

Green Bean Coffee Roaster



User's Manual

Green Bean Coffee
www.beans.net.au

This Manual Must Be Retained For Future Reference

WARNING!



SOME UNUSUAL CONDITIONS, SUCH AS DRASTICALLY OVERFILLING THE ROASTER, NOT CLEANING THE CHAFF COLLECTOR AFTER EACH ROAST, OR BLOCKING THE ROASTER VENT, CAN CAUSE A FIRE IN THE ROASTING CHAMBER. DO NOT LEAVE THE ROASTER TO RUN UNATTENDED. IN THE EVENT OF A FIRE, TURN OFF THE ELECTRIC POWER AND GAS, AND ALLOW THE ROASTER TO COOL COMPLETELY BEFORE TOUCHING IT.



TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE YOUR ROASTER TO RAIN OR MOISTURE.



DO NOT REMOVE THE HOUSING COVER FROM THE ROASTER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



THIS IS A GAS FIRED APPLIANCE, AND MUST NOT BE VENTED INTO A CLOSED SPACE. SEE THE MANUAL FOR PROPER VENTING.



THE GLASS ROASTING CHAMBER AND THE METAL ABOVE THE ROASTING CHAMBER CAN CAUSE BURNS IF TOUCHED DURING THE ROASTING CYCLE.



SIGNIFICANTLY OVER OR UNDER FILLING OF THE ROASTING CHAMBER WILL CAUSE THE ROAST TO FAIL, AND MAY INCREASE THE RISK OF FIRE IN THE ROASTING CHAMBER.



ROASTERS IDENTIFIED AS NATURAL GAS ROASTERS MUST NOT BE RUN ON PROPANE (LPG). DOING SO WOULD POSE A SERIOUS POTENTIAL FIRE HAZARD. BE SURE THAT YOU DO NOT USE A GAS OTHER THAN THE ONE SPECIFIED ON THE BACK OF YOUR ROASTER.

1. INTRODUCTION

Congratulations on your purchase of a new **GREEN BEAN** Coffee Roaster. The wonderful smell of fresh roasted coffee will soon be a regular part of your life. If you are using our roaster as a commercial machine, it will give you years of service, and dramatically demonstrate your commitment to freshness and quality. Your customers will taste the freshest coffee they have ever had.

Depending on the degree of darkness of the roasted coffee, and the type of green coffee bean, it should take between 15 and 20 minutes to roast and cool a 600 gram batch of coffee. In a ten-hour day, you can easily produce 10 - 12 Kilograms of high-quality roasted coffee with just one of our machines. (For best results, by the way, we suggest you roast coffee for the next day - that is, let the newly roasted coffee sit for 8 to 12 hours before grinding and brewing.) We are excited about bringing the producers and consumers of coffee closer together, and restoring the idea of coffee as a locally roasted, varied and impeccably fresh product.

We have written this manual to try to make learning about our machine a pleasant process, and our company is dedicated to helping you with all of the supplies and information you may need.

Three important points about our roaster:

1. A key feature of our roaster is the freshness of the coffee that it provides. Given that roasted coffee loses its uniquely fresh-roasted flavour in about a week it is very important to keep track of the age of your roasted coffee. If you are going to sell whole bean coffee, date stamp the bags! Then, when someone buys coffee from your roaster, the flavor will be memorable.
2. Our roaster, because of the way it operates, can only do a single fixed amount of coffee at a time. Always use the measuring can we have provided to measure out the green beans for each roast cycle. Overfilling or under filling the machine will result in a spoiled roast.
3. Always use top quality green coffee. You will get better roast consistency, produce less smoke, and get much better flavor out of clean, well-graded green coffees. The difference in price between top quality green coffee and inferior stuff is definitely not worth the disappointment.

So, with those things in mind, Happy Roasting from us to you.



Kirk Stuart
Managing Director

Email: kirkstuart@beans.net.au
Web: www.beans.net.au

2. INSTALLATION AND ACCESSORIES

Unpacking the box

The very first thing to do after removing your roaster from the carton (which may well be a two person job, as the roaster weighs over 25 kilograms), is to check for any damage that might have occurred in shipping. Let us know immediately if you Find anything wrong.

Locations for the roaster - basic requirements

We think the roaster will prove most valuable to your business if it is somewhere that your customers can see it in operation. But you may or may not be able to do that. There are really only a few absolute requirements for the installation.

They are:

- A. The roaster must be in a sheltered location - it is not water-resistant.
- B. It must have "breathing room" around the back of the roaster - not less than 7.6cm to the nearest wall.
- C. It must be level - check the top with a level to make sure. If it is not level, the motion of the beans may be disrupted during the roasting cycle, and an uneven roast may result.

Connecting up the Roaster to Propane (LPG). The fitting on the back of propane roasters is designed to take a standard propane flare fitting - like that found on the end of a standard regulator/hose combination. The propane roaster can be run from the same sort of bottle- regulator-hose arrangement that is common on gas barbecue grills. If you are using a propane roaster indoors, safety considerations require that the propane bottle be outdoors, and plumbed to the location of the roaster. Bottles and regulator/hoses can be ordered from us, or picked up at any hardware store. A 9.5 Kg bottle should produce at least 46 Kilograms of roasted coffee.

Connecting the Roaster to Natural Gas: The natural gas roasters should be directly plumbed in to the natural gas line, like any other gas fired appliance. This is a job for professionals, who will have the tools, fittings and experience to provide a solid and safe installation. Make sure the machine you are connecting to natural gas has been built for natural gas (it will say so on the back). There should be a valve in the line to the roaster.

Electric Power: This is an easy one. Just plug it in. The roaster only draws about 3 amps at 115 volts a.c., so no special wiring is required. Roasters built for 240 volt, 50hz service will not run properly on 115 volts, 60hz and vice versa. Check the back panel of the machine for the voltage required.

Venting: There are several reasons to vent your roaster properly, unless you are using it outdoors. Venting an indoor installation will prevent accumulation of carbon monoxide, and, in the unlikely event of a roaster fire, will provide a safe escape route for the combustion products. The roaster can simply be placed under a hood, like a stove or other gas appliance. Or, the roaster exhaust can be ducted through 10.2cm diameter steel tubing to a nearby hood. Or, the roaster can be vented through a nearby outside wall, by our qualified installers.

4. Things To Remember

The coffee roaster has been designed to be simple to operate, but before you start, you must understand some basic principles of operation.

Do not use the power button to stop a roast. If a roast appears to be going too dark, just turn off the “Gas” switch, located on the control board, and the roaster will begin its normal cooling cycle. Turning off the “power” switch will prevent the beans from cooling and can begin to smolder and generate smoke. **Always allow the roasted beans to cool before removing from the roaster.**

Always use the measuring can supplied with the roaster. Fill two cans, level to the top, with green beans . Two full cans contains approximately 2.8 pounds of green coffee and will yield approximately 2.4 pounds of coffee roasted on a #5 setting. **Do not overfill, under fill, or use a can other than the one supplied with the roaster. Doing so will cause inconsistent results and loss of coffee.** Please contact customer service for a replacement can if lost.

