



Koker with Thermostat

Operating instructions and maintenance enclosed
Thoroughly read and understand instructions
Always leave this manual with stove owner

Follow the instructions within this manual. If instructions are not followed, a fire may result causing property damage, personal injury, or even death.

A carbon monoxide detector has been supplied with your stove. You must plug it in.

Danger risk of fire or explosion. Do not burn garbage, gasoline, drain oil, or other flammable liquids. Do not use chemicals or fluids to start fire.

Burn rice or buckwheat anthracite coal only

Stoves surfaces may be hot while in operation. Keep children away. Do not touch during operation

Do not connect this unit to a chimney flue serving another appliance.

Follow all local building and Zoning ordinances

Installation Instruction for Koker with thermostat

Select a position on a solid level surface with direct access to a chimney. On non-masonry floors, use an approved fireproof floor protector under stove. Maintain 16" clearance on sides of stove to combustibles. A 2" clearance on rear and 16" clearance on front of stove. Clearance from corners of stove is 8". See label on stove.

Plumb hopper end of stove with level. Hopper end of stove must be vertical.

On bottom vent models, mount timer on side or rear of coal hopper.

Install convection blower in the large square opening in the back of the stove under the stoker unit. Slide blower into opening approximate 1". Screw blower into place with 4 #10 X 1 ½" self-drilling screws provided in the ash tub. Secure the two filter brackets directly to the convection blower, with the two filter replacement openings towards the top. Secure with 4 #8 X ½" self-drilling screws.

Mount hopper in place and fasten securely. Reach down into bottom of inside hopper and bend flange of hopper into throat of stoker unit.

Locate thermostat in an area where heat from stove can be freely reached. Mount plastic wall plate of thermostat. Connect thermostat wires to screws on lower portion of wall plate. Run thermostat wires to Relay on stove and connect wires to terminals marked T.T. (note: color coding of thermostat wires is unimportant.) Be sure to snap thermostat onto wall plate.

Install stove pipe from stove to chimney and secure with screws. On top vent models, place the non crimped end of pipe of barometric damper down onto the 6" exhaust outlet on stove. Swinging door on barometric damper may face any direction; however the hinges must be horizontal.

High chimneys or high winds could cause stove to operate inefficiently and could possibly damage stove mechanism. It is therefore necessary that you install the barometric damper that is supplied with your stove. All top vent stoves are required to use an automatic damper.

Plug power cord into 115 volt grounded wall outlet. Combustion motor should be running and you are ready to start a fire.

To start a fire, fill hopper with coal, reach in through fire door and pull coal down to cover entire grate area. Place kindling (charcoal supplied) into a full sheet of newspaper, crumble paper, and dig kindling deep into coal in the center of grate. Light newspaper with match and plug power cord into outlet. **NEVER USE GASOLINE OR LIGHTER FLUID TO START FIRE.** When kindling is burning well, place a few hands full of coal onto fire.

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NOTE: The coal feeder adjustment nut is PRESET and may not need to be changed. If it becomes necessary to adjust coal feed, the white nut on stoker unit may be turned **CLOCKWISE** for **MORE** coal feed and **COUNTER-CLOCK WISE** for **LESS** coal feed. NEVER USE A WRENCH ON COAL FEED ADJUSTMENT NUT (FINGERS ONLY).

CHECK DRAFT- After starting a fire and a good fire is established, the chimney will be warm enough to check draft. The draft range should not go lower than -.02, nor above -.03. The air shutter on combustion motor and/or the barometric damper on stove pipe may be used to obtain proper draft readings.

If draft goes above -.03 adjust barometric damper to open a little wider.

If draft goes below -.02 close air shutter on combustion motor.

CLEANING AND LUBRICATION- Stove pipe and exhaust tubes must be cleaned once during the heating season. On top exhaust stoves, brush exhaust tubes out with a flexible brush. Keep base and interior floor of stove clean by regular brushing or vacuuming, especially at the base of openings below interior exhaust tubes. Clean under grates annually by removing combustion motor and vacuuming under grates or you may remove the bolt holding the grates and then remove the grate and proceed to vacuum. Grates must be then **re-cemented** back into their place. Upper portion of grates must be sealed (air tight) with furnace cement, from the upper portion of the grate (close to hopper) down to where the 1/8" holes are drilled in grates.

Lubricate combustion motor and convection fan motor with a light grade of regular motor oil.

Oil fire door and ash door hinges. Oil fire door and ash door handles to prevent freeze up over summer.

To minimize corrosion of stove accessories, it is important to clean stove thoroughly at the end of heating season. Completely remove all coal from hopper. Remove and clean stove pipe. Check chimney and base of chimney for obstructions or blockage. Clean under grate. Spray an anti-seizing agent on both sides and top of pusher bar to prevent pusher bar freeze up during summer.

The following instructions are meant to serve as guidelines for proper cleaning and care of **ROBAX** glass ceramic windows.

ALL cleaning procedures should be done at room temperature **CLEANING OF HOT GLASS SHOULD BE AVOIDED.** Cleaning solutions applied to hot glass may dry before cleaning agent is removed, which may result in creating a film or deposit that can

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react with combustion by products. Dried on cleaning solution may react with surface causing discoloration or a permanent film.

