

**INDEX**

SHEET NO.	SHEET CONTENT
1	GENERAL NOTES, SYMBOLS, REVISIONS
2	PROPULSION SWITCHBOARD
3	SHIP SERVICE & EMERGENCY SWITCHBOARD
4	208/120V PANEL - ENGINE ROOM A
5	208/120V PANEL - ENGINE ROOM B
6	208/120V PANELS - PILOT HOUSE & HOLD VENTILATION
7	208/120V PANEL - HVAC 1
8	208/120V PANEL - HVAC 2
9	EMERGENCY 208/120V PANELS - ENGINE ROOM & PILOT HOUSE
10	DC PANELS - ENGINE ROOM & EOS
11	DC PANELS - PILOT HOUSE

**SYMBOLS LIST**

	<b>TRANSFER SWITCH</b> (NORMAL CONNECTION SHOWN) ABT - AUTOMATIC BUS TRANSFER MBT - MANUAL BUS TRANSFER X - PWR AVAILABLE INDICATION (LED)
	<b>CIRCUIT BREAKER</b> X - NUMBER OF POLES Y - CIRCUIT BREAKER FRAME SIZE Z - CIRCUIT BREAKER TRIP SETTING
	<b>CIRCUIT BREAKER W/ TRIP DEVICE</b> ST - SHUNT TRIP UV - UNDER VOLTAGE TRIP
	<b>GENERATOR</b>
	<b>CONTROL DEVICES/FUNCTIONS</b> PB - PUSH-BUTTON PB/IL - PUSH-BUTTON, ILLUMINATED PS - PRESSURE SWITCH LS - LEVEL SWITCH FR - FIRE SHUTDOWN RELAY FS - FLOW SWITCH DS - DISCONNECT SWITCH TH - THERMOSTAT SC - SPEED CONTROL
	<b>OEM CONTROLLER</b> SUPPLIED/INTEGRAL WITH EQUIPMENT
	<b>CONTROLLER, LOW-VOLTAGE RELEASE EFFECT</b> MOUNTED ADJACENT TO EQUIPMENT
	<b>INDICATOR LIGHTS</b>
	<b>MOTOR</b>
	<b>SWITCH</b> NORMALLY CLOSED
	<b>SWITCH</b> NORMALLY OPEN
	<b>EQUIPMENT</b>
	<b>LIGHTING</b>
	<b>DUPLEX RECEPTACLE</b>
	<b>SHORE POWER INLET</b>
	<b>JUNCTION BOX</b>
	<b>DC POWER SUPPLY</b>
	<b>SWITCHBOARD INSTRUMENT</b>
	<b>MOMENTARY SWITCH</b> NORMALLY CLOSED
	<b>SELECTION SWITCH</b>
	<b>TRANSFORMER</b>

**GENERAL NOTES - CONT'D**

- AVAILABLE FAULT CURRENT IS ESTIMATED AS 10 TIMES THE COMBINED MAXIMUM GENERATOR CURRENT PLUS 4 TIMES THE CONNECTED MOTOR LOAD.  
 GENERATOR CURRENT (2x565KW) 2x10x 680A = 13600A  
 XFMR CURRENT (EST 150KVA) 4 x 144A = 578A  
 AVAILABLE FAULT CURRENT 14178A
- CABLES HAVE BEEN DERATED FOR DOUBLE BANKING, HOWEVER, CABLES SHALL BE SINGLE BANKED WHEREVER PRACTICAL.
- GROUND DETECTION AND INDICATION SHALL BE PROVIDED IN COMPLIANCE WITH SUBCHAPTER J REGULATIONS.
- CABLES SHALL BE LABELED WITH PERMANENTLY PRINTED POLYOLEFIN OR EMBOSSED ALUMINUM CABLE TAGS PERMANENTLY ATTACHED TO THE CABLE BY BANDING. CABLES SHALL BE LABELED ON EACH SIDE OF EACH BULKHEAD AND DECK PENETRATION, AND AT EACH ELECTRICAL ENCLOSURE.
- ALL NON-CURRENT CARRYING METAL EQUIPMENT SHALL BE EFFECTIVELY GROUNDED TO SHIP STRUCTURE. GROUNDING CONDUCTORS SHALL BE ADDED IN WAY OF ISOLATION MOUNTS, POURED CHOCKS, AND OTHER INSULATING FOUNDATIONS.
- CONVENIENCE RECEPTACLES IN HEADS, CLEANING GEAR LOCKERS, THE VEHICLE SPACE, EXTERIOR, CREW GALLEY, MECHANICAL SPACES, AND OTHER SPACES PRESCRIBED BY USCG SHALL INCLUDE GROUND FAULT CIRCUIT INTERRUPTION PROTECTION.
- THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING A CIRCUIT BREAKER COORDINATION STUDY, AND ADJUSTING CIRCUIT BREAKER TRIP RATINGS AS NECESSARY TO FACILITATE COORDINATION.
- SINGLE CONDUCTOR CABLE SHALL NOT BE USED FOR AC POWER DISTRIBUTION.
- CABLES SHOWN ARE SIZED PER IEEE-45 (2002) TABLE 25. CABLE SIZING IS BASED UPON 90 DEGREE C CONDUCTOR TEMPERATURE, 45 DEGREE C AMBIENT TEMPERATURE OUTSIDE OF CLASS A MACHINERY SPACES, AND 50 DEGREE C AMBIENT TEMPERATURE WITHIN CLASS A MACHINERY SPACES.
- PANEL P205 TO BE PROVIDED WITH SHUNT TRIP FOR VENTILATION SHUTDOWN. ONE MANUAL ACTIVATION SWITCH IS TO BE LOCATED IN THE PILOT HOUSE AND ONE AUTOMATIC SWITCH IS TO BE CONNECTED TO THE ENGINE ROOM FIRE SUPPRESSION SYSTEM.

**REVISION HISTORY**

REV	ZONE	DESCRIPTION	DWN	DATE	APVD

**GENERAL NOTES**

- VESSEL TO BE CONSTRUCTED IN ACCORDANCE WITH 46 CFR SUBCHAPTER H REGULATIONS AND IEEE-45 (2002).
- SWITCHBOARD INTERLOCKS SHALL PREVENT PARALLELING OF POWER SUPPLIES.
- PENETRATIONS AT WATERTIGHT AND FIRE RATED BULKHEADS AND DECKS, AND AT ELECTRICAL ENCLOSURES, SHALL BE SEALED WITH APPROVED STUFFING TUBES OR MULTI-CABLE TRANSITS (MCT). CABLES PASSING THROUGH OTHER PENETRATIONS SHALL BE SECURED AND PROTECTED FROM CHAFING.
- IN GENERAL, EQUIPMENT SHALL BE RATED AS FOLLOWS:  
 MECHANICAL SPACES: 1P22 OR NEMA 12  
 FINISHED INTERIORS: 1P20 OR NEMA 1  
 EXTERIOR, VEHICLE DK NON-LIGHTING: 1P56 OR NEMA 4X  
 EXTERIOR, VEHICLE DK LIGHTING: 1P55 OR NEMA 4X
- POWER DISTRIBUTION CABLE SHALL MEET THE REQUIREMENTS OF IEEE-1580 (2010). CABLES SHALL USE TYPE LSX OR LSE INSULATION AND TYPE L OR TPO JACKETING, UNLESS REQUIRED BY USCG, CABLE SHALL BE UNARMORED AND UNSHIELDED. CABLE TYPE DESIGNATIONS USE THE FOLLOWING ABBREVIATIONS:  
 S- SINGLE CONDUCTOR  
 D- TWO CONDUCTOR  
 T- THREE CONDUCTOR  
 F- FOUR CONDUCTOR  
 NUMBERS IN CABLE TYPE DESIGNATION INDICATE CONDUCTOR SIZE IN CIRCULAR MILS. CABLE MEETING THE SPECIFICATIONS OF MIL-C-24643 MAY BE SUBSTITUTED.

