Westinghouse

REFRIGERANT **R410A**

INVERTER

AIR CONDITIONER

Duct type

SERVICE MANUAL

INDOOR

WHU09DHA21S
WHU12DHA21S

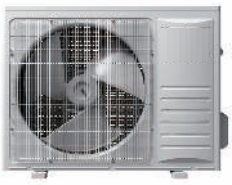
WHU18DHA21S

WHU24DHA21S

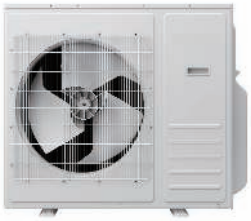
WHU36DHA21S

OUTDOOR

WHU09SZA21S
WHU12SZA21S



WHU18SZA21S



WHU24SZA21S

WHU36SZA21S

2021.12.24

Notices:
- Product specifications and design are subject to change without notice for future improvement.
- For further details, please check with our authorized dealer.

SAFETY SUMMARY

IMPORTANT NOTICE

- We pursue a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- We cannot anticipate every possible circumstance that might involve a potential hazard.
- This air conditioner is designed for standard air conditioning only. Do not use this air conditioner for other purposes such as drying clothes, refrigerating foods or for any other cooling or heating process. Do not let the air-out face animals or plants, it might have an adverse effect on them.
- The installer and system specialist shall secure safety against leakage according to local regulations or standards.
- Signal words (DANGER, WARNING and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

⚠DANGER : Immediate hazards which WILL result in severe personal injury or death.

⚠WARNING : Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠CAUTION : Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

NOTE : Useful information for operation and/or maintenance.

- Installation should be performed by the dealer or other professional personnel. Improper installation may cause water leakage, electrical shock, or fire.

⚠DANGER

- Do not perform installation work, refrigerant piping work, drain piping and electrical wiring connection without referring to our installation manual. If the instructions are not followed, it may result in water leakage, electric shock or fire.
- Use refrigerant R410A in the refrigerant cycle.
- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not open the service cover or access panel for the indoor or outdoor units without turning OFF the main power supply.
- Do not touch or adjust safety devices inside the indoor or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Refrigerant leakage can cause difficulty in breathing due to insufficient air. Turn OFF the main switch, extinguish any naked flames and contact your service contractor, if refrigerant leakage occurs.
- Do perform air-tight test. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that nitrogen be used for this test.
- The installer and system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
- Use an ELB (Electric Leakage Breaker). In the event of a fault, there is danger of an electric shock or a fire if it is not used.

⚠WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If circuit breaker or fuse is often activated, stop the system and contact your service contractor.
- Check that the ground wire is securely connected. If the unit is not correctly grounded, it will lead to electric shock. Do not connect the ground wiring to gas piping, water piping, lightning conductor or ground wiring for telephone.
- Before performing any brazing work, check to ensure that there is no flammable material around when using refrigerant. Be sure to wear leather gloves to prevent cold injuries.
- Protect the wires, electrical parts, etc. from rats or other small animals.
  If not protected, rats may gnaw at unprotected parts, which may lead to fire.
- Fix the cables securely. External forces on the terminals could lead to a fire.
- Install the air conditioner on a solid base that can support the unit weight. An inadequate base or incomplete installation may cause injury in the event the unit falls off the base. Incomplete connections or clamping may cause terminal overheating or fire.
- Make sure that the outdoor unit is not covered with snow or ice, before operation.

⚠CAUTION

- Do not step or put any material on the product.
- Do not put any foreign material on the unit or inside the unit.

NOTE

- It is recommended that the room be ventilated every 3 to 4 hours.
- The air conditioner may not work properly under the following circumstances.
  The power transformer provides the same power with the air conditioner. The electrical equipment is too close to the power supply of the air conditioner. With the sharp change of power consumption and switching action, the power supply of the air conditioner will generate a large induction surge voltage.

CHECKING PRODUCT RECEIVED

- Upon receiving this product, inspect it for any shipping damage. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.
  The standard utilization of the unit shall be explained in these instructions.
  Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.
  Please contact your local agent, as the occasion arises.

Specifications

Type					Duct			
					Inverter heat pump			
Model name					**WHU09DHA21S**	**WHU12DHA21S**	**WHU18DHA21S**	**WHU24DHA21S**
Power supply					208/230 V ~ 60 Hz			
Power supply intake					Outdoor unit			
Available voltage range					198—253 V			176—253 V
Capacity		Cooling	Rated	kW	2.64	3.52	5.28	7.03
				Btu/h	9,000	12,000	18,000	24,000
			Min.—Max.	kW	1.42—3.40	1.70—3.84	1.23—6.16	2.49—7.91
				Btu/h	4,850—11,600	5,800—13,100	4,200—21,000	8,500—27,000
		Heating	Rated	kW	3.22	3.52	5.28	8.21
				Btu/h	11,000	12,000	18,000	28,000
			Min.—Max.	kW	1.27—3.60	1.29—4.22	1.64—7.03	2.23—8.32
				Btu/h	4,500—10,000	4,400—14,400	5,600—24,000	7,600—28,400
Input power		Cooling	Rated	kW	0.750	1.091	1.670	2.290
			Min.—Max.		0.390—0.994	0.375—1.280	0.278—1.980	0.730—2.170
		Heating	Rated		0.908	1.091	1.600	2.275
			Min.—Max.		0.229—1.043	0.457—1.611	0.381—2.320	0.749—2.304
Current		Cooling	Rated	A	3.7	4.8	7.6	10.3
		Heating			3.9	4.8	7.3	8.7
EER		Cooling		W/W	3.52	3.22	3.16	3.07
				Btu/hW	12.00	11.00	10.78	10.48
COP		Heating		W/W	3.55	3.22	3.30	3.61
				Btu/hW	12.11	11.00	11.25	12.31
SEER		Cooling		Btu/hW	20.0	19.5	19.5	18.0
HSPF		Heating		Btu/hW	10.0	10.0	10.0	11.0
Power factor		Cooling		%	99			
		Heating			99			
Moisture removal				pints/h (L/h)	1.7 (0.8)	2.3 (1.1)	3.2 (1.5)	4.0 (1.9)
Maximum operating current*1		Cooling		A	15.0	20.0		35.0
		Heating			15.0	20.0		35.0
Fan	Airflow rate	Cooling	HIGH	CFM (m^3/h)	309 (520)	324 (550)	529 (900)	706 (1,200)
			MED		259 (435)	285 (484)	441 (750)	588 (1,000)
			LOW		208 (350)	235 (400)	371 (630)	500 (850)
		Heating	HIGH		309 (520)	324 (550)	529 (900)	706 (1,200)
			MED		259 (435)	285 (484)	441 (750)	588 (1,000)
			LOW		208 (350)	235 (400)	371 (630)	500 (850)
	Type × Q'ty				Sirocco × 2		Sirocco × 3	Sirocco × 2
	Motor output			W	40		60	95
Static pressure range				inWG (Pa)	0 to 0.2 (0 to 50)			0.1 to 0.4 (25 to 100)
Sound pressure level*2		Cooling	HIGH	dB (A)	35	36	38	42
			MED		33	34	37	38
			LOW		32	33	36	36
		Heating	HIGH		35	36	38	42
			MED		33	34	37	38
			LOW		32	33	36	36
Heat exchanger type		Dimensions (H × W × D)		in (mm)	8-1/4 × 28-13/16 × 1-5/8 (210 × 732 × 40.8)		8-1/4 × 39-7/16 × 1-5/8 (210 × 1,002 × 40.8)	11-9/16 × 27-9/16 × 1-5/8 (294 × 700 × 40.8)
		Fin pitch		FPI	16			
		Rows × Stages			3 × 10			3 × 14
		Pipe type			Copper			
		Fin type			Aluminum			
Dimensions (H × W × D)		Net		in (mm)	7-1/2 × 35-7/8 × 17-5/8 (190 × 910 × 447)		7-1/2 × 46-1/2 × 17-5/8 (190 × 1,180 × 447)	10-5/8 × 35-3/8 × 28-3/8 (270 × 900 × 720)
		Gross			11-1/4 × 42-1/2 × 22-1/4 (285 × 1,080 × 565)		11-1/4 × 53-1/8 × 22-1/4 (285 × 1,350 × 565)	13-3/8 × 46-1/8 × 34-1/4 (340 × 1,170 × 870)
Weight		Net		lb (kg)	39.7 (18)		49.6 (22.5)	66.1 (30)
		Gross			46.3 (21)		57.3 (26)	77.2 (35)
Connection pipe		Size	Liquid	in (mm)	Ø1/4 (Ø6.35)		Ø1/4 (Ø6.35)	Ø1/4 (Ø6.35)
			Gas		Ø3/8 (Ø9.52)		Ø1/2 (Ø12.70)	Ø5/8 (Ø15.88)
		Method			Flare			
Drain hose		Material			PVC			
		Tip diameter		in (mm)	Ø1-1/8 (Ø27.8) (I.D.), Ø1-1/4 (Ø32.3) (O.D.)			
Operation range		Cooling		°F (°C)	61 to 86 (16 to 30)			
				%RH	80 or less			
		Heating		°F (°C)	61 to 86 (16 to 30)			
Remote controller type					Wired (IR receiver unit [option])			
IR receiver unit (Option)		Model name			WH-AIRDH1			

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB (26.67 °CDB)/67 °FWB (19.44 °CWB), and outdoor temperature of 95 °FDB (35 °CDB)/75 °FWB (23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB (21.11 °CDB)/59 °FWB (15.56 °CWB), and outdoor temperature of 47 °FDB (8.33 °CDB)/43 °FWB (6.11 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Maximum current is maximum value when operated within the operation range.
- *2: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Type					Duct
					Inverter heat pump
Model name					**WHU36DHA21S**
Power supply					208/230 V ~ 60 Hz
Power supply intake					Outdoor unit
Available voltage range					176—253 V
Capacity		Cooling	Rated	kW	10.55
				Btu/h	36,000
			Min.—Max.	kW	3.66—10.93
				Btu/h	12,500—37,300
		Heating	Rated	kW	10.55
				Btu/h	36,000
			Min.—Max.	kW	4.40—11.67
				Btu/h	15,000—39,800
Input power		Cooling	Rated	kW	3.300
			Min.—Max.		1.122—3.981
		Heating	Rated		3.500
			Min.—Max.		1.230—3.960
Current		Cooling	Rated	A	14.4
		Heating			15.2
EER		Cooling		W/W	3.20
				Btu/hW	10.91
COP		Heating		W/W	3.01
				Btu/hW	10.29
SEER		Cooling		Btu/hW	18.0
HSPF		Heating		Btu/hW	9.5
Power factor		Cooling		%	99
		Heating			99
Moisture removal				pints/h (L/h)	5.3 (2.5)
Maximum operating current*1		Cooling		A	45.0
		Heating			25.0
Fan	Airflow rate	Cooling	HIGH	CFM (m^3/h)	883 (1,500)
			MED		735 (1,250)
			LOW		617 (1,050)
		Heating	HIGH		883 (1,500)
			MED		735 (1,250)
			LOW		617 (1,050)
	Type × Q'ty				Sirocco × 2
	Motor output			W	250
Static pressure range				inWG (Pa)	0.1 to 0.56 (25 to 140)
Sound pressure level*2		Cooling	HIGH	dB (A)	43
			MED		40
			LOW		38
		Heating	HIGH		43
			MED		40
			LOW		38
Heat exchanger type		Dimensions (H × W × D)		in (mm)	14-7/8 × 43-5/16 × 1-5/8 (378 × 1,100 × 40.8)
		Fin pitch		FPI	18
		Rows × Stages			3 × 18
		Pipe type			Copper
		Fin type			Aluminum
Dimensions (H × W × D)		Net		in (mm)	13-3/4 × 51-1/8 × 31-1/2 (350 × 1,300 × 800)
		Gross			16-1/8 × 61 × 37 (410 × 1,550 × 940)
Weight		Net		lb (kg)	112.4 (51)
		Gross			132.3 (60)
Connection pipe		Size	Liquid	in (mm)	Ø3/8 (Ø9.52)
			Gas		Ø3/4 (Ø19.05)
		Method			Flare
Drain hose		Material			PVC
		Tip diameter		in (mm)	Ø1-1/8 (Ø27.8) (I.D.), Ø1-1/4 (Ø32.3) (O.D.)
Operation range		Cooling		°F (°C)	61 to 86 (16 to 30)
				%RH	80 or less
		Heating		°F (°C)	61 to 86 (16 to 30)
Remote controller type					Wired (IR receiver unit [option])
IR receiver unit (Option)		Model name			WH-AIRDH1

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB (26.67 °CDB)/67 °FWB (19.44 °CWB), and outdoor temperature of 95 °FDB (35 °CDB)/75 °FWB (23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB (21.11 °CDB)/59 °FWB (15.56 °CWB), and outdoor temperature of 47 °FDB (8.33 °CDB)/43 °FWB (6.11 °CWB).
  - Pipe length: 25 ft (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Maximum current is maximum value when operated within the operation range.
- *2: Sound pressure level:
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Type				Inverter heat pump			
Model name				**WHU09SZA21S**	**WHU12SZA21S**	**WHU18SZA21S**	**WHU24SZA21S**
Power supply				208/230 V ~ 60 Hz			
Available voltage range				198—253 V			176—253 V
Fan	Airflow rate		CFM (m^3/h)	1,355 (2,300)		1,853 (3,150)	2,235 (3,800)
	Type × Q'ty			Propeller fan × 1			
	Motor output		W	30		60	121
Sound pressure level *1			dB (A)	52		55	
Heat exchanger type		Dimensions (H × W × D)	in (mm)	21-1/2 × 33-1/16 × 1-7/16 (546 × 840 × 36.4)	21-1/2 × 33-1/16 × 1-11/16 (546 × 840 × 43.3)	24-13/16 × 35-7/16 × 1-11/16 (630 × 900 × 43.3)	31-7/16 × 38-3/16 × 1-11/16 (798 × 970 × 43.3)
		Fin pitch	FPI	17		18	20
		Rows × Stages		2 × 26		2 × 30	2 × 38
		Pipe type		Copper			
		Fin type	Type (Material)	Aluminum			
			Surface treatment	Blue fin			
Compressor	Type			Rotary			
Refrigerant		Type		R410A			
		Charge	lb oz	2 lb 2 oz	2 lb 14 oz	3 lb 8 oz	5 lb 12 oz
			g	950	1,300	1,600	2,600
Refrigerant oil		Type		VG74			VG74 (POE)
Enclosure		Material		Steel sheet			
		Color		White			
Dimensions (H × W × D)	Net		in (mm)	22-7/8 × 31-7/8 × 11 (580 × 810 × 280)		26-3/8 × 33-7/8 × 12-1/4 (670 × 860 × 310)	33-1/8 × 37-3/8 × 13-3/8 (840× 950 × 340)
	Gross			25-1/4 × 37 × 16-1/2 (640 × 940 × 420)		28-3/4× 39 × 17-3/4 (730 × 990 × 450)	36-1/4 × 43-3/4 × 18-1/8 (920 × 1,110 × 460)
Weight	Net		lb (kg)	75 (34)	79 (36)	106 (48)	155 (71)
	Gross			84 (38)	88 (40)	115 (52)	166 (76)
Connection pipe	Size	Liquid	in (mm)	Ø1/4 (Ø6.35)		Ø1/4 (Ø6.35)	Ø3/8 (Ø9.52)
		Gas		Ø3/8 (Ø9.52)		Ø1/2 (Ø12.7)	Ø5/8 (Ø15.88)
	Method			Flare			
	Pre-charge length		ft (m)	24.6 (7.5)			
	Max. length			82 (25)		98 (30)	164 (50)
	Max. height difference			Indoor unit higher than outdoor unit: 33 (10) Outdoor unit higher than indoor unit: 33 (10)	Indoor unit higher than outdoor unit: 49 (15) Outdoor unit higher than indoor unit: 49 (15)		Indoor unit higher than outdoor unit: 98 (30) Outdoor unit higher than indoor unit: 98 (30)
Operation range		Cooling	°F (°C)	5 to 118 (-15 to 48)			
		Heating		-4 to 75 (-20 to 24)			

NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB (26.67 °CDB)/67 °FWB (19.44 °CWB), and outdoor temperature of 95 °FDB (35 °CDB)/75 °FWB (23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB (21.11 °CDB)/59 °FWB (15 °CWB), and outdoor temperature of 47 °FDB (8.33 °CDB)/43 °FWB (6.11 °CWB).
  - Pipe length: 24 ft 6 in (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Type				Inverter heat pump
Model name				**WHU36SZA21S**
Power supply				208/230 V ~ 60 Hz
Available voltage range				176—253 V
Fan	Airflow rate		CFM (m^3/h)	3,416 (5,800)
	Type × Q'ty			Propeller fan × 1
	Motor output		W	138
Sound pressure level *1			dB (A)	61
Heat exchanger type		Dimensions (H × W × D)	in (mm)	37-15/16 × 39-11/16 × 1-11/16 (964 × 1,008 × 43.3)
		Fin pitch	FPI	16
		Rows × Stages		2 × 38
		Pipe type		Copper
		Fin type	Type (Material)	Aluminum
			Surface treatment	Blue fin
Compressor	Type			Rotary
Refrigerant		Type		R410A
		Charge	lb oz	6 lb 15 oz
			g	3,150
Refrigerant oil		Type		VG74 (POE)
Enclosure		Material		Steel sheet
		Color		White
Dimensions (H × W × D)	Net		in (mm)	41-3/8 × 37-3/8 × 13-3/8 (1,050 × 950 × 340)
	Gross			47-1/4 × 43-3/4 × 18-1/8 (1,200 × 1,110 × 460)
Weight	Net		lb (kg)	192 (87)
	Gross			215 (97)
Connection pipe	Size	Liquid	in (mm)	Ø3/8 (Ø9.52)
		Gas		Ø3/4 (Ø19.05)
	Method			Flare
	Pre-charge length		ft (m)	24.6 (7.5)
	Max. length			164 (50)
	Max. height difference			Indoor unit higher than outdoor unit: 98 (30) Outdoor unit higher than indoor unit: 98 (30)
Operation range		Cooling	°F (°C)	5 to 118 (-15 to 48)
		Heating		-4 to 75 (-20 to 24)

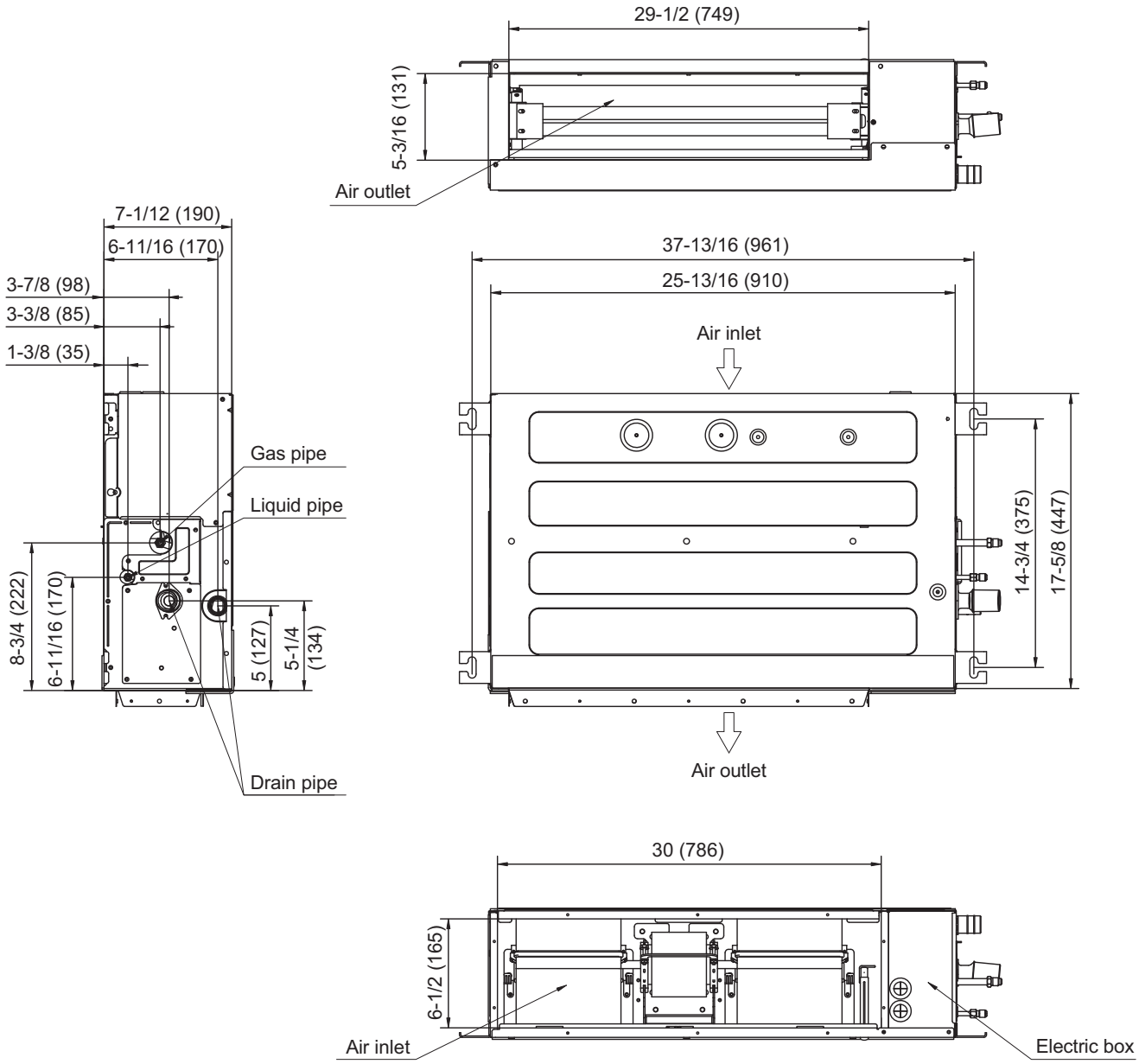
NOTES:

- Specifications are based on the following conditions:
  - Cooling: Indoor temperature of 80 °FDB (26.67 °CDB)/67 °FWB (19.44 °CWB), and outdoor temperature of 95 °FDB (35 °CDB)/75 °FWB (23.9 °CWB).
  - Heating: Indoor temperature of 70 °FDB (21.11 °CDB)/59 °FWB (15 °CWB), and outdoor temperature of 47 °FDB (8.33 °CDB)/43 °FWB (6.11 °CWB).
  - Pipe length: 24 ft 6 in (7.5 m), Height difference: 0 ft (0 m). (Between outdoor unit and indoor unit.)
- Protective function might work when using it outside the operation range.
- *1: Sound pressure level
  - Measured values in manufacturer's anechoic chamber.
  - Because of the surrounding sound environment, the sound levels measured in actual installation conditions might be higher than the specified values here.

Dimensions

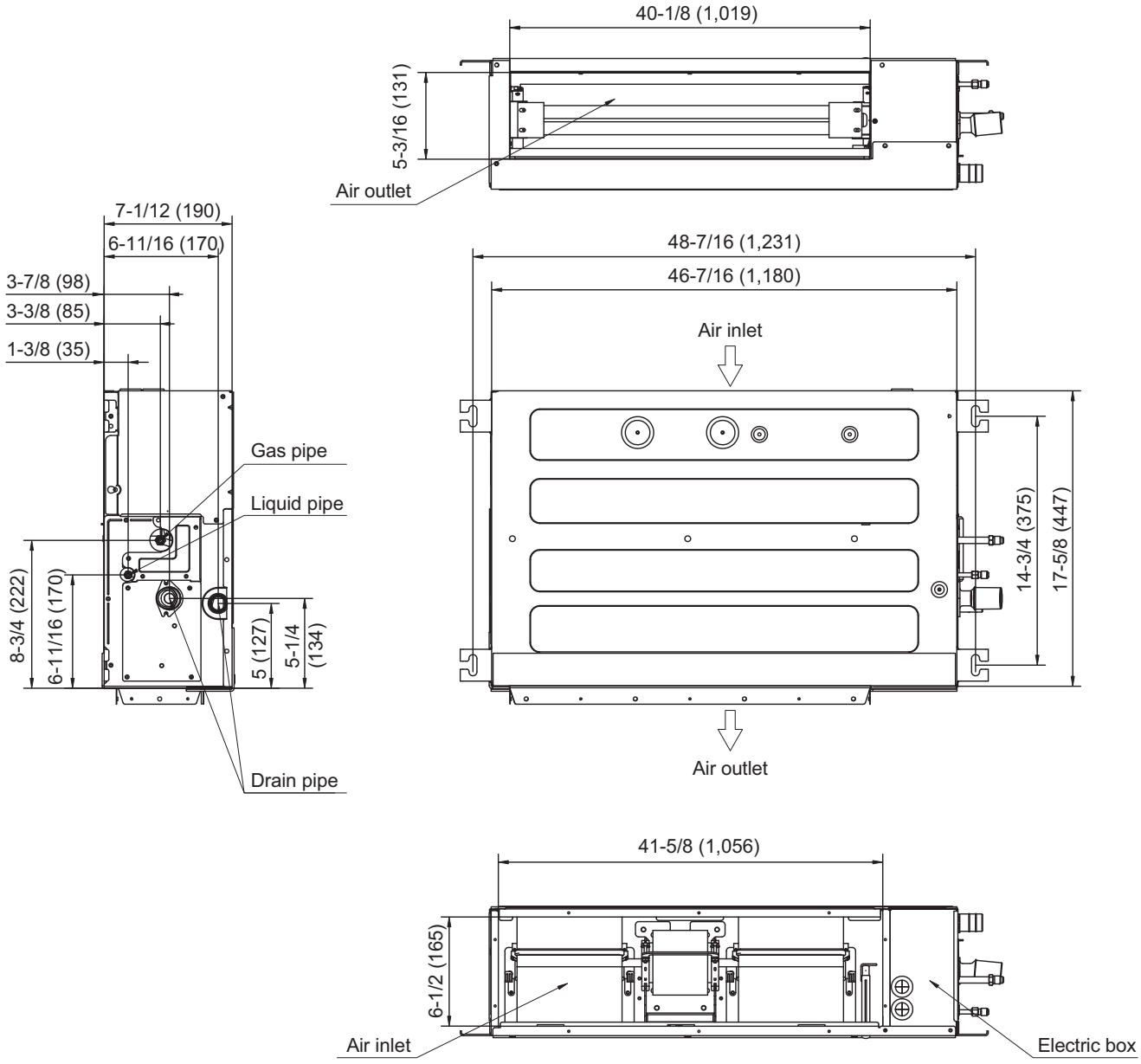
Models: WHU09DHA21S and WHU12DHA21S

Unit: in (mm)



Model: WHU18DHA21S

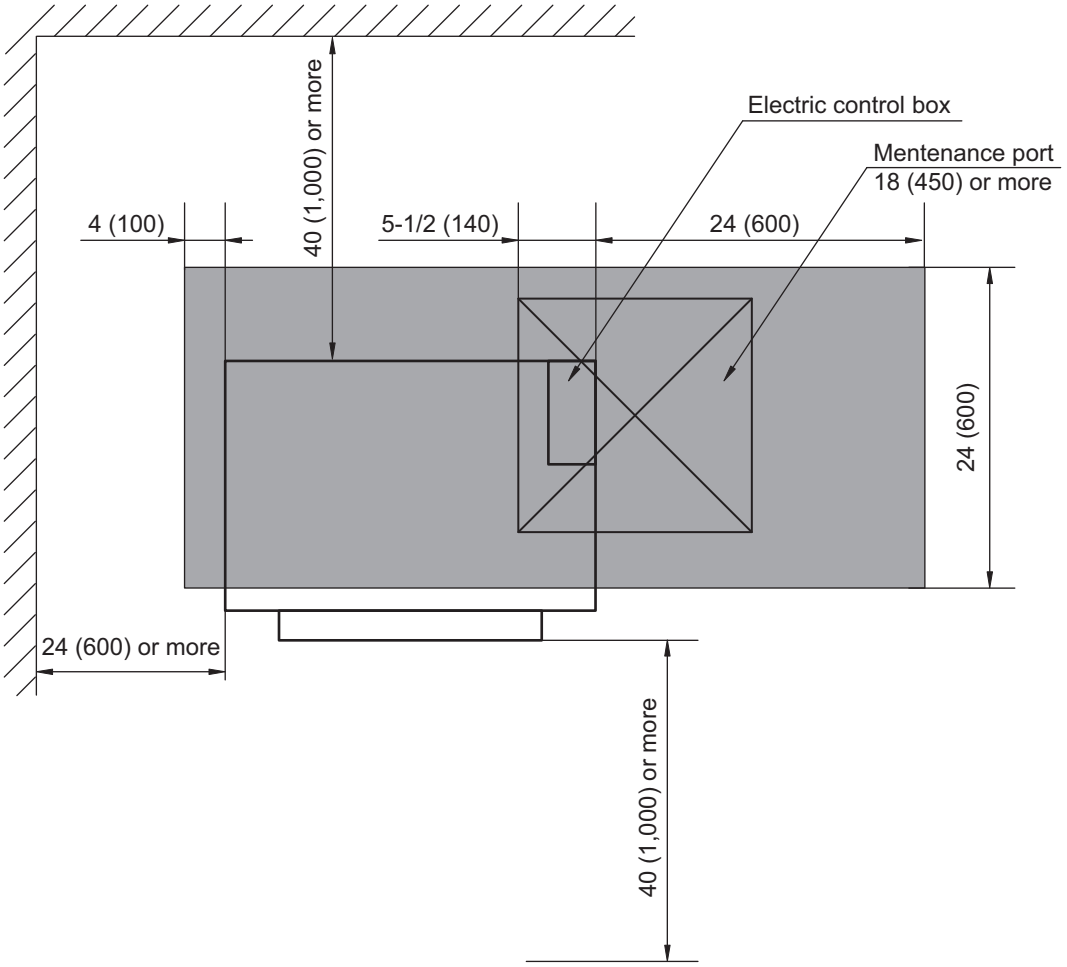
Unit: in (mm)



Installation space requirement

Provide sufficient installation space for product safety.

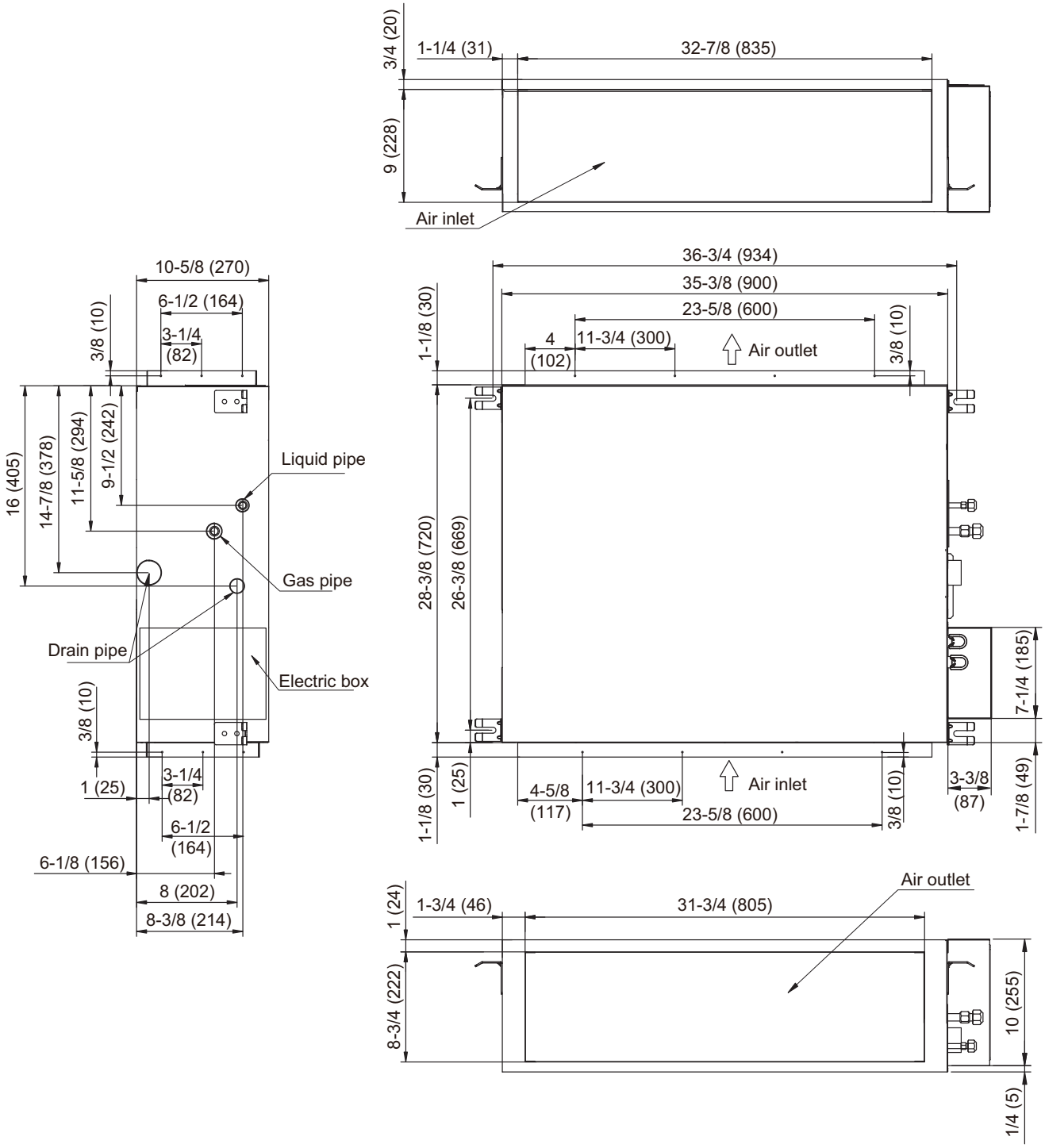
Unit: in (mm)



Top view

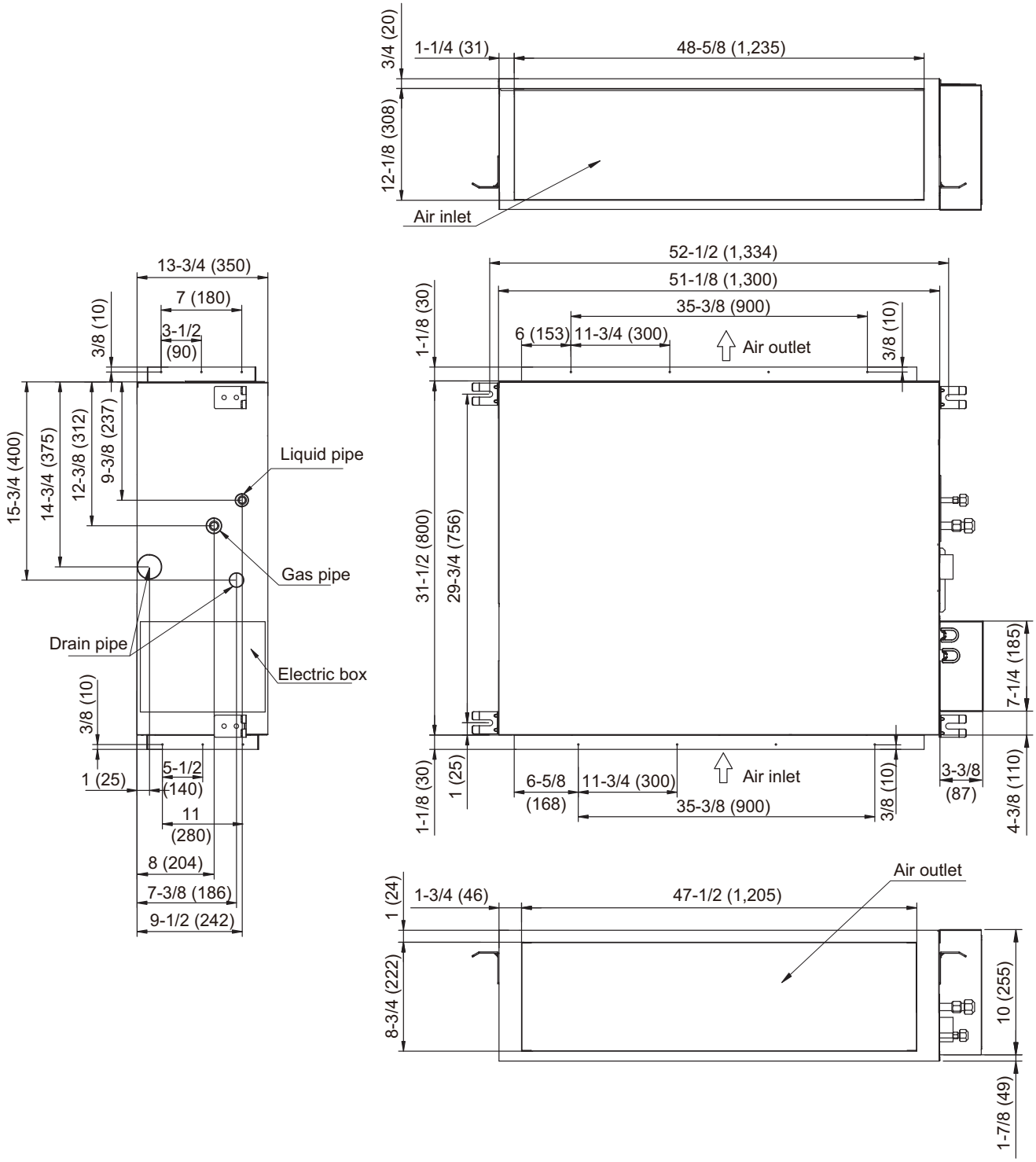
Model: WHU24DHA21S

Unit: in (mm)



Model: WHU36DHA21S

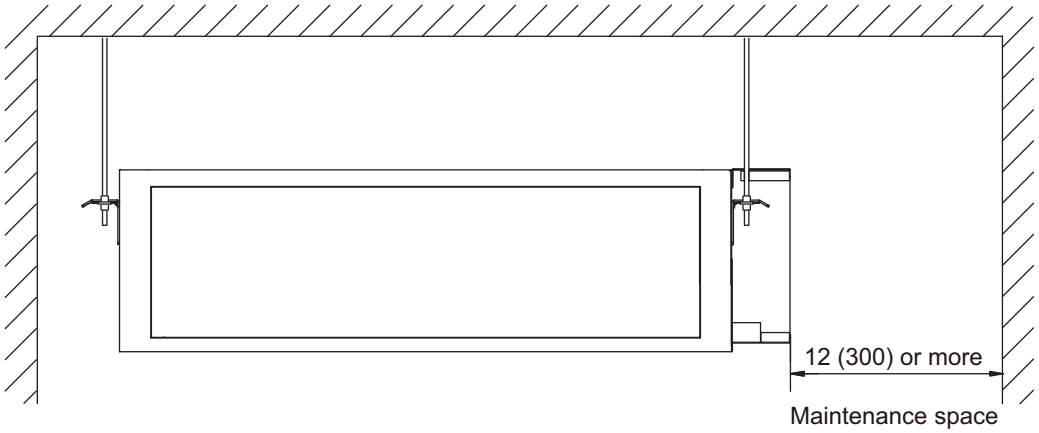
Unit: in (mm)

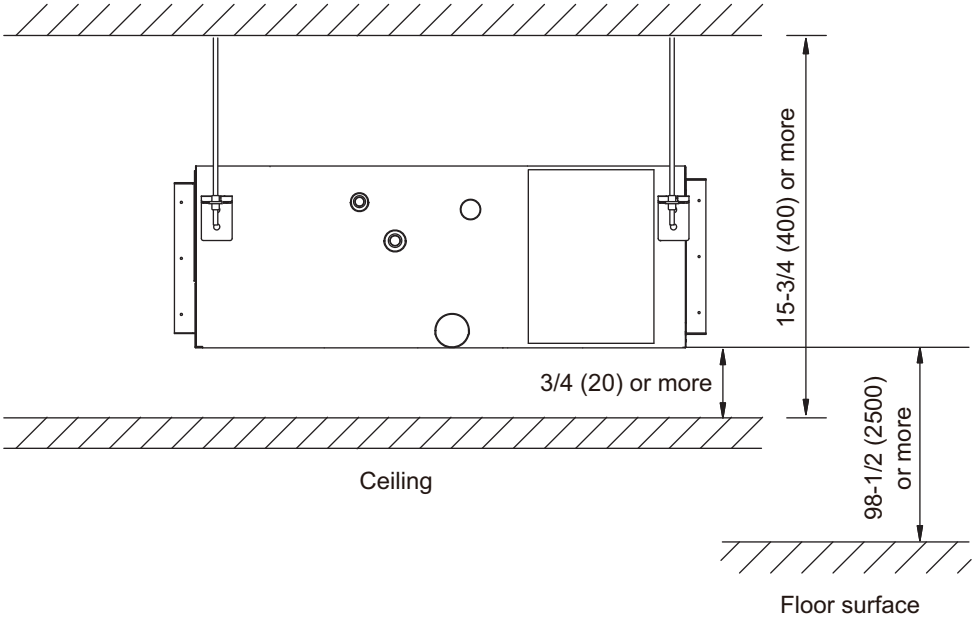


Installation space requirement

Provide sufficient installation space for product safety.

