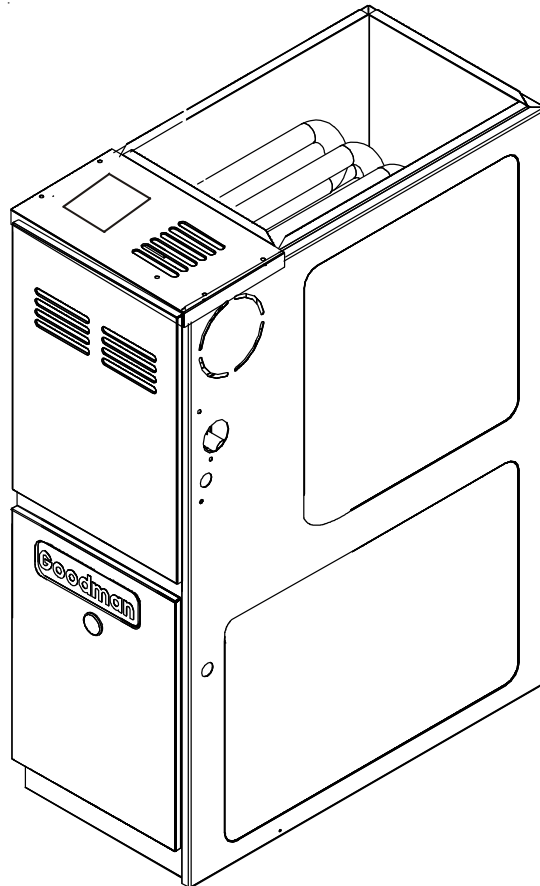


Goodman[®]

TECHNICAL MANUAL

GME8 33-3/8" 80% Gas Furnace Upflow/Horizontal

- Refer to current Service Manual RS6610004 for installation, operation, and troubleshooting information.
- All safety information must be followed as provided in the Service Manual.
- Refer to the appropriate Parts Catalog for part number information.
- Model numbers listed on page 3.

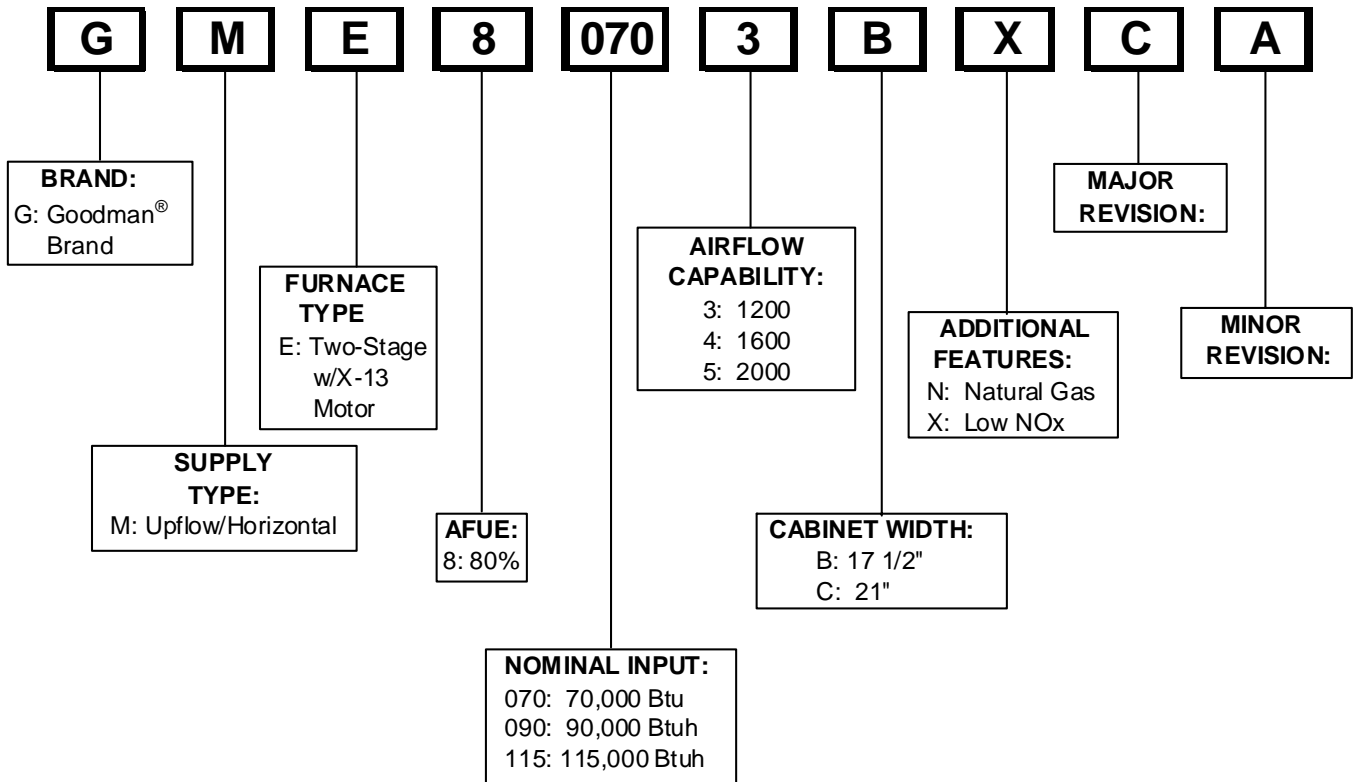


This manual is to be used by qualified, professionally trained HVAC technicians only. Goodman does not assume any responsibility for property damage or personal injury due to improper service procedures or services performed by an unqualified person.

