FRIEDRICH

Uni- Fit®
Thru-the-Wall Series
Service and Parts Manual

Madison
Your Appliance Authority™
800-570-3355

Thru-the-Wall Series

115 Volts ●US08C10 US10C10 US12C10

230 Volts ●US10C30 US12C30 US14C30

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1. PREFACE

This SERVICE MANUAL provides various service information, including the mechanical and electrical parts etc. This room air conditioner was manufactured and assembled under a strict quality control system. The refrigerant is charged at the factory. Be sure to read the safety precautions prior to servicing the unit.

1.1 SAFETY PRECAUTIONS

1. When servicing the unit, turn off the air conditioner and unplug the power cord.
2. Observe the original lead dress.
   If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing the unit, make an insulation resistance test to protect the customer from being exposed to shock hazards.

1.2 INSULATION RESISTANCE TEST

1. Unplug the power cord and connect a jumper between 2 pins (black and white).
2. The grounding conductor (green or green & yellow) is to be open.
3. Measure the resistance value with an ohm meter between the jumpered lead and each exposed metallic part on the equipment.
4. The value should be over 1MΩ.

1.3 SPECIFICATIONS

ITEMS \ MODELS			US08C10	REMARK
POWER SUPPLY			1Ø, 115V, 60Hz	
COOLING CAPACITY (Btu/h)			8,000	
INPUT (W)			830	
RUNNING CURRENT (A)			7.5	
E.E.R (Btu/w.h)			9.6	
REFRIGERANT (R410A) CHARGE			400g(14.1OZ)	
OPERATING TEMPERATURE	INDOOR (°F)		80(DB) 67(WB)	
	OUTDOOR (°F)		95(DB) 75(WB)	
EVAPORATOR			2 ROW 12STACKS	
CONDENSER			Ø5 2ROW 18STACKS, L-BENDING TYPE	LOUVERED-FIN TYPE
FAN, INDOOR			TURBO FAN	
FAN, OUTDOOR			PROPELLER TYPE FAN WITH SLINGER-RING	
FAN SPEEDS, FAN/COOLING			3/3	
FAN MOTOR			6 POLES	
OPERATION CONTROL			ELECTRIC	
ROOM TEMP. CONTROL			THERMISTOR	
AIR DIRECTION CONTROL			VERTICAL LOUVER(RIGHT & LEFT)	
			HORIZONTAL LOUVER(UP & DOWN)	
CONSTRUCTION			TOP-DOWN	
PROTECTOR	COMPRESSOR		EXTERNAL OVERLOAD PROTECTOR	
	FAN MOTOR		INTERNAL THERMAL PROTECTOR	
POWER CORD			3WIRES WITH GROUNDING	
			ATTACHMENT PLUG(CORD-CONNECTED TYPE, LCDI)	
DRAIN SYSTEM			SPLASHED BY FAN SLINGER	
NET WEIGHT (lbs/kg)			73/33	
DIMENSION (W x H x D)		(inch)	24 x $14\frac{13}{32}$ x $20\frac{3}{32}$	
		(mm)	610 x 366 x 499	
SLEEVE DIMESION (W x H x D)		(inch)	$25\frac{7}{8}$ x $15\frac{17}{32}$ x $16\frac{23}{32}$	OPTIONAL PART
		(mm)	656 x 394 x 425	
SLEEVE DEPTH WITH FRONT GRILLE		(inch)	$20\frac{1}{2}$	
		(mm)	521	

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1.3 SPECIFICATIONS

ITEMS \ MODELS			US10C10	REMARK
POWER SUPPLY			1Ø, 115V, 60Hz	
COOLING CAPACITY (Btu/h)			9,800	
INPUT (W)			1,040	
RUNNING CURRENT (A)			9.6	
E.E.R (Btu/w.h)			9.4	
REFRIGERANT (R-410A) CHARGE			445g(15.7OZ)	
OPERATING TEMPERATURE	INDOOR (°F)		80 (DB) 67(WB)	
	OUTDOOR (°F)		95(DB) 75 (WB)	
EVAPORATOR			2 ROW 12STACKS	
CONDENSER			Ø5.0 3ROW 18STACKS, L-BENDING TYPE	LOUVERED-FIN TYPE
FAN, INDOOR			TURBO FAN	
FAN, OUTDOOR			PROPELLER TYPE FAN WITH SLINGER-RING	
FAN SPEEDS, FAN/COOLING			3/3	
FAN MOTOR			6 POLES	
OPERATION CONTROL			ELECTRIC	
ROOM TEMP. CONTROL			THERMISTOR	
AIR DIRECTION CONTROL			VERTICAL LOUVER(RIGHT & LEFT)	
			HORIZONTAL LOUVER(UP & DOWN)	
CONSTRUCTION			TOP-DOWN	
PROTECTOR	COMPRESSOR		EXTERNAL OVERLOAD PROTECTOR	
	FAN MOTOR		INTERNAL THERMAL PROTECTOR	
POWER CORD			3WIRES WITH GROUNDING	
			ATTACHMENT PLUG(CORD-CONNECTED TYPE, LCDI)	
DRAIN SYSTEM			SPLASHED BY FAN SLINGER	
NET WEIGHT (lbs/kg)			73/33	
DIMENSION		(inch)	24 x $14\frac{13}{32}$ x $20\frac{3}{32}$	
(W x H x D)		(mm)	610 x 366 x 499	
SLEEVE DIMESION		(inch)	$25\frac{7}{8}$ x $15\frac{17}{32}$ x $16\frac{23}{32}$	OPTIONAL PART
(W x H x D)		(mm)	656 x 394 x 425	
SLEEVE DEPTH		(inch)	$20\frac{1}{2}$	
WITH FRONT GRILLE		(mm)	521	

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ITEMS \ MODELS			US10C30	REMARK
POWER SUPPLY			1Ø, 230V/208V, 60Hz	
COOLING CAPACITY (Btu/h)			10,000/9,800	
INPUT (W)			1060/1040	
RUNNING CURRENT (A)			4.7/5.2	
E.E.R (Btu/w.h)			9.4/9.4	
REFRIGERANT (R410A) CHARGE			460g(16.2 OZ)	
OPERATING TEMPERATURE	INDOOR (°F)		80(DB) 67(WB)	
	OUTDOOR (°F)		95(DB) 75(WB)	
EVAPORATOR			2 ROW 12STACKS	
CONDENSER			Ø 5.0 3ROW 18STACKS, L-BENDING TYPE	LOUVERED-FIN TYPE
FAN, INDOOR			TURBO FAN	
FAN, OUTDOOR			PROPELLER TYPE FAN WITH SLINGER-RING	
FAN SPEEDS, FAN/COOLING			3/3	
FAN MOTOR			6 POLES	
OPERATION CONTROL			ELECTRIC	
ROOM TEMP. CONTROL			THERMISTOR	
AIR DIRECTION CONTROL			VERTICAL LOUVER(RIGHT & LEFT)	
			HORIZONTAL LOUVER(UP & DOWN)	
CONSTRUCTION			TOP-DOWN	
PROTECTOR	COMPRESSOR		EXTERNAL OVERLOAD PROTECTOR	
	FAN MOTOR		INTERNAL THERMAL PROTECTOR	
POWER CORD			3WIRES WITH GROUNDING	
			ATTACHMENT PLUG(CORD-CONNECTED TYPE, LCDI)	
DRAIN SYSTEM			SPLASHED BY FAN SLINGER	
NET WEIGHT (lbs/kg)			73/33	
DIMENSION		(inch)	24 x $14^{13}/_{32}$ x $20\ ^{3}/_{32}$	
(W x H x D)		(mm)	610 x 366 x 499	
SLEEVE DIMESION		(inch)	$25\ ^{7}/_{8}$ x $15\ ^{17}/_{32}$ x $16\ ^{23}/_{32}$	OPTIONAL PART
(W x H x D)		(mm)	656 x 394 x 425	
SLEEVE DEPTH		(inch)	$20\ ^{1}/_{2}$	
WITH FRONT GRILLE		(mm)	521	

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ITEMS \ MODELS		US12C10	REMARK
POWER SUPPLY		1Ø, 230V/208V, 60Hz	
COOLING CAPACITY (Btu/h)		11500/11200	
INPUT (W)		1220/1190	
RUNNING CURRENT (A)		5.6/6.0	
E.E.R (Btu/w.h)		9.4/9.4	
REFRIGERANT (R-410A) CHARGE		525g(18.0 OZ)	
OPERATING TEMPERATURE	INDOOR (°F)	80(DB) 67(WB)	
	OUTDOOR (°F)	95(DB) 75(WB)	
EVAPORATOR		2 ROW 12STACKS	
CONDENSER		3ROW 18STACKS, L-BENDING TYPE, 1 ROW	LOUVERED-FIN TYPE
FAN, INDOOR		TURBO FAN	
FAN, OUTDOOR		PROPELLER TYPE FAN WITH SLINGER-RING	
FAN SPEEDS, FAN/COOLING		3/3	
FAN MOTOR		6 POLES	
OPERATION CONTROL		ELECTRIC	
ROOM TEMP. CONTROL		THERMISTOR	
AIR DIRECTION CONTROL		VERTICAL LOUVER(RIGHT & LEFT)	
		HORIZONTAL LOUVER(UP & DOWN)	
CONSTRUCTION		TOP-DOWN	
PROTECTOR	COMPRESSOR	EXTERNAL OVERLOAD PROTECTOR	
	FAN MOTOR	INTERNAL THERMAL PROTECTOR	
POWER CORD		3WIRES WITH GROUNDING	
		ATTACHMENT PLUG(CORD-CONNECTED TYPE, LCDI)	
DRAIN SYSTEM		SPLASHED BY FAN SLINGER	
NET WEIGHT (lbs/kg)		73/33	
DIMENSION	(inch)	24 x 14 13/32 x 20 3/32	
(W x H x D)	(mm)	610 x 366 x 499	
SLEEVE DIMESION	(inch)	25 7/8 x 15 17/32 x 16 23/32	OPTIONAL PART
(W x H x D)	(mm)	656 x 394 x 425	
SLEEVE DEPTH	(inch)	20 1/2	
WITH FRONT GRILLE	(mm)	521	

