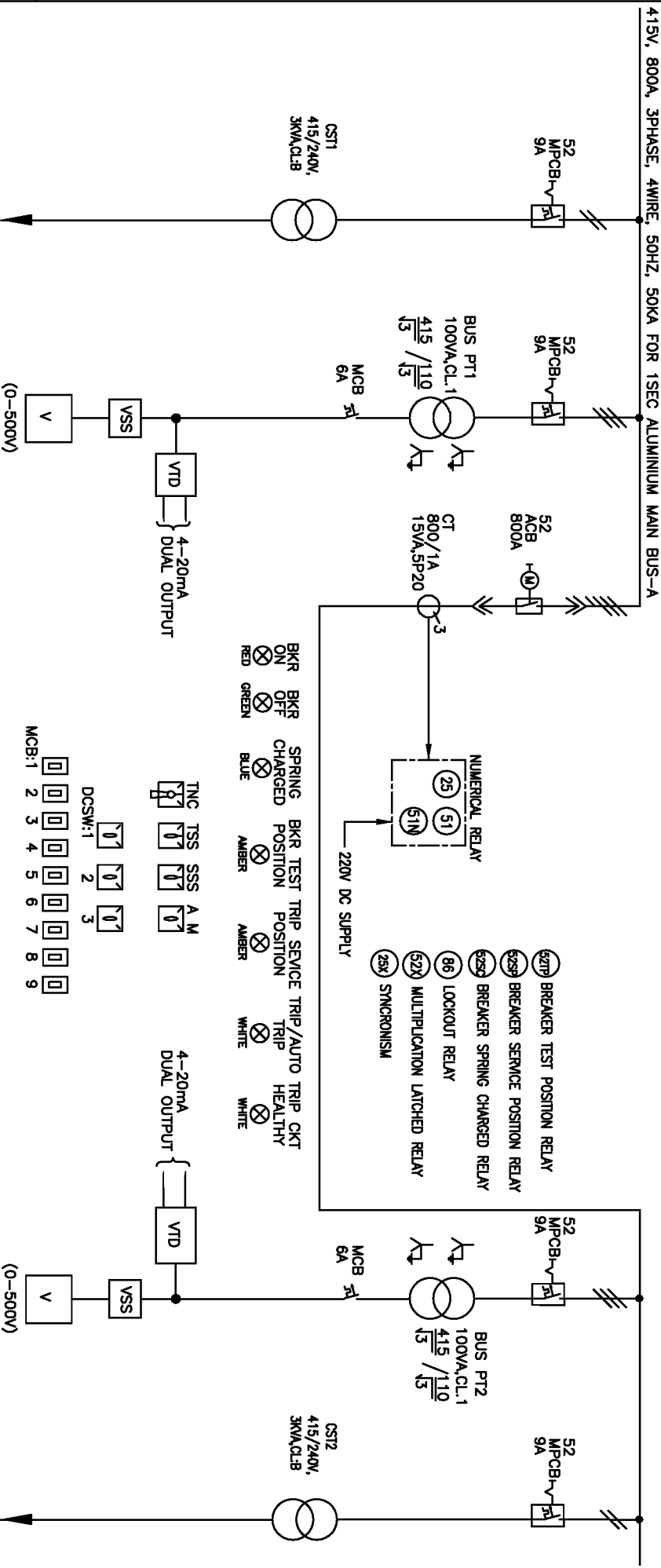


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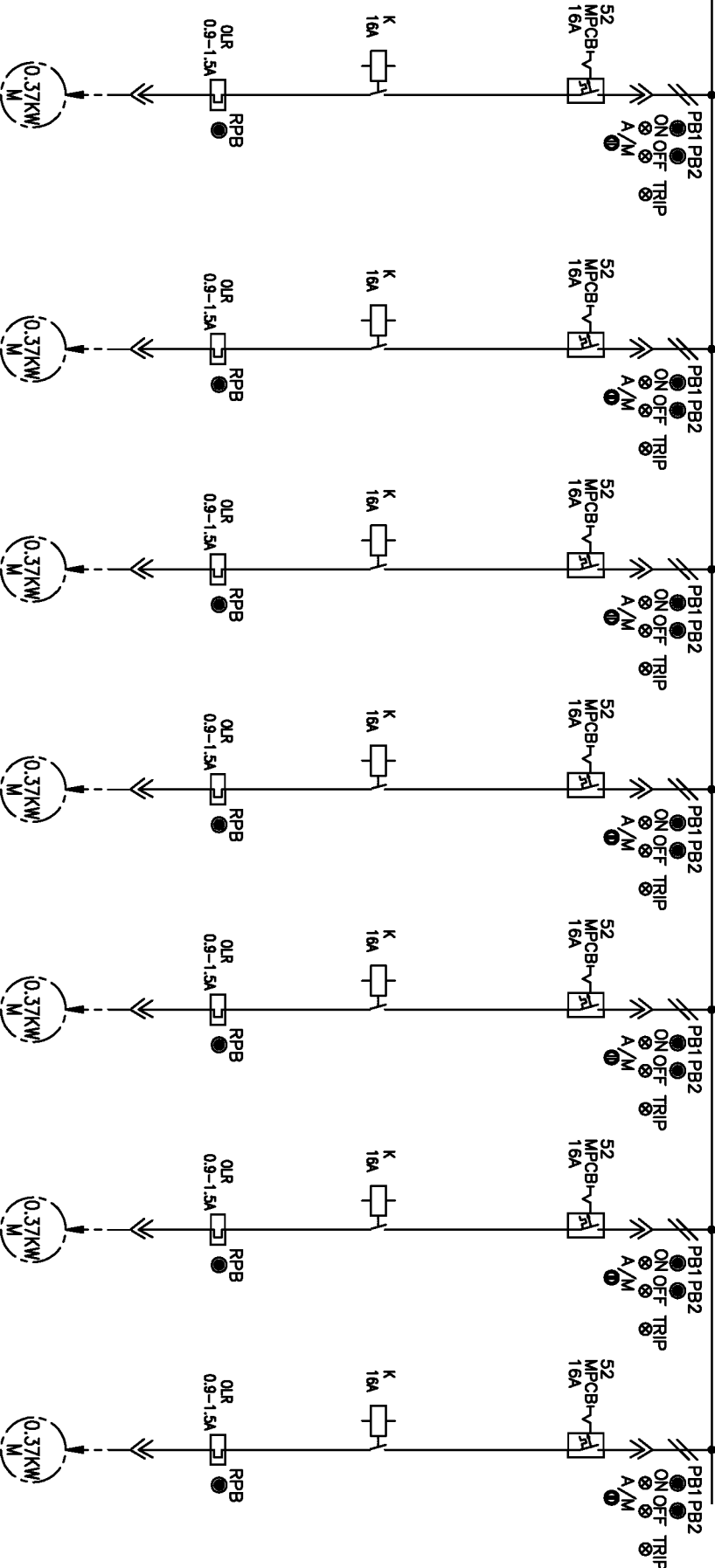
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DESCRIPTION	CST-1	BUS PT-1	BUSCOUPLER	BUS PT-2	CST-2
FEEDER NO.	5F4	2F3	8F2	14F3	13F4
RATING	5kVA	100VA	800A	100VA	5kVA
SCHEME REF	EP-3-CS-018-005	EP-3-CS-018-005	EP-3-CS-018-002	EP-3-CS-018-005	EP-3-CS-018-005

INVENTORY NO.	DRG. NO. EP-3-SL-019-315															
REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	CHECKED	TRINATH	05.01.15	DIR :	FILE NO.:	SCALE	JOB NO. CR-13-020	DRG. NO. EP-3-SL-019-315	NO. OF SHEETS 18	SHEET NO. 10	REV. 00
07																
08						DESIGNED	JAGADISH	05.01.15								
09						DRAWN										
03						CHECKED										
02																
01																

415V, 800A, 3PHASE, 3WIRE 50HZ 50KA FOR 1SEC



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DRG. NO. EP-3-SL-019-315

DESCRIPTION	CERM-1	CERM-2	CERM-3	CERM-4	CERM-5	CERM-6	CERM-7
RATING	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW
FEEDER NO.	11F1	11F2	11F3	11F4	11F5	11R2	11R3
SCHEME REF	EP-3-CS-019-002						
CABLE SIZE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DIR. :	FILE NO.:	SCALE	JOB NO. CR-13-020	DRG. NO. EP-3-SL-019-315	NO. OF SHEETS	SHEET NO.	REV.
07												18	11	00
08														
09														
04			DESIGNED			JAGADISH	05.01.15							
03			DRAWN											
02			CHECKED			TRINATH	05.01.15							
01														

BHARAT HEAVY ELECTRICALS LIMITED

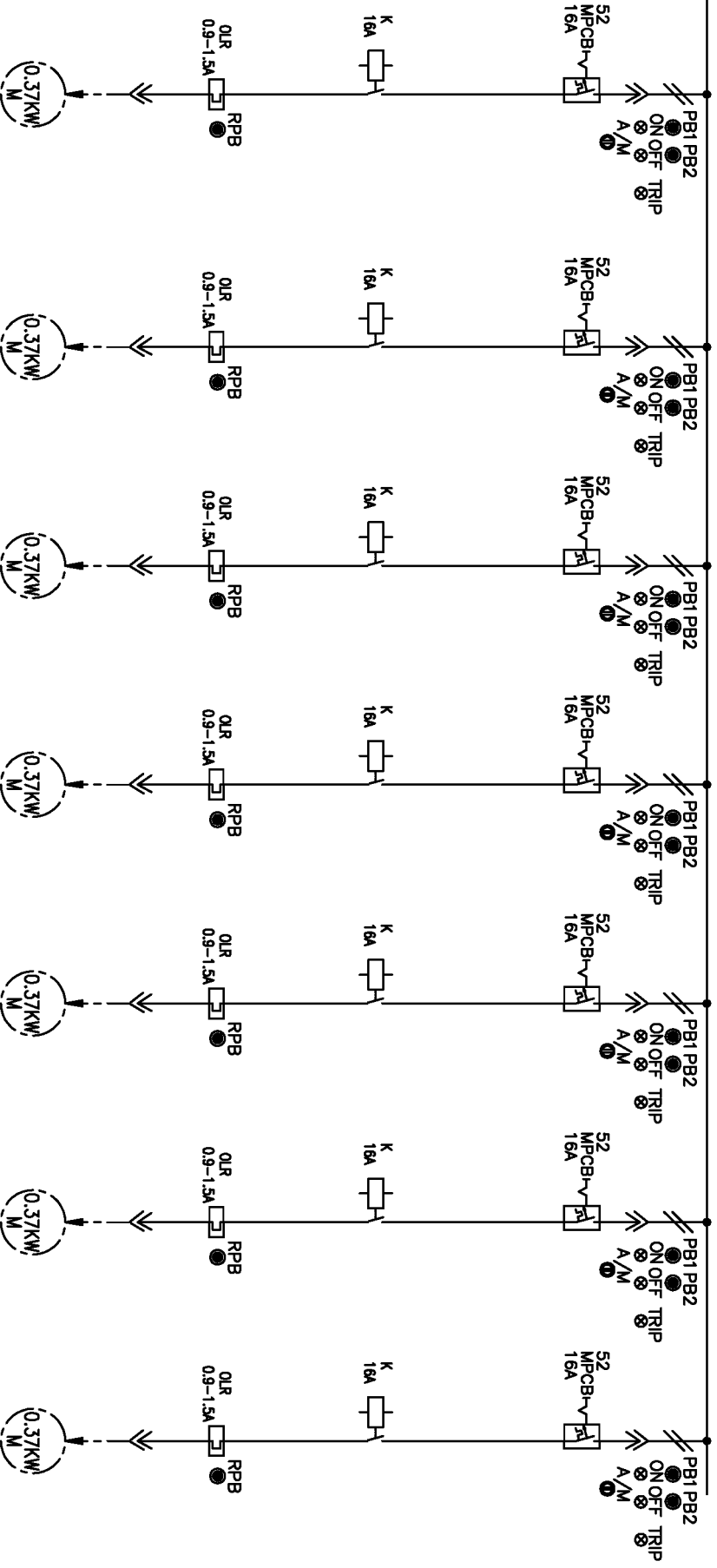
ELECTROPORCELAIN DIVISION BANGALORE



TITLE :  
SINGLE LINE DIAGRAM  
AUXILIARY CONTROL PANEL

1 2 3 4 5 6 7 8

415V, 800A, 3PHASE, 3WIRE 50HZ 50KA FOR 1SEC



DESCRIPTION	CERM-8	CERM-9	CERM-10	EERM-1	EERM-2	EERM-3	EERM-4
RATING	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW
FEEDER NO.	11R4	11R5	13F2	12F2	12F3	12F4	12F5
SCHEME REF	EP-3-CS-019-002						
CABLE SIZE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE

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DRG. NO. EP-3-SL-019-315

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DIR. :	FILE NO.:	SCALE	JOB NO. CR-13-020	DRG. NO. EP-3-SL-019-315	REV. NO. 00
07												
06												
05			DESIGNED			JAGADISH	05.01.15					
04												
03			DRAWN									
02			CHECKED			TRINATH	05.01.15					
01												

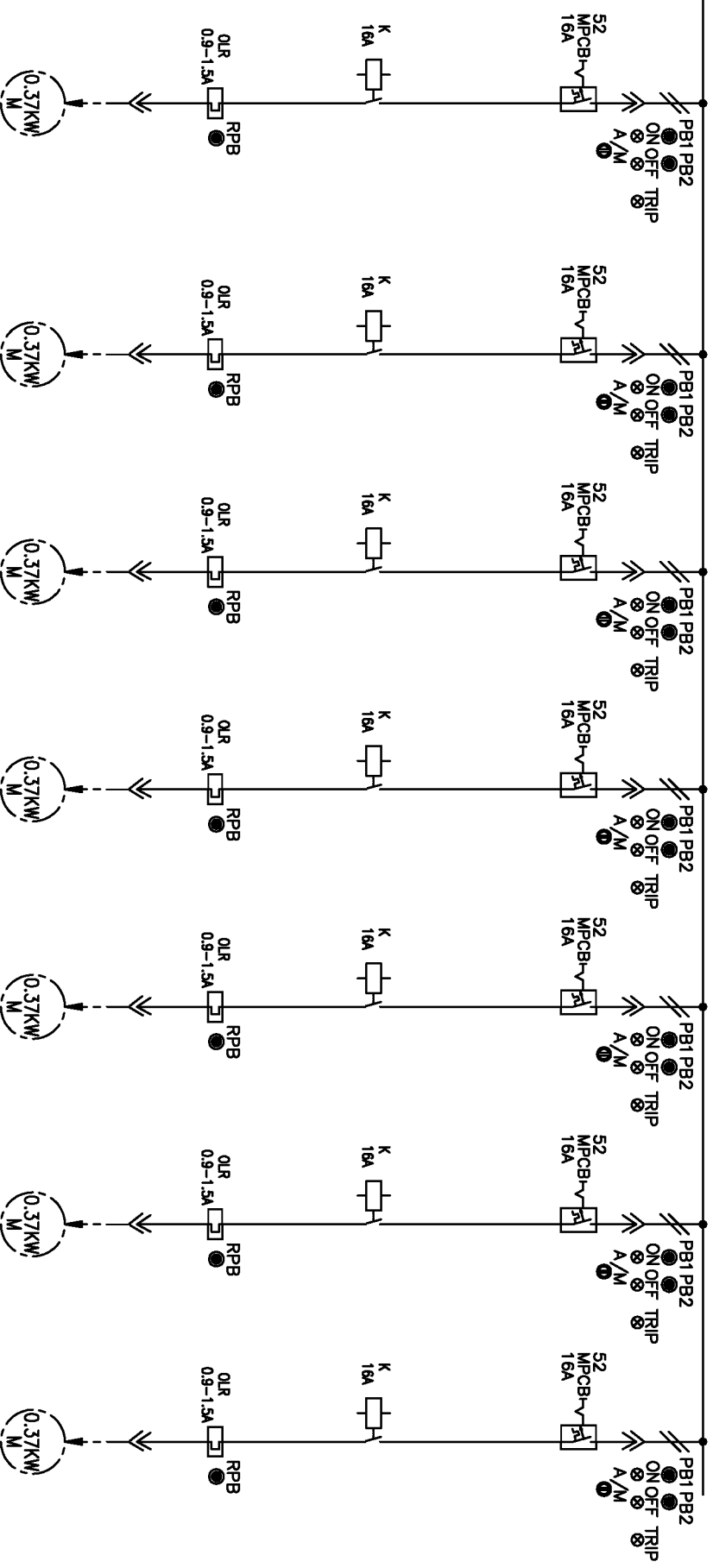
BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPORCELAIN DIVISION BANGALORE

TITLE :  
SINGLE LINE DIAGRAM  
AUXILIARY CONTROL PANEL

NO. OF SHEETS	18
SHEET NO.	12

1 2 3 4 5 6 7 8

415V, 800A, 3PHASE, 3WIRE 50HZ 50KA FOR 1SEC



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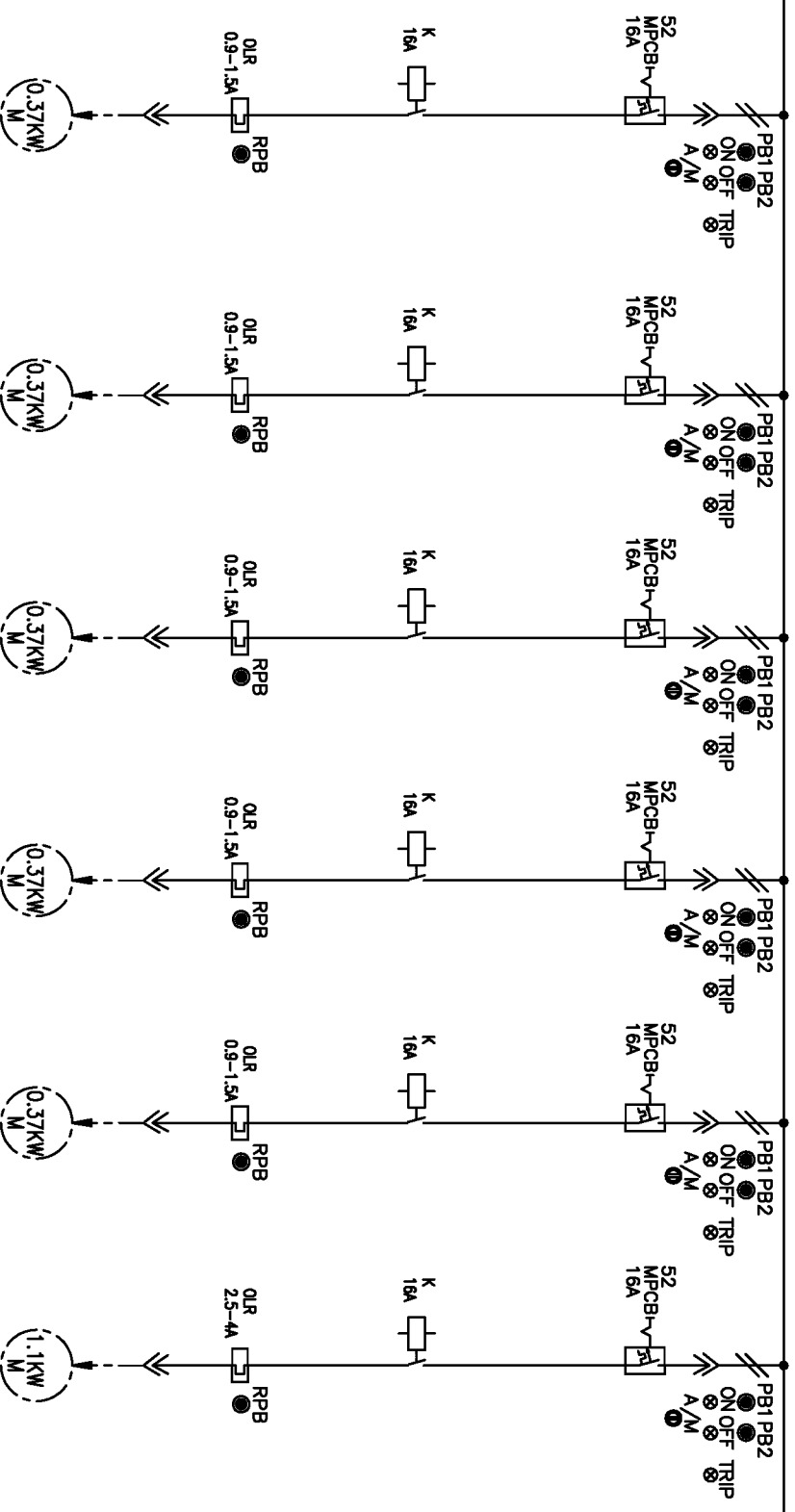
DRG. NO. EP-3-SL-019-315

DESCRIPTION	EERM-5	EERM-6	EERM-7	EERM-8	EERM-9	EERM-10	GDRM
RATING	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW
FEEDER NO.	12F6	12R2	12R3	12R4	12R5	13F3	13R3
SCHEME REF	EP-3-CS-019-002						
CABLE SIZE	1-30x2.5SQMM CU XLPE	1-30x2.5SQMM CU XLPE	1-30x2.5SQMM CU XLPE	1-30x2.5SQMM CU XLPE	1-30x2.5SQMM CU XLPE	1-30x2.5SQMM CU XLPE	1-30x2.5SQMM CU XLPE

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DIR. :	FILE NO.:	SCALE	JOB NO. CR-13-020	DRG. NO. EP-3-SL-019-315	REV. NO. 00
07												
06												
05												
04												
03												
02												
01												
INVENTORY NO.	BHARAT HEAVY ELECTRICALS LIMITED											
	ELECTROPORCELAIN DIVISION BANGALORE											
	TITLE : SINGLE LINE DIAGRAM											
	AUXILIARY CONTROL PANEL											
	NO. OF SHEETS 18											
	SHEET. NO. 13											

1 2 3 4 5 6 7 8

415V, 800A, 3PHASE, 3WIRE 50HZ 50KA FOR 1SEC



DESCRIPTION	SPARE-1	SPARE-2	SPARE-3	SPARE-4	SPARE-5	OPM
RATING	0.37KW	0.37KW	0.37KW	0.37KW	0.37KW	1.1KW
FEEDER NO.	11F7	12F7	11R6	11R7	9R2	13R4
SCHEME REF	EP-3-CS-019-002					
CABLE SIZE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	1-3CX2.5SQMM CU XLPE	EP-3-CS-019-041

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DRG. NO. EP-3-SL-019-315

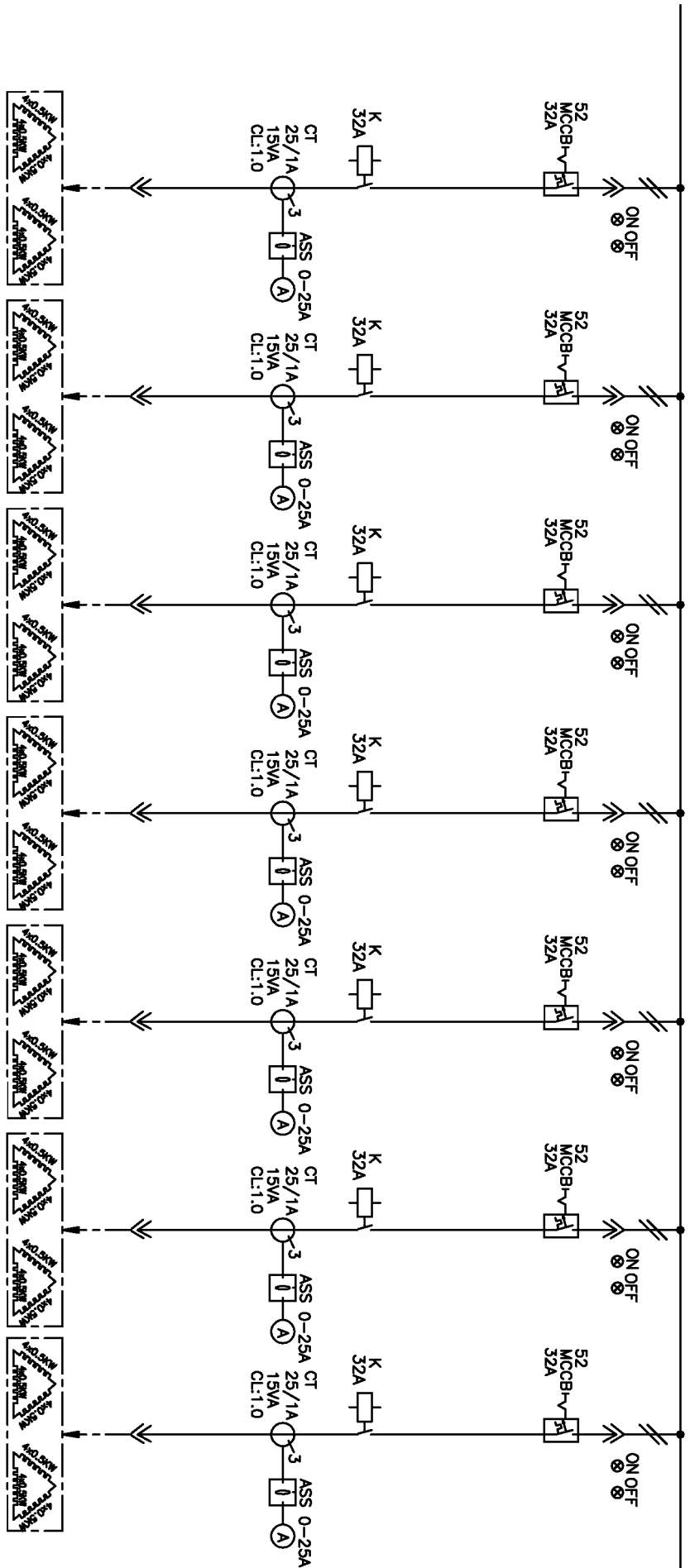
REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	DIR.	FILE NO.:	SCALE	JOB NO.	CR-13-020	DRG. NO.	EP-3-SL-019-315	NO. OF SHEETS	18	SHEET NO.	14	REV.	00
07																					
06																					
05						DESIGNED	JAGADISH	05.01.15													
04						DRAWN															
03						CHECKED	TRINATH	05.01.15													
02																					
01																					
INVENTORY NO.																					

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

415V, 800A, 3PHASE, 3WIRE 50HZ 50KA FOR 1SEC



DESCRIPTION	HH-1	HH-2	HH-1	HH-2	HH-1	HH-2	HH-1	HH-2	HH-1	HH-2	
FIELD-1	FIELD-1	FIELD-2	FIELD-2	FIELD-3	FIELD-3	FIELD-4	FIELD-4	FIELD-5	FIELD-5	FIELD-6	
RATING	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	6KW	
FEEDER NO.	9F2	9F3	9F4	10F2	10F3	10F4	10R2				
SCHEME REF	EP-3-CS-019-003										
CABLE SIZE	1-3CX10SQMM AL XLPE										

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DRG. NO. EP-3-SL-019-315

INVENTORY NO.	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DIR :	FILE NO.:	SCALE	JOB NO.	CR-13-020	DRG. NO.	EP-3-SL-019-315
07												
08												
09												
04				DESIGNED	JAGADISH		05.01.15					
03				DRAWN								
02				CHECKED	TRINATH		05.01.15					
01												
REV.	DATE											

BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPORCELAIN DIVISION BANGALORE

TITLE :  
SINGLE LINE DIAGRAM  
AUXILIARY CONTROL PANEL

NO. OF SHEETS	18
SHEET NO.	15
REV.	00



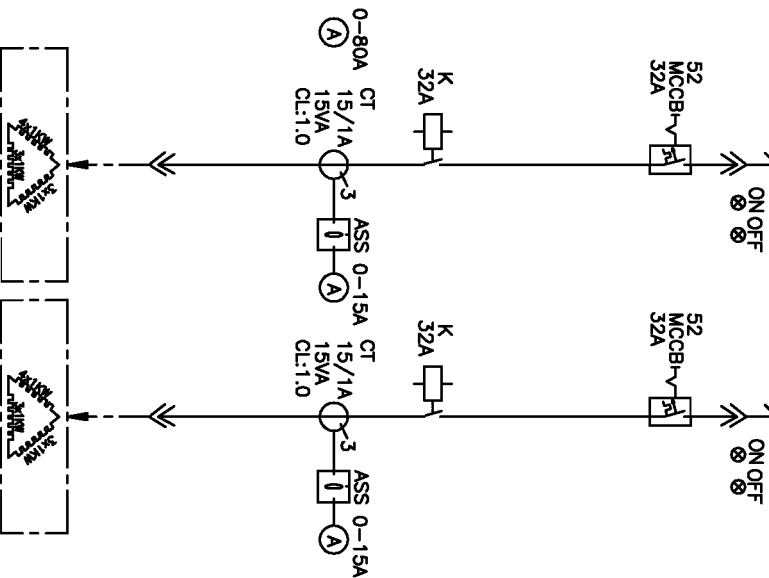
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

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415V, 800A, 3PHASE, 3WIRE 50HZ 50KA FOR 1SEC




DESCRIPTION	HS	HS-SPARE
RATING	10KW	10KW
FEEDER NO.	14F2	14R4
SCHEME REF	EP-3-CS-019-003	
CABLE SIZE	1-3C*10SQMM AL XLPE	

DRG. NO. EP-3-SL-019-315

INVENTORY NO.

07	DATE	BY	APPD.	CHECKED	TRINATH	05.01.15
06				DESIGNED	JAGADISH	05.01.15
05				DRAWN		
04						
03						
02						
01						

DIR : 

FILE NO.:

**BHARAT HEAVY ELECTRICALS LIMITED**  
 ELECTROPORCELAIN DIVISION BANGALORE

TITLE :  
 SINGLE LINE DIAGRAM  
 AUXILIARY CONTROL PANEL

SCALE : JOB NO. CR-13-020 DRG. NO. EP-3-SL-019-315

NO. OF SHEETS	18
SHEET NO.	17
REV.	00



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1

2

3

4

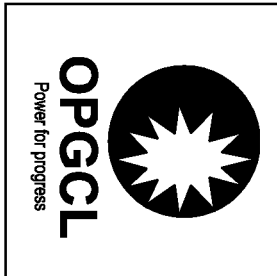
5

6

7

8

CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-107-003

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01						KS BALA		24.12.14

DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

POWER & CONTROL SCHEME

PMCC/MCC BUSCOUPLER

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-003

TITLE :

BHARAT HEAVY ELECTRICALS LIMITED

POWER & CONTROL SCHEME

NO. OF SHEETS

08

SHEET NO.

01

REV. NO.

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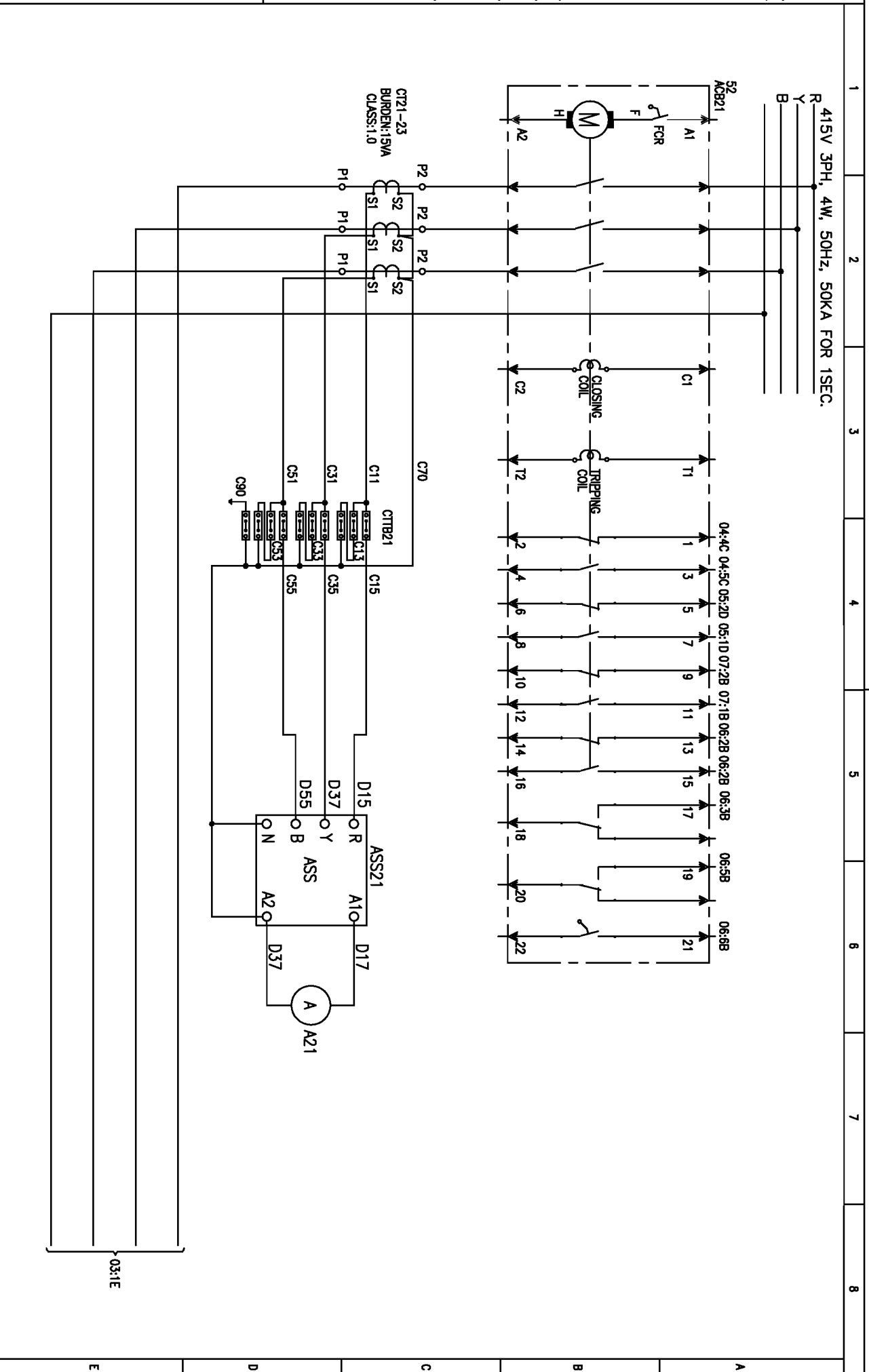
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INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE
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06								
05								
04		DESIGNED	JAGADISH			JAGADISH		24.12.14
03		DRAWN						
02		CHECKED	TRINATH			TRINATH		24.12.14
01								



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE :			
POWER & CONTROL SCHEME		PMCC/MCC BUSCOUPLER	
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-003
NO. OF SHEETS	08	NO. OF SHEETS	02
SHEET NO.	02	REV.	00



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

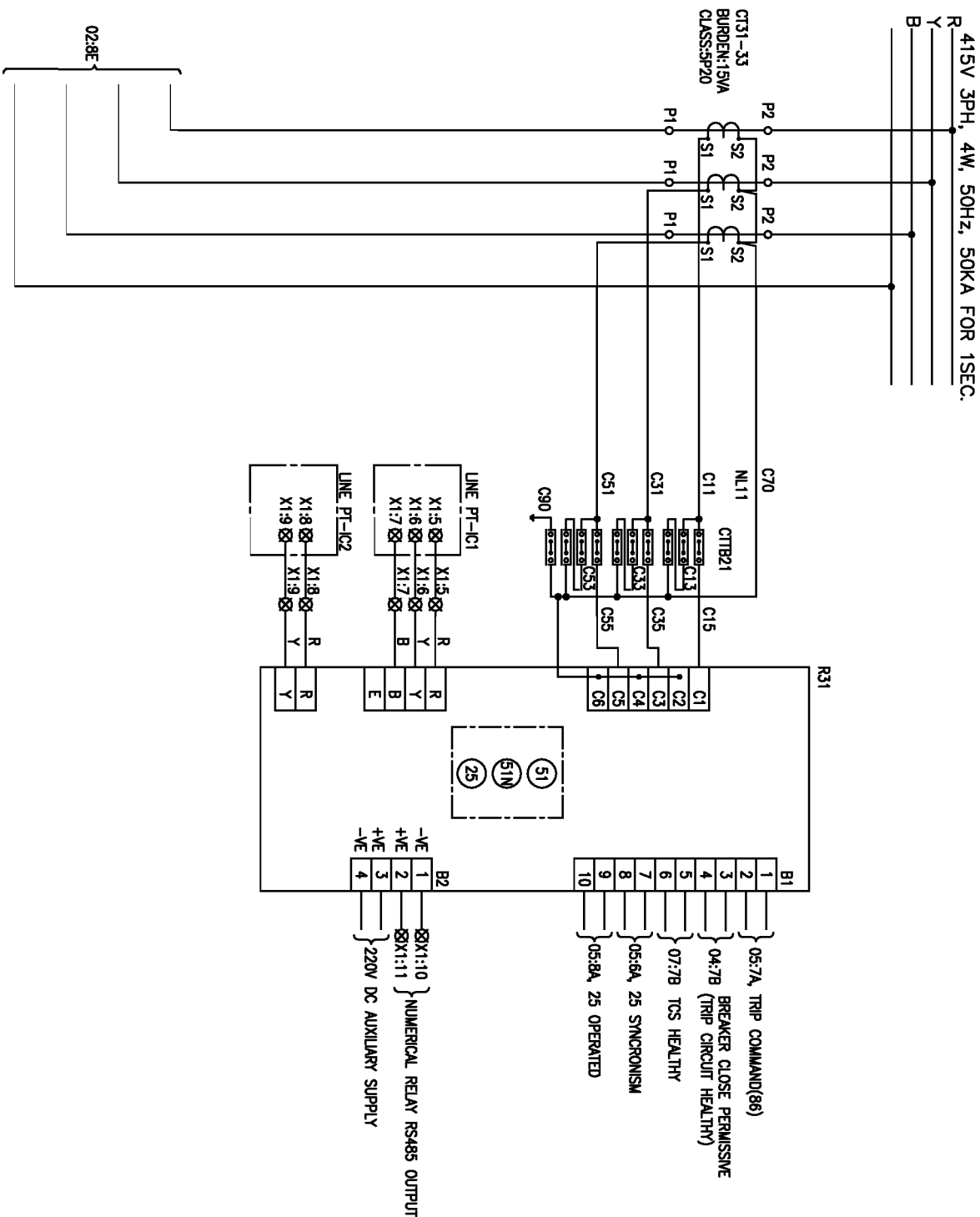
DRG. NO. EP-3-CS-107-003

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE
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06								
05						JAGADISH		24.12.14
04								
03								
02						TRINATH		24.12.14
01								

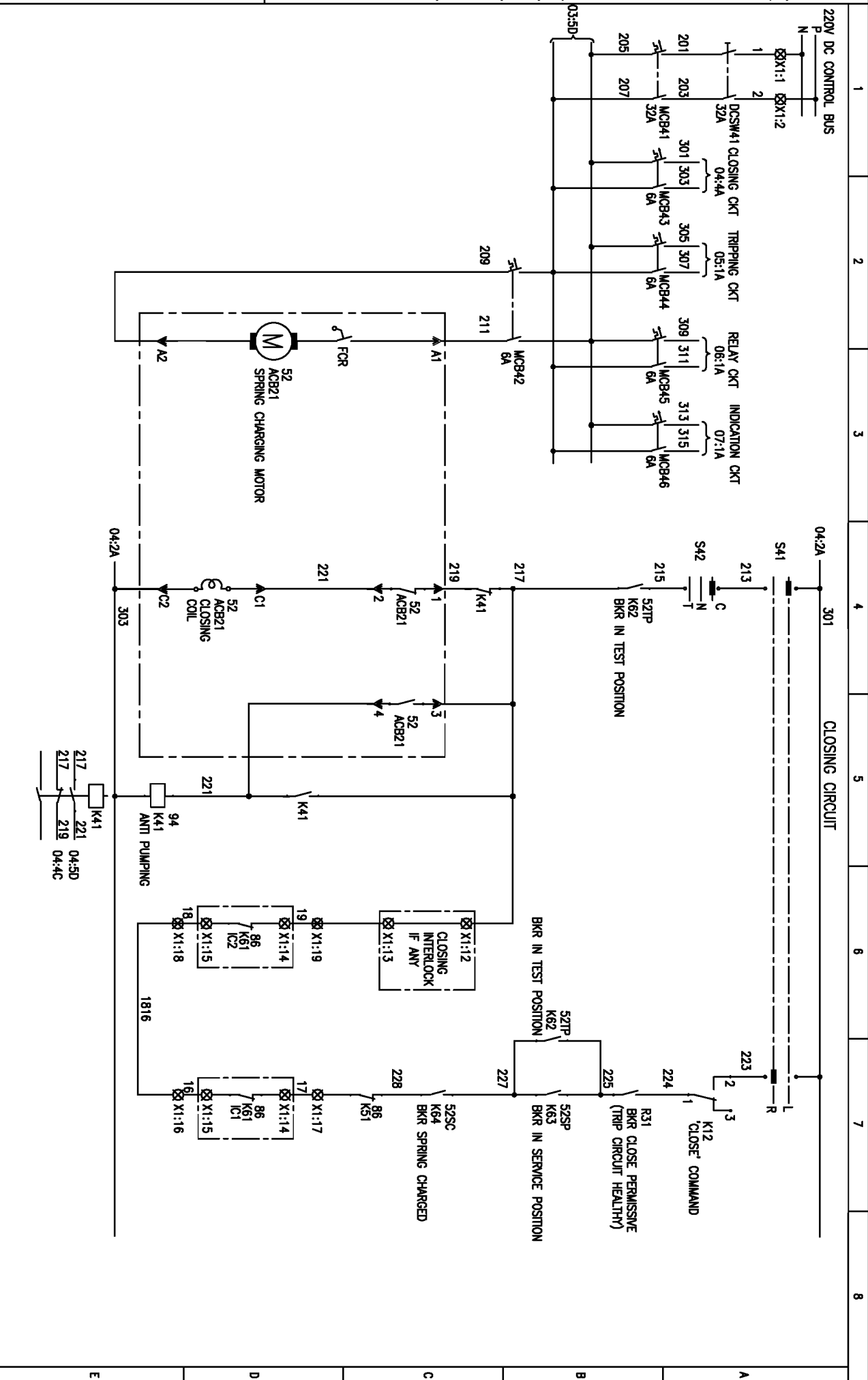


BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE : POWER & CONTROL SCHEME			
PMCC/MCC BUSCOUPLER			
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-003
NO. OF SHEETS : 08		SHEET NO. : 03	
REV. NO. : 00			



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA
07						
08						
09						
04						
03						
02						
01						

INVENTORY NO.	NAME	DATE
07		
08		
09		
04		
03		
02		
01		

DESIGNED	DRAWN	CHECKED	APPROVED	DATE
JAGADISH	TRINATH	TRINATH	KS BALA	24.12.14

NO. OF SHEETS	SHEET NO.	REV.
08	04	00

BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

POWER & CONTROL SCHEME

PMCC/MCC BUSCOUPLER

SCALE

JOB NO. CR-13-019

DRG. NO. EP-3-CS-019-003

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.





