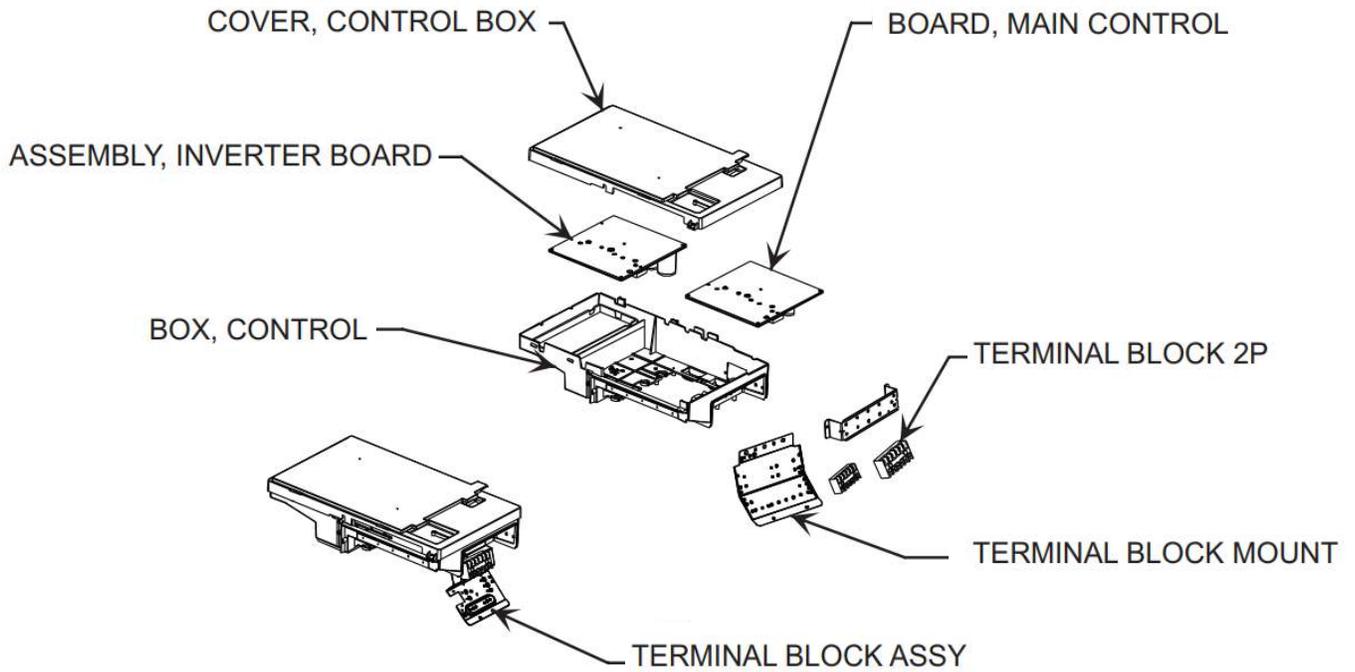


38MGR30 Outdoor Unit Control Box & Main PCB Removal (page 1 of 5)

PCB Removal for 30K Units

Turn Power OFF First!

Open electrical connection, top and front cover of unit.



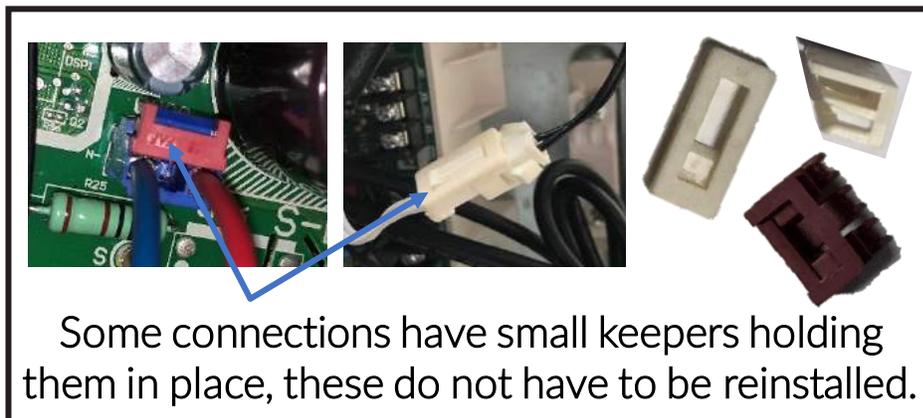

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next page

38MGR30 Outdoor Unit Control Box & Main PCB Removal (page 2 of 5)

PCB Removal for 30K Units

Cut and remove some of the zip ties that help secure the excess wire in place. Disconnect all wire harnesses, most have a short extension that you can separate instead of trying to disconnect directly from the PCB.

