

# WEIL-McLAIN



Available in individual sections ...  
with factory-assembled sections ...  
or as complete package units.

AMERICA'S MOST COMPLETE LINE OF CAST IRON BOILERS  
RESIDENTIAL ... COMMERCIAL ... INDUSTRIAL ... INSTITUTIONAL

# LGB

SERIES 2

## COMMERCIAL GAS BOILER

NET LOAD RANGE

**HOT WATER:**  
458,000 to  
2,014,000 BTU/Hr.

**STEAM:**  
1,646 to  
7,496 sq. ft.



Design certified by  
American Gas Association



Net ratings are approved by  
The Hydronics Institute



Built in accordance  
with the requirements  
of the ASME Boiler and  
Pressure Vessel Code

**LGB** COMMERCIAL  
GAS BOILER

**WEIL-McLAIN**  
MICHIGAN CITY INDIANA

The Weil-McLain LGB cast iron gas boiler is designed to meet the heating requirements of a wide range of commercial, industrial, and institutional buildings. The boiler is available in 18 sizes with net I-B-R water ratings from 458,000 to 2,014,000 BTU/Hr.; 1,646 to 7,496 sq. ft. steam.

The LGB is designed for fast installation, space conservation, energy efficiency, convenient servicing, and long life. It is available in individual sections, with factory-assembled sections, or as a fire-tested package unit. Major features include 81% operating efficiency, patented section sealing method, factory-assembled base and burners, and, of course, Weil-McLain cast iron construction.

Most important, the LGB is made in America by Weil-McLain, the leading name in cast iron boilers for over 110 years.

## MULTIPLE BOILER SYSTEMS

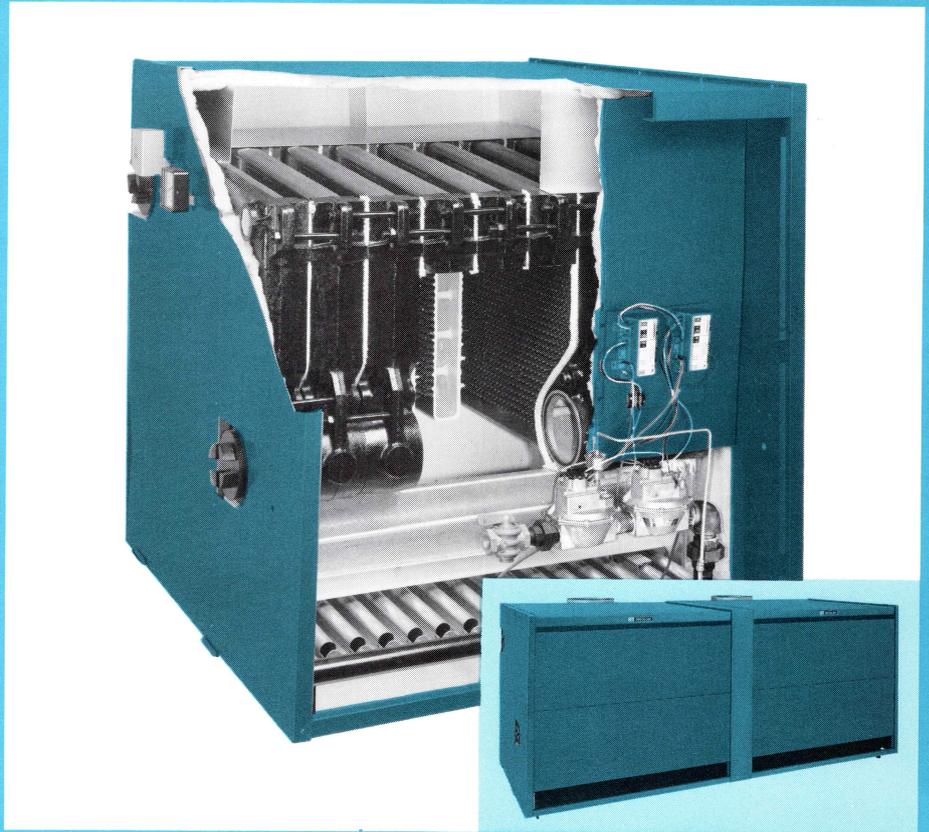
Two or more LGB boilers can be used in place of one large-capacity boiler to meet the space heating requirements of larger buildings.

With multiple LGB boilers, system operating efficiency is increased since the boilers can be sequenced so only those required to meet the heating load are fired. In addition, individual boilers may be isolated from the system if service is ever required and additional boilers may be added should heating requirements increase.

Weil-McLain also has special Easy-Fit® manifolds to simplify piping, plus a number of Energy Management Control Systems (EMCS) for multiple boiler applications.

Contact the Weil-McLain Applications Engineering Department for information on LGB Multiple Boiler Systems.

