

The specifications and servicing procedures outlined in this manual are subject to change without notice.

The latest version is indicated by the reprint date and replaces any earlier editions.

Note: This supplementary manual is only to be used in conjunction with 517760B, it is not intended to be used on its own.

Fisher & Paykel Appliances Inc 5800 Skylab Rd, Huntington Beach California, CA92647 USA Telephone: 888 936 7872 E-mail: <u>customer.care@fisherpaykel.com</u>

# CONTENTS

| 1  | SERVICING REQUIREMENTS                                 | 5  |
|----|--|----|
|    | 1.1 Health & Safety                                    | 5  |
|    | 1.2 Electrical Safety                                  | 5  |
|    | 1.3 Electrostatic Discharge                            | 5  |
|    | 1.4 Good Working Practices                             | 5  |
|    | 1.5 Safety Test  | 5  |
|    | 1.6 Sheet Metal Edges                                  | 5  |
| 2  | MODEL INFORMATION                                      | 6  |
|    | 2.1 Model Number                                       | 6  |
|    | 2.2 Serial Number                                      | 6  |
|    | 2.3 Product Code                                       | 7  |
| 3  | TECHNICAL OVERVIEW                                     | 7  |
|    | 3.1 Finish   | 7  |
|    | 3.2 Electrical Supply                                  | 7  |
|    | 3.3 Dimensions   |    |
|    | 3.4 Maximum Capacity (Full Load)                       |    |
| 4  | COMPONENTS.  |    |
|    | 4.1 Display Module                                     |    |
| 5  | SERVICE PROCEDURES                                     |    |
| -  | 5.1 Removal of Lid                                     |    |
|    | 5.2 Components in Console Area                         |    |
|    | 5.3 Removal of Display Module                          |    |
| 6  | DIAGNOSTICS  |    |
|    | 6.1 Overview   |    |
|    | 6.2 Fault Code Summary                                 |    |
| 7  | DIAGNOSTIC MODE  |    |
|    | 7.1 Entering the Diagnostic Mode – Intuitive Model     |    |
|    | 7.1.1 Data Display                                     |    |
|    | 7.1.2 Adjust Options Menu                              |    |
|    | 7.1.3 Testing the Conductivity Contacts                |    |
|    | 7.1.4 Data Download Mode                               |    |
|    | 7.1.5 Entering the Showroom Mode                       |    |
|    | 7.2 Entering the Diagnostic Mode – AeroSmart LCD Model |    |
|    | 7.2.1 Testing the Conductivity Contacts                |    |
|    | 7.2.2 Data Download Mode                               |    |
|    | 7.3 Entering the Diagnostic Mode – AeroSmart LED Model | 17 |
|    | 7.3.1 Testing the Conductivity Contacts                |    |
|    | 7.3.2 Data Download Mode                               |    |
| 8  | AUTOSENSING  |    |
| 9  | TEMPERATURE CONTROL                                    |    |
| 10 | COOL DOWN.   |    |
| 11 | CYCLE CHART – ELECTRIC                                 |    |
| 12 | CYCLE CHART - GAS                                      |    |
| 13 | WIRING DIAGRAM - ELECTRIC                              |    |
| 14 | WIRING DIAGRAM – GAS                                   |    |
|    |  | -  |

Fisher & Paykel Appliances Inc 5800 Skylab Rd, Huntington Beach California, CA92647 USA Telephone: 888 936 7872 E-mail: <u>customer.care@fisherpaykel.com</u>

# **1 SERVICING REQUIREMENTS**

## 1.1 Health & Safety

Note: When servicing the Intuitive<sup>™</sup> electronic dryer, health and safety issues must be considered at all times. Specific safety issues are listed below to remind service people of the health and safety issues.

## **1.2 Electrical Safety**

WARNING! TO AVOID ELECTRIC SHOCK! Do not attempt to service this dryer without suitable training and qualifications.

Ensure the mains power has been disconnected before servicing any part of the dryer. If the power is required to be on for electrical fault finding, or checking the operation, then **extreme** care should be taken not to make contact with electrical components other than with testing probes. Ensure the dryer is turned off when removing any electrical component or connection.

## **1.3 Electrostatic Discharge**

Electronic components are prone to damage from electrostatic discharges. The electronic modules in this product contain no user serviceable components and breaking seals to access internal components of an electronic module may void the product warranty. Avoid contact with PCB edge connectors when handling electronic modules.

## **1.4 Good Working Practices**

Ensure the work areas are kept tidy and free of hazards while servicing the dryer. On completion of the servicing, ensure the dryer and work areas are left clean and tidy.

## 1.5 Safety Test

On completion of any service carried out to the dryer, all safety tests as required by law must be carried out.

## 1.6 Sheet Metal Edges

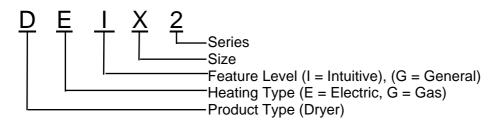
When working around cut sheet metal edges use appropriate gloves or protection to eliminate the chance of receiving a laceration.

