

N° de l'invitation - Sollicitation No.
F3065-210197/A
N° de réf. du client - Client Ref. No.
F3065-210197

N° de la modif - Amd. No.
004
File No. - N° du dossier
QCV-1-44081

Id de l'acheteur - Buyer ID
QCV006
N° CCC / CCC No. / N° VME - FMS

MODIFICATION 004

Étude d'ingénierie pour l'installation du système sanitaire, ainsi que le système de l'appareil à gouverner.

Ajout de dessins

TOUTES LES AUTRES MODALITÉS DEMEURENT INCHANGÉES

REV	DRAWN	CHKD	APPRVD	DATE	DESCRIPTION	SHEETS
00	C.T	JPD	JS.R.	2019-07-09	ORIGINAL ISSUE	ALL SHEETS
01	C.T	JPD	JS.R.	2019-12-20	AS BUILT	ALL SHEETS
					UPDATE	SB10GB, SB10HA, SB10JA, SB10KA, SB11BA, SB11DA, SB11DB, SB11TA, SB12BA, SB12DA, SB12DB, SB12TA, SB13BA, SB13DA, SB13DB, SB13TA, SB16AB, SB16BA, SB17AA, SB17BA, SB18AA, SB18CA, SB18DA

DESCRIPTION:	SPECIALTY VESSEL
OWNER:	CANADIAN COAST GUARD
SHIPYARD:	CANADIAN COAST GUARD-ON

240/120VAC MAIN SWITCHBOARD

IMPORTANT INFORMATION

ANY REPRODUCTION OR DISTRIBUTION OF THIS DRAWING FOR ANY PURPOSE OTHER THAN OPERATIONS BY OUR CUSTOMER OR BY CONCERNED AUTHORITIES IS PROHIBITED WITHOUT PRIOR CONSENT FROM TECHSOL MARINE INC.



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4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD COVER PAGE			
B0301-EDWG-SB		SB10AA	
DRAWING NUMBER	SHEET NO.		01
C.T DRAWN	JPD CHKD	JS.R. APPRV.	
19-07-09 DATE YY-MM-DD		SB10BA CONT. ON SHEET	
		REV.	

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10	MISCELLANEOUS	REV
PAGE	DESCRIPTION	
SB10AA	COVER PAGE	01
SB10BA	CONTENT (1/2)	01
SB10BB	CONTENT (2/2)	01
SB10FA	LEGEND & SYMBOLS USED	00
SB10GA	ONE-LINE DIAGRAM	00
SB10GB	BREAKERS LIST (1/2)	01
SB10GC	BREAKERS LIST (2/2)	00
SB10HA	24VDC SUPPLY	01
SB10JA	24VDC SWITCHBOARD LIGHTING	01
SB10KA	CONTACTOR FOR EMERGENCY LIGHTING	01
SB10PA	LOAD MANAGEMENT - LOAD SHEDDING	00
SB10QA	MISCELLANEOUS INDICATION	00
SB10SA	MANUAL SYNCHRONIZATION	00
SB10SB	AUTOMATIC SYNCHRONIZATION	00
SB10TA	CUSTOMER TERMINAL BLOCK FOR REMOTE INDICATION ○	00

11	GENERATOR 1 STBD	REV
PAGE	DESCRIPTION	
SB11AA	MEASURING AND INDICATION	00
SB11BA	CIRCUIT BREAKER CONTROL (1/2)	01
SB11BB	CIRCUIT BREAKER CONTROL (2/2)	00
SB11DA	GENERATOR CONTROL (1/2)	01
SB11DB	GENERATOR CONTROL (2/2)	01
SB11TA	TERMINAL BLOCK ☒	01

12	GENERATOR 2 PORT	REV
PAGE	DESCRIPTION	
SB12AA	MEASURING AND INDICATION	00
SB12BA	CIRCUIT BREAKER CONTROL (1/2)	01
SB12BB	CIRCUIT BREAKER CONTROL (2/2)	00
SB12DA	GENERATOR CONTROL (1/2)	01
SB12DB	GENERATOR CONTROL (2/2)	01
SB12TA	TERMINAL BLOCK ■	01

13	HARBOR GENERATOR	REV
PAGE	DESCRIPTION	
SB13AA	MEASURING AND INDICATION	00
SB13BA	CIRCUIT BREAKER CONTROL (1/2)	01
SB13BB	CIRCUIT BREAKER CONTROL (2/2)	00
SB13DA	GENERATOR CONTROL (1/2)	01
SB13DB	GENERATOR CONTROL (2/2)	01
SB13TA	TERMINAL BLOCK □	01

14	SPARE	REV
PAGE	DESCRIPTION	

15	SPARE	REV
PAGE	DESCRIPTION	

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240/120VAC MAIN SWITCHBOARD CONTENT (1/2)			
DRAWING NUMBER B0301-EDWG-SB	SHEET NO. SB10BA		01
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
		CONT. ON SHEET	SB10BB
			REV.


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16 SHORE POWER

17 MAIN BUS & BUS TIE BREAKER

18 DISTRIBUTION

PAGE	DESCRIPTION	REV
SB16AA	PHASE REVERSE SWITCH	00
SB16AB	MEASURING AND INDICATION	01
SB16BA	CIRCUIT BREAKER CONTROL (1/2)	01
SB16BB	CIRCUIT BREAKER CONTROL (2/2)	00
SB16TA	TERMINAL BLOCK 	00

PAGE	DESCRIPTION	REV
SB17AA	MEASURING AND INDICATION	01
SB17BA	TIE CIRCUIT BREAKER CONTROL	01
SB17CA	DEAD BUS DETECTION	00
SB17TA	TERMINAL BLOCK 	00

PAGE	DESCRIPTION	REV
SB18AA	240VAC DISTRIBUTION P2	01
SB18AB	P2-4 CIRCUIT BREAKER CONTROL	00
SB18BA	240VAC DISTRIBUTION P1	00
SB18BB	P1-10 CIRCUIT BREAKER CONTROL	00
SB18CA	120VAC DISTRIBUTION P4	01
SB18DA	120VAC DISTRIBUTION P3	01

19 PLC

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PAGE	DESCRIPTION	REV
SB19AA	DIGITAL INPUTS/OUTPUTS	00

PAGE	DESCRIPTION	REV

PAGE	DESCRIPTION	REV

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4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD CONTENT (2/2)			
DRAWING NUMBER B0301-EDWG-SB		SB10BB	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	SB10FA REV. 01
DATE: 19-07-09		CONT. ON SHEET	

DRAWING NOMENCLATURES

DRAWING COORDINATES
[04G]
VERTICAL COORDINATE
HORIZONTAL COORDINATE

DRAWING CROSS-REFERENCE WITH COORDINATES
[SB00HA04G]
VERTICAL COORDINATE
HORIZONTAL COORDINATE
DRAWING SHEET NUMBER

PART IDENTIFICATION
FU01
SEQUENTIAL PART NUMBER
PART TYPE

PART IDENTIFICATION WITH DRAWING CROSS-REFERENCE
FU01-SB40AA
DRAWING SHEET NUMBER
SEQUENTIAL PART NUMBER
PART TYPE

CABLE IDENTIFICATION
SB01AA-01
SEQUENTIAL NUMBER
DRAWING SHEET NUMBER

PLC CHANNEL DESCRIPTION
SB01.SU01.BA1.DI-01
I/O CHANNEL IDENTIFICATION:
DI=DIGITAL INPUT
DO=DIGITAL OUTPUT
AI=ANALOG INPUT
AO=ANALOG OUTPUT
01 = CHANNEL I.D.
I/O MODULE IDENTIFICATION

UNIT IDENTIFICATION :
CU = CONTROL UNIT
SU = SLAVE UNIT
01 = COMPONENT NUMBER

ASSEMBLY IDENTIFICATION:
AM = ALARM & MONITORING SYSTEM
01 = ASSEMBLY NUMBER

RELAY CONTACT LOCATION CHART

RELAY NUMBER: CR01

CONTACT COORDINATE: 06G

CONTACT COORDINATE & PAGE REFERENCE: SB01AA04G

SPARE CONTACTS

NORMALLY OPEN CONTACTS (4)

NORMALLY CLOSED CONTACTS (4)

WIRING - METRIC NOMENCLATURES (mm²)

PAIR/TRIPLE CABLE TYPE DESCRIPTION
TPIS0S-1.5mm²-4
QUANTITY OF PAIRS/TRIPPLES
WIRING SIZE
WITH OVERALL SHIELD
WITH INDIVIDUAL SHIELD
TP=TWISTED PAIR
TT=TWISTED TRIPLE

MULTICONDUCTOR CABLE TYPE DESCRIPTION
2c-2.5mm²
WIRING SIZE
QUANTITY OF CONDUCTORS

THERMOCOUPLE CABLE TYPE DESCRIPTION
TPOS-1.0mm²-4 TC TYPE K
THERMOCOUPLE TYPE
TC=THERMOCOUPLE
QUANTITY OF PAIRS
WIRING SIZE
WITH OVERALL SHIELD
TWISTED PAIR

WIRING - IMPERIAL NOMENCLATURES (AWG)

PAIR/TRIPLE CABLE TYPE DESCRIPTION
TPIS0S16-4
QUANTITY OF PAIRS/TRIPPLES
WIRING SIZE
WITH OVERALL SHIELD
WITH INDIVIDUAL SHIELD
TP=TWISTED PAIR
TT=TWISTED TRIPLE

MULTICONDUCTOR CABLE TYPE DESCRIPTION
3c#12AWG
WIRING SIZE
QUANTITY OF CONDUCTORS

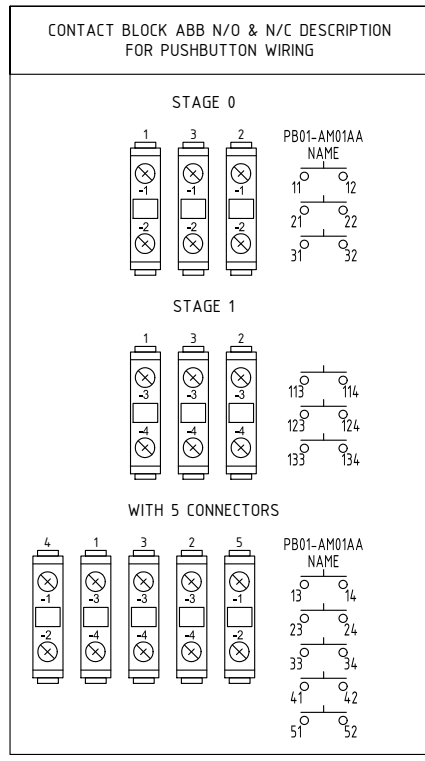
THERMOCOUPLE CABLE TYPE DESCRIPTION
TPOS20-4 TC TYPE K
THERMOCOUPLE TYPE
TC=THERMOCOUPLE
QUANTITY OF PAIRS
WIRING SIZE
WITH OVERALL SHIELD
TWISTED PAIR

ELECTRICAL GENERAL SYMBOL LEGEND

[2AFA]	FUSE 2 AMPS FAST ACTING
[2ASB]	FUSE 2 AMPS SLOW BLOW
	MUSHROOM HEAD PUSH BUTTON NC
	PUSH BUTTON (NORMALLY OPEN)
	PUSH BUTTON (NORMALLY CLOSED)
	SELECTOR SWITCH N.O.
	PILOT LIGHT LED
	RELAY OR CONTACTOR COIL
	RELAY OR CONTACTOR CONTACT NO
	RELAY OR CONTACTOR CONTACT NC
	GROUND
	TEMPERATURE SWITCH
	TIMER DELAY
	DISCONNECT SWITCH
	MANUAL CIRCUIT BREAKER
	MAGNETIC TRIP ELEMENT
	THERMAL TRIP ELEMENT
	VOLTAGE TRANSFORMER
	CURRENT MEASURING TRANSFORMER
	VOLTAGE MEASURING TRANSFORMER
	MOTOR
	UNDERVOLTAGE
<<	PLUG

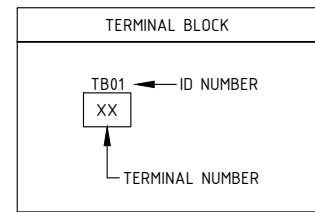
ELECTRICAL ABBREVIATIONS

DESIGNATION:	DEVICE OR FUNCTION:
AC	ALTERNATING CURRENT
AM	AMMETER
C	CAPACITOR
CB	CIRCUIT BREAKER
CC	CLOSING COIL
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
D	DIODE
DC	DIRECT CURRENT
DS	DC/DC CONVERTER
ER	DISCONNECT SWITCH
ET	ETHERNET SWITCH
FAN	FAN
FM	FREQUENCY METER
FU	FUSE
GP	GROUND PROTECTIVE
HM	HOUR METER
J	JOG
JB	JUNCTION BOX
M	MAIN CONTACTOR
MD	MISCELLANEOUS MODULE
OC	OVER CURRENT
OL	OVERLOAD
OVP	OVER VOLTAGE PROTECTION
PB	PUSH BUTTON
PFM	POWER FACTOR METER
PL	PILOT LIGHT
PM	POWER METER
PSM	PHASE SEQUENCE MODULE
PT	POTENTIAL TRANSFORMER
PWS	POWER SUPPLY
R	RESISTOR, RESISTANCE
REC	RECTIFIER
SB	SPLITTER BLOCK
SS	SELECTOR SWITCH
T	TRANSFORMER
TB	TERMINAL BLOCK
TC	TRIP COIL
TR	TIME-DELAY RELAY
UV	UNDERVOLTAGE
VM	VOLTMETER
WM	WATTMETER



GENERAL NOTES

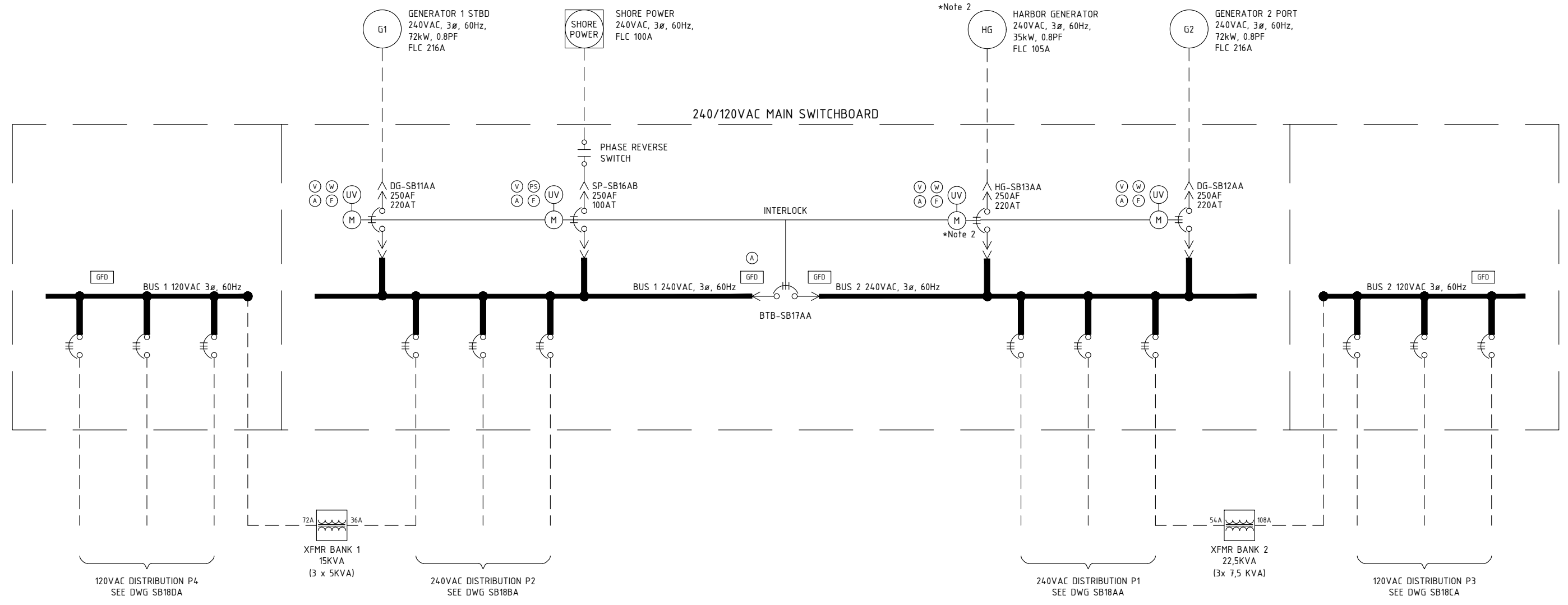
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
- INTERNAL WIRING SHALL BE 1.0mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- ALL SHIELDS SHALL BE CONNECTED TO GROUND AT ONE END ONLY, PREFERABLY IN THIS PANEL.
- ALL PANELS SHALL BE GROUNDED TO THE SHIP'S HULL.
- POWER CABLES AND SIGNAL CABLES MUST BE SEPARATED TO AVOID LINE INTERFERENCE.
- ALL RELAYS ARE SHOWN DE-ENERGIZED.



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240/120VAC MAIN SWITCHBOARD LEGEND & SYMBOLS USED			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB10FA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB10GA	00 REV.



NOTES:

- DASHED LINES (EXTERNAL WIRING) ARE WIRED BY SHIPYARD
- THE HARBOR GENERATOR WILL BE INSTALLED LATER, SWITCHBOARD WILL BE READY TO CONNECT NEW HARBOR GENERATOR. HARBOR GENERATOR BREAKER WON'T BE INSTALLED, ONLY BREAKER BASE WILL BE FITTED.

LEGEND:

- (V) VOLTMETER
- (A) AMMETER
- (W) WATTMETER
- (F) FREQUENCY METER
- (WH) KILOWATTHOUR METER
- (PS) PHASE SEQUENCE METER
- (M) MOTORIZED BREAKER
- (GFD) GROUND FAULT DETECTION

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TECHSOL
 Techsol Marine inc.
 4800, Rideau
 Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD			
ONE-LINE DIAGRAM			
B0301-EDWG-SB		SB10GA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
SB10GB		CONT. ON SHEET	
			00
			REV.

Project: B0301-BLUST-SB		Courant C-C/S-C Rating: kA 10		Tension/Voltage: V 240		Ajustement Setting													
Équipement/Equipment: MSB1				Révision/Revision: 1		Temp.: °C 50													
Rev. Num.	Circuit	ID	Position	Nb Poles	Description	Manuf.	Numéro de Pièce Part Number	Frame	Code de Commande Ordering Code	Type	Déclancheur Élect. Trip Unit	Rating Plug	Long Délais Long Time L1	Délais Delay t1	Court Délais Short Time L2	Délais Delay t2	Temps Inv. Inv. Time	Instantanée Instantaneous L3	Ajustement Setting
POWER SOURCE																			
0	GEN1	DG-SB11AA		3	GEN1 STBD GEN1 TRIBORD	ABB	XT4N250-EkipLSI-3P	250	XT4NU3250FFF000XXX	Withdrawable EF	EkipLSI	250	0.88xln=220A	3	2xln=500A	0.4	No	8xln=2000A	
0	GEN2	DG-SB12AA		3	GEN2 PORT GEN2 BABORD	ABB	XT4N250-EkipLSI-3P	250	XT4NU3250FFF000XXX	Withdrawable EF	EkipLSI	250	0.88xln=220A	3	2xln=500A	0.4	No	8xln=2000A	
0	GEN3	DG-SB13AA		-	GEN3 HARBOUR GEN A QUAI 3	-	XT4	-	-	Withdrawable EF	-	-							
0	SHORE	SC-SB16AB		3	SHORE POWER PUISSANCE A TERRE	ABB	XT4N250-EkipLSI-3P	250	XT4NU3250FFF000XXX	Withdrawable EF	EkipLSI	250	0.4xln=100A	12	3.5xln=875A	0.4	No	8xln=2000A	
TIE BREAKER																			
0	TIE	BTB-SB17AA		3	TIE LIAISON	ABB	XT4N250-EkipLSI-3P	250	XT4NU3250FFF000XXX	Plugin EF	EkipLSI	250	0.88xln=220A	3	2xln=500A	0.3	No	8xln=2000A	
DISTRIBUTION P1 STBD / TRIBORD																			
0	P1-1	CB01-SB18AA	A	3	XFMR BANK 1 TRANSFORMATEUR 1	ABB	XT2N060-EkipLSI-3P	125	XT2NU3060FFF000XXX	Fixe	EkipLSI	60	0.64xln=38,4A	36	6.5xln=390A	0.2	No	Off	
1	P1-2	CB02-SB18AA	1	3	SPACE LIBRE	ABB	ST203M-C16	63	ST203M-C-16	Fixe	TMF	16							
0	P1-3	CB03-SB18AA	B	3	STEERING MOTOR 1 APP. A GOUVERNER 1	ABB	XT2H030-MA-3P	125	XT2HU3030MFFF000XXX	Fixe	MA	30						Min = 90A	
0	P1-4	CB04-SB18AA	2	3	AIR COMPRESSOR 1 COMPRESSEUR AIR 1	ABB	ST203M-C32	63	ST203M-C-32	Fixe	TMF	32							
0	P1-5	CB05-SB18AA	7	3	DECK RECEPTACLE PRISE DE COUR. DE PONT	ABB	ST203M-C40	63	ST203M-C-40	Fixe	TMF	40							
0	P1-6	CB06-SB18AA	8	3	FUEL OIL TRANSFER PUMP TRANSFERT COMBUSTIBLE	ABB	ST203M-C20	63	ST203M-C-20	Fixe	TMF	20							
0	P1-7	CB07-SB18AA	13	3	FIRE-BILGE-BALLAST PUMP 1 POMPE D'INCENDIE BOUCHAIN BALLAST 1	ABB	ST203M-C32	63	ST203M-C-32	Fixe	TMF	32							
0	P1-8	CB08-SB18AA	14	3	ELECTRIC HYD. PUMP POMPE HYDRAULIQUE ELECTRIQUE	ABB	ST203M-C20	63	ST203M-C-20	Fixe	TMF	20							
0	P1-9	CB09-SB18AA	19	3	ENG. ROOM VENT. SUPPLY FAN VENT. ALIM. SALLE MACHINE	ABB	ST203M-C20	63	ST203M-C-20	Fixe	TMF	20							
0	P1-10	CB10-SB18AA	C	3	240V HEATING PANEL L5 PAN. L5 DE CHAUFFAGE 240V	ABB	XT2N100-EkipLSI-3P	125	XT2NU3100FFF000XXX	Fixe	EkipLSI	100	0.7xln=70A	12	3xln=300A	0.05	No	Off	
0	P1-11	CB11-SB18AA	27	2	ANTI-COND./ BLOCK HEATER GEN1 STBD ANTI-COND./ CHAUFFE MOTEUR GEN1 TRIBORD	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16							
0	P1-12		20	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0	P1-13		26	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0	P1-14		31	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0	P1-15		32	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0	P1-16		D	-	SPACE ESPACE LIBRE	-	XT2	-	-	Fixe	-	-							
DISTRIBUTION P2 PORT / BÂBORD																			
0	P2-1	CB01-SB18BA	20	2	24V CHARGER WHEELHOUSE 24V CHARGEUR TIMONERIE	ABB	ST202M-C20	63	ST202M-C-20	Fixe	TMF	20							
0	P2-2	CB02-SB18BA	A	3	HYDRAULIC PUMP PORT SIDE POMPE HYDRAULIQUE BÂBORD	ABB	XT2S060-EkipLSI-3P	125	XT2SU3060FFF000XXX	Fixe	EkipLSI	60	0.52xln=31,2A	12	3.5xln=210A	0.05	Yes	5.5xln=330A	
0	P2-3	CB03-SB18BA	B	3	STEERING MOTOR 2 APP. A GOUVERNER 2	ABB	XT2H030-MA-3P	125	XT2HU3030MFFF000XXX	Fixe	MA	30						Min = 90A	
0	P2-4	CB04-SB18BA	13	3	AIR COND. SYSTEM & PLENUM HEATER CLIM.-APPAREIL DE CHAUFFAGE CONDUITE	ABB	ST203M-C32	63	ST203M-C-32	Fixe	TMF	32							
0	P2-5	CB05-SB18BA	2	3	AIR COMPRESSOR 2 COMPRESSEUR AIR 2	ABB	ST203M-C32	63	ST203M-C-32	Fixe	TMF	32							
0	P2-6	CB06-SB18BA	D	3	CRANE HYDRAULIC PUMP POMPE HYDRAULIQUE DE LA GRUE	ABB	XT2N100-EkipLSI-3P	125	XT2NU3100FFF000XXX	Fixe	EkipLSI	100	0.92xln=92A	3	1.5xln=150A	0.1	Yes	2.5xln=250A	
0	P2-7	CB07-SB18BA	8	3	FIRE-BILGE-BALLAST PUMP 2 POMPE D'INCENDIE BOUCHAIN BALLAST 2	ABB	ST203M-C32	63	ST203M-C-32	Fixe	TMF	32							
0	P2-8	CB08-SB18BA	1	3	GALLEY RANGE FOUR DE CUISINE	ABB	ST203M-C40	63	ST203M-C-40	Fixe	TMF	40							
0	P2-9	CB09-SB18BA	14	3	WASTE OIL DISCHARGE PUMP POMPE D'HUILE DE DECHET	ABB	ST203M-C16	63	ST203M-C-16	Fixe	TMF	16							
0	P2-10	CB10-SB18BA	C	3	XFMR BANK 2 TRANSFORMATEUR 2	ABB	XT2N100-EkipLSI-3P	125	XT2NU3100FFF000XXX	Fixe	EkipLSI	100	0.5xln=50A	12	3.5xln=350	0.2	No	Off	
0	P2-11	CB11-SB18BA	7	3	SPACE LIBRE	ABB	ST203M-C16	63	ST203M-C-16	Fixe	TMF	16							
0	P2-12	CB12-SB18BA	21	2	ANTI-COND./ BLOCK HEATER GEN2 PORT ANTI-COND./ CHAUFFE MOTEUR GEN2 BÂBORD	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16							
0	P2-13		25	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0	P2-14		26	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0	P2-15		31	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0	P2-16		32	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							

NOTES:
1. THE HARBOR GENERATOR WILL BE INSTALLED LATER, SWITCHBOARD WILL BE READY TO CONNECT NEW HARBOR GENERATOR. HARBOR GENERATOR BREAKER WON'T BE INSTALLED, ONLY BREAKER BASE WILL BE FITTED.

Tel que Construit
As Built
2020-01-22, 18:25:52



240/120VAC MAIN SWITCHBOARD BREAKERS LIST (1/2)			
B0301-EDWG-SB		SB10GB	
DRAWING NUMBER	SHEET NO.	01	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	SB10GC
19-07-09	DATE YY-MM-DD	CONT. ON SHEET	REV.

Project: B0301-BLIST-SB		Courant C-C/S-C Rating: kA 1.5		Tension/Voltage: V 120		Ajustement Setting													
Équipement/Equipment: MSB2				Révision/Revision: 0		Temp.: °C 50													
Rev. Num.	Circuit	ID	Position	Nb Poles	Description	Manuf.	Numéro de Pièce Part Number	Frame	Code de Commande Ordering Code	Type	Déclancheur Élect. Trip Unit	Rating Plug	Long Délais Long Time L1	Délais Delay t1	Court Délais Short Time L2	Délais Delay t2	Temps Inv. Inv. Time	Instantanée Instantaneous L3	Ajustement Setting
DISTRIBUTION P3 STBD / TRIBORD																			
0	P3-1	CB01-SB18CA	1	2	NAVIGATION LIGHTS DISTRIBUTION PANEL L1 PAN DE DISTRIBUTION FEUX DE NAVIGATION L1	ABB	ST202M-C32	63	ST202M-C-32	Fixe	TMF	32	32AT						
0	P3-2	CB02-SB18CA	10	2	SPARE LIBRE	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P3-3	CB03-SB18CA	2	2	SPARE LIBRE	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P3-4	CB04-SB18CA	5	2	BLOCK HEATER PORT MAIN ENGINE CHAUFFE-MOTEUR MOTEUR PRINCIPAL BÂBORD	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P3-5	CB05-SB18CA	6	2	SEARCHLIGHT WH. TOP PORT LUMIERE RECHERCHE TIM. DESSUS BÂBORD	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P3-6	CB06-SB18CA	9	2	SEWAGE PUMP1 POMPE D'EGOUTS 1	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P3-7	CB07-SB18CA	A	3	LIGHT & POWER DISTRIBUTION PANEL L4 PAN DE DISTRIBUTION FEUX ET PUISSANCE L4	ABB	XT2N060-EkipLSI-SI-3P	125	XT2NU3060FFF000XXX	Fixe	EkipLSI	60	56.4AT	36	540A	0.05			12T 0.05
0	P3-8	CB08-SB18CA	13	2	PORT KOBELT SYSTEM SYSTÈME BÂBORD KOBELT	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P3-9	CB09-SB18CA	B	3	SPARE LIBRE	ABB	XT2N060-EkipLSI-SI-3P	125	XT2NU3060FFF000XXX	Fixe	EkipLSI	60	60AT						
0			14	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			17	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			18	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			21	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			22	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			C	-	SPACE ESPACE LIBRE	-	XT2	-	-	Fixe	-	-							
DISTRIBUTION P4 PORT / BÂBORD																			
0	P4-1	CB01-SB18DA	A	3	ACCOMMODATION DISTRIBUTION PANEL L3 PAN. DE DIST. ACCOMODATION L3	ABB	XT2N060-EkipLSI-SI-3P	125	XT2NU3060FFF000XXX	Fixe	EkipLSI	60	57.6AT	12	540A	0.1			2000A
0	P4-2	CB02-SB18DA	B	3	WHEELHOUSE DISTRIBUTION PANELS L2 & L6 BOITE A DISJONCTEUR TIMONERIE L2 & L6	ABB	XT2N060-EkipLSI-SI-3P	125	XT2NU3060FFF000XXX	Fixe	EkipLSI	60	57.6AT	12	540A	0.1			2000A
0	P4-3	CB03-SB18DA	1	2	SPARE LIBRE	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P4-4	CB04-SB18DA	2	2	SPARE LIBRE	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P4-5	CB05-SB18DA	5	2	BLOCK HEATER STBD MAIN ENGINE CHAUFFE-MOTEUR MOTEUR PRINCIPAL TRIBORD	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P4-6	CB06-SB18DA	6	2	SEARCHLIGHT WH. TOP STBD LUMIERE RECHERCHE TIM. DESSUS TRIBORD	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P4-7	CB07-SB18DA	9	2	SEWAGE PUMP2 POMPE D'EGOUTS 2	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P4-8	CB08-SB18DA	10	2	F.W. PRESSURE PUMP POMPE DE PRESSION D'EAU DOUCE	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0	P4-9	CB09-SB18DA	13	2	STBD KOBELT SYSTEM TRIBORD KOBELT SYSTEM	ABB	ST202M-C16	63	ST202M-C-16	Fixe	TMF	16	16AT						
0			14	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			17	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			18	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			21	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			22	-	SPACE ESPACE LIBRE	-	ST200M	-	-	Fixe	-	-							
0			C	-	SPACE ESPACE LIBRE	-	XT2	-	-	Fixe	-	-							

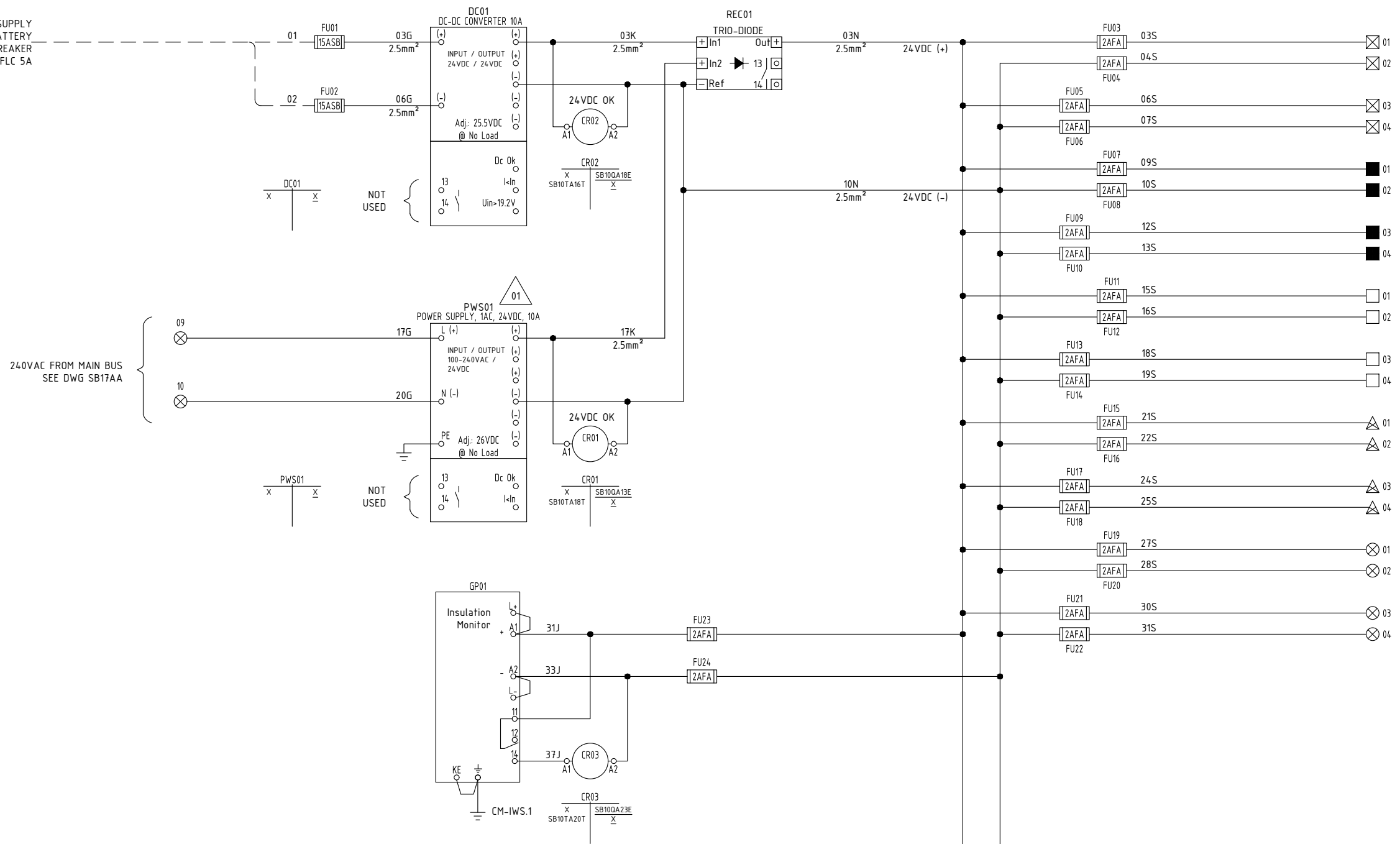
**Tel que Construit
As Built**
 2020-01-22, 18:25:52