## DESIGN ADVANTAGES



- 1 81% operating efficiency** saves energy. The LGB is the highest-efficiency cast iron commercial atmospheric gas boiler available. Exceeds efficiency requirements of ASHRAE 90.1.
- 2 Cast iron sections** for corrosion resistance and long life.
- 3 Compact design** saves valuable space. The LGB is only 50 $\frac{3}{8}$ " high, allowing more headroom for piping and venting.
- 4 Patented section sealing method**, short draw rods, and sealing rope speed section assembly to reduce installation time.
- 5 Extra-large 9" top port opening** forms an internal header for better water circulation. Large steaming area assures rapid generation of dry steam.
- 6 A.G.A. Design Certified** for natural and propane gas. Ratings approved by The Hydronics Institute (I-B-R). Built in accordance with the requirements of the ASME code.
- 7 Factory-assembled base and burners** reduce installation time. The gas train is also assembled.
- 8 Simplified piping.** The largest LGB steam boiler requires only two risers.
- 9 Built-in air separator** in water boilers. Air is diverted to the expansion tank through a 1" tapping next to the supply outlet.
- 10 Steel jacket** with durable powdercoat finish in Weil-McLain blue...completely insulated...designed for fast installation.

## CAST IRON SECTIONS

LGB sections are made of durable cast iron for long life. It's not uncommon for Weil-McLain cast iron boilers to last 35 years or more.

Sections are not face-ground; the tough outer skin is retained to protect against corrosion.

The sections are studded with heat pins that cause the hot gases to swirl about, scrubbing the entire surface for greater heat transfer and maximum operating efficiency.

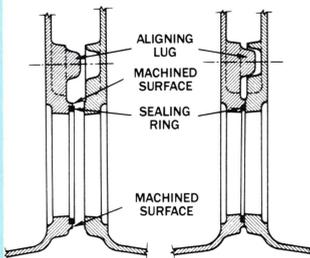


## SEALING ROPE

Sealing rope between the LGB sections assures a permanent, gastight seal. When installed, the rope is visible between sections so the boiler can be checked for tightness. Sealing rope—a standard feature of Weil-McLain commercial boilers—allows for expansion and contraction of the sections, is impervious to heat and moisture, will not crack, and will last for the life of the boiler.

Patent No. 3,626,908

## SECTION SEAL

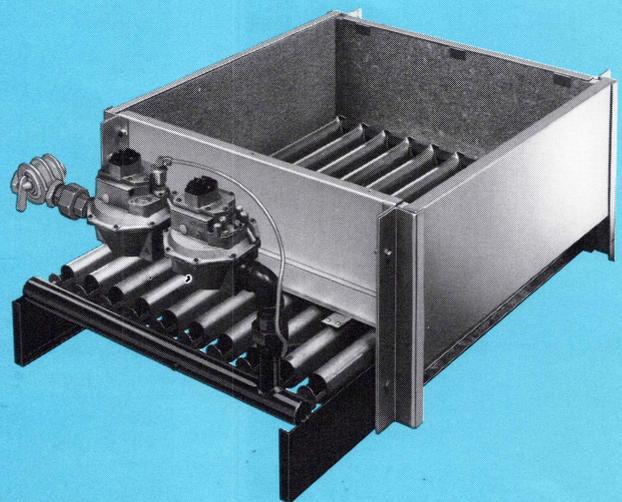


Modern elastomer sealing rings in the port openings assure a watertight seal. Because of the elasticity of the seals (unlike metal push nipples) they fill any gaps caused by imperfections in the port openings, misalignment of sections or expansion and contraction.

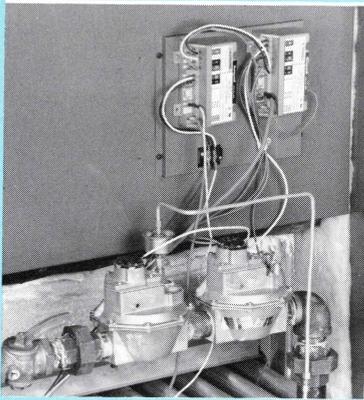
Combined with short draw rods, sealing rings also permit faster section assembly. Lugs and sockets assure proper section alignment during assembly; the machined surfaces of the port openings control the compression ratio of the rings.

## FACTORY-ASSEMBLED BASE AND BURNERS

Base, burners, and manifold for the LGB are assembled at the factory; the gas train is also assembled. One burner-base assembly and one gas train are furnished for LGB-6 through 12 boilers; two of each for LGB-13 through 23. The base assembly is packed in a wire-bound crate.



## WFG FLAME GUARDIAN® CONTROL SYSTEM



The LGB is furnished with a Weil-McLain WFG flame-rectification electronic control system. A mounting plate with two Weil-McLain UCM universal ignition control modules and a prewired terminal block is furnished as standard equipment with each base assembly.

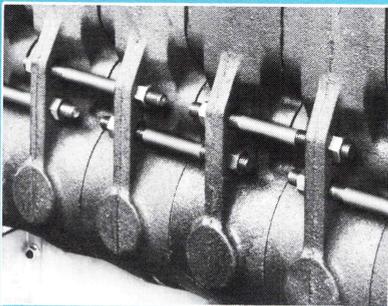
On a call for heat, the pilot-proving module produces a spark to ignite the pilot. When the pilot flame is proven, the first stage of the two-stage gas valve opens—all burners then light off on low fire. When the main flame rod proves carryover, the main flame-proving module opens the second stage of the gas valve and the burners go to high fire. Starting cycle time is approximately five seconds.

