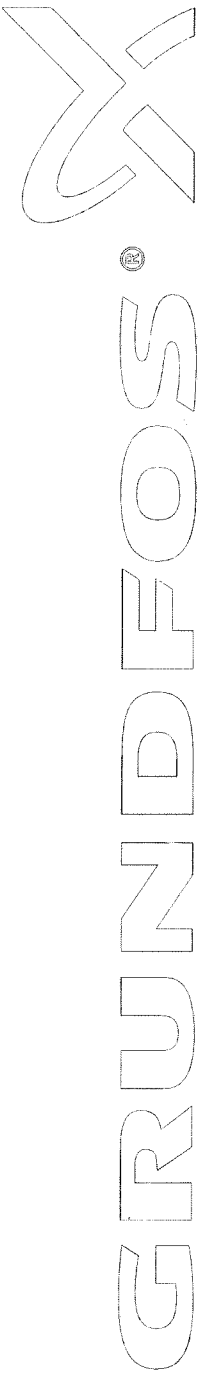


GMU_F26_001



MANUFACTURER: GRUNDFOS PUMPS MANUFACTURING CORPORATION

5900 E SHIELDS
 FRESNO, CA 93727 USA

PANEL DESCRIPTION: MPC EC 20HP 3X460V
 4 PUMP

PANEL PART NUMBER: 91148135
DRAWING NUMBER: 91148135

FEATURES: NORMAL / EMERGENCY SWITCHES, SURGE PROTECTION, RUN LIGHTS, ALARM CIRCUIT
 DISCONNECT SWITCHES, IO351B

**ENCLOSURE MODIFICATION
 PART NUMBER:** 91148235 // 91142294

→ PREVIOUS PAGE		NEXT PAGE → 2	
1158063	5/29/2015	45798	GMJEE
1128269	5/9/2014	24081	1/10/2014
Change Note	Date	Name	Date
MPC EC 20HP 3X460V		COVER PAGE	PAGE NUMBER: 1
4 PUMP		DRAWING NUMBER: 91148135	NUMBER OF PAGES: 22

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Device Legend

Graphic

Definition

Typical Device Tag

(##.##)
(Page.Column)

(##.##)



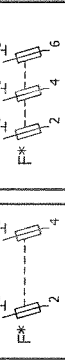
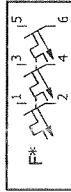
Three Pole Rotary Disconnect Switch

Q



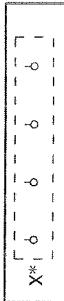
One, Two, Three Pole Circuit Breaker

F



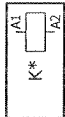
Single, Double, Triple Safety Fuse

F



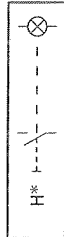
Terminal Strip

X



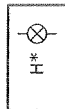
Relay Coil

K



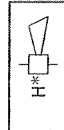
Illuminated Pushbutton

H



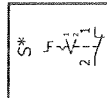
Pilot Light

H



Horn - Audible Alarm

H



Two Position Selector Switch

S



Temperature Actuated Switch

S

2 -- PREVIOUS PAGE

NEXT PAGE -- 4

1158063	5/29/2015	45798	GM/JEE	Drawer	MPC EC 20HP 3X460V
1128269	5/29/2014	24881	11/10/2014	Date	4 PUMP
			GM/JEE	Approved	
			1/28/2014	Date	
Change Note	Date	Name			

	LEGEND
	DRAWING NUMBER: 91148135
	PAGE NUMBER: 3
	NUMBER OF PAGES: 22



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Feeder Circuit Protection:

Feeder Circuit Protection to be Provided by Installer. Type and Size to be based upon Local, State, and National Electrical Codes.

SCCR Rating: 5kA Symmetrical, 480V Max.

Largest Motor FLA and Panel Maximum FLA:

Motor Horsepower →	20
Motor FLA	27
Panel Max. FLA	102

Field Installed Options Wiring Requirements

- Digital Inputs: 20 to 14AWG 600V Copper Wire
- Analog Inputs/Outputs: 20 to 14AWG 2 wire Shielded Cable
- Digital Outputs (Dry Contacts): 20 to 14AWG 600V Copper Wire

Wiring Colors

- BLK = BLACK
- WH = WHITE
- GNYE = GREEN-YELLOW
- RD = RED

Wiring Sizes & Wiring Technical Characteristics

- All Wire is 600V MTW Copper Wire
- Motor Supply Wire: 10AWG based on SFA of Motor
- A-Y-B Cable for GENIBUS connection: 4 x 22AWG 600V Shielded Cable

Safety / Application Notes:

****Please Reference the "BOOSTERPAQ - HYDRO MPC" Installation and Operating Instructions "BEFORE" Applying power to Panel.**

**Power supply wires in front of main disconnect switch (Q0) have dangerous voltage even though the main disconnect switch is off.

**Control Panel must be connected professionally to the earth / ground.

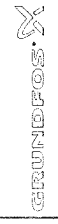
**GRUNDFOS MLE motors have an integrated variable frequency drive (VFD) which provides motor overload protection. If a system utilizes MLE motors, the motor overload protection is provided by the VFD and does not require any additional motor overload protection.

3 -- PREVIOUS PAGE

1158063	5/29/2013	45798	Drawer	GRUEE
1128769	5/9/2014	24081	Date	1/10/2014
Change Note	Date	Name	Approved	Date
			GRUEE	1/28/2014

MPC EC 20HP 3X460V
4 PUMP

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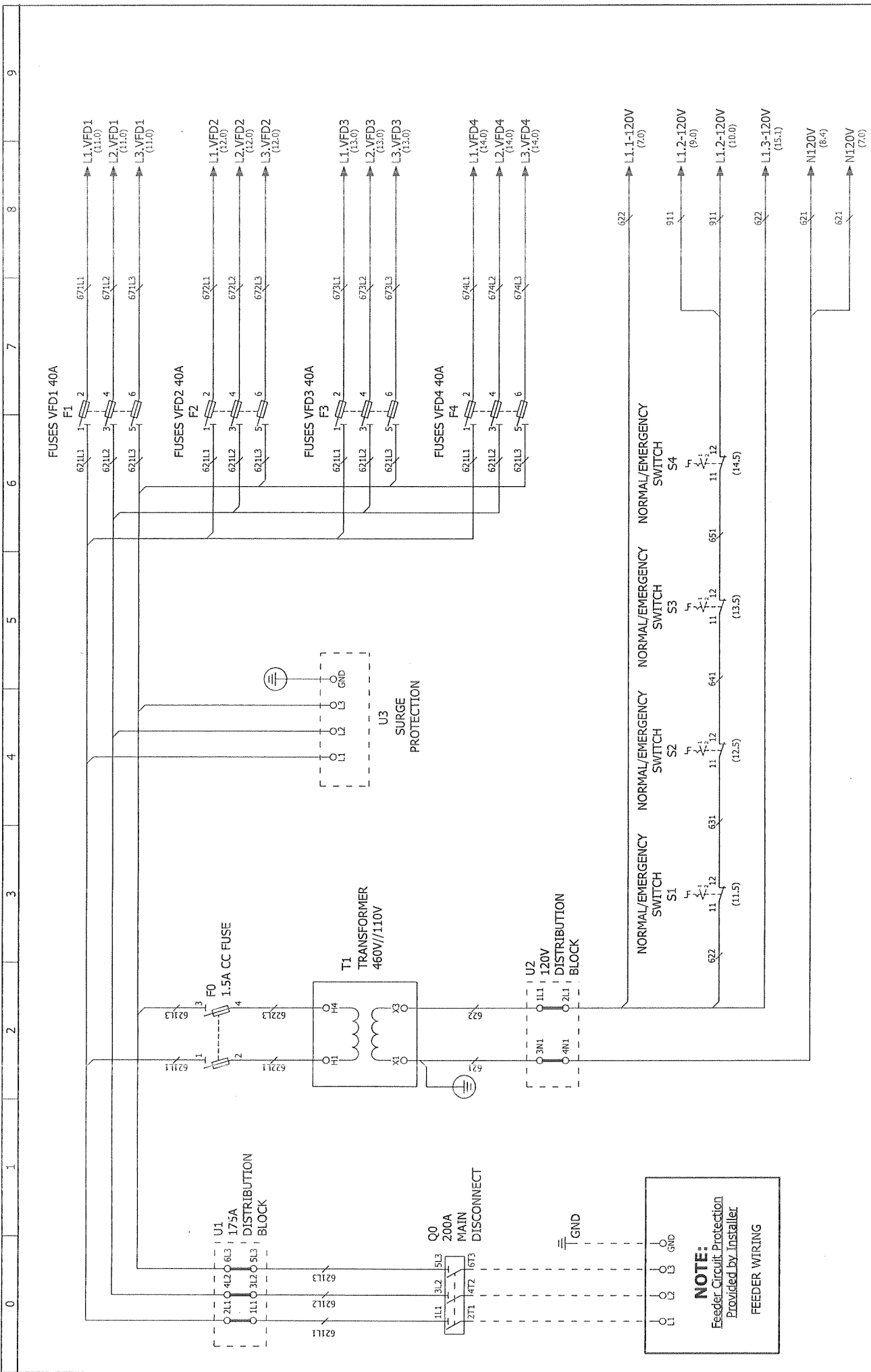
GENERAL INFORMATION