RT6621020 Rev. 1
April 2010

PRODUCT IDENTIFICATION

The model and manufacturing number are used for positive identification of component parts used in manufacturing. Please use these numbers when requesting service or parts information.



WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

WARNING

Goodman will not be responsible for any injury or property damage arising from improper service or service procedures. If you install or perform service on this unit, you assume responsibility for any personal injury or property damage which may result. Many jurisdictions require a license to install or service heating and air conditioning equipment.

WARNING

Installation and repair of this unit should be performed ONLY by individuals meeting the requirements of an "entry level technician", at a minimum, as specified by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI). Attempting to install or repair this unit without such background may result in product damage, personal injury or death.

PRODUCT IDENTIFICATION

The model and manufacturing number are used for positive identification of component parts used in manufacturing. Please use these numbers when requesting service or parts information.

GME80703BXC*

GME80905CXC*

GME81155CXC*

All models are low NOx models.



The United States Environmental Protection Agency (“EPA”) has issued various regulations regarding the introduction and disposal of refrigerants introduced into this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These regulations may vary by jurisdiction. Should questions arise, contact your local EPA office.



Do not connect or use any device that is not design certified by Goodman for use with this unit. Serious property damage, personal injury, reduced unit performance and/or hazardous conditions may result from the use of such non-approved devices.



To prevent the risk of property damage, personal injury, or death, do not store combustible materials or use gasoline or other flammable liquids or vapors in the vicinity of this appliance.

PRODUCT DESIGN

General Operation

GME8 furnaces are equipped with an electronic ignition device used to light the burners and an induced draft blower to exhaust combustion products.

An interlock switch prevents furnace operation if the blower door is not in place. Keep the blower access door in place except for inspection and maintenance.

This furnace is also equipped with a self-diagnosing electronic control module. In the event a furnace component is not operating properly, the control module LED will flash on and off in a factory-programmed sequence, depending on the problem encountered. This light can be viewed through the observation window in the blower access door. Refer to the *Troubleshooting Chart* for further explanation of the LED codes and *Abnormal Operation - Integrated Ignition Control* section in the Service Instructions for an explanation of the possible problem.

The rated heating capacity of the furnace should be greater than or equal to the total heat loss of the area to be heated. The total heat loss should be calculated by an approved method or in accordance with "ASHRAE Guide" or "Manual J-Load Calculations" published by the Air Conditioning Contractors of America.

*Obtain from: American National Standards Institute 1430 Broadway New York, NY 10018

Location Considerations

- The furnace should be as centralized as is practical with respect to the air distribution system.
- Do not install the furnace directly on carpeting, tile, or combustible material other than wood flooring.
- When suspending the furnace from rafters or joists, use 3/8" threaded rod and 2" x 2" x 3/8" angle as shown in the Installation and Service Instructions. The length of the rod will depend on the application and clearance necessary.
- When installed in a residential garage, the furnace must be positioned so the burners and ignition source are located not less than 18 inches (457 mm) above the floor and protected from physical damage by vehicles.

NOTE: Gas furnaces with induced draft blowers draw products of combustion through a heat exchanger allowing, in some instances, common venting with natural draft appliances (i.e. water heaters). All installations must be vented in accordance with National Fuel Gas Code NFPA 54/ANSI Z223.1 - latest edition. In Canada, the furnaces must be vented in accordance with the National Standard of Canada, CAN/CSA B149.1 and CAN/CSA B149.2 - latest editions and amendments.

NOTE: The vertical height of the Category I venting system must be at least as great as the horizontal length of the venting system.

WARNING

TO PREVENT POSSIBLE PERSONAL INJURY OR DEATH DUE TO ASPHYXIATION, COMMON VENTING WITH OTHER MANUFACTURER'S INDUCED DRAFT APPLIANCES IS NOT ALLOWED.

2. Line voltage wiring can enter through the right or left side of the furnace. Low voltage wiring can enter through the right or left side of furnace.
3. Conversion kits for high altitude natural or propane gas operation are available. See High Altitude Derate chart for details.
4. Installer must supply the following gas line fittings, depending on which entrance is used:

Left -- Two 90° Elbows, one close nipple, straight pipe.

Right -- Straight pipe to reach gas valve.

WARNING

TO PREVENT POSSIBLE PERSONAL INJURY OR DEATH DUE TO ASPHYXIATION, THIS FURNACE MUST BE CATEGORY I VENTED. Do NOT VENT USING CATEGORY III VENTING.

Notes:

1. Category I Venting is venting at a non-positive pressure. A furnace vented as Category I is considered a fan-assisted appliance and the vent system does not have to be "gas tight."

PRODUCT DESIGN

Accessibility Clearances (Minimum)

Unobstructed front clearance of 24" for servicing is recommended.

Top clearance for horizontal configuration - 1"

MINIMUM CLEARANCE TO COMBUSTIBLE MATERIALS - INCHES

Sides	Rear	Front	Bottom	Vent		Top
				SW	B	
1	0	3	C	6	1	1

Approved for line contact in the horizontal position.

* 24" clearance for serviceability recommended.

** Single Wall Vent (SW) to be used only as a connector.

Refer to venting tables outlined in the installation manual for additional venting requirements.

24" at front is required for servicing or cleaning.

Note: In all cases accessibility clearance shall take precedence over clearances from the enclosure where accessibility clearances are greater. All dimensions are given in inches.

High Altitude Derate

When this furnace is installed at high altitude, the appropriate High Altitude orifice kit must be installed. This is required due to the natural reduction in the density of both the gas fuel and combustion air as altitude increases. The kit will provide the proper design certified input rate within the specified altitude range.

