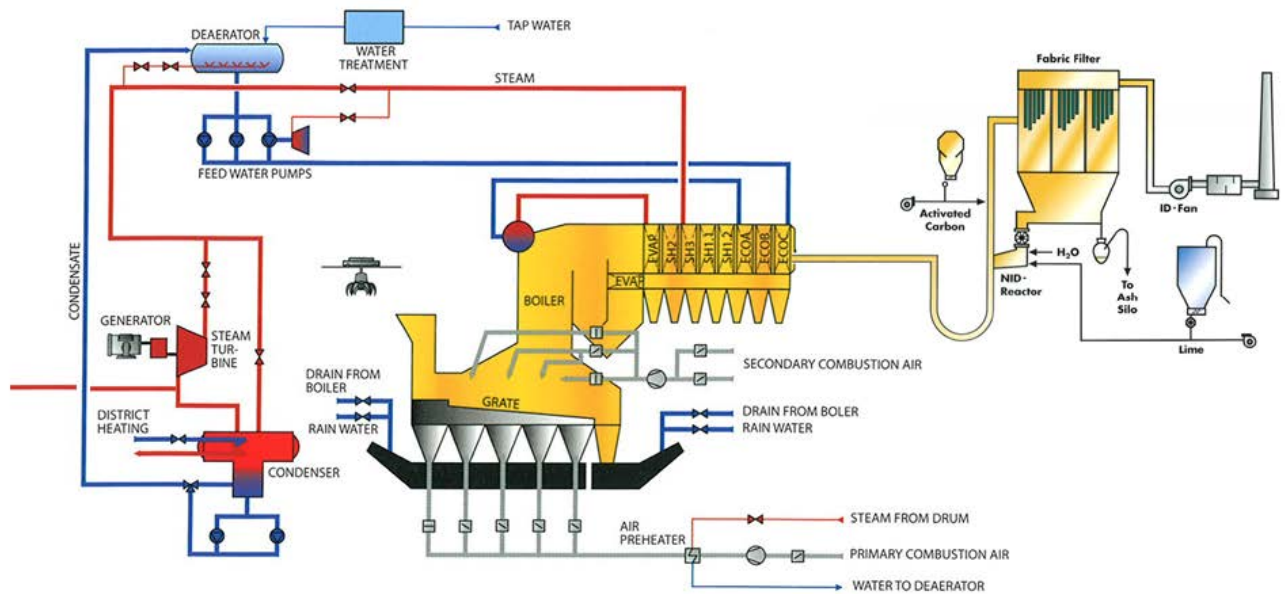


# Forberedelse til høstprøve

3AUA Gand VGS



## Bioenergianlegget as

Anlegget er et søppelforbrenningsanlegg der damp (steam) og varmt vann genereres. Dampen benyttes til å drive en dampturbin (steam turbin) som genererer elektrisk energi som leveres til strømmettet, direkte leveranse av damp til nærliggende abonnenter samt som varmekilde til fjernvarmeanlegg (district heating).

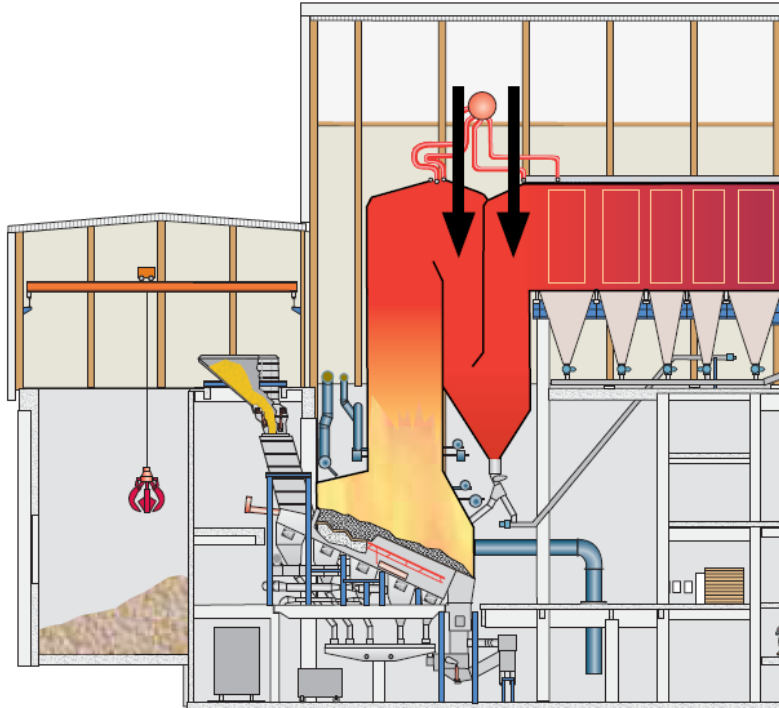
Søppelet tømmes i mottakshallen der det homogeniseres vha to automatisk styrte kraner og prosessoperatør. Homogenisert søppel tilføres forbrenningsovnen vha av kran. Mengden søppel som til en hver tid kjøres gjennom forbrenningsovnen (grate/boiler) bestemmes av dampbehovet og styres hva hjelp av hydraulisk styrte mateskyvere og ristere. For å oppnå god forbrenning tilføres primærluft (primary combustion air) i bunnen av kjelen og for å sikre at røykgassen brennes helt ut tilføres sekundærluft (secondary combustion air).

Ubrennbart materiale og rester etter forbrenningen går gjennom rister i bunnene av kjelen og videre til sikting og slaggtransport.

Etter at mest mulig av energien i forbrenningsprosessen er benyttet til produksjon av damp og varmtvann, går røykgassen til rensing for å fjerne partikler og skadelige stoffer. Det er strenge krav til utslipp til luft og det er derfor et eget system for analyse av utslippet med klare grenser for hva som er akseptabelt.

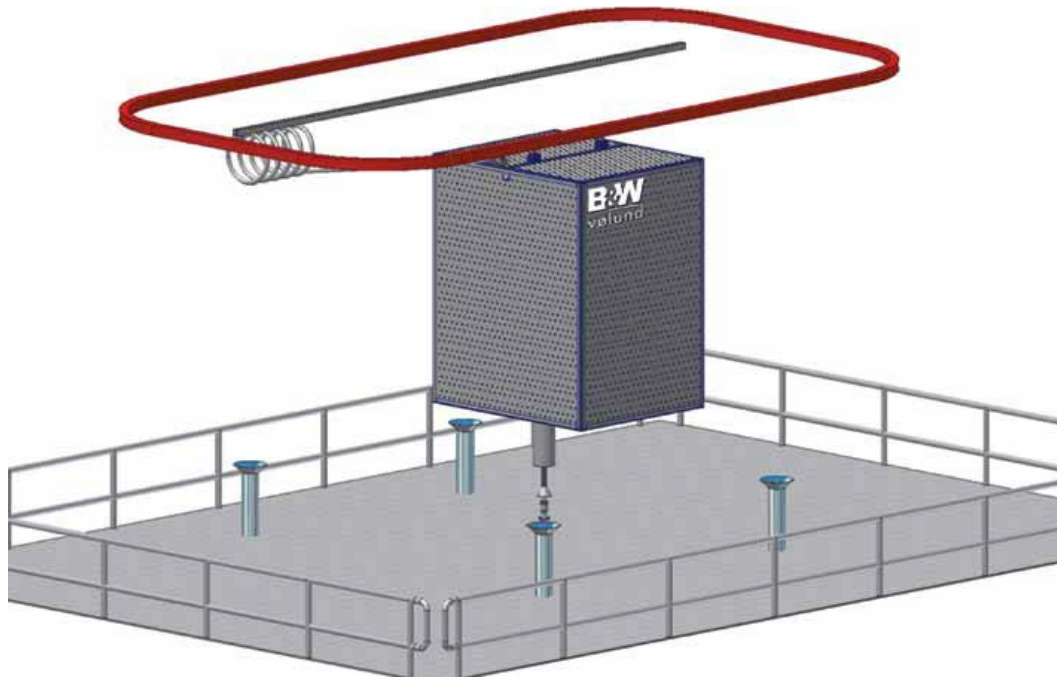
# Prosessbeskrivelse utvalgte delprosesser

## Vannsotrensingsystemet

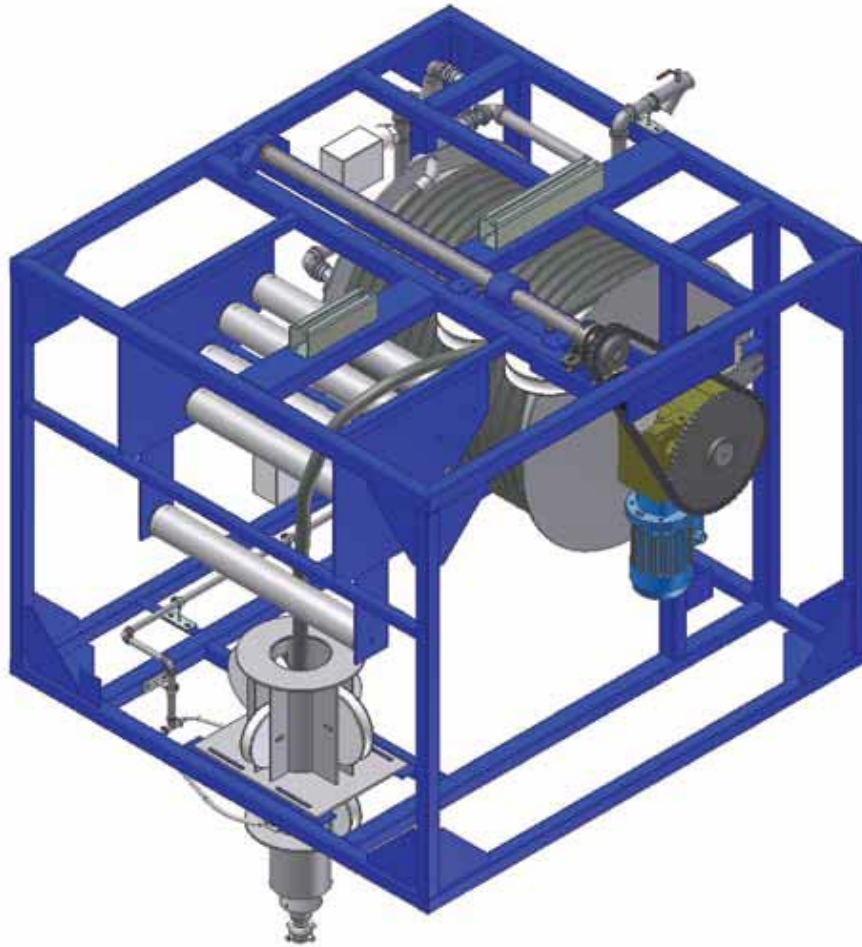


Figuren viser deler av et søppelforbrenningsanlegg. Røykgassene fra forbrenningen går gjennom tre kammer før de går videre til filtrering. På anlegget er det montert et vaskesystem for rengjøring av kammerveggene. Dette trer i funksjon en gang i døgnet og vasker veggene for sot i kammer 2 og 3 (2. pass og 3. pass). Hvis temperaturen i kamrene blir for høy trer vaskeprosessen i gang oftere. Pilene viser hvor rensingen foregår.

Målet med rensingen er å effektivisere den daglige drift og optimere driftstiden, levetiden og energiproduksjonen. Sikkerheten for driftspersonellet økes også.



Vaskeanlegget (slangevognen) henger på ei skinne med en kjede som drar vognen i ønsket retning. En slange med et roterende spylehode føres ned i innføringsrøret (2 innføringsrør per kammer). Når spylehodet er kommet ned i selve kammeret settes vanntrykk på som renser veggene for slagg. Systemet er fullautomatisk.



#### Slangevognen

Slangevognen er oppbygd med en trommel hvor en stålarmert slange er rullet opp. På enden av slangen sitter slangehodet som roterer når det tilføres stort vanntrykk. Systemet er fullautomatisert, og kan styres fra kontrollrommet eller lokalt på panelet. Det kan programmeres tid og ukedag for ønsket rengjøring i de forskjellige innføringsrørene. På det lokale panelet er det mulig via visualisering å se hvor langt systemet er i en sekvens.

## Vannsofjerningsystem

Vannsofjerningsystemet brukes til rensing av røykgassiden av andre og tredje kjelepassering (kammer 2 og 3) og baffelveggene i andre passering.

Systemet er koblet til en lokal PLS og en lokal kontrollboks 01HCC13GS001. Systemet kan startes manuelt eller automatisk og overvåkes fra sentralt kontrollrom, eller styres lokalt fra den lokale kontrollboksen.

### Elementer tilkoblet kontrollsystemet for vannsofjerning

<i>KKS-nummer</i>	<i>Beskrivelse</i>
01HBK21AA010	Avstengningsventil 2. passering vannsofjerning
01HBK21AA011	Avstengningsventil 2. passering vannsofjerning

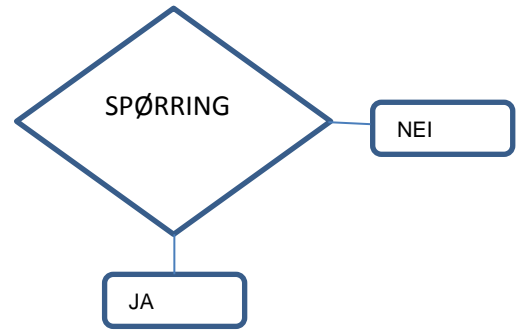
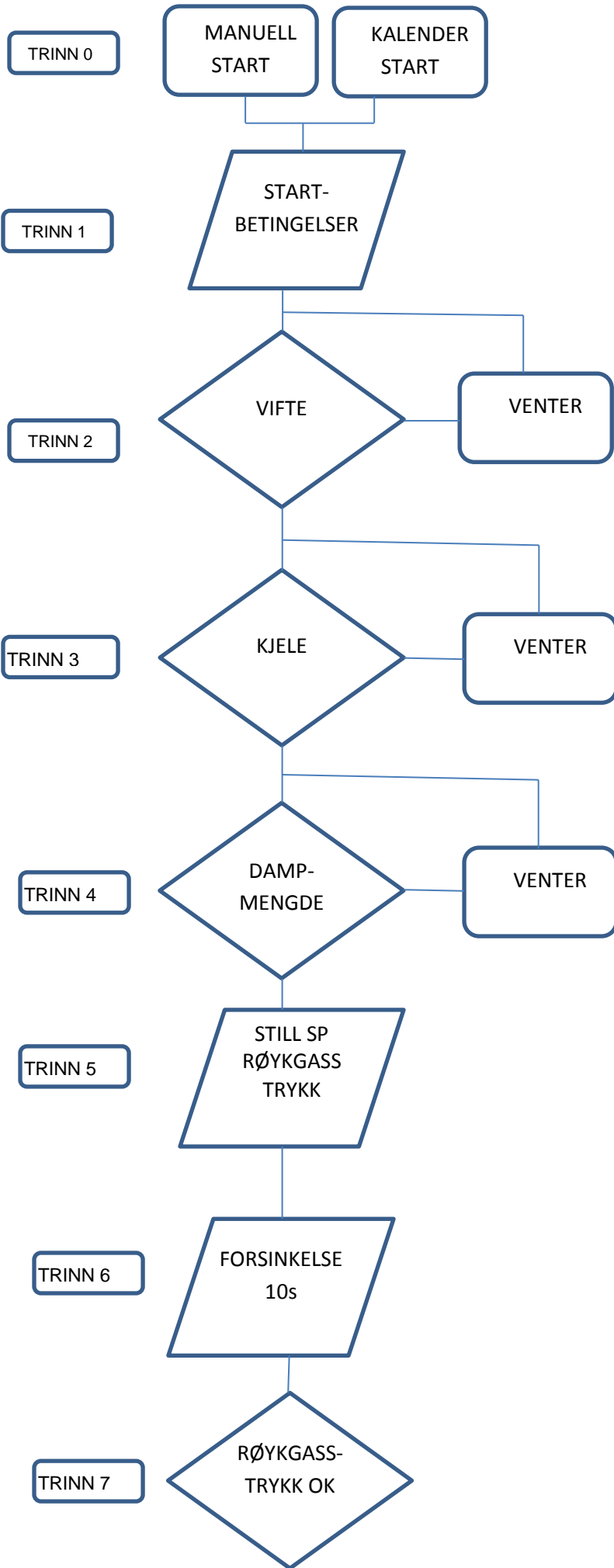
01HBK31AA012	Avstengningsventil 3. passering vannsotfjerner
01HBK31AA013	Avstengningsventil 3. passering vannsotfjerner
01HCC12AP001	Pumpe vannsotfjerner
01HCC13AA151	Magnetventil 1 vannsotfjerner
01HCC13AA152	Magnetventil spyling vannsotfjerner
01HCC13AE001	Slangetrommel vannsotfjerner
01HCC14AA151	Magnetventil 2 vannsotfjerner
01SMH01AE001	Drivmotor vannsotfjerner

