

Rammstein Air Heater Wiring Diagrams

12-08-2016

Table of Contents

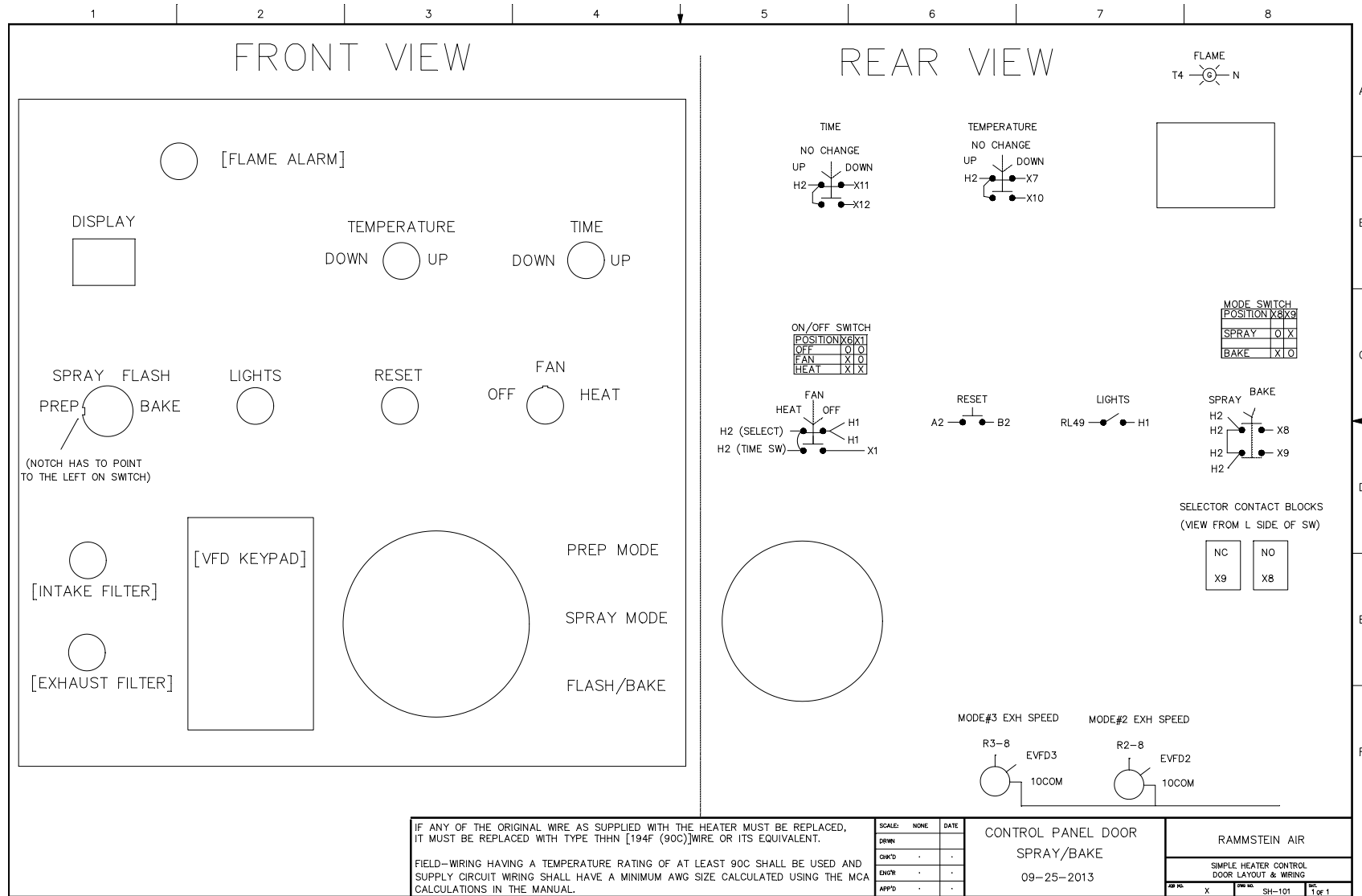
1	Wiring Diagrams	4
1.1.	<i>System wiring diagrams</i>	<i>4</i>
1.1.1	Control panel door	4
1.1.2	Control panel terminal blocks – Analog	5
1.1.3	Control panel components - Analog	6
1.1.4	Gastrain panel – Spray/Bake – terminal blocks	7
1.1.5	Gastrain panel – Spray/Bake - components.....	8
1.1.6	Gastrain Panel – Prep Mode – terminal blocks.....	9
1.1.7	Gastrain panel – Prep Mode – components	10
1.1.8	Exhaust VFD – General.....	11
1.1.9	Intake VFD – general	12
1.1.10	Component list – Spray Bake	13
1.1.11	Spray only – door	14
1.1.12	Spray only – components	15
1.1.13	Spray only – umbilical	16
1.1.14	Spray only – schematics.....	17
1.2.	<i>Individual circuit diagrams</i>	<i>18</i>
1.2.1	Auto Balancing – VFD	18
1.2.2	Auto Balancing – System on relay	19
1.2.3	Auto Balancing – Intake VFD on delay	20
1.2.4	Combustion air and flame controller power	21
1.2.5	Evaporative Cooler	22
1.2.6	Filter light	23
1.2.7	Automatic Spray Mode	24
1.2.8	Interlock: Compressed air power	25
1.2.9	Interlock: Fire Suppression – Heat off only	26
1.2.10	Interlock: Fire suppression – Heat off/Fans off	27
1.2.1	Interlock: Air Flow Switch (Mode #2).....	28
1.2.2	Interlock: Flame controller limits indicator lights	29
1.2.3	Interlock: Flame controller limits	30
1.2.4	Interlock: Flame controller limits - linear	31
1.2.5	Pilot solenoid.....	32
1.2.6	Safety valves -Main – Spray/Bake	33
1.2.7	Lights	34
1.2.8	Modulation – Spray /Bake.....	35
1.2.9	Modulation – Prep Mode.....	36
1.2.10	Power for CP door: Spray/Bake	37
1.2.11	Power for CP door: Prep/Spray/Flash/Bake	38
1.2.12	Prep Mode exhausts VFD – Manual balance	39
1.2.13	Prep Mode intake VFD	40
1.2.14	Prep Mode recirc damper	41
1.2.15	Relay Terminals: SQM.....	42
1.2.16	Relay Terminals: 784.....	43
1.2.17	Exhaust VFD wiring – 1 or 2 exhaust motors	44

1.2.18	Spray Mode exhaust VFD – manual balance	45
1.2.19	Spray Mode intake damper	46
1.2.20	Spray Mode intake contactor	47
1.2.21	Spray Mode intake VFD	48
1.2.22	Spray Mode recirc damper	49
1.2.23	Bake Mode discharge damper – 2 position	50
1.2.24	Bake Mode exhaust VFD – manual balance.....	51
1.2.25	Bake Mode intake damper	52
1.2.26	Bake Mode recirc damper	53
1.2.27	Bake Mode intake contactor	54
1.2.28	Bake Mode intake VFD	55
1.2.29	Waterborne Option (Pulse System).....	56
1.2.30	Reset – flame controller	57
1.2.31	Reset – PLC error messages.....	58
1.2.32	Damper – 3 way.....	59
1.2.33	Single Point Connection.....	60

1 Wiring Diagrams

1.1. System wiring diagrams

1.1.1 Control panel door



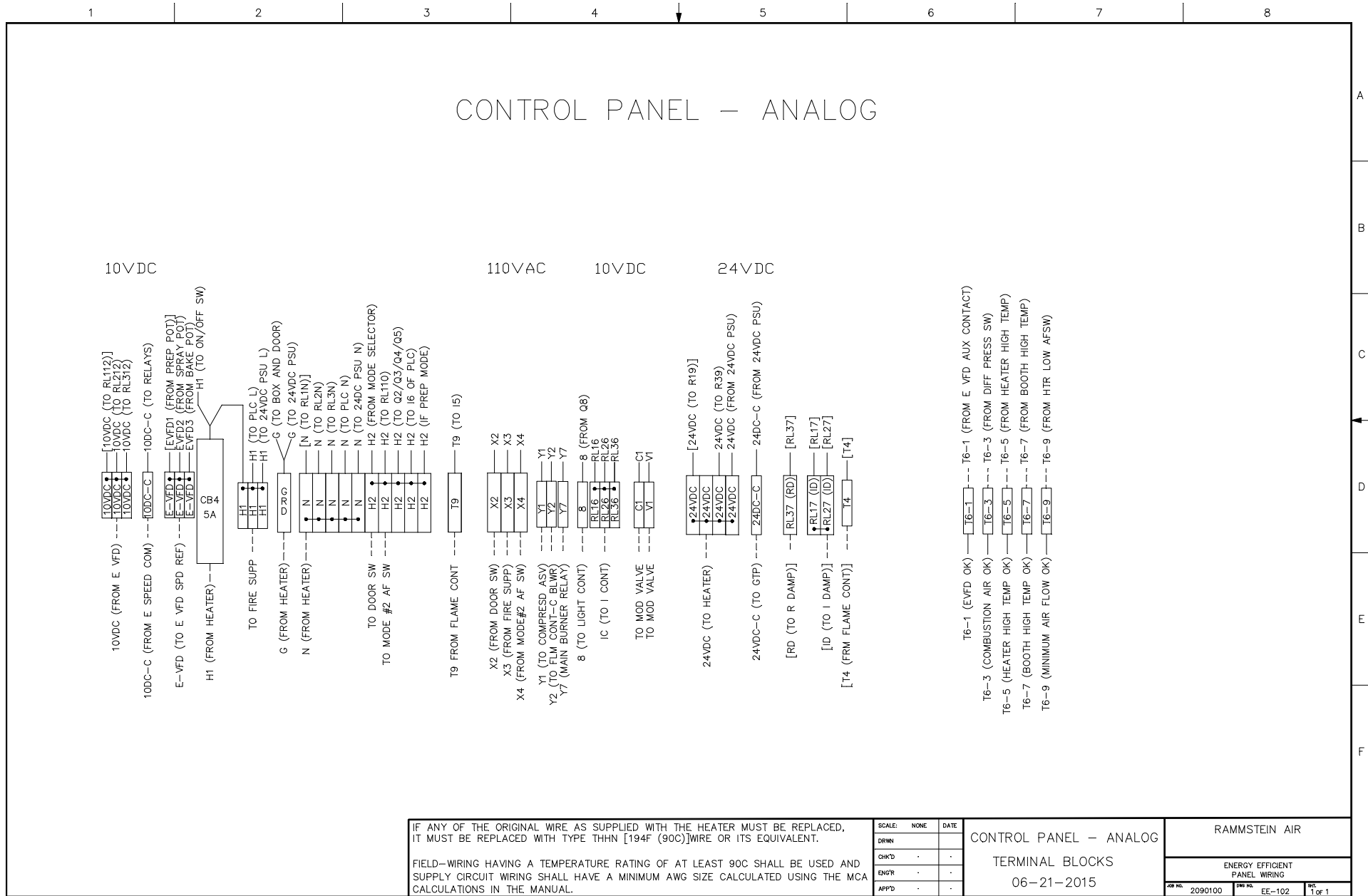
IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.
 FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE
DRWN	-	-
CHK'D	-	-
ENGR'D	-	-
APP'D	-	-

CONTROL PANEL DOOR
 SPRAY/BAKE
 09-25-2013

RAMMSTEIN AIR	
SIMPLE HEATER CONTROL DOOR LAYOUT & WIRING	
REV NO	1 of 1

1.1.2 Control panel terminal blocks – Analog



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

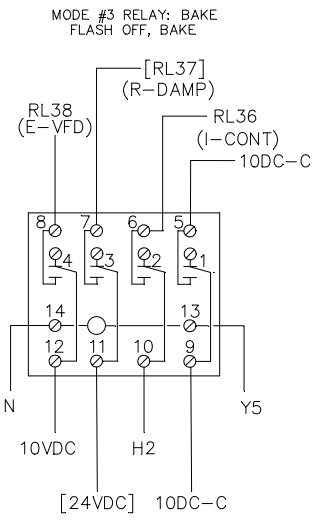
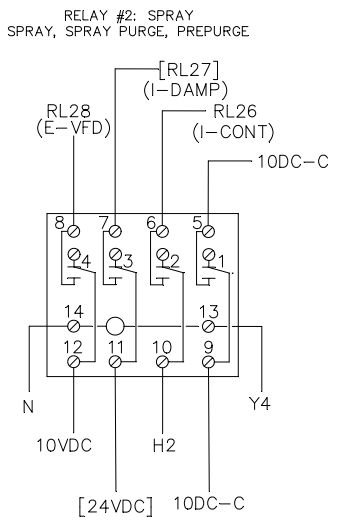
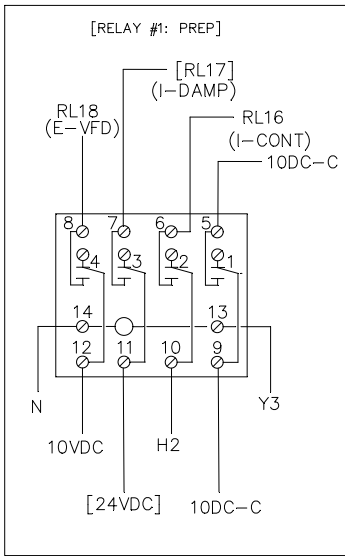
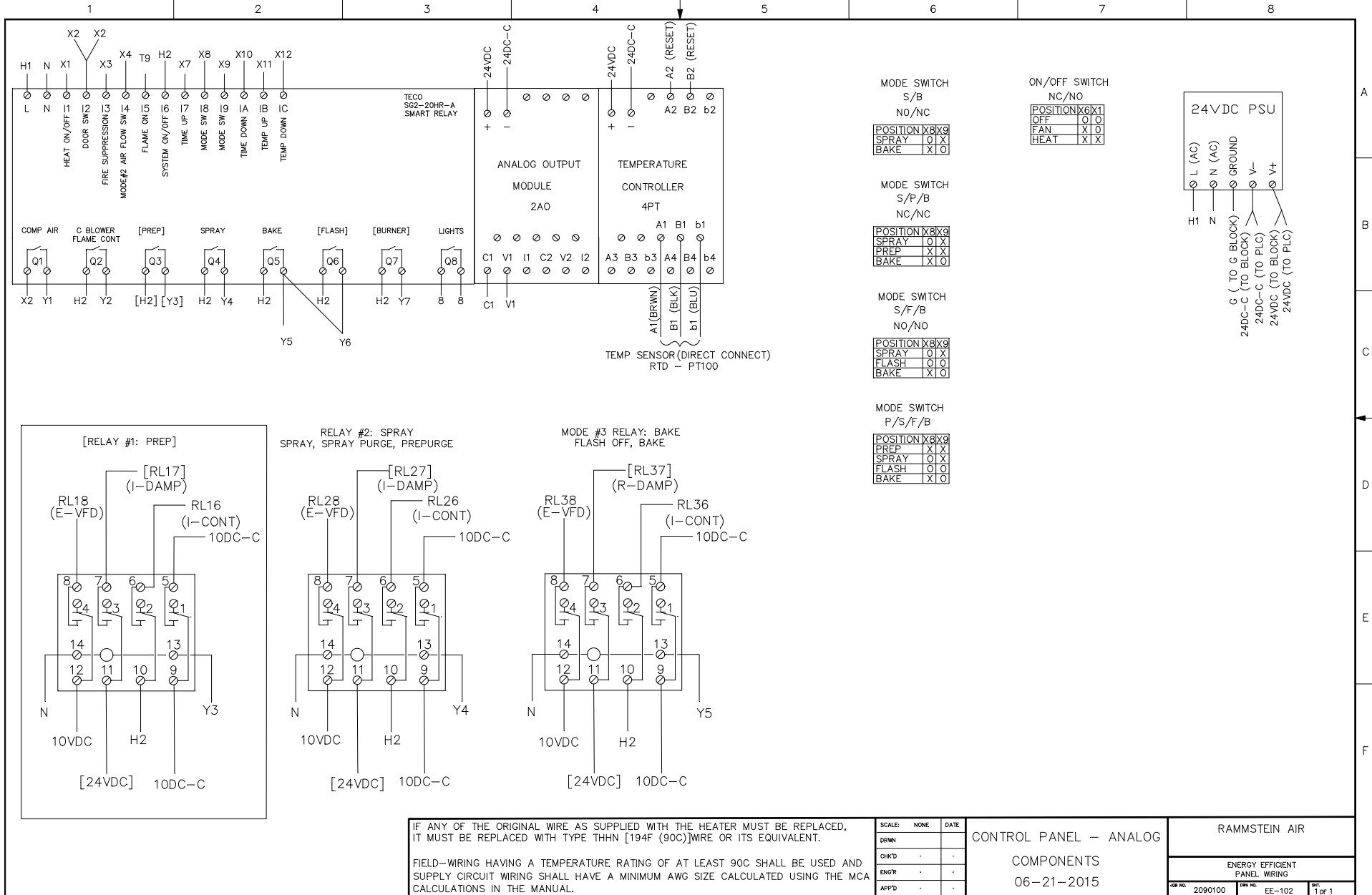
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE
DRWN		
CHK'D		
ENGR		
APP'D		

CONTROL PANEL – ANALOG
 TERMINAL BLOCKS
 06-21-2015

RAMMSTEIN AIR		
ENERGY EFFICIENT PANEL WIRING		
JOB NO.	DWG NO.	REV.
2090100	EE-102	1 of 1

1.1.3 Control panel components - Analog



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

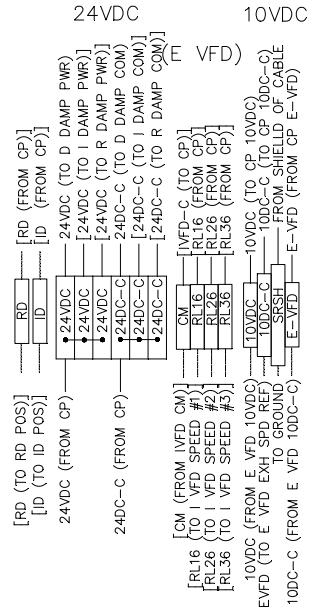
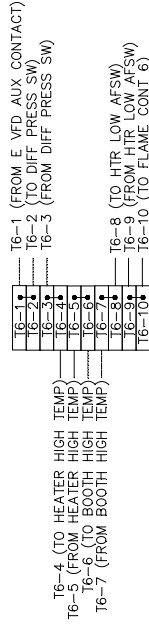
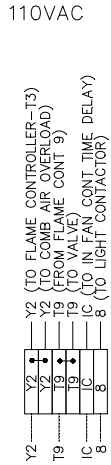
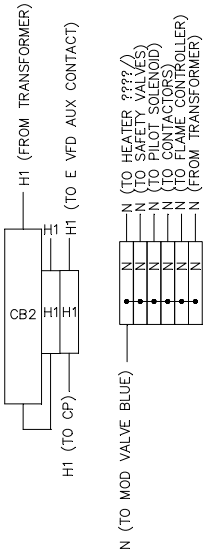
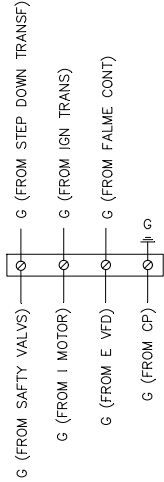
SCALE:	NONE	DATE:
CHK'D	.	.
ENGR	.	.
APP'D	.	.

CONTROL PANEL - ANALOG
COMPONENTS
06-21-2015

RAMMSTEIN AIR	
ENERGY EFFICIENT PANEL WIRING	
QSR NO. 2090100	REV NO. EE-102
DWT 1 of 1	

1.1.4 Gastrain panel – Spray/Bake – terminal blocks

GASTRAIN PANEL – SPRAY/BAKE



CB2: TF SEC	
UL489 D CURVE	
208V 4A	
230V 4A	
460V 4A	

CB3: TF SEC	
UL489 D CURVE	
208V 15A	
230V 15A	
460V 15A	

IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

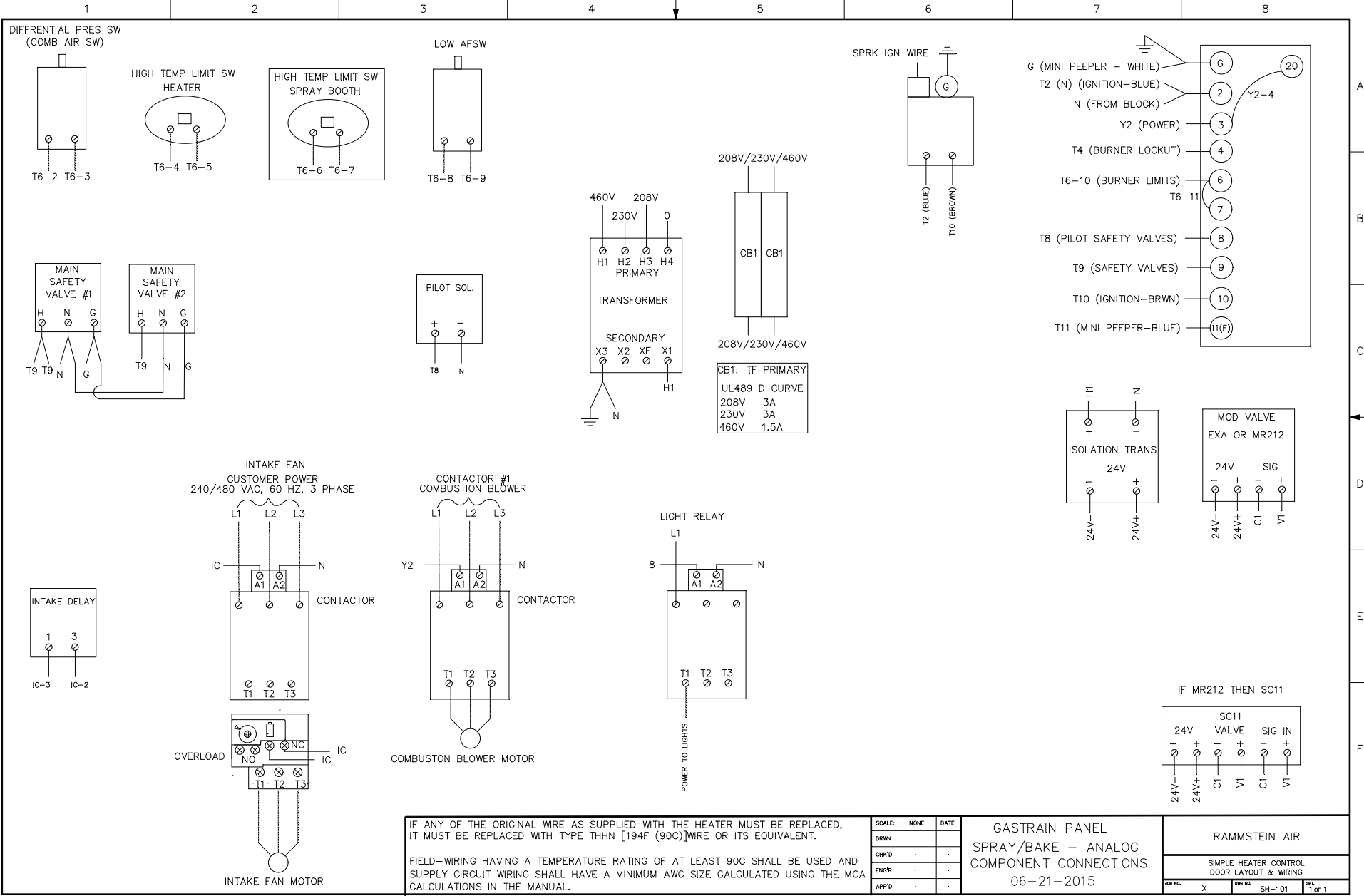
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APP'D:			

GAS TRAIN PANEL
 SPRAY/BAKE – ANALOG
 TERMINAL BLOCKS
 06-21-2015

RAMMSTEIN AIR		
SIMPLE HEATER CONTROL DOOR LAYOUT & WIRING		
DWG NO. X	REV NO. SH-101	SHT 1 OF 1

1.1.5 Gastrain panel – Spray/Bake - components

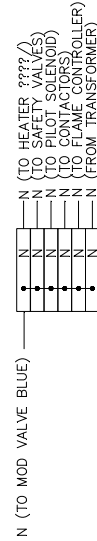
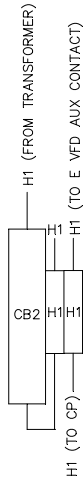
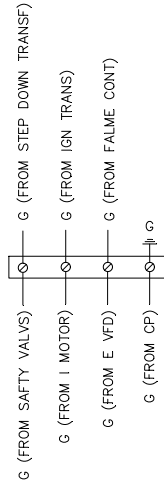


1.1.6 Gastrain Panel – Prep Mode – terminal blocks

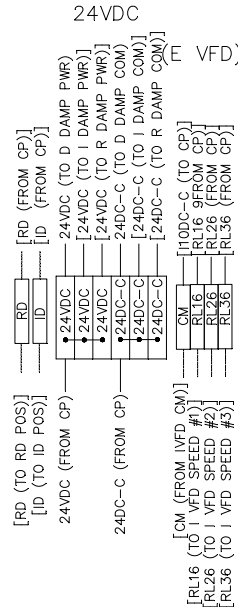
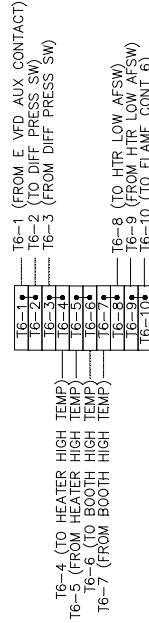
GASTRAIN PANEL – PREP MODE

CB2: TF SEC	
UL489 D CURVE	
208V	4A
230V	4A
460V	4A

CB3: TF SEC	
UL489 D CURVE	
208V	15A
230V	15A
460V	15A

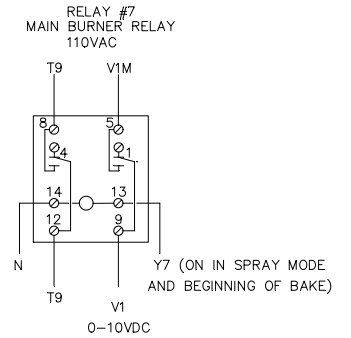


110VAC



24VDC

10VDC



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APP'D:			