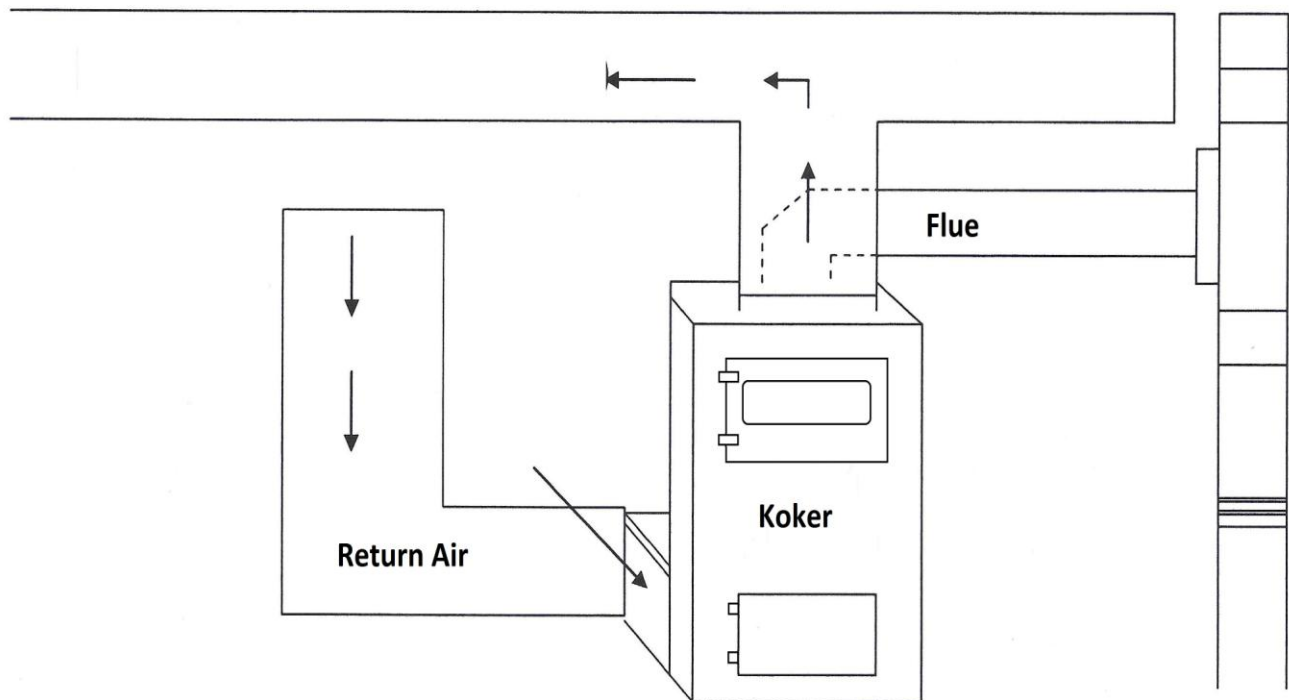
If white deposits are found to be on the surface of glass, these should be scraped off using a sharp bladed scrapper and wiped away with a dry cloth prior to any wet cleaning. Scrapping should be done at a low angle below 30 degrees.

Although glass is extremely hard and very scratch resistant, it is not scratch proof. The use of abrasive cleaners (i.e., any cleaners containing grit) and scouring pads (i.e., steel wool, plastic with embedded grit) should be strictly avoided.

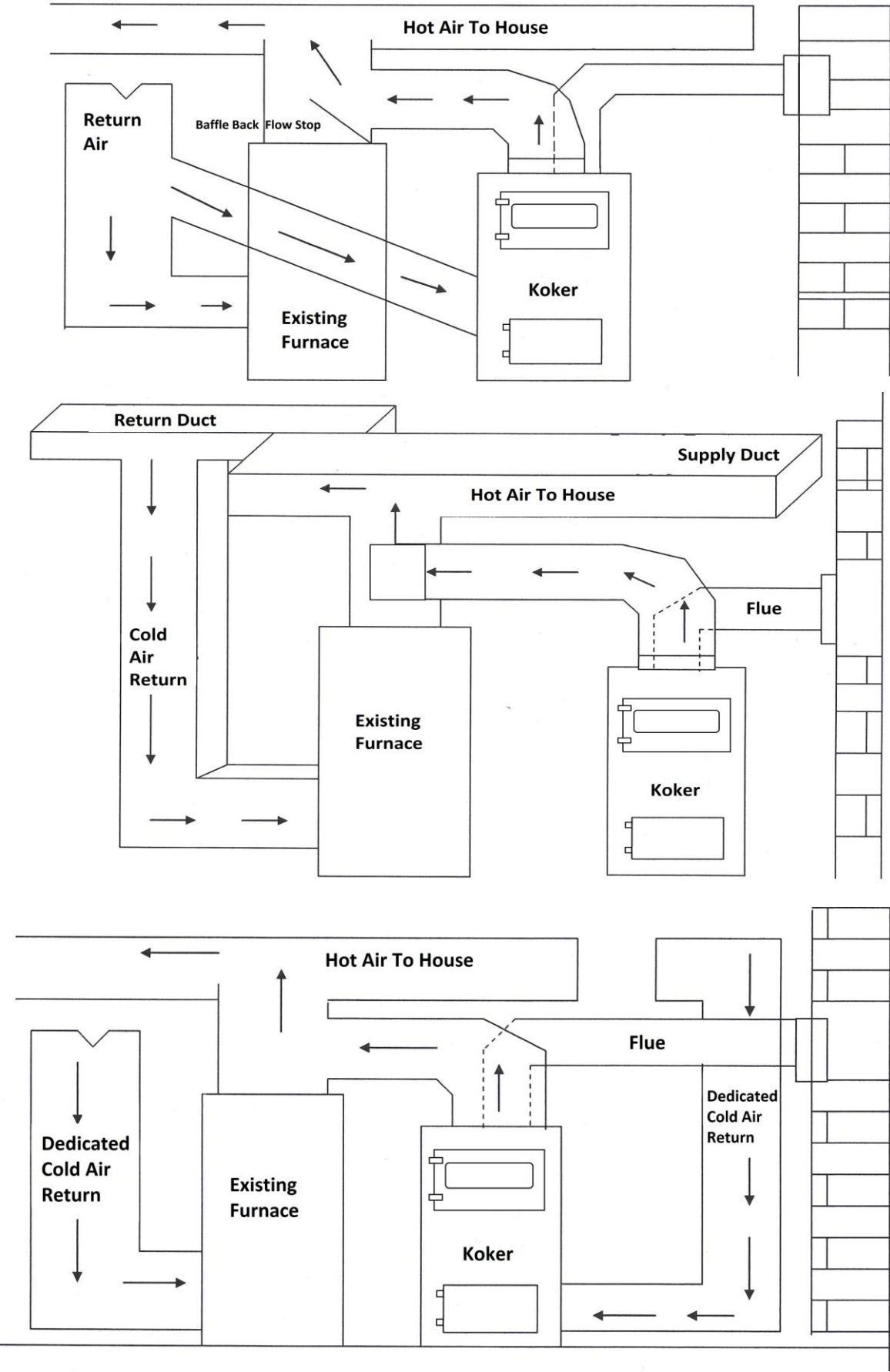
Soft cloths should be used for all cleaning steps. The cloths should be free of any abrasive agents from any previous use.

Dried on cleaning solutions may react with glass surface causing discoloration or a permanent film.