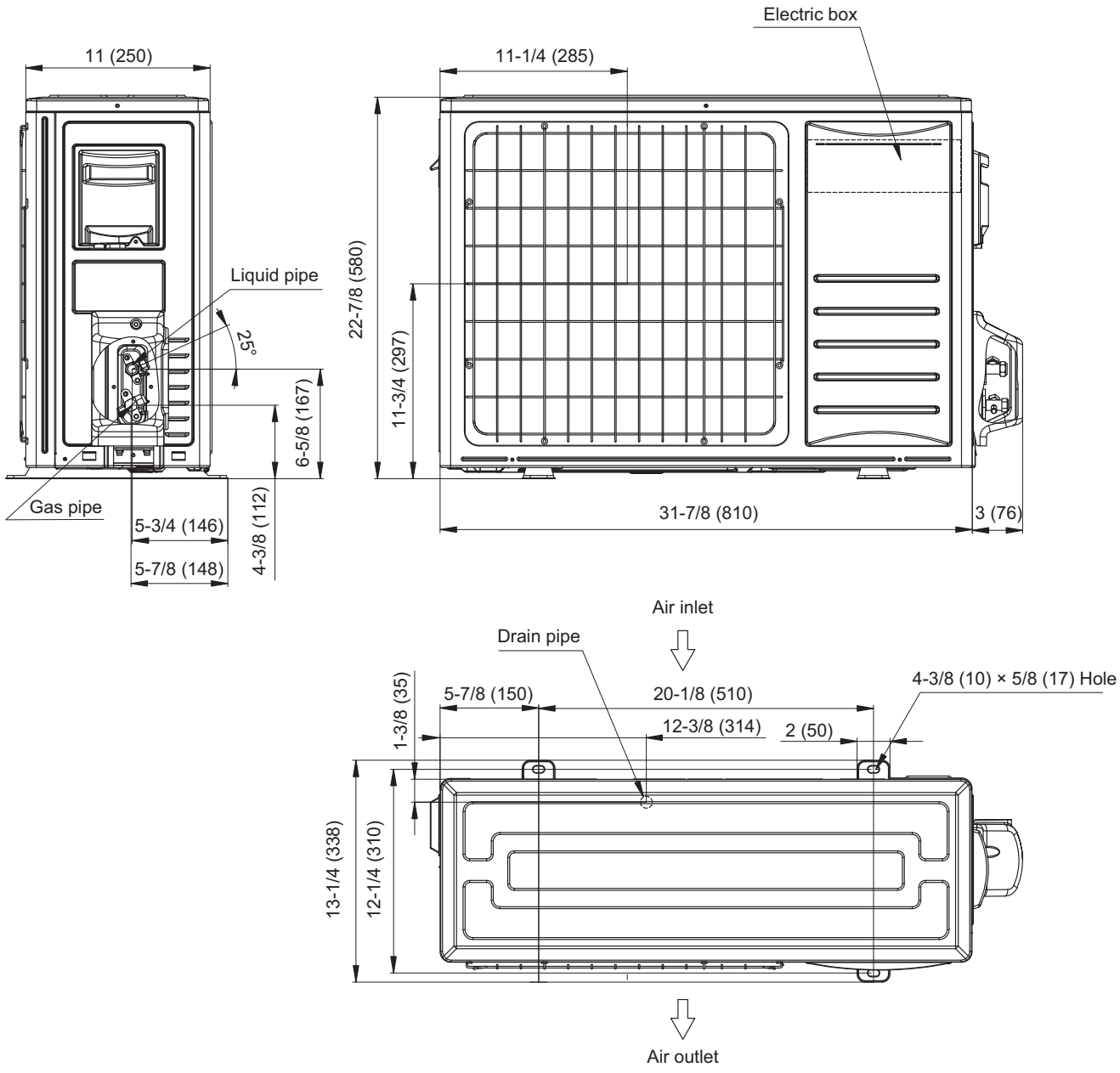
Unit: in (mm)





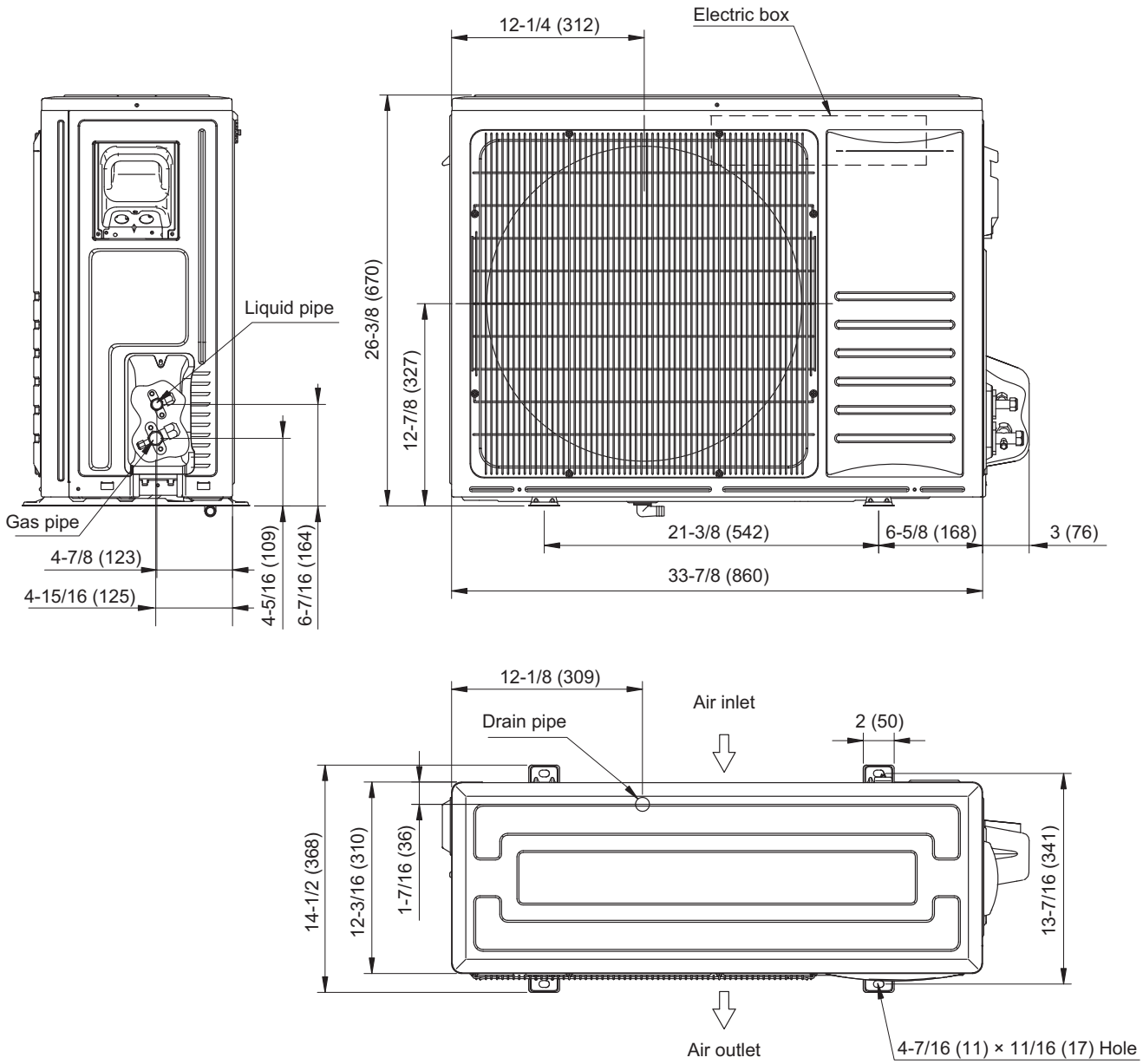
Models: WHU09SZA21S and WHU12SZA21S

Unit: in (mm)



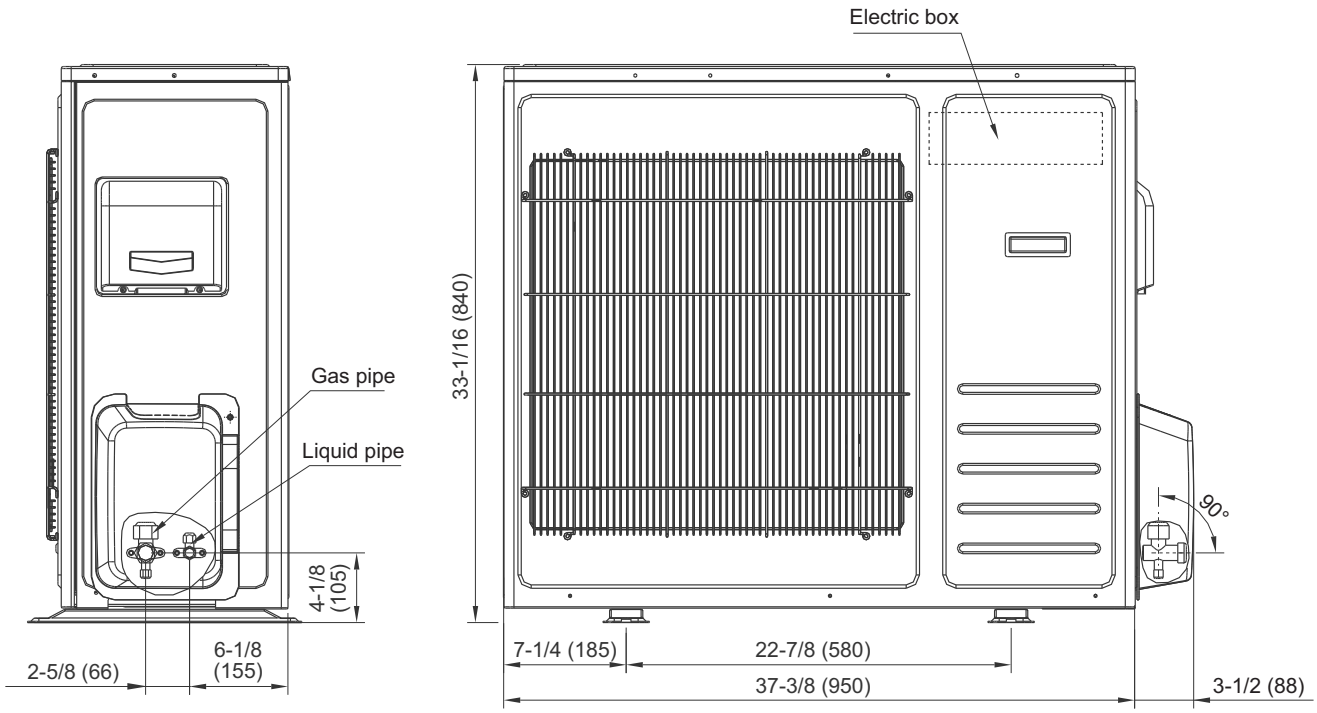
Model: WHU18SZA21S

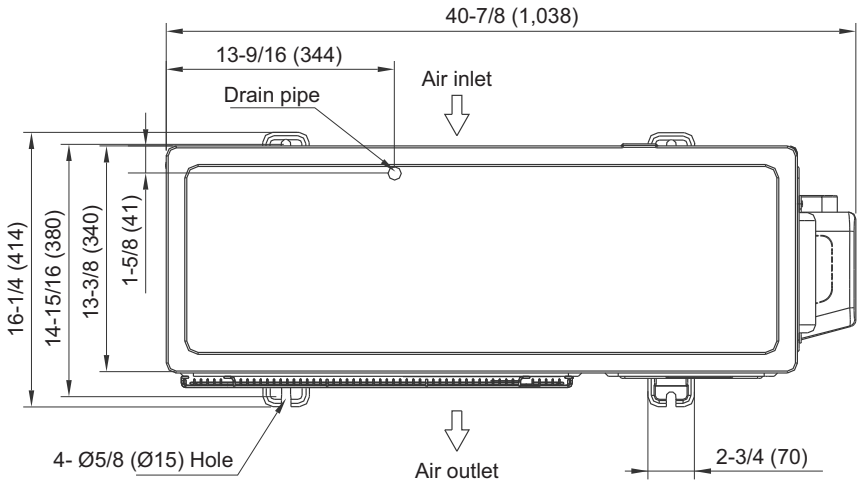
Unit: in (mm)



Model: WHU24SZA21S

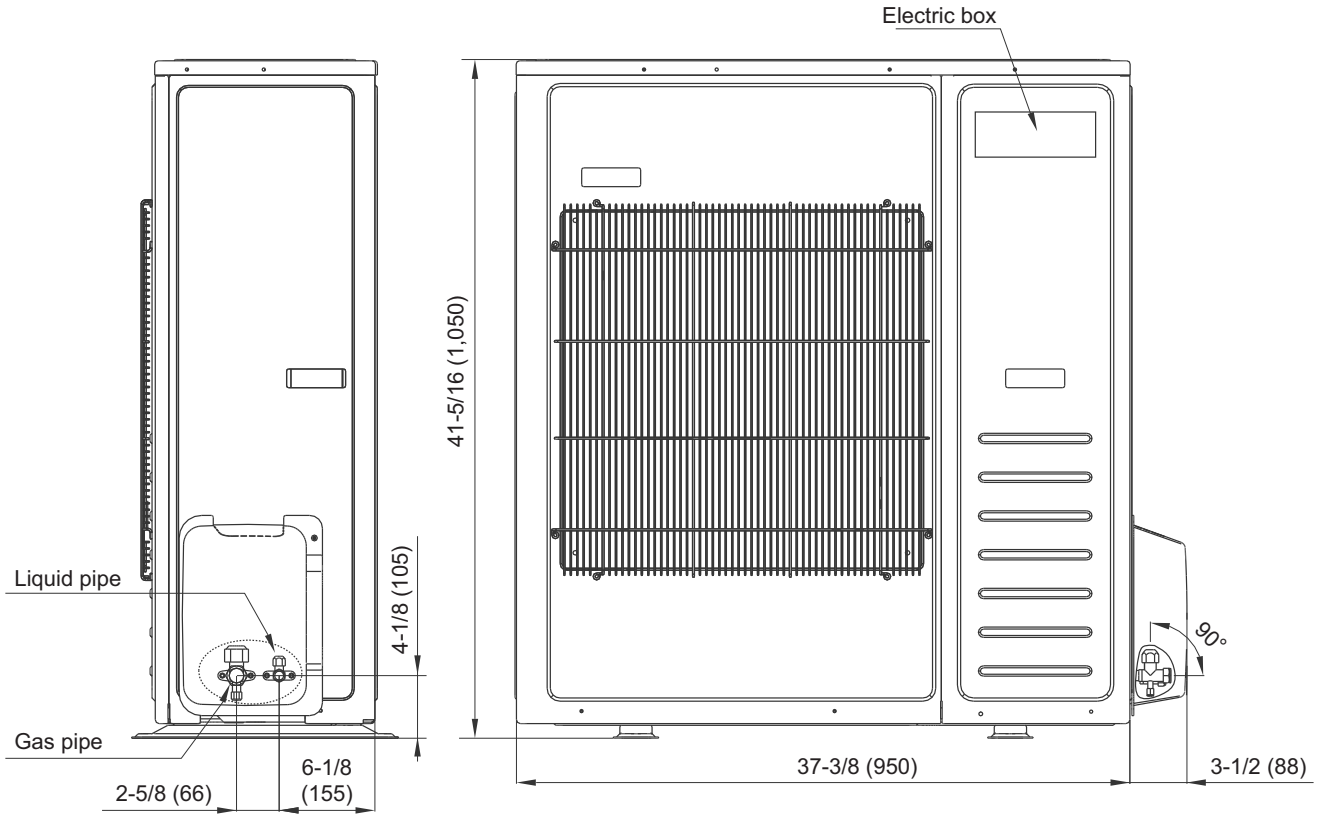
Unit: in (mm)

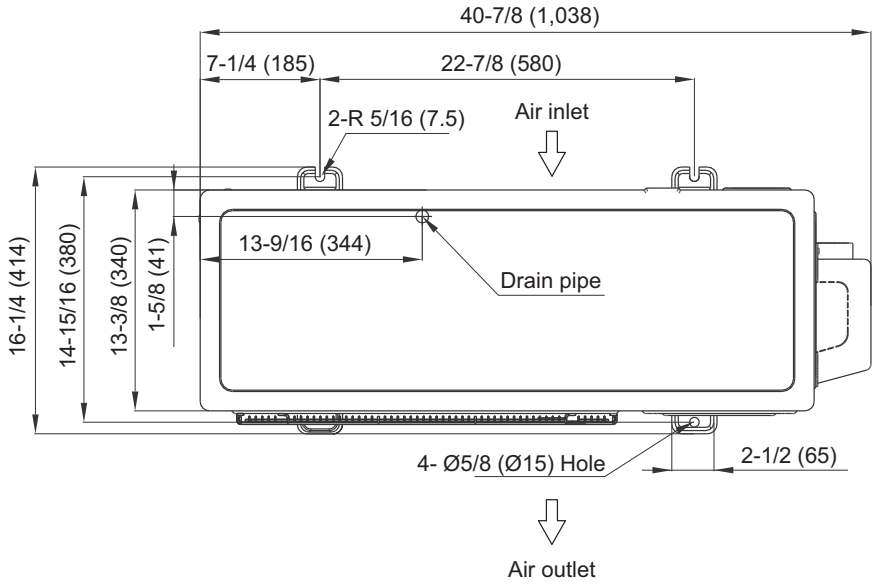




Model: WHU36SZA21S

Unit: in (mm)





Installation space

Models: WHU09SZA21S, WHU12SZA21S, WHU18SZA21S, WHU24SZA21S, and WHU36SZA21S

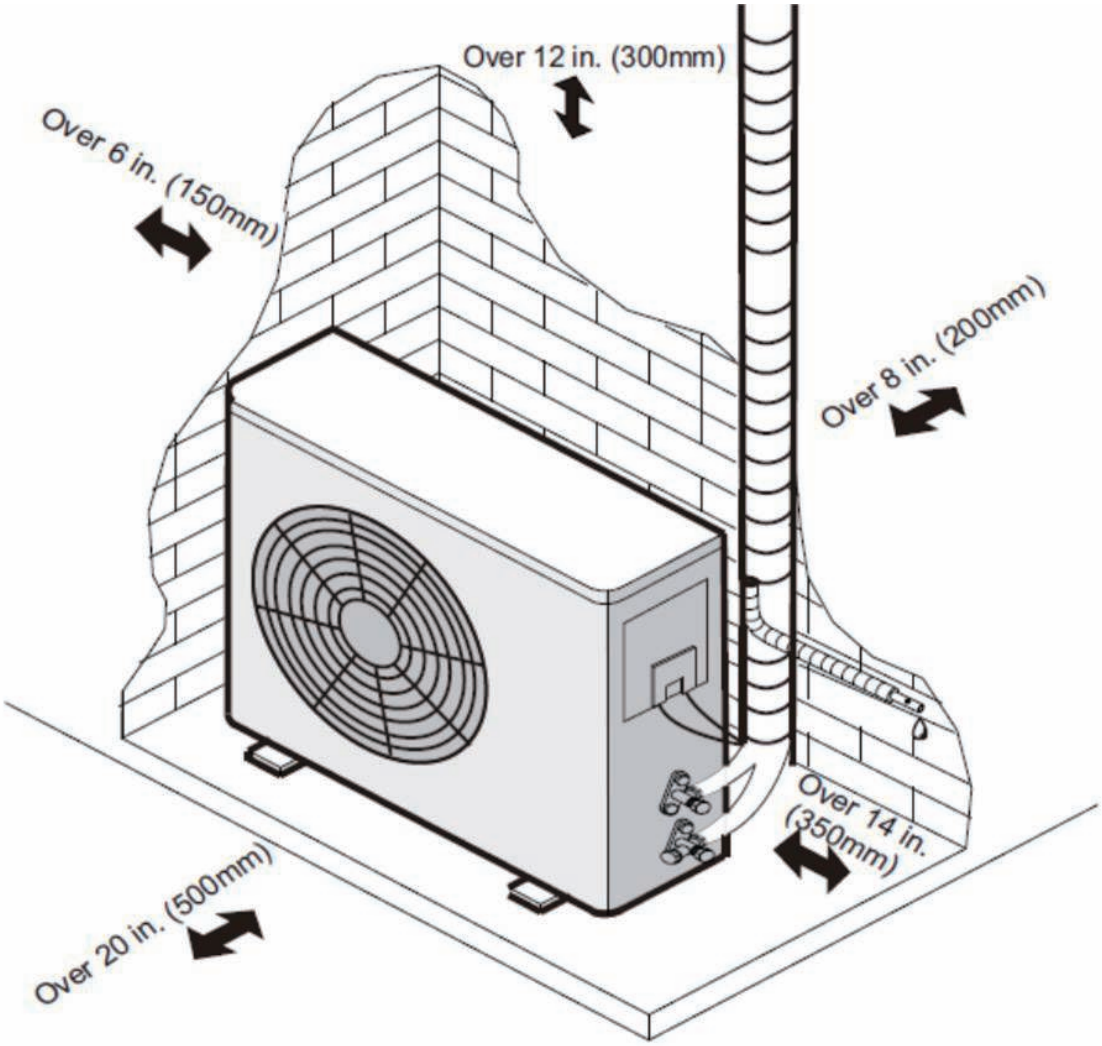
■ Space requirement

Provide sufficient installation space for product safety.

⚠ CAUTION

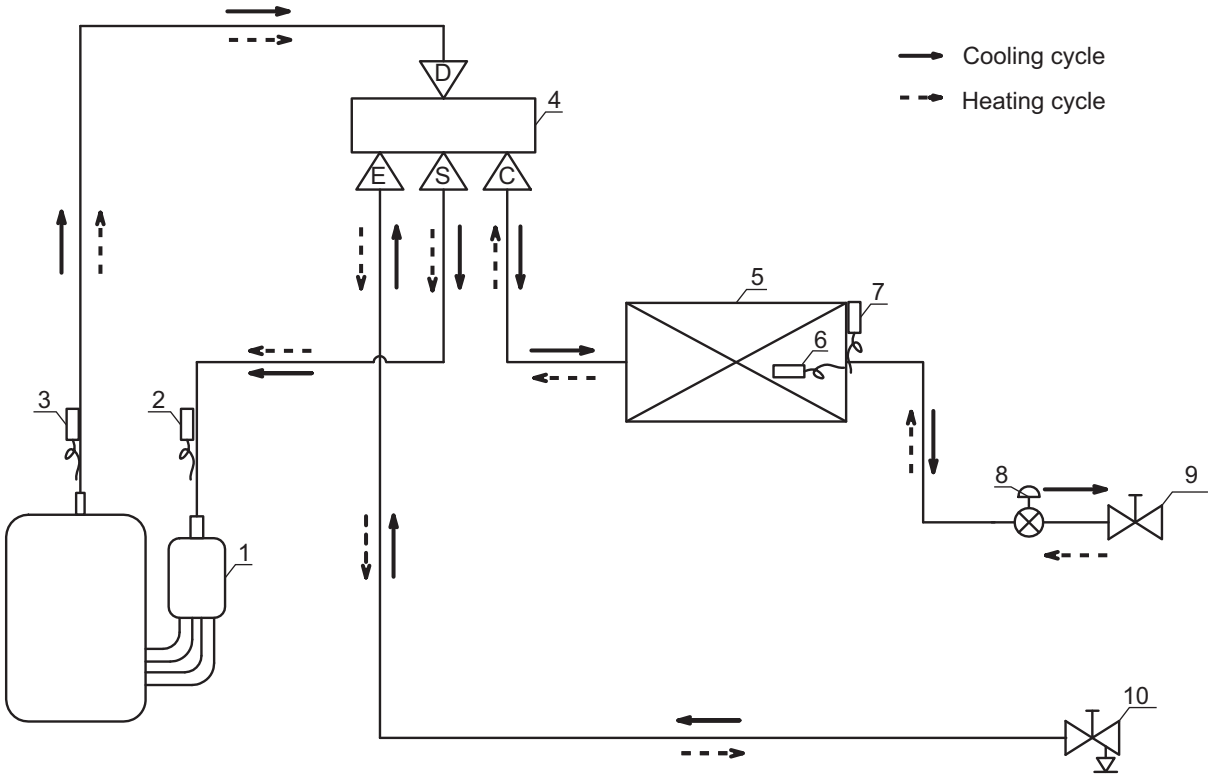
Keep the space shown in the installation examples.

If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.



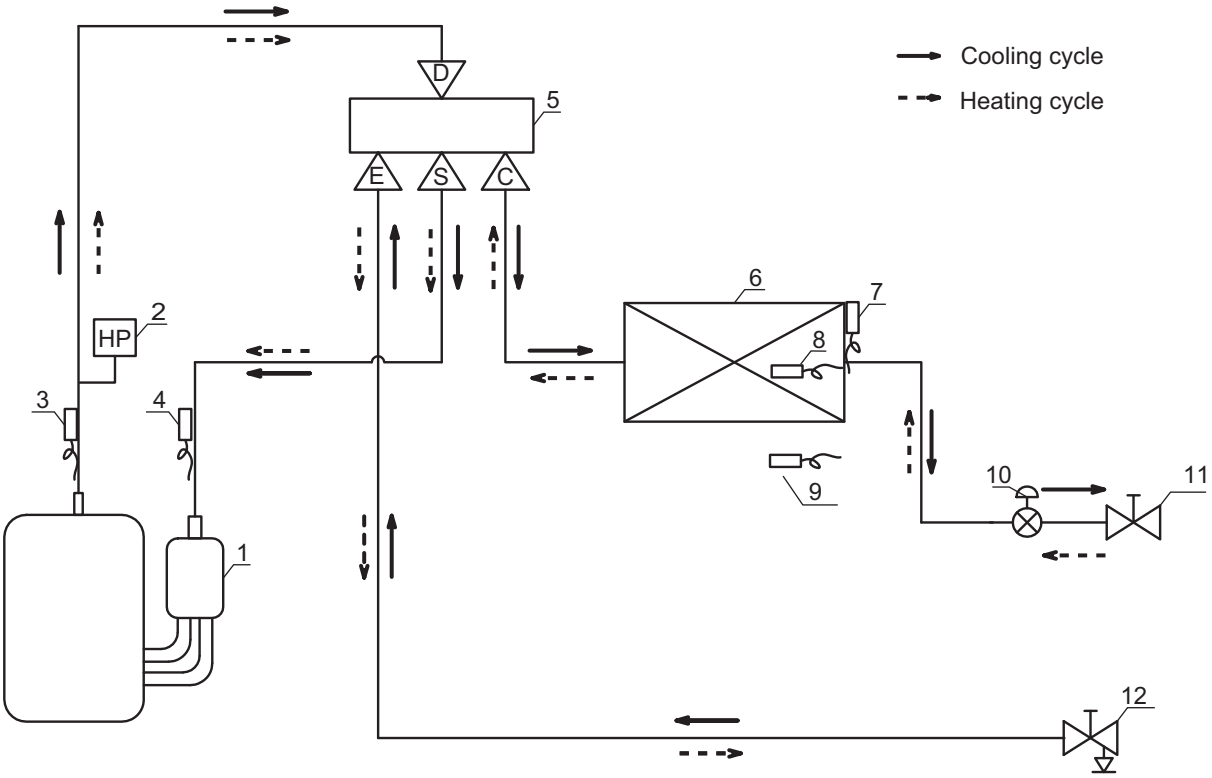
Refrigerant circuit

Models: WHU09SZA21S, WHU12SZA21S, and WHU18SZA21S



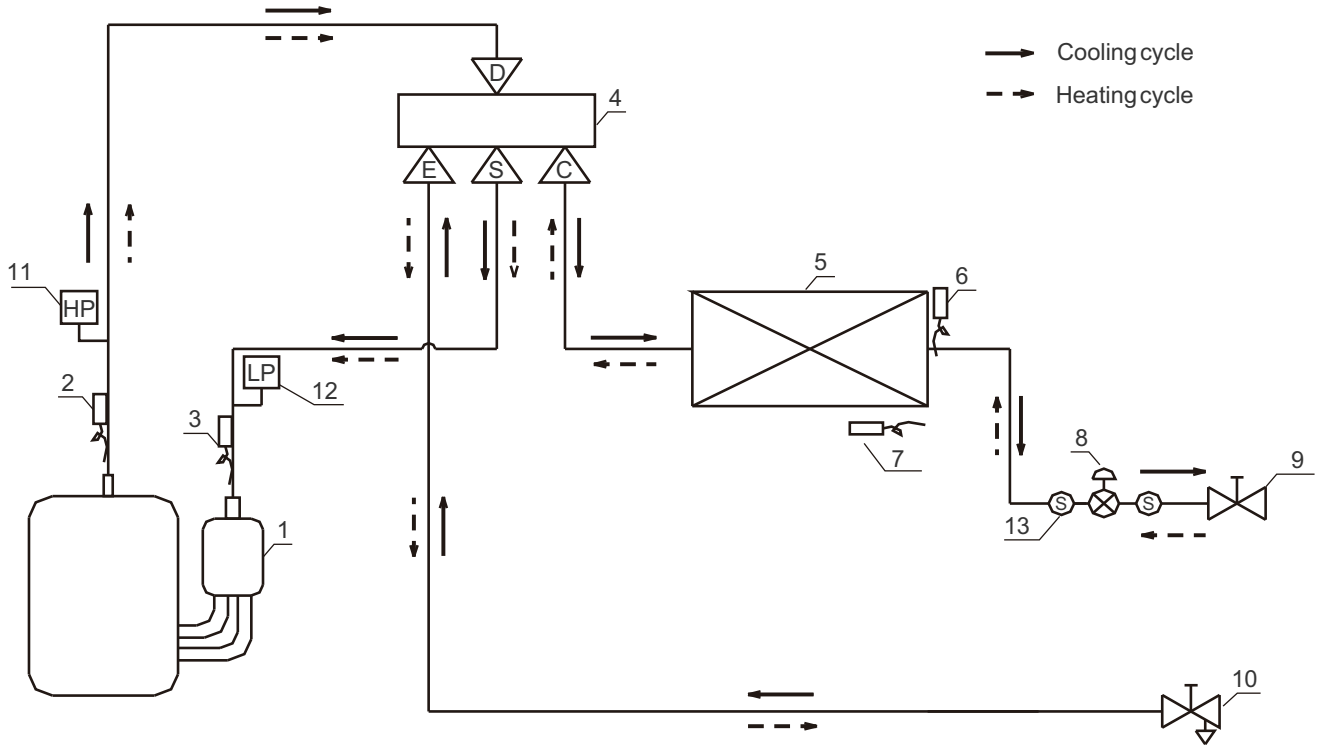
List of components	
1	Compressor
2	Suction temperature sensor
3	Discharge temperature sensor
4	4-way valve
5	Outdoor heat exchanger
6	Ambient temperature sensor
7	Coil temperature sensor
8	Electric expansion valve
9	Stop valve (Liquid)
10	Stop valve (Gas)

Model: WHU24SZA21S



List of components	
1	Compressor
2	High pressure switch
3	Discharge temperature sensor
4	Suction temperature sensor
5	4-way valve
6	Outdoor heat exchanger
7	Coil temperature sensor
8	Defrost temperature sensor
9	Ambient temperature sensor
10	Electric expansion valve
11	Stop valve (Liquid)
12	Stop valve (Gas)

Model: WHU36SZA21S

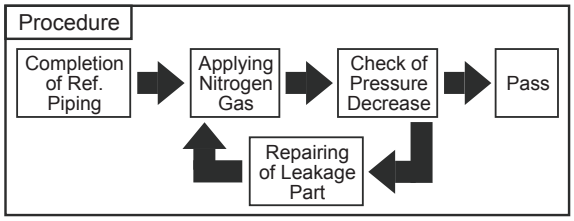


List of components	
1	Compressor
2	Discharge temperature sensor
3	Suction temperature sensor
4	4-way valve
5	Outdoor heat exchanger
6	Coil temperature sensor
7	Ambient temperature sensor
8	Electric expansion valve
9	Stop valve (Liquid)
10	Stop valve (Gas)
11	High pressure switch
12	Low pressure switch
13	Strainer

Piping work and refrigerant charge

Air tight test

Do use nitrogen when performing air-tight test.
Connect the gauge manifold using charging hoses with a nitrogen cylinder to the check joints of the liquid line and the gas line stop valves. Perform the air-tight test. Don't open the gas line stop valves. Apply nitrogen gas pressure of 4.3MPa. Check for any gas leakage at the flare nut connections, or brazed parts by gas leak detector or foaming agent. It is OK if gas pressure does not decrease. After the air tight test, release nitrogen gas.



Air tight procedure

Additional refrigerant charge

Although refrigerant has been charged into this unit, additional refrigerant charge is required according to the piping length.

- The additional refrigerant precharge quantity should be determined and charged into the system according to the following procedure.
- Record the additional refrigerant quantity in order to facilitate maintenance and servicing activities.

Refrigerant charge before shipment (W0 (kg))

W0 is the outdoor unit refrigerant charge before shipment;

Xg is additional refrigerant outdoor unit needed to charge according to piping length during installation.

Model	Refrigerant precharged before shipment (W0(oz/g))	Total refrigerant pipe length	
		0～24.6 ft (0～7.5 m)	Longer than 24.6 ft (7.5 m)
9K	33.5/0.95	0g	Additional refrigerant charge= (L-24.6)×0.161 oz/ft
12K	45.9/1.3	0g	
18K	56.44/1.6	0g	
24K	91.7/2.6	0g	Additional refrigerant charge= (L-24.6)×0.376 oz/ft
36K	111.2/3.15	0g	

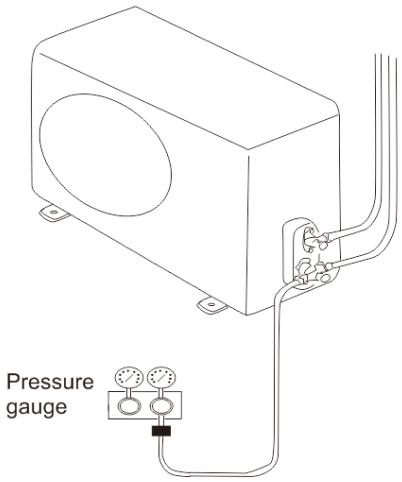
Checking components

Check refrigerant system

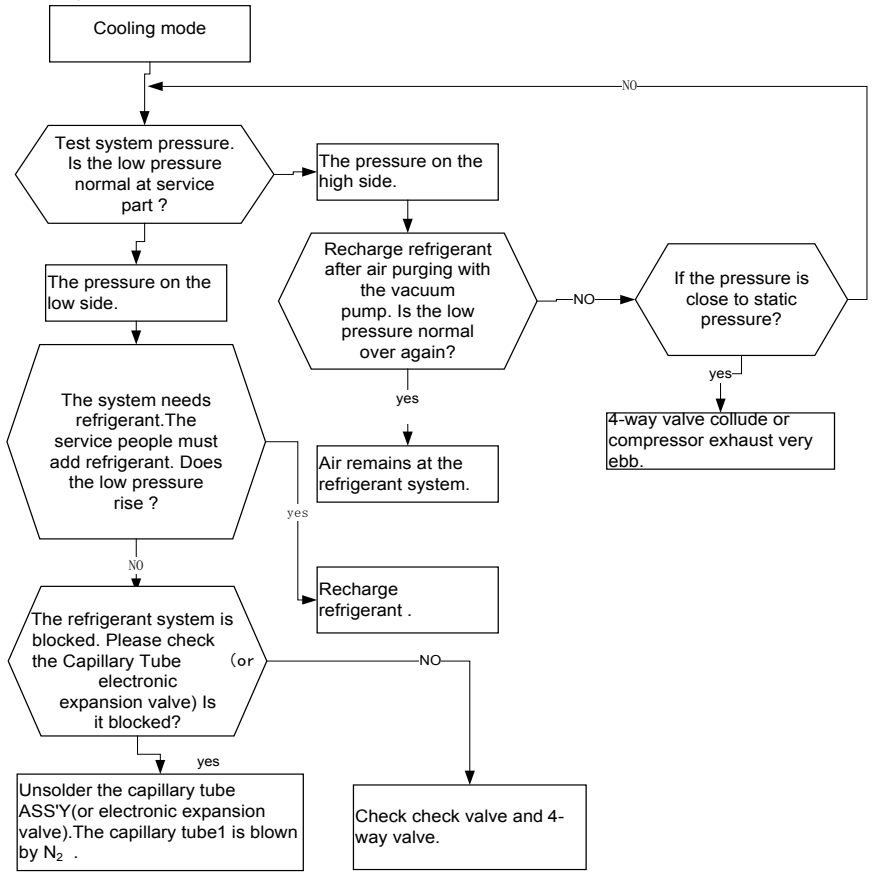
TEST SYSTEM FLOW

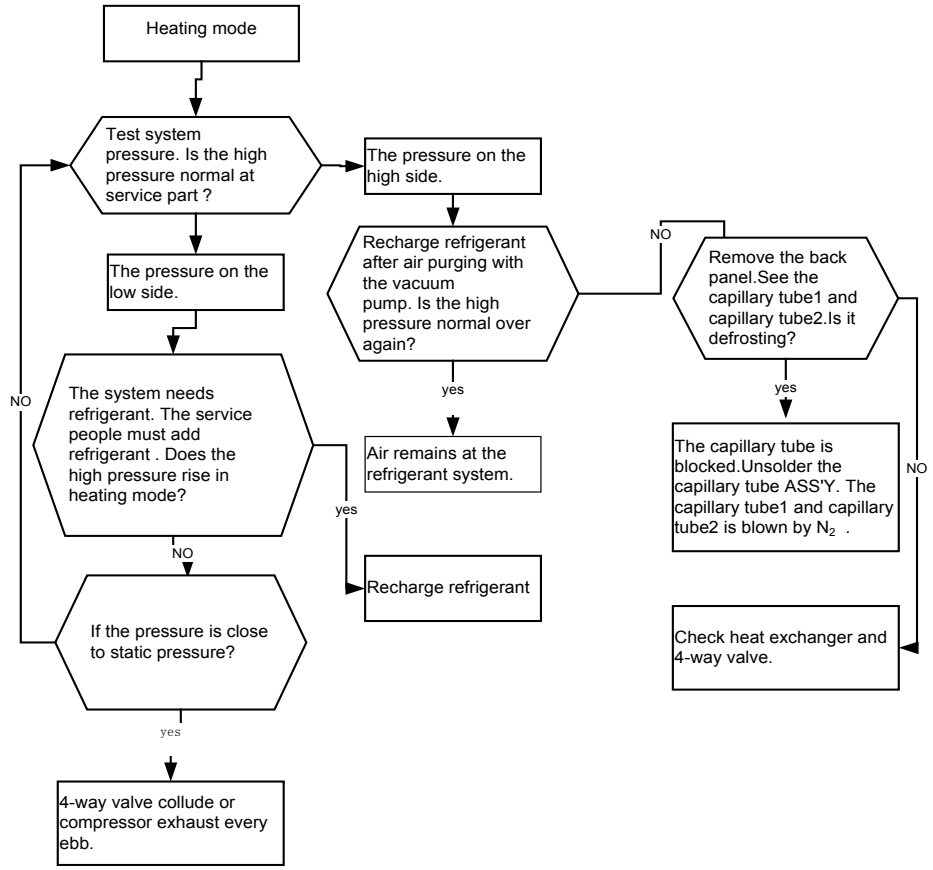
Conditions: ① Compressor is running.
② The air condition should be installed in good ventilation.
Tool: Pressure Gauge
Technique: ① see ② feel ③ test

See ----- Tube defrost.
Feel ----- The difference between tube's temperature.
Test ----- Test pressure.