PREP MODE – ANALOG
GAS TRAIN PANEL
TERMINAL BLOCKS

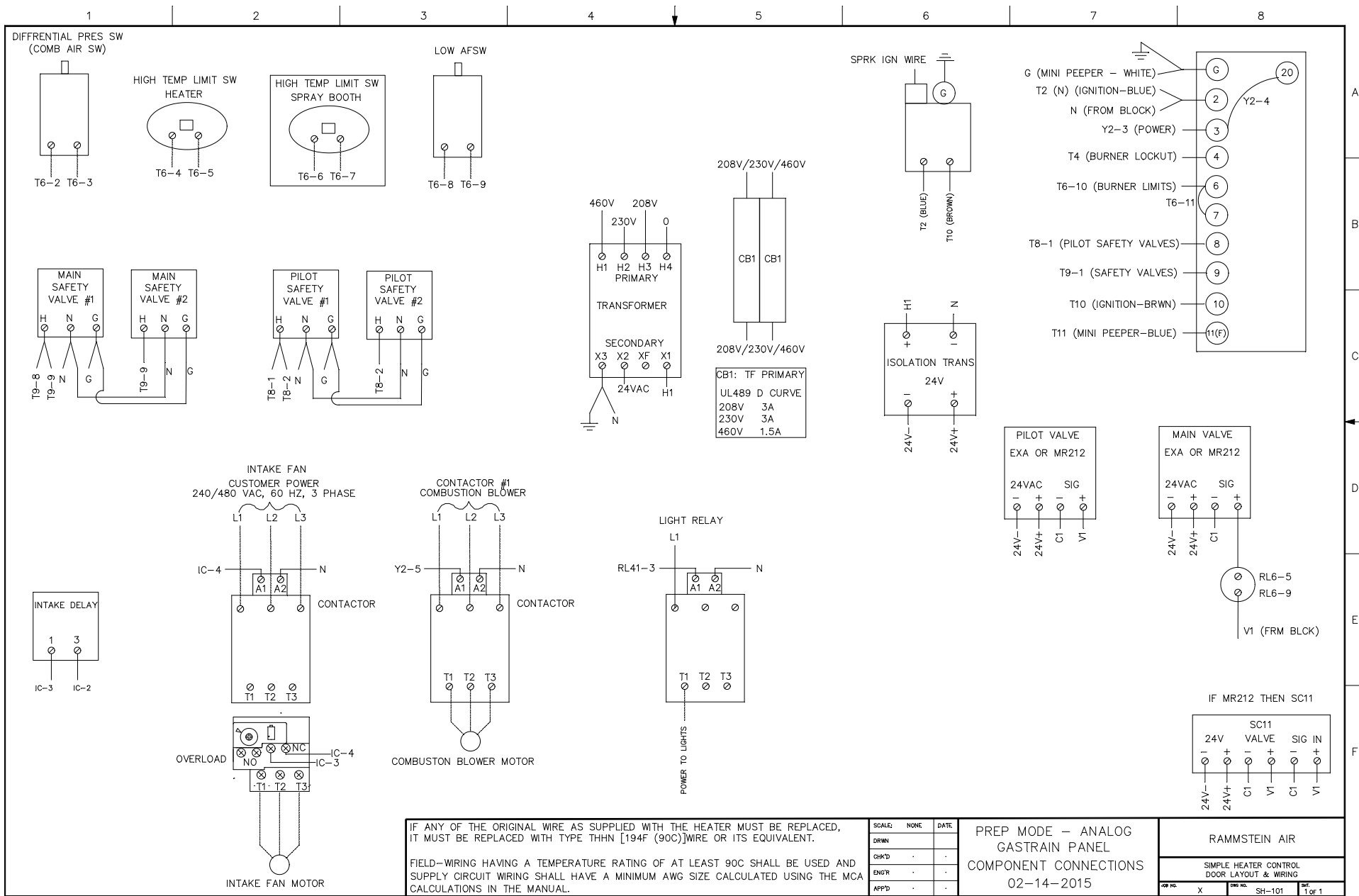
07-27-2015

RAMMSTEIN AIR

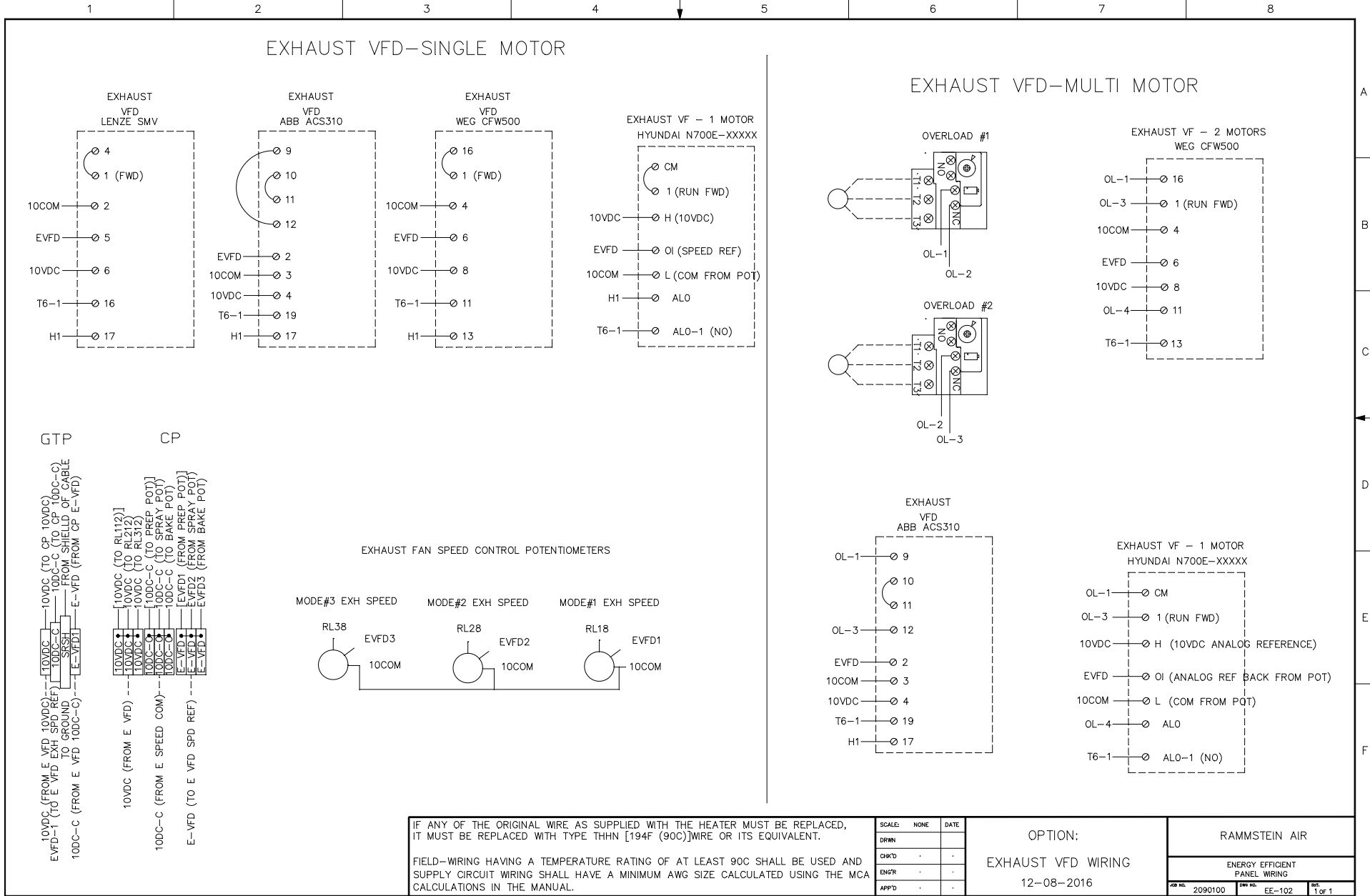
SIMPLE HEATER CONTROL
DOOR LAYOUT & WIRING

JOB NO.	X	REV. NO.	SH-101	SHT.	1 of 1
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1.1.7 Gastrain panel – Prep Mode – components



1.1.8 Exhaust VFD – General



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

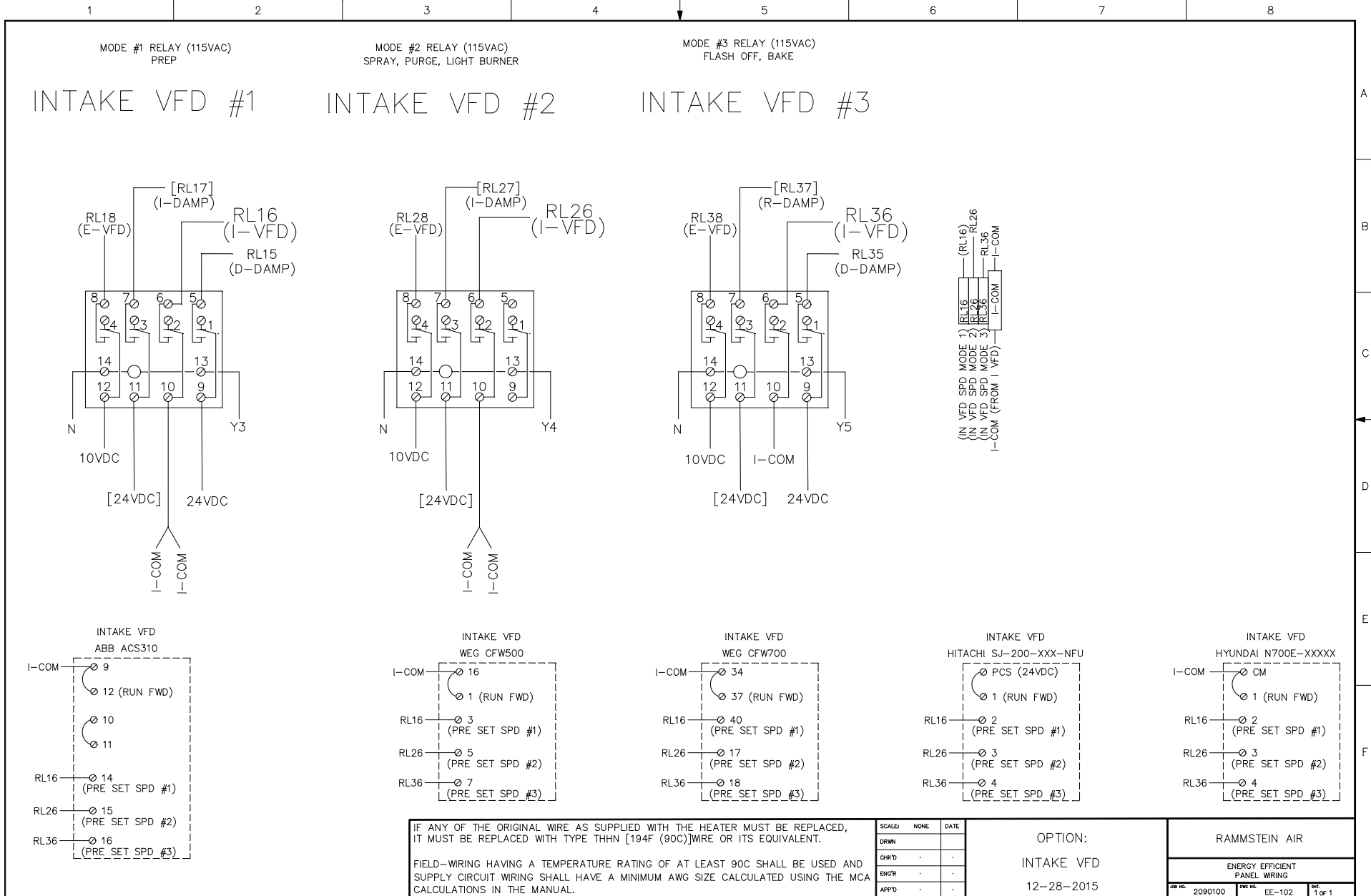
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
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CHK'D:			
ENGR:			
APP'D:			

OPTION:
EXHAUST VFD WIRING
 12-08-2016

RAMMSTEIN AIR	
ENERGY EFFICIENT PANEL WIRING	
JOB NO. 2090100	REV NO. EE-102
1 of 1	

1.1.9 Intake VFD – general



1.1.10 Component list – Spray Bake

1 2 3 4 5 6 7 8

RELAYS:

- RELAY #1: PREP
- RELAY #2: SPRAY
- RELAY #3: BAKE
- RELAY #4: FLASH
- RELAY #5: INSIDE ACCESS LIGHT
- RELAY #6: SYSTEM ON
- RELAY #7: BURNER

TMERS:

- TD1: INTAKE CONTACTOR ON DELAY
- TD2: INTAKE VFD ON DELAY

A
B
C
D
E
F

IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

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SCALE:	NONE	DATE:	
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CHK'D:	-		
ENGR:	-		
APP'D:	-		

COMPONENT LIST

09-12-2015

CALIFORNIA PULSE, INC.					
ENERGY EFFICIENT PANEL WIRING					
REV. NO.	2090100	REV. NO.	EE-102	REV.	1 OF 1

1.1.11

Spray only – door

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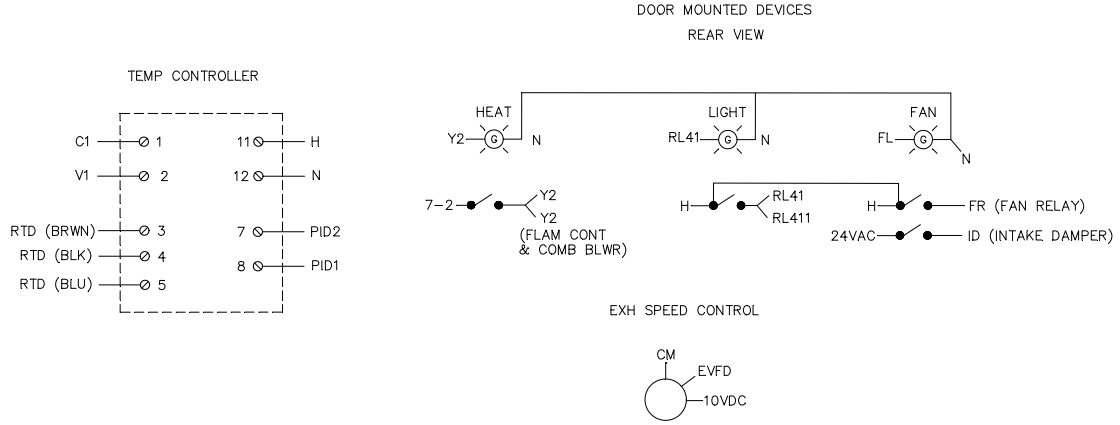
5

6

7

8

A
B
C
D
E
F



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

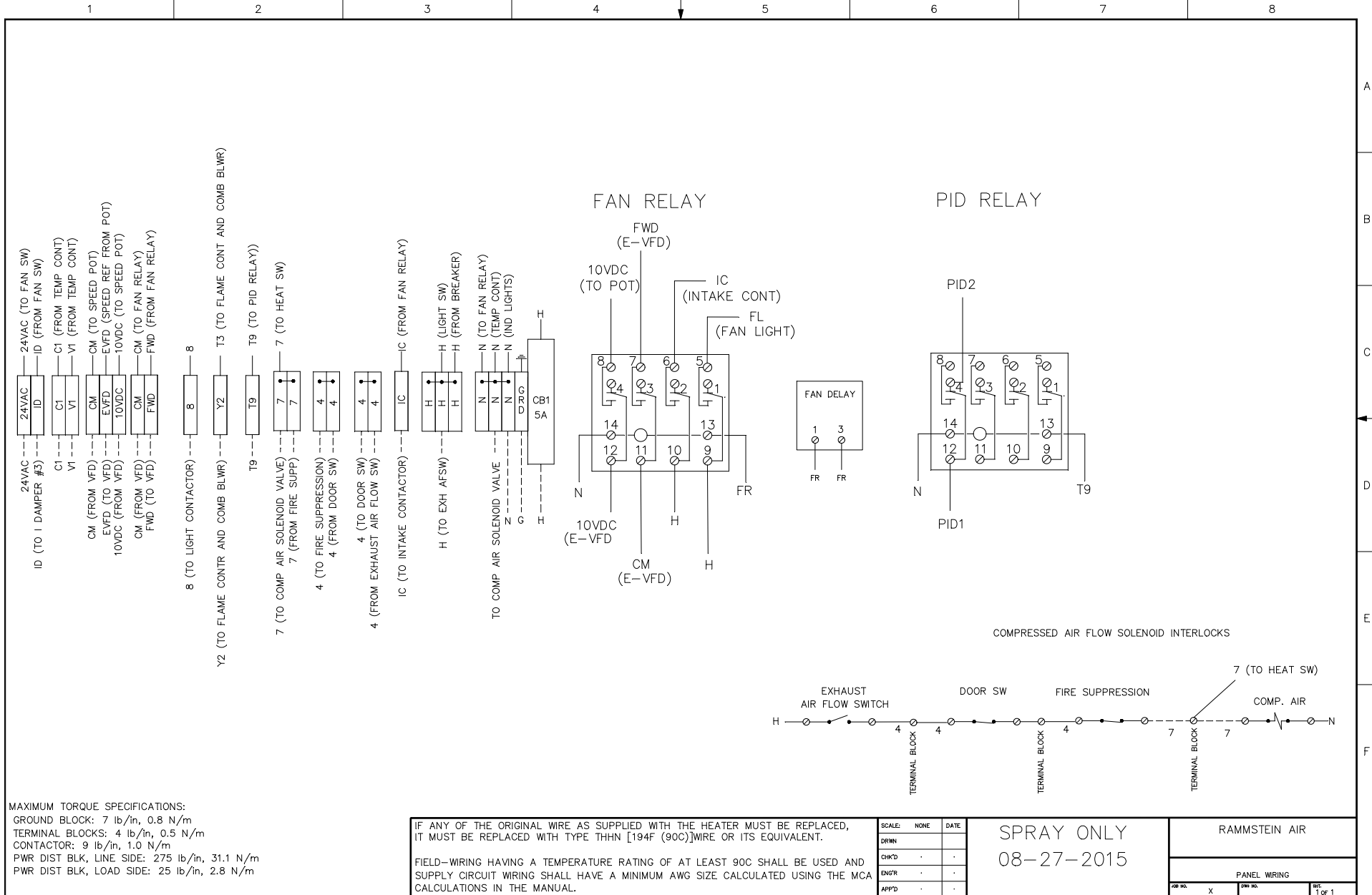
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE
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SPRAY ONLY
DOOR
08-27-2015

RAMMSTEIN AIR		
ENERGY EFFICIENT PANEL WIRING		
JOB NO. 2090100	DWG NO. EE-102	SHT. 1 OF 1

1.1.12 Spray only – components



MAXIMUM TORQUE SPECIFICATIONS:
 GROUND BLOCK: 7 lb/in, 0.8 N/m
 TERMINAL BLOCKS: 4 lb/in, 0.5 N/m
 CONTACTOR: 9 lb/in, 1.0 N/m
 PWR DIST BLK, LINE SIDE: 275 lb/in, 31.1 N/m
 PWR DIST BLK, LOAD SIDE: 25 lb/in, 2.8 N/m

IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

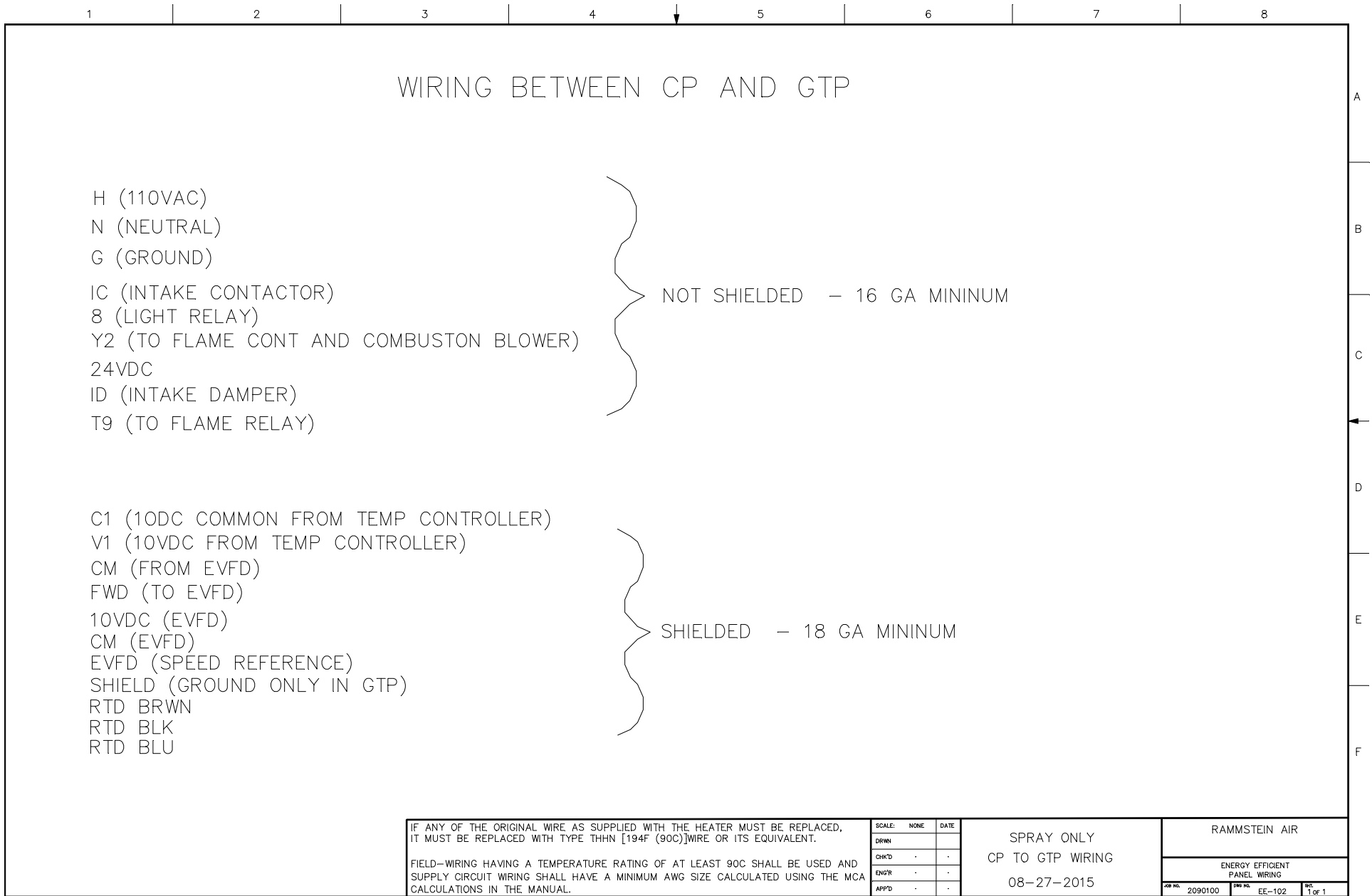
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

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APPD:			

SPRAY ONLY
 08-27-2015

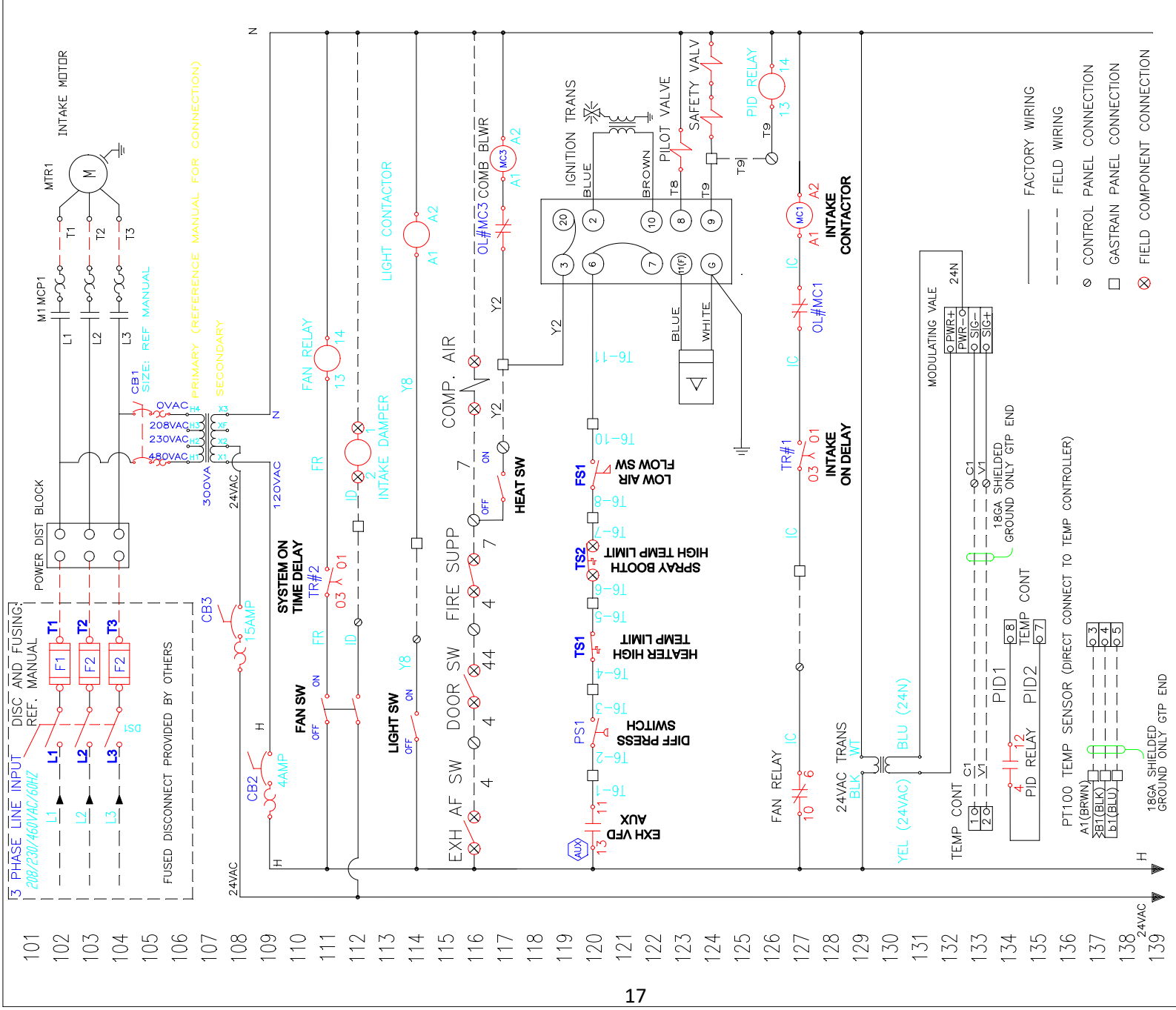
RAMMSTEIN AIR	
PANEL WIRING	
REV NO. X	REV. DATE 1 of 1

