

CIRCUITS DIAGRAM
Machining Center Series
CAM ARM TOOL CHANGER
HEIDENHAIN iTNC530 HSCI

REVIEWED BY: _____

APPROVED BY: _____

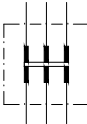
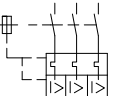
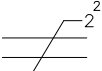
VERSION : XA00DHS0002

MACHINE SERIES NUMBER : BA293

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SUB-VERSION :							B-A1
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		MC Series	iTNC530 HSCI	Steven Hsu	APR-20-2012	XA00DHS0002	01

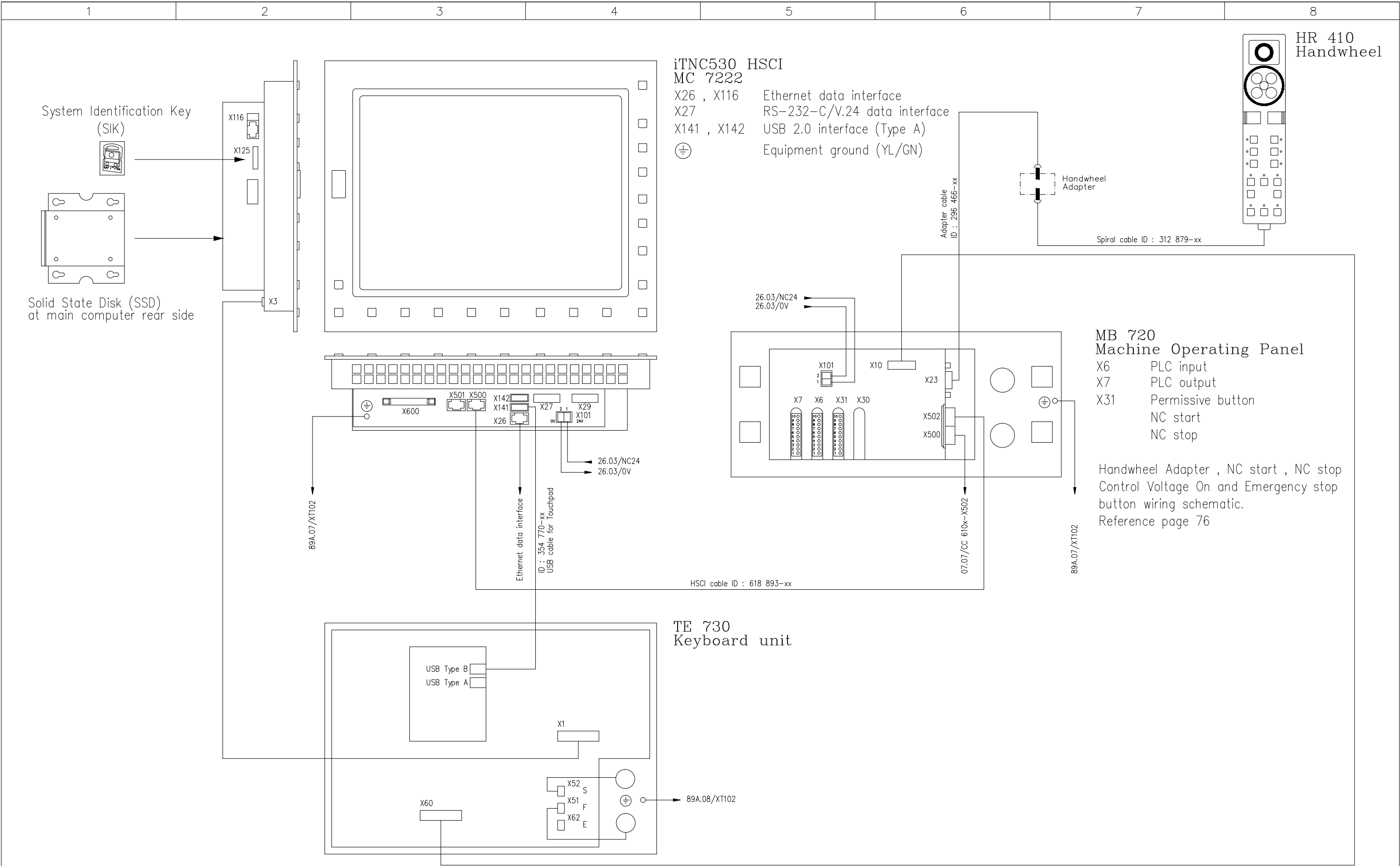
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63	PLC Input Ixxx to Ixxx (PLD10-X11) Reserve	63A:PLC Input Ixxx to Ixxx (PLD10-X12) Reserve					
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68	Reserve						
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72	Safety Guard (CE)	72A: Safety Guard II (CE) (TVMC or TVMC/5X Type only)					
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74	RENISHAW NC4 with NCi-5 Interface	74A:RENISHAW Touch Probe					
75	Reserve						
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76	Operation Panel & Safety Permission Button	76A: I241 to I248(MB 720 I –X6)					
77	Magazine Guard (CE)						
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	NORMALLY OPEN RELAY		MECHANICAL INTERLOCK		GROUND		TRANSFORMER 3-PHAS.
	NORMALLY CLOSED RELAY		BUZZER		PROTECTIVE GROUND		TRANSFORMER 1-PHAS.
	KEY SWITCH		CONNECTOR		RESISTOR		
	PRESSURE SWITCH		INDICATING LAMP		FUSE		MAGNETIC CONTACTOR
	LEVEL SWITCH		PROXIMITY SWITCH NORMALLY OPEN		CIRCUIT BREAKER		CONTACTOR
	SELECTOR SWITCH		2-WIRE PROXIMITY SWITCH NORMALLY OPEN		NO FUSE BREAKER		RELAY CONTACTOR
	MOMENTARY BUTTON		2-WIRE PROXIMITY SWITCH NORMALLY CLOSE		SOLENOID VALVE		SCREEN CABLE
	MAINTAINED BUTTON		3-WIRE PROXIMITY SWITCH NORMALLY OPEN		MANUAL MOTOR STARTER		TWIST CABLE
	TEMPTURE OVERHEAT SWITCH		3-WIRE PROXIMITY SWITCH NORMALLY CLOSE		FUSE		CABLE DIAMETER
	FOOT SWITCH		CAPACITOR		3-PHAS. MOTOR		FLOW SWITCH
	LIMIT SWITCH NORMALLY OPEN		DIODE		MOTOR FAN		
	LIMIT SWITCH NORMALLY CLOSED		LIGHT EMITTING DIODE (LED)		1-PHAS. MOTOR		
	FRAME FOR DEVICE		AC REACTOR				

						SUB-VERSION :		A-A1	
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			MC Series	iTNC530 HSCI	Steven Hsu	JUN-01-2012	XA00DHS0002		

SUB-VERSION : A-A1



Risk to internal components!
Do not engage or disengage any connections while the under power.

SUB-VERSION : A2

TITLE : Main Computer , Keyboard unit &
Machine Operating Panel

MACHINE MODEL
MC Series

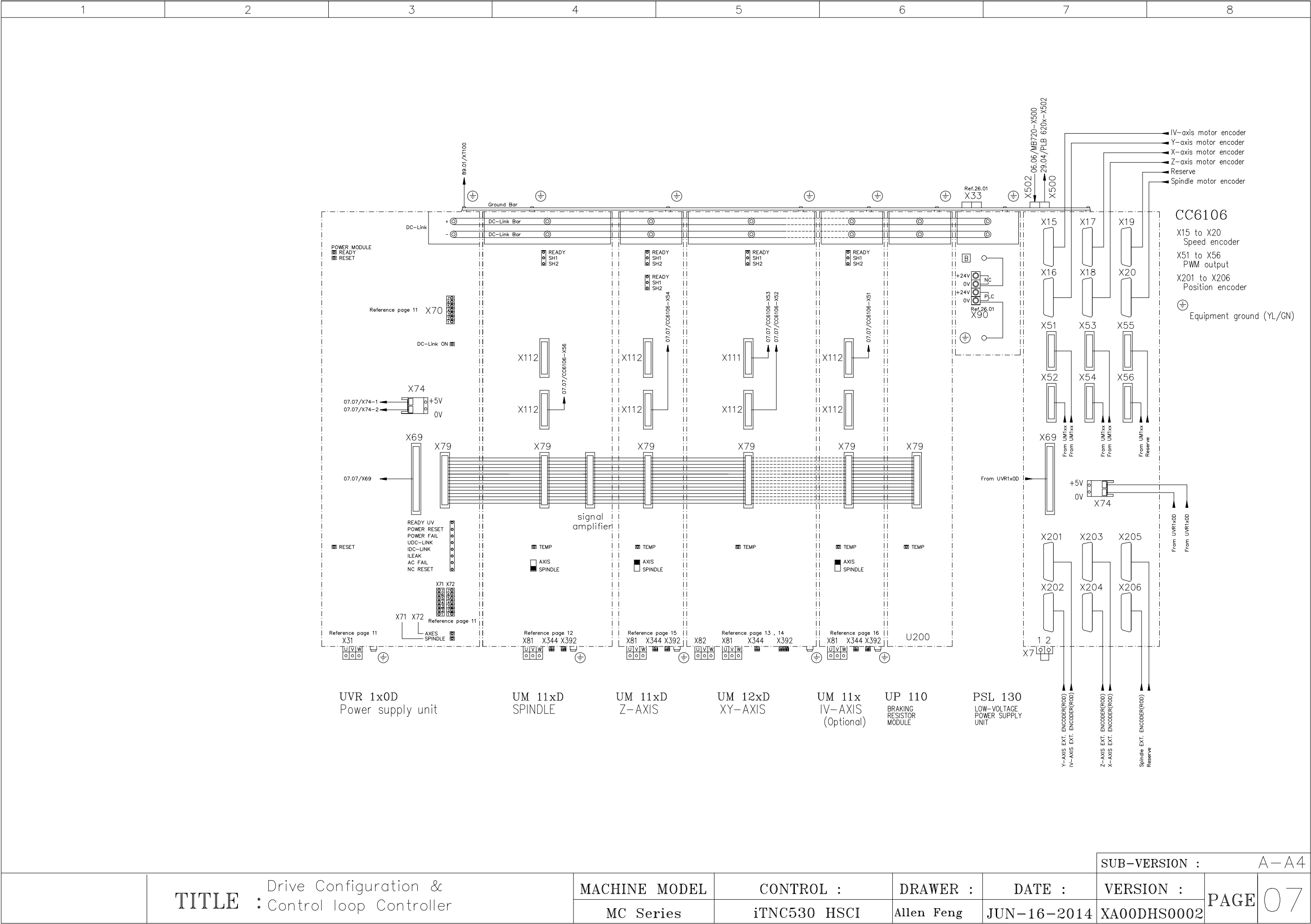
CONTROL :
iTNC530 HSCI

DRAWER :
Steven Hsu

DATE :
NOV-30-2012

VERSION :
XA00DHS0002

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SUB-VERSION : A-A4

TITLE : Drive Configuration & Control loop Controller

MACHINE MODEL
MC Series

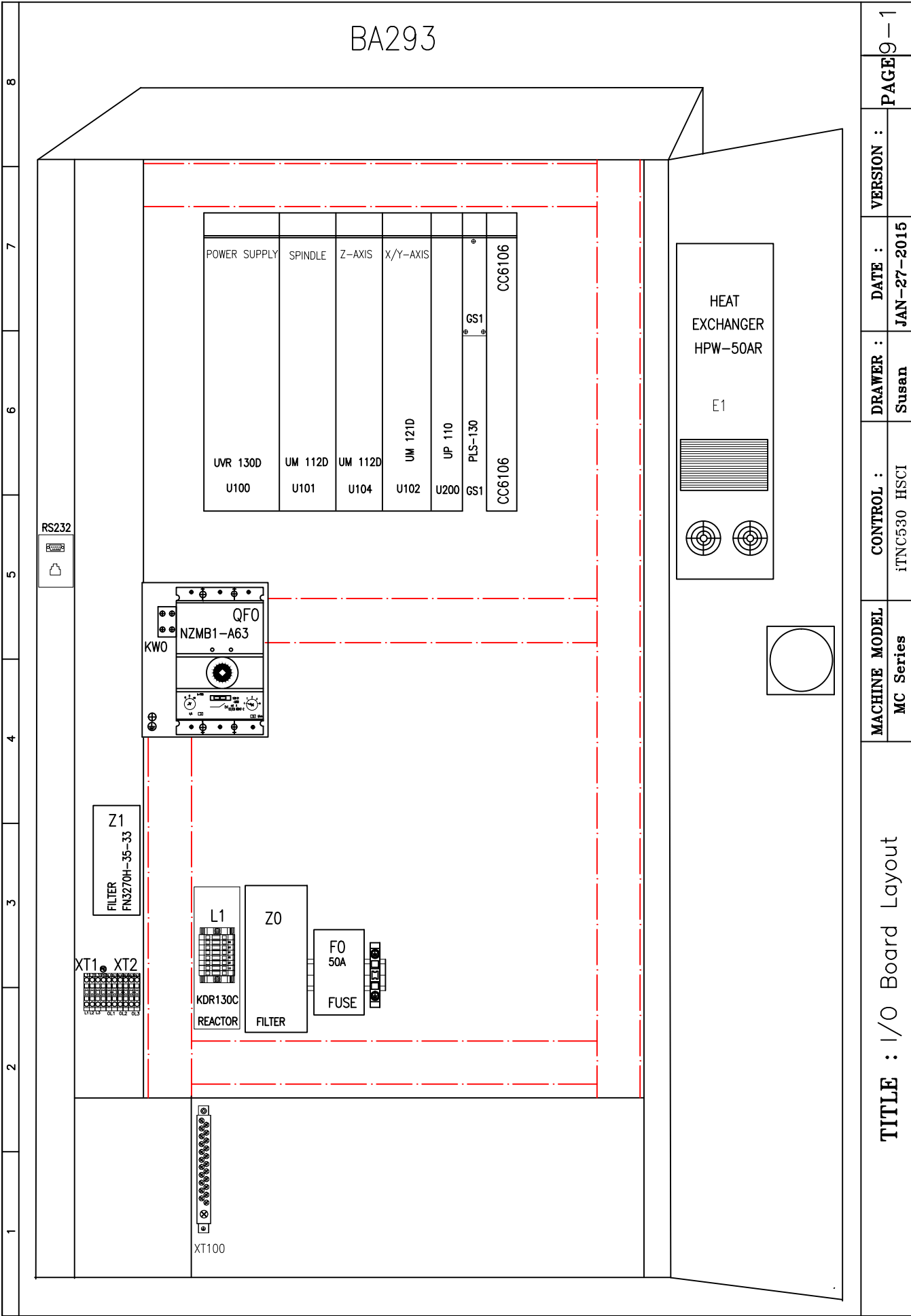
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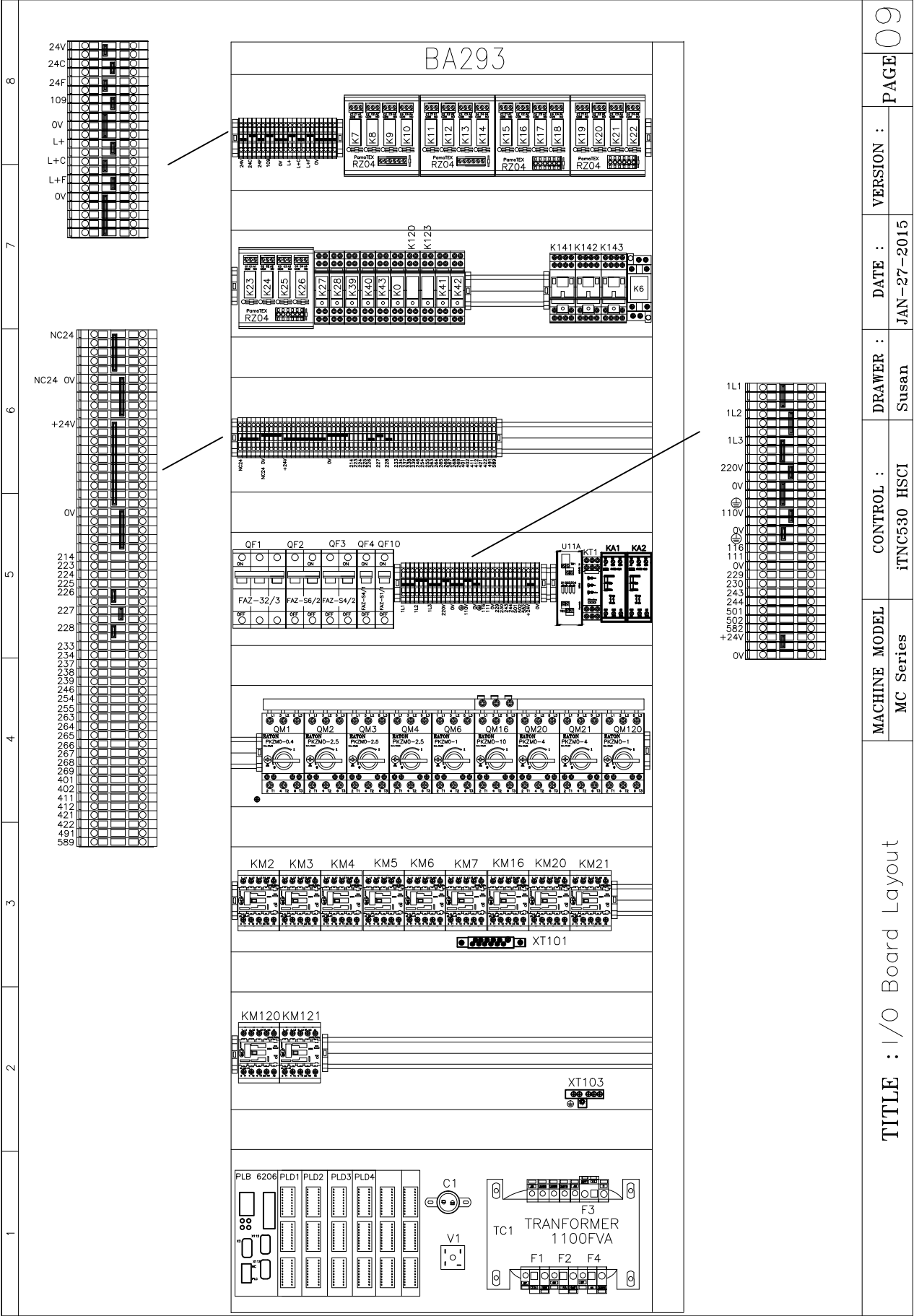
DRAWER :
Allen Feng