### **Instrumenter tilkoblet kontrollsystemet for vannsotfjerner**

<i>KKS-nummer</i>	<i>Beskrivelse</i>
01HCC13CP201	Trykk L etter pumpe vannsotfjerner
01HCC13CP202	Trykk L før slangetrommel vannsotfjerner
01SMH01CG201	Posisjonsbryter hjem vannsotfjerner
01SMH01CG202	Posisjonsbryter 1A vannsotfjerner
01SMH01CG203	Posisjonsbryter 1B vannsotfjerner
01SMH01CG204	Posisjonsbryter 2A vannsotfjerner
01SMH01CG205	Posisjonsbryter 2B vannsotfjerner
01SMH01CG206	Posisjonsbryter 3A vannsotfjerner
01SMH01CG207	Posisjonsbryter 3B vannsotfjerner
01SMH01CG208	Posisjonsbryter 4A vannsotfjerner
01SMH01CG209	Posisjonsbryter 4B vannsotfjerner
01SMH01CG210	Posisjonsbryter slutt vannsotfjerner
01HCC13AE001-B21	Enkoder
01HCC13AE001-B11	Slange hjem-pos. 1
01HCC13AE001-B13	Slange hjem-pos. 2

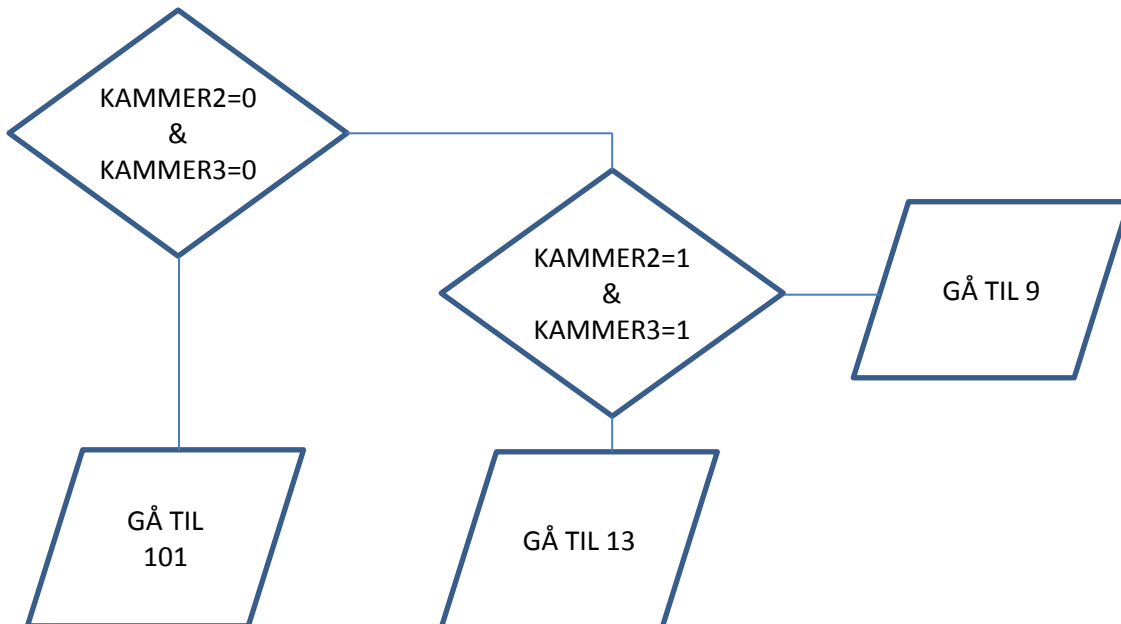
### Signaler mellom kontrollsystemet for vannsotfjerner og sentralt kontrollrom

<i>KKS-nummer</i>	<i>Beskrivelse</i>	<i>Type</i>	<i>Kommentar</i>
01HCC13GS001XB01	Vannsotfjerner kjører	DI	1 = kjører
01HCC13GS001XB02	Vannsotfjerner posisjon 1	DI	1 = posisjon 1
01HCC13GS001XB03	Vannsotfjerner posisjon 2	DI	1 = posisjon 2
01HCC13GS001XB04	Vannsotfjerner posisjon 3	DI	1 = posisjon 3
01HCC13GS001XB05	Vannsotfjerner posisjon 4	DI	1 = posisjon 4
01HCC13GS001XB09	Vannsotfjerner klar	DI	1 = klar
01HCC13GS001XB16	Vannsotfjerner lokal	DI	1 = lokal
01HCC13GS001XB47	Vannsotfjerner kritisk feil	DI	0 = feil
01HCC13GS001XB48	Vannsotfjerner nødstop	DI	0 = nødstop
01HCC13GS001XB49	Vannsotfjerner felles feil	DI	0 = feil
01HCC13GS001YB01	Vannsotfjerner start 2+3. pass	DO	1 = start puls (3 s)
01HCC13GS001YB02	Vannsotfjerner stop	DO	1 = stop puls (3 s)
01HCC13GS001YB03	Vannsotfjerner frigi lokal	DO	1 = frigitt
01HCC13GS001YB04	Vannsotfjerner start 2. pass	DO	1 = start puls (3 s)
01HCC13GS001YB05	Vannsotfjerner start 3. pass	DO	1 = start puls (3 s)
01HCC13GS001YB10	Vannsotfjerner nødstop	DO	1 = stop puls (3 s)

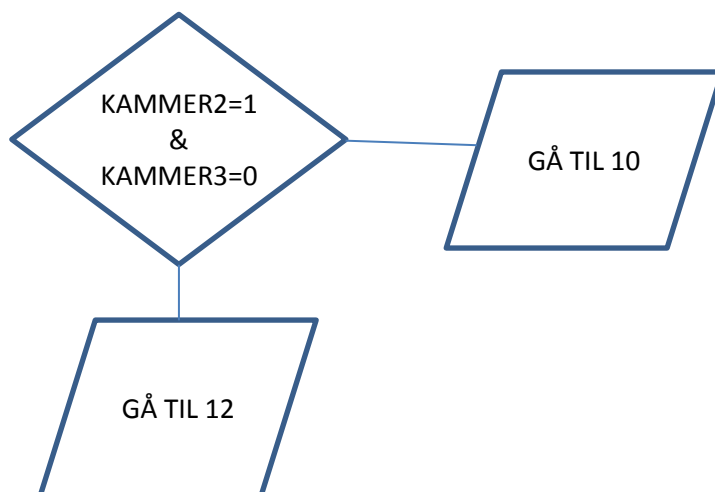




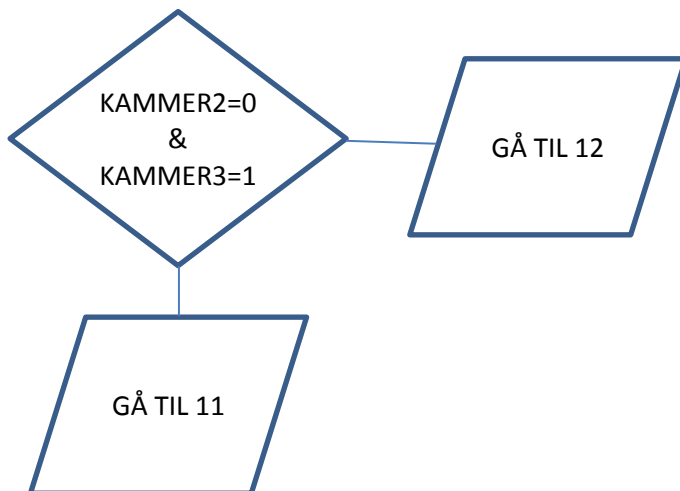
TRINN 8



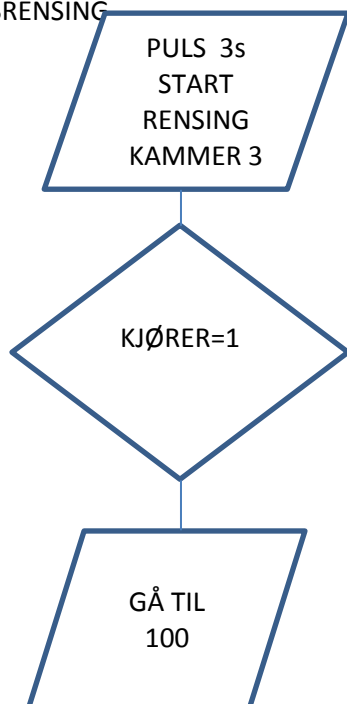
TRINN 9



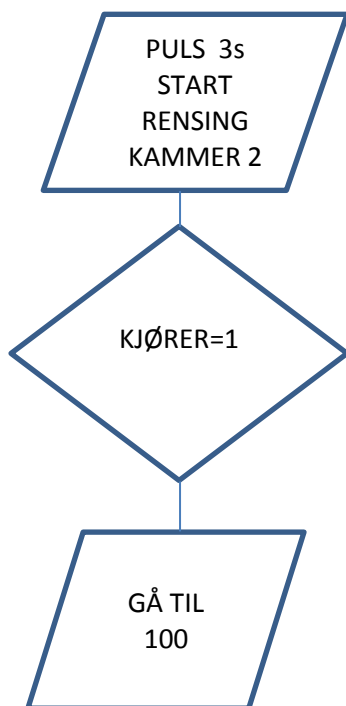
TRINN 10



TRINN 11



TRINN 12



TRINN 13

PULS 3s  
START  
RENSING  
KAMMER 2+3

KJØRER =1

GÅ TIL  
100

TRINN 100

SIGNAL  
KJØRER =0  
MER ENN 3s

TRINN 101

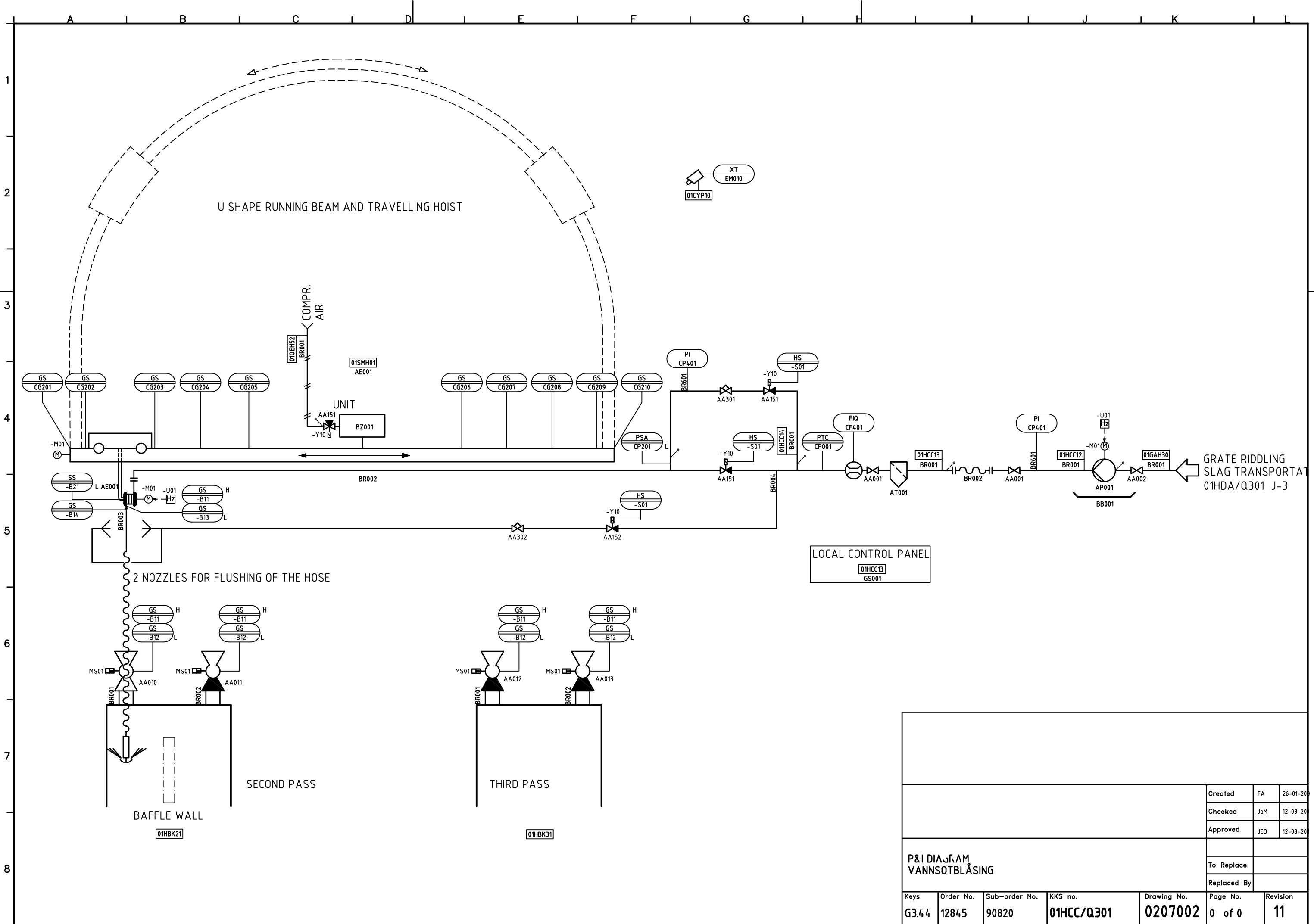
TILBAKESTILL  
RØKGASS SP

TRINN 200

GÅ TIL 0  
(START)

## Prinsipper for styre- og regulerings signaler

Fabrikken har en master PLS som via modbus tcp kommuniserer med distribuerte I/O enheter (Remote IO/RIO). All reguleringsutrustning som er tilkopleet I/O enheter bruker 4-20mA signal standard unntatt frekvensomformere som er koplet via feltbus til master PLS. Øvrig utrustning benytter digital signaler. Kontrollrommets operatørstasjoner er koplet til master PLS via ethernet.



