Stove Builder International Inc.
1700, Léon-Harmel
Québec(Québec)
G1N 4R9

Installation and Operating Instructions for Wood and Combined Wood-electric Furnaces

THIS MANUAL CONCERNS THE FOLLOWING FURNACES

WOOD	COMBINED ELECTRIC
PSG-2000	15 KW, 18 KW, 20 KW
PSG-3000	15 KW, 18 KW, 20 KW, 25 KW
PSG-4000	18 KW, 20 KW, 25 KW, 30 KW
PSG-4500	18 KW, 20 KW, 25 KW, 30 KW
PSG-5000	40 KW, 50 KW, 60 KW

All the instructions must be read carefully before installing and operating furnace.

CONGRATULATIONS!

You have just purchased one of the best wood or combined wood-electric furnace on the market.
We are convinced that your furnace will provide you with many years of comfort, safely.

Keep these instructions!

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INTRODUCTION

To get maximum performance from your PSG furnace, keep in mind the following:

- Comply with local codes (if in doubt, contact your local heating specialist).
- Refer to the furnace's certification label and your instruction manual for minimum installation clearances.
- Make sure that your furnace has been installed in accordance with the required standards specified on the furnace's identification label.

1. CHIMNEY AND DRAFT

This furnace must be connected to a chimney approved for wood-burning appliances; the chimney connector for a PSG 2000 must have 6" diameter; 7" for PSG3000 and PSG4000, for all other models, use an 8" diameter chimney connector.

Use the supplied barometric draft control. Never use a manual chimney damper.

The barometric control must be adjusted so that the maximum draft measured at the furnace outlet does not exceed -0.06 in. w.c. **Please note that a draft exceeding -0.06 in. w.c. could produce an uncontrollable fire.** On the other hand, the minimum draft required is -0.04 in. w.c. in the evacuation pipe on the wood side, no matter what type of furnace (PSG Wood, PSG Wood/Electric and PSG Wood/Oil).

- Never light your furnace using chemicals or other liquid fuels. Never installed automatic feeder on that unit.
- Never store wood near the furnace. Respect the required minimum clearances between combustibles and your furnace.
- Keep your furnace, chimney and smoke pipe connector clean and in good working order at all times. We recommend that you establish clear procedures for wood storage, system maintenance and operation of your furnace. Check creosote accumulation daily until you can determine by experience how often to clean. Weekly cleanings may be necessary in mild weather, while a monthly cleaning may be all that is required during the colder months of the year.
- Keep loading and ash drawer doors shut during operation and make sure their gaskets are in good condition. To replace defective gaskets, see your dealer.
- A plentiful supply of air and a vigorous fire will reduce creosote accumulation.

All controls adjustments must be performed by a qualified technician. The controls settings and the blower speed must conform to the recommendations of the National Warm Air Heating and Air Conditioning Association and respect the recommended static pressure ranges in the warm air bonnet of the furnace (see General Technical data static pressure).

2. SAFETY RULES

GENERAL REQUIREMENTS

- Make sure the chimney outlet and the pipes are clean and in good condition.
- Do not use chemical products or liquids to light the fire.
- Do not burn wood coated with paint, glue or chemical products.
- Do not burn wastes or flammable liquids such as gasoline, naphtha or motor oil.
- Do not install an automatic feeder on this furnace.
- Do not store wood in the vicinity of the furnace. Respect the required clearances between combustible materials and the source of heat.

W A R N I N G

-THE ASH DRAWER GET VERY HOT.
-DO NOT MANIPULATE WITH BARE HANDS.

ODOUR FROM THE PAINT

It is normal that a smoke odor emanate from the unit when you first light it. It is recommended to burn it at high rate and ventilate the building until the odour resorbs.

ASH DISPOSAL

Ashes must be placed in a metal container with a tight fitting lid. The container should be placed outside, well away from combustible materials. If the ashes are meant to be buried in soil, you should wait until all cinders have thoroughly cooled.

CREOSOTE BUILD-UP AND REMOVAL

When wood is burned slowly, it produces tar and other organic vapours which, when combined with moisture, form creosote. The creosote vapours condensate in a relatively cool chimney flue. As a result, creosote residue accumulates in the flue lining.
N.B.: To minimize the frequency of the chimney cleaning, buy your firewood at least one year before using it. Store it in a dry place in order to obtain the minimum moisture rate and optimize the efficiency. Do not store wood or combustible materials within the installation minimum clearances or the space required to reload the appliance and remove the ashes.

When ignited, creosote produces an extremely hot fire inside the chimney.

To avoid this situation, it is important to do the turnover of wood. Inspect the chimney system at regular intervals to determine a cleaning cycle. A weekly cleaning might be required during mild temperature periods but a monthly cleaning should be sufficient during cold periods. **If a significant layer of creosote has accumulated, it should be removed immediately to eliminate the risk of a chimney fire.** Remember that a small hot fire is preferable to a large smouldering one to prevent creosote build-up within the system. An emergency plan is necessary in case of a chimney fire. It's recommended to clean up the heat exchangers at the end of season in order to prevent corrosion build-up.

SMOKE DETECTOR

We highly recommend the use of a smoke detector. It must be installed at least 15 feet (4,57 m) from the appliance in order to prevent undue triggering of the detector when reloading.

ASH DRAWER

Your appliance is equipped with an ash drawer to collect ashes produced by the combustion of wood. This drawer must not be left open during combustion as this will cause over firing and serious damage to the furnace.
The drawer must be cleaned regularly.

> It is important that the door and the ash drawer be kept closed while the appliance is in use.
> Maintain all gaskets in good condition: in case of deterioration, contact your dealer for replacement.

ASH GRATE

You must replace the ash grate if it is damaged and a replacement may be obtained from your dealer.

3. APPLIANCE INSTALLATION

UNIT LOCATION

The furnace must be installed where outside air supply is sufficient for proper combustion. In airtight houses, it might be necessary to install an outside air inlet (see details in: «3- INSTALLATION» D- COMBUSTION AIR).

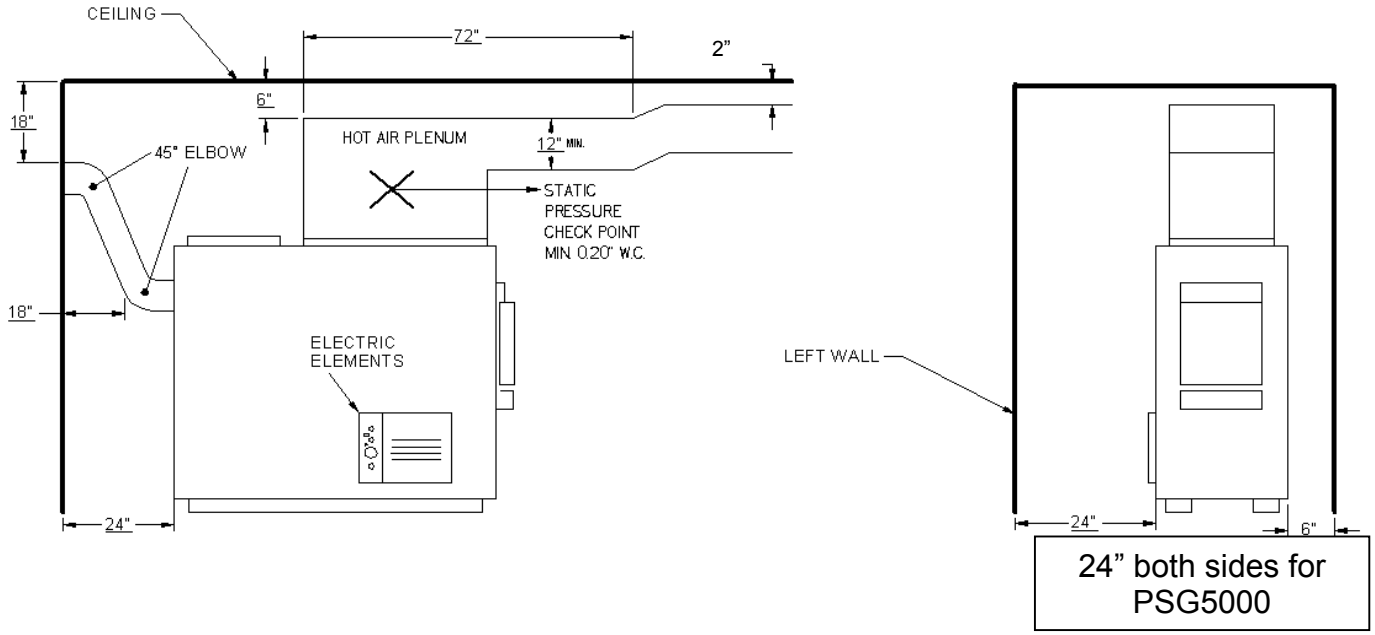
The furnace must be positioned so that the connector is as short as possible in order to minimize the use of 90^{o} elbows.

The owner must ensure a proper installation to allow a safe operation of the appliance.

CLEARANCES TO COMBUSTIBLE MATERIALS

N.B. This appliance must be installed in accordance with the instructions on the unit's certification.

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS FOR PSG FURNACES



N.B. THE AIR RETURN CONDUITS SHOULD BE AT LEAST EQUAL TO THE COLD AIR PLENUM DIMENSIONS.

PIPE CONNECTOR AND DAMPER

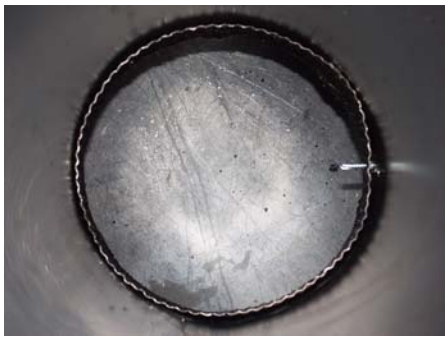
Before proceeding to connection, remove all accessories such as: scraper, shovel and poker in the evacuation pipe of the furnace.

