

Lower CB Electrical Diagrams

(15-5032-1402-B)

<p>Written by: Cold Box Manufacturer: PHPK</p>	<p><u>Distribution :</u></p> <p>JLAB AL project team</p>
<p>Reviewed by Technical Manager: Gilles Flavien gilles.flavien@airliquide.com</p>	

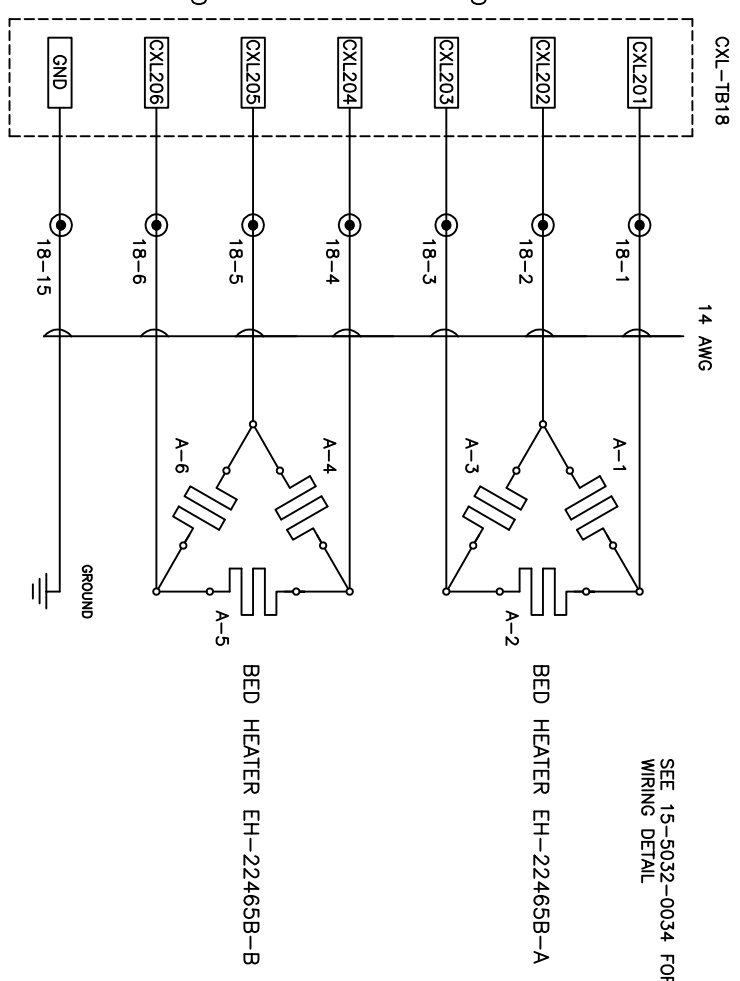
MODIFICATIONS RECORDING

ISSUE OF MODIF	DATE	WRITTEN BY	CHECKED BY	EVOLUTION OF THE DOCUMENT (Updated pages)	JUSTIFICATION OF THE MODIFICATION
<p>Note: Recording of modifications are included in document</p>					

REVISIONS

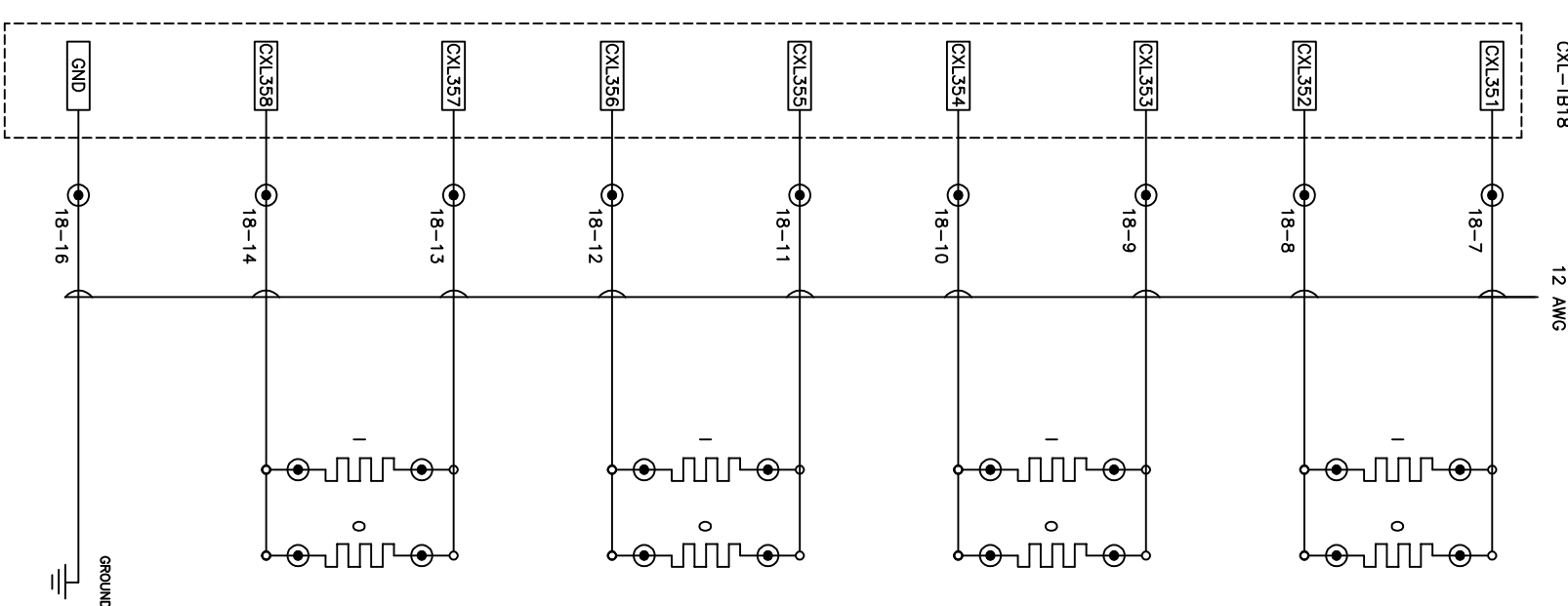
CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
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2001						
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2005						208 VAC 3 PHASE 2 KVA TOTAL
2006						6 AMP FUSES REQUIRED
2007						
2008						
2009						
2010						
2011						208 VAC 3 PHASE 2 KVA TOTAL
2012						6 AMP FUSES REQUIRED
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SEE 15-5032-0034 FOR HEATER
WIRING DETAIL

2051						
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2054						208 VAC 1 PHASE 2000 VA TOTAL
2055						15 AMP FUSES REQUIRED
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2062						208 VAC 1 PHASE 2000 VA TOTAL
2063						15 AMP FUSES REQUIRED
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2070						208 VAC 1 PHASE 2000 VA TOTAL
2071						15 AMP FUSES REQUIRED
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2078						208 VAC 1 PHASE 2000 VA TOTAL
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SEE 15-5032-0035 FOR HEATER
WIRING DETAIL

I= INNER ELEMENT
O= OUTER ELEMENT

INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHORIZED PARTIES.

