

Air Handler - Convertible

Model: Series 2 Air Handlers 1.5 - 3 ton

GAF2A0A18S11SB

GAF2A0A24S21SB

GAF2A0A30S21SB

GAF2A0A36S31SB

*For use with BAYEC series heaters ONLY

⚠ WARNING: HAZARDOUS VOLTAGE - DISCONNECT POWER BEFORE SERVICING

IMPORTANT --- This document contains a wiring diagram and service information. This is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

⚠ WARNING

SAFETY HAZARD! This information is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience. Any attempt to repair a central air conditioning product may result in personal injury and/or property damage. The manufacture or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

⚠ WARNING

LIVE ELECTRICAL COMPONENTS! During installation, testing, servicing, and troubleshooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

⚠ WARNING

PRESSURIZED REFRIGERANT! SYSTEM CONTAINS OIL AND REFRIGERANT UNDER HIGH PRESSURE. RECOVER REFRIGERANT TO RELIEVE PRESSURE BEFORE OPENING THE SYSTEM.

DO NOT USE NON-APPROVED REFRIGERANTS OR REFRIGERANT SUBSTITUTES OR REFRIGERANT ADDITIVES.

Note: This unit is certified to UL 1995.

The interior cabinet wall meets the following:

- UL94-5VA Flame Class Listed
- UL723 Steiner Tunnel Listed for 25/50 Flame/Smoke
- UL746C Listed for Exposure to Ultraviolet Light, Water Exposure and Immersion

Important: Panel damage can occur with prolonged exposure to POE lubricants. Air handler front panels that come in contact with POE oil must be washed immediately with soapy water.

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NOTICE: Since the manufacturer has a policy of continuous product and product data improvement, it reserves the right to change design and specifications without notice.

PRODUCT SPECIFICATIONS

MODEL	GAF2A0A18S11SB	GAF2A0A24S21SB	GAF2A0A30S21SB
RATED VOLTS/PH/HZ.	208-230/1/60	208-230/1/60	208-230/1/60
RATINGS ①	See O.D. Specifications	See O.D. Specifications	See O.D. Specifications
INDOOR COIL — Type	Plate Fin	Plate Fin	Plate Fin
Rows — F.P.I.	3 - 14	3 - 14	3 - 14
Face Area (sq. ft.)	3.21	3.21	3.21
Tube Size (in.)	3/8	3/8	3/8
Refrigerant Control	TXV	TXV	TXV
Drain Conn. Size (in.) ②	3/4 NPT	3/4 NPT	3/4 NPT
DUCT CONNECTIONS	See Outline Drawing	See Outline Drawing	See Outline Drawing
INDOOR FAN — Type	Centrifugal	Centrifugal	Centrifugal
Diameter-Width (In.)	11 X 8	10 X 8	10 X 8
No. Used	1	1	1
Drive - No. Speeds	Direct - 3	Direct - 3	Direct - 3
CFM vs. in. w.g.	See Fan Performance Table	See Fan Performance Table	See Fan Performance Table
No. Motors — H.P.	1 - 1/3	1 - 1/4	1 - 1/3
Motor Speed RPM	825	1075	1075
Volts/Ph/Hz	208-230/1/60	208-230/1/60	208-230/1/60
F.L. Amps - L.R. Amps	2.0 - 4.1	1.3 - 2.6	1.7 - 3.5
FILTER			
Filter Furnished?	No	No	No
Type Recommended	Throwaway	Throwaway	Throwaway
No.-Size-Thickness	1 - 16 X 20 - 1 in.	1 - 16 X 20 - 1 in.	1 - 16 X 20 - 1 in.
REFRIGERANT	R-410A	R-410A	R-410A
Ref. Line Connections	Braze	Braze	Braze
Coupling or Conn. Size — in. Gas	3/4	3/4	3/4
Coupling or Conn. Size — in. Liq.	3/8	3/8	3/8
DIMENSIONS	H x W x D	H x W x D	H x W x D
Crated (In.)	40.5 x 20 x 24.5	40.5 x 20 x 24.5	40.5 x 20 x 24.5
Uncrated	39.5 x 17.5 x 21.8	39.5 x 17.5 x 21.8	39.5 x 17.5 x 21.8
WEIGHT			
Shipping (Lbs.)/Net (Lbs.)	117/107	120/110	121/111