# 2 MODEL INFORMATION

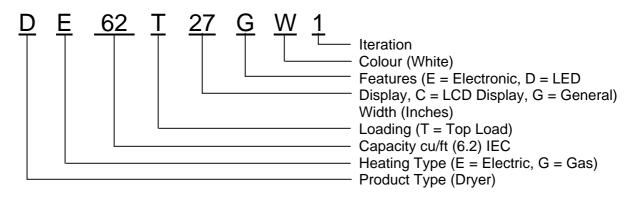
The product serial plate is located on the upper rear of the cabinet and contains the following information:

## 2.1 Model Number

The model number contains the following information:



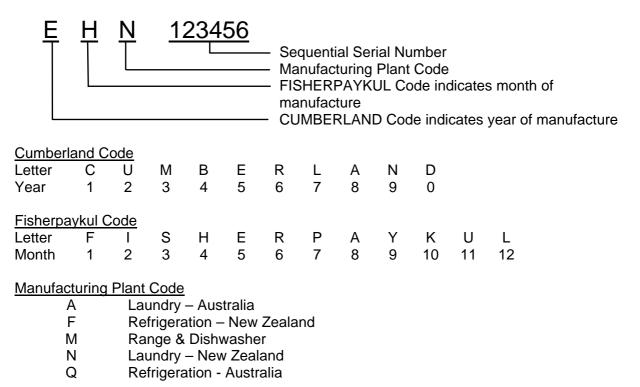
In new models produced from 2007 the model numbering system changed to the following:



## 2.2 Serial Number

The serial number consists of three letters and six digits and contains the following information:

Example:



In the example above, the appliance was manufactured in the fourth month of the fifth year (2005) at the New Zealand Laundry plant.

# 2.3 Product Code

A suffix letter has been added to the Product Code. This suffix letter will change whenever a part is changed that is not completely retro-fittable without the need for a kit, or whenever a cosmetic change is made.



At the same time, separate parts manuals will be produced for each product code, making it easier for the service technician to obtain the correct part for the appliance they are servicing. The part number of the manual will be the same as the Product Code.

It is now important that the service technician obtains the Product Code from the serial plate of the appliance before ordering parts, then refers to the appropriate parts manual to ensure that the correct part numbers are obtained.

# **3 TECHNICAL OVERVIEW**

## 3.1 Finish

Cabinet: Touch-Up Paint: Lid: Console: Drum: Top Deck: Pre-paint (Polyester) White #503086 ABS Co-injected, one piece ABS with Polycarbonate insert for control panel Stainless steel grade 430T Polypropylene

## 3.2 Electrical Supply

|              | Operating Voltage | Maximum Current |
|--------------|-------------------|-----------------|
| USA Electric | 220/240V AC 60Hz  | 24 Amps         |
| USA Gas      | 110/120V AC 60Hz  | 6 Amps          |

# 3.3 Dimensions

| Height to lid     |                   |                 |
|-------------------|-------------------|-----------------|
| Open              | 55 ½ in – 56 ¾ in | 1410mm – 1440mm |
| Closed            | 36 ½ in – 37 ½ in | 925mm – 955mm   |
| Height to console | 40 ¼ in – 41 ½ in | 1020mm – 1050mm |
| Width             | 27                | 685mm           |
| Depth             | 27 ½ in           | 700mm           |

Note: Exact height of the Intuitive<sup>™</sup> dryer is dependent on how far the feet are inserted into the base of the dryer.

| Weight Packed | 152lbs (69kg)  |  |  |  |
|---------------|----------------|--|--|--|
| Unpacked      | 134 lbs (61kg) |  |  |  |

# **3.4 Maximum Capacity (Full Load)**

Drum Volume

6.2 cubic feet (.184 cubic meters)

# 4 COMPONENTS

The only visual change of major components between the G (General) dryer and Intuitive<sup>™</sup> dryer is with the Display Module, which now incorporates a LCD (Liquid Crystal Display) on the right hand side of the module.

# 4.1 Display Module



# **5 SERVICE PROCEDURES**

To remove the display module, follow the procedures as detailed below.

## 5.1 Removal of Lid

(a) Open the lid fully, then lift off vertically.

### Reassembly

(a) Refit in reverse manner, ensuring that the hinge lugs on the lid are vertical.



# 5.2 Components in Console Area

- (a) Disconnect the unit from the power supply.
- (b) Remove the lid.
- (c) Remove the two screws at the rear of the console securing the console to the top deck.
- (d) Tilt the console forward.

### Reassembly

(a) Refit in reverse manner.



**Screws** 

## 517762 5.3 Removal of Display Module

- (a) Follow instructions for removal of the console.
- (b) Disconnect the wiring harness from the display module.
- (c) Remove the 3 screws securing the display module to the console.

(d) Using a flat bladed screwdriver, push the two top tabs that secure the display module to the facia.

(e) When these tabs are clear, lift the right hand end of the module and slide in the direction shown.

# **6 DIAGNOSTICS**

## 6.1 Overview

If a fault occurs that prevents correct operation of the dryer, and is detected by the controllers, the dryer is stopped, the LCD shows a fault code and the beeper is continuously turned on and off.

Pressing any button once will disable the beeping. The fault code information will remain on the LCD screen until the power supply to the dryer is turned off.

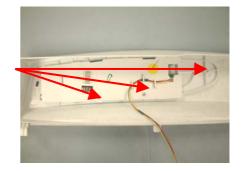
If the Dryer has been either turned off or isolated from the power supply the fault code can be recalled from memory by entering diagnostic mode refer to Section 7.1.