Keep the roaster clean. Refer to the **Roaster Maintenance section** for proper cleaning procedures. It is important to maintain the roaster to keep it operating at its best.

Do not leave the roaster to run completely unattended. As with any appliance, unusual conditions such as a power outage, blocked vent, or failure to properly maintain the roaster can cause coffee to smolder and generate smoke in the roast chamber. It is good practice to be within earshot of the roaster when in operation so you can respond if any of these conditions should occur.

Be careful not to chip or scratch the glass roasting chamber. The roasting chamber is made of very high quality ceramic glass which is capable of handling thermal stress greater than that produced by the roaster. The glass will not however handle thermal cycles after being damaged due to impact or abrasion. The roasting chamber must be handled with care at all times. **GreenBean will not be held liable for breakage.**

5. Filling The Roaster and Component Assembly

Remove Roast Chamber/Chaff Collector Assembly

Lift handle to raise smoke box assembly.

Remove roast chamber/chaff collector by lifting straight up and back.

Caution: The roast chamber is able to withstand much higher temperatures than the roaster is capable of producing. However, it can be damaged if impact occurs on a hard surface and then subsequently heated during a roast.

Lift handle



The roaster is designed to operate correctly with a fixed volume of approximately 1.1kg of green beans in the roast chamber and is easily measured using the supplied metal can or pre portioned bags. This volume ensures correct air flow balance through out the entire roasting process. The following steps will ensure that the correct volume of coffee beans are used for each roast.

Fill the supplied measuring can level to the top.

Two level cans of coffee beans are used for the roaster per roast cycle.

Caution: The supplied can must be used in order to achieve the correct volume of beans.

Empty **two** level filled cans into roast chamber.



Assemble the Chaff Collector

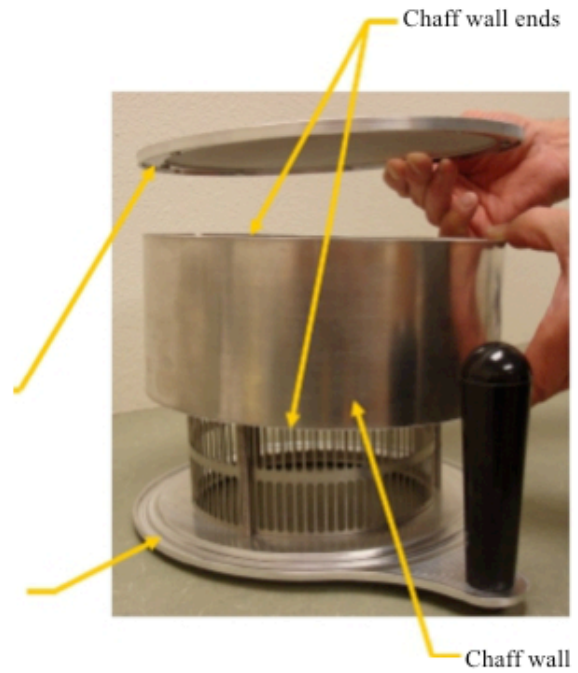
After adding the correct volume of beans to the roast chamber, assemble the chaff collector and place it on the roast chamber. The chaff wall ends seal to the chaff collector base and screen grooves to prevent air and chaff from escaping from the roaster. The completed chaff collector assembly then seals to the top rim of the roast chamber.

Set one of the chaff wall ends into the chaff collector groove.

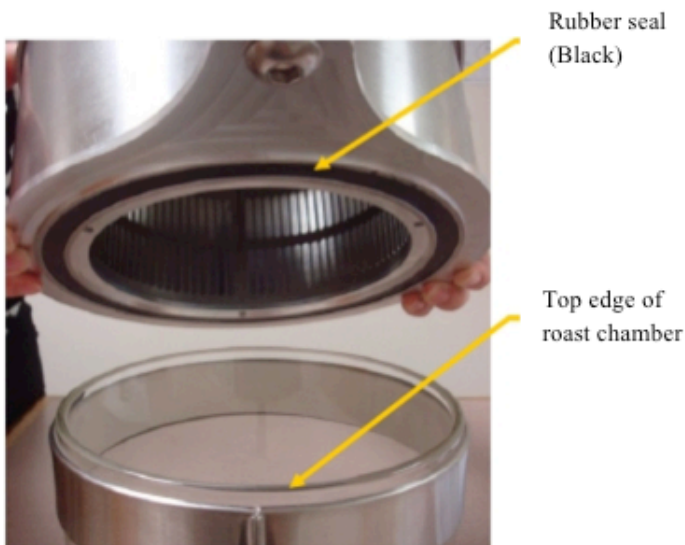
Set the chaff screen groove onto the end of the chaff wall.

Place the chaff collector assembly on top of the roast chamber ensuring that the rubber seal seats against the top rim of the roast chamber.

Note: Use two hands when placing chaff collector assembly onto roast chamber.



Completed roast chamber/chaff collector assembly.



6. Control Board Functions

Roaster Controls: The roaster is controlled by an electronic control board that monitors the roasting process based on information provided by the temperature sensor (RTD) and allows the coffee to roast to a predetermined temperature based on the roast level setting selected by the user. The control board consists of the following user controls and display:

| | |
|---------------------|--|
| Power Switch | Controls the power to the appliance. |
| Gas switch | Activates the gas in stand-by mode. (Will not actively turn gas on.) |
| Down Arrow | Lowers the roast level with each press. |
| Up Arrow | Increases the roast level with each press. |
| LED Display | Displays current roast level setting. (Also provides time, temperature, and profile selection feedback as discussed in the hints and tips section.) |

Initiate the roast with three simple steps:

1. Switch the power and gas switches to the **on** position.
2. Select the desired roast level for the coffee being roasted, using the up/down arrow buttons.
3. Push and release the start roast button.

Place the power and gas switches in the on position.



Select desired roast setting. (0-9)



Press the start roast button.
Roaster will start automatically.



6.1 Advanced Control Board Functions

The Green Bean Advanced Definition Roasting Control Board can connect to an *optional* Green Bean Roast Profile Development Software package via a blue Bluetooth enabled PC or MAC. Please contact Green Bean regarding upgrade options for your roaster. By default, all six profiles contain the Green Bean default ideal roast profile.

General operation

The Green Bean Coffee Roaster Control Board is designed to operate independent of the Green Bean Roast Profile Application. The profile software is not required for normal roaster operation, but the profile software is required for creation, editing, monitoring, and transfer of profiles to the roaster control. If your coffee roaster is ADR enabled, please refer to the following as a quick reference to get started. Please refer to the ADR software help file for detailed instructions on using the profile software.