The control system provides multiple ignition trials and 100% shutoff. The system has been certified by A.G.A. and all components are UL-Listed.

## LOW-HIGH-LOW FIRING

The LGB may be low-high-low fired by controlling the operation of the gas valve with a water temperature or steam pressure control.

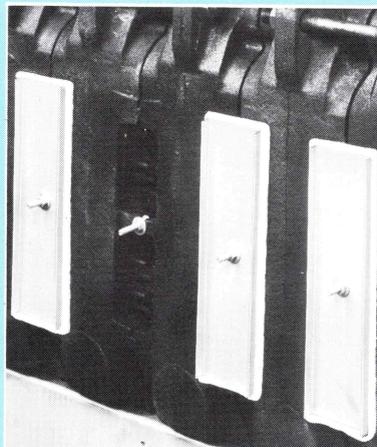
## SHORT DRAW RODS



LGB sections are designed for fast assembly with multiple sets of short draw rods. This standard feature of Weil-McLain commercial boilers assures a strain-free assembly.

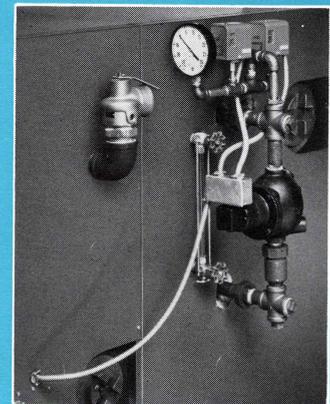
Inspection tappings (1½") with brass plugs are available as additional equipment. These tappings are located on either side at the bottom of intermediate and end sections.

## BACK CLEANING



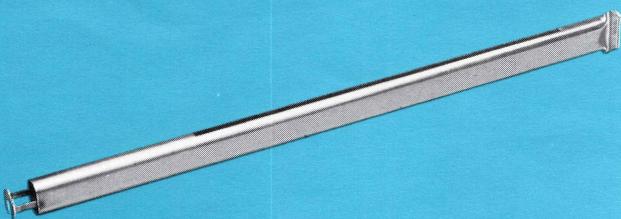
Removing the back jacket panel and the steel cleanout plates exposes the flue passages for inspection and cleaning.

## WIRING HARNESS



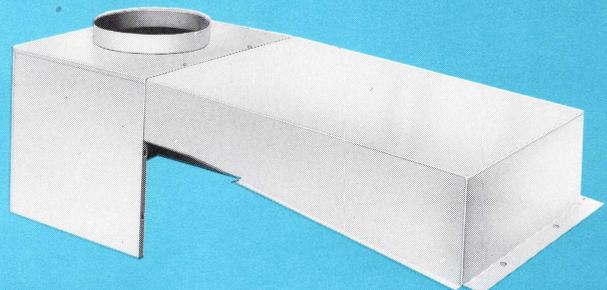
LGB water and steam boilers are furnished with a wiring harness—junction box and prewired flexible conduit—to simplify field connections.

## ALUMINIZED STEEL BURNERS



One-piece, high-temperature aluminized steel burners are furnished with LGB boilers. These burners feature efficient performance, excellent flame characteristics, and quiet ignition and extinction. Burners provide fixed primary air—no air adjustment required for approved gases.

## DRAFT HOODS



The draft hood is joined to the collector hood horizontally to reduce headroom requirements. Hoods are made of heavy-gauge aluminized steel. One hood is used for LGB-6 through 12 boilers; two for LGB-13 through 23. Outlets are standard size—12", 14", or 16".

## STANDARD EQUIPMENT

Cast Iron Sections  
 Insulated Steel Jacket  
 Aluminized Steel Collector Hood(s) and Draft Hood(s)  
 Factory-Packaged Burner-Base Assembly(ies)  
 One-Piece Aluminized Steel Burners  
 Gas Distribution Manifold  
 Aluminized Steel Base Panels  
 High-Temperature Insulation Board Panels  
 Wiring Harness—Junction Box and Prewired Flexible Conduit  
 Factory Prepped Gas Control Assembly(ies)—24 Volt  
 Manual Main Shutoff Gas Valve(s)  
 Pilot Solenoid Valve(s)  
 Secondary Gas Valve(s)  
 Combination Two-Stage Gas Valve(s) and Pressure Regulator

High Gas Pressure Switches (LGB-21 through 23 only)  
 Control Transformer—120/24 Volt Junction Box  
 WFG Flame Rectification Electronic Control System for Each Base Assembly  
 Prewired Mounting Plate with Terminal Block and Two Weil-McLain UCM Universal Ignition Control Modules with Integral Spark Generators  
 Intermittent Electronic Ignition Pilot System  
 Electronically Supervised Pilot Burner with Separate Ignition Electrode and Flame Rod  
 Main Flame Sensor Rod

Operating Temperature Control (LGB-21 through 23 only)  
 High-Limit Temperature Control (LGB-21 through 23 only)  
 Combination Pressure-Temperature-Altitude Gauge  
 30 PSI ASME Safety Relief Valve—Side Outlet (Boilers tested for 50 PSI working pressure)  
 Probe-type low-water cutoff (package unit only)  
 Built-In Air Separator in End Sections