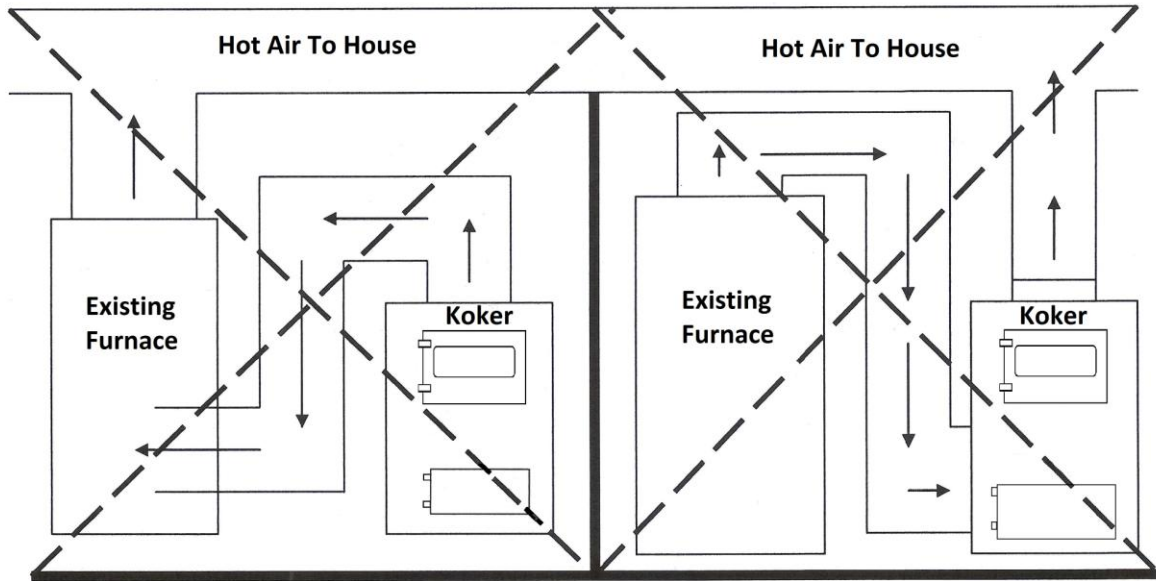
While **ROBAX** glass is the best glass for use on anthracite burning coal stove, the manufacturer of the glass offers no warranty.



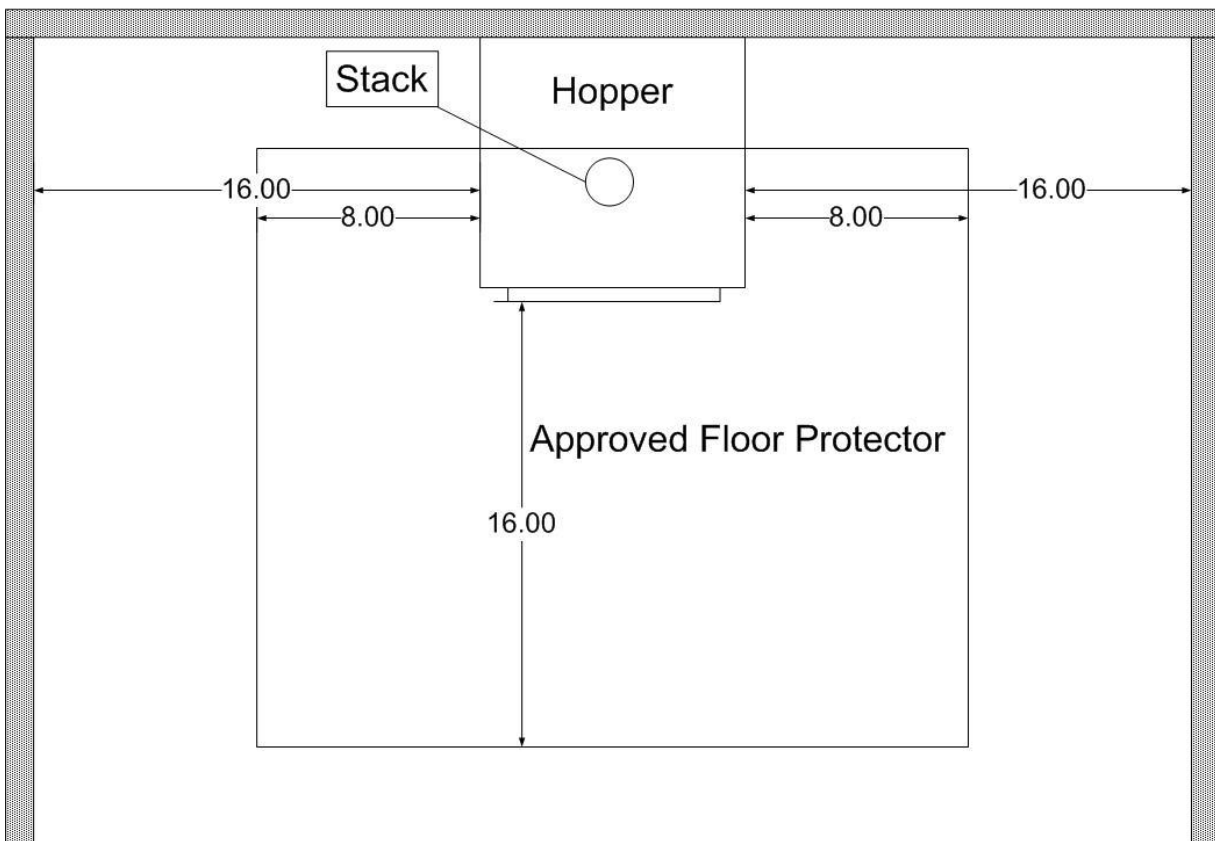
Installation Instruction for Koker with thermostat



Installation Instruction for Koker with thermostat



Zero Clearance



Tested 9/89 to ANSI/UL 1482, CSA B366-m1979 & ETLM 78-1

Chimney Type: Minimum 6 inch diameter approved low heat residential type all fuel.

Chimney connector: 6 inch diameter 24 gauge blue or black steel. Install at least 18 inches from ceiling special methods are required when passing through a wall or ceiling

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DIAGRAM (1)

Shows what fire should look like when thermostat calls for heat for extended period:

- A. Unburned fresh coal supply from coal hopper
- B. Burning Coals
- C. Ash on lower end of grate (around 2")

The actual length of burning coals will vary as heat demand increases or decreases. If burning coals fall off grate, reduce coal feed by turning white adjustment nut in a counter clock-wise direction 1 or 2 full turns. Wait at least 1 hour before making any more adjustments.

When thermostat is calling for heat, the gear motor will be in continuous run, but if the fire bed remains small, increase the coal feed by turning white adjustment nut clock-wise.

Under normal draft conditions, when fire bed has reached its maximum length (with 2" of ash) flames should be touching top of interior stove plate. If flame is not reaching top of stove:

- A. Fire bed may be too thick.
Reduce coal feed.
Hopper end of stove is not plumb.
Burrs may be stuck on grate, scrape grate until it is smooth.
Not enough air flow, adjust air intake shutter on combustion motor (see check draft).

