



**OWNERS MANUAL**  
**MODEL**  
**OB1000 & OB2000**

**IS CERTIFIED TO:**

**UL 726**

**CSA B140.7.1**  
**CSA B212 (EEV)**

**Unit Serial #** \_\_\_\_\_

**Burner Serial #** \_\_\_\_\_

**Purchased From** \_\_\_\_\_

**Company Address** \_\_\_\_\_

**Name of Installer** \_\_\_\_\_

**Installer Telephone #** \_\_\_\_\_

**Date Installed** \_\_\_\_\_



**IMPORTANT**

This manual must be given to the homeowner. Please read the warranty and return the warranty card to initiate coverage.

**We Strongly Recommend The Use Of A Carbon Monoxide Detector When Using Any Product That Consumes Fossil Fuels.**

It is the responsibility of the person or company installing this boiler to **verify before the installation** that the boiler certifications shown on this page meet or exceed all local, state and regulatory requirements for installation and use of this boiler. Failure to do so voids all claims and warranties.

## IMPORTANT

1. READ AND SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCES.
2. The furnace must be installed by a qualified technician currently active in the heating trade & meet or exceed all local or national codes.
3. DO NOT TAMPER WITH THE UNIT OR CONTROLS - CALL A QUALIFIED SERVICE TECHNICIAN.
4. Use No.2 furnace oil only. DO NOT USE GASOLINE, CRANKCASE DRAININGS, OR ANY OIL CONTAINING GASOLINE. Use of other fuels could damage the unit or present a serious safety hazard.
5. DO NOT BURN GARBAGE OR PAPER IN THE UNIT OR LEAVE COMBUSTIBLE MATERIALS AROUND THE UNIT.
6. Know the location of the emergency disconnect switch for the unit.
7. Contact a qualified service technician before remodeling, for annual service/maintenance, before extended periods of shutdown and before start-up.
8. Do not stack items on or around the boiler - check the required clearances on this page.
9. Do not store flammable materials in the vicinity of the furnace.

### OB1000 and OB2000 General Information

	CABINET	WEIGHT	TUBES	SUPPLY	RETURN	WATER VOLUME (US)
OB1000	20"x20"x33"H	370 lbs	18	1¼"	1¼"	15 GAL.
OB2000	23"x23"x35"H	515 lbs	28	1¼"	1¼"	20 GAL.

### INSTALLATION CLEARANCES - OB1000

Above Appliance - 24" (61 cm)      Front - 24" (61 cm)  
Back & One Side - 6" (15.3 cm)      Other side - 18" (46 cm)      Flue Pipe - 9" (23 cm) (USA - 18")  
Certified for installation on combustible floor.

### INSTALLATION CLEARANCES - OB2000

Above Appliance - 24" (61 cm)      Front - 24" (61 cm)  
One Side - 24" (61 cm)      Other side - 6" (15.3 cm)  
Rear - 24" (61 cm)      Flue Pipe - 9" (23 cm)  
Boiler must be placed on non combustible floor.

## EQUIPMENT

**Package # 1**-Contains the boiler body. **Package # 2**-Contains the cabinet.

**Package # 3**-Contains the following:

- |   |  |
|---|--|
| 1 - Burner & Gasket   | 1 - ¼" Combination Pressure/Temperature Gauge (Tridicator) |
| 1 - Triple Aquastat Relay   |  |
| 1 - ½" Aquastat Well  | 1 - Pressure Relief Valve                                  |
| 1 - 1-¼" x ½" x 1-¼" Bi Tee   |  |
| 1 - Blocked Flue Sensor (Not included with Balanced Flue or Power Venter Systems) |  |

## INSTALLATION

The installation of this boiler must be performed by a trained heating technician regularly engaged in equipment installation and in accordance with this manual and all local codes and applicable regulations (**Canada-CSA standard B139, C22.1 / United States - NFPA No.31**). The boiler should be located as close to the chimney as possible. The boiler must be properly leveled on a suitable floor.

### INSTALLATION OF CASINGS

The procedure of the installation of the casings is as follows - Do the sides first, then back, front and the top last.

## FUEL TANK SUPPLY

The supply tank and fuel lines must be installed in accordance with all local codes and regulations having jurisdiction in your area.

## COMBUSTION AIR

**To achieve satisfactory combustion an adequate supply of fresh air is required.** In confined areas grilled openings must be provided. The minimum total area of openings is 1 square foot per gallon of oil burnt per hour. When more than one appliance is in a room additional consideration must be given.