**REFERENCES**

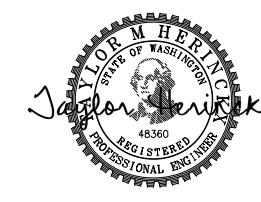
- 18026-200-832-1 TECHNICAL SPECIFICATION
- 18026-200-300-1 AC AND DC ELECTRICAL LOADS ANALYSIS
- 18026-200-330-1 POWER AND LIGHTING PLAN
- 18026-200-422-1 NAVIGATION LIGHTING ARRGMT AND BLOCK DIAGRAM



**Elliott Bay Design Group**  
 North Carolina, PLLC

CLIENT: NORTH CAROLINA D.O.T.  
 RALEIGH, NORTH CAROLINA

PROJECT: DOUBLE-ENDED AZIMUTH DRIVE FERRY



TITLE: PROPULSION AND SHIPS SERVICE ELECTRICAL ONE LINE DIAGRAM

SIZE: D DWG NO.: 18026-200-320-1 REV: -

SCALE: NONE FILE NAME: 18026-200-320-1- SHEET 1 OF 11

DWN: JEH MOD: CKD: TMH APVD: TMH APVD DATE: 8/2/2018

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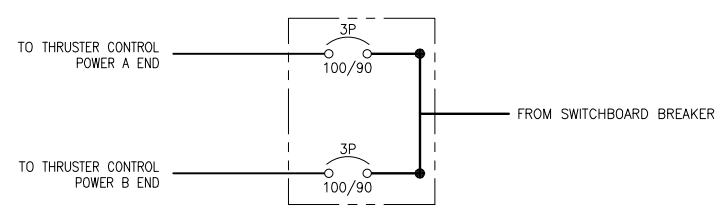
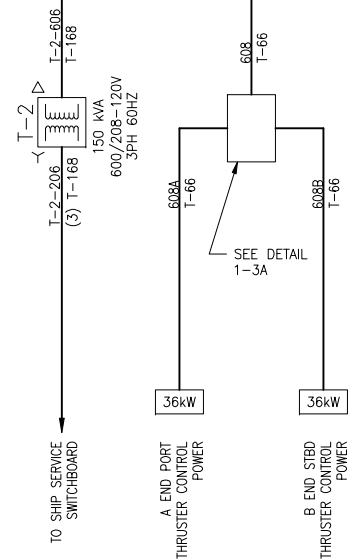
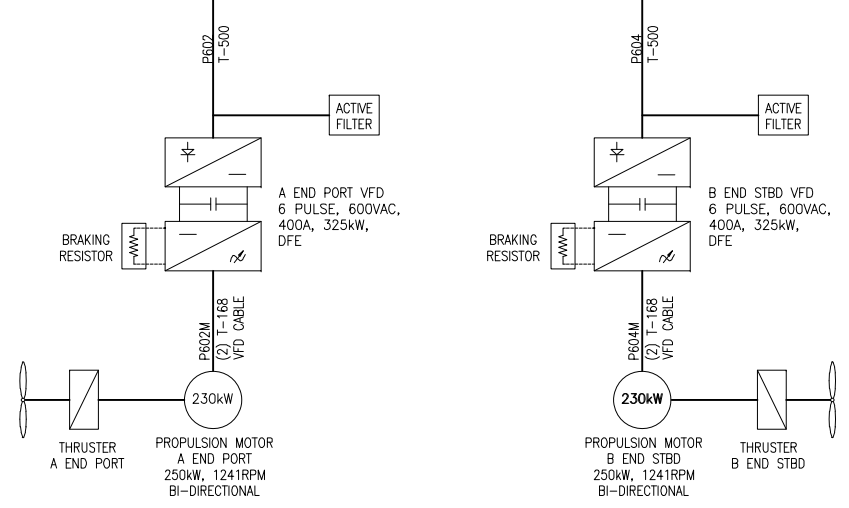
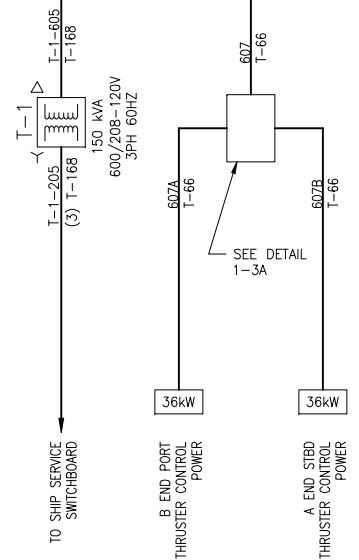
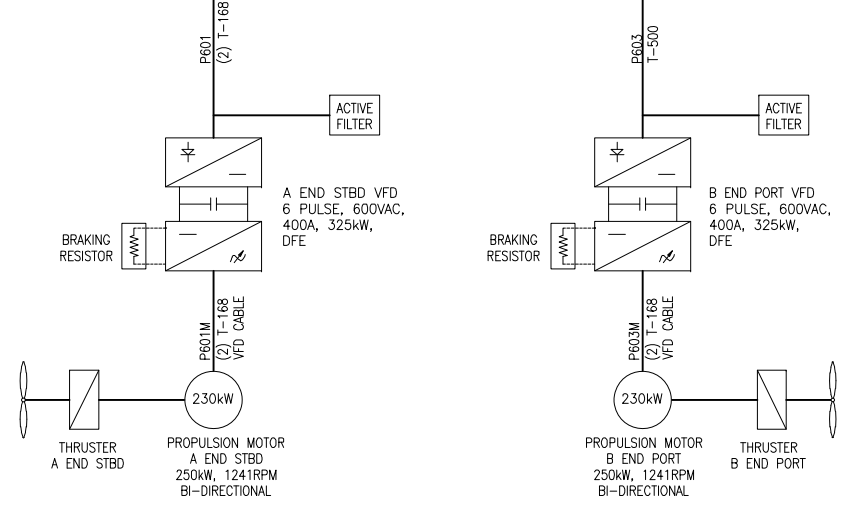
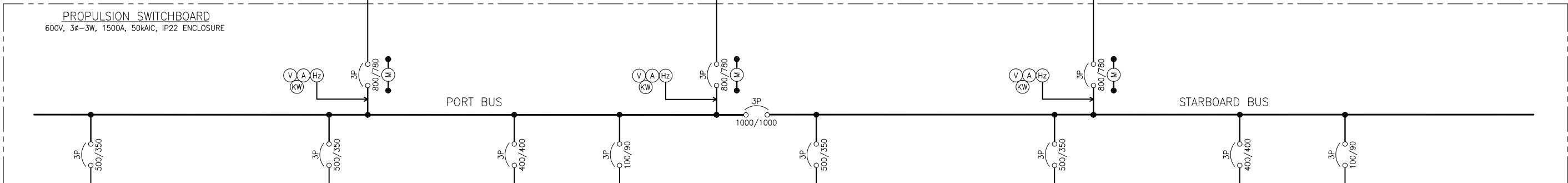
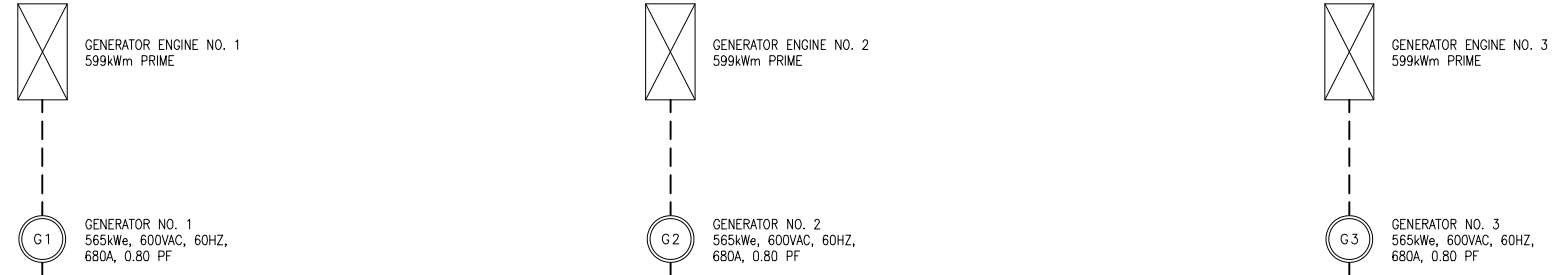
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**DETAIL 1-3A**  
 CONTROL POWER DISTRIBUTION  
 LOCATED ADJACENT TO SWITCHBOARD