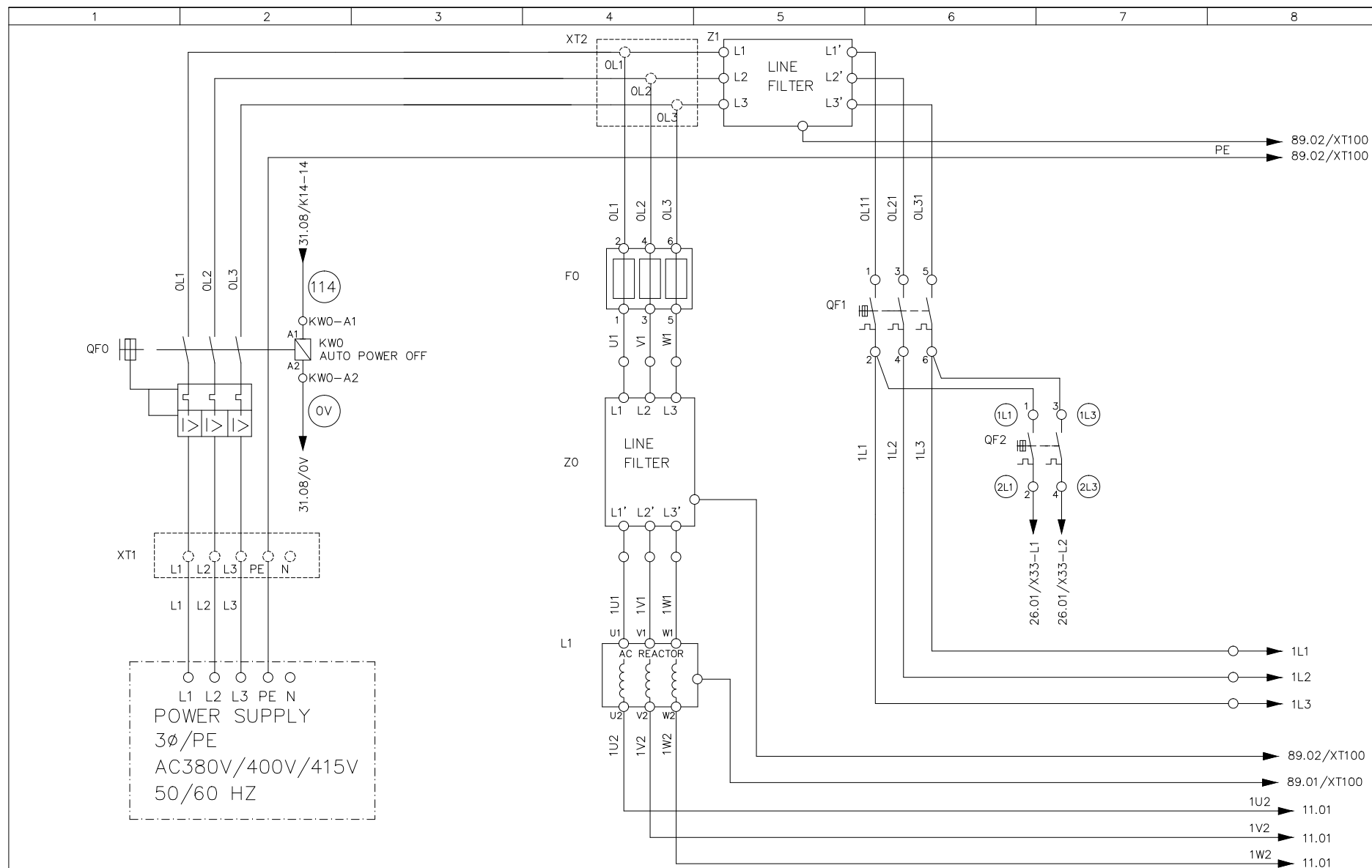
DATE :
JUN-16-2014

VERSION :
XA00DHS0002

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SUB-VERSION : A1

TITLE : Main power

MACHINE MODEL
MC Series

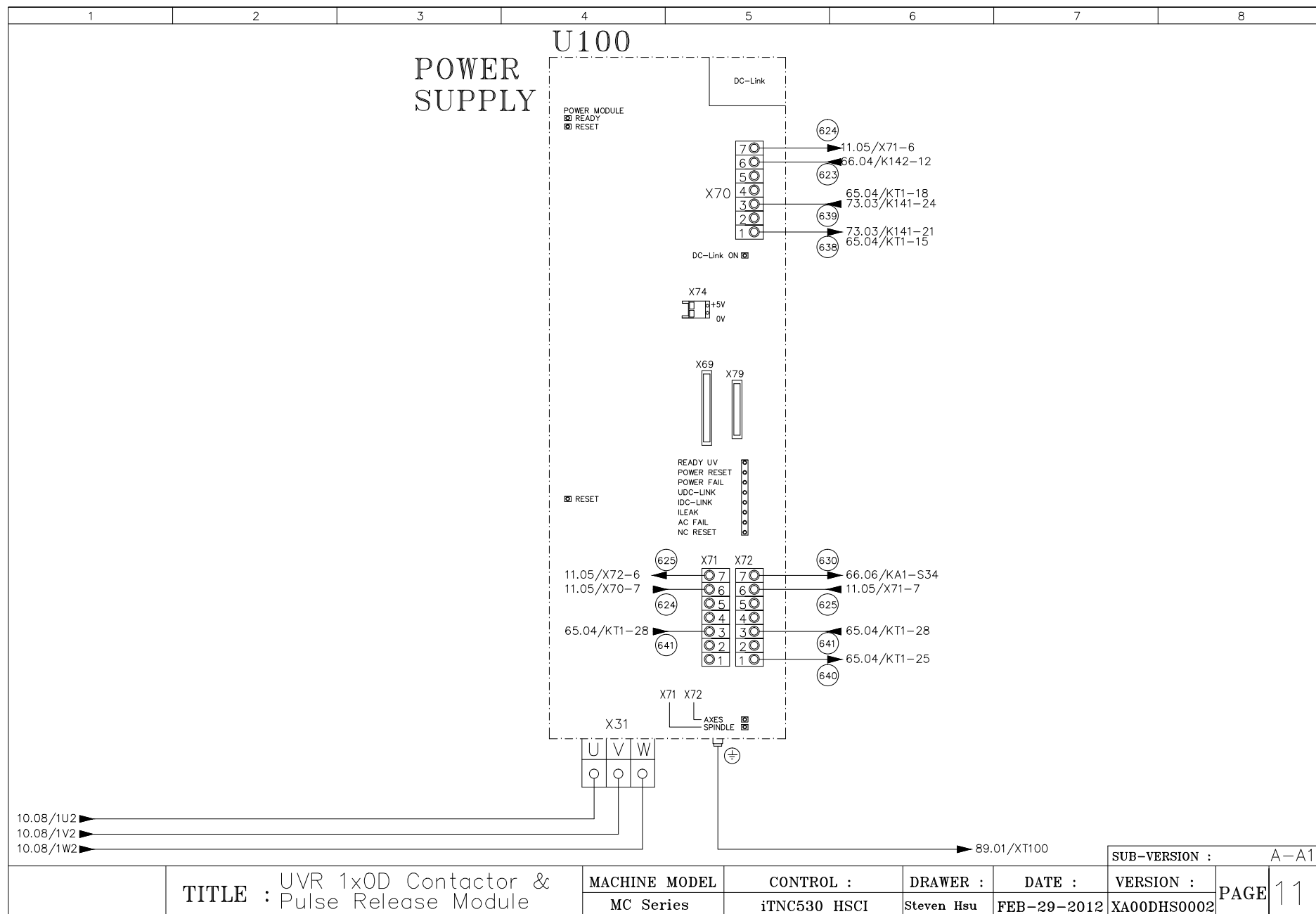
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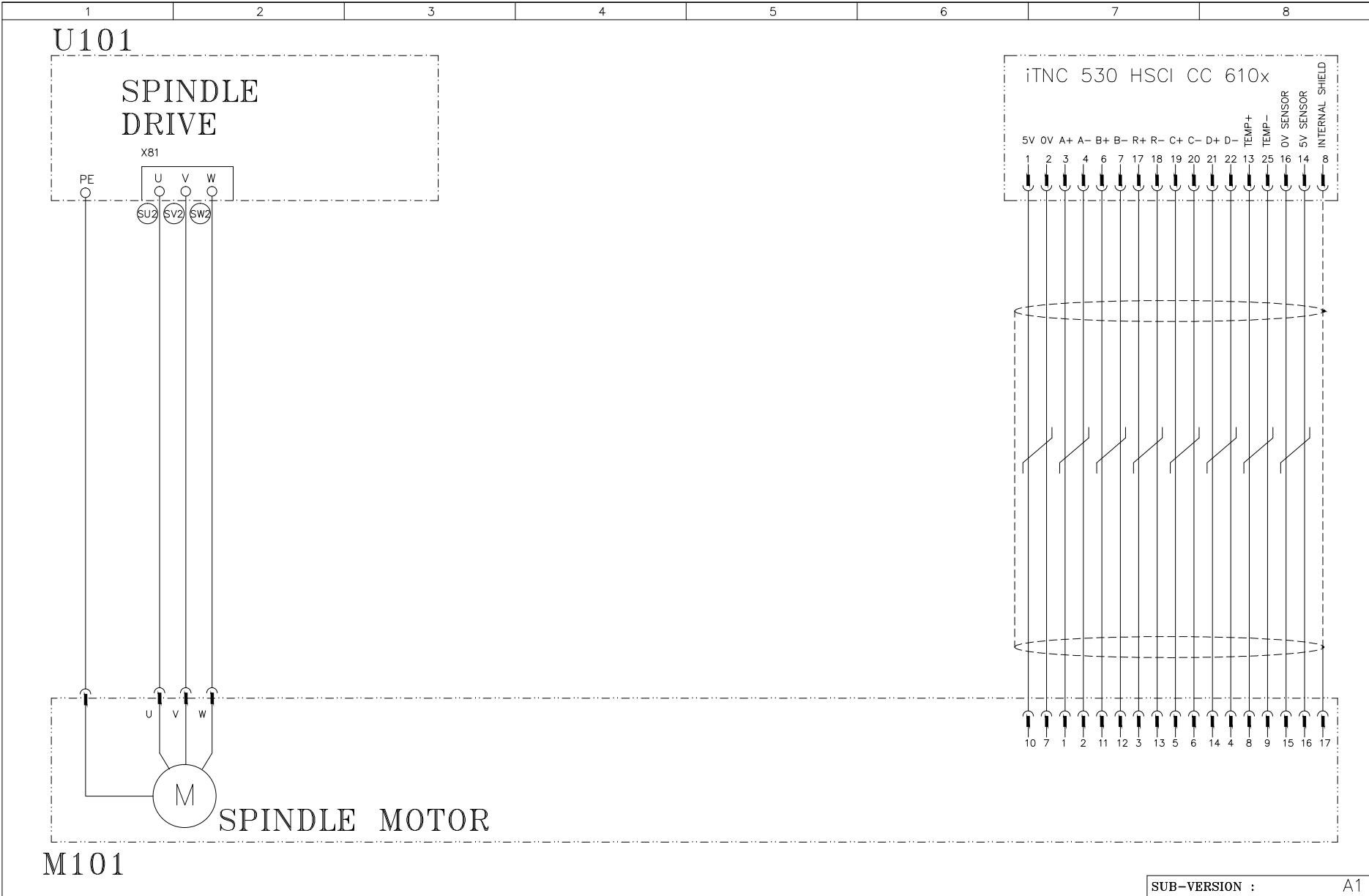
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Steven Hsu

DATE :
FEB-09-2012

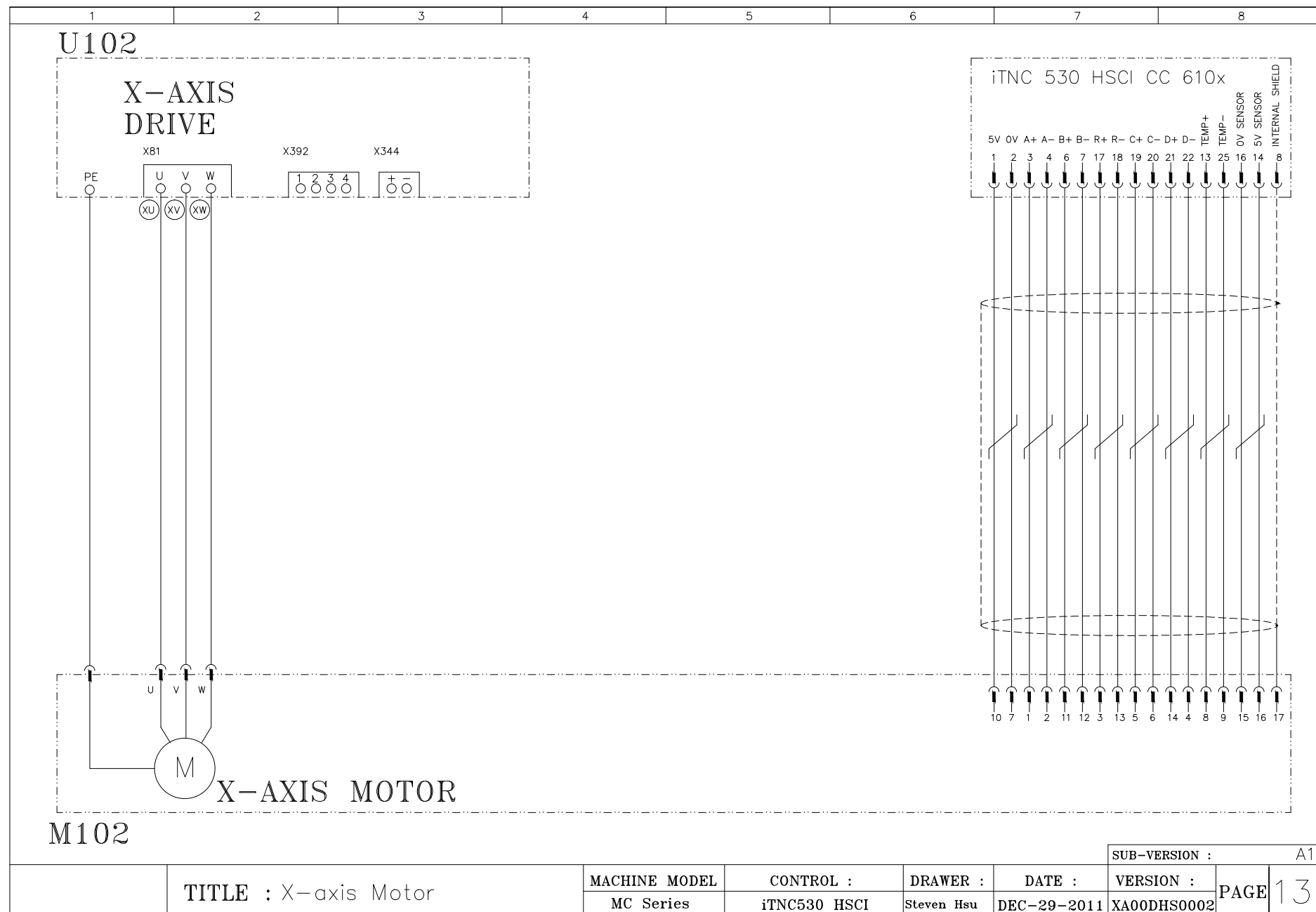
VERSION :
XA00DHS0002

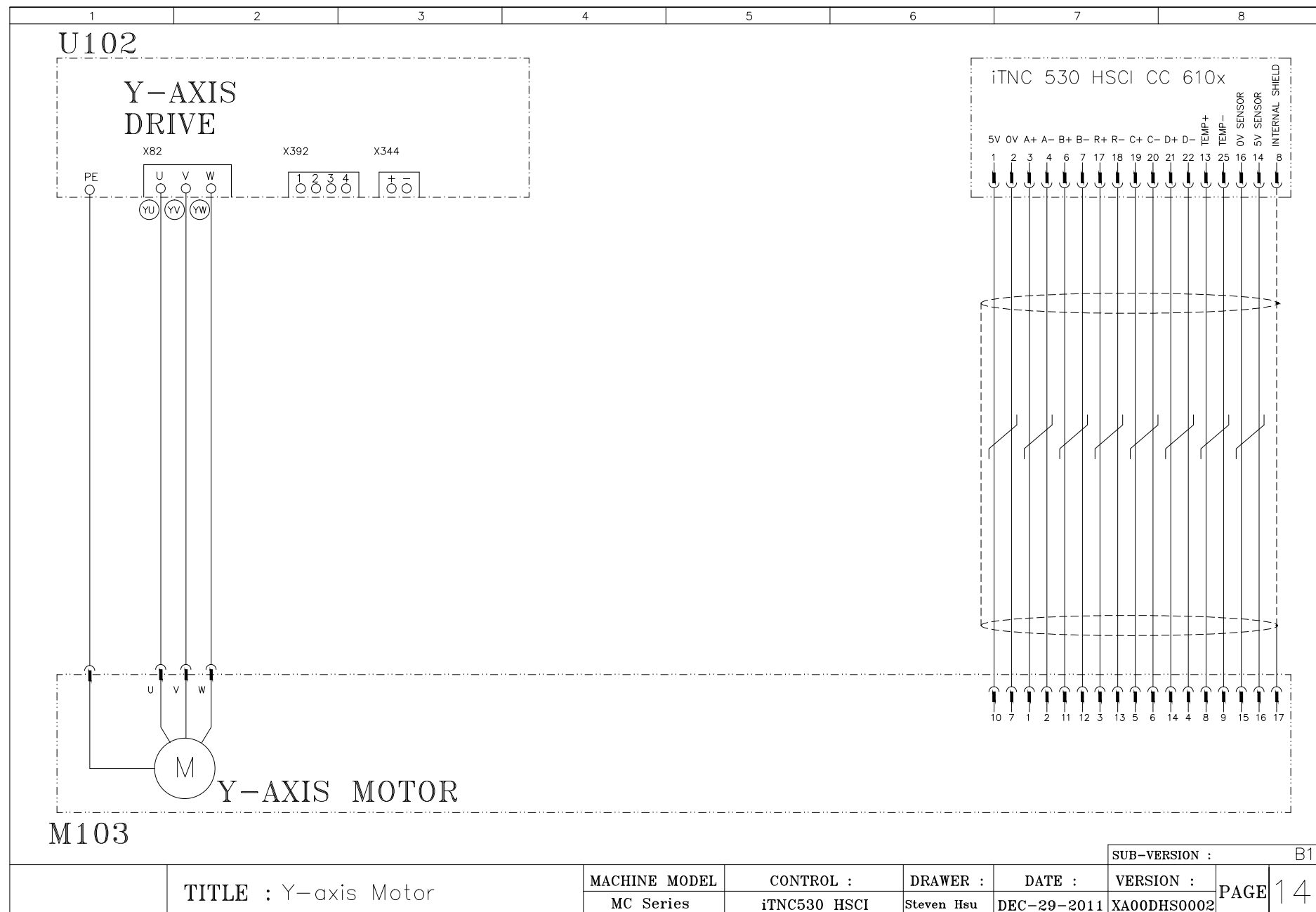
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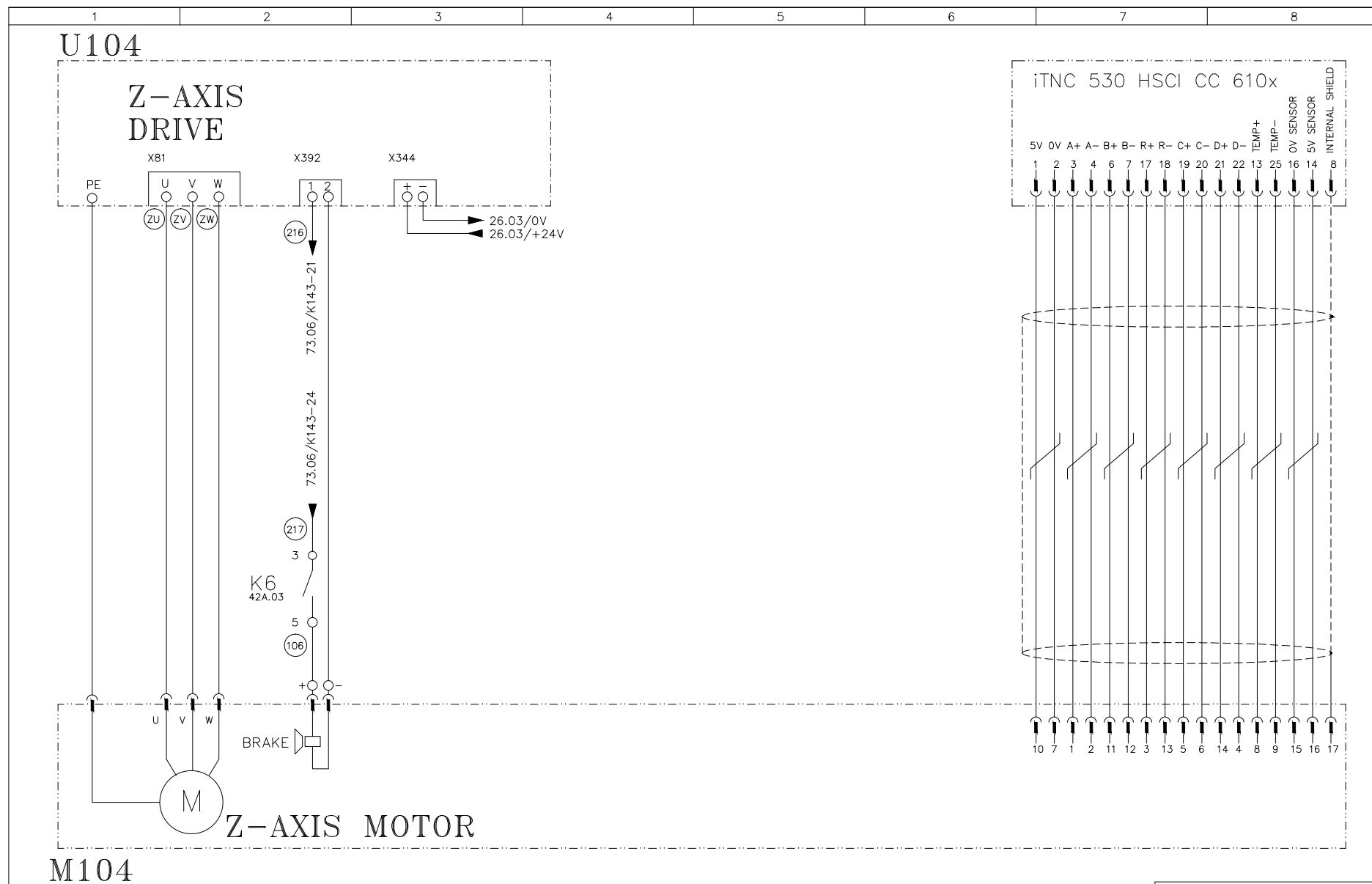




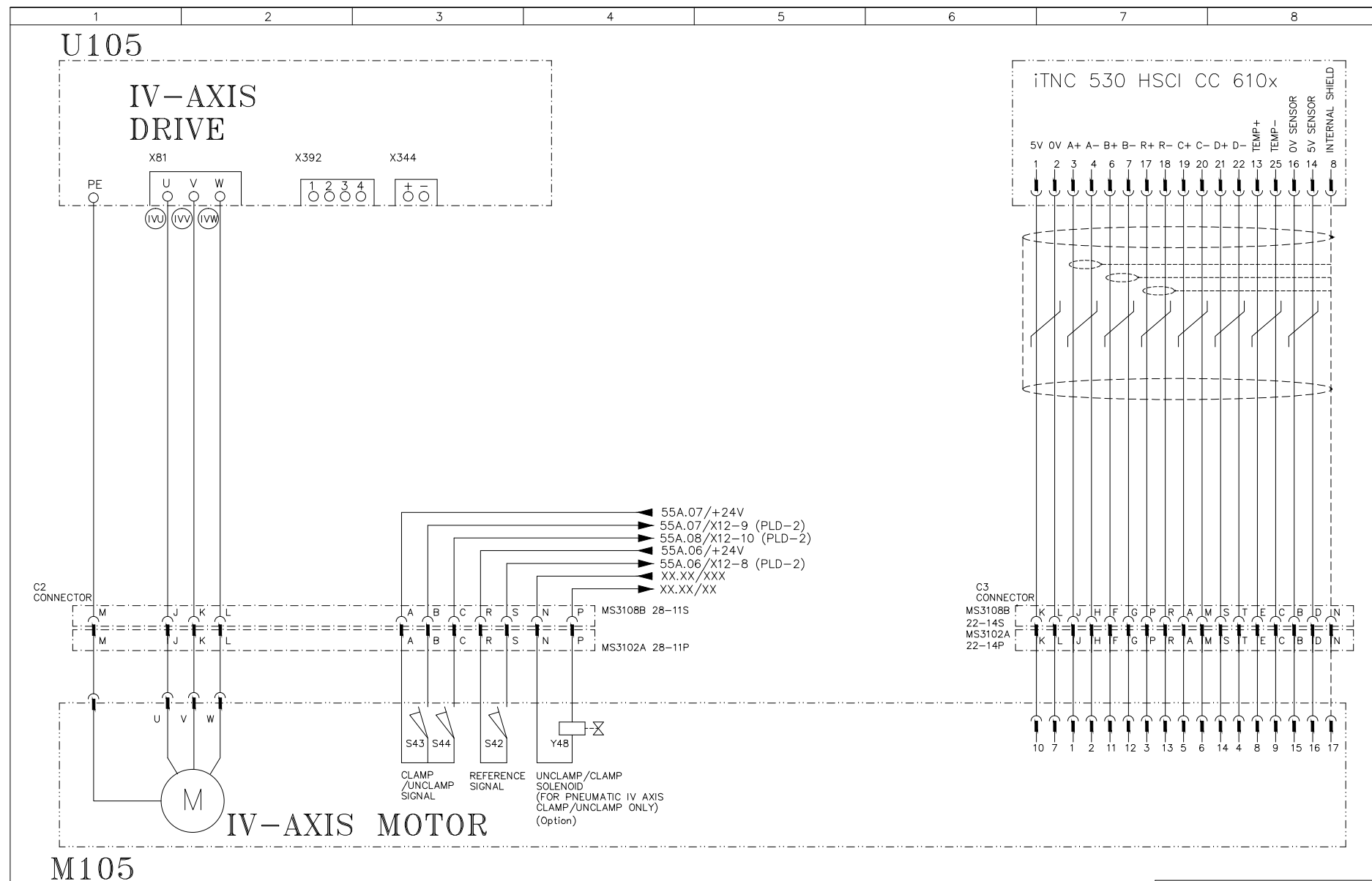
	TITLE : Spindle Motor	MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	PAGE	12
		MC Series	iTNC530 HSCI	Steven Hsu	DEC-27-2011	XA00DHS0002		