P&I DIAGRAM VANNSOTBLÅSING						Created	FA	26-01-20
						Checked	JaM	12-03-20
						Approved	JEO	12-03-20
Keys						To Replace		
						Replaced By		
G3.4.4	12845	90820	01HCC/Q301	Drawing No. 0207002	Page No. 0 of 0	Revision 11		

A

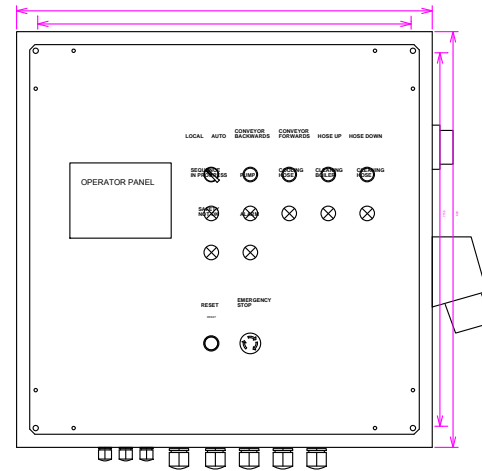
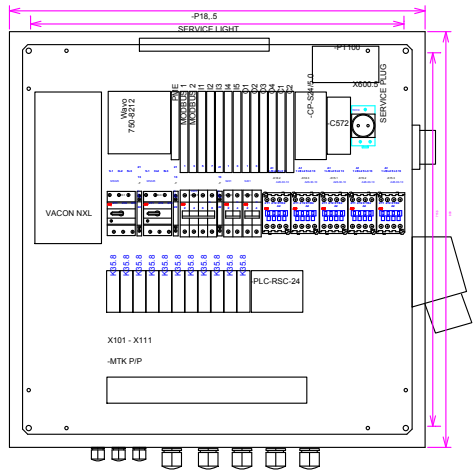
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C

D

E

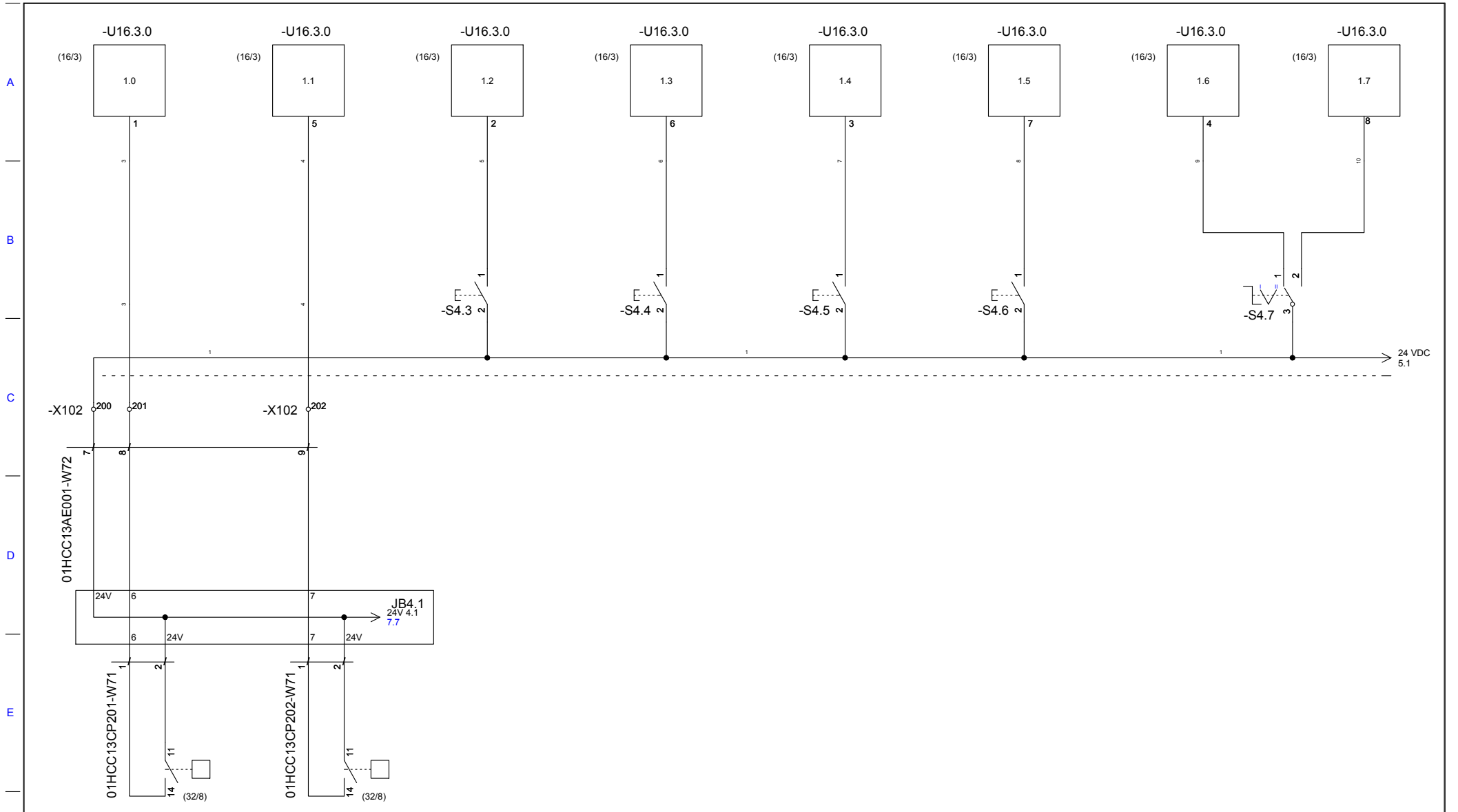
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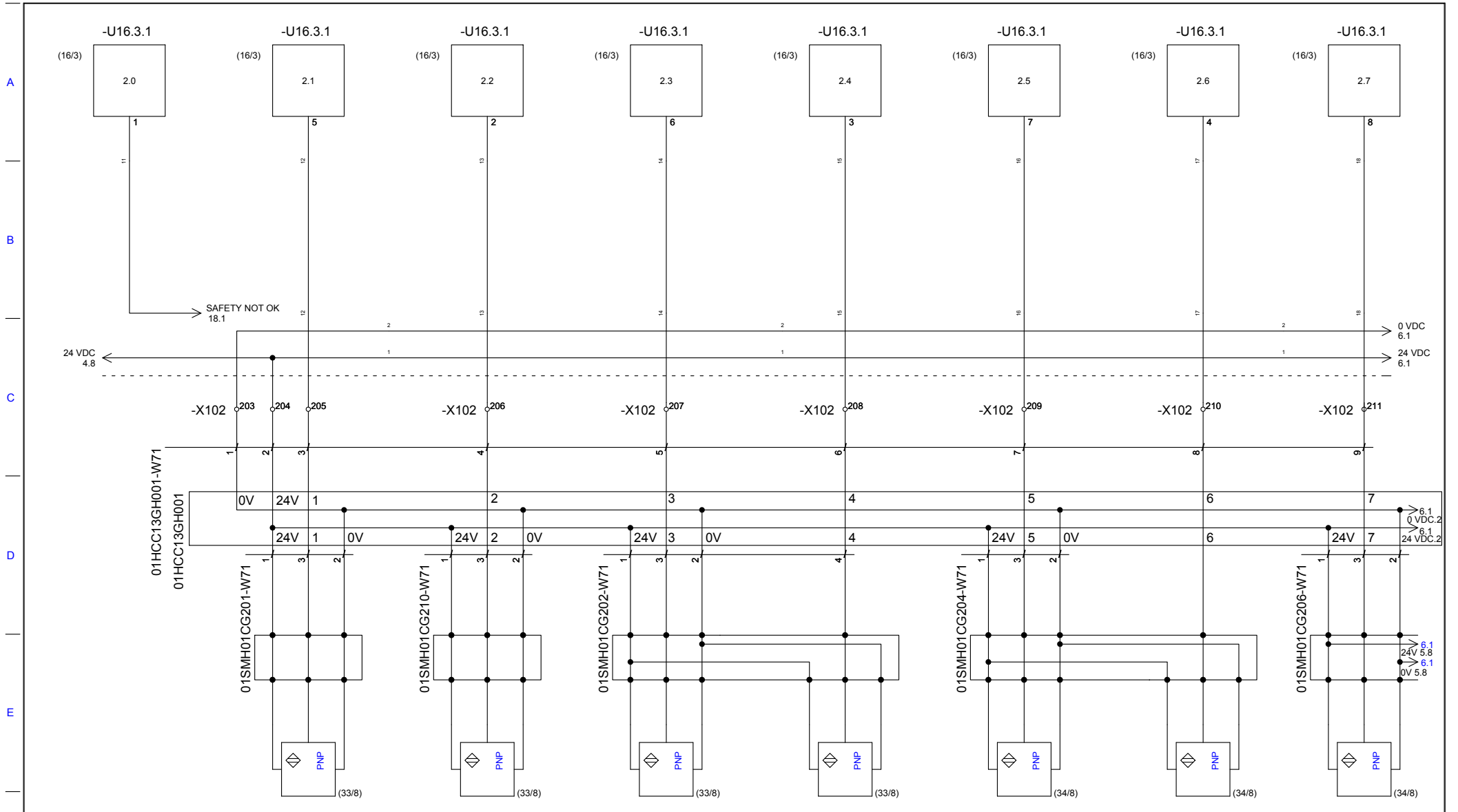
0	011010 JEO	ISSUED FOR COMMENTS
1		
2		
3		

ELECTRICAL DESIGN  
 PANEL LAYOUT  
 01HCC13GS001

12845	36050	G.3.4	2
0320191	01HCC13GS001_PL.DWG	518.2	4
010910 JEO	010910 ANI	10	3
Created: 7	Check:	Index: KOV	Page: 39
		Appr: 8	Of:



01HCC13CP201 PRESSURE 1 OK			01HCC13CP202 PRESSURE 2 OK			LOCAL OPERATION HOSE UP		LOCAL OPERATION HOSE DOWN		LOCAL OPERATION CONVEYOR FORWARD		LOCAL OPERATION CONVEYOR BACKWARD		LOCAL OPERATION IN LOCAL		LOCAL OPERATION IN AUTOMATIC	
Revision	0	011010 JEO	ISSUED FOR COMMENTS					T ELECTRICAL DESIGN DIGITAL INPUT 1 01HCC13GS001					Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 3	
													Drawing no. 0320191	Filename 01HCC13GS001_CD1.DWG	Binder 518.2	Next page 5	
													Created: 010910 JEO	Check: 010910 ANI	Appr. 010910 KOV	Page 4	Of 39
	1		2	3	4	5	6	7	8								



SAFETY NOT OK

01SMH01CG201  
START POSITION

01SMH01CG210  
END POSITION

01SMH01CG202  
1. POSITION INDICATOR  
TUBE 1

01SMH01CG203  
2. POSITION INDICATOR  
TUBE 1

01SMH01CG204  
1. POSITION INDICATOR  
TUBE 2

01SMH01CG205  
2. POSITION INDICATOR  
TUBE 2

01SMH01CG206  
1. POS. INDICATOR  
TUBE 3

Revision	Order no.	Issued for
0	011010 JEO	ISSUED FOR COMMENTS
1	270911 JEO	AS BUILT

T  
ELECTRICAL DESIGN  
DIGITAL INPUT 2  
01HCC13GS001

Order no.	Sub-order no.	Keys	Prev. page
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Drawing no.	Filename	Order	Next page
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Created:	Check:	Appr.	Of
010910 JEO	270911 KOV	270911 JEO	39

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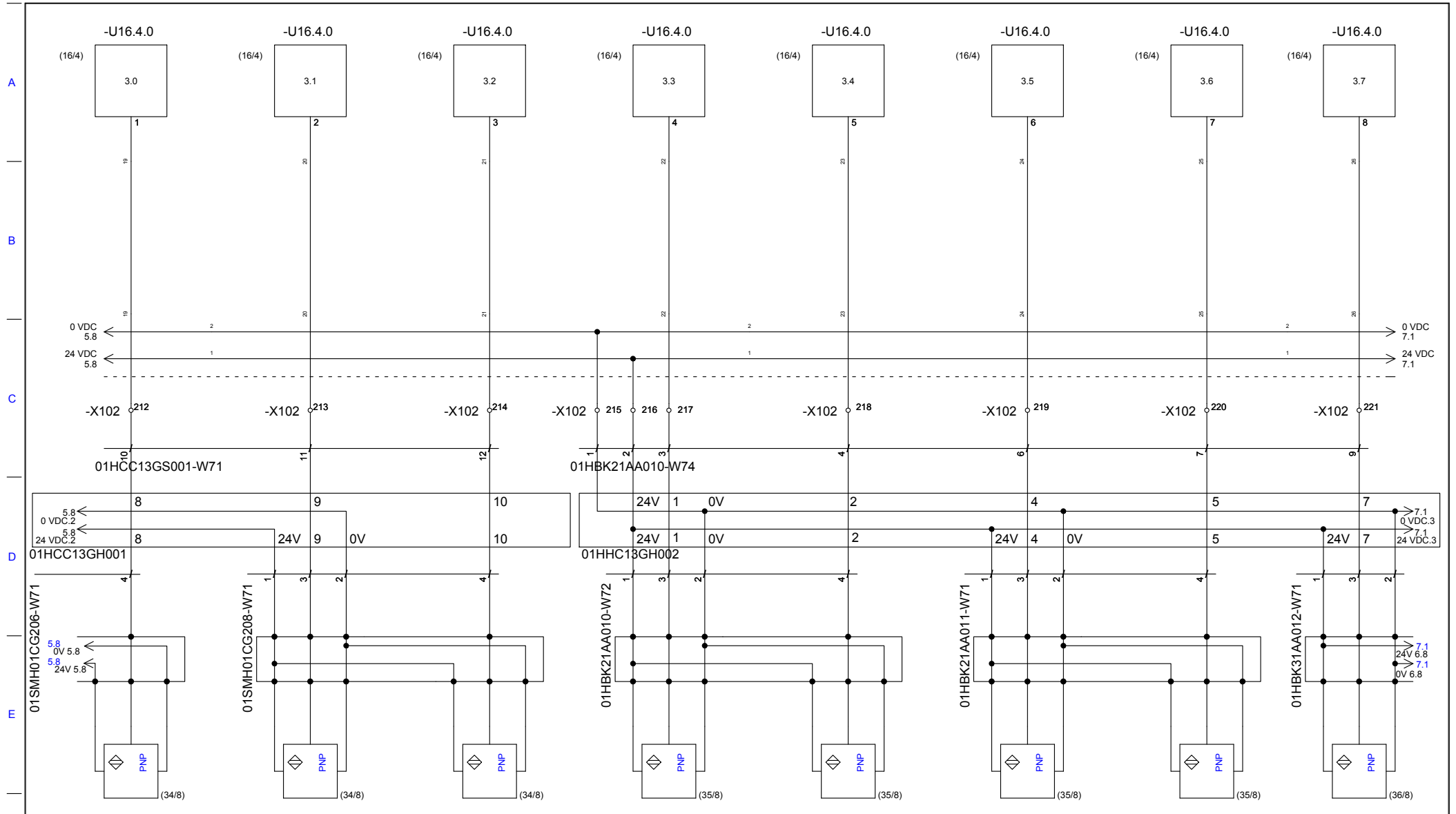
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01SMH01CG207 2. POSITION INDICATOR TUBE 3	01SMH01CG208 1. POSITION INDICATOR TUBE 4	01SMH01CG209 2. POSITION INDICATOR TUBE 4	01HBMK21AA010-B11 OPENED TUBE 1	01HBMK21AA010-B12 CLOSED TUBE 1	01HBMK21AA011-B11 OPENED TUBE 2	01HBMK21AA011-B12 CLOSED TUBE 2	01HBMK31AA012-B11 OPENED TUBE 3
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Revision	0	011010 JEO	ISSUED FOR COMMENTS	T ELECTRICAL DESIGN DIGITAL INPUT 3 01HCC13GS001	Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 5
	1	270911 JEO	AS BUILT		Drawing no. 0320191	Filename 01HCC13GS001_CD3.DWG	Rev. 10	Next page 7
					Created: 010910 JEO	Check: 270911 KOV	Appr. 270911 JEO	Of 39

