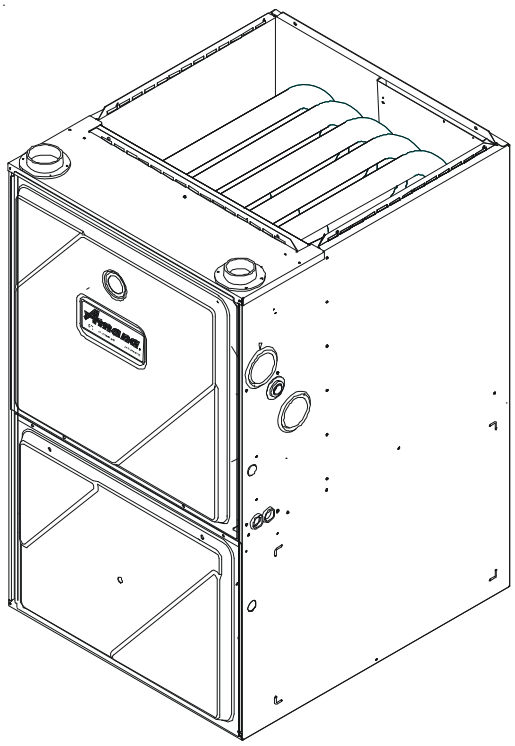
TECHNICAL MANUAL

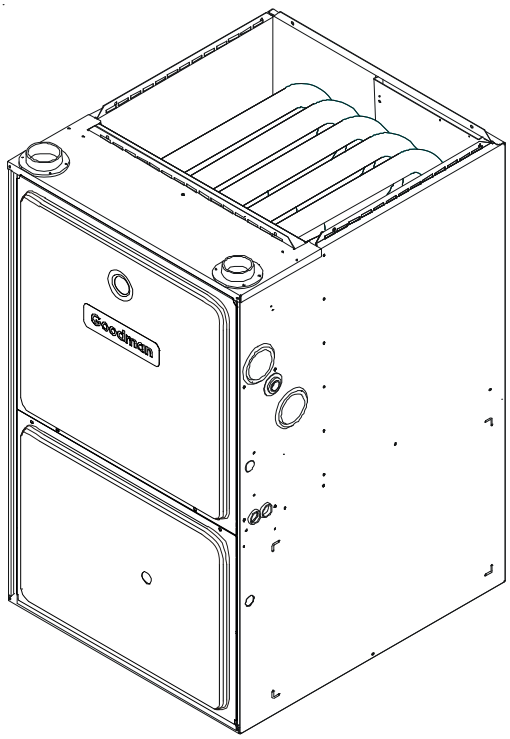
*MEC96

34.5" 2-STAGE
MULTI-SPEED ECM GAS FURNACE

UP TO 96% AFUE

- Refer to Service Manual RS6612013 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.

RT6612030
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	E	C	96	060	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
- C - 2 Stage
- S - Single Stage

AFUE
- 97 - 97% AFUE
- 92 - 92% AFUE

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

Minor Revision
- A - Initial Release
- B - 1st Revision

Major Revision
- A - Initial Release
- B - 1st Revision

NOx
- N - Low NOx

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

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

⚠ 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.

GMEC960302BN**	AMEC960302BN**
GMEC960402BN**	AMEC960402BN**
GMEC960603BN**	AMEC960603BN**
GMEC960803BN**	AMEC960803BN**
GMEC961004CN**	AMEC961004CN**
GMEC961205DN**	AMEC961205DN**