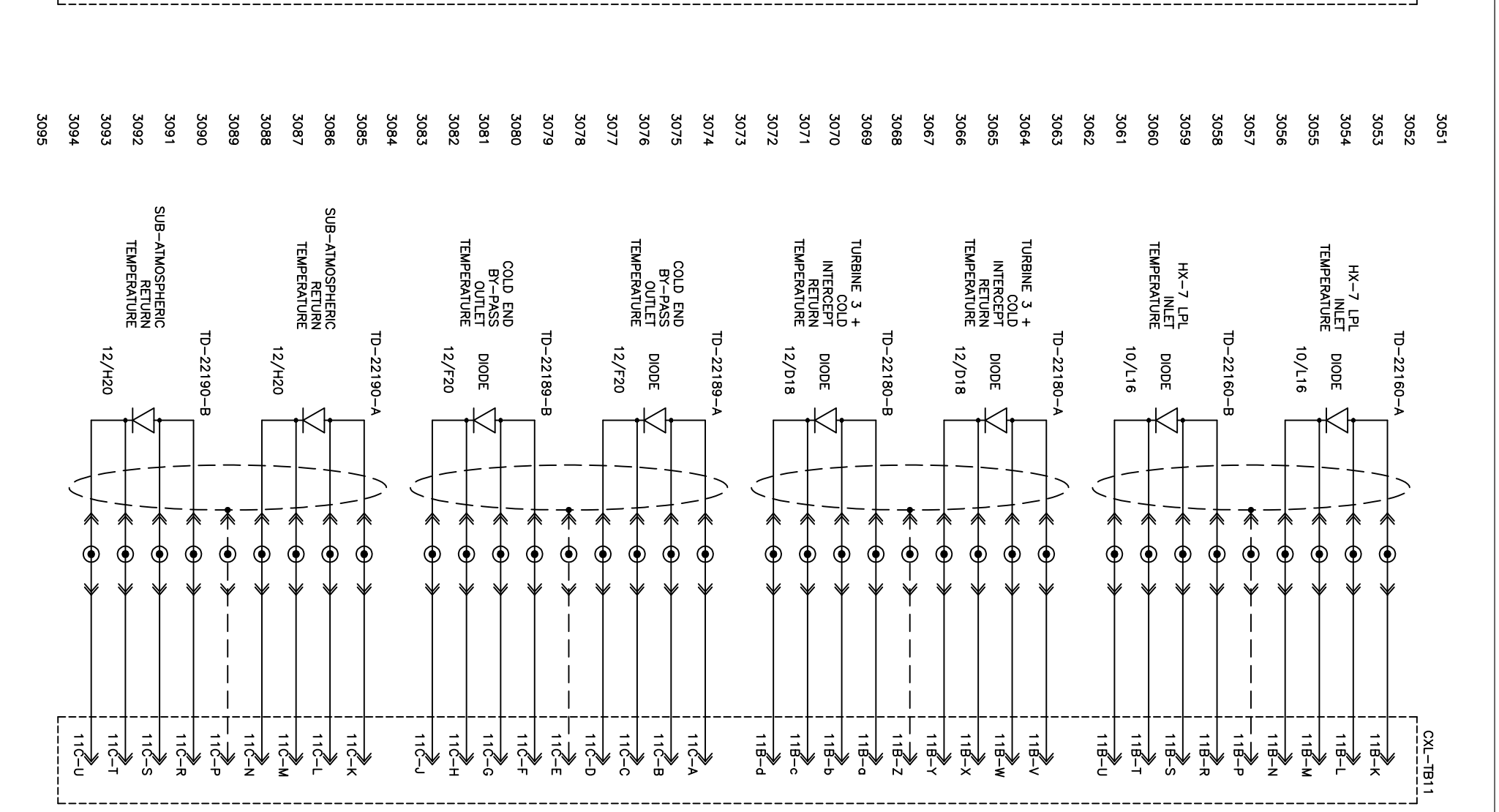
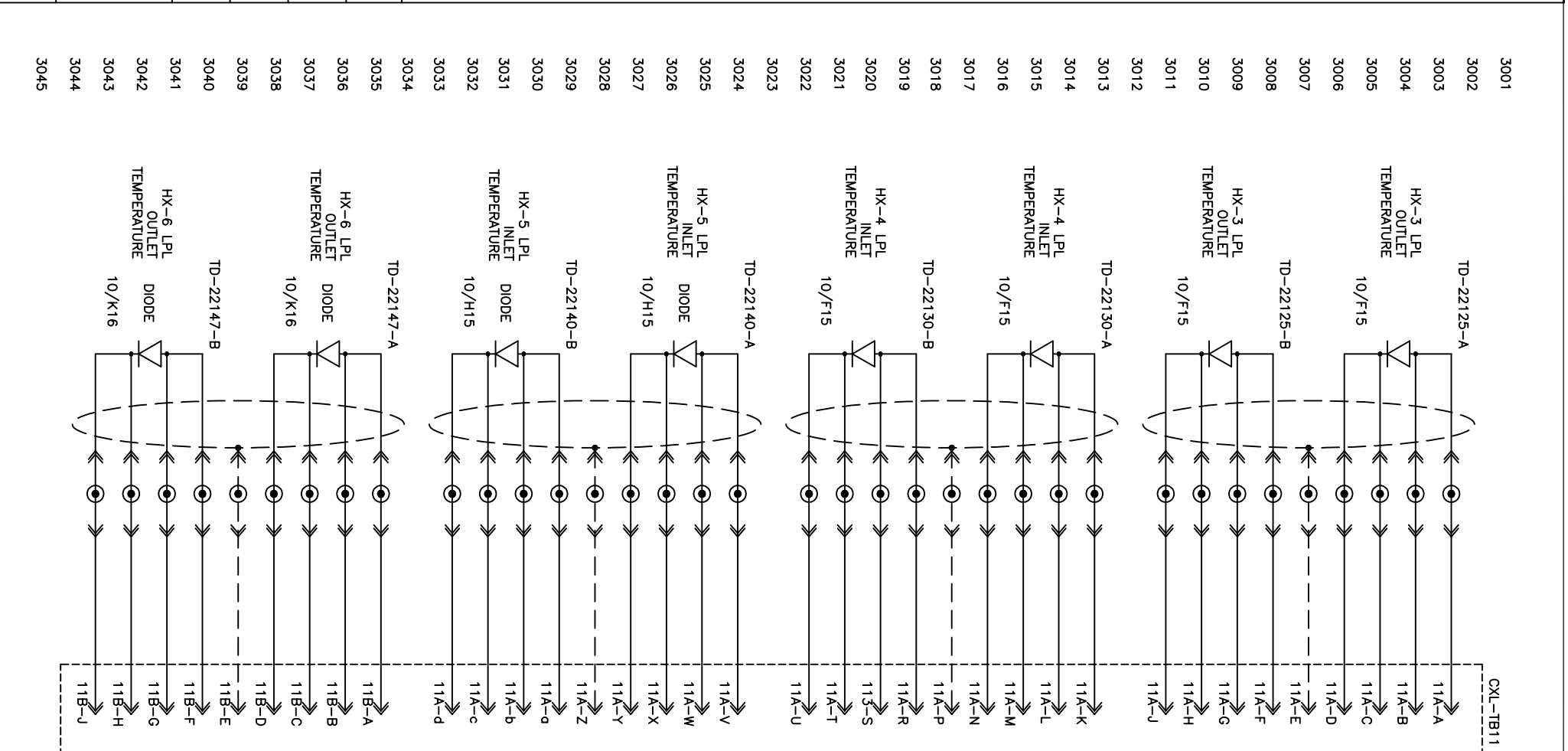
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WEIGHT	MJA					
DRAWN	SPW	FRACTION	PHPK TECHNOLOGIES 2111 BUILDERS PLACE COLUMBUS, OHIO 43204 LCLS-II 4.5K LOWER COLD BOX HEATERS			
CHECKED	MJA	.XX				
ENGINEER	MJA	.XXX				
REVIEWED	SPW	ANGULAR				
REL. DATE	8/30/2016		SIZE	DRAWING NO.	SCALE	CHG.
			B	15-5032-1402	NONE	B

DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.

SHEET 2 OF 17

REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
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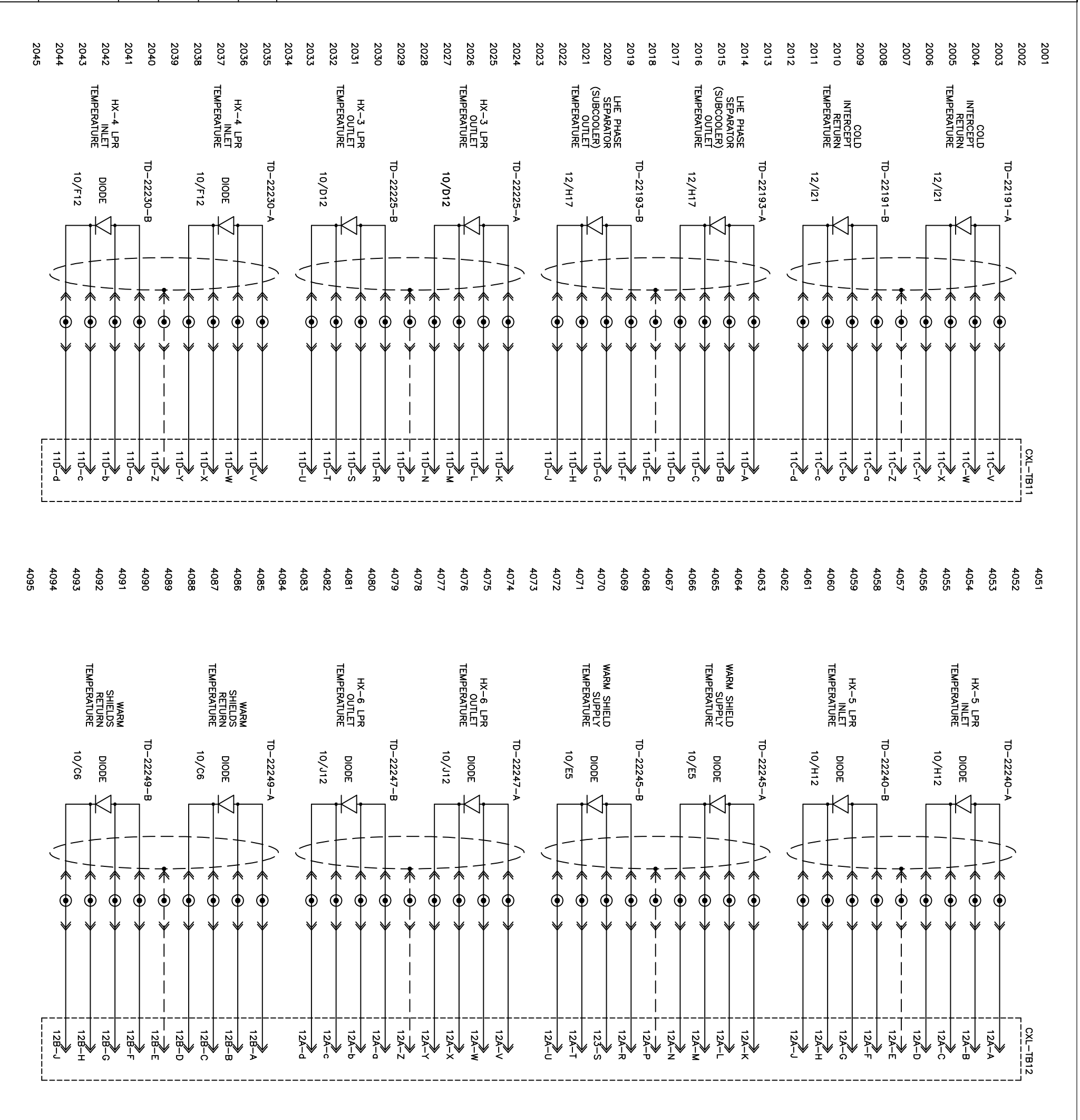


. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
WEIGHT	MMA					
DRAWN	SPW	TOLERANCES				
CHECKED	SPW	FRACTION				
ENGINEER	MMA	XX				
REVIEWED	SPW	XXX				
REL. DATE	8/30/2016					
PHPK TECHNOLOGIES 2111 BUILDERS PLACE COLUMBUS, OHIO 43204 LCS-II 4.5K LOWER COLD BOX TEMPERATURE SENSORS						
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.			SCALE	NONE	CHG. B	
			SHEET	3	OF 17	

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REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
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. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
WEIGHT	MMA					
DRAWN	SPW	TOLERANCES				
CHECKED	SPW	FRACTION				
ENGINEER	MMA	XX				
REVIEWED	SPW	XXX				
REL. DATE	8/30/2016	ANGULAR				
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.						

