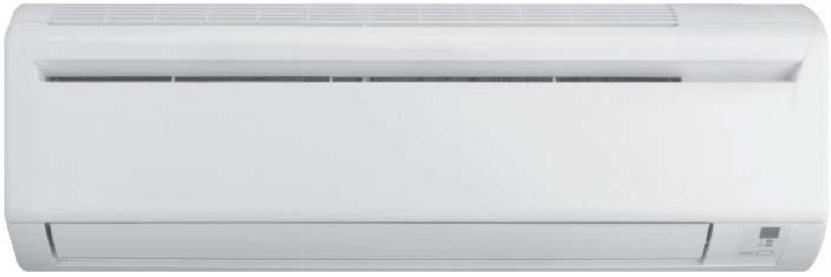
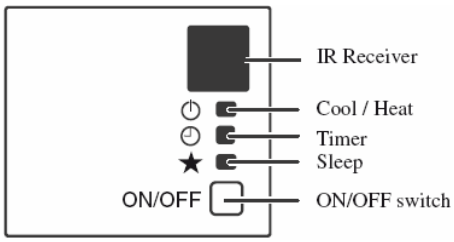
1. Troubleshooting By LED Display or Wired Controller Display

Applicable Model Non Inverter Split Series

Product Range FTYN25/35/50/60LV1B



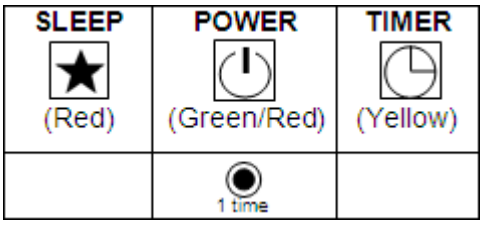
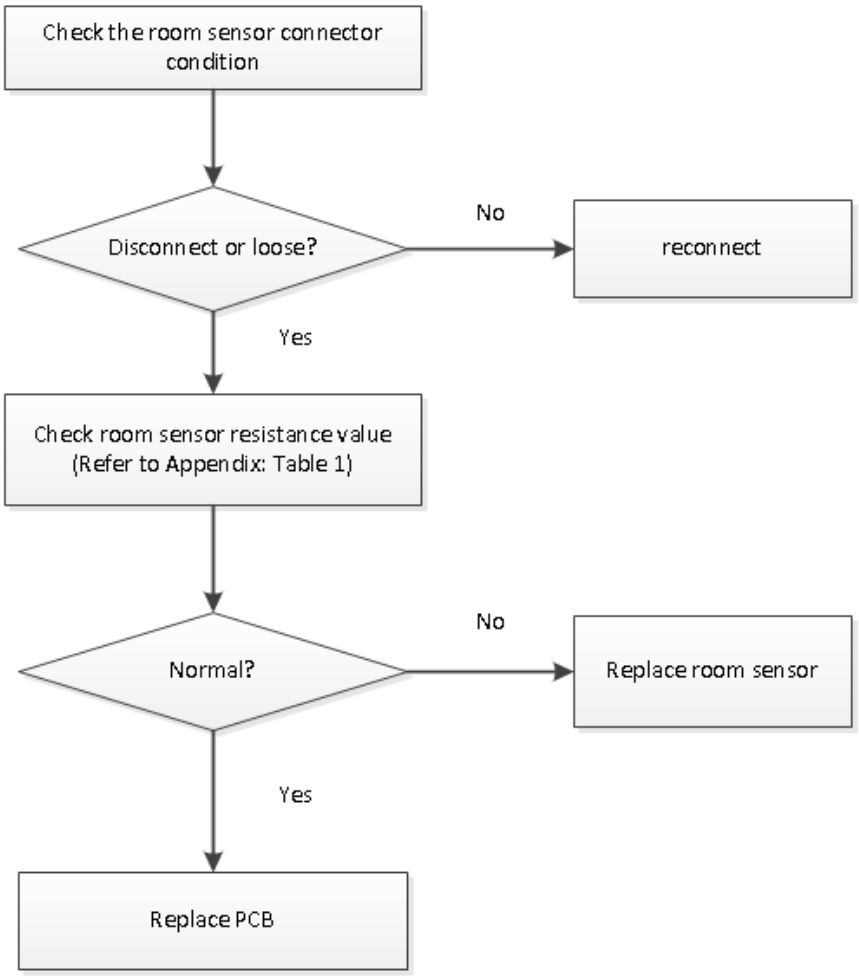
LED Indication



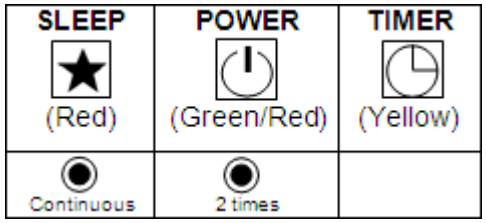
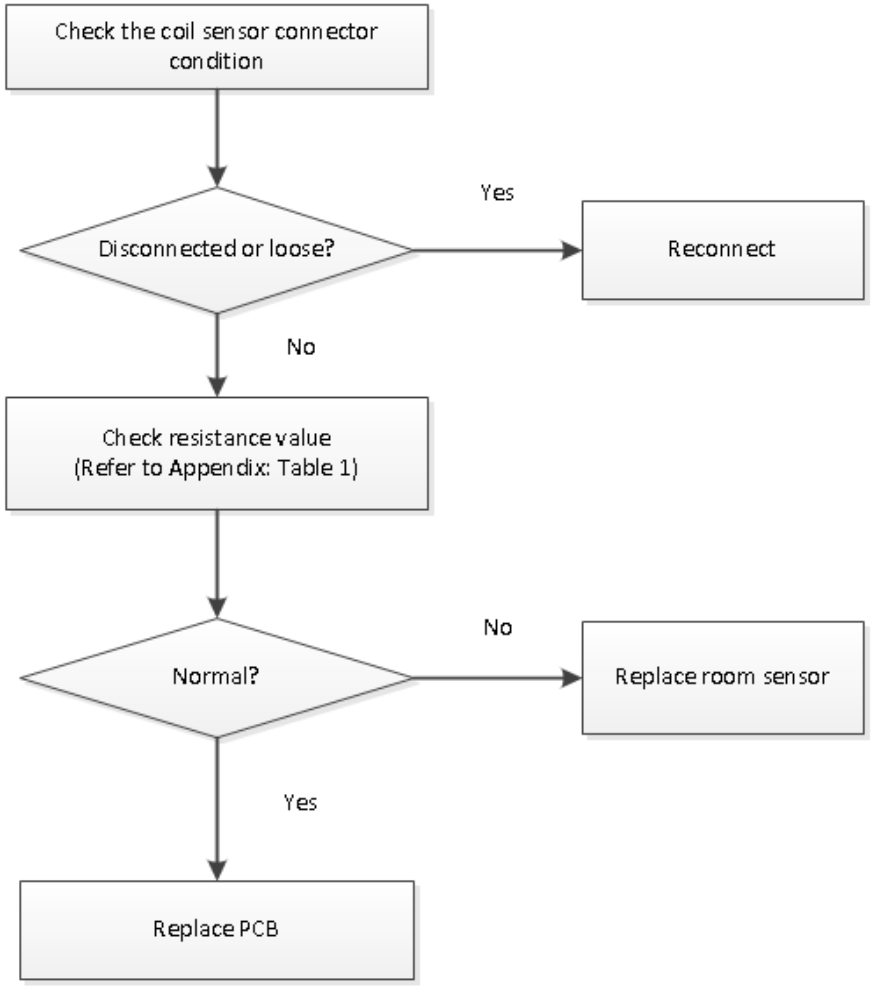
SLEEP ★ (Red)	COOL/HEAT ⏻ (Green/Red)	TIMER ◷ (Yellow)	Wired Controller Display	Operation / Faulty Indication	Details of Malfunction (Reference Page)
○ / ●	○ Green		-	Cooling mode	n/a
○ / ●	○ Red		-	Heating mode	n/a
	○	○	-	Timer On	n/a
○	○		-	Sleep mode On	n/a
	○		-	Fan mode On	n/a
	○		-	Dry mode On	n/a
	◉ 1 time		E1	Room air sensor contact loose / short	2
◉ Continuous	◉ 2 times		E2	Indoor coil sensor contact open	3
	◉ 3 times		E3	Outdoor coil sensor contact open	4
		◉ 1 time	E4	Compressor overload / Indoor coil sensor / Outdoor coil sensor short	5
	◉ Red		-	Defrost operation	n/a
		◉ 3 times	E5	Gas leak	6
		◉ 6 times	E8	Hardware error (tact switch pin short)	7
◉ Continuous	◉ 4 times		E9	No Feedback from indoor fan motor	8
	◉ 5 times		EE	EEPROM defrost	n/a

○ ON ○ / ● ON or OFF ◉ BLINKING

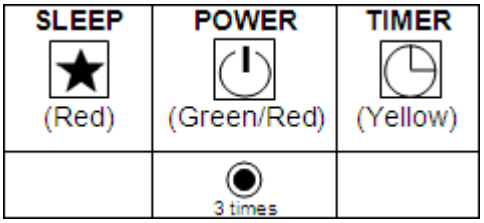
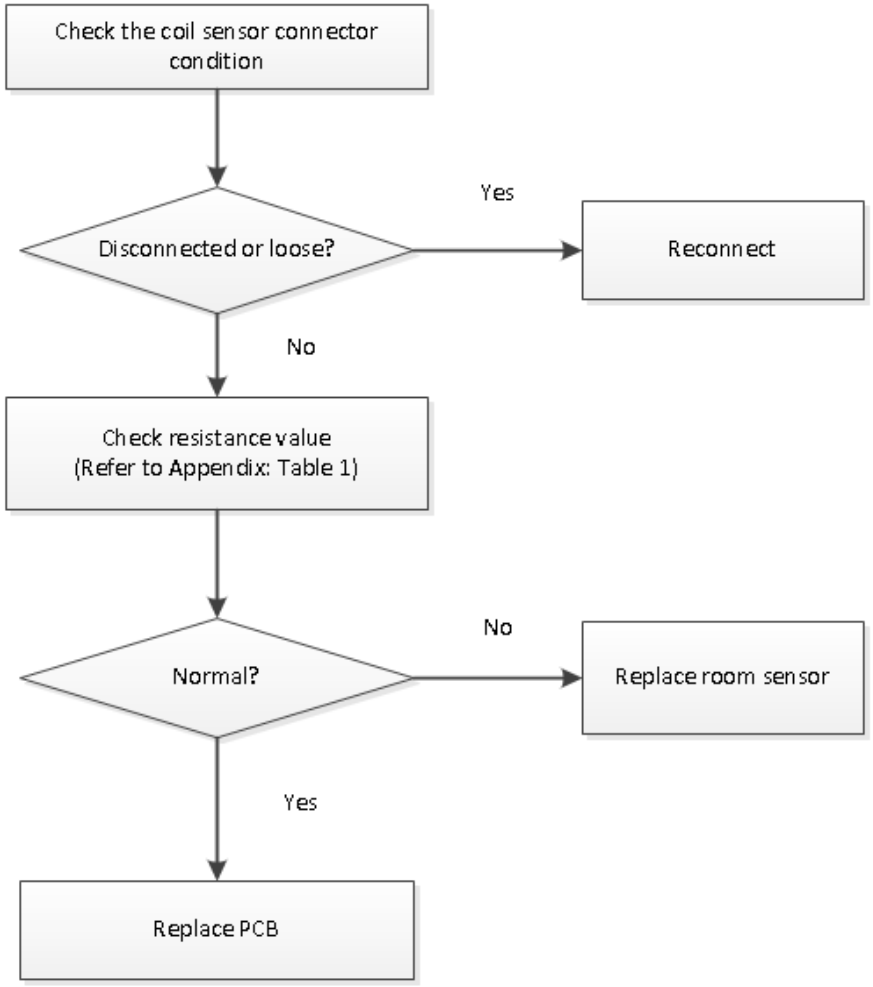
1.1 “E1” Room air sensor contact open / short

