1-8 ELECTRONIC DRYER CONTROL COMPONENT DESCRIPTION

The electronic dryer control system consists of three parts; a printed circuit board assembly with a vacuum flourescent display and three LED program indicator lights, a 12-button membrane-switch keypad assembly, and a temperature sensor.

The keypad assembly has a self-adhesive back and is mounted to a controls mounting plate. The printed circuit board is mounted to the opposite side of the plate in such a position that the display on the circuit board shows through the window of the keypad.

The temperature sensor is mounted in the airstream directly below the clothes cylinder. A lead wire from the sensor is plugged into the printed circuit board.

The electronic dryer control system operates the drive motor and the gas valve system.

It receives signals from coin switches on the coin acceptors, it credits drying time for coin signals received, it displays vend price and cycle time, and indicates which one of three cycle temperatures is engaged.

Authorized individuals may re-program the control system with different control data and parmeters by direct keyboard data input. All control data is stored in a non-volatile memory.

The dryer is programmed at the factory with settings that may be satisfactory for many users. These settings are given in the Programming Instructions. They allow the dryer to be installed and run for checkout even if the owner desires to later change some of the operating values.

1-9 WARNINGS ABOUT USE AND OPERATION

A dryer should be connected to power for three (3) minutes before it is operated or before a program change is made. Operation or program changes which occur during this "power up" period are subject to loss in case of power interruption. After the initial three minutes, all programmed data is protected from power interruptions of any length and the customer's individual cycle is protected up to three (3) seconds. This is done without any batteries.

Leave the electrical power to the dryers on at all times except when necessary for service or other similar activities. The hourmeter function adds only full hours to its readings. If the power is shut off every night, the fraction of an hour of time that happens to be on the machine at that time will be lost.

From a safety aspect shutting off the gas supply at night would be better than shutting off the electrical power.

NOTE: It is absolutely essential that the dryer be grounded to a known earth (zero) ground. This is not only for personal safety, but is necessary for proper operation of the controller. Failure to do so will void the warranty of the controller.

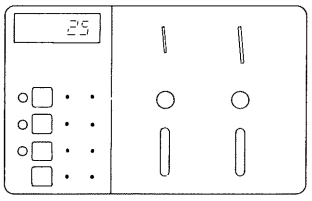
1-10 OPERATING INSTRUCTIONS

1 Deposit coins to satisfy vend price display of idle dryer. Each deposit decreases vend price until display changes to show time purchased. WARM light illuminates.

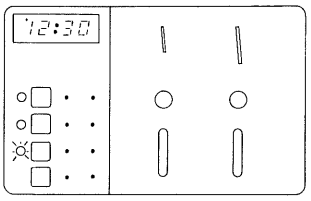
2. Select drying cycle.
   Other cycle selections may be made now or later by pressing the appropriate key (button).

3. Close the loading door. Press START and the dryer will start. "Seconds" goes to 00. "Minutes" is rounded up and will count down each minute. The colon flashes on and off indicating the timer is counting down.

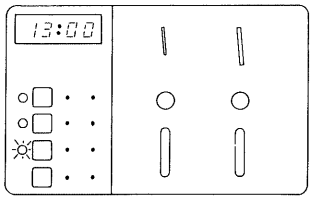
4. Clothes should be removed promptly after the cycle is completed to prevent excessive wrinkling.



VEND PRICE



MINUTES : SECONDS PURCHACED



START

Once started, the "timer" cannot be stopped. However, extra coins will be acknowledged by adding time to the display. The dryer may be stopped by opening the loading door which interrupts the drive motor and gas burners. Close the loading door and push START to restart the dryer.

Cool down time (owner programmable) is always part of the cycle time and is purchased by the customer. For example, if cool-down time is 2 minutes, the last 2 minutes of the cycle will have no heat.

1-11 PROGRAMMING INSTRUCTIONS

Almost all operating parmeters (vend price, temperatures, cool-down times, etc.) are adjustable. In addition, several displays of information are available from the controller. (coin audits, hourmeter, temperature readings).

