



OPERATOR MANUAL

IMPORTANT INFORMATION, KEEP FOR OPERATOR

888-994-7636, fax 888-864-7636
groen.com

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

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

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. Groen 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.

This manual provides information for:

ERGONOMIC TILTING BRAISING PAN MODELS BPM-15/30/40G(C,A) (CE) INTERNATIONAL



REFERENCES

CANADIAN STANDARDS ASSOCIATION
8501 East Pleasant Valley Road
Cleveland, Ohio 44131

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

Z83-11 - Gas Foodservice Equipment
Z223.1 - National Fuel Gas Code
NFPA/54 - Installation of Gas Appliances
& Gas Piping
NFPA/70 - The National Electrical Code
NFPA/96 - Ventilating Hoods

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

EQUIPMENT DESCRIPTION

Groen gas-heated Tilting Braising Pans provide a stainless steel pan equipped with patented heat transfer fins, burner/combustion chamber, hand-operated tilting mechanism, electronic ignition, electronic controls, and hinged cover. The appliance serves as braising pan, griddle, fry pan, oven, kettle, bainmarie 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. To assist cleaning, the pan body can be tilted past the vertical position. When the pan is tilted, the burners shut off automatically.

The electronic control provides automatic control of cooking temperature. Operating the temperature dial on the front of the control console sets the pan temperature.

A 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.

Model	PAN DIMENSIONS			Ignition	Tilt
	Left to Right	Front to Rear	Depth		
BPM-15G/GC/GA	18-1/8" (460mm)	28-1/4" (718mm)	8" (203mm)	Elec. Spark	Manual
BPM-15GS	18-1/8" (460mm)	28-1/4" (718mm)	8" (203mm)	Standing Pilot	Manual
BPM-30G/GC/GA	26-1/4" (667mm)	28-1/4" (718mm)	10" (254mm)	Elec. Spark	Manual
BPM-30GS	26-1/4" (667mm)	28-1/4" (718mm)	10" (254mm)	Standing Pilot	Manual
BPM-40G/GC/GA	35-3/4" (908mm)	28-1/4" (718mm)	10" (254mm)	Elec. Spark	Manual
BPM-40GS	35-3/4" (908mm)	28-1/4" (718mm)	10" (254mm)	Standing Pilot	Manual



Information contained in this document is known to be current and accurate at the time of printing/creation. Reference our product line website for the most updated product information and specifications. © 2025 Electrolux Professional, Inc. All Rights Reserved.

IMPORTANT - READ FIRST - IMPORTANT

IMPORTANT: THESE APPLIANCES MUST BE INSTALLED BY A COMPETENT PERSON IN CONFORMITY WITH THE INSTALLATION AND SERVICING INSTRUCTIONS AND NATIONAL REGULATIONS IN FORCE AT THE TIME. PARTICULAR ATTENTION MUST BE PAID TO THE FOLLOWING (CE):

I. E. E. REGULATIONS FOR ELECTRICAL INSTALLATIONS

ELECTRICITY AT WORK REGULATIONS

GAS SAFETY (INSTALLATION & USE REGULATIONS

HEALTH AND SAFETY AT WORK ACT

FIRE PRECAUTIONS ACT

LOCAL AND NATIONAL BUILDING REGULATIONS

DETAILED RECOMMENDATIONS ARE CONTAINED IN INSTITUTE OF GAS ENGINEERS PUBLISHED DOCUMENTS: IGE/UP/1, IGE/UP/2, BS6173 AND BS5440 (CE).

THESE APPLIANCES HAVE BEEN CE-MARKED ON THE BASIS OF COMPLIANCE WITH THE GAS APPLIANCE DIRECTIVE, EMC AND LOW VOLTAGE DIRECTIVE FOR THE COUNTRIES, GAS TYPES AND PRESSURES AS STATED ON THE DATA PLATE.

WARNING: TO PREVENT SHOCKS, ALL APPLIANCES WHETHER GAS OR ELECTRIC, MUST BE EARTHED.

ON COMPLETION OF THE INSTALLATION, THESE INSTRUCTIONS SHOULD BE LEFT WITH THE ENGINEER-IN-CHARGE FOR REFERENCE DURING SERVICING. FURTHER TO THIS, THE USERS INSTRUCTIONS SHOULD BE HANDED TO THE USERS AND THE INSTALLER SHOULD INSTRUCT THE RESPONSIBLE PERSON(S) IN THE CORRECT OPERATION AND MAINTENANCE OF THE APPLIANCE. EMPHASIS SHOULD BE MADE WITH REGARD TO SAFE OPERATION OF DRAIN VALVE.

IT IS MOST IMPORTANT THAT THESE INSTRUCTIONS BE CONSULTED BEFORE INSTALLING AND COMMISSIONING THE APPLIANCE. FAILURE TO COMPLY WITH THE SPECIFIED PROCEDURES MAY RESULT IN DAMAGE OR THE NEED FOR A SERVICE CALL.

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

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: THE BRAISING PAN IS NOT INTENDED FOR USE AS A DEEP-FAT FRYER. SHALLOW-FRYING IS PERMISSIBLE AS LONG AS THE OIL LEVEL DOES NOT EXCEED THE HEIGHT MARK ON THE LOWER REAR WALL (2", 50MM MAXIMUM). SEE THE USER INSTRUCTIONS SECTION FOR SPECIFIC DETAILS.

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 (149°C).

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 OR STEAM DIRECTLY ON THE CONTROL CONSOLE, ELECTRICAL CONNECTIONS AND BURNERS.

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. FAILURE TO DISCONNECT COULD RESULT IN ELECTROCUTION AND DEATH.

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 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.

IMPORTANT: THIS APPLIANCE IS MARKED "CE" ON THE BASIS OF COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVE.

WARNING: THIS UNIT IS INTENDED FOR USE IN THE COMMERCIAL HEATING, COOKING AND HOLDING OF WATER AND FOOD PRODUCTS, PER THE INSTRUCTIONS CONTAINED IN THIS MANUAL. THIS EQUIPMENT IS NOT FOR CONTINUOUS MASS PRODUCTION OF FOOD PRODUCTS OR ANY OTHER USE COULD RESULT IN SERIOUS PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT AND WILL VOID WARRANTY.

WARNING: WHEN OPENING TANGENT DRAW-OFF (TDO) VALVE FOR PRODUCT TRANSFER:

1) USE CONTAINER DEEP ENOUGH TO CONTAIN AND MINIMIZE PRODUCT SPLASHING.

2) PLACE CONTAINER ON STABLE, FLAT SURFACE, AS CLOSE TO UNIT AS POSSIBLE.

3) DO NOT OVER FILL CONTAINER. AVOID DIRECT SKIN CONTACT WITH HOT CONTAINER AND ITS CONTENTS.

CAUTION: THIS APPLIANCE CAN BE USED BY CHILDREN AGED FROM 8 YEARS AND ABOVE AND PERSONS WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPABILITIES OR LACK OF EXPERIENCE AND KNOWLEDGE IF THEY HAVE BEEN GIVEN SUPERVISION OR INSTRUCTION CONCERNING USE OF THE APPLIANCE IN A SAFE WAY AND UNDERSTAND THE HAZARDS INVOLVED.

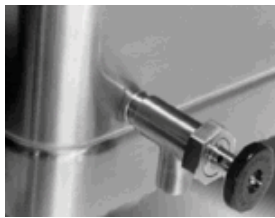
CAUTION: CHILDREN SUPERVISED ARE NOT TO PLAY WITH THIS APPLIANCE.

CAUTION: CLEANING AND USER MAINTENANCE SHALL NOT BE MADE BY CHILDREN WITHOUT SUPERVISION.

CAUTION: FOR APPLIANCES INTENDED FOR USE AT ALTITUDES EXCEEDING 2,000 M, THE MAXIMUM ALTITUDE WILL BE STATED OR MARKED ON APPLIANCE.

