





AMV9: UP TO 96% AFUE ACV9: UP TO 93% AFUE

HEATING INPUT: 46,000-115,000 BTU/H



* To receive the Lifetime 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. Full warranty details available at <u>www.amana-hac.com</u>.

AMV9/ACV9

GAS FURNACES

Amana[®] brand AMV9/ACV9 multi-position, two-stage, variable-speed gas furnaces provide exceptional indoor comfort and guiet operation. With their two-stage gas valve, variable-speed circulator blower, these furnaces provide comfort all season long.

Standard Features

• Patented MillionAir[™] stainless-steel, dualdiameter tubular heat exchanger with Lifetime Limited Unit Replacement Warranty* for as long as the original registered homeowner owns their home



- . Two-stage gas valve operates on two-stage or single-stage thermostats
- Efficient and quiet variable-speed circulator motor gently ramps up or down according to heating or cooling demand
- SureStart[™] Silicon Nitride igniter designed for long igniter life
- Furnace control board with self-diagnostics, color-coded low-voltage terminals, and provisions for electronic air cleaner and 120-volt or 24-volt humidifiers
- . Low constant fan allows homeowner to activate very low speed to efficiently circulate air throughout the home. This setting costs as little as a 100-watt light bulb to operate.
- . Dual-certified for sealed combustion direct vent (2-pipe) or non-direct vent (1-pipe) applications
- Easy-to-install top venting is standard; alternate flue/vent locations available
- Oujet, two-speed induced draft blower
- . All models comply with California NOx emissions standards

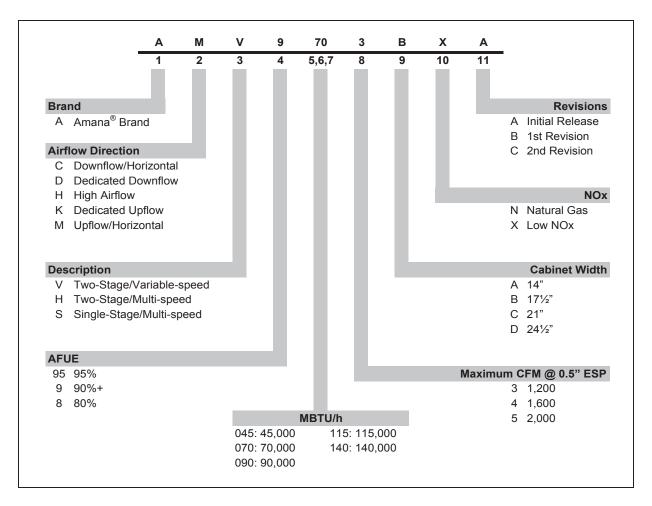
Cabinet Features

- Fully insulated, heavy-gauge steel cabinet with durable baked-enamel finish
- Designed for multi-position installation AMV9: upflow, hori-• zontal left or right; ACV9: downflow, horizontal left or right
- Airtight solid bottom for side return applications & easy-cut • tabs for effortless removal in bottom air inlet applications
- Convenient left or right connection for gas/electric service
- . Coil and furnace fit flush for most installations

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Nomenclature



Important EnergyStar Notice: EnergyStar ratings are dependent upon conditions beyond equipment installation. Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet EnergyStar criteria. Ask your contractor for details or visit www.energystar.gov.

SPECIFICATIONS

	AMV9 0453BXB	AMV9 0704CXB	AMV9 0905DXB	AMV9 1155DXB	ACV9 0704CXB	ACV9 0905DXB
HEATING CAPACITY			~	^		
High Fire Input (BTU/h)1	46,000	69,000	92,000	115,000	69,000	92,000
High Fire Output (BTU/h) ¹	45,000	67,000	90,000	109,000	65,000	87,000
Low Fire Input (BTU/h)1	32,000	48,000	64,000	80,000	48,000	64,000
Low Fire Output (BTU/h)1	30,800	46,400	61,700	77,400	45,000	60,000
AFUE ²	96	95.5	95.7	95.8	93	93
Available AC @ 0.5" ESP	1.5 - 3.0	1.5 - 4.0	2.0 - 5.0	2.0 - 5.0	1.5 - 4.0	2.0 - 5.0
Temperature Rise Range (° F)	30 - 60	30 - 60	30 - 60	35 - 65	30 - 60	30 - 60
CIRCULATOR BLOWER						
Size (D x W)	10" X 7"	10" X 10"	11" X 10"	11" X 10"	10" X 10"	11" X 10"
Horsepower @ 1750 RPM	1/2	3⁄4	1	1	3⁄4	1
Speed	Variable	Variable	Variable	Variable	Variable	Variable
Vent Diameter ³	2"	2"	3"	3"	2"	2"
No. of Burners	2	3	4	5	3	4
Disposable Filter Size (in ²)	576	768	960	972	641*	854*
ELECTRICAL DATA						
Min. Circuit Ampacity⁴	15	15	15	15	15	15
Max. Overcurrent Device (amps) ⁵	10.4	12.8	14.6	14.6	12.8	14.6
SHIP WEIGHT (LBS)	133	135	172	175	135	172