### STEAM BOILERS

Operating Pressure Control  
 High-Limit Pressure Control  
 Compound Pressure-Vacuum Gauge  
 Siphon  
 Gauge Cocks, Glass, and Guards  
 15 PSI ASME Safety Valve—Side Outlet  
 Float-Type Low-Water Cutoff

### WATER BOILERS

Combination Operating and High-Limit Temperature Control (for LGB-6 through 20 only)

## ADDITIONAL EQUIPMENT

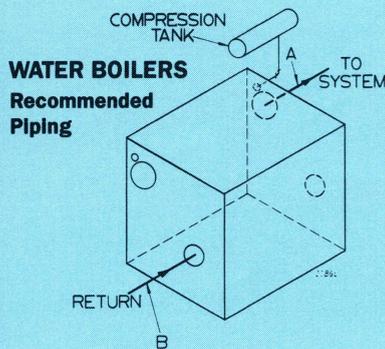
Factory-Assembled Sections (LGB-6 through 14 only)  
 Fire-Tested Package Unit (LGB-6 through 14 only)  
 1½" Inspection Tappings with Brass Plugs—two for each section

Water Level Controls and Low-Water Cutoffs  
 Low-High-Low Firing  
 WFFP-1 and 2 Control Panels  
 WMBC-1 and WMBC-2 Control Systems with Panel and Motorized IRI Gas Train

Energy Management Control Systems  
 I.R.I., F.M. and CSD.1 Controls  
 Natural Gas to Propane Gas Conversion Kit

## RECOMMENDED PIPING CONNECTIONS

NOTE: Supply and return sizes for water boilers refer to minimum size of pipe connected to boiler for 20° or higher temperature drop between supply and return.



Boiler Size	Pipe Size*	
	A (Supply)	B (Return)
LGB-6 thru 8	3"	3"
LGB-9 thru 16	4"	4"
LGB-17 thru 23	5"	5"

\* For minimum of 10 pipe diameters from boiler.

**Alternate Piping**—(LGB-6 through LGB-12 only). If desired, all three piping connections (supply, return, and compression tank) can be taken off same end of the boiler.

### STEAM BOILERS

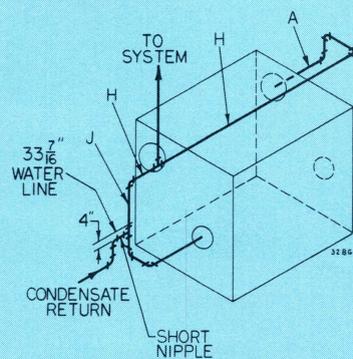


FIG. 1

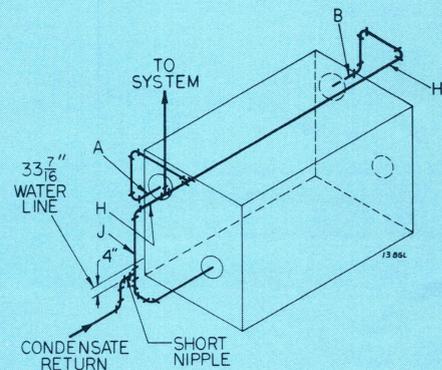


FIG. 2

Fig. No.	Boiler Size	Riser Pipe Size		Header* H	Equalizer J
		A	B		
1	LGB-6 thru 8	4"	—	4"	2"
1	LGB-9 thru 11	5"	—	5"	2½"
1	LGB-12	6"	—	6"	2½"
2	LGB-13 thru 15	4"	4"	6"	4"
2	LGB-16 thru 19	5"	5"	6"	4"
2	LGB-20 thru 23	6"	6"	8"	4"

\*24" minimum from waterline to header.

## ADDITIONAL FLAME GUARDIAN CONTROL SYSTEMS

Two Flame Guardian electronic control systems are available as additional equipment for the LGB boiler:

- WFFP prewired control panel for the standard LGB control system.
- WMBC control system with prewired control panel and motorized gas train to comply with Industrial Risk Insurers or Factory Mutual High-Risk requirements.

Boiler Number	Control Panel for Standard LGB Control System	Control System with Panel for IRI or FM-HR Requirements
LGB-6 through 12	WFFP-1	WMBC-1
LGB-13 through 23	WFFP-2	WMBC-2

Weil-McLain WFFP and WMBC prewired control panels incorporate relays, switches, indicator lamps, fuse, and terminal strip in a factory-assembled and tested unit designed for mounting on the boiler or on a wall. The control panel reduces installation costs by simplifying on-the-job wiring.

### WFFP PANEL FEATURES



- Main flame failure lockout.
- Four indicator lamps: call for heat, pilot proven, main flame proven, and flame failure (eight lamps on WFFP-2 panel).
- Isolated alarm contact to indicate flame failure.
- Power-on switch, fuse(es), and terminal strip.
- Optional flame failure alarm bell.