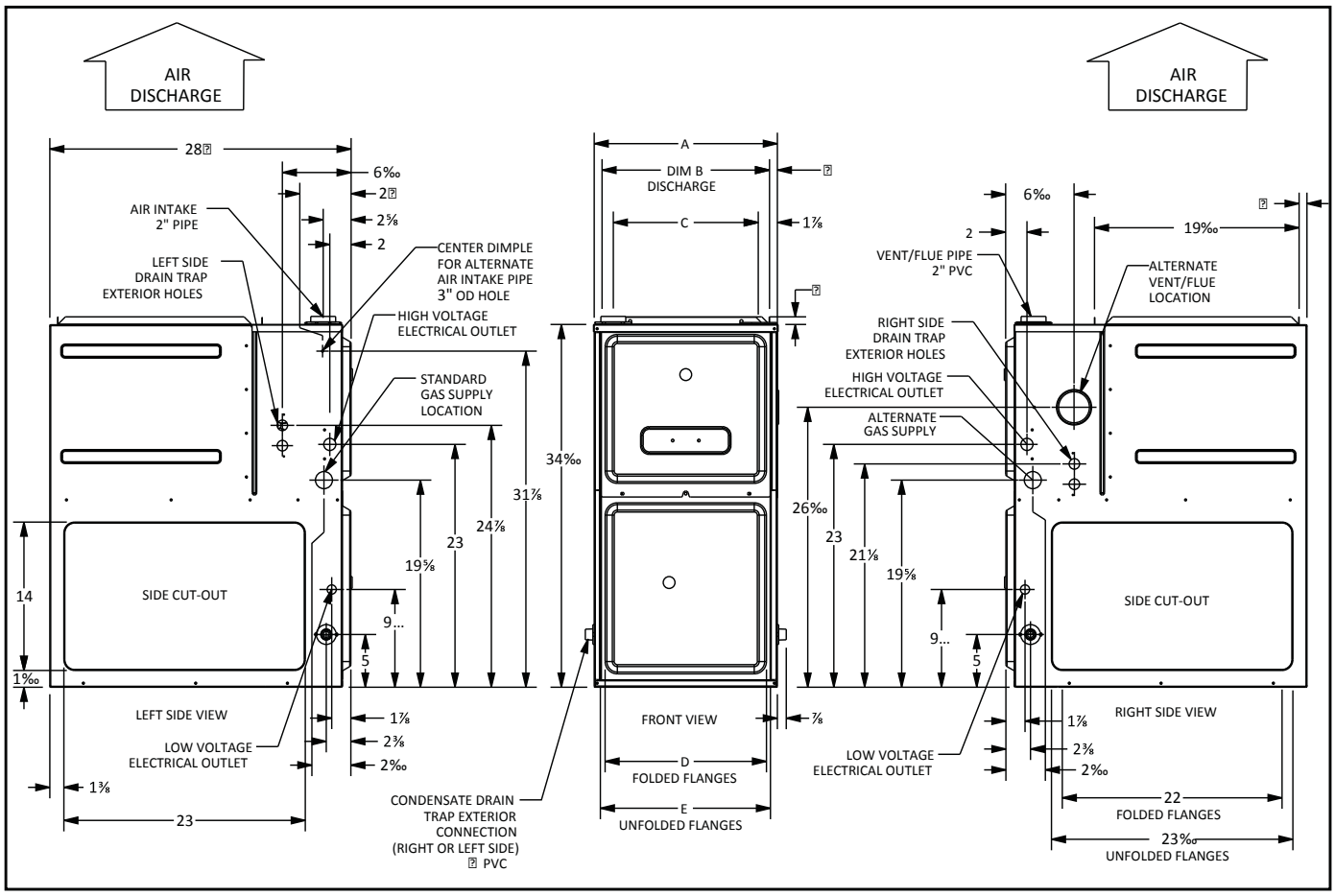
⚠ WARNING **The United States Environmental Protection Agency ("EPA") has issued various regulations regarding the introduction and disposal of refrigerants introduced into this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These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

*MEC96



Model	A	B	C	D	E
*MEC960302BN**	17½"	16"	13⅜"	12⅛"	13⅝"
*MEC960402BN**	17½"	16"	13⅜"	12⅛"	13⅝"
*MEC960603BN**	17½"	16"	13⅜"	12⅛"	13⅝"
*MEC960803BN**	17½"	16"	13⅜"	12⅛"	13⅝"
*MEC961004CN**	21"	19½"	17⅜"	16"	17½"
*MEC961205DN**	24½	23"	20⅞"	19⅜"	20⅞"

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.

