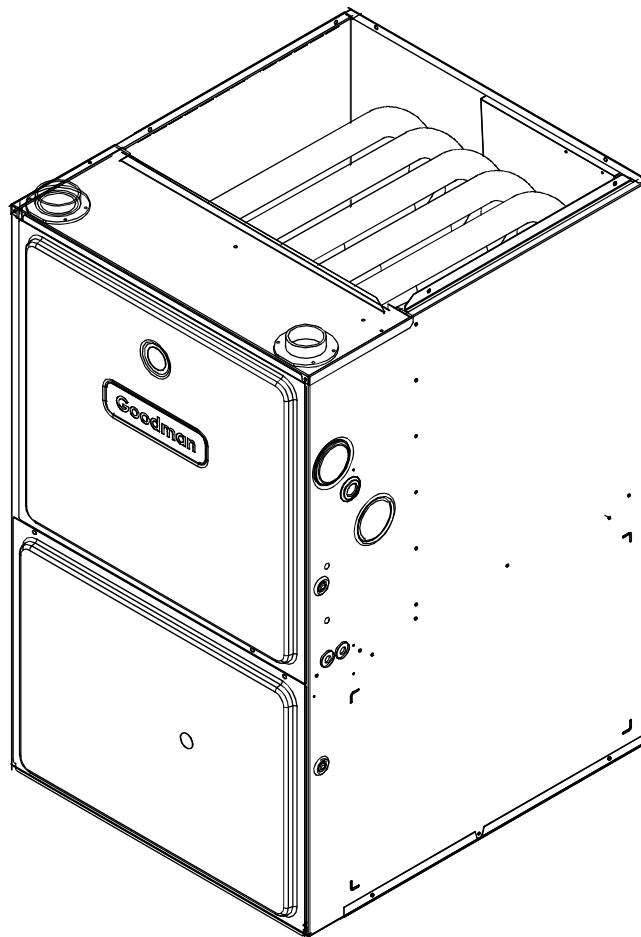


Goodman[®] TECHNICAL MANUAL

GME95 **40" UP TO 96% Gas Furnace**

- Refer to 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.

