MOOVAIR

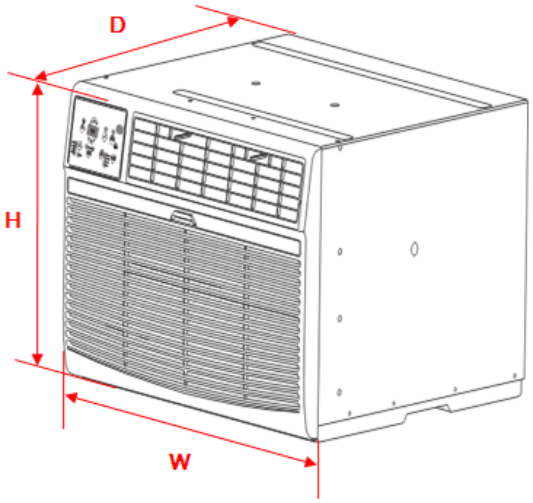
R-410A

Windows AC TTW

SERVICE MANUAL

Models:

TM08CEM9115S
TM08CM10115S
TM10CEM9230S
TM10CM10115S
TM10CM10230S
TM12CEM9230S
TM12CM10115S
TM12CM10230S
TM14CM9230S
TM14CEM9230S



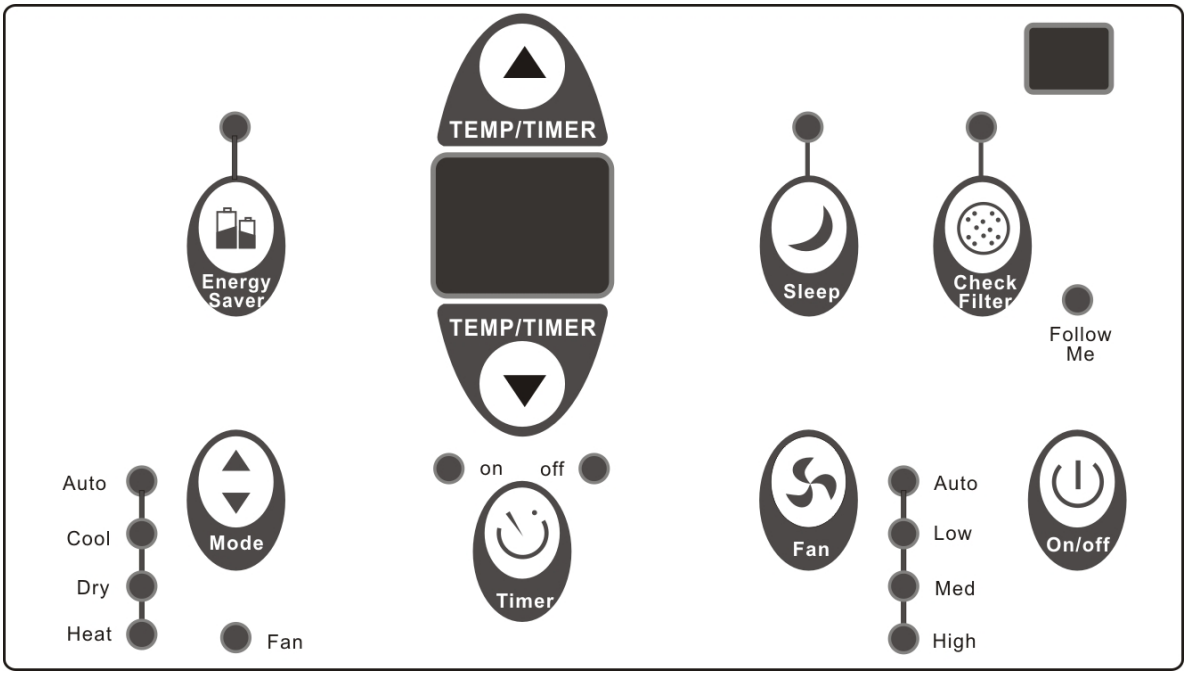
TTW sleeve

Dimension Mode	W (mm, inch)		H (mm, inch)		D (mm, inch)	
TTW	615	24.2	369	14.5	515	20.3
TTW sleeve	649	25.6	388	15.3	445	17.5