INPUT PER BURNER - 22,500 BTUH NATURAL GAS / 20,000 BTUH L.P.								
	ELEVATION ABOVE SEA-LEVEL (FEET)							
	2000	3000	4000	4500	5000	6000	7000	8000
US BURNER ORIFICE	44/55	44/55	45/56		45/56	46/57	47/58	47/58
CANADA BURNER ORIFICE	44/55			47/57				

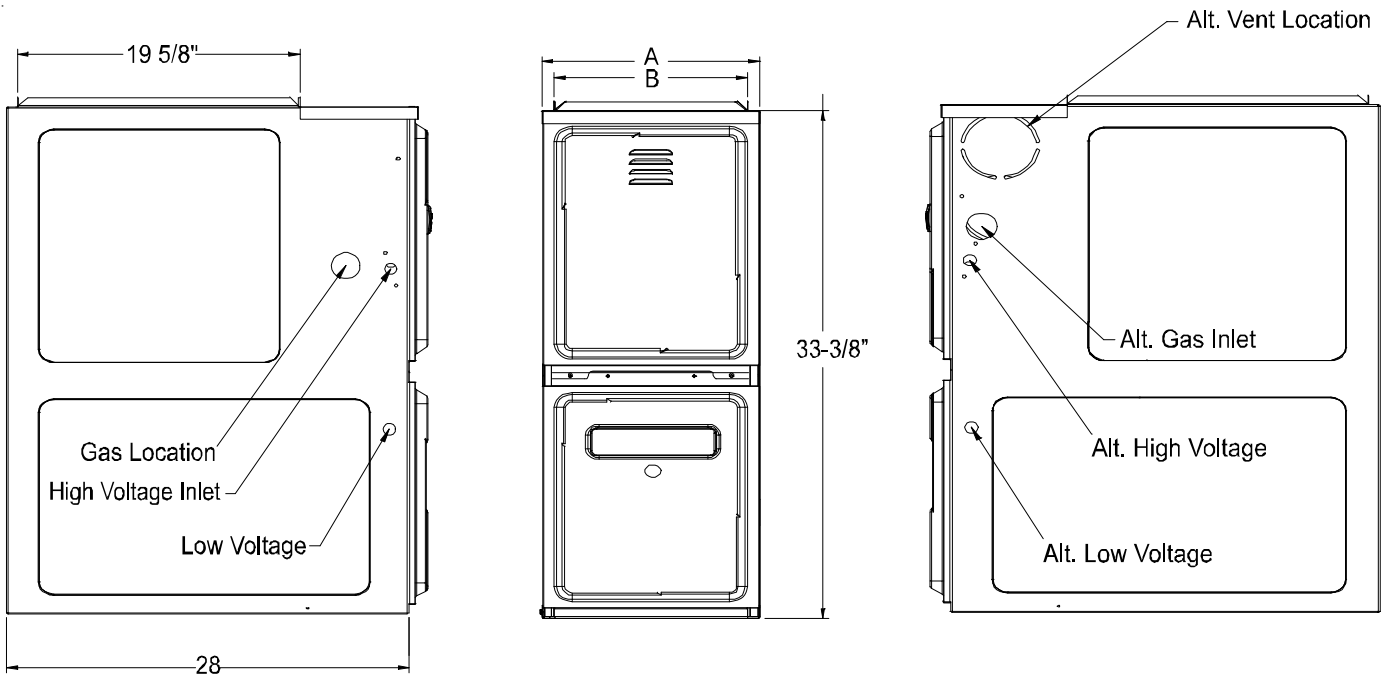
HA-02 HIGH ALTITUDE CONVERSION KIT REQUIRED

Tabled data is based upon the furnace input being reduced for altitudes above sea level. U.S. 4% per 1,000 feet. Canada 10% derate for 2,000-4,000 feet.

High altitude kits are purchased according to the installation altitude and usage of either natural or propane gas. Refer to the chart above for a tabular listing of appropriate altitude ranges and corresponding manufacturer's high altitude Natural Gas and Propane Gas kits. For a tabular listing of appropriate altitude ranges and corresponding manufacturer's High Altitude Pressure Switch kits, refer to either the *Pressure Switch Trip Points & Usage Chart* in this manual or the *Accessory Charts* in Service Instructions.

PRODUCT DIMENSIONS

GME8****XA



UNITS	A	B	C	D
GME80703BXC*	17.5	16	$33 \frac{3}{8}$	28
GME80905CXC* GME81155CXC*	21	19.5	$33 \frac{3}{8}$	28

All dimensions are in inches.

PRODUCT DESIGN

PRESSURE SWITCH TRIP POINTS AND USAGE CHART		
MODEL	TRIP POINT ID BLOWER PRESSURE SWITCH	ID BLOWER PRESSURE SWITCH PART #
GME80703BXC*	-0.70	B1370158
GME80905CXC*	-0.75	B1370179
GME81155CXC*	-1.40	B1370156

- * All installas above 7,000 ft. require a pressure switch change.
For installations in Canada, the GME8 furnace is certified only to 4,500 ft.
- * Negative pressure readings are in inches of water column (*w.c.)

