

LCB Electrical Diagram

(15-5032-1402 E)

Written by: Cold Box Manufacturer: PHPK	Distribution : JLAB AL project team
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MODIFICATIONS RECORDING

ISSUE OF MODIF	DATE	WRITTEN BY	CHECKED BY	EVOLUTION OF THE DOCUMENT (Updated pages)	JUSTIFICATION OF THE MODIFICATION
		Note:	Recording of mo	difications are included in document	

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	15-5032-1402		PERATURE	1 4.5K LO	S PLACE (TECH	NO. REQ'D	•	INF DRA THE AND IZEL
SHEET	1402		TEMPERATURE SENSORS	LCLS-II 4.5K LOWER COLD BOX	2111 BUILDERS PLACE COLUMBUS, OHIO 43204	PHPK TECHNOLOGIES	NEXT ASSEMBLY	•	INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHOR- IZED PARTIES.
SHEET 5 OF 17	Е	CHG.		Â	0 43204	<i></i>	SIZE	•	V ON THIS ETARY AND OF PHPK DISCLOSED JNAUTHOR-

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	14/E7			TD-22432-B					V			10/F10 \	╈	Ĵ+ -		TD-22430-B			10/F10		K-		TD-22430-A				- -			TD-22425-B			10/D10				TD-22425-A	× ,		12/H12				TD_99707_B						TD-22393-A		
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L L L	5093		6091			8809		6086	6085	6084			 000							60/6		6075		6073			6071		6069				6066			6064				6061		6059					6055					
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 	5093 IEMPERAIURE 11/F7		6091 20K	6090 TD-22461-B		8809	6087 TEMPERATURE	6086 ADSORBER	6085		6083	6082 15/E7	TEMPERATURE	TURBINE 2		6079 TD-22452-B		6028	6027 15/E7	60/6 IEMPERATURE			6074			6072 10/L10	6071 TEMPERATURE	6070 REDISTRIBUTION	6909				6066 10/L10 I	8085 TEMPERATURE	HX-6/7	6064	6063	6062		6061 10/H10	6060 TEMPERATURE	6059 HX-5 HP	6058	6057		5056	6055 IEMPERAIURE			р р р л ч	6052	

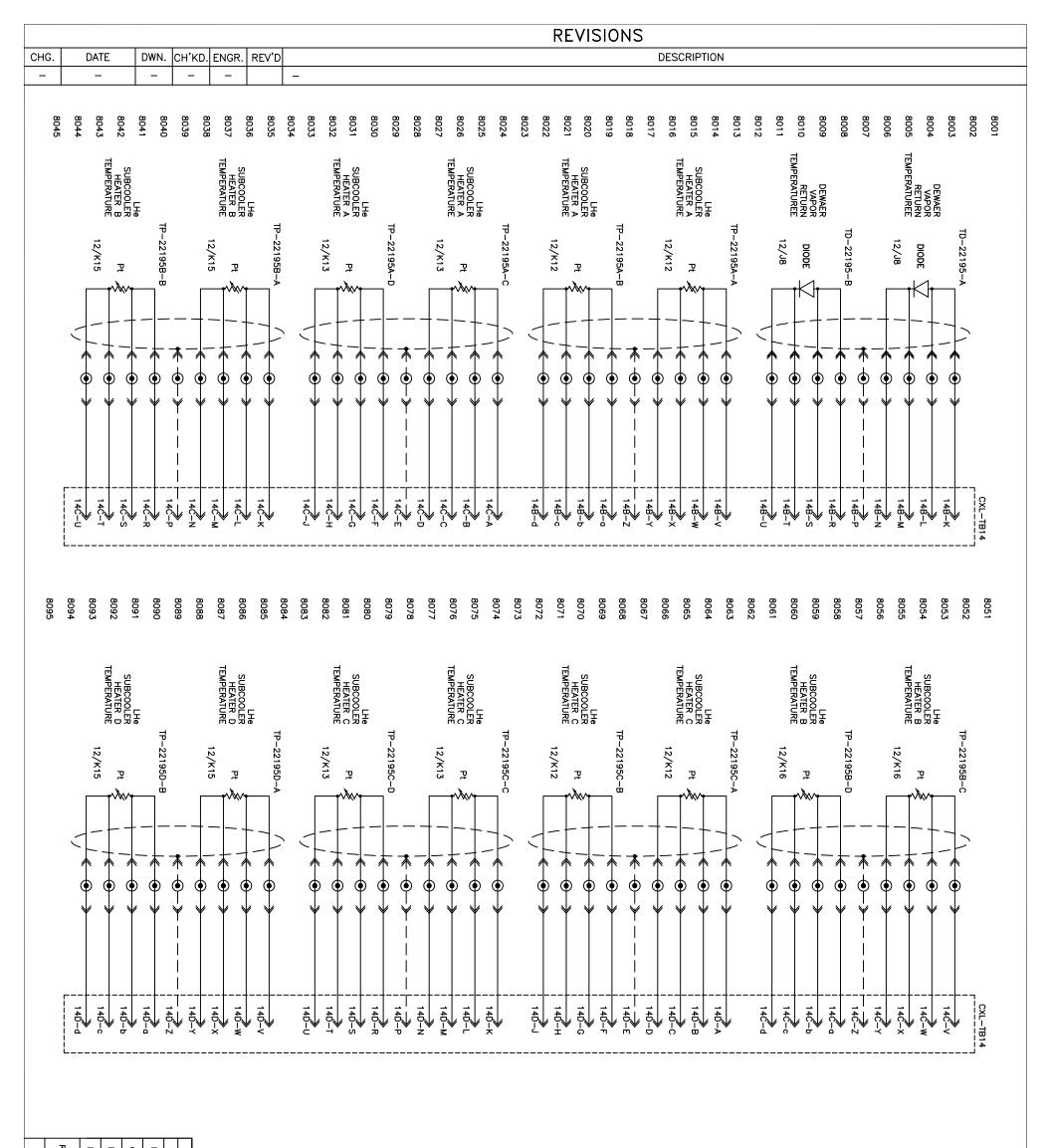
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. LBS WEIGHT DRAWN