DRAWING NUMBER: 91148135

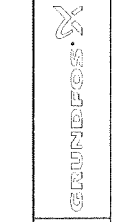
NEXT PAGE -- 6

PAGE NUMBER: 4

NUMBER OF PAGES: 22



NOTE:
Feeder Circuit Protection
Provided by Installer
FEEDER WIRING

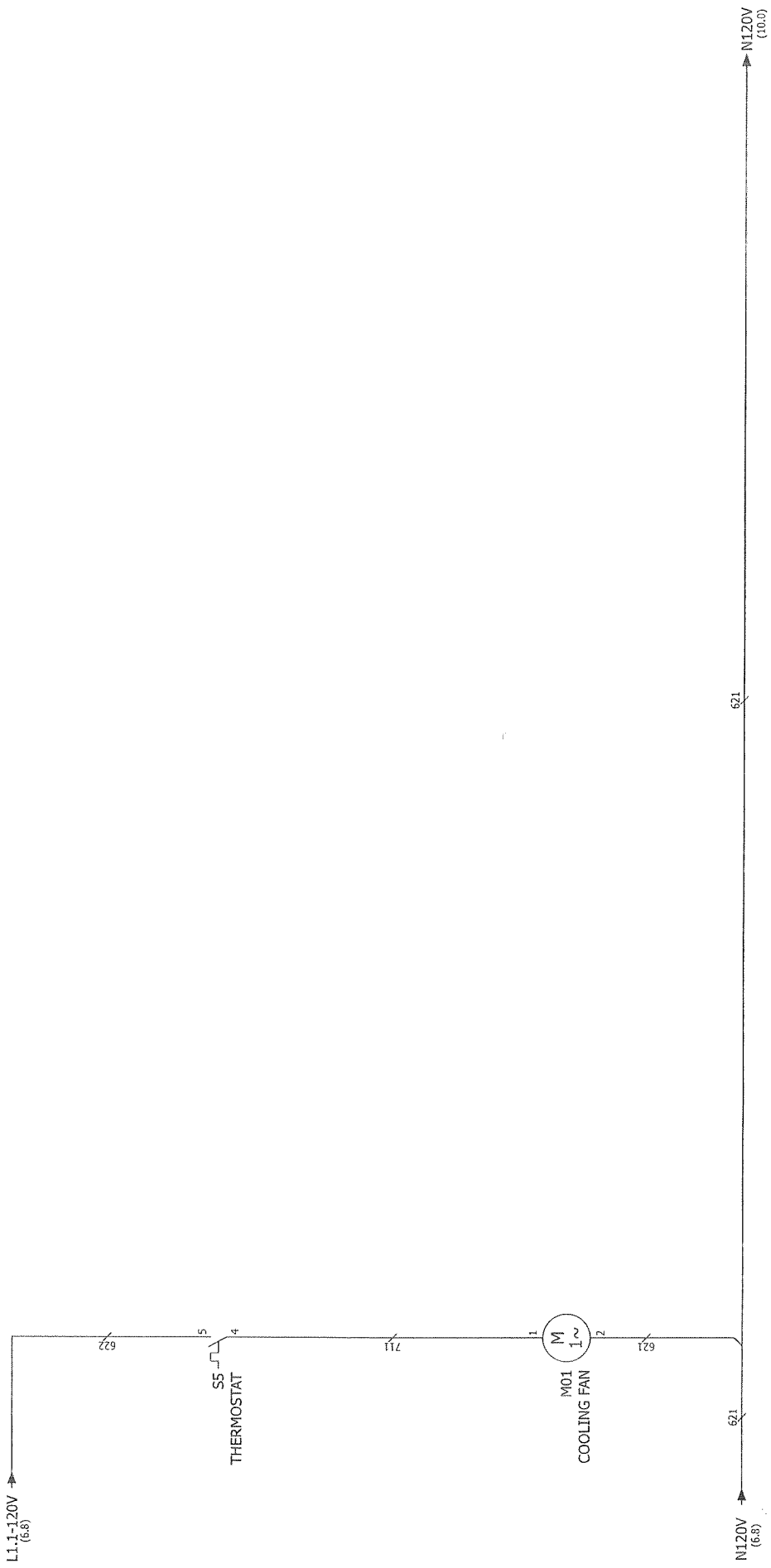


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MPC EC 20HP 3X460V
4 PUMP

Change Note	Date	Name	Approved	Date	GM/JASA	GM/JASA
	5/29/2015	45798	GM/JASA	1/10/2014		
	5/9/2014	24081	GM/JASA			

0 1 2 3 4 5 6 7 8 9



COOLING FAN

6 -- PREVIOUS PAGE

MPC EC 20HP 3X460V
4 PUMP

Change Note	Date	Name	Approved	Date	Drawer	GM/UEE
1158063	5/29/2015	45798				
1128769	5/9/2014	24881				

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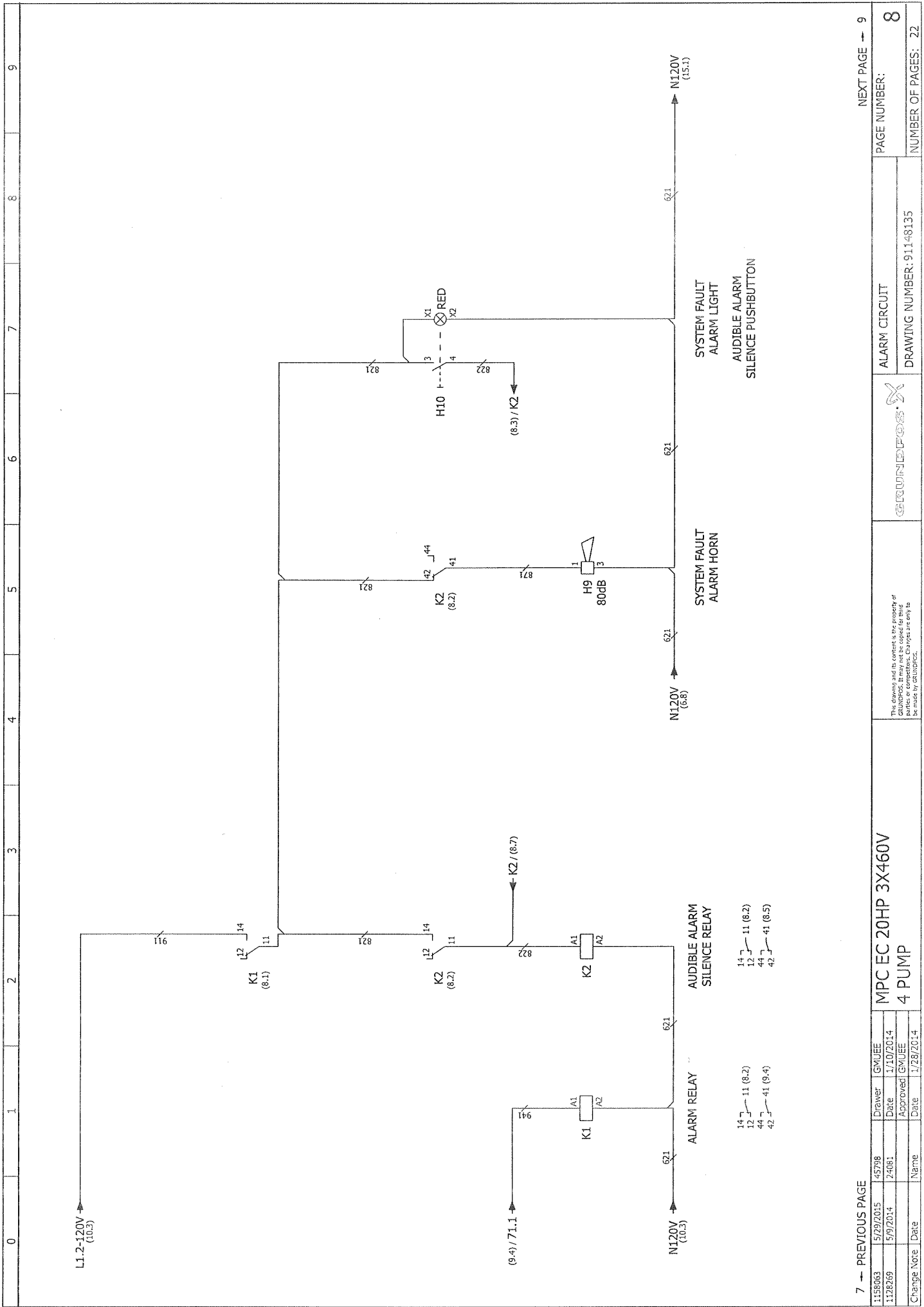


