SERVICE SUMMARY

Refrigeration

RF135B, RF170A, RF170W, RF201A, RS36A72J, RS36A72U, RS36A80J, RS36A80U, E522B models

US CA

Fisher&Paykel

IMPORTANT!

SAVE THESE INSTRUCTIONS

This information is intended for use by individuals possessing adequate experience in servicing electrical, electronic and mechanical appliances. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

### ⚠ IMPORTANT SAFETY INSTRUCTIONS!

CAUTION:
This machine must be electrically grounded. It can be grounded through the grounding lead in the 3-prong power cord, if plugged into a properly grounded appliance outlet or through a separate No. 13 (14 gauge (1.5 mm)) or large wire from the cabinet to an established ground. In all cases the grounding method must comply with any local electrical code requirements. Certain internal parts are intentionally NOT GROUNDED and may present a risk of electrical shock only during servicing. To reduce the risk of shock, disconnect the power supply cord before servicing.

CAUTION: ALL TERMINALS AND INTERNAL PARTS SHOULD BE TREATED AS LIVE.
IMPORTANT – RE-CONNECT ALL GROUNDING DEVICES.

If grounding wires, screws, straps, clips, nuts or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

❶ INTERNAL LED DISPLAY INTERFACE

All models are fitted with an internal display which consists of several LED indicators and several capacitive touch buttons. Three versions of the internal display are shown below.
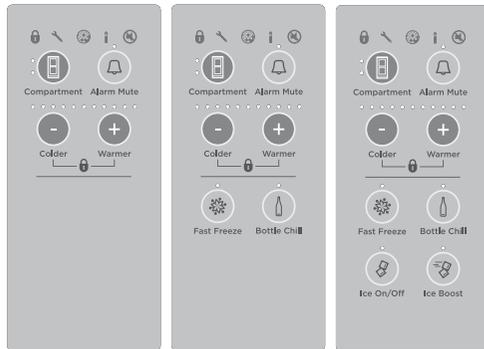
Internal display for Tasman models

Internal display for Designer and Elegance models

Internal display for Ice & Water models

There are five LED indicators along the top of the display. These are:

🔒	Key Lock	Illuminated when keys are disabled.
🔧	Spanner	Illuminated when a fault is detected in the product.
⊞	Filter change indicator	Illuminated when the timer for the filter has expired. Only applicable to ice & water models.
⸎	Sabbath mode	Illuminated when Sabbath mode is enabled. In this mode all other LEDs are off and all keys are locked.
⊗	Key Mute	Illuminated when key beeps are muted.

❷ EXTERNAL LED DISPLAY INTERFACE

Ice & Water models are fitted with an external display.

External display for Ice & Water models

There is one button with LED indicator and two LED icons along the top of the display.

🔓 Lock	Dispenser lock button and light	Locks/unlocks the water dispenser. Light is on when the water dispenser is locked.
🍾	Bottle Chill indicator	Indicates when 'Bottle Chill' is on and flashes when beverage is ready.
⊞	Filter change indicator	Indicates when the water filter requires changing.

❸ KEY PRESSES

Secondary functions are entered through multiple button presses on the LED display interface. These are:

FUNCTION	KEY PRESSES	ACTION	PRESS TIME
Key Lock	− + +	On/Off	Hold for 4 seconds
Diagnostic mode	⸬ + +	On	Hold for 4 seconds
Manually force defrost	⸬ + −	On	Hold for 4 seconds
Sabbath mode	⸬ + 🔔 + −	On/Off	Hold for 4 seconds
Showroom mode	⸬ + − + +	On/Off	Hold for 4 seconds
Disable filter alarm	⸬ + 🔔 + +	On/Off	Hold for 4 seconds
Filter reset	🔔 + +	Reset	Hold for 4 seconds
Manually force icemaker	🔔 + − + +	Activate	Hold for 4 seconds

❹ TEMPERATURE ADJUSTMENT

Internal controls for temperature adjustment

To adjust compartment temperatures:

① The PC compartment LED will automatically be illuminated. The temperature will show as a series of LEDs.
② Use the + or − to adjust the PC temperature.
③ To adjust the FC compartment temperature press the ⸬ button once so the FC compartment LED is illuminated.
④ Use the + or − to adjust the FC temperature.

❺ TEMPERATURE SETTINGS

The default set temperatures are shown below:

PC	°F	32.0	32.9	33.8	34.7	35.6	37.4	39.2	41.0	42.8	44.6	46.4
	°C	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0
FC	°F	-7.6	-5.8	-4.0	-3.1	-1.3	-0.4	1.4	2.3	4.1	5.0	6.8
	°C	-22.0	-21.0	-20.0	-19.5	-18.5	-18.0	-17.0	-16.5	-15.5	-15.0	-14.0

Note these are approximate temperatures

❻ ELECTRONIC/ELECTRICAL FAULTS

Fault codes

The 🔧 icon will appear automatically if there is a fault in the temperature measuring system, defrost system, fans or low ambient heater. When the PC door is opened an alarm will sound.
– The number of beeps will indicate the fault code.
– OR adding the value of illuminated LEDs will indicate the fault code.