If **Start/Pause** is pressed while the fault code is displayed the beeping will stop and the optical download is activated refer Section 7.1.4.

### **User Warnings**

In the case of User Warnings, the LCD screen will display the User Warning and the beep tone will change from a continuous tone to a musical series of beeps, which are repeated every 5 seconds.









Depending on the nature of the User Warning, the operation of the dryer may cease or continue to 'limp on' until the cycle finishes or the user intervenes.

Pressing the **Power** button when a User Warning is displayed will immediately turn the dryer off. User Warnings are saved to memory as Fault Codes, and the last Fault Code will be permanently stored.

The warning will also be recorded in the Warning Status screen (refer to Section 7.1.1) however the information on this screen will only be stored for as long as power is supplied to the dryer. When the dryer is isolated from the supply the information in this screen will be erased.

# 6.2 Fault Code Summary

The following are the fault codes that may be displayed. The remedy section of each fault is the suggested sequence of repair or replacement. If the first suggestion does not remedy the fault, check the next on the list.

## Fault Code 1 Communications Error.

Communications failure between the sensor module and motor control module.

- Remedy: (1) Check the continuity of the module interconnecting harness.
  - (2) Replace the sensor module.
  - (3) Replace the motor control module.

### Fault Code 2 Drum Gap Cannot be Located.

Remedy:

- (1) Ensure the sensor module is correctly located and clipped into place.
- (2) Replace the lens on the sensor module.
- (3) Replace the sensor module.
- (4) Remove the top deck and clean the drum sensing "bumps" on the outside of the drum end.
- (5) Replace the drum.

### Fault Code 3 Drum Stalled.

Remedy: (1) If there is mechanical movement of the drum, but this fault code is appearing, follow the procedures for fault code 2.

- (2) If there is no mechanical movement of the drum, check drum movement mechanisms: belt, motor and motor harness.
- (3) Replace the motor control module.
- (4) Replace the motor.

### Fault Code 4 Invalid Option Link Read.

The motor control module heat source option link read is invalid.

Remedy: Replace the motor control module.

## Fault Code 6 Door Jammed – (User Warning).

The door is unable to close due to either clothes catching or an excessive closing load.

- Remedy: (1) Remove the obstruction.
  - (2) Reposition or remove some of the load.
  - (3) Fix the cause of binding in the door closing mechanism.
  - (4) Replace the motor.

### Fault Code 7 Motor Current Excessive.

- Remedy: (1) Free up the dryer. Remove overload or cause of jamming.
  - (2) Replace the motor control module.
  - (3) Replace the motor.

### Fault Code 7b Display Module RAM Check Error

On power up, the display has checked its memory against a known reference and found differences.

Remedy: Replace the display module.

### Fault Code 8 Exhaust Sensor Over Temperature.

The exhaust sensor measures over temperature (element short circuit or low resistance).

- Remedy: (1) Check the integrity of the sensor circuit checking particularly for short circuits. Approximate resistances (<u>+</u> 10%) at various temperatures are; 0°C = 33 kOhms, 22°C = 11 kOhms, 40°C = 5 kOhms. Replace thermistor and harness if out of range.
  - (2) Check the element integrity in that it switches off when the dryer is stopped.
  - (3) Replace the motor control module.
  - (4) Replace the sensor module.

### Fault Code 9 Exhaust Sensor Under Temperature.

The exhaust sensor measures under temperature (open circuit or not plugged in).

Remedy: Refer to steps for over temperature fault (fault code 8) above, but open circuit likely.

### Fault Code 10 24 Volt Supply Measurement Error.

The sensor module measures low voltage on actuator power supply. Remedy: Replace the sensor module.

### Fault Code 11 Lid Lock Open Circuit.

Remedy: Check the lid lock harness and coil. If there is continuity through these, replace the sensor module.

### Fault Code 12 Lid Lock Switching Device Failure.

Remedy: Check that there are no short circuits in the lid lock circuit which may have caused the failure in the sensor module. The resistance of the lid lock should be between 50 and 100 ohms. If the circuit is correct, replace the sensor module.

### Fault Code 14 Sensor Module Fault.

Remedy: Replace the sensor module.

#### Fault Code 15 Sensor Module Fault.

Remedy: Replace the sensor module.

#### Fault Code 16 Airflow Restriction – (User Warning).

### Airflow restriction.

- Remedy: (1) Check that the lint bucket is empty and the filter is clear.
  - (2) Ensure that the exhaust duct is not restricted, blocked or kinked, preventing good airflow.
  - (3) Ensure that there is nothing inhibiting unrestricted airflow through the heater housing, through the drum, lint filter, lint collector and through the exhaust duct, and that the element has not shorted. If the dryer is located in a closet ensure there is adequate ventilation for air intake.
  - (4) Check that the voltage is not too high.
  - (5) Check for element shorts or low resistance.
  - (6) Replace the automatic thermostat.
  - (7) Replace the motor control module.

### Fault Code 20 Door Actuator Stalled.

Remedy: As per fault code 21.

