

hurlcon heating

HB Series Hot Water Boilers

INSTALLATION AND OPERATING INSTRUCTIONS



Melbourne: 03 9554 2275
Sydney: 02 9853 2100
Brisbane: 07 3308 5400

Gold Coast: 07 5552 2600
Townsville: 07 4750 3100
Adelaide: 08 8152 7600

Perth: 08 9350 2600
sales@hurlconheating.com.au
www.hurlconheating.com.au

INDEX

1.0	INTRODUCTION	3
1.1	NOTICE TO INSTALLERS	3
2.0	HB MODELS AVAILABLE	4
2.1	STANDARD EQUIPMENT – HB MODELS	4
3.0	INSTALLATION	5
3.1	SAFETY RULES	5
3.2	BOILER DIMENSIONS	6
3.3	INDOOR INSTALLATION.....	6
3.4	VENTILATION – AIR SUPPLY TO THE BOILER.....	7
3.5	CLEARANCES	8
3.6	ELECTRICAL CONNECTION.....	8
3.7	GAS CONNECTION.....	9
3.8	PUMP SELECTION:.....	9
4.0	COMMISSIONING	10
4.1	STARTING BOILER	10
4.2	TESTING BURNER PRESSURE	10
4.3	FLOW SWITCH.....	10
4.4	GENUS IV 3 BUTTON CONTROLLER	10
	11
4.5	55 – 90 DEGREE SETTING	11
5.0	OPERATING INSTRUCTIONS	12
5.1	ENERGY SAVING TIPS	12
5.2	MAINTENANCE	12
5.3	CONTROL SYSTEMS	13
	14
	15
6.0	GAS CONVERSION	15
6.1	BURNER CONVERSION	15
6.2	GAS – COMPONENT INFORMATION	16
6.3	GAS PIPE SIZING TABLES.....	16
7.0	TROUBLESHOOTING	17
8.0	HB SERIES WIRING DIAGRAM	18
8.1	MODEL 100 – 400 WITH RUN ON TIMER.....	18
8.2	MODEL 500 WITH RUN ON TIMER.....	18
9.0	ONE YEAR LIMITED WARRANTY	19

1.0 INTRODUCTION

Congratulations on your purchase of a Hurlcon HB Series Hot Water Boiler. Correct installation and service of your new heating system and correct chemical maintenance of the water will ensure years of service. The HB Series Boiler is a compact lightweight and efficient gas fired hot water boiler. It is equipped with features that take advantage of new technology developed exclusively by Hurlcon.

The Hurlcon Boiler is a floor mounted atmospheric boiler with a built in balanced flue for outdoor installation. The power output is controlled by an integrated electronic controller to maintain the set point water temperature over a wide load range. In addition, the Hurlcon is equipped with electronic ignition at start up. The electronic display tells at a glance the operational status of the boiler.

Note:

The appliance is not intended for use by young children or infirm person without supervision. Please ensure that young children are supervised to ensure that they do not play with the appliance.

1.1 NOTICE TO INSTALLERS

This is a Floor Mounted - External – Hot Water Boiler
For use with Natural Gas or LP Gas as per the attached data label.
Australian Gas Association Tested AGA Approval No. 6423

The information below is given to assist the installer with the installation of this range of HB 100 - 500 Boilers. Please read it carefully in order to make the installation as easy as possible and to ensure the system works well and conforms to the necessary government regulations.

PLEASE READ THESE INSTRUCTIONS BEFORE STARTING THE INSTALLATION.

It is important that this boiler is installed and serviced as detailed in these instructions by an AUTHORISED person.

This boiler is to be installed and serviced to the requirements of the
Local Building, Gas, Water and Electricity Authorities.

These instructions are to be held by the owner / user after installation.

This boiler must not be used for as SPA or POOL heater

This appliance must be installed in accordance with the installation instructions, local gas fitting regulations, the AGA Installation Code AG 601 and any other relevant statutory authorities.

Refer to data plate for details of gas type, gas consumption and burner pressure.

2.0 HB MODELS AVAILABLE

Model	150	250	300	400
Input MJ (NG)	144	240	288	350
Output kW	32	55	66	80

2.1 STANDARD EQUIPMENT – HB MODELS

Electronic control including.

- Displays set and flow temperature. (return temperature optional)
- Electronic ignition

Safety devices

- Built in flow switch
- Built in run on timer
- Manual reset high limit
- Flame roll out protection
- Reliable in high wind areas

Built to last

- All copper double row heat exchanger
- Bronze headers with brass sensor pockets
- Powder coated steel cabinet
- Powder coated flue terminal

Efficiency

- Hot surface intermittent pilot
- Highly efficient stainless steel burners
- Double row - counter flow heat exchanger

Ease of installation

- Fully plumbed ready to go
- All electrical pre wired including three pin power supply.
- Flow switch and run-on timer installed
- Weather proof balanced flue external installation
- Terminal box for pump and control thermostat.

3.0 INSTALLATION

THIS APPLIANCE MUST BE INSTALLED BY AN AUTHORISED PERSON.

Refer to boiler data plate for specifications of gas type, gas consumption, burner pressure and water pressure.

