OWNER'S MANUAL

With Installation and Operation Instructions for

STERLING GAS-FIRED ROOM HEATER

Manufactured by

HearthStone®/NHC, Inc.
Stafford Avenue, P.O. Box 1069
Morrisville, Vermont 05661
Telephone 1-802-888-5232

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury or property damage. For assistance or additional information, refer to details in this manual, consult qualified service personnel or the gas supplier. Your warranty is voided, and NHC, Inc. will accept no responsibility for units that have been modified, tampered with or have been installed or used improperly or contrary to this manual.

FOR YOUR SAFETY - WHAT TO DO IF YOU SMELL GAS

Do not try to light any appliance.
Do not touch any electrical switch; do not use the phone in your building.
Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
If you cannot reach your gas supplier, call the fire department.

TABLE OF CONTENTS

TESTING LABORATORY

With ANSI National Design Complies Safety Standards
Warnock Hersey
Certified
Gas Appliances

Warnock Hersey

WARNOCK HERSEY INTERNATIONAL, INC.
8431 MURPHY DRIVE, P.O. BOX 735, MIDDLETON, WI 53562
TEL (608) 836-4400 • FAX 608-831-9279

INTRODUCTION

GENERAL OVERVIEW

Congratulations on your purchase of a HearthStone® Sterling gas-fired vented heater. The Sterling incorporates the latest in energy efficient gas technology which will provide you with clean, efficient heat for years to come. And the combination of natural stones with cast iron (either porcelainized enamel or painted black matte) gives the Sterling a pleasing look which can be maintained with minimum care.

Depending on the model selected, your Sterling is equipped with a standing pilot light (Sterling MV) or pilotless electronic ignition (Sterling EL). The standing pilot light Sterling has a pilot light which: 1) generates a millivoltage which in turn powers the wall-mounted thermostat and 2) lights the main burner when the thermostat calls for heat. The standing pilot light/millivolt Sterling MV requires no external power source for normal operation (unless equipped with the optional blower fan).

The electronic ignition Sterling (Sterling EL) has a pilot light which is lit by the electronic ignition module only when the thermostat calls for heat. Once lit, the pilot light in turn lights the main burners, all within a matter of seconds. When the proper room temperature has been reached and the thermostat satisfied, the entire unit shuts off, including the pilot light, until the thermostat once again calls for heat. The elimination of the standing pilot light reduces gas consumption resulting in improved operating efficiencies. Unlike the standing pilot light Sterling, the electronic ignition Sterling requires connection to standard household current for operation. Should the power fail, the electronic ignition Sterling will not function.

All Sterling gas heaters can burn either natural gas or liquid propane gas (LP). Every Sterling gas heater leaves the manufacturer configured to burn natural gas; if the unit is to burn LP then the unit must be converted to LP by qualified service personnel using an optional LP conversion kit prior to operating the unit with LP.

Regardless of whether equipped with standing pilot light or electronic ignition, or whether burning natural gas or LP, Sterlings manufactured after July 1, 1992 are equipped with a variable output control located on the gas control valve. This feature allows the operator to vary the heat output to suit particular needs. Heat output can be reduced during Fall and Spring when the need for heat is reduced, and increased during Winter months when the need for heat is greatest. Regardless of the heat output setting as controlled by the variable output control, the on/off cycling of the unit is always controlled by the wall-mounted thermostat.

A number of stone choices are available in the Sterling, as well as porcelainized enamel finishes in a variety of colors in addition to painted black matte cast iron. The combination of the stone and cast iron results in a heavy (260 lb) stove with significant thermal mass. As with all HearthStone® stoves, the stone and cast iron absorbs and re-radiates some of the heat produced by the unit. This re-radiation of stored heat is advantageous in that it tends to modulate or smooth out the heat output as the unit cycles on and off in response to the thermostat. And aside from the functional advantages of the thermal mass, the stone and cast iron also looks good, resulting in a stove which is beautiful and unique and well as efficient and practical.

The Sterling will provide years of practical and convenient service. However, as with any gas appliance, the unit must be properly and safely installed and maintained by qualified service personnel to ensure safe and trouble-free operation. Do not attempt to install, service or maintain this unit unless qualified to install, service or maintain gas-fired, vented appliances.

INFORMATION SHEET

Record here all relevant information concerning the purchase and installation of your Sterling gas-fired heater. This information will facilitate servicing, purchase of replacement parts and warranty claims, if necessary. Keep your original receipt in a safe place as proof of purchase.

Serial Number: _____

Ignition (check one): _____ Electronic Ignition (EL)

_____ Standing Pilot Light/Millivolt (MV)

Fuel type (check one): _____ Natural gas (default configuration from manufacturer)

_____ LP (if converted from natural gas)

Sold by: _____

_____

_____

Phone: _____ Date of Purchase:_____

Installed by: _____

_____

_____

Phone: _____ Date of Installation:_____

Gas Supplier _____

_____

_____

Phone: _____

Read this entire Owner's Manual before installing or operating the Sterling gas fired heater. Retain this manual for future reference.

WARNINGS, CAUTIONS AND SAFETY INFORMATION

NOTE! This gas appliance must be installed and maintained by qualified service personnel. Failure to properly install, adjust and maintain this gas appliance may result in an unsafe or hazardous condition which may lead to carbon monoxide poisoning, fire, explosion, personal injury and loss of life.

CAUTION! This gas appliance must be operated and maintained according to the instructions contained in this owner's manual. The unit must be inspected before use and at least annually by qualified service personnel.

WARNING! Do not use this appliance if any part has been under water. Immediately call qualified service personnel to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

HAZARD! This gas appliance must be connected to a properly installed and maintained venting system (chimney). This appliance is equipped with a down draft sensor switch (vent spill switch). Tampering, modifying, disconnecting or overriding the vent safety shutoff system may result in an unsafe or hazardous condition which may lead to carbon monoxide poisoning and loss of life.

HOT SURFACES! Certain exposed surfaces of the Sterling will reach high temperatures during normal operation. Do not place objects that may obstruct air circulation on, under or near this heater. Clearances to combustibles must be maintained as specified elsewhere in this manual. The Sterling should be located out of traffic and away from furniture, draperies, clothing and flammable material. Clean the area around, under and behind the unit on a regular basis to prevent the accumulation of dust and lint. Children and adults who are unfamiliar with heaters of this type should be alerted to the hazards of high surface temperatures and warned that they should stay away to avoid burns to skin and clothing. Children should be carefully supervised when in the same area as the Sterling heater. Do not leave children unattended in the vicinity of this unit.

FIRE HAZARD! Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this appliance.

ELECTRICAL HAZARD! This appliance is equipped with a three-prong grounded plug if equipped with electronic ignition (Sterling EL) or an optional blower fan. The three-prong grounded plus must be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from the plug or otherwise attempt to circumvent the grounding protection provided with the unit.

CAUTION! This unit, if equipped with electronic ignition (Sterling EL), automatically lights the pilot light and main burners each time the thermostat calls for heat. Never attempt to light the pilot light or main burners by hand with a match or lighter. If, after repeated attempts, the electronic ignition device fails to light the pilot light and main burners, discontinue operation, turn off the gas at the gas control valve on the unit and immediately contact qualified service personnel for assistance.

CAUTION! This unit, if equipped with standing pilot light (Sterling MV), has a standing pilot light which is lit using a piezoelectric spark generator as described elsewhere in this manual. Never attempt to light the pilot light or main burners by hand with a match or lighter. If, after repeated attempts, the pilot light fails to light, discontinue operation, turn off the gas at the Sterling gas control valve and immediately contact qualified service personnel for assistance.

FUEL WARNING! This unit is designed to burn either natural gas or LP if converted to LP as specified elsewhere in this manual. Never burn paper, wood or any other materials in this unit.

SAFETY INFORMATION! This unit is supplied with decorative ceramic logs. If the decorative ceramic logs become damaged or broken they must be replaced with similar, approved decorative ceramic logs supplied by the manufacturer. Do not replace the manufacturer-supplied decorative ceramic logs with unapproved ceramic logs, real wood logs or any other material.

NOTE! The Sterling requires an adequate supply of air to provide ventilation around the unit and to support combustion. Most building have sufficient air infiltration to satisfy these requirements. However, extremely air-tight structures may require the introduction of supplemental air from the outside to allow for the proper operation of the unit.

CAUTION! Any shield, door, safety screen or component removed for servicing the Sterling must be replaced prior to operating the unit. If you believe that your Sterling is not performing properly in any way whatsoever, immediately discontinue operation until the unit has been inspected and approved for continued operation by qualified service personnel.

WHAT TO DO IF YOU SMELL GAS!

