

Heater Discharge Pumps VFD Parameters, Version - 1.02.003									
						VFD #1		VFD #2	
Menu	Sub-Menu 1	Sub-Menu 2	Code	Description	Range	Default	Kemco	Field	Kemco
dri		rEF	AIU1	Virtual Speed Reference	0 to 100% of HSP-LSP	0	50.00%	Field	50.00%
			ACC	Acceleration Ramp Time	0.00 to 6000 s	3	10		10
			DEC	Deceleration Ramp Time	0.00 to 6000 s	3	10		10
			LSP	Low Speed	0 to HSP	0	30		30
			HSP	High Speed	LSP to rFr	bFr	60		60
			rFr	Motor Name Plate Current	0.2 to 1.5 In	In	8.7		8.7
			CL1	Current Limitation	0 to 1.5 In	1.5 In	11		11
			tLS	Low Speed Time Out	0 to 999.9 s	0	10		10
			rFd	Motor Frequency Threshold	0 to 599 Hz	HSP	2		2
			bFr	Standard Motor Frequency	50 or 60 Hz	60	60		60
			rFr	Maximum Frequency	10 to 599 Hz	72	72		72
			Ctt	Motor Control Type	uuC, Std, uFS, Syn, uF9, nLd	Std	uF9		uF9
			nPC	Motor Parameter Choice	nPr or COS	nPr	COS		COS
			COS	Motor Name Plate Power Factor	0.5 to 1		0.88		0.88
			UnS	Motor Name Plate Voltage	100 to 480 V		460		460
			nFr	Motor Name Plate Frequency	10 to 800 Hz		60		60
			nCr	Motor Name Plate Current	0.25 to 1.5 In		8.7		8.7
			nSP	Motor Name Plate Speed	0 - 63.535 rpm		3520		3520
			iCC	2/3 Wire Control	2C or 3C	2C	2C		2C
			iCt ?	2 Wire Control Type	LEL, trn, Pfo	trn	PFO		PFO
			rRS	Reverse Direction Assignment	nO, L1-L16	LI2	nO		nO
			CrL3	mA Signal @ Low Speed of Control Ramp	0 to 20 mA	0	4.8		4.8
			CrH3	mA Signal @ High Speed of Control Ramp	0 to 20 mA	20	5.8		5.8
			r2	Relay 2 Assignment	(see manual)	na	Fla		Fla
			Fr1	Freq Ref #1 Channel	(see manual)	AI1	AI3		AI3
			CHCF ?	Profile	SIN, SEP, IO	SIN	SEP		SEP
			Fr2	Freq Ref #2 Channel	(see manual)	nO	AIU1		AIU1
			rFC	Source for Switching Frequency Reference	(see manual)	Fr1	LI2		LI2
			AdC	Auto DC Injection on Stand-Still	no, yes, Ct	yes	no		no
			SA2 ?	Summing Input Ref 2	(see manual)	no	no		no
			Stt	Type of Stop	mP, FS, nSt, nCl	mP	LI3		LI3
			nSt	Freewheel Stop Ass.	(see manual)	nO	LI3		LI3
			rSF	Reset Current Fault	(see manual)	nO	LI6		LI6
			LFL	4-20mA Loss	(see manual)	no	no		no

* Data from Motor Nameplate. To be completed and recorded during testing at Kemco prior to shipment.

For hand speed control: Hand speed of VFD is set using the Menu Dial Button. To set hand speed, place door HOA switch to hand position. Press Menu Button Dial 3 times, the displayed number is the percentage to the min and max speed currently set for Hand.

If the drive is operated via an IT or corner grounded system, the integrated EMC filter must be disconnected as described in the VFD installation manual.

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7	3" BUTTERFLY VALVE W/ PNEUMATIC ACTUATOR, 120V	611-01-056	BRAY
10	NSF TANK TRANSDUCER PIPING (0-5 PSI)	1055506-5	IFM
17	WATER WALL/BURNER FLOODED LEVEL SWITCH	500-06-016	MADISON
18	PRESSURE SWITCH (0-30 PSI)	501-01-036	IFM
20	TEMPERATURE SWITCH	502-01-003	HONEYWELL
22	1-1/2" LG. TEMP. THERMOCOUPLE	672-02-002	PRECISION MEASUREMENTS
23	4" LG. TEMP. THERMOCOUPLE	672-02-003	PRECISION MEASUREMENTS
24	12" LG. TEMP. THERMOCOUPLE	672-02-013	PRECISION MEASUREMENTS
29	NSF HEATER TRANSDUCER (0-5 PSI)	1055501-5	IFM
30	PRESSURE TRANSDUCER (0-58 PSI)	1055511-58	IFM


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53	BLOCKING VALVE ACTUATOR	609-02-017	SIEMENS
55	HIGH GAS PRESSURE SWITCH	501-03-046	SIEMENS
56	3/8" PILOT GAS VALVE (120V)	600-02-001	ASCO
58	15HP BLOWER (CCWBH), 480V	892-01-242M	N.Y. BLOWER
59	AIR PRESSURE SWITCH	501-03-002	ANTUNES
60	AIR/GAS DAMPER ACTUATOR	590-01-013	SIEMENS
62	IGNITION TRANSFORMER	581-01-003	ALLANSON

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	PROGRAMMER	580-01-036	FIREYE
	CHASSIS & AMPLIFIER	580-01-038	FIREYE
	DISPLAY MODULE	580-01-040	FIREYE
	UV SCANNER	580-02-014	FIREYE

