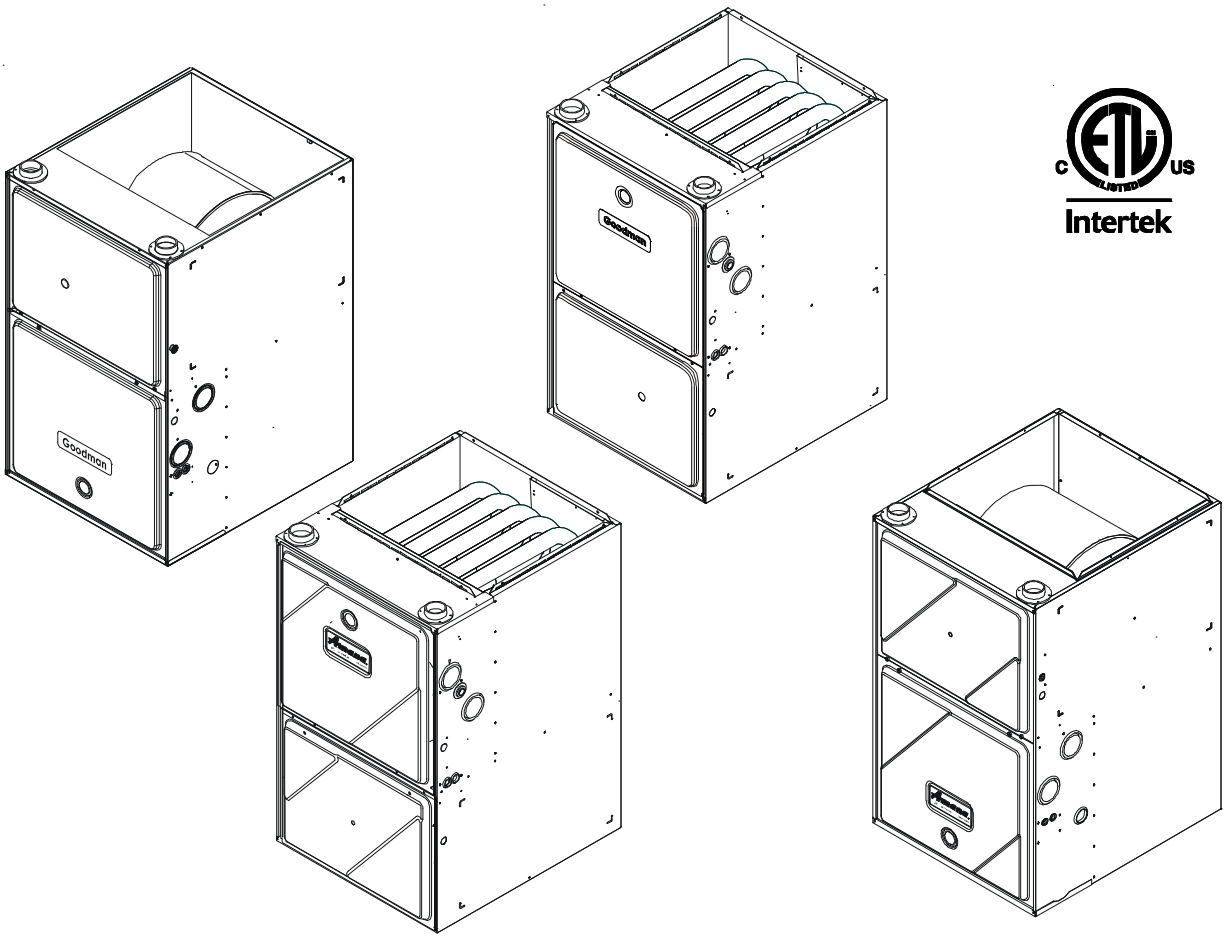
TECHNICAL MANUAL

*MSS96, *CSS96

34.5" SINGLE STAGE
MULTI-SPEED GAS FURNACE

UP TO 96% AFUE

- Refer to Service Manual RS6612012 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.
- Models 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 performed by an unqualified person.