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ITEMS \ MODELS		US12C30	REMARK
POWER SUPPLY		1Ø, 230/208V, 60Hz	
COOLING CAPACITY (Btu/h)		11,500/11,200	
INPUT (W)		1,220/1,190	
RUNNING CURRENT (A)		5.6/6.0	
E.E.R (Btu/w.h)		9.4/9.4	
REFRIGERANT (R-410A) CHARGE		510g(18.0OZ)	
OPERATING TEMPERATURE	INDOOR (°F)	80(DB) 67(WB)	
	OUTDOOR (°F)	95(DB) 75(WB)	
EVAPORATOR		2 ROW 12STACKS	
CONDENSER		3ROW 18STACKS, L-BENDING TYPE 1 ROW	LOUVERED-FIN TYPE
FAN, INDOOR		TURBO FAN	
FAN, OUTDOOR		PROPELLER TYPE FAN WITH SLINGER-RING	
FAN SPEEDS, FAN/COOLING		3/3	
FAN MOTOR		6 POLES	
OPERATION CONTROL		ELECTRIC	
ROOM TEMP. CONTROL		THERMISTOR	
AIR DIRECTION CONTROL		VERTICAL LOUVER(RIGHT & LEFT)	
		HORIZONTAL LOUVER(UP & DOWN)	
CONSTRUCTION		TOP-DOWN	
PROTECTOR	COMPRESSOR	EXTERNAL OVERLOAD PROTECTOR	
	FAN MOTOR	INTERNAL THERMAL PROTECTOR	
POWER CORD		3WIRES WITH GROUNDING	
		ATTACHMENT PLUG(CORD-CONNECTED TYPE, LCDI)	
DRAIN SYSTEM		SPLASHED BY FAN SLINGER	
NET WEIGHT (lbs/kg)		73/33	
DIMENSION	(inch)	24 x 14 13/32 x 20 3/32	
(W x H x D)	(mm)	610 x 366 x 499	
SLEEVE DIMESION	(inch)	25 7/8 x 15 17/32 x 16 23/32	OPTIONAL PART
(W x H x D)	(mm)	656 x 394 x 425	
SLEEVE DEPTH	(inch)	20 1/2	
WITH FRONT GRILLE	(mm)	521	

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ITEMS \ MODELS		US14C30	REMARK
POWER SUPPLY		1Ø, 230/208V, 60Hz	
COOLING CAPACITY (Btu/h)		13,000/12,600	
INPUT (W)		1,530/1,480	
RUNNING CURRENT (A)		7.0/7.5	
E.E.R (Btu/w.h)		8.5/8.5	
REFRIGERANT (R-410A) CHARGE		510g(18.0OZ)	
OPERATING TEMPERATURE	INDOOR (°F)	80(DB) 67(WB)	
	OUTDOOR (°F)	95(DB) 75(WB)	
EVAPORATOR		2 ROW 12STACKS	
CONDENSER		3ROW 18STACKS, L-BENDING TYPE,1ROW	LOUVERED-FIN TYPE
FAN, INDOOR		TURBO FAN	
FAN, OUTDOOR		PROPELLER TYPE FAN WITH SLINGER-RING	
FAN SPEEDS, FAN/COOLING		3/3	
FAN MOTOR		6 POLES	
OPERATION CONTROL		ELECTRIC	
ROOM TEMP. CONTROL		THERMISTOR	
AIR DIRECTION CONTROL		VERTICAL LOUVER(RIGHT & LEFT)	
		HORIZONTAL LOUVER(UP & DOWN)	
CONSTRUCTION		TOP-DOWN	
PROTECTOR	COMPRESSOR	EXTERNAL OVERLOAD PROTECTOR	
	FAN MOTOR	INTERNAL THERMAL PROTECTOR	
POWER CORD		3WIRES WITH GROUNDING	
		ATTACHMENT PLUG(CORD-CONNECTED TYPE, LCDI)	
DRAIN SYSTEM		SPLASHED BY FAN SLINGER	
NET WEIGHT (lbs/kg)		73/33	
DIMENSION	(inch)	24 x 14 13/32 x 20 3/32	
(W x H x D)	(mm)	610 x 366 x 499	
SLEEVE DIMESION	(inch)	25 7/8 x 15 17/32 x 16 23/32	OPTIONAL PART
(W x H x D)	(mm)	656 x 394 x 425	
SLEEVE DEPTH	(inch)	20 1/2	
WITH FRONT GRILLE	(mm)	521	

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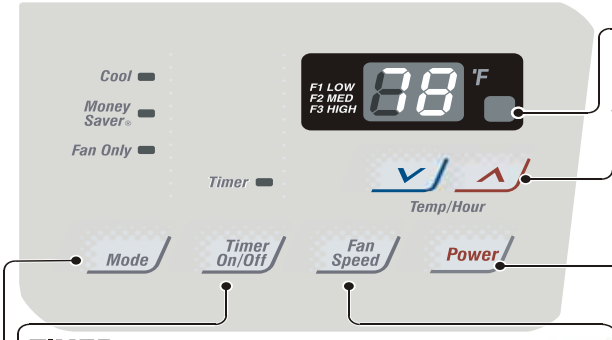
1.4 FEATURES

- Designed for cooling only.
- Powerful and quiet.
- Slide out chassis for the simple installation and service.
- Built in adjustable THERMOSTAT.
- Washable one-touch filter.
- Compact size.

1.5 CONTROL LOCATIONS

1.5.1 COOLING ONLY MODEL

• OPERATION



REMOTE CONTROL SIGNAL RECEIVER

TEMPERATURE SETTING

- Use this button to automatically control the temperature of the room. The temperature can be set within a range of 60°F to 86°F by increments of 1°F.
- The setting appears in the display.

POWER

- To turn the air conditioner ON, push this button. To turn the air conditioner OFF, push the button again.
- This button takes priority over any other button.
- When you first turn it on, the unit is in cool mode, at High fan speed, and set at a temperature setting of 72°F.

FAN SPEED

- Every time you push this button, it advances the setting as follows: {High → Low → Med → High}

TIMER

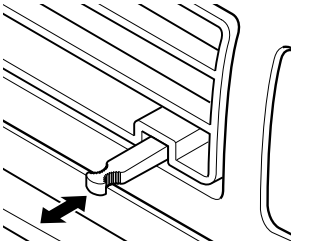
- SHUT-OFF TIME
  - You will usually use shut-off time while you sleep.
  - If unit is running, use Timer to set number of hours until shut-off.
  - For your sleeping comfort, once Time is set, the Temperature setting will rise 2°F after 30 min., and once again after another 30 min.
  - Push Timer button to advance setting from 1 Hour → 2 Hours → ···· → 12 Hours maximum.
- START TIME
  - If unit is off, use Timer to set number of hours before unit starts.
  - Push Timer button to advance setting from 1 Hour → 2 Hours → ····· → 12 Hours maximum.

MODE

- Push this button to shift mode of operation from COOL → MONEY SAVER → FAN.
- COOL :
  - Fan runs continually for normal cooling operation.
- MONEY SAVER:
  - The fan stops when the compressor stops cooling. Approximately every 3 minutes the fan will turn on and the unit will check the room air to determine if cooling is needed.
- FAN :
  - Fan-only operation.

• VENTILATION

Push the lever to the "CLOSE" position to cool, heat or recirculate room air only.
Pull the lever to the "OPEN" position to exhaust smoke or stale air from the room.
This feature is best used in conjunction with the FAN ONLY position.



PULL OPEN / PUSH CLOSE

CAUTION

When the air conditioner has been operating in the cooling and is turned off or set to the fan only position, wait at least 3 minutes before resetting to the cooling operation again.

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2. DISASSEMBLY INSTRUCTIONS

— Prior to disassembling the unit, make sure that the POWER is off and the power cord is unplugged from the wall receptacle.

2.1 MECHANICAL PARTS

2.1.1 FRONT GRILLE

1. Open the inlet grille downward.
2. Remove the screw which fastens the front grille.
3. Pull the front grille from the right side.
4. Remove the front grille. (See Fig. 1)
5. Re-install the component by referring to the removal procedure.