PRIMARY LIMIT	
Part Number	20162903
Open Setting (°F)	160
GME80703BXC*	1
GME80905CXC*	1
GME81155CXC*	1

ROLLOUT LIMIT SWITCHES	
Part Number	B1370145
Open Setting (°F)	300
GME80703BXC*	1
GME80905CXC*	1
GME81155CXC*	1

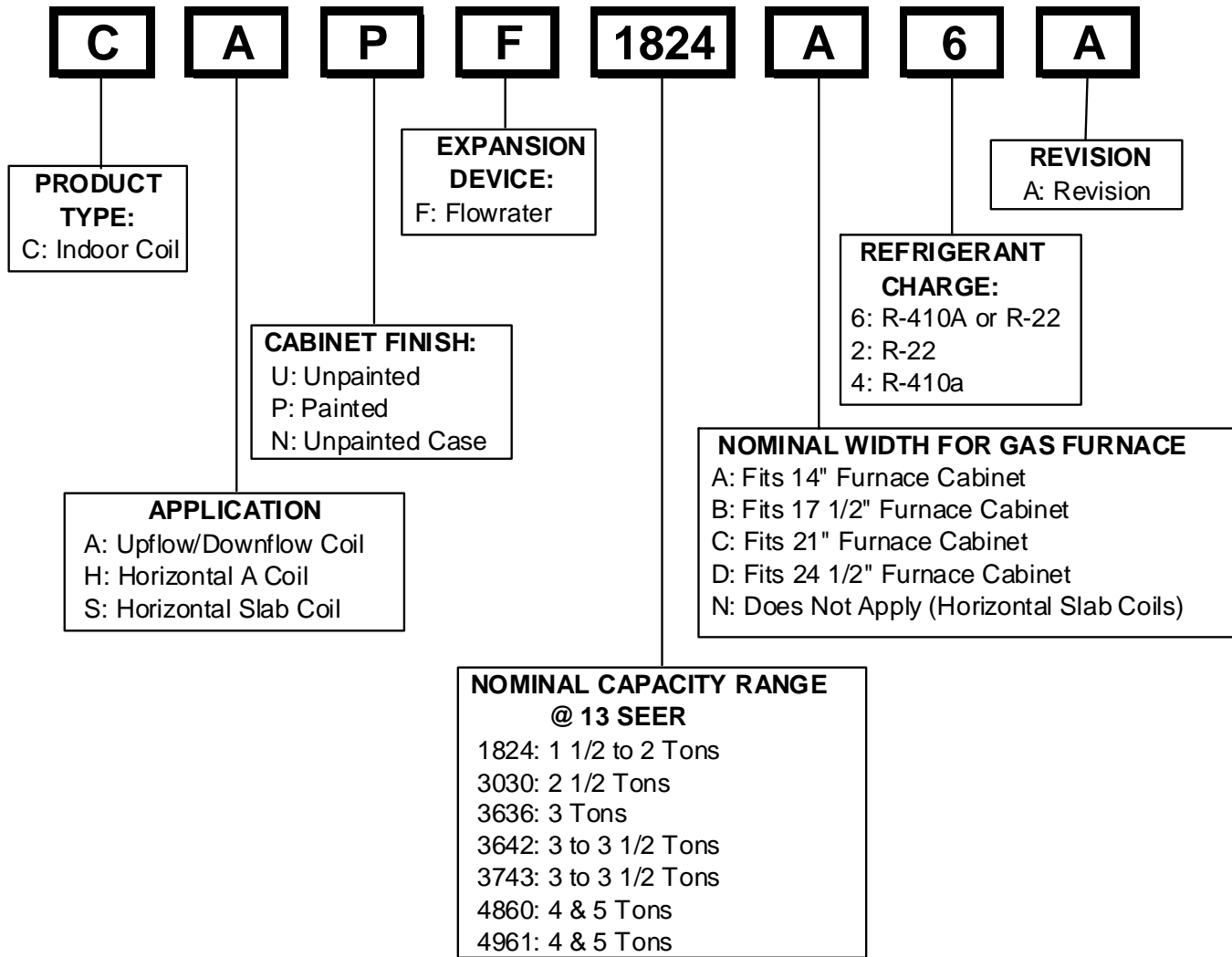
AUXILIARY LIMIT SWITCHES	
Part Number	0130F00038
Open Setting (°F)	120
GME80703BXC*	1
GME80905CXC*	1
GME81155CXC*	1

PRODUCT DESIGN

Coil Matches:

A large array of Amana® brand coils are available for use with the new GME8 furnaces, in either upflow or horizontal applications. These coils are available in both cased and uncased models (with the option of a field installed TXV expansion device). These 80% furnaces match up with the existing Amana® brand coils as shown in the chart below.

Coil Matches (for Goodman units using R22 and R-410A):



- All CAPF coils in B, C, & D widths have insulated blank off plates for use with one size smaller furnaces.
- All CAPF coils have a CAUF equivalent.
- All CHPF coils in B, C & D heights have an insulated Z bracket for use with one size smaller furnace.
- All proper coil combinations are subject to being AHRI rated with a matched outdoor unit.

PRODUCT DESIGN

Thermostats:

NOTE: Complete lineup of thermostats can be found in the Thermostat Specification Sheets.

Filters:

Filters are required with this furnace and must be provided by the installer. The filters used must comply with UL900 or CAN/ULCS111 standards. Installing this furnace without filters will void the unit warranty.

Upflow Filters

This furnace has provisions for the installation of return air filters at the side and/or bottom return. The furnace will accommodate the following filter sizes depending on cabinet size:

Side Return(s)		
Cabinet Width (in.)	Nominal Filter Size (in.)	Approx. Flow Area (in ²)
All	16 x 25 x 1	400

Bottom Return		
Cabinet Width (in.)	Nominal Filter Size (in.)	Approx. Flow Area (in ²)
17-1/2	14 x 25 x 1	350
21	16 x 25 x 1	400

