

FDR QUESTIONS, CALL THE  
 FLD AIRE NATIONAL  
 REGION 22  
 PHONE: (610) 239-8405  
 EMAIL: courtney.hardin@floaire.com

**MUA FAN INFORMATION - JOB#5934895**

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLDWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTDR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MCCP	WEIGHT (LBS)	SONES
1	2500CFM	1	F2-D.250-20D	20MF-2-MDD	A2-D.250	2000	2500	0.500	1089	DDP,PREMIUM	1.500	0.7290	3	208	4.4	7.7A	15A	674	8

**GAS FIRED MAKE-UP AIR UNIT(S)**

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
1	2500CFM	246763	227022	85°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

**FAN OPTIONS**

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	2500CFM	1	SIZE 2 TEMPERED COMMERCIAL DOWN DISCHARGE FOR DIRECT DRIVE AHUS
		1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1' MOD VALVE)
		1	SHIP LOOSE GAS STRAINER 1"
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	LOW FIRE START
		1	FREEZESTAT (10)
		1	VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED)
		1	VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR TEMPERED SUPPLY FAN
		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE - USED ON HEATERS UNDER 2500 CFM
		1	CONTROL PANEL ENCLOSURE HEATER - RECOMMENDED FOR WINTER DESIGN TEMPERATURES LESS THAN 0°F
		1	CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION - INCLUDES RECEPTACLE AND J-BOX
1	2 YEAR PARTS WARRANTY		

**FAN ACCESSORIES**

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	2500CFM						YES	

**CURB ASSEMBLIES**

NO	DN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	2500CFM	76 LBS	CURB	31.000"W X 79.000"L X 16.000"H ALONG WIDTH, RIGHT INSULATED.

**FAN SOUND DATA**

FAN UNIT NO	TAG	MOTDR	SOUND DATA			OCTAVE BAND SOUND DATA								
			LWA	SONES @ 5 FT	DBA @ 5 FT	DISTANCE (FT)	63 HZ	125 HZ	250 HZ	500 HZ	1 KHZ	2 KHZ	4 KHZ	8 KHZ
1	2500CFM	SUPPLY	69.5	8.00966694580602	58	5	67.1	74.7	69.6	66.7	63.3	60.9	57.8	54.2



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JOB 2500cfm\*\* Heater Stock  
 LOCATION Southborough, MA,  
 DATE 4/3/2023 JOB # 5934895  
 DWG # 1 DRAWN BY courtneyh  
 REV. SCALE 3/8" = 1'-0"

- FAN #1 F2-3250-200 - HEATER (2500CFM)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN.
  2. INTAKE HOOD WITH E2 FILTERS.
  3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
  4. DOWN DISCHARGE CONSTRUCTION FOR SIZE E DIRECT DRIVE AHUS.
  5. GAS PRESSURE GAUGE, 0-30", 2 1/2" DIAMETER, 1/4" THREAD SIZE.
  6. GAS PRESSURE GAUGE, -5 TO +15 INCHES WG, 2 1/2" DIAMETER, 1/4" THREAD SIZE.
  7. BUTTERFLY MOD VALVE OPTION FOR MOD SIZE E (1" MOD VALVE).
  8. SHIP LOOSE GAS STRAINER, TO BE INSTALLED UPSTREAM OF UNIT CONNECTION, 1" CONNECTION.
  9. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE E STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF20S ACTUATOR INCLUDED.
  10. LOW FIRE START, ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
  11. FREEZE STAT WITH 10" SENSOR, FACTORY SET AT 33°F AND 10 MINUTES.
  12. VAV (VARIABLE-AIR-VOLVED) WIRING PACKAGE FOR COMMERCIAL FANS.
  13. MANUAL SPEED CONTROL, VARIABLE FREQUENCY DRIVE INCLUDED.
  14. VFD FACTORY MOUNTED AND WIRED IN UNIT CONTROL VESTIBULE.
  15. PROFILE PLATE CONFIGURATION FOR SIZE E DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.
  16. CONTROL PANEL ENCLASURE HEATER, INCLUDES 100V, 120V HEATER, RECOMMENDED FOR WINTER DESIGN TEMPERATURE LESS THAN 0°F, OPERATES ON PCB CONTROLS IN 1BT SINGLE MODULES OR RTU.
  17. HINGED DOUBLE WALL INSULATED DODD ASSEMBLY (BURNER/BLOWER SECTION).
  18. 2 YEAR PARTS WARRANTY.

NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN ANCA PUBLICATION 200. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 20" X 20".

SUPPLY SIDE HEATER INFORMATION

WINTER TEMPERATURE = -10°F, TEMP. RISE = 85°F.  
 BTUH CALCULATED OFF ACTUAL AIR DENSITY.  
 OUTPUT BTUH AT ALTITUDE OF 0.0 FT. = 227022.  
 INPUT BTUH AT ALTITUDE OF 0.0 FT. = 246763.



DUCT FIRE OFF PROFILE PLATE ASSEMBLY

**INSTALLATION INSTRUCTIONS**

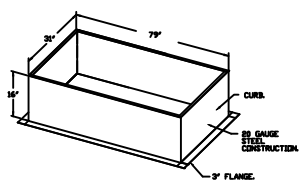
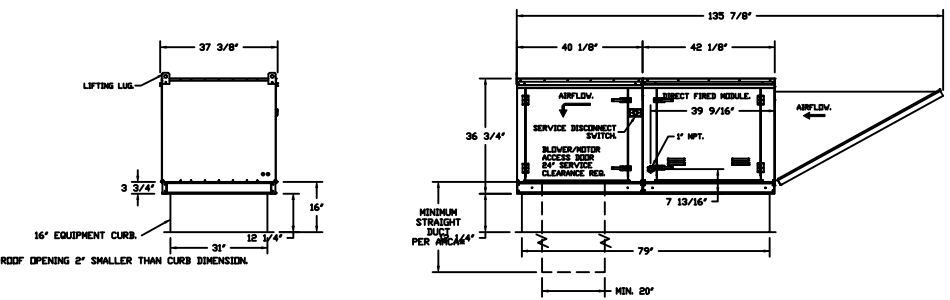
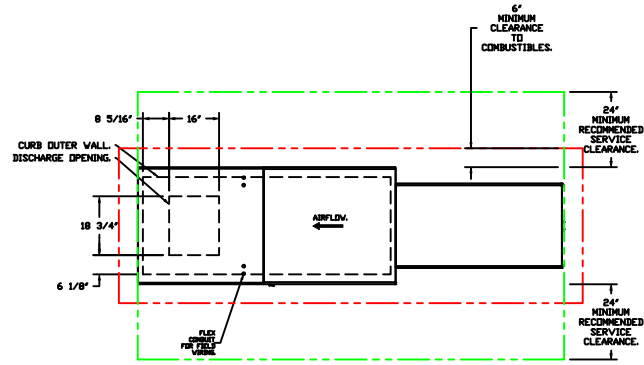
1. THE UNIT MUST BE INSTALLED ON A LEVEL SURFACE. THE UNIT MUST BE INSTALLED ON A SURFACE THAT IS AT LEAST 1/4" ABOVE THE GROUND. THE UNIT MUST BE INSTALLED ON A SURFACE THAT IS AT LEAST 1/4" ABOVE THE GROUND. THE UNIT MUST BE INSTALLED ON A SURFACE THAT IS AT LEAST 1/4" ABOVE THE GROUND.

