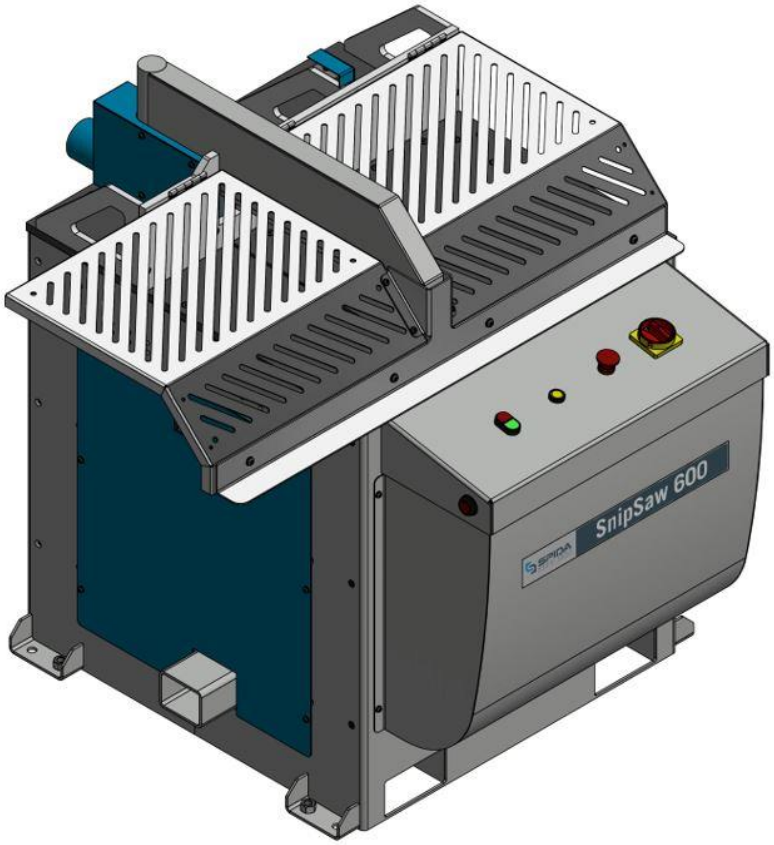
SPIDA MACHINERY
A MULTINAIL COMPANY

SnipSaw 600



OPERATION & MAINTENANCE MANUAL

WARNING

This machine ***must only*** be used by personnel who have been properly instructed in all aspects of the machine's safe operation.

Operators ***must*** also wear the recommended personal protective equipment and have thoroughly read and understood this manual.

Serial Plates

All enquiries should be directed to:
SM2012 Ltd - Known as Spida Machinery

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Below is a copy of the serial plate displayed on the back of the machine

1 Contents

Tables

Figures

2 Revision History

Rev B:
- Updated cutting geometry image, plus added an image for US cutting geometry
- Updated Electrical drawings

Rev C:
- Removed various typos throughout the document.
- Added more info to/updated various sections; including, but not limited to:
    - Operating Controls
    - Operation

3 Overview

The Spida Snip Saw 600 is a pop-up blade saw, designed to provide a pneumatically operated clamping and cutting cycle which removes the operator's hands from the cutting area.

The Snip Saw 600 must be used per the standard operating procedures set out in this manual. Any actions carried out which are not contained in this manual are not endorsed by Spida Machinery and cannot be warranted.

All operators should read and then sign the register of this manual before operating the Snip Saw 600 to ensure they are thoroughly familiar with the machine capabilities, limitations and to ensure correct operating procedures are adhered too.

Only those operators that have received training on the correct operation of the Snip Saw 600 are deemed competent and qualifies to operate the machine.

The Snip Saw 600 test procedures must be performed at installation and after any maintenance, adjustment, repair or modification of the machine. The test procedure is available on request.

The competent operator must also regularly perform the recommended maintenance procedures and checks detailed in this manual.

All electrical wires and pneumatic lines must be set as to not allow their movement through any areas of adjacent machinery that could cause them to be damaged or severed.

This manual offers many safety tips, but its purpose is not to provide instruction in all the skills and techniques required to manufacture timber frames safety and efficiently.

