Error Code	Fault Condition	Items To Check	Remedy
00	1 Hour Continuous Combustion		Close all hot water taps to reset unit. Turn off, or remove circulation pumps (unit is not designed for continuous operation with circulation system).
03	EZ Link	Check communications cable. Ensure dip switch 4 on DIP1 set of switches is in the ON position on both heaters.	Ensure communication cable for EZ Link system is purchased from Paloma geyser supplier (must be a HSG Distributors original link cable).
05	Imperfect Combustion Alarm	Clean and check for blockages on air filter, combustion air fan, heat exchanger fins and check air ventalation for obstructions	Clean air inlet filter. Clean combustion air fan. Clean heat exchanger fins. Check for adequate combustion air ventilation openings and clean if necessary. Check vent system for partial blockage and correct as necessary.
10	Abnormal Low Rate Combustion -Air Supply or Exhaust Blockage	Blockage in the heat exchanger fins, fan, air intake or flue (Diagnostic Point 4)	Check all vent components for proper connections. Check that nothing is blocking the flue inlet or exhaust. Ensure proper venting materials were used. Ensure condensation trap / drain was installed correctly. Ensure heat exchanger fins, fan and air intake are not blocked.

11	Ignition Failure At Start Up - No Ignition	P.G.F.R Valve - Diagnostic point 10. G.I.S Valve - Diagnostic Point 11. Igniter - Diagnostic Point 12. Solenoid Valve 2 - Diagnostic Point 13. Flame Sensors 1 Diagnostic Point 14	Ensure you have gas to appliance. Ensure gas type and pressure are correct. Bleed all air from gas lines. Ensure gas line, meter and regulator are sized properly. Ensure appliance is properly grounded. Check gas solenoid valve for open or short circuits. Ensure igniter is operational. Check igniter wiring harness for damage.

12	Flame Failure During Operation	P.G.F.R Valve - Diagnostic Point 16, G.I.S Valve - Diagnostic Point 16. Solenoid Valves 1,2,3 - Diagnostic Point 16.Flame Sensors 1 & 2 - Diagnostic Point 16	Ensure you have gas to appliance. Ensure gas type and pressure are correct. Bleed all air from gas lines. Ensure flame rod wire is connected. Check flame rod for carbon build-up. Ensure gas line, meter and regulator are sized properly. Ensureappliance is properly grounded. Check gas solenoid for open or short curcuits. Check power supply for loose connections. Check power supply for proper voltage and voltage drops. Disconnect remote control. Disconnect and reconnect all wiring harness on unit and PC Board. Ensure proper venting material was installed. Ensure condensation collar was installed properly. Ensure maximum vertical vent length doen NOT exceed allowable limits. Ensure maximum horizontal vent length does not exceed allowable limits.

14	Over Heating - Overheat Wrap Fault	Over Heat Limiter - Diagnostic Point 2	Ensure high fire and low fire manifold pressure are correct. Check gas type of unit and ensure it matches gas type being used. Check heat exchanger for cracks and/or seperations Ohm out safety circuit. Check for improper conversion of product. Check for restrictions in air flow around unit and vent termination. Check for foreign materials in combustion chamber and/or exhaust venting.
15	Very High Temperature - Boiling Safety Device	Heat Exchanger Thermistor - Diagnostic Point 6. P.G.F.R Valve - Diagnostic Point 10	Check for closed water inlet valve and / or restrcitions in cold water inlet pipe (must be fully opened). Check for clogged heat exchanger (scale build up).
16	Over Temperature Warning		Check for clogged heat exchanger. Check for restrictions in air flow around unit and vent termination. Check for foreign materials in combustion chamber and / or exhaust venting.
21	Malfunction Of Air Intake Filter Switch		Ensure air filter door is properly seated. Ensure front panel is properly installed.
24	Operational Switch Faulty	Max, Min or Adj button on PC board - Remove controller & bath fill switch.	Disconnect remote control and retry. Verify unit is electrically grounded. Ensure Min, Max adjuster buttons have not been inadvertenly depressed. Press max button on PCB to reset. Press min button on PCB to reset. Replace PCB.