Optional equipment 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" (1219mm) or 60" (1524mm) spray hose assembly (left or right mounted) - specify single or double pantry
3. Caster mounting kit
4. Flanged Feet
5. 2" (50mm) Tangent draw-off (Factory-installed must be indicated on initial order)
6. Steamer Insert set
7. Steamer Pan Carrier
8. Quick gas disconnect with restraining cable
9. Pouring Lip Strainer
10. Strainer for 2" (50mm) TDO valve



PERFORMANCE DATA (CE)

Model	Natural Gas (G20) KW	Natural Gas BTU/HR	Propane (G31) KW	Propane BTU/HR
BPM-15G/GC/GA	16.3	55,700	16.3	55,700
BPM-30G/GC/GA	26.1	89,100	26.1	89,100
BPM-40G/GC/GA	36.1	123,300	36.1	123,300

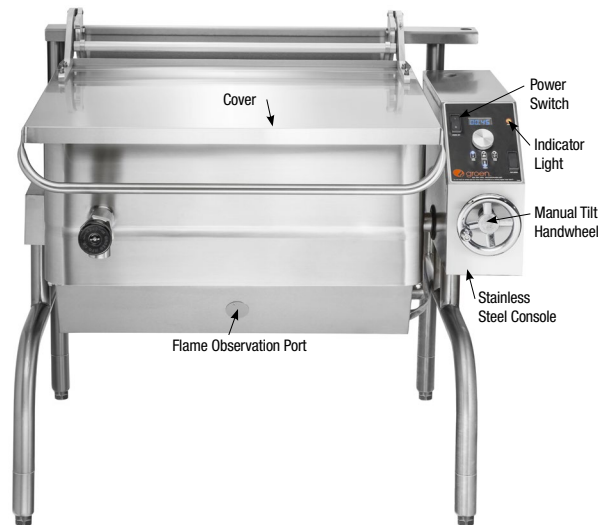
INSPECTION & UNPACKING

CAUTION: SHIPPING STRAPS ARE UNDER TENSION AND CAN SNAP BACK WHEN CUT.
CAUTION: UNIT WEIGHS 420 TO 560 LB (190 TO 255KG). 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 will arrive completely assembled, wrapped in protective plastic on a heavy skid, in a heavy wooden crate. Immediately upon receipt, inspect the crate 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 crate. Lift it straight up and away from the unit. 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.

The unit is strapped to a skid. Cut the straps holding the unit on the skid, and lift the unit straight up off the skid. (Shown is a model BPM-40GA with optional right side mounted, double pantry faucet assembly.)

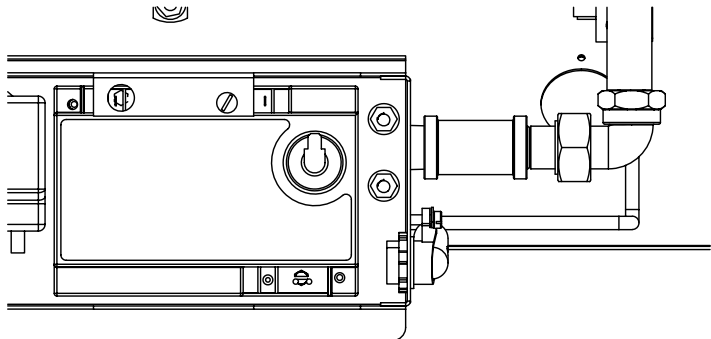


INSTALLATION

WARNING: THE UNIT MUST BE INSTALLED BY PERSONNEL WHO ARE QUALIFIED TO WORK WITH GAS, ELECTRICITY AND PLUMBING. IMPROPER INSTALLATION CAN CAUSE INJURY TO PERSONNEL AND/OR DAMAGE TO THE EQUIPMENT. THE UNIT MUST BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES. THE UNIT MUST BE INSTALLED BY A LICENSED PLUMBER OR GAS FITTER WHEN INSTALLED WITHIN THE COMMONWEALTH OF MASSACHUSETTS.

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.

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



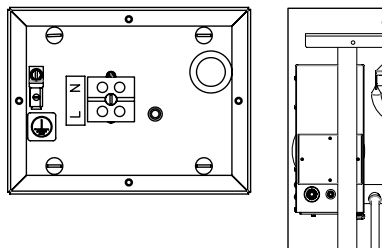
These appliances must be installed by a competent person in conformity with the installation and servicing instructions and national regulations in force at the time. Particular attention must be paid to the following:

- I. E.E. Regulations for Electrical Installations
- Electricity at Work Regulations
- Gas Safety (Installation & Use Regulations
- Health and Safety at Work Act
- Fire Precautions Act
- Local and National Building Regulations

WARNING: THIS APPLIANCE MUST BE EARTHED.

EQUIPMENT	Ventilation Rate Required	
	m³/min	ft³/min
Range, Unit Type	17	600
Pastry Oven	17	600
Fryer	26	900
Grill	17	600
Steak Grill	26	900
Boiling Pan	17	600
Steamer	17	600
Sterilizing Sink	14	500
Bain-Marie	11	400
Tea/Coffee Machine	8.5-14	300-500

Detailed recommendations are contained in institute of gas engineers published documents: IGE/UP/1, IGE/UP/2, BS6173 AND BS5440.



1. Installing Clearances

- Vertical clearance of at least 1000 mm should be allowed between the top edge of the flue outlet and any overlying surface.
- Adequate ventilation, whether natural or mechanically induced, must be provided to ensure a supply of fresh air for gas combustion, and to facilitate effective removal of the products of combustion.
- Ventilation recommendations for catering appliances are provided in BS 5440:2. Furthermore, guidance on the column of ventilation air required for different types of catering equipment to ensure sufficient room ventilation is provided at right.
- For multiple installations, the requirements for individual appliances should be added together. Installation should be made in accordance with local and national regulations applying at the time. A competent installer must be employed.
- The appliance flue discharges horizontally from the rear of the unit. It must not be directly connected to any flue, mechanical extraction system, ducting, etc., which leads to the outside of the building. The appliance is best discharged under an open canopy connected with a ventilating system.
- For a unit on casters, the installation shall be made with a connector that complies 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 anchor 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.
- The gas connection for a unit on casters must be made with a quick-disconnect device that complies with ANSI Z21.41 - CSA 6.9.

2. Gas Supply

Incoming service must be of sufficient size to supply full rate without excessive pressure drop. A gas meter is connected to the service pipe by the gas supplier.

Any existing meter should be checked by the supplier to ensure that the meter has the capacity for passing the required rate of gas for the braising pan in addition to any other gas equipment installed.

The appliance governor is incorporated in the gas control valve which is situated in the left control cabinet. The control valve governor is suitable for both natural and propane gases without conversion.

Installation pipework should be fitted in compliance with IEGE/UP/2. The pipework should not be smaller than the gas inlet connection (Rp $\frac{1}{2}$ [1/2" B.S.P.]). An isolating cock must be located close to the appliance to allow shut-down during emergencies or service. Installation must be tested for gas soundness and purged as specified in IGE/UP/1.

3. Electrical Supply

This unit is designed for connection to fixed wiring. A suitably rated isolating switch with contact separation of at least three millimeters on both poles, must be fitted to the installation. The wiring must be executed in accordance with the regulations listed inside the cover page of this manual supplement.

Power supply to this unit must be 120V, 1 Phase, 50/60hz with wiring suitable for an electronic load of 50 watts.

Cable entry is at the control box on the rear right side of the appliance. Access to the terminals is gained by removing terminal block cover.

4. Water Supply

Not applicable to these appliances except for optional faucets.

5. Gas System Performance

The tables shown here provide the total Gas Rates, Injector Diameters and Pressure Adjustments for model BPM-G (CE) using natural (G20) and propane (G31) gas sources.

Total Gas Rate

Model	Natural (G20) KW	Natural BTU/hr	Propane (G31) KW	Propane BTU/hr
BPM-15G	16.3	55,700	16.3	55,700
BPM-30G	26.1	89,100	26.1	89,100
BPM-40G	36.1	123,300	36.1	123,300

Injector Diameters - Natural & Propane Gas

Model	Natural Gas (G20) mm	Propane Gas (G31) mm	No. of Orifices (injectors)
BPM-15G	1.5	0.97	7
BPM-30G	1.5	0.97	11
BPM-40G	1.5	0.97	15

Gas Pressure Adjustment A pressure test point is fitted on the burner manifold and on the gas control valve.

Model		BPM-15G	BPM-30G	BPM-40G
Natural Gas (G20)	mbar	8.0	8.0	8.0
	in. WC	3.2	3.2	3.2
Propane Gas (G31)	mbar	19.4	19.4	19.4
	in. WC	7.8	7.8	7.8

NOTE: With reference to the gas rate, pressure adjustments and conversions, this appliance is CE-approved for use with the following gases:

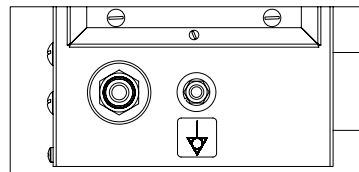
- Gas Category I2H, G20 natural gas may be supplied to the appliance in Austria, Denmark, Finland, Greece, Iceland, Italy, Luxembourg, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.
- Gas Category I3P, G31 propane gas may be supplied to the appliance in Germany, Ireland, the Netherlands, Portugal, Spain, Switzerland and the United Kingdom.