COOLING FAN(S)
DRAWING NUMBER: 91148135

NEXT PAGE -- 8

PAGE NUMBER: 7

NUMBER OF PAGES: 22

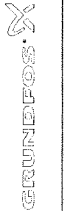


7 -- PREVIOUS PAGE

1156063	15/09/2015	45798	Drawer	GM/JEE
1128269	15/09/2014	24081	Date	1/10/2014
			Approved	GM/JEE
			Date	1/28/2014
Change Note	Date	Name		

MPC EC 20HP 3X460V
4 PUMP

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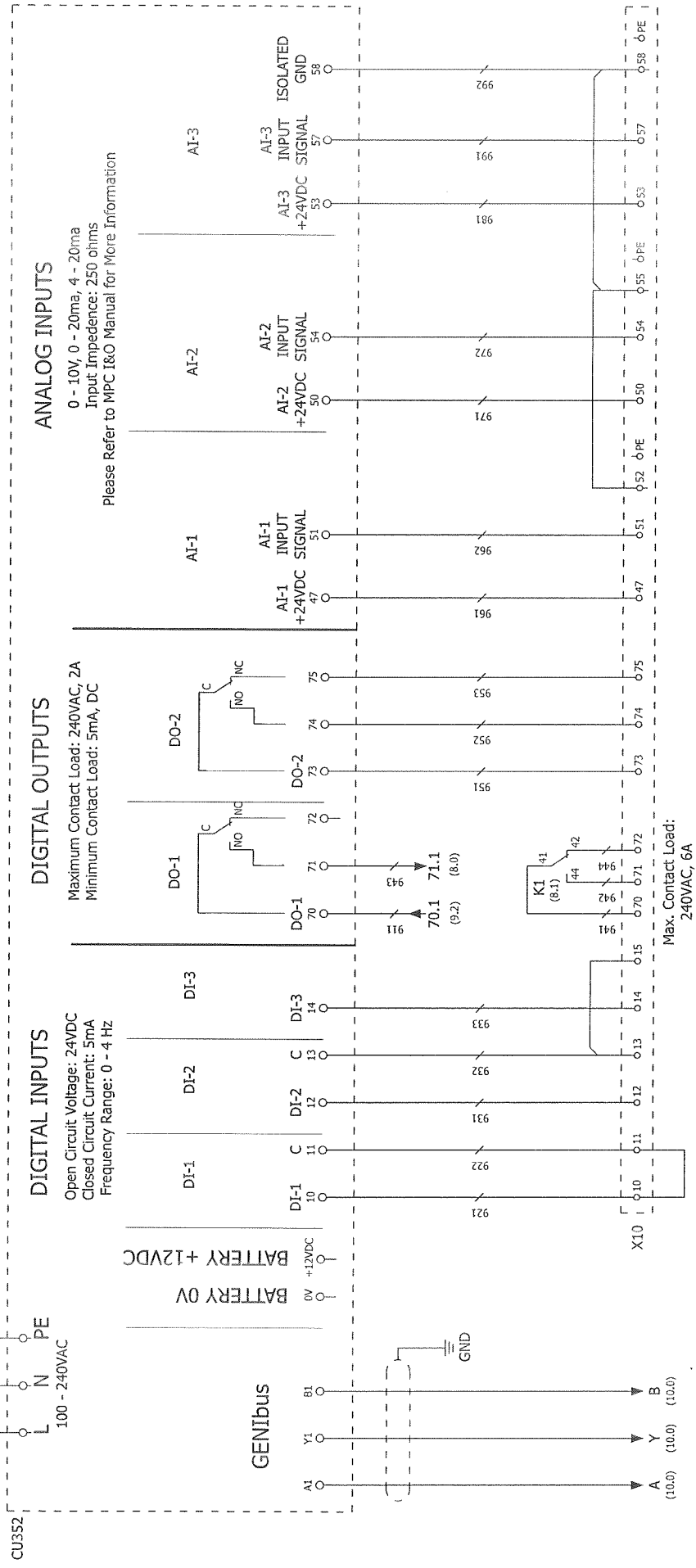
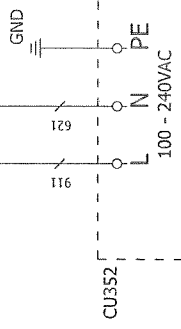


ALARM CIRCUIT
DRAWING NUMBER: 91148135

PAGE NUMBER: 8
NUMBER OF PAGES: 22

NEXT PAGE --> 9

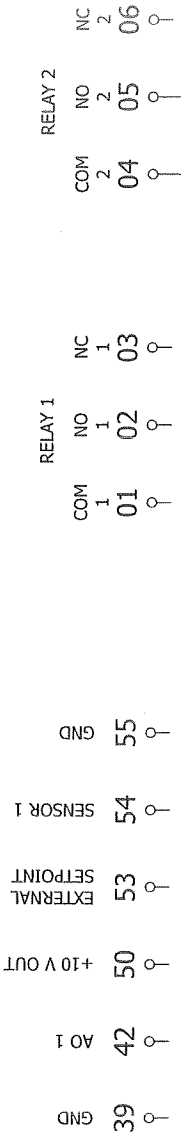
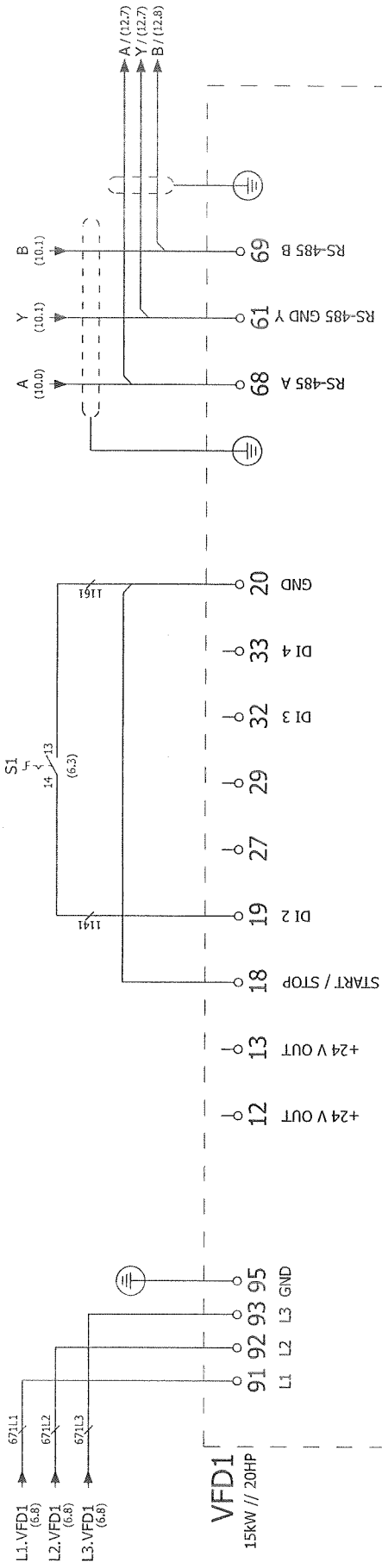
(6.3) / L1.2-120V
(15.9) / N120V



