

Beckett

CORPORATION

RESIDENTIAL & COMMERCIAL HEATING PRODUCTS

CG4 Gas Burner

Appliance Guide



Before Calling a Manufacturer's Tech Service . . .

Before contacting us about your burner, you must have a completed copy of the Contractor Start-Up Form (located inside last page). This information is crucial for troubleshooting and obtaining the correct replacement parts.

WARNING

Professional Service Required



Failure to follow these recommended settings could lead to equipment malfunction and result in asphyxiation, explosion or fire.

- Please read the CG4 manual before proceeding. Follow all instructions completely.
- This equipment must be installed, adjusted and started by a qualified service agency that is licensed and experienced with all applicable codes and ordinances and responsible for the installation and commissioning of the equipment.
- The installation must comply with all local codes and ordinances having jurisdiction and the latest edition of the National Fuel Gas Code ANSI Z223.1 (NFPA 54) and CAN1-B149.1 in Canada.

NOTICE

*Appliances have been tested or verified by Beckett but **NOT** tested or endorsed by the appliance manufacturer, unless noted. These settings are not intended to supersede the appliance manufacturer's published specifications. Always follow the appliance manufacturer's published instructions and recommendations.*

NOTICE

The recommended air settings are intended for use only as a starting point for burner adjustments. The settings cannot make provisions for all installation possibilities. It is important that the burner is adjusted to the installation requirements using properly calibrated flue gas analysis instruments.

NOTICE

Always use calibrated test instruments to set combustion levels. Verify that test instruments are calibrated and in good working condition. If not already provided, drill test access holes in the flue pipe near the breach (or upstream of the boiler breach damper, if applicable) and in the front mounting plate area for firebox pressure. Be careful not to damage any water-backed surface.

For technical assistance please call 1-800-645-2876 (8:00am - 5:00pm EST, Mon-Fri)

ANSI Z21.17a Gas Conversion Burner Standard, requires specific warnings to be placed on the cover of all instruction manuals for gas conversion burners. Below are examples of these types of warnings which must be understood and followed.

⚠ WARNING

Fire or Explosion Hazard



Can cause severe injury, death or property damage

If the information in these instructions is not followed exactly, a fire or explosion may result causing personal injury, death or property damage.

- ***Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.***
- ***WHAT TO DO IF YOU SMELL GAS***
 - Do not try to light any appliance
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- ***Installation and service must be performed by a qualified installer, service agency or the gas supplier.***

⚠ WARNING

Fire, Explosion or Carbon Monoxide Poisoning Hazard



Can cause severe injury, death or property damage

This conversion kit must be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction (in Canada, in accordance with the requirements of the CAN/CGA-B149 Installation Codes). If the information in these instructions is not followed exactly, a fire, explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

CG4 Gas Burner Approvals

The Beckett CG4 Gas Burner has been evaluated by UL and certified to meet the standards for Domestic Gas Conversion Burners for the US and for Canada. The applicable standards met are ANSI Z21.17a-1998 and CSA 2.7-M98 (AMERICAN NATIONAL STANDARD/CSA STANDARD FOR DOMESTIC GAS CONVERSION BURNERS) and they address the burner requirements for the conversion of oil-fired appliances to gas. The CG4 carries the cULus listing mark and is listed under UL file MH60758 for both Domestic Gas Conversion Burner and Domestic Gas Conversion Burner Certified for Canada.

The nature of residential oil appliance fuel conversions makes it impractical to retest and certify the oil appliance for power gas burners. ANSI Z21.17a was developed to provide the requirements for a gas burner that can be used to convert an oil-fired appliance to a gas-fired appliance. ANSI Z21.17a is referenced for oil to gas burner conversions by recognized national codes, such as NFPA 54 and the International Mechanical Code.