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NONE	15-	DRAWING NO.		LCLS-I	2111 BUILDERS PLACE COLUMBUS, OHIO 43204	PHPK TECHNOLOGIES	PART NUMBER	•	
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SHEET	1402		TEMPERATURE SENSORS	LCLS-II 4.5K LOWER COLD BOX	CLUMBUS, OH	VOLOGIES	NEXT ASSEMBLY	•	INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHOR- IZED PARTIES.
SHEET 6 OF 17	E	CHG.		×	0 43204		<pre> SIZE </pre>	•	N ON THIS ETARY AND / OF PHPK DISCLOSED UNAUTHOR-

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	INLET TEMPERATURE	TURBINE 3		TEMPERATURE			REDISTIBUTIÓN TEMPERATURE	HX-B/9			HX-8/9 REDISTIBUTION TEMPERATURE			IEMPERAIURE	ADSORBER OUTLET	200			OUTLET	ADSORBER				INLET TEMPERATURE	20K ADSORBER				AUSURBER INLET	ADSOBBED		
																					TD-22466-A	```				TD-22464-B	·				TD-22464-A	
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		7090 7091	7088 7089	130-W 7000 LIQUID RETURN 7087 TEMPERATUREE	7085	7083	13D-S 7081 BYPASS 13D-T 7082	7080		7077		7074		7071		7069			2007 2066					7060	7059 HX-10 HP			7056		7053		
	7092 TEMPERATUREE 12/18	7090 TD- 7091 DEWAR	7088 7089	7087	7085 TD-22194-A	7083	7081 TEMPERATURE DIODE	7080 TURBINE 4		7077 12/F10	7076	7074 TD-22487-A	7073	7071		7069	7068		7065 TEMPERATURE			7062		7060 TEMPERATURE	7059 HX-10 HP		7057 一个 -	7056 12/E11		7053 HX-10 HP		

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SHEET	1402		TEMPERATURE SENSORS	LCLS-II 4.5K LOWER COLD BOX	2111 BUILDERS PLACE COLUMBUS, OHIO 43204	PHPK TECHNOLOGIES	NEXT ASSEMBLY	•	INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHOR- IZED PARTIES.
SHEET 7 OF 17	Е	CHG.			0 43204	.	SIZE	•	V ON THIS ETARY AND OISCLOSED JNAUTHOR-