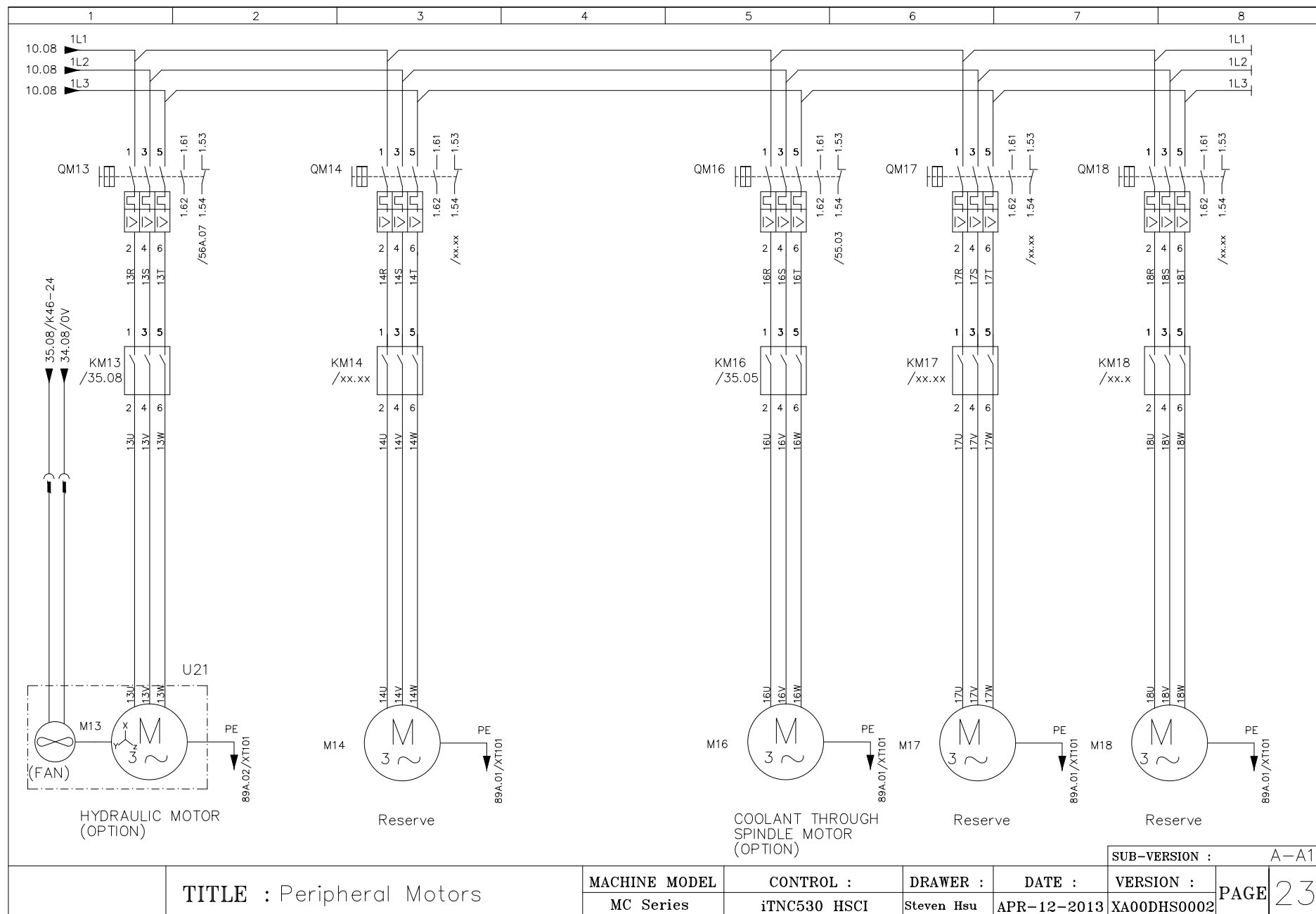


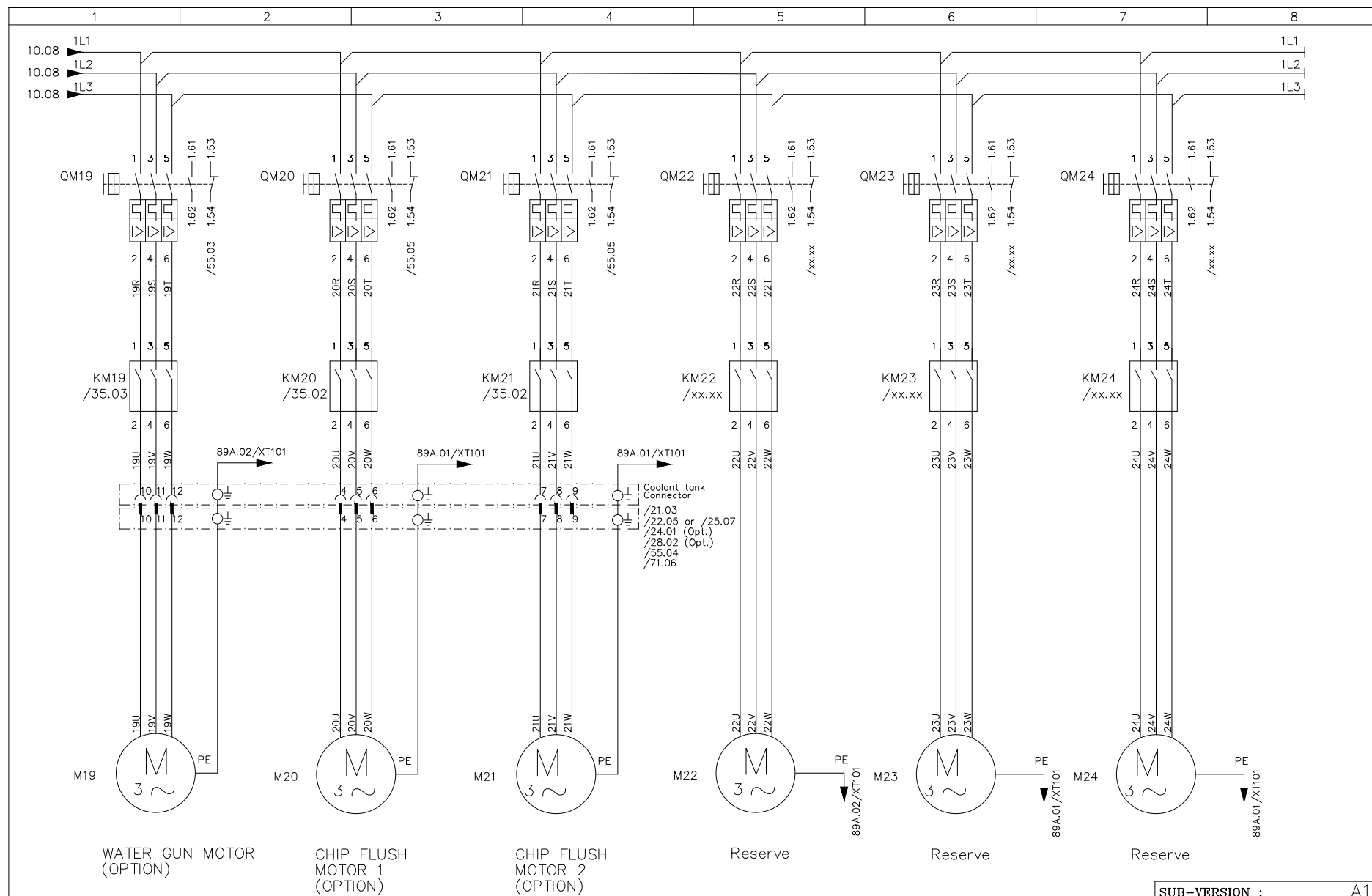


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	TITLE : Z-axis Motor	MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	PAGE	15
		MC Series	iTNC530 HSCI	Steven Hsu	JUN-15-2011	XA00DHS0002		

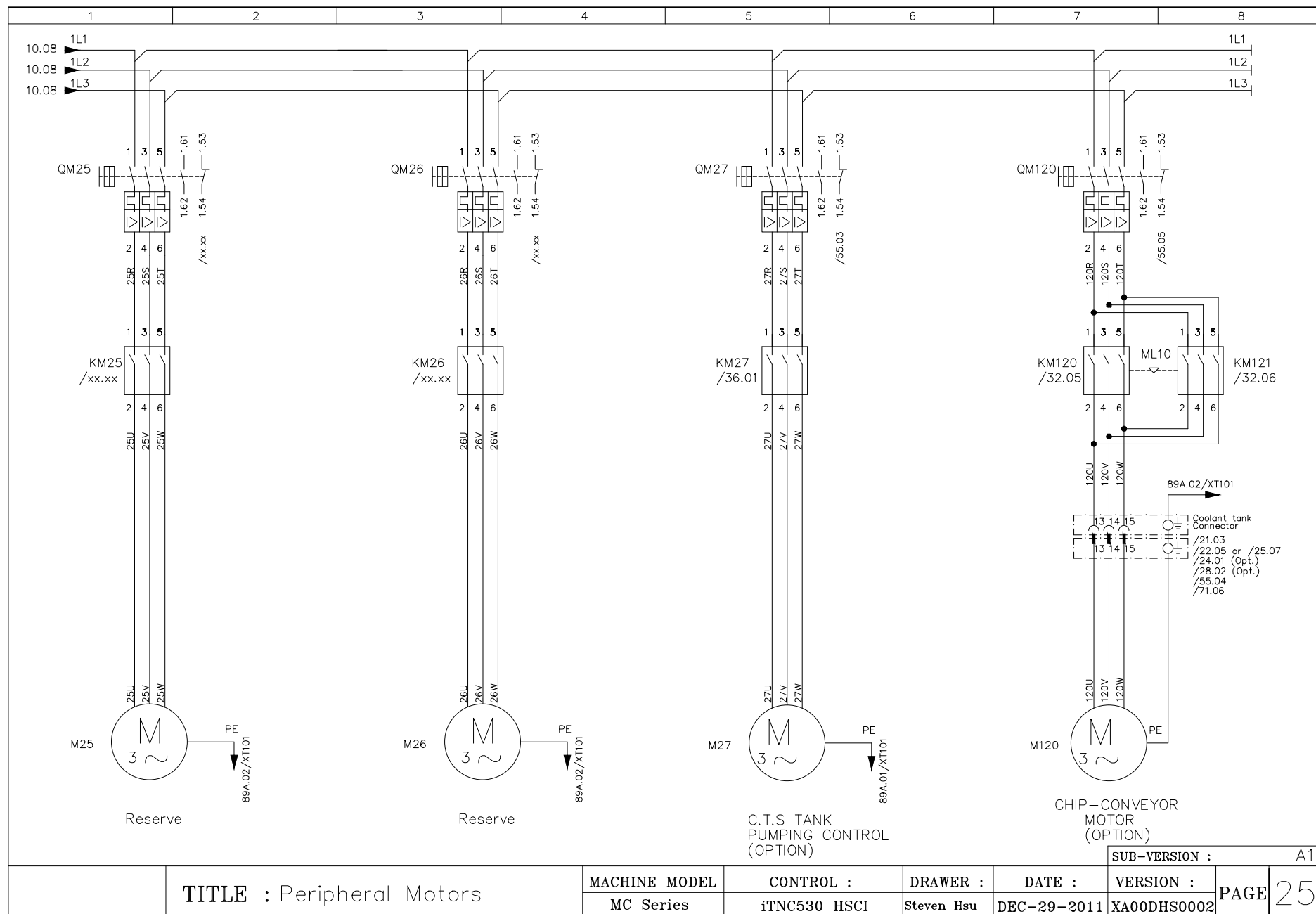


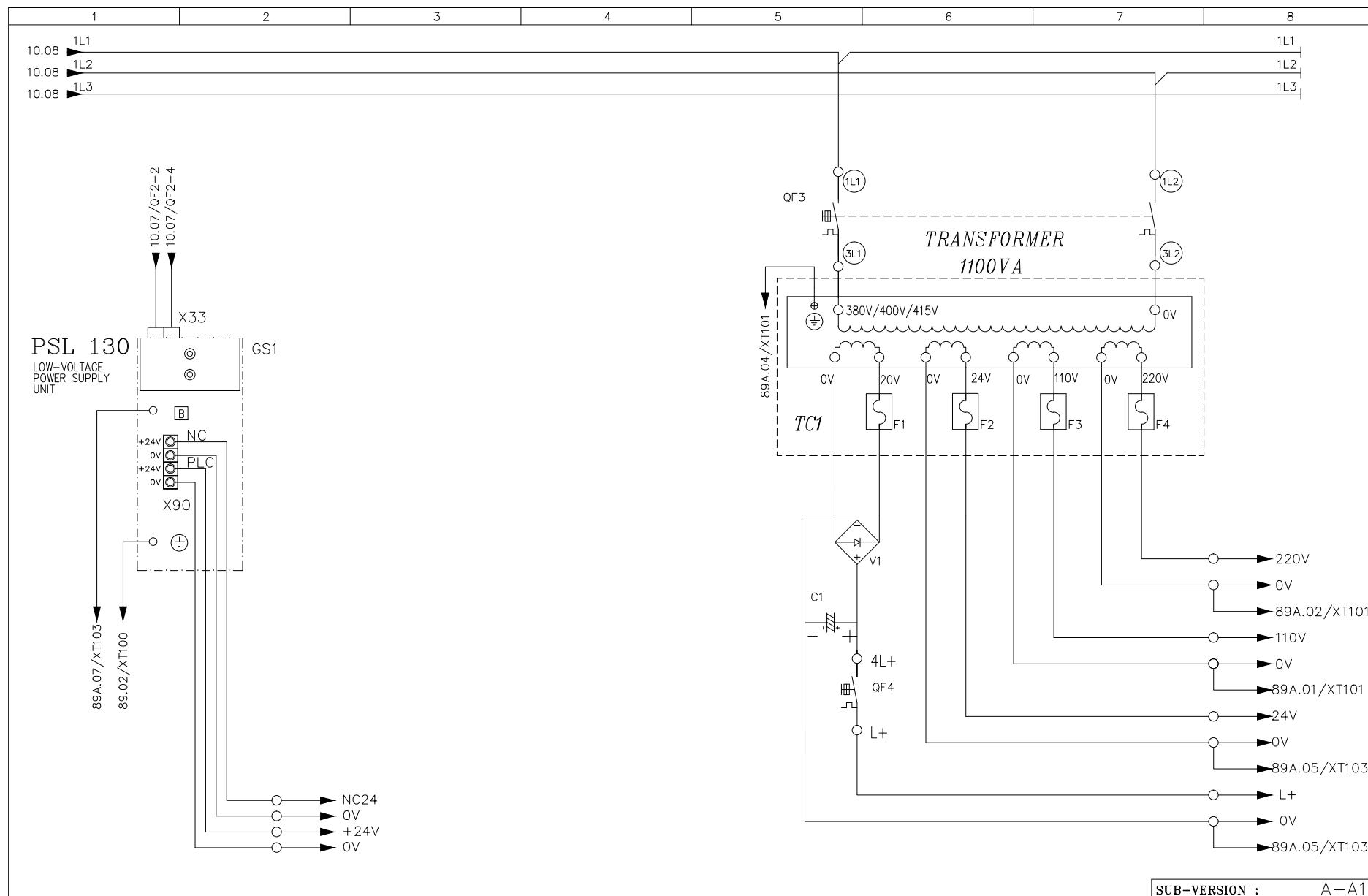
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	TITLE : IV-axis Motor	MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	PAGE	16
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TITLE : Peripheral Motors		MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	SUB-VERSION : A1	
		MC Series	iTNC530 HSCI	Steven Hsu	DEC-29-2011	XA00DHS0002	PAGE	24





SUB-VERSION : A-A1

TITLE : Power switch

MACHINE MODEL
MC Series

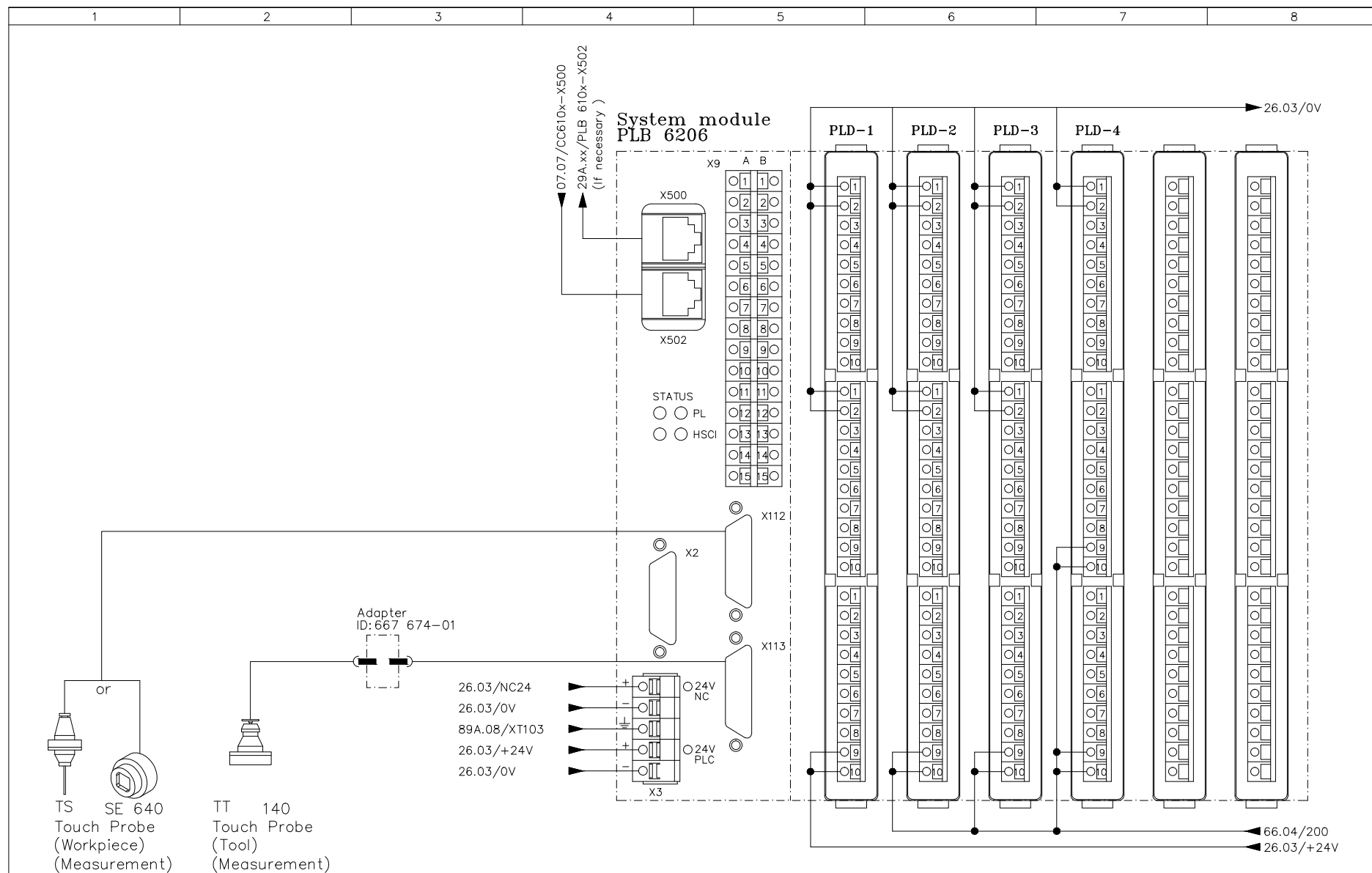
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iTNC530 HSCI

