INSTALLATION, OPERATION AND MAINTENANCE

MANUAL FOR CLASSIC

SURDIAC

COAL STOVES

MODELS: Petit Manor 500
         Royale 612 & 616
         Gotha 513 & 713 + S14
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**SAFETY NOTICE:** If this Surdian Coal Stove is not properly installed, a house fire may result. For your safety, follow the Installation directions. Contact local building or fire officials about restrictions and installation inspection in your area.

**NOTE:** This stove is not approved for use in mobile homes.

**NOTE:** Use of aluminum Type B gas vent for solid fuels is unsafe & prohibited by the National Fire Protection Association Code.

**NOTE:** Keep all household furnishings at a considerable distance away from the stove.
We recommend that your coal stove be installed in your home by a qualified person and that you carefully read this notice - particularly the paragraphs where the thermostat is concerned.

The floor beneath the unit must be covered with 1/2" thick asbestos millboard or equivalent. The non-combustible floor covering shall extend a minimum of 8" beyond the rear of the chimney connector; 8" beyond the sides of the unit and 20" beyond the front of the unit (Fig. 1).

The minimum clearances to combustible materials are as follows (Fig. 2):

A. 19" from back of chimney connector to the back wall.

B. 15" from side of stove to nearest side wall.

DANGER! LOADING DOOR MUST BE CLOSED DURING OPERATION

CAUTION!
- Hot while in operation.
- Do not touch, keep children, clothing and furniture away.
- Contact may cause skin burns.
- Never use gasoline or any gasoline type of lantern fuel such as kerosene, charcoal lighter fluid or similar liquids to start or freshen up a fire in this stove.

NOTE: Clearances may be reduced if walls are non-combustible. CONSULT YOUR LOCAL BUILDING CODES OR FIRE DEPARTMENT FOR AN ACCURATE DEFINITION OF A "NON-COMBUSTIBLE WALL" AND FOR CLEARANCES FROM THESE WALLS.
THE CHIMNEY

This stove should have its own chimney of a suitable height (approximately 15 ft.). All openings such as clean-out doors or flue openings on other floors should be sealed airtight.

CONDITIONS FOR THE PROPER FUNCTION OF THE CHIMNEY SECTION (FIG. 3).

1. The cap should be well ventilated.

2. In a masonry system, chimney reduction must be made gradually.

3. Elbows and offsets should be made clear and unrestricted.

4. The inside should be kept smooth and free of cracks.

5. Chimney thimble is to be tight.

6. The smoke pipe must be carefully sealed.

7. The smoke pipe is to be properly inserted into the correct depth and is not to protrude inside the chimney.

8. When using a manufactured chimney, it must be a UL listed residential type heating appliance chimney system.

* For additional information pertaining to chimney draft, please refer to page 17.
A barometric draft damper must be installed to insure a stable draft and a consistent rate of combustion.

Stoves will operate properly at draft levels of -.015" WC to -.05" WC. With readings of less than -.015" WC increasing chimney height, installing a draft inducer or any other applicable corrective measure may be used to increase the draft to an appropriate level.

When readings are in excess of -.05" WC, a barometric damper must be installed and the necessary adjustments made to reduce draft intensity. The ideal operating draft range is -.03" to -.04" WC. Have your authorized retailer check your specific draft level and adjust it if necessary.

MANUAL CAST IRON DAMPERS

Although cast iron dampers have resolved many operational problems on wood stoves, they are not recommended for use on our coal stoves. They do not compensate for variations in wind activity.