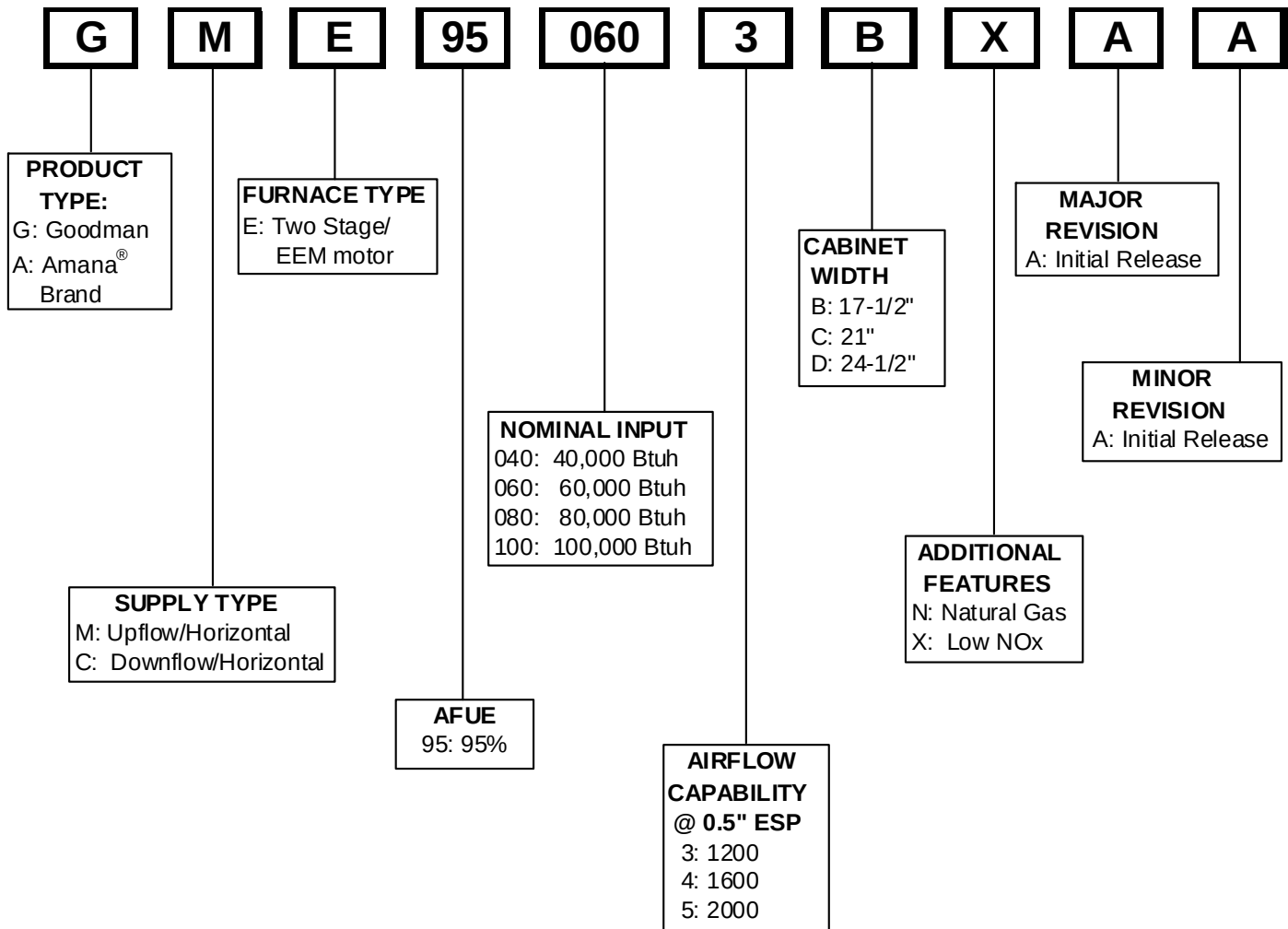


This manual is to be used by qualified, professionally trained HVAC technicians only. Goodman does not assume any responsibility for property damage or personal injury due to improper service procedures or services performed by an unqualified person.

RT6612024r2
August 2013

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, at a minimum, the requirements of an "entry level technician", 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.

GME950403BXA*

GME950603BXA*

GME950805CXA*

GME951005DXA*

WARNING

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.

WARNING

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.

WARNING

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

The GME95 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.

Notes:

1. Installer must supply one or two PVC pipes: one for combustion air (optional) and one for the flue outlet (required). Vent pipe must be either 2" or 3" in diameter, depending upon furnace input, number of