DRAWER :
Steven Hsu

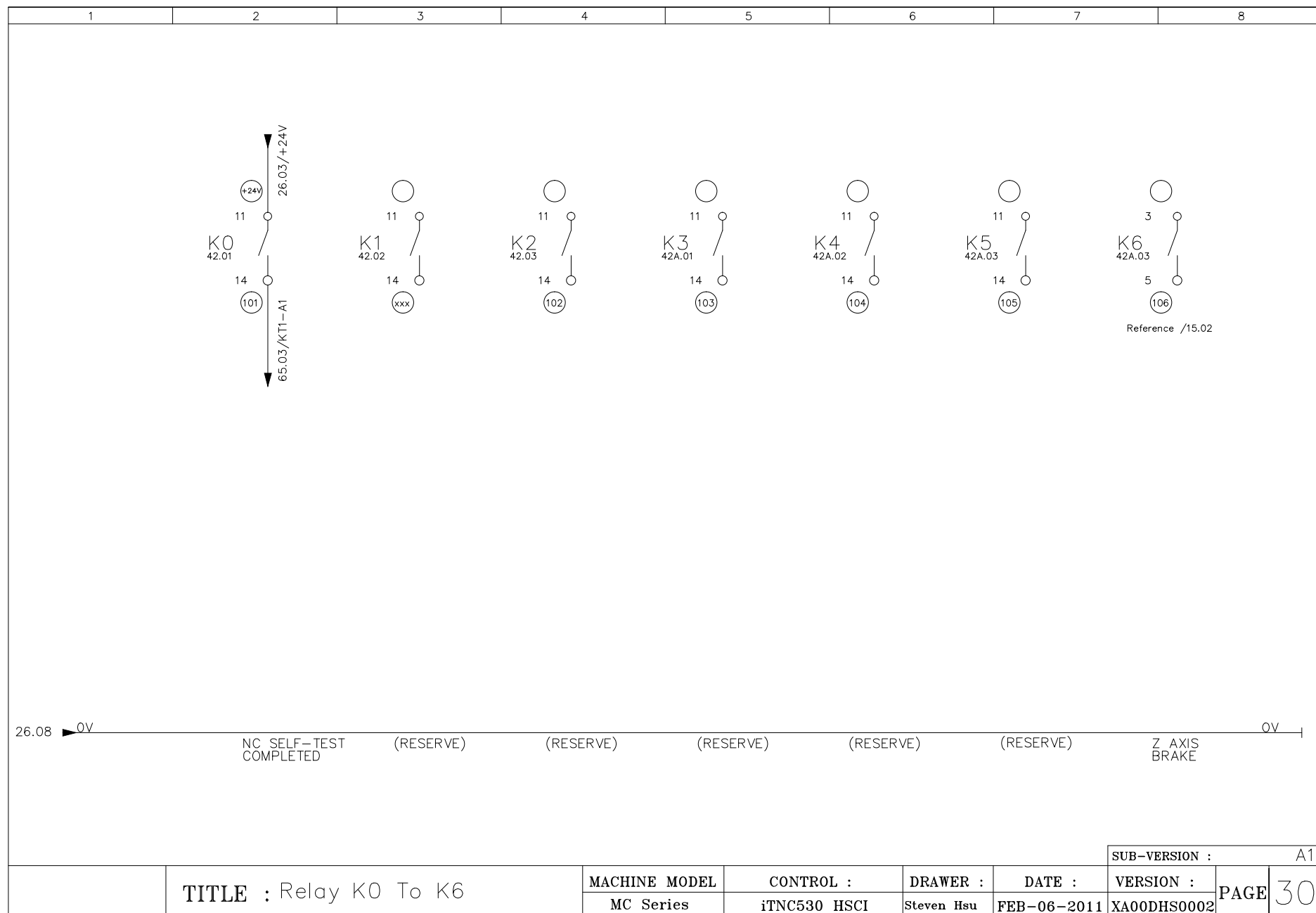
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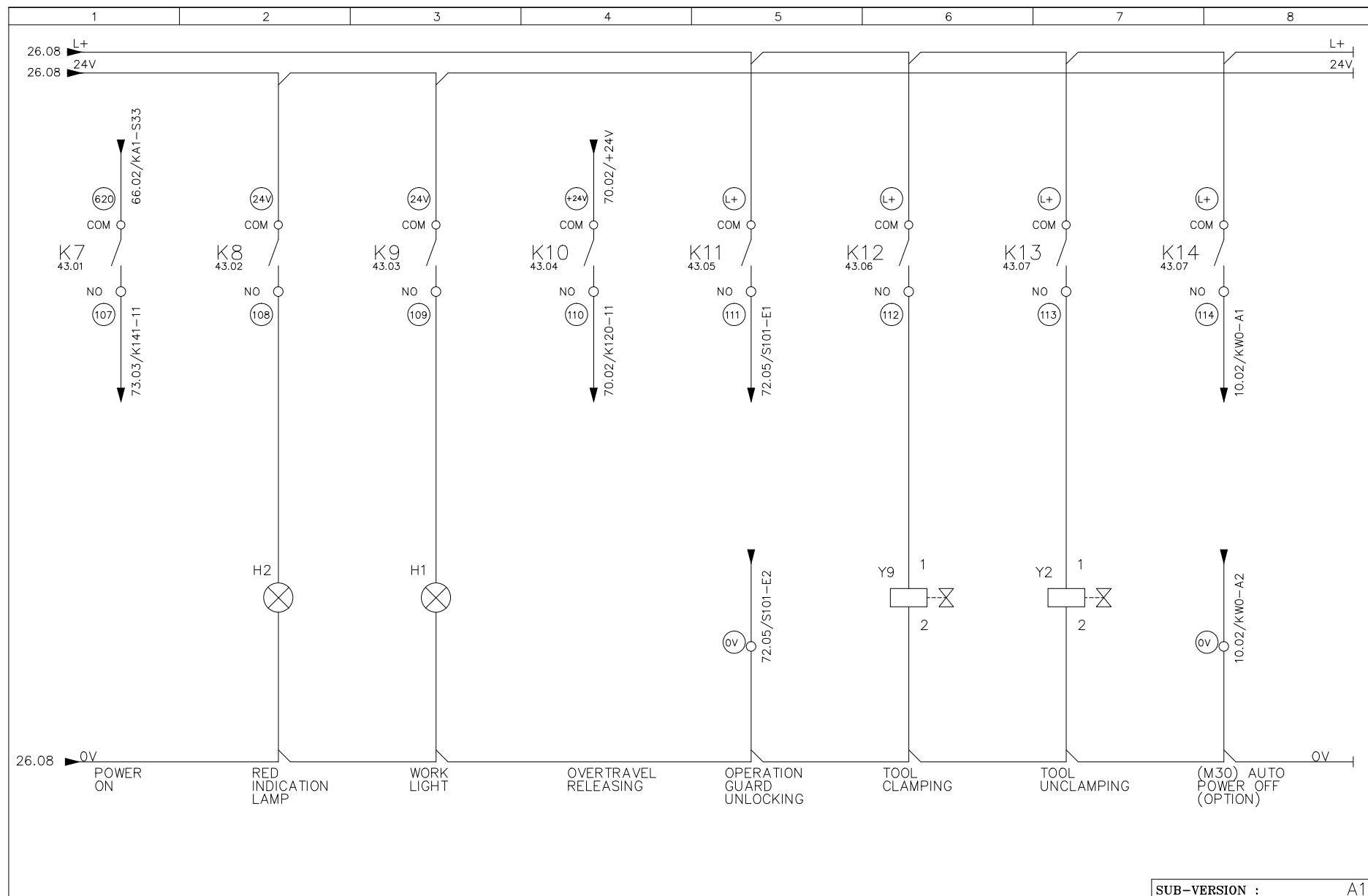
VERSION :
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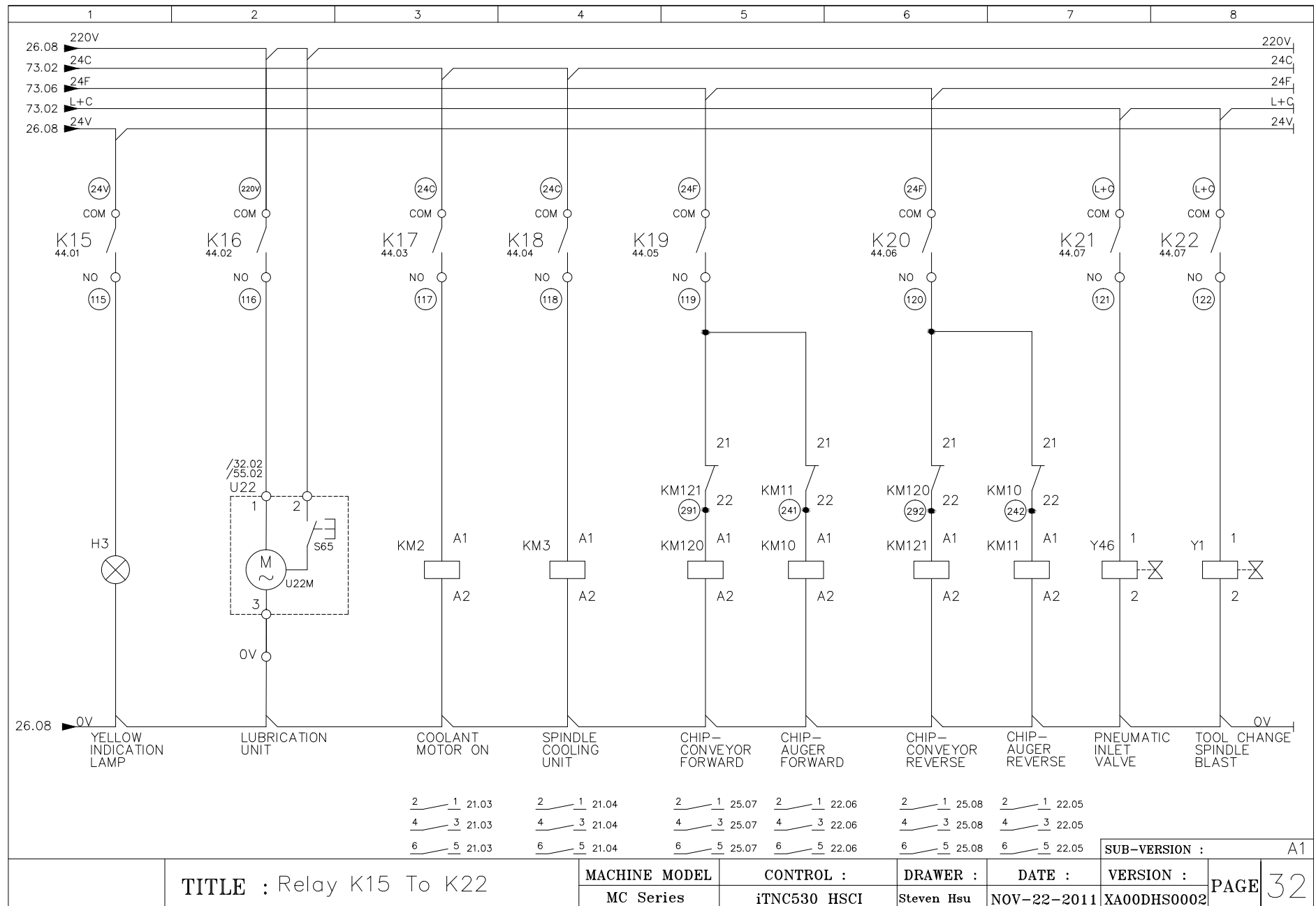
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	TITLE : PLC input/output modular System module PLB 62xx	MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	PAGE	29
		MC Series	iTNC530 HSCI	Steven Hsu	MAY-17-2012	XA00DHS0002		

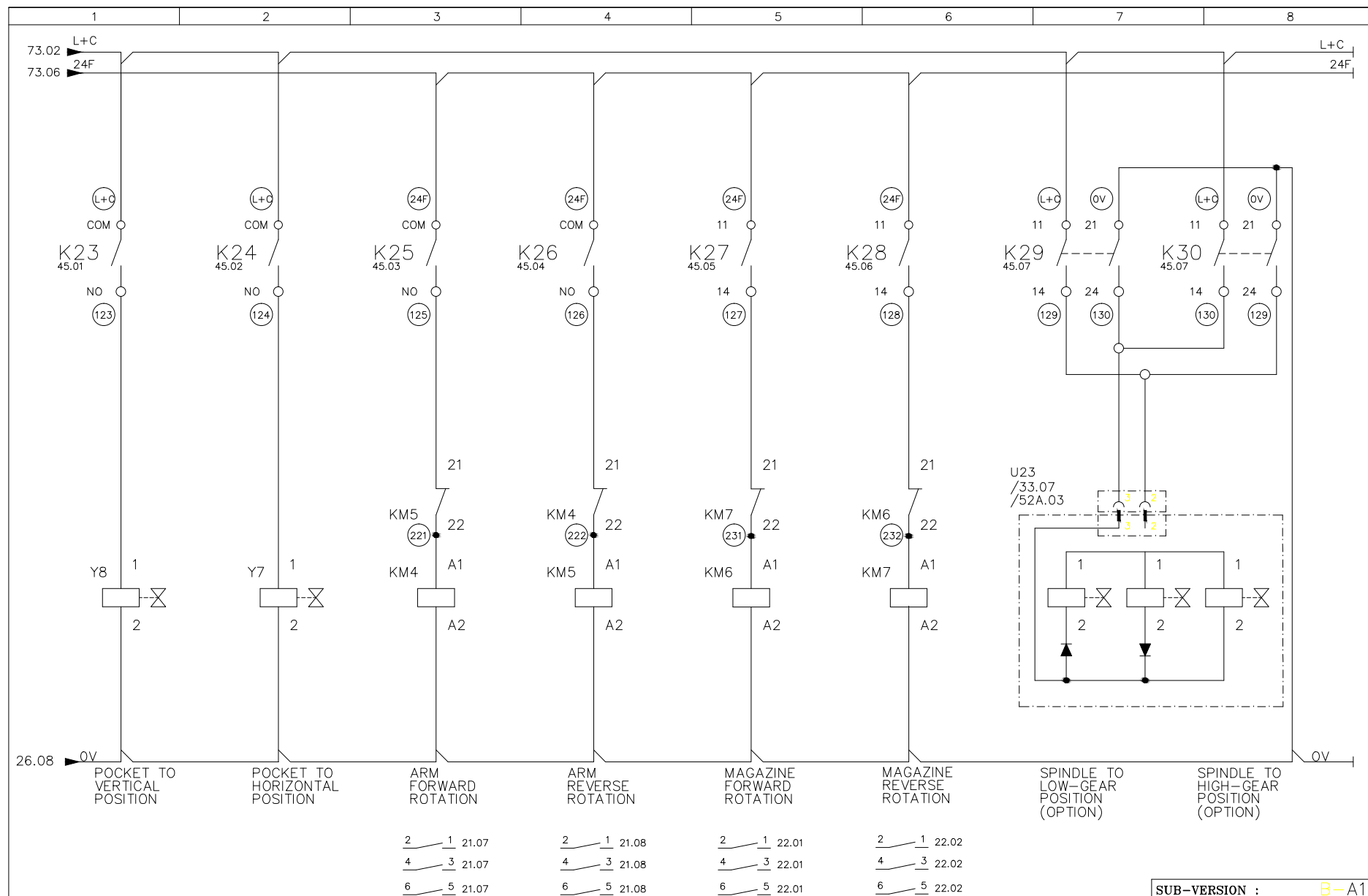




TITLE : Relay K7 To K14		MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	PAGE	31
		MC Series	iTNC530 HSCI	Steven Hsu	NOV-22-2011	XA00DHS0002		

SUB-VERSION : A1





TITLE : Relay K23 To K30

MACHINE MODEL
MC Series

CONTROL :
iTNC530 HSCI

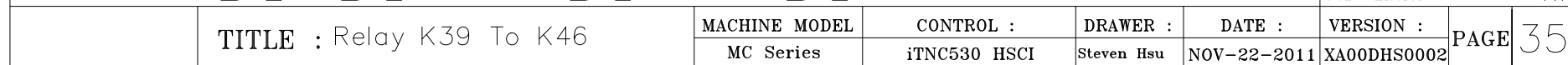
DRAWER :
Steven Hsu

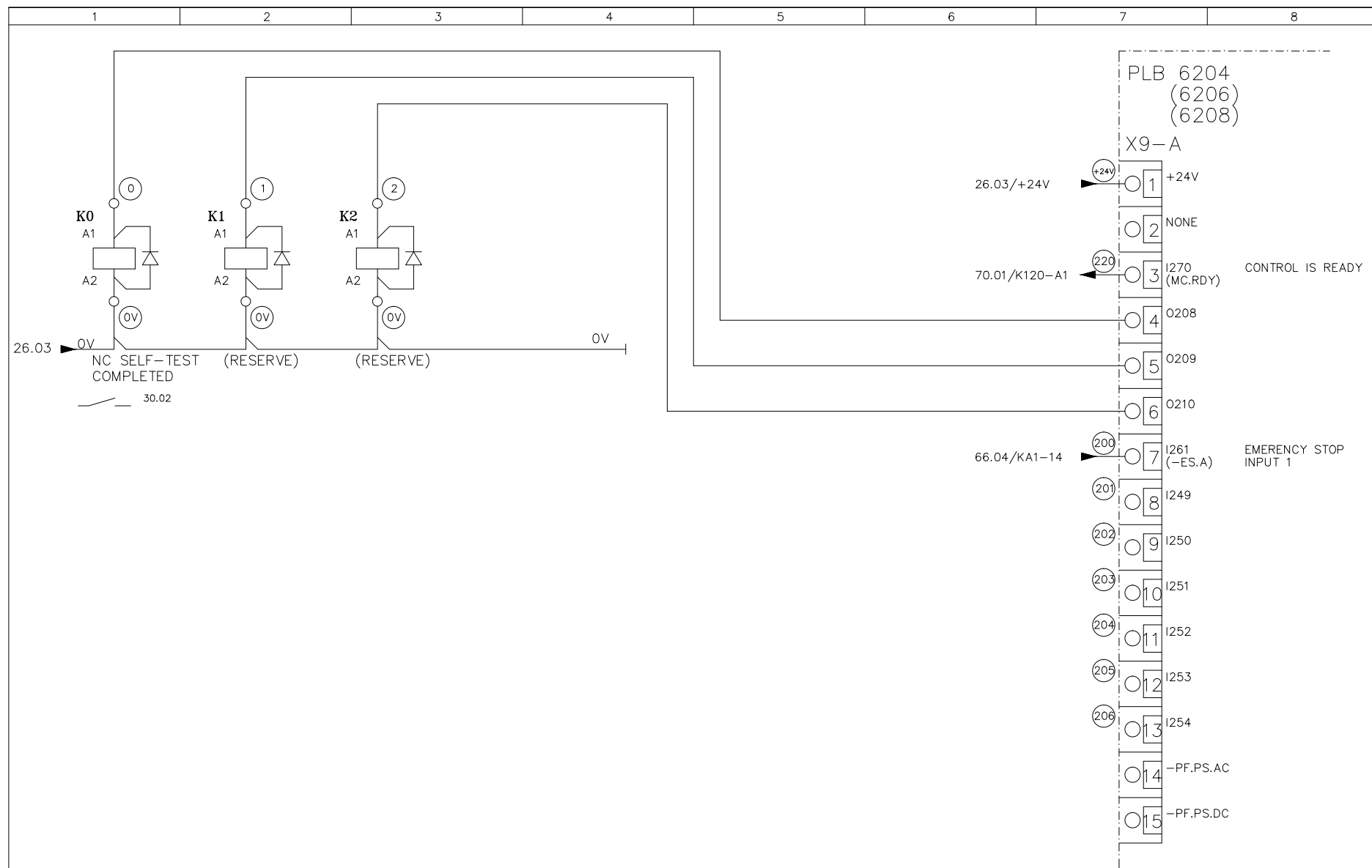
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SUB-VERSION : B-A1

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XA00DHS0002

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SUB-VERSION : A1

TITLE : Pin layout of
PLB 620X_X9-xA

MACHINE MODEL
MC Series

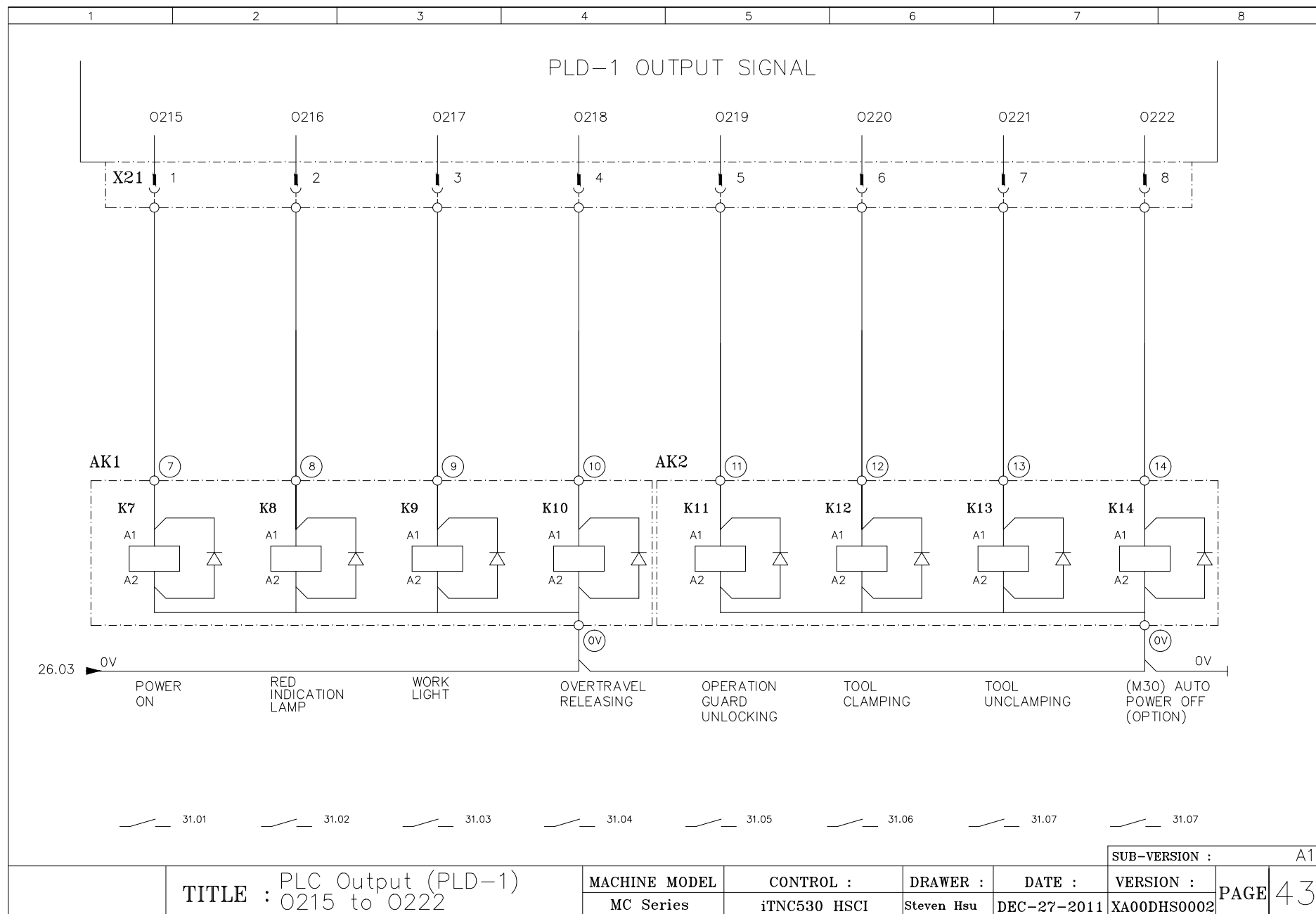
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DRAWER :
Steven Hsu

