

# ML400

## OPERATING INSTRUCTIONS

### GL Series Control

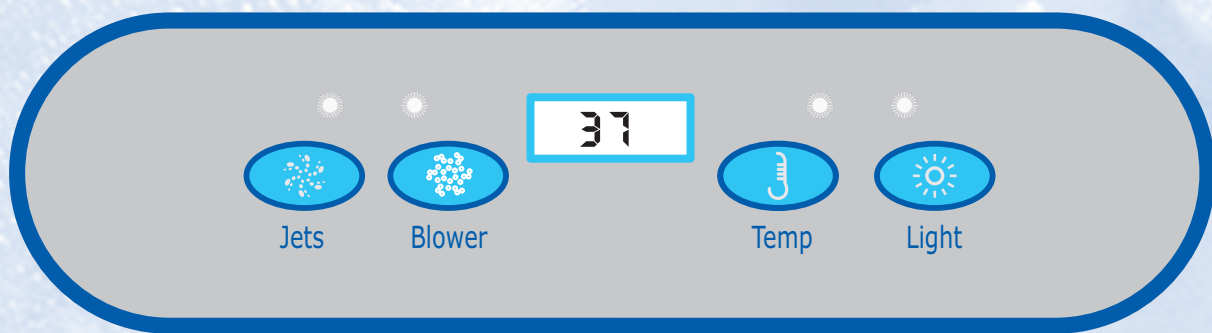
(Circulation & Boost Pump)

#### INITIAL START-UP




When your Spa is first powered up, it will go into Priming Mode, indicated by 'Pr' on the LCD readout. The Priming Mode will last for up to 4 minutes (approx.) and then the Spa will begin to heat in Standard Mode.


#### DEFAULT PRE-SET

The default pre-set temp is 37.5°C. The last measured temperature is constantly displayed on the LCD readout, this temperature will be current only when the pump has been running for at least 2 minutes.







#### Temperature Adjustment

Press the  button once to display the set temperature. To change the set temperature, press the  pad a second time before the LCD stops flashing. Each press of the  button will continue to either raise or lower the set temperature.

If the opposite direction is desired, release the pad and let the display revert to the current water temperature. Press the  pad to display the set temperature, and again to make the temperature change in the desired direction.




After 3 seconds the LCD will automatically display the last measured Spa temperature.

#### SETTING STANDARD/ECONOMY & SLEEP MODE

A button combination is used to switch between Standard, Economy and Sleep Modes. Press  followed by  to enter mode programming, press  to cycle through desired mode (LCD flashes until confirmed), then press  to confirm selection.



**Standard** Mode maintains the desired temperature. Note that the last measured Spa temperature displayed is current only when the pump has been running for at least 2 minutes. 'Std' will appear on the display momentarily when you switch into Standard Mode.

**Economy** Mode heats the Spa to the set temperature only during filter cycles. 'Ecn' will appear solid when the temperature is not current, and will alternate with the temperature when the temperature is current.


Pressing  while in Economy Mode puts the Spa in Standard-In-Economy Mode (SE) which operates the same as Standard Mode, then reverts to Economy Mode automatically after 1 hour. During this time, pressing  followed by  will revert the mode to Economy immediately.

**Sleep** Mode heats the Spa to within 11°C of the set temperature, only during filter cycles. 'SLP' will appear on the display until mode is changed


#### SETTING STANDBY MODE

Pressing  followed by  will turn off all Spa functions temporarily. This is helpful when changing a filter. Pressing any button exits Standby Mode.


#### Jets 1

Press  once to turn boost Pump 1 on or off. If left on Pump 1 will shut off automatically after 30 minutes.

#### Blower

Press  once to turn Blower on or off. If left on Blower will shut off automatically after 30 minutes.

#### Light

Press  button to turn the Spa Light on/off. If the Light is left on it will automatically turn off after 4 hours.











## Circulation Pump

The Circulation Pump operates continuously (24 hours) with the exception of turning off for 30 minutes at a time when the water temperature reaches 1.5°C above the set temperature (most likely to happen in very hot climates). Filter cycles are only to conduct heating for 'SLP' and 'Ecn' mode when using a circulation pump.

