CLAREMORE
ENGINEERING

PROJECT ADDENDUM

Bid / RFP / RFQ Number: SB-2024-32

Project Number: E2021-009

Project Name: Claremore EXPO Generator Upgrade

Addendum No.: 1

Date of Addendum: August 21, 2024

To All Plan Holders:

Please note the following changes and/or clarifications:

1. **GENERAL CLARIFICATIONS:**

   a. **2000 AMP NEW MAIN BREAKER AND PANEL:**

      Due to the unforeseen extended lead times on this item, we now will provide it, to help reduce lead times and potential project delays. The contractor will still be responsible for installing and appurtenances to do so.

   b. **OUTSIDE DISCONNECT:**

      An outside disconnect is NOT required on this project.

   c. **150 AMP TRANSFER SWITCH WIRING:**

      On the small transfer switch, regarding how the power is fed from the main panel, the electrical engineer designed it this way to meet the requirements of the life safety equipment being powered separately. The programming within the transfer switch will allow for the setup to work as shown in the plan diagram.

2. <u>GENERATOR INFORMATION</u>:

a. The following generator information is attached to the addendum:

- **Clifford Power Installation Guide, 2000 AMP Transfer Switch Cutsheet, Generator Specifications.**

b. The generator weight is estimated at 17,000 lbs.

All other terms, conditions and specifications remain unchanged. Any additions made to the Bidding and Contract Documents including the Plans and Specifications per this Addendum shall be considered a part of the original Bidding and Contract Documents. The professional seals and signatures applied to the original Bidding and Contract Documents are thereby considered to cover any additions to said documents per this Addendum.

Garrett L. Ball, P.E. **Date**
City Engineer

Bidders shall acknowledge receipt of this Addendum in the space provided in the Bid Proposal Form.

Reference: Claremore Expo

Equipment Proposed:
Quantity 1 - Generac Industrial diesel engine-driven generator set with turbocharged/aftercooled 6-cylinder 15.2L engine, consisting of the following features and accessories:

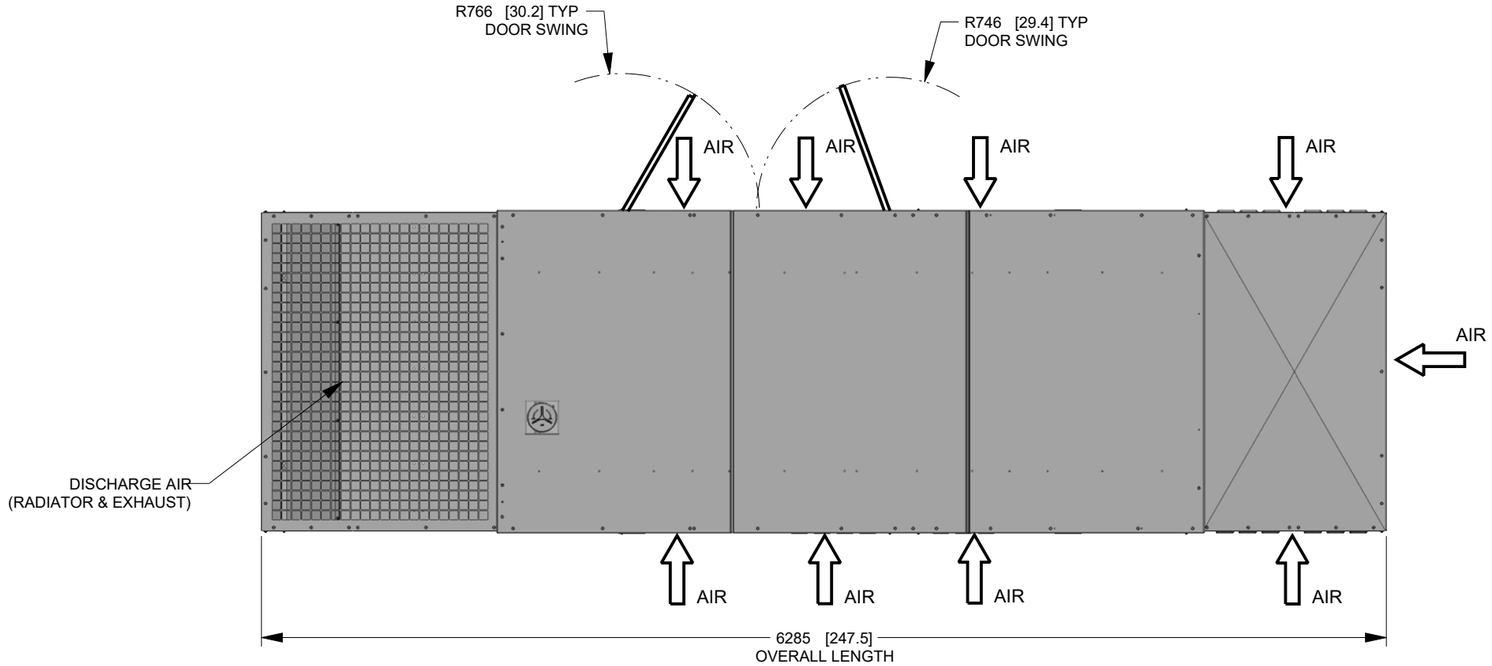
- Stationary Emergency-Standby rated
- 500kW Rating, wired for 277/480 VAC three phase, 60Hz
- Permanent Magnet Excitation
- UL2200
- EPA Certified
- Level 1 Acoustic Enclosure, Steel
    - Industrial Grey Baked-On Powder Coat Finish
- 36" 1001 Gallon Double-Wall UL142 Basetank
    - Mechanical fuel level indicator gauge
    - Electronic fuel level sender
- Power Zone Digital Control Panel for Single or MPS Generators
    - Meets NFPA 99 and 110 requirements
    - Temp Range -40 to 70 degrees C
    - Humidity 2 – 95% (Non Condensing)
    - UL6200
    - C-ETL-US
    - CE
    - FCC
    - IEC801 (Radiated Emissions, Susceptibility, and Surge Immunity)
    - 7” Resistive Color Touchscreen
        - Built-in Webserver
        - IP65 (front)
        - Auto/Manual/Off key switch, Alarm Indication, Not in Auto Indication, audible alarm, emergency stop switch
    - Dual Core Digital Microprocessor
        - RS485, Ethernet and CANbus ports
    - Engine Sensors: Oil Pressure, optional Oil Temp, Coolant Temp and Level, Fuel Level/Pressure (where applicable), Engine Speed, DC Battery Voltage, Run-time Hours, Generator Voltages, Amps, Frequency, Power, Power Factor
        - Alarm Status: Low or High AC Voltage, Low or High Battery Voltage, Low or High Frequency, Pre-low or Low Oil Pressure, Pre-high or High Oil Temp (optional), Low Water Level and Temp, Pre-high or High Engine Temp, High, Low, and Critical-low Fuel Level/Pressure (where applicable), Overcrank, Over and Under Speed, Unit Not in Automatic
        - Programmable I/O
        - Built-in PLC for special applications
    - Engine function monitoring and control:
        - Full range standby operation; programmable auto crank, Emergency Stop, Auto-Off-Manual switch
        - Isochronous Governor

                - 0.25% digital frequency regulation with: soft-start ramping - adjustable, gain - adjustable, overshoot limit - adjustable
            - 3 Phase RMS Voltage Sensing
                - +/-0.5% digital voltage regulation with: soft-start voltage ramping - adjustable, loss of sensing protection - adjustable, negative power limit - adjustable, Hi/Lo voltage limit - adjustable, V/F slope and gain - adjustable, fault protection
        - Service reminders, trending, fault history (alarm log)
        - I2T function for full generator protection
        - Selectable low-speed exercise
        - 2 and 3-wire start controls for any industrial grade transfer switch
- EPA Certified
- MLCB, 100% rated, LSI Electronic Trip
    - PDF33F0600B2N
    - 600 amp
- Secondary MLCB, 100% rated, LSI Electronic Trip
    - 100 amp
    - Auxiliary Contacts, 1 Set
- Coolant Heater, 2500W, 240VAC
- 120V GFCI and 240V Outlet
- Alternator Strip Heater
- Critical Grade Silencer
- Three Owner's manuals
- Battery Charger, 10 Amp, NFPA 110 compliant, installed
- Battery Heating Pad
- 225 AH, 1155 CCA Group 8D Batteries, with rack, installed
- Standard 2-Year Limited Warranty
- SD0500KG22152D18PPSY2

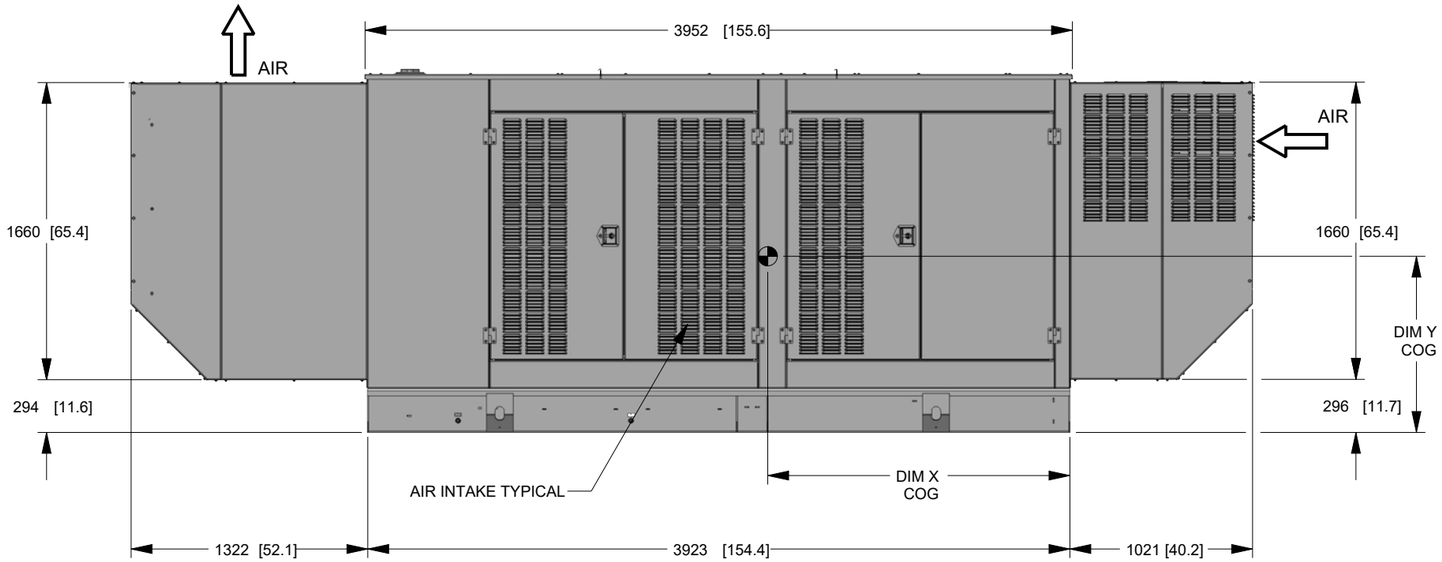
Quantity 1 - 2000 amp ATS Bypass Isolation

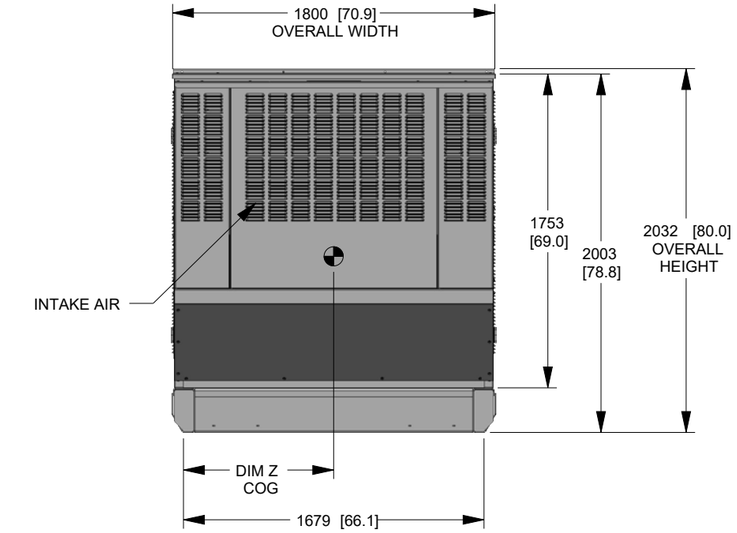
Quantity 1 - 150 Amp ATS Bypass Isolation

SH	REV	WINDCHILL VERSION	
1/1	D	D.1	



FOR ALL STUB-UP, WEIGHT, AND COG DETAILS, SEE CORRESPONDING OPEN SET DRAWING PER UNIT CONFIGURATION.





DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

DIMENSIONS ARE IN MILLIMETERS [INCHES]

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

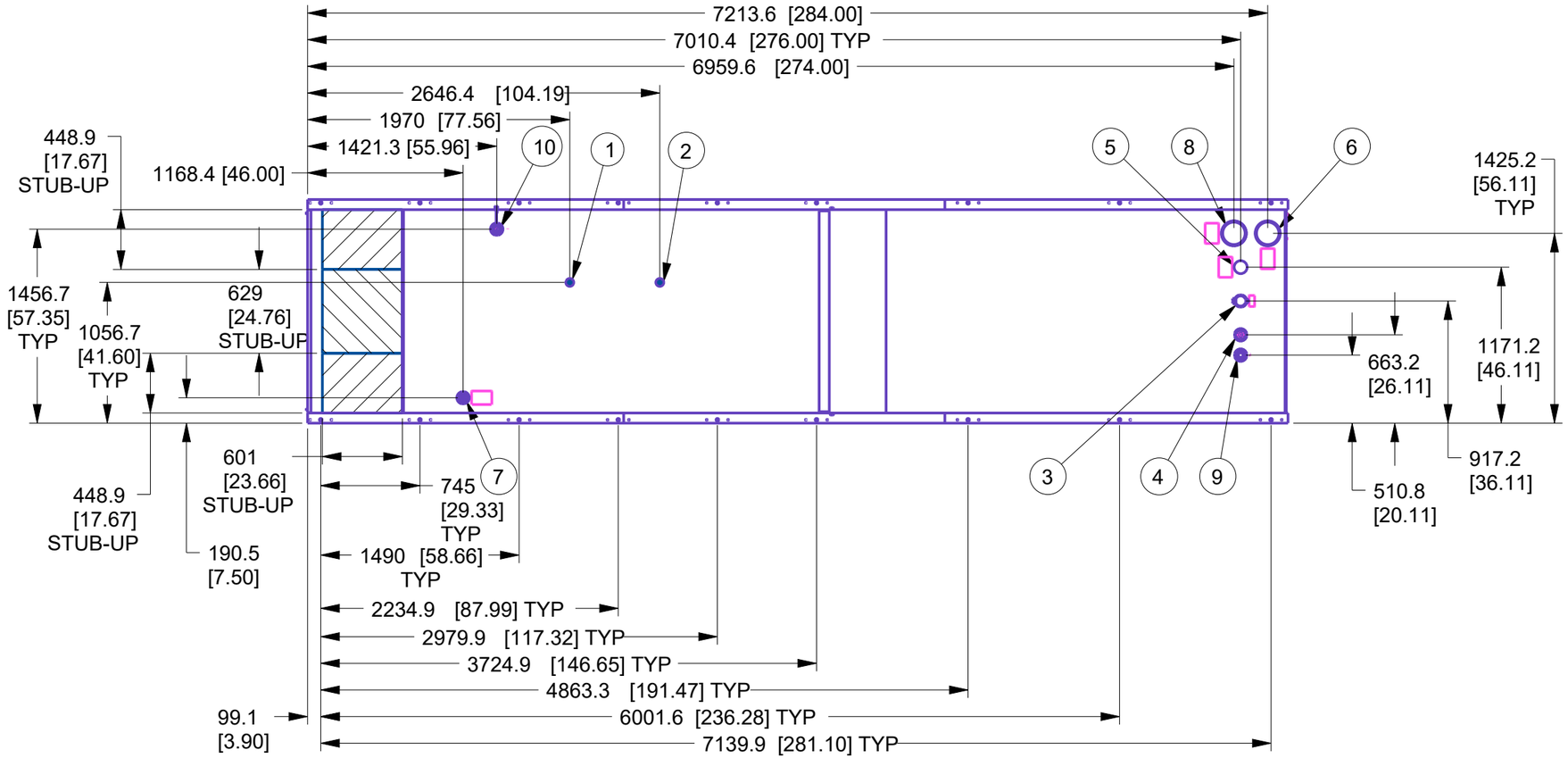
GENERAC

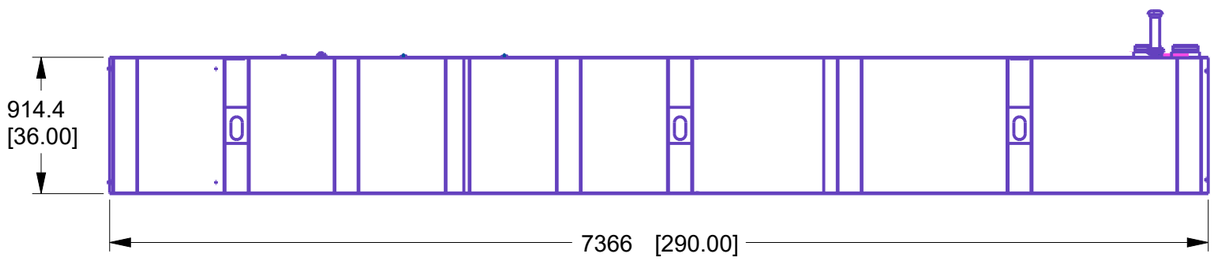
TITLE

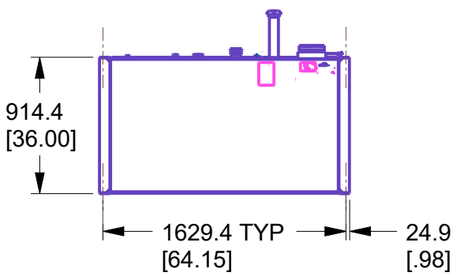
L1A ENCLOSURE
D15.2L SD/MD 500 & SB/MB 500
PD/WD 450 & PB/WB 450

ISSUE DATE:	03/21/14		
SIZE B	CAGE NO N/A	DWG NO 0K1606B	REV D
SCALE 0.030	WT-KG	SHEET 1 of 1	

SH	REV	WINDCHILL VERSION
1/1	K	K.2







I/N	TANK FITTING	DESCRIPTION
1	1/2" NPT COUPLING	FUEL RETURN
2	1/2" NPT COUPLING	FUEL SUPPLY
3	2" NPT FEMALE	FUEL FILL
4		FUEL LEVEL
5	2" NPT FEMALE	VENT
6	6" NPT WELD FLANGE	EMERGENCY VENT (OUTER)
7		BASIN ALARM
8	6" NPT WELD FLANGE	EMERGENCY VENT (INNER)
9	2" NPT FEMALE	SPARE PORT
10		FUEL SENDER

CAPACITY SHOWN: LITER [GALLONS]
WEIGHT SHOWN: KILOGRAMS [POUNDS]
LENGTH SHOWN: MM [INCH]

UL #142 / ULC-S601 LISTED

NOTES:
1. MOUNTING BOLTS/STUDS FOR BASETANK TO CONCRETE PAD SHALL BE 3/4-10 GRADE 5. (USE STANDARD SAE TORQUE SPECS.)

LOW VOLTAGE STUB-UP

HIGH VOLTAGE STUB-UP

TANK P/N	0K0188
TOTAL TANK CAPACITY	7754 [2048]
USABLE TANK CAPACITY	7578 [2002]
DRY WEIGHT [EST]	2200 [4850]

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALL HGRP EXT BASETANKS G22

ISSUE DATE:

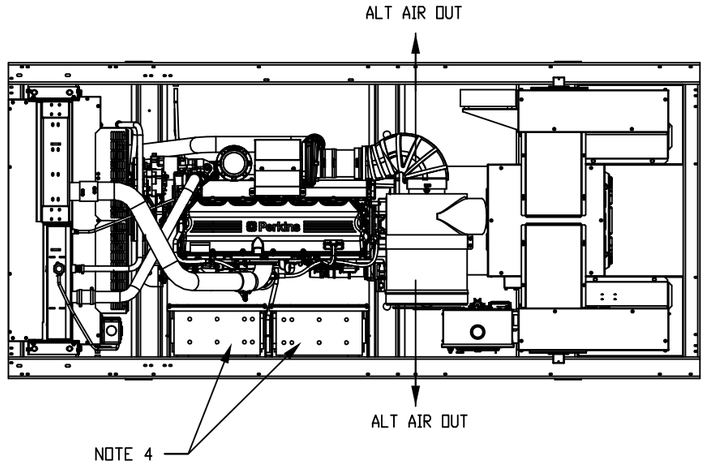
SIZE	CAGE NO	DWG NO	REV
B	N/A	0K1837B	K
SCALE 0.025	WT-KG 0.003	SHEET 1 of 1	

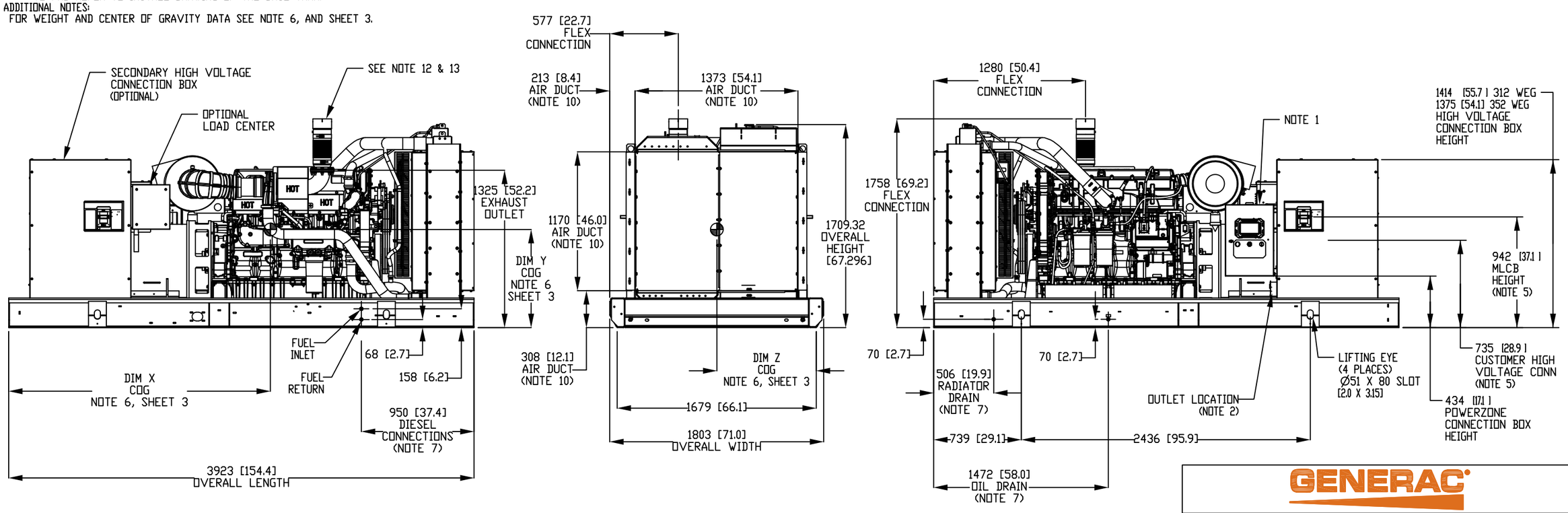
NOTES:
1. CONTROL PANEL, (OPTIONAL BATTERY CHARGER INSIDE).
2. 120V, 20A GFCI & 250V, 15A OUTLET (OPTIONAL).
3. CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN THE LOW VOLTAGE CONNECTION BOX (USE LOW VOLTAGE STUB-UP AREA).
4. BATTERY (24 VOLT NEGATIVE GROUND SYSTEM).
5. MAIN LINE CIRCUIT BREAKER (MLCB), AC LOAD LEADS. (DIMENSIONS MAY VARY DUE TO UNIT CONFIGURATION)
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
7. ENGINE SERVICE CONNECTIONS:
   INLET NATURA GAS = N/A
   INLET DIESEL = 1/2" NPT FEMALE COUPLING
   RETURN DIESEL = 1/2" NPT FEMALE COUPLING
   OIL DRAIN = 1/2" NPT FEMALE COUPLING
   RADIATOR DRAIN = 1/2" NPT FEMALE COUPLING
   FLEX PIPE OUTLET = 6" I.D. PIPE
   EXHAUST OUTLET = 5" I.D. SAE FLANGE (TURB O CONNECTION)

***** SEE GENERATOR SIZING GUIDE FOR FUEL PIPE SIZING TO SUIT APPLICATION *****

8. AUXILARY AC CONNECTION FOR UNIT OPTIONS ARE LOCATED IN HIGH VOLTAGE CONNECTION BOX, UNLESS AN OPTIONAL LOAD CENTER IS INSTALLED.
9. EXHAUST PIPES MAY BE ROTATED TO ALLOW MUFFLER TO POINT OUT TO THE RIGHT OR LEFT SIDE OF GENERATOR. (MAY NOT APPLY TO ALL UNITS)
10. GENERATOR SET MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED.
11. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
12. INSTALL EXHAUST BLANKETS ALONG THIS LINE
13. CONNECT THE OPEN SET EXHAUST PER NFPA 37
14. BOLTS OR STUDS USED TO MOUNT UNIT TO PAD, OR BASE TANK, SHALL BE 5/8"-11 GRADE 5. USE STANDARD SAE TORQUE SPECS. (FOR INSTALLATION OF FUEL TANK TO PAD REFER TO INSTALL DRAWING OF THE BASE TANK)

ADDITIONAL NOTES:
FOR WEIGHT AND CENTER OF GRAVITY DATA SEE NOTE 6, AND SHEET 3.





DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

DIMENSIONS ARE IN MILLIMETERS [INCHES]

INSTALLATION DRAWING

ELECTRONICALLY APPROVED INSIDE WINDCHILL

GENERAC

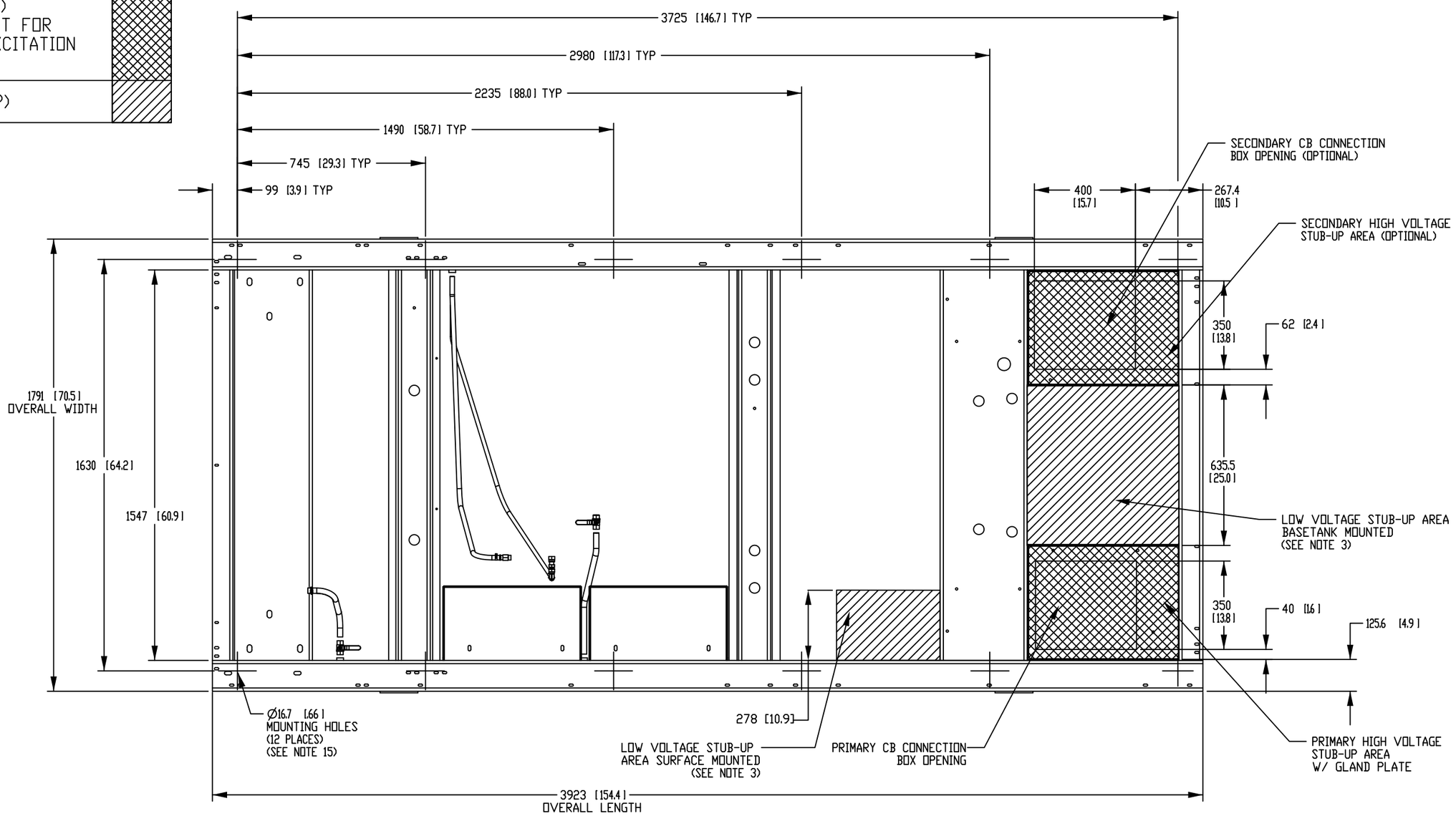
TITLE
OPEN SET
D15.2L SD500, PD450

ISSUE DATE: 05/12/21

SIZE	CAGE NO	DWG NO	REV
B	N/A	A0001541465	A
SCALE 0.030	WT-KG	SHEET 1 of 3	

SH 2/3	REV A	WINDCHILL VERSION A.1	

RECOMMENDED ELECTRICAL STUB-UP	
(HIGH VOLTAGE STUB-UP) AC LOAD LEAD CONDUIT FOR PERMANENT MAGNET EXCITATION CONNECTION BOX	
(LOW VOLTAGE STUB-UP)	



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DIMENSIONS ARE IN MILLIMETERS [INCHES]

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
STUB-UP VIEW
D15.2L SD500, PD450

ISSUE DATE: 05/12/21			
SIZE B	CAGE NO N/A	DWG NO A0001541465	REV A
SCALE 0.060	WT-KG	SHEET 2 of 3	

OPEN SET

MODEL	VOLTAGE	WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
SD/MD 500, PD/WD 450	480V	3,807 kg [8,393 lbs]	1952 [76.9]	642 [25.3]	837 [33.0]
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (642kw)	3,907 kg [8,614 lbs]	1912 [75.3]	639 [25.2]	837 [33.0]
SD500, PD450	208V & 240V				
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (832kw)	4,799 kg [10,580 lbs]	1709 [67.3]	622 [24.5]	837 [33.0]
SD500, PD450	208V & 240V UPSIZED ALT (723kw)				
SD500, PD450	208V & 240V UPSIZED ALT (689kw)	4,506 kg [9,934 lbs]	1758 [69.2]	627 [24.7]	837 [33.0]
SD/MD 500, PD/WD 450	600V	4,157 kg [9,165 lbs]	1859 [73.2]	634 [25.0]	837 [33.0]
SD/MD 500, PD/WD 450	600V UPSIZED ALT. (800kw)	4,733 kg [10,435 lbs]	1720 [67.7]	623 [24.5]	837 [33.0]

NOTE:
CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS

STD ENCLOSURE, STEEL

MODEL	VOLTAGE	WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
SD/MD 500, PD/WD 450	480V	4,822 kg [10,631 lbs]	2215 [87.2]	771 [30.4]	802 [31.6]
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (642kw)	4,922 kg [10,851 lbs]	2178 [85.7]	766 [30.2]	801 [31.5]
SD500, PD450	208V & 240V				
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (832kw)	5,814 kg [12,818 lbs]	1969 [77.5]	731 [28.8]	798 [31.4]
SD500, PD450	208V & 240V UPSIZED ALT (723kw)				
SD500, PD450	208V & 240V UPSIZED ALT (689kw)	5,521 kg [12,172 lbs]	2023 [79.6]	741 [29.2]	799 [31.5]
SD/MD 500, PD/WD 450	600V	5,172 kg [11,402 lbs]	2122 [83.5]	755 [29.7]	800 [31.5]
SD/MD 500, PD/WD 450	600V UPSIZED ALT. (800kw)	5,748 kg [12,672 lbs]	1981 [78.0]	733 [28.9]	798 [31.4]

STD ENCLOSURE, ALUMINUM

WEIGHT	CENTER OF GRAVITY DIM "X"	CENTER OF GRAVITY DIM "Y"	CENTER OF GRAVITY DIM "Z"
4,329 kg [9,544 lbs]	2138 [84.2]	718 [28.3]	797 [31.4]
4,429 kg [9,764 lbs]	2099 [82.6]	714 [28.1]	797 [31.4]
5,321 kg [11,731 lbs]	1884 [74.2]	685 [27.0]	794 [31.3]
5,028 kg [11,085 lbs]	1938 [76.3]	693 [27.3]	795 [31.3]
4,679 kg [10,315 lbs]	2041 [80.4]	704 [27.7]	796 [31.3]
5,255 kg [11,585 lbs]	1895 [74.6]	687 [27.0]	794 [31.3]

L1A ENCLOSURE, STEEL

MODEL	VOLTAGE	WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
SD/MD 500, PD/WD 450	480V	5,278 kg [11,636 lbs]	2048 [80.6]	803 [31.6]	809 [31.9]
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (642kw)	5,378 kg [11,856 lbs]	2019 [79.5]	797 [31.4]	808 [31.8]
SD500, PD450	208V & 240V				
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (832kw)	6,270 kg [13,823 lbs]	1851 [72.8]	760 [29.9]	804 [31.7]
SD500, PD450	208V & 240V UPSIZED ALT (723kw)				
SD500, PD450	208V & 240V UPSIZED ALT (689kw)	5,977 kg [13,177 lbs]	1894 [74.6]	771 [30.4]	805 [31.7]
SD/MD 500, PD/WD 450	600V	5,628 kg [12,407 lbs]	1976 [77.8]	786 [30.9]	807 [31.8]
SD/MD 500, PD/WD 450	600V UPSIZED ALT. (800kw)	6,204 kg [13,677 lbs]	1861 [73.3]	763 [30.0]	805 [31.7]

L1A ENCLOSURE, ALUMINUM

WEIGHT	CENTER OF GRAVITY DIM "X"	CENTER OF GRAVITY DIM "Y"	CENTER OF GRAVITY DIM "Z"
4,525 kg [9,976 lbs]	2057 [81.0]	736 [29.0]	801 [31.5]
4,625 kg [10,196 lbs]	2022 [79.6]	782 [30.8]	800 [31.5]
5,517 kg [12,163 lbs]	1828 [72.0]	701 [27.6]	797 [31.4]
5,224 kg [11,517 lbs]	1877 [73.9]	710 [28.0]	798 [31.4]
4,875 kg [10,747 lbs]	1971 [77.6]	722 [28.4]	799 [31.5]
5,451 kg [12,017 lbs]	1839 [72.4]	703 [27.7]	797 [31.4]

L2A ENCLOSURE, STEEL

MODEL	VOLTAGE	WEIGHT	CENTER OF GRAVITY DIM X	CENTER OF GRAVITY DIM Y	CENTER OF GRAVITY DIM Z
SD/MD 500, PD/WD 450	480V	5,431 kg [11,973 lbs]	2244 [88.3]	966 [38.0]	805 [31.7]
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (642kw)	5,531 kg [12,194 lbs]	2211 [87.0]	958 [37.7]	804 [31.7]
SD500, PD450	208V & 240V				
SD/MD 500, PD/WD 450	480V UPSIZED ALT. (832kw)	6,423 kg [14,160 lbs]	2019 [79.5]	897 [35.3]	801 [31.5]
SD500, PD450	208V & 240V UPSIZED ALT (723kw)				
SD500, PD450	208V & 240V UPSIZED ALT (689kw)	6,130 kg [13,514 lbs]	2070 [81.5]	915 [36.0]	802 [31.6]
SD/MD 500, PD/WD 450	600V	5,781 kg [12,745 lbs]	2160 [85.0]	939 [37.0]	803 [31.6]
SD/MD 500, PD/WD 450	600V UPSIZED ALT. (800kw)	6,357 kg [14,015 lbs]	2030 [79.9]	901 [35.5]	801 [31.5]

L2A ENCLOSURE, ALUMINUM

WEIGHT	CENTER OF GRAVITY DIM "X"	CENTER OF GRAVITY DIM "Y"	CENTER OF GRAVITY DIM "Z"
4,590 kg [10,119 lbs]	2158 [85.0]	823 [32.4]	799 [31.5]
4,690 kg [10,340 lbs]	2121 [83.5]	816 [32.1]	798 [31.4]
5,582 kg [12,306 lbs]	1913 [75.3]	771 [30.4]	796 [31.3]
5,289 kg [11,660 lbs]	1966 [77.4]	784 [30.9]	796 [31.3]
4,940 kg [10,891 lbs]	2065 [81.3]	801 [31.5]	797 [31.4]
5,516 kg [12,161 lbs]	1924 [75.7]	773 [30.4]	796 [31.3]

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
WEIGHT & CENTER OF GRAVITY
D15.2L SD500, PD450

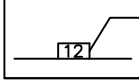
ISSUE DATE: 05/12/21

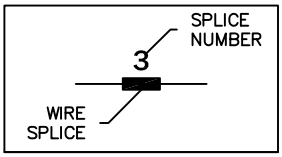
SIZE	CAGE NO	DWG NO	REV
B	N/A	A0001541465	A
SCALE 0.060	WT-KG	SHEET 3 of 3	

LEGEND

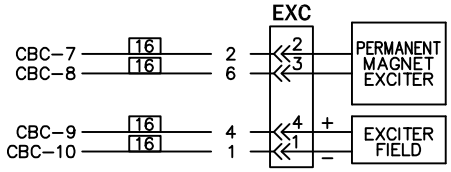
AC_ – AVR CONNECTOR	EXC – EXCITER	WLS_ – COOLANT LEVEL SENDER
AH1 – ALARM HORN	FB_ – FUSE BLOCK	XMFR1– TRANSFORMER
ALT – DC CHARGE ALTERNATOR	FLS_ – FUEL LEVEL SENDER	Y_ – CAN BUS Y–CONNECTOR
AVR – AUTOMATIC VOLTAGE REGULATOR	GFCI – GROUND FAULT CURRENT INTERRUPT	
BC_ – BATTERY CHARGER CONNECTOR (20A)	GND – GROUND BAR	
BCC – BATTERY CHARGER CONNECTOR (10A)	LD – LEAK DETECTOR	
BCH – BATTERY CHARGER	MLCB – MAIN LINE CIRCUIT BREAKER	
BPC – BATTERY CHARGER POWER CONNECTOR	NEU – NEUTRAL BUS	
BS – POWER ZONE BASE STATION	OTS – OIL TEMPERATURE SENDER	
BS_ – BASE STATION CONNECTOR	PWR – POWER ZONE POWER CONNECTOR	
BSE_ – BASE STATION ETHERNET CONNECTOR	PZC – MAIN POWER ZONE CONNECTOR	
BSG – BASE STATION CHASSIS GROUND	R1 – RESISTOR	
BTP – BATTERY CHARGER TEMP PROBE	RB_ – RELAY BOARD	
CB – CIRCUIT BREAKER, EXCITER	RB_A – RELAY BOARD CONNECTOR	
CBC – (MLCB) CIRCUIT BREAKER CONNECTOR	RCC – RELAY CONTACTOR CLOSE COIL	
CON – CONTACTOR	SC – START CONTACTOR	
CT_ – CURRENT TRANSFORMER	SM – STARTER MOTOR	
CTC – CURRENT TRANSFORMER CONNECTOR	ST – SHUNT TRIP	
DB – DIODE BRIDGE	SW1 – OFF/AUTO/MANUAL SELECT SWITCH	
DIS – POWER ZONE DISPLAY	TB_ – TERMINAL BLOCKS	
ECU – ENGINE CONTROL UNIT	TR – CAN BUS TERMINATING RESISTOR	
ES1 – EMERGENCY STOP SWITCH	VSC – VOLTAGE SENSING CONNECTOR	

NOTE: ALL WIRES 18 AWG 300V UL LISTED UNLESS SHOWN OTHERWISE





ALTERNATOR EXCITATION

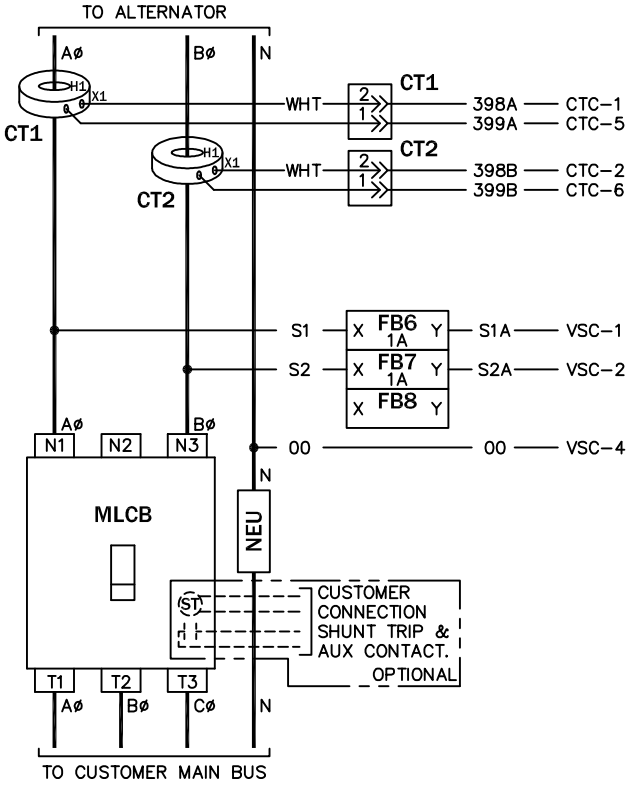


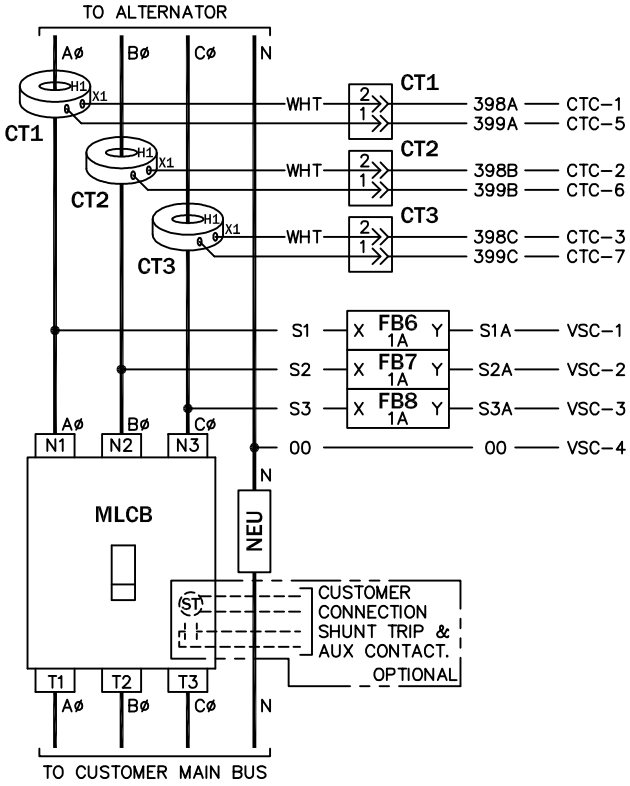
COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE

CONNECTIONS FOR 1Ø UNIT

NOTE: ALL WIRES IN THIS SECTION ARE 600V RATED

CONNECTIONS FOR 3Ø UNIT





WIRING - DIAGRAM

REVISION: CN-0047126-A

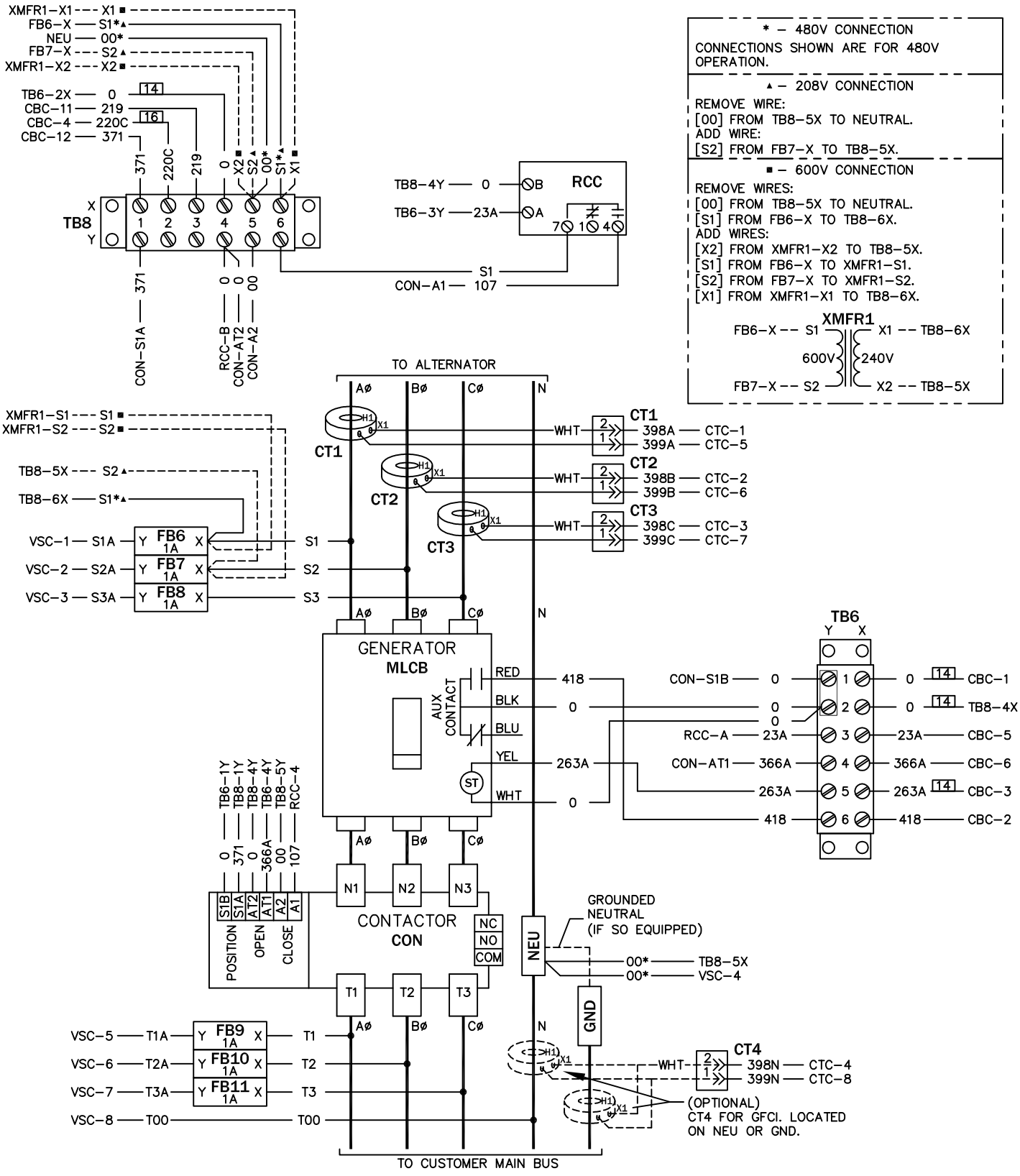
DATE: 5/18/21

D12.5/15.2/18.1L (600KW) G22 PZPS

DRAWING #: A0000351498

COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE

WIRING FOR MPS MOTORIZED MLCB OPTION



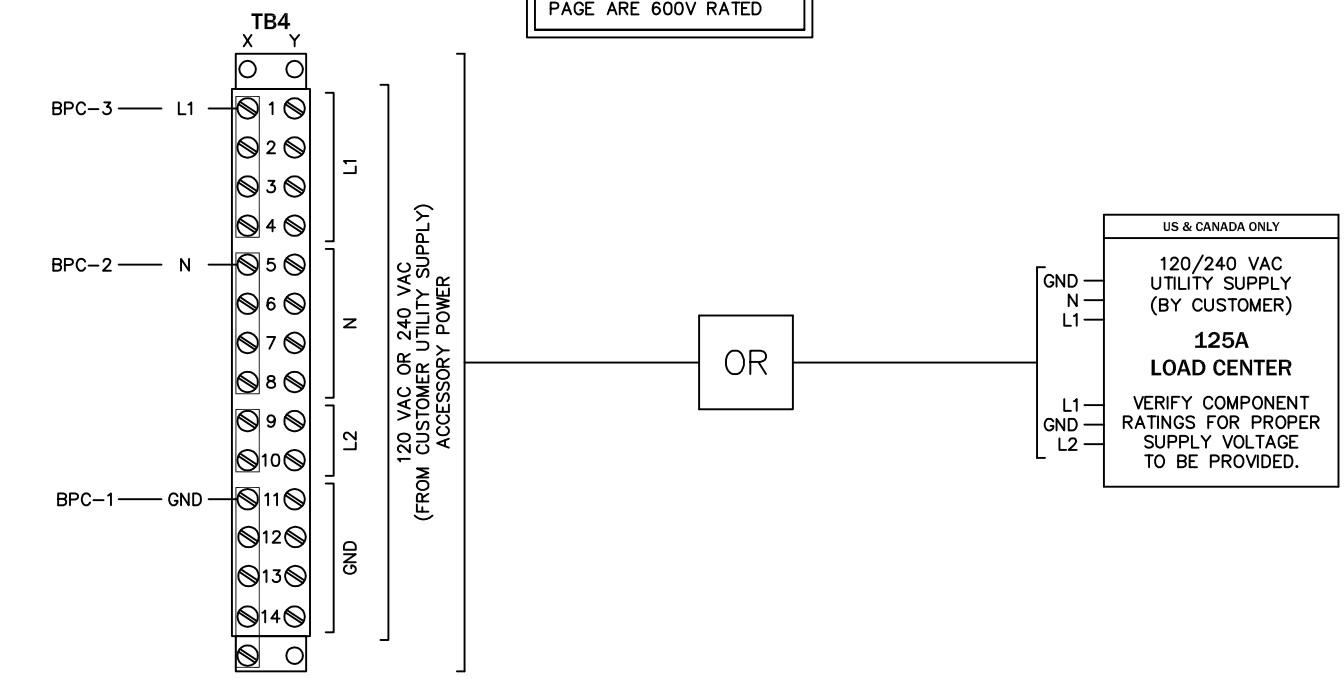
WIRING - DIAGRAM

REVISION: CN-0047126-A
DATE: 5/18/21

D12.5/15.2/18.1L (600KW) G22 PZPS
DRAWING #: A0000351498

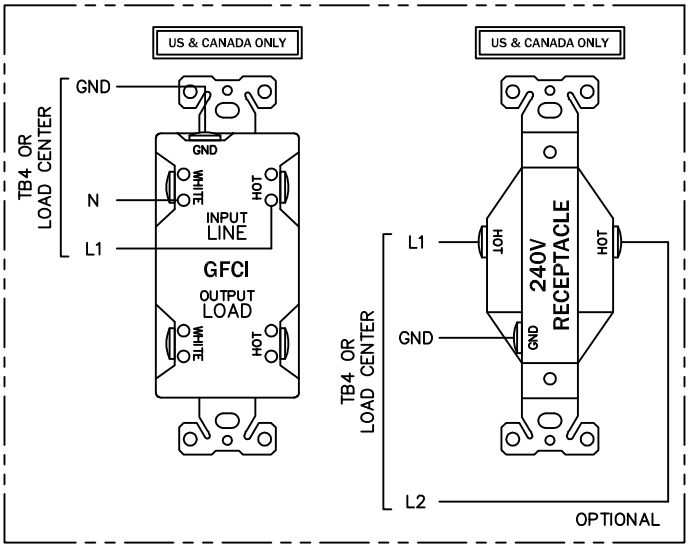
COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE

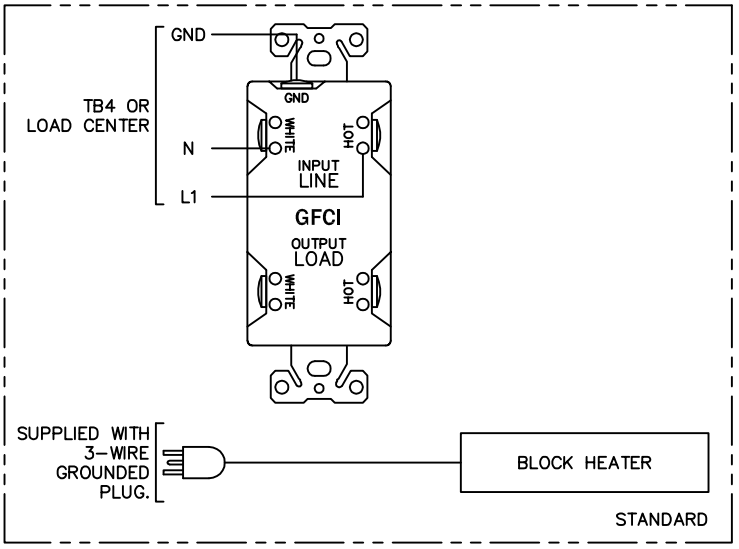
NOTE: ALL WIRES ON THIS PAGE ARE 600V RATED

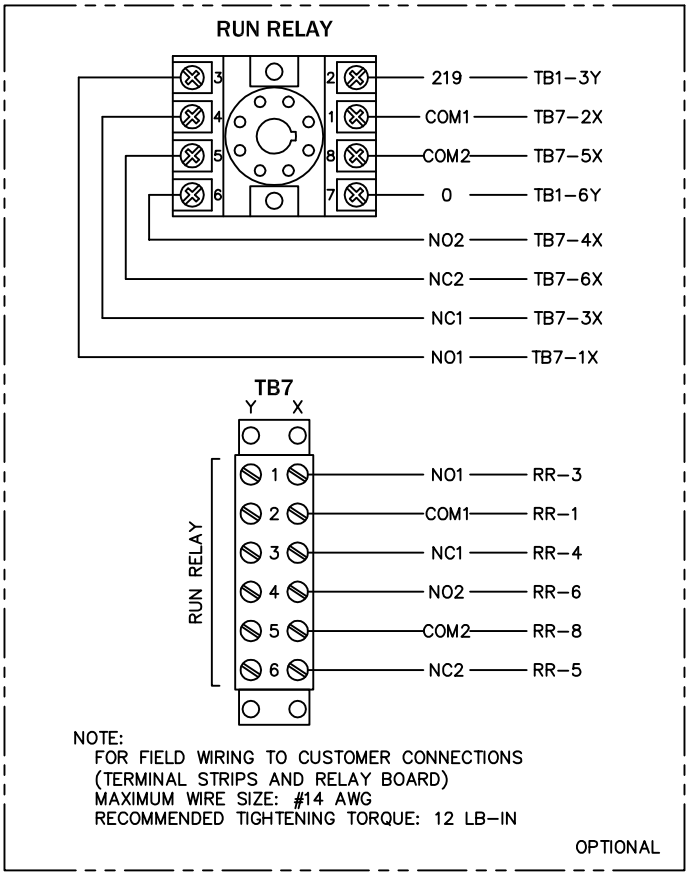


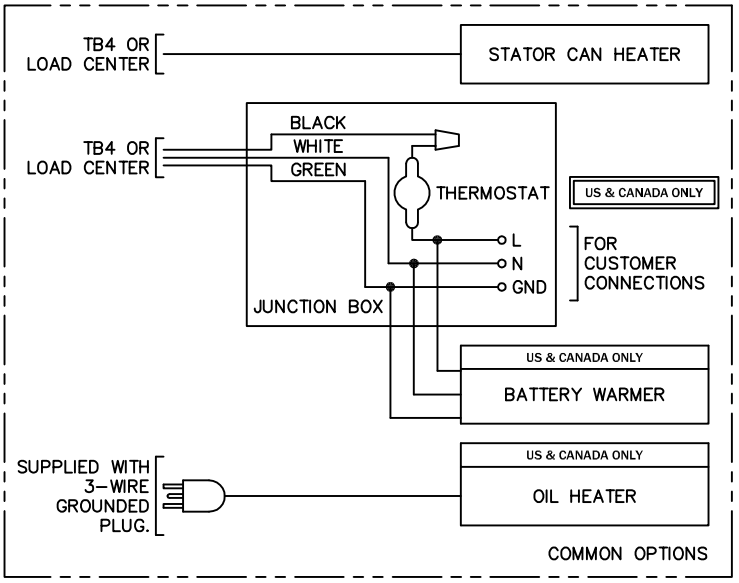
NOTE:
FOR FIELD WIRING TO CUSTOMER CONNECTIONS (TERMINAL STRIP)
MAXIMUM WIRE SIZE: #10 AWG
RECOMMENDED TIGHTENING TORQUE: 14 LB-IN

COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE



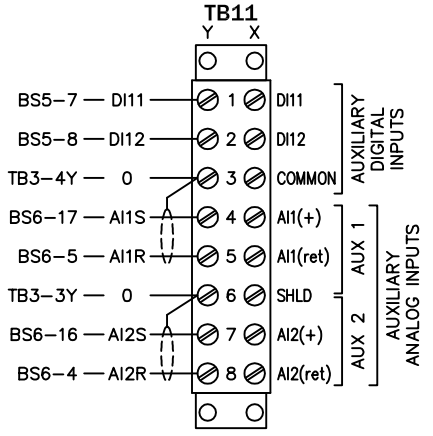






COMPONENTS LOCATED IN LOW VOLTAGE CUSTOMER CONNECTION PANEL

(LEFT SIDE)

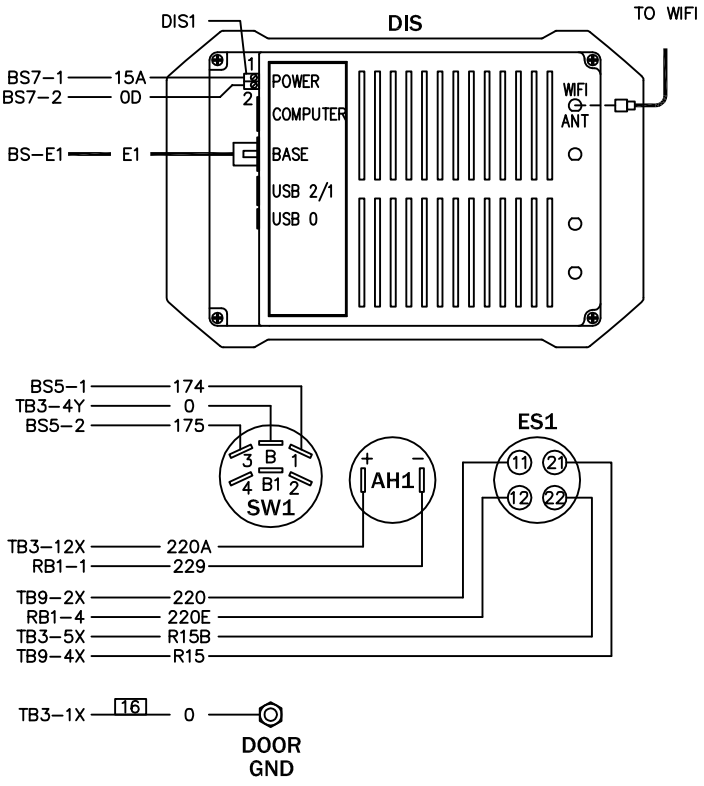


WIRING - DIAGRAM

REVISION: CN-0047126-A
DATE: 5/18/21

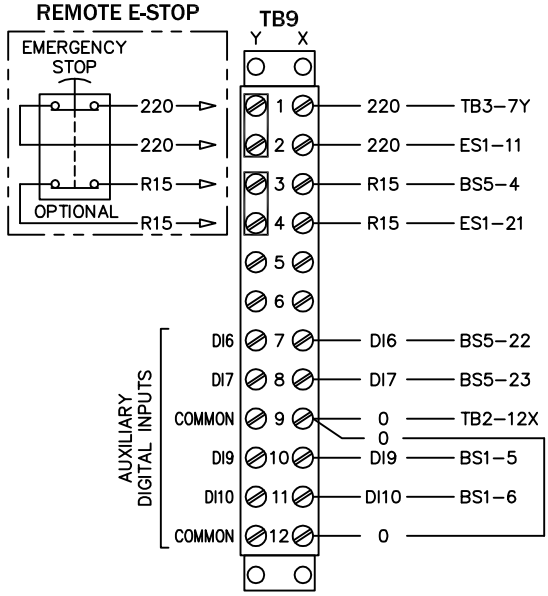
D12.5/15.2/18.1L (600KW) G22 PZPS
DRAWING #: A0000351498

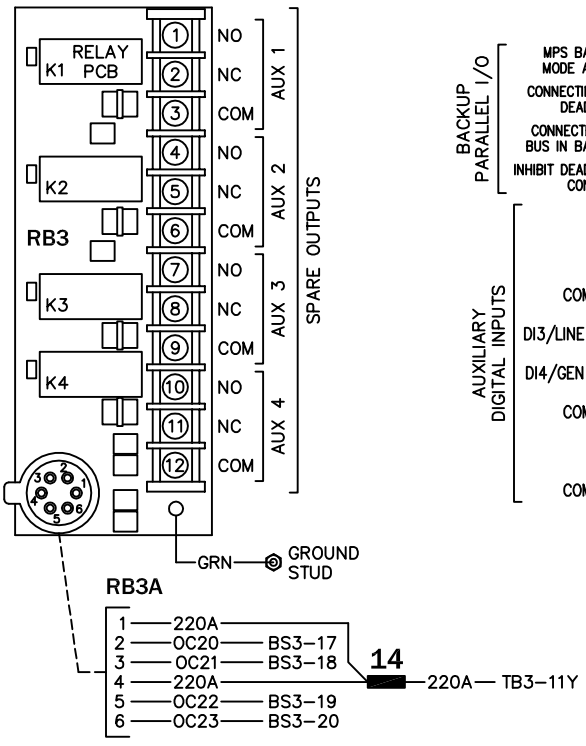
COMPONENTS LOCATED ON CONTROL PANEL DOOR

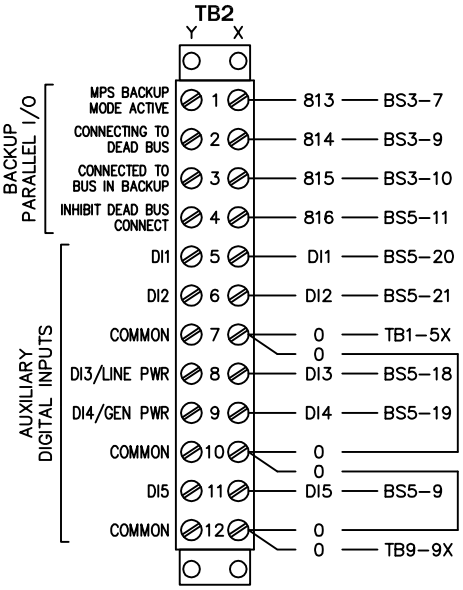


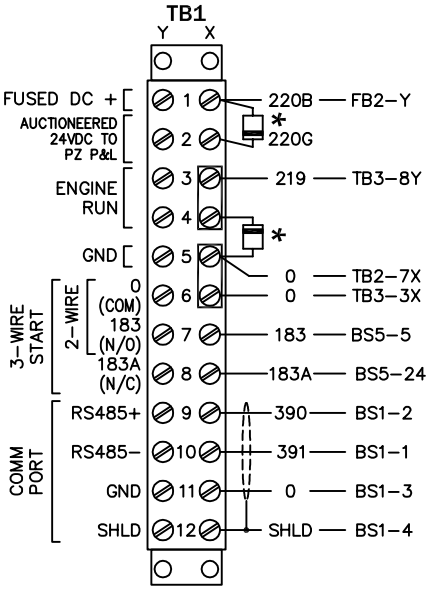
COMPONENTS LOCATED IN LOW VOLTAGE CUSTOMER CONNECTION PANEL

NOTE:
REMOVE TERMINAL BLOCK JUMPERS WHEN INSTALLING REMOTE E-STOP.







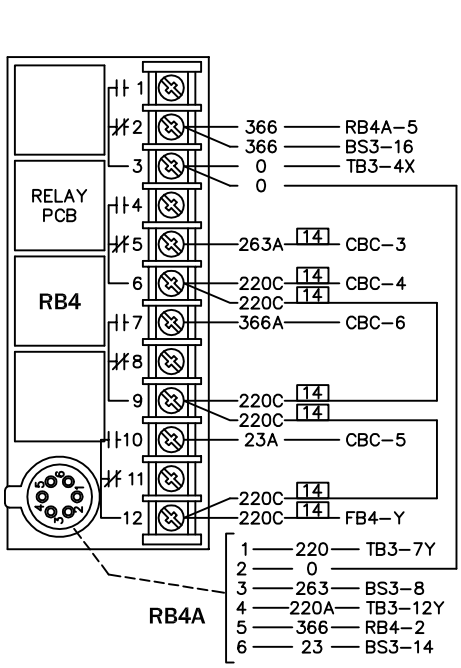


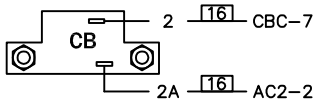
*NOTE: 6A, 600V DIODE
LINE OF DIODE (CATHODE) MUST BE ORIENTATED THE SAME AS IN THE DRAWING.

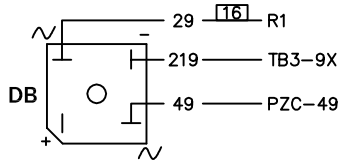
NOTE:
FOR FIELD WIRING TO CUSTOMER CONNECTIONS (TERMINAL STRIPS AND RELAY BOARDS)
MAXIMUM WIRE SIZE: #14 AWG
RECOMMENDED TIGHTENING TORQUE: 12 LB-IN

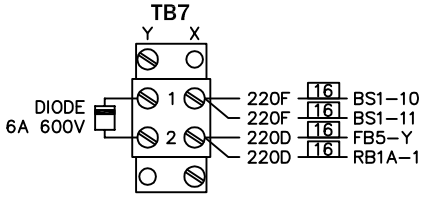
PAGE 5 0F 12

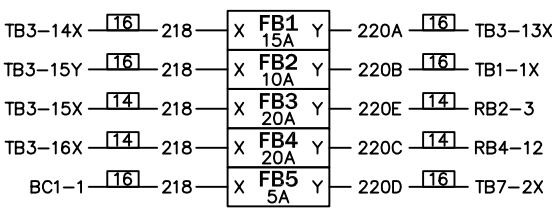
COMPONENTS LOCATED IN CONTROL PANEL
LEFT SIDE

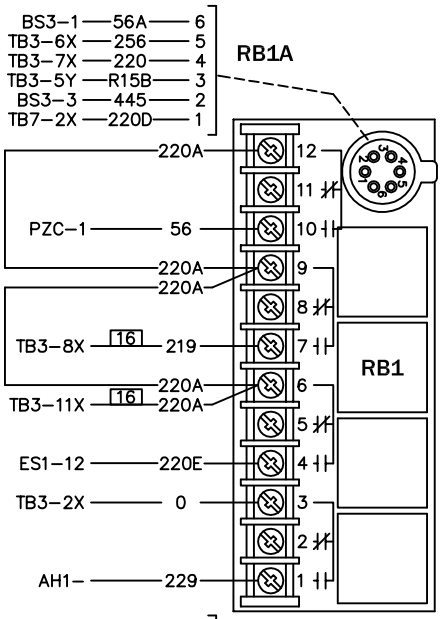


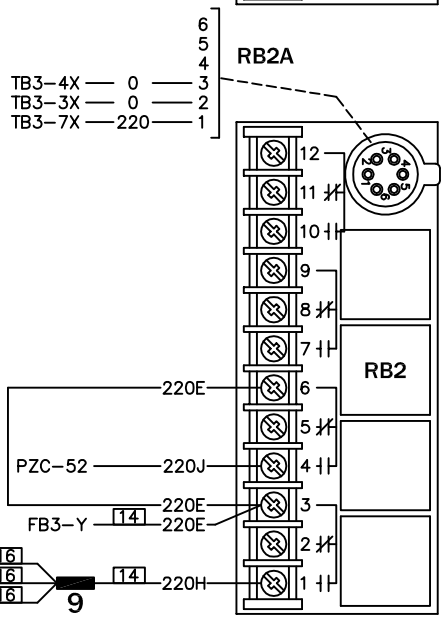




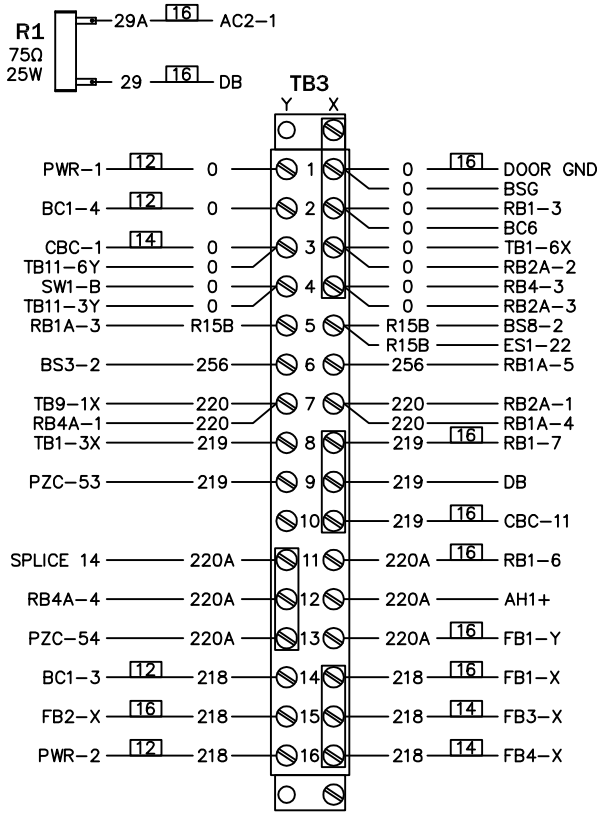






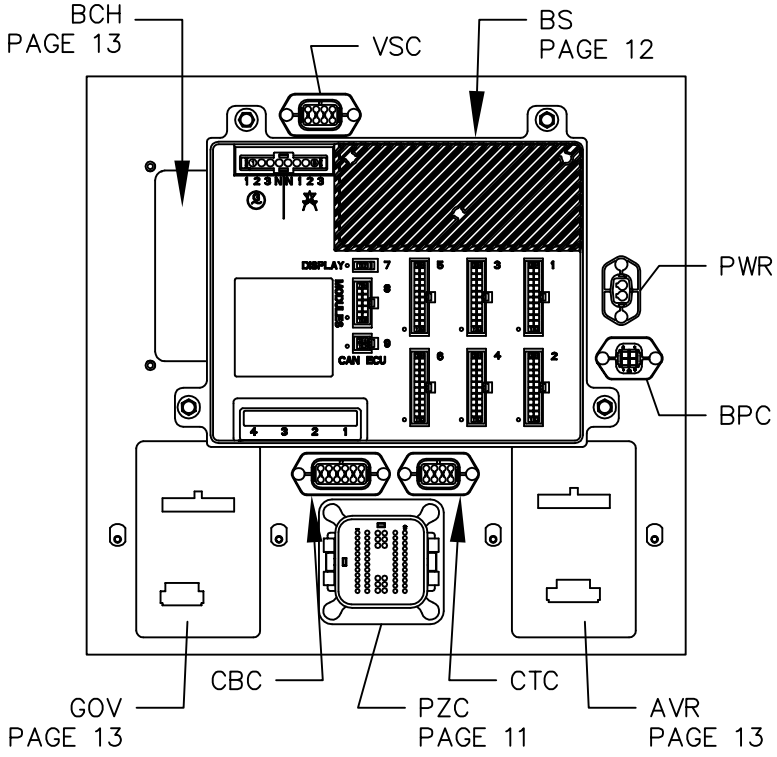


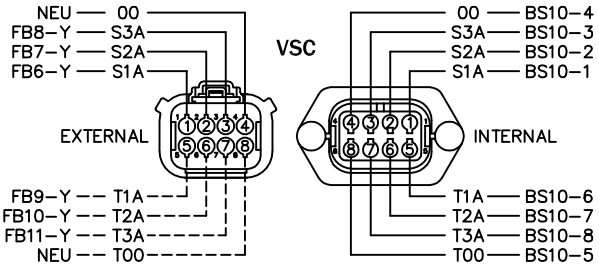
COMPONENTS LOCATED IN CONTROL PANEL
RIGHT SIDE

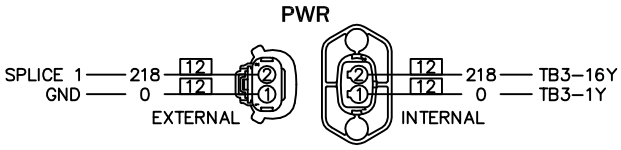


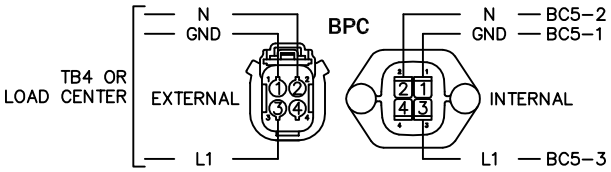
COMPONENTS LOCATED IN CONTROL PANEL

INTERNAL CONNECTORS SHOWN

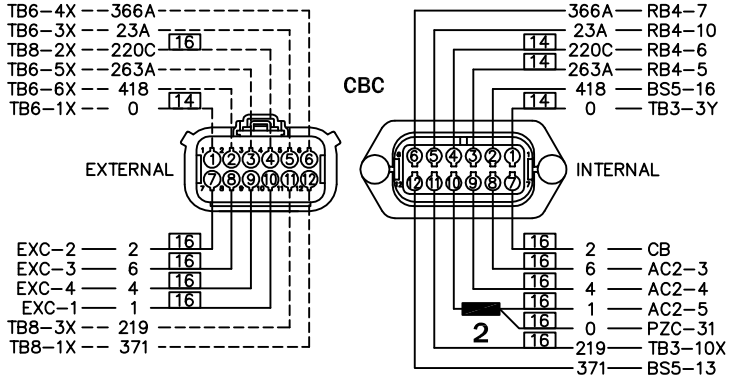


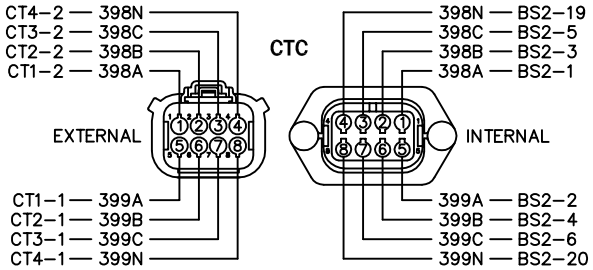




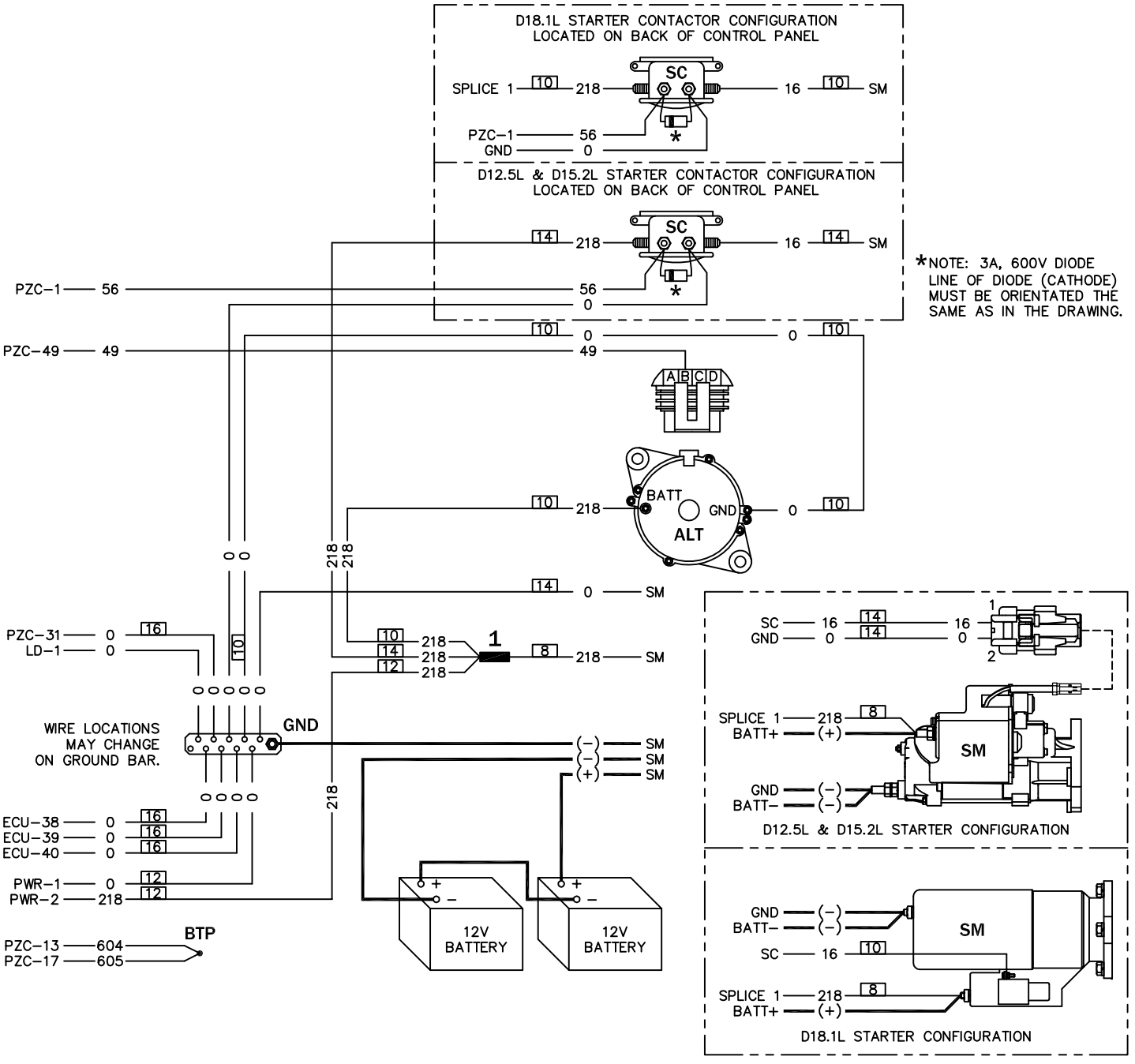


NOTE: THE DASHED WIRES IN CONNECTORS VSC AND CBC ARE POPULATED PER MPS APPLICATION.

