

# OPERATOR/SERVICE MANUAL

IMPORTANT INFORMATION, KEEP FOR OPERATOR

This manual provides information for:

## MODELS

### **BPM-30/40G(CE)** *International* **ECLIPSE™ ERGONOMIC** **TILTING BRAISING PAN**

- Stainless Steel
- Manual 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**

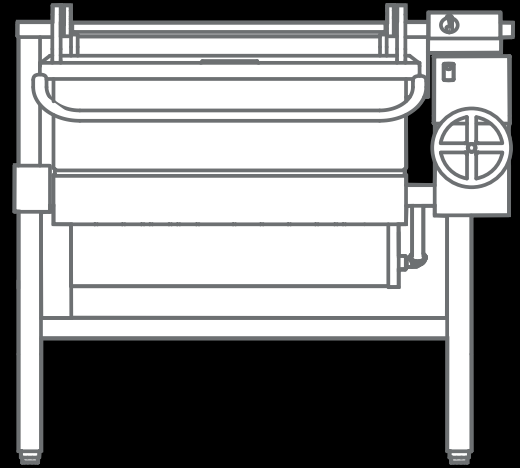
It is the responsibility of the consignee to inspect the container upon receipt of same and to determine the possibility of any damage, including concealed damage. Unified Brands suggests that if you are suspicious of damage to make a notation on the delivery receipt. It will be the responsibility of 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.

PART NUMBER 160812, REV. E (11/08)

# GROEN®



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**Jackson, MS 39272**  
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**[groen.com](http://groen.com)**

## **IMPORTANT — READ FIRST — 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  
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.

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.

**CAUTION:** UNIT WEIGHS 420 TO 560 LB. (165 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 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.

**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 OVER FILL CONTAINER. AVOID DIRECT SKIN CONTACT WITH HOT CONTAINER AND ITS CONTENTS.**

**WARNING:** DO NOT HEAT AN EMPTY PAN FOR MORE THAN 5 MINUTES AT A SETTING HIGHER THAN 300°F (150°C).

**WARNING:** IF THE PAN CONTAINS ITEMS IN 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 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. FAILURE TO DISCONNECT COULD RESULT IN ELECTROCUTION AND DEATH.

**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 factory authorized personnel will void all warranties.

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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

## Equipment Description

The following dimensions apply to CE model BPM braising pans:

Model	Width	Depth	Height	Weight (Kg)
BPM-30G	984 mm	1010 mm	1100 mm	190
BPM-40G	1226 mm	1010 mm	1100 mm	255

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. 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. It has an ignition system that uses electronic spark ignition.

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. Flanged Feet
4. Fold-down work tray (pan support) mounted on right side.
5. 2" Tangent draw-off (Factory-installed must be indicated on initial order)
6. Steamer Insert set.
7. Steamer Pan Carrier.
8. Pouring Lip Strainer.
9. Strainer for 2" TDO valve.



Optional Tangent Draw-Off

## Inspection & Unpacking

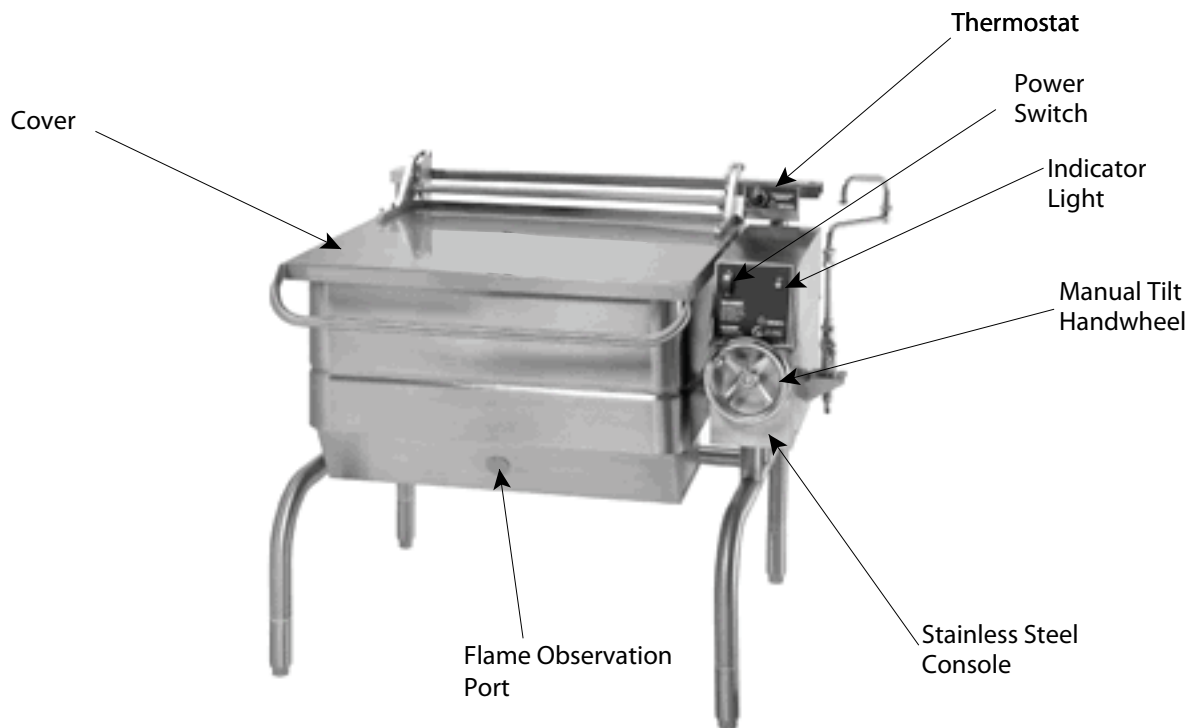
The unit will arrive completely assembled, on a heavy skid, in a heavy cardboard carton. Immediately upon receipt, inspect the carton for damage. Report any apparent shipping damage or an incorrect shipment to the delivery agent.

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 could damage 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.

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.)

## **1. Installation**

The following information pertains to the CE model BPM-G, and replaces or augments the information provided in OM-BPM. 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

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

## 1.1 Installing Clearances

	Minimum Clearances	Recommended Clearances
Left Side	0mm	51mm (2") for service, 153mm (6") when faucet is installed on left side
Right Side	0mm	305-405mm (12-16"), 153mm (6") when faucet is installed on right side
Rear	77mm	305mm (12") for service

- 1.1.1 Vertical clearance of at least 1000 mm should be allowed between the top edge of the flue outlet and any overlying surface.
- 1.1.2 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.
- 1.1.3 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.
- 1.1.4 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.
- 1.1.5 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.
- 1.1.6 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.
- 1.1.7 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.

## 1.2 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.

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

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 (Rp½ [½" 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.

## 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.

Power supply to this unit must be 230V, 1 Phase, 50/60hz with wiring suitable for an electronic load of 50 watts.

