



# Automatic Computer Drying

## SUPPLEMENTAL OWNER'S MANUAL

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**THIS MANUAL MUST BE GIVEN TO THE EQUIPMENT OWNER.**

## **DESCRIPTION**

The Automatic Computer Drying Control is used to manage the drying and cooling cycles of one clothes dryer. The operator has the flexibility to select either automatic or timed drying and either automatic or timed cooling. When automatic is selected, the drying cycle will be terminated when the clothes are dry. A dryness sensor "feels" the clothes and signals the control when they are dry. In the timed mode, the operator sets the time and temperature for the load.

### **FEATURES:**

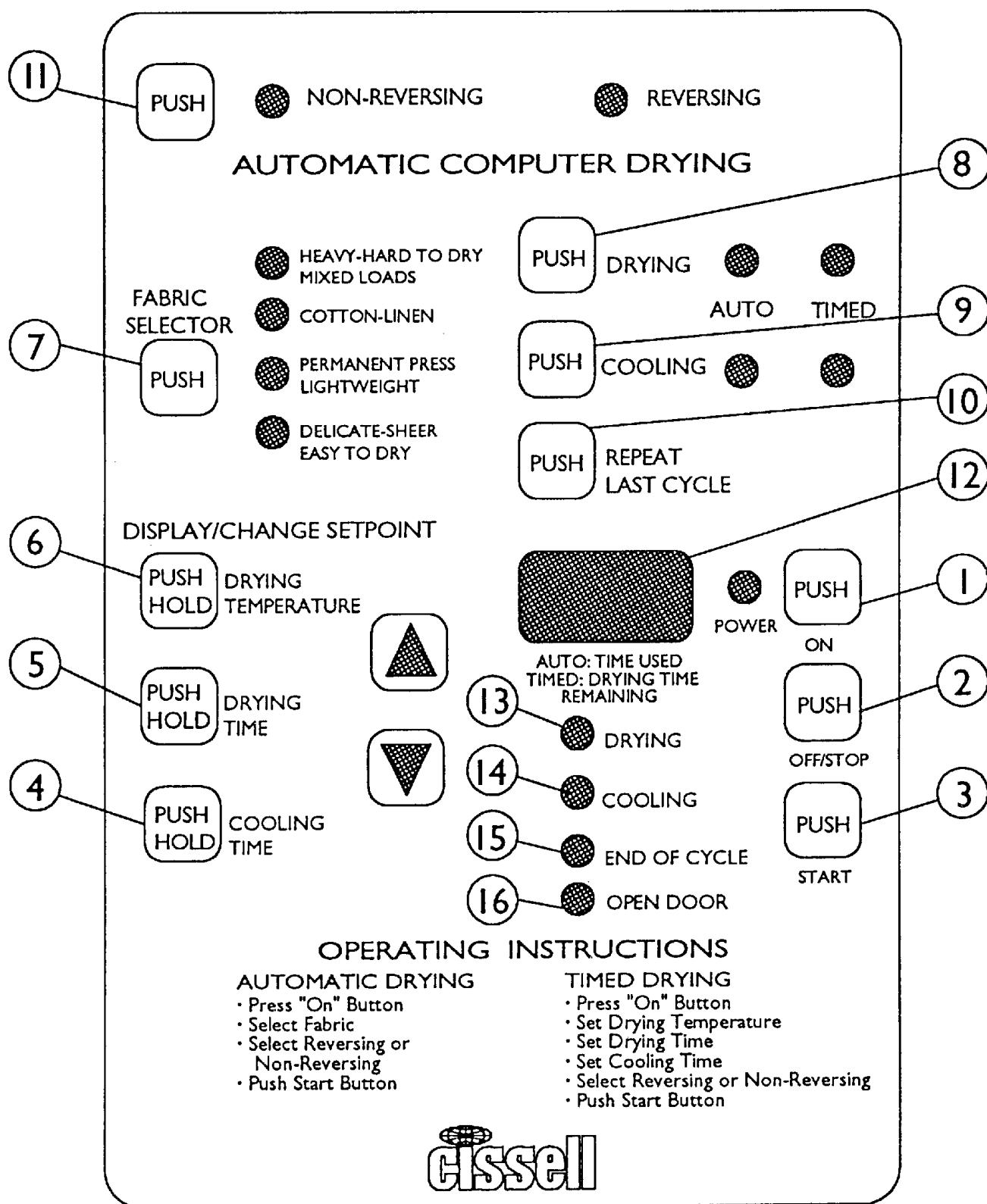
- Automatic/Timed drying selection.
- Automatic/Timed cooling selection.
- Fabric selection (in automatic mode only).
- LED display of cycle time.
- Drying temperature range of 100° F - 195° F (Timed mode only).
- Drying time range of 0-60 minutes (Timed mode only).
- Cooling time range of 0-60 minutes (Timed mode only).
- Repeat Last Cycle feature.
- Safety tumble cycle.
- Reversing/Non-reversing selection (option).
- Power off after 30 minutes of non-use.

