

Spec Item: L-05	<b>SPECIFICATION</b>	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:

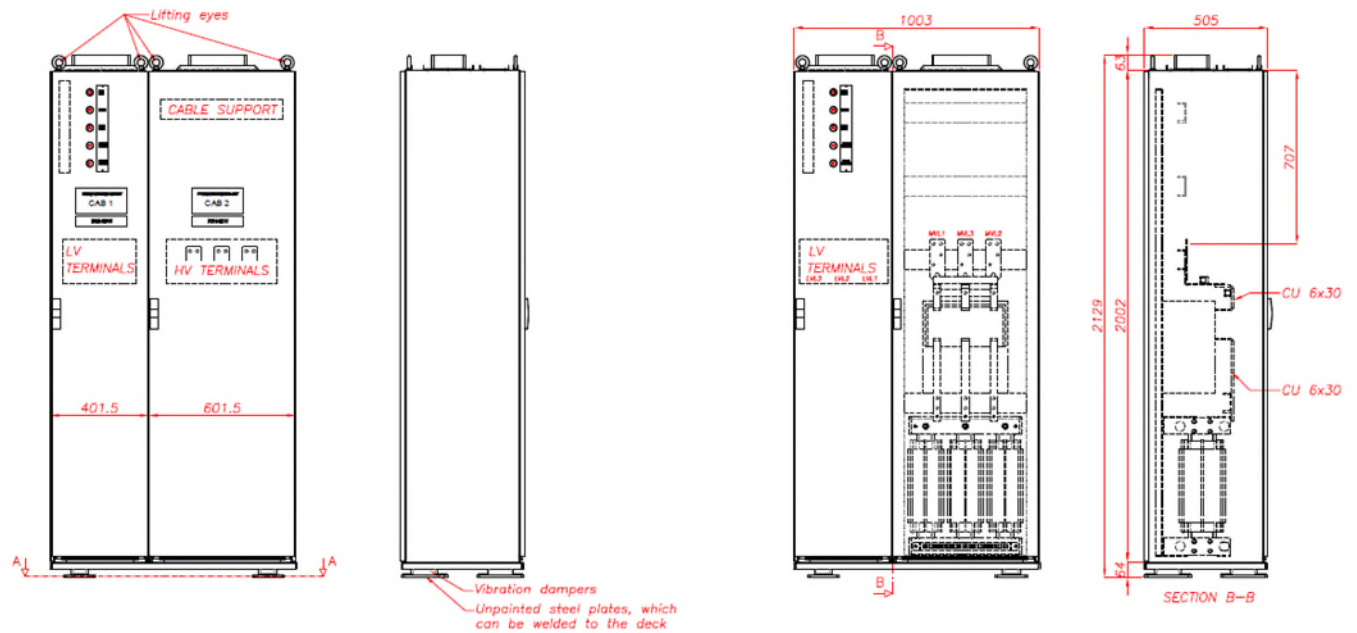
Drawing Number	Description	DRAWN/MODIFIED BY
Traxx41351574/1575	General arrangement dwg of transformers	