Wired Controller Display	E1
LED indications	
Error Generation	The error is generated when room sensor is disconnected or shorted while system running.
Supposed causes	The possible causes are: ▪ Faulty sensor ▪ Broken wire ▪ Loosen wire contact
Troubleshooting	

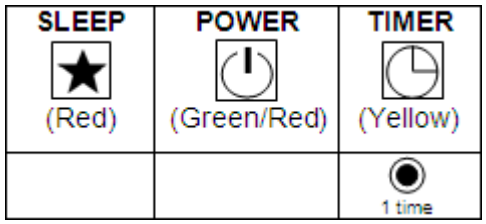
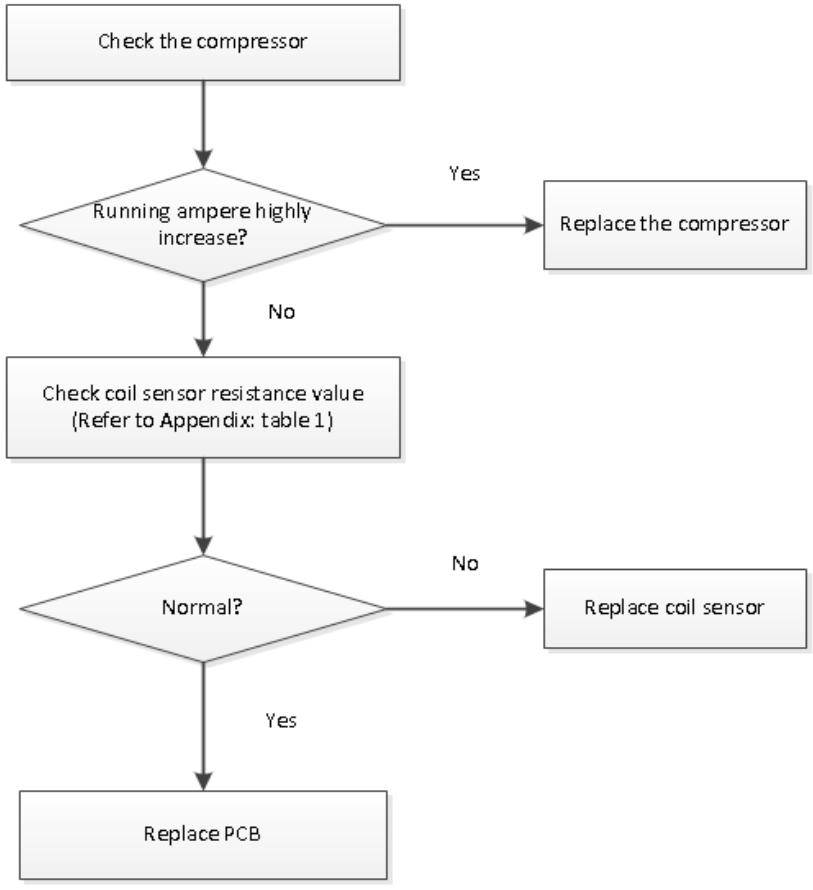
1.2 “E2” Indoor coil sensor open

Wired Controller Display	E2
LED indications	
Error Generation	The error is generated when indoor coil sensor is disconnected while system running.
Supposed causes	The possible causes are: ▪ Broken wire ▪ Loosen wire contact
Troubleshooting	

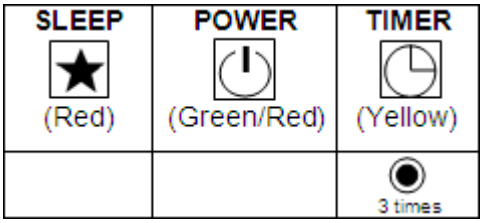
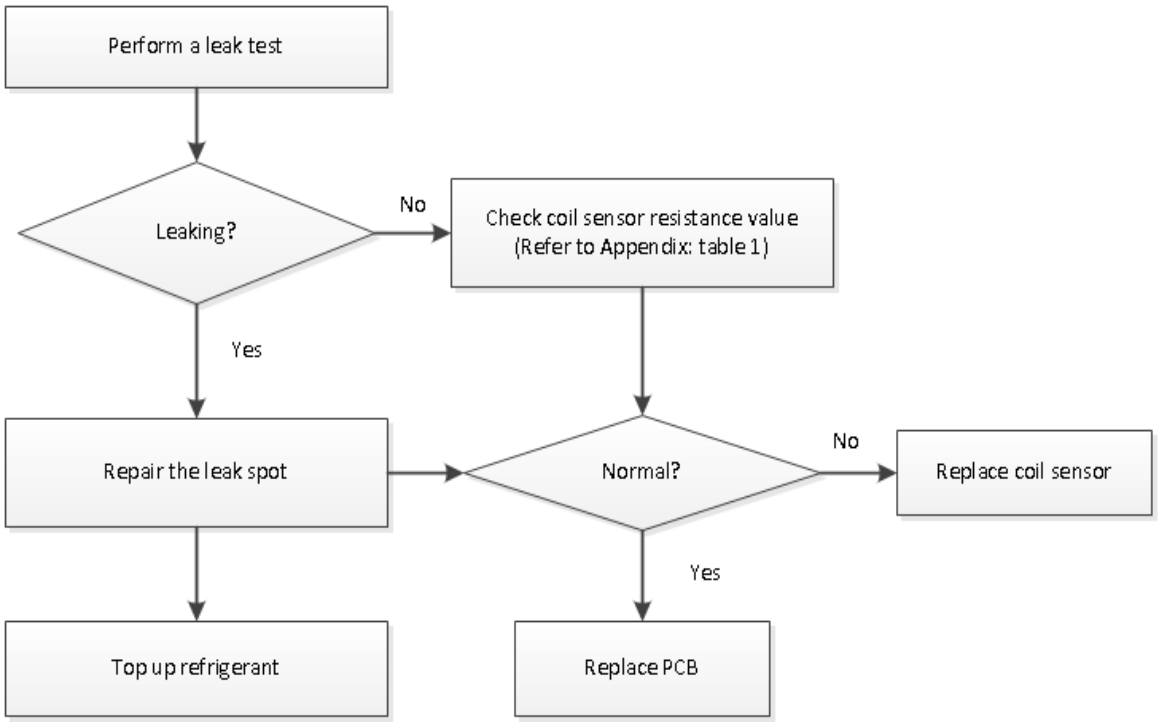
1.3 “E3” Outdoor coil sensor open

Wired Controller Display	E3
LED indications	
Error Generation	The error is generated when outdoor coil sensor is disconnected while system running.
Supposed causes	The possible causes are: ▪ Broken wire ▪ Loosen wire contact
Troubleshooting	

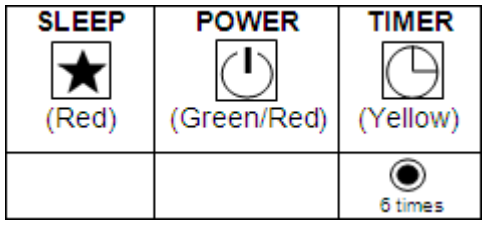
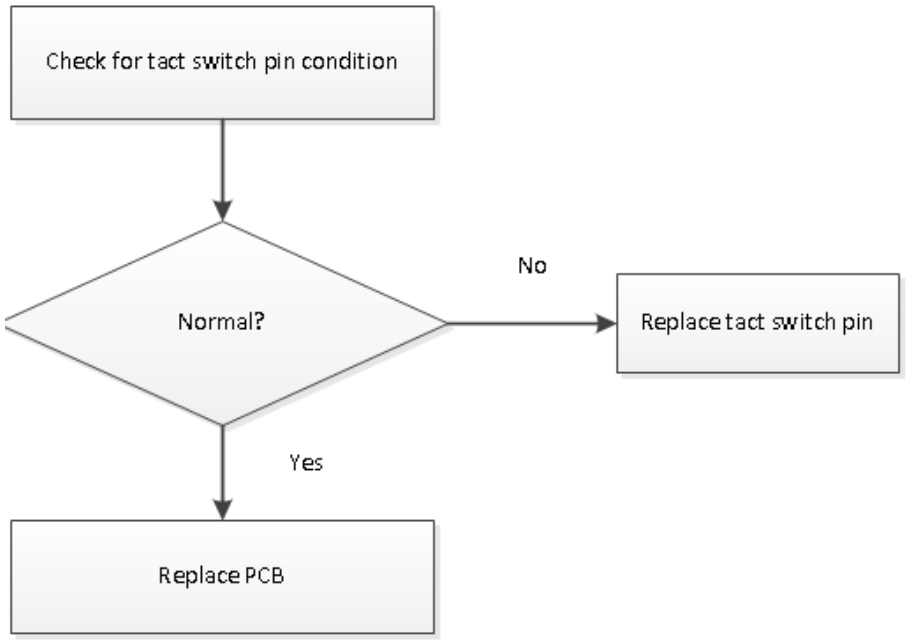
1.4 “E4” Compressor overload / Indoor coil sensor short / Outdoor coil sensor short

Wired Controller Display	E4
LED indications	
Error Generation	The error is generated when outdoor coil sensor > 68˚C in cooling or indoor coil sensor > 68˚C in heating; indoor coil sensor is shorted; outdoor coil sensor is shorted.
Supposed causes	The possible causes are: ▪ Compressor high current ▪ Faulty indoor coil sensor ▪ Faulty outdoor coil sensor
Troubleshooting	

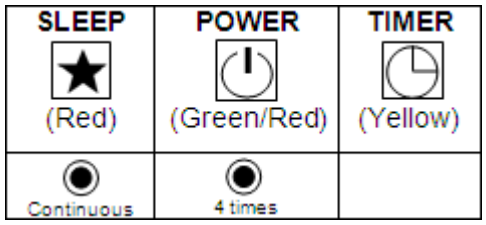
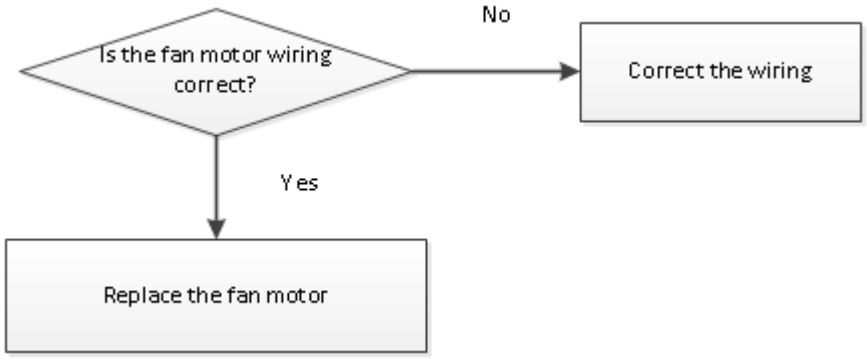
"E5" Low refrigerant charge / Gas leak

Wired Controller Display	E5
LED indications	
Error Generation	The error is generated when indoor coil sensor temperature is > 25˚C in cooling or < 20˚C in heating after compressor running for 30minutes.
Supposed causes	The possible causes are: ▪ Refrigerant leaking ▪ Indoor coil sensor faulty
Troubleshooting	

"E8" Hardware error (tact switch pin short)

Wired Controller Display	E8
LED indications	
Error Generation	The error is generated when tact switch pin is shorted.
Supposed causes	The possible causes are: ▪ Tact switch pin is short circuit.
Troubleshooting	