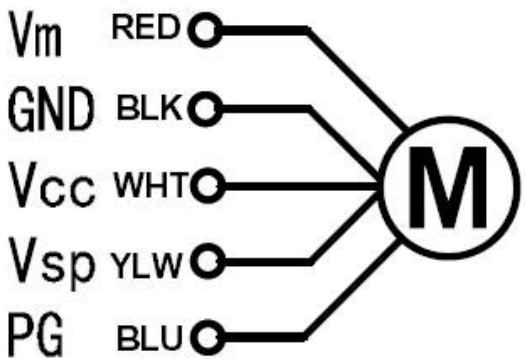
Test system flow





Check parts unit

1. Indoor unit fan motor
Duct motor model (DC motor)
9K/12K18K:SIC-68CVL-F160-2



Test in resistance.
TOOL: Multimeter.
Test the resistance of the main winding. The indoor fan motor fails if the resistance of main winding is 0(short circuit)or∞（open circuit）.
Test in voltage
TOOL: Multimeter.
Insert screwdriver to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage "YELLOW" and "GND" on motor. The voltage repeat 0V DC and 5V DC.
Notes:
Please don't hold motor by lead wires.
Please don't plug IN/OUT the motor connector while power is ON.
Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

2. Outdoor unit fan motor

DC motor

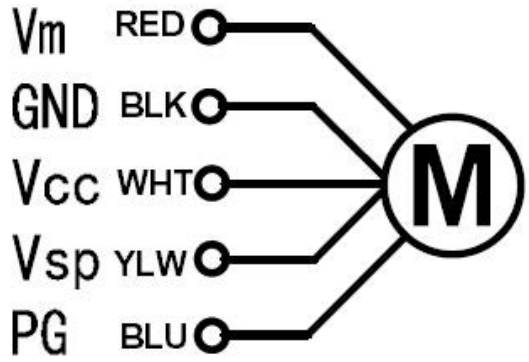
9K: SIC-52FV-F130-3

12K: SIC-62FV-D857-15

18K: ZWK511A805001

24K: SIC-71FW-D8121-1

36K: SIC-81FW-F1138-1



3. Compressor

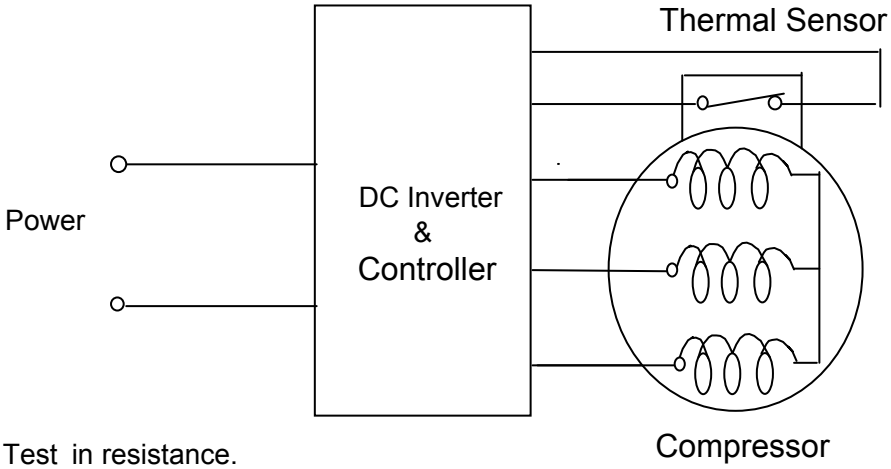
Compressor examine and repair

9K/12K: ASN108D43UFZA

18K: ATM150D23UFZ

24K: EATF250D22UMT

36K: ATF310D43UMT



Test in resistance.

TOOL: Multi-meter.

Test the resistance of the winding. The compressor fails if the resistance of winding is 0 (short circuit)or∞(open circuit).

Familiar error:

1) Compressor motor lock.

2) Discharge pressure value approaches static pressure value.

3) Compressor motor winding abnormality.

Notes：

1) Don’t put a compressor on its side or turn over.

2) Please assemble the compressor in your air conditioner rapidly after removing the plugs. Don’t place the comp. in air for a long time.

3) Avoid compressor running in reverse caused by connecting electrical wire incorrectly.

4) Warning! In case AC voltage is impressed to compressor, the compressor performance will decrease because of its rotor magnetic force decreasing.

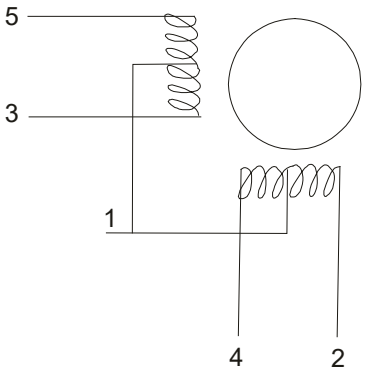
4. Inductance

Familiar error:

1)Sound abnormality

2)Insulation resistance disqualification

5. Step motor



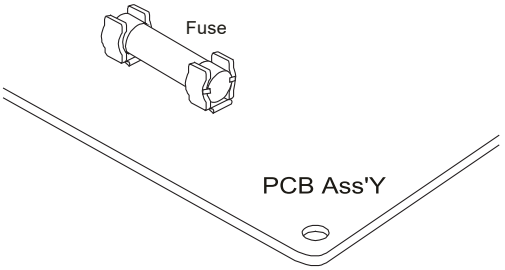
Test in resistance.
TOOL: Multimeter.

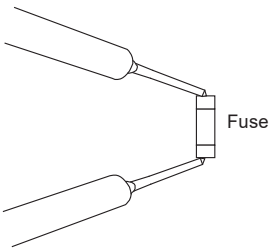
Test the resistance of winding. The stepper motor fails if the resistance of winding is 0 (short circuit) or ∞（open circuit）.

6. Fuse

Check for continuity of fuse on PCB ASS’Y.

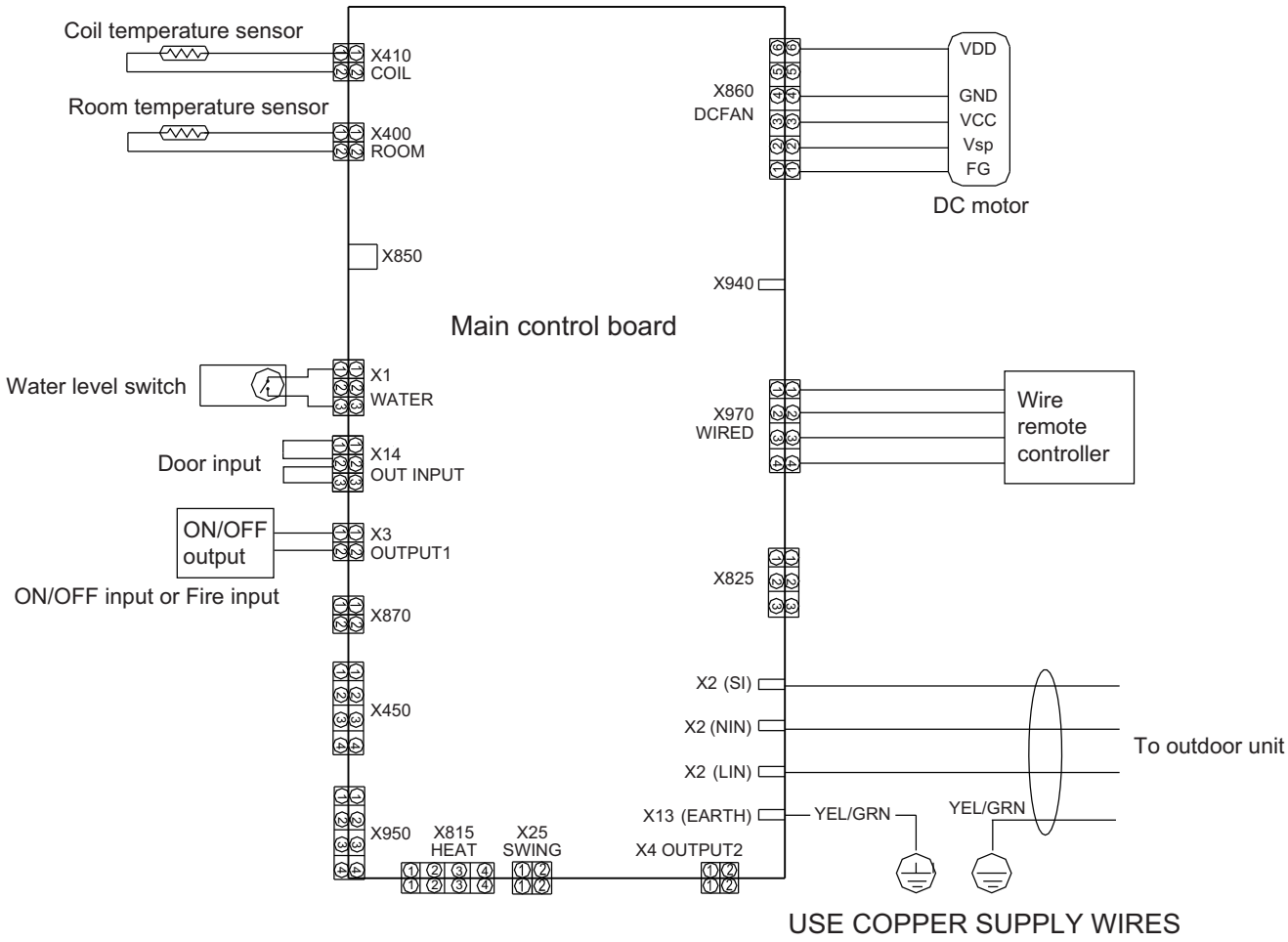
Remove the PCB ASS’Y from the electrical component box. Then pull out the fuse from the PCB ASS’Y.Check for continuity by a multimeter as shown below.





Wiring diagrams

Models: WHU09DHA21S, WHU12DHA21S, and WHU18DHA21S

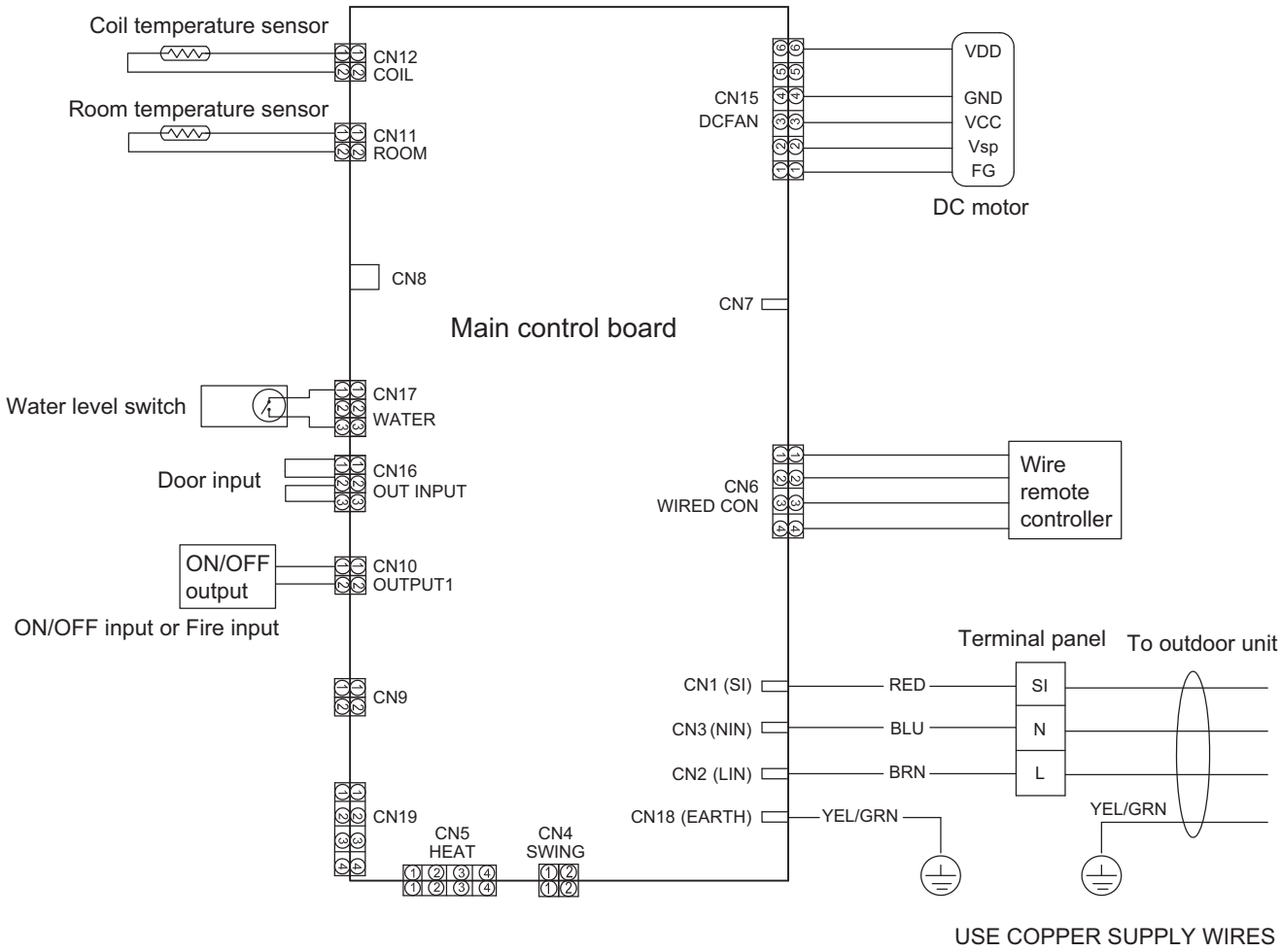


Temperature	0℃ 32°F	20℃ 68°F	30℃ 86°F
Thermistor (Pipe temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Room temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V

Fan motor

Pin No.	Terminal code	Function of terminal	Lead wire color
1	Vm	Motor power voltage input	Red
2	——	———	——
3	——	———	——
4	GND	GND	Black
5	Vcc	Control power voltage input	White
6	Vsp	Speed control voltage input	Yellow
7	FG	Revolution pulse output	Blue

Models: WHU24DHA21S and WHU36DHA21S

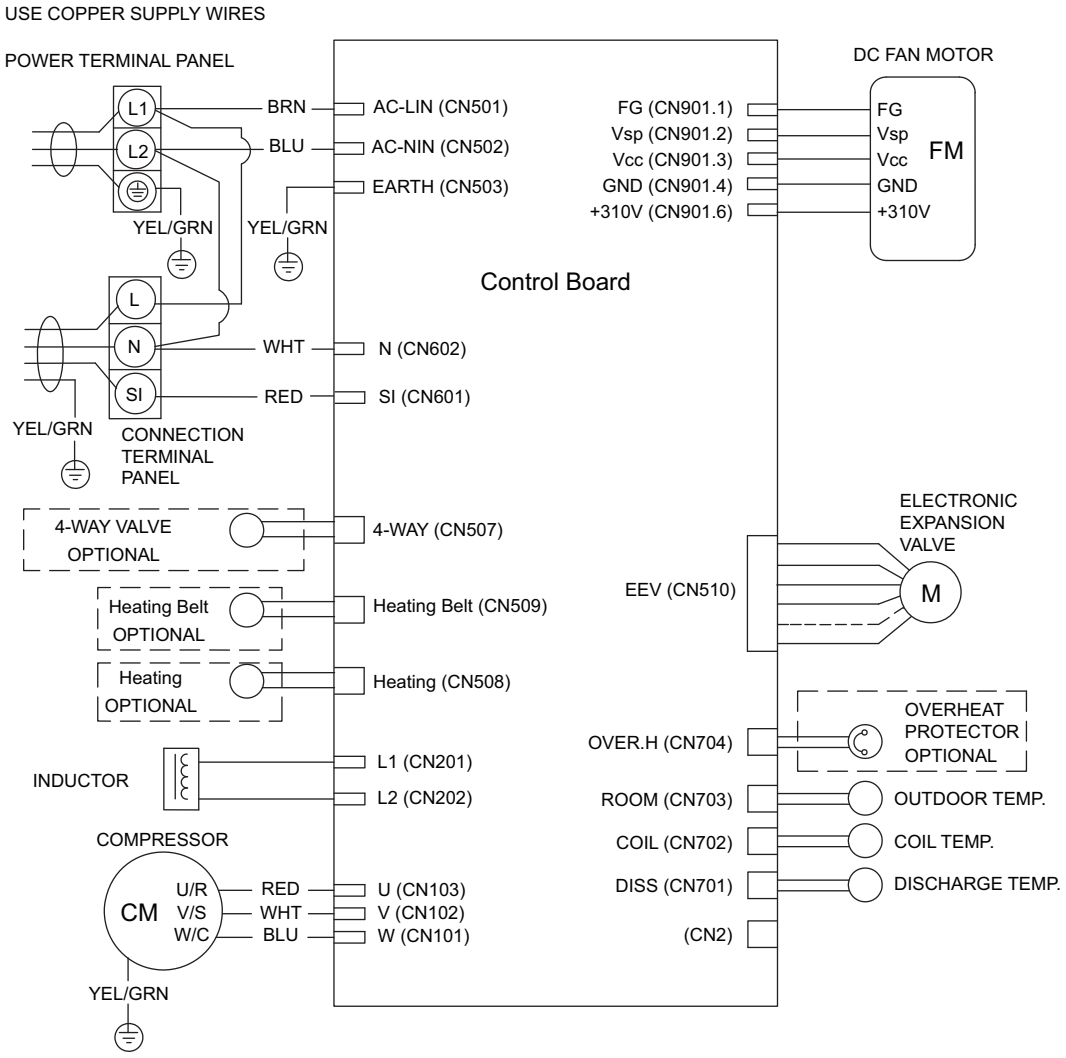


Temperature	0℃ 32°F	20℃ 68°F	30℃ 86°F
Thermistor (Pipe temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Room temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V

Fan motor

Pin No.	Terminal code	Function of terminal	Lead wire color
1	Vm	Motor power voltage input	Red
2	——	———	——
3	——	———	——
4	GND	GND	Black
5	Vcc	Control power voltage input	White
6	Vsp	Speed control voltage input	Yellow
7	FG	Revolution pulse output	Blue

Models: WHU09SZA21S, WHU12SZA21S, and WHU18SZA21S



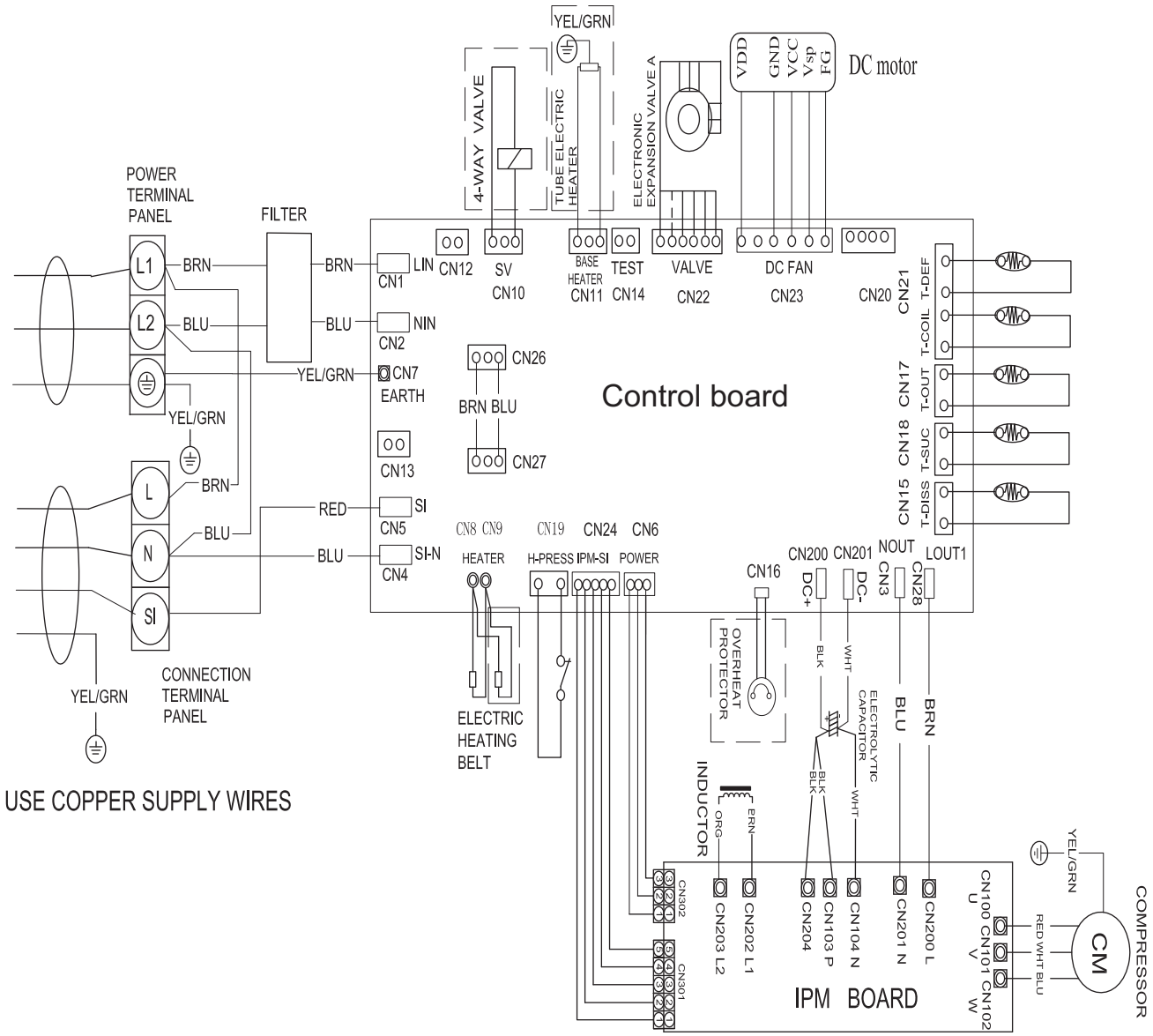
Fan motor

Pin No.	Terminal code	Function of terminal	Lead wire color
1	FG	Revolution pulse output	Blue
2	Vsp	Speed control voltage input	Yellow
3	Vcc	Control power voltage input	White
4	GND	GND	Black
5	——	———	——
6	Vm	Motor power voltage input	Red

Compressor
09 model: 2.08 Ω
12 model: 2.08 Ω
18 model: 1.72 Ω
(20℃ 68°F)

Temperature	0℃ 32°F	20℃ 68°F	30℃ 86°F
Thermistor (Outdoor temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Coil temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Discharge temp.)	187 kΩ 0.18 V	72.1 kΩ 0.43 V	46.5 kΩ 0.64 V

Model: WHU24SZA21S



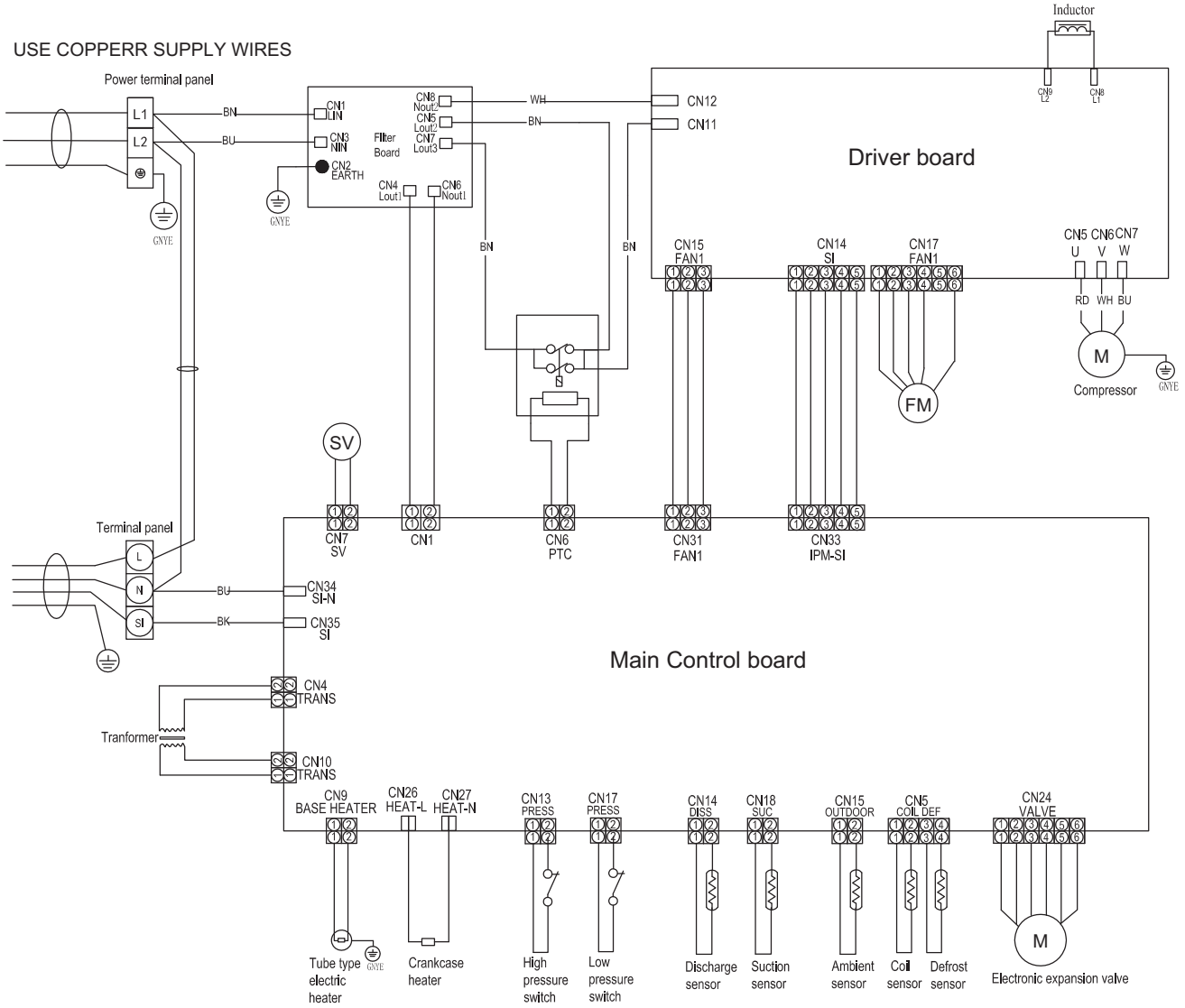
Fan motor

Pin No.	Terminal code	Function of terminal	Lead wire color
1	FG	Revolution pulse output	Blue
2	Vsp	Speed control voltage input	Yellow
3	Vcc	Control power voltage input	White
4	GND	GND	Black
5	——	———	——
6	Vm	Motor power voltage input	Red

Compressor
24 model: 0.75 Ω
(20℃ 68℉)

Temperature	0℃ 32℉	20℃ 68℉	30℃ 86℉
Thermistor (Outdoor temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Coil & Defrost temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Discharge temp.)	187 kΩ 0.18 V	72.1 kΩ 0.43 V	46.5 kΩ 0.64 V
Thermistor (Suction temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V

Model: WHU36SZA21S



Fan motor

Pin No.	Terminal code	Function of terminal	Lead wire color
1	FG	Revolution pulse output	Blue
2	Vsp	Speed control voltage input	Yellow
3	Vcc	Control power voltage input	White
4	GND	GND	Black
5	——	———	——
6	Vm	Motor power voltage input	Red

Compressor
36 model: 0.65 Ω
(20℃ 68°F)

Temperature	0℃ 32°F	20℃ 68°F	30℃ 86°F
Thermistor (Outdoor temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Coil & Defrost temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V
Thermistor (Discharge temp.)	187 kΩ 0.18 V	72.1 kΩ 0.43 V	46.5 kΩ 0.64 V
Thermistor (Suction temp.)	15 kΩ 1.3 V	6.5 kΩ 2.2 V	4.5 kΩ 2.7 V

Troubleshooting

Trouble guide

Troubleshooting for normal malfunction

Troubleshooting	Possible Reasons for Abnormality	How to Deal With
Air conditioner can not start up	1. Power supply failure; 2. Trip of breaker or blow of fuse; 3. Power voltage is too low; 4. Improper setting of remote controller ; 5. Remote controller is short of power.	1. Check power supply circuit; 2. Measure insulation resistance to ground to see if there is any leakage; 3. Check if there is a defective contact or leak current in the power supply circuit; 4. Check and set remote controller again; 5. Change batteries.
The compressor starts or stops frequently	The air inlet and outlet has been blocked.	Remove block obstacles.
Poor cooling/heating	1. The outdoor heat exchanger is dirty, such as condenser; 2. There are heating devices indoors; 3. The air tightness is not enough. People come in and out too frequently. 4. Block of outdoor heat exchanger; 5. Improper setting of temperature.	1. Clean the heat exchanger of the outdoor unit, such as condenser ; 2. Remove heating devices; 3. Keep certain air tightness indoors; 4. Remove block obstacles; 5. Check and try to set temperature again.
Sound from deforming parts	During system starting or stopping, a sound might be heard. However, this is due to thermal deformation of plastic parts.	It is not abnormal, and the sound will disappear soon.
Water leakage	1. Drainage pipe is blocked or broken; 2. Wrap of refrigerant pipe joint is not closed completely.	1. Change drainage pipe. 2. Re-wrap and make it tight.

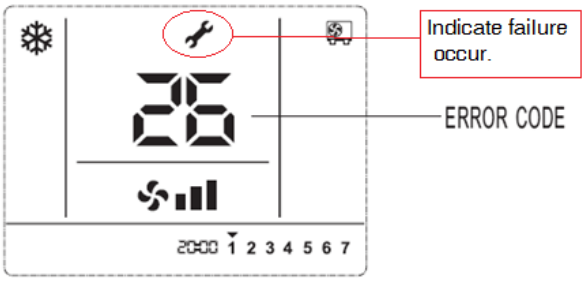
Troubleshooting according to fault codes

When the air conditioner failure occurs, the fault code will display on control board, wired controller or display panel.

How to check fault codes

Indoor unit

(1) Fault codes indicated by wired controller



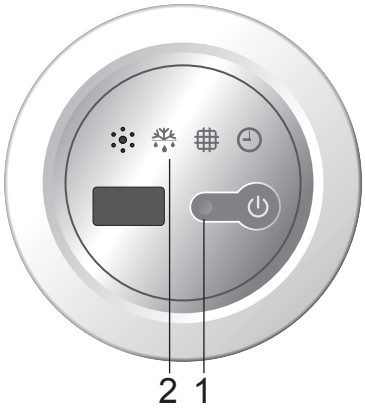
When the airconditioner is malfuction, will display on the LCD,and error codes will appear and blink.

FIG1. FAULT CODE DISPLAY ON WIRE REMOT CONTROLLER

(2) Fault codes indicated by LED lamps on display panel

Lamp RUN (LED2, Red) and Lamp DEFROST（LED5, Green）flash. Lamp RUN displays fault code represented by 2- digit number, lamp DEFROST displays fault code represented by single digit number (as shown fig. below). For example, fault code 36: LED RUN & defrost flash 3 times at the same time, and LED DEFROST continue flashing 3 times, reports No. 36 fault.

Display panel



1 Run indicator (Red)
Indicates the fault code represented by 2-digit number.
2 Defrost indicator (Green)
Indicates the fault code represented by single digit number.

LED FALSH CONTROL flash 300mS (T1) off 300mS(T2), after 2000mS (T3) fault code repeat displays. (as shown below)

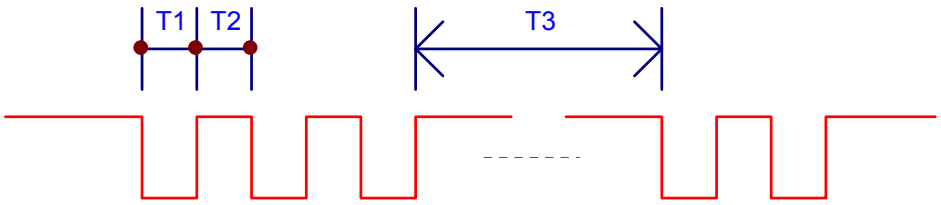


FIG.2 LED flash control

Outdoor unit

9K/12K/18K

DC-Inverterunitary(Main control board upside-down)

Fault code displayed by LED lamps on outdoor main control board.

There are 3 LED lamps on control board, LED1, LED2 and LED3.

LED1 indicates fault code represented by 2-digit number, LED2 indicates fault code represented by single digit number and LED3 indicates outdoor drive control fault.

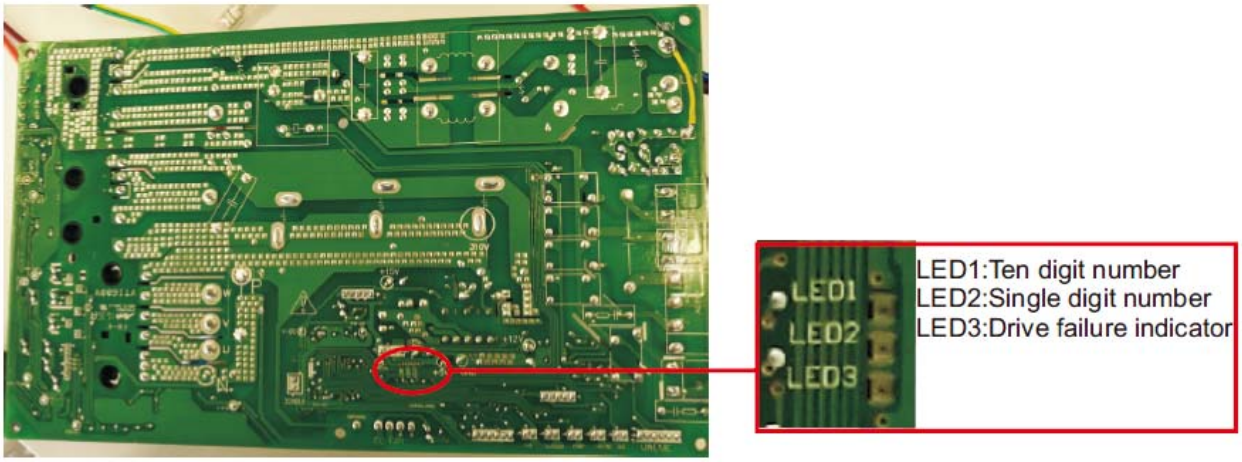
When LED3 is off, LED1 and LED 2 indicate main control fault code.

When LED3 is on, LED1 and LED 2 indicate drive control fault code.

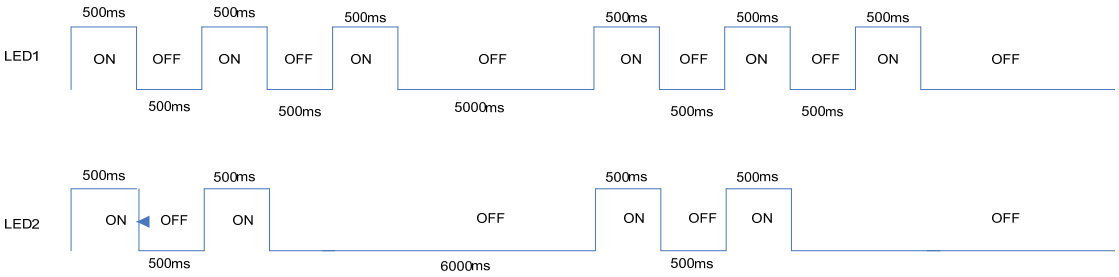
When LED3 is flickering and LED1, LED 2 are all off, indicate compressor is preheating. Failures display with 5s interval. It means LED will be off for 5s to report the next fault code.

System protection codes display method is the same with main control fault code.

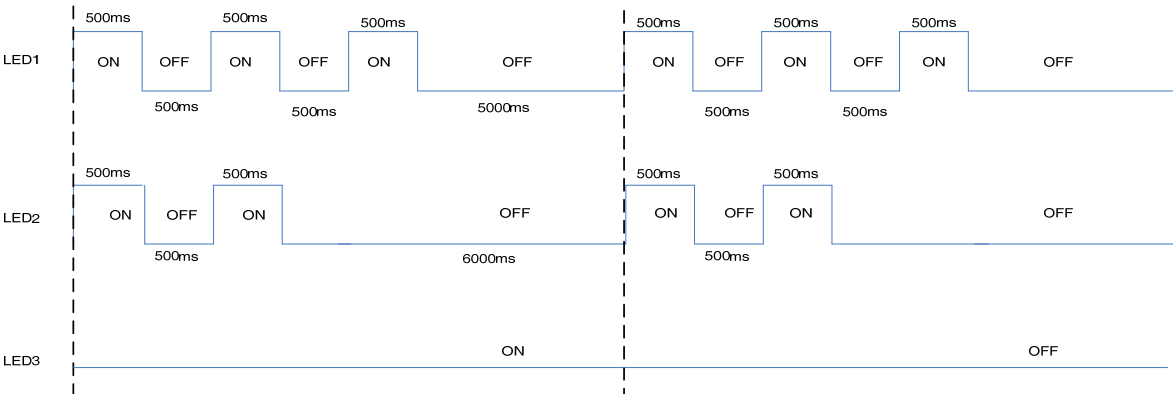
LED lamps will be off when there is no failure, protection or preheating.