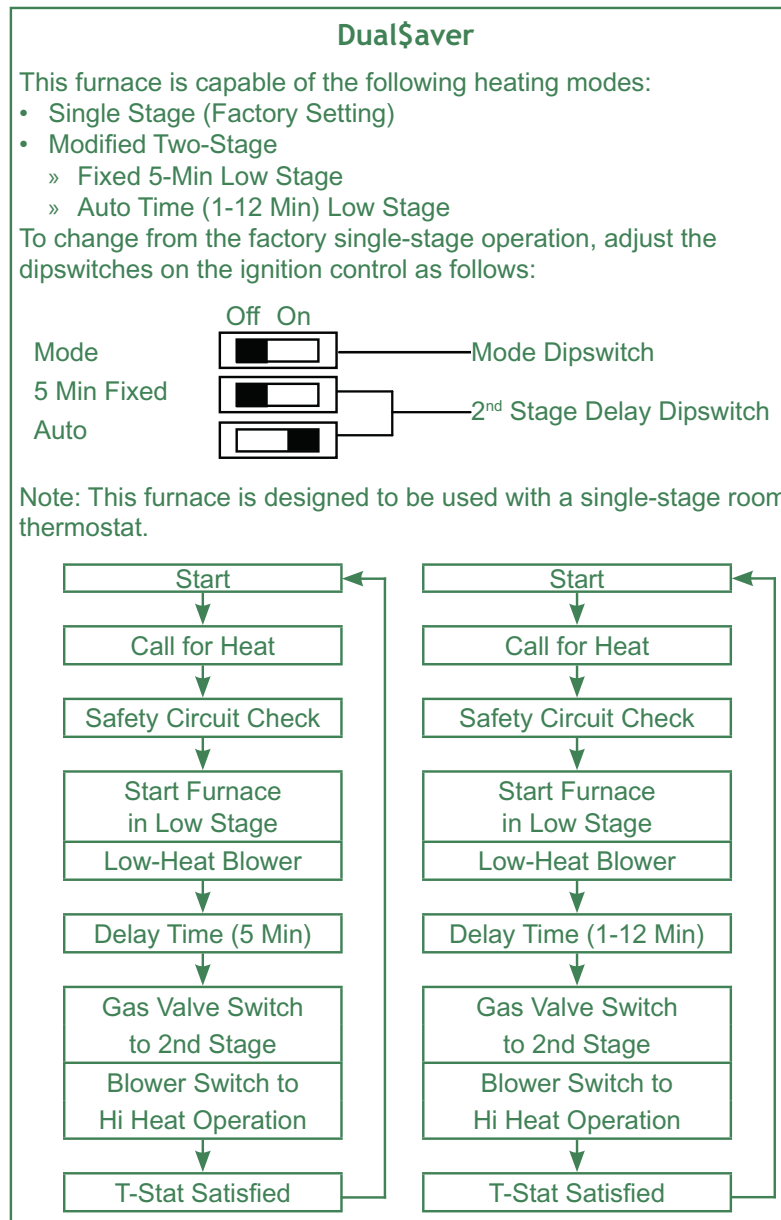
Refer to Minimum Filter Area tables to determine filter area requirement. **NOTE:** Filters can also be installed elsewhere in the duct system such as a central return.

MINIMUM FILTER SIZES		
FURNACE INPUT	FILTER SIZE	TYPE
45M	160 in ²	permanent
70M	241 in ²	permanent
90M	320 in ²	permanent
115M	400 in ²	permanent
140M	370 in ²	permanent
45M	320 in ²	disposable
70M	483 in ²	disposable
90M	640 in ²	disposable
115M	800 in ²	disposable
140M	738 in ²	disposable

PERMANENT NOMINAL 600 F.M. FACE VELOCITY
DISPOSABLE NOMINAL 300 F.M. FACE VELOCITY

PRODUCT DESIGN

Dual\$aver Configuration & Operation



FURNACE SPECIFICATIONS

MODEL	GME80703BXC*	GME80905CXC*	GME81155CXC*
Input, Natural Gas (BTUH) ⁽¹⁾	70,000	90,000	115,000
Output, Natural Gas (BTUH) ⁽¹⁾	56,000	72,000	92,000
Output, LP (BTUH)	48,000	64,000	80,000
A.F.U.E.	80.0%	80.0%	80.0%
Rated External Static (" w.c.)	.20 - .50	.20 - .50	.20 - .50
Temperature Rise (°F)	20 - 50	35 - 65	35 - 65
Pressure Switch Trip Point ("w.c.")	-0.60	-0.75	-1.40
Blower Wheel (D" x W")	10 X 8	10 X 10	10 X 10
Blower Horsepower	1/2	1	1
Blower Speeds	Refer to airflow charts		
Max CFM @ 0.5 E.S.P.	Refer to airflow charts		
Power Supply	120.0	120.0	120.0
Minimum Circuit Ampacity (MCA) ⁽²⁾	8.2	14.8	14.8
Maximum Overcurrent Device ⁽³⁾	15	15	15
Transformer (VA)	40	40	40
Primary Limit Setting (°F)	160	160	160
Auxiliary Limit Setting (°F)	120	120	120
Rollout Limit Setting (°F)	300	300	300
Gas Supply Pressure (Natural/Propane) (" w.c.)	7 / 11	7 / 11	7 / 11
Manifold Pressure (Natural/Propane) High Stage (" w.c.)	3.5 / 10	3.5 / 10	3.5 / 10
Manifold Pressure (Natural/Propane) Low Stage ("w.c.)	2.0 / 6.0	2.0 / 6.0	2.0 / 6.0
Orifice Size (Natural/Propane)	43 / 55	43 / 55	43 / 55
Number of Burners	3	4	5
Vent Connector Diameter (inches)	4	4	4
Shipping Weight (lbs.)	130	163	167

1 Natural Gas BTUH. For altitudes above 2,000', reduce input rating 4% for each 1,000' above sea level.

2 DOE AFUE based upon Isolated Combustion System (ICS)

3 Vent and combustion air diameters may vary depending upon vent length.

Refer to the latest editions of the National Fuel Gas Code NFPA 54/ANSI Z223.1 (in the USA) and the Canada National Standard of Canada, CAN/CSA B149.1 and CAN/CSA B142.2 (in Canada).

