

# **8L LATHE ELECTRICAL SCHEMATICS**

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**SERIAL NUMBER 10505 OR LOWER**

# ABOUT THIS DOCUMENT

## ABOUT THIS DOCUMENT

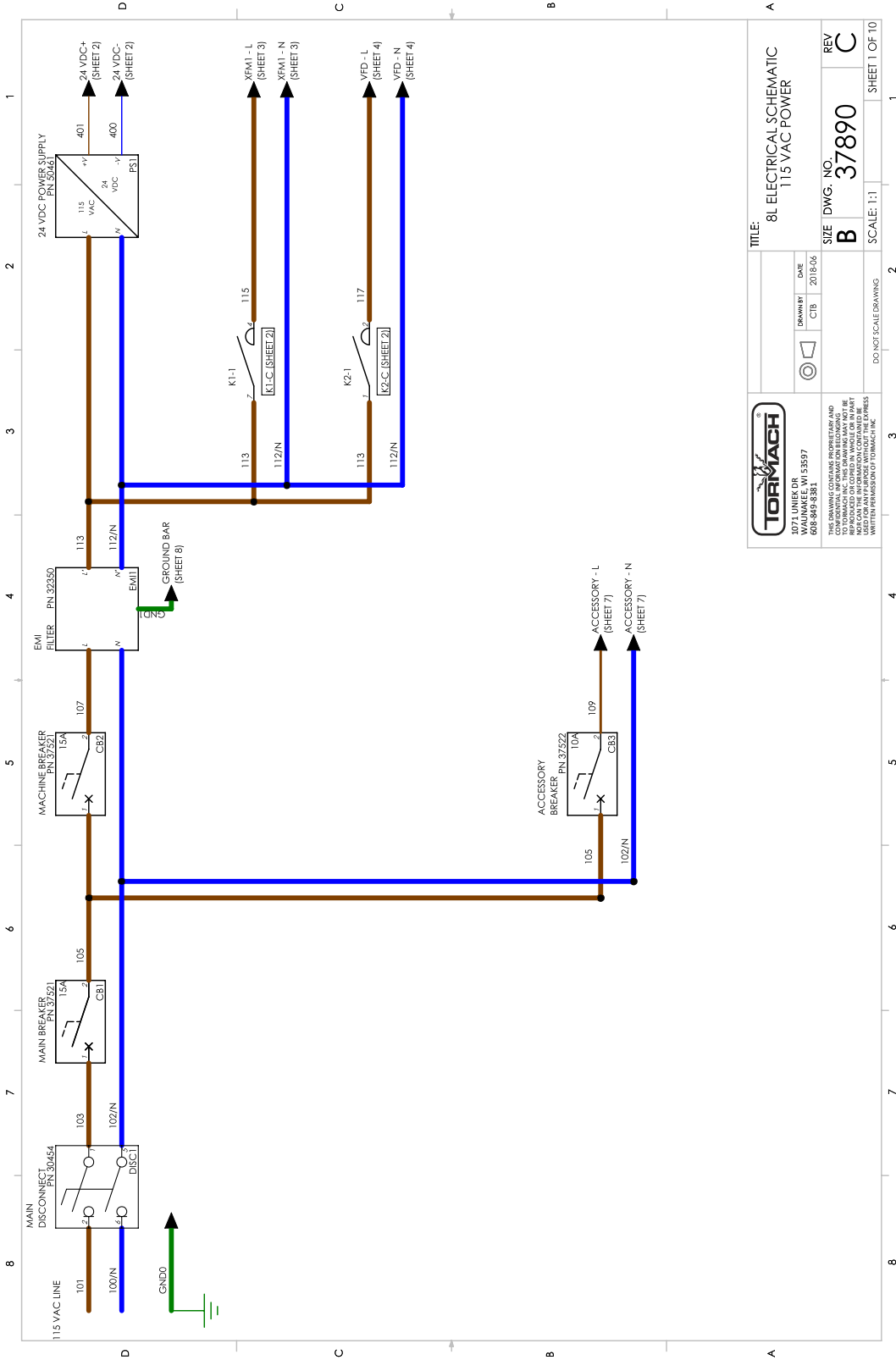
The electrical schematic varies by serial number. Identify your machine's serial number (on the right-hand side of the machine, near the Main Disconnect switch). If the serial number is **10505 or lower**, refer to the electrical schematics in this document. If the serial number is **10506 or higher**, refer to the operator's manual ([UM 10753](#)).

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# 115 VAC POWER (SHEET 1)

## 115 VAC POWER (SHEET 1)



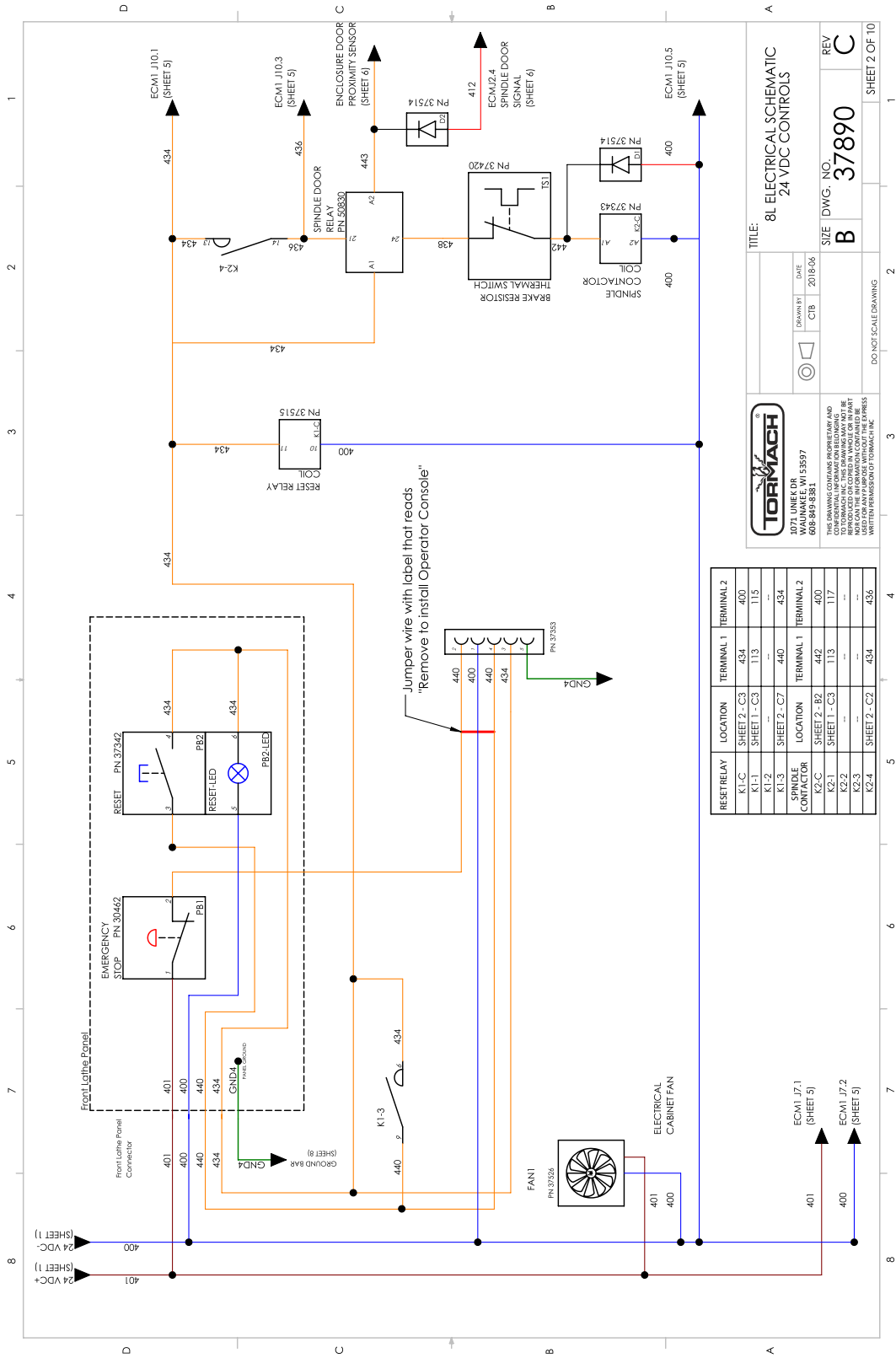
		<b>TITLE:</b> 8L ELECTRICAL SCHEMATIC 115 VAC POWER	
DRAWN BY CTB	DATE 2018-06	SIZE B	DWG. NO. 37890
DO NOT SCALE DRAWING		SCALE: 1:1	REV C
SHEET 1 OF 10			SHEET 1 OF 10

1071 LINCOLN DR  
 WAUKESHA, WI 53597  
 608-849-8381

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# 24 VDC CONTROLS (SHEET 2)

