

# OPERATOR MANUAL

IMPORTANT INFORMATION, KEEP FOR OPERATOR

This manual provides information for:

## **MODELS BPM-30/40G(S) & BPP-30/40G *Domestic* ECLIPSE™ ERGONOMIC TILTING BRAISING PAN**

- Stainless Steel
- Manual or Power Tilt
- Gas Heated



**THIS MANUAL MUST BE RETAINED FOR FUTURE REFERENCE. READ, UNDERSTAND AND FOLLOW THE INSTRUCTIONS AND WARNINGS CONTAINED IN THIS MANUAL.**

### **FOR YOUR SAFETY**

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

### **POST IN A PROMINENT LOCATION**

Instructions to be followed in the event user smells gas. This information shall be obtained by consulting your local gas supplier. As a minimum, turn off the gas and call your gas company and your authorized service agent. Evacuate all personnel from the area.

### **WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

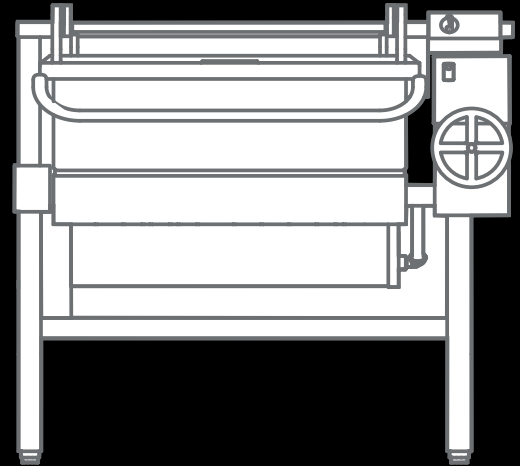
### **NOTIFY CARRIER OF DAMAGE AT ONCE**

It is the responsibility of the consignee to inspect the container upon receipt of same and to determine the possibility of any damage, including concealed damage. Unified Brands suggests that if you are suspicious of damage to make a notation on the delivery receipt. It will be the responsibility of the consignee to file a claim with the carrier. We recommend that you do so at once.

Manufacture Service/Questions 888-994-7636.

Information contained in this document is known to be current and accurate at the time of printing/creation. Unified Brands recommends referencing our product line websites, [unifiedbrands.net](http://unifiedbrands.net), for the most updated product information and specifications.

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**1055 Mendell Davis Drive  
Jackson, MS 39272  
888-994-7636, fax 888-864-7636  
[groen.com](http://groen.com)**

## **IMPORTANT — READ FIRST — IMPORTANT**

- WARNING:** DISCONNECT POWER BEFORE SERVICING. FAILURE TO DISCONNECT COULD RESULT IN ELECTROCUTION AND DEATH.
- CAUTION:** UNIT WEIGHS 470 TO 560 LB. (191 TO 255 KG). FOR SAFE HANDLING, INSTALLER SHOULD OBTAIN HELP AS NEEDED, OR EMPLOY APPROPRIATE MATERIALS HANDLING EQUIPMENT (SUCH AS A FORKLIFT, DOLLY, OR PALLET JACK) TO REMOVE THE UNIT FROM THE SKID AND MOVE IT TO THE PLACE OF INSTALLATION.
- WARNING:** INSTALLATION OF THE BRAISING PAN MUST BE DONE BY PERSONNEL QUALIFIED TO WORK WITH GAS AND ELECTRICITY. IMPROPER INSTALLATION CAN RESULT IN INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.
- WARNING:** THIS UNIT IS DESIGNED FOR COMMERCIAL USE. NEVER USE HOME OR RESIDENTIAL GRADE GAS CONNECTIONS. THEY DO NOT MEET COMMERCIAL GAS CODES AND COULD BE HAZARDOUS.
- DANGER:** ELECTRICALLY GROUND THE UNIT AT THE TERMINAL PROVIDED. FAILURE TO GROUND UNIT COULD RESULT IN ELECTROCUTION AND DEATH.
- WARNING:** KEEP THE APPLIANCE AREA FREE AND CLEAR OF COMBUSTIBLE MATERIALS. FAILURE TO DO SO COULD RESULT IN FIRE OR PROPERTY DAMAGE.
- CAUTION:** BE SURE ALL OPERATORS READ, UNDERSTAND AND FOLLOW THE OPERATING INSTRUCTIONS, CAUTIONS AND SAFETY INSTRUCTIONS CONTAINED IN THIS MANUAL.
- CAUTION:** KEEP FLOORS IN BRAISING PAN WORK AREA CLEAN AND DRY. IF SPILLS OCCUR, CLEAN IMMEDIATELY TO AVOID THE DANGER OF SLIPS OR FALLS.
- WARNING:** WHEN TILTING BRAISING PAN FOR PRODUCT TRANSFER:
- 1) USE CONTAINER DEEP ENOUGH TO CONTAIN AND MINIMIZE PRODUCT SPLASHING.
  - 2) PLACE CONTAINER ON STABLE, FLAT SURFACE, AS CLOSE TO PAN AS POSSIBLE.
  - 3) STAND TO SIDE OF PAN WHILE POURING — NOT DIRECTLY IN POUR PATH OF HOT CONTENTS.
  - 4) RETURN PAN BODY TO LEVEL POSITION AFTER CONTAINER IS FILLED OR TRANSFER IS COMPLETE.
  - 5) DO NOT OVERFILL CONTAINER, AVOIDING DIRECT SKIN CONTACT WITH HOT CONTAINER AND ITS CONTENTS.
- WARNING:** DO NOT HEAT EMPTY PAN FOR MORE THAN 5 MINUTES AT A SETTING HIGHER THAN 300°F.
- WARNING:** IF THE PAN CONTAINS ITEMS IN HOT LIQUIDS SUCH AS SAUCE OR MELTED FAT, THEY CAN SLIDE FORWARD SUDDENLY DURING TILTING AND CAUSE THE HOT LIQUID TO SPLASH OUT.
- WARNING:** AVOID ALL DIRECT CONTACT WITH HOT FOOD PRODUCT OR WATER IN THE PAN. DIRECT CONTACT COULD RESULT IN SEVERE BURNS.
- WARNING:** IT IS RECOMMENDED THAT WATER AND SOLUTIONS BE KEPT OUT OF CONTROLS AND BURNERS. DO NOT USE HIGH PRESSURE SPRAY DIRECTLY ON THE CONTROL CONSOLE, ELECTRICAL CONNECTIONS AND BURNERS. USE A GARDEN HOSE SPRAY CONNECTED TO CITY WATER SUPPLY.
- CAUTION:** MOST CLEANERS ARE HARMFUL TO THE SKIN, EYES, MUCOUS MEMBRANES AND CLOTHING. PRECAUTIONS SHOULD BE TAKEN TO WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING. CAREFULLY READ THE WARNINGS AND FOLLOW THE DIRECTIONS ON THE LABEL OF THE CLEANER TO BE USED.
- WARNING:** BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRIC POWER SUPPLY AND CLOSE THE MAIN GAS COCK. ALLOW FIVE MINUTES FOR UNBURNED GAS TO VENT.
- CAUTION:** USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY GROEN OR AUTHORIZED DISTRIBUTORS CAN CAUSE INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.
- IMPORTANT:** SERVICE PERFORMED BY OTHER THAN GROEN AUTHORIZED SERVICE AGENT WILL VOID ALL WARRANTIES.

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## Equipment Description

Groen™ Gas-Heated Eclipse™ Ergonomic Tilting Braising Pans provide a stainless steel pan equipped with patented heat transfer fins, burner/combustion chamber, hand-operated or electric powered tilting mechanism, thermostatic controls, and hinged cover. Eclipse serves as braising pan, griddle, fry pan, oven, kettle, bain-marie and food warmer/server, can be adapted for use as a non-pressure steamer and can be used to stir-fry, reheat and saute foods.

The pan body is made from heavy-duty stainless steel welded into one solid piece, with a polished interior and exterior. A pouring lip is welded to the front wall. The cooking surface is a stainless steel clad plate fitted with welded heat transfer fins which assure uniform heat transfer over the entire surface. The gas burner/combustion chamber supplies the heat.

An easily operated worm and gear mechanism tilts the pan and provides precise control for pouring or dumping the contents of the pan. This hand-wheel controlled mechanism is located in a stainless steel console to the right of the pan body. For BPP models with electric power tilt, a switch operates an electric motor that starts and stops the pan tilt smoothly. To assist cleaning, the pan body can be tilted past the vertical position. When the pan is tilted, the burners shut off automatically.

The thermostat provides automatic control of cooking temperature. Operating the thermostat dial on the front of the control console turns the heat on or off and sets the pan temperature.

A vented, heavy gauge, one-piece, stainless steel cover with a condensate drip shield on the rear edge is standard on the Braising Pan. A fully enclosed, torsion bar type counterbalance provides easy operation to open the cover and to maintain it open at any position. The cover opens to the back and is hinged to the frame, so it moves independently of the pan body.

The braising pan is mounted on an open-leg frame fabricated from tubular stainless steel.

Models BPM and BPP have an ignition system that uses electronic spark ignition. Optional models BPM -30GS and BPM-40GS have a standing-flame pilot light that ignites the main burner.

| Model    | Pan Dimensions |             | Ignition |
|----------|----------------|-------------|----------|
|          | L to R         | Depth       |          |
| BPM-30G  | 26.25" (667mm) | 10" ( 25mm) | Spark    |
| BPP-30G  | 26.25" (667mm) | 10" ( 25mm) | Spark    |
| BPM-30GS | 26.25" (667mm) | 10" ( 25mm) | Flame    |
| BPM-40G  | 35.75" (908mm) | 10" ( 25mm) | Spark    |
| BPP-40G  | 35.75" (908mm) | 10" ( 25mm) | Spark    |
| BPM-40GS | 35.75" (908mm) | 10" ( 23cm) | Flame    |

Options available with these models are:

1. Fill faucet with swing spout. (Left or right mounted) - specify single or double pantry
2. Fill faucet with 48" or 60" spray hose assembly (left or right mounted) - specify single or double pantry
3. Caster mounting kit.
4. Flanged Feet
5. Fold-down work tray (pan support) mounted on right side.
6. 2" Tangent draw-off (Factory-installed must be indicated on initial order)
7. Steamer Insert set.
8. Steamer Pan Carrier.
9. Quick gas disconnect with restraining cable.
10. Pouring Lip Strainer.
11. Strainer for 2" TDO valve.

### Performance Data



**Optional Tangent Draw-Off**

| MODELS                     | FIRING RATE    |
|----------------------------|----------------|
| BPM-30G, BPM-30GS, BPP-30G | 104,000 BTU/hr |
| BPM-40G, BPM-40GS, BPP-40G | 144,000 BTU/hr |

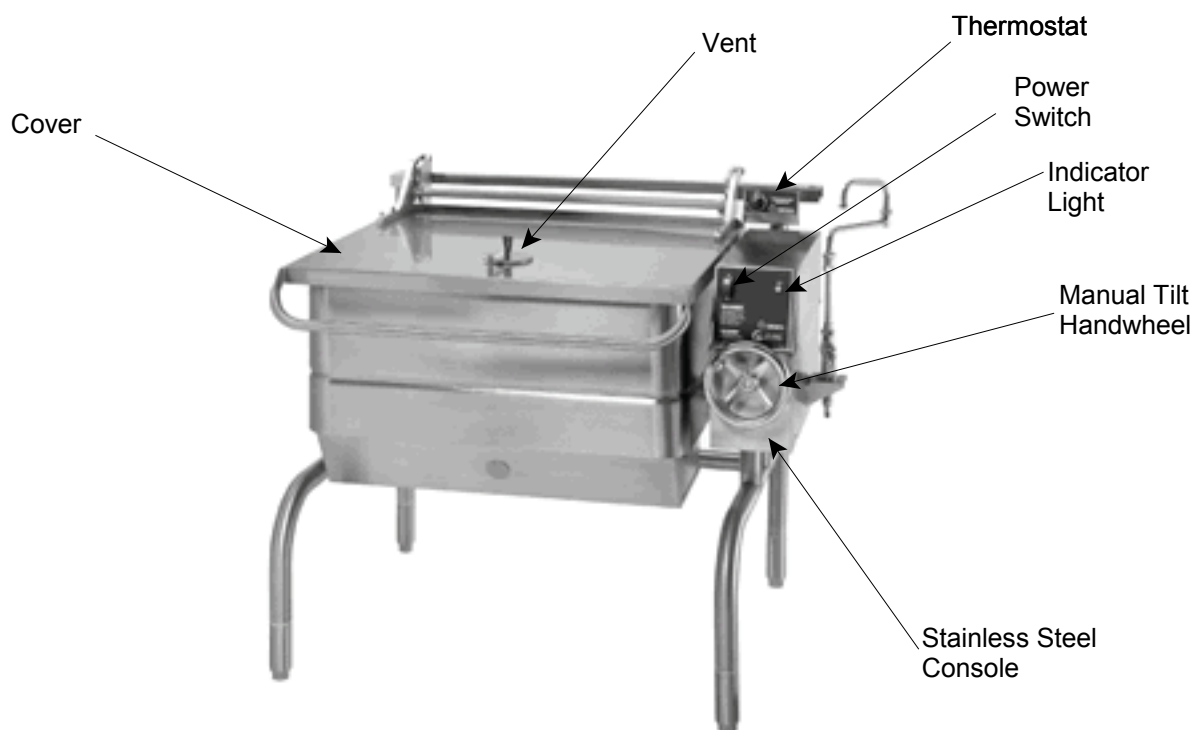
The unit will arrive completely assembled, wrapped in protective plastic on a heavy skid, in a heavy cardboard carton. Immediately upon receipt, inspect the carton for damage. Report any apparent shipping damage or an incorrect shipment to the delivery agent.