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.

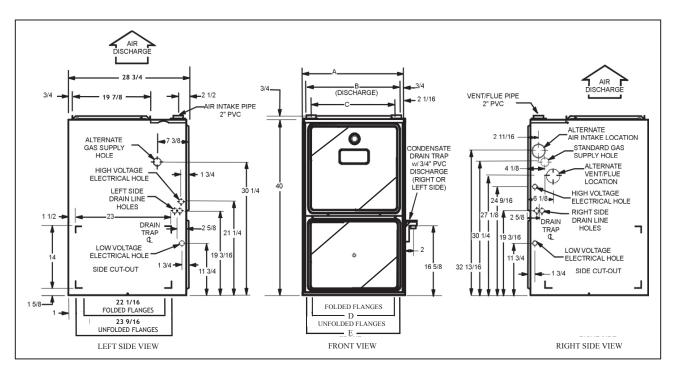
Notes:

1. All furnaces are manufactured for use on 115 VAC, 60 Hz, single-phase electrical supply.

2. Gas Service Connection $\frac{1}{2}$ " FPT

3. Important: Size fuses and wires properly and make electrical connections in accordance with the National Electrical Code and/or all existing local codes.

AMV9 DIMENSIONS



Model	A	В	C	D	E
AMV90453BXB	17½"	16"	131⁄8"	121⁄8"	13 %"
AMV90704CXB	21"	19 ½"	161⁄8"	16	17½"
AMV90905DXB	24½"	23"	20%"	19¾"	207⁄8"
AMV91155DXB	24½"	23"	205⁄8"	19¾"	20%"

Notes:

- 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.
- 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.
- · Conversion kits for high-altitude natural gas operation are available. Contact your Goodman distributor or dealer for details.
- Installer must supply following gas line fittings, according to which entrance is used: Left—Two 90° elbows, one close nipple, straight pipe Right—Straight pipe to reach gas valve
- For bottom return: Failure to unfold flanges may reduce airflow by up to 18%. This could result in performance and noise issues.

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

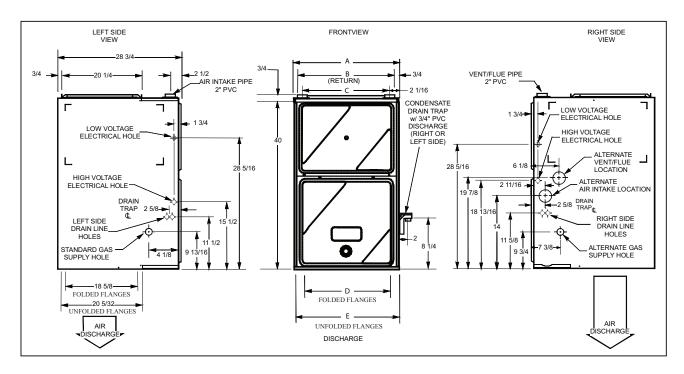
POSITION	SIDES	Rear	FRONT	Воттом	FLUE	Тор
Upflow	0"	0"	3"	С	0"	1"
Horizontal	6"	0"	3"	С	0"	6"

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

NOTES:

- 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.

ACV9 DIMENSIONS



Model	A	В	С	D	E
ACV90704CXB	21"	19 ½"	16¾"	18"	19 ½"
ACV90905DXB	24½"	23"	205⁄8"	21 ½"	23"

NOTES:

 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.

• 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.

· Conversion kits for high-altitude natural gas operation are available. Contact your Amana distributor or dealer for details.