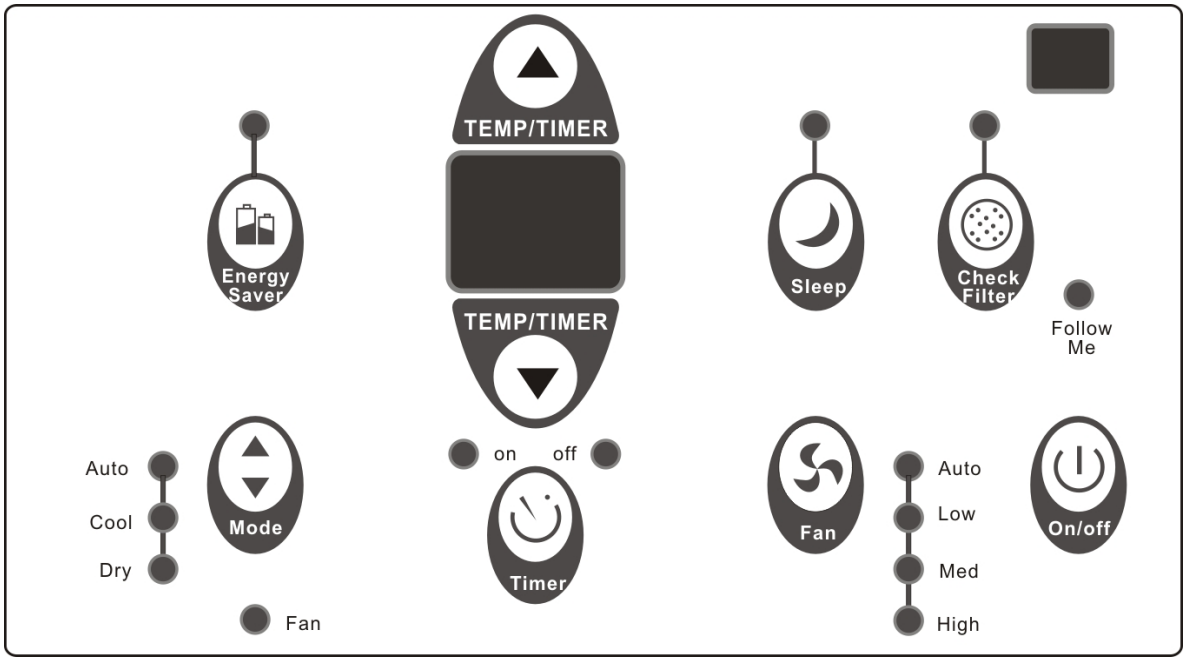
CONTENTS

1. Operation Modes and Instructions

1.1 Display control



ELECTRONIC HEATING MODELS



COOLING-ONLY MODELS

On-Off Button

Press to turn on or off the unit.

NOTE: The unit will initiate automatically the Energy Saver function under cool, Dry, Auto (only Auto-Cooling and Auto-Fan) modes.

Up and Down Button

Press or hold either Up(▲) or Down(▼) the setting temp 2℉/1℃ each times from 62℉ (17℃) to 86℉ (30℃). Also can be used for time adjust in Timer function.

Some models press and hold both Up and Down buttons for 3 seconds, will change the display from ℉ to ℃.

Mode select Button

Press to change the operation mode, each time you press the button, a mode is selected in a sequence that goes from Auto, Cool, Dry and Fan.

The unit will initiate automatically the Energy Saver function under Cool, Dry, Auto (only Auto-Cooling and Auto Fan) modes.

Base on Energy Stars' requirement.

Fan speed Button

Press to change the fan speed, each time you press the button, the fan speed in four steps, Auto, Low, Med and High. The fan speed can't be adjusted under HEAT mode. On Dry mode, the fan speed is controlled at Low automatically.

Timer Button

Press to start or stop the Auto On or Auto Off function. Press or hold either Up (▲) or Down (▼) the setting time from 0.0 to 24 hours.

Sleep Button

Press to start or stop the sleep function.

Energy Saver Button

Press to start or stop the energy saver function. This function is available on Cool, Dry, Auto (only Auto-Cooling and Auto-Fan) modes.

When the room temp is meet the compressor shut off condition, the fan motor will continue running for 3 minutes, after that, the fan motor will running for 2 minutes every 10 minutes, until the compressor start.

Check Filter Button

This function is a reminder to clean the Air Filter for more efficient and more health. The LED light will keep illuminate after 250 hours of operation, until press.

