WALL MOUNTED SPLIT-TYPE AIR CONDITIONERS

SERVICE MANUAL

No.220126

Models

RC-GL22HN/IN RC-GL22HN/OUT
RC-GL28HN/IN RC-GL28HN/OUT
RC-GL35HN/IN RC-GL35HN/OUT
RC-GL55HN/IN RC-GL55HN/OUT
RC-GL70HN/IN RC-GL70HN/OUT
RC-G87HN/IN RC-G87HN/OUT

CONTENTS

1. IMPORTANT NOTICE
2. PRODUCT DIMENSIONS
3. REFRIGERATION CYCLE DIAGRAM
4. OPERATION DETAILS
5. WIRING DIAGRAM
6. EXPLOSION VIEW AND PART LISTS
7. PRECAUTION
8. NAMES OF PARTS
9. INSTALLATION
10. TROUBLE SHOOTING

1. IMPORTANT NOTICE

This service manual is intended for use by individuals possessing adequate backgrounds of electrical, electronic and mechanical experience. Any attempt to repair the appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

The information, specifications and parameters are subject to change due to technical modification or improvement without any prior notice. The accurate specifications are presented on the nameplate label.

How to order spare parts

To have your order filled promptly and correctly, please furnish the following information:

Model No. with Indoor or Outdoor

Part No. in the Explosion View

Part Name

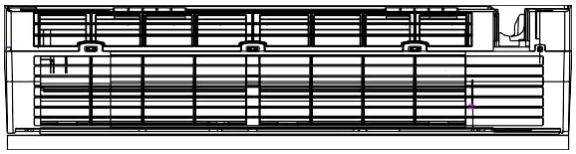
The quantity you ordered

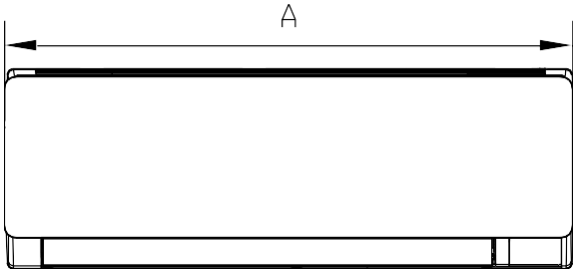
Ambient temperature

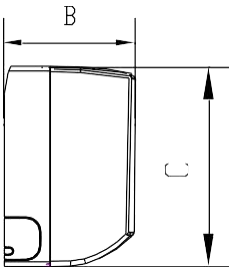
Mode type	Climate type		
	T1	T2	T3
Cooling only	18-43°C	10-35°C	21-52°C
Cooling and heating	-7-43°C	-7-35°C	-7-52°C
Heater	～43° C	～35° C	～52° C

2. PRODUCT DIMENSIONS

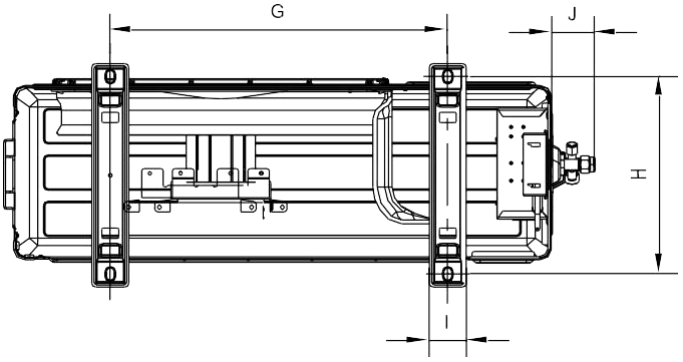
Indoor Unit:

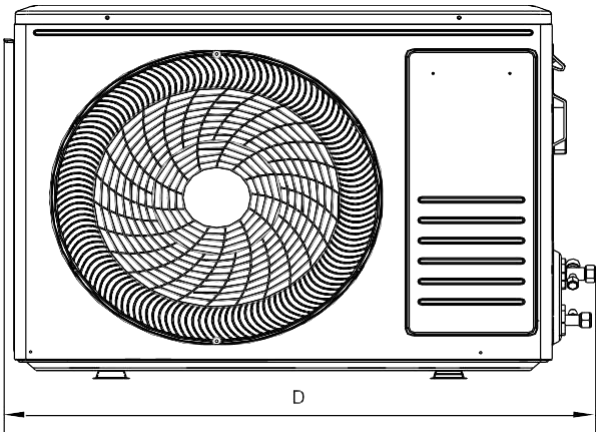


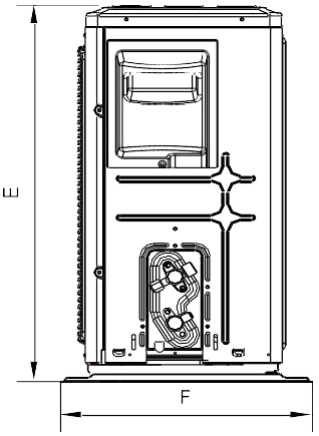




Outdoor Unit:





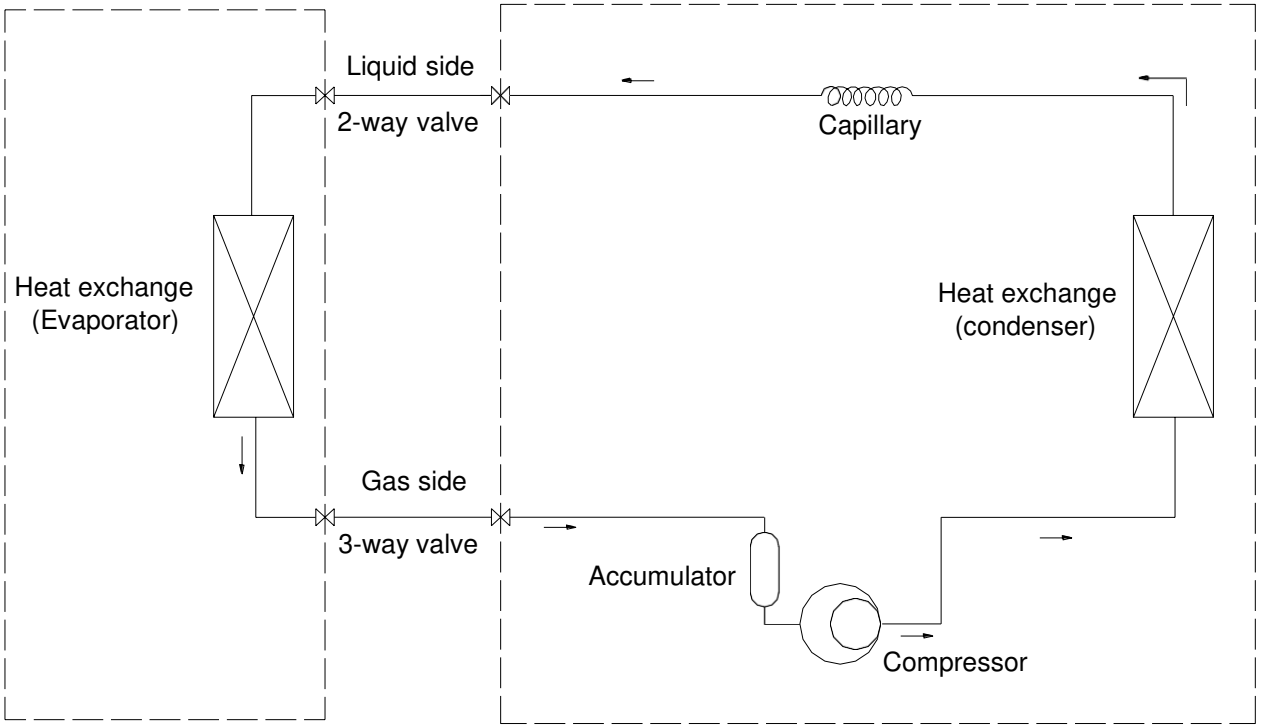


Model	Indoor unit			Outdoor unit						
	A	B	C	D	E	F	G	H	I	J
RC-GL22HN	777	205	250	712	459	276	362	256.2	48	55
RC-GL28HN	777	205	250	712	459	276	362	256.2	48	55
RC-GL35HN	777	205	250	777	498	290	415	263	48.5	52
RC-GL50HN	910	205	292	817	553	300	508	277.8	48	55

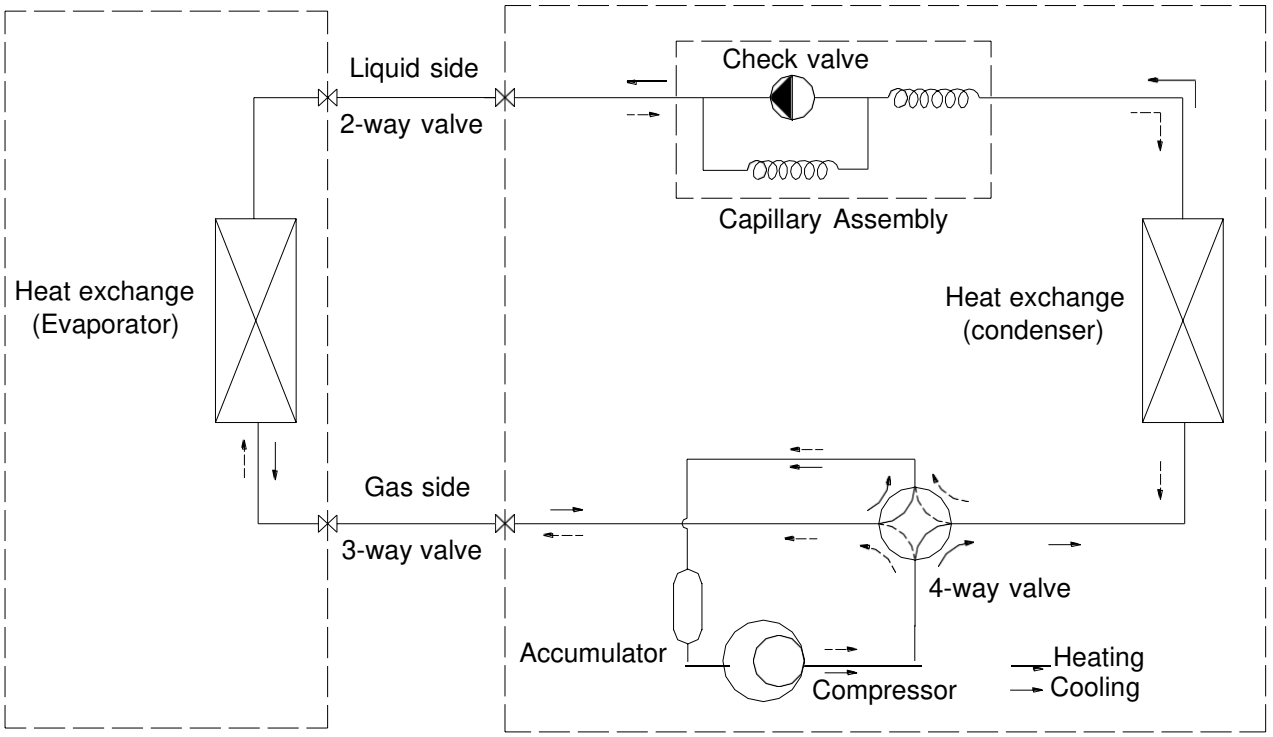
RC-GL70HN	1010	220	315	920	699	380	586	347.5	58.6	63
RC-G87HN	1010	220	315	`	655	400	623	349	65	63

3. REFRIGERATION CYCLE DIAGRAM

Cooling only



Heat pump



4. OPERATION DETAILS

4.1 Electronic controller

4.1.1 Auto mode

5.2.1.1. The set temperature can be adjusted from 16-31℃ (61-88℉) on auto mode, the operation of fan speed and vane position according to preset.
5.2.1.2. Operation
When unit set to auto mode, it will work on cooling, heating or fan mode totally according to Δt --the temperature difference between RT and ST shown as table:

Mode	Δt=RT-ST
COOLING	Δt >1℃
FAN	-1℃≤Δt≤ 1℃
HEATING	Δt <-1℃

4.1.2 Cooling mode

4.1.2.1. Temperature control :16-31℃(61-88℉), and the operation of fan speed and vane position according to preset.
4.1.2.2. Compressor and process control
1). When RT-ST≥1℃ the compressor starts up working, AC operates as customer preset;
2). When:
a. RT-ST≥1℃, the compressor will start up operation once it stops 3 minutes, and unit without any other protection or failure code.
b. RT-ST≤-1℃, the compressor will stop working while it works for 6 minutes or more continuously.
c. -1℃＜RT-ST＜1℃, the compressor keeps original state.
3). The compressor will also stop working while unit:
a. switched off.
b. under protection.
c. changed to fan mode.
4). Under normal operation, the compressor can be stopped by program until it works for 6 min at least once starts up.
5). In the process of unit operation, once the compressor ceased, it should be 3 min delay for the next procedure.
4.1.2.3. ODU Fan motor control:
1). While unit:
a. switched off.
b. under protection.
c. to the set temperature.
The compressor stops working, and the fan motor will stop operation after 50s delay.
2). When switch on unit on cooling mode, ODU fan motor will delay 5s after compressor starts up.

4.1.2.4. When ODU failure or stops for protection, IDU works as preset.

4.1.2.5. Anti-frosting protection

While condition a), b) matched, the AC unit transferred to anti-frosting protection.

a). After the compressor continual works for 6 minutes, and tested IPT≤0℃ for 3 minutes continuously.

b). After the compressor continual works 6 minutes, and tested IPT≤-2℃ for 3 seconds continuously.

c). AC unit quit protection while IPT≥10℃.

4.1.3 Dry mode

4.1.3.1. Temperature control: 16~31℃.

Fan speed: low

Vane blade position: as customer preset

4.1.3.2. When ODU failure or stops for protection, IDU works as preset.

4.1.3.3. Compressor and process control

1). When RT-ST≥1℃, the compressor starts up working, AC operates as customer preset;

2). When

a. RT-ST＞2℃, the compressor will start up operation once it stops 3 minutes, and unit without any other protection or failure code.

b. RT-ST＜-2℃, the compressor will stop working while it works 6 minutes or more continuously.

c. -2℃≤RT-ST≤ 2℃， the compressor will stop working while it works for 6 minutes, after 4 minutes it will start working again.

3). The compressor will also stop working while unit:

a. switched off.

b. under protection.

c. changed to fan mode.

4). Under normal operation, the compressor can be stopped by program until it works for 6 min at least once starts up.

5). In the process of unit operation, once the compressor ceased, it should be 3 min delay for the next procedure.

4.1.3.4. ECO and sleep mode: Invalid.

4.1.3.5. Anti-frosting protection

While any of condition a), b), or c) matched, the AC unit transferred to anti-frosting protection.

a). After the compressor continual works for 6 minutes, and tested IPT≤0℃ for 3 minutes continuously.

b). After the compressor continual works 6 minutes, and tested IPT≤-2℃ for 3 seconds continuously.

c). If the unit works as 6 minutes ON, 4 minutes OFF, and tested IPT≤0℃ for 3 minutes continuously.

d). AC unit quit protection while IPT≥10℃.

4.1.4 Heating mode

4.1.4.1. Temperature control: 16-31℃(61-88℉).

4.1.4.2. Compressor and process control.

1). When ST-CRT≥1℃, the compressor starts up working, AC operates as customer preset;

2). When

a. ST-CRT≥1℃, the compressor will start up operation once it stops 3 minutes, and unit without any other protection or failure code.

b. ST-CRT≤-1℃， the compressor will stop working while it works 6 minutes or more continuously.

c. -1℃＜ST-CRT＜1℃， the compressor keeps original state.

3). The compressor will also stop working while unit:

a. switched off.

b. under protection.

c. changed to fan mode.

4). Under normal operation, the compressor can be stopped by program until it works for 6 min at least once starts up.

5). In the process of unit operation, once the compressor ceased, it should be 3 min delay for the next procedure.

4.1.4.3. IDU time delay: When compressor stops or unit switches off while in heating mode, IDU fan motor keeps working for 50 seconds.

4.1.4.4. ODU Fan motor control:

1). While unit:

a. To be switched off

b. Under protection.

c. To the set temperature

The compressor stops working, and the fan motor will stop operation after 50s delay.

2). When switch on unit on heating mode, ODU fan motor will start up 3s earlier before compressor starts up.

3). In the process of defrosting, the fan motor will stop operation 39s delay after compressor stopped.

4). defrosting finish, the compressor stops operation, the fan motor will start working simultaneously.

4.1.4.5. 4-way valve control

1). On Cooling/Dry/Fan mode,4-way valve: **OFF,**

when unit switched on heating mode,4-way valve: **ON.**

2). When heating mode switched off, or changed from heating to other modes, the 4-way valve will be **OFF** 2 min delay after the compressor stops working.

3). The 4-way valve will be **OFF** 2 min delay while unit stops working caused by any kinds of protection.

4). In the process of defrosting, 4-way valve will be **OFF** 39s delay after compressor stopped.

5). When defrosting finish, the compressor stops operation, 4-way valve will be **ON** after 20s delay.

4.1.4.6. Defrost

Note:

t1: The compressor continuous works time.

t2: The compressor accumulated working time.

t3: The tested max value of "IPT-RT" after compressor works for 8 minutes till to current.

oT: The current value of "IPT-RT" while compressor works. (*the instantaneous value*)

1). When AC unit works matching a), b) and c):

a. t1 ≥ 120 minutes,

b. t2 ≥ 45 minutes,

c. t3 ≥oT + 4℃ .

it triggers to defrosting.