THIMBLES

A metal or fireclay thimble is used when passing a stovepipe through non-combustible walls or into a chimney. The thimble should be permanently cemented (with refractory cement) into the masonry and should extend through the chimney wall to the inner face of the liner, but not beyond. If possible, the stovepipe should extend into the thimble so the end of the stovepipe is flush with the inner end of the thimble. In many cases the inner diameter of the thimble will be too small to allow full penetration of the stovepipe into the thimble. In this case, the stovepipe should be inserted as far as possible and then securely fastened to the thimble. If it is necessary to pass a flue connection through a combustible interior or exterior wall, a horizontal section of prefabricated chimney installed according to the chimney manufacturer's specifications can be used. A combustible wall may also be penetrated by a fireclay or metal thimble surrounded by solid masonry at least 8 inches on all sides, by a metal ventilated thimble at least 12 inches larger than the flue pipe or by removing all combustible material within 18 inches of the stovepipe. These wall penetrations should only be used when it is necessary to penetrate a chimney which is immediately in back of a combustible wall. Stovepipe should never be used to penetrate a ceiling. A stovepipe may never pass through a ceiling, closet, or concealed area; for these areas a listed factory-made chimney is required. Once the stovepipe connects to a chimney, it must remain a chimney from that point on. No further use of stovepipe is allowed.
STOVE PIPE TO CHIMNEY

The smoke pipe should be airtight in order to avoid malfunction and be installed according to Figures 4, 5, 6, 7.

1. Stove pipe must be properly sealed to the stove. Flue sizes 5" OD. Material must be 24 GA blue steel or equivalent.

2. It should be straight and as short as possible.

3. The pipe must have 1" per foot rise properly secured by 3 equally spaced sheet metal screws at each joint.

4. Stove cement or some other material that will not disintegrate should be used to seal joints.

5. The smoke pipe may be attached to flue by filling the void with a mixture of asbestos and water and should not be inserted more than 1".
CAUTION: Proper operation requires the use of only pea size anthracite coal - other fuels can cause excessive temperatures.

PEA sized premium grade anthracite coal is the recommended fuel for our coal heaters.

Premium grade anthracite is usually referred to as the type having approximately 8% to 10% ash content, a fixed carbon content of approximately 86% to 88%, and a volatile combustible matter percentage of approximately 4%. The best type of anthracite would be one with a higher volatile combustible matter percentage coupled with a reduction of ash content although maintaining at least an 86% fixed carbon content.

The ash fusion point (the temperature at which "clinkers" are formed because of coal ash being fused) of a high grade of anthracite will be in the area of 2,800°F to 3,000°F, and the BTU output should be approximately 13,500 to 14,500 BTU's per pound.

If larger CHESTNUT or smaller BUCKWHEAT coal is used, a negative change in stove performance can be expected. Chestnut size coal will give you a hotter fire and a noticeable decrease in unattended burn time. (The faster your coal burns, the more often you need to shake down ashes due to resultant accelerated ash buildup.)

It is a normal misconception that larger size coal produces more heat as compared to an equal volume of a smaller caliber coal. A load of chestnut size coal will burn hotter only because there is more fuel being consumed at a faster than normal rate. This is primarily due to the increased air spaces or pockets that are created by the larger chunks of coal as they stack up in the hopper of your stove and thus encouraging faster than normal airflow and combustion. The BTU output of a pound of chestnut size coal is the same as a pound of pea sized coal of equal quality.
**RECOMMENDED SOLID FUEL (con't)**

Using smaller BUCKWHEAT size coal will result in longer than normal burn times, a decrease in normal heat output, and it will also increase raw coal waste because of the smaller pieces of coal falling through the openings of the grates.

Our coal stoves are designed for efficient anthracite coal combustion. Wood can be burned with logs of 14-18" in length and removal of the coal hopper.

Never use gasoline, gasoline type lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or "freshen up" a fire in this heater. Keep all such liquids well away from the heater while it is in use.

### RATING AND HEATING CAPACITY*

<table>
<thead>
<tr>
<th>Model</th>
<th>Rating BTU/h</th>
<th>Heating Capacity Cu. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCK 508</td>
<td>Up to 38,000</td>
<td>Up to 11,100</td>
</tr>
<tr>
<td>MCK 512-612</td>
<td>Up to 44,400</td>
<td>Up to 13,200</td>
</tr>
<tr>
<td>MCK 516-616</td>
<td>Up to 60,000</td>
<td>Up to 17,600</td>
</tr>
<tr>
<td>Baronet 520</td>
<td>Up to 44,000</td>
<td>Up to 13,200</td>
</tr>
<tr>
<td>Baronet 720</td>
<td>Up to 60,000</td>
<td>Up to 17,600</td>
</tr>
<tr>
<td>Gotha 513</td>
<td>Up to 44,000</td>
<td>Up to 13,200</td>
</tr>
<tr>
<td>Gotha 713</td>
<td>Up to 60,000</td>
<td>Up to 17,600</td>
</tr>
</tbody>
</table>

