

Spec Item: L-05	SPECIFICATION	TC/MS Field #: N/A
ABB PREMAGNETIZATION TRANSFORMER INSTALLS		

Part 1: SCOPE:

- 1.1 The intent of this specification 2 CCG supplied ABB pre-magnetization transformers in the propulsion motor room .
- 1.2 The contractor will note that there is a great deal of sensitive electronic equipment in this area and will ensure that grounding of welding equipment is done as close as practical to the weld locations.
- 1.3 The contractor will note that there is a great deal of sensitive electronic equipment in this area and will ensure that protective coverings suitable for the application are applied before starting work and that it is the contractors responsibility to ensure that these protective coverings are maintained. The contractor will note that some of the transformers will be under load and cooling air will be required.

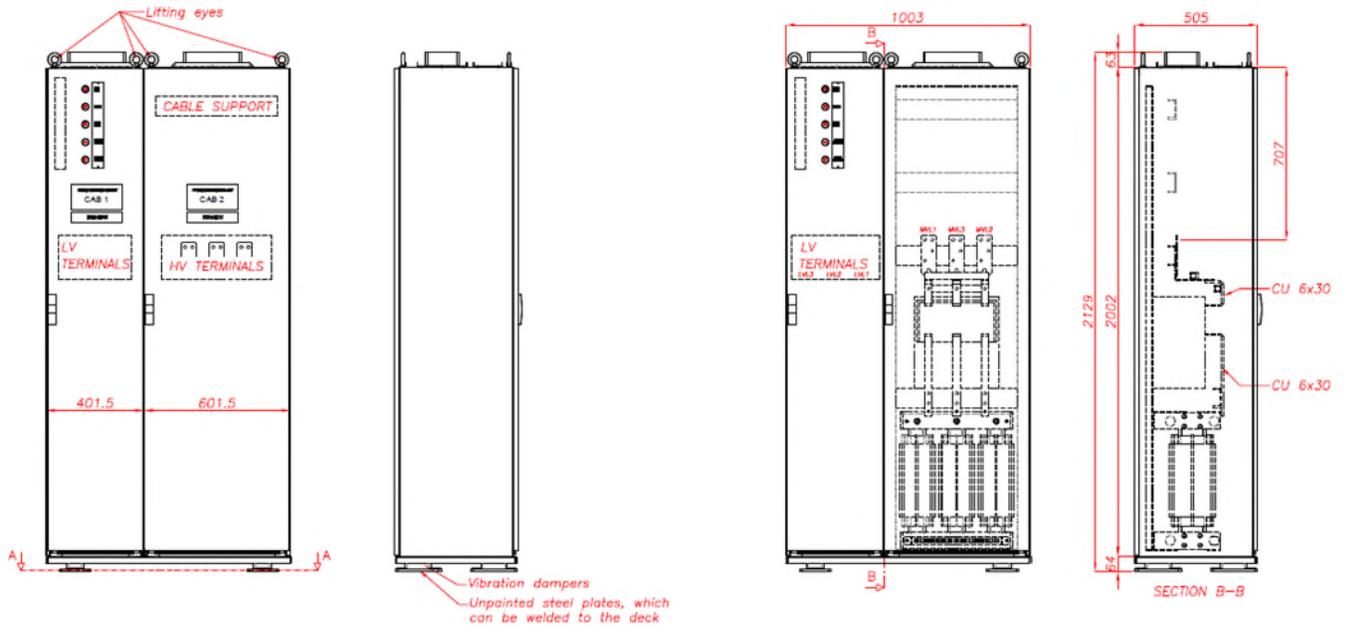
Part 2: REFERENCES:

Drawing Number	Description	DRAWN/MODIFIED BY
Traxx41351574/1575	General arrangement dwg of transformers	

Part 3: TECHNICAL DESCRIPTION:

- 3.1 The contractor is to transport the 2 new pre-magnetization transformers from the stbd side soft patch located on the boat deck to the propulsion motor room upper landing.
- 3.2 The Contractor is to dismantle the transformers prior to shipping into vessel to reduce weight and allow units to be shipped other than vertical. Weight after dismantling will be approximately 320kg. All work to be under the supervision of ABB fsr. All materials removed to be protected from weather and damage prior to re-install. See dimensions below.