The dryer is ready to run, from the factory, with the following pre-programmed data:

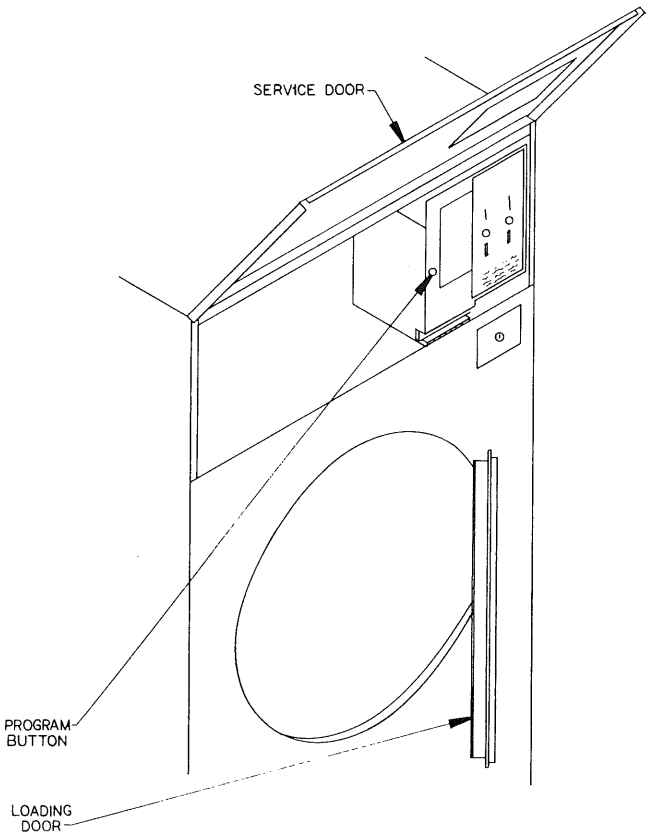
Vend Price	25 (cents)
Time for Left Coin:	5:00 (5 minutes, 0 seconds for a dime)
	(doesn't apply to single-coin models)
Time for Right Coin:	12:30 (12 minutes, 30 sec. for a quater)
Time of Free Vend:	10:00 ("Free Dry" cycle is 10 minutes)
Cool-down Time, HOT:	2:00 (Cool-down time in HOT is 2 minutes)
Cool-down Time, PERM PRESS:	2:00 (Same as above, except PREM PRESS)
Cool-down Time, WARM:	2:00 (Same as above, except WARM)
Temperature, HOT:	175 (degrees F)
Temperature, PERM PRESS:	150 (degrees F)
Temperature, WARM	125 (degrees F)

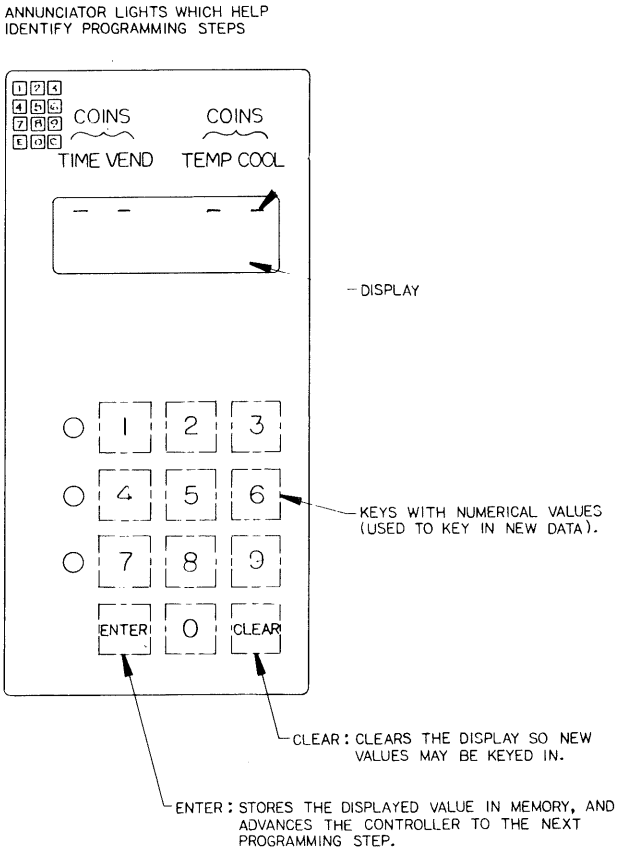
All of the above data can be easily changed by the owner. The changes are made by direct keyboard entry, as simply as one uses a pocket calculator.