When installation is to begin, get someone to assist in removing the carton. Lift it straight up and away from the unit. **Do not simply raise it and push backwards - it will break the cover assembly vent handle.** Write down the model number, serial number, and installation date of your unit, and keep this information for future reference. Space for these entries is provided at the top of the Service Log in this manual.

Cut the straps holding the unit on the skid, and lift the unit straight up off the skid.

**CAUTION**  
**SHIPPING STRAPS ARE UNDER TENSION AND CAN SNAP BACK WHEN CUT.**

**UNIT WEIGHS 420 TO 560 LB (190 TO 255 KG). FOR SAFE HANDLING, INSTALLER SHOULD OBTAIN HELP AS NEEDED, OR EMPLOY APPROPRIATE MATERIALS HANDLING EQUIPMENT (SUCH AS A FORKLIFT, DOLLY, OR PALLET JACK) TO REMOVE THE UNIT FROM THE SKID AND MOVE IT TO THE PLACE OF INSTALLATION.**



**The unit is strapped to a skid, and shipped in a heavy cardboard carton.  
(Shown is model BPM-40G with optional right side mounted, double pantry faucet assembly.)**

## INSTALLATION

### CAUTION

INSTALLER MUST VERIFY THAT THE INSTALLATION COMPLIES WITH THE APPLICABLE LOCAL CODES AND REGULATIONS. THE UNIT MUST BE INSTALLED BY A LICENSED PLUMBER OR GAS FITTER WHEN INSTALLED WITHIN THE COMMONWEALTH OF MASSACHUSETTS.

Install the Braising Pan in a well ventilated room for efficient performance. Remove any items which might obstruct or restrict the flow of air for combustion and ventilation. Clear all combustible material from the area directly around the unit.

**WARNING**  
**INSTALLATION OF THE BRAISING PAN MUST BE DONE BY PERSONNEL QUALIFIED TO WORK WITH GAS AND ELECTRICITY. IMPROPER INSTALLATION CAN RESULT IN INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.**

1. Installation on combustible floors is allowed. Ensure minimum clearance to combustible and noncombustible construction.

|            | Minimum Clearances | Recommended Clearances  |
|------------|--------------------|---|
| Left Side  | 0"                 | 2" for service 6" when faucet is installed on left side.        |
| Right Side | 0"                 | 12 - 16" for service 6" when faucet is installed on right side. |
| Rear       | 3"                 | 12" for service   |

2. Install the unit under a vent hood.
3. Level the unit by adjusting the bullet feet or floor flanges on the legs. Be sure the tilting mechanism has been turned all the way to the horizontal position. Check levelness with a spirit level set on the bottom of the pan body. Anchor the rear legs securely to the floor if floor flanges are ordered or required.
4. Complete piping to the gas service with 3/4" inch IPS pipe or approved equivalent.

**WARNING:**  
**THIS UNIT IS FOR COMMERCIAL USE. NEVER USE HOME OR RESIDENTIAL GRADE GAS CONNECTIONS. THEY DO NOT MEET GAS CODES AND COULD BE HAZARDOUS.**

5. For a unit on casters, the installation shall be made with a connector that compiles with the standard for Connectors for Moveable Gas

Appliances, ANSI Z21.69 - CSA 6.16. Restrain movement of the unit by attaching a cable or chain to the eyelet provided at the back of the frame and ancho the cable or chain to the wall or floor. Make the length and location of the cable such that the unit cannot pull on the gas connection while the cable is connected or quick-disconnect.

6. The gas connection for a unit on casters must be made with a quick-disconnect device that compiles with ANSI Z21.41 - CSA 6.9.

**WARNING**  
**ELECTRICALLY GROUND THE UNIT AT THE TERMINAL PROVIDED. FAILURE TO GROUND UNIT COULD RESULT IN ELECTROCUTION AND DEATH.**

7. For electronic spark ignition, provide 115 VAC, 60 HZ, 1 phase, 5 AMP electrical service to the field wiring control box at the rear of the electrical console. AN ELECTRICAL GROUND IS REQUIRED. The unit must be electrically grounded in accordance with local codes, or in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, or the Canadian Electrical Code, CSA C22.2, as applicable.



8. Installation must conform with local codes or with the American National Standard Z223, latest edition, National Fuel Gas Code. The pan should be installed in an adequately ventilated room with a provision for adequate air supply to the unit. The best ventilation will use a vent hood and exhaust fan. DO NOT obstruct the flue or vent duct after installation. In Canada, installation must conform to CAN/CGA B149 Installation Codes for Gas Appliances and Equipment and/or local codes.

CAN/CGA B149 Installation Codes for Gas Appliances and Equipment and/or local codes.

9. Adequate space for proper service and operation is required. DO NOT block any air intake spacings to the combustion chamber or obstruct air flow.
10. After the pan has been connected to the gas supply, check all gas joints for leaks. A soap solution or other suitable leak detector should be used. **Do not use flame to check for leaks**

#### 11. PRESSURE TEST WARNING

- a) Test pressure exceeding PSIG (3.45kPa). During pressure testing of the gas supply piping system at pressures exceeding PSIG, the braising pan and its individual shutoff valve must be disconnected from the gas supply piping system.
- b) Test pressure equal to or less than PSIG (3.45kPa). During pressure testing of the gas supply piping system at pressures equal to or less than PSIG, the braising pan must be isolated from the gas supply piping system by closing its individual manual shutoff valve.

## Initial Start-Up

Now that your Braising Pan has been installed, you should test it to ensure that the unit is operating correctly.

1. Remove literature and packing materials from the interior and exterior of the unit.
2. Put enough water into the pan to cover the bottom to a depth of to inc h. With the pan body in the horizontal position, note how the water lies in the pan, to confirm that the pan was leveled properly during installation.
3. Following "To Start Pan" instructions for your pan model, begin heating the water at a thermostat setting of 235°F. At this setting, heating should continue until the water boils.

4. To shut down the unit, turn the thermostat dial to "OFF".

**WARNING**  
**WATER IS EXTREMELY HOT AND CAN CAUSE SEVERE BURNS. AVOID CONTACT WITH HOT WATER WHEN EMPTYING UNIT.**

5. Turn the tilting handwheel clockwise to pour out the water and to confirm that the pan body can be tilted smoothly from horizontal to vertical. For BPP models, push the UP/DOWN switch to confirm operation of tilting system.

If the unit functions as described above, it is ready for use. If it does not, contact your local Groen Authorized Service Agency.

## Operation

### A. Controls

Operator controls for the Braising Pans are:

1. Power ON Switch and Power ON indicator
2. The thermostat dial, located on the control console to the right rear of the pan body. This dial is used to turn the thermostat on or off and to set the thermostat for pan temperatures between 175° and 425° F.
3. HEATING indicator light located on the control panel, lights when the burners have ignited.
4. The main supply gas valve, installed on the gas line to the unit.
5. For BPM-30GS and BPM-40GS units with standing pilot flame, the gas control valve is on the Combination Gas Control, which is located under the pan on the gas line to the burner manifold. This valve has settings of "OFF", "PILOT", or "ON" for the Combination Control.

6. For BPP-30G and BPP-40G models a power tilt switch is located on the control panel. It is used to raise and lower the pan body.

### B. Operating Procedure

**WARNING**  
**KEEP THE AREA AROUND BRAISING PAN FREE AND CLEAR OF COMBUSTIBLE MATERIALS.**

**CAUTION**  
**KEEP FLOORS IN BRAISING PAN WORK AREA CLEAN AND DRY. IF SPILLS OCCUR, CLEAN IMMEDIATELY TO AVOID THE DANGER OF SLIPS OR FALLS.**

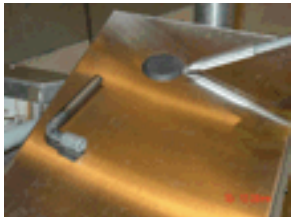


## 1. To Tilt Pan Body

**a. Manual Tilt Model** - Turn the tilting handwheel clockwise to tilt the pan body, or counterclockwise to return the pan body to horizontal. 23 complete turns of the handwheel will tilt the body 90 degrees to vertical.

### **b. Power Tilt Model -**

(1) Press the power tilt switch marked "up" to raise the pan or "down" to lower the pan.  
(2) The spring loaded switch will return to the OFF (middle) position when you release it.  
(3) If the power tilt mechanism stops working (see the Troubleshooting section) and you must raise or lower the pan body without delay, you can tilt the body by hand. Remove the small plug on top of the control box and fit the provided tool into the hole. Turn the tool clockwise to lower it. It may take several minutes to move the pan to the desired position, but the operation can be speeded up by substituting a reversible drill with a 1/8 inch hexagonal driver bit in place of the tool.



### **CAUTION**

**REPLACE THE HOLE PLUG BEFORE CLEANING OTHERWISE WATER COULD ENTER THE ELECTRICAL CONTROL BOX AND DAMAGE THE PARTS.**

## 2. For Standard Models with Electronic Ignition (BPM, BPP-30G and 40G)

### **a. To Start Pan (See Panel Overlay)**

- (1) Set the Power Switch to "OFF."
- (2) Set the thermostat to "OFF."
- (3) Open the main supply gas valve (handle parallel to the gas pipe).



Gas Valve "On"



Gas Valve "Off"

(4) Set Power Switch to "ON."

(5) Rotate the thermostat dial until the Heat Light comes on. (It lights when the main burner is on).

### **b. To Turn Off Pan**

- (1) Set the thermostat to "OFF".
- (2) Set Power Switch to "OFF."
- (3) For a prolonged shut-off period:
  - (a) Set the thermostat to "OFF".
  - (b) Turn the main gas valve OFF (handle at right angles to the gas pipe).
  - (c) Disconnect the electrical power from the unit.

### **c. If Power Fails**

- 1) Do not try to operate the unit until power is restored.
- 2) When power is restored, follow directions under "To Start Pan."

## 3. For Models with Optional Standing-Flame Pilot (BPM-30GS, BPM-40GS)

**NOTE: These models can be operated without a 115 Volt power supply. In case of a power failure, the unit can continue to operate.**

### **a. To Start Pan**

- (1) Set thermostat to "OFF".
- (2) Light gas pilot.
  - (a) Set knob on Combination Gas Control Valve to "OFF" by depressing the knob slightly and turning it clockwise.
  - (b) Turn the main supply gas valve ON (parallel to the gas pipe).
  - (c) Tilt the pan, so the pilot burner is easier to reach.
  - (d) Hold a lighted match at the pilot burner, while you depress the knob on the Combination Control and turn it counter-clockwise to the "PILOT" position. Continue to hold the knob down for 60 seconds.
  - (e) Release the knob. The pilot flame should stay lighted.
  - (f) Turn the knob counterclockwise to "ON".
- (3) Lower the pan tilt to horizontal or cooking position.
- (4) Turn the thermostat dial to the desired temperature.



**CAUTION**  
**DO NOT HEAT AN EMPTY PAN FOR MORE THAN FIVE MINUTES AT A SETTING HIGHER THAN 300°F. DAMAGE TO THE PAN COULD RESULT.**

b. To Turn Off Pan

- (1) Set the thermostat dial to "OFF".
- (2) To turn off the gas pilot, depress the knob on the Combination Control and turn it clockwise to "OFF".

c. To Relight Pilot

- (1) Close the main supply gas valve.
- (2) Set the thermostat to "OFF".
- (3) Depress the knob on the Combination Control and turn it clockwise to "OFF".
- (4) Wait 5 minutes, then proceed as instructed at "To Start Pan" above.

**WARNING**  
**WHEN TILTING BRAISING PAN FOR PRODUCT TRANSFER:**

- 1) **USE CONTAINERS DEEP ENOUGH TO CONTAIN AND MINIMIZE PRODUCT SPLASHING.**
- 2) **PLACE CONTAINER ON A STABLE, FLAT SURFACE, AS CLOSE TO THE BRAISING PAN AS POSSIBLE.**
- 3) **STAND TO THE SIDE OF THE PAN WHILE POURING — NOT DIRECTLY IN THE POUR PATH OF HOT CONTENTS.**
- 4) **RETURN PAN BODY TO UPRIGHT POSITION AFTER CONTAINER IS FILLED OR TRANSFER IS COMPLETE.**
- 5) **DO NOT OVERFILL CONTAINER. AVOID DIRECT SKIN CONTACT WITH HOT CONTAINER AND CONTENTS.**

**4. To Move a Unit on Casters**

The unit must be anchored with a cable or chain to avoid accidentally breaking or pulling loose the gas connection. When the unit is to be moved, first turn off and disconnect the gas connection. Disconnect the cable from its anchor point on the floor or wall. Anchor the unit again as soon as it is in its new operating location or returned to the previous location. Turn on the gas supply and check for leaks with a soap solution. If leaks are found, do not operate the equipment. Call for service.