RT6612033
August 2014

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.

*	M	S	S	96	040	3	B	N	A	A
1	2	3	4	5,6	7,8,9	10	11	12	13	14

Brand
A - Amana® Brand
G - Goodman® Brand

Configuration
M - Upflow/Horizontal
C - Downflow/Horizontal

Motor
V - Variable Speed ECM / ComfortNet
E - Multi-Speed ECM
S - Single Speed

Gas Valve
M - Modulating
S - Single Stage

AFUE
96 - 96% AFUE
92 - 92% AFUE

MBTU/h
040 - 40,000 BTU/h
060 - 60,000 BTU/h
120 - 120,000 BTU/h

Maximum CFM
2 - 800 CFM
3 - 1200 CFM
4 - 1600 CFM
5 - 2000 CFM

Cabinet Width
A - 14"
B - 17.5"
C - 21"
D - 24.5"

NOx
N - Low NOx

Major Revision
A - Initial Release
B - 1st Revision

Minor Revision
A - Initial Release
B - 1st Revision

⚠ 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.

ACSS960402BN**	GCSS960402BN**
ACSS960603BN**	GCSS960603BN**
ACSS960804CN**	GCSS960804CN**
ACSS961005CN**	GCSS961005CN**
ACSS961205DN**	GCSS961205DN**
AMSS960402BN**	GMSS960402BN**
AMSS960603BN**	GMSS960603BN**
AMSS960803BN**	GMSS960803BN**
AMSS960804CN**	GMSS960804CN**
AMSS960805CN**	GMSS960805CN**
AMSS961005CN**	GMSS961005CN**
AMSS961205DN**	GMSS961205DN**

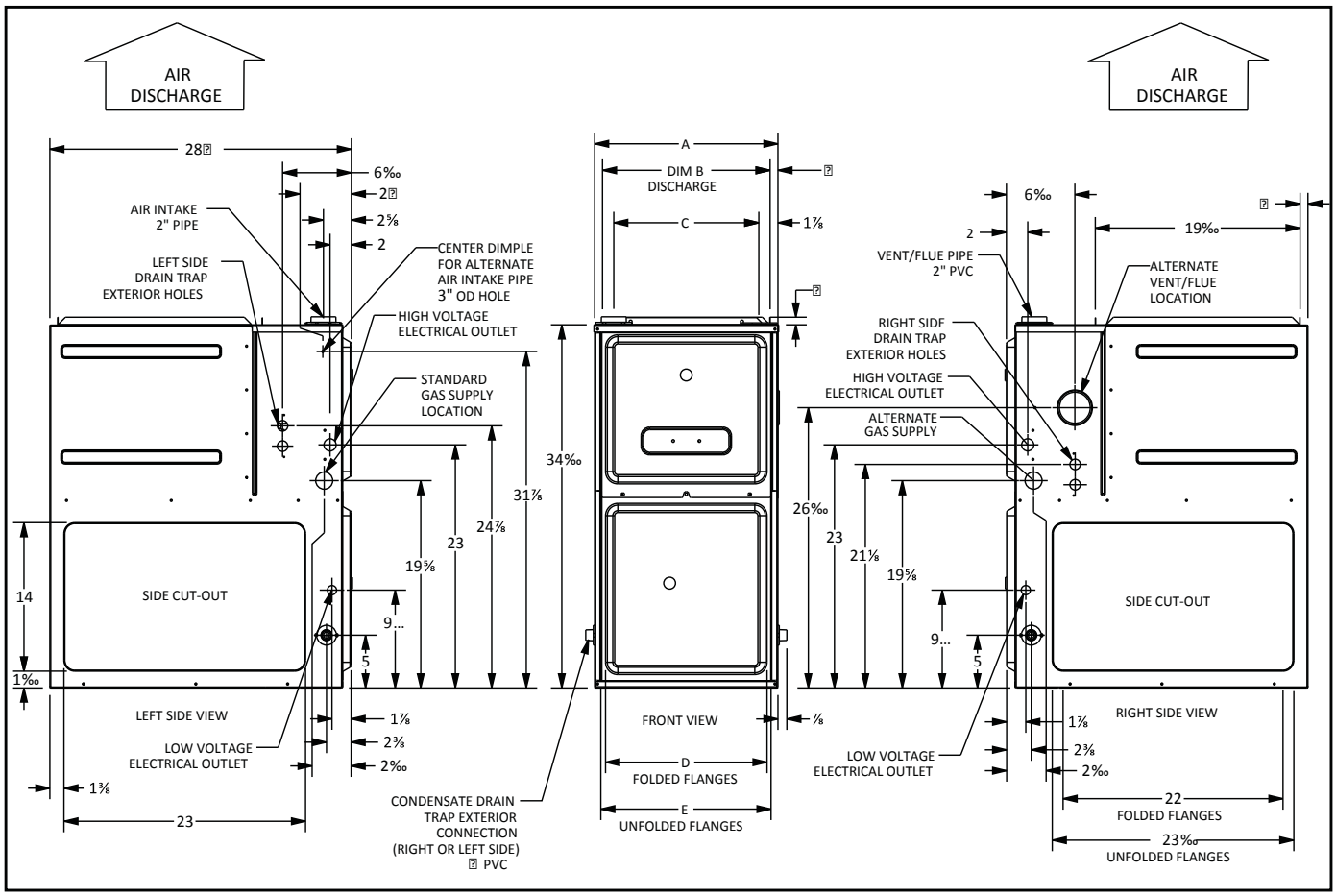
⚠ WARNING **The United States Environmental Protection Agency ("EPA") has issued various regulations regarding the introduction and disposal of refrigerants introduced into this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These 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 DIMENSIONS

