



Air Conditioning & Heating

GC9C96

HEATING INPUT: 40,000–100,000 BTU/H

**TWO-STAGE, MULTI-SPEED
ECM GAS FURNACE
UP TO 96% AFUE**



Contents

Nomenclature.....	2
Product Specifications.....	3
Dimensions	4
Airflow Specifications.....	5
Wiring Diagrams	10
Accessories	11

Standard Features

- Energy-efficient, multi-speed ECM blower motor
- Heavy-duty, aluminized-steel tubular heat exchanger
- Stainless-steel secondary heat exchanger
- Two-stage gas valve provides quiet, economical heating
- Durable Silicon Nitride igniter
- Quiet two-speed induced draft blower
- Self-diagnostic control board with constant memory fault code history output to a LED
- Color-coded low-voltage terminals with provisions for electronic air cleaner and humidifier
- Low continuous fan speed options offer quiet air circulation
- All models comply with California 40 ng/J Low NOx emissions standard
- Can no longer be installed in California's South Coast Air Quality Management District (SCAQMD) on or after October 1, 2019.
- AHRI Certified; ETL Listed

Cabinet Features

- Designed for multi-position installation — down flow, horizontal left or right
- Certified for direct vent (2-pipe) or non-direct vent (1-pipe)
- Easy-to-install top venting with optional side venting
- Convenient left or right connection for gas and electrical service
- Cabinet air leakage ($Q_{Leak} \leq 2\%$)
- Heavy-gauge steel cabinet with durable finish
- Fully insulated heat exchanger and blower section
- Airtight solid bottom or side return with easy-cut tabs for effortless removal in bottom air-inlet applications

LIFETIME
HEAT EXCHANGER
LIMITED WARRANTY*

10 UNIT
REPLACEMENT
LIMITED
WARRANTY*

10 PARTS
LIMITED
WARRANTY*



COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
■ ISO 9001 ■

COMPANY WITH
ENVIRONMENTAL SYSTEM
CERTIFIED BY DNV GL
■ ISO 14001 ■



* Complete warranty details available from your local dealer or at www.goodmanmfg.com. To receive the Lifetime Heat Exchanger Limited Warranty (good for as long as you own your home), 10-Year Unit Replacement Limited Warranty and 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Québec.

		G	C	9	C	96	040	4	C	*	**
		1	2	3	4	5,6	7,8,9	10	11	12	13,14
BRAND										ENGINEERING	
G- Goodman® Brand										Major/Minor Revisions	
										A - Initial Release	
										B - 1st Revision	
CONFIGURATION										NOX	
M- Upflow/Horizontal										N = > 40 NG/J NOx	
C- Downflow/Horizontal										X = < 40 NG/J NOx	
MOTOR										CABINET WIDTH	
9 - Nine Speed ECM										A- 14"	C- 21"
										B- 17½"	D- 24½"
GAS VALVE										MAXIMUM CFM	
C- 2 Stage										3- 1200 CFM	4- 1600 CFM
											5- 2000 CFM
AFUE										MBTU/h	
80- 80% AFUE	92- 92% AFUE									030- 30,000 BTU/h	080- 80,000 BTU/h
96- 96% AFUE	97- 97% AFUE									040- 40,000 BTU/h	100- 100,000 BTU/h
										060- 60,000 BTU/h	120- 120,000 BTU/h