Roast profiles

Six Roast profiles are stored within the roaster control memory, The Green Bean Default (A), and five user defined profiles (B-F)

Display

The control board incorporates a single display for reading both the current roast level setting (0-9) and the active roast profile (A-F). The display must be switched between the two modes in order to select the roast level and the active roast profile.

Place the *power switch* in the on position.

Selecting Profiles

Place the *gas switch* in the off position. (Fig. 2)

Press the *start roast* button, the display will switch to the currently active roast profile letter (A-F). (Fig. 3)

Select the desired roast profile letter using the *up/down* arrow buttons. (Fig. 4)

Press the *start roast* button, the display will switch back to the current roast level number (0-9).

Place the *gas switch* in the on position. (Fig. 5)

Change the roast level using the *up/down* arrow buttons to the desired roast level. (Fig. 5)

The roaster is now ready for a roast cycle and will do so utilizing the roast profile and roast level previously selected.

Press the *start roast* button to initiate a roast. (Fig. 6)



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

7. The Roasting Process

Once the start button is pushed, the roaster will start roasting automatically and the following will be observed during the process:

The blower will immediately turn on and the beans will bounce (fluidize) around in the roast chamber. The beans should appear to “swirl” or rotate around the roast chamber indicating that the beans are mixing properly.

Approximately 5 seconds after the start button is pushed, a decimal point will come on in the lower right hand corner of the LED display indicating the control is cycling the gas on.

At approximately 15 seconds after start, the gas will ignite indicated by a slight “puff” sound and heat in the roast chamber. **Note:** It is not uncommon for the inside of the roast chamber to look wet at the beginning of the roast cycle. This is simply condensation caused by moisture in the bean that will dissipate quickly and will not affect the roaster performance.

The roaster is now automatically roasting the coffee and will continue to cycle the gas on/off during the active roast cycle to gradually increase the bean temperature to the final roast level.

During the roasting process, the beans will go through changes in colour, size, and weight.

Colour: As the bean temperature increases, the first noticeable difference is the darkening colour from green to light brown and then to a darker brown with oils on the bean surface if roasting on the higher roast levels.

Note: Decaffeinated coffee will have a brown colour before roasting due to the decaffeination process.

Size: As the bean is heated, the internal cell walls of the bean will expand from the heat and cause the bean to increase in size by nearly a third. This expanding of the bean is referred to as the “crack” and can be heard as a light snapping or cracking sound, typically occurring first around seven minutes and again near ten minutes (i.e. first crack and second crack).

Weight: Before roasting begins, the bean is considered “heavy” or “green” due to the moisture trapped inside. During the roasting process the moisture is driven out of the bean. Towards the end of the roast the beans will appear to be bouncing around the roast chamber more rapidly due to the “weight loss” and increased surface area.

At approximately eleven minutes, the beans will reach the final roast level temperature at which time the electronic control board will automatically cycle the gas off and enter the cool down cycle. During the cool down cycle, the blower continues to circulate air until the beans are cool enough to be handled (approximately seven minutes).

After the cooling cycle is completed, the blower will shut down and the roaster will go into standby until the start roast button is again pressed.

8. Coffee Basics

Coffee Descriptions: We recommend reviewing our website at www.beans.net.au for brief descriptions for each of our single origin and Green Bean blended coffees. Please let us know if you require additional information.

Roast Temperatures: It is important to understand that different varieties of green coffee beans, whether a single origin or blend, will roast differently from another at a given temperature. In fact, on occasion a current crop year bean will roast differently than a previous years crop due to various growing conditions from year to year.

The Green Bean coffee roaster will roast a coffee to various end temperatures using roast levels incorporated in the control board. Each setting is incremented by 3.5°C per setting, starting at 193°C on level 0 and a maximum of 224.5°C on a level 9. Each end temperature is preprogrammed and cannot be modified by the user, but can be modified using the optional Green Bean ADR software package. Please contact customer service for more information regarding the Green Bean ADR software.

There are many factors that determine the perfect cup of coffee, such as bean type, quality, degree of roast, and the brewing process. It is our experience that customer geography also plays a large factor in determining the perfect cup of coffee. Not all coffee drinkers are created equal, some regions will want a bold dark coffee, while others will appreciate a lighter style coffee. It is important to experiment with different coffee beans, roast levels and brewing processes in order to determine what will best suit your customer base. Make it fun, involve your customers in the decision making process and you are sure to build a solid relationship with your customers.

Green Bean recommends the following guideline as a starting point in developing your cup:

Handling Roasted Coffee

After the roasting and cooling process is completed, the beans can be placed directly into a bag or bin.

Freshly roasted coffee should be allowed to sit for 7 days before grinding and brewing to allow the flavor to “develop.” This process, known as “degassing,” allows the gasses to escape as the flavors develop in the bean.

Proper handling should include allowing the beans to sit in a covered but **unsealed** bin before use. If the bin is sealed tightly, the gases cannot escape and the flavour development process will slow. Do not allow the beans to become wet or come into contact with syrups. It is also recommended to use the coffee within 2 weeks in an effort to maintain the freshest possible product

9. Preparing for the Next Roast

After the last roast is completed, the roaster components will need to be cleaned prior to starting the next roast to ensure that each roast will be consistent with the previous batches. The following is a description of the fundamental operation and the maintenance required between roasts. The entire process should take no more than one minute to complete.

As discussed, the bean will expand and increase in size during the roasting process. During this expansion phase the bean will “crack” and shed its “skin” also known as chaff (the outer skin of the coffee bean). This chaff is captured by the fine mesh of the chaff screen to minimize the amount of particulate entering the ventilation system. The chaff also acts to balance the air flow in the system as the bean becomes lighter during the roast due to the moisture being driven off. The chaff screen is designed to catch the chaff but allow the hot roasting gases to pass through and into the ventilation system. Restricting the airflow through the screen, by not removing the chaff between roasts, will lead to darker and darker roasts. Additionally, oils from the beans are deposited on the wires of the screen during the roasting process and must be removed in order to minimize build up over time and cause a reduction in airflow through the screen.

The following maintenance summary will prevent the build up of oils on the screen. Detailed steps are outlined on the following page.

Remove chaff collector from the roast chamber and set it upside down on a table.

Remove chaff from the chaff collector.

Remove the chaff collector and place on table right side up.

Remove the balance of chaff from the chaff screen.

Clean loose chaff from the chaff collector groove using a wire brush.

Clean the inside and both ends of the chaff wall with a dry terry cloth or paper towel to remove loose chaff.

Clean the chaff screen with a wire brush. (See chaff screen cleaning details.)

9. Preparing for the Next Roast (Continued)

Remove the chaff collector from the roast chamber and set it upside down on a table.
Remove the chaff from the chaff collector.



Remove chaff collector and set on table right side up.
Remove the balance of chaff from the chaff screen.



Clean loose chaff from chaff collector groove using a wire brush.