This appliance must be installed in accordance with local regulations and A.G.A. Installation Code AG 601.

The boiler should always be installed after the pump. The water connections are located on the left hand side of the boiler. Right hand connection models are available by special order. The inlet and outlet are clearly marked. Water connections are 1 ½" BSP FI.

The Hurlcon Boiler is fitted with a built in flow switch and will not start unless full of water and the pump(s) operating.

The Hurlcon Boiler incorporates a balanced flue terminal and is suitable for outdoor installation. An internal model is available on request.

WARNING: An approved pressure relief valve must be fitted to this boiler before operation.

3.1 SAFETY RULES

For your safety – read before lighting

This appliance is equipped with an ignition device, which automatically lights the pilot. Do not try to light the pilot by hand.

BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

Safety

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any gas appliance.
- Do not touch any electrical switch.
- Turn off the gas supply at the gas meter.
- Immediately call your gas supplier or licensed gas fitter.

NOTE. Some gases are heavier than air and it may be necessary to smell for leaks at floor level.

House keeping

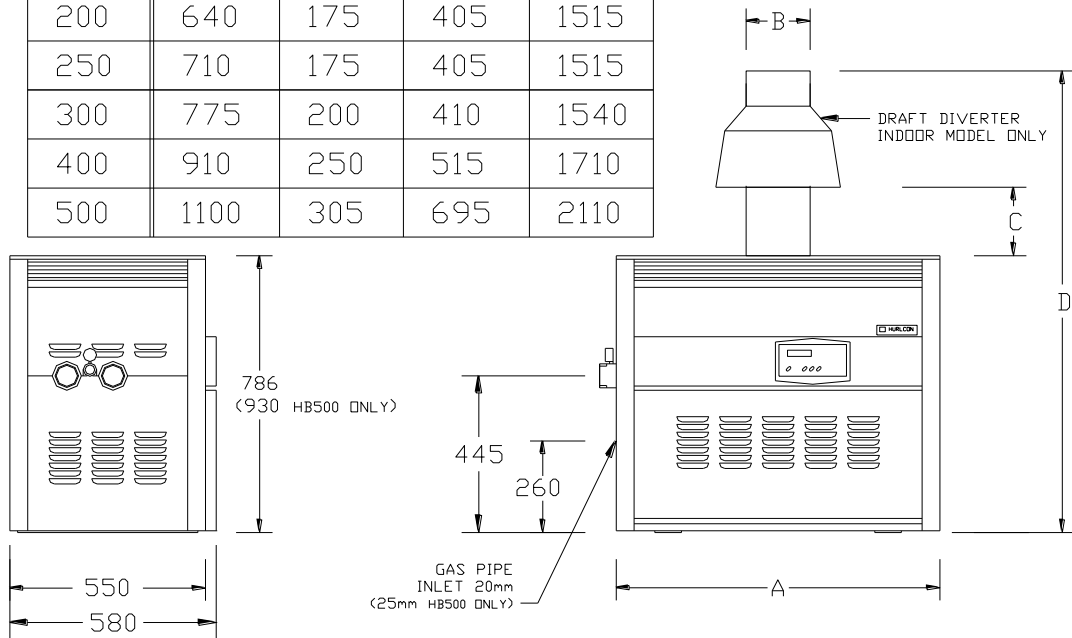
- Do not store or use flammable liquids or chemicals near this appliance.
- Do not use aerosols in the vicinity of this gas appliance.
- Keep this appliance free of debris.

WARNING:

Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance. Do not use this boiler if any part has been under water.

3.2 BOILER DIMENSIONS

MODEL	DIM "A"	DIM "B"	DIM "C"	DIM "D"
100	370	125	405	1515
150	460	150	405	1515
200	640	175	405	1515
250	710	175	405	1515
300	775	200	410	1540
400	910	250	515	1710
500	1100	305	695	2110



3.3 INDOOR INSTALLATION

If the HB Boiler is to be installed indoors, an indoor draught hood kit must be purchased from Hurlcon and installed on the HB Boiler to convert it to an indoor model.

Product code numbers for draught hoods are:

Boiler model	Indoor top model	Flue size	Part number
HB 100	DH 10	150 mm	10982
HB 150	DH 15	150mm	10983
HB 200	DH 20	175 mm	10966
HB 250	DH 25	175 mm	10964
HB 300	DH 30	200 mm	10967
HB 400	DH 40	250 mm	10965
HB 500	DH 50	300 mm	10968

A flue no smaller than the draught diverter diameter must be installed and terminated with an approved gas flue cowl (not a Chinaman's hat) 600mm above any roofline that is within 1.5 metres horizontally from the flue.