Remove the one screw shown in Red.



Some connections have small keepers holding them in place, these do not have to be reinstalled.

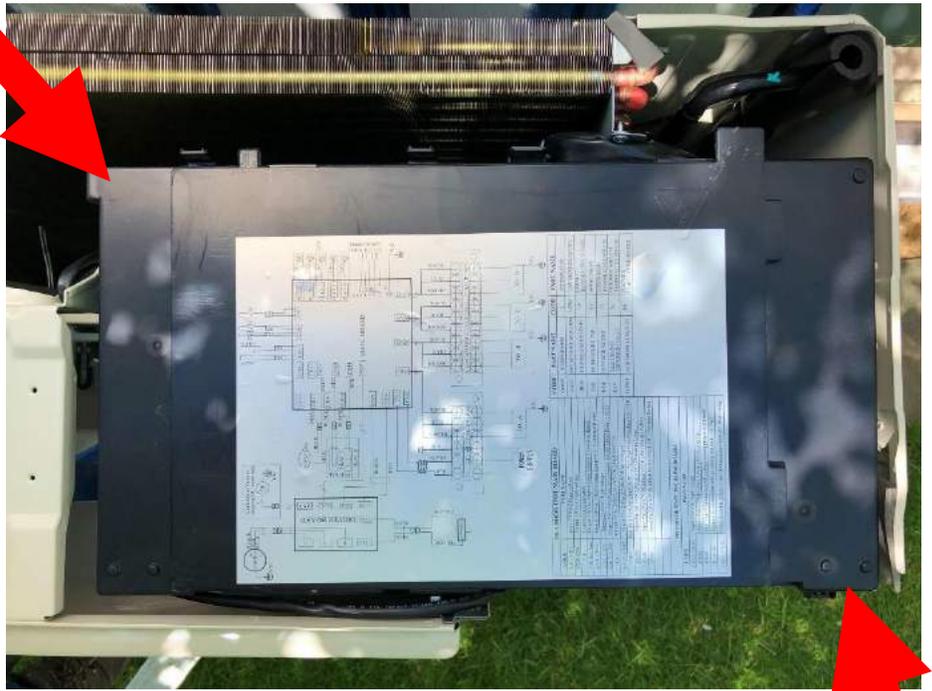
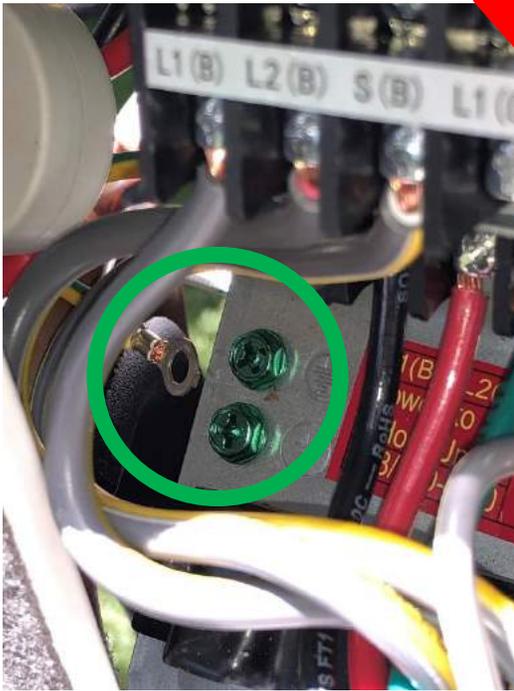



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next page

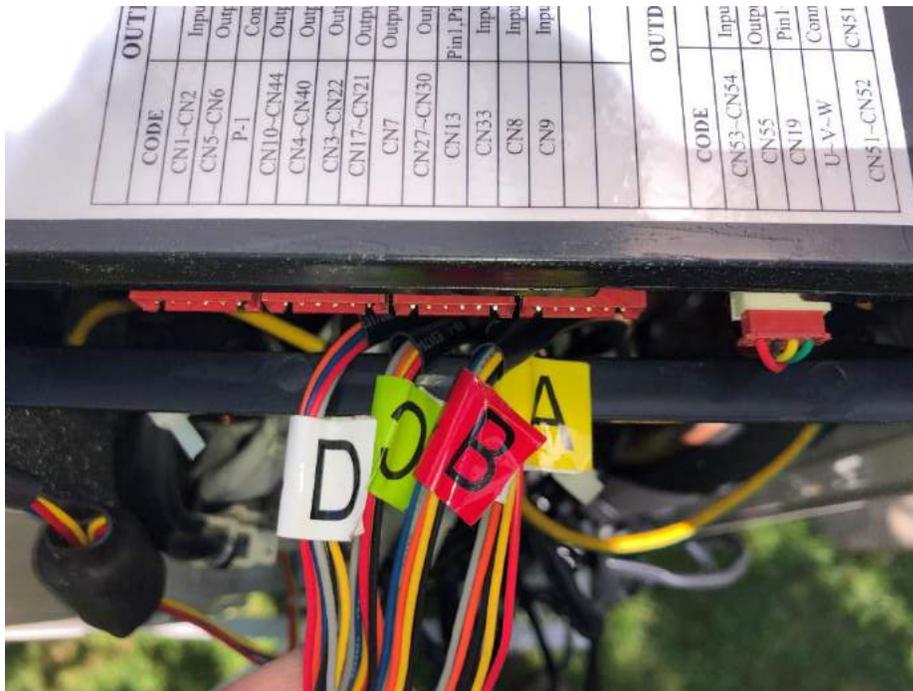
38MGR30 Outdoor Unit Control Box & Main PCB Removal (page 3 of 5)