A 6" diameter chimney listed for use with wood burning heating appliances is recommended for the PSG2000, 7" for PSG3000-4000 and 8" for the others models. Install the barometric control provided with the furnace. Never install a manual damper.

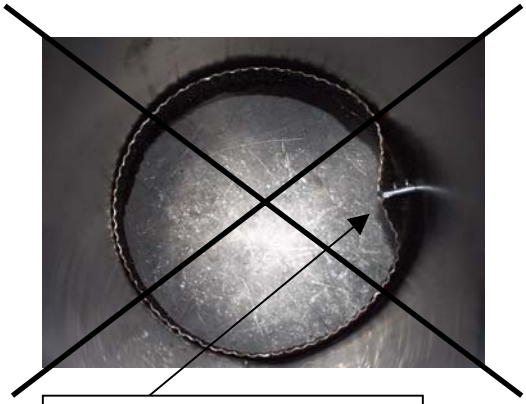
For a proper installation, follow the advices below:

1. All the joints of the evacuation pipe must be secured, using three screws.
Make sure that each screw goes through the inner walls of both connectors (male and female). See pictures below showing a male-female coupling.

PROPER INSTALLATION



UNPROPER INSTALLATION



CAUSE RESTRICTION

2. A minimum rise of 1/4 inch per horizontal foot must be respected.

DAMPER

The barometric control must be adjusted so that the maximum draft measured at the furnace outlet is limited to -0.06 in. w.c. Please note that a draft higher than -0.06 in. H2O could result in an uncontrollable fire. **On the other hand, the minimum draft to be respected is -0.04 in. w.c. in the evacuation pipe on the solid fuel side, no matter what type of furnace.**

COMBUSTION AIR

In the event that the furnace and the chimney are completely cold, it might be necessary before lighting, to provide fresh air by opening a door or a window for a few minutes.

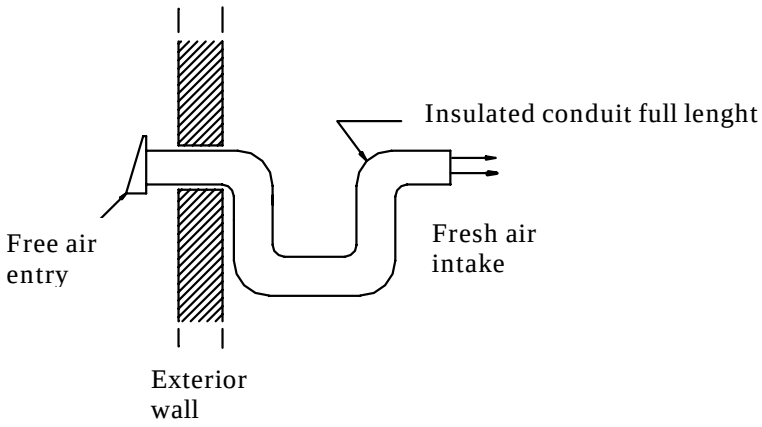
Take note that a house constructed or renovated in order to be airtight is liable to lack fresh air which is necessary for a proper combustion and a proper operation of heating units.

In such a case, when starting up the fire, do not operate appliances which evacuate air outside the house such as:

- Range hood
- Air exchanger
- Cloths dryer
- Bathroom fan
- Ventilated central vacuum system

NOTE:

It is recommended to install an outside air inlet of minimum 4" diameter in the room where the heating appliance is installed (see drawing below). To do so, it is preferable to choose a wall which is not exposed to extreme winds, according to the conditions surrounding your house.



N.B. The owner of the furnace is responsible for the room salubrity in case of negative pressure or temporary negative pressure.

ELECTRICAL CONNECTION

The following instructions do not supersede the local code.

WOOD ONLY

Installed limit control on support provided on proper location of the appliance (two holes are predrilled on the edge of the furnace), and connected to the electrical box along with the transformer. Install the servo-motor on the front facade above the door, on the right side (use pre-drilled holes). The chain that links the air inlet latch to the motor must have a play of 1/8 in. When there is no call for heat, the air inlet latch must be completely shut and the chain must be affixed to the servo-motor at "8 o'clock". *****

The switch located on the fan limit control activates high speed operation, in either automatic or manual (continuous operation) modes.

The switch located on the electric unit controls low speed operation, in either ON (continuous operation) or OFF modes.

WARNING: USE FEEDING WIRES SUITABLE FOR 75^{O}C

WOOD/ELECTRIC

The limit control is a manual reset thermostatic captor and is located directly inside the electric element (see **WIRING DIAGRAMS**). The electric elements must be installed as shown on the diagram. Install the combined limit control on the support provided, at the determined location. The connections must conform to the diagram.

Install the servo-motor on the front façade above the door, on the right side (use pre-drilled holes). The chain that links the air inlet latch to the motor must have a play of 1/8 in. When there is no call for heat, the air inlet latch must be completely shut and the chain must be affixed to the servo-motor at "8 o'clock". *****

The switch located on the fan limit control activates the blower at high speed, in either automatic or manual (continuous operation) modes.

The switch located on the electric unit controls low speed operation, in either ON (continuous operation) or OFF modes (PSG 3000 or PSG 4000 models only).

WARNING: USE FEEDING WIRES SUITABLE FOR 75°C

***** (With all reserves on the minimum combustion air to be increased depending on the type and quality of the combustible).

ELECTRIC ELEMENT

The WOOD / ELECTRIC combined model is installed with two thermostats: one thermostat controls the electric heating, the other one controls the wood heating. With this system, the electric heating has priority over the wood heating. When the thermostat activates the electric heating, the air inlet closes down (if opened), the blower starts and the electric elements are successively activated per block of 5 kW. The system might be equipped with an exterior thermostat which will allow the last block of elements (5 kW) to start up only when the outside temperature is cold enough. This will reduce the power of the systems by 5 kW during mild temperature for more comfort.

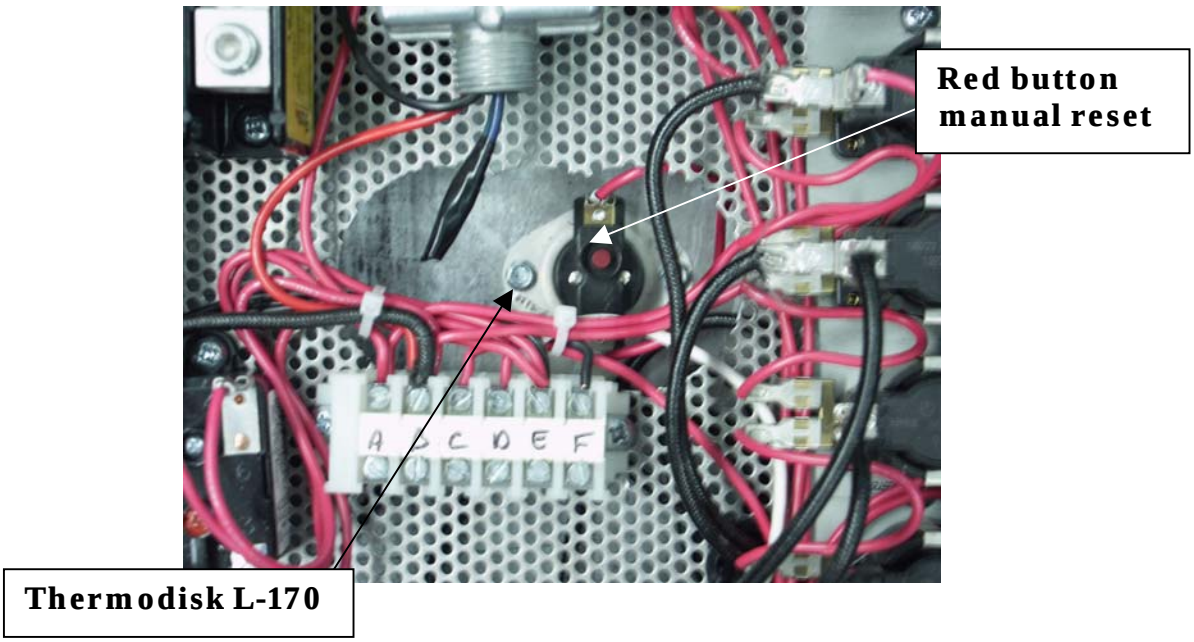
When the call for electric heating is completed, the wood system will take over if the starting point of the wood system is superior to the electric system.

So, in normal bi-energy use, you must set the wood system thermostat 2° to 3° higher than the electric system thermostat.

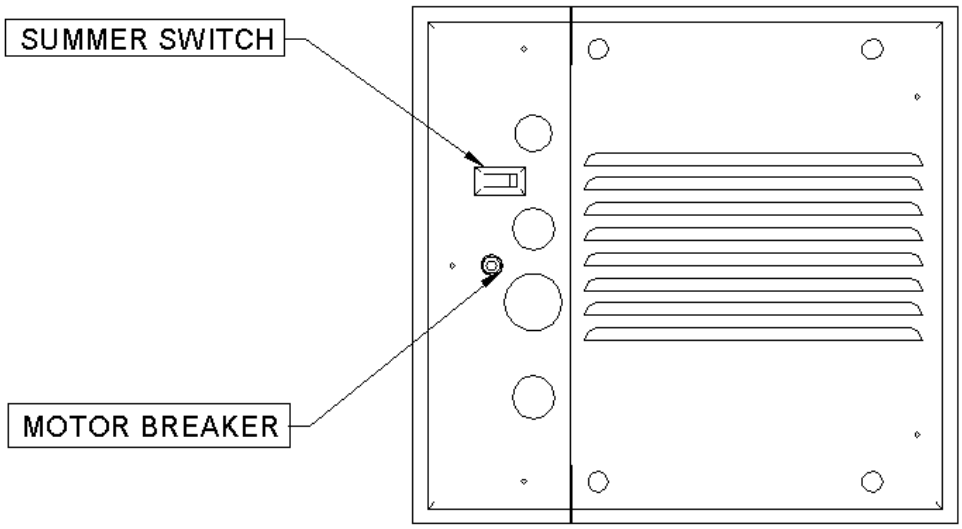
Take note that this furnace is equipped with a four speed motor. Aside from low speed, three choices are available: medium-low, medium-high or high.