TECHSOL Techsol Marine inc.
 4800, Rideau
 Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD BREAKERS LIST (2/2)			
B0301-EDWG-SB		SB10GC	
DRAWING NUMBER		SHEET NO.	
C.T DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB10HA	REV.
			00

EMERGENCY 24VDC SUPPLY FROM SHIP BATTERY 15A BREAKER FLC 5A

240VAC FROM MAIN BUS SEE DWG SB17AA



- 24VDC SUPPLY FOR GENERATOR 1 CONTROL DWG SB11BB
- 24VDC SUPPLY FOR GENERATOR 1 INDICATION DWG SB11BB
- 24VDC SUPPLY FOR GENERATOR 2 CONTROL DWG SB12BB
- 24VDC SUPPLY FOR GENERATOR 2 INDICATION DWG SB12BB
- 24VDC SUPPLY FOR HARBOR GENERATOR CONTROL DWG SB13BB
- 24VDC SUPPLY FOR HARBOR GENERATOR INDICATION DWG SB13BB
- 24VDC SUPPLY FOR SHORE POWER CONTROL DWG SB16BB
- 24VDC SUPPLY FOR SHORE POWER INDICATION DWG SB16BB
- 24VDC SUPPLY FOR MISCELLANEOUS CONTROL DWG SB10PA, SB10SB, SB11AA, SB17AA, SB18AB, SB18BB, SB18CA, SB18DA, SB19AA
- 24VDC SUPPLY FOR MISCELLANEOUS INDICATION DWG SB10QA

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

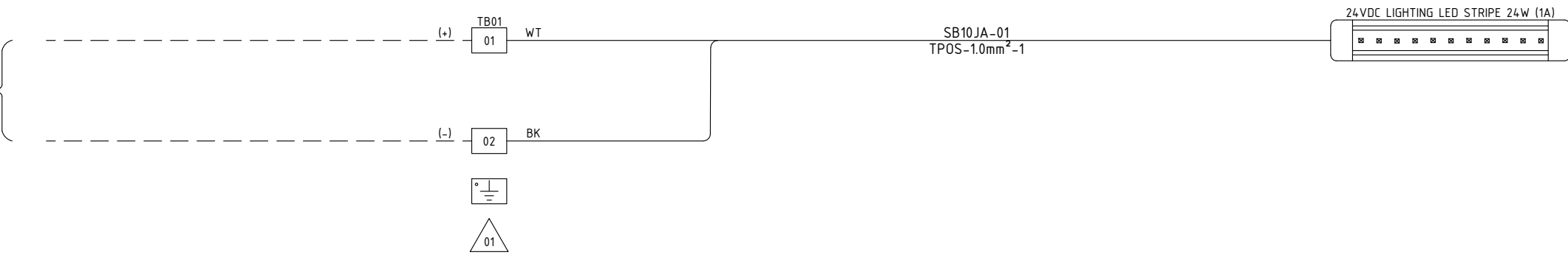
- ☒ TB01-SB11TA (DWG SB11TA)
- ☒ TB01-SB17TA (DWG SB17TA)
- TB01-SB12TA (DWG SB12TA)
- ▲ TB01-SB16TA (DWG SB16TA)
- TB01-SB13TA (DWG SB13TA)

Tel que Construit
 As Built
 2020-01-22, 18:25:52



240/120VAC MAIN SWITCHBOARD			
24VDC SUPPLY			
B0301-EDWG-SB		SB10HA	
DRAWING NUMBER	SHEET NO.	01	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
SB10JA		CONT. ON SHEET	

24VDC SUPPLY
FROM SHIP
(CUSTOMER SUPPLY)

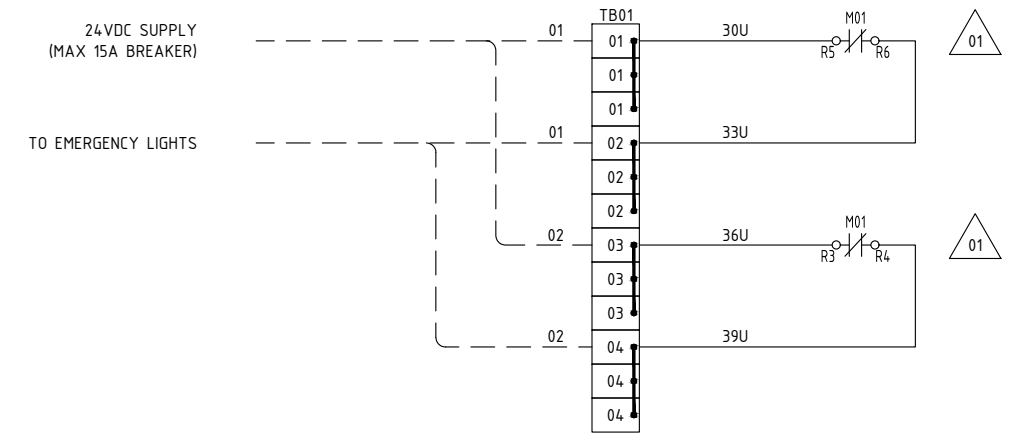
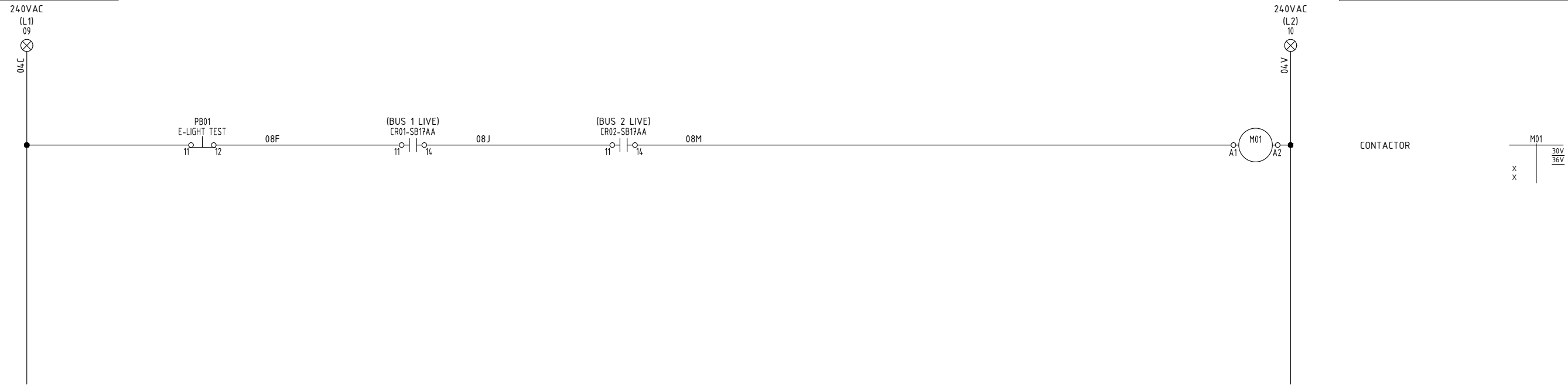


- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:53

TECHSOL
Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD 24VDC SWITCHBOARD LIGHTING			
DRAWING NUMBER B0301-EDWG-SB		SB10JA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET			SB10KA
			01
			REV.



⊗ TB01-SB17TA (DWG SB17TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:53



240/120VAC MAIN SWITCHBOARD			
CONTACTOR FOR EMERGENCY LIGHTING			
B0301-EDWG-SB		SB10KA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB10PA	01
REV.			

24VDC (+)
01
04B

24VDC (-)
02
M70

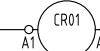
PM01-SB11AA

PREF. TRIP 1

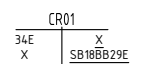


G1 90% LOADED 10 SEC

07L



LOAD SHEDDING STAGE 1

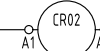


PREF. TRIP 2

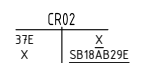


G1 95% LOADED 5 SEC

10L



LOAD SHEDDING STAGE 2



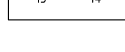
PM01-SB12AA

PREF. TRIP 1



G2 90% LOADED 10 SEC

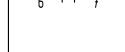
PREF. TRIP 2



G2 95% LOADED 5 SEC

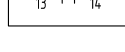
PM01-SB13AA

PREF. TRIP 1



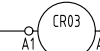
G3 90% LOADED 10 SEC

PREF. TRIP 2

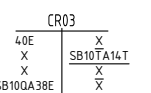


G3 95% LOADED 5 SEC

34L



LOAD SHEDDING STAGE 1 OR 2 ACTIVATED



4.0F

PB01
LOAD SHED. RESET

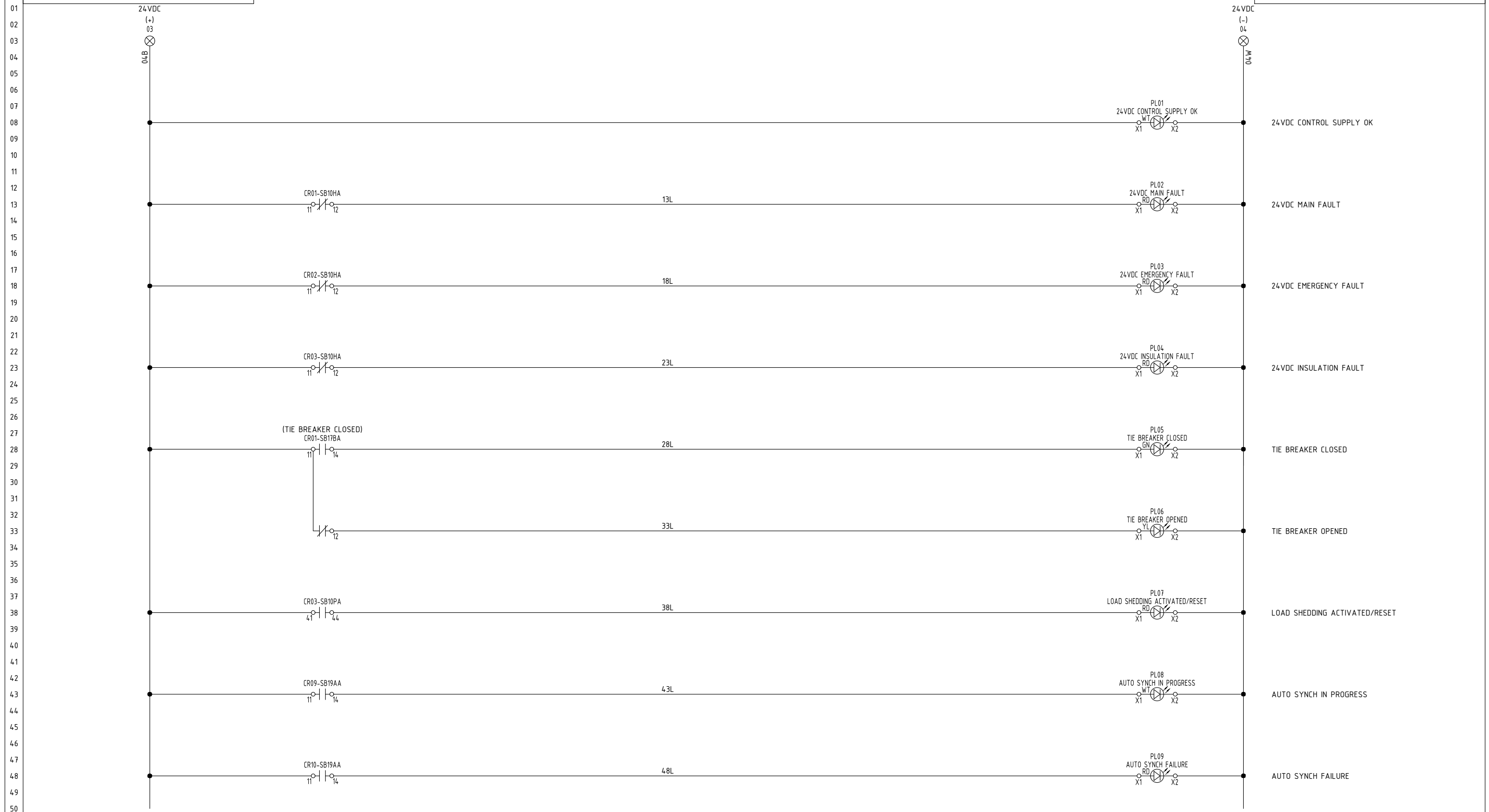
TB01-SB17TA
(DWG SB17TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:53



240/120VAC MAIN SWITCHBOARD			
LOAD MANAGEMENT			
LOAD SHEDDING			
B0301-EDWG-SB		SB10PA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
SB10QA		CONT. ON SHEET	
			00
			REV.



(TIE BREAKER CLOSED)

⊗ TB01-SB17TA (DWG SB17TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:53



240/120VAC MAIN SWITCHBOARD MISCELLANEOUS INDICATION			
B0301-EDWG-SB		SB10QA	
DRAWING NUMBER	SHEET NO.	00	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	SB10SA CONT. ON SHEET
DATE YY-MM-DD	19-07-09		
REV.			

SOURCE/BREAKER SELECTION						
SS01	OFF	G1	G2	HG	SP	REFERENCE
1-2		X				16G
3-4		X				18G
5-6			X			20G
7-8			X			22G
9-10				X		24G
11-12				X		26G
13-14					X	28G
15-16					X	30G
17-18		X				SB11BA15D
19-20			X			SB12BA15D
21-22				X		SB13BA15D
23-24					X	SB16BA15D
25-26		X				SB19AA09H
27-28			X			SB19AA11H
29-30				X		SB19AA12H
31-32					X	SB19AA14H

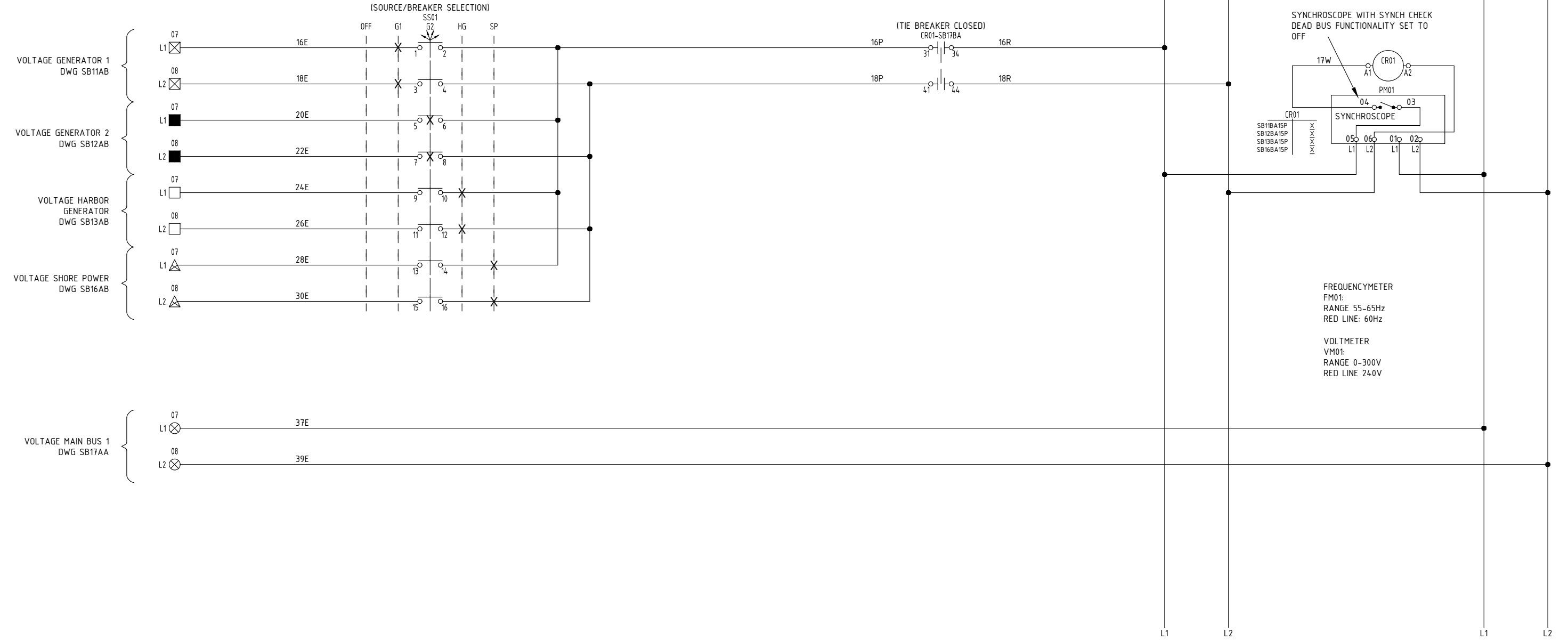
ON6PBS31689

CONTROL MODE SELECTION			
SS03	AUTO	MANUAL	REFERENCE
1-2		X	SB11BA15G
3-4		X	SB12BA15G
5-6		X	SB13BA15G
7-8		X	SB16BA15G
9-10	X		SB19AA06E
11-12	X		SPARE

ON6PBS31690

MANUAL MODE OPEN/CLOSE BREAKER				
SS02	OPEN	0	CLOSE	REFERENCE
1-2	X			SB11BA20K
3-4			X	SB11BA15K
5-6	X			SB12BA20K
7-8			X	SB12BA15K
9-10	X			SB13BA20K
11-12			X	SB13BA15K
13-14	X			SB16BA20K
15-16			X	SB16BA15K
17-18	X			SPARE
19-20			X	SPARE

ONURR5PB
ONF101/TEXT21705

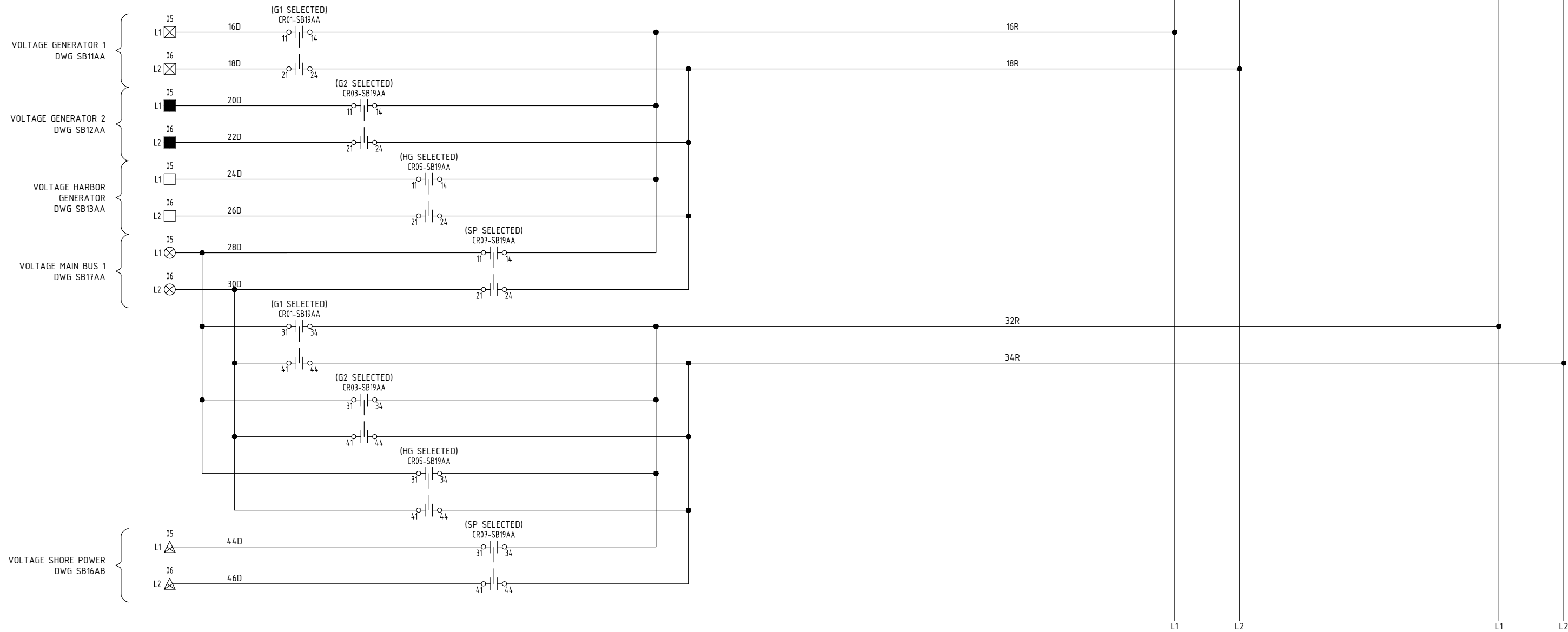
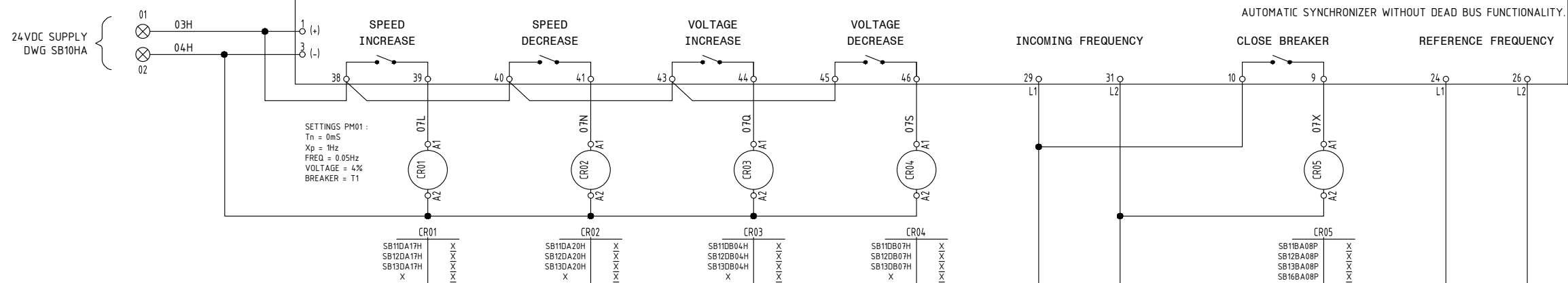


- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
- ☒ TB01-SB11TA (DWG SB11TA)
 - ☐ TB01-SB13TA (DWG SB13TA)
 - TB01-SB12TA (DWG SB12TA)
 - ⊗ TB01-SB17TA (DWG SB17TA)
 - △ TB01-SB16TA (DWG SB16TA)

**Tel que Construit
As Built**
 2020-01-22, 18:25:53



240/120VAC MAIN SWITCHBOARD MANUAL SYNCHRONIZATION			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB10SA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB10SB	00
		REV.	



NOTES:

- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

- TB01-SB11TA (DWG SB11TA)
- TB01-SB12TA (DWG SB12TA)
- TB01-SB16TA (DWG SB16TA)
- TB01-SB13TA (DWG SB13TA)
- TB01-SB17TA (DWG SB17TA)

Tel que Construit
As Built
2020-01-22, 18:25:53



Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD
AUTOMATIC SYNCHRONIZATION

DRAWING NUMBER		SHEET NO.		00
B0301-EDWG-SB		SB10SB		
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD	SB10TA CONT. ON SHEET
			REV.	

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TO ALARM ANNUNCIATOR

CUSTOMER REMOTE INDICATION

TB01

- 01
- 02
- 03 06K
- 04 07K
- 05 08K
- 06 09K
- 07 10K
- 08 11K
- 09 12K
- 10 13K
- 11 14K
- 12 15K
- 13 16K
- 14 17K
- 15 18K
- 16 19K
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SPARE

GP01-SB17AA

GP02-SB17AA

GP01-SB18DA

GP01-SB18CA

CR03-SB10PA

CR02-SB10HA

CR01-SB10HA

CR03-SB10HA

CR01-SB11BB

CR01-SB12BB

CR01-SB13BB

CR01-SB16BA

CR01-SB16BB

CR01-SB16BB

CR02-SB11BB

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CR01-SB17BA

CR01-SB17BA

CR01-SB17BA

CR01-SB16BA 32S

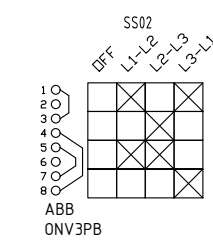
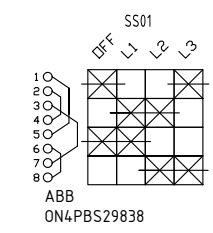
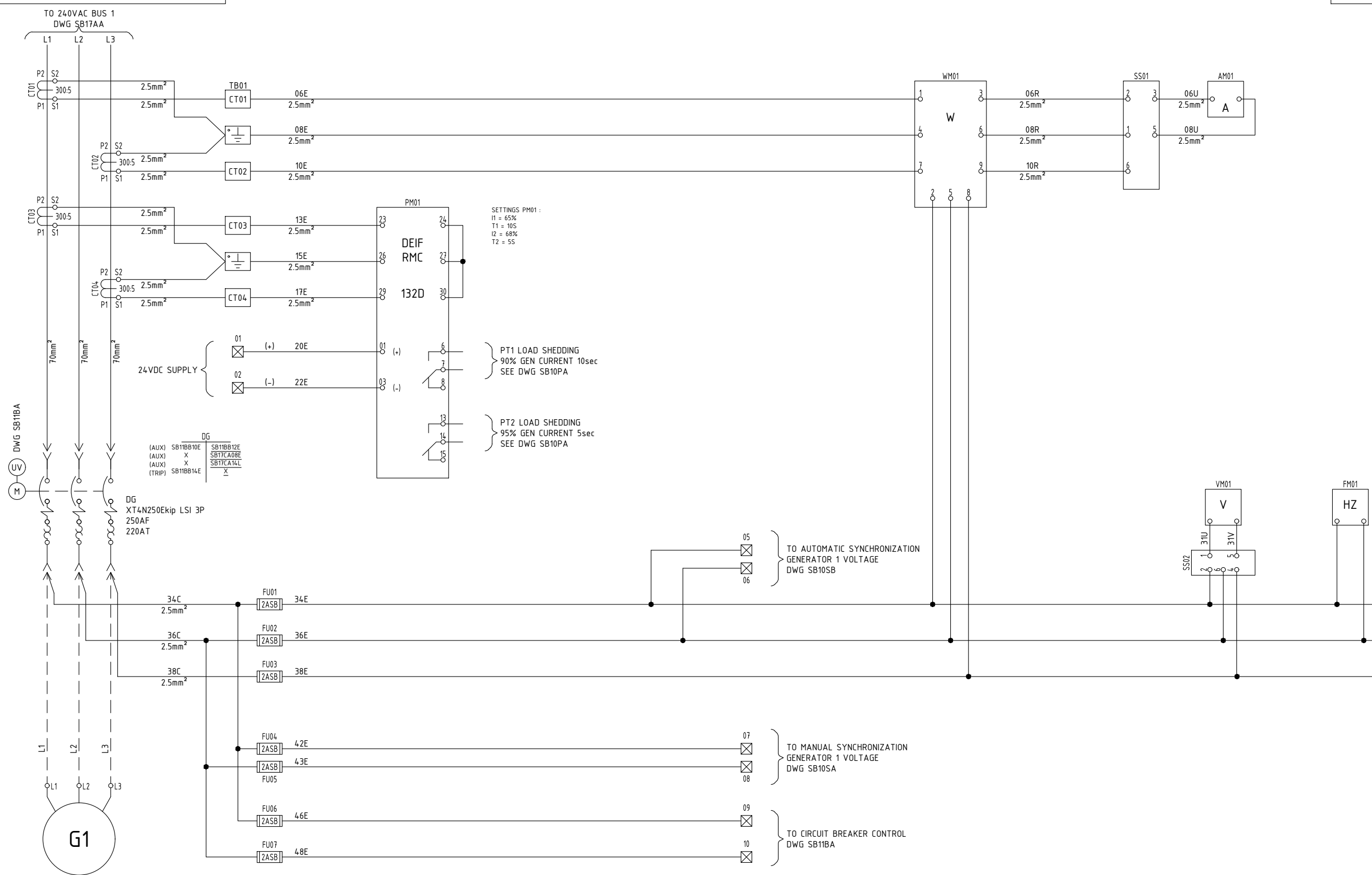
- SPARE
- BUS 1 240VAC INSULATION OK
- BUS 2 240VAC INSULATION OK
- BUS 1 120VAC INSULATION OK
- BUS 2 120VAC INSULATION OK
- LOAD SHEDDING NOT ACTIVATED
- 24VDC EMERGENCY OK
- 24VDC MAIN OK
- 24VDC INSULATION OK
- G1 POWER AVAILABLE
- G2 POWER AVAILABLE
- HG POWER AVAILABLE
- SHORE POWER AVAILABLE
- SHORE PHASE SEQ OK
- SHORE PHASE SEQ WRONG
- G1 BREAKER CLOSED
- G2 BREAKER CLOSED
- HG BREAKER CLOSED
- SHORE BREAKER CLOSED
- TIE BREAKER CLOSED

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:53



240/120VAC MAIN SWITCHBOARD			
CUSTOMER TERMINAL BLOCK FOR REMOTE INDICATION			
B0301-EDWG-SB		SB10TA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
		SB11AA CONT. ON SHEET	
			00 REV.



SETTINGS PM01 :
 I1 = 65%
 T1 = 10S
 I2 = 68%
 T2 = 5S

PT1 LOAD SHEDDING
 90% GEN CURRENT 10sec
 SEE DWG SB10PA

PT2 LOAD SHEDDING
 95% GEN CURRENT 5sec
 SEE DWG SB10PA

WATTMETER WM01:
 RANGE 0-100kW
 RED LINE 72kW

AMMETER AM01:
 RANGE 0-300A
 RED LINE 216A

VOLTMETER VM01:
 RANGE 0-300V
 RED LINE 240V

FREQUENCYMETER FM01:
 RANGE 55-65Hz
 RED LINE 60Hz

DWG SB11BA

DG
 (AUX) SB11BB10E X SB11BB12E
 (AUX) SB11BB10E X SB17CA08E
 (TRIP) SB11BB14E X SB17CA14L X

DG
 XT4N250Ekip LSI 3P
 250AF
 220AT

GENERATOR 1
 240VAC, 3φ, 60Hz,
 72kW, 0.8PF
 FLC 216A

☒ TB01-SB11TA
 (DWG SB11TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
 As Built
 2020-01-22, 18:25:54



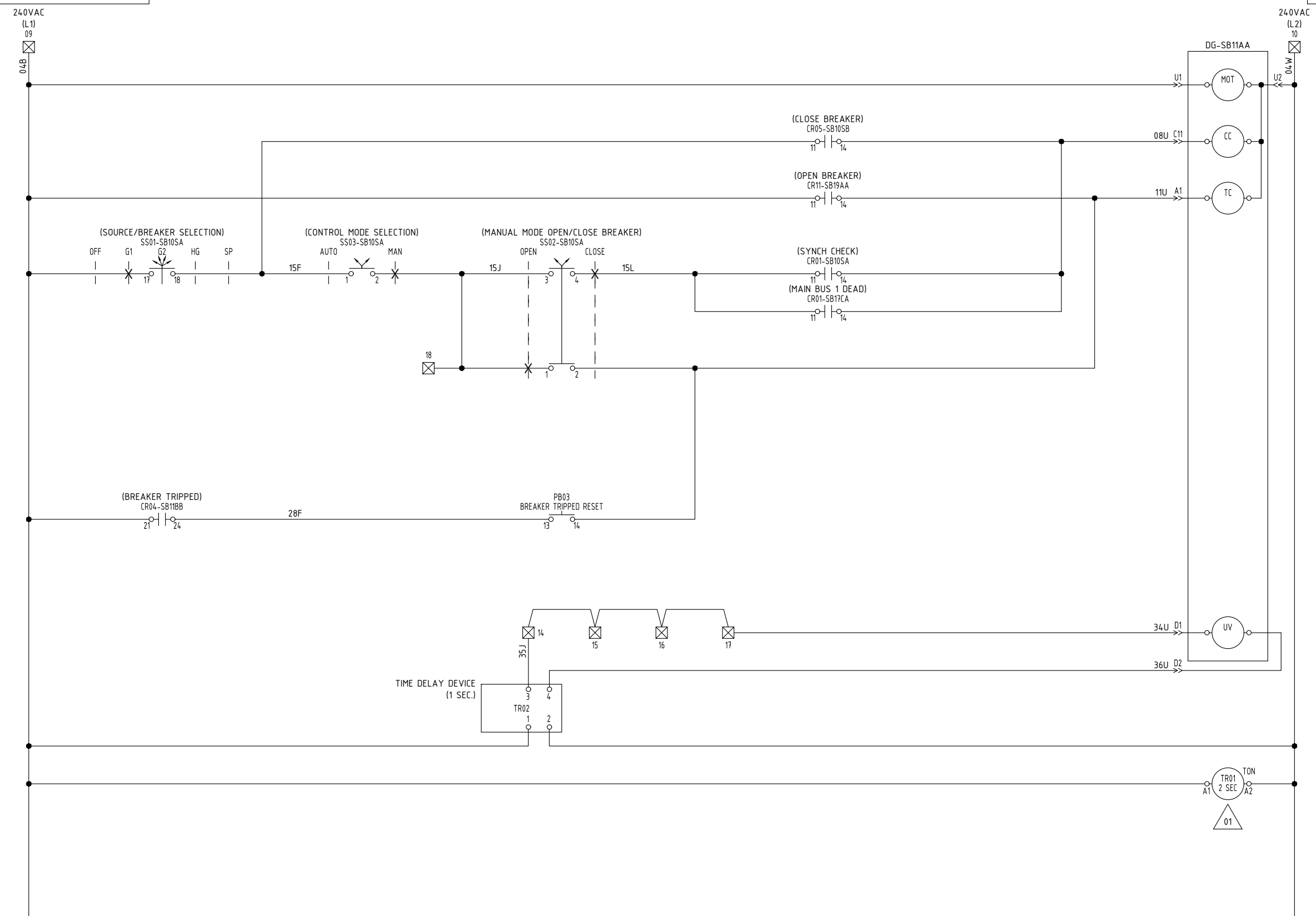
240/120VAC MAIN SWITCHBOARD GENERATOR 1 MEASURING AND INDICATION			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB11AA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB11BA	00 REV.