For example, outdoor main control fault 32:



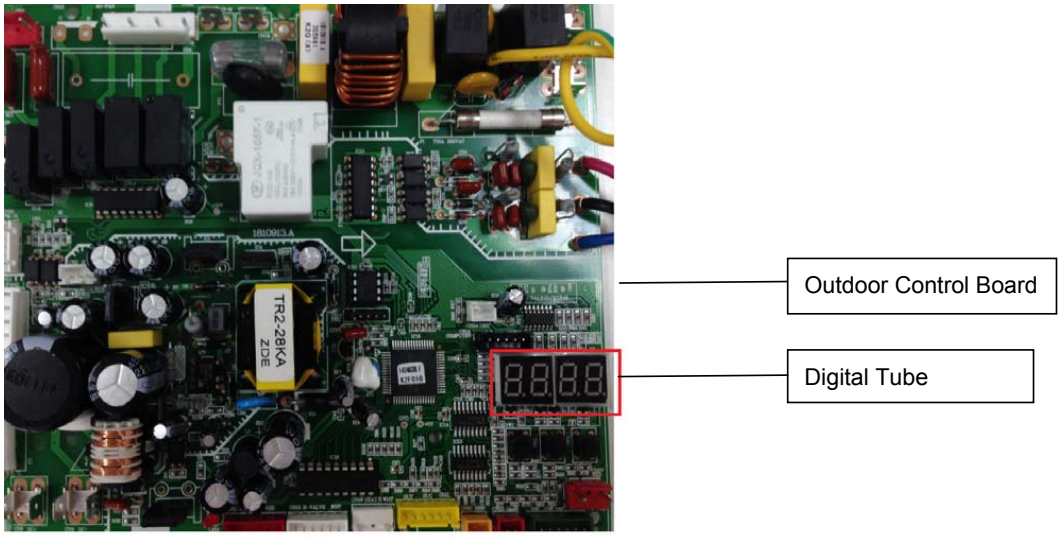
For example, outdoor drive fault 32:

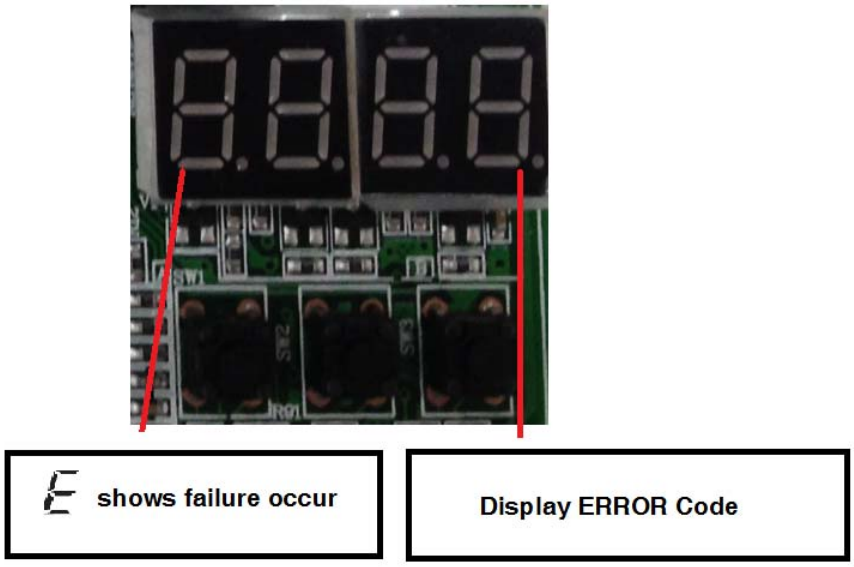


24K/36K

Main control fault display

Fault code will be displayed on digital tube board.





Drive fault code display

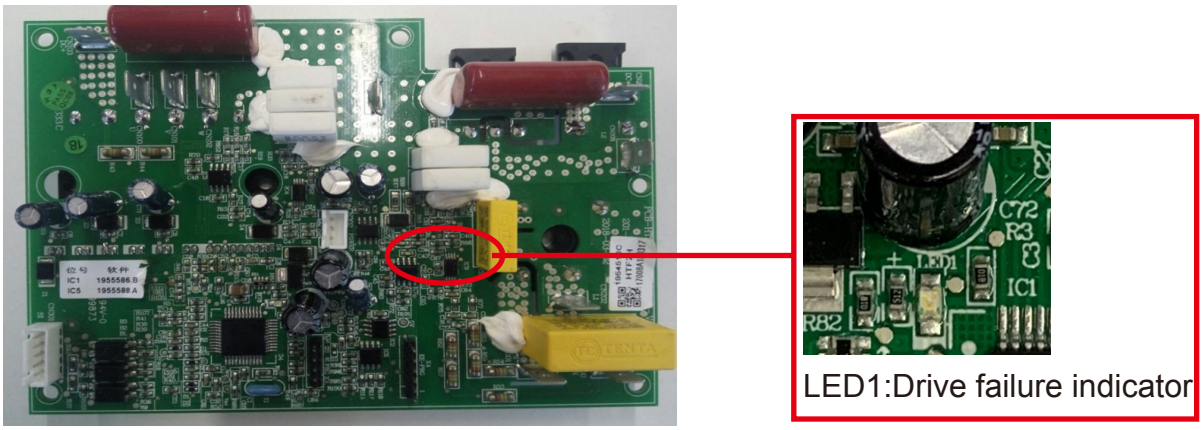
The lamp of drive board flashing shows failure occurs.

Drive fault code display

The lamp of drive board flashing shows failure occurs.

How many times the drive failure lamp flicks will show the failure code.

Single phase models:



Fault codes

The following is the fault code table of outdoor units.

Table 1 Outdoor fault code

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
1	Outdoor ambient temperature sensor fault	1.The outdoor ambient temperature sensor is connected loosely; 2.The outdoor ambient temperature sensor fails to work; 3.The sampling circuit fails.	1.Reconnect the outdoor ambient temperature sensor; 2.Replace the outdoor ambient temperature sensor components; 3.Replace the outdoor control board components.	
2	Outdoor coil temperature sensor fault	1.The outdoor coil temperature sensor is connected loosely; 2.The outdoor coil temperature sensor fails to work; 3.The sampling circuit fails.	1.Reconnect the outdoor coil temperature sensor; 2.Replace the outdoor coil temperature sensor components; 3.Replace the outdoor control board components.	
3	The unit over-current turn off fault	1. Control board current sampling circuit fails; 2. The current is over high because the supply voltage is too low; 3. The compressor is blocked; 4. Overload in cooling mode; 5. Overload in heating mode.	1. Replace the electrical control board components; 2. Normal protection; 3. Replace the compressor; 4. Please see NOTE 3; 5. Please see NOTE 4.	
4	EEprom Data error	1.EE components fails; 2.EE components control circuit fails; 3.EE components are inserted incorrectly.	1.Replace the EE components; 2.Replace the outdoor control board components; 3.Reassemble the EE components.	
5	Cooling freezing protection (the indoor coil temperature is too low) or heating overload (indoor coil temperature is too high)	1.The indoor unit can not blow air normally; 2.The room temperature is too low in cooling mode or the room temperature is too high in heating; 3.The filter is dirty; 4.The duct resistance is too high to result in low air flow; 5.The setting fan speed is too low; 6.The indoor unit is not installed in accordance with the installation standards, and the air inlet is too close to the air outlet .	1.Check whether the indoor fan, indoor fan motor and evaporator work normally; 2.Normal protection; 3.Clean the filter; 4.Check the volume control valve, duct length etc.; 5.Set the speed with high speed; 6.Reinstall the indoor unit referring to the user manual to change the distance between the indoor unit and the wall or ceiling.	
7	The communication fault between the indoor unit and outdoor unit	1.The connection cable is connected improperly between the indoor unit and outdoor unit; 2.The communication cable is connected loosely; 3.The communication cable fails; 4.The indoor control board fails; 5.The outdoor control board fails; 6.Communication circuit fuse open; 7.The specification of communication cable is incorrect.	1.Reconnect the connection cable referring to the wiring diagram; 2.Reconnect the communication cable; 3.Replace the communication cable; 4.Replace the indoor control board; 5.Replace the outdoor control board; 6.Check the communication circuit, adjust the DIP switch and the short-circuit fuse. 7.Choose suitable communication cable referring to the user manual	

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
13	Compressor overheat protector device	1. The wiring of the overload protector is connected loosely. 2. The overload protector fails . 3. The refrigerant is not enough; 4. The installation pipe is much longer than the normal one, but extra refrigerant is not added ; 5. The expansion valve fails; 6. The outdoor control board fails.	1. Reconnect the wiring of the overload protector; 2. Replace the overload protector; 3. Check the welding point of the unit to confirm whether it is leakage, and then recharge the refrigerant; 4. Add the refrigerant; 5. Replace expansion valve; 6. Replace the outdoor control board.	
14	The high pressure switch operation or the unit is turned off for high pressure protection	1.The wiring of the high pressure protector is connected loosely; 2.The high pressure protector fails; 3.The outdoor control board is abnormal; 4. Overload in cooling; 5. Overload in heating.	1. Reconnect the wiring of the high pressure protector; 2. Replace the high pressure protector; 3. Replace the outdoor control board; 4. Please refer to NOTE 3; 5. Please refer to NOTE 4.	Applied to models with high pressure switch or pressure sensor
15	The low pressure switch protection or the unit is turned off for low pressure protection	1. The wiring of the low pressure switch is connected loosely; 2. The low pressure switch fails; 3. The refrigerant is not enough; 4. The expansion valve fails in heating mode; 5. The outdoor control board is abnormal.	1. Reconnect the wiring of the low pressure switch; 2. Replace the low pressure switch; 3. Check the welding point to confirm whether the unit leaks, and add some refrigerant; 4. Replace the expansion valve; 5. Replace the outdoor control board.	Applied to models with low pressure switch or pressure sensor
16	Overload protection in cooling mode	System overload	Please refer to NOTE 3.	
17	Discharge temperature sensor fault	1.The wiring of the discharge tempe-rature sensor is connected loosely; 2. The discharge temperature sensor fails; 3.The sampling circuit is abnormal.	1. Reconnect the wiring of the discharge temperature sensor; 2. Replace the discharge temperature sensor; 3. Replace the outdoor control board.	
18	AC voltage is abnormal	1.The AC voltage>275V or <160V; 2.The AC voltage of sampling circuit on the driver board is abnormal.	1. Normal protection, please check the supply power; 2. Replace the driver board.	
19	Suction temperature sensor fault	1.The wiring of the suction tempe-rature sensor is connected loosely; 2.The suction temperature sensor fails; 3.The sampling circuit is abnormal.	1.Reconnect the wiring of the suction temperature sensor; 2.Replace the suction temperature sensor; 3.Replace the outdoor control board.	
22	The defrosting sensor fault	1.The wiring of the defrosting sensor is connected loosely; 2.The defrosting sensor fails; 3.The sampling circuit is abnormal.	1. Reconnect the wiring of the defrosting sensor; 2. Replace the defrosting sensor; 3. Replace the outdoor control board.	
45	IPM fault	There are many reasons for this failure. You can check the driver board fault LED to further analyze the fault code of the drive board and to learn about what leads to the fault and how to operate it. Specific information can be seen in table 5, table 6.	See attached "analysis of the driving board fault".	

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
46	IPM and control board communication fault	1.The cable between the control board and the driver board is connected loosely; 2.The cable between the control board and the driver board fails; 3.The driver board fails ; 4.The control board fails.	1.Reconnect the cable between the control board and the driver board; 2.Replace the communication cable between the control board and the driver board; 3.Replace the driver board; 4.Replace the control board.	
47	Too high discharge temperature fault	1. The refrigerant of the unit is not enough; 2.The refrigerant of the unit is not enough due to that the installation pipe is longer. 3.Throttling service fails; 4.The outdoor ambient temperature is too high.	1.Check the welding point to confirm whether the unit has leakage point, and add some refrigerant; 2.Add some refrigerant referring to the installation user manual; 3.Replace the throttling service (such as capillary, expansion valve); 4.Normally protection.	
48	The outdoor DC fan motor fault (upper fan motor)	1.The connecting wiring of the up DC fan motor is loose; 2.The cord of the upper DC fan motor fails; 3.The upper DC fan motor fails; 4.The drive circuit of the upper DC fan motor fails; 5.The outdoor fan has been blocked.	1.Reconnect the wiring of the up DC fan motor; 2.Replace the upper DC fan motor; 3.Replace the upper DC fan motor; 4.Replace the driver board of the fan motor; 5.Check the outdoor fan and ensure the outdoor fan can run normally.	
49	The outdoor DC fan motor fault (down fan motor)	1.The connecting wiring of the down DC fan motor is loose; 2.The cord of the down DC fan motor fails; 3. The down DC fan motor fails; 4. The drive circuit of the down DC fan motor fails; 5. The outdoor fan has been blocked.	1. Reconnect the wiring of the down DC fan motor; 2. Replace the down DC fan motor; 3. Replace the down DC fan motor; 4. Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally.	
91	The unit turn off due to the IPM board over heating fault	1.The outdoor ambient temp. is too high; 2.The speed of the out fan motor is too low if the fan motor is AC fan motor; 3.The outdoor unit is not installed in accordance with the standard; 4.The supply power is too low.	1. Normal protection; 2. Check the fan capacitor, and replace the fan capacitor if it is failure; 3. Reinstalled the outdoor unit refer to the installation user manual; 4. Normal protection.	
96	Lacking of refrigerant	The refrigerant of the unit is not enough.	Discharge the refrigerant and charge the refrigerant referring to the rating label.	
97	4-way valve commutation failure fault	1.The connecting wiring of the 4-way valve coil is loose; 2.The 4-way valve coil fails; 3.The 4-way valve fails; 4.The driver board of the 4-way valve fails.	1. Reconnect the wiring of the 4-way valve; 2. Replace the 4-way valve coil; 3. Replace the 4-way valve; 4.Replace the driver board of the 4-way valve.	

The following is the fault code table of indoor unit.

Table 2 Indoor fault code

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
51	Drainage protection	1. The water level of the drain pan exceed safe level; 2. The cable of the water level switch is connected loosely; 3.The water level switch fails; 4.The control board fails.	1.1 Check whether there is something blocking the drain hose or the height of the drain hose is too high; 1.2 Check the water pump and replace the water pump if the water pump fails; 2. Reconnect the cable of the water level switch referring to the wiring diagram; 3. Replace the water level switch; 4. Replace the control board.	
55	Mode conflict fault	The user set the conflicting mode for more than two indoor units.	Reset the operation mode for the indoor unit, for with one outdoor unit, the user should avoid setting the conflicting operation mode with the indoor units.	
64	Communication between Indoor & Outdoor unit Fault	1. The indoor unit and the outdoor unit are not connected properly; 2. The communication cable is connected loosely; 3. The communication cable between the indoor unit and the outdoor unit is failure or the cable between the indoor control board to terminal fails or the cable between the outdoor control board to the terminal fails; 4. The indoor control board fails; 5. The outdoor control board fails.	1. Reconnect the connection cable referring to the indoor and outdoor wiring diagram; 2. Reconnect the communication cable referring to the indoor and outdoor wiring diagram; 3. Replace the communication cable referring to the indoor and outdoor wiring diagram; 4. Replace the indoor control board; 5. Replace the outdoor control board.	
71	Indoor unit zero check fault	1. The motor wire is loosen; 2. The motor connection is open; 3. The motor fails; 4. Control board fails. 5. Indoor fan is baffled.	1.Replace the motor wire and make sure the wire connect is well; 2. Replace the motor wire; 3. Change the motor; 4. Change the indoor control board; 5. Check and elimination of fan motor rotation.	
72	Indoor fan motor fault	1. The cable of the indoor fan motor is connected loosely; 2. The cable of the indoor fan motor fails; 3. The indoor fan motor fails; 4. The indoor control board fails.	1.Reconnect the cable of the fan motor; 2.Replace the cable of the fan motor; 3.Replace the fan motor; 4.Replace the indoor control board; 5.Check the indoor fan and ensure the indoor fan can run normally.	
73	Indoor EEPROM Data 1 fault	1. Indoor EE components fails; 2. The control circuit of the EE components fails; 3. The EE components has been inserted in opposite direction.	1. Replace the EE components; 2. Replace the indoor control board; 3. Reassembly the EE components of the indoor control board.	

Fault code	Fault description	Possible reasons for abnormality	How to deal with	Remarks
74	Indoor EEPROM Data 2 fault	EE in MCU fails, the unit can run, but the function user has set is ineffective.	Replace EE data in MCU.	
81	Indoor ambient Temperature Sensor Fault	1. The cable of the room temperature sensor is connected loosely; 2. The room temperature sensor fails; 3. The sampling circuit is abnormal.	1. Reconnect the cable of the room temperature sensor; 2. Replace the room temperature sensor; 3. Replace the indoor control board.	
83	Evaporator Middle Temperature Sensor Fault	1.The cable of the coil temperature sensor of the evaporator fails; 2.The coil temperature sensor of the evaporator fails; 3.The sampling circuit is abnormal.	1. Reconnect the cable of the coil temperature sensor of the evaporator; 2. Replace the coil temperature sensor of the evaporator; 3. Replace the indoor control board.	
FE (254)	Communication between main control board & Wired controller Fault (display on wired controller)	1. The wired controller and the indoor control board are connected loosely. 2. The sequence of the wiring between the wired controller to the indoor control board is wrong; 3. The wiring between the wired controller to the indoor control board fails; 4. The wired controller is fails; 5. The indoor control board is abnormal.	1.Reconnect the wiring between the wired controller to the indoor control board; 2. Replace the wiring between the wired controller to the indoor control board; 3. Replace the wiring between the wired controller to the indoor control board; 4. Replace the wired controller; 5. Replace the indoor control board.	
ER	Communication between main control board & display board Fault (displays on display board)	1.The wiring between the display board to the indoor control board is connected loosely; 2.The sequence of the wiring between the display board to the indoor control board is wrong; 3.The wiring between the display board to the indoor control board fails; 4.The display board fails; 5.The indoor control board fails.	1. Reconnect the wiring between the display board to the indoor control board; 2. Replace the wiring between the display board to the indoor control board; 3. Replace the wiring between the display board to the indoor control board; 4. Replace the display board; 5. Replace the indoor control board.	

NOTE 1:

If the indoor unit can not start or the indoor unit stops itself after 30s, at the same time the unit do not display the fault code, please check the fire and the socket of the control board.

NOTE 2:

If the indoor unit displays the 75,76,77,78 fault code after you turn on the unit, please check the TEST seat of the indoor control board or the TEST detection circuit to see whether short circuit occurs.

NOTE 3: Overload in cooling mode

	Overload in cooling mode	
sr.	**The root cause**	**Corrective measure**
1	The refrigerant is excessive.	Discharge the refrigerant, and recharge the refrigerant referring to the rating label.
2	The outdoor ambient temperature is too high.	Please use it within allowable temperature range
3	Short-circuit occurs in the air outlet and air inlet of the outdoor unit.	Adjust the installation of the outdoor unit referring to the user manual.
4	The outdoor heat exchanger is dirty, such as condenser.	Clean the heat exchanger of the outdoor unit, such as condenser.
5	The speed of the outdoor fan motor is too low.	Check the outdoor fan motor and fan capacitor.
6	The outdoor fan is broken or the outdoor fan is blocked.	Check the outdoor fan.
7	The air inlet and outlet has been blocked.	Remove the blocked objects.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary.

NOTE 4: Over load in heating mode

	Overload in heating mode	
sr.	**The root cause**	**Corrective measure**
1	The refrigerant is excessive.	Discharge the refrigerant, and recharge the refrigerant referring to the rating label.
2	The indoor ambient temperature is too high.	Please use within allowable temperature range.
3	Short-circuit occurs in the air outlet and air inlet of the indoor unit.	Adjust the installation of the indoor unit referring to the user manual.
4	The indoor filter is dirty.	Clean the indoor filter.
5	The speed of the indoor fan motor is too low.	Check the indoor fan motor and fan capacitor.
6	The indoor fan is broken or the outdoor fan is blocked.	Check the indoor fan.
7	The air inlet and outlet has been blocked.	Remove the blocked objects.
8	The expansion valve or the capillary fails.	Replace the expansion valve or the capillary.

Table 3 Drive fault code (9K/12K/18K)

Fault code	Fault description	Possible reasons for abnormality	How to deal with
1	Inverter DC voltage overload fault	1. Power supply input is too high or too low; 2. Driver board fault.	1. Check power supply; 2. Change driver board.
2	Inverter DC low voltage fault		
3	Inverter AC current overload fault		
4	Out-of-step detection	1. Compressor phase lost ; 2. Bad driver board components ; 3. The compressor insulation fault.	1. Check compressor wire connection; 2. Change the driver board; 3. Change compressor.
5	Loss phase detection fault (speed pulsation)		
6	Loss phase detection fault (current imbalance)		
7	Inverter IPM fault (edge)	1. System overload or current overload; 2. Driver board fault. 3. Compressor oil shortage, serious wear of crankshaft ; 4. The compressor insulation fault.	1. Check the system. 2. Change the driver board; 3. Change the compressor; 4. Change the compressor.
8	Inverter IPM fault (level)		
9	PFC_IPM IPM fault (edge)		
10	PFC_IPM IPM fault (level)		
11	PFC power detection of failure	1. The power supply is not stable; 2. Instantaneous power off; 3. Driver board failure.	1. Check the power supply. 2. No need to deal with. 3. Change the driver board.
12	PFC overload current detection of failure.	1. System overload, current is too high; 2. Driver board fails; 3. PFC fails.	1.Check the system; 2.Change the driver board; 3.Change the PFC.
13	DC voltage detected abnormal .	1. Input voltage is too high or too low; 2. Driver board fails.	1. Check the power supply; 2. Change the driver board.
14	PFC LOW voltage detected failure.		
15	AD offset abnormal detected failure.	Driver board fails.	Change the driver board.
16	Inverter PWM logic set fault.		
17	Inverter PWM initialization failure		
18	PFC_PWM logic set fault.		
19	PFC_PWM initialization fault.		
20	Temperature abnormal.		
21	Shunt resistance unbalance adjustment fault		
22	Communication failure.	1. Communication wire connection is not proper; 2. Driver board fails; 3. Control board fails.	1. Check the wiring; 2. Change the driver board; 3. Change the control board.
23	Motor parameters setting of failure	Initialization is abnormal.	Reset the power supply.
25	EE data abnormal	Driver board EEPROM is abnormal	1. Change EEPROM ; 2. Change the driver board.
26	DC voltage mutation error	1. Power input changes suddenly 2. Driver board fails.	1.Check power supply, to provide stable power supply; 2.Change driver board.
27	D axis current control error	1. System overload, phase current is too high; 2. Driver board fails.	1. Check system to see if it works normally. 2. Check stop valve to see if it is open; 3. Change the driver board.
28	Q axis current control error	1. System overloads, phase current is too high ; 2. Driver board fails.	1. Check system to see if it works normally. 2. Check stop valve to see if it is open; 3. Change the driver board.
29	Saturation error of d axis current control integral	1. System overload suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check system to see if it works normally. 2. Check stop valve to see if it is open; 3. Change the driver board.
30	Saturation error of q axis current control integral	1. System overload suddenly; 2. Compressor parameter is not suitable; 3. Driver board fails.	1. Check system to see if it works normally. 2. Check stop valve to see if it is open; 3. Change the driver board.

Table 4 Drive Fault Code (24K/36K)

Fault code	Fault description	Possible reasons for abnormality	How to deal with
1	Q axis current detection, failure in drive control	1. Compressor wire is not connected properly; 2. Bad driver board components; 3. Compressor start load is too large; 4. Compressor demagnetization; 5. The compressor is short of oil, and the crankshaft is worn seriously; 6. The compressor insulation fails.	1. Check the compressor wire; 2. Change the driver board ; 3. Turn on the unit after the pressure is balanced again; 4. Change the compressor; 5. Change the compressor; 6. Change the compressor.
2	Phase current detection, failure in drive control	1.Compressor voltage default phase; 2.Bad driver board components; 3.The compressor insulation fault.	1.Check the compressor wire connection; 2.Change the driver board; 3.Change the Compressor.
3	Initialization, phase current imbalance	Bad driver board components.	Change the driver board .
4	Speed estimation, failure in drive control	1.Bad driver board components; 2.Compressor shaft is clamped; 3.The compressor insulation fails.	1.Change the driver board ; 2.Change the Compressor ; 3.Change the Compressor .
5	IPM FO output fault	1. System overload or current overloads. 2. Driver board fails; 3. The compressor is short of oil, and the crankshaft is worn seriously; 4. The compressor insulation fault.	1.Check the air conditioner system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
6	Communication between driver board and control board fault	1.Communication wire connection is not well; 2.Driver board fault; 3.Control board fault.	1. Check the compressor wire connect. 2. Change the driver board; 3. Change the control board ;
7	AC voltage,overload voltage	1. Supply voltage input is too high or too low; 2. Driver board fails;	1.Check the power supply; 2.Change the driver board;
8	DC voltage,overload voltage	1. Supply voltage input is too high ; 2. Driver board fault;	1. Check the power supply; 2. Change the driver board;
9	AC voltage imbalance	Driver board fails;	Change the driver board;
10	The PFC current detection circuit fault before compressor is ON	Bad driver board components.	Change the driver board.
11	AC voltage supply in outrange	1.Power supply is abnormal, power frequency is out of range; 2.Driver board fails;	1. Check the system; 2. Change the driver board;
12	Products of single-phase PFC over-current, FO output at low level	1. System overload, current is too large; 2. Driver board fault; 3. PFC fault.	1. Check the system; 2. Change the driver board; 3. Change PFC.
	Inverter over current (3-phase power supply air conditioners)	1. System overload, current is too large; 2. Driver board fault; 3. The compressor is short of oil, and the crankshaft is worn seriously; 4. The compressor insulation fault.	1. Check the system; 2. Change the driver board; 3. Change the Compressor; 4. Change the Compressor.
13	Inverter over current	1. System overload, current is too large; 2. Driver board fault; 3. The compressor is short of oil, and the crankshaft is worn seriously; 4. The compressor insulation fault.	1. Check the system; 2. Change the driver board; 3. Change the Compressor; 4. Change the Compressor.
14	PFC over current(single phase air-conditioner)	1. System overload, current is too large; 2. Driver board fault; 3. PFC fault.	1. Check the system; 2. Change the driver board; 3. Change PFC.
	Phase imbalance or phase lacks or the instantaneous power failure (only for 3-phase power supply air conditioners)	1.3-Phase voltage imbalance; 2.The 3-phase power supply phase lost; 3.Power supply wiring is wrong; 4.Driver board fault.	1, Check the power supply; 2. Check the power supply; 3. Check the power supply wiring connect; 4.Change the driver board.
15	The instantaneous power off detection	1.The power supply is not stable ; 2.The instantaneous power failure ; 3.Driver board fault.	1. Check the power supply; 2. Not fault; 3. Change the driver board.

Fault code	Fault description	Possible reasons for abnormality	How to deal with
16	Low DC voltage 200V	1. Voltage input is too low; 2. Drive board fault.	1. Check the power supply; 2. Change the driver board.
18	Driver board read EE data error	1. EEPROM has no data or data error; 2. EEPROM circuit fault.	1. Change EEPROM component; 2. Change the driver board.
19	PFC chip receive data fault	Abnormal communication loop.	Change the drive board.
20	PFC soft start abnormally	Abnormal PFC drive loop.	Change the drive board.
21	The compressor drive chip could not receive data from PFC chip.	Communication loop fault.	Change the drive board.

Field setting

Outdoor unit DIP switch

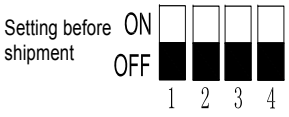
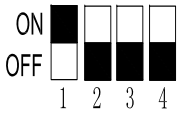
DIP Switch Setting of Outdoor Unit (24K/36K)

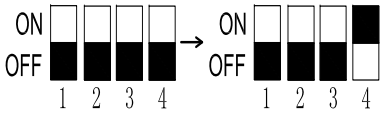
Turn off all power sources before setting. Without turning off, the switches settings are not refreshed and might be invalid. Mark of "■" indicates the position of DIP switches.

Setting is required

SW2-1	Refrigerant Piping Length Setting	SW2-4	Refrigerant Collection

Setting is required

Actual Piping Length L(m)	
L<15	15≤L<Max. length allowed
Setting before shipment 	



After setting refrigerant piping length dip switch, cooling/heating performance can be improved.

ESP setting

The static pressure can be freely adjusted by using specific wired remote controller.

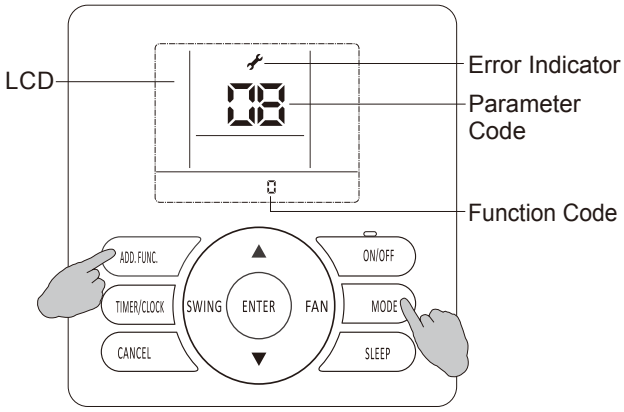


Fig 6.2

Model (Capacity Btu/h)	The Range of Static Pressure	Function Code Set
9K/12K/18K	0-0.20 in. H_2O (0-50Pa)	0-50 function code value equals static pressure value, more than 50 is 0.20 in. H_2O (50Pa), [default: 0 (0.18 in. H_2O or 45Pa)]
24K	0-0.40 in. H_2O (0-100Pa)	0-100 function code value equals static pressure value, more than 100 is 0.40 in. H_2O (100Pa), [default: 0 (0.18 in. H_2O or 45Pa)]
36K	0-0.56 in. H_2O (0-140Pa)	0-140 function code value equals static pressure value, more than 140 is 0.56 in. H_2O (140Pa), [default: 0 (0.23 in. H_2O or 57Pa)]

Static pressure setting:

1 Press and hold “MODE” button and “ADD.FUNC.” button for 3 seconds, symbol and parameter code starts blinking at the same time.

2 Press“▲/▼”button to adjust parameter number until “17” is displayed, and press “ENTER”button to enter system parameter adaption state, symbol stops blinking.

3 Select desired parameter code 10 by pressing “▲/▼” button, and press "ENTER" button to confirm.

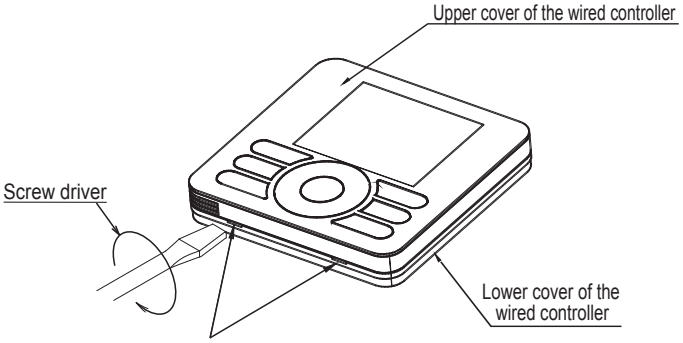
4 Select desired function code to rewrite the parameter values by pressing “▲/▼”button, and press "ENTER" button to confirm.

5 Press “ON/OFF” button or “CANCEL”button to quit.

Indoor unit parameter revision

1) Connecting wire remote controller with indoor unit

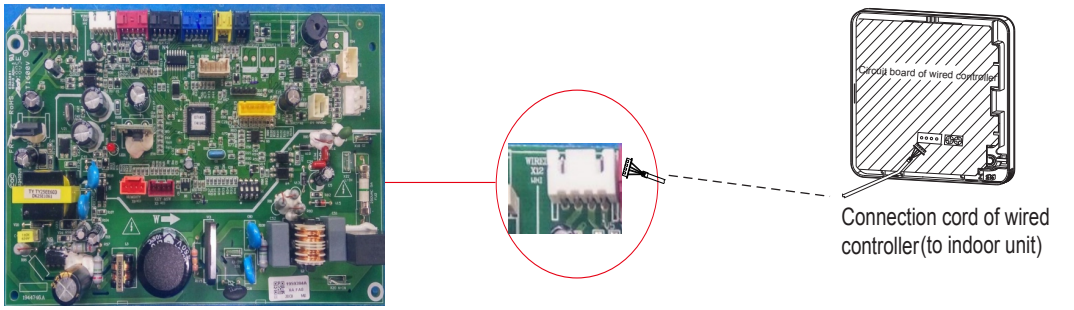
Step 1: Removing the upper cover of the wired controller



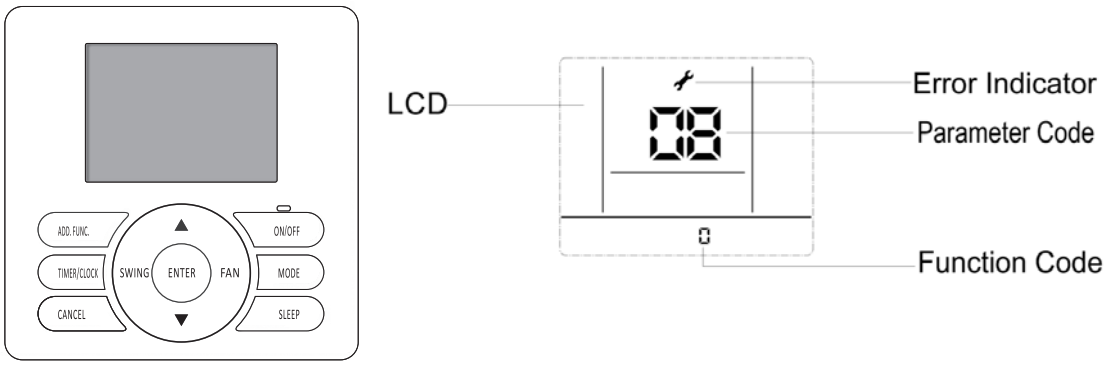
NOTE:

Control board of the remote controller is placed on upper cover. Please protect it from being scratched during removal and installation!

Step 2: Connecting wired controller with indoor unit



2) Changing system parameter



OPERATION:

① Hold down both “MODE” button and “ADD.FUNC.” button for 3 seconds, symbol and parameter number blink at the same time.

② Press“ ▲ ” “ ▼ ”button to adjust parameter number until “17” is displayed.
And press“ENTER”button to enter system parameter adaption st ate, symbol stop blinking, and parameter number blink.

③ Select desired parameter code by pressing “▲”/ “ ▼”button following the table below, and press “ENTER” button to confirm.

④ Select desired function code by pressing “▲”/ “ ▼”button, and press "ENTER" button to confirm.

PARAMETER CODE	PARAMETER DESCRIPTION	PARAMETER VALUE&REPRESENTATION		NOTE
		DATA TYPE	REPRESENTATION (FUNCTION CODE)	
1	Self Recovery of Power Break	Integer	0：Cancel Self Recovery of Power Break function； 1：Self Recovery of Power Break； others：invalid	
2	Temperature Type	Integer	0：Centigrade Temperature； 1：Fahrenheit Temperature； others：invalid	
3	Temperature Display Type	Integer	0：Default display set temperature； 1：Default display room temperature； others：invalid	
4	Ratio of ambient temperature sensed by indoor temperature sensor (cooling mode)	Integer	0~10valid，more than 10 default is10 0：0%；1：10%；…；10：100%	0-entirely use temperature sensed by wired remote controller; 10-entirely use temperature sensed by indoor unit
5	Filter Cleaning Indication	Integer	0: Cancel Filter Cleaning prompt function； 1: Set Filter Cleaning prompt function； others：invalid	
6	Filter Clean Time Setting	Integer	0~32，more than 32 default is 32*1000h	
7	Installation Height Compensation	Integer	0~10m, more than 10m default is 10. =0,1,2: no fan speed compensation; =3: increase fan speed; =4~10: increase more fan speed.	
8	Cooling Temperature Compensation (indoor unit temperature sensor)	Integer	0 : 0℃ ; 1 : -0.5℃ ; 2 : -1℃ ; 3 : -1.5℃ ; 4 : -2℃ ; 5 : -2.5℃ ; 6 : -3℃ ; 7 : -3.5℃ ; 8 : -4℃ ; 9 : -4.5℃ ; 10 : -5℃.(the wired controller displays integer with the symbol)	
9	Heating Temperature Compensation (indoor unit temperature sensor)	Integer	0 : 0℃ ; 1 : -0.5℃ ; 2 : -1℃ ; 3 : -1.5℃ ; 4 : -2℃ ; 5 : -2.5℃ ; 6 : -3℃ ; 7 : -3.5℃ ; 8 : -4℃ ; 9 : -4.5℃ ; 10 : -5℃. (the wired controller displays integer with the symbol)	
10	Static Pressure Setting	Integer	1~240，function code=static pressure more than the limit static pressure default the limit static pressure，Default is 0 (default static pressure, related to models)	Duct type (DC motor)
12	Ratio of temperature sensed by indoor temperature sensor (Heating mode)	Integer	0~10valid，more than 10 default is10 0：0%；1：10%；…；10：100%	0-entirely use temperature sensed by wired remote controller; 10-entirely use temperature sensed by indoor unit
13	Temperature Adjustment-Cooling	Character	-10~10℃（Single Character with symbol）	Temperature displayed on wired controller
14	Temperature Adjustment-Heating	Character	-10~10℃（Single Character with symbol）	Temperature displayed on wired controller
25	Access control, fire protection, ON/OFF function setting	Integer	=0，Access control, fire protection functions are all invalid； =1，Access control function is valid； =2，fire protection function is valid； =3，Access control, fire protection are all valid； =4，ON/OFF function is valid.	