 Installer must supply following gas line fittings, according to which entrance is used: Left—Two 90° Elbows, one close nipple, straight pipe Right—Straight pipe to reach gas valve

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

POSITION	SIDES	Rear	FRONT	Воттом	FLUE	Тор
Downflow	0"	0"	3"	NC	0"	1"
Horizontal	6"	0"	3"	С	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.

• 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.

AMV9 Airflow Specifications

HIGH- OR SINGLE-STAGE COOLING SPEEDS

AMV90453BXB		3	AN	AMV90704CXB] [AMV90905DXB				AMV91155DXB		
Cooling Speed Tap	Adjust Tap	CFM ¹	Cooling Speed Tap	Adjust Tap	CFM1		Cooling Speed Tap	Adjust Tap	CFM ¹		Cooling Speed Tap	Adjust Tap	CFM1
	Minus (-)	540		Minus (-)	540	11		Minus (-)	720			Minus (-)	720
А	Normal	600	A	Normal	600]	А	Normal	800		A	Normal	800
	Plus (+)	660		Plus (+)	660]		Plus (+)	880			Plus (+)	880
	Minus (-)	720		Minus (-)	720] [Minus (-)	990] [Minus (-)	990
В	Normal	800	В	Normal	800]	В	Normal	1,100		В	Normal	1,100
	Plus (+)	880		Plus (+)	880			Plus (+)	1,210			Plus (+)	1,210
	Minus (-)	900		Minus (-)	990] [Minus (-)	1,260			Minus (-)	1,260
С	Normal	1,000	С	Normal	1,100]	С	Normal	1,400		С	Normal	1,400
	Plus (+)	1,100		Plus (+)	1,210			Plus (+)	1,540			Plus (+)	1,540
	Minus (-)	1,080		Minus (-) 1,286] [Minus (-)	1,620			Minus (-)	1,620	
D	Normal	1,200	D	Normal	1,429		D	Normal	1,800		D	Normal	1,800
	Plus (+)	1,320		Plus (+)	1,572			Plus (+)	1,980			Plus (+)	1,980

1 @ .1" to .8" W.C. ESP

Notes:

· 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.

• Do not operate above .5" w.c. ESP in heating mode. Operating CFM between .5" and .8" w.c. is tabulated for cooling purposes only.

LOW-STAGE COOLING SPEEDS

AMV90453BXB		3	AM	AMV90704CXB			AMV90905DXB			AMV91155DXB		
Cooling Speed Tap	Adjust Tap	CFM ¹	Cooling Speed Tap	Adjust Tap	CFM ¹	Cooling Speed Tap	Adjust Tap	CFM ¹	Cooling Speed Ta		CFM1	
	Minus (-)	380*		Minus (-)	378*		Minus (-)	513*		Minus (-)	514*	
А	Normal	390	А	Normal	390	А	Normal	520	А	Normal	520	
	Plus (+)	429		Plus (+)	429		Plus (+)	572		Plus (+)	572	
	Minus (-)	468		Minus (-) 468 Minus (-)	Minus (-)	644		Minus (-)	644			
В	Normal	520	В	Normal	520	В	Normal	715	В	Normal	715	
	Plus (+)	572		Plus (+)	572		Plus (+)	787		Plus (+)	787	
	Minus (-)	585		Minus (-)	644		Minus (-)	819		Minus (-)	819	
С	Normal	650	С	Normal	715	С	Normal	910	С	Normal	910	
	Plus (+)	715		Plus (+)	787		Plus (+)	1,001		Plus (+)	1,001	
	Minus (-)	702		Minus (-)	836		Minus (-)	1,053		Minus (-)	1,053	
D	Normal	780	D	Normal	929	D	Normal	1,170	D	Normal	1,170	
	Plus (+)	858		Plus (+)	1,022		Plus (+)	1,287		Plus (+)	1,287	

1 @ .1" to .8" W.C. ESP

Notes:

All furnaces ship as high speed for cooling. Installer must adjust blower speed as needed.

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AMV9 AIRFLOW SPECIFICATIONS (CONT.)