BREAKER SUPPLY

AUTOMATIC OPERATION

MANUAL OPERATION

PROTECTION



MOTOR OPERATED SUPPLY

CLOSE BREAKER

OPEN BREAKER

UNDERVOLTAGE RELEASE

POWER AVAILABLE

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

☒ TB01-SB11TA (DWG SB11TA)

Tel que Construit
As Built
2020-01-22, 18:25:54

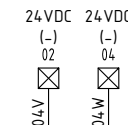
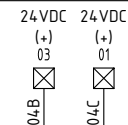


240/120VAC MAIN SWITCHBOARD GENERATOR 1 CIRCUIT BREAKER CONTROL (1/2)			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB11BA	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB11BB	01 REV.

2019/12/20

INTERPOSING RELAYS

LOCAL INDICATION



(POWER AVAILABLE)
TR01-SB11BA

(BREAKER CLOSED)
DG-SB11AA

(BREAKER OPENED)
DG-SB11AA

(BREAKER TRIPPED)
DG-SB11AA

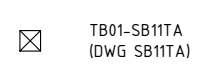
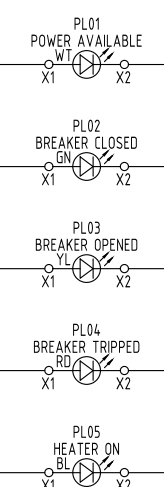
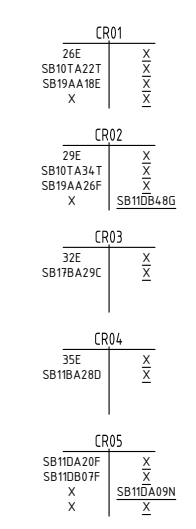
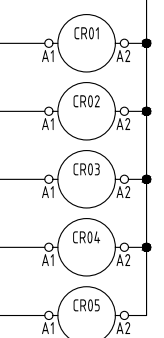
(POWER AVAILABLE)
CR01

(BREAKER CLOSED)
CR02

(BREAKER OPENED)
CR03

(BREAKER TRIPPED)
CR04

(HEATER ON)
M01-SB11DB

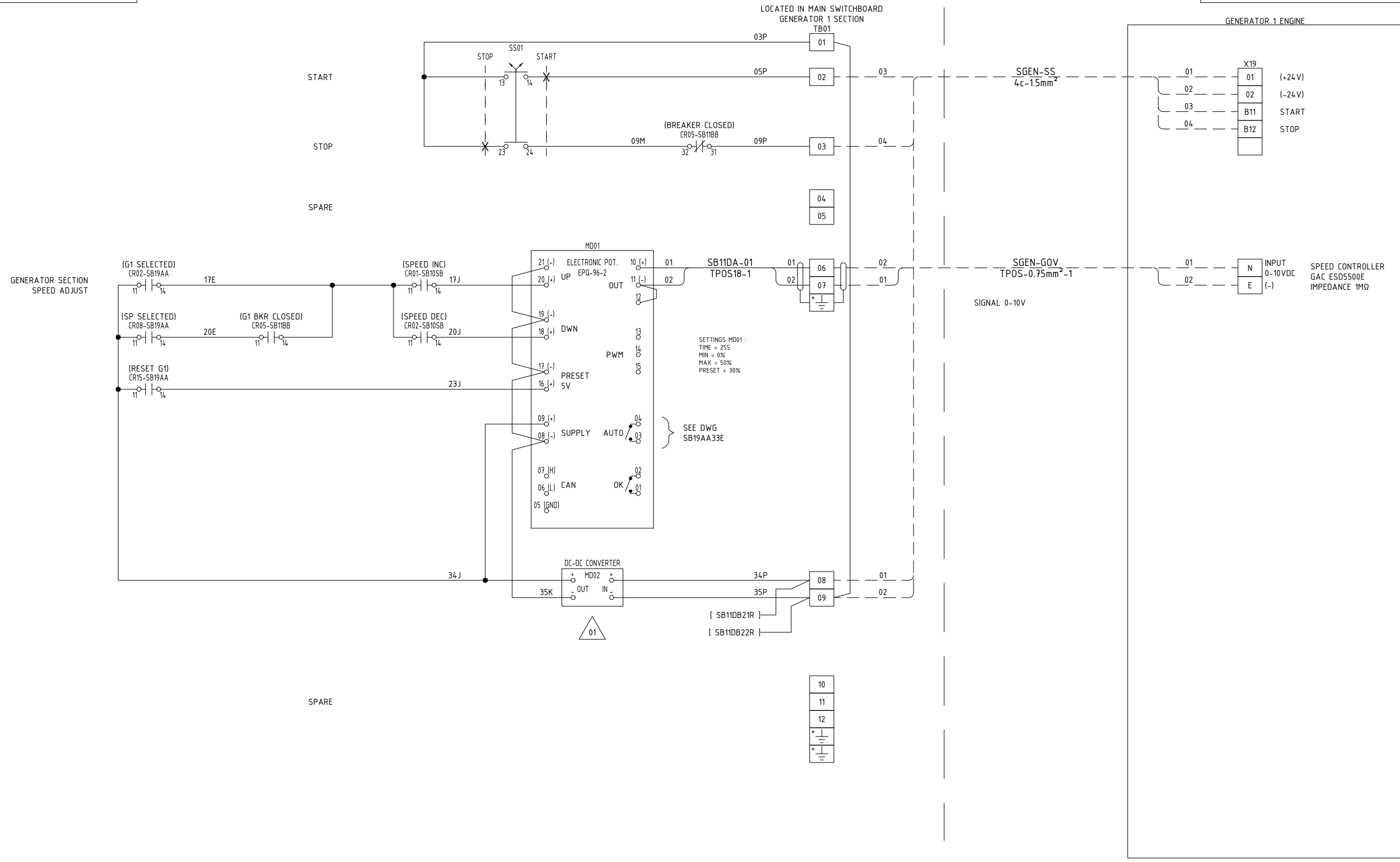


- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

**Tel que Construit
As Built**
 2020-01-22, 18:25:54



240/120VAC MAIN SWITCHBOARD			
GENERATOR 1			
CIRCUIT BREAKER CONTROL (2/2)			
B0301-EDWG-SB		SB11BB	
DRAWING NUMBER	SHEET NO.	00	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB11DA	
REV.		REV.	



NOTES:

- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:54

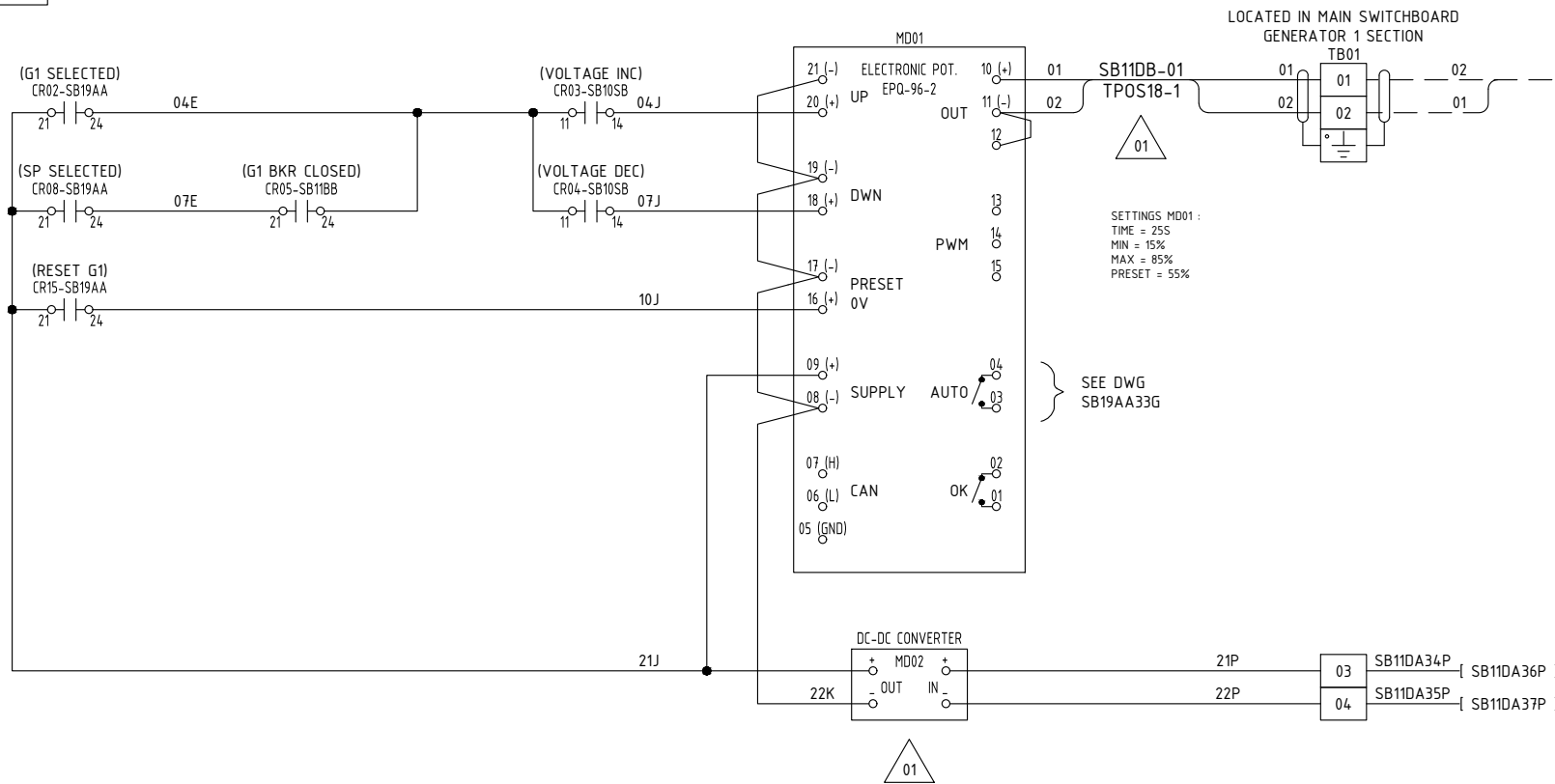


Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD
GENERATOR 1
GENERATOR CONTROL (1/2)

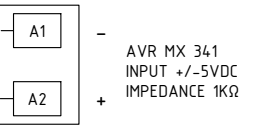
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB11DA		01 REV.
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD	
CONT. ON SHEET			SB11DB	

GENERATOR SECTION
VOLTAGE ADJUST

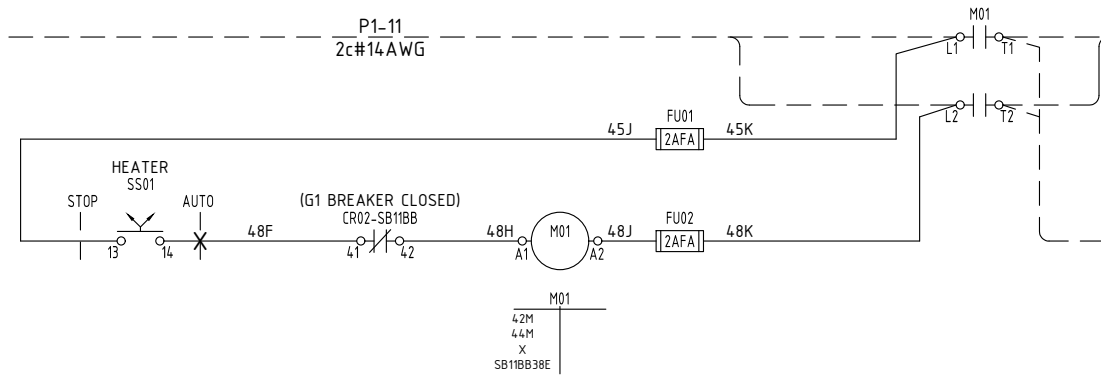


SGEN-AVR
TPOS-0.75mm²-1
(SIGNAL +/- 5V)

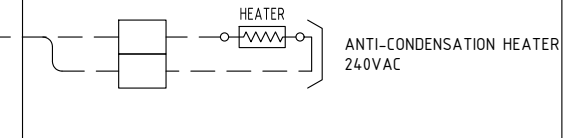
GENERATOR 1
ALTERNATOR



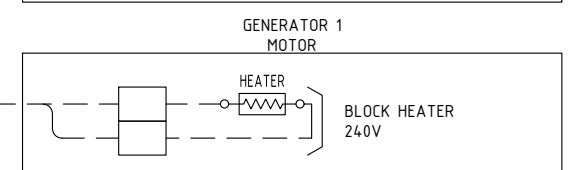
240VAC EXTERNAL
SUPPLY
P1-11



SGEN-ACH
2c#14AWG



SGEN-BH
2c#14AWG



NOTES:

- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:54

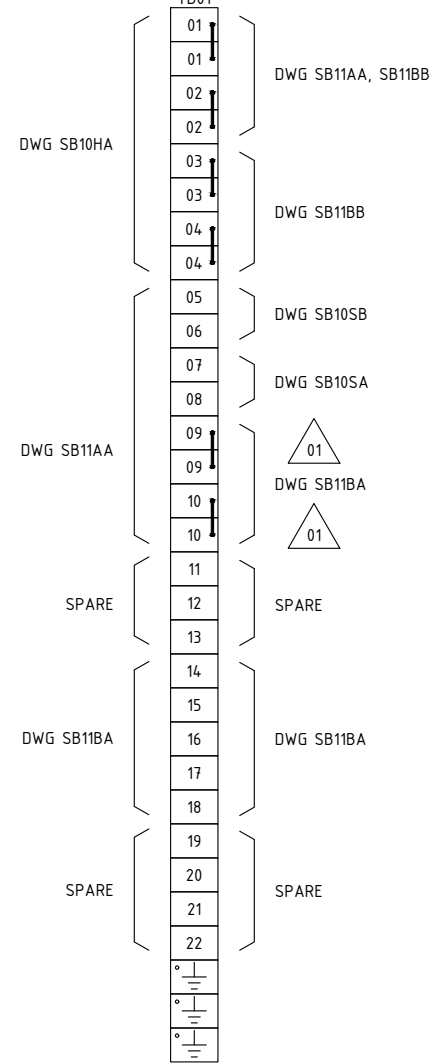


Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD
GENERATOR 1
GENERATOR CONTROL (2/2)

DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB11DB		01
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD	
CONT. ON SHEET			SB11TA	REV.

LOCATED IN
GENERATOR 1 SECTION
TB01



NOTES:

- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

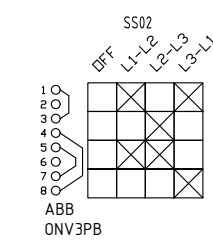
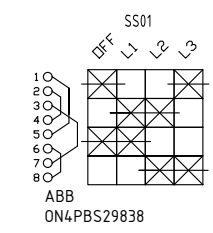
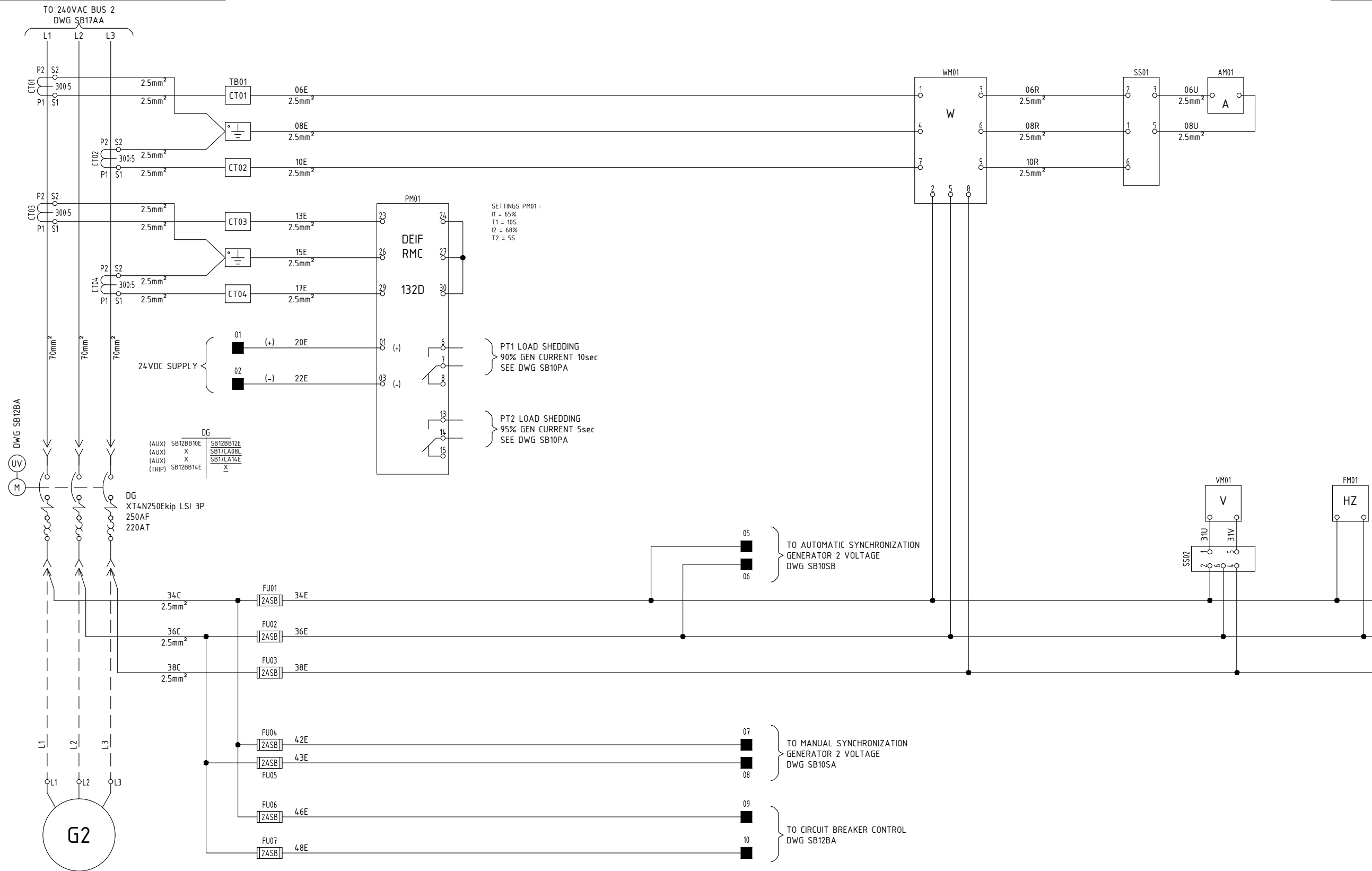
Tel que Construit
As Built
2020-01-22, 18:25:54



Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD
GENERATOR 1
TERMINAL BLOCK

DRAWING NUMBER		SHEET NO.	
B0301-EDWG-SB		SB11TA	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
		CONT. ON SHEET	SB12AA
			01 REV.



SETTINGS PM01 :
 I1 = 65%
 T1 = 10S
 I2 = 68%
 T2 = 5S

PT1 LOAD SHEDDING
 90% GEN CURRENT 10sec
 SEE DWG SB10PA

PT2 LOAD SHEDDING
 95% GEN CURRENT 5sec
 SEE DWG SB10PA

WATTMETER WM01:
 RANGE 0-100kW
 RED LINE 72kW

AMMETER AM01:
 RANGE 0-300A
 RED LINE 216A

VOLTMETER VM01:
 RANGE 0-300V
 RED LINE 240V

FREQUENCYMETER FM01:
 RANGE 55-65Hz
 RED LINE 60Hz

GENERATOR 2
 240VAC, 3φ, 60Hz,
 72kW, 0.8PF
 FLC 216A

■ TB01-SB12TA
 (DWG SB12TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
 As Built
 2020-01-22, 18:25:54



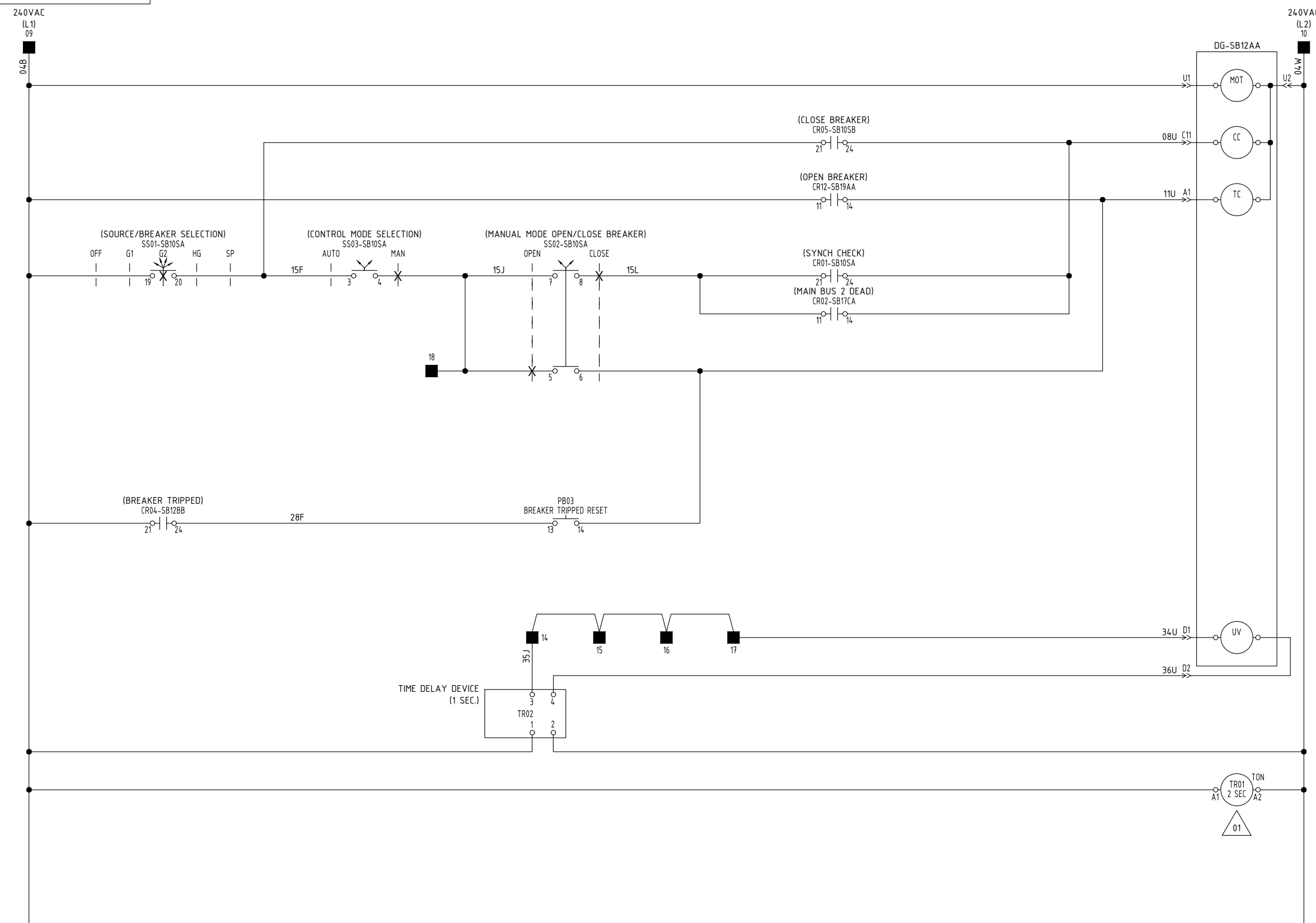
240/120VAC MAIN SWITCHBOARD			
GENERATOR 2			
MEASURING AND INDICATION			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB12AA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB12BA	00
REV.			

BREAKER SUPPLY

AUTOMATIC OPERATION

MANUAL OPERATION

PROTECTION



- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

TB01-SB12TA (DWG SB12TA)

Tel que Construit
As Built
2020-01-22, 18:25:55



240/120VAC MAIN SWITCHBOARD GENERATOR 2 CIRCUIT BREAKER CONTROL (1/2)			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB12BA	
C.T. DRAWN JPD	CHKD CHKD	JS.R. APPRV. 19-07-09	DATE YY-MM-DD 19-07-09
CONT. ON SHEET SB12BB		REV. 01	

2019/12/20

INTERPOSING RELAYS

LOCAL INDICATION

24VDC (+) 03
04B

24VDC (+) 01
04C

24VDC (-) 02
V70

24VDC (-) 04
M70

(POWER AVAILABLE)
TR01-SB12BA

(BREAKER CLOSED)
DG-SB12AA

(BREAKER OPENED)
DG-SB12AA

(BREAKER TRIPPED)
DG-SB12AA

(POWER AVAILABLE)
CR01

(BREAKER CLOSED)
CR02

(BREAKER OPENED)
CR03

(BREAKER TRIPPED)
CR04

(HEATER ON)
M01-SB12DB

08L

10L

12L

14L

26L

29L

32L

35L

38L

CR01

CR02

CR03

CR04

CR05

PL01
POWER AVAILABLE

PL02
BREAKER CLOSED

PL03
BREAKER OPENED

PL04
BREAKER TRIPPED

PL05
HEATER ON

POWER AVAILABLE

BREAKER CLOSED

BREAKER OPENED

BREAKER TRIPPED

POWER AVAILABLE

BREAKER CLOSED

BREAKER OPENED

BREAKER TRIPPED

BREAKER TRIPPED

BREAKER TRIPPED

HEATER ON

CR01

CR02

CR03

CR04

CR05

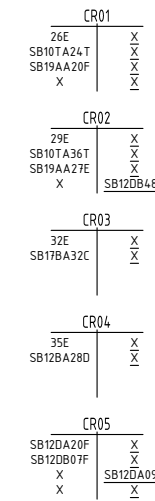
PL01

PL02

PL03

PL04

PL05



■ TB01-SB12TA
(DWG SB12TA)

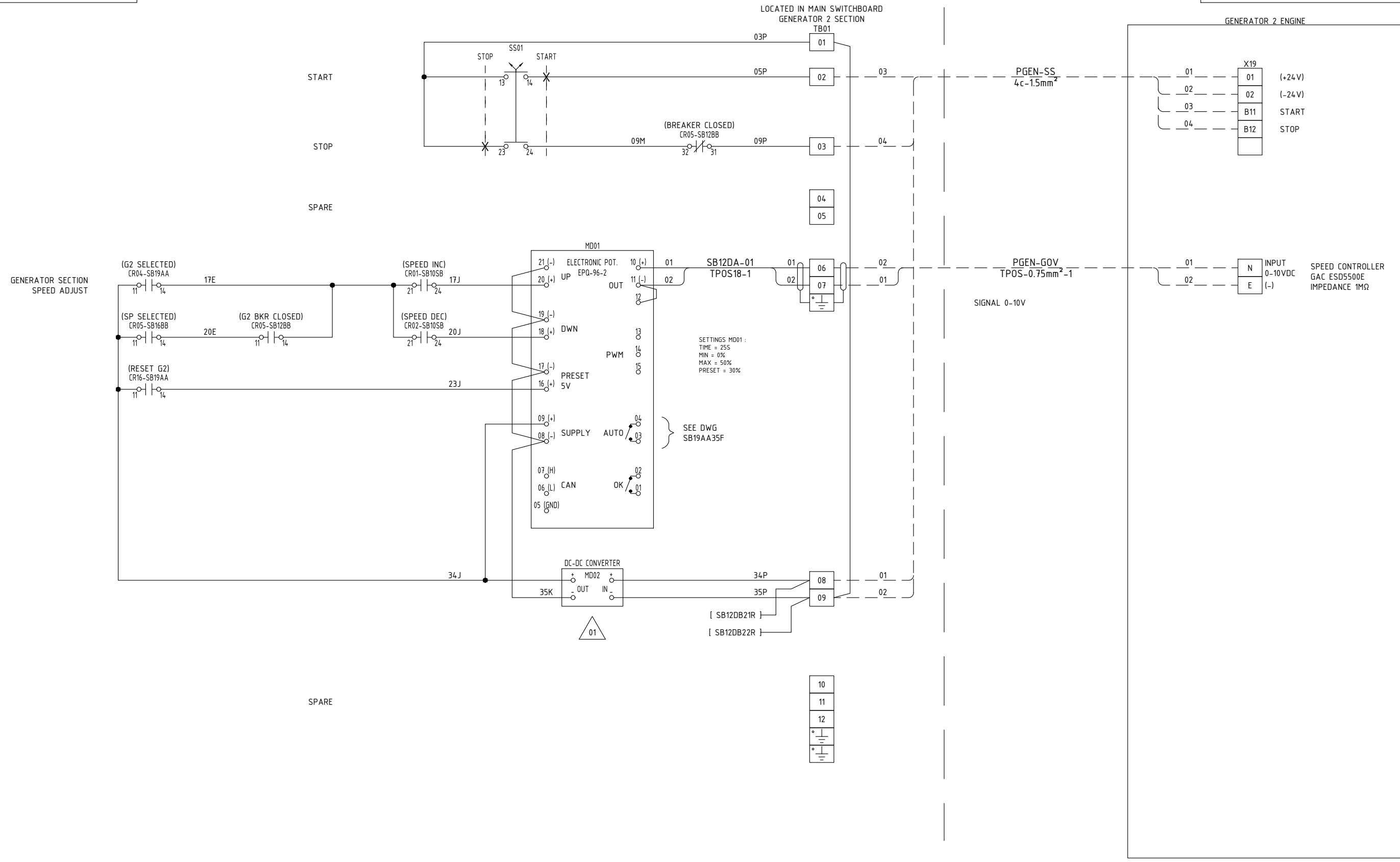
NOTES:

- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
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Tel que Construit
As Built
2020-01-22, 18:25:55

Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD			
GENERATOR 2			
CIRCUIT BREAKER CONTROL (2/2)			
B0301-EDWG-SB		SB12BB	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB12DA	
			00
			REV.



- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

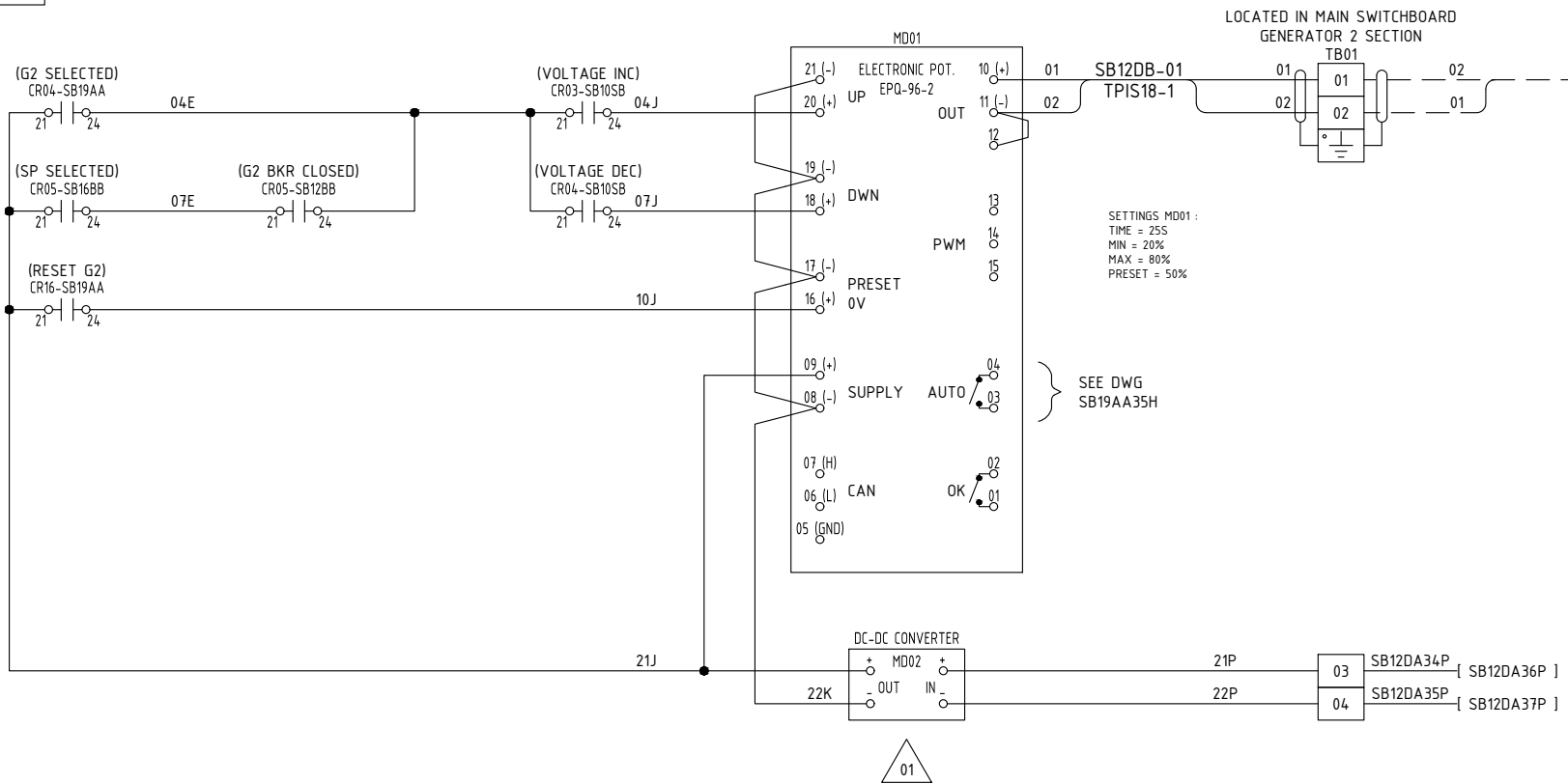
Tel que Construit
As Built
2020-01-22, 18:25:55



Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

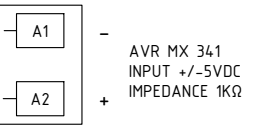
240/120VAC MAIN SWITCHBOARD GENERATOR 2 GENERATOR CONTROL (1/2)			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB12DA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	DATE YY-MM-DD 19-07-09
CONT. ON SHEET		SB12DB	REV. 01

GENERATOR SECTION
VOLTAGE ADJUST

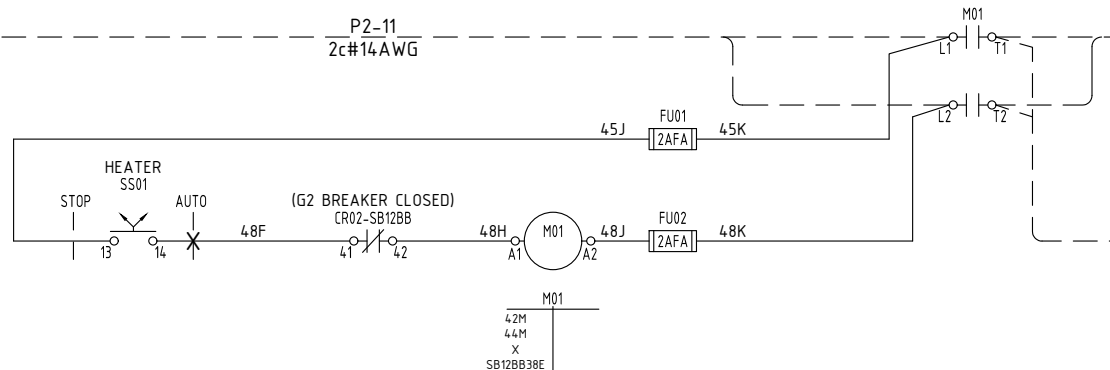


(SIGNAL +/- 5V)

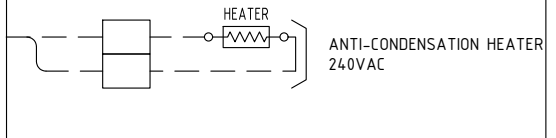
GENERATOR 2
ALTERNATOR



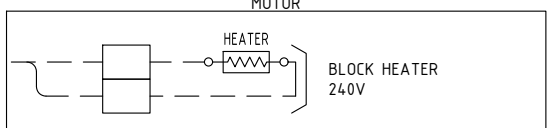
240VAC EXTERNAL
SUPPLY
P2-11



PGEN-ACH
2c#14AWG



PGEN-BH
2c#14AWG



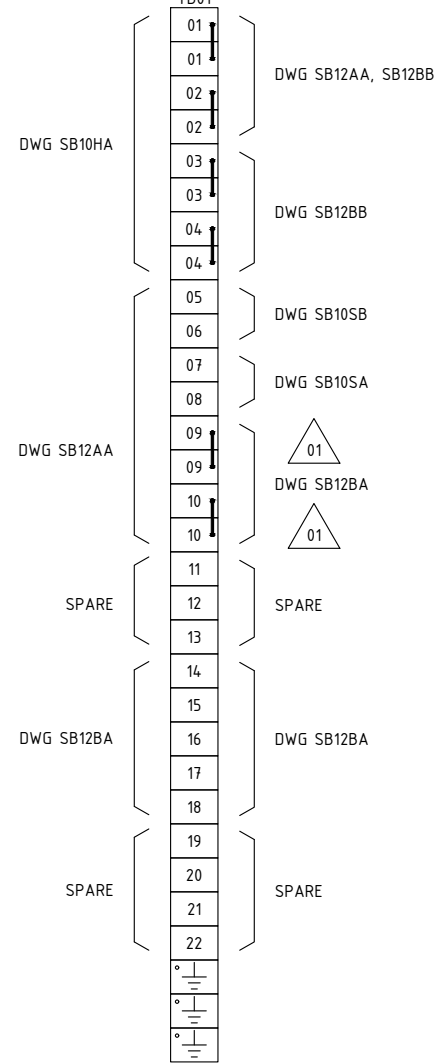
- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:55



240/120VAC MAIN SWITCHBOARD GENERATOR 2 GENERATOR CONTROL (2/2)			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB12DB	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB12TA	01 REV.

LOCATED IN
GENERATOR 2 SECTION
TB01



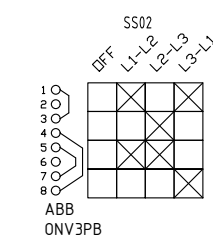
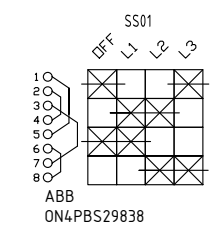
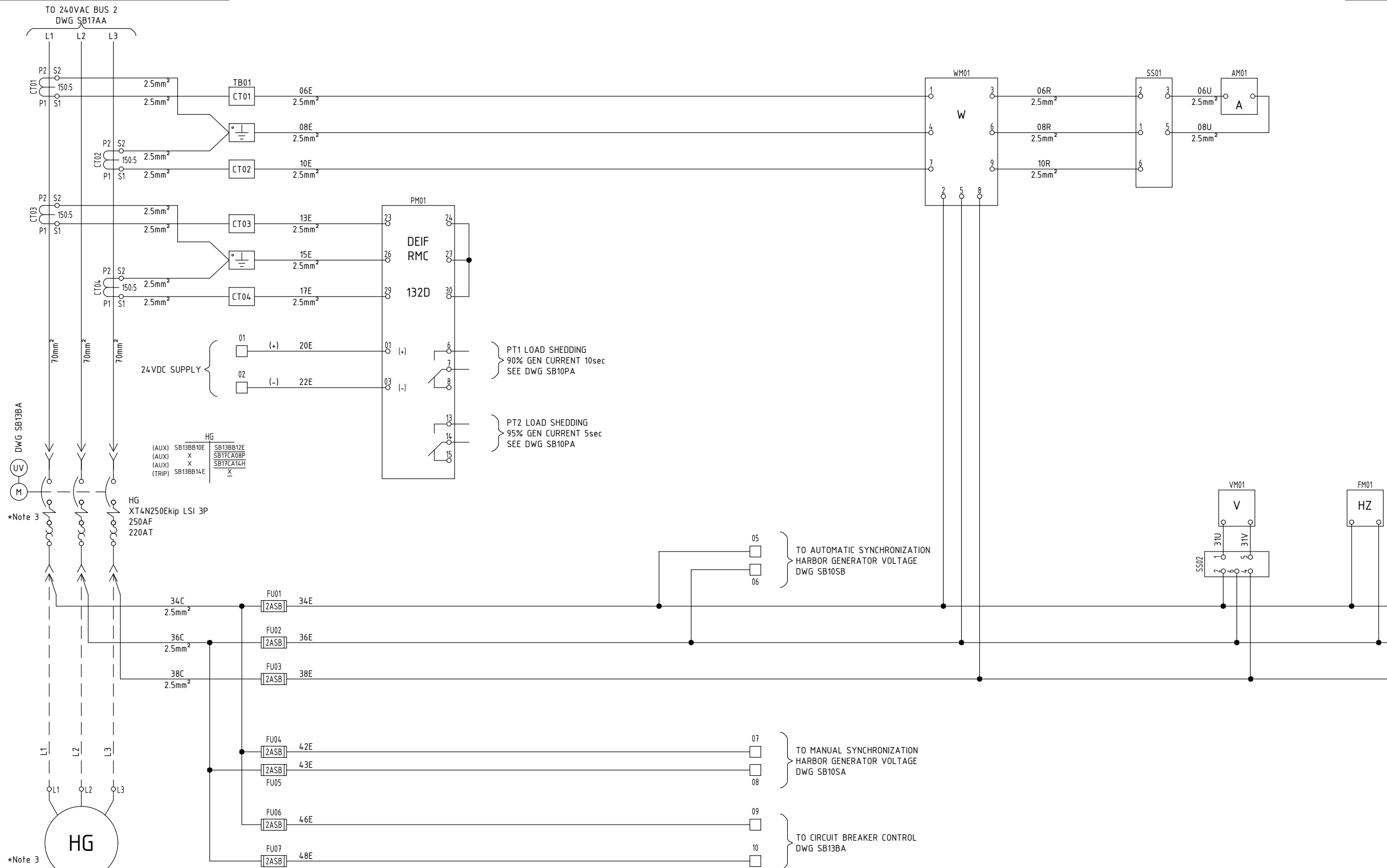
NOTES:

1. INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
2. EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

**Tel que Construit
As Built**
 2020-01-22, 18:25:55

Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD			
GENERATOR 2			
TERMINAL BLOCK			
B0301-EDWG-SB		SB12TA	
DRAWING NUMBER	SHEET NO.	CONT. ON SHEET	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
			01
			REV.



WATTMETER WM01:
RANGE 0-50kW
RED LINE 35kW

AMMETER AM01:
RANGE 0-150A
RED LINE 105A

VOLTMETER VM01:
RANGE 0-300V
RED LINE 240V

FREQUENCYMETER FM01:
RANGE 55-65Hz
RED LINE 60Hz

NOTES:
1. INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
2. EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
3. THE HARBOR GENERATOR WILL BE INSTALLED LATER, SWITCHBOARD WILL BE READY TO CONNECT NEW HARBOR GENERATOR. HARBOR GENERATOR BREAKER WON'T BE INSTALLED, ONLY BREAKER BASE WILL BE FITTED.

□ TB01-SB13TA (DWG SB13TA)

Tel que Construit
As Built
2020-01-22, 18:25:55



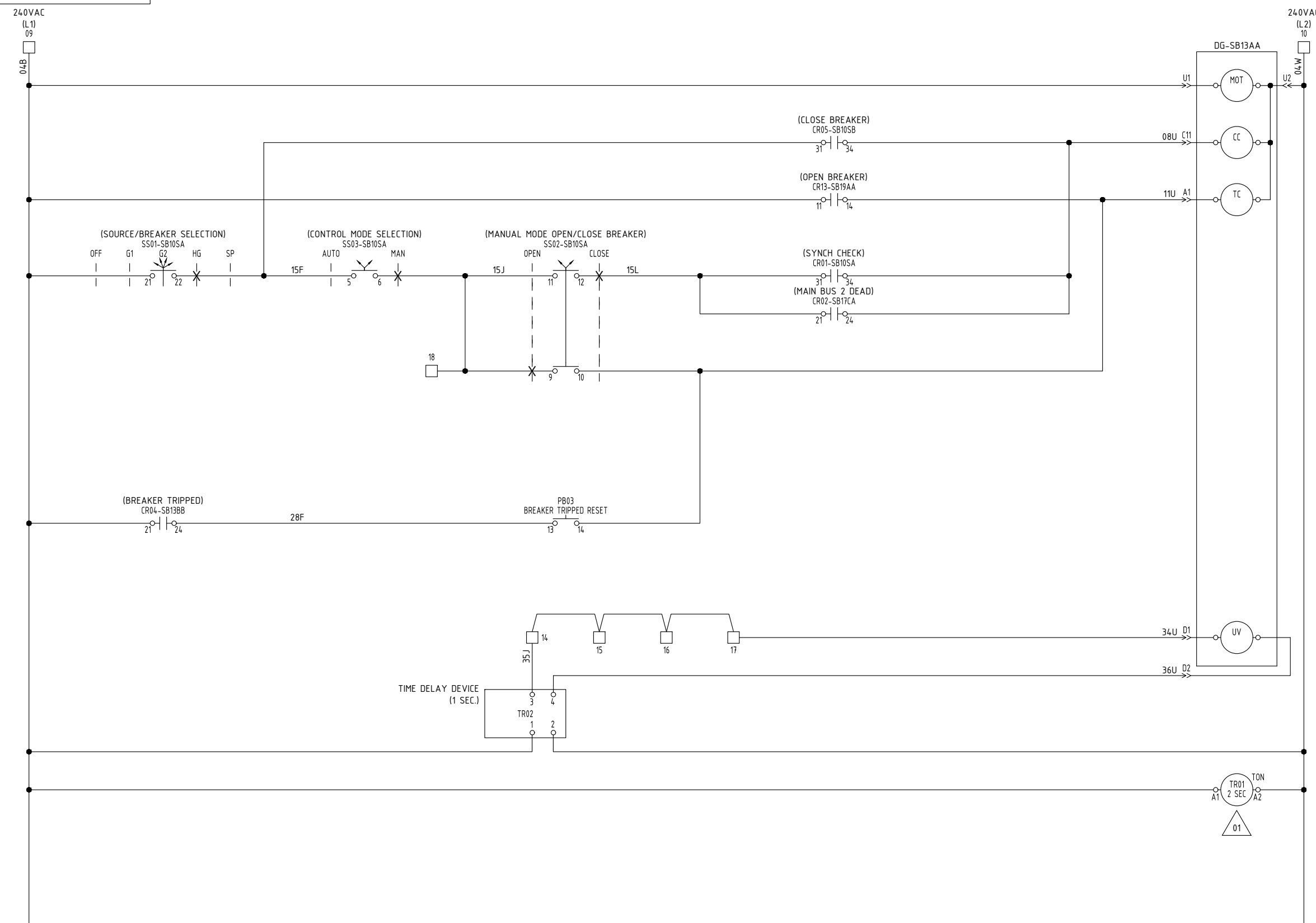
240/120VAC MAIN SWITCHBOARD			
HARBOR GENERATOR			
MEASURING AND INDICATION			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB13AA	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB13BA	REV. 00

BREAKER SUPPLY

AUTOMATIC OPERATION

MANUAL OPERATION

PROTECTION



□ TB01-SB13TA (DWG SB13TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

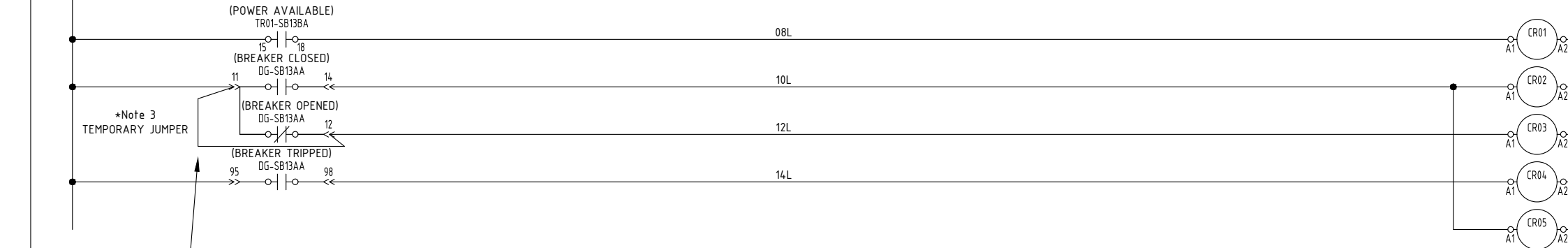
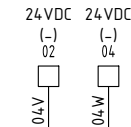
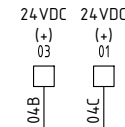
Tel que Construit
As Built
2020-01-22, 18:25:55



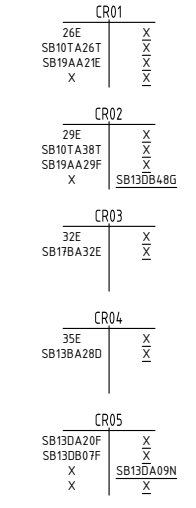
240/120VAC MAIN SWITCHBOARD HARBOR GENERATOR CIRCUIT BREAKER CONTROL (1/2)			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB13BA	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB13BB	
			01 REV.

INTERPOSING RELAYS

LOCAL INDICATION



*Note 3
TEMPORARY JUMPER
TO BE REMOVED AT THE
INSTALLATION OF THE
HARBOR GENERATOR
BREAKER



NOTES:

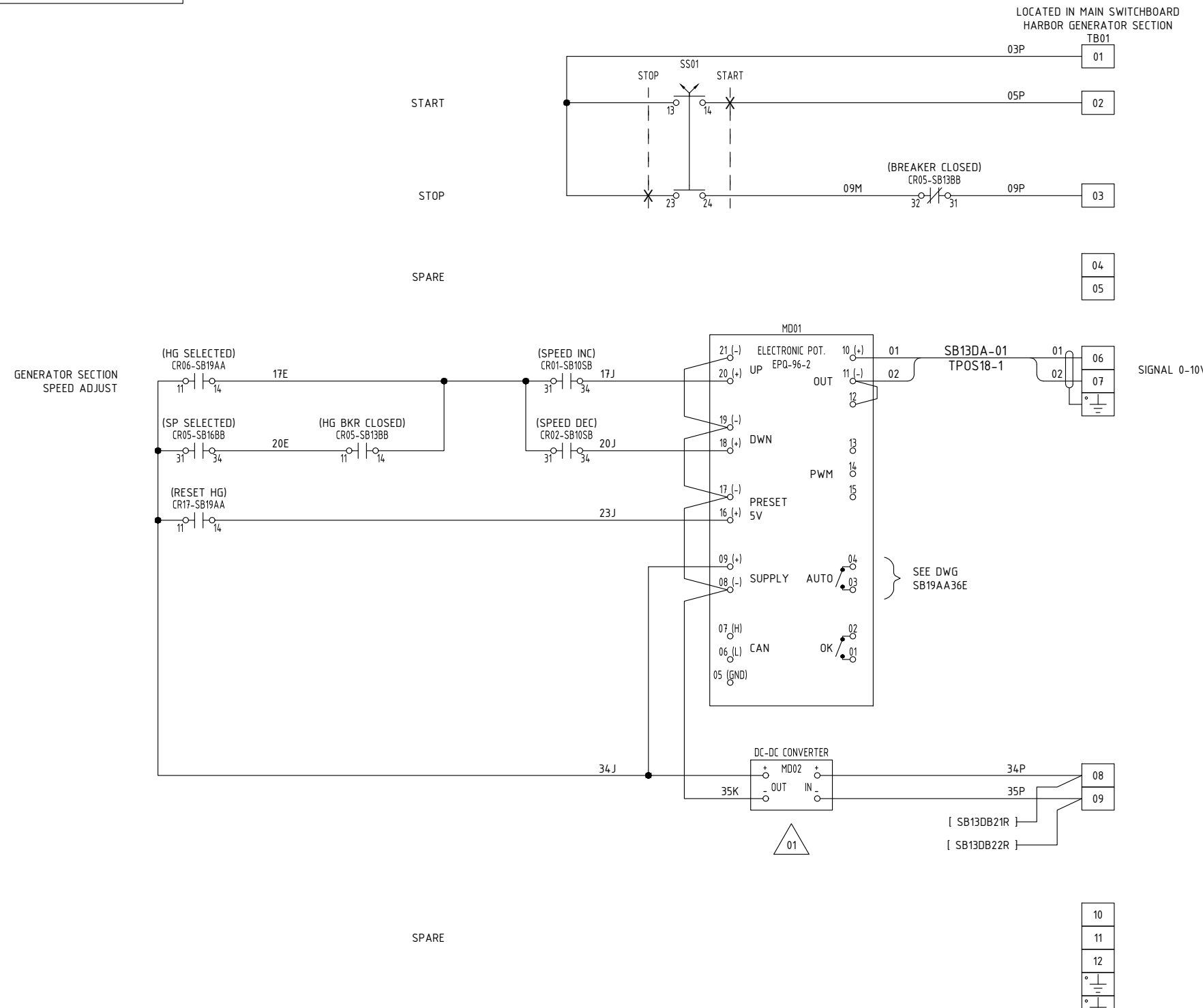
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
- THE HARBOR GENERATOR WILL BE INSTALLED LATER, SWITCHBOARD WILL BE READY TO CONNECT NEW HARBOR GENERATOR. HARBOR GENERATOR BREAKER WON'T BE INSTALLED, ONLY BREAKER BASE WILL BE FITTED.

TB01-SB13TA (DWG SB13TA)

Tel que Construit
As Built
2020-01-22, 18:25:56



240/120VAC MAIN SWITCHBOARD			
HARBOR GENERATOR			
CIRCUIT BREAKER CONTROL (2/2)			
B0301-EDWG-SB		SB13BB	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB13DA	
			00
			REV.



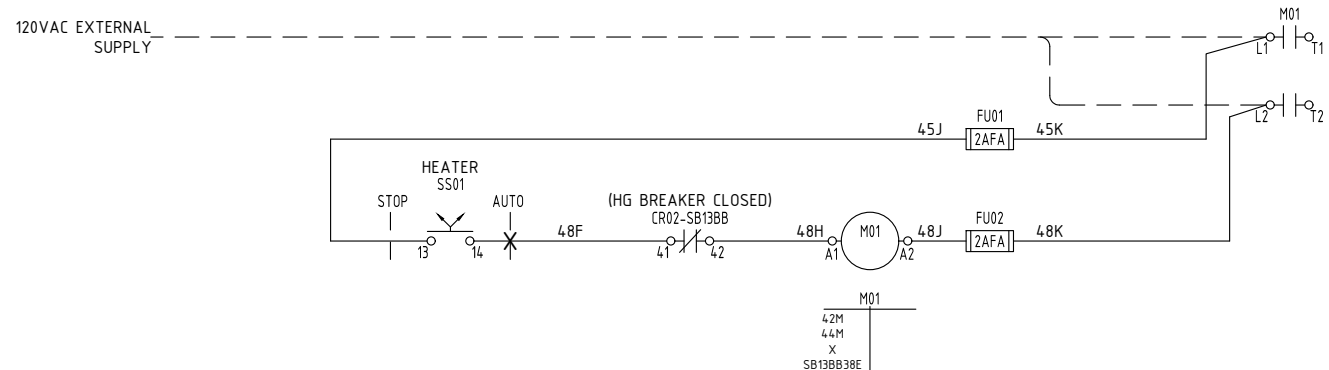
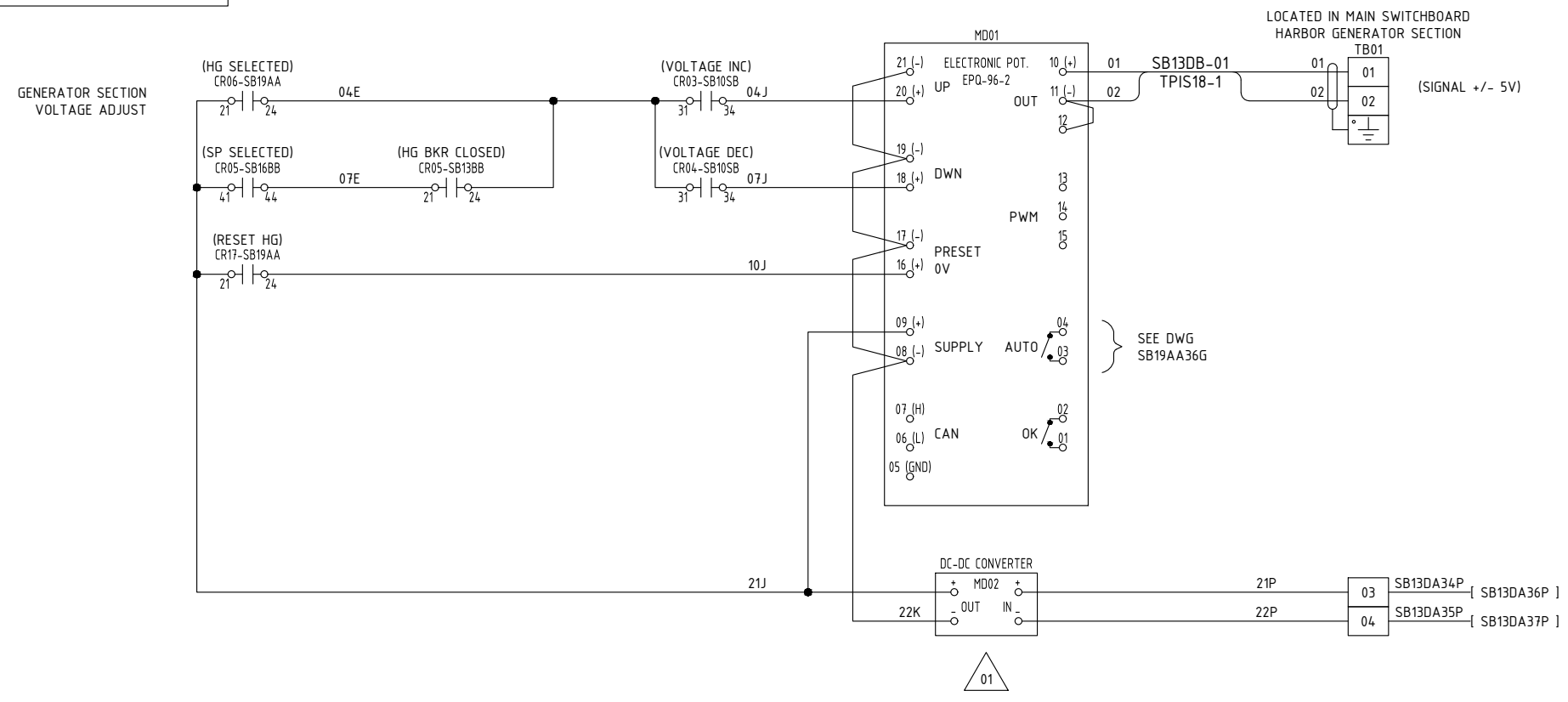
- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
 - THE HARBOR GENERATOR WILL BE INSTALLED LATER, SWITCHBOARD WILL BE READY TO CONNECT NEW HARBOR GENERATOR. HARBOR GENERATOR BREAKER WON'T BE INSTALLED, ONLY BREAKER BASE WILL BE FITTED.

**Tel que Construit
As Built**
 2020-01-22, 18:25:56



240/120VAC MAIN SWITCHBOARD HARBOR GENERATOR GENERATOR CONTROL (1/2)			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB13DA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB13DB	01
		REV.	

2019/12/20

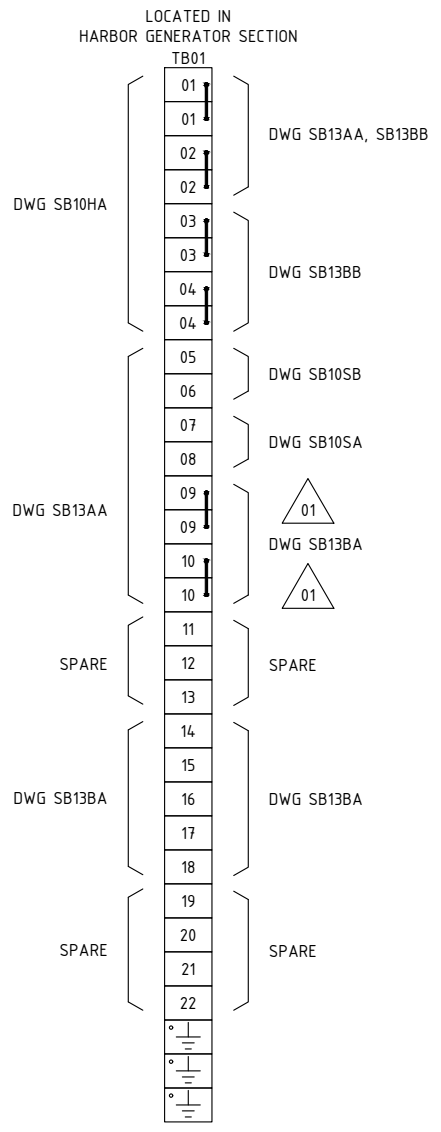


- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
 - THE HARBOR GENERATOR WILL BE INSTALLED LATER, SWITCHBOARD WILL BE READY TO CONNECT NEW HARBOR GENERATOR. HARBOR GENERATOR BREAKER WON'T BE INSTALLED, ONLY BREAKER BASE WILL BE FITTED.

**Tel que Construit
As Built**
 2020-01-22, 18:25:56



240/120VAC MAIN SWITCHBOARD			
HARBOR GENERATOR			
GENERATOR CONTROL (2/2)			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB13DB	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB13TA	REV. 01

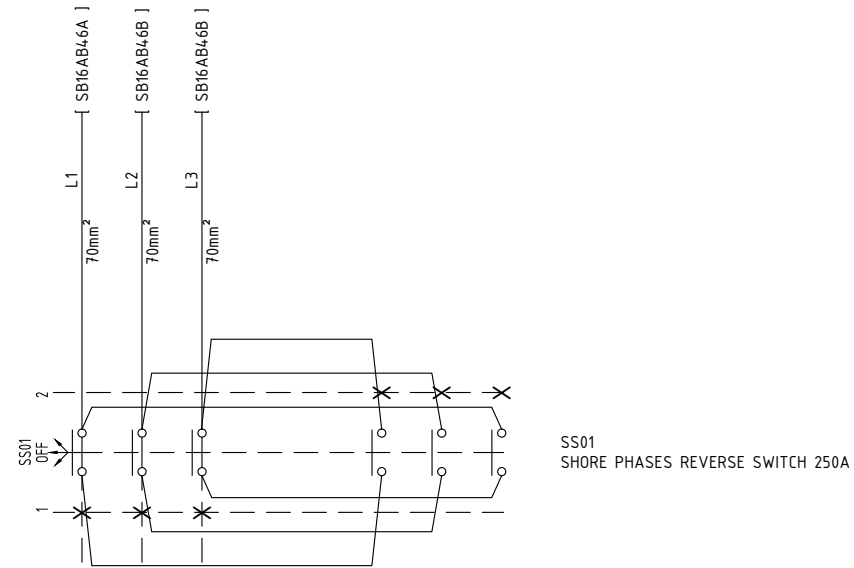


- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

**Tel que Construit
As Built**
 2020-01-22, 18:25:56



240/120VAC MAIN SWITCHBOARD			
HARBOR GENERATOR			
TERMINAL BLOCK			
B0301-EDWG-SB		SB13TA	
DRAWING NUMBER		SHEET NO.	
C.T DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
		CONT. ON SHEET	SB16AA
			01
			REV.