## 24 VDC CONTROLS (SHEET 2)



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608-849-8381

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TITLE: 8L ELECTRICAL SCHEMATIC  
24 VDC CONTROLS

REV: C

SIZE: DWG. NO. 37890

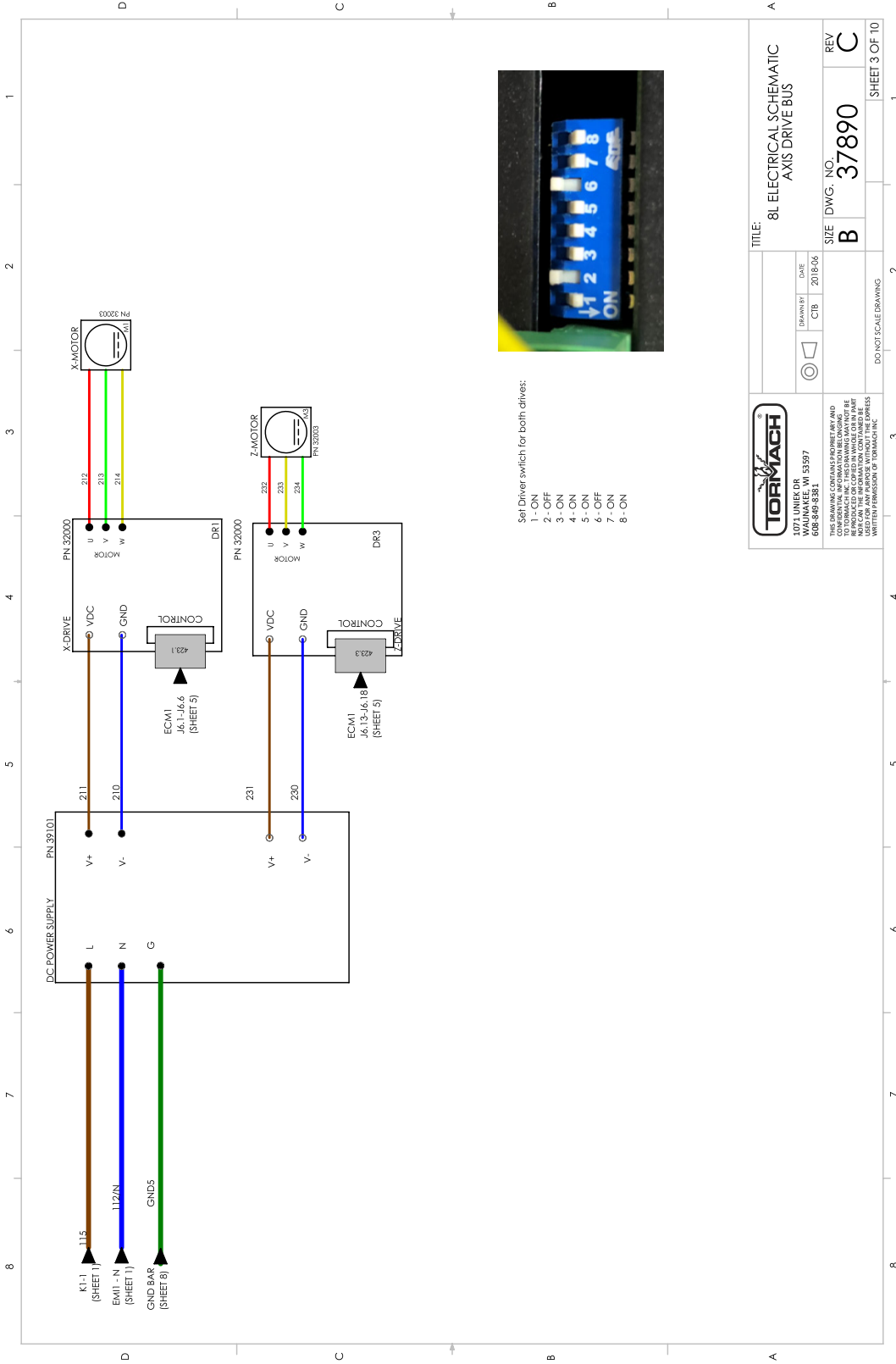
SHEET 2 OF 10

RESET RELAY	LOCATION	TERMINAL 1	TERMINAL 2
K1-C	SHEET 2 - C3	434	400
K1-1	SHEET 1 - C3	113	115
K1-2	SHEET 2 - C7	440	434

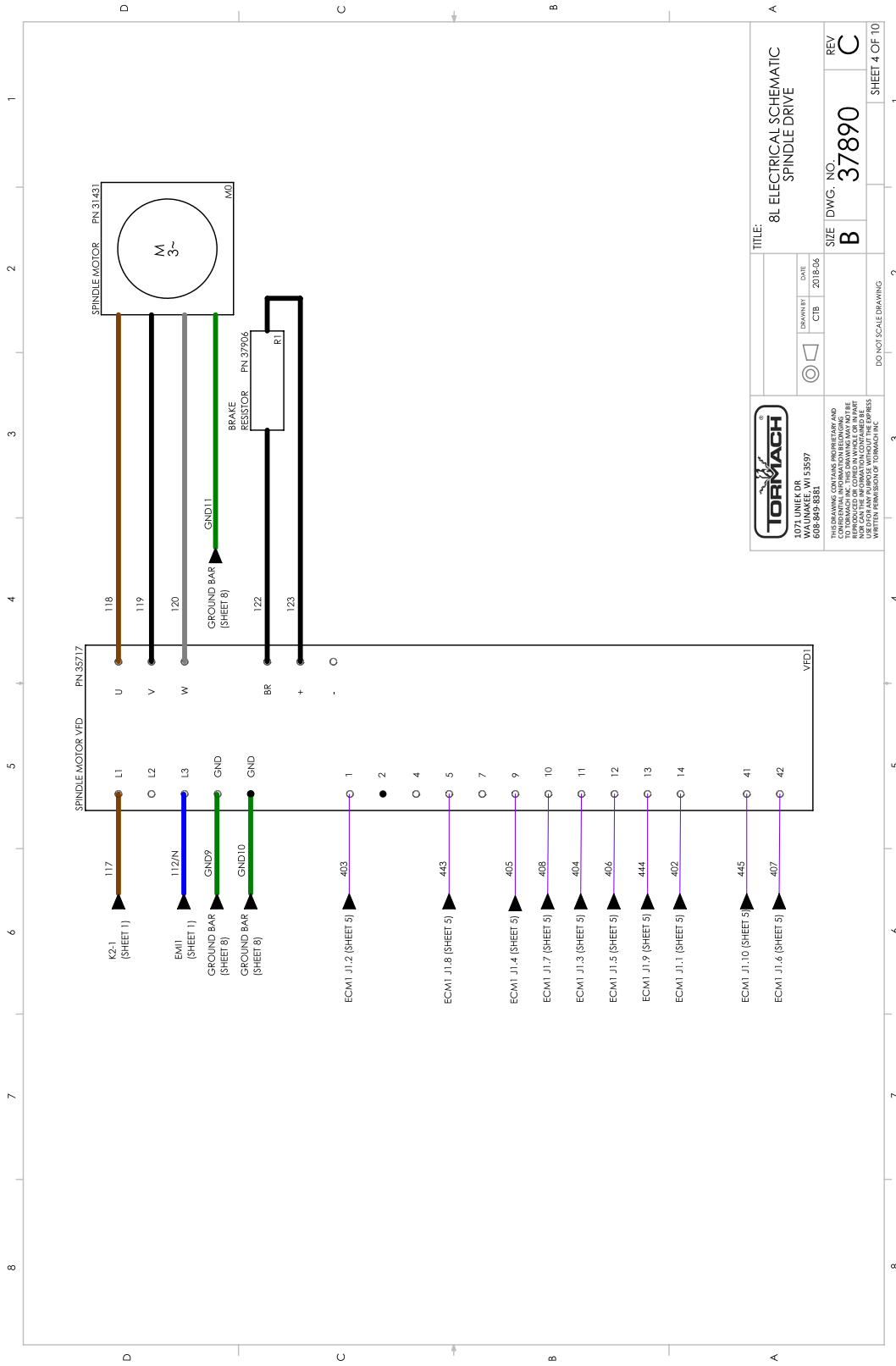
  

SPINDLE CONTACTOR	LOCATION	TERMINAL 1	TERMINAL 2
K2-C	SHEET 2 - B2	442	400
K2-1	SHEET 1 - C3	113	117
K2-2	---	---	---
K2-4	SHEET 2 - C2	434	436

Jumper wire with label that reads "Remove to install Operator Console"