1.1.13 Spray only – umbilical



1.1.14

Spray only – schematics



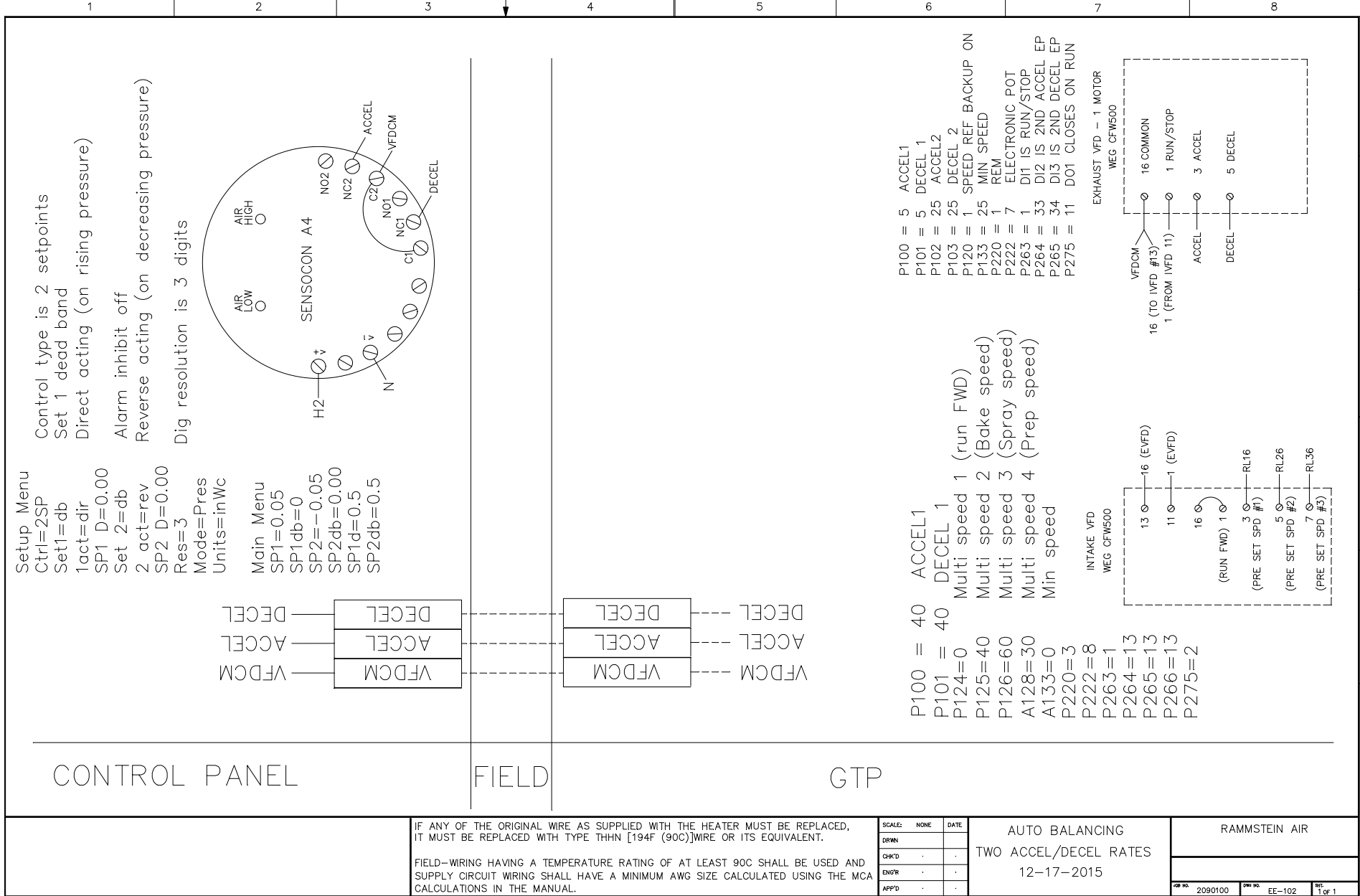
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DATE	NAME	PROJECT:	DRAWING-NO:
08/27/15	AU	SPRAY ONLY	08-27-2015
CKD BY		PAGE DESCRIPTION	JOB-NO:
		1 OF 1	

California Pulse, Inc.
 Ramstein Air
 13845 Pioneer Road, Unit 7
 Apple Valley, CA 92307
 909-331-5593

1.2. Individual circuit diagrams

1.2.1 Auto Balancing – VFD



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

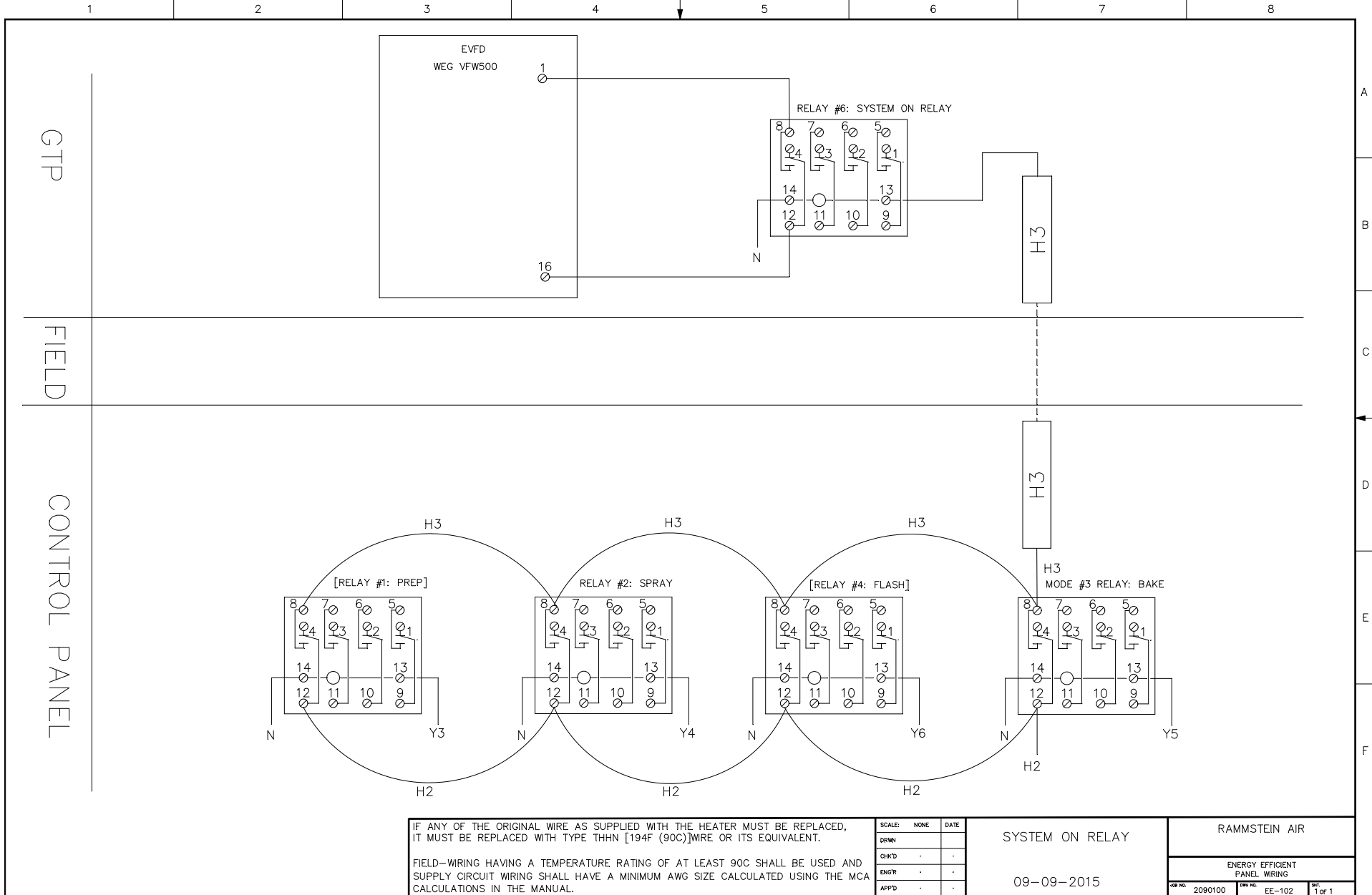
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHKD:			
ENGR:			
APPR:			

AUTO BALANCING
TWO ACCEL/DECEL RATES
 12-17-2015

RAMMSTEIN AIR		
JOB NO. 2090100	DWG NO. EE-102	REV. 1 of 1

1.2.2 Auto Balancing – System on relay



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

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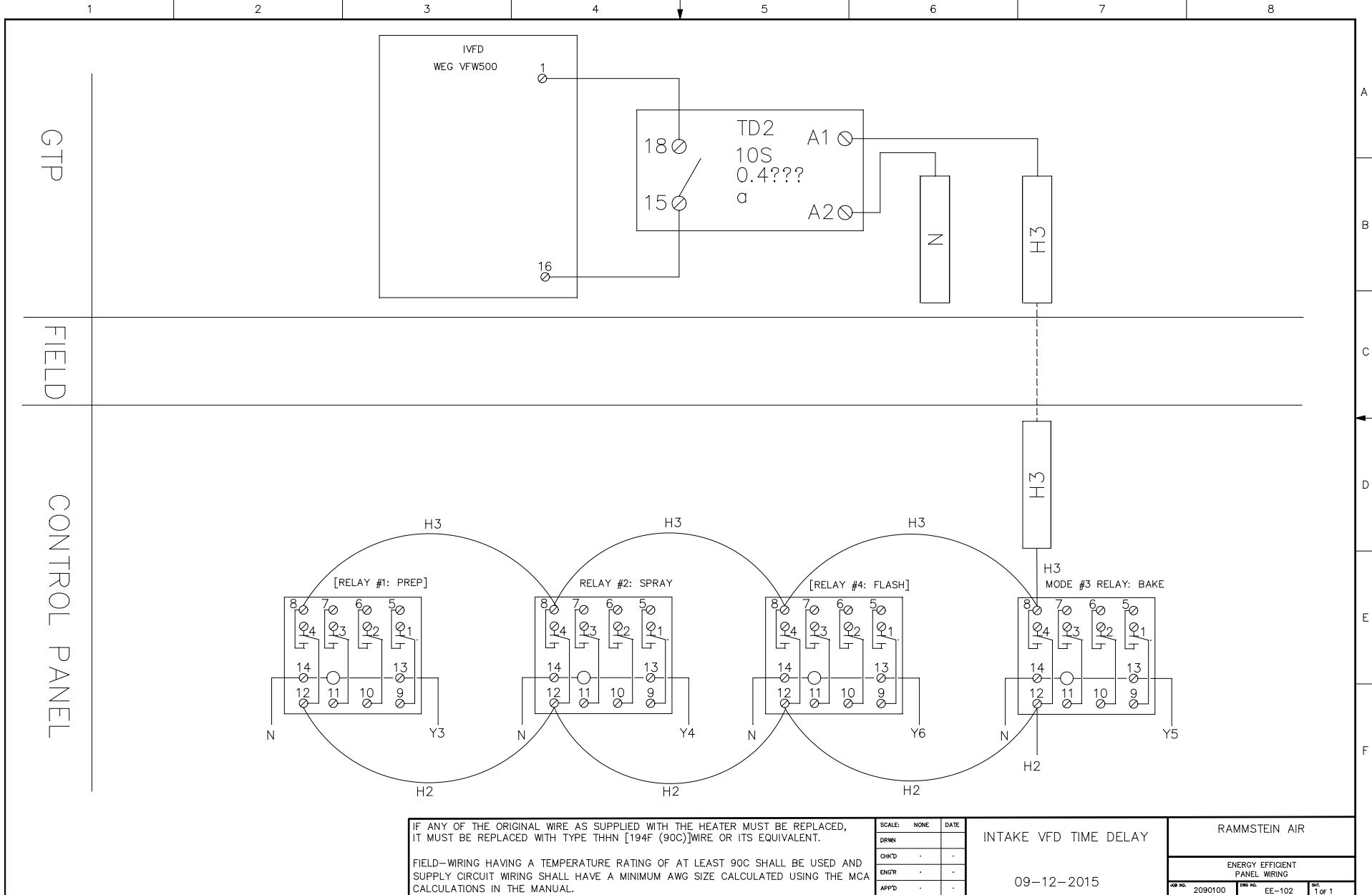
SCALE:	NONE	DATE:	
CHK'D:	.		.
ENGR:	.		.
APP'D:	.		.

SYSTEM ON RELAY

09-09-2015

RAMMSTEIN AIR	
ENERGY EFFICIENT PANEL WIRING	
JOB NO. 2090100	DWG NO. EE-102
SHEET 1 OF 1	

1.2.3 Auto Balancing – Intake VFD on delay



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

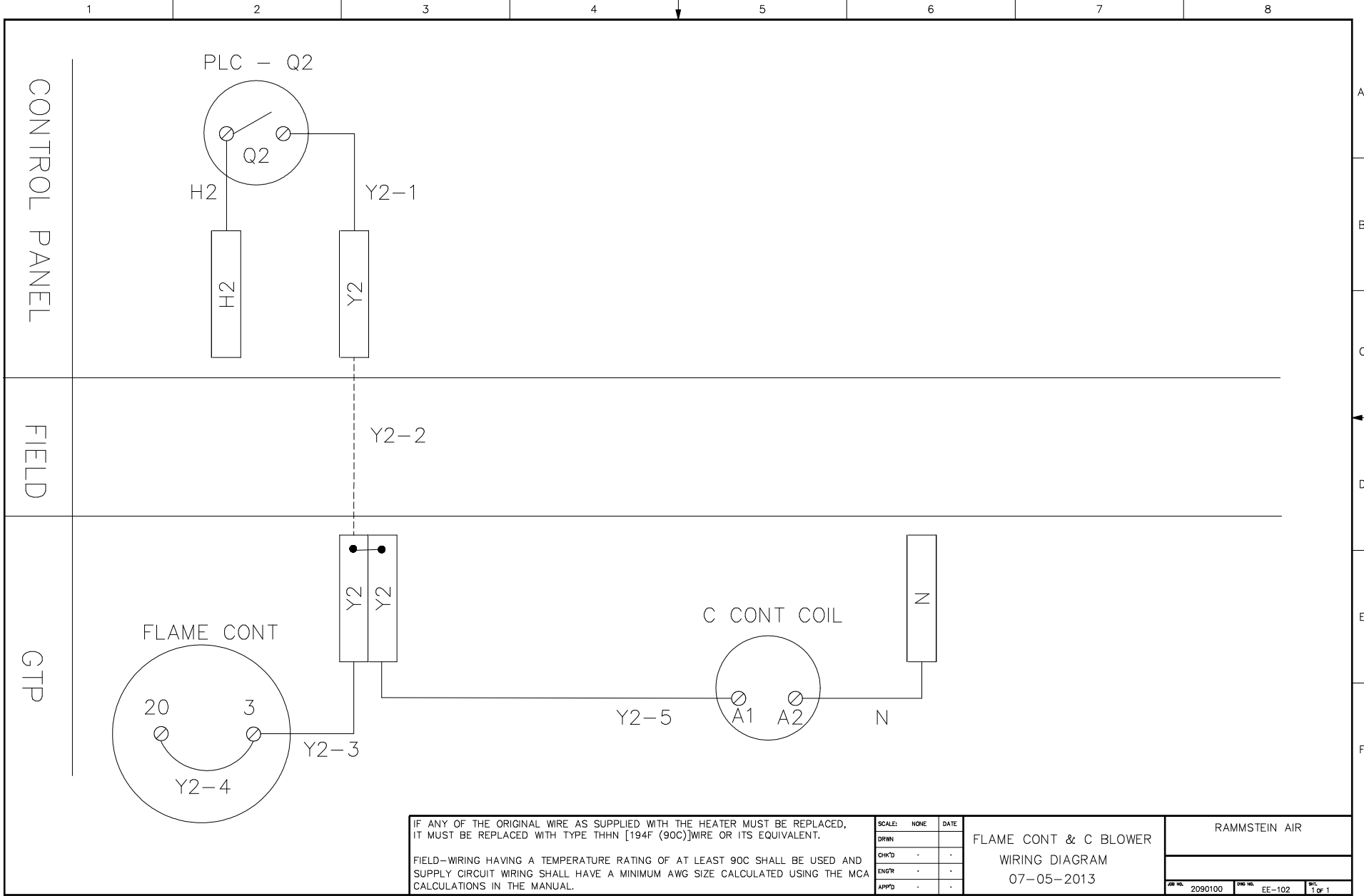
SCALE:	NONE	DATE:	
DRWN:		CHK'D:	
ENGR:		APP'D:	

INTAKE VFD TIME DELAY

09-12-2015

RAMMSTEIN AIR	
ENERGY EFFICIENT PANEL WIRING	
JOB NO. 2090100	DWG NO. EE-102
SHEET 1 OF 1	

1.2.4 Combustion air and flame controller power



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

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SCALE:	NONE	DATE
DRWN	-	-
CHK'D	-	-
ENGR	-	-
APP'D	-	-

FLAME CONT & C BLOWER
WIRING DIAGRAM
07-05-2013

RAMMSTEIN AIR		
JOB NO.	DWG NO.	SHEET
2090100	EE-102	1 OF 1

1.2.5 Evaporative Cooler

1.2.6 Filter light

MOUNT J BOX OUTSIDE OF SPRAY BOOTH ACCORDING TO NFPA33

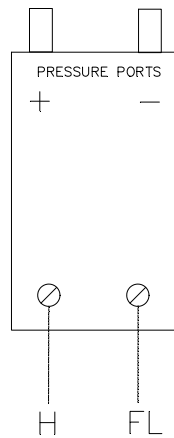
MOUNT AIR FLOW SWITCH INSIDE J BOX

CONNCT POSITIVE SIDE TO INSIDE OF SPRAY BOOTH UPSTREAM FROM FILTERS. USE CABLE GLAND TO HOLD TUBE IN PLACE.

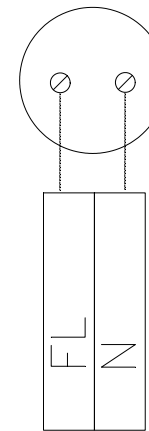
CONNECT NEGATIVE SIDE DOWNSTREAM FROM FILTERS

WIRE AIR FLOW SWITCH TO INDICATOR LIGHT

FILTER AIR SW



FILTER CHANGE LIGHT



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FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

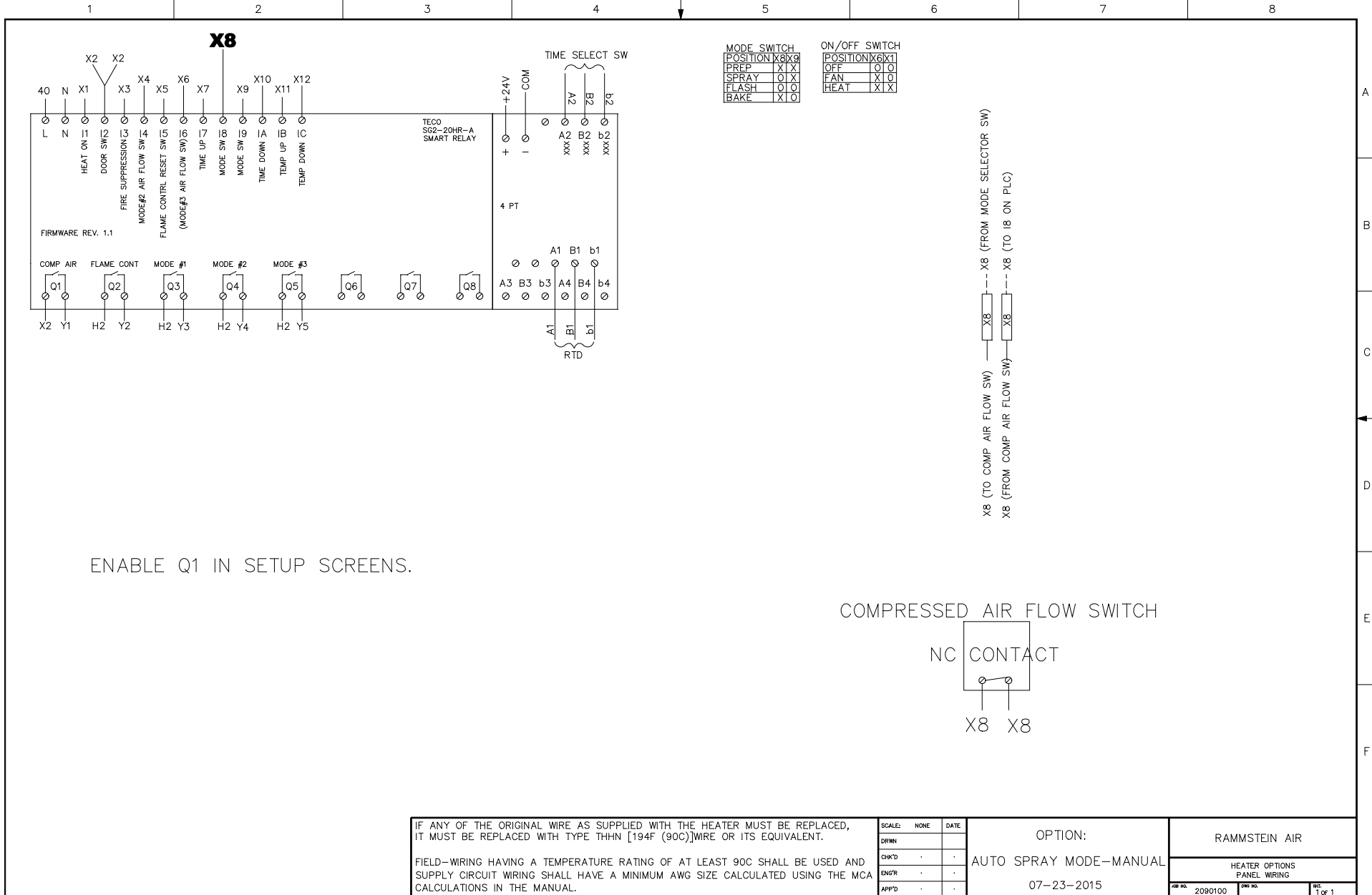
SCALE:	NONE	DATE:
DRWN	.	.
CHKD	.	.
ENGR	.	.
APPD	.	.

OPTION:
FILTER LIGHT

12-02-2014

RAMMSTEIN AIR		
SIMPLE HEATER CONTROL GASTRAIN PANEL - ANALOG		
REV NO.	REV NO.	REV
X	SH-101	1 of 1

1.2.7 Automatic Spray Mode



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

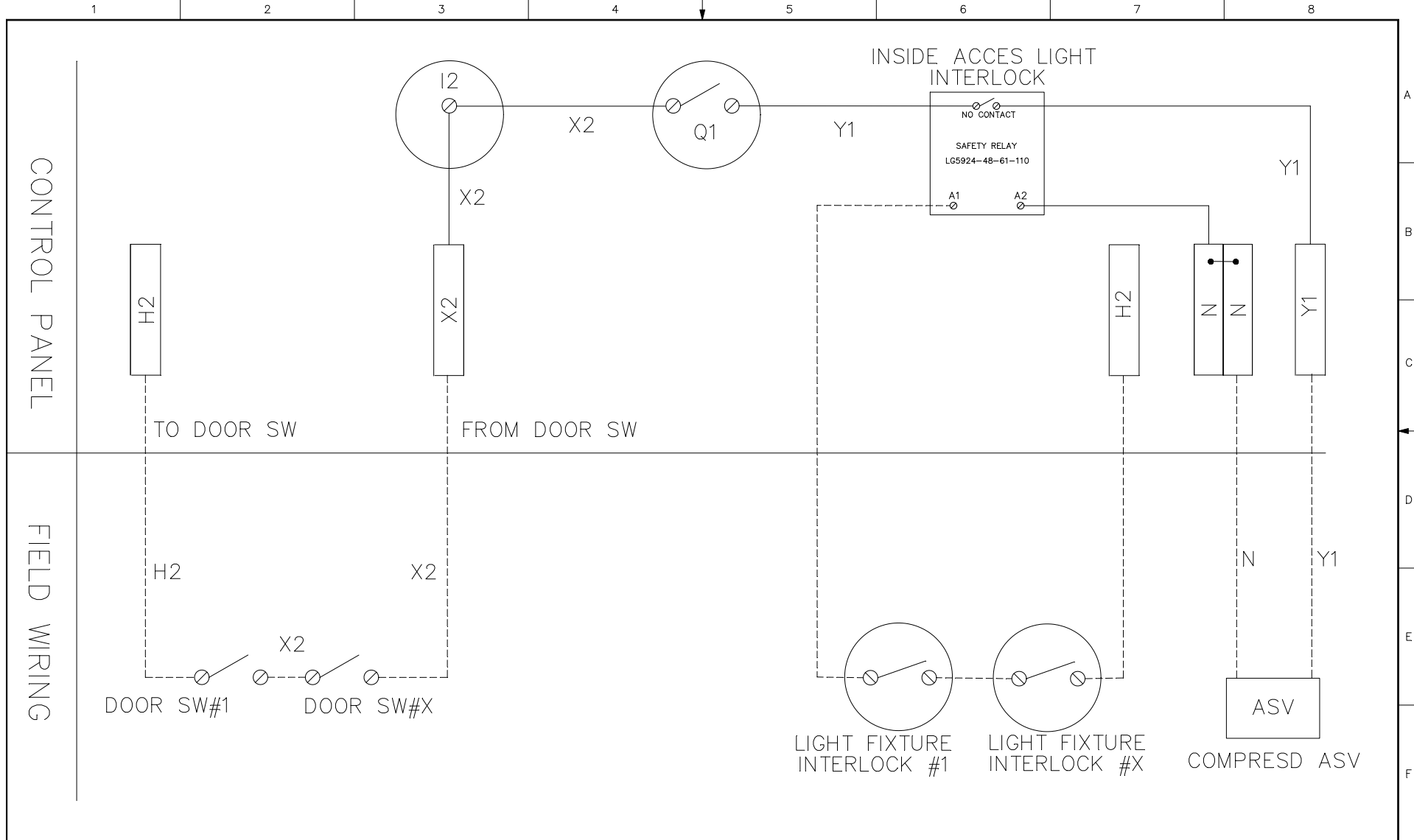
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRAWN:			
CHK'D:			
ENGR:			
APP'D:			

OPTION:
AUTO SPRAY MODE-MANUAL
07-23-2015

RAMMSTEIN AIR	
HEATER OPTIONS PANEL WIRING	
REV. NO. 2090100	REV. 1 OF 1

1.2.8 Interlock: Compressed air power



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

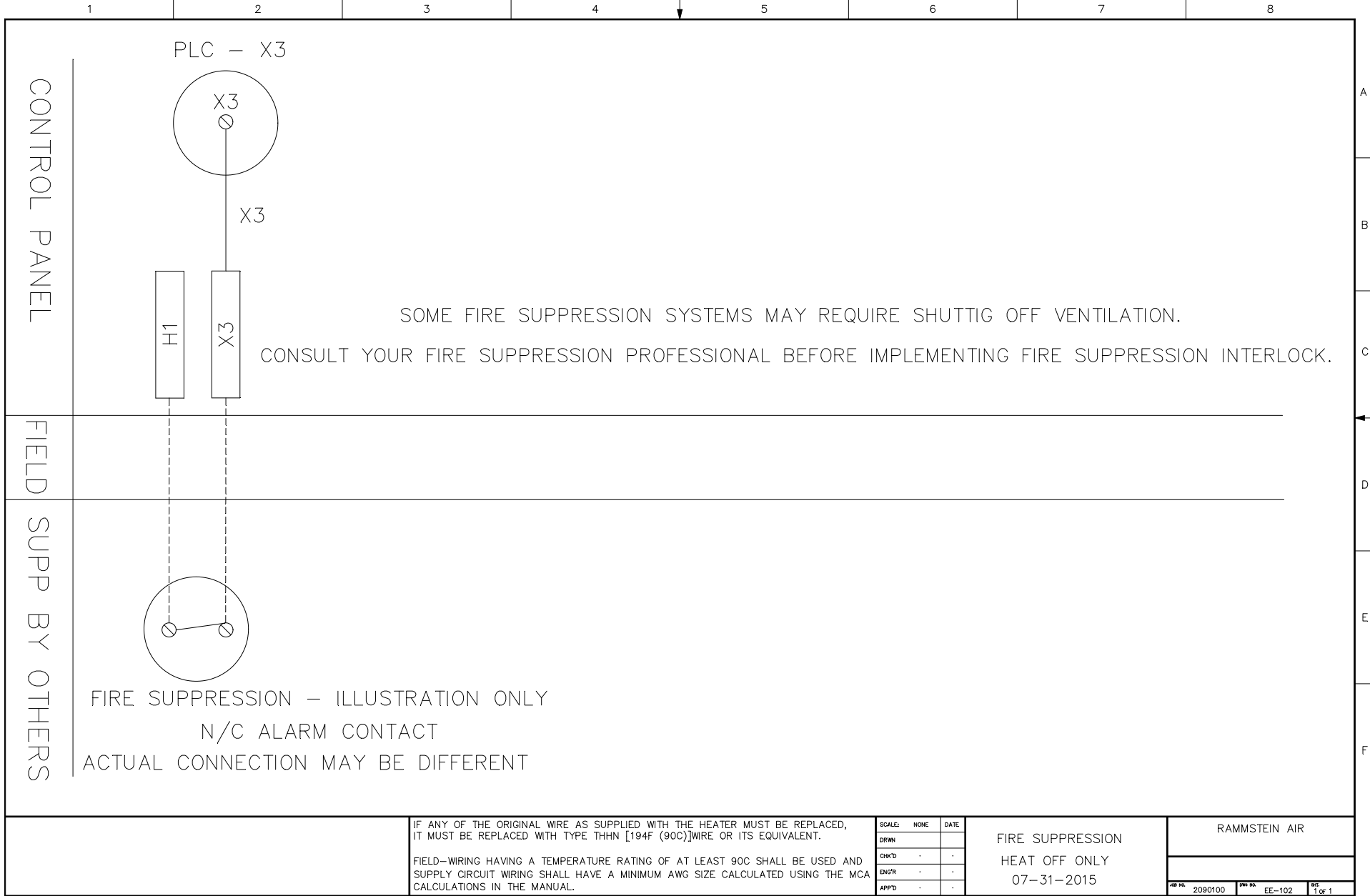
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APP'D:			

AIR SOLENOID VALVE
WIRING DIAGRAM
08-24-2015

RAMMSTEIN AIR		
REV. NO.	REV. NO.	REV.
2090100	EE-102	1 of 1

1.2.9 Interlock: Fire Suppression – Heat off only



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

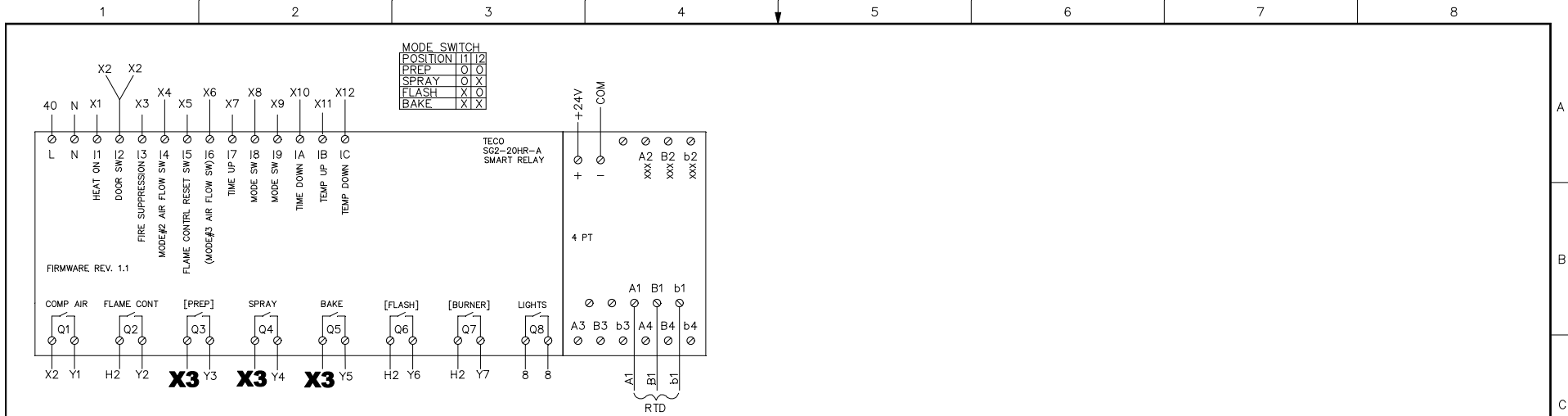
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APP'D:			

FIRE SUPPRESSION
HEAT OFF ONLY
07-31-2015

RAMMSTEIN AIR		
REV NO:	REV NO:	REV:
2090100	EE-102	1 of 1

1.2.10 Interlock: Fire suppression – Heat off/Fans off



Power Q3, Q4 and Q5 from the fire suppression input (X3).