4 Minimum Circuit Ampacity = (1.25 x Circulator Blower Amps) + ID Blower amps. Wire size should be determined in accordance with National Electrical Codes. Extensive wire runs will require larger wire sizes.

5 Maximum Overcurrent Protection Device refers to maximum recommended fuse or circuit breaker size. May use fuses or HACR-type circuit breakers of the same size as noted.

Notes:

- All furnaces are manufactured for use on 115 VAC, 60 Hz, single-phase electrical supply.
- Gas Service Connection ½" FPT
- Important: Size fuses and wires properly and make electrical connections in accordance with the National Electrical Code and/or all existing local codes.

NOTES:

- * These furnaces are manufactured for natural gas operation. Optional Kits are available for conversion to propane gas operation.
- * For elevations above 2000 ft. the rating should be reduced by 4% for each 1000 ft. above sea level. The furnace must not be derated, orifice changes should only be made if necessary for altitude.
- * The total heat loss from the structure as expressed in TOTAL BTU/HR must be calculated by the manufactures method in accordance with the "A.S.H.R.A.E. GUIDE" or "MANUAL J-LOAD CALCULATIONS" published by the AIR CONDITIONING CONTRACTORS OF AMERICA. The total heat loss calculated should be equal to or less than the heating capacity. Output based on D.O.E. test procedures, steady state efficiency times output.

Unit specifications are subject to change without notice. **ALWAYS** refer to the unit's serial plate for the most up-to-date general and electrical information.