The wiring must be executed in accordance with the regulations listed inside the cover page of this manual supplement.

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.

**WARNING**  
**THIS APPLIANCE MUST BE EARTHED.**



Fig. 1

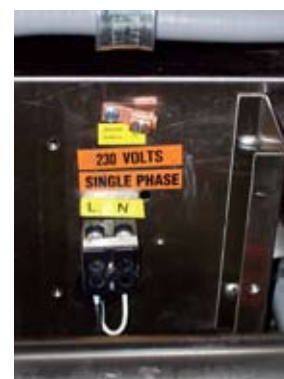


Fig. 2



## 1.4 Water Supply

Not applicable to these appliances except for optional faucets..

## 1.5 Gas System Performance

The tables below 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-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-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-30G	BPM-40G
NATURAL GAS G20	mbar	8.0	8.0
	in. WC	3.2	3.2
PROPANE GAS G31	mbar	19.4	19.4
	in. WC	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.

## 1.6 Burner Adjustment

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



Fig. 3

**Gas is connected at the rear of the control console.**



Fig. 4

## 2. Assembly and Commissioning

### 2.1 Electrical Supply

Before commissioning the appliance, ensure that the electrical installation has been performed in compliance with relevant regulations. See Paragraph 1.3, above.

**WARNING**  
**THIS APPLIANCE MUST BE EARTHED.**

### 2.2 Pre-Commissioning Check

- 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 6-12mm. 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 panel is in place.

### 2.3 Operating the Braising Pan

#### 2.3.1 Lighting Sequence

- Put water in the pan (6 to 12 mm deep)
- Check that gas and electricity mains are on.
- Turn the toggle switch (Main Control Box) to the "ON" position. The power neon (Main Control Box) will illuminate.
- Turn the thermostat (Upper Control Box) to the desired setting.
- Observe that the burners light by the lighting of the heat neon (Main Control Box) (approximately 10-15 seconds).



Fig. 5

**Main (Lower) Control Box**



Fig. 6

**Upper Control Box**

- Should the unit fail to light, turn the unit off and wait for one or two minutes before attempting to switch it on again. NOTE: Burner "ON" verification can be confirmed by careful observation through the Flame Observation Port. See Illustration on page 6 of this manual for location of this port.
- Repeat steps b through e.
- To switch off the unit, put the toggle switch in the Off position.
- Turn gas and electricity mains off.

#### 2.3.2 Setting the Gas Pressure



Fig. 7

**Connect a gauge to check pressure at the gas manifold.**

- 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).
- Turn the gas and electricity mains on.

- c) Light the burners as described in Paragraph 2.3.1, above.
- d) Manifold gas pressure should be as noted in Section 1.5 of the manual. If adjustment is necessary, follow steps e through j, below.
- e) Remove the screws which secure the ignition module cover and remove the ignition module cover panel. See Fig. 8.



Fig. 8

- f) Remove the governor cap screw on the gas control valve to gain access to the screw inside the turret. (See photograph at right)
- g) The governor is suitable for both natural and propane gas.
- h) 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.
- i) Disconnect the pressure gauge from the test point. Reseal the test point and test for gas soundness.
- j) Replace governor cap screw, and replace control box panel and lid.

### 2.3.3 Checking Performance of Controls

- a) Light the unit as described in Paragraph 2.3.1, above. Check that the controls produce a healthy spark from the electrode to the earthing post, and that ignition is smooth and without delay.
- b) Turn the thermostat off and then on. Check that the burners go out when the thermostat is turned off, and that they reignite smoothly when it is switched back on. Repeat several times.
- c) Fill the pan with unused oil up to the mark in the pan.



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

- d) Set the thermostat knob at "10" and allow the oil to heat up. Immerse a thermometer or thermocouple 25 mm below the oil surface at the center of the pan. Check that the temperature stabilizes at 190°C, ( $\pm 5^\circ\text{C}$ ).



Fig. 9

**Adjust flow by turning the screw on the gas valve governor.**

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

- e) If the unit fails to operate as described, the unit should be serviced by an Engineer.

**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  
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.

## 2.4 Instructions to Installer

**IMPORTANT:** 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.



## 3. Servicing and Conversion

### 3.1 Servicing

#### **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!**

- 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. Unified Brands/ Groen recommends gas sealant compound such as Loctite® 243 or Unified Brands part number 122002.

#### 3.1.1 After Servicing

- a) Test for gas soundness as specified in IGE/UP1 as appropriate after any gas connection has been disturbed.
- b) If leaks are found, disconnect the mating parts, clean the threads and apply recommended sealant as specified in paragraph 3.1 Note 2 above.
- c) Check for correct operation as appropriate (see Installation, Section 1.5).

#### 3.1.2 Regular Servicing Procedures

The following must be checked at regular intervals:

##### a) 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.

##### b) 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.

### 3.2 Conversion

- Notes:**
1. See Para 1.5, page 9 for important information. **VERIFY THE TYPE OF GAS TO BE USED.** In the countries listed in Paragraph 1.5, all conversions must be for approved gas.
  2. All threaded gas connections must be sealed as specified in paragraph 3.1, Note #2.

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

1. Burner injectors. See instruction 3.13 on page 16.
2. Igniter tube injector. This is inserted inside the igniter tube as shown on below.



3. Gas valve spring. Install per instructions supplied with the spring package as shown below.



4. Pilot orifice. Insert the black shaded orifice for G31 gas as shown below. The light colored orifice is for G20 gas.



5. Data plate with correct rate and gas manifold pressure information.

#### 3.2.1 After Conversion

- a) Test for gas soundness as specified in IGE/UP1 as appropriate after any gas connection has been disturbed.
- b) If leaks are found, disconnect the mating parts, clean the threads and apply recommended sealant as specified in paragraph 3.1 Note 2.

### 3.3 Removal of Control Panels

#### 3.3.1 Removal of Electrical Panel Cover Assembly

- Remove the three screws which secure the lid to the control cabinet around its edge - 2 on sides, 1 on rear.
- Lift-up the lid, being careful to dislodge the 2 pins welded at lower edge of front end.



Fig. 10

- Replace in reverse order

#### 3.3.2 Removal of Control Cabinet Side Panel

- Remove lid as described above.
- Remove 2 screws on lower edge of cover.
- Remove 4 screws at center of cover.
- Lift off the removable side panel.
- Replace in reverse order.

#### 3.3.3 Removal of Upper Control Box Panels

- Remove thermostat knob and timer knob.
- Remove 4 screws from top.
- Remove upper panel and gasket.
- Replace in reverse order.

### 3.4 Removal of Spark Ignition Module (Turn gas and electricity mains off)

- Remove 2 screws on ignition module cover (see Fig. 8)
- Disconnect electrical leads from spark ignition module.
- Remove retaining screws securing spark ignition module.
- Withdraw spark ignition module from control compartment.
- Replace in reverse order.