SOME FIRE SUPPRESSION SYSTEMS MAY REQUIRE SHUTTING OFF VENTILATION.

CONSULT YOUR FIRE SUPPRESSION PROFESSIONAL BEFORE IMPLEMENTING FIRE SUPPRESSION INTERLOCK.

IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

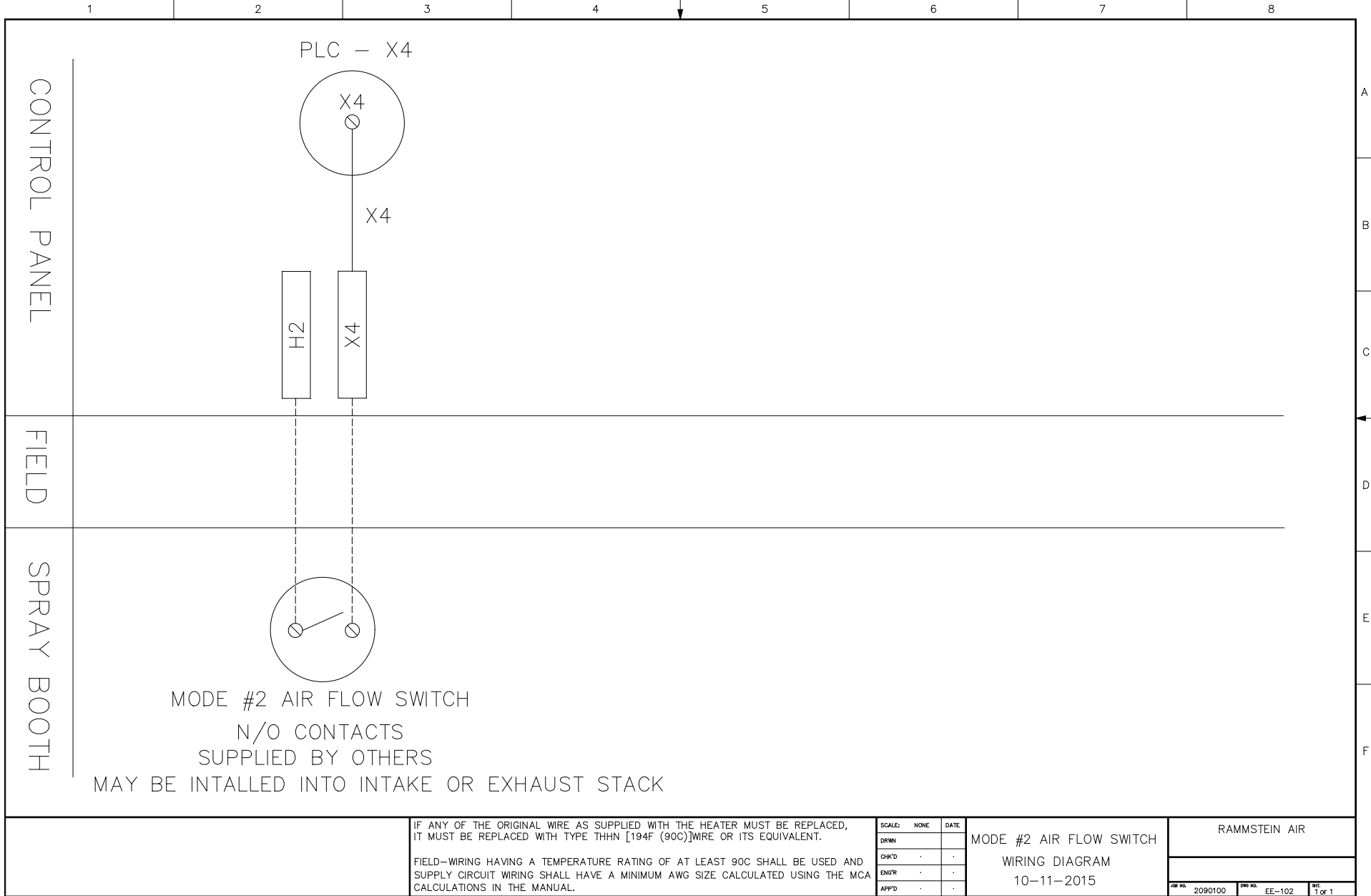
SCALE:	NONE	DATE:	
CHK'D:	.		
APP'D:	.		

FIRE SUPPRESSION
HEAT OFF AND FANS OFF

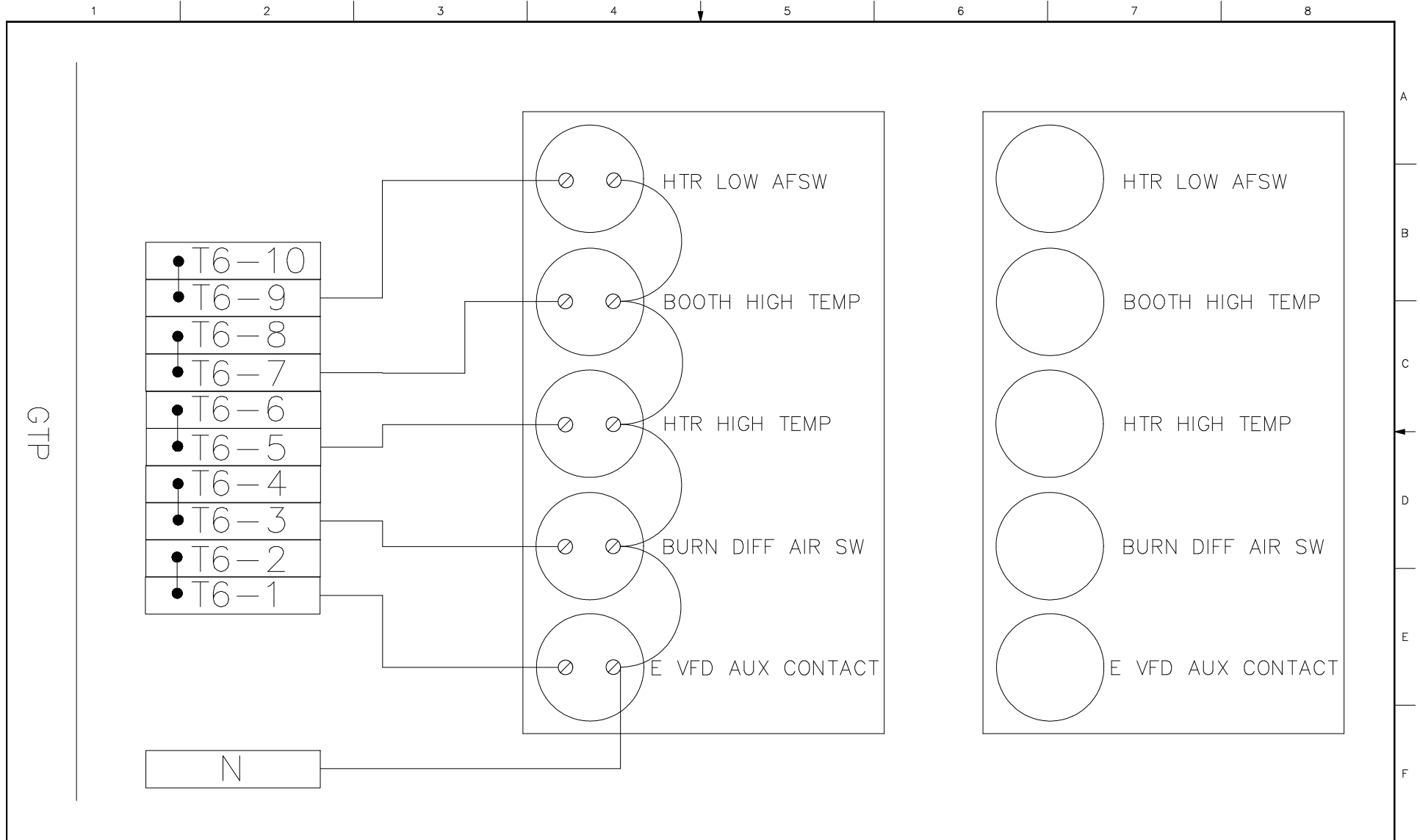
07-31-2015

RAMMSTEIN AIR		
ENERGY EFFICIENT PANEL WIRING		
REV. NO.	REV. NO.	REV.
2090100	EE-102	1 of 1

1.2.1 Interlock: Air Flow Switch (Mode #2)



1.2.2 Interlock: Flame controller limits indicator lights



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

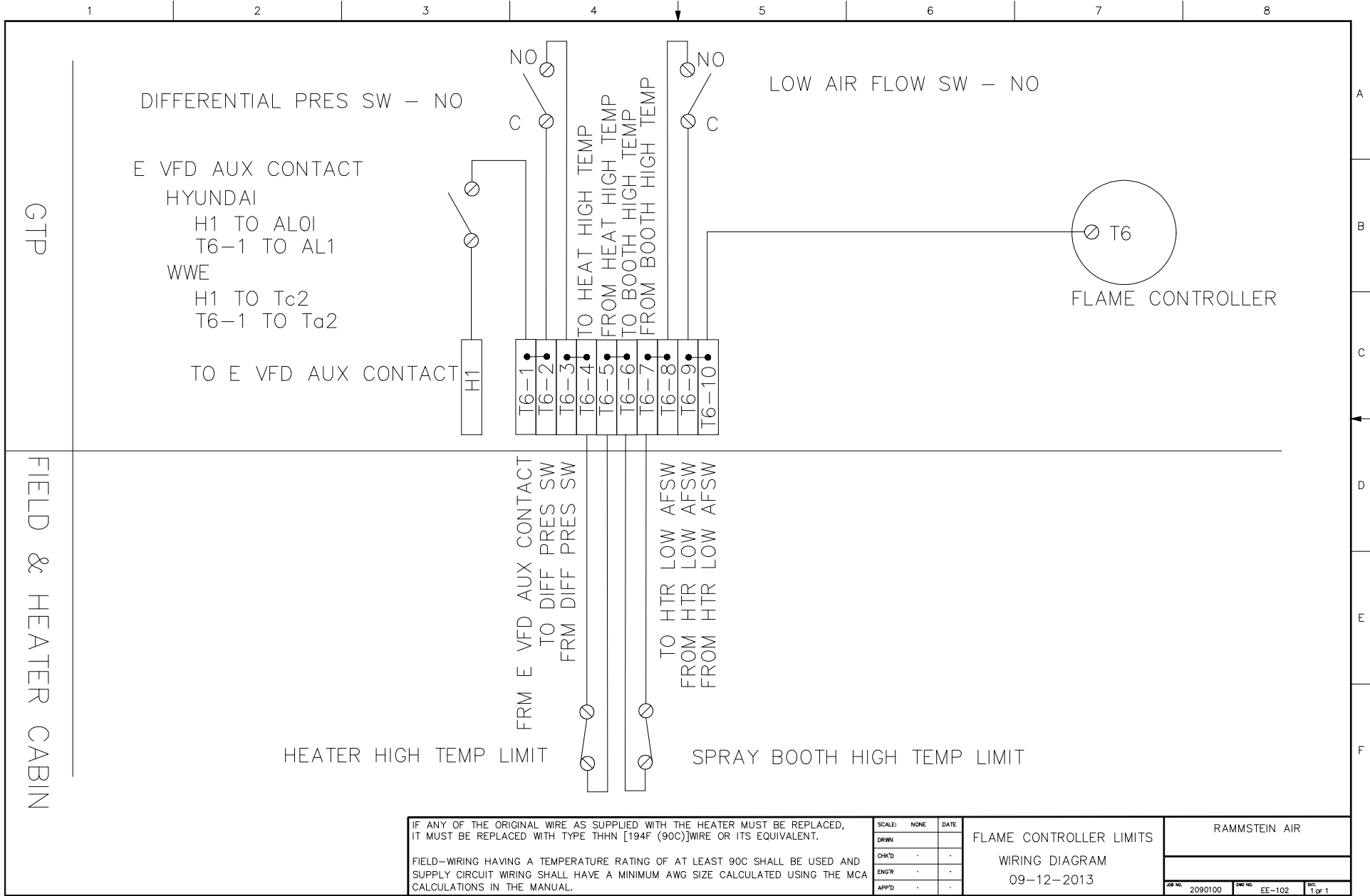
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	.		
ENGR:	.		
APPD:	.		

FLAME CONT LIMIT INDICAT
WIRING DIAGRAM
07-05-2013

RAMMSTEIN AIR		
JOB NO.	2090100	REV. NO.
		EE-102
		PAGE 1 OF 1

1.2.3 Interlock: Flame controller limits



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

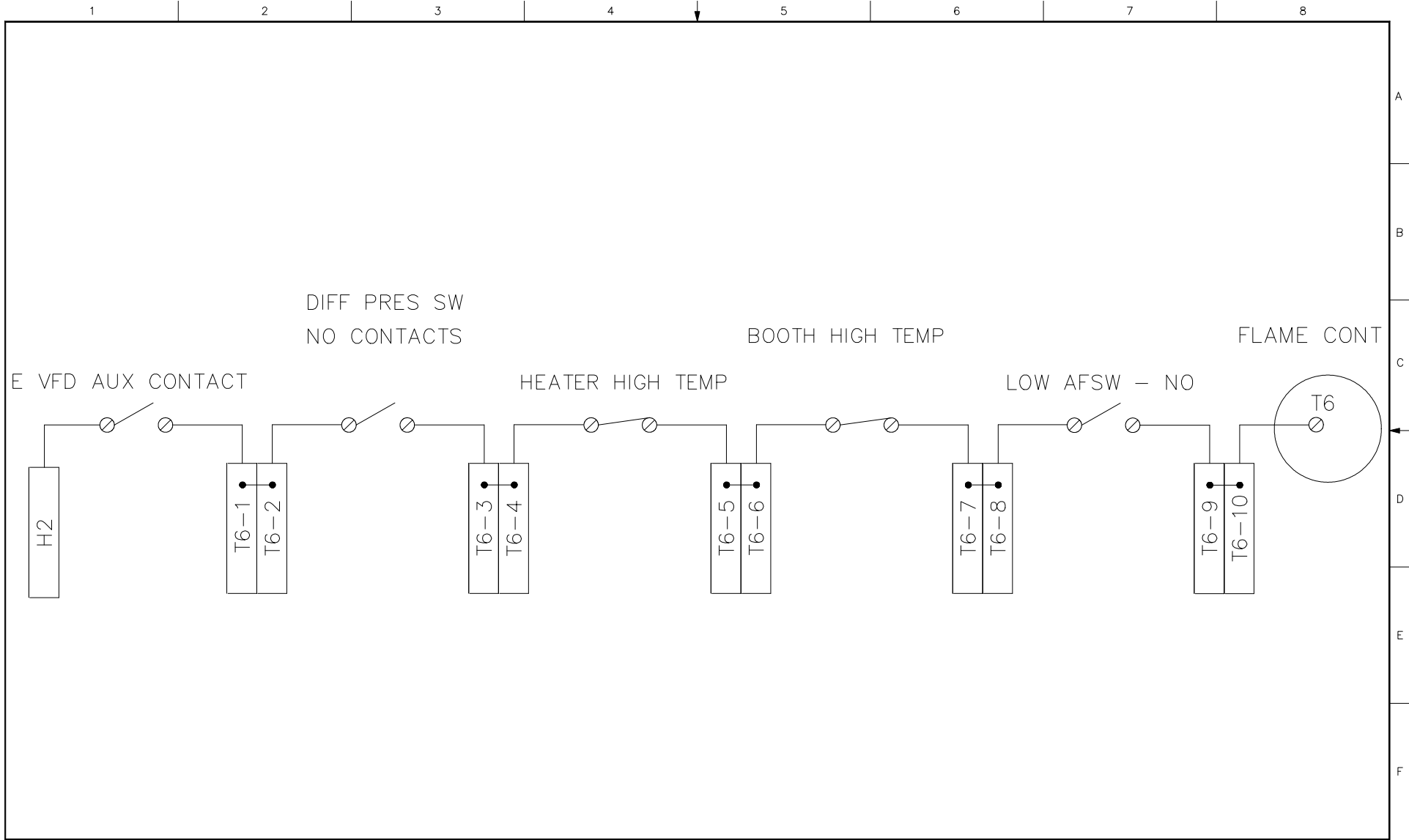
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	-		
ENGR:	-		
APTD:	-		

FLAME CONTROLLER LIMITS
WIRING DIAGRAM
 09-12-2013

RAMMSTEIN AIR		
DWG NO:	2090100	REV NO: EE-102
		PAGE: 1 of 1

1.2.4 Interlock: Flame controller limits - linear



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

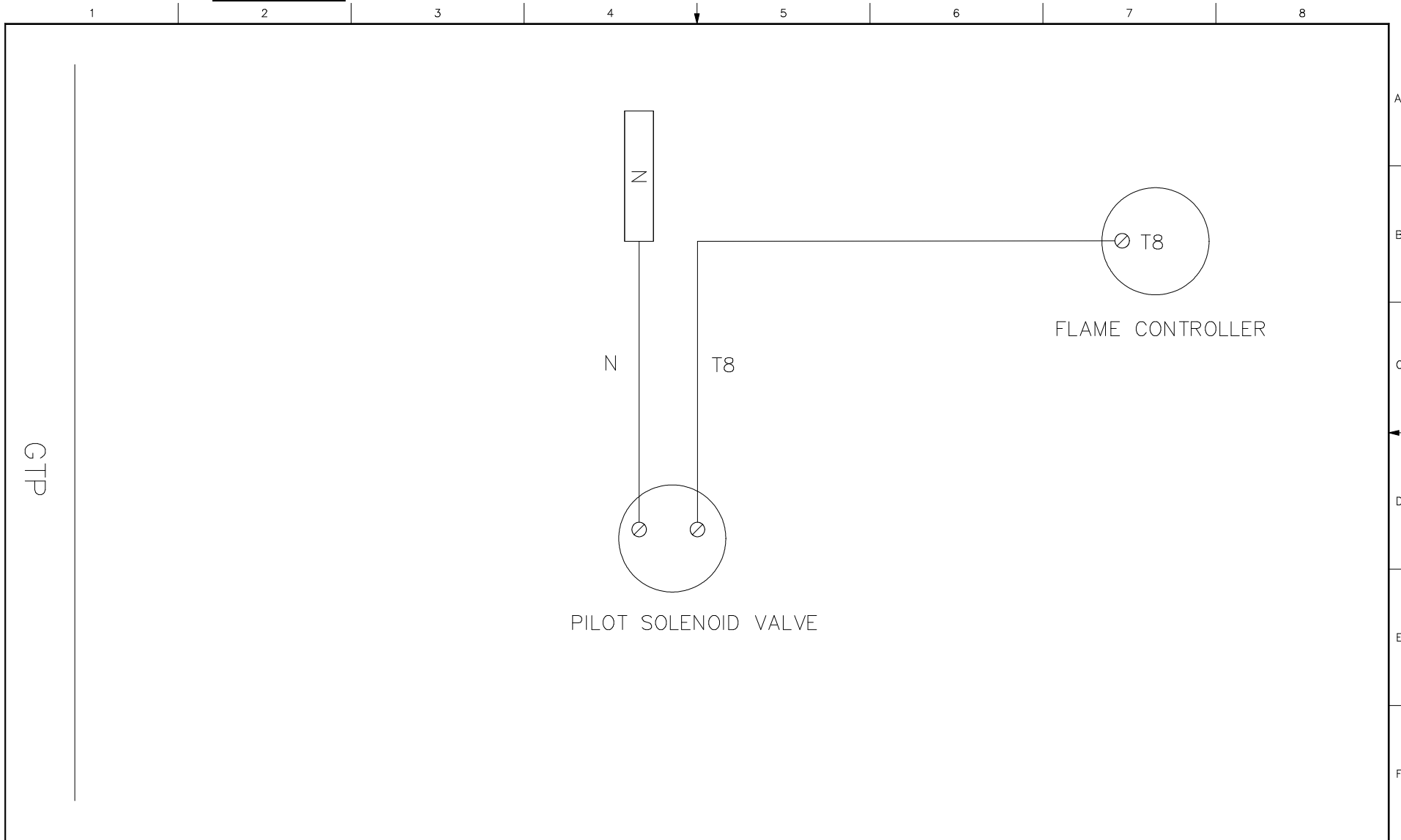
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE	
DRWN			
CHK'D	-	-	
ENGR	-	-	
APP'D	-	-	

FLAME CONTROLLER LIMITS
WIRING DIAGRAM
09-16-2013

RAMMSTEIN AIR		
JOB NO.	DWG NO.	REV.
2090100	EE-102	1 of 1

1.2.5 Pilot solenoid



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

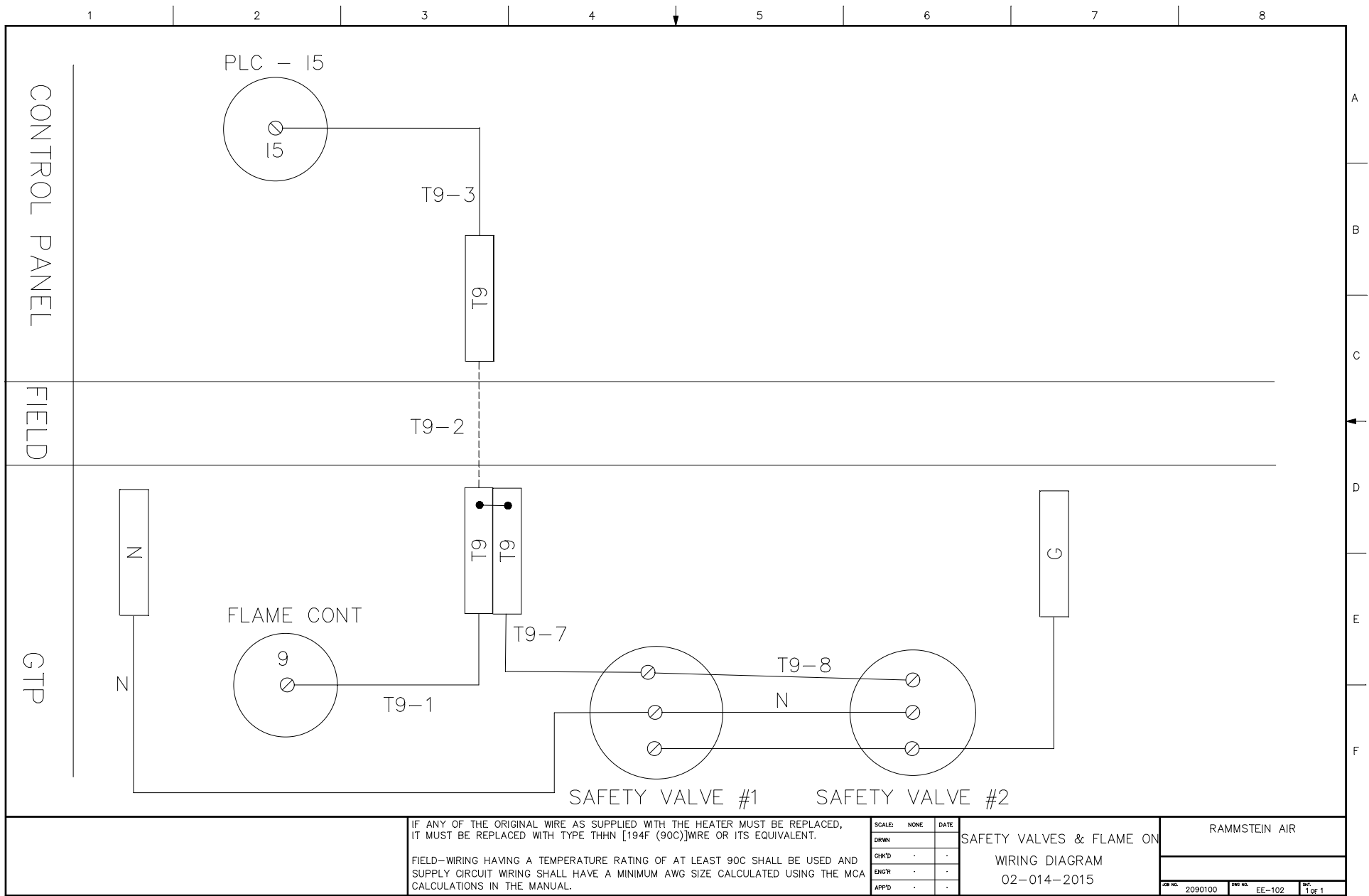
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE
DRWN		
CHK'D	.	.
ENGR	.	.
APPRD	.	.