- **DO NOT ATTEMPT TO LIGHT THIS UNIT OR ANY APPLIANCE! EXTINGUISH ANY OPEN FLAME.**
- **DO NOT TOUCH ANY ELECTRICAL SWITCH. DO NOT PLUG IN OR UNPLUG ANY APPLIANCE. DO NOT USE ANY PHONE IN YOUR BUILDING.**
- **OPEN WINDOWS TO VENT THE ROOM AND VACATE THE BUILDING.**
- **TURN OFF THE MAIN GAS SUPPLY.**
- **IMMEDIATELY CALL YOUR GAS SUPPLIER FROM A NEIGHBOR'S PHONE. IF YOU CANNOT REACH YOUR GAS SUPPLIER, CALL THE FIRE DEPARTMENT.**

SPECIFICATIONS

	Natural Gas	LP
Maximum heat input	40,000 BTU/hour	40,000 BTU/hour
Orifice size	44 DMS	55 DMS
Minimum gas supply pressure for purpose of input adjustment	4.5 inches W.C.	11.0 inches W.C.
Max. manifold pressure	3.5 inches W.C.	10.0 inches W.C.
Min. manifold pressure	1.8 inches W.C.	6.1 inches W.C.
Maximum efficiency	73.3%	76.1%
Fuel requirements	Natural gas	Liquid propane (LPG)

Fuel supply line size	1/2"
Flue exit	4" diameter, rear exit
Chimney requirement	Type B-1 vent, 4" diameter
Ignition	Pilotless electronic ignition (Sterling EL) or Standing pilot light (Sterling MV)
Electrical requirements	110/115 VAC, 60 cycle, 1/0 amp (power required for electronic ignition/Sterling EL models only)
Certification	Tested to ANSI Z21.11.1b-1990/CAN 1-2.1-M86; "Gas-fired room heaters, vented"
Installation	Install in accordance with local codes, if any; if not, follow current ANSI Z223.1 (U.S. installations) or current CAN1-B149 installation code (Canadian installations)
Shipping weight	290 lbs
Actual weight	265 lbs
Warranty	1 year limited warranty, excluding door glass, gasket and enamel finish

Millivolt Heat Output (Sterling MV)		
High setting, no optional fan	28,840 BTU/hour	29,760 BTU/hour
Low setting, no optional fan	18,618 BTU/hour	22,964 BTU/hour
High setting, with optional fan	29,320 BTU/hour	30,440 BTU/hour
Low setting, with optional fan	19,223 BTU/hour	23,216 BTU/hour
Electronic Heat Output (Sterling EL)		
High setting, no optional fan	28,840 BTU/hour	29,760 BTU/hour
Low setting, no optional fan	18,975 BTU/hour	23,027 BTU/hour
High setting, with optional fan	29,320 BTU/hour	30,440 BTU/hour
Low setting, with optional fan	19,443 BTU/hour	23,310 BTU/hour

Refer to Appendix B - Safety Label for Canadian ratings and orifice sizes for high altitude installations.

UNPACKING AND INSPECTION

PACKING LIST

1 - Sterling Gas-fired Heater
1 - Boxed set of two Decorative Ceramic Logs
1 - Owner's Manual
1 - Warranty Card

UNPACK AND INSPECT FOR DAMAGE

The Sterling is packaged by the manufacturer to withstand shipment without damage under most circumstances. However, damage can occur during transit and handling, so take care to inspect for damage when unpacking and installing the unit. If any damage or missing parts are detected, immediately contact your dealer. Do not install or put into service a damaged or incomplete heater.

Prior to removing the shipping carton, inspect the carton for visible signs of damage. Carefully remove the shipping carton. Cut and remove the plastic banding which encircles the unit and pallet. Caution: The three top stones are NOT cemented or otherwise permanently fasten in place! Carefully remove and set aside the three top stones. Use the protective wrapping material to temporarily protect the stones from chipping and damage while the unit is inspected and installed.

Inspect the Sterling for visible or concealed damage. The unit should appear square and true. The stones should be whole and without cracks, chips or breakage. The sheet metal parts should be smooth and free of bends or dents. The enameled cast iron (if porcelainized) should be free of chips or cracks. The power cord (electronic ignition models/Sterling EL) should be whole and free of cracks or cuts. If visible or concealed damage is found or suspected, contact your dealer for instructions.

With the top stones removed and set aside, undo the three lag bolts which fasten the unit to the pallet. Take care not to mar or chip the enamelled legs on porcelainized units. Lift the stove off the pallet and set it into place. For information regarding hearth requirements and minimum clearances, refer to Hearth Requirements and Clearances to Combustibles elsewhere in this manual.

The decorative ceramic logs supplied with the Sterling are shipped in a cardboard box within the firebox. Unfasten the screw that holds the front door closed and carefully remove the box. Always use great care when handling the decorative ceramic logs as they are fragile and subject to damage or breakage if handled roughly. Open the boxed logs and inspect the logs for breakage. If a broken or damaged log is encountered, contact your dealer for replacement log(s). Otherwise, set the logs aside in their box until called for in the installation procedure.

INSTALLATION AND CONNECTIONS

The Sterling is a sophisticated gas-fired appliance. Installation must be completed by qualified service personnel. Any attempt by unqualified personnel to complete venting, gas and electrical connections and other technical components of the installation procedure with which he/she is not familiar and technically qualified may result in an carbon monoxide poisoning, explosion, fire, damage or loss of life. Do not attempt to complete any part of the installation of this unit unless technically qualified to do so.

When installing the Sterling gas heater the following items must be considered for a safe and practical installation:

Hearth Requirements/Floor Protection
Clearances to Combustibles
Electrical Connections (Electrical Power and Thermostat)
Venting/Chimney Requirements
Gas Supply
Log Placement Within Unit

HEARTH REQUIREMENTS/FLOOR PROTECTION

The Sterling must be installed on a hard combustible or non-combustible surface. Installation on a stone, ceramic tile or wood floor is acceptable. For installation of the Sterling on carpeting, vinyl tile or other combustible material other than wood flooring, the unit shall be installed on a metal, wood panel or other non-combustible hearth. The hearth must extend the full width and depth of the Sterling with a minimum dimension of 17" x 27". See Figure 1.

CLEARANCES TO COMBUSTIBLES

Due to high surface temperatures, the Sterling should be located out of traffic and away from furniture and draperies. Clothing and other flammable material should not be placed on or near the Sterling heater.

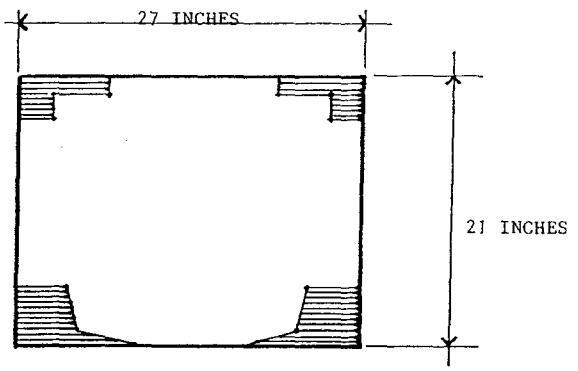
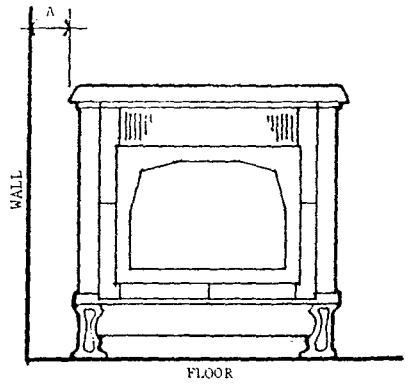


Figure 1 - Floor Protection

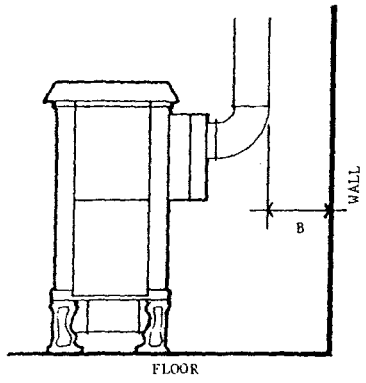
Always maintain adequate clearances around the air openings into the combustion chamber and for adequate ventilation. When positioning the unit be sure to consider the need for access to the gas control valve access door on the lower right side of the unit as well as full access for periodic cleaning and servicing.

Minimum clearances to combustibles must be maintained as shown in Figures 2, 3, 4 and 5. Note that the rear clearance to combustibles will be determined by either the unit's or vent pipe's minimum clearance, depending on whether the installation calls for an up vent within the room (Figure 3) or a rear exit, through-the-wall vent pipe (Figure 5).



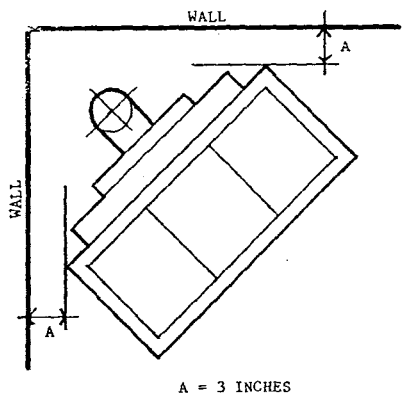
A=3 INCHES

Figure 2 - Side Clearances to Combustibles



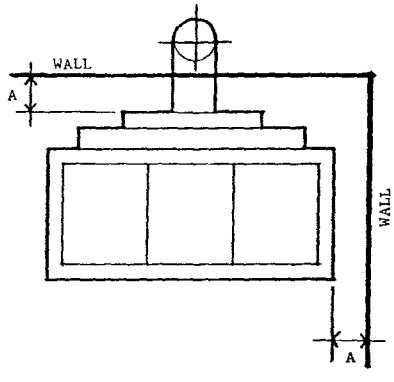
B=6 INCHES - SINGLE WALL PIPE
1 INCH - B-VENT PIPE

Figure 3 - Rear Clearances to Combustibles, top exit installation



A = 3 INCHES

Figure 4 - Corner Clearances to Combustibles



A = 3 INCHES

Figure 5 - Clearances to Combustibles Typical Rear Exit Through-the-Wall

ELECTRICAL CONNECTIONS

Electrical Power

If your Sterling is equipped with electronic ignition (Sterling EL) then the unit must be connected to an appropriate power source. The Sterling EL must be electrically grounded in accordance with local codes or, in the absence of local codes, with the current edition of the National Electrical Code, ANSI/NFPA 70 or, in Canada, the Canadian Electrical Code, CSA C22.1. If your Sterling is equipped with a standing pilot light (Sterling MV), then the unit does not require connection to an electrical power source for operation.