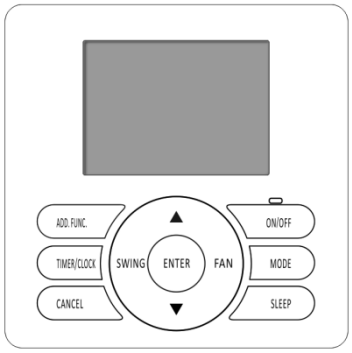
Running parameter query

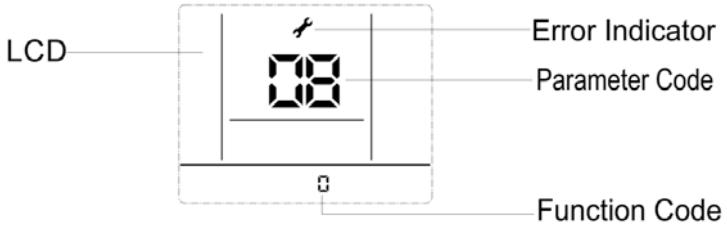
Running parameter can be referred to by 7 segment display or specified wired remote

controller. **Query by wired remote controller**

Operation:

1. Connect wired remote controller with indoor unit (same method as Indoor unit parameter revision)
2. Chang system parameter





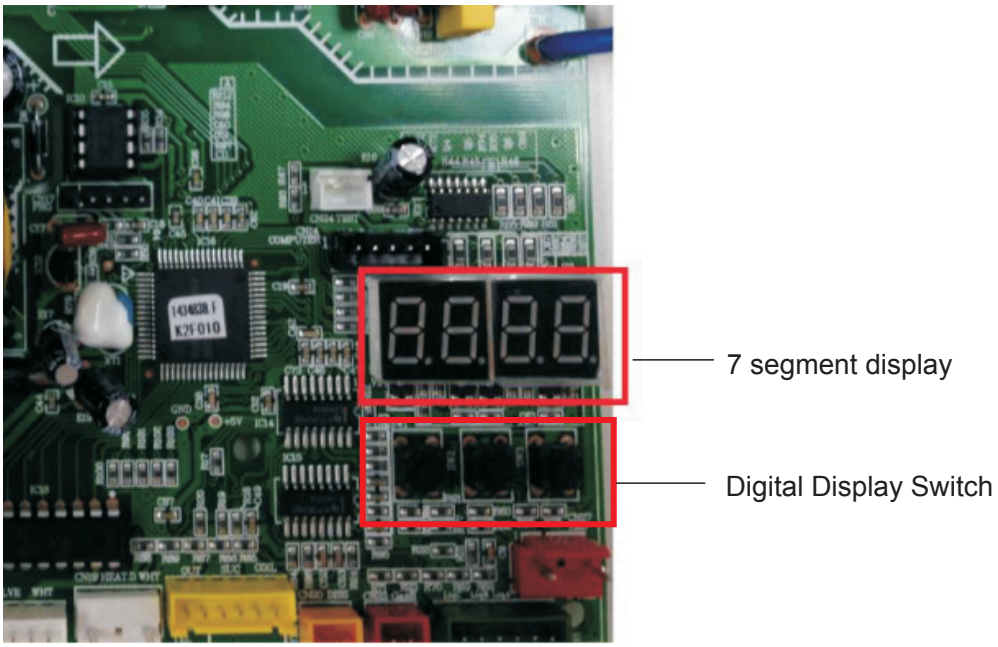
OPERATION:

① Hold down both "MODE" button and "ADD.FUNC." button for 3 seconds, symbol and parameter number blink at the same time.

② Press "▲" "▼"button to select parameter number as you need, parameter value will be displayed on the LCD.

Parameter Code	Parameter Description
06	Indoor unit air inlet temperature
07	Indoor unit coil sensor temperature
08	Outdoor unit ambient sensor temperature
09	Discharge temperature
10	Suction temperature
11	Outdoor coil temperature
12	Discharge pressure
13	Suction pressure
14	Outdoor EEV opening
15	AC current input
16	AC voltage
24	Error code
25	Drive error code
26	Indoor unit air outlet temperature
28	Compressor current
29	Indoor unit room temperature
30	Indoor unit coil inlet temperature
31	Indoor unit coil outlet temperature
32	Outdoor unit condenser inlet temperature
33	Outdoor unit condenser outlet temperature
43	Outdoor unit defrost temperature
57	Outdoor fan 1 speed
58	Outdoor fan 2 speed
60	Indoor fan speed

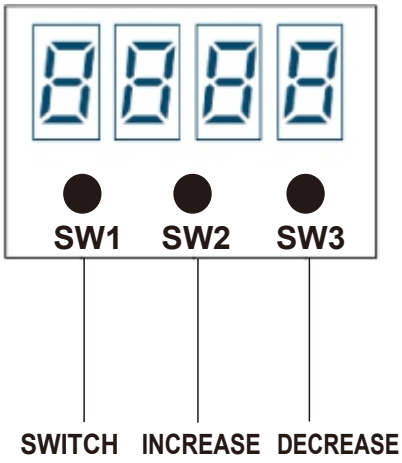
Query by 7 segment display



DC-Inverter outdoor control board

7 segment display Introduction

It can be used to check outdoor running parameters.



There are 3 buttons on the digital display board：

1) SWITCH button: Indoor parameters and outdoor parameters can be selected in turn by pressing it. “P.”-outdoor unit parameter, “H.”-indoor unit parameter;
2) INCREASE button: Each time it is pressed, the number rises by 1,hold down it, the number will be rapidly increased;
3) DECREASE button: Each time it is pressed, the number lowers by 1,hold down it, the number will be rapidly decreased.
4) The parameters will be displayed after 3s when the checking numbers are selected.

Parameters can be checked in the following table below.

Parameter code	Descriptions
0	Protecting Code or Fault code
P.1	Target Frequency
P.2	Driving Frequency
P.4	Outdoor EEV Opening
P.5	Outdoor EEV Target Opening
P.6	Upper DC Motor Revolving Speed
P.8	AC Input Voltage
P.9	Current
P.10	Modular Temperature
P.11	Capacity Needed
P.12	Modular Fault
P.20	Outdoor Ambient Temperature
P.21	Outdoor Coil Temperature
P.22	Outdoor Defrost Temperature
P.23	Suction Temperature
P.24	Discharge Temperature
H.1	Indoor Unit Fault
H.2	Indoor Ambient Temperature
H.3	Indoor Coil Temperature
H.4	Indoor Setting Temperature

Instructions for the function setting of access control, fire protection

1. Factory setting

In case of using or canceling the access control / fire protection function, use the wired controller to modify the parameters of indoor unit.

NOTE: please refer to “Site Setting” section in TC Manual for how to use the wired controller to modify the parameters of indoor unit.

2. Function introduction

(1) Access control: a kind of control mode to control the machine startup & shutdown based on the on & off state of the access control port.

(2) Fire protection: a kind of control mode to control the machine startup & shutdown based on the on & off state of the fire protection port.

3. Function setting

(1) Hardware connection

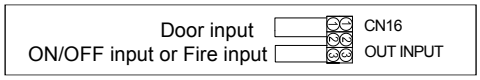


Figure 1 electrical wiring diagram

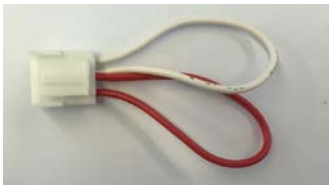


Figure 1 short wiring

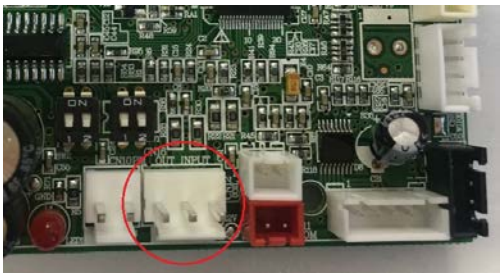


Figure 3 main control board

3 pins of the OUT INPUT CN16 socket shown in the electrical wiring diagram of Figure 1 are tacitly approved to be in short circuit state under the factory state (an external short circuit plug shown as Figure 2), and the OUT INPUT CN16 socket of main control board is shown as Figure 3.

(Illustration: the socket number in circuit is subject to the actual serial number of PCB.)

1) When using the door lock function, the user cuts off the red short wire shown in Figure 2 and accesses the door lock control switch (supplied by user), and the connecting wire should be 22AWG or above specification. The door lock switch is closed under normal conditions and off under abnormal conditions.
2) When using the fire protection function, the user cuts off the white short wire shown in Figure 2 and accesses the fire protection control switch (supplied by user), and the connecting wire should be 22AWG or above specification. The protection control switch is closed under normal conditions and off under abnormal conditions.

(2) Timing sequence description:

Access control:

1) Control of entrance card disconnection: the air conditioner shall be shut down after the access control signal is disconnected for 30 seconds. In this state, the indoor unit can’t be started. If the user performs starting operation, the wired controller shall not respond and displays power-off.

2) Control of entrance card connection: after the short circuit of entrance card interface, release power-on restrictions, the wired controller maintains power-off and the startup & shutdown control is effective.

(2) Fire protection

1) Access to fire protection: the air conditioner shall be shut down and not blow waste cold or warm air after the access control signal is disconnected for 3 seconds. In this state, the indoor unit can't be started. If the user performs starting operation, the wired controller shall not respond and displays power-off.

2) Cancellation of fire protection: after the short circuit of fire protection signal, release power-on restrictions, the wired controller maintains power-off and the startup & shutdown control is effective.

3.3 Relative priorities of instructions

Access control and fire prevention functions shall not affect each other.

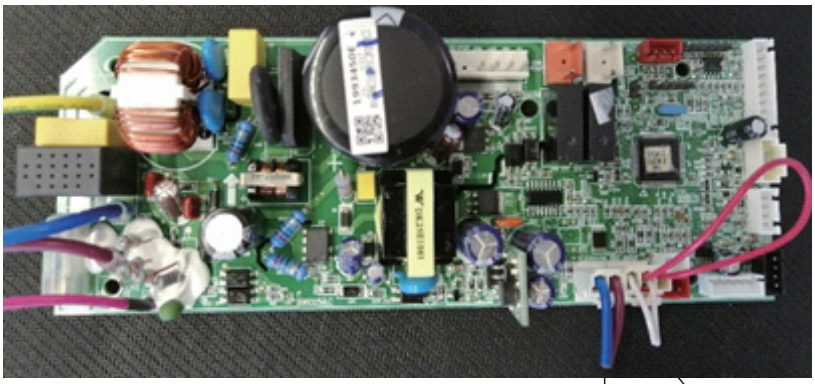
NOTE:
Figures in the manual are only simple representation of the control board, it may not comply with the appearance that you purchased.

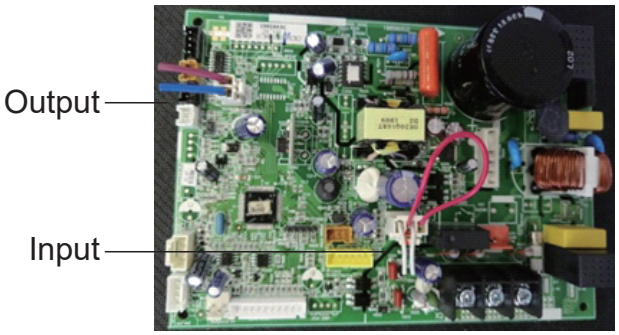
Instructions for the function setting of ON/OFF

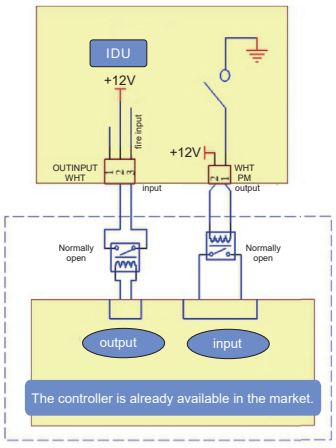
(1) The factory setting of access control and fire protection functions of the IDU are activated, while On/off functions are switched off. During on-site installation, access control and fire protection are available when you connect the corresponding cables correctly.

(2) The On/off function can switch on or off the air conditioner by a third-party controller, and activates the On/off function by setting the relevant parameters of the wired controller. When the On/off function is activated, the access control and fire protection functions will be disabled. On/off switch has the highest priority. Once started up by on/off switch, the unit will not be able to be switched off by wired controller or remote-controller. Once power off by on/off switch, the unit will not be able to be started up by wired controller, remote-controller. But other functions are still available by using wired controller, remote-controller.

(3) There are 3 different IDU control boards in figure 1, figure 2, all of them have corresponding hardware ports with access control, fire protection and On/off functions. On/off function signal INPUT port is the original fire function signal INPUT port (white cable), as shown in figure 1, figure 2. The unit will be started up when the white cable is connected, and the unit will be shut down when the white cable is disconnected. If other functions such as setting mode and temperature are needed, it should be realized by wired controller, remote-controller. The OUTPUT terminal in figure 1, figure 2 outputs 12V DC voltage signal (blue line is positive and brown line is negative) to a third-party controller when the unit has fault. And OUTPUT terminal in figure 1, figure 2 and will not OUTPUT the signal when there is no fault.



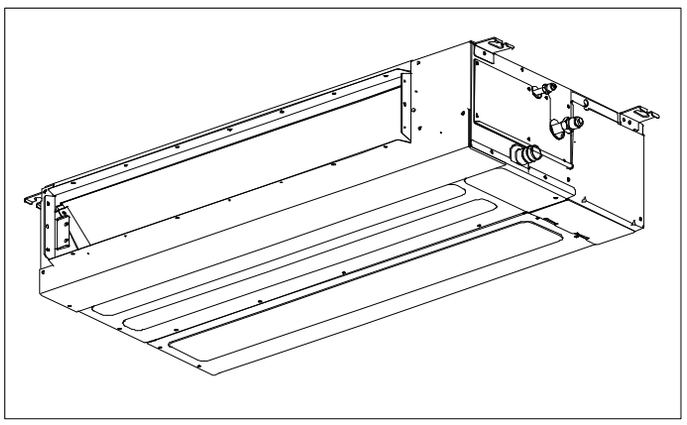


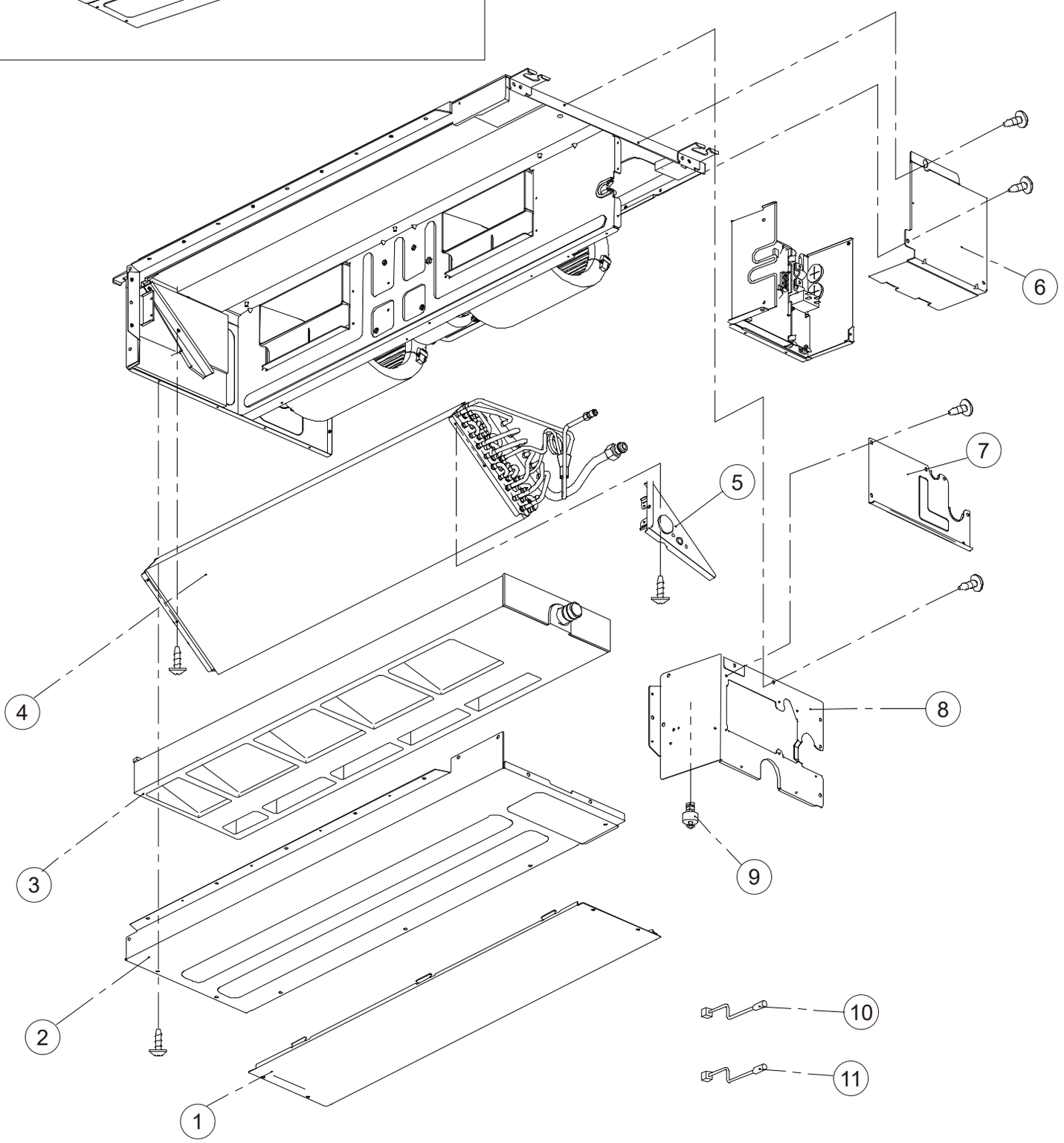


Parts list

Indoor unit

WHU09DHA21S





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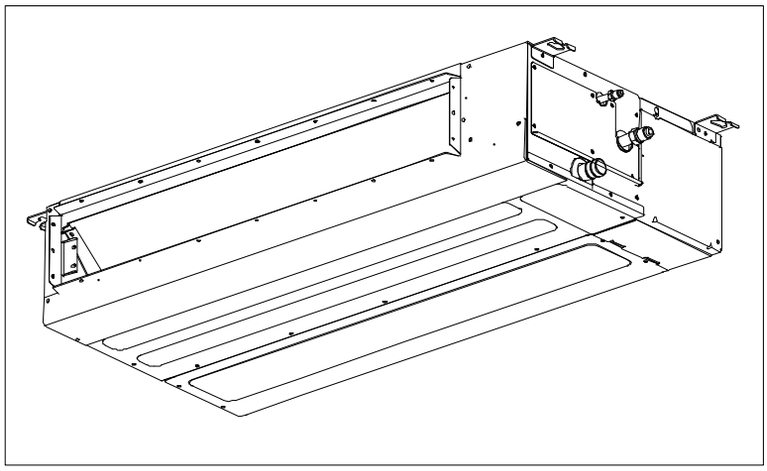

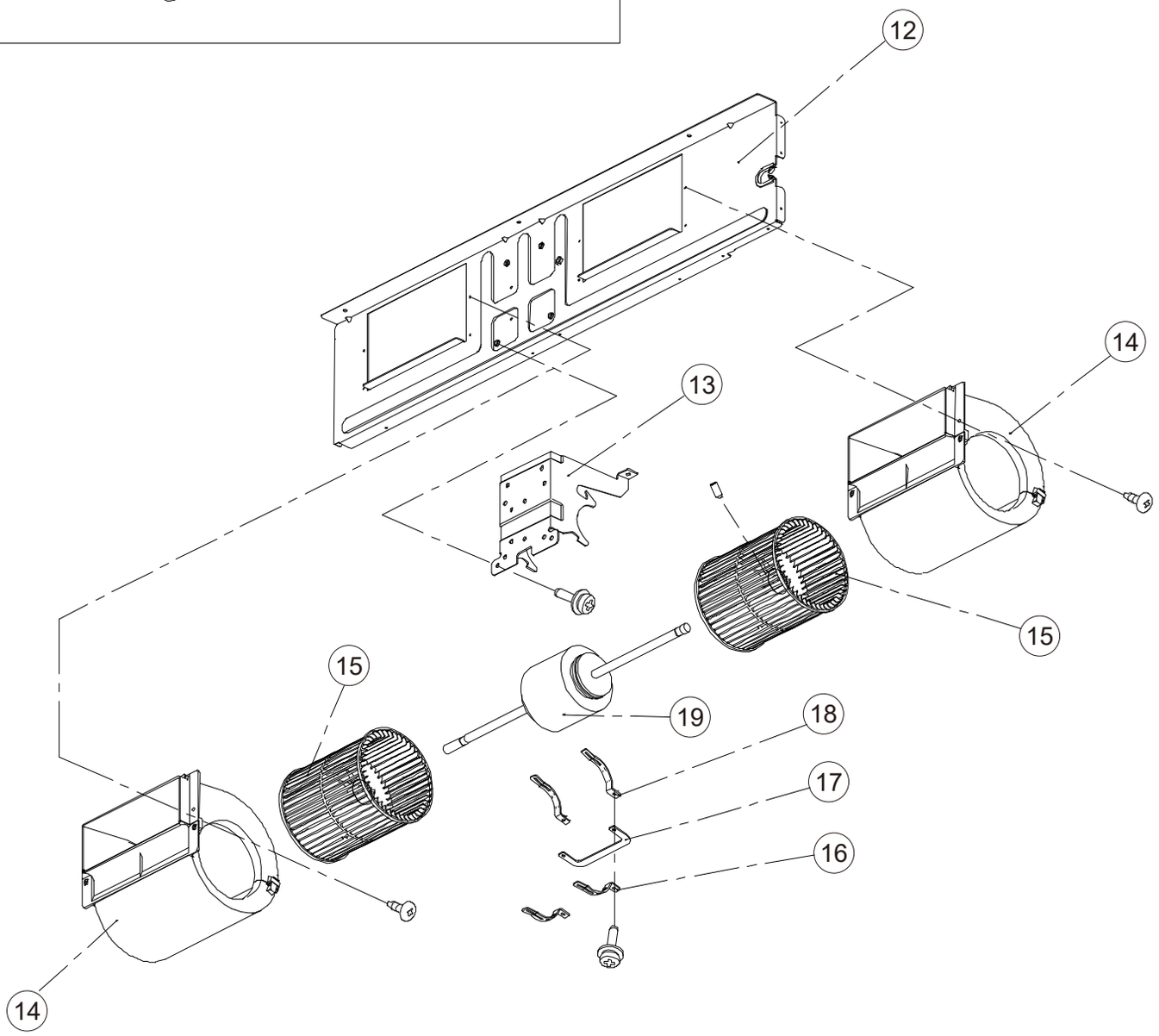

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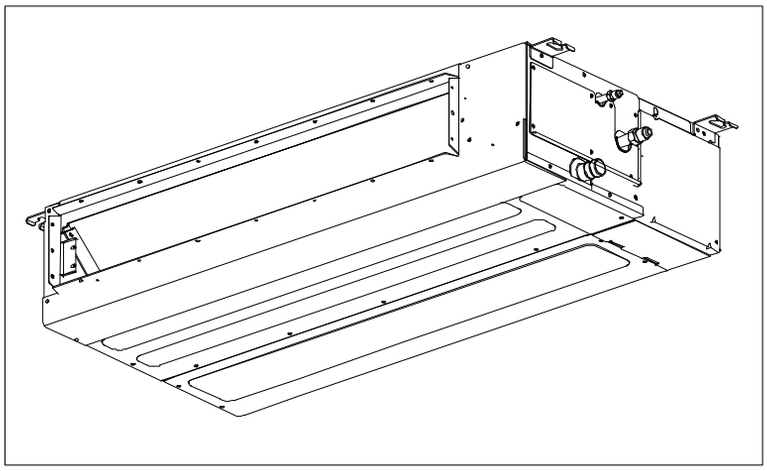
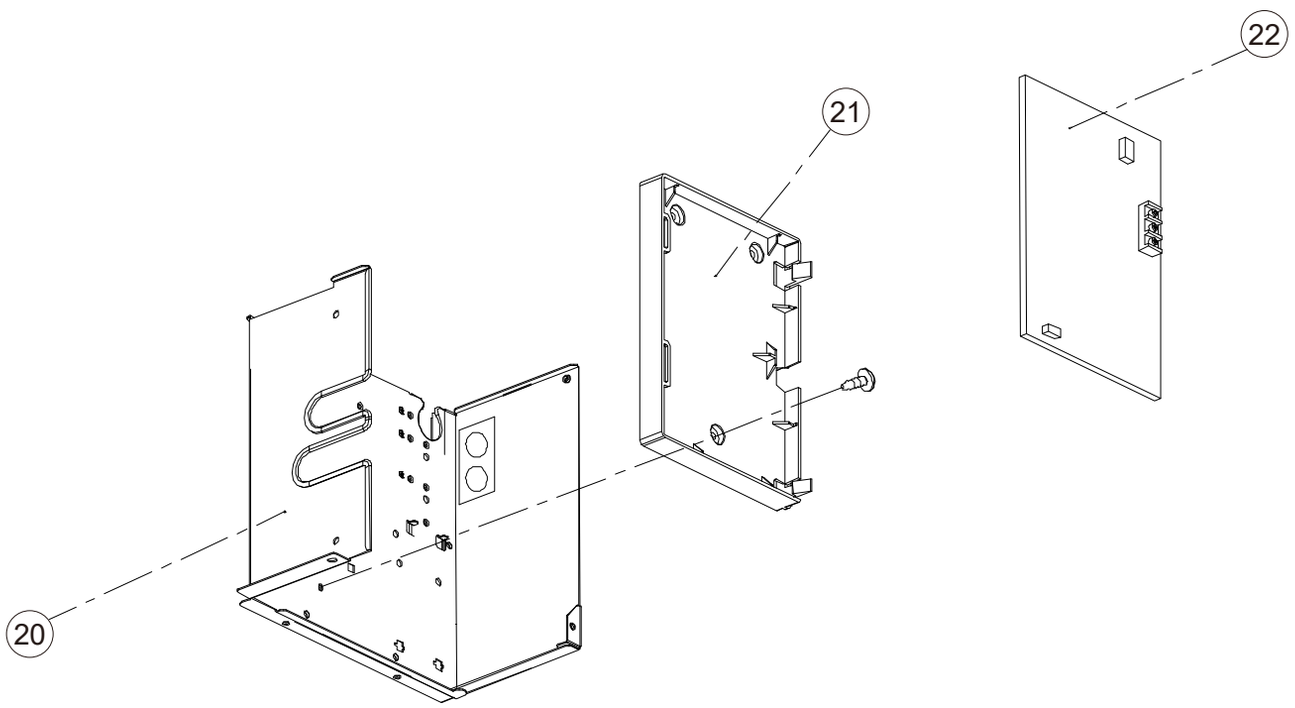


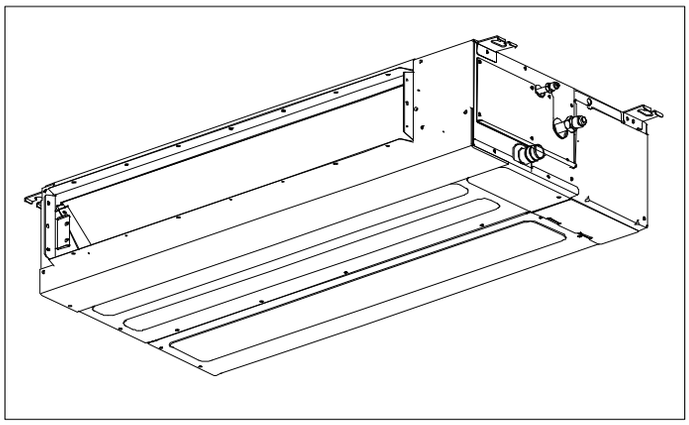


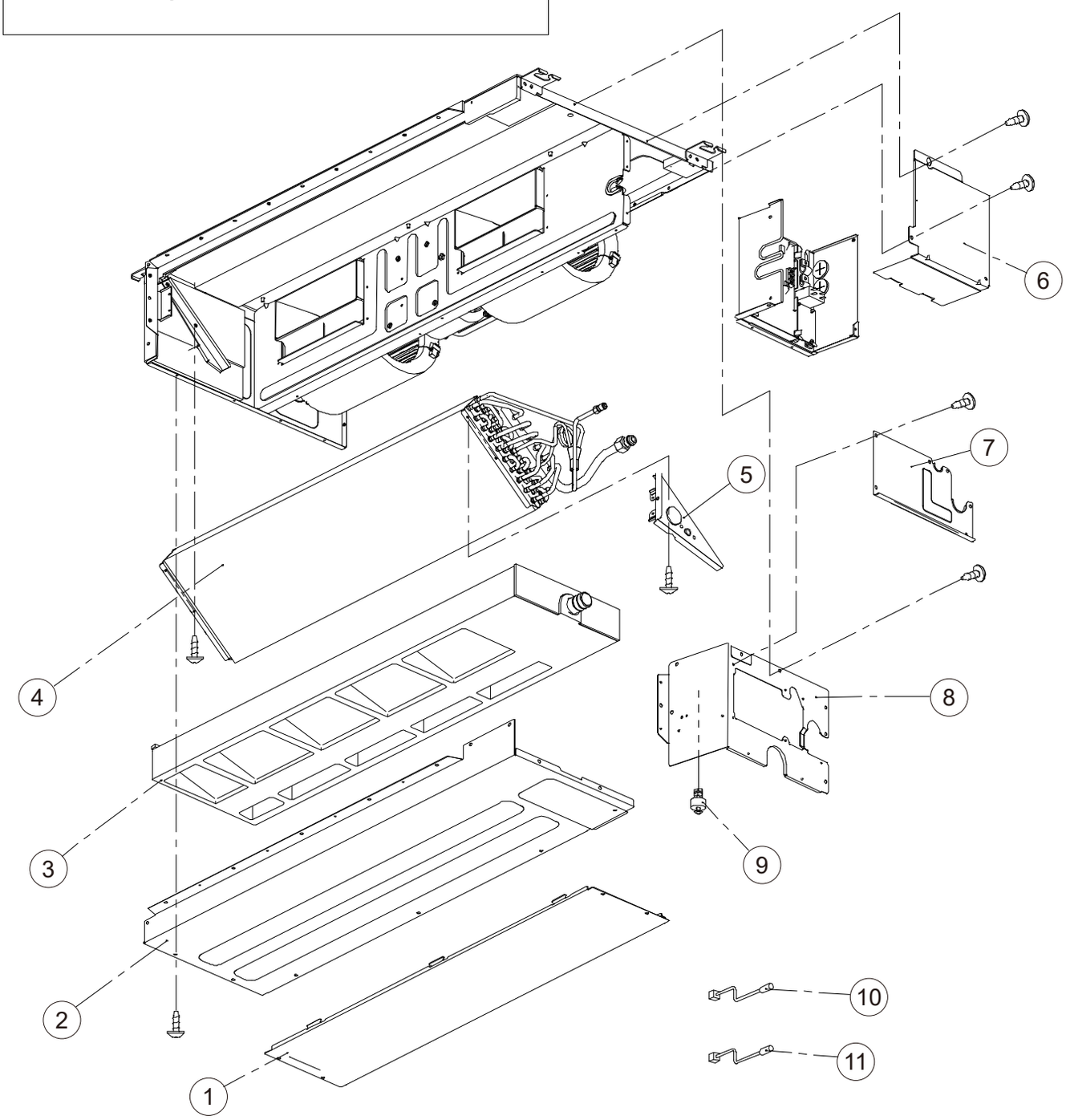
Indoor unit
WHU09DHA21S

No.	Part number	Description
1	1969154	Base panel
2	1969155	Bottom panel
3	1993005	Drain pan
4	1995110	Evaporator assembly
5	1998962	Supporting
6	1969103	Electric box cover
7	1996833	Seal panel
8	1967872	Right side panel
9	1976778	Float switch
10	1896665	Thermistor pipe
11	1858534	Temperature sensor
12	1992634	Fan panel
13	1992632	Motor bracket
14	1969168	Casing
15	1969181	Sirocco fan
16	1537916	Hooking
17	1987436	Connecting rod
18	1537915	Hooking
19	1917577	Fan motor
20	2011752	Electric box
21	2011732	Electric box
22	2012541	Controller PCB
—	1964450	Pump motor
—	2015192	Filter net assembly

Indoor unit

WHU12DHA21S





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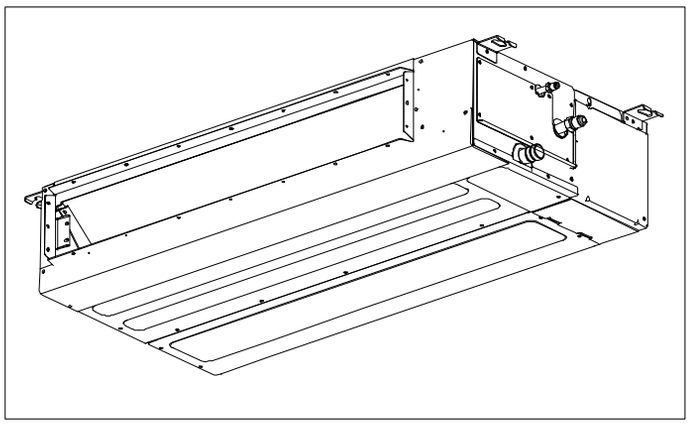

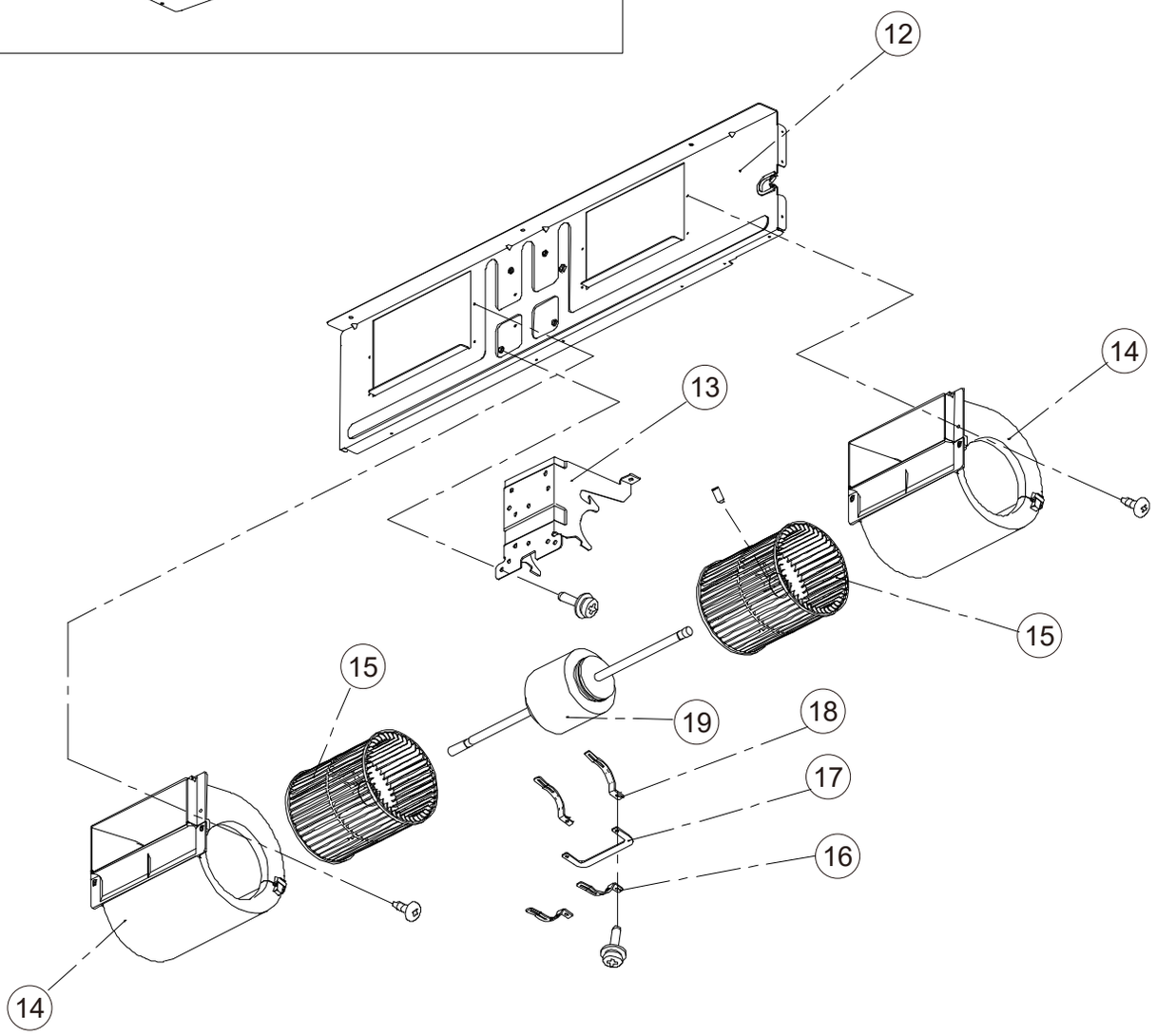

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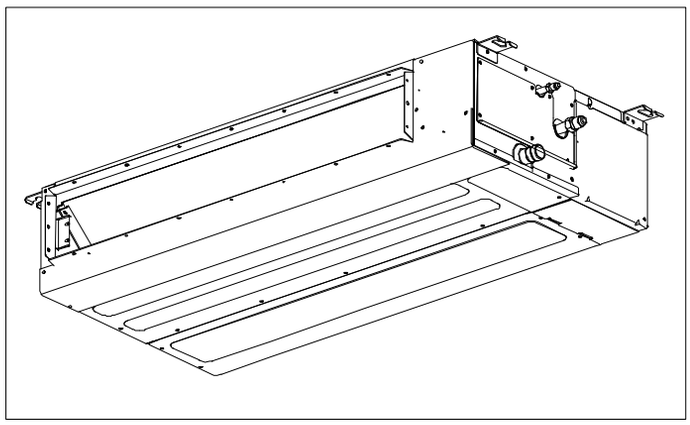
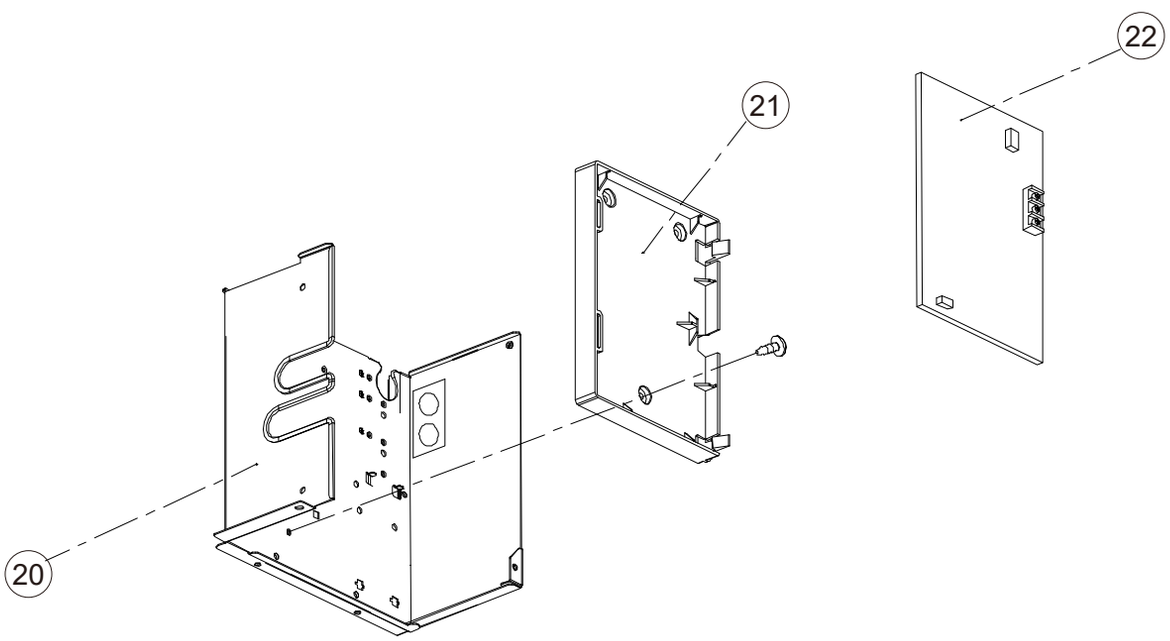