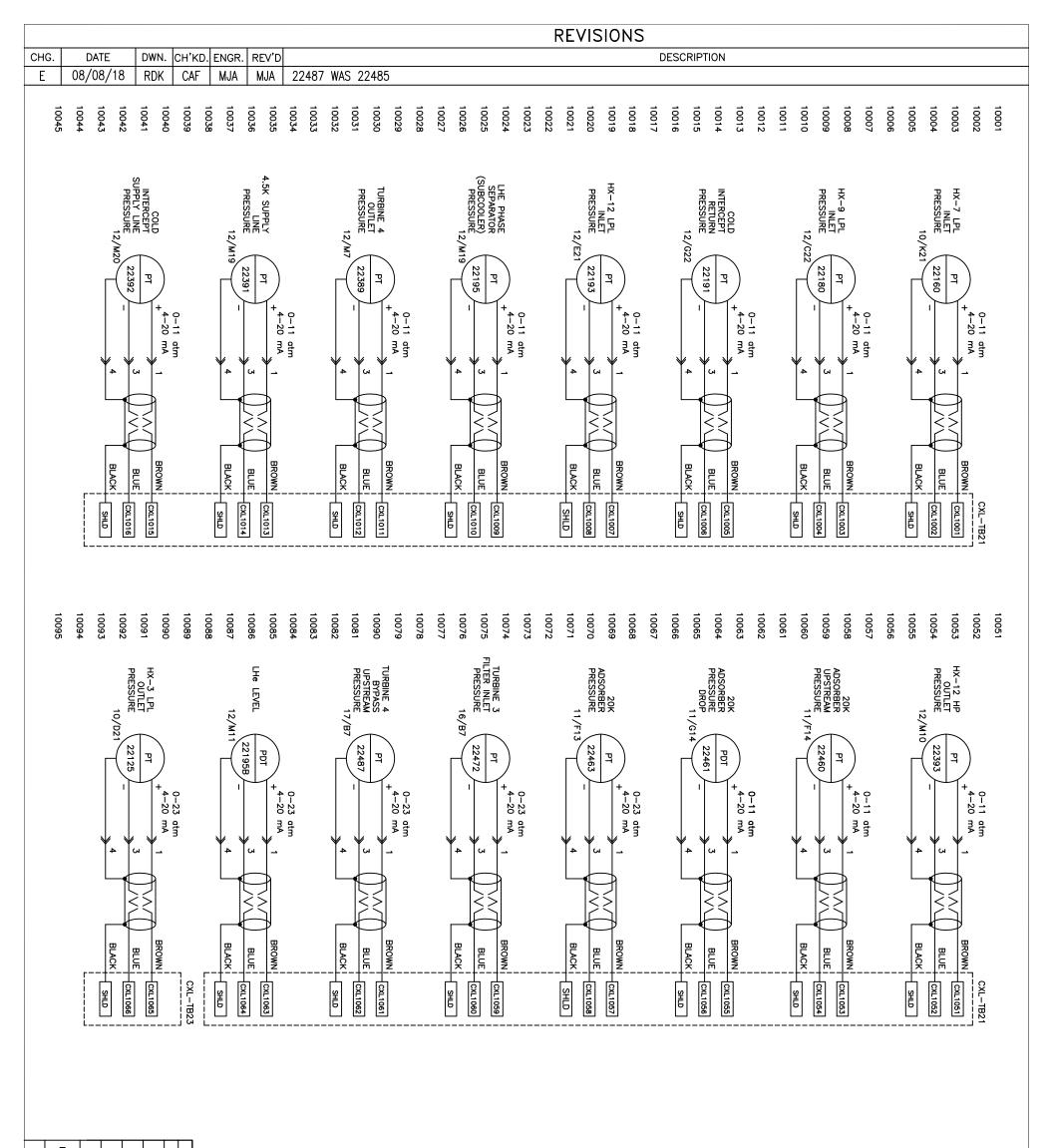
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