The electronic ignition Sterling EL uses an electronic ignition module that lights the pilot light which in turn lights the main burners each time the thermostat calls for heat. The use of electronic ignition eliminates the need for a standing pilot light which in turn reduces gas

consumption (no pilot light when the thermostat is not calling for heat).

The electronic ignition Sterling EL is equipped with a three-prong grounded plug for protection against shock hazard. The three-prong grounded plug must be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from the plug or otherwise attempt to circumvent the grounding protection provided with the unit.

The electronic ignition Sterling EL must be connected to a grounded 110/115 volt, 60 cycle, 1.0 amp power source (standard U.S./Canadian household current). This connection is made by plugging the Sterling's three-prong power cord directly into a standard grounded outlet. An extension cord should not be used with this appliance. If a grounded outlet does not exist within reach of the unit's power cord then an outlet should be installed by a qualified electrician.

Thermostat

All Sterlings require a wall-mounted thermostat for operation. The thermostat controls the unit by calling for heat and turning the unit on when the room is cold, and turning the unit off once the room has warmed sufficiently to satisfy the thermostat.

Thermostat Requirements

The electronic ignition Sterling EL is controlled by a thermostat on a 24 volt AC two-wire circuit, similar to most residential furnaces. The standing pilot light/millivolt Sterling MV is controlled by a 750 millivolt DC two-wire circuit.

A thermostat is not supplied with the Sterling but is available from your dealer or the manufacturer as an accessory. Alternatively, a thermostat can be easily obtained from most hardware stores, building supply houses, etc. The Sterling can be connected to a "set-back" or programmable thermostat allowing for programmed temperature settings at various times of the day.

While most standard two-wire thermostats will work with the Sterling, please note that some thermostats are internally equipped with an "anticipator." A thermostat equipped with an anticipator will turn the heater or furnace off just prior to reaching the desired room temperature in anticipation of a continued, normal temperature rise in the room after the heater shuts off. The anticipator serves to reduce wide temperature swings sometimes encountered during the normal on/off cycling of a heating unit. For further information on the operation and adjustment of a thermostat equipped with an anticipator, refer to Appendix C - Anticipators as found in Thermostats, as well as to the instructions provided with the thermostat.

The electronic ignition Sterling EL can be successfully controlled by a thermostat equipped with or without an anticipator. However, the standing pilot light Sterling MV cannot be controlled by a thermostat equipped with an anticipator.

Thermostat Placement

The thermostat should be placed in the same room or living space as the Sterling, typically 5 feet off the floor and away from areas of draft, direct sunlight or other influences which would cause the temperature in the vicinity of the thermostat to be unrepresentative of the room temperature in general. Such influences might include strong lighting, a heater vent from the

central heating system, a nearby drafty window, etc.

Placement of the thermostat on an inside wall rather than an outside wall is generally preferable. Do not place the thermostat directly behind or too near the Sterling, otherwise every time the thermostat calls for heat and the unit turns on, heat from the unit will immediately satisfy the thermostat and turn the unit off.

Thermostat Wiring

The thermostat should be connected to the Sterling using standard 18 gauge, two conductor, solid core, insulated thermostat wire. Doorbell wire, easily obtained from most building supply companies, serves as an adequate thermostat wire. The wire running from the Sterling to the thermostat can be either surface mounted or chased under the floor, through the walls, etc.

There is no practical limit to the wire length running from the Sterling to the thermostat if the Sterling is equipped with electronic ignition. However, for standing pilot light Sterlings the length of the thermostat wire should be 100 feet or less. Leave a small coil of wire behind the Sterling so that the unit can be moved out of position for servicing and cleaning.

Connect the thermostat wire to the two crimp connectors found at the rear of the Sterling immediately below the draft hood and flue connector (Figure 6). Strip away 1/4" of insulation from each of the two conductors. Inserted one wire into each of the two crimp connector and crimp each connector twice, once so as to crimp against the stripped wire and once so as to crimp against the insulated portion of the wire. Check to ensure that the connections are secure and permanent.

At the thermostat, the thermostat wire should be connected to the two connection screws on the thermostat base plate per the instructions received with the thermostat. Take care not to overtighten the connection screws and not to damage the internal parts of the thermostat. The thermostat should be mounted level for proper operation and accurate temperature control.

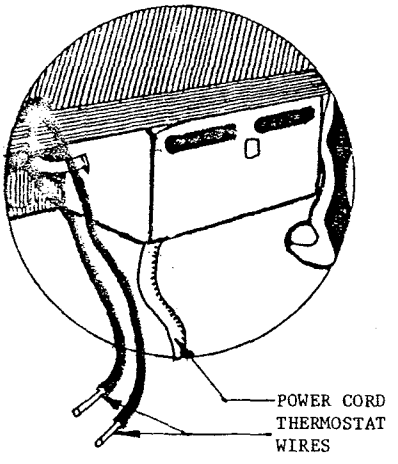


Figure 6 - Thermostat Wire Connections

VENTING/CHIMNEY REQUIREMENTS

Normally Aspirated Chimneys

The Sterling heater is a high efficiency gas heater. With operating efficiencies as high as 76%, most heat output is retained within the living space, with minimal heat leaving the room via the chimney. Some heat is required in all chimneys in order to establish and maintain a draft. Since most of the heat is retained in the living space with minimal heat entering the chimney, it is imperative that the chimney/venting system be properly sized and installed in order to establish and maintain the draft required for the unit to function.

The Sterling must be properly connected to a 4" diameter type B-1 vent which is constructed and installed in accordance with NFPA54 and NFPA211. Single wall vent pipe may be used within the same room as the Sterling so long as adequate (6") clearance is maintained from the single wall pipe to combustible surfaces. The vent pipe must switch to double-wall type B-1 vent at the first wall or ceiling penetration, and continue with type B-1 vent from thereon.

Connect the single wall vent pipe or the B-1 vent to the flue collar located on the rear surface of the unit using 3 sheet metal screws. For wall, roof or partition penetration, refer to the current edition of ANSI Z223.1 or CAN1-B149 for instructions and clearances to combustibles. The Sterling can be connected to an existing, properly constructed masonry or prefabricated chimney so long as the type B-1 vent is extended through the entire length of the chimney. An annual inspection is required to confirm that the vent is unobstructed. The Sterling must not be connected to or combined with a chimney flue serving other gas or solid fuel appliances.

Type B-1 vent pipe is intended primarily for installation inside buildings to provide an essentially vertical passageway for flue gases to the outer air from the vented gas appliance. When it is impractical to install B-1 vent pipe inside a building, it may be installed outdoors provided that it is 1) certified for outside installation, 2) installed in accordance with the manufacturer's installation instructions and 3) adequately chased (enclosed) and insulated (per Venting Tables, Category I - Central Furnaces, AGA and GAMA. July 1991; Standards for Gas Vents, National Standards of Canada; and CAN/CGA-B149.1-M91). Exterior B-1 venting not chased and insulated below the roof line may experience continuous condensation depending on the locality. B-1 vent pipe passing through an unused masonry chimney flue is not considered to be exposed to the outdoors.

Draft Hood/Down Draft Sensor/Spill Switch

The Sterling has a draft hood as part of its rear assembly. The draft hood must not be altered or obstructed. The Sterling must be installed so that the draft hood is in the same atmospheric pressure zone as the combustible air inlet for the unit.

The draft hood is equipped with a safety shutoff, down draft sensor switch or "spill switch" which is located in the draft hood just beneath the flue collar on the rear of the unit. This switch is designed to sense a loss of draft within the chimney. The down draft sensor switch is wired in series with the thermostat and is typically in the closed position. In order for the unit to operate, both the down draft sensor switch and the thermostat must be in the closed position.

Should the Sterling fail to establish or loose its draft while in operation, hot exhaust gasses will spill into the room through the bottom of the draft hood instead of exiting the draft hood via the flue collar and venting to the outdoors. When this undesirable down draft condition

occurs the hot gasses spilling out of the draft hood will heat the spill switch causing it to open which turns the unit off.

Do not modify, disconnect or otherwise defeat the purpose of the down draft sensor switch. Should the down draft sensor repeatedly open thereby shutting down the unit, it is indicative of an unsafe venting condition which must be corrected. Operation of this unit when not properly connected to a properly installed and maintained venting system or tampering with the vent safety shutoff system can result in carbon monoxide (CO) poisoning and possible death.

Power Venting

For applications where it is impractical or impossible to extend B-1 vent pipe to above the existing roofline, the Sterling can be vented using a power vent. A power vent is essentially a specialized electric fan mounted on the outer wall of the building which is connected to the heater via flue pipe. When the thermostat calls for heat, the power vent turns on and creates a draft in the flue pipe similar to the draft created by a properly functioning conventional chimney. The Sterling operates in a normal fashion, satisfied by the simulated draft. A series of interlocking safety devices prevent operation of the heater unless the power vent is operating properly. Both the Sterling and the power vent are controlled by the wall thermostat and neither will operate if there is a power failure. For installations requiring power venting, contact the manufacturer for a list of certified power vent suppliers. The power vent supplier will in turn supply the power vent installation instructions.

GAS SUPPLY

Factory-Ready for Natural Gas Operation

All Sterlings are shipped from the manufacturer fully assembled and ready for natural gas operation with minor adjustment. However, if the Sterling is to be used with LP (liquid propane gas) rather than natural gas, then the unit must be converted from natural gas to LP. Conversion of the unit must be performed by qualified service personnel using the manufacturer-supplied optional LP conversion kit. When ordering the LP conversion kit specify whether the unit to be converted is equipped with electronic ignition (Sterling EL) or a standing pilot light (Sterling MV). Follow the conversion instructions supplied with the conversion kit.