**NOTES:**

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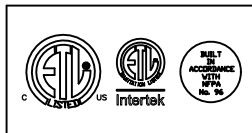
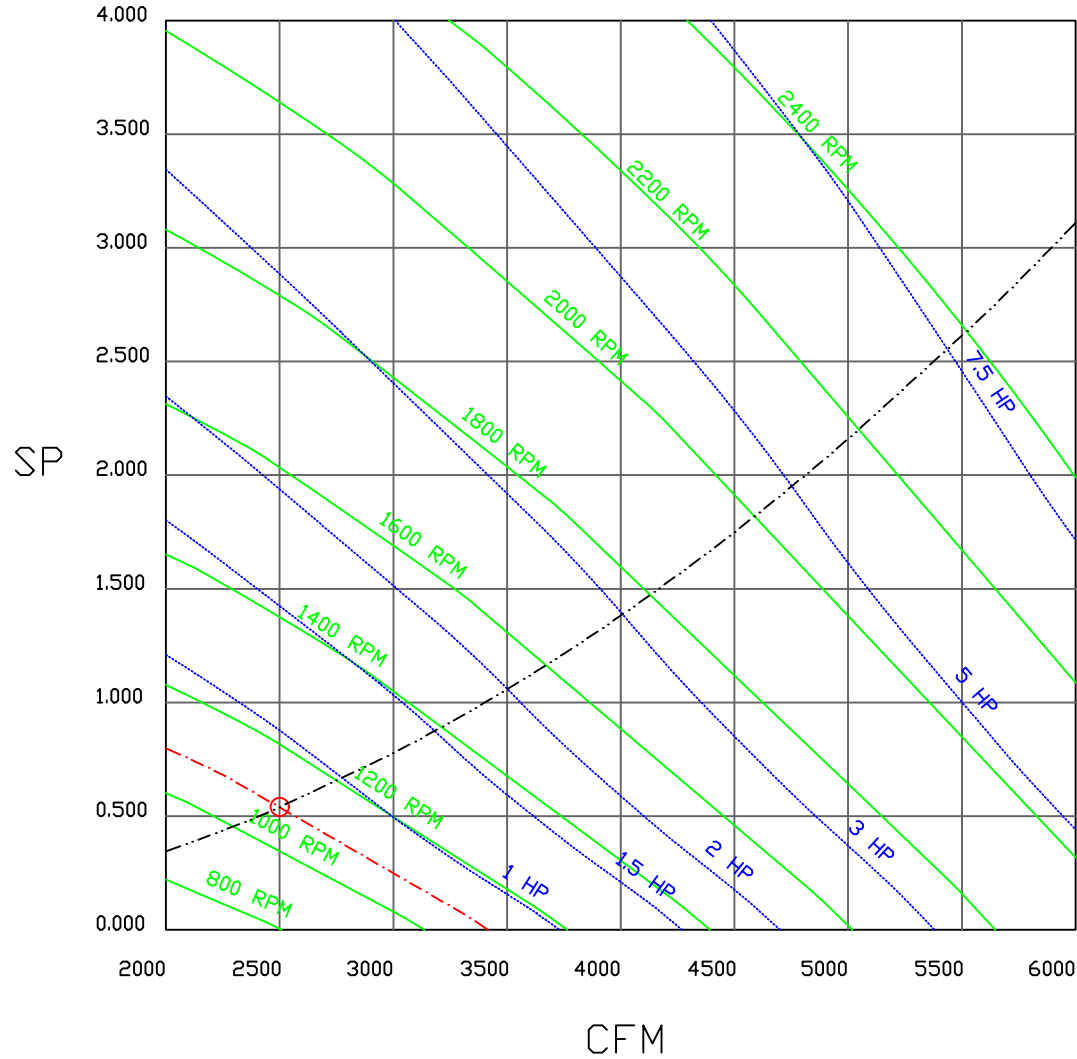


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JOB 2500cfm** Heater Stock	
LOCATION Southborough, MA,	
DATE 4/3/2023	JOB # 5934895
DWG # 2	DRAWN BY courtneyh
REV.	SCALE 3/16" = 1'-0"

FAN#1 (2500CFM) - HEATER PERFORMANCE CURVES.