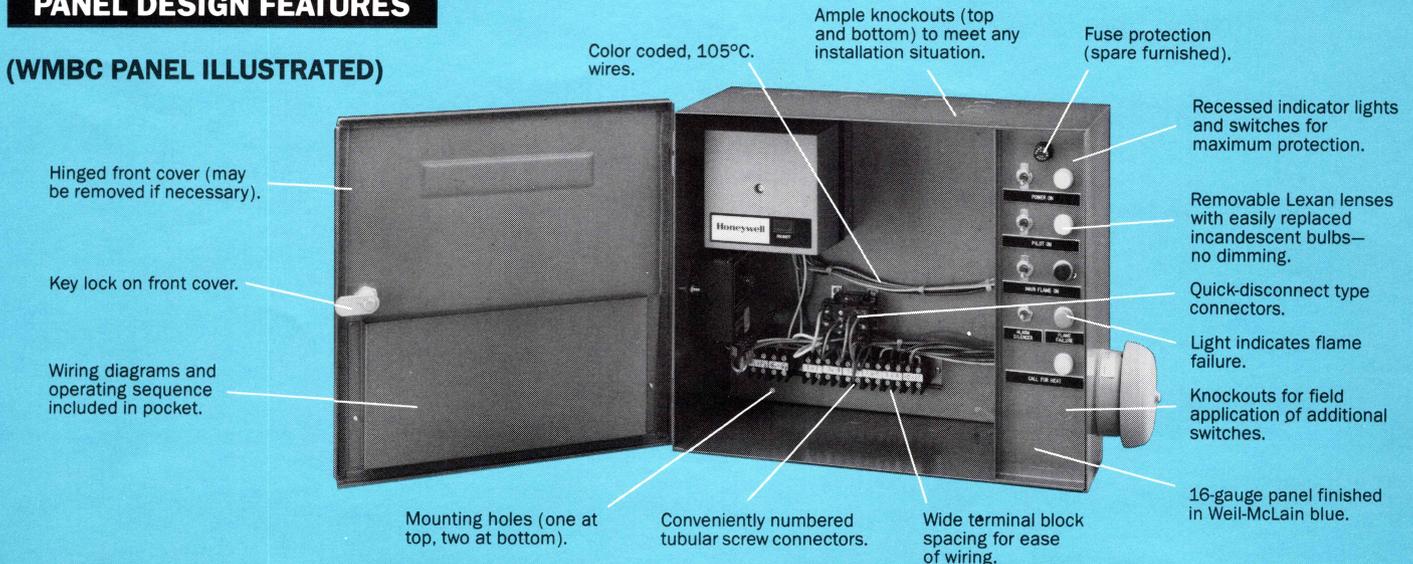
### WMBC SYSTEM FEATURES



- Proven main flame with interruptible pilot—pilot is extinguished after 10-second trial for ignition.
- Pre-purge timer to provide five-minute enforced wait after flame failure.
- Flame failure alarm bell.
- Five indicator lamps: power on, call for heat, pilot on, main flame on, and flame failure.
- High-low fire control terminals. Low-high-low fire may be provided with a water temperature or steam pressure control.
- Flame safeguard primary control.
- Power-on switch, pilot-on switch, main-flame-on switch, alarm silencer switch, fuse, and terminal strip.

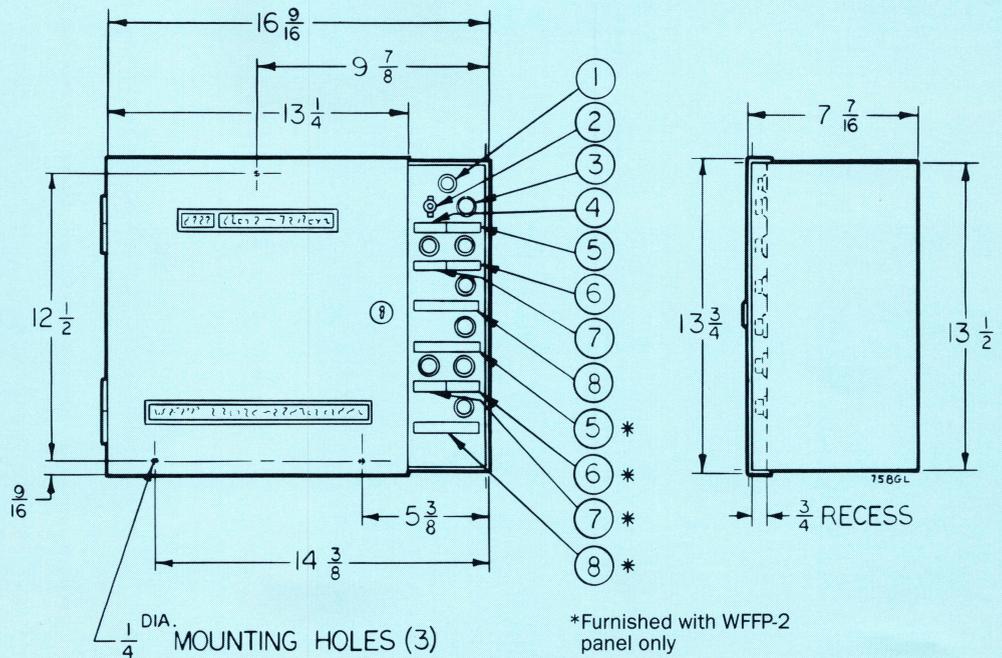
### PANEL DESIGN FEATURES

#### (WMBC PANEL ILLUSTRATED)



## WFFP-1 and 2

1. Fuse (2 fuses with WFFP-2)
2. Toggle switch
3. Indicator light
4. "Power On" label
5. "Call for Heat" label
6. "Pilot Proven" label
7. "Main Flame Proven" label
8. "Flame Failure" label