DRG. NO. EP-3-CS-107-003

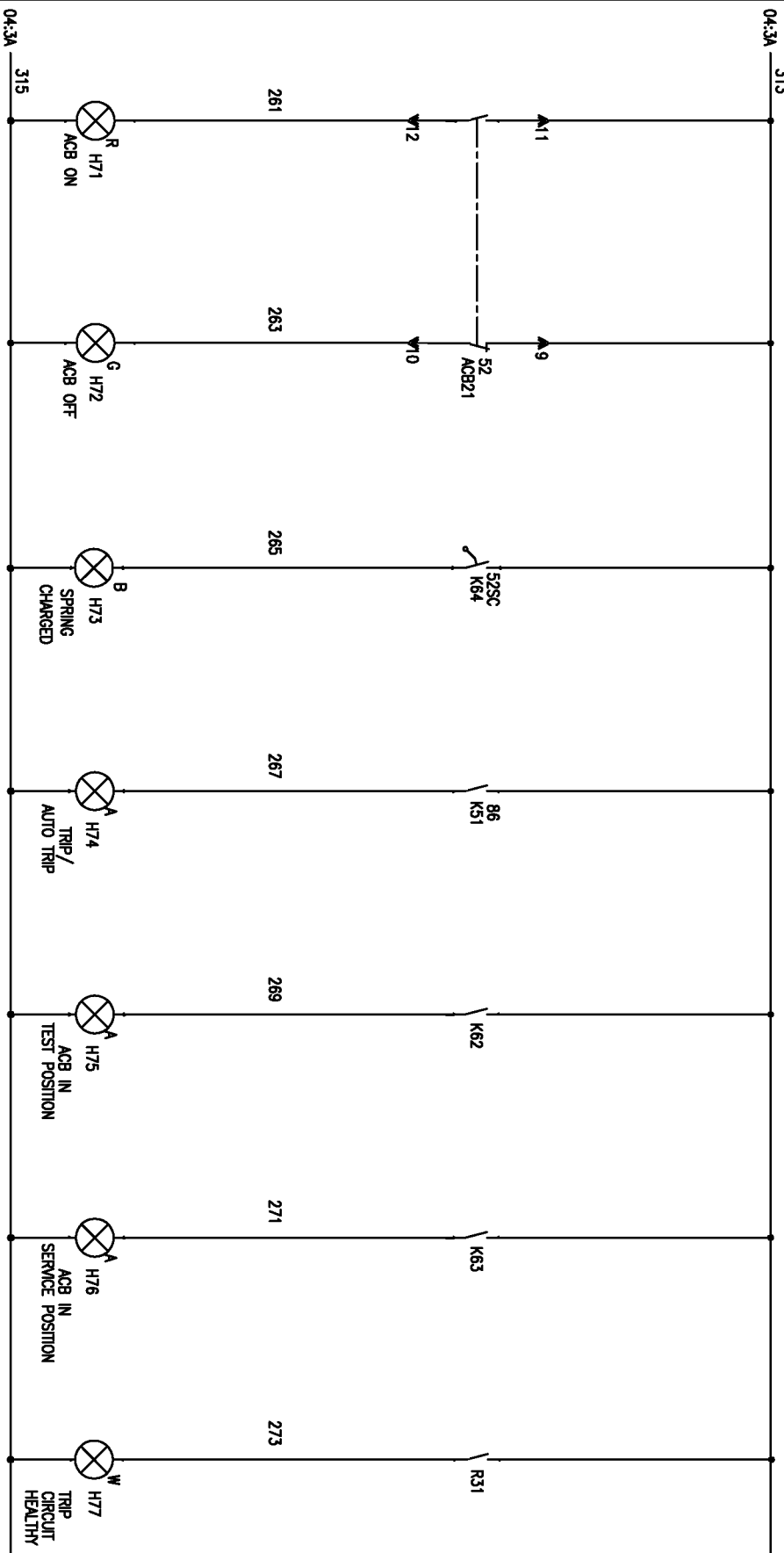
INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DATE
07							
06							
05		DESIGNED				JAGADISH	24.12.14
04		DRAWN					
03		CHECKED				TRINATH	24.12.14
02							
01							

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

INDICATION CIRCUIT



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

POWER & CONTROL SCHEME

PMCC/MCC BUSCOUPLER



SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-003

NO. OF SHEETS 08  
 SHEET NO. 07  
 REV. NO. 00

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DRG. NO. EP-3-CS-107-003

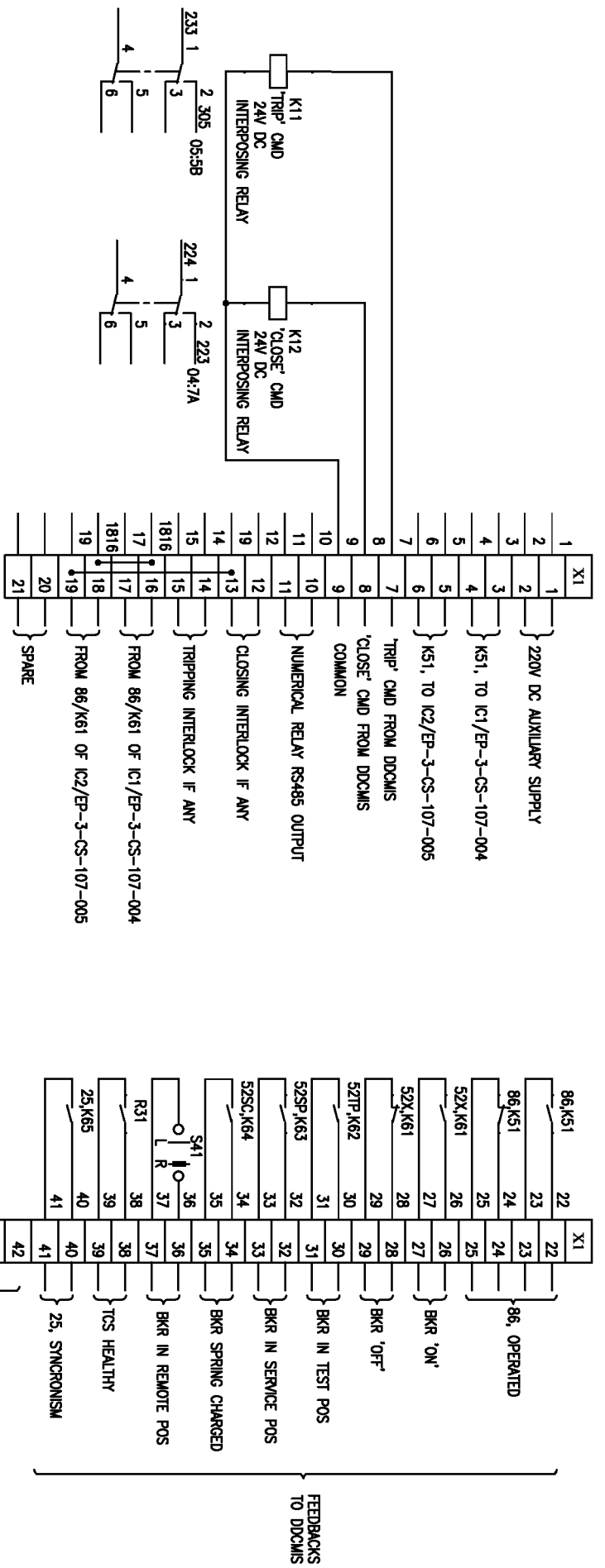
INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPR.	APPROVED	NAME	SIGN.	DATE
07								
08						JAGADISH		24.12.14
04						DRAWN		
03						CHECKED		
02						TRINATH		24.12.14
01						KS BALA		24.12.14



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE : POWER & CONTROL SCHEME			
PMCC/MCC BUSCOUPLER			
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-003
NO. OF SHEETS 08		NO. OF SHEETS 08	
REV. 08		REV. 00	

FIRST ANGLE PROJECTION  
 ALL DIMENSIONS ARE IN MM.

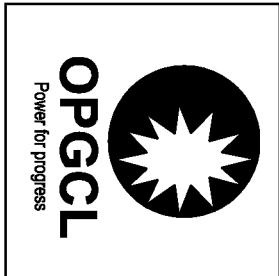


E  
 D  
 C  
 B  
 A

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8






ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:  
 2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:  
  
 DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

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DRG. NO. EP-3-CS-107-004

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01						KS BALA		24.12.14



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE :		POWER & CONTROL SCHEME	
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-004
NO. OF SHEETS		08	
SHEET NO.		01	
REV.		00	



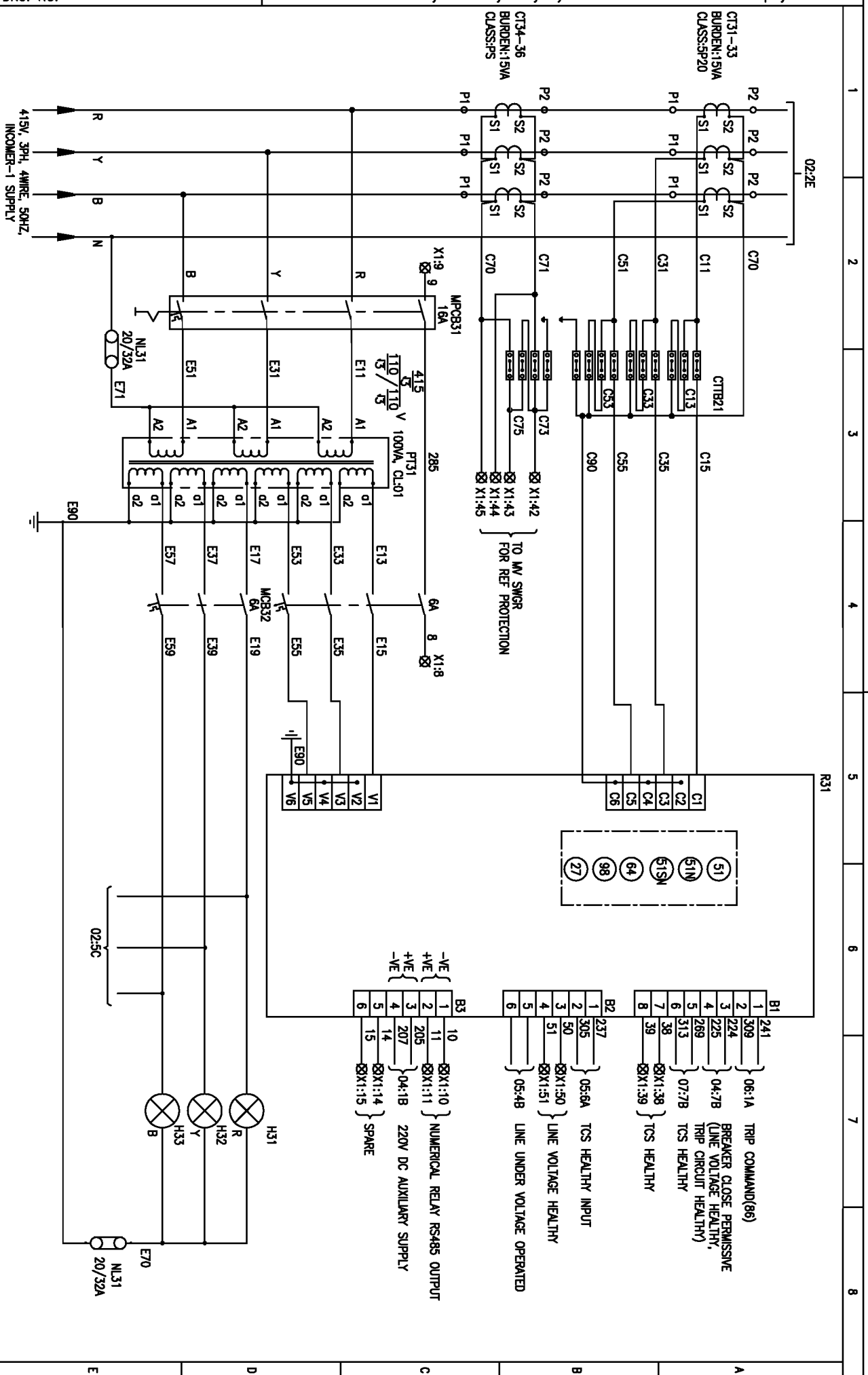
DRG. NO. EP-3-CS-107-004

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPROVED	APPROVED	KS BALA	DATE
07							
08							
09							
04							
03							
02							
01							



DESIGNED	JAGADISH	24.12.14
DRAWN		
CHECKED	TRINATH	24.12.14
APPROVED		24.12.14
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> ELECTROPROCLAIM DIVISION BANGALORE		
<b>POWER &amp; CONTROL SCHEME</b> PMCC/MCC INCOMER-1		
NO. OF SHEETS	08	
SHEET NO.	03	
REV. NO.	00	



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

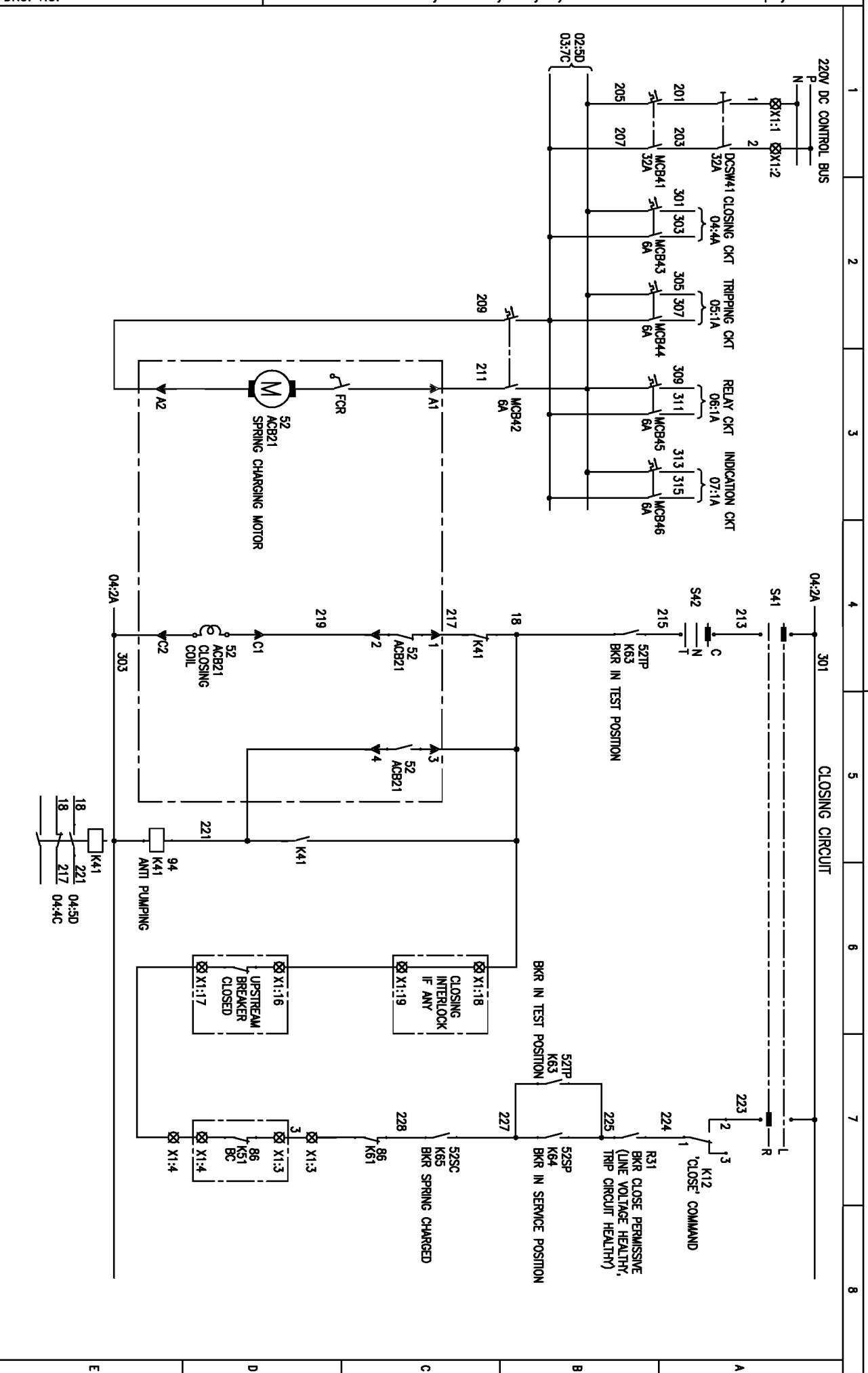
DRG. NO. EP-3-CS-107-004

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA
07						
06						
05		DESIGNED	JAGADISH			24.12.14
04		DRAWN				
03		CHECKED	TRINATH			24.12.14
02						
01						



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPROCLAIM DIVISION BANGALORE	
TITLE : POWER & CONTROL SCHEME			
JOB NO. CR-13-019		DRG. NO. EP-3-CS-019-004	
NO. OF SHEETS	08	NO. OF SHEETS	08
SHEET NO.	04	REV.	00



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



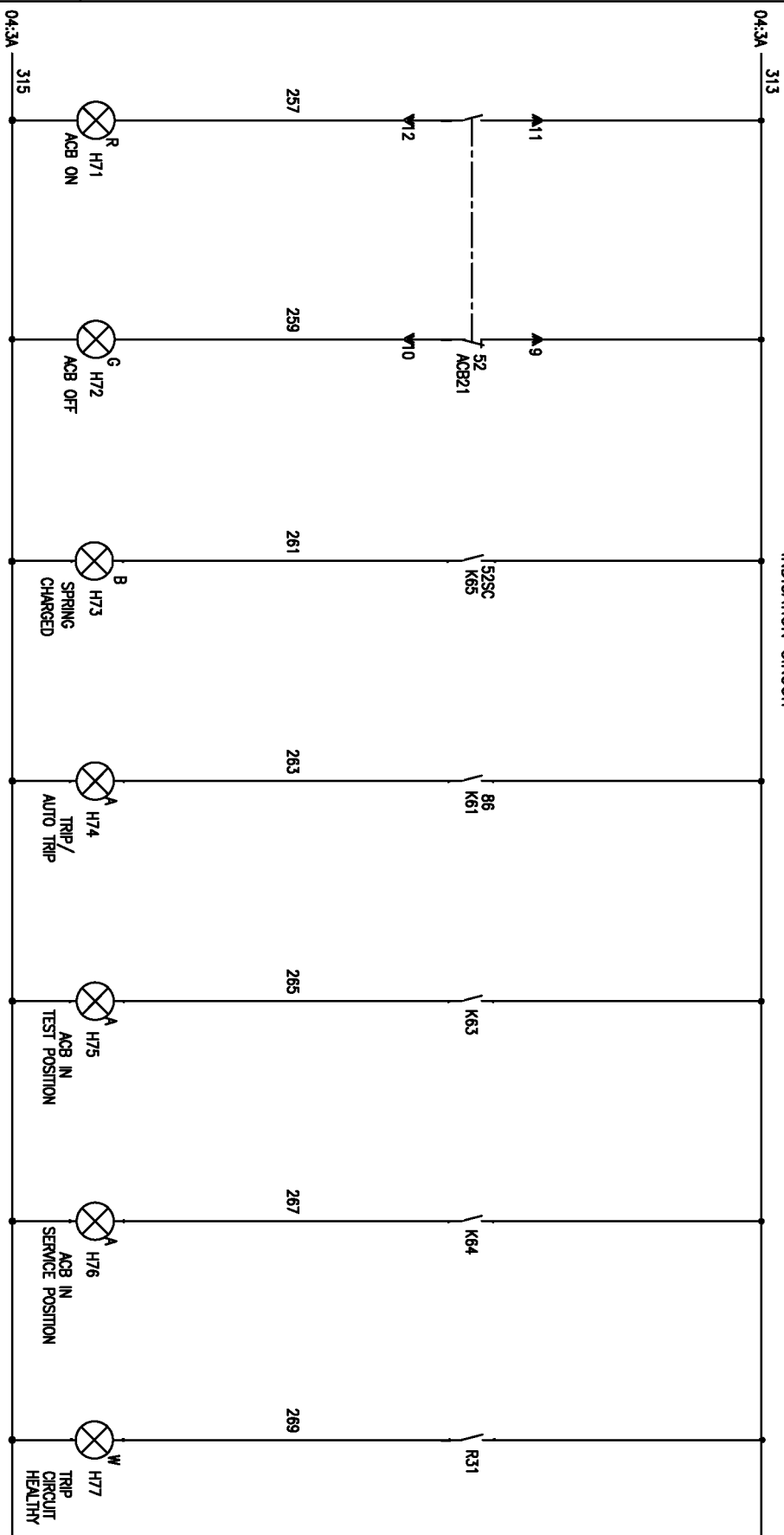


FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

INDICATION CIRCUIT



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DRG. NO. EP-3-CS-107-004

INVENTORY NO.

07	REV. NO.	DATE	BY	APPD.	CHECKED	TRINATH	KS BALA	24.12.14
06					DESIGNED	JAGADISH		24.12.14
05					DRAWN			
04					CHECKED			
03								
02								
01								



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE		NO. OF SHEETS		08
TITLE :		POWER & CONTROL SCHEME		SHEET NO.		07
SCALE		JOB NO. CR-13-019		DRG. NO.		EP-3-CS-019-004
REV. NO.		DATE		REV.		00

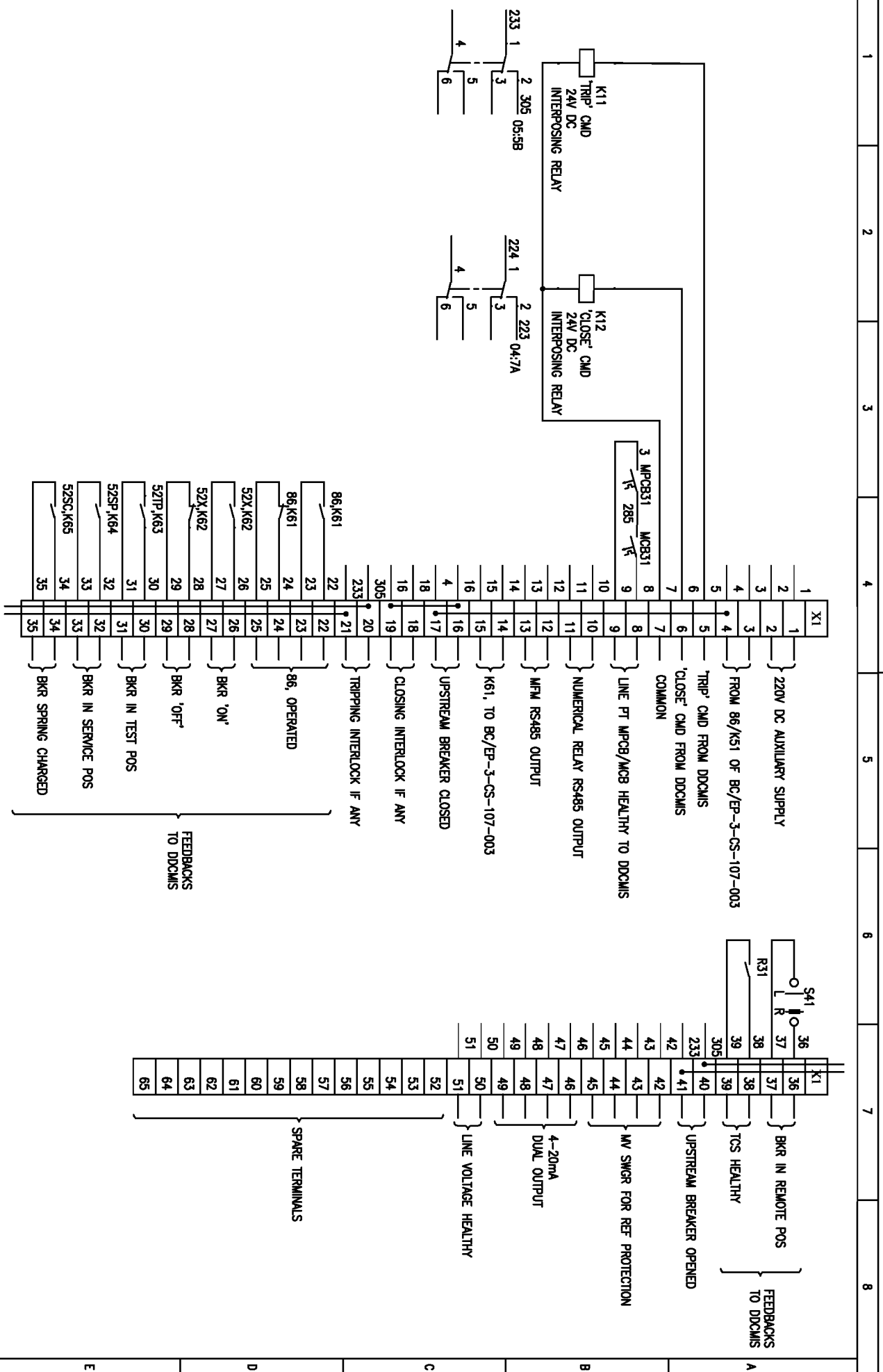
DRG. NO. EP-3-CS-107-004

INVENTORY NO.

07	REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE
06							JAGADISH		24.12.14
05									
04									
03									
02									
01									



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE : POWER & CONTROL SCHEME			
SCALE	JOB NO. CR-13-019	DRG. NO. EP-3-CS-019-004	NO. OF SHEETS 08
			SHEET NO. 08
			REV. NO. 00



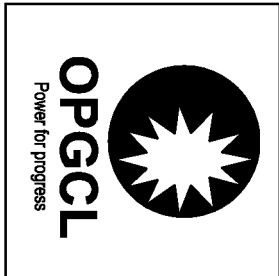
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8






ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:  
 2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:  
  
 DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

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DRG. NO. EP-3-CS-107-004

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01						KS BALA		24.12.14



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE :		POWER & CONTROL SCHEME	
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-005
NO. OF SHEETS		08	
SHEET NO.		01	
REV.		00	

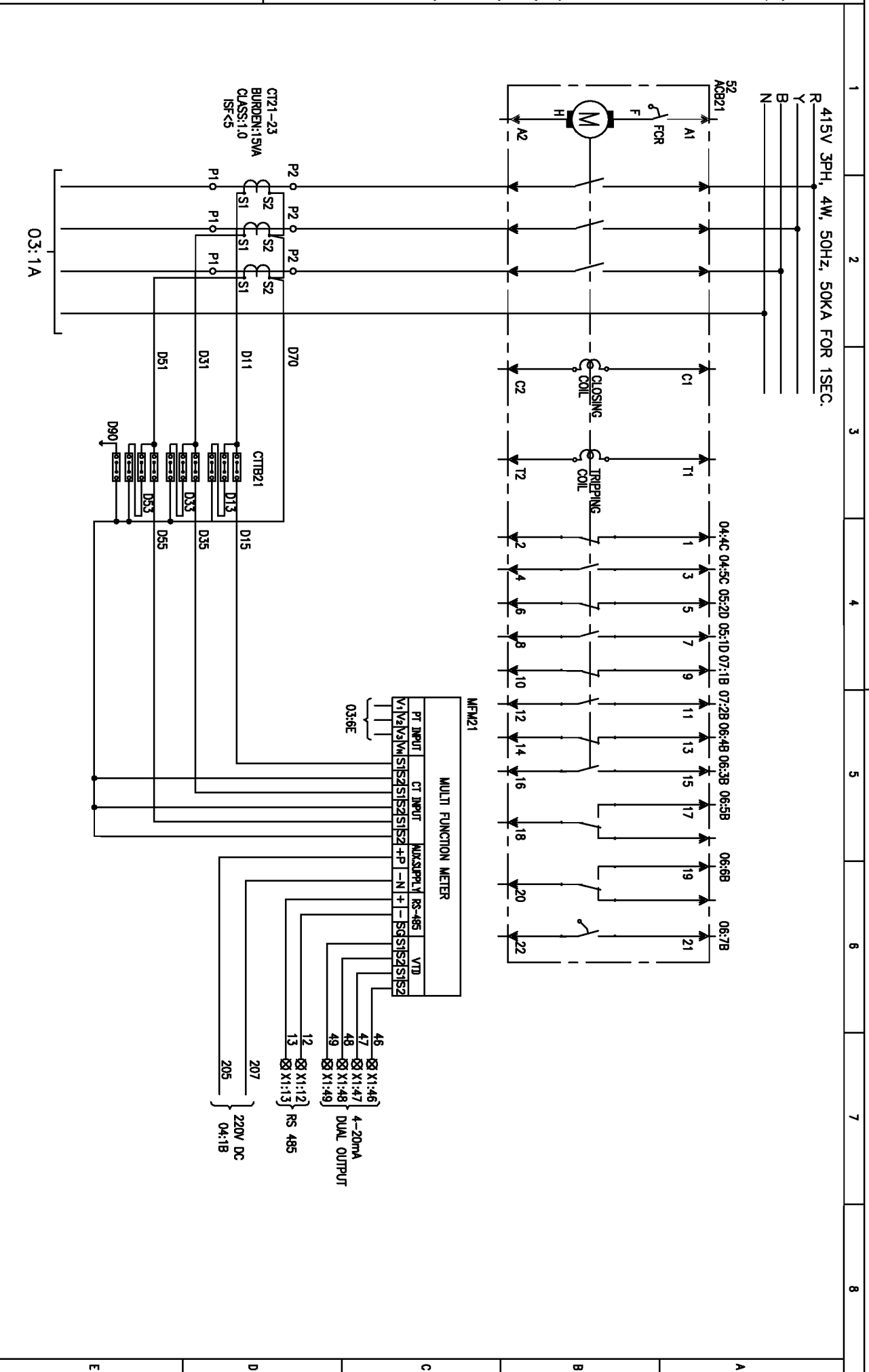
DRG. NO. EP-3-CS-107-004

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DATE
07							
06							
05		DESIGNED	JAGADISH				24.12.14
04		DRAWN					
03		CHECKED	TRINATH				24.12.14
02							
01							



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE : POWER & CONTROL SCHEME			
SCALE		JOB NO. CR-13-019	DRG. NO. EP-3-CS-019-005
NO. OF SHEETS		NO. OF SHEETS	
08		08	
SHEET NO.		SHEET NO.	
02		02	
REV. NO.		REV. NO.	
00		00	



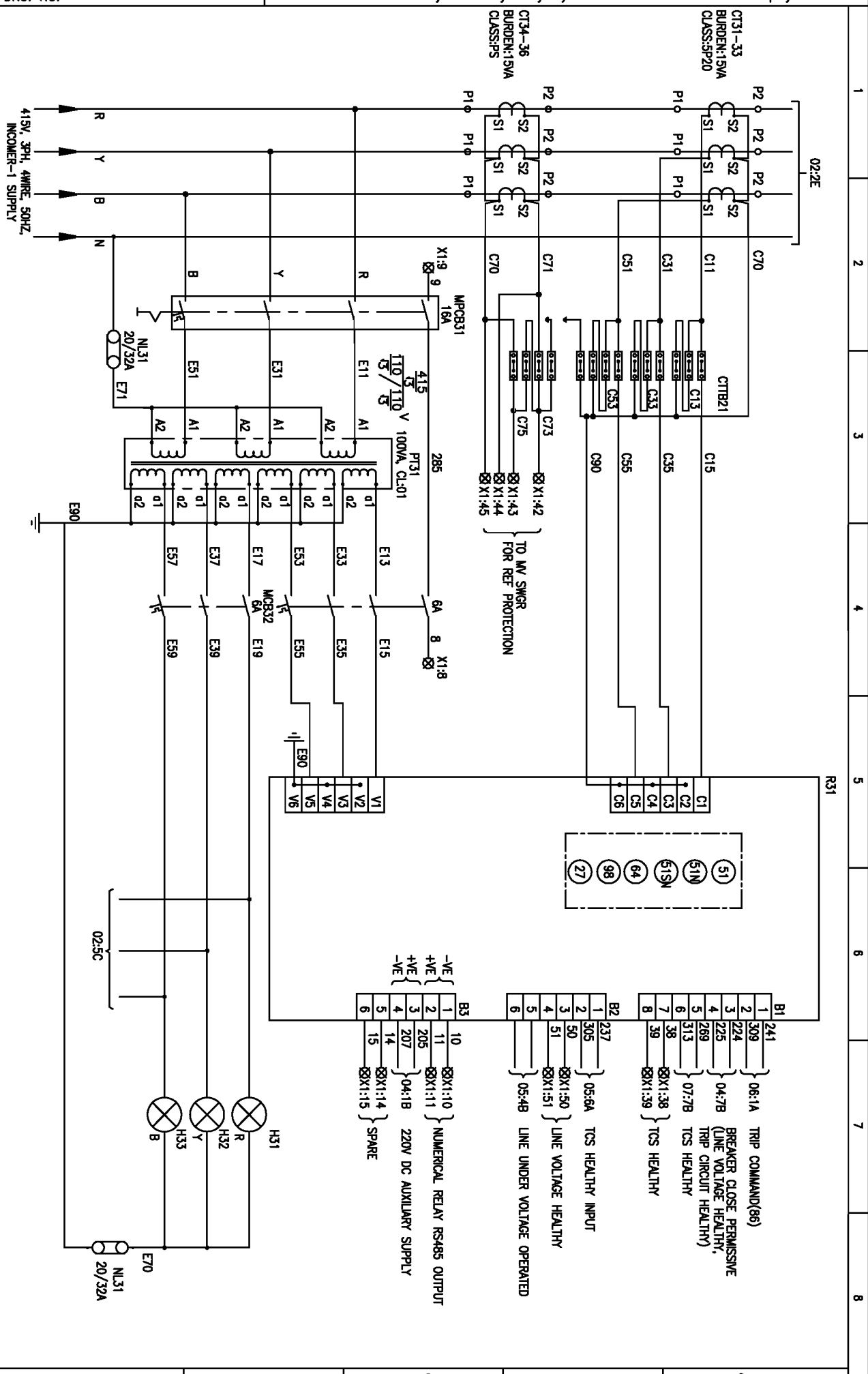
FIRST ANGLE PROJECTION


ALL DIMENSIONS ARE IN MM.

DRG. NO. EP-3-CS-107-004

INVENTORY NO.

07	REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	24.12.14
06								
05			DESIGNED	JAGADISH				24.12.14
04			DRAWN					
03			CHECKED	TRINATH				24.12.14
02								
01								





**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPORCELAIN DIVISION BANGALORE

**POWER & CONTROL SCHEME**  
PMCC/MCC INCOMER-2

SCALE: JOB NO. CR-13-019 DRG. NO. EP-3-CS-019-005

NO. OF SHEETS	08
SHEET NO.	03
REV. NO.	00

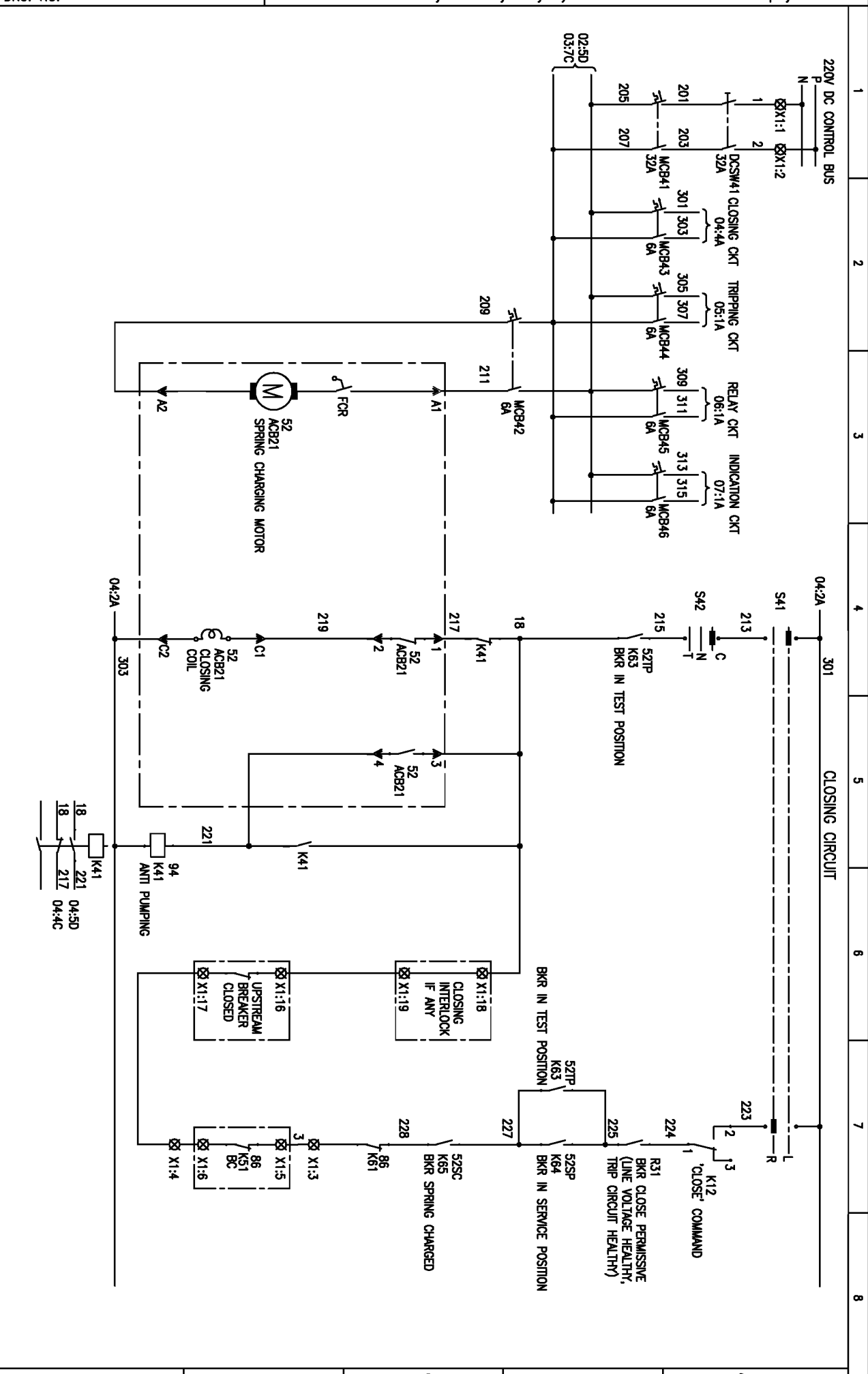
DRG. NO. EP-3-CS-107-004

INVENTORY NO.

