

Aprilaire®

Electronic Thermostats

MODEL 8344 HEAT/COOL NON-PROGRAMMABLE

MODEL 8346 HEAT PUMP NON-PROGRAMMABLE

MODEL 8348 HEAT/COOL MULTI-STAGE NON-PROGRAMMABLE

MODEL 8363 HEAT/COOL 5/2 DAY PROGRAMMABLE

MODEL 8365 HEAT PUMP 5/2 DAY PROGRAMMABLE

MODEL 8366 HEAT/COOL MULTI-STAGE 5/2 DAY PROGRAMMABLE



Installation Manual

WARNINGS

120 volts may cause serious injury from electrical shock. Disconnect electrical power to the furnace & air conditioner before starting installation. This thermostat is not a 120 volt (line voltage) device.

Improper installation may cause serious injury from electrical shock. This product must be installed by a qualified heating & air conditioning contractor in accordance with NEC Standards and applicable local and state codes.

Mercury is toxic and may be hazardous to your health. Any replaced thermostats containing mercury must be disposed of properly. Contact local authorities for disposal information.

SPECIFICATIONS

Comfort Range	60°F – 80°F
Comfort Control Accuracy	± 1°F (applies to settings within Comfort Range)
Operating Range ¹	32°F – 99°F
Maximum Control Accuracy	± 2°F
Temperature Setting (Control) Range	50°F – 90°F heating; 60°F – 90°F cooling
Switched Load Voltage	18 – 30 volts
Maximum Operating Current	1.0 Amp
Maximum Surge Current	3.0 Amps
Low Limit Temperature ²	41°F ± 9°F
High Limit Temperature ³	100°F ± 9°F

¹ Operating Range is the temperature range in which the thermostat will accurately display temperature.

² Low Limit Temperature is the temperature setting of an internal, temperature-controlled mechanical switch in a circuit between RH and W for Models 8344, 8348, 8363 and 8366, and between R and W2 for Models 8346 and 8365. This device is intended to prevent freezing of water pipes should battery replacement be neglected.

³ High Limit Temperature is the setting of an internal, temperature-controlled mechanical switch in the circuit between the RH and the W terminal (W and W2 terminals for Model 8348 and 8366). This device will limit the room temperature should the contacts of the heat relay remain closed. Applies to Models 8344, 8348, 8363 and 8366 only.

THERMOSTAT INSTALLATION INSTRUCTIONS

Step 1. Choose a location to mount the thermostat

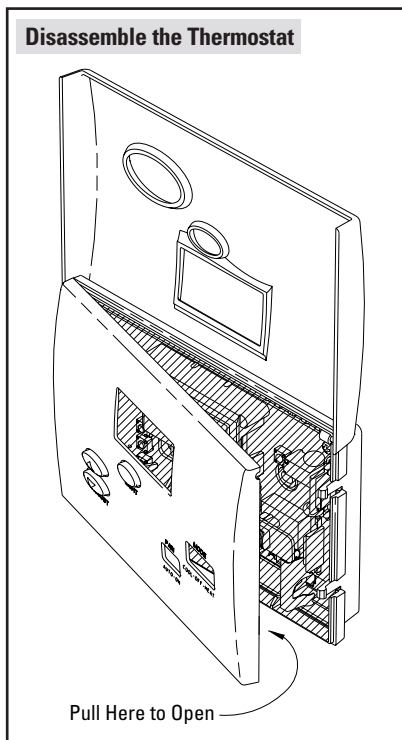
- Approximately 5 feet off the floor (refer to local codes for compliance with the Americans with Disabilities Act).
- On an interior wall where the temperature is most representative of the zone being controlled by the thermostat.
- At least 18 inches away from an outside wall.

DO NOT MOUNT THERMOSTAT...

- Behind doors, in corners or other dead air spaces.
- In direct sunlight, near lamps or other sources of heat.
- On an outside wall or any wall exposed to an unconditioned space (i.e. garage).
- In the airflow path of a supply register or near outside doors.
- On a wall where concealed pipes or ductwork will affect the thermostat temperature accuracy.

Step 2. Disassemble the thermostat

- Flip open the cover.
- Remove the face of the thermostat – no tools required.