PILOT SOLENOID
WIRING DIAGRAM
04-24-2013

RAMMSTEIN AIR		
JOB NO.	2090100	REV. NO.
		EE-102
		PAGE 1 OF 1

1.2.6 Safety valves -Main – Spray/Bake



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

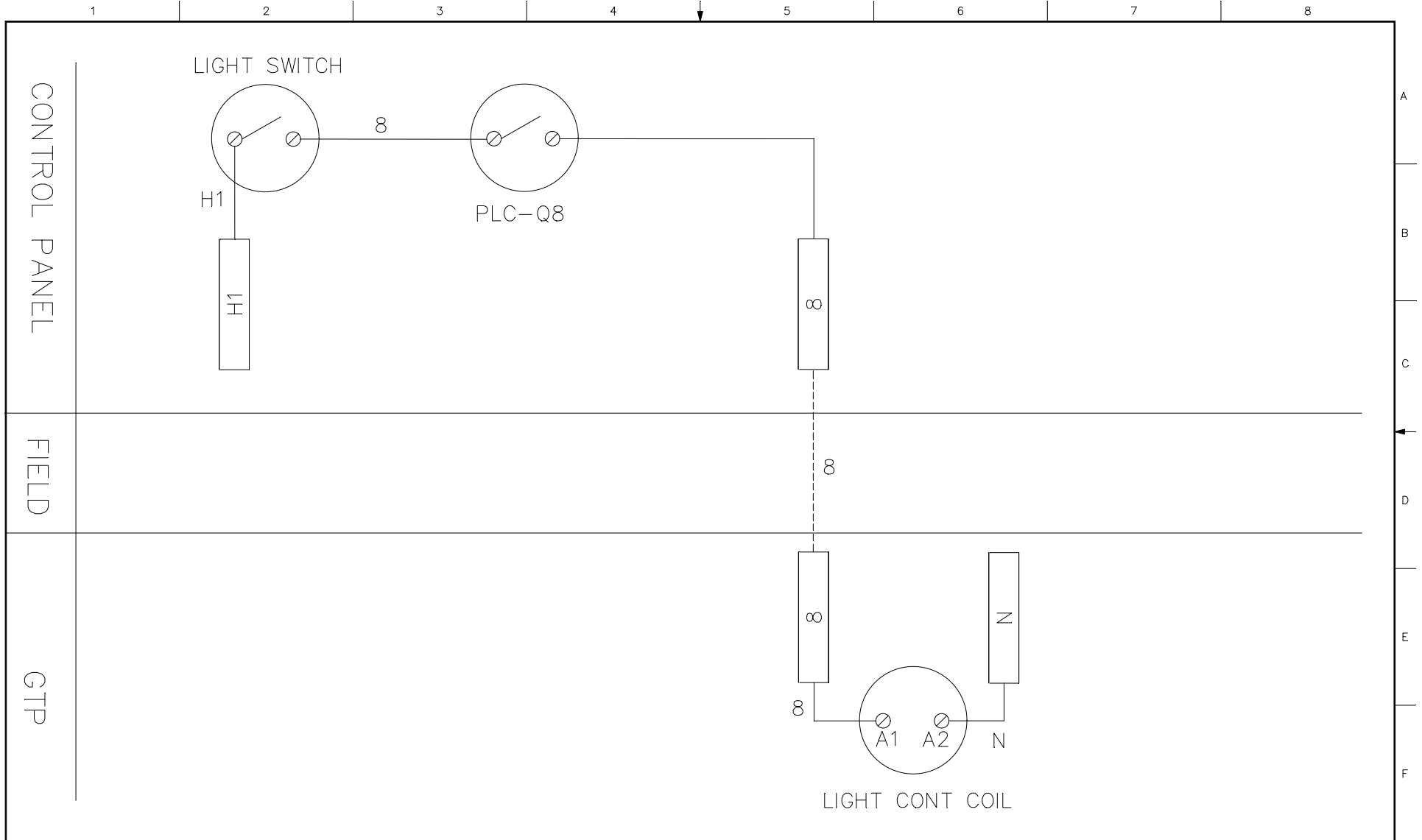
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE
DRWN		
CHK'D		
ENGR		
APP'D		

SAFETY VALVES & FLAME ON
WIRING DIAGRAM
02-014-2015

RAMMSTEIN AIR		
JOB NO.	ENG. NO.	SHEET
2090100	EE-102	1 of 1

1.2.7 Lights



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

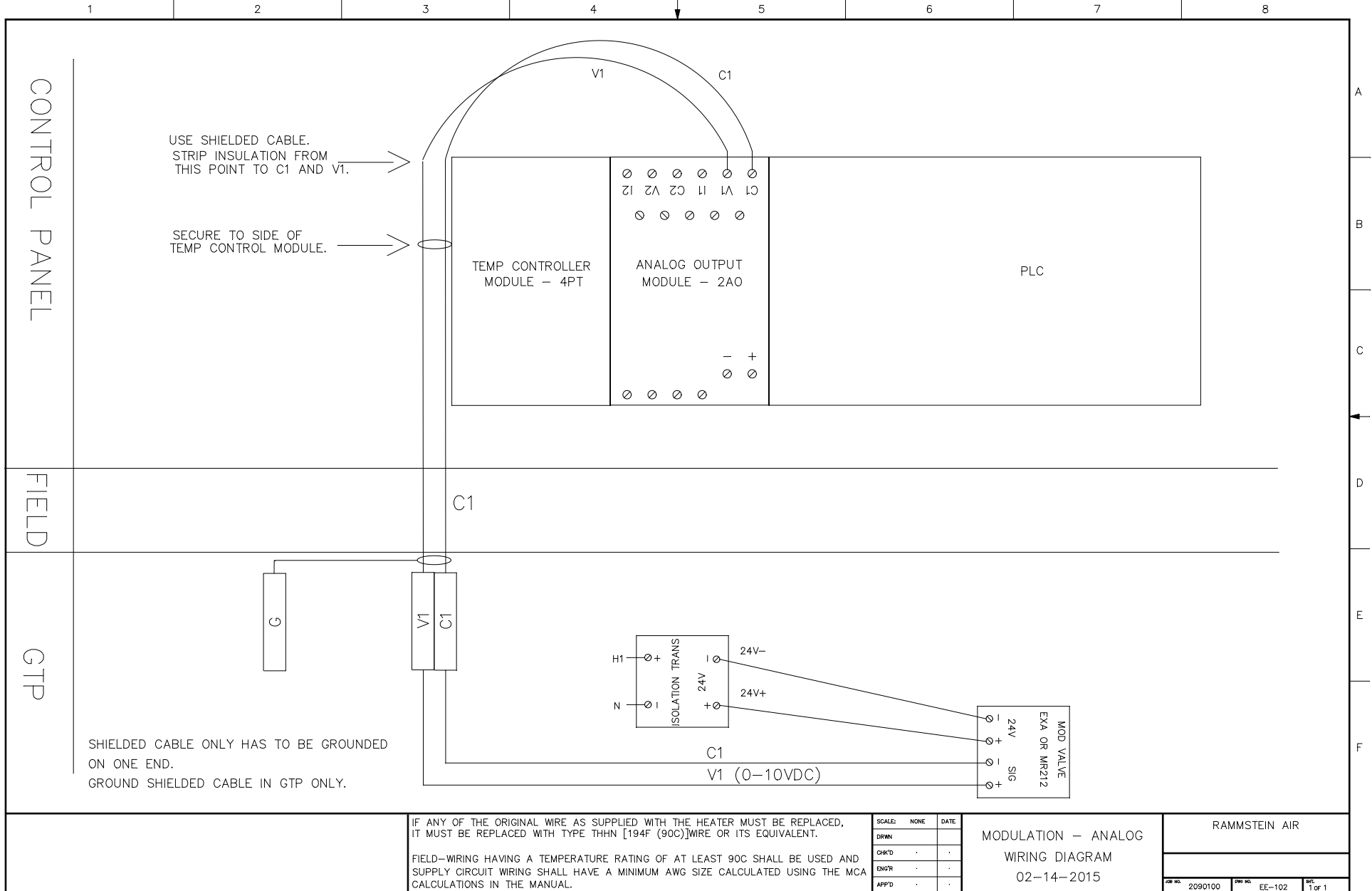
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:
DRWN	.	.
CHK'D	.	.
ENGR	.	.
APP'D	.	.

LIGHTS
WIRING DIAGRAM
07-25-2015

RAMMSTEIN AIR		
JOB NO.	DWG NO.	SHT.
2090100	EE-102	1 of 1

1.2.8 Modulation – Spray /Bake



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

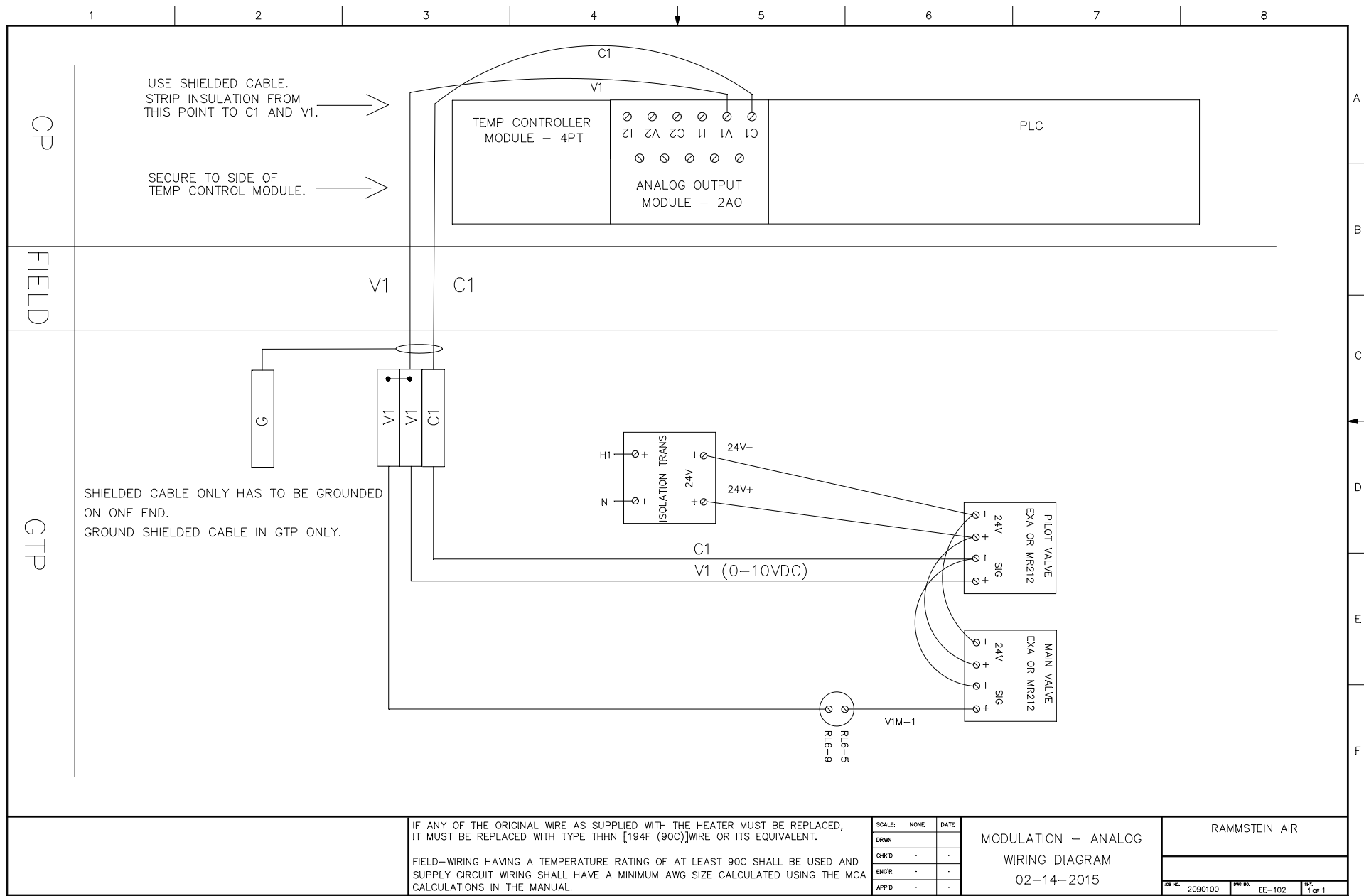
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APTD:			

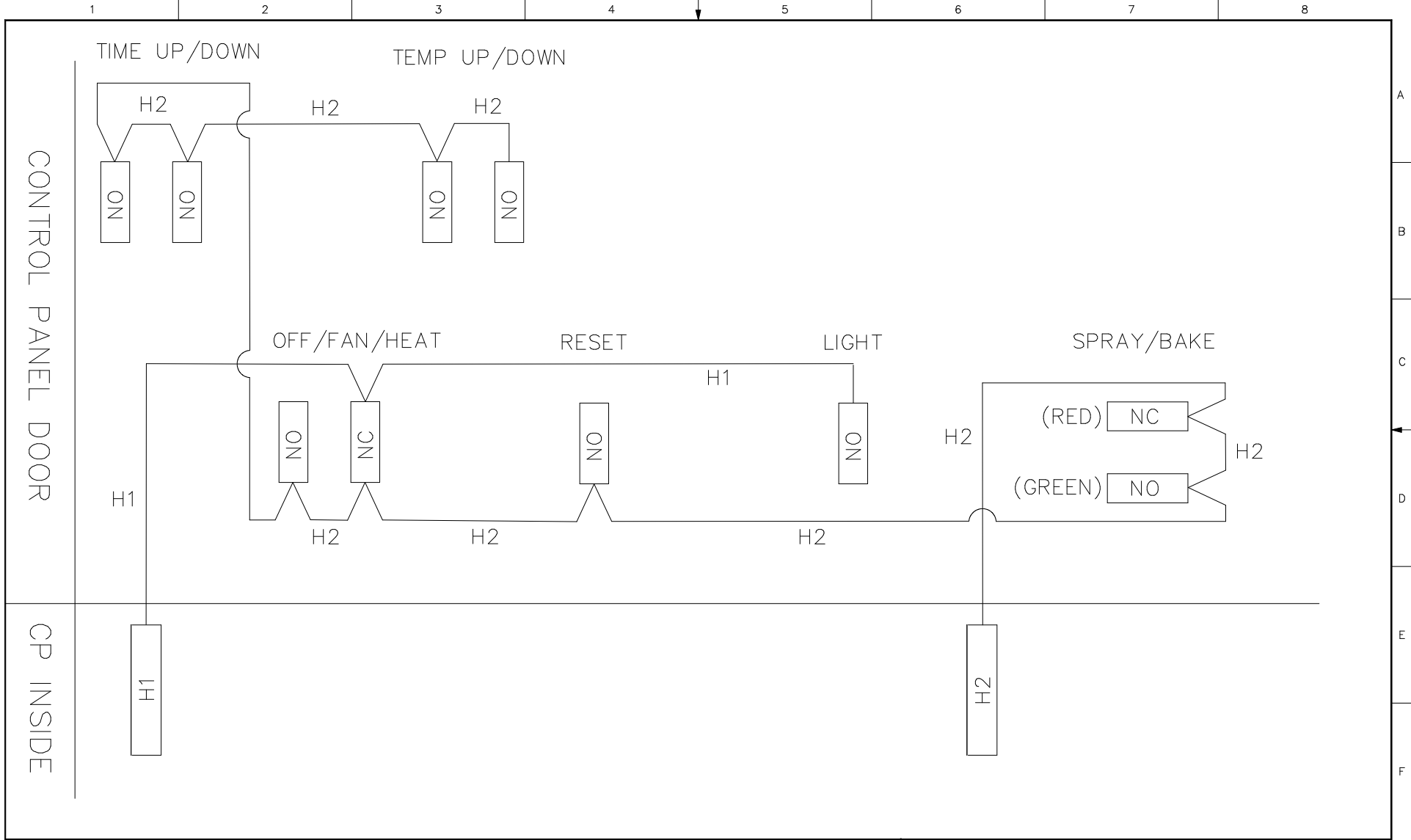
MODULATION - ANALOG
WIRING DIAGRAM
02-14-2015

RAMMSTEIN AIR		
JOB NO.	DWG NO.	REV.
2090100	EE-102	1 OF 1

1.2.9 Modulation – Prep Mode



1.2.10 Power for CP door: Spray/Bake



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

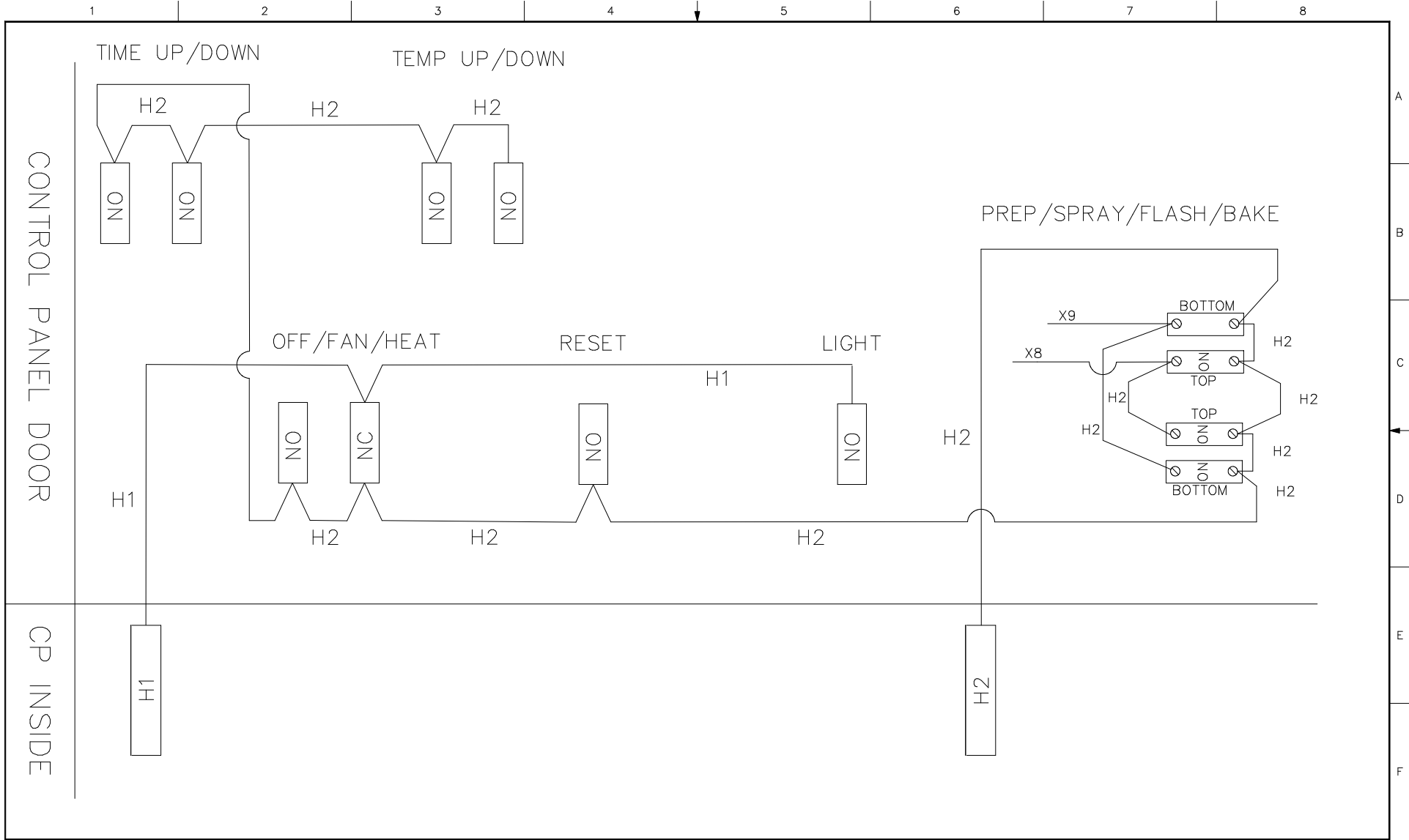
SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	.		
ENGR:	.		
APP'D:	.		

CONTROL PANEL POWER
 SPRAY/BAKE
 WIRING DIAGRAM
 04-24-2013

RAMMSTEIN AIR		
JOB NO.	DWG NO.	SHEET
2090100	EE-102	1 OF 1

1.2.11

Power for CP door: Prep/Spray/Flash/Bake



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

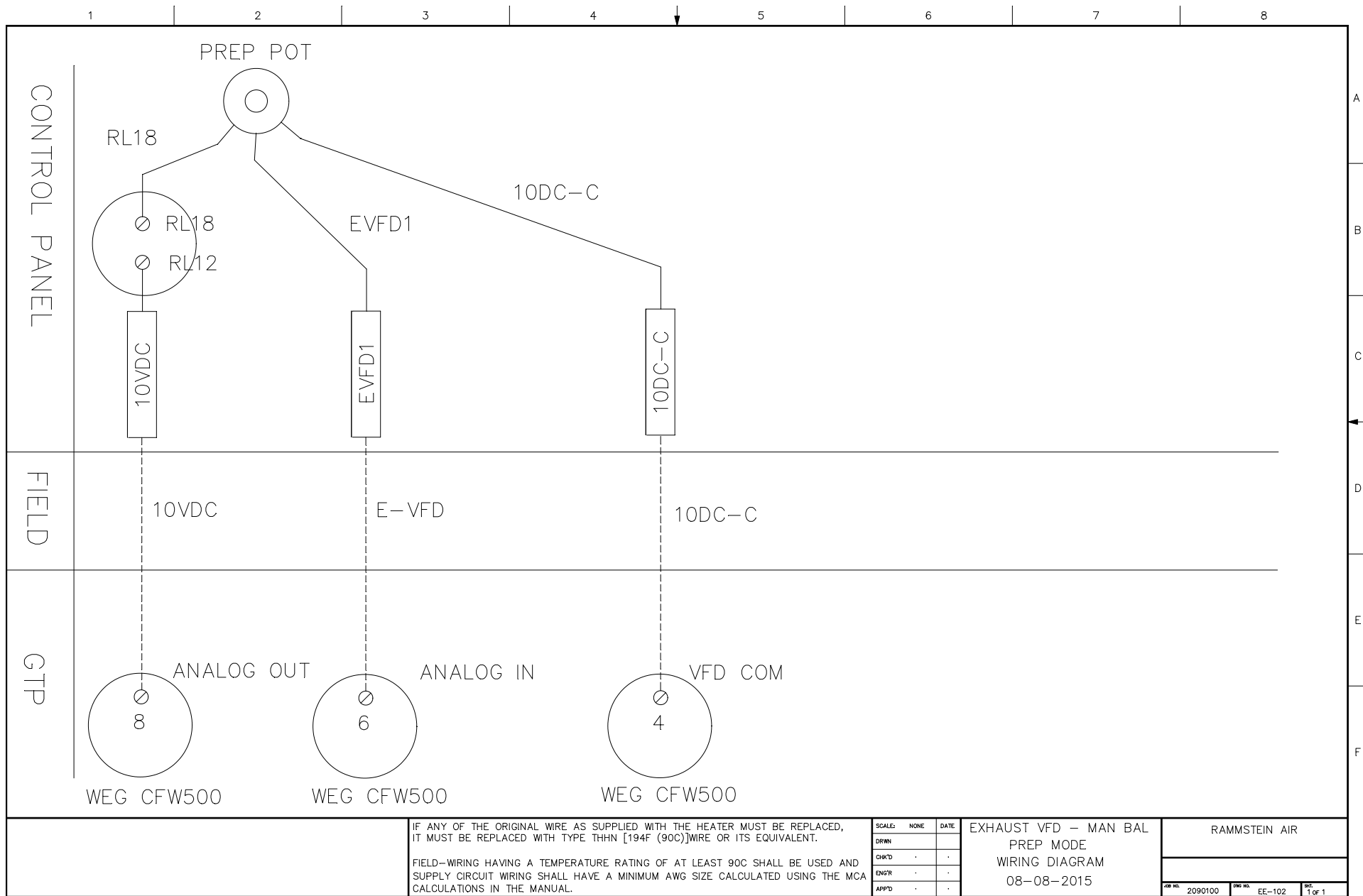
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	-		
ENGR:	-		
APPRD:	-		