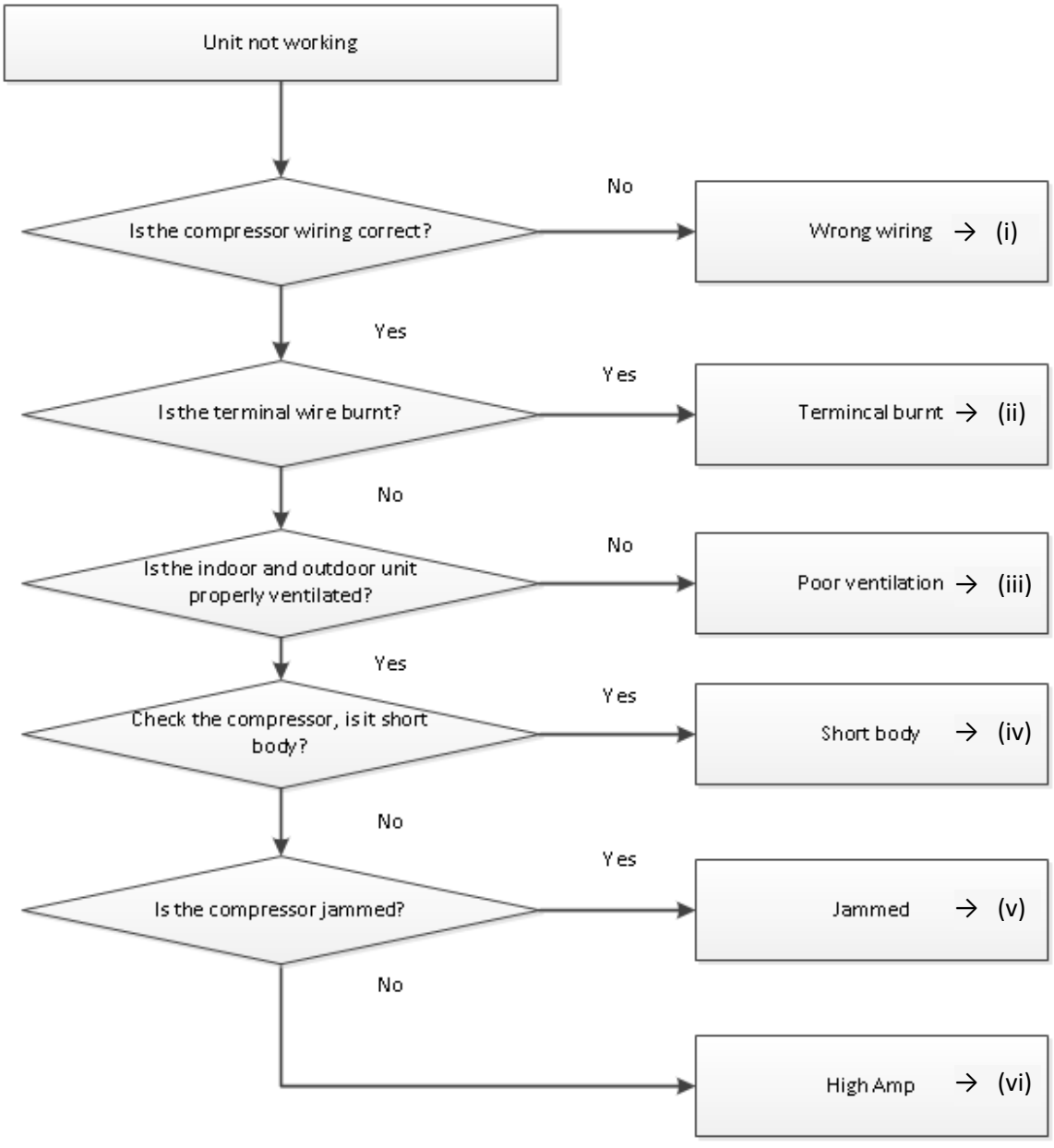
"E9" No Feedback from indoor fan motor

Wired Controller Display	E9
LED indications	
Error Generation	The error is generated when there is no signal feedback from indoor fan motor.
Supposed causes	The possible causes are: ▪ Indoor fan motor is malfunction ▪ Indoor fan motor connection wiring loosen
Troubleshooting	

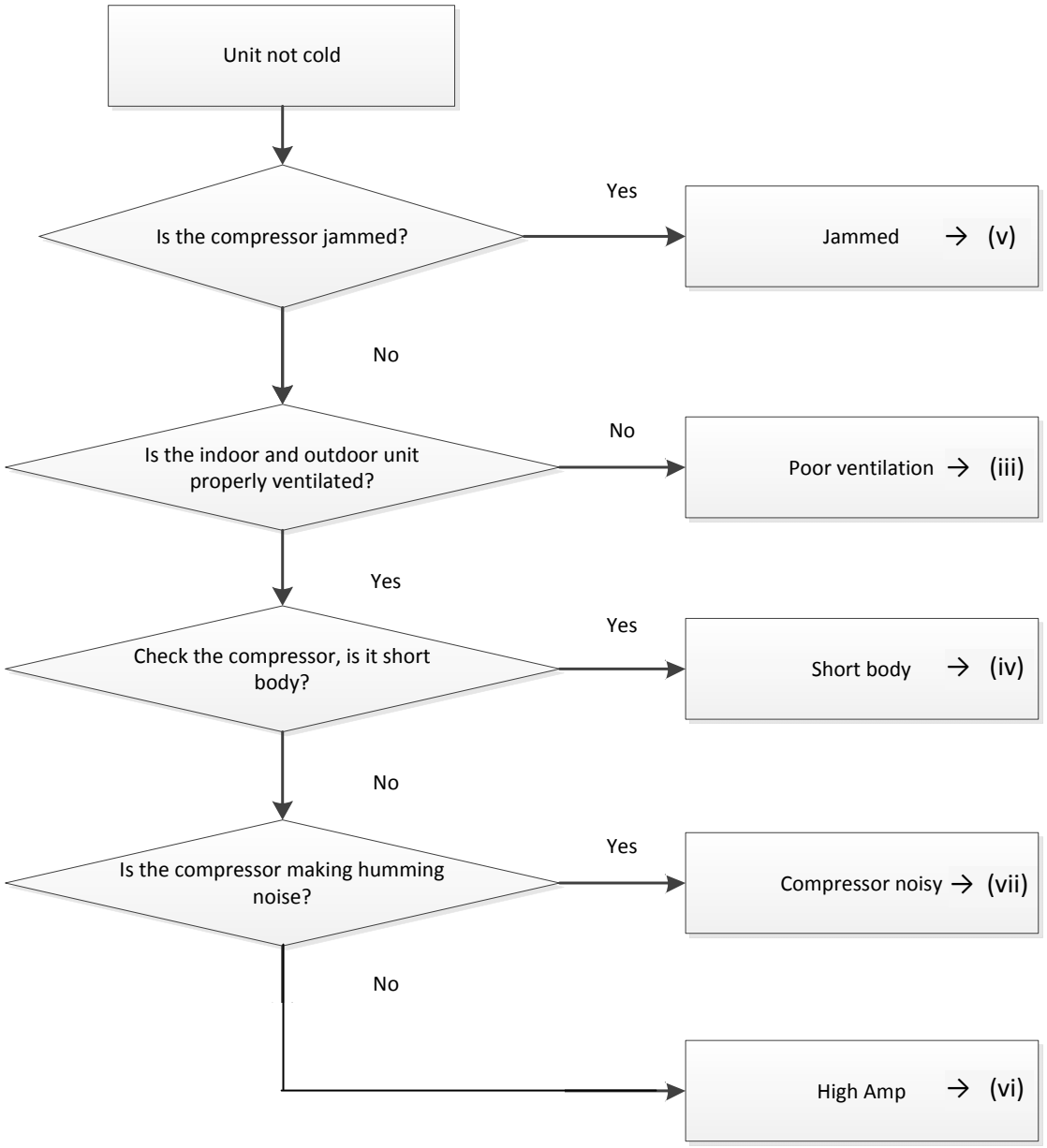
2. Troubleshooting By Component Failure

Component	Failure Type	Failure Causes	Reference Page
Compressor	2.1 Unit not working	• Wrong wiring • Terminal burnt • Poor ventilation • Short body • Jammed • High Ampere	10
	2.2 Unit not cold	• Compressor noisy • Poor ventilation • Short body • Jammed • High Ampere	11
	2.3 Outdoor noisy	• Compressor noisy • Unit noisy	12
Fan Motor	2.4 Short body	• Severe fluctuation of voltage • Winding scratch during assembly process • Expose to the wet humidity environment • Assembly method incorrect	13
	2.5 Noisy	• Bearing misalign during the assembly process • Assembly method not correct • Anti rust coating not enough • Expose to the wet humidity environment	14
	2.6 Jammed	• Grease dry offs • Assembly method not correct • Anti rust coating not enough • Expose to the wet humidity environment	15
	2.7 Not working	• Severe fluctuation of voltage • Thermal overload • Winding scratch during assembly process • Expose to the wet humidity environment	16
	2.8 Running slow	• Capacitor wire loose/burst • Auxiliary winding/ Lead wire broken • Wrong wire color	17
PCB	2.9 Not functioning	• Noise interference • Connection loosen • Transformer faulty • Component faulty	18

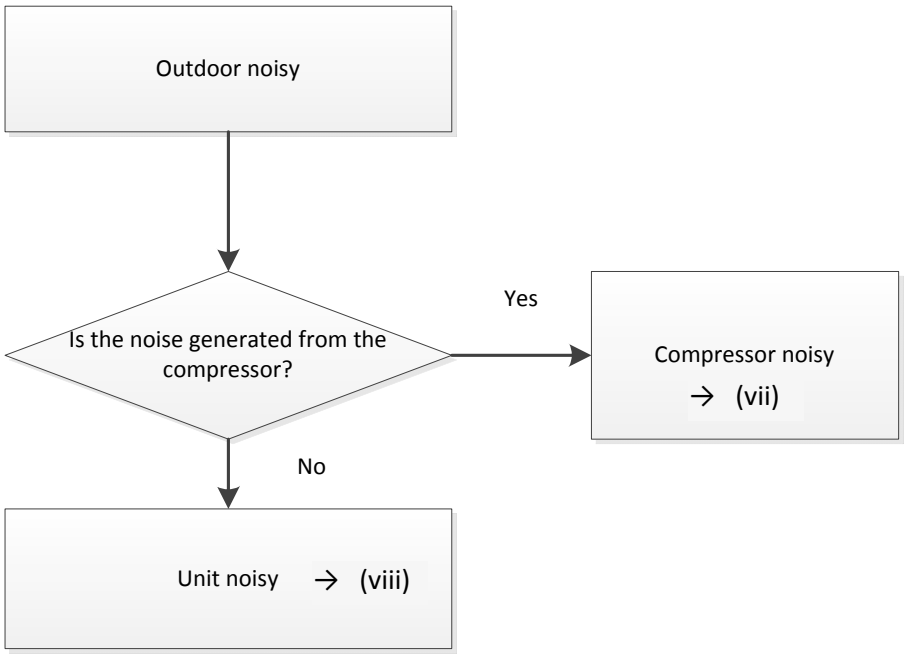
2.1 Unit Not Working

Supposed causes	The possible causes are: • Wrong wiring • Terminal burnt • Poor ventilation • Short body • Jammed • High Ampere
Troubleshooting	