07	REV. NO.	DATE	DESCRIPTION	BY	APPROVED	APPROVED	KS BALA	24.12.14
08								
09								
04			DESIGNED	JAGADISH				24.12.14
03			DRAWN					
02			CHECKED	TRINATH				24.12.14
01								



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPROCLAIM DIVISION BANGALORE	
TITLE : POWER & CONTROL SCHEME			
JOB NO. CR-13-019		DRG. NO. EP-3-CS-019-005	
NO. OF SHEETS	08	SHEET NO.	04
REV. NO.	00		



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



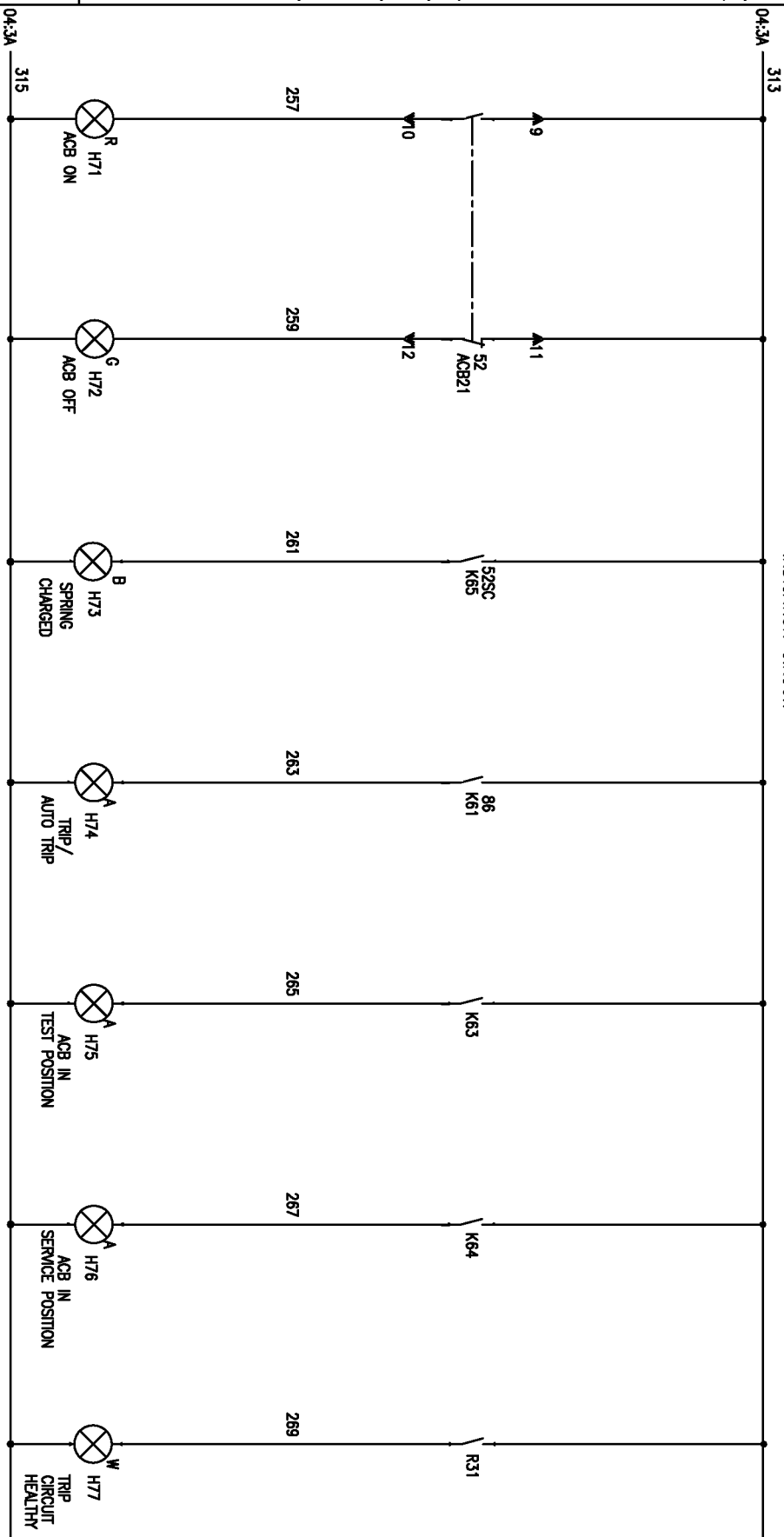


DRG. NO. EP-3-CS-107-004

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DATE
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06							
05		DESIGNED	JAGADISH				24.12.14
04		DRAWN					
03		CHECKED	TRINATH				24.12.14
02							
01							

FIRST ANGLE PROJECTION  
 INDICATION CIRCUIT



1 2 3 4 5 6 7 8

ALL DIMENSIONS ARE IN MM.



**BHARAT HEAVY ELECTRICALS LIMITED**  
 ELECTROPORCELAIN DIVISION BANGALORE

**POWER & CONTROL SCHEME**  
 PMCC/MCC INCOMER-2

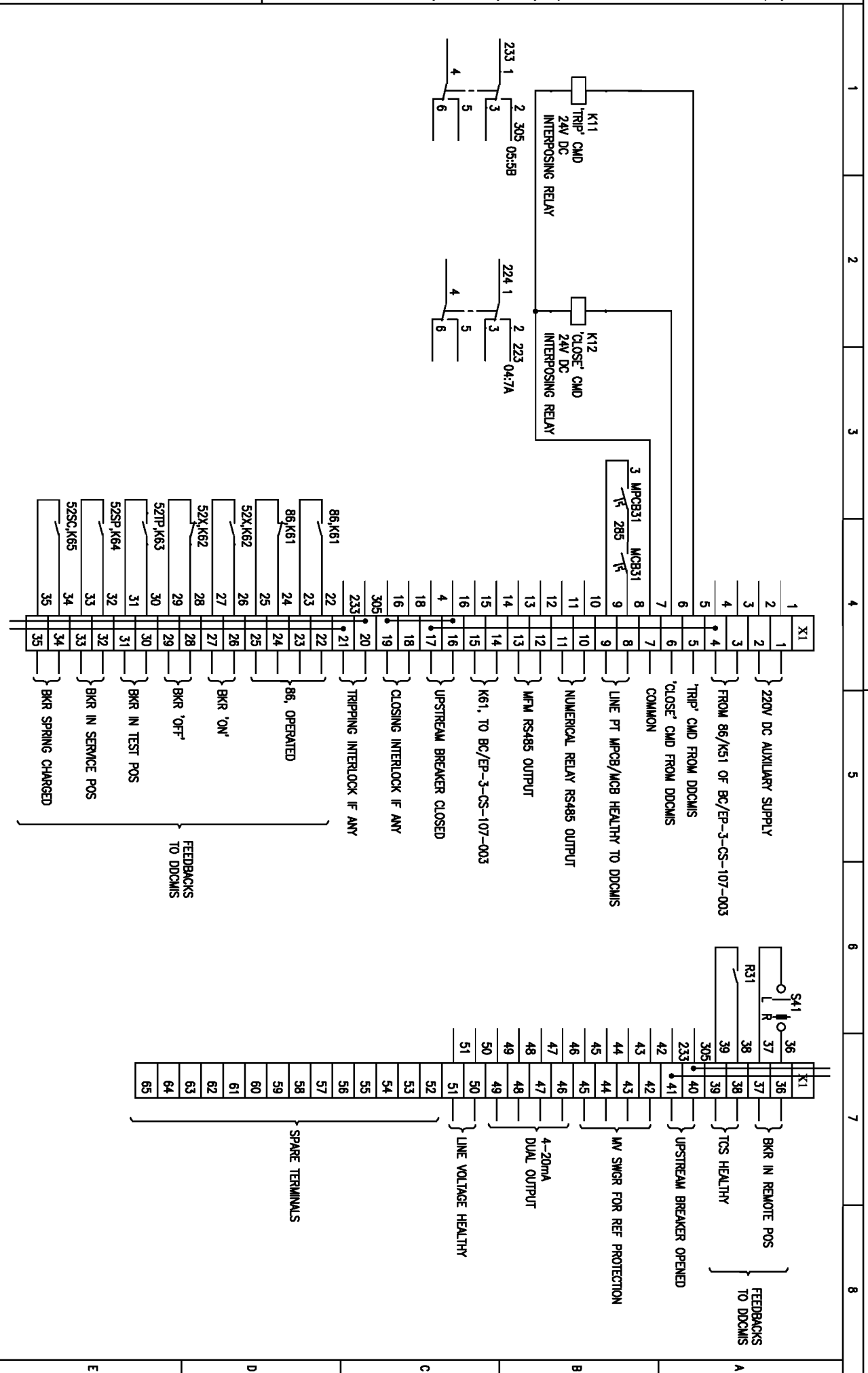
SCALE: JOB NO. CR-13-019 DRG. NO. EP-3-CS-019-005

NO. OF SHEETS	08
SHEET NO.	07
REV.	00

DRG. NO. EP-3-CS-107-004

INVENTORY NO.

07	REV. NO.	DATE	DESCRIPTION	BY	APPRO. APPROVED	NAME	SIGN.	DATE
08						JAGADISH		24.12.14
09								
04								
03								
02								
01								



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCLAIM DIVISION BANGALORE

POWER & CONTROL SCHEME

PMCC/MCC INCOMER-2

NO. OF SHEETS	08
SHEET NO.	08
REV.	00

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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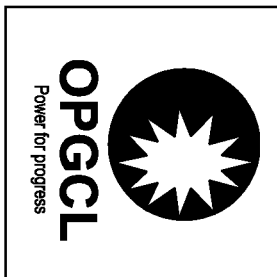
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED

BANHARPALI, JHARSUGUDA

ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-107-036

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01								

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

TITLE :

220V DC CONTROL SUPPLY MODULE  
(IN BUSCOUPLER)

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-036

NO. OF SHEETS

02

NO. OF SHEETS

01



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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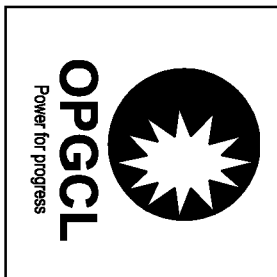
5

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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED

BANHARPALI, JHARSUGUDA

ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-107-037

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01						KS BALA		24.12.14

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

TITLE :

SPACE HEATER MODULE

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-037



NO. OF SHEETS

02

SHEET NO.

01

REV. NO.

00

FIRST ANGLE PROJECTION

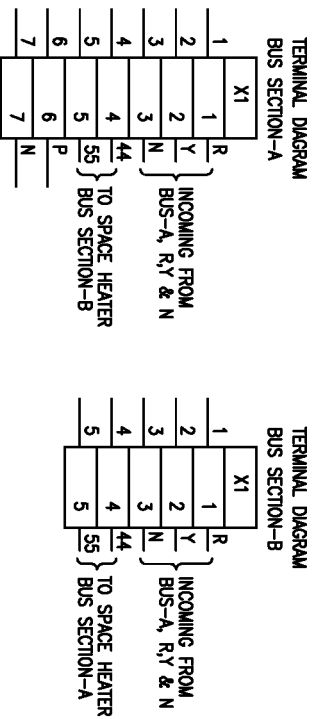
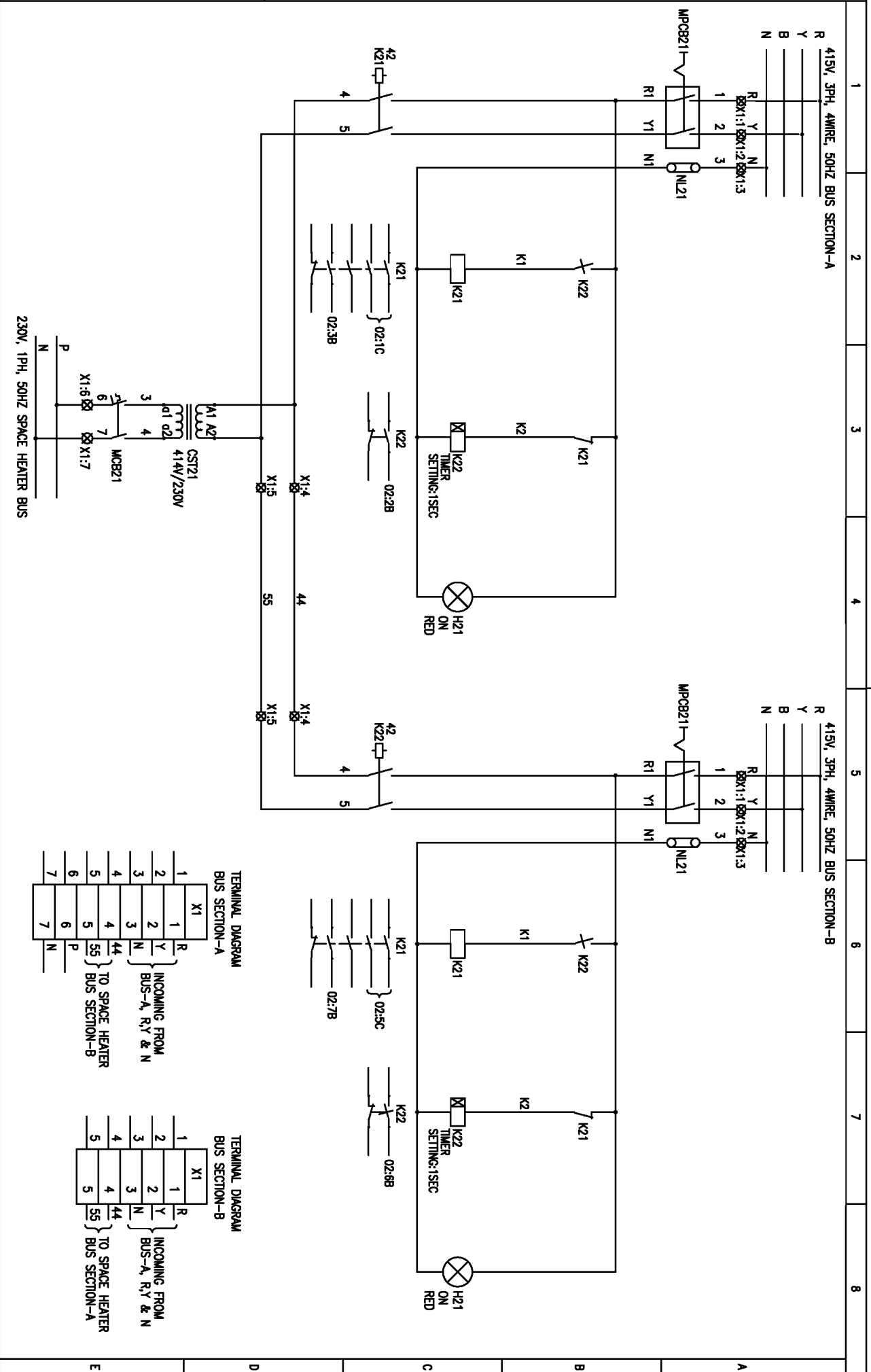
ALL DIMENSIONS ARE IN MM.

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DRG. NO. EP-3-CS-107-037

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DATE
07							
06							
05		DESIGNED	JAGADISH				24.12.14
04		DRAWN					
03		CHECKED	TRINATH				24.12.14
02							
01							



**BHARAT HEAVY ELECTRICALS LIMITED**  
 ELECTROPROPULSION DIVISION BANGALORE

SPACE HEATER MODULE

NO. OF SHEETS: 02  
 SHEET NO.: 02

SCALE: JOB NO. CR-13-019 DRG. NO. EP-3-CS-019-037

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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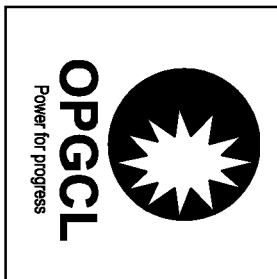
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED

BANHARPALI, JHARSUGUDA

ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-107-038

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH	<i>[Signature]</i>	24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH	<i>[Signature]</i>	24.12.14
01						KS BALA	<i>[Signature]</i>	24.12.14

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

TITLE :

SPACE HEATER, PANEL ILLUMINATION & POWER SOCKET

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-038



NO. OF SHEETS

02

SHEET NO.

01

REV.

00

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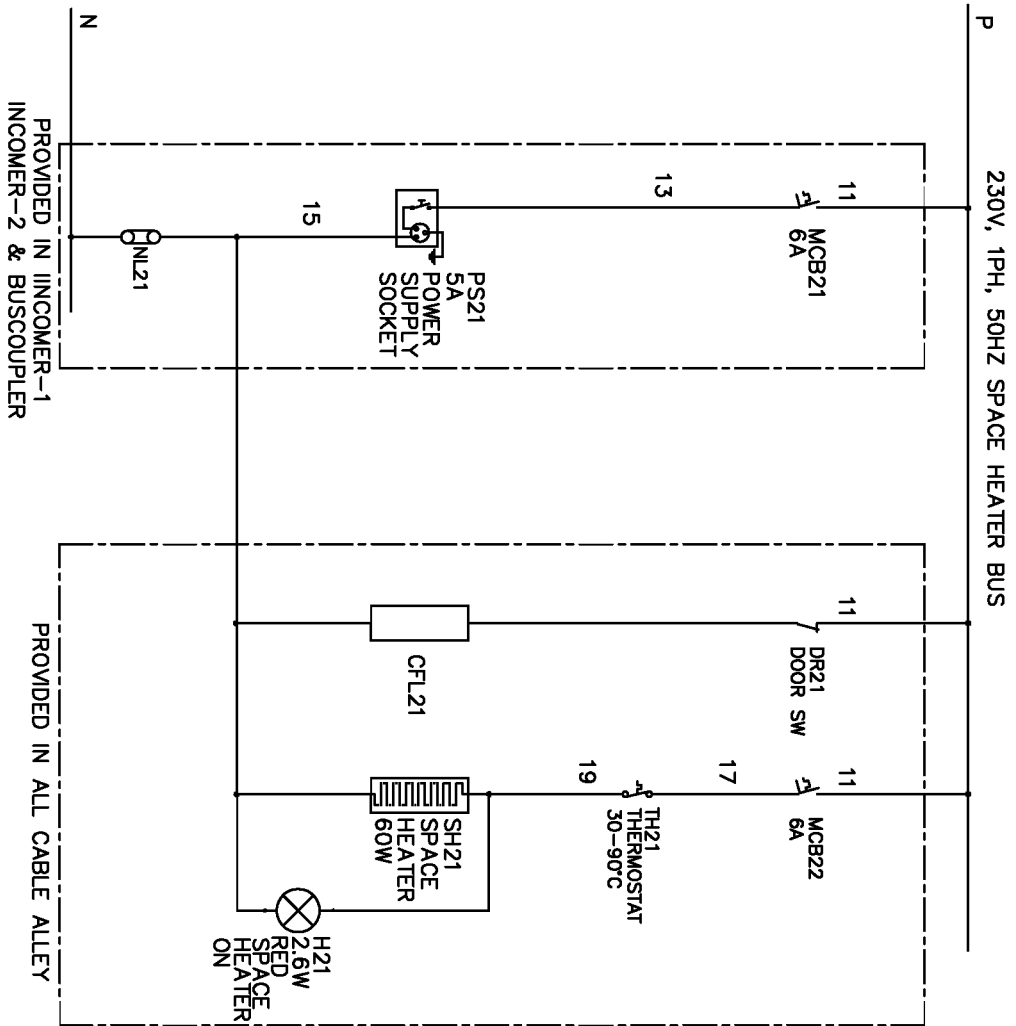
DRG. NO. EP-3-CS-107-038

INVENTORY NO.

1 2 3 4 5 6 7 8

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



PROVIDED IN INCOMER-1  
INCOMER-2 & BUSCOUPLER

PROVIDED IN ALL CABLE ALLEY

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DATE
07							
06							
05					DESIGNED	JAGADISH	24.12.14
04					DRAWN		
03					CHECKED	TRINATH	24.12.14
02							
01							



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE : SPACE HEATER, PANEL ILLUMINATION & POWER SOCKET			
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-038
NO. OF SHEETS : 02		REV. NO. : 00	

FORM 66-301 A

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



1 2 3 4 5 6 7 8

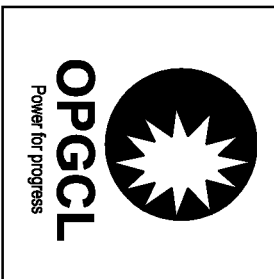
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DRG. NO. EP-3-CS-107-037

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01								



CUSTOMER:

ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT: 2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:  
  
 DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE		NO. OF SHEETS		02
TITLE :		POWER & CONTROL SCHEME FOR 0.37KW RAPPING MOTOR		SHEET NO.		01
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-040	REV.		00



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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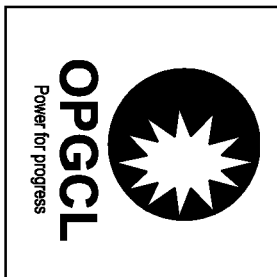
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-019-041

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH	<i>[Signature]</i>	24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH	<i>[Signature]</i>	24.12.14
01						KS BALA	<i>[Signature]</i>	24.12.14

DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

TITLE : POWER & CONTROL SCHEME FOR  
 OPACITY MONITOR

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-041

NO. OF SHEETS

02

SHEET NO.

01

REV. NO.

00



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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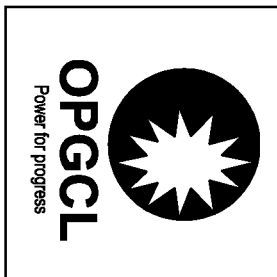
5

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8

CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-019-042

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH	<i>[Signature]</i>	24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH	<i>[Signature]</i>	24.12.14
01						KS BALA	<i>[Signature]</i>	24.12.14

DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCLAIM DIVISION BANGALORE

TITLE : POWER & CONTROL SCHEME FOR HOPPER HEATER

SCALE : JOB NO. CR-13-019 DRG. NO. EP-3-CS-019-042

NO. OF SHEETS : 02  
 SHEET NO. : 01

REV. 00

E

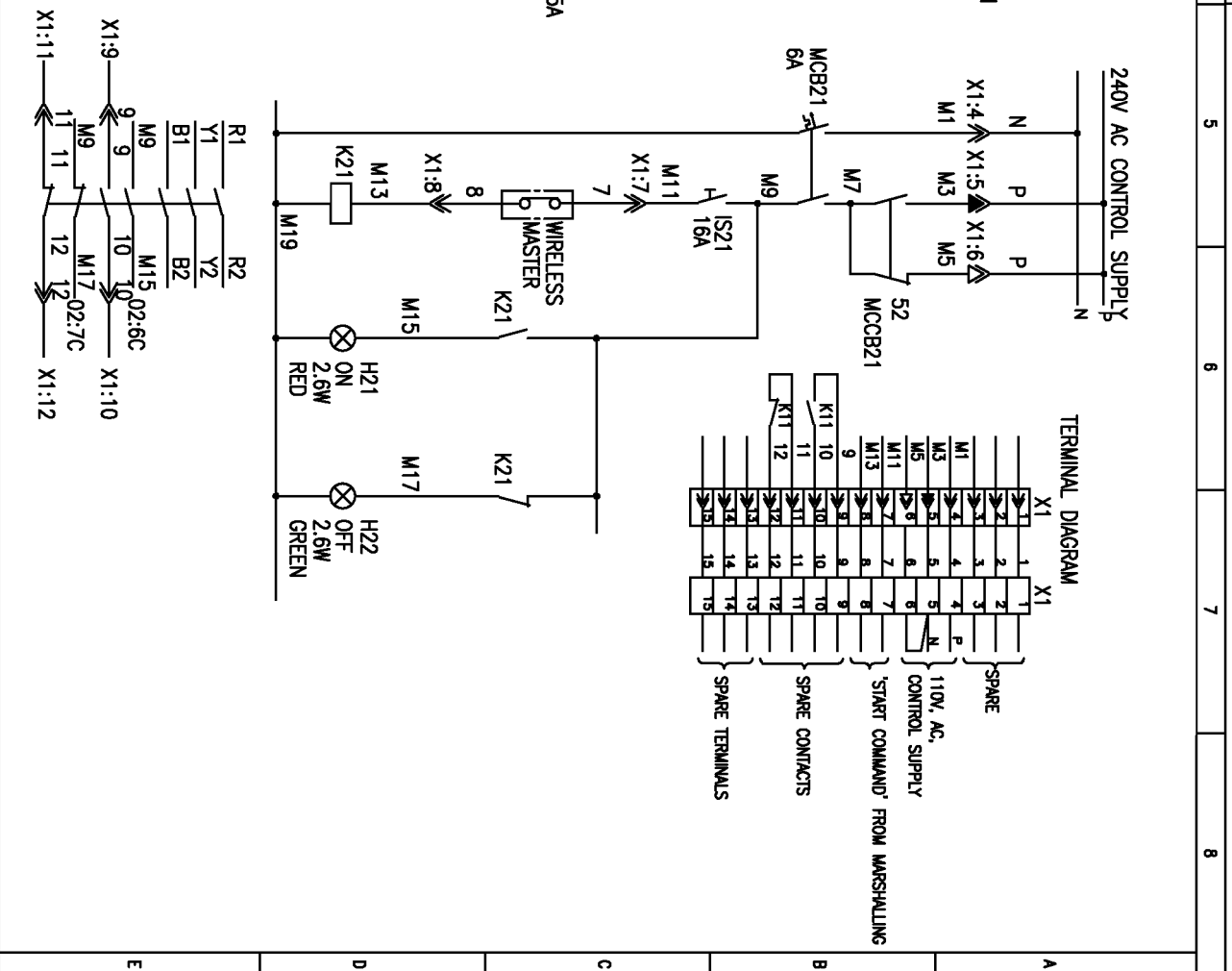
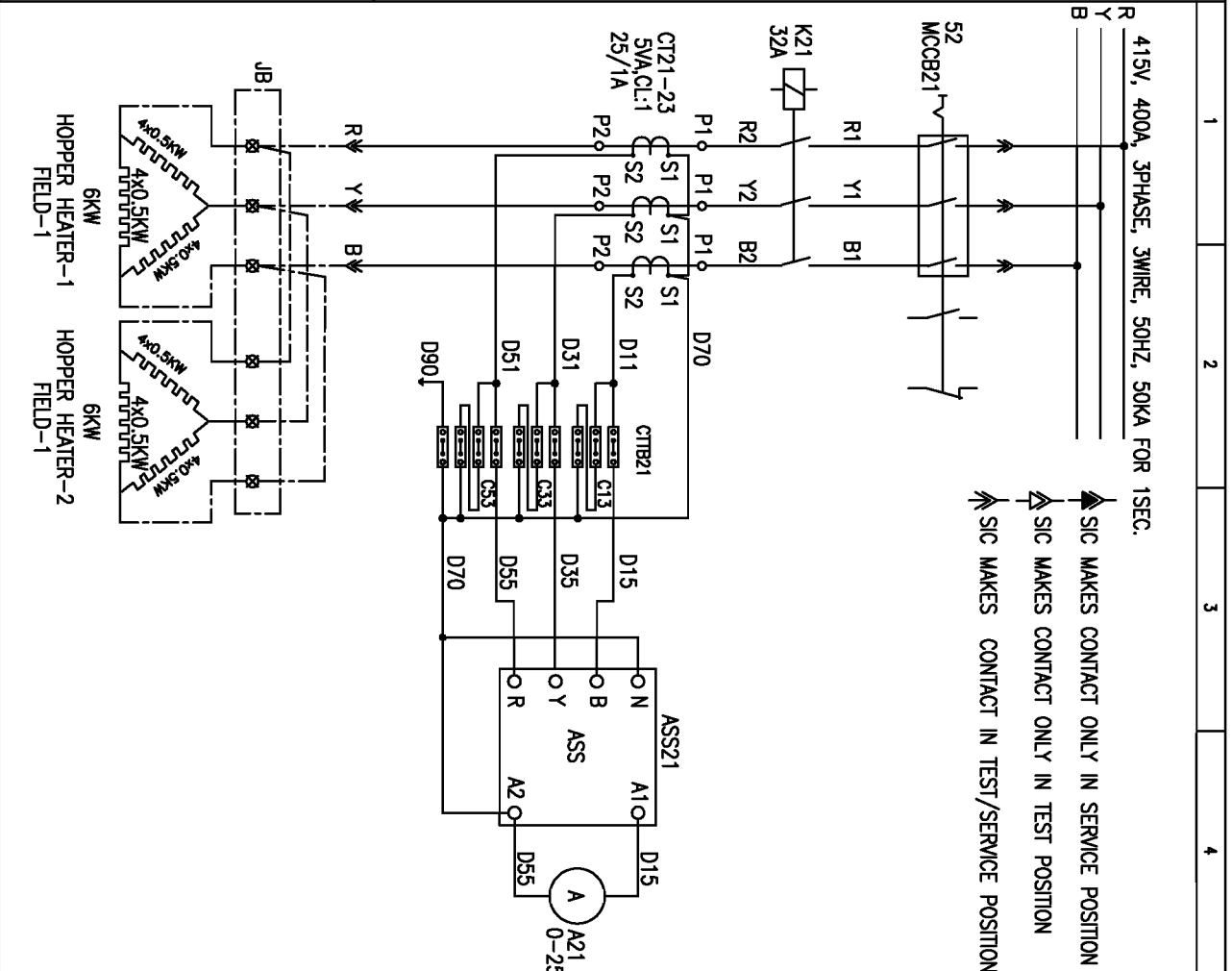
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DRG. NO. EP-3-CS-019-042



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

REV. NO.	DATE	DESCRIPTION	BY	APPROVED	APPROVED	NAME	SIGN.	DATE
07								
06								
05								
04								
03								
02								
01								



INVENTORY NO.	DESCRIPTION	BY	APPROVED	APPROVED	NAME	SIGN.	DATE

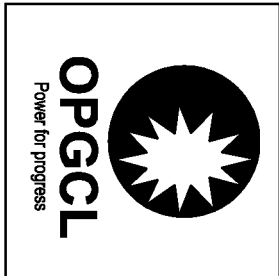
  

NO. OF SHEETS	NO. OF SHEETS	NO. OF SHEETS
02	02	02

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8






ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:  
 2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:  
  
 DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

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DRG. NO. EP-3-CS-019-043

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01								
00						KS BALA		24.12.14



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
TITLE :		POWER & CONTROL SCHEME FOR SUPPORT INSULATOR HEATER	
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-043
NO. OF SHEETS		02	
SHEET NO.		01	
REV.		00	

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DRG. NO. EP-3-CS-019-043

INVENTORY NO.

07	REV. NO.	DATE	BY	APPD.	APPROVED	NAME	SIGN.	DATE
08						JAGADISH		24.12.14
09								
04								
03								
02								
01								

DESCRIPTION

BY

APPD.

APPROVED

NAME

SIGN.

DATE

KS BALA

24.12.14



BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPORCELAIN DIVISION BANGALORE

POWER & CONTROL SCHEME FOR  
 SUPPORT INSULATOR HEATER

SCALE

JOB NO.

CR-13-019

DRG. NO.

EP-3-CS-019-043

NO. OF SHEETS

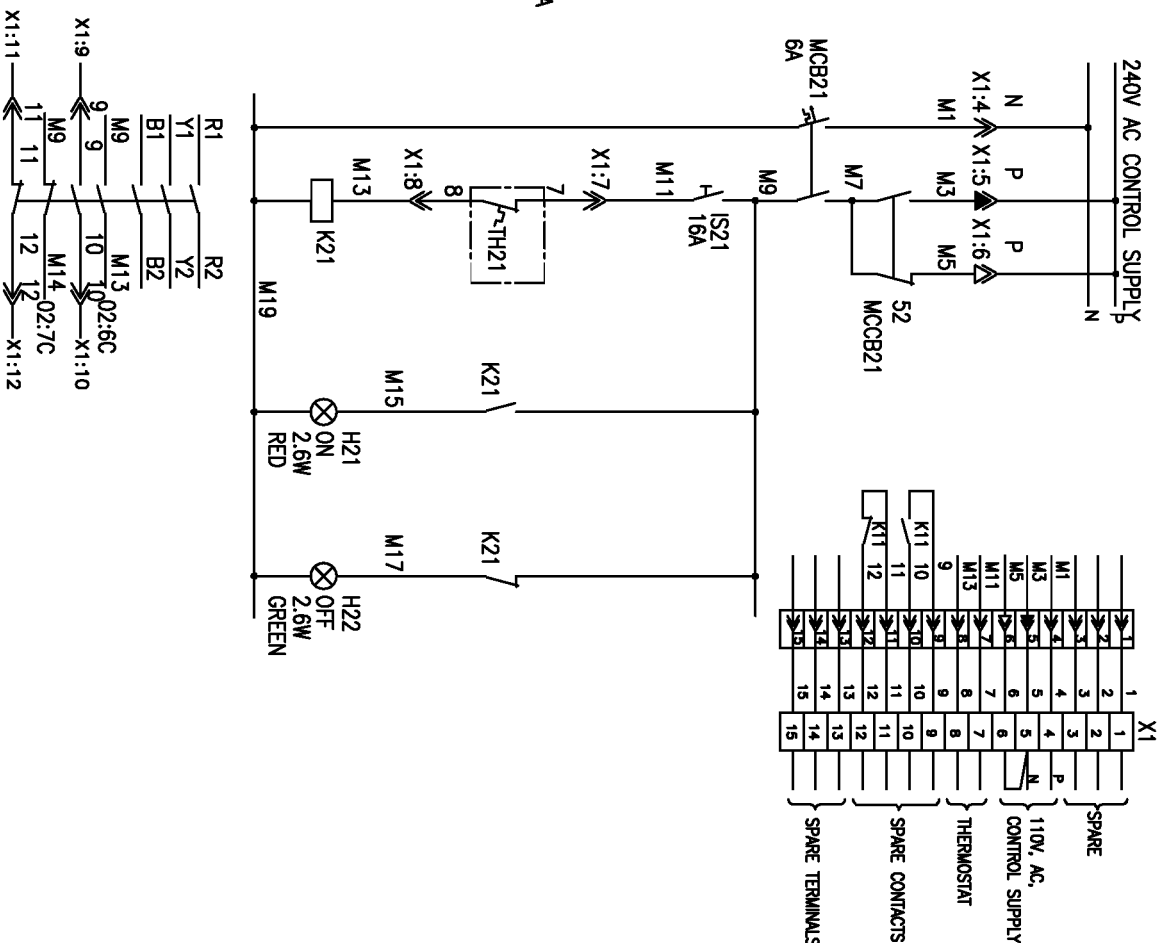
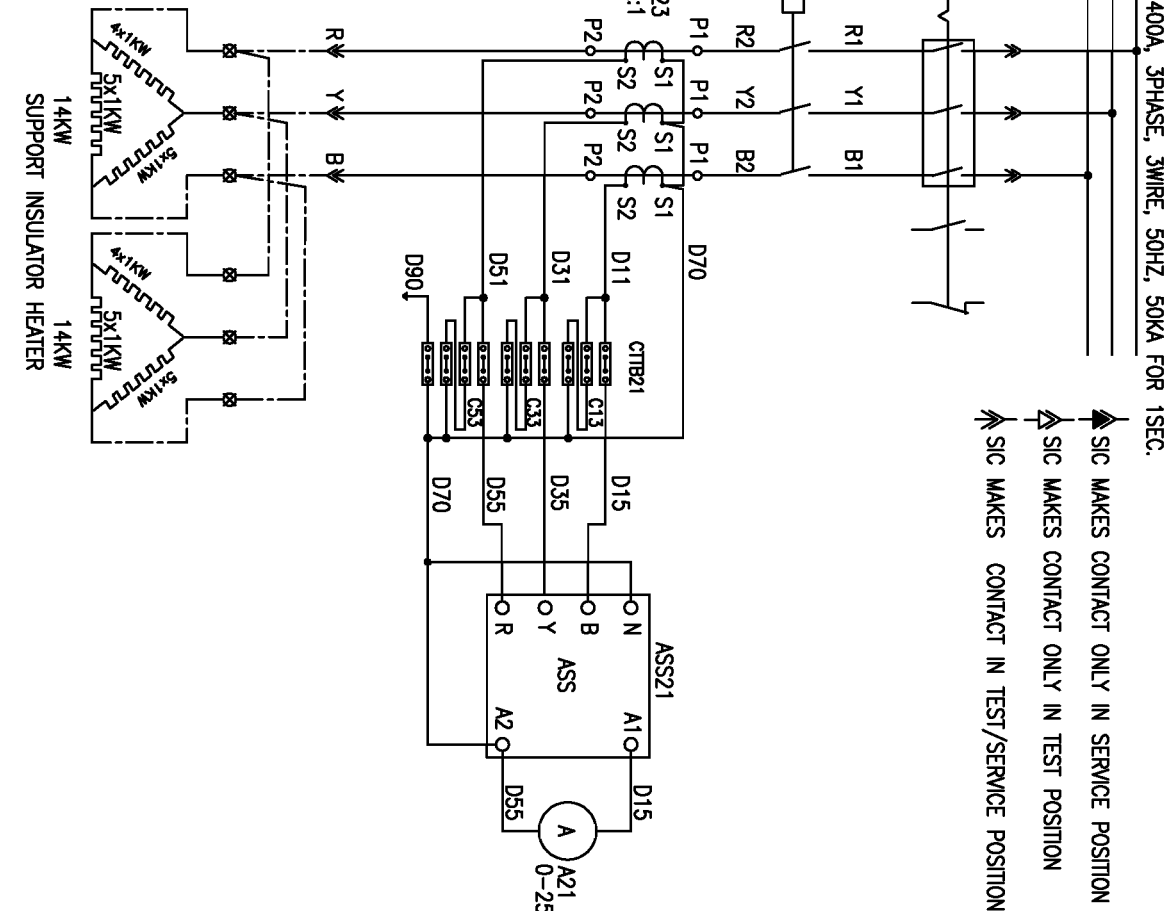
02

SHEET NO.

02

REV.

00



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

TERMINAL DIAGRAM

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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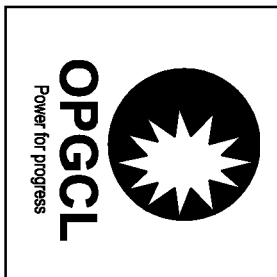
5

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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED

BANHARPALI, JHARSUGUDA

ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-019-044

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01								

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

TITLE :

POWER & CONTROL SCHEME FOR  
SHAFT INSULATOR HEATER

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-044



NO. OF SHEETS

02

NO. OF SHEETS

01

REV.