DATE :
FEB-06-2012

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XA00DHS0002

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SUB-VERSION : A1

TITLE : PLC Output (PLD-1)
0215 to 0222

MACHINE MODEL
MC Series

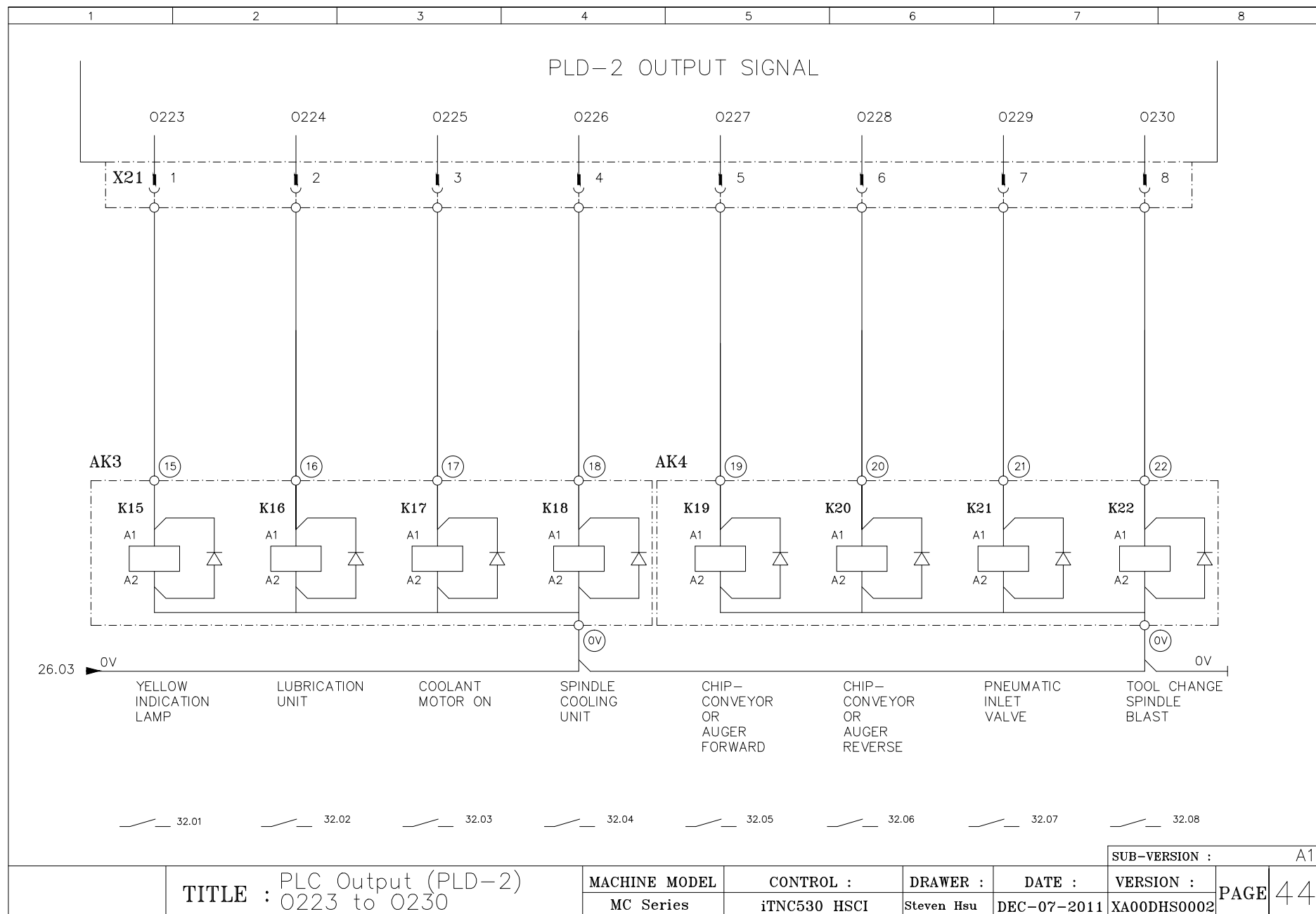
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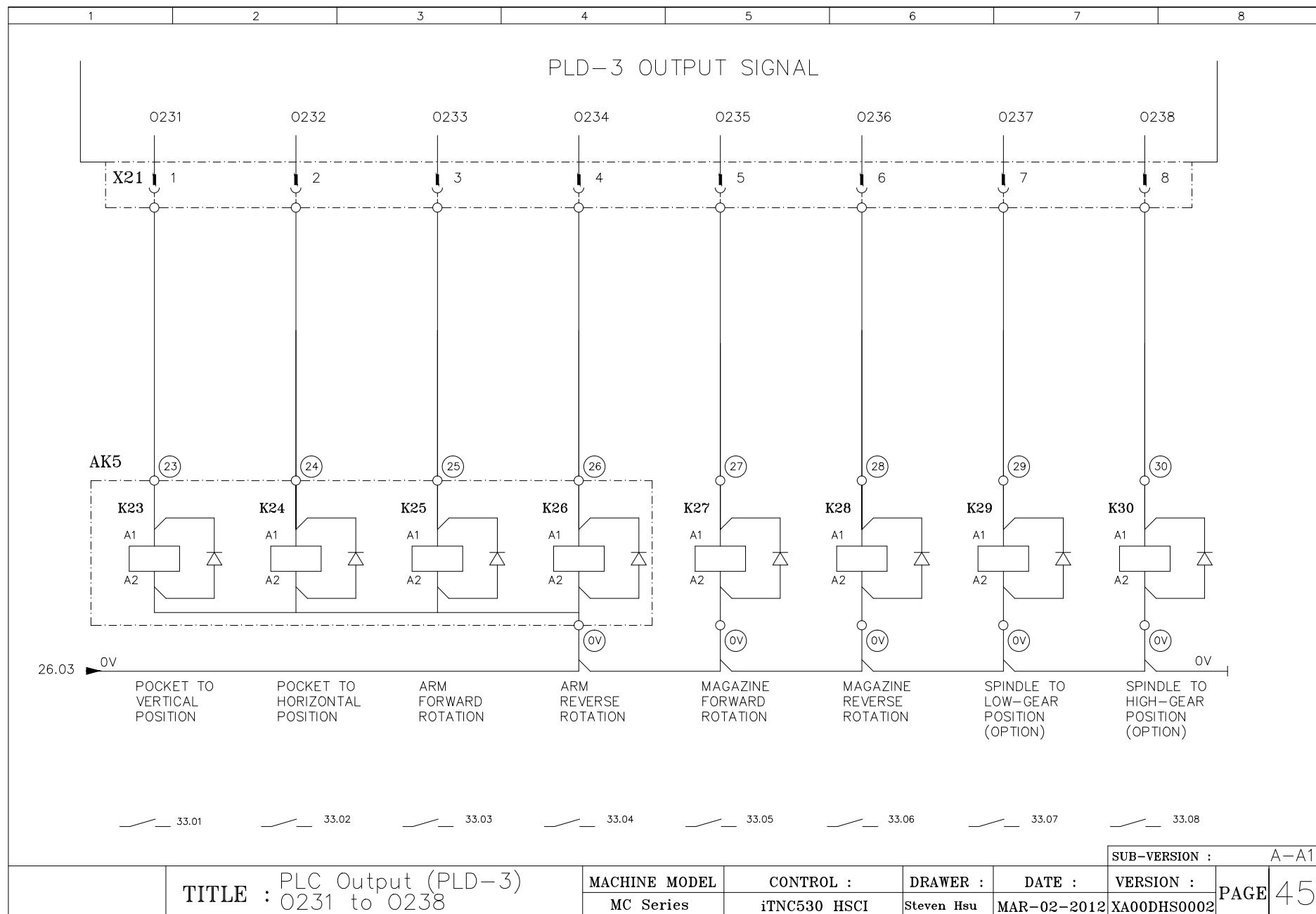
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Steven Hsu

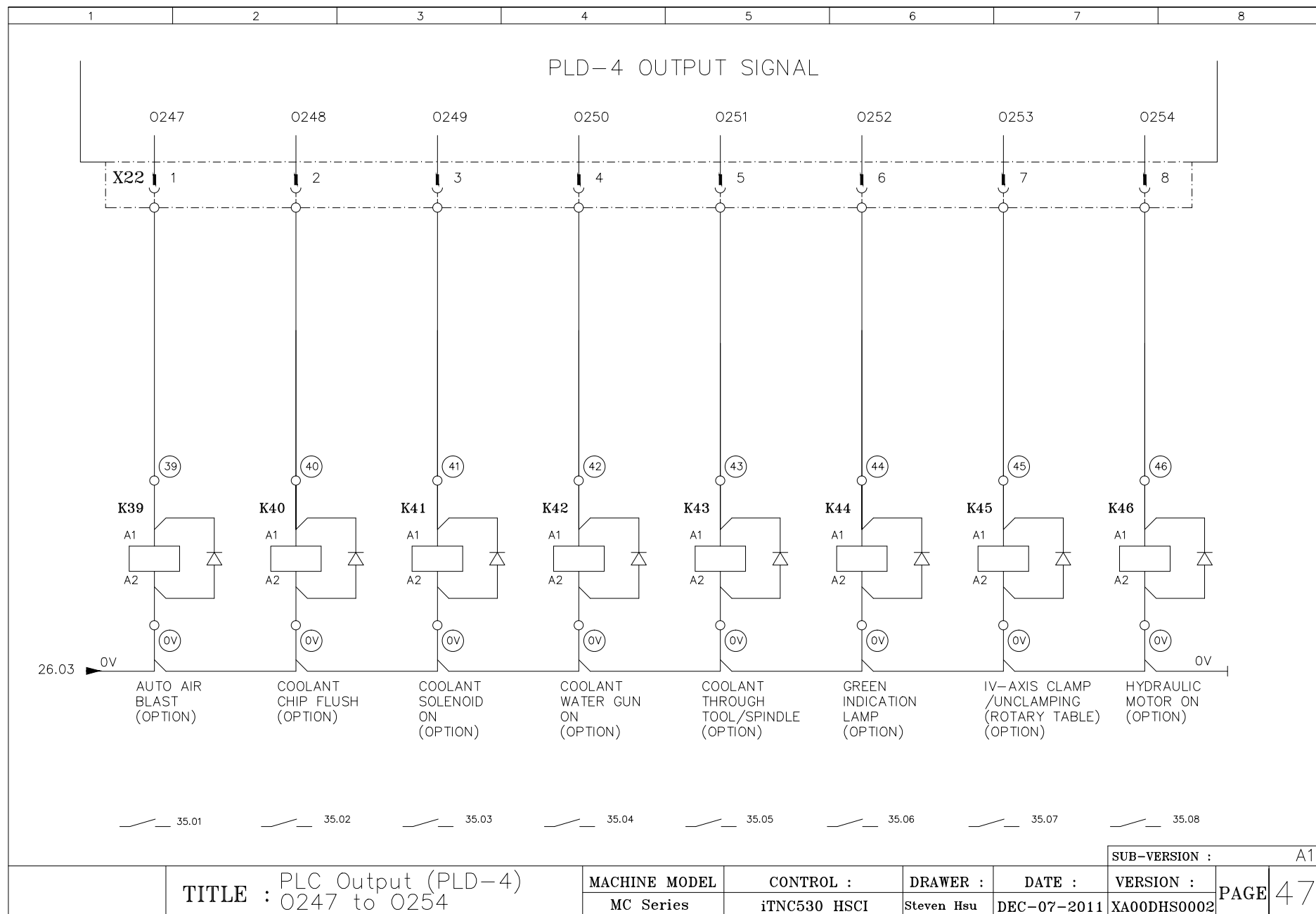
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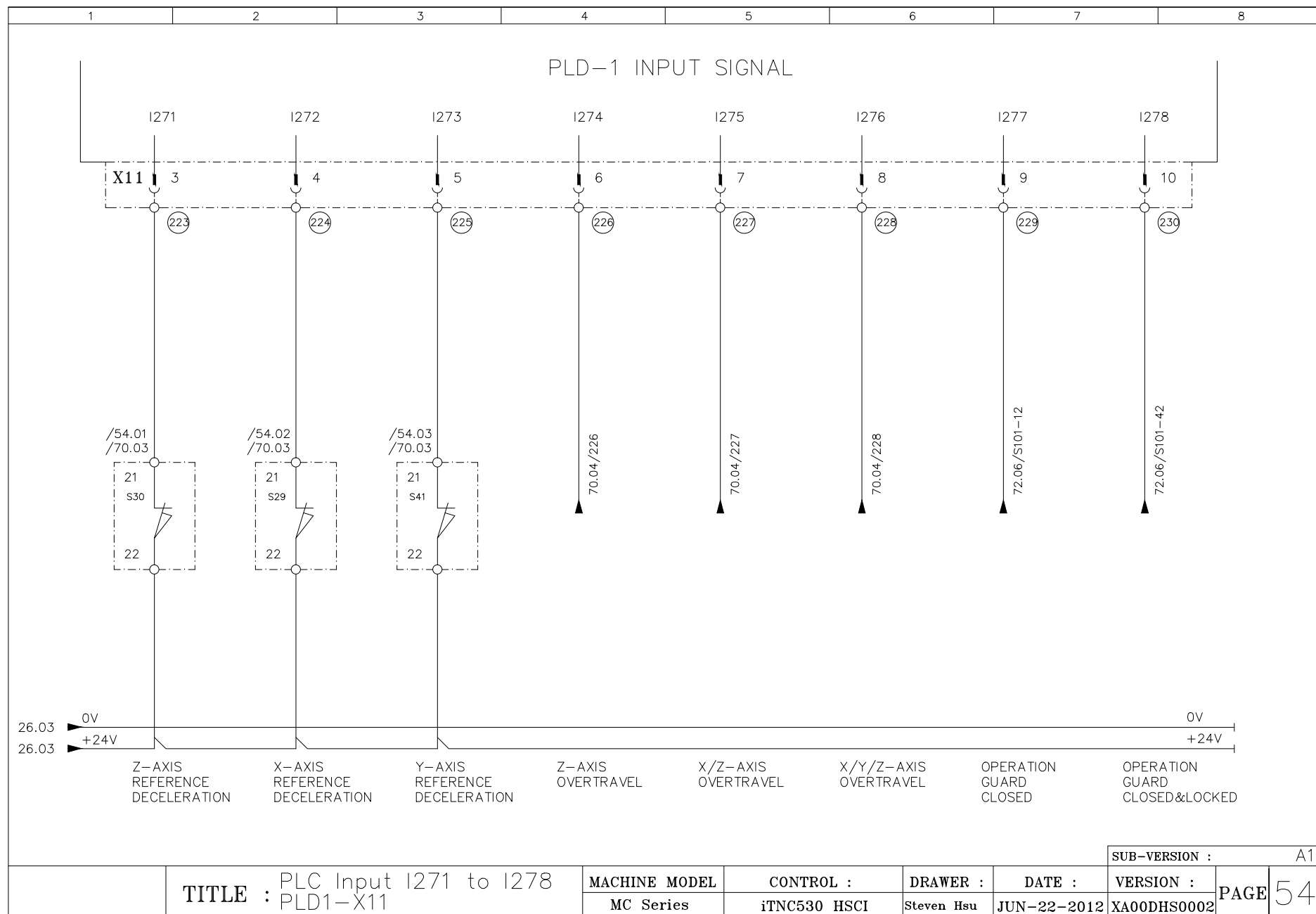
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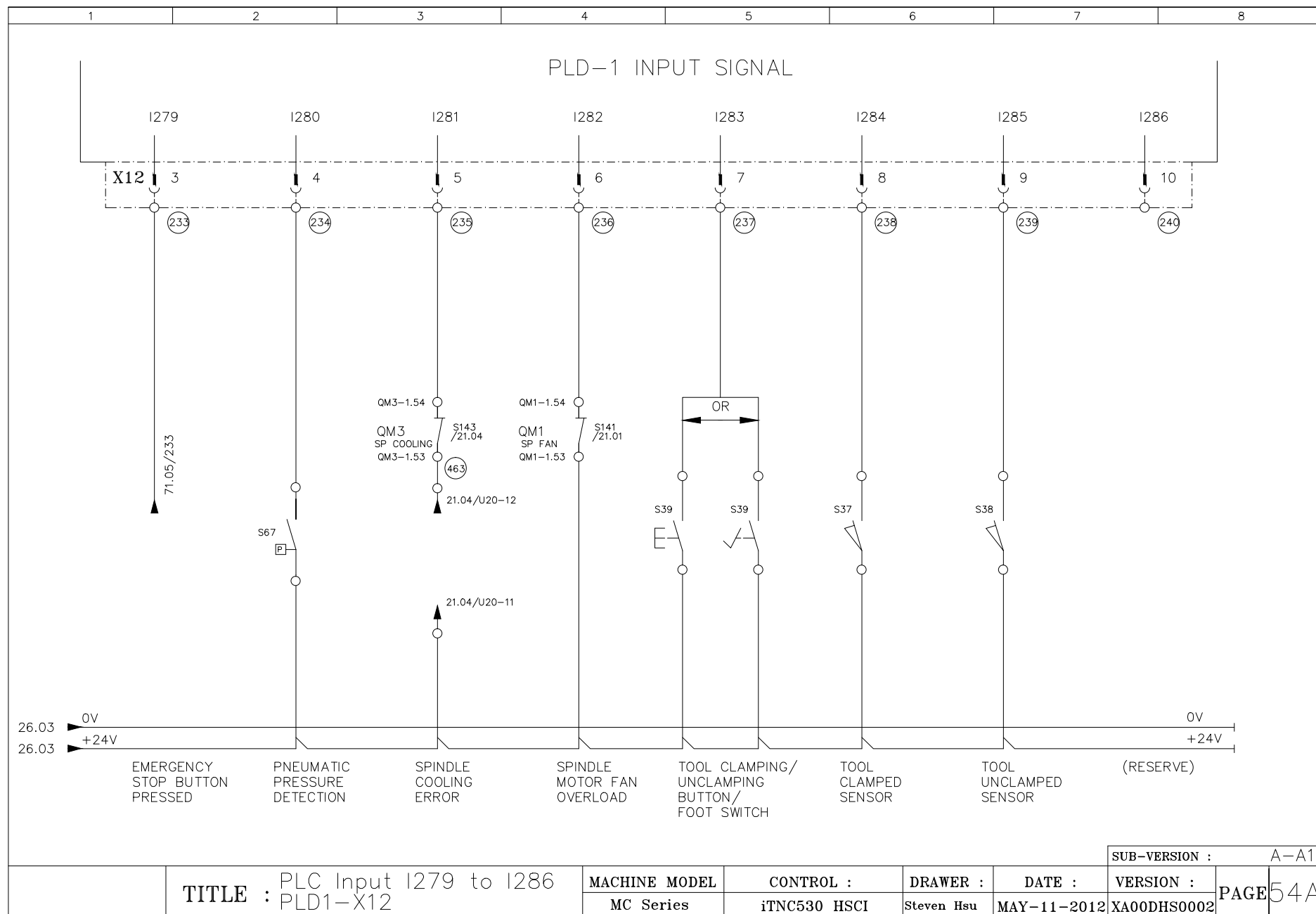