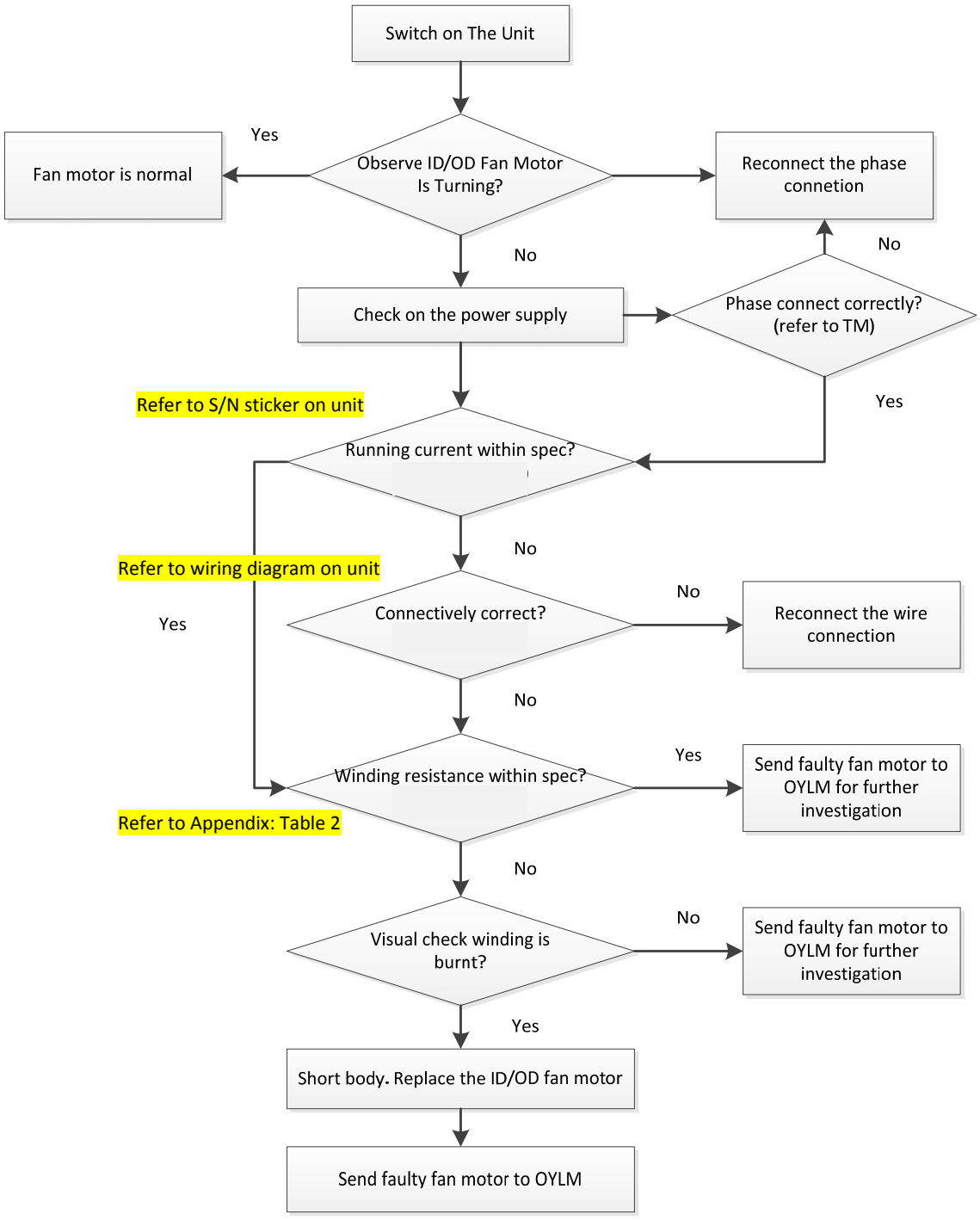
2.2 Unit Not Cold

Supposed causes	The possible causes are: • Compressor jammed • Poor ventilation • Short body • Jammed • High Ampere
Troubleshooting	

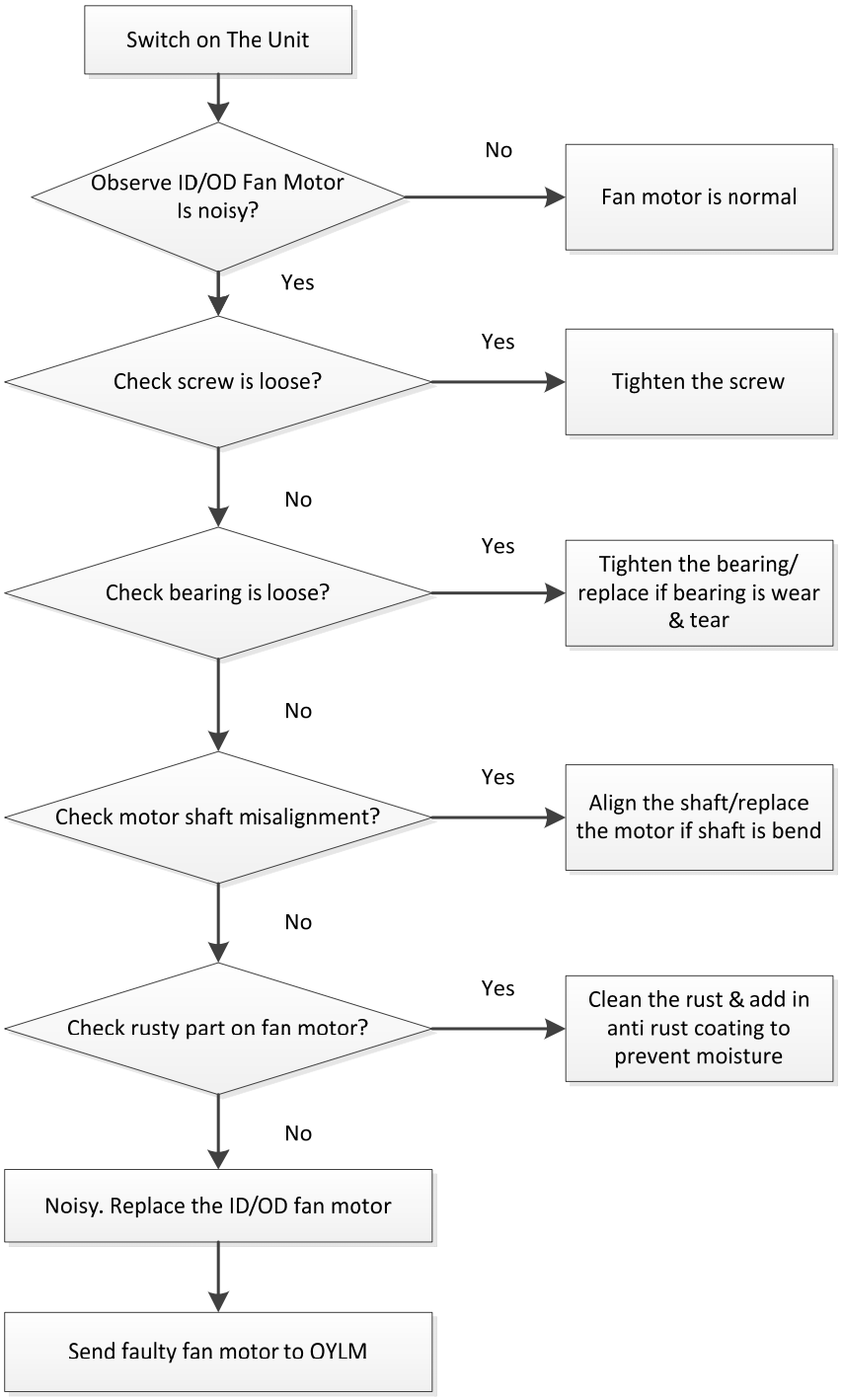
2.3 Outdoor Noisy

Supposed causes	The possible causes are: • Compressor noisy • Unit noisy
Troubleshooting	

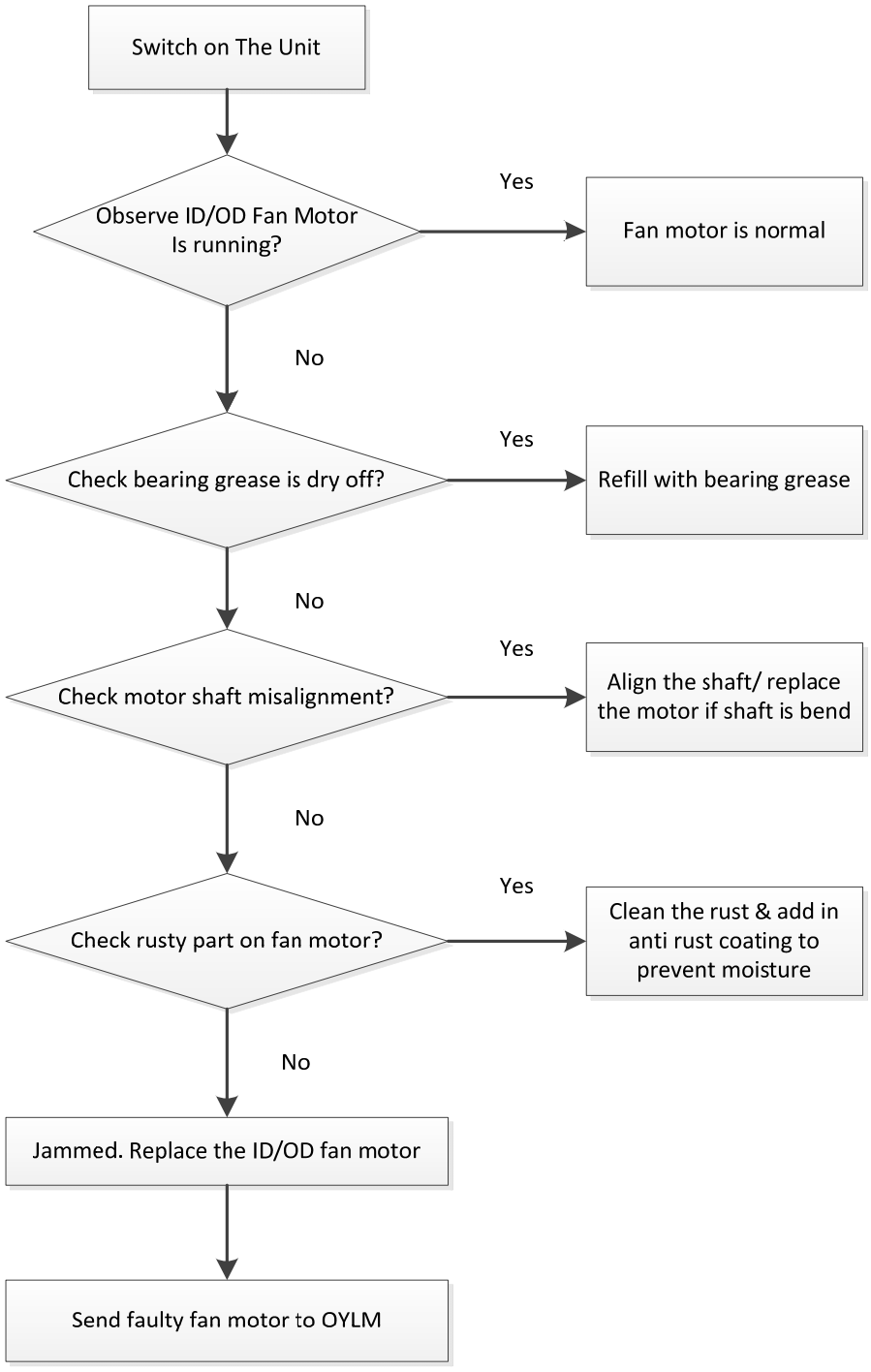
2.4 Fan Motor Short Body

Supposed causes	The possible causes are: • Severe fluctuation of voltage • Winding scratch during assembly process • Expose to the wet humidity environment • Assembly method incorrect
Troubleshooting	