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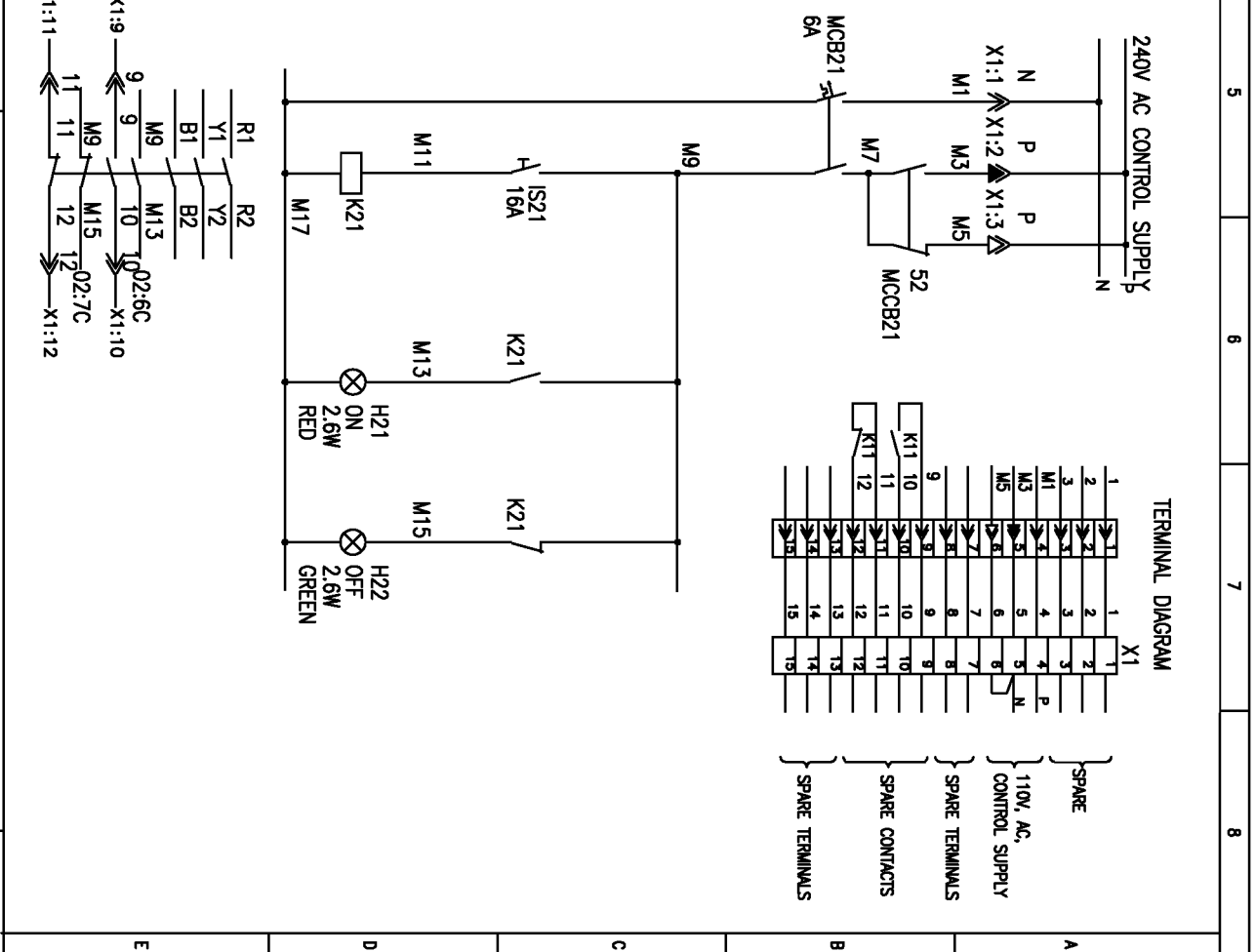
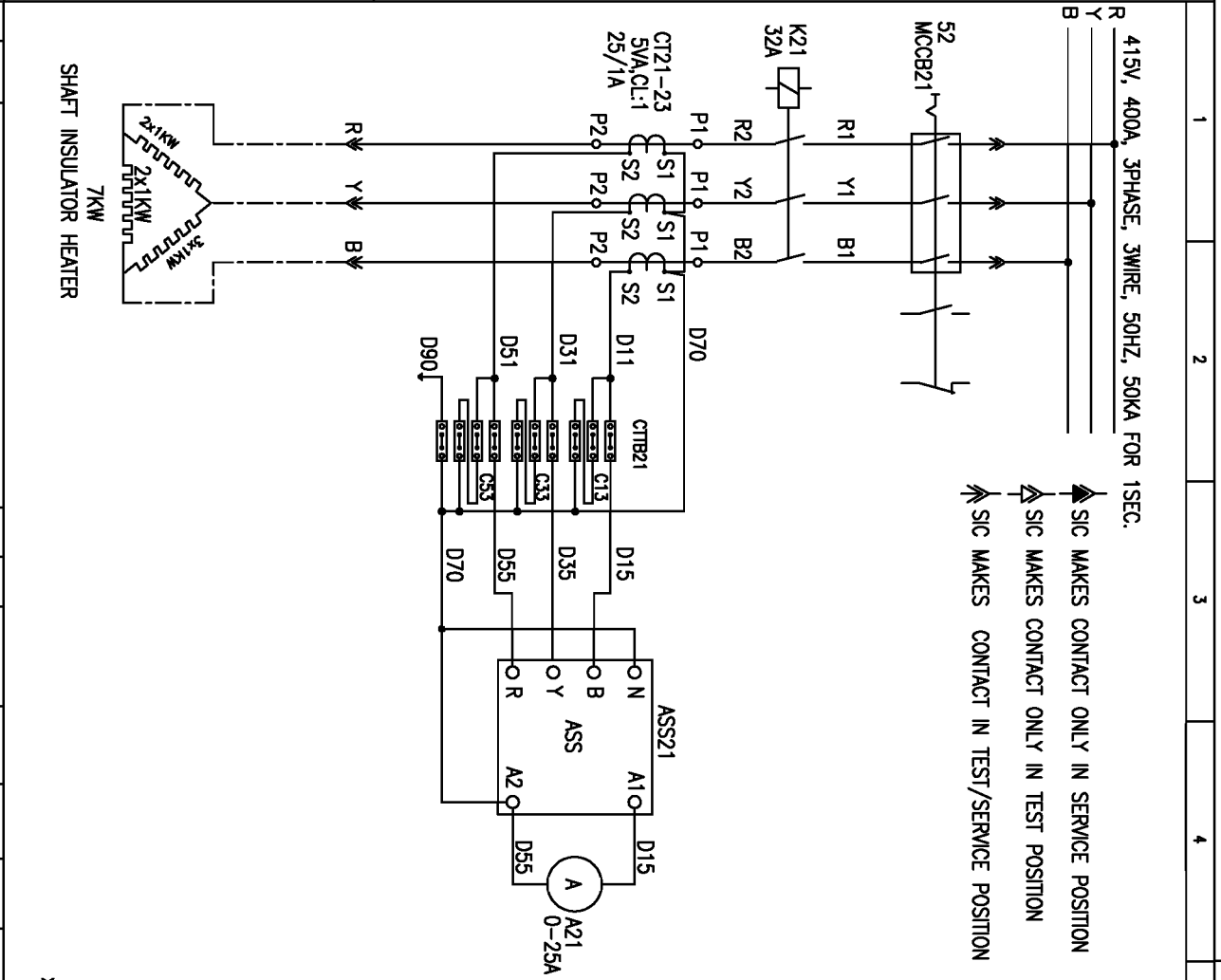
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DRG. NO. EP-3-CS-019-044



REV. NO.	DATE	DESCRIPTION	BY	APPROVED	KS BALA	DATE
01						
02						
03						
04						
05						
06						
07						



NO. OF SHEETS	NO. OF SHEETS	NO. OF SHEETS
02	02	02

FORM 66-301 A

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPORCELAIN DIVISION BANGALORE

POWER & CONTROL SCHEME FOR  
 SHAFT INSULATOR HEATER

SCALE: JOB NO. CR-13-019 DRG. NO. EP-3-CS-019-044

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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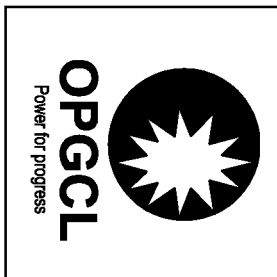
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED

BANHARPALI, JHARSUGUDA

ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-019-045

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07								
06								
05					DESIGNED	JAGADISH		24.12.14
04					DRAWN			
03								
02					CHECKED	TRINATH		24.12.14
01								

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPORCELAIN DIVISION BANGALORE

WIRELESS CONTROLLER

(FOR RAPPER MOTORS & HOPPER HEATERS)

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-045

NO. OF SHEETS

06

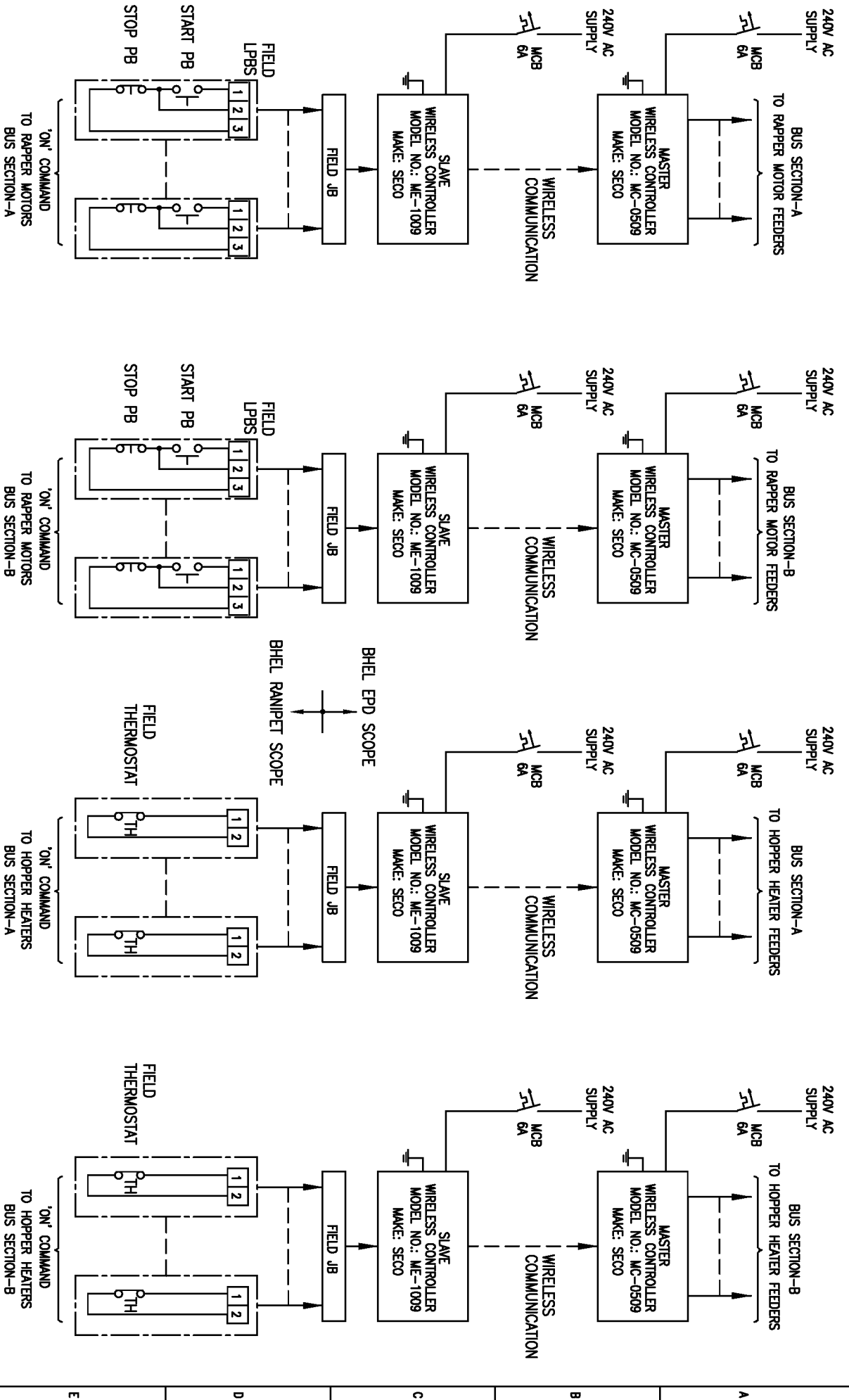
SHEET NO.

01

REV. NO.

00

DRG. NO. EP-3-CS-019-045



INVENTORY NO.

REV. NO.	DATE	DESCRIPTION
01		
02		
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BY	APPD.	APPROVED	NAME	SNL.	DATE
			JAGADISH		24.12.14
			TRINATH		24.12.14
			KS BALA		24.12.14



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
WIRELESS CONTROLLER (BLOCK DIAGRAM)			
SCALE	JOB NO. CR-13-019	DRG. NO. EP-3-CS-019-045	
TITLE:			
NO. OF SHEETS	06	NO. OF SHEETS	06
SHEET NO.	02	REV.	00

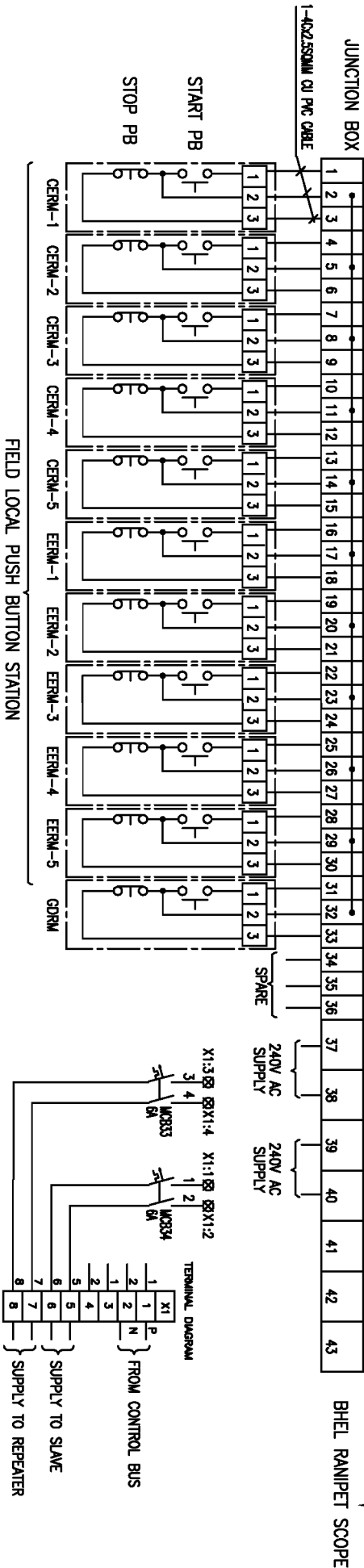
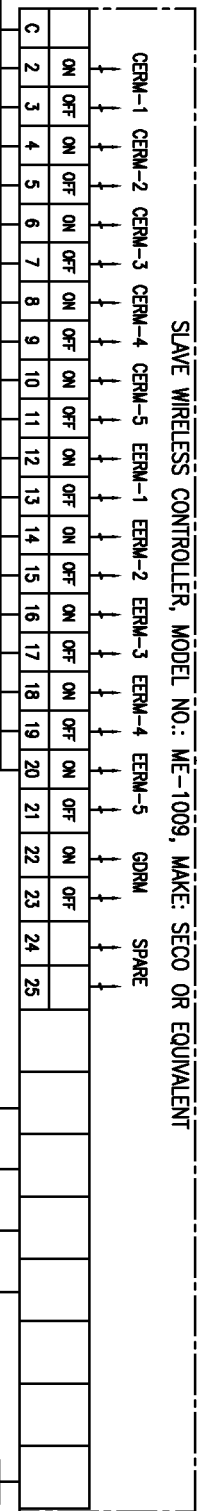
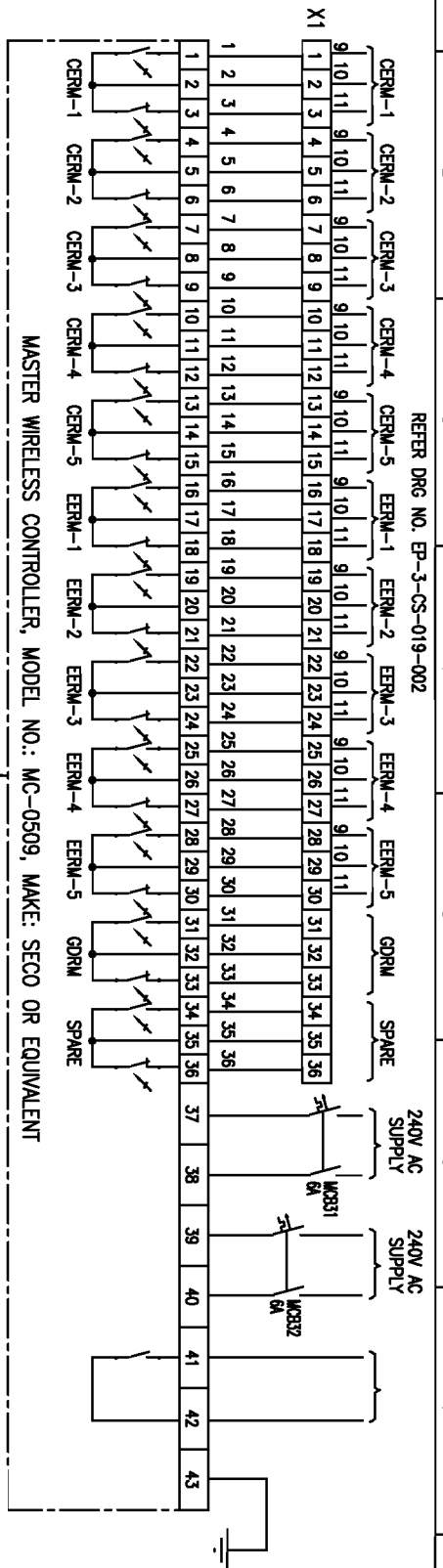
DRG. NO. EP-3-CS-019-045

INVENTORY NO.

07	REV. NO.	DATE	DESCRIPTION	BY	APPL.	APPROVED	NAME	SIGN.	DATE
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01									

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPORCELAIN DIVISION BANGALORE	
WIRELESS CONTROLLER (RAPPER MOTORS, BUS SECTION-A)			
NO. OF SHEETS	06	NO. OF SHEETS	03
NO.		NO.	
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-045
REV.		REV.	00

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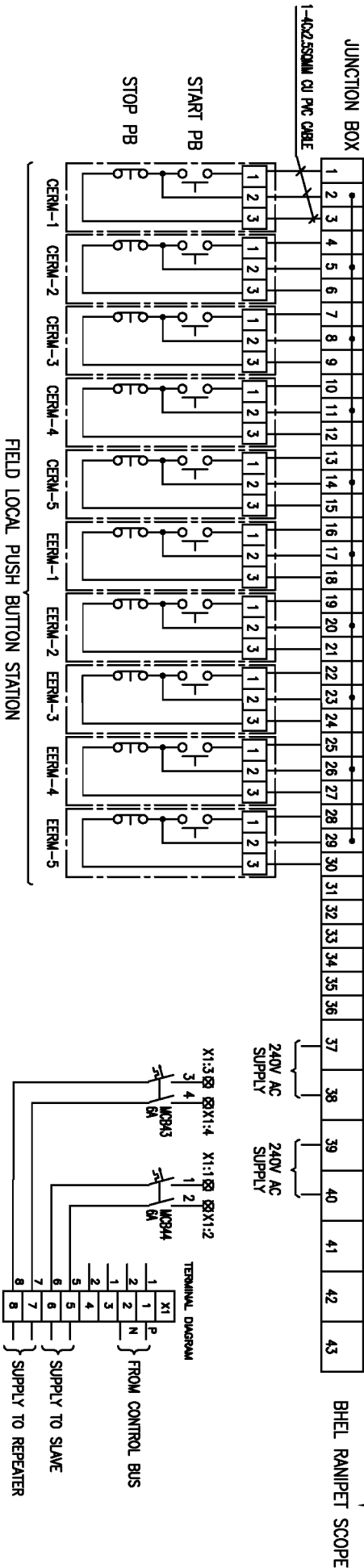
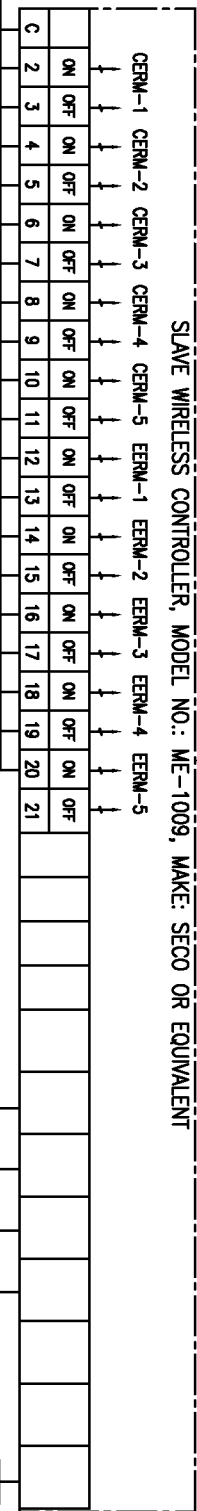
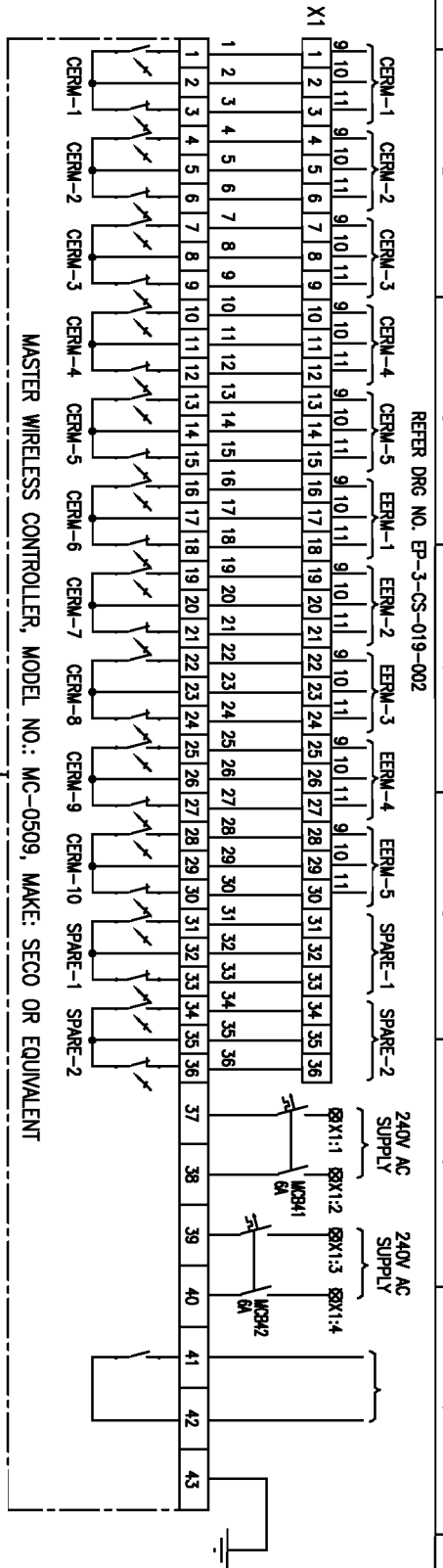
DRG. NO. EP-3-CS-019-045

INVENTORY NO.

07	REV. NO.	DATE	DESCRIPTION	BY	APPL.	APPROVED	KS BALA	24.12.14
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05			DESIGNED	JAGADISH				24.12.14
04			DRAWN					
03			CHECKED	TRINATH				24.12.14
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FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCELAN DIVISION BANGALORE

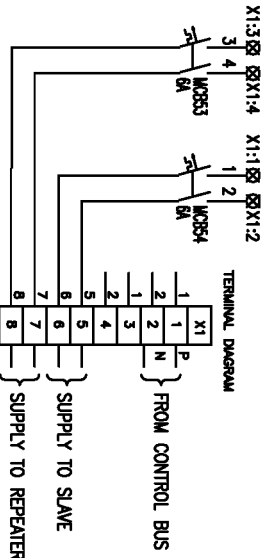
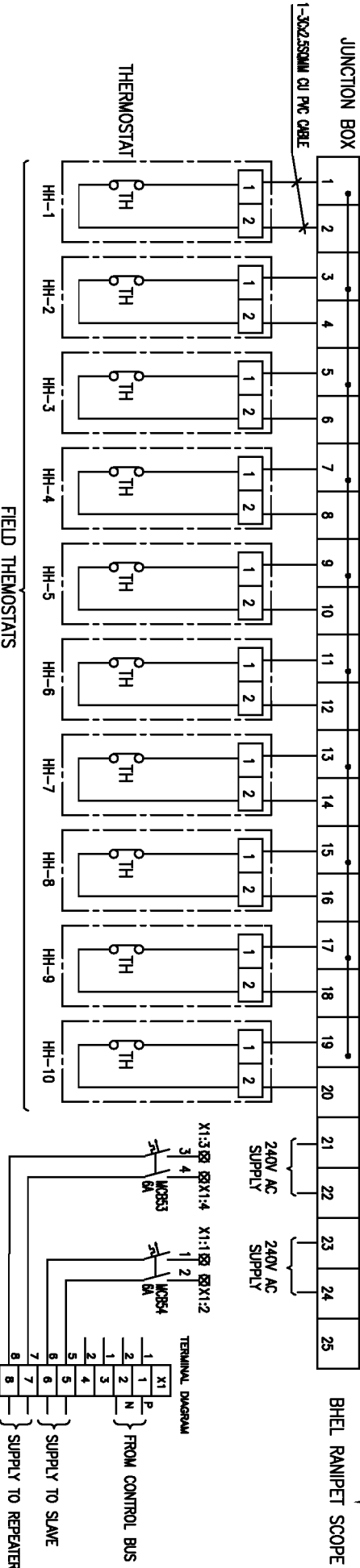
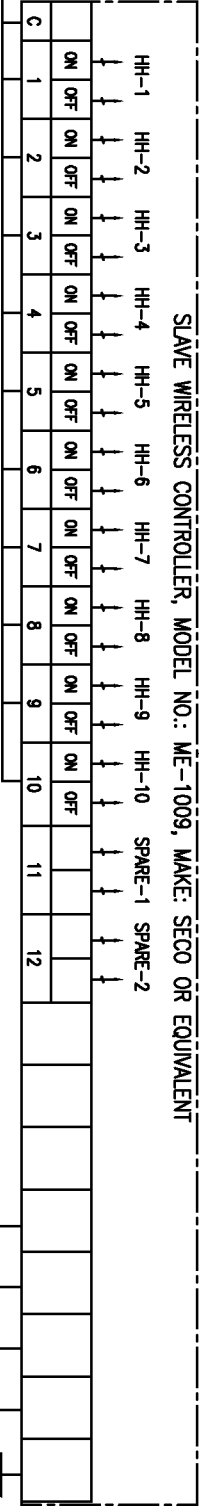
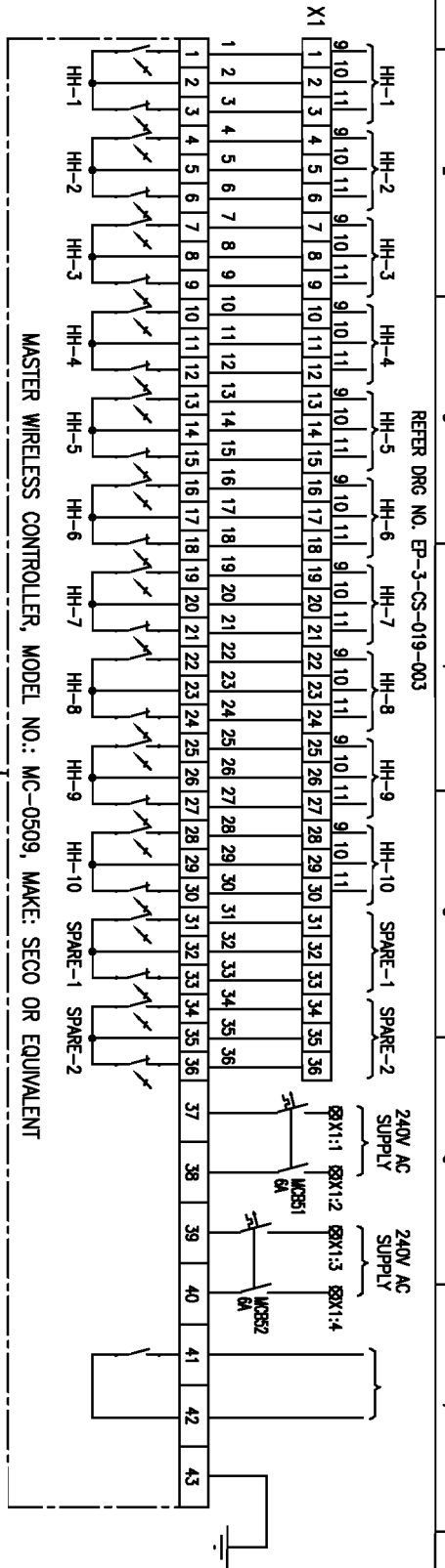
**WIRELESS CONTROLLER**  
(RAPPER MOTORS, BUS SECTION-B)

SCALE: JOB NO. CR-13-019 DRG. NO. EP-3-CS-019-045

NO. OF SHEETS	06
SHEET NO.	04
REV.	00

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



07	INVENTORY NO.	01	DATE	DESCRIPTION	BY	APPL.	APPROVED	NAME	SGN.	DATE
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BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPROCELAN DIVISION BANGALORE

WIRELESS CONTROLLER  
(HOPPER HEATERS, BUS SECTION-A)

NO. OF SHEETS	06
SHEET NO.	05
REV.	00
SCALE	JOB NO. CR-13-019
DRG. NO.	EP-3-CS-019-045



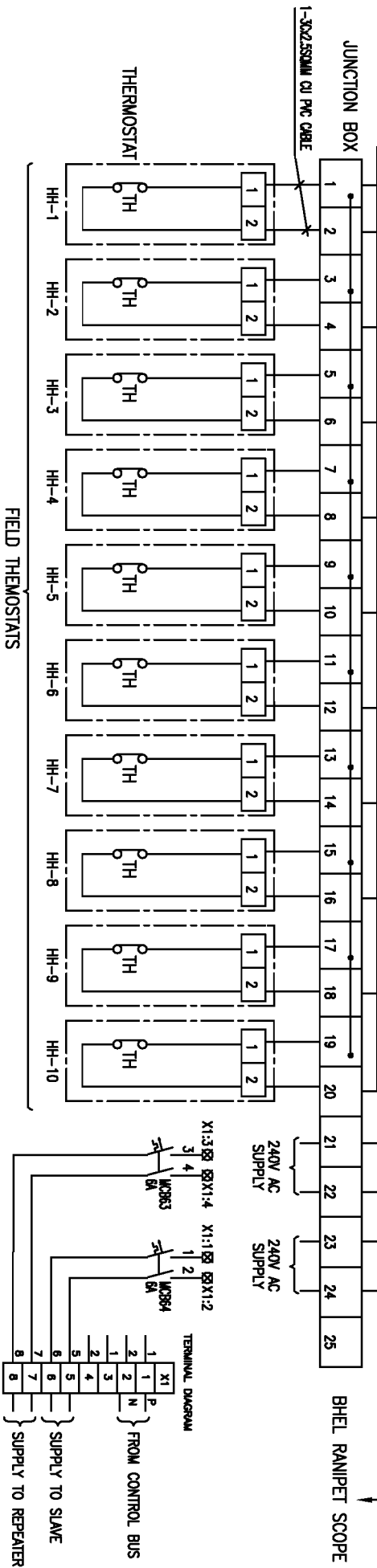
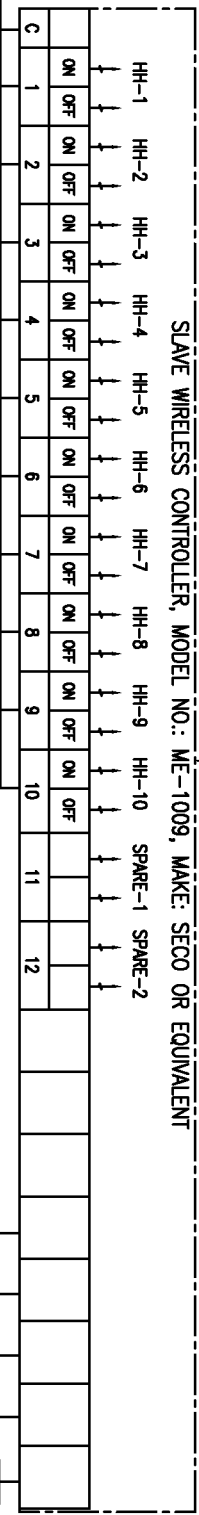
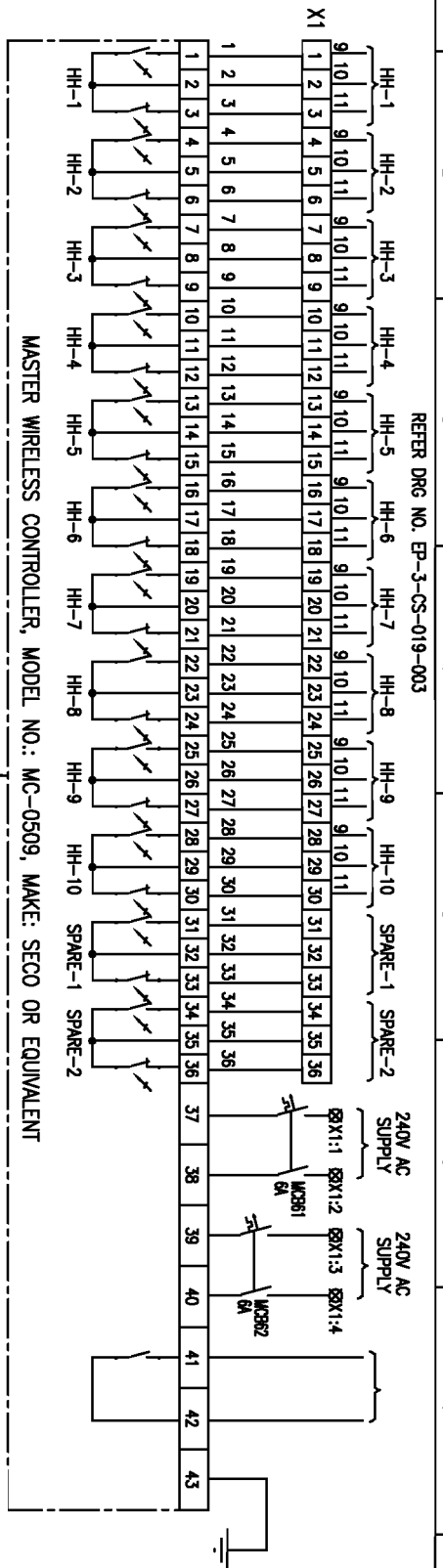
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DRG. NO. EP-3-CS-019-045

FORM 66-301 A

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



07	INVENTORY NO.	BY	APPL.	APPROVED	KS BALA	24.12.14
06	REV. NO.	DATE	DESCRIPTION	BY	APPL.	APPROVED
05	06	06	NO. OF SHEETS	06	REV.	00
04	06	06	SHEET NO.	06	REV.	00
03	06	06	NO. OF SHEETS	06	REV.	00
02	06	06	SHEET NO.	06	REV.	00
01	06	06	NO. OF SHEETS	06	REV.	00
00	06	06	SHEET NO.	06	REV.	00

BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPROCELAN DIVISION BANGALORE

WIRELESS CONTROLLER

(HOPPER HEATERS, BUS SECTION-B)

SCALE: JOB NO. CR-13-019 DRG. NO. EP-3-CS-019-045



NAME: JAGADISH

DESIGNED: 24.12.14

DRAWN

CHECKED: TRINATH

24.12.14

24.12.14

24.12.14

24.12.14

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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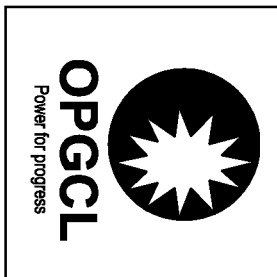
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-019-047

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE
07					DESIGNED	JAGADISH		24.12.14
06					DRAWN			
05					CHECKED	TRINATH		24.12.14
04								
03								
02								
01								

DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPROCLAIM DIVISION BANGALORE

TITLE :

INTELLIRAP INPUT/OUTPUT CARDS  
FOR RAPPER MOTORS CONTROL

SCALE

JOB NO. CR-13-019

DRG. NO.

EP-3-CS-019-047



NO. OF SHEETS

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SHEET NO.

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REV. NO.

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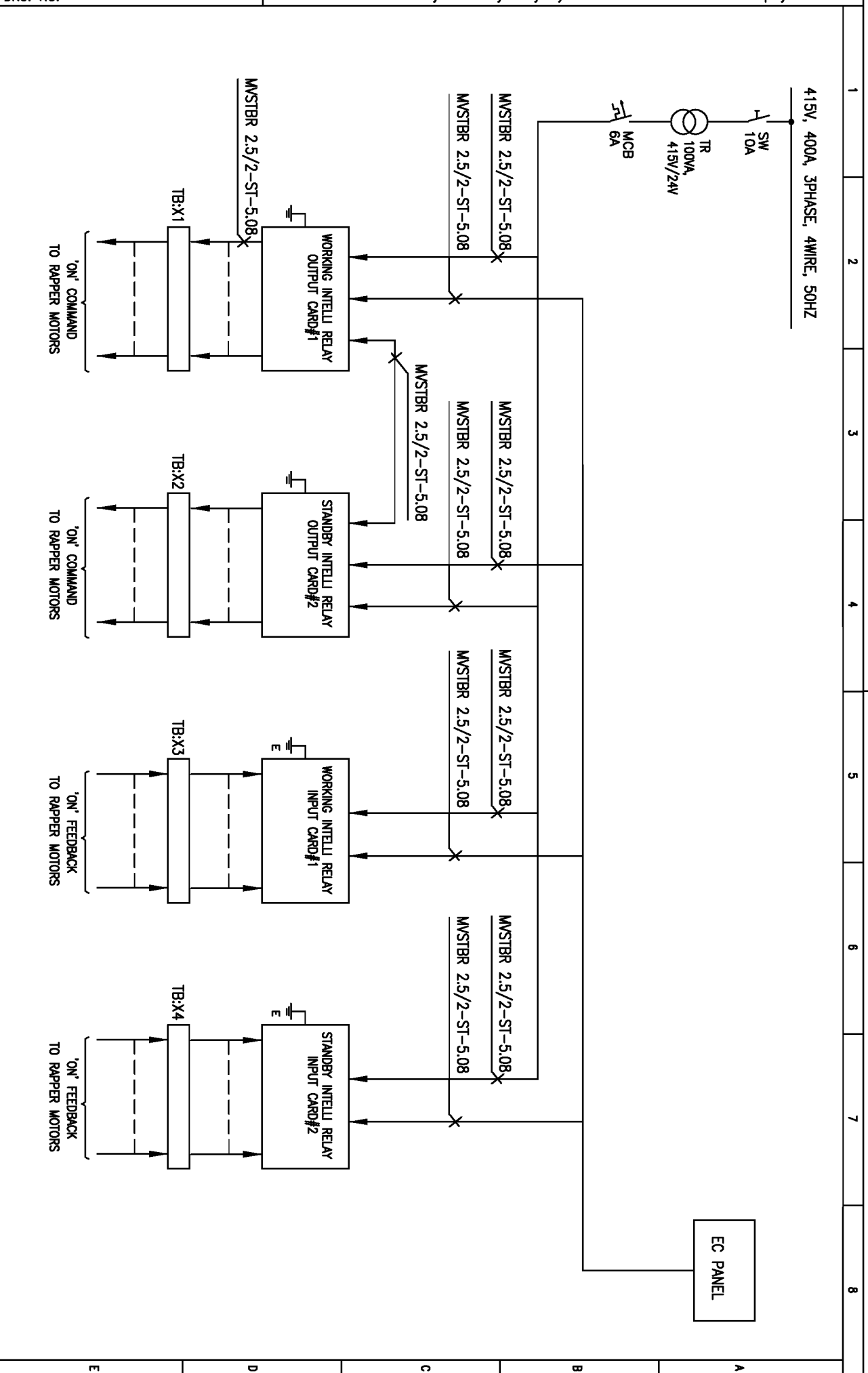
DRG. NO. EP-3-CS-019-047

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE
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06								
05								
04						JAGADISH		24.12.14
03						DRAWN		
02						TRINATH		24.12.14
01						CHECKED		



BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPROGRAM DIVISION BANGALORE	
TITLE: INTELLIRAP INPUT/OUTPUT CARDS FOR RAPPER MOTORS CONTROL(BLOCK DIAGRAM)			
SCALE	JOB NO. CR-13-019	DRG. NO.	EP-3-CS-019-047
NO. OF SHEETS: 07		SHEET NO.: 02	
REV. NO.: 00			



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

DRG. NO. EP-3-CS-019-047

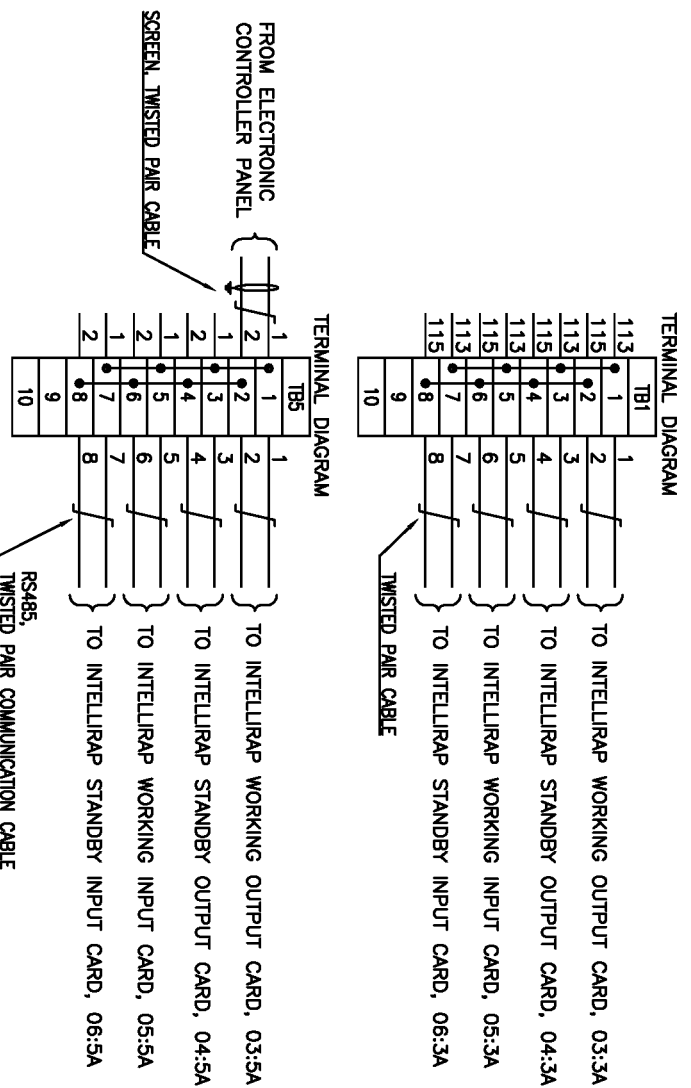
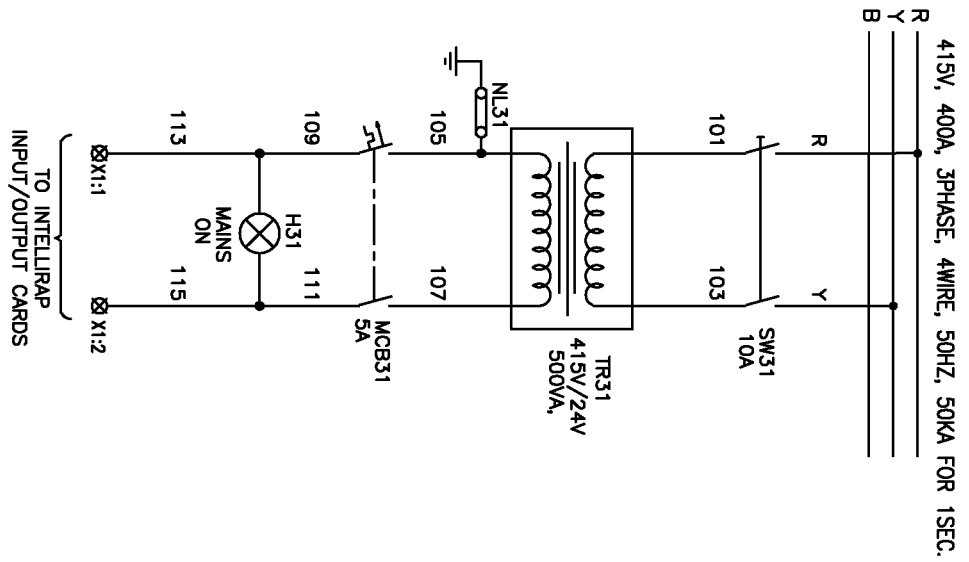
INVENTORY NO.