HEATING SPEEDS

AMV90453BXB (Rise Range: 30° - 60°F)								
Heating Speed Tap	Adjust Tap							
	Minus (-)	495	713	57				
А	Normal	550	792	51				
	Plus (+)	605	871	46				
	Minus (-)	540	778	52				
В	Normal	600	864	47				
	Plus (+)	660	950	43				
	Minus (-)	585	842	48				
С	Normal	650	936	43				
	Plus (+)	715	1,030	39				
	Minus (-)	630	907	45				
D	Normal	700	1,008	40				
	Plus (+)	770	1,109	36				

AMV90704CXB (Rise Range: 30° - 60°F)								
Heating Speed Tap	Adjust Tap	Low-Stage CFM ¹	High-Stage CFM ¹	Rise (°F)				
	Minus (-)	756	1,089	56				
А	Normal	840	1,210	50				
	Plus (+)	924	1,331	46				
	Minus (-)	828	1,192	51				
В	Normal	920	1,325	46				
	Plus (+)	1,012	1,457	42				
	Minus (-)	900	1,296	47				
С	Normal	1,000	1,440	42				
	Plus (+)	1,100	1,584	38				
	Minus (-)	972	1,400	43				
D	Normal	1,080	1,555	39				
	Plus (+)	1,188	1,711	35				

1 @ .1" to .5" W.C. ESP

AMV90905DXB (Rise Range: 30° - 60°F)							
Heating Speed Tap	Adjust Tap	Low-Stage CFM ¹	High-Stage CFM ¹	Rise (°F)			
	Minus (-)	1,013	1,458	56			
A	Normal	1,125	1,620	50			
	Plus (+)	1,238	1,782	45			
	Minus (-)	1,076	1,549	52			
В	Normal	1,195	1,721	47			
	Plus (+)	1,315	1,893	43			
	Minus (-)	1,139	1,639	49			
С	Normal	1,265	1,822	44			
	Plus (+)	1,392	2,004	40			
	Minus (-)	1,202	1,730	47			
D	Normal	1,335	1,922	42			
	Plus (+)	1,469	2,115	38			

	AMV91155DXB (Rise Range: 30° - 60°F)								
Heating Speed Tap	Adjust Tap	Low-Stage CFM ¹	High-Stage CFM ¹	Rise (°F)					
	Minus (-)	1,107	1,594	63					
А	Normal	1,230	1,771	57					
	Plus (+)	1,353	1,948	52					
	Minus (-)	1,139	1,639	62					
В	Normal	1,265	1,822	56					
	Plus (+)	1,392	2,004	50					
	Minus (-)	1,170	1,685	60					
С	Normal	1,300	1,872	54					
	Plus (+)	1,430	2,059	49					
	Minus (-)	1,202	1,730	58					
D	Normal	1,335	1,922	53					
	Plus (+)	1,469	2,115	48					

1 @ .1" to .5" W.C. ESP

ACV9 Airflow Specifications

HIGH- OR SINGLE-STAGE COOLING SPEEDS

ACV90704CXB				
Cooling Speed Tap	Adjust Tap	CFM1		
	Minus (-)	540		
А	Normal	600		
	Plus (+)	660		
	Minus (-)	720		
В	Normal	800		
	Plus (+)	880		
	Minus (-)	990		
С	Normal	1,100		
	Plus (+)	1,210		
	Minus (-)	1,286		
D	Normal	1,429		
	Plus (+)	1,572		

ACV90905DXB				
Cooling Speed Tap	Adjust Tap	CFM ¹		
	Minus (-)	720		
А	Normal	800		
	Plus (+)	880		
	Minus (-)	990		
В	Normal	1,100		
	Plus (+)	1,210		
	Minus (-)	1,260		
С	Normal	1,400		
	Plus (+)	1,540		
	Minus (-)	1,620		
D	Normal	1,800		
	Plus (+)	1,980		

¹ @ .1" to .8" W.C. ESP

Notes:

· 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.

• Do not operate above .5" w.c. ESP in heating mode. Operating CFM between .5" and .8" w.c. is tabulated for cooling purposes only.

LOW-STAGE COOLING SPEEDS

ACV90704CXB				
Cooling Speed Tap	Adjust Tap	CFM1		
	Minus (-)	378*		
А	Normal	390		
	Plus (+)	429		
	Minus (-)	468		
В	Normal	520		
	Plus (+)	572		
	Minus (-)	644		
С	Normal	715		
	Plus (+)	787		
	Minus (-)	836		
D	Normal	929		
	Plus (+)	1,022		

ACV90905DXB				
Cooling Speed Tap	Adjust Tap	CFM1		
	Minus (-)	513*		
А	Normal	520		
	Plus (+)	572		
	Minus (-)	644		
В	Normal	715		
	Plus (+)	787		
	Minus (-)	819		
С	Normal	910		
	Plus (+)	1,001		
D	Minus (-)	1,053		
	Normal	1,170		
	Plus (+)	1,287		

1 @ .1" to .8" W.C. ESP

Notes:

• 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.