- PANEL CONSTRUCTION NOTES:**
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POWER DISTRIBUTION WIRES.....BLACK
AC COMMON WIRES.....RED
DC COMMON WIRES.....WHITE/BLUE
WIRES THAT MAY REMAIN ENERGIZED WHEN MAIN DISCONNECT IS OFF.....ORANGE
GROUNDING AC CONTROL CIRCUIT CURRENT - CARRYING CONDUCTOR THAT REMAINS ENERGIZED WHEN MAIN DISCONNECT SWITCH IS IN THE OFF POSITION.....WHITE/ORANGE
 - ALL PANEL ELECTRICAL COMPONENTS SHALL BE UL RECOGNIZED AS A MINIMUM.
 - KEMCO CONTROL PANEL ENCLOSURES SHALL BE NEMA 12 RATED AS A MINIMUM. ENCLOSURES WITH HIGHER NEMA RATINGS TO BE PROVIDED BY CUSTOMER REQUEST.
- FIELD WIRING NOTES:** (NOT ALL NOTES MAY APPLICABLE TO THIS DRAWING)
- INSTALLING CONTRACTOR OR CUSTOMER IS FULLY RESPONSIBLE FOR FIELD WIRING INTEGRITY AND COMPLIANCE WITH LOCAL CODES OR CUSTOMER SPECIFICATIONS.
 - GROUND CONDUCTORS SHALL BE SIZED PER NEC 250.66. ALL METALLIC ENCLOSURES, BACKPANELS, PLC CHASSIS, PANEL DOORS, AND TRANSFORMERS SHALL BE BONDED TO GROUND.
 - ALL MOTOR AND SOLENOID WIRING SHALL BE STRANDED COPPER WIRE WITH THHN, THW, OR MTW TYPE INSULATION AND RATED FOR 600V OR EQUIVALENT.
 - ANALOG SIGNAL WIRING (2 CONDUCTOR) SHALL BE SHIELDED COPPER WIRE, BELDEN #8761, OR EQUIVALENT, FOR RUNS UNDER 300 FEET. FOR LONGER RUNS, WIRING SHALL BE BELDEN #8760 (525-28-013) OR EQUIVALENT.
 - THERMOCOUPLE WIRE SHALL BE TYPE J BELDEN #3111A (525-28-004), OR EQUIVALENT, FOR RUNS UNDER 100 FEET. FOR LONGER RUNS, THERMOCOUPLE WIRE SHALL BE BELDEN #1000A (525-28-040), OR EQUIVALENT.
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- LEGEND:**
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 - WIRING BY INSTALLING CONTRACTOR
 - SHIELDED CABLE (SEE NOTE #4)
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 - TERMINAL TO EXTERNAL EQUIPMENT
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 - TERMINAL IN JUNCTION BOX
 - TERMINAL ON ELECTRIC COMPONENT
 - ITEM REFERENCE
 - LIMIT SWITCH - NORMALLY OPEN
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 - PUSH BUTTON - NORMALLY OPEN
 - MUSHROOM PUSH BUTTON - NORMALLY OPEN
 - SELECTOR SWITCH - NORMALLY OPEN
 - RELAY COIL
 - PILOT LIGHT
 - SOLENOID

DWG.#	REFERENCE DRAWING		
21-2489	EQUIPMENT LAYOUT		
42-2759	SCHEMATIC FLOW DIAGRAM		
42-2760	HEATER A ASSEMBLY DRAWING		
LET.	CHANGE	DATE	BY
A	WAS PRELIMINARY	2/13/24	PW
B	AS BUILT	3/4/24	MK



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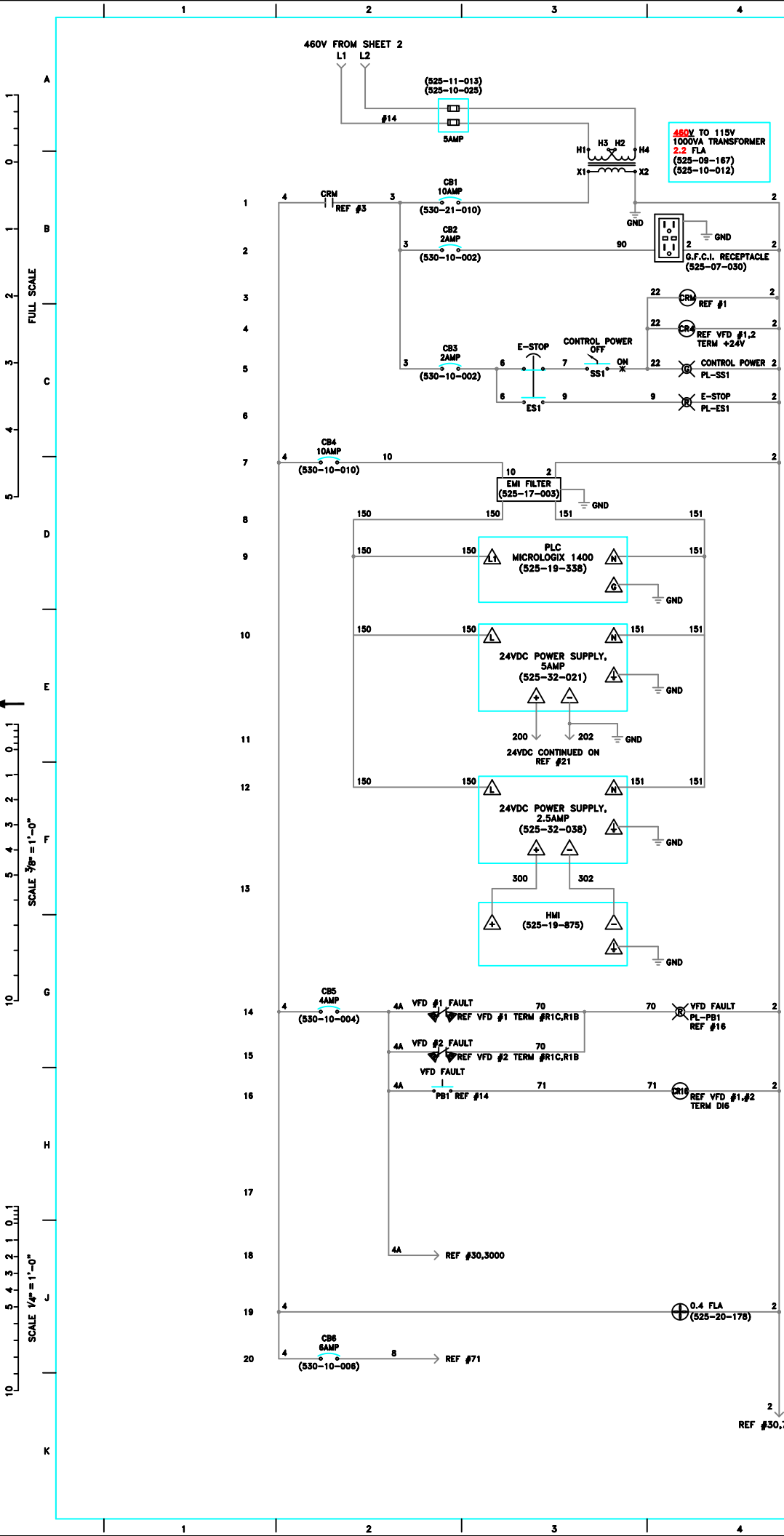
HEATER A TE-100 PLUS, PUMPED WIRING DIAGRAM
SINGLE BURNER (SHEET 2 OF 7)

JOB # 34278
DR. MK
SCALE NONE
DATE 1/24/24
ENG. BERNIE PENDER
APP. BP 3/25/24
APP.