If the temperature of the element exceeds the limit allowed, the thermodisk will disengage the element. For reactivation, press the red button “manual reset” of the thermodisk L-170 and find out why the temperature limit has been exceeded (static pressure too high, fan breakage, dirty filter, etc.)

INSIDE VIEW OF THE ELECTRIC ELEMENT



OUTSIDE VIEW OF THE ELECTRIC ELEMENT



THERMOSTAT

The thermostat must be installed on an inside wall in a location where it is not likely to be affected by the draft coming from an air outlet. It must be installed at a minimum of 55 inches above the floor.

N.B. The combined wood / electric model must be installed with two thermostats at same level.

FAN CONTROL

The fan control setting varies depending on the type of heating installation. The setting “out of service” is preset at 110^{o} F in factory. This setting should provide a proper operation for most installations. The temperature “in service” is pre-set at 150^{o} F.

It is preferable for a prolonged operation of the blower that the setting “out of service” be low enough. But a setting “out of service” too low will cause a cold air circulation. To modify the setting, turn the button at the desired position on the temperature scale.

The adjustment of all controls must be performed by a qualified technician. The controls setting and the blower speed must conform to the recommendations of the “Warm Air Heating and Air Conditioning National Association”. To obtain a continuous air circulation during summer, push the manual switch of the limit control from the “automatic” position to the “manual or summer” position.

The switch located below the limit control or on the electric unit, controls the low speed either at the “on” position or the “off” position. For a better efficiency we recommend to leave the high speed on automatic(wood side fan limit control).

4. OPERATING INSTRUCTIONS

Control system

On the wood furnaces only, the thermostat controls the air inlet damper. When the thermostat calls for heat, the damper opens and the fire burns up. When the furnace gets hot enough, the combined limit control activates the blower motor at the speed selected for wood heating.

The chain that links the air inlet damper to the motor must have a play of 1/8 inch. When there is no call for heat, the air inlet damper must be completely closed and the chain must be affixed to the servo-motor at “8 o’clock”. *****

***** (With all reserve on the minimum air to be increased depending on the type and quality of the combustible).

LIGHTING:

1. Open the door

Note: In the case that there is a bed of coals in the bottom of the furnace, go to step b) Pre-heating.

2. Place one or two dry kindlings at the front of the furnace.

3. Place newspaper strips on top of the kindlings.

4. Cover the newspaper with more kindlings and small pieces of dry wood.

5. Add newspaper strips, then light the fire a low as possible and leave the door 1/2" (13 mm) opened. If you fail lighting the fire, you might experience a back draft through the air inlets.

PREHEATING

1. Once the kindling is well ignited or the coals revived, put 2 or 3 fire logs in such a way that the flames can interlace between the logs then close the door. It is important to respect these loading sequences so that the wood will burn from the front to the back of the furnace.

2. Wait 15 to 20 minutes, then proceed with loading the furnace.

HEATING

1. When loading the furnace, lower the kindled pieces of wood and place them at the center of the combustion chamber before adding new logs.

2. Do not overload. Air must circulate freely in the upper part of the furnace in order to obtain an efficient operation of the appliance. Please note that a small hot fire will produce much less residues than a large smouldering one.

IMPORTANT: DURING THE HEATING PROCESS, REMOVE THE ASHES AND WOOD THAT COULD OBSTRUCT THE 1/4" (6.4 mm) HOLE LOCATED BELOW THE DOOR INSIDE THE FURNACE.

PROCEDURE TO OPEN THE LOADING DOOR

TO MINIMIZE THE RISK OF A BACK DRAUGHT OPEN THE DOOR 1”
AND WAIT ABOUT 10 SECONDS BEFORE OPENING COMPLETELY.
THE PURPOSE IS TO STABILIZE THE PRESSURE INSIDE THE FURNACE.

EARLY SIGNS OF OVERFIRED FURNACE

1. Roaring fire.

2. Chimney connector is glowing red.

3. Extreme heat coming from the furnace. If this occurs, **DO NOT OPEN THE DOOR**, shut-off the air inlet opening completely, and wait until the glow has completely subsided.

ALWAYS KEEP THE DOOR AND THE ASH DRAWER CLOSED
(except for lighting and maintenance).

WOOD AS HEATING FUEL

We recommend that you burn dry wood only.

There are two important factors to be considered when choosing a type of wood: the moisture content and the wood density. Hardwood, such as maple, oak and beech will provide better results because of the high density and minimal tar produced during combustion. It is highly recommended to use wood that has been dried at least six months. **Do not use coal as heating fuel in this appliance.**

Whenever a high rate of smoke is noticed in the room, you must:

1. Open doors and windows.

2. Make sure the furnace door is closed as well as the damper (if necessary, lower the thermostat starting point or undo the chain of the damper and close manually the barometric draft control).

3. When the furnace has cooled down, inspect the chimney to detect obstructions and consult a specialist to determine the cause.

CARBON MONOXYDE IS A LETHAL GAS (ODOURLESS AND COLOURLESS), WHICH YOU MUST BEWARE OF.

CHIMNEY FIRES

This might occur when the fire gets extremely hot. Burning cardboard, branches or pieces of wood can ignite the creosote residue accumulated in the evacuation flue system. The usual signs are:

1. Rumbling

2. The flue gets extremely hot

3. Flames are coming out of the chimney

In case of a chimney fire, first call your local fire department and sprinkle the roof around the chimney with water.

Make sure that the furnace door is closed as well as the damper (if necessary, lower the thermostat starting point or release the chain from the damper and CLOSE the barometric draft control manually).

If the fire gets uncontrollable due to an improper use or because the draft is too strong, follow the same procedure as in a chimney fire except that you will have to OPEN manually the barometric draft control.

LOCAL FIRE DEPARTMENT.

Phone number: _____

5. MAINTENANCE

MAINTENANCE OF THE EXCHANGERS

The evacuation pipe and the exchangers should be inspected regularly during the burning season. Using the scraper, clean the three exchanger pipes.

INSTRUCTIONS

1° Wait until fire is completely out before cleaning.

2° Remove the smoke pipe connector from the furnace.

3° Inspect the furnace's heat exchangers (rectangular tubes) through the smoke outlet for creosote accumulation.

4° Using the supplied scraper, clean the heat exchangers and the combustion chamber and remove creosote residues.

5° Reassemble the smoke pipe connector.

CHIMNEY MAINTENANCE

One of the most efficient methods is to sweep the chimney, using a hard brush. Brush up and down. Soot and creosote residue will come off the inside surface and fall at the bottom of the chimney where it can be removed easily.

The chimney must be checked regularly and if creosote has accumulated, it must be removed. Cleaning on a monthly basis should be sufficient during the coldest months.

Smoke flue inspection

- The smoke flue should be inspected regularly during the heating season.
- If possible, the smoke flue should be dismantled and cleaned.
- The flue should be inspected to detect any defect.
- If no defect is noticed, put the flue back in place; otherwise, it must be replaced.
- Use only wood as a combustible.
- Seasoned hard wood logs 18" to 22" long are recommended as a combustible.

Regular maintenance is required for safe and efficient operation of a controlled-combustion heating system. Chimney, gaskets and smoke pipes must remain in good working condition. Change the air filter regularly, with the same type and same size.

MAINTENANCE OF THE BLOWER MOTOR

The two bearings of the motor must be lubricated once a year using non detergent SAE 20 oil.

DO NOT OVERLUBRICATE

FILTERS

The furnace must not be operated without the filters. In order to operate a slow combustion heating system efficiently and safely, you have to ensure a regular maintenance. This means that the chimney, the joints and the flue must be in good condition. The air filters must be replaced regularly. Use the same size and same type as the original filters.

DOOR GASKET MAINTENANCE

It is important to maintain the door gasket in good condition. After a while, the gasket might sag; a door adjustment may be then required.

6. REPLACEMENT PARTS

Your PSG furnace is designed to burn clean and required little maintenance. It's recommended conduct a visual inspection at least once a month to uncover that any damage on the unit. Repairs must be done as soon as possible with the original parts. You can find a complete list of replacement parts on our website at www.psg-distribution.com.