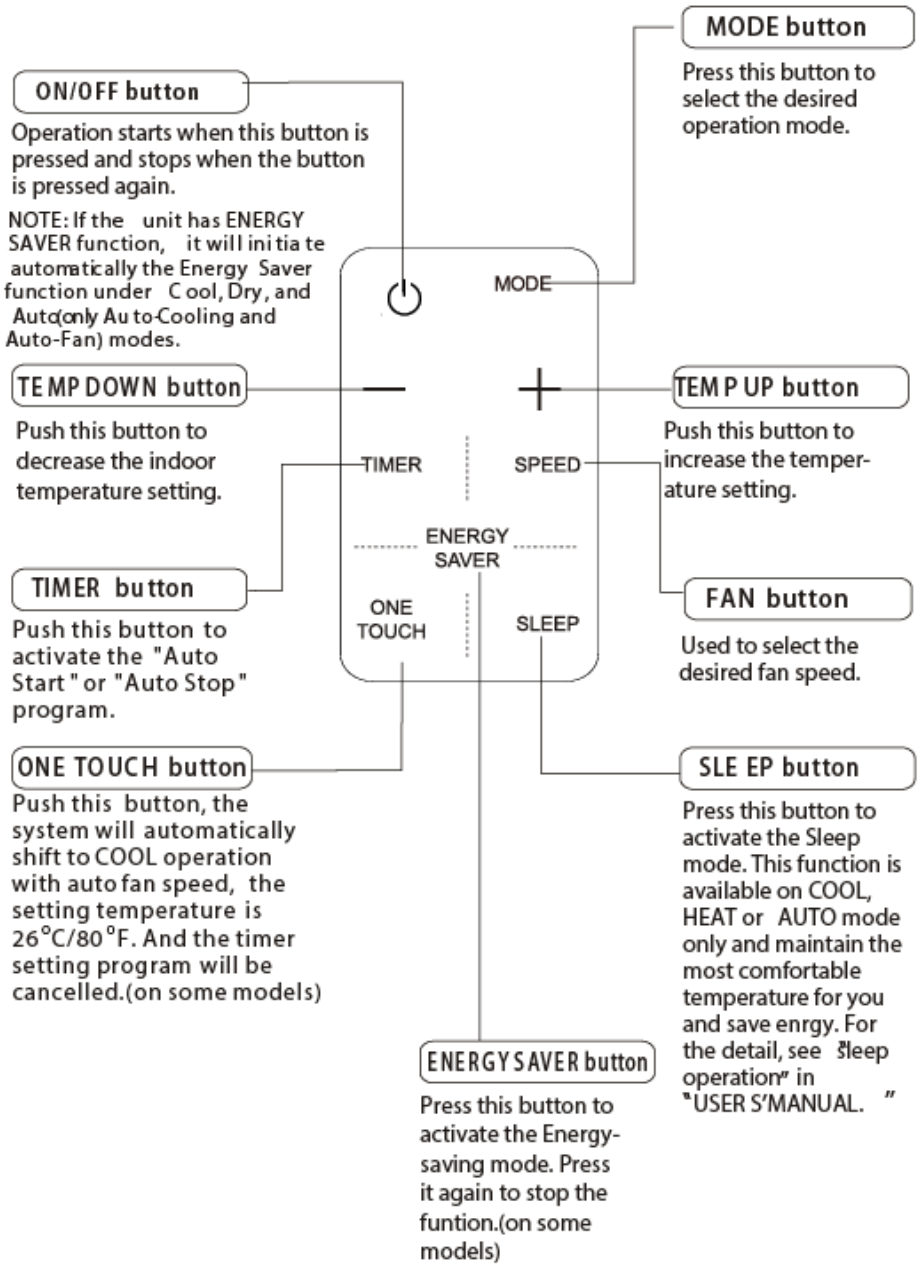
Follow Me Feature (on some models)

This feature can be activated from the remote control only. The remote control serves as a remote thermostat allowing for the precise temperature control at its location. (Follow Me)

To activate the Follow Me feature, point the remote control towards the unit and press the Follow Me button. The remote display is actual temperature at its location. The remote control will send this signal to the air conditioner every 3 minutes interval until press the Follow Me button again. If the unit does not receive the Follow Me signal during any 7 minutes interval, the unit will beep to indicate the Follow Me mode has ended.

1.2 Remote control

RG15A(B)/E



2 Electronic function

2.1 Terms and definitions

- TA: Temperature of indoor ambient (T1)
- TE: Temperature of evaporator (T2).
- TS: The set temperature.
- DAHT: Sensor of heater

2.2 Protection function

- The compressor restart protection functions with a delay of 3 minutes.
- 5 minutes operation for compressor(this function is for cooling and heat pump mode)
- Sensor protection at open or short circuit.