## CHIMNEY

Connect the boiler to a (approved for oil burning equipment) factory built chimney or a masonry chimney equipped with a stainless steel or clay tile liner. The chimney must be capable of maintaining a negative updraft at all times and under all conditions. The OB1000 may be installed with L Type venting. The specification of the chimney to be used complies with the requirement that, other than solid-fuel/oil combinations and approved add-ons, an oil burning appliance shall not be connected to a venting system serving an appliance vented by another type of fuel.

Secure all flue pipes with sheet-metal screws.

**DO NOT** install hand dampers on this unit. Use an approved barometric damper to control draft through the unit. Setting is -0.25" W.C. Flue pipes must have a minimum 1/2" rise per foot between the boiler and the flue. Never run the flue pipe downhill from the boiler.

## OIL BURNER INSTALLATION

Verify that the nozzle supplied is the proper one for your installation. To install the burner, first put the gasket against the flange on the front of the burner, then through the hole on the lower front of the unit and secure with the (3) - 3/8 x 16 nuts provided. SEE THE LABEL ON THE BOILER FOR THE INSTALLATION INSERTION. AN IMPORTANT FEATURE OF THE OIL BURNER SETUP IS THAT INSERTION IS CORRECT BEFORE INSTALLATION.

## ALL BURNERS

All burners are supplied with single pipe setup. To change to two pipe system, install the bypass screw using instructions on pamphlet attached to the oil line of the nozzle assembly on the burner.

## COMBUSTION SET UP

All burners are designed to be setup with a No. 1 or No. 0 Bacharach smoke spot. Run the unit for approximately 10 minutes before testing is done, as this will give the flame time to stabilize. On Riello burners the turbulator should be set according to this manual and the label on the front of the unit and only the air shutter should require additional adjustment. On Beckett burners make sure the appropriate "pin" is installed for the nozzle being used.

## BLOCKED FLUE SENSOR

On OB1000 & OB2000 boilers that do not use a balanced flue system or a power venter a Field Controls WMO-1 sensor is installed in the flue as given in the sensor installation instructions. The blocked flue sensor is designed to shut off the burner in the event that the flue has become blocked. When this has happened the burner can not be started again until the sensor has been reset. Pushing in the red button, which is accessed through the hole in the front of the sensor, resets the sensor. CAUTION: Only try this once and then call a qualified service technician.

## **BALANCED FLUE**

The OB1000 boiler is certified to be installed with the “Benjamin Balance Flue Venting System” using the Riello BF3 or BF5 oil burners. Please see the instruction manual (included with the balance flue terminal) for proper installation procedures.

## **POWER VENTING**

The OB1000 and OB2000 oil fired boilers are certified to be installed with the Tjernlund SS1C Power Venter. They are certified for this installation with the Riello burner only. Please see instruction manual included with the SS1C for necessary installation instructions and clearances.

**NOTE:** The power venter limits the output to 271,000 BTU. Therefore the maximum nozzle size for the Riello F10 burner on the OB2000 would be 2.00 x 60 degree.

## **CAUTION TO HOMEOWNERS**

Do not push the reset button on the burner or the blocked flue sensor more than once to restart the burner. If the flame fails to establish or stabilize call a heating technician. This is a safety feature and means there is something wrong with the burner or venting system.

**DO NOT TAMPER WITH THE UNIT OR CONTROLS - CALL A QUALIFIED SERVICE TECHNICIAN.**

## **BOILER MAINTENANCE**

As soot is a non-conductor of heat it is important to have the boiler and flue pipes cleaned at least once a year. It is recommended that this be done at the end of each heating season, at a minimum. This is to be done by a qualified heating technician, and any service requirements should be fulfilled at the same time. Cleaning of the boiler tubes requires a 2" boiler tube brush which is available from most furnace & boiler retailers.

**To clean the boilers use the following:**

1. Make sure the power to the boiler is shut off and the fuel line valve is closed.
2. Remove the smoke pipe from the boiler.
3. Remove the top casing surrounding the smoke pipe.
4. Remove two wing nuts and the smoke collector box.
5. Remove the burner.
6. Lift out the turbulators in the fire tubes.
7. Brush soot down into the combustion area.
8. Vacuum the soot through the burner opening.

**Note:** At this time inspect all interior passages. All combustion areas should be cleaned and any undue corrosion should be brought to the attention of the appropriate people.

9. To reconstruct, reverse order of directions.

**NOTE:** The pressure relief valve should be checked monthly to ensure safe operation. This is done by momentarily opening the relief valve. Ensure relief valve is piped to a drain to prevent hot water escaping from coming in contact with anyone.