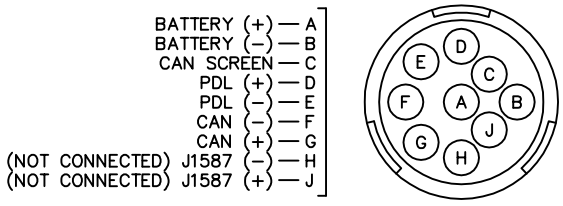




COMPONENTS LOCATED ON ENGINE

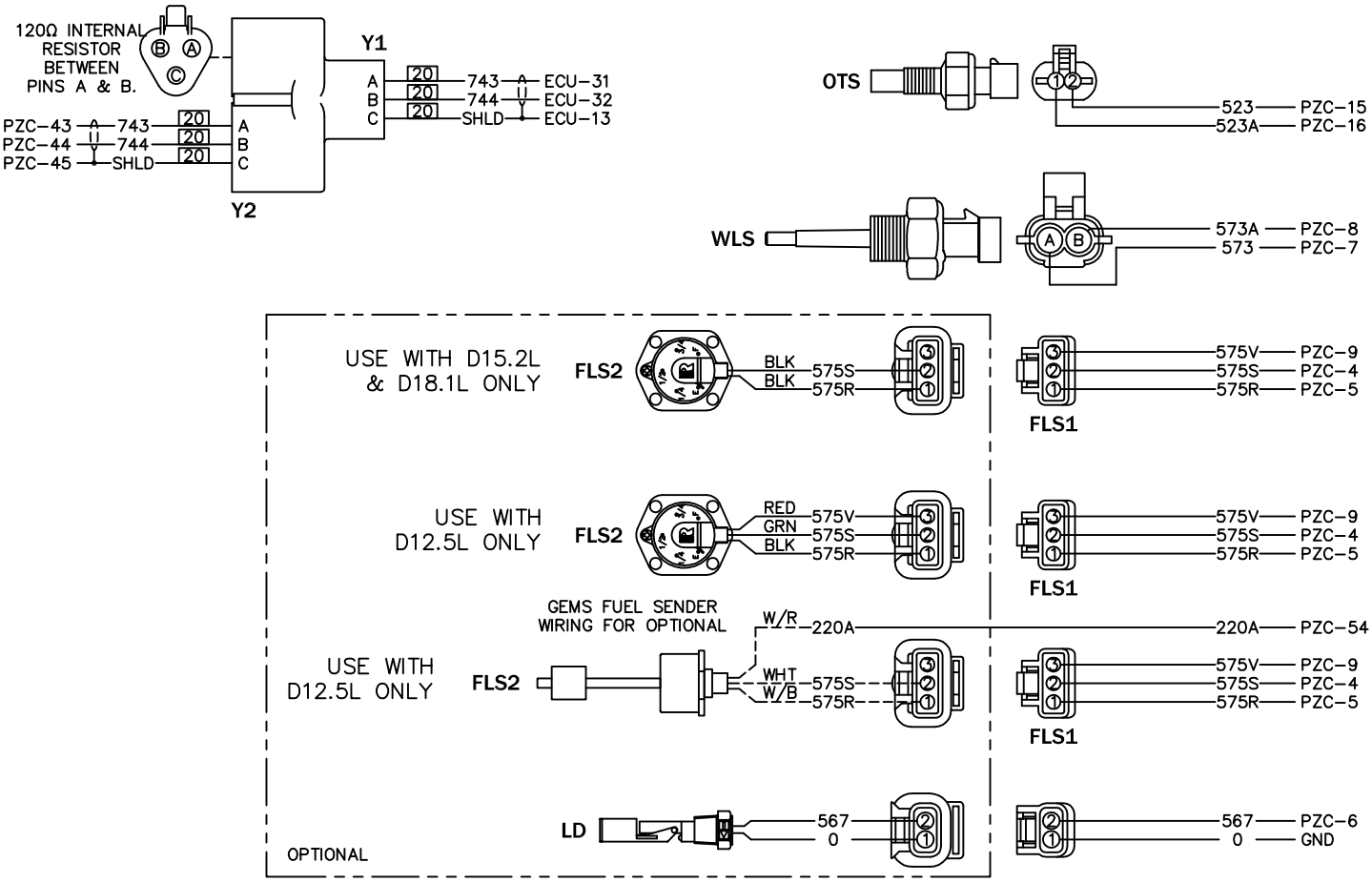


COMMUNICATIONS CONNECTOR

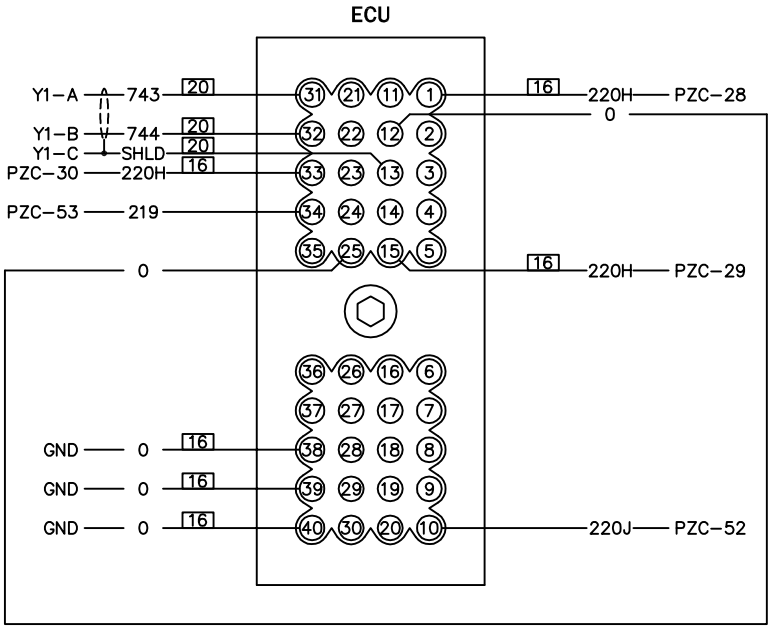


PAGE 8 OF 12

COMPONENTS LOCATED ON ENGINE



ENGINE CONTROL UNIT



PAGE 9 0F 12

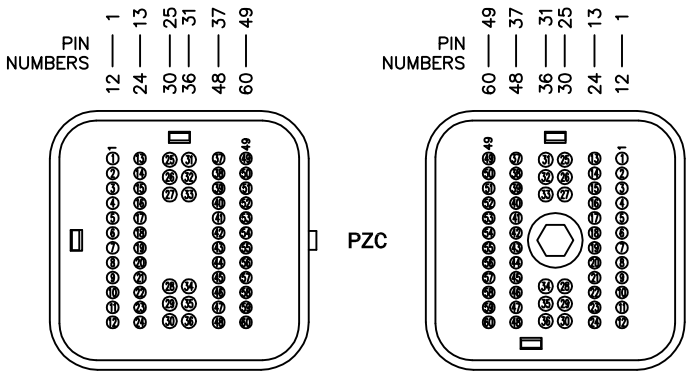
COMPONENTS LOCATED IN CONTROL PANEL

PIN	WIRE	FROM	TO
1	56	RB1–10	SC
2	–	–	–
3	–	–	–
4	575S	BS4–2	FLS1–2
5	575R	BS4–14	FLS1–1
6	567	BS5–3	LD–2
7	573	BS2–12	WLS–A
8	573A	BS2–11	WLS–B
9	575V	BS4–12	FLS1–3
10	–	–	–
11	–	–	–
12	–	–	–

PIN	WIRE	FROM	TO
13	604	BC8–1	BTP
14	–	–	–
15	523	BS6–20	OTS–2
16	523A	BS6–8	OTS–1
17	605	BC8–2	BTP
18	–	–	–
19	–	–	–
20	–	–	–
21	–	–	–
22	–	–	–
23	–	–	–
24	–	–	–

PIN	WIRE	FROM	TO
25	–	–	–
26	–	–	–
27	–	–	–

PIN	WIRE	FROM	TO
28	220H	SPLICE 9	ECU–1
29	220H	SPLICE 9	ECU–15
30	220H	SPLICE 9	ECU–33



CONTROLLER SIDE
CONTROL PANEL

ENGINE SIDE
CONTROL PANEL

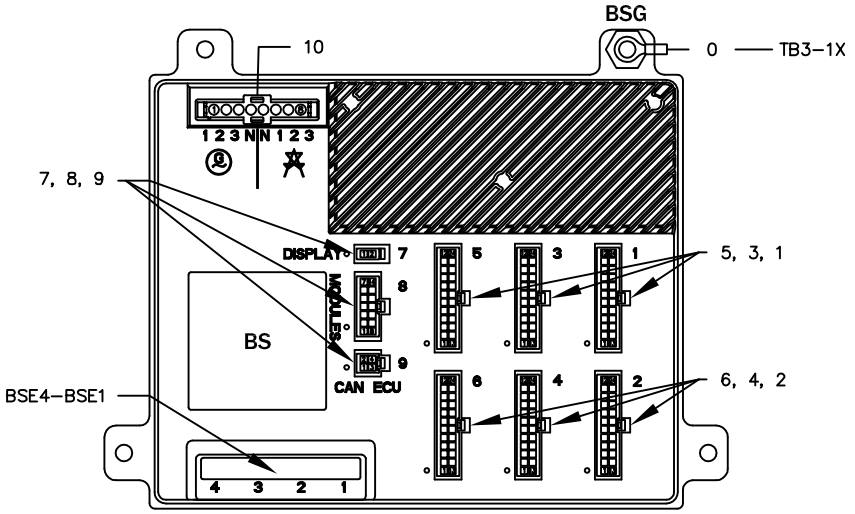
PIN	WIRE	FROM	TO
31	0	SPLICE 2	GND
32	–	–	–
33	–	–	–

PIN	WIRE	FROM	TO
34	–	–	–
35	–	–	–
36	–	–	–

PIN	WIRE	FROM	TO
37	–	–	–
38	–	–	–
39	–	–	–
40	–	–	–
41	–	–	–
42	–	–	–
43	743	BS9–3	Y2–A
44	744	BS9–4	Y2–B
45	SHLD	BS9 (CUT)	Y2–C
46	–	–	–
47	–	–	–
48	–	–	–

PIN	WIRE	FROM	TO
49	49	DB	ALT
50	–	–	–
51	–	–	–
52	220J	RB2–4	ECU–10
53	219	TB3–9Y	ECU–34
54	220A	TB3–13Y	FLS2
55	–	–	–
56	–	–	–
57	–	–	–
58	–	–	–
59	–	–	–
60	–	–	–

COMPONENTS LOCATED IN CONTROL PANEL



BS5

FROM	WIRE	PIN
–	–	12
TB2–4X	816	11
–	–	10
TB2–11X	DI5	9
TB11–2Y	DI12	8
TB11–1Y	DI11	7
BCC–8	505	6
TB1–7X	183	5
TB9–3X	R15	4
PZC–6	567	3
SW1–3	175	2
SW1–1	174	1

PIN

PIN	WIRE	FROM
24	183A	TB1–8X
23	DI7	TB9–8X
22	DI6	TB9–7X
21	DI2	TB2–6X
20	DI1	TB2–5X
19	DI4	TB2–9X
18	DI3	TB2–8X
17	–	–
16	418	CBC–2
15	–	–
14	–	–
13	371	CBC–12

BS3

FROM	WIRE	PIN
–	–	12
–	–	11
TB2–3X	815	10
TB2–2X	814	9
RB4A–3	263	8
TB2–1X	813	7
–	–	6
–	–	5
–	–	4
RB1A–2	445	3
TB3–6Y	256	2
RB1A–6	56A	1

PIN

PIN	WIRE	FROM
24	–	–
23	–	–
22	–	–
21	–	–
20	OC23	RB3A–6
19	OC22	RB3A–5
18	OC21	RB3A–3
17	OC20	RB3A–2
16	366	RB4–2
15	–	–
14	23	RB4A–6
13	–	–

BS1

FROM	WIRE	PIN
–	–	12
TB7–1X	220F	11
TB7–1X	220F	10
–	–	9
–	–	8
–	–	7
TB9–11X	DI10	6
TB9–10X	DI9	5
TB1–12X	SHLD	4
TB1–11X	0	3
TB1–9X	390	2
TB1–10X	391	1

PIN

PIN	WIRE	FROM
24	–	–
23	–	–
22	0	BC1–2
21	–	–
20	–	–
19	–	–
18	–	–
17	–	–
16	–	–
15	–	–
14	–	–
13	–	–

BS6

FROM	WIRE	PIN
–	–	12
–	–	11
–	–	10
–	–	9
PZC–16	523A	8
–	–	7
–	–	6
TB11–5Y	AI1R	5
TB11–8Y	AI2R	4
–	–	3
–	–	2
–	–	1

PIN

PIN	WIRE	FROM
24	–	–
23	–	–
22	–	–
21	–	–
20	523	PZC–15
19	–	–
18	–	–
17	AI1S	TB11–4Y
16	AI2S	TB11–7Y
15	–	–
14	–	–
13	–	–

BS4

FROM	WIRE	PIN
PZC–9	575V	12
–	–	11
–	–	10
–	–	9
–	–	8
–	–	7
–	–	6
–	–	5
–	–	4
–	–	3
PZC–4	575S	2
BCC–6	803V	1

PIN

PIN	WIRE	FROM
24	–	–
23	–	–
22	–	–
21	–	–
20	–	–
19	–	–
18	–	–
17	–	–
16	–	–
15	–	–
14	575R	PZC–5
13	–	–

BS2

FROM	WIRE	PIN
PZC–7	573	12
PZC–8	573A	11
–	–	10
–	–	9
–	–	8
–	–	7
CTC–7	399C	6
CTC–3	398C	5
CTC–6	399B	4
CTC–2	398B	3
CTC–5	399A	2
CTC–1	398A	1

PIN

PIN	WIRE	FROM
24	–	–
23	–	–
22	–	–
21	–	–
20	399N	CTC–8
19	398N	CTC–4
18	–	–
17	–	–
16	–	–
15	–	–
14	–	–
13	–	–

BS7

FROM	WIRE	PIN
DIS1–1	15A	1

PIN

PIN	WIRE	FROM
2	0D	DIS1–2

BS8

FROM	WIRE	PIN
–	–	7
–	–	6
–	–	5
AC1–10	0F	4
–	–	3
TB3–5X	R15B	2
BC2–3	SHLD	1

PIN

PIN	WIRE	FROM
14	–	–
13	–	–
12	–	–
11	15F	AC1–11
10	–	–
9	744G	BC2–4
8	743G	BC2–5

BS9

FROM	WIRE	PIN
–	–	2
–	–	1

PIN

PIN	WIRE	FROM
4	744	PZC–44
3	743	PZC–43

BS10

1 2 3 N N 1 2 3

	PIN	WIRE	FROM
GEN 1	1	S1A	VSC–1
GEN 2	2	S2A	VSC–2
GEN 3	3	S3A	VSC–3
GEN N	4	00	VSC–4
UTIL N	5	T00	VSC–8
UTIL 1	6	T1A	VSC–5
UTIL 2	7	T2A	VSC–6
UTIL 3	8	T3A	VSC–7

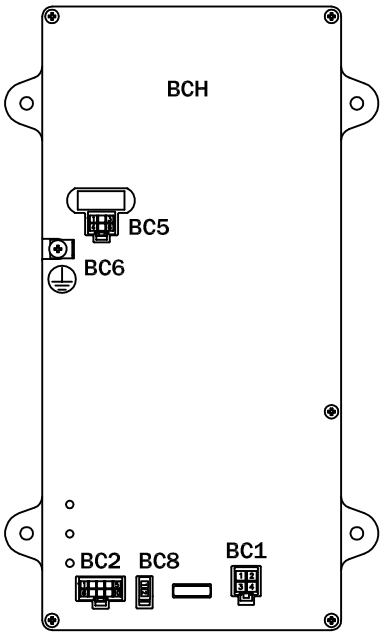
BSE1-BSE4

PORT	WIRE	TO	FUNCTION
BSE1	E1	DIS	DISPLAY TO BASE COM
BSE2	E2	GEN BUS	MPS GENERATOR TO GENERATOR COM
BSE3	E3	GEN BUS	MPS GENERATOR TO GENERATOR COM
BSE4	E4	AUX DEVICE	AUX OPTION COM

PAGE 11 OF 12

COMPONENTS LOCATED IN CONTROL PANEL
BATTERY CHARGER

OPTIONAL 20 AMP BATTERY CHARGER



BCH

BC1

PIN	WIRE	FROM
1	218	FB5–X
2	0	BS1–22

PIN	WIRE	FROM
3	218	TB3–14Y
4	0	TB3–2Y

BC2

PIN	WIRE	FROM
1	–	–
2	–	–
3	SHLD	BS8–1
4	744G	BS8–9
5	743G	BS8–8

PIN	WIRE	FROM
6	–	–
7	–	–
8	SHLD	AC1–4
9	744G	AC1–5
10	743G	AC1–6

BC5

PIN	WIRE	FROM
1	GND	BPC–1
2	N	BPC–2
3	L1	BPC–3

PIN	WIRE	FROM
4	–	–
5	–	–
6	–	–

BC8

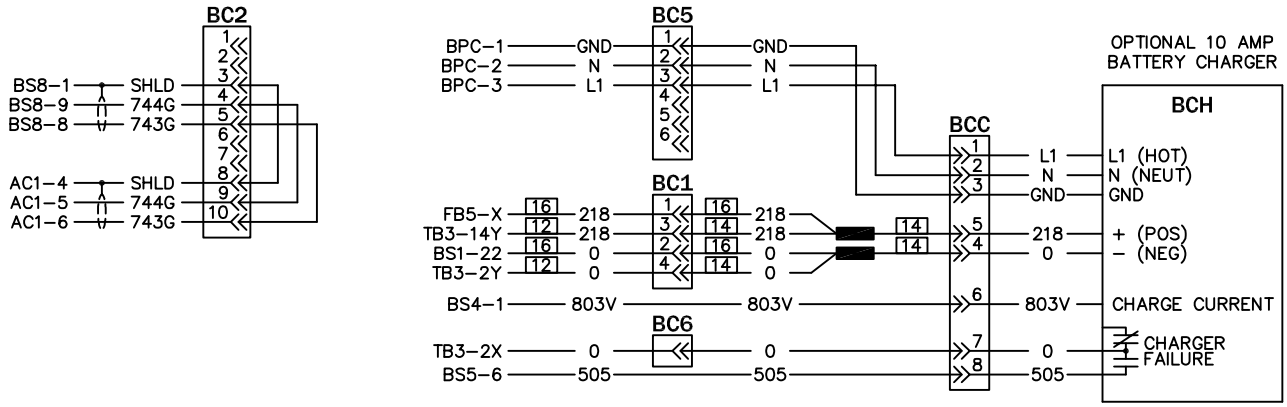
PIN	WIRE	FROM
1	604	PZC–13

PIN	WIRE	FROM
2	605	PZC–17

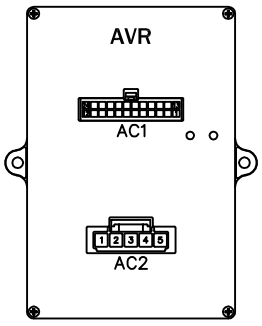
BC6

PIN	WIRE	FROM
–	0	TB3–2X

BATTERY CHARGER



AVR CONTROLLER



AVR

AC1

PIN	WIRE	FROM
1	–	–
2	–	–
3	–	–
4	SHLD	BC2–8
5	744G	BC2–9
6	743G	BC2–10
7	–	–
8	–	–
9	–	–
10	0F	BS8–4
11	15F	BS8–11
12	–	–