PRODUCT SPECIFICATIONS

MODEL	GAF2A0A36S31SB
RATED VOLTS/PH/HZ.	208-230/1/60
RATINGS ①	See O.D. Specifications
INDOOR COIL — Type	Plate Fin
Rows — F.P.I.	3 - 14
Face Area (sq. ft.)	3.21
Tube Size (in.)	3/8
Refrigerant Control	TXV
Drain Conn. Size (in.) ②	3/4 NPT
DUCT CONNECTIONS	See Outline Drawing
INDOOR FAN — Type	Centrifugal
Diameter-Width (In.)	11 X 8
No. Used	1
Drive - No. Speeds	Direct - 3
CFM vs. in. w.g.	See Fan Performance Table
No. Motors — H.P.	1 - 1/2
Motor Speed RPM	1075
Volts/Ph/Hz	208-230/1/60
F.L. Amps - L.R. Amps	2.4 - 3.8
FILTER	
Filter Furnished?	No
Type Recommended	Throwaway
No.-Size-Thickness	1 - 16 X 20 - 1 in.
REFRIGERANT	R-410A
Ref. Line Connections	Braze
Coupling or Conn. Size — in. Gas	3/4
Coupling or Conn. Size — in. Liq.	3/8
DIMENSIONS	H x W x D
Crated (In.)	40.5 x 20 x 24.5
Uncrated	39.5 x 17.5 x 21.8
WEIGHT	
Shipping (Lbs.)/Net (Lbs.)	122/112

① These Air Handlers are AHRI certified with various Split System Air Conditioners and Heat Pumps (AHRI STANDARD 210/240). Refer to the Split System Outdoor Unit Product Data Guides for performance data.

② 3/4" Male Plastic Pipe (Ref.: ASTM 1785-76)

AIRFLOW PERFORMANCE						
GAF2A0A18S11SB						
EXTERNAL STATIC (in w.g)	AIRFLOW (CFM)					
	Speed Taps - 230 VOLTS			Speed Taps - 208 VOLTS		
	3	2 †	1	3	2 †	1
0	952	768	710	940	654	598
0.1	894	741	687	885	636	581
0.2	845	704	658	831	610	558
0.3	785	662	620	775	577	526
0.4	724	607	568	714	529	477
0.5	652	531	494	640	460	415
0.6	557	441	404	543	378	347
0.7	428	346	N/A	418	244	N/A
0.8	284	N/A	N/A	225	N/A	N/A
0.9	N/A	N/A	N/A	N/A	N/A	N/A
1.0	N/A	N/A	N/A	N/A	N/A	N/A

NOTES:
1. Values are with wet coil and without filters.
2. Contact your particular filter manufacturer for pressure drop data.
3. Electric heater pressure drop is negligible and is included within the airflow data.
4. † Factory Setting

GAF2A0A18S11SB MINIMUM HEATER AIRFLOW CFM		
Heater	Minimum Air Speed Tap	
	Without Heat Pump	With Heat Pump
BAYECAA05LG1AA	Tap 1	Tap 3
BAYECAA08LG1AA	Tap 2	Tap 3
BAYECAA10LG1AA	Tap 2	Tap 3
SEE AIR HANDLER NAMEPLATE OR PRODUCT DATA FOR EXCEPTIONS		

Note: Heating and cooling speeds are the same, factory set at Speed Tap #2.

AIRFLOW PERFORMANCE						
GAF2A0A24S21SB						
EXTERNAL STATIC (in w.g)	AIRFLOW (CFM)					
	Speed Taps - 230 VOLTS			Speed Taps - 208 VOLTS		
	3	2 †	1	3	2 †	1
0	998	848	771	899	737	658
0.1	949	816	745	868	710	630
0.2	911	784	711	834	683	602
0.3	869	750	679	794	650	567
0.4	825	708	638	756	611	524
0.5	772	659	586	704	547	476
0.6	707	591	518	641	499	415
0.7	614	513	444	555	420	346
0.8	533	416	356	465	339	268
0.9	413	309	218	351	203	138
1.0	241	130	N/A	167	N/A	N/A

NOTES:
1. Values are with wet coil and without filters.
2. Contact your particular filter manufacturer for pressure drop data.
3. Electric heater pressure drop is negligible and is included within the airflow data.
4. † Factory Setting

GAF2A0A24S21SB MINIMUM HEATER AIRFLOW CFM		
Heater	Minimum Air Speed Tap	
	Without Heat Pump	With Heat Pump
BAYECAA05LG1AA	Tap 1	Tap 2
BAYECAA08LG1AA	Tap 2	Tap 3
BAYECAA10LG1AA	Tap 1	Tap 3
SEE AIR HANDLER NAMEPLATE OR PRODUCT DATA FOR EXCEPTIONS		

Note: Heating and cooling speeds are the same, factory set at Speed Tap #2.