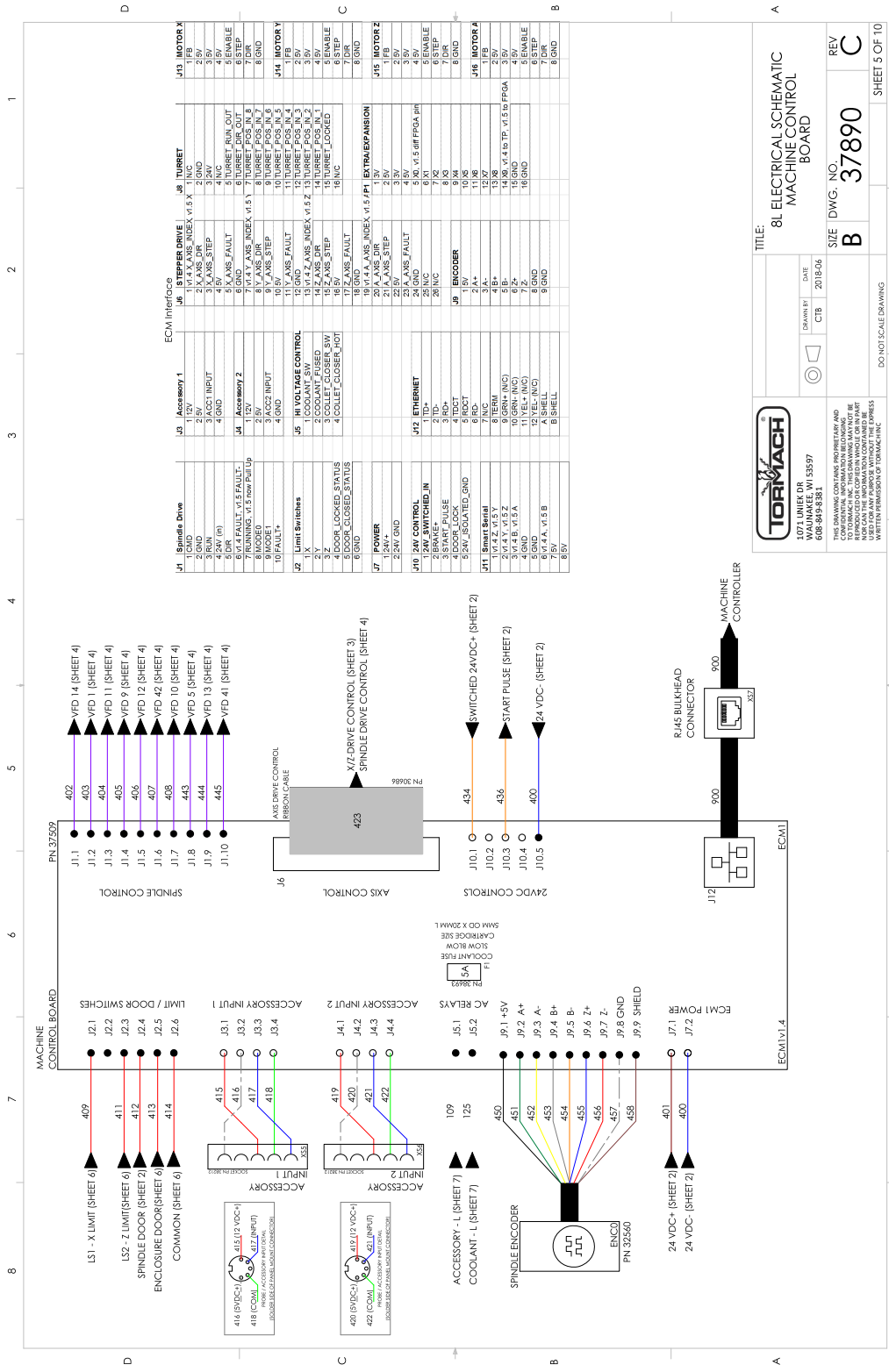
## SPINDLE DRIVE (SHEET 4)



		TITLE: 8L ELECTRICAL SCHEMATIC SPINDLE DRIVE	
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# MACHINE CONTROL BOARD (SHEET 5)

## MACHINE CONTROL BOARD (SHEET 5)



ECM Interfaces	
<b>J1 Spindle Drive</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J2 Spindle Encoder</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J3 Accessory 1</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J4 Stepper Drive</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J5 HI VOLTAGE CONTROL</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J6 AXIS CONTROL</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J7 POWER</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J10 ETHERNET</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)
<b>J12 MACHINE CONTROLLER</b>	1 12V 2 5V 3 5V 4 GND 5 DIR 6 DIR 7 24V (P) 8 DIR 9 24V (P) 10 24V (P) 11 24V (P) 12 24V (P) 13 24V (P) 14 24V (P) 15 24V (P) 16 24V (P) 17 24V (P) 18 24V (P) 19 24V (P) 20 24V (P) 21 24V (P) 22 24V (P) 23 24V (P) 24 24V (P) 25 24V (P) 26 24V (P) 27 24V (P) 28 24V (P) 29 24V (P) 30 24V (P) 31 24V (P) 32 24V (P) 33 24V (P) 34 24V (P) 35 24V (P) 36 24V (P) 37 24V (P) 38 24V (P) 39 24V (P) 40 24V (P) 41 24V (P) 42 24V (P) 43 24V (P) 44 24V (P) 45 24V (P) 46 24V (P) 47 24V (P) 48 24V (P) 49 24V (P) 50 24V (P)

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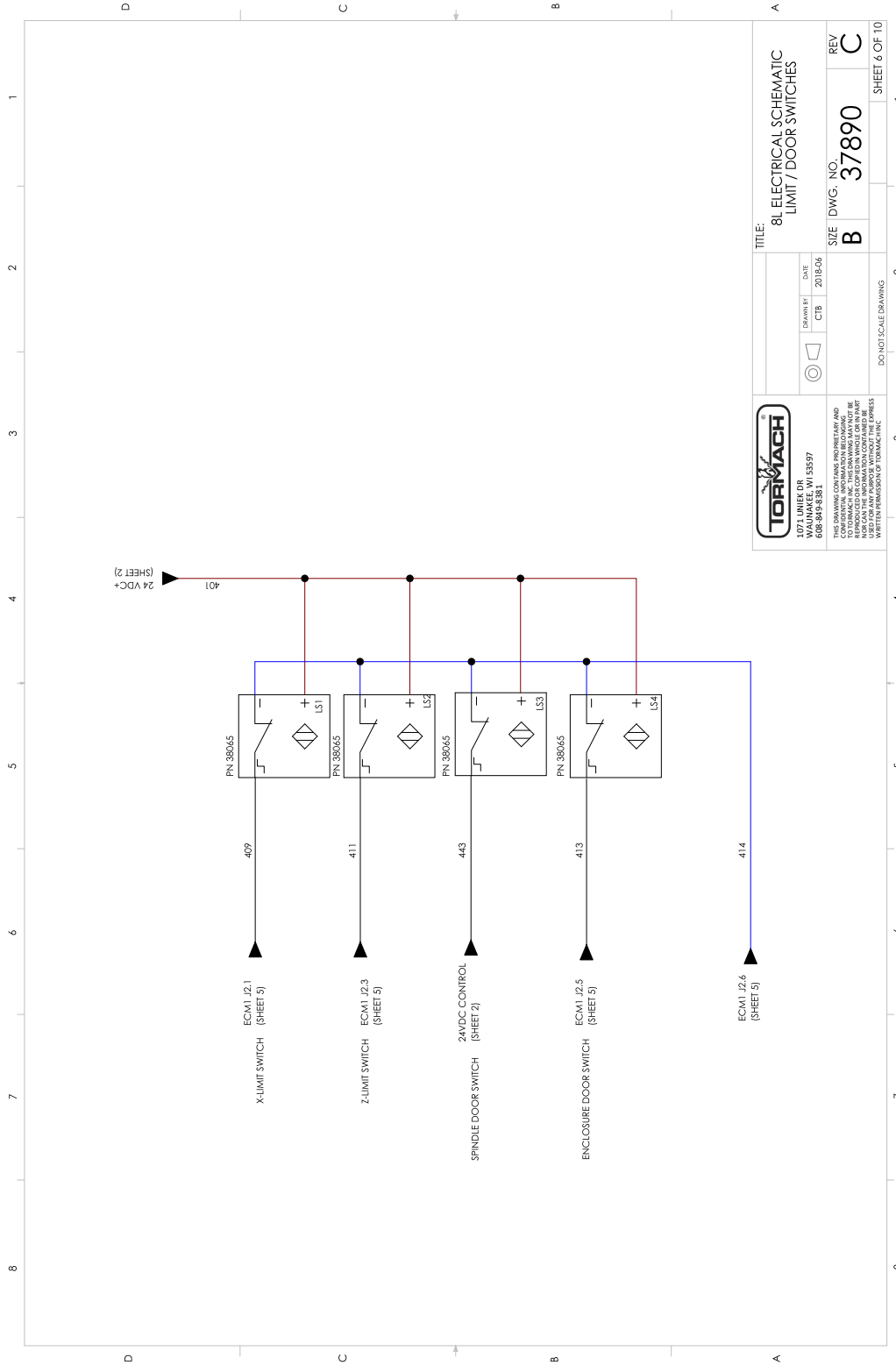
**8L ELECTRICAL SCHEMATIC MACHINE CONTROL BOARD**

DATE: 2018-06  
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SIZE: DWG. NO. **B** 37890  
REV **C**