## **TO START THE BURNER**

1. See that all valves in the oil lines are open.
2. With the main cutout switch for the oil burner electrical circuit in the “OFF” position, set the thermostat at a point above room temperature.
3. Set the electric switch to the “ON” position. If the burner fails to start instantly set the master switch to the “OFF” position and call a qualified service technician.
4. If the burner starts to operate normally leave the switch “ON” and reset the thermostat to the desired temperature.

### **Never start the burner under the following conditions:**

1. WHEN EXCESS OIL HAS ACCUMULATED.
2. WHEN OIL VAPORS ARE PRESENT.
3. WHEN THE COMBUSTION AREA IS VERY HOT.
4. WHEN THE CLEAN OUT COVERS ARE NOT SECURE.
5. When the smoke pipe is removed or blocked.
6. Any situation that would lead to an unsafe condition.

***Never push the reset on the burner more than once; contact a heating technician.***

## **TO STOP THE BURNER**

1. Set the main cutout to the “OFF” position.
2. Set the thermostat as far below room temperature as possible.

## **IF THE BURNER FAILS TO OPERATE**

Call a qualified service technician. The trouble may be due to:

1. Blown fuses in the electrical circuit.
2. The thermostat may be set below room temperature.
3. The combustion control may require “resetting”.
4. The oil valve may be closed.
5. The oil supply may be too low.
6. The blocked flue sensor may be tripped.

## **TO STOP THE BURNER FOR AN EXTENDED PERIOD OF TIME**

1. The main cutout switch should be set to the “OFF” position.
2. SHUT OFF THE MANUAL OIL VALVE TO THE BURNER.
3. The burner should be covered to protect it from dust and dampness.
4. The heating system should be checked and cleaned if necessary by a Qualified Service Technician.

## **TO START THE BURNER AFTER AN EXTENDED SHUTDOWN**

1. The strainer in the pump should be cleaned and if a filter is installed in the oil line it should be cleaned and the filter cartridge replaced.
2. The ignition points should be checked and the nozzle cleaned & replaced.
3. Oil motor (see LUBRICATION)
4. Start the burner by following the instructions under paragraph “TO START THE BURNER”.
5. It is recommended that a qualified service technician be called to clean the unit and burner and make sure that the burner is operating properly. The installer should identify the emergency shut off switch and valves.

## **WHEN THE BURNER IS IN OPERATION**

1. Check flame periodically, if it becomes out of shape or smoky, call a qualified service technician.
2. When cleaning the furnace room or utility room always stop the burner to reduce the amount of dust and lint drawn into the burner.
3. The electric ignition system and all controls should be checked periodically for reliability of operation and adjusted if necessary.

## **OIL BURNER**

The oil burner should be removed at least once each heating season, cleaned and serviced. Also inspect and clean any accumulated soot and debris from the combustion chamber and transfer duct. Inspect and replace the burner gasket if necessary. To be performed by a Qualified Service Technician.

## **OIL FILTER**

The cartridge should be replaced at least once a year. The filter body should be thoroughly cleaned before installing a new cartridge.

## **TO CLEAN THE STRAINER**

1. Oil valves between the tank and the burner should be closed.
2. The strainer cover should be removed.
3. The strainer basket should be taken out and washed with kerosene.
4. The strainer basket and covers should be reassembled with gaskets that are clean and in good condition.

