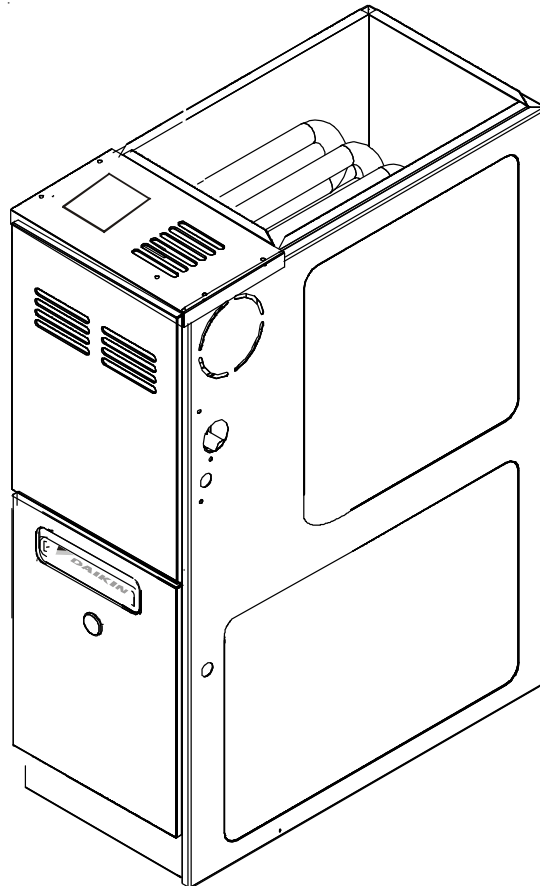


DAIKIN TECHNICAL MANUAL

DM80HE **33-3/8" 80% Gas Furnace with EEM Motor** **Upflow/Horizontal**

- Refer to Service Manual RSD6621004 for troubleshooting information.
- 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.

RTD6621021r1
December 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.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Example														
Daikin, DwnFlow, 95% AFUE, Conv 2 stage, single spd mtr	D	D	9	5	H	S	0	6	0	3	B	N	A	A
Daikin, Up/Horz, 80% AFUE, Convertible 2 Stage, High Effi	D	M	8	0	H	E	1	1	5	5	D	X	A	A
Brand														
D - Daikin														
Configuration														
M - Upflow/Horizontal														
C - Downflow/Horizontal														
K - Dedicated Upflow														
D - Dedicated Downflow														
AFUE														
97 - 97%														
80 - 80%														
Gas Valve Stages														
M - Modulating														
V - 2 Stage														
H - Convertible 2 Stage														
S - Single Stage														
Airflow														
C - Variable Speed/ComfortNet														
E - High Efficiency														
S - Single Speed														
MBTU/h														
40 - 40,000														
60 - 60,000														
80 - 80,000														
100 - 100,000														
120 - 120,000														
Maximum CFM														
3 - 1200														
4 - 1600														
5 - 2000														
Cabinet Width														
A - 14"														
B - 17.5"														
C - 21"														
D - 24.5"														
Nox														
N - Natural Gas														
X - 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

Daikin 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.

DM80HE0603BNAA
DM80HE0603BXAA
DM80HE0805CNAA
DM80HE0805CXAA

DM80HE0805DXAA
DM80HE0805DNAA
DM80HE1005CNAA
DM80HE1005CXAA

**All models are Natural Gas and 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 Daikin 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

DM80HE 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.


 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."

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.

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.