PHPK TECHNOLOGIES
2111 BUILDERS PLACE COLUMBUS, OHIO 43204

LCS-II 4.5K LOWER COLD BOX
TEMPERATURE SENSORS

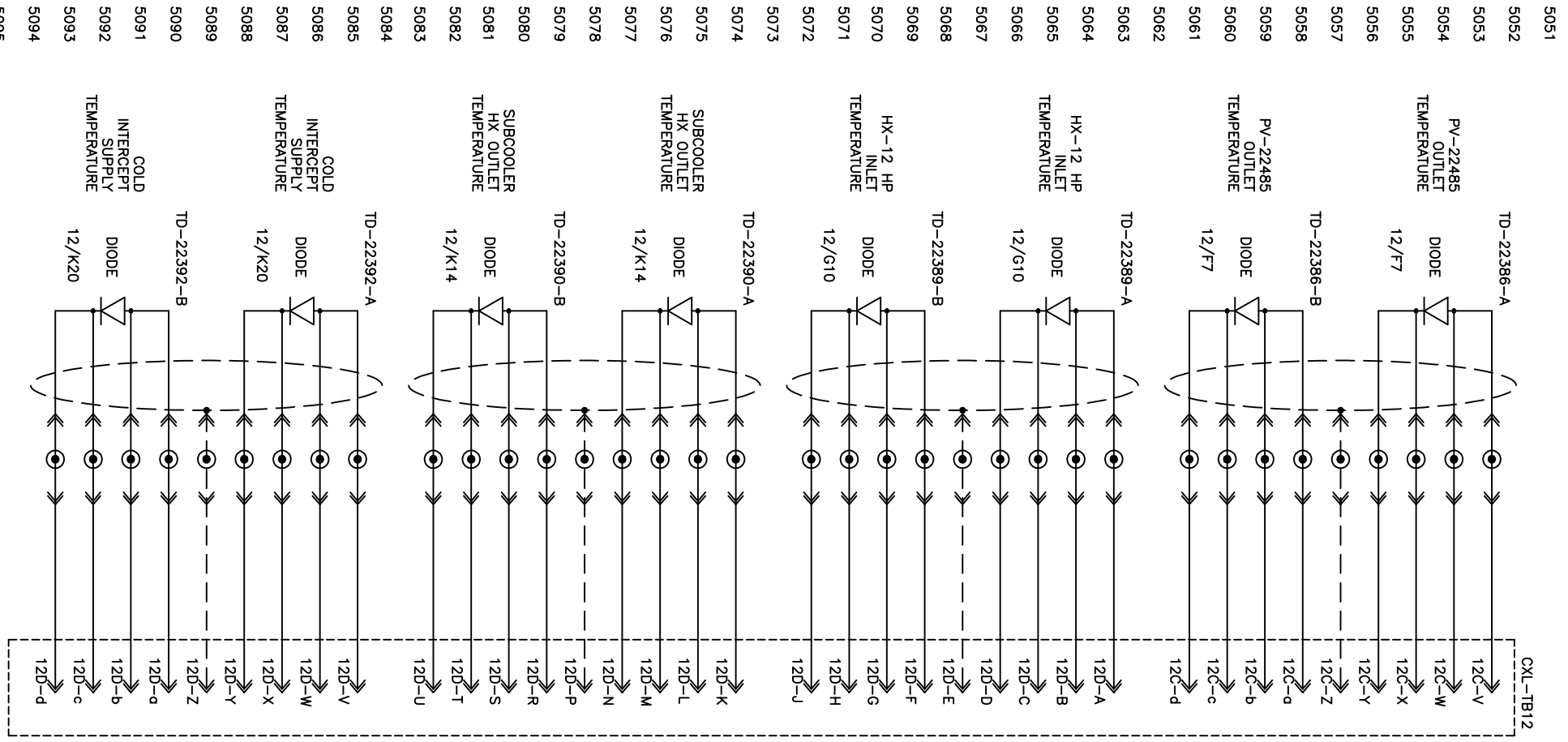
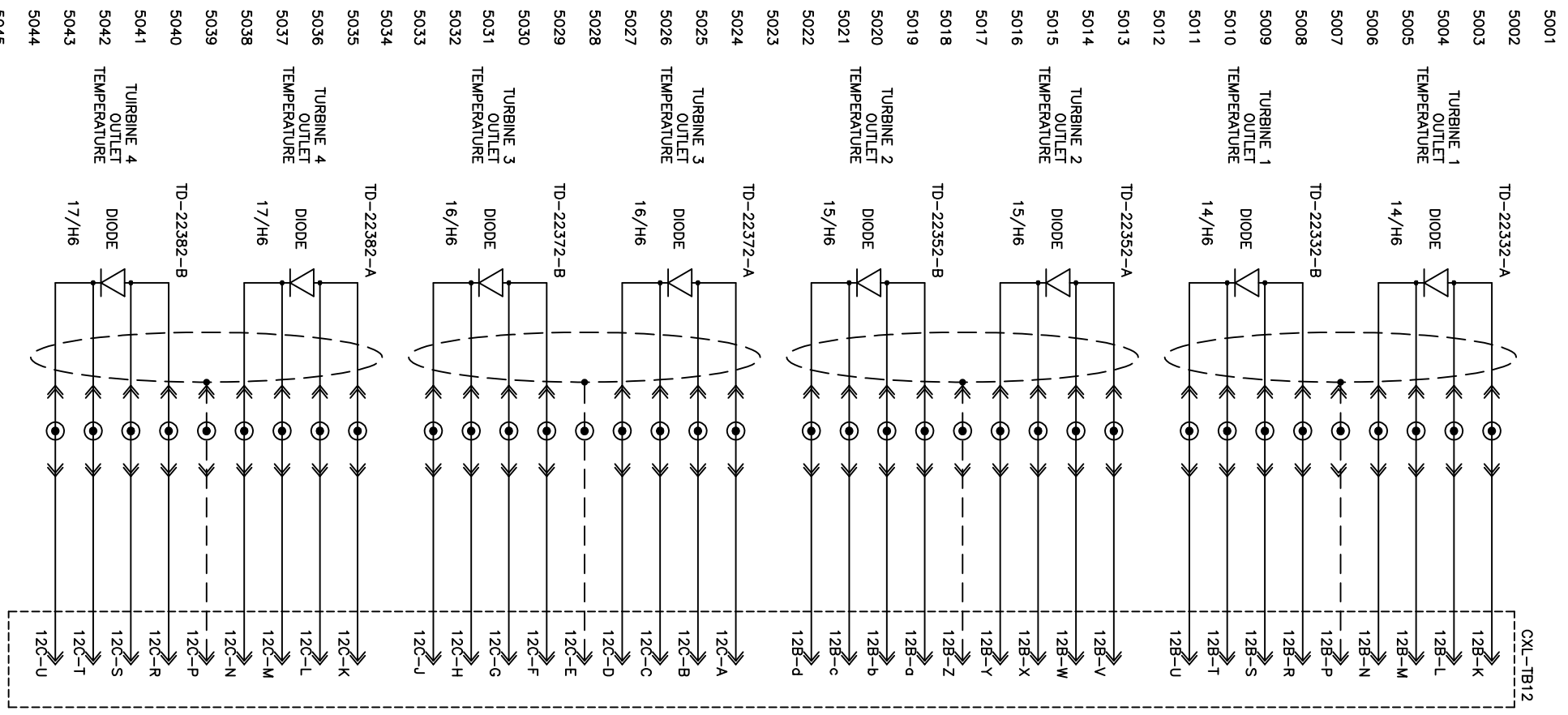
DRAWING NO. **15-5032-1402**

SCALE **B** SHEET **4** OF **17**

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REVISIONS

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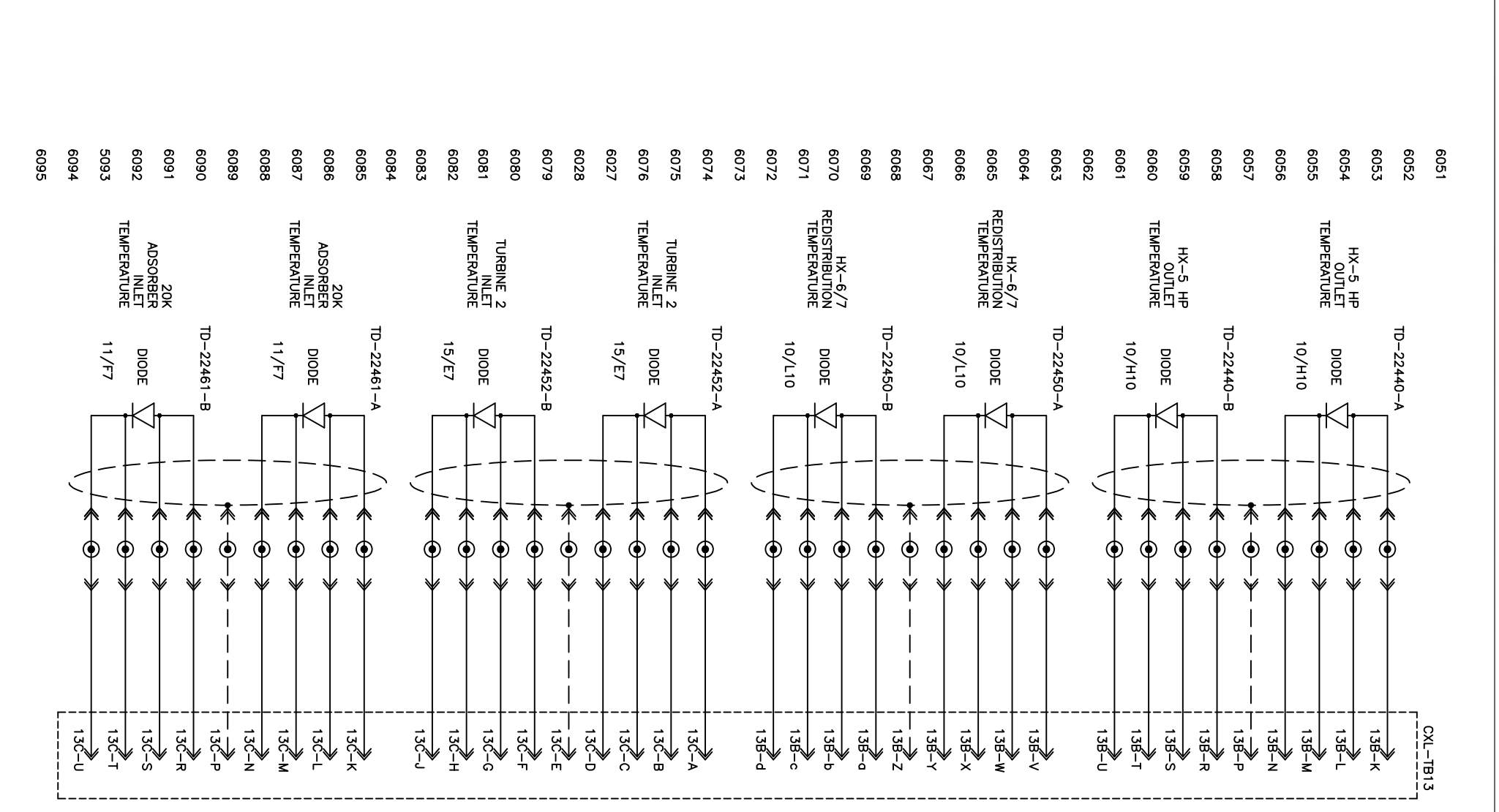
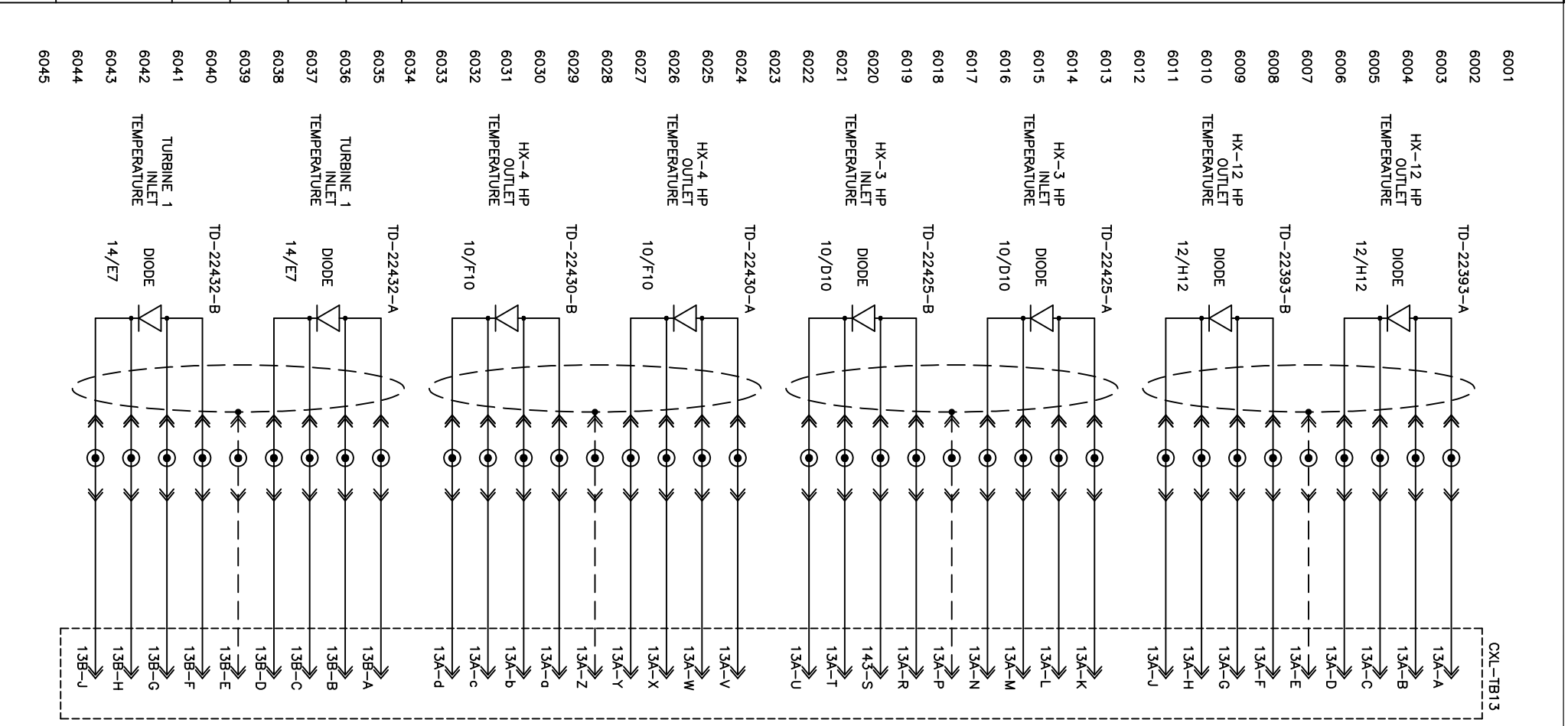


. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
WEIGHT	MMA					
DRAWN	SPW	FRACTION	PHPK TECHNOLOGIES 2111 BUILDERS PLACE COLUMBUS, OHIO 43204 LCS-II 4.5K LOWER COLD BOX TEMPERATURE SENSORS			
CHECKED	SPW	XX				
ENGINEER	MMA	XXX				
REVIEWED	SPW	ANGULAR				
REL. DATE	8/30/2016		SIZE	DRAWING NO.	CHG.	
			B	15-5032-1402	B	
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.						SHEET 5 OF 17

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REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
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. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
WEIGHT	MMA					
DRAWN	SPW	TOLERANCES				
CHECKED	SPW	FRACTION				
ENGINEER	MMA	XX				
REVIEWED	SPW	XXX				
REL. DATE	8/30/2016					

PHPK TECHNOLOGIES

2111 BUILDERS PLACE COLUMBUS, OHIO 43204

LCLS-II 4.5K LOWER COLD BOX
TEMPERATURE SENSORS

INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHORIZED PARTIES.

REL. DATE: 8/30/2016

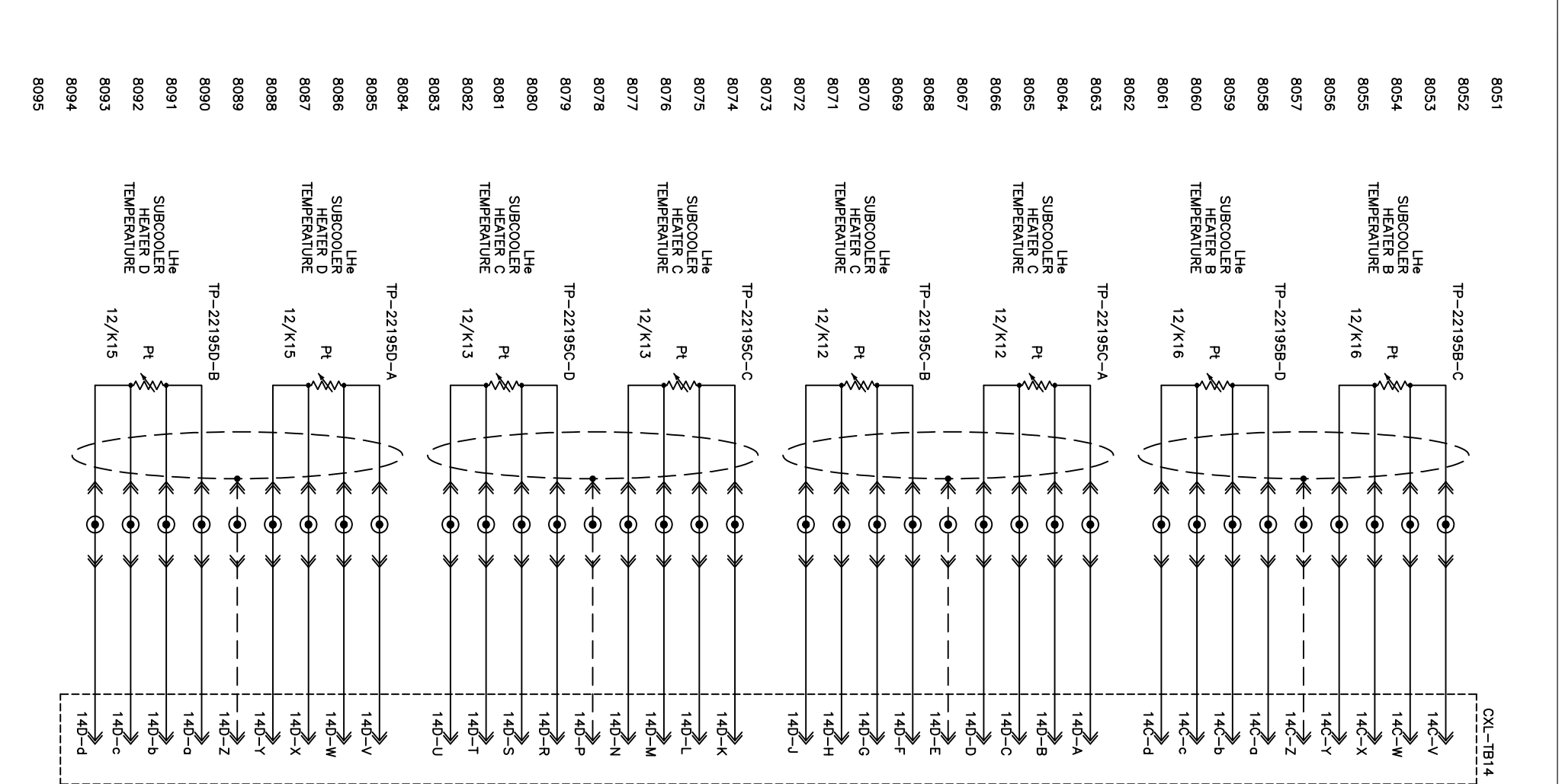
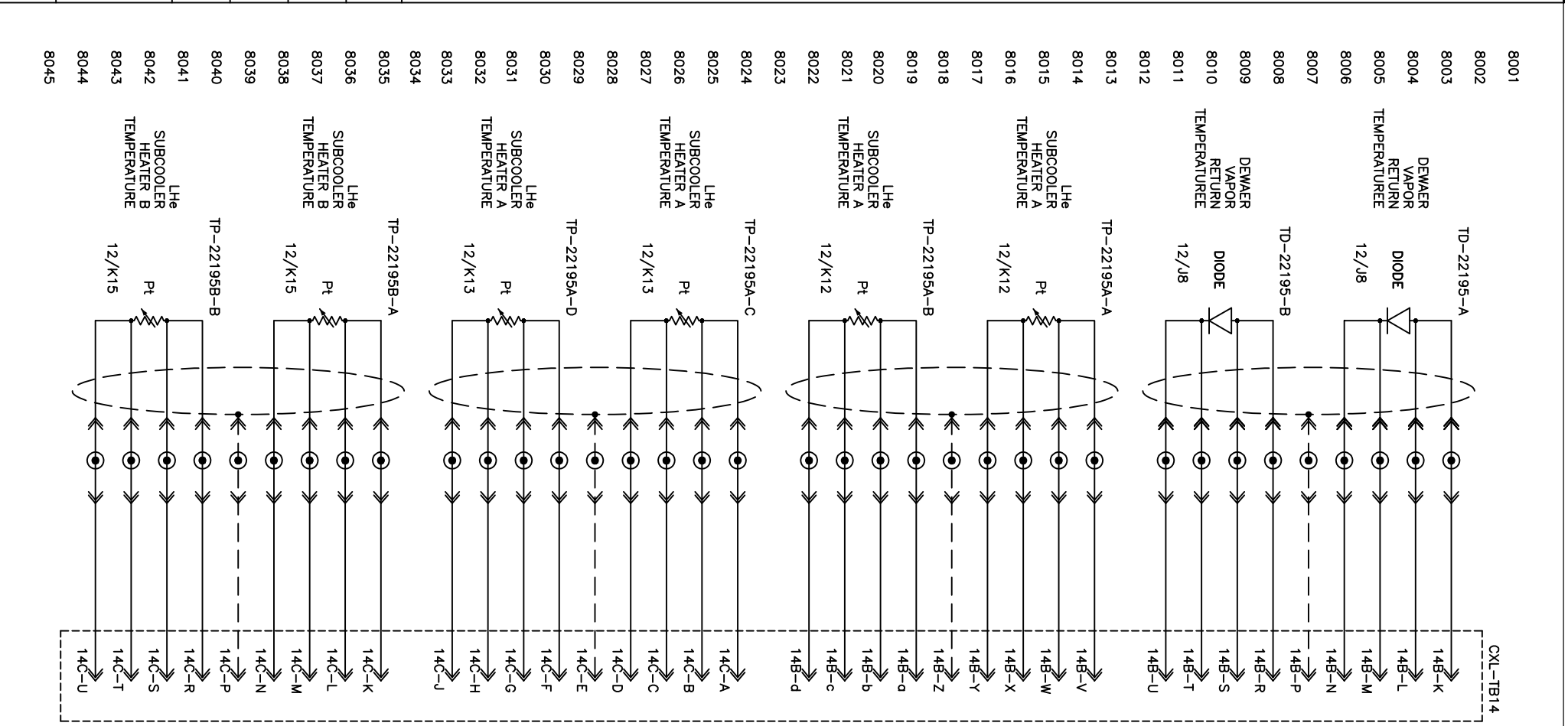
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DRAWING NO. 15-5032-1402