Due to improvements in design and performance during production, in some cases there may be minor discrepancies between the actual machine and the illustrations and text in this manual.

4 Specifications

Table 1, Snip Saw 600 Specifications

Overall Width	1160 mm
Overall Height	1192 mm
Overall Length	1190 mm
Working Width	760 mm
Working Height	870 mm
Working Length	470 mm
Weight	290 kg
Material Feed[1]	Left or Right
Inner Guard Height	148 mm
Depth of Cut	470 mm
Saw Blade	600 mm
Saw Arbor	35 mm
Arbor Motor	5.5 kW (7.5hp) 3 Phase
Power Requirement	25 Amp, 230-460V, 3 Phase
Air Supply	6-8 Bar (600-800 kPa)

Specifications may change without notice

Notes:
1. Saw can be assembled in left or right configurations

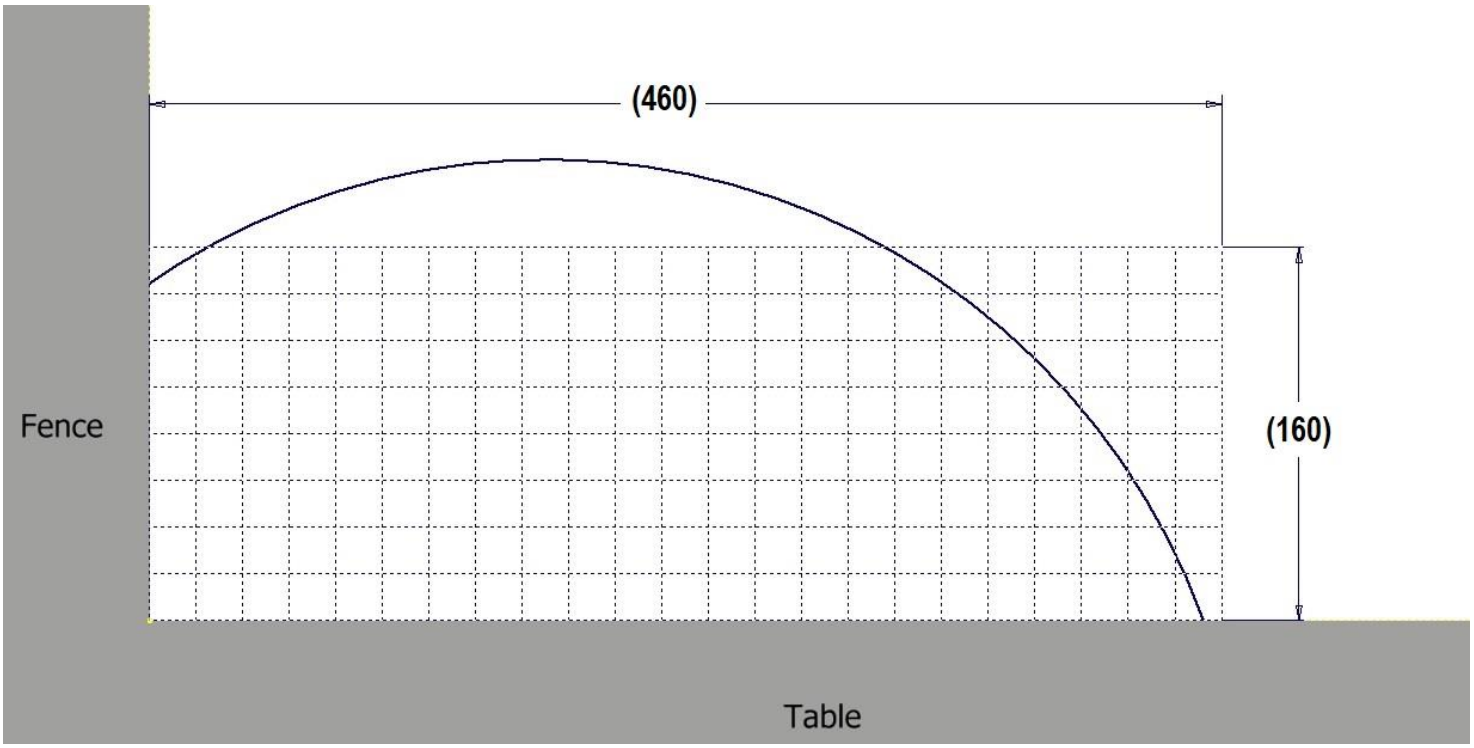

Figure 1, NZ Cutting Geometry

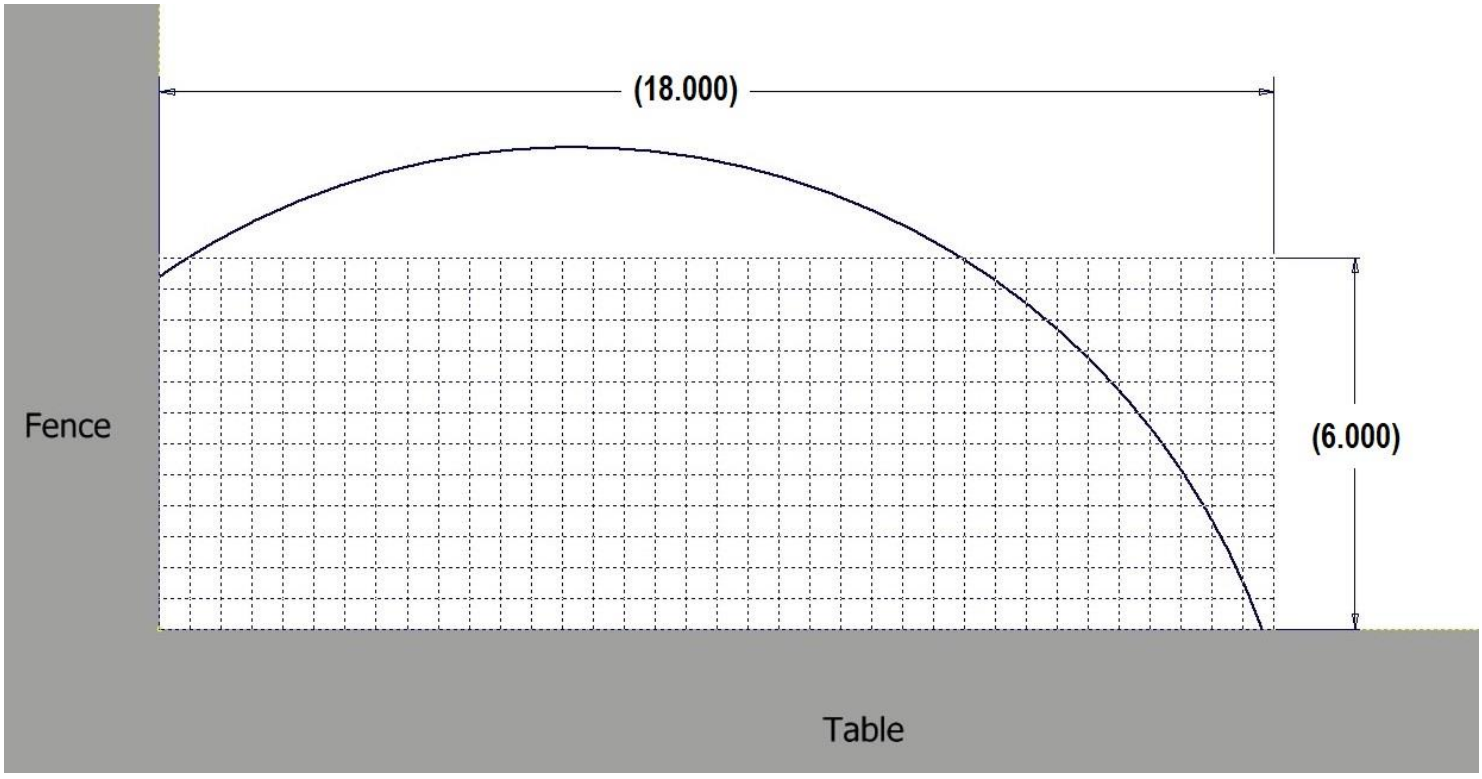

Figure 2, US Cutting Geometry

5 Installation

5.1 Handling & Transport

- Box all additional parts and secure with the machine
- Using a single fork truck, lift the machine package underneath using the forklift spaces provided
- Once on the truck, tightly strap the machine; but not over the Lid assembly.
- Do **not** place any loads on top of the machine
- The machine should be kept free from road grime and rain, and should always be covered while being transported