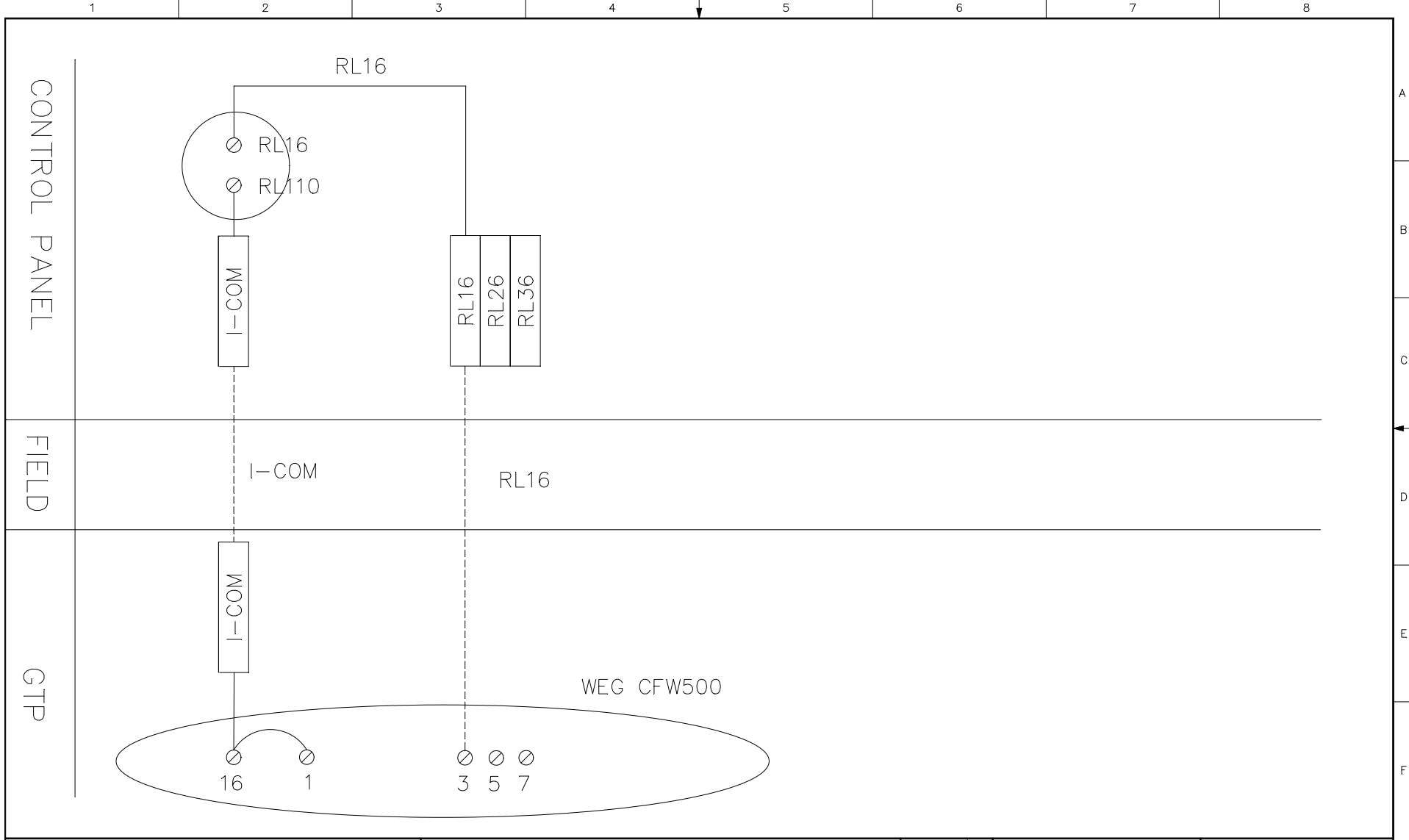
CONTROL PANEL POWER
PREP/SPRAY/FLASH/BAKE
WIRING DIAGRAM
04-24-2013

RAMMSTEIN AIR		
JOB NO.	DWG NO.	SHEET
2090100	EE-102	1 OF 1

1.2.12 Prep Mode exhausts VFD – Manual balance



1.2.13 Prep Mode intake VFD



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

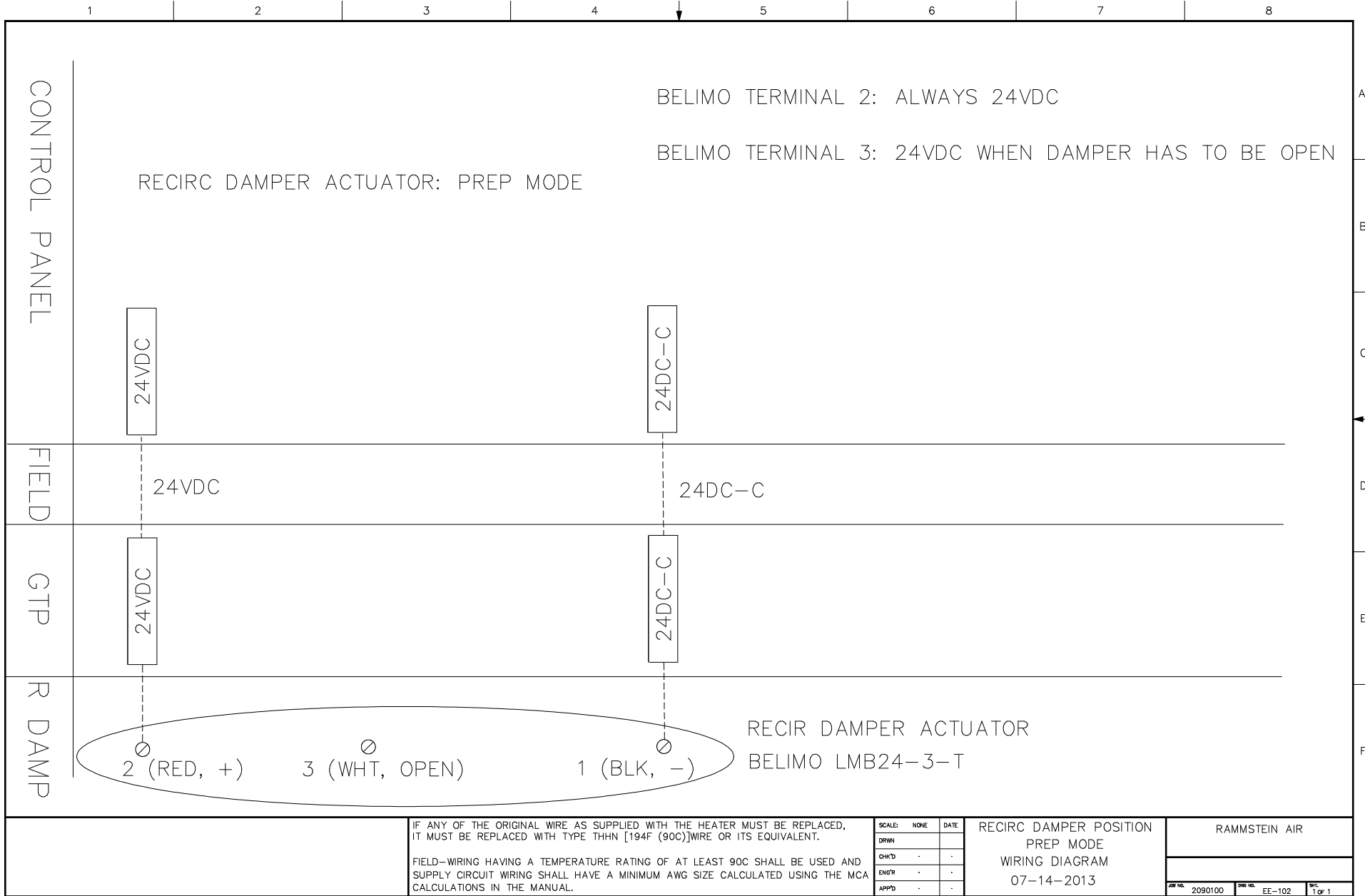
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRAWN:			
CHK'D:			
ENGR:			
APP'D:			

INTAKE VFD
PREP MODE
WIRING DIAGRAM
08-08-2015

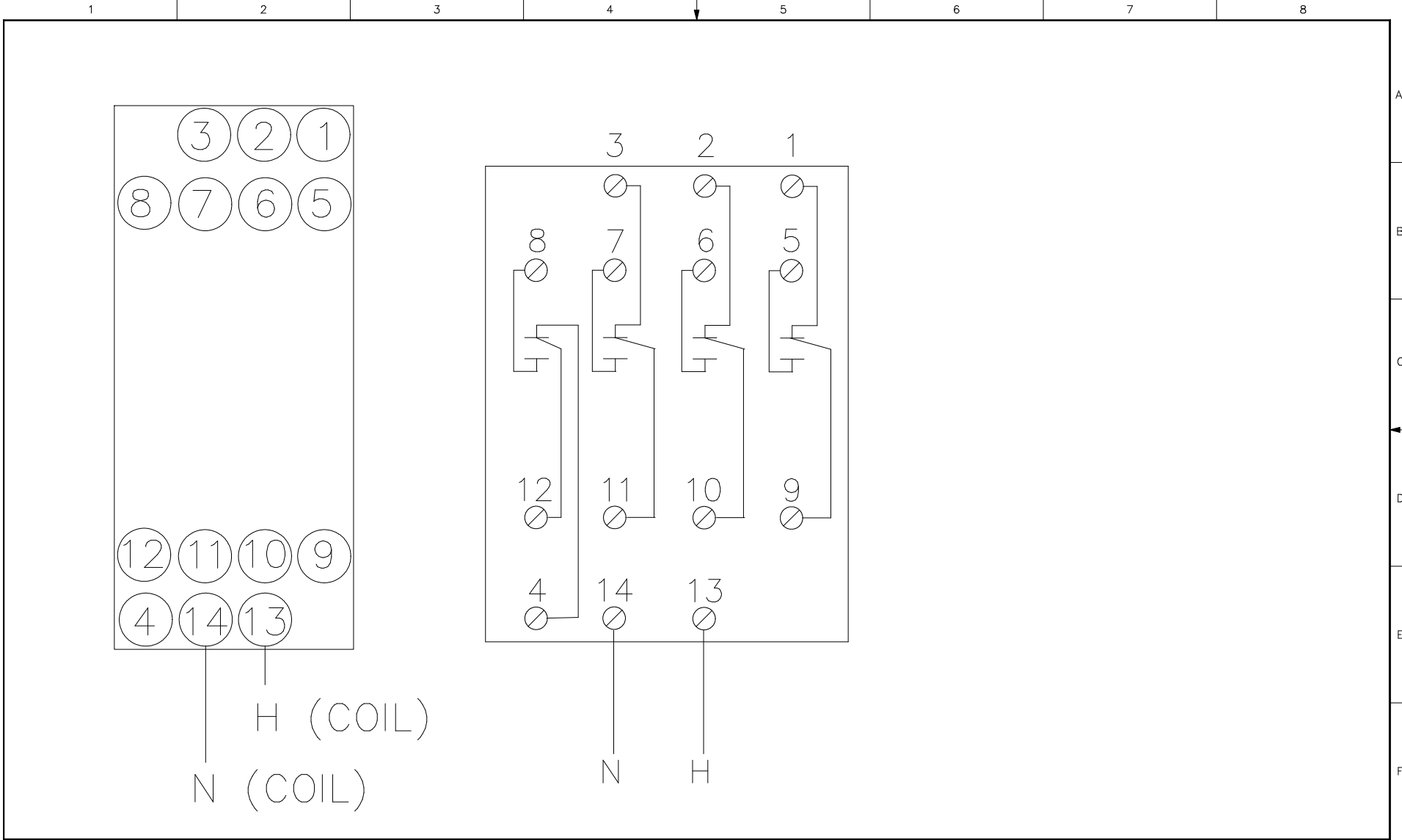
RAMMSTEIN AIR		
REV NO:	2090100	REV:
DES NO:	EE-102	REV:
		1 OF 1

1.2.14 Prep Mode recirc damper



1.2.15

Relay Terminals: SQM



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

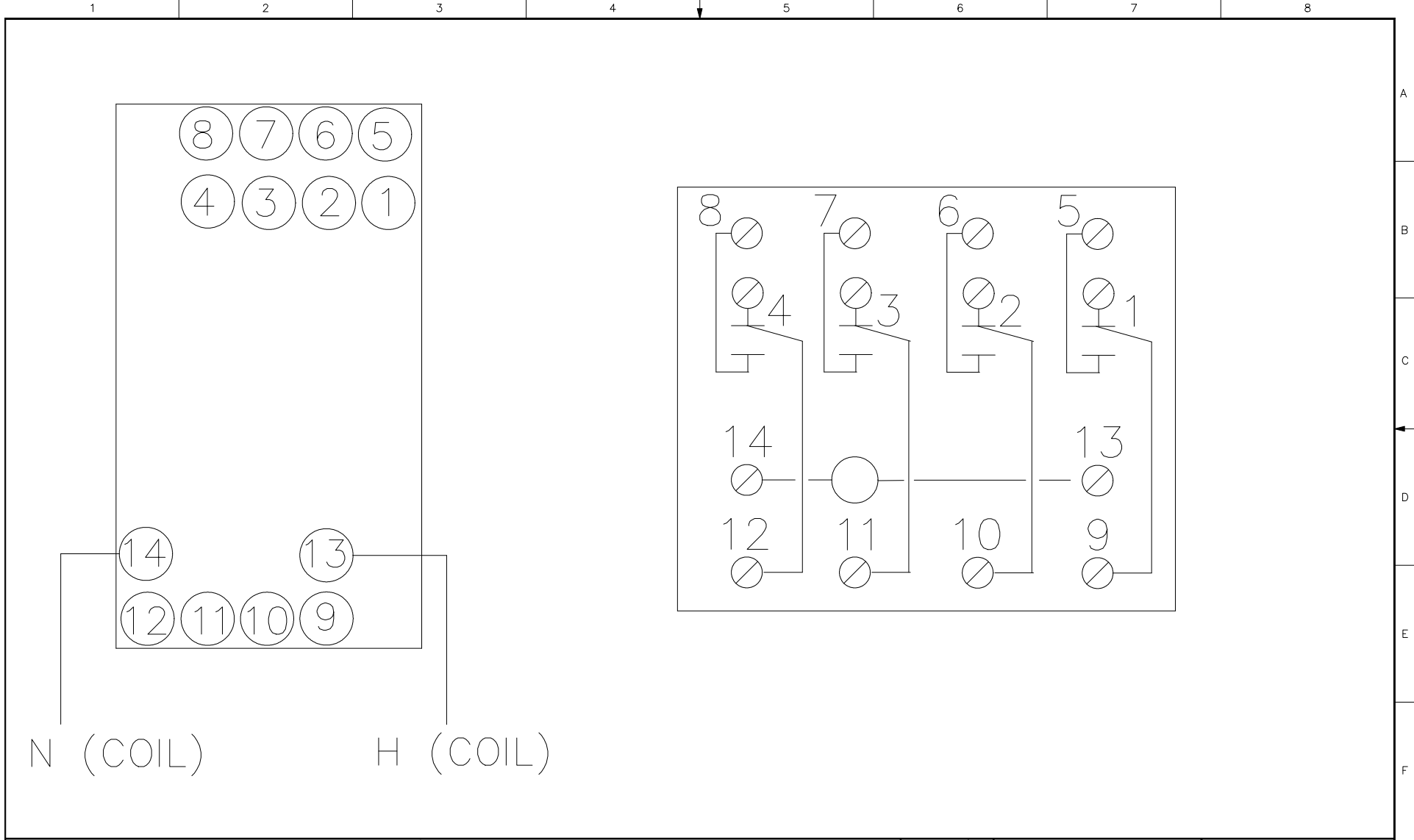
SCALE:	NONE	DATE	
DRWN			
CHK'D	-	-	
ENGR	-	-	
APPTD	-	-	

RELAY : SQM
 WIRING DIAGRAM
 04-23-2013

RAMMSTEIN AIR		
JOB NO.	DWG NO.	SHEET
2090100	EE-102	1 of 1

1.2.16

Relay Terminals: 784



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

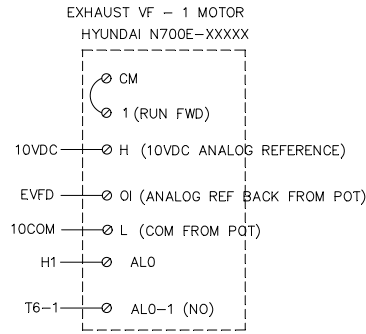
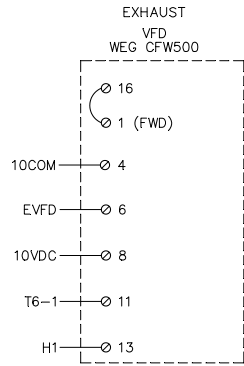
SCALE:	NONE	DATE
DRWN		
CHK'D	.	.
ENGR	.	.
APP'D	.	.

RELAY : 784
 WIRING DIAGRAM
 09-10-2013

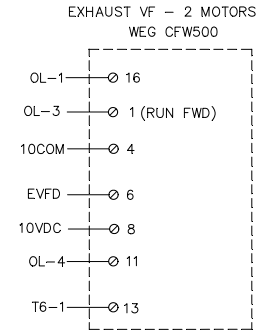
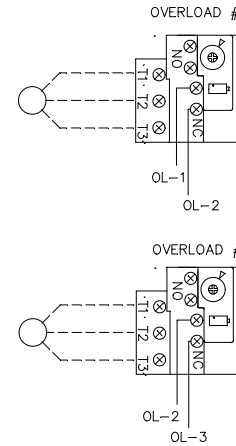
RAMMSTEIN AIR		
REV NO.	REV NO.	PAGE
2090100	EE-102	1 of 1

1.2.17 Exhaust VFD wiring – 1 or 2 exhaust motors

EXHAUST VFD-SINGLE MOTOR

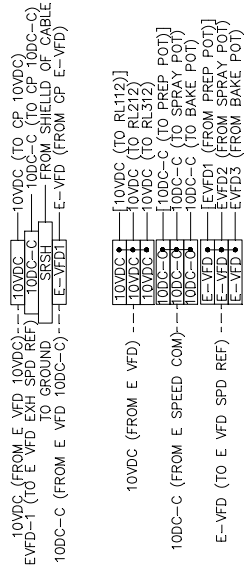


EXHAUST VFD-MULTI MOTOR

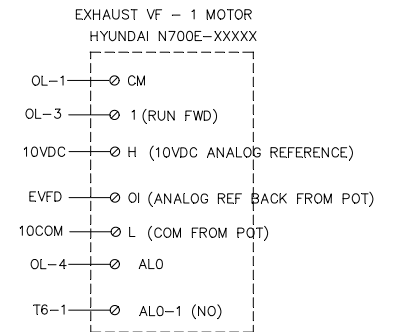
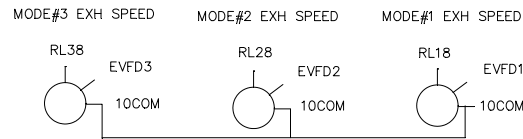


GTP

CP



EXHAUST FAN SPEED CONTROL POTENTIOMETERS



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

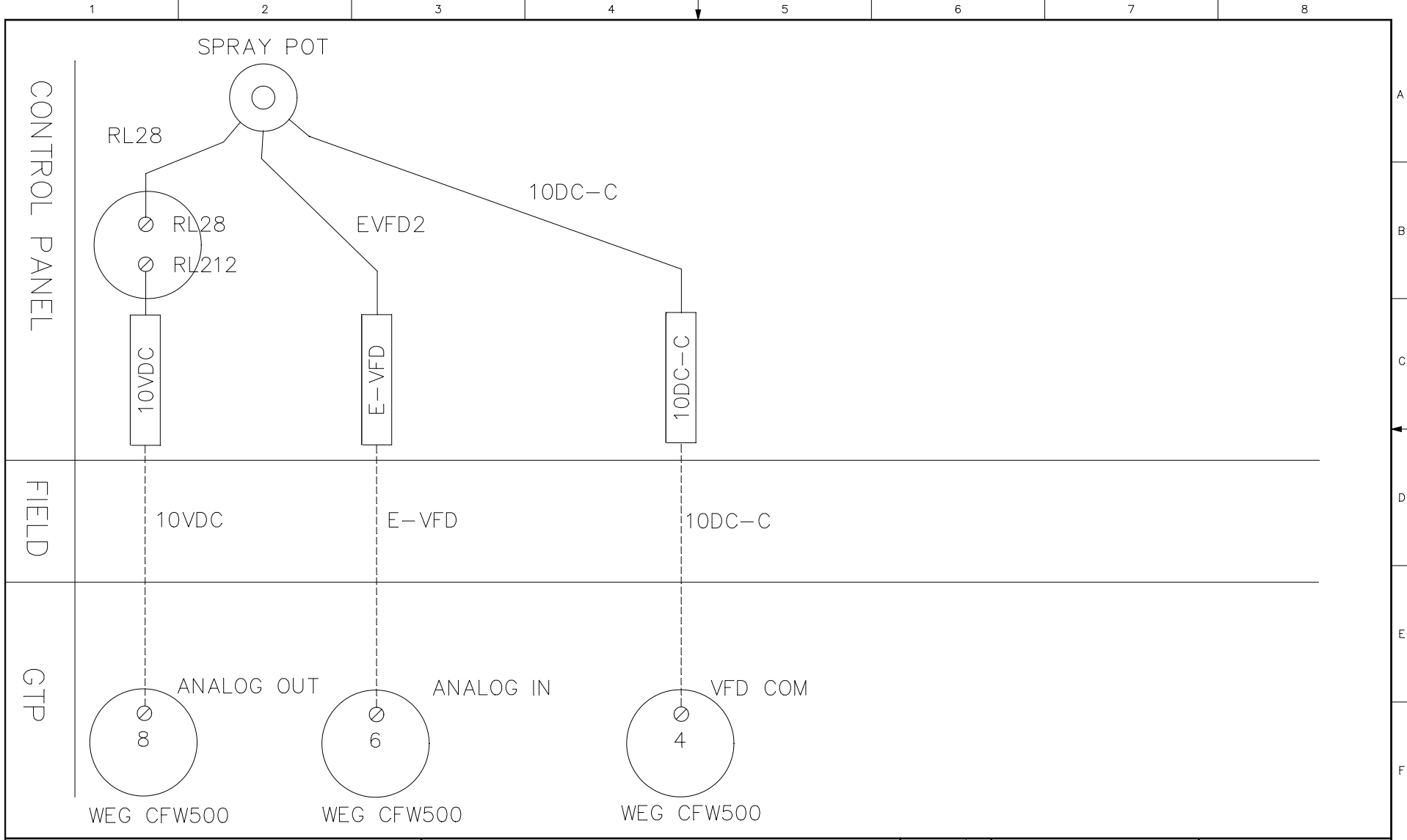
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHKD:			
ENGR:			
APPD:			

OPTION:
 EXHAUST VFD WIRING
 07-25-2015

RAMMSTEIN AIR		
ENERGY EFFICIENT PANEL WIRING		
REV NO: 2090100	REV NO: EE-102	REV: 1 of 1

1.2.18 Spray Mode exhaust VFD – manual balance



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

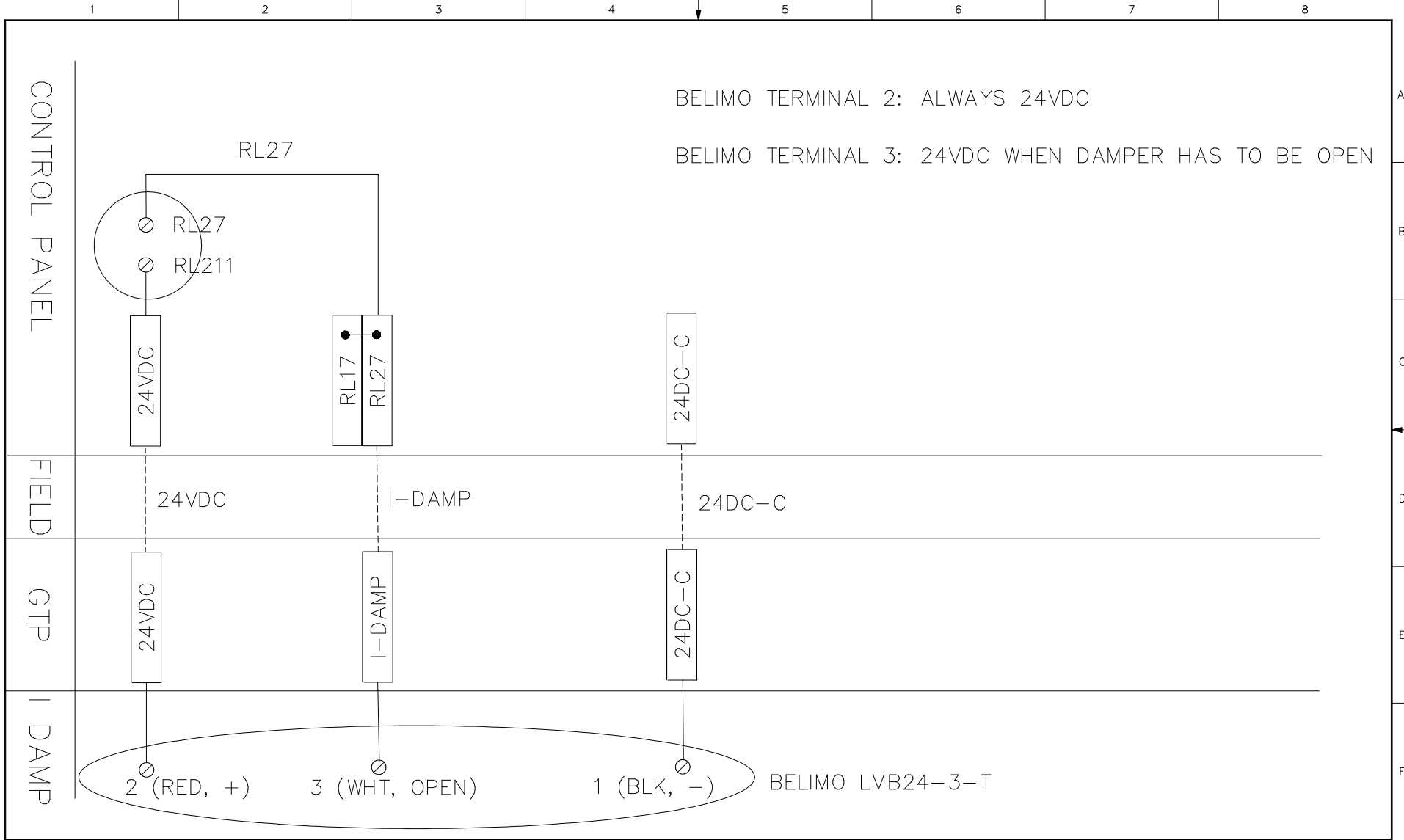
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRAWN:			
CHK'D:			
ENGR:			
APP'D:			

EXHAUST VFD – MAN BAL
 SPRAY MODE
 WIRING DIAGRAM
 08-08-2015

RAMMSTEIN AIR		
REV NO.	2090100	REV
REV NO.	EE-102	REV
		1 OF 1

1.2.19 Spray Mode intake damper



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

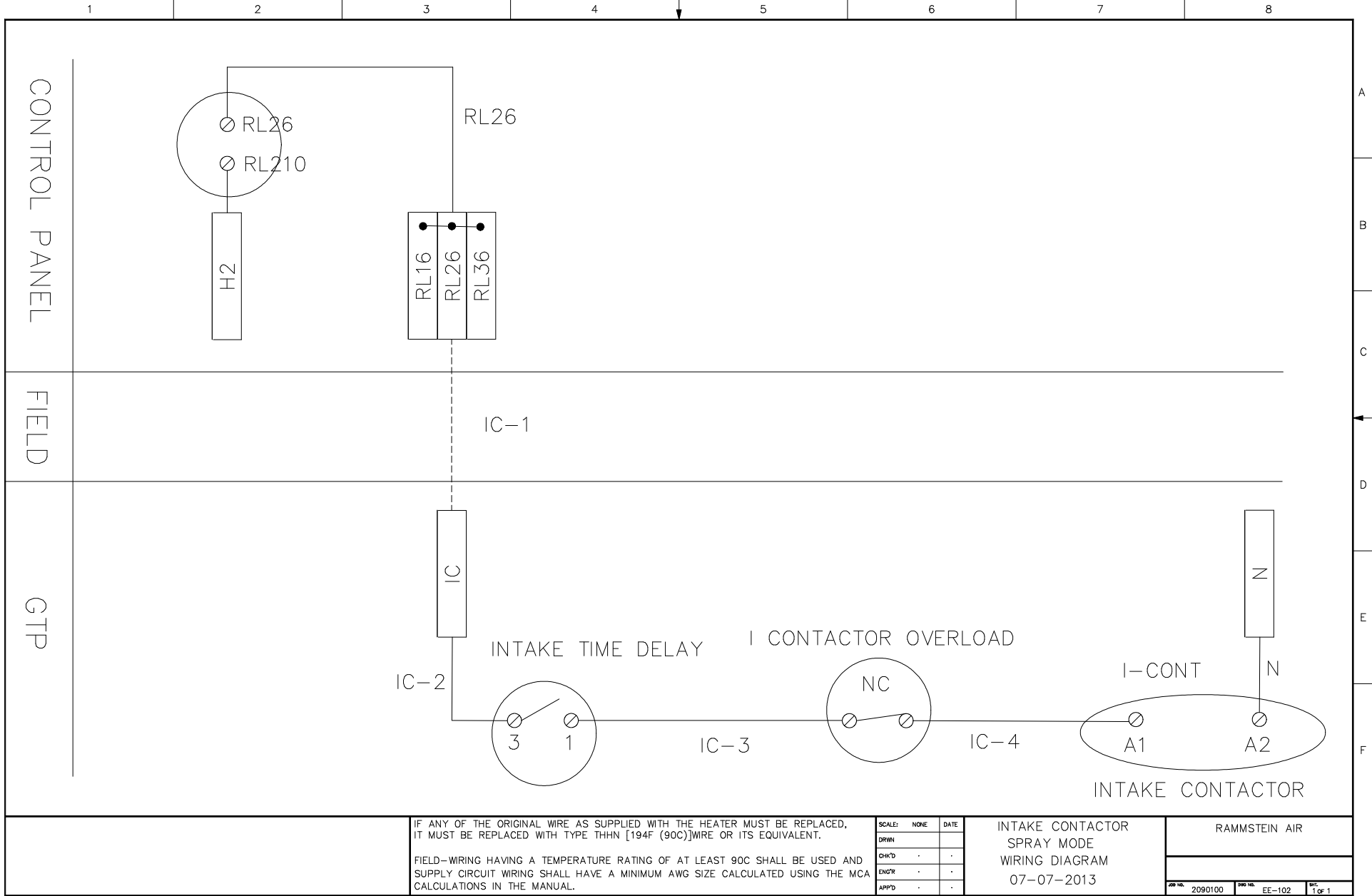
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APPR:			