SHORE POWER
240VAC, 3Ø, 60Hz,
FLC 100A

NOTES:

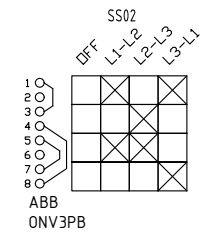
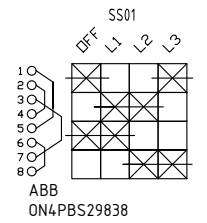
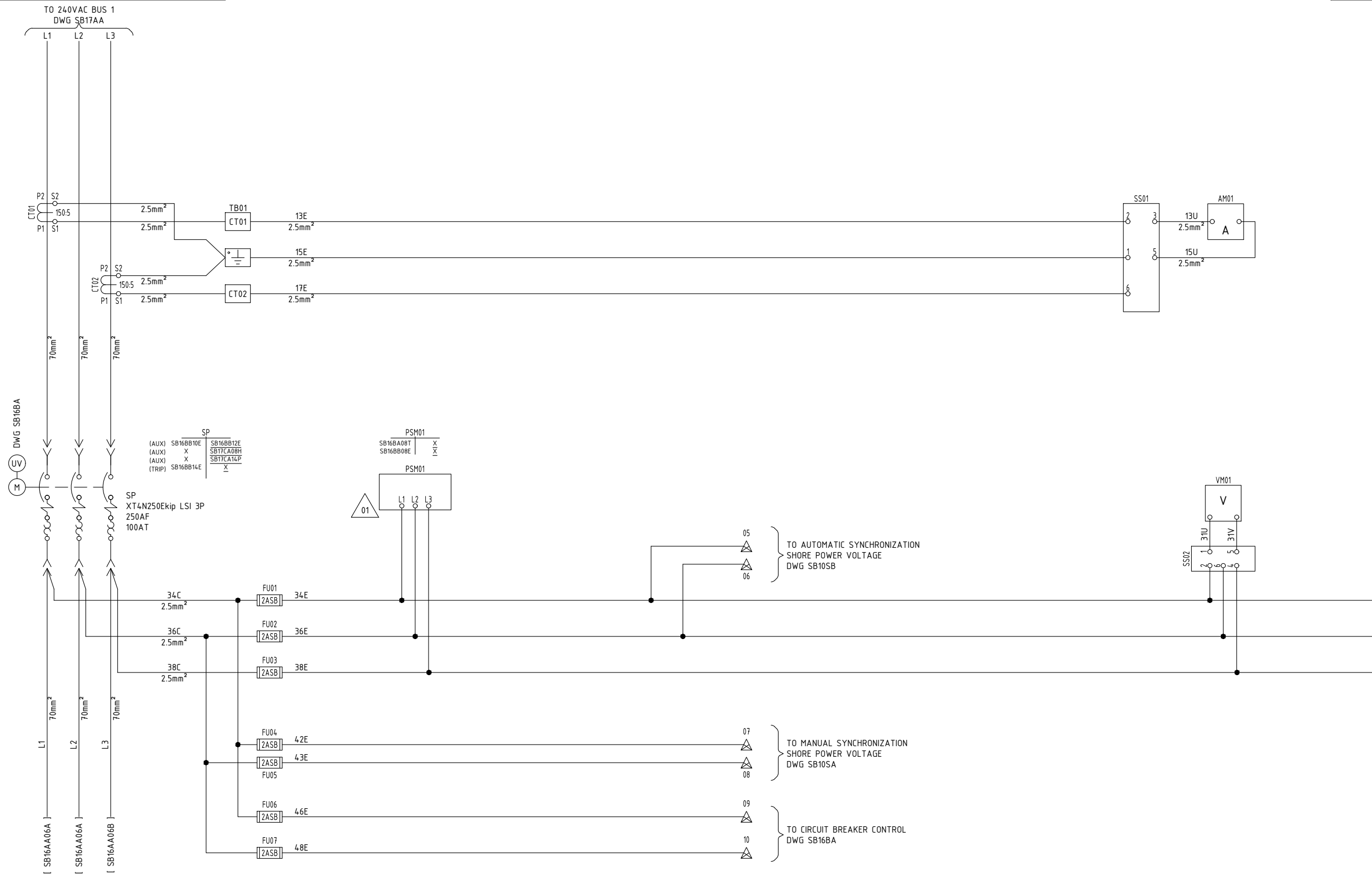
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:56



Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD			
SHORE POWER			
PHASE REVERSE SWITCH			
B0301-EDWG-SB		SB16AA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB16AB	00 REV.



AMMETER AM01:
RANGE 0-150A
RED LINE 100A

VOLTMETER VM01:
RANGE 0-300V
RED LINE 240V

TB01-SB16TA
(DWG SB16TA)

NOTES:

- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
- EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:56

Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

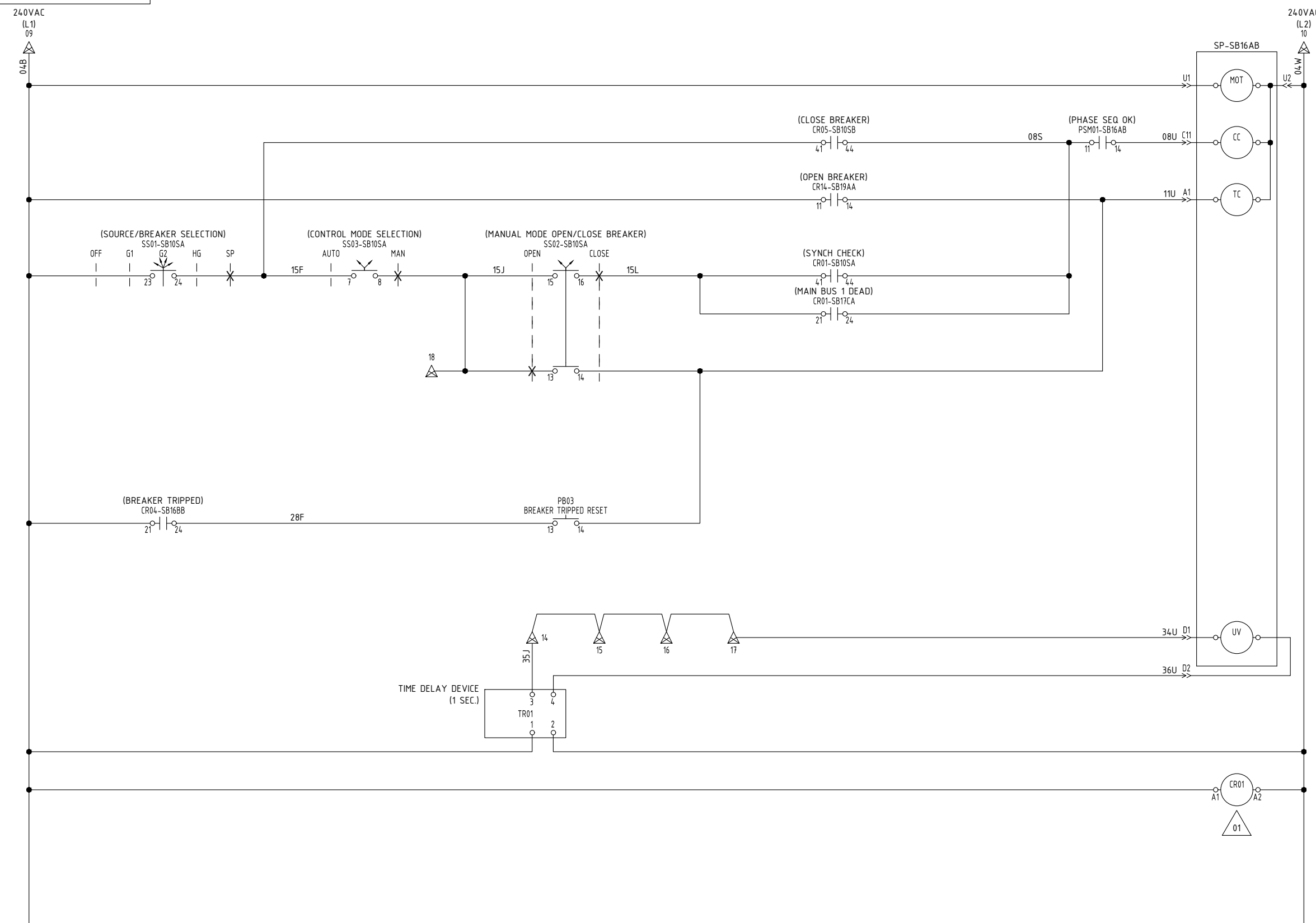
240/120VAC MAIN SWITCHBOARD SHORE POWER MEASURING AND INDICATION			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB16AB	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB16BA	01 REV.

BREAKER SUPPLY

AUTOMATIC OPERATION

MANUAL OPERATION

PROTECTION



MOTOR OPERATED SUPPLY

CLOSE BREAKER

OPEN BREAKER

UNDERVOLTAGE RELEASE

POWER AVAILABLE

CR01	
SB16BB26E	X
SB10TA28T	X
SB19AA23F	X
SB10TA32S	X

TB01-SB16TA (DWG SB16TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:56

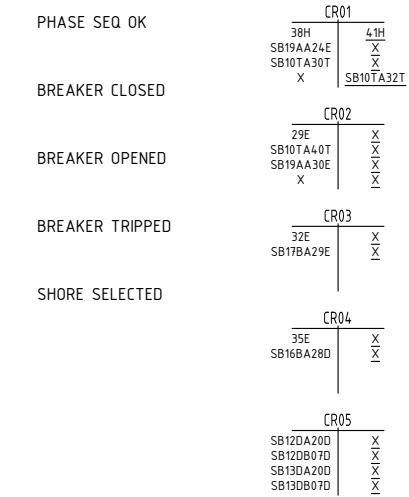
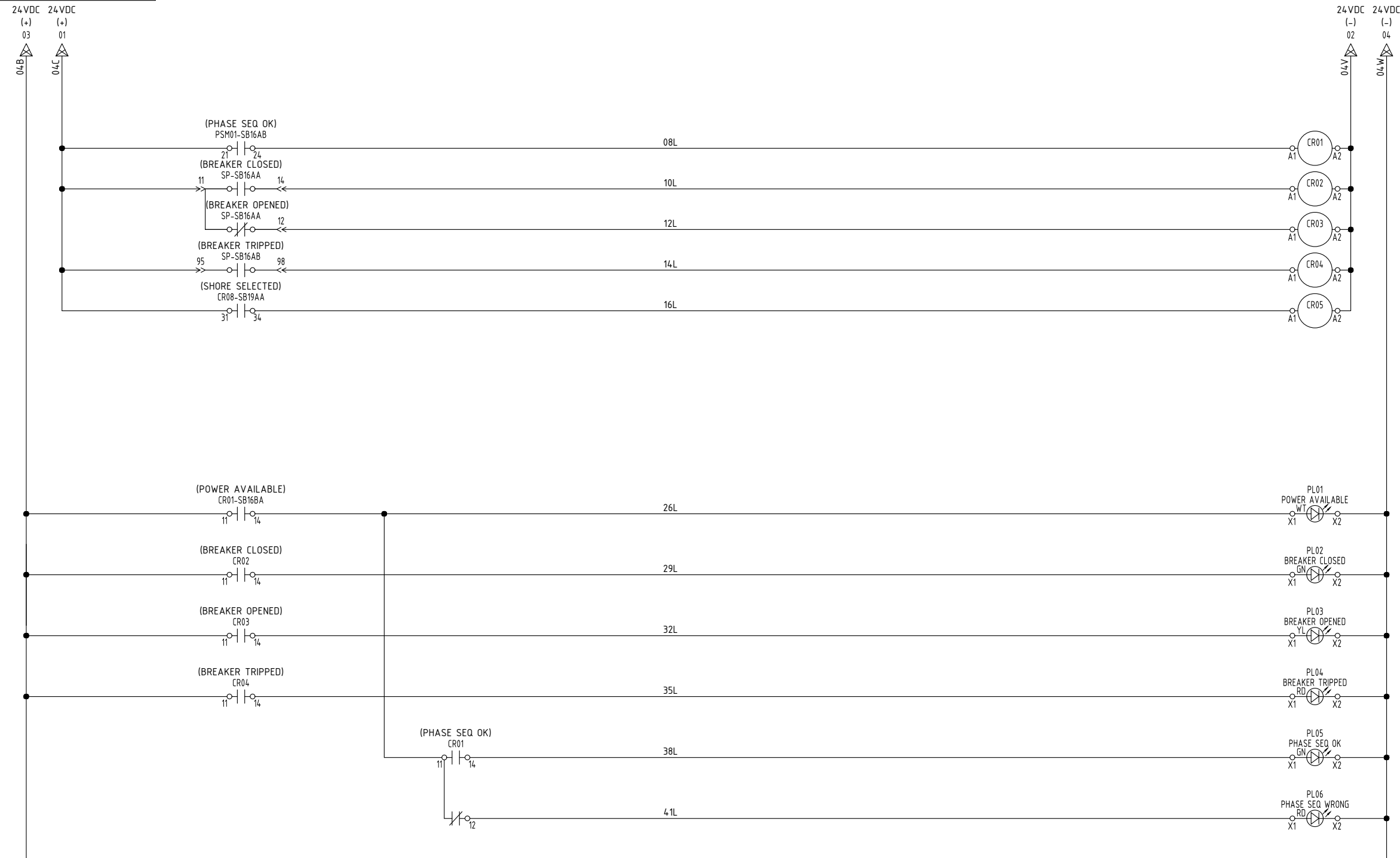


240/120VAC MAIN SWITCHBOARD			
SHORE POWER			
CIRCUIT BREAKER CONTROL (1/2)			
DRAWING NUMBER		SHEET NO.	
B0301-EDWG-SB		SB16BA	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB16BB	
			01
			REV.

2019/12/20

INTERPOSING RELAYS

LOCAL INDICATION



TB01-SB16TA (DWG SB16TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

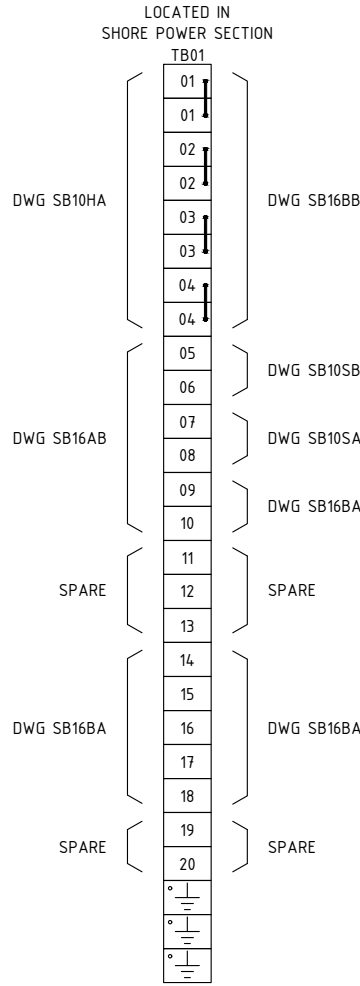
**Tel que Construit
As Built**
 2020-01-22, 18:25:57



240/120VAC MAIN SWITCHBOARD			
SHORE POWER			
CIRCUIT BREAKER CONTROL (2/2)			
B0301-EDWG-SB		SB16BB	
DRAWING NUMBER		SHEET NO.	
C.T DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB16TA	REV.
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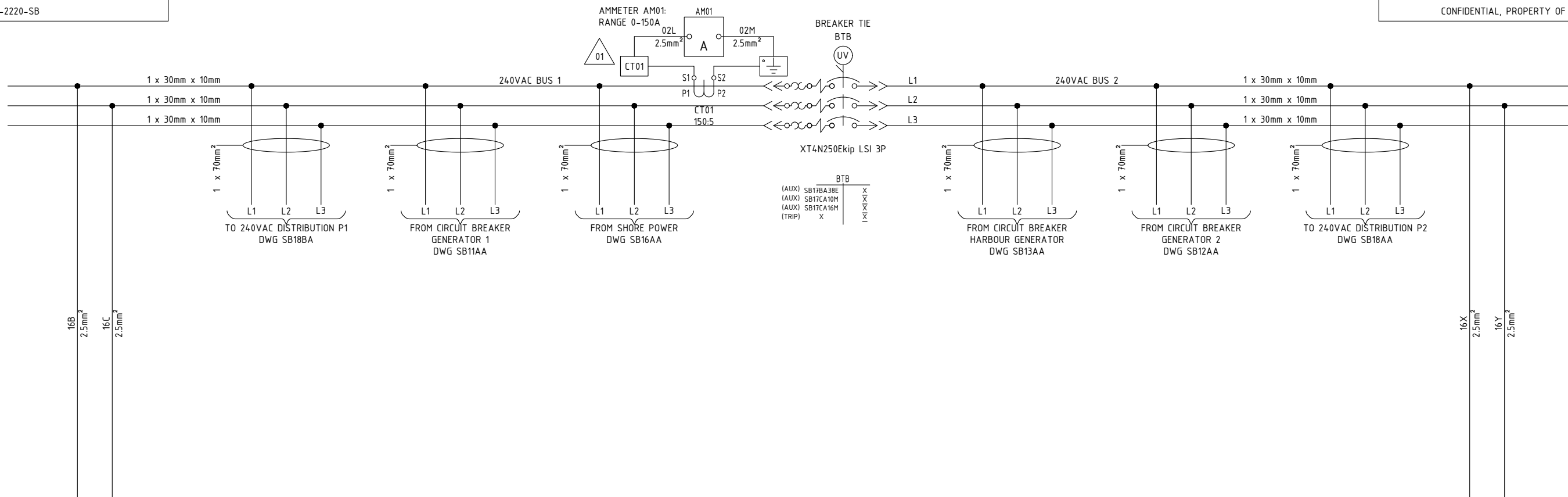


- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

**Tel que Construit
As Built**
 2020-01-22, 18:25:57



240/120VAC MAIN SWITCHBOARD			
SHORE POWER			
TERMINAL BLOCK			
B0301-EDWG-SB		SB16TA	
DRAWING NUMBER		SHEET NO.	
C.T DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB17AA	00
REV.			

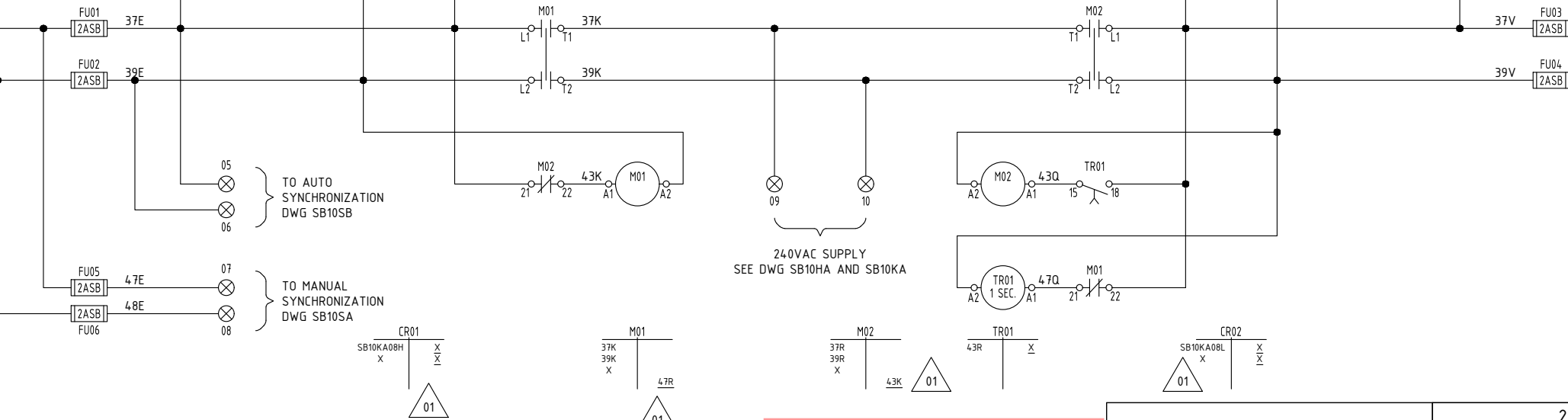
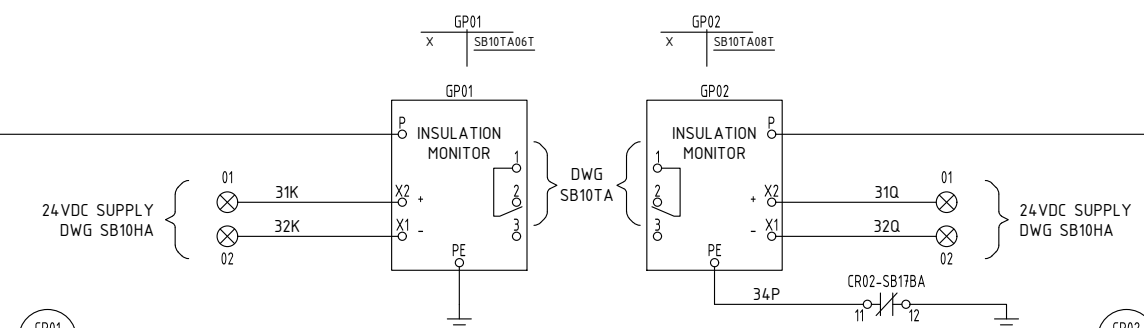


16B
2.5mm²

16C
2.5mm²

16X
2.5mm²

16Y
2.5mm²



MATERIAL FOR POWER CIRCUIT		
ITEM	MANUFACTURER	DESCRIPTION
M01	ABB	AF09-30-01-13
M02	ABB	AF09-30-01-13

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

⊗ TB01-SB17TA (DWG SB17TA)

**Tel que Construit
As Built**
 2020-01-22, 18:25:57



240/120VAC MAIN SWITCHBOARD MAIN BUS & BUS TIE BREAKER MEASURING AND INDICATION			
DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB17AA	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB17BA	01 REV.

PROTECTION

24.VDC
(+) 01
04B

24.VDC
(-) 02
04W



UNDERVOLTAGE RELEASE

TIE CLOSED

CR01	
SB100A28E	SB100A33E
SB101A42T	X
SB105A16Q	X
SB105A18Q	X
CR02	
SB17AA34Q	X
35E	X
SB19AA32F	X
X	X

⊗ TB01-SB17TA (DWG SB17TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

**Tel que Construit
As Built**
 2020-01-22, 18:25:57



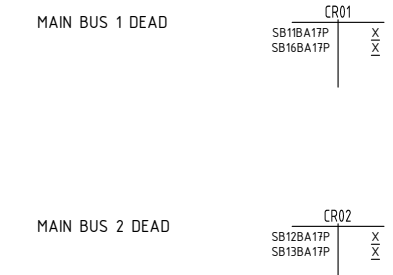
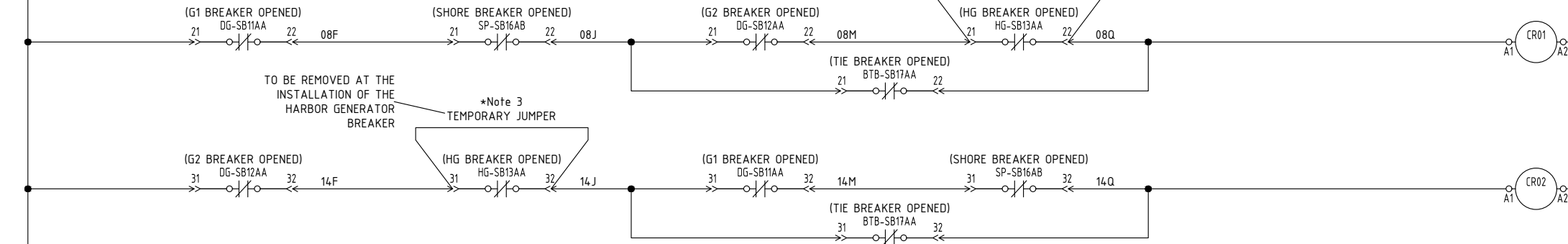
240/120VAC MAIN SWITCHBOARD MAIN BUS & BUS TIE BREAKER TIE CIRCUIT BREAKER CONTROL			
B0301-EDWG-SB		SB17BA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET			SB17CA
			01
			REV.

2019/12/20

INTERPOSING RELAYS

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24VDC
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- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
 - THE HARBOR GENERATOR WILL BE INSTALLED LATER, SWITCHBOARD WILL BE READY TO CONNECT NEW HARBOR GENERATOR. HARBOR GENERATOR BREAKER WON'T BE INSTALLED, ONLY BREAKER BASE WILL BE FITTED.

⊗ TB01-SB17TA (DWG SB17TA)

Tel que Construit
As Built
2020-01-22, 18:25:57

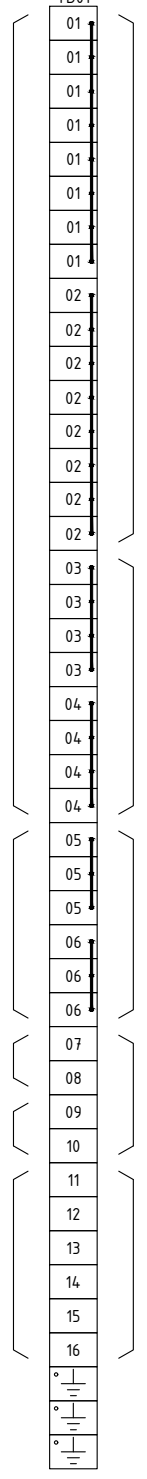


240/120VAC MAIN SWITCHBOARD			
MAIN BUS & BUS TIE BREAKER			
DEAD BUS DETECTION			
B0301-EDWG-SB		SB17CA	
DRAWING NUMBER	SHEET NO.	00	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	SB17TA
19-07-09	DATE YY-MM-DD	CONT. ON SHEET	REV.

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LOCATED IN SHORE CONTROL SECTION TB01



DWG SB10PA, SB10SB, SB17AA, SB17BA, SB17CA, SB18AB, SB18BB, SB18CA, SB18DA, SB19AA

DWG SB10HA

DWG SB100A

DWG SB10SB

DWG SB17AA

DWG SB10SA

DWG SB17AA

DWG SB10HA, SB10KA

SPARE

SPARE

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:57



240/120VAC MAIN SWITCHBOARD			
MAIN BUS & BUS TIE BREAKER			
TERMINAL BLOCK			
B0301-EDWG-SB		SB17TA	
DRAWING NUMBER	SHEET NO.		00
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	
19-07-09		SB18AA	
DATE YY-MM-DD		CONT. ON SHEET	
REV.			

2019/12/20

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P2-2

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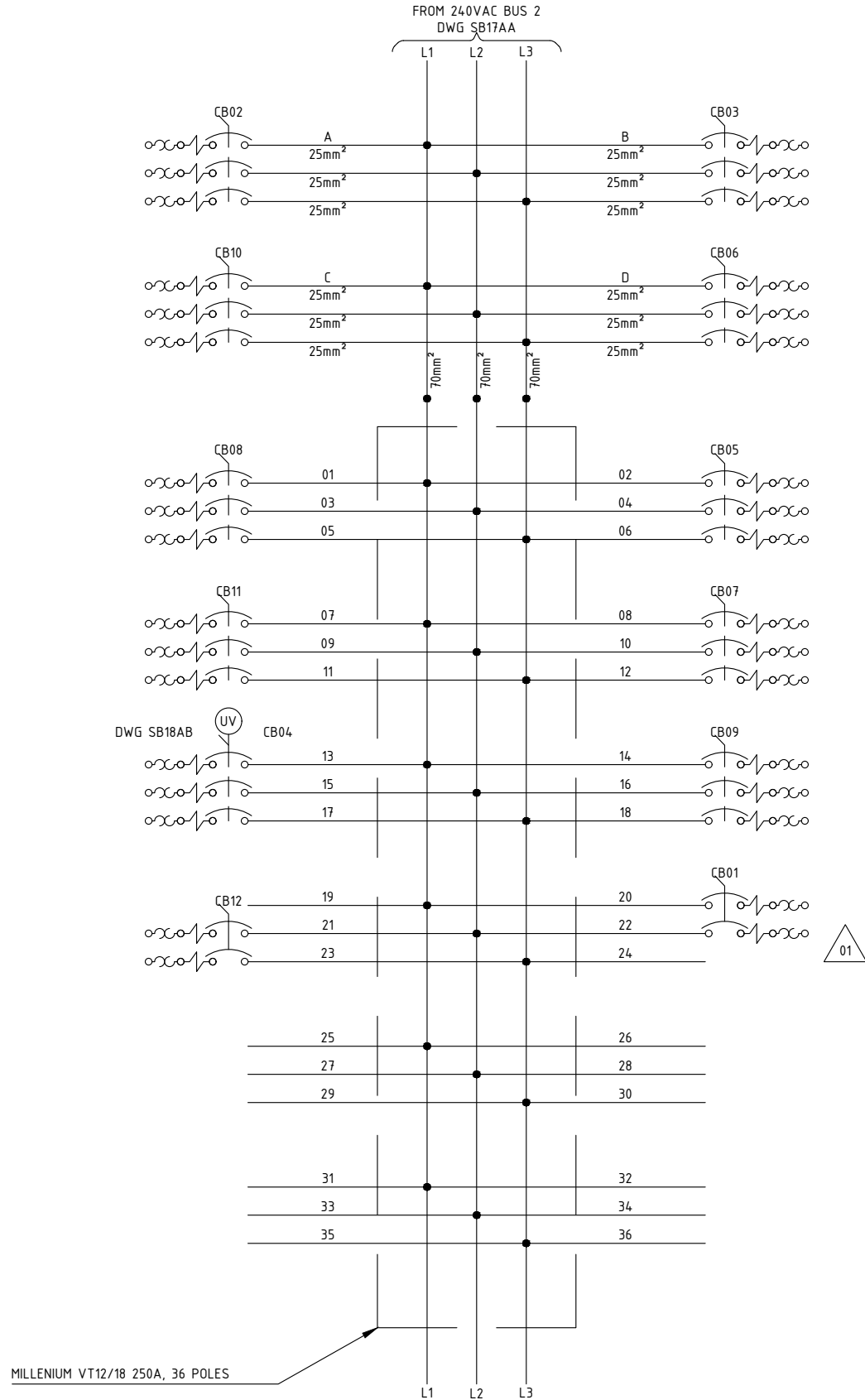
P2-1

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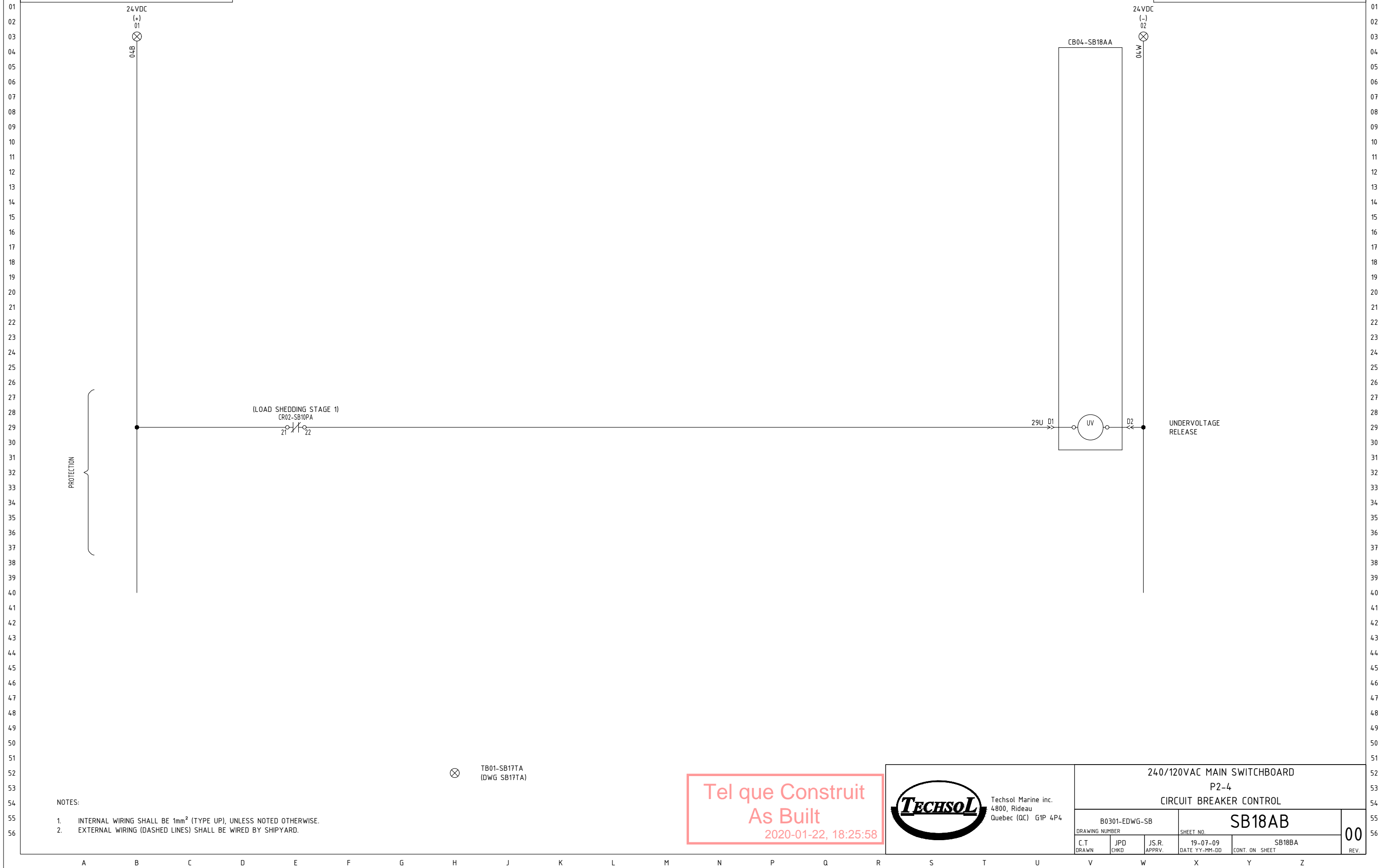


- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
 - REFER TO BREAKER LIST FOR CIRCUIT DESCRIPTION. (SEE DRAWING SB10GB)

Tel que Construit
As Built
2020-01-22, 18:25:57



240/120VAC MAIN SWITCHBOARD 240VAC DISTRIBUTION P2			
B0301-EDWG-SB		SB18AA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
		CONT. ON SHEET SB18AB	
			01 REV.