PRODUCT DESIGN

High Altitude Derate

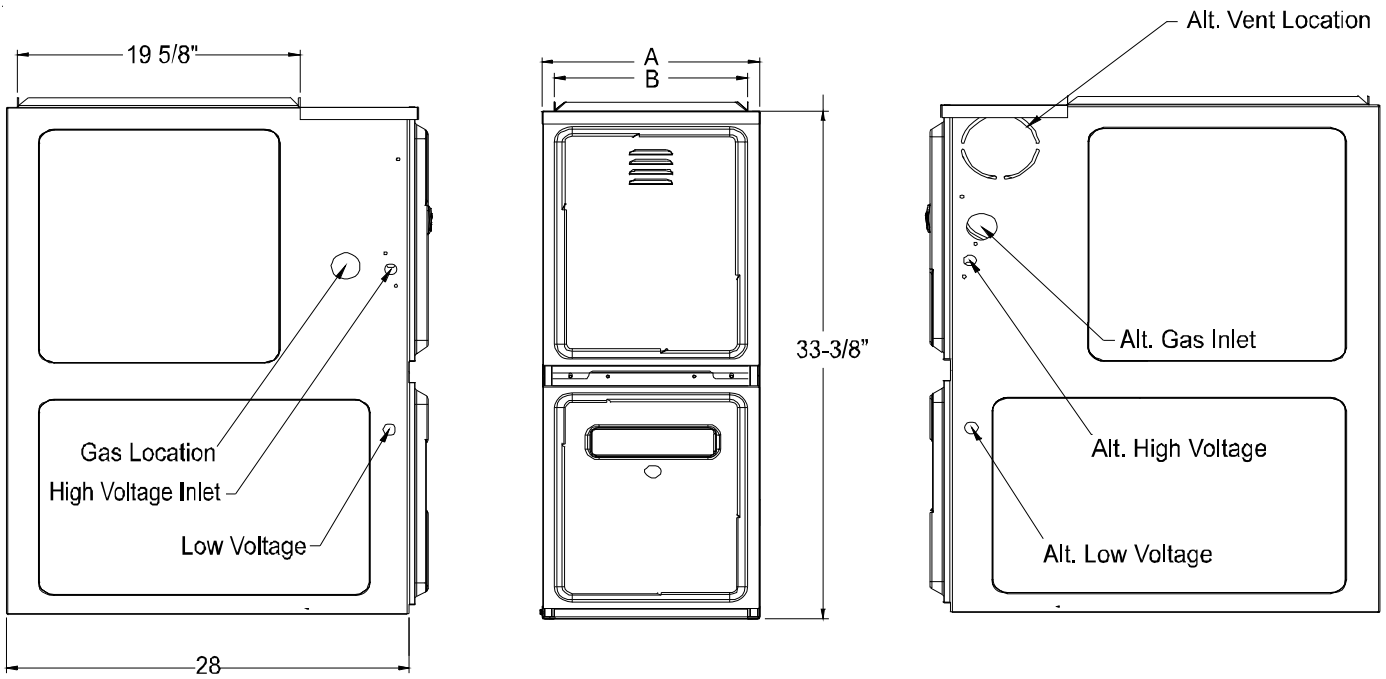
IMPORTANT NOTE: The furnace as shipped requires no change to run between 0 - 5500 feet. Do not attempt to increase the firing rate by changing orifices or increasing the manifold pressure below 5500 feet. This can cause poor combustion and equipment failure.

High altitude installations above 5500 feet may require both a pressure switch and an orifice change. These changes are necessary to compensate for the natural reduction in the density of both the gas fuel and the combustion air at higher altitude.

For installations above 5500 feet, please refer to your distributor for required kit(s). Contact the distributor for a tabular listing of appropriate manufacturer's kits for propane gas and/or high altitude installations. The indicated kits must be used to insure safe and proper furnace operation. All conversions must be performed by a qualified installer, or service agency.

PRODUCT DIMENSIONS

DM80HE



UNITS	A	B
DM80HE0603B*	17.5	16
DM80HE0805C* DM80HE1005C*	21	19.5
DM80HE0805DX	24.5"	23"

All dimensions are in inches.

PRODUCT DIMENSIONS

DM80HE

PRESSURE SWITCH TRIP POINTS AND USAGE CHART		
MODEL	TRIP POINT ID BLOWER PRESSURE SWITCH	ID BLOWER PRESSURE SWITCH PART #
DM80HE0603B*	-0.75	B1370179
DM80HE0805C*	-0.75	B1370179
DM80HE0805D*	-0.80	0130F00042
DM80HE1005C*	-0.70	B1370158

* All installations above 5500 ft. require a pressure switch change.

* Negative pressure readings are in inches of water column (*w.c.)