DIAGRAM (2)

Show what fire size should look like when thermostat has not called for heat for extended periods:

- A. Unburned fresh coal supply from hopper.
- B. Burning coal (about 1-1 1/2" to 2") (low flames).
- C. Ash on lower end of grate

Diagram 1

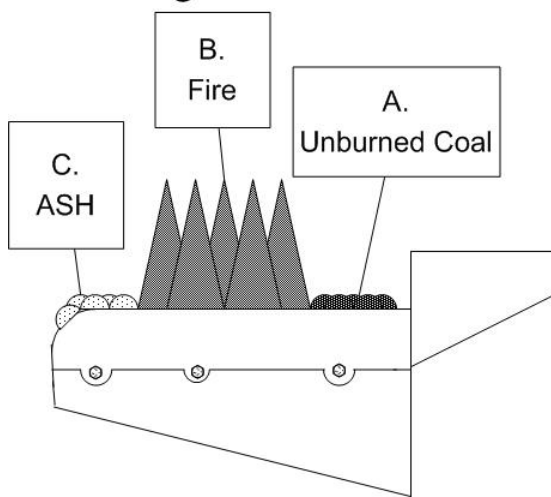
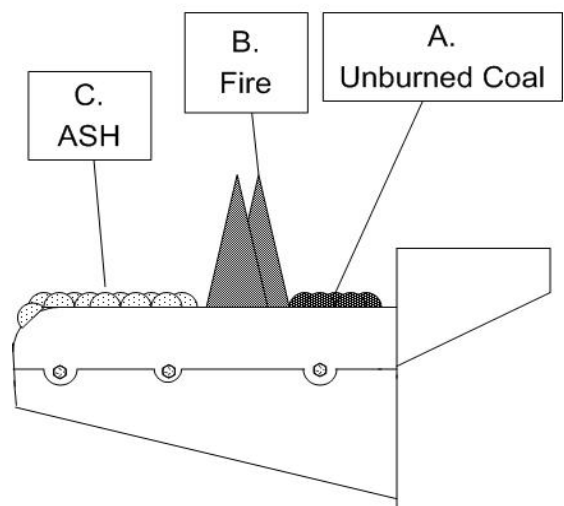


Diagram 2



Installation Instruction for Koker with thermostat

PUSHER BAR: Moves in a reciprocating motion. Activated by cam on gear motor to force coal from hopper onto grate. Also pushes ashes off grate into ash pan. Length of stroke is adjustable by turning white coal feed adjustment nut.

WHITE COAL FEED ADJUSTMENT: Turn clockwise for more coal feed, Turn counterclockwise for less coal feed.

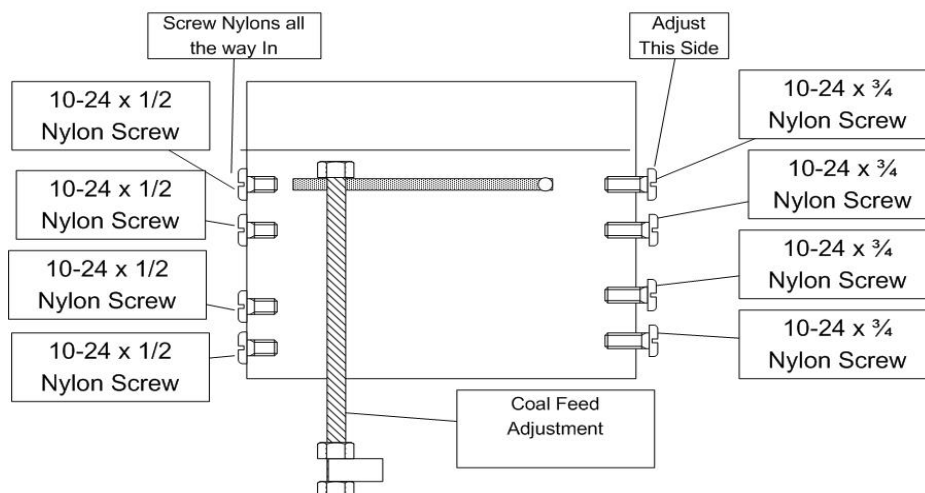
NYLON ADJUSTING SCREWS: To eliminate metal on metal contact. There are 8 nylon screws on the pusher bar, 4 on each side. The 4 nylon screws pictured on diagram are used to adjust the amount of sideward movement of pusher bar. When nylon screws are properly aligned, the pusher bar will slide in and out freely and have only a slight sideward movement.

Nylon cam: located on gear motor. To give reciprocating motion to pusher bar shown on next page