WAYNE FARMS
UNION SPRINGS, AL

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DWG. NO. 42-2762B



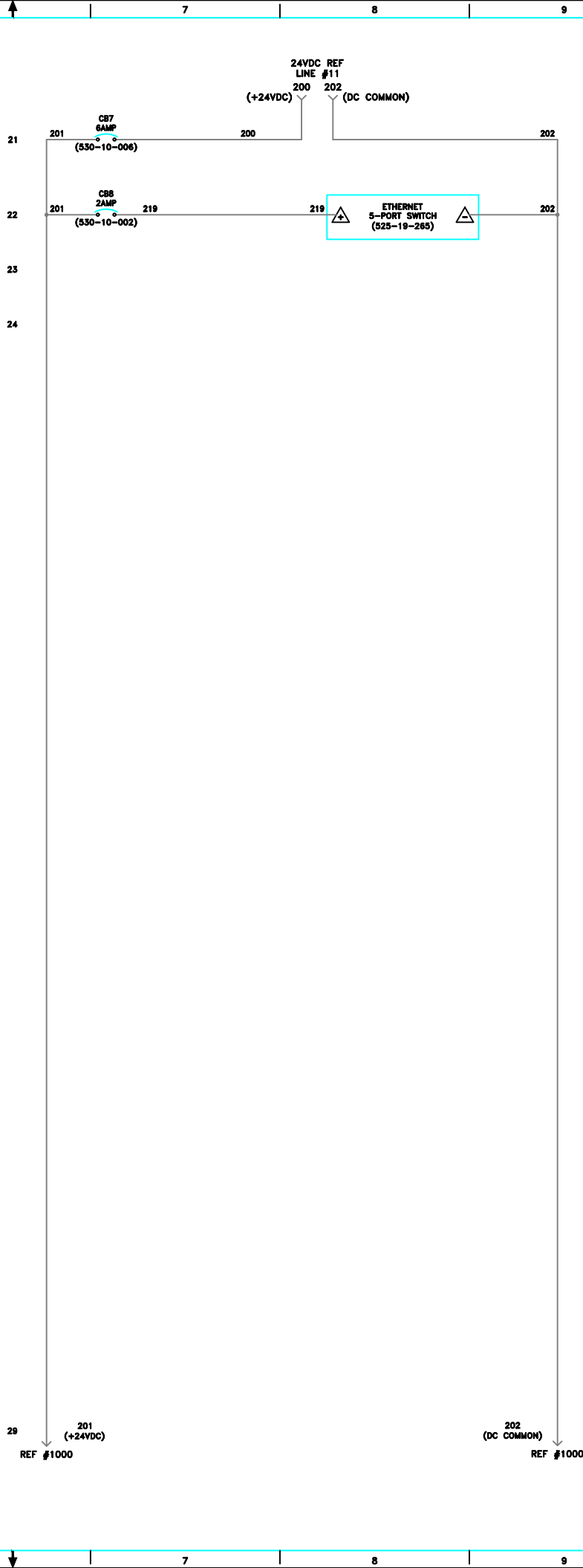
NOTE: FOR PROGRAMMING COMPUTER ONLY

CONTROL RELAY MAIN
(525-02-116)
(525-03-028)
VFD 24VDC
CONTROL
INTERLOCK

VFD FAULT
RESET RELAY

ENCLOSURE FAN

(120V NEUTRAL)
REF #30,71,3000



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DC COMMON WIRES.....WHITE/BLUE
NEUTRAL WIRES.....WHITE
DC CONTROL WIRES.....BLUE
GROUND WIRES.....GREEN
WIRES THAT MAY REMAIN ENERGIZED WHEN MAIN DISCONNECT IS OFF.....ORANGE
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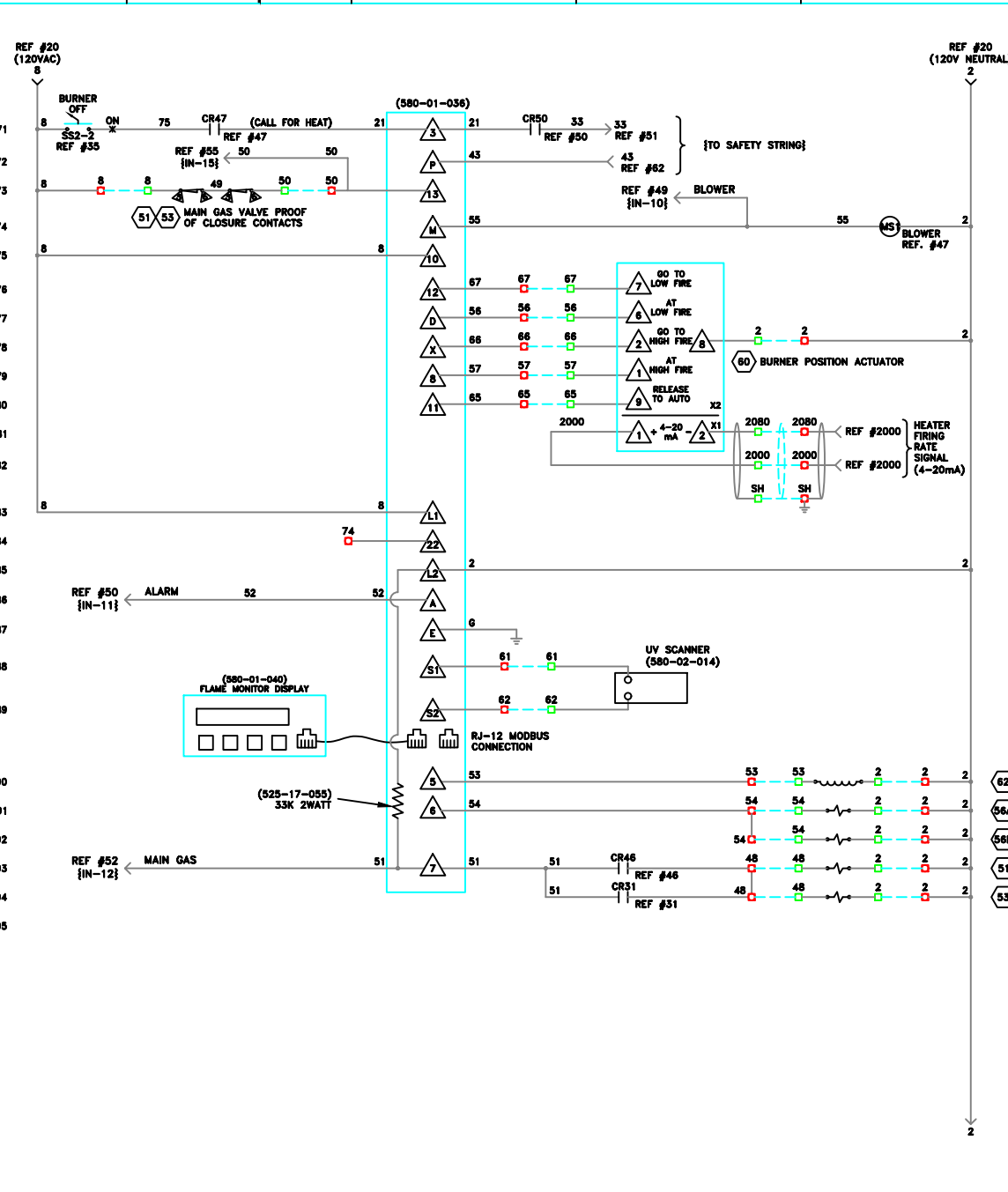
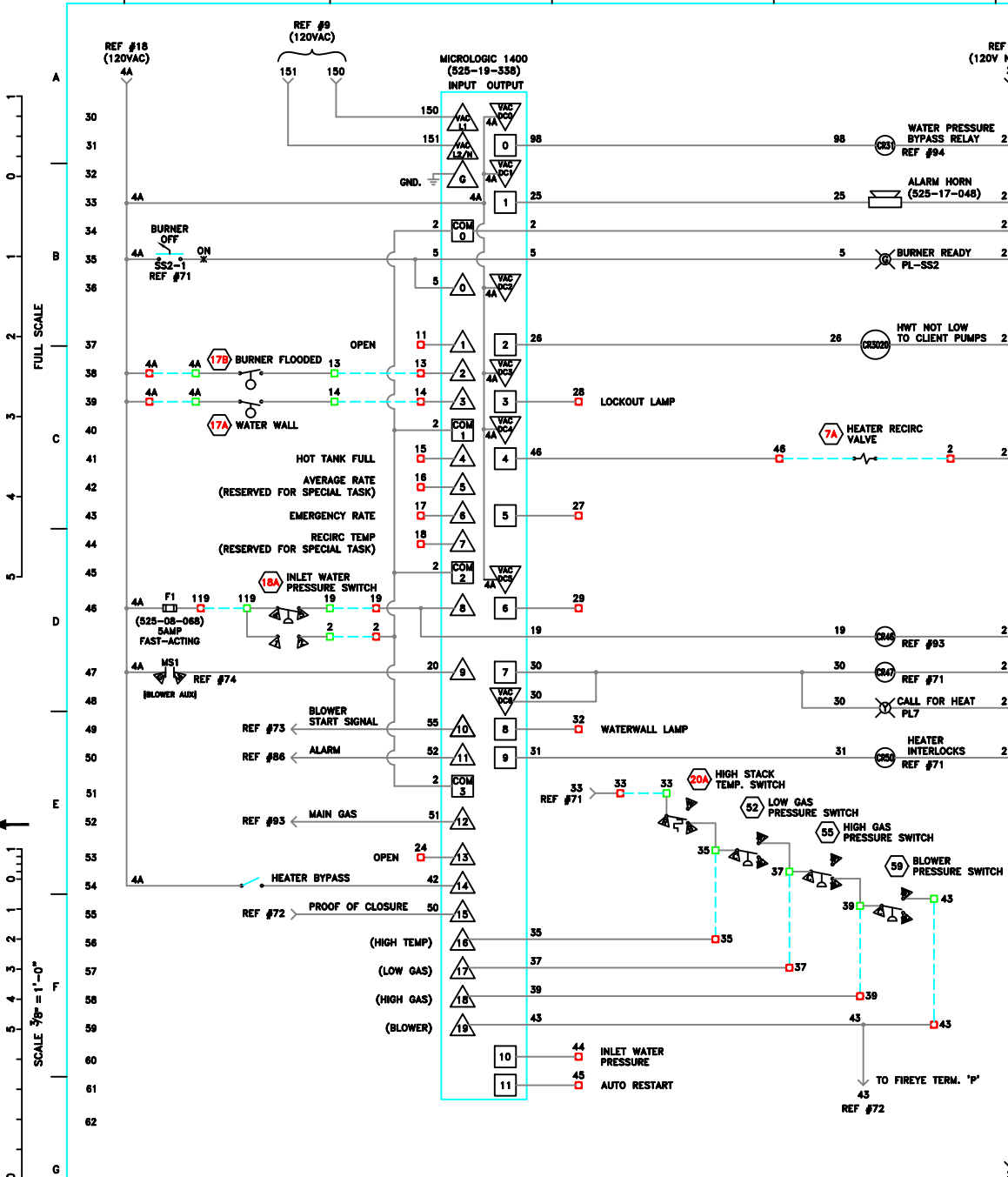
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 - PILOT LIGHT
 - SOLENOID

**INLET WATER PRESSURE
PARAMETER SETUP
(501-01-036)**

WATER PRESSURE SWITCH SETTINGS		
PARAMETERS		PH4226
Parameter	Default	Kemco
SP1	25% VMR	10 PSI
rP1	23% VMR	8 PSI
OU1	Hno	Hno
COF	0	0
dS1	0	D0
Dr1	0	3.0 SEC
dAP	0.06	0.06
dIS	d2	d2
Un1	PSI	PSI

*ANY ADJUSTMENT OTHER THAN KEMCO
SETTINGS MAY VOID WARRANTY