PRIMARY LIMIT		
Part Number	20162904	20162903
Open Setting (°F)	150	160
DM80HE0603B*	1	---
DM80HE0805C*	---	1
DM80HE1005C*	1	---
DM80HE0805D*	---	1

ROLLOUT LIMIT SWITCHES	
Part Number	10123529
Open Setting (°F)	300
DM80HE0603B*	2
DM80HE0805C*	2
DM80HE1005C*	2
DM80HE0805D*	2

AUXILIARY LIMIT SWITCHES	
Part Number	0130F00038
Open Setting (°F)	120
DM80HE0603B*	1
DM80HE0805C*	1
DM80HE1005C*	1
DM80HE0805D*	1

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 for DISPOSABLE FILTERS

FURNACE INPUT	FILTER SIZE
60M	483 in ²
80M	640 in ²
100M	800 in ²

DISPOSABLE NOMINAL 300 F.M. FACE VELOCITY

PRODUCT DESIGN

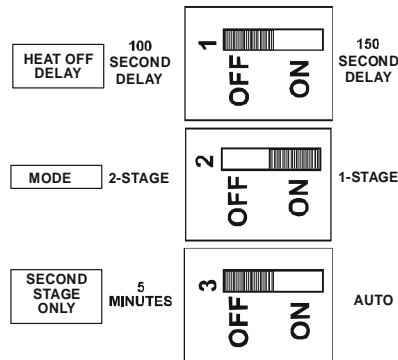
Dual\$aver Configuration & Operation

Dual\$aver

This furnace is capable of the following heating modes:

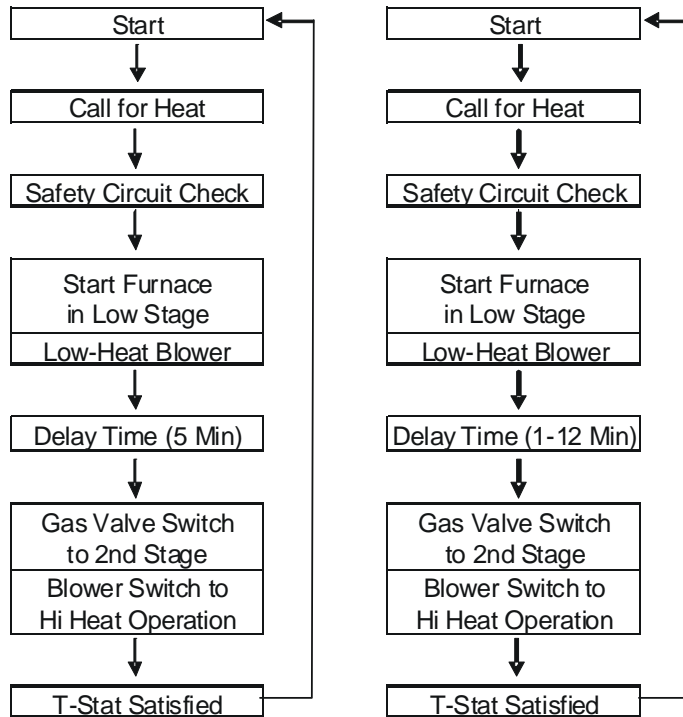
- Single Stage (Factory Setting)
- Modified Two-Stage
 - > Fixed 5-Min. Low Stage
 - > Auto Time (1-12 Min.) Low Stage

To change from the factory single-stage operation, adjust the dipswitches on the ignition control as follows:



* Switches for White-Rodgers board shown above
 With other vendors, order of switches may vary
 but functionality stays the same.

Note: This furnace is designed to be used with a single-stage thermostat.