### STANDARD EQUIPMENT

#### WFFP-1 PANEL (For LGB-6 through LGB-12)

- Prewired Control Panel with
- 30-second time delay relay
  - Two 24-volt DPDT relays
  - Terminal block

- Fuse
- Toggle switch
- Four indicator lamps

#### WFFP-2 PANEL (For LGB-13 through LGB-23)

- Prewired Control Panel with
- Two 30-second time delay relays
  - Four 24-volt DPDT relays

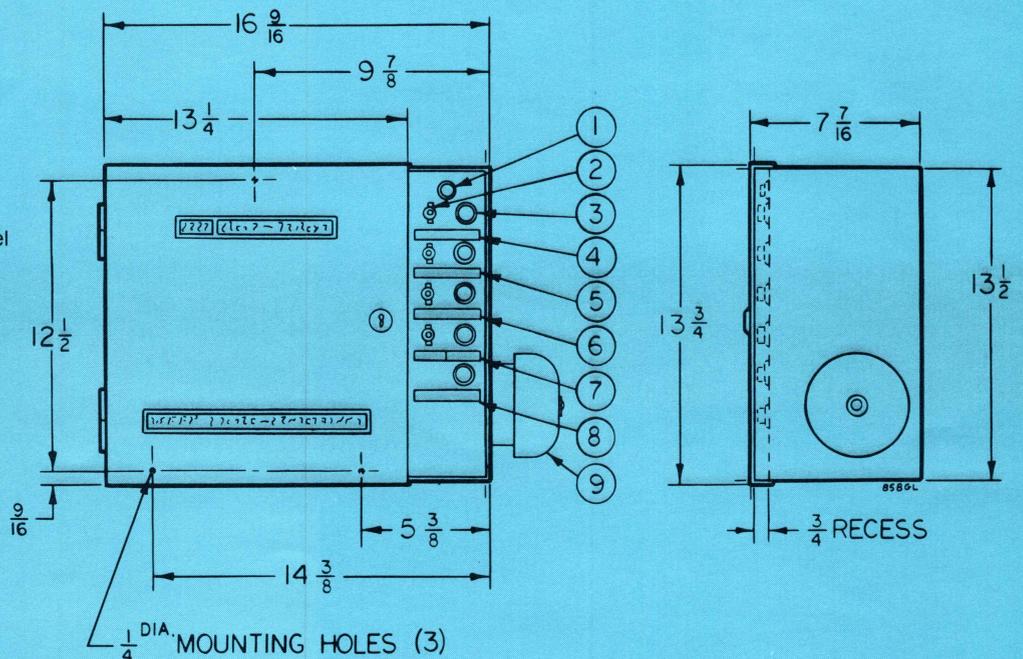
- Terminal block
- Two fuses
- Toggle switch
- Eight indicator lamps

### ADDITIONAL EQUIPMENT

- Alarm Bell and Transformer for Remote Indication of Flame Failure
- Alarm Bell—panel-mounted

## WMBC-1 and 2

1. Fuse
2. Toggle switch
3. Indicator light
4. "Power On" label
5. "Pilot On" label
6. "Main Flame On" label
7. "Alarm Silencer/Flame Failure" label
8. "Call for Heat" label
9. Alarm bell



### STANDARD EQUIPMENT

#### WMBC-1 SYSTEM (For LGB-6 through LGB-12)

- Motorized Gas Train  
Interruptible Pilot  
Prewired Control Panel with
- Flame safeguard primary control
  - Pre-purge control timer
  - Relay
  - Terminal block

- Fuse
- Four toggle switches
- Five indicator lamps
- Alarm bell

#### WMBC-2 SYSTEM (For LGB-13 through LGB-23)

- Motorized Gas Train  
Interruptible Pilot—Main Base  
Intermittent Pilot—Adjacent Base  
Control Module for Intermittent Base  
Prewired Control Panel with
- Flame safeguard primary control
  - Pre-purge control timer
  - Relays
  - Terminal block