PIN	WIRE	FROM
13	–	–
14	–	–
15	–	–
16	–	–
17	744G	TR–B
18	743G	TR–A
19	–	–
20	–	–
21	–	–
22	–	–
23	–	–
24	–	–

TR

CAN BUS 120 Ω RESISTOR

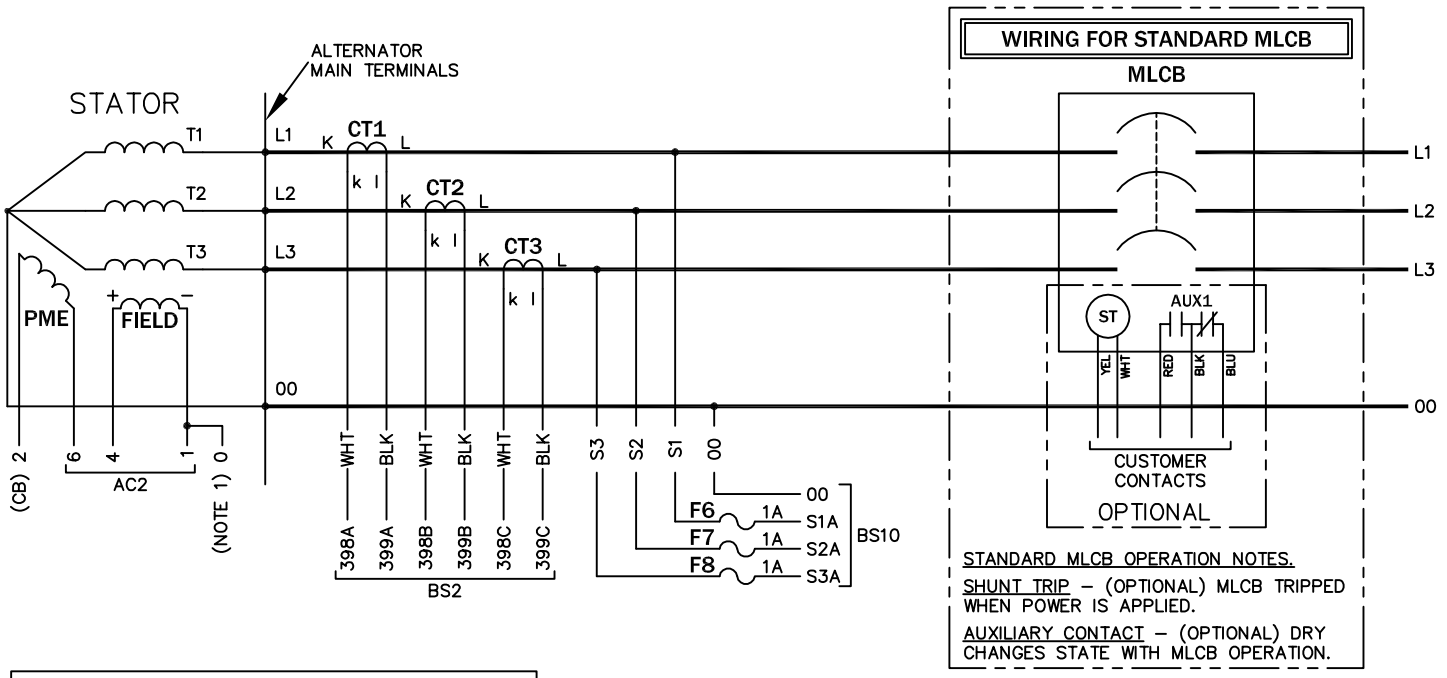
AC2

PIN	WIRE	FROM
1	29A	R1
2	2A	CB
3	6	CBC–8
4	4	CBC–9
5	1	SPLICE 2

WIRING - DIAGRAM

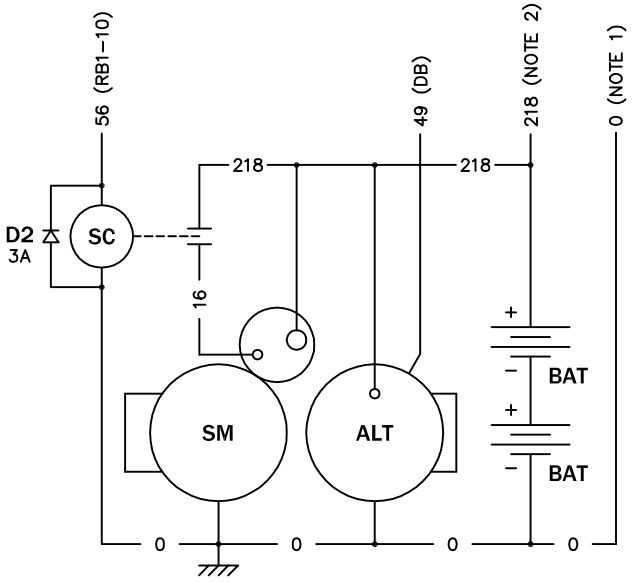
REVISION: CN-0047126-A
DATE: 5/18/21

D12.5/15.2/18.1L (600KW) G22 PZPS
DRAWING #: A0000351498



NOTES:

1) WIRE# 0 IS CHASSIS GROUND (BATTERY –) UNLESS NOTED OTHERWISE.
2) WIRE# 218 IS UNFUSED +24VDC (BATTERY +).
3) WIRE# 219 IS FUSED +24VDC WHEN GENERATOR IS CRANKING OR RUNNING.
4) WIRE# 220 IS FUSED +24VDC WHEN E–STOP IS NOT ACTIVATED.
5) WIRE# 220A IS FUSED +24VDC FOR FACTORY GENERAL USE.
6) WIRE# 220B IS FUSED +24VDC FOR CUSTOMER GENERAL USE.
7) WIRE# 220C IS FUSED +24VDC FOR THE BREAKER SPRING RELEASE, SHUNT TRIP AND UNDERVOLTAGE RELEASE.
8) WIRE# 220D IS FUSED +24VDC FOR THE CONTROL MODULE, ALARM, AND WATCHDOG/OVERSPEED RELAYS.
9) WIRE# 220E IS FUSED +24VDC CONTROLLED BY GENERATOR CONTROL MODULE PRIOR TO E–STOP.
10) WIRE# 220F IS FUSED +24VDC FOR THE POWER ZONE CONTROL MODULE.
11) WIRE# 220G IS FUSED AUCTIONEERED +24VDC FOR POWER ZONE PERMISSIVE & LOAD SHED.
12) WIRE# 220H IS FUSED, UNSWITCHED +24VDC FOR THE ECU.
13) WIRE# 220J IS FUSED, SWITCHED +24VDC FOR THE ECU.



LEGEND

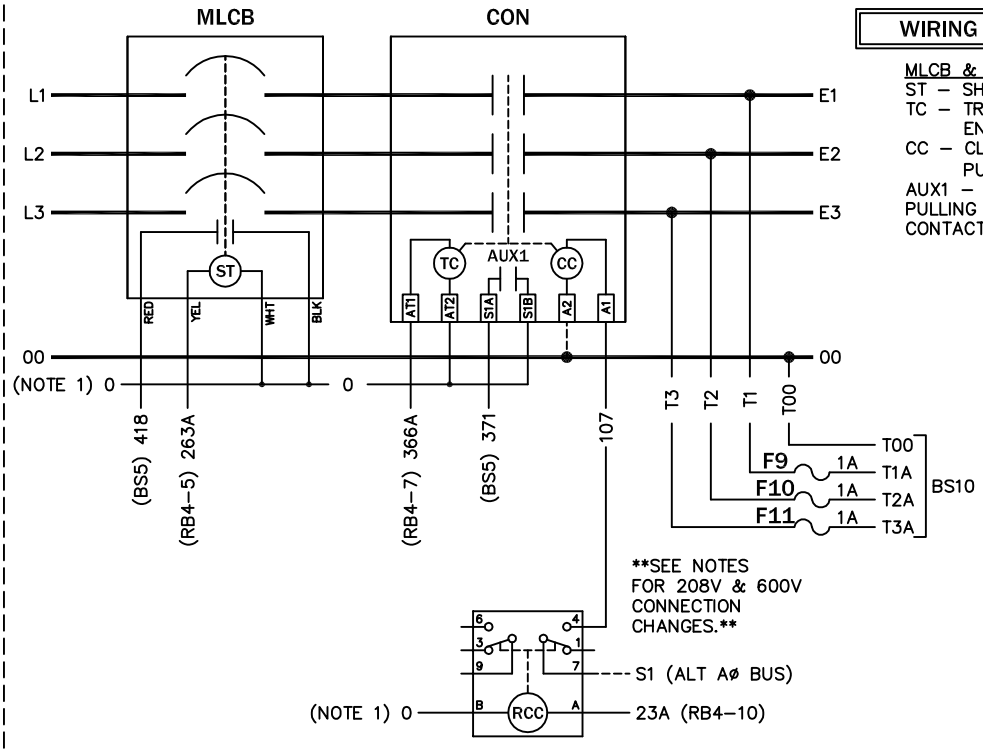
00 – NEUTRAL	CC – CLOSE COIL	OTS – OIL TEMPERATURE SENDER
AC_ – AVR CONNECTOR	CON – CONTACTOR	PME – PERMANENT MAGNET EXCITER
AH1 – ALARM HORN	CT_ – CURRENT TRANSFORMER	R1 – RESISTOR
ALT – DC CHARGE ALTERNATOR	D_ – DIODE	RB_ – RELAY BOARD
AUX_– AUXILIARY CONTACT	DB – DIODE BRIDGE	RCC – RELAY CLOSE COIL
AVR – AUTOMATIC VOLTAGE REGULATOR	DIS – POWERZONE DISPLAY	SC – START CONTACTOR
BAT – BATTERY	ECU – ENGINE CONTROL UNIT	SM – STARTER MOTOR
BC_ – BATTERY CHARGER CONNECTOR (20A)	ES1 – EMERGENCY STOP SWITCH	ST – SHUNT TRIP
BCH – BATTERY CHARGER	F_ – FUSE BLOCK	SW1 – OFF/AUTO/MANUAL SWITCH
BS – POWER ZONE BASE STATION	FLS – FUEL LEVEL SENDER	TC – TRIP COIL
BS_ – BASE STATION CONNECTOR	GFCI – GROUND FAULT CURRENT INTERRUPT	TR – TERMINATING RESISTER
BSE_ – BASE STATION ETHERNET CONNECTOR	GND – GROUND BAR CONNECTION	WLS – COOLANT LEVEL SENDER
BTP – BATTERY CHARGER TEMP PROBE	LD – FUEL LEAK DETECTOR	XMFR1 – TRANSFORMER
CB – CIRCUIT BREAKER	MLCB – MAIN LINE CIRCUIT BREAKER	

SCHEMATIC - DIAGRAM

REVISION: CN-0047126-A
DATE: 5/18/21

PAGE 1 OF 6

D12.5/15.2/18.1L (600KW) G22 PZPS
DRAWING #: A0000351499



WIRING FOR MLCB & CONTACTOR

MLCB & CON OPERATION NOTES.
ST – SHUNT TRIP, OPENS MLCB WHEN RB4–K2 DROPS OUT.
TC – TRIP COIL, OPENS CONTACTOR WHEN RB4–K3 IS ENERGIZED.
CC – CLOSE COIL, CLOSES CONTACTOR WHEN RCC IS PULSED. (PULSING PREVENTS COIL FROM OVERHEATING)
AUX1 – SIGNALS CONTACTOR OPEN OR CLOSED STATUS. PULLING FB4 TO WIRE 220C WILL DISABLE MLCB & CONTACTOR FUNCTIONS.

WIRING NOTE

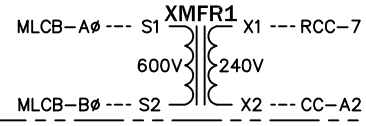
CONNECTIONS SHOWN ARE FOR 480V OPERATION.

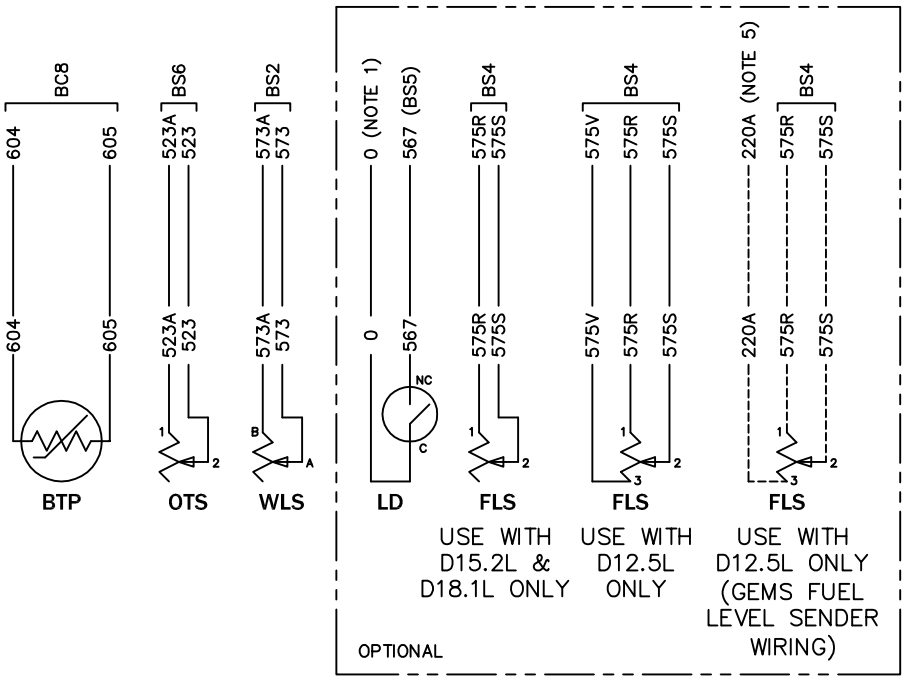
208V CONNECTION

REMOVE WIRE:
[00] FROM CC–A2 TO NEUTRAL.
ADD WIRE:
[S2] FROM ALT–Bø TO CC–A2.

600V CONNECTION

REMOVE WIRES:
[00] FROM CC–A2 TO NEUTRAL.
[S1] FROM ALT–Aø TO RCC–7.
ADD WIRES:
[X2] FROM XMFR1–X2 TO CC–A2.
[S1] FROM ALT–Aø TO XMFR1–S1.
[S2] FROM ALT–Bø TO XMFR1–S2.
[X1] FROM XMFR1–X1 TO RCC–7.

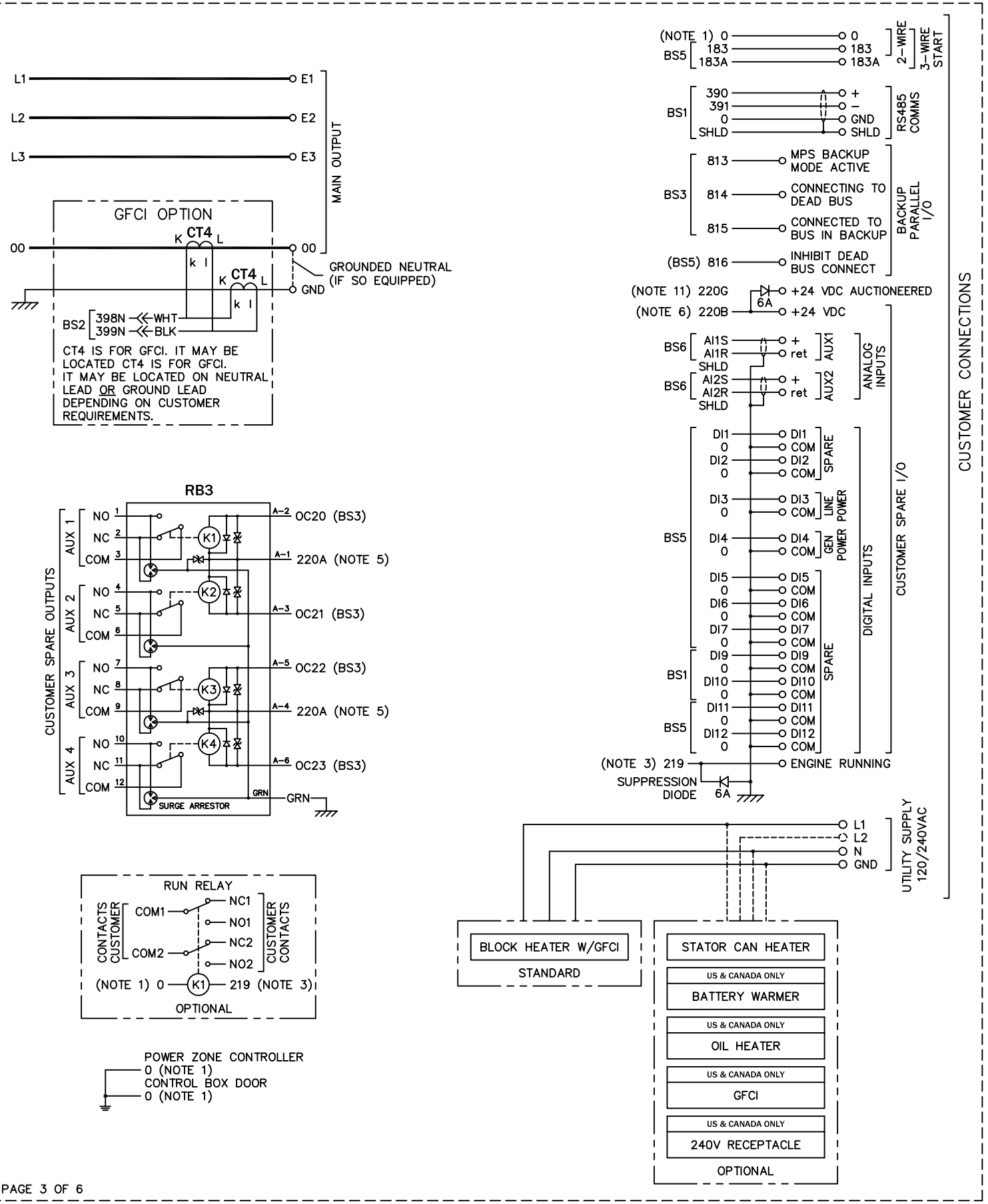




SCHEMATIC - DIAGRAM

REVISION: CN-0047126-A
DATE: 5/18/21

D12.5/15.2/18.1L (600KW) G22 PZPS
DRAWING #: A0000351499



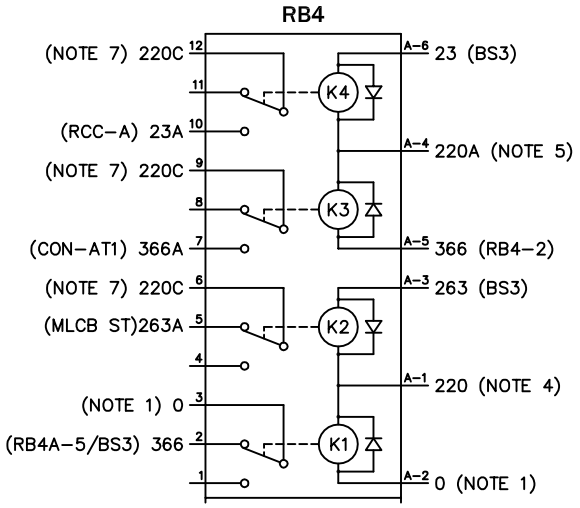
PAGE 3 OF 6

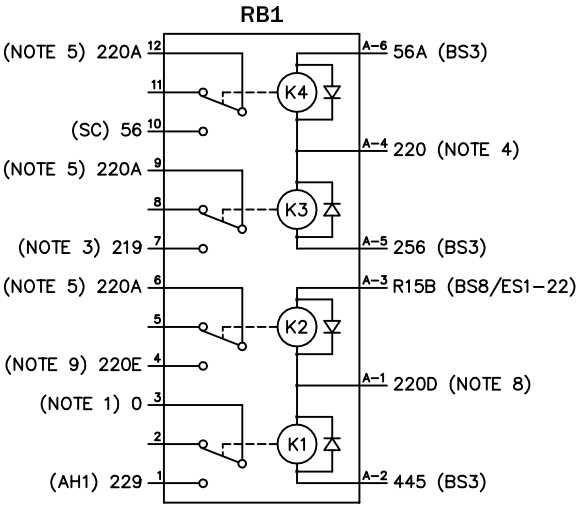
SCHEMATIC - DIAGRAM

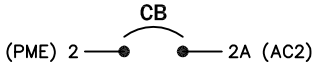
REVISION: CN-0047126-A
DATE: 5/18/21

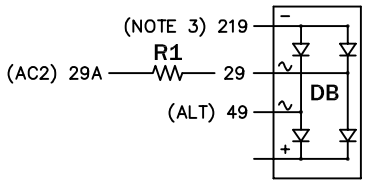
PAGE 3 OF 6

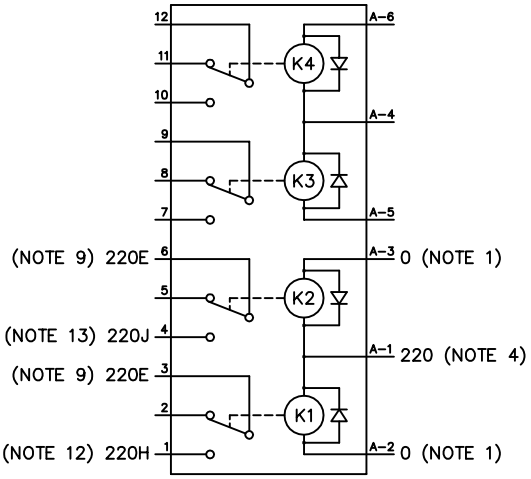
D12.5/15.2/18.1L (600KW) G22 PZPS
DRAWING #: A0000351499

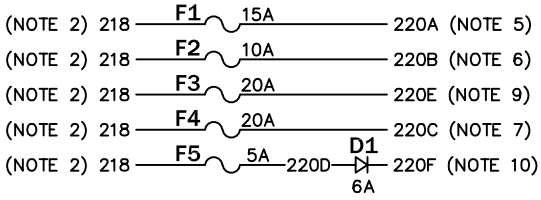


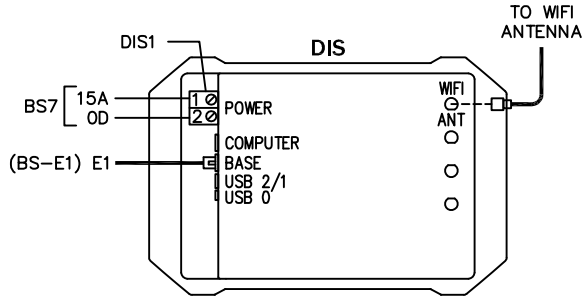


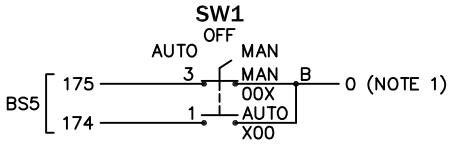


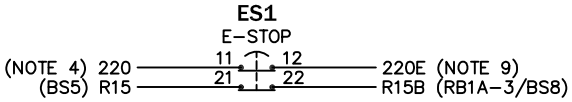












ECU CONNECTOR

PIN	WIRE	TO	FUNCTION
1	220H	RB2-1	NOTE 12
10	220J	RB2-4	NOTE 13
12	0	ECU-25	DIGITAL RETURN
13	SHLD	BS9 (CUT)	CAN BUS 3 SHIELD
15	220H	RB2-1	NOTE 12
25	0	ECU-12	ECU FREQUENCY SELECT
31	743	BS9-3	CAN BUS 3 HIGH
32	744	BS9-4	CAN BUS 3 LOW
33	220H	RB2-1	NOTE 12
34	219	DB/RB1-7	FUEL INJECTOR ENABLE
38	0	GND	NOTE 1
39	0	GND	NOTE 1
40	0	GND	NOTE 1

COMMUNICATIONS CONNECTOR (SUPPLIED WITH ECU HARNESS)

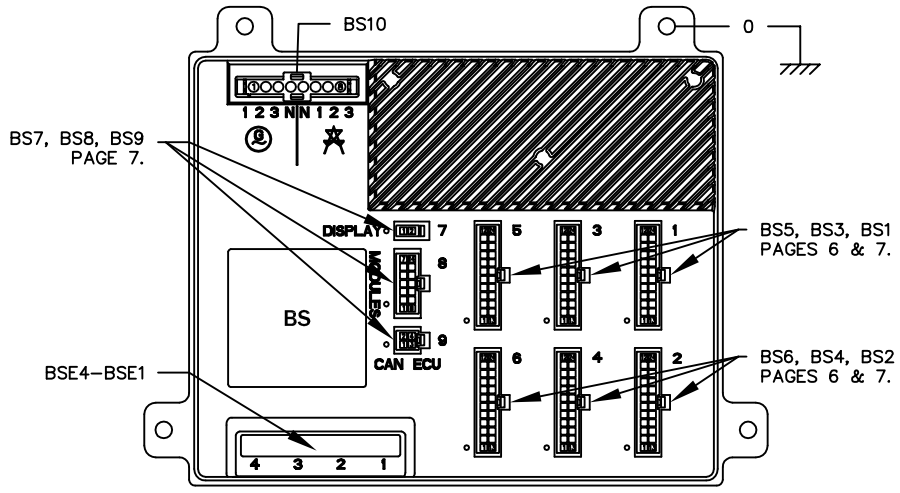
PIN	WIRE	TO	FUNCTION
A	–	–	BATTERY (+)
B	–	–	BATTERY (–)
C	–	–	CAN SCREEN
D	–	–	PDL (+)
E	–	–	PDL (–)
F	–	–	CAN (–)
G	–	–	CAN (+)
H	–	–	J1587 (–) (NOT CONNECTED)
J	–	–	J1587 (+) (NOT CONNECTED)

SCHEMATIC - DIAGRAM

REVISION: CN-0047126-A
DATE: 5/18/21

D12.5/15.2/18.1L (600KW) G22 PZPS
DRAWING #: A0000351499

BASE STATION



BS1

PIN	WIRE	TO	FUNCTION
1	391	CUST CONN	RS485– (TRANSFER SWITCH)
2	390	CUST CONN	RS485+ (TRANSFER SWITCH)
3	0	CUST CONN	RS485 GND (TRANSFER SWITCH)
4	SHLD	CUST CONN	RS485 DRAIN (TRANSFER SWITCH)
5	DI9	CUST CONN	AUXILIARY DIGITAL INPUT 9
6	DI10	CUST CONN	AUXILIARY DIGITAL INPUT 10
10	220F	F5	NOTE 10
11	220F	F5	NOTE 10
22	0	GND	NOTE 1

BS2

PIN	WIRE	TO	FUNCTION
1	398A	CT1–2	GEN PHASE A CURRENT (+)
2	399A	CT1–1	GEN PHASE A CURRENT (–)
3	398B	CT2–2	GEN PHASE B CURRENT (+)
4	399B	CT2–1	GEN PHASE B CURRENT (–)
5	398C	CT3–2	GEN PHASE C CURRENT (+)
6	399C	CT3–1	GEN PHASE C CURRENT (–)
11	573A	WLS–B	COOLANT LEVEL (–)
12	573	WLS–A	COOLANT LEVEL (+)
19	398N	CT4–2	GEN NEUTRAL CURRENT (+)
20	399N	CT4–1	GEN NEUTRAL CURRENT (–)