FURNACE SPECIFICATIONS *MEC96

	*MEC96 0302BNA	*MEC96 0402BNA	*MEC96 0603BNA	*MEC96 0803BNA	*MEC96 1004CNA	*MEC96 1205DNA
Heating Data						
High Fire Input[1]	30,000	40,000	60,000	80,000	100,000	120,000
High Fire Output[1]	28,800	38,400	57,600	76,800	96,000	115,200
Low-Fire Steady-State Input[1]	21,000	28,000	42,000	56,000	70,000	84,000
Low-Fire Steady-State Output[1]	20,160	26,880	40,320	53,760	67,200	80,640
AFUE[2]	96	96	96	96	96	96
Temperature Rise Range (°F)	-	20 - 50	20 - 50	35 - 65	35 - 65	35 - 65
Vent Diameter[3]	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"
No. of Burners	2	2	3	4	5	6
Circulator Blower						
Available AC @ 0.5" ESP	1.5 - 2	1.5 - 3	1.5 - 3	1.5 - 3	1.5 - 4	3 - 5
Size (D x W)	10" x 8"	10" x 8"	11" x 8"	11" x 8"	11" x 10"	11" x 11"
Horsepower @ 1075 RPM	1/2	1/2	1/2	1/2	1	1
Speed	5	5	5	5	5	5
Filter Size (in²)						
Permanent	487	487	731	683	853	1024
Disposable	244	244	365	341	427	512
Electrical Data						
Min. Circuit Ampacity[4]	8	8	8	8	13.3	13.3
Max. Overcurrent Device (amps)[5]	15	15	15	15	15	15
Shipping Weight (lbs)	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.

AIRFLOW

*MEC96

DIP SWITCH SETTING															
	*MEC960302BN		.	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
FACTORY SETTING	All DIP Switch Positions	G	T1	870		658		548		469		413		349	293	N/A
	All DIP Switch Positions	W1	T1	870	21	658	28	548	34	469	40	413	45	349	293	N/A
	All DIP Switch Positions	W2	T2	885	30	821	32	755	35	684	39	621	43	557	508	461
	OFF OFF OFF	Ylo	T3	874		697		612		533		470		414	361	303
		Y	T5	1146		1097		1049		1002		941		895	846	787
	ON OFF OFF	Ylo	T3	874		697		612		533		470		414	361	303
		Y	T4	928		868		810		743		670		614	560	505
	ON ON OFF	Ylo	T4	928		868		810		743		670		614	560	505
		Y	T5	1146		1097		1049		1002		941		895	846	787
	OFF ON OFF	Ylo	T4	928		868		810		743		670		614	560	505
		Y	T1	870		658		548		469		413		349	293	N/A
	OFF OFF ON	Ylo	T4	928		868		810		743		670		614	560	505
		Y	T2	885		821		755		684		621		557	508	461
	OFF ON ON	Ylo	T3	874		697		612		533		470		414	361	303
		Y	T5	1146		1097		1049		1002		941		895	846	787
	ON OFF ON	Ylo	T2	885		821		755		684		621		557	508	461
		Y	T5	1146		1097		1049		1002		941		895	846	787
	ON ON ON	Ylo	T2	885		821		755		684		621		557	508	461
		Y	T3	874		697		612		533		470		414	361	303