CHG. B

REVISIONS

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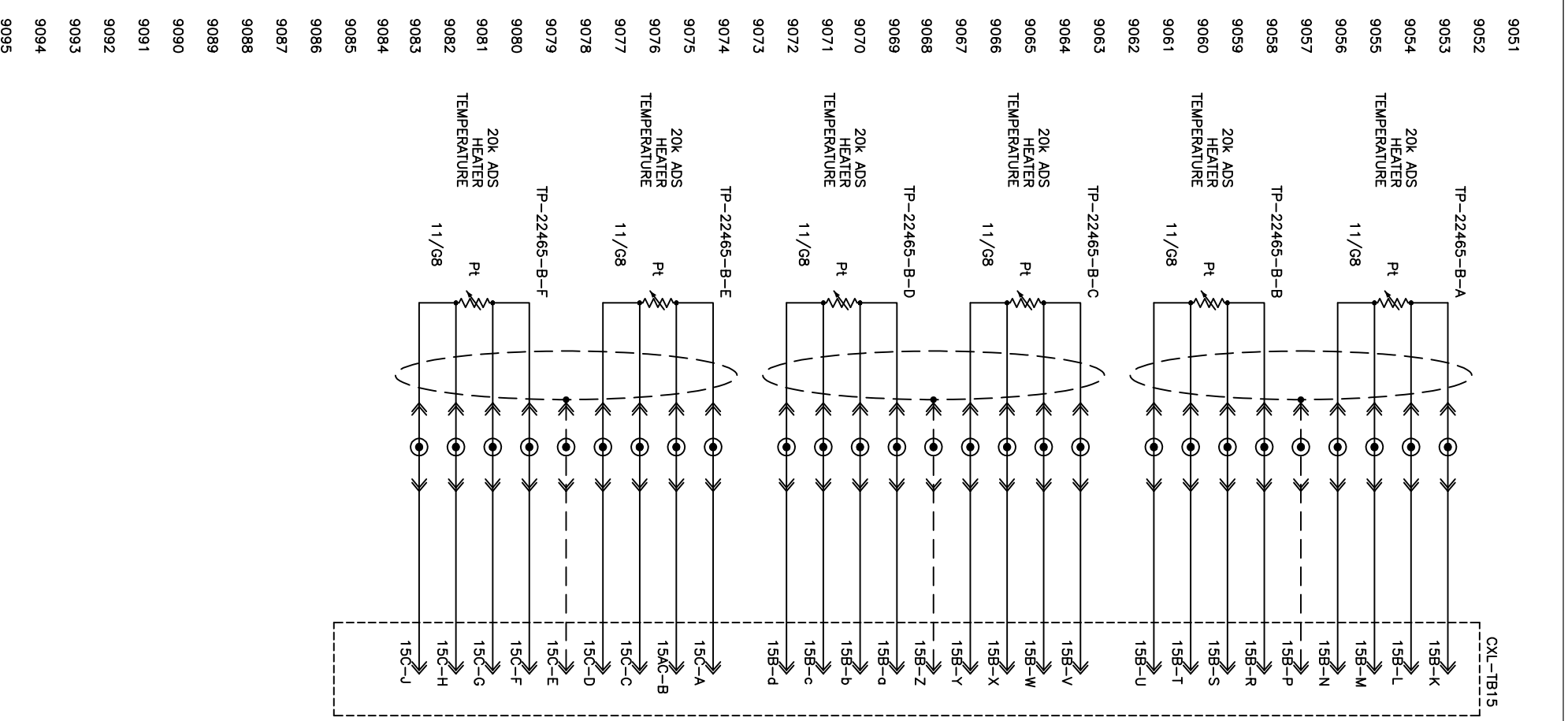
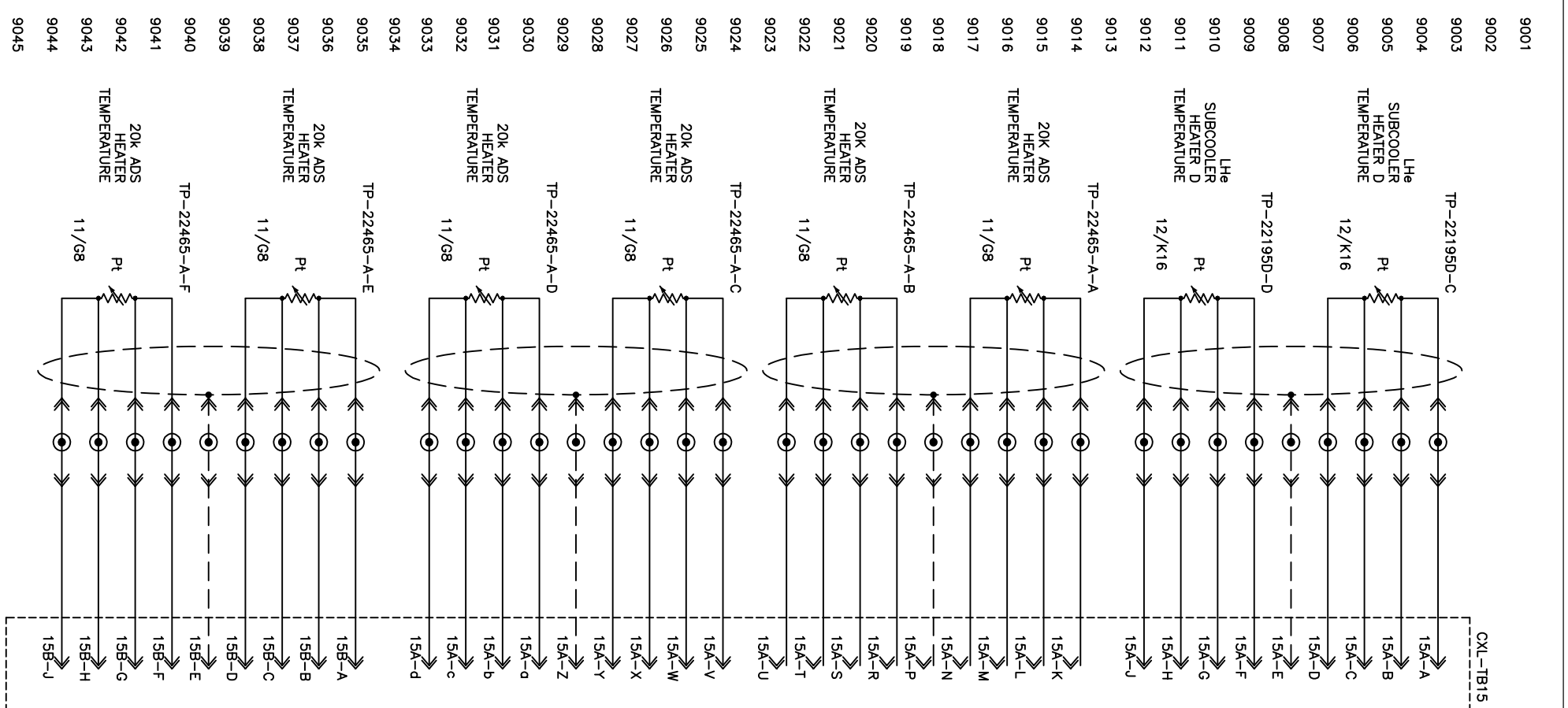


. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
WEIGHT	MMA					
DRAWN	SPW	TOLERANCES				
CHECKED	MMA	FRACTION				
ENGINEER	SPW	XX				
REVIEWED	MMA	XXX				
	SPW	ANGULAR				
REL. DATE	8/30/2016					
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.						
PHPK TECHNOLOGIES			2111 BUILDERS PLACE COLUMBUS, OHIO 43204			
TITLE			LCLS-II 4.5K LOWER COLD BOX			
RTD INPUTS			DRAWING NO.			
SIZE			SCALE			
B			15-5032-1402			
CHG.			B			

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REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
A	10-5-2016	MJA	MJA	MJA	MJA	MADE AIR LIQUIDE REQUESTED CHANGES

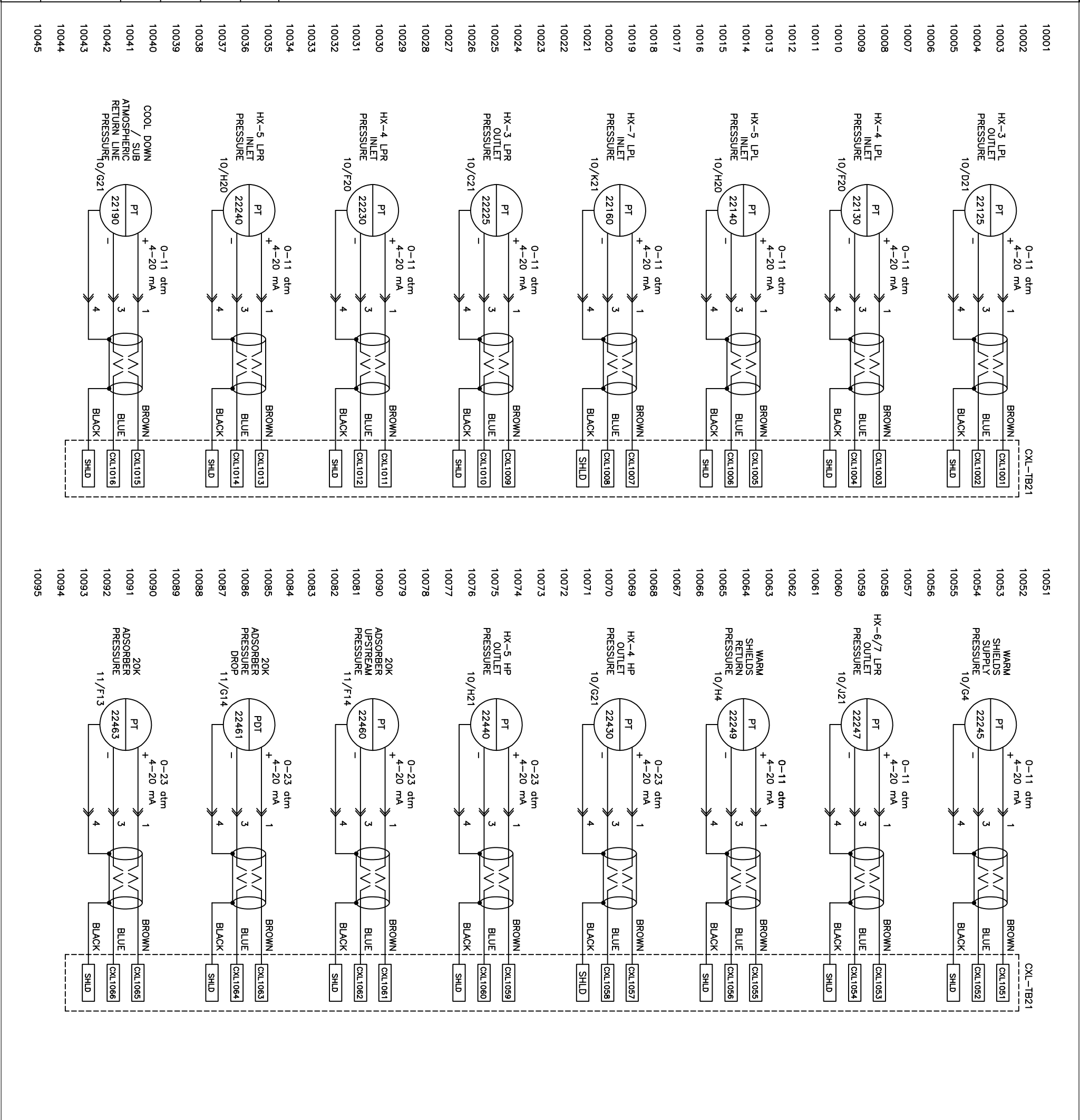


. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REC'D	NEXT ASSEMBLY	SIZE
WEIGHT	MJA					
DRAWN	SPW	TOLERANCES				
CHECKED	SPW	FRACTION				
ENGINEER	MJA	.XX				
REVIEWED	SPW	.XXX				
		ANGULAR				
REL. DATE	10/5/2016		TITLE			
			PHPK TECHNOLOGIES 2111 BUILDERS PLACE COLUMBUS, OHIO 43204 LCLS-II 4.5K LOWER COLD BOX RTD INPUTS			
	SIZE	DRAWING NO.	SCALE		CHG.	
	B	15-5032-1402	NONE		B	