BS3

PIN	WIRE	TO	FUNCTION
1	56A	RB1A–6	START RELAY
2	256	RB1A–5	FUEL RELAY
3	445	RB1A–2	ALARM RELAY
7	813	CUST CONN	BACKUP MODE ACTIVE (MPS)
8	263	RB4A–3	SHUNT TRIP RELAY
9	814	CUST CONN	CONNECTING TO DEAD BUS (MPS)
10	815	CUST CONN	CONNECTED TO BUS IN BACKUP (MPS)
14	23	RB4A–6	CLOSE GENERATOR TO BUS (MPS)
16	366	RB4–2	OPEN GENERATOR FROM BUS (MPS)
17	0C20	RB3A–2	SPARE RELAY 1
18	0C21	RB3A–3	SPARE RELAY 2
19	0C22	RB3A–5	SPARE RELAY 3
20	0C23	RB3A–6	SPARE RELAY 4

BS4

PIN	WIRE	TO	FUNCTION
1	803V	BCH	BATTERY CHARGER CURRENT
2	575S	FLS–2	FUEL LEVEL SIGNAL
12	575V	FLS–3	FUEL LEVEL (+)
14	575R	FLS–1	FUEL LEVEL (–)

BSE1-BSE4

PORT	WIRE	TO	FUNCTION
BSE1	E1	DIS	DISPLAY TO BASE COM
BSE2	E2	GEN BUS	MPS GENERATOR TO GENERATOR COM
BSE3	E3	GEN BUS	MPS GENERATOR TO GENERATOR COM
BSE4	E4	AUX DEVICE	AUX OPTION COM

BS5

PIN	WIRE	TO	FUNCTION
1	174	SW1	AUTO START
2	175	SW1	MANUAL START
3	567	LD–2	FUEL LEAK
4	R15	ES1–21	EMERGENCY STOP
5	183	CUST CONN	REMOTE START (N/O)
6	505	BCH	BATTERY CHARGER FAIL
7	DI11	CUST CONN	AUXILIARY DIGITAL INPUT 11
8	DI12	CUST CONN	AUXILIARY DIGITAL INPUT 12
9	DI5	CUST CONN	AUXILIARY DIGITAL INPUT 5
11	816	CUST CONN	INHIBIT DEAD BUS CONNECT (MPS)
13	371	CON–S1A	SIGNALS CONTACTOR POSITION
16	418	MLCB AUX	MLCB STATUS
18	DI3	CUST CONN	AUXILIARY DI3/LINE POWER
19	DI4	CUST CONN	AUXILIARY DI4/GENERATOR POWER
20	DI1	CUST CONN	AUXILIARY DIGITAL INPUT 1
21	DI2	CUST CONN	AUXILIARY DIGITAL INPUT 2
22	DI6	CUST CONN	AUXILIARY DIGITAL INPUT 6
23	DI7	CUST CONN	AUXILIARY DIGITAL INPUT 7
24	183A	CUST CONN	REMOTE START (N/C)

BS6

PIN	WIRE	TO	FUNCTION
4	AI2R	CUST CONN	ANALOG INPUT 2 (–)
5	AI1R	CUST CONN	ANALOG INPUT 1 (–)
8	523A	OTS–1	OIL TEMPERATURE (–)
16	AI2S	CUST CONN	ANALOG INPUT 2 (+)
17	AI1S	CUST CONN	ANALOG INPUT 1 (+)
20	523	OTS–2	OIL TEMPERATURE (+)

BS7

PIN	WIRE	TO	FUNCTION
1	15A	DIS1–1	DISPLAY POWER (+)
2	0D	DIS1–2	DISPLAY POWER (–)

BS8

PIN	WIRE	TO	FUNCTION
1	SHLD	BC2–3	CAN BUS 1 SHIELD
2	R15B	RB1A–3/ES1–22	OVERSPEED/WATCHDOG TO E–STOP
4	0F	AC1–10	AVR MODULE POWER (–)
8	743G	BC2–5	CAN BUS 1 HIGH
9	744G	BC2–4	CAN BUS 1 LOW
11	15F	AC1–11	AVR MODULE POWER (+)

BS9

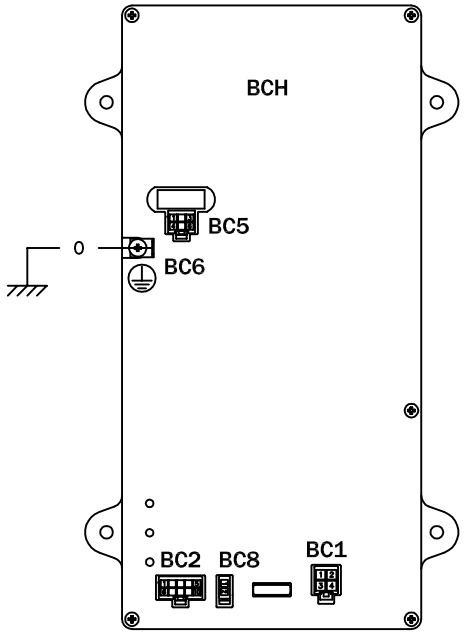
PIN	WIRE	TO	FUNCTION
3	743	ECU–31	CAN BUS 3 HIGH
4	744	ECU–32	CAN BUS 3 LOW

BS10

PIN	WIRE	TO	FUNCTION
1	S1A	FB6–Y	GENERATOR VOLTAGE SENSE Aø
2	S2A	FB7–Y	GENERATOR VOLTAGE SENSE Bø
3	S3A	FB8–Y	GENERATOR VOLTAGE SENSE Cø
4	00	NEUTRAL	GENERATOR VOLTAGE SENSE NEU
5	T00	NEUTRAL	UTILITY VOLTAGE SENSE NEU (MPS)
6	T1A	FB9–Y	UTILITY VOLTAGE SENSE Aø (MPS)
7	T2A	FB10–Y	UTILITY VOLTAGE SENSE Bø (MPS)
8	T3A	FB11–Y	UTILITY VOLTAGE SENSE Cø (MPS)

BATTERY CHARGERS

OPTIONAL 20 AMP POWER ZONE BATTERY CHARGER



BC1

PIN	WIRE	TO	FUNCTION	
1	218	F5	BASE STATION SUPPLY POWER (+)	SEE NOTE
2	0	BS1–22	BASE STATION SUPPLY POWER (–)	
3	218	SM	BATTERY CHARGING (+)	
4	0	GND	BATTERY CHARGING (–)	

BC2

PIN	WIRE	TO	FUNCTION
1	–	–	–
2	–	–	–
3	SHLD	BS8–1	CAN BUS 1 SHIELD (IN)
4	744G	BS8–9	CAN BUS 1 LOW (IN)
5	743G	BS8–8	CAN BUS 1 HIGH (IN)
6	–	–	–
7	–	–	–
8	SHLD	AC1–4	CAN BUS 1 SHIELD (OUT)
9	744G	AC1–5	CAN BUS 1 LOW (OUT)
10	743G	AC1–6	CAN BUS 1 HIGH (OUT)

BC5

PIN	WIRE	TO	FUNCTION
1	GND	UTILITY	UTILITY AC GROUND
2	N	UTILITY	UTILITY AC NEUTRAL
3	L1	UTILITY	UTILITY AC POWER
4	–	–	–
5	–	–	–
6	–	–	–

BC6

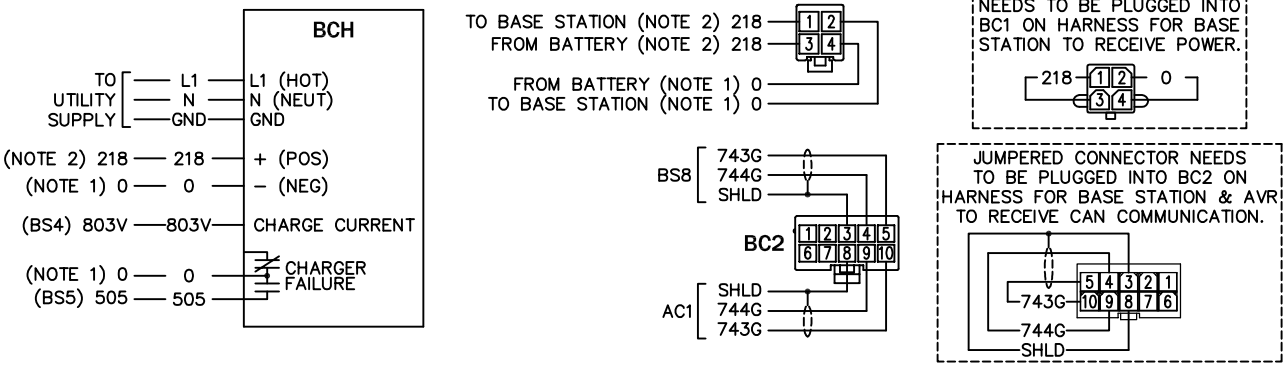
PIN	WIRE	TO	FUNCTION
–	0	GND	CHASSIS GROUND

BC8

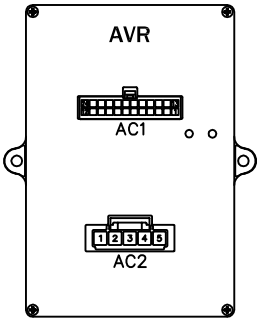
PIN	WIRE	TO	FUNCTION
1	604	BAT	BATTERY TEMP (THERMISTOR +)
2	605	BAT	BATTERY TEMP (THERMISTOR –)

NOTE:
THE BATTERY CHARGER CONTAINS A REGULATED POWER SUPPLY FOR THE BASE STATION. IF UTILITY POWER TO THE CHARGER IS LOST THE SUPPLY AUTOMATICALLY CONNECTS TO THE CHARGER LEADS. THIS ALLOWS THE BASE STATION TO RECIEVE POWER FROM THE BATTERIES.

OPTIONAL 10 AMP BATTERY CHARGER (NON–POWER ZONE)



AVR MODULE

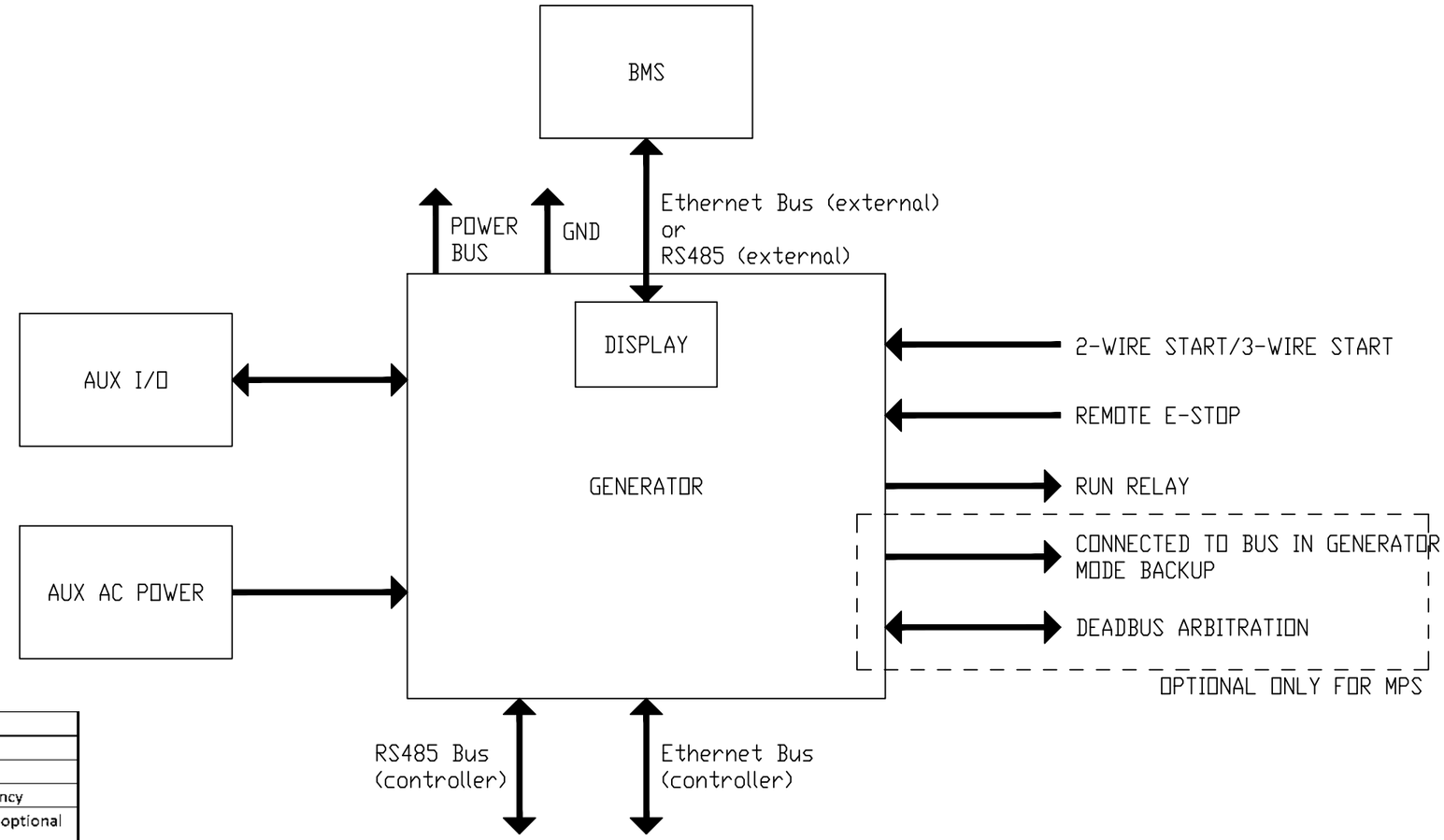


AC1

PIN	WIRE	TO	FUNCTION	
4	SHLD	BC2–8	CAN BUS 1 SHIELD	
5	744G	BC2–9	CAN BUS 1 LOW	
6	743G	BC2–10	CAN BUS 1 HIGH	
10	0F	BS8–4	AVR MODULE POWER (–)	
11	15F	BS8–11	AVR MODULE POWER (+)	
17	744G	TR–B	TERMINATING RESISTOR	TR 120Ω
18	743G	TR–A	TERMINATING RESISTOR	

AC2

PIN	WIRE	TO	FUNCTION
1	29A	R1	EXCITER FIELD BOOST POWER INPUT
2	2A	CB	PME PHASE A INPUT (AFTER CB)
3	6	EXC–3	PME PHASE B INPUT
4	4	EXC–4	EXCITER FIELD POWER OUTPUT (+)
5	1	EXC–1	EXCITER FIELD POWER OUTPUT (–)



Reference	
MPS	Modular Power System. Parallel generator system.
BMS	Building Management System using Modbus TCP/IP.
Remote E-Stop	Remote Emergency Stop to shutdown the generator incase of emergency
Run Relay	This is an optional wiring used by the customer to activate/deactivate optional features based on generator running status.
2-Wire Start	Transfer switches sense loss of normal power and initiate a system start through this function.
Connected to bus in Backup	Output from generator to P&L to indicate that the generator is connected to power bus.
Deadbus Arbitration	This function ensures that only one generator is closing into the dead bus when operating with failed communications.
Aux I/O	Each generator has 4 configurable relay outputs, 4 configurable inputs and 2 configurable analog inputs for customer special use.
Aux AC Power	Generator utilizes load center to power the block heater, battery charger etc. (refer to generator Specs for wiring details).
Ethernet Bus	Not indicated in the above picture, but the Ethernet Bus is used to connect a wide range of devices to the generator, like RAP/RRP, P&L and other generators. There are two networks - controller and external
Display	It can be accessed through PC/Tablet/Smartphone using Wifi/Bluetooth.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

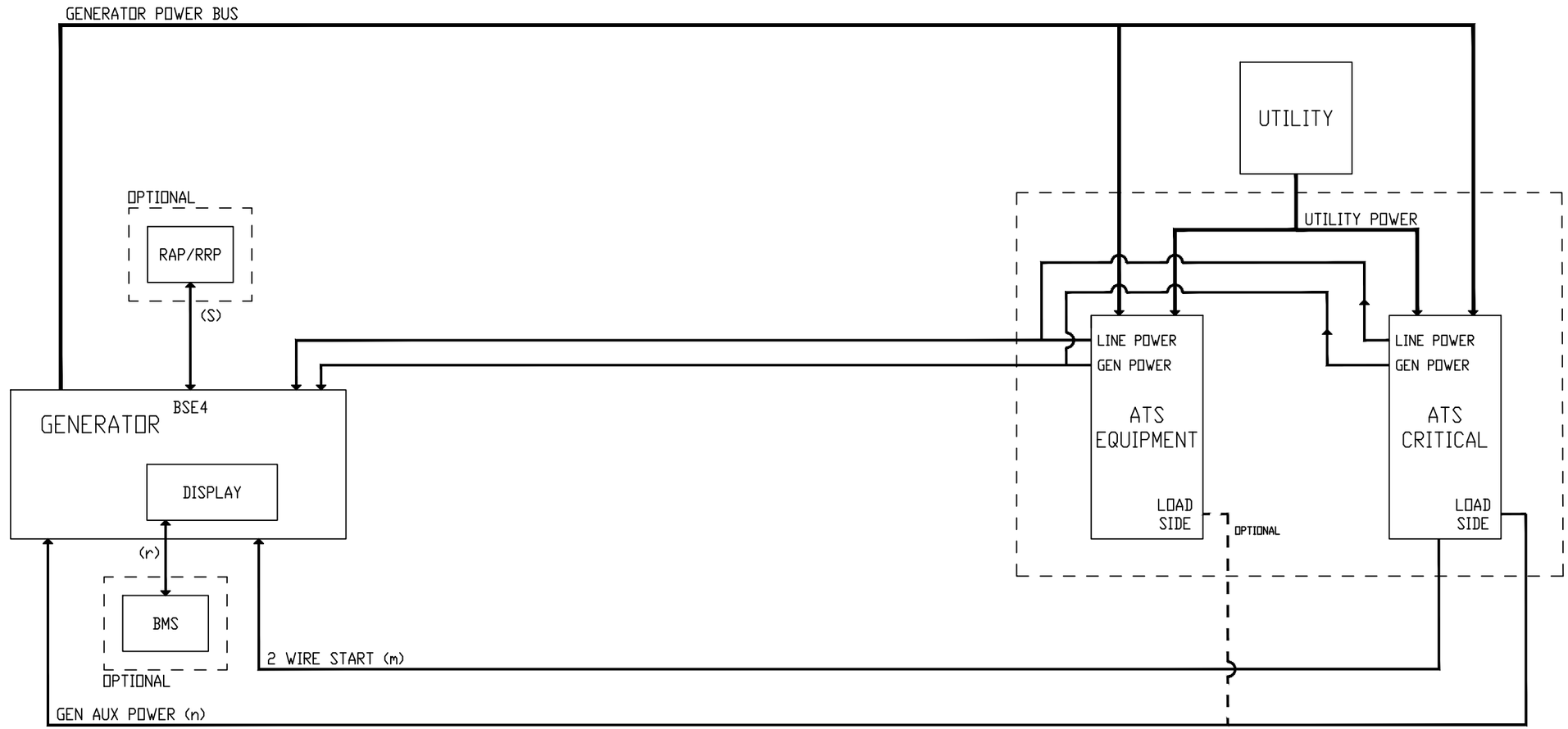
ISSUE DATE: 05/22/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000034013	D

SCALE	WT-KG	SHEET
N/A	N/A	1 of 12

INTERCONNECT DRAWING SINGLE GENERATOR

(OBSOLETE ETHERNET RAP CONNECTION)



NOTES:
- DISPLAY IS CONNECTED TO ETHERNET PORT 1 OF MAIN CONTROLLER

INSTALLATION DRAWING

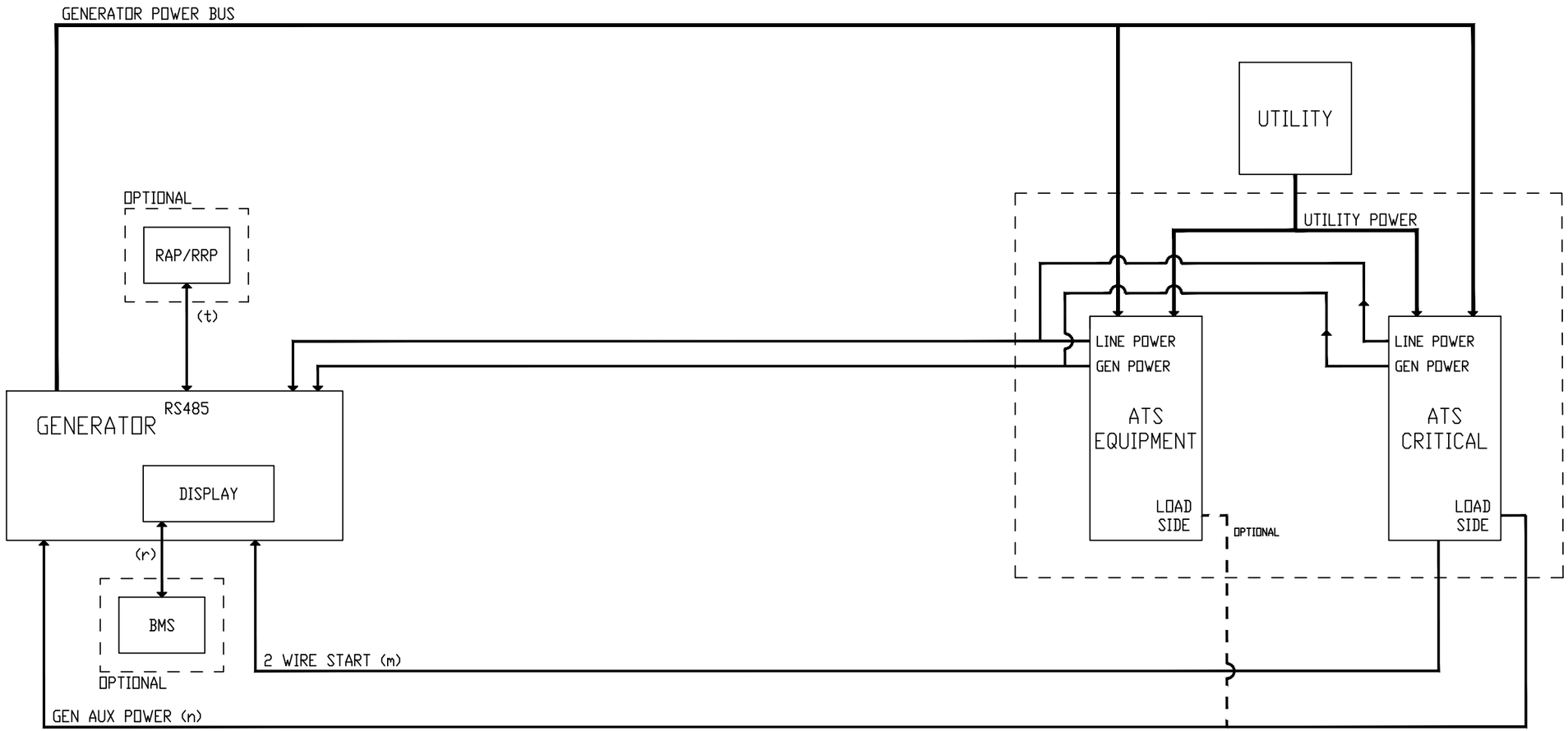
ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18				
SIZE B	CAGE NO N/A	DWG NO 10000034013		REV D
SCALE N/A	WT-KG N/A	SHEET 2 of 12		

INTERCONNECT DRAWING SINGLE GENERATOR



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INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

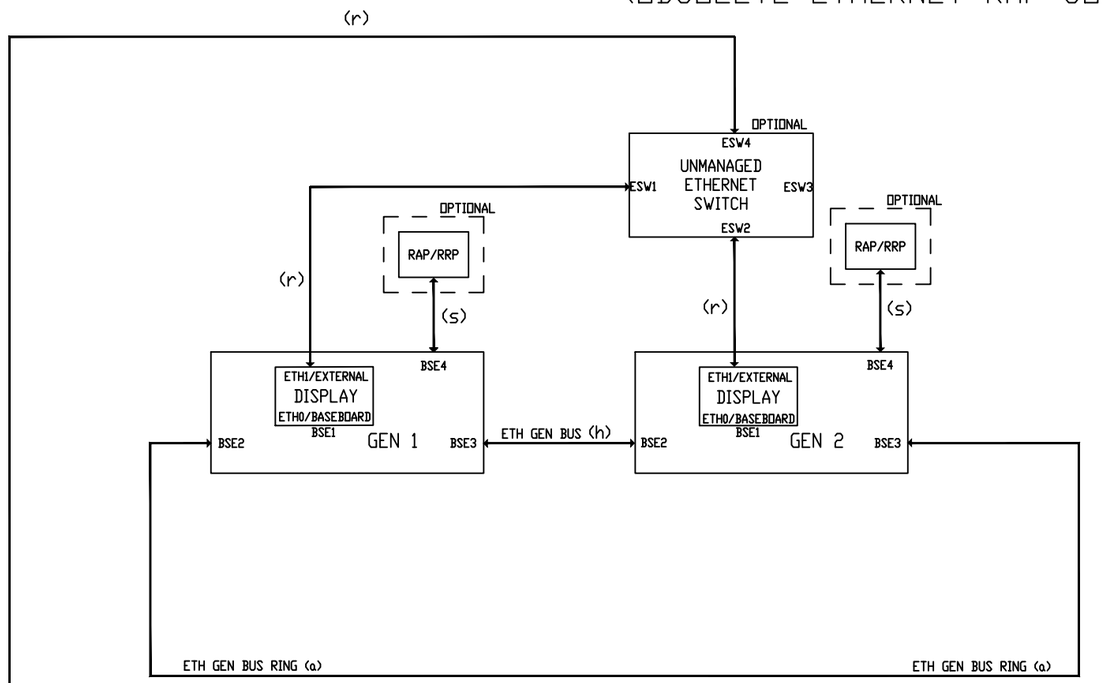
GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18			
SIZE B	CAGE NO N/A	DWG NO 10000034013	REV D
SCALE N/A	WT-KG N/A	SHEET 3 of 12	