- Two fuses
- Four toggle switches
- Five indicator lamps
- Alarm bell

# RATINGS



Boiler Number*	A.G.A. Input MBH +	A.G.A. Gross Output MBH +	Net I-B-R Ratings**			Net Sq. Ft. Water ***	Boiler HP	Boiler Water Content - Gallons		Approx. Shipping Wt. (Lbs.)	Chimney/Breeching Size (I.D.) ▲
			Sq. Ft. Steam	Steam MBH +	Water MBH +			Steam (to Waterline)	Water		
LGB-7	780	631.8	1,975	474	549	3,660	18.9	40.3	63.9	2,005	12"
LGB-8	910	737.1	2,304	553	641	4,275	22.0	46.0	73.0	2,290	14"
LGB-9	1,040	842.4	2,633	632	733	4,885	25.2	51.9	82.1	2,560	14"
LGB-10	1,170	947.7	2,963	711	824	5,495	28.3	57.6	91.2	2,800	16"
LGB-11	1,300	1,053.0	3,292	790	916	6,105	31.5	63.4	100.4	3,105	16"
LGB-12	1,430	1,158.3	3,621	869	1,007	6,715	34.6	69.1	109.5	3,365	16"
LGB-13	1,560	1,263.6	3,954	949	1,099	7,325	37.8	74.9	118.6	3,785	16"
LGB-14	1,690	1,368.9	4,313	1,035	1,190	7,935	40.9	80.7	127.7	4,085	16"
LGB-15	1,820	1,474.2	4,679	1,123	1,282	8,545	44.0	86.4	136.9	4,355	16"
LGB-16	1,950	1,579.5	5,046	1,211	1,373	9,155	47.2	92.2	146.0	4,725	17"
LGB-17	2,080	1,684.8	5,408	1,298	1,465	9,765	50.3	98.0	155.1	4,975	17"
LGB-18	2,210	1,790.1	5,775	1,386	1,557	10,380	53.5	103.6	164.2	5,270	18"
LGB-19	2,340	1,895.4	6,125	1,470	1,648	10,985	56.6	109.5	173.4	5,540	18"
LGB-20	2,470	2,000.7	6,471	1,553	1,740	11,600	59.8	115.3	182.5	5,820	19"
LGB-21	2,600	2,106.0	6,813	1,635	1,831	12,205	62.9	121.0	191.6	6,080	19"
LGB-22	2,730	2,211.3	7,154	1,717	1,923	12,820	66.1	126.8	201.2	6,365	19"
LGB-23	2,860	2,316.6	7,496	1,799	2,014	13,425	69.2	132.5	209.8	6,625	20"

\* Add to boiler number "S" for Steam, "W" for Water. For LGB-6 through 14 only: Add prefix "A" to designator for factory-assembled sections (example: ALGB-6). Add prefix "P" to designator for fire-tested package unit (example: PLGB-6).

+ MBH refers to thousands of BTU per hour.

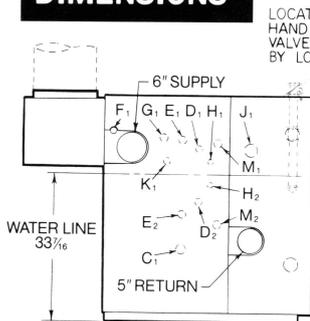
\*\* Net I-B-R ratings are based on net installed radiation of sufficient quantity for the requirements of the building and nothing need be added for normal piping and pick-up. Water ratings are based on a piping and pick-up allowance of 1.15. Steam ratings are based on the following allowances: LGB-6 through 12 - 1.333; LGB-13 - 1.332; LGB-14 - 1.322; LGB-15 - 1.312; LGB-16 - 1.304; LGB-17 - 1.297; LGB-18 - 1.292; LGB-19 - 1.289; LGB-20 through 23 - 1.288. An additional allowance should be made for gravity hot water systems or unusual piping and pick-up loads. Ratings shown are for elevations up to 2,000 feet. For elevations above 2,000 feet, ratings should be reduced at the rate of 4 percent for each 1,000 feet above sea level.

\*\*\* Based on average water temperature of 170°F in heat distributing units.

▲ Twenty-foot (20') chimney height may be used based on using a six-foot (6') length of connector for breeching of the size shown from the nearest draft hood outlet to the chimney or vent with not more than one (1) standard sloping-type 90° elbow. If individual vertical vents are to be used, each vent diameter should be the same size as the respective draft hood outlet and the height may be reduced to five feet (5') measured above the draft hood outlet.

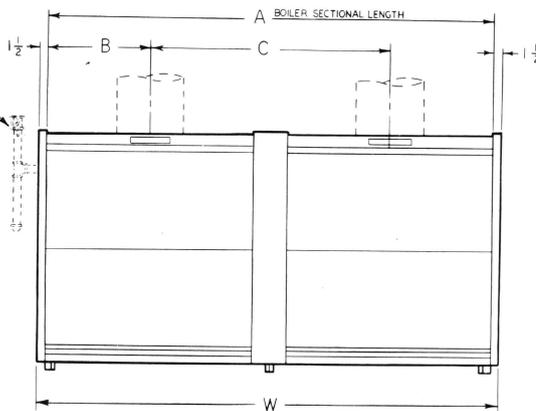
**Note: Water boilers tested at 50 PSI working pressure; available on special request at 80 PSI working pressure.**

## DIMENSIONS

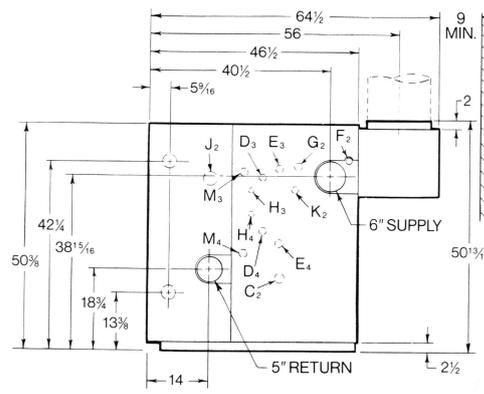


LEFT SIDE

LOCATE MANUAL HAND SHUT-OFF VALVE IF REQUIRED BY LOCAL CODE.