*MSS96



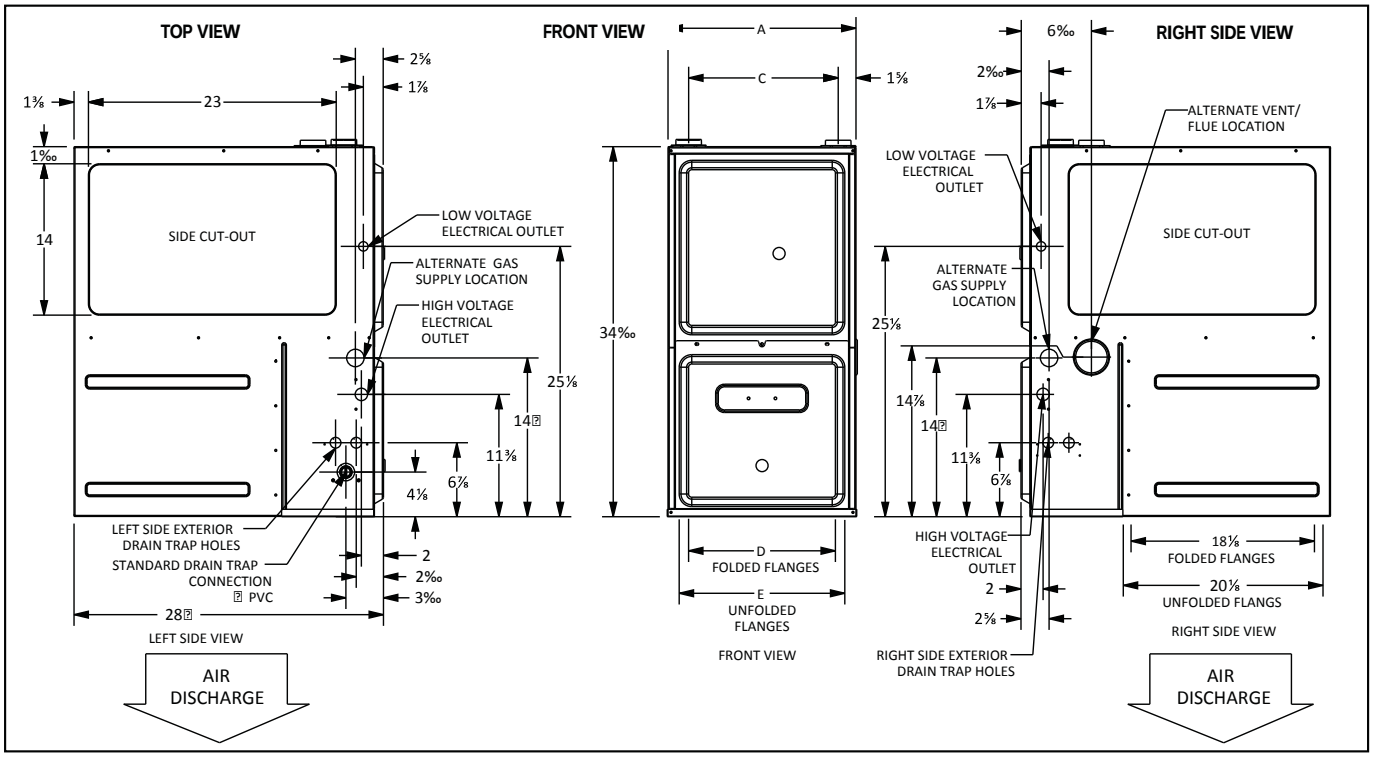
Model	A	B	C	D	E
*MSS960402BN**	17-1/2"	16"	13-7/8"	12-1/8"	13-5/8"
*MSS960603BN**	17-1/2"	16"	13-7/8"	12-1/8"	13-5/8"
*MSS960803BN**	17-1/2"	16"	13-7/8"	12-1/8"	13-5/8"
*MSS960804CN**	21"	19-1/2"	17-3/8"	16"	17-1/2"
*MSS960805CN**	21"	19-1/2"	17-3/8"	16"	17-1/2"
*MSS961005CN**	21"	19-1/2"	17-3/8"	16"	17-1/2"
*MSS961205DN**	24-1/2"	23"	20-3/8"	10-3/8"	20-7/8"