**FIREYE - PARAMETER SETUP
(580-01-036)
USING FLAME SCANNER**

FIREYE CONTROLLER SETTINGS					
PARAMETERS				SAFEGUARD SETTINGS	
Parameter	Description	Adjustment Range	Default	Kemco	Field
PURGE TIME	Pre-Ignition Purge Time	00:30s-60:00m	00:30	00:30	
COUNT METHOD	Timer Direction	UP, DOWN	DOWN	DOWN	
PROVE 3-P OPEN	Requires 3-p. Circuit To Be Open At Start	YES, NO	NO	YES	
PTF1 *MTF1 TIMING	Pilot And Main Trial For Ignition Timings	See Chart On Page 15	10/10*10/15 YF115-5/8*3/5	10/10*10/15	
TERMINAL-6	Term 6 Pilot Type	INTRP, INTMT	INTRP	INTRP	
PROVE M-8 OPEN	Proves M-8 Open	YES, NO	NO	NO	
PROVE M-D OPEN	Proves M-D Open	YES, NO	NO	NO	
POST PURGE	Post Purge Time	0:15s - 4:00m, 5 Second Ineriments	0:15	0:15	
M-D WAIT 10m	Lockout On M-D Open For 10 Minutes	YES, NO	YES	YES	
PROVE M-D TFI	Lockout If M-D Open During TFI	YES, NO	NO	NO	
BAUD RATE	Communication Baud Rate	4800, 9600, 19200, 38400	9600	9600	
UNIT ADDRESS	Modbus Unit Address	00-31	00	1	
LOCK SETTINGS	Locks In Settings Permanently	YES, NO	NO	NO	
DO IR LEARN	Infrared Learning	YES, NO	NO	NO	