Fault indicated on Internal control panel

The temperature LEDs display the fault reading in a binary code.

- - - 128 64 32 16 8 4 2 1

The value for each temperature LED (read from right to left)

VALUE	TABLE OF FAULTS
1	**Reason:** On last power up, the power module failed self test. **Primary action:** Replace power module.
2	**Reason:** The previous 2 defrosts were aborted after 40 minutes. **Primary action:** Check defrost element.
3	**Reason:** The resistance of all the temperature sensors is outside the normal range (>45K Ohms). **Primary action:** Check the connector at the power module.
4	**Reason:** The resistance of all the temperature sensors is outside the normal range (< 660 Ohms). **Primary action:** Check the connector at the power module.

VALUE	TABLE OF FAULTS
5	**Reason:** The resistance of the FC sensors is outside the normal range (>45K Ohms). **Primary action:** Check sensor connector at power module.
6	**Reason:** The resistance of the FC sensors is outside the normal range (<660 Ohms). **Primary action:** Check sensor connector at power module.
7	**Reason:** The resistance of the defrost sensor is outside the normal range (>45K Ohms). **Primary action:** Check sensor connector at power module.
8	**Reason:** The resistance of the defrost sensor is outside the normal range (<660 Ohms). **Primary action:** Check sensor connector.
9	**Reason:** The resistance of the PC sensors is outside the normal range (>45K Ohms). **Primary action:** Check sensor connector.
10	**Reason:** The resistance of the PC sensors is outside the normal range (<660 Ohms). **Primary action:** Check sensor connector.
11	**Reason:** The current for the LAH, PC & FC fan is lower than expected. **Primary action:** Check the fan/LAH connector at module.
12	**Reason:** The current for the LAH, PC & FC fan is higher than expected. **Primary action:** Check the fan/LAH connector at module.
13	**Reason:** LAH is drawing less current than expected. **Primary action:** LAH open circuit.
14	**Reason:** LAH is drawing higher current than expected. **Primary action:** Check wiring connection.
15	**Reason:** PC fan is drawing less current than expected. **Primary action:** PC fan open circuit.
16	**Reason:** PC fan is drawing higher than expected current. **Primary action:** Check fan wiring or connections.
17	**Reason:** FC fan is drawing less current than expected. **Primary action:** FC fan open circuit.
18	**Reason:** FC fan is drawing higher current than expected. **Primary action:** Check FC fan & wiring circuit.
19	Reserved.
20	**Reason:** Flapper heater current low. **Primary action:** Check for open circuit.
21	**Reason:** Flapper current high. **Primary action:** Check for short circuit.
22	**Reason:** PC2 sensor/Ambient sensor outside limit (>45K Ohms). **Primary action:** Check connection at module.
23	**Reason:** PC2 sensor/Ambient sensor outside limit (<660 Ohms). **Primary action:** Check connection at module.
24	**Reason:** IM sensor outside limit (>45K Ohms). **Primary action:** Check connection at module.
25	**Reason:** IM sensor outside limit (<660 Ohms). **Primary action:** Check connection at module.
26	**Reason:** IM Motor timed out. **Primary action:** Check gearbox operation.
27	**Reason:** IM Motor current too high. **Primary action:** Check for obstruction.
28	**Reason:** IM Water solenoid current high. **Primary action:** Check solenoid resistance.

VALUE	TABLE OF FAULTS
29	**Reason:** IM Water solenoid current low. **Primary action:** Open circuit solenoid.
30	**Reason:** No display signal. **Primary action:** Check short/broken wire. Test wire continuity.
31	**Reason:** No display signal. **Primary action:** Check short clock/data line. Test wire continuity.
32	**Reason:** Display water transistor 1 failure. **Primary action:** Check solenoid valve resistance. **Secondary action:** Replace dispenser display.
33	**Reason:** Display water transistor 2 failure. **Primary action:** Check solenoid valve resistance. **Secondary action:** Replace dispenser display.
34	**Reason:** Display water transistor 1 and 2 failure. **Primary action:** Check solenoid valve resistance. **Secondary action:** Replace dispenser display.
40	**Reason:** IM solenoid short circuit transistor 1. **Primary action:** Check solenoid resistance.
41	**Reason:** IM solenoid short circuit transistor 2. **Primary action:** Check connections.
42	**Reason:** IM heater is drawing higher current than expected. **Primary action:** Check wiring connection.
43	**Reason:** IM heater is drawing less current than expected. **Primary action:** IM heater open circuit.
49	**Reason:** Communication error between control module and inverter **Primary action:** Check wiring connections on control module and inverter. **Secondary action:** Replace control module **Tertiary action:** Replace inverter

❼ DIAGNOSTIC MODE

There are several diagnostic modes available to the service technician to assist them in diagnosing product faults.