Fault Code 21

Remedy:

- de 21 Door Actuator Required Excess Voltage.
  - (1) Ensure there is no weight placed on the lid of the product (e.g. clothes basket). If so, remove the weight and retest.
  - (2) Inspect the installation, making sure that the cabinet sits evenly on the floor. If excess load is placed on the cabinet, it can cause the sub-deck assembly to twist.
  - (3) Inspect the front inside edge of the top deck for any signs of excessive inwards bowing as this can cause it to catch on the door grabber, resulting in excess current draw on activation. The bowing can be caused by a bowed top deck or by incorrect assembly of the top deck to the cabinet front.
  - (4) Ensure the user intervention tab is not inhibiting door grabber movement.
  - (5) Check that the actuator linkage is located correctly. There must be no gap between the linkage and the plastic moulding.
  - (6) Check that the actuator housing is in place, and that the four retaining lugs are correctly located. Early models may have aluminium tape holding the housing in place. If so, ensure that the tape is replaced when the housing is refitted.
  - (7) Remove the actuator housing and look for obvious signs of things that are out of position (can the worm drive be rotated freely both backwards and forwards by hand, is the actuator motor in place?)
  - (8) Replace the faulty door actuator mechanism.
  - (9) Replace the door grabber, linkage and housings.
  - (10) Replace the sensor module.

### Fault Code 22 Door Actuator Open Circuit.

Remedy:

- dy: (1) Check that the actuator wiring is plugged into the sensor module and is not open circuit. If faulty, replace.
  - (2) Replace the sensor module.

### Fault Code 23 Door Actuator Movement Interrupted By Low Voltage.

The door actuator movement was interrupted by low voltage (brown out).

- Remedy: (1) Ensure mains voltage is within +10% and -15% of nominal.
  - (2) Replace the sensor module, as voltage measurement circuit may be reading incorrectly.
  - (3) Replace the motor control module, as it may not be supplying sufficient power to the sensor module. When display is off, approximately 24V DC is supplied.

### Fault Code 24 Door Actuator Movement Took Too Long.

Remedy: As per fault code 21.

## Fault Code 28 Data Retrieval Error Following Loss of Power

- Remedy: (1) Switch off the mains power supply to the dryer for at least 10 seconds and confirm error.
  - (2) Replace the motor control module.

## Fault Code 29 Brown-Out Data Retrieval Error.

- Remedy: (1) If the fault occurs every time the dryer is turned on, replace the sensor module.
  - (2) Replace the motor control module.)

## Fault Code 30 Lid Lock unable to Lock – (User Warning).

Reason: The lid lock failed to lock. (Not user displayed.)

- Remedy: (1) Ensure the lid is closed and the tongue engaged.
  - (2) Replace the lid lock harness.
  - (3) Replace the lid lock.
  - (4) Replace the sensor module.

### Fault Code 45 Display Module ROM Check Error

On power up, the display has checked its memory against a known reference and found differences.

Remedy: Replace display module.

### Fault Code 105 Comms Error Time Out

Communications failure between the sensor module and display module.

- Remedy: (1) Visually check the contacts on the RAST (edge) connector at each end on the harness between the sensor module and display module.
  - (2) Using a multimeter check for continuity of the wires on this harness.
  - (3) Replace display module.
  - (4) Replace sensor module.
- Note: On the LCD model, the green Air Dry LED illuminated without the fault "beeps" indicates the dryer is in a low mains voltage (brown out) state, and may be momentarily displayed when the supply power is turned off.

On the LED model, the Wrinkle Free LED illuminated without the fault "beeps" indicates the dryer is in a low mains voltage (brown out) state, and may be momentarily displayed when the supply power is turned off.

# 7 DIAGNOSTIC MODE

# 7.1 Entering the Diagnostic Mode – Intuitive Model

To enter the **Diagnostic Mode** press and hold the **Lifecycles** button and then the **Power** button. The machine will give 2 short beeps and the LCD screen will go blank. Make sure that the buttons are released after the beeps.

Note: Provided the power supply to the machine is switched on, diagnostic mode may be entered at any time.

## 7.1.1 Data Display

To enter the **Data Display** screens, push the **Lifecycles** button again. One of three displays will appear in the screen (detailed below). To scroll through the different screens use the **Options Up** or **Down** buttons.

### **Fault Status Screen**

This screen will indicate the last fault code that occurred. If a fault is registered the fault code is saved to EEPROM, which retains its memory even when the power is switched off. The fault code will remain visible until another fault code overwrites it.

Note: Fault codes 7b, 45, and 105 will be reset if the power is switched off.

### **Machine Status Screen**

- **Tacho:** This displays the position of the drum. The displayed figure is updated every five seconds and will change as the drum revolves.
- **Exht tmp:** This displays the temperature in <sup>o</sup>C of the exhaust sensor.
- Actuator: This displays the count of the current draw of the actuator motor.
- Fault Status

   Fault code: 7

   Home
   Options
   Adjust

   Machine Status

   Machine Status

   Tacho: 130
   Tacho err: 2

   Exht tmp: 65° C
   Touch: 0

   Actuator: 10
   LED cnt: 12

   Home
   Options
   Adjust
- **Tacho Err:** During reversals of the drum there will often be a transient error because of uncertainty of direction during the reversing process, but this should be corrected on the next revolution.
- Touch: This displays the impedance of the conductivity contacts, refer to Section 7.3.1
- **LED Cnt:** This is a measure of the infra-red light intensity required to sense the drum position. It is normally about 14 but can range from 5 to 53.

#### Warning Status Screen

The last User Warning will be displayed on this screen and will be displayed until another User Warning overwrites it.