Use of the appliance with non-approved gases in a listed country, or use in other countries will void CE certification.

6. Burner Adjustment

The burner primary airflow may be adjusted by loosening the screw and sliding the aerator forward or backward. (See photographs below)

Gas is connected at the rear of the control console.



INITIAL START-UP

WARNING: THIS APPLIANCE MUST BE EARTHED.

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

CAUTION: ALWAYS RAISE PAN COVER BEFORE TILTING TO AVOID DAMAGING THE HINGE AND COUNTERBALANCE.

ELECTRICAL SUPPLY

Before commissioning the appliance, ensure that the electrical installation has been performed in compliance with relevant regulations. In the Installation section, see Domestic Model and CE Model instructions.

START-UP

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

- Remove literature and packing materials from the interior and exterior of the unit.

- Put enough water into the pan to cover the bottom to a depth of 1/4 to 1/2 inch (6 to 13 mm). 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.
- Verify that the rear heat shield is in place.
- Following “To Start Pan” instructions for your pan model, begin heating the water at a temperature setting of 235°F (113°C). At this setting, heating should continue until the water boils.
- To shut down the unit, switch the power switch to “OFF”.
- 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 power tilt 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 Engineer (CE).

SETTING THE GAS PRESSURE



- During commissioning, a gas pressure check is essential. Connect a suitable pressure gauge to the gas manifold to perform this test. The pressure gauge should be connected to the test nipple. See photograph above, left.
- Turn the gas and electricity mains on.
- Light the burners as described above.
- Manifold gas pressure should be as noted in the Installation section of this manual. If adjustment is necessary, follow steps 5 through 10, below.
- Remove the screws which secure the ignition module cover and remove the ignition module cover panel. See image above, center.
- Remove the governor cap screw on the gas control valve to gain access to the screw inside the turret. See image above, right.
- The governor is suitable for both natural and propane gas.
- Turn the screw inside the turret clockwise to increase the pressure, anti-clockwise to reduce it. Check the burner pressure again after 15 minutes operation, and adjust if necessary.
- Disconnect the pressure gauge from the test point. Reseal the test point and test for gas soundness.
- Replace governor cap screw, and replace control box panel and lid.

INSTALLER

DANGER: FLAMMABLE

WARNING: DO NOT OVERFILL WITH OIL OR FIRE MAY RESULT!

CAUTION: THE TEMPERATURE MUST NOT EXCEED 200°C OR THE HIGH LIMIT THERMOSTAT WILL TRIP.

IMPORTANT: THESE APPLIANCES MUST BE INSTALLED BY A COMPETENT PERSON IN CONFORMITY WITH THE INSTALLATION AND SERVICING INSTRUCTIONS AND NATIONAL REGULATIONS IN FORCE AT THE TIME. PARTICULAR ATTENTION MUST BE PAID TO THE FOLLOWING:

I. E. E. REGULATIONS FOR ELECTRICAL INSTALLATIONS

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DETAILED RECOMMENDATIONS ARE CONTAINED IN INSTITUTE OF GAS ENGINEERS PUBLISHED DOCUMENTS: IGE/UP/1, IGE/UP/2, BS6173 AND BS5440.

After installing and commissioning the appliance, the User's Instructions should be handed to the user or purchaser. Ensure that the instructions for lighting, turning off, correct use and cleaning are properly understood. Emphasize the location of the main gas isolating valve and demonstrate the emergency shut down procedure.

OPERATION

CAUTION: DO NOT HEAT AN EMPTY PAN FOR MORE THAN FIVE MINUTES AT A SETTING HIGHER THAN 300°F (149°C). DAMAGE TO THE PAN COULD RESULT.

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.

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



Classic Control

Advanced Control

OPERATOR CONTROLS

1. Classic Control (-GC) Models

- Lighted Power ON switch located on the control console. It controls main power to the unit.
- The temperature knob, located on the control console, is used to set the pan temperatures between 175° and 425°F (79° and 218°C).
- Heating indicator light is located on the control console, it illuminates when the controller calls for the main gas valve to open. If the unit is tilted, the call for heat will be interrupted and the light will turn off until the unit is returned to the cooking position.
- A handwheel controls the worm and gear mechanism that smoothly tilts the pan body and holds it in the desired position

2. Advanced Control (-GA) models

- Lighted Power ON switch located on the control console. It controls main power to the unit.
- Heating indicator light is located on the control console, it illuminates when the controller calls for the main gas valve to open. If the unit is tilted, the call for heat will be interrupted and the light will turn off until the unit is returned to the cooking position.
- SET TnnP Mode – Allows the pilot to light but the main burners remain off; unit will go into SET TnnP mode at start-up automatically and remain there until the user uses one of the LOW TEMP, MANUAL or HIGH TEMP buttons to specify the set temperature.
- LOW TEMP Button – Used to set operating temperature on of the pan at a preset low temperature (default = 175°F/79°C). Can be pressed at any point during operation of the unit to change the set temperature to the preset value except when there is an active TIMER enabled.
- MANUAL button – Enables the user modify the desired cooking temperature of the pan (between 175°F/79°C and 425°F/218°C) using the temperature knob and display (default = 212°F/100°C). The operator will press the MANUAL button and set the desired temperature using the temperature knob and display. Once the desired temperature is shown in the display, the user may either press the MANUAL button again or wait 5 seconds and the set temperature will be accepted by the control and locked in. After the set temperature is accepted, it may be changed at any

time by pressing the MANUAL button and resetting the temperature using the same process above.

- f. HIGH TEMP button – Used to set operating temperature of the pan at a preset high temperature (default = 425°F/218°C). Can be pressed at any point during operation of the unit to change the set temperature to the preset value except when there is an active TIMER enabled.
- g. TIMER button - once the appropriate set temperature is selected using the HIGH TEMP, MANUAL or LOW TEMP buttons; a countdown timer can be set to remind the user when the cooking process is completed.
 - 1. Range – 1 minute to 10 hours
 - 2. When the timer expires:
 - A. The set temperature will automatically change to the LOW TEMP setting and will continue at this setting until the user changes the temperature via MANUAL or HIGH TEMP buttons.
 - B. An audible alarm will notify the user that attention is required, the alarm will continue to sound until the user presses the TIMER button.
 - 3. An active TIMER can be cancelled by pressing and holding the TIMER button for 5 secs
 - 4. Set temp can be changed during an active timer by pressing the MANUAL button and adjusting the set temp using the Temperature knob and display
 - 5. HIGH TEMP and LOW TEMP presets cannot be used to change the setpoint once a TIMER has started.
- h. READY alarm – The control will sound 3 beeps when the unit has reached within 20 degrees of set point during pre-heat or when a higher set temperature is selected.
- i. A handwheel controls the worm and gear mechanism that smoothly tilts the pan body and holds it in the desired position

OPERATING PROCEDURE

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.

CAUTION: DO NOT HEAT AN EMPTY PAN FOR MORE THAN FIVE MINUTES AT A SETTING HIGHER THAN 300°F (149°C). DAMAGE TO THE PAN COULD RESULT.

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

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



1. To Tilt Pan Body

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.

2. For Classic Control (-GC) Models with Electronic Ignition

- a. To Start Pan (See Panel Overlay) -
 1. Set the Power Switch to “OFF.”
 2. Set the temperature dial to “OFF.”
 3. Open the main supply gas valve (handle parallel to the gas pipe).
 4. Set Power Switch to “ON,” unit will begin to spark.
 5. Rotate the temperature dial until the Heat Light comes on. (It lights when the main burner is on).
- b. To Turn Off Pan -
 1. Set the temperature dial to “OFF”.
 2. Set Power Switch to “OFF.”
 3. For a prolonged shut-off period:
 - A. Turn the main gas valve OFF (handle at right angles to the gas pipe).
 - B. 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 Advanced Control (-GA) Models with Electronic Ignition

- a. To Start Pan (See Panel Overlay) -
 1. Set the Power switch to “OFF”
 2. Open the main supply gas valve (handle parallel to the gas pipe).
 3. Set Power switch to “ON”; Unit will begin to spark and show SET TnnP in display
 4. Press either LOW TEMP, MANUAL or HIGH TEMP buttons to select a temp setting. The heat light will come on to indicate that the main burner is lit.
- b. To Turn Off Pan –
 1. Set Power Switch to “OFF”.
 2. For a prolonged shut-off period:
 - A. Turn the main gas valve OFF (handle at right angle to the gas pipe).
 - B. 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”.