## DESCRIPTION OF CONTROL PANEL

1. **ON.** Turn the control on.
2. **OFF/STOP.** Turns the control off.
3. **START.** Starts the cycle.
4. **COOLING TIME.** With this button held down, the cooling time in minutes will be shown in the display. To change the time, use the “up” and “down” buttons. (The cooling time cannot be changed when Automatic Cooling is selected, “-A-” will show in the display when this button is held down.)
5. **DRYING TIME.** With this button held down, the drying time in minutes will be shown in the display. To change the time, use the “up” and “down” buttons. (The drying time cannot be changed when Automatic Drying is selected, “-A-” will show in the display when this button is held down.)
6. **DRYING TEMPERATURE.** With this button held down, the drying temperature in degrees F will be shown in the display. To change the temperature, use the “up” and “down” buttons. (The drying temperature cannot be changed when Automatic Drying is selected, the temperature associated with the fabric selected will show in the display when this button is held down.)
7. **FABRIC SELECTOR.** Used to select the type of fabric to be dried when Automatic Drying is selected. The fabric selection automatically sets the temperature:

HEAVY .....	195°F
COTTON .....	195°F
PERMANENT PRESS .....	175°F
DELICATE .....	160°F
8. **DRYING.** Pressing this button changes the selection of Automatic or Timed Drying.
9. **COOLING.** Pressing this button changes the selection of Automatic or Timed Cooling.
10. **REPEAT LAST CYCLE.** Pressing this button before the start of a cycle will reset all of the selections, temperatures, and times to what they were at the beginning of the last cycle.
11. **NON-REVERSING/REVERSING.** Pressing this button changes the selection of Non-reversing and Reversing.

## CONTROL PANEL ILLUSTRATION



## DESCRIPTION OF CONTROL PANEL (cont'd)

12. **LED Display.** Shows cycle time. In Automatic, it shows the time used. In Timed, it shows the time remaining. When the DRYING TEMPERATURE button is pressed and held, the drying temperature will be displayed. When the DRYING TIME button is pressed and held, either the total drying time or “-A-” will be displayed depending on whether AUTO or TIMED drying has been selected. When the COOLING TIME button is pressed and held, either the total cooling time or “-A-” will be displayed depending on whether AUTO or TIMED cooling has been selected.
13. **DRYING.** Illuminated when in the drying cycle.
14. **COOLING.** Illuminated when in the cooling cycle.
15. **END OF CYCLE.** Illuminated at the end of the cycle.
16. **OPEN DOOR.** Illuminated when the door is open. (START must be pressed to restart the cycle after closing the door.)

## DISPLAY

Display	Condition
“_0”	Normal display between loads. Dryer is waiting for the next load.
“012”	Normal display during drying/cooling cycle. Display shows “time used” when in automatic and “time remaining” when in timed mode.
“012” (flashing)	The door has been opened. Close the door and press START to continue the cycle.
“-S-” (flashing)	The dryer is in the Safety Tumble mode. The cycle has ended and the dryer can be unloaded.
“-PF” (flashing)	There has been a power failure. To restart the dryer, press ON and START. To terminate the cycle press OFF/STOP.
“FFF” (flashing)	The temperature sensor has failed. The dryer cannot be run until it is repaired.
“-A-”	Indicates the automatic mode has been selected. (DRYING TIME and COOLING TIME only).