REV. NO.	DATE	BY	APPRO. APPROVED	KS BALA	DATE
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06					
05			DESIGNED	JAGADSH	21.06.14
04			DRAWN		
03			CHECKED	TRINATH	21.06.14
02					
01					

NAME	SIGN.	DATE
JAGADSH		21.06.14
TRINATH		21.06.14

BHARAT HEAVY ELECTRICALS LIMITED		ELECTROBORCELAIN DIVISION, BANGALORE	
TITLE : INTELLIRAP INPUT/OUTPUT CARDS			
FOR RAPPER MOTORS CONTROL (WIRING DIAGRAM)			
NO. OF SHEETS	07	NO. OF SHEETS	03
REV. NO.	00	REV. NO.	00

**NOTE :**  
 1. DIN RAIL WILL BE PROVIDED AS PER EN-50 022(NS35/15) FOR MOUNTING  
 THE DATA COMMUNICATION CARD. THE RAIL WILL COMPLY WITH THE LATEST STATE OF EUROPEAN STANDARDS AND MADE OF STEEL IN ACCORDENCE WITH DIN-VDE 0611 PART-3.



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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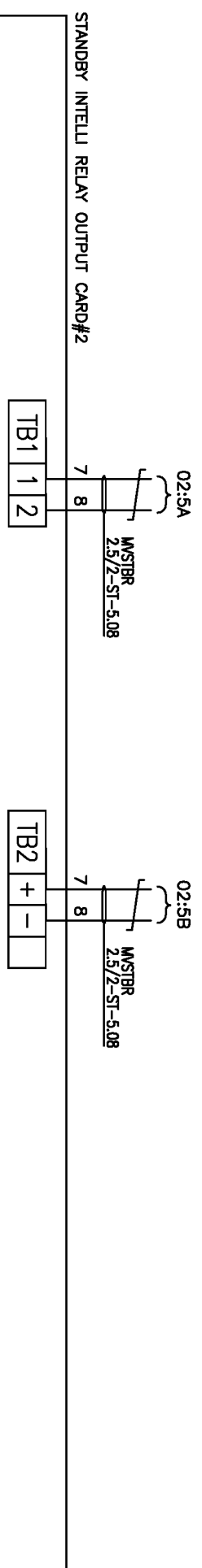




FIRST ANGLE PROJECTION

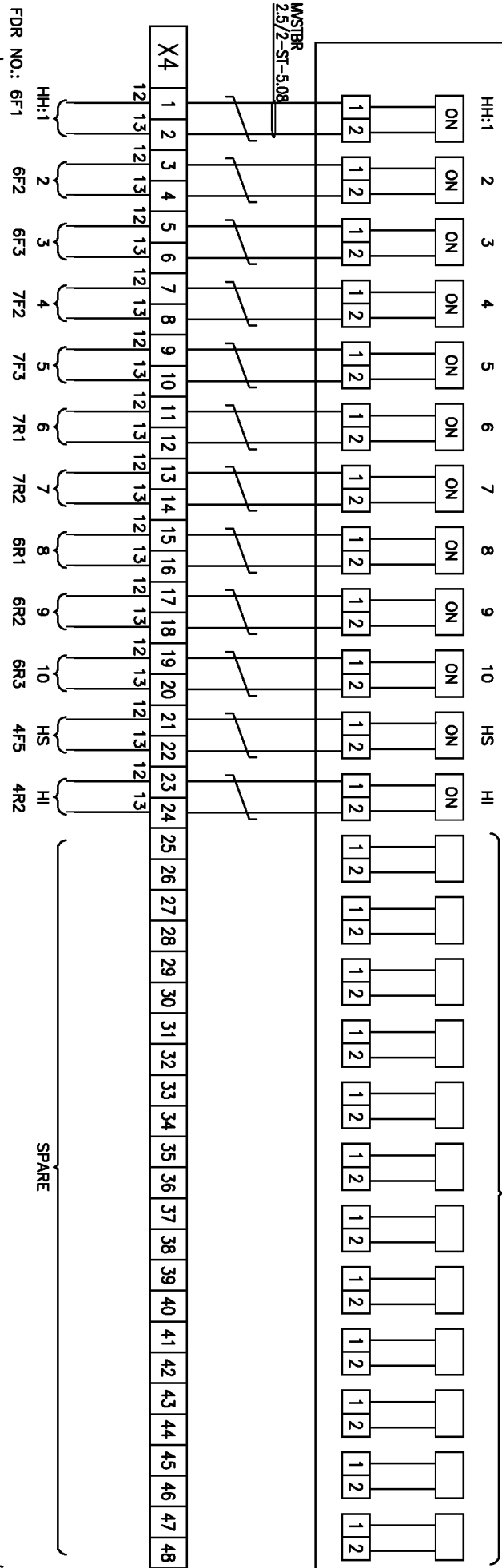
ALL DIMENSIONS ARE IN MM.

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DRG. NO. EP-3-CS-019-047



INVENTORY NO.		DRG. NO.		BY		APPL. APPROVED		KS BALA		DATE		FILE NO.:		SCALE		JOB NO. CR-13-019		DRG. NO. EP-3-CS-019-047		REV. 00	
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04		04																			
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02		02																			
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FORM 66-301 A



BHARAT HEAVY ELECTRICALS LIMITED

ELECTROBORCELAIN DIVISION, BANGALORE

INTELLIRAP INPUT/OUTPUT CARDS  
FOR RAPPER MOTORS CONTROL(WIRING DIAGRAM)

NO. OF SHEETS 07  
SHEET NO. 07

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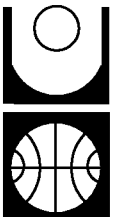


ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:



DEVELOPMENT CONSULTANT PVT LTD

DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

INVENTORY NO. :		SIGN. & DATE :		REF. DRG. NO. :	
REV. 01	DATE :	ALTERED :	REV.	DATE :	ALTERED :

JOB NO.:		CR-13-020				BHARAT HEAVY ELECTRICALS LIMITED ELECTROPROCELAN DIVISION BANGALORE	
NAME	SIGN.	DATE	DEPT.	CODE	TITLE :		
DEGND. TRINATH	<i>P. Srinath</i>	27.10.14			MASTER DRAWING LIST LT MAIN SWITCH BOARD		
DRN.					DRG. NO. :		
CHKD. TRINATH	<i>P. Srinath</i>	27.10.14			EP-4-MD-007-001		
APPD. KS BALA	<i>KS BALA</i>	27.10.14			SCALE :	N.T.S.	SHEET NO. : 01
					NO. OF SHEETS : 02	REV. NO. : 00	


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REF. DRG. NO. :	
REV.	DATE :
ALTERED :	

SIGN. & DATE :	
REV.	DATE :
ALTERED :	

INVENTORY NO. :	
REV. 01	DATE :
ALTERED :	

SL NO.	DRAWING NO.	TITLE	REV NO.
1	EP-4-MD-107-002	MASTER DRAWING LIST-LT MSB	00
2	EP-3-GN-107-001	DATA SHEET-LT SWITCHGEAR	00
3	EP-3-GN-107-002	MANUFACTURING QUALITY PLAN-LT SWITCHGEAR	00
4	EP-3-GN-107-005	GENERAL NOTES & FEATURES	00
5	EP-3-GN-107-107	LEGEND	00
6	EP-3-GA-107-314	GENERAL ARRANGEMENT OF 415V, 2500A, 3PHASE, 50HZ LT MSB	00
7	EP-3-SL-107-314	SINGLE LINE DIAGRAM OF 415V, 2500A, 3PHASE, 50HZ LT MSB	00
8	EP-3-CS-107-003	PMCC/MCC BUSCOUPLER	00
9	EP-3-CS-107-004	PMCC/MCC INCOMER-1	00
10	EP-3-CS-107-005	PMCC/MCC INCOMER-2	00
11	EP-3-CS-107-012	OUTGOING BREAKER FEEDER	00
12	EP-3-CS-107-017	TPN MCCB OUTGOING	00
13	EP-3-CS-107-036	220V DC CONTROL SUPPLY MODULE IN BUSCOUPLER MODULE	00
14	EP-3-CS-107-037	SPACE HEATER MODULE	00
15	EP-3-CS-107-038	SPACE HEATER & SWITCH SOCKET	00
16	EP-3-CS-107-039	BUS PT MODULE FOR PCC/MCC	00

JOB NO.:	CR-13-020		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> ELECTROPROCELAN DIVISION BANGALORE
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NAME	SIGN.	DATE	DEPT.	CODE	TITLE :
DEGND. TRINATH	<i>P. Sai</i>	27.10.14			MASTER DRAWING LIST
DRN.					LT MAIN SWITCH BOARD
CHKD. TRINATH	<i>P. Sai</i>	27.10.14			DRG. NO. : EP-4-MD-007-001
APPD. KS BALA	<i>KS BALA</i>	27.10.14			SCALE : N.T.S.
					SHEET NO. : 02
					NO. OF SHEETS : 02
					REV. NO. : 00

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CUSTOMER:

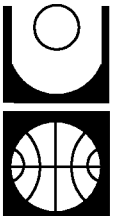


ODISHA POWER GENERATION CORPORATION LIMITED  
BANHARPALI, JHARSUGUDA  
ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:



DEVELOPMENT CONSULTANT PVT LTD

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA

INVENTORY NO. :	SIGN. & DATE :	REF. DRG. NO. :
REV.02 DATE :06.05.14 ALTERED : <i>Approved</i>	REV.03 DATE :30.05.14 ALTERED : <i>Approved</i>	REV. DATE : ALTERED :
REVISED	REVISED INLINE WITH CUSTOMER COMMENTS DT. 27.05.2014	

JOB NO.:		CP13107				BHARAT HEAVY ELECTRICALS LIMITED ELECTROPROCELAN DIVISION BANGALORE	
NAME	SIGN.	DATE	DEPT.	CODE	TITLE :		
TRINATH	<i>P. Trinath</i>	11.11.13			GENERAL NOTES & FEATURES		
DRN.							
CHKD.	<i>P. Trinath</i>	11.11.13			DRG. NO. : EP-3-GN-107-005		
APPD.	<i>KS BALA</i>	11.11.13			SCALE : N.T.S. SHEET NO. : 01 NO. OF SHEETS : 06		
					REV. NO. : 03		

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- A. POWER SUPPLY SYSTEM:-**
- VOLTAGE : 415V, ±10% 3PH, 4W/3W, SOLIDLY EARTHED
  - FREQUENCY : 50HZ, ±3%
  - FAULT LEVEL : 50KA FOR 1 SEC.
  - AMBIENT TEMPERATURE : 50°C ②
  - MAX. PERMISSIBLE TEMPERATURE : 90°C
  - ACB CONTROL SUPPLY, 220V DC WILL BE FED FROM STATION BATTERY
  - DC SYSTEM VOLTAGE: 220V & 24V, (+ 10% TO -15%) ②

**B. PANEL DESIGN:-**


- INSTALLATION: INDOOR
- MOUNTING: PCC/MCC/FLOOR MOUNTED & FB: WALL MOUNTED ③
- DESIGN/OPERATION:
  - ACB FEEDERS: SINGLE FRONT, DRAWOUT
  - TRF FEEDERS: CST, BUS PT & SPACE HEATER WILL BE NON DRAWOUT ③
  - LIGHTNING TRAPD FEEDER WILL BE DRAWOUT ③
  - OTHERS: SINGLE FRONT, NON DRAWOUT
  - DOOR INTERLOCK WILL BE SUCH THAT THE DOOR CANNOT BE OPENED WITH THE BREAKER AND MCCB IN 'ON' POSITION.
  - SWITCHBOARDS ARE EXTENSIBLE ON BOTH THE ENDS.
  - OPERATING HEIGHT: ②
  - MINIMUM: 250MM
  - MAXIMUM: 1800MM
  - ENCLOSURE: TOTALLY DUST & VERMIN PROOF. NEOPRENE/EPDM
  - DEGREE OF PROTECTION: UP TO 1600A IP-52, ABOVE 1600A IP42 AS PER IS-13947 ②
  - GASKET: PROVIDED AROUND DOORS, COVERS AND OTHER CUTOUT EDGES.
  - DOORS: WILL BE PROVIDED FOR PANELS RATED ABOVE 1600A
  - BACKED WITH FINE WIREMESH PROVIDED AT FRONT & REAR OF HORIZONTAL BUSBAR CHAMBER & REAR COVERS OF INCOMERS & BUSDUPPLER PANELS.
  - CABLE ALLEY: 250MM ②
  - POWER & CONTROL SWITCHES: PROJECTED, MOUNTED ON MODULES DOORS
  - PUSH BUTTONS & INSTRUMENTS: FLUSHED MOUNTED
  - 4. INCOMING FEEDER CABLE ENTRY: BOTTOM
  - 5. OUTGOING FEEDER CABLE ENTRY: BOTTOM

**C. PANEL FABRICATION:**

- BASE FRAME: ISMC75
- FRAME (LOAD BEARING MEMBER): 2.0 MM CRCA
- DOORS & COVERS: 1.6 MM CRCA
- GLAND PLATES (FOR SINGLE CORE CABLE): 4 MM AL.
- GLAND PLATES (FOR MULTI CORE CABLE): 3 MM HR.

**D. PAINTING:-**

- PAINT: POWDER COATING PAINT.
- SHADE: - EXTERIOR AND INTERIOR: LIGHT GREY SHADE IS:631 AS PER IS:5-1994  
- MOUNTING PLATES & TROLLEYS: RAL-9002.
- FINISH: DRIED IN STOVING OVENS IN DUST FREE ATMOSPHERE  
& FREE FROM IMPERFECTIONS LIKE PIN HOLES, ORANGE PEELS, RUN OFF PAINT ETC.


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**E. BUSBARS:-**

1. MATERIAL: HIGH CONDUCTIVITY ALUMINUM. (GRADE - E91E)
2. MAIN BUSBAR RATING AND SIZE WILL BE PROVIDED AFTER DETAIL ENGINEERING 
3. SUPPORT: NON HYDROSCOPIC NON CORRODING CORROSION RESISTANT SMC/POLYAMIDE
4. BUSBAR SLEEVES: 1100V GRADE HEAT SHRINKABLE RED, YELLOW, BLUE & BLACK COLOUR.
5. ALL ACCESSIBLE BUSBAR JOINTS WILL BE PROVIDED WITH REMOVABLE SHROUDS OF SMC/DMC/POLYAMIDE
6. ALL LIVE CONNECTIONS FROM BUSBAR UP TO SWITCHES WILL BE SHROUDED IN ORDER TO AVOID ACCIDENTAL TOUCH.
7. ALL BUSBAR INCLUDING OUTGOING STUBS SHALL BE COLOUR COATED WITH PAINT AT SUITABLE INTERVALS.
8. ALL OUTGOING TERMINALS IN CABLE ALLEY SHALL BE PROVIDED WITH FALLING TOLL SHROUDS.
9. HARDWARE FOR BUSBAR JOINTS, HIGH TENSION STAINLESS STEEL BOLT & NUTS
10. MAXIMUM TEMPERATURE RISE OF BUSBAR CONTACTS, DROPPERS AT AN AMBIENT OF 50° C WILL NOT EXCEED 40° C
11. VERTICAL BUSBAR RATING: MINIMUM 200A

**F. CONTROL BUSBARS:-**




1. MATERIAL: COPPER
- SPACE HEATER, MOTOR SPACE HEATER & SUPPLY (240V AC); 6MMX3MM FOR PH & N 
- BREAKER CONTROL, INDICATION, ELR & 220V DC; 6MMX3MM FOR +VE & -VE 
- MOTOR WINDING HEATING BUS & SUPPLY (240V AC); 6MMX6MM FOR PH & N 

**G. EARTH BUSBARS:-**

1. MATERIAL: GS FLAT
2. SIZE: ABOVE 315KA/1SEC BOARDS; 75MMX10MM GS FLAT
3. MAIN EARTH BUS WILL BE BROUGHT THROUGH OUT THE LENGTH OF THE PANEL & EXTENDED ON BOTH ENDS TO FACILITATE CUSTOMER EARTH CONNECTION WITH M10 BOLTS AND NUTS 







**H. BUSBAR CLEARANCE:-**

- PHASE TO PHASE: 25MM
- PHASE TO NEUTRAL: 25MM
- PHASE TO EARTH: 25MM


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**I. BREAKER ACB WILL BE PROVIDED WITH THE FOLLOWINGS:-**

1. THREE POLE ELECTRICALLY OPERATED, DRAWOUT
2. SWITCHES:
  - BREAKER CONTROL SWITCH(TRIP/NORMAL/CLOSE)
  - LOCAL/REMOTE SELECTOR SWITCH
  - DC ISOLATION SWITCH
  - TRIP SELECTOR SWITCH 
3. METERING:
  - AMMETER
  - VOLT METER
  - MULTI FUNCTION METER
  - 3PHASE ELECTRONIC ENERGY METER ABOVE 30KV FEEDERS 
4. INDICATING LAMPS:
  - BREAKER CLOSE: RED
  - BREAKER OPEN GREEN
  - BREAKER AUTO TRIP/TRIP: AMBER
  - TRIP CKT HEALTHY, WHITE
  - SPRING CHARGED: BLUE
5. NUMERICAL RELAY WITH THE FOLLOWING MEASURING PROVISIONS:
  - CURRENT, VOLTAGE, KW, KWH, KVAR, POWER FACTOR, FREQUENCY, AUX CONSUMPTION
  - & WILL HAVE PROVISION TO CONNECT TO DDCMIS
6. BREAKER CONTACTS MULTIPLICATION RELAYS WILL BE PROVIDED AS REQUIRED
7. AUX CONTACTOR & AUX RELAYS WILL BE PROVIDED AS REQUIRED FOR INCOMER/BUS COUPLER/  
BUS VT MODULES.
8. POTENTIAL FREE CONTACTS FOR REMOTE STATUS INDICATION:
  - BREAKER ON & OFF
  - TC HEALTHY 
  - BREAKER IN TEST POSITION 
  - BREAKER IN SERVICE POSITION
  - SPRING CHARGED 
  - BREAKER SELECTED FOR REMOTE
  - TRIP RELAY OPERATED 
9. POTENTIAL FREE CONTACTS FOR REMOTE ALARM:
  - BREAKER AUTO TRIPPED, LOCKOUT RELAY OPERATED
  - BUS UNDER VOLTAGE
  - SOURCE PARALLELED BEYOND PRESET TIME
  - INCOMING 220V DC SUPPLY FAILED
  - BUS PT FUSE FAILED
  - BUS PT NOT IN SERVICE
  - COMMON OUTGOING ACB FEEDER FAULT
9. INCOMERS WILL BE INTERLOCKED WITH UP STREAM BREAKER SUCH THAT THEY CAN BE CLOSED  
ONLY WHEN UP STREAM BREAKER IS CLOSED AND TRIP AUTOMATICALLY WHEN UP STREAM BREAKER  
IS TRIPPED.

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**J. OUTGOING ACB FDRS WILL BE PROVIDED WITH THE FOLLOWINGS:-**

**INDICATING LAMPS**

- BREAKER OPEN, CLOSE, TRIP
- BREAKER IN SERVICE, TEST
- SPRING CHARGED
- DC SUPPLY HEALTHY
- TC HEALTHY
- LOCKOUT RELAY OPERATED

**K. CTS & PTS:-**

1. TYPE: RESIN CAST
2. CLASS FOR METERING FOR BOTH CTS & VTS: 1.0
3. CLASS FOR PROTECTION FOR CTS : 5P20
4. CLASS FOR PROTECTION FOR VTS : 3P
5. ISOLATION FACILITY: CTB WILL BE PROVIDED (TERMINALS GET SHORTED ON SLIDING OF LEVER)

**L. CONTACTOR CONTROLLED FEEDERS:-**

1. MEETS THE REQUIREMENT OF TYPE II COORDINATION AS PER IS-13947
2. INCOMING SIDE OF THE SWITCHES ARE SHROUDED

**M. AMMETER & VOLTMETERS:-**

1. TYPE: ANALOG
2. SIZE: 96X96SQ. MM.
3. SCALE: 240° LINEAR
4. ACURACY:CL-2.0

**N. INDICATING LAMPS:-**

TYPE: CLUSTER LED

**O. TRANSDUCCERS:-**


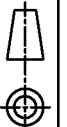
- OUTPUT: 4-20mA DC DUAL CHANNEL
- ACCURACY: +0.5%
- LEAD: 750 DHMS

**P. RELAYS:-**

ALL RELAYS SHALL BE DRAW-OUT, FLUSH MOUNTED, SELF RESET TYPE AND SHALL BE PROVIDED WITH FLAG INDICATION. (HOWEVER LOCK OUT RELAY SHALL BE HAND RESET TYPE)

**Q. PANEL WIRING**

1. TYPE OF WIRE: 1100 VOLT GRADE MULTI STRANDED FLEXIBLE FLAME RETARDANT, PVC INSULATED COPPER CONDUCTOR WIRE.
2. ALL SPARE CONTACTS OF ALL CONTACTOR AND RELAY WILL BE WIRED UP TO THE TERMINAL BLOCK
3. MINIMUM SIZE & COLOR:
  - CONTROL CIRCUIT:- 2.5 SQ. MM, COLOR: BLACK (AC), GREY (DC)
  - C.T. & P.T. CIRCUITS: 2.5 SQ. MM, COLOR: R, Y, B & BLACK
  - 5A C.T.'S CIRCUITS: 4 SQ. MM, COLOR: R, Y, B & BLACK

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4. CONTROL TERMINALS:  
 -SELF ALIGNING TYPE FOR DRAW/OUT TYPE MODULES  
 -CAGE CLAMP TYPE FOR NON DRAW/OUT TYPE MODULES

5. POWER TERMINALS:  
 -BOLTED (STUD).  
 6. 20% SPARE TERMINALS ARE PROVIDED  
 7. INTERPANEL WIRE SHALL BE IDENTIFIED AT BOTH ENDS BY SINGLE SLEEVE FERULESS  
 GIVING DETAIL AS IN DRAWINGS

**R. CABLE GLANDS & TERMINAL LUGS(SUPPLIED LOOSE):-**

1. CABLE GLANDS FOR POWER & CONTROL CABLES : BRASS, DOUBLE COMPRESSION  
 2. TERMINAL LUGS: ANNEALED TINNED COPPER

**S. FEEDER DESCRIPTION PLATE:-**

1. MATERIAL: 3 PLY LAMICOID / ANDDISSED ALUMINIUM WITH BLACK BACK GROUND  
 2. LETTER SIZE & COLOR: 4 MM HEIGHT, COLDER WHITE, ENGRAVED  
 3. EACH PANEL WILL BE AFFIXED WITH INSCRIPTION PLATE INDICATING FEEDER DESCRIPTION,  
 RATING & FEEDER NO. AS PER THE LOAD LIST GIVEN IN GA DRAWING  
 4. EACH PANEL WILL BE AFFIXED WITH INSCRIPTION PLATE INDICATING THE ESPSG DESIGNATION  
 AND PANEL NO.

**T. CAUTION DESCRIPTION PLATE:-**

1. 'CAUTION LIVE TERMINALS' CAUTION INSCRIPTION PLATE ARE PROVIDED AT ALL POINTS WHERE  
 THE TERMINALS ARE LIKELY TO REMAIN LIVE & ISOLATION IS POSSIBLE ONLY AT REMOTE END.  
 2. 'CAUTION LIVE CABLES' CAUTION INSCRIPTION PLATE ARE PROVIDED AT ALL PANEL  
 CABLE ALLEYS DDORS  
 3. 'CAUTION LIVE BUSBARS' CAUTION INSCRIPTION PLATE ARE PROVIDED AT ALL PANEL  
 BUSBAR CHAMBER  
 4. CAUTION NOTICE WILL BE AFFIXED BOTH AT THE FRONT & BACK OF EACH VERTICAL PANEL

**U. PACKING:-**


1. EACH PACKING WILL BE INDICATED WITH ESPSG NO., SHIPPING SECTION NO. AS INDICATED  
 IN GA DRAWING PROMINENTLY STENCILED USING PAINT FOR EASY IDENTIFICATION DURING  
 ERECTION ON THE PACKING

**V. MAKE OF COMPONENTS:-**

REFER DRAWING NO., EP-4-MC-107-001 

**W. Q&M MANUALS:-**

ONE SET OF OPERATION AND MAINTANANCE MANUAL WILL BE SUPPLIED WITH PANEL,  
 HOWEVER REQUIRED NUMBER OF Q&M MANUALS WILL BE SUPPLIED AS PER CONTRACT SEPARATELY

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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
BANHARPALI, JHARSUGUDA  
ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:



DEVELOPMENT CONSULTANT PVT LTD

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA

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CHKD. TRINATH	<i>P. Srinath</i>	22.01.14			DRG. NO. : EP-3-GN-107-007		REV. NO. : 00	
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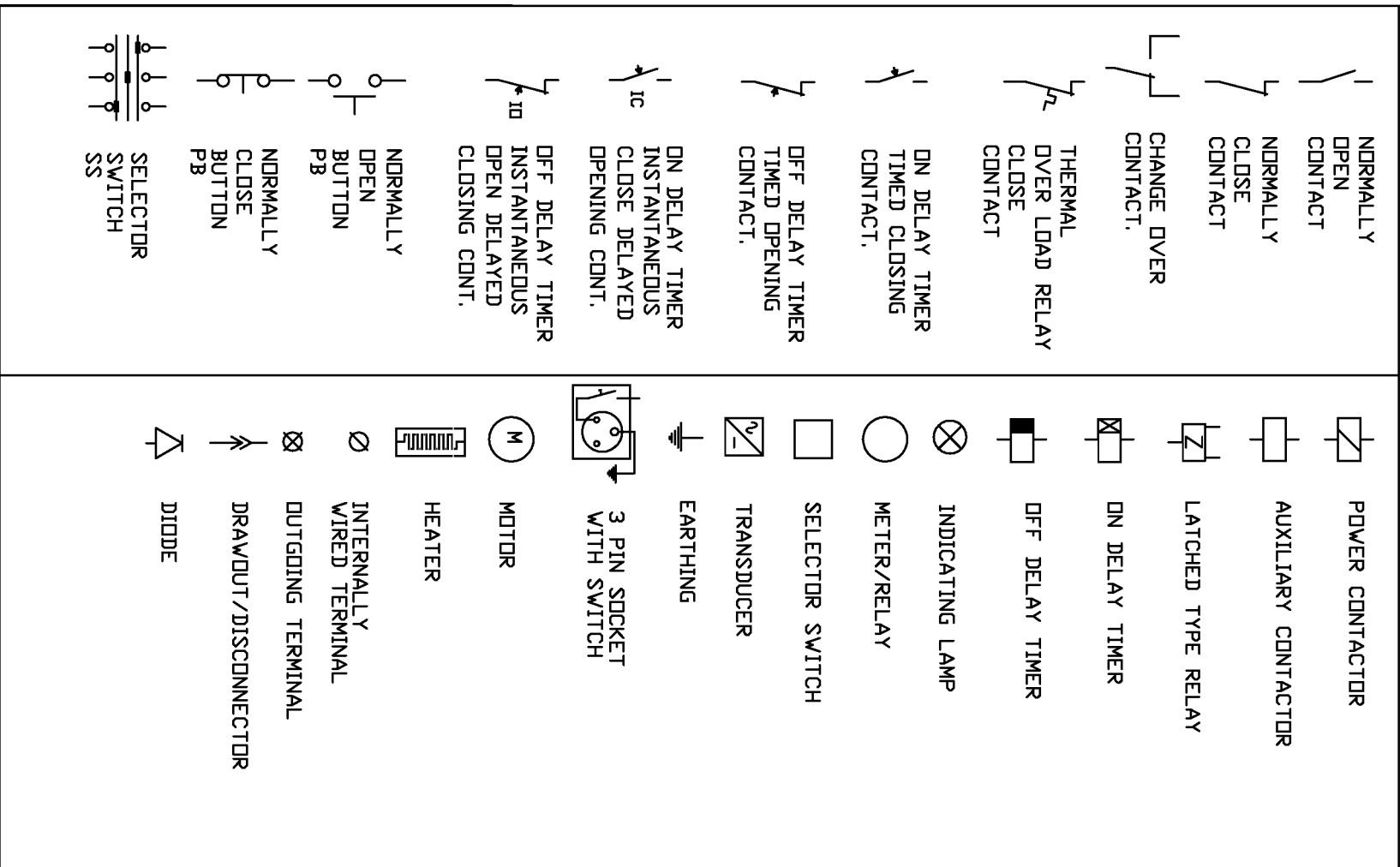
THREE LINE DIAGRAM SYMBOLS	SINGLE LINE DIAGRAM SYMBOLS	DESCRIPTION
		MOTOR OPERATED DRAWOUT TYPE AIR CIRCUIT BREAKER Q
		MANUALLY OPERATED MOULDED CASE CIRCUIT BREAKER MCCB
		MANUALLY OPERATED MOTOR PROTECTION CIRCUIT BREAKER MPCB
		MANUALLY OPERATED DRAWOUT TYPE FUSE SWITCH UNIT FSU
		POWER CONTACTOR Q
		MINIATURE CIRCUIT BREAKER
		OVER LOAD RELAY DLR
		CURRENT TRANSFORMER CT
		POTENTIAL TRANSFORMER PT
		HRC FUSE F
		NEUTRAL LINK LK
		BUSDUCT




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CHKD. TRINATH	<i>p. Srinivas</i>	22.01.14			
APPD. KS BALA	<i>Ks Bala</i>	22.01.14			
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## SINGLE LINE DIAGRAM & CONTROL SCHEME

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ELECTRICAL COMPONENTS

ACB AIR CIRCUIT BREAKER  
MCCB MINIATURE CIRCUIT BREAKER  
MCCB MOULDED CASE CIRCUIT BREAKER  
MPCB MOTOR PROTECTION CB  
FSU FUSE SWITCH UNIT  
IS ISOLATOR  
DLR OVER LOAD RELAY  
CT CURRENT TRANSFORMER  
PT POTENTIAL TRANSFORMER  
CTTB CT TESTING BOARD  
F FUSE  
LK NEUTRAL LINK  
PS POWER SOCKET  
M MOTOR  
E EARTHING  
CST CONTROL SUPPLY TRANSFORMER

METERS

A AMMETER  
V VOLTMETER  
ASS AMMETER SELECTOR SWITCH  
VSS VOLTMETER SELECTOR SWITCH  
W WATT METER  
WH WATT HOUR METER  
KWH KILD WATT HOUR METER  
HZ FREQUENCY METER  
PF POWER FACTOR METER  
MFM MULTI FUNCTION METER  
H INDICATING LAMP  
NR NUEMARICAL RELAY  
S SELECTOR SWITCH  
Q ACB/MCCB/MPCB/MCB  
C POWER CONTACTOR  
K AUXILIARY CONTACTOR  
P PUSH BUTTIN  
D DIODE BRIDGE  
CTD CURRENT TRANSDUCER  
VTD VOLTAGE TRANSDUCER  
TH THERMOSTATE  
SH SPACE HEATER


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  - 50 GROUND INSTANTANEOUS OVER CURRENT
  - 50BF BREAKER FAILURE
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REVISED AS BUILT								




JOB NO.:		CP13107				TITLE :		LEGEND	
NAME		SIGN.		DATE		DEPT.		CODE	
DEGND.	TRINATH	<i>P. Srinivas</i>	22.01.14						
DRN.									
CHKD.	TRINATH	<i>P. Srinivas</i>	22.01.14						
APPD.	KS BALA	<i>[Signature]</i>	22.01.14						
DRG. NO. :		EP-3-GN-107-007		REV. NO. :		00			
SCALE :		N.T.S.		SHEET NO. :		05		NO. OF SHEETS : 05	
BHARAT HEAVY ELECTRICALS LIMITED		ELECTROPROCELAN DIVISION BANGALORE							

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DRG. NO. EP-3-GA-107-314

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	DIR :	FILE NO.:	SCALE	JOB NO.	DRG. NO.	NO. OF SHEETS	NO.	REV.
07																
06																
05					DESIGNED	JAGADISH		07.10.14								
04					DRAWN											
03																
02					CHECKED	TRINATH		07.10.14								
01						KS BALA		07.10.14								
00																



ODISHA POWER GENERATION CORPORATION LIMITED  
BANHARPALI, JHARSUGUDA  
ORISSA-768234, INDIA

PROJECT:  
2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:  
  
DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA

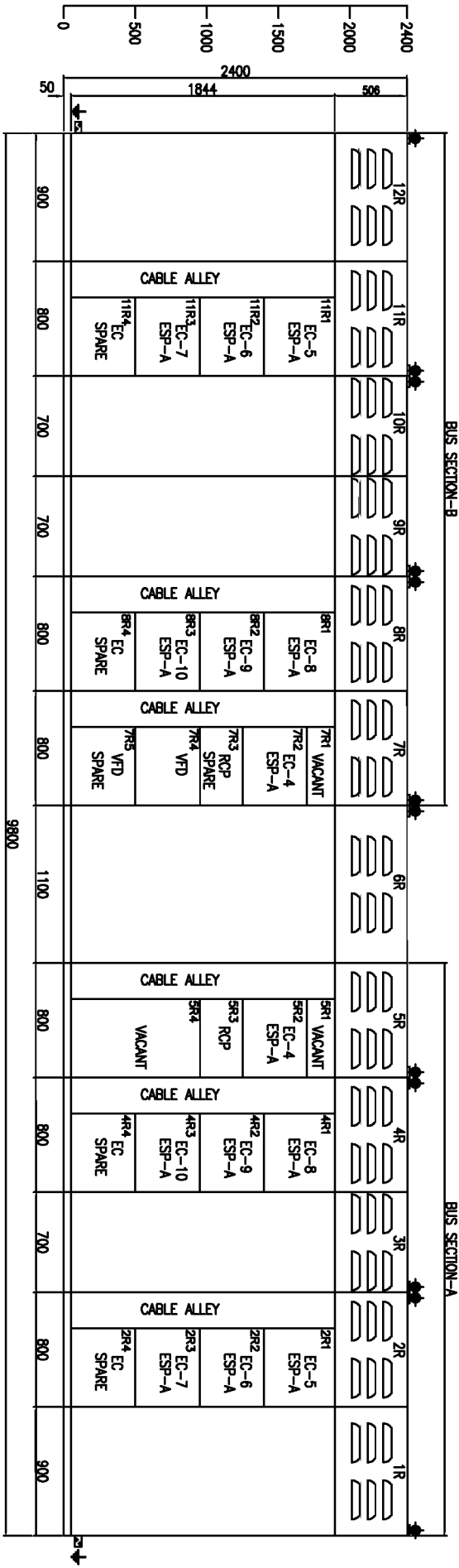
BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROBORCELAIN DIVISION, BANGALORE  
GENERAL ARRANGEMENT  
LT MAIN SWITCH BOARD  
SCALE  
JOB NO. CR-13-020  
DRG. NO. EP-3-GA-107-314  
NO. OF SHEETS 06  
SHEET NO. 01  
REV. 00



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DRG. NO. EP-3-GA-107-314



REAR VIEW

INVENTORY NO.		DRG. NO.		BY		APPD.		APPROVED		NAME		SIGN.		DATE		DIR :		SCALE		JOB NO.		DRG. NO.		NO. OF SHEETS		SHEET NO.		REV.	
07		EP-3-GA-107-314																			CR-13-020	EP-3-GA-107-314	06	03	00				
06										JAGADISH																			
05																													
04																													
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02																													
01																													
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FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.