FURNACE SPECIFICATIONS

DM80HE

MODEL	DM80HE0603B*	DM80HE0805C*	DM80HE0805D*	DM80HE1005C*
Input, Natural Gas (BTUH) ⁽¹⁾	60,000	80,000	80,000	100,000
Output, Natural Gas (BTUH) ⁽¹⁾	48,000	64,000	64,000	80,000
Output, LP (BTUH)	48,000	64,000	64,000	80,000
A.F.U.E.	80.0%	80.0%	80.0%	80.0%
Rated External Static (" w.c.)	.20 - .50	.20 - .50	.20 - .50	.20 - .50
Temperature Rise (°F)	20 - 50	35 - 65	30 - 60	35 - 65
Pressure Switch Trip Point ("w.c.")	-0.75	-0.75	-0.80	-0.70
Blower Wheel (D" x W")	10 X 8	10 X 10	10 X 10	10 X 10
Blower Horsepower	1/2	1	1	1
Blower Speeds	Refer to airflow charts			
Max CFM @ 0.5 E.S.P.				
Power Supply	120.0	120.0	120.0	120.0
Minimum Circuit Ampacity (MCA) ⁽²⁾	8.2	14.8	14.8	14.8
Maximum Overcurrent Device ⁽³⁾	15	15	15	15
Transformer (VA)	40	40	40	40
Primary Limit Setting (°F)	150	160	160	150
Auxiliary Limit Setting (°F)	120	120	120	120
Rollout Limit Setting (°F)	300	300	300	300
Gas Supply Pressure (Natural/Propane) (" w.c.)	7 / 11	7 / 11	7 / 11	7 / 11
Manifold Pressure (Natural/Propane) High Stage (" w.c.)	3.5 / 10	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	2.0 / 6.0
Orifice Size (Natural/Propane)	45 / 55	45 / 55	45 / 55	45 / 55
Number of Burners	3	4	4	5
Vent Connector Diameter (inches)	4	4	4	4
Shipping Weight (lbs.)	98	116	123	120

1 DOE AFUE based upon Isolated Combustion System (ICS)

2 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 Ca)

3 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.

4 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.
- * 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