### 3.5 Removal of Tilt Switch (Turn gas and electricity mains off)

- Remove electrical panel cover and control as described in Paragraph 3.3.1 & 3.3.2.
- Disconnect electrical leads from tilt switch (See Fig. 11).

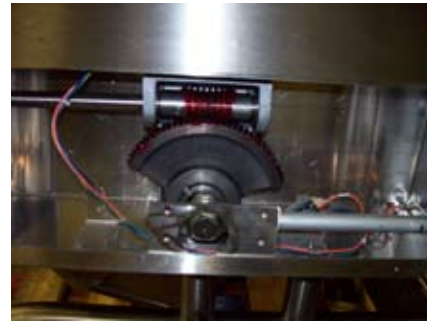


Fig. 11



Fig. 11A

- Remove screws holding the tilt switch.
- Withdraw the tilt switch from control compartment.
- Replace in reverse order.

### 3.6 Removal of Gas Control Valve (Turn gas and electricity mains off)

- Remove ignition module cover described in Paragraph 3.4.
- Disconnect electrical leads from gas control valve, hi limit thermostat and ignition module assembly.
- Undo and remove gas pipe assembly between two pipe unions.
- Remove the gas control valve from piping assembly.
- Replace in reverse order.

### 3.7 Removal of On/Off Switch (Turn gas and electricity mains off)

- Remove electrical panel cover described in Paragraph 3.3.1.
- Disconnect electrical leads from On/Off switch.

- c) Undo and remove the retaining collar which secures the On/Off switch to the outer surface of the control cabinet.
- d) Withdraw the On/Off switch from control compartment.
- e) Replace in reverse order.

### 3.8 Removal of Neons (Turn gas and electricity mains off)

- a) Remove control panel lid and side panel as described in Paragraph 3.3.1 and 3.3.2.
- b) Disconnect the neons' flying leads.
- c) Undo and remove the retaining collar which secures the neon to the control cabinet.
- d) Remove the gasket between control box and panel.
- e) Withdraw the neon from the control compartment.
- f) Replace in reverse order.

### 3.9 Removal of Operating Thermostat (Turn gas and electricity mains off)

#### To Replace

- a) Remove upper control box panels as described in Paragraph 3.3.3.
- b) Remove thermostat from front panel.
- c) Remove electrical leads from operating thermostat.
- d) Remove operating thermostat phial from the underside of the pan, and remove retaining clips.
- e) Remove the retaining clip which secures the flexible conduit to the pan side.
- f) Pull thermostat phial through the flexible conduit (or cut if scrap).
- g) Replace in reverse order.

#### To Calibrate

If calibration is required, use the following procedures:

- a) 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.



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

- b) Remove the control knob and place a screwdriver down the centre of the spindle.
- c) Light the unit and allow the oil to heat.
- d) Adjust the thermostat by turning the screwdriver clockwise to decrease, and anti-clockwise to increase temperature. Ensure that the temperature settles at 190°C (±5°C). (**Note:** Thermostat may cycle seven or eight times before oil temperature settles at 190°C).
- e) Replace control knob.

### 3.10 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.



Fig. 12

**Connects to the braising pan by means of flexible conduit. (Rear of Upper Control Box)**

### **To Reset**

Remove the upper control box rear panel as described in 3.3.3. Push the reset button on the body of the high limit thermostat.

### **To Replace**

- a) Remove the spark ignition module as described in 3.4(a).
- b) Remove 2 screws holding the limit thermostat.
- c) Remove high limit thermostat.
- d) Replace in reverse order following the same procedures.

### **To Check Operation**

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

- a) Remove the upper control box from panel as described in Paragraph 3.3.
- b) 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.



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

- c) Ensure that the electrical power is off before continuing. Disconnect the leads from the operating thermostat. 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.
- d) 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.**

- e) 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.

- f) If the high limit thermostat switches, but not at the specified temperatures, the thermostat requires replacement. Rejected thermostats must be logged and returned.
- g) 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.

**WARNING**  
**IF THE HIGH LIMIT THERMOSTAT FAILS TO CUT OFF AT 230°C IMMEDIATELY TURN OFF THE GAS SUPPLY. CONDUCT AN INVESTIGATION TO DETERMINE THE FAULT, AND CORRECT IT BEFORE USING THE APPLIANCE AGAIN.**

## **3.11 Removal of Burners (Turn gas and electricity mains off)**

- a) Undo and remove the front two retaining nuts of the burner guard.
- b) 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.
- c) Undo and remove the retaining screws holding the burners.
- d) Remove burner.
- e) Replace in reverse order.

## **3.12 Removal of Ignition Electrode (Turn gas and electricity mains off)**

- a) Disconnect electrical leads from ignition electrode. This electrode is also the sensing electrode.
- b) Remove ignition electrode from bracket.
- c) Replace ignition electrode.
- d) Replace electric leads.
- e) 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.



### 3.13 Removal of Burner Orifices (Injectors) (Turn gas and electricity mains off)

- a) Remove burners (Paragraph 3.11).
- b) Remove orifices from burner manifold.
- c) Replace in reverse order.

### 3.14 Fuse Replacement

- a) Remove the control cabinet cover as described in Paragraph 3.3.1.
- b) Remove fuse from fuse holder (See Fig. 13).
- c) Replace fuse with an identical fuse.
- d) Replace in reverse order.