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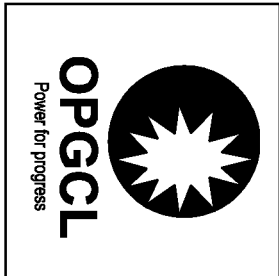
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DRG. NO. EP-3-SL-107-314

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPO.	APPROVED	NAME	SIGN.	DATE	DIR :	FILE NO.:	SCALE	JOB NO.	DRG. NO.	NO. OF SHEETS	REV.
07															
06															
05					DESIGNED	JAGADISH		05.01.15						10	01
04					DRAWN										
03															
02					CHECKED	TRINATH		05.01.15							
01						KS BALA		05.01.15							



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALI, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:  
 2x660 MW UNITS 3&4 IB THERMAL POWER STATION

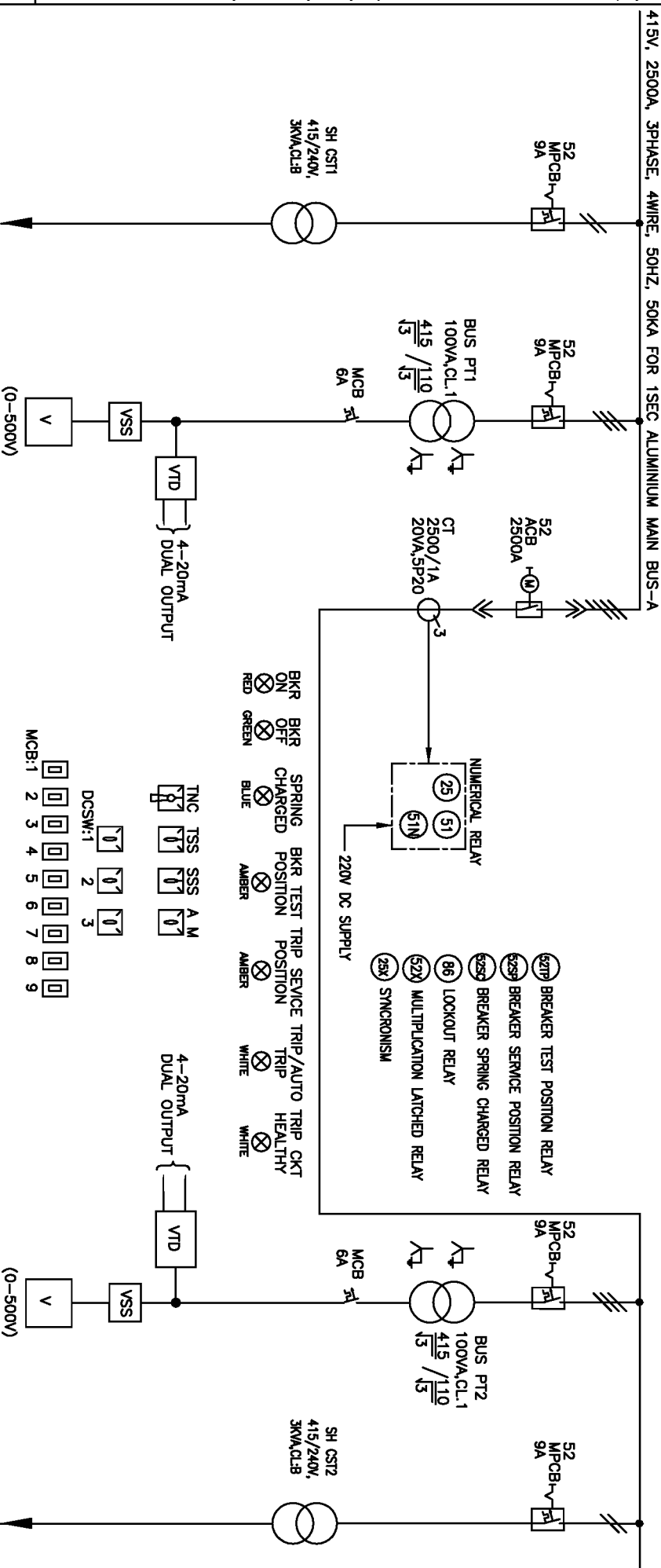
CUSTOMER CONSULTANT:  
  
 DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPORCELAIN DIVISION BANGALORE  
 TITLE : SINGLE LINE DIAGRAM  
 LT MAIN SWITCH BOARD  
 NO. OF SHEETS : 10  
 SHEET NO. : 01  
 SCALE :  
 JOB NO. CR-13-020  
 DRG. NO. EP-3-SL-107-314









DESCRIPTION	SH CST-1	BUS PT-1	BUSCOUPLER	BUS PT-2	SH CST-2
RATING			2500A		
FEEDER NO.	2F4	2F3	7F	12F3	12F4
SCHEME REF	EP-3-CS-018-005	EP-3-CS-018-005	EP-3-CS-107-003	EP-3-CS-018-005	EP-3-CS-018-005

- TNC TSS SSS A M  
 DCSW:1 2 3 4 5 6 7 8 9  
 MCB:1 2 3 4 5 6 7 8 9
- BKR ON  
 BKR OFF  
 SPRING CHARGED POSITION  
 BKR TEST TRIP SERVICE TRIP/AUTO TRIP POSITION  
 TRIP HEALTHY
- RED  
 GREEN  
 BLUE  
 AMBER  
 AMBER  
 AMBER  
 WHITE  
 WHITE

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KS BALA	DIR :	FILE NO.:	SCALE	JOB NO. CR-13-020	DRG. NO. EP-3-SL-107-314	NO. OF SHEETS	NO. OF SHEETS	REV.
07												10	05	00
06														
05														
04														
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02														
01														

BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROTECTIVE DIVISION BANGALORE

SINGLE LINE DIAGRAM  
 LT MAIN SWITCH BOARD

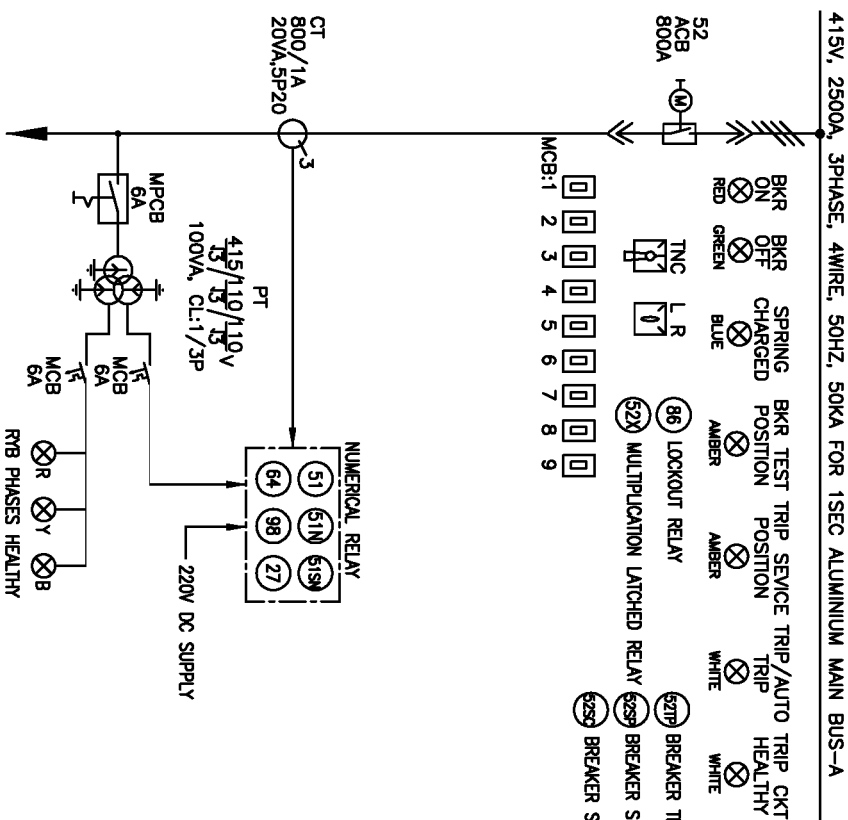




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DRG. NO. EP-3-SL-107-314



DESCRIPTION	AUXILIARY CONTROL PANEL INCOMER-1		VFD FEEDER	VFD FEEDER SPARE
RATING	51BA			
FEEDER NO.	4F3		4F3	4F3
SCHEME REF	EP-3-CS-107-012		EP-3-CS-107-017	EP-3-CS-107-017
CABLE SIZE	3-3.5C;300SQMM		1-3.5C;240SQMM	1-3.5C;240SQMM

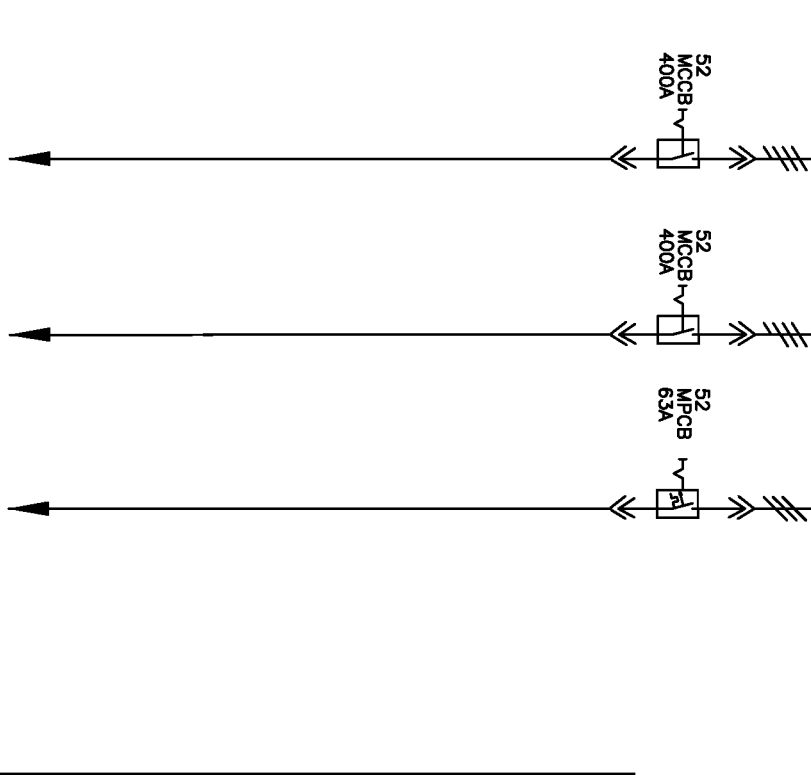
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REV. NO.	01	02	03	04	05	06	07	08	09	10	
DATE											
DESCRIPTION											
BY	APPD.	APPROVED	KS BALA	DIR :	FILE NO.:	SCALE	JOB NO. CR-13-020	DRG. NO.	EP-3-SL-107-314	NO. OF SHEETS	10
NAME	SIGN.	DATE	DESIGNED	JAGADISH	05.01.15	DRAWN	TRINATH	05.01.15	CHECKED	TRINATH	05.01.15
BHARAT HEAVY ELECTRICALS LIMITED ELECTROPORCELAIN DIVISION BANGALORE											
SINGLE LINE DIAGRAM LT MAIN SWITCH BOARD											
REV. NO.	00										

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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415V, 2500A, 3PHASE, 4WIRE, 50HZ, 50KA FOR 1SEC ALUMINIUM MAIN BUS-A



LTMBS'S LABEL INSCRIPTION		
SL. NO.	UNIT NO.3 LTMBS'S	UNIT NO.4 LTMBS'S
1	LTMBS-A UNIT NO.3 ESP-A	LTMBS-A UNIT NO.4 ESP-A
2	LTMBS-B UNIT NO.3 ESP-B	LTMBS-B UNIT NO.4 ESP-B
3	LTMBS-C UNIT NO.3 ESP-C	LTMBS-C UNIT NO.4 ESP-C
4	LTMBS-D UNIT NO.3 ESP-D	LTMBS-D UNIT NO.4 ESP-D

LIST OF FEEDERS

SL. NO.	FEEDER NO. BUS-A	FEEDER DESCRIPTION/LABEL INSCRIPTION	QUANTITY BUS-A	QUANTITY BUS-B	FEEDER RATING	MCCB RATING	MODULE SIZE
1	1F2	INCOMER	1	1	2500A	2500AACB	FULL PNL
2	6F2	BUSCOUPLER	1	1	2500A	2500AACB	FULL PNL
3	2F3	BUS SECTION-A PT	1	1	100VA	6A,MPCB	600MM
4	4F4	SHCST #4 AC	1	1	3KVA	16A,MPCB	400MM
5	4F2,4F3	ESP & ID FAN AREA MCC	1+1*	1	250A	250A	400MM
6	5R3	REMOTE CCONTROL PANEL	1	1*	3KW	63A	300MM
7	2F2	ELECTRICALLY OPERATED HOIST	1*	1	7.5KW	125A	400MM
8	5F2	ELECTRONIC CONTROLLER-1	1	1	158A	400A	500MM
9	5F3	ELECTRONIC CONTROLLER-2	1	1	158A	400A	500MM
10	5F4	ELECTRONIC CONTROLLER-3	1	1	158A	400A	500MM
11	5R2	ELECTRONIC CONTROLLER-4	1	1	158A	400A	500MM
12	2R1	ELECTRONIC CONTROLLER-5	1	1	158A	400A	500MM
13	2R2	ELECTRONIC CONTROLLER-6	1	1	158A	400A	500MM
14	2R3	ELECTRONIC CONTROLLER-7	1	1	158A	400A	500MM
15	4R1	ELECTRONIC CONTROLLER-8	1	1	158A	400A	500MM
16	4R2	ELECTRONIC CONTROLLER-9	1	1	158A	400A	500MM
17	4R3	ELECTRONIC CONTROLLER-10	1	1	158A	400A	500MM
18	4R4,2R4	ELECTRONIC CONTROLLER	2*	2*	158A	400A	500MM
19	5F1	ASH LEVEL INDICATOR PANEL	1	1*	1.0KW	63A	800MM
20	3F2	AUXILIARY CONTROL PANEL	1	1+1*	800A	800A	FULL PNL
21	7R4,7R5	VDF FEEDER	1	1+1*	250A	250A	400A
22	8F2,8F3	AC & VENTILATION MCC ROOM	1	1+1*	400A	400A	400A

\* SPARE

DESCRIPTION	AC & VENTILATION MCC	AC & VENTILATION MCC SPARE	RCP, SPARE
RATING			3KW
FEEDER NO.	8F2	8F3	7R3
SCHEME REF.	EP-3-CS-107-017		
CABLE SIZE	1-3.5CX300SQMM	1-3.5CX300SQMM	1-3CX100SQMM

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DRG. NO. EP-3-SL-107-314

INVENTORY NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	DIR :	SCALE	JOB NO.	CR-13-020	DRG. NO.	EP-3-SL-107-314	NO. OF SHEETS	10	SHEET.	09	REV.	00
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05																				
06																				

BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCLAIM DIVISION BANGALORE

SINGLE LINE DIAGRAM  
LT MAIN SWITCH BOARD



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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DRG. NO. EP-3-SL-107-314

DESIGNATION OF EC FEEDERS

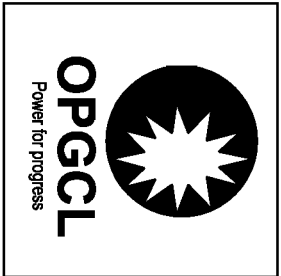
FEEDER NO.	FIELD NO.	UNIT NO-3 BOILER								UNIT NO-4 BOILER							
		ESP-A		ESP-B		ESP-C		ESP-D		ESP-A		ESP-B		ESP-C		ESP-D	
		LMSB-A	BUS-B	LMSB-B	BUS-A	LMSB-C	BUS-B	LMSB-D	BUS-A	LMSB-A	BUS-B	LMSB-B	BUS-A	LMSB-C	BUS-B	LMSB-D	BUS-B
EC-1	1	HOPPER-1	HOPPER-2	HOPPER-1	HOPPER-2	HOPPER-1	HOPPER-2	HOPPER-1	HOPPER-2	HOPPER-1	HOPPER-2	HOPPER-1	HOPPER-2	HOPPER-1	HOPPER-2	HOPPER-1	HOPPER-2
EC-2	2	2A13	2A23	2B13	2B23	2C13	2C23	2D13	2D23	2A13	2A23	2B13	2B23	2C13	2C23	2D13	2D23
EC-3	3	3A13	3A23	3B13	3B23	3C13	3C23	3D13	3D23	3A13	3A23	3B13	3B23	3C13	3C23	3D13	3D23
EC-4	4	4A13	4A23	4B13	4B23	4C13	4C23	4D13	4D23	4A13	4A23	4B13	4B23	4C13	4C23	4D13	4D23
EC-5	5	5A13	5A23	5B13	5B23	5C13	5C23	5D13	5D23	5A13	5A23	5B13	5B23	5C13	5C23	5D13	5D23
EC-6	6	6A13	6A23	6B13	6B23	6C13	6C23	6D13	6D23	6A13	6A23	6B13	6B23	6C13	6C23	6D13	6D23
EC-7	7	7A13	7A23	7B13	7B23	7C13	7C23	7D13	7D23	7A13	7A23	7B13	7B23	7C13	7C23	7D13	7D23
EC-8	8	8A13	8A23	8B13	8B23	8C13	8C23	8D13	8D23	8A13	8A23	8B13	8B23	8C13	8C23	8D13	8D23
EC-9	9	9A13	9A23	9B13	9B23	9C13	9C23	9D13	9D23	9A13	9A23	9B13	9B23	9C13	9C23	9D13	9D23
EC-10	10	10A13	10A23	10B13	10B23	10C13	10C23	10D13	10D23	10A13	10A23	10B13	10B23	10C13	10C23	10D13	10D23
EC-SP-1		SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1	SPARE-1
EC-SP-2		SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2	SPARE-2

INVENTORY NO.	DRG. NO.	EP-3-SL-107-314
REV. NO.	DATE	DESCRIPTION
07		
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04		
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02		
01		
BY	APPD.	APPROVED
NAME	SIGN.	DATE
JAGADISH		05.01.15
CHECKED	TRINATH	05.01.15
APPROVED	KS BALA	05.01.15
BHARAT HEAVY ELECTRICALS LIMITED ELECTROPROCLAIM DIVISION BANGALORE		
TITLE : SINGLE LINE DIAGRAM LT MAIN SWITCH BOARD		
NO. OF SHEETS	10	
SHEET NO.	10	
SCALE	JOB NO. CR-13-020	DRG. NO. EP-3-SL-107-314
REV.	00	

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DRG. NO. EP-3-CS-107-003



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALL, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:  
  
 DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-003	NO. OF SHEETS	REV.
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3				DESIGNED		JAGADISH	28.08.14				08	
2				DRAWN							01	
1				CHECKED		TRINATH	28.08.14				01	



BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCESSING DIVISION BANGALORE  
 TITLE : POWER & CONTROL SCHEME  
 ESP & ID FAN AREA MCC/UNIT SERVICE PMCC BUSCOUPLER

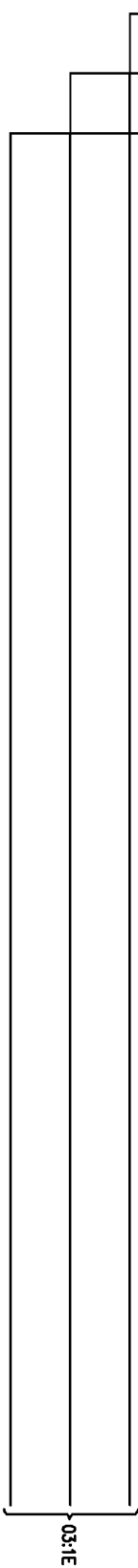
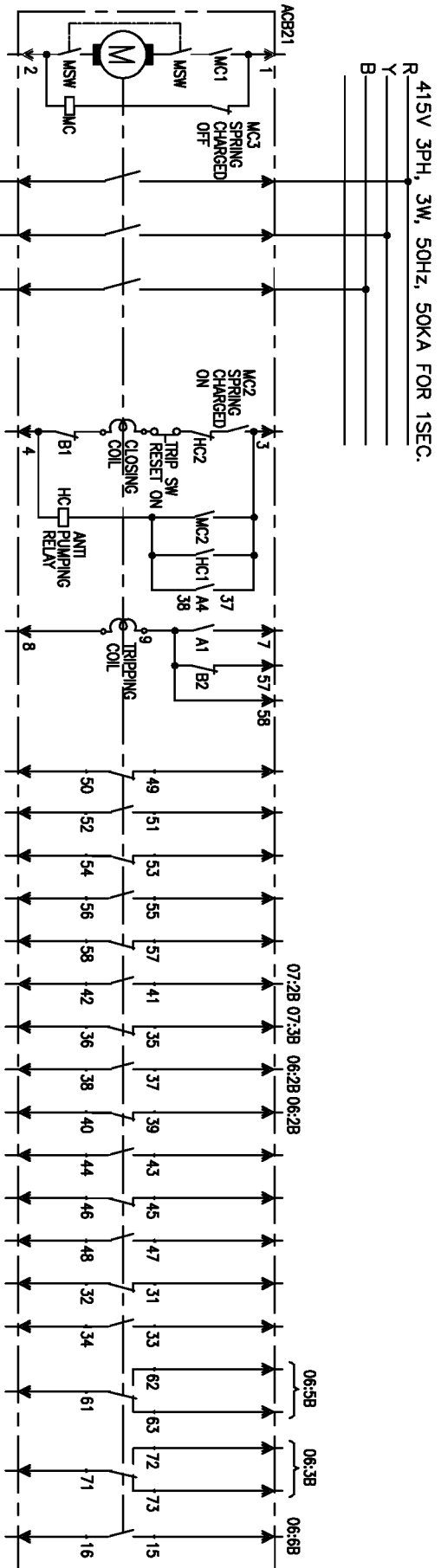
FIRST ANGLE PROJECTION

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DRG. NO. EP-3-CS-107-003

FORM 66-271 A3



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-003	NO. OF SHEETS	SHEET NO.	REV.
1					CHECKED	TRINATH		28.08.14				02
2					DRAWN			28.08.14				
3					DESIGNED	JAGADISH		28.08.14				
4												

**BHARAT HEAVY ELECTRICALS LIMITED**  
 ELECTROPROCESSING DIVISION BANGALORE



TITLE :  
**POWER & CONTROL SCHEME**  
 ESP & ID FAN AREA MCC/UNIT SERVICE PMCC BUSCOUPLER



NO. OF SHEETS: 08  
 SHEET NO.: 02  
 REV.: 00

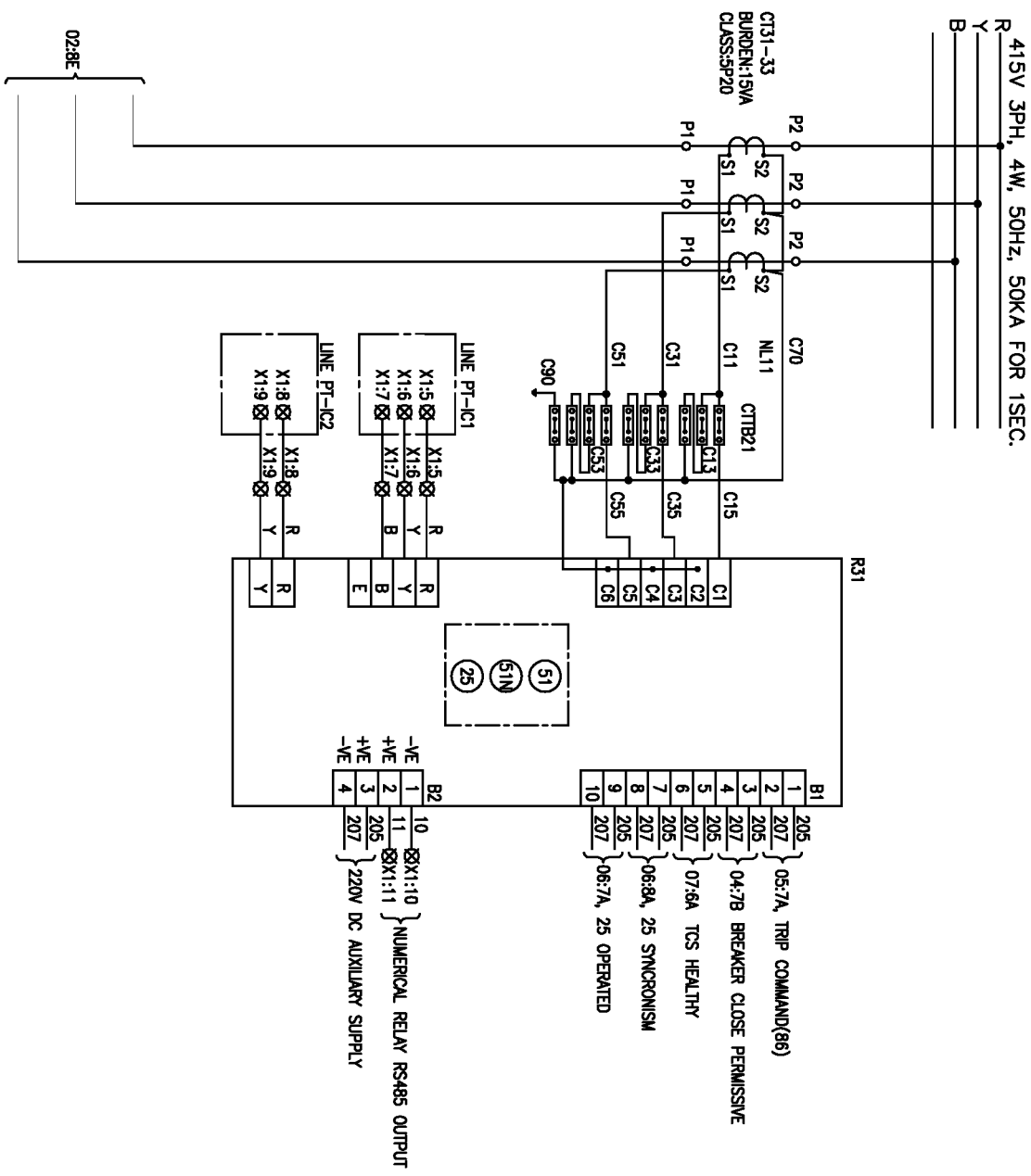
FIRST ANGLE PROJECTION

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DRG. NO. EP-3-CS-107-003



INVENTORY NO.		DRG. NO. EP-3-CS-107-003		BY		APPD.		APPROVED		KSB		SCALE: NA		JOB NO. CR-13-020		DRG. NO. EP-3-CS-107-003		NO. OF SHEETS		08	
REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-003	NO. OF SHEETS	08	REV.	00								
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2																					
3																					
4																					

FORM 66-271 A3

BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
 POWER & CONTROL SCHEME  
 ESP & ID FAN AREA MCC/UNIT SERVICE PMCC BUSCOUPLER



NO. OF SHEETS  
 08

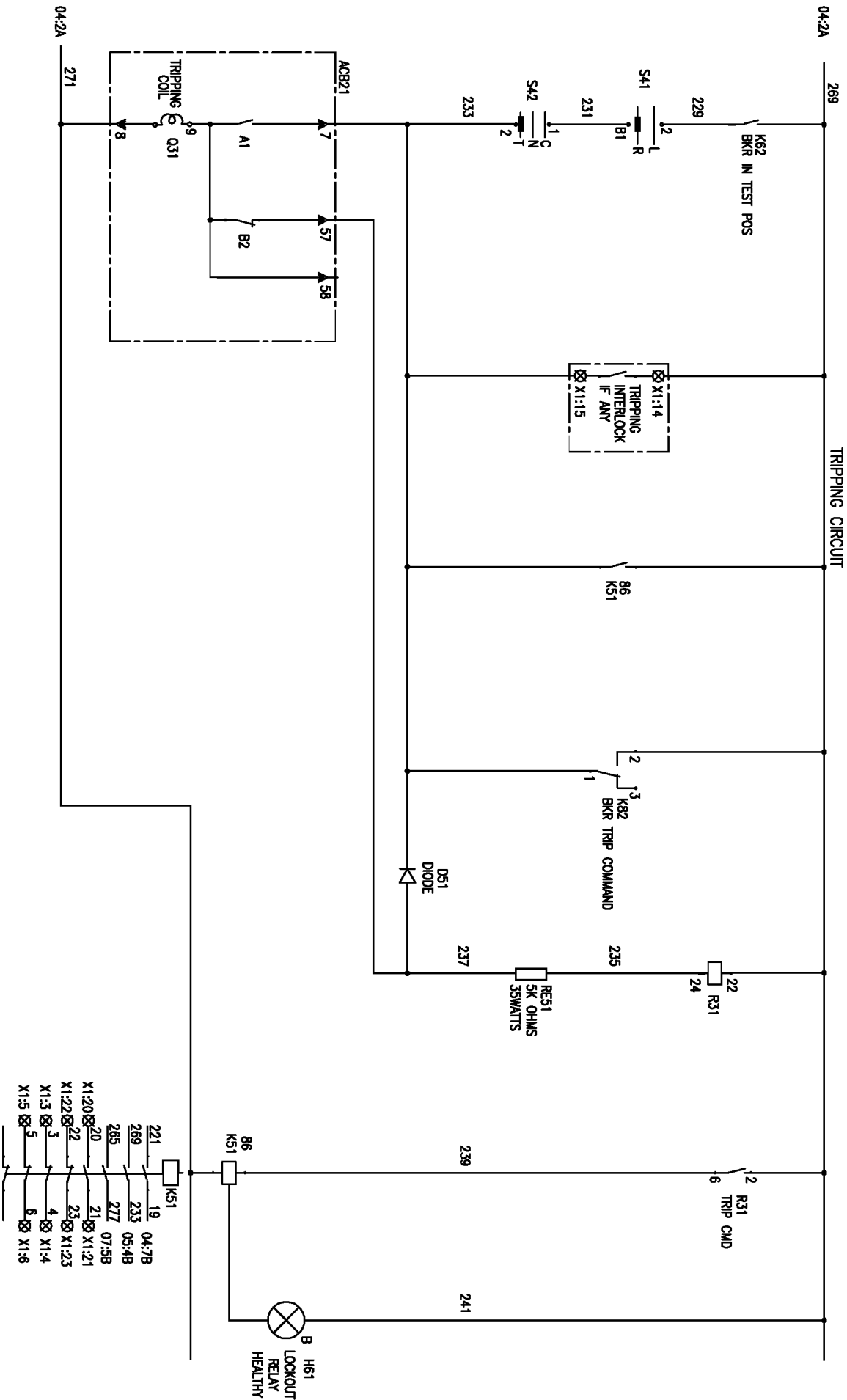
SHEET NO.  
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REV.  
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DRG. NO. EP-3-CS-107-003



INVENTORY NO.		REV. NO.		DATE		DESCRIPTION		BY	APPD.	APPROVED	KSB	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-003	NO. OF SHEETS	REV.
4		1													08	05
3		2														
2		3														
1		4														
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BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
 POWER & CONTROL SCHEME  
 ESP & ID FAN AREA MCC/UNIT SERVICE PMCC BUSCOUPLER



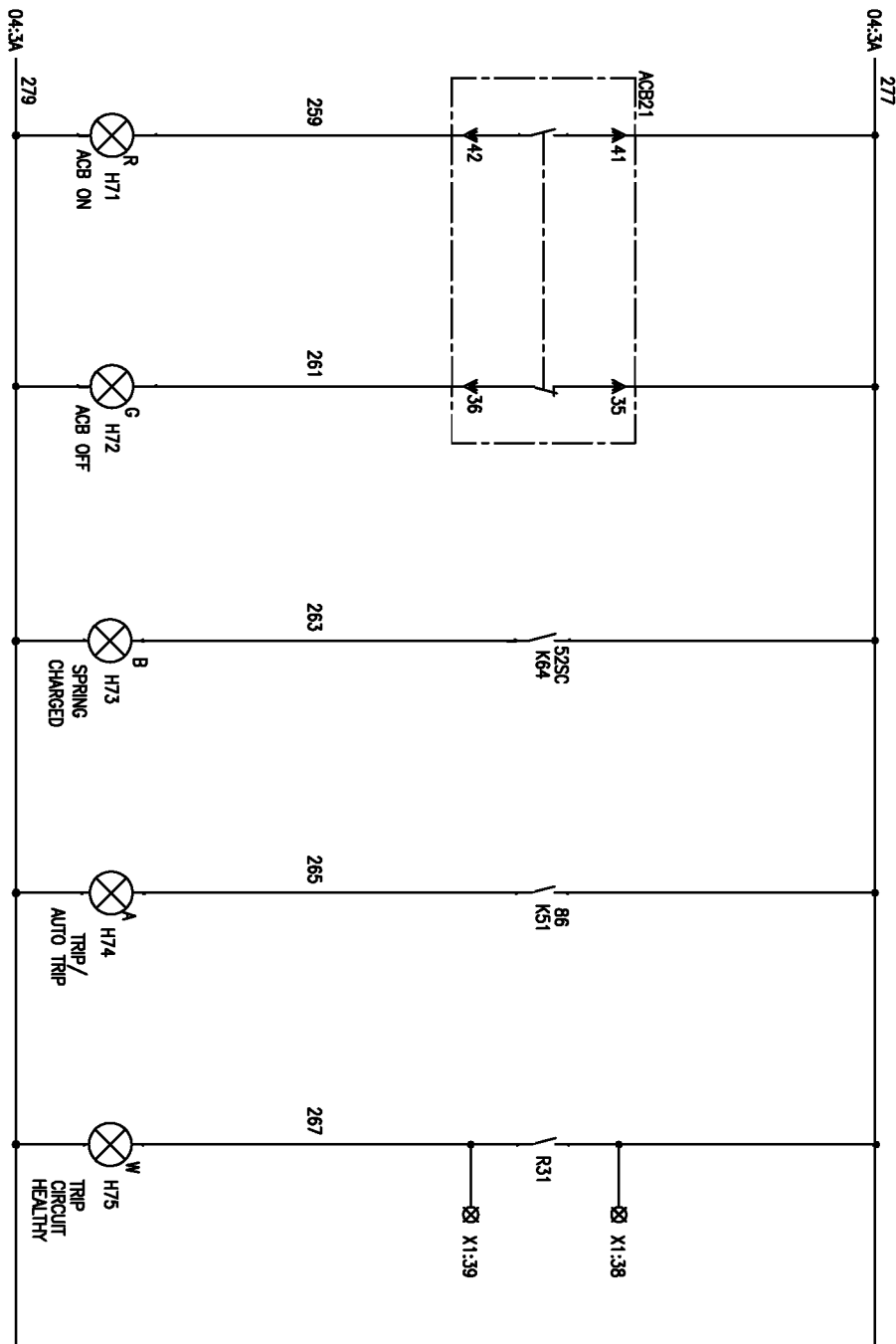


FIRST ANGLE PROJECTION

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INDICATION CIRCUIT



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DRG. NO. EP-3-CS-107-003

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-003	NO. OF SHEETS	NO. OF SHEETS	REV.
4												08	08	00
3					DESIGNED	JAGADISH		28.08.14						
2					DRAWN									
1					CHECKED	TRINATH		28.08.14						07

FORM 66-271 A3

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
**POWER & CONTROL SCHEME**  
ESP & ID FAN AREA MCC/UNIT SERVICE PMCC BUSCOUPLER



NO. OF SHEETS: 08

SHEET NO.: 07

REV. NO.: 00

A B C D E

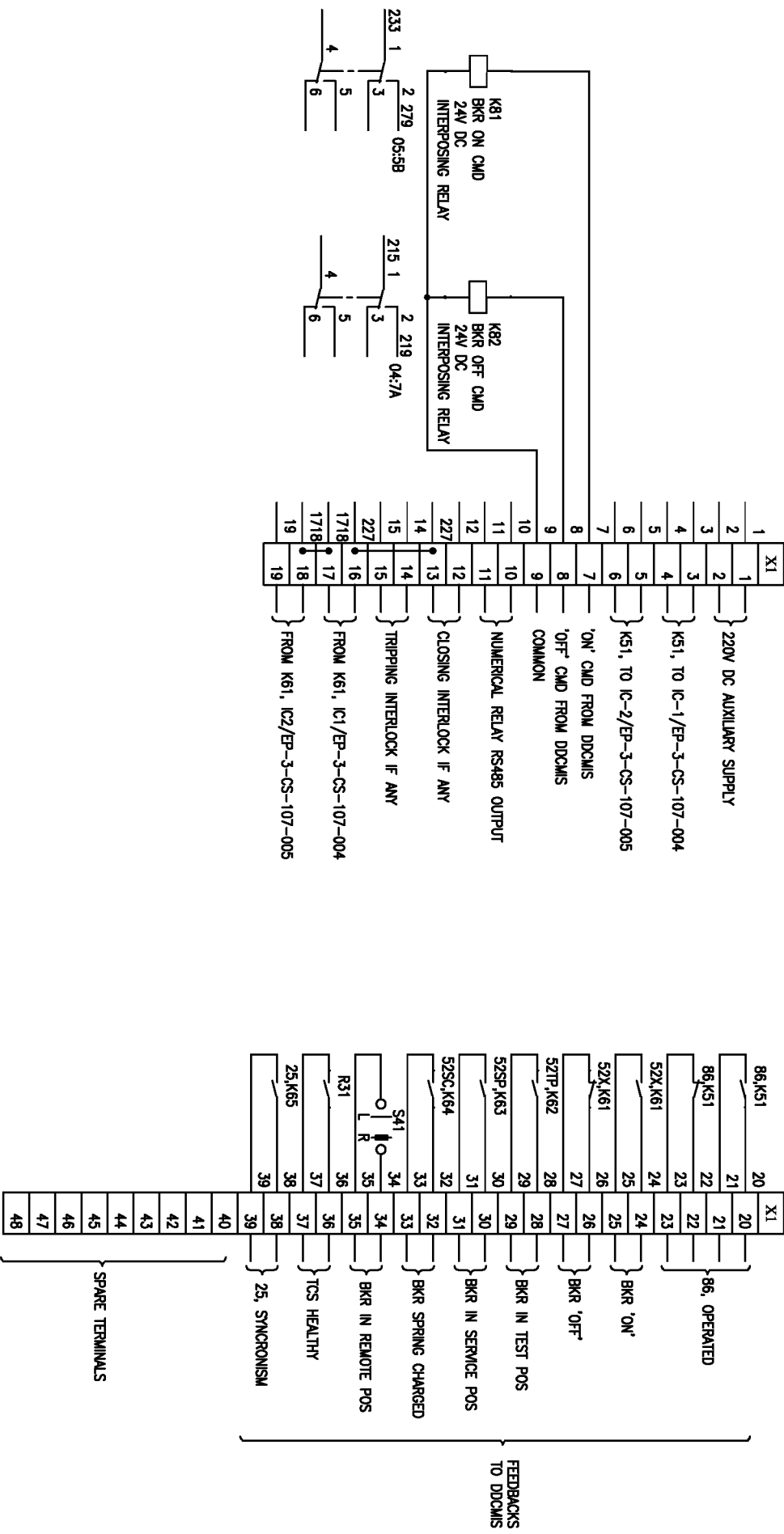
FIRST ANGLE PROJECTION

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DRG. NO. EP-3-CS-107-003

FORM 66-271 A3



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE
1					CHECKED	TRINATH		28.08.14
2					DRAWN			
3					DESIGNED	JAGADISH		28.08.14
4								

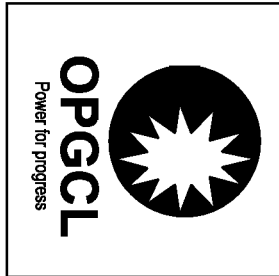
BHARAT HEAVY ELECTRICALS LIMITED ELECTROPROCESSING DIVISION BANGALORE		TITLE : POWER & CONTROL SCHEME ESP & ID FAN AREA MCC/UNIT SERVICE P.MCC BUSCOUPLER
JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-003	NO. OF SHEETS : 08 SHEET NO. : 08 REV. : 00

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
BANHARPALL, JHARSUGUDA  
ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:



DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA

DRG. NO. EP-3-CS-107-004

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REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-004	NO. OF SHEETS	NO. OF SHEET	REV.
4											08	01	00
3				DESIGNED		JAGADISH	28.08.14						
2				DRAWN									
1				CHECKED		TRINATH	28.08.14						

BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCELAIN DIVISION BANGALORE

TITLE :  
POWER & CONTROL SCHEME  
PMCC/MCC INCOMER-1



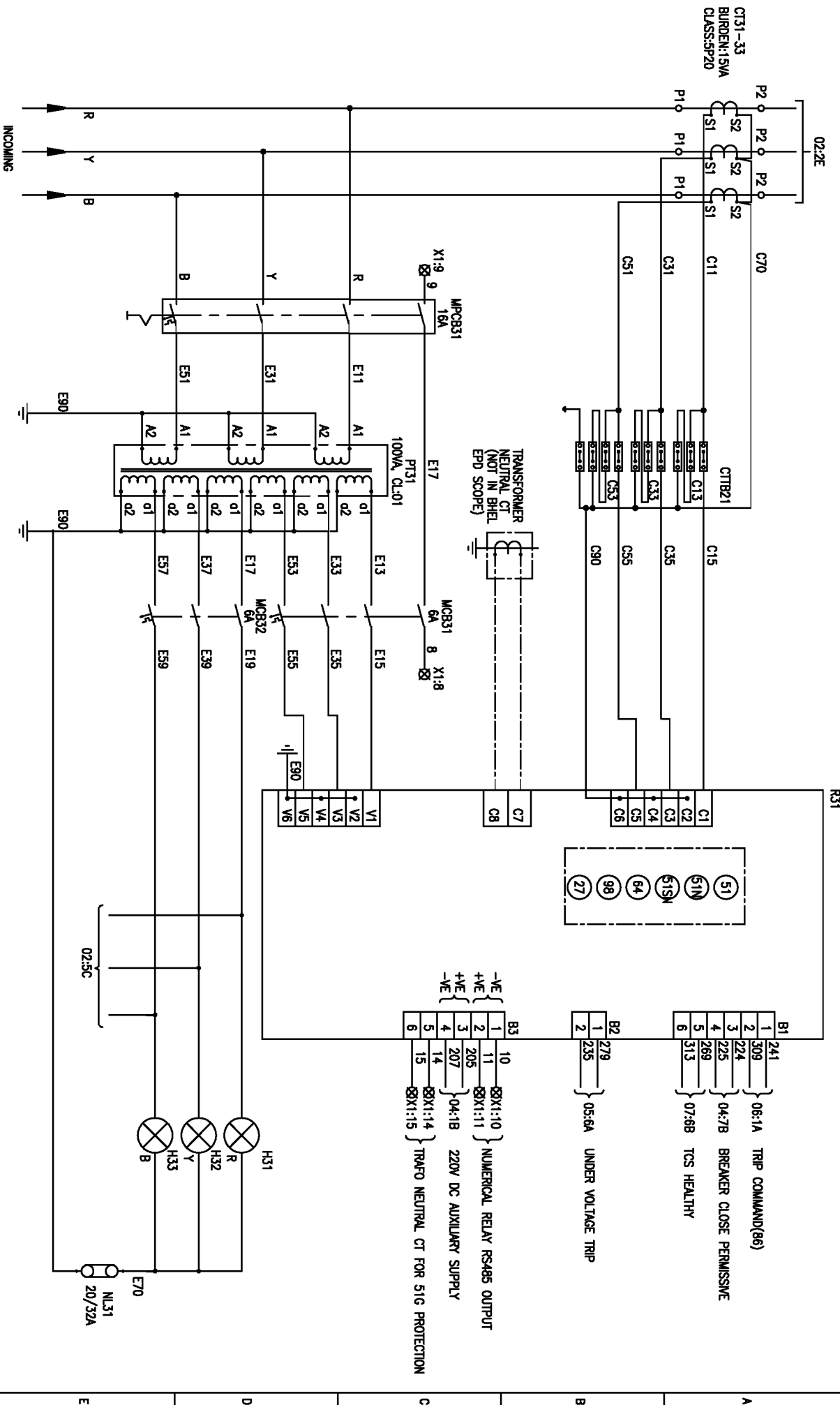


DRG. NO. EP-3-CS-107-004

FORM 66-271 A3

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



INVENTORY NO.	REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-004
4												
3												
2												
1												

NO. OF SHEETS	NO. OF SHEETS	REV.
08	03	00

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCELAIN DIVISION BANGALORE

TITLE :  
**POWER & CONTROL SCHEME**  
PMCC/MCC INCOMER-1





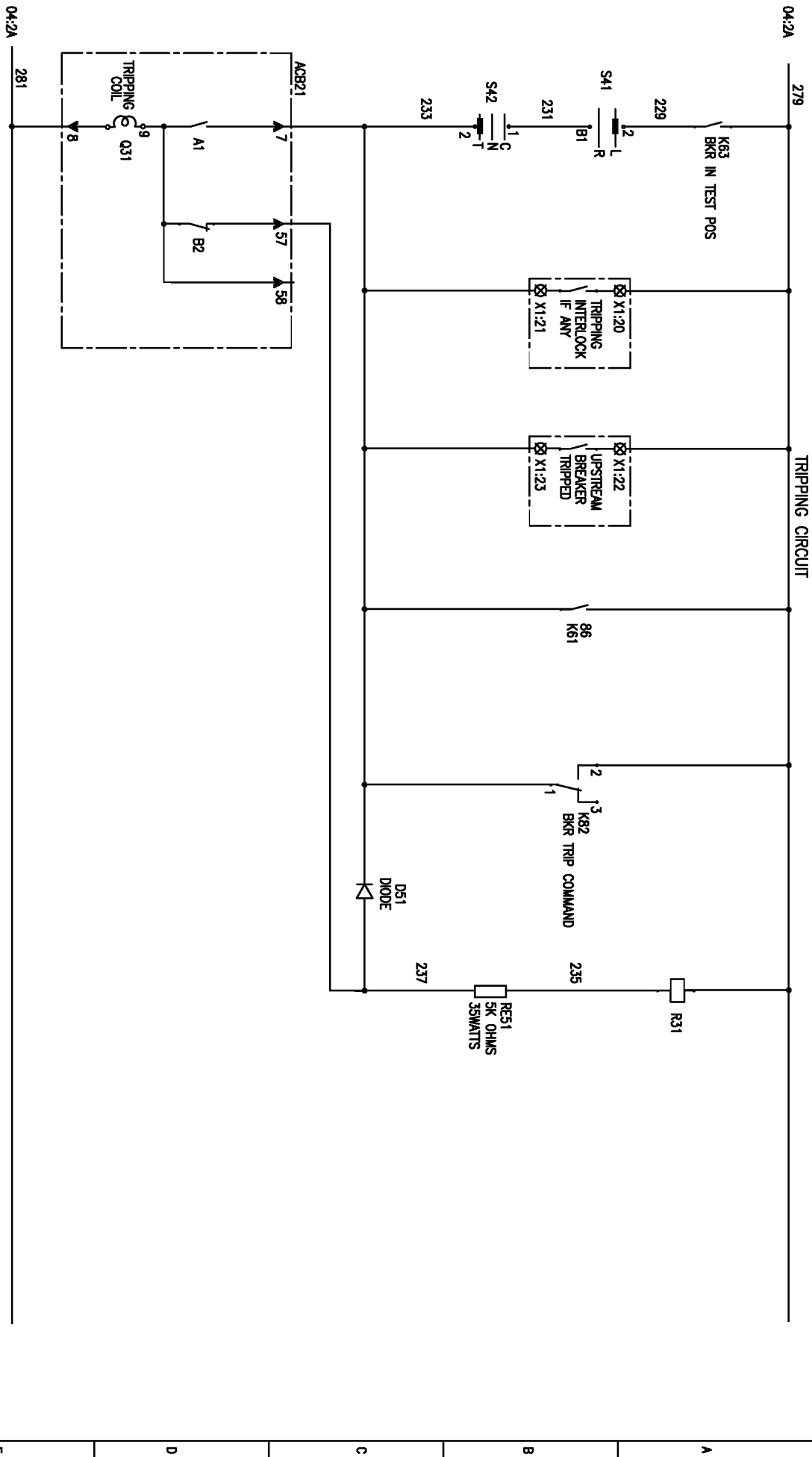
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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DRG. NO. EP-3-CS-107-004

FORM 66-271 A3



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-004	NO. OF SHEETS	NO.	REV.
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2					DRAWN		28.08.14					
3					DESIGNED	JAGADISH	28.08.14					
4												

**BHARAT HEAVY ELECTRICALS LIMITED**  
 ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
**POWER & CONTROL SCHEME**  
 PMCC/MCC INCOMER-1



NO. OF SHEETS

08

SHEET NO.