	GC9C96 0403BNA	GC9C96 0603BNA	GC9C96 0803BNA	GC9C96 1005CNA
HEATING DATA				
High Fire Input ¹	40,000	60,000	80,000	100,000
High Fire Output ¹	38,400	57,600	76,800	96,000
Low-Fire Input ¹	28,000	42,000	56,000	70,000
Low-Fire Output ¹	26,880	40,320	53,760	67,200
AFUE ²	96	96	96	96
Temp. Rise Range (°F)	25- 55	25- 55	40- 70	35- 65
Vent Diameter ³	2" - 3"	2" - 3"	2" - 3"	2" - 3"
No. of Burners	2	3	4	5
CIRCULATOR BLOWER				
Available AC @ 0.5" ESP	1.5- 3	1.5- 3	1.5- 3	3- 5
Size (D x W)	10" x 8"	11" x 8"	11" x 8"	11" x 10"
Horsepower @ 1075 RPM	1/2	1/2	1/2	1
Speed	9	9	9	9
ELECTRICAL DATA				
Min. Circuit Ampacity ⁴	8	8	8	13.3
Max. Overcurrent (amps) ⁵	15	15	15	20
SHIPPING WEIGHT (LBS)	112	115	118	140

¹ Natural Gas BTU/h

² DOE AFUE based upon Isolated Combustion System (ICS)

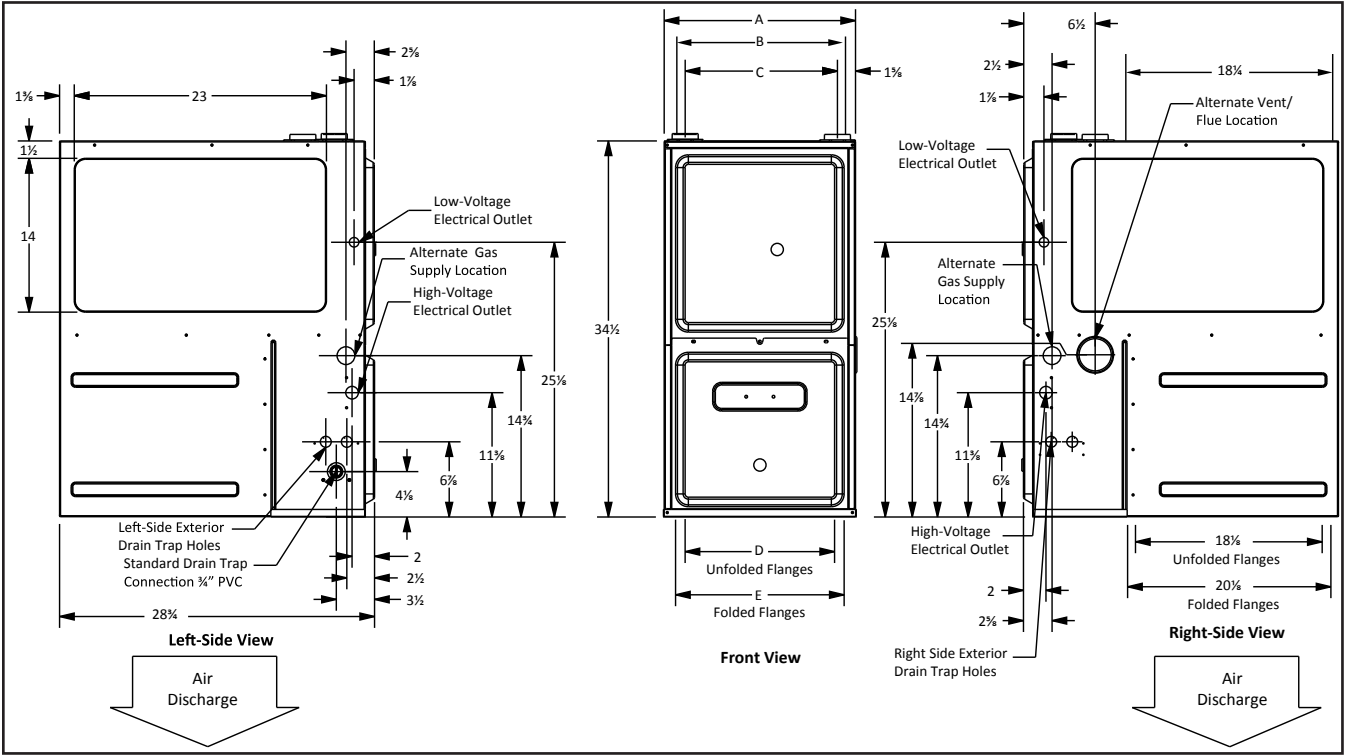
³ Installer must supply one or two PVC pipes: one for combustion air (optional) and one for the flue outlet (required). Vent pipe must be either 2" or 3" in diameter, depending upon furnace input, number of elbows, length of run and installation (1 or 2 pipes). The optional Combustion Air Pipe is dependent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