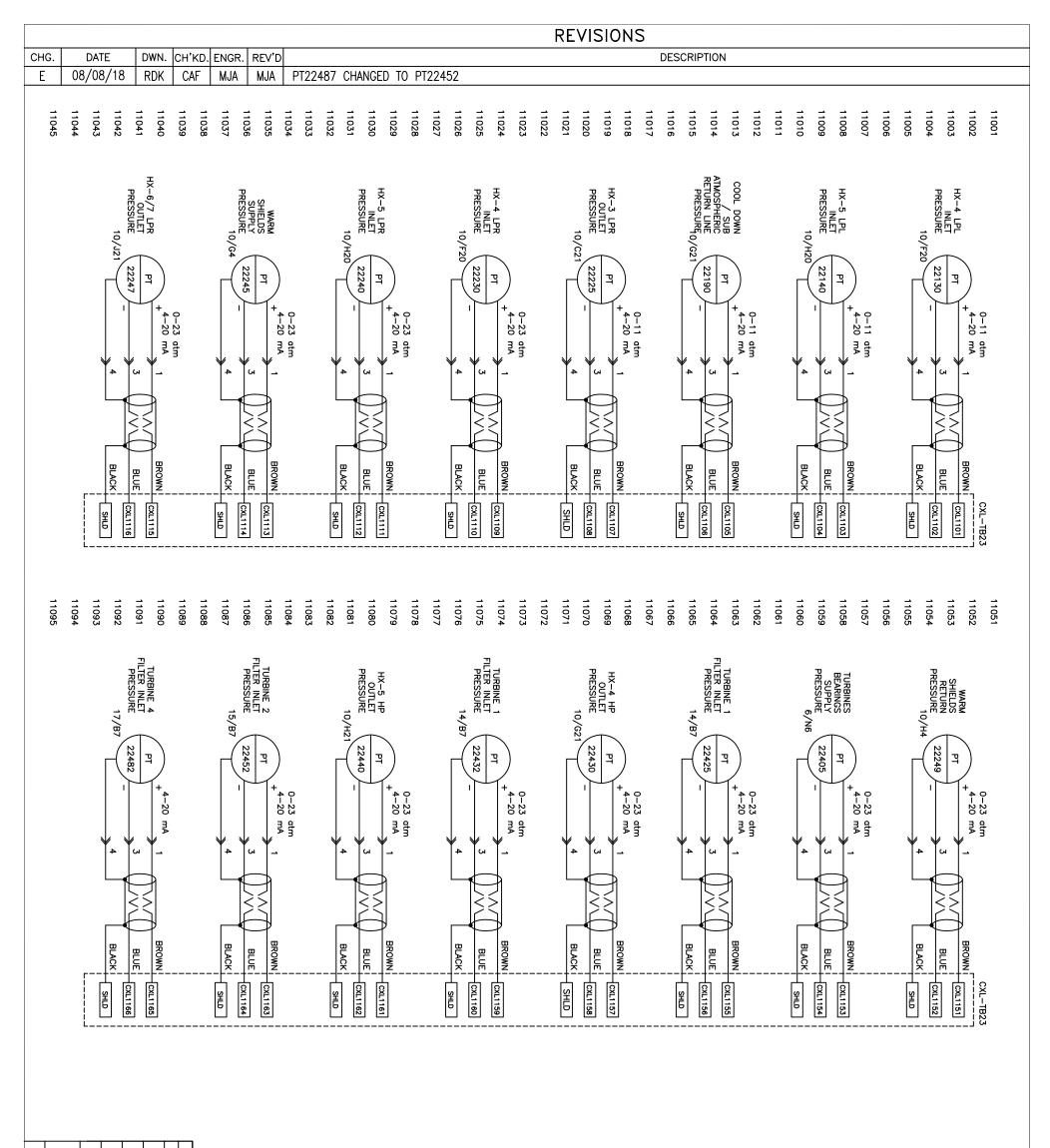
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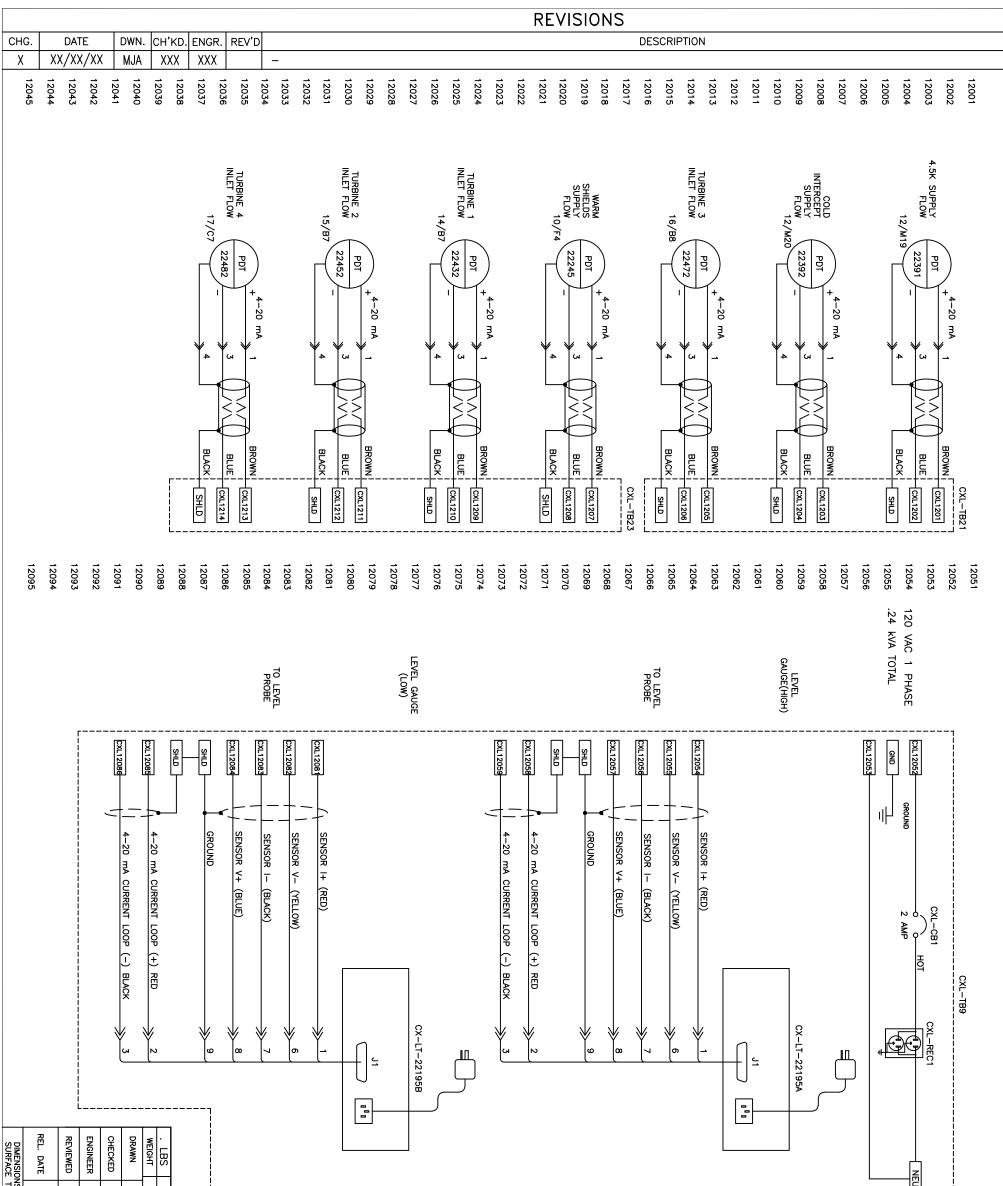