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REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
A	10-5-2016	MJA	MJA	MJA	MJA	MADE AIR LIQUIDE REQUESTED CHANGES



. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REC'D	NEXT ASSEMBLY	SIZE
WEIGHT	MJA					
DRAWN	SPW	TOLERANCES				
CHECKED	SPW	FRACTION				
ENGINEER	MJA	.XX				
REVIEWED	SPW	.XXX				
REL. DATE	10/5/2016	ANGULAR				
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.						
			B			
			SCALE NONE			

PHPK TECHNOLOGIES
2111 BUILDERS PLACE COLUMBUS, OHIO 43204

LCS-II 4.5K LOWER COLD BOX
ANALOG INPUTS

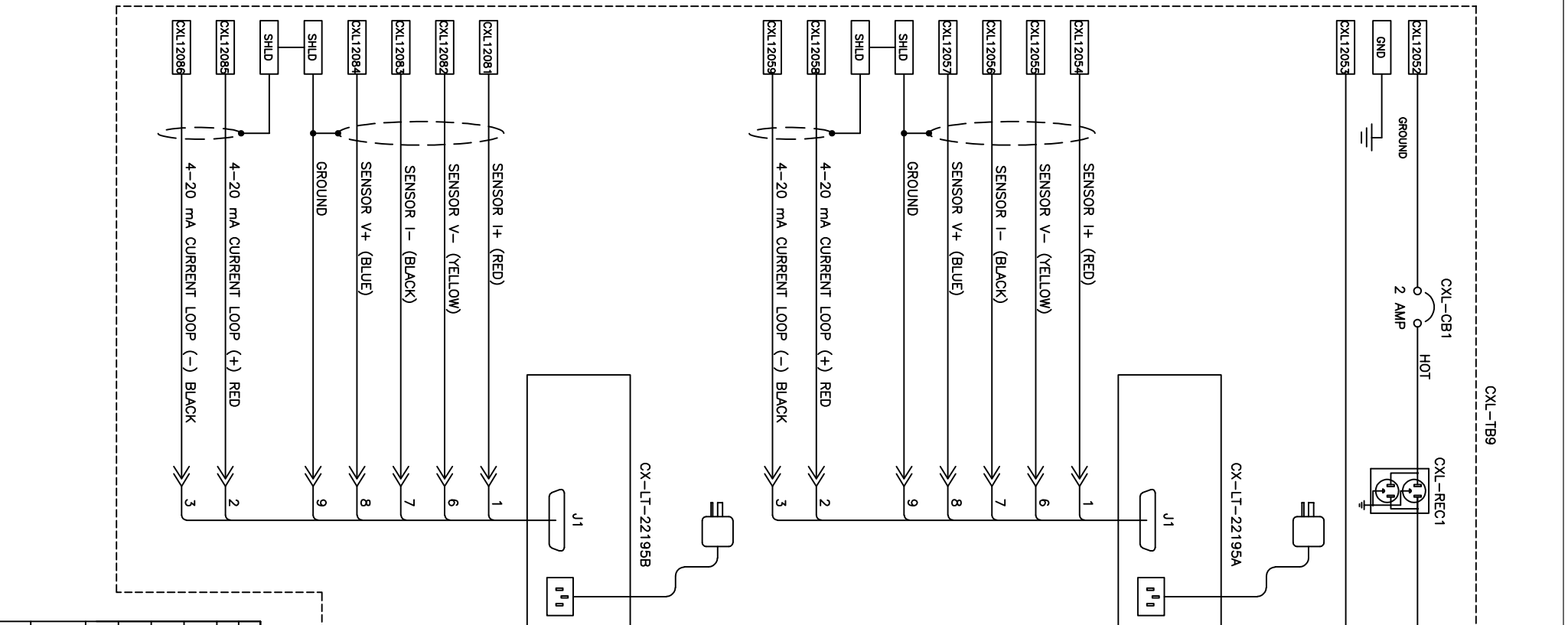
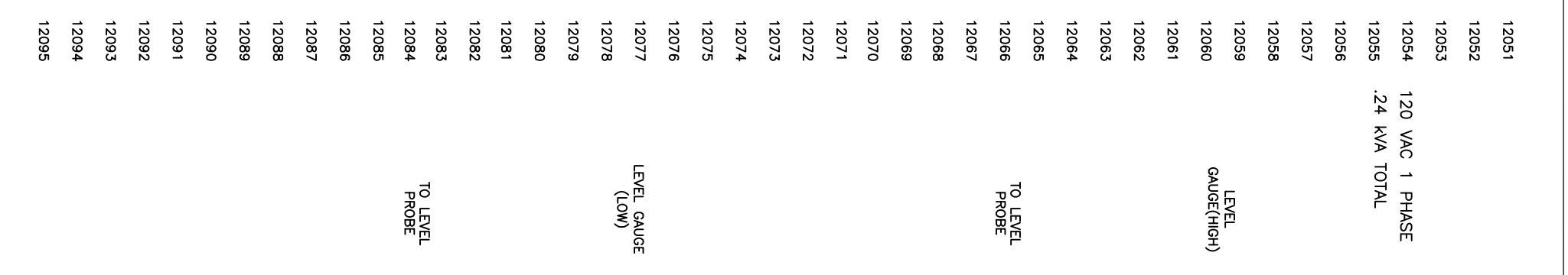
DRAWING NO. **15-5032-1402**

CHG. **B**

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REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION																																						
X	XX/XX/XX	MJA	XXX	XXX	-																																							
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. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
WEIGHT	MJA					
DRAWN	SPW	TOLERANCES				
CHECKED	SPW	FRACTION				
ENGINEER	MJA	XX				
REVIEWED	SPW	XXX				
REL. DATE	8/30/2016	TITLE				
		LCS-II 4.5K LOWER COLD BOX				
		ANALOG INPUTS				
		SIZE	DRAWING NO.			CHG.
		B	15-5032-1402			B
		SCALE	NONE			SHEET 12 OF 17

PHPK TECHNOLOGIES

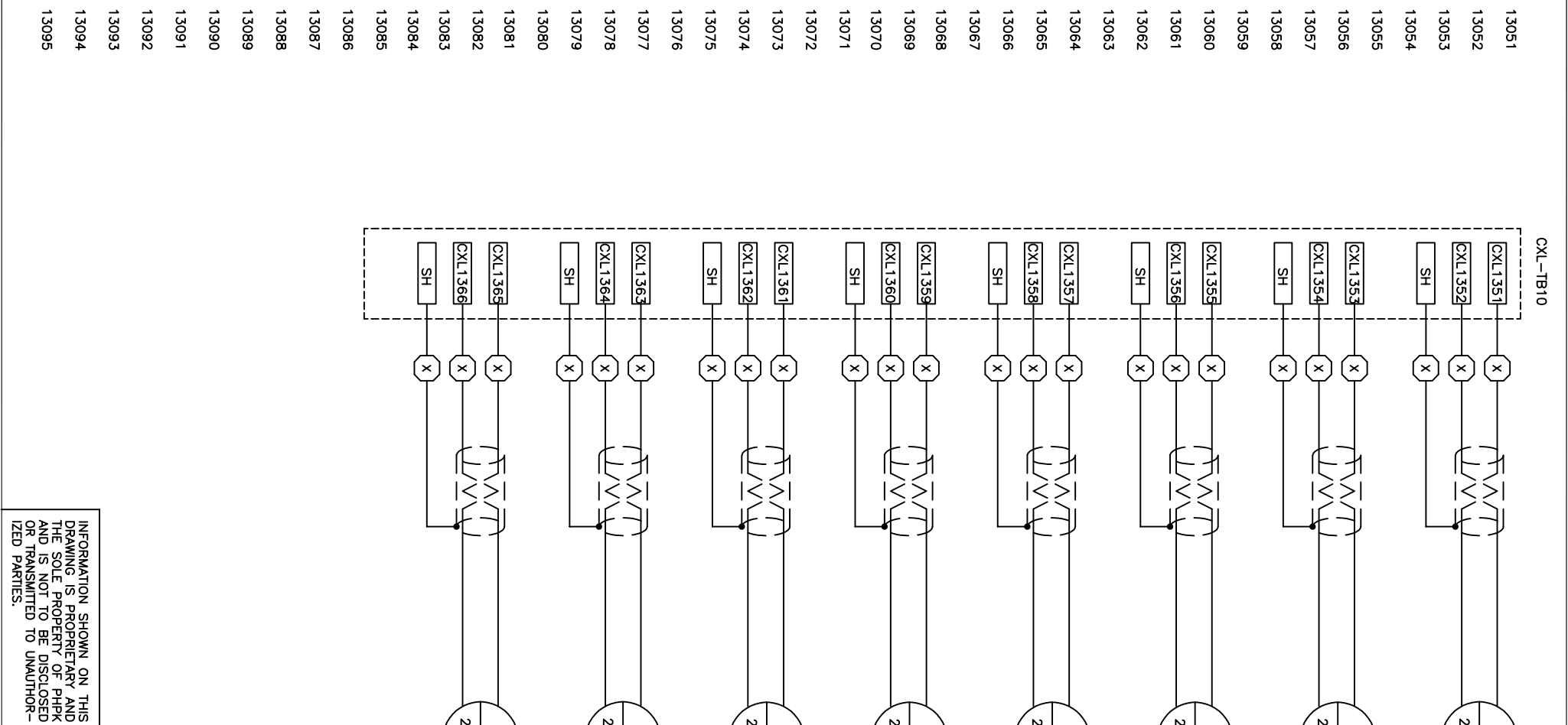
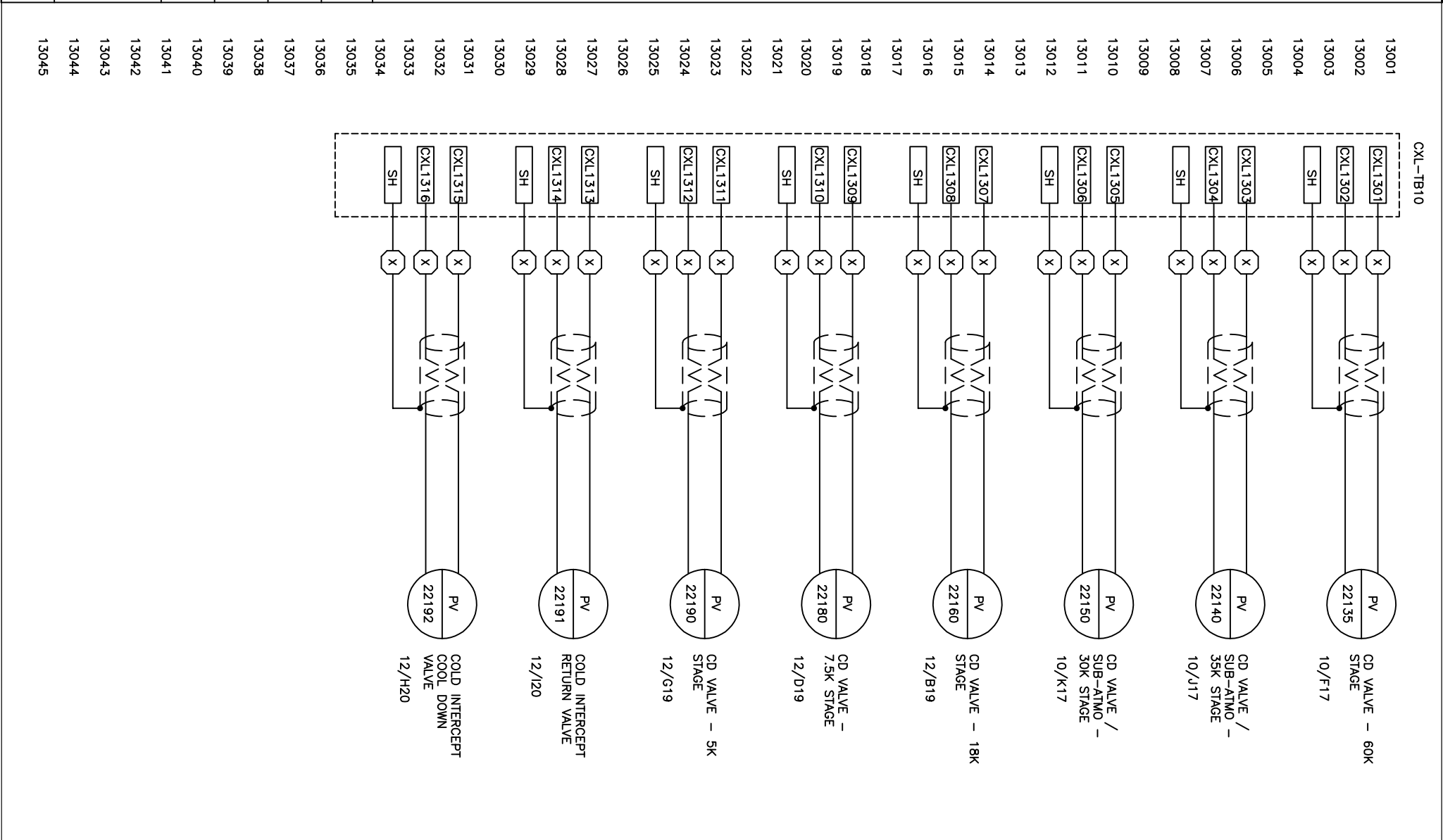
2111 BUILDERS PLACE COLUMBUS, OHIO 43204