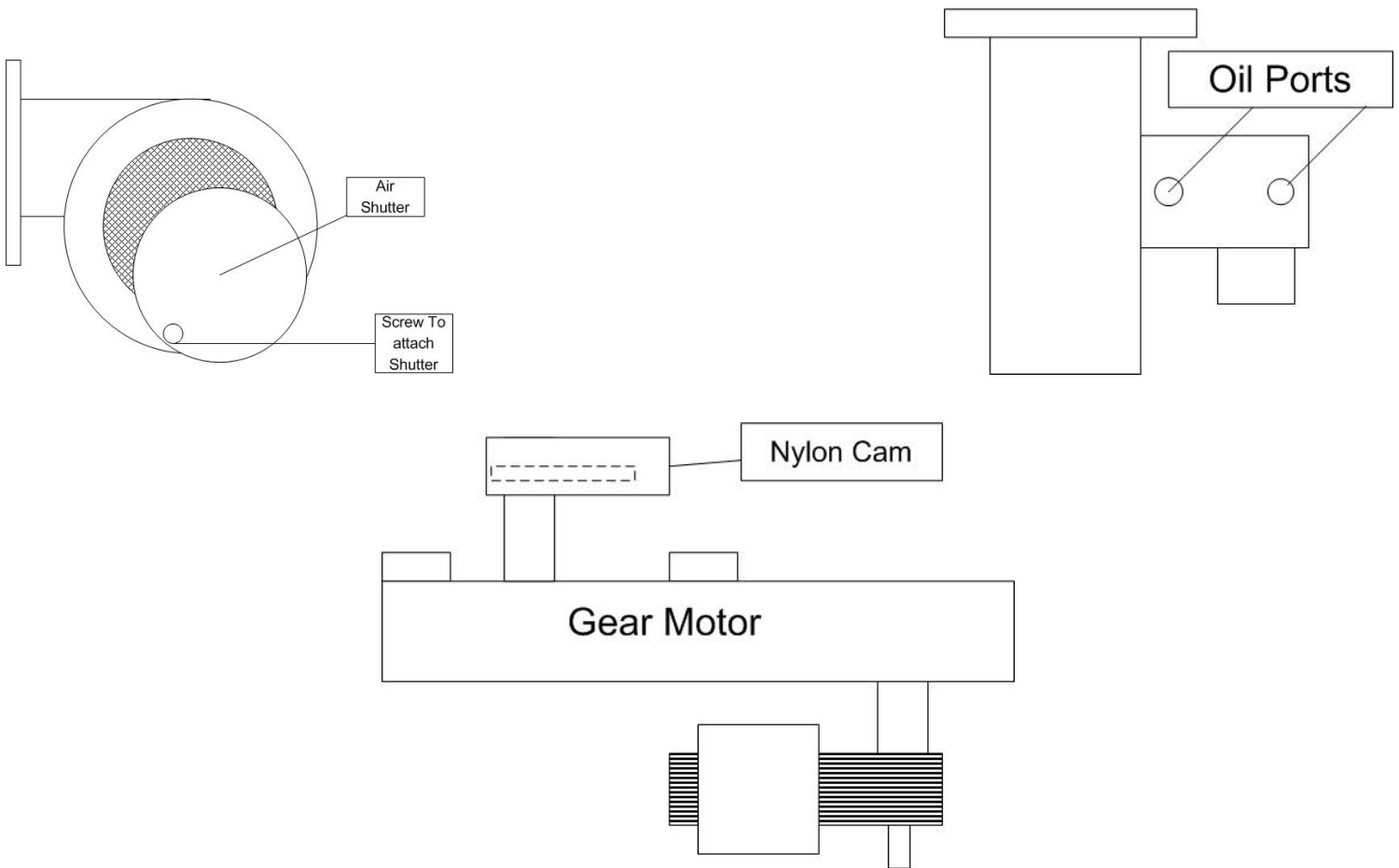
Air Intake Adjustment Shutter: adjusts amount of air flow through fire. Shown on next page

GEAR MOTOR: The drive shaft turns approximately 1RPM. The nylon cam on drive shaft will, when moving inward, force coal from hopper onto grate. When withdrawing, will allow coal to fall in front of pusher bar for preparation of next inward stroke. The gear motor will only run when activated by a call for heat from thermostat or when timer turns it on.

COMBUSTION MOTOR: Combustion motor will run all the time to force air through holes in grate to burn coal hotter. The constant running of motor will assure the maximum amount of heat is gained and will aid in a more complete burning of coal. The motor has an adjustable air shutter for regulating air flow through fire.



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TIMER

Unless your stove had been a special order, it will be equipped with our patented flatgrate stoker unit and a timer. The timer is shown on the next page.

The purpose of a timer is to maintain a minimum fire when thermostat is not calling for heat.

The timer is factory set to run 1 ½ minutes every 10 minutes. The timer activates the gear motor, which will cause the pusher bar to move in a reciprocating motion, forcing coal onto grate.

The timer has a large yellow wheel that makes 1 revolution every 30 minutes. Pins can be inserted or removed from yellow wheel. Each pin equals about 15 seconds, if needed, extra pins can be added to the present groups of pins or pins can be inserted anywhere in yellow wheel.

This section **ONLY** pertains to periods when thermostat is not calling for heat. If the fire goes out, you will have to add more pins to timer **OR** increase coal feed.

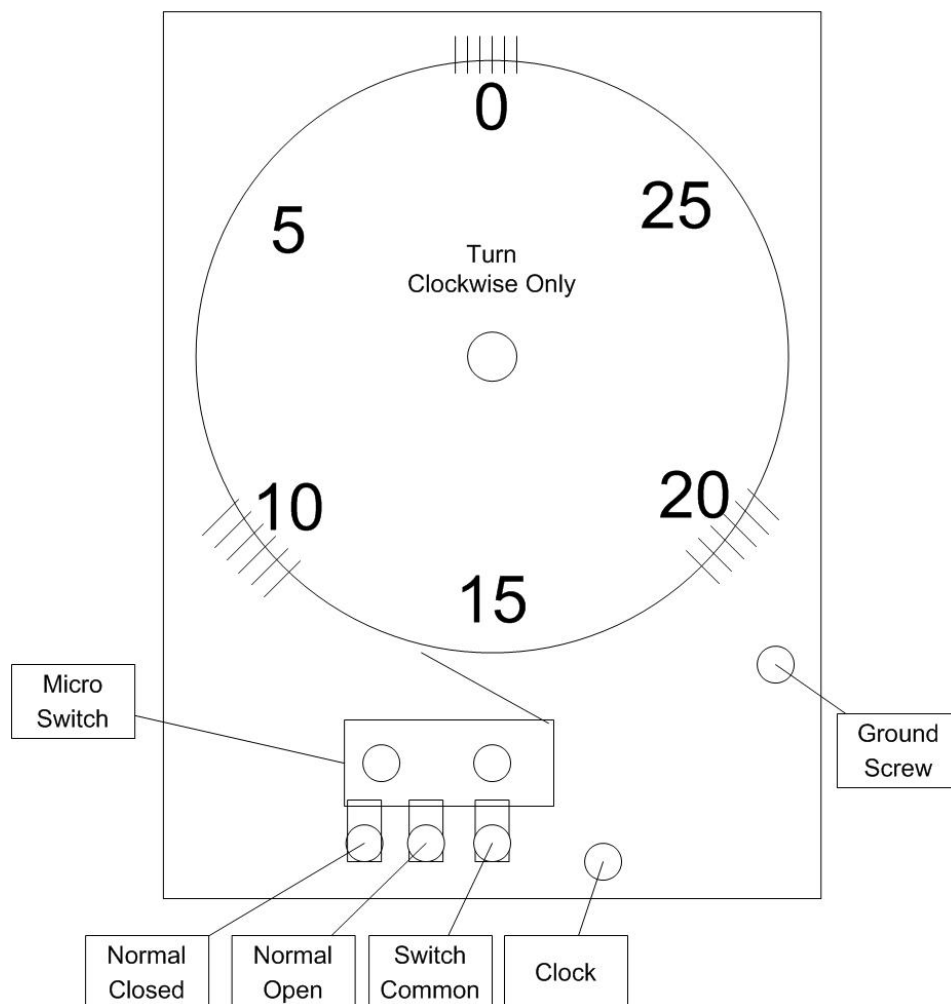
Installation Instruction for Koker with thermostat

The burning coals should be the width of the grate and about 1 ½" to 2" in length. If the burning coals get any less than 1 ½" the fire may go out. SOLUTION: Increase coal feed.