Gas Connection

The gas supply line connection is made to the Sterling gas control valve just inside the right rear leg of the unit using a 1/2" male NPT fitting (electronic ignition/Sterling EL) or a 3/8" male NPT fitting (standing pilot light/Sterling MV). The supply line should be 1/2" diameter or appropriately sized to provide a sufficient gas supply to meet the maximum demand of the unit without undue loss of pressure.

The unit must be installed and connected in accordance with local codes, or in absence of local codes, with the most current edition of the National Fuel Gas Code ANSI Z223.1/NFPA 54 or CAN1-B149. The supply line must include a manual shut-off valve and union so that the unit can be disconnected for servicing. Provide a 1/8" NPT plugged tap, accessible for test gauge connection, immediately upstream of the gas supply connection to the unit.

Gas Pressure Adjustment

Once connected to the gas supply, the supply line and manifold gas pressures must be tested to ensure that they meet the minimum gas supply pressures as listed in the Specifications for the type of fuel in use (natural gas versus LP) for the purpose of input adjustment. The supply line pressure is tested by connecting a manometer to the supply line and adjusting the incoming pressure if necessary to meet the required supply line pressure as listed in the Specifications. The manifold pressure is tested by connecting the manometer to the manifold pressure tap on the gas control valve (Figure 7a, gas control valve - electronic ignition Sterling EL; Figure 7b, gas control valve - standing pilot Sterling MV). If necessary, adjust the manifold gas pressure by turning the adjustment screw on the gas control valve to meet the pressure listed in the Specifications.

This appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig. The Sterling must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig.

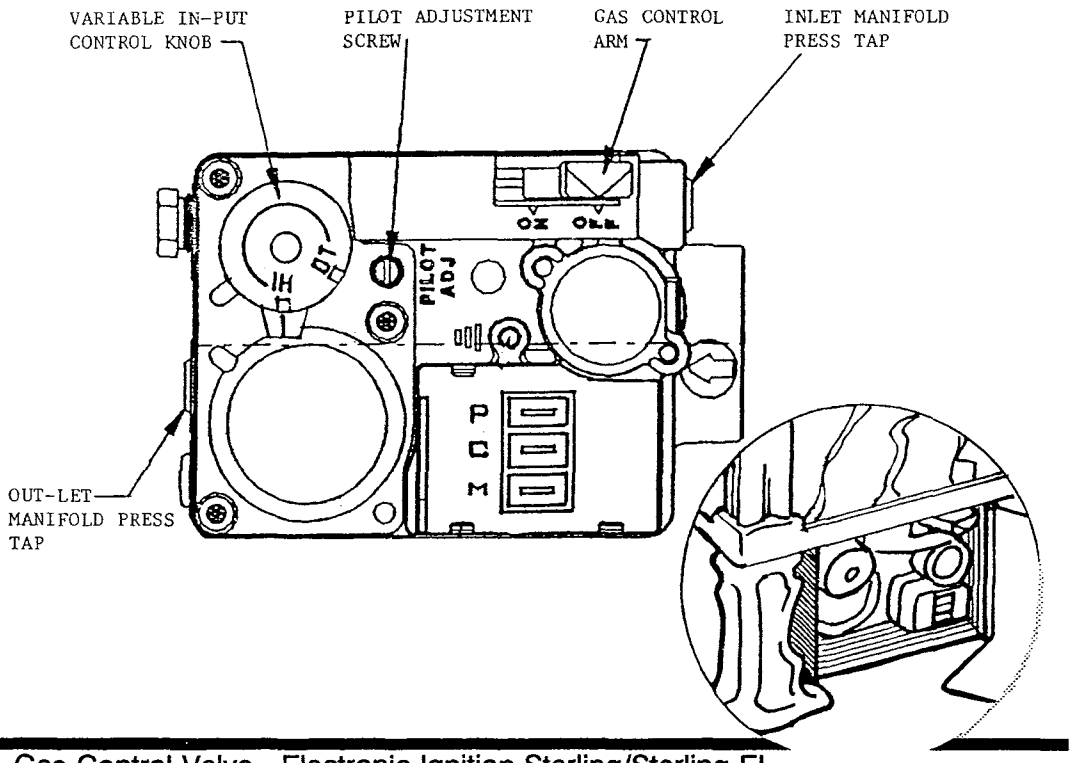


Figure 7a - Gas Control Valve - Electronic Ignition Sterling/Sterling EL

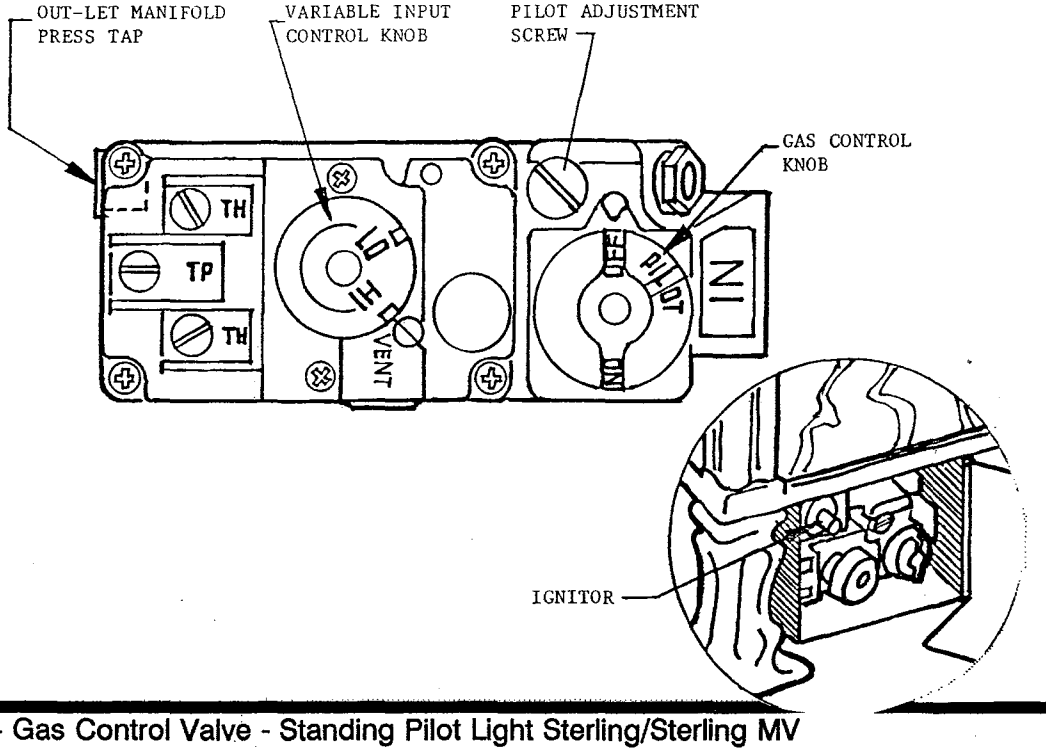


Figure 7b - Gas Control Valve - Standing Pilot Light Sterling/Sterling MV

LOG PLACEMENT WITHIN UNIT

Placement of the two ceramic logs on the grate within the unit must be completed according to these instructions for the unit to operate properly and with a satisfactory flame pattern.

Start the log placement process by removing the screw which hold the front door closed. Set the screw and decorative washer aside, open the door and inspect the firebox. It should be clean and free of foreign material. The burner tubes should be clean, free of obstruction and in parallel alignment. The pilot light assembly mounted between the burner tubes should be clean and free of obvious damage.

Place the smaller log on the grate toward the rear of the firebox with its two round protrusions facing forward as shown in Figures 8 and 9. The flat surface of the smaller log should be directly against the rear wall of the firebox. Place the larger log on the front of the grate with the notch on the bottom of the log located directly over the second finger from the right of the grate/andiron. The indents on the backside of the larger front log should line up with the two protrusions extending forward from the smaller rear log. However, note that the protrusions from the rear log should not mate with the intents in the front log. Instead, maximum separation should be maintained between the two logs, with the rear log fully against the rear wall of the firebox and the front log as far forward on the grate as possible.

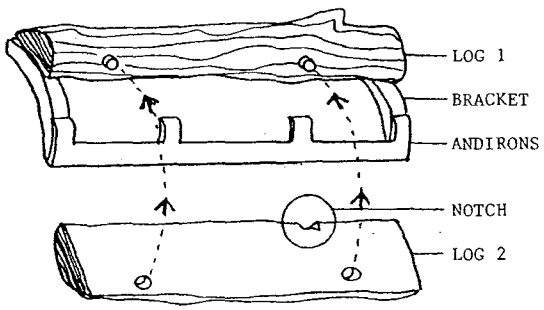


Figure 8 - Log Alignment

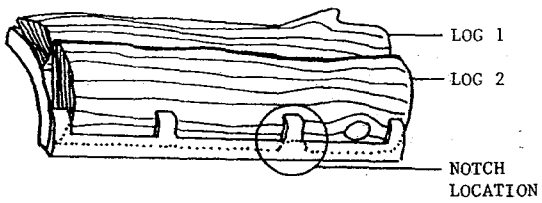


Figure 9 - Final Log Positioning

Complete the log placement process by fastening the door shut using the screw and decorative washer.

The decorative ceramic logs will give long service when in use, however they are subject to breakage if subjected to rough or improper handling. Broken or cracked logs should be replaced. When removing and replacing logs from the unit during routine cleaning or servicing of the unit, take care not to damage the logs and to position the logs per the instructions above. Also, take care not to chip the enamel on the door and door frame when removing and replacing the logs (if an porcelainized unit).

Only those decorative ceramic logs supplied with the unit should be placed in the firebox. Do not place other ceramic logs, real wood logs or other material in the firebox. If a decorative ceramic log is damaged or broken contact your dealer or the manufacturer for a replacement.