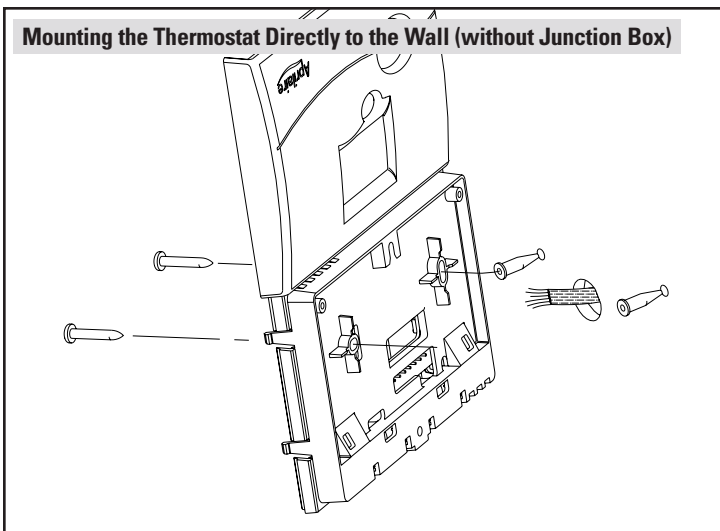
Step 3. Mount the thermostat on the wall

There are two sets of mounting holes – one set for use when mounting to a junction box, another set for direct wall mounting.

IMPORTANT! TURN OFF POWER AT THE HVAC EQUIPMENT BEFORE PROCEEDING WITH THERMOSTAT INSTALLATION!

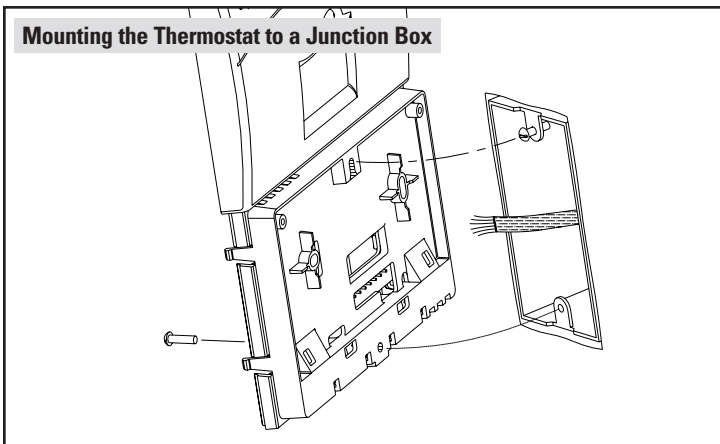
Mounting the thermostat directly to the wall (without junction box)

1. Place the thermostat wire opening over the wall opening. If replacing a thermostat, place the thermostat to cover the old thermostat silhouette. The base of the thermostat is raised to allow for wire routing behind the thermostat.
2. Level the thermostat (for appearance only) and mark the mounting hole locations.
3. Drill a 3/16" dia. hole at the marked locations and install drywall anchors (included). Drywall anchors should be used unless installing on paneling or other hard surfaces. **Anchors should be flush with the wall surface.**
4. Secure the thermostat to the wall using two (2), #8 x 1-1/2" long pan head screws (included).



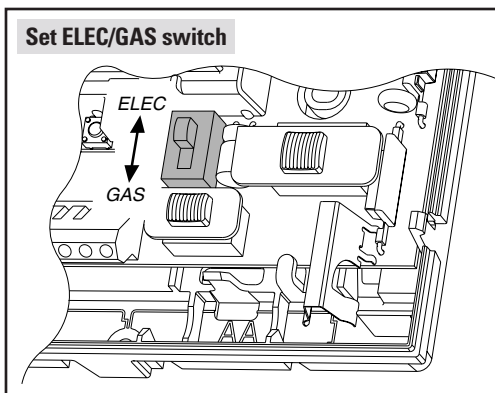
Mounting the thermostat to a junction box

1. Install the top j-box screw (not included), until the head is approximately 1/8" from the surface of the wall.
2. Slide the thermostat on to the top screw.
3. Install the bottom screw (not included) to finish the installation.



Step 4. Set the ELEC/GAS switch to the proper position (Models 8344, 8348, 8363 and 8366 only)

Setting the switch to ELEC will cause the G terminal to energize with the W terminal on a call for heat. Only the W terminal will energize on a heat call in the GAS position.