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.
- For bottom return: Failure to unfold flanges may reduce airflow by up to 18%. This could result in performance and noise issues.
- For servicing or cleaning, a 24" front clearance is required. Unit connections (electrical, flue and drain) may necessitate greater clearances than the minimum clearances listed above. In all cases, accessibility clearance must take precedence over clearances from the enclosure where accessibility clearances are greater.



MODEL	AIR DISCHARGE			AIR RETURN	
	A	B	C	D	E
GC9C960403BNA	17 1/2"	16"	13 7/8"	12 1/8"	13 5/8"
GC9C960603BNA	17 1/2"	16"	13 7/8"	12 1/8"	13 5/8"
GC9C960803BNA	17 1/2"	16"	13 7/8"	12 1/8"	13 5/8"
GC9C961005CNA	21"	19 1/2"	17 3/8"	16"	17 1/2"

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

POSITION	SIDES	REAR	FRONT	BOTTOM	FLUE	TOP
Downflow	0"	0"	3"	NC	0"	1"
Horizontal	6"	0"	3"	C	0"	6"

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

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

LOW STAGE COOLING AIFLOW										
MODEL	THER- MOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
*C9C96 0403BN	Y/Y1	F01	727	677	623	565	510	455	403	351
		F02	923	882	841	798	752	704	660	614
		F03	632	574	510	448	388	332	277	234
		F04^	878	839	797	751	701	653	607	561
		F05	1106	1076	1044	1010	974	939	899	860
		F06	1188	1156	1123	1091	1062	1029	998	964
		F07	1237	1205	1174	1145	1115	1081	1050	1016
		F08	1281	1252	1222	1195	1163	1134	1104	1071
		F09	1382	1354	1327	1302	1276	1246	1219	1190
*C9C96 0603BN	Y/Y1	F01	1167	1118	1069	1022	974	928	877	833
		F02	1332	1289	1245	1200	1160	1120	1081	1036
		F03	680	609	532	460	397	337	252	201
		F04^	903	839	783	719	661	601	546	497
		F05	1248	1204	1159	1113	1071	1028	983	943
		F06	963	907	852	803	745	689	639	587
		F07	1393	1348	1309	1267	1230	1189	1152	1116
		F08	1450	1407	1366	1330	1290	1251	1221	1186
		F09	1468	1436	1393	1359	1323	1285	1248	1210
*C9C96 0803BN	Y/Y1	F01	1167	1124	1087	1040	995	954	916	869
		F02	1317	1277	1240	1201	1161	1122	1081	1045
		F03	733	669	606	543	482	424	372	300
		F04^	1217	1174	1130	1086	1045	1003	962	925
		F05	1300	1263	1225	1186	1142	1099	1062	1023
		F06	919	872	820	764	711	658	605	553
		F07	1126	1085	1042	998	953	910	866	824
		F08	1375	1341	1301	1264	1226	1189	1154	1118
		F09	1440	1402	1366	1330	1295	1260	1224	1187
*C9C96 1005CN	Y/Y1	F01	1366	1307	1248	1188	1130	1069	1007	938
		F02	1833	1785	1736	1688	1640	1593	1543	1497
		F03	1295	1230	1168	1105	1044	981	911	843
		F04^	1634	1578	1525	1471	1416	1363	1311	1265
		F05	2028	1994	1937	1899	1863	1814	1769	1724
		F06	1773	1721	1671	1621	1571	1521	1470	1421
		F07	1908	1860	1813	1766	1720	1672	1624	1578
		F08	1965	1919	1873	1829	1783	1736	1688	1643
		F09	2096	2053	2014	1973	1931	1890	1849	1803

NOTES

- ^ DEFAULT SPEED
- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.