Max. Contact Load:
240VAC, 6A

0 1 2 3 4 5 6 7 8 9

NORMAL/EMERGENCY SWITCH S1



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GEORGINTECH

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MPC EC 20HP 3X460V
4 PUMP

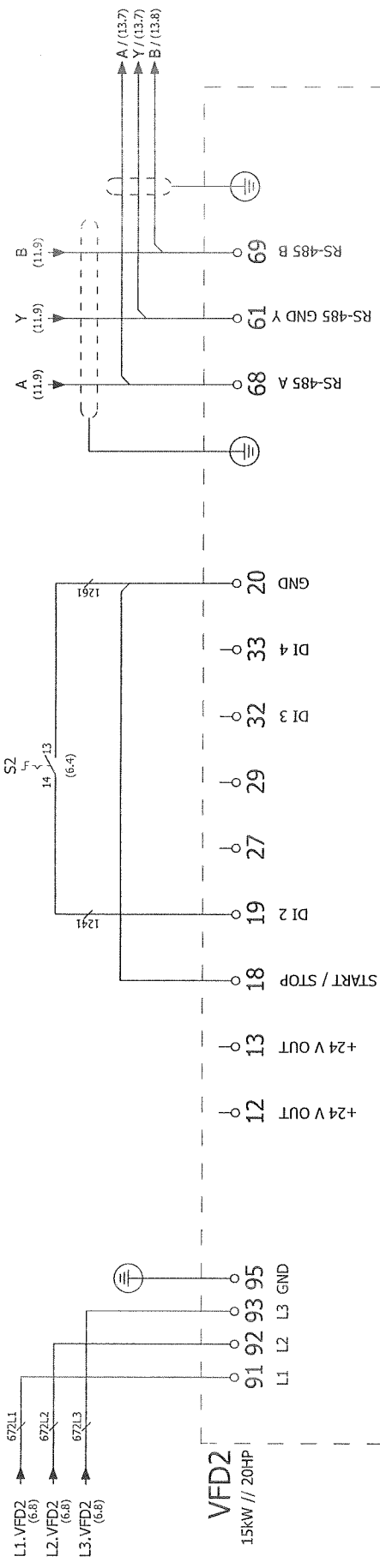
1158063	5/29/2015	45798	GW/UEE	Drawer	1/10/2014
1128269	5/9/2014	24081	GW/UEE	Approved	
Change Note	Date	Name	Date		

VFD INPUT and OUTPUT
DRAWING NUMBER: 91148135

PAGE NUMBER: 11
NUMBER OF PAGES: 22

NEXT PAGE → 12

NORMAL/EMERGENCY SWITCH



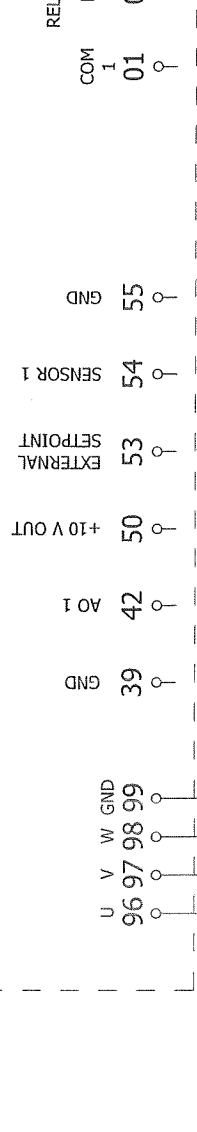
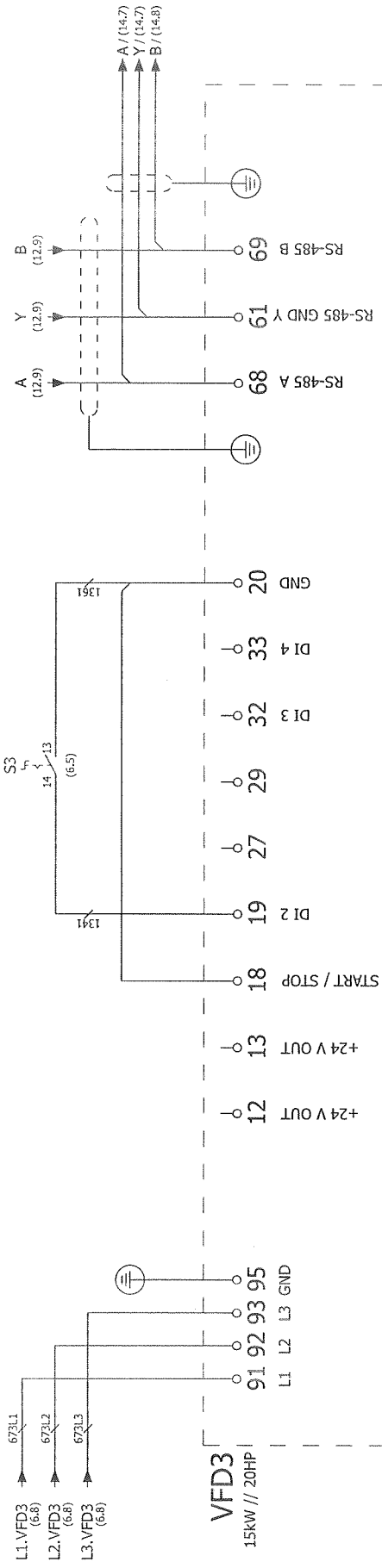
GND	39			
AO 1	42	+10 V OUT		
EXTERNAL SETPOINT	53			
SENSOR 1	54			
GND	55			
RELAY 1				
COM	01			
NO	02			
NC	03			
RELAY 2				
COM	04			
NO	05			
NC	06			
RS-485 A	68			
RS-485 GND Y	61			
RS-485 B	69			
A	11.9			
Y	11.9			
B	11.9			
A / (13.7)				
Y / (13.7)				
B / (13.8)				

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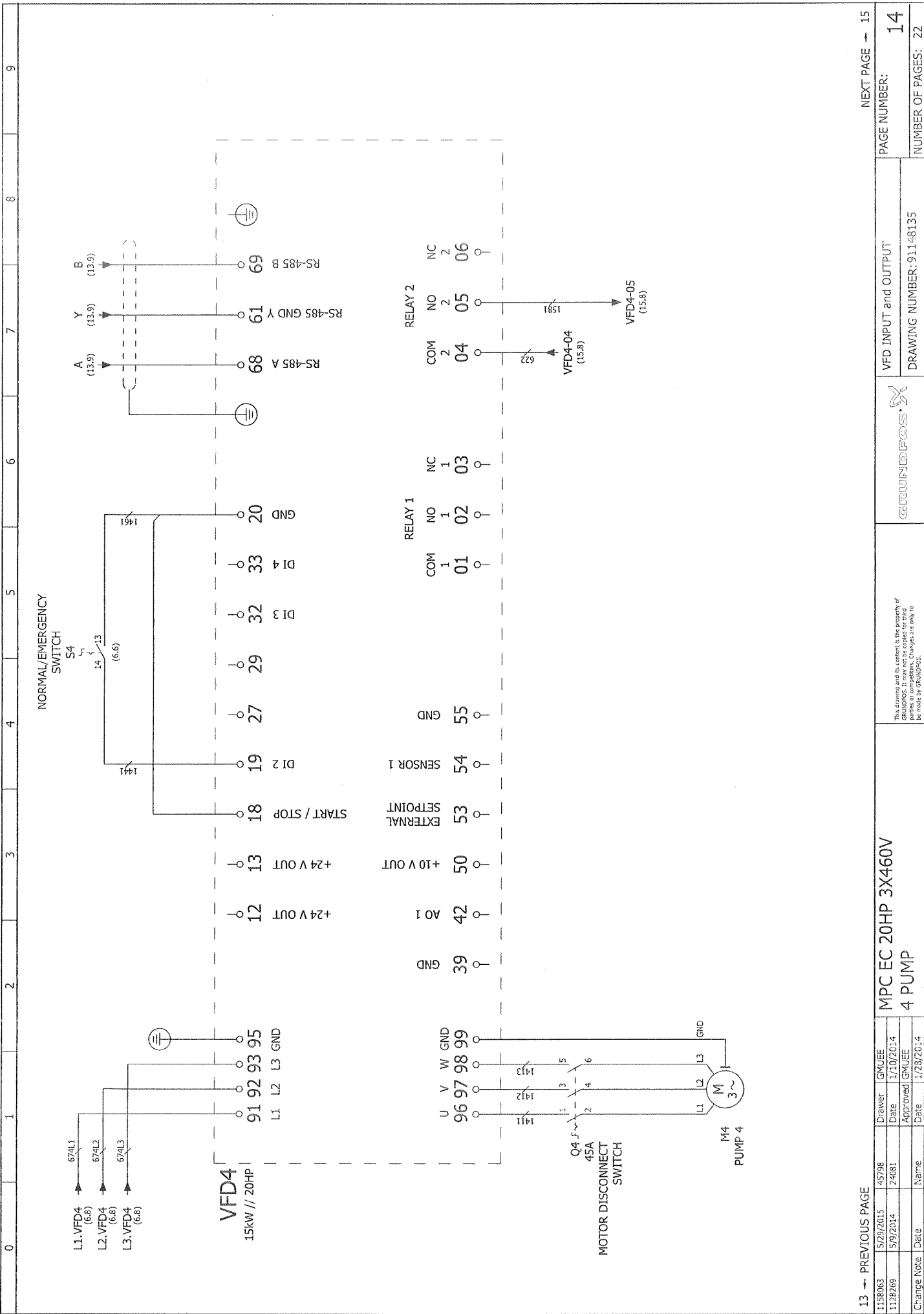