The Snip Saw 600 will be delivered in large component form and will require assembly on site by trained personnel. Due care and attention should be given whilst unpacking the components from their packaging materials. Any damage caused whilst in transit should be noted immediately and Spida Machinery informed. Refer to section 4 specifications for weights of individual components when selecting Manual Handling Equipment required, prior to positioning them on the selected site.

5.2 Installation

- It is advisable to forklift the machine package as close to the final assembly point as possible to reduce manual lifting
- The final operating position of the machine must be free from any rubbish or impediments
- There must be good lighting in the installation area to allow proper positioning of the machine
- The ground on which the machine rests must not vary by more than 30mm over a 2m x 2m area
- The Snip Saw 600 should be leveled using adjustable feet. Once level, machine should be bolted to the floor through holes provided.
- Electrical commissioning to be to local standards and be performed by a qualified electrician

The site selected for the Snip Saw 600 will depend on the ground. The ground chosen should be clean and free of water or possible flooding. The area on which the framework sits must be as even and horizontal as possible. This can be achieved by adjusting the height of the feet. There should be no twist to the framework once the feet have been adjusted to take the ground into account.

The final operating position of the machine should be free of all rubbish or impediments, with general access to all areas of the Snip Saw 600 for the ease of loading and unloading material of varying sizes.

With the machine in position, a qualified engineer should be used to connect the pneumatic components to the machine and adjust the air pressure to the required setting (refer to section 4 Specifications for pressure settings).

Check all pneumatic hoses and connectors to ensure that the fittings haven't worked loose during transportation of the machine. Re-tighten all fittings that appear to be leaking. If leaking persists undo the fittings and apply a sealing compound to the joints in question. Re-tighten the fitting. (Any serious leaking problems during the warranty period should be reported to Spida Machinery). Check the air pressure in the system is sufficient to operate the machine (refer to section 4 Specifications for pressure settings).

To check the air pressure, turn the compressor on and allow the pressure to build up. When the controls are activated, normal pressure should read 6-8 bar or 600- 800 kPa. All maximum pressures are factory set and should not be changed.

Check that all safety equipment is functioning properly.

6 Safety

This section is provided as a guide only, it is the responsibility of the employer to ensure compliance with the relevant Health and Safety Regulations applicable to them at the time.

6.1 Young Persons

No person under the age of 15 should be allowed to operate or assist with the operation of machinery.

6.2 Long Hair and Loose clothing

Any long hair or loose clothing must be fully contained to eliminate the risk of entanglement with machinery.

PROTECTIVE SAFETY CLOTHING AND EQUIPMENT MUST BE WORN; INCLUDING:

Eyewear

Hearing protection

Respirator or Dust mask

Protective Clothing

Safety footwear

6.3 Cleaning and Maintenance of Machinery

For safe and reliable use, machinery should be regularly cleaned and maintained. During cleaning and maintenance, the Snip Saw 600 must be isolated from all sources of energy and locked out to prevent unexpected operation.

6.4 Training and Supervision of Snip Saw 600 Operators

No person should be expected or allowed to operate the Snip Saw 600 until they have been fully trained and authorised to do so. They must be familiar with:

- Actual and potential hazards and appropriate controls.
- Correct use and adjustment of guards.
- Emergency procedures.
- How the Snip Saw 600 works.
- Checks to perform prior to starting.
- How to recognise potential faults.
- Location of controls and how to Stop and Start the Snip Saw 600.