Minimum Clearances to Combustible Material

Position	Sides	Rear	Front	Bottom	Flue	Top
Upflow	0"	0"	3"	C	0"	1"
Horizontal	6"	0"	3"	C	0"	6"

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

PRODUCT DIMENSIONS *CSS96



Model	A	B	C	D	E
*CSS960402BN**	17-1/2"	14-5/8"	14"	14-1/2"	16"
*CSS960603BN**	17-1/2"	14-5/8"	14"	14-1/2"	16"
*CSS960804CN**	21"	18-1/8"	17-1/2"	18"	19-1/2"
*CSS961005CN**	21"	18-1/8"	17-1/2"	18"	19-1/2"
*CSS961205DN**	24-1/2"	21-5/8"	21"	21-1/2"	23"

Minimum Clearances to Combustible Material

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.

FURNACE SPECIFICATIONS *MSS96

	*MSS96 0402BNA	*MSS96 0603BNA	*MSS96 0803BNA	*MSS96 0804CNA	*MSS96 0805CNA	*MSS96 1005CNA	*MSS96 1205DNA
Heating Data							
High Fire Input„	40,000	60,000	80,000	80,000	80,000	100,000	120,000
High Fire Output„	38,400	57,600	76,800	76,800	76,800	96,000	115,200
AFUE†	96	96	96	96	96	96	96
Temperature Rise Range (□F)	25 - 55	35 - 65	35 - 65	25 - 55	25 - 55	30 - 60	35 - 65
Vent Diameter‡	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"	3"
No. of Burners	2	3	4	4	4	5	6
Circulator Blower							
Available AC @ 0.5" ESP	1.5 - 3	1.5 - 3	1.5 - 3	1.5 - 4	3 - 5	3 - 5	3 - 5
Size (D x W)	10" x 8"	10" x 8"	10" x 8"	10" x 10"	11" x 10"	11" x 10"	11" x 11"
Horsepower @ 1075 RPM	⅓	⅓	‰	‰	□	□	□
Speed	4	4	4	4	4	4	4
Filter Size (in†)							
Permanent	427	512	683	853	853	948	1,024
Disposable	213	256	341	427	427	474	512
Electrical Data							
Min. Circuit Ampacity[4]	9.6	9.6	12.8	12.8	13.7	13.7	13.7
Max. Overcurrent Device (amps)[5]	15	15	15	15	15	15	15
Shipping Weight (lbs)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

„ Natural Gas BTU/h

† DOE AFUE based upon Isolated Combustion System (ICS)

‡ 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.