### 3.15 Transformer Replacement (Fig. 13) (Same as 3.14)

### 3.16 Wiring Diagram, BPM-30G & BPM-40G Models

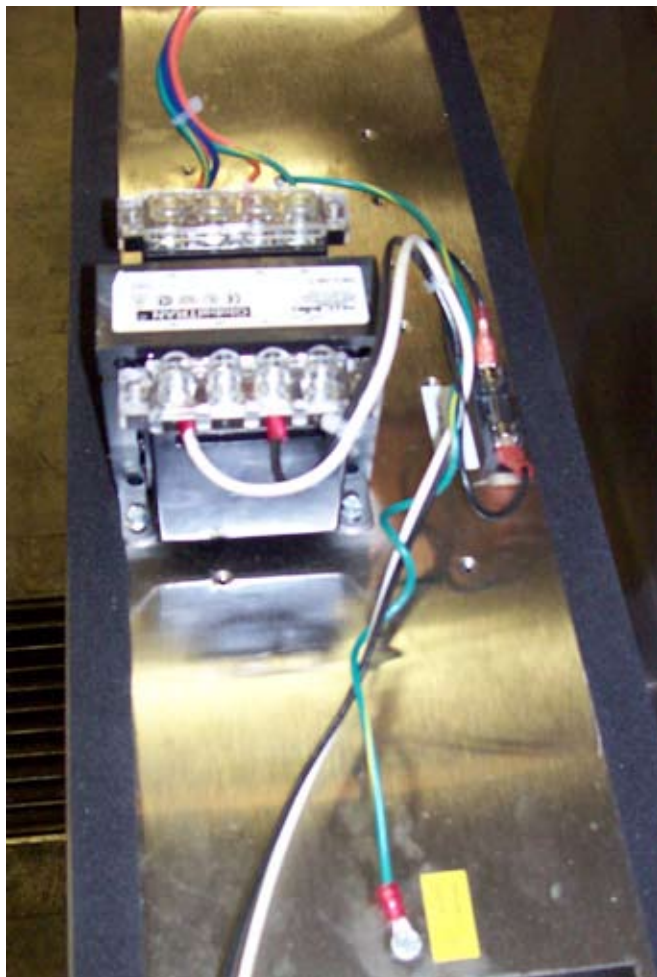


Fig. 13



## 4. User Instructions

### 4.1 Lighting and Operation

- Check that gas and electricity mains are on.
- Turn the toggle switch (Main Control Box) to the "ON" position. The power neon (Main Control Box) will illuminate.
- Turn the thermostat (Upper Control Box) to the desired setting.
- Observe that the burners light by the lighting of the heat neon (Main Control Box) (approximately 10-15 seconds).
- Should the unit fail to light, it will lock-out. Turn the unit off and wait for one or two minutes before attempting to switch it on again.
- Repeat steps b through e.

### 4.2 To Shut Down Braising Pan

- Turn thermostat dial to the Off position.
- Switch the On/Off switch to the Off position.
- For a prolonged shut down
  - Follow steps a and b
  - Turn the gas and electricity mains off
- Turn the tilting handle clockwise to pour out the water or contents.

### 4.3 Filling the Braising Pan

Using hot water and detergent, clean out the pan thoroughly prior to operation.

The pan should not be overfilled, and an allowance should always be made for expansion and foaming of the food being cooked. The maximum fill level is marked on the inner pan wall (See Fig. 14)



Fig. 14

1. Do not leave the braising pan unattended when heating.

2. For frying, the depth of oil in the pan must never exceed the maximum oil level mark on the inner pan wall.



**WARNING**  
**DO NOT OVERFILL WITH OIL OR FIRE MAY RESULT. DO NOT ADD WATER OR WET FOOD INTO HOT OIL.**

### 4.4 Users' Thermostat

Provides automatic control of the braising pan temperature at selected temperatures up to a maximum of 190°C.

### 4.5 Sequence of Operation

The following "sequence of operation" is provided to help the user understand how the unit functions.

- Switching the On/Off switch to the On position to start the appliance causes the power neon to illuminate.
- Turning the thermostat sends a signal to the ignition module.
- The ignition module opens the pilot control valve which allows gas to go to the pilot burner. It simultaneously starts a sparking sequence at the pilot.
- The spark ignites the main pilot burner. Once this occurs, the sensing probe detects the flame. This confirms that lighting has been successful.
- After a short period of time the main control valve opens to full flow and lights the burners.
- The sparking/ignition sequence shuts off, and the "Heat" neon illuminates.
- If, however, a pilot flame is not detected within 55 seconds, the ignition module goes into lock-out mode.
- To restart the ignition sequence the ON/OFF switch must be set to OFF and then back to ON.
- In addition to the gas lockout, other safety features include:

- A high limit safety thermostat which cuts off the gas supply should the operating thermostat fail (i.e., should the temperature exceed operating limits).
  - A tilt switch which automatically cuts off the gas supply when the unit is tilted when in operation.
- j. When the pan reaches a set temperature, the thermostat switch opens. This halts the signal to the gas control valve and causes the valve to shut off the flow of gas.
- k) When the pan cools below its set temperature, the thermostat switch closes and starts another heating cycle. This on-off cycling continues, keeping the pan at the desired temperature.
- l) Should the main control thermostat fail and cause the hi-limit thermostat to trip, the unit will stop heating. To reset the high limit control, depress the red reset switch located on rear of unit under the gas piping. (See. Fig. 15)

**WARNING**  
**HI LIMIT RESET SHOULD BE USED SPARINGLY TO COMPLETE AN ONGOING COOKING OPERATION. IT INDICATES THAT UNIT NEEDS SERVICING. CALL YOUR AUTHORIZED SERVICE AGENCY TO COMPLETE THE REPAIRS AND DO NOT USE THE UNIT AFTER COMPLETING ONGOING OPERATION. CONTINUED USE COULD RESULT IN DANGEROUS CONDITION SUCH AS FIRE.**

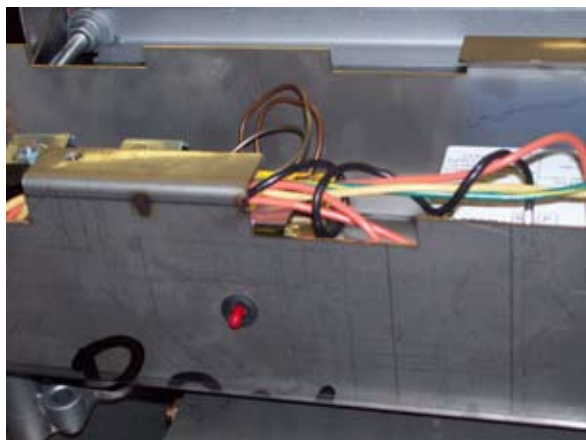


Fig. 15

## 4.6 To Empty the Pan

Turn the hand crank on the front of the cabinet clockwise to tilt the pan body forward. The pan will stay in position when you stop turning the handle. To return it to the upright position, turn the crank anti-clockwise.

**WARNING**  
**DO NOT STAND IN FRONT OF THE PAN WHEN TILTING IT. BE CAREFUL TO KEEP HOT CONTENTS FROM SPILLING. KEEP PEOPLE AWAY FROM POURING LIP AREA WHEN EMPTYING THE PAN.**

## 4.7 Power Failure

- a) If power to the unit is lost, do not attempt to operate the appliance until the electricity has been restored.
- b) When the power comes on again, follow the steps in Paragraph 4.1, Lighting and Operation.

## 5. 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 "0". 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.

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

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

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.