**5. To Preheat the Pan**

- a. For best braising pan or frying results, preheat pan before you put in any food.

- b. To get an even temperature across the pan, preheat at a setting of 300°F or less for 15 minutes or through several on-off cycles of the burner.

**CAUTION**  
**DO NOT HEAT AN EMPTY PAN FOR MORE THAN FIVE MINUTES AT A SETTING HIGHER THAN 300°F. DAMAGE TO THE PAN COULD RESULT.**

**c. Cooking**

1. To simmer or slowly heat an item, set the dial at 210°F or lower. Put the cover down to minimize moisture loss, or leave it up to help dry or reduce the product. Set the thermostat higher to cook or drive off moisture faster. You may adjust the thermostat to any setting to cook the item exactly as required.
2. Leave the cover vent open to let excess steam escape. For long simmering operations, you may wish to close the vent to retain moisture.



**WARNING**  
**STEAM CAN CAUSE BURNS. AVOID ESCAPING STEAM WHEN RAISING COVER.**

3. To check progress when the cover is closed, lift the handle of the vent cover slightly, and move it quickly to either side.
4. Standing to one side of the pan (to avoid the steam that will be released) grasp the nearer corner of the cover handle and raise the cover. The cover will stay in the open position until you push it down.

**WARNING**  
**ITEMS IN SAUCE OR MELTED FAT CAN SLIDE FORWARD SUDDENLY DURING TILTING AND SPLASH THE HOT LIQUID.**

5. To pour product, remove grease, or assist in cleaning, first raise the cover, then tilt the pan forward by turning the tilting handwheel. When you stop turning the wheel, the pan body will hold its position.

## Sequence of Operation

The following "action-reaction" outline is provided to help the user understand how the equipment functions.

### A. Standard Models with Spark Ignition

1. When the power switch is turned on, it starts the spark igniter and opens the automatic valve for the pilot burner. The spark ignites a pilot flame, which heats the sensor. The sensor then sends a signal to turn off the spark. The flame thereafter acts as a standing pilot until the power is turned off.
2. If the pilot flame is not sensed within 70 seconds after spark begins, a timer shuts down the entire operation. To attempt a second trial for ignition, turn off the power switch. Check the gas supply valves and wait five minutes before trying again by switching power on. If there is still no pilot flame in four tries, close all valves, turn off the power, and contact an authorized Groen Service Agency.
3. When the operator sets a temperature on the thermostat, it allows the automatic gas valve to admit gas to the main burners, where it is ignited by the pilot flame. When the braising pan reaches the set temperature, the thermostat switch opens. This stops the signal to the gas control valve and shuts off gas to the main burner. The pilot flame remains lit. When the pan cools below the set temperature, the thermostat switch closes and starts another cycle. On and off cycling continues and maintains the pan at the desired temperature. This action is indicated by the Heat indicator light.

### B. Models with Optional Standing Pilot Ignition

1. When the operator presses down the knob on the Combination Gas Control Valve and turns it to "Pilot", gas is admitted to the pilot burner. Depressing the knob in this position overrides the automatic control, which otherwise shuts off all gas supply when the thermopile is cold. Lighting and maintaining the pilot flame for sixty seconds heats the thermopile to operating temperature, so the thermopile begins to provide electric current at 750 millivolts. Electricity from the thermopile powers the control circuit and the Combination Gas Control Valve. When the thermopile begins operating at full capacity, the knob may be released.
2. When the knob is turned to "ON", the automatic valve for the main burner is able to open. Setting the thermostat to call for heat causes the thermostat to send a signal to the valve, which opens and admits gas to the main burner. Gas from the main burner is ignited by the pilot flame. When the pan reaches the set temperature, the thermostat switch opens, stopping the signal to the main burner valve and causing the valve to close. When the pan cools below the set temperature, the thermostat switch closes and

starts another heating cycle. On-off cycling continues and maintains the pan at the desired temperature.

### C. All Models

1. The thermostat controls heating by alternately calling for flames at the full capacity of the main burners and then signaling the control to shut the burner off completely. Because the control works in this "all or nothing" way, the pan heats as fast as it can until it reaches the set temperature. Turning the thermostat dial to a higher temperature will cause heating to continue longer, until the pan reaches the higher temperature, but it cannot make the pan heat any faster.
2. The pans are protected from overheating by a secondary thermostat. If the pan temperature rises above 425° F, the thermostat causes the automatic gas control valve to close. When the pan cools, the thermostat automatically resets and permits normal operation to continue.
3. The tilt switch will shut off all burners whenever the braising pan is tilted 10 degrees or more from the horizontal.
4. A gas pressure regulator, which controls gas pressure at the burner manifold is built into the gas control valve.
5. On manual tilt models, turning the tilting handwheel turns a worm gear, which turns a gear wheel on one of the trunnions which support the pan body. Turning the gear wheel produces the tilting action.
6. On power tilt models, pressing the up/down switch operates a gear motor which turns worm and gear wheel as described in item 5 above.

**NOTE:** Neither model will heat (operate) when the braising pan has been tilted 10 degrees or more from the horizontal.

## Cleaning

### WARNING

**KEEP WATER AND SOLUTIONS OUT OF CONTROLS AND BURNERS. NEVER USE A HIGH PRESSURE SPRAY DIRECTLY ON THE CONTROL CONSOLE OR ANY ELECTRICAL CONNECTIONS.**

1. Before any cleaning operation, shut off the burner by turning the thermostat dial to "OFF". If water or cleaning solution will be sprayed, unplug the unit from the electric power source, or shut off the power at the circuit breaker or fuse panel.



**Use a brush, cloth, sponge or other non-abrasive tool for cleaning.**



**Don't use metal implements or steel wool to clean the braising pan.**

2. Clean all food-contact surfaces soon after use, before the pan has cooled completely. If the unit is in continuous use, thoroughly clean and sanitize both interior and exterior at least once every 12 hours.

### CAUTION

**MOST CLEANERS ARE HARMFUL TO THE SKIN, EYES, MUCOUS MEMBRANES AND CLOTHING. PRECAUTIONS SHOULD BE TAKEN TO WEAR RUBBER GLOVES, GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING. CAREFULLY READ THE WARNINGS AND FOLLOW THE DIRECTIONS ON THE LABEL OF THE CLEANER TO BE USED.**

3. Scrape or rinse out large amounts of food residues, then wash the inside of the pan body with a mixture of hot water and soap or an appropriate detergent, such as Mikro-Quat from ECOLAB. Follow the detergent supplier's recommendations on strength of the solution to use. Rinse the pan thoroughly with hot water and drain completely.

4. To remove materials stuck to the equipment, use a brush, sponge, cloth, plastic or rubber scraper, or plastic wool along with the detergent or soap solution. To minimize the effort required in washing, let the detergent solution sit in the pan and soak into the residue, or heat the detergent solution briefly in the pan. Do NOT use any abrasive materials or metal implement that might scratch the surface, because scratches make the pan hard to clean and provide places for bacteria to grow. Do NOT use steel wool, which may leave particles imbedded in the pan surface and cause eventual corrosion and pitting.

5. As part of the daily cleaning program, clean all external and internal surfaces that may have been soiled. Remember to check such parts as the underside of the cover, control console, etc.

6. Controls and the control console may be cleaned with a damp cloth or sprayed with a garden hose spray connected to city water supply. Do not use a pressure sprayer directly on the unit or electrical parts.

**WARNING**  
**DO NOT SPRAY WATER DIRECTLY ON**  
**BURNERS AND GAS COMBUSTION**  
**CHAMBERS.**



7. The exterior surface of the unit may be polished with a recognized stainless steel cleaner.

**NOTICE**  
**NEVER LEAVE A CHLORINE SANITIZER IN**  
**CONTACT WITH STAINLESS STEEL SURFACES**  
**LONGER THAN 30 MINUTES. LONGER**  
**CONTACT CAN CAUSE CORROSION.**

8. If the equipment needs to be sanitized, use a sanitizing solution equivalent to one that supplies 100 parts per million available chlorine. Obtain advice on the best sanitizing agent from your supplier of sanitizing products. Following the supplier's instructions, apply the sanitizing agent after the unit has been cleaned and drained. Rinse off the sanitizer thoroughly.

9. If there is difficulty removing mineral deposits or a film left by hard water or food residues, clean the pan thoroughly and then use a deliming agent, such as Groen De-limer/De-Scaler (P/N 140513), in accordance with the manufacturer's directions. Rinse and drain the unit before further use.

10. If especially difficult cleaning problems persist, contact your cleaning product representative for assistance.

## Maintenance

Your Braising Pan is designed to require minimum maintenance, but certain parts may need replacement after prolonged use. After installation, no user adjustment should be necessary. If a service need arises, only authorized personnel should perform the work.



**WARNING**  
**ELECTRIC POWER ALWAYS SHOULD BE**  
**SHUT OFF BEFORE WORK IS DONE ON**  
**INTERNAL COMPONENTS.**

Service personnel should check the unit at least once a year. This periodic maintenance should include inspecting electrical wires and connections, cleaning the inside of the control console, and possible adjustment of the pilot light. (Units with .

standing pilot ignition only) At least twice a year, grease the two trunnion bearings and worm gear

Groen recommends the use of number two grade LGI lithium grease. Add grease through the zerk fittings on the gear hosing until grease flows out of the bearings around trunnion shaft. Also, add grease in the gear to cover arc that is in contact with the worm gear. Clean up excess grease.

**WARNING**  
**DISCONNECT ELECTRICAL POWER FROM**  
**THE UNIT BEFORE ATTEMPTING TO GREASE**  
**THE TRUNNION BEARINGS.**

A Service Log is provided with the warranty information at the back of this manual. Each time service is performed on your Groen equipment, enter the date on which the work was done, what was done, and who did it. Keep the manual with the equipment for quick and easy reference.

## Troubleshooting

Your Groen Braising Pan will operate smoothly and efficiently if properly maintained. However, the following is a list of checks to make in the event of a problem. If the actions suggested do not solve the problem, call your qualified Groen Service Representative. For the phone number of the nearest agency, call your area Groen representative or the Groen Parts and Service Department. If an item on the list is followed by **X**, the work should only be performed by a qualified service representative.

### WARNING

**BEFORE REPLACING ANY PARTS, DISCONNECT THE UNIT FROM THE ELECTRICAL POWER SUPPLY AND CLOSE THE MAIN GAS VALVE. ALLOW FIVE MINUTES FOR GAS TO VENT.**

**USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY GROEN OR THEIR AUTHORIZED DISTRIBUTORS CAN CAUSE INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES.**

**Important: Service performed by other than factory authorized personnel will void all warranties.**

| SYMPTOM | WHO | WHAT TO CHECK<br>X indicates items which must be performed by an Groen authorized service technician. |
|---------|-----|---|
|---------|-----|---|

#### A. All Models

|  |                       |   |
|--|-----------------------|---|
| Pan is hard to tilt.                                       | Auth Service Rep Only | a. Gears or foreign materials, lubrication, and alignment. X<br>b. Broken tilt or worm gears. X   |
| Burners will not light                                     | User                  | a. That the main gas supply valve is open (handle is in line with the gas pipe)<br>b. Gas supply to the braising pan is at specified pressure.<br>c. That the pan body is horizontal. |
|  | Auth Service Rep Only | d. Thermostat operation. The thermostat should click when the dial is rotated to settings above and below the temperature of the pan. X   |
| Pan continues to heat after it reaches desired temperature | User                  | a. Thermostat dial setting  |
|  | Auth Service Rep Only | b. Thermostat calibration. X<br>c. Thermostat operation. The thermostat should click when the dial is rotated to settings above and below the temperature of the pan. X               |
| Pan stops heating before reaching desired temperature.     | User                  | a. Thermostat dial setting.   |
|  | Auth Service Rep Only | b. Thermostat calibration. X<br>c. Thermostat operation. The thermostat should click when the dial is rotated to settings above and below the temperature of the pan. X               |
| Pan heats unevenly   | User                  | a. That the pan body is horizontal.<br>b. That the pan is preheated properly in accordance with the instructions in the Operation section of this manual.                             |

#### B. Standard Models with Electronic Ignition System (Refer to Schematic)

|                                 |                       |  |
|---------------------------------|-----------------------|--|
| System does not produce a spark | Auth Service Rep Only | a. Thermostat, and close the contacts if they are open X<br>b. AC voltage between terminals on secondary side of transformer. If it is not 24 Volt, replace the transformer X<br>c. That the high tension cable is in good condition. If cracked or brittle, replace. X<br>d. Pilot electric ceramic for crack or break. X<br>e. Pilot spark gap. Regap. X |
|---------------------------------|-----------------------|--|