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SHEET 5 OF 10

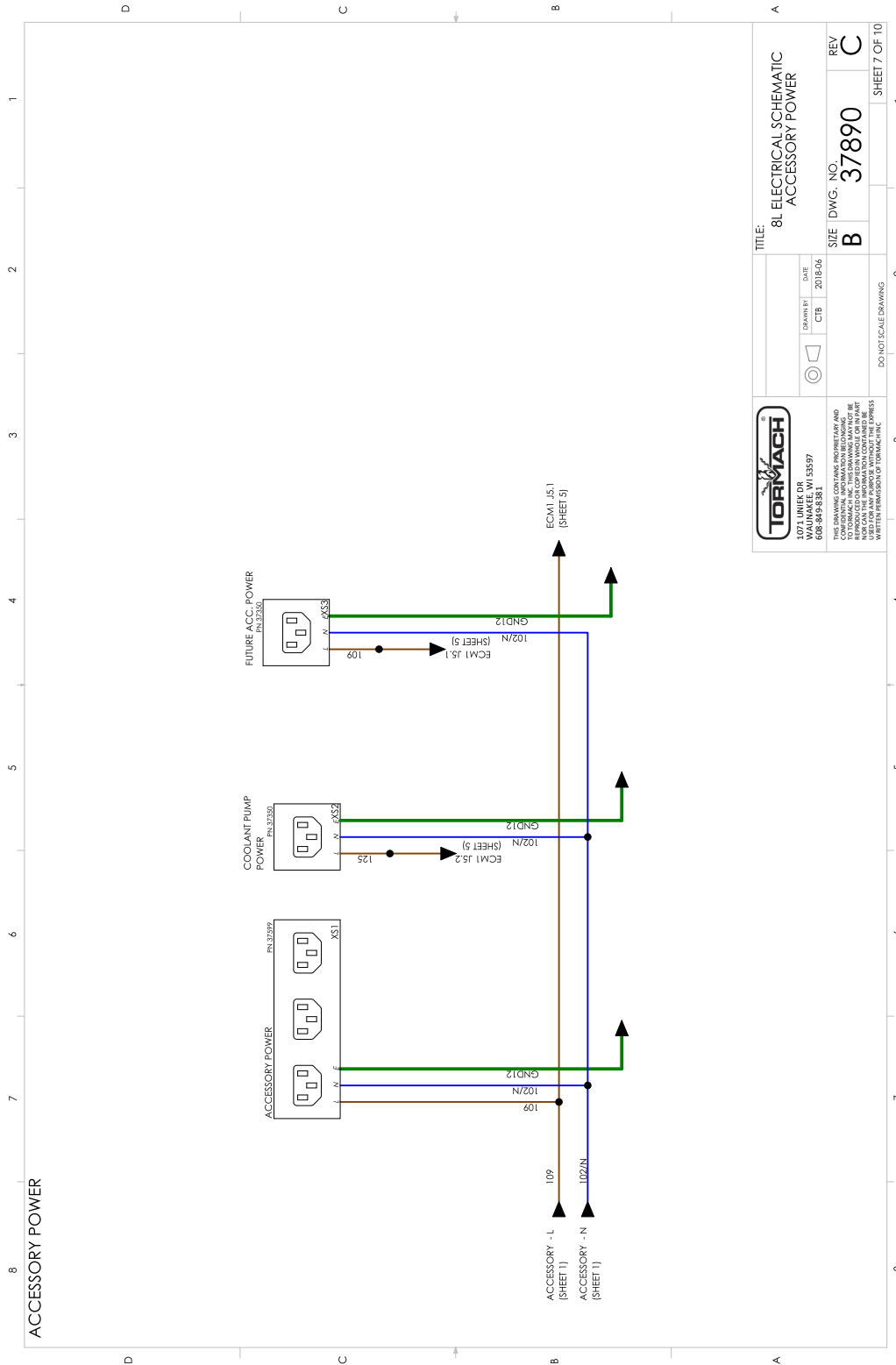


		TITLE: 8L ELECTRICAL SCHEMATIC LIMIT / DOOR SWITCHES	
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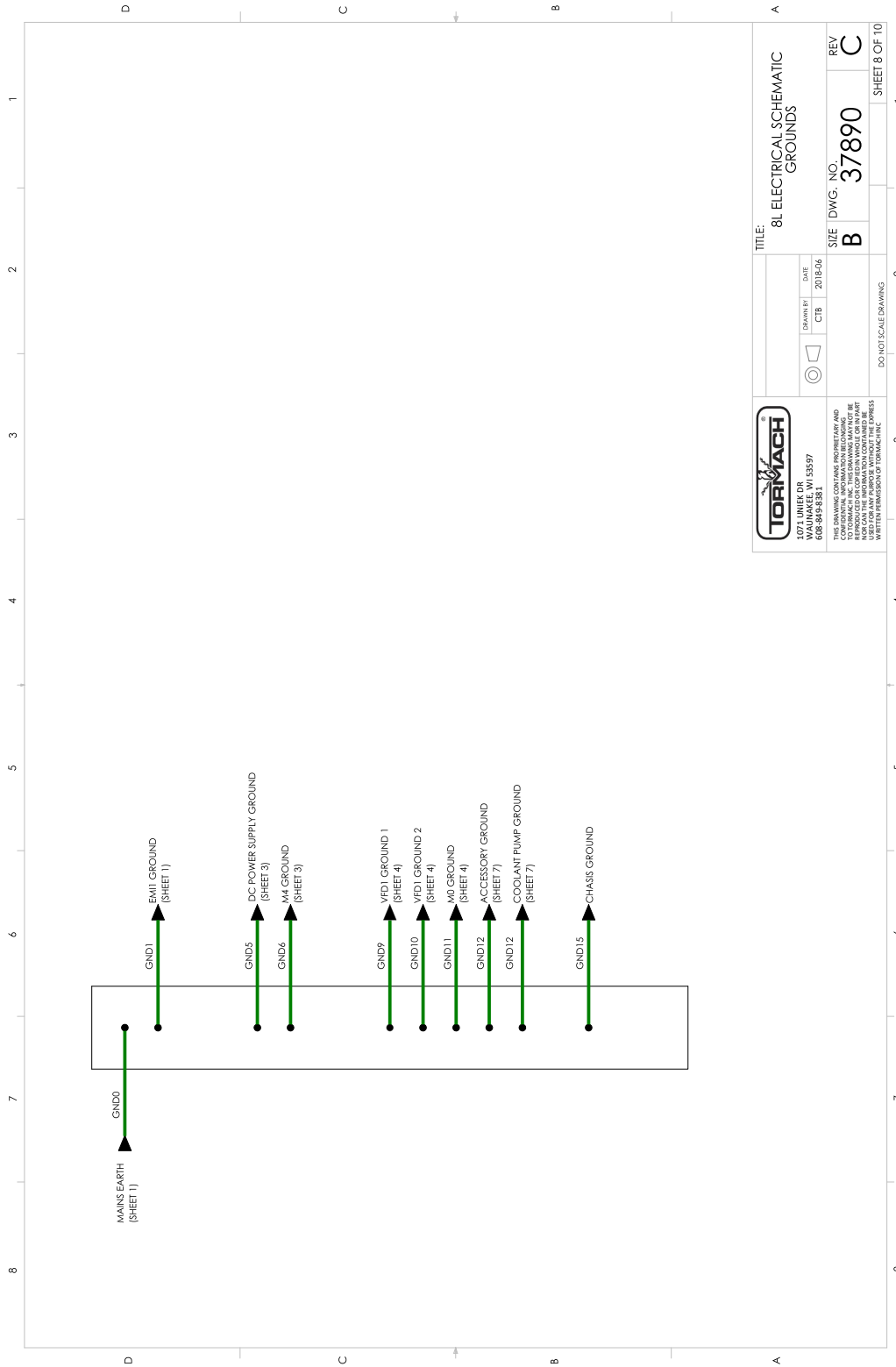