PCB Removal for 30K Units

Remove PCB Ground wire from **screw**. Carefully lift up from these two **areas**, guiding the loose wires up and out at the same time.



Disconnect the Electronic Expansion Valve, making note A to D, Right to Left.



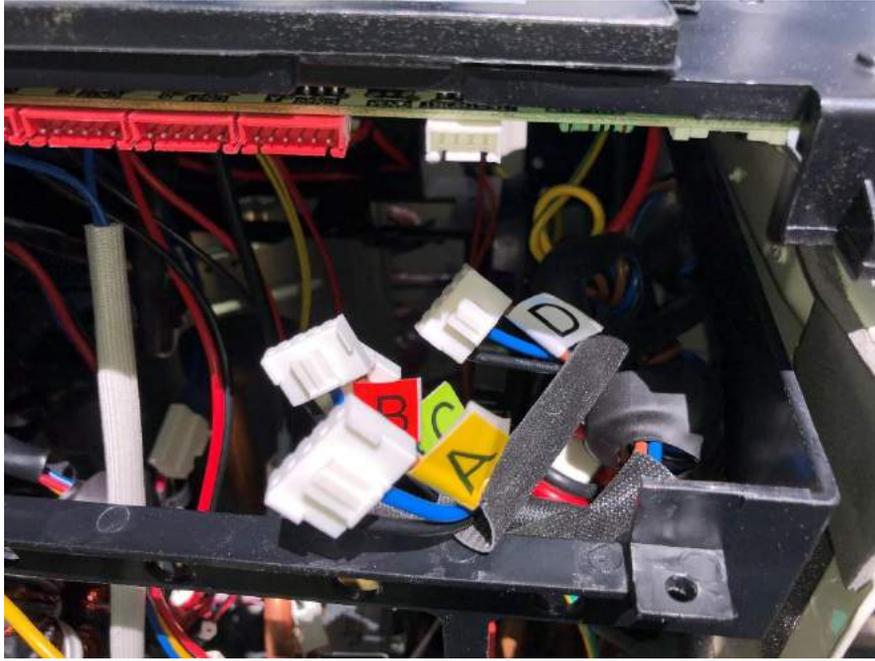
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next page

38MGR30 Outdoor Unit

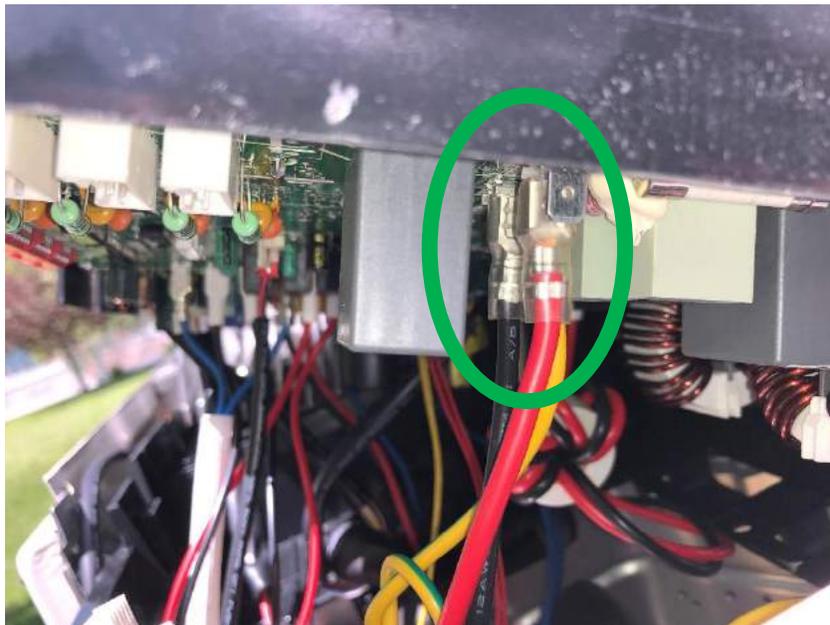
Control Box & Main PCB Removal (page 4 of 5)

PCB Removal for 30K Units

When the PCBs are lifted up a little, disconnect the Fan wires, making note A to D, Front to Back.