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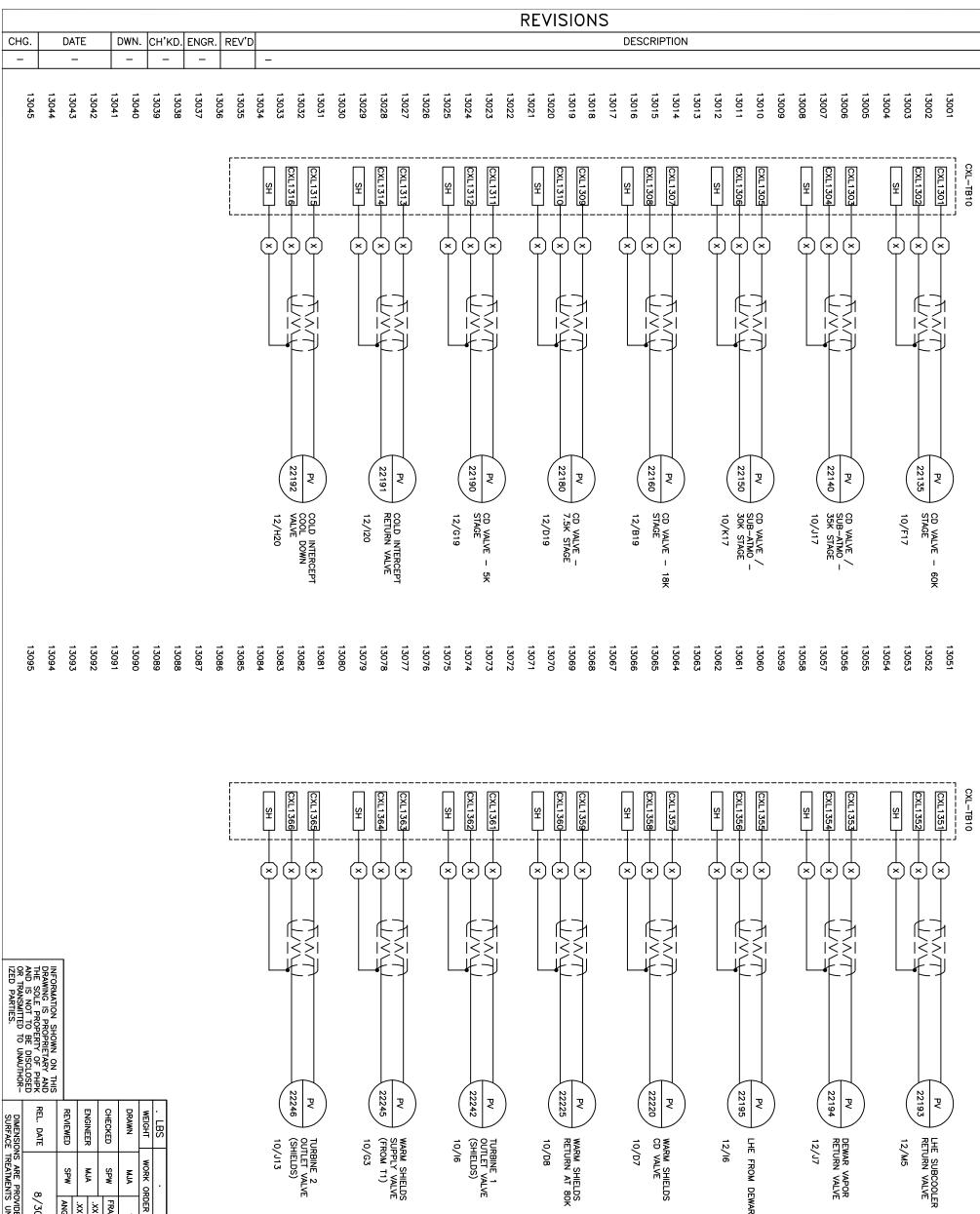