# ACCESSORY POWER (SHEET 7)

## ACCESSORY POWER (SHEET 7)



		TITLE: 8L ELECTRICAL SCHEMATIC ACCESSORY POWER	
5071 WHITE DR WAUNAKEE, WI 53597 608-849-8381	DRAWN BY: CTB	DATE: 2018-06	REV: C
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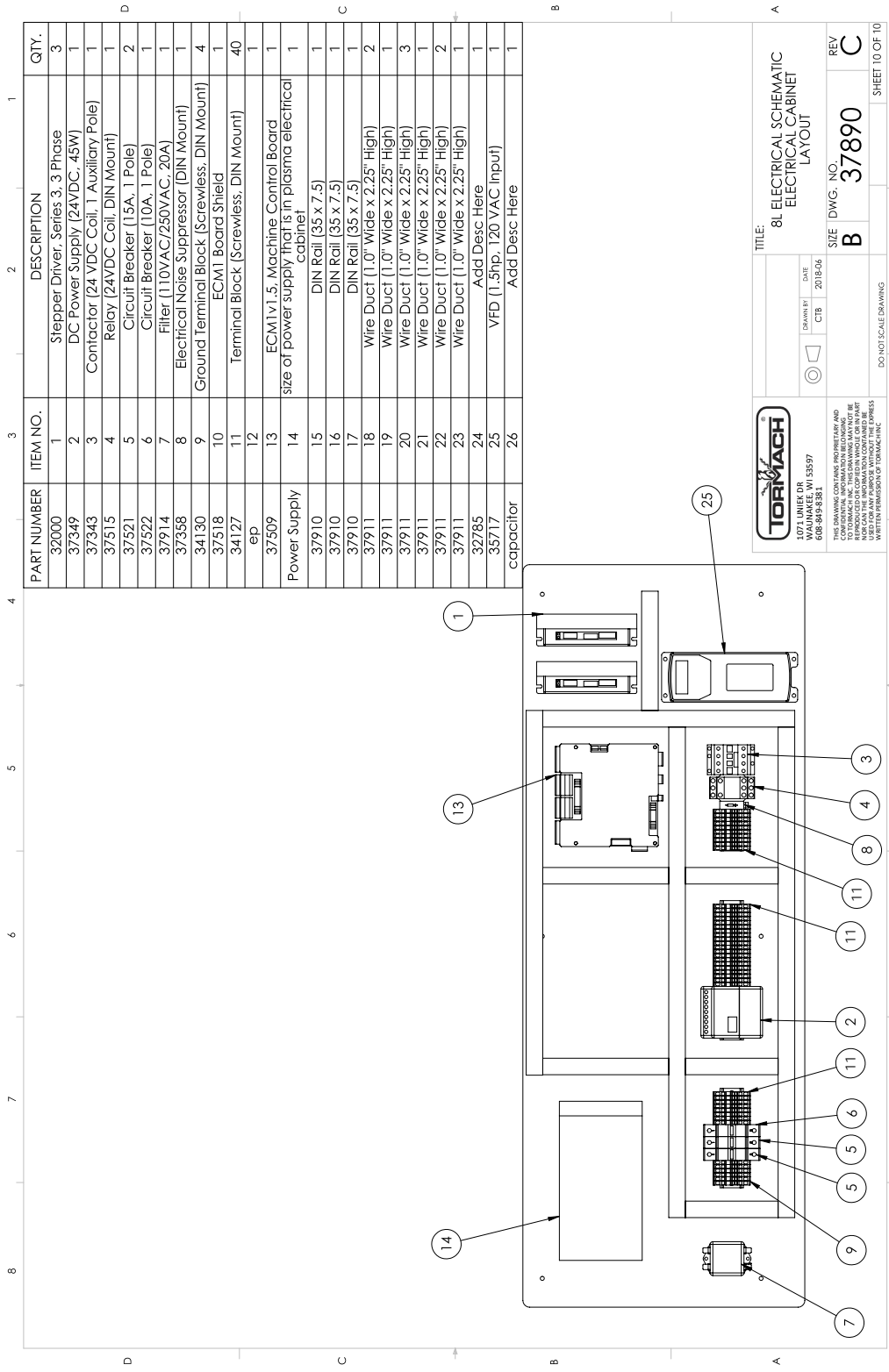


		TITLE: 8L ELECTRICAL SCHEMATIC GROUND	
5371 WHITE DR WAUNAKEE, WI 53597 608-849-8381	DRAWN BY: CTB DATE: 2018-06	SIZE: B DWG. NO.: 37890	REV: C SHEET 8 OF 10
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# ELECTRICAL CABINET LAYOUT (SHEET 10)

## ELECTRICAL CABINET LAYOUT (SHEET 10)



PART NUMBER	ITEM NO.	DESCRIPTION	QTY.
32000	1	Stepper Driver, Series 3, 3 Phase	3
37349	2	DC Power Supply (24VDC, 45W)	1
37343	3	Contactors (24 VDC Coil, 1 Auxiliary Pole)	1
37515	4	Relay (24VDC Coil, DIN Mount)	1
37521	5	Circuit Breaker (15A, 1 Pole)	2
37522	6	Circuit Breaker (10A, 1 Pole)	1
37914	7	Filter (110VAC/250VAC, 20A)	1
37358	8	Electrical Noise Suppressor (DIN Mount)	1
34130	9	Ground Terminal Block (Screwless, DIN Mount)	4
34127	10	ECM1 Board Shield	1
ep	11	Terminal Block (Screwless, DIN Mount)	40
	12		1
37509	13	ECM1 v1.5, Machine Control Board size of power supply that is in plasma electrical cabinet	1
37910	14	Power Supply	1
37910	15	DIN Rail (35 x 7.5)	1
37910	16	DIN Rail (35 x 7.5)	1
37910	17	DIN Rail (35 x 7.5)	1
37911	18	Wire Duct (1.0" Wide x 2.25" High)	2
37911	19	Wire Duct (1.0" Wide x 2.25" High)	1
37911	20	Wire Duct (1.0" Wide x 2.25" High)	3
37911	21	Wire Duct (1.0" Wide x 2.25" High)	1
37911	22	Wire Duct (1.0" Wide x 2.25" High)	2
37911	23	Wire Duct (1.0" Wide x 2.25" High)	1
32785	24	Add Desc Here	1
35717	25	VFD (1.5hp, 120 VAC Input)	1
capacitor	26	Add Desc Here	1

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TITLE: 8L ELECTRICAL SCHEMATIC ELECTRICAL CABINET LAYOUT

SIZE DWG. NO. B 37890

REV C

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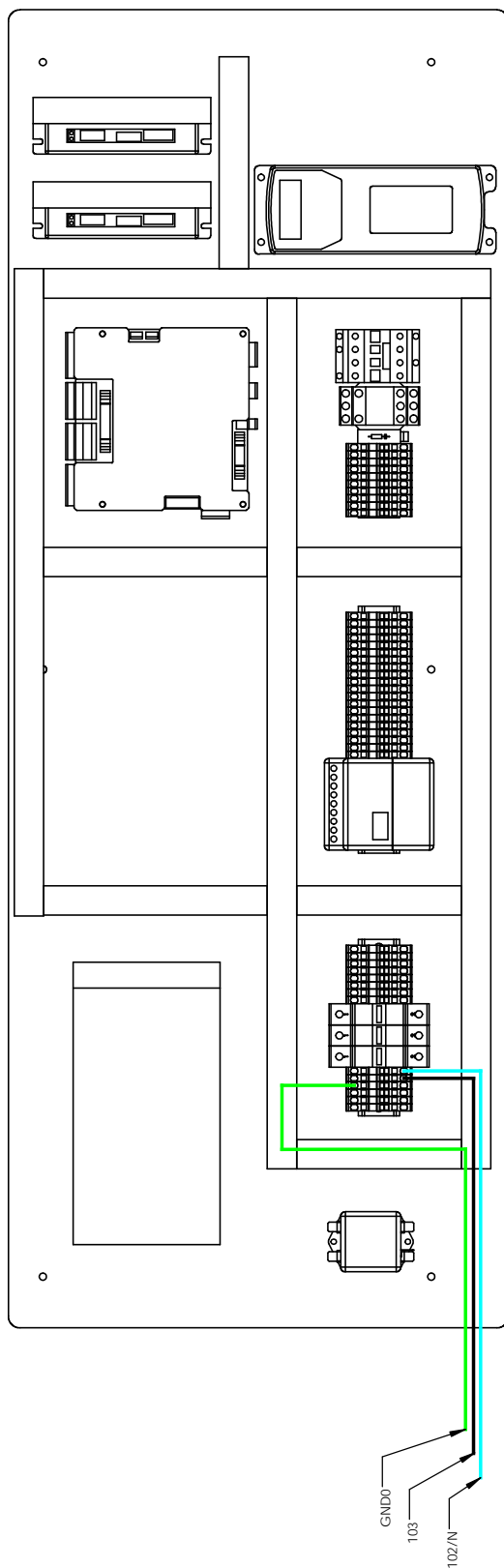
SHEET 10 OF 10

## WIRING LAYOUT DIAGRAMS

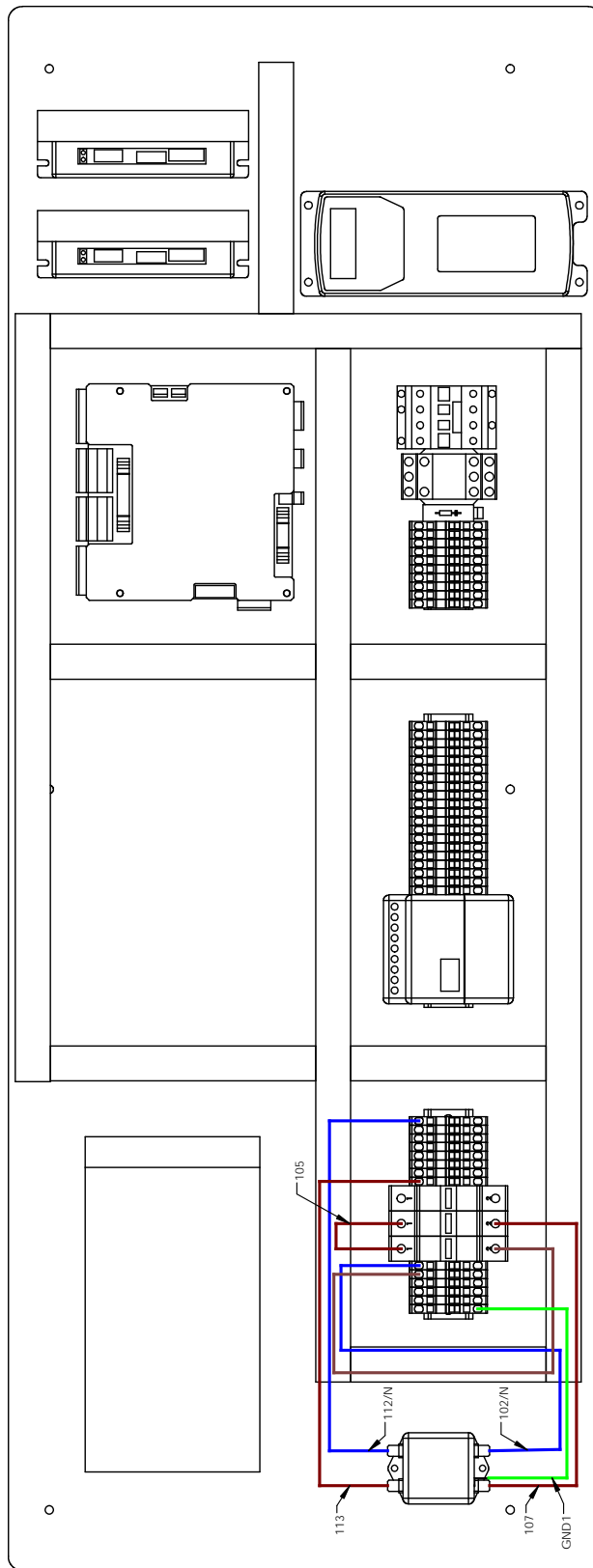
Some troubleshooting steps may require you to work in the electrical cabinet. Refer to the following diagrams for information on the routing of each wire.