## 6. 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.**

## 7. 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 (see paragraph 3.1.2.b Gears).

Groen recommends the use of number two grade LGI lithium grease. Add grease through the zerk fittings on the gear housing 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
X indicates items which must be performed by an Groen authorized service technician.		
Pan is hard to tilt.	Auth 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.
	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 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 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. b. That the pan is preheated properly in accordance with the instructions in the Operation section of this manual. c. Hi limit control has tripped. Reset and call your authorized service agency.
System does not produce a spark	Auth Service Rep Only	a. Thermostat, and close the contacts if they are open 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

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

SYMPTOM	WHO	WHAT TO CHECK 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	<ul style="list-style-type: none"> <li>a. That the pilot valve is securely connected to terminals. X</li> <li>b. For 24 VAC at terminals of pilot valve solenoid coil and to ground. If 24V is not present, replace the ignition control module. X</li> <li>b. That gas pressure is at least 3.5" W.C.(8.75millibars). X</li> <li>c. For gas at the pilot. If it is not flowing:               <ul style="list-style-type: none"> <li>(1) Check the pilot gas line for kinks and obstructions. X</li> <li>(2) Clean orifice, if necessary. X</li> <li>(3) Check solenoid operation pilot valve on gas valve. Repair or replace as necessary. X</li> </ul> </li> <li>d. That the pilot spark gap is located in the pilot gas stream. If not, adjust or replace the pilot burner. X</li> <li>e. For drafts. Shield the pilot burner, if necessary. X</li> </ul>
Pilot lights, but main burner will not come on and spark does not stay on.	Auth Service Rep Only	<ul style="list-style-type: none"> <li>a. Check operating thermostat to see that it is closed at temperature setting higher than that of the current pan temperature. X</li> <li>b. For 24 V between terminals main valve solenoid coil and to ground. If 24V is not present, replace the ignition control module. X</li> <li>c. That gas pressure is at least 3.5" W.C.(8.75millibars). X</li> <li>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</li> <li>e. That hi limit thermostat switch is closed.X</li> </ul>
Pilot lights, but main burner will not come on, the spark stays on.	Auth Service Rep Only	<ul style="list-style-type: none"> <li>a. Check for improper grounding. If necessary, repair with high temperature wire. X</li> <li>b. Pilot burner ceramic insulator for cracks. X</li> <li>c. That high tension cable is not grounded out. If it is, correct the ground-out condition or the pilot burner. X</li> <li>d. For proper gas pressure. X</li> <li>e. Clean pilot assembly, or replace if necessary. X</li> <li>f. Tighten all mechanical and electrical connections. X</li> <li>g. Replace ignition control module. X</li> </ul>
Main burner comes on but will not stay on.	Auth Service Rep Only	<ul style="list-style-type: none"> <li>a. Check burner ground for bad wire or connection. Replace if necessary with high temperature wire. X</li> <li>b. Check for low gas supply pressure. If necessary, replace ignition control module. X</li> </ul>

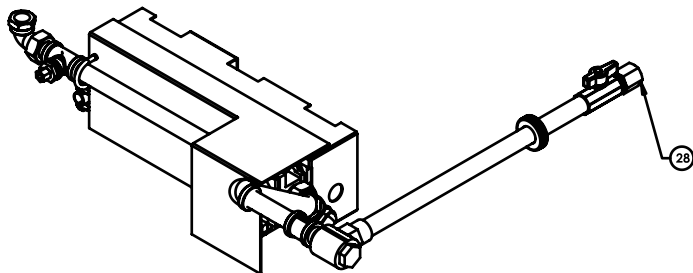
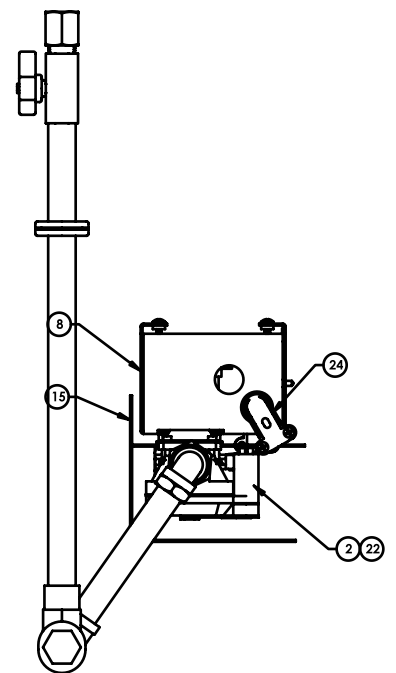
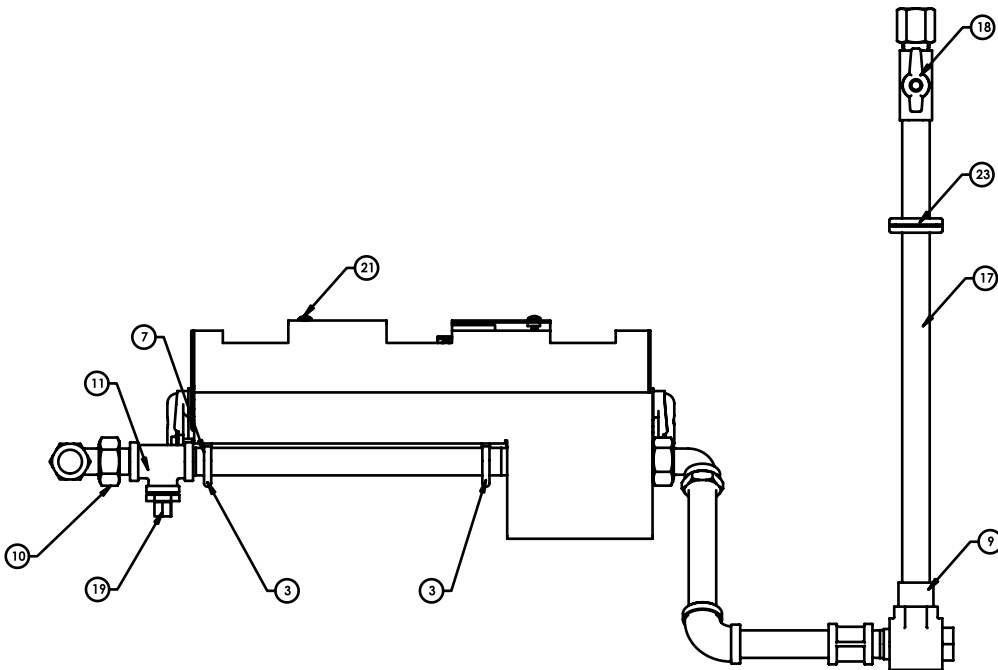
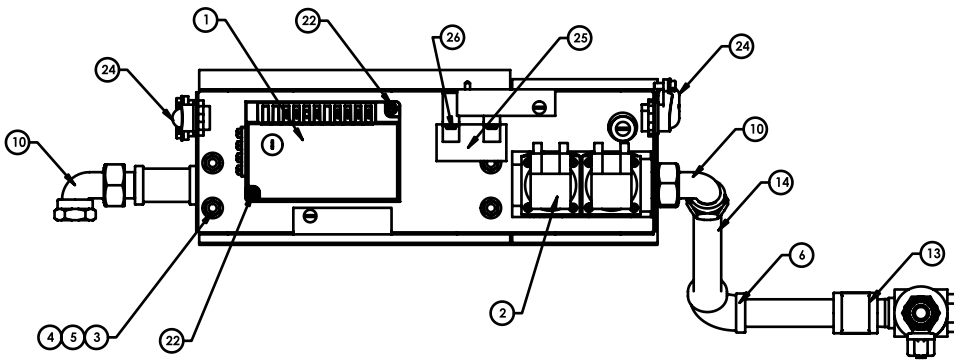