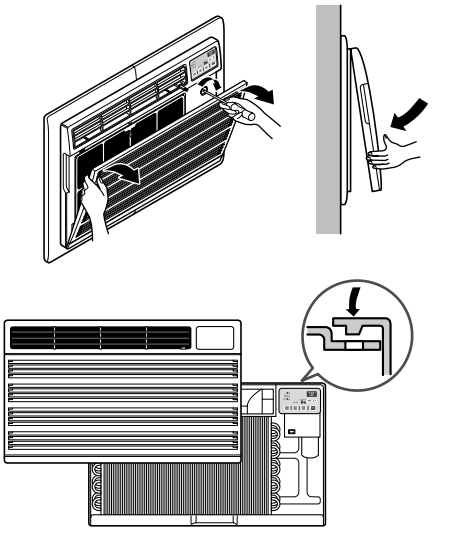

Figure 1

2.1.2 CABINET

1. After disassembling the FRONT GRILLE, remove the 6 screws which fasten the cabinet at the both sides and the top. (See Fig. 2)
   Keep these for later use.

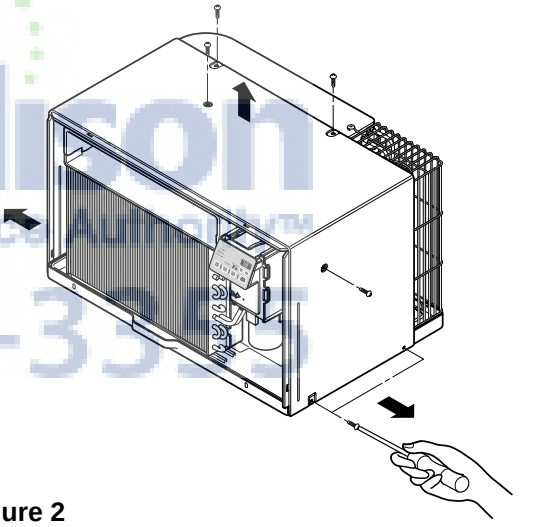

Figure 2

2.1.3 CONTROL BOX

1. Remove the front grille. (Refer to section 2.1.1)
2. Remove the screw which fasten the control box. (See Fig. 3)
3. Pull the control box from the barrier.(See Fig.3)
4. Discharge the capacitor by placing a 20,000 ohm resistor across the capacitor terminals.
5. Disconnect two wire housings in the control box.
6. Pull the control box forward completely.
7. Re-install the components by referring to the removal procedure. (See Fig. 3)
   (Refer to the circuit diagram found on page 19 in this manual and on the control box.)

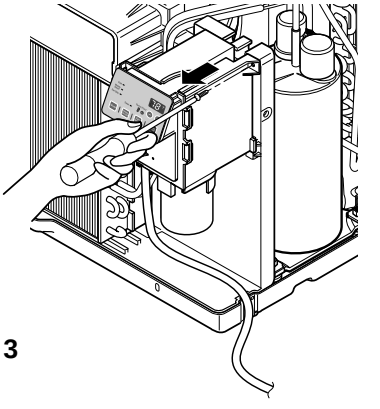

Figure 3

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2.2 AIR HANDLING PARTS

2.2.1 ORIFICE, AND TURBO FAN

1. Remove the front grille. (Refer to section 2.1.1)
2. Remove the cabinet. (Refer to section 2.1.2)
3. Remove the 2 screws which fasten the evaporator at the left side and the right side. (See Fig. 4)
4. Move the evaporator to the side carefully.

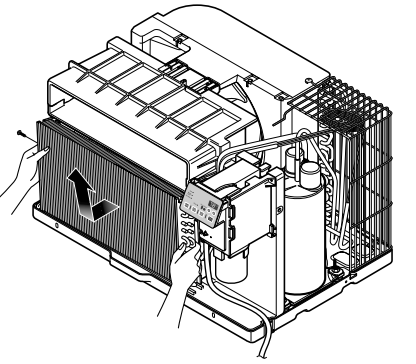

Figure 4

5. Remove the orifice. (See Fig. 5)

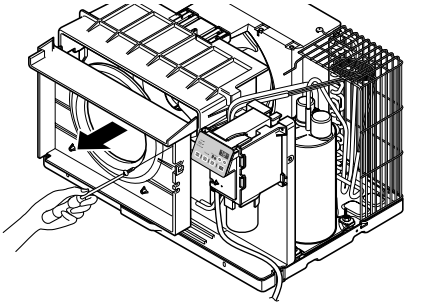

Figure 5

8. Using handheld pliers, remove the clamp which secures the turbo fan. (See Fig. 6)

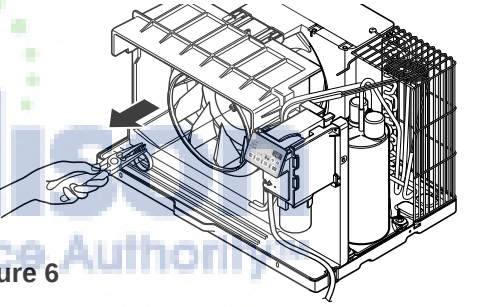

Figure 6

9. Remove the turbo fan with pliers or your hand, without touching blades. (See Fig. 7)
10. Re-install the components by referring to the removal procedures, above.

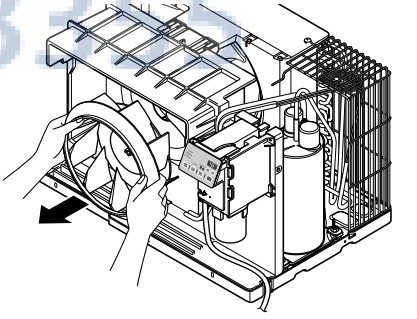

Figure 7

2.2.2 FAN

1. Remove the cabinet. (Refer to section 2.1.2)
2. Remove the brace. (Refer to section 2.2.1)
3. Remove the 7 screws which fasten the condenser.
4. Move the condenser to the side carefully.
5. Using handheld pliers, remove the clamp which secures the fan.
6. Remove the fan. (See Fig. 8)
7. Re-install the components by referring to the removal procedures, above.

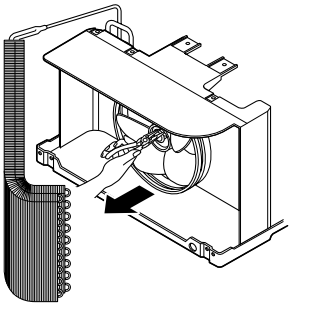

Figure 8

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2.2.3 SHROUD

1. Remove the fan. (Refer to section 2.2.2)
2. Remove the shroud. (See Fig. 9)
3. Re-install the components by referring to the removal procedures, above.

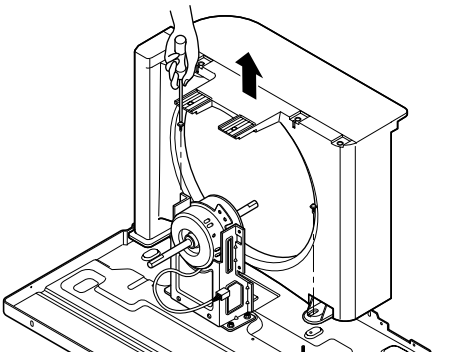

Figure 9

2.3 ELECTRICAL PARTS

2.3.1 MOTOR

1. Remove the cabinet. (Refer to section 2.1.2)
2. Remove the clamp cord and disconnect the wire housing in control box. (Refer to section 2.1.3)
3. Remove the turbo fan. (Refer to section 2.2.2)
4. Remove the fan. (Refer to section 2.2.2)
5. Remove the 4 or 2 screws which fasten the motor. (See Fig. 10)
6. Remove the motor.
7. Re-install the components by referring to the removal procedures, above.

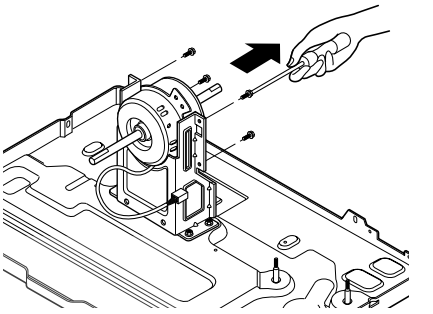

Figure 10

2.3.2 COMPRESSOR

1. Remove the cabinet. (Refer to section 2.1.2)
2. Discharge the refrigerant system using a Freon™ Recovery System.
   Install a valve for recovery before venting the Freon. Remove the valve when finished.
3. Disconnect the 3 leads from the compressor.
4. After purging the unit completely, unbraze the suction and discharge tubes at the compressor connections.
5. Remove the 3 nuts and the 3 washers which fasten the compressor. (See Fig. 11)
6. Remove the compressor.
7. Re-install the components by referring to the removal procedures, above.

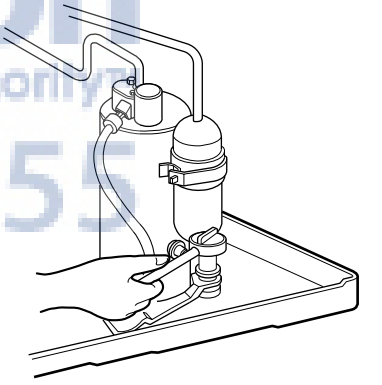

Figure 11

2.3.3 CAPACITOR

1. Remove the control box. (Refer to section 2.1.3)
2. Remove the 1 screw
3. Open the control box
4. Disconnect all the leads on the capacitor terminals.
5. Re-install the components by referring to the removal procedures, above.