Defrosting start up: Compressor stops working, and re-starts operation after 44s delay;

2). AC unit quit defrosting automatically after 10 minutes operation.

Defrosting end off: Compressor stops working, and re-starts after 25s delay;

4.1.4.7. Cold air prevention:

This function intends to prevent cold air from being discharged when the heating operation starts up

1). IDU fan motor cold air prevention

① .When RT＜24℃:

a. If ITP＞31℃ while compressor works for 5 min, fan motor will work according to preset fan speed.

b. If IPT≤31℃, fan motor stops working while compressor operation within 2min, if IPT≥27℃, fan motor works in low speed 2 min, then change to preset speed.

② When RT≥24℃:

a. Within 2 min after compressor starts up working, once IPT＞27℃, fan motor will change to preset speed.

b. After compressor starts working 2 min, fan motor changes to preset speed directly.

2). Vane blade operation for cold air prevention.

a. If the vane works on status of **non-swing**: While IPT increase to a special degree, the vane blade will change the position to:

① Default angle; or

② Previous position; or

③ Customer preset.

The above operation can work one time only, when compressor stops working, the unit will inspect the function once again.

b. If the vane works on **swing**: When IDU quits from cold air prevention, vane operate as preset.

4.1.4.8. "8℃" Heating

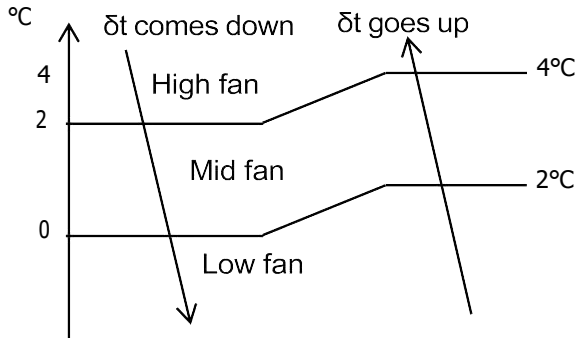
When function effective, it will make sure the room temperature not lower than 8℃, unit works on heating mode.

4.1.5 Fan mode

4.1.5.1. The temperature setting: 16~31℃(61-88℉),
Fan speed and vane position: as preset. The function for remote controller 58E only.

4.1.5.2. For above function, when unit preset to auto fan mode, the fan motor will change its operation speed based on the temperature difference of ambient and preset temperature.

4.1.5.3. ODU always OFF.



4.1.6 Timer

The unit has times control, when the unit meet the timer preset, it will be switched on or off automatically.

5.2.6.1 TIMER ON

1). TIMER ON can be set only when the air conditioner is OFF.
2). Press TIMER on the remote control ONCE to enter time setting.
3). Press "▲" or "▼" to set the time for unit to start working.
4). Set other function as MODE, FAN SPEED, SWING etc.
5). Press TIMER ONCE AGAIN to confirm the TIME ON setting

5.2.6.2 TIMER OFF

1). TIMER OFF can be set only when the air conditioner is ON.
2). Press TIMER on the remote control ONCE to enter time setting.
3). Press "▲" or "▼" to set the time for unit to stop working.
4). Press TIMER ONCE AGAIN to confirm the TIME OFF setting

Note: In case of no selection for the time setting within 10s, the timer function will be OFF automatically.

4.1.7 Sleeping mode

While AC works in sleeping mode, the light of POWER SUPPLY and SLEEP always ON, and the temperature display will be OFF after 15s.
In this mode, the AC unit works according to the SLEEP CURVE as designed.
Sleeping mode the unit can work 10 hours continuously, after that it will quit from this mode and work as previous presetting.

4.1.8 Emergency switch

When the EMERGENCY switch is pressed one time, COOLING mode is selected and if it pressed again within 3s, HEATING mode selected, while press once again, the unit will be switched off.
When the remote controller out of function, batteries lost power, for example, the EMERGENCY button in the front of indoor unit can be used for function test.

NOTE: Do not press the EMERGEMCY switch during normal operation.

4.1.9 Auto-restart function

While air conditioner is operating in one mode, all of its operation data, such as working mode, preset temperature etc. would be memorized into IC by main PCB. If power supply cut off due to reasons and recover again, the AUTO-RESTART function will set synchronously and the air conditioner would work at the same mode as before.

Note: The function setting:
Within 3 min while power on unit, set the unit on cooling mode, set temperature 30℃, and mid fan speed, press the ECO button 10 times within 8s, the AUTO-RESTART will be activated.

4.1.10 Over heat protection for Heating mode

1). If:
   a. IPT≥62℃, compressor and ODU Fan stop working for over heat protection.
   b. IPT≥54℃, ODU Fan stops working. IDU fan motor and compressor keeps original state.

2). When IPT≤48℃, the compressor and ODU Fan restart works to quit overheat protection.

3). If unit have 6 times Overheat Stop-working Protection continuously, or tested IPT ≥ 62℃ for 3mins continuously while compressor stop working, this protection can't be recovered unless press ON/OFF button, and unit will show failure code "P7".

Note:
In the process of operation, once the compressor runs continuously more than 6 min, the counter of overheat stop-working protection will be reset to zero and start a new counting process.

The failure and times for protection will eliminate immediately once the unit to be switched off, on fan mode or changed to be heating mode from others.

4.1.11 Complementary

5.2.11.1 Energy saving (ECO)
Function effective on Cooling and Heating mode only.
On cooling mode, the set temperature range from 26℃(79℉) to 31℃(88℉).
on heating mode, from 16℃(61℉) to 25℃(77℉).
5.2.11.2 TURBO

Function effective on Cooling, Heating, Fan and Auto modes, and fan speed operates on highest.

4.1.12 Calibration Test Mode:

Within 3 min while indoor unit switch on, and set the unit as:

1) Cooling mode.

2) set temperature to 30℃.

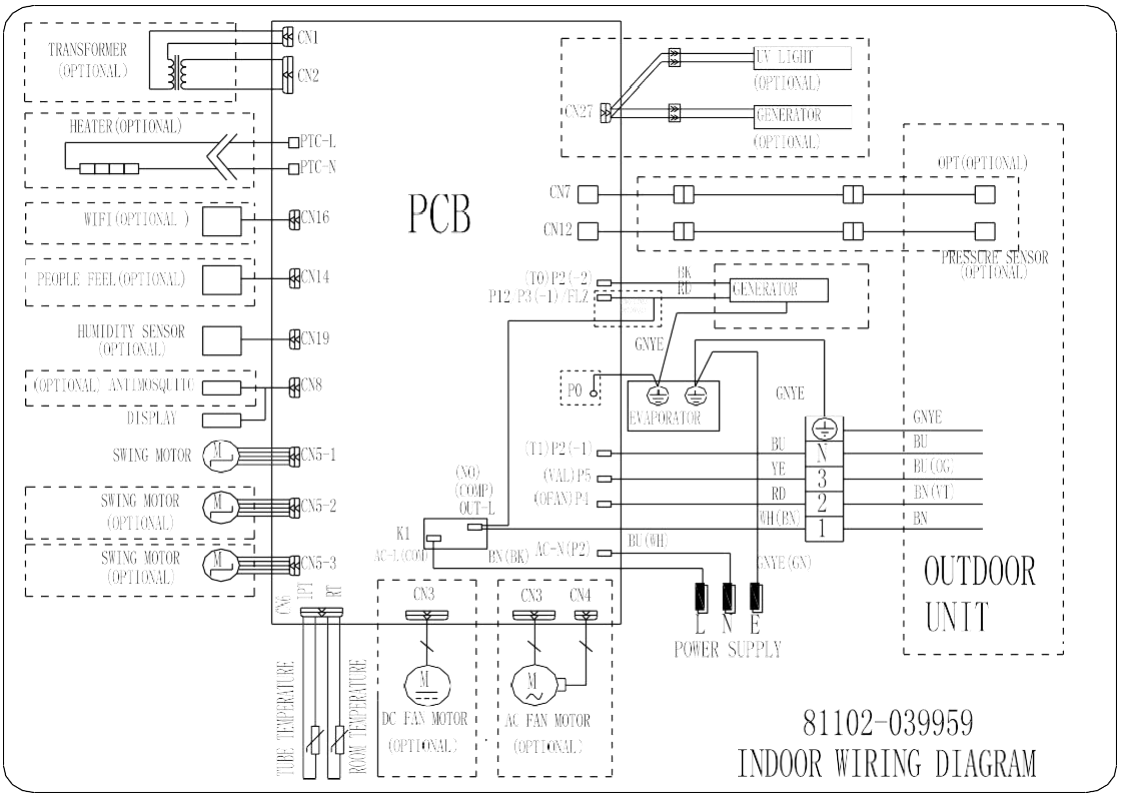
3) Mid-fan speed.

by press ECO button 7 times within 8s, the unit will change to calibration test mode, and the buzzer sounds 3 times.

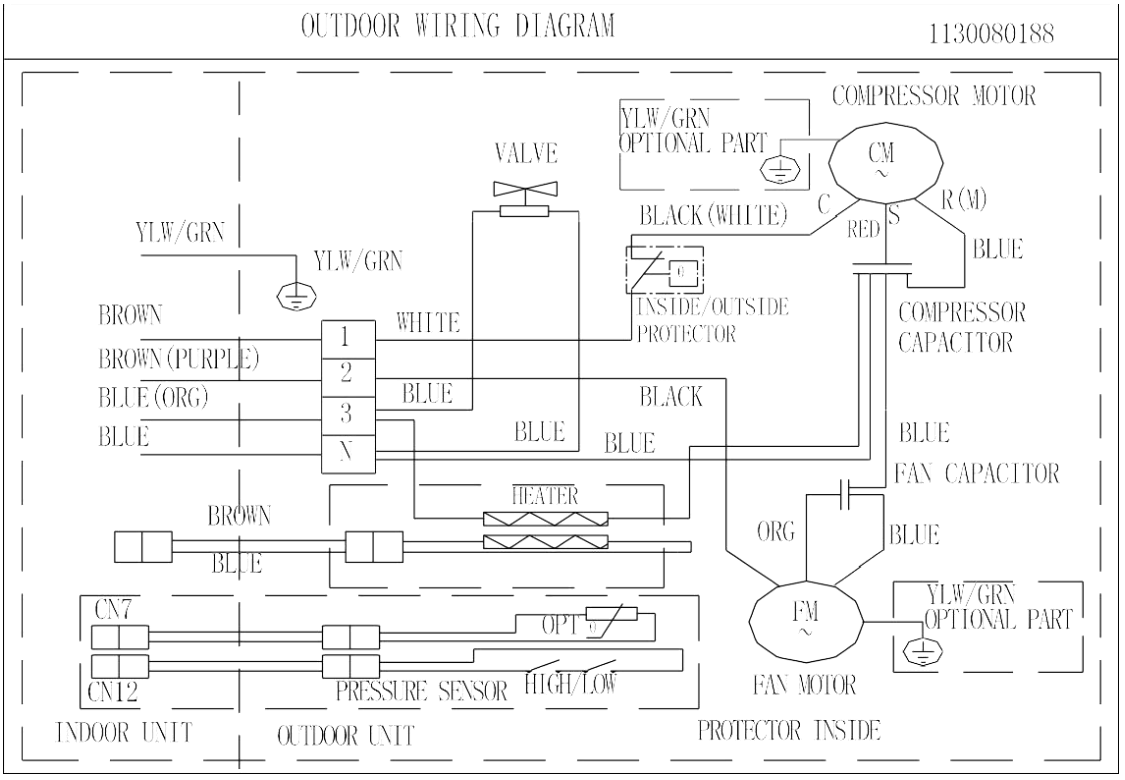
5. WIRING DIAGRAM

MODEL: RC-GL22HN, RC-GL28HN, RC-GL35HN, RC-GL70HN

INDOOR UNIT:

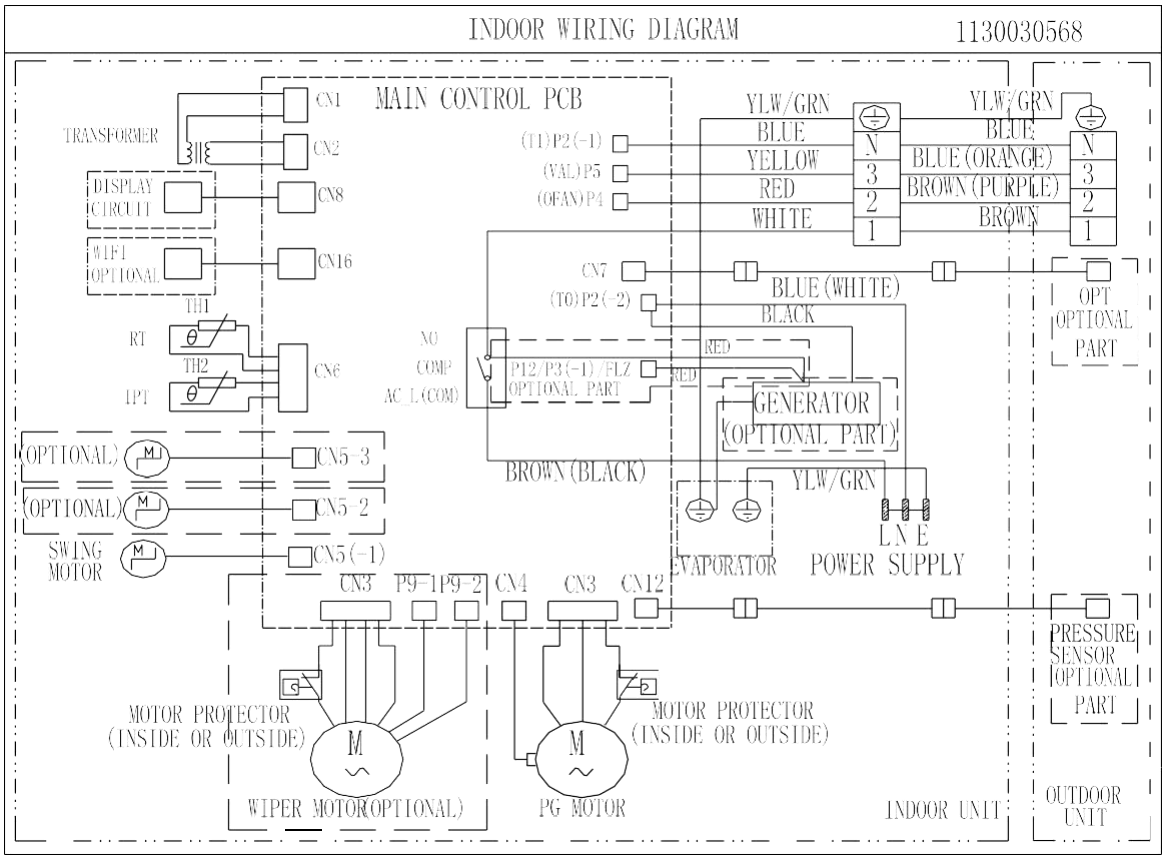


OUTDOOR UNIT

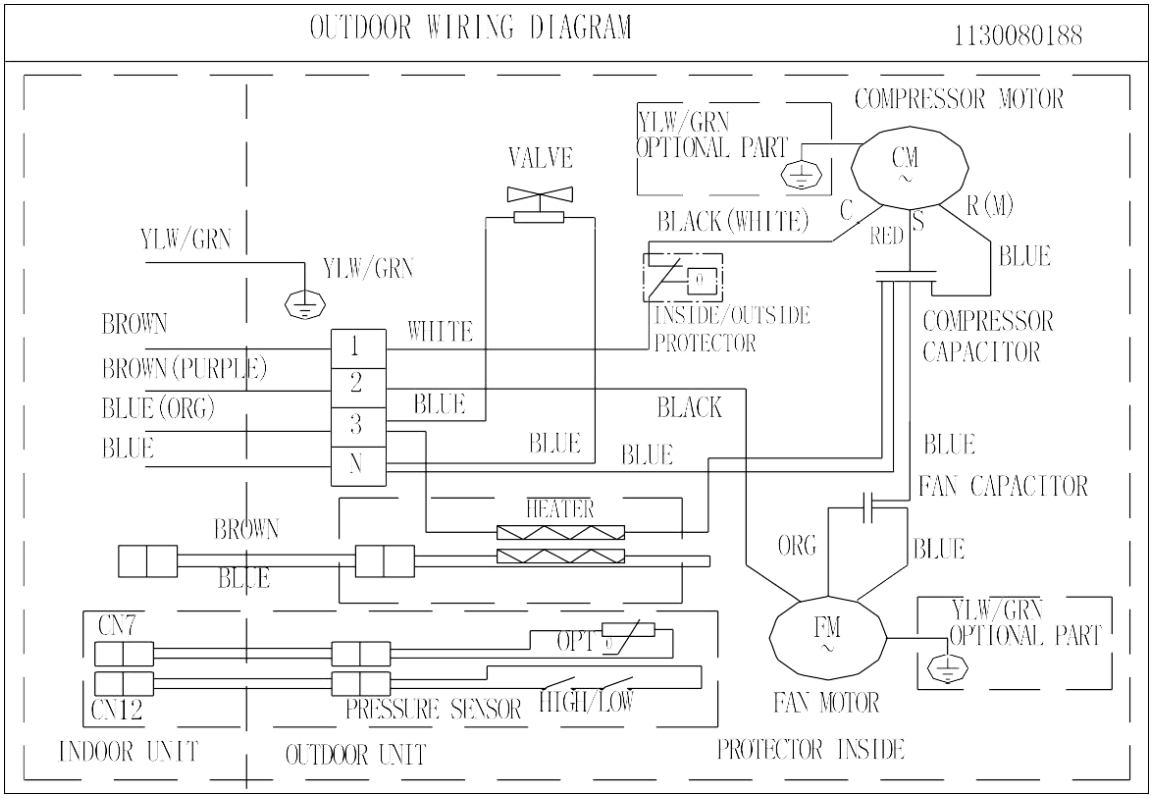


MODEL: RC-GL55HN

INDOOR UNIT:

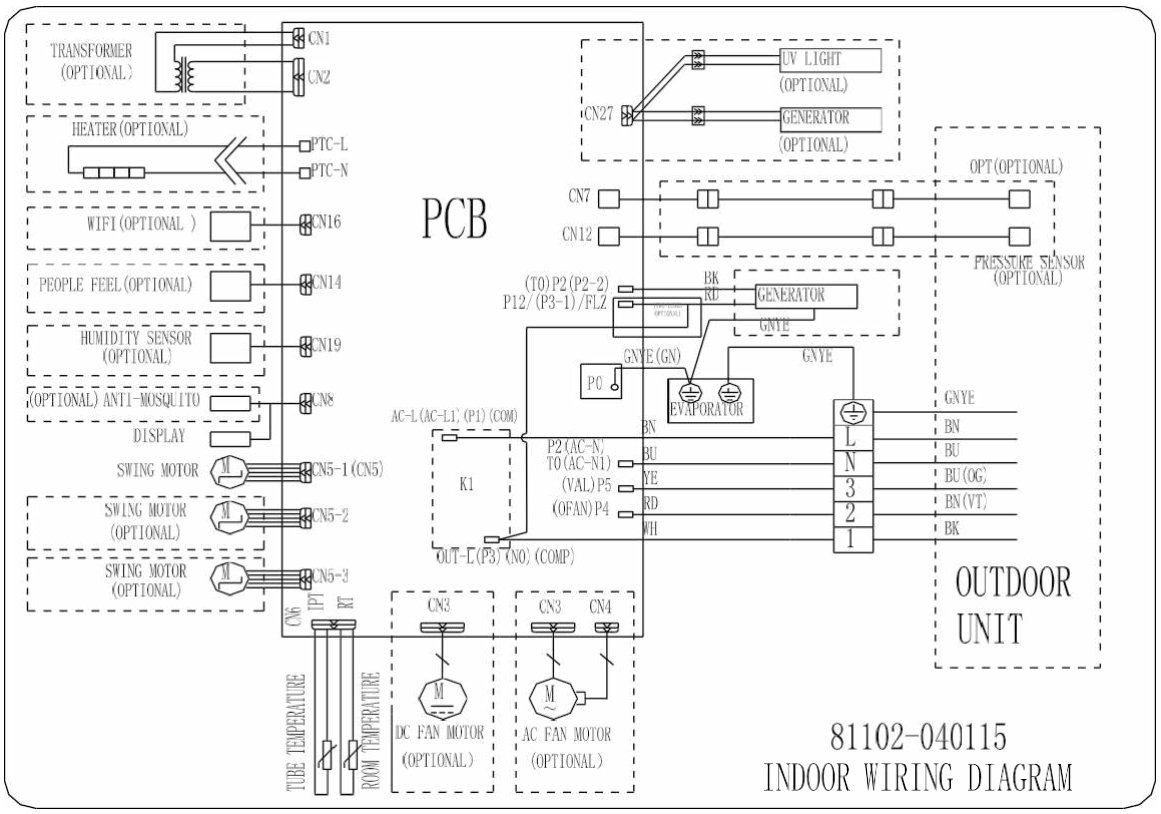


OUTDOOR UNIT

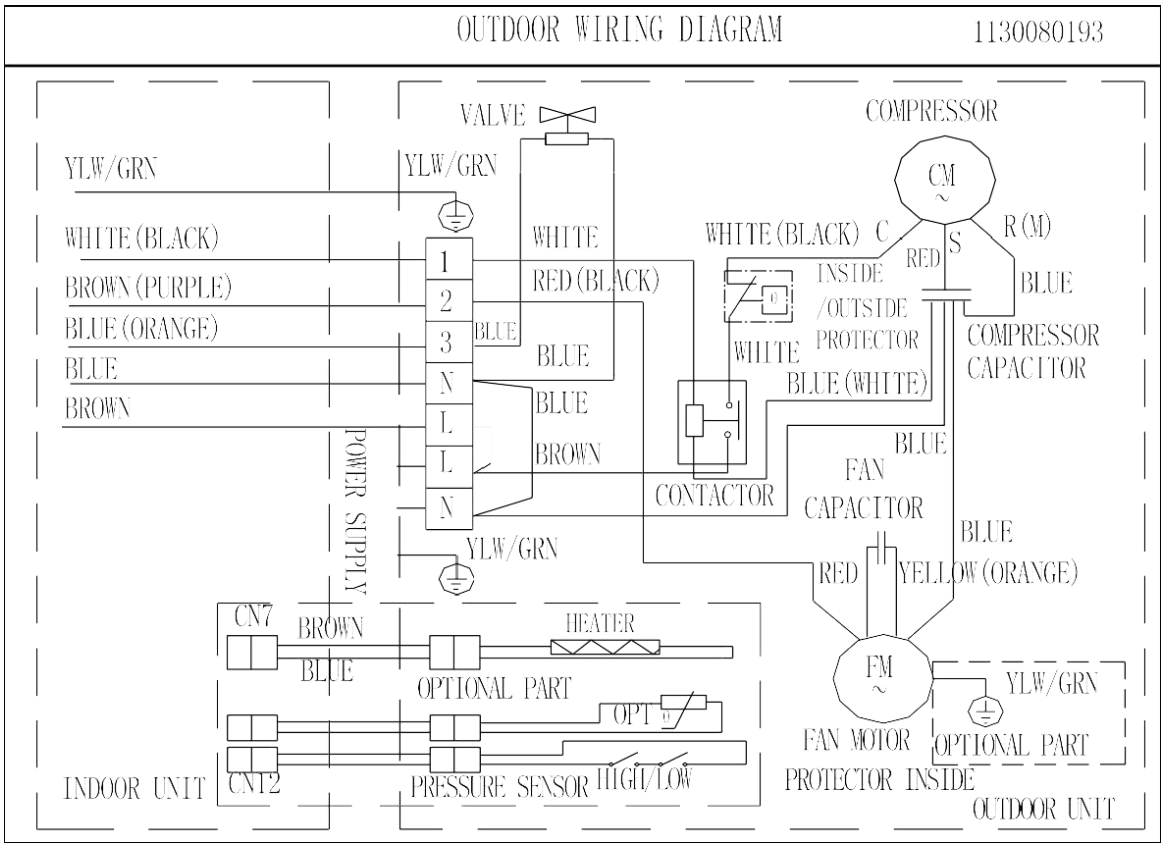


MODEL: RC-G87HN

INDOOR UNIT:

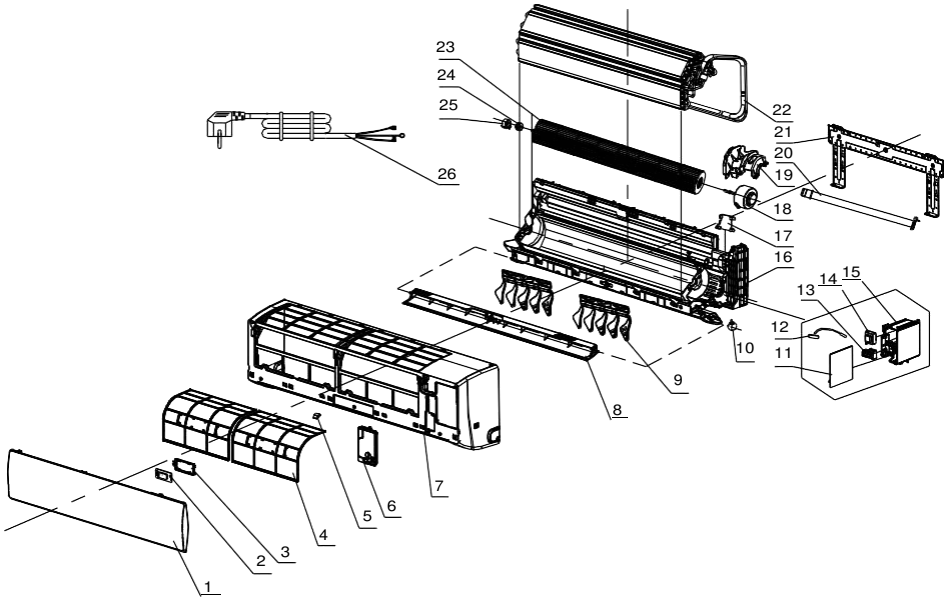


OUTDOOR UNIT



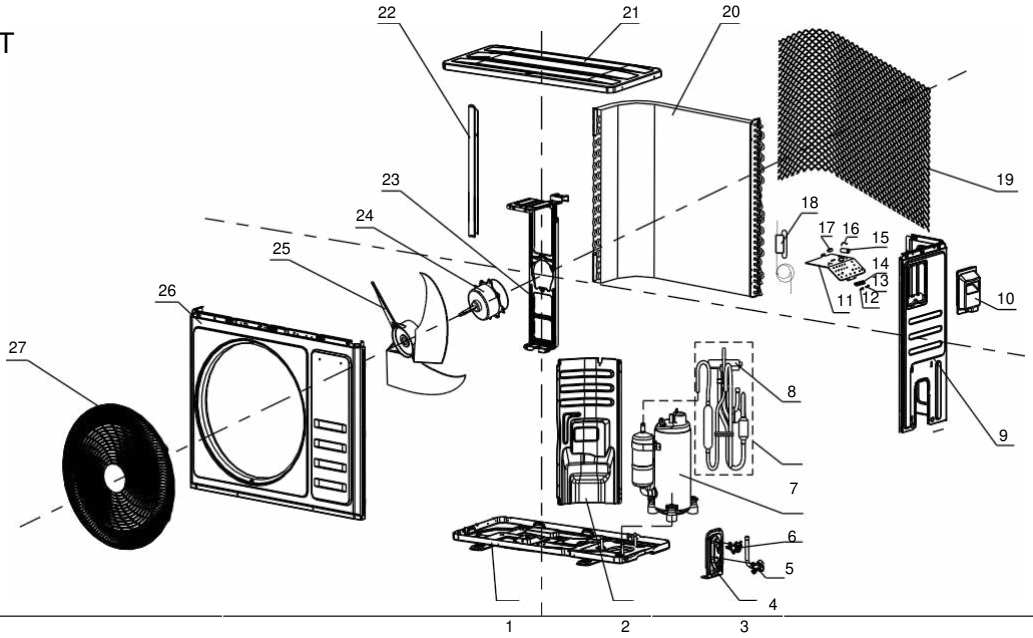
6. EXPLOSION VIEW AND PARTS

Indoor Unit- RC-GL22HN/IN



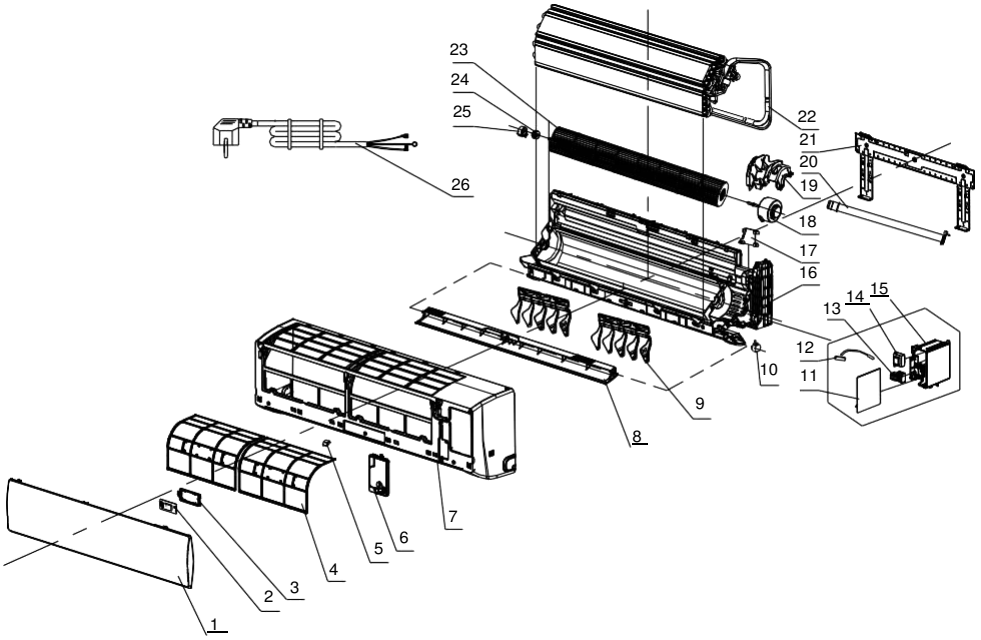
No.	Part No.	Part Name	Q'ty	Remark
1	41106-002048	Front Panel	1	
2	31102-000085	Display PCB	1	
3	42003-000001	Display PCB Box	1	
4	42008-000049	Air Filter	2	
5	41108-000066	Screw Cover	1	
6	41201-000068	Electrical Box Cover	1	
7	41106-002371	Face Frame	1	
8	41103-000101	Vane	1	
9	41101-000081	Vertical Vane Assembly	2	
10	22001-000313	Vane Motor	1	
11	31101-001789	Main PCB	1	
12	10104-100014	Indoor Sensor Assembly	1	
13	11304-100023	Terminal	1	
14	10502-100030	Transformer	1	
15	41105-000361	Electrical Box	1	
16	41199-002735	Base	1	
17	41101-000242	In And Out Pipe Fixer	1	
18	22001-000273	Indoor Motor	1	
19	42003-000060	Indoor Motor Cover	1	
20	42009-000011	Drainage Hose	1	
21	41109-000042	Installation Plate	1	
22	92011-007511	Evaporator	1	
23	42004-000039	Cross Fan	1	
24	42007-000001	Bearing Mount	1	
25	41101-000251	Bearing Mount Holder	1	
26	22007-000015	Power Supply Cord	1	
27	22013-002314	Remote Controller	1	Not shown in Explosion view
28	A1101-002013	Indoor Carton	1	
29	41110-000221	Left Foaming	1	
30	41110-000260	Right Foaming	1	

Outdoor Unit-
RC-
GL22HN/OUT



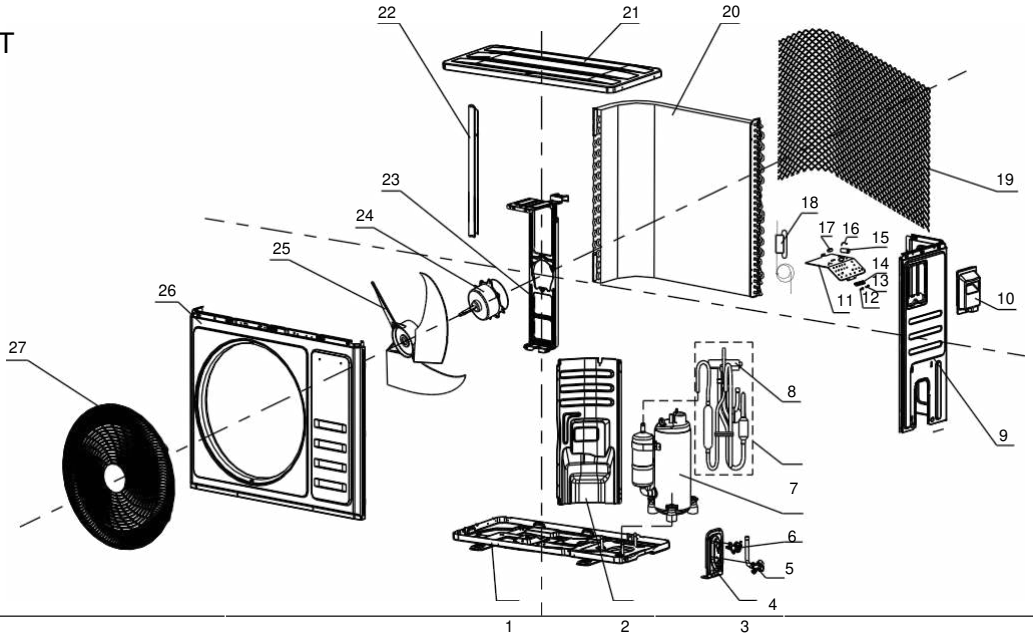
No.	Part No.	Part Name	Q'ty	Remark
1	41202-000412	Base	1	
2	41208-000225	Partition plate	1	
3	41204-000018	Valve Supporter	1	
4	92007-001041	Three-way Valve	1	
5	92007-007328	Two-way Valve	1	
6	92014-000840	Compressor And It Accessories	1	
7	92007-009577	4-way Valve Assembly	1	
8	92008-000313	4-way Valve	1	
9	41205-000212	Right Plate	1	
10	41201-000029	Electrical Box Cover	1	
11	41214-001174	Electrical Parts Fixing Plate	1	
12	42001-000037	Cable Clamp(φ6)	1	
13	42001-000035	Cable Clamp(φ7)	1	
14	210902378	Terminal	1	
15	22003-000009	Compressor Capacitor	1	
16	42001-000029	Capacitor Strip	1	
17	10303-100020	Fan Motor Capacitor	1	
18	92007-009142	Capillary Assembly	1	
19	N/A	Grille	1	Optional
20	92011-006422	Condenser	1	
21	41207-000047	Top Cover	1	
22	41205-000213	Left Grille Supporter	1	
23	41203-000112	Outdoor Motor Supporter	1	
24	22001-000006	Outdoor Motor	1	
25	42004-000192	Propeller Fan	1	
26	41206-000074	Front Plate	1	
27	42011-000415	Fan Guard	1	Not shown in Explosion view
28	A1201-012624	Base Carton	1	
29	A1201-012623	Cabinet Carton	1	
30	A1202-000084	Base Foaming	1	
31	A1202-000083	Cover Forming	1	