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3.3

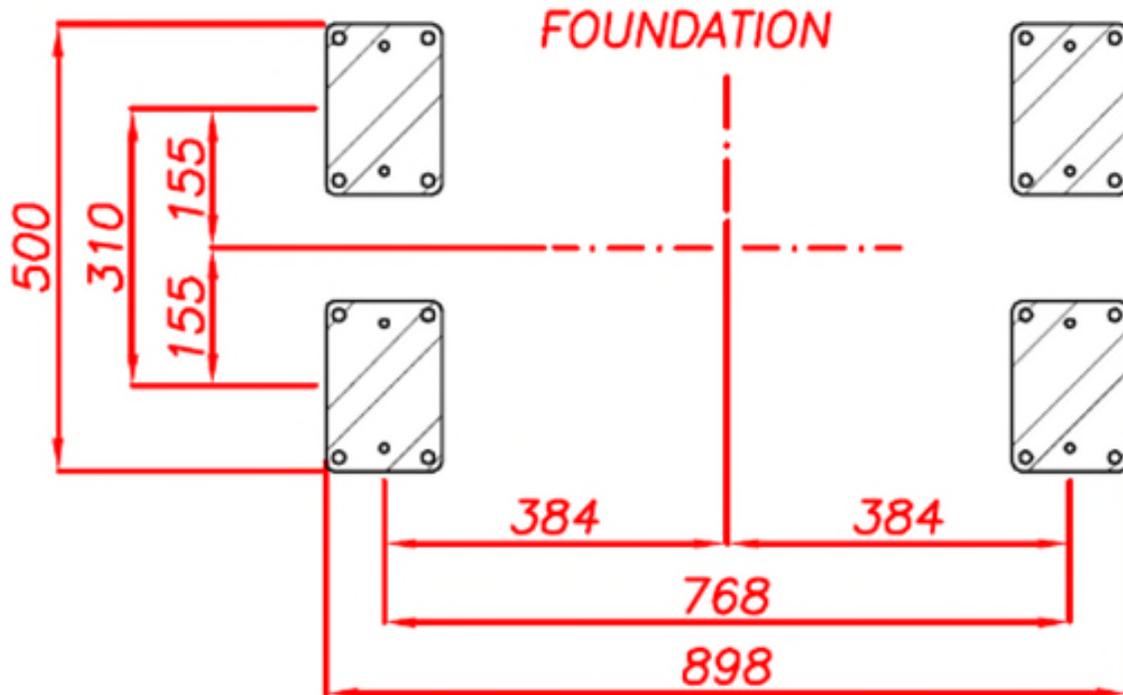
3.4 The ABB fsr costs will be paid through pre-existing contract with CCG.

3.5 The total transformer weight before dismantling is 500kg.

3.6 The transformers include vibration dampers with unpainted steel plates that will be welded to the deck. Final placement to be determined to the satisfaction of the Chief Engineer. Foundation dimensions below