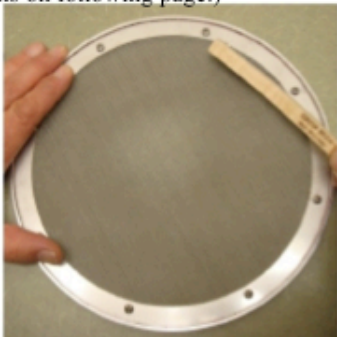
Chaff collector groove

Clean inside and both ends of chaff wall with a dry terry cloth or paper

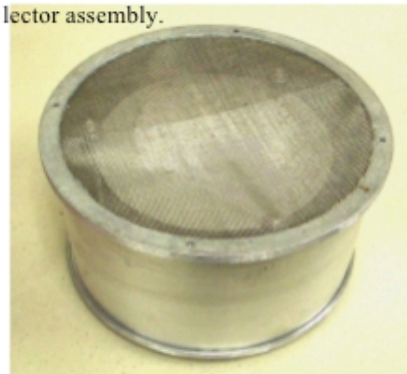
towel to remove loose chaff and oils.



Clean the chaff screen with a wire brush. (See chaff screen cleaning details on following page.)



Cleaned and reassembled the chaff collector assembly.



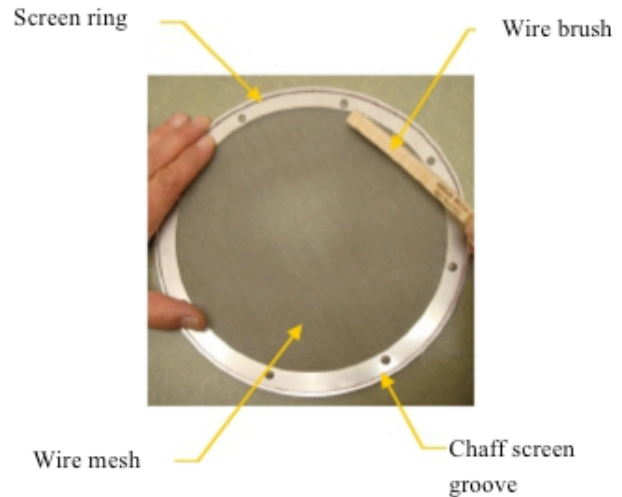
10. Detailed Chaff Screen Cleaning

The chaff screen consists of a wire mesh screen held in place by an aluminium outer ring. The mesh screen is simply wires woven together to create a wire grid. Each of these wires collect chaff and oil from the beans during the roasting process and must be cleaned to allow air to flow freely. A wire brush is used to clean the wires as well as the chaff screen groove (See detail below). Cleaning is accomplished by aggressively scrubbing both sides with a wire brush around the perimeter (outside edge) of the ring and then cleaning the wires in both directions.

Clean chaff screen groove to prevent chaff build up. This buildup could affect the seal with the chaff wall.

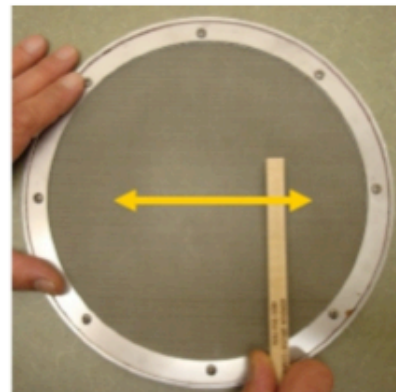
Clean the screen where it meets the groove around the entire perimeter of the screen.

Note: It is important that the screen is cleaned all the way to the outer edge where it meets the ring.



Use the wire brush to scrub in the direction of the wires to ensure the entire surface of the screen is cleaned.

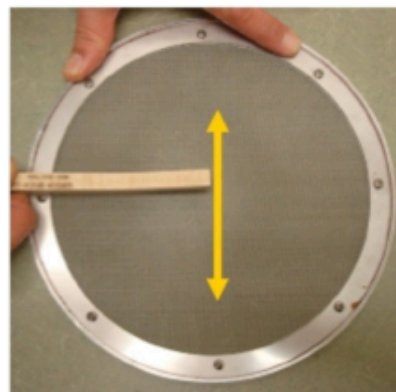
Note: A fine dust (dried oils from the beans) will be deposited on the table under the screen which indicates the cleaning is being done correctly.



Turn the screen 90 degrees to clean the wires in the other direction.

After completing the cleaning flip the screen over and repeat on the other side.

Soak the screen in a commercial cleanser, such as Puro Caff[®], weekly to remove excess oils.



11. Roast Chamber Maintenance

It is important that the roast chamber be cleaned after every roast to prevent the build-up of oils on the glass surface as well as the bottom plate. Oil build-up is not only unsightly, it will also affect the roaster performance if the build-up becomes excessive. The beans must move around freely within the roast chamber to properly mix the hot air and the beans for an even and consistent roast. Oils deposited on the glass cylinder and bottom plate create a rough surface that can cause the beans to slow down in the roast chamber due to friction. This “slowing” of the beans can cause darker and inconsistent roasts. Wiping the roast chamber glass and bottom plate with a **dry** terry cloth or paper towel after every roast will reduce the build-up of oils.

Caution: The roast chamber is one of the more costly components of the roaster. Care must be taken when handling to prevent damage or breakage.

With a firm grip on the roast chamber, wipe the entire inside surface of the roast chamber.

To prevent breakage, avoid resting the roast chamber on a table or counter top during cleaning.



With a firm grip on the roast chamber, wipe the bottom surface of the roast chamber.

Note: Some heat discoloration on the bottom plate is normal.



At the end of the day, clean the entire roast chamber inside and out with a towel, warm water, and mild detergent to completely remove excess oils.

Note: It is not recommended that the roast chamber be soaked or placed in a dishwasher as this will affect the gaskets.

12. Daily Maintenance

Daily maintenance is important to keep the roaster operating and looking its best. A maintenance routine at the end of every roasting day will allow the roaster to begin operation the next morning without delay.

The daily maintenance includes:

Clean the chaff collector assembly as you would between roasts.

Clean the entire roast chamber inside and out with a towel, warm water, and mild detergent to completely remove excess oils.

Clean temperature sensor with a green scourer

Clean external surfaces of the roaster, u-shape, chrome top etc., with a damp cloth and mild detergent.

Clean the area around the roaster to minimize the chaff build-up in the work area.

Temperature Sensor

The temperature sensor plays a critical role in the roaster's operation by measuring the current temperature of the beans and sending the information to the control board. The control board then interprets this information and cycles the gas on/off accordingly, thus ensuring that the beans roast evenly during the cycle following the 'Roast Profile'. If the temperature sensor sends inaccurate information to the control board, the outcome of the roasting process will likely be different than expected.