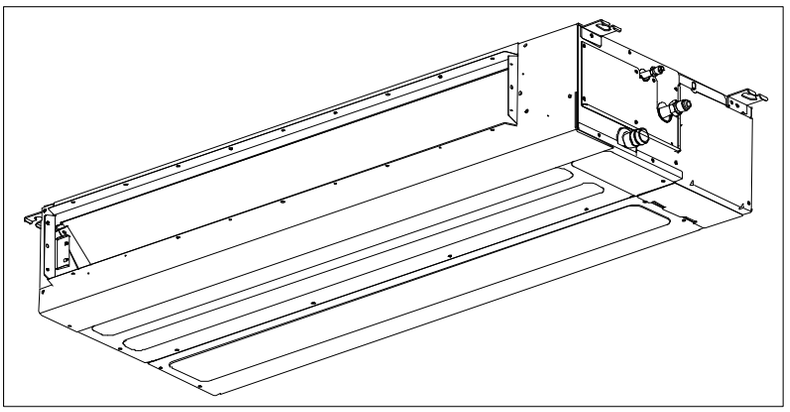


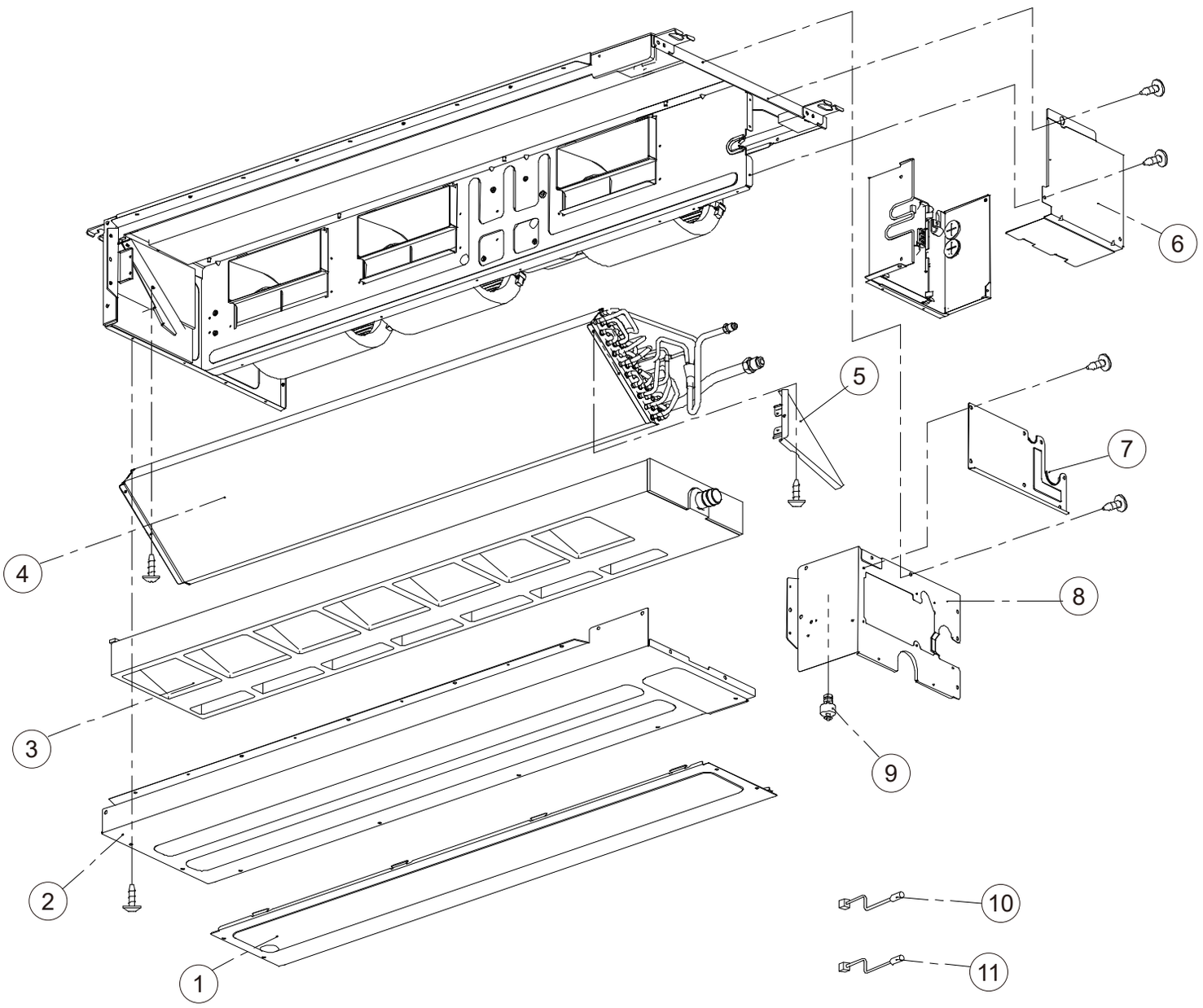
Indoor unit
WHU12DHA21S

No.	Part number	Description
1	1969154	Base panel
2	1969155	Bottom panel
3	1993005	Drain pan
4	1995110	Evaporator assembly
5	1998962	Supporting
6	1969103	Electric box cover
7	1996833	Seal panel
8	1967872	Right side panel
9	1976778	Float switch
10	1896665	Thermistor pipe
11	1858534	Temperature sensor
12	1992634	Fan panel
13	1992632	Motor bracket
14	1969168	Casing
15	1969181	Sirocco fan
16	1537916	Hooking
17	1987436	Connecting rod
18	1537915	Hooking
19	1917577	Fan motor
20	2011752	Electric box
21	2011732	Electric box
22	2012544	Controller PCB
—	1964450	Pump motor
—	2015192	Filter net assembly

Indoor unit

WHU18DHA21S





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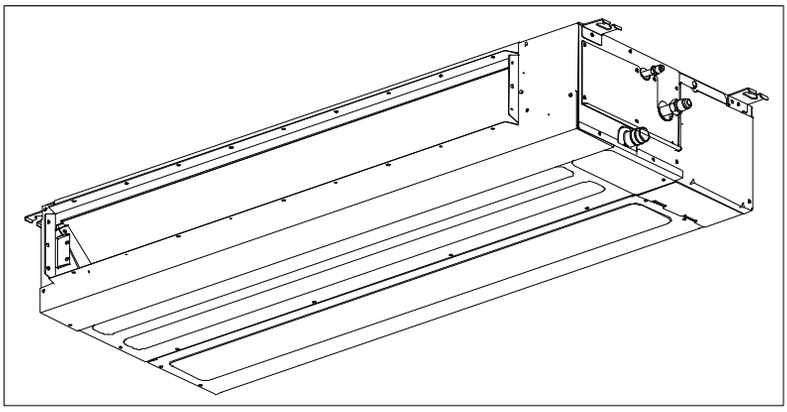

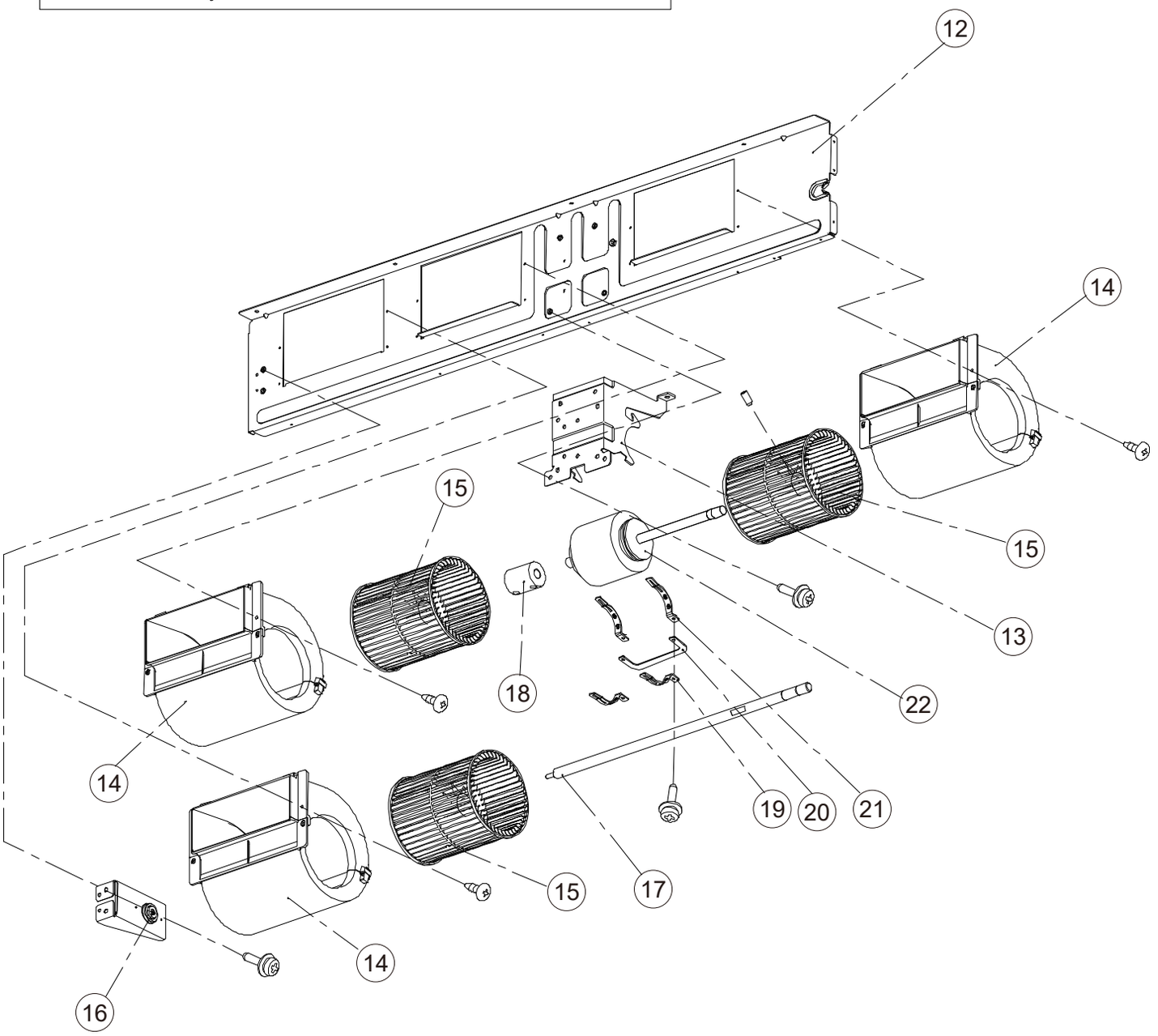

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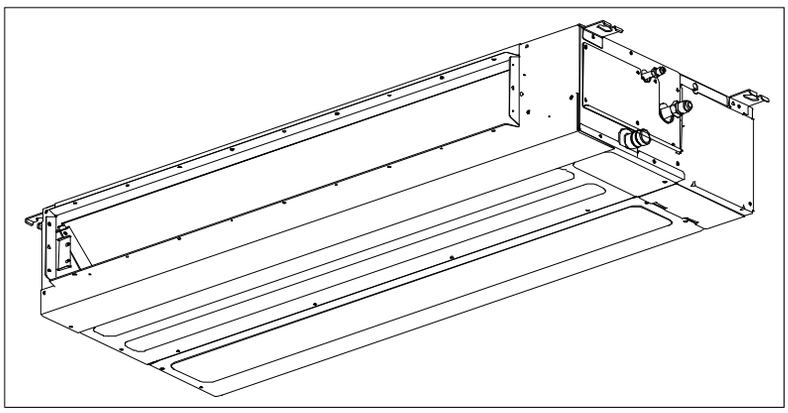
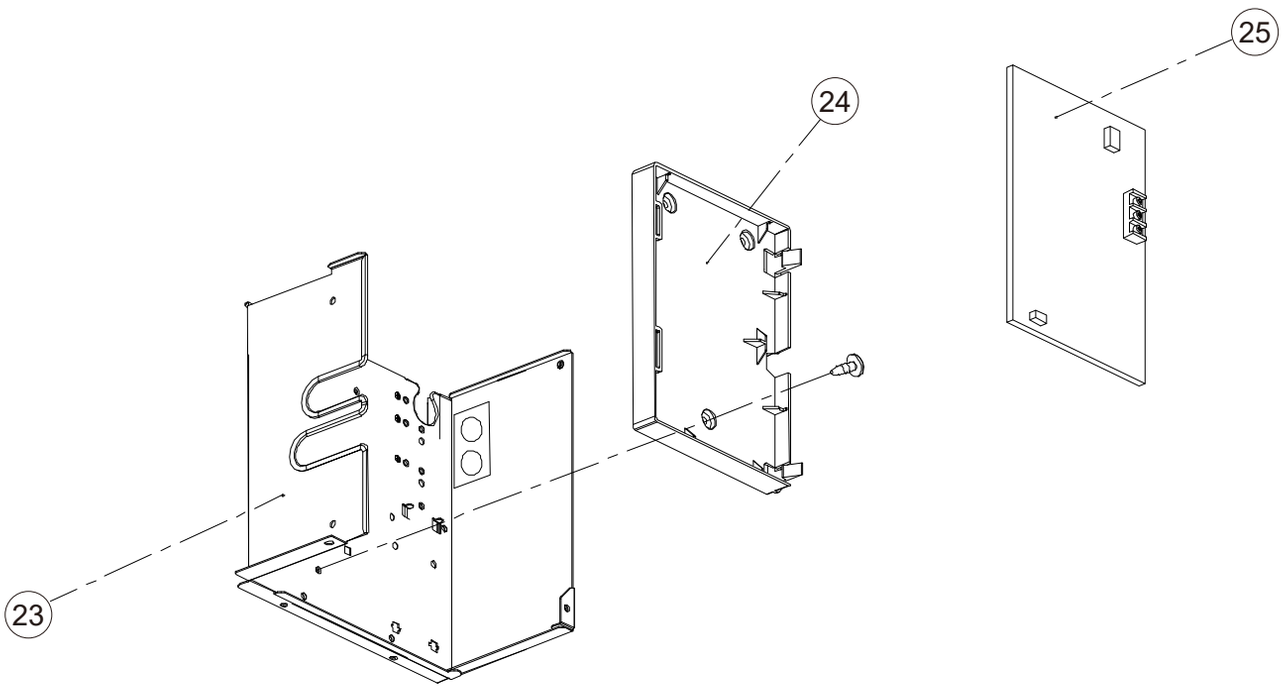


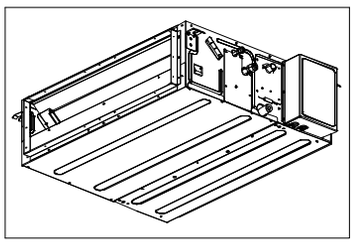


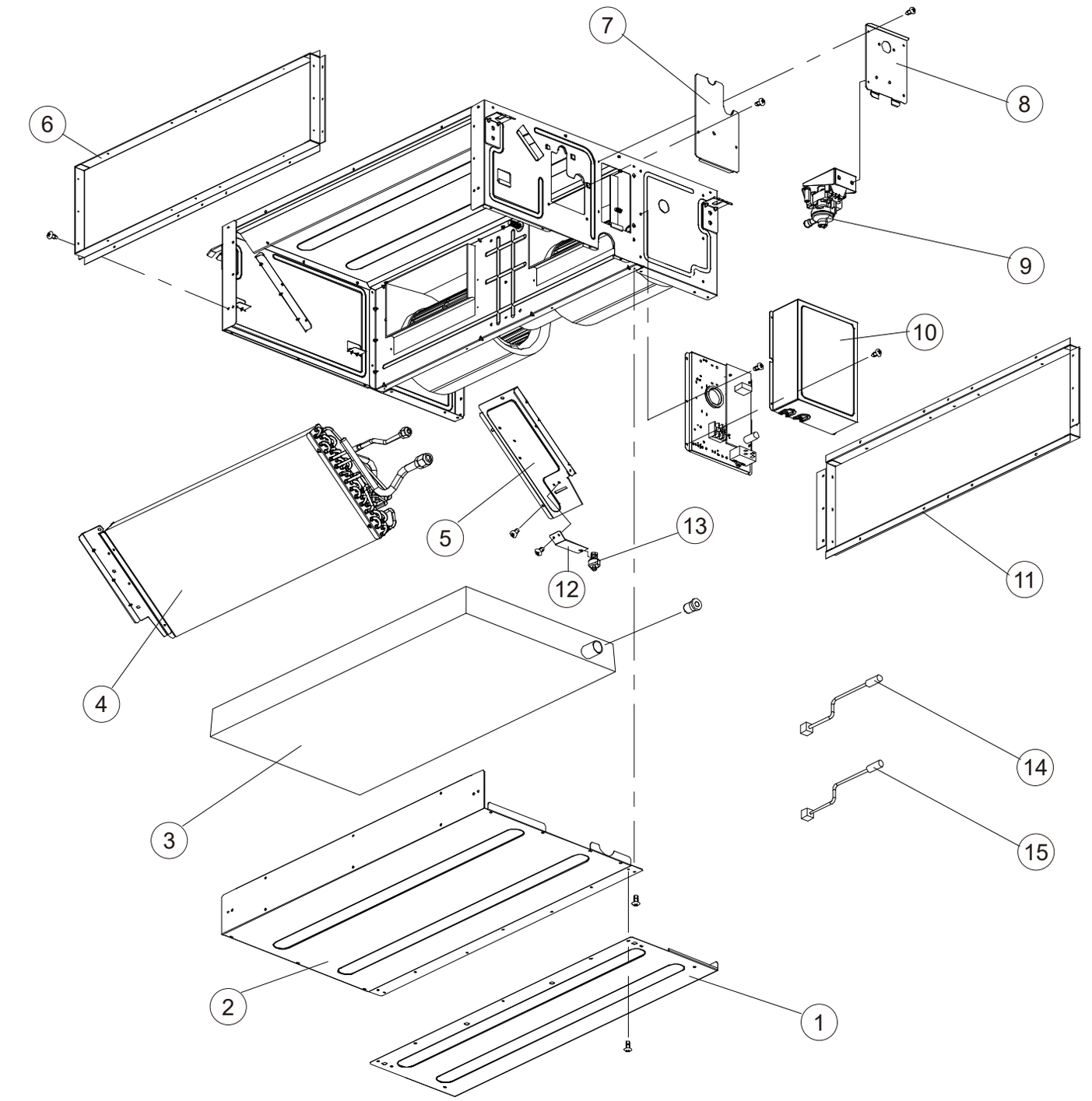
Indoor unit
WHU18DHA21S

No.	Part number	Description
1	1969208	Base panel
2	1969213	Bottom panel
3	1993004	Drain pan
4	1995617	Evaporator assembly
5	1998962	Supporting
6	1969103	Electric box cover
7	1968772	Seal panel
8	1967872	Right side panel
9	1976778	Float switch
10	1896665	Thermistor pipe
11	1858534	Temperature sensor
12	1992634	Fan panel
13	1992632	Motor bracket
14	1969168	Casing
15	1969181	Sirocco fan
16	1438648	Bearing
17	1969002	Shaft
18	2101914	Crosshead
19	1537916	Hooking
20	1987436	Connecting rod
21	1537915	Hooking
22	1917578	Fan motor
23	2011752	Electric box
24	2011732	Electric box
25	2012617	Controller PCB
—	1964450	Pump motor
—	2015193	Filter net assembly

Indoor unit

WHU24DHA21S





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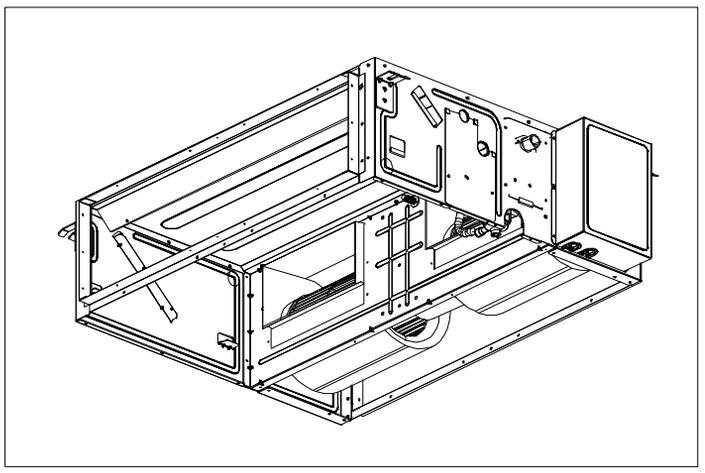

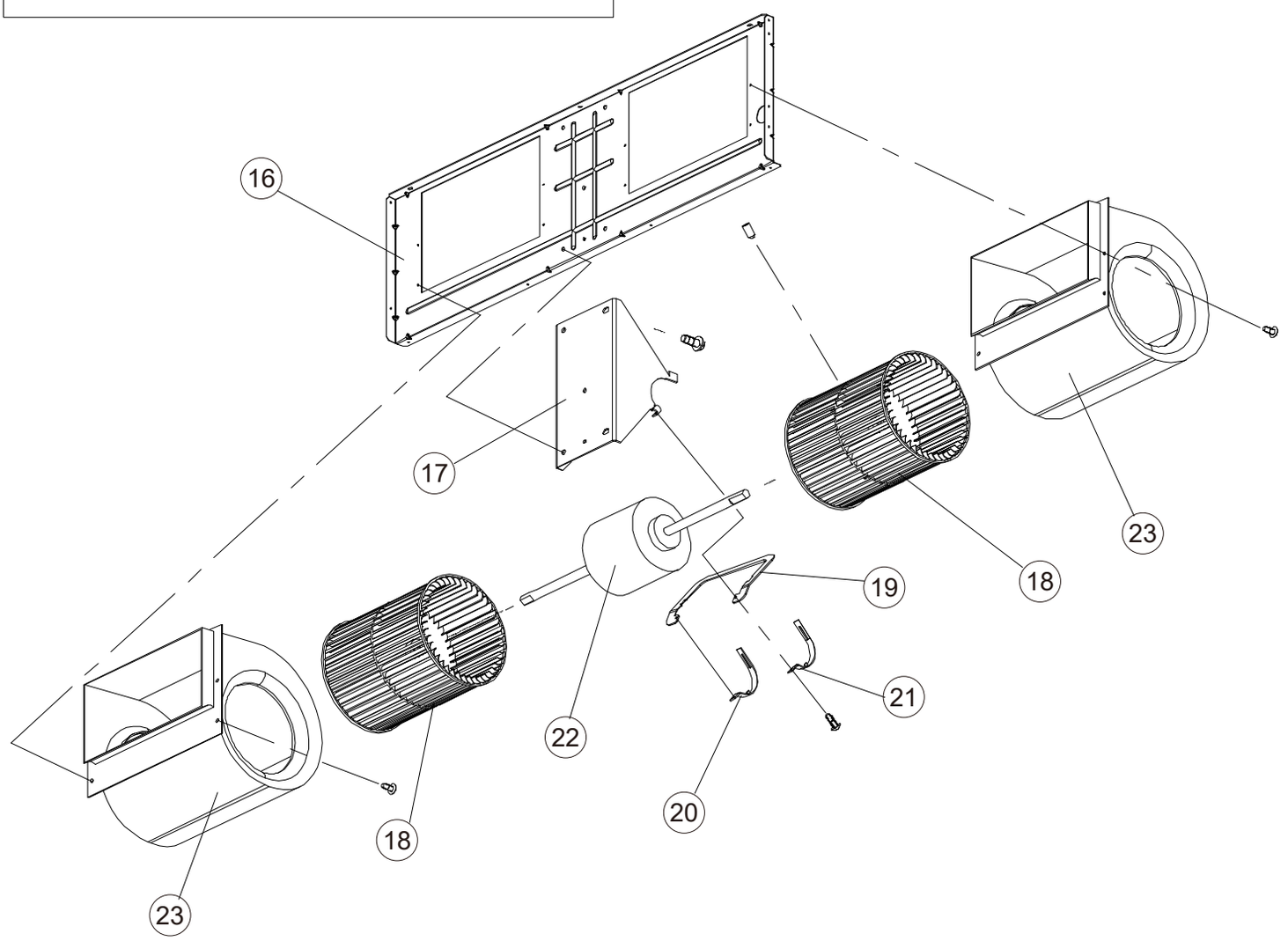

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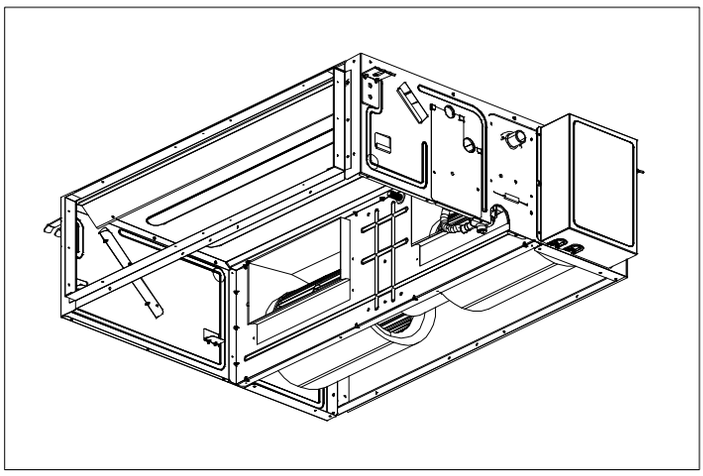
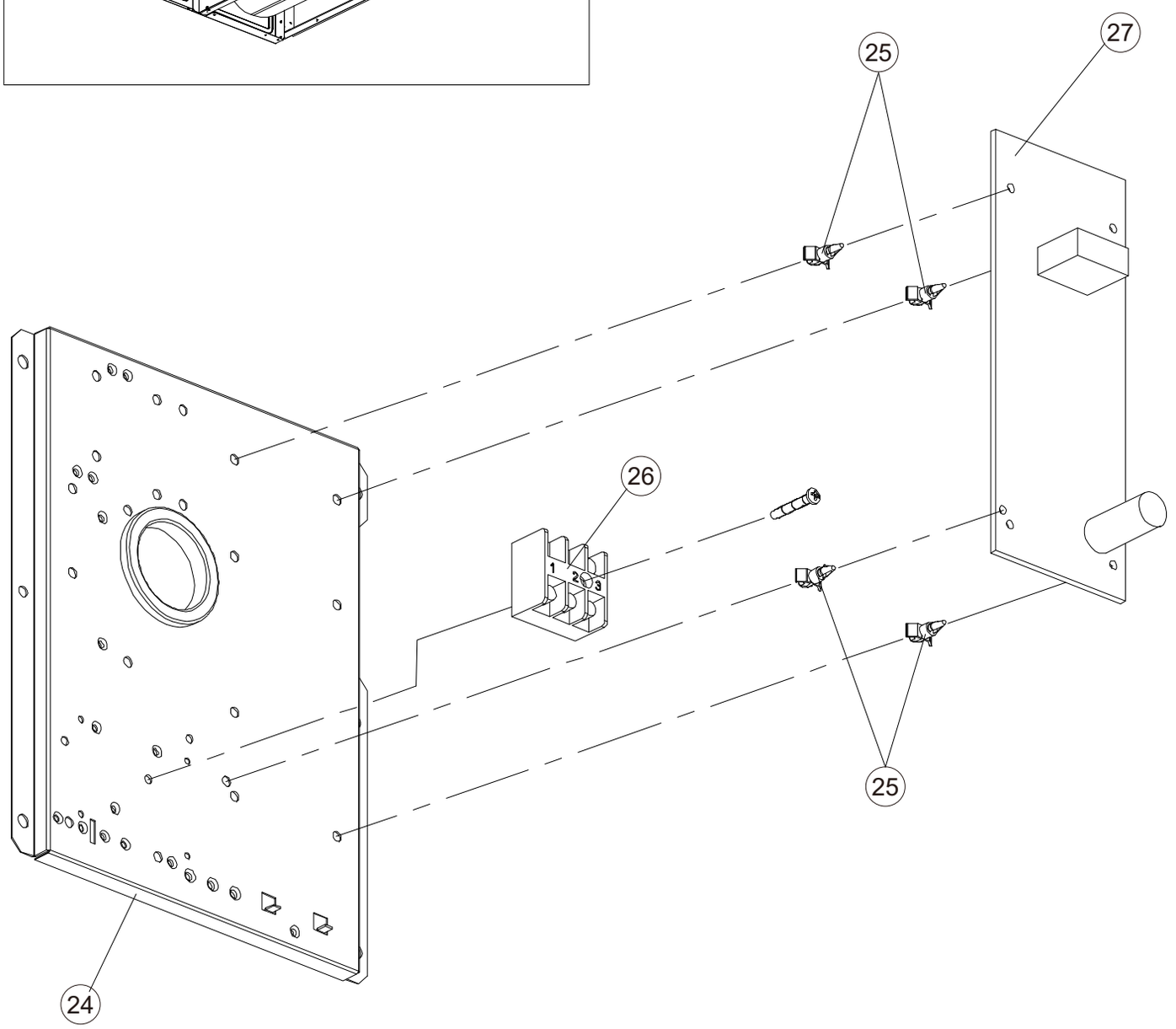




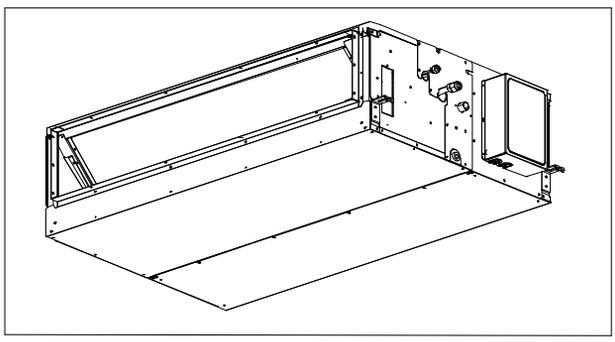
Indoor unit
WHU24DHA21S

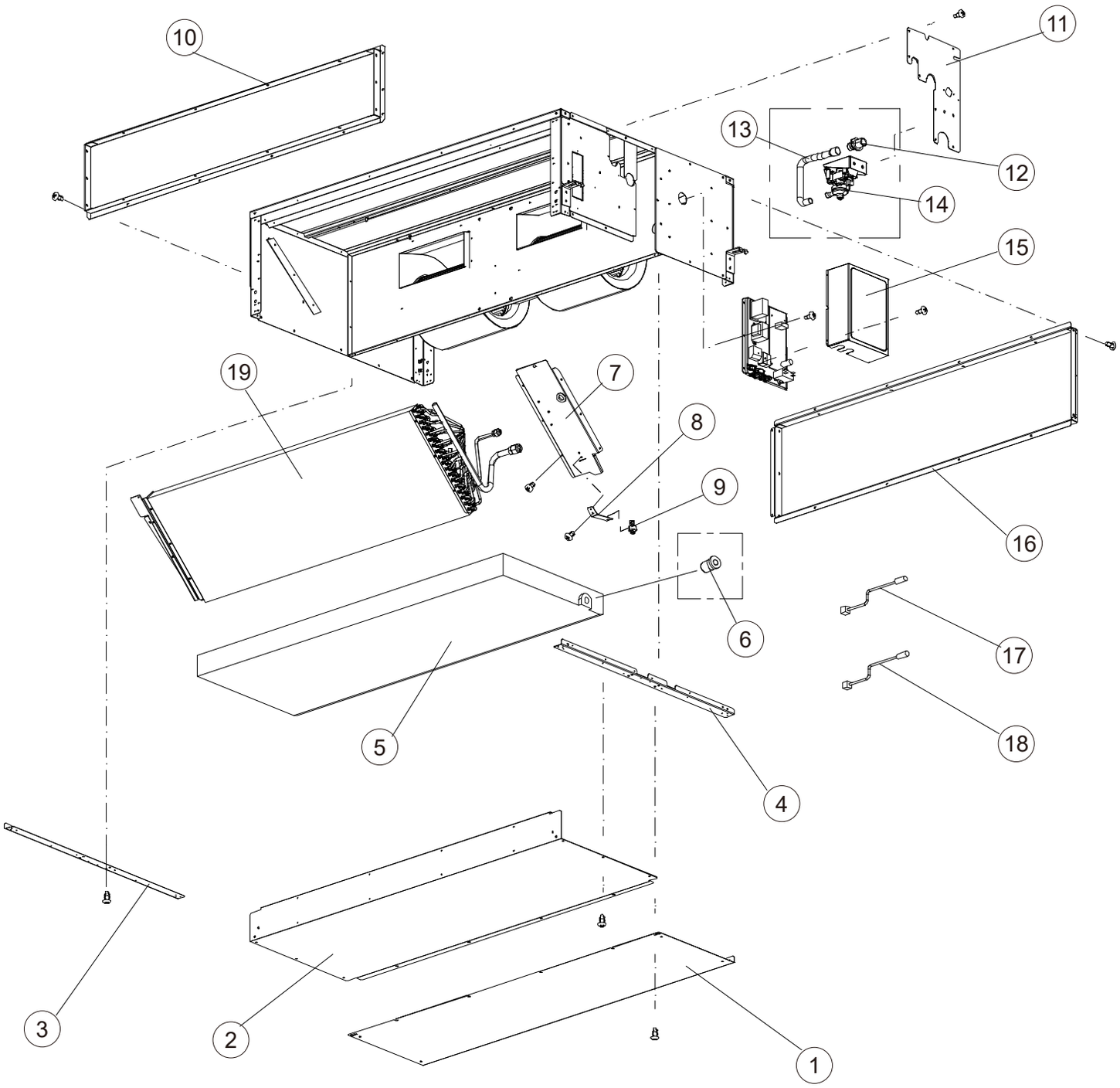
No.	Part number	Description
1	1485017	Base panel
2	1492894	Bottom panel
3	1832798	Drain pan
4	1413268	Evaporator assembly
5	1819938	Supporting
6	1492871	Outlet frame AS
7	1947623	Supporting
8	1947645	Supporting
9	1832801	Pump motor
10	2080728	Electric box cover
11	1543710	Inlet frame assembly
12	1484976	Float bracket
13	1362154	Float switch
14	1413278	Thermistor coil
15	1473879	Thermistor room
16	1493086	Fan panel
17	1520388	Motor bracket
18	1382431	Sirocco fan
19	1568929	Connecting rod
20	1437981	Hooking
21	1437979	Hooking
22	1517301	Fan motor
23	1384111	Casing
24	1484990	Electric box
25	1204016	Supporting leg
26	1993154	Wire terminal board
27	2089145	Controller PCB
—	1543684	Filter net assembly

AS: assembly

Indoor unit

WHU36DHA21S





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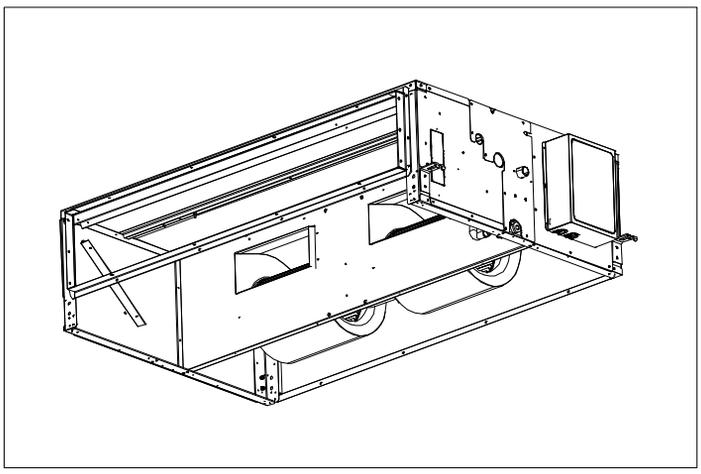