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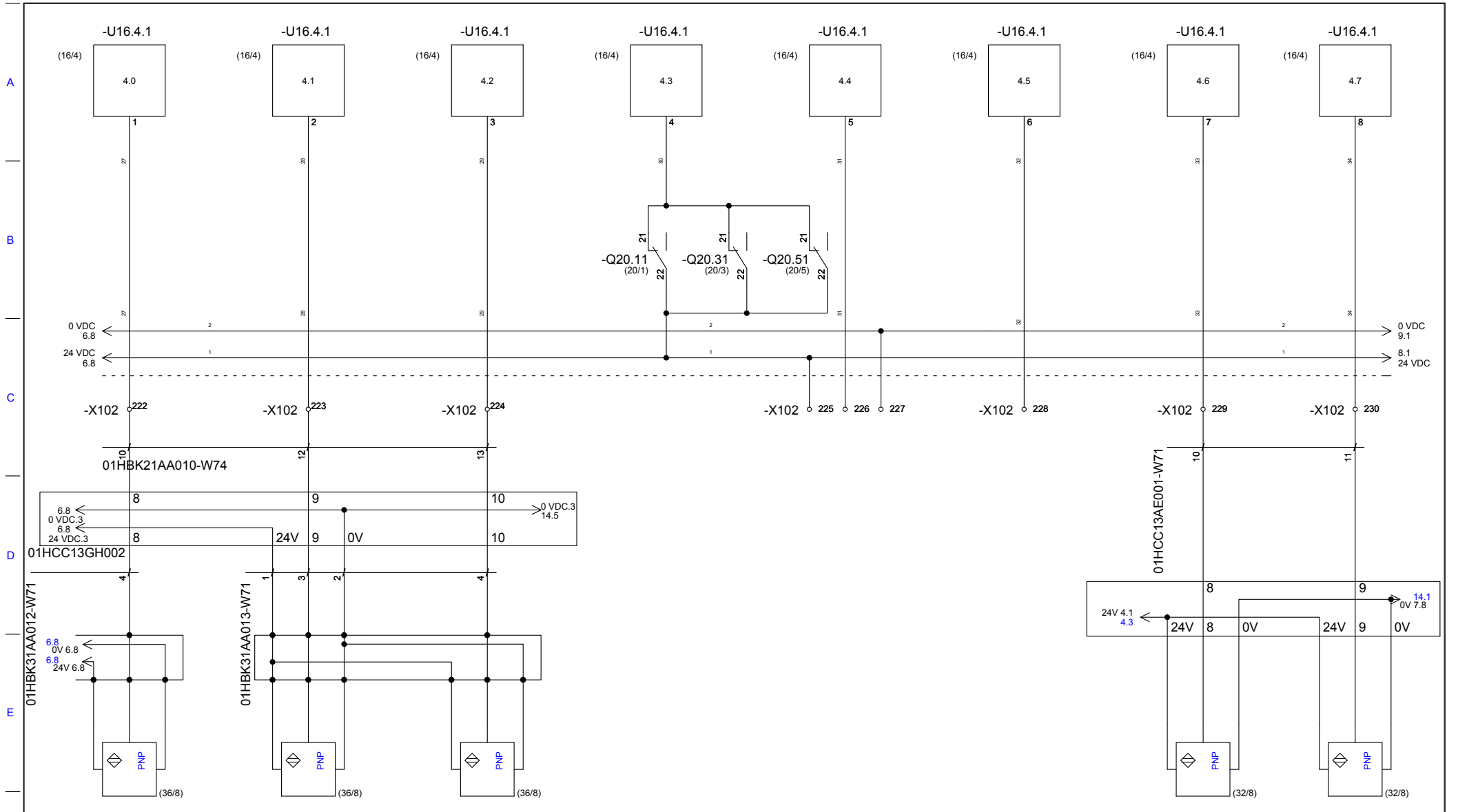
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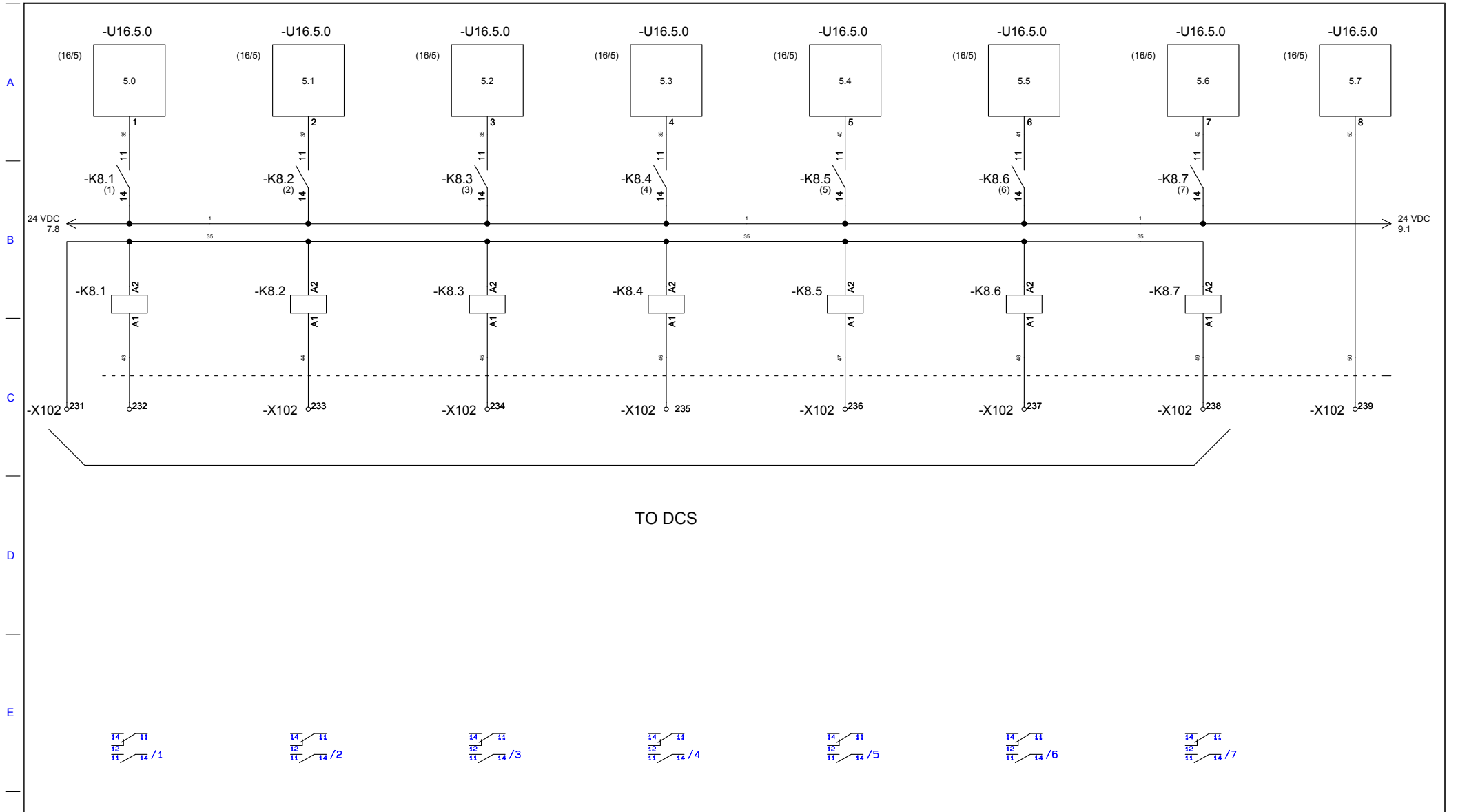
7

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01HBK31AA012-B12 CLOSED TUBE 3	01HBK31AA013-B11 OPENED TUBE 4	01HBK31AA013-B12 CLOSED TUBE 4	MCB ALARM	SPARE	SPARE	SPARE	SPARE	01HCC13AE001-B11 HOSE OM 1	01HCC13AE001-B13 HOSE OM 2
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Revision	0	011010 JEO	ISSUED FOR COMMENTS	T ELECTRICAL DESIGN DIGITAL INPUT 4 01HCC13GS001	Order no.	Sub-order no.	Keys	Prev. page
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					Drawing no.	Filename		Next page
					0320191	01HCC13GS001_CD4.DWG	518.2	8
			Created:	Check:	Appr.	Page	Of	
			010910 JEO	270911 KOV	270911 JEO	7	39	



TO DCS



0 VDC FROM DCS	01HCC13GS001-YB01 WATER SOOT CLEANING START 2.+3. PASS	01HCC13GS001-YB02 WATER SOOT CLEANING STOP	01HCC13GS001-YB03 WATER SOOT CLEANING RELEASE LOCAL	01HCC13GS001-YB04 WATER SOOT CLEANING START 2. PASS	01HCC13GS001-YB05 WATER SOOT CLEANING START 3. PASS	01HCC13GS001-YB10 WATER SOOT CLEANING EMERGENCY STOP	SPARE SIGNAL	SPARE
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Revision	0	011010 JEO	ISSUED FOR COMMENTS
	1	270911 JEO	AS BUILT

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T	ELECTRICAL DESIGN
	DIGITAL INPUT 5
	01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 7
Drawing no. 0320191	Filename 01HCC13GS001_CD5.DWG	Binder S18.2	Next page 9
Created: 010910 JEO	Check: 270911 KOV	Draw: 10	Page: 8
	Appr: 270911 JEO		Of 39

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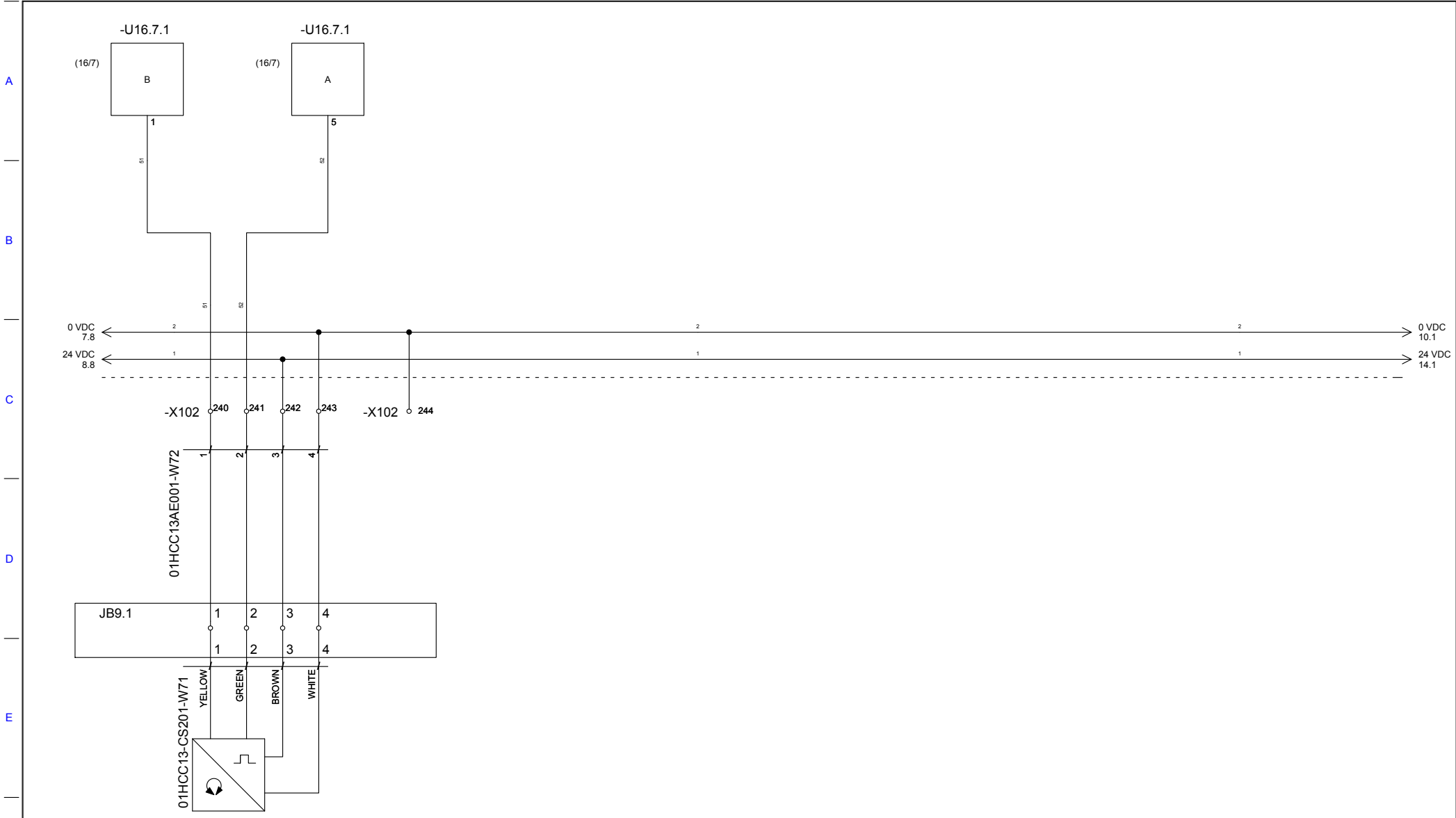
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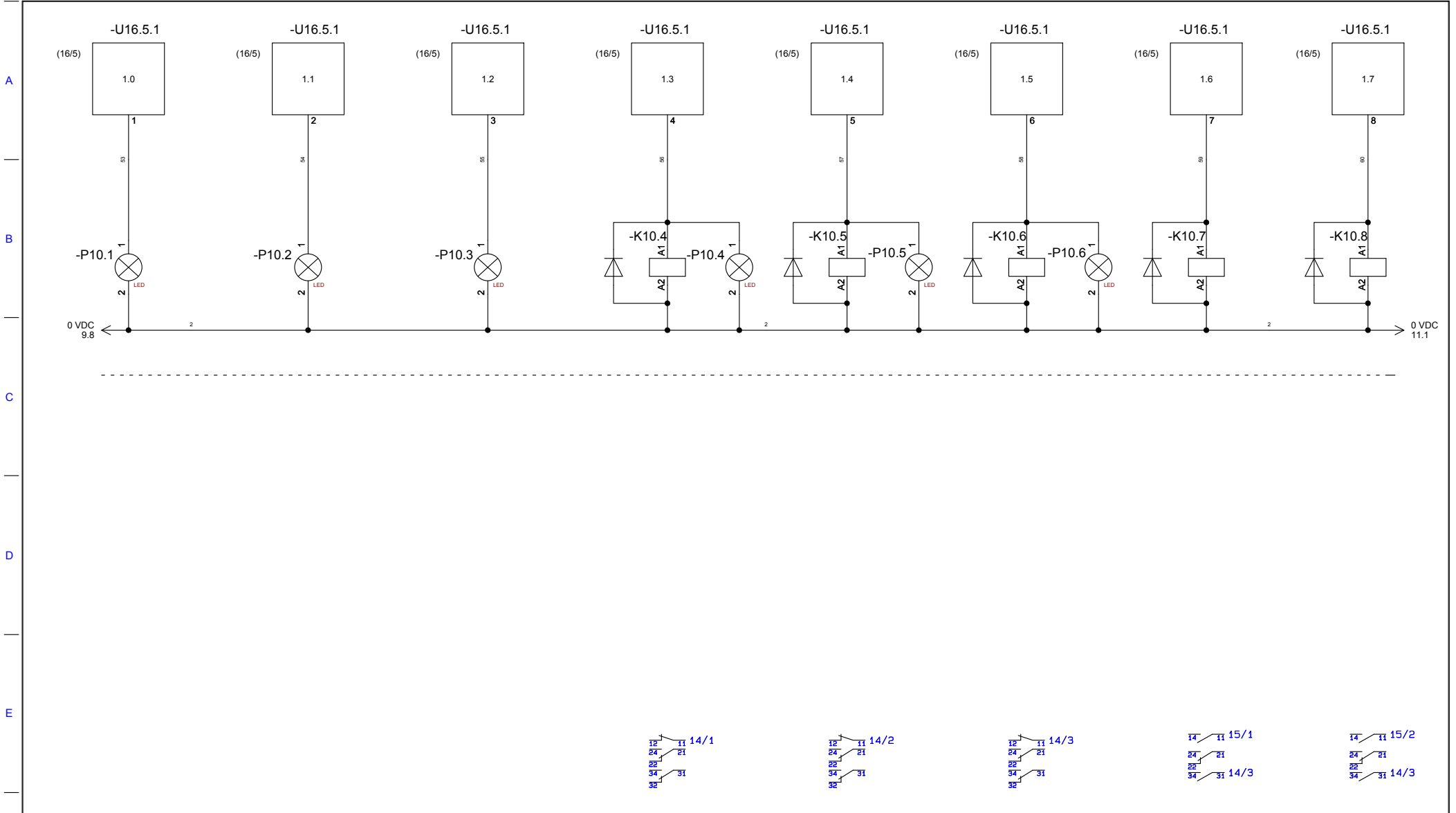


01HCC13CS201  
 ENCODER SIGNAL 1      ENCODER SIGNAL 2      SPARE

Revision	Author	Comments
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1	270911 JEO	AS BUILT

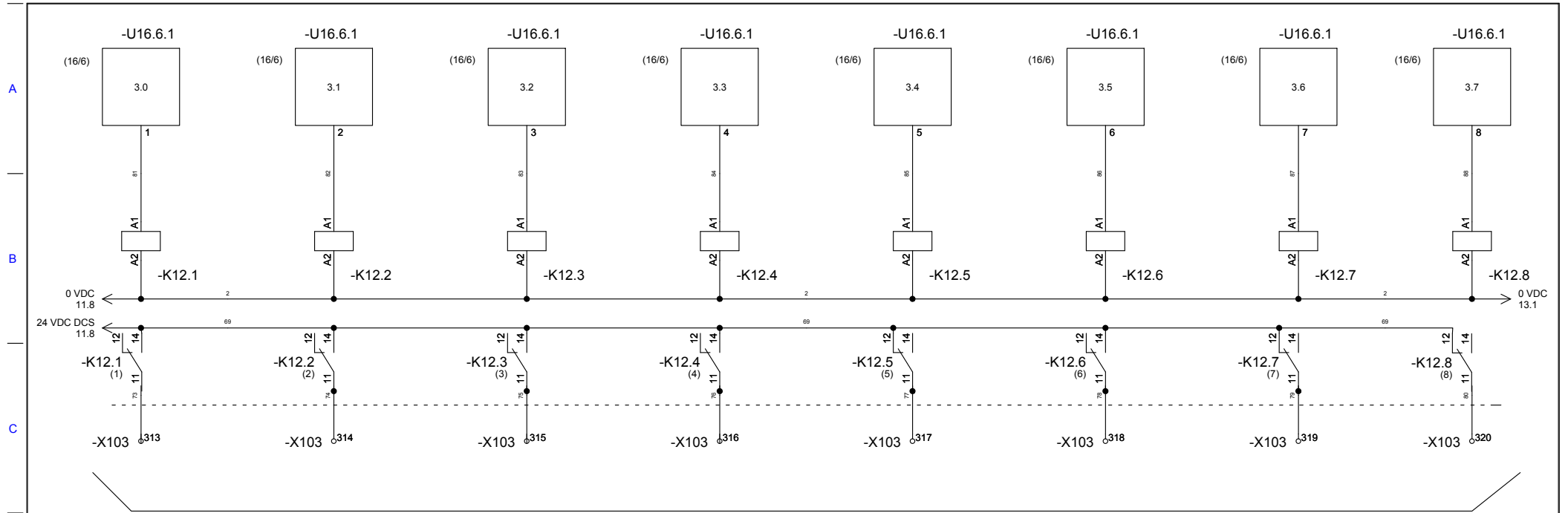
**T**  
 ELECTRICAL DESIGN  
 COUNTER  
 01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 8
Drawing no. 0320191	Filename 01HCC13GS001_CD6.DWG	Rev. 10	Next page 10
Created: 010910 JEO	Check: 270911 KOV	Appr. 270911 JEO	Page 9 Of 39