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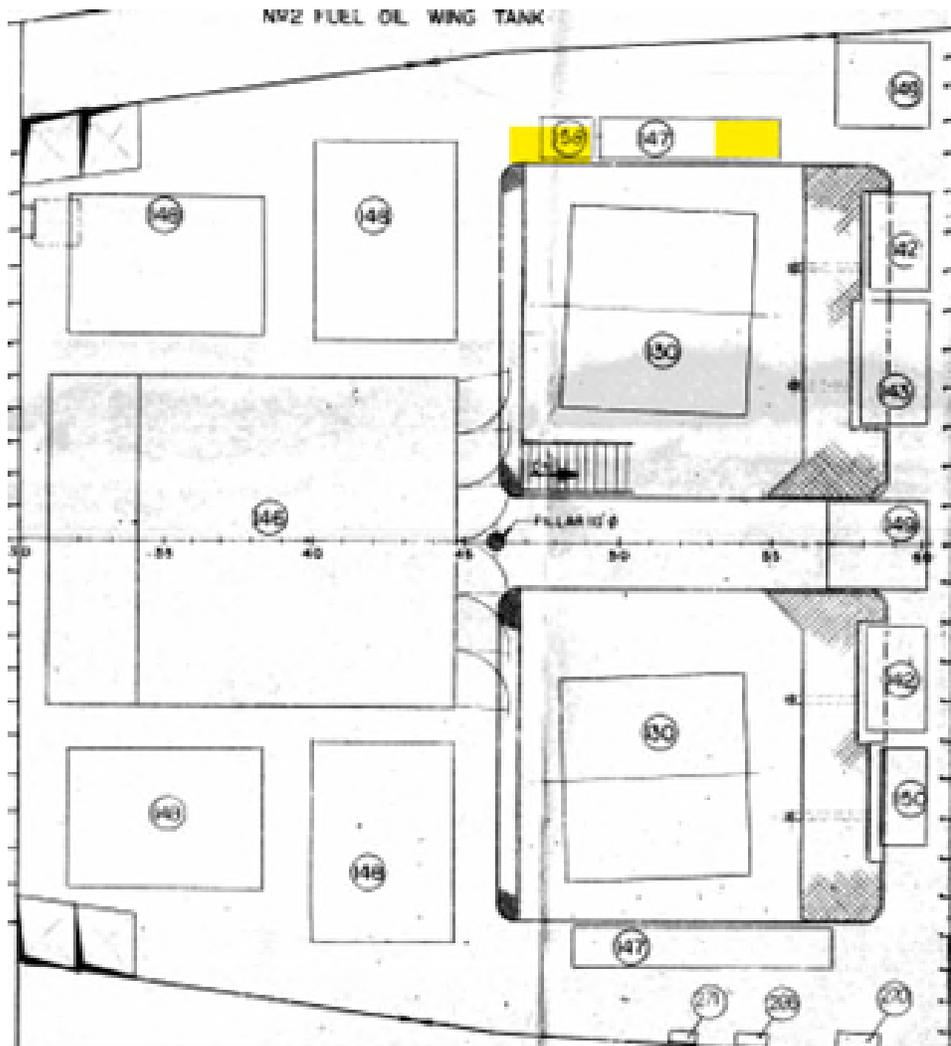
Foundation dimensions 1



3.7

3.8 The 2 transformers will be mounted at **at approximately frames 47 and 55** in the upper landing of the propulsion motor room **port side** as shown below. The transformers will be installed in these locations:
 TDS_TRAXX41351575-01A.pdf to **PORT** side
 TDS_TRAXX41351574-01A.pdf to **PORT** side

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3.9

3.10 The contractor will remove and dispose of in its entirety the original GE Card Test Stand. The contractor will grind flat all remnants of the old card test stand.

The contractor will mount one new pre-magnetization transformer in way of the removed GE Card Test Stand at approximately frame 47. This Pre-Magnetization Transformer will be used for the Stbd Side Propulsion Transformers (TDS_TRAXX41351575-01A.pdf to STDB side).

3.11 The contractor will move the existing stbd Neutral Ground Resistor (NGR) aft and mount between the port UPS and the new starboard Pre-Magnetization Transformer. This NGR will be mounted transverse to the ship with a contractor fabricated mounting arrangement similar to the existing.

3.12 The contractor will move the port NGR aft and rotate 90 degrees so that it is transverse to the ship and mount it again such that there is an air gap of 4 inches between the NGR and the existing Port UPS. The mounting arrangement will be similar to the existing.

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The contractor will mount the other Pre-Magnetization transformer (TDS_TRAXX41351574-01A.pdf to PORT side) just forward of the Port NGR with 4 inches air gap to the port NGR at approximately frame 55. The forward Pre-Magnetizing transformer will be used for the port propulsion transformers.

- 3.13** Final positioning will be agreed with the C/E of the components. The contractor will allow 24 hours for the C/E to confirm if the final placements are acceptable before welding to the ship.
- 3.14** The Contractor will use existing Roxtec glands for cabling into the new Pre-magnetization transformers and cycloconverters. The contractor will supply and install new Roxtec blocks as required for the new cabling.
- 3.15** The contractor will supply and install new glands for power cabling from the excitation transformers to the Excitation transformers.
- 3.16** The contractor will apply two coats of Royal Coating Easy Prime applied as per the coating manufacturer's instructions to all new and disturbed steel.
- 3.17** The contractor will apply two coats of top coat as per paint manufacturer's instructions as per the ships existing paint scheme. Top coats will be supplied by the ship. The C/E will require 24 hours' notice to have the top coats ready for the contractor.