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

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.

- 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 (149°C) or less for 15 minutes or through several on-off cycles of the burner.

COOKING

1. To simmer or slowly heat an item, set the dial at 210°F (99°C) 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. 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.
3. 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 understand how the braising pan works.

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 Service Agency.
3. When the operator sets a temperature on the controller, 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 relay 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 relay 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.
4. The controller 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 temperature 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.
5. The pans are protected from overheating by a secondary thermostat. If the pan temperature rises above 425° F (218°C), the thermostat causes the automatic gas control valve to close. When the pan cools, the thermostat automatically resets and permits normal operation to continue.
6. The tilt switch will shut off all burners whenever the braising pan is tilted 10 degrees or more from the horizontal.
7. A gas pressure regulator, which controls gas pressure at the burner manifold is built into the gas control valve.
8. 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.

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 ELECTRICAL EQUIPMENT. DO NOT USE A HIGH PRESSURE HOSE TO CLEAN THE CONTROL CONSOLE, ELECTRICAL CONNECTIONS, ETC.

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

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



Use a brush, sponge, cloth, plastic or rubber scraper, or plastic wool to clean.

Don't use metal implements or steel wool.

1. Before any cleaning operation, shut off the burner by turning the main power switch 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.
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.
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.
7. The exterior surface of the unit may be polished with a recognized stainless steel cleaner.
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 (PN 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

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

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



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.

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.

We recommend 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.

A Service Log is provided with the warranty information at the back of this manual. Each time service is performed on your 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.

SAFETY PRECAUTIONS

A stop-cock will be fitted in the gas pipe supplying the appliance. The user must be familiar with its location and operation, and able to turn it off in an emergency. If there is a smell of gas, immediately turn off the gas, ventilate the area, and call the gas supplier. **NEVER USE NAKED FLAME TO SEARCH FOR GAS LEAKS.**

REPLACEMENT PARTS

To order parts, contact your Authorized Service Agent. Supply the model designation, serial number, part description, part number, quantity, and when applicable, voltage and phase.

CONTACT US

If you have questions pertaining to the content in this manual, contact Groen at 888-994-7636.

TROUBLESHOOTING

This unit is designed to operate smoothly and efficiently if properly maintained. However, the following is a list of checks to make in the event of a problem. Wiring diagrams are found at the end of this manual. When in doubt, turn unit off and call for service at 888-994-7636. If an item on the check list is marked with (*), it means that the work should be done by a Authorized Service Agent.

WARNING: ELECTRICAL POWER MUST BE SHUT OFF BEFORE WORK IS DONE ON INTERNAL COMPONENTS. USE OF ANY REPLACEMENT PARTS OTHER THAN THOSE SUPPLIED BY THE MANUFACTURER OR THEIR AUTHORIZED DISTRIBUTOR CAN CAUSE INJURY TO THE OPERATOR AND DAMAGE TO THE EQUIPMENT AND WILL VOID ALL WARRANTIES. SERVICE PERFORMED BY OTHER THAN FACTORY-AUTHORIZED PERSONNEL WILL VOID ALL WARRANTIES.

SYMPTOM	WHO	WHAT TO CHECK (X indicates work that should only be performed by a qualified service representative)
Display not lit (Advanced only)	User	a. That power supply is on.
	Authorized Service Rep Only	b. Fuses, accessible by removing caps on the side of the control box. c. For loose or broken wires or damaged RTD probe. X d. Temperature controller functioning, by listening for a click when the switch opens or closes and verifying LEDs on back of board. X
PROB in display (Advanced only)	Authorized Service Rep Only	a. For loose or broken wires or damaged/failed RTD probe. X b. PCB board malfunction/failure
HI in display (Advanced only)	Authorized Service Rep Only	a. For loose or broken wires or damaged/failed RTD probe. X b. PCB board malfunction/failure
Pan is hard to tilt	Authorized Service Rep Only	a. Gears or foreign materials, lubrication, and alignment. X 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) b. Gas supply to the braising pan is at specified pressure. c. That the pan body is horizontal.
	Authorized Service Rep Only	d. Temperature controller operation. The contacts 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. Temperature controller dial setting and display.
	Authorized Service Rep Only	b. Temperature controller calibration and offsets. X c. Temperature controller 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. Temperature controller dial setting and display.
	Authorized Service Rep Only	b. Temperature controller calibration and offsets. X c. Temperature controller operation. The contacts 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. b. That the pan is preheated properly in accordance with the instructions in the Operation section of this manual.
System does not produce a spark	Authorized Service Rep Only	a. Controller and ensure that it is energized X b. AC voltage between terminals on secondary side of transformer. If it is not 24 Volt, replace the transformer X c. That the high tension cable is in good condition. If cracked or brittle, replace. X d. Pilot electric ceramic for crack or break. X e. Pilot spark gap. Regap. X
Spark is present but the pilot will not light	Authorized Service Rep Only	a. That the pilot valve is securely connected to terminals. X b. For 24 VAC at terminals PV and to ground. If 24V is not present, replace the ignition control module. X c. That gas pressure is at least 3.5" W.C.(8.7millibars). X d. For gas at the pilot. If it is not flowing: (1) Check the pilot gas line for kinks and obstructions. X (2) Clean orifice, if necessary. X (3) Check solenoid operation pilot valve on gas valve. Repair or replace as necessary. X e. That the pilot spark gap is located in the pilot gas stream. If not, adjust or replace the pilot burner. X f. For drafts. Shield the pilot burner, if necessary. X
Pilot lights, but main burner will not come on and spark does not stay on	Authorized Service Rep Only	a. Check controller to see that it is closed at temperature setting higher than that of the current pan temperature. X b. For 24 V between terminals MV and to ground. If 24V is not present, replace the ignition control module. X c. That gas pressure is at least 3.5" W.C.(8.7millibars). X 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 e. That secondary thermostat switch is closed.X
Pilot lights, but main burner will not come on, the spark stays on	Authorized Service Rep Only	a. Check for improper grounding. If necessary, repair with high temperature wire. X b. Pilot burner ceramic insulator for cracks. X c. That high tension cable is not grounded out. If it is, correct the ground-out condition or the pilot burner. X d. For proper gas pressure. X e. Clean pilot assembly, or replace if necessary. X f. Tighten all mechanical and electrical connections. X g. Replace ignition control module. X
Main burner comes on but will not stay on.	Authorized Service Rep Only	a. Check burner ground for bad wire or connection. Replace if necessary with high temperature wire. X b. Check for low gas supply pressure. If necessary, replace ignition control module. X

Pilot will not light.	User	a. Lighting procedure, to ensure that the instructions in the Operation section of this manual are followed.
	Authorized Service Rep Only	b. That the pilot gas supply line is purged of air. X c. Pilot gas adjustment screw, to ensure that it is open. X d. Pilot tubing and orifice for clogging. X
Pilot flame goes out when Combination Control knob is released.	Authorized Service Rep Only	a. Pilot gas adjustment. X b. Are connections from Powerpile generator to Pilotstat power unit and Powerpile operator clean and secure? X 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 d. Resistance of the Pilotstat power unit. X e. If an appropriate meter is not available, replace the generator first, then the power unit. X
	User	a. Is the Combination Gas Control Valve knob turned ON? b. Check the pilot tubing and orifice for clogging.
Pan will not heat, and pilot light is out.	Authorized Service Rep Only	c. Are connections from Powerpile generator to Pilotstat power unit and Powerpile operator clean and secure? X 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 e. If an appropriate meter is not available, replace the generator. X
	User	a. That secondary thermostat switch is closed.
Pan will not heat, but pilot light is burning.	Authorized Service Rep Only	a. That secondary thermostat switch is closed.

SERVICING & CONVERSION

IMPORTANT: BEFORE ATTEMPTING ANY SERVICING, ENSURE THAT THE GAS ISOLATING COCK IS TURNED OFF AND CANNOT BE INADVERTENTLY TURNED ON. ENSURE ALSO THAT THE ELECTRICITY SUPPLY IS DISCONNECTED. AFTER ANY SERVICING OR EXCHANGE OF GAS CARRYING COMPONENTS — ALWAYS CHECK FOR GAS SOUNDNESS!