HIGH STAGE COOLING AIFLOW										
MODEL	THER- MOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
*C9C96 0403BN	Y2	F01	727	677	623	565	510	455	403	351
		F02	923	882	841	798	752	704	660	614
		F03	632	574	510	448	388	332	277	234
		F04	878	839	797	751	701	653	607	561
		F05^	1106	1076	1044	1010	974	939	899	860
		F06	1188	1156	1123	1091	1062	1029	998	964
		F07	1237	1205	1174	1145	1115	1081	1050	1016
		F08	1281	1252	1222	1195	1163	1134	1104	1071
		F09	1382	1354	1327	1302	1276	1246	1219	1190
*C9C96 0603BN	Y2	F01	1167	1118	1069	1022	974	928	877	833
		F02	1332	1289	1245	1200	1160	1120	1081	1036
		F03	680	609	532	460	397	337	252	201
		F04	903	839	783	719	661	601	546	497
		F05^	1248	1204	1159	1113	1071	1028	983	943
		F06	963	907	852	803	745	689	639	587
		F07	1393	1348	1309	1267	1230	1189	1152	1116
		F08	1450	1407	1366	1330	1290	1251	1221	1186
		F09	1468	1436	1393	1359	1323	1285	1248	1210
*C9C96 0803BN	Y2	F01	1167	1124	1087	1040	995	954	916	869
		F02	1317	1277	1240	1201	1161	1122	1081	1045
		F03	733	669	606	543	482	424	372	300
		F04	1217	1174	1130	1086	1045	1003	962	925
		F05^	1300	1263	1225	1186	1142	1099	1062	1023
		F06	919	872	820	764	711	658	605	553
		F07	1126	1085	1042	998	953	910	866	824
		F08	1375	1341	1301	1264	1226	1189	1154	1118
		F09	1440	1402	1366	1330	1295	1260	1224	1187
*C9C96 1005CN	Y2	F01	1366	1307	1248	1188	1130	1069	1007	938
		F02	1833	1785	1736	1688	1640	1593	1543	1497
		F03	1295	1230	1168	1105	1044	981	911	843
		F04	1634	1578	1525	1471	1416	1363	1311	1265
		F05^	2028	1994	1937	1899	1863	1814	1769	1724
		F06	1773	1721	1671	1621	1571	1521	1470	1421
		F07	1908	1860	1813	1766	1720	1672	1624	1578
		F08	1965	1919	1873	1829	1783	1736	1688	1643
		F09	2096	2053	2014	1973	1931	1890	1849	1803