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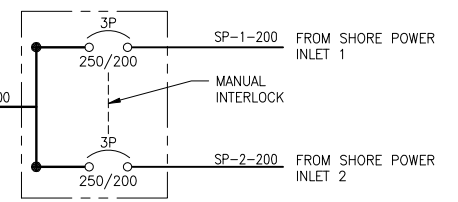
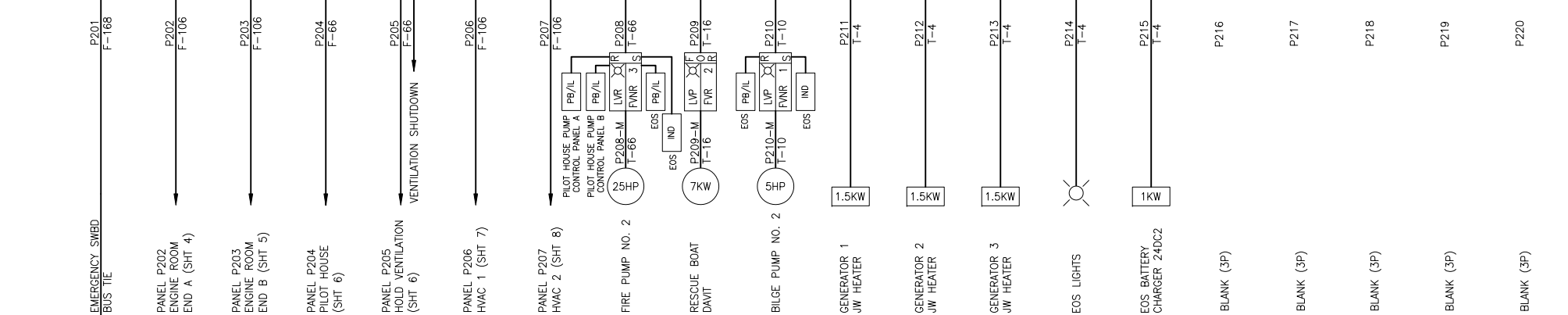
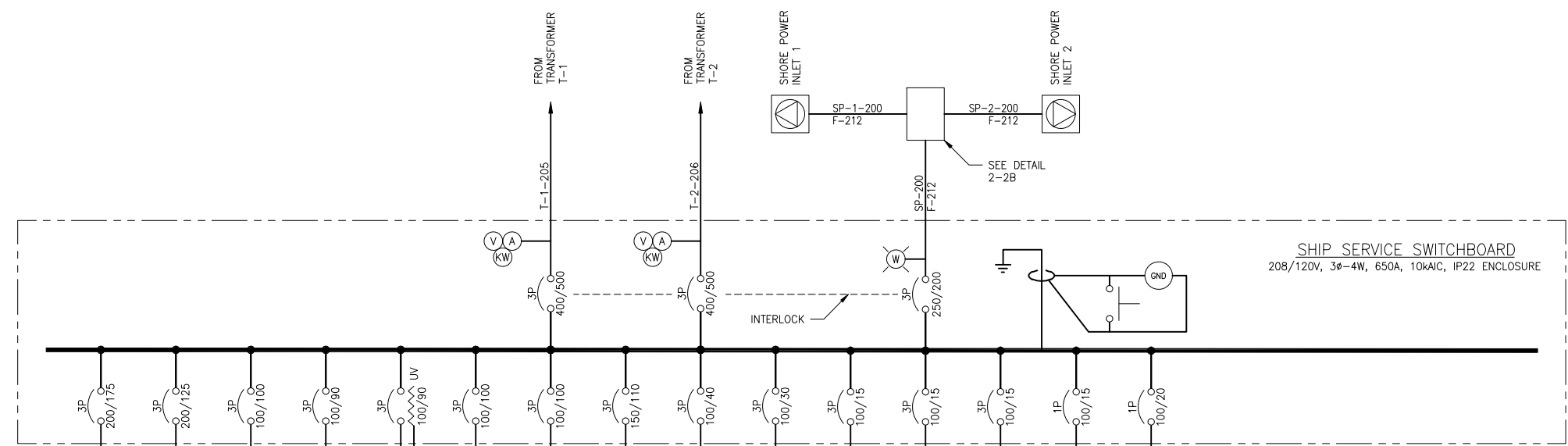
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**DETAIL 2-2B**  
 SHORE POWER TRANSFER SWITCH  
 LOCATED ADJACENT TO SWITCHBOARD



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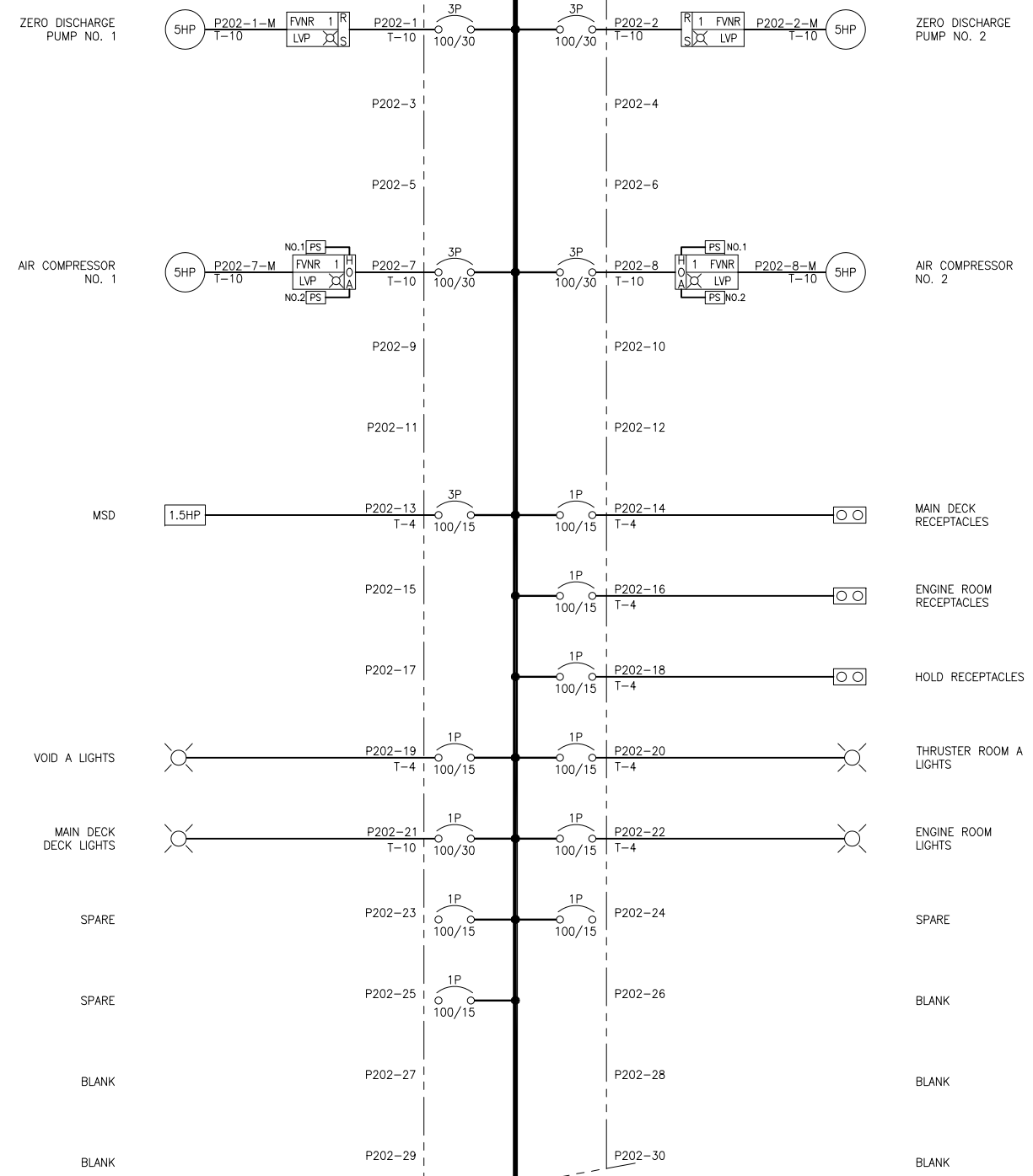
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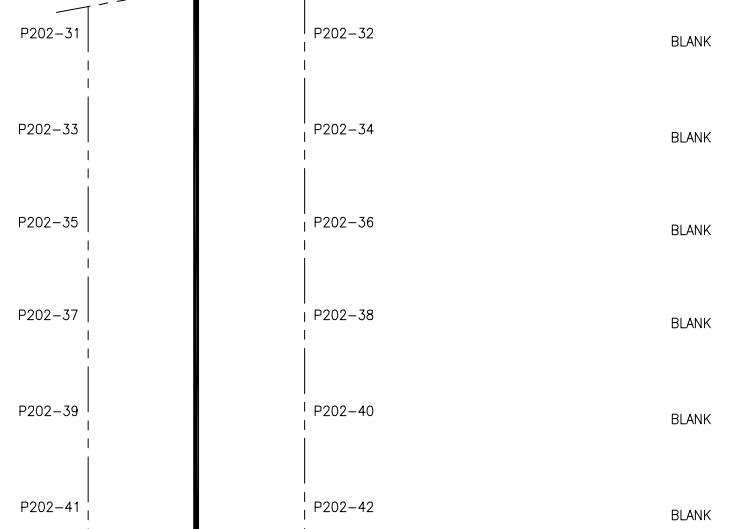
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**PANEL P202**  
**ENGINE ROOM END A**  
 208/120V, 3Ø-4W, 100A, 10kAIC,  
 MLO 42 POLE, IP22 ENCLOSURE