elbows, length of run and installation (1 or 2 pipes). The optional Combustion Air Pipe is dependent on installation/code requirements and must be 2" or 3" diameter PVC.
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. 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.

Accessibility Clearances (Minimum)

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS (INCHES)						
POSITION*	FRONT	SIDES	REAR	TOP	FLUE	FLOOR
Upflow	3	0	0	1	0	C
Horizontal	3	6	0	6	0	C

*= All positioning is determined as installed unit is viewed from the front.

C= If placed on combustible floor, floor MUST be wood only.

NC= For installation on non-combustible floors only. A non-combustible subbase must be used for installations on combustible flooring.

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.

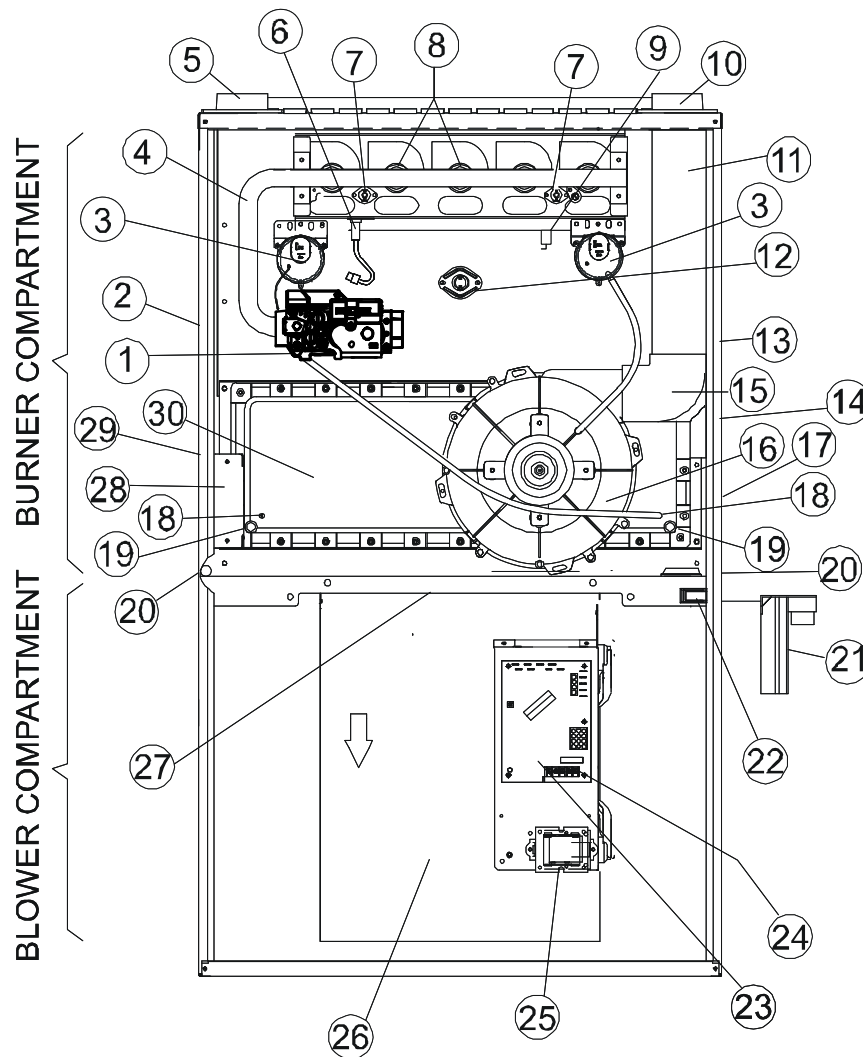
PROPANE AND HIGH ALTITUDE KITS				
MODEL NUMBER	0 to 7,000 ft.	7,001 to 9,000 ft.	9,001 to 11,000 ft.	7,001 to 11,000 ft.
GME95****XA*	LPM-06 ¹ Propane Conversion Kit (#55 Orifices)	N/A	N/A	N/A