NOTES

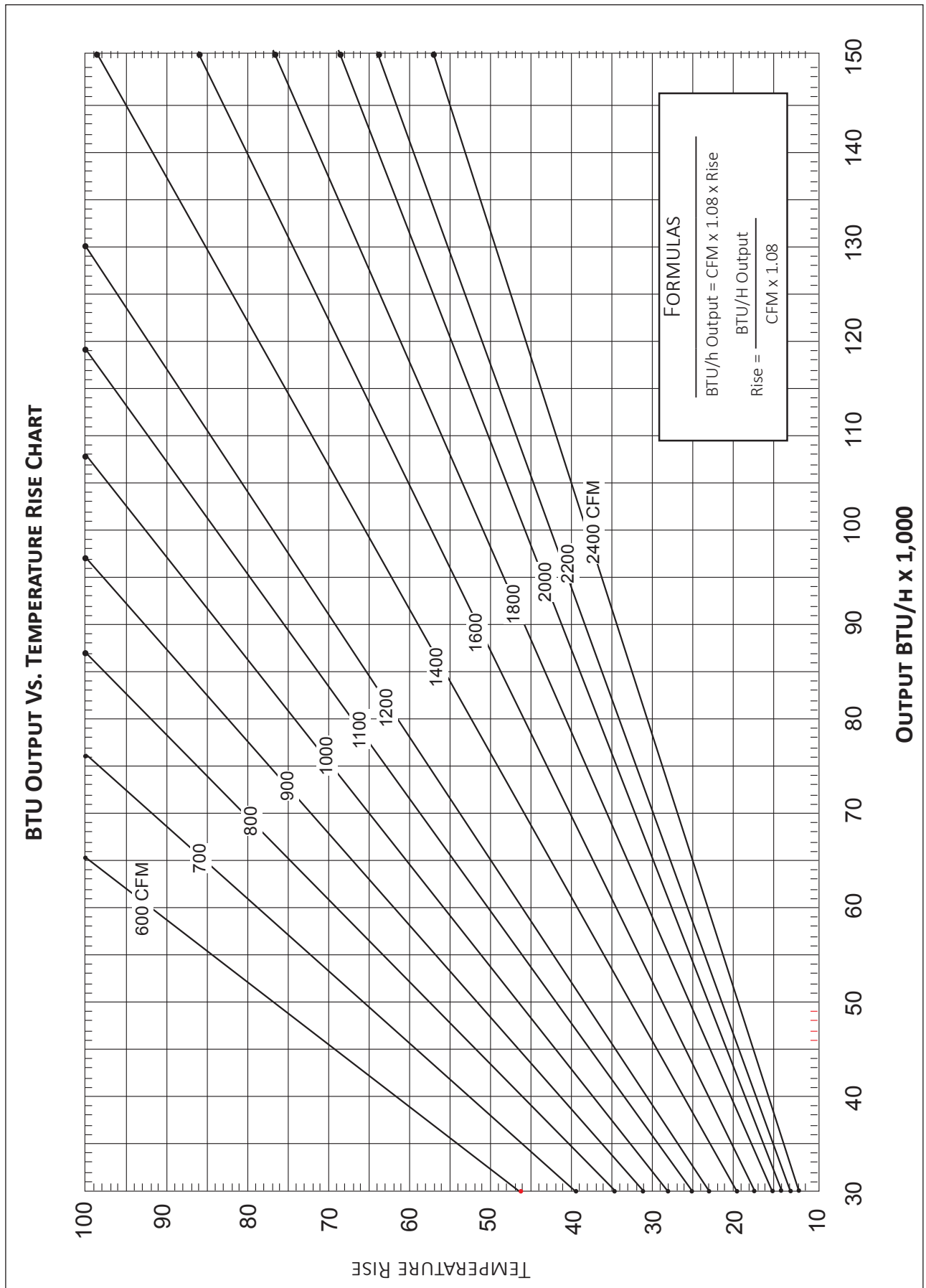
- ^ DEFAULT SPEED
- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.