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3.1 The Contractor will supply install wiring as per the following below.
 Specification sheets for all cabling will be provided to CCG and ABB for approval prior to ordering.

Cable Overview:

	Document Type:	Cable list		Customer:	CCGS Henry Larsen			Date:	13.1.2020
	Document No:	3AFV6237 2090 Prema		Project Name:	Propulsion Drive Modernization			Drawn:	P. Kauppi
	Revision:	A		Resp. Dept.:	VRS			Check:	V. Rämö
	Based On:			Approved:				R. Aavasalo	
Cable name	Source (from)	Target (to)	Cable type	all conductors		Cross-section [mm]	Length [m]	Function text	
6237/120-1	=TEX1	+Prema Stbd	LKSM-HF 3x25	3		25			
6237/120-2	+Prema Stbd	=CC2+A1	LKSM-HF 1x16	1		16			
6237/120-3	+Prema Stbd	=CC2+A1	LKSM-HF 1x16	1		16			
6237/120-4	+Prema Stbd	=CC2+A1	LKSM-HF 1x16	1		16			
6237/121-1	=TEX2	+Prema Port	LKSM-HF 3x25	3		25			
6237/121-2	+Prema Port	=CC1+A3	LKSM-HF 1x16	1		16			
6237/121-3	+Prema Port	=CC1+A3	LKSM-HF 1x16	1		16			
6237/121-4	+Prema Port	=CC1+A3	LKSM-HF 1x16	1		16			
6237/362-1	=CC1+R1	+Prema Port	LKSM-HF 7x1,5	7		1,5			
6237/362-2	=CC1+R1	+Prema Port	LKSM-HF 7x1,5	7		1,5			
6237/362-3	=CC2+R1	+Prema Stbd	LKSM-HF 7x1,5	7		1,5			
6237/362-4	=CC2+R1	+Prema Stbd	LKSM-HF 7x1,5	7		1,5			

Connection list:

	Document Type:	Cable connection list		Customer:	CCGS Henry Larsen			Date:	13.1.2020	
	Document No:	3AFV6237 2091 Prema		Project Name:	Propulsion Drive Modernization			Prepared:	P. Kauppi	
	Revision:			Resp. Dept.:	VRS			Check:	V. Rämö	
	Based On:			Approved:				R. Aavasalo		
Cable name	Cable type	No. Of conductors	Cross-section	Cable length	Function text					
6237/120-1	LKSM-HF 3x25	3x25 mm ²	25 mm ²							
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref				
/2290/120-4D	+Prema Stbd-X10	L1	BN	=TEX1-L1	X1	/2290/120-2D				
/2290/120-4E	+Prema Stbd-X10	L2	BK	=TEX1-L2	X2	/2290/120-2E				
/2290/120-4E	+Prema Stbd-X10	L3	GY	=TEX1-L3	X3	/2290/120-2E				
/2290/120-3D	-6237/120-1		SH	-EM		/2290/120-4E				

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 Marine and Ports	Document Type:	Cable connection list	Customer:	CCGS Henry Larsen	Date:	13.1.2020
	Document No:	3AFV6237 2091 Prema	Project Name:	Propulsion Drive Modernization	Prepared:	P Kauppi
	Revision:		Resp. Dept.:	VRS	Check:	V Rämö
	Based On:		Approved:	R Aavasalo		
Cable name 6237/120-2	Cable type LKSM-HF 1x16	No. Of conductors 1x16 mm ²	Cross-section 16 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
/2290/120-5D	+Prema Stbd-L1	X1	BK	=CC2+A1-A32	F5	/2290/120-6D
/2290/120-5D	-6237/120-2		SH	-EM		/2290/120-6D

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	Revision:		Resp. Dept.:	VRS	Check:	V Rämö
	Based On:		Approved:	R Aavasalo		
Cable name 6237/120-3	Cable type LKSM-HF 1x16	No. Of conductors 1x16 mm ²	Cross-section 16 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
/2290/120-5E	+Prema Stbd-L2	X2	BK	=CC2+A1-A32	F6	/2290/120-6E
/2290/120-5E	-6237/120-3		SH	-EM		/2290/120-6E