*NOTE: THE HEATING CAPACITY OF ANY STOVE IS AFFECTED BY SUCH FACTORS AS:

1) **FUEL - QUALITY OF WOOD OR COAL BURNED IN**
   - Ash Content
   - Moisture Content
   - Violatile Content
   - Seasoning of Wood
   - Ash Fusion Point
   - Appropriate Storage
   - Size of Individual Pieces of Coal

2) **AREA HEATED:**
   a) Air infiltration of home
   b) Individual heat demand of house or heat loss factors
   c) Stove location and installation.

3) **OPERATION OF STOVE:**
   a) Proper stove maintenance and daily care
   b) Properly set and consistent chimney draft.
Before putting your stove into use, wipe it off with a clean, soft, dry cloth. As moisture and fingerprints will stain your appliance permanently, be very meticulous while doing this. If any drops of moisture are on the stove when you light it, be sure to wipe them off immediately. The blue wax applied to the cooking surface and the clear plastic tape applied to chrome parts of the stove should be completely removed prior to lighting your stove since it is only applied at the factory to protect the stove during shipment.

NOTE: To protect the hopper from damage during shipment, blocks of wood were wedged in the hopper and prevent adjustment to the hopper. Also, in the models #50?, #612 and #616 the blue wax protective coating should be removed from the polished cast iron top. The tape used for glass protection and the plastic covering on all chrome parts should be removed prior to firing.
Open the front pyrex door and place several pieces of crumpled newspaper along the cradle area on top of the firegrates. Place some dry kindling wood (approximately 4" long) over the newspaper. Add a small amount of coal by lightly distributing it on top of the wood kindling. Then set the thermostatic control dial on the righthand side of the stove on Position #5. Start the fire by lighting the newspaper. When the newspaper begins to ignite, close the pyrex door. After the kindling is burning well, add some additional wood kindling with a shovel of coal into the hopper; then make sure the hopper door is tightly shut. When the coal is burning, add additional coal a little at a time. Also, it is very important that there are no pieces of coal or coal particles in the closure area so that the hopper door is airtight.

After 20-30 minutes, reset the thermostatic control to the heating comfort desired. Now with the coal on the grate burning brightly, fill the hopper with coal, leaving at least one inch of space between the coal and the hopper cover when closed.

**NOTE:** The pyrex glass door may be cleaned with a non-abrasive household cleaner such as ammonia. The cleaner should only be applied when the glass is cool. Placing a moist cloth on the glass surface when it is hot could cause permanent etching and clouding.

**NOTE:** Before lighting your fire, cover the inside of the pyrex door with aluminum foil. This will keep the glass free of smoke build up while starting the fire. After the coal fire is well established, remove the foil for clear visibility of the fire.

After using your stove for several weeks, the glass may develop a slight white haze. In the morning when the fire has subsided and before shaking down the ashes, open the pyrex door and cover the front stove opening with aluminum foil allowing the glass door to cool for 20-30 minutes. When the glass is cool, you may then clean it while the stove is still in operation.

**NOTE:** You should never operate a stove with broken glass, replace it immediately. For replacement glass contact your nearest authorized Classic-Surding Dealer, or Classic Stove Works directly.

**NOTE:** Classic Stove Works stocks and sells both glass cleaner and a silica gel substitute known as "Verust" capsules. If you have difficulty in obtaining any of these materials locally, please contact our nearest authorized Dealer or our New Britain, Connecticut office for details and pricing.
BREAKING IN YOUR STOVE

Just like any other fine appliance constructed of high quality cast iron alloys, the Surdiac stoves need to be gradually "broken in" prior to loading the hopper fully and using the stove normally.