## DETAILS OF CONTROL BOARD AND OPTIONS

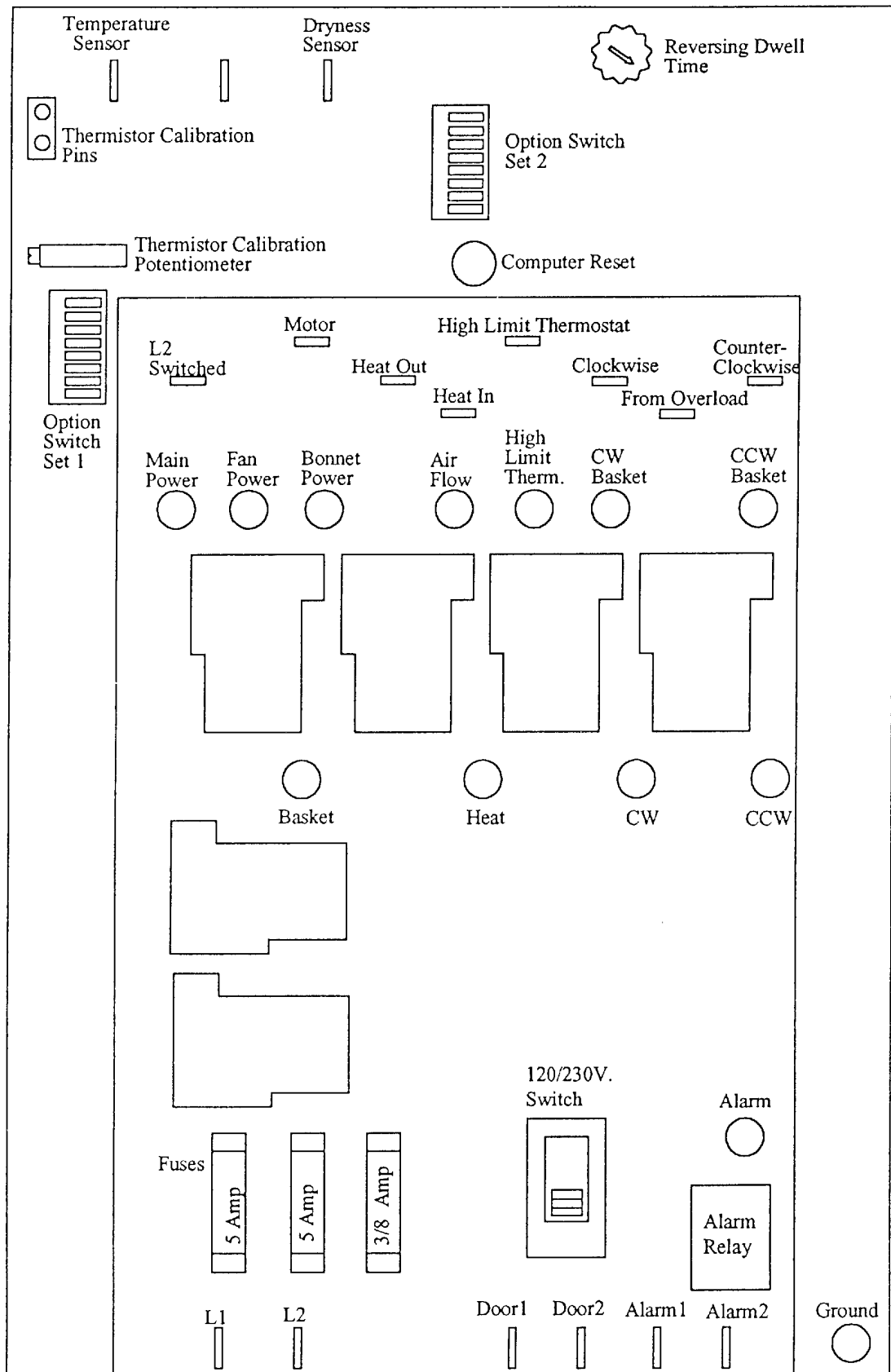
### Switch set #1

Switch	ON	OFF
#8 F/C	Deg F	Deg C
#7 SFTY-EN	enabled	disabled
#6 6-ADD	+ 6 Min.	0
#5 REPEAT S/E	Start	End
#4 2 DEG	+ 2 Deg.	0
#3 5 DEG	+ 5 Deg.	0
#2 10 DEG	+ 10 Deg.	0
#1 20 DEG	+ 20 Deg.	0

- #8 F/C. Selection of Deg F or Deg C for temperature display. Position the switch for the desired unit.
- #7 SFTY-EN. The switch enables the “safety tumble” feature. To disable, position this switch in the OFF position.
- #6 6-ADD. Used in conjunction with the HEAVY fabric selection. When switched to the “+ 6” position, an additional 6 minutes of drying time will be added to the cycle when HEAVY has been selected. This is to compensate for “hard to dry” loads or mixed loads.
- #5 REPEAT S/E. This switch works in conjunction with the REPEAT LAST CYCLE button. The parameters (mode, time, temperature) of the cycle will be stored either at the START or the END of the cycle based on this switch setting. The parameters that are stored will be used by the control when the REPEAT LAST CYCLE button is pressed prior to starting a drying cycle.
- #4 2 DEG. Adds 2 Degrees to the differential temperature.
- #3 5 DEG. Adds 5 Degrees to the differential temperature.
- #2 10 DEG. Adds 10 Degrees to the differential temperature.
- #1 10 DEG. Adds 10 Degrees to the differential temperature.