# 517762**7.1.2**Adjust Options Menu

In the Adjust Options menu it is possible to adjust the brightness of the LCD display screen as well as selecting the appropriate language for the market the product is sold into. To scroll to the appropriate screen use the **Options Up** or **Options Down** button.

### Note: When the product leaves the factory the language should be preset, and there should be no reason to adjust this. However when replacing the Sensor Module it will be necessary to manually set the language.

To enter the Adjust Options menu press **Power** to turn the machine on. The adjacent screen should now be displayed.

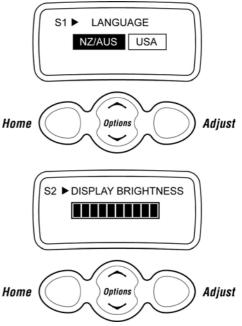
To access the Adjust Options Menu push the **Options Up** or **Options Down** button, and hold for 2 seconds. The Adjust Options Menu will then be displayed. One of the two screens as shown below will be displayed.

To scroll through the different screens press the **Options Up** or **Options Down** buttons.

### Language Selection

Press the **Adjust** button to change the selected language. To lock the setting in press the **Home** button.





### **Display Brightness**

To adjust the display brightness push the **Adjust** button, when the desired brightness has been selected press the **Home** button to lock in the setting.

## 7.1.3 Testing the Conductivity Contacts

#### Impedance Testing

It is possible to check the integrity of the conductivity contacts through diagnostics. Firstly enter the Machine Status Screen as described in Section 7.1.1, and when in this mode, by touching damp clothes or fingers across the conductivity contacts, the value adjacent to the word **Touch** will increase. The minimum value is zero, this indicates an open circuit. The maximum value is 255. No change in this value when touching the contacts, or conversely a high value when not touching the contacts, would indicate a fault in this circuit.

### **Resistance Test**

An alternative, but slightly less reliable method of testing the conductivity contacts, is to test the circuit with a multimeter. When using this method the power to the dryer must be switched off. Place one probe of the multimeter on each conductivity contact. The resistance should be 6.4Mohms  $\pm 2\%$ .

To exit the diagnostic mode, press the **Power** button.

## 7.1.4 Data Download Mode

Encoded data is transmitted out of the red **Heavy** LED, and can be captured by an optical download pen attached to a PC or hand held palm PC, where "Smart Tool" software interprets the data to aid servicing.

To enter the Data Download mode;

Enter diagnostic mode as described in Section 7.1, then press the **Start/Pause** button. The **Heavy** LED will flash. Place the data download pen over the LED to download the data.

To exit from the data download mode, press the **Power** button.

## 7.1.5 Entering the Showroom Mode

- (a) Turn the power supply to the dryer on.
- (b) Ensure that the display is off, then press and hold the **Start/Pause** button, then press the **Power** button.

To exit, turn off the power supply to the dryer at the wall.

## 7.2 Entering the Diagnostic Mode – AeroSmart LCD Model

To enter the Diagnostic Mode press and hold the Wrinkle Free button and then the Select button.

The machine will give 2 short beeps and the diagnostic menu will appear. Make sure that the buttons are released after the beeps.

| Diagnostics | Menu |  |  |
|-------------|------|--|--|
|             |      |  |  |
| Service     |      |  |  |
|             |      |  |  |

Press the **Select** button once. One of three displays will appear in the screen. To scroll through the different screens, use the **Left** and **Right** arrow buttons.

# Note: Provided the power supply to the machine is switched on, diagnostic mode may be entered at any time.

### **Fault Status Screen**

This screen will indicate the last fault code that occurred. If a fault is registered the fault code is saved to EEPROM, which retains its memory even when the power is switched off.

| FAULT STATUS<br>Last fault code : 30 |  |  |
|--------------------------------------|--|--|
|                                      |  |  |
|                                      |  |  |

The fault code will remain visible until another fault code overwrites it.

Note: Fault codes 7b, 45, and 105 will be reset if the power is switched off.

#### Machine Status Screen

Tacho:This displays the position of the<br/>drum. The displayed figure is<br/>updated every five seconds and will<br/>change as the drum revolves.

| MACHINE STATUS  |               |  |
|-----------------|---------------|--|
| Tacho : 340     | Tacho err : O |  |
| Exht Tmp : 22×C | Touch : 0     |  |
| Actuator : 0    | LED ont : 12  |  |

- **Exht tmp:** This displays the temperature in °C of the exhaust sensor.
- Actuator: This displays the count of the current draw of the actuator motor.**Tacho Err:** During reversals of the drum there will often be a transient error because of uncertainty of direction during the reversing process, but this should be corrected on the next revolution.
- **Touch:** This displays the impedance of the conductivity contacts, refer to Section 7.3.1

**LED Cnt:** This is a measure of the infra-red light intensity required to sense the drum position. It is normally about 14 but can range from 5 to 53.

## Warning Status Screen

The last User Warning will be displayed on this screen and will be displayed until another User Warning overwrites it.

warning status Last warning code : 30 i.e. I cant LOCK THE LID

## 7.2.1 **Testing the Conductivity Contacts**

It is possible to check the integrity of the conductivity contacts through diagnostics. The same method is used as for the Intuitive model. Refer to Section 7.1.3.