LIGHTING THE UNIT FOR THE FIRST TIME/INITIAL ADJUSTMENTS

Once the Sterling has been set in placed and connected as described above the unit is ready to be lit for the first time. Each Sterling is tested prior to shipment by the manufacturer, so ignition should take place without failure. However, a number of small adjustments may be necessary to compensate for variations in gas pressure, altitude and other factors particular to each installation. Lighting the Sterling for the first time and adjustments to the unit should only be performed by qualified service personnel.

WARNINGS PRIOR TO FIRST LIGHTING OF UNIT

Smoke and Fumes Warning

When lit for the first time the Sterling will emit some smoke and fumes. This is normal off-gassing of the paints and oils used in the assembly and manufacturing of the unit. Open windows to vent the room as necessary. The off-gassing and fumes should subside after the first 10 to 20 minutes of operation.

Break-In Warning

The natural stones used in the assembly of the Sterling were polished using a water-based polishing system prior to assembly of the unit. Any residual moisture in the stones must be dried out slowly to avoid damaging the stones. This is accomplished by adhering to the following break-in procedure.

When lit the first three times, the Sterling should be burned for no more than 10 minutes at a time, then allowed to cool for 1 to 2 hours. This gentle warming and cooling of the unit will allow any residual moisture in the stones to evaporate slowly. Once this break-in procedure has been completed, the Sterling can be burned at will with no time restrictions on the length of burn.

Pilot Light Warning

The electronic ignition Sterling (Sterling EL) is equipped with an electronic ignition module which automatically lights the pilot when the thermostat calls for heat. Do not attempt to light the electronic ignition Sterling with a match.

The standing pilot light Sterling (Sterling MV) has a piezoelectric spark ignitor (the red push button located just above the gas control valve behind the gas control valve access door) which ignites the pilot light by means of a spark at the pilot light assembly. The piezoelectric ignitor should serve to ignite the pilot light under most circumstances. If the piezoelectric ignitor fails to light the pilot light, the pilot light can be lit with a match. Follow the instructions listed below.

LIGHTING THE UNIT FOR THE FIRST TIME

Before lighting the unit for the first time check all around the unit for the smell of gas. By sure to smell down by the floor as some gasses are heavier than air and will settle on the floor. If you smell gas immediately follow the What To Do If You Smell Gas warning.

WHAT TO DO IF YOU SMELL GAS!

- DO NOT ATTEMPT TO LIGHT THIS UNIT OR ANY APPLIANCE! EXTINGUISH ANY OPEN FLAME.
- DO NOT TOUCH ANY ELECTRICAL SWITCH. DO NOT PLUG IN OR UNPLUG ANY APPLIANCE. DO NOT USE ANY PHONE IN YOUR BUILDING.
- OPEN WINDOWS TO VENT THE ROOM AND VACATE THE BUILDING.
- TURN OFF THE MAIN GAS SUPPLY.
- IMMEDIATELY CALL YOUR GAS SUPPLIER FROM A NEIGHBOR'S PHONE. IF YOU CANNOT REACH YOUR GAS SUPPLIER, CALL THE FIRE DEPARTMENT.

As an additional safety precaution prior to lighting the unit for the first time, wait 5 minutes to allow any residual gas within the unit to dissipate. If you do not smell gas after this five minute period, proceed with the lighting procedure. If you do smell gas, do not proceed with the lighting procedure. Instead, immediately refer to the What To Do If You Smell Gas warning.

Prepare for the lighting procedure by adjusting the thermostat to its lowest setting or OFF position, if so equipped. Open the gas control valve access door at the lower right side of the unit and locate the gas control knob (Figure 7a, electronic ignition models, Sterling EL; 7b, standing pilot light models, Sterling MV). If the gas control knob is not in the OFF position, turn the knob fully clockwise to OFF. Locate the variable output control (Figures 7a or 7b) and turn it fully clockwise to the highest setting.

Now light the unit for the first time according to the following instructions appropriate for your unit:

ELECTRONIC INGITION STERLING (Sterling EL) (per lighting instructions as printed on inside of gas control valve access door):

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life!

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

B. 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.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do no touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.

C. Use only your hand to turn the gas control knob. Never use tools. If the knob will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempt to repair may result in fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

LIGHTING INSTRUCTIONS

1. STOP! Read the safety information above.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
5. Turn gas control knob fully clockwise to "OFF".
6. Wait (5) five minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above. If you do not smell gas, go to the next step.
7. Be sure thermostat is set at the lowest setting.
8. Be sure the appliance is plugged into a properly grounded outlet.
9. Turn the gas control knob fully counterclockwise to "ON".
10. Set thermostat to desired setting. NOTE: For the very first lighting, it may take several tries to purge air from the gas line. If ignition doesn't occur within 55 seconds, reset by turning the thermostat to the lowest setting for 10 seconds. Repeat step 10.
11. If the appliance will not operate, follow the instructions "TO TURN OFF GAS TO APPLIANCE" and call your service technician or gas supplier.
12. Shut the gas control valve access door.

TO TURN OFF GAS TO APPLIANCE

1. Set thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Turn gas control knob fully clockwise to "OFF". Do not force.
4. Shut gas valve access door.

As a supplement the above instructions: Note that when the thermostat calls for heat you should immediately hear clicking as the electronic ignition module attempts to light the pilot light. Ignition is a quick two stage ignition process: First the electronic ignition module lights the pilot light, then the pilot light ignites the main burners. The entire process is typically accomplished within 5 seconds. When the thermostat no longer calls for heat, both the main burners and the pilot light go out. There is no flame whatsoever when the unit is off.

If the electronic ignition fails to ignite the pilot light within 55 seconds the unit will automatically shut off and enter the safety mode. If the unit enters the safety mode it must be reset before another attempt to light can be made. To reset the unit, set the thermostat to its lowest setting or OFF position, if so equipped, then move the thermostat back to its highest setting. Alternatively, the unit can be reset by disconnecting and reconnecting the power cord. Note: When the unit is lit for the first time several ignition attempts may be required due to possible accumulation of air in the gas supply line. This accumulation of air in the supply line can be avoided by bleeding the supply line before connecting the line to the gas control valve.

STANDING PILOT LIGHT STERLING (Sterling MV) (per lighting instructions as printed on inside of gas control valve access door):

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

A. This appliance has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.

B. BEFORE LIGHTING, 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.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempt to repair may result in fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

LIGHTING INSTRUCTIONS

1. STOP! Read the safety information above.
2. Set the thermostat to lowest setting.
3. Unplug the fan accessory, if so equipped.
4. Push in and turn gas control knob clockwise to "OFF".
5. Wait (5) five minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above. If you do not smell gas, go to the next step.
6. Turn knob on gas control counterclockwise to "PILOT".
7. Push in control knob all the way and hold in. Immediately light the pilot with the gas lighter (or a match). Continue to hold the control knob in for about one (1) minute after the pilot is lit. Release knob and it will pop back out. Pilot should remain lit. If it goes out, repeat the operation.

   - If knob does not pop out when released, stop and immediately call your service technician or gas supplier.
   - If the pilot will not stay lit after several tries, turn the gas control knob "OFF" and call your service technician or gas supplier.

8. Turn gas control knob counterclockwise to "ON".
9. Shut the gas control valve access door.
10. Plug in fan accessory, if so equipped.
11. Set thermostat to desired setting.

TO TURN OFF GAS TO APPLIANCE

1. Set thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Turn gas control knob fully clockwise to "OFF". Do not force.
4. Shut gas valve access door.

As a supplement the above instructions: When pressing/clicking the red piezoelectric spark ignition button (Figure 7b) to light the pilot light, watch through the glass front door of the unit. Click the red ignitor button until a flame is visible at the pilot light and once lit, continue

to press on the gas control knob for another 20 seconds, then release. Ascertain that the pilot light is still lit through a visual inspection through the front door. If lit, then turn the gas control knob fully counterclockwise to the ON position. If the pilot light failed to light or if it went out due to a premature release of the gas control knob while pressed in the PILOT position, then repeat the light process as described above.

If the pilot light cannot be lit using the piezoelectric spark ignitor, the standing pilot Sterling can be lit with a match. Pass a lit match through an oval hole on the lower rear of the unit near the gas control valve. Hold the match near the pilot light assembly, then press in and hold the gas control valve for 20 seconds while in the PILOT position as described in the lighting instructions above. Once the pilot light has been lit with a match, continue with the lighting process as described below.

Once the pilot light has been lit, the main burners are lit moving the thermostat to its highest setting. The main burners should light immediately. Note that on the standing pilot light model of the Sterling the on/off cycling of the main burners is controlled by the thermostat but that the pilot light remains lit regardless of the thermostat setting. To turn the pilot light off, turn the gas control valve fully clockwise to the OFF position.

Once the unit is lit, observe the flame pattern and adjust as necessary per the following instructions while keeping in mind the off-gassing and break-in warnings listed above.

INITIAL ADJUSTMENTS

Variable Output Control

The gas control valve is equipped with a variable output control. This controls varies the rate of heat produced by the unit by varying the gas pressure to the burner tubes. The length of the burn cycle, however, is always controlled by the thermostat. Using the variable output control, the heat output of the unit can be reduced for mild Fall and Spring months or maximized for the colder Winter months. This adjustment can be made by the homeowner as necessary.

Air Shutter Adjustment

There are two adjustable air shutters located on the burner tubes within the firebox (Figure 10). The air shutters are used to regulate the air-to-gas combustion mixture which in turn influences the size and color of the flames (Figure 11). A proper flame will burn between the logs and intermittently touch the top of the firebox. A low flame will burn between the logs and stop short of the top of the firebox by an inch or two. A flame which is over firing will continuously roll off the top of the firebox, roll out from under the front log, and touch the glass.