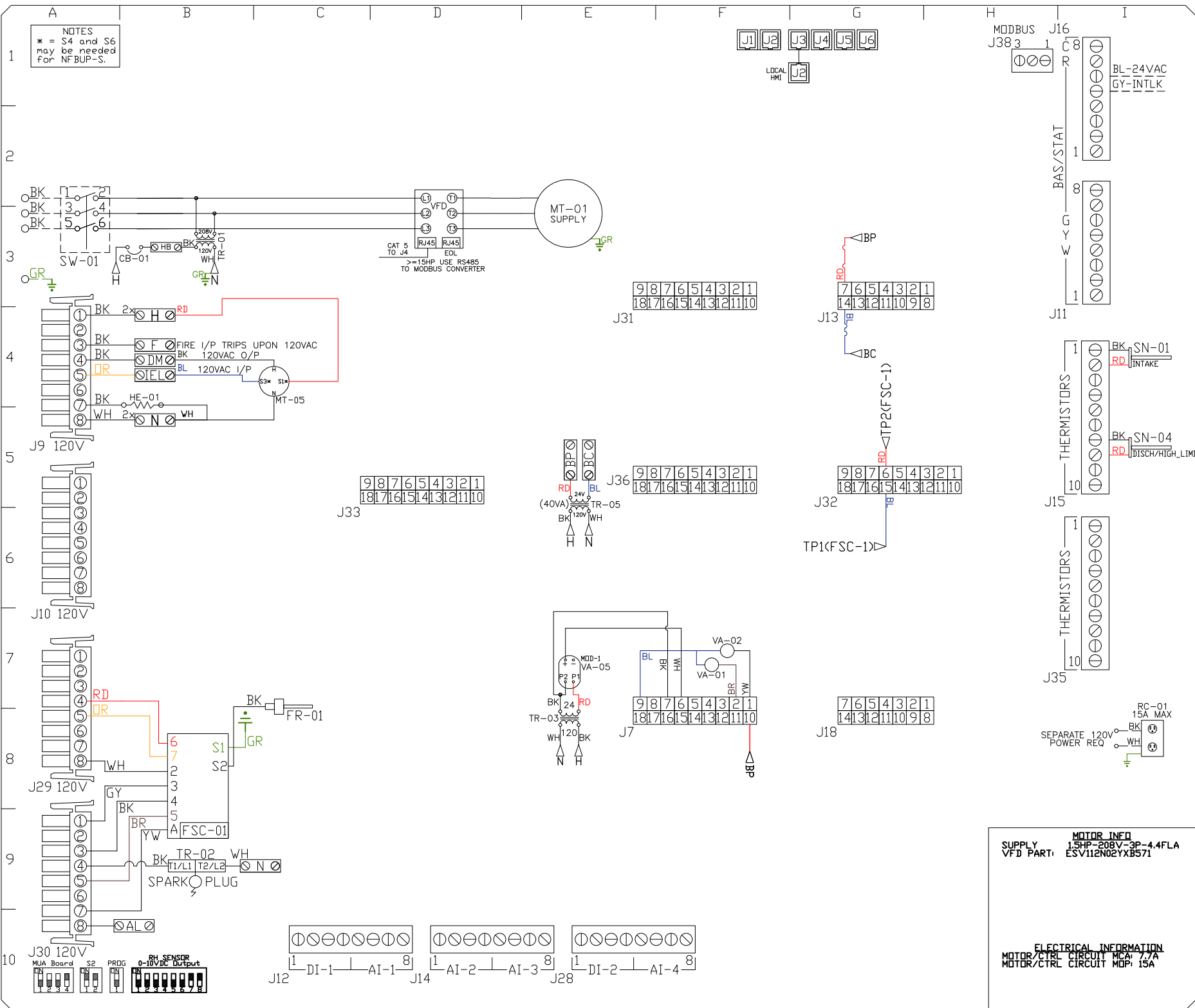
2500 CFM, 0.54 SP @ 1089 RPM AND 0.729 BHP AT 0 FEET AND 75 DEG F.  
 \* PLEASE NOTE THAT THESE CURVES WERE ADJUSTED FOR JOB SPECIFIC TEMPERATURE AND ALTITUDE.



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JOB 2500cfm** Heater Stock	
LOCATION Southborough, MA,	
DATE 4/3/2023	JOB # 5934895
DWG # 3	DRAWN BY courtneyh
REV.	SCALE 3/8" = 1'-0"

**NOTES**  
 \* = S4 and S6 may be needed for NF-BUP-S.



COMPONENT LIST	
LABEL	DESCRIPTION
CB-01	CIRCUIT_BREAKER
FR-01	EVD/ECM-ACU+S1.1-MP
FSC-01	FIREYE_FLAME_SAFETY
HE-01	CABINET_HEATER
MT-01	SUPPLY_MOTOR
MT-05	INTAKE_DAMPER_MTR
RC-01	CONV_OUTLET
SN-XX	TEMP_SENSOR 14/15/16/17
SW-01	DISCONNECT_SWITCH
TR-01	CTRL_TRANSFMR
TR-02	IGNITION_TRANSFMR
TR-05	BOARD_POWER_TRFMR
VA-01	PILOT_GAS_VALVE
VA-02	MAIN_GAS_VALVE
VA-05	MOD_GAS_VALVE