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SHEET 13 OF 16	F	CHG.				0 43204	• •	SIZE	•	

TURBINE 2 OUTLET VALVE (SHIELDS) 10/J13

WARM SHIELDS SUPPLY VALVE (FROM T1) 10/G3

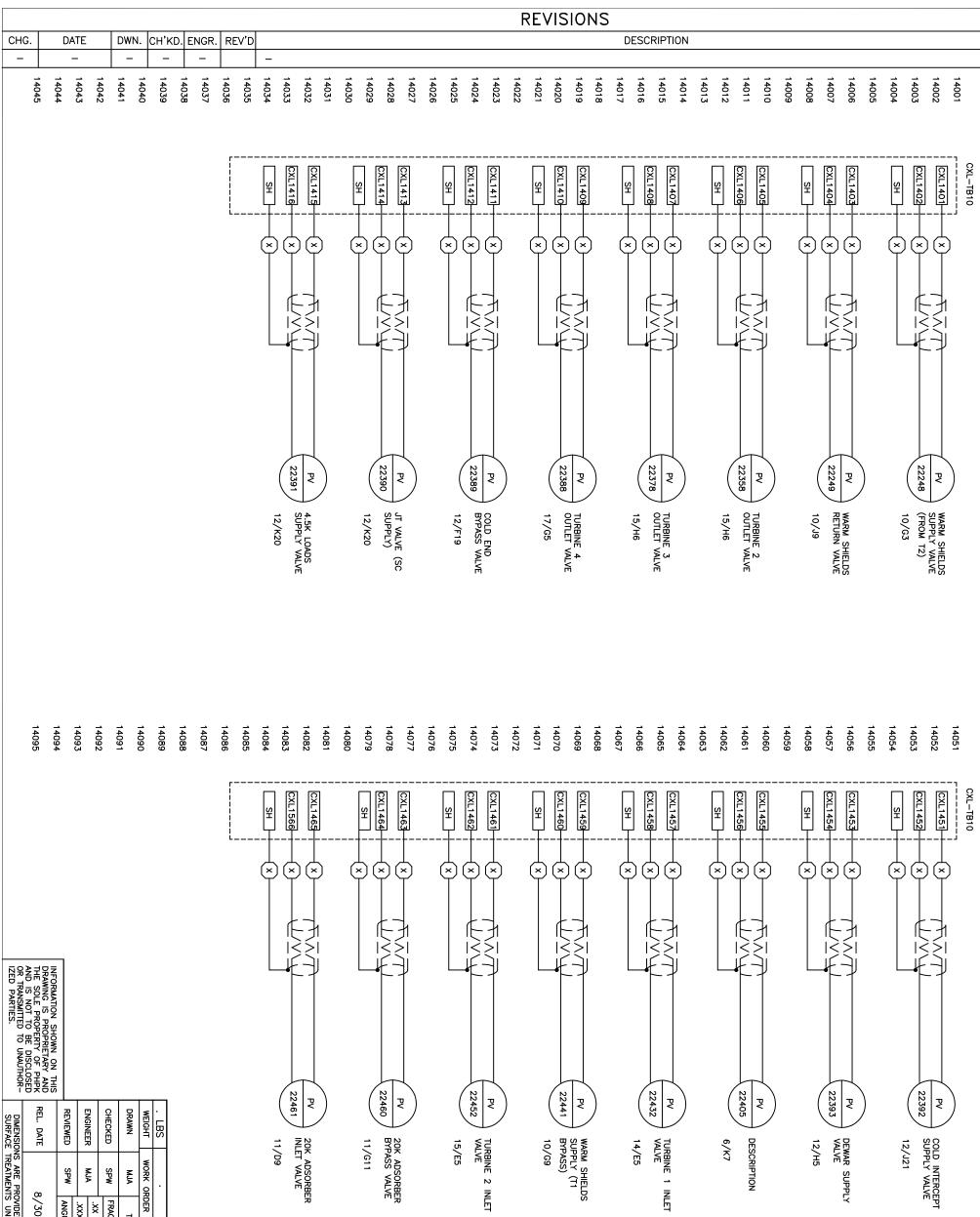
TURBINE 1 OUTLET VALVE (SHIELDS) 10/16

WARM SHIELDS RETURN AT 80K

rm shields Valve

DEWAR VAPOR RETURN VALVE

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S ARE PROVIDED PRIOR TO SCALE NONE SHEET 14	^{8/30/2016} B 15-5032-1402	SIZE DRAWING NO.	SPW ANGULAR ANALOG OUTPUTS			MUA TOLERANCES PHPK TECHNOLOGIES	WORK ORDER CONTRACT NO. PART NUMBER NO. REQ'D NEXT ASSEMBLY	· · · ·	
SHEET 14 OF 17	E	CHG.		ח החע	S, OHIO 43204	GIES	SSEMBLY SIZE	•	