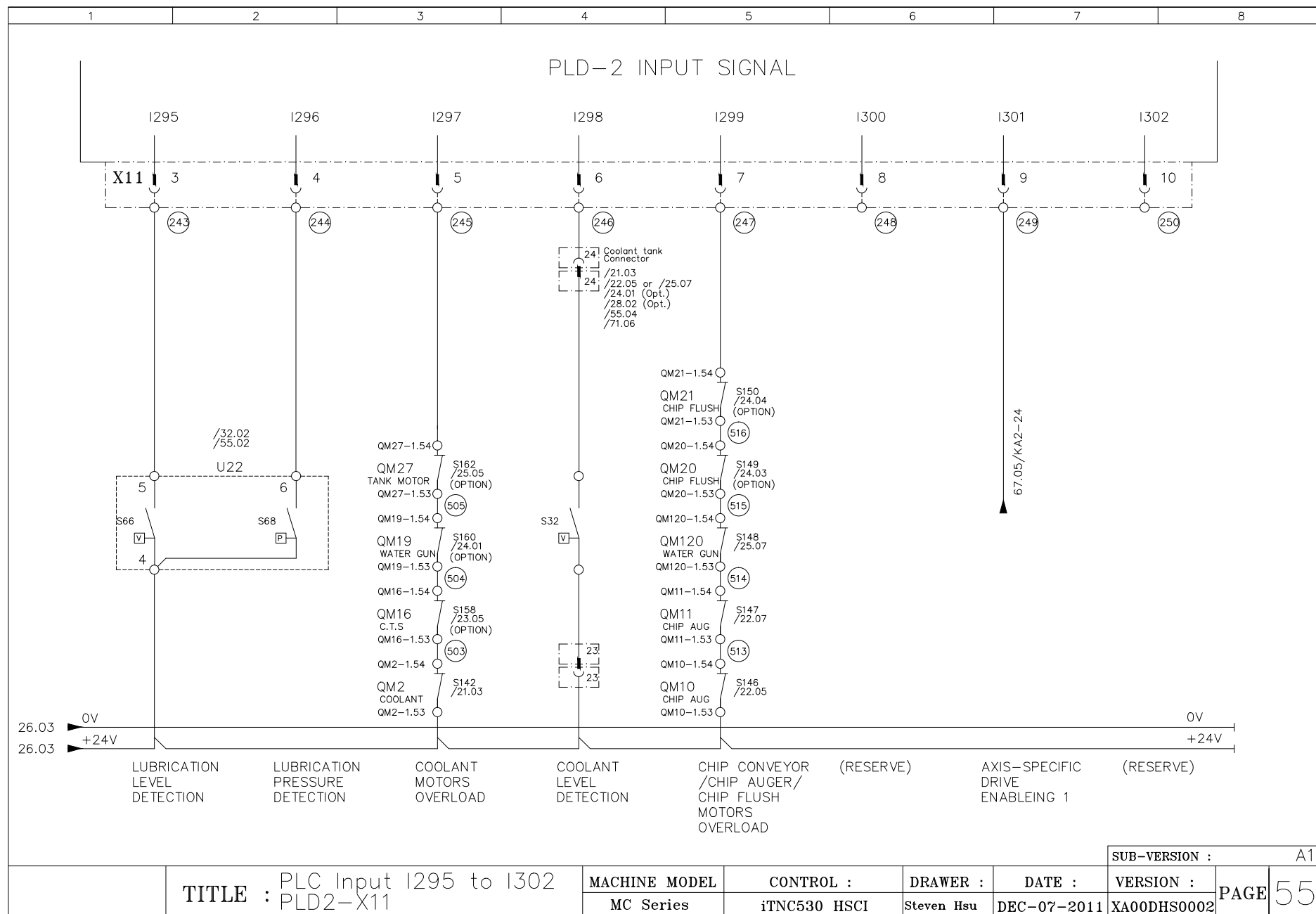


TITLE : PLC Input I271 to I278
PLD1-X11

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SUB-VERSION : A1

TITLE : PLC Input I295 to I302
PLD2-X11

MACHINE MODEL
MC Series

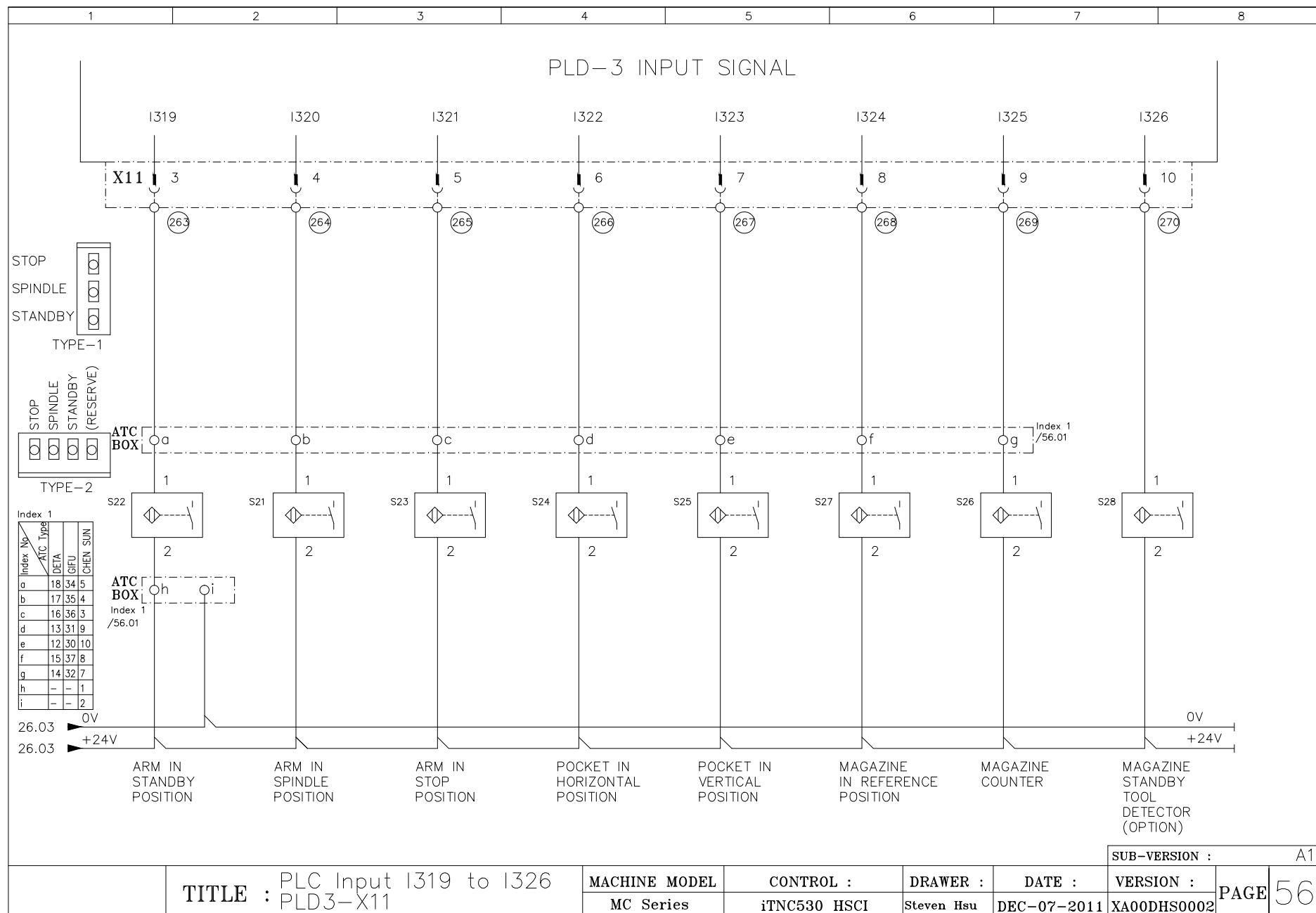
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Steven Hsu

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DEC-07-2011

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TITLE : PLC Input I319 to I326
PLD3-X11

MACHINE MODEL
MC Series

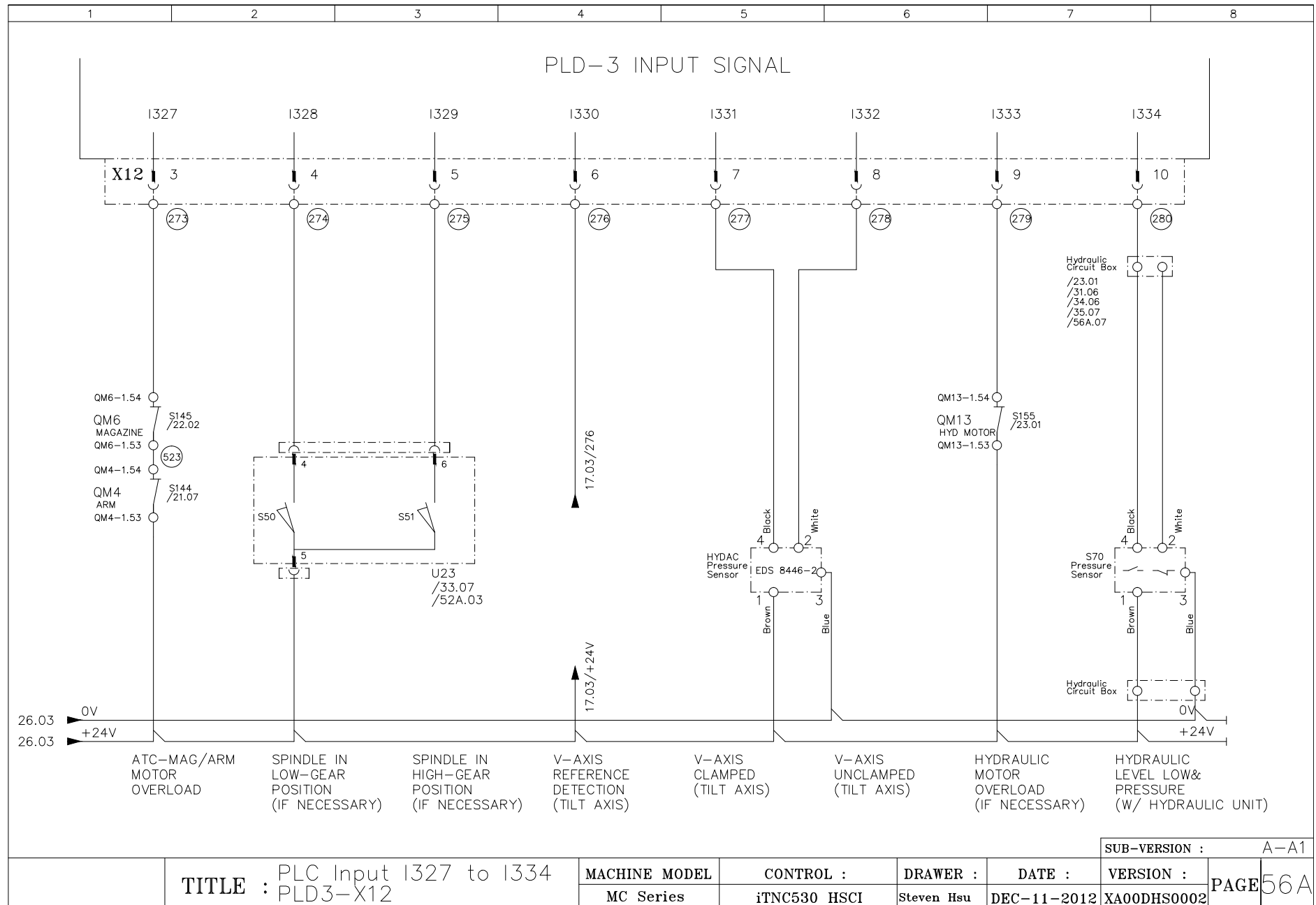
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TITLE : PLC Input I327 to I334
PLD3-X12

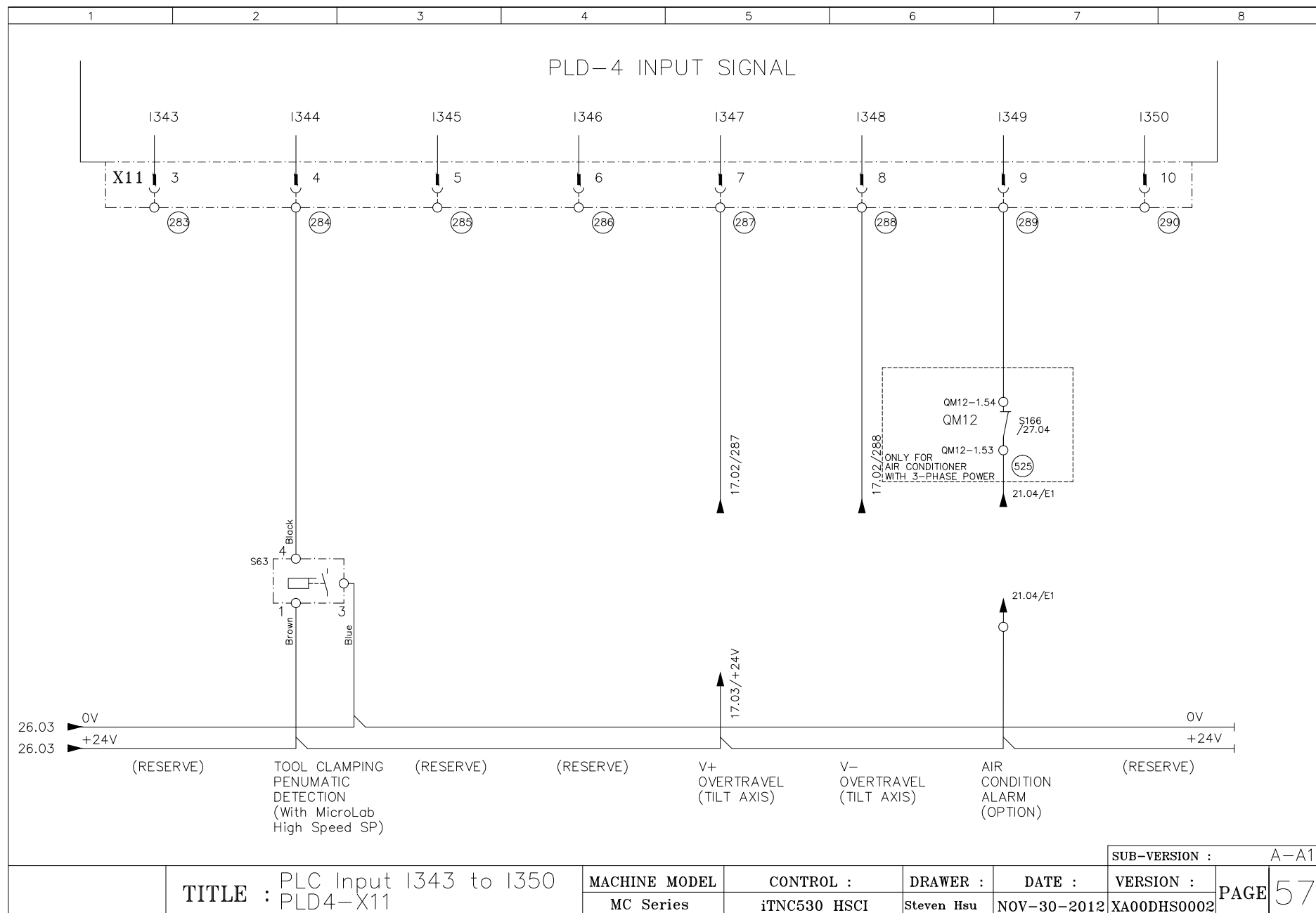
MACHINE MODEL
MC Series

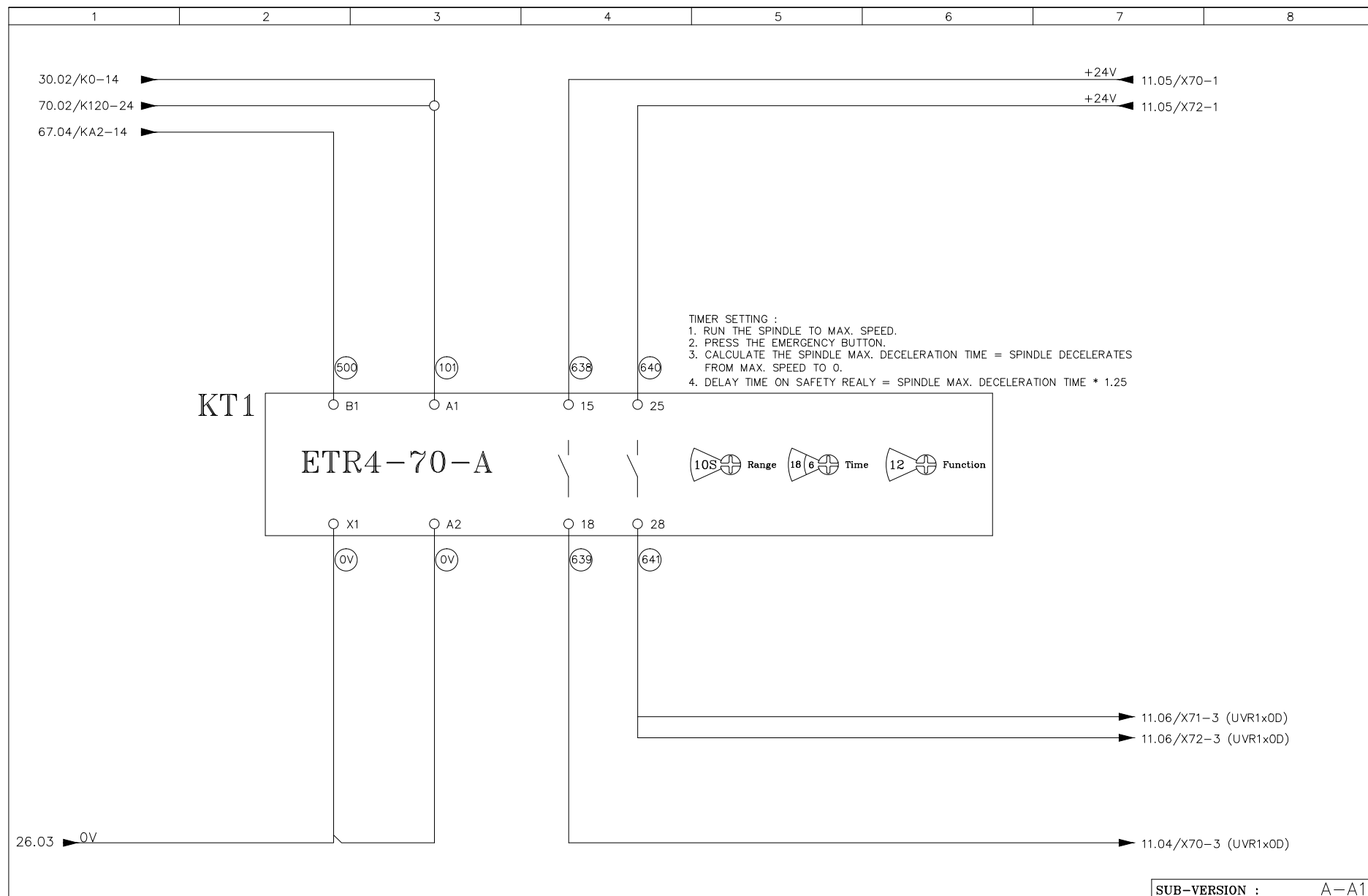
CONTROL :
iTNC530 HSCI

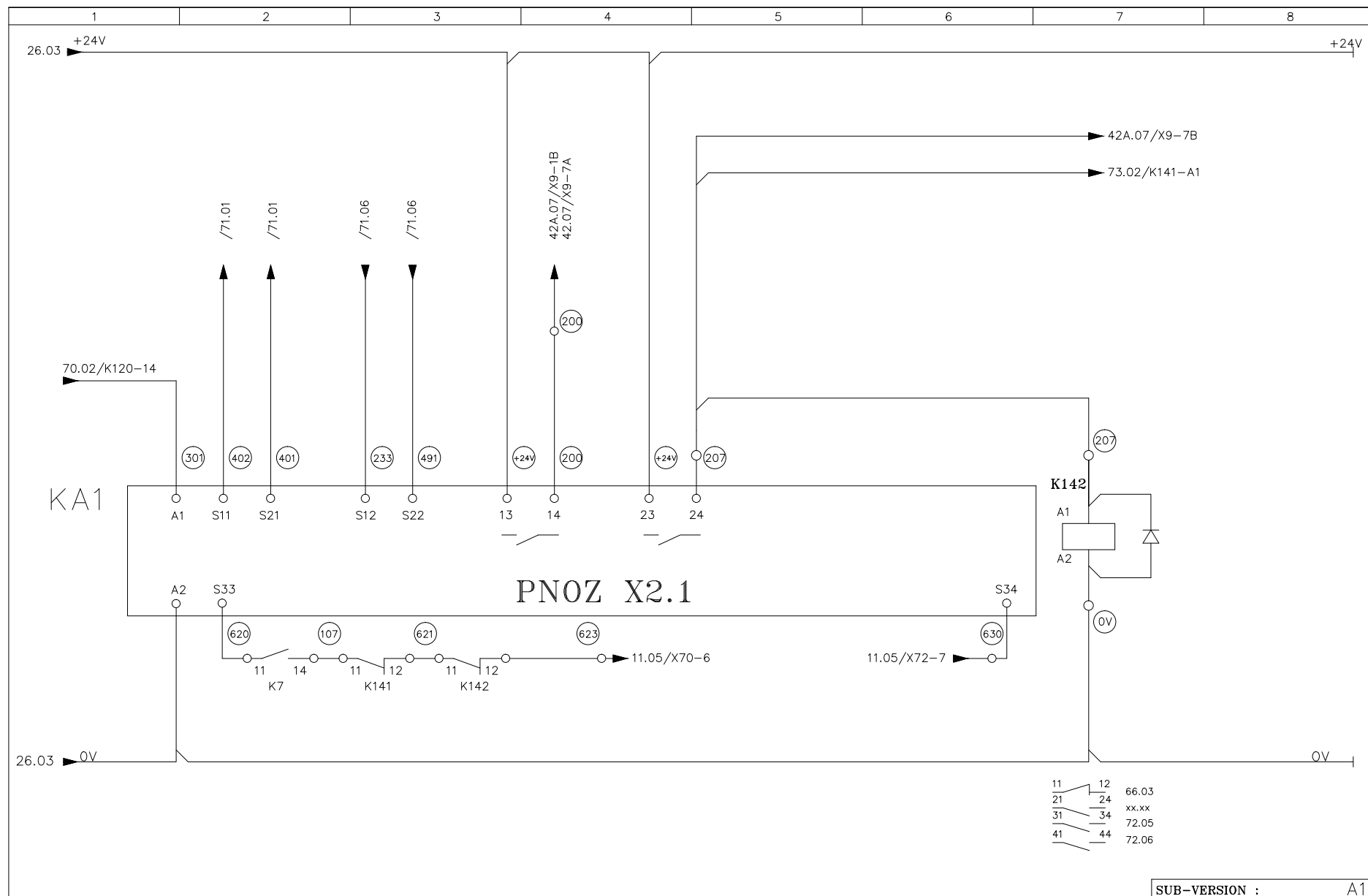
DRAWER :
Steven Hsu

DATE :
DEC-11-2012

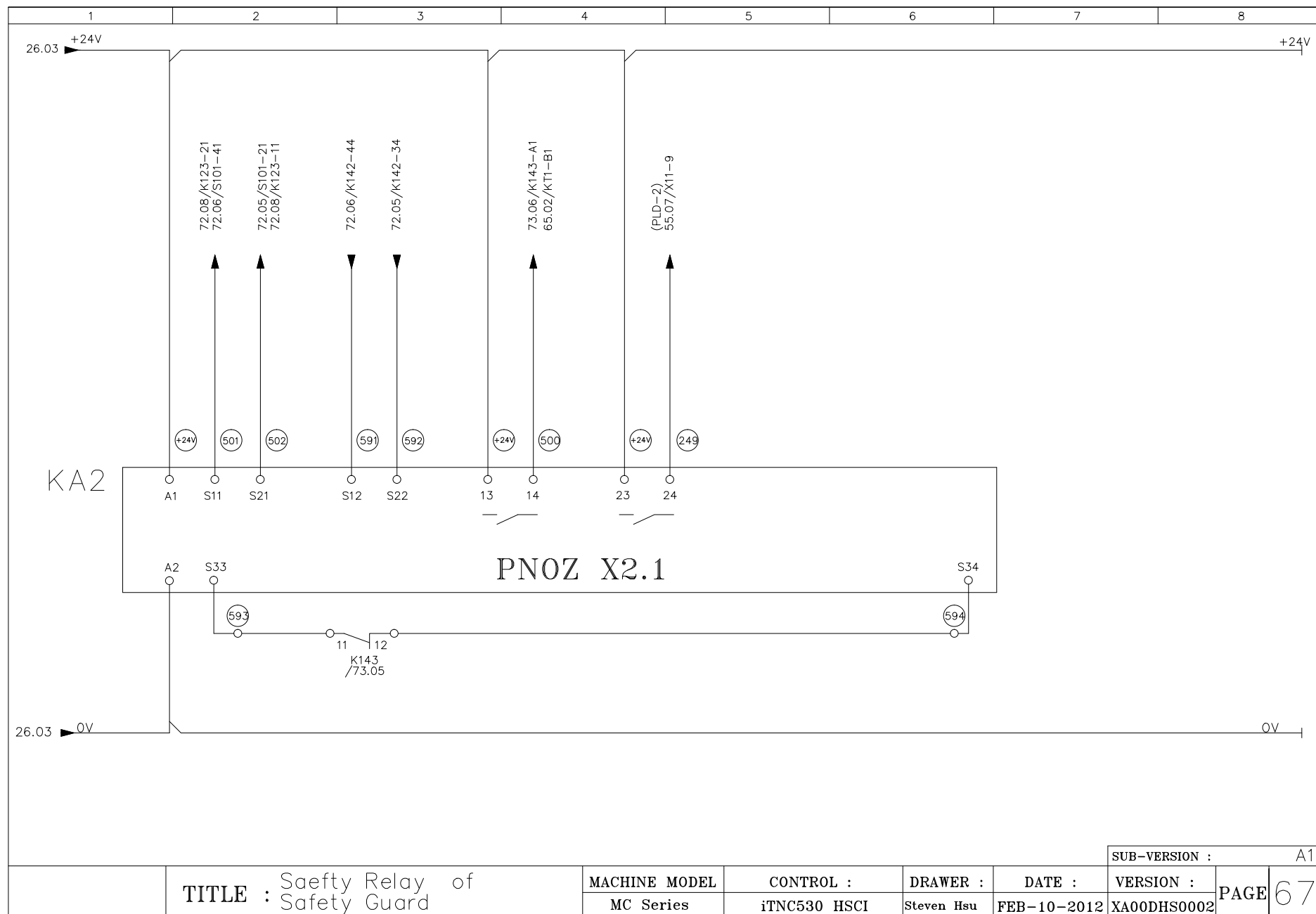
SUB-VERSION : A-A1
VERSION : XA00DHS0002
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TITLE : Saefty Relay of Emergency Stop		MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	SUB-VERSION : A1	
		MC Series	iTNC530 HSCI	Steven Hsu	JAN-10-2012	XA00DHS0002	PAGE	66