29	Heat Exchanger Outlet Temperature Too Low		Clean heat exchanger air inlet, Check air intake filters and heat exchanger fins
31	Inlet Thermistor Open Circuit. Temperature Sensor Fault	Water Inlet Thermistor - Diagnostic Point 5	Check sensor wiring is intact and not damaged. Check and Clean scale from sensor if necessary. Ensure resistance is correct.Damage. Ohm out sensor. Check and clean scale from sensor. Replace sensor.
32	Heat Exchanger Thermistor Open Circuit	Heat Exchanger Thermistor - Diagnostic Point 6	Check sensor wiring is intact and not damaged. Check and Clean scale from sensor if necessary. Ensure resistance is correct.
33	Outlet Thermistor Open Circuit. Outgoing Water Temperature Sensor Fault	Hot Water Thermistor - Diagnostic Point 7	Check sensor wiring is intact and not damaged. Check and Clean scale from sensor if necessary. Ensure resistance is correct. Check sensor wiring. Check and clean scale for sensor. Replace sensor.
34	Ambient Air Thermistor Open Circuit. Combustion Air Temperature Sensor Fault	Ambient Air Thermistor - Diagnostic Point 8	Check sensor wiring for damage. Ohm out sensor. Clean and check sensor. Ensure fan blade is tight on motor shaft and in good condition. Check for restrictions in air flow around unit and vent termination. Replace sensor
35	Thermistor Connections Crossed	Connection Point of Thermistors	Check that all thermistors are connected to proper connections on PCB. Ensure the hot and cold plumbing to the heater is not reversed

51	Gas Cut Off Malfunction (SV0 Failure) Gas Inlet Solenoid Fault	G.I.S Valve - Diagnostic Point 16. Flame sensor 1 & 2 - Diagnostic Point 16	Check gas inlet solenoid valve wiring harness for loose or damaged terminals. Ohm out solenoid valve. Check flame rod.
52	P.G.F.R Control Failure. Modulating Solenoid Valve Fault	P.G.F.R Valve - Diagnostic Point 16. PC Board	Check modulating gas solenoid valve wiring harness for loose or damaged terminals. Ohm out solenoid valve.
61	Abnormal Fan Speed or Fan Failure	Fan Motor - Diagnostic Point 4 PC Board	Ensure fan motor turns freely (Motor will operate with a small amount of restriction). Check wiring harness to motor for loose or damaged terminals. Ohm out motor windings. Ensure the flue length does not exceed max length and number of bends. Check transformer and PCB.
65	Fault / Malfunction Of Water Volume Control Motor	Water Volume Control Motor - Diagnostic Point 15	Check water flow solenoid valve wiring harness for loose or damaged terminals. Check for proper voltage to water flow solenoid
66	Water By-pass Control Fault		Check water By-pass solenoid valve wiring harness for loose or damaged terminals. Check for proper voltage to water by-pass solenoid.
71	G.I.S Valve Control Failure	O.H.L - Diagnostic Point 2 . Heat Exchange Thermistor Diagnostic Point 6. Gas Inlet Solenoid Valve Diagnostic 10. Solenoid Valve 1,2&3 Diagnostic 16. PC Board	Check gas inlet solenoid valve wiring harness for loose or damaged terminals. Ohm out solenoid valve. Replace PCB

72	Detected False Flame	Flame Sensor 1 & 2 - Diagnostic Point 9, PC Board	Ensure flame rod is touching flame when unit fires. Check inside burner chamber for foreign material blocking flame at flame rod. Check all wiring to flame rod for damage. Check flame rod for proper voltage. Remove flame rod and check for carbon buildup and clean with sandpaper or Steel wool. Replace flame rod.
73	Vent Type Control Data Failure	Gas Type Curcuit Board	
74 / 75 / 76	Communication Problem Between Remote Controller And Water Heater	Remote Controller PC Board or Remote Control Cable	Check remote control wiring for loose or damaged connections. Bypass remote control cable by connecting remote directly to remote control terminal on PCB (Replace cable if found to be faulty). Replace remote control. Replace PCB.
79	Fan Motor Current Detection Failure	Fan Motor - Diagnostic Point 4. PC Board	Ensure fan motor turns freely (Motor will operate with a small amount of restriction). Check fan motor for proper voltage. Replace fan motor. Replace PCB.
80	Gas Cut Off Defective (Solenoid Valve 1-3 Failure)	Solenoid Valve 1,2&3 - Diagnostic Point 16. Flame Sensor 1, 2 - Diagnostic Point 16	Ohm out all solenoid valves. Check voltage of all flame rods. Replace gas control valve.
81	No False Flame Detected	Solenoid Valve 1,2&3 - Diagnostic Point 16. Flame Sensor 1, 2 - Diagnostic Point 16. PC Board	Ohm out all solenoid valves. Check voltage of all flame rods. Replace gas control valve.