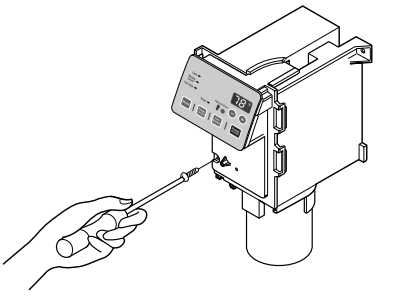

Figure 12

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2.3.4 POWER CORD

1. Remove the control box. (Refer to section 2.1.3)
2. Unfold the control box. (Refer to section 2.3.3)
3. Disconnect the grounding screw from the Base pan.
4. Disconnect 2 receptacles.
5. Remove a screw which fastens the clip cord.
6. Pull the power cord. (See Fig. 13)
7. Re-install the components by referring to the removal procedure, above.
   (Use only one ground-marked hole, ⏚, for ground connection.)
8. If the supply cord of this appliance is damaged, it must be replaced with the factory-authorized and specified cord.

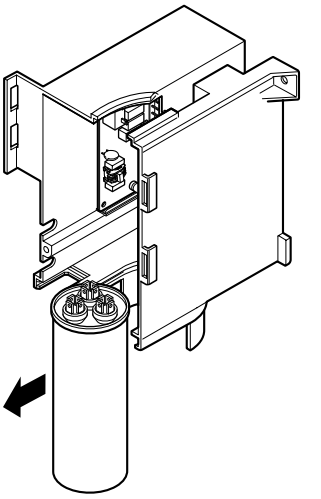

Figure 13

2.3.5 ELECTRONIC CONTROL BOARD

1. Remove the control box. (Refer to section 2.1.3)
2. Unfold the control box. (Refer to section 2.3.3)
3. Disconnect all the leads of Electronic control board terminals.
4. Remove the Electronic control board. (See Fig. 14)
5. Re-install the components by referring to the removal procedures, above.

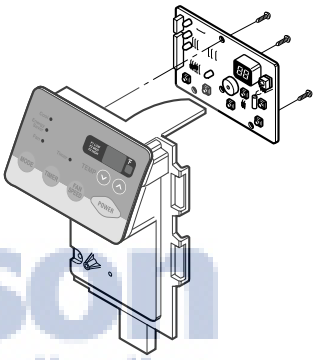

Figure 14

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2.4 REFRIGERATION CYCLE

CAUTION

Discharge the refrigerant system using a Freon™ Recovery System.
Install a valve for the recovery, before venting the Freon, remove the valve when finished.

2.4.1 CONDENSER

1. Remove the cabinet. (Refer to section 2.1.2)
2. Remove the brace.
   (Refer to section 2.2.1)
3. Remove the 7 screws which fasten the condenser.
4. After discharging the refrigerant completely into a Freon™ Recovery System, unbraze the interconnecting tube at the condenser connections.
5. Remove the condenser.
6. Re-install the components by referring to the notes – on pages 11-13. (See Fig. 15)

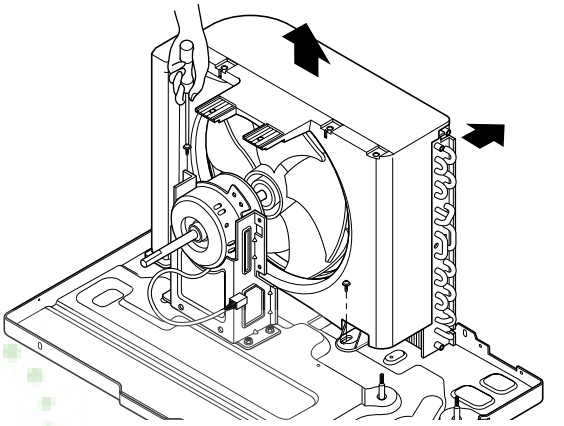

Figure 15

2.4.2 EVAPORATOR

1. Remove the cabinet. (Refer to section 2.1.2)
2. Discharge the refrigerant completely – into a Freon™ Recovery System.
3. Remove the 2 screws which fasten the evaporator at the left side and the right side.
4. Move the evaporator to the side carefully and then unbraze the interconnecting tube at the evaporator connectors.
5. Remove the evaporator.
6. Re-install the components by referring to the notes – on pages 11-13. (See Fig. 16)

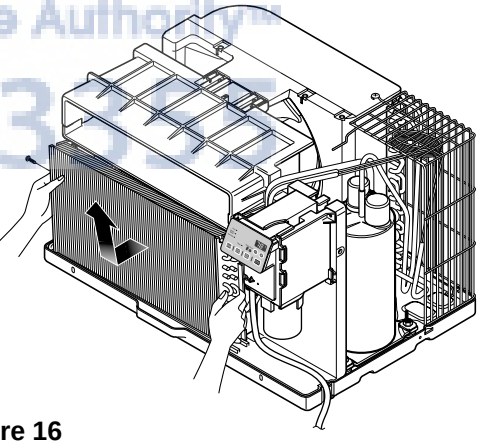

Figure 16

2.4.3 CAPILLARY TUBE

1. Remove the cabinet. (Refer to section 2.1.2)
2. After discharging the refrigerant completely – into a Freon™ Recovery System, unbraze the interconnecting tube at the capillary tube.
3. Remove the capillary tube.
4. Re-install the components by referring to the notes – on page 11-13.

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NOTES

— Replacement of the refrigeration cycle.

1. When replacing refrigeration components, be sure to discharge the refrigerant system using a Freon™ recovery System.
   Install a valve for the recovery, before venting the Freon, remove the valve when finished.
2. After discharging the unit completely, remove the desired component, and unbraze the pinch-off tubes.
3. Solder service valves into the pinch-off tube ports, leaving the valves open.
4. Solder the pinch-off tubes with Service valves.
5. Evacuate as follows.
   1) Connect the vacuum pump, as illustrated Fig. 17A.
   2) Start the vacuum pump, slowly open manifold valves A and B with two full turns counterclockwise and leave the valves closed. The vacuum pump is now pulling through valves A and B up to valve C by means of the manifold and entire system.

CAUTION

If high vacuum equipment is used, just crack valves A and B for a few minutes, then open slowly with the two full turns counterclockwise. This will keep oil from foaming and being drawn into the vacuum pump.

   3) Operate the vacuum pump for 20 to 30 minutes, until 600 microns of vacuum is obtained. Close valves A and B, and observe vacuum gauge for a few minutes. A rise in pressure would indicate a possible leak or moisture remaining in the system. With valves A and B closed, stop the vacuum pump.
   4) Remove the hose from the vacuum pump and place it on the charging cylinder. See Fig. 17B. Open valve C.
   Discharge the line at the manifold connection.
   5) The system is now ready for final charging.
6. Recharge as follows :
   1) Refrigeration cycle systems are charged from the High-side. If the total charge cannot be put in the High-side, the balance will be put in the suction line through the access valve which you installed as the system was opened.
   2) Connect the charging cylinder as shown in Fig. 17B. With valve C open, discharge the hose at the manifold connection.
   3) Open valve A and allow the proper charge to enter the system. Valve B is still closed.
   4) If more charge is required, and the high-side will not
   take it. Close valve A.
   5) With the unit running, open valve B and add the balance of the charge.
      a. Do not add the liquid refrigerant to the Low-side.
      b. Watch the Low-side gauge; allow pressure to rise to 39 lbs.
      c. Turn off valve B and allow pressure to drop.
      d. Repeat steps B and C until the balance of the charge is in the system.
   6) When satisfied the unit is operating correctly, use the pinch-off tool with the unit still running and clamp on to the pinch-off tube. Using a tube cutter, cut the pinch-off tube about 2 inches from the pinch-off tool. Use sil-fos solder and solder pinch-off tube closed. Turn off the unit, allow it to set for a while, and then test for leakage add the pinch-off connection.

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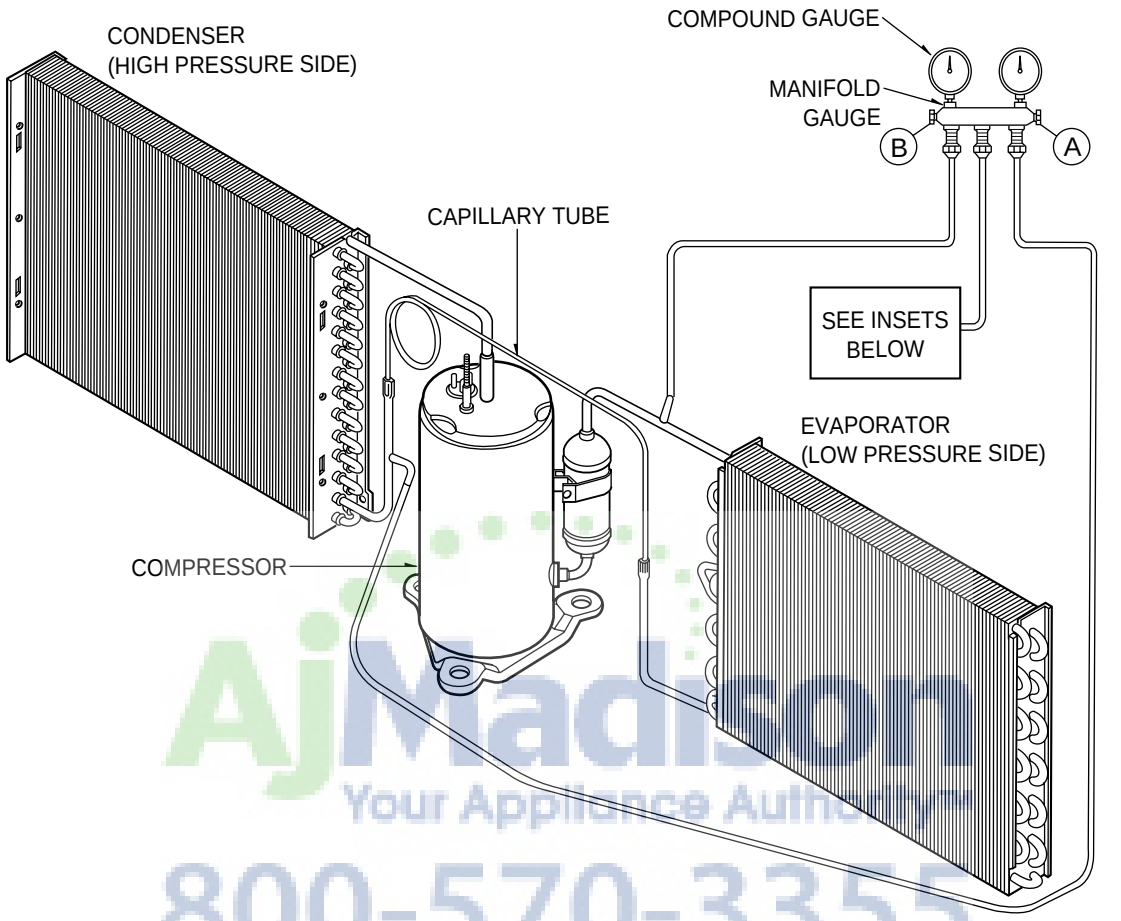
Equipment needed: Vacuum pump, Charging cylinder, Manifold gauge, Brazing equipment, Pinch-off tool capable of making a vapor-proof seal, Leak detector, Tubing cutter, Hand Tools to remove components, Service valve.