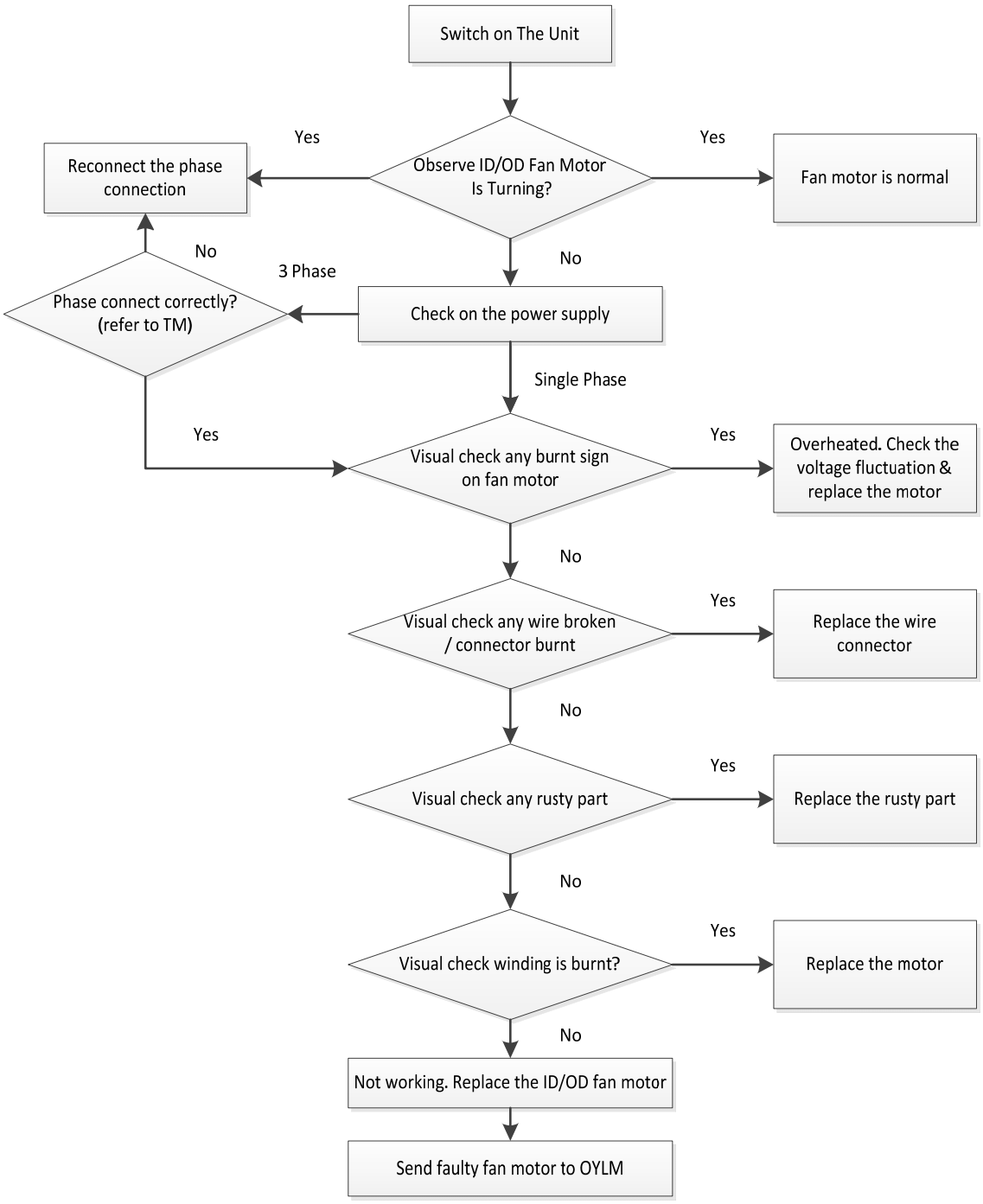
2.5 Fan Motor Noisy

Supposed causes	The possible causes are: • Bearing misalign during the assembly process • Assembly method not correct • Anti rust coating not enough • Expose to the wet humidity environment
Troubleshooting	

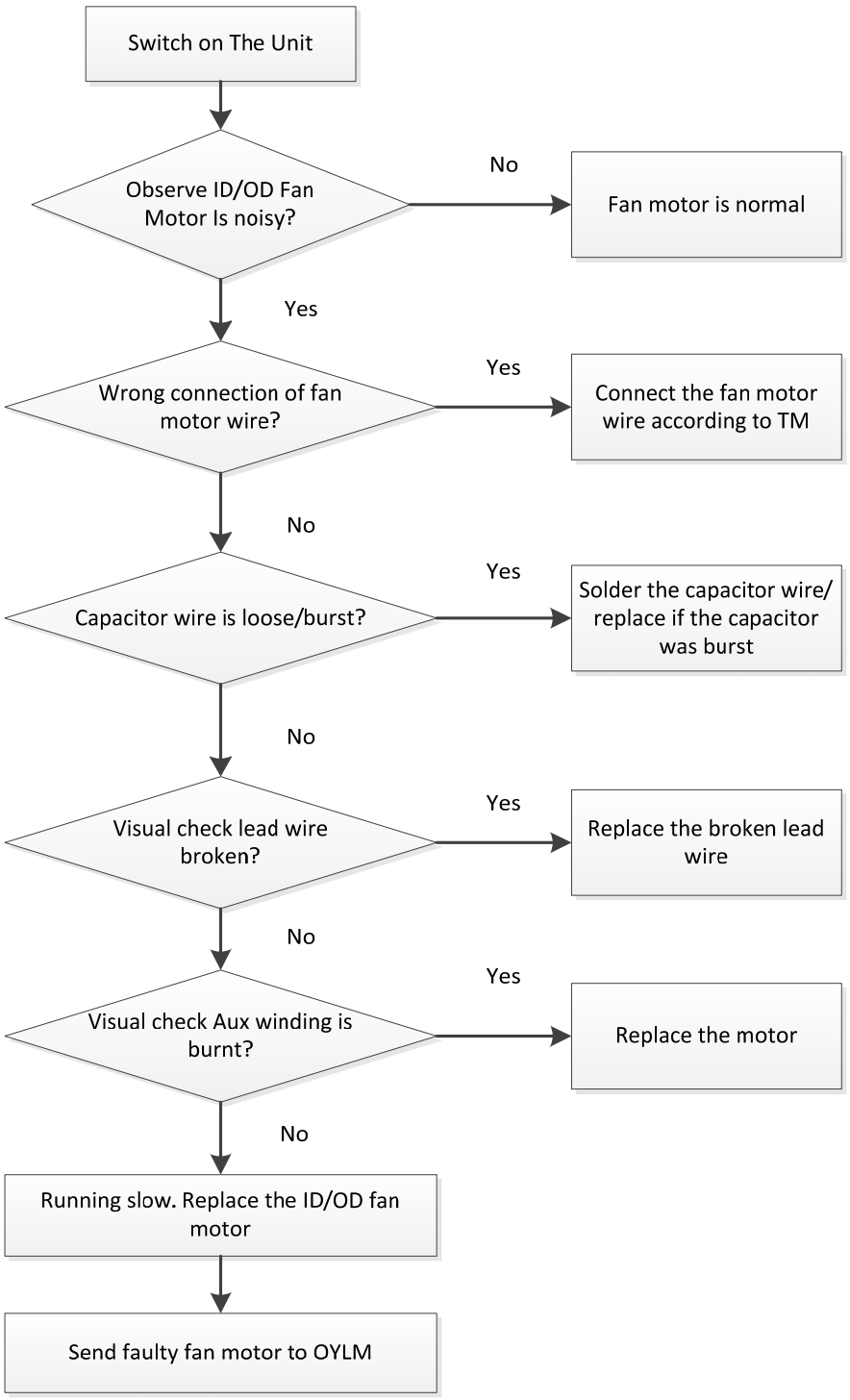
2.6 Fan Motor Jammed

Supposed causes	The possible causes are: • Grease dry offs • Assembly method not correct • Anti rust coating not enough • Expose to the wet humidity environment
Troubleshooting	

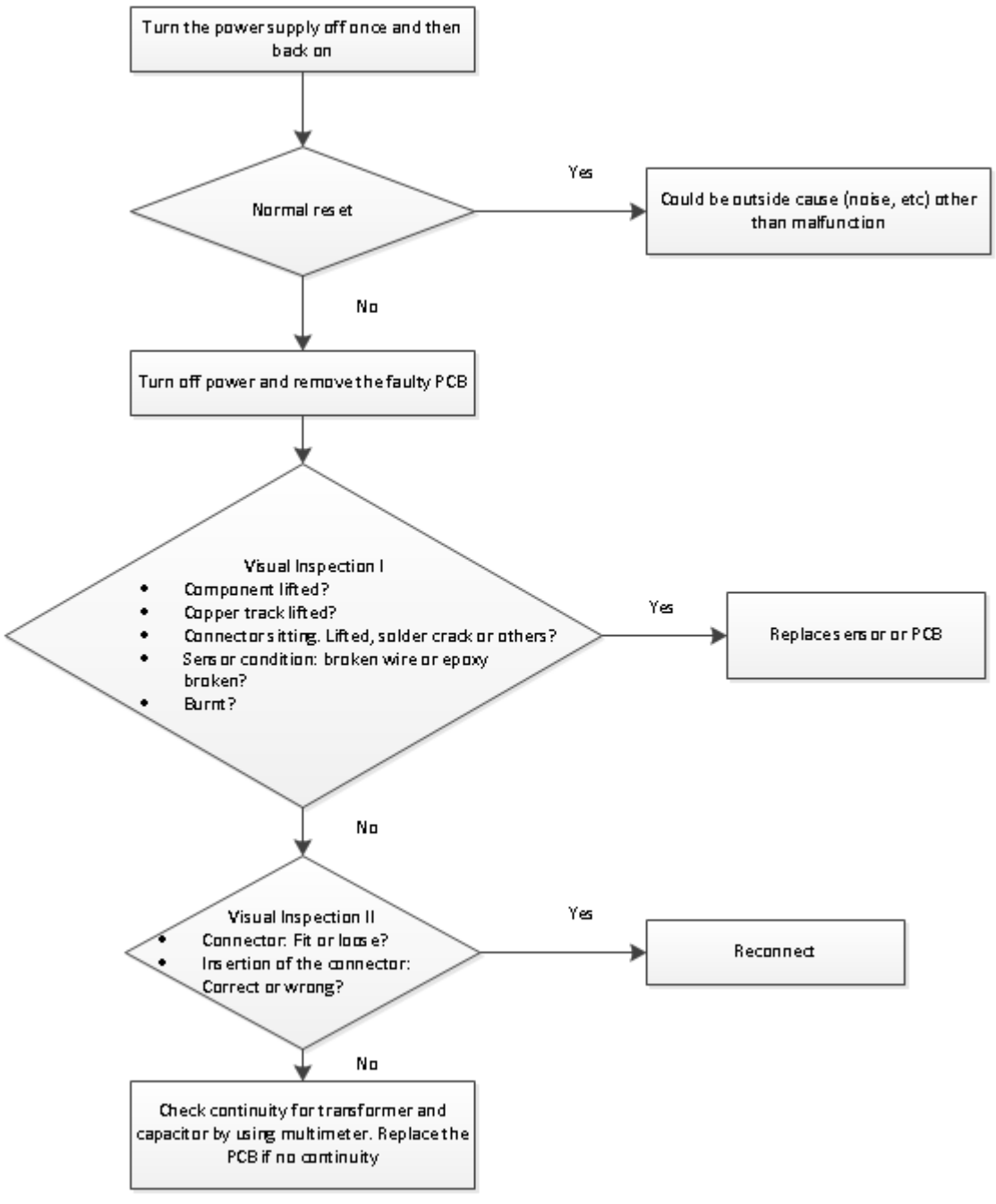
2.7 Fan Motor Not Working

Supposed causes	The possible causes are: • Severe fluctuation of voltage • Thermal overload • Winding scratch during assembly process • Expose to the wet humidity environment
Troubleshooting	