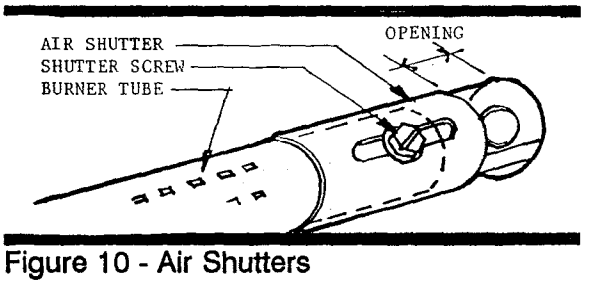


Figure 10 - Air Shutters

The air shutters are preset by the manufacturer for operation with natural gas. However, they may need adjustment once the unit has been installed to compensate for variations in supply line pressure, altitude and other variables. The air shutters will also require adjustment if the unit has been converted for LP operation.

Note that adjustments to the air shutters to vary flame size and color should be performed

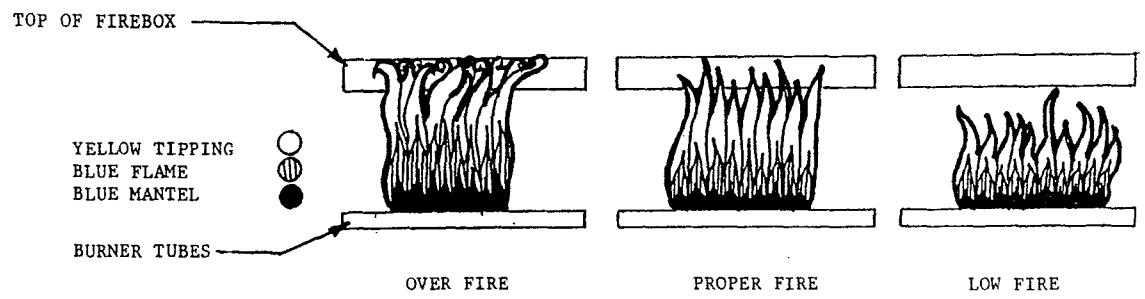


Figure 11 - Flame Patterns

only after gas pressure to the valve has been properly set as described above. Proper flame size and color cannot be achieved through air shutter adjustment alone if the gas pressure to the unit is too high or too low. Adjustments to the air shutters should be performed with the variable output control turned to the highest setting.

Adjust the air shutters as follows:

1. Allow the unit to operate for 10 minutes to allow the entire unit to reach temperature and for the flame pattern to stabilize.

2. Compare the flame pattern of the unit to the patterns shown in Figure 11.

3. Set the thermostat to the lowest or OFF position, if so equipped, and allow the unit to cool down. Turn the gas control knob fully clockwise to the OFF position and, on the electronic ignition models of the Sterling, remove the power cord from the wall outlet.

4. Note the positioning of the decorative ceramic logs. Remove the screw and decorative washer which fastens the front door and carefully remove the decorative ceramic logs. Take care not to damage the decorative ceramic logs as they are fragile. Set the screw and logs aside.

5. Locate the two air shutters on the two burner tubes at the end closest to the gas control valve. Loosen the shutter set screw and slide the shutter to the left to open and to the right to close the opening as shown in Figure 10.

   5a. Opening the air shutter allows more oxygen to burn and results in a lower, blue flame.

   5b. Closing the air shutter allows less oxygen to burn and results in a higher, yellow flame.

   When burning natural gas, the correct air shutter opening is usually 1/4" to 3/8" for the rear tube and 1/16" to 1/8" for the front tube. When burning LP, the correct air shutter opening is usually 1/4" to 3/8" for both the front and rear burner tubes. However, different settings may be required to compensate for variations in altitude, gas

pressure and other variables.

6. Once the air shutters have been adjusted, tighten the shutter set screws, replace the decorative ceramic logs according to the log placement procedure described elsewhere in this manual and fasten the front door closed using the screw and decorative washer.

7. Connect the power cord (electronic ignition models only), turn on the gas and relight the unit according to the lighting procedure described elsewhere in this manual. Allow the unit to burn for 10 minutes to allow the entire unit to reach temperature and for the flame pattern to stabilize.

8. Again compare the flame pattern of the unit to the patterns shown in Figure 11 and repeat the process described above if further air shutter adjustment is necessary to obtain the proper flame pattern.

If the flame pattern continues to indicate a low flame or over-fire condition regardless of air shutter setting then it is likely that the gas supply pressure to the unit is too low or too great. Such a condition cannot be corrected through air shutter adjustment; an adjustment must be made to the gas supply pressure.

When adjusting the air shutters for flame color take care not to obtain a flame which is too yellow (shutters closed; too little oxygen). While such a flame may be aesthetically pleasing, it is the result of incomplete combustion which will eventually result in an accumulation of carbon in the firebox, on the logs, burner tubes and window glass.

Pilot Adjustment

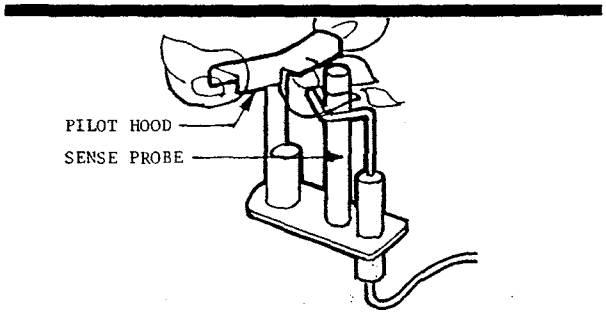


Figure 12a - Pilot Light Assemble and Hood, Electronic Ignition Models

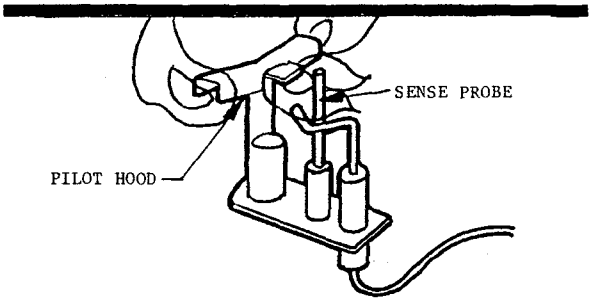


Figure 12b - Pilot Light Assemble and Hood, Standing Pilot Light Models

On both the electronic ignition and standing pilot light models of the Sterling the pilot light flame should be large enough to engulf the sensor/thermocouple located just next to the pilot light (Figure 12a, electronic ignition models/Sterling EL; Figure 12b, standing pilot light models/Sterling MV), but not so large as to create excessive noise or consume excessive gas.

The pilot light is preset by the manufacturer and should not need adjustment. However, it can be adjusted by means of the pilot light adjustment screw located on the gas control valve (Figure 7a, electronic ignition models; 7b, standing pilot light models).

A critical component of the pilot light assembly is the pilot hood which serves to direct the flame of the pilot light towards the sensor/thermocouple and the two main burner tubes. A

bent, dirty or otherwise defective pilot hood can result in difficult or non-ignition of the unit. The pilot hood should be positioned as shown in Figure 12a or 12b.

DAILY OPERATION

The Sterling gas-fired heater is easily operated by the homeowner once installed and adjusted by qualified service personnel. The unit is always controlled via the wall-mounted thermostat. Set the thermostat to the desired room temperature and the unit will cycle on and off as required. Using the variable output control located on the gas control valve (Figure 7a or 7b), the rate of heat output can be varied to meet the heating requirements of the season. Choosing a low flame setting will result in longer burn cycles at a reduced output, while choosing a high flame setting will result in a shorter, hotter burn cycle. Through trial and error the homeowner can select the optimum flame size for their setting and application.

When the unit first lights, especially when cool, it is normal to experience some condensation on the inside of the window glass. This condensation will burn off within the first few minutes of operation. If continuous condensation on the window glass or dripping water from any part of the unit is noted, immediately discontinue operation of the unit and contact qualified service personnel.

Although not required, the unit can be taken out of service if it is not to be used for a period of time, such as through the Summer months. To take the unit out of service, set the thermostat to the lowest setting or OFF position, if so equipped, turn the gas control knob fully clockwise↷ to the OFF position, and disconnect the power cord from the wall outlet (electronic ignition models/Sterling EL). When putting the unit back into service follow the lighting instructions described elsewhere in this manual.

Keep the area around the Sterling clear of combustible materials, gasoline and other flammable vapors and liquids. Do not allow the placement of items near the unit that will obstruct air flow or be ignited due to the heat from the surfaces of the stove.

ROUTINE MAINTENANCE AND CARE

The Sterling requires minimal routine maintenance and care. The unit should always be cool and off when being cleaned or maintained.

The unit should receive regular cleaning on, under and around the unit to prevent the build up of dust and lint. The exterior surfaces of the unit can be cleaned using soap and water and a soft cloth. Do not use abrasive or chemical cleaners and take care not to scratch the stones, glass or enamel finish (if so equipped) when cleaning the unit. The use of chemical or wax-based cleansers or polishes is not recommended due to the potential for discoloration of the stones when the residue or the cleansers or polishes is exposed to heat.

The firebox should receive periodic cleaning to prevent the accumulation of dust, lint and other debris. To clean the fire box, start by lowering the thermostat to the lowest setting or OFF position, if so equipped, turning off the gas at the gas control valve and disconnecting the power cord from the wall outlet (electronic ignition models). When the unit is cool, unfasten the front door and carefully remove the decorative ceramic logs taking care not to damage the logs or chip the enamel cast iron (if a porcelainized stove). Clean the entire firebox, the two burner tubes and carefully vacuum the entire surface of each log. Take care to thoroughly vacuum the ports (holes) along the top of each burner tube.