DIP SWITCH SETTING															
	*MEC960402BN		.	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
FACTORY SETTING	All DIP Switch Positions	G	T1	847		694		611		535		471		415	357	313
	All DIP Switch Positions	W1	T1	847	29	694	36	611	41	535	47	471	53	415	357	313
	All DIP Switch Positions	W2	T2	989	36	932	38	882	40	819	43	773	46	695	650	586
	OFF OFF OFF	Ylo	T3	856		667		546		466		413		357	302	N/A
		Y	T5	1143		1095		1046		996		946		890	834	778
	ON OFF OFF	Ylo	T3	856		667		546		466		413		357	302	N/A
		Y	T4	960		898		840		780		711		659	596	547
	ON ON OFF	Ylo	T4	960		898		840		780		711		659	596	547
		Y	T5	1143		1095		1046		996		946		890	834	778
	OFF ON OFF	Ylo	T4	960		898		840		780		711		659	596	547
		Y	T1	847		694		611		535		471		415	357	313
	OFF OFF ON	Ylo	T4	960		898		840		780		711		659	596	547
		Y	T2	989		932		882		819		773		695	650	586
	OFF ON ON	Ylo	T3	856		667		546		466		413		357	302	N/A
		Y	T5	1143		1095		1046		996		946		890	834	778
	ON OFF ON	Ylo	T2	989		932		882		819		773		695	650	586
		Y	T5	1143		1095		1046		996		946		890	834	778
	ON ON ON	Ylo	T2	989		932		882		819		773		695	650	586
		Y	T3	856		667		546		466		413		357	302	N/A

AIRFLOW

*MEC96

DIP SWITCH SETTING

	*MEC960603BN		.	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
FACTORY SETTING	All DIP Switch Positions	G	T1	894		846		780		720		660		603	554	505
	All DIP Switch Positions	W1	T1	894	42	846	44	780	48	720	52	660	57	603	554	505
	All DIP Switch Positions	W2	T2	1328	40	1287	41	1249	43	1215	44	1170	46	1131	1085	1046
	OFF OFF OFF	Ylo	T3	782		629		547		469		396		333	N/A	N/A
		Y	T5	1236		1189		1149		1101		1066		1017	969	928
	ON OFF OFF	Ylo	T3	782		629		547		469		396		333	N/A	N/A
		Y	T4	1149		1104		1057		1017		963		918	865	822
	ON ON OFF	Ylo	T4	1149		1104		1057		1017		963		918	865	822
		Y	T5	1236		1189		1149		1101		1066		1017	969	928
	OFF ON OFF	Ylo	T4	1149		1104		1057		1017		963		918	865	822
		Y	T1	894		846		780		720		660		603	554	505
	OFF OFF ON	Ylo	T4	1149		1104		1057		1017		963		918	865	822
		Y	T2	1328		1287		1249		1215		1170		1131	1085	1046
	OFF ON ON	Ylo	T3	782		629		547		469		396		333	N/A	N/A
		Y	T5	1236		1189		1149		1101		1066		1017	969	928
	ON OFF ON	Ylo	T2	1328		1287		1249		1215		1170		1131	1085	1046
		Y	T5	1236		1189		1149		1101		1066		1017	969	928
	ON ON ON	Ylo	T2	1328		1287		1249		1215		1170		1131	1085	1046
		Y	T3	782		629		547		469		396		333	N/A	N/A

DIP SWITCH SETTING

	*MEC960803BN		.	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
FACTORY SETTING	All DIP Switch Positions	G	T1	1221		1172		1128		1087		1049		1005	959	922
	All DIP Switch Positions	W1	T1	1221	41	1172	42	1128	44	1087	46	1049	47	1005	959	922
	All DIP Switch Positions	W2	T2	1311	54	1293	55	1249	57	1203	59	1172	61	1122	1088	1041
	OFF OFF OFF	Ylo	T3	750		644		569		507		442		388	328	N/A
		Y	T5	1111		1068		1025		984		941		885	N/A	801
	ON OFF OFF	Ylo	T3	750		644		569		507		442		388	328	N/A
		Y	T4	894		842		784		726		682		618	562	519
	ON ON OFF	Ylo	T4	894		842		784		726		682		618	562	519
		Y	T5	1111		1068		1025		984		941		885	N/A	801
	OFF ON OFF	Ylo	T4	894		842		784		726		682		618	562	519
		Y	T1	1221		1172		1128		1087		1049		1005	959	922
	OFF OFF ON	Ylo	T4	894		842		784		726		682		618	562	519
		Y	T2	1311		1293		1249		1203		1172		1122	1088	1041
	OFF ON ON	Ylo	T3	750		644		569		507		442		388	328	N/A
		Y	T5	1111		1068		1025		984		941		885	N/A	801
	ON OFF ON	Ylo	T2	1311		1293		1249		1203		1172		1122	1088	1041
		Y	T5	1111		1068		1025		984		941		885	N/A	801
	ON ON ON	Ylo	T2	1311		1293		1249		1203		1172		1122	1088	1041
		Y	T3	750		644		569		507		442		388	328	N/A