# OB1000/OB2000 MAINTENANCE & ASSEMBLY

## OB1000

**18** Turbulators  
(order # OB104)

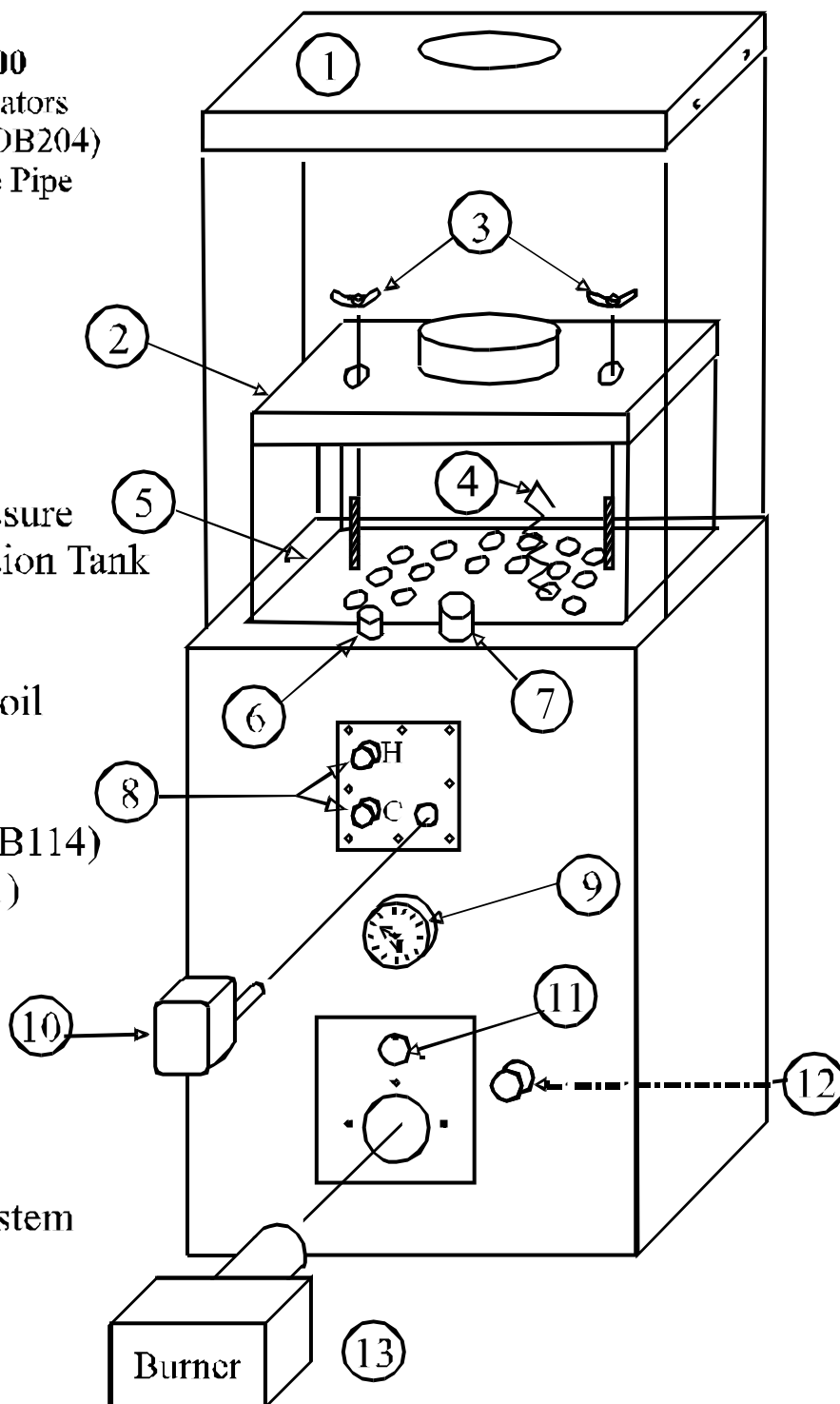
**6** Smoke Pipe

## OB2000

**28** Turbulators  
(order # OB204)

**8** Smoke Pipe

1. Top Casing
2. Smoke Collector Box
3. Wing Nuts
4. Turbulators
5. 5/8 Gasket
6. 3/4 Fitting for the Pressure Relief Valve & Expansion Tank
7. 1 1/4 Outlet (supply to house)
8. Domestic Hot Water Coil  
4 gal (order # OB112)  
5 gal (order # OB113)  
Blank Plate (order # OB114)  
Gasket (order # OB111)
9. Tridicator
10. Triple Aquastat
11. Sight Port Door (order # OB115)  
gasket (order # OB118)
12. 1 1/4 Return From System (on back of boiler)
13. Burner



# 1 BURNER SPECIFICATION

NOZZLES: A, W & B are Delevan

FUEL: Use No. 2 Furnace Oil

## RIELLO BURNERS

Burner Insertion - F5, BF3 & BF5 = 3-1/8"; F3 & F10 = 3-1/2"

MODEL	SERIES	INPUT US GPH	NOZZLE SIZE	PUMP PSIG	RIELLO MODEL	SETTINGS TBL AIR (INITIAL)	OUTPUT BTU
R105	1000	0.85	0.75 60° A	130	F3	0.5 7.8	102,000
R120	1000	1.00	0.85 60° W	140	F5	1.0 3.2	120,000
R150	1000	1.25	1.00 60° W	155	F5	2.0 5.6	147,000
R180	1000	1.50	1.25 60° W	145	F5	3.0 8.0	176,000