With the decorative ceramic logs out of the firebox, fasten the door shut and momentarily light the unit according to the lighting instructions described elsewhere in this manual. Check to ensure that a flame is burning from each burner port and that all flames are approximately the same in height and intensity. The pilot light flame should be large enough to engulf the sensor/thermocouple as described elsewhere in this manual. Turn the unit off by lowering the thermostat, turning off the gas at the gas control valve and disconnecting the power cord from the wall outlet (electronic ignition models/Sterling EL). Allow the unit to cool.

Check and clean any burner ports which are not burning or burning properly. Clean burner ports using a soft brush or vacuum cleaner. If the pilot light flame height needs adjustment it should be adjusted by qualified service personnel as described elsewhere in this manual.

Complete the cleaning procedure by carefully replacing the logs within the firebox as described elsewhere in this manual. Close and fasten the front door. Turn on the gas, reconnect the power cord (electronic ignition models), light the unit and check for proper operation.

Regularly check that the area around the Sterling be kept clear and free from combustible materials, gasoline and other flammable vapors and liquids. Check that the flow of combustion and ventilation air not be obstructed.

Once a year the unit and venting system should be inspected by qualified service personnel to ensure that they are clean, free of obstruction, safe and in good working order. If service or maintenance is required it should be performed by qualified service personnel.

SERVICING AND TROUBLE SHOOTING

The Sterling gas heater should be serviced by qualified service personnel. Do not attempt to service any part of this unit unless qualified to do so. When servicing the unit follow the procedures described in this manual as appropriate. Use factory-approved and generally accepted practices when servicing this appliance. Do not put into service a unit which is malfunctioning or not performing according to specifications.

The Sterling will provide trouble-free operation under most circumstances. Should the unit perform in an abnormal manner or fail to operate, immediately discontinue operation and contact qualified service personnel for servicing. Do not attempt to service or adjust this unit unless qualified to do so.

Unit refuses to light.

Check that gas is on, both at the gas control valve on the unit and at any manual shut off valves on the gas supply line leading to the unit.

For electronic ignition Sterlings EL, check that the unit is plugged into a functioning outlet. Plug a functioning appliance or a lamp into the same outlet as a test.

For standing pilot light Sterlings MV, check that the pilot light is lit by visually confirming the presence of a flame at the pilot light assembly, looking through the front door glass, under the logs, towards the right side of the unit.

Check that the pilot light assembly is clean and free of carbon buildup. Check that the pilot light flame properly engulfs the sensor/thermocouple.

Check that the thermostat is set to a high setting (closed circuit). If there is a doubt whether the thermostat is operating properly, isolate the thermostat from the circuit by disconnecting the wires at the thermostat and connecting the wires to one another. If the unit light with the wires crossed at the thermostat, then the malfunction is probably in the thermostat itself. Replace the thermostat.

No pilot light; pilot light goes out during operation.

Pilot orifice may be plugged. Check and clean orifice. On the standing pilot light models, the pilot will not remain on if the thermopile is defective. Replace thermopile. The pilot light on the electronic ignition and standing pilot light models can be blown out if the unit is in a very drafty location. The unit will immediately stop functioning if the pilot light goes out. The solution is to cure the source of the draft or to reposition the unit out of the draft.

Unit burns for a few minutes, then shuts off, then cycles on and off every few minutes.

Repeated, frequent cycling of the unit every few minutes is typically due to one of three causes:

1 The unit is satisfying the thermostat too soon, that is, the thermostat is simply reacting to the heat output and turning the unit off. Consider thermostat placement. If the thermostat is too close to the unit, it will be satisfied by the heat output of the unit and turn the unit off before the room itself has been heated. Review the section on thermostat placement described elsewhere in

this manual and relocate thermostat.

If thermostat placement is correct but a longer, milder burn is desired, lower the rate of heat output. This is accomplished by adjusting the variable output control knob located on the gas control valve as described elsewhere in this manual. Heat output is lowered, the unit will take longer to heat the space and the burn cycle will be longer.

2 The Sterling is equipped with a down draft sensor switch or spill switch located in the draft hood just beneath the flue collar on the rear of the unit. This switch, which is normally closed, is wired in series with the thermostat, both of which must be in the closed position for the unit to operate.

The down draft sensor is designed to turn the Sterling off should the unit fail to establish or loose its draft while in operation. When an undesirable down draft condition occurs, hot gasses spill into the room, heating the spill switch causing the switch to open which turns the unit off. The unit will restart once the switch cools down.

A down draft situation can cause the unit to cycle on and off every few minutes, seemingly for no apparent reason. If a down draft situation is suspected, it can be confirmed by temporarily crossing the down draft sensor switch which a jumper wire, thereby isolating it from of the circuit. If a cycling unit runs continuously with the down draft sensor switch isolated from the circuit, this confirms the down draft situation. The solution is to modify or improve the venting system to eliminate the down draft situation. Remove the temporary jumper from the down draft sensor switch. Do not attempt to permanently alter, eliminate or thwart the down draft sensor switch. Any such attempt can lead to carbon monoxide poisoning and loss of life.

3 Electronic ignition Sterlings are equipped with a flame sensing probe at the pilot light assembly. This probe allows gas to flow to the main burners only if it senses the presence of a pilot light flame. On and off cycling of the unit may occur if the positioning of the flame sensing probe is not correct relative to the pilot light. Check the positioning of the probe on the unit as compared to the positioning of the probe as shown in Figure 12a.

Carbon buildup on logs, burners, window glass and/or pilot light assembly.

An accumulation of carbon anywhere within the firebox is indicative of incomplete burning of the gas due to a lack of combustion oxygen. This phenomenon can often be predicted by a flame which is too yellow. The cure is to first carefully clean the carbon buildup from the effected areas within the firebox, then to adjust the air shutters on the main burner tubes as described elsewhere in the manual.

Flame is too big, hitting the top of the firebox. Unit is overheating.

A flame which is too big can be caused by supply line or manifold gas pressure which is too high or improper air shutter settings on the main burner tubes. Review the sections on gas pressure adjustment and air shutter settings elsewhere in this manual for proper adjustment.

OPTIONAL EQUIPMENT

LP Conversion kit

An LP conversion kit must be installed if the Sterling is to burn LP rather than natural gas. The LP conversion kit must be installed by qualified service personnel. When installing the LP conversion kit, follow the instructions provided with the kit.

Blower fan.

An optional blower fan is available from the dealer or manufacturer to boost heat output and improve air circulation within the room. The blower fan, which is powered by standard 110/115 volt, 60 cycle, 1.0 amp household current, is easily attached to the lower rear casting of the unit. The blower fan has a thermocouple which is fastened to the draft hood on the rear of the unit. When the draft hood heats up, the blower fan turns on. When the draft hood cools off, the blower fan turns off. The blower fan will continue to operate for a period of time after the shuts off as it takes some time for the unit to cool down.

HOW TO OBTAIN PARTS AND SERVICE

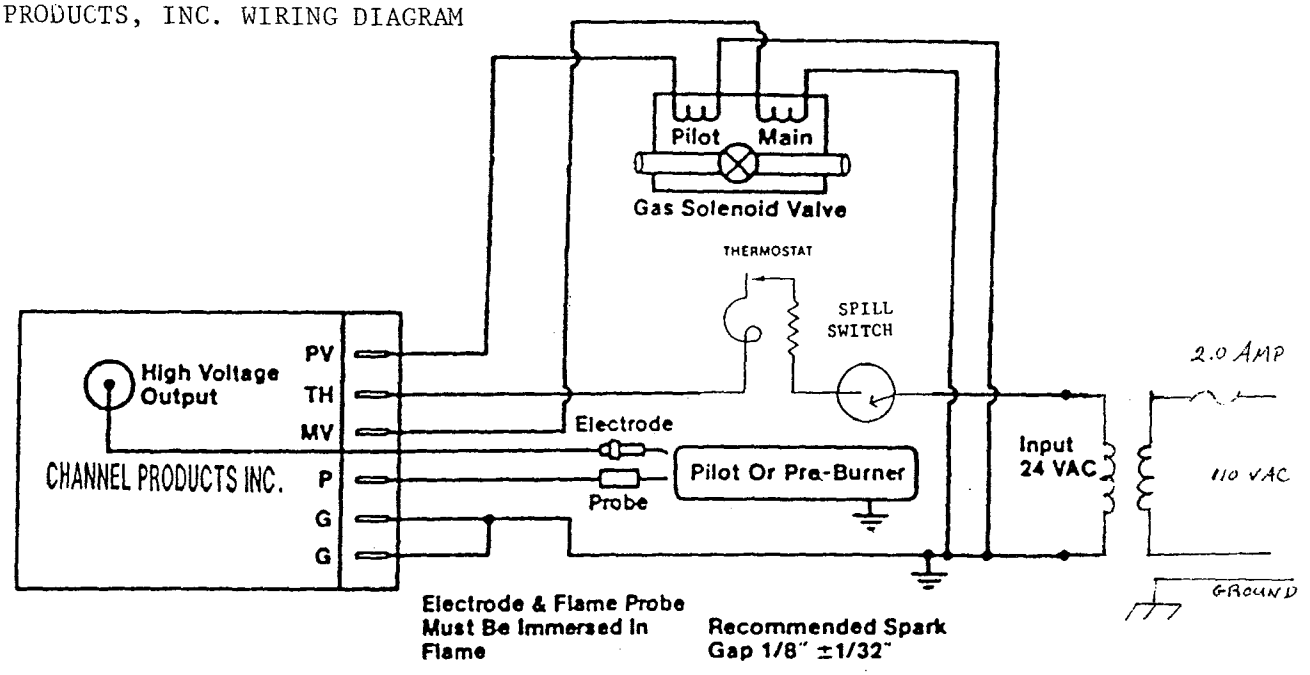
The Sterling is covered by a limited warranty for parts and labor for one year from the date of purchase. The door glass and enamel are not covered by the warranty. Read the warranty card supplied with the unit for complete details.