**Important: Service performed by other than factory authorized personnel will void all warranties.**

| SYMPTOM  | WHO                   | WHAT TO CHECK<br>X indicates items which must be performed by an Groen authorized service technician.  |
|--|-----------------------|--|
| Spark is present but the pilot will not light.                             | Auth Service Rep Only | a. That the pilot valve is securely connected to terminals. X<br>b. For 24 VAC at terminals PV and to ground. If 24V is not present, replace the ignition control module. X<br>b. That gas pressure is at least 3.5" W.C.(8.7millibars). X<br>c. For gas at the pilot. If it is not flowing:<br>(1) Check the pilot gas line for kinks and obstructions. X<br>(2) Clean orifice, if necessary. X<br>(3) Check solenoid operation pilot valve on gas valve. Repair or replace as necessary. X<br>d. That the pilot spark gap is located in the pilot gas stream. If not, adjust or replace the pilot burner. X<br>e. For drafts. Shield the pilot burner, if necessary. X |
| Pilot lights, but main burner will not come on and spark does not stay on. | Auth Service Rep Only | a. Check operating thermostat to see that it is closed at temperature setting higher than that of the current pan temperature. X<br>b. For 24 V between terminals MV and to ground. If 24V is not present, replace the ignition control module. X<br>c. That gas pressure is at least 3.5" W.C.(8.7millibars). X<br>d. Electrical connections of the main valve to terminals, to assure that they are securely attached. Check solenoid operation for main valve on gas valve. Repair or replace as necessary. X<br>e. That secondary thermostat switch is closed.X  |
| Pilot lights, but main burner will not come on, the spark stays on.        | Auth Service Rep Only | a. Check for improper grounding. If necessary, repair with high temperature wire. X<br>b. Pilot burner ceramic insulator for cracks. X<br>c. That high tension cable is not grounded out. If it is, correct the ground-out condition or the pilot burner. X<br>d. For proper gas pressure. X<br>e. Clean pilot assembly, or replace if necessary. X<br>f. Tighten all mechanical and electrical connections. X<br>g. Replace ignition control module. X  |
| Main burner comes on but will not stay on.                                 | Auth Service Rep Only | a. Check burner ground for bad wire or connection. Replace if necessary with high temperature wire. X<br>b. Check for low gas supply pressure. If necessary, replace ignition control module. X  |

### C. Models with Standing Pilot Ignition System

|                       |                       |   |
|-----------------------|-----------------------|---|
| Pilot will not light. | User                  | a. Lighting procedure, to ensure that the instructions in the Operation section of this manual are followed   |
|                       | Auth Service Rep Only | b. That the pilot gas supply line is purged of air. X<br>c. Pilot gas adjustment screw, to ensure that it is open. X<br>d. Pilot tubing and orifice for clogging. X |



**Important: Service performed by other than factory authorized personnel will void all warranties.**

| SYMPTOM   | WHO                   | WHAT TO CHECK<br>X indicates items which must be performed by an Groen authorized service technician.  |
|---|-----------------------|--|
| Pilot flame goes out when Combination Control knob is released. | Auth Service Rep Only | a. Pilot gas adjustment. X<br>b. Are connections from Powerpile generator to Pilotstat power unit and Powerpile operator clean and secure? X<br>c. Are open and closed circuit output voltages of the generator in the acceptable range shown by the charts in the manual for the W720 Systems Tester? X<br>d. Resistance of the Pilotstat power unit. X<br>e. If an appropriate meter is not available, replace the generator first, then the power unit. X |
| Pan will not heat, and pilot light is out                       | User                  | a. Is the Combination Gas Control Valve knob turned ON?<br>b. Check the pilot tubing and orifice for clogging.   |
|   | Auth Service Rep Only | c. Are connections from Powerpile generator to Pilotstat power unit and Powerpile operator clean and secure?X<br>d. Are Open and closed circuit output voltages of the generator in the acceptable range shown by the charts in the manual for the W720 Systems Tester?X<br>e. If an appropriate meter is not available, replace the generator. X  |
| Pan will not heat, but pilot light is burning                   | Auth Service Rep Only | a. That secondary thermostat switch is closed.   |

#### D. Models with power tilt

| SYMPTOM           | WHO                   | WHAT TO CHECK<br>x indicates items which must be performed by an Groen authorized service technician.  |
|-------------------|-----------------------|--|
| Pan will not tilt | User                  | a. That electrical power supply is on.<br>b. For overheated actuator motor. Wait 15 minutes for motor to cool, then operate the power tilt.  |
|                   | Auth Service Rep Only | c. For blown fuse on motor control circuit - Replace fuse with Groen approved equal.<br>d. For damaged DC rectifier and operating relays.<br>e. Correct setting of upper and lower limit switches. |

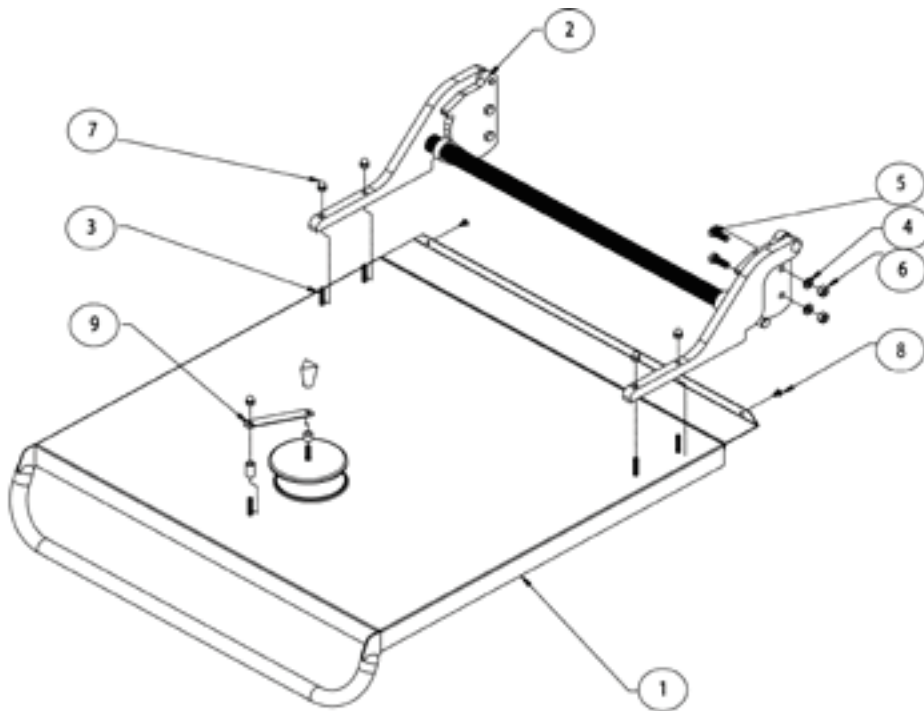


## Stand and Foot Assembly Parts List



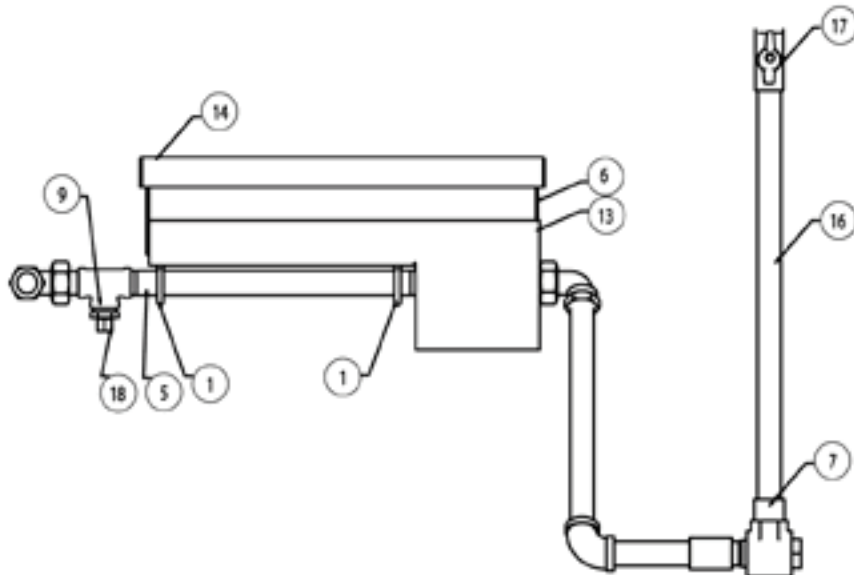
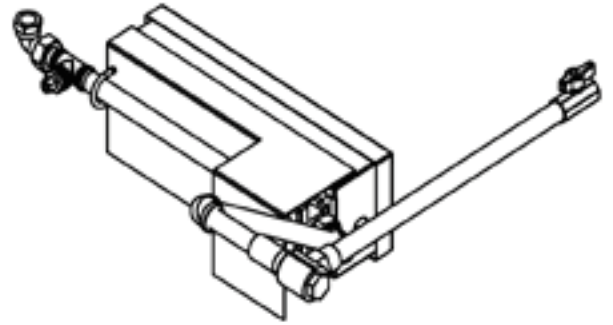
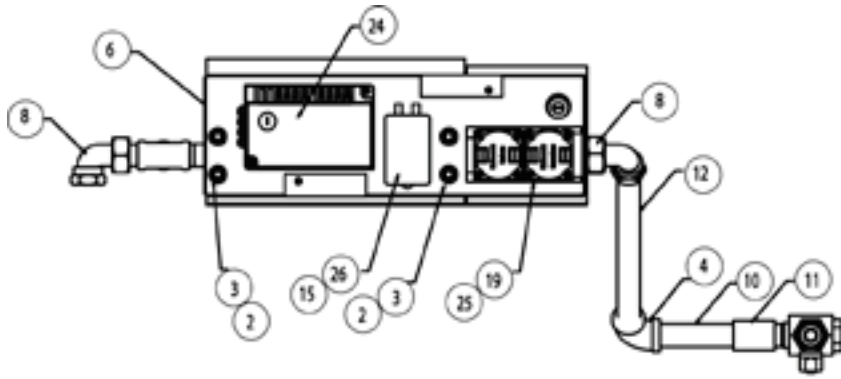
| STAND & FOOT ASSEMBLY |     |   |        |
|-----------------------|-----|---|--------|
| Key                   | Qty |   |        |
| 1                     |     | CASTER KIT (SET OF 2 WITH BRAKE AND 2 W/O BRAKE)  | 146354 |
| 1                     |     | CASTER WITH BRAKE (W/O FOOT ADAPTER)              | 146513 |
| 1                     |     | CASTER WITHOUT BRAKE (W/O FOOT ADAPTER)-NOT SHOWN | 146515 |
| 2                     |     | FOOT ADAPTER                                      | 146516 |
| 3                     |     | FLANGED FOOT (W/O FOOT ADAPTER)                   | 146521 |
| 4                     |     | BULLET FOOT (W/O FOOT ADAPTER)                    | 146628 |
| 5                     |     | FRICTION RING                                     | 146520 |
|                       |     |   |        |

## Cover and Counterbalance Assemblies Parts List



| Key | Qty | COVER & COUNTERBALANCE ASSEMBLIES  | Part #  |
|-----|-----|------------------------------------|---------|
| 1   | 1   | COVER ASSEMBLY, 30 GALLON          | 144812  |
| 1   | 1   | COVER ASSEMBLY, 40 GALLON          | 144453  |
| 2   | 1   | COUNTERBALANCE ASSEMBLY, 30 GALLON | 145480  |
| 2   | 1   | COUNTERBALANCE ASSEMBLY, 40 GALLON | 144790  |
| 3   | 4   | STUD WELD, 1/4"-20 X 1-1/4"        | 012589  |
| 4   | 4   | WASHER, LOCK 3/8"                  | 005618  |
| 5   | 4   | SCREW, HEX HEAD CAP 3/8"-16 X 1"   | 005612  |
| 6   | 4   | NUT, HEX 3/8"-16                   | 005619  |
| 7   | 4   | DOME NUTS, 1/4-20                  | 090567  |
| 8   | 2   | SCREW, TRUSS HEAD, #10-32 X 3/8"   | 004173  |
| 9   | 1   | VENT COVER ASSY.                   | MS17494 |