AIRFLOW PERFORMANCE						
GAF2A0A30S21SB						
EXTERNAL STATIC (in w.g)						
	Speed Taps - 230 VOLTS			Speed Taps - 208 VOLTS		
	3	2 †	1	3	2	1
0	1052	967	932	1024	877	826
0.1	1012	929	898	980	846	800
0.2	963	888	861	934	814	771
0.3	914	849	823	885	777	738
0.4	865	805	784	837	739	703
0.5	816	759	741	788	697	663
0.6	759	698	681	739	640	602
0.7	690	622	592	668	559	515
0.8	589	503	463	559	423	395
0.9	389	336	318	375	285	259
1.0	179	149	119	175	NA	NA

NOTES:
1. Values are with wet coil and without filters.
2. Contact your particular filter manufacturer for pressure drop data.
3. Electric heater pressure drop is negligible and is included within the airflow data.
4. † Factory Setting

GAF2A0A30S21SB MINIMUM HEATER AIRFLOW CFM		
Heater	Minimum Air Speed Tap	
	Without Heat Pump	With Heat Pump
BAYECAA05LG1AA	Tap 1	Tap 1
BAYECAA08LG1AA	Tap 2	Tap 2
BAYECAA10LG1AA	Tap 1	Tap 3
SEE AIR HANDLER NAMEPLATE OR PRODUCT DATA FOR EXCEPTIONS		

Note: Heating and cooling speeds are the same, factory set at Speed Tap #2.

AIRFLOW PERFORMANCE						
GAF2A0A36S31SB						
EXTERNAL STATIC (in w.g)	Speed Taps - 230 VOLTS			Speed Taps - 208 VOLTS		
	3	2 †	1	3	2	1
0	1191	1146	1094	1040	1015	964
0.1	1180	1132	1085	1033	1004	959
0.2	1158	1110	1065	1014	984	942
0.3	1119	1082	1035	979	958	916
0.4	1079	1045	1003	942	923	887
0.5	1040	1005	969	907	886	857
0.6	993	960	927	864	843	818
0.7	934	910	877	808	795	772
0.8	880	855	816	758	742	715
0.9	815	786	748	696	675	650
1.0	744	715	677	629	607	583

NOTES:
1. Values are with wet coil and without filters.
2. Contact your particular filter manufacturer for pressure drop data.
3. Electric heater pressure drop is negligible and is included within the airflow data.
4. † Factory Setting

GAF2A0A36S31SB MINIMUM HEATER AIRFLOW CFM		
Heater	Minimum Air Speed Tap	
	Without Heat Pump	With Heat Pump
BAYECAA05LG1AA	Tap 1	Tap 1
BAYECAA08LG1AA	Tap 1	Tap 1
BAYECAA10LG1AA	Tap 1	Tap 1

SEE AIR HANDLER NAMEPLATE OR PRODUCT DATA FOR EXCEPTIONS

Note: Heating and cooling speeds are the same, factory set at Speed Tap #2.

WIRING DATA											
GAF2A0A18S11SB											
Heater Model No.	No. of Circuits	240 VOLT					208 VOLT				
		Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection	Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection
		kW	BTUH				kW	BTUH			
No Heater	-	-	-	2.0**	3	15	-	-	2.0**	3	15
BAYECAA05++	1	4.80	16400	20	28	30	3.60	12300	17.3	24	25
BAYECAA08++	1	7.68	26200	32	43	45	5.76	19700	27.7	37	40
BAYECAA10++	1	9.60	32800	40	53	60	7.20	24600	34.6	46	50

Note: ** Motor Amps

WIRING DATA											
GAF2A0A24S21SB											
Heater Model No.	No. of Circuits	240 VOLT					208 VOLT				
		Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection	Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection
		kW	BTUH				kW	BTUH			
No Heater	-	-	-	1.3**	2	15	-	-	1.3**	2	15
BAYECAA05++	1	4.80	16400	20	27	30	3.60	12300	17.3	23	25
BAYECAA08++	1	7.68	26200	32	42	45	5.76	19700	27.7	38	40
BAYECAA10++	1	9.60	32800	40	52	60	7.20	24600	34.6	45	45