FURNACE SPECIFICATIONS *CSS96

	*CSS96 0402BNA	*CSS96 0603BNA	*CSS96 0804CNA	*CSS96 1005CNA	*CSS96 1205DNA
Heating Data					
High Fire Input„	40,000	60,000	80,000	100,000	120,000
High Fire Output„	38,400	57,600	76,800	95,000	114,000
AFUE†	96	96	96	95	95
Temperature Rise Range (□F)	25 - 55	35 - 65	35 - 65	40 - 70	45 - 75
Vent Diameter‡	2" - 3"	2" - 3"	2" - 3"	2" - 3"	3"
No. of Burners	2	3	4	5	6
Circulator Blower					
Available AC @ 0.5" ESP	1.5 - 3	1.5 - 3	2.5 - 4	3 - 5	3 - 5
Size (D x W)	10" x 8"	10" x 8"	10" x 10"	11" x 10"	11" x 11"
Horsepower @ 1075 RPM	⅓	⅓	‰	□	□
Speed	4	4	4	4	4
Filter Size (in†)					
Permanent	427	512	683	768	844
Disposable	213	256	341	384	422
Electrical Data					
Min. Circuit Ampacity[4]	9.6	9.6	12.8	13.7	13.7
Max. Overcurrent Device (amps)[5]	15	15	15	15	15
Shipping Weight (lbs)	N/A	N/A	N/A	N/A	N/A