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LET.	CHANGE	DATE	BY
A	WAS PRELIMINARY	2/13/24	PW
B	AS BUILT	3/4/24	MK

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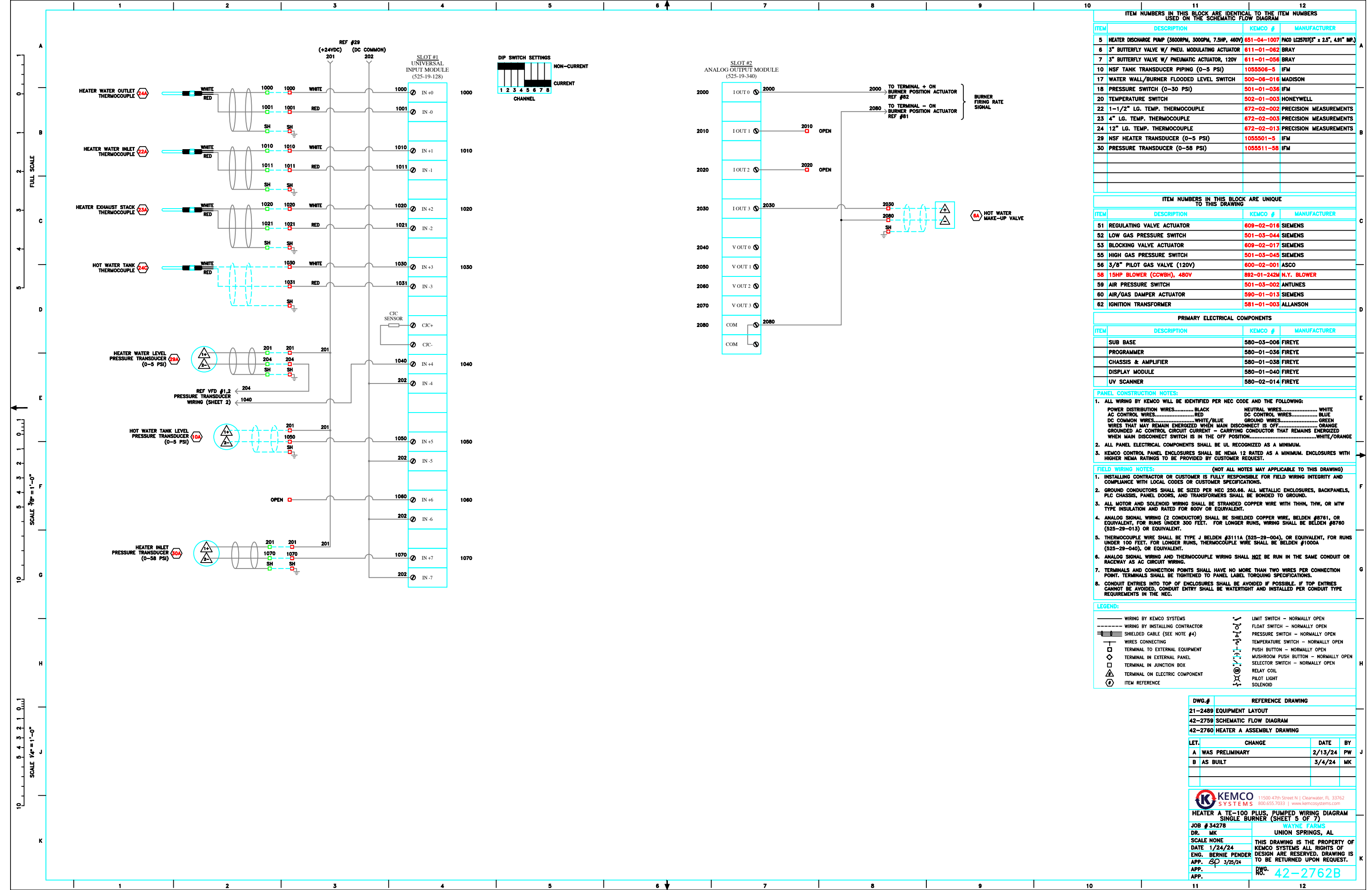
HEATER A TE-100 PLUS, PUMPED WIRING DIAGRAM
SINGLE BURNER (SHEET 4 OF 7)