FIGURE 1

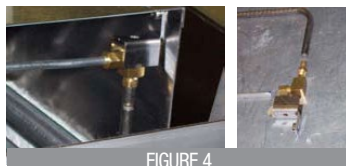


FIGURE 4

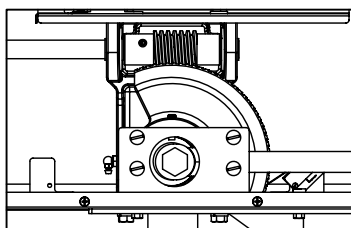


FIGURE 2



FIGURE 5



FIGURE 6

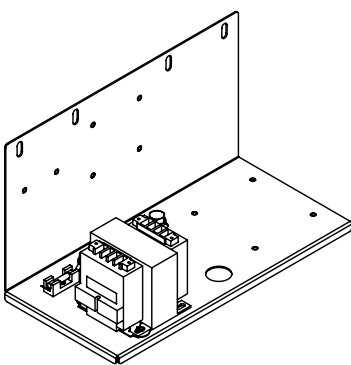


FIGURE 3

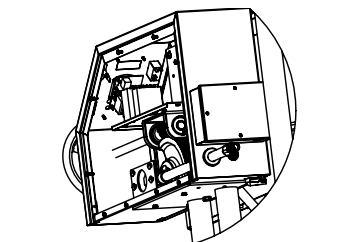


FIGURE 7

SERVICING

NOTES:

1. WHEN REPLACING WIRING CONNECTIONS REFER TO THE WIRING DIAGRAM IN THE UNIT OR THIS MANUAL.
2. WHEN ANY THREADED GAS CONNECTION IS DISTURBED FOR ANY REASON, THE THREADS MUST BE RESEALED WITH APPROPRIATE GAS LEAK PREVENTION SEALANT THAT IS SUITABLE FOR THE TYPE OF GAS. GROEN/GROEN RECOMMENDS GAS SEALANT COMPOUND SUCH AS LOCKTITE® 243 OR GROEN PART NUMBER 122002.

After Servicing

1. Test for gas soundness as specified in IGE/UP1.
2. If leaks are found, disconnect the mating parts, clean the threads and apply recommended sealant as specified above in Note #2. as appropriate after any gas connection has been disturbed.
3. Check for correct operation as appropriate (see Installation, CE Models, Gas System Performance).

Regular Servicing Procedures

The following must be checked at regular intervals:

1. Burners Clean the burners periodically to maintain maximum performance. Burners are best cleaned with a stiff bristle brush, or if necessary with a wire brush. Take care not to damage the burner.

Clean the injector orifice with a wooden splinter or toothpick. Avoid metal reamers, which may distort or increase the orifice size. **WARNING** - Do not leave any wood splinter or bristles from brush in the burner or injector. Fire could result.

2. Gears and Bearings: The gear housing has been fitted for proper lubrication of moving parts. Since the gears do not run in oil, periodic lubrication with grease is essential. Frequency of lubrication depends on operating conditions, but should occur at least once every six months. Groen recommends the use of a Number Two grade LGI lithium grease. Add grease through the Zerk fittings on the gear housing until grease flows out of the bearings around the trunnion shaft. Place a liberal amount of grease on the gear to cover the arc that is in contact with the worm gear.

CONVERSION

NOTES:

1. SEE INSTALLATION, CE MODELS, GAS SYSTEM PERFORMANCE FOR IMPORTANT INFORMATION. VERIFY THE TYPE OF GAS TO BE USED. IN THE COUNTRIES LISTED IN THAT SECTION, ALL CONVERSIONS MUST BE FOR APPROVED GAS.
2. ALL THREADED GAS CONNECTIONS MUST BE SEALED AS SPECIFIED IN NOTE #2 IN SERVICING SECTION.

To change the type of gas used (e.g G20 to G31 natural to propane or inverse) following parts should be changed:

1. Burner injectors. See instruction in REMOVAL OF BURNER ORIFICES at the end of this section.
2. Igniter tube injector. This is inserted inside the igniter tube as shown in the figures.
3. Gas valve spring. Install per instructions supplied with the spring package as shown in figure 5.
4. Pilot orifice. Insert the black shaded orifice for G31 or propane gas as shown in figure 6. The light colored orifice is for G20 on natural gas.
5. Data plate with correct rate and gas manifold pressure information.

After Conversion

1. Test for gas soundness as specified in IGE/UP1 as appropriate after any gas connection has been disturbed.
2. If leaks are found, disconnect the mating parts, clean the threads and apply recommended sealant as specified in SERVICING, Note #2, at the beginning of this section.

REMOVAL OF CONTROL CABINET PANELS

1. Remove 10 screws on cover.
2. Remove 4 screws at center of cover.
3. Lift off the removable side panel.

4. Replace in reverse order.

REMOVAL OF SPARK IGNITION MODULE

Turn gas and electricity mains off

1. Remove 2 screws on ignition module cover. See figure 1 at beginning of this section.
2. Disconnect electrical leads from spark ignition module.
3. Remove retaining screws securing spark ignition module.
4. Withdraw spark ignition module from control compartment.
5. Replace in reverse order.

REMOVAL OF TILT SWITCH

Turn gas and electricity mains off

1. Remove cabinet side panel cover and control as described in REMOVAL OF CONTROL CABINET PANELS.
2. Disconnect electrical leads from tilt switch (See figure 2 at beginning of this section).
3. Remove screws holding the tilt switch.
4. Withdraw the tilt switch from control compartment.
5. Replace in reverse order.

REMOVAL OF GAS CONTROL VALVE

Turn gas and electricity mains off

1. Remove ignition module cover.
2. Disconnect electrical leads from gas control valve, hi limit thermostat and ignition module assembly.
3. Undo and remove gas pipe assembly between two pipe unions.
4. Remove the gas control valve from piping assembly.
5. Replace in reverse order.

REMOVAL OF ON/OFF SWITCH

Turn gas and electricity mains off

1. Remove cabinet side panel cover described in REMOVAL OF CONTROL CABINET PANELS.
2. Disconnect electrical leads from On/Off switch.
3. Undo and remove the retaining collar which secures the On/Off switch to the outer surface of the control cabinet.
4. Withdraw the On/Off switch from control compartment.
5. Replace in reverse order.

REMOVAL OF LAMPS

Turn gas and electricity mains off

1. Remove cabinet side panel as described in REMOVAL OF CONTROL CABINET PANELS.
2. Disconnect the lamps flying leads.
3. Undo and remove the retaining collar.
4. Remove the 2 nuts retaining the light mount and spacer.
5. Withdraw the lamp from the control compartment.
6. Replace in reverse order.

REMOVAL OF CLASSIC/ADVANCED CONTROLLER

Turn gas and electricity mains off

To Replace:

1. Remove cabinet side panels as described in REMOVAL OF CONTROL CABINET PANELS.
2. Remove 4 nuts retaining controller.
3. Remove electrical leads from controller.
4. Loose control dial set screw and remove dial.
5. Remove controller.
6. Replace in reverse order.

To Calibrate: (classic controls only, if required)

1. Fill the pan with unused oil to the indicated mark. Place a thermocouple 25 mm below the oil surface in the middle of the pan.
2. Light the unit and allow the oil to heat.
3. Temperature should settle at 374°F(±9°F), 190°C (±5°C). If adjustment is required, disconnect main power. Adjustment is located on the back of the control board. Turn adjustment counter-clockwise to increase temperature and clockwise to decrease.

REMOVAL OF HIGH LIMIT THERMOSTAT

Turn gas and electricity mains off

This device is set to shut off the flow of gas to the burners to prevent oil temperature from exceeding 230°C. Manual intervention is required to reset the control in the event of a lockout.

To Reset: (CE only)

1. Remove 2 screws on ignition module cover. See figure 1 at beginning of this section. Push the reset button on the body of the high limit thermostat.