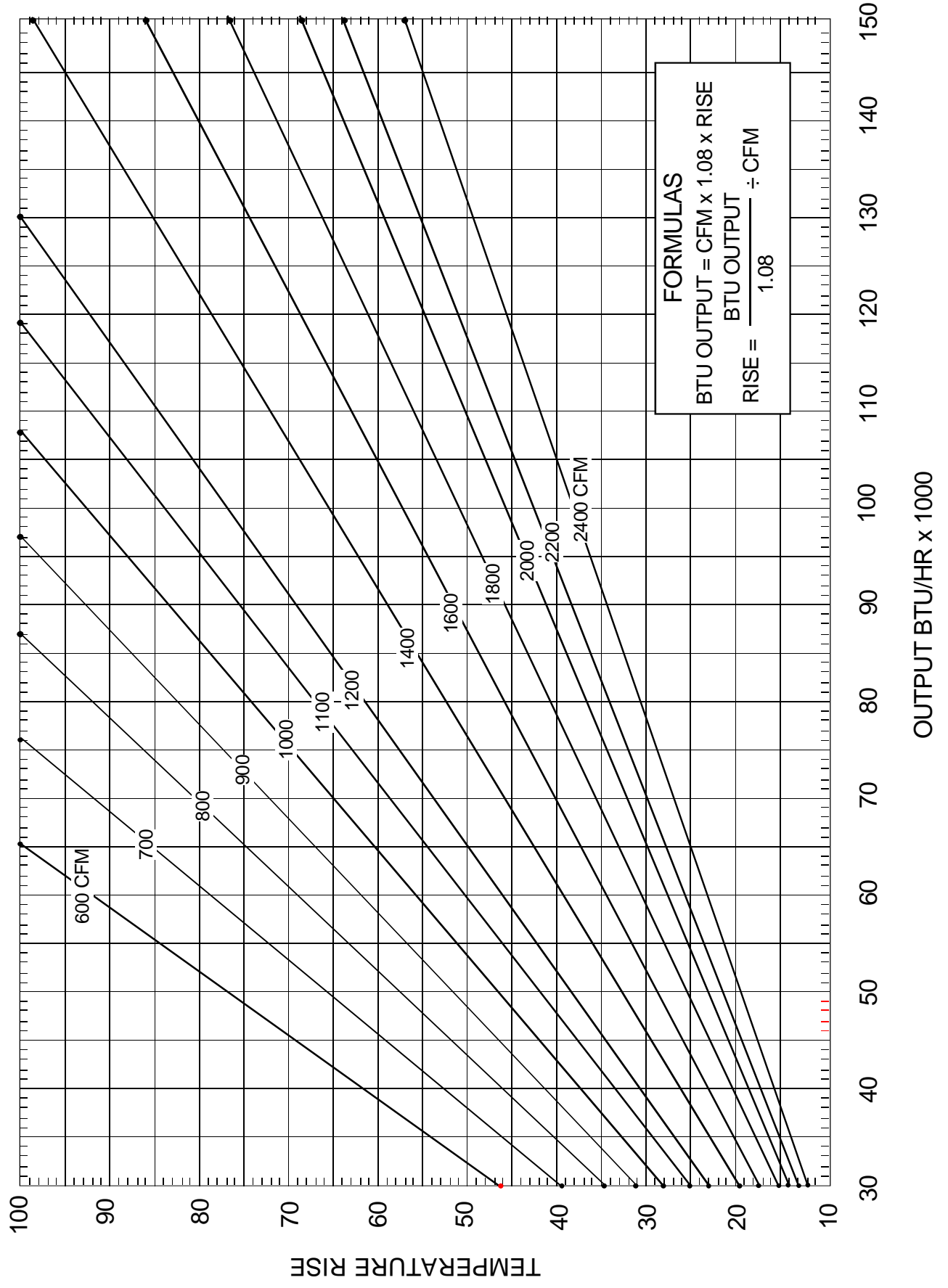
BLOWER PERFORMANCE SPECIFICATIONS

BLOWER PERFORMANCE															
(CFM & Temperature Rise vs. External Static Pressure)															
Model (Heating Speed As Shipped)	Motor Speed	Tons AC at 0.5" ESP	EXTERNAL STATIC PRESSURE (Inches Water Column)												
			0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
			CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
GME8 0703BXC*	T1	2.5	875	59	793	65	736	70	674	77	592	88	556	509	460
	T2	3.5	1,032	50	965	54	914	57	861	60	810	64	756	712	659
	T3	1.5	1,217	43	1,153	45	1,098	47	1,051	49	1,009	51	964	918	877
	T4	3	1,365	38	1,313	39	1,268	41	1,221	42	1,172	44	1,129	1,086	1,054
	T5	4	1,549	33	1,505	34	1,460	36	1,420	37	1,378	38	1,350	1,305	1,268
GME8 0905CXC*	T1	2.5	1,268	53	1,198	56	1,151	58	1,092	61	1,041	64	988	932	883
	T2	3.5	1,362	49	1,305	51	1,261	53	1,212	55	1,170	57	1,121	1,074	1,021
	T3	3	1,576	42	1,519	44	1,473	45	1,426	47	1,398	48	1,341	1,290	1,252
	T4	4	1,755	38	1,711	39	1,657	40	1,627	41	1,579	42	1,548	1,502	1,463
	T5	5	2,183	31	2,128	31	2,094	32	2,060	32	2,014	33	1,992	1,944	1,847
GME8 1155CXC*	T1	3	1,466	58	1,415	60	1,357	63	1,306	65	1,248	68	1,202	1,144	1,088
	T2	4	1,642	52	1,596	53	1,552	55	1,499	57	1,449	59	1,388	1,352	1,306
	T3	2.5	1,750	49	1,750	49	1,707	50	1,667	51	1,610	53	1,574	1,531	1,486
	T4	4	1,870	46	1,805	47	1,782	48	1,737	49	1,701	50	1,656	1,606	1,571
	T5	5	2,297	37	2,297	37	2,224	38	2,106	40	2,014	42	1,896	1,813	1,669

1. CFM in chart is without filters(s). Filters do not ship with this furnace, but must be provided by the installer.
2. All furnaces ship as high speed cooling. Installer must adjust blower cooling speed as needed.
3. For most jobs, about 400 CFM per ton when cooling is desirable.
4. INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.
5. The chart is for information only. For satisfactory operation, external static pressure must not exceed value shown on rating plate. The shaded area indicates ranges in excess of maximum external static pressure allowed when heating. The data for 0.6" w.c. to 0.8" w.c. is shown for air conditioning purposes only.
6. The dashed (---) areas indicate a temperature rise not recommended for this model.
7. The above chart is for U.S. furnaces installed at 0-4000 feet. At higher altitudes, a properly derated unit will have approximately the same temperature rise at a particular CFM, while the ESP at that CFM will be lower.