BF3-85	1000	0.75	0.65 80° W	130	BF3	1.5 5.5	91,400
BF3-100	1000	0.89	0.75 80° W	140	BF3	3.0 5.8	108,700
BF5-120	1000	1.00	0.85 60° W	145	BF5	2.0 4.5	121,500
BF5-150	1000	1.25	1.10 60° W	135	BF5	3.0 6.0	153,600

R215	2000	1.75	1.50 60° A	135	F10	0.0 4.0	213,000
R250	2000	2.00	1.75 60° A	130	F10	1.0 5.0	243,000
R275	2000	2.25	2.00 60° A	125	F10	2.0 6.0	271,000
R330	2000	2.80	2.25 60° A	155	F10	4.5 8.0	328,000

## BECKETT BURNERS

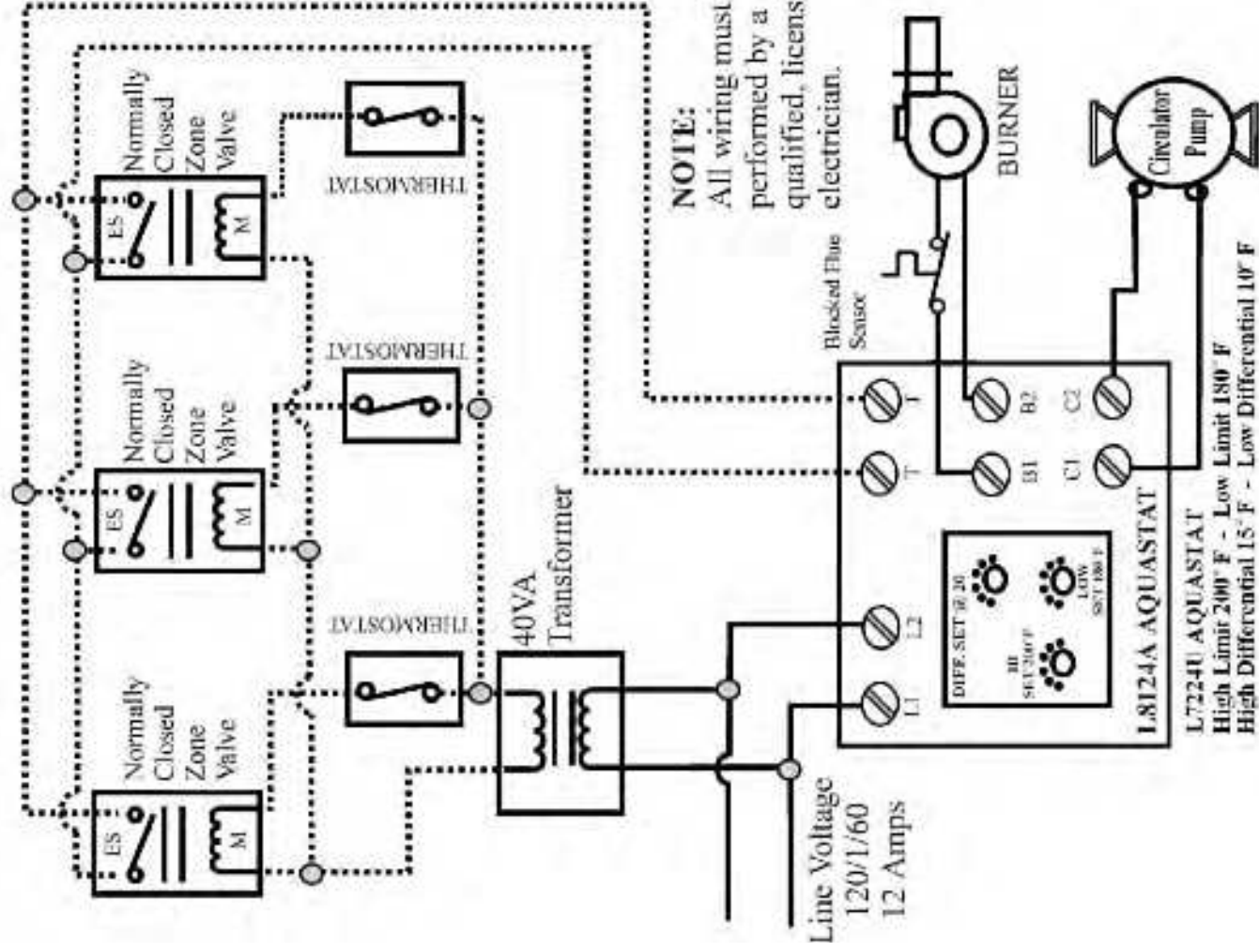
Burner Insertion: 2-3/4"