INTERCONNECT TWO GENERATOR MPS

(OBSOLETE ETHERNET RAP CONNECTION)



BMS ETHERNET

TO BUILDING

NOTES:
1. SHOWING GENERATOR ETHERNET CONNECTIONS ONLY
2. DO NOT CHANGE CONFIGURATION OF THE CONNECTIONS IN ANY WAY
3. UNMANAGED ETHERNET SWITCH NOT SUPPLIED BY GENERAC (UPS BACKED POWER SUPPLY RECOMMENDED)
4. GENERAC RECOMMENDS ANTAIRA P/N LNX-800AT (8 PORT) OR LNX-500AT (5 PORT) UNMANAGED ETHERNET SWITCH

INSTALLATION DRAWING

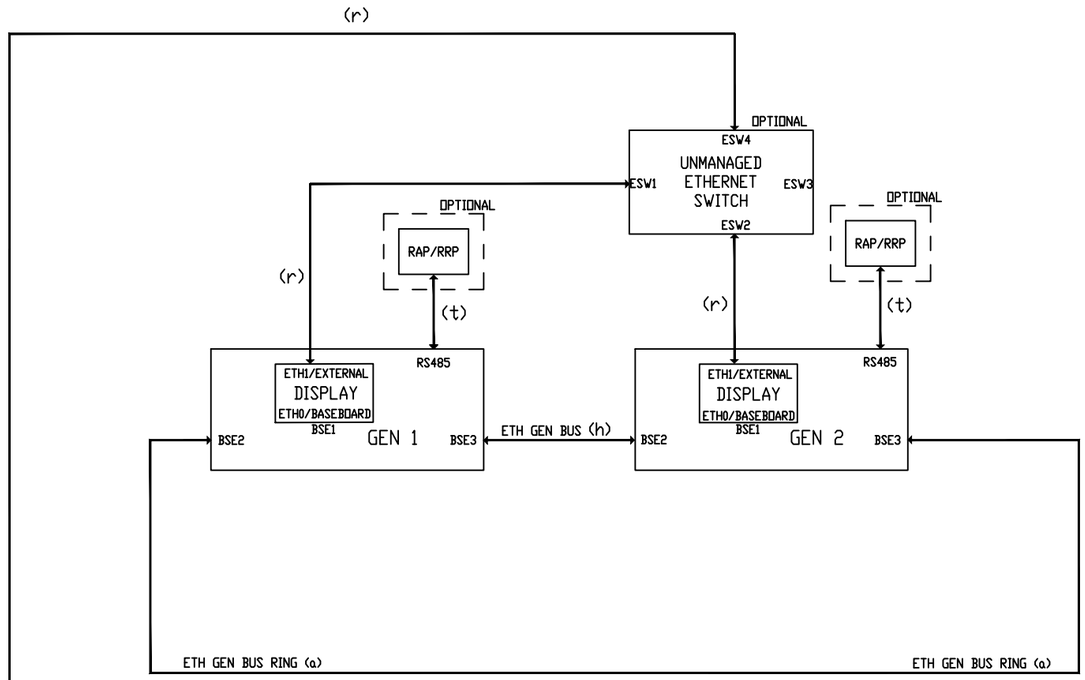
ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18			
SIZE B	CAGE NO N/A	DWG NO 10000034013	REV D
SCALE N/A	WT-KG N/A	SHEET 4 of 12	

INTERCONNECT TWO GENERATOR MPS



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INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

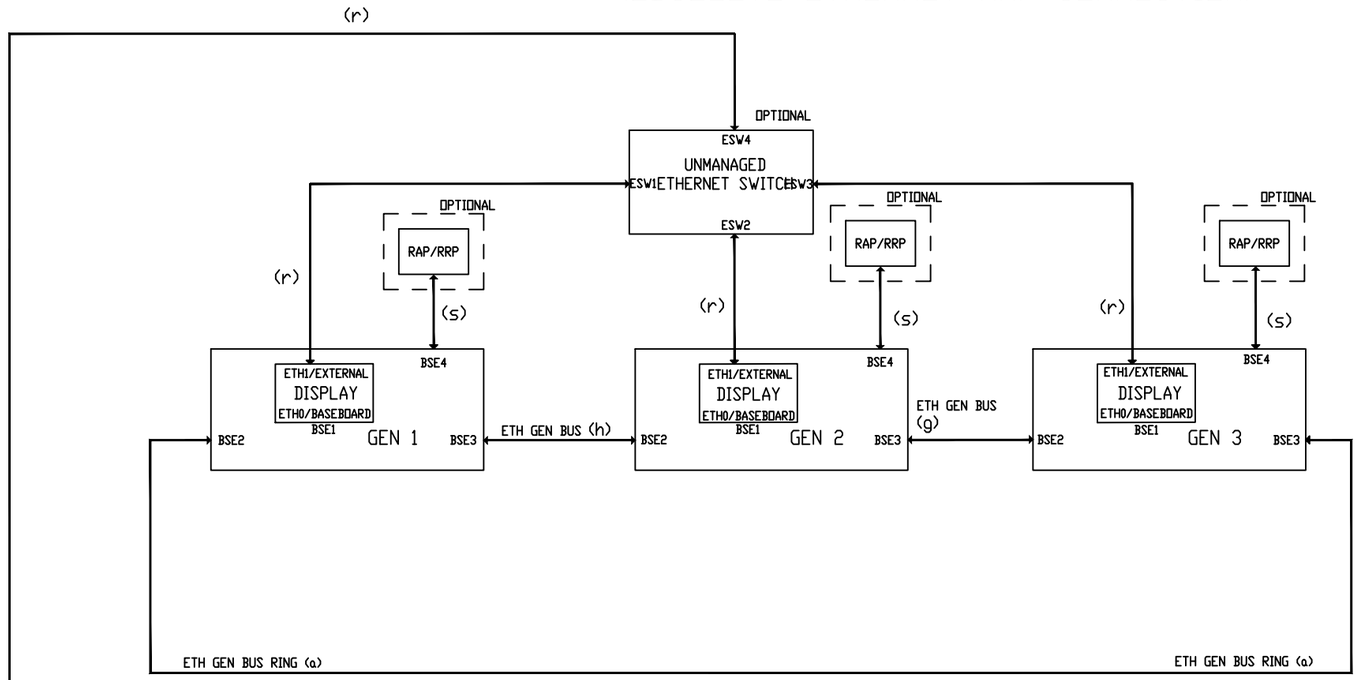
ISSUE DATE: 05/22/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000034013	D

SCALE	WT-KG	SHEET
N/A	N/A	5 of 12

INTERCONNECT THREE GENERATOR MPS

(OBSOLETE ETHERNET RAP CONNECTION)



BMS
ETHERNET

TO BUILDING

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INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

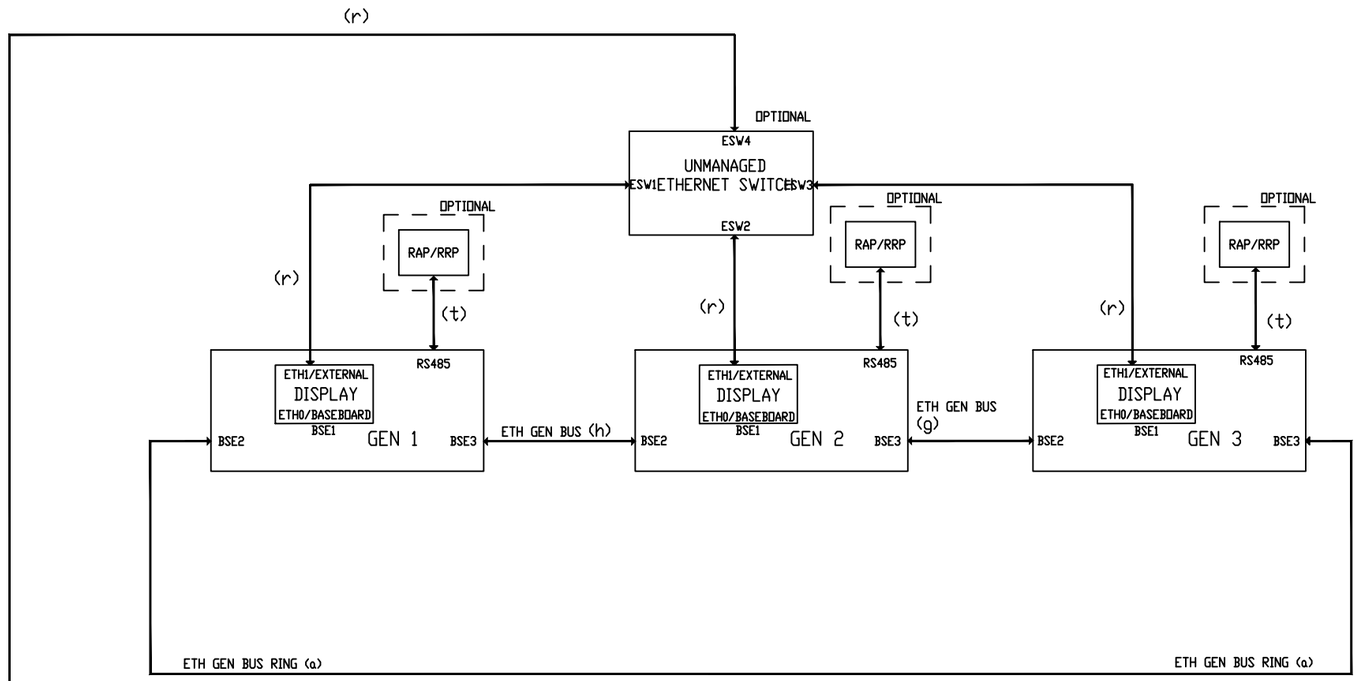
TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000034013	D

SCALE	WT-KG	SHEET
N/A	N/A	6 of 12

INTERCONNECT THREE GENERATOR MPS



BMS
ETHERNET

TO BUILDING

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INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

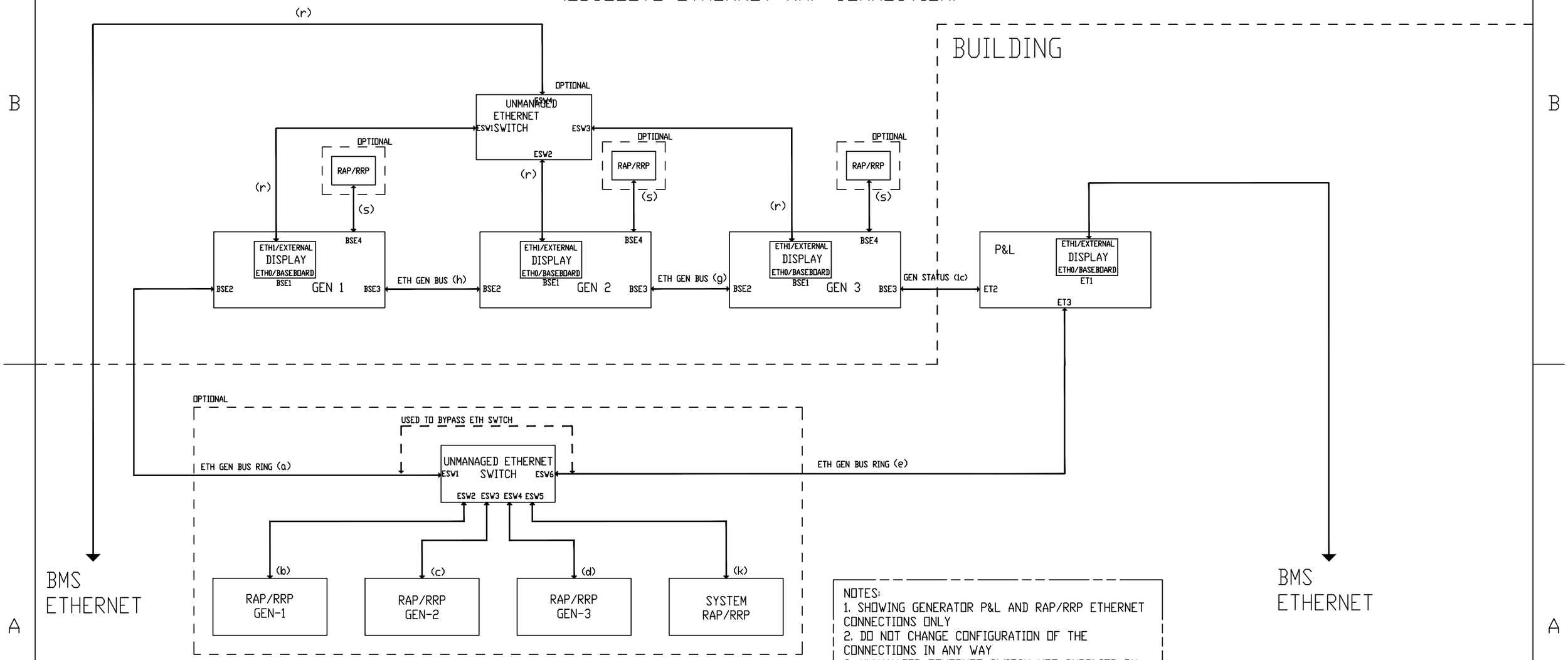
ISSUE DATE: 05/22/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000034013	D

SCALE	WT-KG	SHEET
N/A	N/A	7 of 12

INTERCONNECT THREE GENERATOR MPS WITH P&L AND RAP/RRP

(OBSOLETE ETHERNET RAP CONNECTION)



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INSTALLATION DRAWING

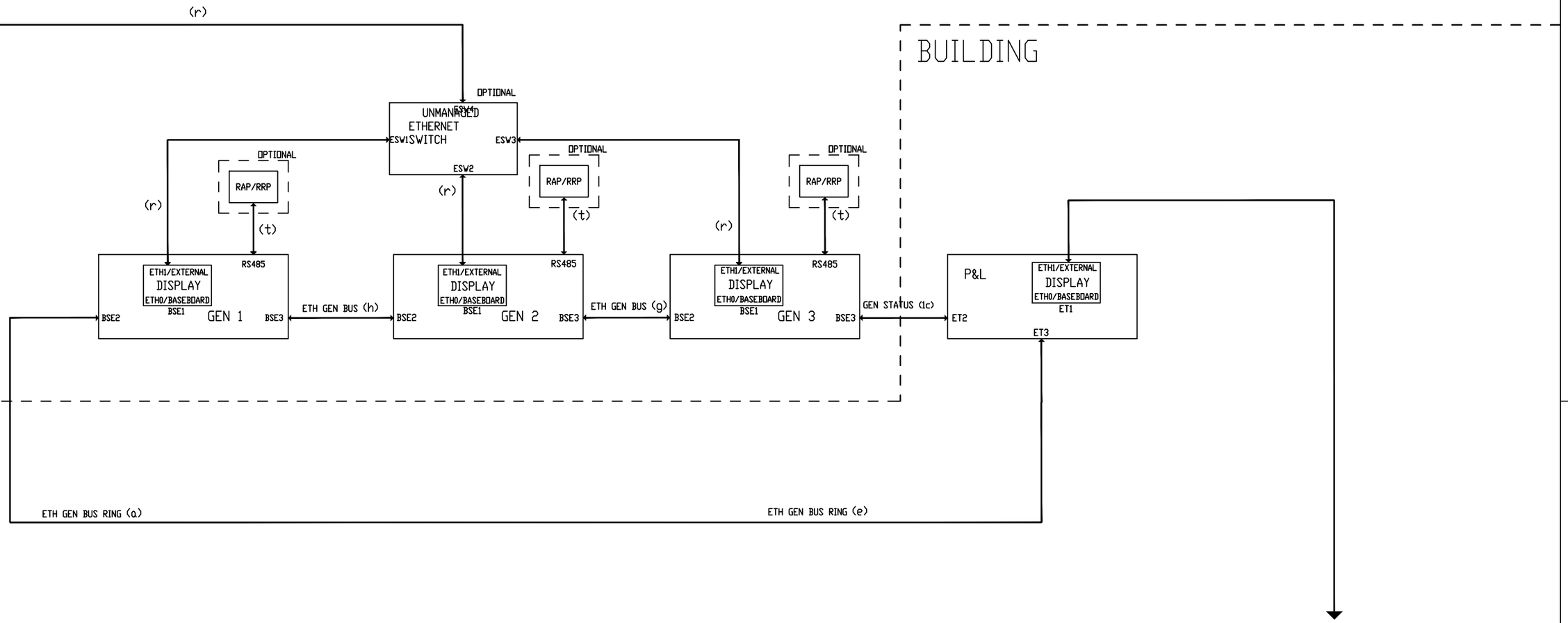
ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18				
SIZE B	CAGE NO N/A	DWG NO 10000034013		REV D
SCALE N/A	WT-KG N/A		SHEET 8 of 12	

INTERCONNECT THREE GENERATOR MPS WITH P&L AND RAP/RRP



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INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

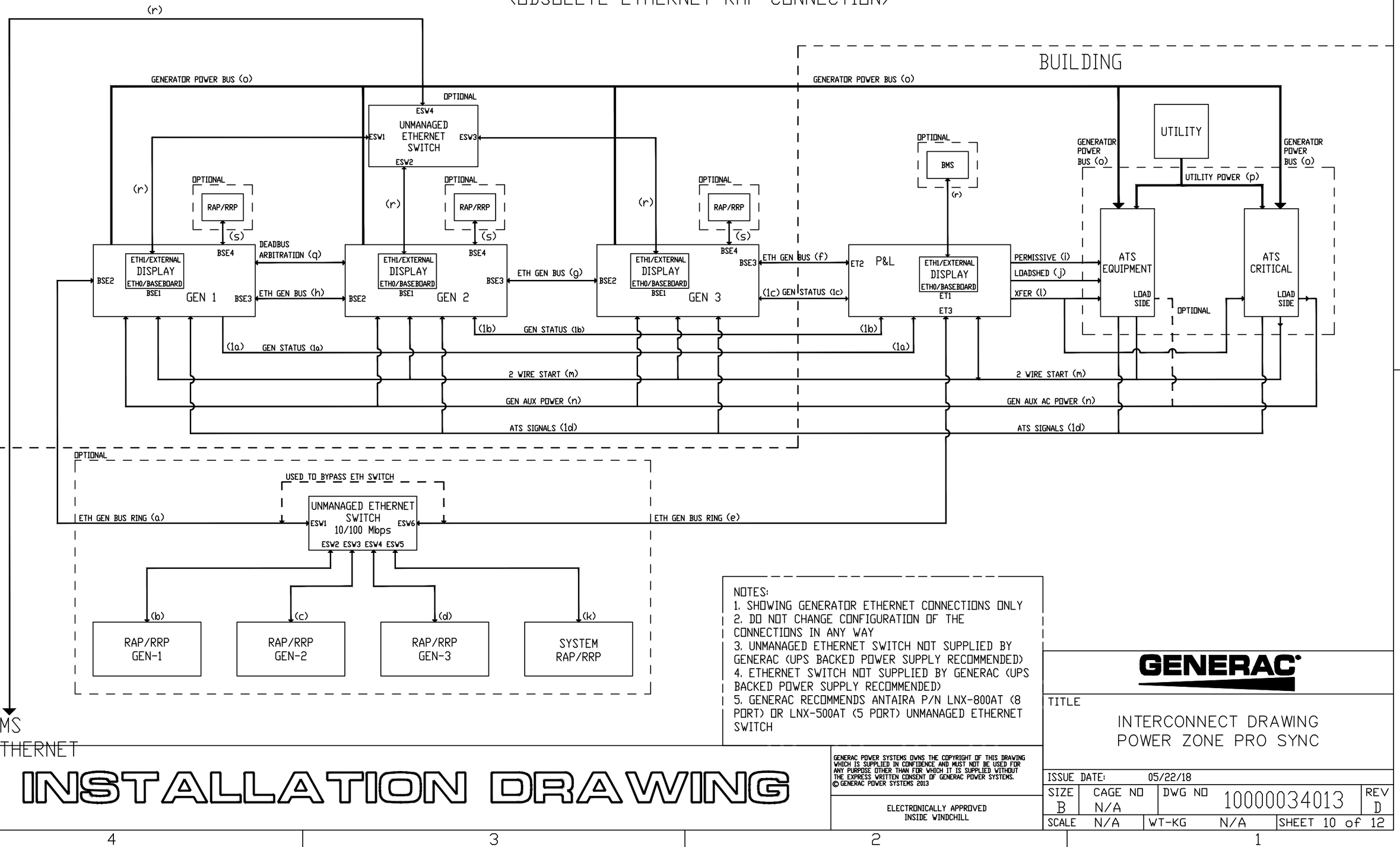
TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000034013	D

SCALE	WT-KG	SHEET
N/A	N/A	9 of 12

INTERCONNECT DRAWING MPS SYSTEM WITH ATS
(OBSOLETE ETHERNET RAP CONNECTION)



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INSTALLATION DRAWING

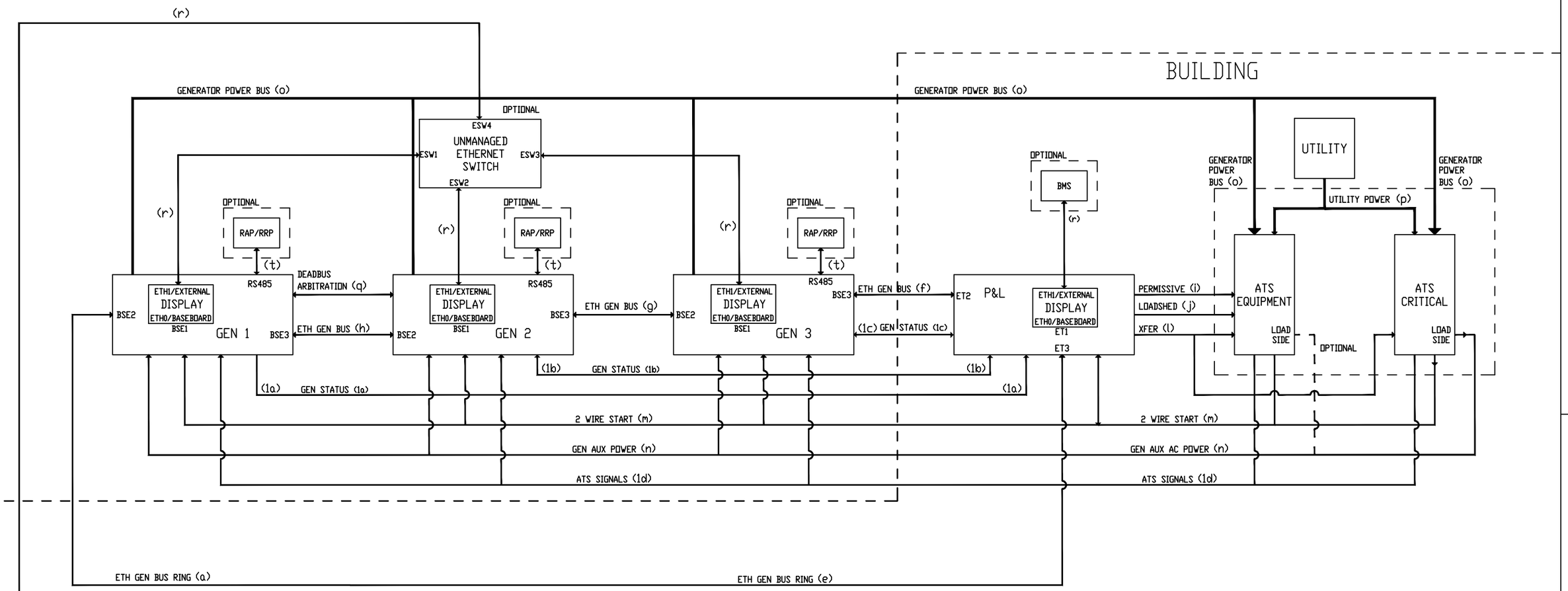
ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18			
SIZE B	CAGE NO N/A	DWG NO 10000034013	REV D
SCALE N/A	WT-KG N/A	SHEET 10 of 12	

INTERCONNECT DRAWING MPS SYSTEM WITH ATS



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INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