¹ LPM-06* supports both Honeywell and White-Rodgers 2-stage valves

NOTE: In Canada, gas furnaces are certified to 4500 feet.

GME95 furnaces are approved for installations up to 7,000 ft. only.

COMPONENT IDENTIFICATION

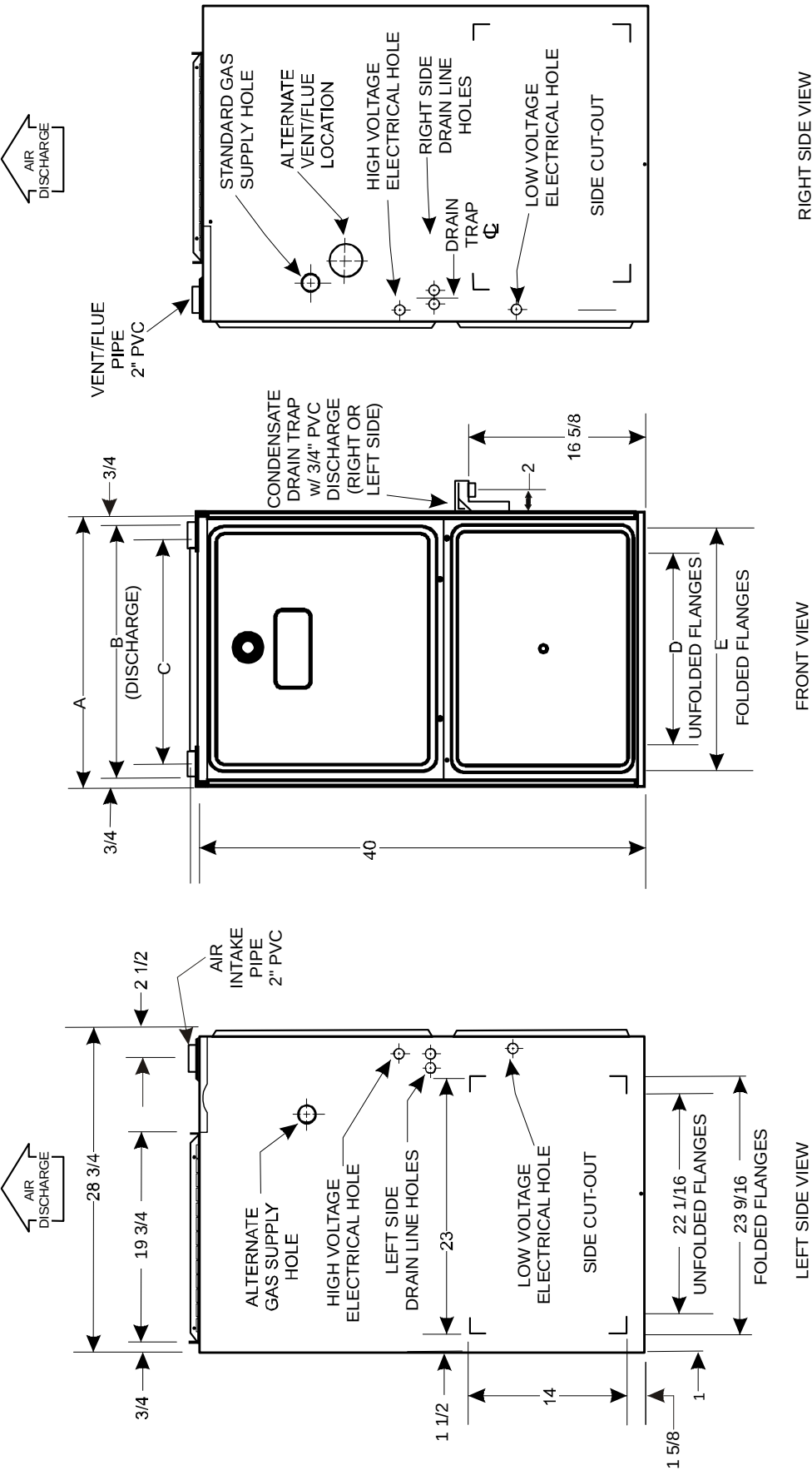


Upflow/Horizontal

- | | |
|---|--|
| 1 Gas Valve | 17 Electrical Connection Inlets (Alternate) |
| 2 Gas Line Entrance (Alternate) | 18 Coil Front Cover Pressure Tap |
| 3 Pressure Switch | 19 Coil Front Cover Drain Port |
| 4 Gas Manifold | 20 Drain Line Penetrations |
| 5 Combustion Air Intake Connection / "Coupling" | 21 Drain Trap |
| 6 Hot Surface Igniter | 22 Blower Door Interlock Switch |
| 7 Rollout Limit | 23 Integrated Control Module
(with fuse and diagnostic LED) |
| 8 Burners | 24 24-Volt Thermostat Connections |
| 9 Flame Sensor | 25 Transformer (40 VA) |
| 10 Flue Pipe Connection / "Coupling" | 26 Circulator Blower |
| 11 Flue Pipe (Internal) | 27 Auxiliary Limit |
| 12 Primary Limit | 28 Junction Box |
| 13 Gas Line Entrance | 29 Electrical Connection Inlets |
| 14 Flue Pipe Connection (Alternate) | 30 Coil Front Cover |
| 15 Rubber Elbow | |
| 16 Induced Draft Blower | |

COMPONENT IDENTIFICATION

GME95*****XA*



Cabinet Size	A	B	C	D	E
GME950403BXA*	17-1/2	16	12-15/16	12-1/8	13-5/8
GME950603BXA*	21	19-1/2	15-15/16	16	17-1/2
GME950805CXA*	24-1/2	23	20-7/16	19-3/8	20-7/8

All dimensions are in inches.
Note: Airflow area will be reduced by approximately 18% if duct flanges are not unfolded. This could cause performance issues and noise issues.

PRODUCT DESIGN

PRESSURE SWITCH TRIP POINTS AND USAGE CHART										
MODEL	NEGATIVE PRESSURE ID BLOWER WITH FLUE NOT FIRING TYPICAL SEA LEVEL DATA ⁽¹⁾	NEGATIVE PRESSURE ID BLOWER WITH FLUE FIRING TYPICAL SEA LEVEL DATA ⁽²⁾	NEGATIVE PRESSURE COIL COVER WITH FLUE NOT FIRING TYPICAL SEA LEVEL DATA ⁽¹⁾	NEGATIVE PRESSURE COIL COVER WITH FLUE FIRING TYPICAL SEA LEVEL DATA ⁽²⁾	PRESSURE SWITCH TRIP POINTS AND USAGE					
					0 to 7,000 ft.			7,001 to 11,000 ft.		
					TRIP POINT COIL COVER PRESSURE SWITCH	COIL COVER PRESSURE SWITCH PART #	TRIP POINT ID BLOWER PRESSURE SWITCH	ID BLOWER PRESSURE SWITCH PART #	TRIP POINT COIL COVER PRESSURE SWITCH	TRIP POINT ID BLOWER PRESSURE SWITCH
GME95040 3BX A*	-1.65	-1.50	-0.25	-0.10	-0.10	20197308	-1.50	0130F00214	N/A	N/A
GME95060 3BX A*	-1.50	-1.35	-0.25	-0.10	-0.10	20197308	-1.35	0130F00110	N/A	N/A
GME95080 5CX A*	-1.50	-1.35	-0.25	-0.10	-0.10	20197308	-1.35	0130F00110	N/A	N/A
GME95100 5DX A*	-1.50	-1.35	-0.25	-0.10	-0.10	20197308	-1.35	0130F00110	N/A	N/A

(1) Data given is least negative pressure required for pressure switch to close.
(2) Data given is the least negative pressure required for pressure switch to remain closed.

PRODUCT DESIGN

AUXILIARY LIMIT SWITCHES		
Part Number	10123535	10123519
Open Setting (°F)	150	160
GME950403BXA*	1	
GME950603BXA*	1	
GME950805CXA*	1	
GME951005DXA*		1

ROLLOUT LIMIT SWITCHES		
Part Number	10123533	10123517
Open Setting (°F)	200	210
GME950403BXA*	1	
GME950603BXA*	2	
GME950805CXA*		2
GME951005DXA*	2	