## 7.2.2 Data Download Mode

Encoded data is transmitted out of the **Wrinkle Free** LED, and can be captured by an optical download pen attached to a PC or hand held palm PC, where "Smart Tool" software interprets the data to aid servicing.

To enter the Data Download mode;

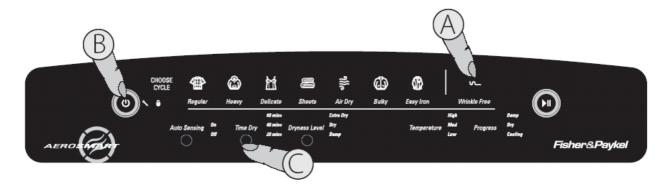
Enter diagnostic mode as described in Section 7.2, then press the **Start/Pause** button. The **Wrinkle Free** LED will flash. Place the data download pen over the LED to download the data.

To exit from the data download mode, press the **Power** button.

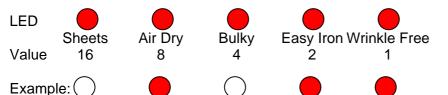
## 7.3 Entering the Diagnostic Mode – AeroSmart LED Model

To enter the **Diagnostic Mode** press and hold the **Wrinkle Free** button (button A) and then the **Power** button (button B). The dryer is now in **Diagnostic Mode**.

Press the **Time Dry** button (button C) three times to enter the last fault option.



Each LED has a specific value as follows:



In this example, the LEDs with values "8", "2" and "1" are on, therefore 8+2+1=11. Therefore fault code #11 is displayed. Refer to Section 6.2 for fault codes.

## 7.3.1 **Testing the Conductivity Contacts**

### Impedance Testing

It is possible to check the integrity of the conductivity contacts through diagnostics. Firstly enter the diagnostic mode described in Section 7.1.4, and then press the **Time Dry** button five times. In this mode, touching damp clothes or fingers across the conductivity contacts will cause the LED display to change. If the contacts, or the harness to them, have gone open circuit, no change will occur in the LED display. This is a useful method of checking the integrity of the sensor cells. To exit the diagnostic mode, press the **Power** button.

#### **Resistance Test**

An alternative, but slightly less reliable method of testing the conductivity contacts, is to test the circuit with a multimeter. When using this method the power to the dryer must be switched off. Place one probe of the multimeter on each conductivity contact. The resistance should be 6.4Mohms  $\pm 2\%$ .

To exit the diagnostic mode, press the **Power** button.

## 7.3.2 Data Download Mode

Encoded data is transmitted out of the **Wrinkle Free** LED, and can be captured by an optical download pen attached to a PC or hand held palm PC, where "Smart Tool" software interprets the data to aid servicing.

To enter the Data Download mode;

Enter diagnostic mode as described in Section 7.3, then press the **Start/Pause** button. The **Wrinkle Free** LED will flash. Place the data download pen over the LED to download the data.

To exit from the data download mode, press the **Power** button.

# 8 AUTOSENSING

When wet or damp clothes are loaded into a dryer they are partially saturated with water, which is a relatively good conductor of electricity. In the Intuitive<sup>™</sup> dryer, sensor bars (located beneath the lint bucket) are used to measure the conductivity. When moisture in the clothes touches across the sensor bars their conduction is measured. As the clothes dry they become less conductive and it is this measurement that is used to calculate the dryness of the clothes load. Large loads will brush against these sensor bars more frequently than small loads, and this strike count is used to help determine the dryness of different sized loads.

Different fabrics retain moisture differently; a thick towel containing a lot of moisture will often conduct the same as a light synthetic garment containing very little. It is this difference in fabric characteristics plus the initial unknown moisture content that makes the calculation of dryness reasonably complex. To test the sensor bars refer to Section 7.3.1

# 9 **TEMPERATURE CONTROL**

Auto sensing is automatically selected when the Intuitive<sup>™</sup> dryer is turned on. The user can select a time dry option of 20, 40 or 80 minutes through the Options menu. Auto sensing of the clothes load dryness level is achieved by touch sensors that sense the moisture content of the load. An exhaust temperature sensor is used to monitor the exhaust temperature. The controller limits the temperature to what is required for the various cycles and determines what elements are used.

# 10 COOL DOWN

The dryer enters a cool down period at the end of the cycle. During this period the dryer continues to run with the heating elements/burner turned off, blowing ambient air through the load to help prevent creasing.

**Autosensing:** If any Auto Sensing cycle has been selected, the cool down period will continue until the exhaust temperature drops to  $35_{\circ}$ C. However if this temperature is not achieved after 10 minutes, the cycle will stop. This would occur if the ambient temperature was above  $35^{\circ}$ C.

**Timed Dry:** If an 80 minute or 40 minute Timed Dry cycle has been selected, the cool down period will run for the last 10 minutes of that cycle. If a 20 minutes Timed Dry cycle has been selected, the cool down period will run for the last 5 minutes.

| Cycle  | <b>Cool Down</b>  |
|--|---|
| Auto Sensing   | Cool down will last until the exhaust temperature drops to 35°C or 10     |
| Timed Dry 80 Minutes<br>Timed Dry 40 Minutes<br>Timed Dry 20 Minutes | minutes, whichever occurs first.<br>10 Minutes<br>10 Minutes<br>5 Minutes |

# 11 CYCLE CHART – ELECTRIC

This chart lists the available cycles that can be selected on the electric model, and provides information regarding these cycles.