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POWER ZONE PRO SYNC

ISSUE DATE: 05/22/18				
SIZE B	CAGE NO N/A	DWG NO 10000034013		REV D
SCALE N/A	WT-KG N/A			SHEET 11 of 12

Reference	
Single RAP/RRP	When a RAP/RRP (Remote Annunciator Panel/Remote Relay Panel) is configured as singleRAP/RRP, it receives data from only the configured generator and annunciates alarms and warnings of that generator.
System RAP/RRP	If configured as System RAP/RRP, receives data from every generator and announces alarms and warnings occuring on any of the generators.
P&L	Permissive and Loadshed panel controls the Permissives and Loadsheds of ATS .
Gen	Generator
Ethernet Switch	Used to forward data packets from one ethernet port to the other ethernet port.
ATS Critical	Automatic Transfer Switch used to connect Critical Loads
ATS Equipment	Automatic Transfer Switch used to connect regular non critical Loads
BSEx	Base Station Ethernet Port x
ESWx	Ethernet Switch Port x
ETx	P&L Ethernet Port x

Reference	Function	Cable	From	To	Class
a	Communication from generator to all peripherals in controller network	Shielded CAT 5E	BSE2 on Gen1	ESW1 on Ethernet Switch	2
b	Remote Annunciator communication in controller network	Shielded CAT 5E	Eth(J12) on RAP/RRP Gen 1	ESW2 on Ethernet Switch	2
c	Remote Annunciator communication in controller network	Shielded CAT 5E	Eth(J12) on RAP/RRP Gen 2	ESW3 on Ethernet Switch	2
d	Remote Annunciator communication in controller network	Shielded CAT 5E	Eth(J12) on RAP/RRP Gen 3	ESW4 on Ethernet Switch	2
e	Close loop connecting P&L in controller network	Shielded CAT 5E	ESW6 on Ethernet Switch	Eth 3 on P&L	2
f	P&L connection to Generator 3 or the last generator in the controller network.	Shielded CAT 5E	Eth 2 on P&L	BSE3 on Gen 3	2
g	Communication between generators in controller network	Shielded CAT 5E	BSE2 on Gen 3	BSE3 on Gen 2	2
h	Communication between generators in controller network	Shielded CAT 5E	BSE2 on Gen 2	BSE3 on Gen 1	2
i	Up to 6 Permissive relay outputs to ATS	18 AWG,300V AC	P&L Panel	ATS Equipment	2
j	Up to 6 Loadshed relay outputs to ATS	18 AWG,300V AC	P&L Panel	ATS Equipment	2
k	Remote Annunciator communication in controller network	Shielded CAT 5E	Eth(J12) on System RAP/RRP	ESW5 on Ethernet Switch	2
l	Excercise with load transfer	18 AWG,300V AC	P&L Panel	ATS Equipment	2
m	2 Wire Start	18 AWG,300V AC	ATS Critical/ATS Equipment	All Generators and P&L	2
n	Generator Auxiliary Power	Custom cable based on generator auxiliary	ATS Critical/ATS Equipment loadside	All Generators	POWER
o	Generator power bus connections to ATS Critical & ATS Equipment	Custom cable proportional to ATS specifications	Generator power bus connecting all	ATS Critical and ATS	POWER
p	Utility power bus connections for ATS	Custom cable proportional to ATS specifications	Utility power bus	ATS Critical and ATS	POWER
q	Deadbus Arbitration -2 signals. Can be setup for any 2 Gens (optional for MPS only)	18 AWG,300V AC	Gen 1	Gen 2	2
r	Bus communication in external network (optional)	Shielded CAT 5E	Any generator	BMS	2
s	Local generator Remote Annunciator communication in controller network	Shielded CAT 5E	Any generator	Local gen RAP / RRP	2
t	RS485 connection configurable as single gen RAP/System RAP up to a max of 16 RAPs	Twisted cable	Any generator	RAP	--
1d	ATS Contractor Position (Utility and Gen) Signal	18 AWG,300V AC	ATS Critical / ATS Equipment	All generators	2
1a	Gen status connected to bus in Generator backup mode (optional)	18 AWG,300V AC	Gen 1	P & L	2
1b	Gen status connected to bus in Generator backup mode (optional)	18 AWG,300V AC	Gen 2	P & L	2
1c	Gen status connected to bus in Generator backup mode (optional)	18 AWG,300V AC	Gen 3	P & L	2

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INTERCONNECT DRAWING
POWER ZONE PRO SYNC

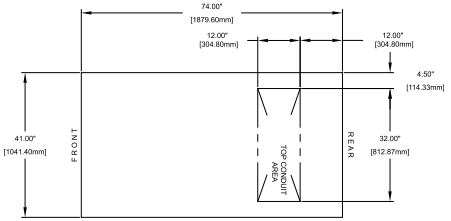
ISSUE DATE: 05/22/18

SIZE	CAGE NO	DWG NO	REV
B	N/A	10000034013	D

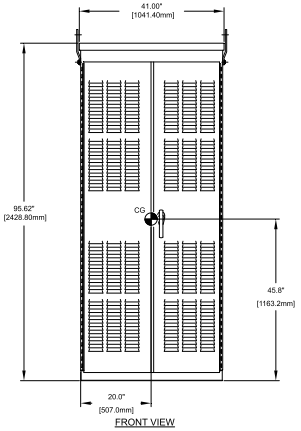
SCALE N/A | WT-KG N/A | SHEET 12 of 12

GENERAL NOTES

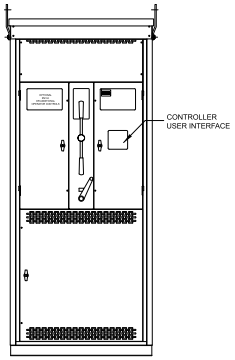
1. FLOOR MOUNTED ENCLOSURE.
   TYPE 3R (M) CONSTRUCTED FROM CODE GAUGE STEEL.
   FINISH TYPE: ANSI 61 GRAY POLYESTER SEMI GLOSS ELECTROSTATIC POWDER.
   TYPE 3RX (R) EXTERIOR CONSTRUCTED FROM CODE GAUGE TYPE 304 STAINLESS STEEL.
   TYPE 3RX (S) EXTERIOR CONSTRUCTED FROM CODE GAUGE TYPE 316 STAINLESS STEEL.
2. EXTERIOR DOOR HAVE PADLOCKABLE HANDLES WITH 3-POINT LATCH
3. DESIGNED FOR FRONT & REAR ACCESS.
4. RECOMMENDED CLEARANCES: FRONT: 44" [1117.60mm] REAR: 30" [762mm]
5. EXTERIOR VENTS ARE SUPPLIED WITH POLYESTER DUST FILTERS.
6. LIFTING PLATES: SECTIONS ARE SUPPLIED WITH LIFTING PLATES. INSPECT PLATES FOR DAMAGE AND TORQUE BOLTS TO 45 FT LBS [61 N m] BEFORE USE. REFER TO ANSI/NEMA PB 2.1 FOR PROPER HANDLING OF EQUIPMENT. AFTER INSTALLATION OF SECTION, REMOVE LIFTING PLATES. REINSTALL BOLTS INTO EXTERIOR HOLES AND TORQUE TO APPROXIMATELY 20 FT LBS [27 N m].
7. CG CENTER OF GRAVITY
8. APPROXIMATE SHIPPING WEIGHT: 3300 LB [1497 KG].
9. ACCESSORY 40, OPTIONAL SOURCE LOCATIONS IS AVAILABLE ON SERIES 7000 ONLY.



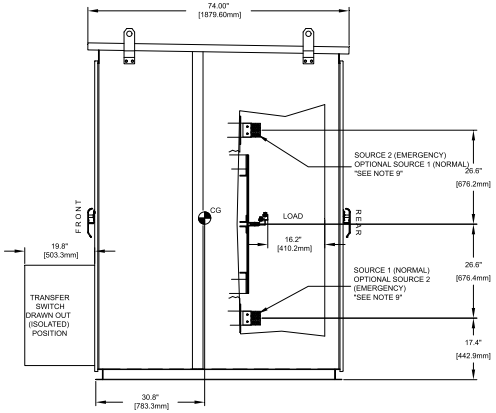
TOP VIEW



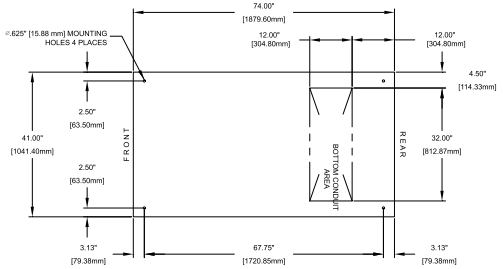
FRONT VIEW



FRONT VIEW
WITHOUT EXTERIOR DOORS



RIGHT SIDE VIEW



PLAN VIEW

TRANSFER SWITCH

1. G FRAME ISOLATION-BYPASS TRANSFER SWITCH.
2. TRANSFER SWITCH RATING: 1000 AMPS, 1200 AMPS, 1600 AMPS AND 2000 AMPS.
   WITHSTAND AND CLOSING RATING WHEN PROTECTED BY A CIRCUIT BREAKER WITHOUT AN ADJUSTABLE SHORT TIME RESPONSE,
   1000A-1200A: MAXIMUM 0.05 SECONDS, 85,000 RMS SYM @ 240V, 480V, 600V
   1600A-2000A: MAXIMUM 0.05 SECONDS, 100,000 RMS SYM @ 240V, 480V, 600V
   WITHSTAND AND CLOSING RATING WHEN PROTECTED BY A CIRCUIT BREAKER WITH AN ADJUSTABLE SHORT TIME RESPONSE,
   1600A-2000A: MAXIMUM 0.30 SECONDS, 42,000 RMS SYM @ 240V, 480V, 600V.
   1600A-2000A: MAXIMUM 0.50 SECONDS, 36,000 RMS SYM @ 240V, 480V.
3. A FULL RATED NEUTRAL CONNECTION FOR EACH SOURCE AND THE LOAD IS OPTIONAL. WHEN PROVIDED IT IS IN ONE OF THE FOLLOWING FORMATS.
   A. SOLID NEUTRAL
   B. SWITCHED NEUTRAL POLE
   C. OVERLAPPING NEUTRAL POLE (NOT AVAILABLE ON ADTB & ACTB UNITS)
4. UL 1008 OR CSA C22.2 No. 178.1

TERMINATIONS 1000A-1200A

1. MECHANICAL (SCREW TYPE) LUGS FOR CU/AL CABLE.
   SOURCE 1 (NORMAL): (4) 1/0-600MCM [50-300mm²] PER PHASE & NEUTRAL
   LOAD: (4) 1/0-600MCM [50-300mm²] PER PHASE & NEUTRAL
   SOURCE 2 (EMERGENCY): (4) 1/0-600MCM [50-300mm²] PER PHASE & NEUTRAL
   GROUND: (12) 1/0-600MCM [50-300mm²]
   A. SUITABLE WIRE BENDING SPACE IS PROVIDED AS PER NEC.
2. SWITCH MAY BE SUPPLIED WITHOUT LUGS.
3. OPTIONAL LUGS MAY BE SUPPLIED (MAY AFFECT ENCLOSURE SIZE).

TERMINATIONS 1600A-2000A

1. MECHANICAL (SCREW TYPE) LUGS FOR CU/AL CABLE.
   SOURCE 1 (NORMAL): (6) 1/0-600MCM [50-300mm²] PER PHASE & NEUTRAL
   LOAD: (6) 1/0-600MCM [50-300mm²] PER PHASE & NEUTRAL
   SOURCE 2 (EMERGENCY): (6) 1/0-600MCM [50-300mm²] PER PHASE & NEUTRAL
   GROUND: (18) 1/0-600MCM [50-300mm²]
   A. SUITABLE WIRE BENDING SPACE IS PROVIDED AS PER NEC.
2. SWITCH MAY BE SUPPLIED WITHOUT LUGS.
3. OPTIONAL LUGS MAY BE SUPPLIED (MAY AFFECT ENCLOSURE SIZE).

WIRING/CABLING

1. USE 90°C MINIMUM CU/AL WIRE FOR POWER CABLES.
2. WIRE SIZE TO BE BASED ON AMPACITY OF 75°C WIRE.
3. USE 60°C MINIMUM CU WIRE FOR CONTROLS.

REV	REV TO SHEET	ECN NO.	BY	APP	DATE
C		303562	SV		09-05-23
		SEE ECN			
B		288897	TR	MM	06/14/21
		SEE ECN			

PROJECT NAME:

OUTLINE | MOUNTING

GATB 1000A-2000A
TYPE 3R/3RX 96 X 41 X 74

THIRD ANGLE PROJECTION

	BY	DATE
DRAWN BY	SV	09-12-22
CHECKED	RN	09-04-23
PROJECT APPROVAL		
FINAL APPROVAL	RN	09-04-23
	JPB	09-04-23

MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1.003. FOR PLASTIC PARTS SEE MP-1.005.

ASSEM. REF. NO.

ASCO® ASCO P OWER TECHNOLOGIES, L.P.
FLORHAM PARK, NEW JERSEY 07932 U.S.A.

COMPUTER GENERATED DRAWING

SCALE 1/10" = 1" | SIZE DS

DWG. NO. 611356-010

DRAWING REV. C | BOM NO. 303562 | SHEET 1 OF 1

Diesel Generator
Installation Checklist

This document is to help guide Clifford Power customers through the installation of a Generator and Automatic Transfer Switch (ATS). Throughout this document you will find links to our website providing more details on each topic. At any point of the process if you have questions feel free to contact us at:
1-800-324-0066 or ProjectManagement@CliffordPower.com

Step 1: Obtain the appropriate information and get it in the right hands

	Owner	General	Mechanical	Electrical
Submittal including **Spec Sheet** & **Drawing** are provided by Clifford Power.		X	X	X
Generac Installation Manual can be found on our website.			X	X
Generac Interconnect can be found on our website.				X
Owners Manual can be found in the high voltage connection panel.	X			
Planned Maintenance Agreement is acquired from Clifford Power.	X			

Step 2: Preparing the site for equipment

- Review dimensions and weight of Generator. *refer to Submittal Drawing*
- Determine stub up locations for electrical. *refer to Submittal Drawing*
- Determine foundation and mounting requirements. *refer to section 3 of the Generac Installation Manual*
  - **For Indoor installations only**
    - Review air flow considerations. *refer to section 4 of the Generac Installation Manual*
      - Review specific air flow requirements for Generator. *refer to cooling section of Spec Sheet*
      - Review engine exhaust system installation considerations. *refer to section 5 of the Generac Installation Manual*
      - Review specific engine exhaust requirements for Generator. *refer to exhaust flow and temperature requirements section of Spec Sheet*

Diesel Generator
Installation Checklist

Step 3: Receiving the equipment

- Prepare to offload the unit. *refer to lifting guidelines section 2.4 of the Generac Installation Manual*
- Inspect the equipment for freight damage. (Must document damage on bill of lading, take pictures of damaged area, and notify Clifford Power)
- Secure generator keys located on one of the external door latches.
- Secure the generator Owner's Manuals located in the low voltage connection box below the control panel.
- Secure any additional lose accessories or accessories boxed inside the enclosure.

Step 4: Installing the equipment

- Review mounting guidelines *refer to section 3.2 of the Generac Installation Manual*
- Make the appropriate High Voltage connections. *refer to section 8.4 of the Generac Installation Manual*
    - Run main output wire from Gen MLCB lugs to Emergency lugs in ATS. *Confirm lugs on equipment or lug sizing is available upon request*
    - Provide power to the Block Heater and Battery Charger circuit.
        - Determine the size of circuit needed for block heater. *refer to Clifford Power proposal or view tags on heaters to obtain V & W*
        - The battery charger circuit requires at least a 5A 120V circuit.
- Make the appropriate Low Voltage connections. *refer to section 8.6 of the Generac Installation Manual, or refer to the applicable control interconnections: H-Panel Control Interconnections or Power Zone Control Interconnections*
    - Run 2-wire start circuit between GEN and each ATS. 2-stranded wires min of 14ga
    - Run ATS position indication circuit between GEN and Primary ATS. 3-stranded wires min of 14ga
    - If equipped with a Remote Annunciator run power and communications. 2-stranded wires min of 14ga and 1-Belden #3105A communications cable
    - Note: 2-wire start, communications wire, and alarm wiring needs to be in a separate conduit with only low voltage wires.
    - Note: Use Belden #3105A for any RS-485 communications wiring.
    - Note: Do not connect the battery or energize auxiliary circuits until commissioning technician arrives.

Diesel Generator
Installation Checklist

- **Diesel Fuel Systems**
  - Coordinate fuel delivery of a winter blend Ultra Low Sulfur Diesel to fill tank to no less than 30% and no more than 95% before commissioning date.
  - For day tank systems. *refer to section 7.4 in the Generac Installation Manual*
- ***Review example installation drawing on the following page***

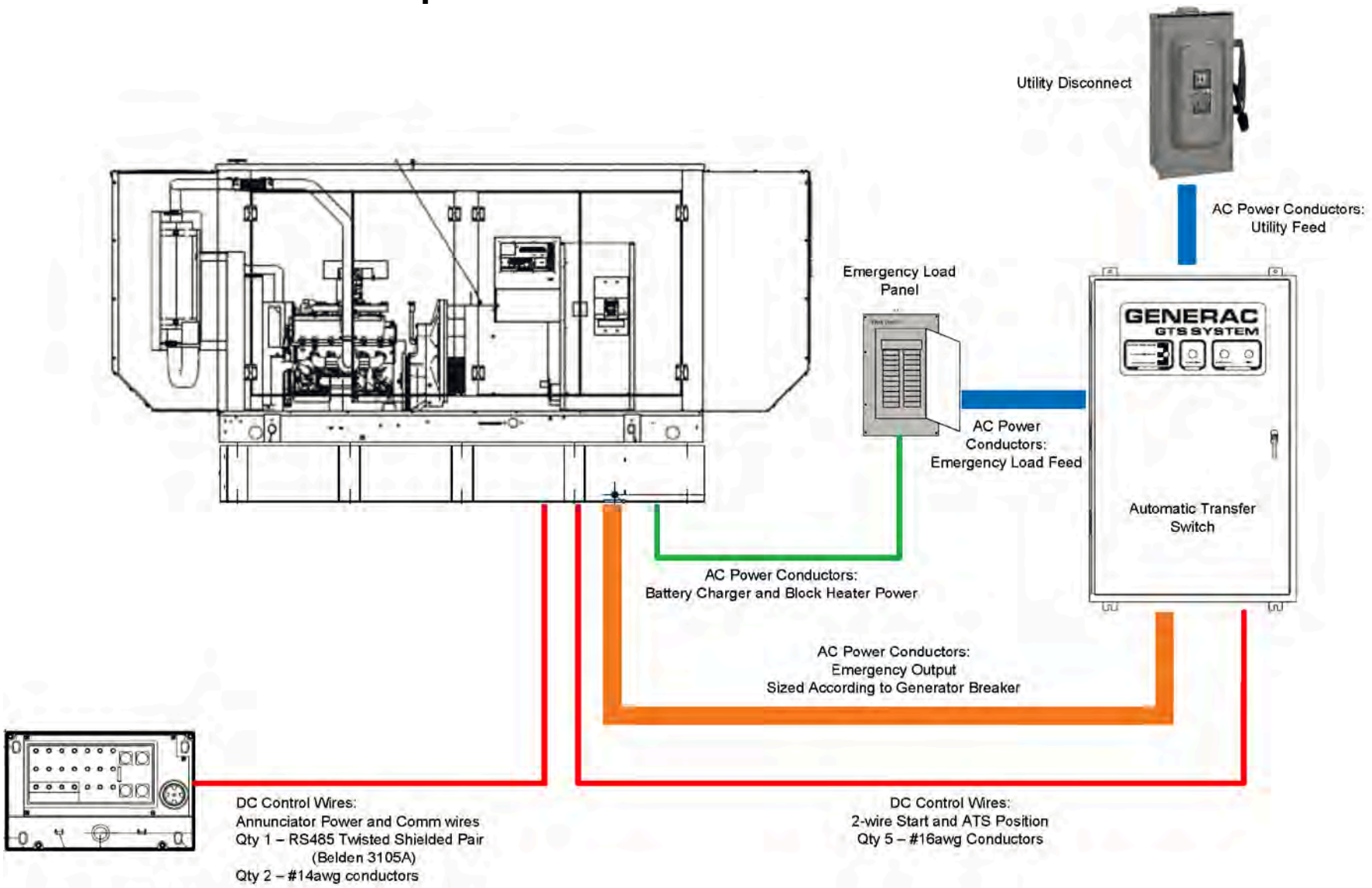
Step 5: Commissioning the equipment

- Complete the pre-startup checklist and return it to Clifford Power. *see pages 5&6 or make contact with Clifford Power Sales Rep.*
- Clifford Power will contact you to schedule a start-up date.
- Customer orientation should be scheduled at time of start-up.
- A full system test will be required to complete the commissioning of the system. This will require a simulated power outage from the Utility source feed into the transfer switch.
  - If the ATS is service entrance rated, meaning it's the only means of utility disconnect, a Utility technician will be required to open Utility feed.
- Your warranty coverage starts the date of commissioning. *refer to the Owners Manual located in the voltage connection panel for details.*

Step 6: Maintaining the equipment

- Obtain a Planned Maintenance Agreement from Clifford Power. This ensures that your equipment warranty stays valid and gives you the peace of mind that the equipment will operate as designed when you need it. Contact one of our local Service Sales representatives for pricing.

Example of Standard Diesel Gen Set Install



CLIFFORD POWER

GENERATOR
PRE START-UP CHECKLIST

Proj. Name: _____ Date: _____

Project Physical Address: _____

Cust./Contractor: _____

Site Contact: _____ Phone: _____ Email: _____

End User Info

Name: _____ Street: _____

City: _____ State: _____ Zip: _____

Cont. Name: _____ Cont. Phone: _____ Email: _____

If you have multiple generators or projects in progress with Clifford Power, please provide:

Clifford Job# JT05597 kW 500 Model# SD500 Serial# _____

The following is a list of tasks that need to be completed prior to scheduling the start-up. Please mark the following items.

Note: Not all items will apply to your particular installation. If any do not apply, please mark them as N/A.

Generator:

YES	NO	N/A	Item
☐	☐	☐	Generator output connected? **(power & neutral)**
☐	☐	☐	Generator grounded?
☐	☐	☐	Battery charger mounted and wired? **(Charger may be pre-wired to line side of convenience receptacle or customer connection terminal strip)** **Caution: do not turn power on until startup!**
☐	☐	☐	Starting batteries have been set with unit? **Caution: do not connect batteries until startup!**
☐	☐	☐	Jacket water heater wired to correct voltage? **Caution: do not power on until startup!**
☐	☐	☐	Exhaust system completely installed? **(muffler mounted and rain caps installed)**
☐	☐	☐	All fuel lines (gas or diesel) run, connected, and ready for start-up testing?
☐	☐	☐	If required by code, has the fuel tank been pressure tested and inspected?
☐	☐	☐	Is diesel or propane fuel tank filled with at least 30% and no more than 95%
☐	☐	☐	If propane or natural gas has the pressure been verified to be within requirements listed on the generator spec sheet?
☐	☐	☐	Is generator properly anchored?
☐	☐	☐	If equipped, are spring isolators installed?
☐	☐	☐	Rodent guards installed? **(covers over lifting holes in skid)**
☐	☐	☐	If equipped, is load center wired?
☐	☐	☐	If equipped, is space/alternator heater wired?
☐	☐	☐	If equipped, is batter warmer wired?
☐	☐	☐	Is the work area around the generator and automatic transfer switch safe (clear and free of debris)?

CLIFFORD POWER

GENERATOR
PRE START-UP CHECKLIST

Automatic Transfer Switch:

YES	NO	N/A	Item
☐	☐	☐	Are Generator power leads connected in ATS?
☐	☐	☐	Are load leads connected in ATS?
☐	☐	☐	Are utility leads connected in ATS?
☐	☐	☐	Is utility power available?
☐	☐	☐	Is there a means of utility disconnect? **(if the ATS is not service entrance rated)**
☐	☐	☐	Are all neutrals connected in ATS?
☐	☐	☐	Is ATS grounded?
☐	☐	☐	Is two-wire start between ATS and generator wired?

ASCO 2000 amp ATS Bypass Isolation ATS

ASCO 150 Amp ATS Bypass Isolation ATS

Remote Annunciator

YES	NO	N/A	Item
☐	☐	☐	Properly located and wired per supplied schematic?
☐	☐	☐	Proper number & type of conductors per annunciator installation manual? **(minimum wire size 14 gauge stranded pair for DC power & Belden 3105A for RS-485 for comm.)**

Scheduling:

YES	NO	N/A	Item
☐	☐	☐	Is there a specific date you'd like to request start? Date: _____ **(we will do our best to meet your requested date and will call to confirm technician availability)**
☐	☐	☐	Will we be allowed to perform a simulated power failure to complete the system test at start-up?
☐	☐	☐	Is there a specific time window required for a simulated power failure test? **(please list below)** Date: _____ Time: _____ to _____
☐	☐	☐	Will an end user representative be available at the simulated power failure test to received operation training?
☐	☐	☐	Has the engineer been notified of start-up date? **(if required)**
☐	☐	☐	Does the equipment have drive up access? If not, explain: _____

If all of the above items are completed, please sign and return this form via fax, e-mail, or mail. Upon receipt, we will contact you to schedule the start-up of the equipment. We recommend that all contractors be present at start-up. If all necessary items above are not completed and equipment is not ready for start-up, there may be an additional trip charge.

Customer/Representative:

Printed Name	Signature	Date

Company Name	Mobile

Please return this form to

jbarber@cliffordpower.com

Should you have any questions, please contact our Project Management Department at 1-800-324-0066 (ext. 199)

www.CliffordPower.com