<b>Power In</b> .....	<b>14</b>
<b>EMI Filter and Circuit Breaker</b> .....	<b>15</b>
<b>70 Vdc Power Supply and Stepper Driver Power</b> .....	<b>16</b>
<b>24 Vdc Safety Circuit Contactor</b> .....	<b>17</b>
<b>110 Vac Spindle Contactor</b> .....	<b>18</b>
<b>24 Vdc Power Supply</b> .....	<b>19</b>
<b>ECM Board Power</b> .....	<b>20</b>
<b>Coolant Pump and Accessory Power</b> .....	<b>21</b>
<b>Noise Suppressor</b> .....	<b>22</b>
<b>Spindle VFD</b> .....	<b>23</b>
<b>Spindle Encoder</b> .....	<b>24</b>
<b>Stepper Driver Signal and Stepper Motor</b> .....	<b>25</b>
<b>Limit/Door Switches</b> .....	<b>26</b>

## Power In



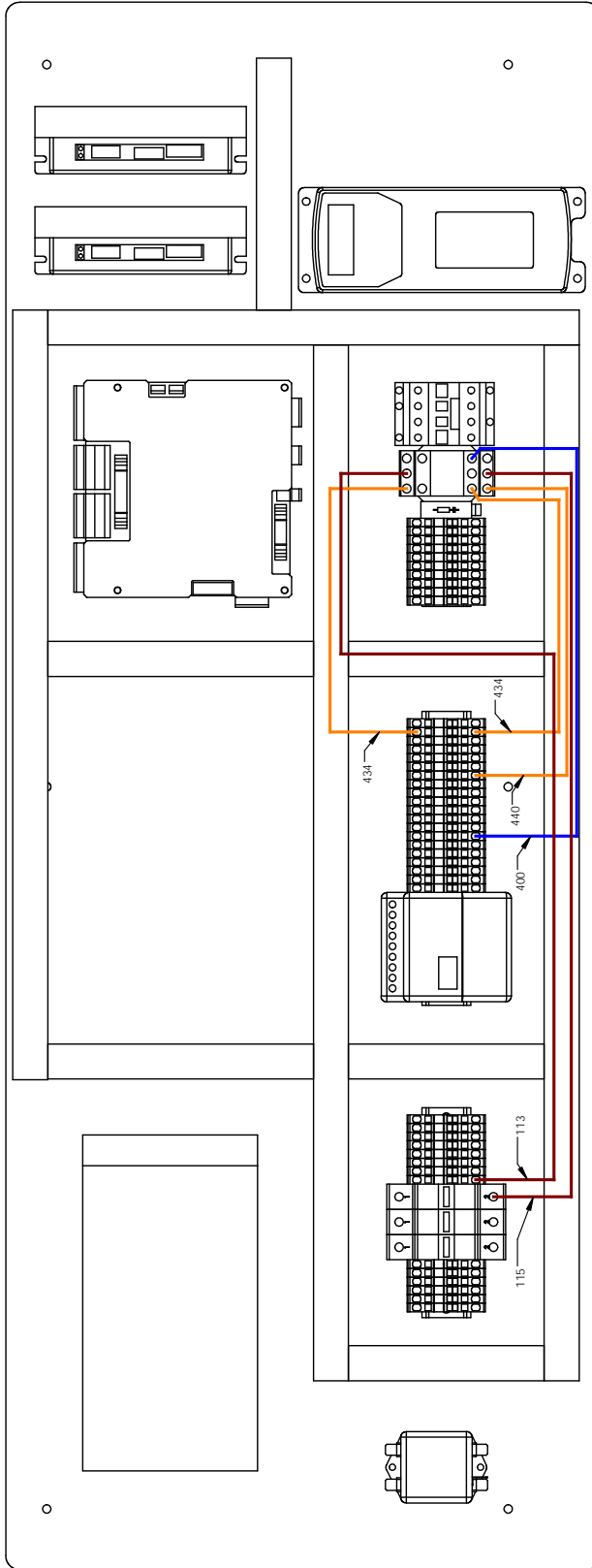
## EMI Filter and Circuit Breaker





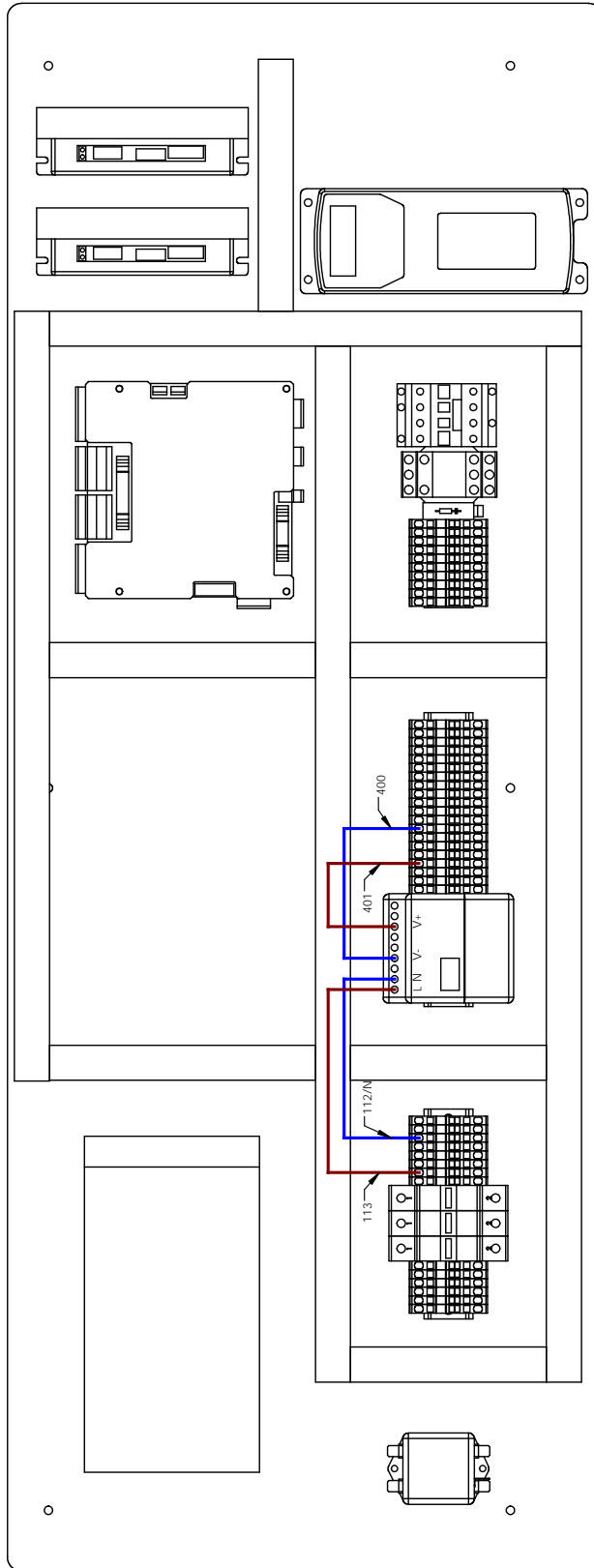


## 24 Vdc Safety Circuit Contactor

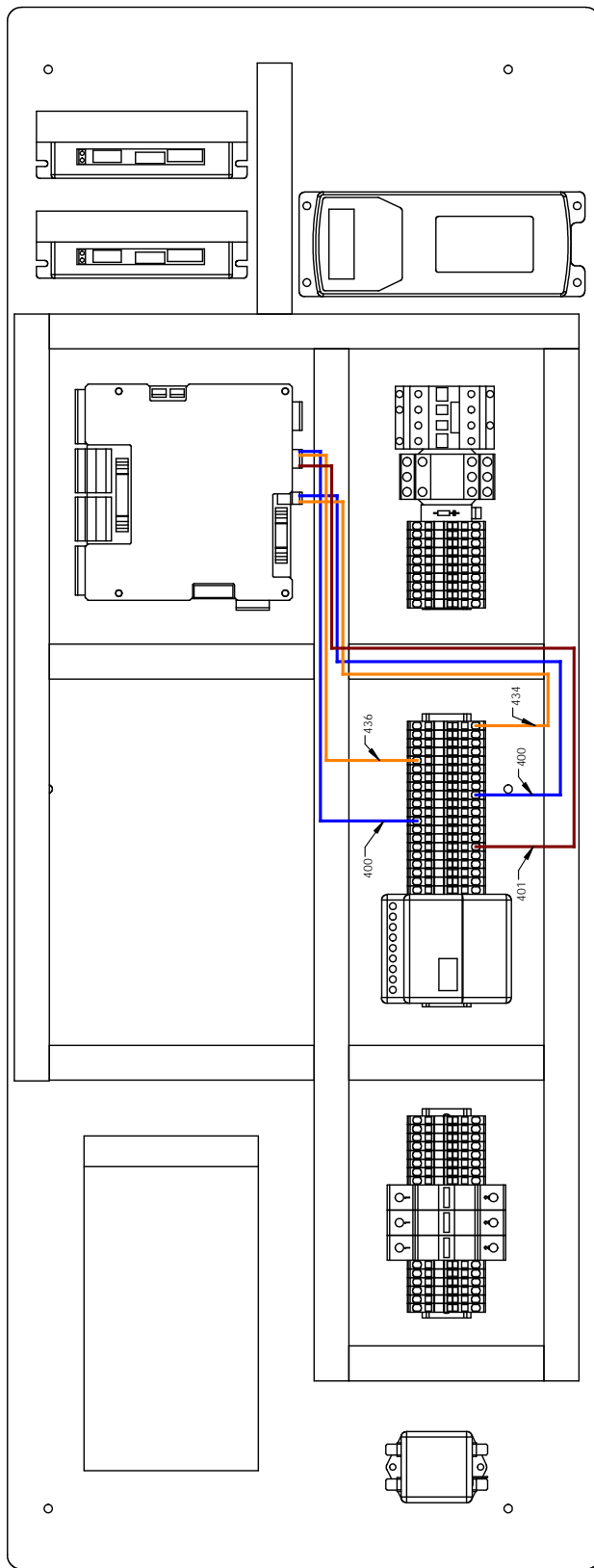