- To enter diagnostic mode, press and hold the 🔒 and ➕ buttons together for 4 seconds.
- The temperature LEDs indicate the current diagnostic mode.
- When diagnostic mode is first entered it will be in PC temperature sensor mode (2). Use the ➕ and ➖ buttons to scroll through the various diagnostic modes (1–8).
- To return to normal operation press the 🔒 button once.

The following temperature LEDs are illuminated to indicate the current diagnostic mode:

MODE	DESCRIPTION
1	Optical Download
2	Provisions compartment (PC) temperature sensor
3	Freezer compartment (FC) temperature sensor
4	Evaporator (EV) temperature sensor
5	Inputs and Outputs display
6	Provisions compartment 2nd (PC2) temperature sensor or Ambient temperature sensor (French door models only)
7	Ice Tray Temperature sensor
8	Fault History

Diagnostic mode 1

Optical Download
- This sends encoded data through the Key Lock LED indicator at the top of the display.
- A light pen is required to retrieve information from the power/control module.
  – Light Pen (425930) & a laptop computer with F&P Smart Tool diagnostic program installed.

① Enter diagnostic mode.
② Scroll to the Optical Download mode by pressing the ➖ button once.
③ Place a light pen over the Key Lock LED indicator until download is complete.
④ Return to normal operation by pressing the 🔒 button.

Diagnostic modes 2, 3, 4, 6 and 7

Temperature Sensor Indication
In these modes LED indicators and temperature LEDs are used to show the temperature reading of sensors.

The following table shows which LED indicators are used to represent the various temperature sensors.

TEMPERATURE SENSOR	LED INDICATOR
2 – PC temp	PC Compartment
3 – FC temp	FC Compartment
4 – EV temp	PC + FC Compartment
6 – PC2 temp/Ambient temp (FD models)	PC compart + Blinking
7 – Ice tray temp	Ice On/Off

The temperature LEDs display the temperature reading in a binary code.

(-) (-) (-) (64) (32) (16) (8) (4) (2) (1) (0.5)

The value for each temperature LED (°C)

CAUTION!
In reading sensor temperatures there is a need to enter the required diagnostic mode as soon as soon as possible as temperatures will change rapidly once door is opened.

① Enter diagnostic mode and then scroll to the desired mode using the ➕ button.
② Add up the binary number indicated by the temperature LEDs.
③ Subtract 40 from the result in order to get the temperature.
④ Return to normal operation by pressing the 🔒 button.

Diagnostic mode 5

Input/Output display
The Input/Output Status menu displays what devices (eg light, PC door, FC door, compressor, etc) are currently running or turned on.

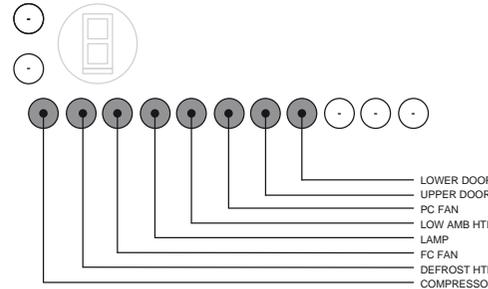In this mode, the state of each peripheral input and output is displayed.

Fig.1 Input/output assigned to each LED

To enter the mode, the steps are:
① Enter the diagnostic mode.
② Scroll to the input/output mode by pressing the ➕ button 3 times.
③ The respective LED turns on when a device is running, as shown in Fig.1 above.
④ Return to normal operation by pressing the 🔒 button.

Diagnostic mode 8

Fault History
The fault history will indicate the last fault that occurred with the appliance. This will be displayed for a period of four days, after which it can only be accessed via optical download.

Fault history is displayed in the same format to normal fault code except the LEDs are not flashing.

Manually force harvest

Press and hold 🔔 , ➖ and ➕ together for 4 seconds then close the door(s). The ice tray will flip. Force another cycle. The ice tray will flip and spill the water into the ice bin. Empty water and replace bin.

Not activating harvest

Check icemaker sensor continuity.

Environmental health and safety

When servicing products, consider safety and health issues and requirements which must be adhered to at all times. Specific safety issues are:
① Electrical safety.
② Electrostatic discharge.
③ Vapors while brazing.
④ Reclaiming of refrigerant.

Good practice and safety

① Take care when removing or servicing any electrical components to avoid electrical shock or short circuit conditions.
② Take care when removing plastic components at low temperatures as breakages can occur with these components.
③ Extreme heating of plastic components can cause distortion of those parts being heated.
④ Avoid overheating temperature sensitive devices such as the element thermal fuses and cabinet sensors.
⑤ Avoid using solvents, citrus-based cleaners on all plastic parts. We advise only warm soapy water be used.

If further help is needed concerning this appliance call:

Toll free: 1.888.9.FNP.USA (1.888.936.7872)
Website: www.fisherpaykel.com