## Stand and Foot Assembly Parts List



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

# Gas Piping Assemblies Parts List

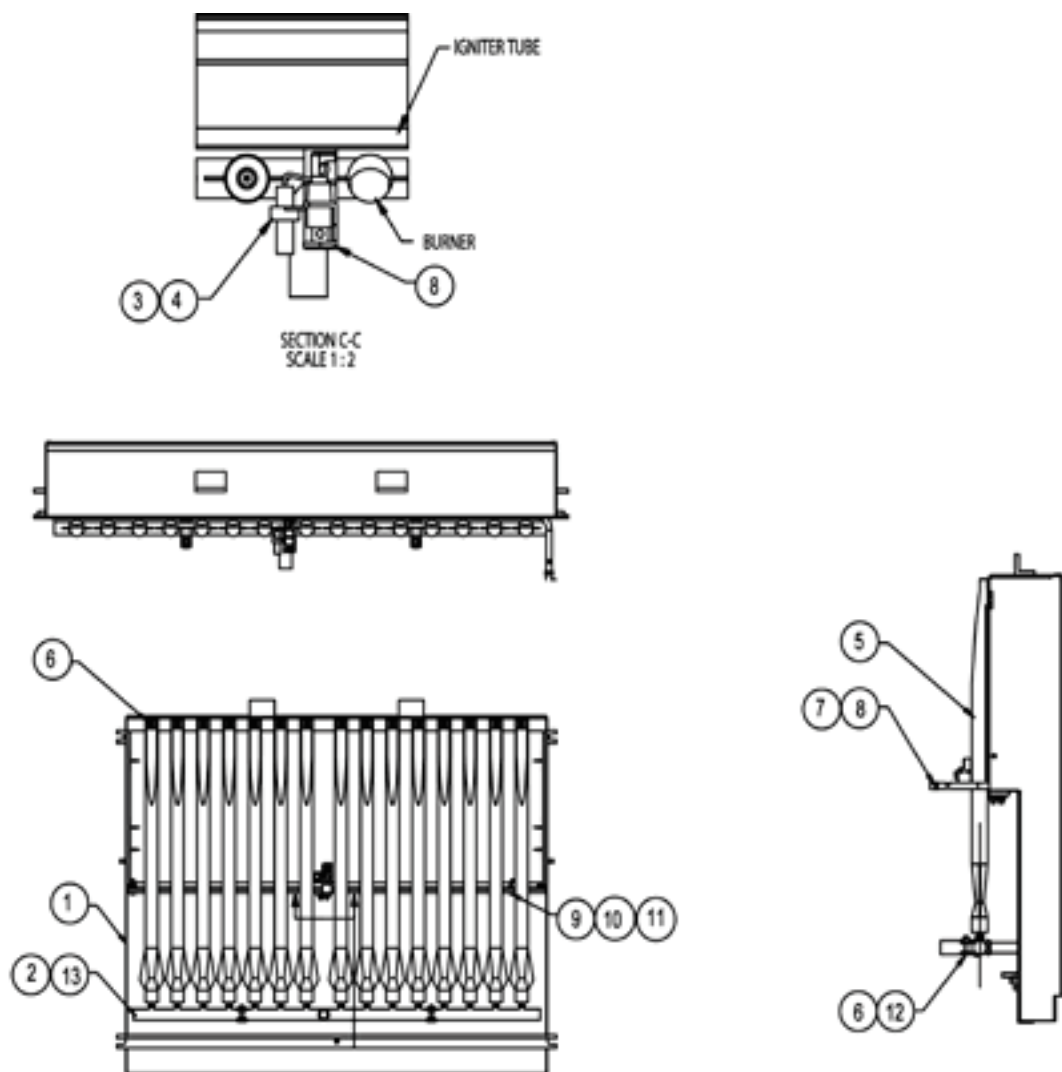




## Gas Piping Assemblies Parts List

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	160775
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	069788
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	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	160776
25	1	GAS CONTROL VALVE-ELECTRONIC IGNITION-PROPANE	160796
26	1	HIGH LIMIT THERMOSTAT (GAS)	119464
27	1	ELBOW FEMALE 90 DEG (NOT SHOWN)	050500
28	1	CONNECTOR, 1/2" RP (BSPT)	116392

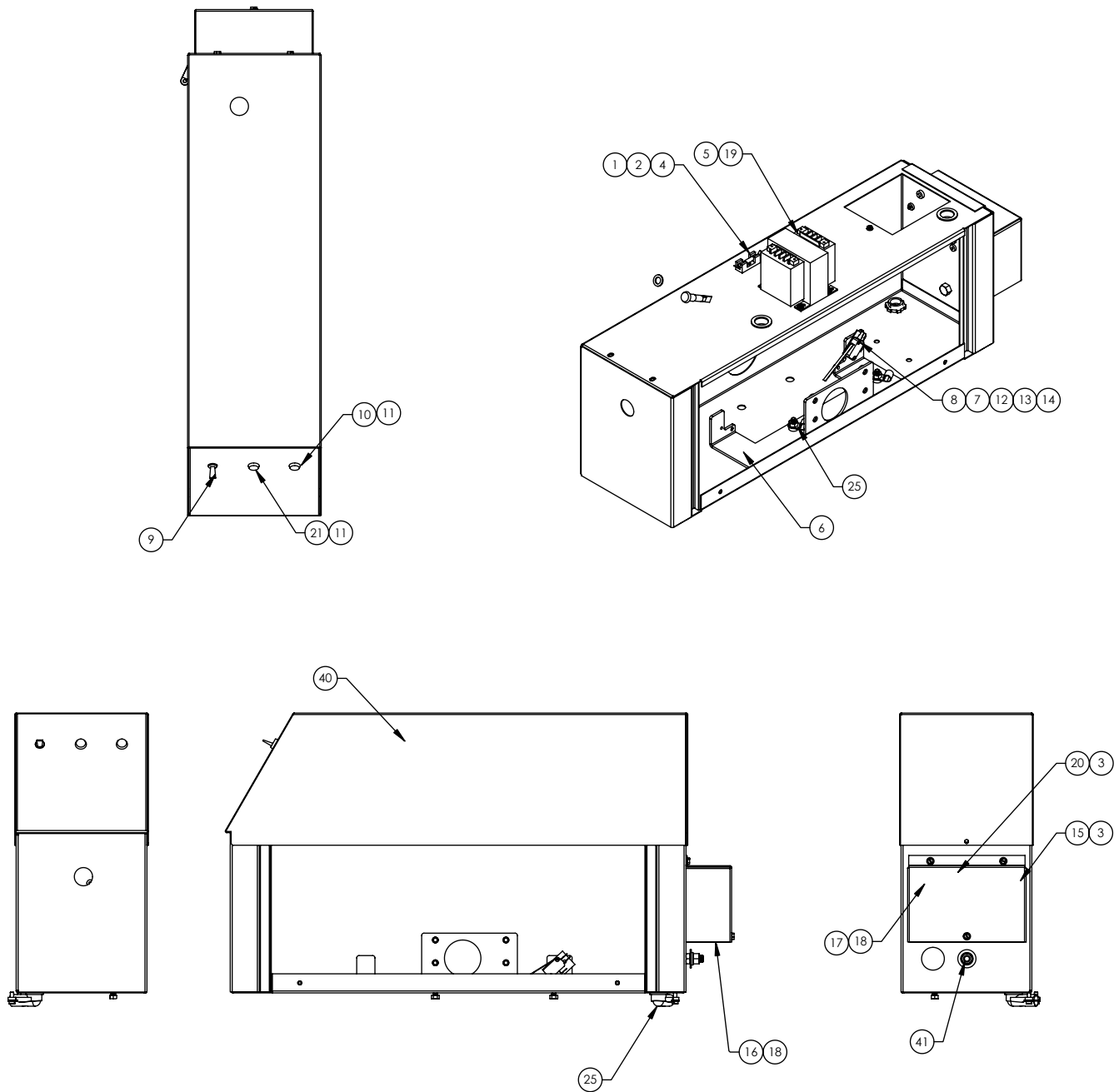
## Combustion Chamber and Gas Manifold Assemblies Parts List