0 1 2 3 4 5 6 7 8 9

NORMAL/EMERGENCY SWITCH



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0 1 2 3 4 5 6 7 8 9

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NEXT PAGE -- 15

1158063	5/29/2015	45798	GM/JEE	Drawer
1128269	5/9/2014	24081	GM/JEE	Date
Change Note	Date	Name	Date	

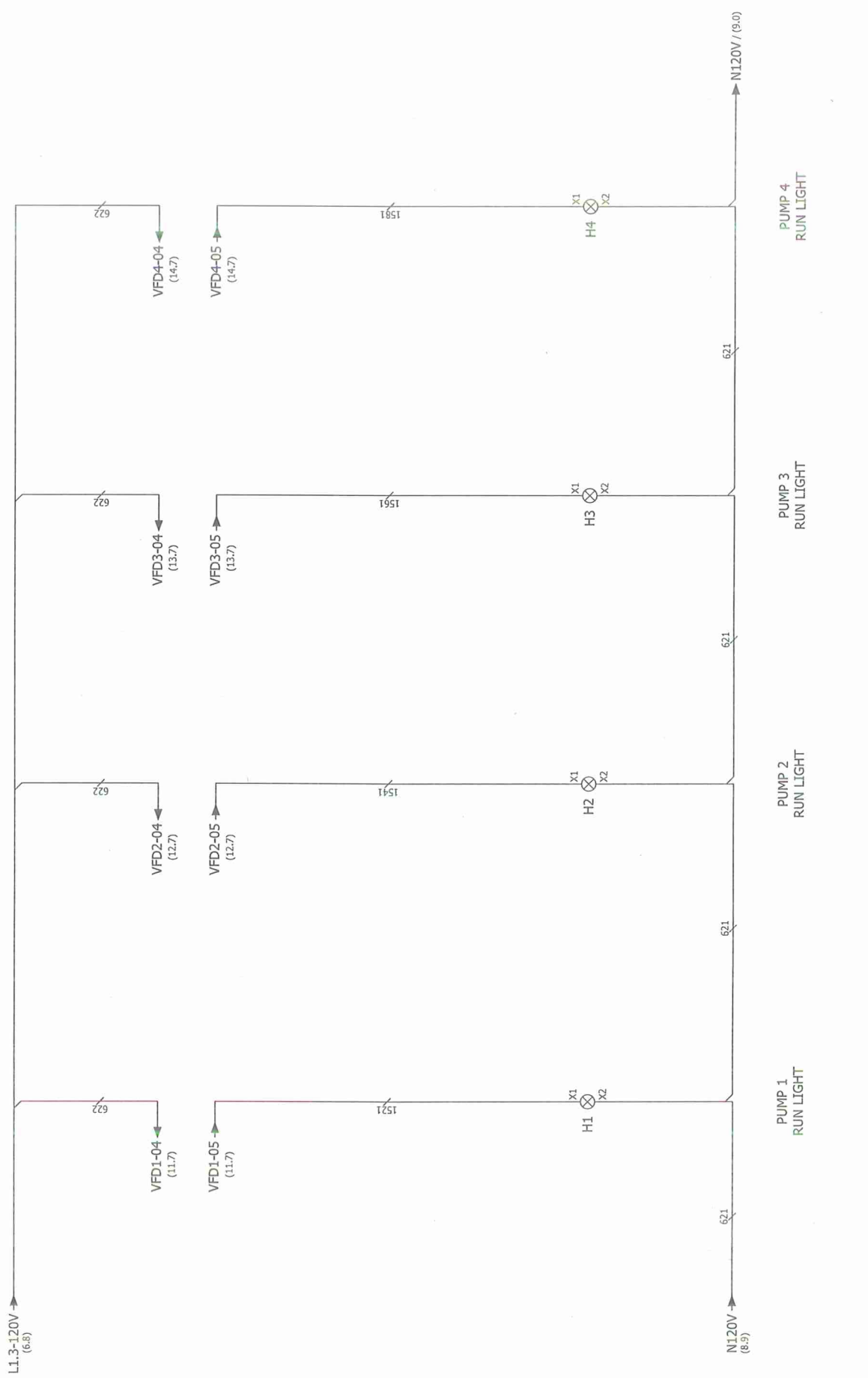
MPC EC 20HP 3X460V
4 PUMP

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VFD INPUT and OUTPUT
DRAWING NUMBER: 91148135

PAGE NUMBER: 14
NUMBER OF PAGES: 22



GERUMDFOS
 RUN LIGHTS
 DRAWING NUMBER: 91148135



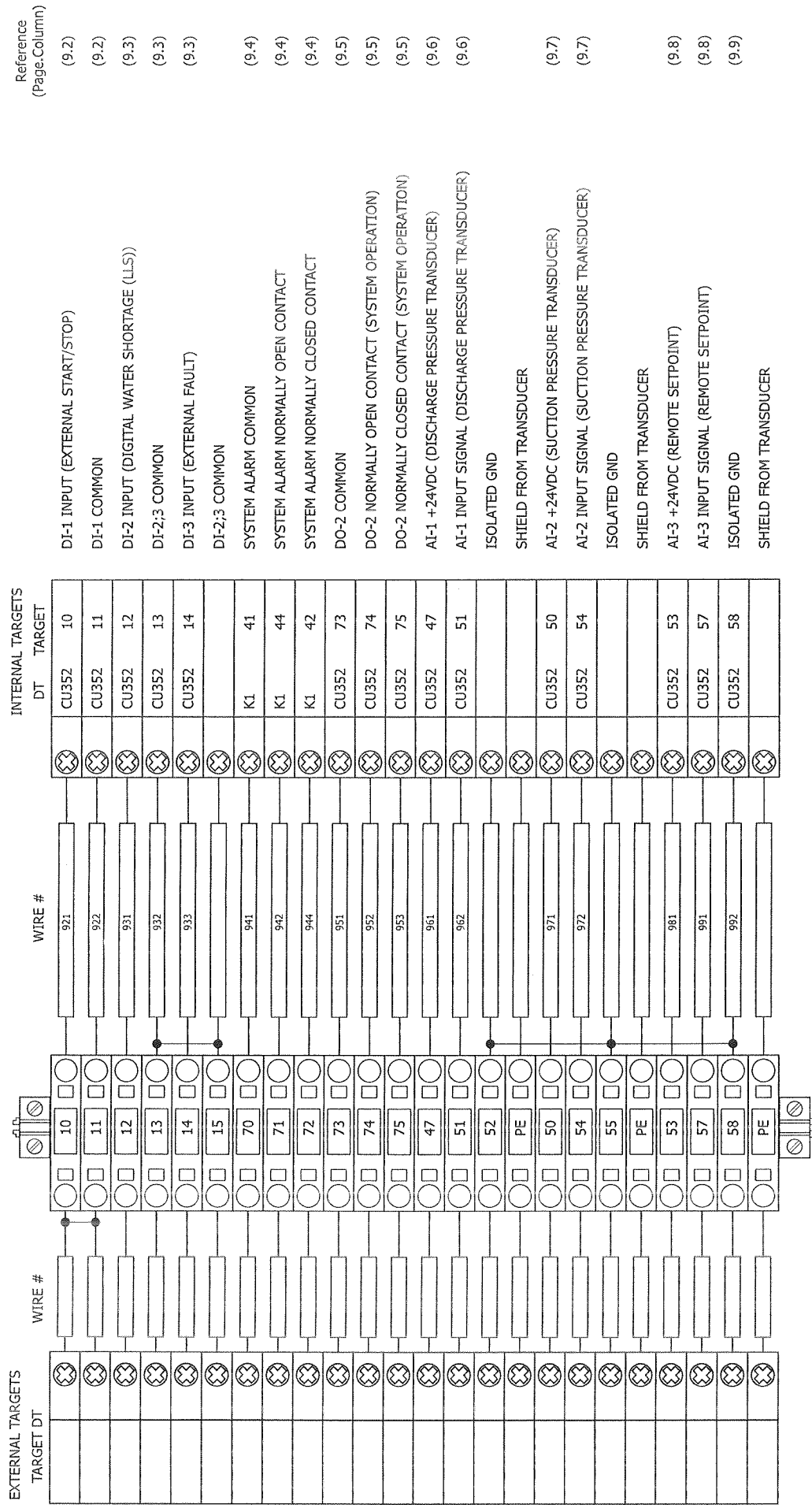
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MPC EC 20HP 3X460V
 4 PUMP