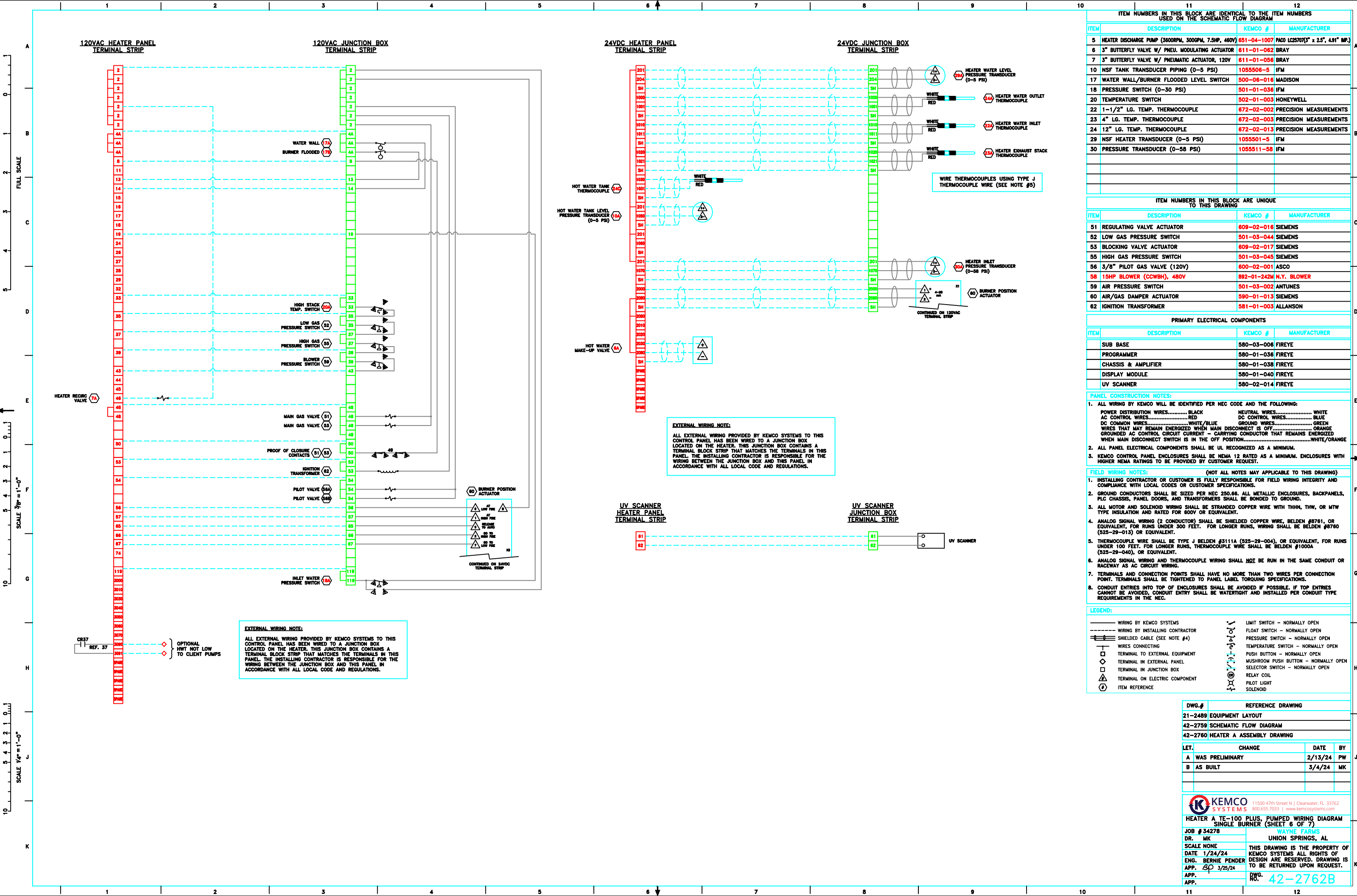
JOB # 34278
DR. MK
SCALE NONE
DATE 1/24/24
ENG. BERNIE PENDER
APP. BP 3/25/24
APP.

WAYNE FARMS
UNION SPRINGS, AL

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DWG. NO. 42-2762B





ITEM NUMBERS IN THIS BLOCK ARE IDENTICAL TO THE ITEM NUMBERS USED ON THE SCHEMATIC FLOW DIAGRAM			
ITEM	DESCRIPTION	KEMCO #	MANUFACTURER
5	HEATER DISCHARGE PUMP (3600RPM, 300GPM, 7.5HP, 460V)	651-04-1007	PACO LC25707(3" x 2.5", 4.91" MP)
6	3" BUTTERFLY VALVE W/ PNEU. MODULATING ACTUATOR	611-01-062	BRAY
7	3" BUTTERFLY VALVE W/ PNEUMATIC ACTUATOR, 120V	611-01-056	BRAY
10	NSF TANK TRANSDUCER PIPING (0-5 PSI)	1055506-5	IFM
17	WATER WALL/BURNER FLOODED LEVEL SWITCH	500-06-016	MADISON
18	PRESSURE SWITCH (0-30 PSI)	501-01-036	IFM
20	TEMPERATURE SWITCH	502-01-003	HONEYWELL
22	1-1/2" LG. TEMP. THERMOCOUPLE	672-02-002	PRECISION MEASUREMENTS
23	4" LG. TEMP. THERMOCOUPLE	672-02-003	PRECISION MEASUREMENTS
24	12" LG. TEMP. THERMOCOUPLE	672-02-013	PRECISION MEASUREMENTS
29	NSF HEATER TRANSDUCER (0-5 PSI)	1055501-5	IFM
30	PRESSURE TRANSDUCER (0-58 PSI)	1055511-58	IFM

ITEM NUMBERS IN THIS BLOCK ARE UNIQUE TO THIS DRAWING			
ITEM	DESCRIPTION	KEMCO #	MANUFACTURER
51	REGULATING VALVE ACTUATOR	609-02-016	SIEMENS
52	LOW GAS PRESSURE SWITCH	501-03-044	SIEMENS
53	BLOCKING VALVE ACTUATOR	609-02-017	SIEMENS
55	HIGH GAS PRESSURE SWITCH	501-03-045	SIEMENS
56	3/8" PILOT GAS VALVE (120V)	600-02-001	ASCO
58	15HP BLOWER (CCWBH), 480V	892-01-242M	N.Y. BLOWER
59	AIR PRESSURE SWITCH	501-03-002	ANTUNES
60	AIR/GAS DAMPER ACTUATOR	590-01-013	SIEMENS
62	IGNITION TRANSFORMER	581-01-003	ALLANSON

PRIMARY ELECTRICAL COMPONENTS			
ITEM	DESCRIPTION	KEMCO #	MANUFACTURER
	SUB BASE	580-03-006	FIREYE
	PROGRAMMER	580-01-036	FIREYE
	CHASSIS & AMPLIFIER	580-01-038	FIREYE
	DISPLAY MODULE	580-01-040	FIREYE
	UV SCANNER	580-02-014	FIREYE

- PANEL CONSTRUCTION NOTES:**
- ALL WIRING BY KEMCO WILL BE IDENTIFIED PER NEC CODE AND THE FOLLOWING:
POWER DISTRIBUTION WIRES.....BLACK
AC COMMON WIRES.....RED
DC COMMON WIRES.....WHITE/BLUE
WIRES THAT MAY REMAIN ENERGIZED WHEN MAIN DISCONNECT IS OFF.....ORANGE
GROUNDING AC CONTROL CIRCUIT CURRENT - CARRYING CONDUCTOR THAT REMAINS ENERGIZED WHEN MAIN DISCONNECT SWITCH IS IN THE OFF POSITION.....WHITE/ORANGE
 - ALL PANEL ELECTRICAL COMPONENTS SHALL BE UL RECOGNIZED AS A MINIMUM.
 - KEMCO CONTROL PANEL ENCLOSURES SHALL BE NEMA 12 RATED AS A MINIMUM. ENCLOSURES WITH HIGHER NEMA RATINGS TO BE PROVIDED BY CUSTOMER REQUEST.