## 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 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	056932
8	1	IGNITION TUBE ORIFICE, -30 GALLON-PROPANE	112603
8	1	IGNITION TUBE ORIFICE, -40 GALLON-NATURAL GAS	101622
8	1	IGNITION TUBE ORIFICE, -40 GALLON-PROPANE	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	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

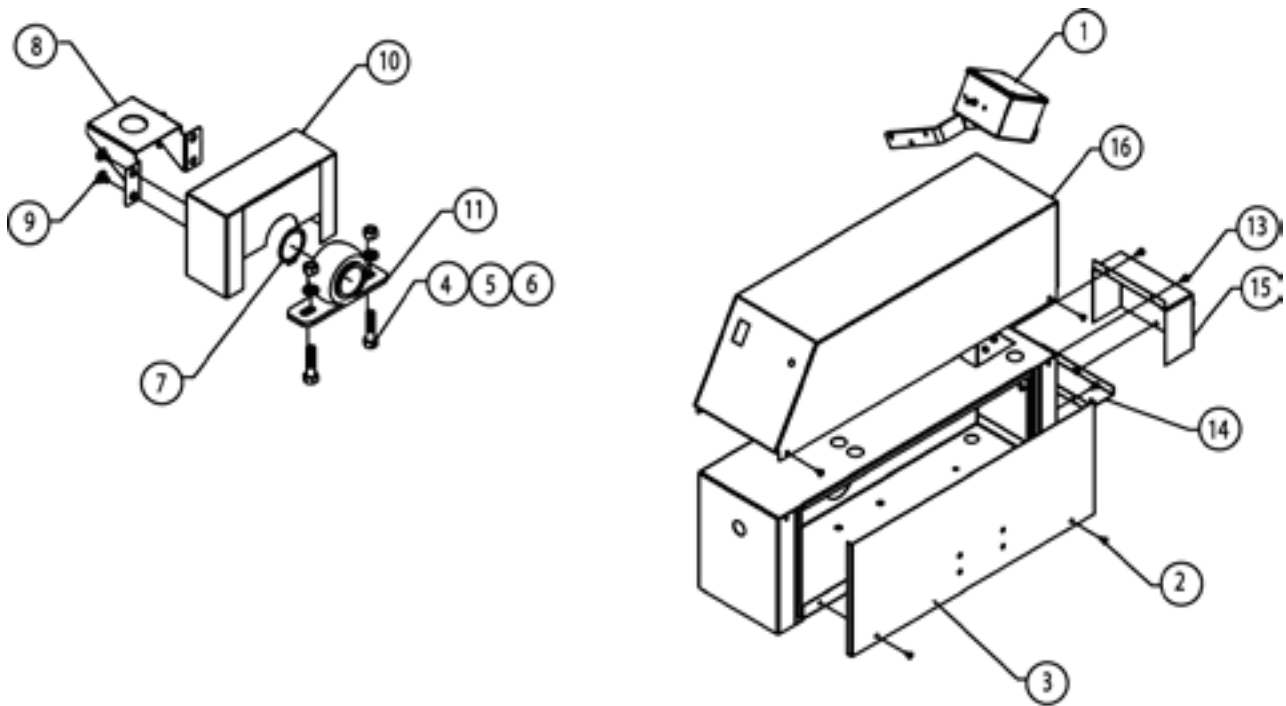
## Electrical Control Components-Gas Parts List



## Electrical Control Components-Gas Parts List

		ELECTRICAL CONTROL COMPONENTS-GAS	
KEY	QTY		PART #
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 -ELECTRONIC IGNITION ONLY	122004
10	1	LIGHT, INDICATOR AMBER 24V AC-ELECTRONIC IGNITION ONLY	116384
11	2	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	160801
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	148899
20	1	TERMINAL BLOCK [2-POLE]-ELECTRONIC IGNITION ONLY	003887
21	1	LIGHT INDICATOR RED - 2aVAC	116383
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)	160836
27	1	WIRING HARNESS POWER HIGH VOLTAGE BPM-30,40G-ELECTRONIC IGNITION ONLY (NOT SHOWN)	160837
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)	119464
35	1	SPARK IGNITION MODULE-ELECTRONIC IGNITION ONLY (NOT SHOWN)	154059
35a	1	FOR MODELS MANUFACTURED BEFORE NOV. 2008, ORDER KIT 154885 UNITS MANUFACTURED AFTER NOV. 2008, USE 154059	154885
36	1	CONTROL THERMOSTAT (GAS), 100-450 (NOT SHOWN)	041700
37	1	THERMOSTAT KNOB (NOT SHOWN)	160825
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	160804
41	1	EQUI POTENTIAL ASSY	122021
43	1	GAS CONTROL VALVE-ELECTRONIC IGNITION-NATURAL GAS (NOT SHOWN)	098443
43	1	GAS CONTROL VALVE-ELECTRONIC IGNITION-PROPANE (NOT SHOWN)	098444