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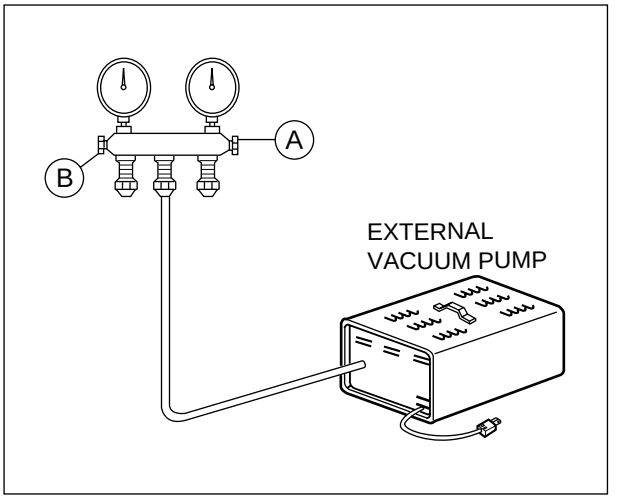


Figure 17A-Pulling Vacuum

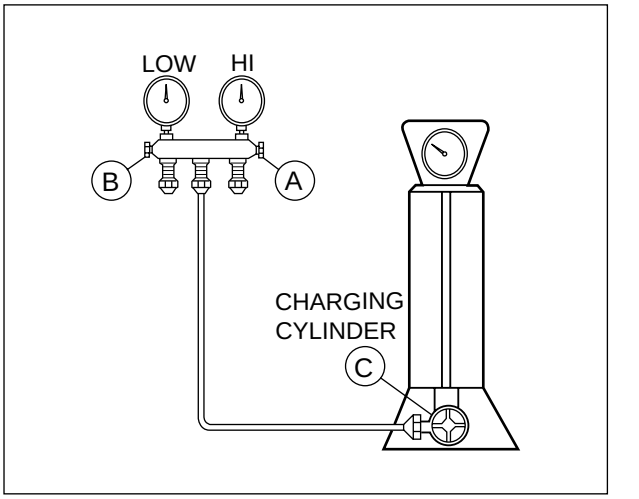
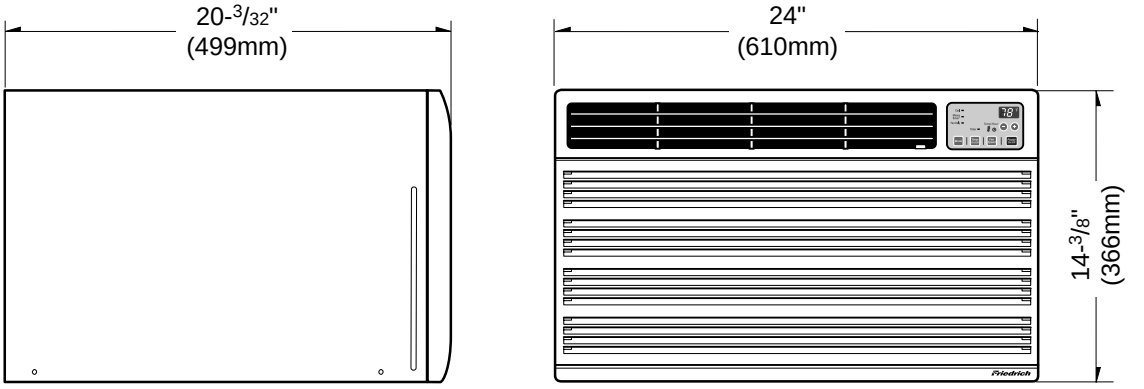


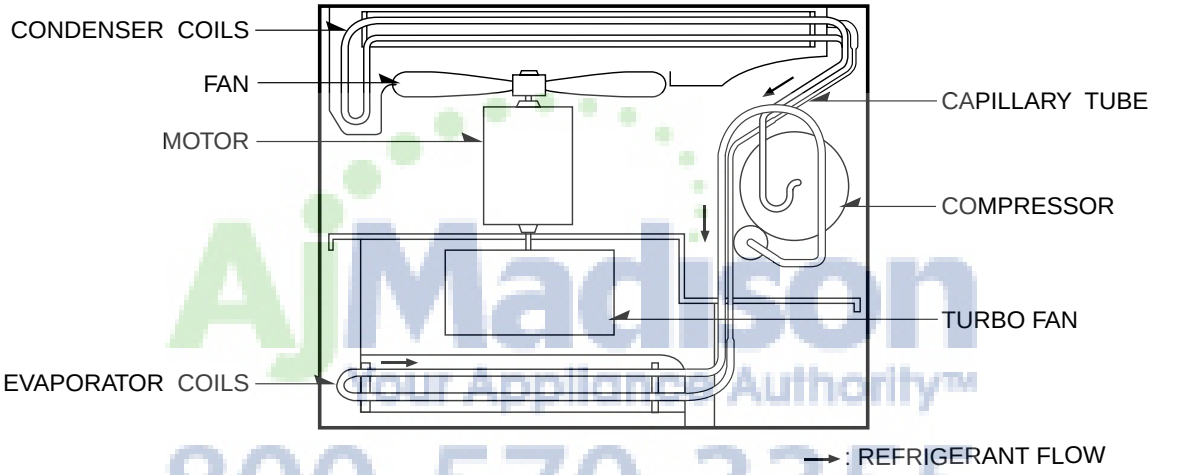
Figure 17B-Charging

3. TROUBLESHOOTING GUIDE

3.1 OUTSIDE DIMENSIONS



3.2 PIPING SYSTEM



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Following is a brief description of the important components and their functions in the refrigeration system.
Refer to Fig. 18 to follow the refrigeration cycle and the flow of the refrigerant in the cooling cycle.