MODEL	SERIES	INPUT US GPH	NOZZLE SIZE	PUMP PSIG	BECKETT AF II	SETTINGS PIN# AIR (INITIAL)	OUTPUT BTU
B90	1000	0.75	0.65 70° A	140	85-HLX50HD	4 7.0	90,000
B107	1000	0.89	0.75 70° A	140	85-HLX50HD	5 7.5	107,000
B120	1000	1.00	0.85 60° B	140	150-HLX50HC	0 4.0	120,000
B150	1000	1.18	1.00 60° B	140	150-HLX50HC	5 4.5	140,000
B180	1000	1.50	1.25 70° B	140	150-HLX50HC	8 5.0	174,000

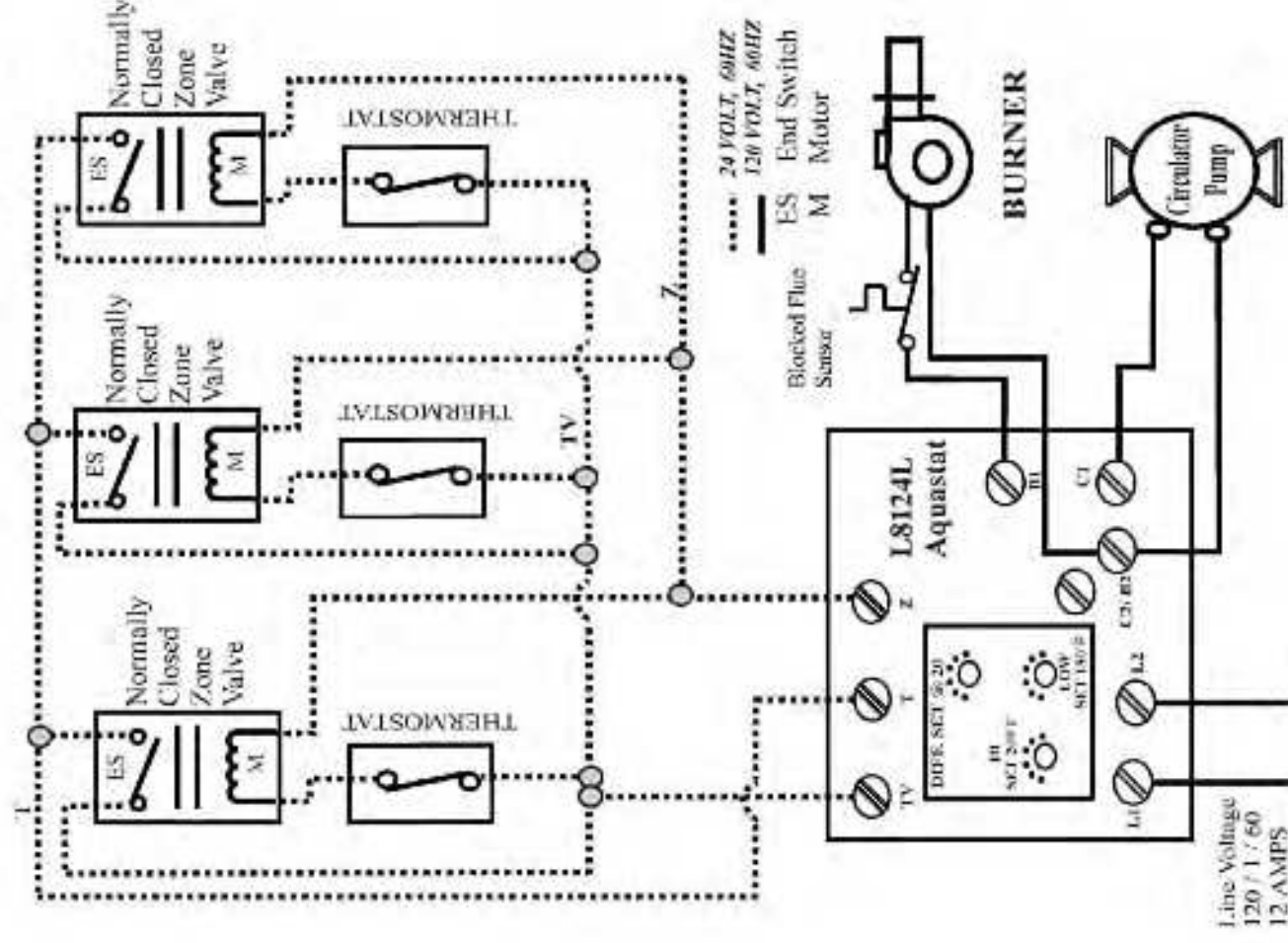
NOTE: Models 105, 120, 150, 180, 215, 250 are Energy-Star compliant.