## Gas Piping Assemblies Parts List

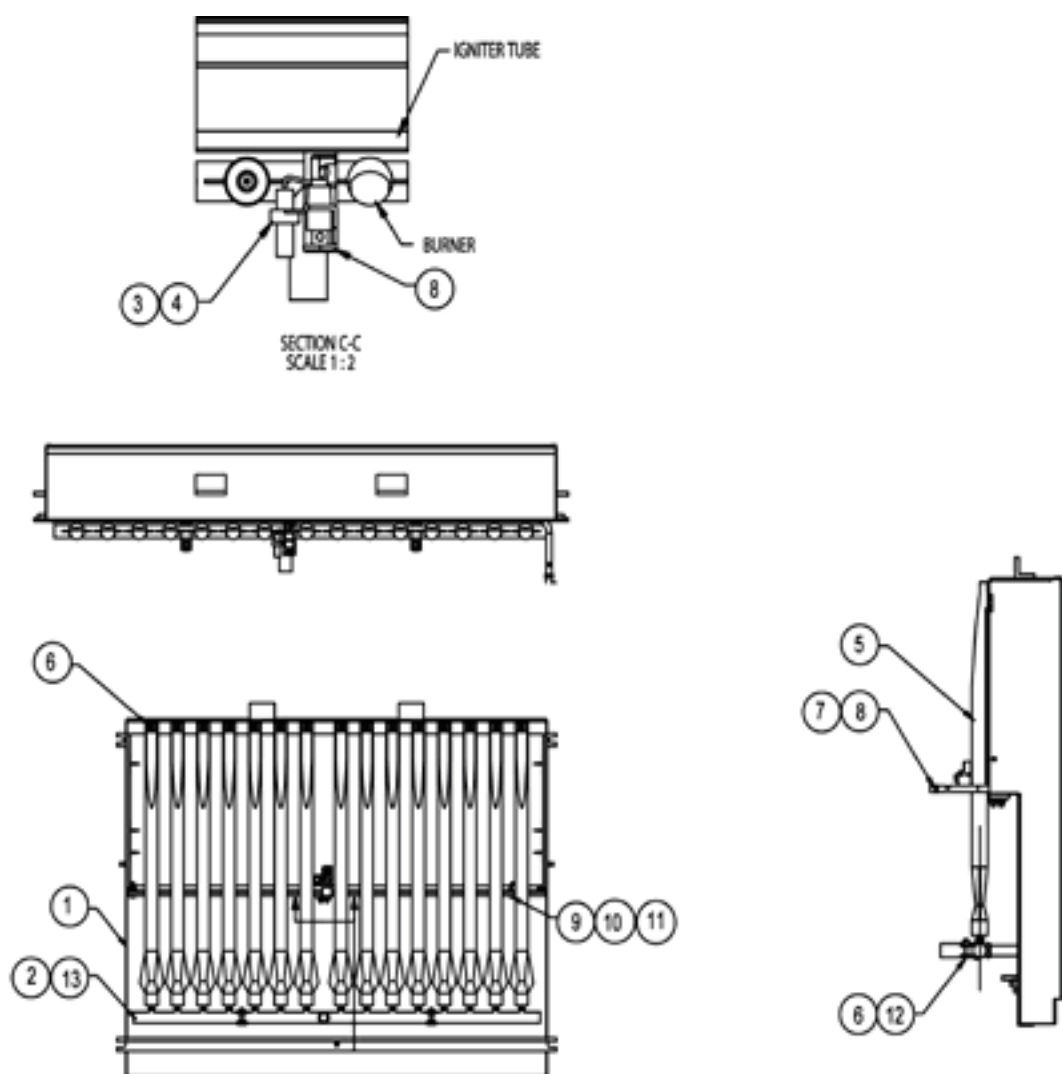


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## Gas Piping Assemblies Parts List

| GAS PIPING ASSEMBLIES |     |  |          |
|-----------------------|-----|--|----------|
| KEY                   | QTY |  | PART NO# |
| 1                     | 2   | U BOLT 3/4 PIPE  | N87786   |
| 2                     | 5   | WASHER PLAIN 1/4   | 005472   |
| 3                     | 5   | NUT HEXAGON KEPS 1/4-20 WITH                             | 012940   |
| 4                     | 1   | ELBOW 90 DEG 1/2 NPT                                     | 008747   |
| 5                     | 1   | NIPPLE 1/2 NPT X 11                                      | 005673   |
| 6                     | 1   | IGNITION MODULE PLATE ASSY-ELECTRONIC IGNITION           | 144777   |
| 6                     | 1   | IGNITION MODULE PLATE ASSY-STANDING PILOT                | 146510   |
| 7                     | 1   | SWIVEL JOINT 1/2 NPT (GAS)                               | 076680   |
| 8                     | 2   | UNION ELBOW  | 141354   |
| 9                     | 1   | TEE 1/2 NPT  | 008772   |
| 10                    | 1   | NIPPLE 1/2 NPT X 3.5                                     | 009816   |
| 11                    | 1   | COUPLING FULL 1/2 NPT                                    | 005722   |
| 12                    | 1   | NIPPLE 1/2 NPT X 10                                      | 005558   |
| 13                    | 1   | REAR RADIATION HEAT SHIELD                               | 146145   |
| 14                    | 1   | IGNITION MODULE COVER                                    | 146146   |
| 15                    | 2   | SCREW ROUND HEAD MACHINE                                 | 018384   |
| 16                    | 1   | NIPPLE 1/2 NPT X 12                                      | 005600   |
| 17                    | 1   | VALVE GAS MANUAL SHUTOFF 1/2                             | 098458   |
| 18                    | 1   | CONNECTOR MALE 1/2                                       | 049429   |
| 19                    | 1   | FITTING COMPRESSION 90                                   | 004584   |
| 20                    | 1   | TUBE, IGNITION SUPPLY TUBE, 1/4 (NOT SHOWN)              | 146119   |
| 21                    | 1   | 1 PILOT SUPPLY TUBE, 1/4" (STANDING PILOT) - (NOT SHOWN) | 149054   |
| 21                    | 1   | PILOT SUPPLY TUBE, 1/4 (NOT SHOWN)                       | 146118   |
| 23                    | 1   | GROMMET 7/8" (NOT SHOWN)                                 | 007400   |
| 24                    | 1   | SPARK IGNITION MODULE-ELECTRONIC IGNITION ONLY           | 144150   |
| 25                    | 1   | GAS CONTROL VALVE-ELECTRONIC IGNITION-NATURAL GAS        | 098443   |
| 25                    | 1   | GAS CONTROL VALVE-ELECTRONIC IGNITION-PROPANE            | 098444   |
| 25                    | 1   | GAS CONTROL VALVE-STANDING PILOT-NATURAL GAS             | 002648   |
| 25                    | 1   | GAS CONTROL VALVE-STANDING PILOT-PROPANE                 | 002649   |
| 26                    | 1   | HIGH LIMIT THERMOSTAT (GAS)                              | 013481   |
| 27                    | 1   | ELBOW FEMALE 90 DEG (NOT SHOWN)                          | 050500   |

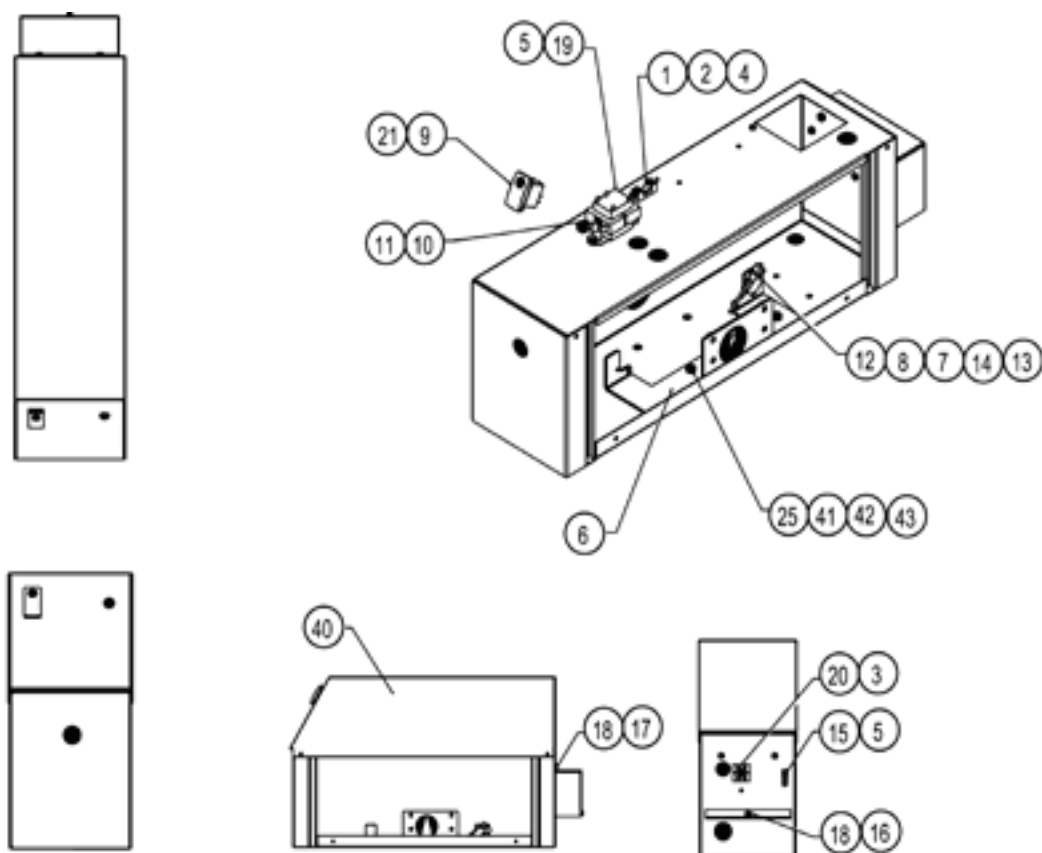
## Combustion Chamber and Gas Manifold Assemblies Parts List



## Combustion Chamber and Gas Manifold Assemblies Parts List

| KEY | QTY | COMBUSTION CHAMBER & GAS MANIFOLD ASSEMBLIES             | PART NO. |
|-----|-----|--|----------|
| 1   | 1   | COMBUSTION CHAMBER ASSY, 30 GALLON                       | 145941   |
| 1   | 1   | COMBUSTION CHAMBER ASSY, 40 GALLON                       | 144843   |
| 2   | 1   | MANIFOLD, 30 GALLON                                      | 145944   |
| 2   | 1   | MANIFOLD, 40 GALLON                                      | 144845   |
| 3   | 1   | PILOT BURNER W/O PILOT ORIFICE, ELECTRONIC IGNITION ONLY | 097024   |
| 3   | 1   | PILOT BURNER, STANDING PILOT-NATURAL GAS                 | 137511   |
| 3   | 1   | PILOT BURNER, STANDING PILOT-PROPANE                     | 123684   |
| 3   | 1   | PILOT ORIFICE, ELECTRONIC IGNITION-NATURAL GAS           | 119449   |
| 3   | 1   | PILOT ORIFICE, ELECTRONIC IGNITION-PROPANE               | 098647   |
| 4   | 1   | MOUNTING BRACKET FOR PILOT                               | 119418   |
| 5   | 11  | BURNER TUBE, 30 GALLON                                   | 144847   |
| 5   | 15  | BURNER TUBE, 40 GALLON                                   | 144847   |
| 6   | 21  | NUT, KEPS 1/4-20   | 012940   |
| 7   | 1   | IGNITION TUBE, 30 GALLON                                 | 145957   |
| 7   | 1   | IGNITION TUBE, 40 GALLON                                 | 145912   |
| 8   | 1   | IGNITION TUBE ORIFICE, -30 GALLON-NATURAL GAS            | 101623   |
| 8   | 1   | IGNITION TUBE ORIFICE, -30 GALLON-PROPANE                | 101625   |
| 8   | 1   | IGNITION TUBE ORIFICE, -40 GALLON-NATURAL GAS            | 101665   |
| 8   | 1   | IGNITION TUBE ORIFICE, -40 GALLON-PROPANE                | 101623   |
| 9   | 2   | SCREW, #10-32 X 1"                                       | 093478   |
| 10  | 2   | IGNITION TUBE CLAMP                                      | 085107   |
| 11  | 2   | NUT, KEPS 10-32  | 071256   |
| 12  | 3   | SCREW, ROUND HEAD 1/4"-20 X 1"                           | 012847   |
| 13  | 11  | BURNER ORIFICE, 30 GALLON-NATURAL GAS                    | 128158   |
| 13  | 11  | BURNER ORIFICE, 30 GALLON-PROPANE                        | 146148   |
| 13  | 15  | BURNER ORIFICE, 40 GALLON-NATURAL GAS                    | 128158   |
| 13  | 15  | BURNER ORIFICE, 40 GALLON-PROPANE                        | 146148   |
|     | 1   | RADIATION SHIELD WELDMENT, 30 GALLON (not shown)         | 146116   |
|     | 1   | RADIATION SHIELD WELDMENT, 40 GALLON (not shown)         | 144833   |

## Electrical Control Components-Gas Parts List



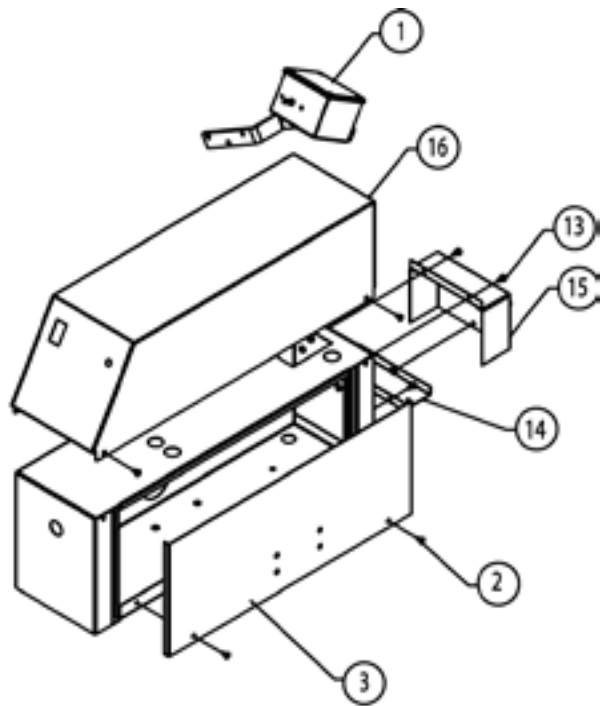
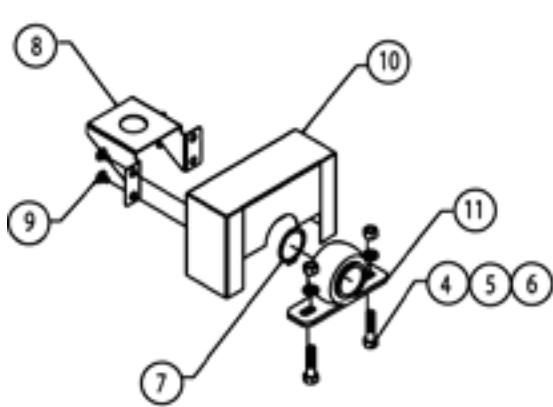
144965 Rev B