3.4 VENTILATION – AIR SUPPLY TO THE BOILER

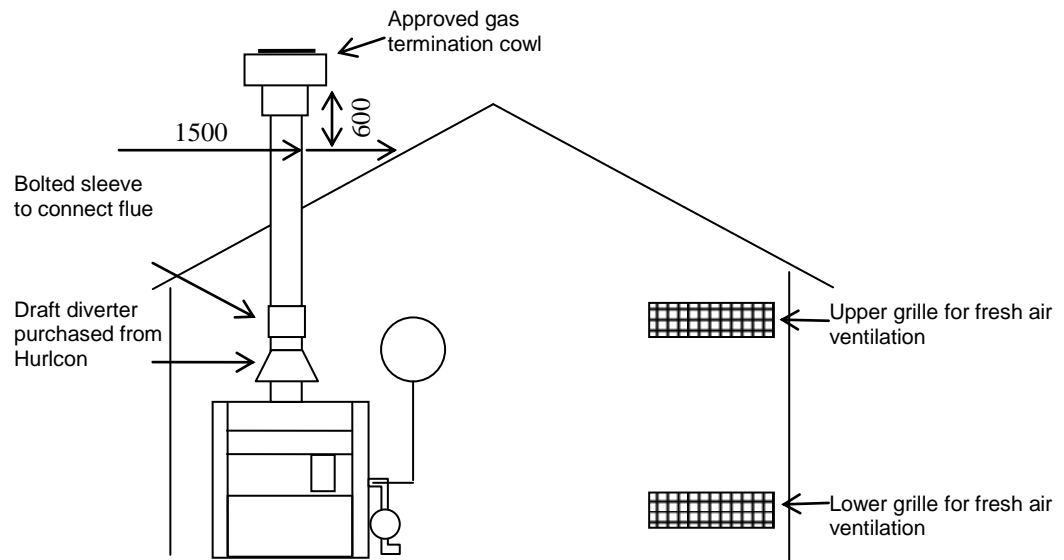
When installing the boiler indoors, it is imperative that an adequate supply of fresh air is provided for combustion. Failure to provide adequate ventilation voids all warranties and may be a danger to persons or property. Please refer to AGA 601 for full details.

Two permanent openings shall be provided directly to outside. The openings shall be located to ensure the distance between the top of the upper opening and the ceiling of the room or enclosure, and the distance between the bottom of the lower opening and the floor of the room or enclosure does not exceed 5% of the height of the room or enclosure.

The minimum vertical dimension of any free ventilation opening shall be 6 mm.
The minimum free ventilation area provided by each opening shall be:

MODELS HB	100	150	200	250	300	400	500
AREA mm ²	35,000	50,000	65,000	80,000	100,000	130,000	160,000

The following diagram is provided as a guide only. All flueing and installation work must be carried out by an authorized person. Flueing must conform to local regulations and to A.G.A. installation code AG 601. Care must be taken to provide the correct ventilation and correct flueing materials in close proximity to combustible surfaces.



A Hurlcon indoor draught diverter must be fitted to unit in accordance with Hurlcon’s Instructions and Installation Codes before the boiler can be enclosed.

Do not install spa blowers in the same room as a gas boiler. This is potentially dangerous to spa users.

Do not store chemicals or fuel in the same room as the gas boiler. This may cause fire or explosion. When installing in a garage the HB Boiler must be installed 450 mm above floor level.

3.5 CLEARANCES

The boiler must be installed at least 500 mm from any combustible surface. Clearances must comply with AG 601.

Clearances from non combustible surfaces are:

Front	500mm
Both sides	500mm
Rear	500mm
Above	1500mm
Combustible Surfaces	500mm Minimum

Recommended service clearances 500mm on both sides and 1000 in front for component removal, connections and servicing.

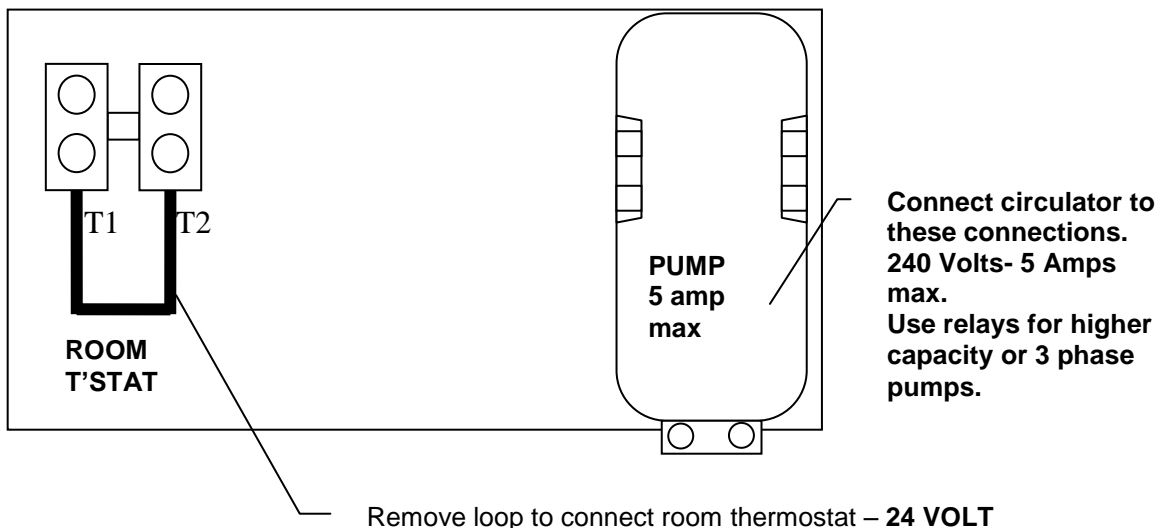
Boiler must be installed on a fireproof base.