**NOTE:** The differential temperature is part of the heating logic. The heat turns off when the temperature in the dryer reaches the temperature set for the drying cycle. The temperature has to drop a set number of degrees below the drying temperature before the heat will turn on. The difference between the cycle temperature and the temperature to turn the heat on is called the differential temperature. This control allows the differential to be set between 5 and 25 degrees. The control “sums” the values set on the switches but will not go lower than 5 nor greater than 25. If the sum is less than 5 the control will default to 5. If the sum is greater than 25, the control will default to 25.

# CONTROL BOARD AND OPTIONS ILLUSTRATION



## DETAILS OF CONTROL BOARD AND OPTIONS (cont'd)

### Switch set #2

Switch	ON	OFF
#8 No Function	---	---
#7 No Function	---	---
#6 No Function	---	---
#5 No Function	---	---
#4 No Function	---	---
#3 No Function	---	---
#2 No Function	---	---
#1 No Function	---	---

### Thermistor Calibration

To verify the calibration of the thermistor circuit, proceed as follows:

1. Disconnect the thermistor leads going to the circuit board.
2. Short the terminals at JP5 (thermistor calibration pins).
3. Press the “up arrow” and the “down arrow” keys to display the temperature.
4. The temperature should read 158° F.
5. If not 158° F, adjust the thermistor calibration potentiometer until the display reads 158° F.
6. Remove the jumper from the thermistor calibration pins.
7. Connect the thermistor leads to the circuit board.

### Reversing Dwell Time

This potentiometer is used to set the dwell time when the dryer has the reversing option. The dwell is the time from when the motor turns off to when it turns on again in the opposite direction. Turning the knob counter-clockwise increases the dwell time and turning it clockwise decreases the dwell time.

### Computer Reset

Push this button if the control “locks up”. Pushing this button will reset the control.

### 120/230 Switch

This switch must be switched to the correct input voltage for the control to work. Applying 230 V when switched to the 120 V position will blow fuses on the circuit board.

### Alarm Relay

A socket has been included to add a relay for an alarm to signal the end of the cycle. The ALARM 1 and ALARM 2 terminals connect to the contacts of the relay. The relay energizes at the end of the cycle and stays energized until either the door is opened or the dryer is turned off.



## DETAILS OF OPERATION

### Status Indicators (LED's) and Buttons

**ON.** Turns the control on. The control has an Auto Power Off function. If the dryer has not been used for 30 minutes, the control will turn itself off. Push ON to turn the control back on.

**OFF/STOP.** Turns the control off or stops the dryer during a cycle.

**START.** Starts the cycle.

**POWER.** The control has power.

**DRYING.** The dryer is in the drying part of the cycle.

**COOLING.** The dryer is in the cooling part of the cycle.

**END OF CYCLE.** The cycle is complete. The dryer is ready for the next load.

**DOOR OPEN.** Indicates that the door is open. If the door is opened during a cycle, the heat will turn off and the motors will stop. To restart the cycle, close the door and press START. When the door is closed the display will flash the current cycle time until the START button is pressed.

**AUTO/TIMED.** Indicates the selection of either an automatic or timed cycle. Pushing either the DRYING or the COOLING buttons will “toggle” the selection from AUTO to TIMED or from TIMED to AUTO.

**FABRIC SELECTION.** This functions in conjunction with the selection of the AUTO DRYING mode. When AUTO DRYING is selected, a fabric must also be selected. The control will not allow the cycle to start unless a fabric has been selected. Pressing (or holding down) the FABRIC SELECTOR button will sequence through the fabric selections. Stop when the light next to the fabric desired is lit. The fabric selection automatically sets the drying temperature.

<b>Heavy .....</b>	<b>195° F</b>
<b>Cotton .....</b>	<b>195° F</b>
<b>Permanent Press ....</b>	<b>175° F</b>
<b>Delicate .....</b>	<b>160° F</b>

## **DETAILS OF OPERATION (cont'd)**

**DRYING TEMPERATURE.** In AUTO drying mode, pressing and holding this button will show in the display the temperature (in Deg F) associated with the fabric selection. In TIMED mode, pressing and holding this button will show in the display the current temperature for the drying cycle. In the TIMED mode only, the temperature can be changed by pressing and holding the DRYING TEMPERATURE button and using the “up arrow” or “down arrow” buttons.