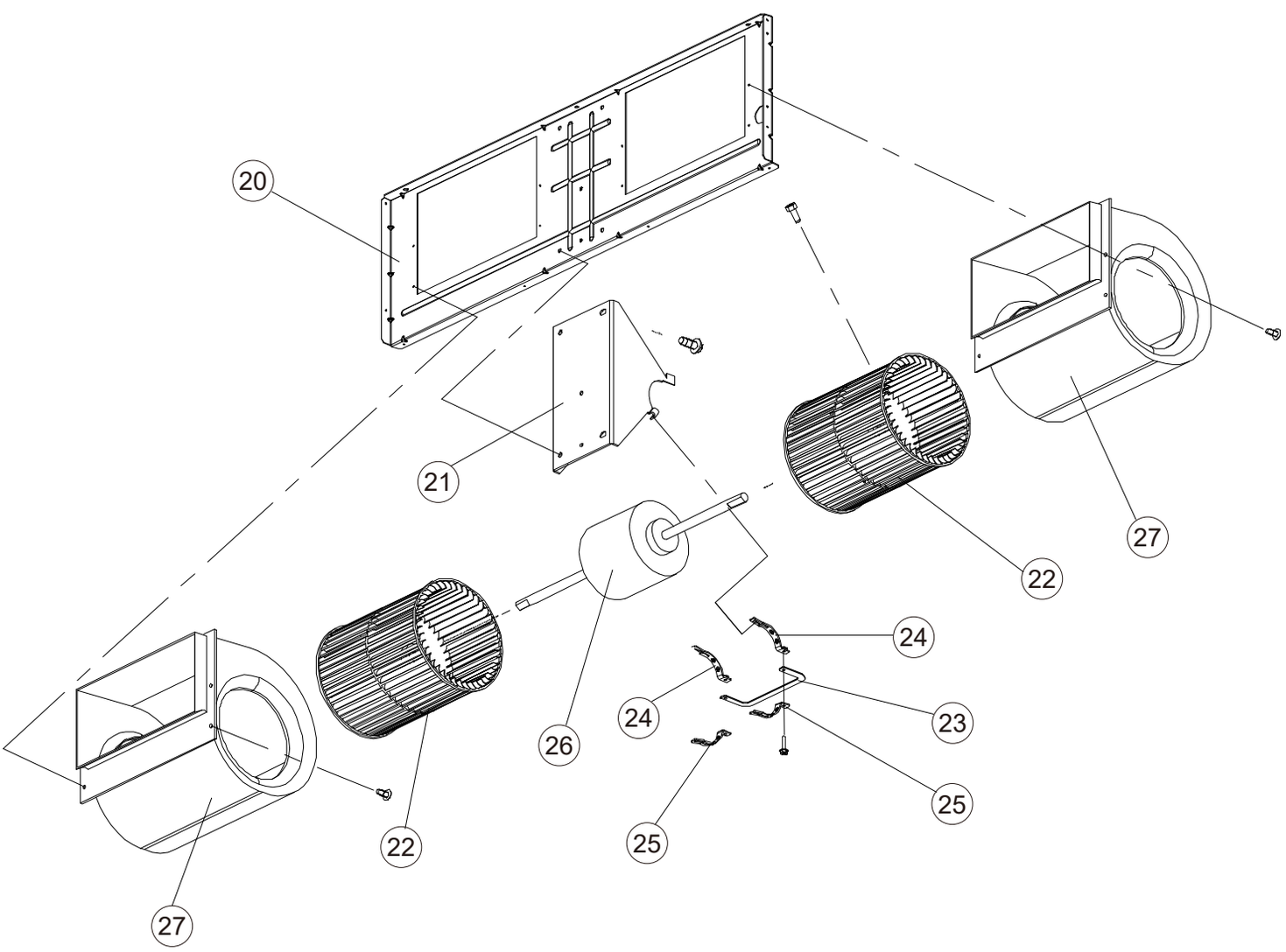

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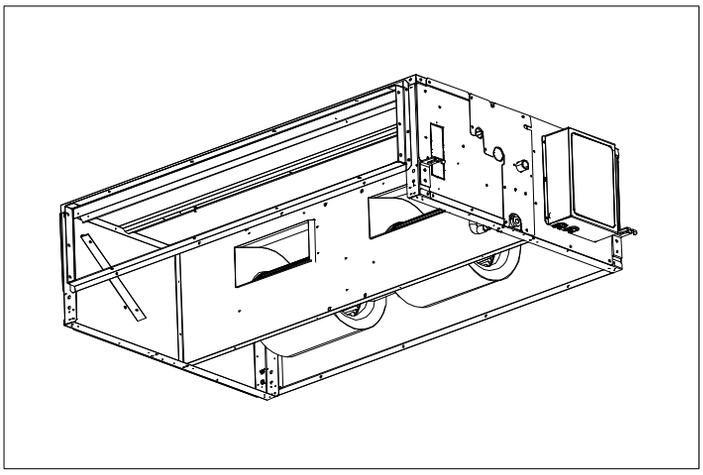
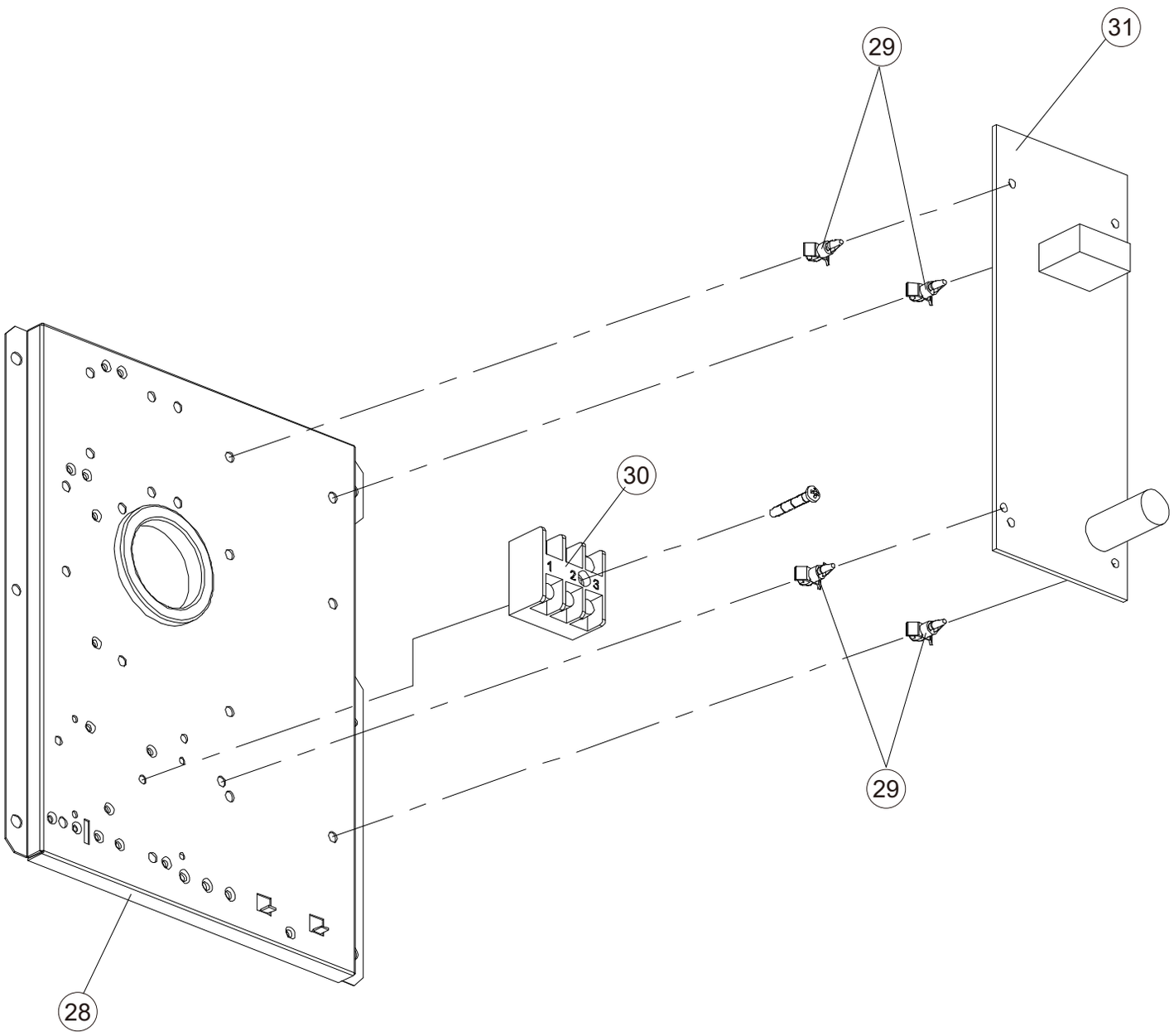




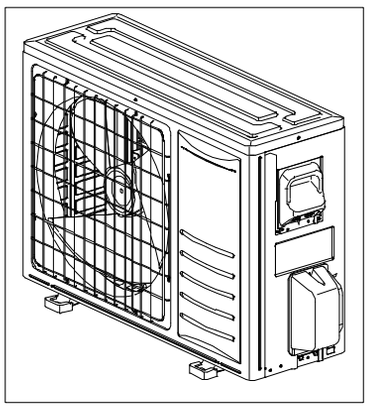
Indoor unit
WHU36DHA21S

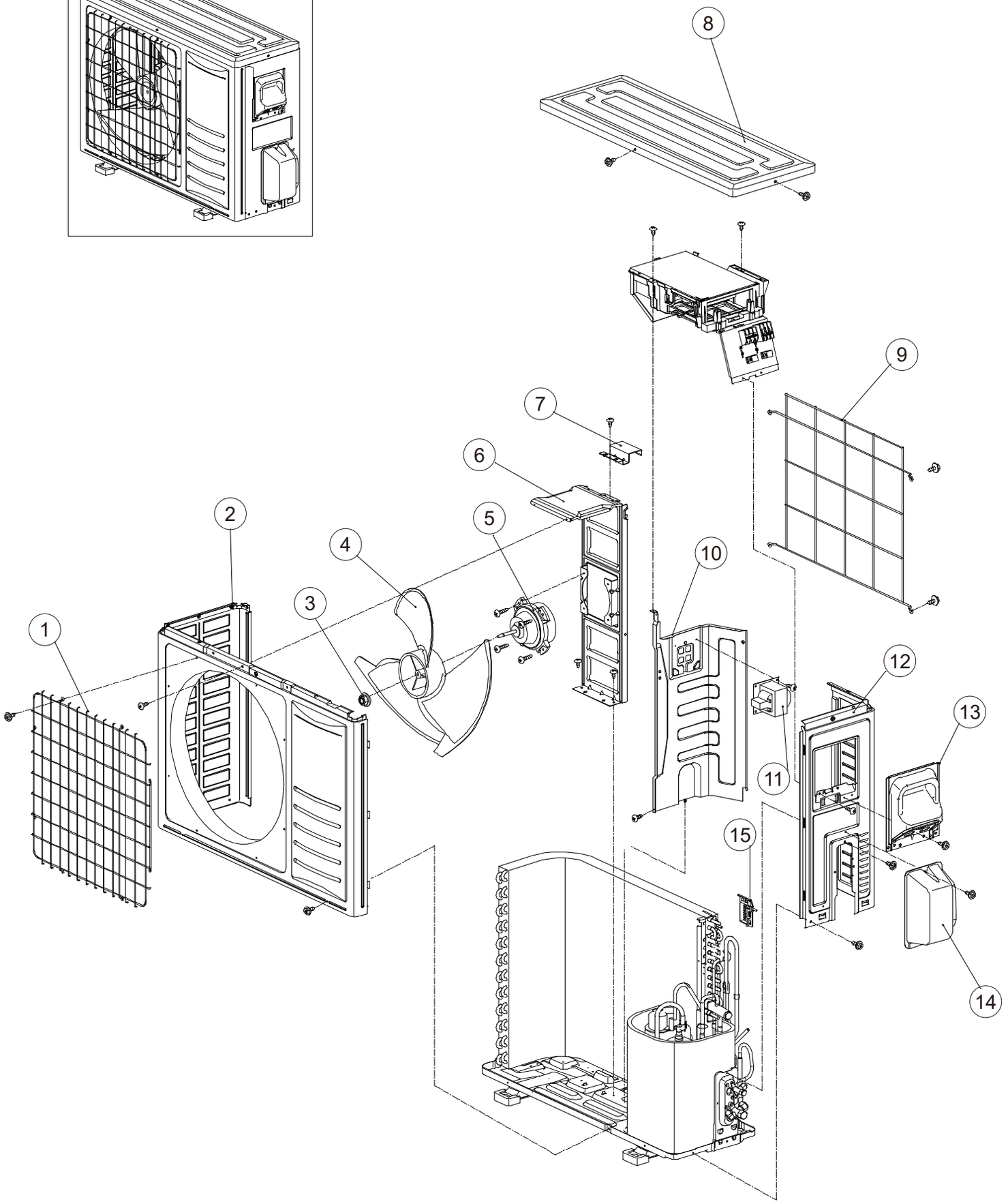
No.	Part number	Description
1	1506706	Base panel
2	1506966	Bottom panel
3	1506775	Mounting plate
4	1506769	Mounting plate
5	1808547	Drain pan
6	1360977	Rubber plug
7	1847954	Supporting
8	1506827	Float bracket
9	1362154	Float switch
10	1506878	Outlet frame AS
11	1822423	Supporting
12	1368850	Water pipe joint
13	1368846	Drain pipe
14	1822424	Pump motor
15	2080728	Electric box cover
16	1553331	Inlet frame assembly
17	1413278	Thermistor coil
18	1473879	Thermistor room
19	1892226	Evaporator assembly
20	1506712	Fan panel
21	1849379	Motor bracket
22	1388001	Sirocco fan
23	1851355	Connecting rod
24	1537915	Hooking
25	1537916	Hooking
26	1852171	Fan motor
27	1901093	Casing
28	1484990	Electric box
29	1204016	Supporting leg
30	1993154	Wire terminal board
31	2081219	Controller PCB
—	1553306	Filter net assembly

AS: assembly

Outdoor unit

WHU09SZA21S





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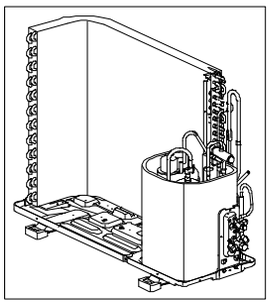

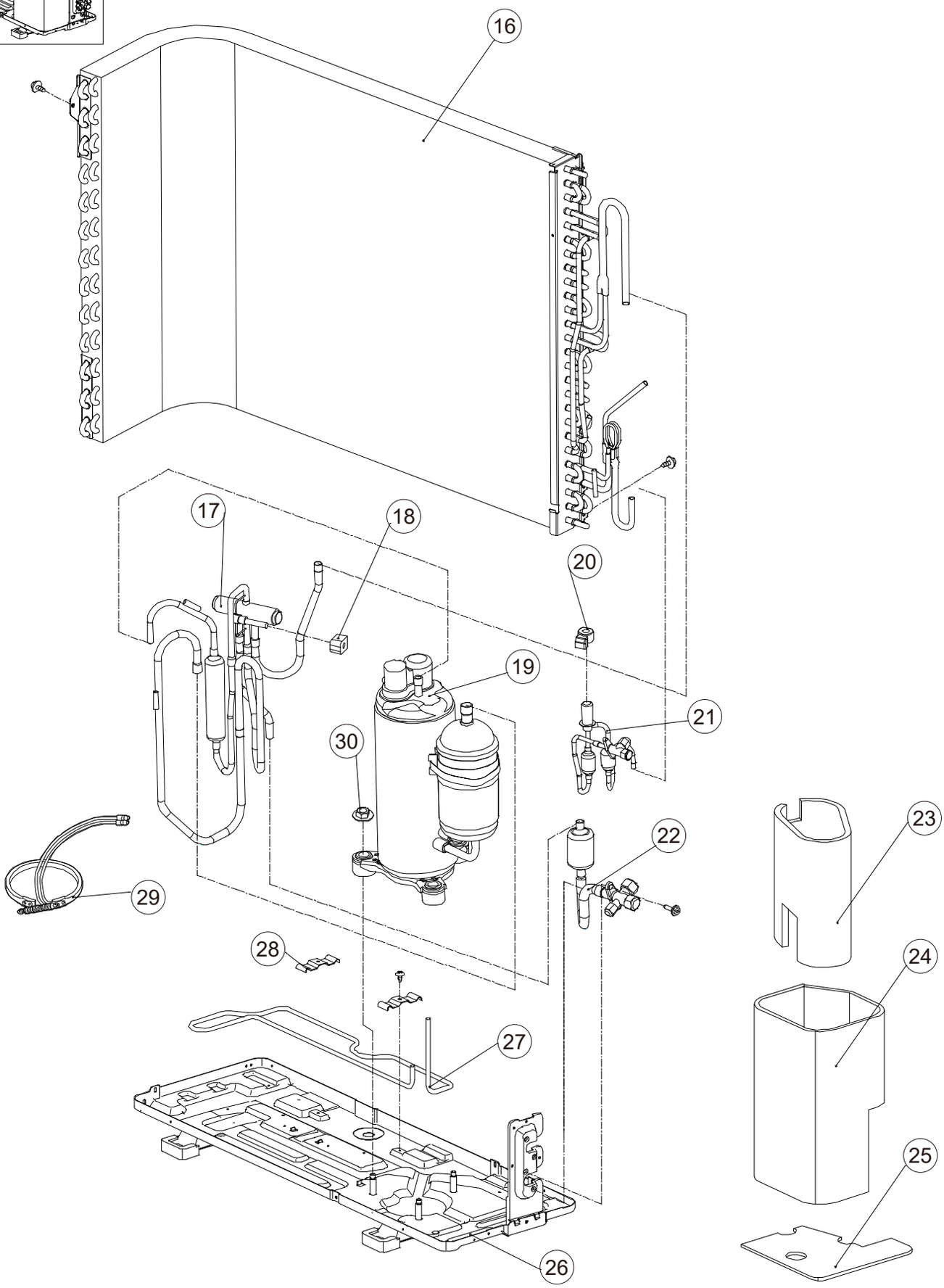

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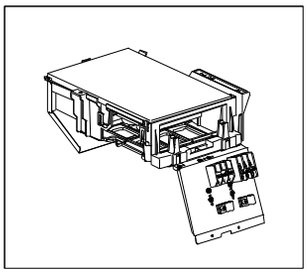
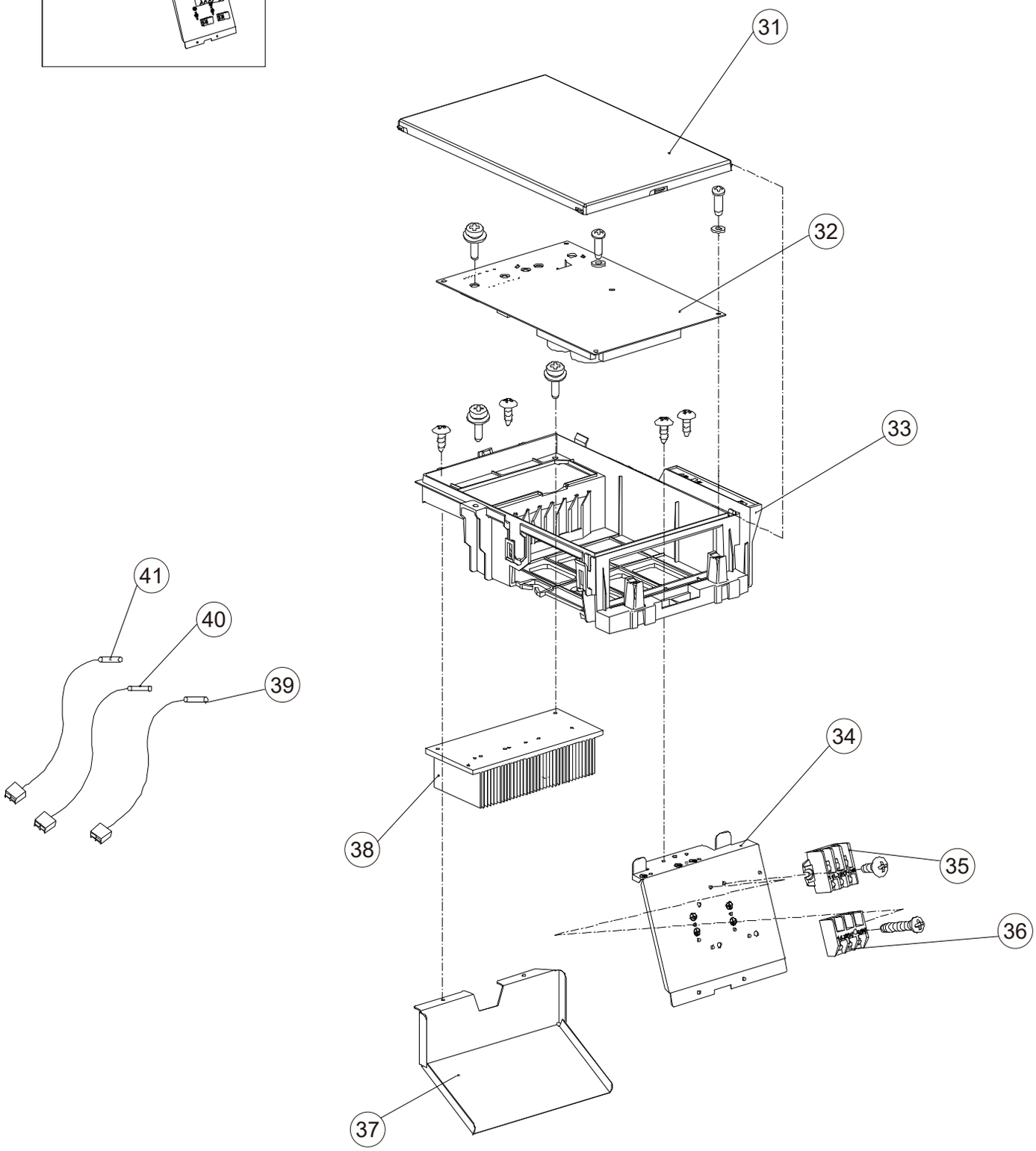




Outdoor unit
WHU09SZA21S

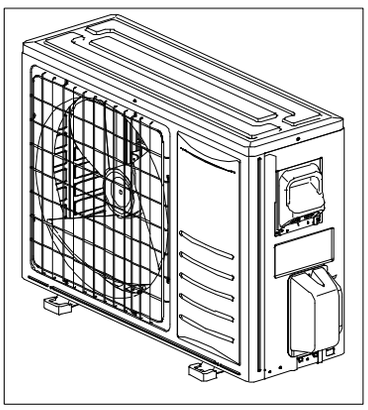
No.	Part number	Description
1	2006876	Fan guard
2	2103279	Intake grille
3	1203994	Nut
4	1998597	Propeller fan blade
5	1932167	DC motor
6	2009048	Motor bracket
7	1550928	Connecting board
8	1972348	Top panel
9	1926335	Protective net back
10	1570578	Clapboard part
11	1829624	Choke coil
12	1971738	Cabinet right
13	1863156	Bracket conduit SA
14	1825563	Valve cover
15	1546721	Senser mount plate
16	1972384	Condenser assembly
17	1924673	Valve 4 way assembly
18	1511783	Solenoid
19	1841376	Compressor
20	1511786	EEV coil
21	1559574	EEV

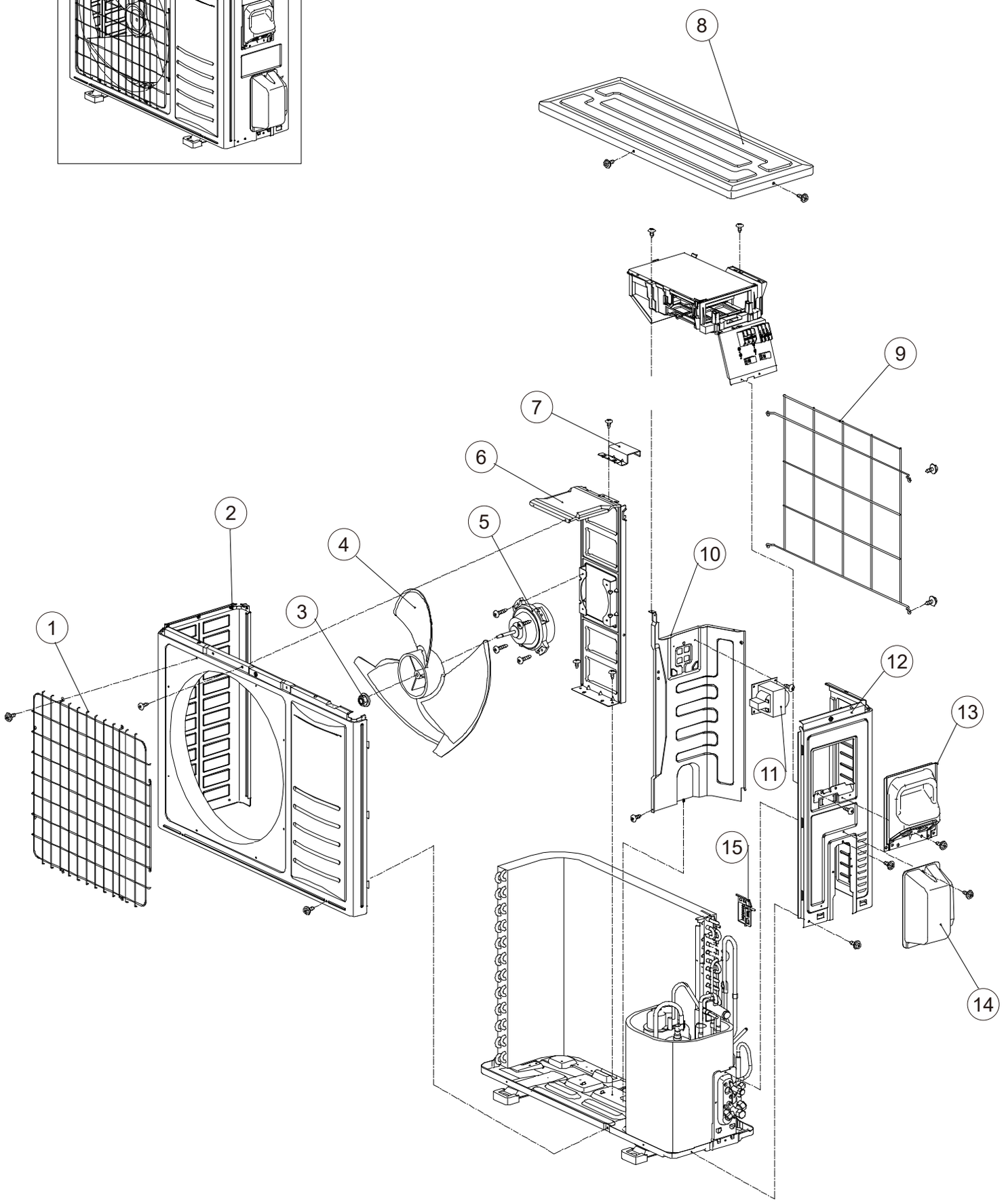
No.	Part number	Description
22	1555574	Stop valve
23	2033746	Soundproof cotton
24	2034316	Soundproof cotton
25	2034281	Soundproof cotton
26	1961881	Base assembly
27	1854766	Tube electric heater
28	1805723	Plate cover
29	1926233	Crankcase heater
30	1226723	Nut
31	1899954	Cover wire
32	2084740	Inverter control PCB
33	2089057	Electric box
34	1926317	Connecting board
35	2078758	Power terminal panel
36	1993154	Wire terminal board
37	1881059	Baffle
38	1832676	Radiator
39	1822633	Thermistor pipe
40	1837502	Temperature sensor
41	1831029	Thermistor outdoor
—	1453803	Rubber pad

SA: sub assembly

Outdoor unit

WHU12SZA21S





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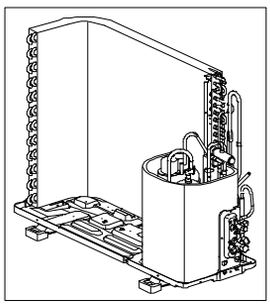

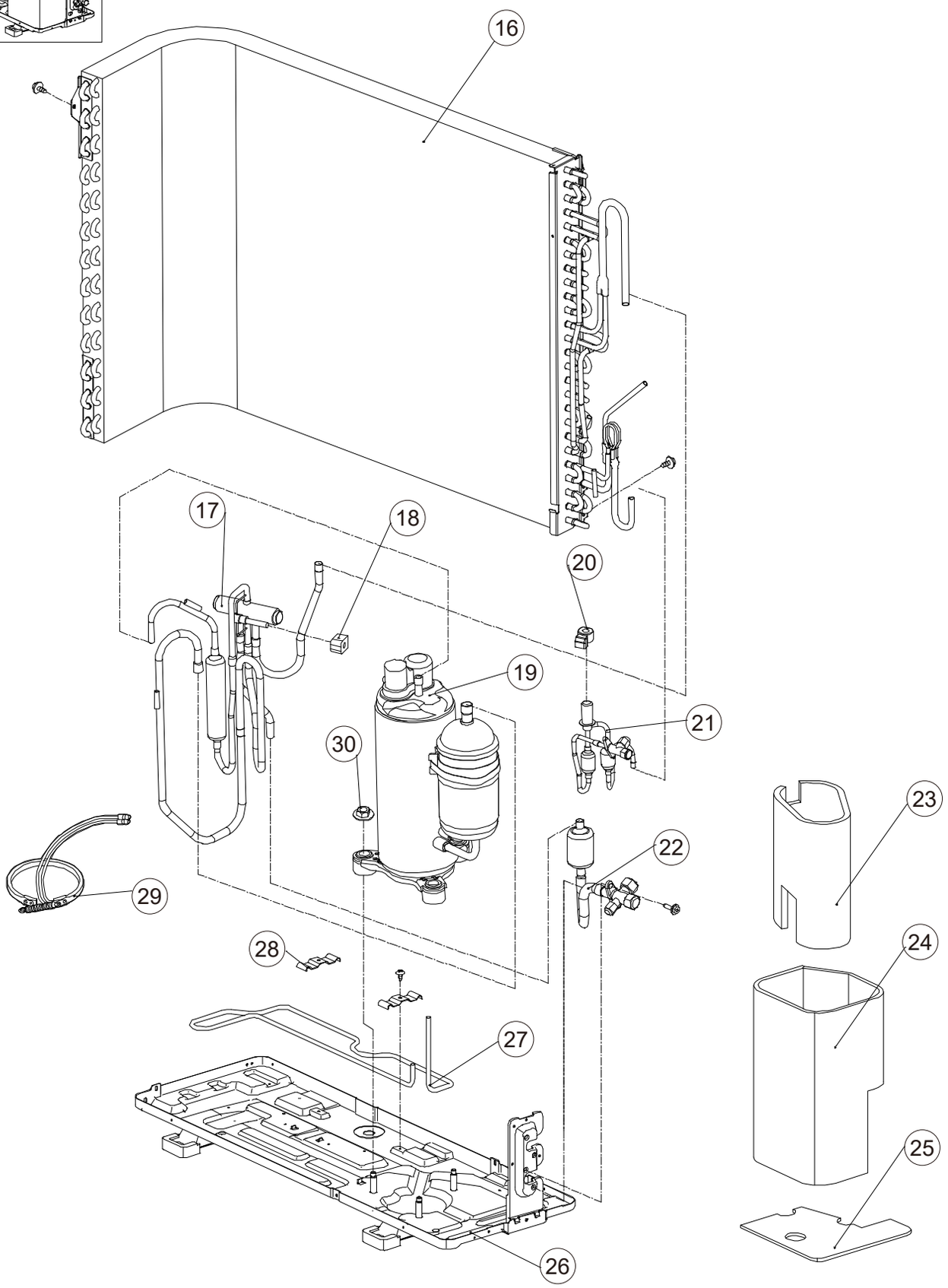

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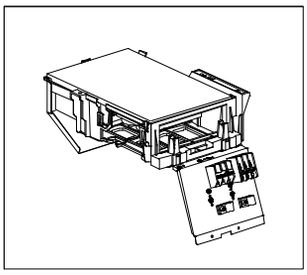
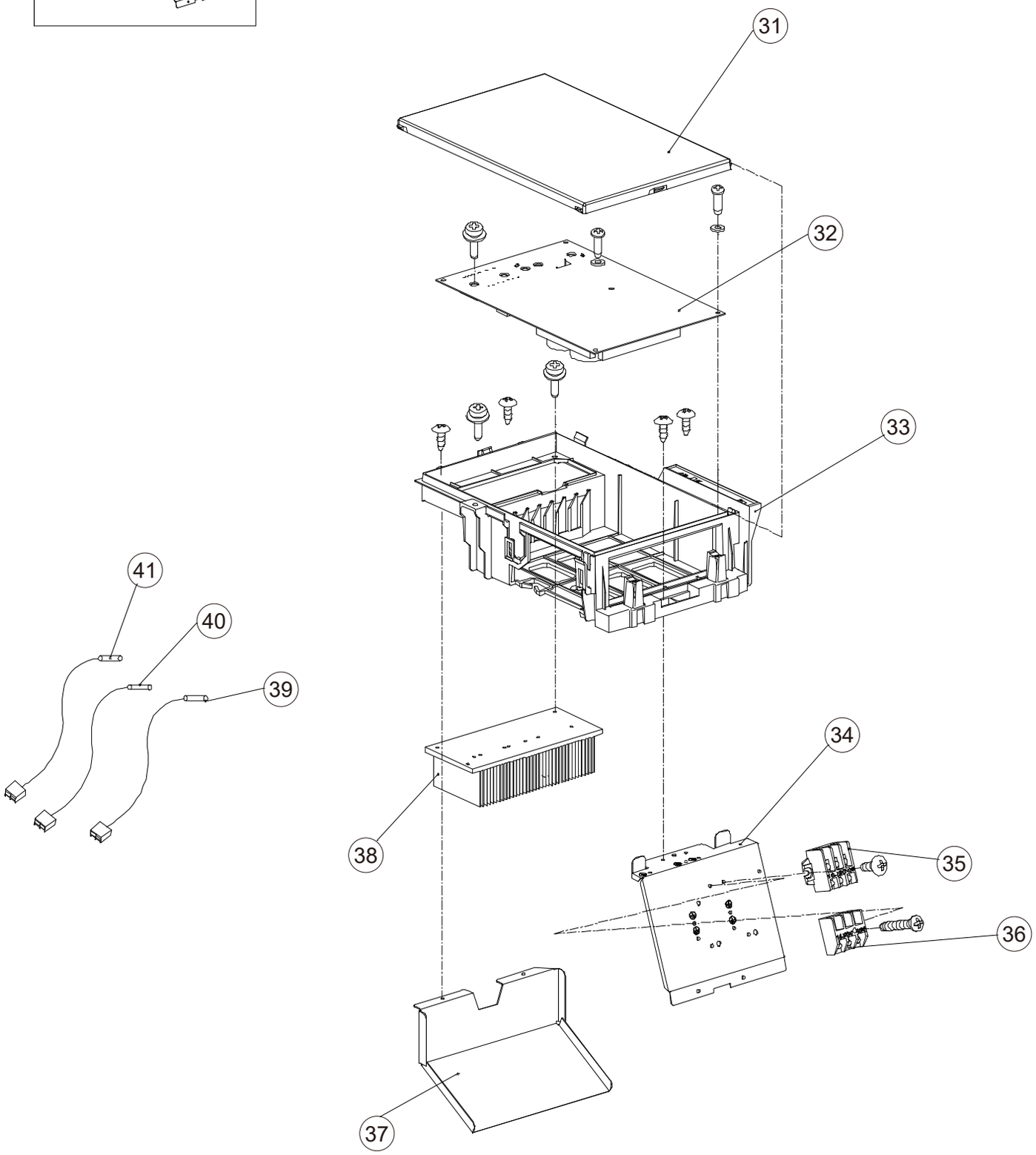




Outdoor unit
WHU12SZA21S

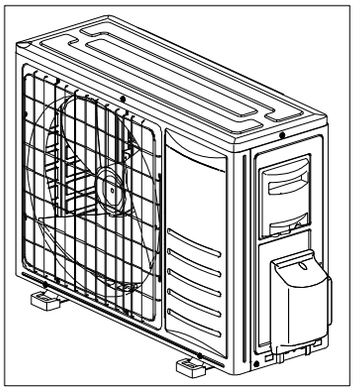
No.	Part number	Description
1	2006876	Fan guard
2	2103279	Intake grille
3	1203994	Nut
4	1998597	Propeller fan blade
5	1932167	DC motor
6	2009048	Motor bracket
7	1834430	Connecting board
8	1972348	Top panel
9	1926335	Protective net back
10	1570578	Clapboard part
11	1829624	Choke coil
12	1971738	Cabinet right
13	1863156	Bracket conduit SA
14	1825563	Valve cover
15	1546721	Senser mount plate
16	1973572	Condenser assembly
17	2081826	Valve 4 way assembly
18	1511783	Solenoid
19	1841376	Compressor
20	1848625	EEV coil
21	2107067	EEV

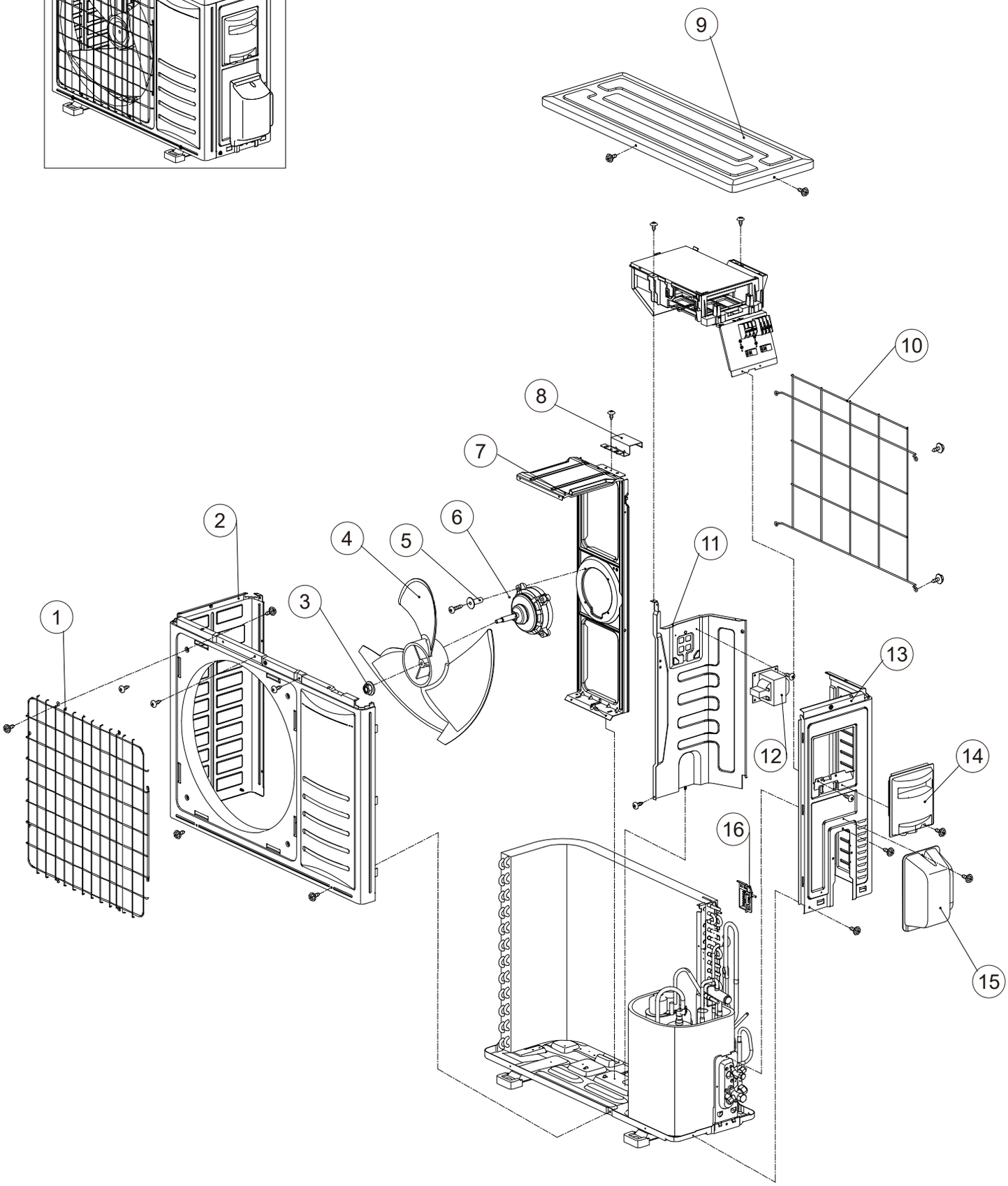
No.	Part number	Description
22	1555574	Stop valve
23	2033746	Soundproof cotton
24	2034316	Soundproof cotton
25	2034281	Soundproof cotton
26	1961881	Base assembly
27	1854766	Tube electric heater
28	1805723	Plate cover
29	1926233	Crankcase heater
30	1226723	Nut
31	1899954	Cover wire
32	2089130	Inverter control PCB
33	2089057	Electric box
34	1926317	Connecting board
35	2078758	Power terminal panel
36	1993154	Wire terminal board
37	1881059	Baffle
38	1832676	Radiator
39	1822633	Thermistor pipe
40	1837502	Temperature sensor
41	1831029	Thermistor outdoor
—	1453803	Rubber pad

SA: sub assembly

Outdoor unit

WHU18SZA21S





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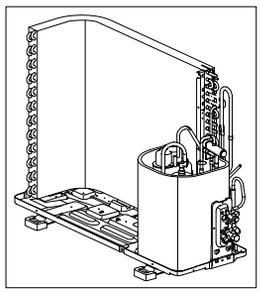