LEGEND	
FIELD WIRING	
FACTORY WIRING	
BK	BLACK
BL	BLUE
BR	BROWN
DR	DR/BL STRIPE
BL/BL	BL/BL STRIPE
RD/GN	RD/GN STRIPE
WH/BL	WH/BL STRIPE
YW	YELLOW
GY	GREY
PR	PURPLE
RD	RED
GR	GREEN

MOTOR INFO	
SUPPLY	15HP-208V-3P-4.4FLA
VFD PART:	ESV112N02YX8571

ELECTRICAL INFORMATION	
MOTOR/CTRL CIRCUIT MCA:	7.7A
MOTOR/CTRL CIRCUIT MDP:	15A

JOB NAME	
2500cfm** Heate...	

DRAWING TITLE	
MUA BOARD	

DESCRIPTION OF OPERATION	
(DETAILS TO FOLLOW)	

JOB NO	DRAWN BY
5934895	AUTO

TYPE	DATE
FACTORY	4/3/2023

DWG MW5934895-1

VFD Wiring

JOB 5934895 - 2500cfm\*\* Heater Stock

DRAWING NUMBER VFD5934895-1

SHIP DATE 4/3/2023

MODEL F2-D.250-80D

Installed Options

Component Identification

SMV 571 SERIES VARIABLE FREQUENCY DRIVE

TERMINAL	FUNCTION
1	Digital Input<Start/Stop>
11	Internal 12VDC Supply for External Devices
2	Analog Common
30	Analog Output: Configurable with P150..P155
5	RJ45
6	To J4 on IBT Board
7	RJ45
	EDL RESISTOR
8	PE
	Ground Terminal
9	L1
	3 Phase Input or Single Phase Input
	L2
	3 Phase Input or Single Phase Input
	L3 (N)
	3 Phase Input (Neutral for 120v)
10	U
	3 Phase AC Motor
	V
	3 Phase AC Motor
	W
	3 Phase AC Motor

SUPPLY DRIVE PARAMETER SETTINGS\*

- EPM PROGRAM: IBT 571
- P100 (Start Source) = 01 (Terminal Strip)
- P102 = Minimum Frequency (Hz)
- P103 = Maximum Frequency (Hz)
- P150 (TB-30 Output) = 1
- P194 (Password) = 225
- P410 (Modbus Address) = 21

All external control wires to motor speed control should be 16-20 AWG shielded multiconductor cables and must not be run in the same conduit or raceway with any high power wiring. Ground Shielded Cable at the drive chassis ONLY.

PG. 11 OF THE DRIVE MANUAL DESCRIBES THE PROPER INSTALLATION PROCEDURE  
 PG. 19 OF THE DRIVE MANUAL DESCRIBES THE PROGRAMMING PROCEDURE OF THE DRIVE  
 PG. 23 OF THE DRIVE MANUAL DESCRIBES THE PARAMETER SETTINGS OF THE DRIVE  
 \*NOTE: THE DEFAULT PASSWORD FROM THE FACTORY REQUIRED TO PROGRAM THE DRIVE IS '225'.

- Adjust manually on all drives
- P107 - 00 (if 120 or 208 VAC) or 01 (if 230, 480 or 575 VAC)
- P108 Motor FLA x 100 / Drive Output Rating
- P165 (Base Frequency) = 50 (Settable) ONLY
- P166 (Base Frequency) = 50 (Settable) ONLY
- P167 (Base Frequency) = Calculated Per Fan
- P121 For Large HP V5HP set it to 9

IT MAY BE REQUIRED TO FULLY POWER DOWN THE DRIVE AND TURN BACK ON IN ORDER TO INITIATE NEW PARAMETER SETTINGS.  
 \*Min. and Max. Frequency Settings override all other Preset speeds/Parameters.