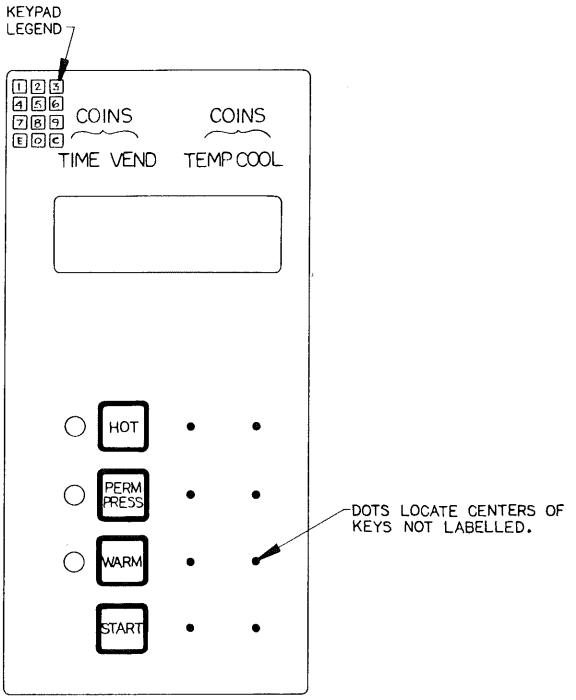
PROGRAMMING INSTRUCTIONS:

SELECTING PROGRAM MODE

1. Unlock and open the upper service door.
2. Open the loading door.
3. Locate and remove the plug button found just to the left of the "WARM" cycle light. Push the program button now exposed through the hole in the control mounting plate.
4. The controller switches to PROGRAM mode. In PROGRAM mode, the entire membrane switch keypad becomes energized and behaves like a pocket calculator or a pushbutton telephone keypad.
5. The ACTUAL NUMERICAL VALUES desired are keyed in as explained on page 1-11.

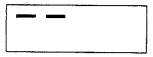
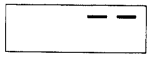
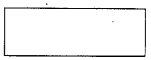
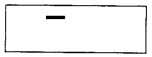
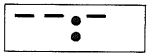
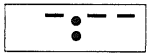
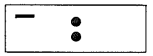
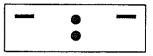
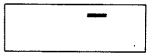
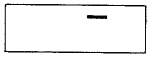
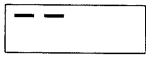
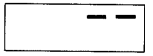






IMPORTANT: Please remember to push ENTER to actually enter (store in memory) new data. If you merely change the display. memory hasn't yet been changed — only ENTER will actually change the memory!

ORDER OF INDIVIDUAL PROGRAMMING STEPS WITHIN THE CONTROLLER

CYCLE LIGHTS	DISPLAY	PROGRAMMING STEP	DESCRIPTION	OPTIONS/RANGE OF LIMITS
H PP W		LEFT COIN AUDIT	Coin counter - number of coins deposited through coin acceptor on left side (dual coin models only)	May be set to zero
H PP W		RIGHT COIN AUDIT	Coin counter - number of coins deposited through coin acceptor on right side (all models)	May be reset to zero
		HOURMETER	Displays hours of "timer" operation	Cannot be adjusted
		VEND PRICE	Money required to start the dryer	00 through 9999 (cents) (00 causes "Free Vend")
		TIME FOR LEFT COIN	Minutes and seconds awarded for one coin deposited through the left coin acceptor (dual coin models)	00 through 99 min: 59 sec.
		TIME FOR RIGHT COIN	Minutes and seconds awarded for one coin deposited through the right coin acceptor (all models)	00 through 99 min: 59 sec.
		TIME OF FREE VEND	Minutes and seconds of "Free" dry (If "Free" Dry feature is used — see vend price above)	00 through 99 min: 59 sec.
H		COOL-DOWN TIME; HOT	Minutes and seconds of cool-down; Hot cycle	00 through 99 min: 59 sec.
PP		COOL-DOWN TIME; PERM PRESS	Minutes and seconds of cool-down; Perm Press cycle	00 through 99 min: 59 sec.
W		COOL-DOWN TIME; WARM	Minutes and seconds of cool-down; Warm cycle	00 through 99 min: 59 sec.
H		TEMPERATURE; HOT	Heat shut-off temperature limit; Hot cycle	150 -199 (degrees F)
PP		TEMPERATURE; PERM PRESS	Heat shut-off temperature limit; Perm Press cycle	120 - 170 (degrees F)
W		TEMPERATURE; WARM	Heat shut-off temperature limit; Warm cycle	110 - 150 (degrees F)
		LEFT COIN VALUE	Value of coin deposited through left acceptor (dual coin models) Usually 10¢ - Dime	Must be value of coins through left acceptor
		RIGHT COIN VALUE	Value of coin deposited through right acceptor (all models) Usually 25¢ - Quarter	Must be value of coins through right acceptor