Beckett has designed and tested the CG4 to meet ANSI Z21.17a when the burner is installed to our requirements, which are found in the Installation and Operation (I&O) Manual for our respective burner. The I&O Manual is written to the referenced installation standards of ANSI Z21.8 (AMERICAN NATIONAL STANDARD INSTALLATION OF DOMESTIC GAS CONVERSION BURNERS). Local inspectors shall require the contractor to meet local codes and/or ANSI Z21.8, whichever is most restrictive and any additional manufacturer's requirements as identified in the I&O Manual. These steps will satisfy building and occupant safety with respect to the installation of our conversion burner. Heat exchanger warranties are at the sole discretion of the appliance manufacturer. Most maintain the warranty when converted to gas.

Beckett has a growing list of appliances which have successfully been evaluated or verified for conversion to a CG4 gas burner in our application lab. The Beckett manual clearly states:

- "This equipment must be installed, adjusted and started by a qualified service agency that is licensed and experienced with all applicable codes and ordinances and responsible for the installation and commissioning of the equipment."
- "Use test instruments to set combustion" and follow the recommended procedure to attain combustion readings to which the CG4 should be set.

Included with each burner is a tag to be completed by the contractor once the installation is finished. It is imperative that the tag be completed in its entirety by the installer, detailing the appliance and burner information, as well as combustion readings and chimney information. This tag should be referred to during all inspections as well as any time the burner is serviced.

The application testing process verifies the following burner performance criteria as tested on each approved appliance:

- Standard firing rate within the appliance manufacturer's input rating
- Low air setting performance
- High air setting performance and ignition at high air
- Performance at recommended air setting
- Positive chimney draft (+0.1" w.c.) performance at standard air setting
- Negative chimney draft (-0.1" w.c.) performance at standard air setting
- Acceptable stack temperature above 325°F at 90% reduced input rate
- Cold air operation at standard air setting

Safety Check-off List

Recommendations

- Follow installation manual instructions.
- Verify incoming gas pressure.
- Verify the BTU rating of gas meter.
- Verify that the pipe size meets the input BTU rating of the appliance
- Verify combustion air supply meets code requirements (consult local authorities for prevailing codes).
- Verify that area around appliance is free of lint or pet hair.
- Verify condition and size of chimney and venting. Venting must comply with code, including construction, size and liner requirements.
- Verify condition and routing of flue pipe. Total length should be as short as possible (note the quantity of elbows, tees, and location of draft regulators).
- Verify type of draft regulator.
- Verify clearances to combustibles, including chimney connector, burner, and appliance.
- NOTICE:** A manometer and combustion analyzer are required tools for proper installation and adjustment.

When Converting from Oil to Gas

- Thoroughly clean heat exchanger of appliance.
- Replace chamber kit.
- Seal up boiler sections, clean out plates and boiler mounting plate.
- Install double action draft regulator.
- Install thermal safety switch (ex. Field Controls GSK-3 or similar).
- Adjust burner to operate at no less than 90% of input of the appliance rating plate (GPH x 140,000 x .9 = lowest BTU firing rate).
- Verify stack temperature is at a minimum of 325°F or appliance manufacturer's recommended setting.
- Be aware that failure to maintain proper stack temperature could result in condensed flue gas and cause chimney damage which could result in CO leakage into dwelling.

How To order a Complete Burner from the chart below :

- 1). Select the Burner Chassis Part Number.**
- 2). Air Tube Combination Part Number.**
- 3). Assemble following the manual supplied with the burner chassis.**

Beckett Tested or Verified Appliance List

NOTICE

Appliances have been tested or verified by Beckett but **NOT** tested or endorsed by the appliance manufacturer, unless noted. These settings are not intended to supersede the appliance manufacturer's published specifications. Always follow the appliance manufacturer's published instructions and recommendations.

WARNING

Professional Service Required

Failure to follow these recommended settings could lead to equipment malfunction and result in asphyxiation, explosion or fire.