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	Revision:		Resp. Dept.:	VRS	Check:	V Rämö
	Based On:		Approved:	R Aavasalo		
Cable name 6237/120-4	Cable type LKSM-HF 1x16	No. Of conductors 1x16 mm ²	Cross-section 16 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
/2290/120-5E	+Prema Stbd-L3	X3	BK	=CC2+A1-A32	F7	/2290/120-6E
/2290/120-5E	-6237/120-4		SH	-EM		/2290/120-6E

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	Revision:		Resp. Dept.:	VRS	Check:	V Rämö
	Based On:				Approved:	R Aavasalo
Cable name 6237/121-1	Cable type LK5M-HF 3x25	No. Of conductors 3x25 mm ²	Cross-section 25 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
/2290/121-4D	+Prema Port-X10	L1	BN	=TEX2-L1	X1	/2290/121-2D
/2290/121-4E	+Prema Port-X10	L2	BK	=TEX2-L2	X2	/2290/121-2E
/2290/121-4E	+Prema Port-X10	L3	GY	=TEX2-L3	X3	/2290/121-2E
/2290/121-3D	-6237/121-1		SH	-EM		/2290/121-4E

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	Revision:		Resp. Dept.:	VRS	Check:	V Rämö
	Based On:				Approved:	R Aavasalo
Cable name 6237/121-2	Cable type LK5M-HF 1x16	No. Of conductors 1x16 mm ²	Cross-section 16 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
/2290/121-5D	+Prema Port-L1	X1	BK	=CC1+A3-A32	F5	/2290/121-6D
/2290/121-5D	-6237/121-2		SH	-EM		/2290/121-6D

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	Revision:		Resp. Dept.:	VRS	Check:	V Rämö
	Based On:				Approved:	R Aavasalo
Cable name 6237/121-3	Cable type LK5M-HF 1x16	No. Of conductors 1x16 mm ²	Cross-section 16 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
/2290/121-5E	+Prema Port-L2	X2	BK	=CC1+A3-A32	F6	/2290/121-6E
/2290/121-5E	-6237/121-3		SH	-EM		/2290/121-6E

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Cable name 6237/121-4	Cable type LKSM-HF 1x16	No. Of conductors 1x16 mm ²	Cross-section 16 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
/2290/121-5E	+Prema Port-L3	X3	BK	=CC1+A3-A32	F7	/2290/121-6E
/2290/121-5E	-6237/121-4		SH	-EM		/2290/121-6E

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	Based On:		Resp. Dept.:	VRS	Approved:	R Aavasalo
Cable name 6237/362-1	Cable type LKSM-HF 7x1,5	No. Of conductors 7x1,5 mm ²	Cross-section 1,5 mm ²	Cable length	Function text	
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref
=CC1+R1/2151/456-2A	=Motor Room+Prema Port-X11	209	1	=CC1+R1-A0.11.109	B9	=CC1+R1/2151/456-6A
=CC1+R1/2151/456-2B	=Motor Room+Prema Port-X11	210	2	=CC1+R1-A0.11.109	C9	=CC1+R1/2151/456-6B
=CC1+R1/2151/456-2E	=Motor Room+Prema Port-X11	211	3	=CC1+R1-A0.11.109	B16	=CC1+R1/2151/456-6E
=CC1+R1/2151/456-2E	=Motor Room+Prema Port-X11	212	4	=CC1+R1-A0.11.109	C16	=CC1+R1/2151/456-6E
=CC1+R1/2151/458-2E	=Motor Room+Prema Port-X11	205	5	=CC1+R1-A0.11.110	C16	=CC1+R1/2151/458-6E
=CC1+R1/2151/458-2E	=Motor Room+Prema Port-X11	206	6	=CC1+R1-A0.11.110	B16	=CC1+R1/2151/458-6E
			7			
/2290/362-2C	-6237/362-1		SH	=CC1+R1-EM		=CC1+R1/2151/456-3B