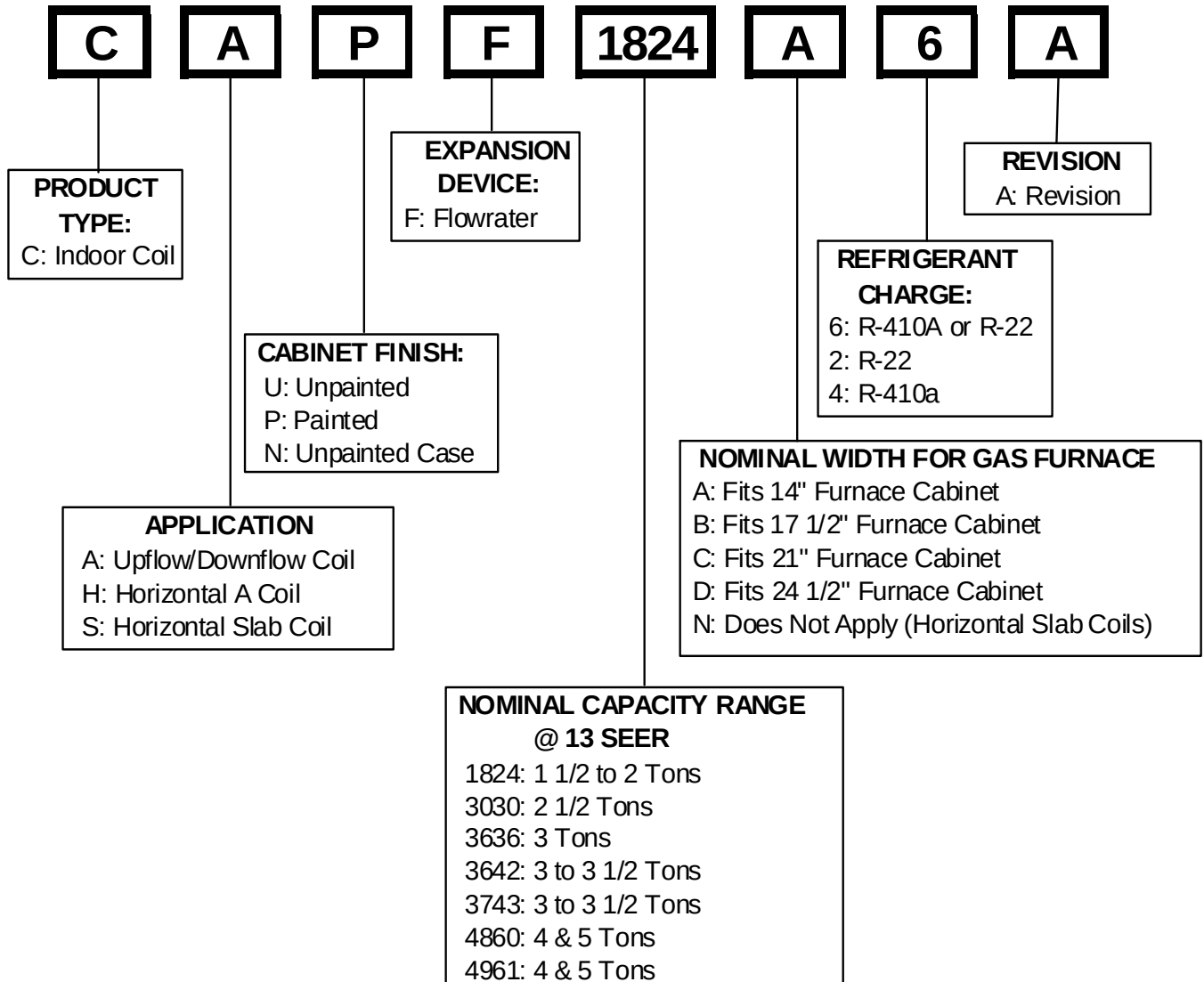
PRIMARY LIMIT		
Part Number	0130M00063	20162904
Open Setting (°F)	140	150
GME950403BXA*		1
GME950603BXA*	1	
GME950805CXA*	1	
GME951005DXA*		1

PRODUCT DESIGN

Coil Matches:

A large array of Amana® brand coils are available for use with the GMH95 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 95%+ 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 ARI 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		
Cabinet Width (in.)	Nominal Filter Size (in.)	Approx. Flow Area (in ²)
All	16 x 25 x 1	400

BOTTOM RETURN ⁽¹⁾		
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
24-1/2	20 x 25 x 1	500

(1) Flanges on bottom return must be unfolded

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.

		COOLING AIRFLOW REQUIREMENT (CFM)							
		600	800	1000	1200	1400	1600	1800	2000
Input_Airflow	0403BXA*	388*	388*	480	576	---	---	---	---
	0603BXA*	---	647*	647*	647*	672	---	---	---
	0805CXA*	---	---	---	777*	777*	777*	960*	960*
	1005DXA*	---	---	---	971*	971*	971*	971*	971*

*Minimum filter area dictated by heating airflow requirement.

Disposable Minimum Filter Area (in²)

[Based on a 300 ft/min filter face velocity]

		COOLING AIRFLOW REQUIREMENT (CFM)							
		600	800	1000	1200	1400	1600	1800	2000
Input_Airflow	0403BXA*	194*	194*	240	288	---	---	---	---
	0603BXA*	---	324*	324*	324*	336	---	---	---
	0805CXA*	---	---	---	388*	388*	388*	480*	480*
	1005DXA*	---	---	---	486*	486*	486*	486*	486*

*Minimum filter area dictated by heating airflow requirement.