- Please read the CG4 manual and follow all instructions completely.
- The installation must comply with all local codes and ordinances having jurisdiction and the latest edition of National Fuel Gas Code ANSI Z223.1 (NFPA 54) and CAN1-B149.1 in Canada.

NOTICE

The recommended air settings are intended for use only as a starting point for burner adjustments. The settings cannot make provisions for all installation possibilities. It is important that the burner is adjusted to the installation requirements using properly calibrated flue gas analysis instruments.

Buderus

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
G115-3	96,000	90,000	CG4001	CG4BUF3	F3G	5.25"	0.234	0.177	5880	S-7 / B-0	Blank
G115-4	126,000	130,000	CG4001	CG4BUF3	F3G	5.25"	0.364	0.234	NONE	S-5 / B-0	4 - Slot
G115-5	154,000	145,000	CG4001	CG4BUF4	F4G	5.25"	0.316	0.234	5880	S-10 / B-1	4 - Slot

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
G215-3*	154,000	145,000	CG4001	CG4BUF4	F4G	5.25"	0.316	0.234	NONE	S-5 / B-0	4 - Slot
G215-4*	196,000	190,000	CG4001	CG4BUF6	F6G	5.25"	0.354	0.256	NONE	S-8 / B-0	4 - Slot

* Heat Exchanger Baffles Must Be Removed to Achieve Appropriate Flue Temperature Above 325°F.

V8 Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
V83	105,000	110,000	CG4001	CG4MUF3	F3G	1.75"	0.277	0.206	5880	S-7 / B-0	Blank
V83	147,000	145,000	CG4001	CG4MUF4	F4G	1.75"	0.316	0.234	5880	S-10 / B-0	4 - Slot
V84	147,000	160,000	CG4001	CG4MUF4	F4G	1.75"	0.348	0.246	5880	S-10 / B-0	4 - Slot
V84	189,000	175,000	CG4001	CG4MUF4	F4G	1.75"	0.406	0.261	None	S-6 / B-0	4 - Slot
V85	189,000	190,000	CG4001	CG4MUF6	F6G	1.75"	0.354	0.256	None	S-8 / B-0	4 - Slot
V85	231,000	220,000	CG4001	CG4MUF6	F6G	1.75"	0.422	0.281	None	S-9 / B-0	4 - Slot

MPO Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
MPO115	115,000	110,000	CG4001	CG4BMPOF3	F3G	2.00"	0.277	0.266	5880	S-8 / B-0	4 - Slot
MPO147*	147,000	145,000	CG4001	CG4BMPOF4	F4G	2.00"	0.316	0.234	5880	S-6 / B-0	4 - Slot
MPO189*	189,000	190,000	CG4001	CG4BMPOF4	F4G	2.00"	None	0.281	None	S-10 / B-1	4 - Slot

* Heat Exchanger Baffles Must Be Removed to Achieve Appropriate Flue Temperature Above 325°F.

TWZ Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
TWZ075	105,000	110,000	CG4001	CG4SFF3	F3G	1.75"	0.277	0.206	5880	S-7 / B-0	Blank
TWZ100	140,000	140,000	CG4001	CG4SFF3	F3G	1.75"	N/A	0.242	None	S-7-1/2 / B-0	4 - Slot
TWZ125	175,000	160,000	CG4001	CG4SFF4	F4G	1.75"	0.348	0.246	None	S-6-1/2 / B-0	4 - Slot
TWZ175	245,000	220,000	CG4001	CG4SFF6	F6G	1.75"	0.422	0.281	None	S-9 / B-0	4 - Slot

KSZ Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
KSZ075	105,000	110,000	CG4001	CG4SFF3	F3G	1.75"	0.277	0.206	5880	S-7 / B-0	Blank
KSZ100	140,000	140,000	CG4001	CG4SFF3	F3G	1.75"	N/A	0.242	None	S-7-1/2 / B-0	4 - Slot
KSZ125	175,000	160,000	CG4001	CG4SFF4	F4G	1.75"	0.348	0.246	None	S-6-1/2 / B-0	4 - Slot
KSZ175	245,000	220,000	CG4001	CG4SFF6	F6G	1.75"	0.422	0.281	None	S-9 / B-0	4 - Slot