CHANGING PROGRAM DATA

1. Switch to PROGRAM mode as explained on page 1-9.

2. Go to the programming step to be changed by repeatedly pushing [ENTER]. Program steps may be identified by the display and light combinations as shown on page 1-10.

3. Press "CLEAR" to clear display.

4. Key in the new data just as if you were using a pocket calculator. For example, 17 minutes and 5 seconds would be keyed in with this sequence: [1] [7] [0] [5]. The display will change with each keystroke.

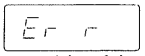
5. Then, be sure to press [ENTER]. That will store the display value in memory and advance the controller to the next program step.

6. You may continue re-programming by repeating steps 2 through 5. Or, you may return to "RUN" mode by any of the following steps:

   A. "Stepping" through the remainder of the programming sequence by repeatedly pressing "Enter" allows you to skip over steps without changing them.

   B. Pushing the Program Button again.

   C. Closing the loading door.

Attempts to enter erroneous data will result in an error display  . If you get such a display, simply "CLEAR" the display and re-enter valid data. Erroneous data are temperatures outside of the cycle limits, and a number greater than 59 in the "seconds" position when entering values of time.

During dryer operation, the temperature sensed by the temperature probe may be displayed by pushing the keypad dot found to the far right of the "START" key. That dot becomes the "CLEAR" key in PROGRAM mode. The display, as well as the controller itself, operates on 5 degree increments. By pushing and holding that dot, the existing display is overriden by the temperature display. However, the temperature display will not update as long as the key is held, even through the actual temperature may be changing.

As a safety precaution, the controller will automatically return to "RUN" mode after about 1-½ minutes of keyboard inactivity when in "PROGRAM" mode. This is to prevent a dryer from being abandoned in "PROGRAM" mode.

The controller memory always retains existing valid data until new valid data is ENTERED. Thus, a controller cannot be abandoned in an inoperative condition. For example, if a dryer was returned to RUN mode when an error display was showing, the dryer would continue operating on the last valid data it had used, which was still in memory.

Temperature values programmed by the factory have been selected to give good results of efficiency in drying time, and fabric care. For best operational accuracy, temperature values should end with "0" or "5".

Essentially, there are no restrictions placed on "Timer-per-Coin" data; however, the data must be realistic, expecially for dual-coin dryers. Dual-coin dryers should have the same price/time ratio for each coin. Although customers may accept unequal ratios such as 5 minutes/10¢ and 15 minutes/25¢, they may complain about ratios more disproportionate.

The following chart is provided as a guide. It shows the correct time-per-coin data for a dual-coin (10¢/25¢) acceptor over a wide range, from $0.20 to $6.00 per hour of drying time. The time/price ratios are exact; i.e., the time shown for 25¢ is exactly 2-½ times that for 10¢.