- FIELD WIRING NOTES:** (NOT ALL NOTES MAY APPLICABLE TO THIS DRAWING)
- INSTALLING CONTRACTOR OR CUSTOMER IS FULLY RESPONSIBLE FOR FIELD WIRING INTEGRITY AND COMPLIANCE WITH LOCAL CODES OR CUSTOMER SPECIFICATIONS.
 - GROUND CONDUCTORS SHALL BE SIZED PER NEC 250.66. ALL METALLIC ENCLOSURES, BACKPANELS, PLC CHASSIS, PANEL DOORS, AND TRANSFORMERS SHALL BE BONDED TO GROUND.
 - ALL MOTOR AND SOLENOID WIRING SHALL BE STRANDED COPPER WIRE WITH THHN, THW, OR MTW TYPE INSULATION AND RATED FOR 600V OR EQUIVALENT.
 - ANALOG SIGNAL WIRING (2 CONDUCTOR) SHALL BE SHIELDED COPPER WIRE, BELDEN #8761, OR EQUIVALENT, FOR RUNS UNDER 300 FEET. FOR LONGER RUNS, WIRING SHALL BE BELDEN #8760 (525-29-013) OR EQUIVALENT.
 - THERMOCOUPLE WIRE SHALL BE TYPE J BELDEN #3111A (525-29-004), OR EQUIVALENT, FOR RUNS UNDER 100 FEET. FOR LONGER RUNS, THERMOCOUPLE WIRE SHALL BE BELDEN #1000A (525-29-040), OR EQUIVALENT.
 - ANALOG SIGNAL WIRING AND THERMOCOUPLE WIRING SHALL NOT BE RUN IN THE SAME CONDUIT OR RACEWAY AS AC CIRCUIT WIRING.
 - TERMINALS AND CONNECTION POINTS SHALL HAVE NO MORE THAN TWO WIRES PER CONNECTION POINT. TERMINALS SHALL BE TIGHTENED TO PANEL LABEL TORQUING SPECIFICATIONS.
 - CONDUIT ENTRIES INTO TOP OF ENCLOSURES SHALL BE AVOIDED IF POSSIBLE. IF TOP ENTRIES CANNOT BE AVOIDED, CONDUIT ENTRY SHALL BE WATERTIGHT AND INSTALLED PER CONDUIT TYPE REQUIREMENTS IN THE NEC.

LEGEND:	
—	WIRING BY KEMCO SYSTEMS
---	WIRING BY INSTALLING CONTRACTOR
— —	SHIELDED CABLE (SEE NOTE #4)
— — —	WIRES CONNECTING
□	TERMINAL TO EXTERNAL EQUIPMENT
◇	TERMINAL IN EXTERNAL PANEL
□	TERMINAL IN JUNCTION BOX
△	TERMINAL ON ELECTRIC COMPONENT
⊙	ITEM REFERENCE
⋈	LIMIT SWITCH - NORMALLY OPEN
⋈	FLOAT SWITCH - NORMALLY OPEN
⋈	PRESSURE SWITCH - NORMALLY OPEN
⋈	TEMPERATURE SWITCH - NORMALLY OPEN
⋈	PUSH BUTTON - NORMALLY OPEN
⋈	MUSHROOM PUSH BUTTON - NORMALLY OPEN
⋈	SELECTOR SWITCH - NORMALLY OPEN
⋈	RELAY COIL
⋈	PILOT LIGHT
⋈	SOLENOID