• Do not operate above .5" w.c. ESP in heating mode. Operating CFM between .5" and .8" w.c. is tabulated for cooling purposes only.

ACV9 Airflow Specifications (cont.)

ACV90704CXB (Rise Range: 30° - 60°F)					
Heating Speed Tap	Adjust Tap	Rise (°F)			
	Minus (-)	747	1,076	56	
А	Normal	830	1,195	50	
	Plus (+)	913	1,315	46	
	Minus (-)	824	1,186	51	
В	Normal	915	1,318	46	
	Plus (+)	1,007	1,449	42	
	Minus (-)	900	1,296	47	
С	Normal	1,000	1,440	42	
	Plus (+)	1,100	1,584	38	
	Minus (-)	978	1,408	43	
D	Normal	1,085	1,562	39	
	Plus (+)	1,194	1,719	35	

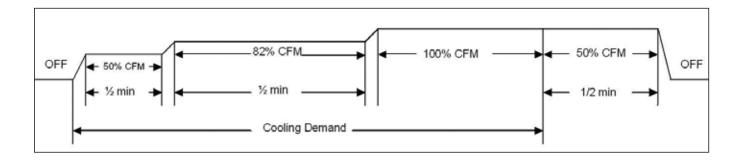
ACV9	HEATING	SPEEDS
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ACV90905DXB (Rise Range: 30° - 60°F)				
Heating Speed Tap	Adjust Tap	High-Stage CFM ¹	Rise (°F)	
	Minus (-)	999	1,439	56
А	Normal	1,110	1,598	50
	Plus (+)	1,221	1,758	46
	Minus (-)	1,067	1,536	52
В	Normal	1,185	1,706	47
	Plus (+)	1,303	1,876	43
	Minus (-)	1,134	1,633	49
С	Normal	1,260	1,814	44
	Plus (+)	1,386	1,996	40
	Minus (-)	1,202	1,730	46
D	Normal	1,335	1,922	42
	Plus (+)	1,469	2,115	38

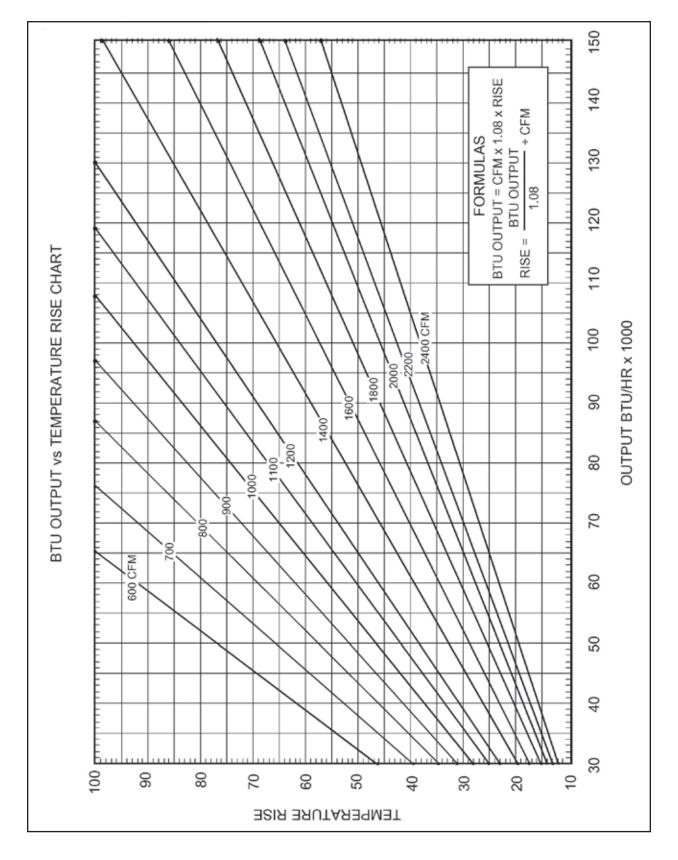
1 @ .1" to .5" W.C. ESP

AUTO-COMFORT MODE

During Auto-Comfort mode, the furnace ramps up to 50% of the demand for half a minute. It then ramps to 82% of the full cooling demand airflow and operates there for approximately 7½ minutes. The motor then steps up to the full demand airflow. This mode spends a half minute at 50% airflow OFF delay.