To Check Operation:

Operation of the high limit thermostat must be checked regularly. Use the following procedure:

1. Remove the upper control box from panel as described in REMOVAL OF CONTROL CABINET PANELS.
2. Fill the pan with unused oil to the indicated mark. Place a thermocouple or thermometer 25 mm below the oil surface in the middle of the pan.
3. Ensure that the electrical power is off before continuing. Disconnect the leads from T6/COM and T7/NO on the controller. Connect the leads together using the terminal block. This effectively removes the operating thermostat from the circuit. It may also be bypassed with a jumper across the thermostat terminals.
4. Switch the unit back on and light the unit as described in the lighting instructions. The burners will light and heat up the pan. **DO NOT LEAVE THE APPLIANCE DURING THIS TEST.**
5. If the high limit thermostat is functioning correctly, the gas supply will cut off as the temperature reaches 205 to 225°C. Once the high limit thermostat has tripped, switch off the mains electricity. Reconnect the operating thermostat and replace all panels.
6. If the high limit thermostat switches, but not at the specified temperatures, the thermostat requires replacement. Rejected thermostats must be logged and returned.
7. To remove, see replacement procedures above. NOTE: After this test, reconnect the regulating thermostat wires.

Calibration:

The high limit thermostat is of the fixed type. Its calibration point may not be adjusted.

REMOVAL OF BURNERS

Turn gas and electricity mains off

1. Undo and remove the front two retaining nuts of the burner guard.
2. Undo the two retaining nuts at the side of the burner guard. Do not fully remove. The burner guard will swivel back to allow access to the burners.
3. Undo and remove the retaining screws holding the burners.
4. Remove burner.
5. Replace in reverse order.

REMOVAL OF IGNITION ELECTRODE

Turn gas and electricity mains off

1. Disconnect electrical leads from ignition electrode. This electrode is also the sensing electrode.
2. Remove ignition electrode from bracket.
3. Replace ignition electrode.
4. Replace electric leads.

5. Check that the distance between the igniter and burner is within specified tolerances. Ensure that smooth, rapid ignition is achieved once the new spark igniter is in place.

REMOVAL OF BURNER ORIFICES (INJECTORS)

Turn gas and electricity mains off

1. Remove burners (see REMOVAL OF BURNERS).
2. Remove orifices from burner manifold.
3. Replace in reverse order.

FUSE REPLACEMENT

1. Remove the control cabinet side panel as described in REMOVAL OF CONTROL CABINET PANELS.
2. Remove fuse from fuse holder (See figure 3 at beginning of this section).
3. Replace fuse with an identical fuse.
4. Replace in reverse order.

TRANSFORMER REPLACEMENT

1. Remove the control cabinet side panel as described in REMOVAL OF CONTROL CABINET PANELS.
2. Remove fuse from fuse holder (See figure 3 at beginning of this section).
3. Replace fuse with an identical fuse.
4. Replace in reverse order.

FUEL GAS CONVERSION

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Parts List

(For 0-2000 feet (610m) conversion of a natural gas unit to propane or a propane model to natural gas; for other elevations above 2000 feet (610m), contact the factory.)

BURNER ORIFICE "QUANTITY" CHART

Model	15 Gallon	30 Gallon	40 Gallon
BPM or BPP	7	11	15

BPM WITH ELECTRONIC IGNITION (CE)

Qty	Description	Natural Gas Part #	LP Gas Part #
1	PILOT ORIFICE	119449	098647
%	BURNER ORIFICE	128158	148412
1	IGNITION TUBE ORIFICE 40 GAL.	101622	101665
1	IGNITION TUBE ORIFICE 30 GAL.	056932	112603
1	GAS VALVE	160776	160796

STAND & FOOT ASSEMBLY

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Parts List

Key	Description	Part #
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

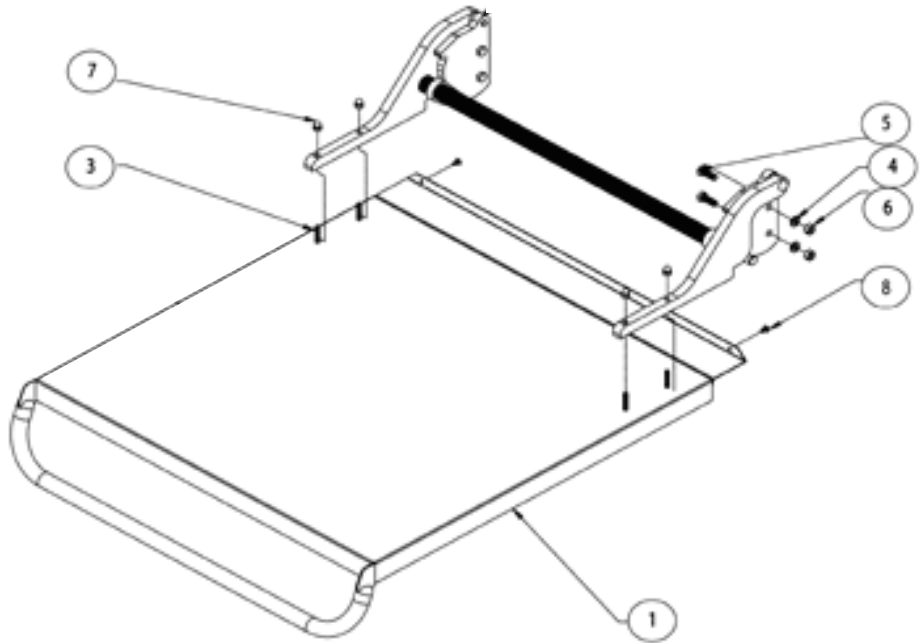


COVER & COUNTERBALANCE ASSEMBLIES

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Parts List

Key	Qty	Description	Part #
1	1	COVER ASSEMBLY, 15 GALLON	162232
1	1	COVER ASSEMBLY, 30 GALLON	144812
1	1	COVER ASSEMBLY, 40 GALLON	144453
2	1	COUNTERBALANCE ASSEMBLY, 15 GALLON	162235
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

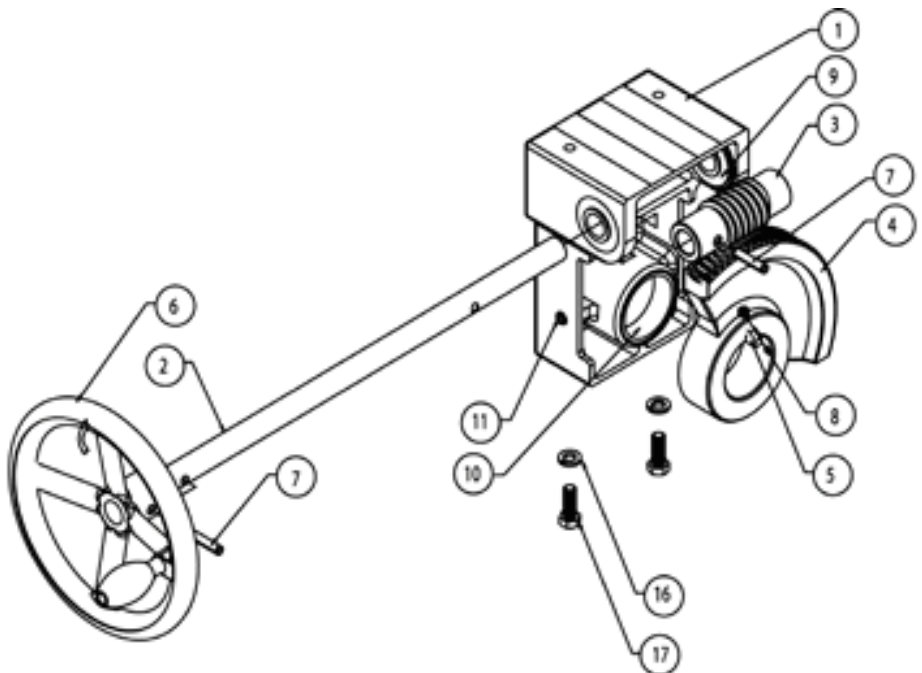


MANUAL TILT ASSEMBLY

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Parts List

Key	Qty	Description	Part #
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	012061
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