2.3 Auto mode

- At Auto mode, the unit will choose cooling, heating or fan-only mode according to ΔT =TA-Ts)

ΔT=TA-Ts	Running mode
ΔT＞4°F	Cooling
-2°F≤ΔT≤4°F	Fan-only
ΔT<-2°F	Heating (Setting temperature is TS-1°F); Or Fan-only (for cooling only models).

- The unit will choose actual operation mode in auto mode in the below cases:

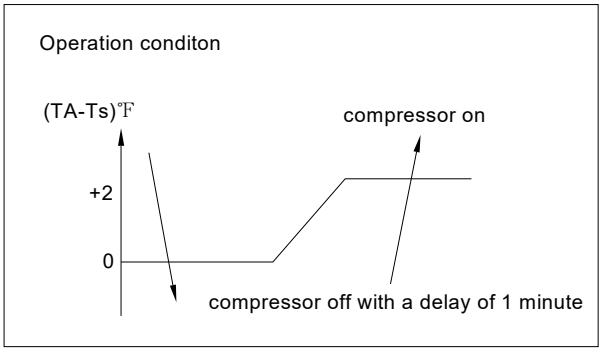
  - Power on or change mode to auto mode or adjust temperature in auto mode, the unit will choose actual running mode again.
  - A: On auto mode, if the compressor keeps not running for 15 minutes. judge condition B
    B: If ΔT<-8℉ or ΔT ＞2℉, the unit will choose actual running mode again according to ΔT till the compressor stops.

2.4 Fan-only mode

- The temperature can't be controlled at the mode, and the room ambient temperature is display on LED.
- The Ion/ Timer functions are valid at the fan-only mode.
  And follow me function (for some models) is invalid at fan-only mode.

2.5 Cooling mode

- The temp can be set from 62 to 86℉(17 to 30℃)
- The compressor will be activated by sensing the difference between setting temperature and the actual ambient room temperature.
  The compressor operates as below:

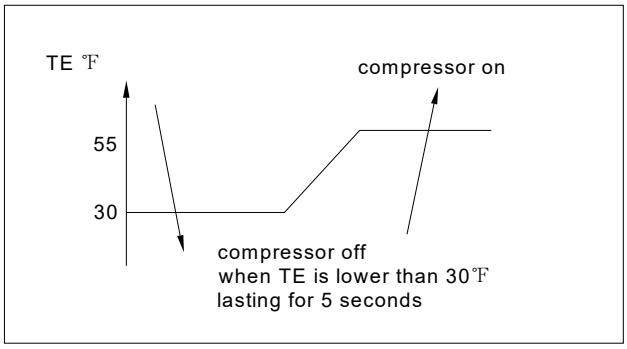


When TA≤TS (lasting 1 minute), compressor off
When T1>TS+2℉, compressor on

- The Ion/ Timer/ Sleep/ Energy Saver/ Follow Me functions are valid at the cooling mode.

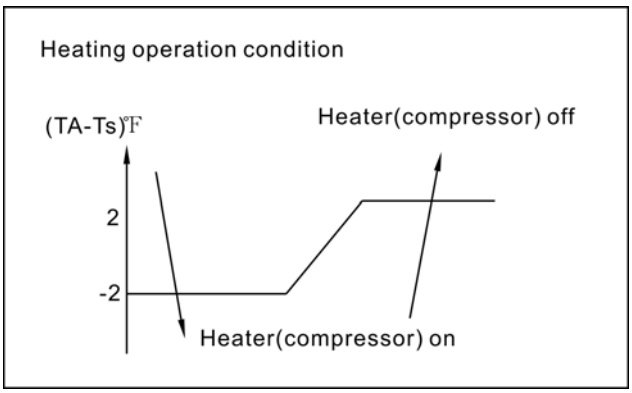
2.6 Auto-defrosting function protection as below:

- When TE is lower, it means that the evaporator frosts. Then the unit starts defrosting, and the indoor fan keeps working at the moment. When the temperature is up, the unit stops defrosting.