82	Functional Problem On Gas Type Circuit Board. Gas Type Data Failure	Gas Type Circuit Board	Program PCB for proper gas type. Ensure gas type connector is fitted

90 / 99	Decrease In Fan Motor Ventilation (Operation Stop)	Blockage in the heat Exchanger, Fins, Fan air intake and flue way	Clean any blockage in heat exchanger, combustion fan, inlet filter and exhaust venting.

No Code	Nothing Happens When Water Is Flowing Through Unit		Ensure unit is connected to proper power supply and curcuit breakers are on. Ensure power supply fuses are not blown. Clean water inlet filter. Ensure you have atleast the minimum flow rate required for unit to fire. Check for pipe Blockage inside water flow control impeler (turbine). On new installations, ensure hot and cold water lines are not crossed. Check for bleed over (Close cold water supply valve to water heater. Open hot water taps at fixtures. If water flows steadily from hot water taps, there is bleed over in the system).

Reset Error 99	How To Reset Error - Code 99		Stop operation of the water heater. Turn off all dip switches once. Then turn on and off 2nd dip switch. Press both min and max button for more than 2 seconds within 5 seconds after turning off the 2nd dip switch. Led display shows flashing "UL" and then stays glowing. Open and close hot water tap to complete.

Clear Fault History	How To Clear The Memory Of "Fault History"		Stop operation of the water heater & turn off all the dip switches. Then turn the first dip switch on then off. Within 5 seconds after turning off the dip switch press either max or min button for more than 2 seconds. The led display monitor shows flashing "CL" and then stays glowing -- Memory. Clearance Completed.

Gas Pressure Setting	Test Point Gas Pressure Setting - **LOW PRESSURE**		1) Open the hot water tap to allow minimum operating water pressure. 2) Press adjuster button then *LH* is shown in led. 3) Press min button with the adjuster button pressed, current figure 01 to 39 is shown in led screen. 4) Keep pressing the minimum button with the adjuster button pressed until desired pressure is obtained. The number moves up to 39 then move down to 01. 5) Detach from the min button and then from the adjuster button in this order.

Gas Pressure Setting	Test Point Gas Pressure Setting - **HIGH PRESSURE**		1) Fully open the hot water tap. 2) Press adjuster button then *LH* is shown in led. 3) Press max button with the adjuster button pressed, Current figure 01 to 39 is shown on led. 4) Keep pressing the max button with the adjuster button pressed until desired, Pressure is obtained, The number moves up to 39 then moves down to 01. 5) Detach from the max button and then from the adjuster button in this order.

Adjust Preset Outlet Temperature	To Check Or Adjust The Preset Outlet Temperature Setting	Dip Switch 1 - 4. Minimum & Maximum Button on PCB / I.C.B	1) Switch off the electrical supply at the power outlet to the water heater. 2) Remove the screws holding the front panel to the jacket. 3) Gently disengage the front panel and pull forward to remove from the water heater. 4) Switch on the electrical supply at the power outlet to the water heater. 5) Switch Dip Switches 3 & 4 to the on (up) position on the I.C.Board. The red LED will commence a series of flashes, with three (3) seconds between each series. If the red LED is flashing the correct number of flashes for the desired preset temperature, then proceed to step 7, as no further adjustment is necessary. 6) Press the MAX button to increase or the MIN button to decrease the preset outlet temperature setting. Each press of the MAX or MIN button will increase or decrease the preset temperature by one increment. The MAX and MIN buttons are located above the DIP