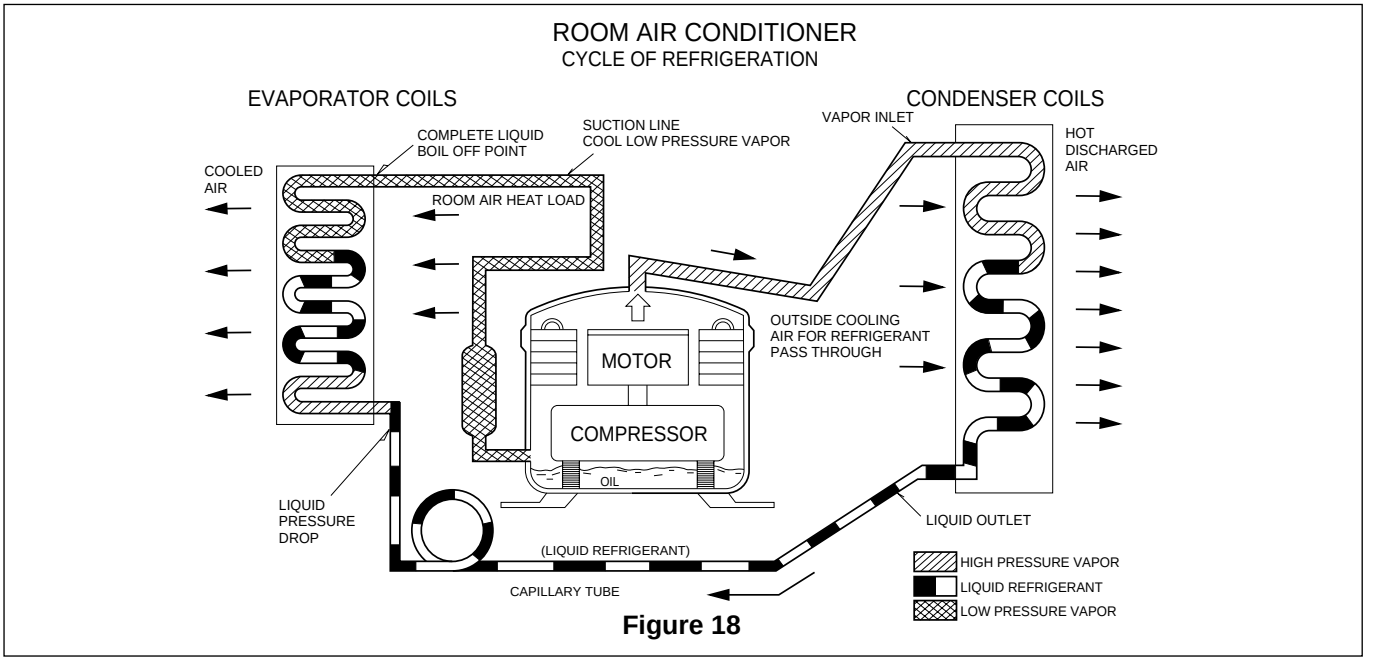
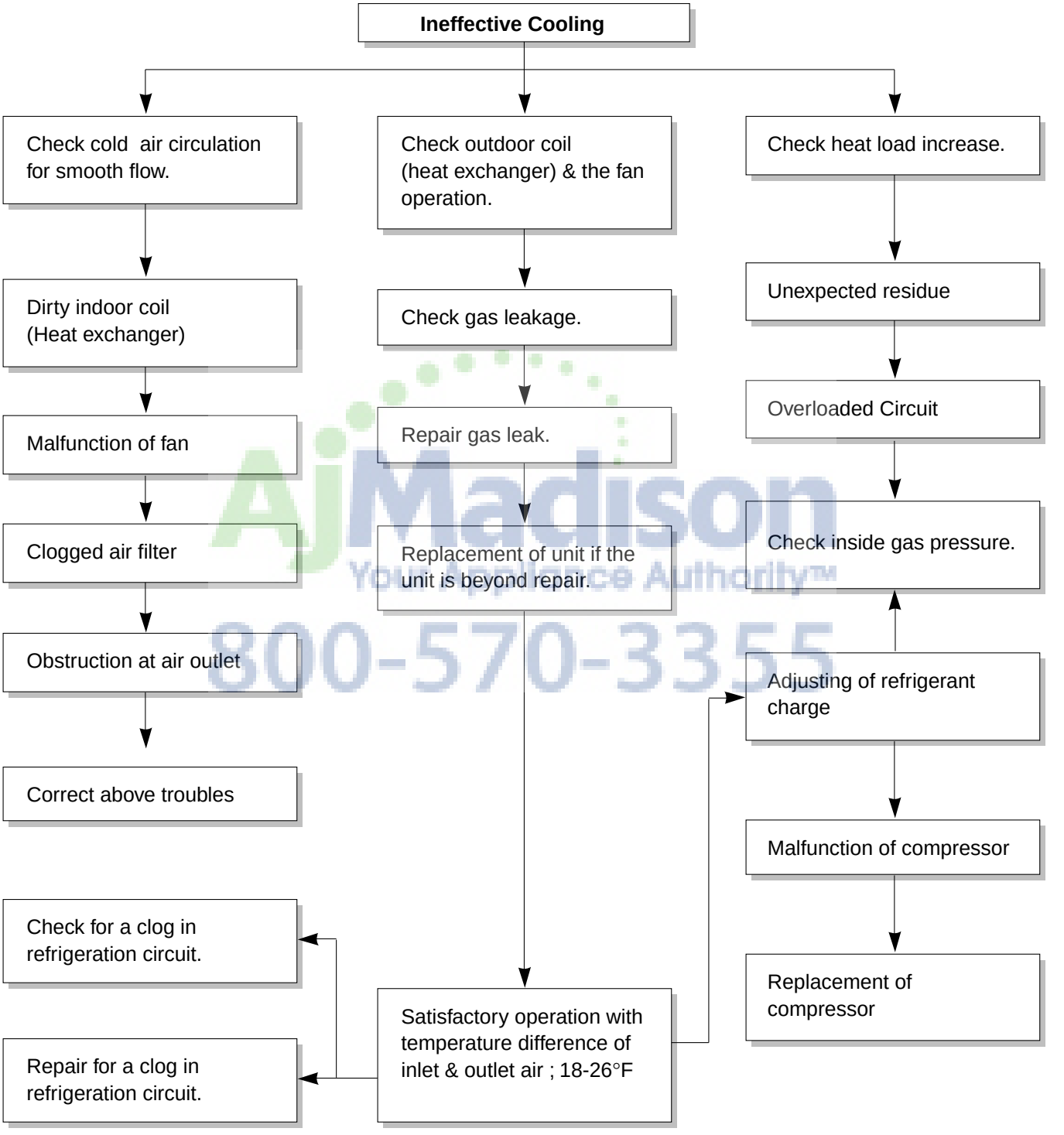


Figure 18

3.3 TROUBLESHOOTING GUIDE

In general, possible trouble is classified in two causes.
One is called Starting Failure which is caused from an electrical defect, and the other is Ineffective Air Conditioning caused by a defect in the refrigeration circuit and/or improper application.

Unit is running but cooling is ineffective



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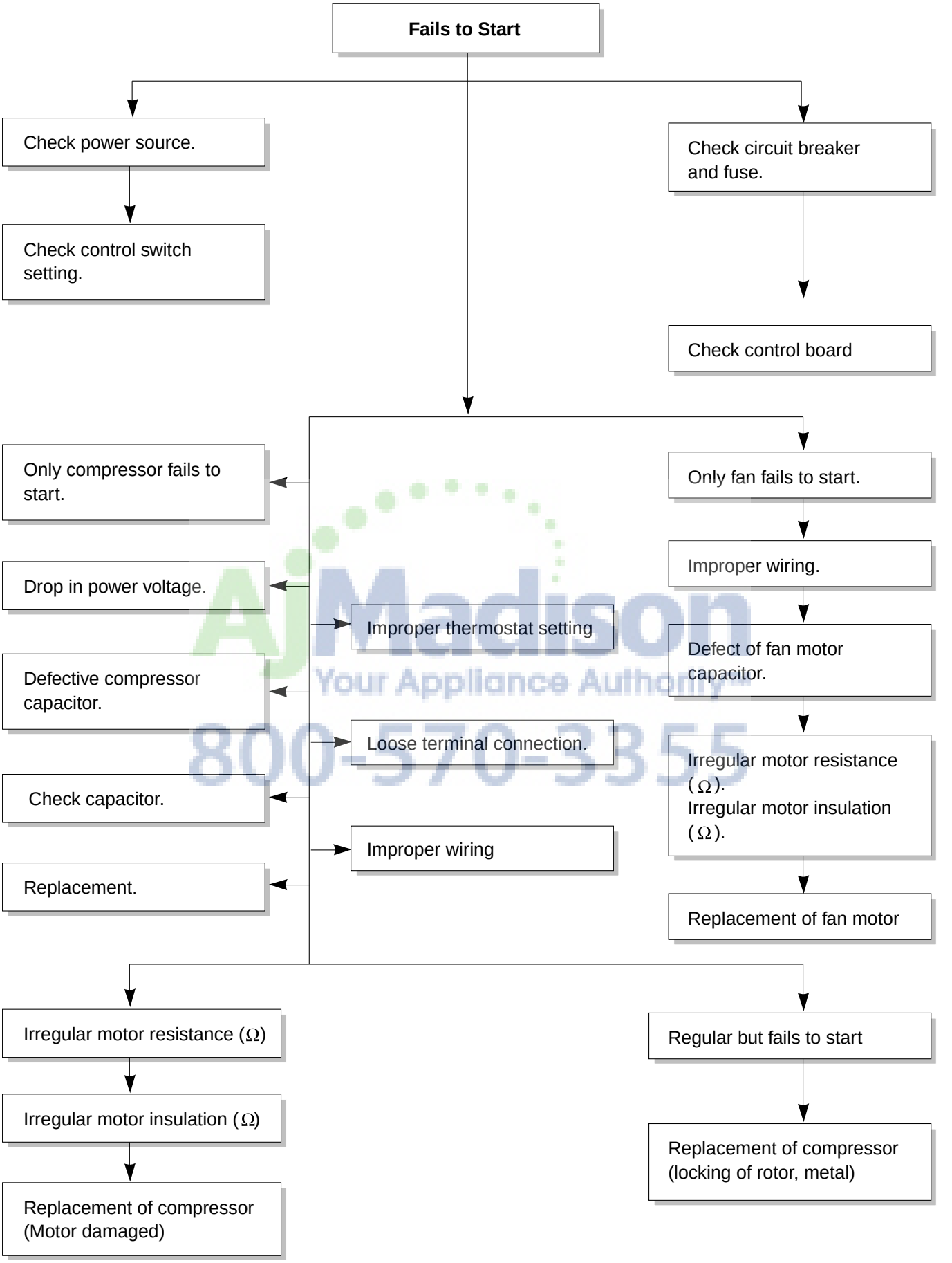

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COMPLAINT	CAUSE	REMEDY
Fan motor will not run.	No power	Check voltage at outlet. Correct if none.
	Wire disconnected or connection loose	Connect wire. Refer to wiring diagram for terminal identification. Repair or replace loose terminal.
	Capacitor (Discharge capacitor before testing.)	Test capacitor. Replace if not within ±10% of manufacturer's rating. Replace if shorted, open, or damaged.
	Will not rotate	Fan blade hitting shroud or blower wheel hitting scroll. Realign assembly. Units using slinger ring condenser fans must have 1/4 to 5/16 inch clearance to the base. If it is hitting the base, shim up the bottom of the fan motor with mounting screw(s). Check fan motor bearings; if motor shaft will not rotate, replace the motor.
Fan motor runs intermittently	Cycles on overload.	Check voltage. See limits on page 17. If not within limits, call an electrician. Test capacitor. Check bearings. Does the fan blade rotate freely? If not, replace fan motor. Pay attention to any change from high speed to low speed. If the speed does not change, replace the motor.
Fan motor noise.	Grommets	Check grommets; if worn or missing, replace them.
	Fan	If cracked, out of balance, or partially missing, replace it.
	Turbo fan	If cracked, out of balance, or partially missing, replace it.
	Loose set screw	Tighten it.
	Worn bearings	If knocking sounds continue when running or loose, replace the motor. If the motor hums or noise appears to be internal while running, replace motor.