SUB-VERSION : A1

TITLE : Safty Relay of
Safety Guard

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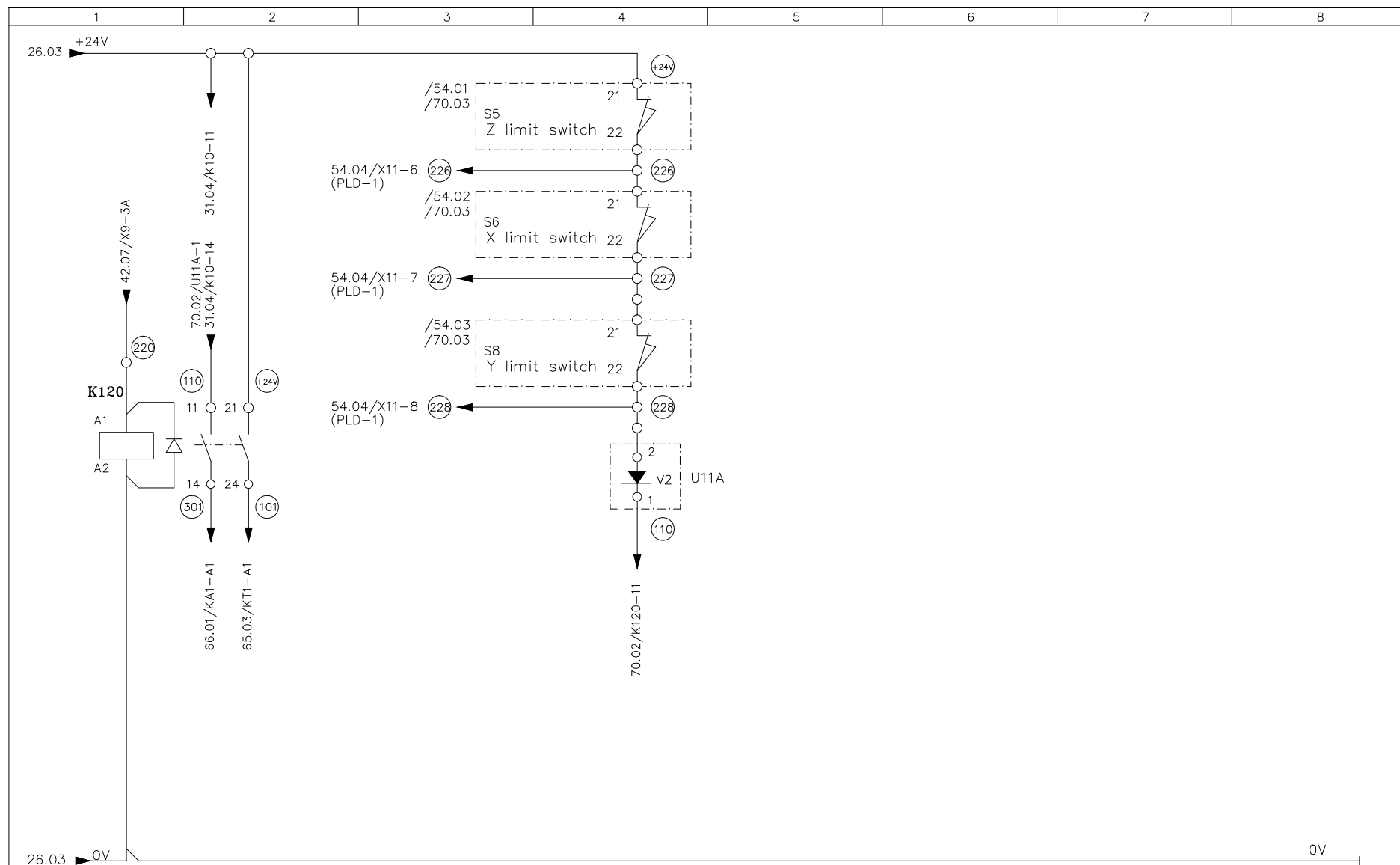
CONTROL :
iTNC530 HSCI

DRAWER :
Steven Hsu

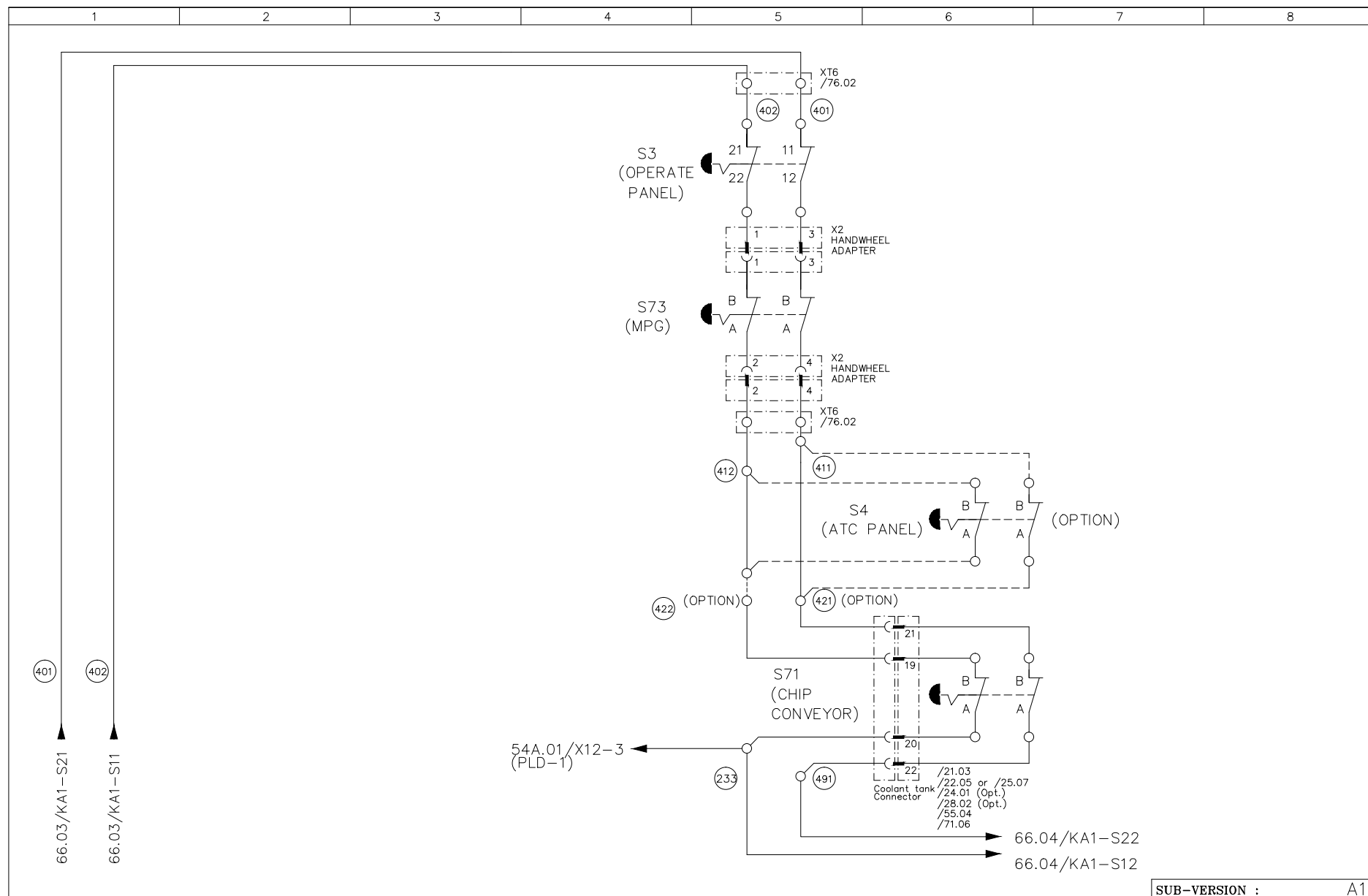
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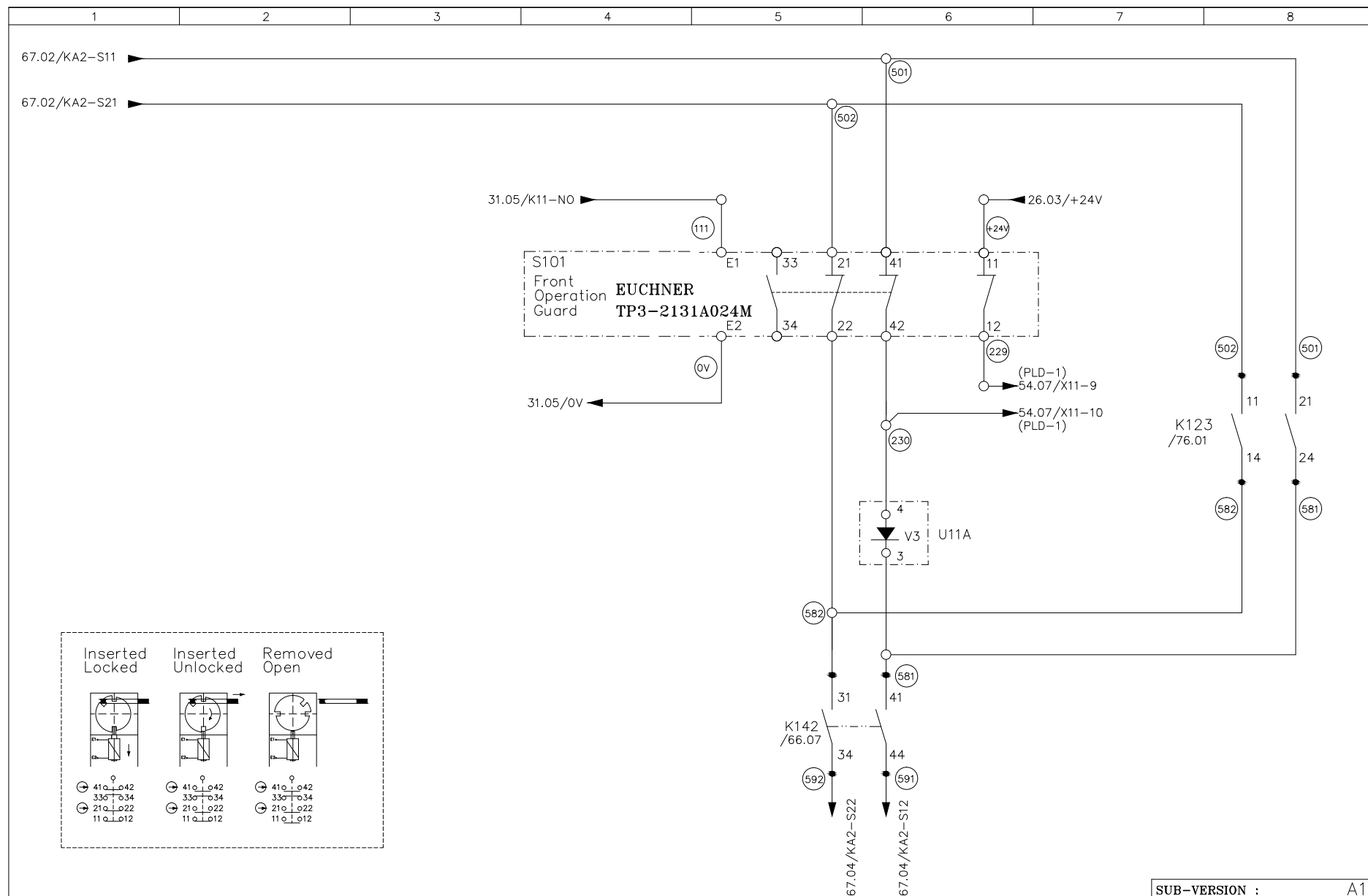
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XA00DHS0002

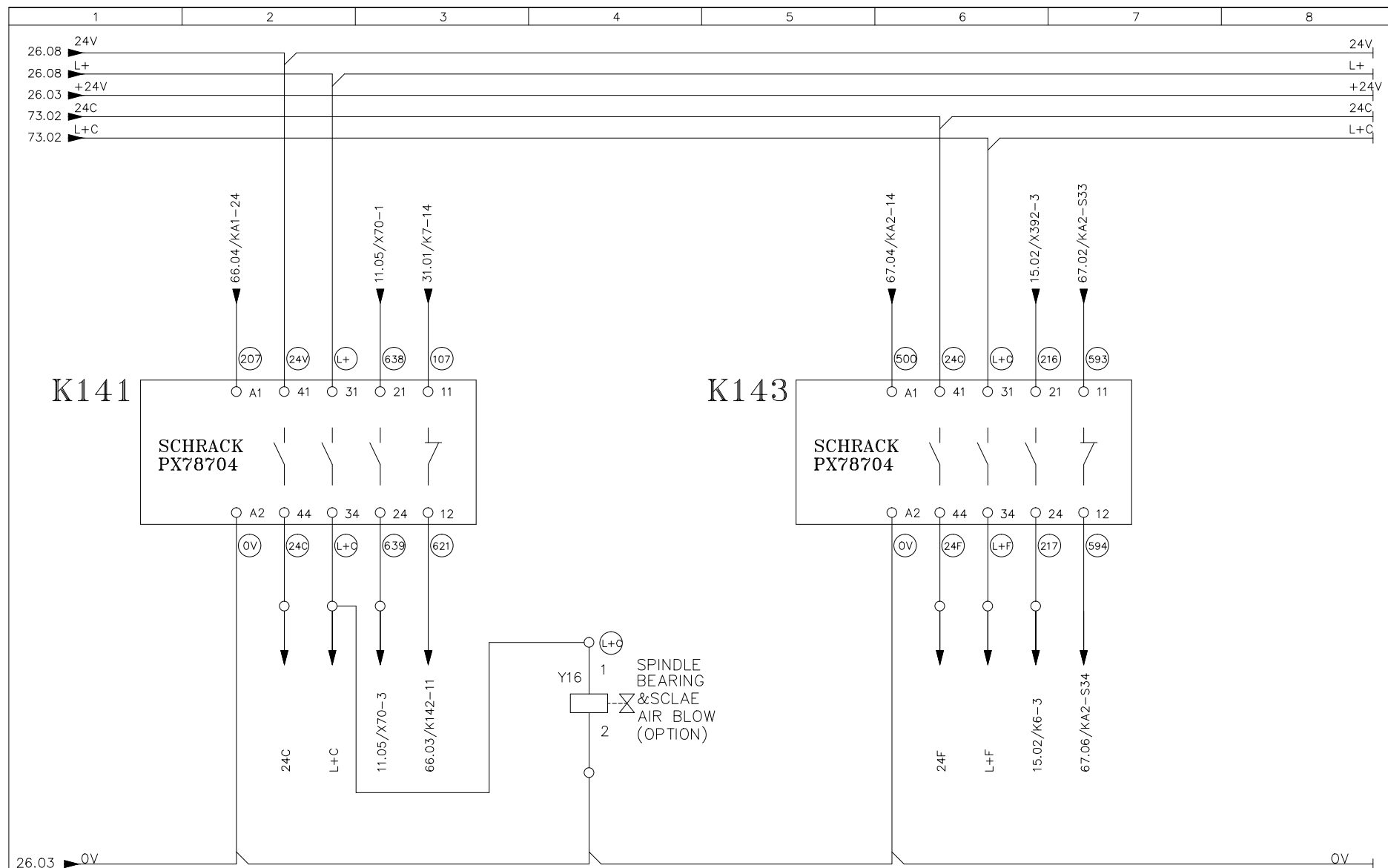
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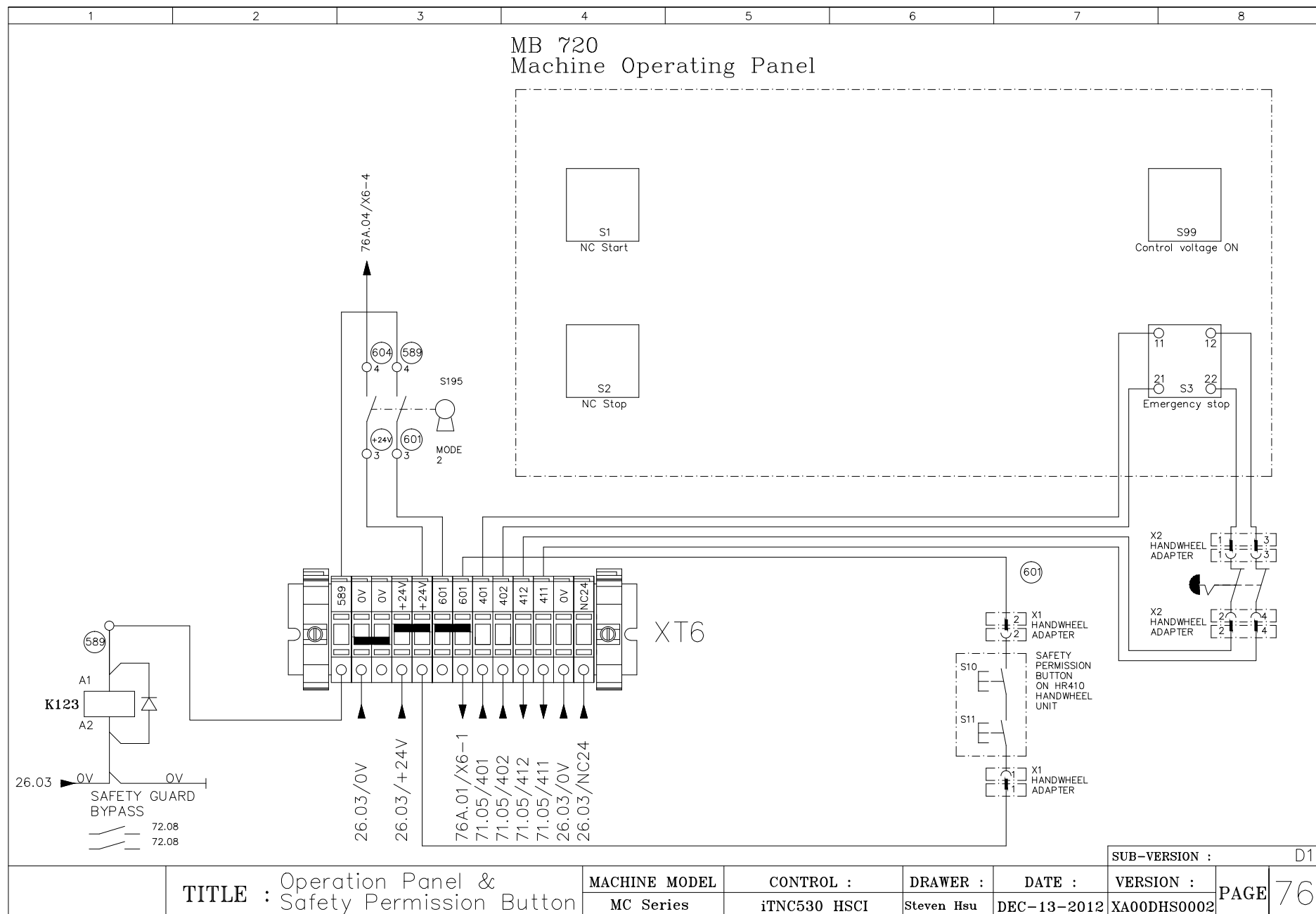
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TITLE : Overtravel Limit	MACHINE MODEL	CONTROL :	DRAWER :	DATE :	VERSION :	PAGE	70
	MC Series	iTNC530 HSCI	Steven Hsu	FEB-06-2012	XA00DHS0002		