Example: The coffee beans are actively roasting at a temperature of 200°C (near the end of the active roast cycle), but the temperature sensor is only reading and sending a temperature of 195°C to the control board. The control board is designed to allow the beans to reach a set temperature at a given time, so the control board only seeing 195°C, continues to roast the beans. The beans at this point are near the end temperature, but are allowed to further roast creating a much darker than expected roasted coffee. Although the temperature sensor and control board are operating correctly, they are actually lagging behind the coffee's actual temperature. The most common reason for this is that the temperature sensor is being insulated from the heat of the beans due to excess build-up of chaff and oils. Similar to wearing a jacket in the winter, keeping the cold out and body heat in, but in the case, we are slowing down how fast the heat gets to the temperature sensor. Again, this "lag" causes the coffee to roast to a higher actual temperature than desired.

It is essential that the temperature sensor be maintained to ensure accurate measurement of the bean temperature for a successful outcome.

Component Maintenance

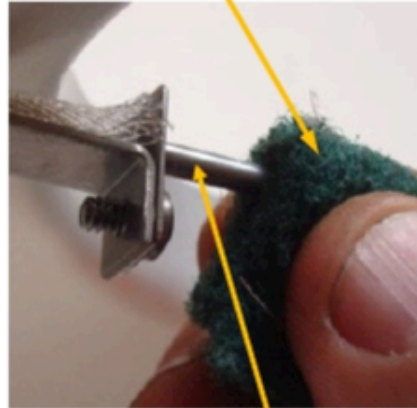
The two most important items to properly maintain are the screen and the temperature sensor.

The Green Bean coffee roaster incorporates an improved hard mounted stainless steel temperature sensor which allows for more robust cleaning methods. The sensor will accumulate oils during the course of roasting, it is important to remove these oils on a daily basis to prevent excessive build up that can degrade the performance of the roaster. Clean the temperature sensor with a 3M® pad folded in half over the sensor. It is also acceptable to use a mild detergent, to break down tuff buildup. Rub the sensor back and forth as if you were sanding a pencil, the sensor should be cleaned down to the metal at the end of every roasting day.

Fold the Scourer around the sensor.
Rub the sensor back and forth to
remove chaff and oil deposits.



Green Scourer



Temperature sensor
(RTD)

Wipe the inside of the smoke box assembly
using a Scourer.
The assembly should be cleaned down to the
metal finish after every roasting day.



Wipe the entire outside of the roaster with a
cloth and mild detergent.
Clean the chaff from around the roaster work
area.



ROASTER MAINTENANCE SUMMARY

Schedule and follow these maintenance steps for trouble free roaster operation:

| <u>Roaster Component</u> | <u>Maintenance Action</u> | <u>Frequency</u> |
|--------------------------|---|--------------------------------|
| Chaff Screen | Clean with wire brush Soak in commercial cleanser | After every roast Once week |
| Temperature Sensor | Clean sensor with a detergent dampened Scourer | Daily |
| Smoke Box Assembly | Clean surfaces with Scourer | Daily |
| Roast Chamber | Clean with soft cloth Clean with warm water & mild detergent | After each roast Daily |
| Chaff Collector | Clean chaff wall groove | After each roast |
| Outside Surfaces | Clean top panel and U-shape with mild commercial cleanser | Daily |

A more systematic way of doing this would be to set the machine to roast level "9", then roast the unknown coffee until it looks right. Then, hold down both "arrow" keys at the same time. The LED window will scroll off the temperature in degrees C. You can then use the "Gas" switch to cut off the roast and start the cooling cycle. For the next roast, you can simply set the machine to terminate the roast cycle at the temperature that you observed. Use the table below to convert the desired temperature to roast setting.

Roast Setting / Cut-off Temperature

| | | |
|-----|---|---------|
| "0" | = | 193°C |
| "1" | = | 196.5°C |
| "2" | = | 200°C |
| "3" | = | 203.5°C |
| "4" | = | 207°C |
| "5" | = | 210.5°C |
| "6" | = | 214°C |
| "7" | = | 217.5°C |
| "8" | = | 221°C |
| "9" | = | 224.5°C |

You'll notice that a decimal point will appear in the LED display during the roast cycle. This indicates that the burner is actually operating. The burner will have a number of six-second off pulses during the roast, as microcomputer adjusts the roast rate. But if it is off for more than six seconds, you know the roast has concluded, and that the machine is in the cooling cycle.

Because the roast cycle is controlled by temperature rather than time, the results of the machine are very repeatable, although there can be some slight variation in colour if the machine is very cold at the start of the roast.

There is no need to let the machine "rest" between roasts. It is built to withstand continuous operation.

Any time a roast is aborted, it is important to let the cooling cycle run its course. Never stop a roast by turning off both switches. This will prevent the coffee from cooling properly, and will leave the machine parts too hot to handle. The only reason to turn off both switches would be if, for some reason, the beans caught fire. You would then want to turn off the blower to cut off the supply of oxygen to the fire. The smouldering beans could then be removed from the machine and dumped, after the machine has completely cooled.

In the event of some abnormal condition, the machine will flash error codes in the red LED window. These codes are explained in more detail in the section on “Troubleshooting” But a common error code that you may see is “E-2” - that is, an “E” followed by a “2” in the LED window. The machine will completely shut down when this error code is shown. It is the result of a failure of the burner to ignite, and may mean that you forgot to open the gas valve, or that you are out of propane. To clear the error code, simply turn both switches off for 5 seconds, and then back on.

5. CLEANING YOUR ROASTER

As mentioned in the previous paragraph, the most important “cleaning” job associated with the roaster is to empty and brush out the chaff collector after every roast. If you wish to give the chaff collector more thorough cleaning every few months, don’t hesitate to put the various parts in the dishwasher. When it comes time to clean the glass roasting chamber, we suggest that you hand wash it in a sink, using detergent and a plain sponge. In the event the grime is more stubborn, you may use “Bon Ami” brand cleanser, but no other cleanser! This is because “Bon Ami” will not scratch the glass, but other cleansers frequently will. It is important to the thermal integrity of the glass that it not be scratched. We don’t recommend putting the roasting chamber in a dishwasher simply because it will be hard on the wooden handle.

After roasting a few hundred kilograms of coffee, you will notice the accumulation of some residue in the upper portion of the roaster. It would be wise to keep an eye on the level of this residue, and brush out the venting pipe if it gets too thick. **BE CAREFUL NOT TO DAMAGE THE HEAT SENSOR IN THE TOP PART OF THE ROASTER.** The heat sensor sits in a bracket that holds it above the chaff collector screen. You can identify it by looking for the two wires that end in a small cylindrical tube about the size of a matchstick. Use nothing harsher than a soft brush to clean the area of the heat sensor. Otherwise, the roaster can be cleaned as you would clean any other electrical appliance.

It is important that you keep the gauze screen on the chaff collector clean. Soak the screen overnight once a week, and give it a good scrubbing with a fine wire brush in the morning. Another thing to be aware of is that if the top part of the roaster is not seating flat on top of the screen ring, variation of the roast may occur.