SAFETY NOT OK			SEQUENCE IN PROGRESS			ALARM			COOLING HOSE			CLEANING HOSE			CLEANING BOILER			CONVEYOR FORWARDS			CONVEYOR BACKWARDS				
0	011010 JEO	ISSUED FOR COMMENTS													T	ELECTRICAL DESIGN DIGITAL OUTPUT 1 01HCC13GS001						Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 9
Drawing no. 0320191		Filename 01HCC13GS001_CD7.DWG														Blender S18.2	Next page 11								
Created: 010910 JEO		Check: 010910 ANI														Appr. 010910 KOV		Page 10	Page 10						
Revision																Of 39									
1			2			3			4			5			6			7			8				





TO DCS



01HCC13GS001-XB04  
WATER SOOT CLEANING  
POSITION 3

01HCC13GS001-XB05  
WATER SOOT CLEANING  
POSITION 4

01HCC13GS001-XB09  
WATER SOOT CLEANING  
READY

01HCC13GS001-XB16  
WATER SOOT CLEANING  
LOCAL

01HCC13GS001-XB47  
WATER SOOT CLEANING  
CRITICAL FAULT

01HCC13GS001-XB48  
WATER SOOT CLEANING  
EMERGENCY STOP

01HCC13GS001-XB49  
WATER SOOT CLEANING  
COMMON FAULT

SPARE  
SIGNAL

Revision	0	011010 JEO	ISSUED FOR COMMENTS



**T**  
ELECTRICAL DESIGN  
DIGITAL OUTPUT 3  
01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 11
Drawing no. 0320191	Filename 01HCC13GS001_CD9.DWG	Binder S18.2	Next page 13
Created: 010910 JEO	Check: 010910 ANI	Appr. 010910 KOV	Page 12
			Of 39

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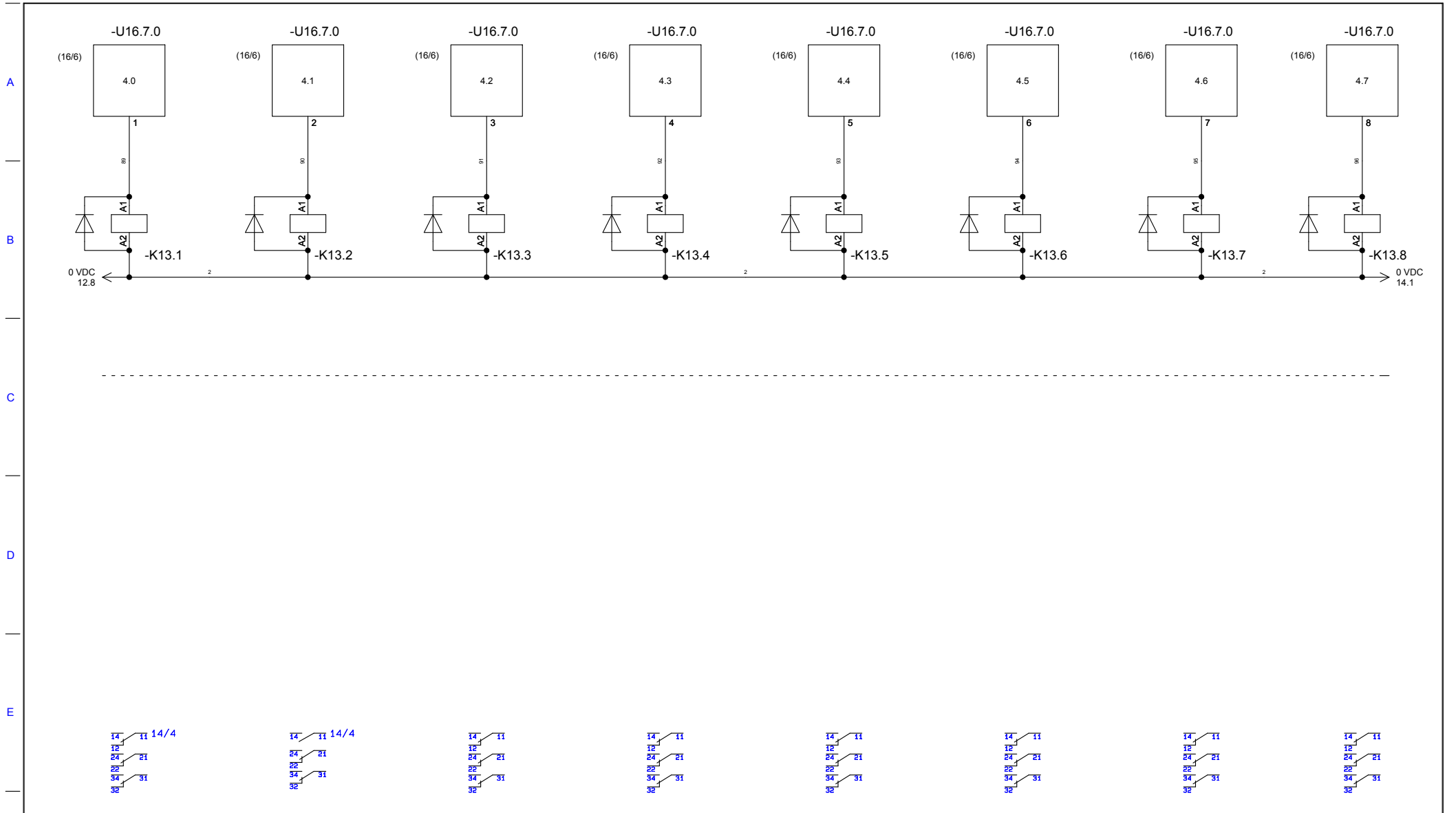
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LUBRICATION  
CONVEYOR

HORN FOR  
CONV. MOVING

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

Revision	0	011010 JEO	ISSUED FOR COMMENTS		T	ELECTRICAL DESIGN DIGITAL OUTPUT 4 01HCC13GS001	Order no.	Sub-order no.	Keys	Prev. page
							12845	36050	G.3.4	12
							0320191	01HCC13GS001_CD10.DWG	Binder 518.2	14
							Created:	Check:	Appr:	Page:
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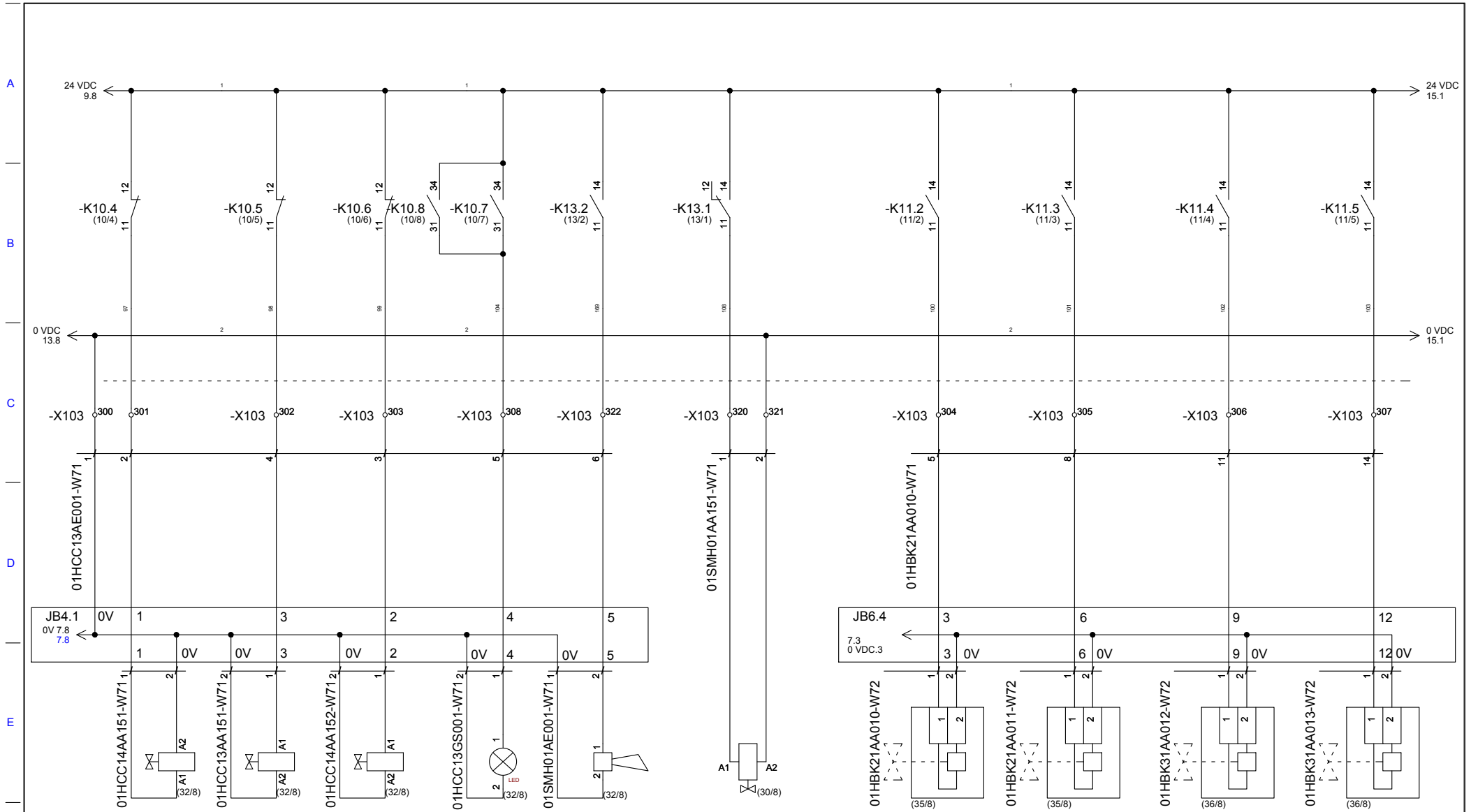
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01HCC14AA151-S01 COOLING HOSE   
 01HCC13AA151-S01 CLEANING HOSE   
 01HCC14AA152-S01 CLEANING BOILER   
 01HCC13AE001-E01 MOVE INDICATOR   
 01SMH01AE001-H01 BEACON   
 01SMH01AA151-Y10 PUMP LUBRICATION   
 01HBK21AA010-MS01 TUBE 1   
 01HBK21AA011-MS01 TUBE 2   
 01HBK31AA012-MS01 TUBE 3   
 01HBK31AA013-MS01 TUBE 4

Revision	0	011010 JEO	ISSUED FOR COMMENTS		T ELECTRICAL DESIGN RELAY OUTPUT 1 01HCC13GS001	Order no.	Sub-order no.	Keys	Prev. page
	1	270911 JEO	AS BUILT			12845	36050	G.3.4	13
						Drawing no.	Filename	Binder	Next page
						0320191	01HCC13GS001_CD11.DWG	518.2	15
						Created:	Check:	Appr.	Page
						010910 JEO	270911 KOV	270911 JEO	14
									Of
									39

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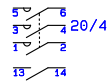
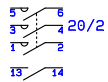
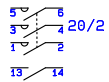
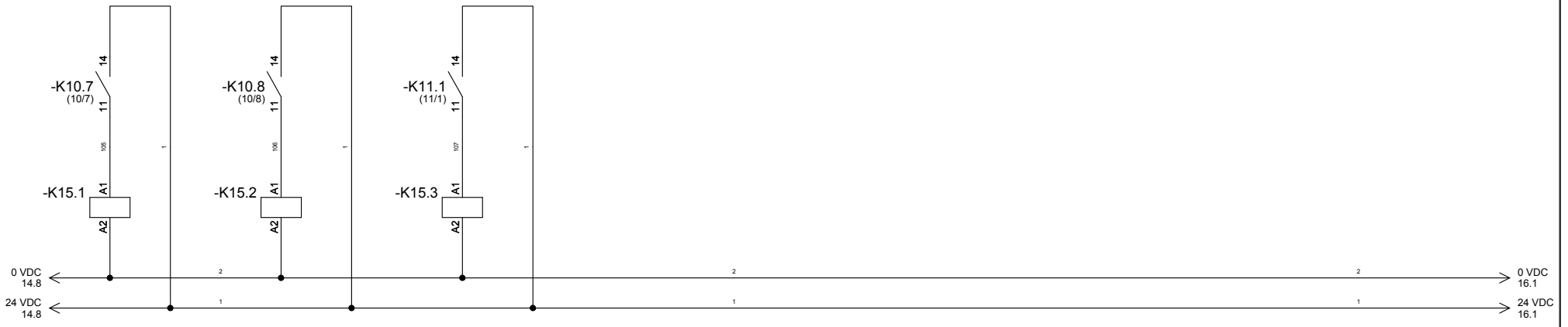
B

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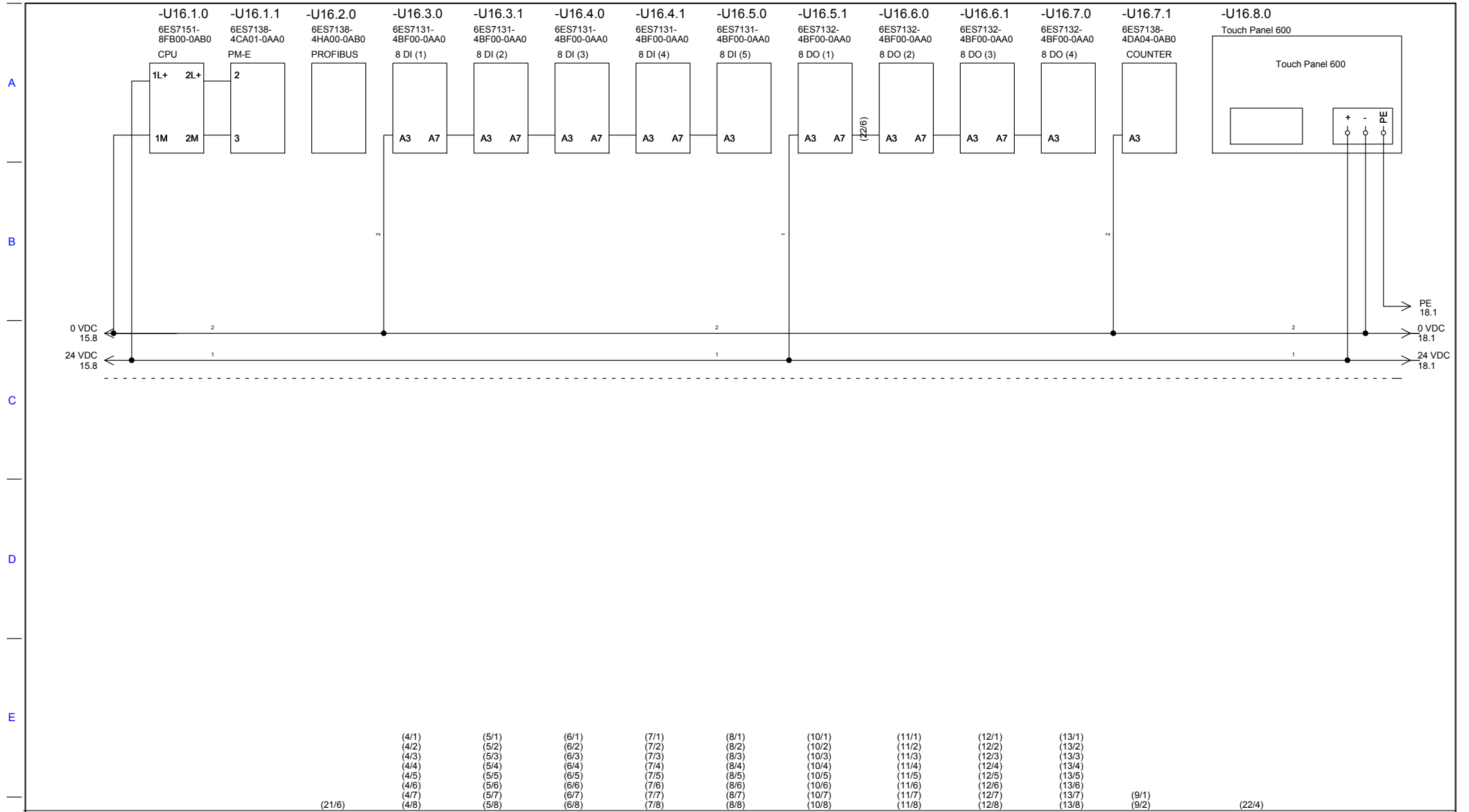
E