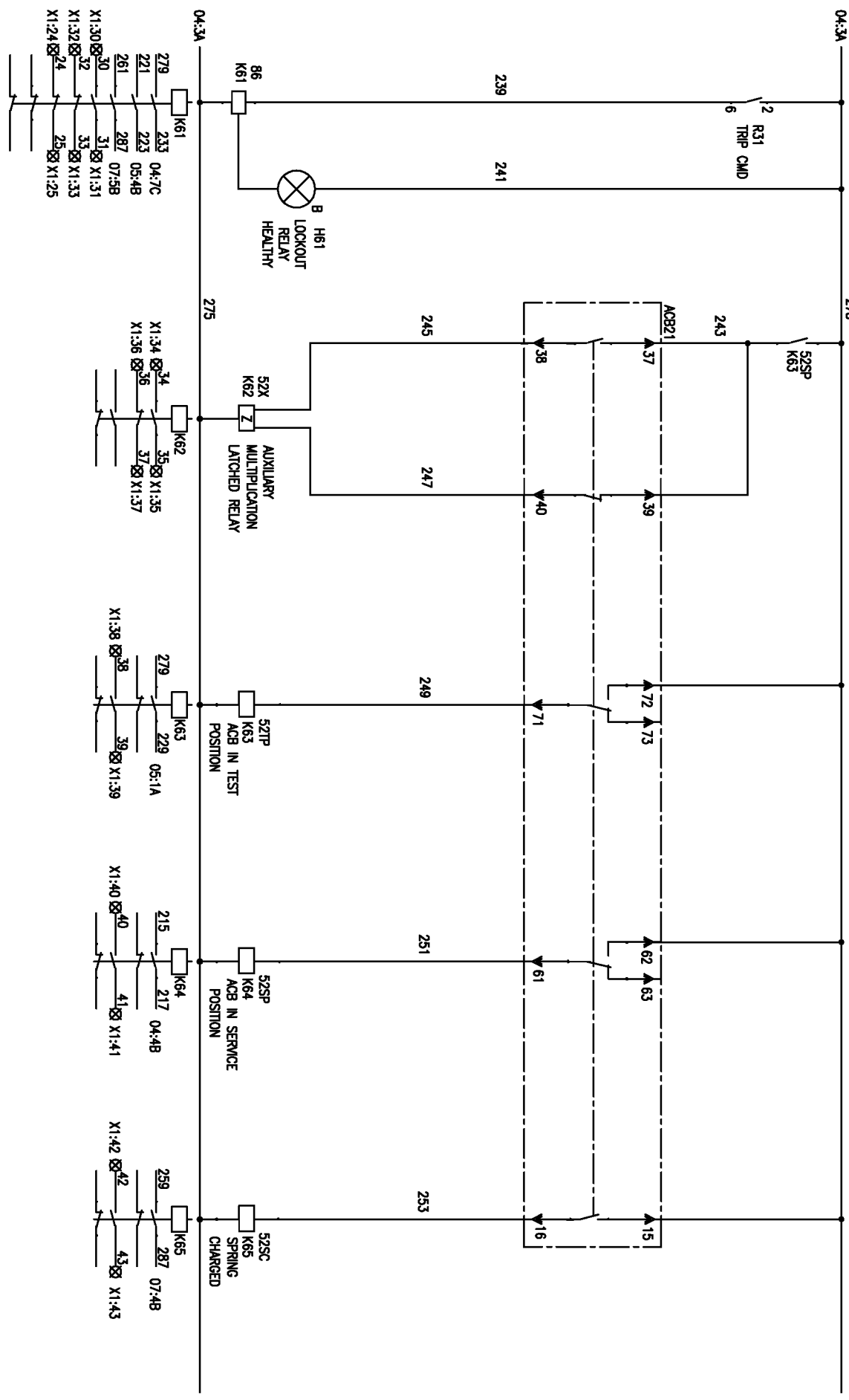
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REV. NO.

00

1 2 3 4 5 6 7 8

RELAY CIRCUIT

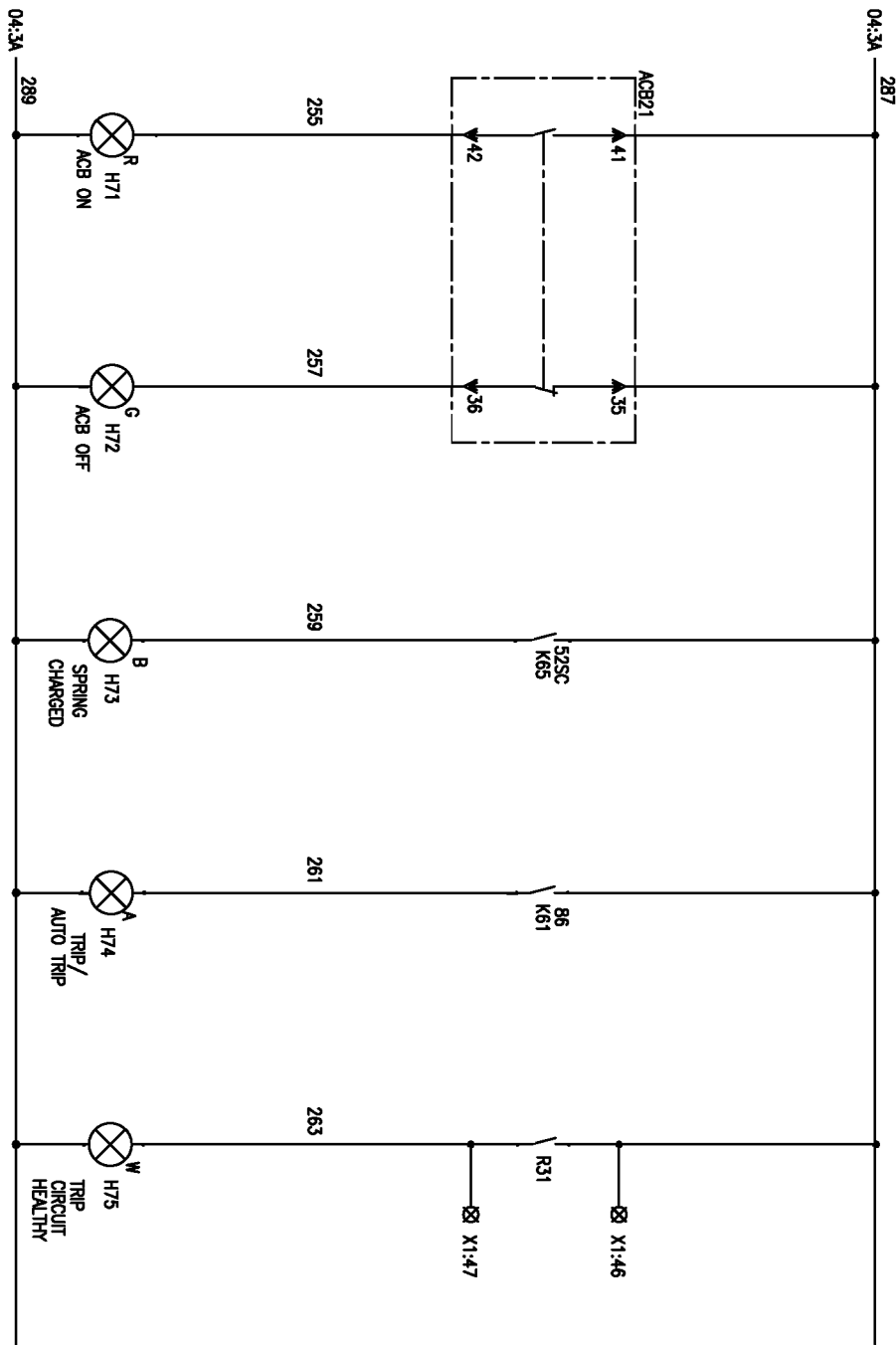


FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

INDICATION CIRCUIT



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DRG. NO. EP-3-CS-107-004

INVENTORY NO.

REV. NO.	1
DATE	
DESCRIPTION	

BY	APPD.	APPROVED	KSB
DESIGNED	JAGADISH	28.08.14	
DRAWN		28.08.14	
CHECKED	TRINATH	28.08.14	

NAME	SIGN.	DATE
JAGADISH	<i>[Signature]</i>	28.08.14
TRINATH	<i>[Signature]</i>	28.08.14

SCALE: NA

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
**POWER & CONTROL SCHEME**  
PMCC/MCC INCOMER-1

JOB NO. CR-13-020      DRG. NO. EP-3-CS-107-004

NO. OF SHEETS	08
SHEET NO.	07
REV.	00



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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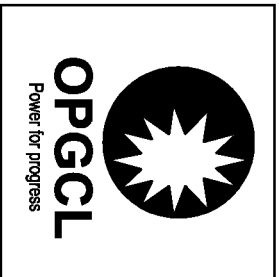
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED

BANHARPALL, JHARSUGUDA

ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-107-005

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	NAME	SIGN.	DATE
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3				DESIGNED			JAGADISH		28.08.14
2				DRAWN					
1				CHECKED			TRINATH		28.08.14

DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCELAIN DIVISION BANGALORE

TITLE :  
POWER & CONTROL SCHEME  
PMCC/MCC INCOMER-2

JOB NO. CR-13-020 DRG. NO. EP-3-CS-107-005



NO. OF SHEETS 08

SHEET NO. 01

REV. 00

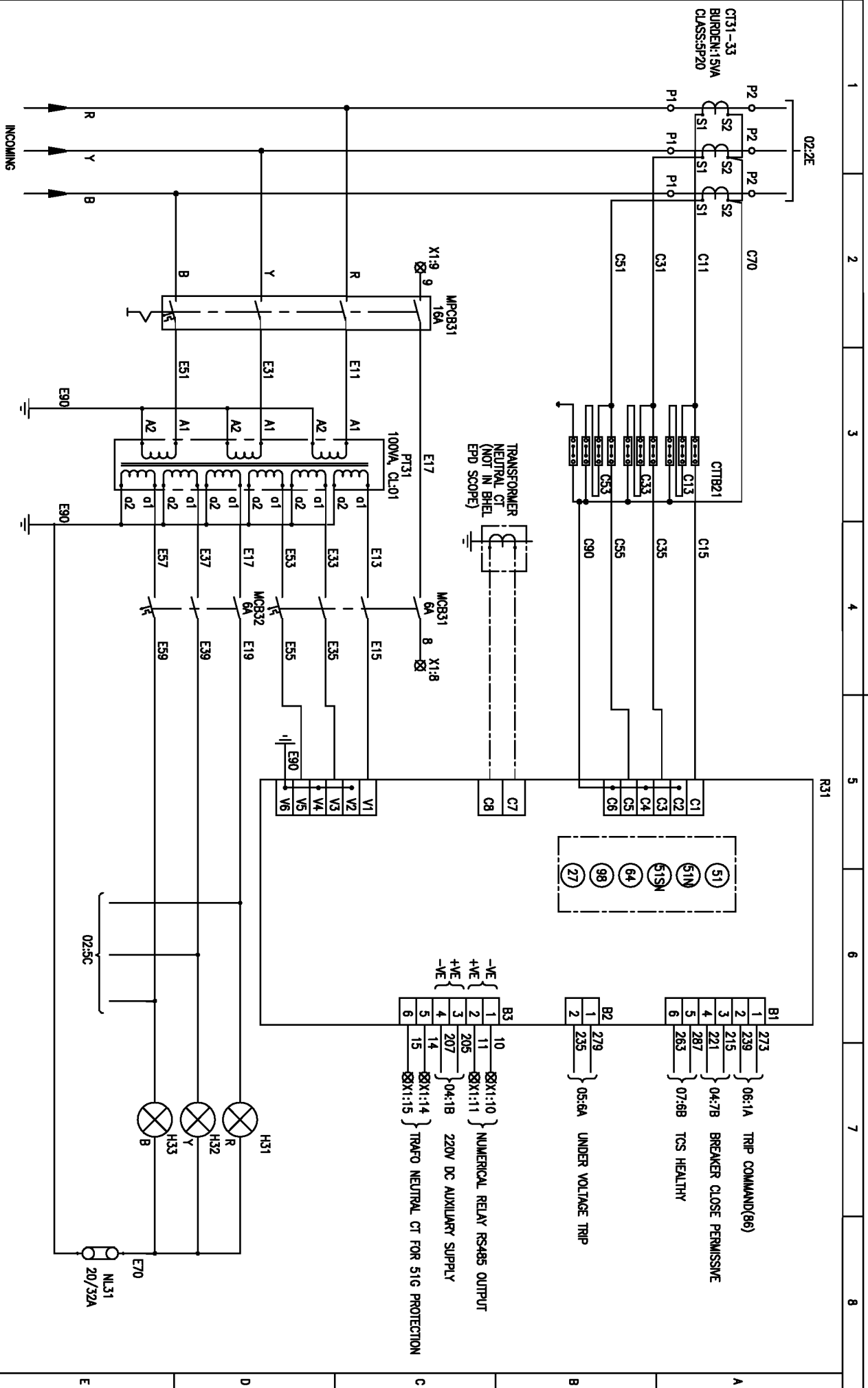
FORM 66-271 A3



DRG. NO. EP-3-CS-107-005

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

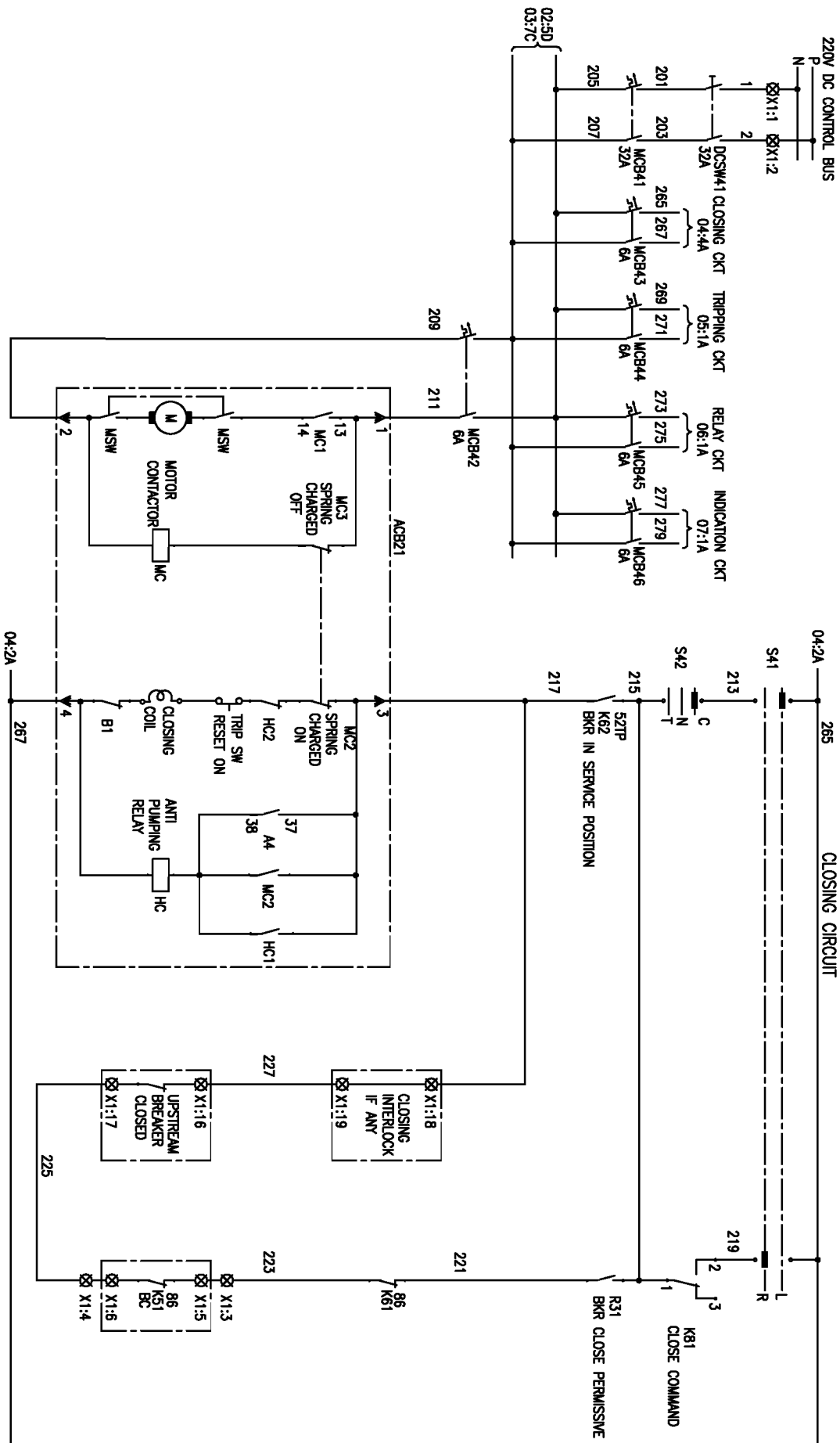


INVENTORY NO.	4	3	2	1
REV. NO.				
DATE				
DESCRIPTION				
BY				
APPD.				
APPROVED				
KSB				
NAME				
SIGN.				
DATE				
DESIGNED	JAGADISH	28.08.14		
DRAWN				
CHECKED	TRINATH	28.08.14		
SCALE	VA			
JOB NO.	CR-13-020			
DRG. NO.	EP-3-CS-107-005			
TITLE	BHARAT HEAVY ELECTRICALS LIMITED ELECTROPROCELAIN DIVISION BANGALORE POWER & CONTROL SCHEME PMCC/MCC INCOMER-2			
NO. OF SHEETS	08			
SHEET NO.	03			
REV.	00			

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DRG. NO. EP-3-CS-107-005

FORM 66-271 A3



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-005	NO. OF SHEETS	SHEET NO.	REV.
1										08	04	00
2												
3												
4												

**BHARAT HEAVY ELECTRICALS LIMITED**  
 ELECTROPROCESSING DIVISION BANGALORE

**POWER & CONTROL SCHEME**  
 PMCC/MCC INCOMER-2

TITLE :



DATE: 28.08.14  
 DESIGNED: JAGADISH  
 DRAWN:  
 CHECKED: TRINATH  
 BY: KSB



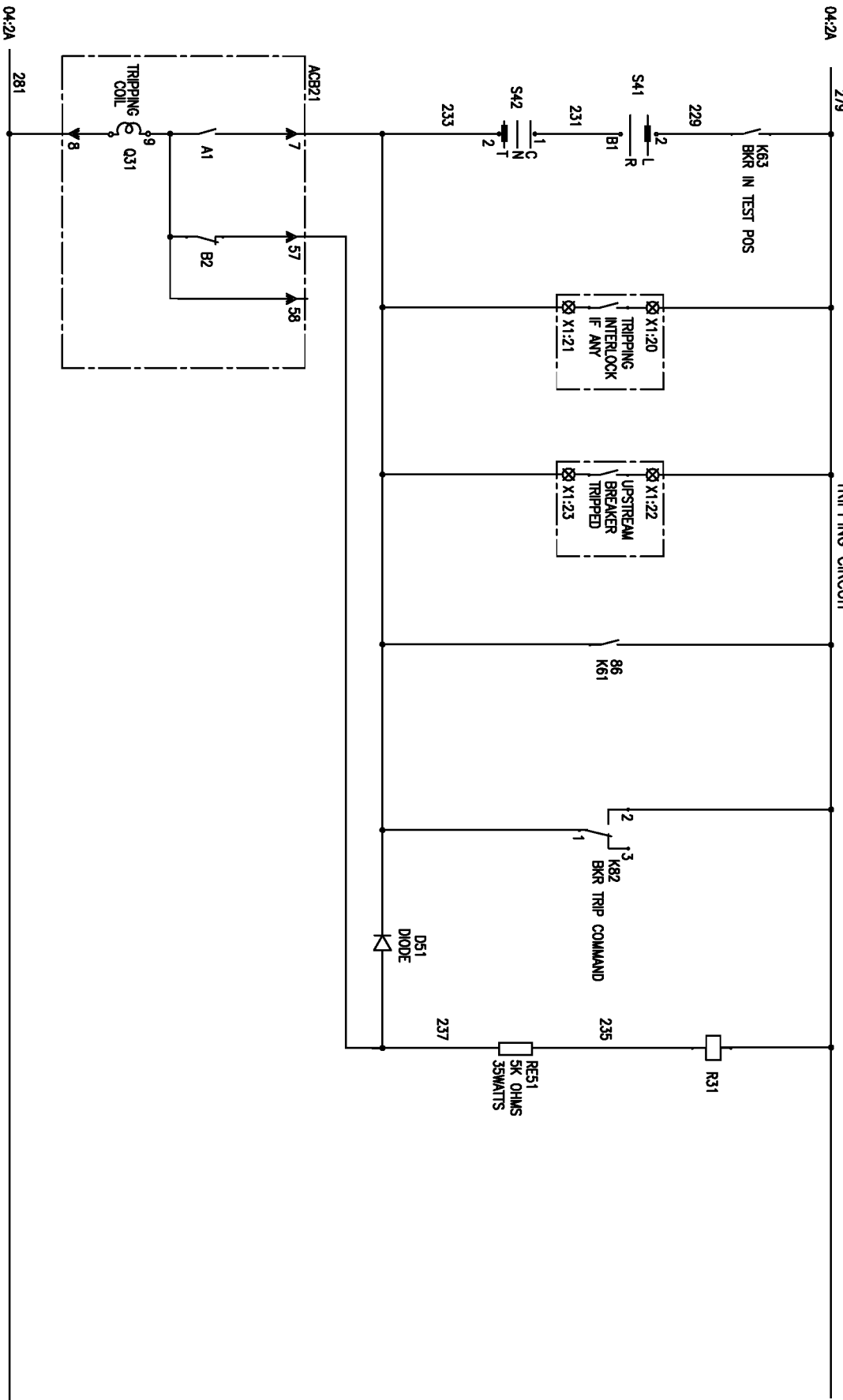
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

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DRG. NO. EP-3-CS-107-005



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-005	NO. OF SHEETS	NO. OF SHEETS	REV.
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2					DRAWN									
3					DESIGNED	JAGADISH		28.08.14						
4														

FORM 66-271 A3

BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
POWER & CONTROL SCHEME  
PMCC/MCC INCOMER-2



NO. OF SHEETS  
08

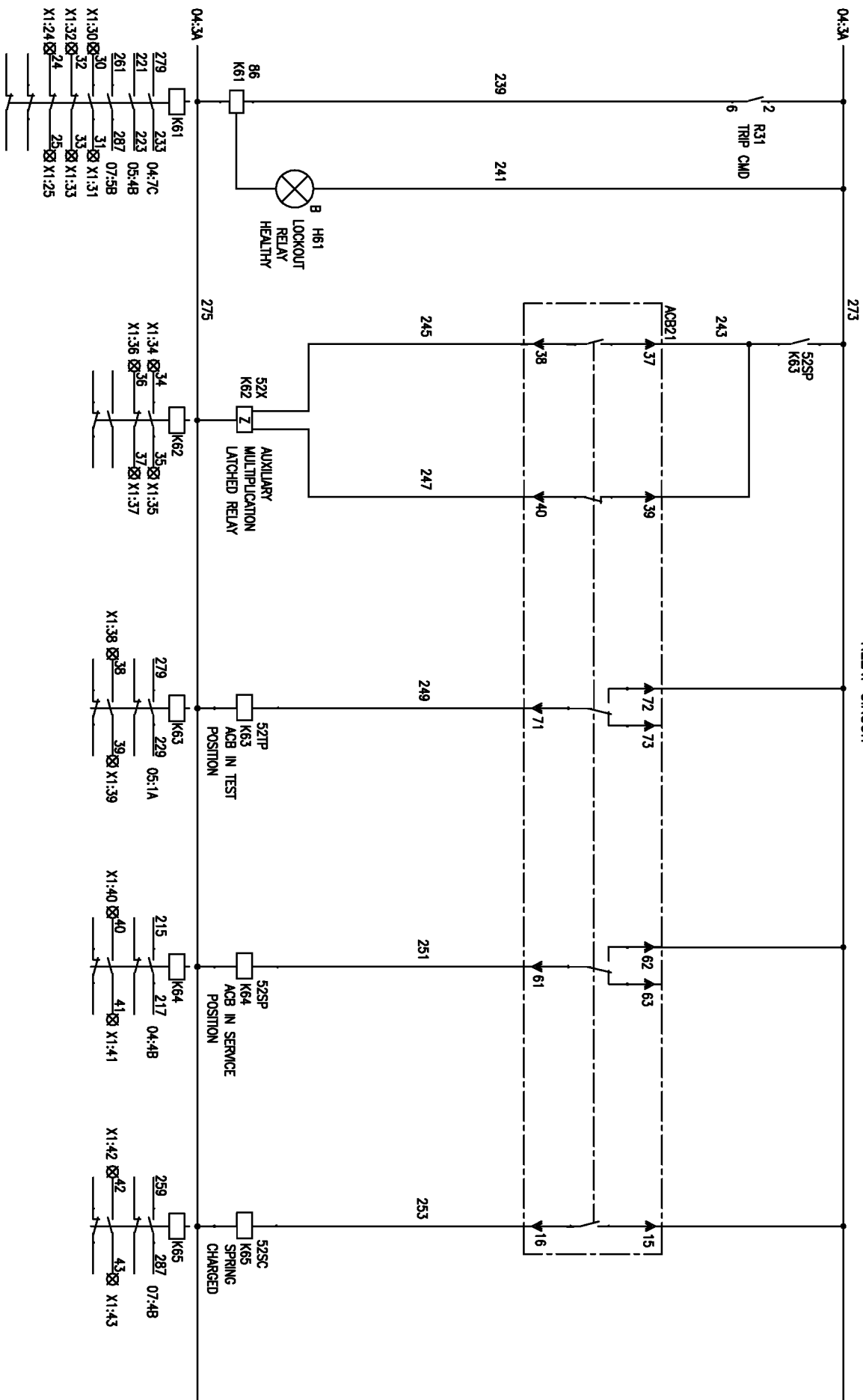
NO. OF SHEETS  
05

REV.  
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1 2 3 4 5 6 7 8

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DRG. NO. EP-3-CS-107-005







FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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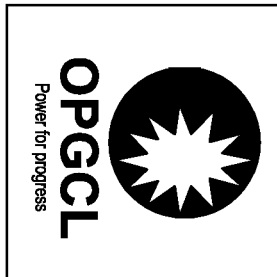
5

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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALL, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:



DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

DRG. NO. EP-3-CS-107-012

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INVENTORY NO.	REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-012	NO. OF SHEETS	NO. OF SHEETS	REV.
4															
3						DESIGNED	JAGADISH		28.08.14				08		08
2						DRAWN									
1						CHECKED	TRINATH		28.08.14				01		01

BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
 POWER & CONTROL SCHEME  
 EMERGENCY MCC NORMAL INCOMER-2



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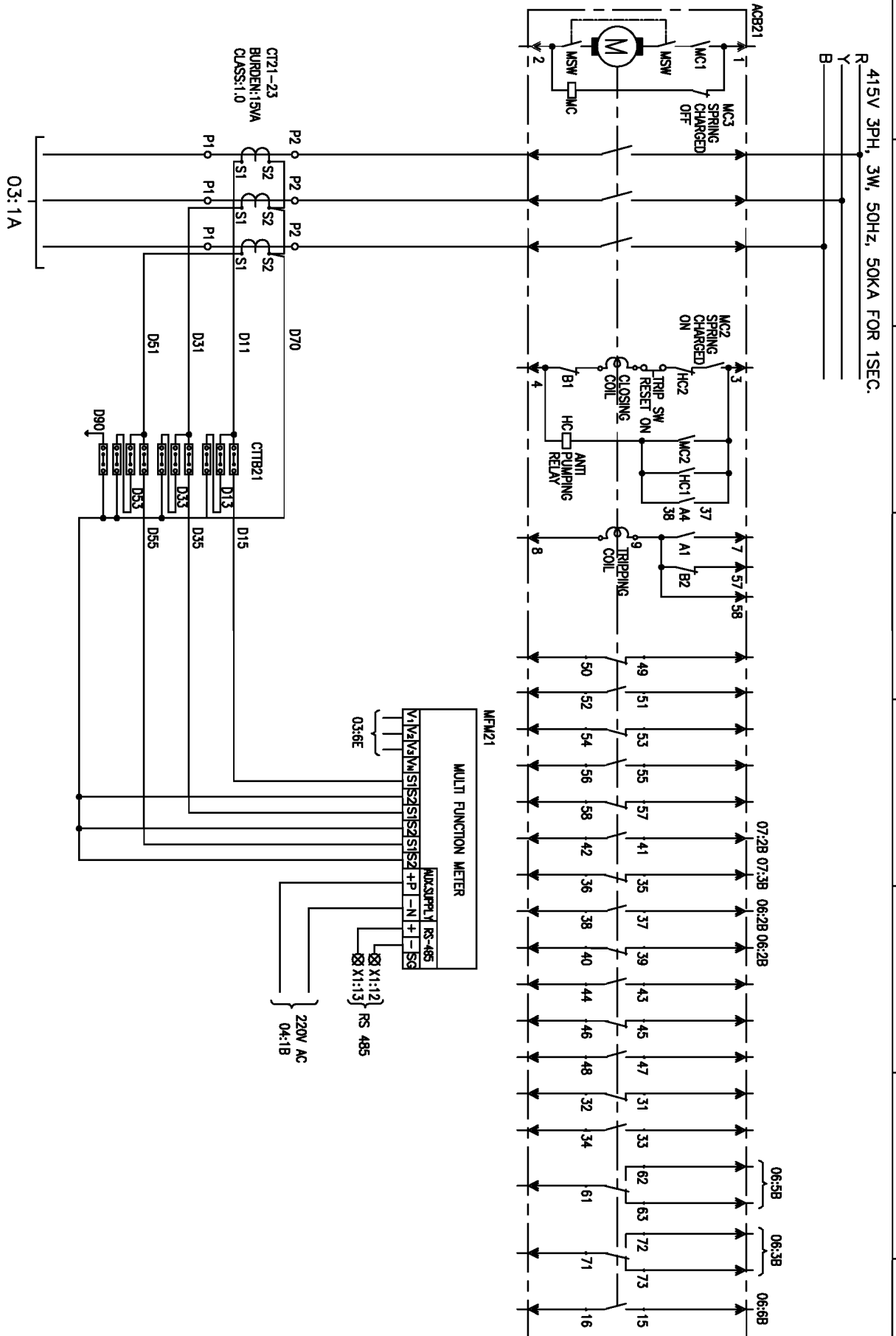
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DRG. NO. EP-3-CS-107-012

FORM 66-271 A3

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-012	NO. OF SHEETS	NO. OF SHEETS	REV.
1										08	02	00
2												
3												
4												

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
**POWER & CONTROL SCHEME**  
EMERGENCY MCC NORMAL INCOMER-2



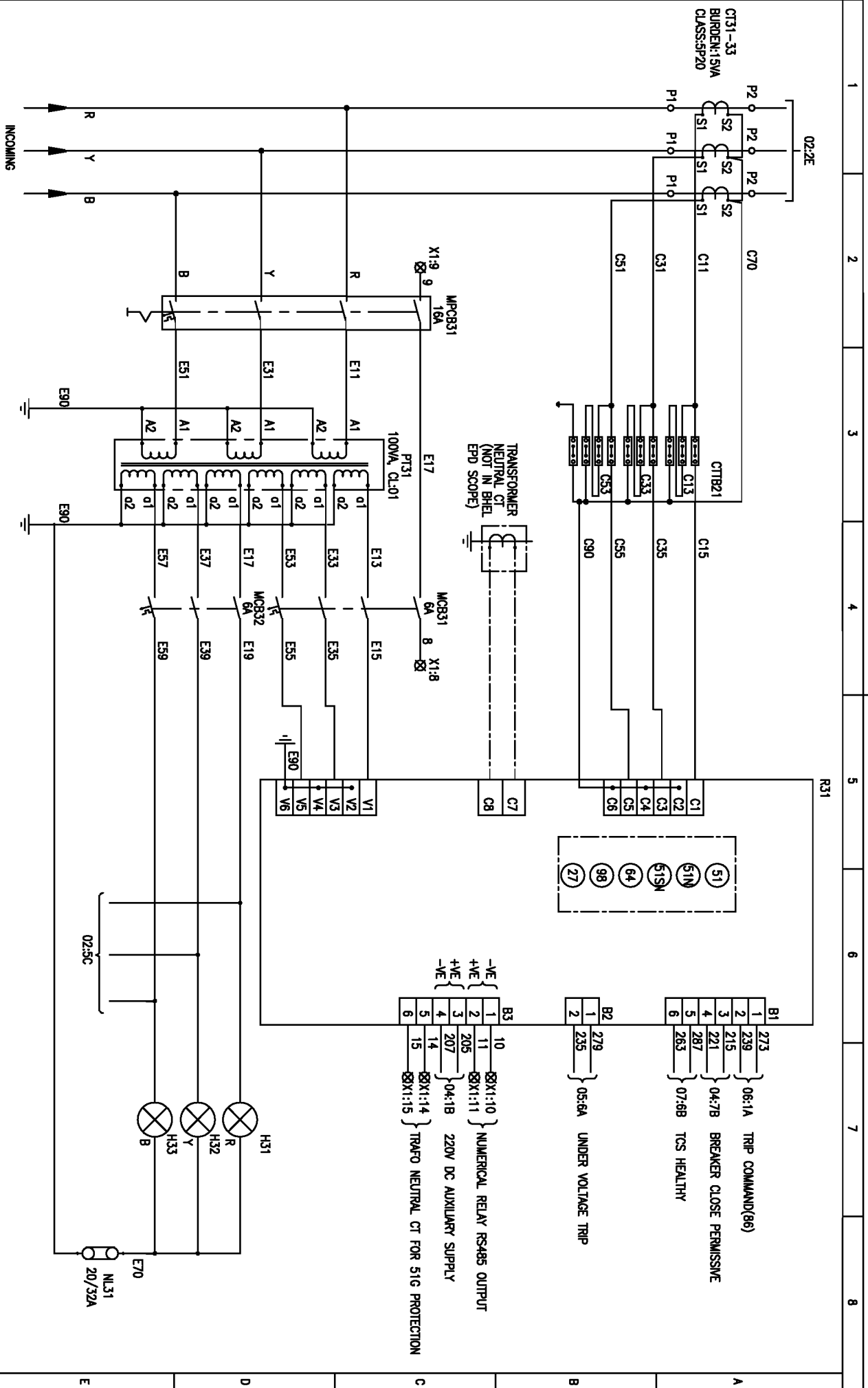
NO. OF SHEETS: 08  
SHEET NO.: 02

DRG. NO. EP-3-CS-107-012

FORM 66-271 A3

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



INVENTORY NO.	REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-012
4												
3												
2												
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NO. OF SHEETS	SHEET NO.	REV.
08	03	00

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCESSING DIVISION BANGALORE

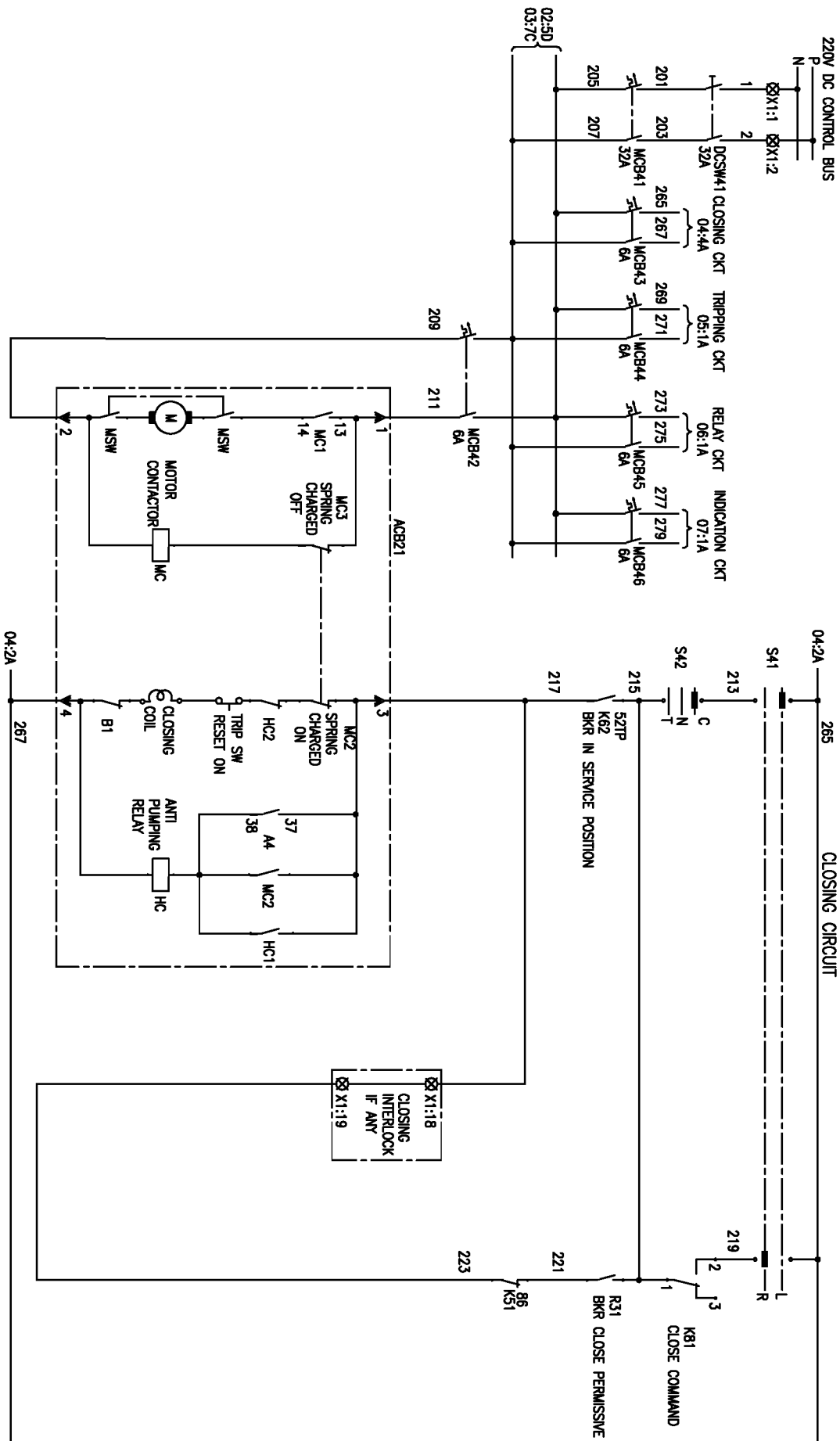
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**POWER & CONTROL SCHEME**  
EMERGENCY MCC NORMAL INCOMER-2



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DRG. NO. EP-3-CS-107-012

FORM 66-271 A3



INVENTORY NO.

REV. NO.	DATE	DESCRIPTION
1		
2		
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BY

APPD.

APPROVED

KSB

SCALE: NA

JOB NO. CR-13-020

DRG. NO. EP-3-CS-107-012

BHARAT HEAVY ELECTRICALS LIMITED

ELECTROPROCESSING DIVISION BANGALORE

POWER & CONTROL SCHEME

EMERGENCY MCC NORMAL INCOMER-2

NO. OF SHEETS 08

SHEET NO. 04

REV. NO. 00

DATE 28.08.14

DESIGNED JAGADISH

DRAWN

CHECKED TRINATH

DATE 28.08.14

SIGN.