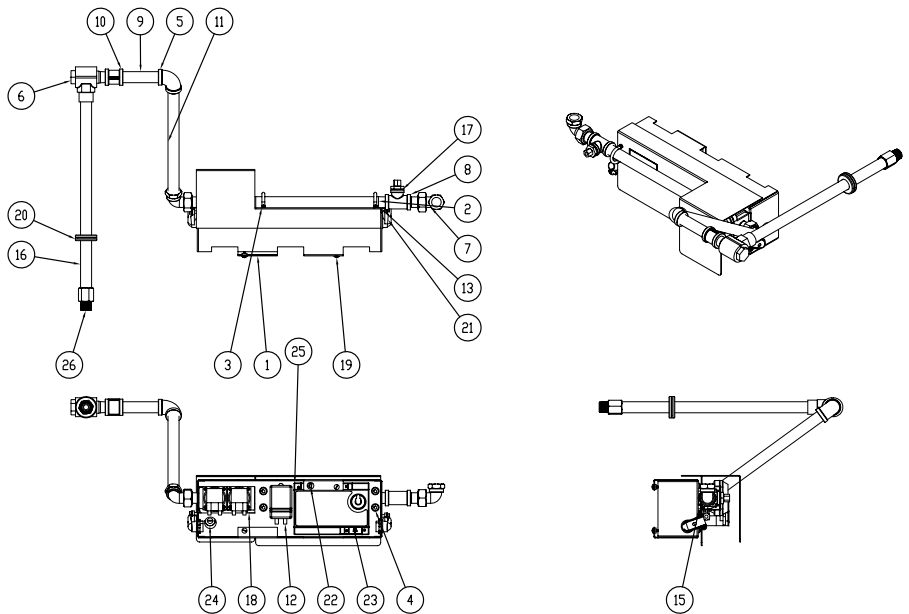


GAS PIPING ASSEMBLIES

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Parts List

Key	Qty	Description	Part #
1	1	IGNITION MODULE PLATE ASSEMBLY	144777
2	1	1/2" X 10-1/2" NIPPLE	003229
3	2	U BOLT, 1/2" PIPE	N70636
4	8	NUT-HEX SERRATED ZINC 1/4-20	NT1101
5	1	ELBOW 90 DEG 1/2" NPT	008747
6	1	SWIVEL JOINT 1/2" NPT	076680
7	2	UNION ELBOW	141354
8	1	TEE 1/2" NPT	008772
9	1	NIPPLE 1/2" NPT X 4"	005554
10	1	COUPLING FULL 1/2" NPT	005722
11	1	NIPPLE 1/2" NPT X 10" LONG	005558
12	1	THERMOSTAT, HIGH LIMIT	013481
13	1	BRACKET, REAR RADIATION HEAT	146145
14	1	COVER, IGNITION MODULE	146146
15	2	SCREW ROUND HEAD MACHINE	018384
16	1	NIPLE, 1/2" NPT X 15" LONG	048570
17	1	CONNECTOR MALE 1/2"	049429
18	1	FITTING COMPRESSION 90	004584
19	2	SCREW TRUSS HEAD MACHINE	005764
20	1	GROMMET 7/8"	007400
21	2	ELBOW 90 DEG 3/8"	004098
22	2	SCREW HEX SLOTTED HD W/ WASHER #8-32 X 3/8"	069789
23	2	SCREW HEX HEAD #8-32 X .5	069790
24	1	GAS VALVE - CE MARK	160776
25	1	CE MARK SPARK IGNITION MODULE	154059
26	1	1/2" NPT TO 1/2" BSPT ADAPTER	116392

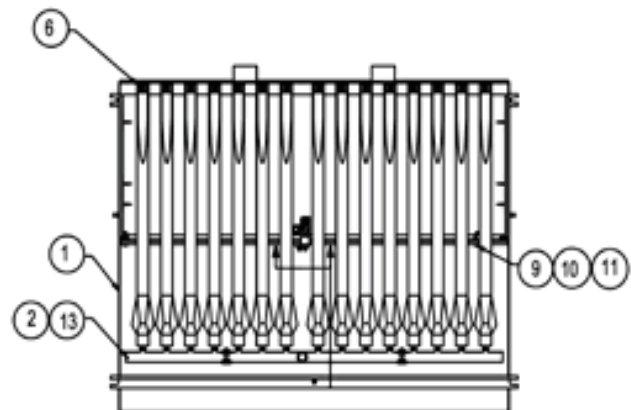
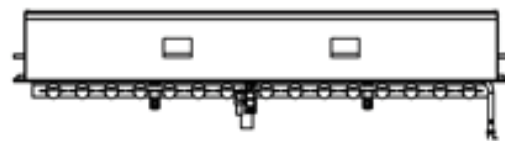
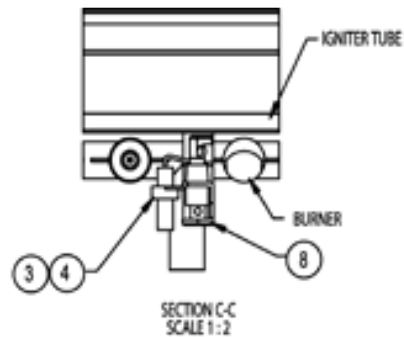
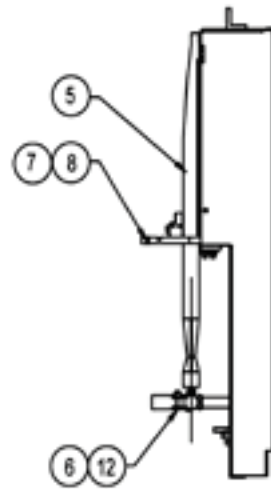


COMBUSTION CHAMBER & GAS MANIFOLD ASSEMBLIES

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Parts List

Key	Qty	Description	Part #
1	1	COMBUSTION CHAMBER ASSY, 15 GAL.	155707
1	1	COMBUSTION CHAMBER ASSY, 30 GAL.	145941
1	1	COMBUSTION CHAMBER ASSY, 40 GAL.	144843
2	1	MANIFOLD, 15 GAL.	153705
2	1	MANIFOLD, 30 GAL.	145944
2	1	MANIFOLD, 40 GAL.	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	182790
5	7	BURNER TUBE, 15 GAL.	144847
5	11	BURNER TUBE, 30 GAL.	144847
5	15	BURNER TUBE, 40 GAL.	144847
6	21	NUT, KEPS 1/4-20	012940
7	1	IGNITION TUBE, 15 GAL.	155722
7	1	IGNITION TUBE, 30 GAL.	145957
7	1	IGNITION TUBE, 40 GAL.	145912
8	1	IGNITION TUBE ORIFICE, 15 GAL, NATURAL GAS (CE)	101623
8	1	IGNITION TUBE ORIFICE, 15 GAL, PROPANE (CE)	101625
8	1	IGNITION TUBE ORIFICE, 30 GAL, NATURAL GAS (CE)	056932
8	1	IGNITION TUBE ORIFICE, 30 GAL, PROPANE (CE)	112603
8	1	IGNITION TUBE ORIFICE, 40 GAL, NATURAL GAS (CE)	101622
8	1	IGNITION TUBE ORIFICE, 40 GAL, PROPANE (CE)	101665
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	7	BURNER ORIFICE, 15 GAL, NATURAL GAS (CE)	128158
13	7	BURNER ORIFICE, 15 GAL, PROPANE (CE)	148412
13	11	BURNER ORIFICE, 30 GAL, NATURAL GAS (CE)	128158
13	11	BURNER ORIFICE, 30 GAL, PROPANE (CE)	148412
13	15	BURNER ORIFICE, 40 GAL, NATURAL GAS (CE)	128158
13	15	BURNER ORIFICE, 40 GAL, PROPANE (CE)	148412
-	1	RADIATION SHIELD WELDMNT, 15 GALLON (NOT SHOWN)	155723
-	1	RADIATION SHIELD WELDMNT, 30 GALLON (NOT SHOWN)	146116
-	1	RADIATION SHIELD WELDMNT, 40 GALLON (NOT SHOWN)	144833