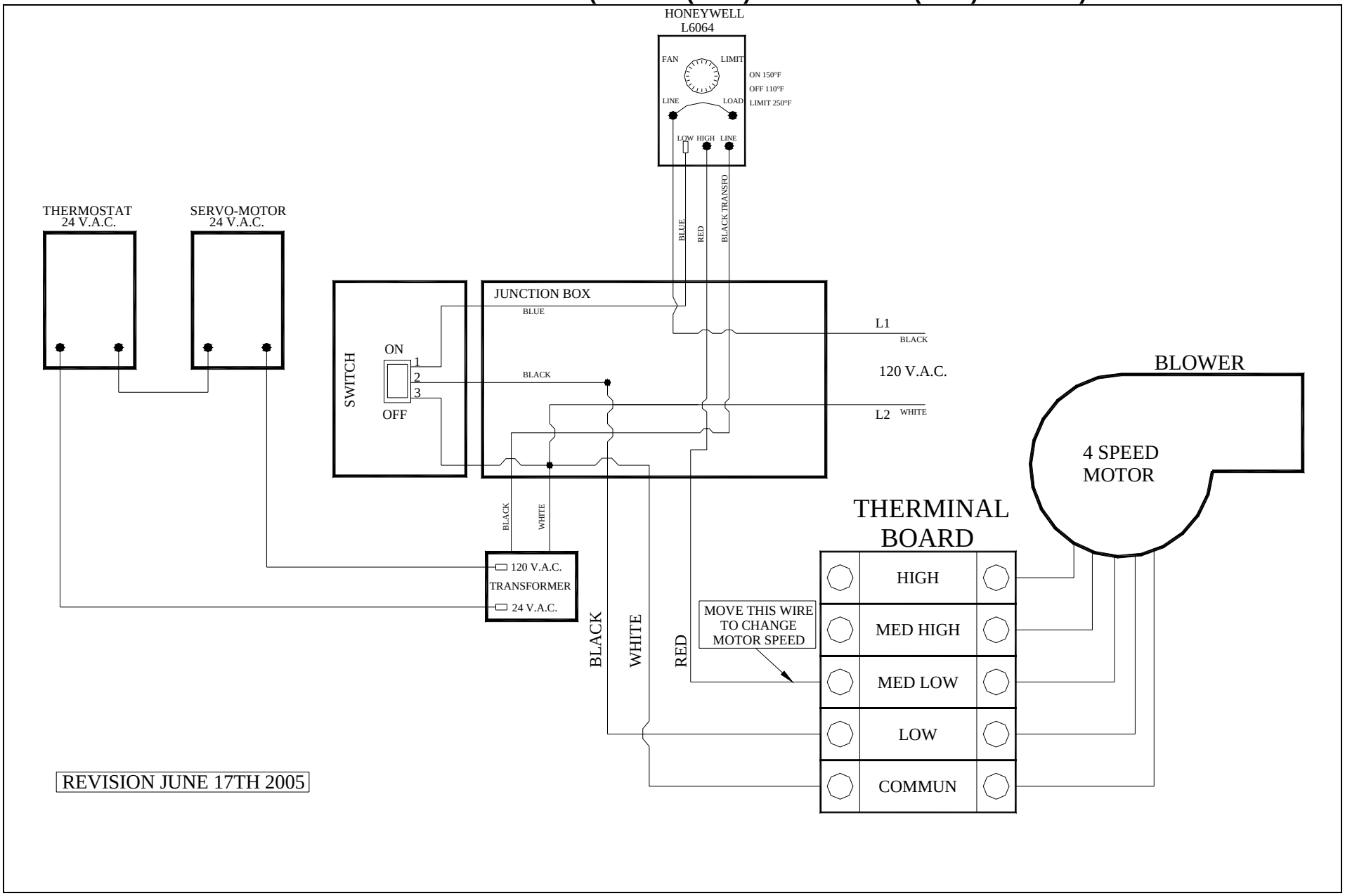
GASKET

We recommend to replace gasket that seal the door once a year, in order to maintain a good control of the combustion for maximum efficiency and security. To replace your door gasket, remove the old gasket and glue. Clean the surface thoroughly, apply glue sold for that particular use, and put the new gasket onto the door. Wait for at least 2 hours before lighting your furnace.

7. ELECTRIC DIAGRAMS FOR UNITS BUILT FROM 2005

WOOD-ONLY FURNACES

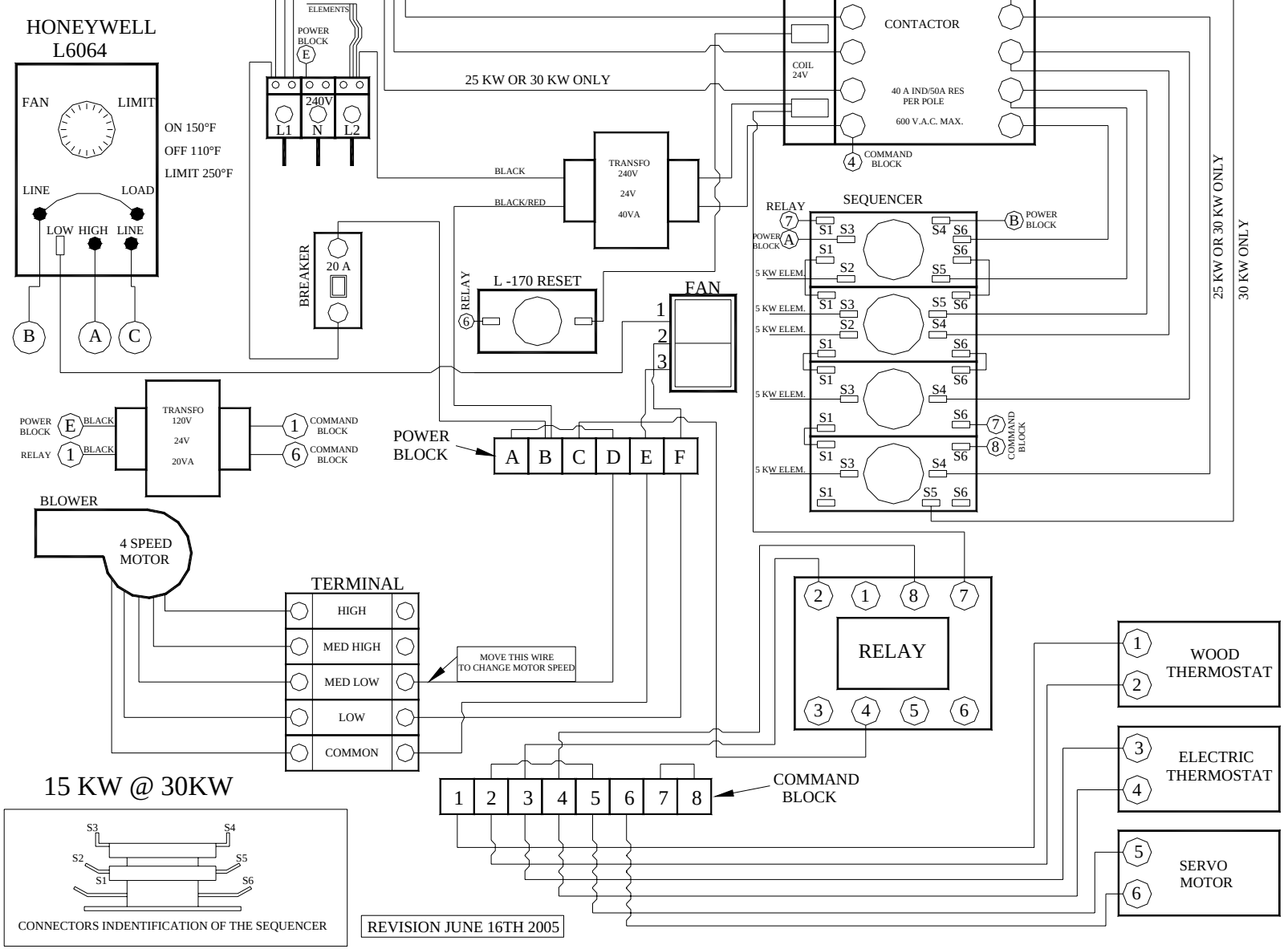
FAN LIMIT HONEYWELL L6064(MOTOR (G-10) 4 SPEED AND (G-12) 2 SPEED)