AIRFLOW

*MEC96

	DIP SWITCH SETTING														
	*MEC961004CN		.	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
FACTORY SETTING	All DIP Switch Positions	G	T1	1522		1464		1402		1338		1280		1230	1167	1101
	All DIP Switch Positions	W1	T1	1522	41	1464	43	1402	44	1338	47	1280	49	1230	1167	1101
	All DIP Switch Positions	W2	T2	1861	48	1803	49	1749	51	1698	52	1653	54	1594	1549	1504
	OFF OFF OFF	Ylo	T3	1004		890		805		710		620		553	474	406
		Y	T5	1772		1713		1662		1609		1540		1498	1452	1399
	ON OFF OFF	Ylo	T3	1004		890		805		710		620		553	474	406
		Y	T4	1312		1235		1170		1101		1037		962	880	820
	ON ON OFF	Ylo	T4	1312		1235		1170		1101		1037		962	880	820
		Y	T5	1772		1713		1662		1609		1540		1498	1452	1399
	OFF ON OFF	Ylo	T4	1312		1235		1170		1101		1037		962	880	820
		Y	T1	1522		1464		1402		1338		1280		1230	1167	1101
	OFF OFF ON	Ylo	T4	1312		1235		1170		1101		1037		962	880	820
		Y	T2	1861		1803		1749		1698		1653		1594	1549	1504
	OFF ON ON	Ylo	T3	1004		890		805		710		620		553	474	406
		Y	T5	1772		1713		1662		1609		1540		1498	1452	1399
	ON OFF ON	Ylo	T2	1861		1803		1749		1698		1653		1594	1549	1504
		Y	T5	1772		1713		1662		1609		1540		1498	1452	1399
	ON ON ON	Ylo	T2	1861		1803		1749		1698		1653		1594	1549	1504
		Y	T3	1004		890		805		710		620		553	474	406