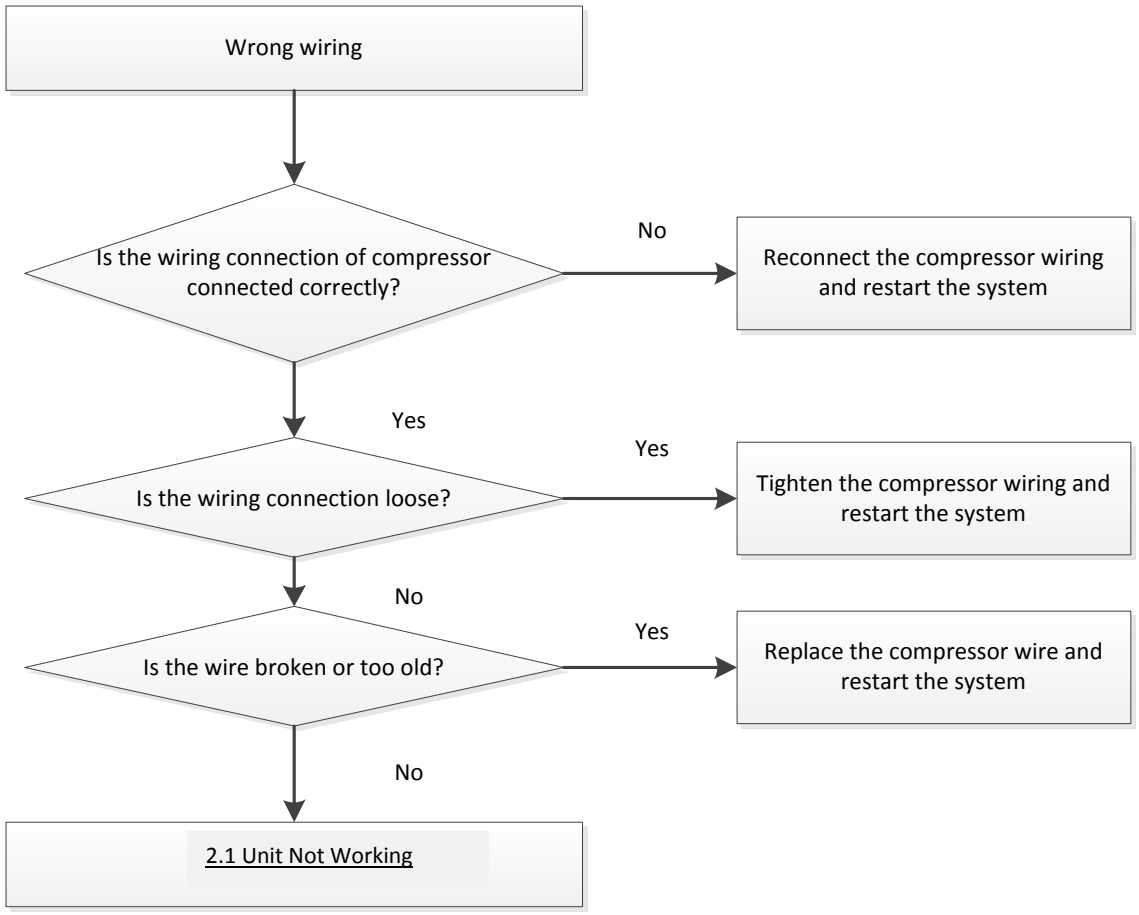
2.8 Fan Motor Running Slow

Supposed causes	The possible causes are: • Capacitor wire loose/burst • Auxiliary winding/ Lead wire broken • Wrong wire color
Troubleshooting	

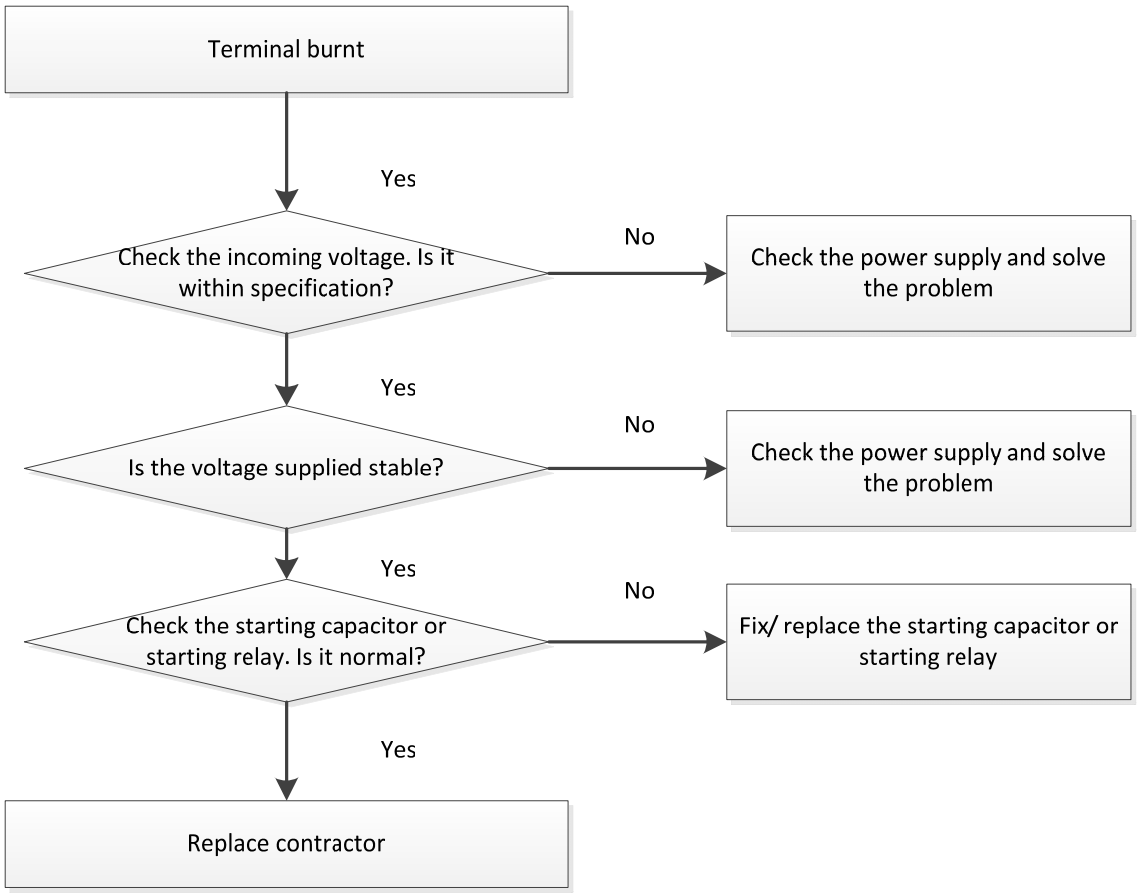
2.9 PCB Not Functioning

Supposed causes	The possible causes are: • Noise interference • Connection loosen • Transformer faulty • Component faulty
Troubleshooting	

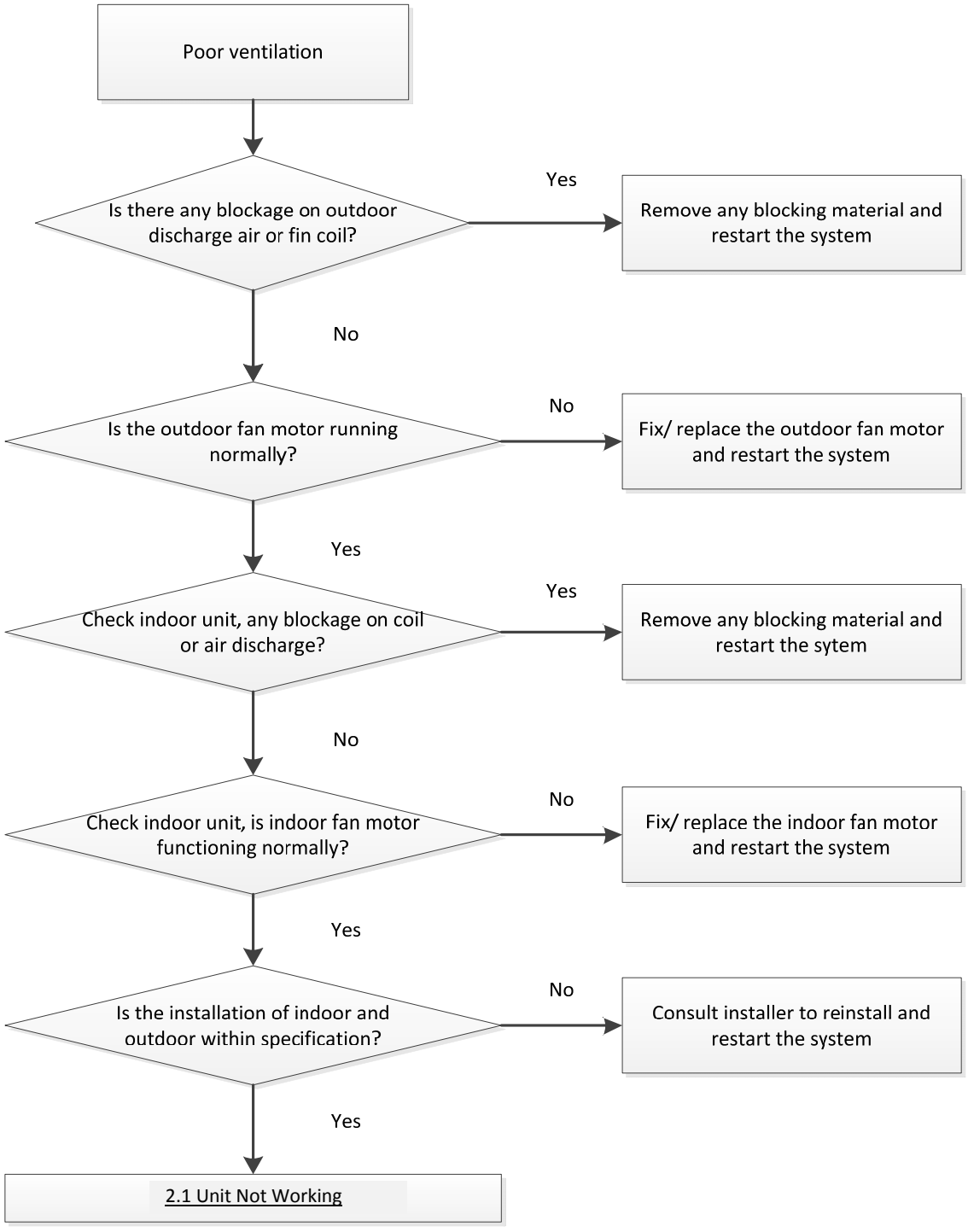
(i) Wrong Wiring

Supposed causes	The possible causes are: • Wire connection is loosen • Lead wire is broken
Troubleshooting	