**DRYING TIME.** In AUTO drying mode, pressing and holding this button will show in the display “-A-”. This indicates that the automatic drying cycle has been selected. In TIMED mode, pressing and holding this button will show in the display the current time (in minutes) set for the drying cycle. In the TIMED mode only, the drying time can be changed by pressing and holding the DRYING TIME button and using the “up arrow” or “down arrow” buttons.

**COOLING TIME.** In AUTO cooling mode, pressing and holding this button will show in the display “-A-”. This indicates that the automatic cooling cycle has been selected. In TIMED mode, pressing and holding this button will show in the display the current time (in minutes) set for the cooling cycle. In the TIMED mode only, the cooling time can be changed by pressing and holding the COOLING TIME button and using the “up arrow” or “down arrow” buttons.

**“UP” AND “DOWN”.** These two buttons are used in conjunction with the DRYING TEMPERATURE, DRYING TIME, and COOLING TIME buttons to change the value of those parameters. Pressing and releasing the button will step the value one unit at a time (slowly for the first 5 seconds and then rapidly). Pressing and holding both buttons will show the actual temperature in the dryer.

**REPEAT LAST CYCLE.** Pressing this button before starting the drying cycle will reset all of the parameters (mode, time and temperature) from the last cycle run. To start a new cycle, press the REPEAT LAST CYCLE button and then START.

**NON-REVERSING/REVERSING (option).** Pressing this button “toggles” between NON-REVERSING and REVERSING.

### **Safety Tumble**

At the end of the cycle the control goes into the “Safety Tumble” mode. “-S-” will flash in the display. If the door of the dryer is not opened in 2 minutes or the control is not turned off, the dryer will start running in cooling for 30 minutes to prevent wrinkles from being set in the goods.

## **DETAILS OF OPERATION (cont'd)**

### **Power Failure**

If there is a power failure that lasts longer than 5 seconds, the control will temporarily halt the cycle and flash “\_PF” in the display. To restart the cycle, push ON and the START. To terminate the cycle, push OFF/STOP. For power failures less than 24 hours, the cycle parameter will be remembered. When the power failure is longer than 24 hours, all cycle parameters will be lost and must be re-entered.

### **Thermistor Failure**

If the thermistor (temperature sensor) should fail, the control will halt the cycle and flash “FFF” in the display. The dryer should not be restarted until the thermistor is replaced.

### **Automatic Power Down**

If a cycle is not run for 30 minutes, the control will automatically turn itself off. Push ON to power up the control.