DATE 28.08.14

DATE 28.08.14

DATE 28.08.14

DATE 28.08.14

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DATE 28.08.14

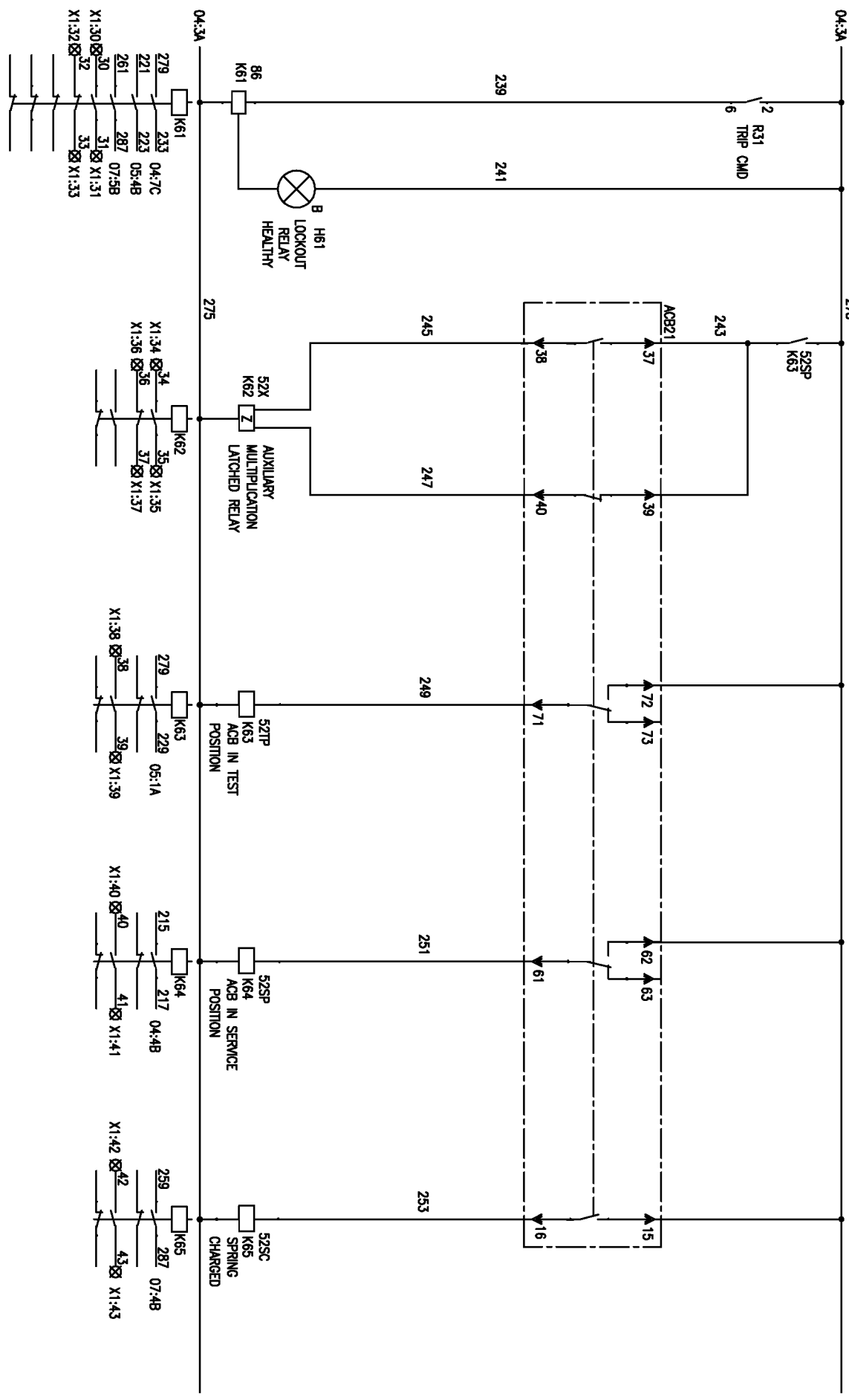
DATE 28.08.14

DATE 28.08.14



1 2 3 4 5 6 7 8

RELAY CIRCUIT



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DRG. NO. EP-3-CS-107-012

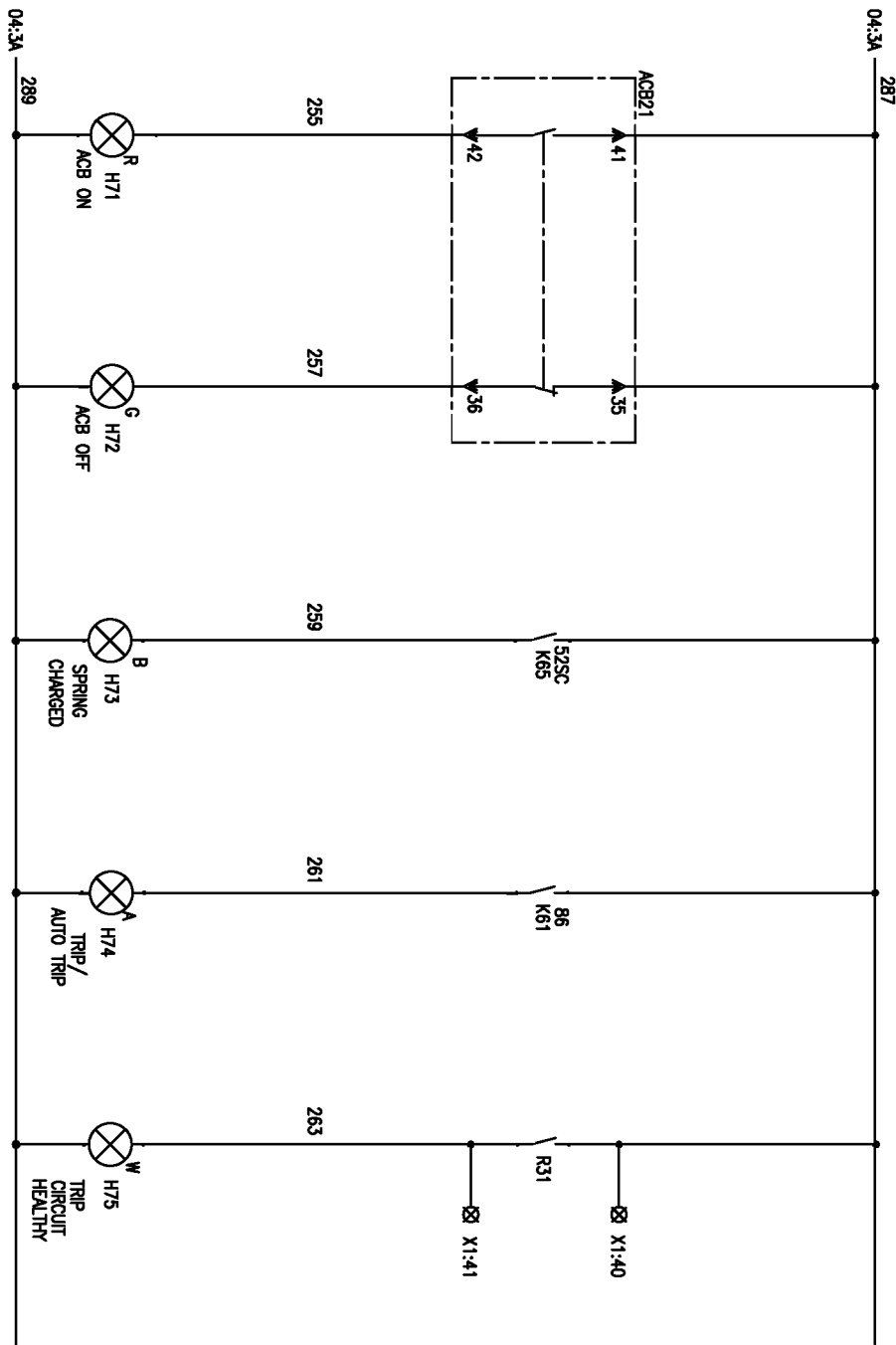
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4																	
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2																	
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REV. NO.	DATE	DESCRIPTION	NAME	SIGN.	DATE	SCALE: NA	TITLE:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:	NO. OF SHEETS:
1			JAGADISH		28.08.14		POWER & CONTROL SCHEME	08	08	08	08	08	08	08	08	08	08
2							EMERGENCY MCC NORMAL INCOMER-2	06	06	06	06	06	06	06	06	06	06
3																	
4																	

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

INDICATION CIRCUIT



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DRG. NO. EP-3-CS-107-012

INVENTORY NO.

REV. NO.	1
DATE	
DESCRIPTION	

BY	
APPD.	
APPROVED	
NAME	
SIGN.	
DATE	

DESIGNED	JAGADISH	28.08.14
DRAWN		
CHECKED	TRINATH	28.08.14
KSB		



SCALE: NA

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCESSING DIVISION BANGALORE  
POWER & CONTROL SCHEME  
EMERGENCY MCC NORMAL INCOMER-2

JOB NO.	CR-13-020
DRG. NO.	EP-3-CS-107-012
NO. OF SHEETS	08
SHEET NO.	07
REV.	00

FORM 66-271 A3

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

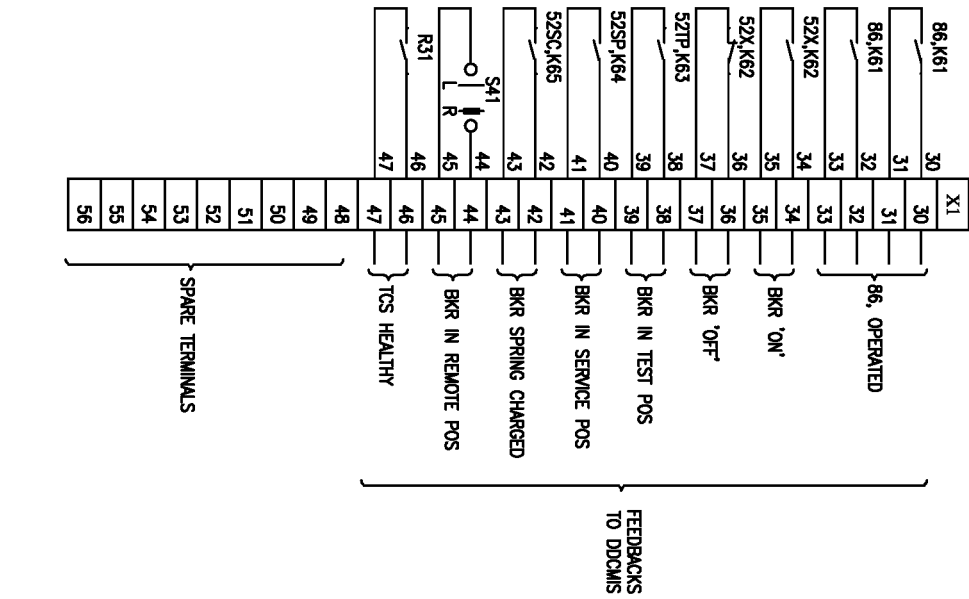
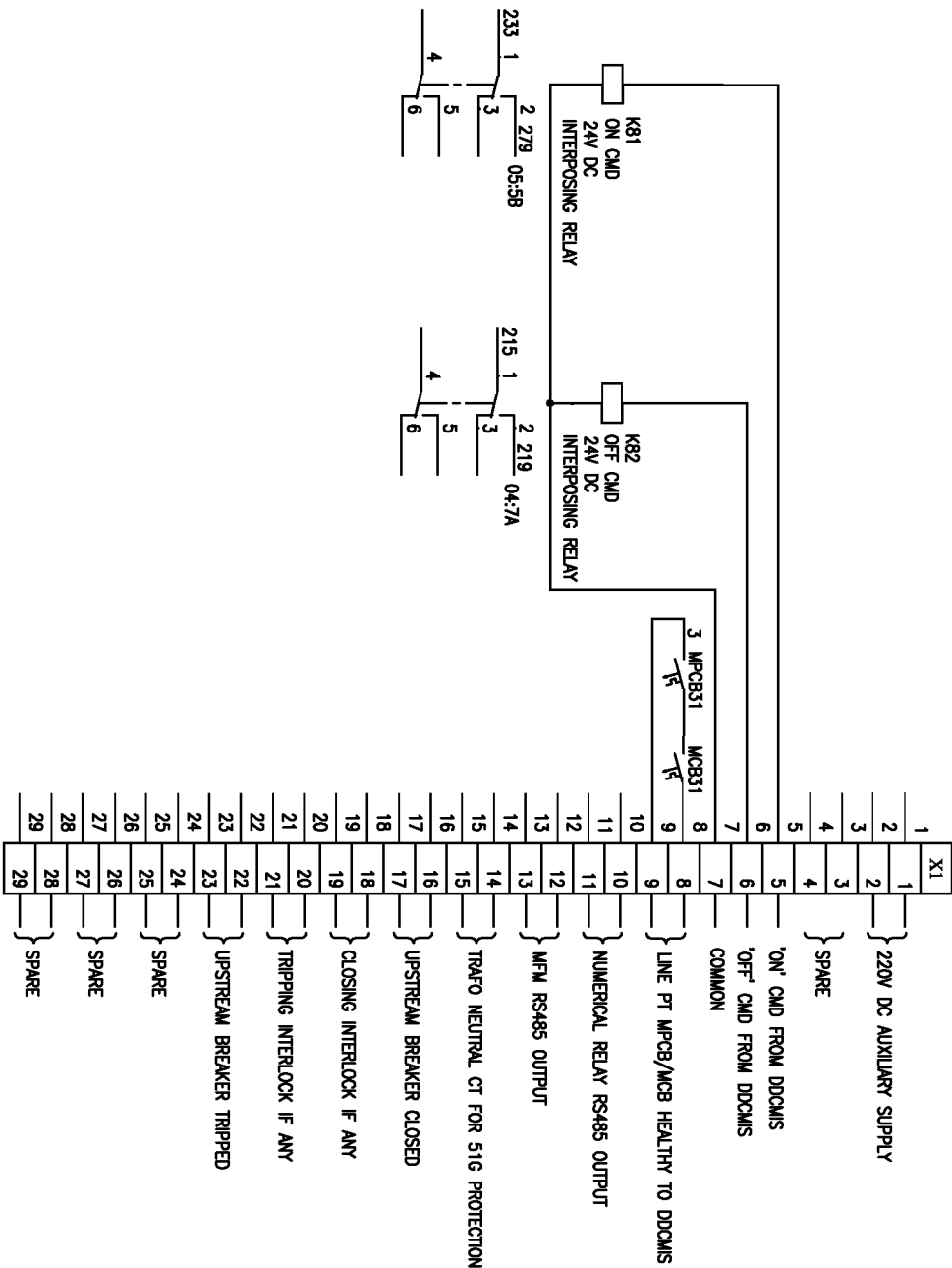
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DRG. NO. EP-3-CS-107-012

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-012	NO. OF SHEETS	NO. OF SHEETS	REV.
1					CHECKED	TRINATH	28.08.14				08	08	08
2					DRAWN								
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4													



BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
POWER & CONTROL SCHEME  
EMERGENCY MCC NORMAL INCOMER-2



FORM 66-271 A3

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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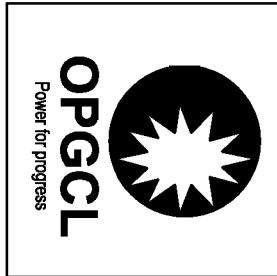
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALL, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

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DRG. NO. EP-3-CS-107-017

DRG. NO.

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	NAME	SIGN.	DATE
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3					DESIGNED		JAGADISH		04.08.14
2					DRAWN				
1					CHECKED		TRINATH		04.08.14

DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA



CUSTOMER CONSULTANT:



BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCELAIN DIVISION BANGALORE

TITLE :  
 POWER SCHEME  
 FSU OUTGOING  
 TYPE: EX(O/G)

JOB NO. CR-13-020 DRG. NO. EP-3-CS-020-017



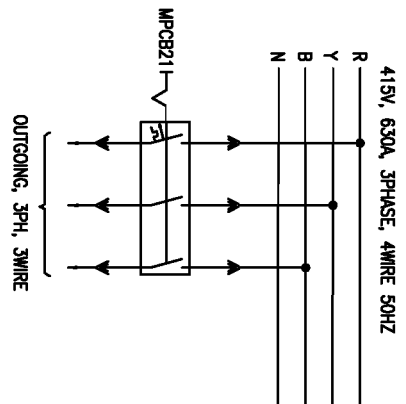
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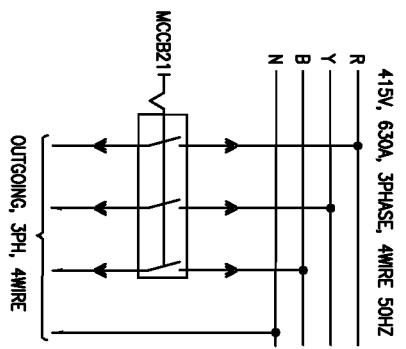
REV. 00

FIRST ANGLE PROJECTION

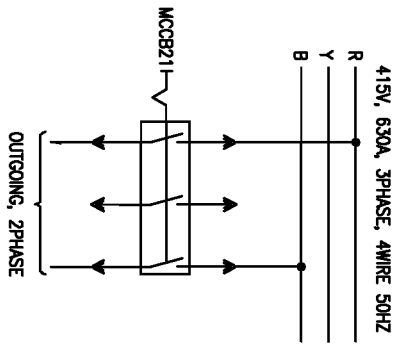
ALL DIMENSIONS ARE IN MM.



SCHEME-1



SCHEME-2



SCHEME-3

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DRG. NO. EP-3-CS-107-017

LIST OF FEEDERS

SL. NO.	DESCRIPTION/LABEL INSCRIPTION	FEEDER RATING	MCCB RATING	MPCB RATING	SCHEME NO.
1	REMOTE CONTROL PANEL	3KW		63A	SCHEME-1
2	ELECTRICALLY OPERATED HOIST	7.5KW		125A	SCHEME-1
3	ALP	1KW		63A	SCHEME-1
4	VFD FEEDER		250A		SCHEME-2
5	ESP & ID FAN AREA MCC		250A		SCHEME-2
6	ELECTRONIC CONTROLLER	158A	400A		SCHEME-3

SL. NO.	DESCRIPTION	CONNECTED TO BUS-A	CONNECTED TO BUS-B
1	ELECTRONIC CONTROLLER-1	RY	RY
2	ELECTRONIC CONTROLLER-2	YB	YB
3	ELECTRONIC CONTROLLER-3	BR	BR
4	ELECTRONIC CONTROLLER-4	RY	RY
5	ELECTRONIC CONTROLLER-5	YB	YB
6	ELECTRONIC CONTROLLER-6	BR	BR
7	ELECTRONIC CONTROLLER-7	RY	RY
8	ELECTRONIC CONTROLLER-8	YB	YB
9	ELECTRONIC CONTROLLER-9	BR	BR
10	ELECTRONIC CONTROLLER-10	RY	RY

INVENTORY NO.		DRG. NO.		BY		APPD.		APPROVED		KSB		DATE		SCALE: NA		JOB NO. CR-13-020		DRG. NO. EP-3-CS-107-017		REV. 00	
4																					
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2																					
1																					
REV. NO.	DATE	DESCRIPTION																			



BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCESSING DIVISION BANGALORE

TITLE: POWER SCHEME  
FSU OUTGOING  
TYPE: E3(0/6)

NO. OF SHEETS: 02  
SHEET NO.: 02

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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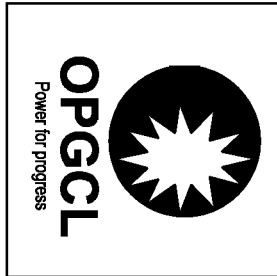
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CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALL, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:

DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA



DRG. NO. EP-3-CS-107-036

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REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	NAME	SIGN.	DATE
4									
3				DESIGNED			JAGADISH		06.07.14
2				DRAWN					
1				CHECKED			TRINATH		06.07.14



BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCESSING DIVISION BANGALORE

220V DC CONTROL SUPPLY

TITLE :

JOB NO. CR-13-020

DRG. NO. EP-3-CS-107-036



NO. OF SHEETS 02

SHEET NO. 01

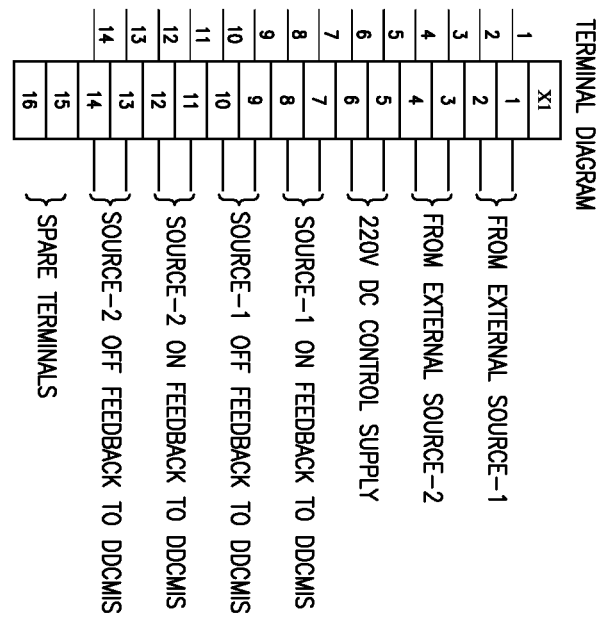
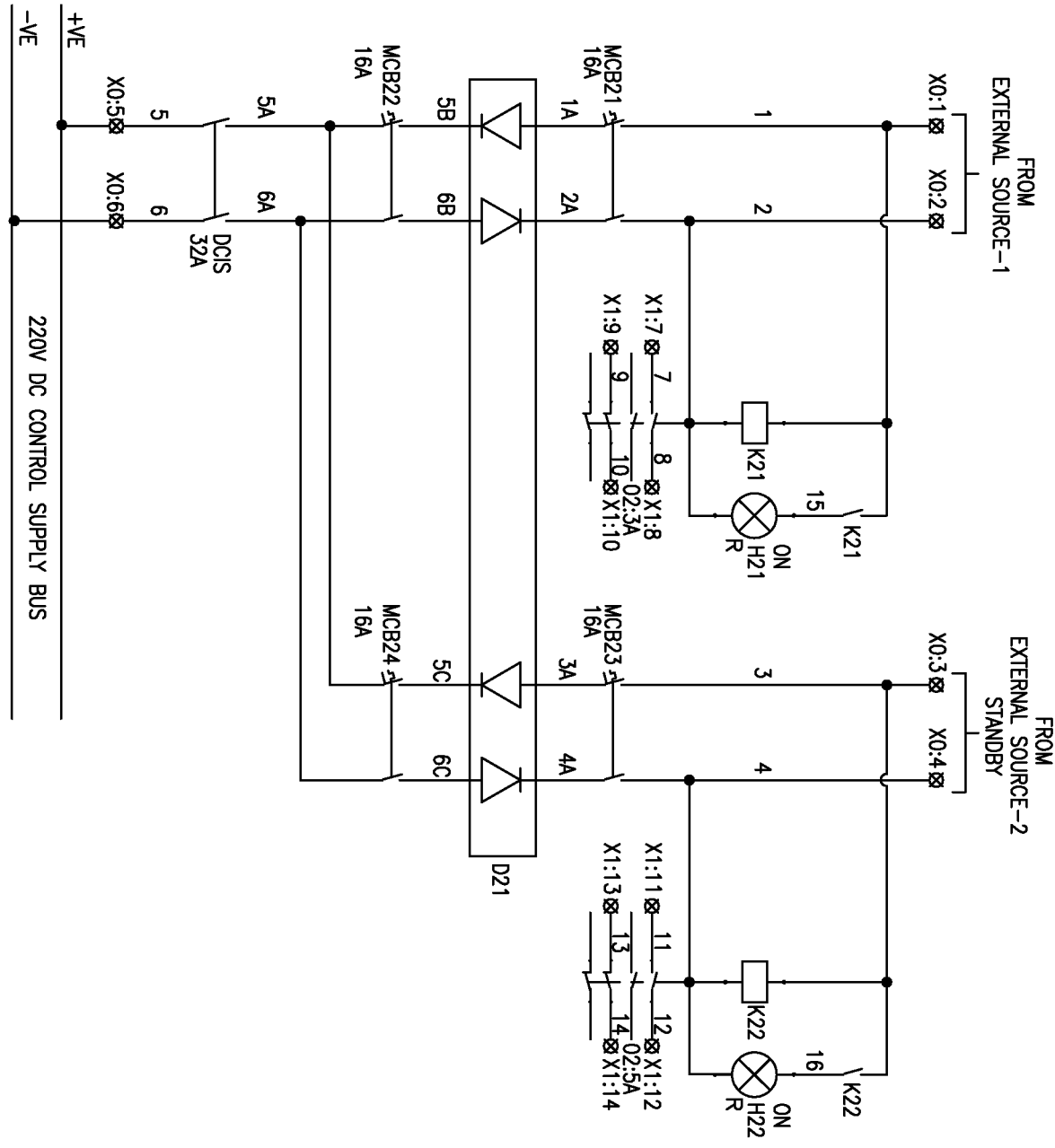
REV. 00

FIRST ANGLE PROJECTION

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DRG. NO. EP-3-CS-107-036



INVENTORY NO.		DRG. NO. EP-3-CS-107-036	
REV. NO.	DATE	DESCRIPTION	BY
1			
2			
3			
4			
NAME		SIGN.	
DESIGNED		DATE	
DRAWN		DATE	
CHECKED		DATE	
APPROVED		DATE	
APPD.		APPROVED	
KSB		KSB	
SCALE: NA		JOB NO. CR-13-020	
DRG. NO. EP-3-CS-107-036		TITLE: 220V DC CONTROL SUPPLY	
NO. OF SHEETS: 02		NO. OF SHEETS: 02	
REV. NO. 00		REV. NO. 00	

FORM 66-271 A3

**BHARAT HEAVY ELECTRICALS LIMITED**  
 ELECTROPROCESSING DIVISION BANGALORE

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

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DRG. NO. EP-3-CS-107-037



CUSTOMER:

ODISHA POWER GENERATION CORPORATION LIMITED  
BANHARPALL, JHARSUGUDA  
ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:



DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	NAME	SIGN.	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-037	NO. OF SHEETS	NO.	REV.
4													02		00
3				DESIGNED			JAGADISH		06.07.14				01		
2				DRAWN											
1				CHECKED			TRINATH		06.07.14						

BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCELAIN DIVISION BANGALORE

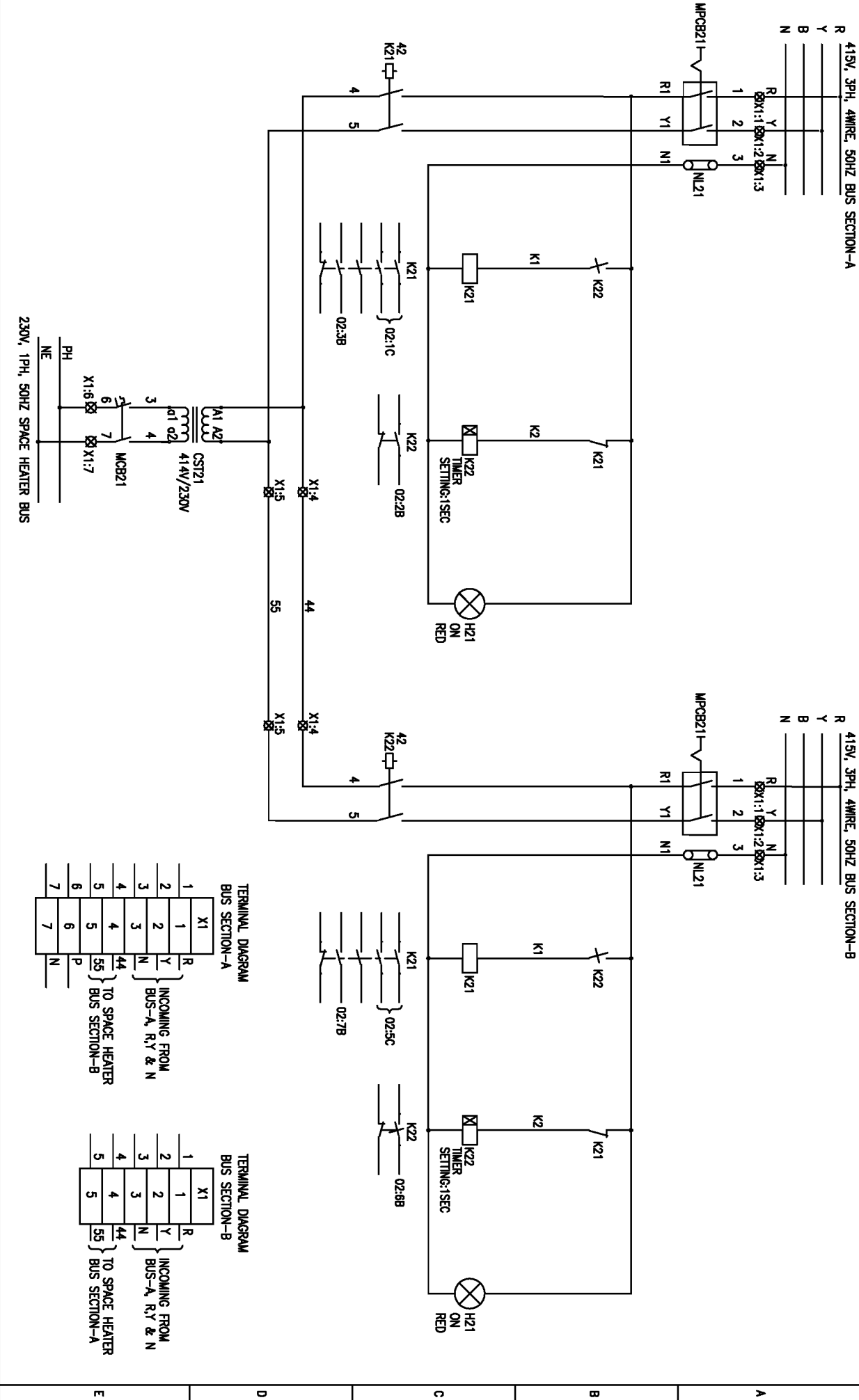
SPACE HEATER SUPPLY SCHEME MODULE-HHRT

FIRST ANGLE PROJECTION

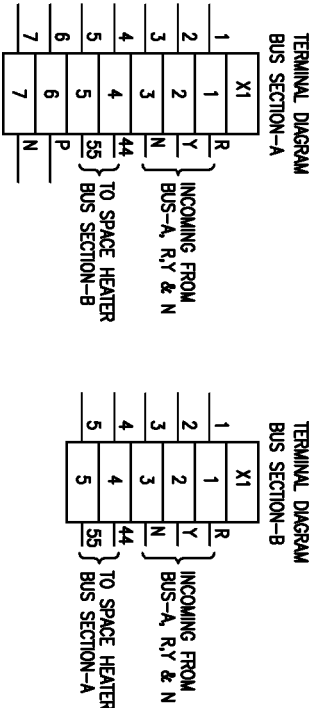
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DRG. NO. EP-3-CS-107-037



230V, 1PH, 50HZ SPACE HEATER BUS



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	SCALE: NA	JOB NO. CP-13-107	DRG. NO. EP-3-CS-107-037	NO. OF SHEETS	SHEET NO.	REV. NO.
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3					DESIGNED	JAGADISH	06.07.14					
4												

FORM 66-271 A3

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCESSING DIVISION BANGALORE

SPACE HEATER SUPPLY MODULE-HHRT



FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

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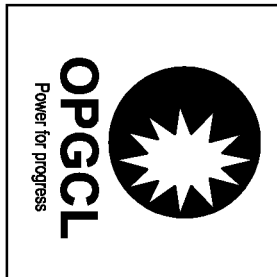
5

6

7

8

CUSTOMER:



ODISHA POWER GENERATION CORPORATION LIMITED  
 BANHARPALL, JHARSUGUDA  
 ORISSA-768234, INDIA

PROJECT:

2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:



DEVELOPMENT CONSULTANT PVT LTD  
 KOLKATA

DRG. NO. EP-3-CS-107-038

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REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	NAME	SIGN.	DATE
4									
3				DESIGNED			JAGADISH		06.07.14
2				DRAWN					
1				CHECKED			TRINATH		06.07.14



BHARAT HEAVY ELECTRICALS LIMITED  
 ELECTROPROCELAIN DIVISION BANGALORE

TITLE :  
 SPACE HEATER, PANEL ILLUMINATION & POWER SOCKET

JOB NO. CR-13-020

DRG. NO. EP-3-CS-107-038

NO. OF SHEETS: 02  
 SHEET NO.: 01

REV. 00

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

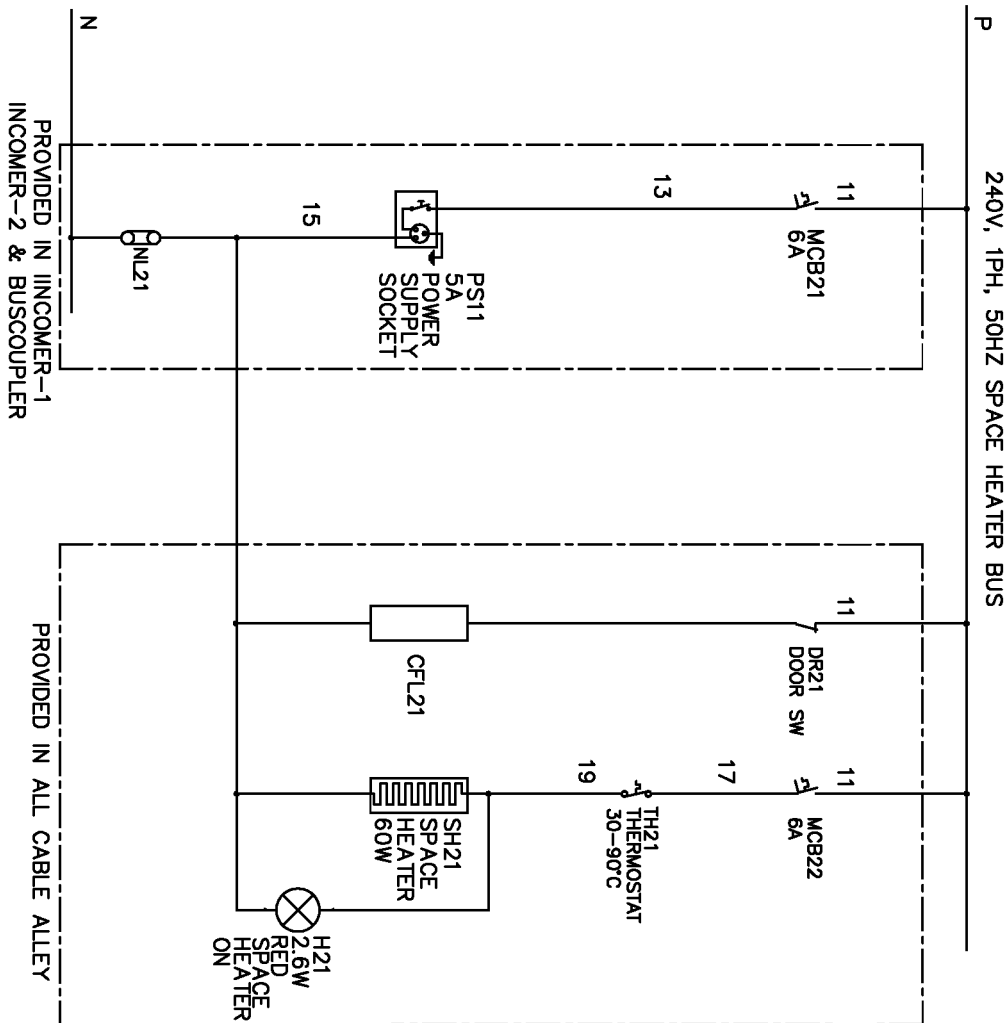
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DRG. NO. EP-3-CS-107-038

INVENTORY NO.

REV. NO.	1
DATE	
DESCRIPTION	



DESCRIPTION

BY

APPD.

APPROVED

CHECKED

DESIGNED

NAME

SIGN.

DATE

06.07.14

06.07.14

06.07.14

SCALE: NA

JOB NO. CR-13-020

DRG. NO. EP-3-CS-107-038

TITLE :

SPACE HEATER, PANEL ILLUMINATION & POWER SOCKET

NO. OF SHEETS

02

SHEET NO.

02

REV.

00

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCERAIN DIVISION BANGALORE



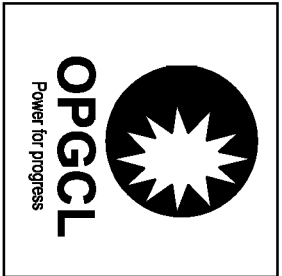
FIRST ANGLE PROJECTION

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

DRG. NO. EP-3-CS-107-039



ODISHA POWER GENERATION CORPORATION LIMITED  
BANHARPALL, JHARSUGUDA  
ORISSA-768234, INDIA

PROJECT:  
2x660 MW UNITS 3&4 IB THERMAL POWER STATION

CUSTOMER CONSULTANT:  
  
DEVELOPMENT CONSULTANT PVT LTD  
KOLKATA

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	KSB	NAME	SIGN.	DATE
4									
3				DESIGNED			JAGADISH		06.07.14
2				DRAWN					
1				CHECKED			TRINATH		06.07.14



BHARAT HEAVY ELECTRICALS LIMITED  
ELECTROPROCESSING DIVISION BANGALORE

TITLE :  
VOLTAGE MONITORING

JOB NO. CR-13-020  
DRG. NO. EP-3-CS-107-039

NO. OF SHEETS: 02  
SHEET NO.: 01

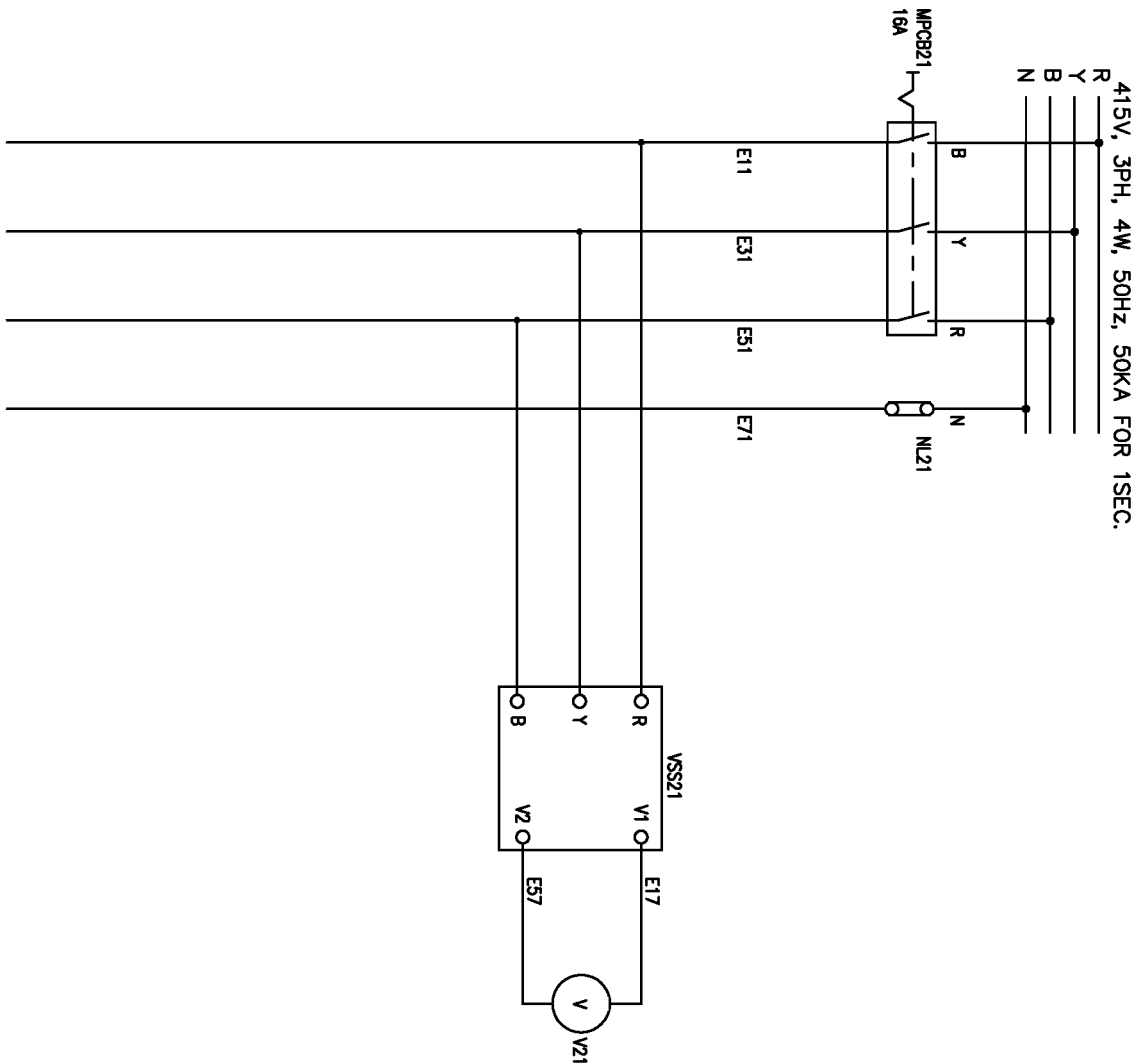
FIRST ANGLE PROJECTION

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DRG. NO. EP-3-CS-107-039



REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE	SCALE: NA	JOB NO. CR-13-020	DRG. NO. EP-3-CS-107-039	NO. OF SHEETS	SHEET NO.	REV.
1					CHECKED	TRINATH		06.07.14				02	02	00
2					DRAWN	JAGADISH		06.07.14						
3					DESIGNED	JAGADISH		06.07.14						
4														



**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTROPROCESSING DIVISION BANGALORE

VOLTAGE MONITORING

FORM 66-271 A3