PROTECTION

(LOAD SHEDDING STAGE 1)
CRO2-SB10PA

CB04-SB18AA

UV

UNDervOLTAGE
RELEASE

TB01-SB17TA
(DWG SB17TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:58



240/120VAC MAIN SWITCHBOARD			
P2-4			
CIRCUIT BREAKER CONTROL			
B0301-EDWG-SB		SB18AB	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB18BA	00
		REV.	

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P1-1

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SPACE

P1-2

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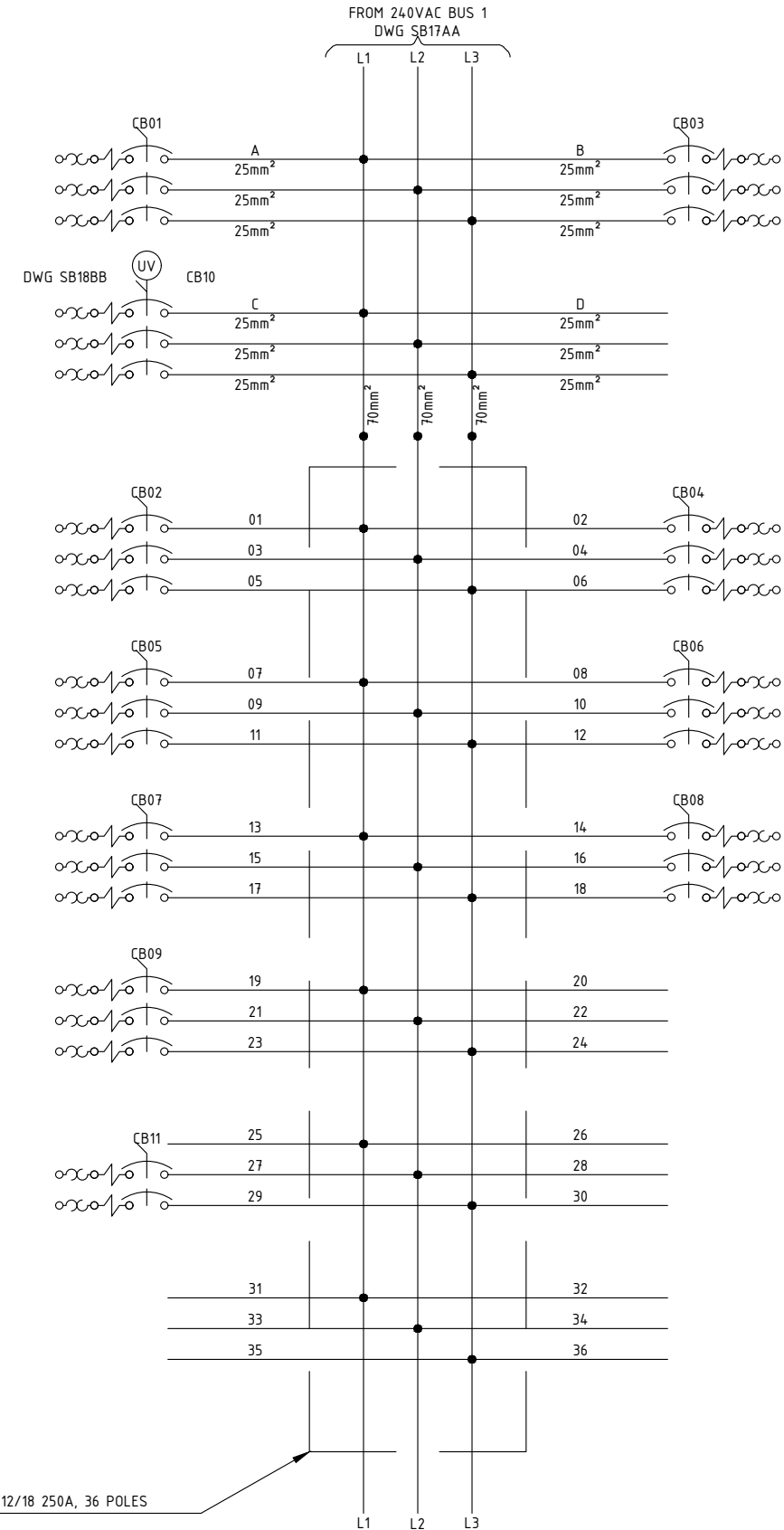
SPACE

P1-11

SPACE

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MILLENNIUM VT12/18 250A, 36 POLES

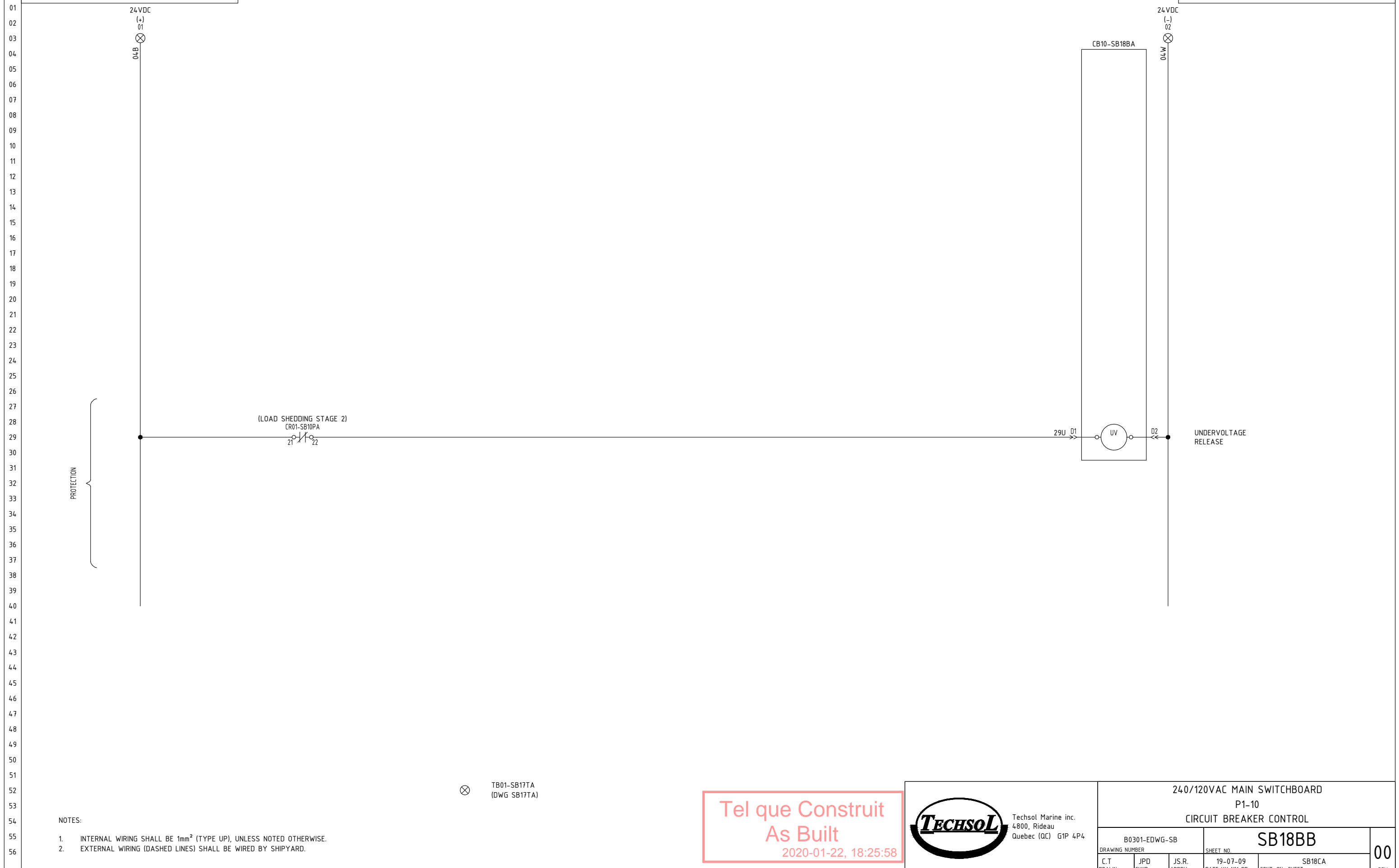
- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
 - REFER TO BREAKER LIST FOR CIRCUIT DESCRIPTION. (SEE DRAWING SB10GB)

Tel que Construit
As Built
2020-01-22, 18:25:58



240/120VAC MAIN SWITCHBOARD 240VAC DISTRIBUTION P1			
DRAWING NUMBER B0301-EDWG-SB		SB18BA	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB18BB	00
		REV.	

2019/12/20



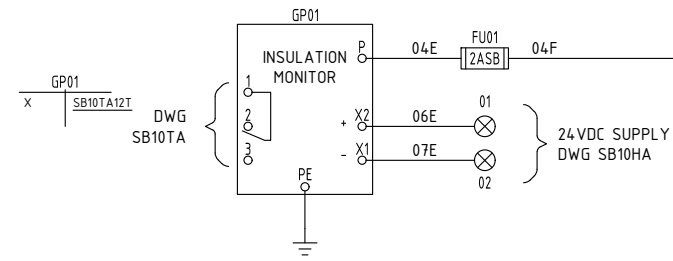
- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

⊗ TB01-SB17TA
(DWG SB17TA)

Tel que Construit
As Built
2020-01-22, 18:25:58



240/120VAC MAIN SWITCHBOARD			
P1-10			
CIRCUIT BREAKER CONTROL			
B0301-EDWG-SB		SB18BB	
DRAWING NUMBER		SHEET NO.	
C.T DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB18CA	00
REV.			



P4-1

SPACE

P4-3

P4-5

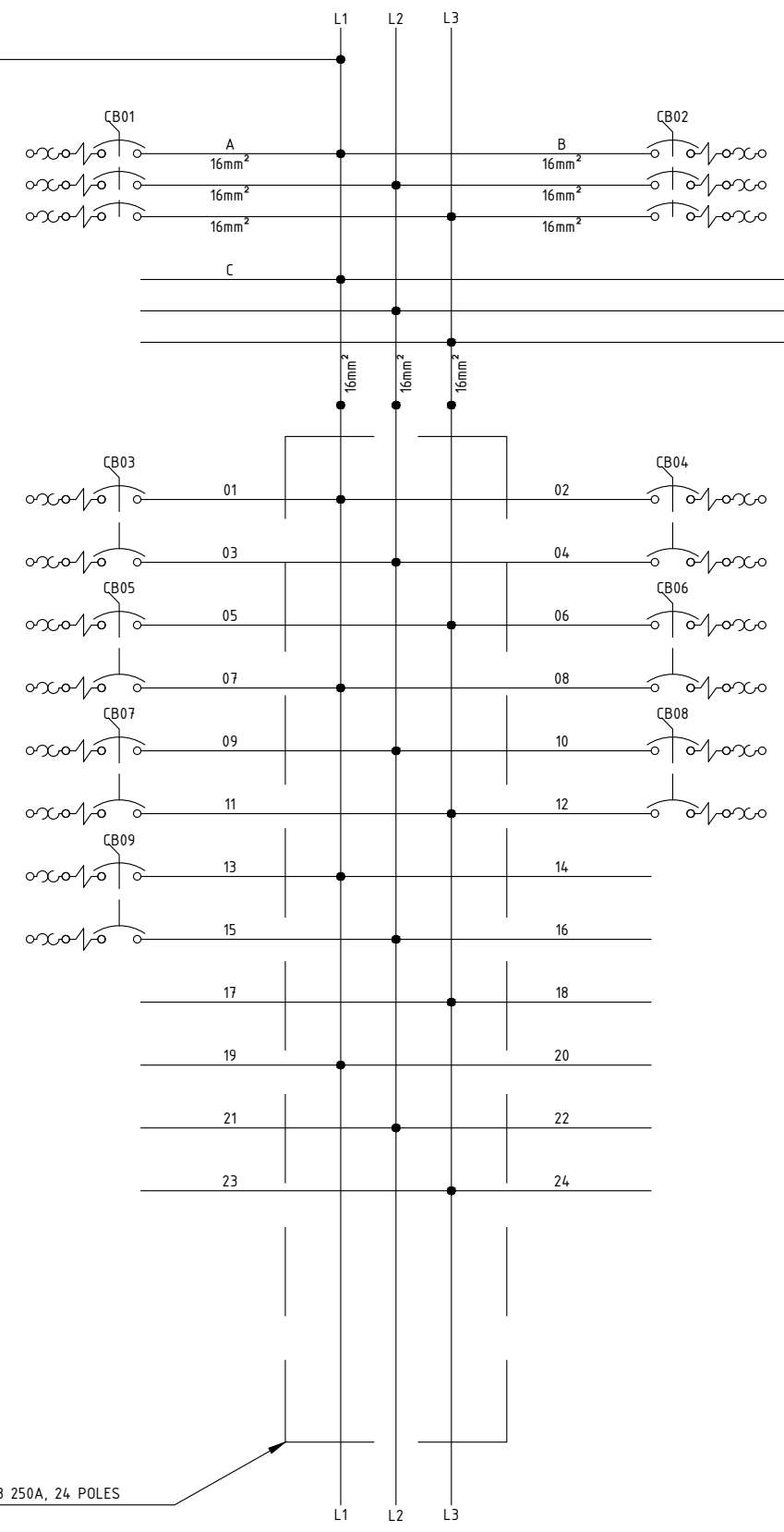
P4-7

P4-9

SPACE

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SPACE



P4-2

P4-4

P4-6

P4-8

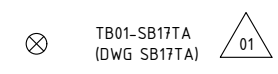
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MILLENNIUM VT08/18 250A, 24 POLES

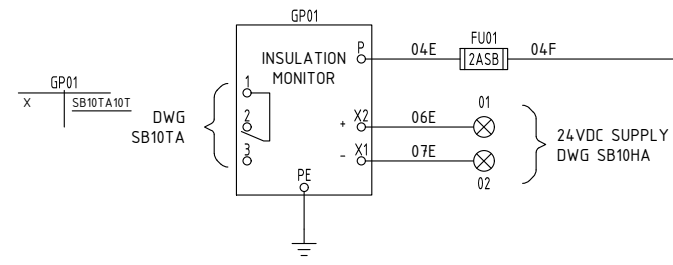
- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
 - REFER TO BREAKER LIST FOR CIRCUIT DESCRIPTION. (SEE DRAWING SB10GC)



**Tel que Construit
As Built**
 2020-01-22, 18:25:58



240/120VAC MAIN SWITCHBOARD 120VAC DISTRIBUTION P4			
B0301-EDWG-SB		SB18CA	
DRAWING NUMBER		SHEET NO.	
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB18DA	01
REV.			



P3-7

SPACE

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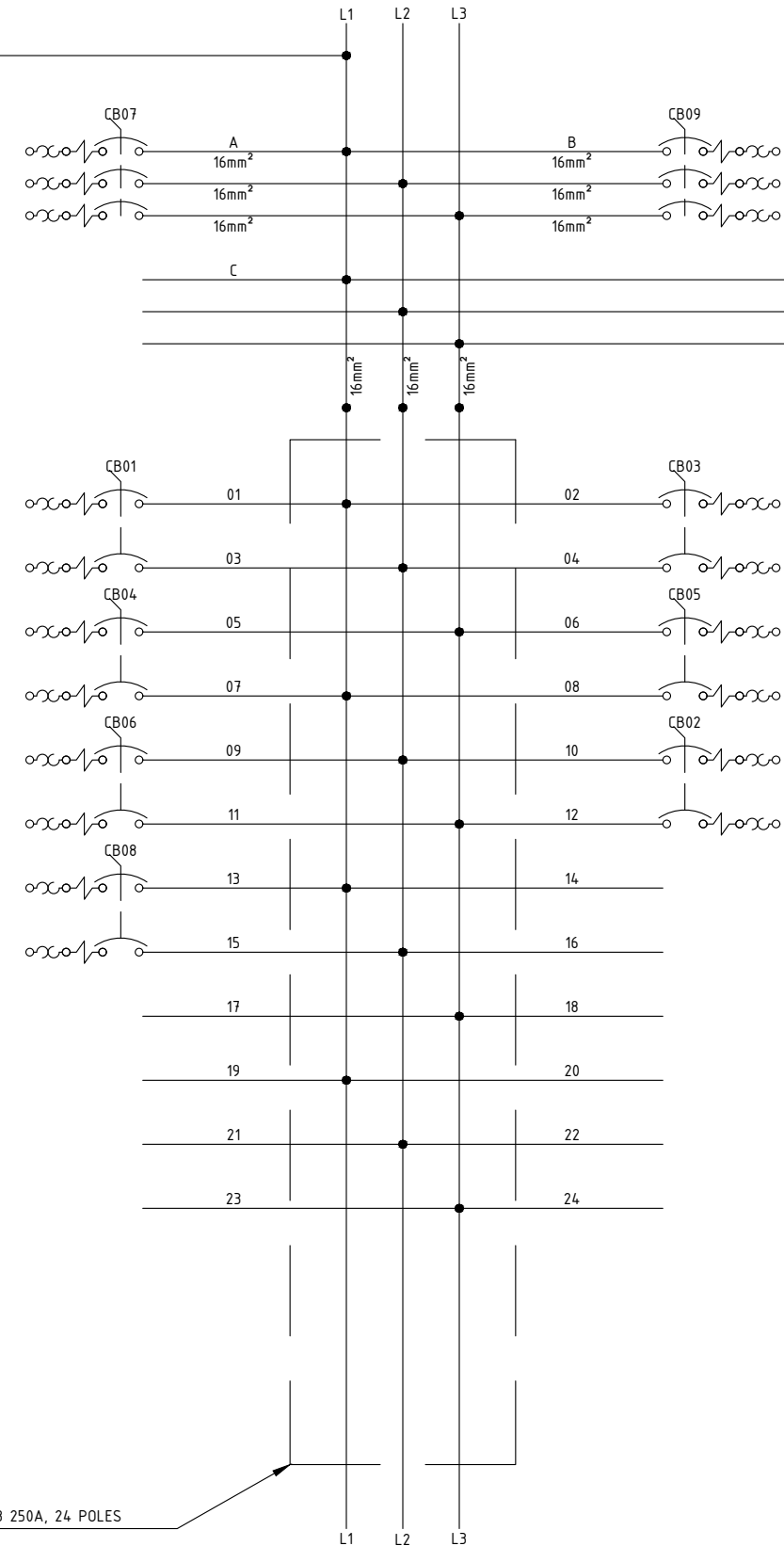
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P3-9

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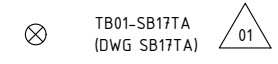
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MILLENNIUM VT08/18 250A, 24 POLES

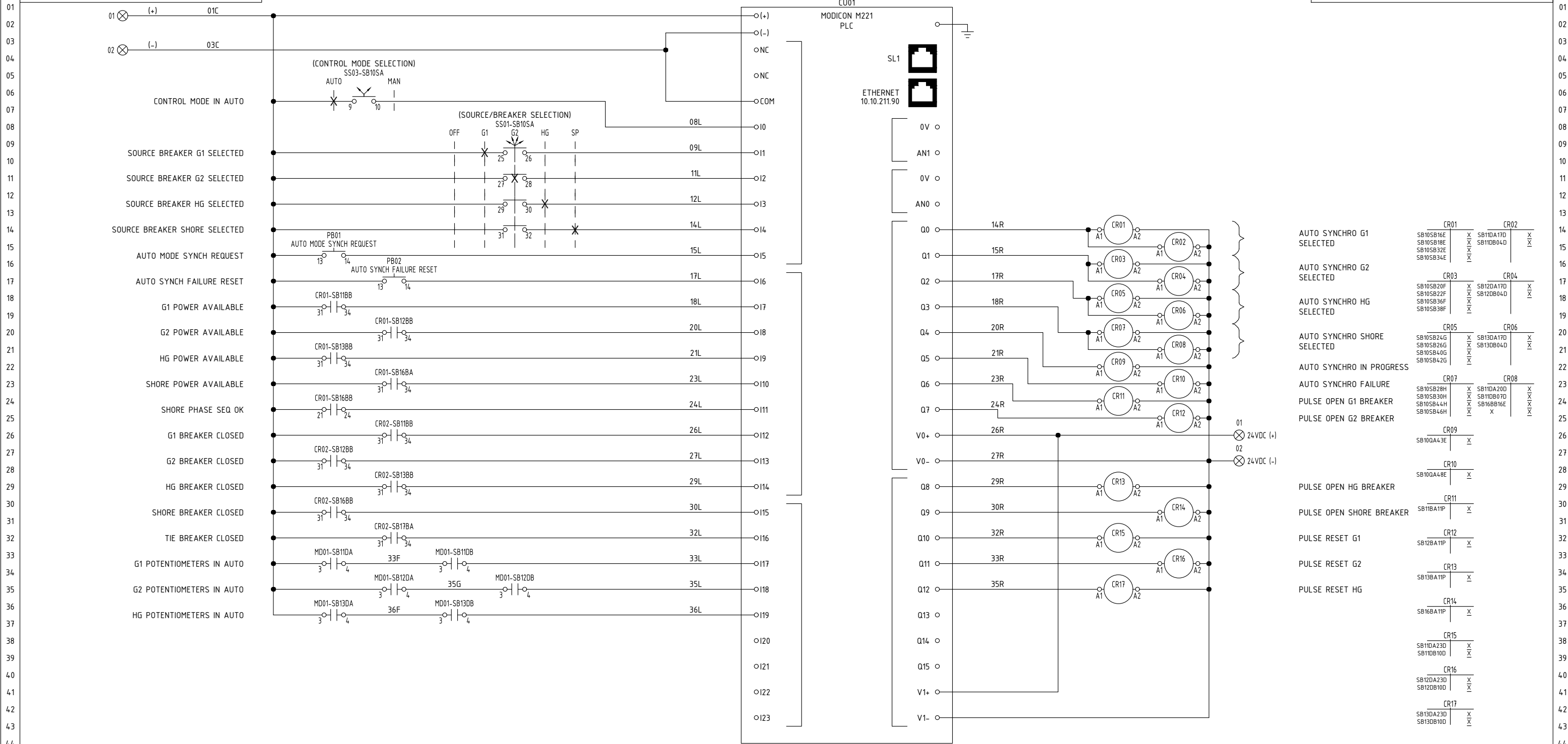
- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.
 - REFER TO BREAKER LIST FOR CIRCUIT DESCRIPTION. (SEE DRAWING SB10GC)



**Tel que Construit
As Built**
 2020-01-22, 18:25:58

Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD 120VAC DISTRIBUTION P3			
DRAWING NUMBER B0301-EDWG-SB		SB18DA	
C.T. DRAWN	JPD CHKO	JS.R. APPRV.	19-07-09 DATE YY-MM-DD
CONT. ON SHEET		SB19AA	01
		REV.	



⊗ TB01-SB17TA (SEE DWG SB17TA)

- NOTES:
- INTERNAL WIRING SHALL BE 1mm² (TYPE UP), UNLESS NOTED OTHERWISE.
 - EXTERNAL WIRING (DASHED LINES) SHALL BE WIRED BY SHIPYARD.

Tel que Construit
As Built
2020-01-22, 18:25:58



Techsol Marine inc.
4800, Rideau
Quebec (QC) G1P 4P4

240/120VAC MAIN SWITCHBOARD
PLC
DIGITAL INPUTS/OUTPUTS

DRAWING NUMBER B0301-EDWG-SB		SHEET NO. SB19AA		00
C.T. DRAWN	JPD CHKD	JS.R. APPRV.	19-07-09 DATE YY-MM-DD	
CONT. ON SHEET			-----	REV.

Analyse des charges / Electrical Load Analysis


NGCC ILE SAINT-OURS

Canadian Coast Guard

Project Number: S18-0920-EN

Document no: S18-0920-PW-ELA

Revision: 02

	Analyse des charges / Electrical Load Analysis			
	Shipyard:	Canadian Coast Guard	Date :	2020-06-08
	Name of vessel:	NGCC ILE SAINT-OURS	Revision :	02

REVISION

Rev. #	Section	Prepared by	Checked by	Approuved by	Date	Description
00		GL	SiL	MTh	2018-07-12	First issue
01		GL	SiL	MTh	2018-07-19	Added scenarios in synthesis
02		Mta	ML	ML	2020-06-08	General revision incorporating all changes for new generators and switchboards replacement.
				<i>M. J. P.</i> 2020-06-08		



Analyse des charges / Electrical Load Analysis

Shipyard: Canadian Coast Guard

Date : 2020-06-08

Name of vessel: NGCC ILE SAINT-OURS

Revision : 02

AVAILABLE POWER	
DESCRIPTION	KVA
Generator #1	90
Generator #2	90
Shore power	41,52
DESCRIPTION	KW
EMER. POWER 24VDC (93,8A for 3 hours) - DC3	2,25
EMER. POWER 12VDC (54,3A for 3 hours) - DC2	0,65
MACHINERY 12VDC (54,3A for 3 hours) - DC4	0,65

DESCRIPTION	POWER CONSUMPTION										EMERGENCY	
	TRANSIT				MANŒUVRING				SHORE POWER			
	SUMMER (DAY)		AUTUMN (NIGHT)		SUMMER (DAY)		AUTUMN (NIGHT)		AUTUMN (NIGHT)		(KW)	(KVA)
	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)
240V MAIN SWITCHBOARD - BUS P1	9,56	10,99	18,23	19,66	10,03	11,56	18,70	20,23				
240V MAIN SWITCHBOARD - BUS P2	22,22	24,93	18,80	20,65	29,69	34,74	26,27	30,47				
Shore power									34,65	38,68		
EMERGENCY 24VDC - DC3											1,26	1,26
EMERGENCY 12VDC - DC2											0,18	0,18
MACHINERY 12VDC - DC4											0,04	0,04

ANALYSIS												
SCENARIOS	TRANSIT				MANŒUVRING				SHORE POWER		EMERGENCY	
	SUMMER (DAY)		AUTUMN (NIGHT)		SUMMER (DAY)		AUTUMN (NIGHT)		AUTUMN (NIGHT)		(KW)	(KVA)
	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)	(KW)	(KVA)
LOADS CONNECTED	TOTAL LOADS CONNECTED ON GENERATOR(S):											
	31,78	35,92	37,03	40,31	39,72	46,30	44,97	50,69				
LOADS CONNECTED	POWER AVAILABLE FROM ONE GENERATOR:											
	72,00	90,00	72,00	90,00	72,00	90,00	72,00	90,00				
	% USED FROM ONE GENERATOR:											
	44%		51%		55%		62%					
	TOTAL LOADS CONNECTED ON GENERATOR(S) WHEN LOAD SHEDDING ACTIVATED PT1:											
	30%		42%		41%		53%					
	TOTAL LOADS CONNECTED ON GENERATOR(S) WHEN LOAD SHEDDING ACTIVATED PT1 + PT2:											
	28%		28%		39%		39%					
SHORE POWER (using Crane HU of 10HP)	POWER AVAILABLE FROM SHORE POWER:											
									37,19	41,52		
	% USED FROM SHORE POWER:											
									93%			
EMERGENCY - 24VDC (DC3)	POWER AVAILABLE FROM 24VDC (DC3):											
												2,25
	% USED FROM 24VDC (DC3) POWER:											
											56%	
EMERGENCY - 12VDC (DC2)	POWER AVAILABLE FROM 12VDC (DC2):											
												0,65
	% USED FROM 12VDC (DC2) POWER:											
											28%	
MACHINERY - 12VDC (DC4)	POWER AVAILABLE FROM 12VDC (DC4):											
												0,65
	% USED FROM 12VDC (DC4) POWER:											
											6%	

IMPORTANT NOTE: All values framed in RED on this document are estimated. Rated values are not available on information received to produce this electrical loads analysis.

- DATA:** Load data have been defined as:
- in green Data validated on board and identical than the OLD
 - in blue Data validated on board and different than the OLD
 - in yellow Data from the OLD
 - in grey Data come from panel detail data within this load analysis

Tel que mise en marche
As Commissioned


	Analyse des charges / Electrical Load Analysis			
	Shipyard:	Canadian Coast Guard	Date :	2020-06-08
	Name of vessel:	NGCC ILE SAINT-OURS	Revision :	02

CHART #1	
WITH 1 GENERATOR	
<i>OPERATIONAL MODE</i>	TRANSIT SUMMER (DAY)
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	31,78
POWER AVAILABLE FROM 1 GENERATOR:	72,00
	TRANSIT SUMMER (DAY)
% USED FROM 1 GENERATOR IN OPERATION MODE:	44%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1):	30%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1 + PT2):	28%

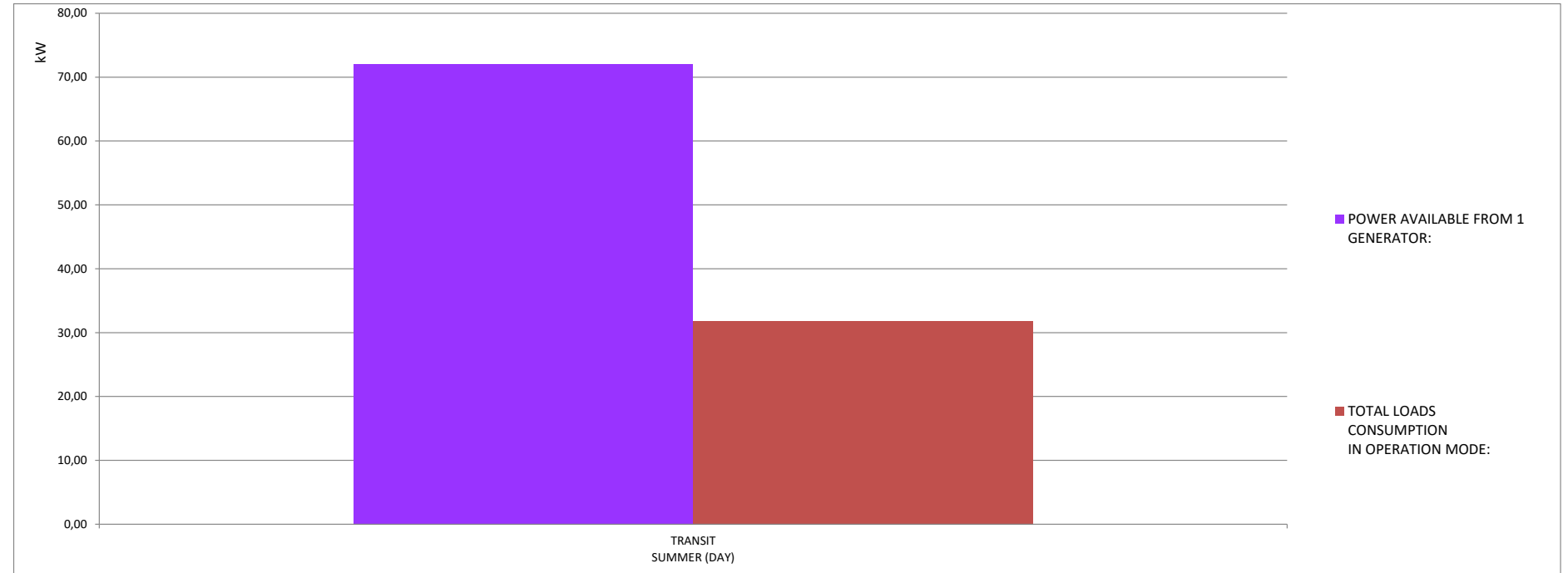
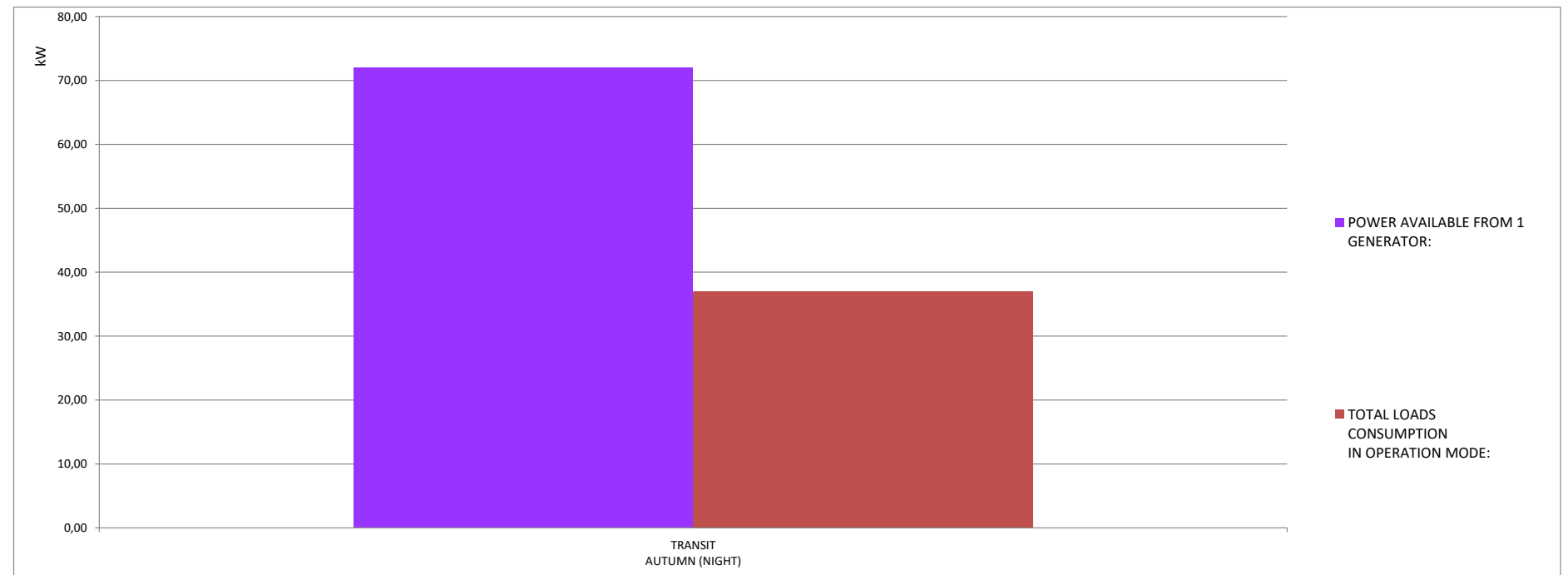