### **Dryness Sensor**

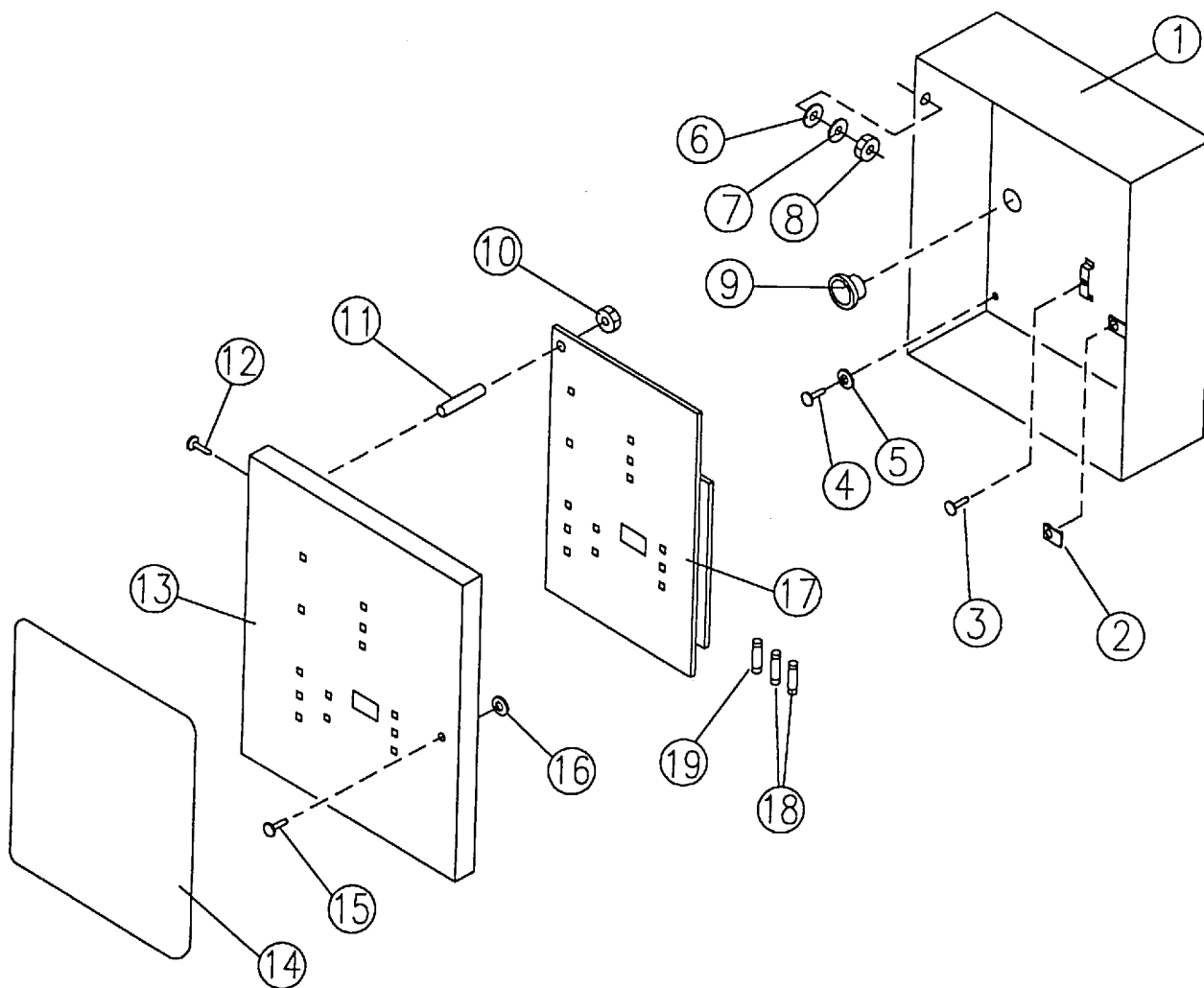
When in the AUTO drying mode, the length of the cycle is controlled by a dryness sensor. The sensor works on a “capacitor charge time” principle. The electronic circuit looks at the charge on the capacitor in the dryness circuit. When the capacitor is connected to the dryness probe that is located in the center of the basket. Wet goods hitting the probe will “discharge” the capacitor or prevent it from reaching full charge. As the goods dry, they have less effect on discharging the capacitor until finally it is fully charged ending the drying cycle. The time to charge the capacitor with no load in the dryer is listed below:

#### **Charge Time (in minutes)**

HEAVY	11.5
COTTON	5.5
PERMANENT PRESS	5.5
DELICATE	5.5

### **Automatic Cooling**

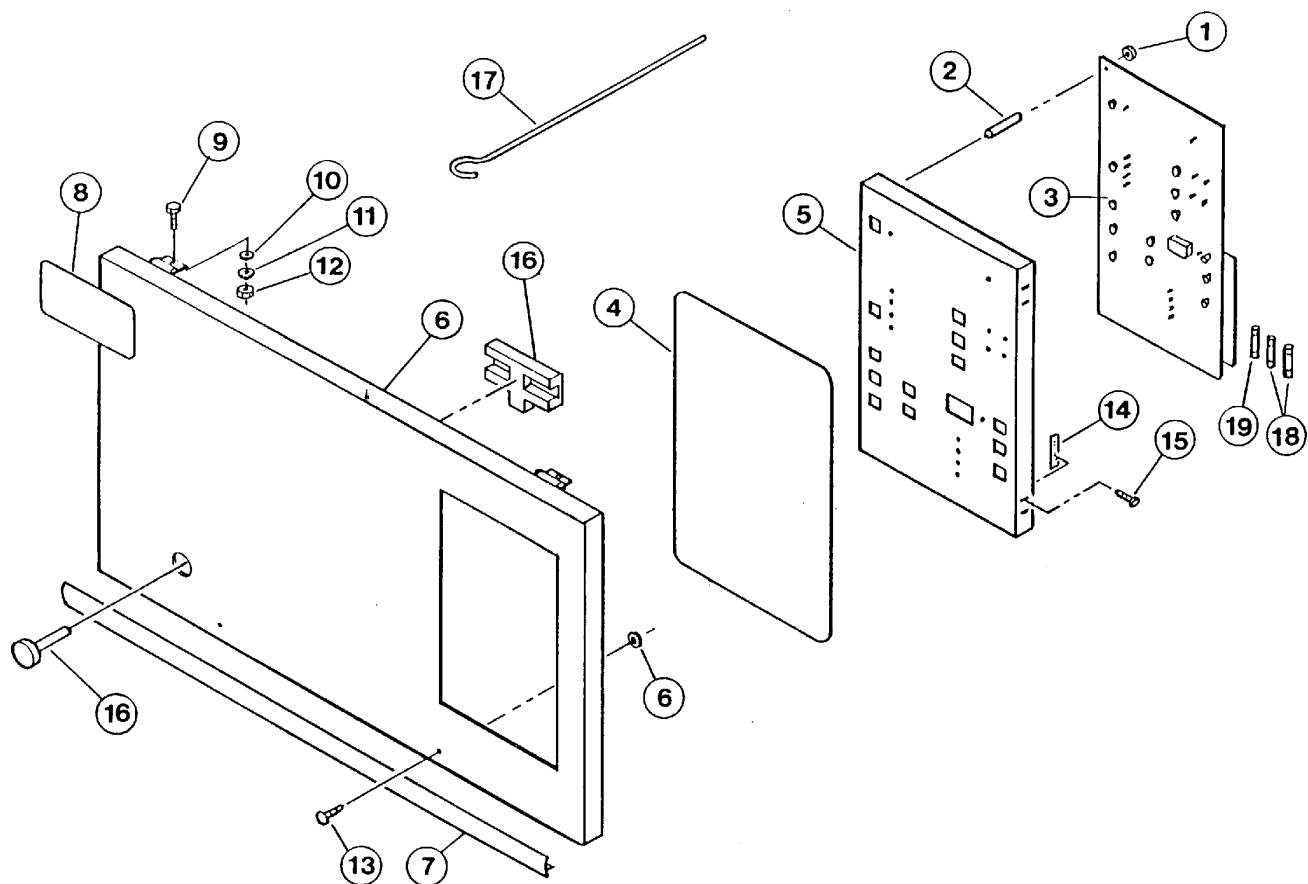
When in the AUTO cooling mode, the cycle will end when the temperature goes below 135° F.