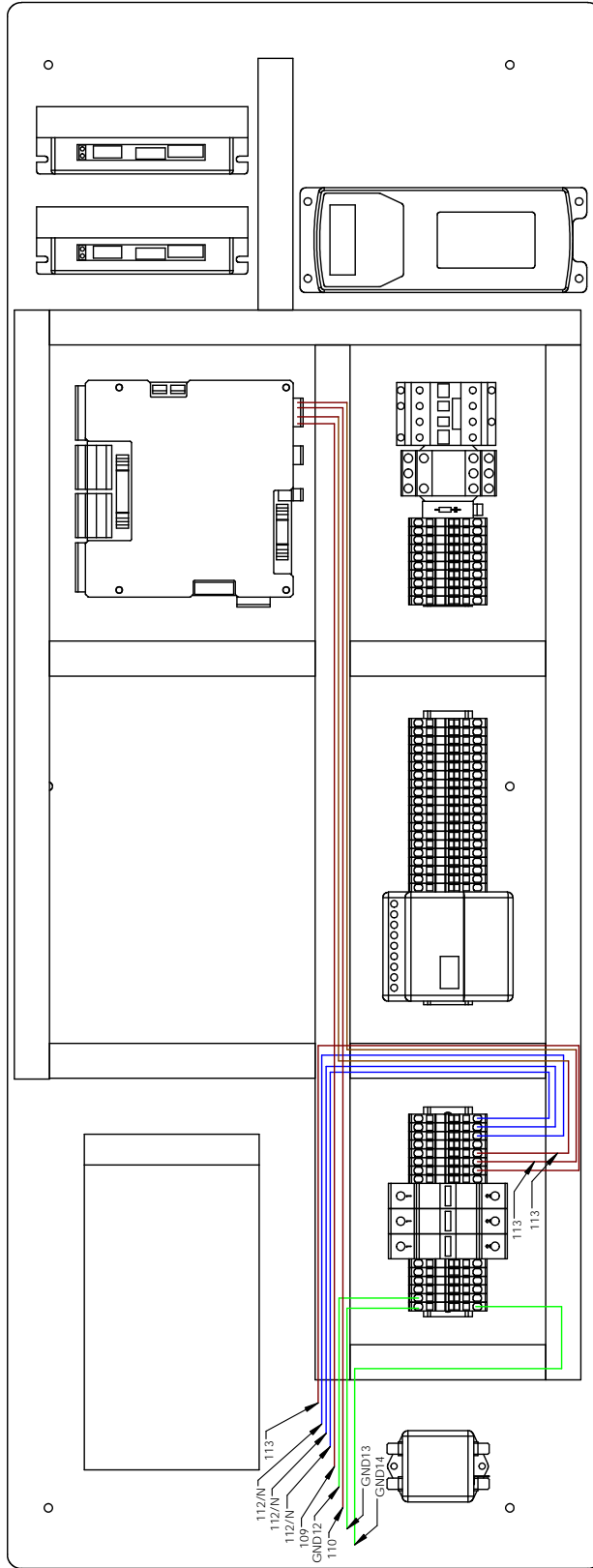
## 24 Vdc Power Supply



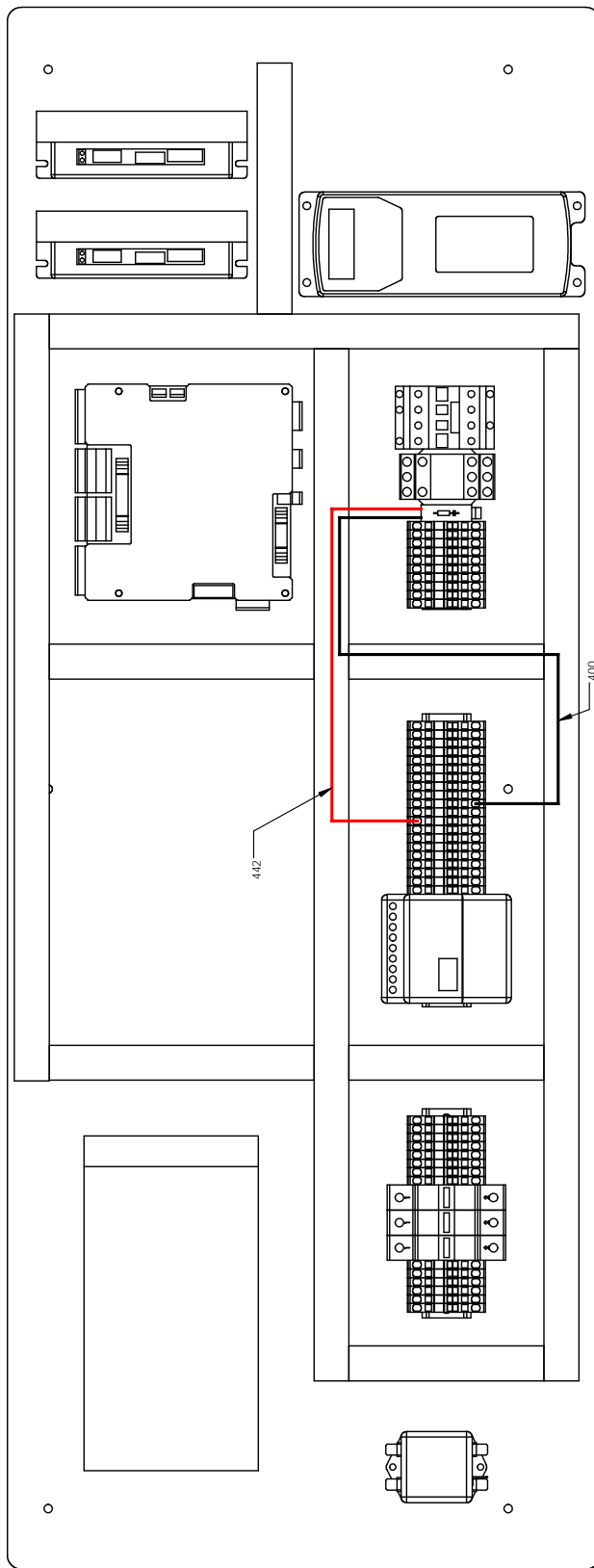
## ECM Board Power



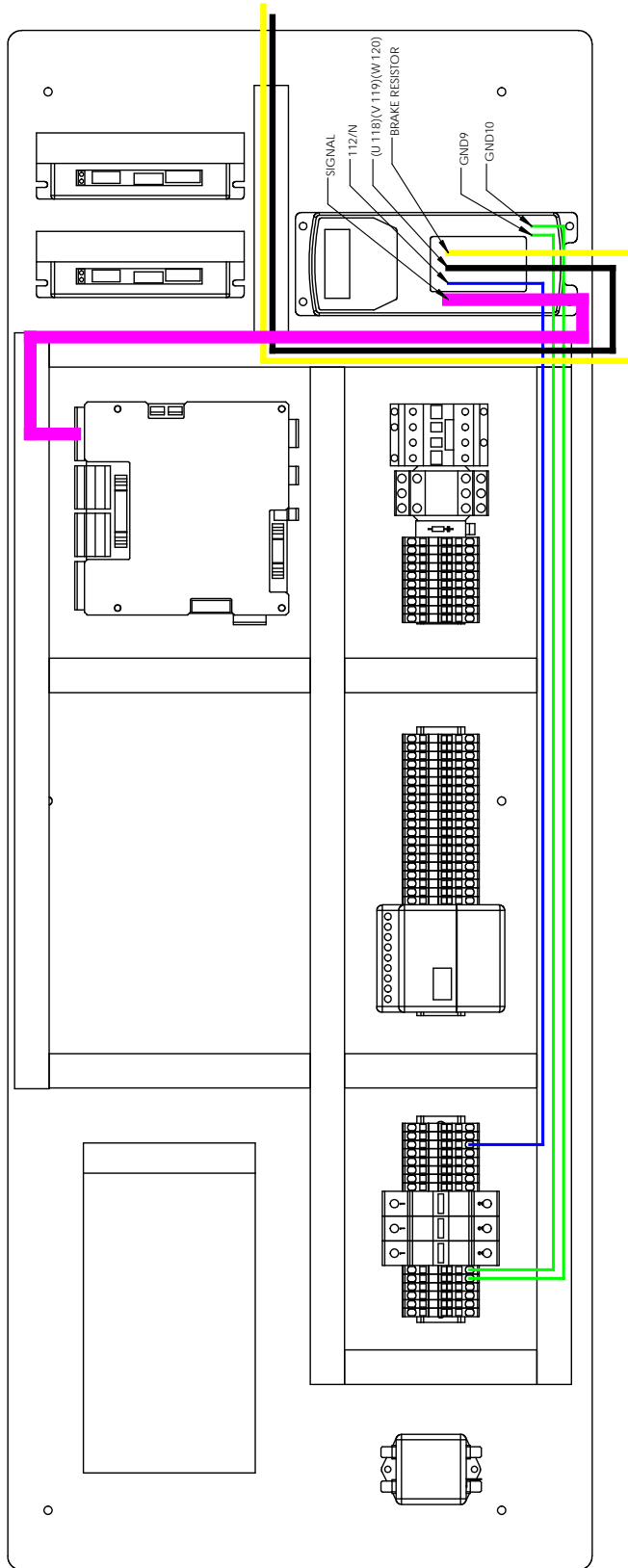
## Coolant Pump and Accessory Power



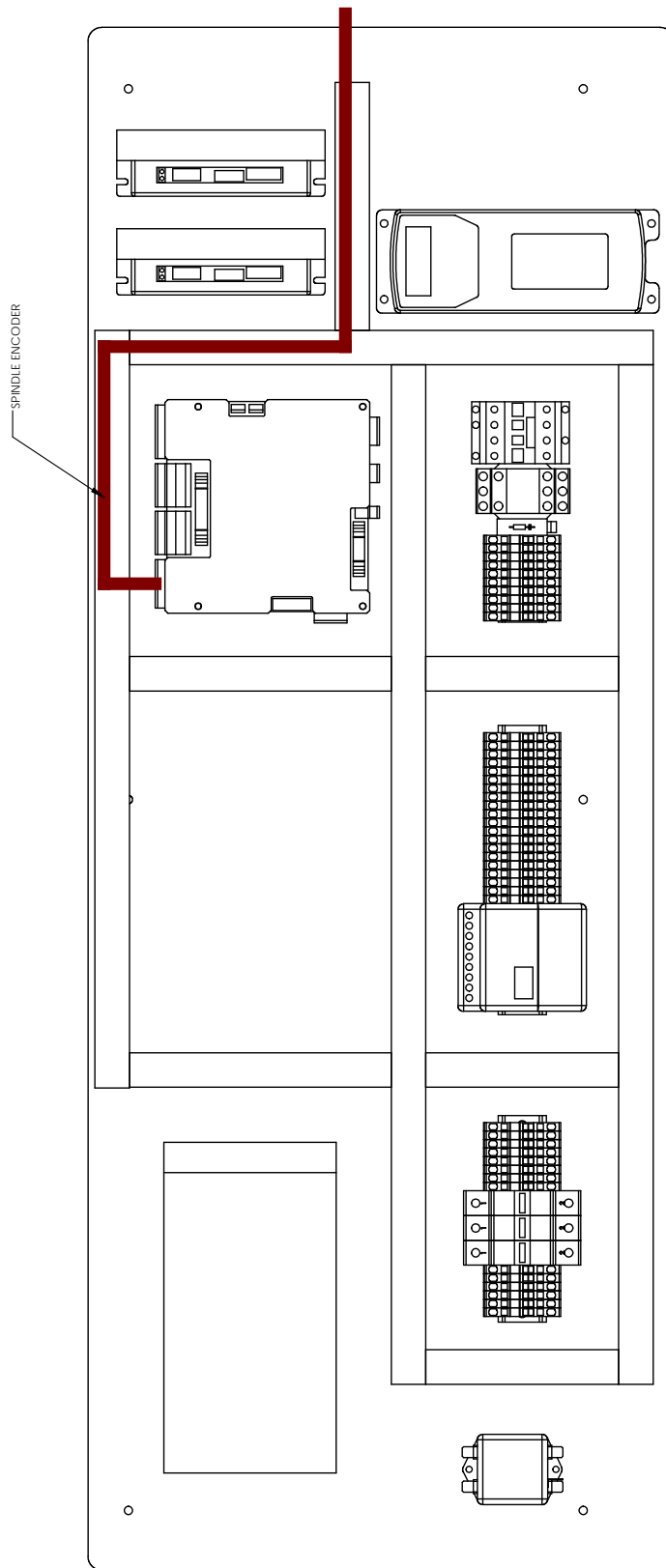
## Noise Suppressor



## Spindle VFD

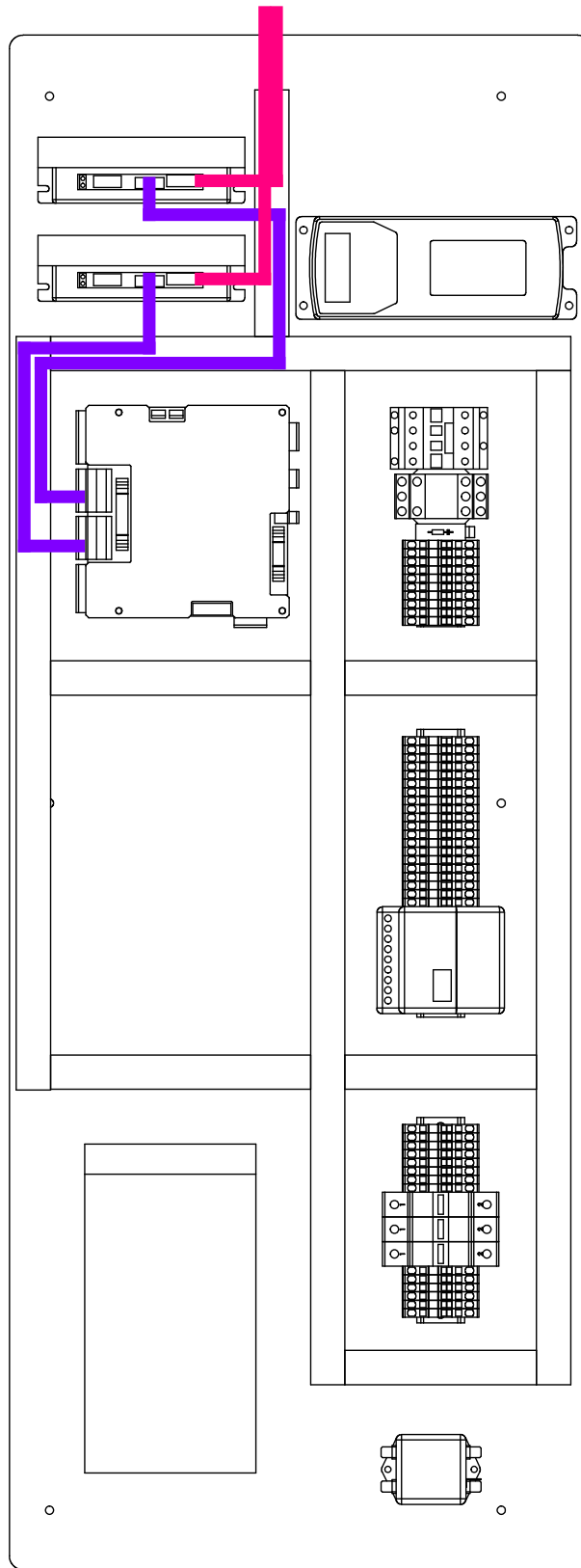


## Spindle Encoder





## Stepper Driver Signal and Stepper Motor



## Limit/Door Switches