Also check that the thermistor holder does not get bent and the thermistor holder does not get bent and the thermistor comes in contact with the screen. That may also lead to uneven results. The thermistor should be about 1/4 inch (or 6mm) above the screen.

6. TROUBLESHOOTING

The **GREEN BEAN** Coffee Roaster has been designed and built to give you years of trouble free service. It has also been provided with a number of safety features to protect you and your business in the event of a problem.

Of course, the most important safety feature of the roaster is that in the unlikely event that the coffee beans catch fire, the ceramic glass will not break, and the fire can safely burn itself out. Should a fire occur, the machine is programmed to turn itself off, to deny oxygen to the fire. Should the circuit board fail to do this, we recommend turning off the machine manually.

In addition, the internal gas valve and electronic ignition system are US made commercial gas furnace items, with the standard safety features, like flame detect.

The error codes that may appear in the red LED window on the control (an "E" followed by a number), reflect several software features that provide further protection. They are as follows:

"E-1" This error code indicates that the electronic control has detected an "out-of-range" condition on the thermal sensor. It could be caused by a broken wire, or a broken or defective RTD (the temperature-sensin8 device). This is a serious fault. Call us, and we will either service or replace your machine.

"E-2" You may see this error code more frequently. When the machine starts up, it blows air for 5 seconds before igniting the gas. This is a safety precaution. After sending the signal to ignite the gas, the control waits 15 seconds, then checks for an increase in temperature. If there is no temperature rise, it shuts the machine down and flashes "E-2." If you have a propane machine, this code probably means that you are out of propane, or that you forgot to open the valve on the tank. Just switch the machine off (to clear the error code), correct the problem, and turn the machine back on. Another possible cause of an "E- 2" message would be a hugely oversize batch of beans in the roasting chamber. This would prevent hot air from reaching the RTD.

"E-3" This code is used to indicate an excessively long roast (one hour).

"E-4" This code is similar to the "E-2" error code, in that it indicates that the temperature is falling when it is supposed to be rising. Make sure that the supply of gas is adequate.

"E-5" The roaster is programmed to turn itself off and flash this code if the temperature rises when it should be falling. It indicates the presence of a fire. A fire could result from dramatically overfilling the roaster chamber, or failing to clean the chaff collector.

OTHER POTENTIAL PROBLEMS:

"The roast is taking forever." Time it and make sure that it's taking over 23 minutes to roast and cool the coffee. If it is, then either you have under filled the roasting chamber, or the beans are of an unusual type whose density or moisture content make them unroastable in our machine, or the there is a problem with the gas being supplied to the roaster. If you can't clear it up, give us a call If you are at an extreme altitude, we may have to adjust the orifice size of your roaster.

'DO NOT SPRAY AEROSOLS IN THE VICINITY OF THIS APPLIANCE WHILE IT IS IN OPERATION'.

"The roasts aren't coming out the same." Make sure you are putting the same amount of coffee in the roaster each time. Also, keep in mind that big variations in the ambient temperature may cause some slight variation in the colour of the finished beans. Also, you will have to keep in mind that different kinds of coffee will roast differently, because of varying density, size and moisture content.

7. IF YOU NEED HELP

If you have done your best to work out a problem or a question, but just don't seem to be able to solve it, we'll be glad to help. First, try our tech support system through our email address at kirk@beans.net.au. We will get back to you via e-mail within 24 hours. As an alternative, you can call our office at 1800 787 738 and we'll get someone in touch with you as soon as possible.

8. REPLACEMENT PARTS

A number of replacement parts are available through **GREEN BEAN**, including new glass roasting chambers, new chaff collector screens, control boards and some other items. Contact us, for price and availability.

9. WARRANTY INFORMATION

GREEN BEAN warrants **GREEN BEAN** Coffee Roaster against defects in workmanship or materials for a period of one year from the purchase date as follows:

1. If the product is determined to be defective, **GREEN BEAN** will repair or replace the product free of charge.
2. If **GREEN BEAN** opts to replace the unit, the customer must ship the old unit back to **GREEN BEAN** at his or her expense, using the box the replacement came in. If the unit is found to be defective, **GREEN BEAN** will refund the shipping cost. If the unit is not defective, it will be returned to the customer C.O.D., and the customer must cover all shipping costs.
3. This warranty does not cover replacement of the glass roasting chamber, the chaff screen or gaskets.
4. This warranty does not cover problems brought about through damage to the machine through incorrect installation or operator misuse.

Repair or replacement as provided under this warranty is the exclusive remedy of the purchaser.

GREEN BEAN shall not be liable for any incidental or consequential damages for breach of any express or implied warranty on this product.

10. TECHNICAL INFORMATION

There are six models, at this time, of the Green Bean Coffee Roaster. They all have the same capacity - that is, they will roast about 600 grams (models 1100, 1200 1300 & 1400), 1.2 kilograms (models 1500 & 1600) of green coffee per cycle. All of the machines will use about 350 watts of electrical power.

The four models are:

1. Model 1100 - Propane fired, 115 vac, 60hz
2. Model 1200 - Natural Gas fired, 115 vac, 60hz
3. Model 1300 - Propane fired, 240 vac, 50hz
4. Model 1400 - Natural Gas fired, 240 vac, 50hz.
5. Model 1500 - Propane fired, 240 vac, 50hz.
6. Model 1600 - Natural Gas fired, 240 vac, 50hz.

Units intended for 50hz usage will not operate properly on 60hz, and vice versa. Units intended for natural gas could be dangerous if run on propane.

Units intended for propane will not operate properly on natural gas.



Kirk Stuart
Managing Director

P.O. Box 4193
Macquarie Centre, North Ryde NSW 2113

Phone: 1800 787 738

Fax: 02 9436 4127

Mobile: 0412 87 87 38

Email: kirkstuart@beans.net.au
www.beans.net.au

INSTALLATION, OPERATION and SERVICING INSTRUCTIONS

Green Bean Coffee Roaster

Models 1300 (propane) and 1400 (natural gas)
1500 (propane) and 1600 (natural gas)

Distributor P.O. Box 4193
Macquarie Centre, North Ryde NSW 2113
Contact: Kirk Stuart
Phone: 1800 787 738
Fax: 02 9436 4127
Mobile: 0412 87 87 38
Email: kirkstuart@beans.net.au
www.beans.net.au

Note to Installer Please read these instructions to familiarise yourself with the installation, operation, and servicing of the appliance before proceeding.
Failure to follow these instructions may result in serious injury and/or damage to property.
Leave these instructions with the consumer after installation.

Note to Consumer Retain these instructions for future reference.
The appliance is to be installed and serviced only by an authorised person.

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Installation General Instructions

The appliance is to be installed only by an authorised person(s); in accordance with the AS5601 / AG601 Gas Installations.

The appliance is designed and approved for commercial installations only.

Before installation, remove packaging and confirm the integrity of the appliance. If the appliance is damaged in any way, contact the Distributor.