## Main Cycles

| Cycle      | Heat    | Temperature   | Autosensing /          | Cool Down <sup>1</sup> | Dryness level | yness level Additional Door Closed Direction Door Ope |             | Door Closed Direction |             | Direction <sup>2</sup> |
|------------|---------|---------------|------------------------|------------------------|---------------|---|-------------|-----------------------|-------------|------------------------|
|            |         |               | Timed Dry <sup>1</sup> |                        |               | comments  | 3.6kW (2/3) | 1.4kW                 | 3.6kW (2/3) | 1.4kW (1/3)            |
|            |         |               |                        |                        |               |   |             | (1/3)                 |             |                        |
| Heavy      | High    | 149°F (65 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -   | On          | On                    | Off         | On                     |
| Mixed      | High    | 149°F (65 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -   | On          | On                    | Off         | On                     |
| Casual     | Medium  | 140°F (60 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -   | On          | Off                   | Off         | On                     |
| Dry & Wear | Medium  | 140°F (60 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free  | On          | Off                   | Off         | On                     |
| Light      | Low     | 127°F (53 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -   | On          | Off                   | Off         | On                     |
| Air Dry    | No Heat | Ambient       | 40 Minutes             | Nil                    | -             | -   | Off         | Off                   | Off         | Off                    |

## Lifecycles

| Family   | Heat   | Temperature   | Autosensing / | Cool Down <sup>1</sup> |               |              | Door Closed Direction |             | n Direction <sup>2</sup> |             |
|----------|--------|---------------|---------------|------------------------|---------------|--------------|-----------------------|-------------|--------------------------|-------------|
|          |        |               | Timed Dry'    |                        |               | comments     | 3.6kW (2/3)           | 1.4kW (1/3) | 3.6kW (2/3)              | 1.4kW (1/3) |
| Allergy  | High   | 149°F (65 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry/Extra Dry | -            | On                    | On          | Off                      | On          |
| Towels   | High   | 149°F (65 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry/Extra Dry |              | On                    | On          | Off                      | On          |
| Shirts   | Medium | 140°F (60 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free | On                    | Off         | Off                      | On          |
| Lingerie | Light  | 127°F (53 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free | On                    | Off         | Off                      | On          |

### Special Items

| Freshen Up | No Heat | Ambient       | 20 Mins | Nil                    | - | -            | Off | Off | Off | Off |
|------------|---------|---------------|---------|------------------------|---|--------------|-----|-----|-----|-----|
| Warm Up    | Medium  | 140°F (60 °C) | 20Mins  | 5 Mins                 | - | -            | On  | Off | Off | On  |
| Dry Clean  | Medium  | 140°F (60 °C) | 40 Mins | 95°F (35°C) or 10 Mins | - | Wrinkle Free | On  | Off | Off | On  |

### Bulky Items

| Blankets  | Low  | 127°F (53 °C) | Autosensing | 95°F (35°C) or 10 Mins | Damp/Dry      | -            | On | Off | Off | On |
|-----------|------|---------------|-------------|------------------------|---------------|--------------|----|-----|-----|----|
| Jeans     | High | 149°F (65 °C) | Autosensing | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free | On | On  | Off | On |
| Comforter | Low  | 127°F (53 °C) | Autosensing | 95°F (35°C) or 10 Mins | Dry/Extra Dry | -            | On | Off | Off | On |

1. Refer section 10

# **12 CYCLE CHART - GAS**

This chart lists the available cycles that can be selected on the gas model, and provides information regarding these cycles.

## Main Cycles

| Cycle      | Heat    | Temperature   | Autosensing /          | Cool Down <sup>1</sup> | Dryness level | Additional   | Door Closed Direction |             | Door Open Direction <sup>2</sup> |
|------------|---------|---------------|------------------------|------------------------|---------------|--------------|-----------------------|-------------|----------------------------------|
|            |         |               | Timed Dry <sup>1</sup> |                        |               | comments     | Ignition Delay        | Gas Heating |                                  |
| Heavy      | High    | 149°F (65 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -            | 30s                   | 3m 30s      | No Heat                          |
| Mixed      | High    | 149°F (65 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -            | 30s                   | 3m 30s      | No Heat                          |
| Casual     | Medium  | 140°F (60 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -            | 30s                   | 2m 20s      | No Heat                          |
| Dry & Wear | Medium  | 140°F (60 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free | 30s                   | 2m 20s      | No Heat                          |
| Light      | Low     | 127°F (53 °C) | Autosensing            | 95°F (35°C) or 10 Mins | Dry           | -            | 30s                   | 2m 20s      | No Heat                          |
| Air Dry    | No Heat | Ambient       | 40 Minutes             | Nil                    | -             | -            | No Heat               | No Heat     | No Heat                          |

### Lifecycles

| Family   | Heat   | Temperature   | Autosensing / | Cool Down <sup>1</sup> | Dryness level | Additional   | Door Closed Direction |             | Door Open Direction <sup>2</sup> |
|----------|--------|---------------|---------------|------------------------|---------------|--------------|-----------------------|-------------|----------------------------------|
|          |        |               | Timed Dry'    |                        |               | comments     | Ignition Delay        | Gas Heating |                                  |
| Allergy  | High   | 149°F (65 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry/Extra Dry | -            | 30s                   | 3m 30s      | No Heat                          |
| Towels   | High   | 149°F (65 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry/Extra Dry |              | 30s                   | 3m 30s      | No Heat                          |
| Shirts   | Medium | 140°F (60 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free | 30s                   | 2m 20s      | No Heat                          |
| Lingerie | Light  | 127°F (53 °C) | Autosensing   | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free | 30s                   | 2m 20s      | No Heat                          |