2.7 Heating mode

- The setting temperature from 62~86℉(17~30℃)
- On heating mode, Lo/Mid/HI/Auto speed can be chose.
  - When unit uses 115V heater for heating, it will operate at Low speed (on heating mode, the speed can't be controlled, it should be at Low speed by force).
  - When unit uses 115V heater for heating, it will operate on Auto heat mode at low speed by force no matter that the LED displays as Auto speed.
- On heating mode, ION/Sleep/Timer/Follow me function are valid.
- Heating operation is according to the difference between TS and TA. (figure as below)



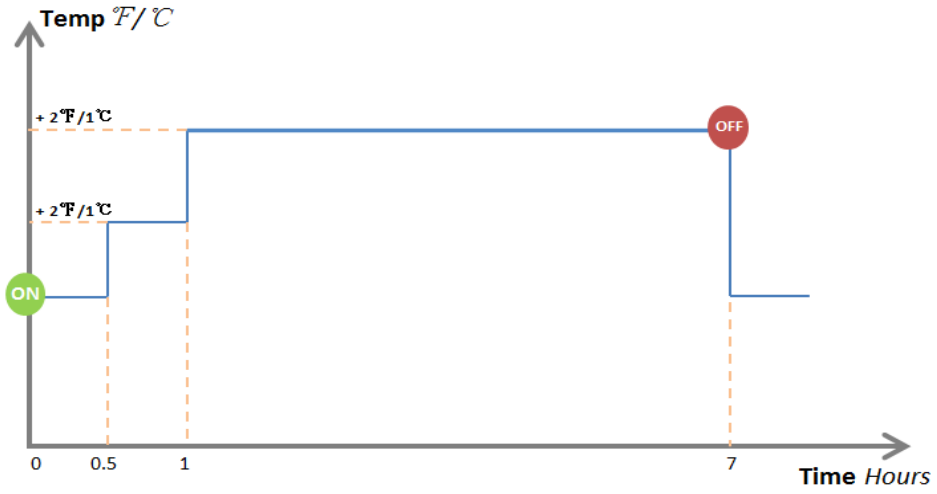
2.8 Dry mode

- The temp can be setting as same as Cooling mode.
- The fan speed is low and can't be controlled at the mode.