DM80HE

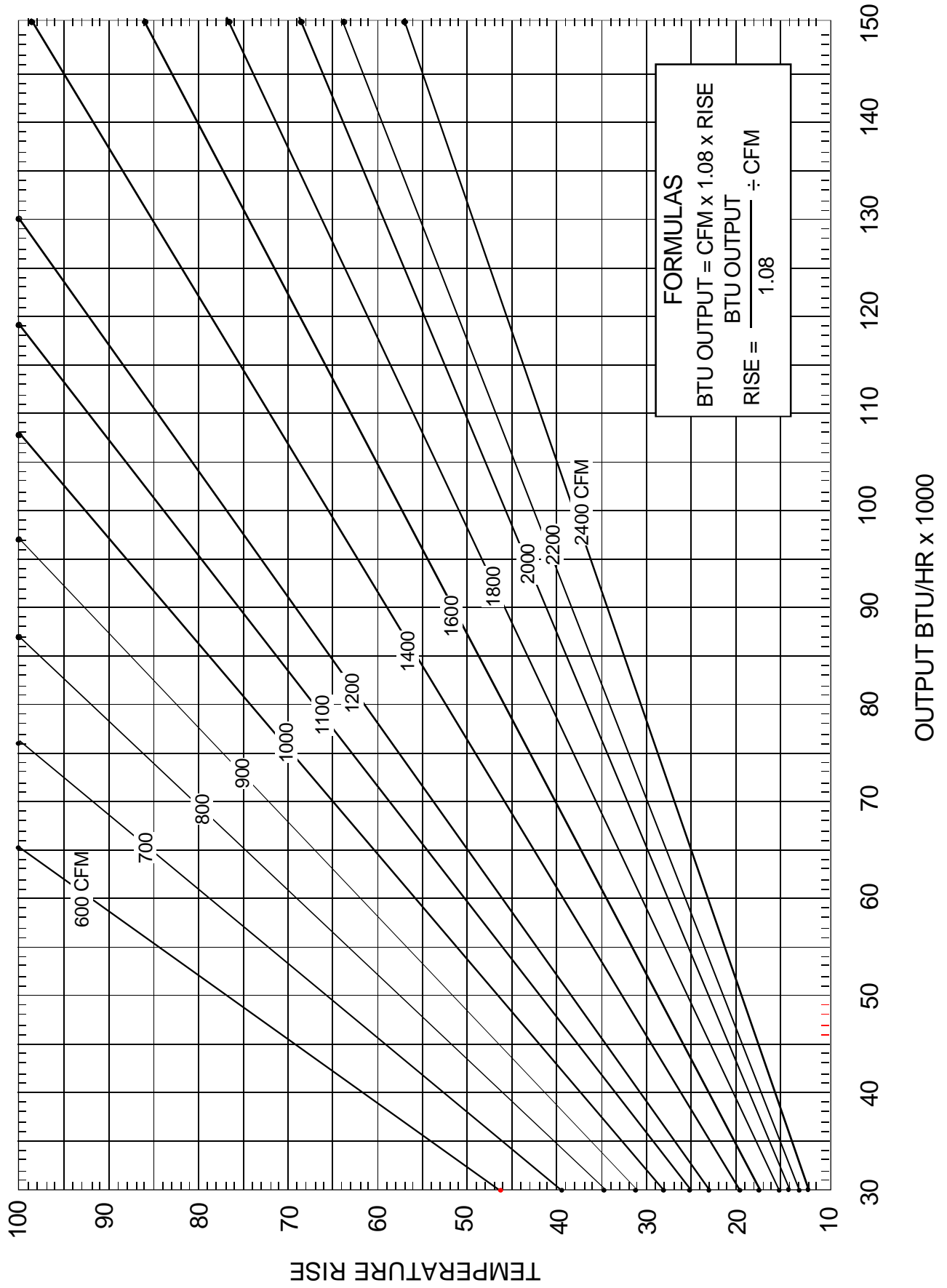
(CFM & Temperature Rise vs. External Static Pressure)															
Model Heating Speed As Shipped	Motor Speed	Tons AC at 0.5" ESP	EXTERNAL STATIC PRESSURE (Inches Water Column)												
			0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8
			CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM
DM80HE0603B*	T1 - YELLOW	1.5	875	----	793	----	736	----	674	----	592	----	556	509	460
	T2 - RED	2.0	1032	43	965	46	914	49	861	----	810	----	756	712	659
	T3 - ORANGE	2.5	1217	37	1153	39	1098	40	1051	42	1009	44	964	918	877
	T4 - BLUE	3.0	1365	33	1313	34	1268	35	1221	36	1172	38	1129	1086	1054
	T5 - BLACK	3.5	1549	29	1505	30	1460	30	1420	31	1378	32	1350	1305	1268
DM80HE0805C*	T1 - YELLOW	2.5	1268	47	1198	49	1151	51	1092	54	1041	57	988	932	883
	T2 - RED	3.0	1362	44	1305	45	1261	47	1212	49	1170	51	1121	1074	1021
	T3 - ORANGE	3.5	1576	38	1519	39	1473	40	1426	42	1398	42	1341	1290	1252
	T4 - BLUE	4.0	1755	----	1711	35	1657	36	1627	36	1579	38	1548	1502	1463
	T5 - BLACK	5.0	2183	----	2128	----	2094	----	2060	----	2014	----	1992	1944	1847
DM80HE0805D*	T1 - YELLOW	3.5	1524	39	1479	40	1439	41	1388	43	1343	44	1281	1243	1190
	T2 - RED	4.0	1683	35	1646	36	1607	37	1569	38	1531	39	1488	1441	1395
	T3 - ORANGE	4.0	1884	31	1832	32	1849	32	1765	34	1724	34	1692	1661	1626
	T4 - BLUE	4.0	1951	30	1904	31	1879	32	1842	32	1803	33	1768	1734	1687
	T5 - BLACK	5.0	2036	29	2010	29	1977	30	1947	30	1923	31	1888	1844	1816
DM80HE1005C*	T1 - YELLOW	3.0	1466	51	1415	52	1357	55	1306	57	1248	59	1202	1144	1088
	T2 - RED	3.5	1642	45	1596	46	1552	48	1499	49	1449	51	1388	1352	1306
	T3 - ORANGE	4.0	1750	42	1750	42	1707	43	1667	44	1610	46	1574	1531	1486
	T4 - BLUE	4.0	1870	40	1805	41	1782	42	1737	43	1701	44	1656	1606	1571
	T5 - BLACK	5.0	2297	----	2297	----	2224	----	2106	35	2014	37	1896	1813	1669

Notes:

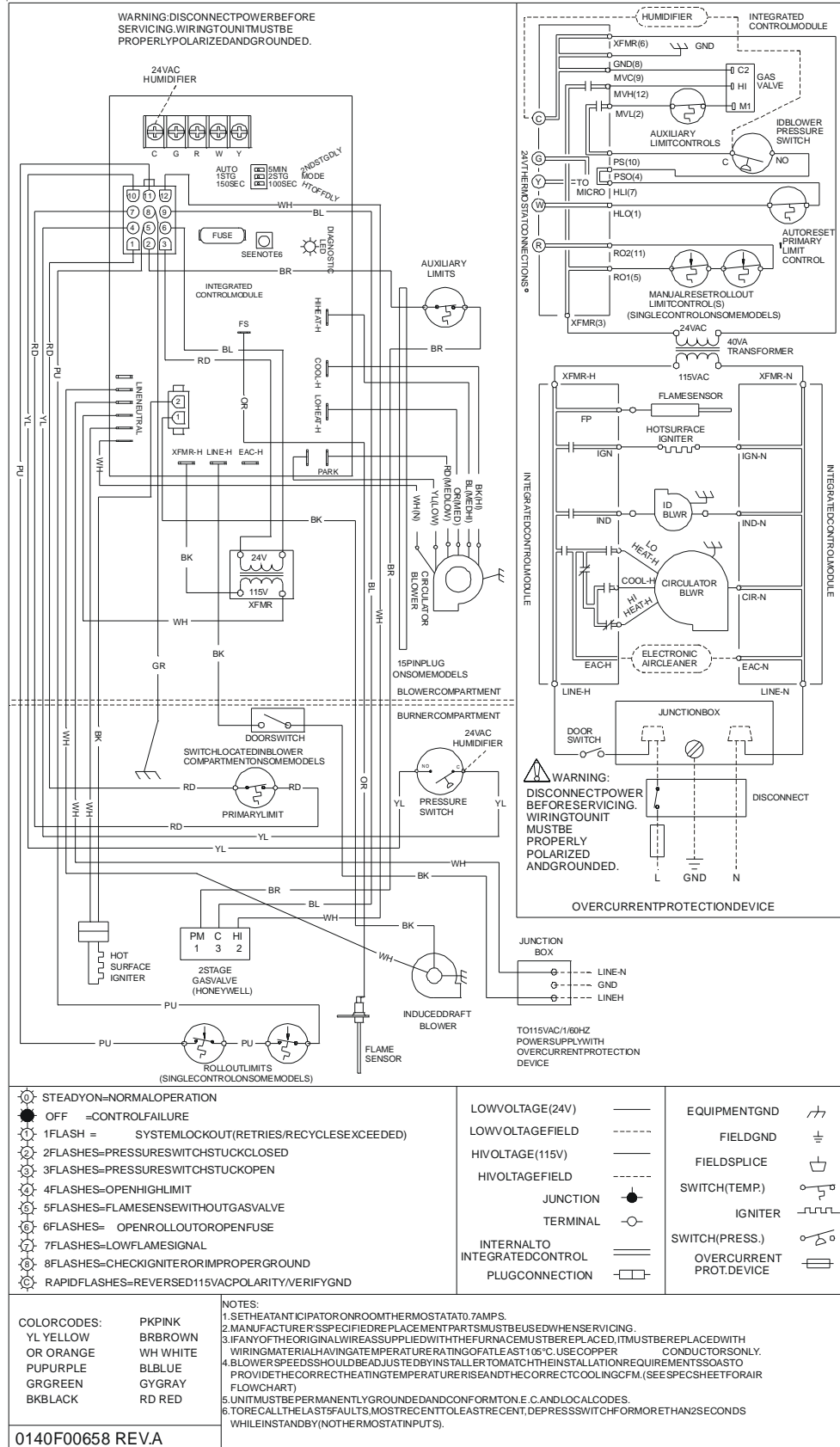
- CFM in chart is without filter(s). Filters do not ship with this furnace, but must be provided by the installer. If the furnace requires two return filters, this chart assumes both filters are installed.
- All furnaces ship as high-speed cooling and medium-speed heating. Installer must adjust blower cooling and heating speed as needed.
- For most jobs, about 375 - 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.
- A properly derated unit will have approximately the same temperature rise at a particular CFM, while ESP at the CFM will be lower.
- Factory Motor Speed Setting: T1 = 1st Stage Ht, T2 = 2nd Stage Ht, T5 = Cooling.
- Temperature rise data is based on 2nd-stage heat. First-stage heat is 75% of rise indicated above.