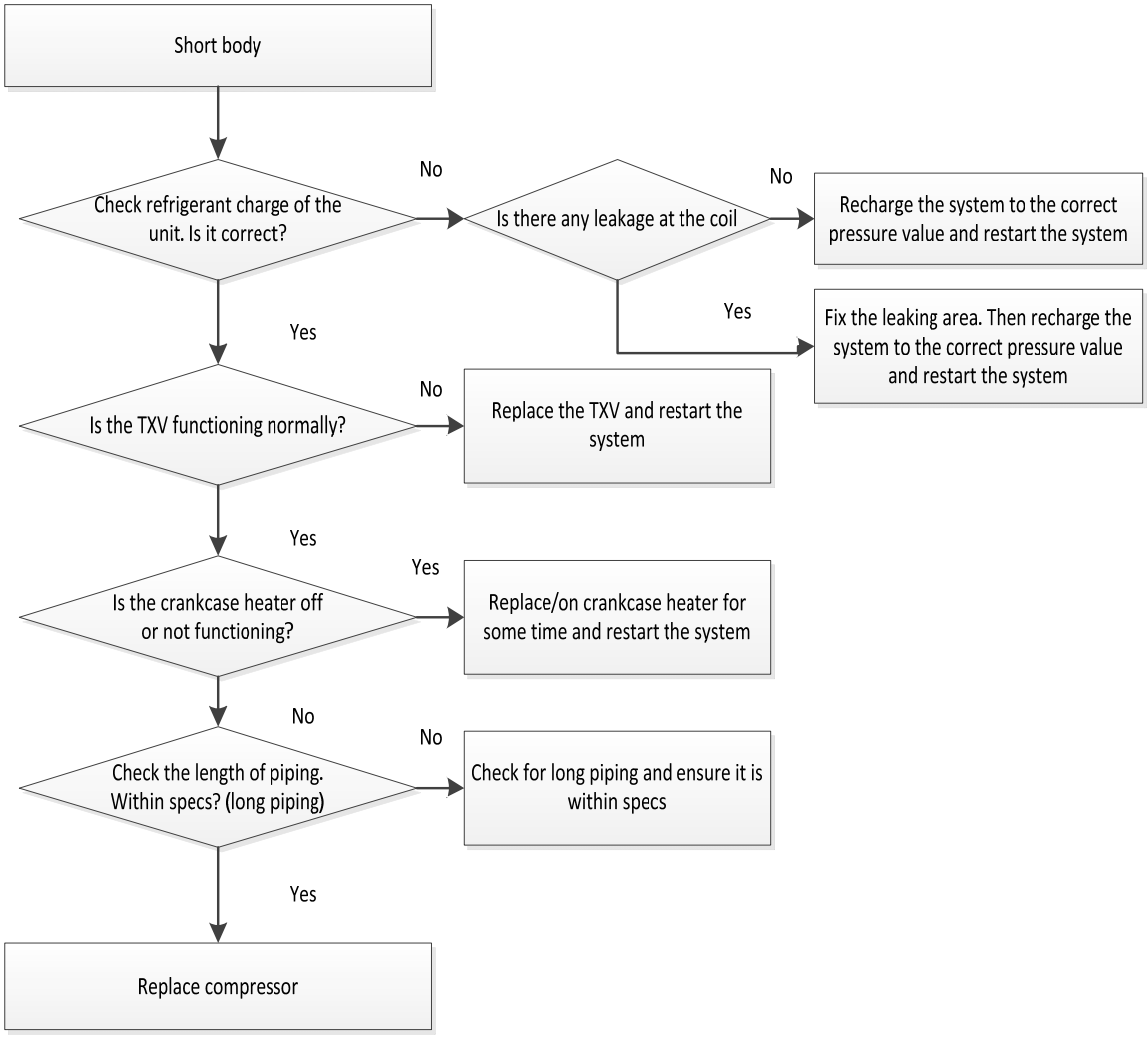
(ii) Terminal Burnt

Supposed causes	The possible causes are: • Voltage fluctuation • Incorrect capacitor specification
Troubleshooting	

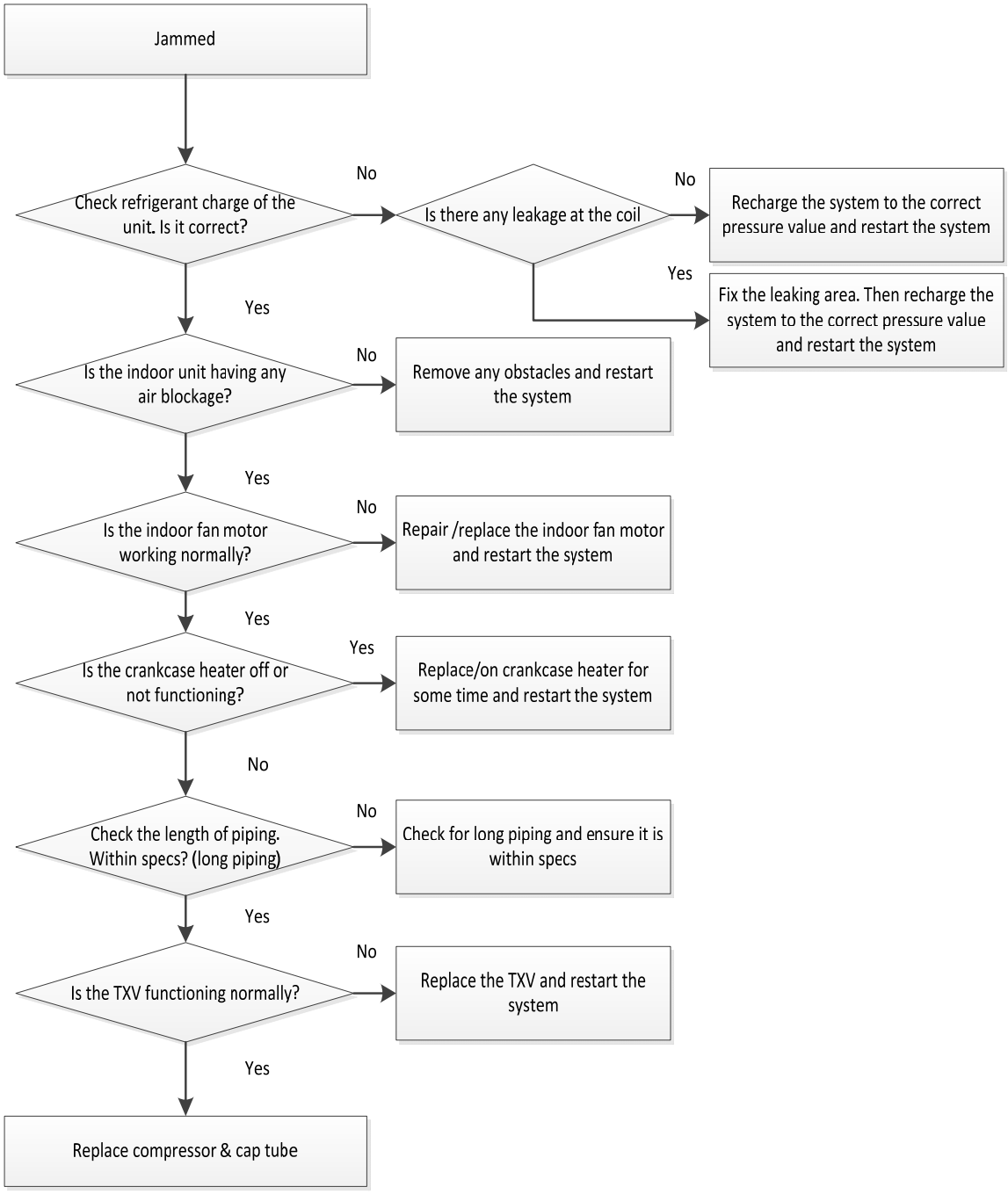
(iii) Poor Ventilation

Supposed causes	The possible causes are: • Filter dirty • Blockage at discharge air • Fan motor is malfunction
Troubleshooting	

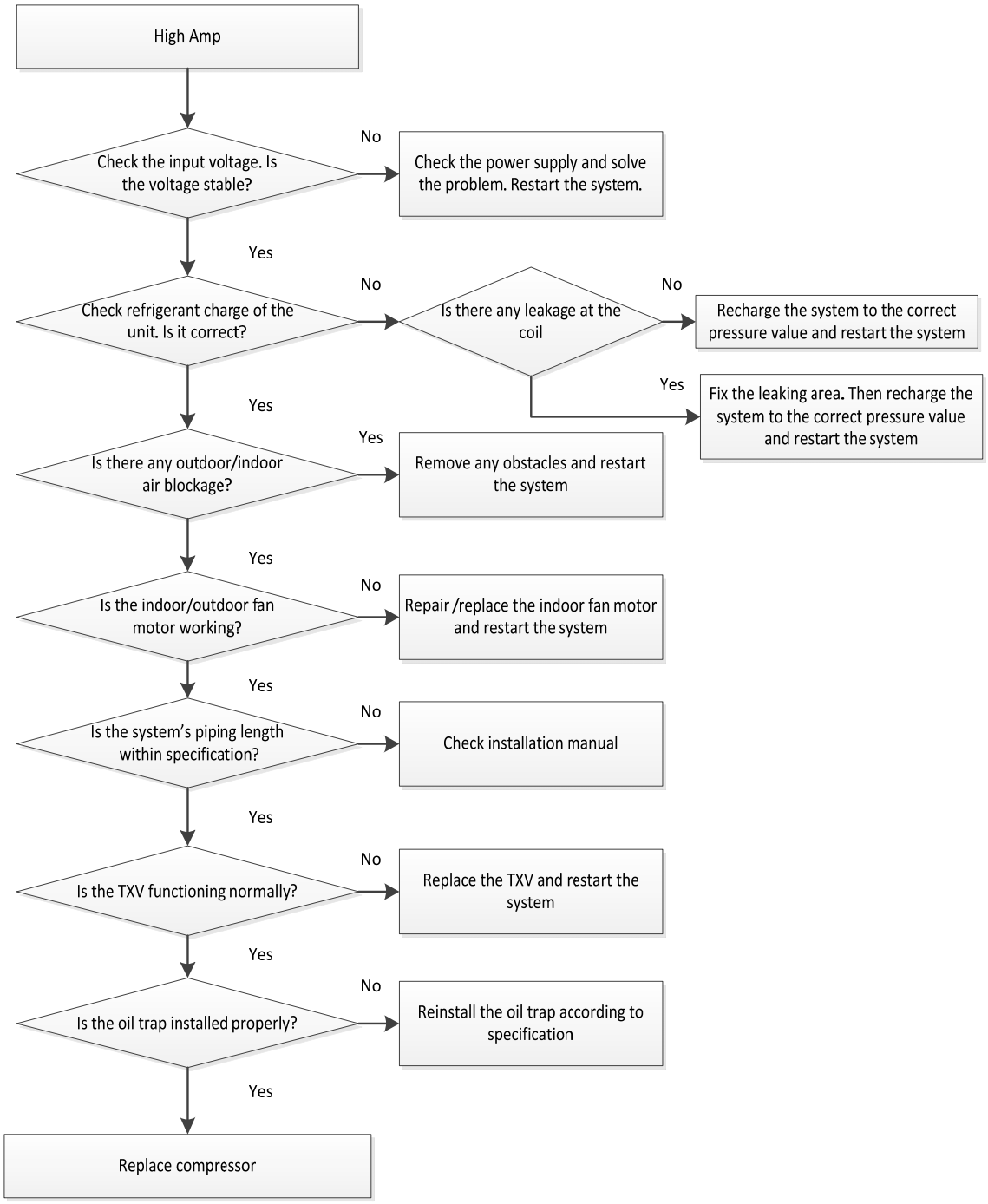
(iv) Compressor Short Body

Faulty Phenomenon	Compressor Short Body
Supposed causes	The possible causes are: • Less oil return • Liquid flash back • Winding is scratched
Troubleshooting	