## 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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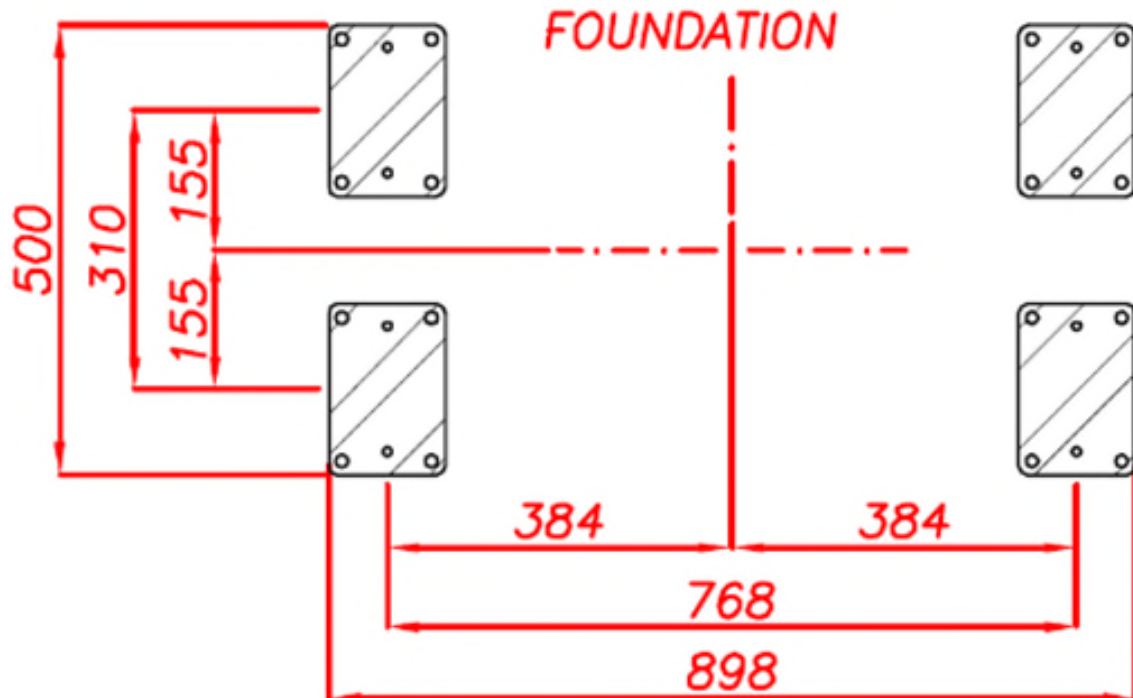


3.3

- 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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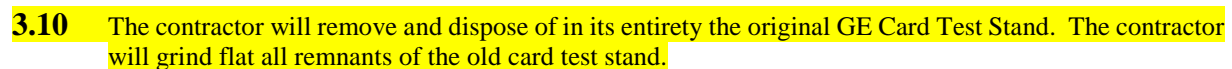
*Foundation dimensions 1*



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

### 3.9



**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					Check:	V. Rämö
	Based On:		Resp. Dept.:	VRS			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:


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	Revision:						Check:	V Rämö
	Based On:		Resp. Dept.:	VRS			Approved:	R Aavasalo
Cable name 6237/120-1	Cable type LKSM-HF 3x25		No. Of conductors 3x25 mm²		Cross-section 25 mm²	Cable length		Function text
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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	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 <sup>2</sup>		Cross-section 16 mm <sup>2</sup>	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


 <b>ABB</b> 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 6237/120-3	Cable type LKSM-HF 1x16		No. Of conductors 1x16 mm <sup>2</sup>		Cross-section 16 mm <sup>2</sup>	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 <sup>2</sup>		Cross-section 16 mm <sup>2</sup>	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:				Check:	V Rämö
	Based On:		Resp. Dept.:	VRS	Approved:	R Aavasalo
Cable name 6237/121-1	Cable type LK5M-HF 3x25	No. Of conductors 3x25 mm <sup>2</sup>	Cross-section 25 mm <sup>2</sup>	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:				Check:	V Rämö
	Based On:		Resp. Dept.:	VRS	Approved:	R Aavasalo
Cable name 6237/121-2	Cable type LK5M-HF 1x16	No. Of conductors 1x16 mm <sup>2</sup>	Cross-section 16 mm <sup>2</sup>	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:				Check:	V Rämö
	Based On:		Resp. Dept.:	VRS	Approved:	R Aavasalo
Cable name 6237/121-3	Cable type LK5M-HF 1x16	No. Of conductors 1x16 mm <sup>2</sup>	Cross-section 16 mm <sup>2</sup>	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 <sup>2</sup>	Cross-section 16 mm <sup>2</sup>	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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	Revision:					Check:	V Rämö
	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 <sup>2</sup>	Cross-section 1,5 mm <sup>2</sup>	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 <sup>2</sup>		Cross-section 1,5 mm <sup>2</sup>	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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	Based On:					Approved:	R Aavasalo
Cable name 6237/362-3	Cable type LKSM-HF 7x1,5		No. Of conductors 7x1,5 mm <sup>2</sup>		Cross-section 1,5 mm <sup>2</sup>	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 6237/362-4	Cable type LKSM-HF 7x1,5		No. Of conductors 7x1,5 mm <sup>2</sup>		Cross-section 1,5 mm <sup>2</sup>	Cable length	Function text
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-K8	28	=CC2+R1/2250/462-7D
=CC2+R1/2250/462-8D	=Motor Room+Prema Stbd-X11		204	4	=CC2+R1-K8	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.