FWZ Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
FWZ080	112,000	110,000	CG4001	CG4BMPOF3	F3G	2.00"	0.277	0.266	5880	S-8 / B-0	4 - Slot
FWZ100*	147,000	145,000	CG4001	CG4BMPOF4	F4G	2.00"	0.316	0.234	5880	S-6 / B-0	4 - Slot
FWZ130*	189,000	190,000	CG4001	CG4BMPOF4	F4G	2.00"	None	0.281	None	S-10 / B-1	4 - Slot

* Heat Exchanger Baffles Must Be Removed to Achieve Appropriate Flue Temperature Above 325°F.

Peerless

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
WBV-3 - 085	119,000	120,000	CG4001	CG4PBF3	F3G	2.50"	0.316	0.219	None	S-3.5 / B-0	4 - slot
WBV-3 - 105	147,000	140,000	CG4001	CG4PBF3	F3G	2.50"	None	0.242	None	S-7 / B-0	4 - slot
WBV-4 - 125	175,000	175,000	CG4001	CG4PBF4	F4G	2.50"	0.406	0.261	None	S-8 / B-0	4 - slot
WBV-4 - 150	210,000	190,000	CG4001	CG4PBF4	F4G	2.50"	None	0.281	None	S-10 / B-0	4 - slot

Peerless

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
EC-3	140,000	140,000	CG4001	CG4PBF3	F3G	2.50"	None	0.242	None	S-7 / B-0	4 - slot
EC-4	175,000	190,000	CG4001	CG4PBF4	F4G	2.50"	None	0.281	None	S-10 / B-2	4 - slot
EC-5	245,000	250,000	CG4001	CG4PBF6	F6G	2.50"	None	0.312	None	S-10 / B-4	4 - slot

FR Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
FR-98	119,000	120,000	CG4001	CG4MUF3	F3G	1.75"	0.316	0.219	Yes	S-8 / B-0	4 - slot
FR-122	154,000	140,000	CG4001	CG4MUF3	F3G	1.75"	None	0.242	No	S-7 / B-0	4 - slot
HGSI	140,000	140,000	CG4001	CG4MUF3	F3G	1.75"	None	0.242	No	S-7 / B-0	4 - slot

CL Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
CL3-105	105,000	110,000	CG4001	CG4MUF3	F3G	1.75"	0.277	0.206	5880	S-7 / B-0	Blank
CL4-175	175,000	160,000	CG4001	CG4MUF4	F4G	1.75"	0.348	0.246	None	S-6-1/2 / B-0	4 - Slot
CL5-245	245,000	220,000	CG4001	CG4MUF6	F6G	1.75"	0.422	0.281	None	S-9 / B-0	4 - Slot

CL-HGS Series

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
CL-HGS	114,000	110,000	CG4001	CG4BMPOF3	F3G	2.00"	0.277	0.266	5880	S-8 / B-0	4 - Slot
CL-HGS*	147,000	145,000	CG4001	CG4BMPOF4	F4G	2.00"	0.316	0.234	5880	S-6 / B-0	4 - Slot
CL-HGS*	189,000	190,000	CG4001	CG4BMPOF4	F4G	2.00"	None	0.281	None	S-10 / B-1	4 - Slot

* Heat Exchanger Baffles Must Be Removed to Achieve Appropriate Flue Temperature Above 325°F.