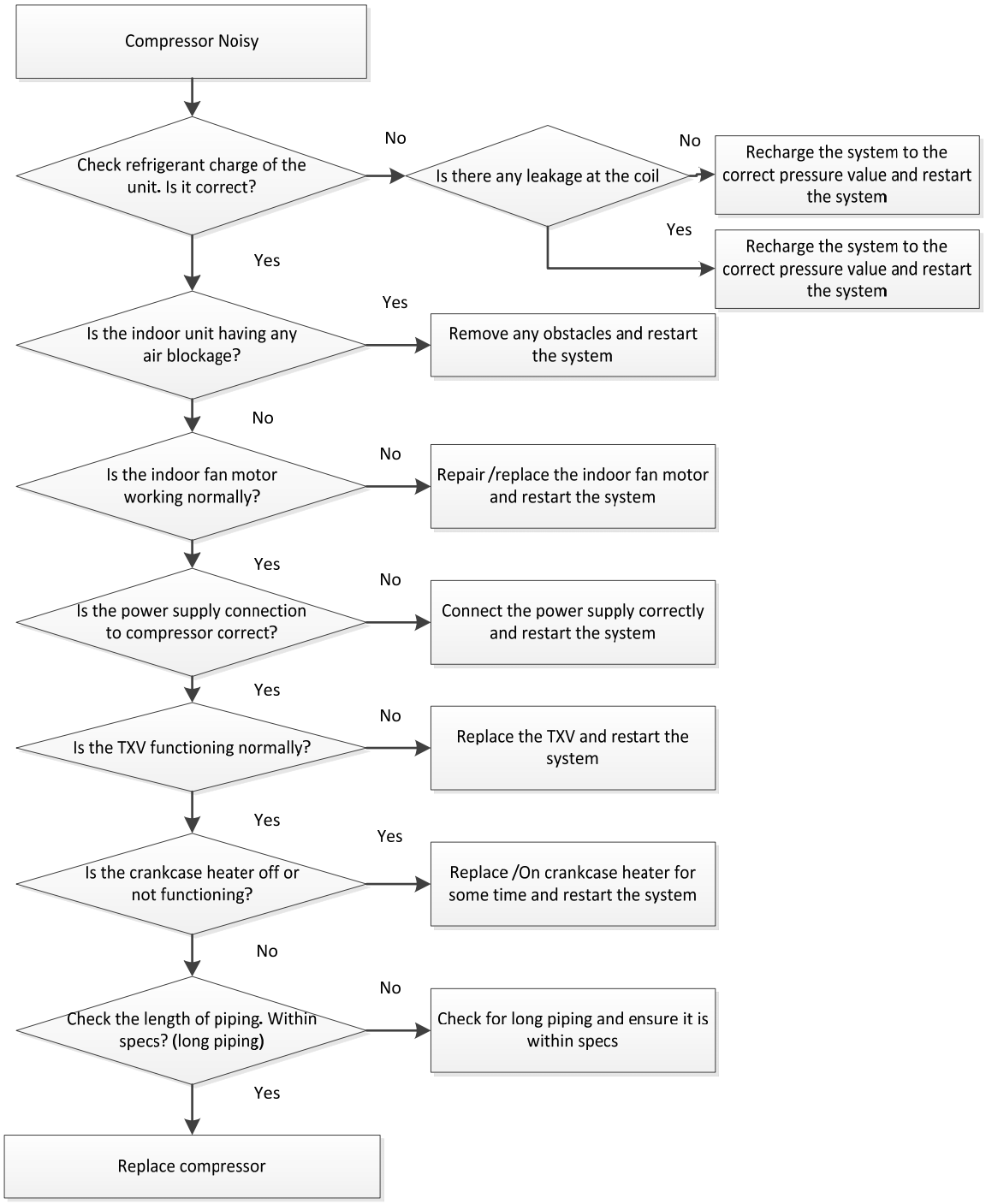
(v) Compressor Jammed

Faulty Phenomenon	Jammed
Supposed causes	The possible causes are: • Less oil return • Thermal overload • Lock rotor activate (running current > lock rotor ampere)
Troubleshooting	

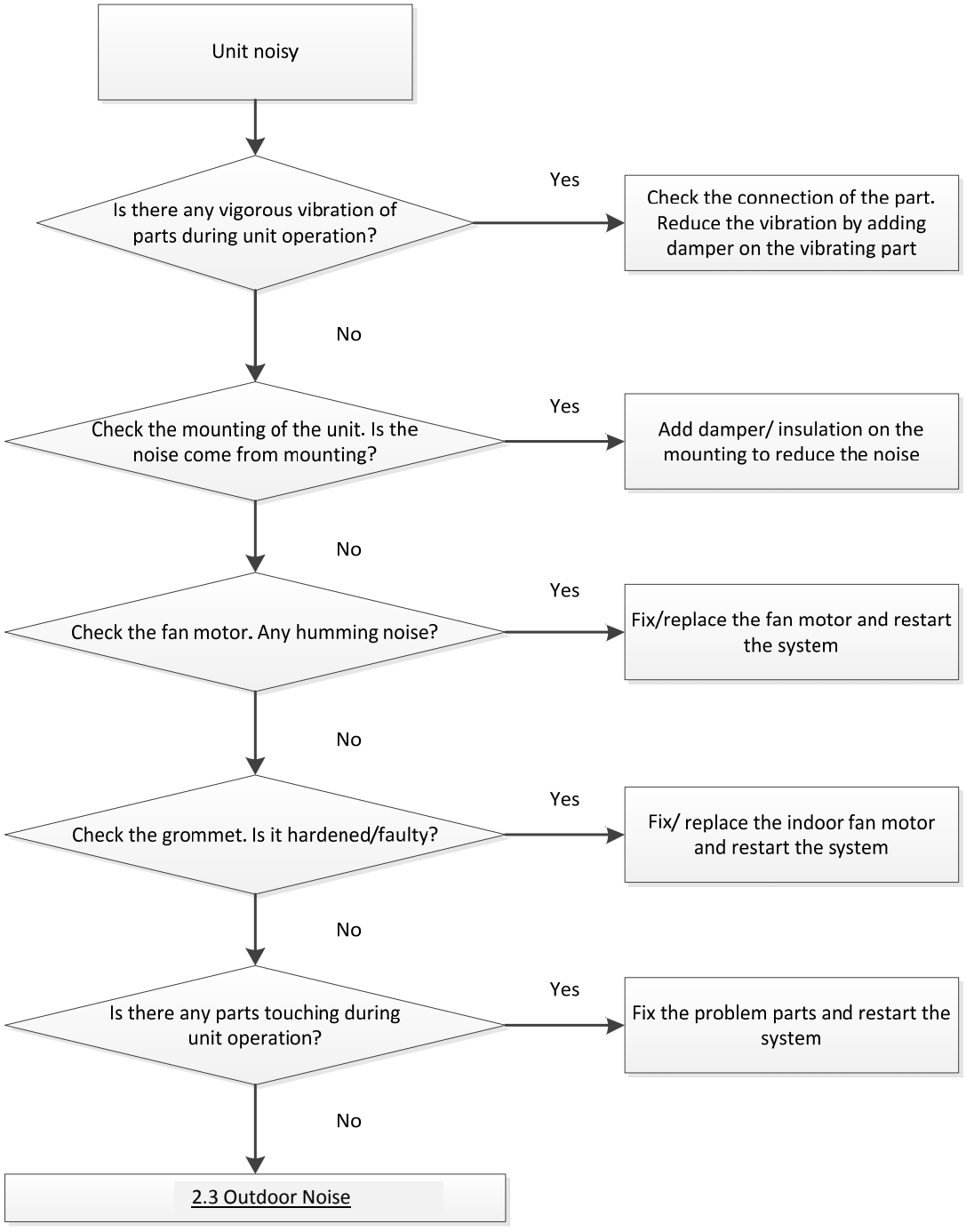
(vi) Compressor High Ampere

Supposed causes	The possible causes are: ▪ Low voltage supply ▪ Blockage at air discharge ▪ Low refrigerant charge ▪ Indoor/Outdoor fan not running ▪ Chocking in refrigerant system
Troubleshooting	

(vii) Compressor Noisy

Supposed causes	The possible causes are: ▪ Low refrigerant charge ▪ Blockage at air discharge ▪ Chocking in refrigerant system ▪ Liquid return to compressor
Troubleshooting	

(viii) Unit Noisy

Faulty Phenomenon	Unit Noisy
Supposed causes	The possible causes are: • Metal parts touching • Fan motor humming noise
Troubleshooting	

Appendix: Table 1 Resistance – Temperature Characteristics

Resistance R25=10.0kΩ ± 1.0%

B Value B25/30=3450K ± 1.0%

T°C	Rmin (kΩ)	Rnom (kΩ)	Rmax (kΩ)	T°C	Rmin (kΩ)	Rnom (kΩ)	Rmax (kΩ)
-10	4.42E+01	4.53E+01	4.65E+01				
-8	4.02E+01	4.12E+01	4.22E+01	42	5.28E+00	5.37E+00	5.45E+00
-6	3.66E+01	3.74E+01	3.83E+01	44	4.92E+00	5.01E+00	5.09E+00
-4	3.33E+01	3.41E+01	3.49E+01	46	4.59E+00	4.67E+00	4.76E+00
-2	3.04E+01	3.11E+01	3.18E+01	48	4.29E+00	4.37E+00	4.42E+00
0	2.78E+01	2.84E+01	2.90E+01	50	4.01E+00	4.09E+00	4.16E+00
2	2.54E+01	2.59E+01	2.65E+01	52	3.75E+00	3.82E+00	3.90E+00
4	2.33E+01	2.37E+01	2.42E+01	54	3.51E+00	3.58E+00	3.65E+00
6	2.14E+01	2.18E+01	2.21E+01	56	3.29E+00	3.36E+00	3.43E+00
8	1.96E+01	2.00E+01	2.03E+01	58	3.08E+00	3.15E+00	3.22E+00
10	1.80E+01	1.83E+01	1.86E+01	60	2.89E+00	2.96E+00	3.01E+00
12	1.66E+01	1.69E+01	1.71E+01	62	2.71E+00	2.78E+00	2.84E+00
14	1.53E+01	1.55E+01	1.57E+01	64	2.55E+00	2.61E+00	2.67E+00
16	1.41E+01	1.43E+01	1.45E+01	66	2.40E+00	2.45E+00	2.51E+00
18	1.30E+01	1.32E+01	1.33E+01	68	2.25E+00	2.31E+00	2.37E+00
20	1.20E+01	1.22E+01	1.23E+01	70	2.12E+00	2.17E+00	2.23E+00
22	1.11E+01	1.12E+01	1.14E+01	72	2.00E+00	2.05E+00	2.10E+00
24	1.03E+01	1.04E+01	1.05E+01	74	1.88E+00	1.93E+00	1.98E+00
26	9.52E+00	9.62E+00	9.72E+00	76	1.77E+00	1.82E+00	1.87E+00
28	8.82E+00	8.92E+00	9.02E+00	78	1.67E+00	1.72E+00	1.77E+00
30	8.17E+00	8.27E+00	8.37E+00	80	1.58E+00	1.62E+00	1.67E+00
32	7.58E+00	7.68E+00	7.78E+00	82	1.49E+00	1.53E+00	1.58E+00
34	7.04E+00	7.14E+00	7.23E+00	84	1.41E+00	1.45E+00	1.49E+00
36	6.54E+00	6.64E+00	6.73E+00	86	1.33E+00	1.37E+00	1.41E+00
38	6.09E+00	6.18E+00	6.27E+00	88	1.26E+00	1.30E+00	1.34E+00
40	5.67E+00	5.75E+00	5.84E+00	90	1.19E+00	1.23E+00	1.27E+00

Appendix: Table 2 Fan Motor Winding Resistance

(i) Indoor Unit

Coil	Model / Color	Resistance (Ω)			
		FTYN25LV1B	***FTYN35LV1B***	***FTYN50LV1B***	***FTYN60LV1B***
Main	White-Black	435.0	435.0	297.0	211.0
Aux	Black-Red	336.0	336.0	247.4	246.9

Note:

1. The above resistance is measured at 20˚C for reference only. Tolerance is ±15%
2. Specification is subjected to change by manufacturer without prior notice.

(ii) Outdoor Unit

Coil	Model / Color	Resistance (Ω)			
		RYN25LV1B	***RYN25LV1B***	***RYN50LV1B***	***RYN60LV1B***
Main	Black-Blue	457.0	278.0	169.5	159.0
Aux	Black-Red	307.0	246.0	147.5	165.0

Note:

1. The above resistance is measured at 25˚C for reference only. Tolerance is ±10%
2. Specification is subjected to change by manufacturer without prior notice.