**PANEL P202**  
**ENGINE ROOM END A (CONT.)**  
 208/120V, 3Ø-4W, 100A, 10kAIC,  
 MLO 42 POLE, IP22 ENCLOSURE



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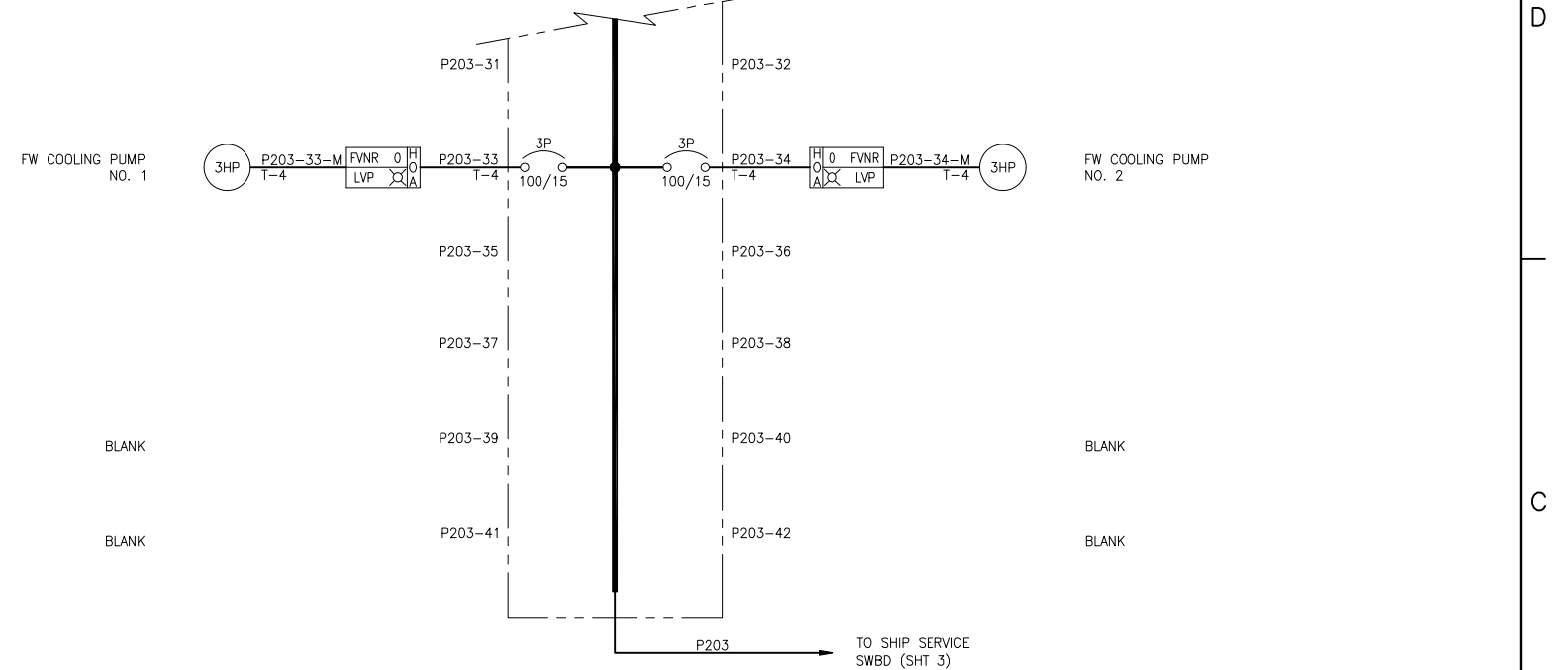
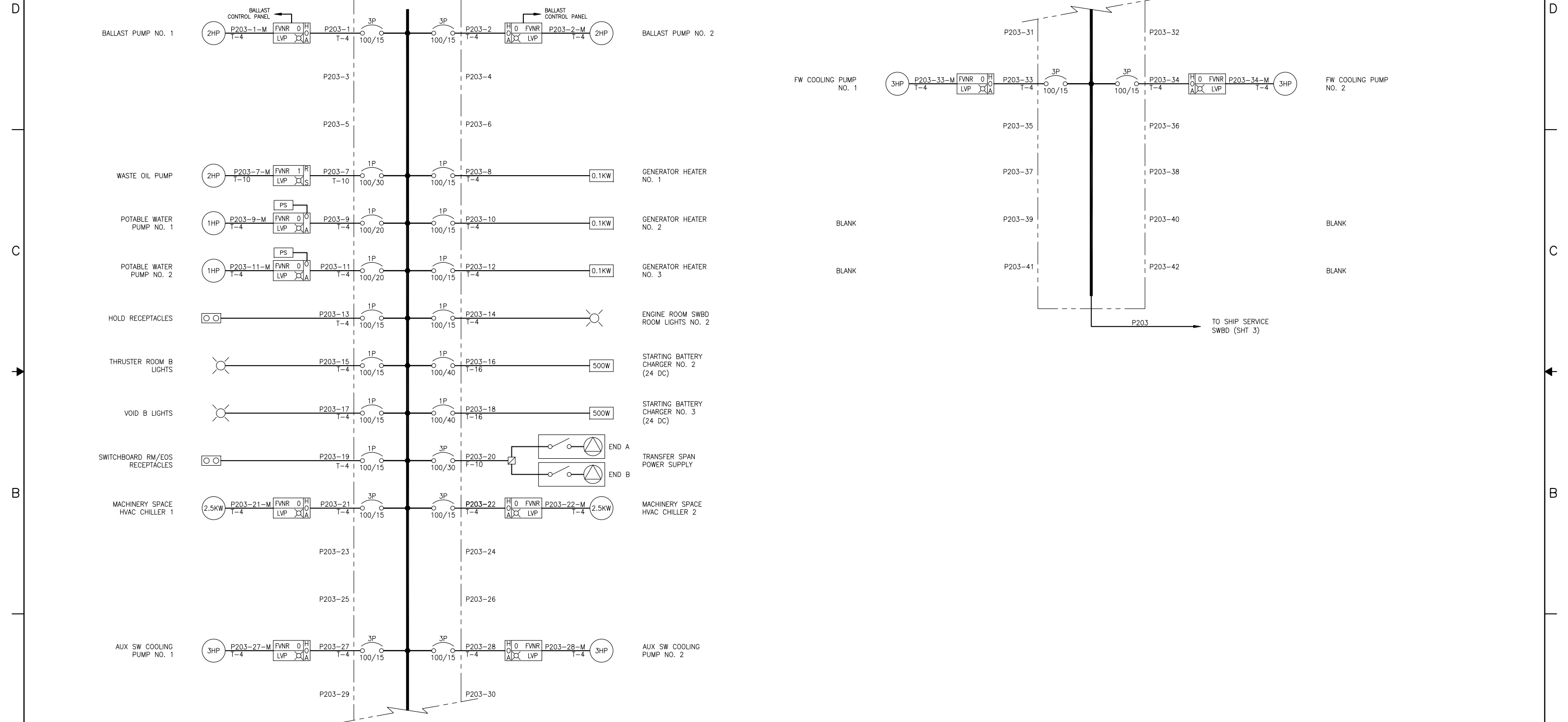
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**PANEL P203**  
 ENGINE ROOM END B  
 208/120V, 3Ø-4W, 100A, 10KAIC,  
 MLO 42 POLE, IP22 ENCLOSURE

**PANEL P203**  
 ENGINE ROOM END B (CONT.)  
 208/120V, 3Ø-4W, 100A, 10KAIC,  
 MLO 42 POLE, IP22 ENCLOSURE



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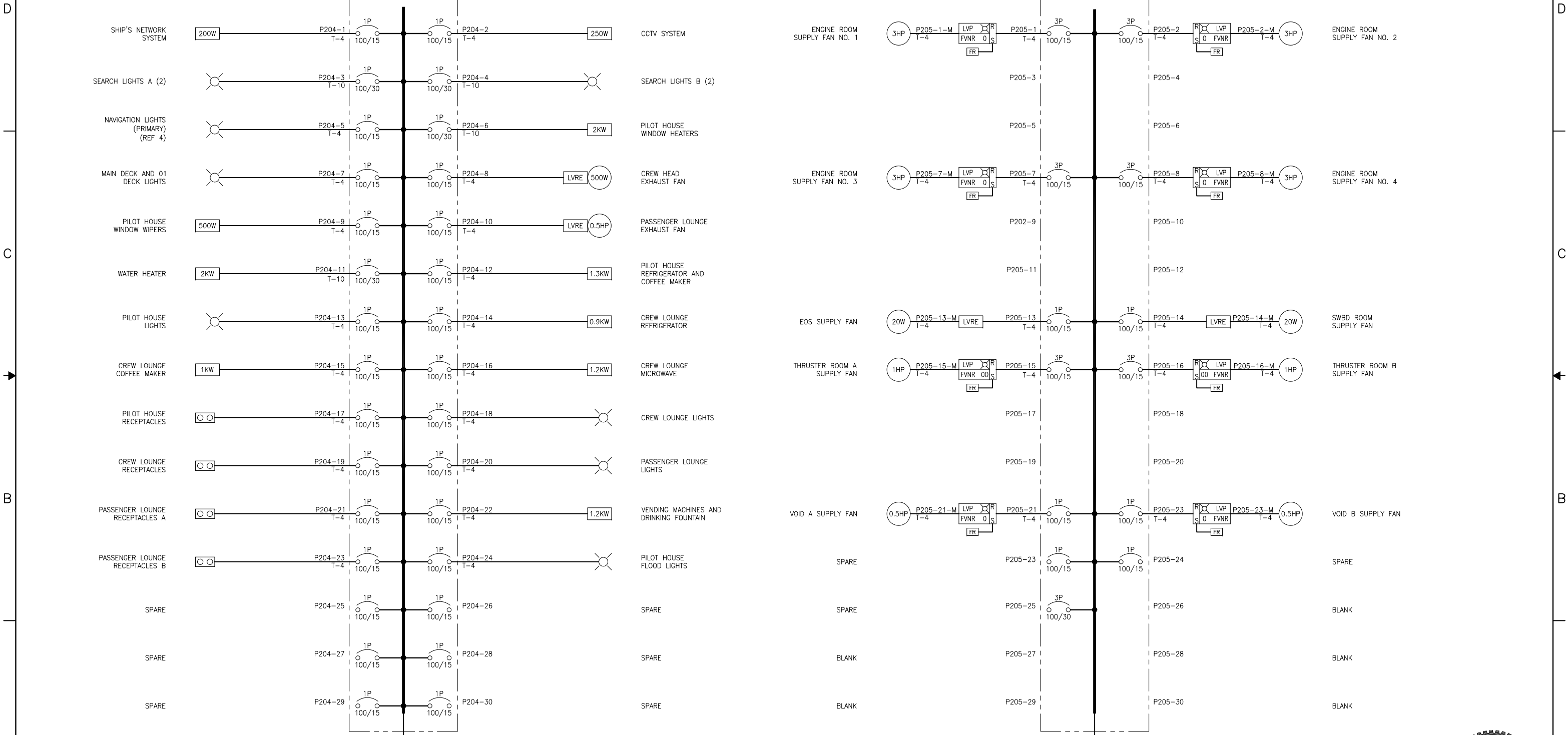
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**PANEL P204  
 PILOT HOUSE**