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	Revision:		Resp. Dept.:	VRS		Check:	V Rämö
	Based On:					Approved:	R Aavasalo
Cable name 6237/362-2	Cable type LKSM-HF 7x1,5	No. Of conductors 7x1,5 mm ²	Cross-section 1,5 mm ²	Cable length	Function text		
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref	
=CC1+R1/2151/493-5E	=Motor Room+Prema Port-X11	201	1	=CC1+R1-A0.11.211	B7	=CC1+R1/2151/493-3E	
=CC1+R1/2151/493-5E	=Motor Room+Prema Port-X11	202	2	=CC1+R1-A0.11.211	A7	=CC1+R1/2151/493-3E	
=CC1+R1/2150/462-8C	=Motor Room+Prema Port-X11	203	3	=CC1+R1-K8	28	=CC1+R1/2150/462-7D	
=CC1+R1/2150/462-8D	=Motor Room+Prema Port-X11	204	4	=CC1+R1-K8	25	=CC1+R1/2150/462-7D	
			5				
			6				
			7				
/2290/362-2C	-6237/362-2		5H	=CC1+R1-EM		=CC1+R1/2151/493-5E	

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	Revision:		Resp. Dept.:	VRS		Check:	V Rämö
	Based On:					Approved:	R Aavasalo
Cable name 6237/362-3	Cable type LKSM-HF 7x1,5	No. Of conductors 7x1,5 mm ²	Cross-section 1,5 mm ²	Cable length	Function text		
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref	
=CC2+R1/2251/456-1A	=Motor Room+Prema Stbd-X11	209	1	=CC2+R1-A0.11.109	B9	=CC2+R1/2251/456-6A	
=CC2+R1/2251/456-1B	=Motor Room+Prema Stbd-X11	210	2	=CC2+R1-A0.11.109	C9	=CC2+R1/2251/456-6B	
=CC2+R1/2251/456-2E	=Motor Room+Prema Stbd-X11	211	3	=CC2+R1-A0.11.109	B16	=CC2+R1/2251/456-6E	
=CC2+R1/2251/456-2E	=Motor Room+Prema Stbd-X11	212	4	=CC2+R1-A0.11.109	C16	=CC2+R1/2251/456-6E	
=CC2+R1/2251/458-1E	=Motor Room+Prema Stbd-X11	205	5	=CC2+R1-A0.11.110	C16	=CC2+R1/2251/458-6E	
=CC2+R1/2251/458-1E	=Motor Room+Prema Stbd-X11	206	6	=CC2+R1-A0.11.110	B16	=CC2+R1/2251/458-6E	
			7				
/2290/362-7C	-6237/362-3		5H	=CC2+R1-EM		=CC2+R1/2251/456-3B	

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	Based On:				Approved:	R Aavasalo	
Cable name	Cable type	No. Of conductors	Cross-section	Cable length	Function text		
6237/362-4	LKSM-HF 7x1,5	7x1,5 mm ²	1,5 mm ²				
x-Ref	Target designation from	connection point	Conductor	Target designation to	Connection point	x-Ref	
=CC2+R1/2251/493-5E	=Motor Room+Prema Stbd-X11	201	1	=CC2+R1-A0.11.211	B7	=CC2+R1/2251/493-3E	
=CC2+R1/2251/493-5E	=Motor Room+Prema Stbd-X11	202	2	=CC2+R1-A0.11.211	A7	=CC2+R1/2251/493-3E	
=CC2+R1/2250/462-8C	=Motor Room+Prema Stbd-X11	203	3	=CC2+R1-KB	2B	=CC2+R1/2250/462-7D	
=CC2+R1/2250/462-8D	=Motor Room+Prema Stbd-X11	204	4	=CC2+R1-KB	25	=CC2+R1/2250/462-7D	
			5				
			6				
			7				
/2290/362-7C	-6237/362-4		SH	=CC2+R1-EM		=CC2+R1/2251/493-5E	

Part 4: PROOF OF PERFORMANCE:

- 4.1 All work to be completed to the satisfaction of the Chief Engineer and attending ABB FSR.
- 4.2 The contractor is to meggar all cabling prior to connection to ensure no damage during installation

Part 5: DELIVERABLES:

- 5.1 The contractor will provide cable certificate detailing cable specs required by ABB.