FRONT



RIGHT SIDE

## CONTROL TAPPINGS

Boiler Number	Supply Tappings No. & Size	Return Tappings No. & Size	Dimensions (Inches)				Standard Natural Gas Control Sizes			Draft Hood Outlets No. & Size
			A	B	C	W	No. of Gas Trains	Gas Valve and Combination Gas Valve and Press. Reg.		
								5" WC	7" WC	
LGB-6	2 - 6"	2 - 5"	28	14		31	1	1 - 1 1/4"	1 - 1"	1 - 12"
LGB-7	2 - 6"	2 - 5"	33	16 1/2		36	1	1 - 1 1/4"	1 - 1"	1 - 12"
LGB-8	2 - 6"	2 - 5"	38	19		41	1	1 - 1 1/4"	1 - 1"	1 - 14"
LGB-9	2 - 6"	2 - 5"	43	21 1/2		46	1	1 - 1 1/4"	1 - 1"	1 - 14"
LGB-10	2 - 6"	2 - 5"	48	24		51	1	1 - 1 1/2"	1 - 1 1/4"	1 - 16"
LGB-11	2 - 6"	2 - 5"	53	26 1/2		56	1	1 - 1 1/2"	1 - 1 1/4"	1 - 16"
LGB-12	2 - 6"	2 - 5"	58	29		61	1	1 - 1 1/2"	1 - 1 1/4"	1 - 16"
LGB-13	2 - 6"	2 - 5"	63	16 1/2	30	66	2	2 - 1 1/4"	2 - 1"	2 - 12"
LGB-14	2 - 6"	2 - 5"	68	19	32 1/2	71	2	2 - 1 1/4"	2 - 1"	1 - 12"
LGB-15	2 - 6"	2 - 5"	73	19	35	76	2	2 - 1 1/4"	2 - 1"	1 - 14"
LGB-16	2 - 6"	2 - 5"	78	21 1/2	37 1/2	81	2	2 - 1 1/4"	2 - 1"	2 - 14"
LGB-17	2 - 6"	2 - 5"	83	21 1/2	40	86	2	2 - 1 1/4"	2 - 1"	2 - 14"
LGB-18	2 - 6"	2 - 5"	88	24	42 1/2	91	2	1 - 1 1/2"	1 - 1"	1 - 14"
LGB-19	2 - 6"	2 - 5"	93	24	45	96	2	1 - 1 1/2"	1 - 1 1/4"	1 - 16"
LGB-20	2 - 6"	2 - 5"	98	26 1/2	47 1/2	101	2	2 - 1 1/2"	2 - 1 1/4"	2 - 16"
LGB-21	2 - 6"	2 - 5"	103	26 1/2	50	106	2	2 - 1 1/2"	2 - 1 1/4"	2 - 16"
LGB-22	2 - 6"	2 - 5"	108	29	52 1/2	111	2	2 - 1 1/2"	2 - 1 1/4"	2 - 16"
LGB-23	2 - 6"	2 - 5"	113	29	55	116	2	2 - 1 1/2"	2 - 1 1/4"	2 - 16"

Location		Size	Steam	Water▲
Left End	Right End			
C <sub>1</sub>	C <sub>2</sub>	1 1/4"	Drain	Drain
D <sub>1</sub> & D <sub>2</sub>	D <sub>3</sub> & D <sub>4</sub>	1/2"	Gauge Glass***	Plugged
E <sub>1</sub> & E <sub>2</sub>	E <sub>3</sub> & E <sub>4</sub>	1"	Low-Water Cutoff***	Optional Low-Water Cutoff
E <sub>1</sub>	E <sub>3</sub>	1"	Pressure Limit Control, Operating Pressure Control, and Pressure Gauge	Limit Control**
F <sub>1</sub>	F <sub>2</sub>	1"	Plugged	Piping to Compression Tank or Auto. Air Vent**
G <sub>1</sub>	G <sub>2</sub>	3/4"	Plugged	Operating Control
H <sub>1</sub> & H <sub>2</sub> *	H <sub>3</sub> & H <sub>4</sub> *	3/8"	Try Cock Tappings	-
J <sub>1</sub>	J <sub>2</sub>	2"	Relief Valve†	Relief Valve†
K <sub>1</sub>	K <sub>2</sub>	1/2"	Plugged	Combination Pressure-Temperature-Gauge**
M <sub>1</sub> & M <sub>2</sub>	M <sub>3</sub> & M <sub>4</sub>	1"	Optional Low-Water Control-Off***	Optional Low-Water Cutoff

\* Available on special request only.

† Also skim tapping.

\*\* Must be on same side as supply to system. ▲ Additional controls may be placed in supply piping.

\*\*\* Must be on same side as steam equalizer piping.



**WEIL-McLAIN**

A United Dominion Company

Weil-McLain  
500 Blaine Street  
Michigan City, IN 46360-2388