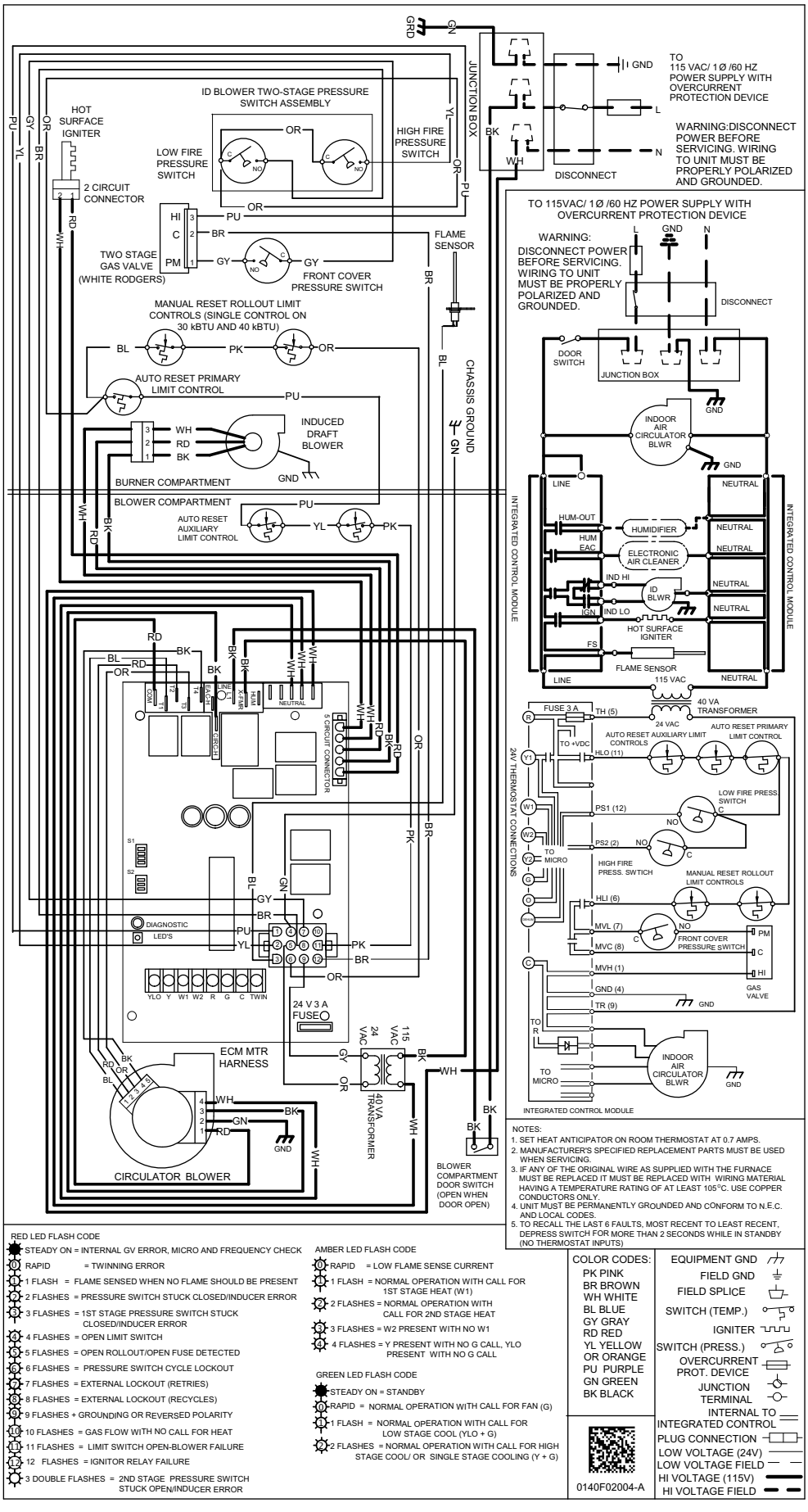
	DIP SWITCH SETTING														
	*MEC961205DN		.	0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
				CFM	Rise	CFM	Rise	CFM	Rise	CFM	Rise	CFM	Rise	CFM	CFM	CFM
FACTORY SETTING	All DIP Switch Positions	G	T1	1796		1753		1697		1645		1589		1536	1478	1425
	All DIP Switch Positions	W1	T1	1796	42	1753	43	1697	44	1645	45	1589	47	1536	1478	1425
	All DIP Switch Positions	W2	T2	2211	48	2162	49	2122	50	2076	51	2029	53	1986	1984	1942
	OFF OFF OFF	Ylo	T3	1106		1017		946		855		764		681	605	N/A
		Y	T5	1683		1628		1565		1511		1445		1387	1340	1276
	ON OFF OFF	Ylo	T3	1106		1017		946		855		764		681	605	N/A
		Y	T4	1399		1327		1259		1185		1118		1051	980	913
	ON ON OFF	Ylo	T4	1399		1327		1259		1185		1118		1051	980	913
		Y	T5	1683		1628		1565		1511		1445		1387	1340	1276
	OFF ON OFF	Ylo	T4	1399		1327		1259		1185		1118		1051	980	913
		Y	T1	1796		1753		1697		1645		1589		1536	1478	1425
	OFF OFF ON	Ylo	T4	1399		1327		1259		1185		1118		1051	980	913
		Y	T2	2211		2162		2122		2076		2029		1986	1984	1942
	OFF ON ON	Ylo	T3	1106		1017		946		855		764		681	605	N/A
		Y	T5	1683		1628		1565		1511		1445		1387	1340	1276
	ON OFF ON	Ylo	T2	2211		2162		2122		2076		2029		1986	1984	1942
		Y	T5	1683		1628		1565		1511		1445		1387	1340	1276
	ON ON ON	Ylo	T2	2211		2162		2122		2076		2029		1986	1984	1942
		Y	T3	1106		1017		946		855		764		681	605	N/A