Change Note	Date	Name	Date
	5/29/2015	45798	GN/UEE
	5/9/2014	24081	GN/UEE
	1/10/2014		GN/UEE
	1/28/2014		GN/UEE

TERMINAL DIAGRAM X10 CU352

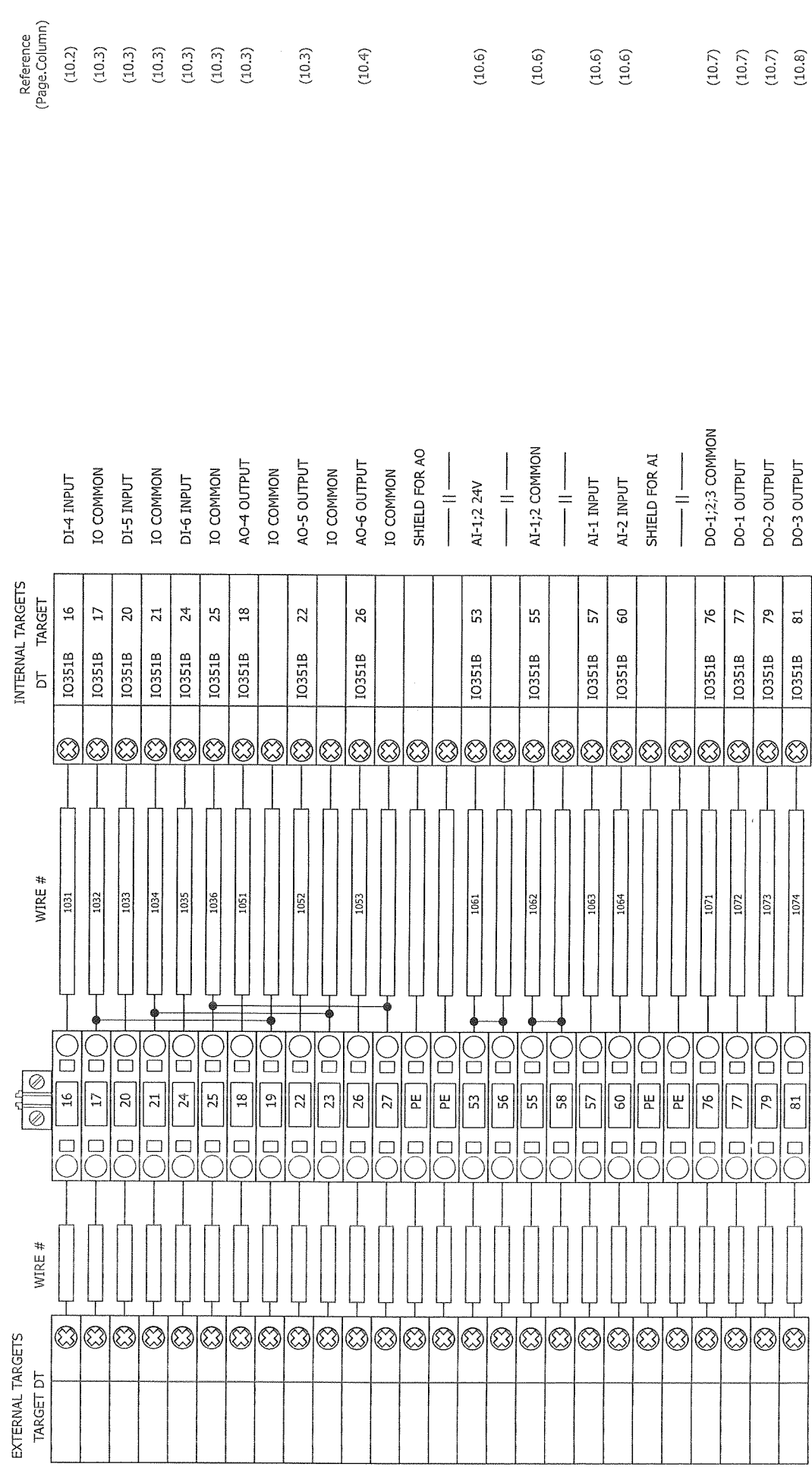
POP TERMINAL STRIP



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TERMINAL DIAGRAM X11 I0351B

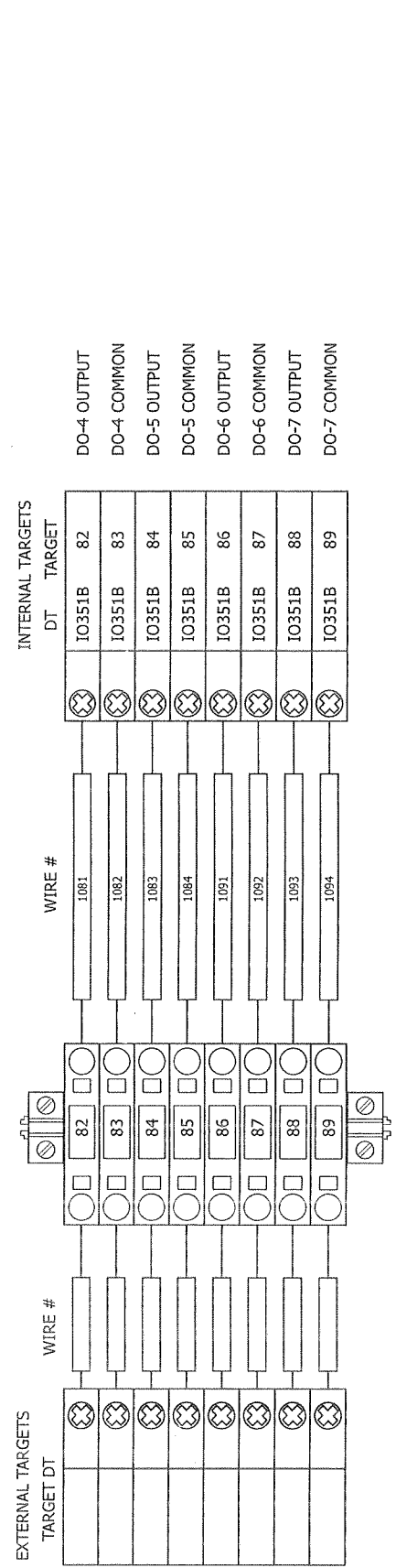
POP TERMINAL STRIP



Viewed from SAP-P20 20160923 174424 by GM/USA Status: Released Version: 01 Eff. Date: 20150504