SUPPLY MOTOR\_INED  
 15HP-208V-3P-4FLA  
 VFD PART: ESV11EN02YXB571

ELECTRICAL INFORMATION  
 MOTOR/CTRL CIRCUIT MCA: 77A  
 MOTOR/CTRL CIRCUIT MDP: 15A

NOTES

- DENOTES FIELD WIRING
- DENOTES INTERNAL WIRING
- WIRE COLOR
- BK - BLACK
- BL - BLUE
- BR - BROWN
- RD - RED
- YV - YELLOW
- GR - GREEN
- GY - GRAY
- OR - ORANGE
- PR - PURPLE
- PK - PINK
- WH - WHITE

GENERAL NOTES

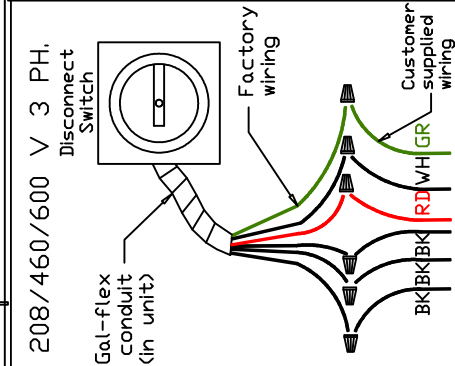
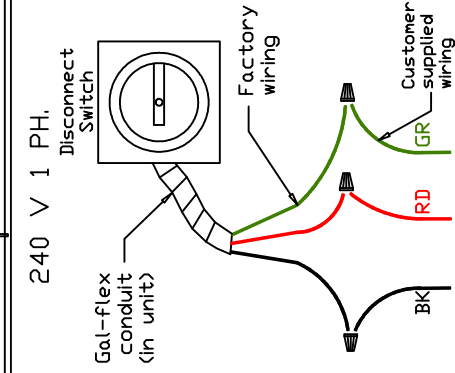
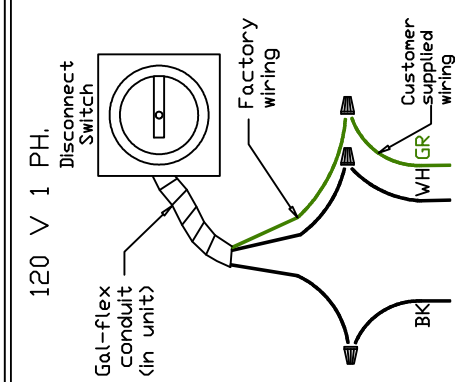
# Installation Wiring

DRAWING NUMBER RP5934895-1

SHIP DATE 4/3/2023

MODEL P2-D.250-20D

JOB 5934895 - 2500cfm\*\* Heater Stock



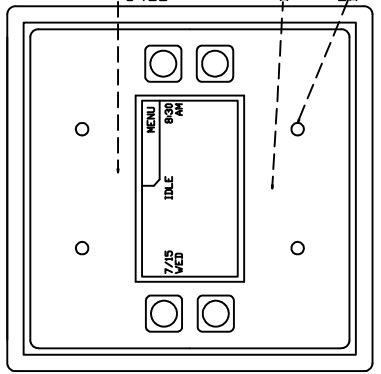
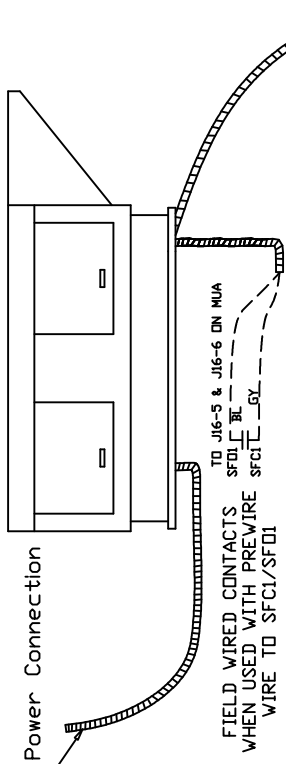
Field Wired Switch

Installed Options

STANDING POWER  
RD & WH Wire (115V, 1 PHASE)

SEPARATE CIRCUIT REQUIRED FOR SERVICE RECEPTACLE (15amp)

See above details.



CAT-5 CONNECTIONS ON REVERSE  
J5 ON PHU1 TO J2 OF PHU2 CAN BE BAREY CHAINED  
PLACE END OF LINE DEVICE IN LAST PHU

NOTES

WIRE COLOR

BK	-	BLACK	YW	-	YELLOW
BL	-	BLUE	GR	-	GREEN
BR	-	BROWN	GY	-	GRAY
OR	-	ORANGE	PR	-	PURPLE
RD	-	RED	PK	-	PINK
WH	-	WHITE			