Permanent Minimum Filter Area (in²)

[Based on 600 ft/min filter face velocity]

FURNACE SPECIFICATIONS

GME95

MODEL	GME95 0403BXA*	GME95 0603BXA*	GME95 0805CXA*	GME95 1005DXA*
Btuh				
Input (US)	40,000	60,000	80,000	100,000
Output (US)	38,400	57,700	76,900	96,100
Input (CAN)	40,000	60,000	80,000	100,000
Output (CAN)	38,400	57,700	76,900	96,100
A.F.U.E.	96.1%	96.1%	96.1%	96.1%
Rated External Static (" w.c.)	.20 - .50	.20 - .50	.20 - .50	.20 - .50
Temperature Rise (°F)	15-45	30 - 60	30 - 60	35 - 65
ID Blower Pressure Switch Trip Point (" w.c.)	-1.50	-1.35	-1.35	-1.35
Front Cover Pressure Switch Trip Point (" w.c.)	-0.10	-0.10	-0.10	-0.10
Blower Wheel (D" x W")	10 x 8	10 x 8	10 x 10	11 x 10
Blower Horsepower	1/2	1/2	1	1
Blower Speeds	5	5	5	5
Max CFM @ 0.5 E.S.P.	1200	1200	2000	2000
Power Supply	115-60-1	115-60-1	115-60-1	115-60-1
Minimum Circuit Ampacity (MCA) ⁽¹⁾	10.6	9.2	10.0	11.1
Maximum Overcurrent Device ⁽²⁾	15.0	15.0	15.0	15.0
Transformer (VA)	40	40	40	40
Primary Limit Setting (°F)	150	140	140	150
Auxiliary Limit Setting (°F)	150	150	150	160
Rollout Limit Setting (°F)	200	200	210	200
Fan Delay On Heating	30 secs.	30 secs.	30 secs.	30 secs.
Off Heating ⁽³⁾	150 secs.	150 secs.	150 secs.	150 secs.
Fan Delay On Cooling	6 sec.	6 sec.	6 sec.	6 sec.
Off Cooling	45 secs.	45 secs.	45 secs.	45 secs.
Gas Supply Pressure (Natural/Propane) ("w.c.)	7 / 11	7 / 11	7 / 11	7 / 11
Manifold Pressure (Natural/Propane) ("w.c.)	3.5 / 10	3.5 / 10	3.5 / 10	3.5 / 10
Orifice Size (Natural/Propane)	45 / 55	45 / 55	45 / 55	45 / 55
Number of Burners	2	3	4	5
Vent Connector Diameter (inches) ⁽⁴⁾	2	2	2	2
Combustion Air Connector Diameter (inches) ⁽⁵⁾	2	2	2	2
Shipping Weight (lbs.)	120	124	144	162

⁽¹⁾ Wire size should be determined in accordance with National Electrical Codes. Extensive wire runs will require larger wire sizes.

⁽²⁾ Maximum Overcurrent Protection Device: May use Time Delay Fuse or HACR type Circuit Breaker of the same size as noted.

⁽³⁾ Off Heating - this fan delay timing is adjustable (100 and 150 seconds). Furnaces are shipped with 150 second off delay.

⁽⁴⁾ See Installation Instructions for appropriate vent diameter, length and number of elbows.

⁽⁵⁾ See Installation Instructions for appropriate combustion air pipe diameter, length and number of elbows.

NOTE: This data is provided as a guide, it is important to electrically connect the unit and properly size fuses/circuit breakers and wires in accordance with all national and/or local electrical codes. Use copper wire only.

- These furnaces are manufactured for natural gas operation. Optional kits are available for conversion to propane operation.
- For elevations above 2000 feet the rating should be reduced by 4% for each 1000 feet 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 manufacturers method or 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.
- Minimum Circuit Ampacity calculated as: (1.25 x Circulator Blower Amps) + I.D. Blower Amps.