TERMINAL DIAGRAM X11 IO351B

POP TERMINAL STRIP



Grundfos_BOM

DEVICE TAG	PART DESCRIPTION	MANUFACTURER PART NO.	QUANTITY	MANUFACTURER
F0	FUSE CLASS CC 1.5A	LPCC1-1/2	2	BUSSMAN
F1...F4	FUSE BLOCK 3 POLE CLASS J	CLASS J-CH60J3	4	BUSSMAN
F1...F4	FUSE, DUAL ELEMENT TIME DELAY, 40AMP, CLASS J	LPJ40SP	12	BUSSMAN
CU352		98146952	1	GRUNDFOS
IO351B		96161730	1	GRUNDFOS
VFD1...VFD4	CUE 20HP 3X380-500V	96754695	4	GRUNDFOS
U1-L1...U1-L3	Power Distribution Block 175A 1pole	FSPDB2A	3	MERSEN
F0;F1;F4;IO351B K2;Q1;Q4;S5;X10 X11	TERMINAL STRIP END CLAMP	3022276	12	PHOENIX
IO351B;X10	SPRING TERMINAL PE	3031380	4	PHOENIX
U4...U7	Wire Duct with Cover, 80mm X 80mm	3240200	4	PHOENIX
U8;U9;U16;U53	35mm DIN Rail	1206421	4	PHOENIX
U10...U13;U42	Wire Duct with Cover 30mm X 60mm	3240280	5	PHOENIX
X10	PARTITION PLATE	3030721	4	PHOENIX
X10	SPRING TERMINAL	3031364	21	PHOENIX
X11	TERMINAL END COVER DBL LVL	3047293	1	PHOENIX
X11	TERMINAL SPACER PLATE DBL LVL	3047303	1	PHOENIX
X11	TERMINAL PARTITION PLATE DBL LVL	3047316	3	PHOENIX
X11	SCREW TERMINAL DBL LVL	3044636	15	PHOENIX
X11	SCREW TERMINAL DBL LVL PE	3044665	2	PHOENIX
M01	FILTER FAN	3241110	1	RITTAL

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1156063 5/29/2015 45798
 1128369 5/29/2014 24001

Change Note Date Name

Approved Date
 Approved Date

Drawer Date
 Date

GM/UEE
 GM/UEE

MPC EC 20HP 3X460V
 4 PUMP

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GRUNDFOS

BILL OF MATERIAL

DRAWING NUMBER: 91148135

PAGE NUMBER: 30

NUMBER OF PAGES: 22

NEXT PAGE -- 31

BOM Grundfos_BOM

DEVICE TAG	PART DESCRIPTION	MANUFACTURER PART NO.	QUANTITY	MANUFACTURER
M01	Outlet filter for fan-and-filter units 3324 / 3325 RAL 7035	SK.3325207	1	RITTAL
S5	RITTAL THERMOSTAT	3110000	1	RITTAL
ENCL	63"X47"X20" _T12	TSFM634720NC	1	RITTAL-GMU
F0	FUSE HOLDER 30A 2 POLE 600V CLASS CC	DFCC2V	1	SCHNEIDER
H1...H4	PILOT LIGHT GREEN	XB5AVG3	4	SCHNEIDER
H9	120VAC 80db BUZZER	XB5-KSG	1	SCHNEIDER
H10	ILLUMINATED PUSH BUTTON RED, 120V	XB5AW34G5	1	SCHNEIDER
K1;K2	CONTROL RELAY SOCKET DPDT	RXZE2S108M	2	SCHNEIDER
Q0	MAIN DISCONNECT, DEFEATABLE,200A,LK4MU3N	LK4MU3N 200A	1	SCHNEIDER
Q1...Q4	LOCKABLE MTR DISCONNECT SWITCH 45A--COMPLETE	VVE3	4	SCHNEIDER
S1...S4	SELECTOR SWITCH 2 POSITION MAINTAINED	XB5AD25	4	SCHNEIDER
T1	CONTROL TRANSFORMER 300VA	9070T300D50	1	SCHNEIDER
K1;K2	CONTROL RELAY w/LED DPDT 120VAC	RXM2AB3F7	2	SCHNEIDER
U2	Power Distribution Block 115A 2pole	9080LBA261104	1	SCHNEIDER
U3	SURGE ARRESTOR 3 PHASE 600VAC	SDSA3650	1	SCHNEIDER

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1158063	5/29/2015	45798	Drawer	GMUJEE
1128269	5/9/2014	24061	Date	1/10/2014
			Approved	GMUJEE
			Date	1/29/2014

MPC EC 20HP 3X460V
4 PUMP

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BILL OF MATERIAL
DRAWING NUMBER: 91148135

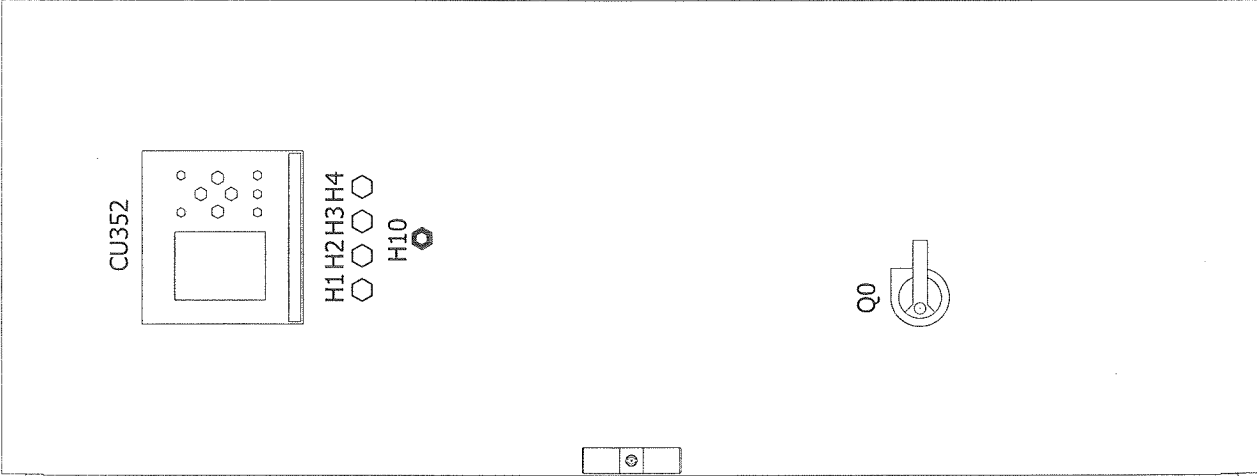
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PAGE NUMBER: 31
NUMBER OF PAGES: 22

0 1 2 3 4 5 6 7 8 9

ENCLOSURE LEGEND

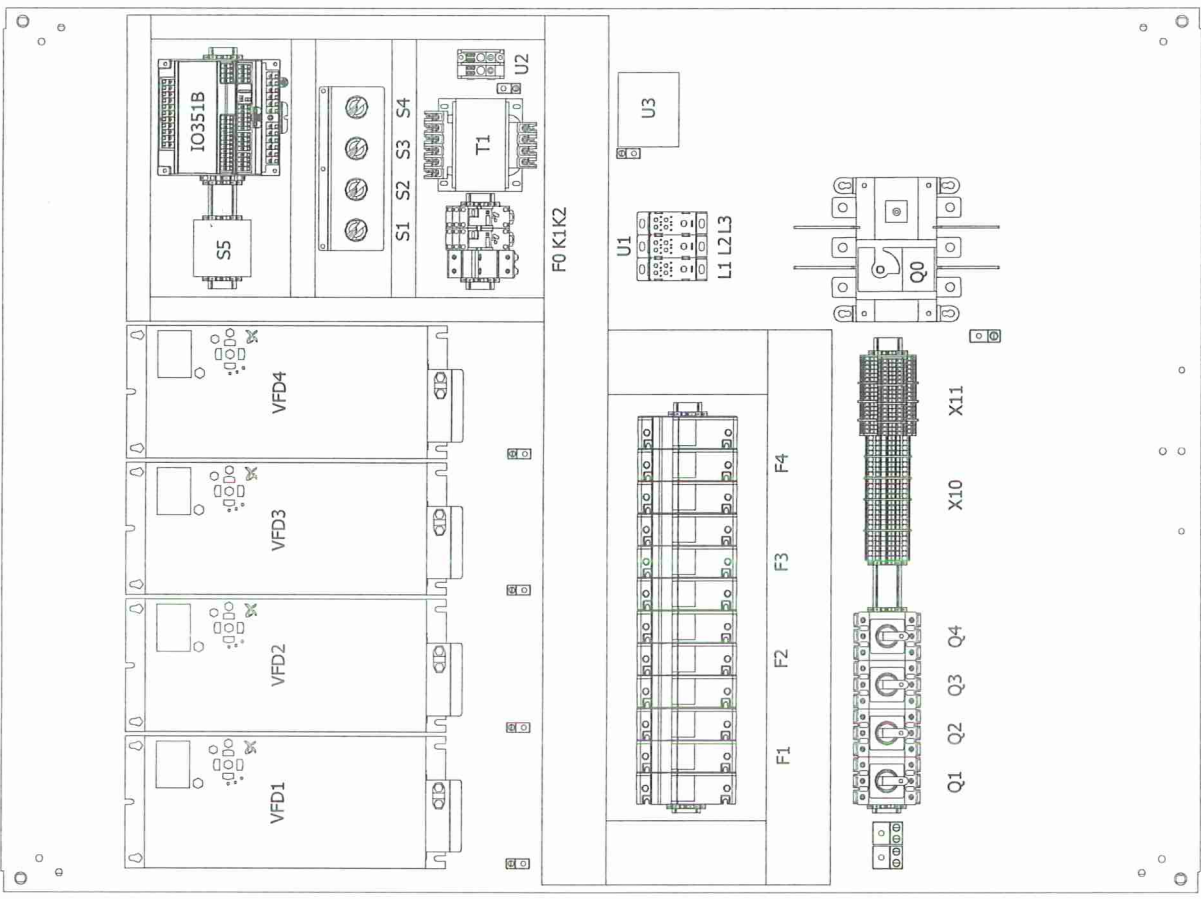
DEVICE TAG	PART NUMBER	DESCRIPTION
H1...H4	XB5AVG3	PILOT LIGHT GREEN
H10	XB5AW34G5	ILLUMINATED PUSH BUTTON RED, 120V
CU352	98146952	CU352