6.5 Responsibilities of Snip Saw 600 Operators

Operators should:

- Check the Snip Saw 600 prior to use and during operation to ensure it is in sound operating order.
- Report immediately any defects noted to their supervisor.
- Use any, and all safety equipment provided.
- Not operate any machinery if under the influence of drugs or alcohol, consult a physician or pharmacist if unsure of any medication.

6.6 Operating Speeds and Vibration

Machinery should be operated within its designed limitations and for its designed use only, any unfamiliar noise, vibration or failure should be investigated and remedied promptly.

6.7 Machinery Stability and Location

The Snip Saw 600 should be securely fastened to the structure of the building to prevent movement or toppling over. Location should provide access all around for maintenance and cleaning. Lighting must be adequate to allow operator to clearly see controls and work pieces but not glaring or blinding.

Consideration should be given to the operators work area for product flow and to minimise repetitive actions and unnecessary movement.

An exclusion zone around the Snip Saw 600 should be maintained to prevent persons not directly involved with the operation of the machine from reaching any part of the machine.

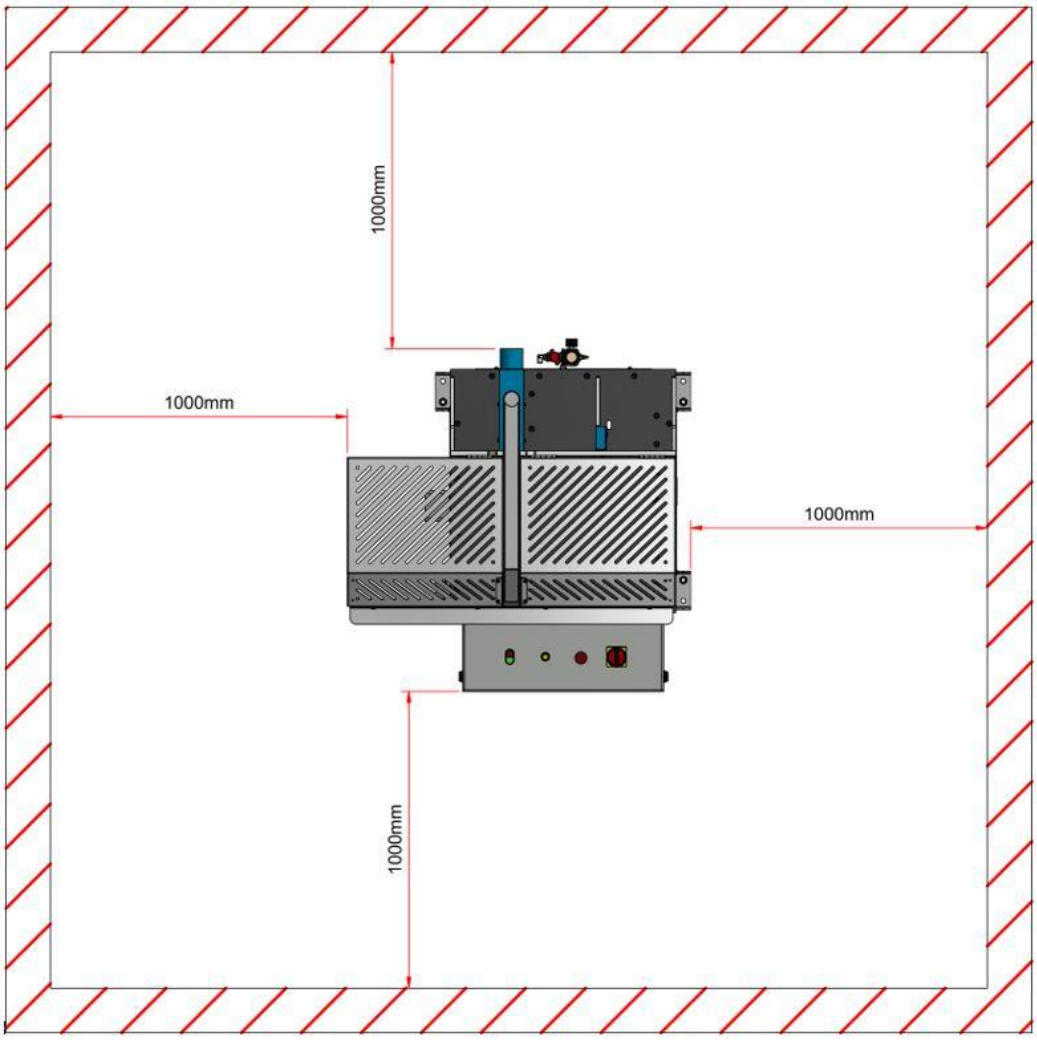

Figure 3, Recommended exclusion zone around the Snip Saw 600.