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COMPLAINT	CAUSE	REMEDY
Compressor will not run, but fan motor runs.	Voltage	Check voltage. See the limits on the preceding. page. If not within limits, call an electrician.
	Wiring	Check the wire connections, if loose, repair or replace the terminal. If wires are off, refer to wiring diagram for identification, and replace. Check wire locations. If not per wiring diagram, correct.
	Capacitor (Discharge capacitor before servicing.)	Check the capacitor. Replace if not within ±10% of manufacturers rating. Replace if shorted, open, or damaged.
	Compressor	Check the compressor for open circuit or ground. If open or grounded, replace the compressor.
	Overload	Check the compressor overload, if externally mounted. Replace if open. (If the compressor temperature is high, remove the overload, cool it, and retest.)

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ROOM AIR CONDITIONER VOLTAGE LIMITS

NAME PLATE RATING	MINIMUM	MAXIMUM
115V	103.5V	126.5V
208/230V	187V	253V

COMPLAINT	CAUSE	REMEDY
Compressor cycles on overload.	Voltage	Check the voltage. See the limits on the preceding page. If not within limits, call an electrician.
	Overload	Check overload, if externally mounted. Replace if open. (If the compressor temperature is high, remove the overload, cool, and retest.)
	Fan motor	If not running, determine the cause. Replace if required.
	Condenser air flow restriction	Remove the cabinet. Inspect the interior surface of the condenser; if restricted, clean carefully (do not damage fins). Clean the interior base before reassembling.
	Condenser fins (damaged)	If condenser fins are closed over a large area on the coil surface, head pressures will increase, causing the compressor to cycle. Straighten the fins or replace the coil.
	Capacitor	Test capacitor.
	Wiring	Check the terminals. If loose, repair or replace.
	Refrigerating system	Check the system for a restriction.
Insufficient cooling or heating	Air filter	If restricted, clean or replace.
	Exhaust damper door	Close if open.
	Unit undersized	Determine if the unit is properly sized for the area to be cooled.
Excessive noise.	Blower or fan	Check the set screw or clamp. If loose or missing, correct. If the blower or fan is hitting air guide, rearrange the air handling parts.
	Copper tubing	Remove the cabinet and carefully rearrange tubing not to contact cabinet, compressor, shroud, and barrier.

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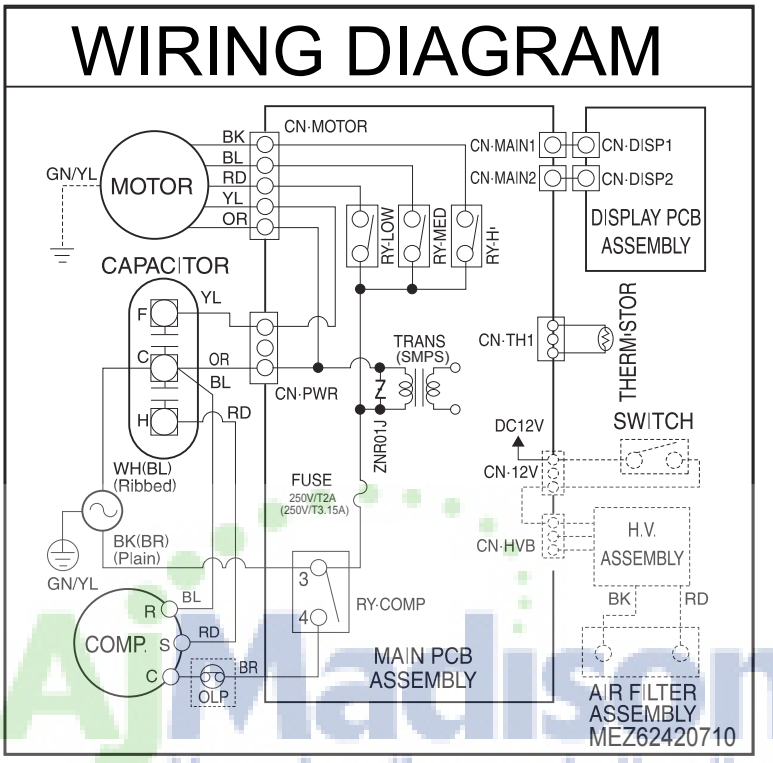
4. SCHEMATIC DIAGRAM

4.1 CIRCUIT DIAGRAM



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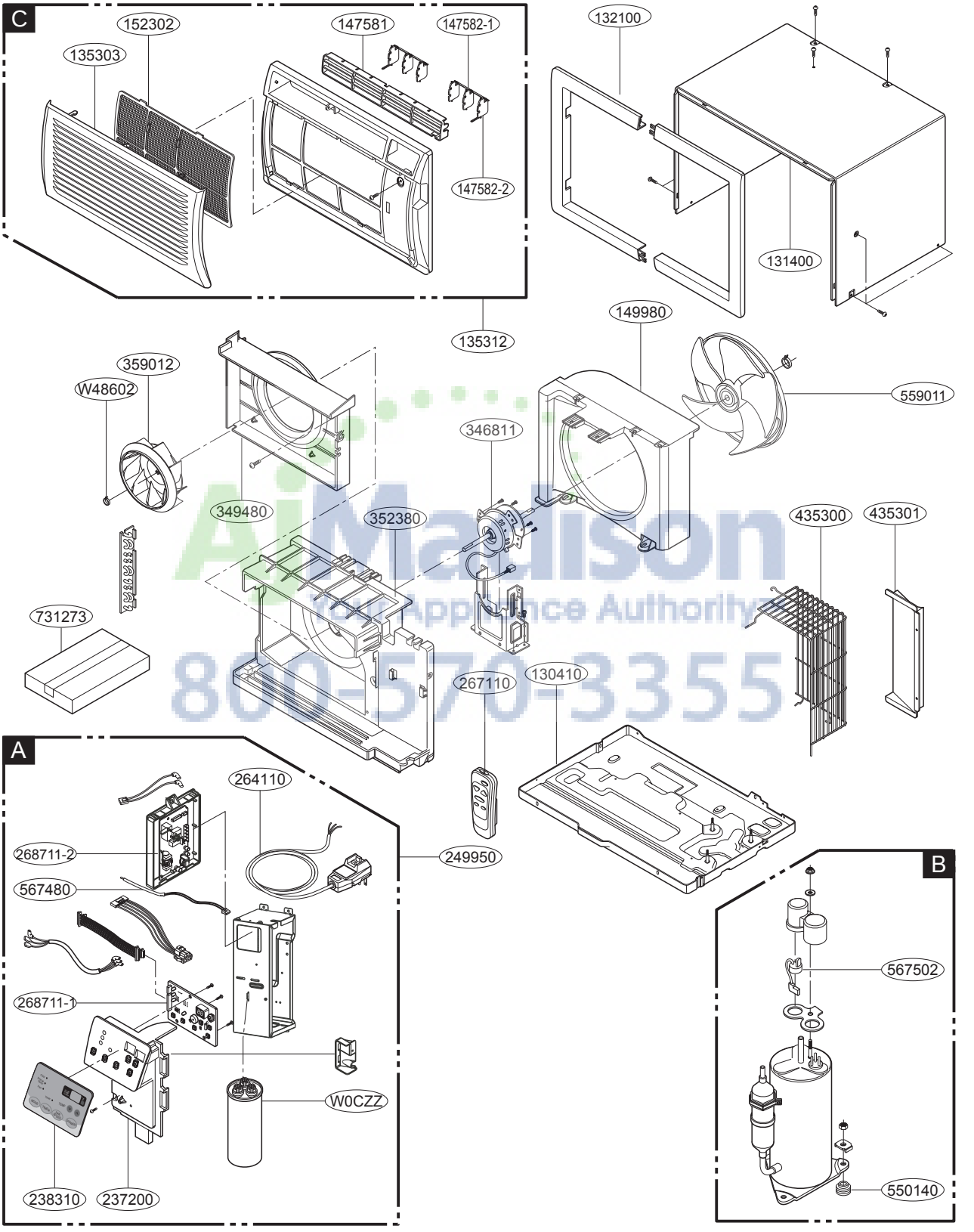
Exploded View