## Electrical Control Components-Gas Parts List

|    |      | ELECTRICAL CONTROL COMPONENTS-GAS   |        |
|----|------|---|--------|
| 1  | 1    | FUSE HOLDER MAIN CONTROLS-ELECTRONIC IGNITION ONLY                                | 077854 |
| 2  | 1    | FUSE -24VAC CONTROL, 3A, TYPE AG-ELECTRONIC IGNITION ONLY                         | 077853 |
| 3  | 1    | SCREW, ROUND HEAD #8-32 X 1-1/4"-ELECTRONIC IGNITION ONLY                         | 005056 |
| 4  | 3    | SCREW, ROUND HEAD #6-32 X 3/8"  | 009697 |
| 5  | 4    | SCREW, HEX SLOTTED HD #8-32 X 3/8"-ELECTRONIC IGNITION ONLY                       | 006979 |
| 6  | 1    | TILT SWITCH BRACKET WELD ASSY.-ELECTRONIC IGNITION ONLY                           | 145689 |
| 7  | 1    | BARRIER INSULATION-ELECTRONIC IGNITION ONLY                                       | 003490 |
| 8  | 1    | TILT LIMIT SWITCH (HEAT CUT-OFF)-ELECTRONIC IGNITION ONLY                         | 002982 |
| 9  | 1    | POWER SWITCH WITH RED INDICATOR-ELECTRONIC IGNITION ONLY                          | 144857 |
| 10 | 1    | LIGHT, INDICATOR AMBER 24V AC-ELECTRONIC IGNITION ONLY                            | 116384 |
| 11 | 1    | LAMP GASKET-ELECTRONIC IGNITION ONLY  | 137434 |
| 12 | 2    | SCREW, ROUND HEAD #4-40 X 3/4"  | 003122 |
| 13 | 2    | NUT HEXAGON #4-40   | 003121 |
| 14 | 2    | WASHER, #6 INTERNAL TOOTH   | 013418 |
| 15 | 1    | GROUND LUG-ELECTRONIC IGNITION ONLY   | 119829 |
| 16 | 1    | TERMINAL BLOCK BOX BOTTOM-ELECTRONIC IGNITION ONLY                                | 146206 |
| 17 | 1    | TERMINAL BLOCK BOX-ELECTRONIC IGNITION ONLY                                       | 146205 |
| 18 | 6    | SCREW, HEX SLOTTED-ELECTRONIC IGNITION ONLY                                       | 069773 |
| 19 | 1    | TRANSFORMER [120/24 VAC, 20VA]-ELECTRONIC IGNITION ONLY                           | 137487 |
| 20 | 1    | TERMINAL BLOCK [2-POLE]-ELECTRONIC IGNITION ONLY                                  | 003887 |
| 21 | 1    | SWITCH SEAL-ELECTRONIC IGNITION ONLY  | 144963 |
| 22 | 3 FT | SLEEVING SIZE 7/16"-ELECTRONIC IGNITION ONLY (NOT SHOWN)                          | 003874 |
| 23 | 2    | ELBOW 90 DEG 3/8"-ELECTRONIC IGNITION ONLY (NOT SHOWN)                            | 004098 |
| 24 | 6 IN | CONDUIT FLEXIBLE (NOT SHOWN)  | 006940 |
| 25 | 3    | CONDUIT CLAMP 3/8"-ELECTRONIC IGNITION ONLY (NOT SHOWN)                           | 008224 |
| 26 | 1    | WIRE HARNESS,CONTROL LOW VOLTAGE BPM-30,40G-ELECTRONIC IGNITION ONLY (NOT SHOWN)  | 146191 |
| 27 | 1    | WIRING HARNESS POWER HIGH VOLTAGE BPM-30,40G-ELECTRONIC IGNITION ONLY (NOT SHOWN) | 144962 |
| 28 | 2    | NUT LOCK 1/2" (NOT SHOWN)   | 005487 |
| 29 | 2    | ELBOW 90 DEG 3/8"-ELECTRONIC IGNITION ONLY (NOT SHOWN)                            | 004098 |
| 30 | 6    | INSULATOR CONDUIT-ELECTRONIC IGNITION ONLY (NOT SHOWN)                            | 071934 |
| 32 | 1    | NUT, DOME #10-32 (NOT SHOWN)  | 128756 |
| 33 | 1    | SCREW, HEX HD CAP #10-32 X 1/2" (NOT SHOWN)                                       | 128757 |
| 34 | 1    | HIGH LIMIT THERMOSTAT (GAS) (NOT SHOWN)   | 013481 |
| 35 | 1    | SPARK IGNITION MODULE-ELECTRONIC IGNITION ONLY (NOT SHOWN)                        | 144150 |
| 36 | 1    | CONTROL THERMOSTAT (GAS), 100-450 (NOT SHOWN)                                     | 041700 |
| 37 | 1    | THERMOSTAT KNOB (NOT SHOWN)   | 128525 |
| 38 | 1    | THERMOSTAT GASKET (NOT SHOWN)   | 123585 |
| 39 | 1    | THERMOSTAT ADAPTER (NOT SHOWN)  | 107172 |
| 40 | 1    | ELECTRICAL PANEL COVER ASSEMBLY-ELECTRONIC IGNITION ONLY-MANUAL TILT              | 146129 |
| 40 | 1    | ELECTRICAL PANEL COVER ASSEMBLY-ELECTRONIC IGNITION ONLY -POWER TILT (NOT SHOWN)  | 146127 |
| 40 | 1    | ELECTRICAL PANEL COVER ASSEMBLY-STANDING PILOT ONLY (NOT SHOWN)                   | 146375 |
| 41 | 1    | TILT LIMIT SWITCH (HEAT CUT-OFF)-STANDING PILOT ONLY (NOT SHOWN)                  | 146373 |
| 42 | 1    | WIRING HARNESS-STANDING PILOT ONLY (NOT SHOWN)                                    | 146519 |
| 43 | 1    | GAS CONTROL VALVE-ELECTRONIC IGNITION-NATURAL GAS (NOT SHOWN)                     | 098443 |
| 43 | 1    | GAS CONTROL VALVE-ELECTRONIC IGNITION-PROPANE (NOT SHOWN)                         | 098444 |
| 43 | 1    | GAS CONTROL VALVE-STANDING PILOT-NATURAL GAS (NOT SHOWN)                          | 002648 |
| 43 | 1    | GAS CONTROL VALVE-STANDING PILOT-PROPANE (NOT SHOWN)                              | 002649 |

Trunnion Cover Parts List

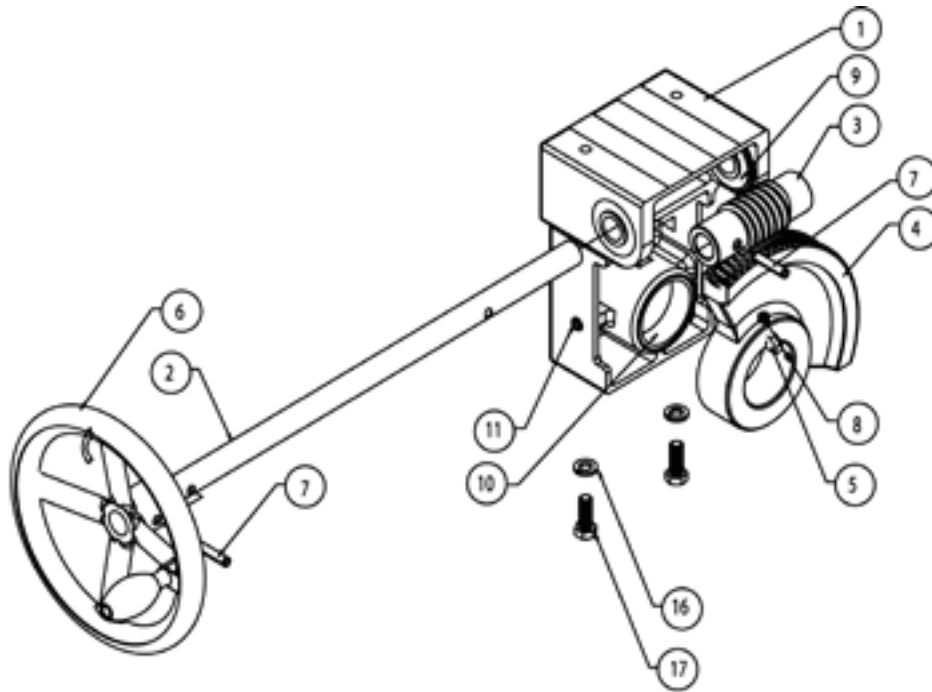


144346

## Trunnion Cover Parts List

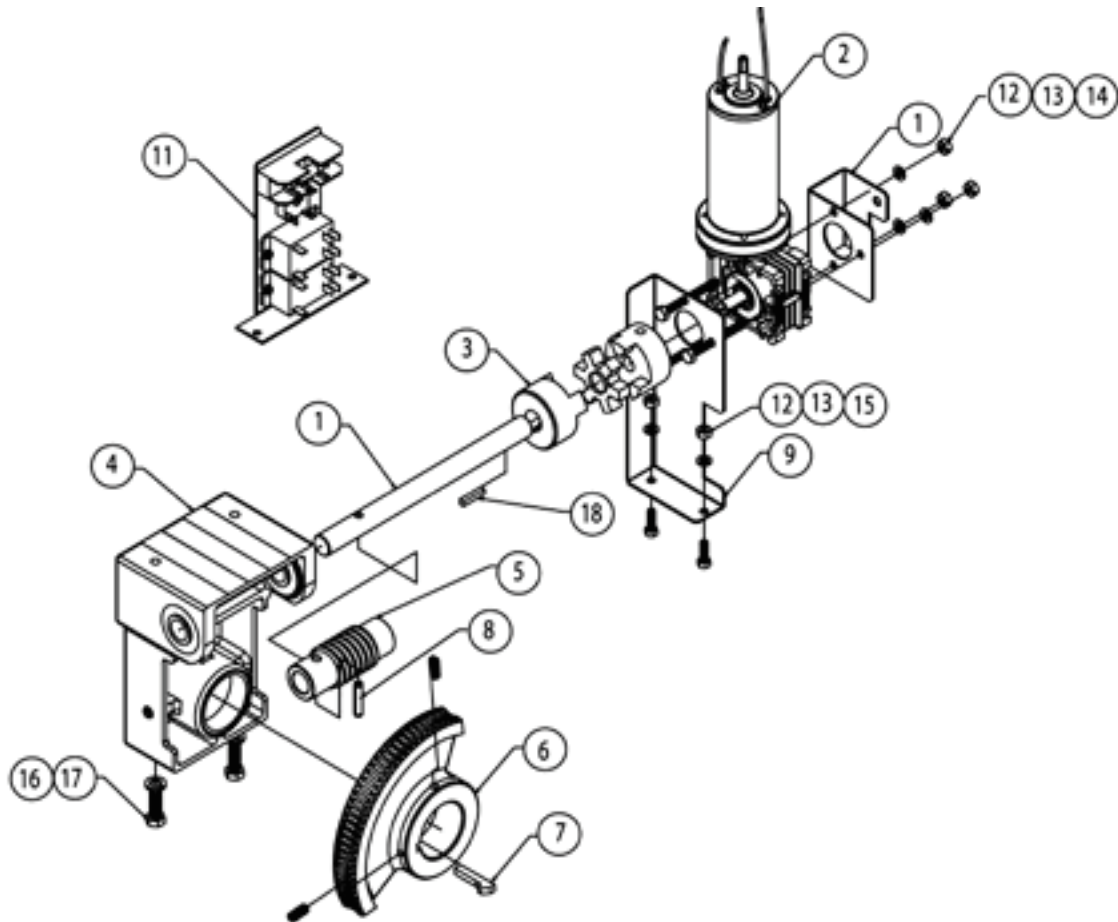
|     |       | TRUNNION COVERS                                |                                |                               |                                |
|-----|-------|--|--------------------------------|-------------------------------|--------------------------------|
| KEY | QTY   |  | GAS                            |                               |                                |
|     |       |  | MANUAL TILT<br>ELECT. IGNITION | POWER TILT<br>ELECT. IGNITION | MANUAL TILT,<br>STANDING PILOT |
| 1   | 1     | THERMOSTAT BOX ASSEMBLY                        | 146131                         | 146131                        | 146131                         |
| 1a  | 4     | WASHER LOCK 1/4                                | 005655                         | 005655                        | 005655                         |
| 1b  | 1     | THERMOSTAT BOX SHELL                           | 146132                         | 146132                        | 146132                         |
| 1c  | 1     | COVER, CONTROL CONSOLE<br>SHELL,               | 146147                         | 146147                        | 146147                         |
| 1d  | 1     | BRACKET, THERMOSTAT BOX                        | 146130                         | 146130                        | 146130                         |
| 1e  | 5     | NUT DOME HIGH PROFILE - 1/4-20                 | 090567                         | 090567                        | 090567                         |
| 1f  | 14 IN | CONDUIT SEALTITE 3/8                           | 054306                         | 054306                        | 054306                         |
| 1g  | 1     | CONNECTOR 3/8 NPT 45                           | 001696                         | 001696                        | 001696                         |
| 1h  | 1     | BOOT,RUBBER CAP FOR 3/8                        | 132044                         | 132044                        | 132044                         |
| 1i  | 24 IN | CONDUIT SEALTITE 3/8                           | 054306                         | 054306                        | 054306                         |
| 1j  | 1     | CONNECTOR 3/8 NPT 45                           | 001696                         | 001696                        | 001696                         |
| 1k  | 1     | CONNECTOR 90 DEG. ELBOW                        | 001695                         | 001695                        | 001695                         |
| 2   | 6     | SCREW TRUSS HEAD                               | 005764                         | 005764                        | 005764                         |
| 3   | 1     | RIGHT TRUNNION SIDE PANEL                      | 145688                         | 145688                        | 145688                         |
| 4   | 2     | NUT HEX  | 005619                         | 005619                        | 005619                         |
| 5   | 2     | WASHER LOCK                                    | 005618                         | 005618                        | 005618                         |
| 6   | 2     | SCREW HEX HEAD CAP                             | 005615                         | 005615                        | 005615                         |
| 7   | 1     | RETAINING RING                                 | 124764                         | 124764                        | 124764                         |
| 8   | 1     | FAUCET BRACKET                                 | 137738                         | 137738                        | 137738                         |
| 9   | 4     | SCREW, 1/4-20 x 3/8" TRUSS                     | 125609                         | 125609                        | 125609                         |
| 10  | 1     | PILLOW BLOCK BOX                               | 144314                         | 144314                        | 144314                         |
| 11  | 1     | PILLOW BLOCK                                   | 002989                         | 002989                        | 002989                         |
| 13  | 5     | SCREW-HEX SLOTTED                              | 069773                         | 069773                        | 069773                         |
| 14  | 1     | TERMINAL BLOCK BOTTOM                          | 146206                         | 146206                        | N/A                            |
| 15  | 1     | TERMINAL BLOCK BOX                             | 146205                         | 146205                        | N/A                            |
| 16  | 1     | ELECTRICAL PANEL COVER ASSY                    | 146129                         | 146127                        | 146375                         |
|     | 1     | PANEL REAR HEAT SHIELD, BPM-30G<br>(not shown) | 150621                         | 150621                        | 150621                         |
|     | 1     | PANEL REAR HEAT SHIELD, BPM-40G<br>(not shown) | 150622                         | 150622                        | 150622                         |
|     | 64 IN | COVER GASKET (not shown)                       | 145662                         | 145662                        | 145662                         |