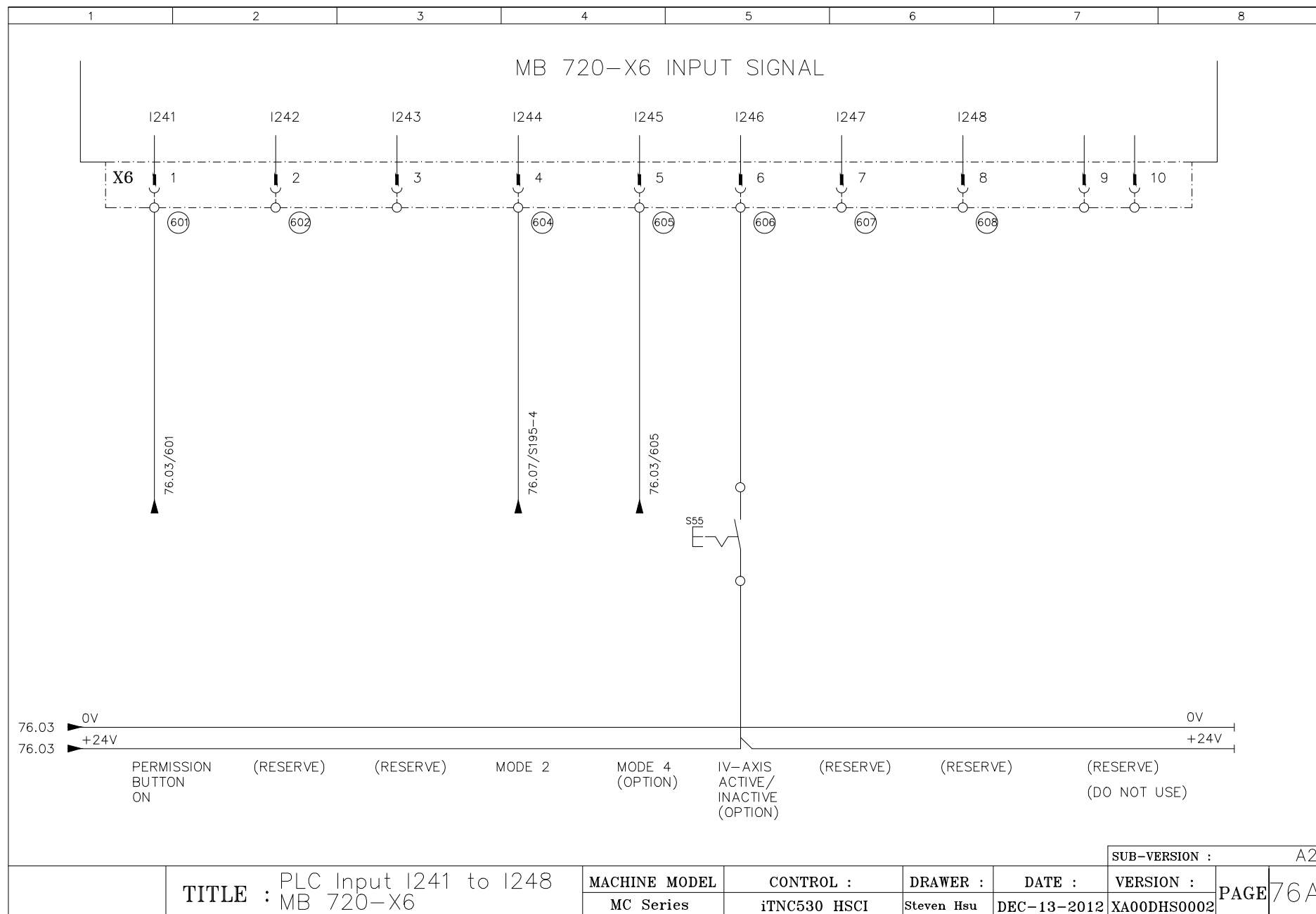






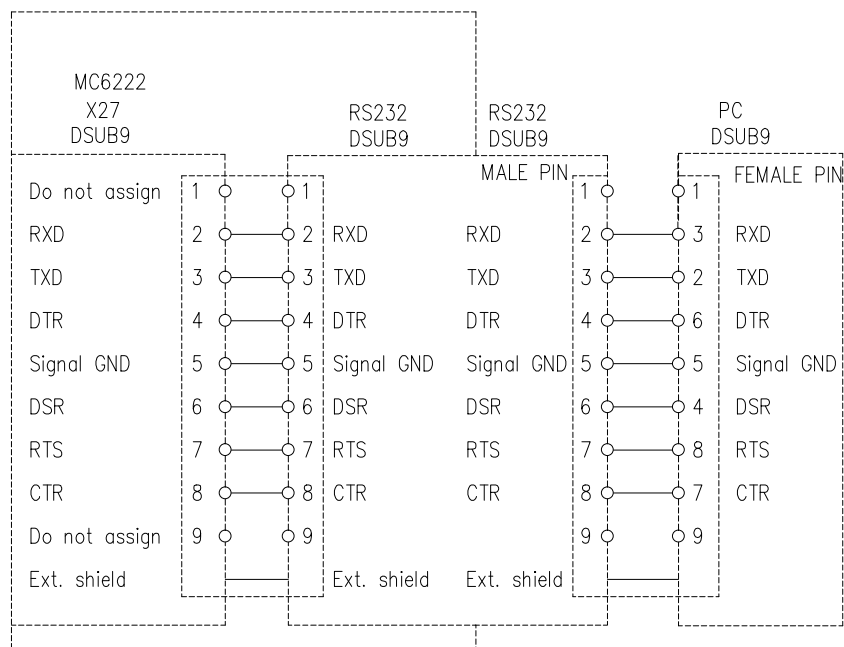
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TITLE : Auxiliary Relays	MACHINE MODEL		CONTROL :	DRAWER :	DATE :	VERSION :	PAGE	73
	MC Series		iTNC530 HSCI	Steven Hsu	MAR-07-2012	XA00DHS0002		



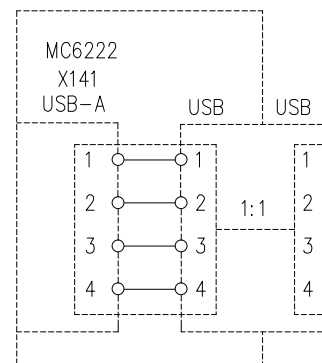


HEIDENHAIN RS-232 /USB/RJ45 CONNECTION WIRING DIAGRAM

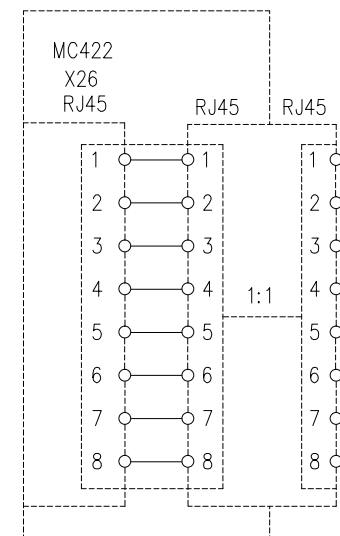
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SUB-VERSION : A-A1

TITLE : RS-232 USB RJ45
Diagram

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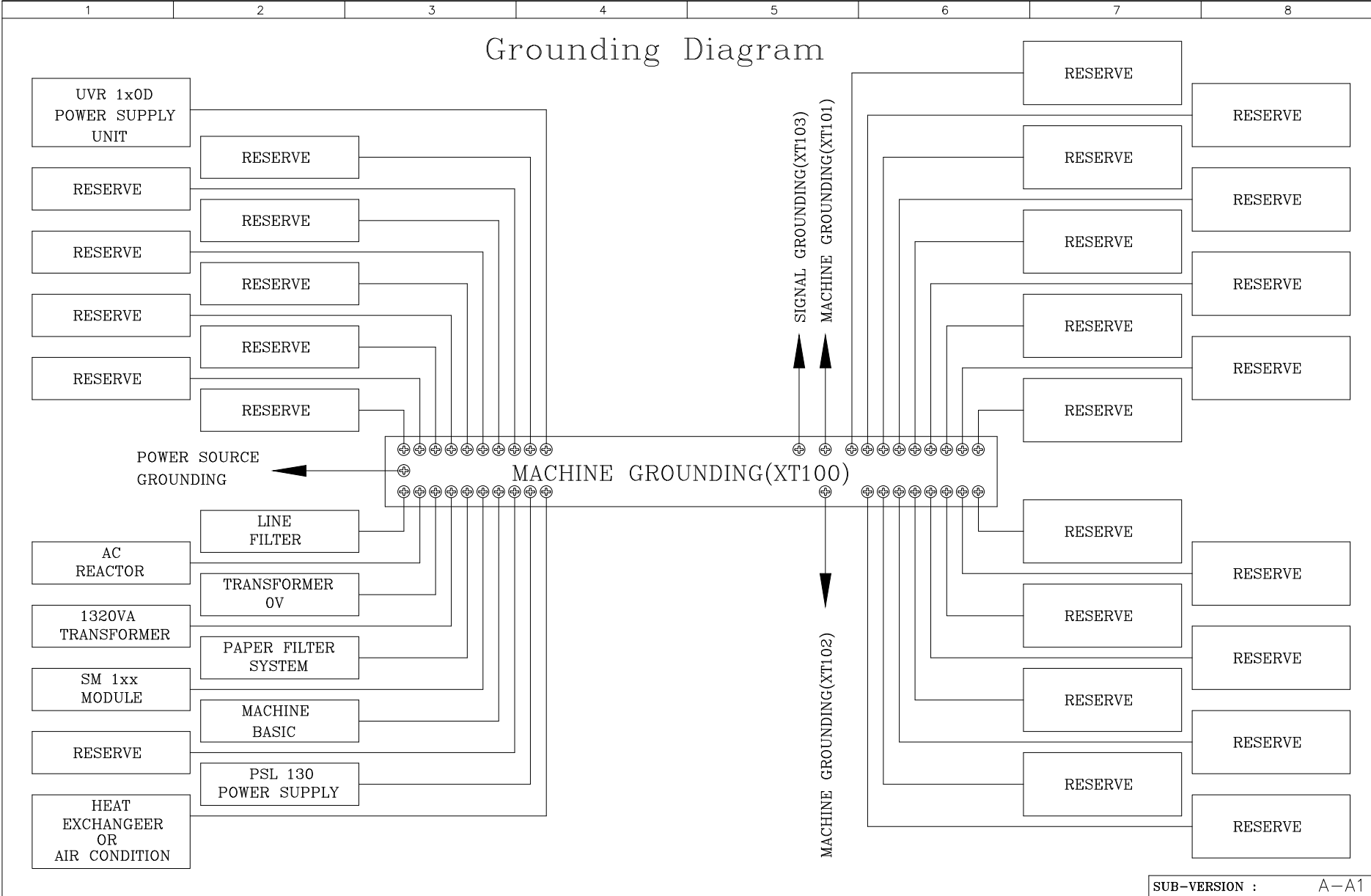
CONTROL :
iTNC530 HSCI

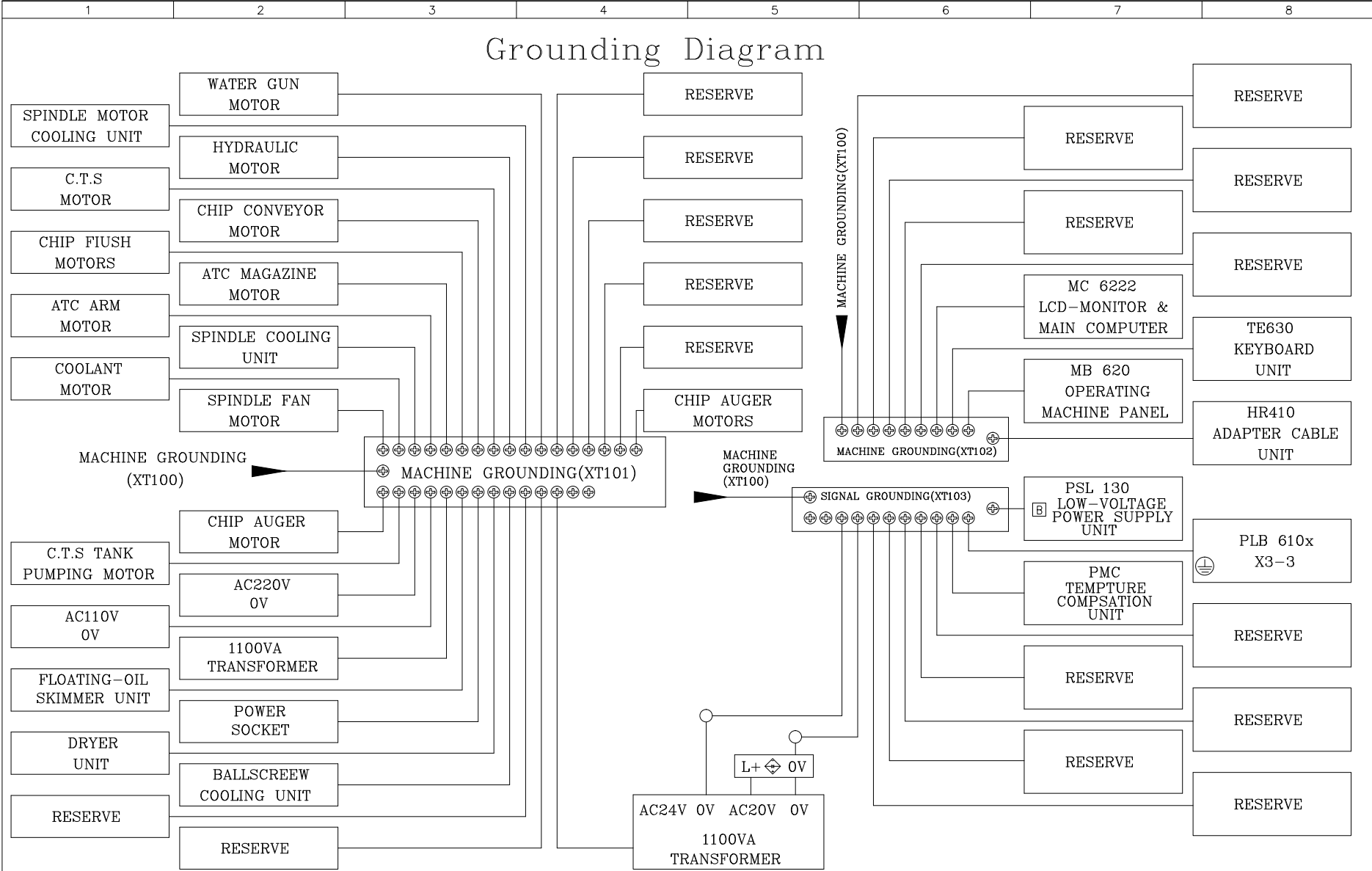
DRAWER :
Steven Hsu

DATE :
MAY-02-2012

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Group	Device	Location	Manufacturer	Specification	Description
Power Supply	U100	11.04	✓ HEIDENHAIN	UVR 130D	
Drive	SPINDLE	U101	✓ HEIDENHAIN	UM 112D	
	X-AXIS	U102	✓ HEIDENHAIN	UM 121D	
	Y-AXIS	U102	✓ HEIDENHAIN	UM 121D	
	Z-AXIS	U104	✓ HEIDENHAIN	UM 112D	
	4-AXIS	U10	HEIDENHAIN	UM	
	5-AXIS	U10	HEIDENHAIN	UM	
	ATC-AXIS	U107	HEIDENHAIN	UM	
Braking Resistor Module	U200	07.06	✓ HEIDENHAIN	UP 110	
DC-Link Filter	U300	07.05	HEIDENHAIN	ZKF120	
Voltage Protection Module	U400	12.01	HEIDENHAIN		
Low-Voltage Power Supply Unit	GS1	26.02	✓ HEIDENHAIN	PSL-130	
Controller Unit	CC 610X	07.08	✓ HEIDENHAIN	CC 6106	
			HEIDENHAIN		
Motor	M101	12.01	✓ SIEMENS	1FK7133-2ND 02-0CC2	
	M102	13.01	✓ SIEMENS	1FK 7100-5AF71-1AG3	
	M103	14.01	✓ SIEMENS	1FK 7100-5AF71-1AG3	
	M104	15.01	SIEMENS	1FK 7103-5AF71-1AH3	
	M105	16.01			
	M106	17.01			
	M107	18.01			
Main Computer	MC7522	06.05	✓ HEIDENHAIN	MC7222 MC7522	
Key Board Unit	TE 730	06.04	✓ HEIDENHAIN	TE 730	
Machine Operating Panel	MB 720	76	✓ HEIDENHAIN	MB 720	
Solid State Disk(SSD)	SSD	06.1	✓ HEIDENHAIN	SSD iTNC E SP 606421-04 SP02	
Handwheel	HR 410	06.08	✓ HEIDENHAIN	HR 410	
System Module	PLB 620X	29.04	✓ HEIDENHAIN	PLB 620 6	
Analog Signal Module	PLD-1~3	29.05	✓ HEIDENHAIN	16-28	
	PLD-5	29.06	✓ HEIDENHAIN	Gehäuse	
	PLD-6	29.07	✓ HEIDENHAIN	Gehäuse	
	PLD-7	29.07	HEIDENHAIN		
	PLD-4	29.07	✓ HEIDENHAIN	28-16-20	
	PLA II	29.08	HEIDENHAIN		

TITLE : Specification of parts

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Group	Device	Location	Manufacturer	Specification	Description
Coolant Motor	M2	21.02	✓ WALRUS	380-440V 1.8-2.1A 50Hz 150W	
Spindle Cooling Unit	M3	21.04	✓ HABOR ✓ HABOR	0.55kW 1.6A 400V 50Hz 400V 50/60Hz 600W 2A	
ARM Motor	M4	21.07	✓ MARUI	0.55kW 1.6A 400V 50Hz	
Magazine Motor	M6	22.01	✓ GONGJI	400V 50Hz 0.66A 0.18kW	
Chip Auger Motor	M10	22.05			
Hydraulic motor	M13	23.01	CHYUN TSEH		
C.T.S. Motor	M16	23.05	BRINK MANN ✓ SENG WALRUS	3kW 50-60Hz 342-418V 6.6-5.4	
Chip Flush Motor 1	M20	24.02	✓ WALRUS	380-415V 3.0-3.8A 50Hz 1440W	
Chip Flush Motor 2	M21	24.03	✓ WALRUS	380-415V 3.0-3.8A 50Hz 1440W	
Chip Conveyor Motor	M120	25.07	✓ LIMING	50/60Hz 0.2kW 380V 0.2A 0.2kW 0.75A	
Lubrication Unit	U22	32.02	✓ YEONG DIEN	220V 50/60Hz 150W	
Heat Exchanger	E1	27.01	✓ HABOR	220V 50/60Hz 1.16A	
Air Condition	E1	27.02	HABOR	220V 50/60Hz 1.16A	
PAPER FILTER SYSTEM	U5	27.07			
C.T.S TANK	M27	25.05	WALRUS		
	U31				

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Group	Device	Location	Manufacturer	Specification	Description
Motor Protective Relay	QM1	21.01	✓ EATON	PKZM 0-2.4	Setting: 0.4 A
	QM2	21.02	✓ EATON	PKZM 0-2.5	Setting: 2.1 A
	QM3	21.04	✓ EATON	PKZM 0-2.5	Setting: 2 A
	QM4	21.07	✓ EATON	PKZM 0-2.5	Setting: 1.62 A
	QM6	22.01	✓ EATON	PKZM 0-1	Setting: 0.66 A
	QM10	22.05	EATON	PKZM 0-	Setting: A
	QM11	22.06		PKZM 0-	Setting: A
	QM13	23.01	EATON	PKZM 0-	Setting: A
	QM15	27.07	EATON	PKZM 0-	Setting: A
	QM16	23.05	✓ EATON	PKZM 0-10	Setting: 6.6 A
	QM19	24.01	EATON	PKZM 0-	Setting: A
	QM20	24.02	✓ EATON	PKZM 0-4	Setting: 3.8 A
	QM21	24.03	✓ EATON	PKZM 0-4	Setting: 3.8 A
	QM27	25.05	EATON	PKZM 0-	Setting: A
	QM120	25.07	✓ EATON	PKZM 0-1	Setting: 0.75 A
Magnetic Contactor	KM2	32.03	✓ EATON	DIL M9-01	
	KM3	32.04	✓ EATON	DIL M17-01	
	KM4	33.03	✓ EATON	DIL M9-01	
	KM5	33.04	✓ EATON	DIL M9-01	
	KM6	33.05	✓ EATON	DIL M9-01	
	KM7	33.06	✓ EATON	DIL M9-01	
	KM10	32.05	EATON	DIL M9-01	
	KM11	32.06	EATON	DIL M9-01	
	KM13	35.07		DIL M17-01	
	KM15	27.07	EATON	DIL M9-01	
	KM16	35.04	✓ EATON	DIL M9-01	
	KM20	35.02	✓ EATON	DIL M9-01	
	KM21	35.02	✓ EATON	DIL M9-01	
	KM27	36.07	EATON	DIL M9-01	
	KM120	32.05	✓ EATON	DIL M9-01	
	KM121	32.06	✓ EATON	DIL M9-01	

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Group	Device	Location	Manufacturer	Specification	Description				
PCB Diode Unit	U11A	42A.04	✓ PAMOTEK	IM04D 990402 V1					
Thermistor Motor Protection Tripping Unit	101A	12.05	SIEMENS	3RN1013 1BW10					
Timer Power	KT1	65	✓ MOELLER	ETR4-70-A					
Saefty Relay	KA1	66	✓ PILZ	PNOZ X2.1	Saefty Relay of Emergency Stope				
	KA2	67	✓ PILZ	PNOZ X2.1	Saefty Relay of Safety Guard				
Safety Guard	S101	72.04	✓ EUCHNER	TP3-2131A024M					
	S102	72.04	EUCHNER	TP3-2131A024M					
	S105	72.04	EUCHNER	TP3-2131A024M					
	S106	77.01	EUCHNER	TP3-2131A024M					
IMTHP	105A	16.03	ETEL	IM THP 108-111-000					
	106A	17.03	ETEL	IM THP 108-111-000					
TITLE : Specification of parts				MACHINE MODEL MC Series	CONTROL : HEIDENHAIN iTNC530	DRAWER : Susan	DATE : APR-02-2013	VERSION : 	PAGE 93

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Group	Device	Location	Manufacturer	Specification	Description
Circuit Breaker	QF0	10.01	✓ EATON	63 A	
	QF1	10.05	✓ EATON	FAZ-C 32/3	
	QF2	10.06	✓ EATON	FAZ-S 6/2	
	QF3	26.05	✓ EATON	FAZ-S 4/2	
	QF4	26.06	✓ EATON	FAZ-S 4/1	
	QF10	27.02	✓ EATON	FAZ-S 1/1	
	QF12	27.02	EATON	FAZ-S	
Fuse	F0	10.04	✓ SIEMENS	50 A	
	F1	26.06	✓ YOEN	20 A	
	F2	26.06	✓ YOEN	15 A	
	F3	26.07	✓ YOEN	41 A	
	F4	26.07	✓ YOEN	4 A	
Transformer	TC1	26.05	✓ YOEN	1100VA	
	TC2	27.02	YOEN	1320VA	
	TC3				
Line Filter	Z0	10.04	✓ HEIDENHAIN	EPCOS	ID:640 980-01 N
	Z1	10.05	✓ SCHAFFNER	FN3270H-35-33	
AC Reactor	L1	10.04	✓ HEIDENHAIN	KDR 130C	
			HEIDENHAIN	KDR 140	
Auto Power Off	KW0	10.02	✓ EATON	NZM1-XA24AC/DC	
Power Transformer	TM1	10.02			
Machine OperationTime	U16	26.08			
Others	V1	26.06	✓ HY	KBPC3506	
	C1	26.05	✓ TOSHIN	50VDC,4700uf	
	CHOKE	12.01			

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