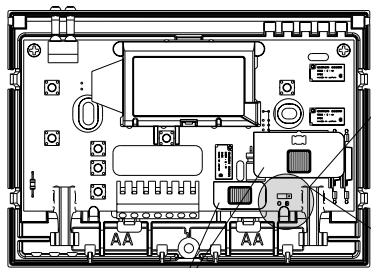


Set the O/B reversing valve jumper in the proper position (Models 8346 and 8365 only)

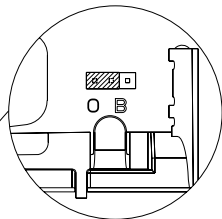
The thermostat comes with an O/B terminal which can be configured to be an 'O' terminal (for most heat pumps) or to be a 'B' terminal. Configure as an 'O' terminal if the heat pump reversing valve has heating as the default position, configure as a 'B' terminal if the reversing valve has cooling as the default position.

CONSULT WITH THE HEAT PUMP MANUFACTURER TO DETERMINE WHICH CONFIGURATION IS NEEDED.

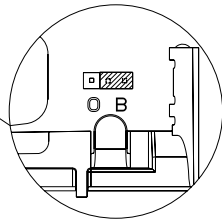
O/B Reversing Valve Pin Jumper Position



Remove the slide switch caps
for easier access.



To configure as an "O" Terminal,
keep the pin jumper in this position.



To configure as a "B" Terminal,
move the pin jumper to this position.

Step 5. Wire the thermostat

IMPORTANT! ENSURE THE POWER AT THE HVAC EQUIPMENT IS OFF.

1. Make sure the fan switch is set to **Auto** and the Mode switch is set to **Off**.
2. Strip 2" of cable insulation.
3. Strip 1/4" of insulation from each wire. Do not cut into the wire when stripping insulation, as this can lead to eventual control failure.
4. Secure the wires to the thermostat terminal strip according to the wiring diagram for the model being installed (See **Diagrams 1, 2 & 3**). Use a slotted screw driver with a 1/8" tip (terminal screw driver). Use color coding where possible (i.e. red wire to R terminal, white wire to W terminal, etc.).
5. Slide excess cable back into the wire entry wall opening and fill the hole with insulation. Failure to seal the hole can cause drafts to enter the thermostat and effect temperature sensing accuracy.