20K ADSORBER BYPASS VALVE

TURBINE 2 INLET VALVE 15/E5

WARM SHIELDS SUPPLY (T1 BYPASS) 10/G9

DEWAR SUPPLY VALVE 12/H5

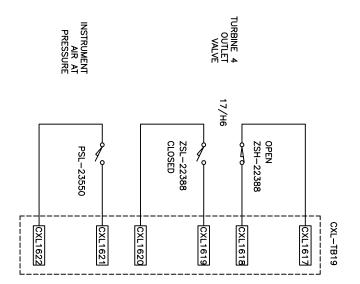
TURBINE 1 INLET VALVE

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	15094	15093	15092	15091	15090	15089	15088	15087	15086	15085	15084	15083	15082	15081	15080	15079	15078	15077	15076	15075	15074	15073	15072	15071	15070	15069	15068	15067	15066	15065	15063	15062			15059	15058	15057	15056	15055	15054	15053	15052	15051

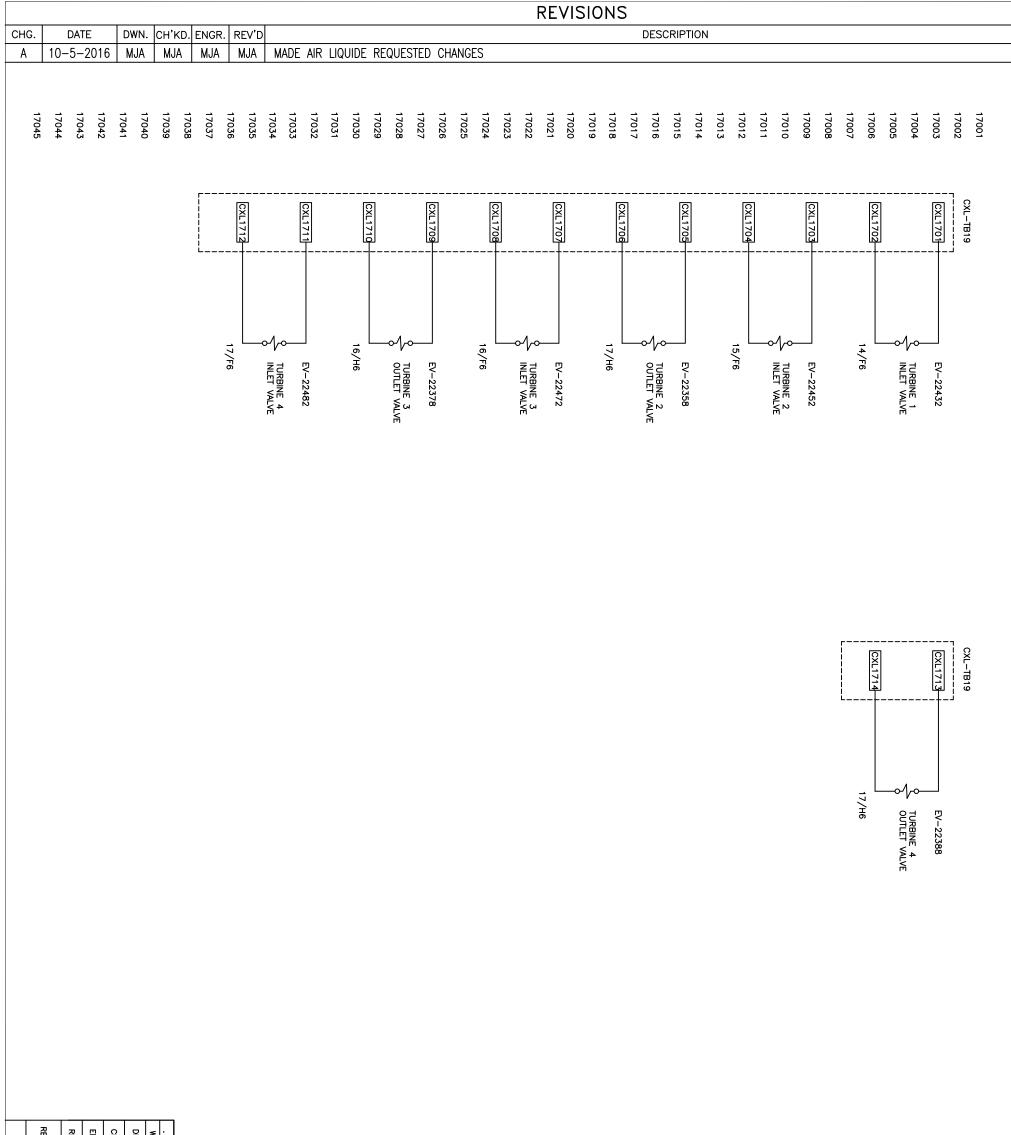
INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND DRAWING IS PROPRIETARY AND AND IS NOT TO BE DISCLOSED OR TRAVISITIED TO UNAUTHOR-IZED PARTIES.