Also at this point, disconnect the Red & Black wires going to L1 & L2.



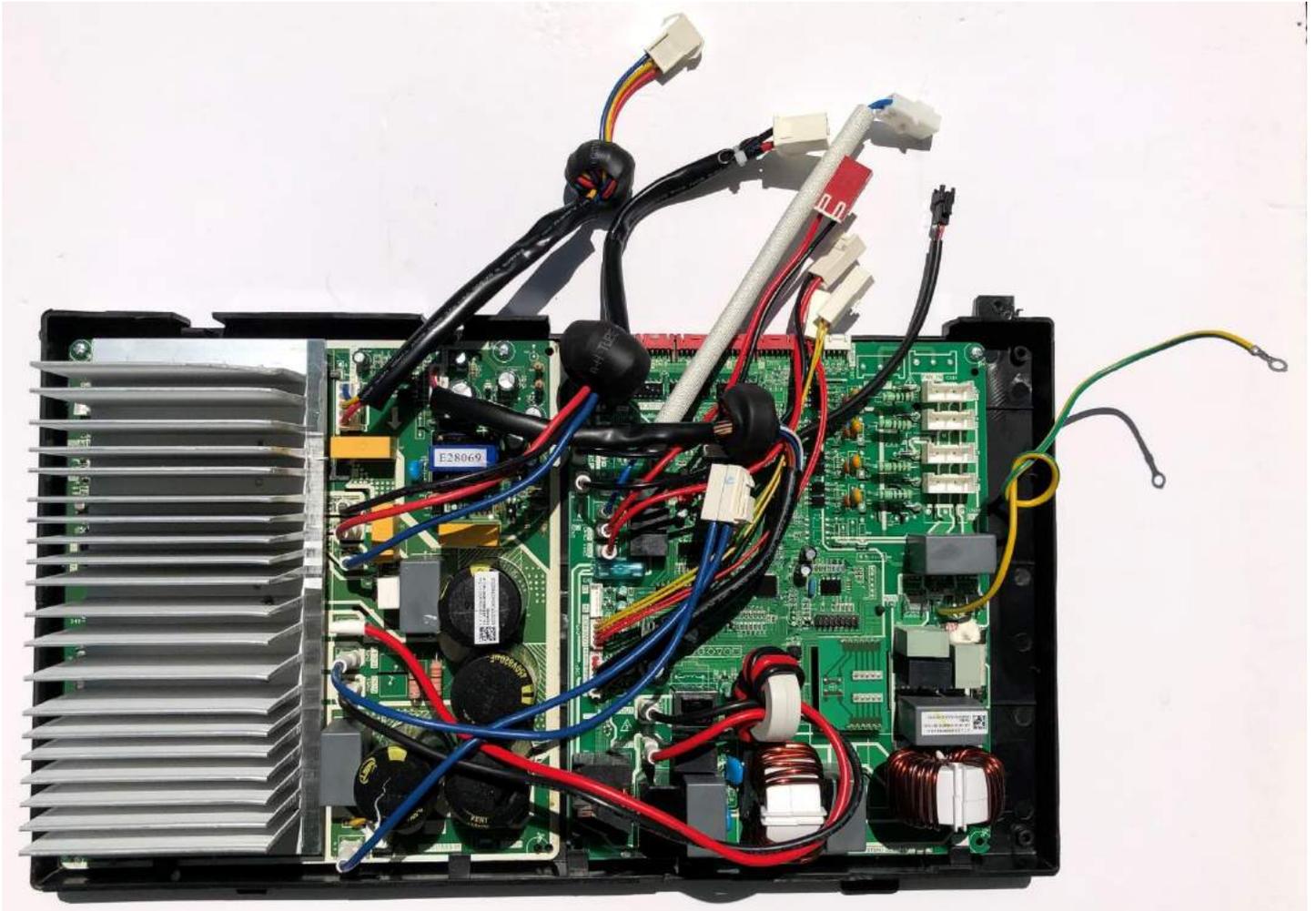
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next page

38MGR30 Outdoor Unit Control Box & Main PCB Removal (page 5 of 5)

PCB Removal for 30K Units

Some wires will be reused if replacing either PCB.

Reverse steps to reinstall.



Inverter PCB

Main PCB



This guide was made by
Carrier Northeast
Technical Services
Department.

Information within is subject to change