Indoor Unit- RC-GL28HN/IN



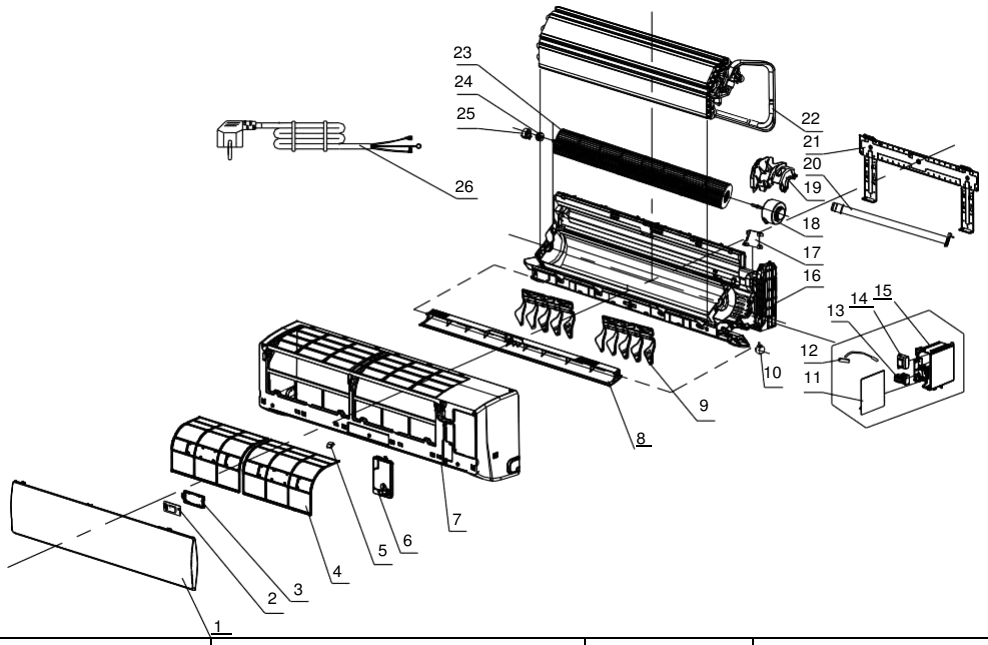
No.	Part No.	Part Name	Q'ty	Remark
1	41106-002048	Front Panel	1	
2	31102-000085	Display PCB	1	
3	42003-000001	Display PCB Box	1	
4	42008-000049	Air Filter	2	
5	41108-000066	Screw Cover	1	
6	41201-000068	Electrical Box Cover	1	
7	41106-002371	Face Frame	1	
8	41103-000101	Vane	1	
9	41101-000081	Vertical Vane Assembly	2	
10	22001-000313	Vane Motor	1	
11	31101-001789	Main PCB	1	
12	10104-100014	Indoor Sensor Assembly	1	
13	11304-100023	Terminal	1	
14	10502-100030	Transformer	1	
15	41105-000361	Electrical Box	1	
16	41199-002735	Base	1	
17	41101-000242	In And Out Pipe Fixer	1	
18	22001-000273	Indoor Motor	1	
19	42003-000060	Indoor Motor Cover	1	
20	42009-000011	Drainage Hose	1	
21	41109-000042	Installation Plate	1	
22	92011-007511	Evaporator	1	
23	42004-000039	Cross Fan	1	
24	42007-000001	Bearing Mount	1	
25	41101-000251	Bearing Mount Holder	1	
26	22007-000015	Power Supply Cord	1	
27	22013-002314	Remote Controller	1	Not shown in Explosion view
28	A1101-002013	Indoor Carton	1	
29	41110-000221	Left Foaming	1	
30	41110-000260	Right Foaming	1	

Outdoor Unit-
RC-
GL28HN/OUT



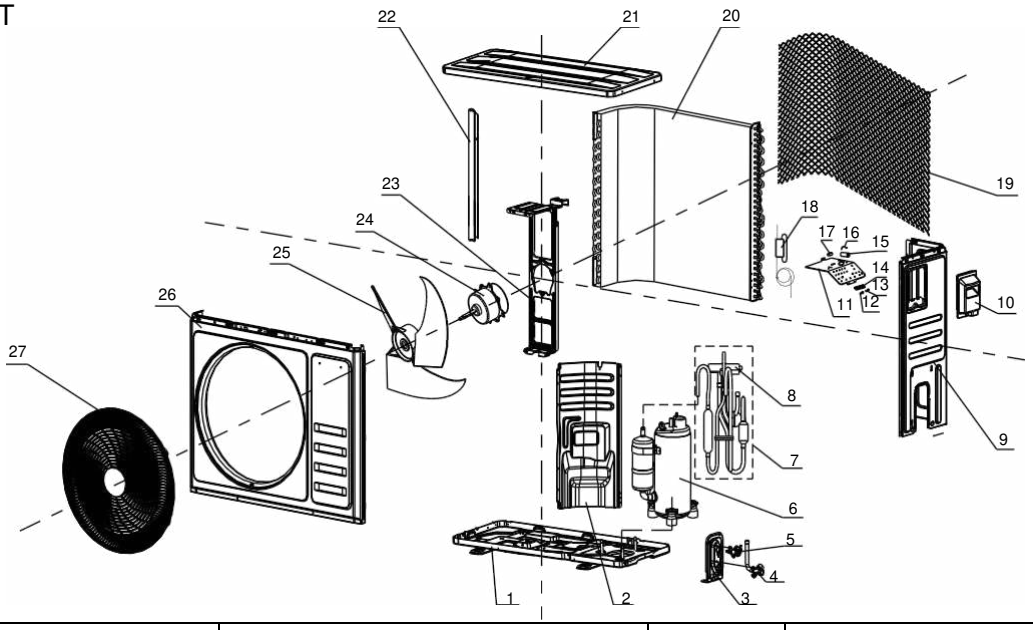
No.	Part No.	Part Name	Q'ty	Remark
1	41202-000412	Base	1	
2	41208-000225	Partition plate	1	
3	41204-000018	Valve Supporter	1	
4	92007-001041	Three-way Valve	1	
5	92007-007328	Two-way Valve	1	
6	92014-000847	Compressor And It Accessories	1	
7	92007-009548	4-way Valve Assembly	1	
8	92008-000313	4-way Valve	1	
9	41205-000212	Right Plate	1	
10	41201-000029	Electrical Box Cover	1	
11	41214-001174	Electrical Parts Fixing Plate	1	
12	42001-000037	Cable Clamp(φ6)	1	
13	42001-000035	Cable Clamp(φ7)	1	
14	210902378	Terminal	1	
15	22003-000009	Compressor Capacitor	1	
16	42001-000029	Capacitor Strip	1	
17	10303-100020	Fan Motor Capacitor	1	
18	92007-009941	Capillary Assembly	1	
19	N/A	Grille	1	Optional
20	92011-006422	Condenser	1	
21	41207-000047	Top Cover	1	
22	41205-000213	Left Grille Supporter	1	
23	41203-000112	Outdoor Motor Supporter	1	
24	22001-000007	Outdoor Motor	1	
25	42004-000192	Propeller Fan	1	
26	41206-000074	Front Plate	1	
27	42011-000415	Fan Guard	1	
28	A1201-012624	Base Carton	1	Not shown in Explosion view
29	A1201-012623	Cabinet Carton	1	
30	A1202-000084	Base Foaming	1	
31	A1202-000083	Cover Forming	1	

Indoor Unit- RC-GL35HN/IN



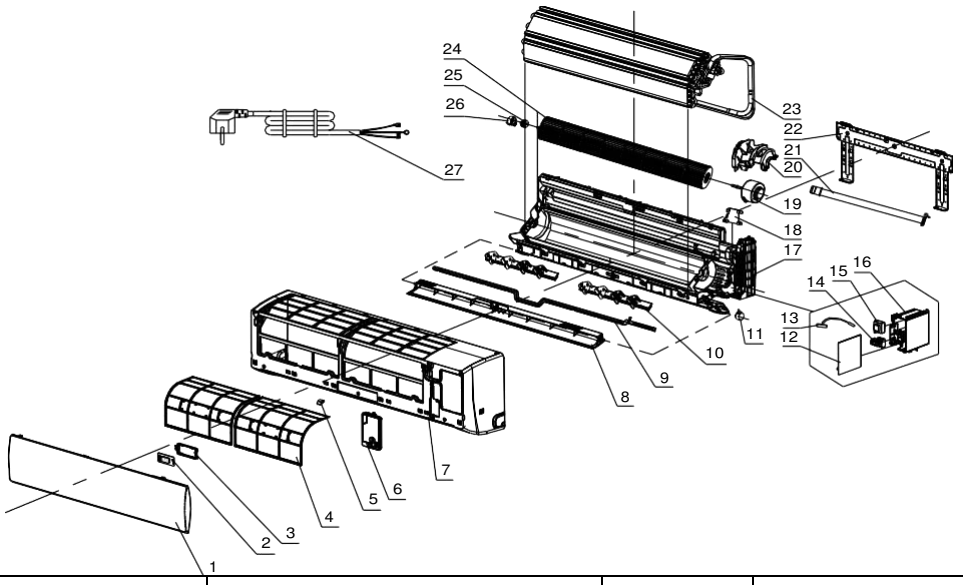
No.	Part No.	Part Name	Q'ty	Remark
1	41106-002048	Front Panel	1	
2	31102-000085	Display PCB	1	
3	42003-000001	Display PCB Box	1	
4	42008-000037	Air Filter	2	
5	41108-000066	Screw Cover	1	
6	41201-000068	Electrical Box Cover	1	
7	41106-002371	Face Frame	1	
8	41103-000101	Vane	1	
9	41101-000081	Vertical Vane Assembly	2	
10	22001-000313	Vane Motor	1	
11	31101-000506	Main PCB	1	
12	10104-100014	Indoor Sensor Assembly	1	
13	11304-100023	Terminal	1	
14	41101-000242	Transformer	1	
15	41105-000361	Electrical Box	1	
16	41199-002735	Base	1	
17	41101-000242	In And Out Pipe Fixer	1	
18	22001-000273	Indoor Motor	1	
19	42003-000060	Indoor Motor Cover	1	
20	42009-000011	Drainage Hose	1	
21	41109-000042	Installation Plate	1	
22	92011-003194	Evaporator	1	
23	42004-000039	Cross Fan	1	
24	42007-000001	Bearing Mount	1	
25	41101-000251	Bearing Mount holder	1	
26	22007-000015	Power Supply Cord	1	
27	22013-000237	Remote Controller	1	Not shown in Explosion view
28	A1101-002013	Indoor Carton	1	
29	41110-000221	Left Foaming	1	
30	41110-000260	Right Foaming	1	

Outdoor Unit- RC-GL35HN/OUT



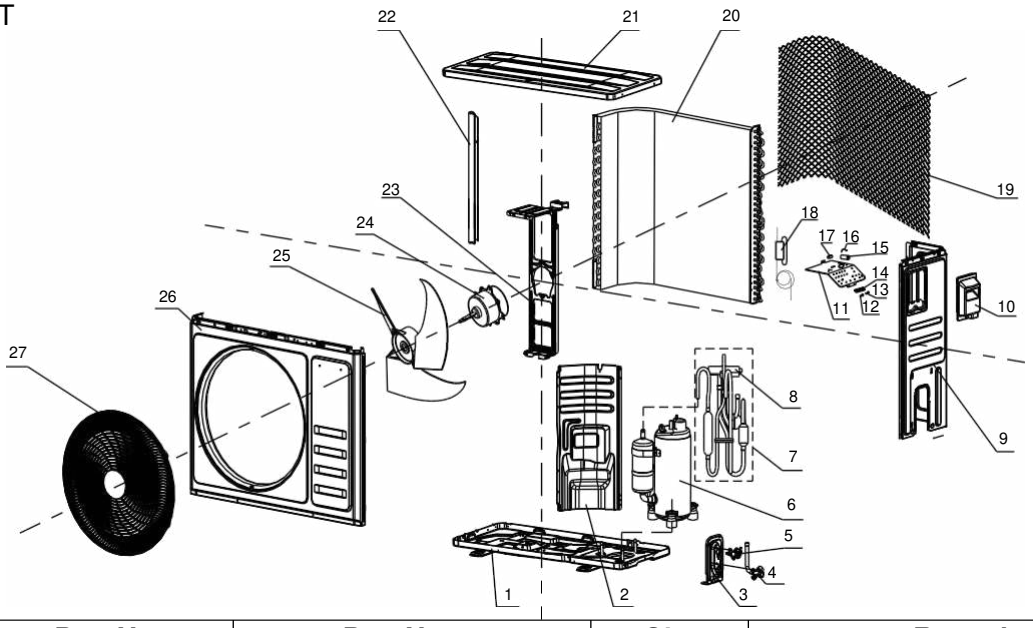
No.	Part No.	Part Name	Q'ty	Remark
1	41202-000177	Base	1	
2	41208-000139	Partition plate	1	
3	41204-000018	Valve Supporter	1	
4	92007-001041	Three-way Valve	1	
5	92007-007317	Two-way Valve	1	
6	92014-000827	Compressor And It Accessories	1	
7	92007-009536	4-way Valve Assembly	1	
8	92008-000308	4-way Valve	1	
9	41205-000206	Right Plate	1	
10	41201-000029	Electrical Box Cover	1	
11	41214-000194	Electrical Parts Box	1	
12	42001-000037	Cable Clamp(φ6)	1	
13	42001-000035	Cable Clamp(φ7)	1	
14	11304-100007	Terminal	1	
15	22003-000028	Compressor Capacitor	1	
16	42001-000030	Capacitor Strip	1	
17	10303-100015	Fan Motor Capacitor	1	
18	92007-009155	Capillary Assembly	1	
19	42011-000126	Grille	1	Optional
20	92011-007735	Condenser	1	
21	41207-000029	Top Cover	1	
22	41205-000133	Left Grille Supporter	1	
23	41203-000054	Outdoor Motor Supporter	1	
24	22001-000009	Outdoor Motor	1	
25	42004-000107	Propeller Fan	1	
26	41206-000054	Front Plate	1	
27	42011-000088	Fan Guard	1	
28	A2005-000523	Base Carton	1	Not shown in Explosion view
29	A1201-015105	Cabinet Carton	1	
30	A1202-000031	Base Foaming	1	
31	41213-000023	Cover Forming	1	

Indoor Unit- RC-GL55HN/IN



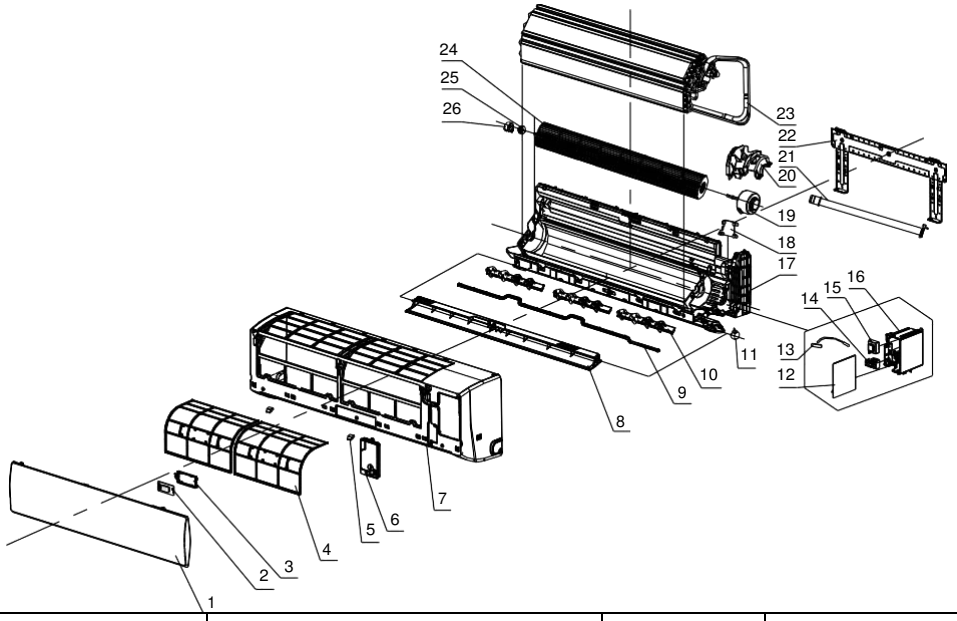
No.	Part No.	Part Name	Q'ty	Remark
1	41106-002078	Front Panel	1	
2	31102-000085	Display PCB	1	
3	42003-000001	Display PCB Box	1	
4	42008-000075	Air Filter	1	
5	41108-000066	Screw Cover	2	
6	41105-000146	Electrical Box Cover	1	
7	41106-002356	Face Frame	1	
8	41103-000149	Vane	1	
9	41101-000166	Vertical Vane Connector	1	
10	41101-000067	Vertical Vane Assembly	1	
11	22001-000321	Vane Motor	1	
12	31101-000629	Main PCB	1	
13	10104-100014	Indoor Sensor Assembly	1	
14	11304-100023	Terminal	1	
15	10502-100028	Transformer	1	
16	41105-000104	Electrical Box	1	
17	41102-000031	Base	1	
18	41101-000242	In And Out Pipe Fixer	1	
19	22001-000272	Indoor Motor	1	
20	41108-000013	Indoor Motor Cover	1	
21	42009-000011	Drainage Hose	1	
22	41109-000041	Installation Plate	1	
23	92011-002773	Evaporator	1	
24	42004-000012	Cross Fan	1	
25	42007-000001	Bearing Mount	1	
26	41101-000251	Bearing Mount Supporter	1	
27	22007-000055	Power Supply Cord	1	
28	22013-000237	Remote Controller	1	Not shown in Explosion view
29	A1101-000315	Indoor Carton	1	
30	A2006-000040	Left Foaming	1	
31	A2006-000019	Right Foaming	1	