	IS ARE PRO	0		SPW	MJA		SPW	MJA	WORK ORDER	•	
	IS ARE PROVIDED PRIOR TO TREATMENTS UNLESS NOTED.	8/30/2016		ANGULAR	.xxx	×	FRACTION	TOLE	DER		
		016		R	\mathbf{i}	<	N	TOLERANCES	CONTRACT NO.	•	
	SCALE NONE	В	SIZE		F	TITE			NO.		
	NONE	15-5	DRAWING NO.		LCLS-I		2111 BUILDERS PLACE COLUMBUS, OHIO 43204	PHPK TECHNOLOGIES	PART NUMBER	•	
		15-5032-1402		ANALOG OUTPUTS	LCLS-II 4.5K LOWER COLD BOX		S PLACE O	TECHN	NO. REQ'D	•	
		140			WER C	,		VIOI.			
	SHEET 15 OF 17	2			OLD BOX		US, OHIO)GIES	NEXT ASSEMBLY	•	
	5 OF 17	F	CHG.				43204		SIZE	•	

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CHG.		DA	TE		DWN.	СН	'KD.	ENGR	. RE	V'D																	DESC	RIP	ION												
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																		VALVE	TURBINE 2 OUTLET								T1)	SUPPLY	WARM							(SHIELDS)	VALVE	TURBINE #1			
								ZSL-22378 CLOSED	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		ZSH-22378	OPEN					CI OSED		15/H6	ZSH-22358	OPEN					ZSL-22245 CLOSED		10/J6	ZSH-22245	OPEN					ZSL-22242	~	10/16	24277-HC7	OPEN 751-22222		
									CXL1615				CXL1613		CXL1612			+ CXL1611				CXL1609]	CXL1608			CXL1607				CXL1605		CXL1604			CXL1603	[+ CXL1602			



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DIMENSIO	REL. DATE		REVIEWED	ENGINEER	CHECKED	DRAWN	WEIGHT	. LBS	
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		SPW	MJA	SPW	MJA	WORK ORDER		
S UNLESS	8/30/2016		ANGULAR	.xx ×	FRACTION	TOLER			
NOTED.	16			+	$\left\{ \right.$	TOLERANCES	CONTRACT NO.		
SCALE	В	SIZE		TITLE		-	ē		
NONE	15–	DRAWING NO.		LCLS-	2111 BUILDERS PLACE COLUMBUS, OHIO 43204	PHPK TECHNOLOGIES	PART NUMBER		
	15-5032-1402		DIGITAL INPUTS	LCLS-II 4.5K LOWER COLD BOX	S PLACE	TECH	NO. REQ'D NEXT ASSEMBLY		
	-140		INPUTS	WER C	COLUMB	NOLC	NEXT		INFORMATION DRAWING IS I THE SOLE PR AND IS NOT OR TRANSMITTI OR TRANSMITTI
SHEET 16	2		-	old box	US, OHIO)GIES	ASSEMBLY		INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHOR- IZED PARTIES.
16 of 17	Е	CHG.			43204		SIZE	•	on This Ary and Of Phpk Isclosed Mauthor-



DIMENSIC	rel. Date	REVIEWED	ENGINEER	CHECKED	DRAWN	WEIGHT	. LBS
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TREATMENTS UNLESS NOTED			SPW	MJA		SPW	MJA	WORK ORDER		
S UNLES	8/30/2016		ANGULAR	XXX	×	FRACTION	TOL	DER		
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S	L		4		ᅴ	\mathbb{N}		TNO		
CALE	В	SIZE		F	ΞF			·		
SCALE NONE		DRAWING NO.				2111	ΡH	PART NUMBER	•	
	15-5032-1402	NO.		LCLS-II 4.5K LOWER COLD BOX		2111 BUILDERS PLACE COLUMBUS, OHIO 43204	PHPK TECHNOLOGIES			
	503		SOLENOID OUTPUTS	4.5			TEC	NO. REQ'D NEXT ASSEMBLY	•	
	$\frac{1}{2}$		B	6		CE C	NH.	EQ'D		INFC DRA OR IZED
	140		UTPL	VER (101	NEXT		INFORMATION DRAWING IS I THE SOLE PR AND IS NOT OR TRANSMITTI OR TRANSMITTI
SHE)2		TS	COLD		BUS,	06	ASSE	•	PROPRO
E 17				BOX		OHO	N.H.	MBLY		INFORMATION SHOWN ON DRAWING IS PROPRIETARY THE SOLE PROPERTY OF AND IS NOT TO BE DISC OR TRANSMITTED TO UNAUT IZED PARTIES.
SHEET 17 OF 17	F	CHG.				432(S		INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHOR- IZED PARTIES.
17						04		SIZE	•	THIS PHPK OSED THOR-