F



CONVEYOR FORWARD    CONVEYOR BACKWARD    PUMP ON

Revision	0	011010 JEO	ISSUED FOR COMMENTS	T ELECTRICAL DESIGN RELAY OUTPUT 2 01HCC13GS001	Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 14	
					Drawing no. 0320191	Filename 01HCC13GS001_CD12.DWG	Binder 518.2	Next page 16	
					Created: 010910 JEO	Check: 010910 ANI	Appr. 010910 KOV	Page 10	Page 15
								Of 39	
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	2								
	3								
	4								
	5								
	6								
	7								
	8								



CPU      POWER      PROFIBUS      INPUT 1      INPUT 2      INPUT 3      INPUT 4      INPUT 5      OUTPUT 1      OUTPUT 2      OUTPUT 3      OUTPUT 4      COUNTER      OPERATORS PANEL

Revision	0	011010 JEO	ISSUED FOR COMMENTS														Order no.	Sub-order no.	Keys	Prev. page
	1	270911 JEO	AS BUILT														12845	36050	G.3.4	15
																	Drawing no.	Filename	Binder	Next page
																	0320191	01HCC13GS001_CD13.DWG	518.2	17
																	Created:	Check:	Appr.	Page
																	010910 JEO	270911 KOV	270911 JEO	16
																				Of
																				39

A

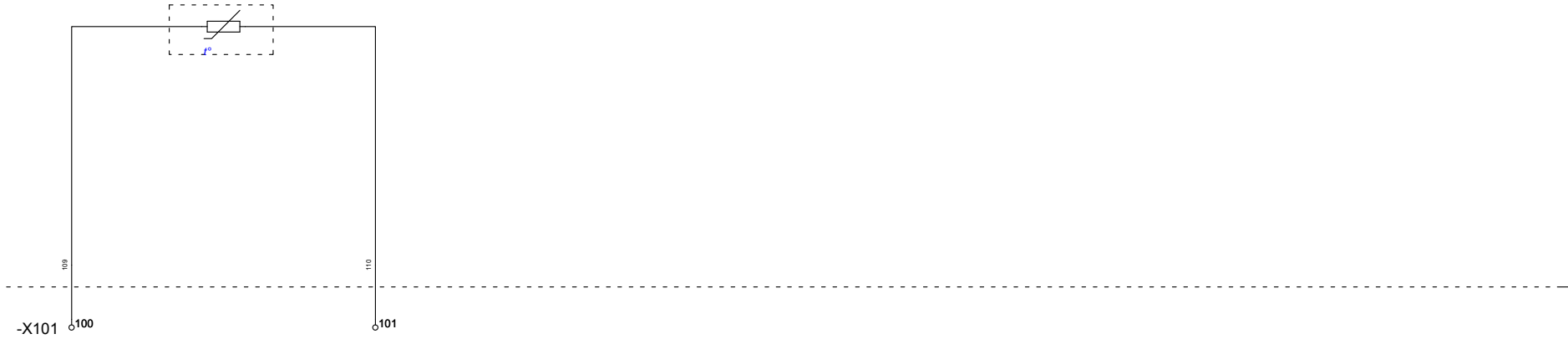
B

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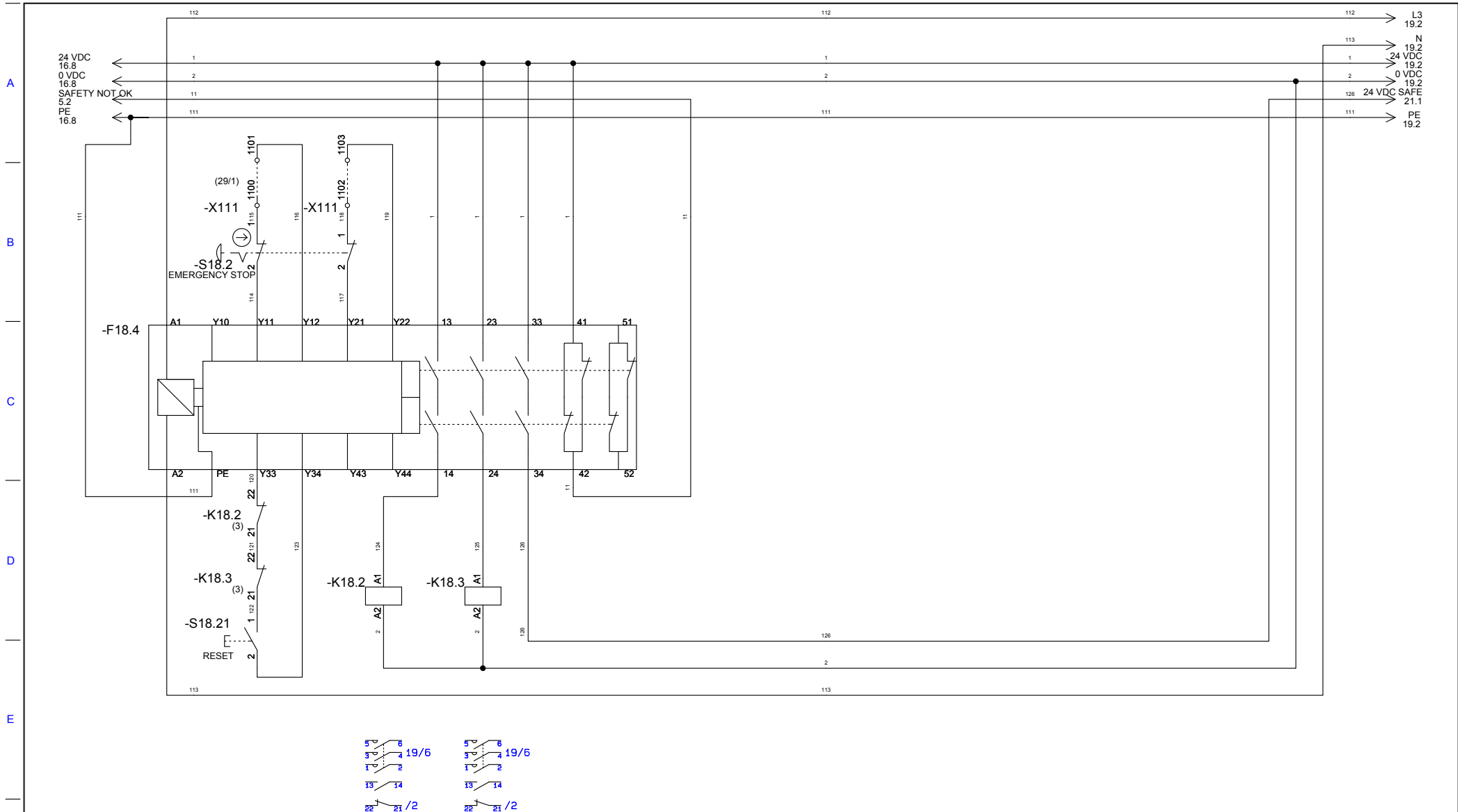
E

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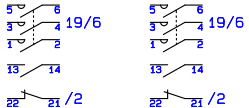


01HCC13GS001-XQ01  
 TEMP. IN SWITCHBOARD  
 PT-100

Revision	0	011010 JEO	ISSUED FOR COMMENTS			T	Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 16
						ELECTRICAL DESIGN	Drawing no. 0320191	Filename 01HCC13GS001_CD14.DWG	Binder 518.2	Next page 18
						TEMP. IN VOW SWITCHBOARD	Created: 010910 JEO	Check: 010910 ANI	Appr. 010910 KOV	Page 17
						01HCC13GS001				Of 39



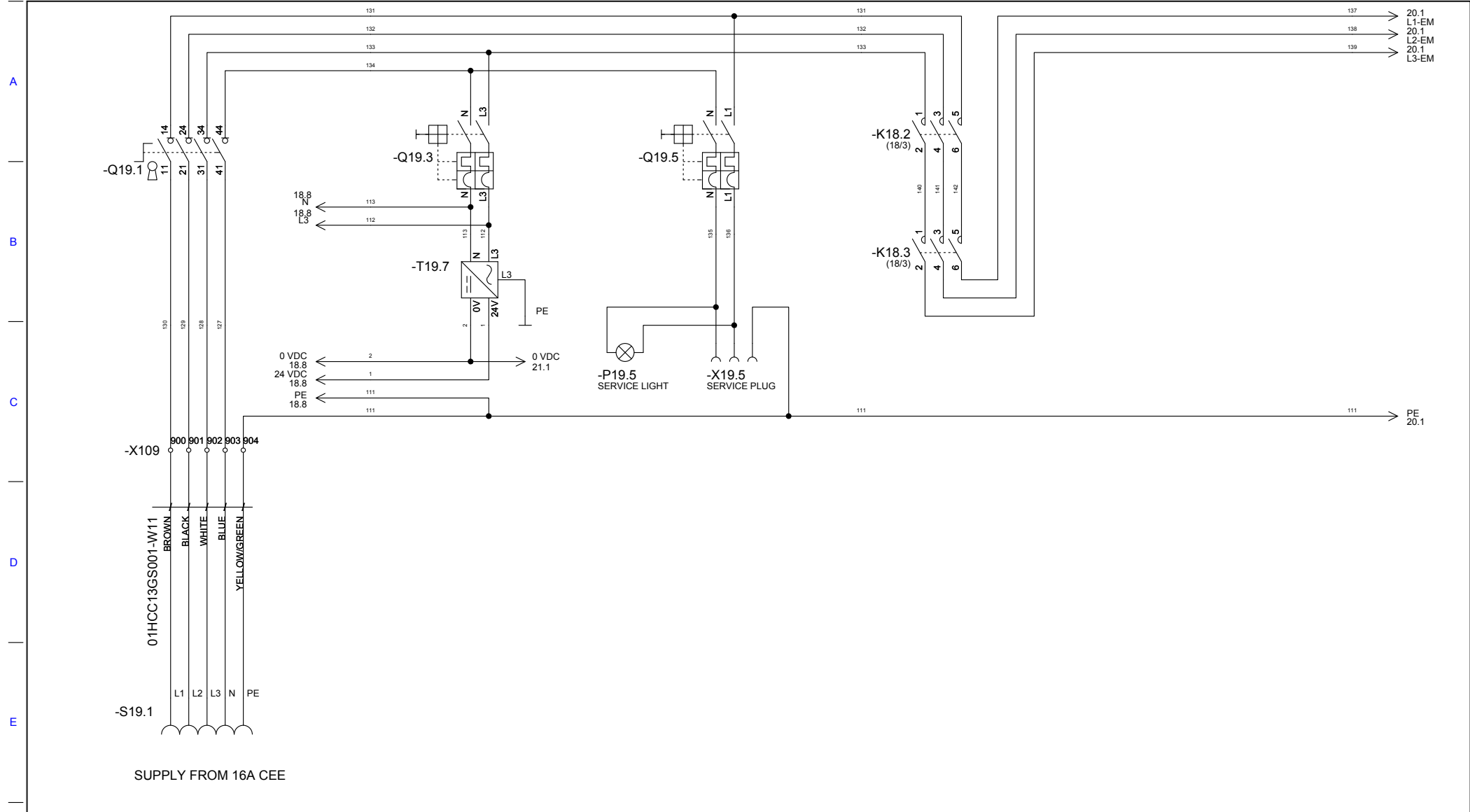
EMERGENCY STOP  
RESET EMERGENCY STOP



Revision	0	011010 JEO	ISSUED FOR COMMENTS

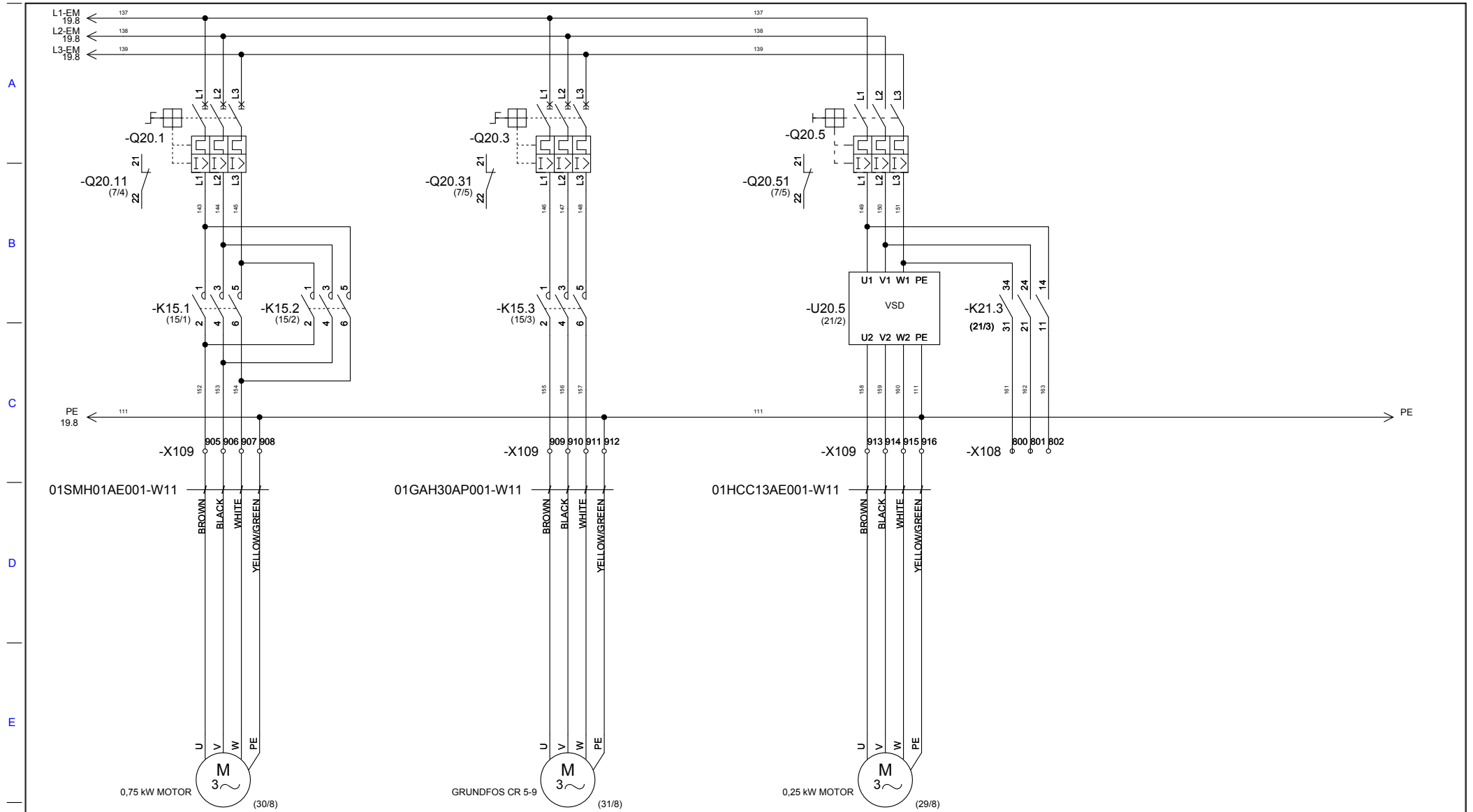
T  
ELECTRICAL DESIGN  
SAFETY RELAY  
01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 17
Drawing no. 0320191	Filename 01HCC13GS001_CD15.DWG	Binder S18.2	Next page 19
Created: 010910 JEO	Check: 010910 ANI	Appr. 010910 KOV	Page 18
			Of 39