### Special Items

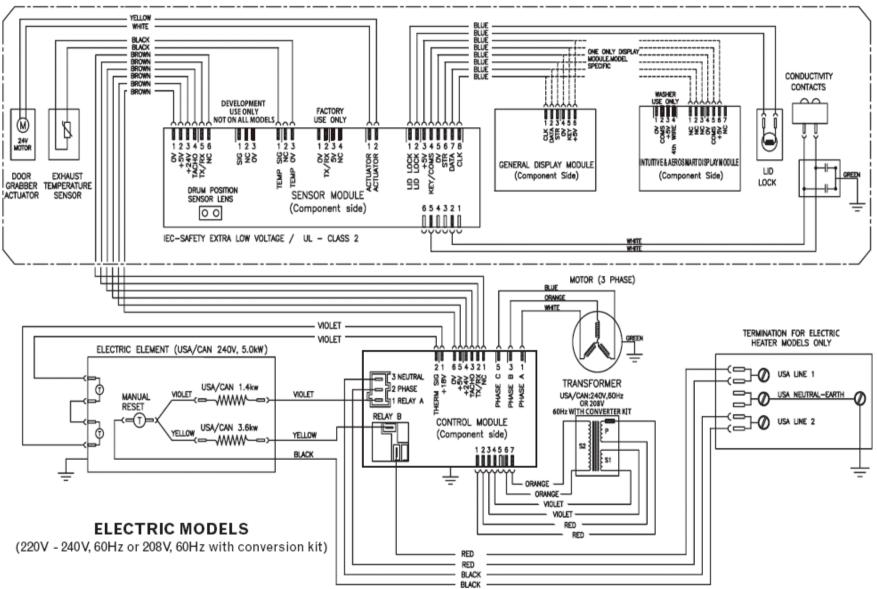
| Freshen Up | No Heat | Ambient       | 20 Mins | Nil                    | - | -            | No Heat | No Heat | No Heat |
|------------|---------|---------------|---------|------------------------|---|--------------|---------|---------|---------|
| Warm Up    | Medium  | 140°F (60 °C) | 20Mins  | 5 Mins                 | - | -            | 30s     | 2m 20s  | No Heat |
| Dry Clean  | Medium  | 140°F (60 °C) | 40 Mins | 95°F (35°C) or 10 Mins | - | Wrinkle Free | 30s     | 2m 20s  | No Heat |

### Bulky Items

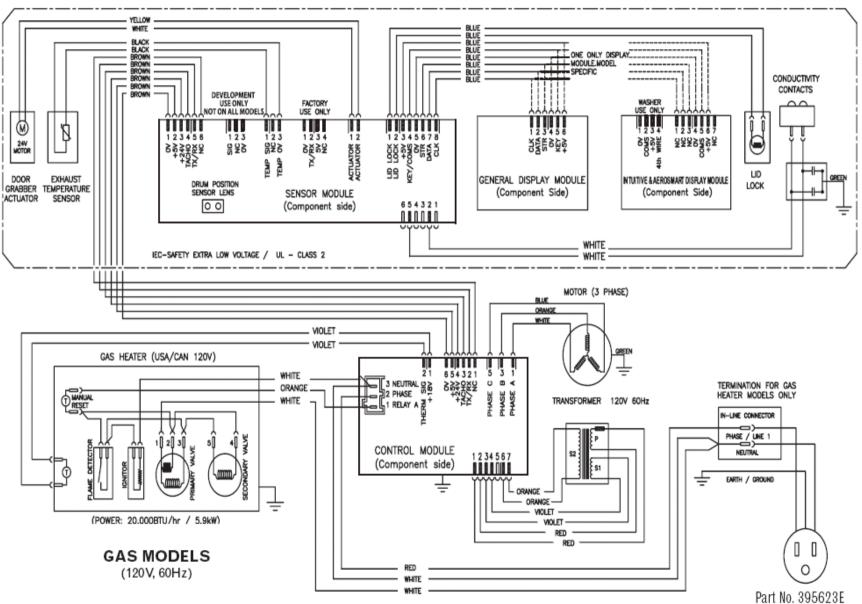
| Blankets  | Low  | 127°F (53 °C) | Autosensing | 95°F (35°C) or 10 Mins | Damp/Dry      | -            | 30s | 2m 20s | No Heat |
|-----------|------|---------------|-------------|------------------------|---------------|--------------|-----|--------|---------|
| Jeans     | High | 149°F (65 °C) | Autosensing | 95°F (35°C) or 10 Mins | Dry           | Wrinkle Free | 30s | 3m 30s | No Heat |
| Comforter | Low  | 127°F (53 °C) | Autosensing | 95°F (35°C) or 10 Mins | Dry/Extra Dry | -            | 30s | 2m 20s | No Heat |

1. Refer section 10

# **13 WIRING DIAGRAM - ELECTRIC**



# 14 WIRING DIAGRAM – GAS



# **NOTES**