## Freeze Protection

If the temperature sensors detect a drop to 6.7°C within the heater, then the pump automatically activates to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 7.2°C or higher. In colder climates, an optional additional freeze sensor may be added to protect against freeze conditions. See your Dealer for details.

## Preset Filter Cycles

The first filter cycle (day) begins 6 minutes (approx.) after the Spa is powered up. The second filter cycle (night) begins 12 hours later. Filter duration is programmable for 1-12 hours (F1-F12). The default filter time is 2 hours. To program, press  then . Press  to select the filter duration. Press  to select the number of filter cycles. The display will show  (both day and night cycles);  (day cycle only); or  (night cycle only). Press  to adjust, then press  to exit the programming mode. For continuous filtration, use F12 and .

## Ozone (optional)

The Ozone Generator (if installed) runs during filter cycles except when boost pump is running.

## Diagnostic Messages

Message	Meaning	Action Required
	No message on display. Power has been cut off to the Spa.	The Topside Panel will be disabled until power returns. Time of day will be preserved for 30 days with a battery backup.
<b>OHM</b>	'Overheat' - The Spa has shut down. One of the sensors has detected (approximately 47.8°C) at the Heater.	DO NOT ENTER THE WATER. Remove the Spa Cover and allow water to cool. Once the Heater has cooled, reset by pushing any button. If Spa does not reset, shut off the power to the Spa and call your Dealer or Service Organization.
<b>OHS</b>	'Overheat' - The Spa has shut down. One of the sensors has detected that the Spa water is (approximately 43.3°C).	DO NOT ENTER THE WATER. Remove the Spa cover and allow water to cool. At 43°C, the Spa should automatically reset. If Spa does not reset, shut off power to the Spa and call your Dealer or Service Organization.
<b>ICE</b>	'Ice' - Potential freeze condition detected.	No action required. The Pump and Blower will automatically activate regardless of Spa status.
<b>SAA</b>	Spa is shut down. The sensor that is plugged into the Sensor 'A' jack is not working.	If the problem persists, contact your Dealer or Service Organization (May appear temporarily in an overheat situation and disappear when the heater cools).
<b>SAB</b>	Spa is shut down. The sensor that is plugged into the Sensor 'B' jack is not working.	If the problem persists, contact your Dealer or Service Organization. (May appear temporarily in an overheat situation and disappear when the Heater cools).
<b>SAS</b>	Sensors are out of balance. If this is alternating with the temperature, it may just be a temporary condition. If the display shows only this message (periodically blinking), the Spa is shut down.	If the problem persists, contact your Dealer or Service Organization.
<b>HFL</b>	A substantial difference between the temperature sensors was detected. This could indicate a flow problem.	Check water level in Spa. Refill if necessary. If the water level is correct, make sure the pumps have been primed. If problem persists, contact your Dealer or Service Organization.
<b>LF</b>	Persistent low flow problems. (Displays on the fifth occurrence of the 'HFL' message within 24 hours.) Heater is shut down, but other Spa functions continue to run normally.	Follow action required for 'HFL' message. Heating capacity of the Spa will not reset automatically; you may press any button to reset. Remove filters if clears, dirty filters. Potential airlock, pumps may need to be purged.
<b>DR</b>	Inadequate water detected in Heater.	Check water level in Spa. Refill if necessary. If the water level is correct, make sure the pumps have been primed. Press any button to reset.
<b>DR4</b>	Inadequate water detected in Heater (Displays on third occurrence of 'DR' message.) Spa is shut down.	Follow action required for 'DR' message. Spa will automatically reset; you may press any button to reset. Potential airlock, pumps may need to be purged.
<b>Pr</b>	When the Spa is first activated it will go into Priming Mode.	Priming Mode will last for up to 4 minutes (approx.) and then the Spa will begin to heat and maintain the water temperature in the Standard Mode.

### Warning! Shock Hazard! No user Serviceable Parts.

Do not attempt service of this control system. Contact your Dealer or Service Organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licenced electrician and all grounding connections must be properly installed.