Diagram 1 – Model 8344 or 8363 Thermostat Wiring

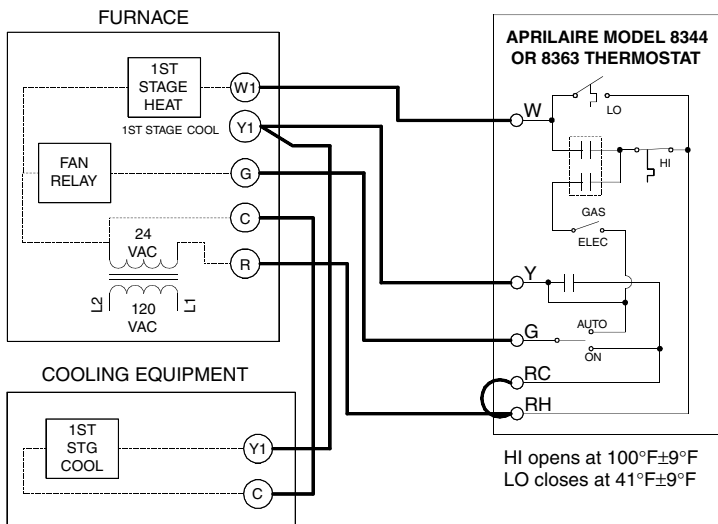


Diagram 2 – Model 8348 or 8366 Thermostat Wiring

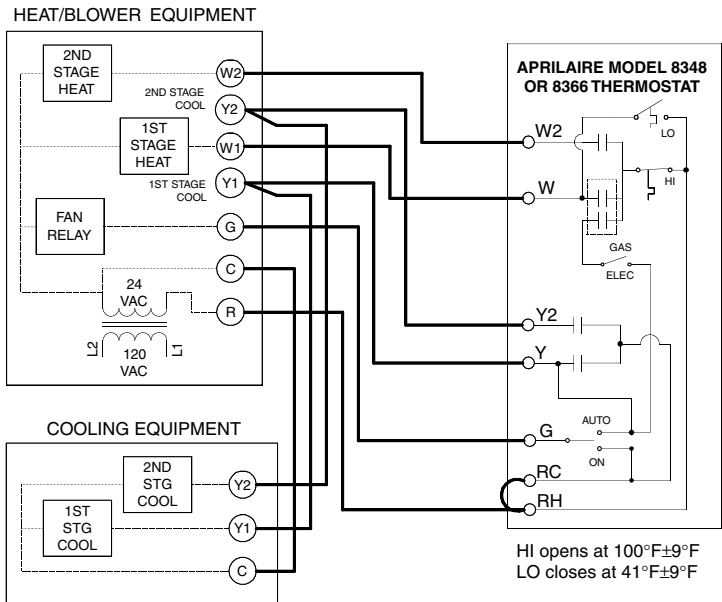
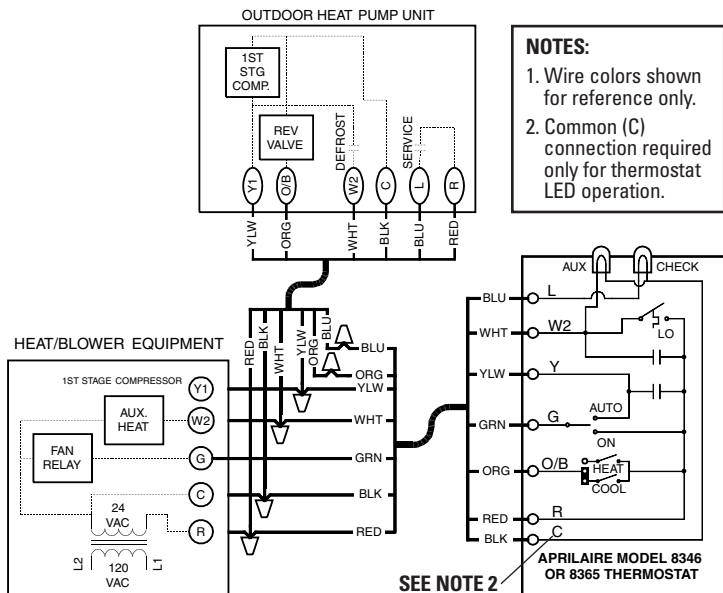


Diagram 3 – Model 8346 or 8365 Thermostat Wiring



Step 6. Install supplied batteries

Install two new AA alkaline batteries (included). Do not mix old and new batteries

Step 7. Reassemble the thermostat

No tools required – simply snap the thermostat face back on the thermostat.

Step 8. Perform check-out

CAUTION

The following procedure will turn on the heating and cooling equipment. Do not attempt to turn on the cooling equipment when the outdoor temperature is too low or the heat pump (heating) when the outdoor temperature is too high as compressor damage could occur. Consult the equipment manufacturer literature for safe operating temperatures.

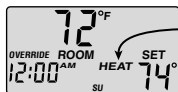
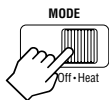
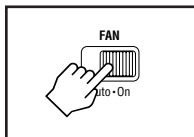
1. Slide the Fan switch to the **On** position.

The blower should come on. Return the Fan switch to the **Auto** position.

2. Slide the Mode switch to the **Heat** position.

3. Use the ADJUST – Up button to raise the temperature 2° - 3° above the current room temperature. “HEAT” on the display will begin to flash and the heating equipment should start. It may take a moment for the heating equipment to initiate the heating cycle. If the blower turns on immediately and this is unexpected, make sure the GAS/ELEC switch on the thermostat is set correctly (see **Step 4, MODELS 8344, 8348, 8363 & 8366 ONLY**).

MODELS 8346 & 8365 – If cold air is coming out of the registers, the reversing valve terminal may need to be configured – see **Step 4**.

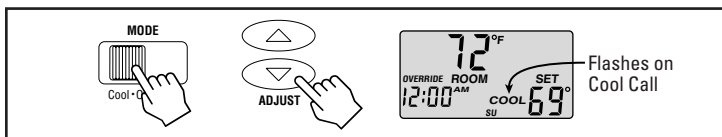


Flashes on Heat Call

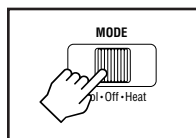
4. **MODELS 8348 & 8366 ONLY** – Raise the temperature an additional 2°-3° and confirm that the second stage of heat (W2) comes on after a 2 minute 1st stage minimum on-time.

MODELS 8346 & 8365 ONLY – Raise the temperature an additional 2°-3° and confirm that the second stage of heat (W2) comes on in four (4) minutes. The green AUX LED located on top of the thermostat will light whenever the W2 terminal is energized.

- Return the Mode switch to the **Off** position to stop the heat call.
- Slide the Mode switch to the **Cool** position.
- Use the ADJUST – Down button to lower the temperature 2°- 3° below the current room temperature. “COOL” on the display will begin to flash and the cooling equipment should start.