3.6 ELECTRICAL CONNECTION

The boiler is supplied with a standard fused 10 amp 3 pin plug for connection to a 240V 10 amp GPO. The boiler incorporates a 240/24 VAC transformer which supplies power to the control circuit only and must not be used for any additional equipment. All equipment connected to mains power should be protected by an RCD circuit breaker. The boiler has a 240 volt power supply for the pump electrical connection which incorporates the pump run on timer. A terminal strip is provided for a 24 volt room thermostat.

If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

Electrical connections



3.7 GAS CONNECTION

The gas connection is on the left side of the boiler. A 20 mm (25mm for HB 500) flare nipple is provided for gas line connection. An approved manual shut off valve must be installed in the gas fitting line before the boiler so that the gas can be turned off and the boiler removed for servicing if required. The gas valves should be sized the same as the gas fitting line to prevent excessive pressure drop in the gas pipe.

The gas fitting line should be installed by an authorised person and comply with local regulations and A.G.A. code AG 601. The gas line from the meter will usually be of a larger size than the gas inlet connection. Therefore a reduction to the boiler connection fitting will be necessary. The reduction should be as close to the boiler as possible.

Before using the boiler, test all connections for gas leaks using soapy water.

The boiler gas valve has a built in pressure regulator. A 1/8" pressure test point is provided on the burner manifold. On starting the boiler, a manometer must be used and burner pressure checked against the boiler data plate. The gas valve regulator may need adjustment to correct manifold pressure. Incorrect burner pressure may void warranty.

3.8 PUMP SELECTION:

If a pump has not been supplied by your Dealer as part of this Boiler package, it will be necessary to size the Pump in accordance with the following flow rate and pressure drop chart.

FLOW RATES & PRESSURE DROPS					
Boiler Model		150	250	300	400
10 Deg C Rise	Litres per sec	0.80	1.33	1.59	2.13
	Pressure drop kPa	0.76	1.90	2.50	5.10
15 Deg C Rise	Litres per sec	0.53	0.89	1.06	1.42
	Pressure drop kPa	0.26	1.60	2.0	4.2
20 Deg C Rise	Litres per sec	0.40	0.66	0.80	1.06
	Pressure drop kPa	0.22	0.44	0.69	1.47

4.0 COMMISSIONING

4.1 STARTING BOILER

- Purge gas line of any air and wait five minutes for gas to clear.
- Plug three pin plug into a suitable power point and switch on. The digital controller should now operate and indicate water temperature
- Pump should start, the flow symbol should be displayed.
- Turn controller switch ON.
- After a few seconds, the burner should ignite.
- If the burner fails to light, check flow indicator is on. Turn controller switch OFF for 5 seconds then ON to reset ignition system. If an 'F5' fault is present see section 4.4 for help.

4.2 TESTING BURNER PRESSURE

- Set up manometer
- Turn boiler "OFF".
- Remove screw from 1/8" brass test point located on outlet side of gas valve/burner manifold
- Connect manometer tube to test point
- Turn boiler "ON" and wait for main burner to ignite.
- Once main burner has ignited, the manometer must indicate the nominal burner pressure listed below.
- To adjust gas valve regulator, remove regulator adjustment cap and, using a screwdriver, turn plastic bush clockwise to increase, anti-clockwise to decrease burner pressure.

Maximum inlet gas pressure is:

Natural Gas 3.5 kPa Propane Gas 3.5 kPa ULPG 3.5 kPa

Nominal burner pressure is:

	HB 100	HB 150	HB 200	HB 250	HB 300	HB 400	HB 500
Natural Gas kPa	0.82	0.82	0.82	0.82	0.82	0.75	0.78
Propane Gas kPa	2.50	2.50	2.50	2.50	2.50	2.50	2.50
ULPG kPa	2.00	2.00	2.00	2.00	2.00	2.00	2.00

4.3 FLOW SWITCH

- The Hurlcon Boiler has an inbuilt flow switch which allows the burner to operate only when the system is full of water and the circulating pump is operating. NOTE: The installed flow switch has no user adjustments.
- Air in the system may stop the boiler from lighting.

4.4 GENUS IV 3 BUTTON CONTROLLER

- **90° or 55° operation.** H series boilers are set factory default 90°. For floor heat applications the boiler can be selected for 55° max setpoint by a jumper on the PCB. (See page 18).
- **Hurlcon Genus IV room thermostat.** If a Hurlcon Genus IV room thermostat is fitted the Genus boiler control will 'learn' automatically when powered up after approx 1 minute. If the thermostat is disconnected or loses communication F5 fault will be displayed and the boiler will shut down after 3 minutes. To change thermostat type see table below.
- **Switching differential.** The temperature switching differential can be adjusted to stop short cycling. See table below for appropriate codes. (Default 5°.)
- **°F or °C.** The display can be toggled between Celsius and Fahrenheit. See table below for codes. (Default °C.)