## CONTROL BOX ASSEMBLY

### 150 Lb. Dryer with Reversing

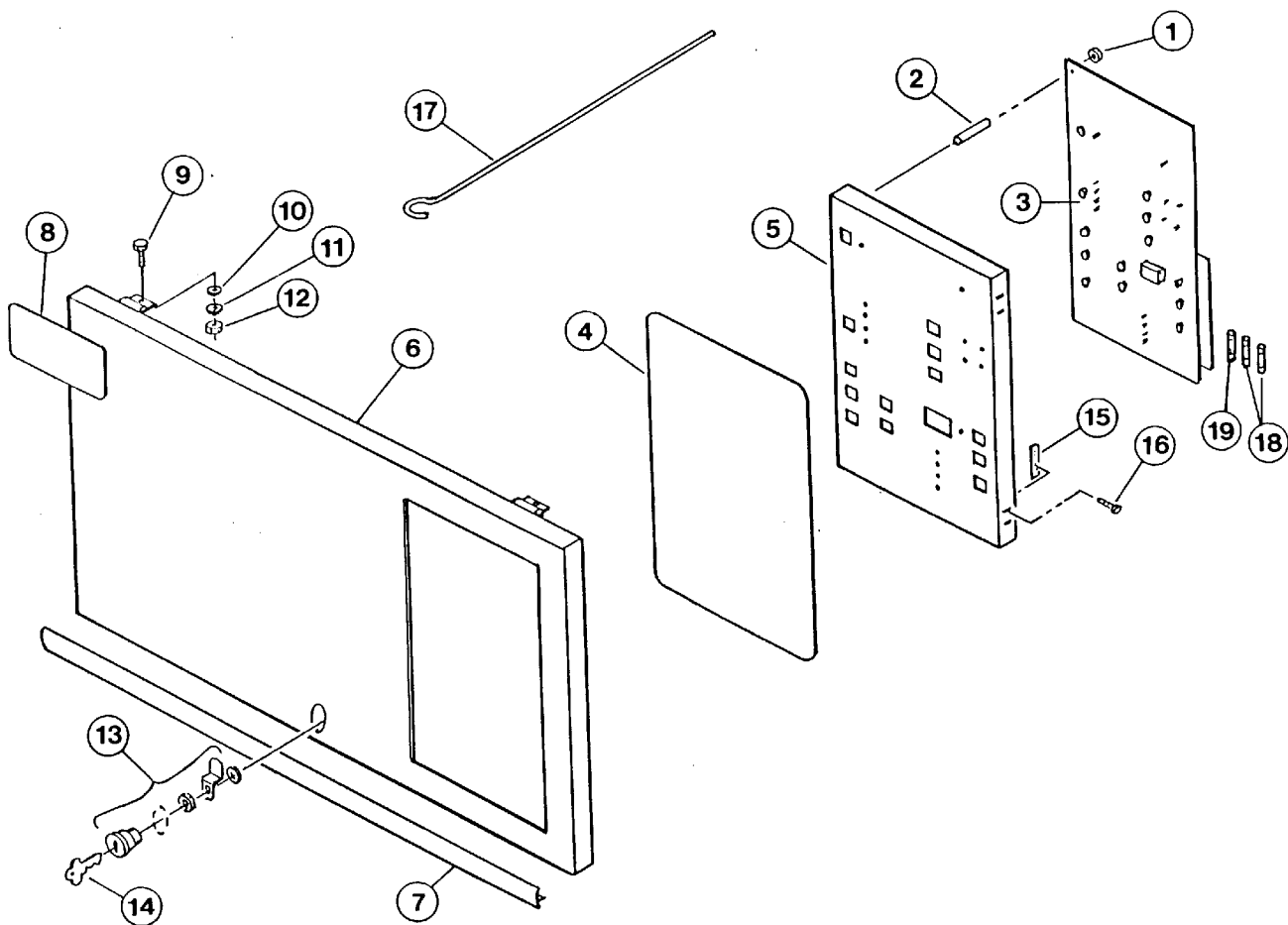
Ref. No.	Part No.	Description
1	TU9584	Control Box
2	FG344	Speed Nut
3	TU7733	#8 x 1/2" Screw
4	CB36	1/4 - 20 x 1/2" Hex Head Bolt
5	TU2846	Washer
6	P104	1/4" Cut Washer
7	FB187	#10 Lockwasher
8	TU2842	#10 - 32 Hex Nut
9	TU9693	Snap Bushing - 2-1/2"
10	TU3400	#6 - 32 Hex Nut
11	TU12254	Spacer
12	TU3479	#10 - 32 Truss Head Screw
13	TU12843	Control Panel
14	TU12195	Control Panel Label
15	FG343	Screw Fastener
16	FG345	Retaining Washer
17	TU12105	Reversing Control Board
18	TU12863	Fuse - 5 Amp.
19	ET235	Fuse - 3/8 Amp.



## CONTROL PANEL & ACCESS DOOR ASSEMBLY

### 110 Lb. Dryer    Reversing/Non-Reversing

Ref. No.	Part No.	Description
1	TU3400	#6-32 Brass Nut
2	TU12254	Spacer
3	TU12105	Reversing Control Board
	TU12106	Non-Rev. Control Board
4	TU12195	Reversing Panel Label
	TU12196	Non-Rev. Panel Label
5	TU12842	Control Panel
6	TU12841	Access Door
7	TU11568	Trim
8	TU8013	Cissell Label
9	TU3479	#10-32 Truss Hd. Screw
10	P104	1/4" Cut Washer
11	FB187	#10 Lockwasher
12	TU2842	#10-32 Hex Nut
13	FG343	Screw Fastener
14	TU1771	Twin Clip Nut
15	TU9524	#6 x 5/16" Screw
16	TU6808	Reset Button
17	TU5739	Support Rod
18	TU12863	Fuse - 5 Amp.
19	ET235	Fuse - 3/8 Amp.



## CONTROL PANEL & ACCESS DOOR ASSEMBLY

### 50/75 Lb. Dryers    Reversing/Non-Reversing

Ref. No.	Part No.	Description
1	TU3400	#6-32 Brass Nut
2	TU12254	Spacer
3	TU12105	Reversing Control Board
	TU12106	Non-Rev. Control Board
4	TU12195	Reversing Panel Label
	TU12196	Non-Rev. Panel Label
5	TU12835	Control Panel
6	TU12834	Access Door
7	TU7983	Trim
8	TU8013	Cissell Label
9	TU3479	#10-32 Truss Hd. Screw
10	P104	1/4" Cut Washer
11	FB187	#10 Lockwasher
12	TU2842	#10-32 Hex Nut
13	TU4822	Lock
14	TU2844	Key JWC2
15	TU1771	Twin Clip Nut
16	TU9524	#6 x 5/16" Screw
17	TU5739	Support Rod
18	TU12863	Fuse - 5 Amp.
19	ET235	Fuse - 3/8 Amp.