CHART #2	
WITH 1 GENERATOR	
<i>OPERATIONAL MODE</i>	TRANSIT AUTUMN (NIGHT)
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	37,03
POWER AVAILABLE FROM 1 GENERATOR:	72,00
	TRANSIT AUTUMN (NIGHT)
% USED FROM 1 GENERATOR IN OPERATION MODE:	51%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1):	42%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1 + PT2):	28%




	Analyse des charges / Electrical Load Analysis			
	Shipyard:	Canadian Coast Guard	Date :	2020-06-08
	Name of vessel:	NGCC ILE SAINT-OURS	Revision :	02

CHART #3	
WITH 1 GENERATOR	
<i>OPERATIONAL MODE</i>	MANOEUVRING SUMMER (DAY)
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	39,72
POWER AVAILABLE FROM 1 GENERATOR:	72,00
	MANOEUVRING SUMMER (DAY)
% USED FROM 1 GENERATOR IN OPERATION MODE:	55%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1):	41%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1 + PT2):	39%

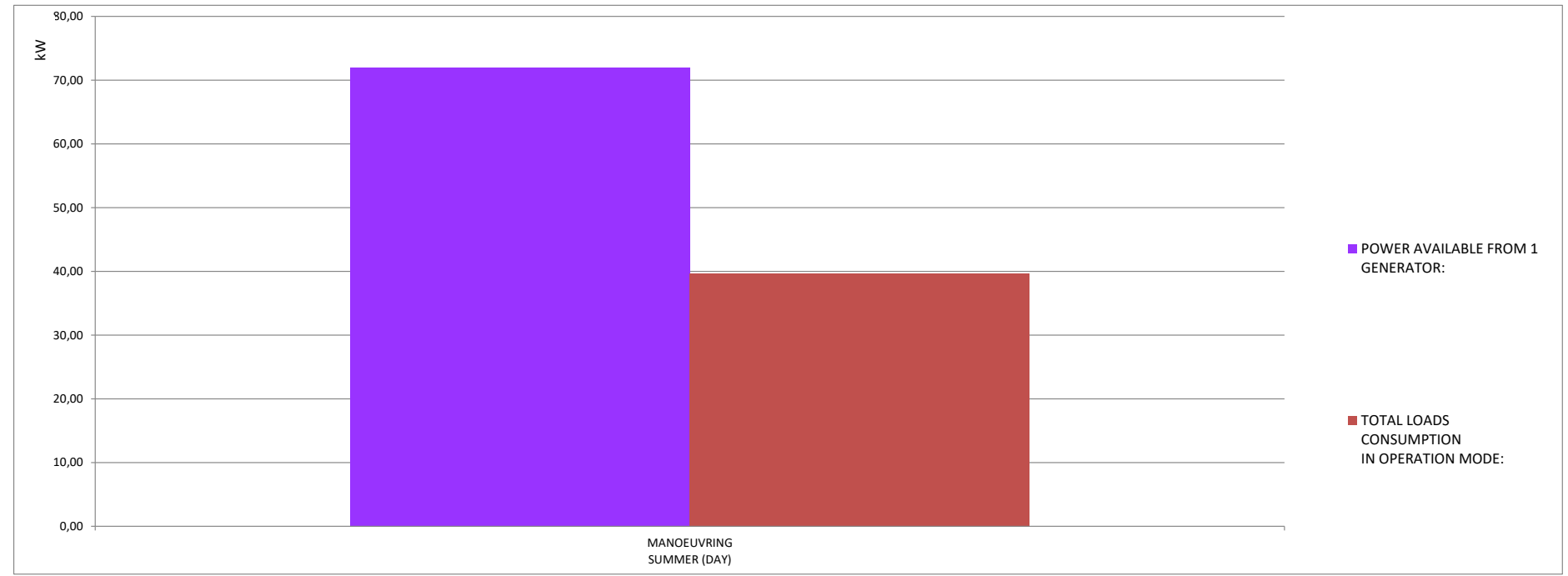
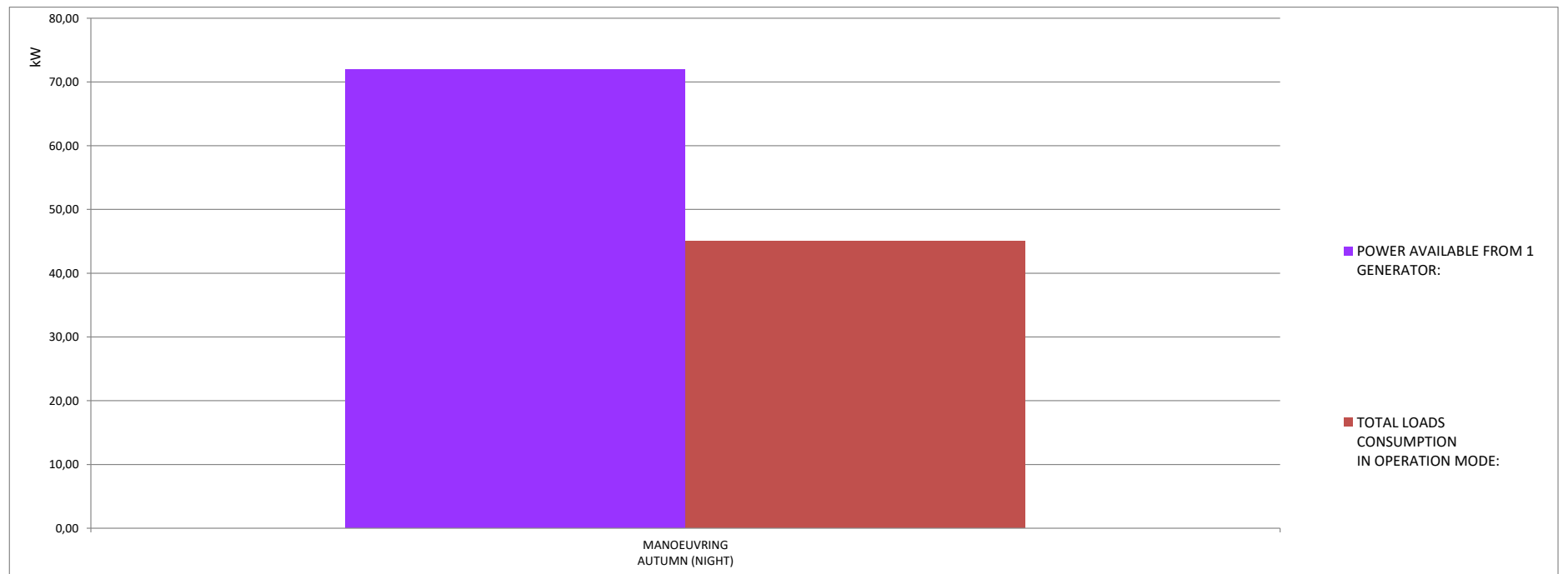


CHART #4	
WITH 1 GENERATOR	
<i>OPERATIONAL MODE</i>	MANOEUVRING AUTUMN (NIGHT)
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	44,97
POWER AVAILABLE FROM 1 GENERATOR:	72,00
	MANOEUVRING AUTUMN (NIGHT)
% USED FROM 1 GENERATOR IN OPERATION MODE:	62%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1):	53%
% USED FROM 1 GENERATOR IN OPERATION MODE (WHEN LOAD SHEDDING ACTIVATED PT1 + PT2):	39%




	Analyse des charges / Electrical Load Analysis			
	Shipyard:	Canadian Coast Guard	Date :	2020-06-08
	Name of vessel:	NGCC ILE SAINT-OURS	Revision :	02

CHART #5	
SHORE POWER	
<i>OPERATIONAL MODE</i>	SHORE POWER AUTUMN (NIGHT)
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	34,65
POWER AVAILABLE FROM SHORE:	37,19
	SHORE POWER AUTUMN (NIGHT)
% USED FROM 1 GENERATOR IN OPERATION MODE:	93%

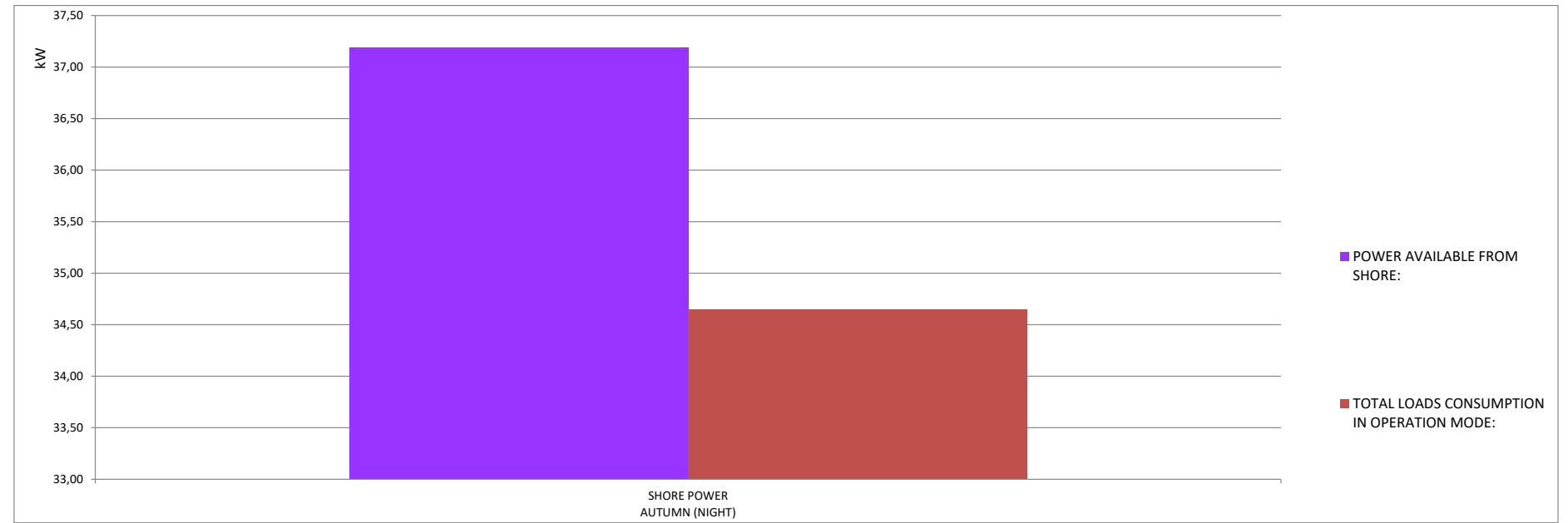
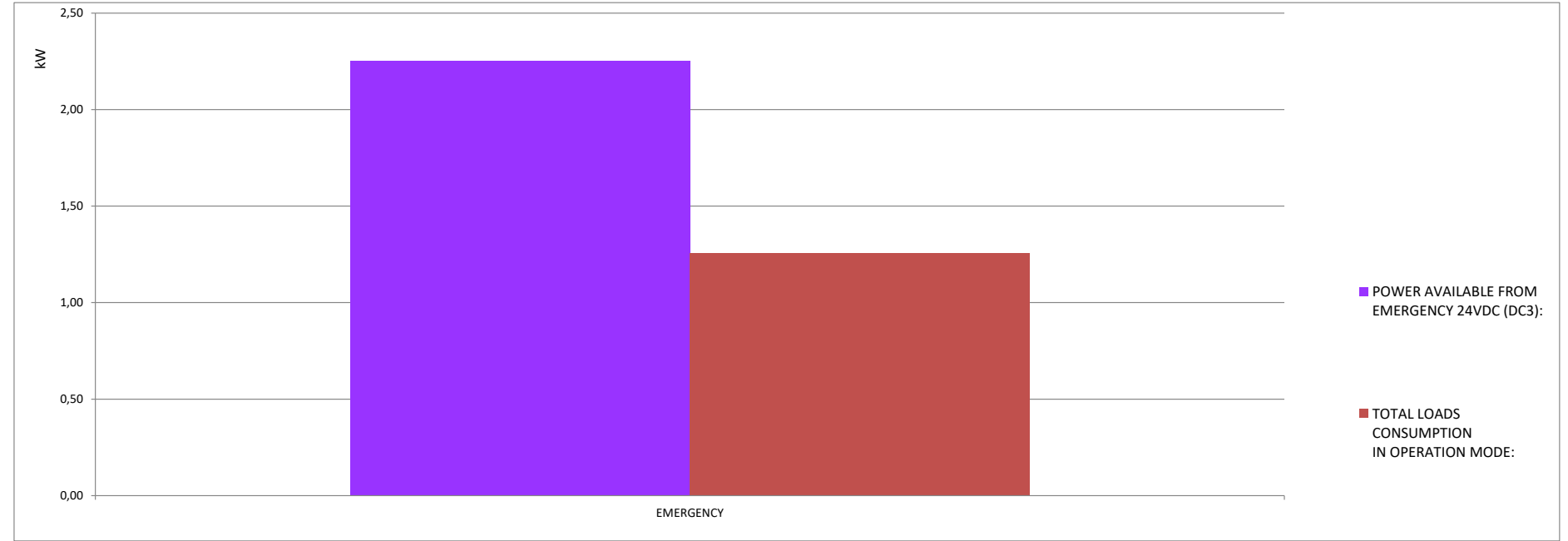


CHART #6	
EMERGENCY 24VDC BATTERY - DC3	
<i>OPERATIONAL MODE</i>	EMERGENCY
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	1,26
POWER AVAILABLE FROM EMERGENCY 24VDC (DC3):	2,25
	EMERGENCY
% USED FROM EMERGENCY 24VDC (DC3) IN OPERATION MODE:	56%




	Analyse des charges / Electrical Load Analysis			
	Shipyard:	Canadian Coast Guard	Date :	2020-06-08
	Name of vessel:	NGCC ILE SAINT-OURS	Revision :	02

CHART #7	
EMERGENCY 12VDC BATTERY - DC2	
OPERATIONAL MODE	EMERGENCY
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	0,18
POWER AVAILABLE FROM EMERGENCY 12VDC (DC2):	0,65
EMERGENCY	
% USED FROM EMERGENCY 12VDC (DC2) IN OPERATION MODE:	28%

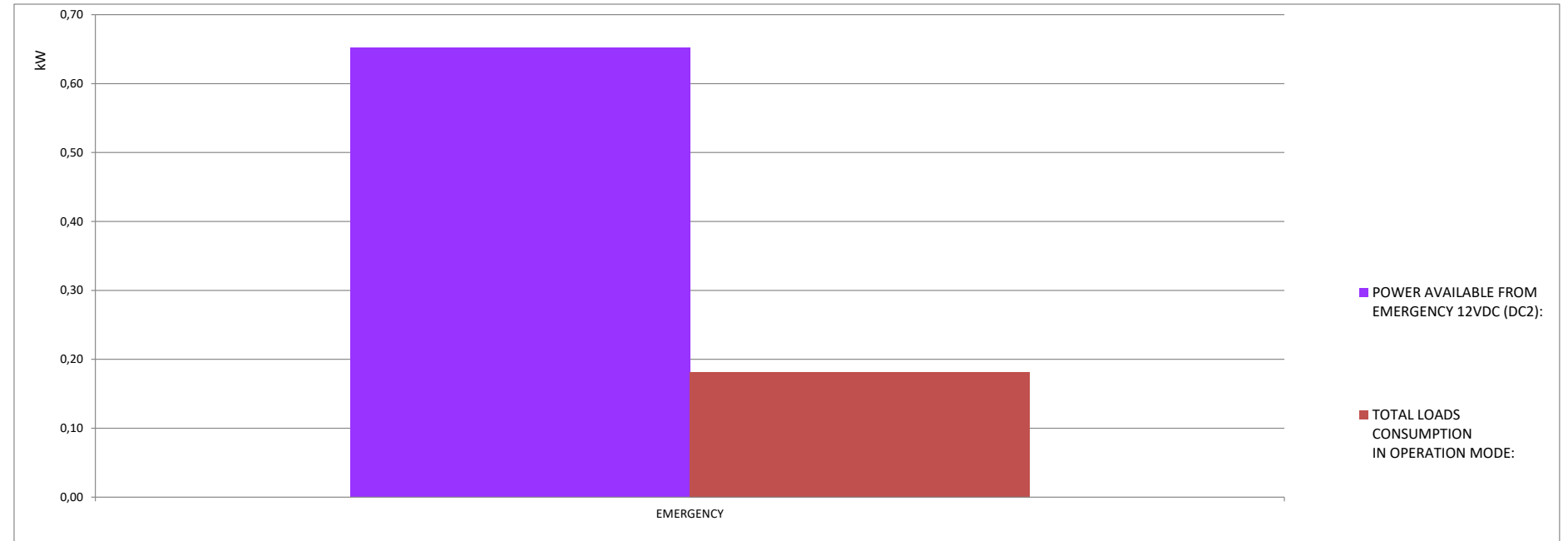
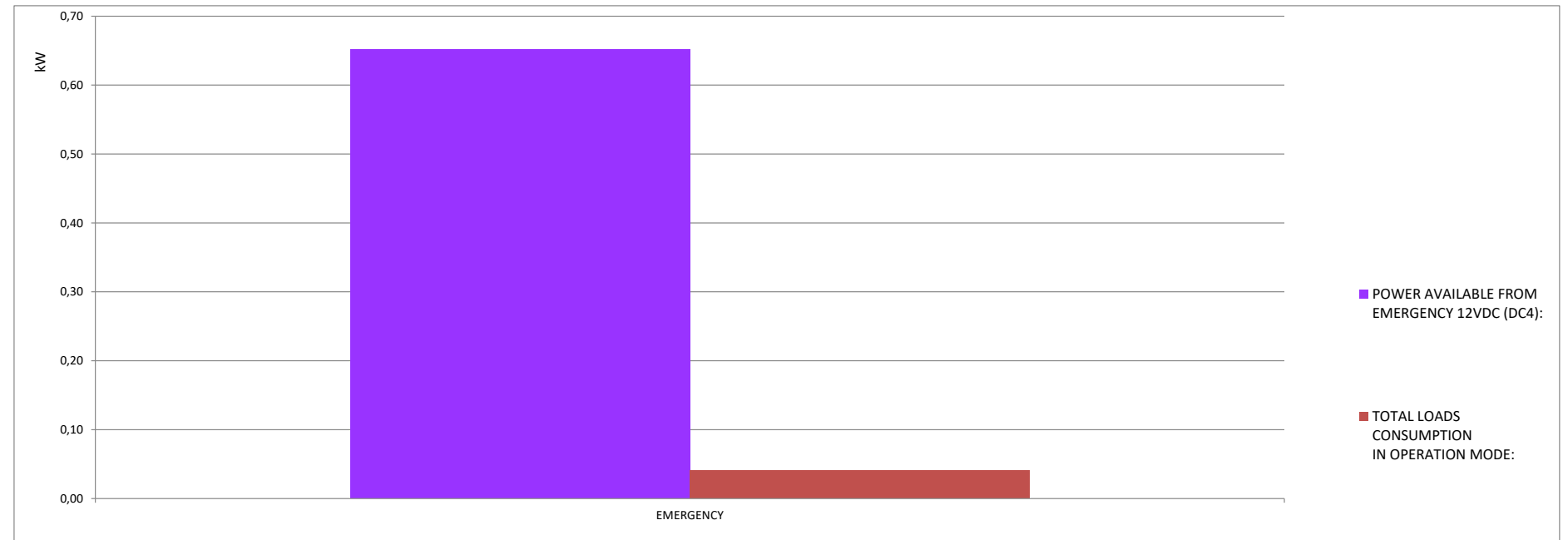


CHART #8	
MACHINERY 12VDC BATTERY - DC4	
OPERATIONAL MODE	EMERGENCY
TOTAL LOADS CONSUMPTION IN OPERATION MODE:	0,04
POWER AVAILABLE FROM EMERGENCY 12VDC (DC4):	0,65
EMERGENCY	
% USED FROM EMERGENCY 12VDC (DC4) IN OPERATION MODE:	6%





Analyse des charges / Electrical Load Analysis

Shipyards: Canadian Coast Guard Date: 2020-06-08
Name of vessel: NGCC ILE SAINT-OURS Revision: 02

Table with 24 columns: Circuit Number, Description, Voltage (V) [240, AC], Load Factor, Utilization Factor, Load (kW), Load (kVA), Transit (Summer/Autumn), Manoeuvring (Summer/Autumn), Shore Power (Winter), Emergency (Utilization/Load), Load Validation #.

Table with 24 columns: Circuit Number, Description, Voltage (V) [240, AC], Load Factor, Utilization Factor, Load (kW), Load (kVA), Transit (Summer/Autumn), Manoeuvring (Summer/Autumn), Shore Power (Winter), Emergency (Utilization/Load), Load Validation #.

Table with 24 columns: Circuit Number, Description, Voltage (V) [240, AC], Load Factor, Utilization Factor, Load (kW), Load (kVA), Transit (Summer/Autumn), Manoeuvring (Summer/Autumn), Shore Power (Winter), Emergency (Utilization/Load), Load Validation #.

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Analyse des charges / Electrical Load Analysis

Shipyard: Canadian Coast Guard Date: 2020-06-08
 Name of vessel: NGCC ILE SAINT-OURS Revision: 02

120VAC DISTRIBUTION PANEL - L2		VOLTAGE (V)				Ø	3	TRANSIT								MANOEUVRING						SHORE POWER			EMERGENCY			LOAD VALIDATION #
CIRCUIT NUMBER	DESCRIPTION	120		AC				SUMMER (DAY)				AUTUMN (NIGHT)				SUMMER (DAY)			AUTUMN (NIGHT)			WINTER (NIGHT)			EMERGENCY			
		kW	EFF.	ekW	P.F.			Ø	kVA	LOAD FACTOR	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	
(1-3) L2-1	Radar	0,78	1,0000	0,78	1,0000	1	0,78	1,00	0,90	0,70	0,70	0,90	0,70	0,70	0,90	0,70	0,70	0,90	0,70	0,70	0,00	0,00	0,00				y	
(2-4) L2-2	UPS Port (Radar/GPS/AIS)	1,50	1,0000	1,50	1,0000	1	1,50	1,00	0,40	0,60	0,60	0,40	0,60	0,60	0,40	0,60	0,60	0,40	0,60	0,60	0,20	0,30	0,30				y	
(5-7) L2-3	Receptacle - (was for Loran C receptacle)	0,08	1,0000	0,08	1,0000	1	0,08	1,00	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01				y	
(6-8) L2-4	Intercom	0,30	0,8500	0,35	1,0000	1	0,35	1,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				y	
(9-11) L2-5	LF-MF/DF receptacle (3 portable radios plugged in a power strip)	0,05	1,0000	0,05	1,0000	1	0,05	1,00	0,20	0,01	0,01	0,20	0,01	0,01	0,20	0,01	0,01	0,20	0,01	0,01	0,20	0,01	0,01				y	
(10-12) L2-6	12V DC DISTRIBUTION PANEL #1 - D1 - power supply	0,48	0,9500	0,51	1,0000	1	0,51			0,26	0,26		0,26	0,26		0,26	0,26		0,26	0,26		0,03	0,03				---	
(13-15) L2-7	SOUNDER	0,20	0,8000	0,25	1,0000	1	0,25	1,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				y	
(14-16) L2-8	Receptacle - (was for VHF-DF)	0,08	1,0000	0,08	1,0000	1	0,08	1,00	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01				y	
(17-19) L2-9	12 Battery charger for STBD radio	0,17	1,0000	0,17	1,0000	1	0,17	1,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00				---	
(18-20)	SPACE					1																					y	
(21-23) L2-11	Wheelhouse Top Receptacle	0,08	1,0000	0,08	1,0000	1	0,08	1,00	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01				y	
(22-24)	SPARE					1																					y	
(25-27)	SPACE					1																					y	
(26-28) L2-14	12V DC DISTRIBUTION PANEL #2 - D2 - battery charger	0,35	0,9500	0,37	1,0000	1	0,37	1,00	0,80	0,29	0,29	0,80	0,29	0,29	0,80	0,29	0,29	0,80	0,29	0,29	0,20	0,07	0,07				---	
P_{tot}		4,06		4,20			4,20			1,89	1,89		1,89	1,89		1,89	1,89		1,89	1,89		0,43	0,43					

120VAC DISTRIBUTION PANEL - L3		VOLTAGE (V)				Ø	3	TRANSIT								MANOEUVRING						SHORE POWER			EMERGENCY			LOAD VALIDATION #
CIRCUIT NUMBER	DESCRIPTION	120		AC				SUMMER (DAY)				AUTUMN (NIGHT)				SUMMER (DAY)			AUTUMN (NIGHT)			WINTER (NIGHT)			EMERGENCY			
		kW	EFF.	ekW	P.F.			Ø	kVA	LOAD FACTOR	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	
(1-3) L3-1	Crew cabin lights & recept. (PORT)	0,27	1,0000	0,27	1,0000	1	0,27	1,00	0,60	0,16	0,16	0,60	0,16	0,16	0,60	0,16	0,16	0,60	0,16	0,16	0,60	0,16	0,16				y	
(2-4) L3-2	Range exhaust hood	0,28	1,0000	0,28	1,0000	1	0,28	1,00	0,20	0,06	0,06	0,20	0,06	0,06	0,20	0,06	0,06	0,20	0,06	0,06	0,20	0,06	0,06				y	
(5-7) L3-3	Officer's cabin lights & recept.	0,27	1,0000	0,27	1,0000	1	0,27	1,00	0,60	0,16	0,16	0,60	0,16	0,16	0,60	0,16	0,16	0,60	0,16	0,16	0,60	0,16	0,16				y	
(6-8) L3-4	Washroom + hallway emerg lights	0,18	1,0000	0,18	1,0000	1	0,18	1,00	0,80	0,14	0,14	0,80	0,14	0,14	0,80	0,14	0,14	0,80	0,14	0,14	0,80	0,14	0,14				y	
(9-11) L3-5	Refrigerator	1,02	1,0000	1,02	1,0000	1	1,02	1,00	0,30	0,31	0,31	0,30	0,31	0,31	0,30	0,31	0,31	0,30	0,31	0,31	0,30	0,31	0,31				y	
(10-12) L3-6	Crew cabin lights & recept. (STBD)	0,23	1,0000	0,23	1,0000	1	0,23	1,00	0,60	0,14	0,14	0,60	0,14	0,14	0,60	0,14	0,14	0,60	0,14	0,14	0,60	0,14	0,14				y	
(13-15) L3-7	2 x Exterior receptacles - STBD	0,15	1,0000	0,15	1,0000	1	0,15	1,00	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02				y	
(14-16) L3-8	Mess emergency lights	0,08	1,0000	0,08	1,0000	1	0,08	1,00	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02				y	
(17-19) L3-9	2 x Exterior receptacles - PORT	0,15	1,0000	0,15	1,0000	1	0,15	1,00	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02				y	
(18-20) L3-10	Microwave + hallway receptacles	1,28	1,0000	1,28	1,0000	1	1,28	1,00	0,10	0,13	0,13	0,10	0,13	0,13	0,10	0,13	0,13	0,10	0,13	0,13	0,10	0,13	0,13				y	
(21-23) L3-11	2 x Galley receptacles (PORT counter)	0,15	1,0000	0,15	1,0000	1	0,15	1,00	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02				y	
(22-24) L3-12	2 x Galley receptacles (FWD counter) for toaster	1,00	1,0000	1,00	1,0000	1	1,00	1,00	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,10	0,10	0,10				y	
(25-27) L3-13	Galley / mess lighting	0,08	1,0000	0,08	1,0000	1	0,08	1,00	1,00	0,08	0,08	1,00	0,08	0,08	1,00	0,08	0,08	1,00	0,08	0,08	1,00	0,08	0,08				y	
(26-28) L3-14	Hallway lighting	0,03	1,0000	0,03	1,0000	1	0,03	1,00	1,00	0,03	0,03	1,00	0,03	0,03	1,00	0,03	0,03	1,00	0,03	0,03	1,00	0,03	0,03				y	
(29-31)	SPARE					1																					y	
(30-32) L3-16	Workshop receptacle for grinder	0,08	1,0000	0,08	1,0000	1	0,08	1,00	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,10	0,01	0,01				y	
P_{tot}		5,22		5,22			5,22			1,47	1,47		1,47	1,47		1,47	1,47		1,47	1,47		1,36	1,36					

Tel que mise en marche
As Commissioned



Analyse des charges / Electrical Load Analysis

Shipyard: Canadian Coast Guard

Date : 2020-06-08

Name of vessel: NGCC ILE SAINT-OURS

Revision : 02

120VAC DISTRIBUTION PANEL - L4		VOLTAGE (V)				Ø	3	Ø	kVA	LOAD FACTOR	TRANSIT				MANOEUVRING				SHORE POWER			EMERGENCY			LOAD VALIDATION #						
CIRCUIT NUMBER	DESCRIPTION	120		AC							UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	SUMMER (DAY)		AUTUMN (NIGHT)		WINTER (NIGHT)			UTILIZATION FACTOR		LOAD (kW)	LOAD (kVA)				
		kW	EFF.	ekW	P.F.	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)							LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)											
(1-3) L4-1	Workshop lighting	0,14	1,0000	0,14	1,0000	1	0,14	1,00	1,00	1,00	0,14	0,14	1,00	0,14	0,14	1,00	0,14	0,14	1,00	0,14	0,14	1,00	0,14	0,14				y			
(2-4) L4-2	E/R recepts PORT (3 receptacles)	0,23	1,0000	0,23	1,0000	1	0,23	1,00	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02				y	
(5-7) L4-3	E/R recepts STBD (3 receptacles)	0,23	1,0000	0,23	1,0000	1	0,23	1,00	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02				y	
(6-8) L4-4	E/R lights	0,18	1,0000	0,18	1,0000	1	0,18	1,00	1,00	1,00	0,18	0,18	1,00	0,18	0,18	1,00	0,18	0,18	1,00	0,18	0,18	1,00	0,18	0,18	1,00	0,18	0,18				y
(9-11) L4-5	Workshop receptacle #1 (Grinder)	0,42	1,0000	0,42	1,0000	1	0,42	1,00	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04				y	
(10-12) L4-6	Cargo hold emergency lighting	0,08	1,0000	0,08	1,0000	1	0,08	1,00	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02				y	
(13-15) L4-7	Workshop/hold vent fan	0,37	0,9500	0,39	0,5600	1	0,70	1,00	1,00	0,39	0,70	1,00	0,39	0,70	1,00	0,39	0,70	1,00	0,39	0,70	1,00	0,39	0,70	1,00	0,39	0,70				y	
(14-16) L4-8	Alarm system for PLC	0,10	1,0000	0,10	1,0000	1	0,10	1,00	0,85	0,09	0,09	0,85	0,09	0,09	0,85	0,09	0,09	0,85	0,09	0,09	0,10	0,01	0,01	0,10	0,01	0,01				y	
(17-19) L4-9	Cargo hold lighting	0,13	1,0000	0,13	1,0000	1	0,13	1,00	1,00	0,13	0,13	1,00	0,13	0,13	1,00	0,13	0,13	1,00	0,13	0,13	1,00	0,13	0,13	1,00	0,13	0,13				y	
(18-20) L4-10	Steering flats lights / 2 x receptacles	0,23	1,0000	0,23	1,0000	1	0,23	1,00	0,85	0,20	0,20	0,85	0,20	0,20	0,85	0,20	0,20	0,85	0,20	0,20	0,60	0,14	0,14	0,60	0,14	0,14				y	
(21-23) L4-11	Workshop receptacle #2	0,42	1,0000	0,42	1,0000	1	0,42	1,00	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04	0,10	0,04	0,04				y	
(22-24) L4-12	SPARE					1																									y
(25-27) L4-13	Generator Control (main supply) 24VDC - D5 - Power supply	0,48	0,9500	0,51	1,0000	1	0,51			0,36	0,36		0,36	0,36		0,36	0,36		0,36	0,36		0,00	0,00		0,00	0,00				---	
(26-28) L4-14	Welding Machine	1,90	1,0000	1,90	1,0000	1	1,90	1,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,10	0,19	0,19	0,10	0,19	0,19				y		
(29-31) L4-15	12V DC DISTRIBUTION PANEL #4 - D4 - battery charger	0,35	0,9500	0,37	1,0000	1	0,37	1,00	0,80	0,29	0,29	0,80	0,29	0,29	0,80	0,29	0,29	0,80	0,29	0,29	0,20	0,07	0,07	0,20	0,07	0,07				y	
(30-32)	SPACE					1																									y
(33-35) L4-17	Cargo hold receptacles (3 X drill chargers + Refrigerator)	0,25	1,0000	0,25	1,0000	1	0,25	1,00	0,40	0,10	0,10	0,40	0,10	0,10	0,40	0,10	0,10	0,40	0,10	0,10	0,20	0,05	0,05	0,20	0,05	0,05				y	
(34-36)	SPACE					1																									y
(37-39) L4-19	CO2 horn	0,02	1,0000	0,02	1,0000	1	0,02	1,00	0,10	0,00	0,00	0,10	0,00	0,00	0,10	0,00	0,00	0,10	0,00	0,00	0,10	0,00	0,00	0,10	0,00	0,00				y	
(38-40)	SPACE					1																									y
P_{tot}		5,52		5,58			5,89				2,02	2,33			2,02	2,33			2,02	2,33		1,45	1,76								