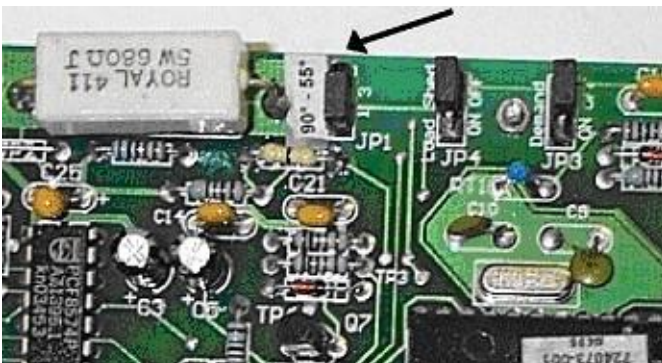
With the unit switched off, press and hold the on/off button then press the following.

	Button presses			
	1	2	3	4
Degrees C	U	D	D	D
Degrees F	U	D	D	U
Genus IV thermostat	U	D	U	D
Standard thermostat	U	D	U	U
5 ° differential	D	D	D	U
10 ° differential	D	D	U	D
15 ° differential	D	D	U	U
20 ° differential	D	U	D	D

U = warm button D = cool button

4.5 55 – 90 DEGREE SETTING

By changing the jumper position the boiler maximum setpoint can be altered from 90° to 55°. This should be done prior to start up, however if this is done after power has been applied to the boiler un- plugging and reconnecting power will ensure the correct setting.



5.0 OPERATING INSTRUCTIONS

- STOP! Read the safety rules above.
- Turn off electric power to appliance.
- This appliance is equipped with an ignition device, which automatically lights the pilot. Do not try to light the pilot by hand.
- Wait five minutes to clear out any gas. If you then smell gas, STOP! Refer to instructions above.
- Turn on power to appliance.
- Set thermostat to desired setting and press ON/OFF switch to ON. The boiler will ignite in around 10 seconds
- If the appliance will not operate, press ON/OFF switch to OFF then ON again. If the appliance still does not ignite, call your service technician.

TO TURN GAS OFF TO APPLIANCE

- Turn off all electrical power to the appliance.
- Turn off gas tap in gas line prior to boiler.

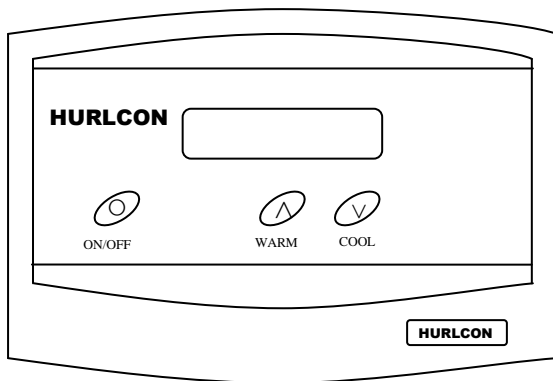
5.1 ENERGY SAVING TIPS

- During extended periods of non use, turn the boiler off.
- Set up a regular program of preventative maintenance for the boiler. Check heat exchanger, controls, burner operation etc.
- For areas where there is a danger of freezing, water should circulate through your boiler even if the heating is off

5.2 MAINTENANCE

- It is recommended that the following items are professionally checked at least every six months and at the beginning of every heating season.
- Examine the balanced flue or indoor draught diverter. Make sure there are no obstructions to the flow of air to, or flue products from, the appliance.
- Visually check the main burner and pilot flames. If the flame appears yellow, the burner should be cleaned by a qualified service technician.
- Keep the boiler area clear and free of combustibles and flammable liquids. Chlorine should not be stored in the vicinity of the boiler. Chlorine vapours, when drawn through a boiler, can rapidly cause corrosion of the heat exchanger.
- Keep the boiler area free from garden refuse and debris. This will help prevent insects nesting in the unit and ensure extended life and reliability of your boiler.

5.3 CONTROL SYSTEMS



5.3.1 DESCRIPTION




The sophisticated digital thermostat provides temperature read out, set point temperature and operating status of the boiler. The electronic display indicates the operational status of the boiler and any fault conditions.

5.3.2 TEMPERATURE DISPLAY

- The temperature display indicates water temperature in the inlet of the boiler. Therefore the pump must be operating for an accurate water temperature to be displayed. Temperature sensing can be changed to leaving water by moving the sensor to the vacant pocket in the flow side of the header.
- Water temperature can be set between 40° C and 90° C. To select your desired water temperature press the up or down button repeatedly until the desired temperature is reached.
- To prevent rapid cycling of the boiler, the thermostat has an inbuilt time delay which prevents the boiler from turning on for two minutes after the set point has been reached. If the time delay is activated, the symbol "L" will be displayed. This is part of normal operation.
- The thermostat can be set to temperatures between 40° C and 90° C. It also incorporates several safety features including a 100° C high limit function to prevent overheating. On simultaneous shut down of the circulating pump and boiler, the water within the boiler may exceed the set temperature for a short period. If the pump and boiler are restarted during this period, the thermostat will go into a standby mode and prevent the boiler from relighting until the temperature within the boiler has dropped below the set temperature.
- Should the thermostat fail to stop the boiler at the set point or at 100° C, there is a manual reset temperature limiting safety device designed to lock the boiler out and prevent further heating. Plus a lock out condition is indicated by the symbols F1 or F2. To reset a lock out condition, turn the power off for five seconds. An F2 condition will first require the mechanical safety device to be reset. To do this, remove the front access panel and press the red button. If the boiler has cooled sufficiently, a positive "click" should be heard and felt.