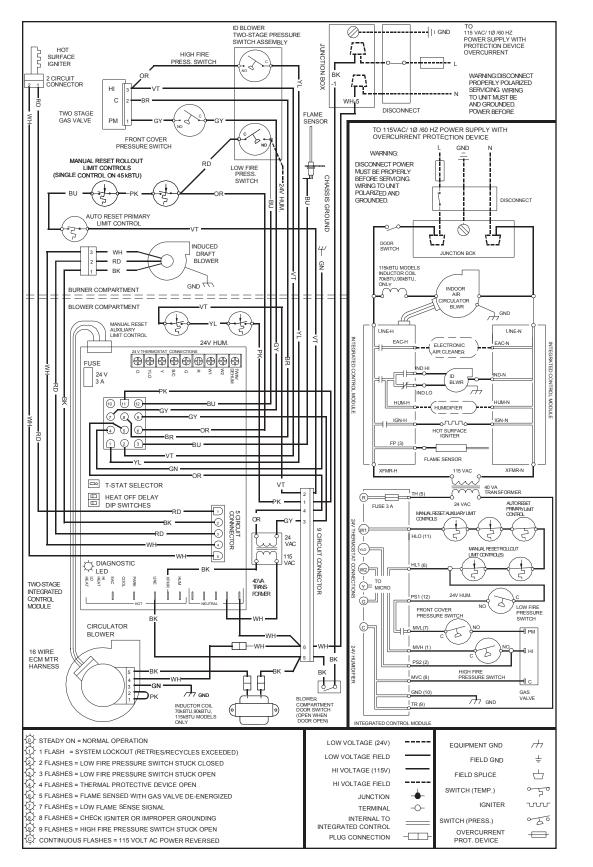


AMV9/ACV9 TEMPERATURE RISE CHART



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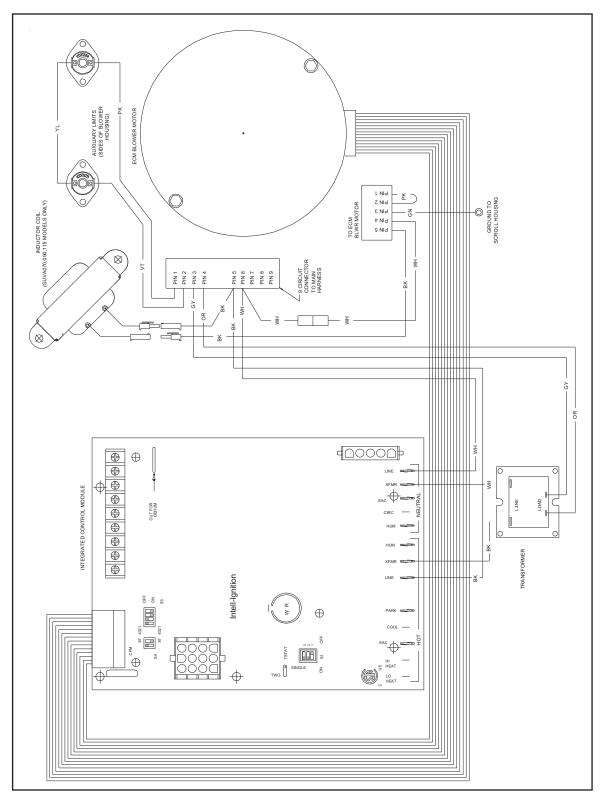
WIRING DIAGRAM





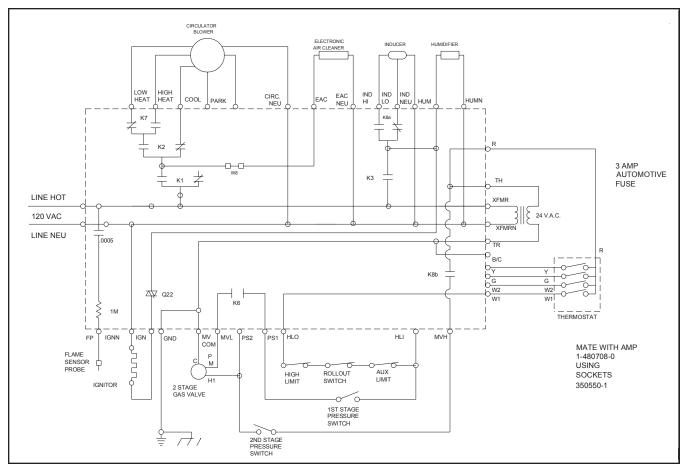
Wiring is subject to change. Always refer to the win diagram on the unit for the most up-to-date wiring

SCHEMATICS



Blower Assembly Schematic AMV9***/ ACV9*** Model Furnaces This schematic is for reference only. Not all wiring is as shown above. Refer to the appropriate wiring diagram for the unit being serviced.