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1158063	5/29/2015	45798	GML/EE
1128269	5/09/2014	24081	1/10/2014
Change Note	Date	Name	Date
MPC EC 20HP 3X460V		DOOR LAYOUT	
4 PUMP		DRAWING NUMBER: 91148135	
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<p>Page 31 of 32</p>		<p>Page 32 of 32</p>	

ENCLOSURE LEGEND

DEVICE TAG	PART NUMBER	DESCRIPTION
VFD1...VFD4	96754695	CUE 20HP 3X380-500V
U2	9080LBA261104	Power Distribution Block 115A 2pole
T1	9070T300D50	CONTROL TRANSFORMER 300VA
Q0	LK4MU3N 200A	MAIN DISCONNECT, DEFEATABLE,200A,LK4MU3N
U1-L1...U1-L3	FSPDB2A	Power Distribution Block 175A 1pole
F1...F4	CLASS J-CH60J3	FUSE BLOCK 3 POLE CLASS J
F0;F1;F4 IO351B;K2;Q1 Q4;S5	3022276	TERMINAL STRIP END CLAMP
Q1...Q4	VVE3	LOCKABLE MTR DISCONNECT SWITCH 45A-COMPLETE
X10	3031364	SPRING TERMINAL
IO351B;X10	3031380	SPRING TERMINAL PE
X11	3044636	SCREW TERMINAL DBL LVL
X11	3044665	SCREW TERMINAL DBL LVL PE
K1;K2	RXZE2S108M	CONTROL RELAY SOCKET DPDT
F0	DFCC2V	FUSE HOLDER 30A 2 POLE 600V CLASS CC
IO351B	96161730	IO351B
S5	3110000	RITTAL THERMOSTAT
S1...S4	XB5AD25	SELECTOR SWITCH 2 POSITION MAINTAINED
U3	SDSA3650	SURGE ARRESTOR 3 PHASE 600VAC
K1;K2	RXM2AB3F7	CONTROL RELAY w/LED DPDT 120VAC



32	PREVIOUS PAGE
1158063	5/29/2015
1128269	5/9/2014
Change Note	Date
	Name
	Date
	Date
	Date

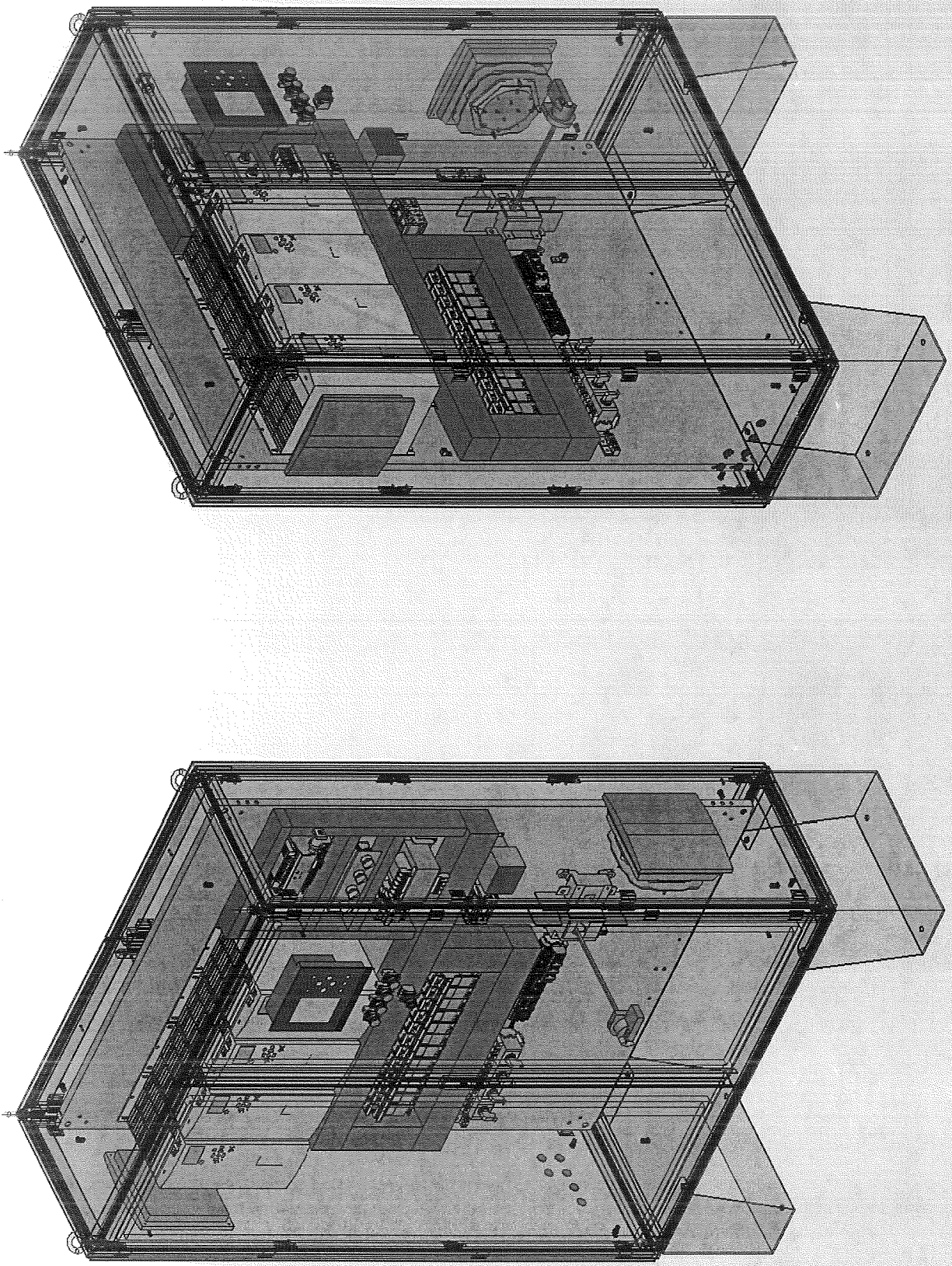
MPC EC 20HP 3X460V
4 PUMP

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MOUNTING PANEL LAYOUT
DRAWING NUMBER: 91148135

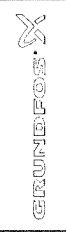
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1158063	5/29/2015	45798	GM/LEE
1128269	5/9/2014	24081	1/10/2014
Charge Note	Date	Name	Date

33 ← PREVIOUS PAGE
MPC EC 20HP 3X460V
4 PUMP

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3D PANEL
 DRAWING NUMBER: 91148135

LAST PAGE
 PAGE NUMBER: 34
 NUMBER OF PAGES: 22