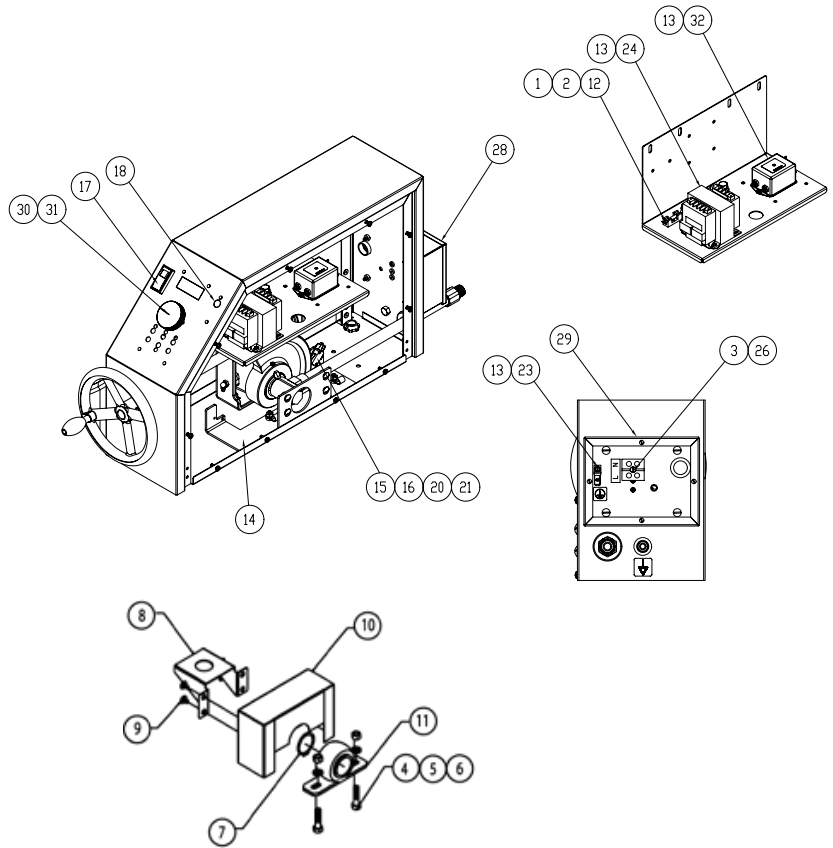


ELECTRICAL COMPONENTS TRUNNION COVER (FOR GC & GA MODELS)

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

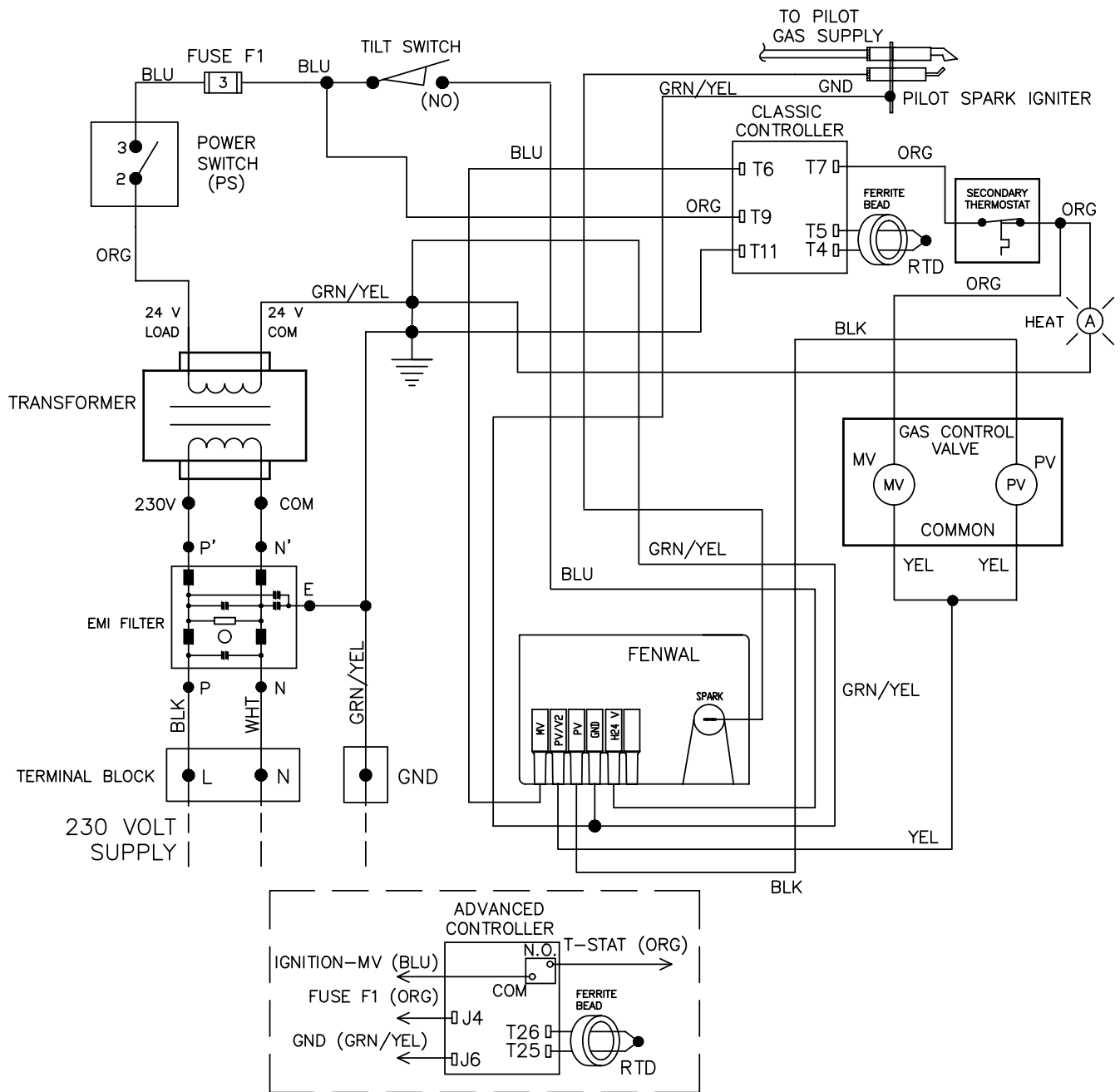
Parts List

Key	Qty	Description	Part #
1	1	FUSE HOLDER TYPE 3 AG	077854
2	1	FUSE -24VAC CONTROL, 3A, TYPE AG	077853
3	1	SCREW ROUND HEAD #8-32 X 1-1/4"	005056
4	2	NUT HEX	005619
5	2	WASHER LOCK	005618
6	2	SCREW HEX HEAD CAP	005615
7	1	RETAINING RING	124764
8	1	FAUCET BRACKET	137738
9	4	SCREW, 1/4-20 X 3/8" TRUSS	125609
10	1	PILLOW BLOCK BOX	144314
11	1	PILLOW BLOCK	002989
12	3	SCREW ROUND HEAD #6-32 X 3/8"	009697
13	4	SCREW HEX SLOTTED HD 8-32X.375	069789
14	1	TILT SWITCH BRACKET WELD ASSY.	145689
15	1	BARRIER INSULATION	003490
16	1	TILT LIMIT SWITCH	143319
17	1	POWER SWITCH, ROCKER, CE	177910
18	1	LIGHT, INDICATOR AMBER 24VAC	116384
20	2	SCREW, ROUND HEAD, 34-40 X 3/4	003122
21	2	NUT, HEXAGON #4-40	003121
22	2	WASHER, #6 INTERNAL TOOTH	013418
23	1	GOUND LUG	119829
23	6	SCREW HEX SLOTTED	069773
24	1	TRANSFORMER, CE, 50VA 208/230/460V	148899
26	1	TERMINAL BLOCK	003887
28	1	COVER, TERMINAL BLOCK BOX	175043
29	1	TERMINAL BLOCK BOX	175042
30A	1	CONTROL, CLASSIC (NOT SHOWN)	174841
30B	1	CONTROL, ADVANCED	174835
31	1	2" ALUMINUM KNOB	175095
32	1	EMI FILTER	177768
-	3'	SLEEVING SIZE 7/16 (NOT SHOWN)	003874
-	2	ELBOW 90 DEG 3/8" (NOT SHOWN)	004098
-	6"	CONDUIT FLEXIBLE (NOT SHOWN)	006940
-	3	CLAMP CONDUIT 3/8" OD (NOT SHOWN)	008224
-	1	WIRE HARNESS, CONTROL LOW VOLTAGE, GAS (NOT SHOWN)	175288
-	1	WIRING HARNESS POWER HIGH VOLTAGE (NOT SHOWN)	175838
-	2	NUT LOCK 1/2" NPT (NOT SHOWN)	005487
-	2	ELBOW 90 DEG 3/8" (NOT SHOWN)	004098
-	6	INSULATOR CONDUIT NHFP (NOT SHOWN)	071934
-	1	NUT ACORN (DOME) #10-32 (NOT SHOWN)	128756
-	1	SCREW HEX HD CAP #10-32, 1/2" LG (NOT SHOWN)	128757
-	1	HIGH LIMIT THERMOSTAT (GAS) (NOT SHOWN)	013481
-	1	SPARK IGNITION MODULE (NOT SHOWN)	085153
-	1	EQUI POTENTIAL ASSEMBLY	122021



CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Wiring Diagram



BPM-G (CE) P/N 17771 REV. B

STANDING PILOT IGNITION SYSTEM

CALL FACTORY FOR REPLACEMENT PARTS:
888-994-7636

Wiring Diagram