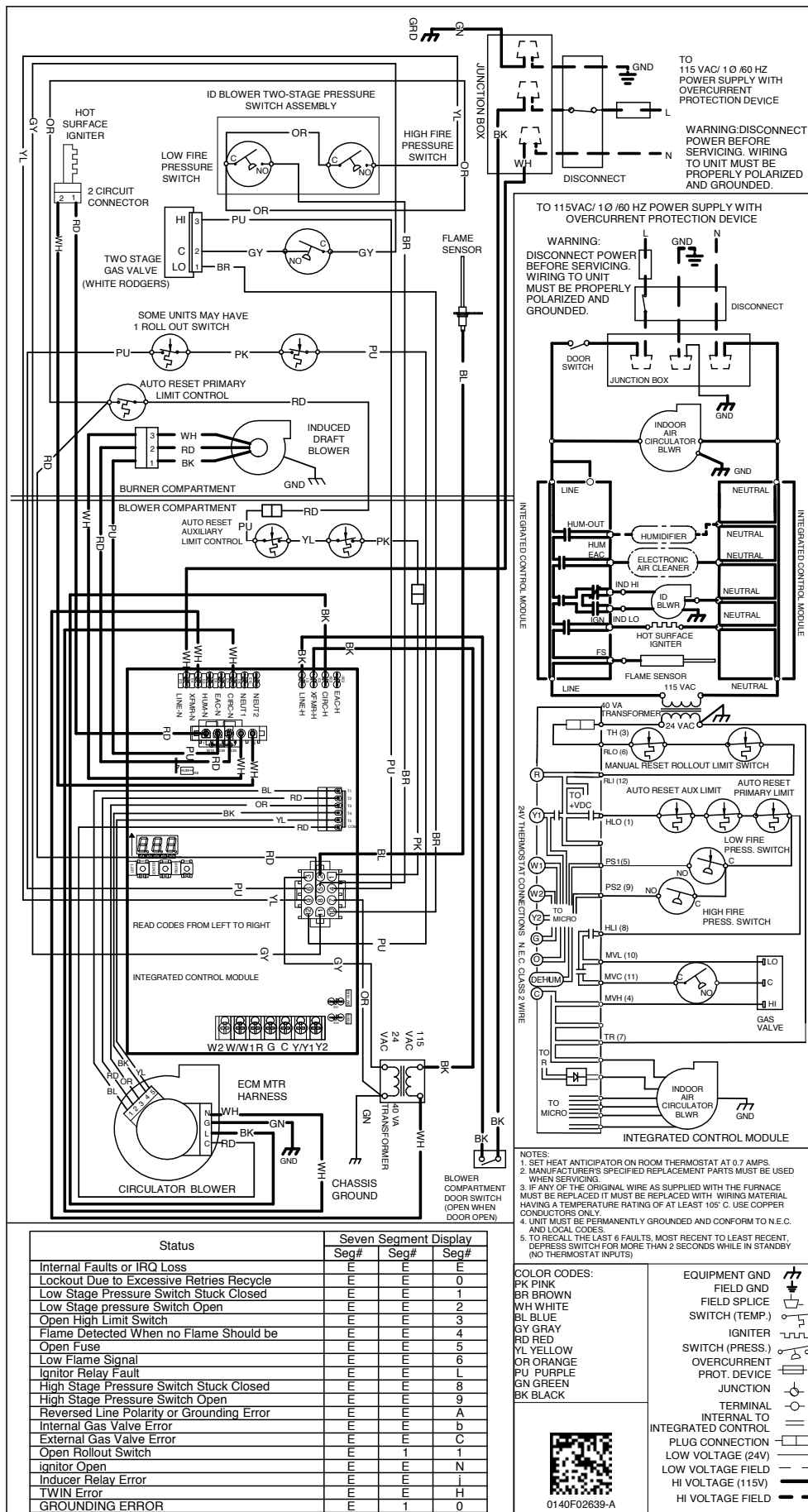
CIRCULATION AIFLOW										
MODEL	THER- MOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
*C9C96 0403BN	G	F01	727	677	623	565	510	455	403	351
		F02	923	882	841	798	752	704	660	614
		F03	632	574	510	448	388	332	277	234
		F04	878	839	797	751	701	653	607	561
		F05	1106	1076	1044	1010	974	939	899	860
		F06	1188	1156	1123	1091	1062	1029	998	964
		F07	1237	1205	1174	1145	1115	1081	1050	1016
		F08	1281	1252	1222	1195	1163	1134	1104	1071
		F09	1382	1354	1327	1302	1276	1246	1219	1190
*C9C96 0603BN	G	F01	1167	1118	1069	1022	974	928	877	833
		F02	1332	1289	1245	1200	1160	1120	1081	1036
		F03	680	609	532	460	397	337	252	201
		F04	903	839	783	719	661	601	546	497
		F05	1248	1204	1159	1113	1071	1028	983	943
		F06	963	907	852	803	745	689	639	587
		F07	1393	1348	1309	1267	1230	1189	1152	1116
		F08	1450	1407	1366	1330	1290	1251	1221	1186
		F09	1468	1436	1393	1359	1323	1285	1248	1210
*C9C96 0803BN	G	F01	1167	1124	1087	1040	995	954	916	869
		F02	1317	1277	1240	1201	1161	1122	1081	1045
		F03	733	669	606	543	482	424	372	300
		F04	1217	1174	1130	1086	1045	1003	962	925
		F05	1300	1263	1225	1186	1142	1099	1062	1023
		F06	919	872	820	764	711	658	605	553
		F07	1126	1085	1042	998	953	910	866	824
		F08	1375	1341	1301	1264	1226	1189	1154	1118
		F09	1440	1402	1366	1330	1295	1260	1224	1187
*C9C96 1005CN	G	F01	1366	1307	1248	1188	1130	1069	1007	938
		F02	1833	1785	1736	1688	1640	1593	1543	1497
		F03	1295	1230	1168	1105	1044	981	911	843
		F04	1634	1578	1525	1471	1416	1363	1311	1265
		F05	2028	1994	1937	1899	1863	1814	1769	1724
		F06	1773	1721	1671	1621	1571	1521	1470	1421
		F07	1908	1860	1813	1766	1720	1672	1624	1578
		F08	1965	1919	1873	1829	1783	1736	1688	1643
		F09	2096	2053	2014	1973	1931	1890	1849	1803