Outdoor Unit- RC-GL35HN/OUT



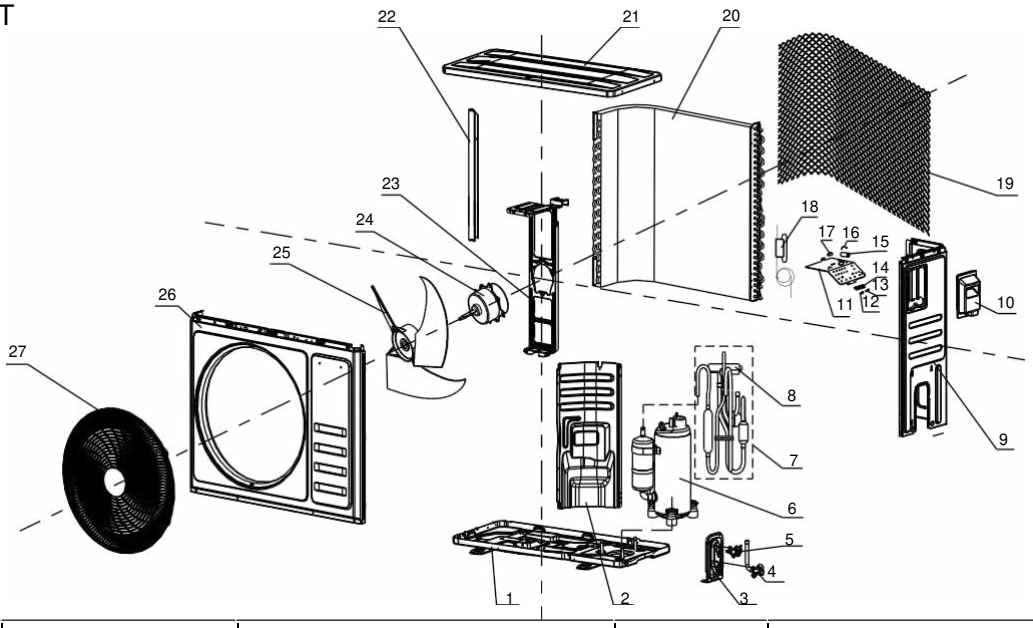
No.	Part No.	Part Name	Q'ty	Remark
1	41202-000225	Base	1	
2	41208-000158	Partition plate	1	
3	41204-000018	Valve Supporter	1	
4	92007-001043	Three-way Valve	1	
5	92007-001046	Two-way Valve	1	
6	92014-000220	Compressor	1	
7	92007-000941	4-way Valve Assembly	1	
8	92008-000193	4-way Valve	1	
9	41205-000084	Right Plate	1	
10	41201-000029	Electrical Box Cover	1	
11	41214-000342	Electrical Parts Plate	1	
12	42001-000037	Cable Clamp(φ6)	1	
13	42001-000038	Cable Clamp(φ10)	1	
14	11304-100007	Terminal	1	
15	22003-000008	Compressor Capacitor	1	
16	42001-000030	Capacitor Strip	1	
17	10303-100021	Fan Motor Capacitor	1	
18	92007-001815	Capillary Assembly	1	
19	42011-000168	Back Grille	1	Optional
20	92011-000671	Condenser	1	
21	41207-000033	Top Cover	1	
22	41205-000130	Left Grille Supporter	1	
23	41203-000052	Outdoor Motor Supporter	1	
24	22001-000089	Outdoor Motor	1	
25	42004-000104	Propeller Fan	1	
26	41206-000055	Front Plate	1	
27	42011-000081	Fan Guard	1	
28	A2005-000540	Base Carton	1	Not shown in Explosion view.
29	A1201-000396	Cabinet Carton	1	
30	A1202-000026	Base Foaming	1	
31	41213-000019	Cover Forming	1	

Indoor Unit- RC-GL70HN/IN



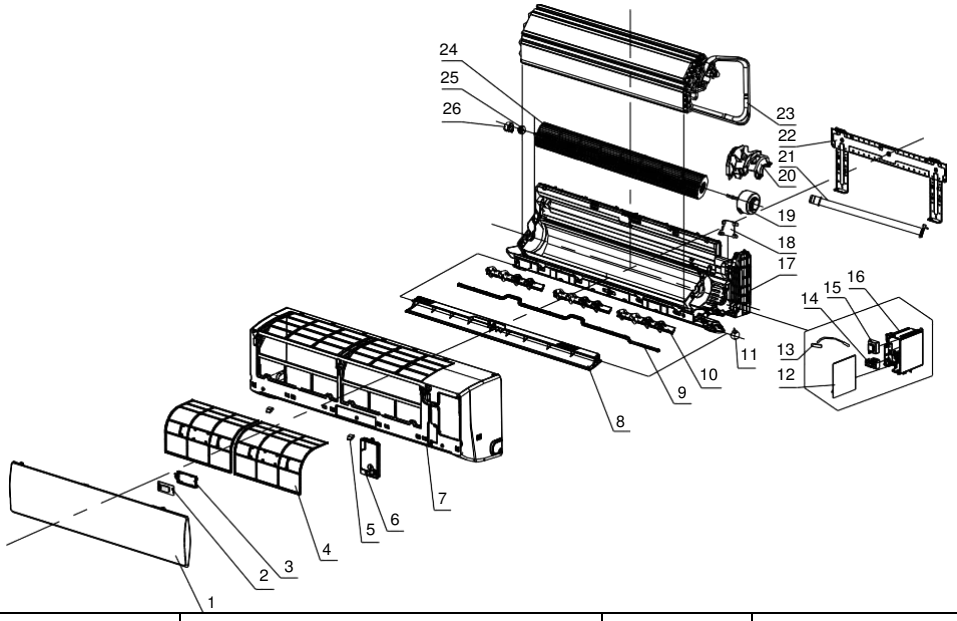
No.	Part No.	Part Name	Q'ty	Remark
1	41106-002088	Front Panel	1	
2	31102-000085	Display PCB	1	
3	42008-000001	Air Filter	1	
4	41108-000066	Screw Cover	2	
5	41105-000146	Electrical Box Cover	1	
6	41106-002351	Face Frame	1	
7	41103-000142	Vane	1	
8	41507-000062	Vertical Vane Connector	1	
9	41101-000042	Vertical Vane Assembly	3	
10	22001-000321	Vane Motor	1	
11	31101-000500	Main PCB	1	
12	42003-000001	Display PCB Box	1	
13	10104-100014	Indoor Sensor Assembly	1	
14	11304-100023	Terminal	1	
15	10502-100021	Transformer	1	
16	41105-000104	Electrical Box	1	
17	41102-000002	Base	1	
18	41101-000224	In And Out Pipe Fixer	1	
19	22001-000271	Indoor Motor	1	
20	42003-000045	Indoor Motor Cover	1	
21	42009-000011	Drainage Hose	1	
22	41109-000019	Installation Plate	1	
23	92011-002761	Evaporator	1	
24	42004-000002	Cross Fan	1	
25	42007-000001	Bearing Mount	1	
26	41101-000251	Bearing Mount Holder	1	
27	22013-000237	Remote Controller	1	Not shown in Explosion view
28	A1101-002076	Indoor Carton	1	
29	A2006-000060	Left Foaming	1	
30	A2006-000059	Right Foaming	1	

Outdoor Unit- RC-GL70HN/OUT



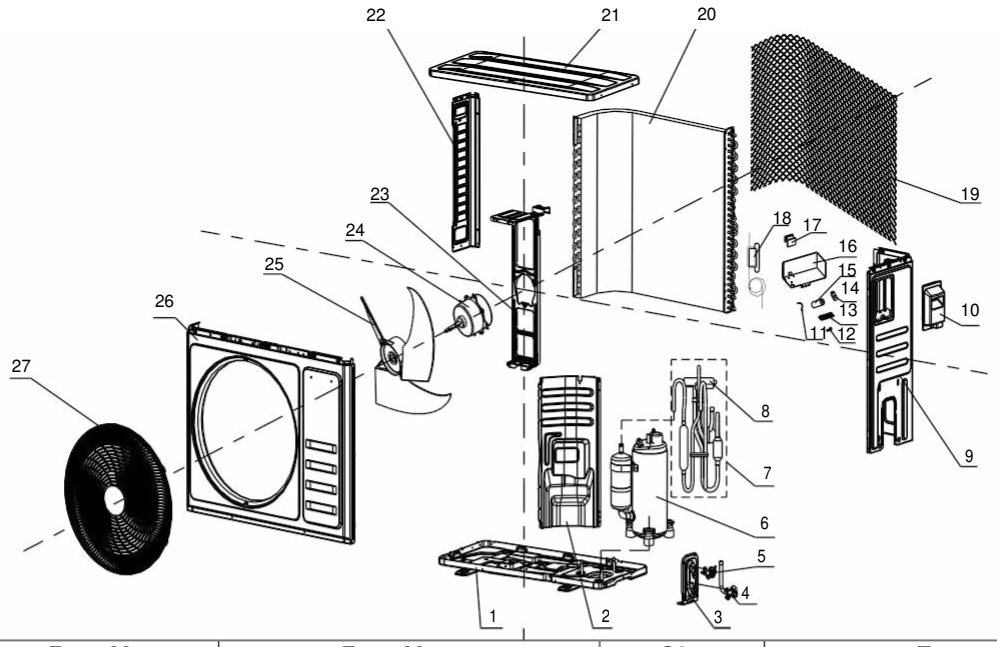
No.	Part No.	Part Name	Q'ty	Remark
1	41202-000160	Base	1	
2	41208-000120	Partition plate	1	
3	41204-000014	Valve Supporter	1	
4	92008-000116	Three-way Valve	1	
5	92008-000018	Two-way Valve	1	
6	92014-000246	Compressor	1	
7	92007-000880	4-way Valve Assembly	1	
8	92008-000180	4-way Valve	1	
9	41205-000058	Right Plate	1	
10	41201-000005	Electrical Box Cover	1	
11	41214-000342	Electrical Parts Plate	1	
12	42001-000037	Cable Clamp(φ6)	1	
13	42001-000038	Cable Clamp(φ10)	1	
14	11304-100007	Terminal	1	
15	22003-000007	Compressor Capacitor	1	
16	42001-000030	Capacitor Strip	1	
17	10303-100017	Fan Motor Capacitor	1	
18	92007-001844	Capillary Assembly	1	
19	42011-000152	Back Grille	1	Optional
20	92011-000546	Condenser	1	
21	41207-000019	Top Cover	1	
22	41205-000128	Left Grille Supporter	1	
23	41203-000040	Outdoor Motor Supporter	1	
24	22001-000019	Outdoor Motor	1	
25	42004-000086	Propeller Fan	1	
26	41206-000026	Front Plate	1	
27	42011-000069	Fan Guard	1	
28	A2005-000513	Base Carton	1	Not shown in Explosion view.
29	A1201-000340	Cabinet Carton	1	
30	A1202-000023	Base Foaming	1	
31	41213-000016	Cover Forming	1	

Indoor Unit- RC-G87HN/IN

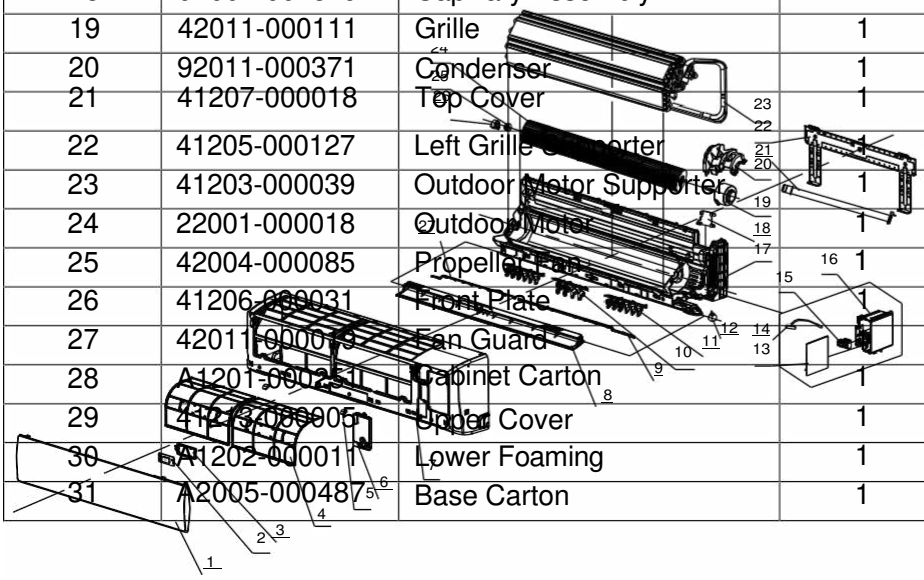


No.	Part No.	Part Name	Q'ty	Remark
1	41106-002088	Front Panel	1	
2	31102-000085	Display PCB	1	
3	42003-000001	Display PCB Box	1	
4	42008-000001	Air Filter	2	
5	41108-000066	Screw Cover	2	
6	41105-000146	Electrical Box Cover	1	
7	41106-002351	Face Frame	1	
8	41103-000178	Vane	1	
9	41507-000076	Vertical Vane Connector	1	
10	41101-000042	Vertical Vane Assembly	3	
11	22001-000321	Vane Motor	1	
12	31101-000504	Main PCB	1	
13	10104-100014	Indoor Sensor Assembly	1	
14	11304-100025	Terminal	1	
15	10502-100021	Transformer	1	
16	41105-000104	Electrical Box	1	
17	41102-000012	Base	1	
18	41101-000224	In And Out Pipe Fixer	1	
19	22001-000271	Indoor Motor	1	
20	42003-000045	Indoor Motor Cover	1	
21	42009-000011	Drainage Hose	1	
22	41109-000019	Installation Plate	1	
23	92011-002761	Evaporator	1	
24	42004-000002	Cross Fan	1	
25	42007-000001	Bearing Mount	1	
26	41101-000251	Bearing Mount Supporter	1	
27	22013-000237	Remote Controller	1	Not shown in Explosion view
28	A1101-002076	Indoor Carton	1	
29	A2006-000060	Left Foaming	1	
30	A2006-000059	Right Foaming	1	

Outdoor Unit- RC-G87HN/OUT



No.	Part No.	Part Name	Q'ty	Remark
1	41202-000019	Base	1	
2	41208-000119	Partition plate	1	
3	41204-000013	Valve Supporter	1	
4	92008-000116	Three-way Valve	1	
5	92008-000018	Two-way Valve	1	
6	92014-000017	Compressor	1	
7	92007-000796	4-way Valve Assembly	1	
8	92008-000180	4-way Valve	1	
9	41205-000057	Right Plate	1	
10	41201-000005	Electrical Box Cover	1	
11	42001-000030	Capacitor Strip	1	
12	42001-000106	Cable Clamp	1	
13	11304-100010	Terminal	1	
14	10303-100017	Fan Motor Capacitor	1	
15	22003-000006	Compressor Capacitor	1	
16	41211-000084	Electrical Parts Box	1	
17	22008-000003	AC Contactor	1	
18	92007-001879	Capillary Assembly	1	
19	42011-000111	Grille	1	Optional
20	92011-000371	Condenser	1	
21	41207-000018	Top Cover	1	
22	41205-000127	Left Grille Supporter	1	
23	41203-000039	Outdoor Motor Supporter	1	
24	22001-000018	Outdoor Motor	1	
25	42004-000085	Propeller Fan	1	
26	41206-000031	Front Plate	1	
27	42011-000019	Fan Guard	1	
28	A1201-000251	Cabinet Carton	1	Not show in explosion view
29	A1213-000005	Upper Cover	1	
30	A1202-000011	Lower Foaming	1	
31	A2005-000487	Base Carton	1	