Trunnion Cover Parts List

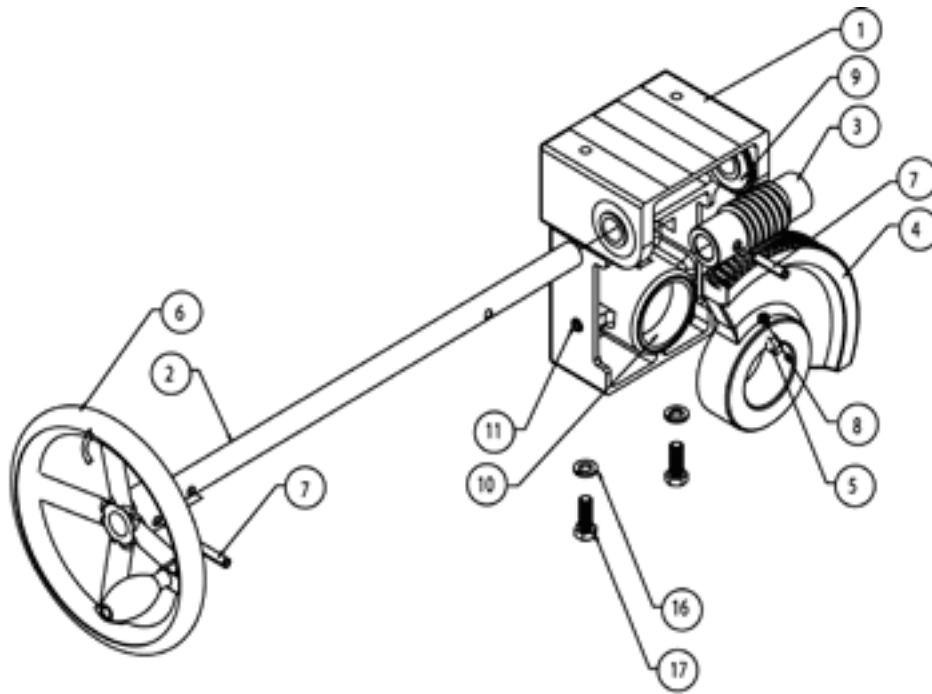


144346

## Trunnion Cover Parts List

		TRUNNION COVERS	
KEY	QTY		
			MANUAL TILT ELECT. IGNITION
1	1	THERMOSTAT BOX ASSEMBLY	146131
1a	4	WASHER LOCK 1/4	005655
1b	1	THERMOSTAT BOX SHELL	146132
1c	1	COVER, CONTROL CONSOLE SHELL,	146147
1d	1	BRACKET, THERMOSTAT BOX	146130
1e	5	NUT DOME HIGH PROFILE - 1/4-20	090567
1f	14 IN	CONDUIT SEALTITE 3/8	054306
1g	1	CONNECTOR 3/8 NPT 45	001696
1h	1	BOOT,RUBBER CAP FOR 3/8	132044
1i	24 IN	CONDUIT SEALTITE 3/8	054306
1j	1	CONNECTOR 3/8 NPT 45	001696
1k	1	CONNECTOR 90 DEG. ELBOW	001695
2	6	SCREW TRUSS HEAD	005764
3	1	RIGHT TRUNNION SIDE PANEL	145688
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
13	5	SCREW-HEX SLOTTED	069773
14	1	TERMINAL BLOCK BOTTOM	160801
15	1	TERMINAL BLOCK BOX	146205
16	1	ELECTRICAL PANEL COVER ASSY	146129
	1	PANEL REAR HEAT SHIELD, BPM-30G (not shown)	150621
	1	PANEL REAR HEAT SHIELD, BPM-40G (not shown)	150622
	64 IN	COVER GASKET (not shown)	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	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



## Parts List - Fuel Gas Conversion

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

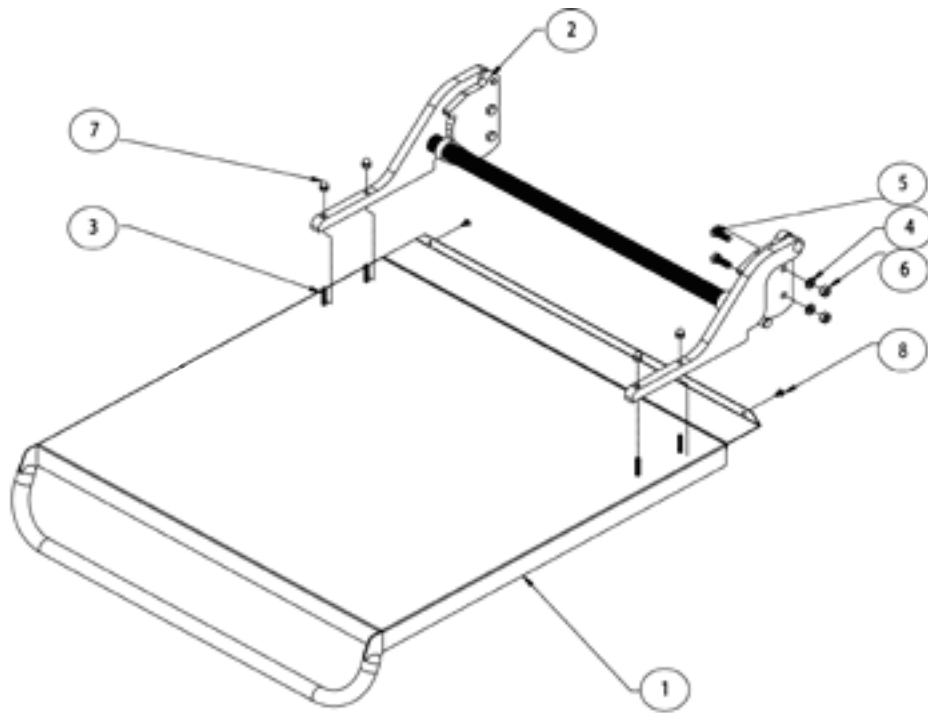
### BPM WITH ELECTRONIC IGNITION

DESCRIPTION	QTY	NAT GAS	LP GAS
Pilot Orifice	1	119449	098647
Burner Orifice	%	128158	146148
Ignition Tube Orifice 40 Gallon	1	101622	101665
Ignition Tube Orifice 30 Gallon	1	056932	112603
Gas Valve	1	160776	160796

### \*Burner Orifice "Quantity" Chart

Model	30 Gallon	40 Gallon
BPM	11	15

## Cover and Counterbalance Assemblies Parts List



Key	Qty	COVER & COUNTERBALANCE ASSEMBLIES	Part #
1	1	COVER ASSEMBLY, 30 GALLON	160861
1	1	COVER ASSEMBLY, 40 GALLON	160808
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	DOMES NUTS, 1/4-20	090567
8	2	SCREW, TRUSS HEAD, #10-32 X 3/8"	004173

## 10. Service Log

Model No. \_\_\_\_\_ Purchased From \_\_\_\_\_  
Serial No. \_\_\_\_\_ Location \_\_\_\_\_  
Date Purchased \_\_\_\_\_ Date Installed \_\_\_\_\_  
Purchase Order No. \_\_\_\_\_ For Service Call \_\_\_\_\_

Date	Maintenance Performed	Performed by

**GROEN®**

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