01HCC13GS001-Q01  
 SEPERATION/SAFETY SWITCH      24 VDC TRAFO      SERVICE LIGHT      SERVICE PLUG      SAFETY RELAYS  
 400V 16A

Revision	0	011010 JEO	ISSUED FOR COMMENTS																	
										T	ELECTRICAL DESIGN		Order no.	Sub-order no.	Keys	Prev. page				
										400V DISTRIBUTION		12845	36050	G.3.4	18					
										01HCC13GS001		Drawing no.	Filename		Next page					
												0320191	01HCC13GS001_CD16.DWG		20					
												Created:	Check:	Appr.	Page					
												010910 JEO	010910 ANI	010910 KOV	19					
															Of					
															39					

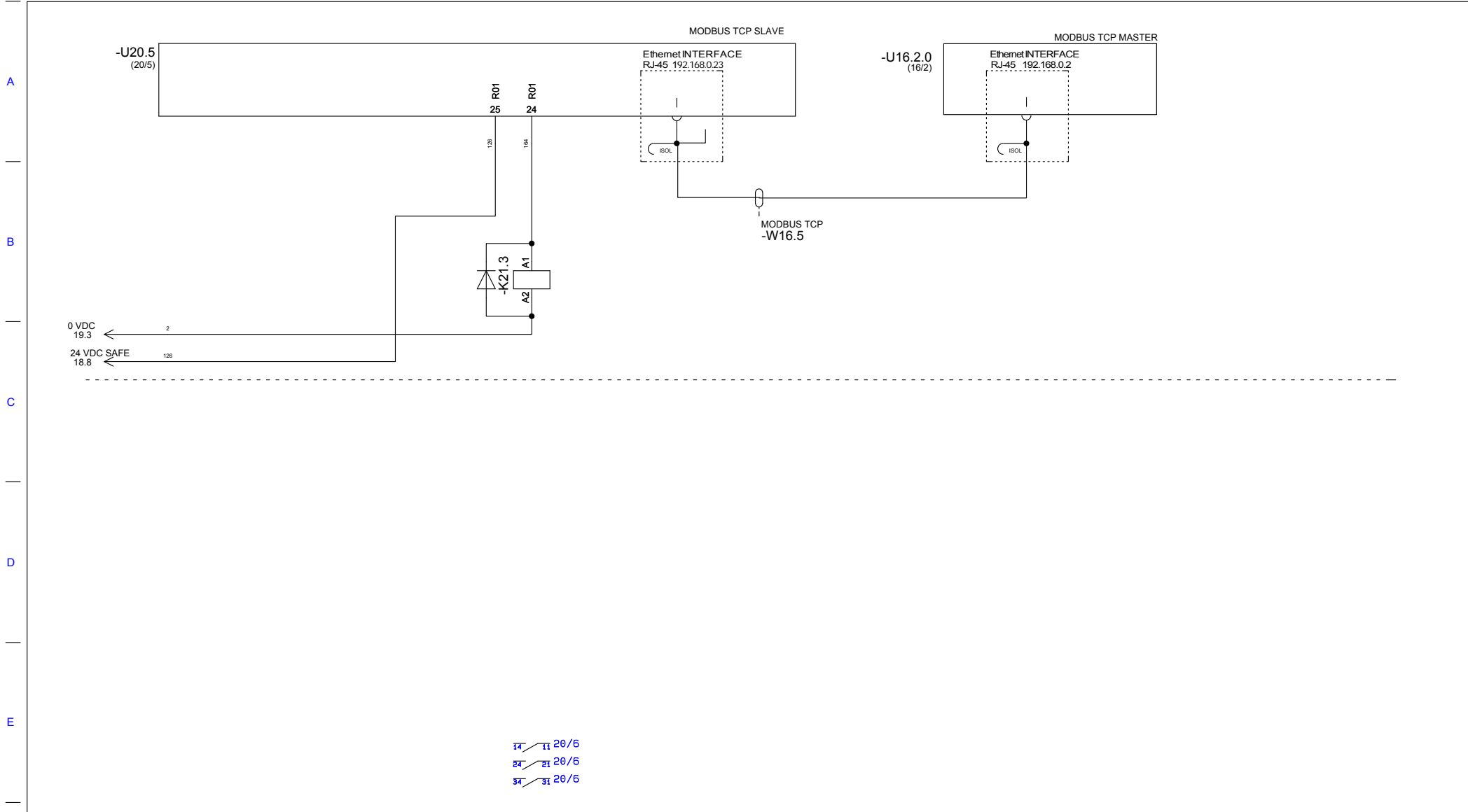


01SMH01AE001-M01  
CONVEYOR MOTOR

01GAH30AP001-M01  
PUMPMOTOR

01HCC13AE001-M01  
HOSE REEL CART MOTOR SPARE

Revision	0	011010 JEO	ISSUED FOR COMMENTS	T	ELECTRICAL DESIGN 400V DISTRIBUTION 01HCC13GS001	Order no.	Sub-order no.	Keys	Prev. page
	1	270911 JEO	AS BUILT			12845	36050	G.3.4	19
						Drawing no.	Filename	Binder	Next page
						0320191	01HCC13GS001_CD17.DWG	518.2	21
						Created:	Check:	Appr.	Page
						010910 JEO	270911 KOV	270911 JEO	20
									Of
									39



HOSE REEL CART MOTOR  
FREQUENCY CONVERTER

HOSE REEL CART MOTOR  
BRAKE

MODBUS CONNECTION  
TO PLC

0	011010 JEO	ISSUED FOR COMMENTS
1	270911 JEO	AS BUILT

**T**  
ELECTRICAL DESIGN  
FREQUENCY CONVERTER  
01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 20
Drawing no. 0320191	Filename 01HCC13GS001_CD18.DWG	Binder 518.2	Next page 22
Created: 010910 JEO	Check: 270911 KOV	Appr. 270911 JEO	Page 21
			Of 39

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A

B

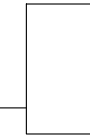
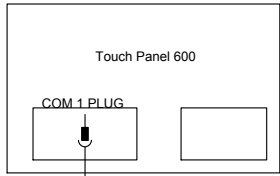
C

D

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F

-U16.8.0  
(16/7)



-W22.5  
ETHERNET CABLE  
CABLE PLC TO HMI



TOUCHPANEL

MODBUS CONNECTION  
TO PLC

Revision	0	011010 JEO	ISSUED FOR COMMENTS
	1	270911 JEO	AS BUILT

T  
ELECTRICAL DESIGN  
TOUCHPANEL (HMI)  
HCC03GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 21
Drawing no. 0320191	Filename HCC03GS001_CD19.DWG	Index 10	Next page 23
Created: 010910 JEO	Check: 270911 KOV	Appr. 270911 JEO	Page 22
			Of 39

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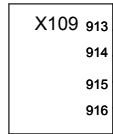
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WATER SOOTBLOWER SWITCHBOARD  
WITH 400V FREQUENCY CONVERTER  
01HCC13GS001

CABLE

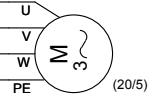
HOSE REEL CART  
MOTOR  
01HCC13AE001-M01

A



BROWN  
BLACK  
WHITE  
YELLOW/GREEN

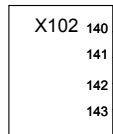
01HCC13AE001-W11  
Betaflex 145 c-flex 4g1,5



B

HOSE REEL CART  
ENCODER  
01HCC13AE001-B21

C



JB9.1

4  
3  
2  
1

01HCC13AE001-W73  
FQAR-PG 4x2x1 CU

YELLOW  
GREEN  
BROWN  
WHITE

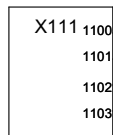
01HCC13AE001-W74



D

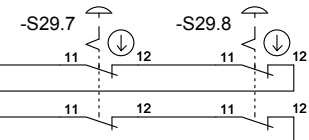
E

HOSE REEL CART  
EMERGENCY STOP  
01HCC13AE001-S01



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3  
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01HCC13AE001-W71  
Rheylflex 4g0,75



(18/2)

F

Revision	Order no.	Sub-order no.	Keys	Prev. page
0	011010 JEO	ISSUED FOR COMMENTS		28
1	270911 JEO	AS BUILT		30

T  
ELECTRICAL DESIGN  
CIRCUIT DIAGRAM 1  
01HCC13GS001

Order no.	Sub-order no.	Keys	Prev. page
12845	36050	G.3.4	28
Drawing no.	Filename	Order no.	Next page
0320191	01HCC13GS001_CD20.DWG	518.2	30
		10	29
Created:	Check:	Appr.	Of
010910 JEO	270911 KOV	270911 JEO	39

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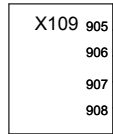
8

WATER SOOTBLOWER SWITCHBOARD  
01HCC13GS001

CABLE

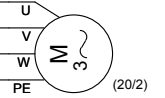
CONVEYOR MOTOR  
01SMH01AE001-M01

A



BROWN  
BLACK  
WHITE  
YELLOW/GREEN

01SMH01AE001-W11  
EQLQ 4x2.5 CU

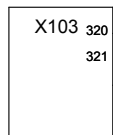


B

C

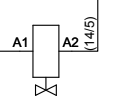
LUBRICATION PUMP  
01SMH01AA151-Y10

D



1  
2

01SMH01AA151-W71  
FQAR-PG 2x1 CU



E

F

Revision	Order no.	Sub-order no.	Comments
0	011010	JEO	ISSUED FOR COMMENTS
1	270911	JEO	AS BUILT

T  
ELECTRICAL DESIGN  
CIRCUIT DIAGRAM 2  
01HCC13GS001

Order no.	Sub-order no.	Keys	Prev. page
12845	36050	G.3.4	29
Drawing no.	Filename	Binder	Next page
0320191	01HCC13GS001_CD21.DWG	518.2	31
Created:	Check:	Appr.	Of
010910 JEO	270911 KOV	270911 JEO	39

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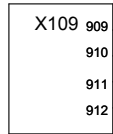
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WATER SOOTBLOWER SWITCHBOARD  
01HCC13GS001

CABLE

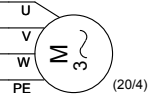
PUMPMOTOR  
01GAH30AP001-M01

A



BROWN  
BLACK  
WHITE  
YELLOW/GREEN

01GAH30AP001-W11  
EQLQ 4x1.5 CU



(20/4)

B

C

D

E

F

0	011010 JEO	ISSUED FOR COMMENTS

T  
ELECTRICAL DESIGN  
CIRCUIT DIAGRAM 3  
01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 30
Drawing no. 0320191	Filename 01HCC13GS001_CD22.DWG	Binder 518.2	Next page 32
Created: 010910 JEO	Check: 010910 ANI	Appr. 010910 KOV	Page 31
			Of 39

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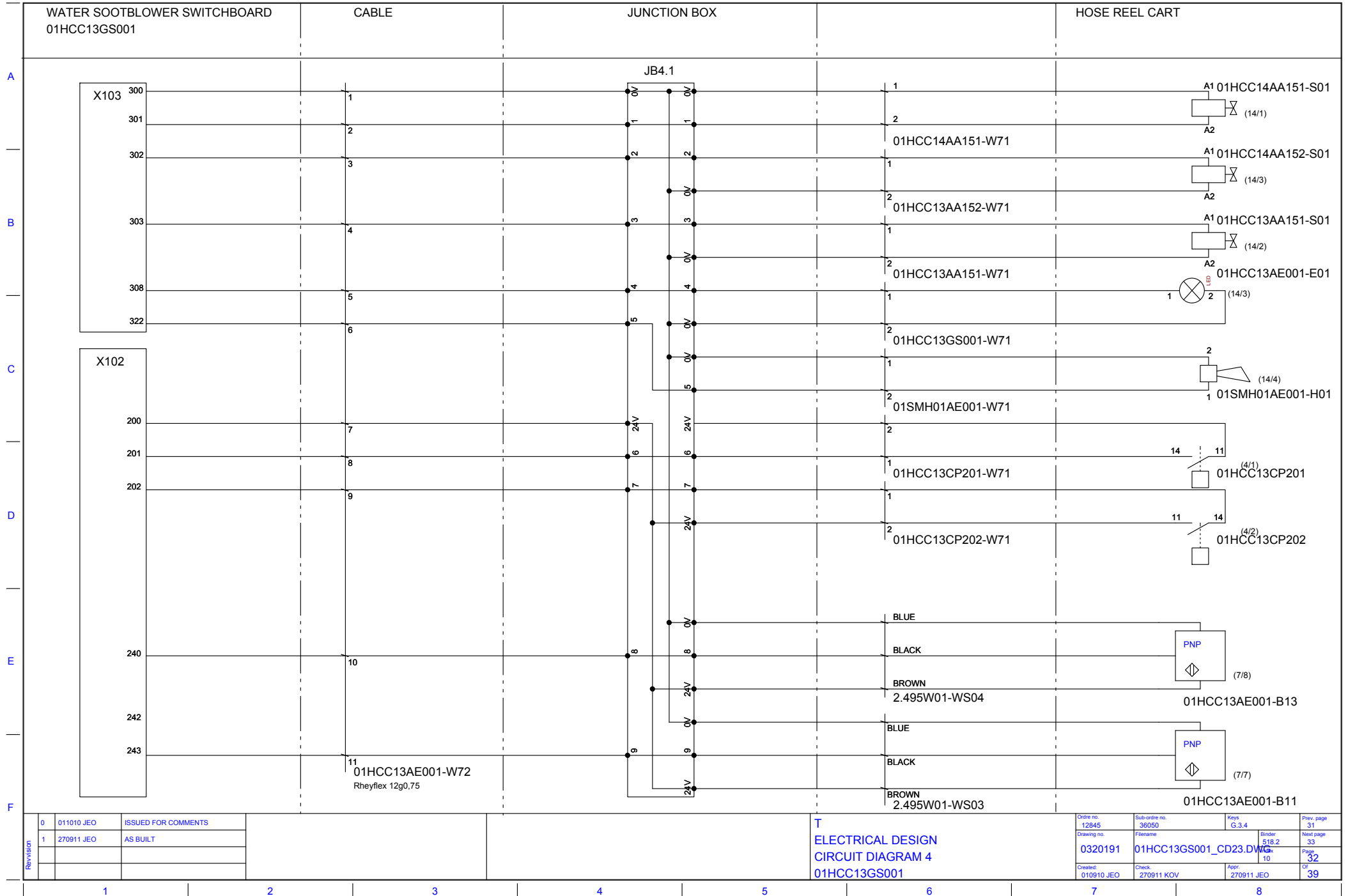
4

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8



Revision	0	011010 JEO	ISSUED FOR COMMENTS
	1	270911 JEO	AS BUILT

T  
 ELECTRICAL DESIGN  
 CIRCUIT DIAGRAM 4  
 01HCC13GS001

Order no.	Sub-order no.	Keys	Prev. page
12845	36050	G.3.4	31
Drawing no.	Filename	Binder	Next page
0320191	01HCC13GS001_CD23.DWG	518.2	33
		10	32
Created:	Check:	Appr.	Of
010910 JEO	270911 KOV	270911 JEO	39

