

# OPERATION OF HAND-FIRED ANTHRACITE STOVES

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- Step One:** Take about eight sheets of newspaper, crumble into balls and place on top of grates.
- Step Two:** Next, lay fine kindling on top of paper. This kindling must be dry and no larger than  $\frac{3}{4}$ " in diameter. Layer the kindling in a criss-cross fashion to allow good air flow.
- Step Three:** Open the draft control fully and light the paper just inside the door. Now, close the loading door and allow the kindling to catch fire. After a few minutes, open the loading door an inch or two for a few seconds before opening completely. This method will allow smoke to clear away from the door before the loading door is completely opened.
- Step Four:** Add small, compact pieces of hardwood when the kindling is burning hot. Keep the draft controls fully open to establish a hot fire quickly. The ash door also may be opened during start-up to accelerate the initial burn.
- Step Five:** When a substantial bed of red wood coals is built up, start adding coal (pea or nut is preferred over stove when starting) small amounts at a time.
- Keep the draft control open.
- Step Six:** Continue adding small amounts of coal until there is a solid bed of burning coal. Do not add too much at one time. Allow sufficient time between each small loading (at least 5 – 10 minutes), so that each loading has time to ignite thoroughly before the next load is put in.
- When a substantial bed of burning coals has been established, fill the stove to the top of the firebrick. A deep of coal always will burn more satisfactorily than a shallow bed.
- Step Seven:** When most of the wood is burned and the coal is completely ignited (usually 5 – 10 minutes or less after filling the stove), The draft control should be turned down to the proper operating level. (If the ash door has been opened, it must be closed to prevent over-firing, which can cause dangerously high temperatures.)

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## Loading

Coal should never be added unless there is a reasonable, hot fire. The coal bed should be bright and vigorous.

If the fire is burning hot and there is a deep bed of coals, full loads of coal can be added at any time. However, if there is not a deep bed of coals, it is best to add small amounts of coal at first.

## Increasing Heat From a Low Fire

Every effort should be made not to let a coal fire burn too long so that the fire has started to die. This will cause the reloading process to be much longer, and there is a good possibility of losing the fire.

- Do not shake or stir with a low fire.
- Open the draft control wide or open the ash cleanout door to get the maximum draft.
- Run the stove with the draft control or ash door fully open until the fire is reasonably hot.

Start adding small amounts of coal. When the new coal is thoroughly ignited or there is a substantial bed of hot coals, the stove may be shaken thoroughly. Be sure to shake down all ashes (but do not over-shake).

After shaking, keep the bottom draft control open until you are sure the fire is continuing to burn hot, then turn the draft control down to the proper operating level.

**IF THE ASH DOOR HAS BEEN OPENED, BE SURE TO SHUT IT (SERIOUS DAMAGE CAN RESULT IF THE STOVE IS RUN FOR EXTENDED PERIODS WITH ASH DOOR OPEN).**

For stoves with the screw type draft control, count the exact number of turns from full shut to the normal operating positions so that you can adjust the stove to the exact level of heat output and length of burn you desire.

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## **Shaking**

Shaking should be done only when there is a hot fire.

The frequency of shaking will depend on the type of stove and the degree of burning. Shaking should be done at least once a day, and preferably twice a day.

Best results from shaking with most grates will occur if short, “choppy” strokes are used rather than long, even strokes.

The amount of shaking is critical. Too little or too much, either can result in the extinguishing of a fire due to air flow. The proper amount normally occurs when red coals first start to drop through onto the bed of ashes.

## **Draft Controls**

The heat output of the coal is controlled by the primary draft control, usually found on the bottom door. Experience will dictate the proper settings for heat requirements.

Coal responds very slowly to changes in the draft settings. Because of this slow response time, over-correcting is a common problem. When changes in heat output are needed, make only small changes in the draft setting and wait for the temperature to stabilize.

## **Ashes**

Ashes should never be allowed to accumulate in the ash pit, so that they in any way impede the flow of combustion air to the fire. Excess ash accumulation can cause the fire to go out and also can cause severe damage to the grates because of the absence of a cooling flow of air beneath them.

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled outside the dwelling.

# **OPERATION OF HAND-FIRED ANTHRACITE STOVES**

**CAUTION!** ASHES SHOULD NEVER BE ALLOWED TO ACCUMULATE ABOVE THE TOP OF THE ASH PAN. ASHES IN CONTACT WITH THE BOTTOM OF THE GRATES ACT AS AN INSULATOR, INTENSIFYING THE HEAT ON THE GRATES, AND COULD CAUSE THEIR WARPAGE. WITH AN EXCESSIVE ASH BUILDUP, PRIMARY COMBUSTION AIR IS RESTRICTED, THUS, THE UNIT'S OUTPUT COULD BE REDUCED.

GRATES WARPED IN THIS WAY ARE EASILY RECOGNIZED BY THE EXTREME DAMAGE CAUSED TO THE GRATES.

## **Safety**

Whenever a loading door is opened, it always should be cracked slightly to allow oxygen to enter and burn any combustion gases that are present before fully opening. Failure to do this could result in sudden ignition of the unburned gases when the door is opened.

A stove should never be filled with excess coal, so that the flue gas exit is blocked or impeded in any way. Burning generates carbon monoxide. If the flue gas exit is blocked, the carbon monoxide can be forced out of the stove into the room, with possible fatal consequences.

WITH THE EXCEPTION OF THE START-UP PERIOD, THE ASH PIT DOOR SHOULD NEVER BE LEFT OPEN. ALSO NOTE THAT A STOVE SHOULD NEVER BE LEFT UNATTENDED WITH THE ASH PIT DOOR OPEN.

Serious damage to the stove can occur from overheating.

Coal stoves should not be installed in any chimney that has had a history of back-drafting or flow reversal. These conditions can cause improper draft, resulting in carbon monoxide entering the house rather than being drawn up the chimney.

**REMEMBER! COAL, LIKE ALL FOSSIL FUELS, CONTAINS GASES THAT ARE TOXIC!**

# **AUTOMATIC ANTHRACITE STOKER OPERATION**

## **Starting and Operation**

To start a fire you first pour rice coal into a hopper.

With the thermostat turned up and the stoker running, the coal will begin to feed onto the grate inside the stove. This process can be speeded up by adjusting the feed rate to the maximum position.

When the coal starts to come up out of the grate and is almost up to the area where the holes start, turn the feed rate back and / or turn off the feed motor with the switch on the side of the stoker. Place some crumbled newspaper and fine kindling (6" to 8" long) on the grate and ignite.

When kindling is burning good, add some rice coal on top of it. After the coal is burning, the feed motor can be turned on and the coal fire will continue to get larger. Fresh coal will continue to be pushed onto the grate and the ashes will be pushed off the grate. The feed rate must be adjusted so the coal is burned up and turned to ashes before the coal gets one inch from the end of the grate. Too high a feed rate will push unburned coal off the coal grate.

As an alternative to using kindling, self-lighting charcoal briquettes can be substituted. For best results, they should be broken into small pieces for faster ignition.

After the fire is burning and the feed rate is adjusted, you can now set the thermostat to the desired temperature.

It should be noted that all automatic stokers will discard some unburned coal with the ashes during normal combustion. This is due to anthracite being slow burning combined with the timing of the feed mechanism or lack of demand for heat by the thermostat as well as a very small percentage of grate inefficiency.