BLOWER PERFORMANCE SPECIFICATIONS

BTU OUTPUT vs TEMPERATURE RISE CHART





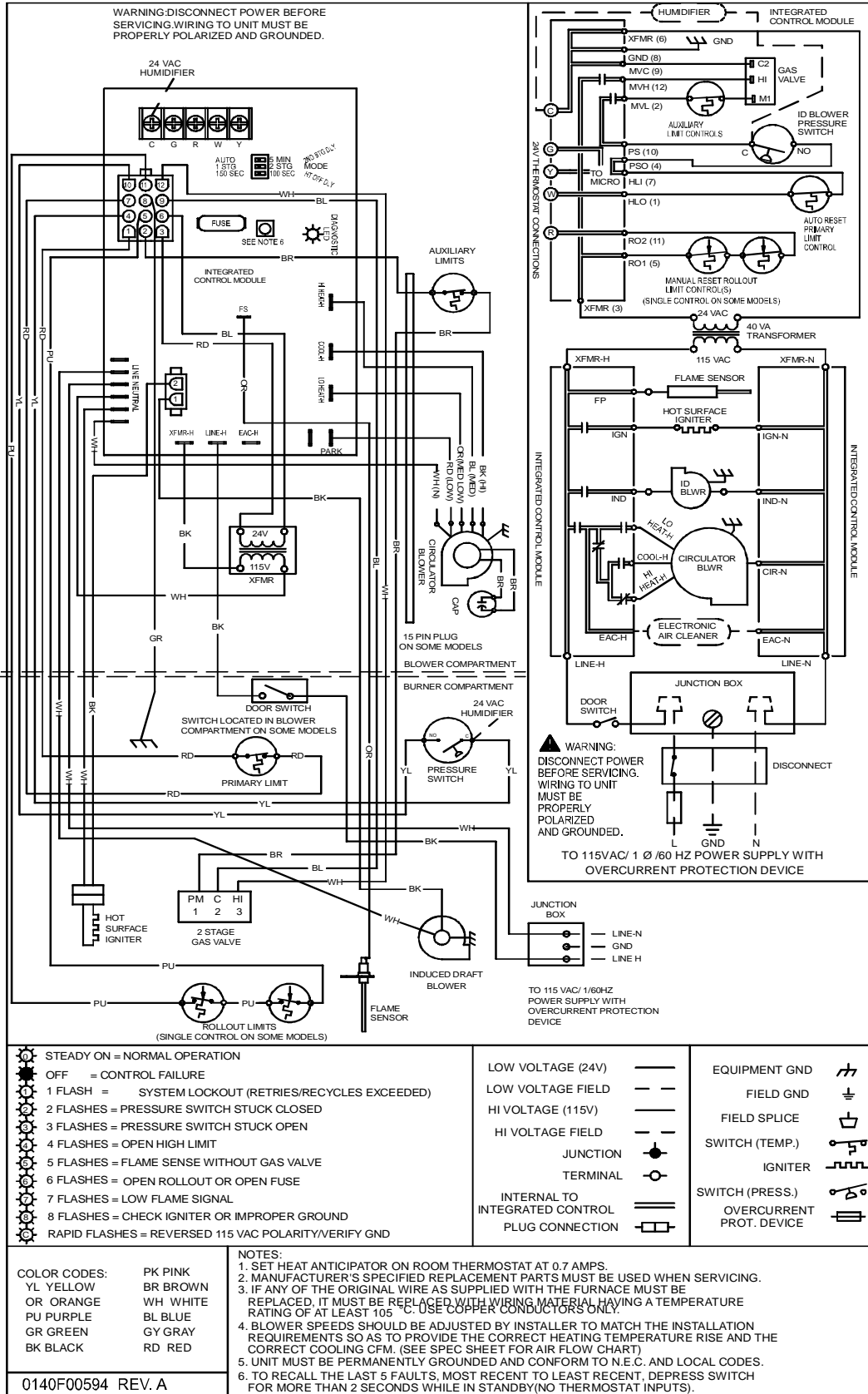
WARNING

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

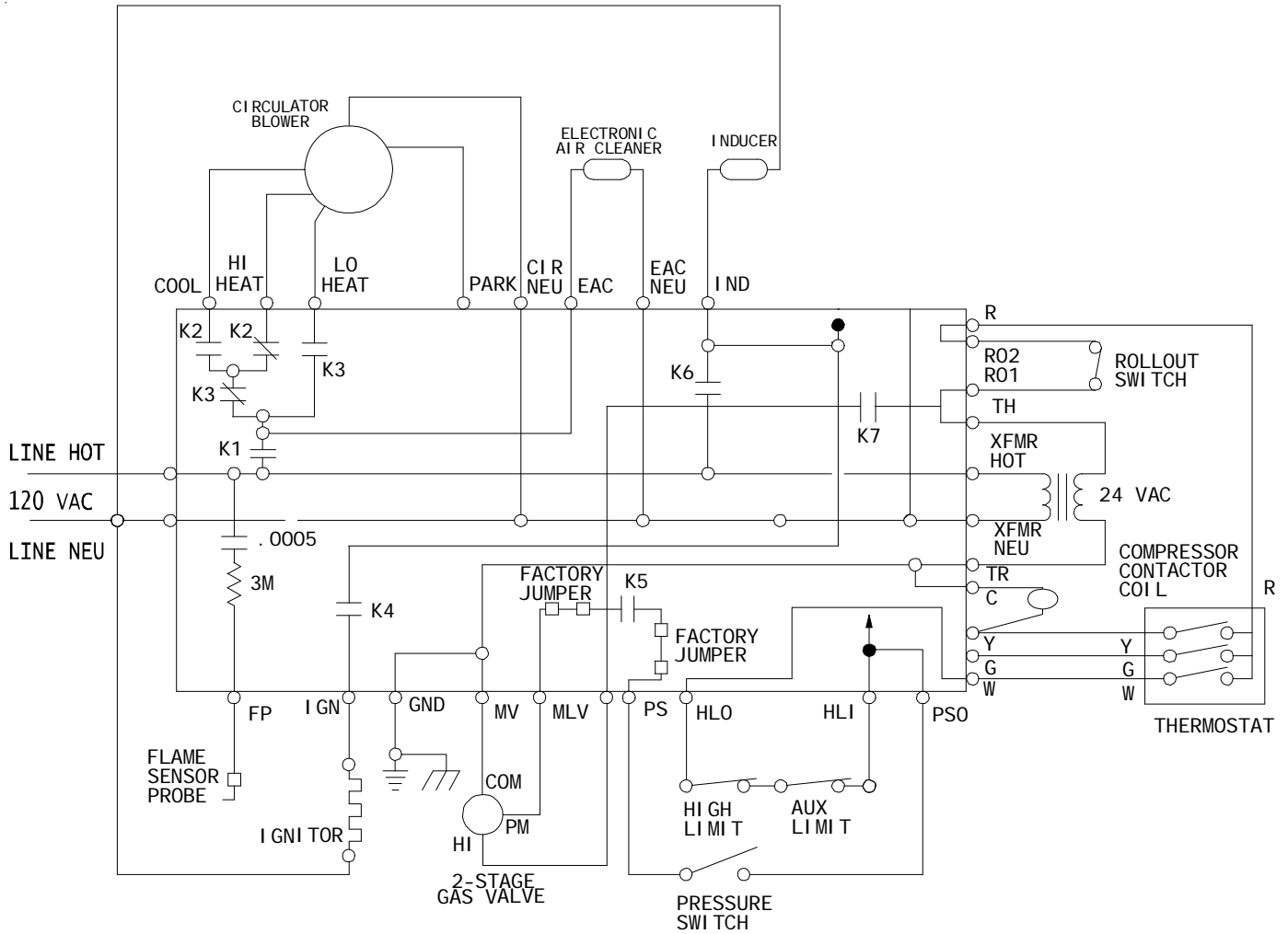
SCHEMATICS



WARNING

HIGH VOLTAGE!
 DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.





TYPICAL SCHEMATIC
GME8 ** MODEL FURNACES
WR 50M56-289 INTEGRATED IGNITION CONTROL

This schematic is for reference only. Not all wiring is as shown above. Always refer to the appropriate wiring diagram for the unit being serviced.