208/120V, 3Ø-4W, 100A, 10KAIC,  
 MLO 3Ø POLE, IP2Ø ENCLOSURE

**PANEL P205  
 HOLD VENTILATION**

208/120V, 3Ø-4W, 100A, 10KAIC,  
 MLO 3Ø POLE, IP22 ENCLOSURE



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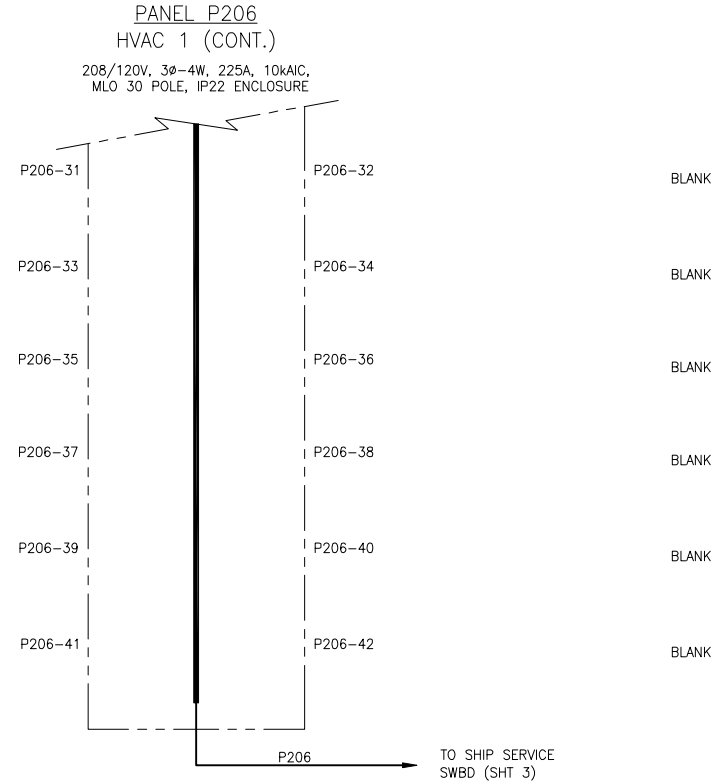
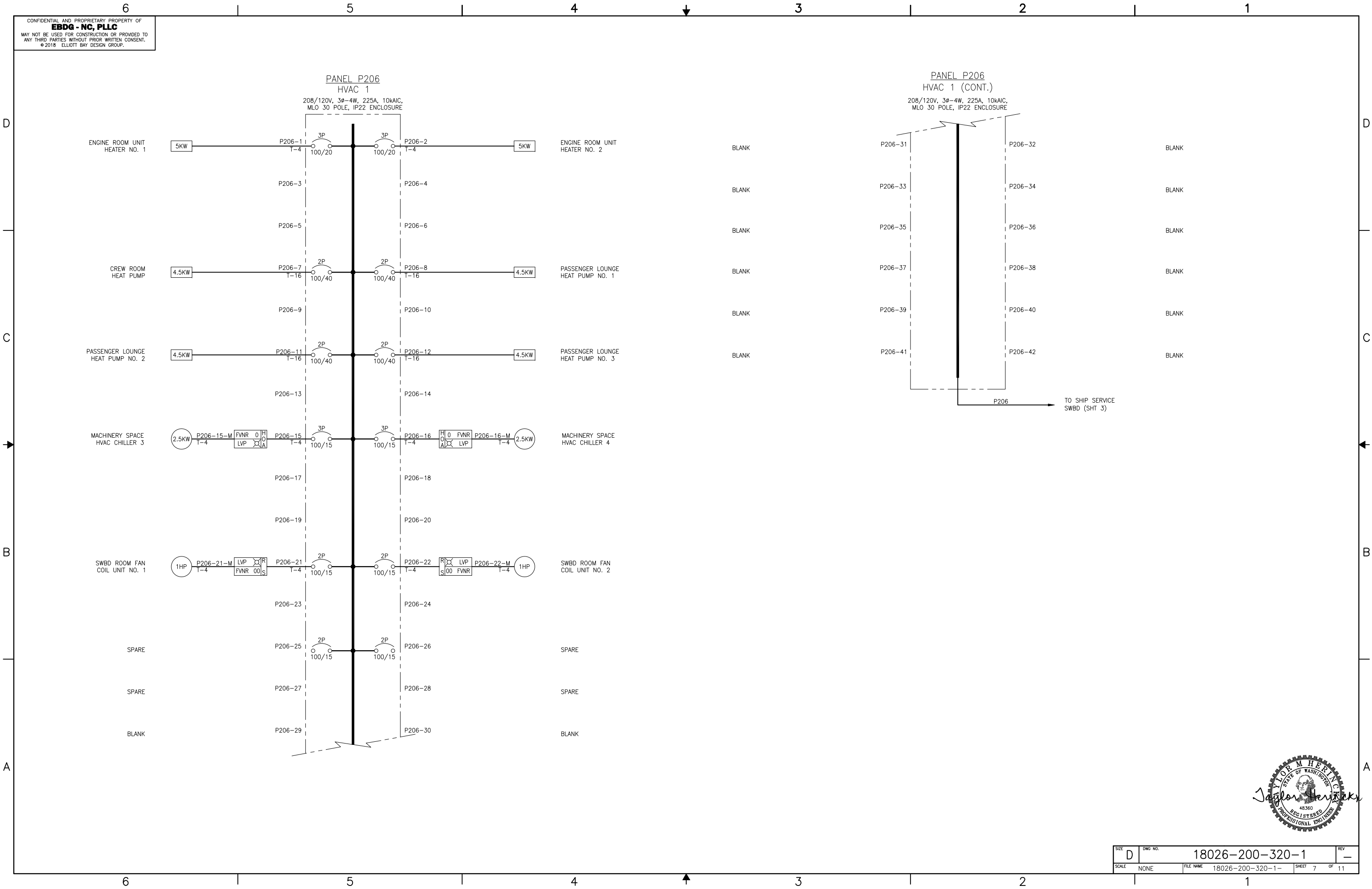
P204 → TO SHIP SERVICE SWBD (SHT 3)

P205 → TO SHIP SERVICE SWBD (SHT 3)