DWG.#	REFERENCE DRAWING		
21-2489	EQUIPMENT LAYOUT		
42-2759	SCHEMATIC FLOW DIAGRAM		
42-2760	HEATER A ASSEMBLY DRAWING		
LET.	CHANGE	DATE	BY
A	WAS PRELIMINARY	2/13/24	PW
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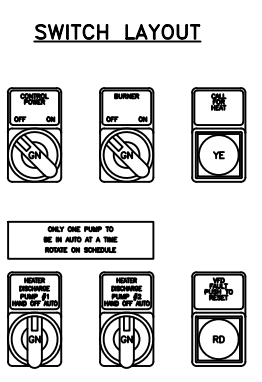
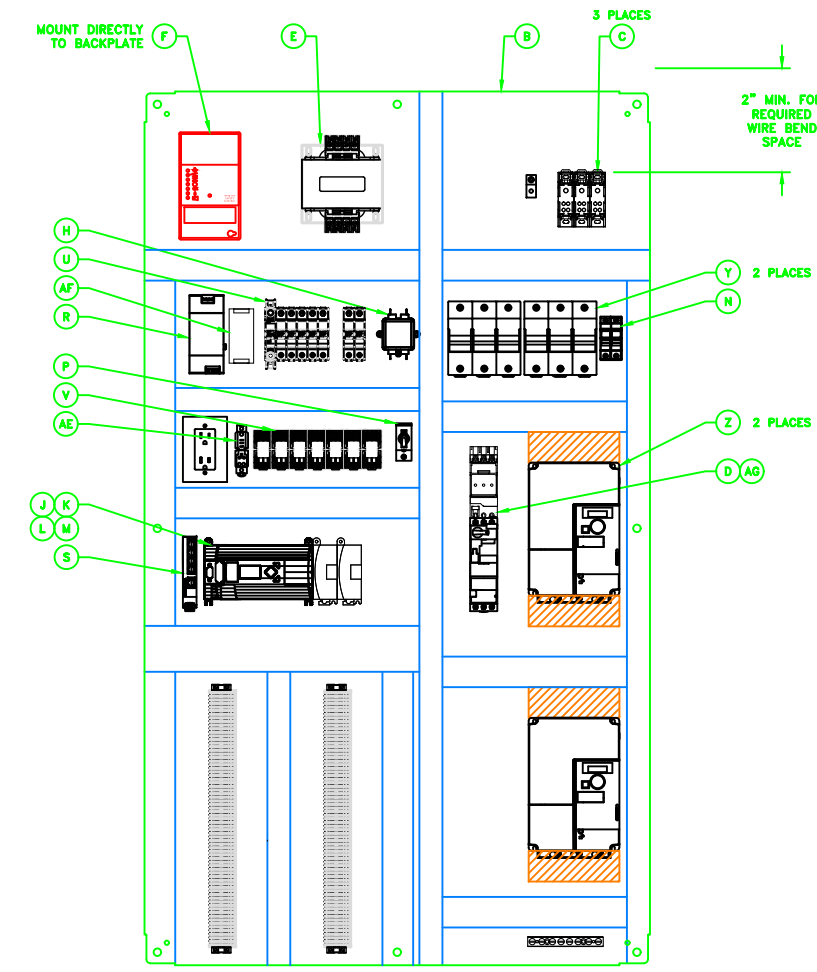
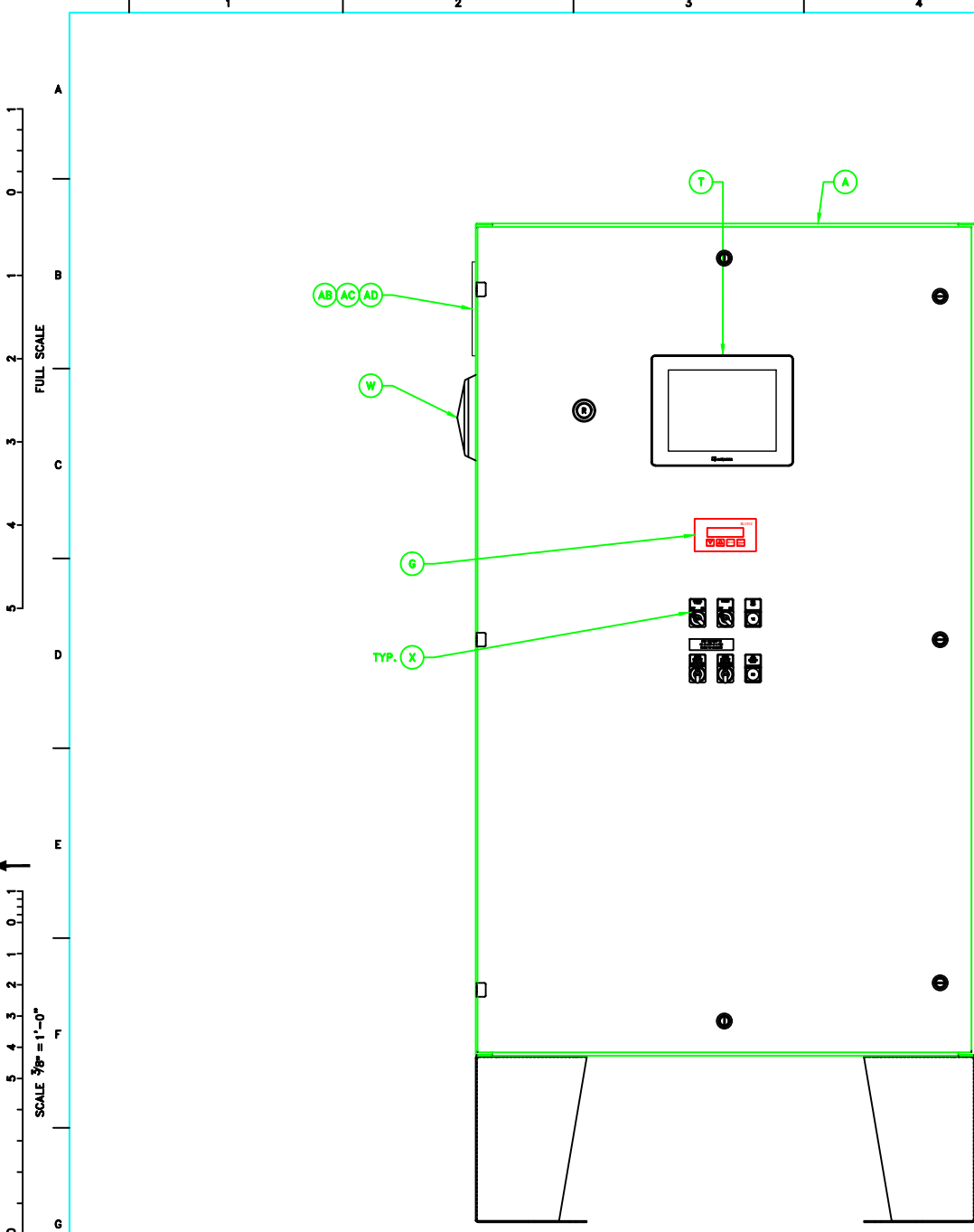
HEATER A TE-100 PLUS, PUMPED WIRING DIAGRAM
SINGLE BURNER (SHEET 6 OF 7)

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DWG. NO. 42-2762B



ITEM	DESCRIPTION	KEMCO #
A	ENCLOSURE, METAL, 60" x 36" x 12"	525-20-189-6
B	BACK PLATE, 60" x 36"	525-20-279
C	DISTRIBUTION BLOCK, 175 AMP	525-08-028
D	MOTOR STARTER, 32 AMP	529-06-002
E	TRANSFORMER, 480V, 1000VA	525-09-167
F	CHASSIS & AMPLIFIER	580-01-038
G	DISPLAY MODULE	580-01-040
H	EMI FILTER, 10 AMP	525-17-003
J	MICROLOGIX 1400 PROCESSOR	525-19-338
K	MEMORY MODULE	525-19-341
L	UNIVERSAL INPUT MODULE	525-19-128
M	ANALOG OUTPUT MODULE	525-19-340
N	FUSE, BLOCK, 30A, 2P, FINGERSAFE	525-10-025
P	TOGGLE SWITCH, HEATER BYPASS	525-12-005
R	POWER SUPPLY, 5 AMP	525-32-021
S	ETHERNET SWITCH, 5 PORT	525-19-265
T	TOUCHSCREEN, 10"	525-19-875
U	CIRCUIT BREAKERS	
V	RELAY, 120V	525-02-112
W	ALARM HORN	525-17-048
X	SELECTOR SWITCHES & PUSH BUTTONS	
Y	FUSE, BLOCK, 60A, 3P, FINGERSAFE	525-10-048
Z	VARIABLE FREQUENCY DRIVE, 7.5HP	525-09-531
AA	LEG KIT	525-20-265-6
AB	FAN FILTER	525-20-180
AC	COOLING FAN	525-20-178
AD	EXHAUST GRILL	525-20-179
AE	CONTROL RELAY MAIN	525-02-116
AF	POWER SUPPLY, 2.5 AMP	525-32-038
AG	CURRENT LIMITER	525-15-050

DWG.#	REFERENCE DRAWING		
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HEATER A TE-100 PLUS, PUMPED WIRING DIAGRAM
SINGLE BURNER (SHEET 7 OF 7)

JOB # 34278	WAYNE FARMS
DR. MK	UNION SPRINGS, AL
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