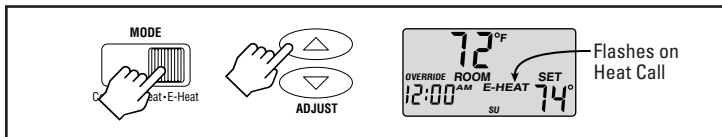


- MODELS 8348 & 8366 ONLY** – Lower the temperature an additional 2°- 3° and confirm that the second stage of cooling (Y2) comes on after four (4) minutes.
- Return the Mode switch to the **Off** position to stop the cool call.



MODELS 8346 & 8365 ONLY

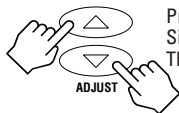
- Slide the Mode switch to the **E-Heat** position.
- Use the ADJUST – Up button to raise the temperature 2°-3° above the current room temperature. The W2 and G terminals will energize, “E-HEAT” on the display will begin to flash and the heating equipment should start.



- Return the Mode switch to the **Off** position to stop the heat call.

Step 9. Set up temperature scale, differential, offset and Water Panel/filter change indicators

1. Slide the Mode switch to the **Off** position.
2. Press and hold both the ADJUST – Up and Down buttons until “ROOM” and “OFF” are no longer displayed.



Press and Hold
Simultaneously for
Three (3) Seconds

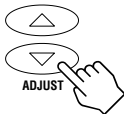
3. **°F/°C** – Use the ADJUST – Up button to toggle between °F and °C. Press the LIGHT button when desired scale has been selected.



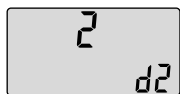
4. **Differential Setting (d1)** – The unit is shipped with this set to 1(°). This refers to how much the temperature will swing during control. Use the ADJUST – Up or ADJUST – Down button to change this to 1°, 2° or 3°. A higher differential will allow more temperature swing and fewer, longer equipment cycles. Press the LIGHT button when the desired differential has been set.



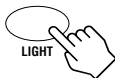
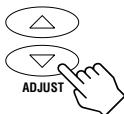
OR



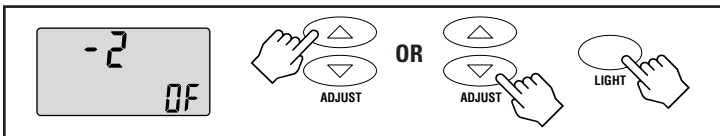
5. **Second Stage Differential Setting (d2 – MODELS 8348 & 8366 ONLY)** – This setting controls how far from the first stage differential setting the temperature will be allowed to fall/rise before initiating second stage.



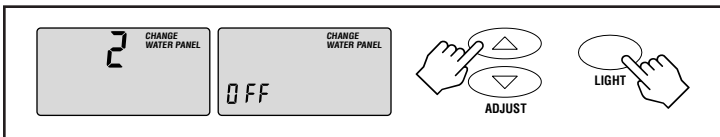
OR



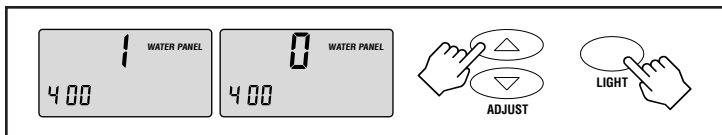
6. **Temperature Offset (OF)** – All thermostats are factory calibrated to be within 1° of true temperature. Offset is available to allow for agreement with field temperature measuring instruments. Use the ADJUST – Up or ADJUST – Down button to change the offset value between -4° and +4°. Press the LIGHT button when the desired offset value has been set.



7. **Water Panel Change Indicator Feature** – Use this feature if the home has a whole house humidifier such as an Aprilaire Humidifier. This feature will remind the homeowner when it is time to change the Water Panel. Use the ADJUST – Up or ADJUST – Down button to set the number of months until the first indication. The first indication should occur in fall (near October). The indicator will then show again every 52 weeks to remind the homeowner to change the Water Panel in their humidifier. Set the value to "OFF" to disable this feature. Press the LIGHT button when the Water Panel indicator value has been set.



8. **Humidifier Type** – This feature will only be displayed if the Water Panel Change value is **not** set to "OFF". Use the ADJUST – Up or ADJUST – Down button to set this value to "1" if the home has an Aprilaire Model 400 whole house humidifier. The Water Panel in the Model 400 should be changed twice per season and this feature will cause the Water Panel Change Alert to appear on the display 90 days after the first alert. For example, if the Water Panel Change Alert value is set to show the first alert in October, then a second alert will appear in January. An alert will not be displayed again until the next October, and the cycle repeats. Press the LIGHT button when the humidifier type value has been set.