MINUTES: SECONDS PER COIN COMBINATIONS

TIME FOR 10¢	TIME FOR 25¢	CENTS PER HOUR	TIME FOR 10¢	TIME FOR 25¢	CENTS PER HOUR	TIME FOR 10¢	TIME FOR 25¢	CENTS PER HOUR
1:00	2:30	600	6:40	16:40	90	13:30	33:45	44.4
1:10	2:55	514.3	6:50	17:05	87.8	14:00	35:00	42.9
1:20	3:20	450	7:00	17:30	85.7	14:30	36:15	41.4
1:30	3:45	400	7:10	17:55	83.7	15:00	37:30	40
1:40	4:10	360	7:20	18:20	81.8	15:30	38:45	38.7
1:50	4:35	327.3	7:30	18:45	80	16:00	40:00	37.5
2:00	5:00	300	7:40	19:10	78.3	16:30	41:15	36.4
2:10	5:25	276.9	7:50	19:35	76.6	17:00	42:30	35.3
2:20	5:50	257.1	8:00	20:00	75	17:30	43:45	34.3
2:30	6:15	240	8:10	20:25	73.5	18:00	45:00	33.3
2:40	6:40	225	8:20	20:50	72	18:30	46:15	32.4
2:50	7:05	211.8	8:30	21:15	70.6	19:00	47:30	31.6
3:00	7:30	200	8:40	21:40	69.2	19:30	48:45	30.8
3:10	7:55	189.5	8:50	22:05	67.9	20:00	50:00	30
3:20	8:20	180	9:00	22:30	66.7	20:30	51:15	29.3
3:30	8:45	171.4	9:10	22:55	65.5	21:00	52:30	28.6
3:40	9:10	163.6	9:20	23:20	64.3	21:30	53:45	27.9
3:50	9:35	156.5	9:30	23:45	63.2	22:00	55:00	27.3
4:00	10:00	150	9:40	24:10	62.1	22:30	56:15	26.7
4:10	10:25	144	9:50	24:35	61.0	23:00	57:30	26.1
4:20	10:50	138.5	10:00	25:00	60	23:30	58:45	25.5
4:30	11:15	133.3	10:10	25:25	59.0	24:00	60:00	25
4:40	11:40	128.6	10:20	25:50	58.1	24:30	61:15	24.5
4:50	12:05	124.1	10:30	26:15	57.1	25:00	62:30	24
5:00	12:30	120	10:40	26:40	56.2	25:30	63:45	23.5
5:10	12:55	116.1	10:50	27:05	55.4	26:00	65:00	23.1
5:20	13:20	112.5	11:00	27:30	54.4	26:30	66:15	22.6
5:30	13:45	109.1	11:10	27:55	53.7	27:00	67:30	22.2
5:40	14:10	105.9	11:20	28:20	52.9	27:30	68:45	21.8
5:50	14:35	102.9	11:30	28:45	52.2	28:00	70:00	21.4
6:00	15:00	100	11:40	29:10	51.4	28:30	71:15	21.1
6:10	15:25	97.3	12:00	30:00	50	29:00	72:30	20.7
6:20	15:50	94.7	12:30	31:15	48	29:30	73:45	20.3
6:30	16:15	92.3	13:00	32:30	46.2	30:00	75:00	20

1-12 TEMPERATURE READOUT FEATURE

A temperature display is provided as one function of the controller. This display may be forced anytime the dryer is not in the programming mode, whether the dryer is running or idle. The temperature display is called by pushing the dot farthest to the right of the "start" button. The temperature displayed is that being measured by the temperature sensor located in the air stream below the cyclinder. The temperature displayed will remain the same until the button is released even if the actual temperature is changing. All temperatures displayed will be in 5 degree increments due to controller design.

1-13 TEMPERATURE SETTINGS

As given in the programming steps listed previously the following temperatures are allowed for each temperature setting:

Hot	150-199 degrees F
Perm Press	120-170 degrees F
Warm	110-150 degrees F

As received from the factory the dryer is programmed with the following temperature for each temperature setting:

Hot	175 degrees F
Perm Press	150 degrees F
Warm	125 degrees F

These temperatures have been determined to give the same drying performance as previous Dexter 30# thermostatically controlled dryers. The programmed temperatures shown above may not agree with temperature recommendations for previous dryers due to the difference in response times of the different types of systems. The temperatures measured and displayed by the dryer may also differ from those you have measured on previous dryers using different types of measuring equipment.

Raising drying temperatures will typically shorten drying times while increasing gas usage. Lowering temperatures will normally have the opposite result.

CAUTION - Increasing the programmed values of the temperature selections too much could cause damage to some fabrics. Any changes should be made in small trial steps.