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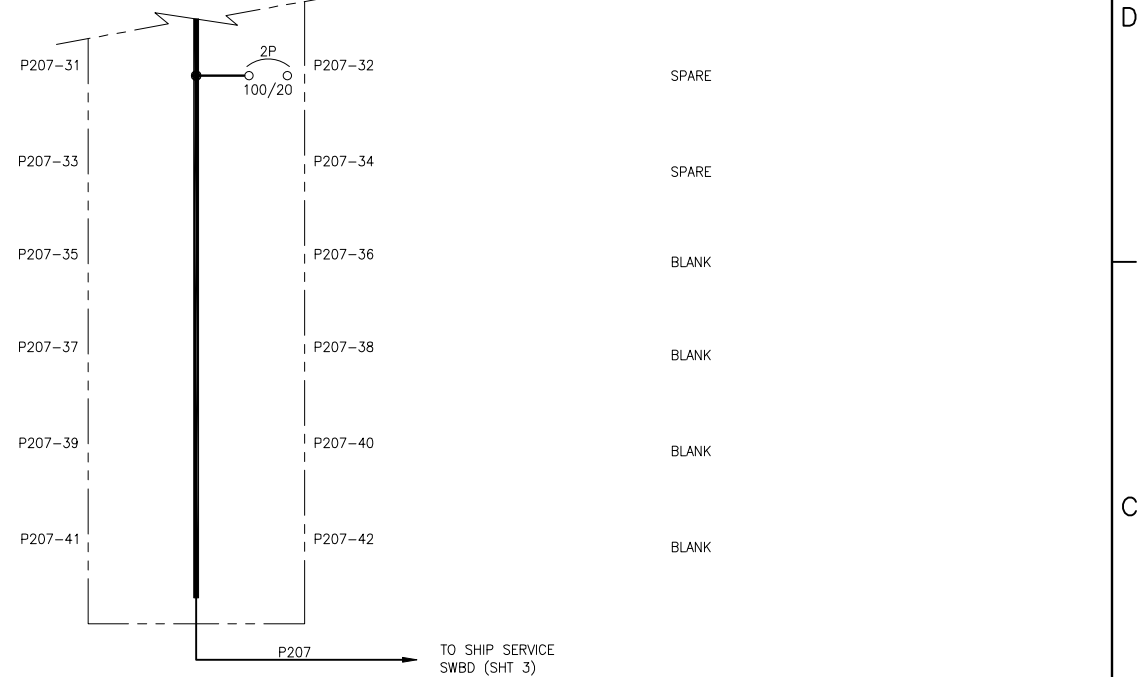
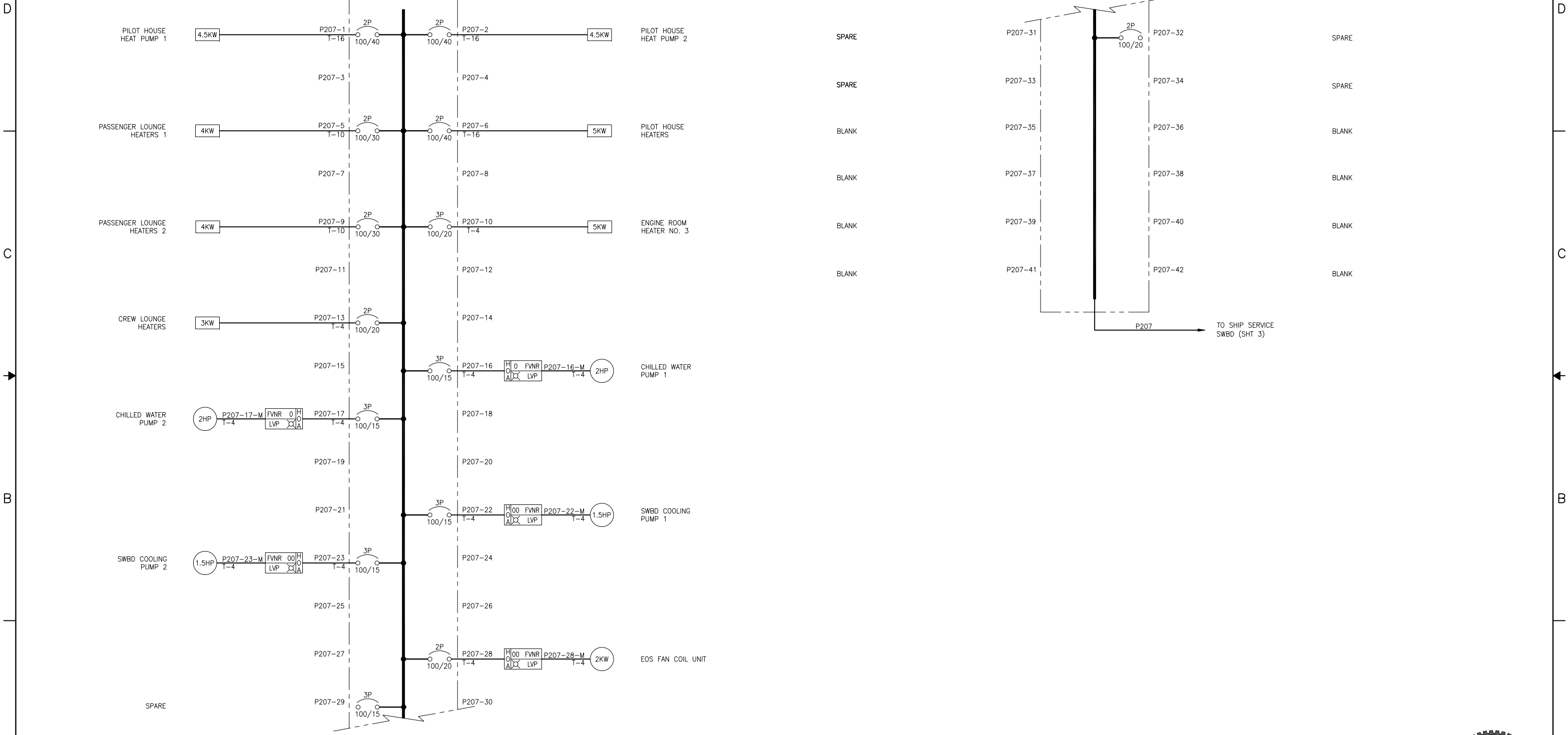
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**PANEL P207**  
 HVAC 2  
 208/120V, 3Ø-4W, 225A, 10KAIC,  
 MLO 42 POLE, IP22 ENCLOSURE

**PANEL P207**  
 HVAC 2 (CONT.)  
 208/120V, 3Ø-4W, 225A, 10KAIC,  
 MLO 42 POLE, IP22 ENCLOSURE



SIZE	D	DWG NO.	18026-200-320-1	REV	-
SCALE	NONE	FILE NAME	18026-200-320-1-	SHEET	8 OF 11

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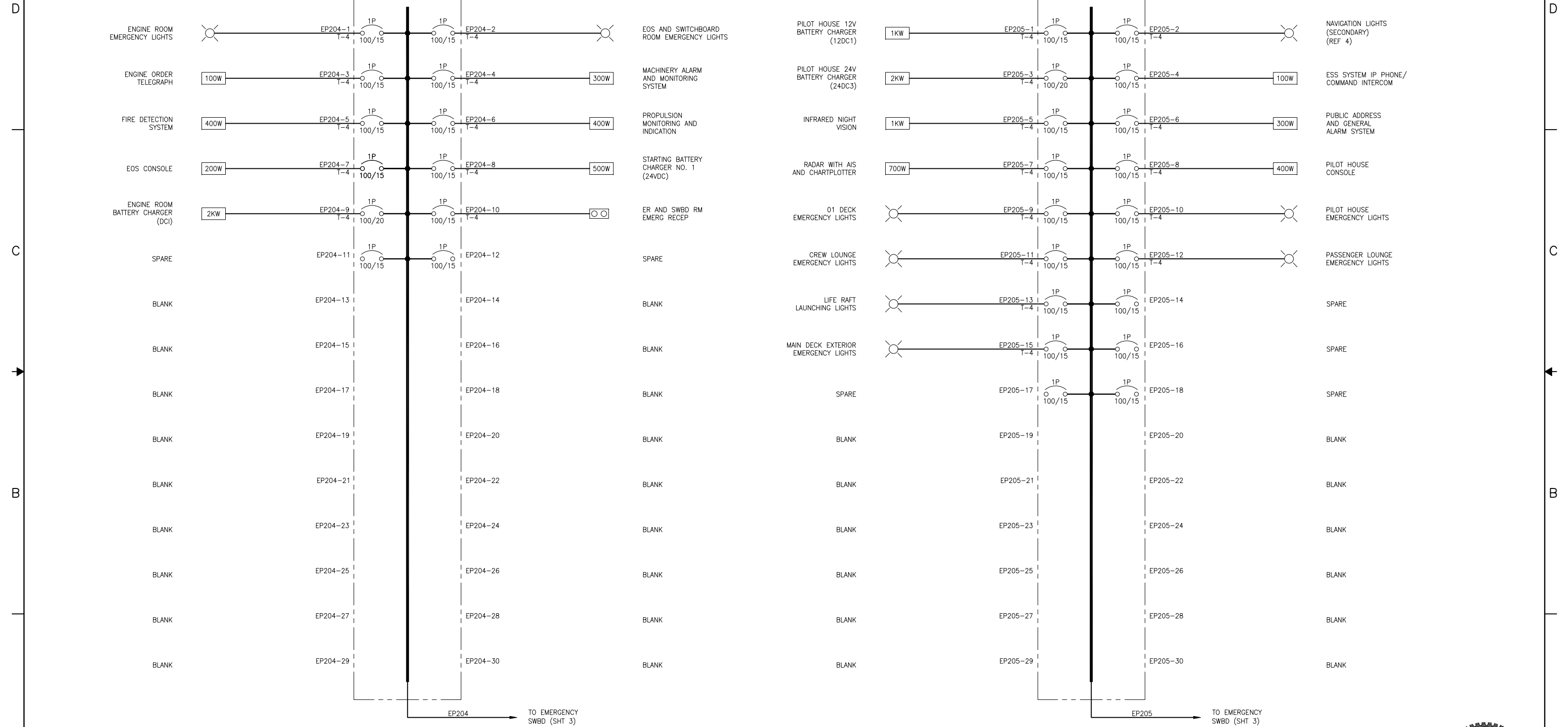
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**PANEL EP204  
 ENGINE ROOM**

208/120V, 3Ø-4W, 100A, 10kAIC,  
 MLO 30 POLE, IP22 ENCLOSURE

**PANEL EP205  
 PILOT HOUSE**

208/120V, 3Ø-4W, 100A, 10kAIC,  
 MLO 30 POLE, IP22 ENCLOSURE



EP204 → TO EMERGENCY SWBD (SHT 3)

EP205 → TO EMERGENCY SWBD (SHT 3)