7. Precaution

7.1 SAFETY RULES AND RECOMMENDATIONS FOR THE INSTALLATION

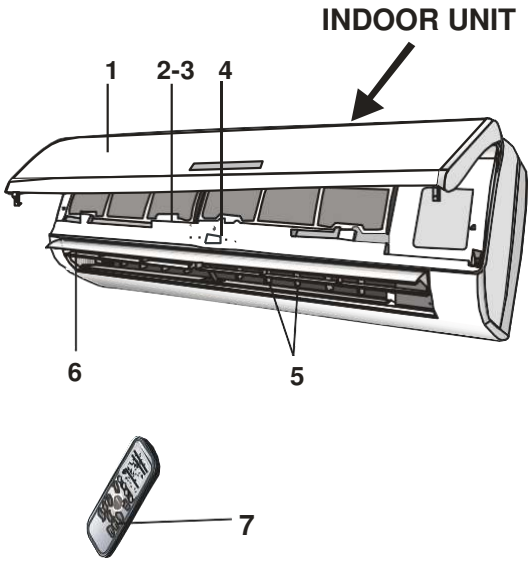
- Read this guide before installing and using the appliance.
- During the installation of the indoor and outdoor units the access to the working area should be forbidden to children.
  Unforeseeable accidents could happen.
- Make sure that the base of the outdoor unit is firmly fixed.
- Check that air cannot enter the refrigerant system and check for refrigerant leaks when moving the air conditioner.
- Check that air cannot enter the refrigerant system and check for refrigerant leaks when moving the air conditioner.
- The ratings of the fuse installed in the built in-control unit are T 5A / 250V.
- The user must protect the indoor unit with a fuse of suitable capacity for the maximum input current or with another overload protection device.
- Ensure that the mains voltage corresponds to that stamped on the rating plate. Keep the switch or power plug clean. Insert the power plug correctly and firmly into the socket, thereby avoiding the risk of electric shock or fire due to insufficient contact.
- Check that the socket is suitable for the plug, otherwise have the socket changed.
- The appliance must be fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under over voltage category III conditions, and these means must be incorporated in the fixed wiring in accordance with the wiring rules.
- The air conditioner must be installed by professional or qualified persons. Do not install the appliance at a distance of less than 50 cm from inflammable substances (alcohol, etc.) Or from pressurized containers (e.g. spray cans).
- If the appliance is used in areas without the possibility of ventilation, precautions must be taken to prevent any leaks of refrigerant gas from remaining in the environment and creating a danger of fire.
- The packaging materials are recyclable and should be disposed of in the separate waste bins .Take the air conditioner at the end of its useful life to a special waste collection center for disposal.
- Only use the air conditioner as instructed in this booklet. These instructions are not intended to cover every possible condition and situation. As with any electrical household appliance, common sense and caution are therefore always recommended for installation, operation and maintenance.
- The appliance must be installed in accordance with applicable national regulations.
- Before accessing the terminals, all the power circuits must be disconnected from the power supply.
- The appliance shall be installed in accordance with national wiring regulations.
  This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

7.2 SAFETY RULES AND RECOMMENDATIONS FOR THE USER

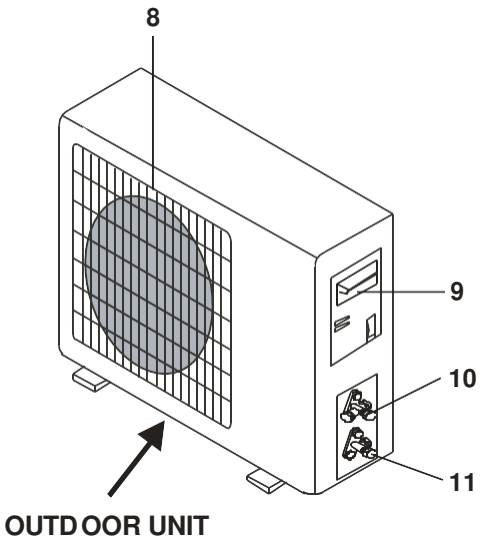
- Do not try to install the conditioner alone; always contact specialized technical personnel. Cleaning and maintenance must be carried out by specialized technical personnel. In any case disconnect the appliance from the mains electricity supply before carrying out any cleaning or maintenance.
- Ensure that the mains voltage corresponds to that stamped on the rating plate. Keep the switch or power plug clean. Insert the power plug correctly and firmly into the socket, thereby avoiding the risk of electric shock or fire due to insufficient contact.
- Do not pull out the plug to switch off the appliance when it is in operation, since this could create a spark and cause a fire, etc.
- This appliance has been made for air conditioning domestic environments and must not be used for any other purpose, such as for drying clothes, cooling food, etc.
- The packaging materials are recyclable and should be disposed of in the separate waste bins. Take the air conditioner at the end of its useful life to a special waste collection center for disposal.
- Always use the appliance with the air filter mounted. The use of the conditioner without air filter could cause an excessive accumulation of dust or waste on the inner parts of the device with possible subsequent failures.
- The user is responsible for having the appliance installed by a qualified technician, who must check that it is earthed in accordance with current legislation and insert a thermomagnetic circuit breaker.
- The batteries in remote controller must be recycled or disposed of properly. Disposal of Scrap Batteries.

  --- Please discard the batteries as sorted municipal waste at the accessible collection point.
- Never remain directly exposed to the flow of cold air for a long time. The direct and prolonged exposition to cold air could be dangerous for your health .Particular care should be taken in the rooms where there are children, old or sick people.
- If the appliance gives off smoke or there is a smell of burning, immediately cut off the power supply and contact the Service Centre.
- The prolonged use of the device in such conditions could cause fire or electrocution.
- Have repairs carried out only by an authoritative Service Centre of the manufacturer. Incorrect repair could expose the user to the risk of electric shock, etc.
- Unhook the automatic switch if you foresee not to use the device for a long time. The airflow direction must be properly adjusted.
- The flaps must be directed downwards in the heating mode and upwards in the cooling mode. Only use the air conditioner as instructed in this booklet. These instructions are not in ended to cover every possible condition and situation. As with any electrical household appliance, common sense and caution are therefore always recommended for installation, operation and maintenance.

8. Names of parts



Indoor unit	
No.	Name
1	Front panel
2	Air filter
3	Special filter(option)
4	Display PCB
5	Vertical vane
6	Horizontal vane
7	Remote controller



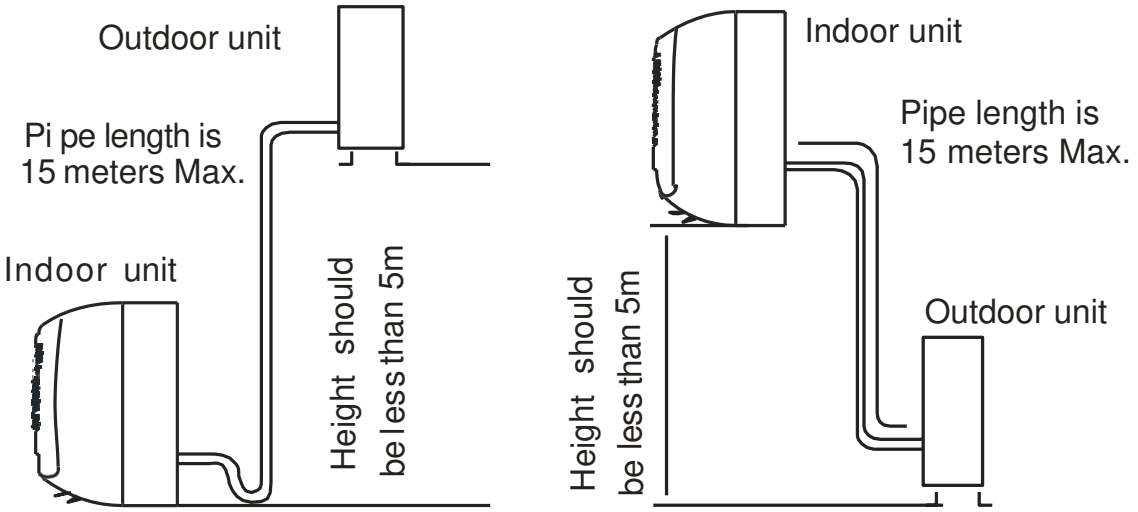
Outdoor unit	
No.	Name
8	Air outlet grille
9	Electronic box cover
10	2-way valve
11	3-way valve

9. Installation manual

9.1 Information for installation

Connecting pipe

Model	Pipe size(Inch)	
	Liquid	Gas
7K	1/4	3/8
9K	1/4	3/8
12K	1/4	3/8
18K	1/4	1/2
24K	1/4	5/8
30K	1/4	5/8



Mode	Standard length: m	Refrigerant piping Max. length: m A	Additional refrigerant Calculation: Bg=20g/m(A-5m) B
RC-GL22HN	3.0	15	20g/m
RC-GL28HN	3.0	15	20g/m
RC-GL35HN	3.5	15	20g/m
RC-GL55HN	5.0	15	30g/m
RC-GL70HN	5.0	15	30g/m
RC-G87HN	5.0	15	30g/m

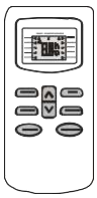
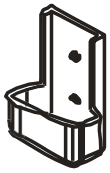
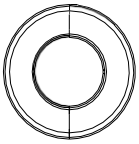
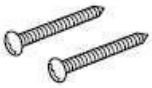
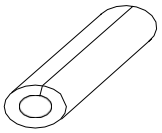
Connecting cables

The power cord should be selected according to the following specifications sheet.

Appliance Amps	Wire Size
5	AWG21/0.75 mm^2
10	AWG18/1.0 mm^2
13	AWG15 /1. 5 mm^2
18	AWG14/1.6 mm^2
25	AWG12/2.0 mm^2
30	AWG10/2.5 mm^2

9.2 Installation details

Accessory

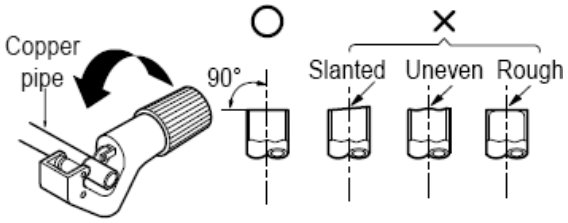
Remote controller 	Remote controller supporter 	Batteries 	Vinyl tape 
Drain hose 	Hole cover 	Screw 	Insulation material 

Flaring work

Main cause for gas leakage is due to defect in flaring work. Carry out correct flaring work in the following procedure.

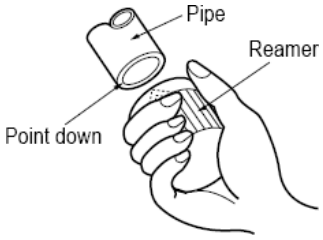
A. Cut the pipes and the cable.

1) Use the piping kit accessory or the pipes purchased locally.
2) Measure the distance between the indoor and the outdoor unit.
3) Cut the pipes a little longer than measured distance.
4) Cut the cable 1.5m longer than the pipe length.



B. Burrs removal

1) Completely remove all burrs from the cut cross section of pipe/tube.
2) Put the end of the copper tube/pipe in a down ward direction as you remove burrs in order to avoid dropping burrs into the tubing.

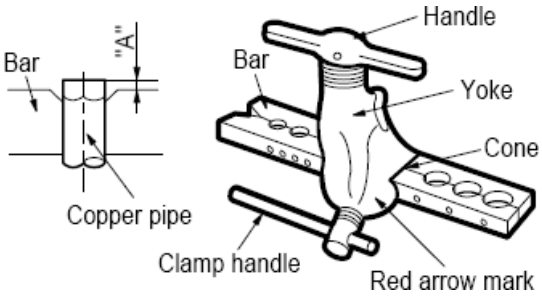


C. Flaring work

• Carry out flaring work using flaring tool as shown below.

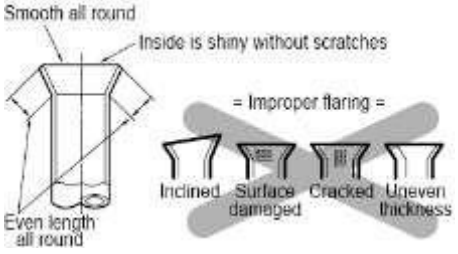
Outside diameter		A
mm	inch	mm
ø6.35	1/4	1.0~1.3
ø9.52	3/8	0.8~1.0
ø12.7	1/2	0.5~0.8
ø15.88	5/8	0.5~0.8

Firmly hold copper pipe in a die in the dimension shown in the table above.



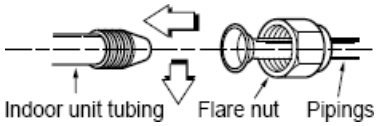
E. Check

1) Compare the flared work with figure below.
2) If flare is noted to be defective, cut off the flared section and do flaring work again.

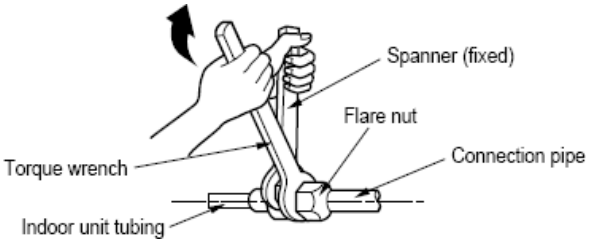


Connecting the piping to the indoor unit

- Align the center of the piping and sufficiently tighten the flare nut by hand.

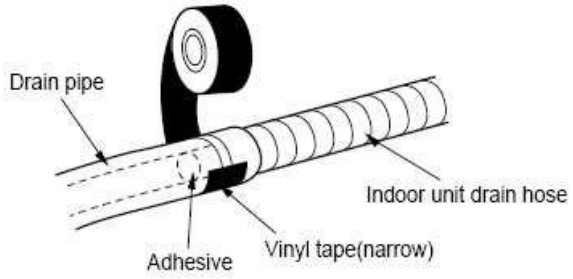


- Tighten the flare nut with a wrench.



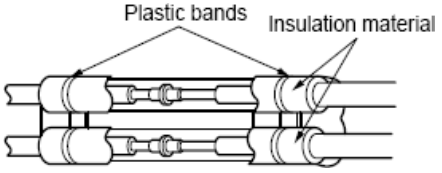
Capacity (Btu/h)	Pipe Size(Torque)	
	GAS	LIQUID
RC-GL22HN/ RC-GL28HN/ RC-GL35HN	3/8"(4.2kg. m)	1/4"(1.8kg.m)
RC-GL55HN	1/2"(5.5kg. m)	1/4"(1.8kg.m)
RC-GL70HN	5/8"(6.6kg. m)	1/4"(1.8kg.m)

- When extending the drain hose at the indoor unit, install the drain pipe.



Wrap the insulation material around the connecting portion.

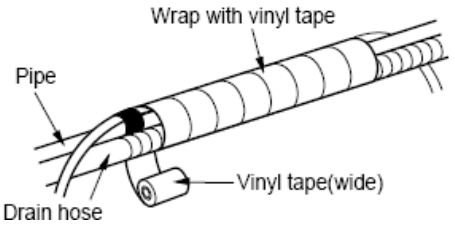
- Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap.



- Wrap the area which accommodates the rear piping housing section with vinyl tape.

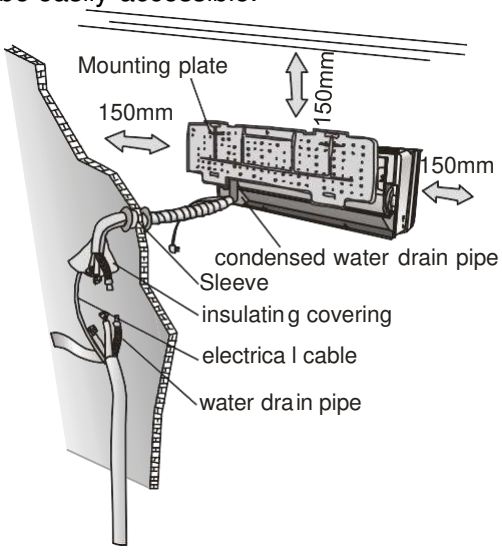
and drain hose to drain pipe.

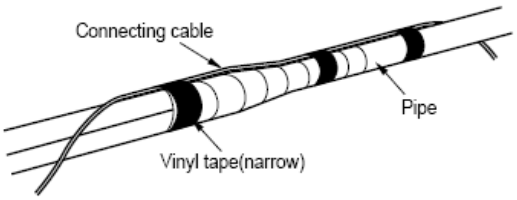
- Bundle the piping and drain hose together by wrapping them with vinyl tape over the range within which they fit into the rear piping housing section.



Indoor unit

- Install the indoor unit level on a strong wall that is not subject to vibrations
- The inlet and outlet ports should not be obstructed: the air should be able to blow all over the room.
- Do not install the unit near a source of heat, steam or flammable gas.
- Do not install the unit in too windy or dusty places.
- Do not install the unit where people often pass. Select a place where the air discharge and operating sound level will not disturb the neighbors.
- Install the unit where connection between indoor and outdoor unit is as easy as possible.
- Install the unit where it is easy to drain the condensed water.
- Check the machine operation regularly and leave the necessary spaces as shown in the picture.
- Install the indoor unit where the filter can be easily accessible.



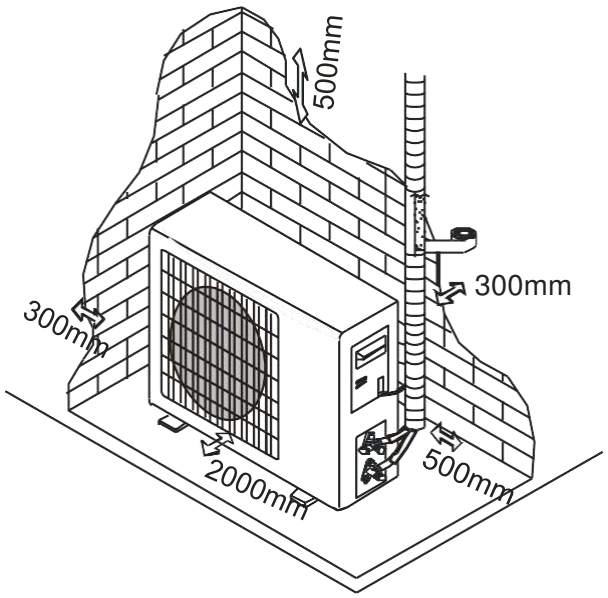

Connecting cable
Pipe
Vinyl tape(narrow)

OUTDOOR UNIT

- Do not install the outdoor unit near sources of heat, steam or flammable gas.
- Do not install the unit in too windy or dusty places.
- Do not install the unit where people often pass. Select a place where the air discharge and operating sound level will not disturb the neighbors.
- Avoid installing the unit where it will be exposed to direct sunlight (other wise use a protection, if necessary, that should not interfere with the air flow).
- Leave the spaces as shown in the picture for
- The air to circulate freely.
- Install the outdoor unit in a safe and solid place.
- If the outdoor unit is subject to vibration, place rubber gaskets onto the feet of the unit.
- Install the indoor unit in the room to be air conditioning, avoiding to installation in corridors or communal areas**.**
- Install the indoor unit at a height of at least 2.5m

from the ground.