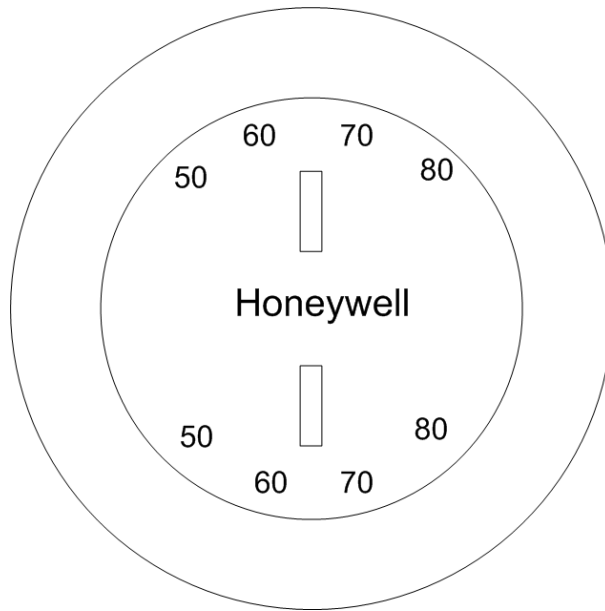
A weak draft can also cause the fire to go out, if fire appears to be very dull, add as many extra pins to timer as needed, until fire stays lit.

If convection blower cycles on and off often and produces too much heat, either the fire bed is too long or timer is running too long. If you reduce coal feed or remove timer pins, do not make radical changes. Reduce coal feed 1 or 2 turns OR remove 1 pin from timer. Then wait several hours before making any more reductions. A sudden radical change may be too much and cause fire to go out.

Once the coal feed and timer are set and fire stays lit, without convection blower running too much, it is usually not necessary to make any more changes.



Installation Instruction for Koker with thermostat



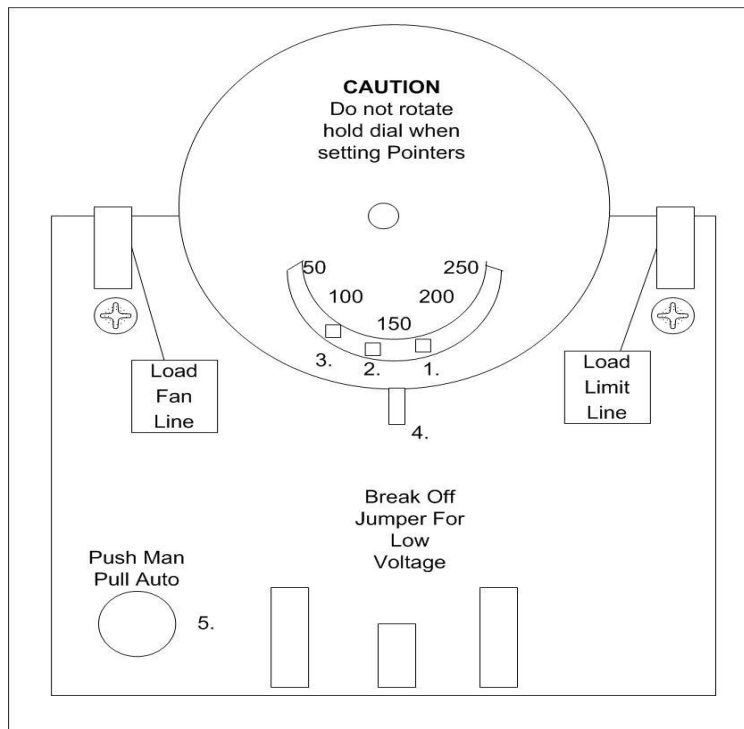
THERMOSTAT

Top pointer is to be set at warmth desired in home. Bottom pointer is the present temperature in room. When room temperature (bottom pointer) falls below desired room temperature, (top pointer), this will send a signal to the Relay control to activate gear motor to push fresh coal onto grate

FAN LIMIT SWITCH

1. **HIGH LIMIT POINTER**-is a safety switch that stops gear motor from pushing coal onto grate at 200 degrees (If stove gets too hot, this switch will turn off gear motor).
2. **CENTER POINTER**-turns convection blower on when internal air temperature reaches this setting (normally set around 160 degrees, but is adjustable).
3. **LOW POINTER**-turns convection blower off when internal air temperature falls to this setting (normally set around 120 degrees, but is adjustable).
4. Whatever number on silver dial is directly above this point is temperature of internal air.
5. **WHITE BUTTON**-pull out for automatic operation of convection blower. Push in for constant running of convection blower.

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RELAY-receives signal from 24V thermostat to turn on or turn off gear motor.

CONVECTION BLOWER-when running, it will take cool air from room, and force it through heated air chamber inside stove, and return heated air into room. Blower can only be activated by Fan Limit Switch.

HOW TO REMOVE OR REPLACE GEAR MOTOR

TO REMOVE GEAR MOTOR: FIRST...Pull power cord pug from 115V outlet. Remove Coal from hopper. Remove 10-24 machine screw and then remove protective cage. Disconnect both blue wire nuts marked. Remove both 10-24 machine screws from mounting bracket. Slide gear motor out of its track toward you, pusher bar will also come out with gear motor.

While pusher bar is out of its chute, clean chute area and remove any obstructions.

Check nylon screws on pusher bar (2 on each side) for wear or breakage. (Replace if necessary)