INTAKE DAMPER POSITION
 SPRAY MODE
 WIRING DIAGRAM
 04-24-2013

RAMMSTEIN AIR	
JOB NO. 2090100	REV. NO. EE-102
PAGE 1 OF 1	

1.2.20 Spray Mode intake contactor



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

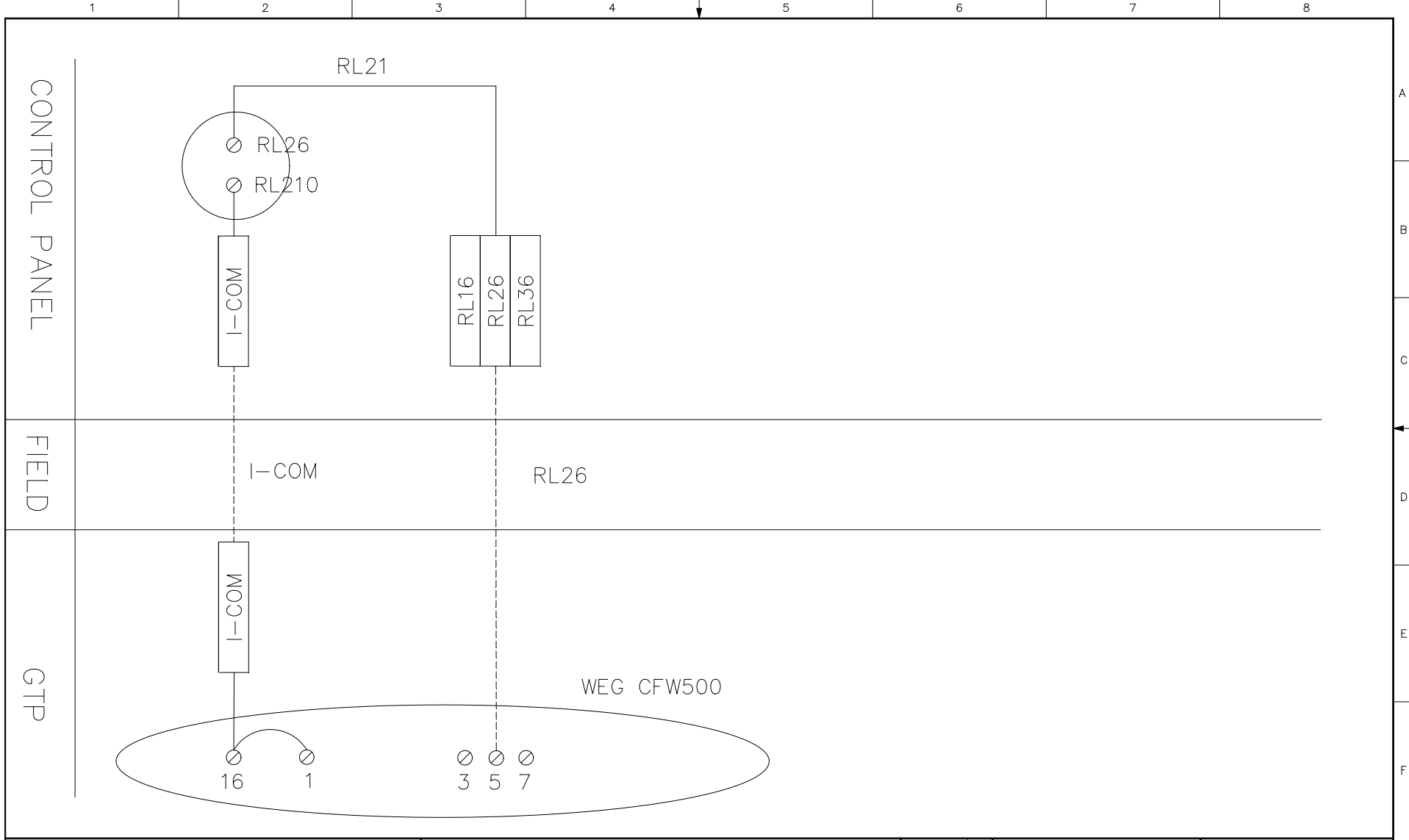
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	.		
ENGR:	.		
APPR:	.		

INTAKE CONTACTOR
 SPRAY MODE
 WIRING DIAGRAM
 07-07-2013

RAMMSTEIN AIR	
JOB NO. 2090100	REV. NO. EE-102
PAGE 1 OF 1	

1.2.21 Spray Mode intake VFD



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

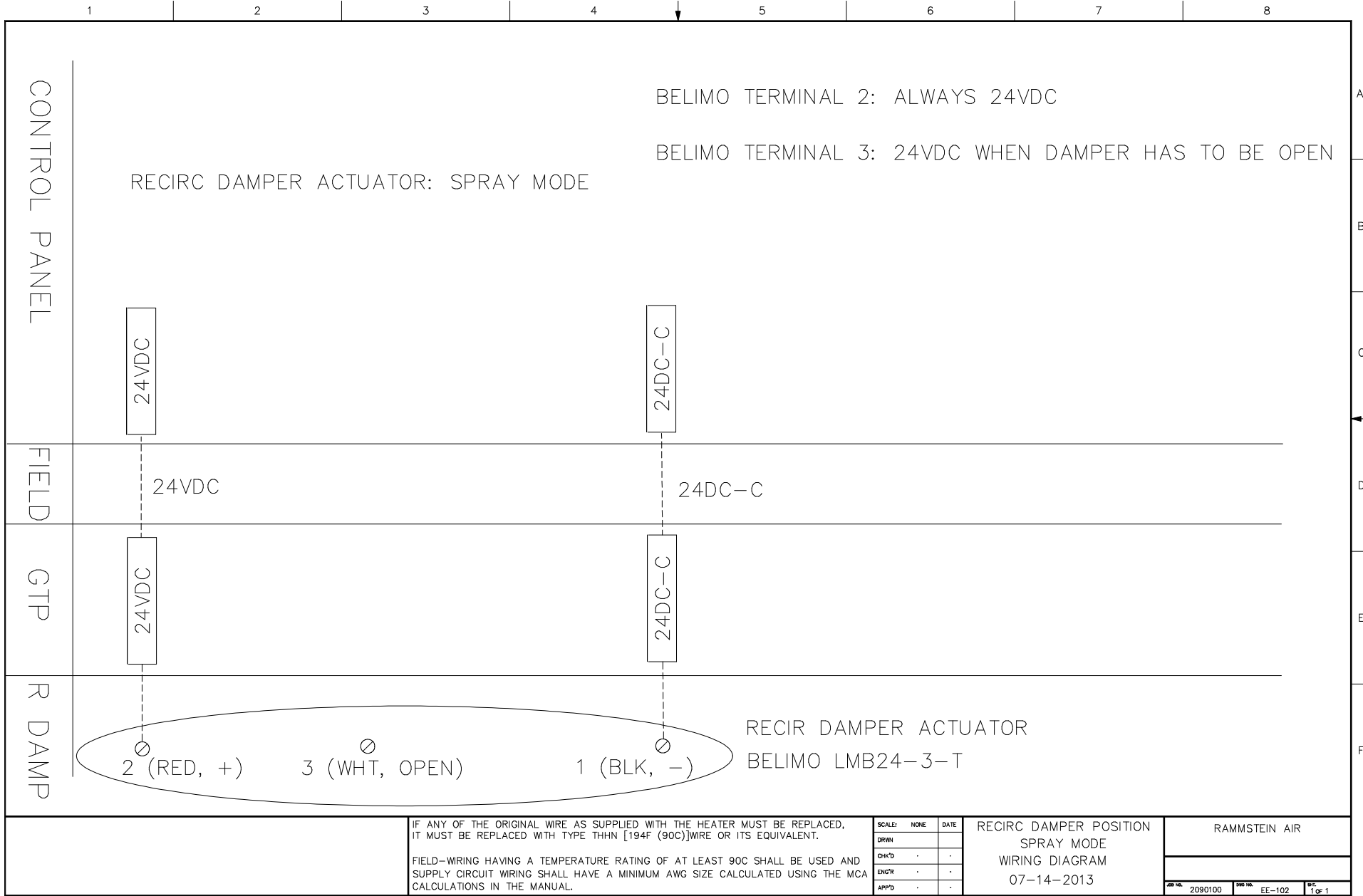
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	.		
ENGR:	.		
APP'D:	.		

INTAKE VFD
 SPRAY MODE
 WIRING DIAGRAM
 08-08-2015

RAMMSTEIN AIR		
REV NO:	2090100	REV:
REV NO:	EE-102	REV:
		1 OF 1

1.2.22 Spray Mode recirc damper



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

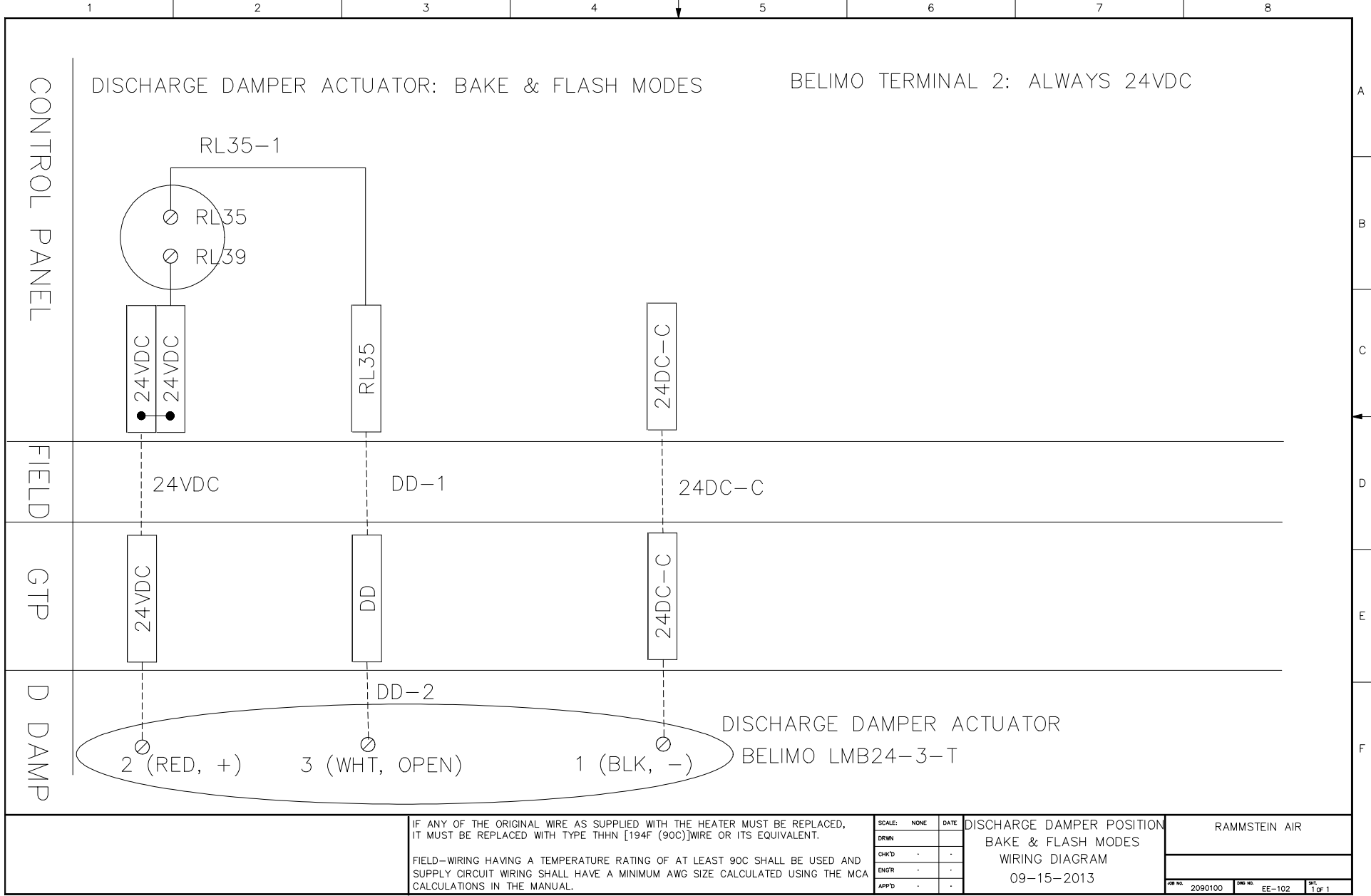
SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	-		
ENGR:	-		
APPRD:	-		

RECIRC DAMPER POSITION
 SPRAY MODE
 WIRING DIAGRAM
 07-14-2013

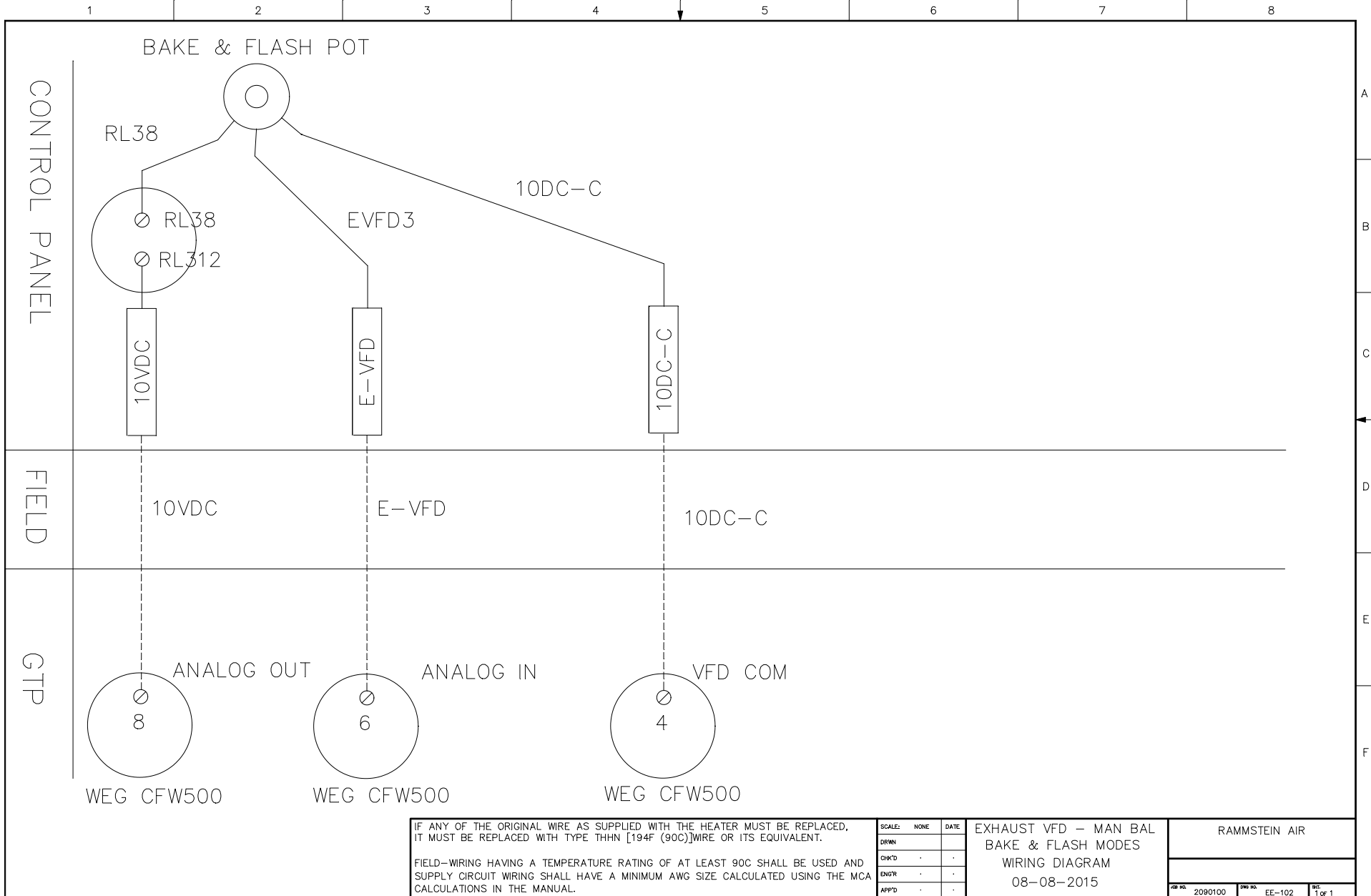
RAMMSTEIN AIR	
JOB NO. 2090100	REV. NO. EE-102
PAGE 1 OF 1	

1.2.23

Bake Mode discharge damper – 2 position



1.2.24 Bake Mode exhaust VFD – manual balance



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

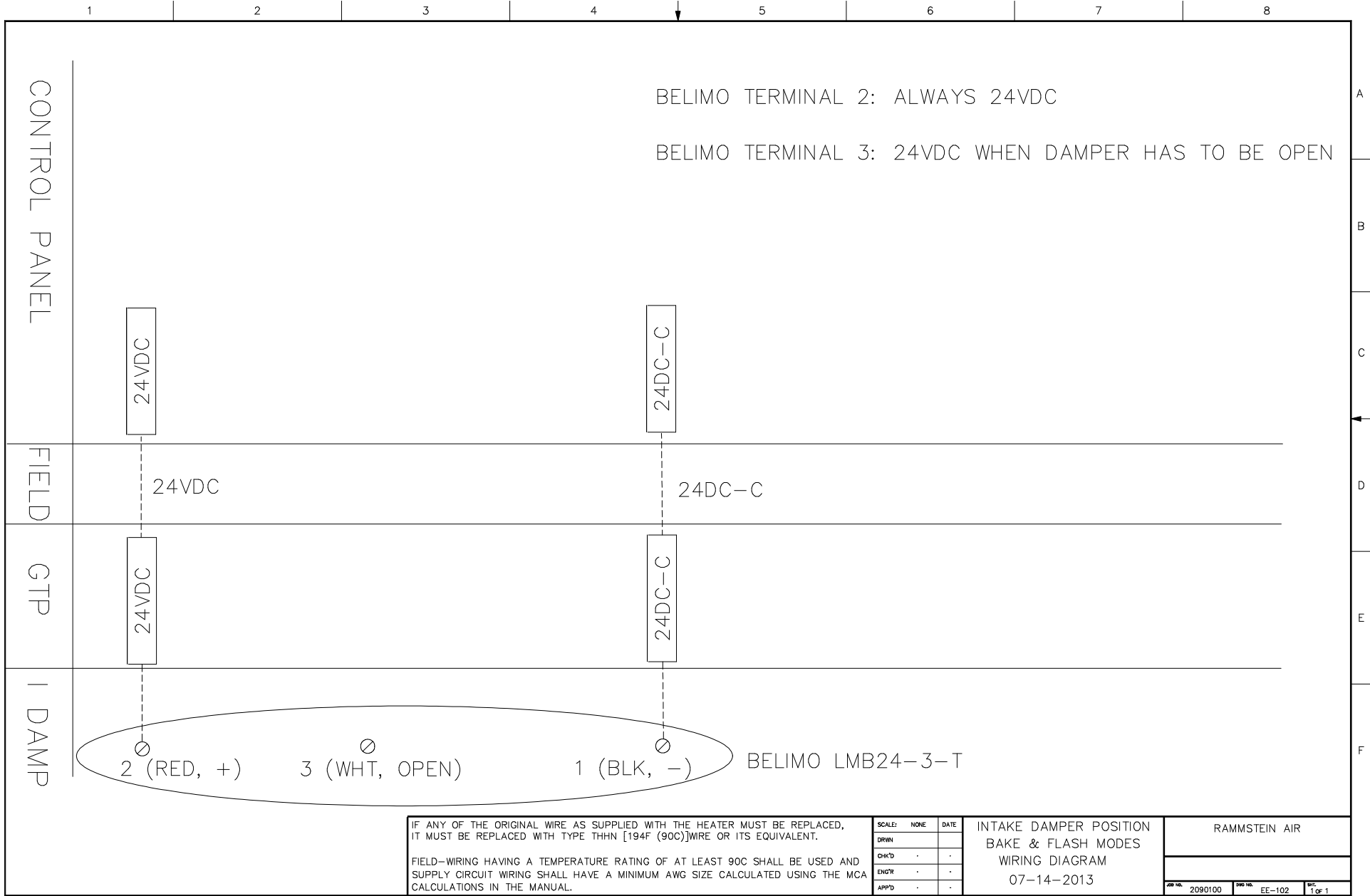
SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APP'D:			

EXHAUST VFD – MAN BAL
BAKE & FLASH MODES
WIRING DIAGRAM
08-08-2015

RAMMSTEIN AIR		
REV NO:	2090100	REV:
DES NO:	EE-102	REV:
		1 OF 1

1.2.25

Bake Mode intake damper



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

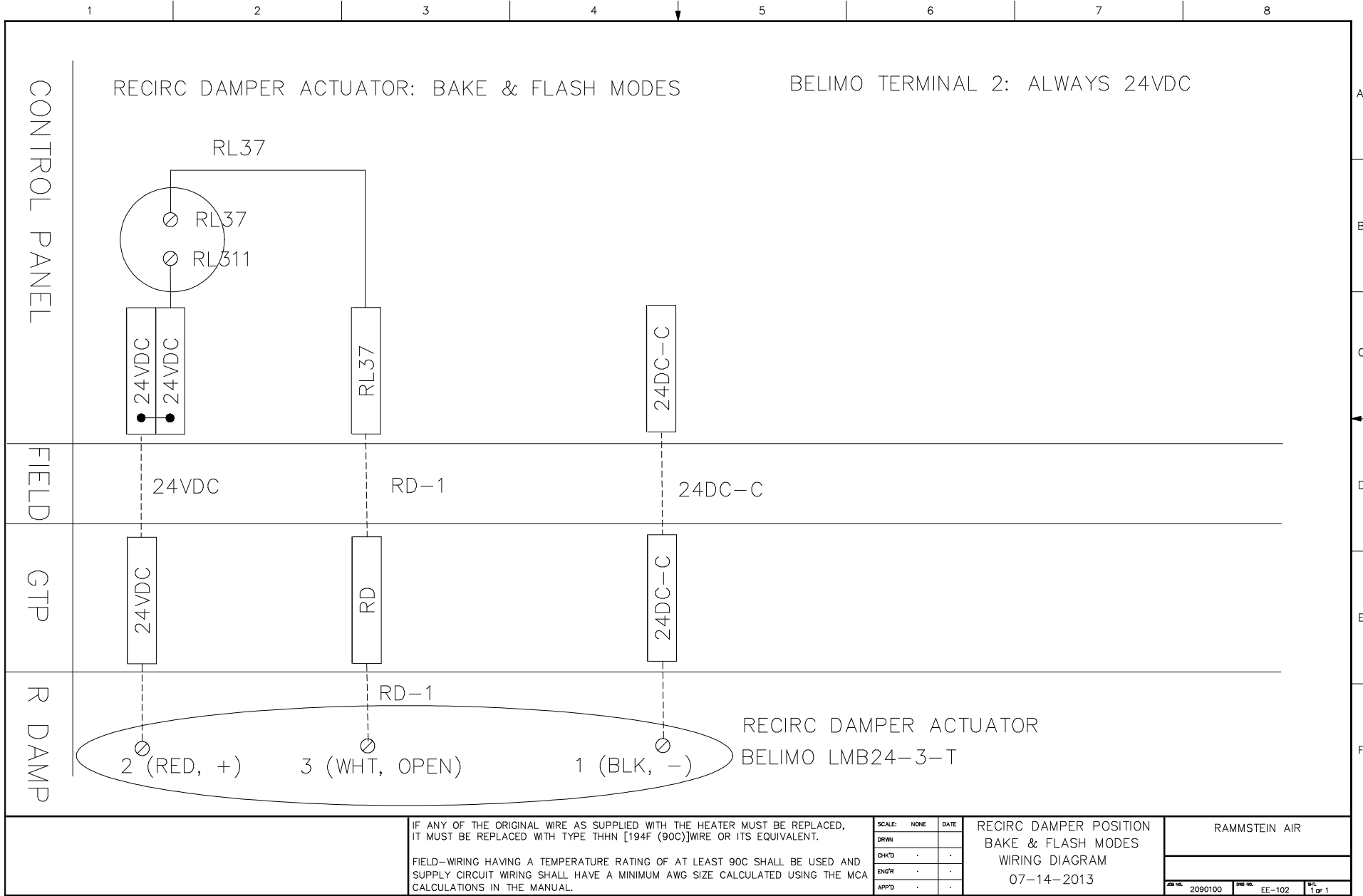
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE	
DRWN			
CHK'D	-	-	
ENGR	-	-	
APPR	-	-	