Slant/Fin Intrepid

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
TR-30	140,000	140,000	CG4001	CG4SFF3	F3G	1.75"	None	0.242	None	S-8 / B-0	4 - slot
TR-40	210,000	190,000	CG4001	CG4SFF4	F4G	1.75"	None	0.281	None	S-10 / B-3	4 - slot

Thermo Dynamics

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
CWL	119,000	130,000	CG4001	CG4TDF4	F4G	3.50"	0.231	0.217	5880	S-10 / B-1	4 - slot
CWL	140,000	145,000	CG4001	CG4TDF4	F4G	3.50"	0.316	0.234	5880	S-10 / B-3	4 - slot

Utica Starfire

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
SFH-3085W	119,000	120,000	CG4001	CG4UTF3	F3G	2.25"	0.316	0.219	Yes	S-10 / B-1	4 - slot
SFH-3100W	140,000	140,000	CG4001	CG4UTF3	F3G	2.25"	None	0.242	No	S-10 / B-0	4 - slot
SFH-4100W	140,000	145,000	CG4001	CG4UTF4	F4G	2.25"	0.316	0.234	Yes	S-10 / B-3	4 - slot

Weil-McLain Gold

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
GO2*	105,000	100,000	CG4001	CG4WMF3	F3G	3.00"	0.250	0.189	5880	S-4.5 / B-0	Blank
GO3R	112,000	120,000	CG4001	CG4WMF3	F3G	3.00"	0.316	0.219	5880	S-9 / B-0	4 - slot
GO3	133,000	130,000	CG4001	CG4WMF3	F3G	3.00"	0.364	0.234	None	S-6 / B-0	4 - slot
GO4R	140,000	145,000	CG4001	CG4WMF4	F4G	3.00"	0.316	0.234	5880	S-10 / B-1	4 - slot
GO4	168,000	160,000	CG4001	CG4WMF4	F4G	3.00"	0.348	0.246	None	S-6.5 / B-0	4 - slot
GO5R	168,000	175,000	CG4001	CG4WMF4	F4G	3.00"	0.406	0.261	None	S-7.5 / B-0	4 - slot
GO5	203,000	190,000	CG4001	CG4WMF4	F4G	3.00"	None	0.281	None	S-10 / B-0	4 - slot

*** Must Use 7.00" Flue Only.**

Weil-McLain Ultra

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
UO3*	140,000	140,000	CG4001	CG4MUF3	F3G	1.75"	None	0.242	None	S-8 / B-0	4 - slot
UO4*	160,000	160,000	CG4001	CG4MUF4	F4G	1.75"	0.348	0.246	None	S-7 / B-0	4 - slot
UO5*	196,000	190,000	CG4001	CG4MUF4	F4G	1.75"	None	0.281	None	S-10 / B-2	4 - slot

*** Heat Exchanger Baffles Must Be Removed to Achieve Appropriate Flue Temperature Above 325°F.**

Williamson

Appliance	Appliance Input BTU	Beckett Required Input BTU	Burner Chassis Part #	Air Tube Combination Part #	Head	Insertion	NG Orifice Size	LP Orifice Size	Baffle	Air Settings Shutter /Band (see notices)	Air Band / Slot Number
OWB/OWT-3	98,000	100,000	CG4001	CG4WMF3	F3G	3.00"	0.250	0.189	5880	S-4.5 / B-0	Blank
OWB/OWT-3	133,000	130,000	CG4001	CG4WMF3	F3G	3.00"	0.364	0.234	None	S-6 / B-0	4 - slot
OWB/OWT-4	140,000	145,000	CG4001	CG4WMF4	F4G	3.00"	0.316	0.234	5880	S-10 / B-1	4 - slot
OWB/OWT-4	168,000	160,000	CG4001	CG4WMF4	F4G	3.00"	0.348	0.246	None	S-6.5 / B-0	4 - slot
OWB/OWT-5	168,000	175,000	CG4002	CG4WMF4	F4G	3.00"	0.406	0.261	None	S-7.5 / B-0	4 - slot
OWB/OWT-5	203,000	190,000	CG4001	CG4WMF4	F4G	3.00"	None	0.281	None	S-10 / B-0	4 - slot

Notes:

Blank Air Band included in CG4XXF3 ATC combinations

See Manual for operating pressure requirements