It is mandatory that five (5) consecutive small coal fires be built in the stove prior to using it continuously 24 hours/day with the hopper fully loaded. The five "firings" referred to are successive small coal fires being built with a complete cooling off of the stove after the fire dies down. It is not acceptable to build a small fire and keep it going for 2-3 days on a low stove setting. The stove must be cooled off completely after a firing in order to properly heat treat or break in all the metal parts on the stove.

NOTE: You should never bring the stove from very cold temperatures into your home and build a fire in it immediately. The stove should be allowed to properly warm up to room temperature (50-60°F) before firing it up for the first time.
We suggest the use of pea-sized coal. With the use of the pea-sized coal, the hopper should be raised to the higher position (Fig. 8). For low heat output in warm weather, the hopper should be lowered to the lowest position (Fig. 9).

When wood is burned in these Surdiacs the hopper must be removed. This is easily done by removing the front cast iron liner (#1). The hopper is lowered and tilted so it will come out of the stove through the front pyrex door opening. The stove will now accept logs of 14 to 18" in length depending on model.
0-1 Mild temperature or for night time use.

1-2 Normal usage.

3-4 Cold weather usage.

5-8 High heat setting for a duration of NOT MORE THAN TWO HOURS. On any of these high heat settings, the cover of the stove should be raised to an upright position to prevent warping or damage to the cast iron parts of the stove. (After high heat setting usage, the stove MUST be operated at a setting of less than 3° or 24 hours prior to next high heat usage.)

IMPORTANT

The thermostat has been regulated in the factory and is not to be adjusted except by a qualified mechanic. A prolonged overheating of the stove can damage both the stove and the thermostat. Treat your stove carefully as with any other fine appliance. Do not force the thermostat dial. Turn it only as far as it will naturally go. When the stove is hot, the dial will not go back to a setting of zero.
KEEPI NG THE FIRE BURNING

Be sure that all the doors on the appliance are tightly shut, including the ash pan door and the coal hopper door to insure that the stove is completely airtight.

Never leave any of these doors open while operating your appliance. This could cause overheating and damage your appliance.

The chamber which holds the ash pan should be kept reasonably clean to allow the ash pan to be pushed in as far as possible so as not to impede the closing of the ash pan door.

To keep the fire burning, ashes should be shaken down into the ash pan using the poker provided with the appliance. Ashes can be shaken down once every 6 hours on high settings; on warmer days or when the stove is set on the lower settings, shaking is necessary only every 12 hours.

NOTE: Continuous frequent shakedowns such as every 1, 2 or 3 hours will cause damage to the stove - this must be avoided.

Depending on the model of the stove, there are 2 or 3 openings above the ash door where the poker must be inserted in order to shake down the ashes (Fig. 10). When you introduce the poker into each opening, use a stabbing motion several times moving to the right, to the left, and to the back and front of the fire grate. Do not employ a side-to-side swaying motion when shaking the stove down. This procedure will result in coal and ash build-up along the edges of the fire basket.

![Fig. 10](image)

NOTE: It is important that all ash is removed from the grate area with particular attention to the back side of the hopper area. If the ashes are not thoroughly removed, less space will be available for coal combustion resulting in less heat.

WARNING: After extended use in the poker, it will become shorter from wear making it more difficult to remove ashes from the back of the fire grate. Inspect the poker yearly, making sure it is at least 1/2 in. in overall length including handle.
IMPORTANT

After removing the poker from each opening, be sure that the closure on the inside of the opening is in closed position so that it does not permit a draft of air to enter the firebox area - this would interfere with the operation of the thermostat. A brass hook tool is provided with the stove for the purpose of removing ash or pieces of coal.

To remove the ashes, open the lower front panel on the stove. Use the cast iron tool provided to open the ash pan door. The closure is located to the left of the ash pan door. Remove the ash pan with the same tool provided with the appliance.

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or outdoors well away from all combustible materials. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be thoroughly cooled.