## Wiring Diagram for L8124A or L7224U Aquastat



## Wiring Diagram for L8124L Aquastat

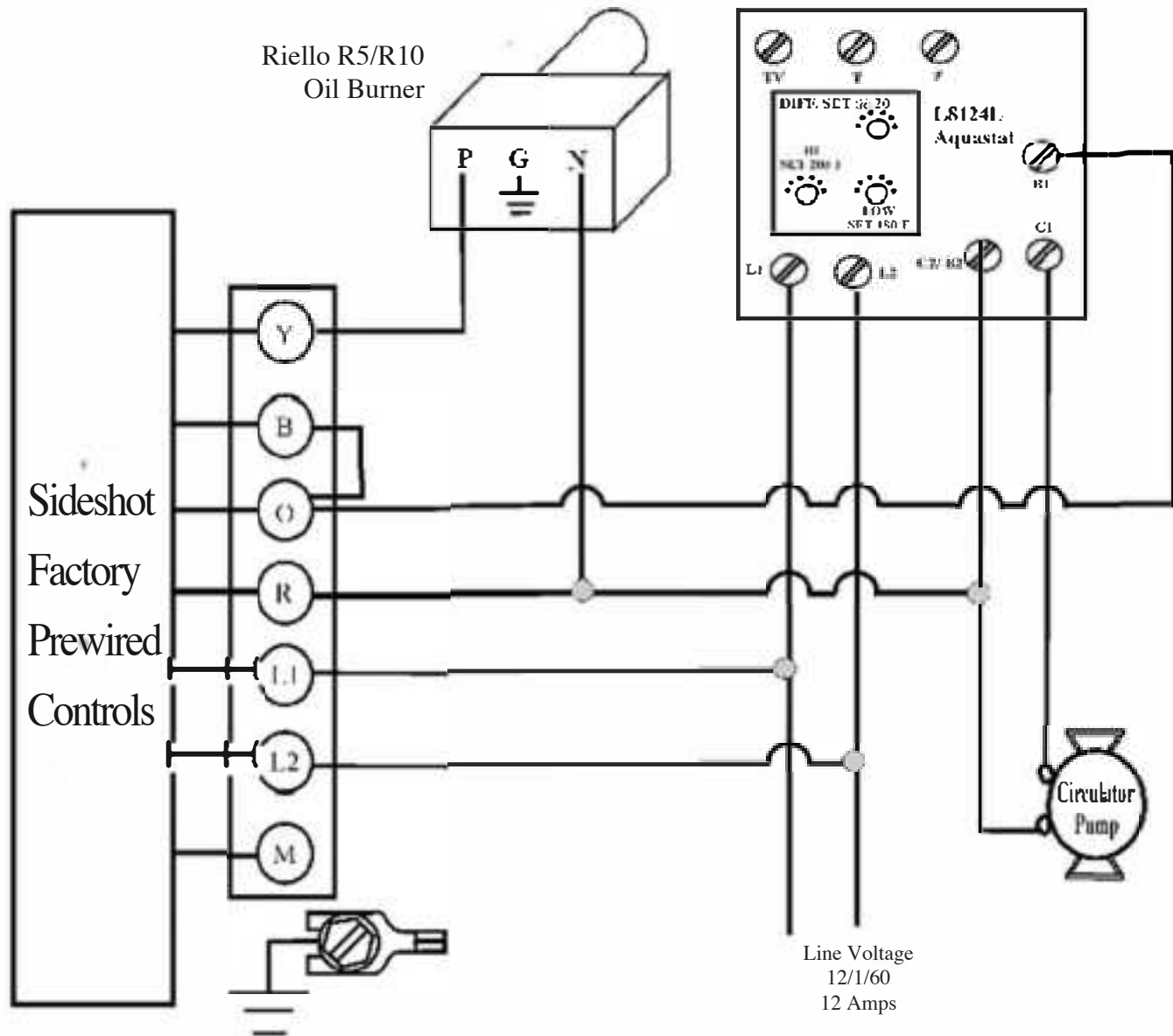


WIRING DIAGRAM FOR MULTIPLE ZONES (Total Zone Load 30 VA-24V)

# SIDESHOT VENTER WIRING DIAGRAM

## NOTE:

1. All wiring must be performed by a qualified, licensed electrician.
2. All wiring must conform to Canadian and local electrical codes.
3. Power supply, provide disconnect means and overload protection as required.