9. **Air Filter Change Indicator** – Use this feature to remind the homeowner when an air filter change is needed. Use the ADJUST – Up and ADJUST – Down buttons to select the number of months between recommended filter changes. Use 1 or 3 for panel type filters and 6 or 12 for extended (pleated) media type filters. **TABLE 1** lists general recommendations, refer to manufacturer literature for recommendations on the filter in your particular application. Set to 12 if the media is original Aprilaire High Efficiency Air Cleaner media. Set the value to “OFF” to disable this feature. Press the LIGHT button when the air filter indicator value has been set. “DONE” will appear on the display and the thermostat will reset.

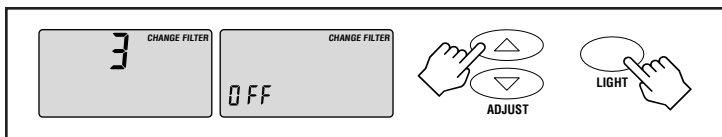
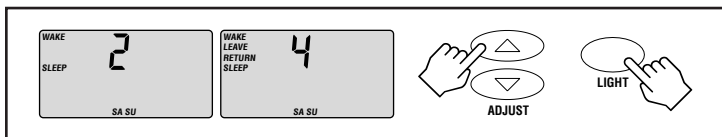


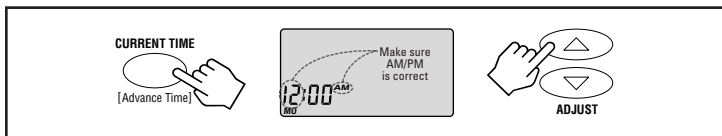
TABLE 1		
FILTER TYPE	CHANGE FREQUENCY	THERMOSTAT SETTING
Disable the feature		OFF
Disposable Panel	1 month	1
Washable Electrostatic	3 months	3
Extended Media (Aprilaire)	6-12 months	6 or 12

10. Weekend Events – Use this feature to set the number of events for the weekend program. The default value is 4 events (The ENERGYSTAR® setting), which will result in the “LEAVE” and “RETURN” events to be used during programmed operation. If the owners schedule is such that the home or building is generally occupied during the weekends, switch to 2 events on the weekend. This will cause the “LEAVE” and “RETURN” events to be ignored during programmed operation. Press the ADJUST – Up or ADJUST – Down buttons to toggle between the two selections and press the LIGHT button when done. “DONE” will appear on the display and the thermostat will reset.

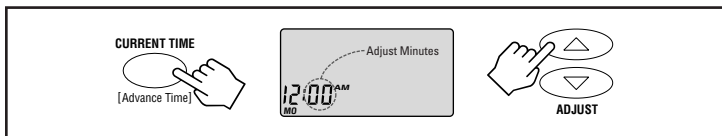


Step 10. Set the current time and day of the week (MODELS 8363, 8365 & 8366 ONLY)

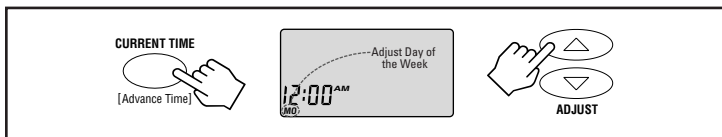
Press the CURRENT TIME button to access the clock. Use the ADJUST – Up and ADJUST – Down buttons to set the correct hour value. Make sure the correct AM/PM designator shows.



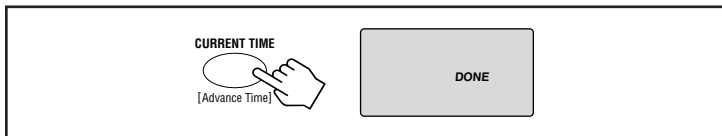
Press the CURRENT TIME button to enter the hours value and access the minutes value. Use the ADJUST – Up and ADJUST – Down buttons to set the correct value.



Press the **CURRENT TIME** button to enter the minutes value and access the “day of the week” value. Use the **ADJUST – Up** and **ADJUST – Down** buttons to set the current day of the week.



Press the **CURRENT TIME** button again to finish. The word “**DONE**” will appear on the display.



As an **ENERGYSTAR**® partner, the thermostat (Models 8363, 8365 and 8366 only) has been pre-programmed with economical times and temperature settings. Refer to the Operating Instructions if the program is to be changed.



P.O. BOX 1467 • MADISON, WI 53701-1467

Products For Better Indoor Air Quality™

MADE IN USA