SIZE	D	DWG NO.	18026-200-320-1	REV	-
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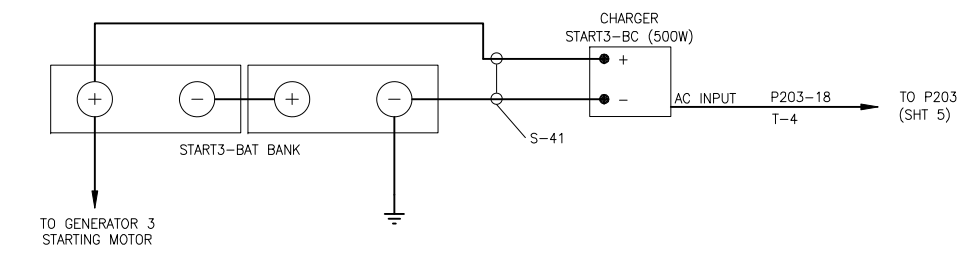
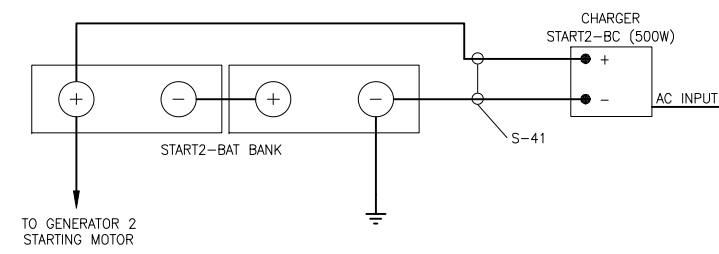
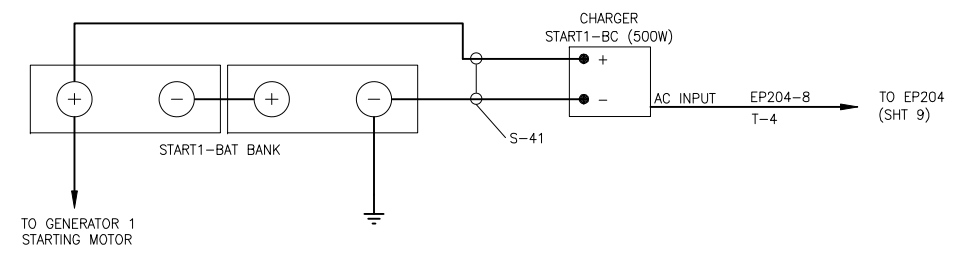
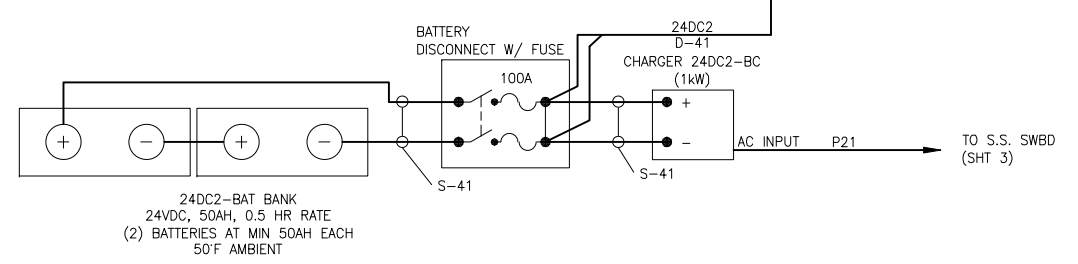
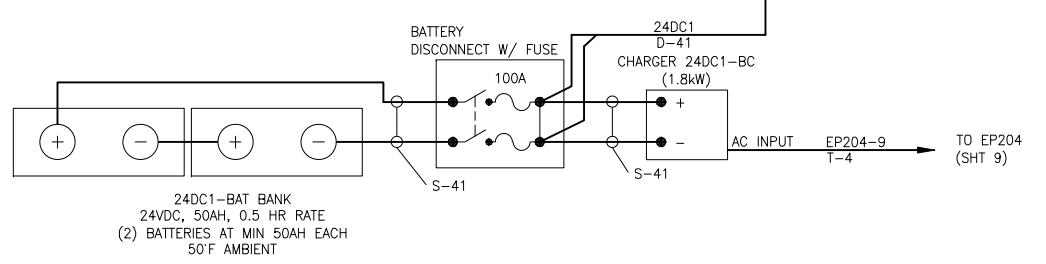