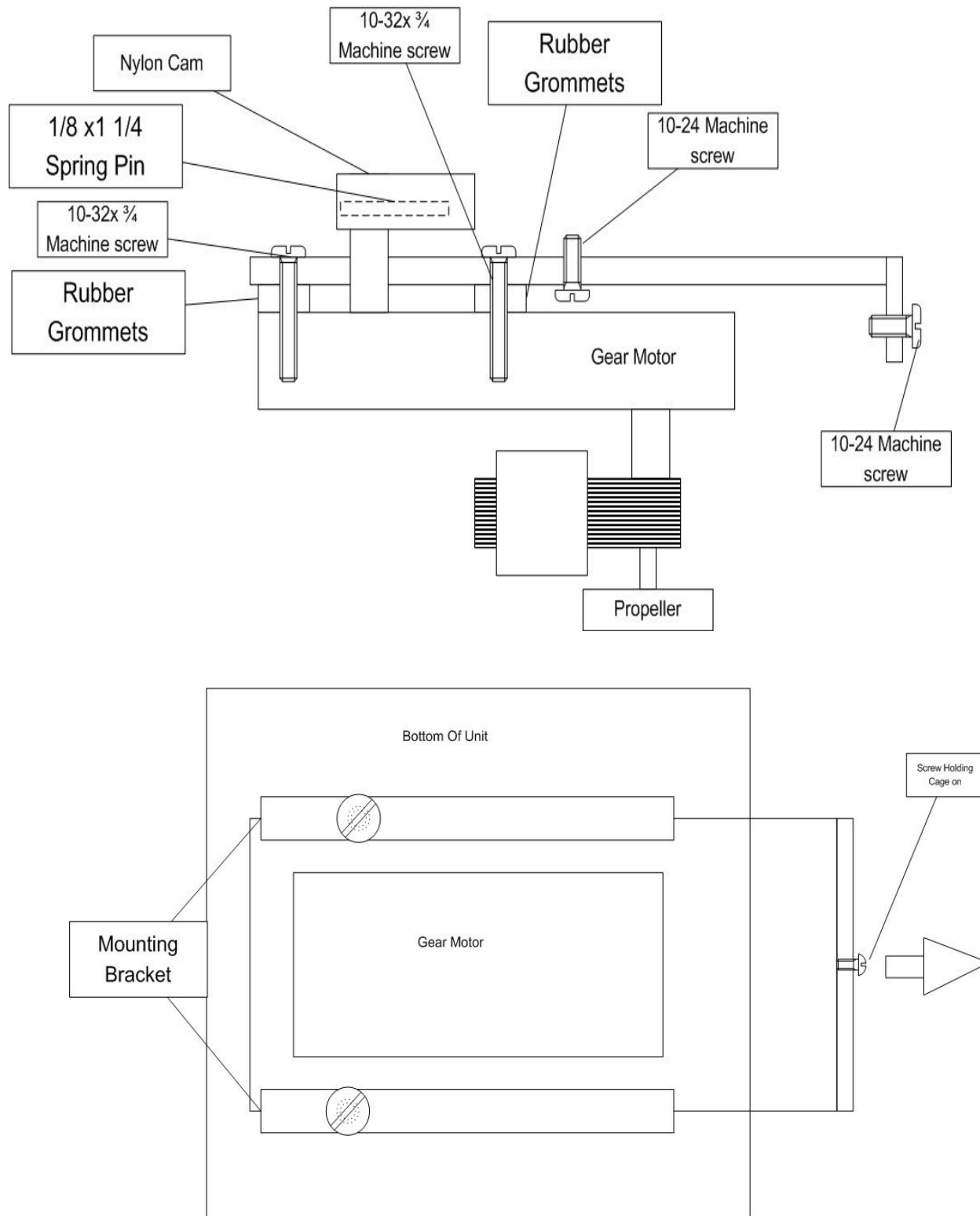
Slide pusher bar in and out of chute (should move freely) check for sideward movement.

Adjust nylon screws on right side to allow only a slight sideward movement.

TO REPLACE GEAR MOTOR: -remove (4) 10-32 machine screws that hold gear motor onto mounting bracket. Before removing gear motor from bracket, look at position of gear motor; install new motor in exact same position before reinstalling screws. Then reverse procedures and reinstall.

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When replacing gear motor with a new one, both gear motor wires are black; either wire may go to black or white wire from power supply.



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Koker TROUBLE SHOOTING GUIDE

FIRE GOES OUT See page 8 and 9 (Timer) and Page 6 Diagram (2)

COAL KLINKERING OR FUSING TOGETHER See page 6 Diagram (1) & (2)

SULFUR SMELL See page 2 Cleaning & Lubrication and check draft section

STOKER UNIT DOESN'T FEED COAL See page 7 (Pusher Bar)

PUSHER BAR IS NOT MOVING STRAIGHT See page 7 (Pusher Bar)

CONVECTION BLOWER RUNS TOO OFTEN See Page 11

CONVECTION BLOWER RUNS CONSTANTLY Pull white button on Fan Limit Switch out for automatic operation. Clean screen and fan blades on blower. See page 14

THERMOSTAT CALLS FOR HEAT, but CONVECTION BLOWER OFF TOO LONG See Page 6 Diagram (1)

FIRE IS LIT, BUT NOT ENOUGH HEAT

If gear motor only runs short cycles, timer is working. When thermostat calls for heat, gear motor should run steady. If gear motor is running steady, but fire is small, increase coal feed. (See pages 6).

If gear motor is not running steady, check for loose wire in Thermostat or in Relay. Check for broken thermostat wire between thermostat and Relay.

GEAR MOTOR RUNS CONSTANTLY MAKING TOO MUCH HEAT

Gear motor can only be activated by thermostat or timer. Remove thermostat wires from T.T. terminals in Relay, if gear motor shuts off, replace thermostat wire or Thermostat. Check timer to see if yellow wheel is turning, if not replace timer motor. Check timer switch. (See page 9 Timer)

CONVECTION BLOWER NOT BLOWING MUCH AIR Clean screen and fan blades on blower.

GEAR MOTOR SHUTS OFF ON HI-LIMIT

High Limit pointer in Fan Limit Switch is designated to shut gear motor off when internal air temperature reaches 200 degrees. If internal air temperature stays on 200 degrees, Convection Blower is not cooling stove off quickly enough. Clean screen and fan blades on blower or replace convection blower (or See Page 11 Fan Limit Control).

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BIG FIRE BUT NOT MUCH HEAT

Fan blades on combustion motor dirty. Brush off. Accumulated fly ash under grate. Remove combustion motor and clean under grate. Holes blocked in grate. Open holes with 1/8 center punch (See Page 6 Diagram (1)).

TO CLEAN UNDER OR REPLACE GRATE See Page 2 (Cleaning & Lubrication)

NYLON CAM MELTS

Under normal operating conditions, nylon cam will not melt. Melting of nylon cam can only be caused by a draft problem.

A blockage in chimney, chimney connector, stove pipe, or stove. Inspect and clean. Or excessive draft, caused by high chimney, large flue, or high winds. Clean and adjust barometric damper. (Set barometric damper with a draft gauge to obtain a draft reading of -.02 to -.03, See Page 2 Draft Check)

TO ORDER PARTS

Find the metal 1 ½" x 3" **Keystoker label** fastened to stoker unit body, near gear motor. The four or five digit number will be required to get proper replacement parts from your dealer.

SAFETY

THE BURNING OF ALL FOSSIL FUELS GENERATES CARBON MONOXIDE GASES. CARBON MONOXIDE GASES ARE TOXIC, CAN CAUSE SICKNESS OR BE FATAL.