5.3.3 FAULT INDICATION

Under fault conditions the thermostat display will indicate a set of alpha numeric symbols to indicate the status of the boiler. The meaning of each symbol and action to be taken are listed as follows:

SYMBOL	MEANING	ACTION
Temp Display	Unit has power.	No action
F0	Boiler locked off, thermistor wire is disconnected or water at 0°C (freeze conditions).	If water temperature reads greater than 0°C, turn off/on if problem persists phone for service.
F1	Thermostat reads greater than 100°C or thermistor short circuited.	Allow water to cool, turn boiler off then on again.
F2	Mechanical Hi Limit greater than 100°C.	Allow water to cool, reset Hi Limit, turn boiler off then on again.
F4	Flame roll out detected	Turn power off to the boiler and then back on. If fault reoccurs phone for service.
F5	Thermostat communication fault	Check connections. Check thermostat 'type' setting is correct.
L	Boiler locked out on time delay	No action. Boiler will delay for 2 minutes Automatically reset after time delay. Or switch off then on again for immediate ignition.
	Pump operating & sufficient water flow to operate boiler	No action.
	Thermostat calling for heat operating.	No action, boiler electronic ignition should ignite in a few seconds.
	Burner system has ignited and is operating.	No action.
SYMBOL	MEANING	ACTION

5.3.4 OPERATION

Sequence of events once the boiler has been correctly installed with the room thermostat and burner turned off.

Event	Result
Turn on electrical power to the boiler	Controller powers up and completes test procedure. Pump starts up. Flow indicator on
Turn controller on. Turn on room thermostat	Ignition sequence begins; checks water flow, high limit and flow temperature against set temperature. Burner lights. Burner indicator on.
Water flow reaches set temperature.	Burner turns off.
Water flow temperature falls 5°C below set temperature.	Burner relights. Burner indicator on
Water flow temperature reaches 100°C	High limit switch opens, burner shuts down. Pump continues to run.
Controller turned off	Burner shuts down, pump continues to run for preset time.
Room thermostat switches off	Burner shuts down, pump continues to run for preset time.
Room thermostat switches on	Pump restarts, burner ignites.
Water flow stopped by external control	Flow switch de-activates, burner turns off and pump continues to run. Flow indicator off
Water flow is reinstated	Flow switch reactivates, burner re ignites. Flow indicator on

6.0 GAS CONVERSION

6.1 BURNER CONVERSION

- Turn off gas supply to unit.
- Turn off power supply to pump and boiler.
- Remove front access door
- Disconnect gas supply from gas valve.
- Remove the two Phillips head screws from the angle brackets at the end of the manifold tube securing burner assembly to combustion chamber.
- Disconnect wiring from gas valve and slide complete burner tray out through the access opening.
- Remove the four s/s bolts securing the injector manifold to the burner tray.
- Remove burner injectors and replace with desired gas type injectors.
- Remove pilot burner and change pilot injector to desired gas type.
- Remove regulator screw cap from top of gas valve
- Turn plastic plug anti-clockwise until fully removed and withdraw spring.
- Insert spring for desired gas type and re-install plastic plug.
- Re-install burner assembly and reconnect gas supply.
- Check gas system for leaks.
- Commence lighting procedure as described above.
- Adjust burner pressure as described above.

6.2 GAS – COMPONENT INFORMATION

Model	Natural Gas			Propane Gas			ULPG Gas		
	Injector size	Pilot Size	Burner pressure	Injector size	Pilot size	Burner pressure	Injector size	Pilot size	Burner pressure
HB 100	3.30 mm	N18 silver	0.82 kPa	1.9 mm	N10 black	2.50 kPa	1.9 mm	N10 black	2.00 kPa
HB 150	3.30 mm	N18 silver	0.82 kPa	1.9 mm	N10 black	2.50 kPa	1.9 mm	N10 black	2.00 kPa
HB 200	3.30 mm	N18 silver	0.82 kPa	1.9 mm	N10 black	2.50 kPa	1.9 mm	N10 black	2.00 kPa
HB 250	3.30 mm	N18 silver	0.82 kPa	1.9 mm	N10 black	2.50 kPa	1.9 mm	N10 black	2.00 kPa
HB 300	3.30 mm	N18 silver	0.82 kPa	1.9 mm	N10 black	2.50 kPa	1.9 mm	N10 black	2.00 kPa
HB 400	3.30 mm	N18 silver	0.75 kPa	1.9 mm	N10 black	2.50 kPa	1.9 mm	N10 black	2.00 kPa
HB 500	3.30 mm	N18 silver	0.78 kPa	1.9 mm	N10 black	2.50 kPa	1.9 mm	N10 black	2.00 kPa