NOTES

- ^ DEFAULT SPEED
- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.

- ^ DEFAULT SPEED
- ^^NOT RECOMMENDED FOR HEATING
- All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.
- For most jobs, about 400 CFM per ton when cooling is desirable.
- INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.





Status	Seg#	Seg#	Seg#
Internal Faults or IRQ Loss	1	1	0
Lockout Due to Excessive Retries Recycle	1	1	1
Low Stage Pressure Switch Stuck Closed	1	1	2
Low Stage pressure Switch Open	1	1	3
Open High Limit Switch	1	1	4
Flame Detected When no Flame Should be	1	1	5
Open Fuse	1	1	6
Low Flame Signal	1	1	7
Ignitor Relay Fault	1	1	8
High Stage Pressure Switch Stuck Closed	1	1	9
High Stage Pressure Switch Open	1	1	A
Reversed Line Polarity or Grounding Error	1	1	b
Internal Gas Valve Error	1	1	C
External Gas Valve Error	1	1	1
Open Rollout Switch	1	1	N
Ignitor Open	1	1	I
Inducer Relay Error	1	1	H
TWIN Error	1	1	0
GROUNDING ERROR	1	1	0

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.

MODEL	DESCRIPTION	GC9C96 0403BNA	GC9C96 0603BNA	GC9C96 0803BNA	GC9C96 1005CNA
72950	Concentric Vent Kit (2")	✓	✓	✓	✓
72951	Concentric Vent Kit (3")	✓	✓	✓	✓
CFSB17	Downflow Sub-Base 17.5"	✓	✓	✓	—
CFSB21	Downflow Sub-Base 21"	—	—	—	✓
RF000142	Drain Kit-Horizontal Left Vertical Flue	✓	✓	✓	✓
0170K00000S	Flush Mount Vent Kit- 3" or 2"	✓	✓	✓	✓
0170K00001S	Flush Mount Vent Kit- 2"	✓	✓	✓	✓
AFE18-60A	Fossil Fuel (Dual Fuel) Kit	✓	✓	✓	✓
HASFK	High-Altitude Natural Gas Kit	HASFK-1	HASFK-1	HASFK-2	HASFK-2
HASFK	High-Altitude LP Gas Kit	TBD	TBD	TBD	TBD
0270F05405	Horizontal Drain Tubing Kit	✓	✓	✓	✓
LPLP03	Low LP Gas Pressure Switch	✓	✓	✓	✓
LPM-08	LP Conversion Kits	✓	✓	✓	✓

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.