REVISION JUNE 17TH 2005

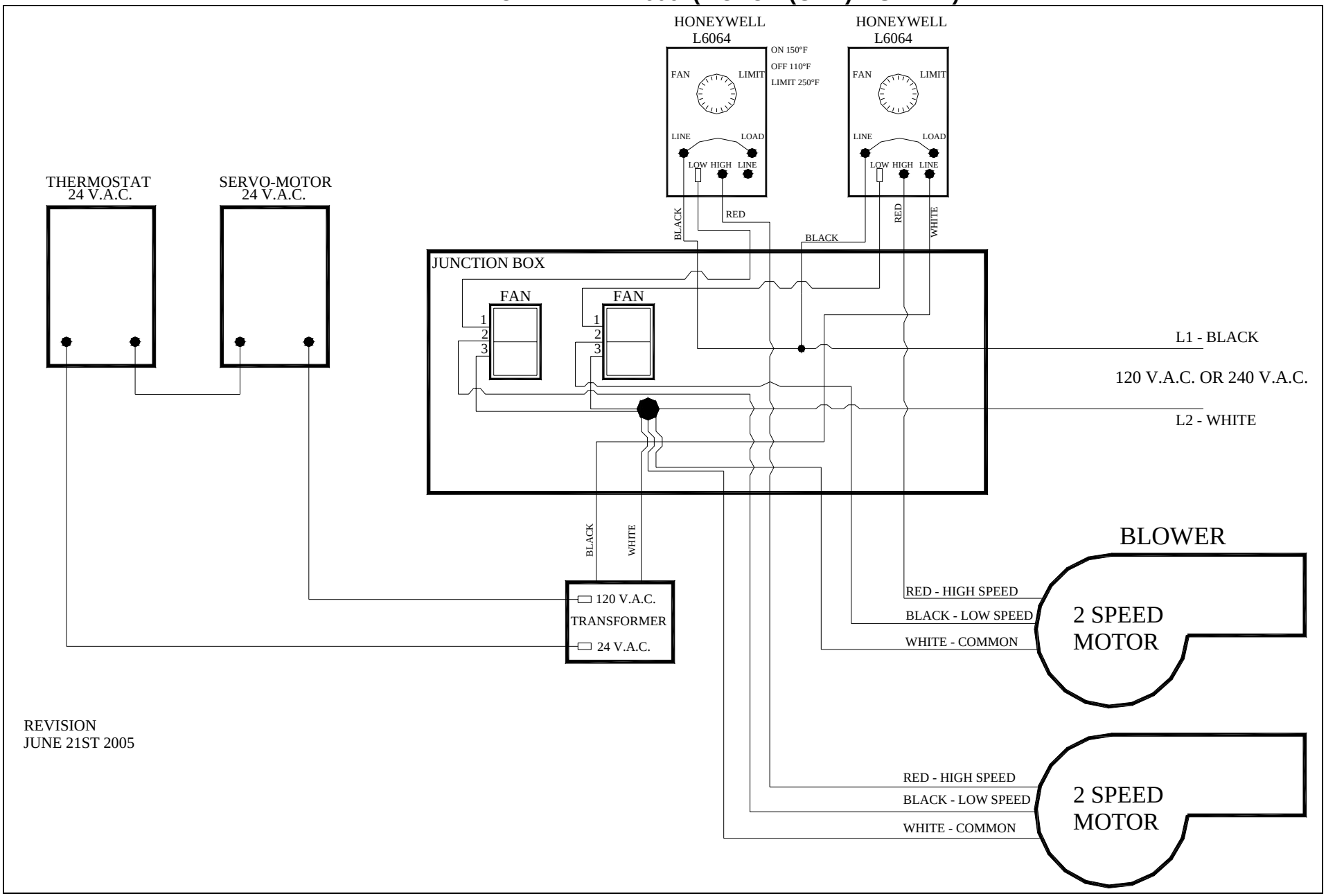
WOOD/ELECTRIC FURNACES

FAN LIMIT HONEYWELL L6064(MOTOR (G-10) 4 SPEED AND (G-12) 2 SPEED)



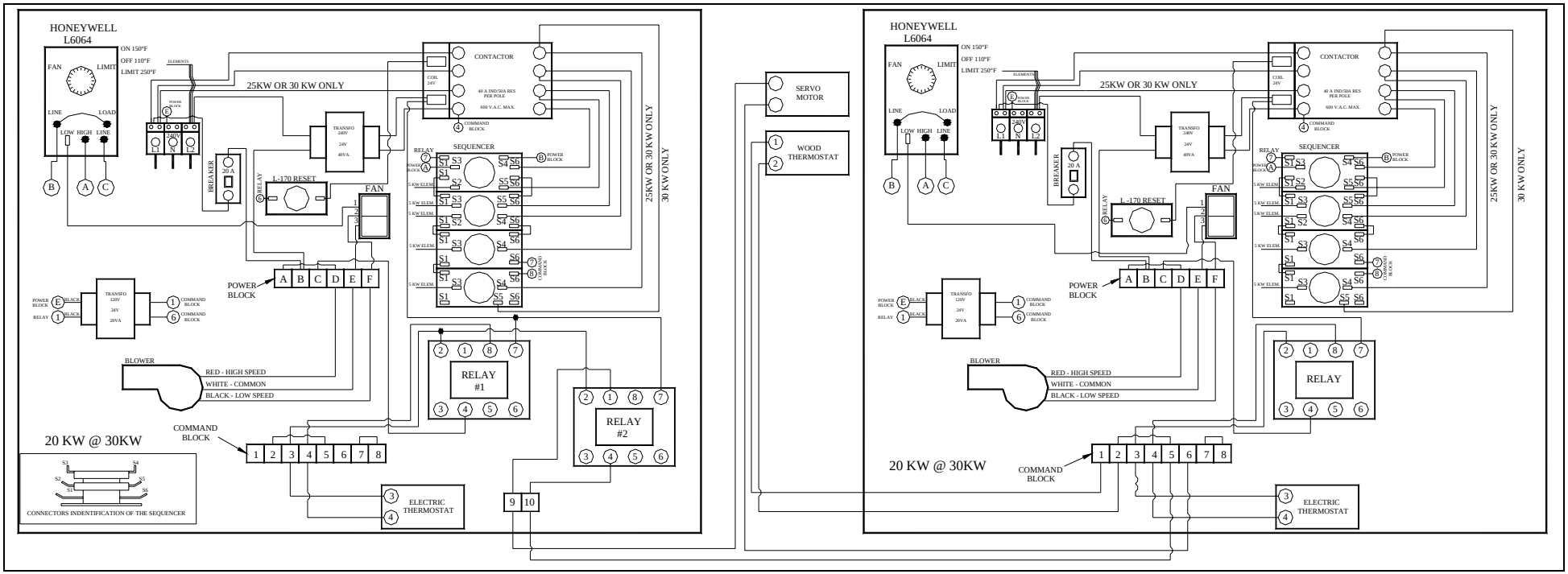
PSG5000 WOOD-ONLY FURNACES

FAN LIMIT HONEYWELL L6064(MOTOR (G-12) 2 SPEED)



REVISION
JUNE 21ST 2005

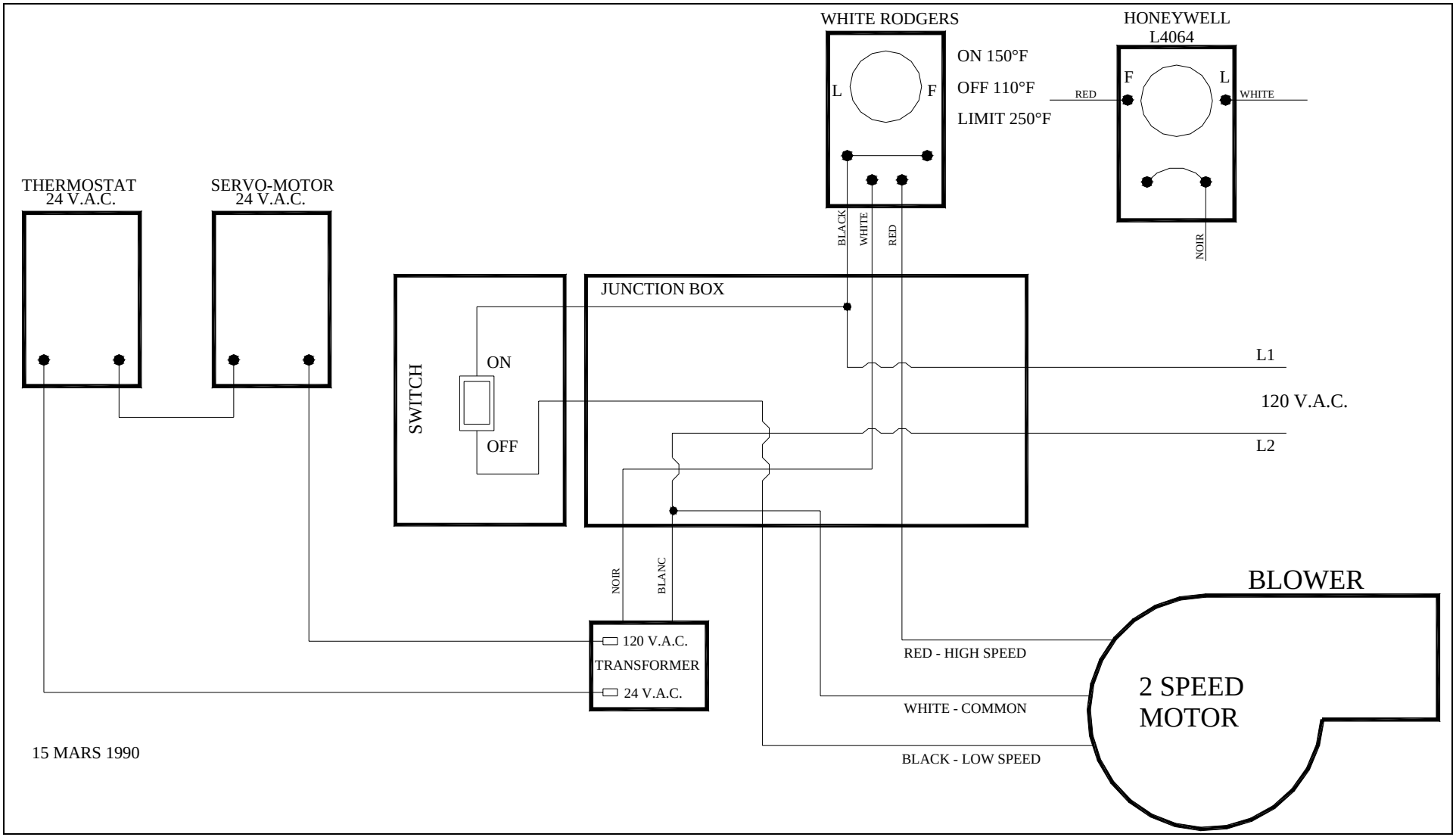
PSG5000 WOOD/ELECTRIC FURNACES
FAN LIMIT HONEYWELL L6064(MOTOR (G-12) 2 SPEED)