SCHEMATICS (CONT.)



Typical Schematic AMV9***/ ACV9*** Model Furnaces WR 50V61-289 Integrated Ignition Control This schematic is for reference only. Not all wiring is as shown above. Refer to the appropriate wiring diagram for the unit being serviced.

Standard Altitude Installations

Car	Gas Altitude Kit Orif		Orifice	Manifold	Pressure Switch	
	Office	High Stage	Low Stage	Change		
Natural	0-7000 Changeover	None	#43	3.5" W.C.	1.9" W.C.	None
Propane	0-7000	LPM-03B & LPM-05	#55	10.0: W.C. 6.0" W.C.		None

NOTES:

For installation in Canada, gas furnaces are certified only to 4,500 ft.

• For ACVA installations above 7,000 ft., please refer to your Amana distributor for required kit(s).

THERMOSTATS

A two-stage thermostat should be used with the AMV9 furnace. Two-stage thermostats control which firing rate is used depending on the temperature difference between the set point and the room temperature. A properly used two-stage thermostat and furnace will maintain a much tighter control of temperature than a conventional single-stage thermostat and furnace. Two-stage furnaces have "W1" and "W2" terminals. If the thermostat has "Y1" and "Y2" cooling connections and a single-stage cooling system is used, connect "Y" on the furnace control to "Y1" on the thermostat. The table below describes two-stage thermostats that have been configured for use with this furnace.

Model	Two-Stage Thermostat Description	Color
1213411	Digital, Non-Programmable, 2-stage, 2 Heat/2 Cool	White
1213407	Digital, Programmable, 2-stage, 2 Heat/1 Gool	White
1213406*	Programmable, 3-stage, Manual or Automatic Changeover	Beige

For use in dual fuel applications with a heat pump in a fossil-fuel application. It is not for use with the AMV9 as a sole heating source.

Accessories

Model	DESCRIPTION	AMV90453BXB	AMV90704CXB	AMV90905DXB	AMV91155DXB	ACV90704CXB	ACV90905DXB
LPB-03B	LP Conversion Kit (gas valve)	1	1	1	1	1	1
LPM-05	LP Conversion Kit (springs & orifice)	1	1	1	1	1	1
ASAS	Electronic Air Cleaners (-10, -11, -12 or -18)	ſ	ſ	ſ	ſ	ſ	Г
AMU	Media Air Cleaners (1620, 2020, 1625 or 2025)	ſ	ſ	ſ	ſ	ſ	Г
DEHUM1	Dehumidistat	ſ	Г	ſ	ſ	Г	Г
HAPS28	High-Altitude Pressure Switch Kit	2	2				
HAPS29	High-Altitude Pressure Switch Kit			2	2		
HAPS 31	High-Altitude Pressure Switch Kit					2	2
HALP11	High-Altitude Propane Gas Kit	2	2	2	2		
HALP 13	High-Altitude Propane Gas Kit					2	2
HANG 13	High-Altitude Natural Gas Kit	3	3	3	3		
HANG 14	High-Altitude Natural Gas Kit	4	4	4	4		
HANG 16	High-Altitude Natural Gas Kit					2	2
EFR01	External Filter Rack	ſ	ſ	ſ	ſ	ſ	Г
DCVK-20	Horizontal/Vertical Concentric Vent Kit (2")	ſ	Г	ſ		Г	
DCVK-30	Horizontal/Vertical Concentric Vent Kit (3")	Г	Г	ſ	Г	Г	Г
CFB21	Downflow Floor Base					Г	
CFB24	Downflow Floor Base						Г
017K00000S	Flush-mount vent kit	ſ	ſ	ſ	ſ	ſ	Г

1- All Models up to 7,000'

2- 7,001' to 11,000'

3- 7,001' to 9,000'

4- 9,001' to 11,000'

Note:

All installations above 7,000' require a pressure switch change. For installation in Canada, gas furnaces are certified only to 4,500'.

Notes

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SS-AMV9

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