BLOWER PERFORMANCE SPECIFICATIONS

BTU OUTPUT vs TEMPERATURE RISE CHART



WARNING!
 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.

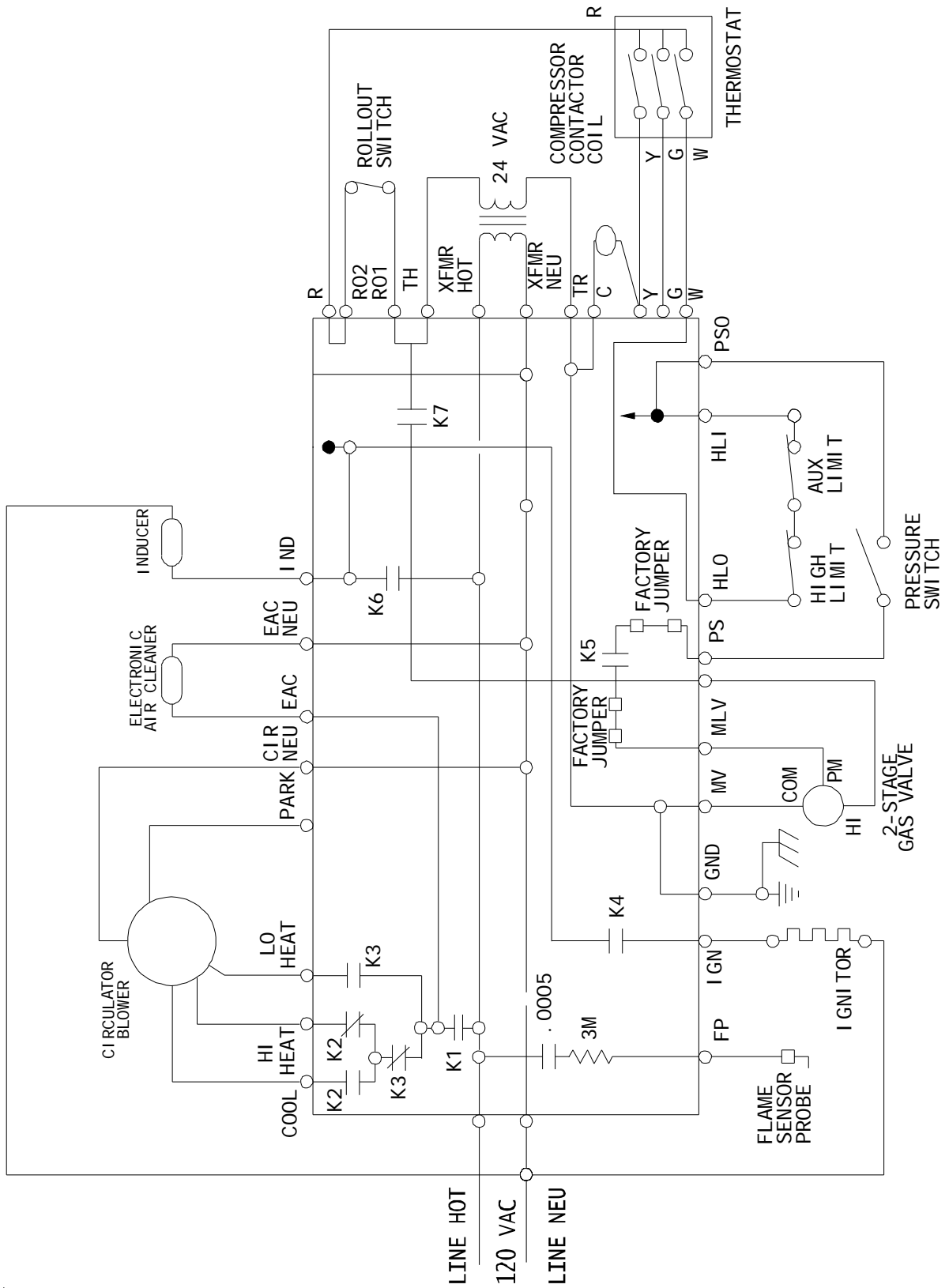


Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

WIRING DIAGRAMS

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
DM80HE** MODEL FURNACES
WR 50M56-289 INTEGRATED IGNITION CONTROL**

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