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

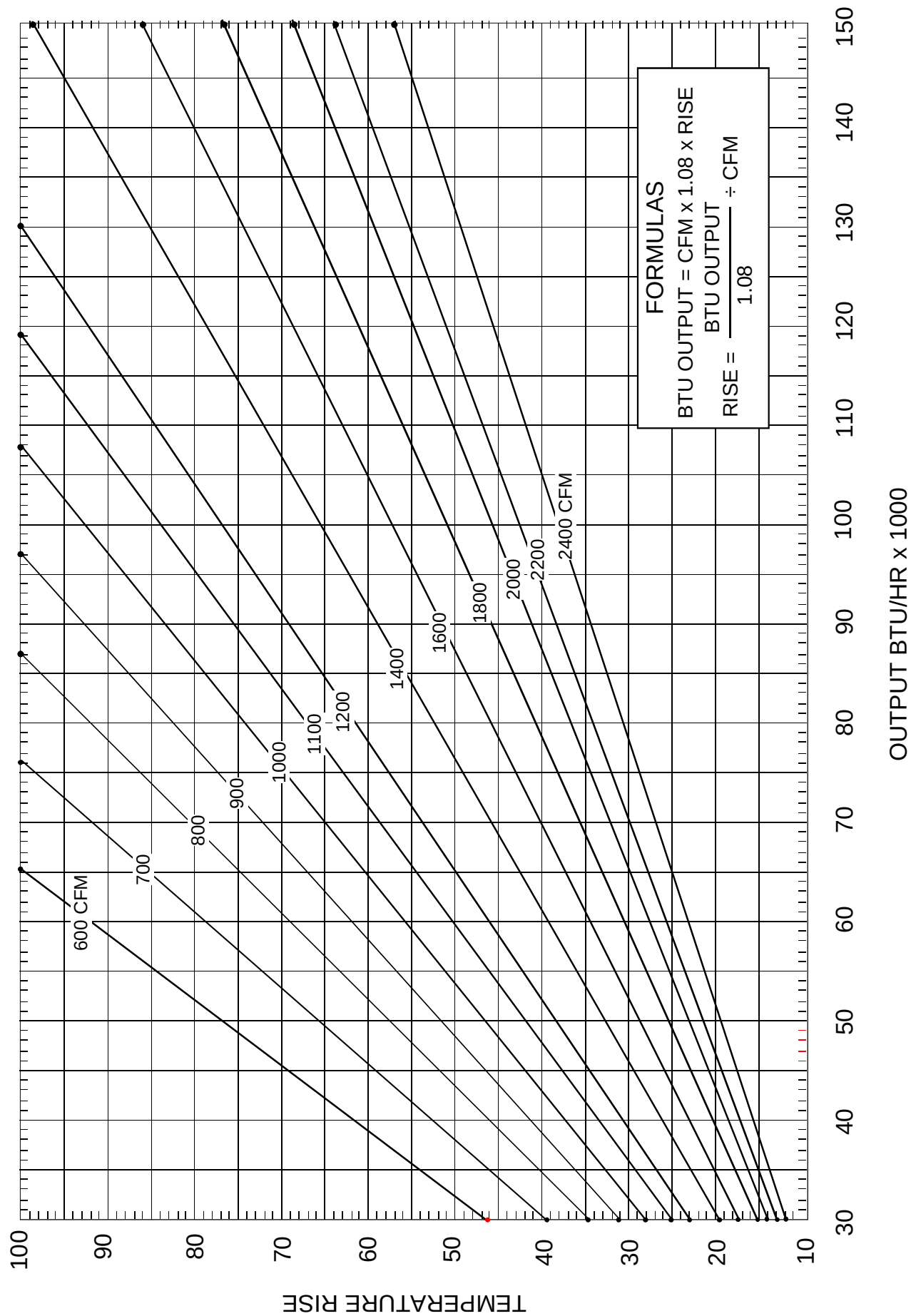
BLOWER PERFORMANCE SPECIFICATIONS

(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
GME950403BX* (MED-HI)	T1 - YELLOW	1.5	726	48	670	53	617	57	553	64	490	72	429	378	336
	T2 - RED	2.0	905	39	860	41	812	43	761	46	712	49	663	610	574
	T3 - ORANGE	2.5	1121	31	1074	33	1039	34	998	35	959	37	923	882	839
	T4 - BLUE	3.0	1274	28	1239	28	1199	29	1166	30	1129	31	1096	1059	1021
	T5 - BLACK	3.0	1306	27	1261	28	1232	29	1195	29	1162	30	1132	1090	1057
GME950603BX* (MED-HI)	T1 - YELLOW	1.5	714	80	667	79	604	87	548	96	484	109	422	367	325
	T2 - RED	2.0	904	58	851	62	804	66	761	69	708	75	664	612	572
	T3 - ORANGE	2.5	1125	47	1075	49	1045	51	999	53	956	55	921	877	839
	T4 - BLUE	3.0	1312	40	1271	42	1228	43	1202	44	1165	45	1127	1087	1044
	T5 - BLACK	3.5	1423	37	1386	38	1354	39	1321	40	1278	41	1210	1134	1032
GME950805CX* (MED-HI)	T1 - YELLOW	3.0	1297	54	1253	56	1209	58	1161	61	1111	63	1067	1022	974
	T2 - RED	3.5	1507	47	1455	48	1422	49	1377	51	1334	53	1296	1251	1195
	T3 - ORANGE	4.0	1677	42	1637	43	1602	44	1562	45	1526	46	1484	1441	1324
	T4 - BLUE	4.0	1879	37	1842	38	1800	39	1762	40	1700	41	1566	1437	1319
	T5 - BLACK	5.0	2044	35	1967	36	1894	37	1795	39	1702	41	1578	1452	1320
GME951005DX* (MED-HI)	T1 - YELLOW	3.0	1331	66	1275	69	1206	73	1145	77	1080	81	1021	953	889
	T2 - RED	3.5	1512	58	1452	60	1392	63	1336	66	1279	69	1219	1175	1115
	T3 - ORANGE	4.0	1713	51	1666	53	1614	57	1569	56	1513	58	1468	1414	1364
	T4 - BLUE	4.0	1892	46	1845	48	1802	49	1752	50	1707	52	1656	1614	1577
	T5 - BLACK	5.0	2080	42	2038	43	2005	44	1960	45	1920	46	1879	1843	1791