WIRING DIAGRAMS

***MEC96**

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



NOTES:
1. SET HEAT ANTICIPATOR ON ROOM THERMOSTAT AT 0.7 AMPS.
2. MANUFACTURER'S SPECIFIED REPLACEMENT PARTS MUST BE USED WHEN SERVICING.
3. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE FURNACE MUST BE REPLACED IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105°C. USE COPPER CONDUCTORS ONLY.
4. UNIT MUST BE PERMANENTLY GROUNDED AND CONFORM TO N.E.C. AND LOCAL CODES.
5. TO RECALL THE LAST 6 FAULTS, MOST RECENT TO LEAST RECENT, DEPRESS SWITCH FOR MORE THAN 2 SECONDS WHILE IN STANDBY (NO THERMOSTAT INPUTS)

RED LED FLASH CODE

- STEADY ON = INTERNAL GV ERROR, MICRO AND FREQUENCY CHECK
- 0 RAPID = TWINNING ERROR
- 1 1 FLASH = FLAME SENSED WHEN NO FLAME SHOULD BE PRESENT
- 2 2 FLASHES = PRESSURE SWITCH STUCK CLOSED/INDUCER ERROR
- 3 3 FLASHES = 1ST STAGE PRESSURE SWITCH STUCK CLOSED/INDUCER ERROR
- 4 4 FLASHES = OPEN LIMIT SWITCH
- 5 5 FLASHES = OPEN ROLLOUT/OPEN FUSE DETECTED
- 6 6 FLASHES = PRESSURE SWITCH CYCLE LOCKOUT
- 7 7 FLASHES = EXTERNAL LOCKOUT (RETRIES)
- 8 8 FLASHES = EXTERNAL LOCKOUT (RECYCLES)
- 9 9 FLASHES + GROUNDING OR REVERSED POLARITY
- 10 10 FLASHES = GAS FLOW WITH NO CALL FOR HEAT
- 11 11 FLASHES = LIMIT SWITCH OPEN-BLOWER FAILURE
- 12 12 FLASHES = IGNITOR RELAY FAILURE
- 3 3 DOUBLE FLASHES = 2ND STAGE PRESSURE SWITCH STUCK OPEN/INDUCER ERROR

AMBER LED FLASH CODE

- 0 RAPID = LOW FLAME SENSE CURRENT
- 1 1 FLASH = NORMAL OPERATION WITH CALL FOR 1ST STAGE HEAT (W1)
- 2 2 FLASHES = NORMAL OPERATION WITH CALL FOR 2ND STAGE HEAT
- 3 3 FLASHES = W2 PRESENT WITH NO W1
- 4 4 FLASHES = Y PRESENT WITH NO G CALL, YLO PRESENT WITH NO G CALL

GREEN LED FLASH CODE

- STEADY ON = STANDBY
- 0 RAPID = NORMAL OPERATION WITH CALL FOR FAN (G)
- 1 1 FLASH = NORMAL OPERATION WITH CALL FOR LOW STAGE COOL (YLO + G)
- 2 2 FLASHES = NORMAL OPERATION WITH CALL FOR HIGH STAGE COOL/ OR SINGLE STAGE COOLING (Y + G)

COLOR CODES:	
PK	PINK
BR	BROWN
WH	WHITE
BL	BLUE
GY	GRAY
RD	RED
YL	YELLOW
OR	ORANGE
PU	PURPLE
GN	GREEN
BK	BLACK

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- EQUIPMENT GND
- FIELD GND
- FIELD SPLICE
- SWITCH (TEMP.)
- IGNITER
- SWITCH (PRESS.)
- OVERCURRENT PROT. DEVICE
- JUNCTION TERMINAL
- INTERNAL TO INTEGRATED CONTROL
- PLUG CONNECTION
- LOW VOLTAGE (24V)
- LOW VOLTAGE FIELD
- HI VOLTAGE (115V)
- HI VOLTAGE FIELD

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