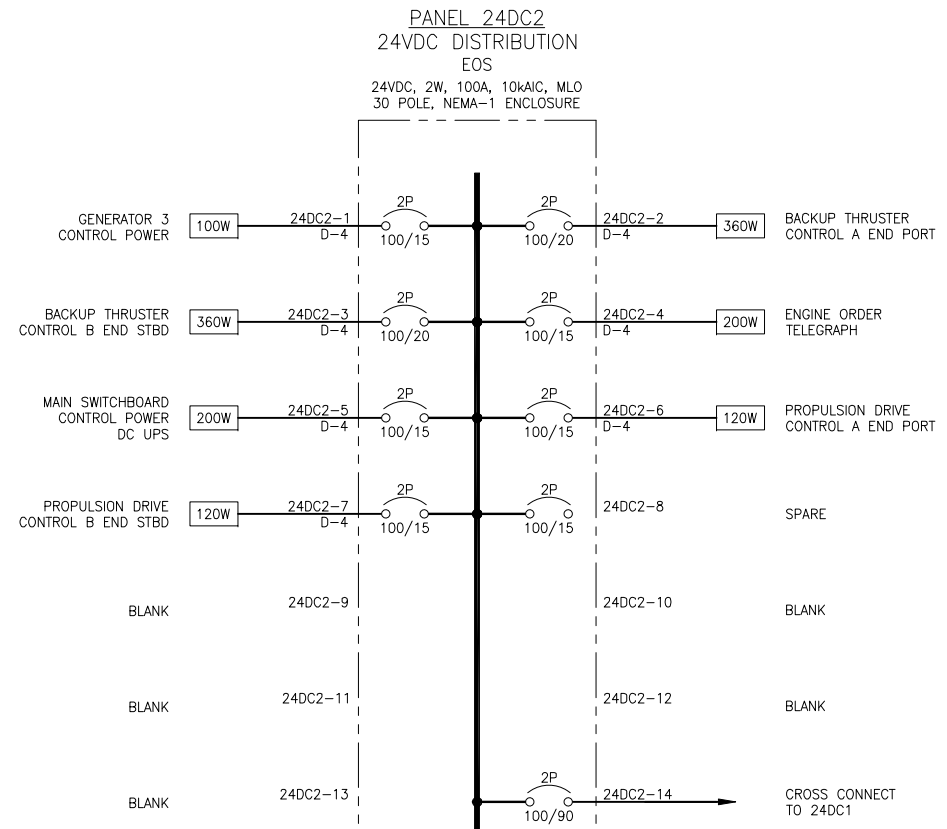
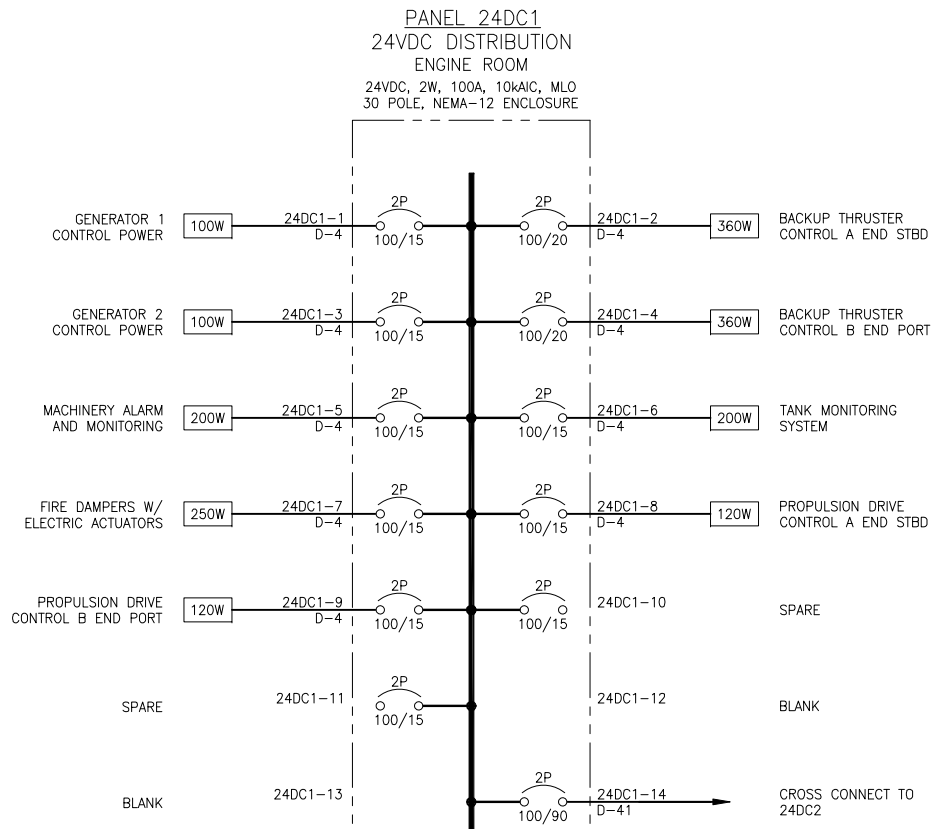
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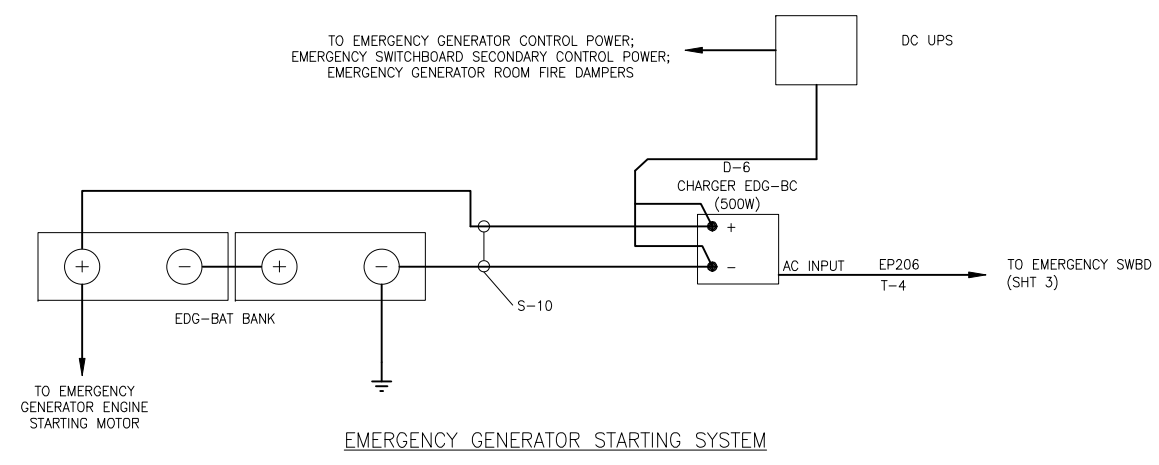
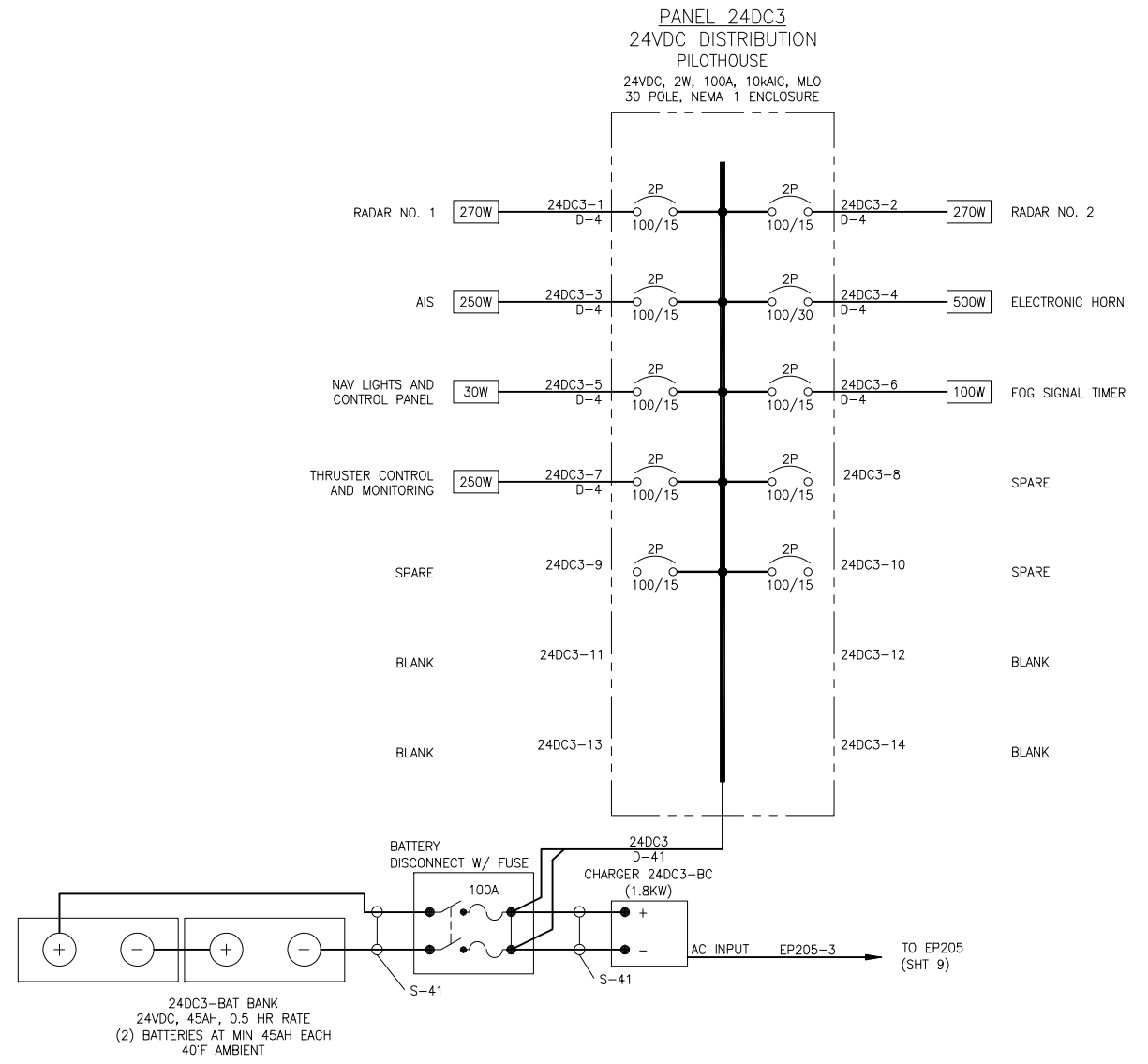
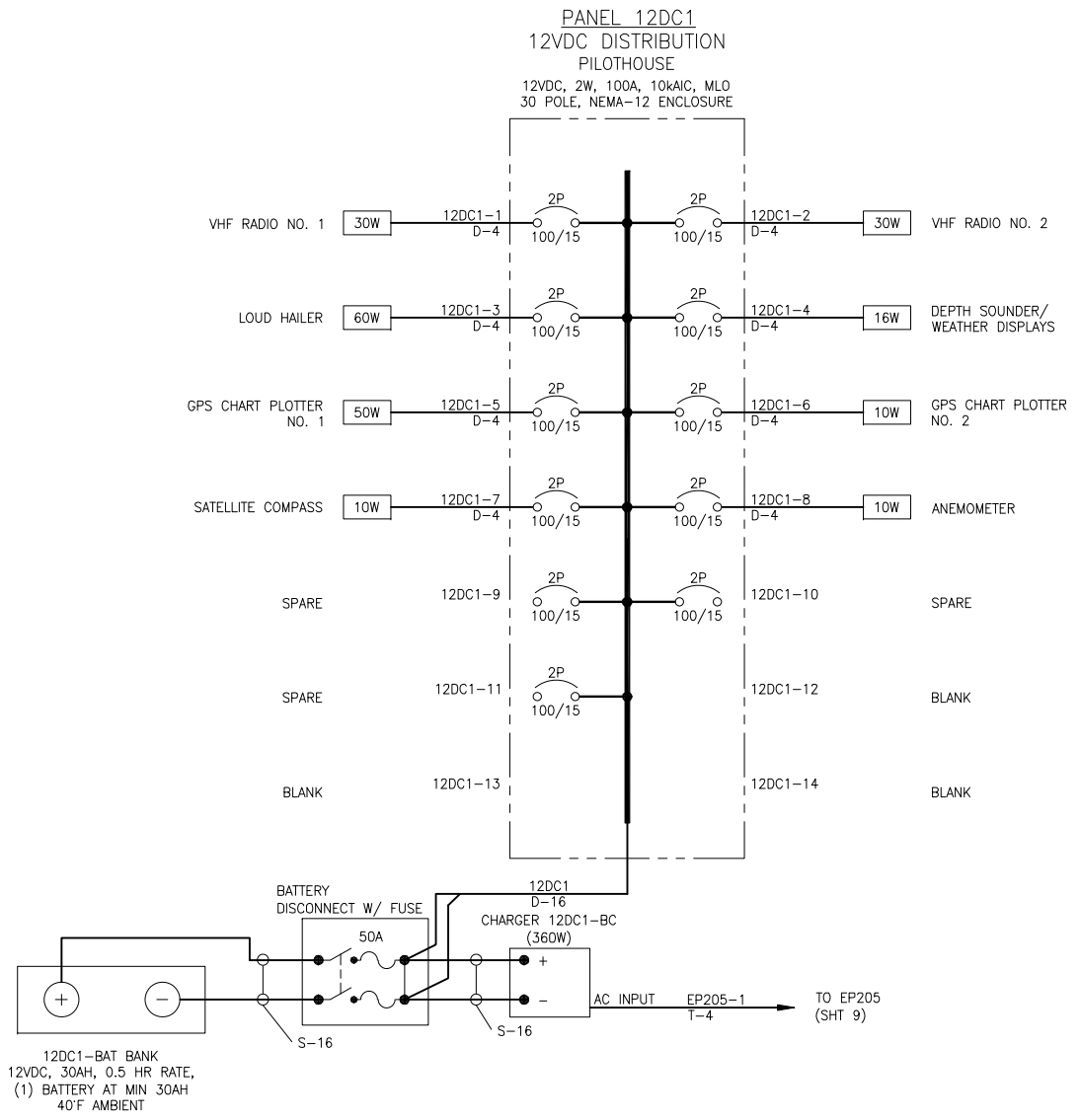
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