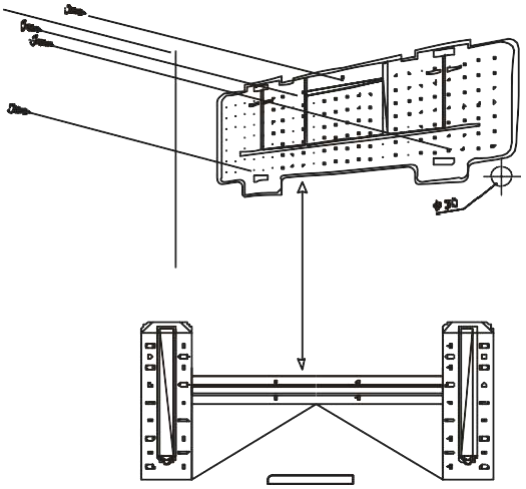
Minimum space to be left (mm) showing in the picture.



To install, proceed as follows:

9.2.1 Installation of the mounting plate.

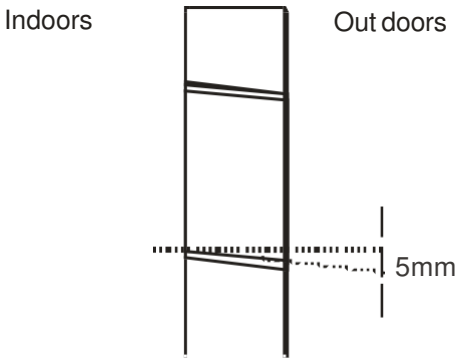
1) By using a level, put the mounting plate in a perfect square position vertically and horizontally.
2) Drill 32mm deep holes in the wall to fix the plate.
3) Insert the plastic anchors into the hole.
4) Fix the mounting plate by using the provided tapping screws.
5) Check that the mounting plate is correctly fixed.



Note: The shape of the mounting plate may be different from the one above, but installation method is similar.

9.2.2 Drilling a hole in the wall for the piping

1) Decide where to drill the hole in the wall for the piping (if necessary) according to the position of the mounting plate
2) Install a flexible flange through the hole in the wall to keep the latter intact and clean.



The hole must slope downwards towards the exterior.

Note: Keep the drain pipe down towards the direction of the wall hole, otherwise leakage may occur.

9.2.3 Electrical connections---Indoor unit

1).Lift the front panel.

2).Take off the cover as indicated in the picture (by removing a screw or by breaking the hooks).

3).For the electrical connections, see the circuit diagram on the right part of the unit under the front panel.

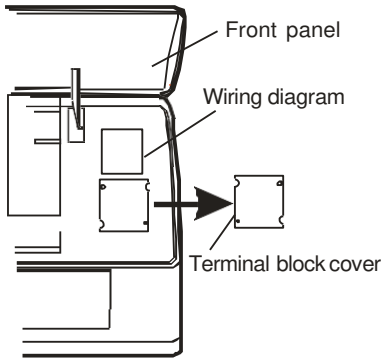
4).Connect the cable wires to the screw terminals by following the numbering, Use wire size suitable to the electric power input (see name plate on the unit) and according to all current national safety code requirements.

5).The cable connecting the outdoor and indoor units must be suitable for outdoor use.

6).The plug must be accessible also after the appliance has been installed so that it can be pulled out if necessary.

7).An efficient earth connection must be ensured.

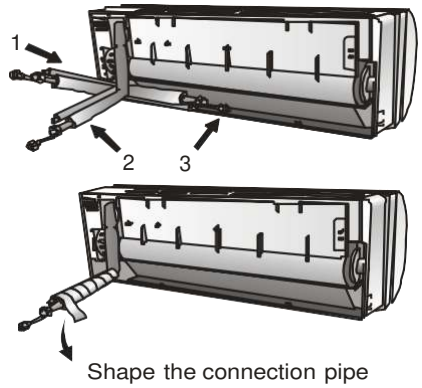
8).If the power cable is damaged, it must be replaced by an authorized Service Centre.



Refrigerant piping connection

The piping can be run in the 3 directions indicated by numbers in the picture. When the piping is run in direction 1 or 3, cut a notch along the groove on the side of the indoor unit with a cutter.

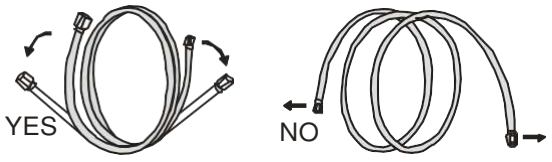
Run the piping in the direction of the wall hole and bind the copper pipes, the drain pipe and the power cables together with the tape with the drain pipe at the bottom, so that water can flow freely.



Shape the connection pipe

9.2.4 Connecting the pipes.

- Do not remove the cap from the pipe until connecting it, to avoid dampness or dirt from entering.
- If the pipe is bent or pulled too often, it will become stiff. Do not bend the pipe more than three times at one point.
- When extending the rolled pipe, straighten the pipe by unwinding it gently as shown in the picture.



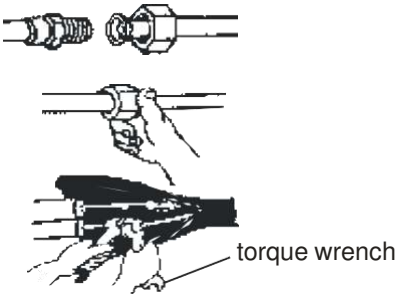
Extending the rolled pipe

9.2.5 Connections to the indoor unit

1).Remove the indoor unit pipe cap (check that there is no debris inside).

2).Insert the fare nut and create a flange at the extreme end of the connection pipe.

3).Tighten the connections by using two wrenches working in opposite directions.



9.2.5 Indoor unit condensed water drainage

The indoor unit condensed water drainage is fundamental for the success of the installation.

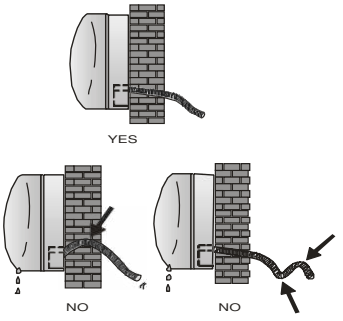
1).Place the drain hose below the piping, taking care not to create siphons.

2).The drain hose must slant downwards to aid drainage.

3).Do not bend the drain hose or leave it protruding or twisted and do not put the end of it in water. If an extension is connected to the drain hose, ensure that it is lagged when it passes into the indoor unit.

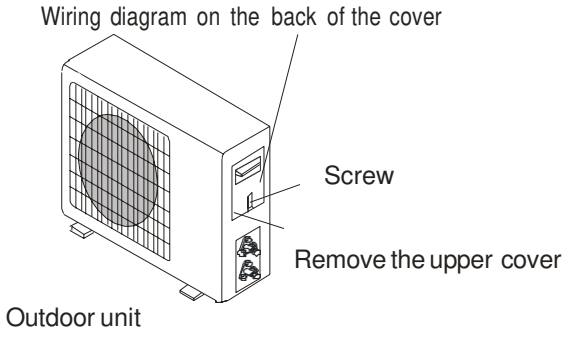
4).If the piping is installed to the right, the pipes, power cable and drain hose must be lagged and secured onto the rear of the unit with a pipe connection.

- Insert the pipe connection into the relative slot.
- Press to join the pipe connection to the base.



9.2.7 Electronic connections

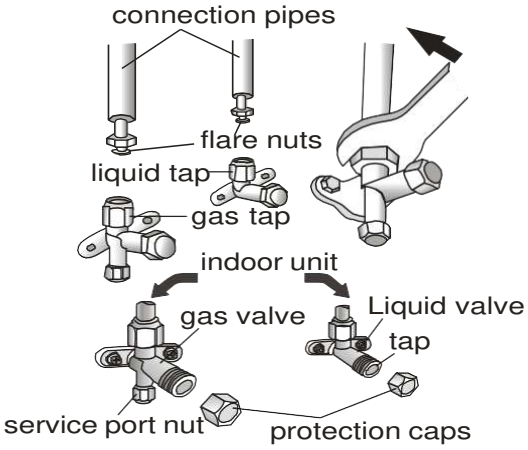
1. Take the cover away.
2. Connect the cable wires to the terminal board using the same numbering as in the indoor unit.
3. For the electrical connections, see the wiring diagram on the back of the cover
4. Fasten the cables with a cable-clamp.
5. An efficient earth connection must be ensured.
6. Replace the covers.



9.2.8 Connecting the pipe

Screw the flare nuts to the outdoor unit coupling with the same tightening procedures described for the indoor unit.

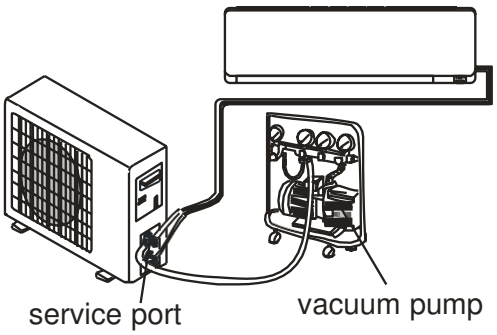
Note: If the tightening torque is not sufficient, there will probably be some leakage. With excessive tightening torque there will also be some leakage, as the flange could be damaged.



9.2.9 Bleeding

Air and humidity left inside the refrigerant circuit can cause compressor malfunction. After having connected the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit by using a vacuum pump.

The air and humidity left inside the refrigerant circulation can cause compressor malfunction. After having connected the indoor and outdoor units, bleed the air and humidity from the refrigerant circulation using a vacuum p



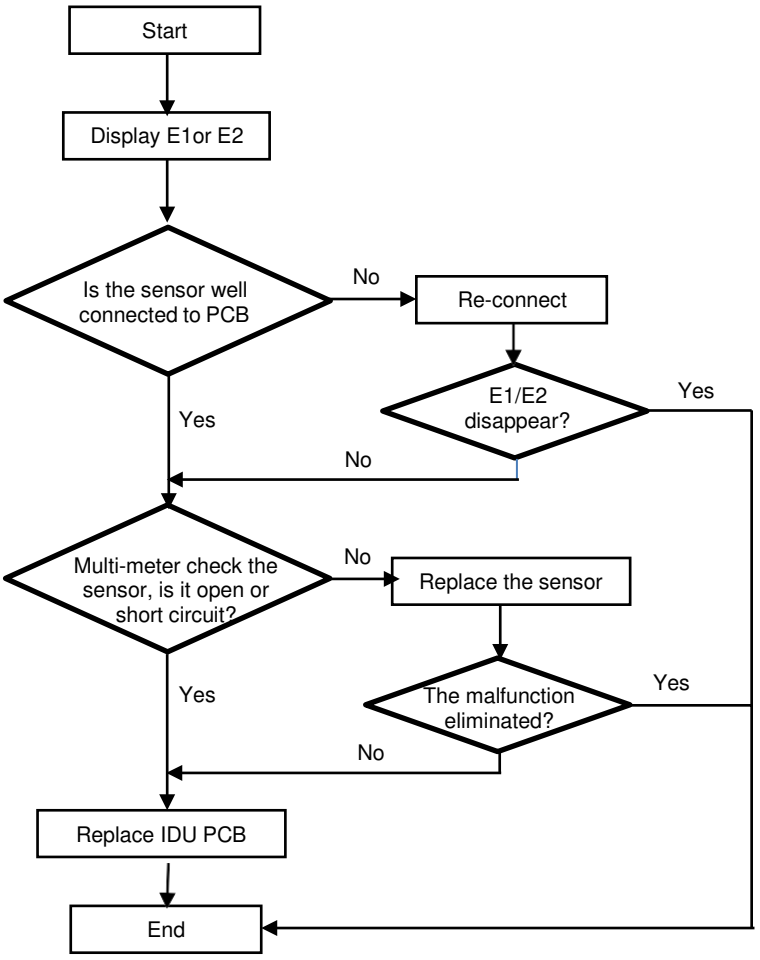
10. Maintenance

10.1 Failure code

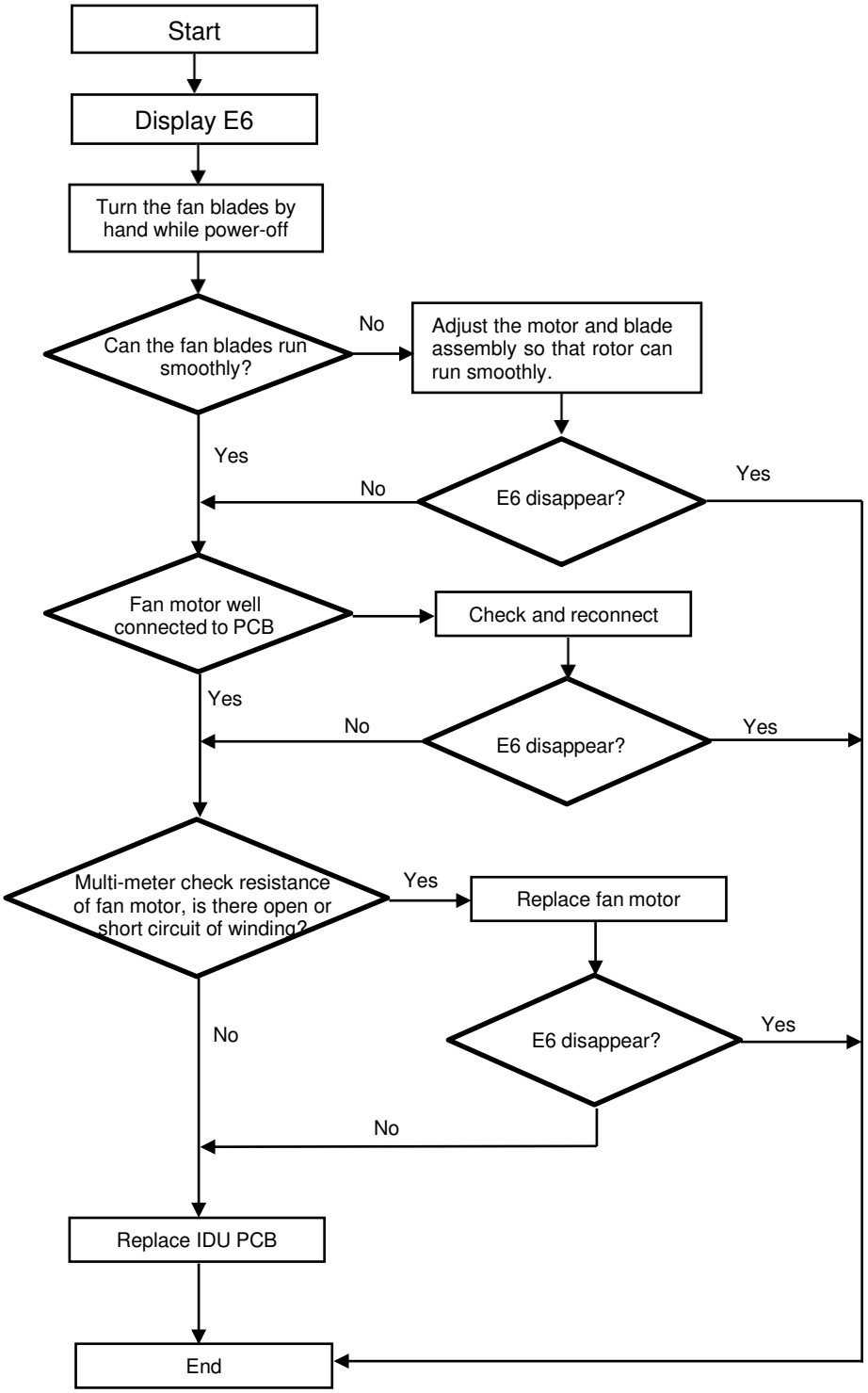
Code	Reason	Remark
E1	IDU Room Temperature sensor failure.（IDU RT failure）	IDU sensor and PCB.
E2	IDU Coil temperature sensor failure.（IDU IPT failure）	IDU sensor and PCB.
E4	Gas not enough	Please check the pressure in cooling
E5	System protection	For the high/low pressure valve model
E6	IDU PG Fan motor / DC fan motor works abnormal（IDU failure）	Fan motor, fan blade and PCB.
P7	Overheating protection on Heating mode.	Please check the troubleshooting for detail.