Ensure that the data plate shows the correct injector, test point pressure, and nominal gas consumption for the type of gas labelled. These specifications should be as tabulated below, if not contact Distributor.

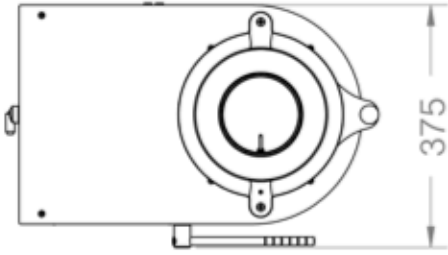
Table 1 – Normal Burner Specifications (per burner)

| Models | Gas Type | Injector Size (mm) | Test Point Pressure | Nominal Gas Consumption |
|--------|----------|--------------------|---------------------|-------------------------|
| 1300 | Propane | 1.70 | 2.52 | 31.0 |
| 1400 | Natural | 3.5 | 0.96 | 39.0 |
| 1500 | Propane | 1.95 | 2.52 | 42.0 |
| 1600 | Natural | 3.7 | 1.00 | 42.0 |

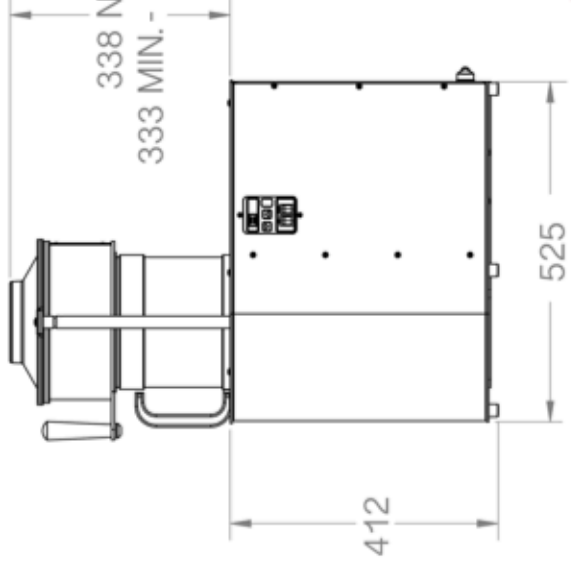
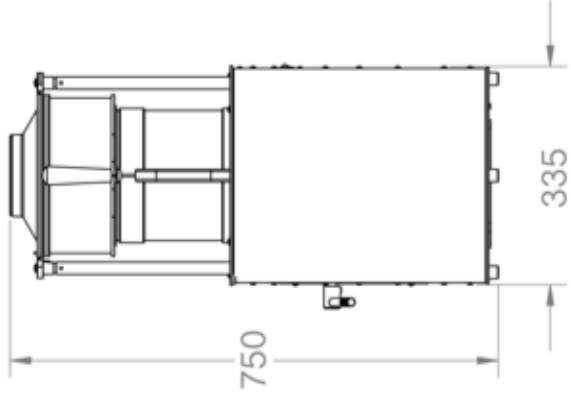
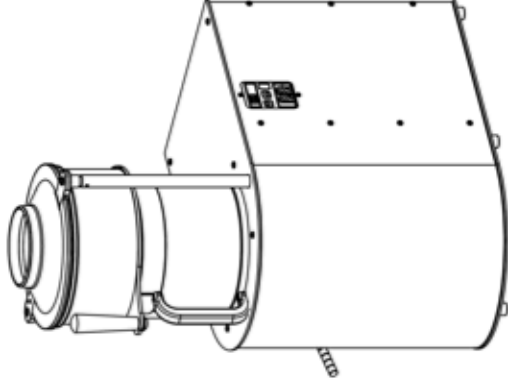
Overall Dimensions & Appliance Configurations

Table 2 – Appliance Configurations

| Model | External Dimensions W X L X H | Total Flue Dimensions (mm) L X D | Number of Burners | Total Nominal Gas Consumption (MJ/h) | Net Weight (kg) |
|-------|-------------------------------|----------------------------------|-------------------|--------------------------------------|-----------------|
| 1300 | 290x490x670 | 8000x 150 (3 bend + cowl) | 1 | 31.0 | 23 |
| 1400 | 290x490x670 | 8000x 150 (3 bend + cowl) | 1 | 39.0 | 23 |
| 1500 | 332 x 522 x 765 | 8000x150 (3 bend + cowl) | 1 | 42.0 | 35 |
| 1600 | 332 x 522 x 765 | 8000x150 (3 bend + cowl) | 1 | 42.0 | 35 |



80mm SIDE CLEARANCE TO COMBUSTIBLES



VERTICAL MOVEMENT
FOR CHAMBER REMOVAL



GREEN BEAN COFFEE
IN-HOUSE ROASTING SPECIALISTS

Clearances

A minimum clearance of 76 mm shall be provided adjacent to combustible walls at the side(s) and rear of the appliance.

The appliance shall be installed on a floor or bench, capable of supporting the appliance.

A flue (exhaust) system shall be connected in accordance with AS5601 / AG601 and allow for correct operation of appliance.

Flue system

Made of 150mm OR 200mm for models 1300 & 1400 OR 1500 and 1600 respectively internal diameter double skin flue pipe, comprising of a maximum of 4 pipes of 1500mm length; 2 pipes of 900mm length; 3 elbows and a standard flue cowl (Type: A&B Flue Cows –100mm AGA Approval No 4198).

Gas Connection

The Gas inlet Connection is a 1/2" BSP male thread (located at the rear left hand side at back of the appliance.)

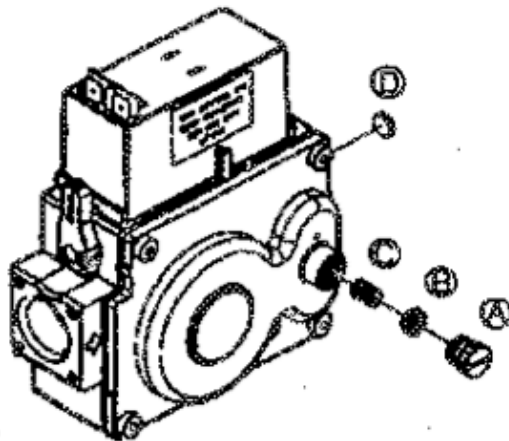
Gas Valve

The gas valve is a Robertshaw, provided for natural gas and propane appliances, for setting and adjustment of gas pressure. Refer to table 1 in these instructions, and Appendix B in the Appliance Specifications.