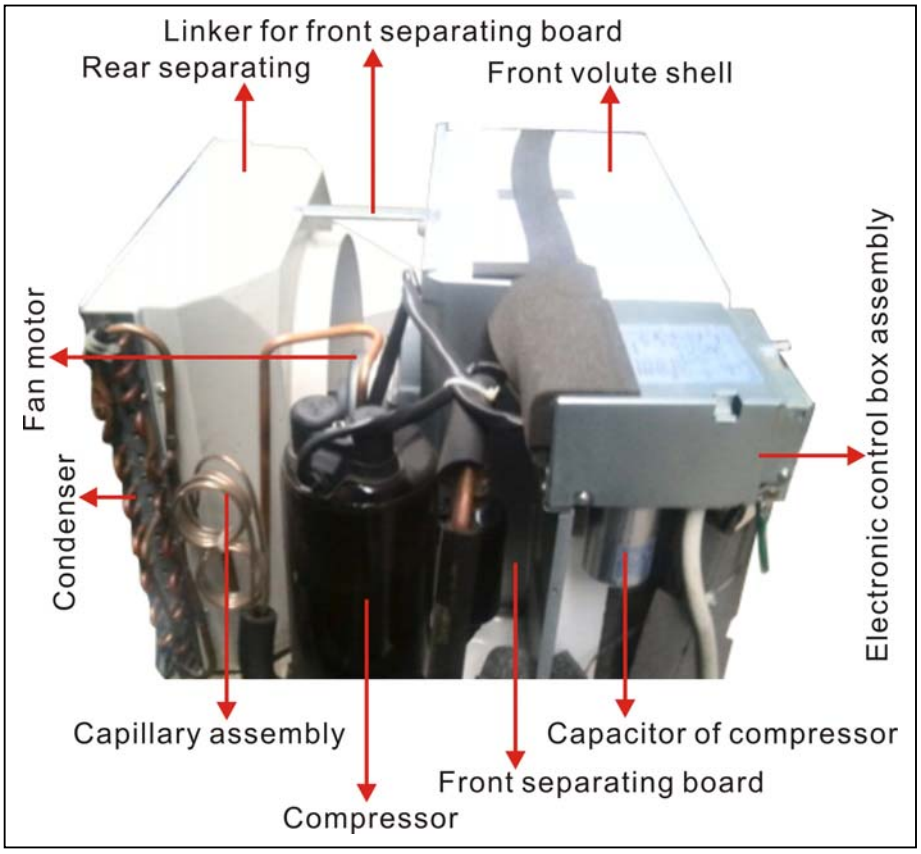
2.9 Sleep mode

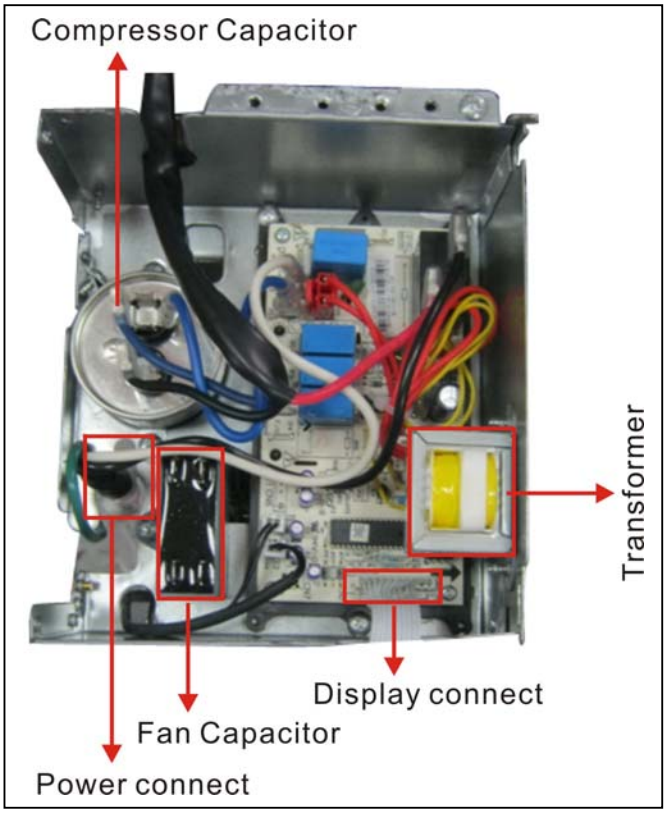
- This function is 7 hours. It is valid in cooling, heating and auto mode.
- In this function the fan speed will be change to auto fan.
- In this function, the first and second 30minuts, the setting temp will up (or down for heating mode) 2℉ (1℃), after that will keep 6 hours, until the function stop.
- When the function is start, if you do any operation below, the function will stop. Press sleep button again, or use the remote control to set anything. Turn off the unit. It is time to turn off the unit, for timer off function.

Example:



3 Internal Structures



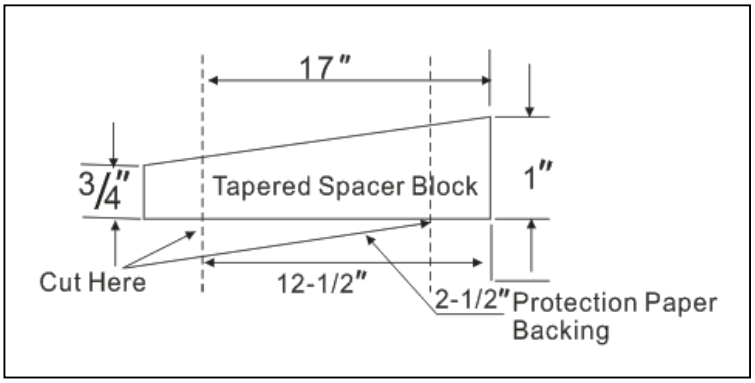


4 Installation and use notice

4.1 For different Wall Sleeve, the cut of Tapered Space Blocks are different as shown below:

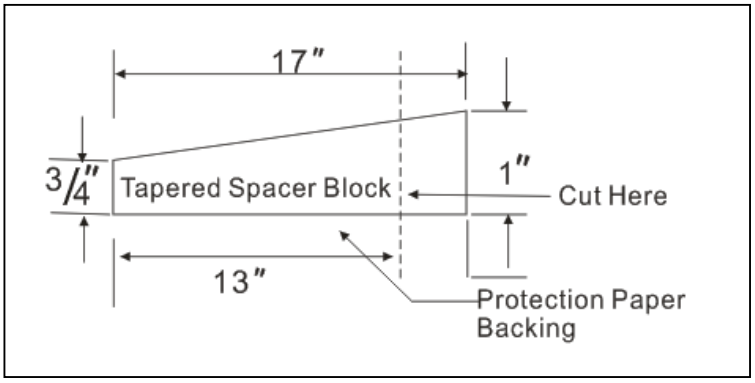
1) Fedders of Friedrich 16 3/4″ Deep

Tapered Spaceer Blocks is cut into three pieces as shown below:

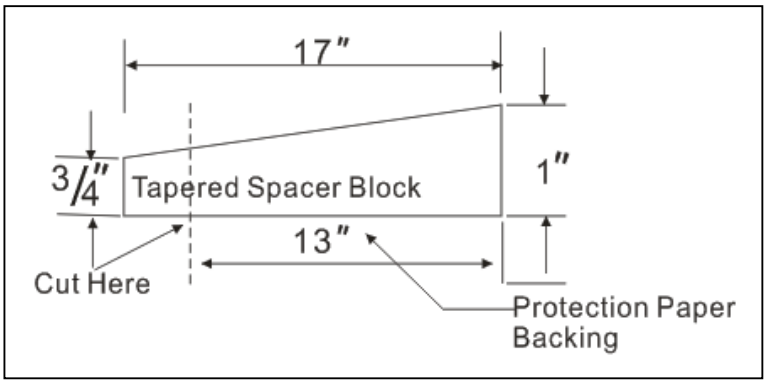


2) General Electra/Hotpoint 16 7/8″ Deep

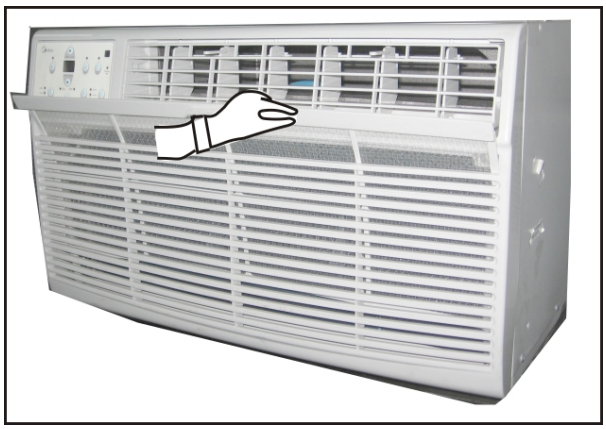
Tapered Spaceer Blocks is cut into two pieces as shown below:

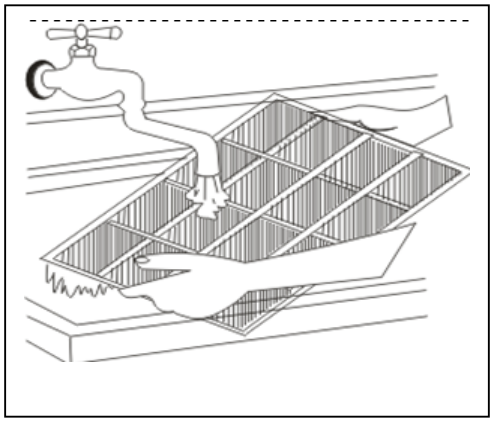


3) Whirlpool 17 1/8″ Deep



4.2 Cleaning filter





Notice:

The air filter should be checked at least once a month to see if cleaning is necessary. Trapped particles in the filter can build up and cause an accumulation of frost on the cooling coils.

5 Troubleshooting

In general, possible trouble is classified in three kinds. One is called Starting Failure which is caused from an electrical defect, another is ineffective Air Conditioning caused by a defect in the refrigeration circuit and improper application, and the other is called the Structure Damage.