DO NOT LET ASHES ACCUMULATE IN THE ASH PAN

A good rule of thumb is to empty the ash pan every time the ashes are shaken down. If ashes accumulate in the ash pan, this will clog the hopper grates and impede the air flow to the firebed. This will cause premature deterioration of cast iron grates.

On the coldest day of winter if the thermostat is on a higher setting, the ash pan may need to be emptied one extra time in the middle of the day. Every time ashes are shaken down and the ash pan is emptied, new fresh coal must be added into the hopper reservoir to assure and maintain normal stove operation.
IMPORTANT:

A clean chimney is paramount to the safe operation of your stove. Your chimney should be inspected and cleaned at least once a year for safe operation. To keep your appliance in good working order, it is necessary to keep soot accumulation to a minimum.

Depending on the model, there are duct openings on the rear heat exchanger of your stove which may be removed occasionally to inspect for soot accumulation (Model #508 does not have a cleanout duct and cleanout is accomplished through the 5" rear flue outlet). This can impede the draft and hamper operation of the stove. Any duct closures should be replaced with care to be sure that they are perfectly sealed (see Fig. 11).

Your appliance must be installed in such a way that the movement of the draft control in the rear of the stove must not be impeded or obstructed in any way. It must be able to open and close easily with a turn of the dial.

Fig. 11

A. Horizontal ducts
B. Position of thermostat bulbs
C. Clean out plugs
CARE

Do not clean the appliance until it has completely cooled down. Avoid harsh chemical cleaners or abrasives.

The pyrex panes on the front door of the stove can be cleaned only when the stove is completely cold. The manufacturer suggests a water-vinegar solution.

WHEN THE STOVE IS NOT IN USE: Remove carefully all coal ashes and soot. Cover chromed surfaces with a thin coat of pure vaseline. Place a cloth bag inside of stove containing a dehydrating substance such as silica-gel, which absorbs moisture while the stove is not in use. Silica-gel may be purchased in most drugstores.

TO EMPTY STOVE APPLIANCE COMPLETELY: Lift and pull to the right the stem of the grate which protrudes from the lower right-hand side of the appliance, using the door opening tool provided. This opens the grate and allows all the coal and ashes to fall into the ash pan. For the Model #508, this stem is located in the lower front of the appliance. This opens the grate and allows all the coal and ashes to fall into the ash pan.

During the summer months or when the stove is idle for a long time, the cable from the dial to the thermostatic control should be lubricated with a small amount of oil.

CAUTION: DO NOT CLEAN WHILE HOT

NOTE: Periodically you should inspect the gasketing materials on all three doors: The Top Loading Door, The Ash Pan Door and The Front Pyrex Door. With extended time and usage the gasketing can wear and should be replaced to insure safe, controlled burning in your stove.

NOTE: Classic Stove Works stocks and sells both glass cleaner and a silica gel substitute known as "Zerust" capsules. If you have difficulty in obtaining any of these materials locally, please contact our nearest authorized Dealer or our New Britain, Connecticut office for details and pricing.
1. Poorly assembled pipe connections running from the stove itself to flue connection.

2. Chimney is not insulated properly - needed to maintain correct stack temperature (cooling off and losing negative pressure).

3. Leaks in the chimney system.

4. Improper chimney dimension, stack easily cooled.

5. Chimney flue not straight - starts at one point then angles off.

6. Chimney not tile lined, may result in cooling and leaks.

7. Poor masonry work on lining of chimney - excessive mortar and leaks.

8. Fireplace connection where the pipe running from the stove to the fireplace flue improperly installed.

9. Pipe connection forced against smoke shelf.

10. Pipe connection into regular chimney flue not properly installed.
    a. Forced in too far.
    b. Not sealed properly.

11. Where chimney system connected to oil burner flue - furnace goes on causing excessive draft or disrupts the continuity of combustion.

12. Fireplace clean-out door opened - causing draft interference.

13. Insufficient chimney height.

14. Trees around chimney or location of home - making it susceptible to down drafts.

15. Materials and construction of a makeshift chimney.


17. Outside temperatures too warm, creating poor draft.