To prevent toxic carbon monoxide gases from entering the home, certain precautions must be taken.

Ash tub must be emptied on a regular basis to prevent ashes from overflowing into ash pit area. Excessive ash accumulation may impede air flow to chimney, preventing gases to be drawn up chimney.

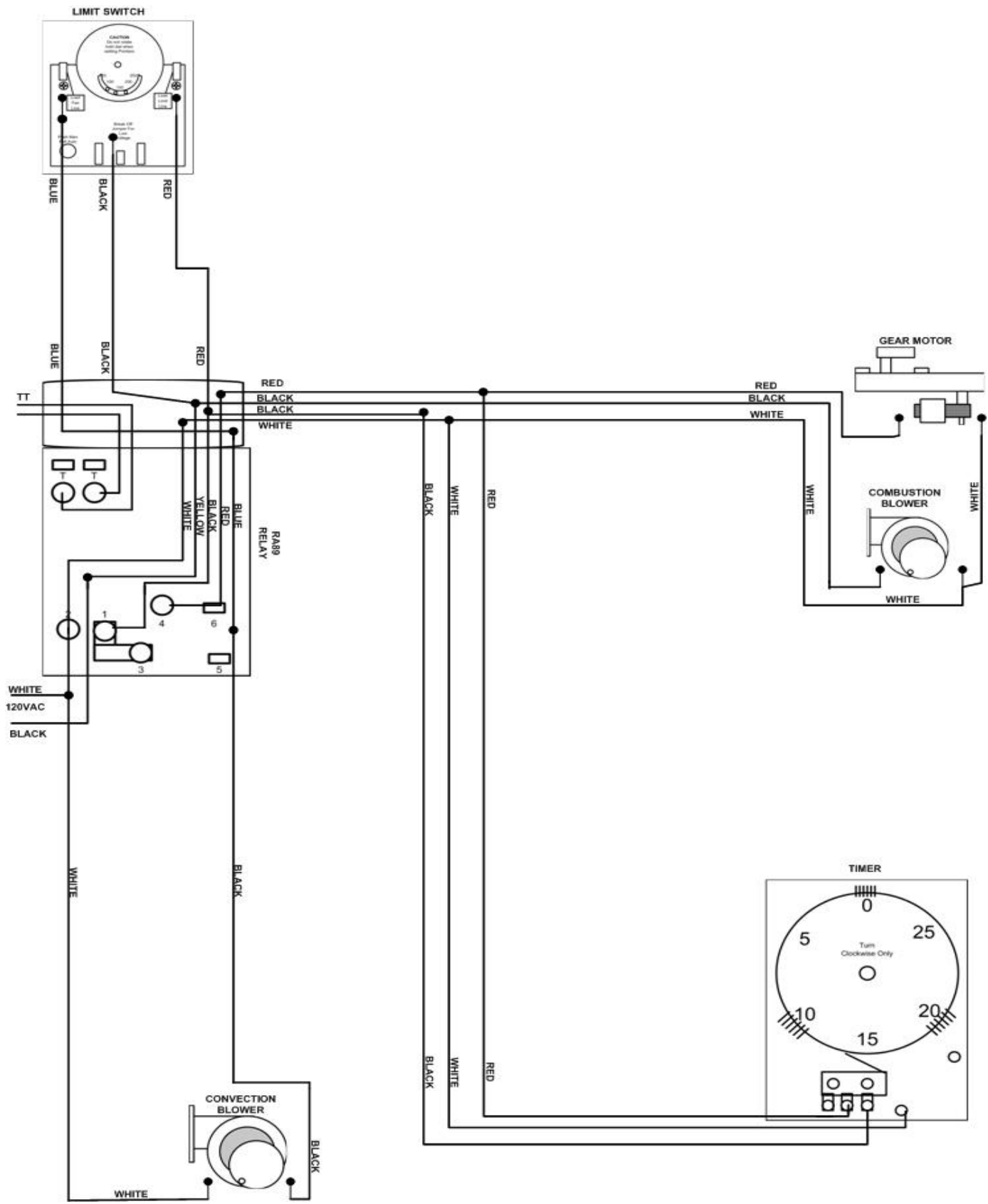
Fire door and ash door must be kept closed at all times during normal operation. It is necessary to keep coal in hopper while stove is in operation.

In most applications it is sufficient to clean stove and stove pipe twice during heating season. However, under extreme weather conditions, or high demand on stove running periods, the stove and stove pipe may need more frequent cleaning. Clean as often as necessary.

CAUTION: ASH PAN IS HOT-Always Use Gloves to Remove Ash Pan

Before removing ash pan, turn switch off, or pull power cord plug from 110V outlet. Open ash door. Use a good pair of gloves, to remove ash pan. Place filled ash pan on a non-combustible surface. Slide an empty ash pan into stove. Close ash door. Turn switch on or plug power cord back into 110V outlet.

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Koker Warranty

Keystone Manufacturing Company extends the following warranties to the original owner from the date of purchase.

Ten Years Workmanship on stove body

Two years on grates and side rails

One year all electric controls and motors.

Warranty does not apply if damage occurs because of improper handling, operation, abuse, rust, corrosion, misuse or use beyond rated capacity.

This warranty does not apply if the product has been altered in any way after leaving the factory.

All warranty claims should be made through dealer where the appliance was originally purchased. Model, **Stoker Unit** Number 1 ½ x 3 tag (found below hopper) and original copy of the sales receipt need be presented to dealer.

If a consumer chooses to make a warranty claim directly through Keystone Manufacturing Company model, stoker unit number, and copy of the original sales receipt are required. Customer must provide a credit card which will be charged for the full retail price for the product plus shipping and handling. When defective part is returned to the company and found to be a defect within warranty period the consumer's credit card will be credited back the cost of part.

Keystone Manufacturing Company assumes no responsibility for any labor expenses, for service, product removal, reinstallation or any freight charges for parts returned to the company.

If defective in material or workmanship and if removed by the owner with in warranty period Keystone manufacturing will at their opinion repair or replace the product.

This warranty is limited to defective parts, repair, or replacement at our opinion and excludes any incidental and consequential damages connected there with.

Warranty exclusions, labor, glass, door gasket, ash tub, hopper and paint

Stove Information

Dealer_____

Date of purchase_____

Stoker unit number_____

Stove Model_____

Checklist

Manual
Carbon Monoxide detector
Thermostat
Glass cleaner
Charcoal
Draft Regulator
Spring Handle
Ash Tub
Clamp and Screw

PACKED BY: _____