LCS-II 4.5K LOWER COLD BOX
ANALOG INPUTS

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REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
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. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
DRAWN	MJA					
CHECKED	SPW	FRACTION				
ENGINEER	MJA	XX				
REVIEWED	SPW	XXX				
REL. DATE	8/30/2016					
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.			SCALE	NONE		CHG.
			SIZE	DRAWING NO.		
			B	15-5032-1402		B
				SHEET 13 OF 16		

INFORMATION SHOWN ON THIS DRAWING IS PROPRIETARY AND THE SOLE PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHORIZED PARTIES.

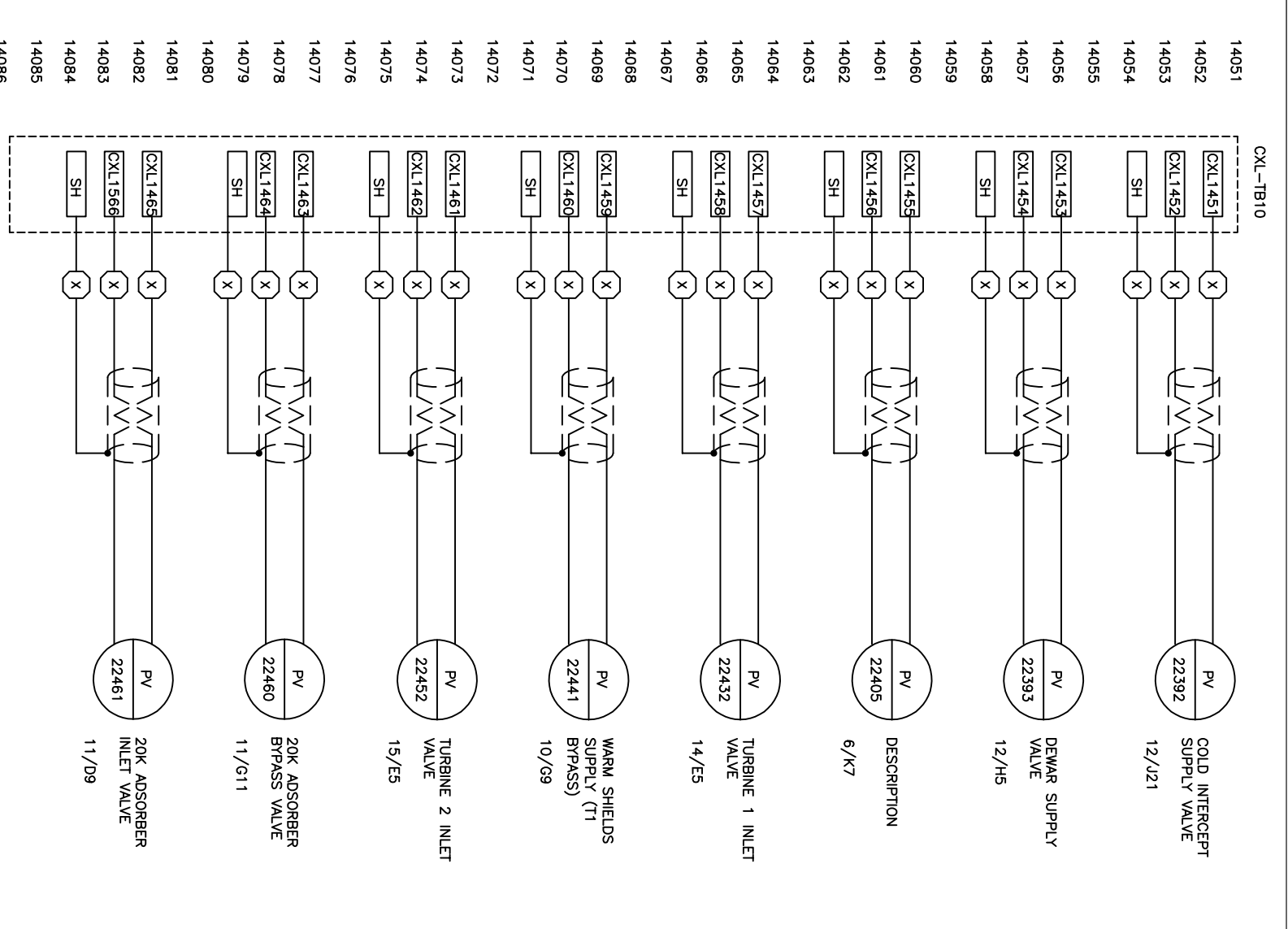
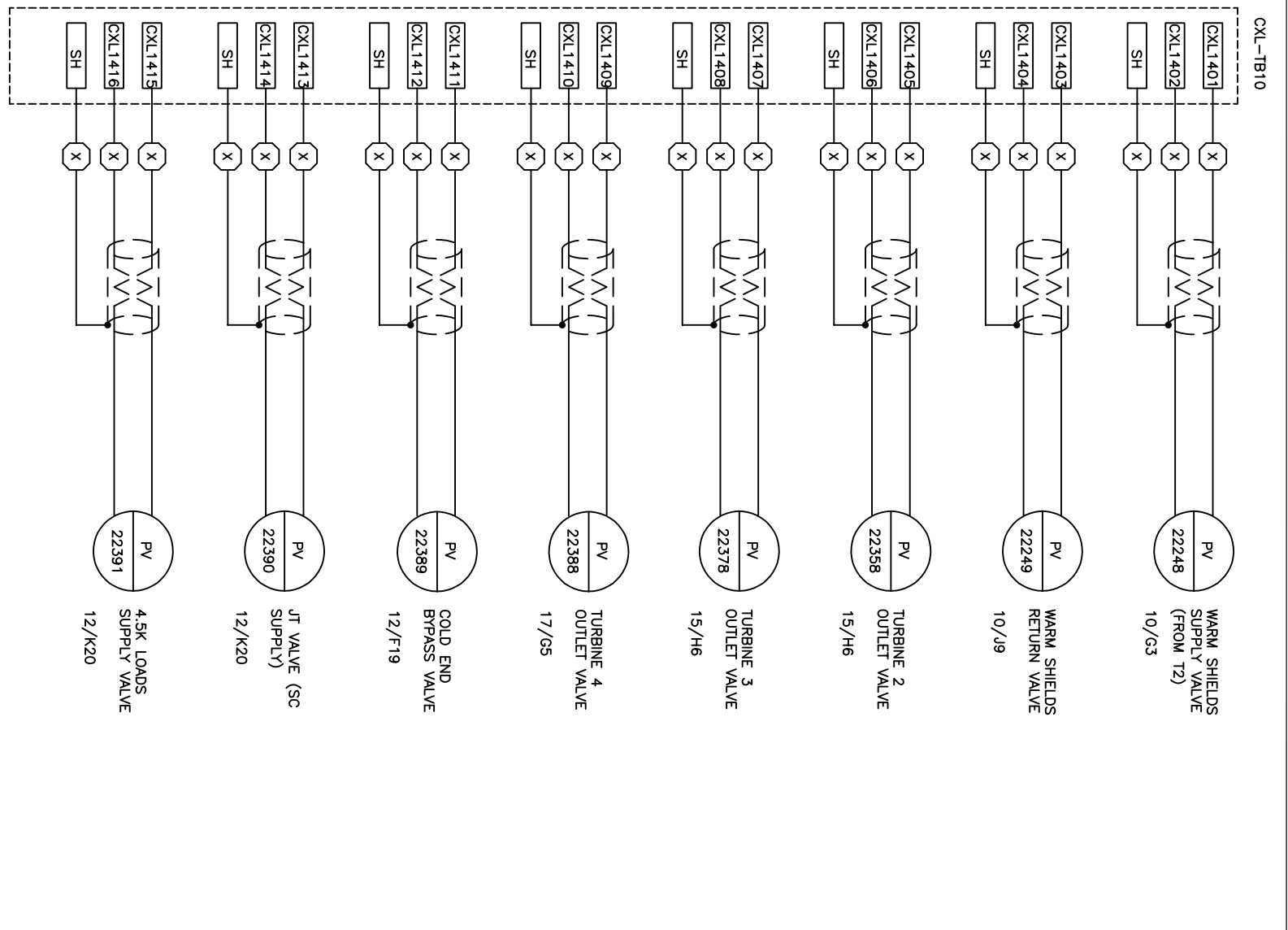
PHPK TECHNOLOGIES
 2111 BUILDERS PLACE COLUMBUS, OHIO 43204