1. CFM in chart is without filters(s). Filters do not ship with this furnace, but must be provided by the installer. If the furnace requires two return filters, this chart assumes both filters are installed.
2. All furnaces ship as high speed cooling and medium-speed heating. Installer must adjust blower cooling & heating 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 above chart is for U.S. furnaces installed at 0-2000 feet. At higher altitudes, a properly de-rated unit will have approximately the same temperature rise at a particular CFM, while the ESP at that CFM will be lower.

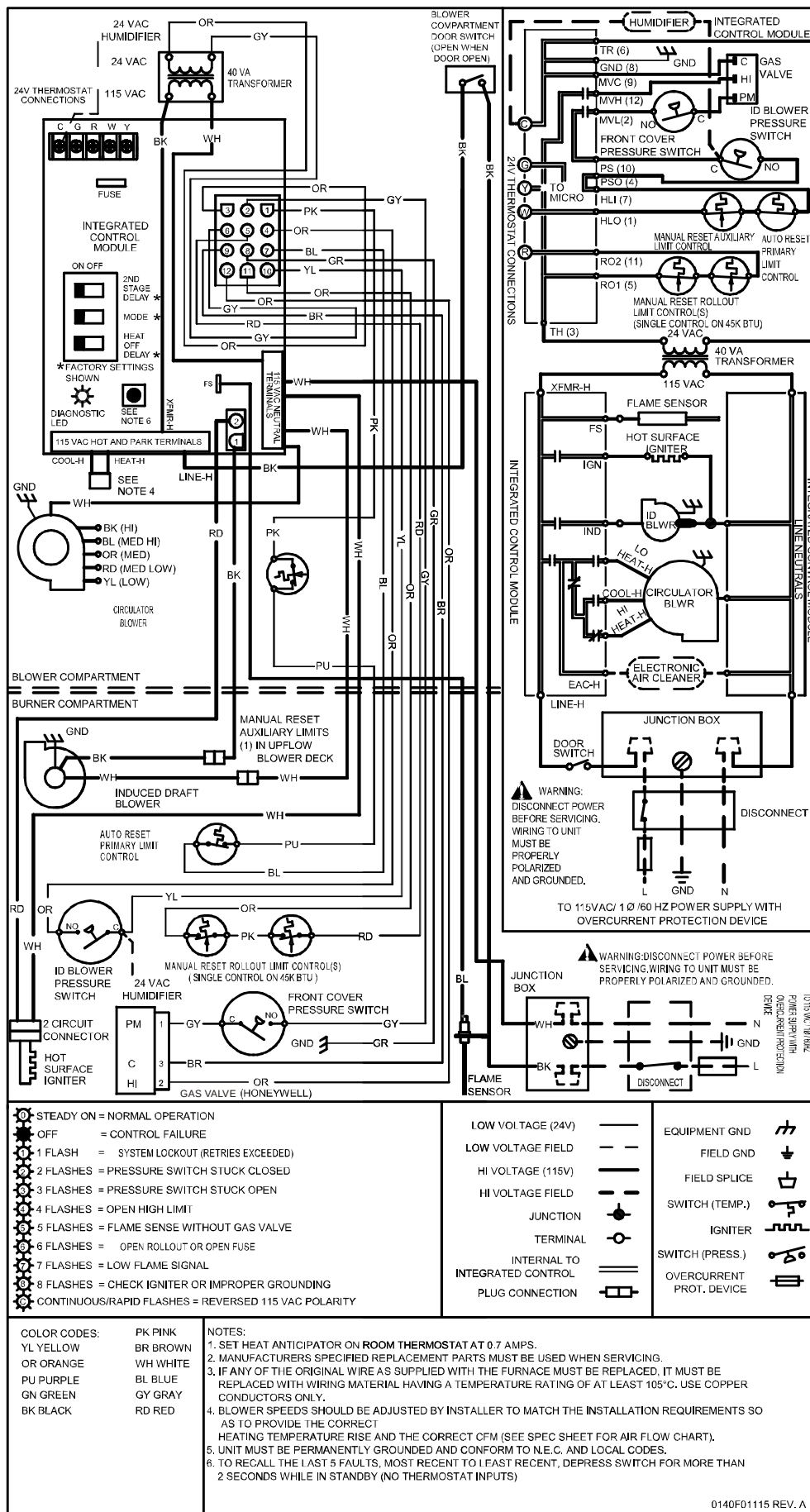
BLOWER PERFORMANCE SPECIFICATIONS

BTU OUTPUT vs TEMPERATURE RISE CHART



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.