## Manual Tilt Assembly Parts List



| MANUAL TILT ASSEMBLY |     |                               |          |
|----------------------|-----|-------------------------------|----------|
| KEY                  | QTY |                               | PART NO. |
| 1                    | 1   | GEAR CARRIER                  | 002624   |
| 2                    | 1   | SHAFT, HANDWHEEL              | 144834   |
| 3                    | 1   | GEAR, WORM                    | 128001   |
| 4                    | 1   | GEAR SECTOR                   | 009829   |
| 5                    | 1   | KEY GIB                       | 012031   |
| 6                    | 1   | HANDWHEEL ASSY, D-ALL         | 139152   |
| 7                    | 2   | PIN ROLL                      | 012614   |
| 8                    | 2   | SCREW SET SOCKET              | 012060   |
| 9                    | 2   | BEARING ROLLER                | 002790   |
| 10                   | 2   | BEARING SLEEVE                | 137239   |
| 11                   | 1   | PLUG PIPE                     | 010286   |
| 14                   | 1   | FITTING GREASE 90 (NOT SHOWN) | 012195   |
| 15                   | 1   | BUSHING SNAP (NOT SHOWN)      | 000453   |
| 16                   | 2   | WASHER LOCK                   | 005618   |
| 17                   | 2   | SCREW HEX HEAD CAP            | 005612   |

## Power Tilt Components-Gas-Electronic Ignition Parts List



## Power Tilt Components-Gas-Electronic Ignition Parts List

| KEY | QTY | POWER TILT COMPONENTS-GAS-ELECTRONIC<br>IGNITION ONLY | Part No. |
|-----|-----|---|----------|
| 1   | 1   | ELECTRIC TILT SHAFT                                   | 144791   |
| 2   | 1   | POWER LIFT MOTOR [115 VDC]                            | 144792   |
| 3   | 1   | SHAFT COUPLING  | 144615   |
| 4   | 1   | GEAR CARRIER ASSEMBLY                                 | 137880   |
| 4a  | 1   | CARRIER GEAR  | 002624   |
| 4b  | 2   | BEARING ROLLER  | 002790   |
| 4c  | 2   | BEARING SLEEVE  | 137239   |
| 4d  | 1   | PLUG PIPE   | 010286   |
| 4e  | 1   | FITTING GREASE 90                                     | 012195   |
| 5   | 1   | GEAR, WORM  | 128001   |
| 6   | 1   | GEAR SECTOR   | 009829   |
| 6a  | 2   | SCREW SET SOCKET                                      | 012060   |
| 7   | 1   | KEY GIB   | 012031   |
| 8   | 1   | PIN ROLL  | 012614   |
| 9   | 1   | MOTOR BRACKET   | 146114   |
| 10  | 1   | REAR MOTOR BRACKET                                    | 146117   |
| 11a | 1   | FUSE HOLDER [MOTOR]                                   | 077840   |
| 11b | 1   | FUSE [MOTOR, LP-CC-5]                                 | 144855   |
| 11c | 1   | RECTIFIER   | 145660   |
| 11d | 2   | RELAY [24VAC, DPST, N0]-2 REQ'D                       | 119814   |
| 12  | 5   | NUT HEX HEAD 1/4"-20                                  | 005601   |
| 13  | 5   | WASHER LOCK 1/4"                                      | 005655   |
| 14  | 3   | SCREW HEX HEAD CAP 1/4"-20 X 2-1/2" LONG              | 052584   |
| 15  | 2   | SCREW HEX HEAD CAP                                    | 005609   |
| 16  | 2   | WASHER LOCK 3/8"                                      | 005618   |
| 17  | 2   | SCREW HEX HEAD CAP 3/8"-16 X 1" LONG                  | 005612   |
| 18  | 1   | ELECTRIC TILT SHAFT KEY                               | 013386   |
|     | 1   | HOLE PLUG-1" (NOT SHOWN)                              | 146369   |
|     | 1   | MANUAL OVERRIDE CRANK (NOT SHOWN)                     | 145659   |
|     | 1   | POWER SWITCH W/O INDICATOR (NOT SHOWN)                | 144858   |
|     | 2   | TILT LIMIT SWITCH (POWER TILT UP/DN ) (NOT SHOWN)     | 002982   |
|     | 1   | WIRE HARNESS,LOW VOLTAGE (NOT SHOWN)                  | 146197   |
|     | 1   | WIRE HARNESS-HIGH VOLTAGE (NOT SHOWN)                 | 144973   |

## Parts List - Fuel Gas Conversion

(For conversion of a natural gas unit to propane or a propane model to natural gas)

### BPM,BPP WITH ELECTRONIC IGNITION

### BPM-30GS,40GS WITH STANDING PILOT

| DESCRIPTION                        | QTY | NAT GAS | LP GAS | DESCRIPTION                                  | QTY | NAT GAS | LP GAS |
|------------------------------------|-----|---------|--------|--|-----|---------|--------|
| Pilot Orifice                      | 1   | 119449  | 098647 | Pilot Burner                                 | 1   | 137511  | 123689 |
| Burner Orifice                     | %   | 128158  | 146148 | Burner Orifice                               | %   | 128158  | 146148 |
| Ignition Tube Orifice<br>40 Gallon | 1   | 101665  | 101623 | Ignition Tube Orifice Size<br>40 Gallon Unit | 1   | 101665  | 101623 |
| Ignition Tube Orifice<br>30 Gallon | 1   | 101623  | 101625 | Ignition Tube Orifice Size<br>30 Gallon Unit | 1   | 101623  | 101625 |
| Gas Valve                          | 1   | 098443  | 098444 | Gas Valve                                    | 1   | 002648  | 002649 |

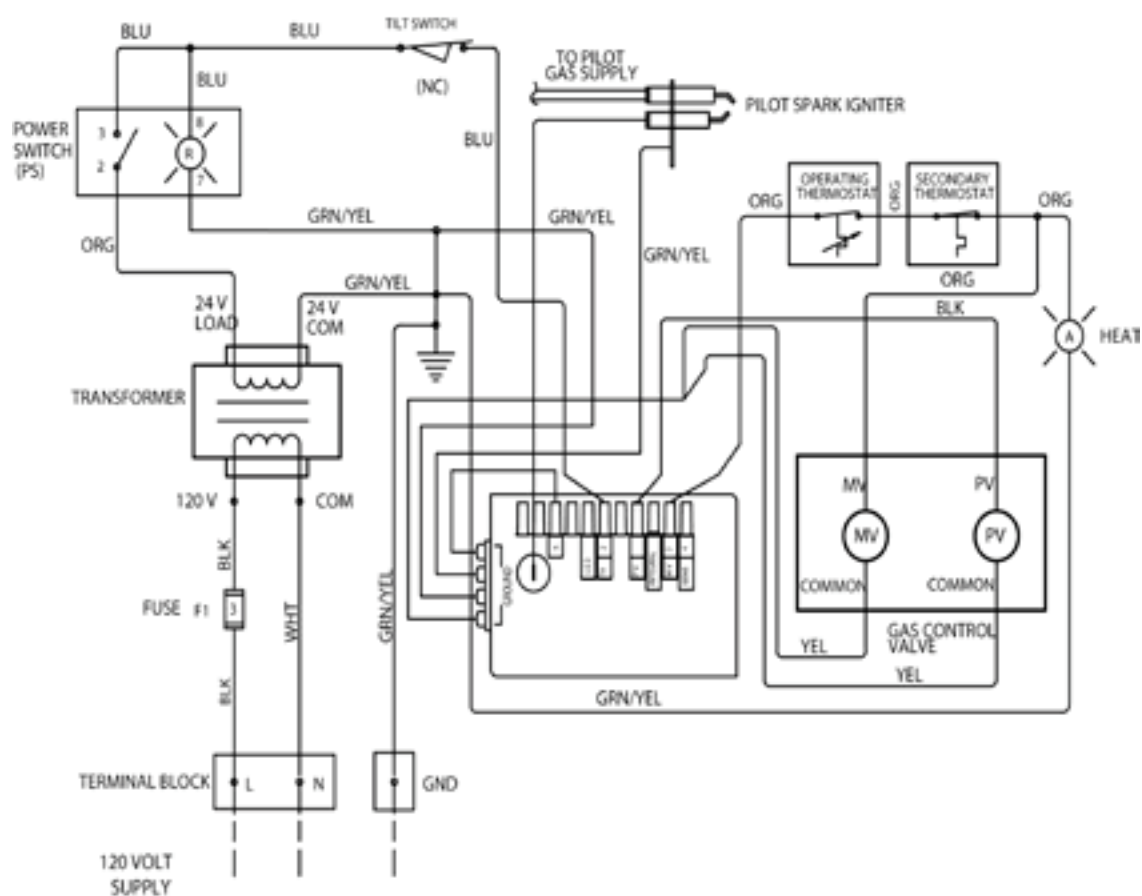
### \*Burner Orifice “Quantity” Chart

| Model      | 30 Gallon | 40 Gallon |
|------------|-----------|-----------|
| BPM or BPP | 11        | 15        |