LCS-II 4.5K LOWER COLD BOX
 ANALOG OUTPUTS

REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
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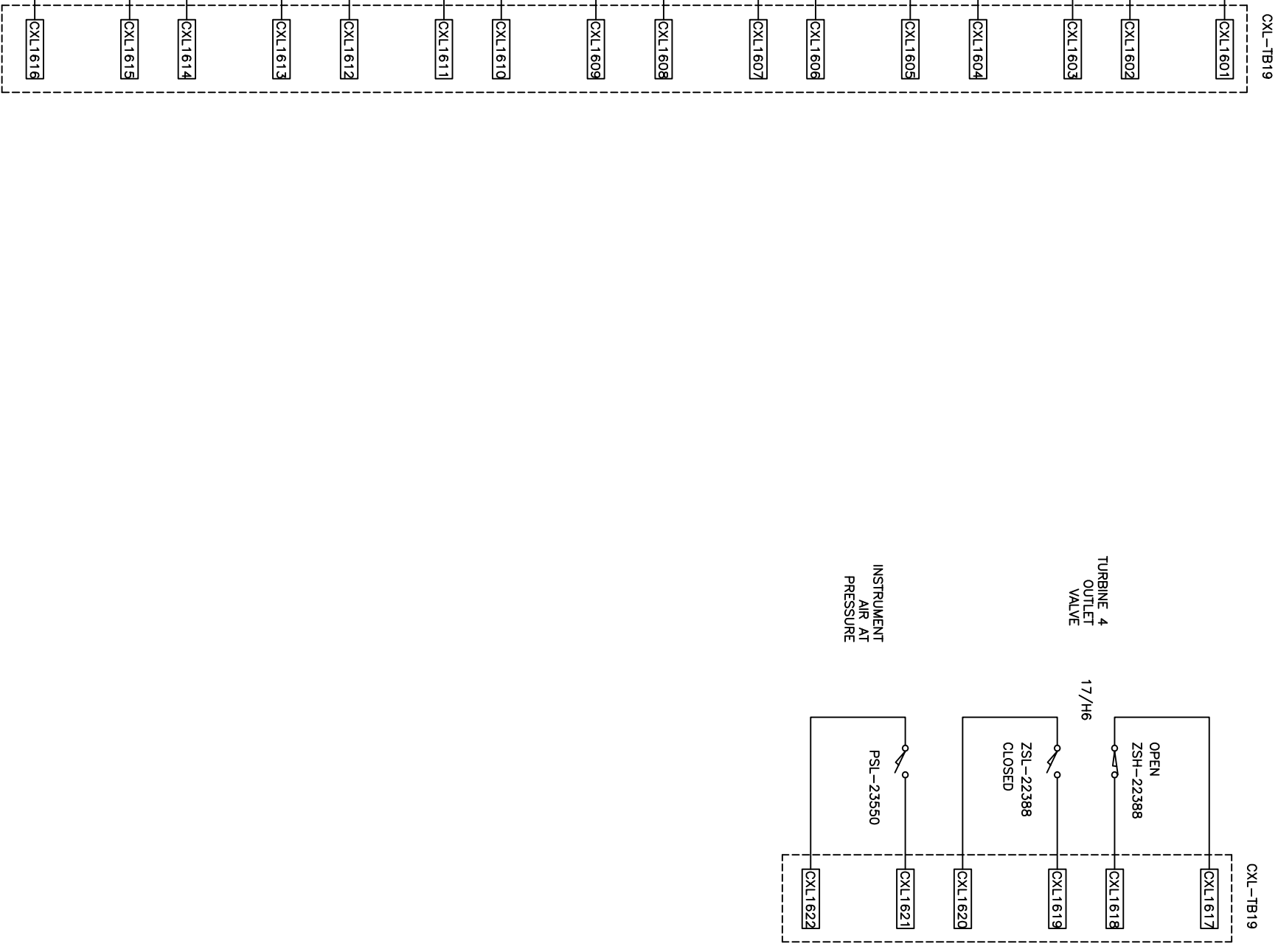
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INFORMATION SHOWN ON THIS DRAWING IS PROPERTY OF PHPK AND IS NOT TO BE DISCLOSED OR TRANSMITTED TO UNAUTHORIZED PARTIES.							
REL. DATE	8/30/2016	CONTRACT NO.		PART NUMBER		NO. REV'D	
WORK ORDER		TOLERANCES		NO. REV'D		NEXT ASSEMBLY	
DRAWN	MJA	FRACTION		SIZE		SIZE	
CHECKED	SPW	XXX		SCALE	NONE	SHEET	14 OF 17
ENGINEER	MJA	ANGULAR		PHPK TECHNOLOGIES 2111 BUILDERS PLACE COLUMBUS, OHIO 43204 LCLS-II 4.5K LOWER COLD BOX ANALOG OUTPUTS			
REVIEWED	SPW			DRAWING NO.	15-5032-1402	CHG.	B
				SIZE	B		

REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
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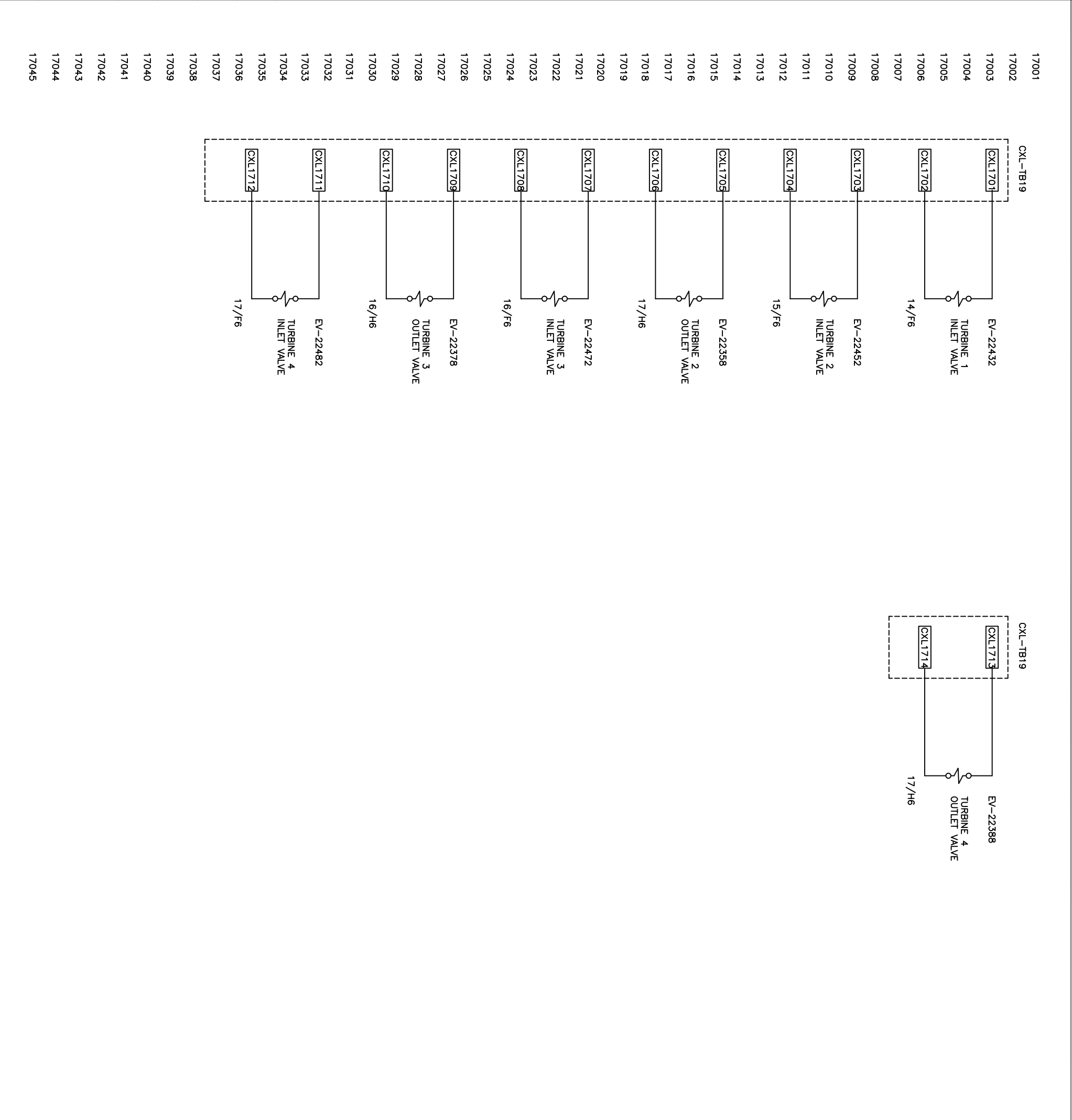


. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
WEIGHT	MJA					
DRAWN	SPW	FRACTION	PHPK TECHNOLOGIES 2111 BUILDERS PLACE COLUMBUS, OHIO 43204 LQS-II 4.5K LOWER COLD BOX DIGITAL INPUTS			
CHECKED	MJA	.XX				
ENGINEER	SPW	.XXX				
REVIEWED	ANGULAR					
REL. DATE	8/30/2016	TITLE		SIZE	DRAWING NO.	CHG.
		LQS-II 4.5K LOWER COLD BOX		B	15-5032-1402	B
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.						
					SCALE	SHEET 16 OF 17
					NONE	

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REVISIONS

CHG.	DATE	DWN.	CH'KD.	ENGR.	REV'D	DESCRIPTION
A	10-5-2016	MJA	MJA	MJA	MJA	MADE AIR LIQUIDE REQUESTED CHANGES



. LBS	WORK ORDER	CONTRACT NO.	PART NUMBER	NO. REV'D	NEXT ASSEMBLY	SIZE
	MJA					
	SPW	FRACTION	PHPK TECHNOLOGIES 2111 BUILDERS PLACE COLUMBUS, OHIO 43204 LCLS-II 4.5K LOWER COLD BOX SOLENOID OUTPUTS			
	MJA	.XX				
	SPW	.XXX				
	ANGULAR					
REL. DATE	8/30/2016		SIZE	DRAWING NO.	CHG.	
			B	15-5032-1402	B	
DIMENSIONS ARE PROVIDED PRIOR TO SURFACE TREATMENTS UNLESS NOTED.						
SCALE NONE SHEET 17 OF 17						

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