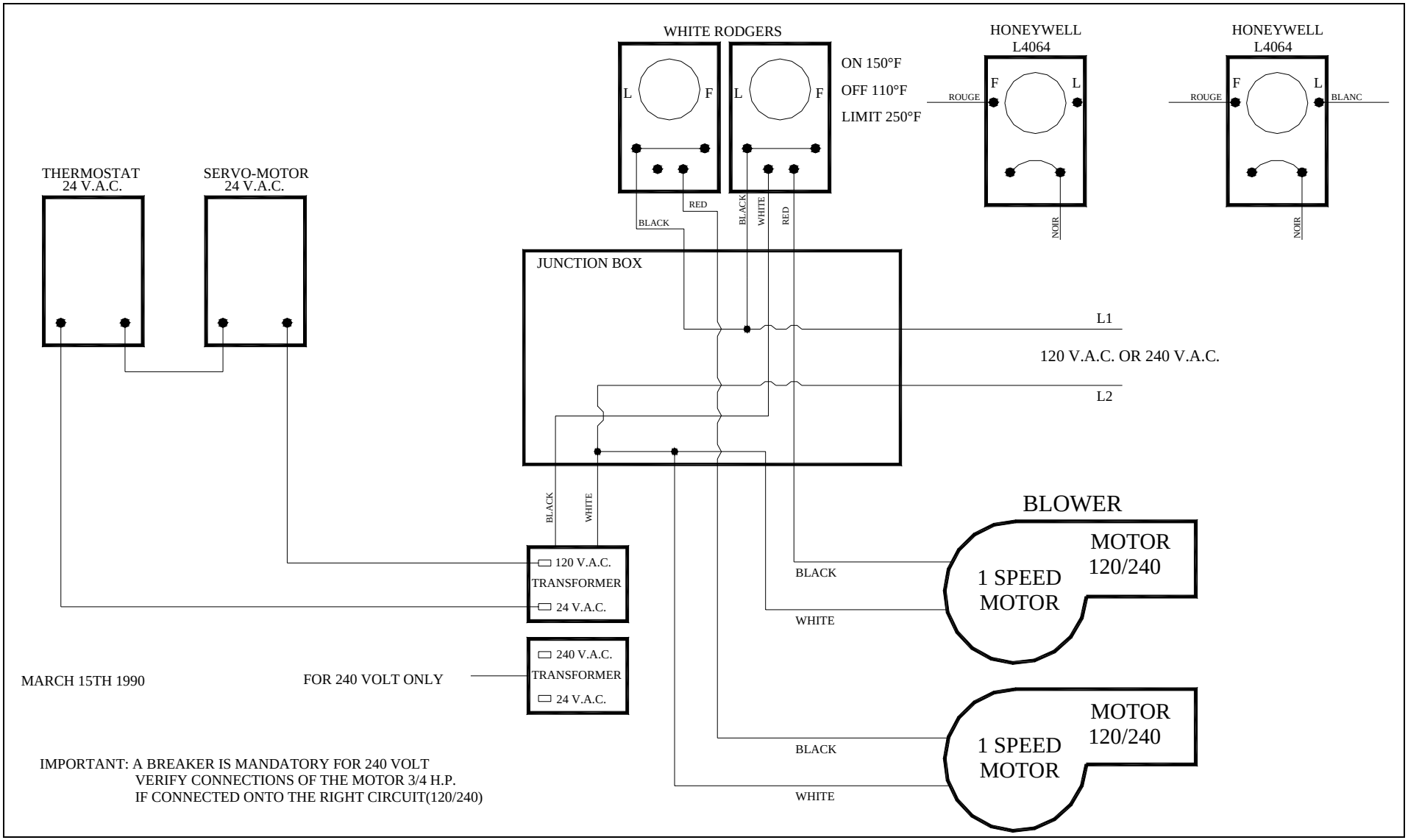
8. ELECTRIC DIAGRAMS FOR UNITS BUILT BEFORE 2005