Note: ** Motor Amps

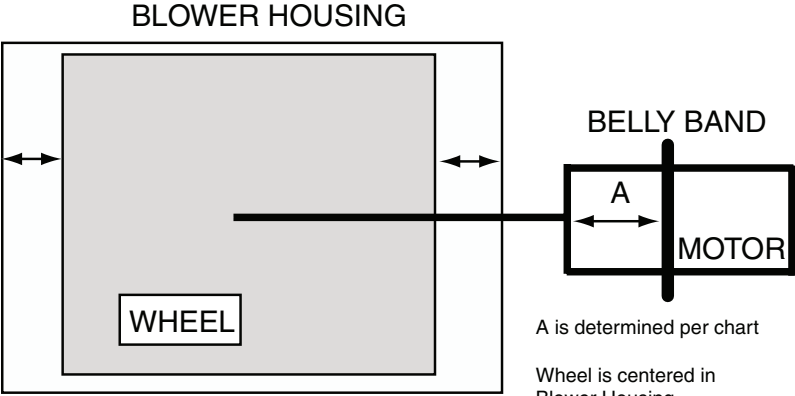
WIRING DATA											
GAF2A0A30S21SB											
Heater Model No.	No. of Circuits	240 VOLT					208 VOLT				
		Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection	Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection
		kW	BTUH				kW	BTUH			
No Heater	-	-	-	1.7**	2	15	-	-	1.7**	2	15
BAYECAA05++	1	4.80	16400	20	27	30	3.60	12300	17.3	24	25
BAYECAA08++	1	7.68	26200	32	42	45	5.76	19700	27.7	38	40
BAYECAA10++	1	9.60	32800	40	52	60	7.20	24600	34.6	45	45

Note: ** Motor Amps

WIRING DATA											
GAF2A0A36S31SB											
Heater Model No.	No. of Circuits	240 VOLT					208 VOLT				
		Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection	Capacity		Heater Amps per Circuit	Minimum Circuit Ampacity	Maximum Overload Protection
		kW	BTUH				kW	BTUH			
No Heater	-	-	-	2.4**	3	15	-	-	2.4**	3	15
BAYECAA05++	1	4.80	16400	20	28	30	3.60	12300	17.3	25	25
BAYECAA08++	1	7.68	26200	32	43	45	5.76	19700	27.7	38	40
BAYECAA10++	1	9.60	32800	40	53	60	7.20	24600	34.6	46	50