Replacement parts for the Sterling are available from your dealer or directly from the manufacturer, HearthStone®/NHC, Inc., PO Box 1069, Morrisville, Vermont 05661 USA. Telephone: 1-800-827-8683 (Continental US) or 802-888-5232.

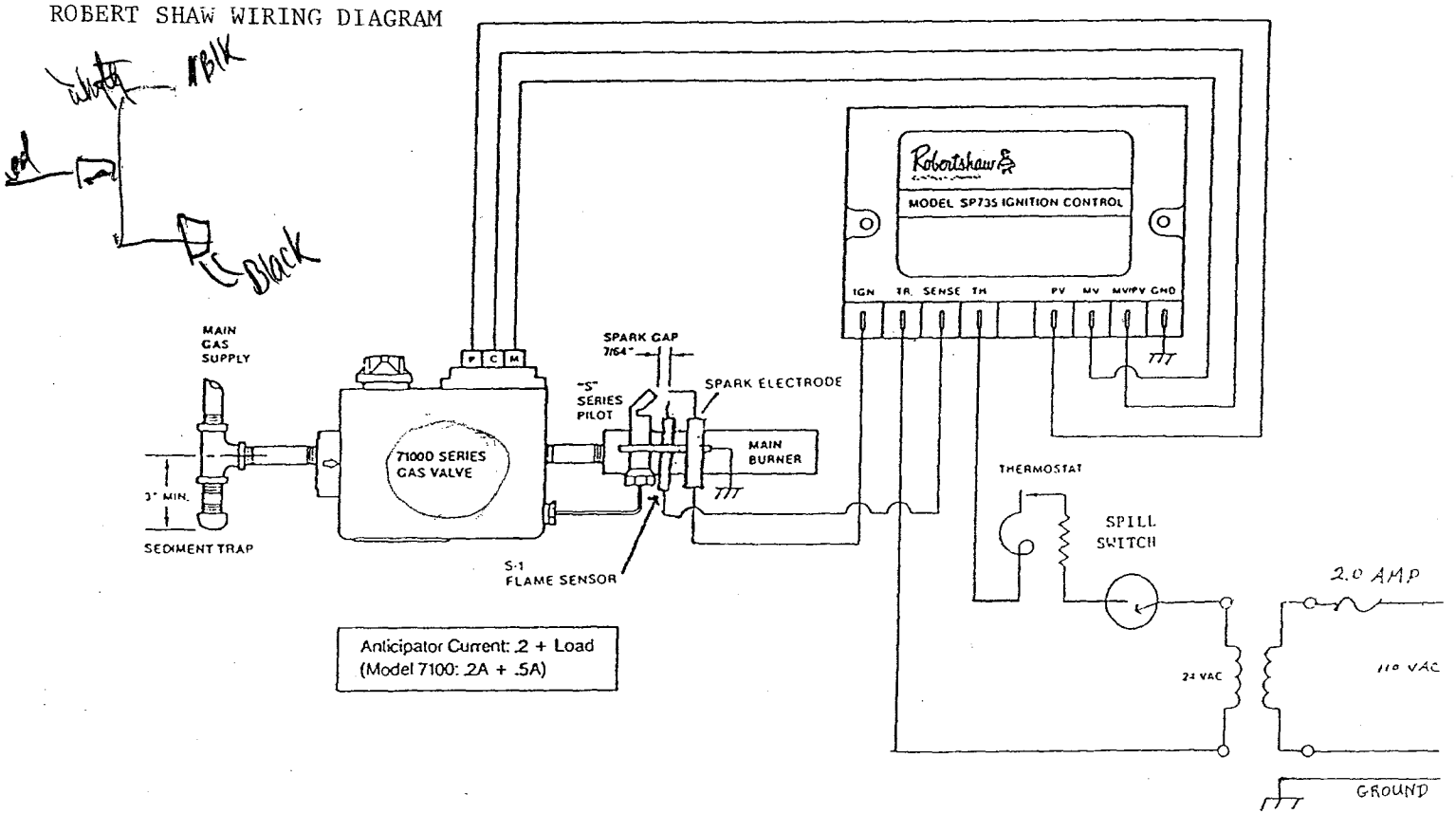
This unit must be installed, adjusted, serviced and maintained by qualified service personnel only. Failure to properly install, adjust, service and maintain this gas appliance may result in an unsafe or hazardous condition which may lead to carbon monoxide poisoning, fire, explosion, personal injury and loss of life. Do not attempt to install, adjust, service or maintain this unit unless qualified to install, adjust, service or maintain gas-fired, vented appliances.

APPENDIX A - ELECTRICAL SCHEMATICS

CHANNEL PRODUCTS, INC. WIRING DIAGRAM



ROBERT SHAW WIRING DIAGRAM



APPENDIX B - SAFETY LABEL

WARNOCK HERSEY
CERTIFIED FOR CANADA

LISTED GAS-FIRED VENTED ROOM HEATER
MODEL: ■ STERLING MV ■ STERLING EL

NHC - WH1-

TESTED TO: ANSI Z21.11.1b (1990)/CAN1-2.1-M86

THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH LOCAL CODES, IF ANY; IF NOT, FOLLOW ANSI Z223.1-1988 (U.S. INSTALLATIONS) OR CURRENT CAN1-B149 INSTALLATION CODE (CANADIAN INSTALLATION).

U.S.	■ NATURAL GAS	■ LP
INPUT RATING (BTU/HR)	40,000	40,000
ORIFICE SIZE	44 DMS	55 DMS
MANIFOLD PRESSURE (IN. W.C.)	3.5	10.0
MAN. PRESSURE - LO SETTING (IN. W.C.)	1.8*	6.1
MINIMUM INLET PRESSURE (IN. W.C.)	4.5	11.0
*SUPPLIED ON FAN UNITS ONLY.		
CANADA		
INPUT RATING (BTU/HR) 0-2000 FT	39,000	40,000
ORIFICE (MM) 0-2000 FT	2.18/44 DMS	1.32/55 DMS
INPUT RATING (BTU/HR) 2000-4500 FT	35,000	38,000
ORIFICE (MM) 2000-4500 FT	2.06/46 DMS	1.20/56 DMS
MANIFOLD PRESSURE (KPA)	0.87	2.94
MANIFOLD PRESSURE - LO SETTING (KPA)	0.45	1.52
MINIMUM INLET PRESSURE (KPA)	1.12	2.74
MAXIMUM OUTPUT (BTU/HR)	28,570	30,500

MINIMUM CLEARANCES TO COMBUSTIBLE CONSTRUCTION:
DRAFT HOOD TO BACKWALL - 3"/76MM
EDGE OF TOP PLATE TO SIDEWALL - 3"/76MM
EDGE OF TOP PLATE TO DIAGONAL WALL - 3"/76MM

OPTIONAL BLOWER: HOWARD INDUSTRIES 3-15-2541
ELECTRICAL RATING: 115 VOLTS 1 AMPERE 60 HZ.
NOT FOR USE WITH SOLID FUEL.

MANUFACTURED BY:
NHC, INC.
MORRISVILLE, VERMONT 05661
DO NOT REMOVE OR COVER THIS LABEL

APPENDIX C - ANTICIPATORS AS FOUND IN THERMOSTATS

(The heat anticipator described and illustrated in this manual is one of several types manufactured by the Robert Shaw Company; comparable anticipators are manufactured by other suppliers and their operation and adjustment procedures are quite similar.)

An anticipator is a small heating element found in certain commercially available thermostats. The purpose of the anticipator is to minimize the temperature fluctuation within the heated space between each cycle of the thermostat. What this means is that the difference between the low temperature when the thermostat closes its contacts and "calls" for heat, and the high temperature when the thermostat is satisfied and opens its contacts, can be excessive. Without a heat anticipator, the range between the closing and opening of the thermostat contacts may be as great as 4 or 5 degrees; with a properly adjusted heat anticipator this difference can be reduced to 1 degree or less. While most people can detect a 4 or 5 degree temperature change, few people can detect a 1 degree temperature change. So a thermostat equipped with an anticipator can provide comfortable heating without detectable changes in room temperature.

Initially the heat anticipator is set for 0.45 amperes as shown in Figure 13. This is the proper setting for the anticipator when the system is initially placed in service. If the anticipator is not set to 0.45 amperes when the heater is installed, it can be changed by moving the lever directly opposite the pointer.

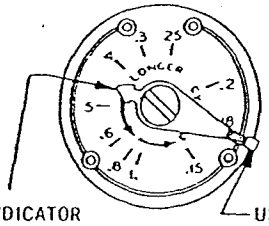


Figure 13 - Thermostat Anticipator, Typical Configuration

Once the heater is in operation and has operated for several hours you may find it desirable to change the setting of the anticipator to either increase or decrease the period of time that the heater is in operation for each cycle. Should you wish to increase the period of time that the heater operates, the anticipator can be set to a value of 0.5 to 0.6 amperes; and to decrease the period of operation the setting may be set to a smaller current of 0.25 to 0.3 amperes.

For best results, no adjustments to the heat anticipator should be made until the system has been operating for several hours while the room temperature has been set at the same value. Do not adjust the anticipator during periods of unusual activity in the room such as opening or closing doors to the outdoors, or substantial changes in the level of lighting or in number of occupants.