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LocNo	Description	US08C10
W0CZZ	CAPACITOR,FILM,BOX	67300709
130410	BASE ASSEMBLY,SINGLE	67302925
130900	CABINET	67303717
132100	FRAME	67308102
135303	GRILLE,INLET	67306106
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	67306012
238310	ESCUTCHEON	67500114
W48602	CLAMP,SPRING	67302500
346811	MOTOR ASSEMBLY,SINGLE	67303021
147581	LOUVER,HORIZONTAL	67306205
147582-1	LOUVER,VERTICAL	67306256
147582-2	LOUVER,VERTICAL	67306257
149980	SHROUD	67500112
550140	DAMPER,COMPRESSOR	67305000
152302	FILTER,AIR	67500113
352380	AIR GUIDE	67302739
359012	FAN,TURBO	67302607
559011	FAN ASSEMBLY,AXIAL	67303202
567480	THERMISTOR ASSEMBLY	67307804
264110	POWER CORD ASSEMBLY	67300027
267110	REMOTE CONTROLLER ASSEMBLY	67302239
567502	OverloadProtect	67301907
268711-2	PWB(PCB) ASSEMBLY,MAIN	67307620
268711-1	PWB(PCB) ASSEMBLY,DISPLAY	67307619
435300	GRILLE,REAR	67304801
237200	PANEL,CONTROL	67305510
731273	INSTALL PART ASSEMBLY,SINGLE	67306311
249950	CASE ASSEMBLY,CONTROL	67305521
435301	GRILLE,REAR	67304801
349480	ORIFICE	67303409

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LocNo	Description	US10C10
W0CZZ	CAPACITOR,FILM,BOX	67300724
130410	BASE ASSEMBLY,SINGLE	67305520
130900	CABINET	67303717
132100	FRAME	67308102
135303	GRILLE,INLET	67306106
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	67306012
238310	ESCUTCHEON	67500114
W48602	CLAMP,SPRING	67302500
346811	MOTOR ASSEMBLY,SINGLE	67303023
147581	LOUVER,HORIZONTAL	67306205
147582-1	LOUVER,VERTICAL	67306256
147582-2	LOUVER,VERTICAL	67306257
349600	BRACKET,MOTOR	67303606
149980	SHROUD	67500112
550140	DAMPER,COMPRESSOR	67305000
152302	FILTER,AIR	67500113
352380	AIR GUIDE	67302741
359012	FAN,TURBO	67302607
559011	FAN ASSEMBLY,AXIAL	67303202
567480	THERMISTOR ASSEMBLY	67307804
264110	POWER CORD ASSEMBLY	67300027
267110	REMOTE CONTROLLER ASSEMBLY	67302239
567502	OverloadProtect	67301905
268711-2	PWB(PCB) ASSEMBLY,MAIN	67307620
268711-1	PWB(PCB) ASSEMBLY,DISPLAY	67307619
435300	GRILLE,REAR	67304801
237200	PANEL,CONTROL	67305510
731273	INSTALL PART ASSEMBLY,SINGLE	67306311
249950	CASE ASSEMBLY,CONTROL	67305522
435301	GRILLE,REAR	67304801
349480	ORIFICE	67303409

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LocNo	Description	US10C30
W0CZZ	CAPACITOR,FILM,BOX	67300709
130410	BASE ASSEMBLY,SINGLE	67302925
130900	CABINET	67303717
132100	FRAME	67308102
135303	GRILLE,INLET	67306106
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	67306012
238310	ESCUTCHEON	67500114
W48602	CLAMP,SPRING	67302500
346811	MOTOR ASSEMBLY,SINGLE	67303024
147581	LOUVER,HORIZONTAL	67306205
147582-1	LOUVER,VERTICAL	67306256
147582-2	LOUVER,VERTICAL	67306257
149980	SHROUD	67500112
550140	DAMPER,COMPRESSOR	67305000
152302	FILTER,AIR	67500113
352380	AIR GUIDE	67302740
359012	FAN,TURBO	67302607
559011	FAN ASSEMBLY,AXIAL	67303202
567480	THERMISTOR ASSEMBLY	67307804
264110	POWER CORD ASSEMBLY	67300026
267110	REMOTE CONTROLLER ASSEMBLY	67302239
567502	OverloadProtect	67301908
268711-2	PWB(PCB) ASSEMBLY,MAIN	67307618
268711-1	PWB(PCB) ASSEMBLY,DISPLAY	67307619
435300	GRILLE,REAR	67304801
237200	PANEL,CONTROL	67305510
731273	INSTALL PART ASSEMBLY,SINGLE	67306311
249950	CASE ASSEMBLY,CONTROL	67305523
435301	GRILLE,REAR	67304801
349480	ORIFICE	67303409

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LocNo	Description	US12C10
W0CZZ	CAPACITOR,FILM,BOX	67300729
130410	BASE ASSEMBLY,SINGLE	67305520
130900	CABINET	67303717
132100	FRAME	67308102
135303	GRILLE,INLET	67306106
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	67306012
238310	ESCUTCHEON	67500114
W48602	CLAMP,SPRING	67302500
346811	MOTOR ASSEMBLY,SINGLE	67303023
147581	LOUVER,HORIZONTAL	67306205
147582-1	LOUVER,VERTICAL	67306256
147582-2	LOUVER,VERTICAL	67306257
349600	BRACKET,MOTOR	67303606
149980	SHROUD	67500112
550140	DAMPER,COMPRESSOR	67305000
152302	FILTER,AIR	67500113
352380	AIR GUIDE	67302741
359012	FAN,TURBO	67302607
559011	FAN ASSEMBLY,AXIAL	67303202
567480	THERMISTOR ASSEMBLY	67307804
264110	POWER CORD ASSEMBLY	67300025
267110	REMOTE CONTROLLER ASSEMBLY	67302239
567502	OverloadProtect	67301905
268711-2	PWB(PCB) ASSEMBLY,MAIN	67307620
268711-1	PWB(PCB) ASSEMBLY,DISPLAY	67307619
435300	GRILLE,REAR	67304801
237200	PANEL,CONTROL	67305510
731273	INSTALL PART ASSEMBLY,SINGLE	67306311
249950	CASE ASSEMBLY,CONTROL	67305524
435301	GRILLE,REAR	67304801
349480	ORIFICE	67303409

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LocNo·	Description	US12C30
W0CZZ	CAPACITOR,FILM,BOX	67300726
130410	BASE ASSEMBLY,SINGLE	67305520
130900	CABINET	67303717
132100	FRAME	67308102
135303	GRILLE,INLET	67306106
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	67306012
238310	ESCUTCHEON	67500114
W48602	CLAMP,SPRING	67302500
346811	MOTOR ASSEMBLY,SINGLE	67303037
147581	LOUVER,HORIZONTAL	67306205
147582-1	LOUVER,VERTICAL	67306256
147582-2	LOUVER,VERTICAL	67306257
349600	BRACKET,MOTOR	67303606
149980	SHROUD	67500112
550140	DAMPER,COMPRESSOR	67305000
152302	FILTER,AIR	67500113
352380	AIR GUIDE	67302741
359012	FAN,TURBO	67302607
559011	FAN ASSEMBLY,AXIAL	67303202
567480	THERMISTOR ASSEMBLY	67307804
264110	POWER CORD ASSEMBLY	67300026
267110	REMOTE CONTROLLER ASSEMBLY	67302239
567502	OverloadProtect	67301906
268711-2	PWB(PCB) ASSEMBLY,MAIN	67307618
268711-1	PWB(PCB) ASSEMBLY,DISPLAY	67307619
435300	GRILLE,REAR	67304801
237200	PANEL,CONTROL	67305510
731273	INSTALL PART ASSEMBLY,SINGLE	67306311
249950	CASE ASSEMBLY,CONTROL	67305525
435301	GRILLE,REAR	67304801
349480	ORIFICE	67303409

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LocNo·	Description	US14C30
W0CZZ	CAPACITOR,FILM,BOX	67300709
130410	BASE ASSEMBLY,SINGLE	67302926
130900	CABINET	67303717
132100	FRAME	67308102
135303	GRILLE,INLET	67306106
135312	GRILLE ASSEMBLY,FRONT(SINGLE)	67306012
238310	ESCUTCHEON	67500114
W48602	CLAMP,SPRING	67302500
346811	MOTOR ASSEMBLY,SINGLE	67303037
147581	LOUVER,HORIZONTAL	67306205
147582-1	LOUVER,VERTICAL	67306256
147582-2	LOUVER,VERTICAL	67306257
349600	BRACKET,MOTOR	67303606
149980	SHROUD	67500112
550140	DAMPER,COMPRESSOR	67305000
152302	FILTER,AIR	67500113
352380	AIR GUIDE	67302741
359012	FAN,TURBO	67302607
559011	FAN ASSEMBLY,AXIAL	67303202
567480	THERMISTOR ASSEMBLY	67307804
264110	POWER CORD ASSEMBLY	67300026
267110	REMOTE CONTROLLER ASSEMBLY	67302239
268711-2	PWB(PCB) ASSEMBLY,MAIN	67307618
268711-1	PWB(PCB) ASSEMBLY,DISPLAY	67307619
435300	GRILLE,REAR	67304801
237200	PANEL,CONTROL	67305510
731273	INSTALL PART ASSEMBLY,SINGLE	67306311
249950	CASE ASSEMBLY,CONTROL	67305526
435301	GRILLE,REAR	67304801
349480	ORIFICE	67303409

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