„ Natural Gas BTU/h

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AIRFLOW DATA

*MSS96/*CSS96

(CFM & TEMPERATRUE RISE vs. EXTERNAL STATIC PRESSURE

			0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
		AC	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
*MSS960402BN	HIGH	3.0	1478	N/A	1418	25	1354	26	1290	28	1208	29	1129	1040	930
	MED	2.5	1299	27	1265	28	1225	29	1167	30	1112	32	1033	949	841
	MED-LO	2.0	1081	33	1064	33	1039	34	997	36	945	38	886	819	722
	LOW	1.5	966	37	951	37	925	38	892	40	861	41	808	750	666
*MSS960603BN	HIGH	3.0	1432	37	1374	39	1319	40	1237	43	1157	46	1063	958	854
	MED	2.5	1289	41	1250	43	1204	44	1142	47	1066	50	981	897	789
	MED-LO	2.0	1080	49	1057	50	1022	52	980	54	926	58	861	785	700
	LOW	1.5	967	55	945	56	919	58	879	61	844	63	789	712	632
*MSS960803BN	HIGH	3.0	1620	44	1561	46	1478	48	1401	51	1322	54	1239	1150	1052
	MED	2.5	1538	46	1476	48	1401	51	1332	53	1250	57	1166	1083	992
	MED-LO	2.0	1446	49	1388	51	1333	53	1258	57	1197	59	1112	1037	937
	LOW	1.5	1246	57	1217	58	1165	61	1128	63	1067	N/A	994	938	840
*MSS960804CN	HIGH	4.0	1746	41	1671	43	1589	45	1516	47	1447	49	1371	1295	1160
	MED	2.5	1190	60	1179	60	1151	62	1138	62	1090	65	1042	970	879
	MED-LO	2.0	894	N/A	877	N/A	867	N/A	870	N/A	863	N/A	831	764	671
	LOW	1.5	624	N/A	595	N/A	620	N/A	620	N/A	610	N/A	604	571	519
*MSS960805CN	HIGH	5.0	2233	32	2159	33	2086	34	2024	35	1941	37	1850	1753	1651
	MED	4.0	1820	39	1778	40	1742	41	1695	42	1638	43	1551	1485	1384
	MED-LO	3.5	1571	45	1535	46	1497	48	1446	49	1402	51	1338	1280	1204
	LOW	3.0	1361	52	1333	53	1290	55	1255	N/A	1208	N/A	1171	1104	1051
*MSS961005CN	HIGH	5.0	2157	41	2087	43	2028	44	1953	46	1858	48	1775	1661	1558
	MED	4.0	1907	47	1852	48	1800	49	1738	51	1675	53	1605	1514	1410
	MED-LO	3.5	1608	55	1580	56	1493	60	1501	59	1440	62	1367	1296	1219
	LOW	3.0	1390	N/A	1344	N/A	1326	N/A	1268	N/A	1227	N/A	1194	1132	1071
*MSS961205DN	HIGH	5.0	2204	48	2144	50	2080	51	1991	54	1914	56	1817	1724	1595
	MED	4.0	1938	55	1914	56	1849	58	1778	60	1713	62	1645	1548	1454
	MED-LO	3.5	1651	65	1624	66	1574	68	1529	70	1475	72	1409	1331	1236
	LOW	3.0	1427	75	1382	N/A	1345	N/A	1311	N/A	1272	N/A	1215	1159	1066
*CSS960402BN	HIGH	3.0	1425	25	1345	26	1271	28	1198	30	1138	31	1051	945	864
	MED	2.5	1254	28	1218	29	1155	31	1107	32	1040	34	952	869	761
	MED-LO	2.0	1082	33	1051	34	1007	35	965	37	910	39	841	770	660
	LOW	1.5	889	40	872	41	829	43	815	44	765	46	711	659	585
*CSS960603BN	HIGH	3.0	1348	40	1283	42	1217	44	1151	46	1086	49	1014	931	844
	MED	2.5	1188	45	1139	47	1098	49	1039	51	986	54	916	834	758
	MED-LO	2.0	1015	53	985	54	945	56	909	59	858	62	804	733	655
	LOW	1.5	821	65	814	N/A	788	N/A	765	N/A	720	N/A	677	640	564
*CSS960804CN	HIGH	4.0	1736	41	1613	44	1578	45	1498	47	1409	50	1314	1226	1119
	MED	3.5	1657	43	1583	45	1501	47	1441	49	1366	52	1282	1173	1077
	MED-LO	3.0	1581	45	1510	47	1443	49	1371	52	1280	56	1199	1110	990
	LOW	2.5	1369	52	1313	54	1278	56	1225	58	1147	62	1071	990	888
*CSS961005CN	HIGH	5.0	2018	44	1953	46	1877	47	1788	50	1735	51	1659	1556	1448
	MED	4.0	1826	49	1749	51	1660	54	1566	57	1496	59	1415	1335	1220
	MED-LO	3.5	1618	55	1539	58	1476	60	1406	63	1340	66	1275	1194	1093
	LOW	3.0	1402	63	1354	66	1296	69	1242	N/A	1173	N/A	1108	1042	965
*CSS961205DN	HIGH	5.0	2123	50	2053	52	2000	53	1916	56	1832	58	1739	1646	1561
	MED	4.0	1912	56	1844	58	1770	60	1708	62	1619	66	1543	1436	1349
	MED-LO	3.5	1684	63	1622	66	1578	68	1503	71	1442	74	1374	1302	1204
	LOW	3.0	1493	71	1436	74	1371	N/A	1319	N/A	1264	N/A	1208	1153	1061

NOTES:

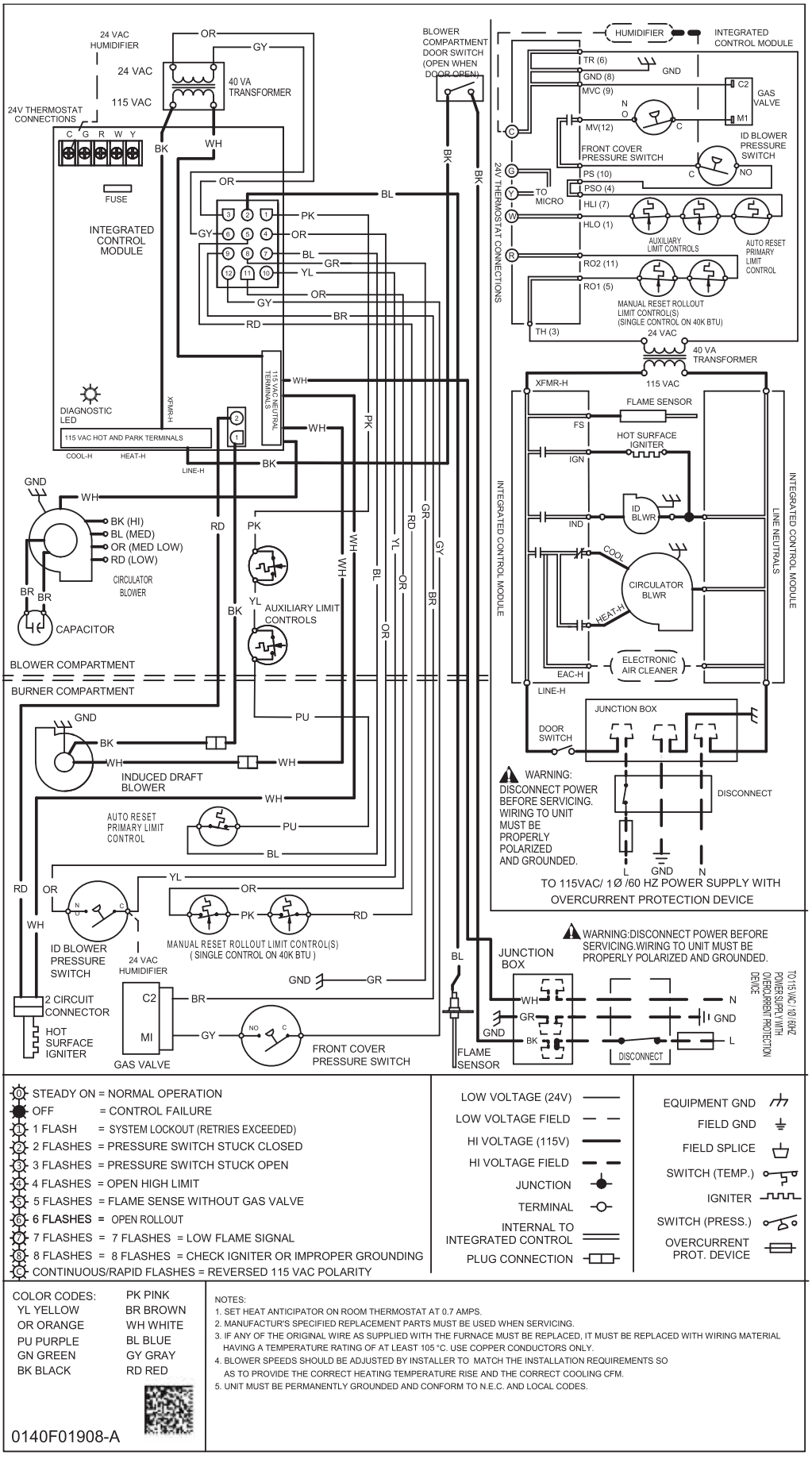
- CFM in charge is without filter(s). Filters do not ship with this furnace, but must be provided by the installer. If the furnace requires two return filters, this chart assumes both filters are installed.
- All furnaces ship as high-speed cooling and medium-speed heating. Installer must adjust blower cooling and heating 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.
- This chart is for information only. For satisfactory operation, external static pressure should not exceed value shown on the rating plate. The shaded area indicates ranges in excess of maximum static pressure allowed when heating.
- The above chart is for U.S. furnaces installed at 0-2000 feet. At higher altitudes, a properly derated unit will have approximately the same temperature rise at a particular CFM, while Esp at the CFM will be lower.

WIRING DIAGRAMS

*MSS96/*CSS96

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.



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