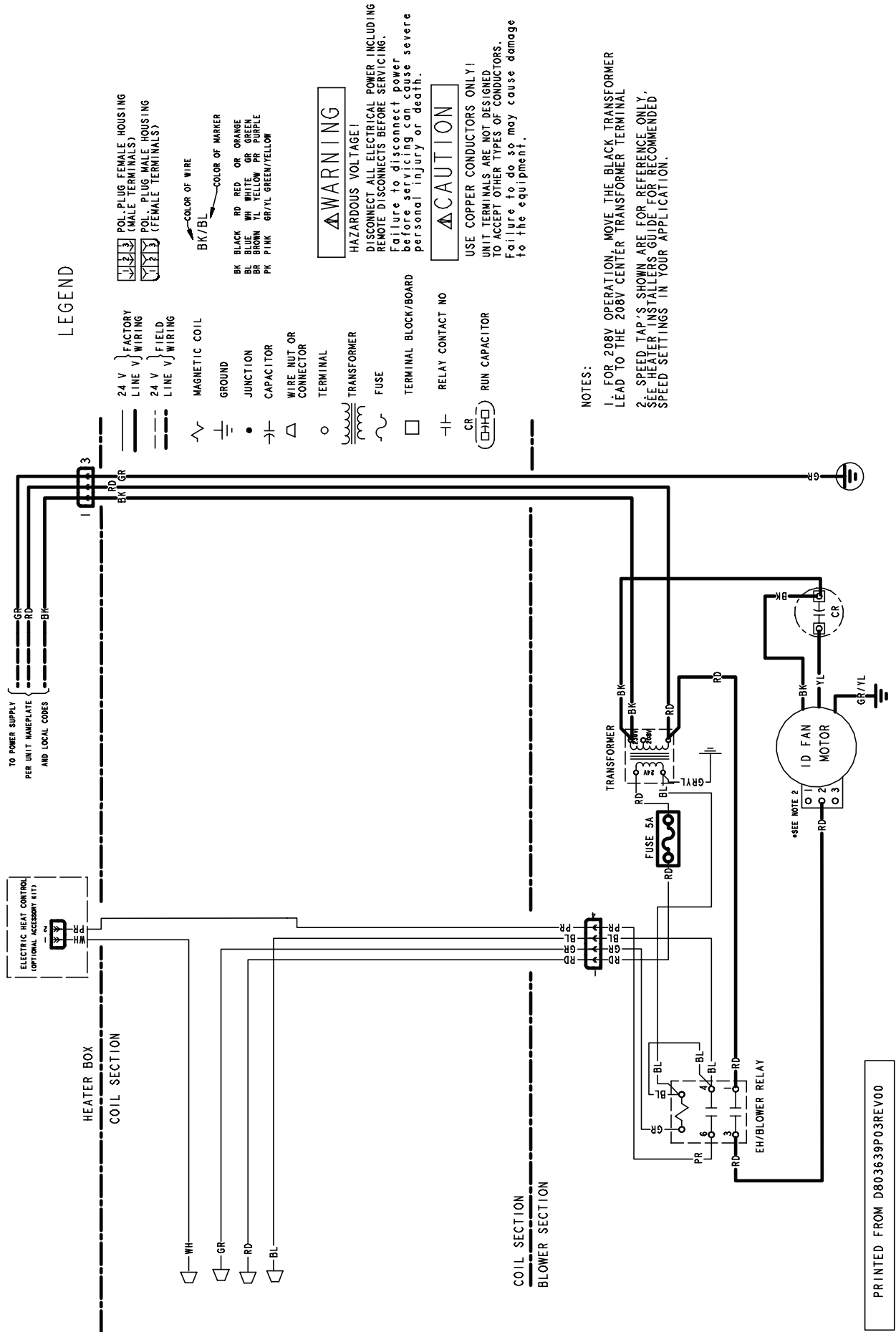
Note: ** Motor Amps

DISTANCE FROM BELLY BAND TO SHAFT FACE OF MOTOR FOR MINIMUM VIBRATION



MODEL	DIM "A"
GAF2A0A18S11SB	1-1/8
GAF2A0A24S21SB	2-11/16
GAF2A0A30S21SB	1-9/16
GAF2A0A36S31SB	1-11/16

WIRING DIAGRAM FOR GAF2A0A18S, GAF2A0A24S, GAF2A0A30S, AND GAF2A0A36S AIR HANDLERS



SEQUENCE OF OPERATION FOR GAF2 AIR HANDLERS

GAF2 Sequence of Operation

See unit, electric heat, and field wiring diagrams for additional information.

Continuous Fan

1. R-G contacts close on comfort control sending 24VAC to the blower relay
2. Relay contacts 1 and 3 close.
3. The blower will now run on the selected speed. Speed is field selectable.

Heatpump OD (cooling)

1. R-Y contacts close on the comfort control sending 24VAC to the OD unit.
2. R-G contacts close on comfort control sending 24VAC to the blower relay
3. Relay contacts 1 and 3 close
4. The blower will now run on the selected speed. Speed is field selectable
5. R-O contacts on the comfort control close sending 24VAC to the switch over valve on the OD unit.

Heatpump OD (heating)

1. R-Y contacts close on the comfort control sending 24VAC to the OD unit.
2. R-G contacts close on comfort control sending 24VAC to the blower relay
3. Relay contacts 1 and 3 close.
4. The blower will now run on the selected speed. Speed is field selectable.

Cooling OD

1. R-Y contacts close on the comfort control sending 24VAC to the OD unit.
2. R-G contacts close on comfort control sending 24VAC to the blower relay
3. Relay contacts 1 and 3 close
4. The blower will now run on the selected speed. Speed is field selectable

Electric Heating

1. R-W contacts close on the comfort control sending 24VAC to energize the heat contactor.
2. R-G contacts close on comfort control sending 24VAC to the blower relay
3. Relay contacts 1 and 3 close
4. The blower will now run on the selected speed. Speed is field selectable
5. Contacts 4 & 6 on the blower relay close providing the interlock circuit to allow the electric heat relays to operate