## Schematics

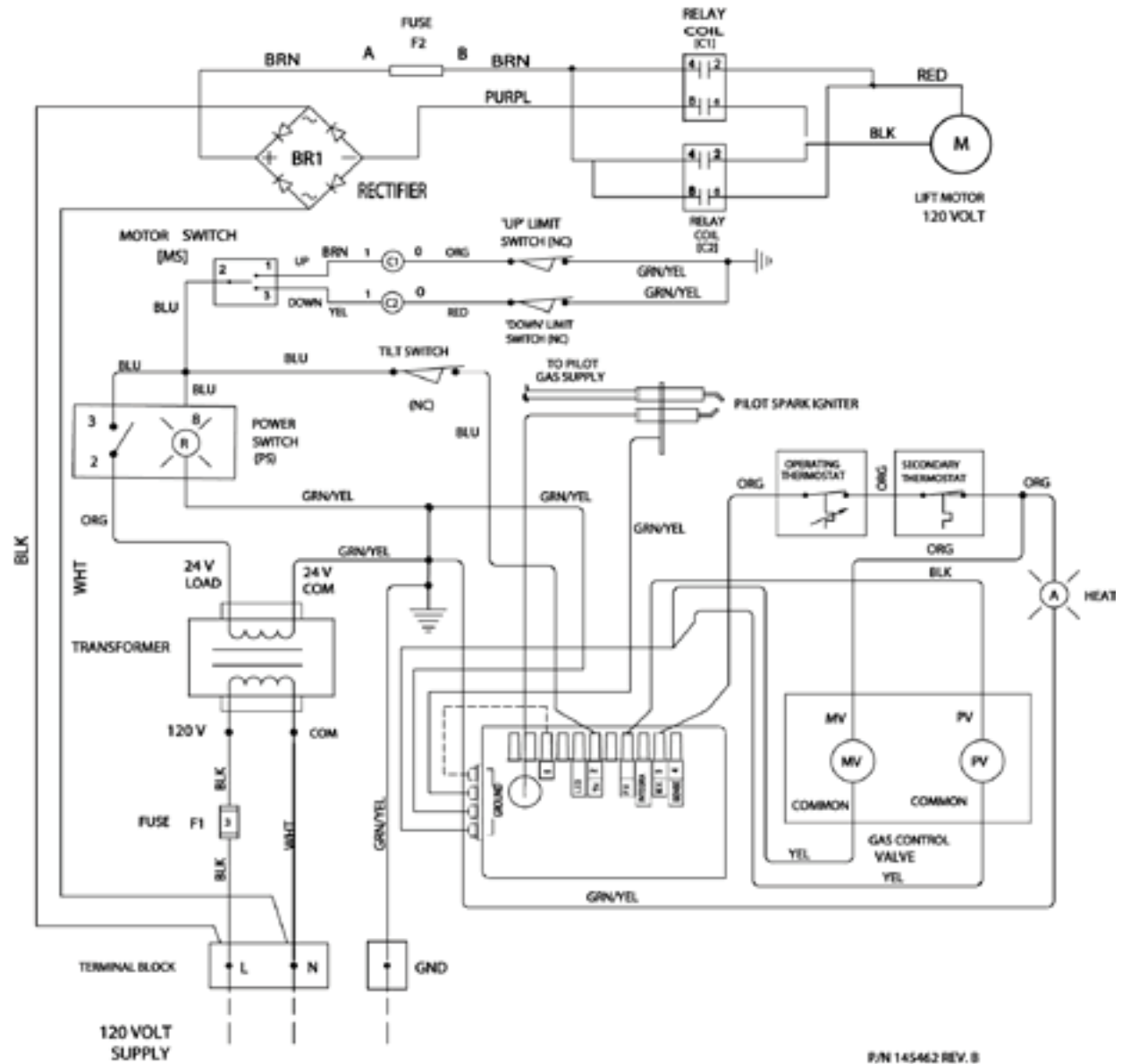
### Electronic Ignition System -Manual Tilt



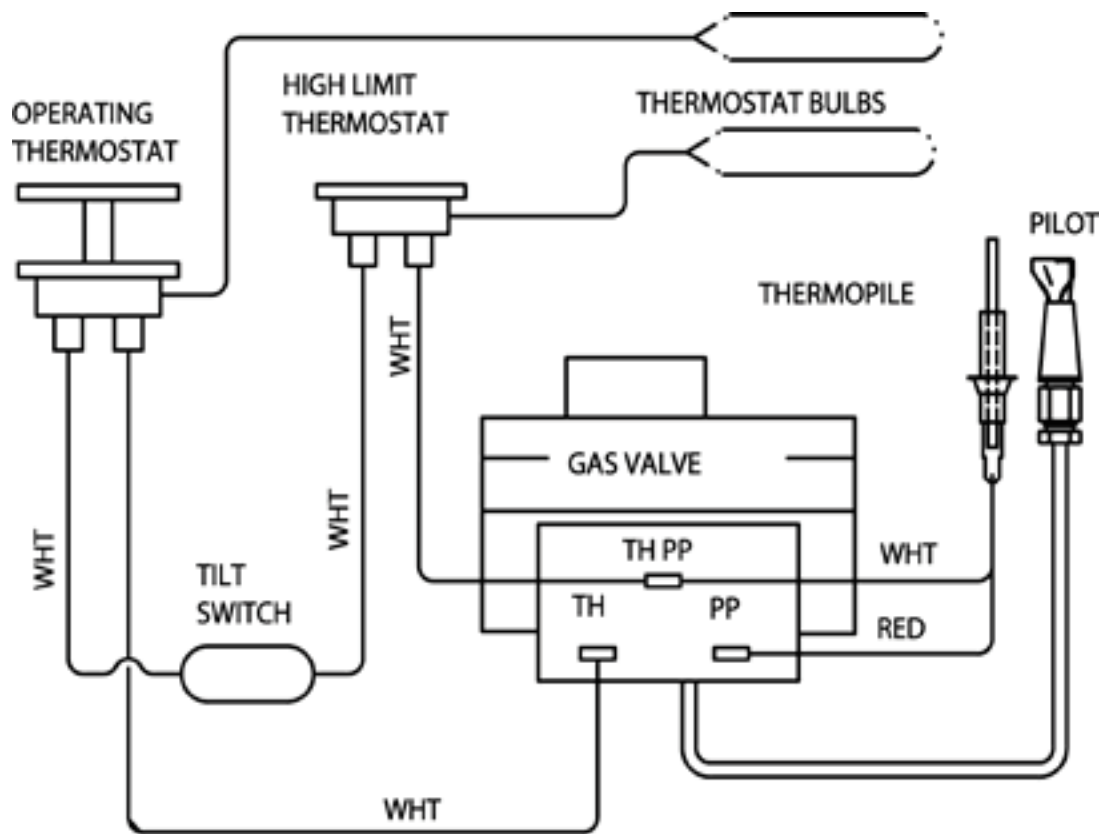
P/N 145343 REV. B

## Schematics

### Electronic Ignition System - Power Tilt



## Diagrams and Schematics Standing Pilot Ignition System



P/N 065140 DWG B-9021-31 REV A

Service Log

Model No. \_\_\_\_\_

Purchased From \_\_\_\_\_

Serial No. \_\_\_\_\_

Location \_\_\_\_\_

Date Purchased \_\_\_\_\_

Date Installed \_\_\_\_\_

Purchase Order No. \_\_\_\_\_

For Service Call \_\_\_\_\_

| Date | Maintenance Performed | Performed by |
|------|-----------------------|--------------|
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|      |                       |              |
|      |                       |              |

## References

Canadian Standards Association  
8501 East Pleasant Valley Rd.  
Cleveland, Ohio 44131

Z83-11 Gas FoodService Equipment  
Z223.1 *National Fuel Gas Code*

American National Standards Institute  
1403 Broadway  
New York, New York 10018

Canadian Gas Association  
55 Scarsdale Road  
Don Mills, Ontario M3B 2 R3

National Fire Protection Association  
60 Battery March Park  
Quincy, Massachusetts 02269

*NFPA/54 Installation of Gas Appliances &  
Gas Piping*  
*NFPA/70 The National Electrical Code*  
*NFPA/96 Ventilating Hoods*

NSF International  
789 N. Dixboro Rd.  
P.O. Box 130140  
Ann Arbor, Michigan 48113-0140

Underwriters Laboratories, Inc.  
333 Pfingsten Road  
Northbrook, Illinois 60062

LIMITED WARRANTY TO  
**COMMERCIAL PURCHASE\***  
(U.S. & Canadian Sales Only.)

Groen® warrants to original commercial purchaser/users that foodservice equipment manufactured by Groen® ( Groen® Equipment ) other than CapKold® foodservice equipment, shall be free from defects in material and workmanship for twelve (12) months from the date of installation or fifteen (15) months from date of shipment from Groen®, whichever date first occurs (the "Warranty Period"), in accordance with the following terms and conditions:

**I.** This warranty is limited to replacement parts and related labor for Groen® Equipment located at its original place of installation in the United States and Canada.

**II.** Damage to Groen® Equipment that occurs during shipment must be reported to the carrier and is not covered under this warranty. The reporting of any damage during shipment is the sole responsibility of the commercial purchaser/user of such Groen® Equipment.

**III.** For Groen® Convection Combo™ Steamer-Ovens, HyPerSteam™ Convection Steamers and HyPlus™ Pressureless Steamers, Groen® further warrants to the original commercial purchaser/users of such Groen® Equipment that the atmospheric steam generators or boilers contained in such Groen® Equipment shall be free from defects in material and workmanship for twenty-four (24) months from the date of installation or twenty-seven (27) months from date of shipment from Groen®, whichever date first occurs, provided that: (a) the original purchaser/user shall have also purchased and installed a Groen® PureSteam Water Treatment System™ for use in connection with such Groen® Convection Combo™ Steamer-Oven, HyPerSteam™ Convection Steamer or HyPlus™ Pressureless Steamer on or before the date such Groen® Equipment was installed, (b) the original purchaser/user has continuously used such Water Treatment System in connection with such Groen® Equipment from the date of installation, and (c) the commercial purchaser/user shall have maintained such Water Treatment System in accordance with the maintenance and filter cartridge replacement recommendations of Groen®, and otherwise maintained such Oven or Steamer in accordance with all other operational and maintenance recommendations of Groen®.

**IV.** For Groen® SmartSteam™ Boilerless Steamers and Vortex® Connectionless Steamers, Groen® further warrants to the original commercial purchaser/users of SmartSteam™ Boilerless Steamers and Vortex® Connectionless Steamers shall be free from defects in material and workmanship for twenty-four (24) months from the date of installation or twenty-seven (27) months from the date of shipment from Groen®, whichever date first occurs. This warrants Groen® Vortex® Connectionless Steamers that were shipped after March 15, 2003 and SmartSteam™ Boilerless Steamers that were shipped after May1, 2003.

**V.** Groen® further warrants to the original commercial purchaser/users of Groen® Convection Combo™ Steamer-Ovens that the electronic relay and control board contained in such Groen® Convection Combo™ Steamer-Oven shall be free from defects in material and workmanship for twenty-four (24) months from the date of installation or twenty-seven (27) months from date of shipment from Groen®, whichever date first occurs.

**VI.** During the Warranty Period, Groen®, directly or through its authorized service representative, will either repair or replace, at Groen's sole election, any Groen® Equipment determined by Groen® to have a defect in material or workmanship. As to any such warranty service during the Warranty Period, Groen® will be responsible for related reasonable labor and portal to portal transportation expenses (time & mileage) incurred within the United States and Canada.

**VII.** This warranty does not cover boiler maintenance, calibration, periodic adjustments as specified in operating instructions or manuals, consumable parts (such as scraper blades, gaskets, packing, etc.), and labor costs incurred for removal of adjacent equipment or objects to gain access to Groen® Equipment. This warranty does not cover defects caused by improper installation, abuse, careless operation, or improper maintenance of Groen® Equipment. This warranty does not cover damage to Groen® Equipment caused by poor water quality or improper boiler maintenance.

**VIII.** THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EACH OF WHICH IS HEREBY EXPRESSLY DISCLAIMED. THE REMEDIES DESCRIBED ABOVE ARE EXCLUSIVE AND IN NO EVENT SHALL GROEN® BE LIABLE FOR SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES FOR THE BREACH OR DELAY IN PERFORMANCE OF THIS WARRANTY.

**IX.** Groen® Equipment is for commercial use only. If sold as a component of another (O.E.M.) manufacturer's equipment, or if used as a consumer product, such Equipment is sold AS IS and without any warranty.

**\*Covers Groen® Equipment (other than CapKold® foodservice equipment, SmartSteam™ Boilerless Steamers and Vortex® Connectionless Steamers) ordered after September 11, 2001.**

## **GROEN® LIMITED EXTENDED WARRANTY COVERAGE\*** **(U.S. & Canadian Sales Only)**

Limited Extended Warranty Coverage is available on all standard Groen® Equipment (other than CapKold® foodservice equipment) covered by the above Groen® Limited Warranty. Commercial purchasers/users of Groen® Equipment may elect to extend the standard limited warranty to cover parts, labor and portal to portal transportation costs (time and mileage) for an additional twelve (12) or twenty four (24) month period, in addition to the time period of the standard limited warranty described above. Limited Extended Warranty Coverage is not available to extend the supplemental limited warranty for:

(a) atmospheric steam generators or boilers contained in Groen® Convection Combo™ Steamer-Ovens, HyPerSteam™ Convection Steamers and HyPlus™ Pressureless Steamers, or (b) electronic relay and control boards contained in Groen® Convection Combo™ Steamer-Ovens, or (c) Groen® SmartSteam™ Boilerless Steamers, or (d) Vortex® Connectionless Steamers.

### **Cost of Extended Coverage**

Five percent (5.0%) of the LIST PRICE of the Groen® Equipment to be covered by the Limited Extended Warranty for each additional twelve (12) months of limited extended warranty coverage. The five percent (5.0%) of the LIST PRICE charge will be the net invoice amount for each year of Limited Extended Warranty Coverage purchased.

### **Conditions of Coverage**

(1) Limited Extended Warranty Coverage must be purchased at the time the Groen® Equipment to be covered is purchased.

(2) All conditions and limitations on the Standard Limited Warranty Coverage apply to the Limited Extended Warranty Coverage. See above for details of conditions and limitations on the Standard Warranty Coverage.

**\*Covers Groen® Equipment (other than CapKold® foodservice equipment, SmartSteam™ Boilerless Steamers and Vortex® Connectionless Steamers) ordered after September 11, 2001.**



## NOTES

## NOTES



1055 Mendell Davis Drive • Jackson MS 39272  
888-994-7636 • 601-372-3903 • Fax 888-864-7636  
[groen.com](http://groen.com)