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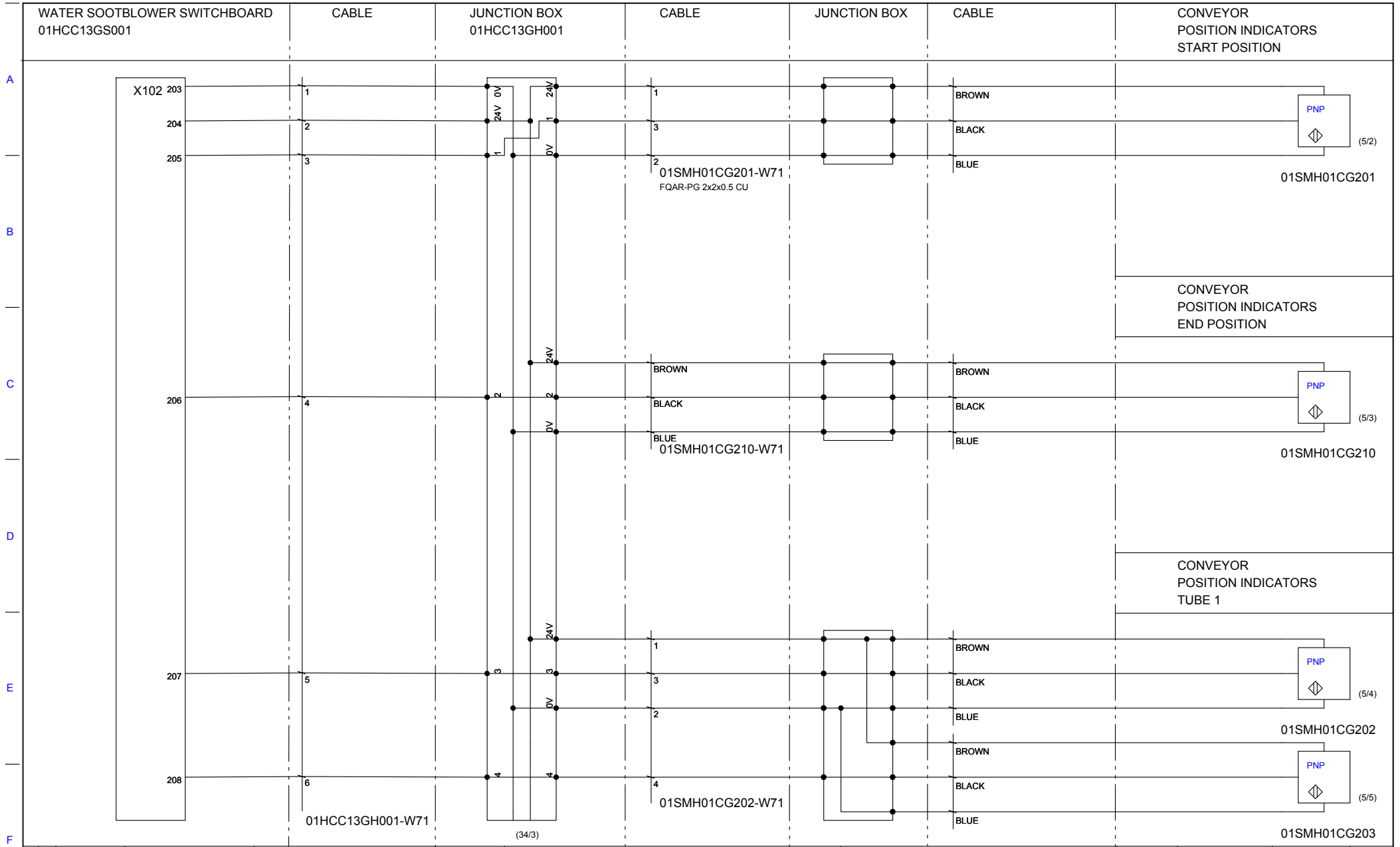
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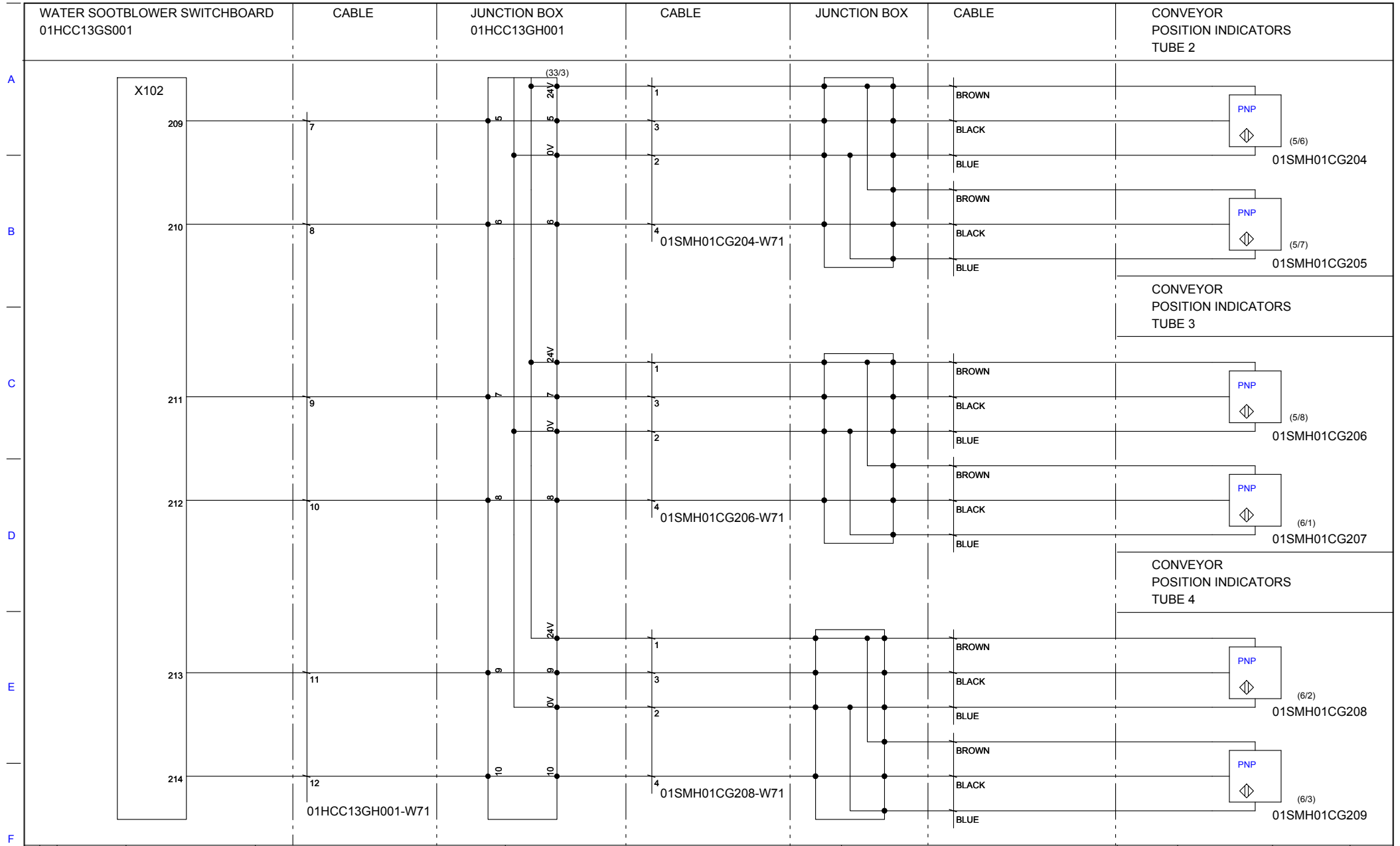
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Revision	Order no.	Sub-order no.	Keys	Prev. page
0	011010 JEO	ISSUED FOR COMMENTS		32
1	270911 JEO	AS BUILT		34

T  
ELECTRICAL DESIGN  
CIRCUIT DIAGRAM 5  
01HCC13GS001

Order no.	Sub-order no.	Keys	Prev. page
12845	36050	G.3.4	32
0320191	01HCC13GS001_CD24.DWG	518.2	34
		10	33
Created: 010910 JEO	Check: 270911 KOV	Appr: 270911 JEO	Of: 39

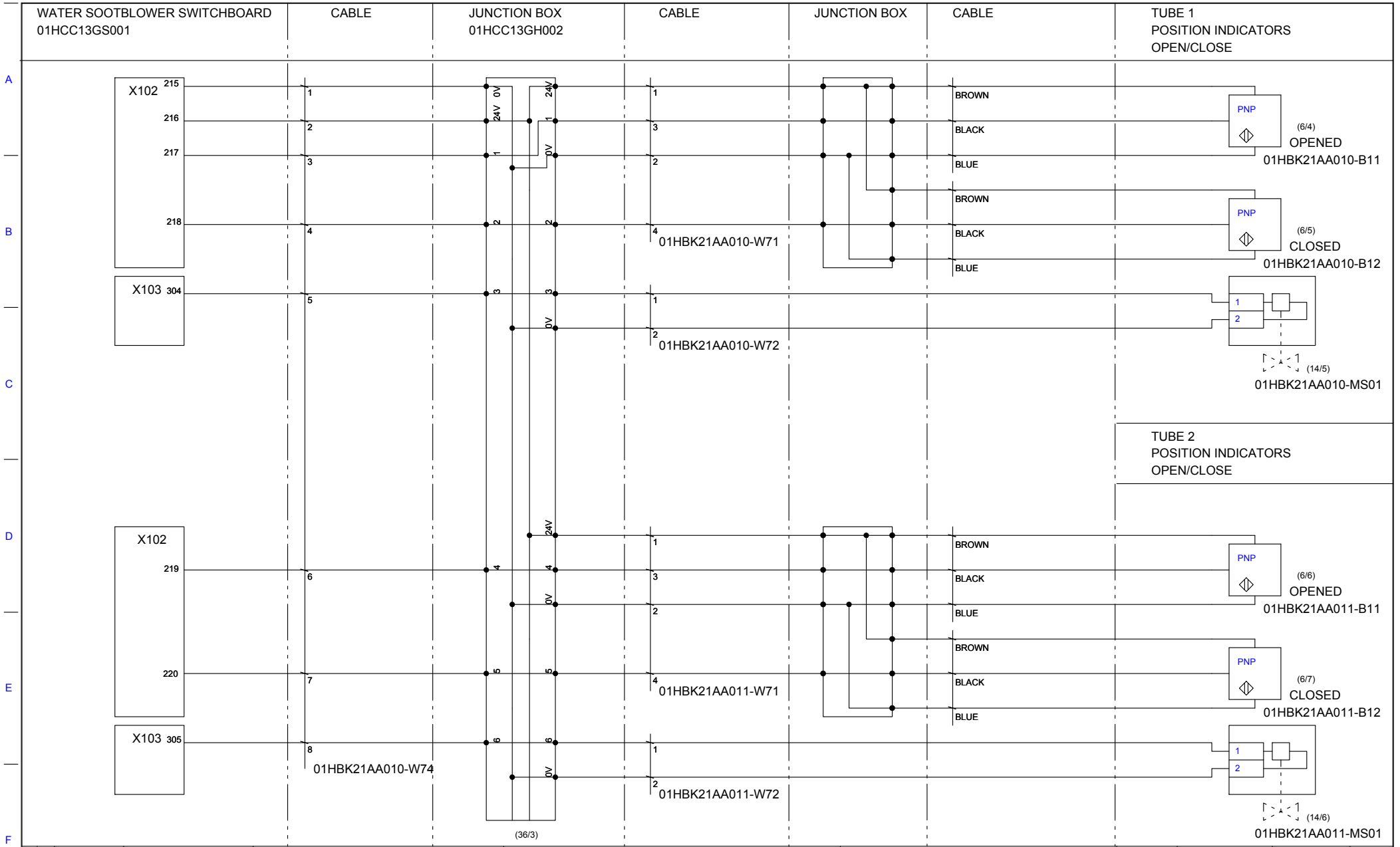


Revision	0	011010 JEO	ISSUED FOR COMMENTS
	1	270911 JEO	AS BUILT

1	2	3	4	5	6	7	8
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T  
 ELECTRICAL DESIGN  
 CIRCUIT DIAGRAM 6  
 01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 33
Drawing no. 0320191	Filename 01HCC13GS001_CD25.DWG	Binder 518.2	Next page 35
Created: 010910 JEO	Check: 270911 KOV	Appr. 270911 JEO	Page 34
			Of 39

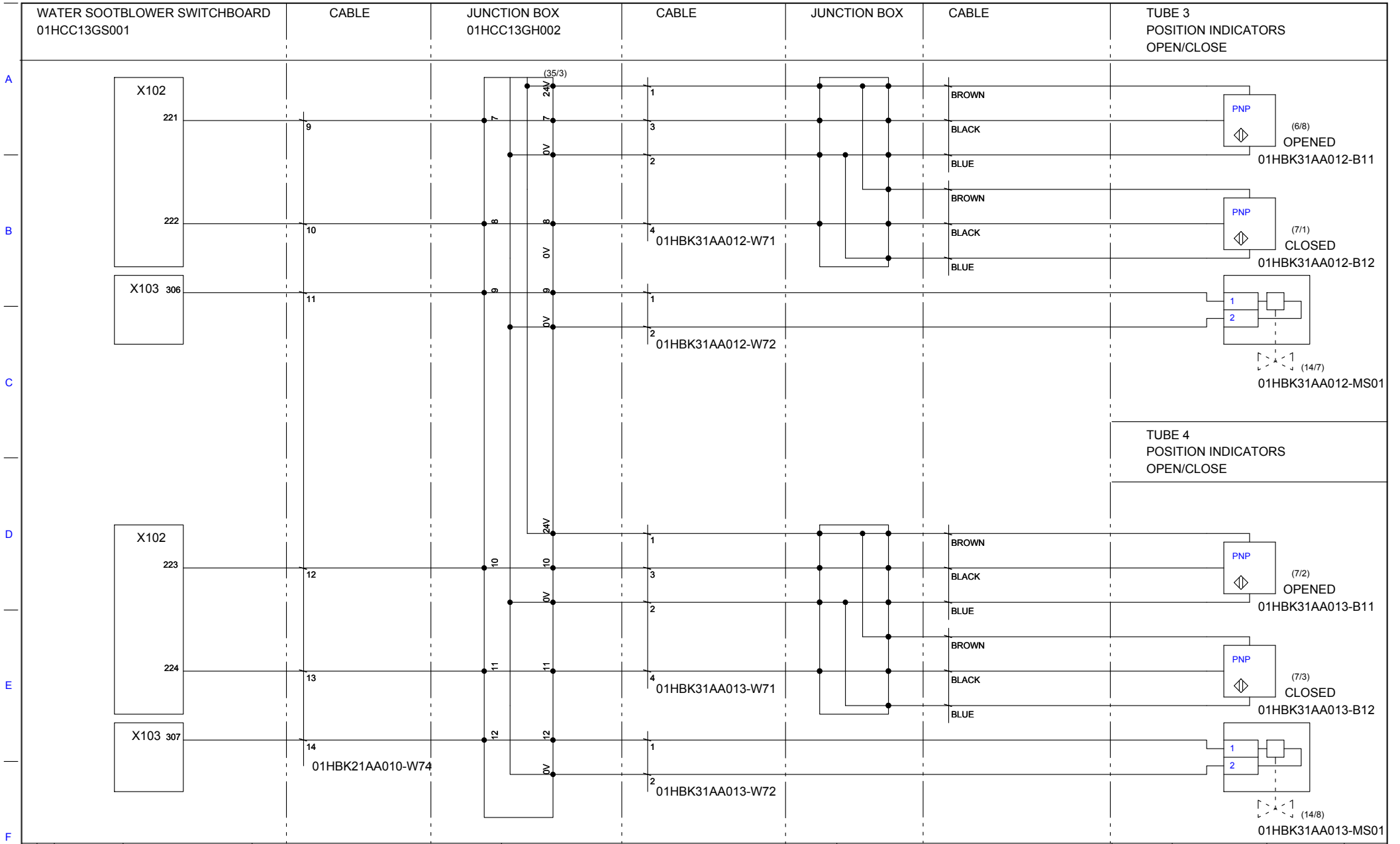


Revision	0	011010 JEO	ISSUED FOR COMMENTS
	1	270911 JEO	AS BUILT

T  
ELECTRICAL DESIGN  
CIRCUIT DIAGRAM 7  
01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 34
Drawing no. 0320191	Filename 01HCC13GS001_CD26.DWG	Binder 518.2	Next page 36
Created: 010910 JEO	Check: 270911 KOV	Appr. 270911 JEO	Page 35
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Revision	0	011010 JEO	ISSUED FOR COMMENTS
	1	270911 JEO	AS BUILT

**T**  
**ELECTRICAL DESIGN**  
**CIRCUIT DIAGRAM 8**  
**01HCC13GS001**

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 35
Drawing no. 0320191	Filename 01HCC13GS001_CD27.DWG	Binder 518.2	Next page 37
Created: 010910 JEO	Check: 270911 ANI	Appr. 270911 JEO	Page 36
			Of 39

**-I/O PANEL 1CQA04**

**CABLE**

**FIELD**

A



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 2

B



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 3

C



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 4

D



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 5

E



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 6

F



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 7



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 8



CPU DP LOOP NODE CARD CHANNEL  
1CKY10. 1. 6. 5. 9

>01HCC13GS001-W71  
FQAR-PG 16x2x0.5 CU

Revision	0	011010 JEO	ISSUED FOR COMMENTS

**T**  
ELECTRICAL DESIGN  
CIRCUIT DIAGRAM 9  
01HCC13GS001

Order no. 12845	Sub-order no. 36050	Keys G.3.4	Prev. page 36
Drawing no. 0320191	Filename 01HCC13GS001_CD28.DWG	Binder 518.2	Next page 38
Created: 250110 JEO	Check: 150610 SSM	Appr. 130710 JEO	Page 37
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