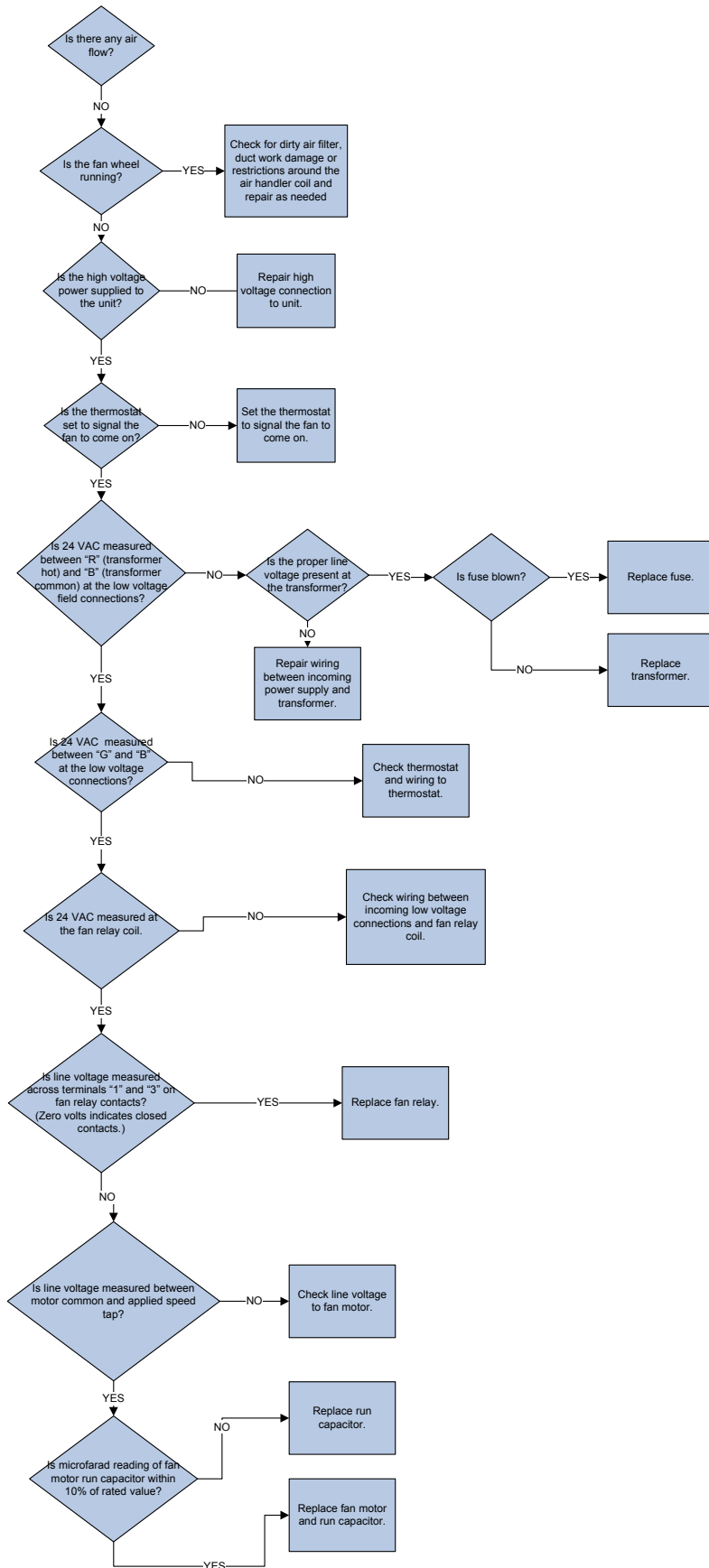
Important: The comfort control must be setup to control R-G contacts with a call for electric heat. This closes the interlock circuit and allows the heat relay circuit to be energized.

SUBCOOLING ADJUSTMENT

System Matched with:	Indoor Unit Model No.	Outdoor Unit Model No.	Subcooling
13 SEER HP	GAF2A0A36S31	4TWR3036C1 4A6H3036C1 4TWB3036C1	6°
All other matches must be charged per the nameplate charging instructions.			

PSC MOTOR TROUBLESHOOTING FOR GAF2A0A18, GAF2A0A24, GAF2A0A30, AND GAF2A0A36 AIR HANDLERS

PSC - No Air Flow



Before starting, insure the blower wheel, indoor and outdoor coils are clean.

Troubleshooting Indoor TXV / Cooling Mode