6.3 GAS PIPE SIZING TABLES

Natural gas at 1.13 kPa gas meter pressure					
VICTORIA					
Maximum run of copper pipe with average number of fittings					
Model	20 mm	25 mm	32 mm	40 mm	50 mm
HB 100	4 m	25 m	90 m	260 m	320 m
HB 150	2 m	14 m	50 m	140 m	320m
HB 200	2 m	8 m	30 m	75 m	320 m
HB 250	-	6 m	18 m	45 m	220 m
HB 300	-	4 m	14 m	35 m	140 m
HB 400	-	3 m	8 m	20 m	90 m
HB 500	-	1	6 m	14 m	60 m

1.25 kPa gas meter pressure					
S.A., W.A., some areas N.S.W.					
Maximum run of copper pipe with average number of fittings					
Model	20 mm	25 mm	32 mm	40 mm	50 mm
HB 100	18 m	85 m	300 m	320 m	-
HB 150	10 m	45 m	160 m	320 m	-
HB 200	6 m	25 m	90 m	240 m	320 m
HB 250	4 m	18 m	60 m	160 m	320 m
HB 300	3 m	14 m	45 m	110 m	320 m
HB 400	2 m	8 m	25 m	70 m	300 m
HB 500	-	6 m	18 m	45 m	200 m

2.75 kPa gas meter pressure				
N.S.W. some areas, some new areas of Victoria.				
Maximum run of copper pipe with average number of fittings				
Model	15 mm	20 mm	25 mm	32 mm
HB 100	12 m	100 m	320 +m	-
HB 150	8 m	65 m	260 m	320 +m
HB 200	4 m	40 m	160 m	320 +m
HB 250	3 m	25 m	100 m	320 +m
HB 300	2 m	20 m	85 m	280 m
HB 400		12 m	50 m	160 m
HB 500		8 m	35 m	100 m

7.0 TROUBLESHOOTING

BOILER WILL NOT LIGHT	
Possible cause	Remedy
Automatic ignition system fails	Check water flow light indicator.
Pump not running	Check pump and flow switch
Pump air locked	Air bleed system & pump bearing
Flow switch open	By pass to test -
Defective gas control	Shut off gas supply and call for service
Thermostat turned off	Turn on
Set temperature lower than water temperature	Increase set temperature
Water too hot-fault condition displayed	Refer to fault indication table
High Limit Thermostat open	Reset
Insufficient water flow	Check for too many valves turned off
BOILER MAKING KNOCKING NOISES	
Possible cause	Remedy
Boiler operating after pump has shut off	Shut off gas supply and call for service
Heat exchanger scaled	Shut off gas supply and call for service

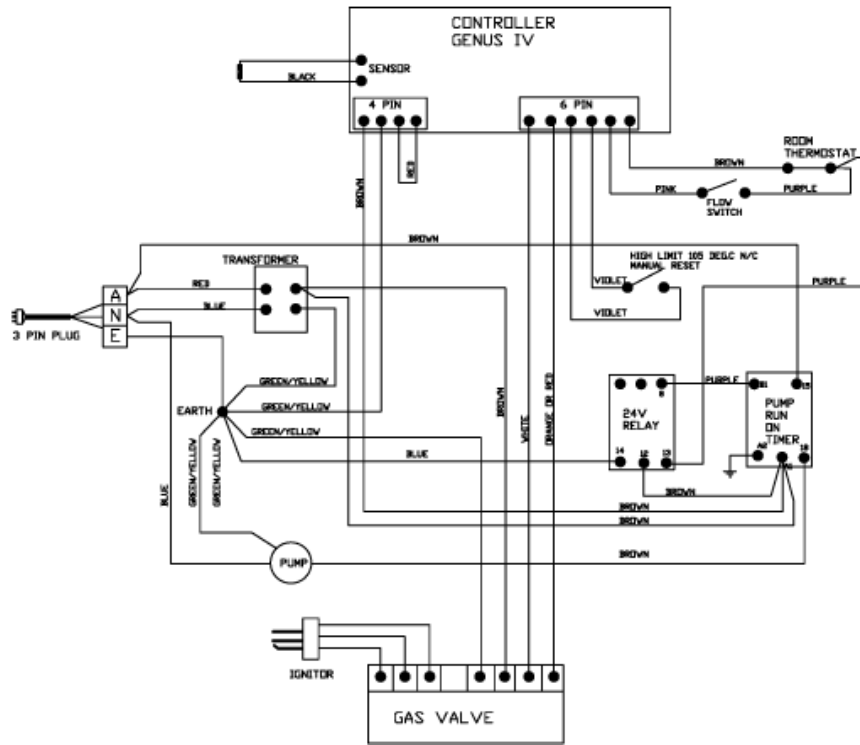
If the boiler cannot be made to perform correctly, please contact the Hurlcon Service Office closest to you.