5.1 Troubleshooting

Problem	**Solution**
Air conditioner does not start	Wall plug disconnected. Push plug firmly into wall outlet.
	House fuse blown or circuit breaker tripped. Replace fuse with time delay type or reset circuit breaker.
	Plug Current Device Tripped. Press the RESET button.
	Power is OFF. Turn power ON.
Air from unit does not feel cold enough	Room temperature below 62℉(17℃). Cooling may not occur until room temperature rises above 62℉(17℃).
	Temperature sensing element touching cold coil, located behind air filter. Straighten tube away from coil.
	Set to a Lower temperature.
	Compressor stopped when changing modes. Wait for 3 minutes after set to the COOL mode.
Air conditioner cooling, but room is too warm- ice forming on cooling coil behind decorative front.	Outdoor temperature below 64℉(18℃). To defrost the coil, set FAN ONLY mode.
	Air filter may be dirty. Clean filter. Refer to Care and Cleaning section. To defrost, set to FAN ONLY mode.
	Thermostat set too cold for night-time cooling. To defrost the coil, set to FAN ONLY mode. Then, set temperature to a Higher setting.
Air conditioner cooling, but room is too warm- NO ice forming on cooling coil behind decorative front.	Dirty air filter- air restricted. Clean air filter. Refer to Care and Cleaning section.
	Temperature is set too High, set temperature to a Lower setting.
	Air directional louvers positioned improperly. Position louvers for better air distribution.
	Front of units is blocked by drapes, blinds, furniture, etc. - restricts air distribution. Clear blockage in front of unit.
	Doors/ windows/registers, etc. Open- cold air escapes. Close doors, windows, registers.
	Unit recently turned on in hot room. Allow additional time to remove. Stored heat from walls, ceiling, floor and furniture.
Air conditioner turns on and off rapidly	Dirty air filter- air restricted. Clean air filter
	Outside temperature extremely hot. Set FAN speed to a Higher setting to bring air past cooling coils more frequently.
Noise when unit is cooling	Air movement sound. This is normal. If too loud, set to a slower FAN setting.
	Window vibration - poor installation. Refer to installation instructions or check with installer.
Water dripping INSIDE when unit is cooling.	Improper installation. Tilt air conditioner slightly to the outside to allow water drainage. Refer to installation instructions - check with installer.
Water dripping OUTSIDE when unit is cooling.	Unit removing large quantity of moisture from humid room. This is normal during excessively humid days.
Remote Sensing Deactivating Prematurely (some models)	Remote control not located within range. Place remote control within 20 feet & 180°, radius of the front of the unit.
	Remote control signal obstructed. Remove obstruction.
Room too cold	Set temperature too low. Increase set temperature.

5.2 Sensor malfunction

LED display	Stand for
AS	Room temperature sensor error
LO	Room temperature sensor protection at open circuit sensor error in fan only mode
HI	Room temperature sensor protection at short circuit sensor error in fan only mode
HS	Electronic heating sensor error
●	Evaporator temperature sensor at open or short circuit

6.3Characteristic of temperature sensor

Temp.℃	Temp.℉	Resistance KΩ	Temp.℃	Temp.℉	Resistance KΩ	Temp.℃	Temp.℉	Resistance KΩ
-10	14	62.2756	17	62.6	14.6181	44	111.2	4.3874
-9	15.8	58.7079	18	64.4	13.918	45	113	4.2126
-8	17.6	56.3694	19	66.2	13.2631	46	114.8	4.0459
-7	19.4	52.2438	20	68	12.6431	47	116.6	3.8867
-6	21.2	49.3161	21	69.8	12.0561	48	118.4	3.7348
-5	23	46.5725	22	71.6	11.5	49	120.2	3.5896
-4	24.8	44	23	73.4	10.9731	50	122	3.451
-3	26.6	41.5878	24	75.2	10.4736	51	123.8	3.3185
-2	28.4	39.8239	25	77	10	52	125.6	3.1918
-1	30.2	37.1988	26	78.8	9.5507	53	127.4	3.0707
0	32	35.2024	27	80.6	9.1245	54	129.2	2.959
1	33.8	33.3269	28	82.4	8.7198	55	131	2.8442
2	35.6	31.5635	29	84.2	8.3357	56	132.8	2.7382
3	37.4	29.9058	30	86	7.9708	57	134.6	2.6368
4	39.2	28.3459	31	87.8	7.6241	58	136.4	2.5397
5	41	26.8778	32	89.6	7.2946	59	138.2	2.4468
6	42.8	25.4954	33	91.4	6.9814	60	140	2.3577
7	44.6	24.1932	34	93.2	6.6835	61	141.8	2.2725
8	46.4	22.5662	35	95	6.4002	62	143.6	2.1907
9	48.2	21.8094	36	96.8	6.1306	63	145.4	2.1124
10	50	20.7184	37	98.6	5.8736	64	147.2	2.0373
11	51.8	19.6891	38	100.4	5.6296	65	149	1.9653
12	53.6	18.7177	39	102.2	5.3969	66	150.8	1.8963
13	55.4	17.8005	40	104	5.1752	67	152.6	1.83
14	57.2	16.9341	41	105.8	4.9639	68	154.4	1.7665
15	59	16.1156	42	107.6	4.7625	69	156.2	1.7055
16	60.8	15.3418	43	109.4	4.5705	70	158	1.6469