WOOD ONLY FURNACES PSG 4000 & 4500

BELT-DRIVE G12 MOTOR

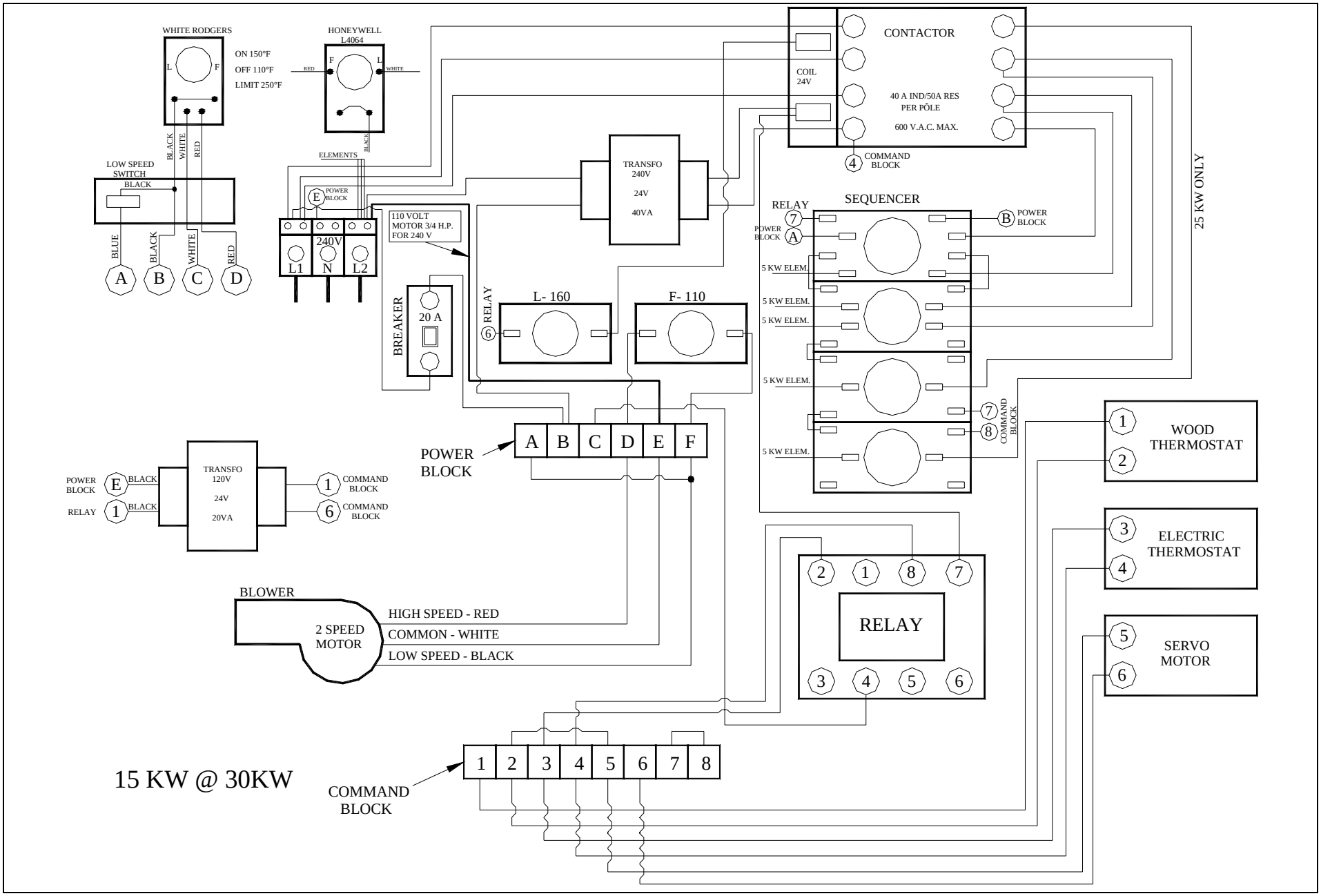


WOOD ONLY FURNACES PSG 5000
BELT-DRIVE G12 MOTOR

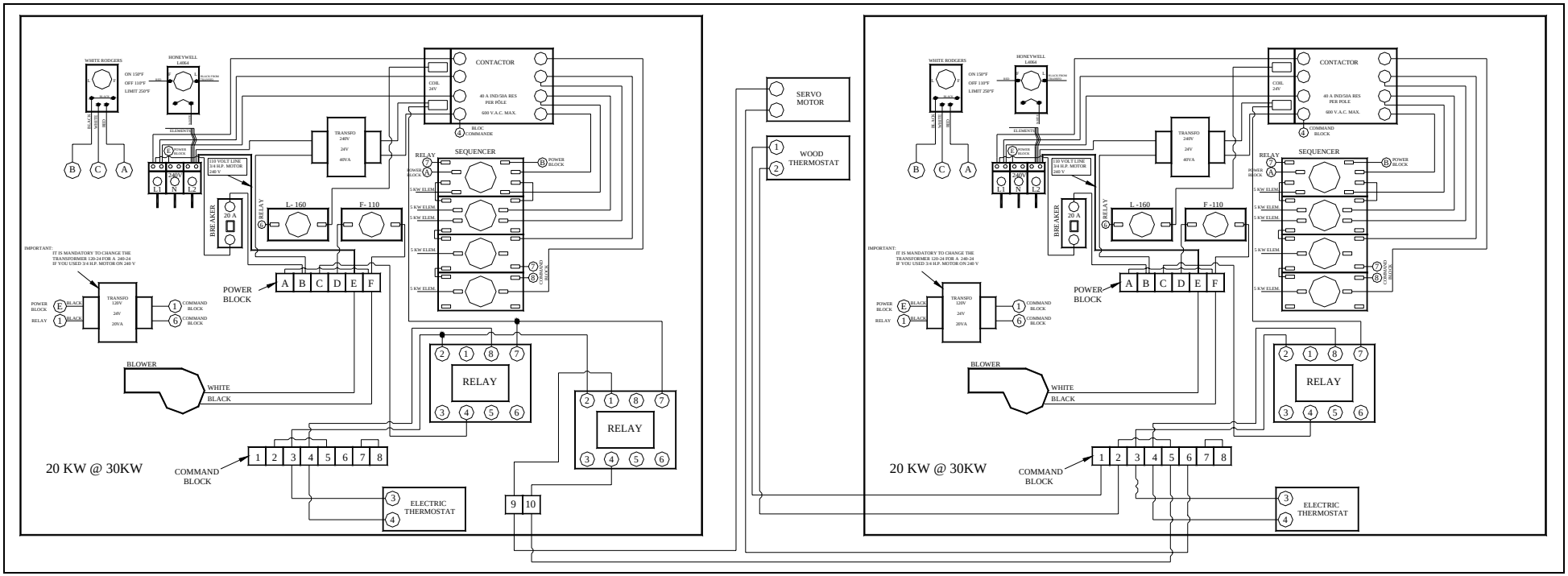


WOOD/ELECTRIC FURNACES PSG 4000 & 4500

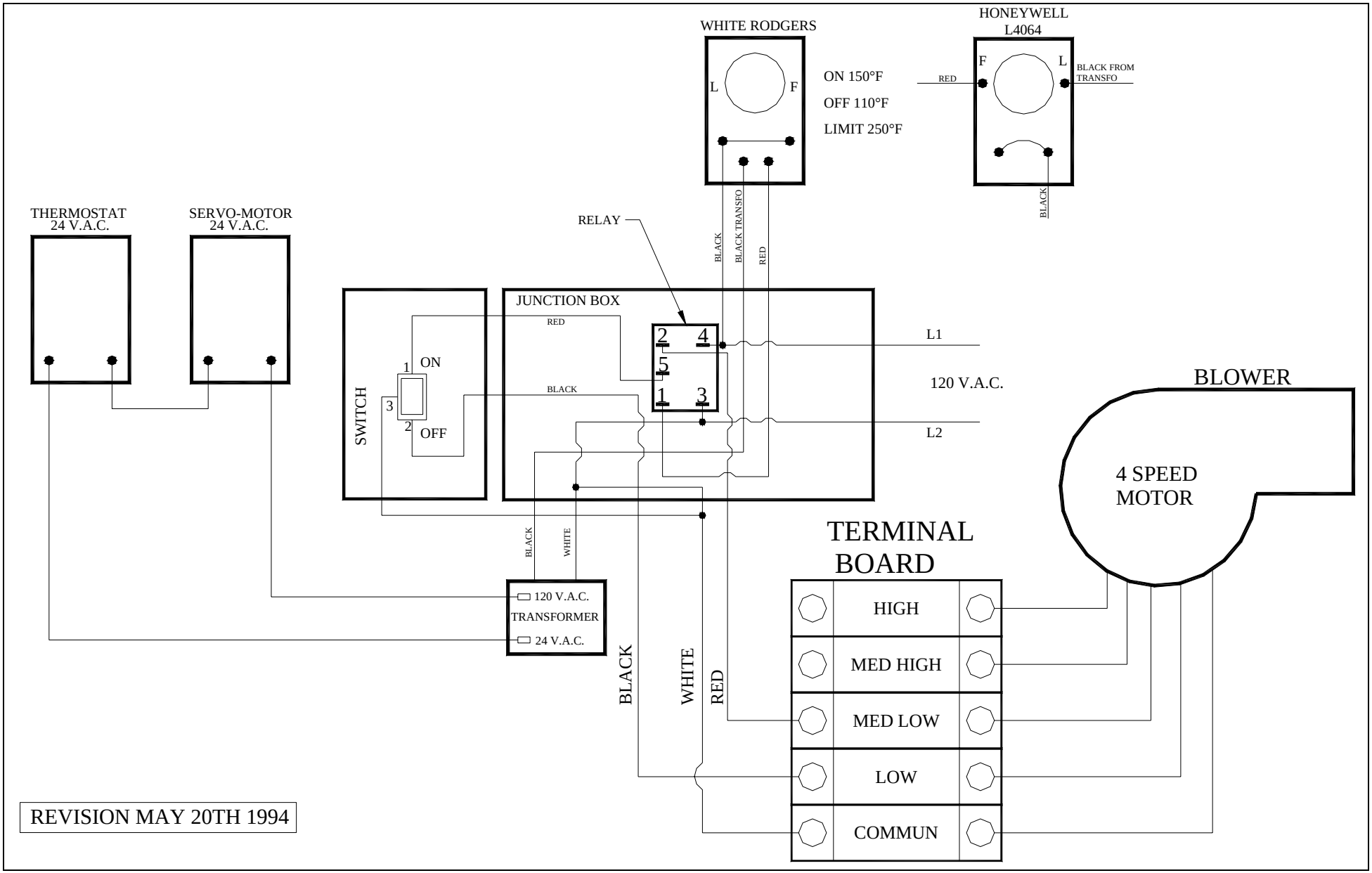
BELT-DRIVE G12 MOTOR



WOOD/ELECTRIC FURNACES PSG 5000 40KW @ 60KW
BELT-DRIVE G12 MOTOR

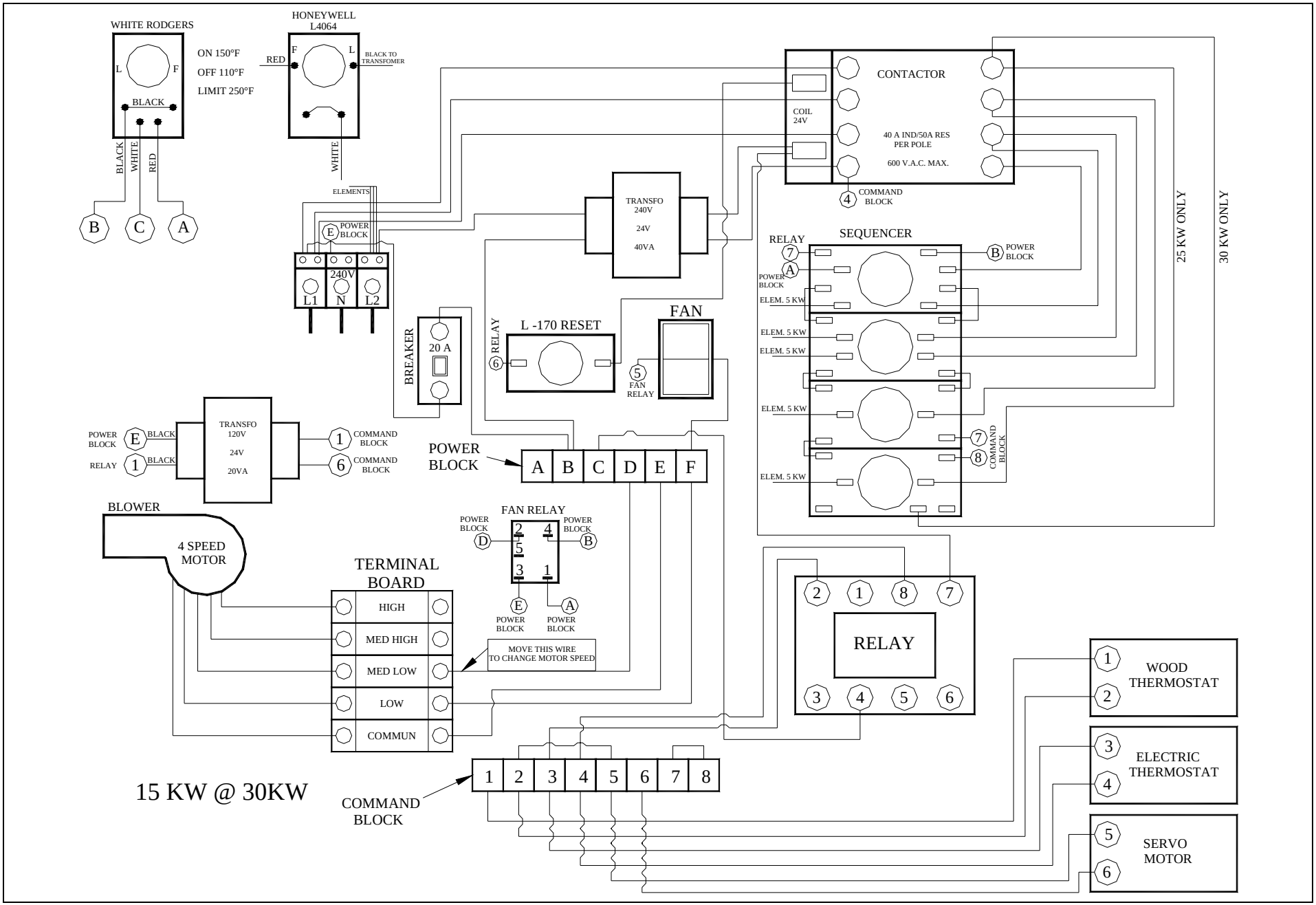


WOOD ONLY FURNACES PSG 2000-3000-4000
DIRECT-DRIVE G10 MOTOR



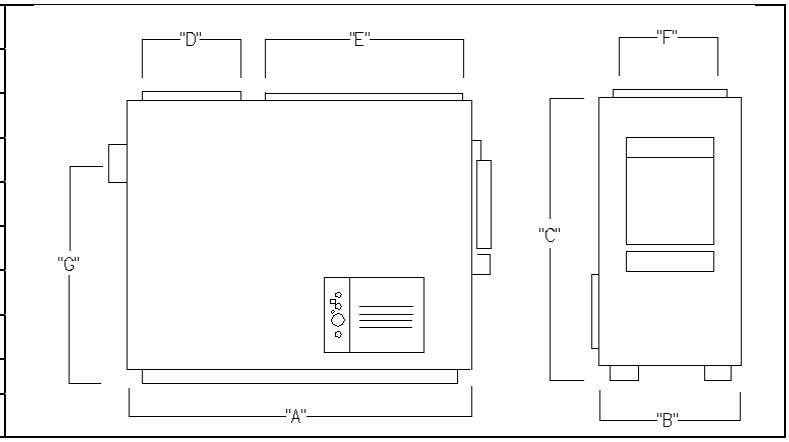
WOOD/ELECTRIC FURNACES PSG 2000-3000-4000

DIRECT-DRIVE G10 MOTOR



9. TECHNICAL SPECIFICATIONS

	2000	3000	4000	4500	5000
A	45 ¼"	47"	50"	52 ½"	54 ½"
B	23 ½"	25 ½"	29 ½"	33 ½"	54"
C	45 ½"	47 ¼"	48"	48"	56 ¾"
D	15 ⅞"	15 ⅞"	19"	19"	19 ¾"
E	26 ⅜"	28"	28"	30"	31 ½"
F	22 ½"	24 ½"	28 ½"	32 ½"	51 ⅛"
G	40 ½"	41 ¼"	42"	42"	49 ½"
PIPES	7"	8"	8"	8"	8"
WEIGHT	445	540	600	660	1200