For	VICTORIA:	Phone (03) 8796 8600
	NEW SOUTH WALES:	Phone (02) 9853 2100
	QUEENSLAND:	Phone (07) 3308 5400
	SOUTH AUSTRALIA	Phone (08) 8152 7600
	WEST AUSTRALIA	Phone (08) 9350 2600

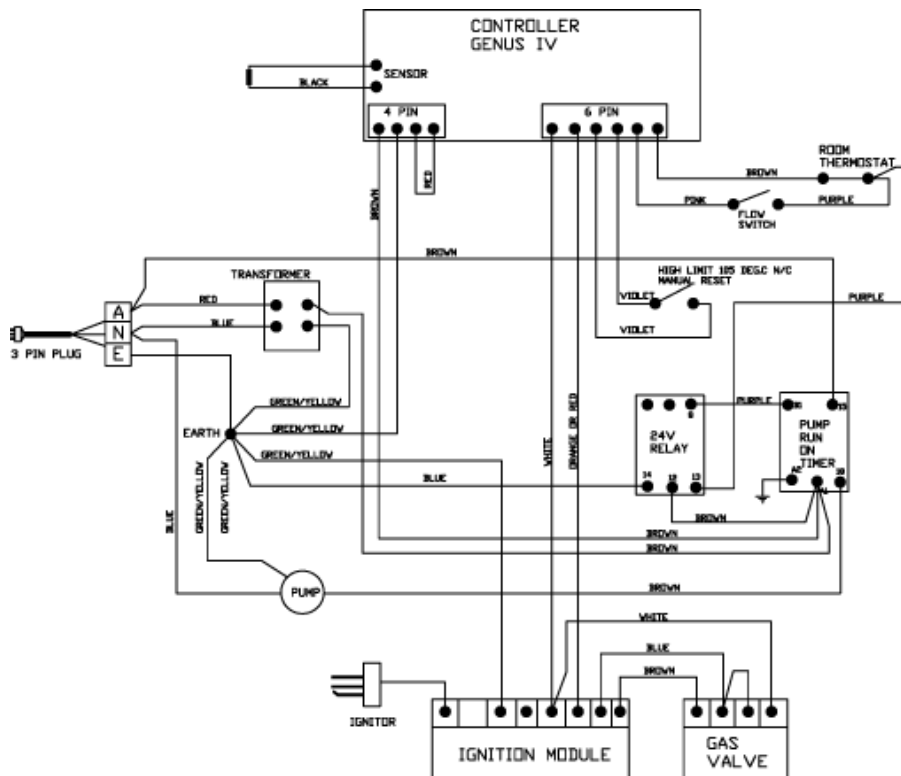
For all other areas, please contact our Victorian office.

8.0 HB SERIES WIRING DIAGRAM

8.1 MODEL 100 – 400 WITH RUN ON TIMER



8.2 MODEL 500 WITH RUN ON TIMER



9.0 ONE YEAR LIMITED WARRANTY

GENERAL CONDITIONS

Hurlcon cover your boiler with a limited 1 year warranty against defective materials and workmanship from the date of purchase (plus 30 days to allow for installation). The heat exchanger, including headers are covered by a five year warranty (plus 30 days to allow for installation). Proof of purchase date must be provided in order to substantiate warranty claim.

The warranty includes in field labour costs where the boiler is installed in a capital city metropolitan area. Labour charges apply to boilers installed outside of these areas. Any costs for transport of faulty or replacement parts, removal or reinstallation are the owner's responsibility.

Hurlcon assumes no liability for consequential damages of any kind.

Like your motor vehicle, your new boiler requires periodic service and maintenance to keep it operating in top condition and at maximum efficiency. An annual service by one of our qualified service technicians is highly recommended.

LIMITATIONS

All warranties only apply if the boiler is installed and operated in complete compliance with the installation and operating instructions. The warranty shall not apply to any boilers or parts that have been subject to accident, negligence, alteration, abuse or misuse.

ADDITIONAL WARRANTY EXCLUSIONS:

This warranty does not cover failures or malfunctions resulting from:

- Failure to properly install, operate or maintain the boiler in accordance with our printed instructions provided.
- Abuse, alteration, accident, fire, flood and the like. Examples of misuse or neglect include, but are not limited to, physical damage from external force, not following installation instructions, leaving door off for extended periods of time, inappropriate application of the boiler, etc.
- Scaling, freezing, or other conditions causing an inadequate water circulation.
- Incorrect gas pressure or gas supply.
- Incorrect or excessive flow rate of water.
- Failing to correct bleed water system of air.
- Chemical contamination of combustion air or use of chemical additives to the water.

No person is authorised to make any warranties on Hurlcon's behalf. To place a service call, contact your nearest Hurlcon office.

HURLCON HEATING Pty. Limited. A.B.N. 97 007 284 504
www.hurlconheating.com.au email: service@hurlconheating.com.au
Information and specifications subject to change without notice.

Victoria:	New South Wales:	Queensland:	South Australia:	Western Australia:	Gold Coast:	Townsville:
Ph: (03) 9554 2275	Ph: (02) 9853 2100	Ph: (07) 3308 5400	Ph: (08) 8152 7600	Ph: (08) 9350 2600	Ph: (07) 5552 2600	Ph: (07) 4750 3100
Fax: (03) 9554 2272	Fax: (02) 98532170	Fax: (07) 3308 5470	Fax: (08) 8152 7670	Fax: (08) 9350 2670	Fax: (07) 5552 2670	Fax: (07) 4750 3170