120VAC DISTRIBUTION PANEL - L6		VOLTAGE (V)				Ø	3	Ø	kVA	LOAD FACTOR	TRANSIT				MANOEUVRING				SHORE POWER			EMERGENCY			LOAD VALIDATION #					
CIRCUIT NUMBER	DESCRIPTION	120		AC							UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	SUMMER (DAY)		AUTUMN (NIGHT)		WINTER (NIGHT)			UTILIZATION FACTOR		LOAD (kW)	LOAD (kVA)			
		kW	EFF.	ekW	P.F.	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)							LOAD (kVA)	UTILIZATION FACTOR	LOAD (kW)	LOAD (kVA)										
(1-3) L6-1	Exterior lighting	0,80	1,0000	0,80	1,0000	1	0,80	1,00	0,60	0,48	0,48	0,60	0,48	0,48	0,60	0,48	0,48	0,60	0,48	0,48	1,00	0,80	0,80	1,00	0,80	0,80				y
(2-4) L6-2	FWD. Floodlights	0,80	1,0000	0,80	1,0000	1	0,80	1,00	0,40	0,32	0,32	0,40	0,32	0,32	0,40	0,32	0,32	0,40	0,32	0,32	1,00	0,80	0,80	1,00	0,80	0,80				y
(5-7) L6-3	Mess television	0,10	1,0000	0,10	1,0000	1	0,10	1,00	1,00	0,10	0,10	1,00	0,10	0,10	1,00	0,10	0,10	1,00	0,10	0,10	1,00	0,10	0,10	1,00	0,10	0,10				y
(6-8) L6-4	Chart table receptacles	0,10	1,0000	0,10	1,0000	1	0,10	1,00	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,20	0,02	0,02	0,10	0,01	0,01	0,10	0,01	0,01				y
(9-11) L6-5	Receptacle (for future window fan)	0,08	1,0000	0,08	1,0000	1	0,08	1,00	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,10	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00				y
(10-12) L6-6	UPS2 (for navigation light panel & sounder)	2,00	1,0000	2,00	1,0000	1	2,00	1,00	0,20	0,40	0,40	0,20	0,40	0,40	0,20	0,40	0,40	0,20	0,40	0,40	0,20	0,40	0,40	0,20	0,40	0,40				y
(13-15) L6-7	Fire detection panel	0,24	1,0000	0,24	1,0000	1	0,24	1,00	1,00	0,24	0,24	1,00	0,24	0,24	1,00	0,24	0,24	1,00	0,24	0,24	1,00	0,24	0,24	1,00	0,24	0,24				y
(14-16) L6-8	W/H receptacles (PORT)	0,30	1,0000	0,30	1,0000	1	0,30	1,00	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03				y
(17-19) L6-9	W/H top Exterior receptacles	0,23	1,0000	0,23	1,0000	1	0,23	1,00	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02	0,10	0,02	0,02				y
(18-20) L6-10	Consol control lights	0,15	1,0000	0,15	1,0000	1	0,15	1,00	1,00	0,15	0,15	1,00	0,15	0,15	1,00	0,15	0,15	1,00	0,15	0,15	1,00	0,15	0,15	1,00	0,15	0,15				y
(21-23) L6-11	W/H receptacles (STBD)	0,30	1,0000	0,30	1,0000	1	0,30	1,00	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03	0,10	0,03	0,03				y
(24-24) L6-12	Chart table receptacle (printer & VHF/DF)	0,56	1,0000	0,56	1,0000	1	0,56	1,00	0,10	0,06	0,06	0,10	0,06	0,06	0,10	0,06	0,06	0,10	0,06	0,06	0,10	0,06	0,06	0,10	0,06	0,06				y
(25-27) L6-13	W/H lighting and UPS1 (for Wifi., router, etc)	0,45	1,0000	0,45	1,0000	1	0,45	1,00	0,80	0,36	0,36	0,80	0,36	0,36	0,80	0,36	0,36	0,80	0,36	0,36	0,80	0,36	0,36	0,80	0,36	0,36				y
(26-28) L6-14	Aft top bridge lighting	0,04	1,0000	0,04	1,0000	1	0,04	1,00	0,10	0,00	0,00	0,10	0,00	0,00	0,10	0,00	0,00	0,10	0,00	0,00	0,60	0,02	0,02	0,60	0,02	0,02				y
P_{tot}		6,14		6,14			6,14				2,22	2,22			2,22	2,22			2,22	2,22		3,02	3,02							

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As Commissioned

	Analyse des charges / Electrical Load Analysis																					
	Shipyard:	Canadian Coast Guard															Date :	2020-06-08				
	Name of vessel:	NGCC ILE SAINT-OURS															Revision :	02				

12V DC DISTRIBUTION PANEL #1 - D1 (Navigation Equipments)		VOLTAGE (V)					Ø 1	kVA	LOAD FACTOR	TRANSIT						MANOEUVRING						SHORE POWER			EMERGENCY			LOAD VALIDATION #		
		12		DC						SUMMER (DAY)			AUTUMN (NIGHT)			SUMMER (DAY)			AUTUMN (NIGHT)			WINTER (NIGHT)			UTILIZATION	LOAD	LOAD			
		kW	EFF.	ekW	P.F.	Ø				UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD			
(1-3) D1-1	Anemometer	0,010	1,0000	0,010	1,0000	1	0,010	1,00	1,00	0,010	0,010	1,00	0,010	0,010	1,00	0,010	0,010	1,00	0,010	0,010	1,00	0,010	0,010							y
(2-4) D1-2	Sounder (x1) + repeaters (x2)	0,085	1,0000	0,085	1,0000	1	0,085	1,00	1,00	0,085	0,085	1,00	0,085	0,085	1,00	0,085	0,085	1,00	0,085	0,085	0,00	0,000	0,000							y
(5-7) D1-3	VHF/FM #2 (STBD)	0,084	1,0000	0,084	1,0000	1	0,084	1,00	1,00	0,084	0,084	1,00	0,084	0,084	1,00	0,084	0,084	1,00	0,084	0,084	0,20	0,017	0,017							y
(6-8) D1-4	ECS (Elec Chart System)	0,080	1,0000	0,080	1,0000	1	0,080	1,00	1,00	0,080	0,080	1,00	0,080	0,080	1,00	0,080	0,080	1,00	0,080	0,080	0,00	0,000	0,000							y
(9-11)	SPARE																													y
(10-12)	SPARE																													y
(13-15)	SPARE																													y
(14-16)	SPARE																													y
(17-19)	SPARE																													y
(18-20)	SPARE																													y
(21-23)	SPARE																													y
(22-24)	SPARE																													y
(25-27)	SPARE																													y
(26-28)	SPARE																													y
(29-31)	SPARE																													y
(30-32)	SPARE																													y
(33-35)	SPARE																													y
(34-36)	SPARE																													y
(37-39)	SPARE																													y
(38-40)	SPARE																													y
(41-43)	SPARE																													y
(42-44)	SPARE																													y
P_{tot}		0,259		0,259			0,259			0,259	0,259			0,259	0,259			0,259	0,259			0,027	0,027							

12V DC DISTRIBUTION PANEL #2 - D2 (VHF Radio)		VOLTAGE (V)					Ø 1	kVA	LOAD FACTOR	TRANSIT						MANOEUVRING						SHORE POWER			EMERGENCY			LOAD VALIDATION #		
		12		DC						SUMMER (DAY)			AUTUMN (NIGHT)			SUMMER (DAY)			AUTUMN (NIGHT)			WINTER (NIGHT)			UTILIZATION	LOAD	LOAD			
		kW	EFF.	ekW	P.F.	Ø				UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD			
(1-3) D2-1	W/H emergency lighting	0,050	1,0000	0,050	1,0000	1	0,050	1,00	0,00	0,000	0,000	0,00	0,000	0,000	0,00	0,000	0,000	0,00	0,000	0,000	0,00	0,000	0,000	1,00	0,050	0,050				y
(2-4) D2-2	Loudhailer / foghorn	0,084	1,0000	0,084	1,0000	1	0,084	1,00	0,30	0,025	0,025	0,30	0,025	0,025	0,30	0,025	0,025	0,30	0,025	0,025	0,00	0,000	0,000	0,30	0,025	0,025				y
(5-7) D2-3	VHF/FM #1 (PORT)	0,084	1,0000	0,084	1,0000	1	0,084	1,00	1,00	0,084	0,084	1,00	0,084	0,084	1,00	0,084	0,084	1,00	0,084	0,084	0,20	0,017	0,017	1,00	0,084	0,084				y
(6-8) D2-4	Gyro repeater (x2)	0,012	1,0000	0,012	1,0000	1	0,012	1,00	1,00	0,012	0,012	1,00	0,012	0,012	1,00	0,012	0,012	1,00	0,012	0,012	0,00	0,000	0,000	1,00	0,012	0,012				y
(9-11)	SPARE																													y
(10-12) D2-6	Autopilot	0,010	1,0000	0,010	1,0000	1	0,010	1,00	1,00	0,010	0,010	1,00	0,010	0,010	1,00	0,010	0,010	1,00	0,010	0,010	0,00	0,000	0,000	1,00	0,010	0,010				y
P_{tot}		0,240		0,240			0,240			0,131	0,131			0,131	0,131			0,131	0,131			0,017	0,017		0,181	0,181				

12V DC DISTRIBUTION PANEL #4 - D4 (M.E., Gen, Swbd control)		VOLTAGE (V)					Ø 1	kVA	LOAD FACTOR	TRANSIT						MANOEUVRING						SHORE POWER			EMERGENCY			LOAD VALIDATION #		
		12		DC						SUMMER (DAY)			AUTUMN (NIGHT)			SUMMER (DAY)			AUTUMN (NIGHT)			WINTER (NIGHT)			UTILIZATION	LOAD	LOAD			
		kW	EFF.	ekW	P.F.	Ø				UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD	UTILIZATION	LOAD	LOAD			
(1-3) D4-1	Halon release beacon	0,036	1,0000	0,036	1,0000	1	0,036	1,00	0,00	0,000	0,000	0,00	0,000	0,000	0,00	0,000	0,000	0,00	0,000	0,000	0,00	0,000	0,000	1,00	0,036	0,036				y
(2-4)	SPARE																													y
(5-7) D4-3	Main engine inst (PORT)	0,014	1,0000	0,014	1,0000	1	0,014	1,00	1,00	0,014	0,014	1,00	0,014	0,014	1,00	0,014	0,014	1,00	0,014	0,014	0,00	0,000	0,000	0,00	0,000	0,000				y
(6-8) D4-4	Main engine inst (STBD)	0,014	1,0000	0,014	1,0000	1	0,014	1,00	1,00	0,014	0,014	1,00	0,014	0,014	1,00	0,014	0,014	1,00	0,014	0,014	0,00	0,000	0,000	0,00	0,000	0,000				y
(9-11)	SPARE																													y
(10-12) D4-6	E.R. Strobe phone	0,012	1,0000	0,012	1,0000	1	0,012	1,00	0,60	0,007	0,007	0,60	0,007	0,007	0,60	0,007	0,007	0,60	0,007	0,007	0,40	0,005	0,005	0,40	0,005	0,005				y
(13-15)	SPARE																													y
(14-16)	SPARE																													y
(17-19)	SPACE																													y
(18-20)	SPACE																													y
(21-23)	SPACE																													y
(22-24)	SPACE																													y
P_{tot}		0,077		0,077			0,077			0,036	0,036			0,036	0,036			0,036	0,036			0,005	0,005		0,041	0,041				

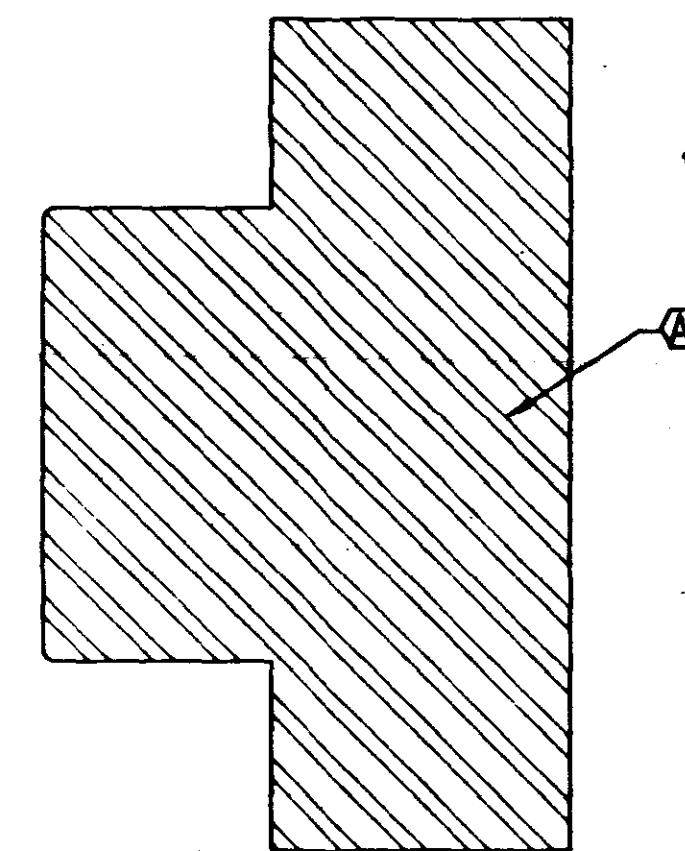
Tel que mise en marche
As Commissioned

10 11 12 13 14 15 16 17 18 19 10

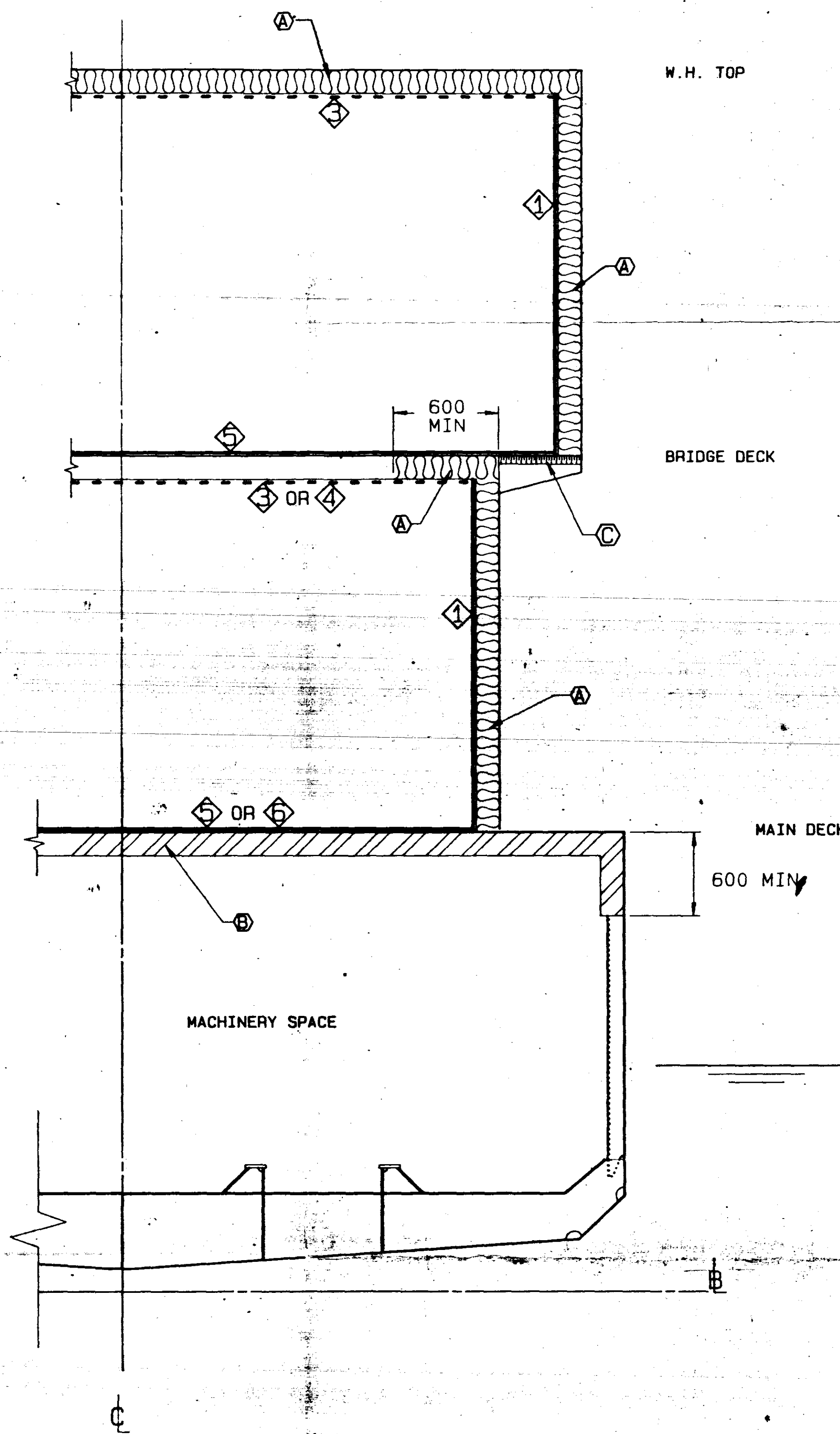
LEGEND		
SYMBOL	LOCATION	TYPE
INSULATION		
	EXTERIOR BULKHEADS OF D.H. AND W.H., TOP OF W.H.	T
	AFT BHD. OF W.H., MACHINERY SPACE DECKHEAD AND PERIMETER BHDS., TRUNKS I.W.O. D.H.	T
	PERIMETER OF W.H. FLOOR	T A
	STORE/WORKSHOP DECKHEAD, TANK BHDS.	T A
BULKHEAD LININGS		
	D.H. AND W.H. LININGS	
	D.H. AND W.H. PARTITION BULKHEADS	
DECKHEAD LININGS		
	CABINS, MESS AREA, ALLEYS, W.H.	A
	GALLEY, WASHROOM	
FLOOR COVERINGS		
	CABINS, W.H.	CARPET TILE & UNDERLAY
	GALLEY, WASHROOM, MESS AREA, ALLEYS	DEX O TEX OVER CONC. SUBCOAT

NOTE:
T = THERMAL
A = ACOUSTIC

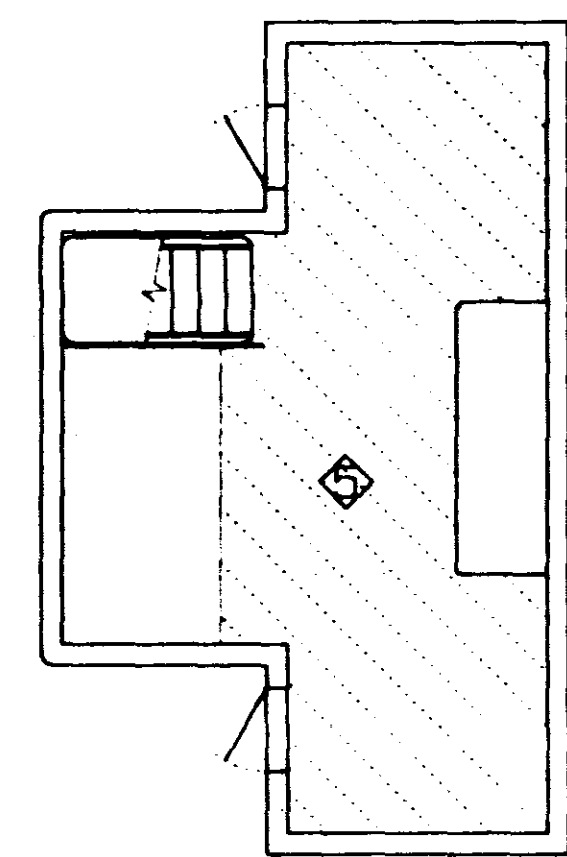
FOR DETAILS OF INSULATION SEE SPECIFICATION SECTION 303.4



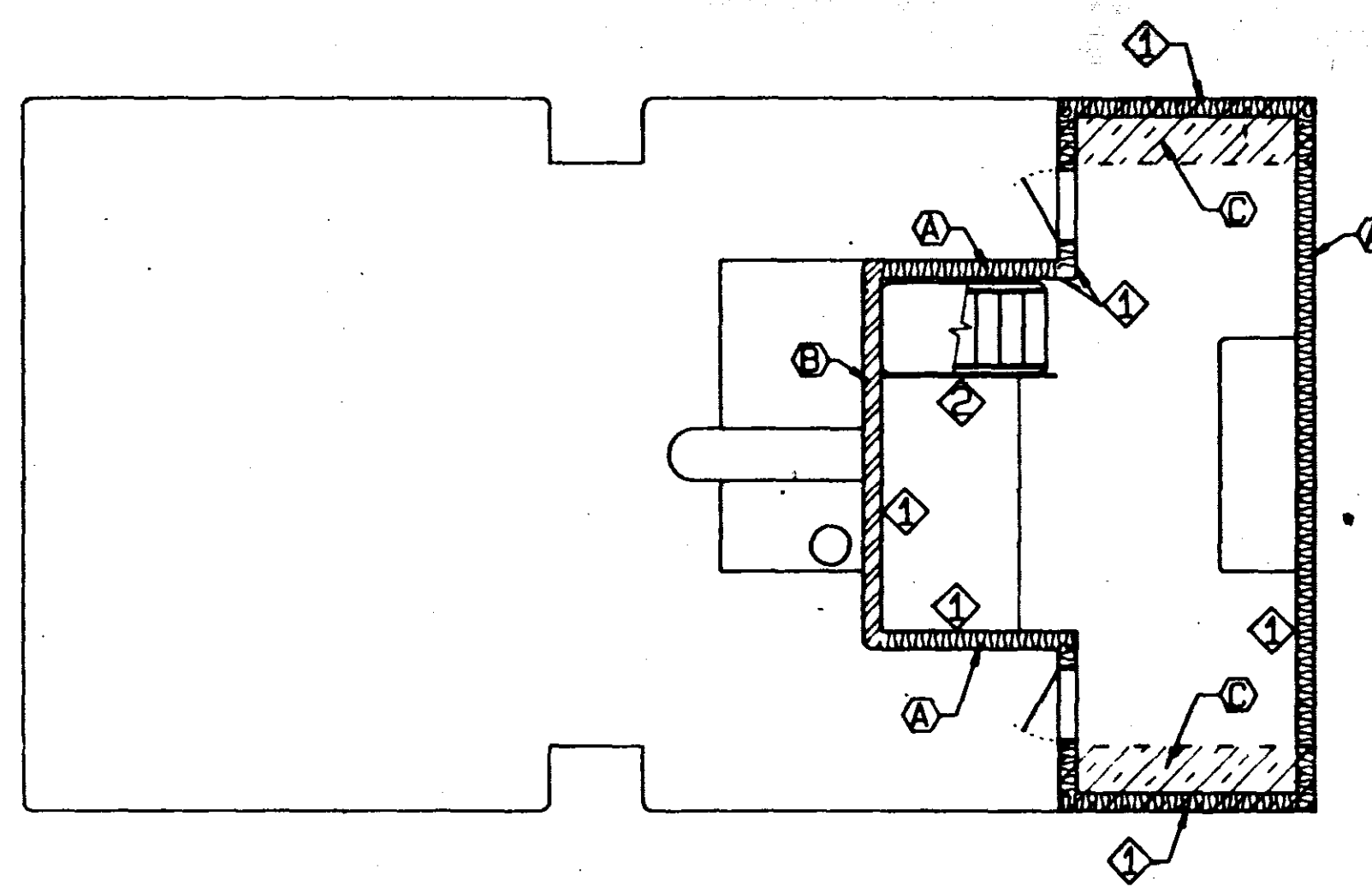
WHEELHOOSE TOP INSULATION



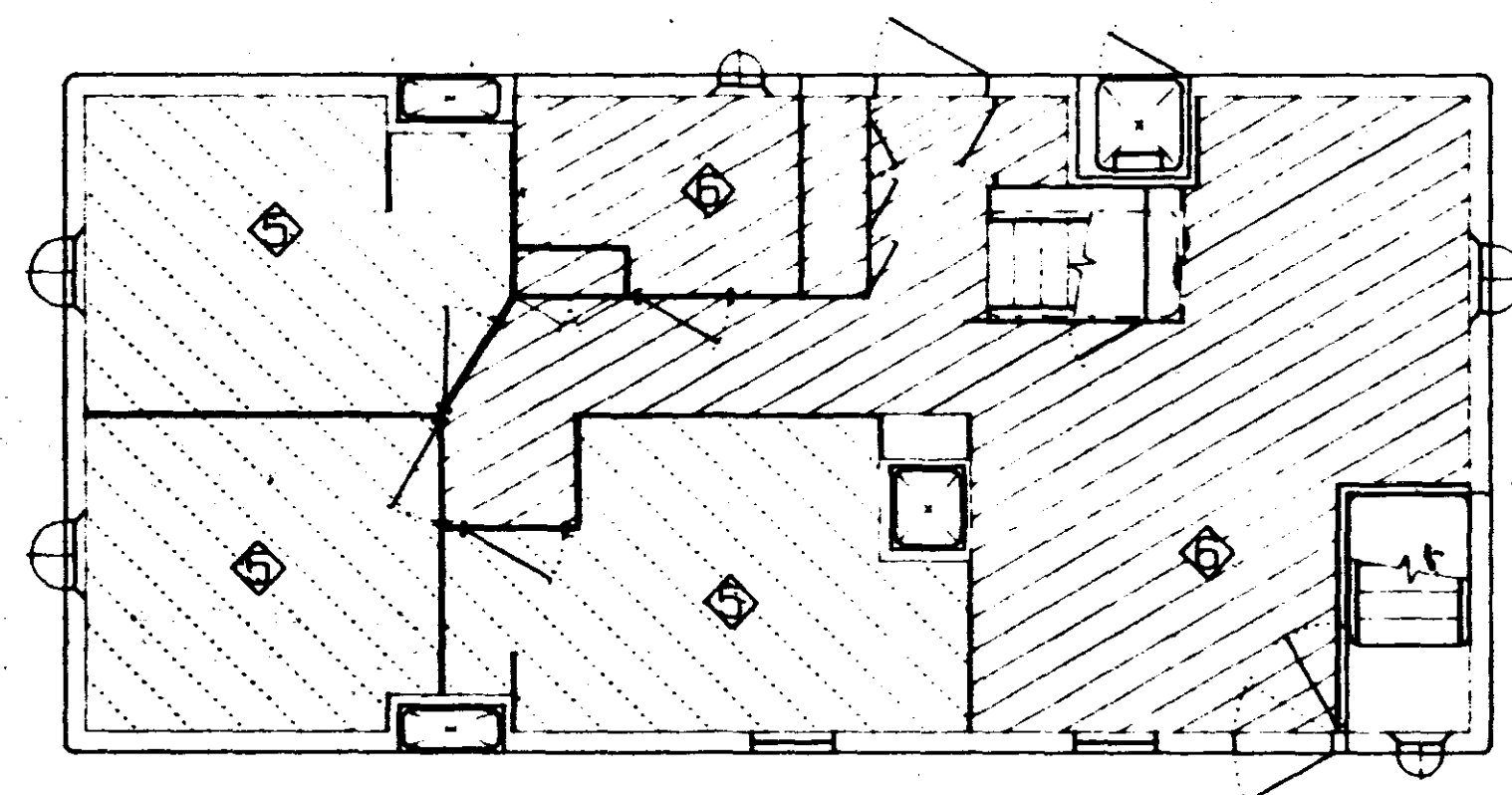
TYPICAL SECTION
SCALE 1:20



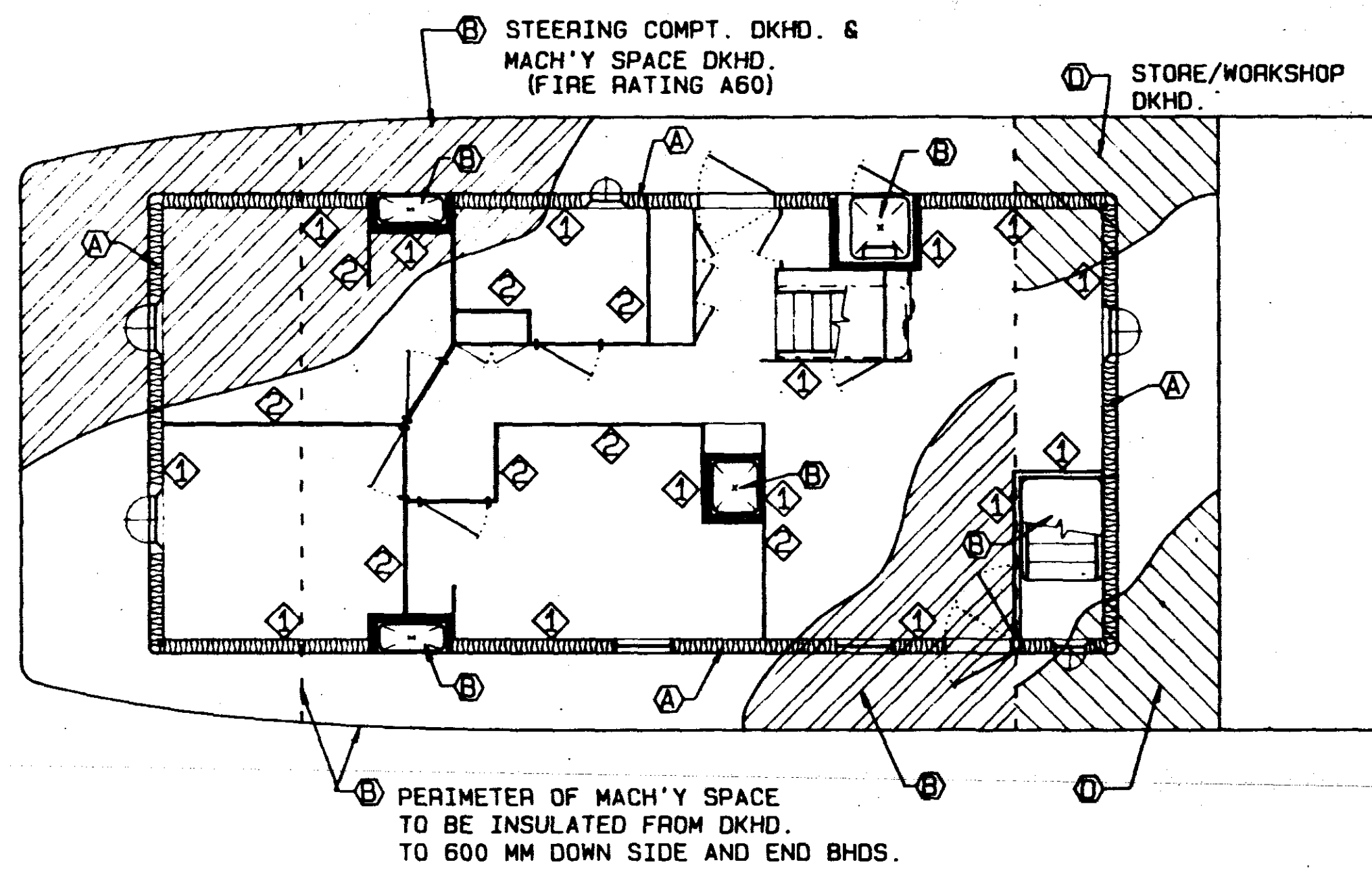
BRIDGE DECK FLOOR COVERINGS



BRIDGE DECK INSULATION & LINING



MAIN DECK FLOOR COVERINGS



MAIN DECK INSULATION & LININGS

Rev No	Révisions	Date
App'd/App'n		
Date		
Contractor Entrepreneur		
ROBERT ALLAN LTD.		
Canadian Coast Guard / Garde côtière canadienne		
Vessel / Navire	TYPE 'F' UTILITY CRAFT	
Dwg. Title / Dess. titre	INSULATION PLAN	
Date	Scale/Échelle: 1:50 & NOTED	Rev.
Contractor Dwg. No. / Entrepreneur dess. No.	42-83-310	

CGS IDENT. NO. CGS/F-83-310