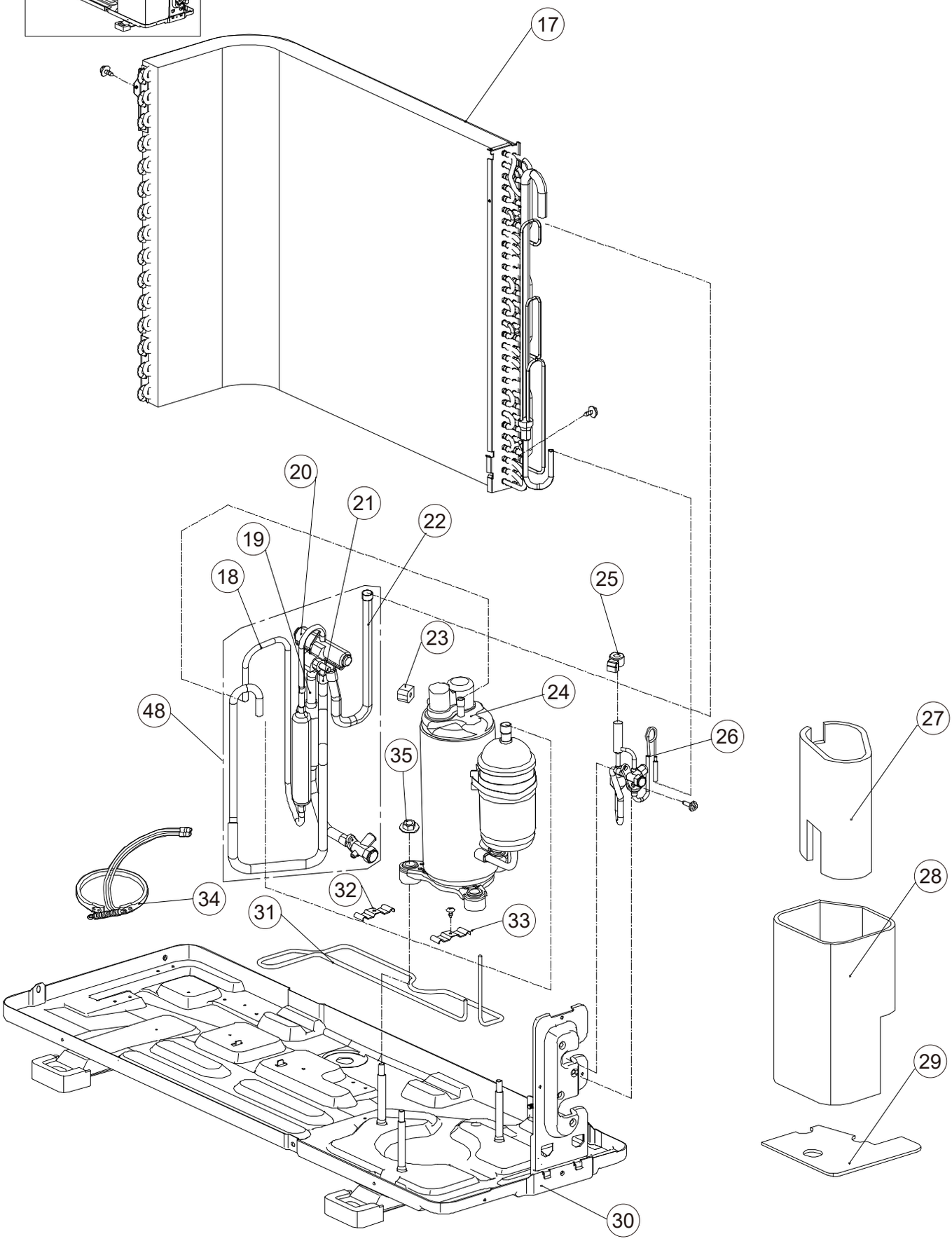

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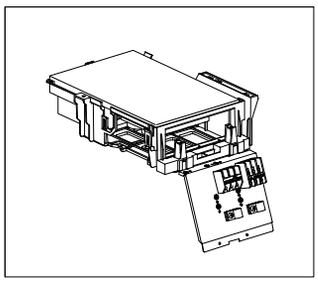
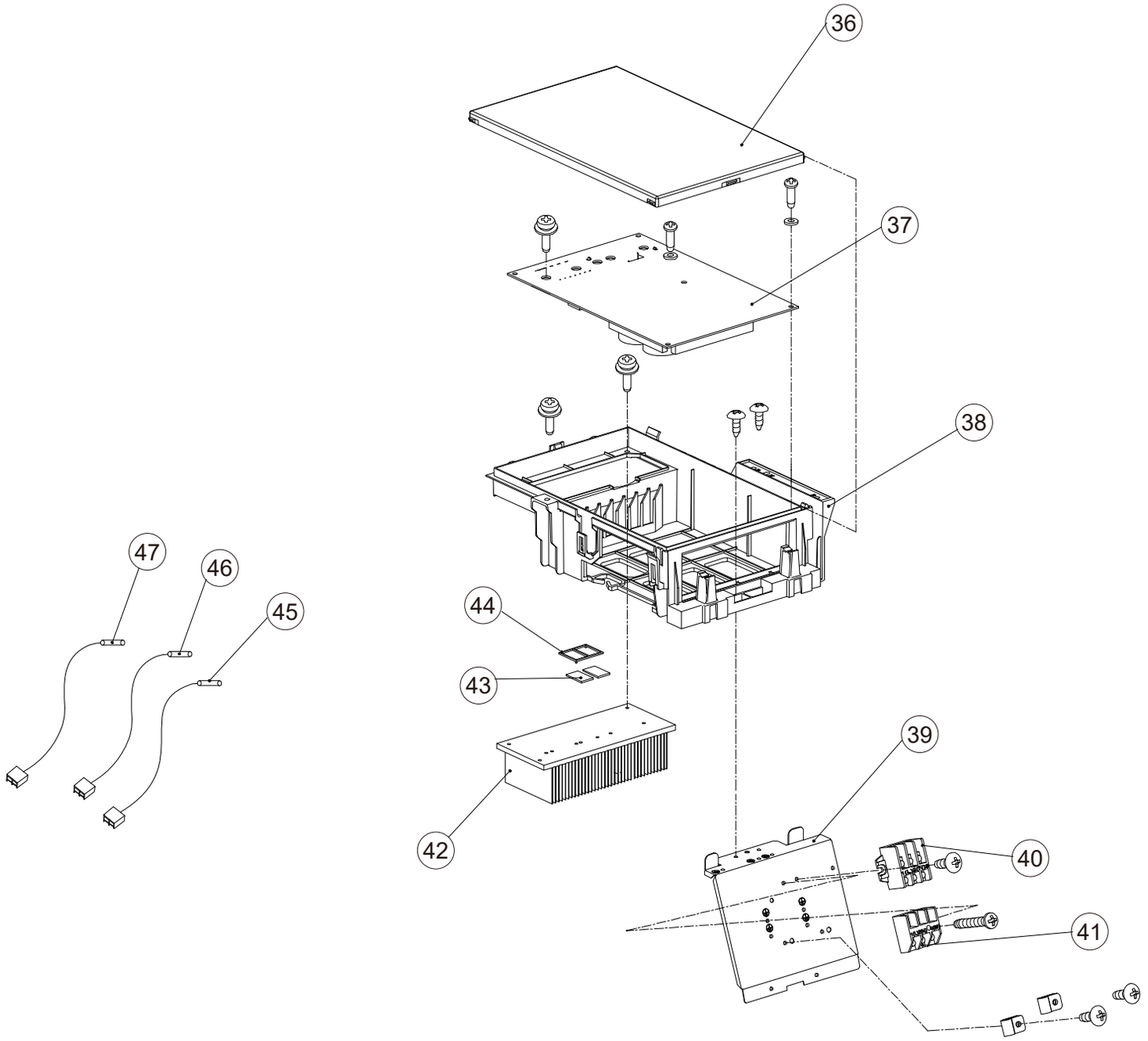




Outdoor unit
WHU18SZA21S

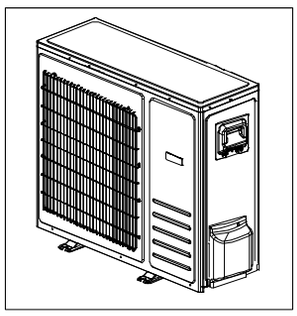
No.	Part number	Description
1	2006879	Fan guard
2	2091948	Intake grille
3	1263647	Nut
4	1559520	Propeller fan blade
5	1803035	Axis sheath
6	1859837	DC motor
7	1963835	Motor bracket
8	1834430	Connecting board
9	1972357	Top panel
10	1929744	Protective net back
11	1972622	Clapboard part
12	1302261	Choke coil
13	1971724	Cabinet right
14	1863156	Bracket conduit SA
15	1825563	Valve cover
16	1546721	Senser mount plate
17	1993892	Condenser assembly
18	2089009	Discharge tube assy
19	2089005	Valve assembly
20	1258444	Valve 4 way
21	2089022	Suction tube assy
22	1995553	C tube
23	1511783	Solenoid
24	1834267	Compressor

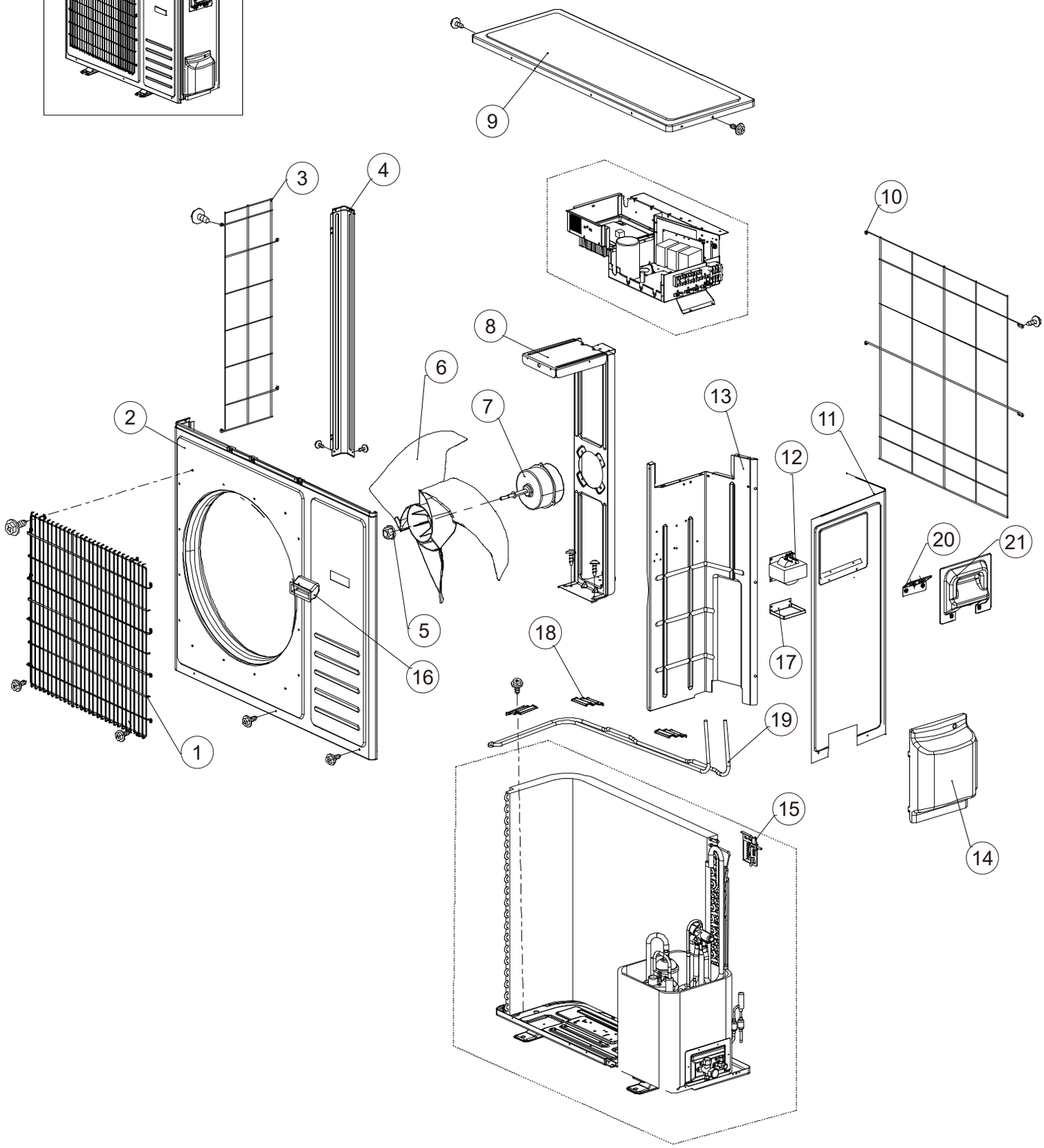
No.	Part number	Description
25	1848625	EEV coil
26	2089001	EEV
27	2034414	Soundproof cotton
28	2034398	Soundproof cotton
29	2034291	Soundproof cotton
30	2087547	Base assembly
31	1854710	Tube electric heater
32	1807108	Mounting plate
33	1854042	Fixing clip
34	1876827	Crankcase heater
35	1226723	Nut
36	1987100	Cover wire
37	2086379	Inverter control PCB
38	1987098	Electric box
39	1924933	Connecting board
40	2078758	Power terminal panel
41	1993154	Wire terminal board
42	1964513	Radiator
43	1440764	Insulative spacer
44	1487330	Mounting plate
45	1822633	Thermistor pipe
46	1837502	Temperature sensor
47	1831029	Thermistor outdoor
48	2089087	Valve 4 way assembly
—	1453803	Rubber pad

SA: sub assembly

Outdoor unit

WHU24SZA21S





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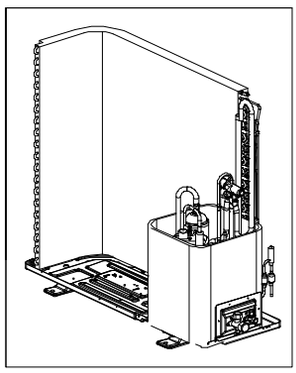

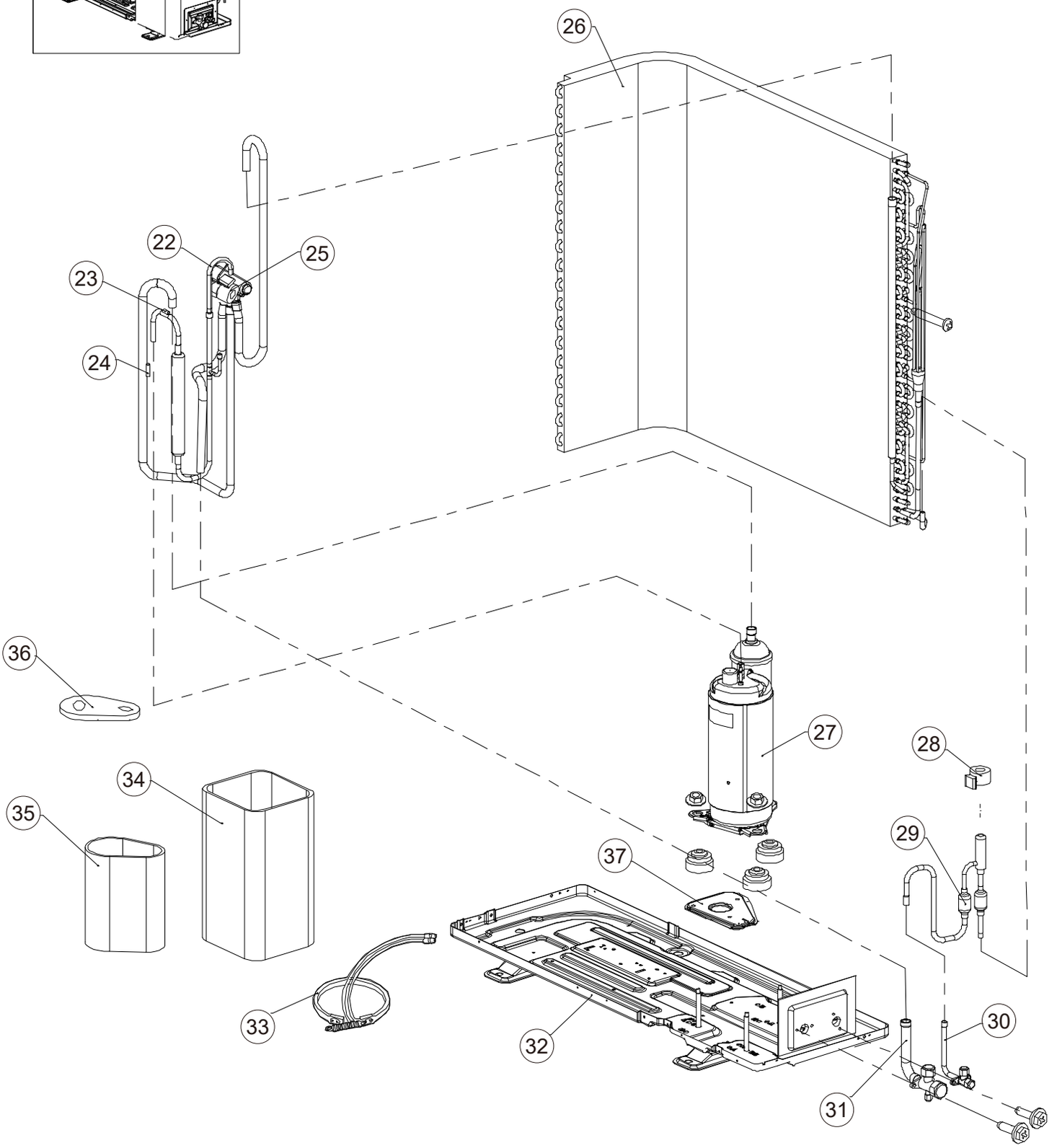

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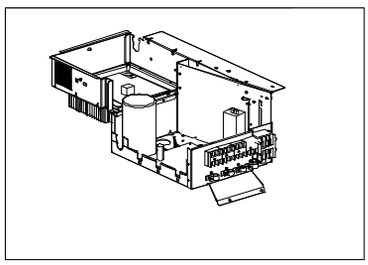
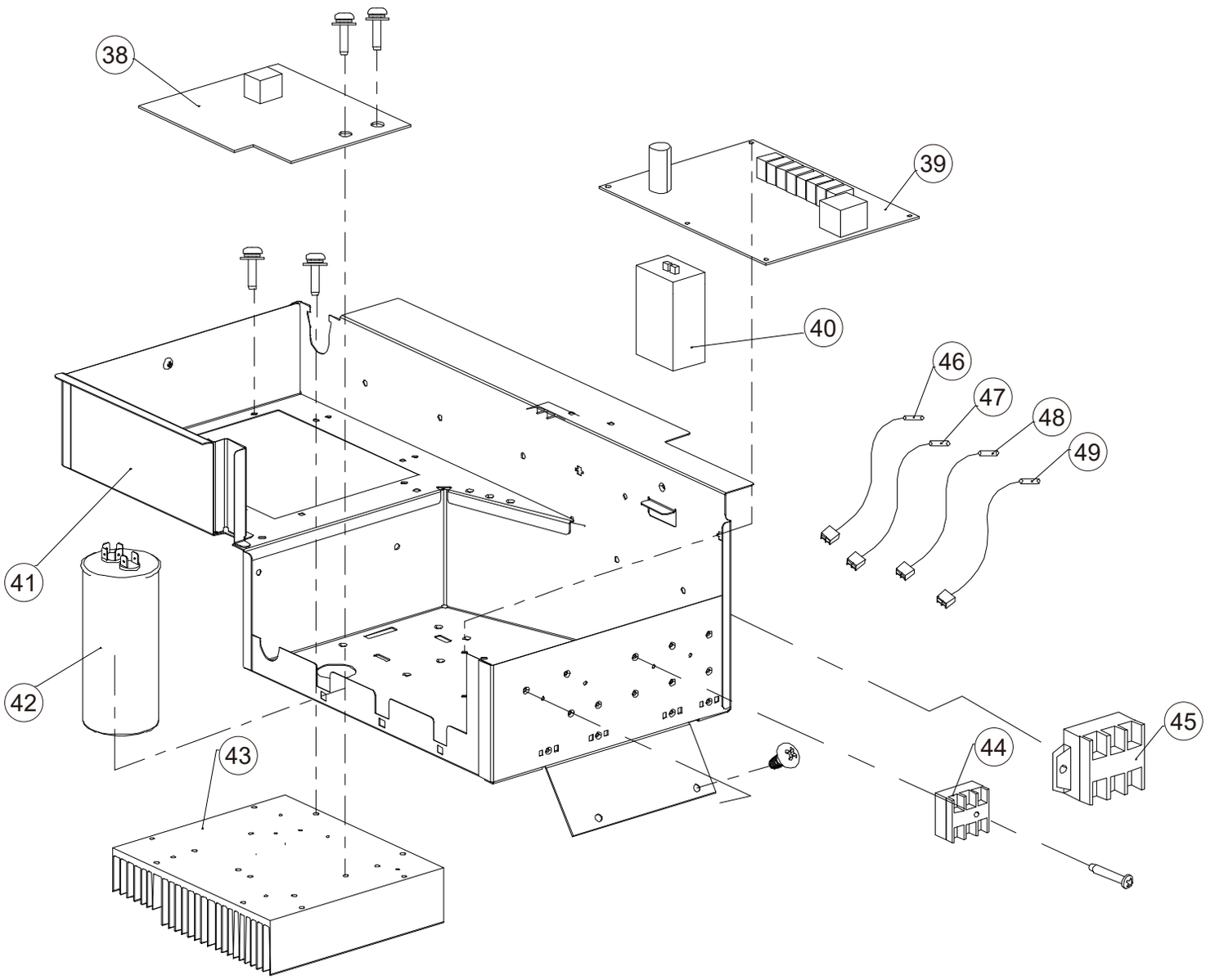




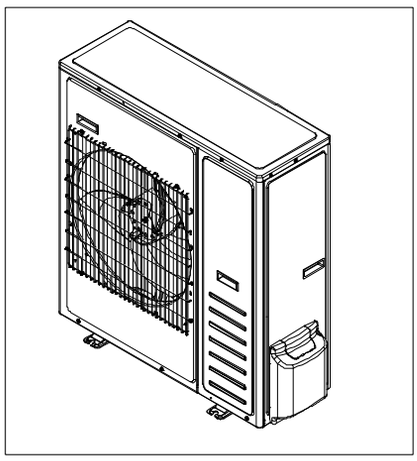
Outdoor unit
WHU24SZA21S

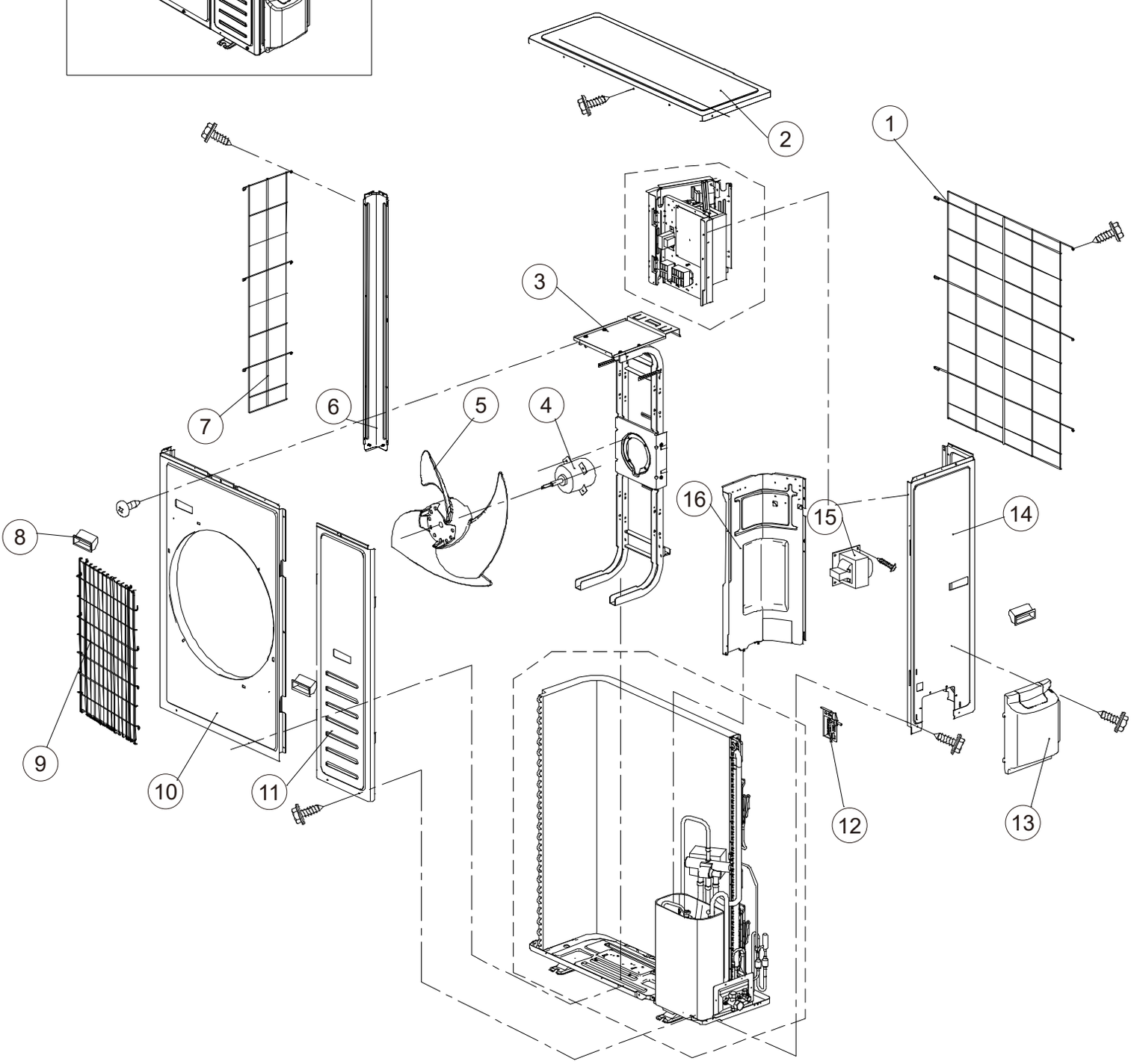
No.	Part number	Description
1	2010128	Fan guard
2	2118319	Front panel
3	1469450	Left guard filter
4	1382782	Mounting plate
5	1231108	Nut
6	1405350	Propeller fan blade
7	1421124	Fan motor
8	1880176	Motor bracket
9	1908421	Upper cover
10	1469447	Back guard filter
11	1493224	Side plate
12	1302261	Choke coil
13	1536443	Separate plate assy
14	1472878	Valve cover
15	1546721	Senser mount plate
16	1202703	Handle
17	2012524	Baffle
18	1993788	Plate cover
19	1993517	Tube electric heater
20	2017891	Bracket conduit
21	2017892	Mounting plate
22	2009069	Valve 4 way assembly
23	2019842	Discharge tube assy
24	2019886	Suction tube assy
25	1302932	Solenoid

No.	Part number	Description
26	2005163	Condenser assembly
27	1993782	Compressor
28	1385852	EEV coil
29	1458701	EEV
30	1914293	Stop valve assy
31	1469377	5/8 stop valve assy
32	2003631	Base assembly
33	1391303	Crankcase heater
34	2034421	Soundproof cotton
35	2034416	Soundproof cotton
36	2098054	Soundproof cotton
37	2008554	Mounting plate
38	2004833	Driver board
39	2009368	Inverter control PCB
40	1944799	Power filter
41	2013786	Electric box
42	1469172	Aluminum capcitor
43	1933518	Radiator
44	1993154	Wire terminal board
45	1993161	Wire terminal board
46	1395042	Temperature sensor
47	1421856	Temperature sensor
48	1457946	Temperature sensor
49	1902722	Temperature sensor
—	4017037	Rubber pad

Outdoor unit

WHU36SZA21S





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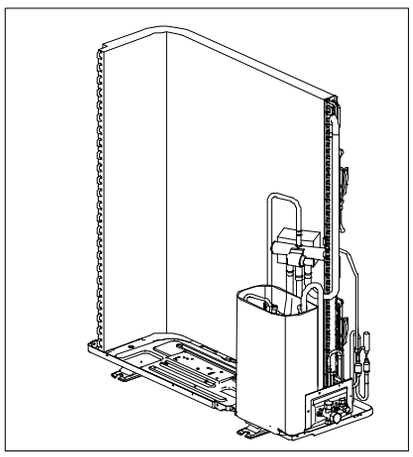

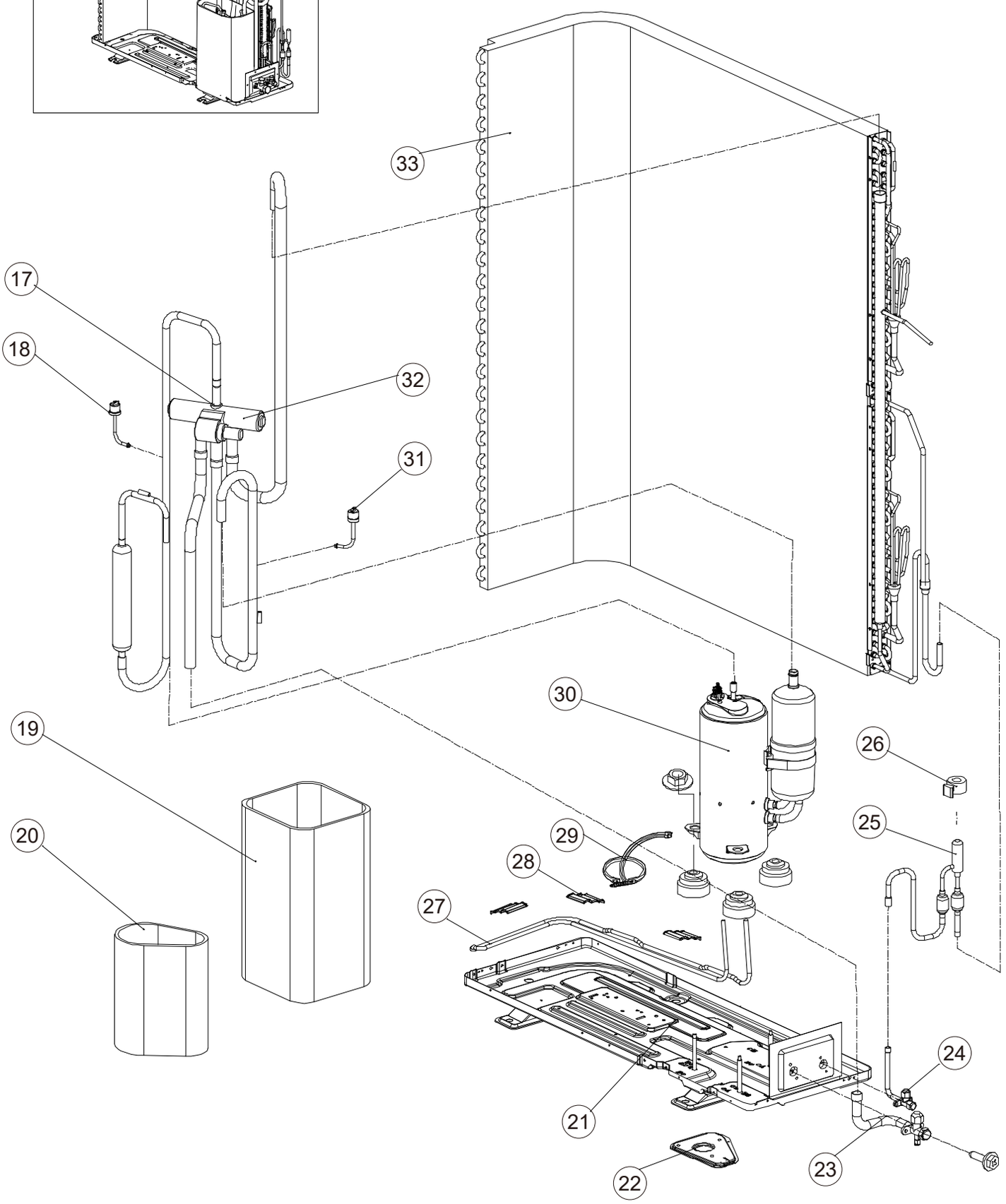

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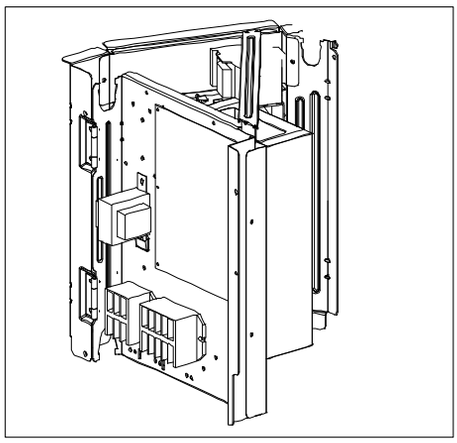

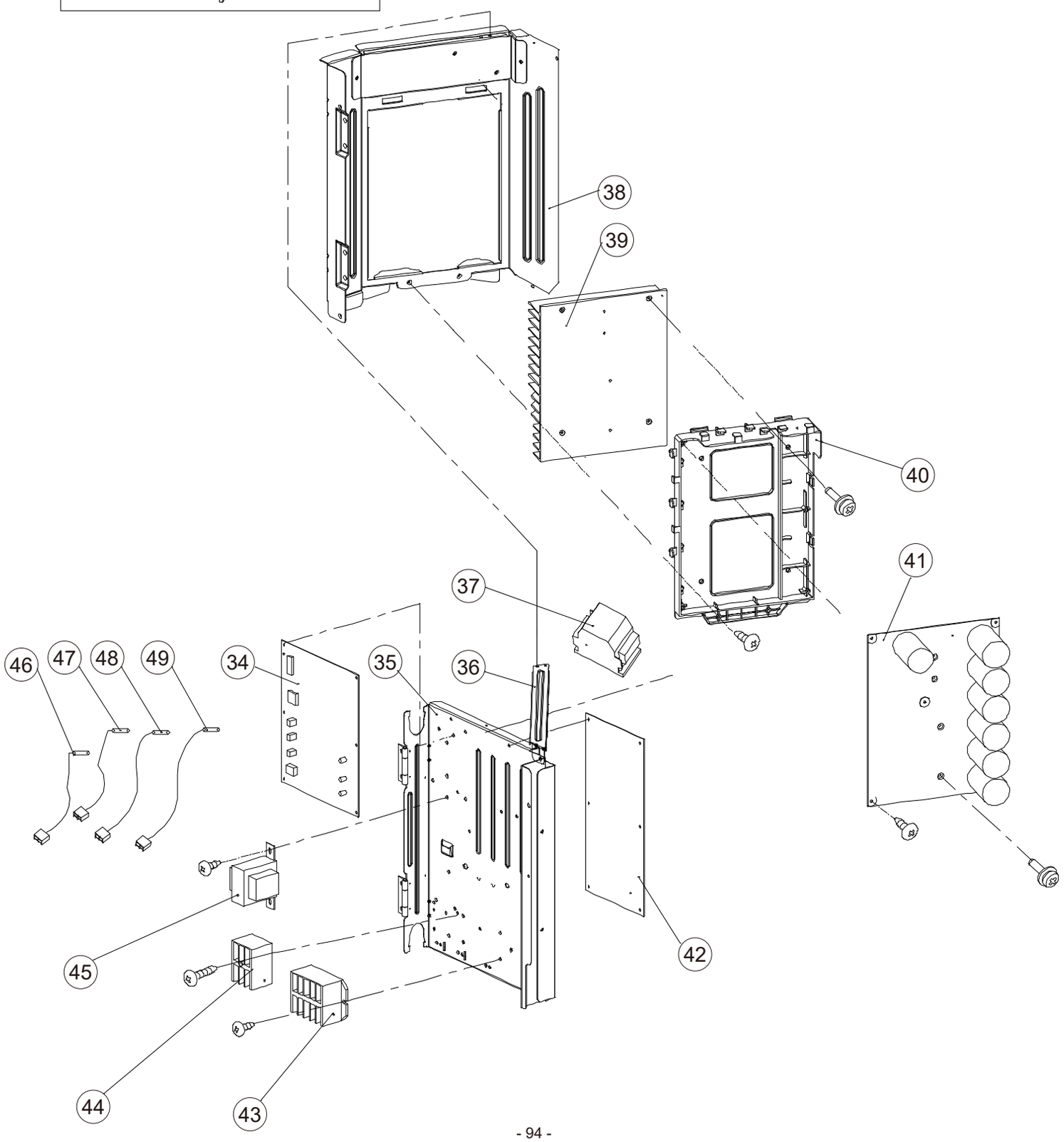

Outdoor unit
WHU36SZA21S

No.	Part number	Description
1	1556829	Guard filter
2	1400459	Top panel
3	1893556	Motor bracket
4	1498534	DC motor
5	1947347	Propeller fan blade
6	1424902	Mounting plate
7	1482994	Protective net left
8	1202703	Handle
9	2118361	Fan guard
10	2118320	Intake grille
11	1424898	Intake grille
12	1546721	Senser mount plate
13	1472878	Valve cover
14	2021033	Side plate
15	1400760	Choke coil
16	1499432	Separate plate assy
17	1926184	Valve 4 way assembly
18	1820200	Pressure switch
19	2098054	Soundproof cotton
20	2034421	Soundproof cotton
21	2003631	Base assembly
22	2008554	Mounting plate
23	1839787	Stop valve
24	1335465	Stop valve
25	1463769	EEV

No.	Part number	Description
26	1385852	EEV coil
27	2000085	Tube electric heater
28	1993788	Plate cover
29	1391303	Crankcase heater
30	1926428	Compressor
31	1821777	Pressure switch
32	1302932	Solenoid
33	1926166	Condenser assembly
34	2008654	Inverter control PCB
35	1464292	Electric box
36	1465466	Connecting board
37	1343638	AC contactor
38	1464281	Mounting plate
39	1916769	Radiator
40	1519508	Mounting plate
41	1917312	Driver board
42	2020306	Filter board
43	1993161	Wire terminal board
44	1993154	Wire terminal board
45	1483085	Linear transformer
46	1395042	Temperature sensor
47	1421856	Temperature sensor
48	1464346	Temperature sensor
49	1902722	Temperature sensor
—	4017037	Rubber pad

Accessories

Indoor unit

Part name	Q'ty	Part name	Q'ty
Use and installation instructions	1	Built-in type drain pump	1
Indoor installation accessory kit (clamper, plain washers) (For 24, 36 models)	1	Indoor installation accessory kit (sponge, fixing clip, water pipe parts)	1
Warranty card	1	Wired remote controller operation manual	1
Union nut (Gas)	1	Wired remote controller	1
Union nut (Liquid)	1		

Outdoor unit

Part name	Q'ty	Part name	Q'ty
Installation and operation manual	1	Drain hose	1
Rubber cushion	1		