GENERAL TECHNICAL DATA

MODEL	BELT DRIVE			DIRECT DRIVE								
	FAN	MOTOR	SPEED *	FAN	MOTOR	SPEED	OUTPUT (C.F.M.)	TEMP VAR.	BTU/ HR	STATIC PRESSURE		FILTER
								(^{O} F)	(WOOD)	("WATER)		(2)
										H_2O		
2000	N/A			G-10	1/3	4	950	68	70000	0,2	0,4	11 x 20
3000	N/A			G-10	1/3	4	1300	78	110000	0,2	0,6	12 x 24
4000	N/A			G-10	1/3	4	1300	128	180000	0,2	0,6	12 x 24
4000	G-12	3/4	2	N/A			1800	93	180000	0,2	0,8	12 x 24
4500	G-12	3/4	2	N/A			1800	121	235000	0,2	0,8	12 x 24
5000	G-12	3/4	2	N/A			3600	125	350000	0,2	1,45	20 x 24

TECHNICAL DATA – ELECTRIC MODE

MODEL	OUTPUT (C.F.M.)	TEMP. VAR. (^{O} F)	BTU/HR	AMPERES TOTAL	BREAKER REQUIRED	FEEDER GAUGE	VOLTAGE SINGLE PHASE	ELEMENTS QTY
15 KW	950 1300 1800	50 36 26	51195	75	100	4	120/240	3 – 5 KW
18 KW	950 1300 1800	60 44 32	61434	87	100	4	120/240	2 – 5 KW, 2 – 4 KW
20 KW	950 1300 1800	67 49 35	68260	95	115	3	120/240	4 – 5 KW
25 KW	950 1300 1800	83 61 44	85325	115	140	2	120/240	5 – 5 KW
30 KW	1300 1800	73 53	102390	140	170	1	120/240	6 – 5 KW
WOOD				15			120	

10. SELECTION CRITERIA (COMBINED WOOD/ELECTRIC FURNACE)

RESIDENTIAL AREA

House including: basement, first floor and second floor (half)

Floor area *	New house	Existing house
1100 square feet or less	PSG 2000 – 15	PSG 2000 – 18 or 20
1100 to 1450 square feet	PSG 3000 – 18	PSG 3000 – 20 or 25
1400 to 2000 square feet	PSG 4000 – 20	PSG 4000 – 25 or 30
2000 to 3000 square feet	PSG 4500 – 25	PSG 4500 – 30

COMMERCIAL AREA

Building including: Walls 14 to 16 feet high
Garage doors, no basement

Floor area	
2500 to 3800 square feet	PSG 4500 Wood
4000 to 10000 square feet	PSG 5000 – 40 or 60

* Consider main floor only.

11. TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTIONS
1. Sudden drop in heating performance follows adequate heating from first loadings.	Ash accumulation at lower intake blocks combustion air intake and causes deposits in heat exchanger and flue pipes.	Clear air intake of any ash accumulation. Clean heat exchanger and flue pipes.
2. Insufficient heat from first loadings, low draft	Wrong setting of draft regulator (opening too large). Restriction in chimney flue (excessive length of chimney connector, right-angled elbows).	Set draft regulator (reduce opening). Reduce distance between furnace and chimney and eliminate 90^{o} elbows. Maximum length: 10 feet. Tight-angle elbows: maximum 3.
3. Poor heating in the rooms while hot air plenum and furnace are hot.	Inadequate duct installation. Insufficient static pressure. Unbalanced system (too many hot air outlets for too few cold air intakes).	Reposition ducts.
4. Furnace burns too much wood.	The thermostats controlling the air combustion damper is located too close to cold air and demands heat continuously. Wrong setting of air intake register. Poor building insulation. Ash drawer left open. Furnace too small for heating needs. Unbalanced ventilation system, insufficient heat near thermostat.	Relocate thermostat. Adjust chain between damper motor and combustion air damper. Balance the ventilation system as to increase the flow air in room where thermostat is located.
5. Fan starts too late.	Fan starting temperature is too high. Cold air return is too cold. Inappropriate location of fan limit control in hot air plenum.	Lower starting temperature (the fan limit control is normally set at 150 ^{o}F); under certain conditions, this limit should be reduced. Reduce the cold air intake. Relocate fan limit control within the hot air plenum.
6. Creosote accumulation, very average performance.	Damp wood. Insufficient draft. Clogged chimney.	Use dry wood. Adjust draft regulator. Clean chimney, chimney connector and furnace heat exchangers.
7. Hot air plenum remains barely warm while furnace in full operation.	Damp wood. Too much cold air return in relation to hot air ducts. Unbalanced ventilation system.	Use dry wood. Redistribute ventilation system.

IMPORTANT NOTE

WE STRONGLY RECOMMEND CONSULTING A HEATING SYSTEM SPECIALIST FOR THE INSTALLATION OF A CENTRAL HEATING VENTILATION SYSTEM.

N.B.: STOVE BUILDER INTERNATIONAL INC. IS NOT LIABLE FOR ANY FAULTY INSTALLATION WHICH RENDERS THIS UNIT INOPERATIVE

12. DUCTS AND REGISTER MEASUREMENTS

(sample calculations)

SIMPLIFIED METHOD DISTRIBUTION SYSTEM

Ducts size (heat)

4 inch outlet reduce by 1”

5 inch outlet reduce by 2” Always by 8” thick

6 inch outlet reduce by 3”

N.B.: The main duct must be reduced every 2 outlets.

Ducts specifications (heat)

Dimensions	Length	Elbow	Average equivalence
4”	10’	1 x 90°	Max 4,000 Btu
5”	10’	1 x 90°	Max 6,000 Btu
6”	10’	1 x 90°	Max 7,000 Btu

DAMPER

For a 4” warm air outlet: 2” x 10” damper

For a 5” warm air outlet: 2” x 12” damper or 4” x 10”

For a 6” warm air outlet: 2” x 14” damper or 4” x 12”

WARM AIR SYSTEM INSTALLATION

HOUSE DIMENSIONS
Example: 28 x 40 bungalow: 1,120 sq. ft.

28 x 40 x 8: 8,960 cu. ft. x 1.8 Ch. air/hr: 16,128 Btu

Exposed walls:

40 + 40 + 28 + 28: 136 x 8: 1,088 cu. ft. x 22: 23,936 Btu

Number of windows:

12 of 3 x 4: 144 x 60: 8,640 Btu

Number of doors:

2 x 3 x 7: 42 x 100: 4,200 Btu

52,904 Btu

Non-insulated basement: 25%
Insulated basement: 15% 7,906 Btu

or 54 Btu per sq. ft. 60,840 Btu

FOR ELECTRIC ELEMENTS 80%:48,672 Btu or 14,28 kW

TO BE ADDED:House 1 1/2 floor = 25%
House 2 floors = 40%

BEDROOM (for example: 12 x 12)

12 x 12 x 8: 1,152 cu. ft. x 1.8 Ch. air/hr: 2,074 Btu

Exposed walls:

12 + 12 x 8: 192 x 22: 4,224 Btu

Windows:

3 x 4 x 60 720 Btu

7,018 Btu

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LIMITED LIFETIME WARRANTY

The PSG warranty extends only to the original consumer purchaser and is not transferable. This warranty covers brand new products only, which have not been altered, modified nor repaired since shipment from factory. Proof of purchase (dated bill of sale), model name and serial number must be supplied when making any warranty claim to your PSG dealer

This warranty applies to normal use only. Damages caused by misuse, abuse, improper installation, lack of maintenance, over firing, negligence or accident during transportation are not covered by this warranty.

This warranty does not cover any scratch or discoloration caused by over firing, abrasives or chemical cleaners. Any defect or damage caused by the use of unauthorized parts or others than original parts void this warranty.

An authorized qualified technician must perform the installation in accordance with the Instructions supplied with this product and all local and national building codes. Any service call related to an improper installation is not covered by this warranty.

Returned products are to be shipped prepaid to PSG for investigation. If a product is found to be defective, PSG will repair or replace such defect and reasonable transportation fees will be refund. Repair work covered by the warranty, executed at the purchaser domicile by an authorized qualified technician requires the prior approval of PSG. Labour cost and repair work to the account of PSG are based on predetermined rate schedule and must not exceed the wholesale price of the replacement part.

PSG at its discretion may decide to repair or replace any part or unit after inspection and investigation of the defect. PSG may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of any warranted but defective parts

PSG shall in no event be responsible for any special, indirect, consequential damages of any nature, which are in excess of the original purchase price of the product.

DESCRIPTION	WARRANTY APPLICATION	
	PARTS	**LABOUR**
Combustion chamber (weldings only)	Lifetime	5 years
Perforation caused by rust	5 years	n/a
Stainless steel baffle	5 years	1 year
Carbon steel baffle	2 years	1 year
Handle assembly	5 years	n/a
Ash drawer	Lifetime	1 year
Cast iron parts	5 years	1 year
Ceramic glass (thermal breakage only)	1 year	n/a
Paint, refractory bricks, gasket, blower, thermal switch (thermodisc) and rheostat	1 year	n/a
Plating	1 year	n/a

Shall your unit or a components be defective, contact immediately your **PSG** dealer. Prior to your call make sure you have the following information necessary to your warranty claim treatment:

- You name, address and telephone number;
- Bill of sale, dealer's name;
- Serial number and model name as indicated on the nameplate fixed to the back of your unit;
- Nature of the defect and any relevant information.

Before shipping your unit or defective component to our plant, you must obtain from your PSG dealer an Authorization Number. Any merchandise shipped to our plant without authorization will be refused automatically and returned to sender.