Disable the power venter with the appliance(s) calling for heat.

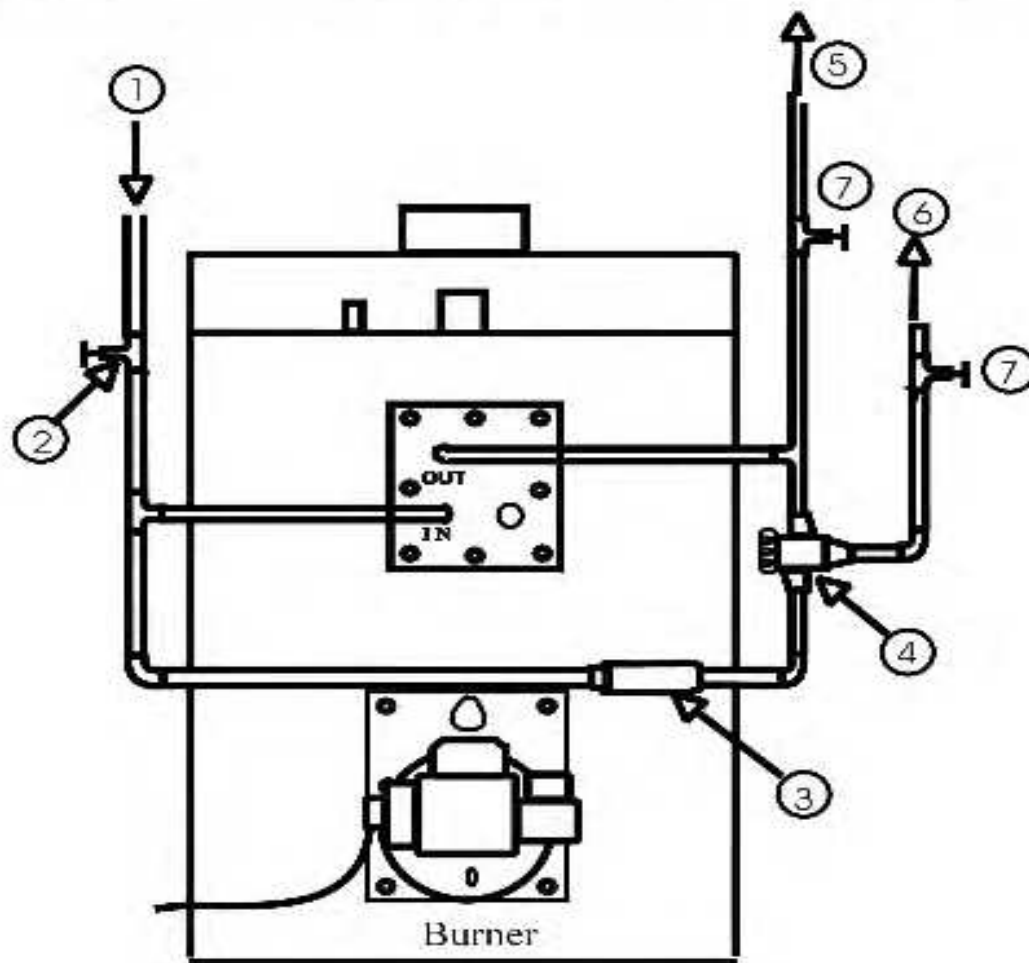
## Note:

DO NOT alter the "M" terminal in any way. The "M" (accessory) terminal is there to add an enforcer or burner motor post page kit.

**Warning: The installer must perform the following safety check.**

1. Disable the power venter with the appliance(s) calling for heat.
2. If utilizing hood spillage switches as the safety. The appliance(s) must shut down within 3 minutes.
3. If using the fan proving switch as the safety - the appliance(s) must shut down immediately, if the appliance(s) DO NOT shut down, contact TJERLUND Products Inc. for assistance at 1-800-255-4208.

# SUGGESTED PLUMBING FOR DOMESTIC HOT WATER COIL



1. Cold Water Inlet
2. Shut Off Valve
3. Check Valve
4. Tempering Valve (8" below the coil Outlet)
5. Hot Water To Appliances
6. 120°F Max. Tempered Water to Fixtures
7. Throttle Flow Valve



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