10.2 Trouble shooting

10.2.1 E1, E2 ---IDU Room temperature sensor and/or coil temperature sensor failure.

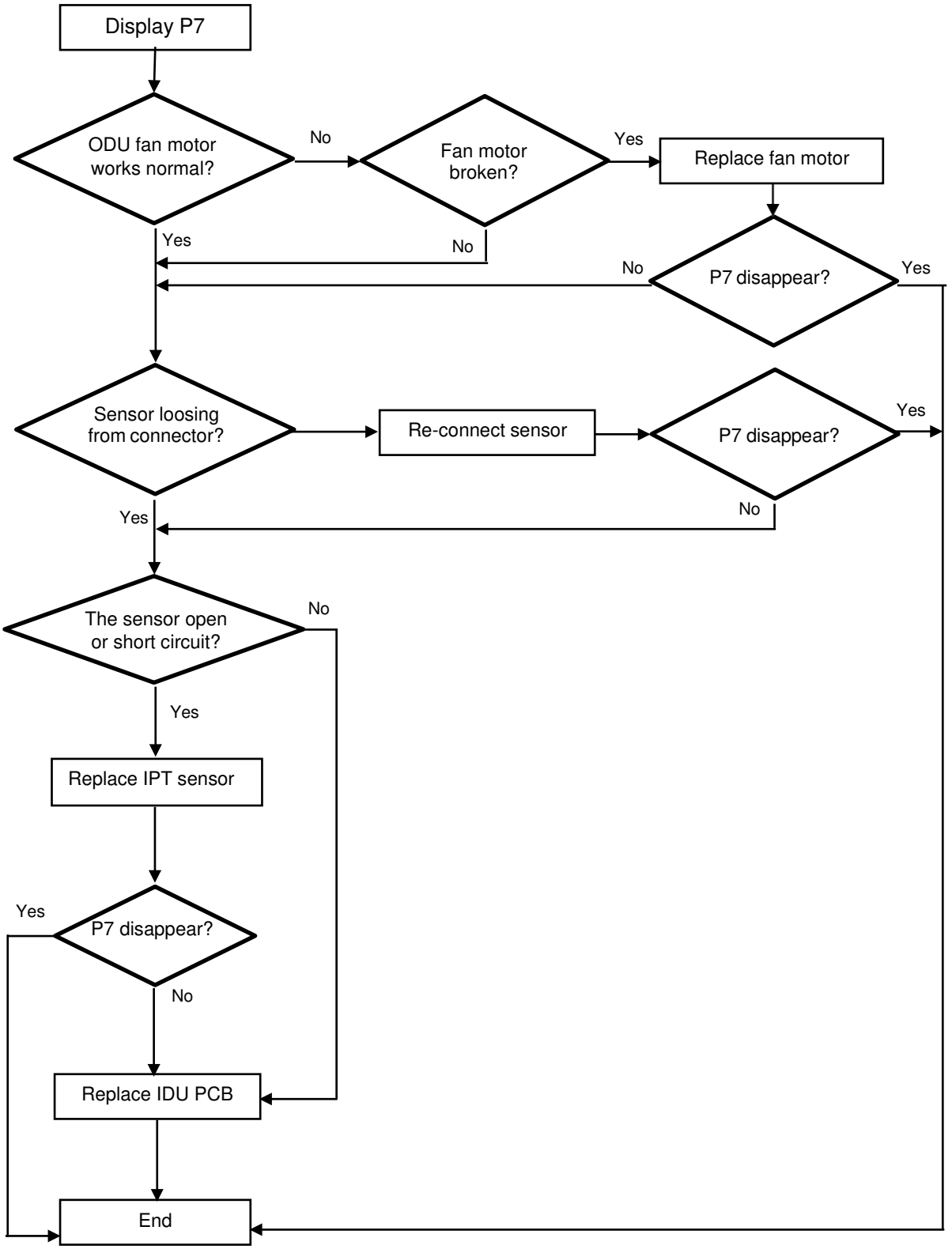


10.2.2 E6 -- IDU ventilation failure (PG and DC fan motor only)

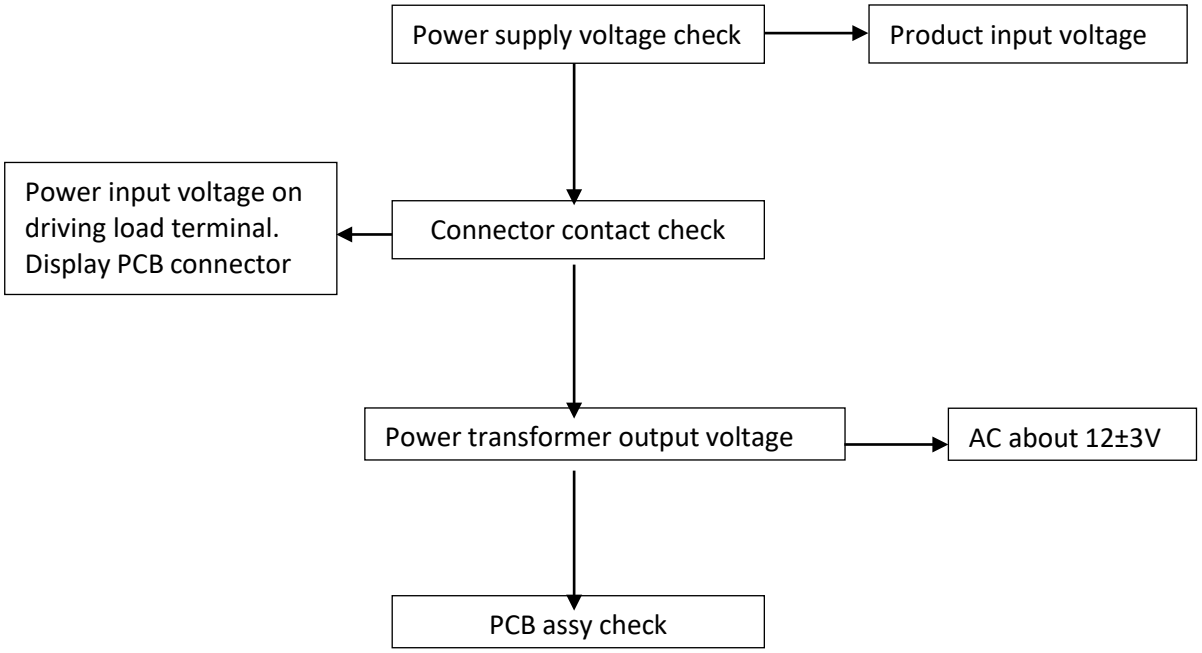


10.2.3 P7---Overheating protection on Cooling mode

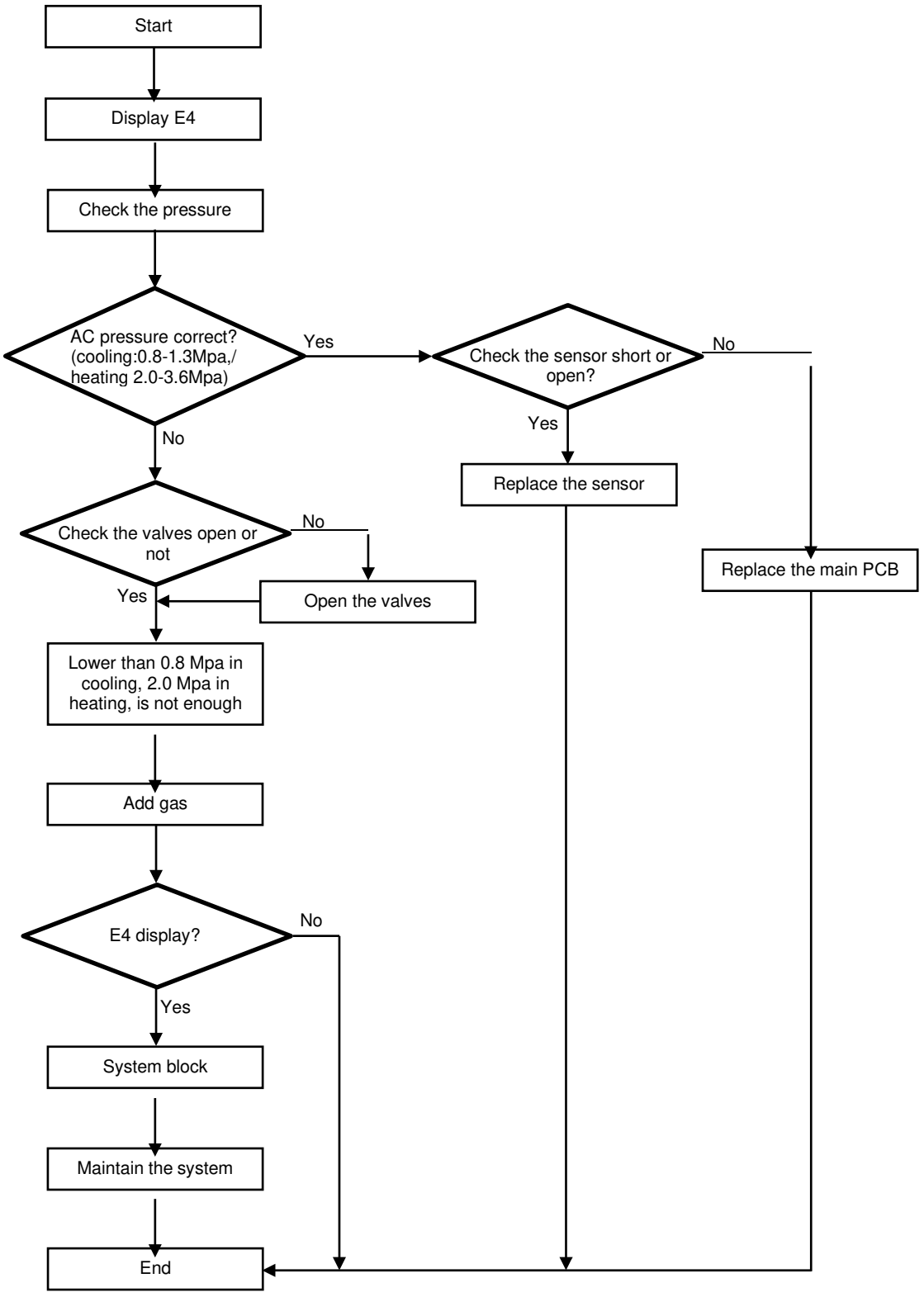
On heating mode, when IDU evaporator coil temperature IPT≥62℃, ODU PCB will switch off outdoor unit and show P7 failure code.



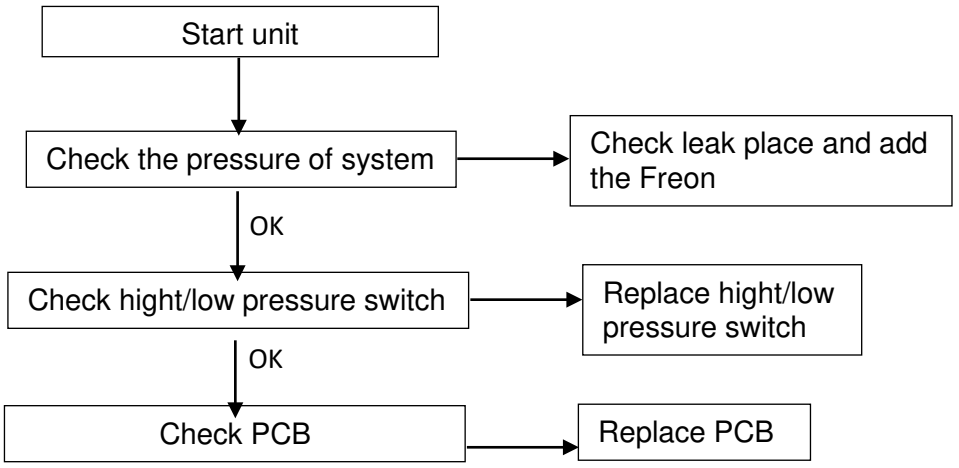
10.2.4 Product does not operate at all.



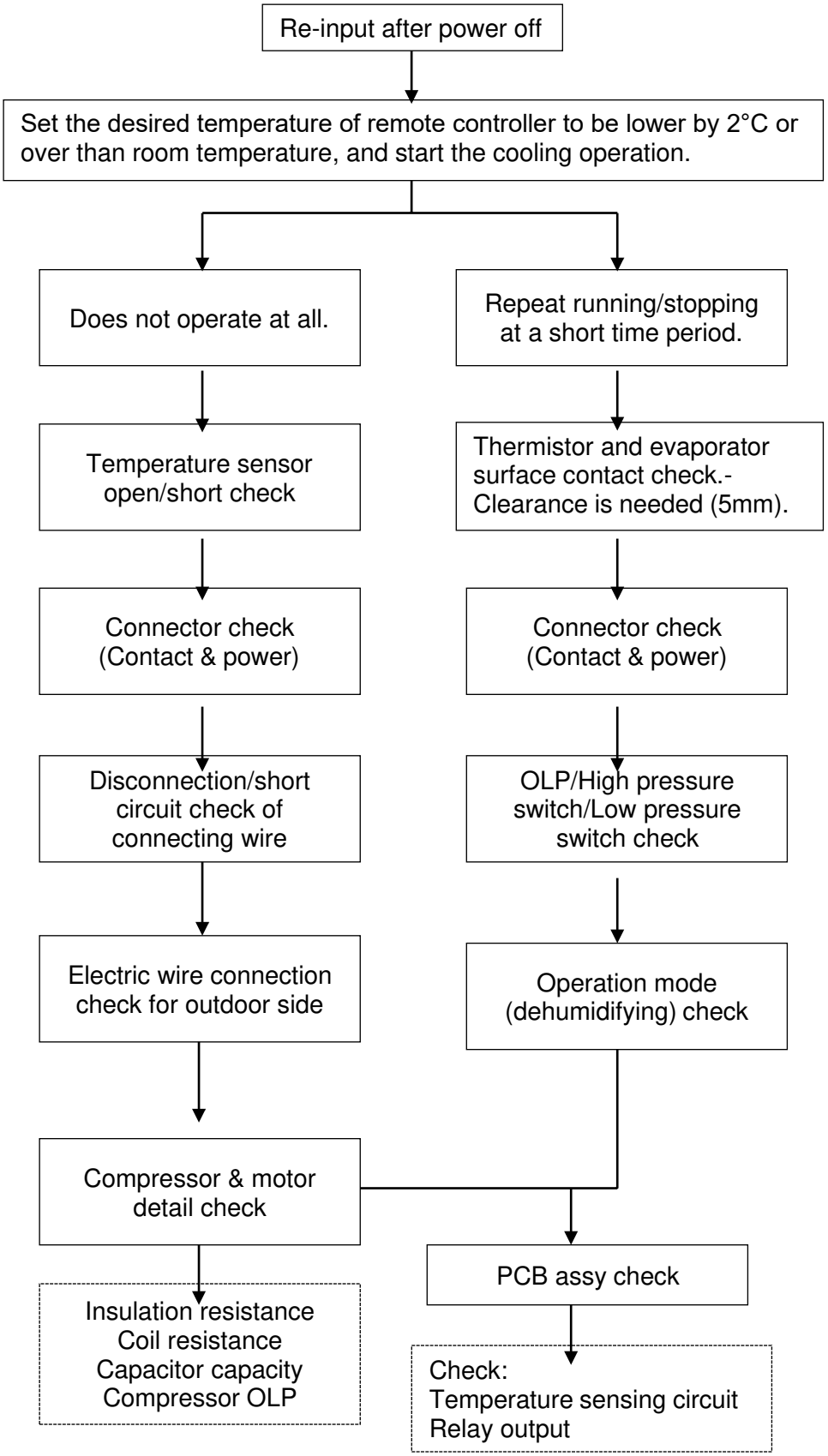
10.2.5 E4 --- AC Cooling system abnormal (Gas not enough)



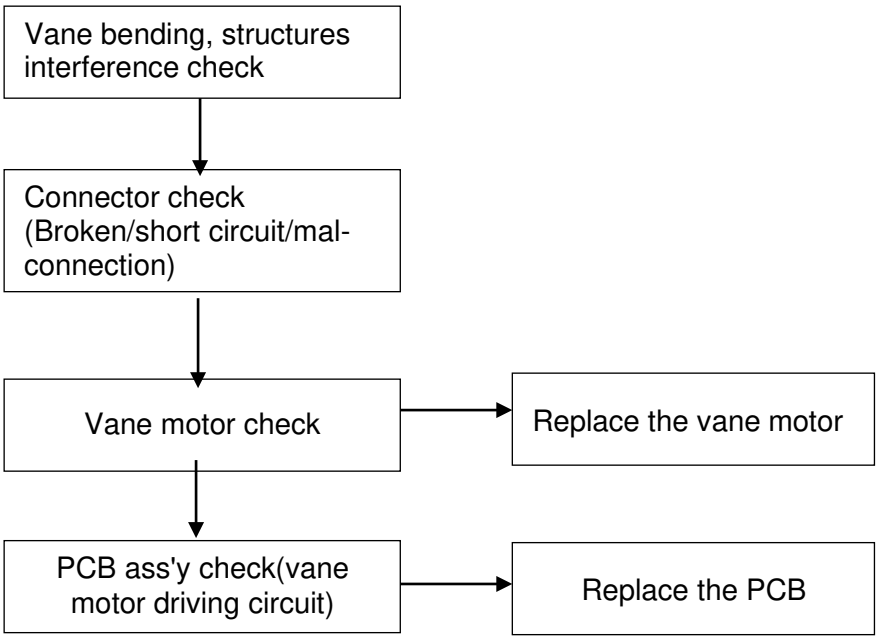
10.2.6 System protection (E5) (High/low pressure protection model)



10.2.7 Compressor or outdoor fan does not operate at all.



10.2.8 Vane does not operate at all.



10.2.9 Cooling/heating conversion is disable.