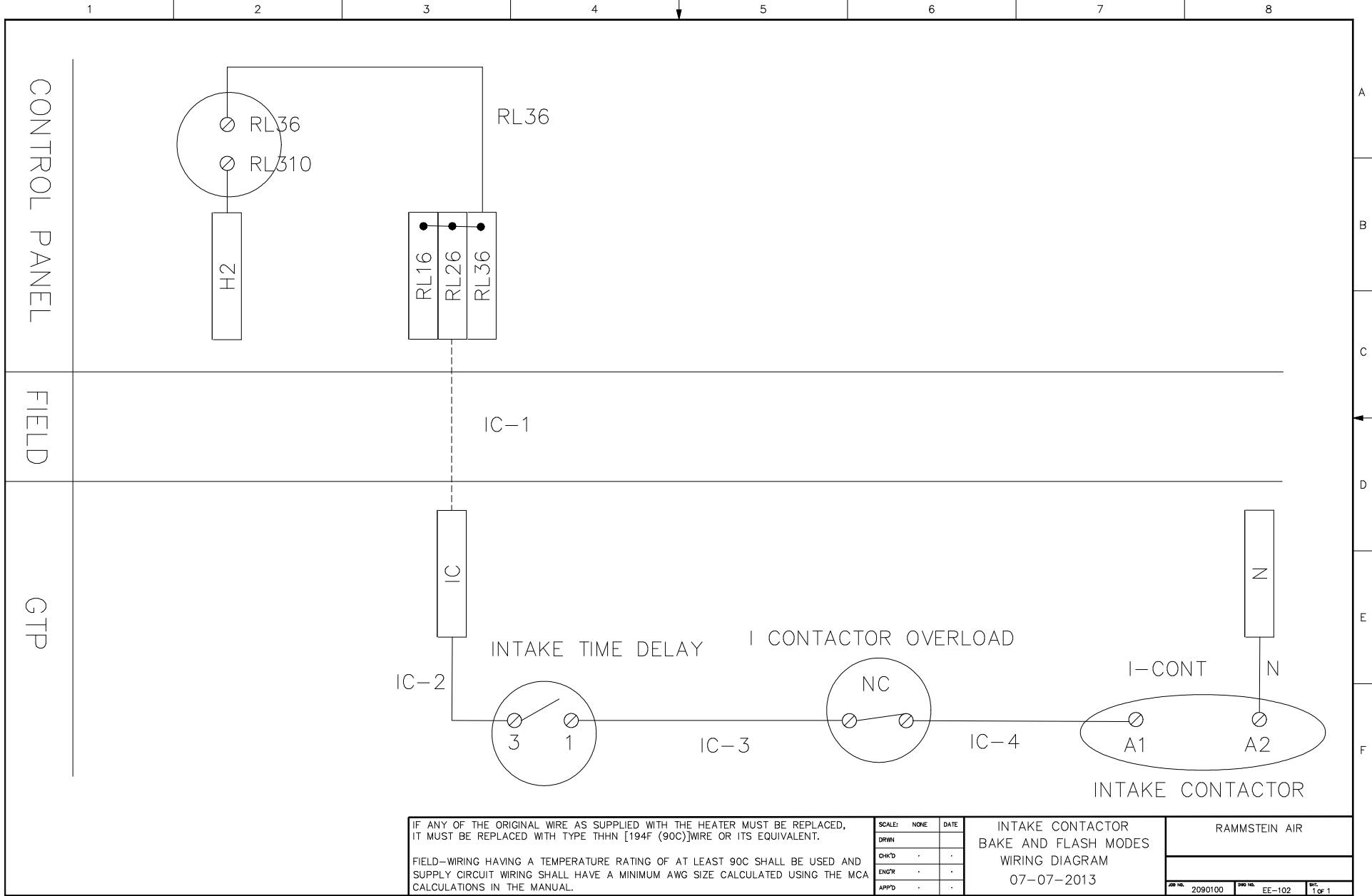
INTAKE DAMPER POSITION
BAKE & FLASH MODES
WIRING DIAGRAM
07-14-2013

RAMMSTEIN AIR		
JOB NO.	2090100	REV. NO.
		EE-102
		SHEET 1 OF 1

1.2.26 Bake Mode recirc damper



1.2.27 Bake Mode intake contactor



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

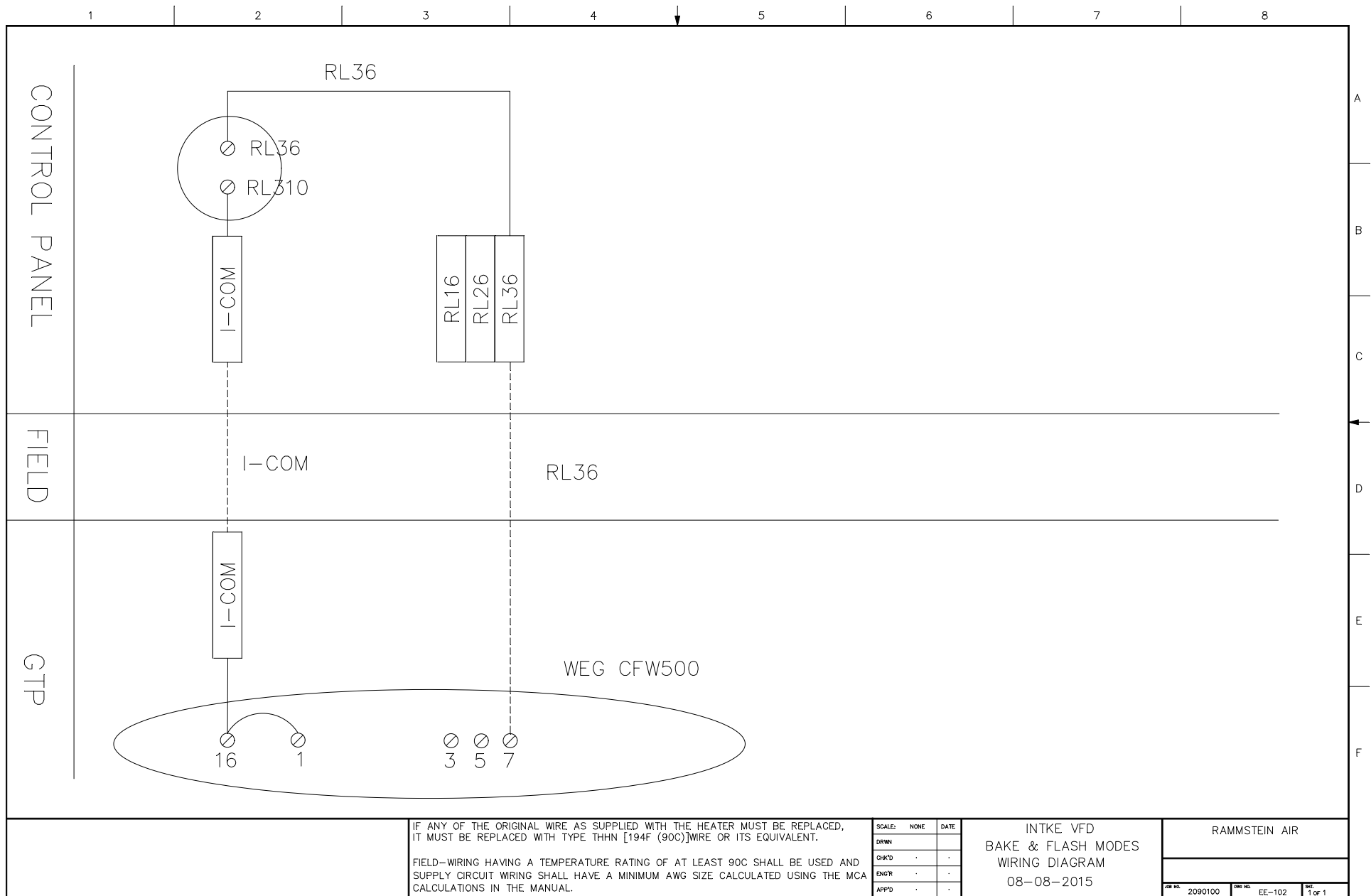
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE
DRWN		
CHK'D	-	-
ENGR	-	-
APPR	-	-

INTAKE CONTACTOR
BAKE AND FLASH MODES
WIRING DIAGRAM
07-07-2013

RAMMSTEIN AIR	
JOB NO. 2090100	REV NO. EE-102
PAGE 1 OF 1	

1.2.28 Bake Mode intake VFD



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

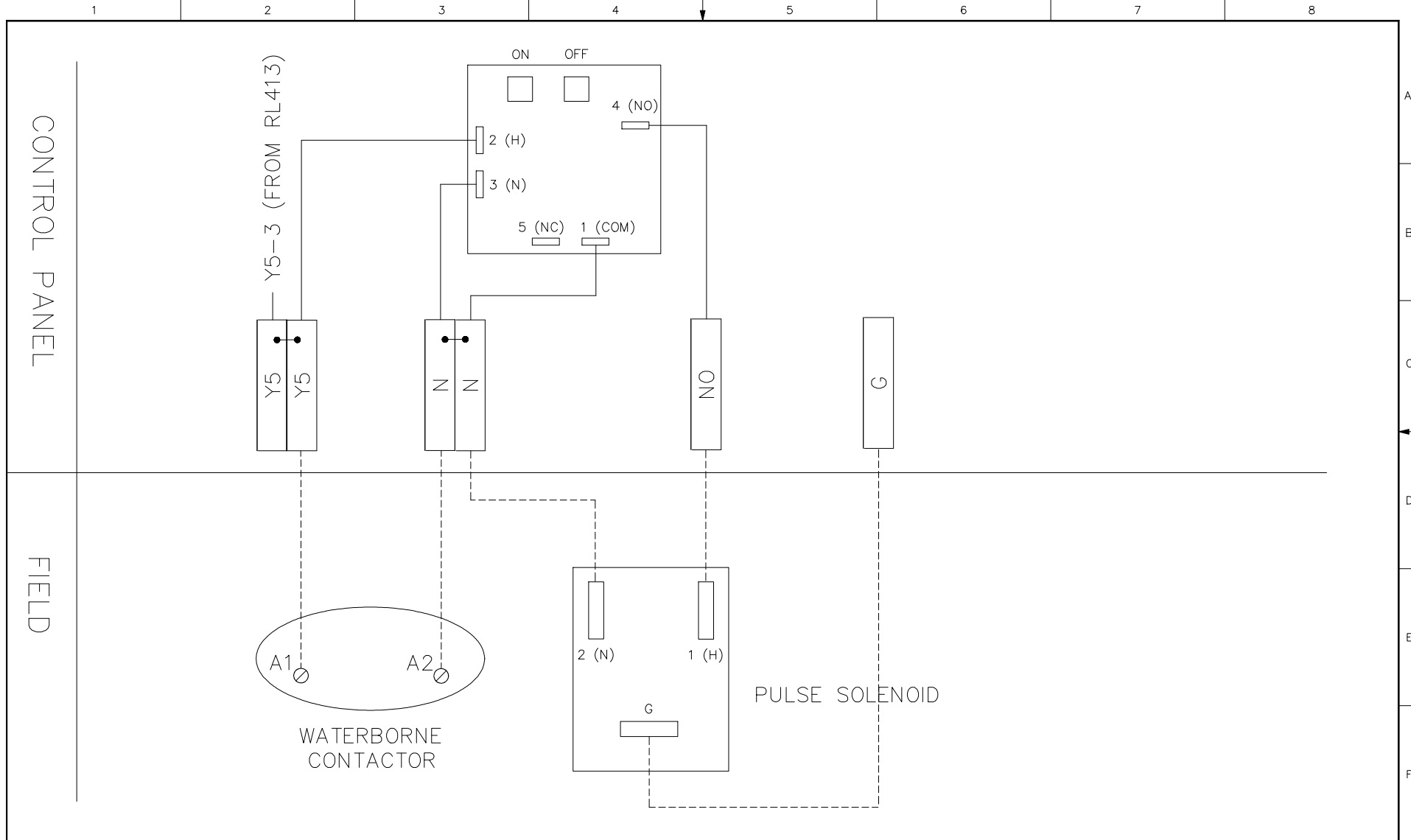
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:	.	.	.
ENGR:	.	.	.
APP'D:	.	.	.

INTKE VFD
BAKE & FLASH MODES
WIRING DIAGRAM
08-08-2015

RAMMSTEIN AIR		
JOB NO.	DWG NO.	SHEET
2090100	EE-102	1 of 1

1.2.29 Waterborne Option (Pulse System)



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

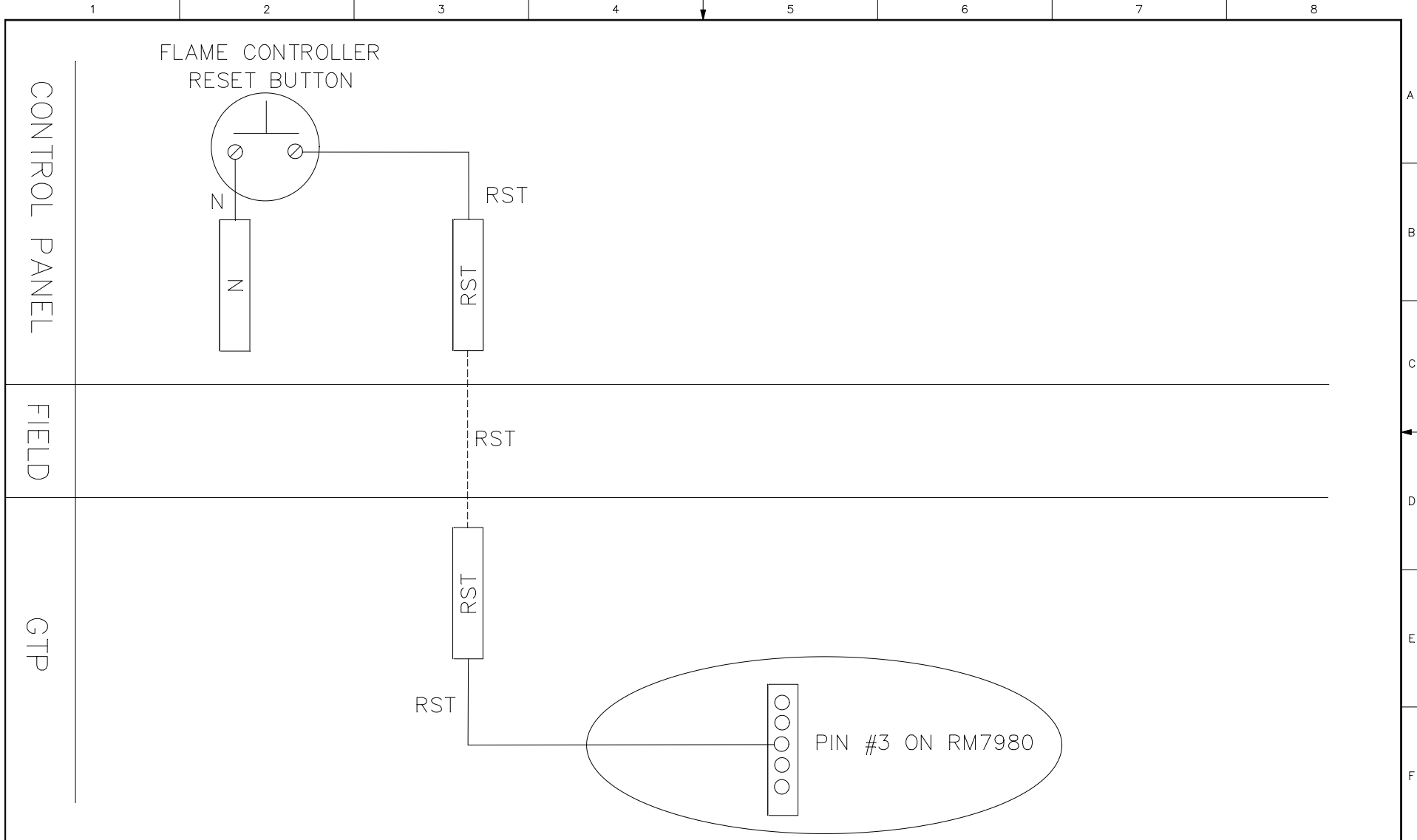
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE
DRWN		
CHKD	-	-
ENGR	-	-
APPD	-	-

PULSE SYSTEM WIRING
WIRING DIAGRAM
09-24-2013

RAMMSTEIN AIR		
JOB NO.	DWG NO.	SHEET
2090100	EE-102	1 OF 1

1.2.30 Reset – flame controller



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

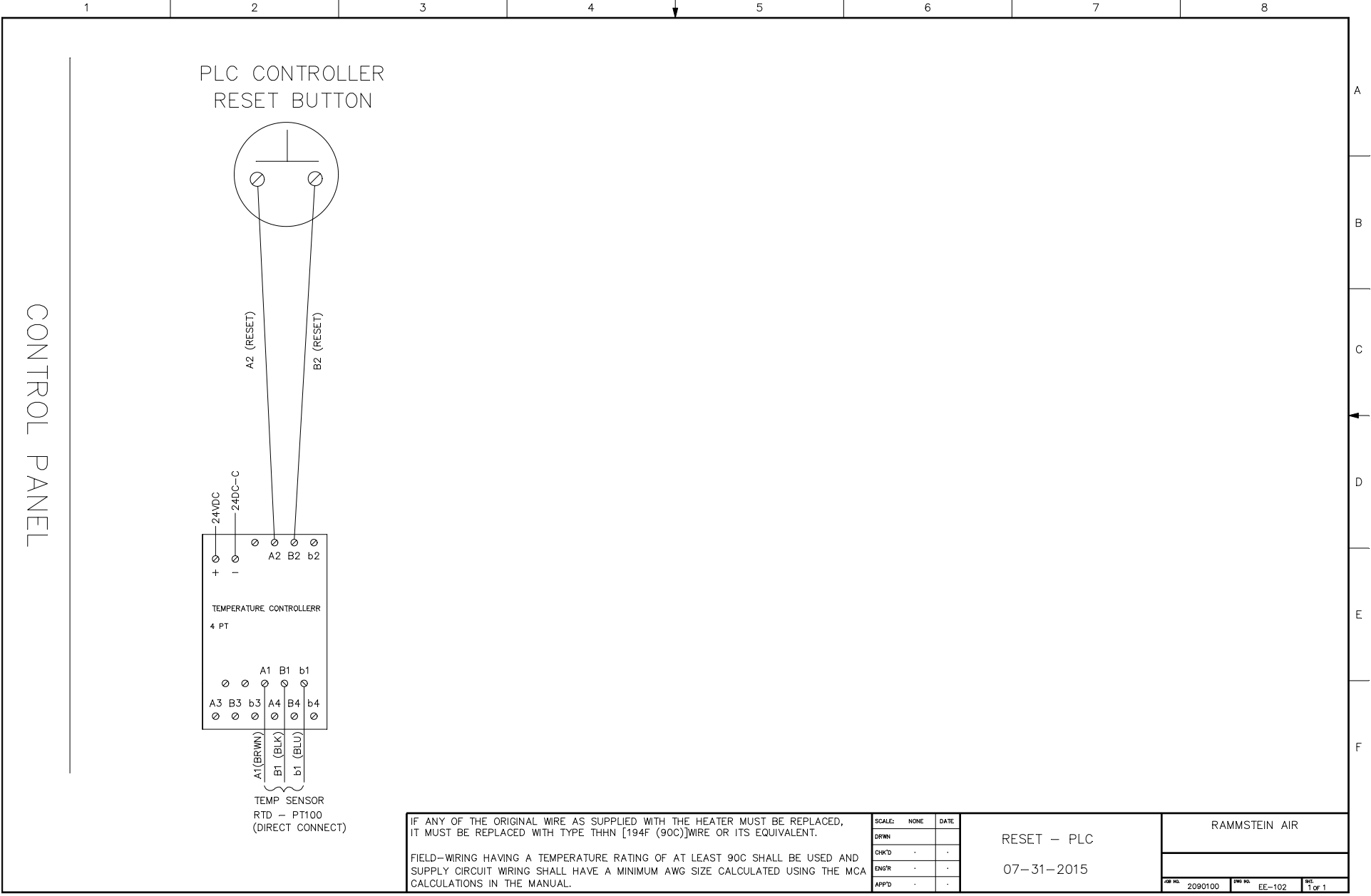
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHK'D:			
ENGR:			
APP'D:			

RESET
FLAME CONTROLLER
07-31-2015

RAMMSTEIN AIR		
REV NO.	REV NO.	REV
2090100	EE-102	1 of 1

1.2.31 Reset – PLC error messages



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

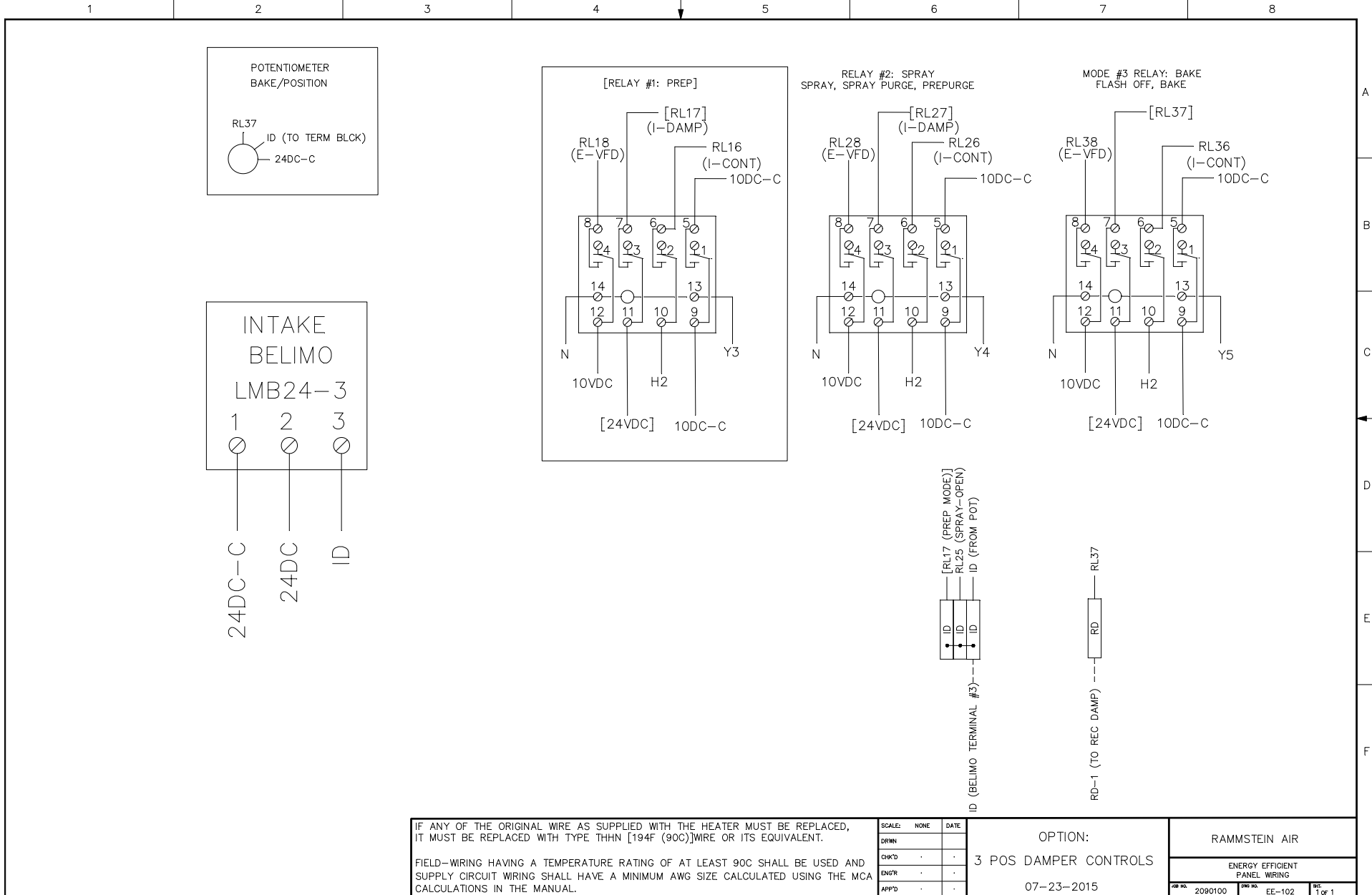
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:
DRWN:		
CHK'D:		
ENGR:		
APP'D:		

RESET – PLC
07-31-2015

RAMMSTEIN AIR		
REV NO:	2090100	REV: 1 of 1
DES NO:	EE-102	

1.2.32 Damper – 3 way



IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

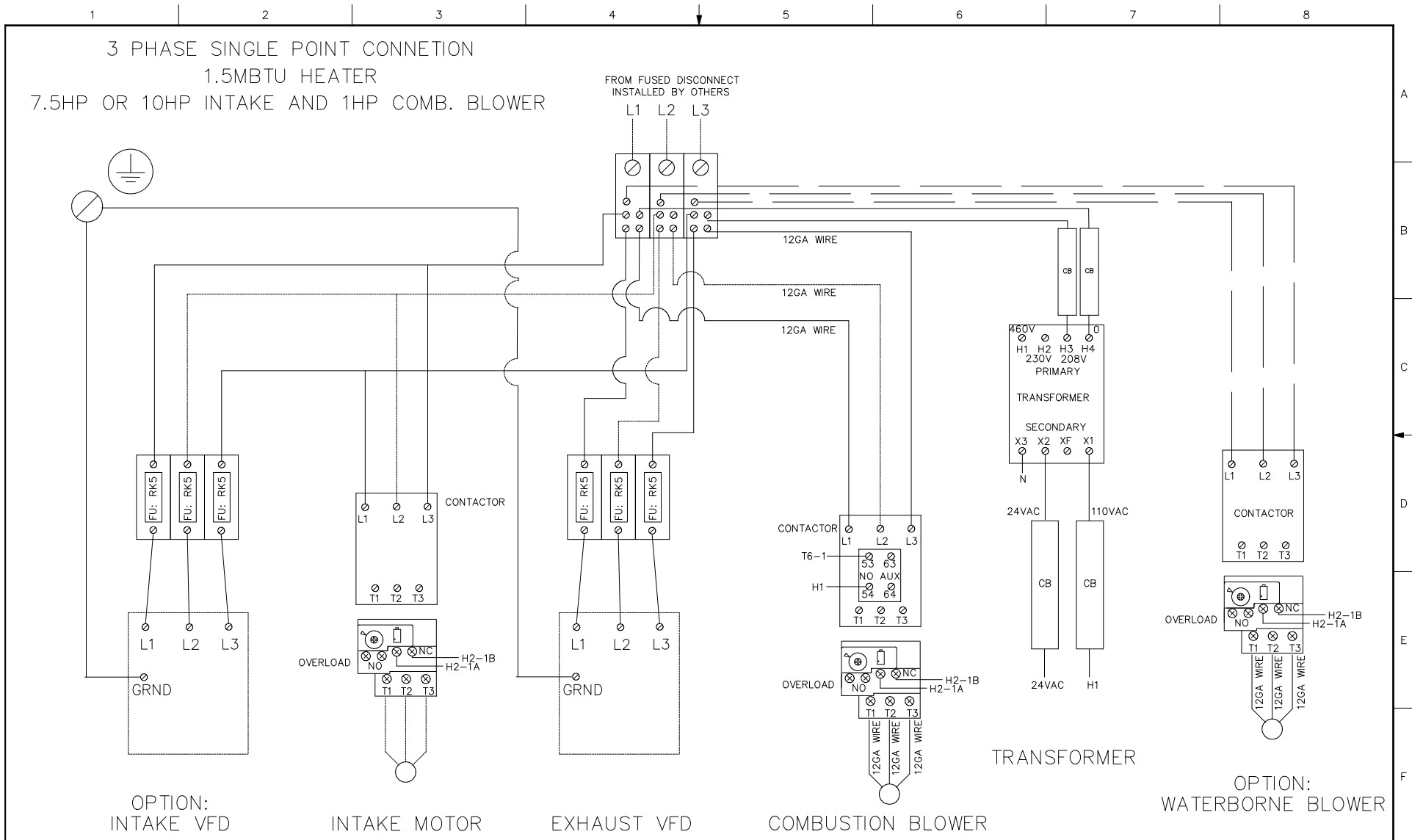
FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE:	
DRWN:			
CHKD:			
ENGR:			
APPD:			

OPTION:
3 POS DAMPER CONTROLS
07-23-2015

RAMMSTEIN AIR		
ENERGY EFFICIENT PANEL WIRING		
REV NO. 2090100	REV NO. EE-102	REV 1 of 1

1.2.33 Single Point Connection



OPTION:
INTAKE VFD

INTAKE MOTOR

EXHAUST VFD

COMBUSTION BLOWER

OPTION:
WATERBORNE BLOWER

IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE HEATER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE THHN [194F (90C)] WIRE OR ITS EQUIVALENT.

FIELD-WIRING HAVING A TEMPERATURE RATING OF AT LEAST 90C SHALL BE USED AND SUPPLY CIRCUIT WIRING SHALL HAVE A MINIMUM AWG SIZE CALCULATED USING THE MCA CALCULATIONS IN THE MANUAL.

SCALE:	NONE	DATE	
DRWN			
CHK'D			
ENG'R			
APP'D			

OPTION:
SINGLE POINT CONNECTION

04-29-2013

RAMMSTEIN AIR		
SIMPLE HEATER CONTROL DOOR LAYOUT & WIRING		
DRW NO.	SH-101	SHEET 1 OF 1