Pressure Test Point

A pressure test point is provided at the Robertshaw, gas valve outlet side. (See Figure 2 in these Instructions, and Appendix B of Specifications). The appliance test point pressure should be checked as follows:

1. Remove the rear perforated panel on back of appliance, to gain access to the gas valve and pressure test point
2. Remove the pressure test point screw and connect a manometer to the pressure test point, using silicon tubing.
3. Run the appliance main burner (Refer to Lighting Instructions in Operation Section).
4. Check the test point pressure with the appliance burner on. The test point pressure should be 0.96 kPa for natural gas, and 2.52 kPa for propane gas. If not, adjust the pressure at the appliance gas burner pressure screw, at the side of the gas valve inside the appliance using the special crew driver provided in the tool kit of appliance)



**Instructions for
adjusting and
converting the
Robertshaw 7222
Control from Natural
Gas to L.P. Gas
Operation**

1. Turn off gas and electricity to appliances.
2. Remove slotted cap (A), adjusting screw (B), and Natural gas spring (C), from control.
3. Install new yellow L.P. spring.
4. Install new adjusting screw (B).
5. **IMPORTANT:** Install L.P. burner orifice(s) and pilot orifice per appliance manufacturers specifications.
6. Remove fitting and attach manometer or pressure gauge at the outlet.
7. Turn gas and electricity on.
8. Turn room thermostat to call for heat.
9. With burner on, adjust screw (B) to supply L.P. gas to pressure as recommended by the appliance manufacturer.
10. If adjusting screw (B) reaches its maximum depth (bottoms out) before recommended pressure setting is reached, turn screw counter clockwise until pressure drops slightly (approximately 0.1" w.c.).
11. Turn off gas and electricity to appliances.
12. Remove manometer or pressure gauge and reinstall fitting.
13. Install new red slotted cap in place of (A).
14. Turn gas and electricity on.
15. With burner operating, immediately check all fittings for leaks with soap solution. Bubbles indicate leaks that must be corrected.
16. Attach label to show control has been converted to L.P.

WARNING:
Servicing of gas controls, appliances and systems must be performed by qualified service personnel only.

Figure 2 - Gas Valve Assembly.

Propane/Natural Gas Conversion

1. Remove the Lever "A", the Glass container and the die cast flue outlet assembly. Unplug RTD cable, remove back panel, top cover panel and surrounding panel, to gain access to the control valve, combustion chamber and burner assembly. (See Figure 1)
2. Unscrew the burner injector from the burner assembly and replace it with the required injector.
3. Assemble the unit in reverse order as per Step 1.
4. Remove slotted screw cap in the Gas valve, which is at the side of the gas valve inside the appliance and replace the spring and adjusting screw, to suit the gas being converted to. (Refer to Figure 2 for details.) (use the special screw driver provided in the tool kit)
5. Replace the glass container and beans.
6. Start the appliance as Operating Instructions.
7. Check and readjust the test point pressure if required. (Refer to Test Point Pressure).
8. Replace perforated back panel of appliance.

Upon Completion

1. Check for gas leaks.
2. Check for correct operation of appliance.
3. Introduce the Operation Instructions, and explain the appliance operation and maintenance to the consumer.

OPERATION INSTRUCTIONS

Lighting Instructions

To light the burner:

1. Ensure gas supply to the appliance is on.
2. Use the supplied measuring can to fill the glass container with the correct quantity of beans.
3. Push power switch "ON" and also the gas switches on the control panel (Refer to Section 4 of Users' Manual)
4. With the appliance burner lit, set the roasting level of beans by using the up and down arrows in the control panel the setting number is displayed by the LED display. (See User's Manual for full description of Roasting). The approximate temperatures corresponding to the number displayed are:

| LED displayed Number | Approximate Temperature (°C) | LED Displayed Number | Approximate Temperature (°C) |
|----------------------|------------------------------|----------------------|------------------------------|
| 0 | 193 | 5 | 210.5 |
| 1 | 196.5 | 6 | 214 |
| 2 | 200 | 7 | 217.5 |
| 3 | 203.5 | 8 | 221 |
| 4 | 207 | 9 | 224.5 |

Shut-down Procedure

The appliance shuts-down and cools-down automatically, at the end of the roasting cycle.

However, if you want to stop the cycle before completion:

- Turn off the gas switch on Control Panel and the appliance will go into the cooling cycle, with the fan automatically stopping when cool.
- Turn off the power switch.

Appliance Care and Maintenance

1. Before maintenance operations, ensure that the gas and electricity supply, are turned off.
2. Clean the chaff collector after each roast, use the brush supplied with the appliance.
3. Never use abrasive products for cleaning such as steel wool, wire brush, or steel scrapers. Care should be taken as not to scratch the glass container surfaces.
4. It is recommended that an authorized person service the appliance every six months.

SERVICING

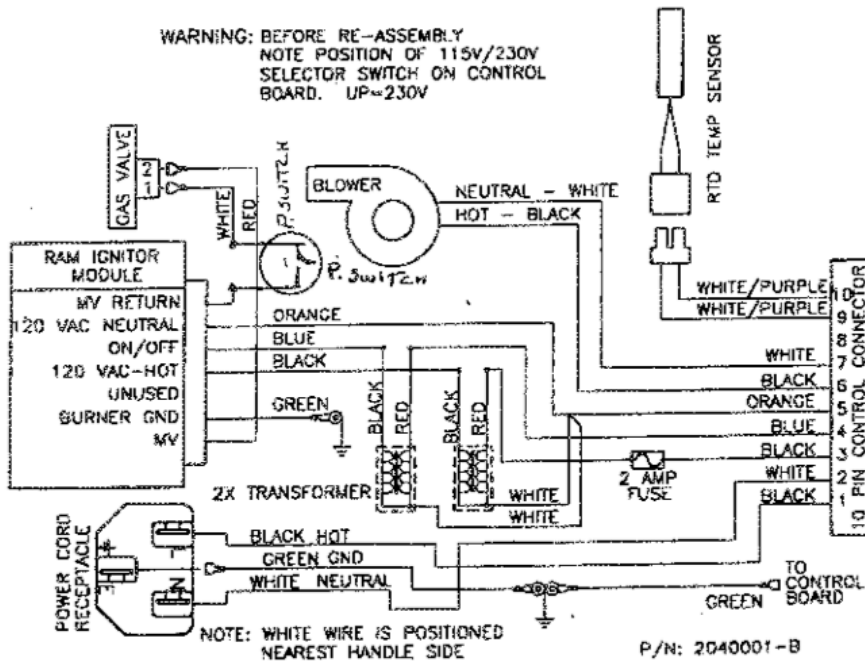
Servicing and repairs to the appliance shall be conducted by authorized person(s) only. For replacement parts, contact the Distributor.

The appliance should be serviced every six months, and should include the following operations:

1. Check and clean main burner.
2. Check main burner ignition to ensure safe ignition.
3. Check test point pressure.
4. Check RTD operation.

WIRING SCHEMATIC-230V UNITS

WARNING: BEFORE RE-ASSEMBLY
NOTE POSITION OF 115V/230V
SELECTOR SWITCH ON CONTROL
BOARD. UP=230V



*MODIFIED 27/03/01
P. SWITCH INCORPORATED.*

GREEN BEAN- COFFEE BEAN ROASTER
DRAWING 2