6.8 Electrical Safety

Electrical wiring must be installed and maintained by a suitably qualified person in accordance with relevant regulations.

6.9 Isolation, hold cards and lock out devices

There should be procedures for isolating and locking out the Snip Saw 600, for purposes of maintenance and to prevent unintended use should a fault have been identified.

6.10 Noise control

The normal operation noise of some machines will be more than permitted noise exposure levels. Employers must ensure adequate hearing protection is available and is used by all persons in the affected area.

6.11 Manual Handling

Manual handling should be avoided where possible, use of mechanical lifting and assisting equipment is recommended. Consider using forklifts, hoists, and trolleys to eliminate lifting and carrying components.

6.12 Recommended Service Interval

It is recommended that for optimal performance, the Snip Saw 600 should be serviced every 6 months.
It is also recommended that a service log be kept, as a reminder of when the next service should be due. Spida Machinery performs service runs on a regular basis throughout NZ; however, should the need arise for an early service, or should a service need to be booked in advance, please advise Spida Machinery accordingly.

WARNING! Do not operate the Snip Saw 600 without having received the proper instruction in operation and safety from this manual.

WARNING! It is recommended that the employers maintain training records demonstrating the competencies of each employee

7 Safe Operation

NOTE: The Snip Saw 600 is to be operated in accordance with this manual. Deviation from this specified operation may result in incorrect cutting or injury.

7.1 User Warnings

- All moveable parts of the machinery must be set so as not to allow its movement through the hazardous areas of adjacent machinery.
- All machine and components should be inspected upon delivery and at weekly intervals for looseness, fracture, bends, sharp edges or surfaces and any other condition that may contribute to a human mishap or further deterioration of the machine. We suggest a log be kept for this purpose.
- When broken, damaged, or loose parts (or any condition that may represent a hazard) are observed, corrective action should be taken immediately. Inadequate attention to maintain the machine can cause the premature failure of these parts. We suggest this information also be logged.
- The electrical boxes should always be locked to avoid casual entry by unauthorized persons, as touching live surfaces is hazardous.
- Never remove the guards, or places any foreign objects within the lid, when the Saw is running
- Split, broken, warped, twisted or material with excessive wane should be avoided or used with caution because of the greater possibility of the material not being held securely during manufacturing processes.
- The machine is not to be used for any other purpose than the cutting of material.
- Keep hands out of moving parts on the machine. Operators should be instructed not to extend fingers or limbs into or beyond the vicinity of the warning labels. The danger here is obvious – fingers in these areas will risk mutilation.
- Be sure the machine is completely free of foreign objects, and that all guards are in place before connection to electrical supply.
- Any guards removed for maintenance or adjustments **must** be replaced before the machine is put back into service.
- Exceeding the capabilities of the machine will void the warranty and could lead to a serious injury.
- All Operators should read and then sign the register of this manual before operating the Snip Saw 600 to ensure they are thoroughly familiar with the machine capabilities and limitations and to ensure correct operating procedures are adhered to.
- Failure to perform the daily and weekly service checks as per the schedule may result in serious machine damage or a severe accident.

WARNING! This machine must only be operated by personnel who have been properly instructed in all aspects of the machine's safe operation. They must also be wearing the recommended protective clothing and have thoroughly read and understood this operation and service manual.

7.2 Manual Handling

The following is not a comprehensive list. Manual lifting has the potential to be hazardous; so, for a full description of material handling please refer to lifting standards, techniques, and your own company policies.

- Ensure material supply is via forklift or other support mechanism
- Ensure correct lifting techniques are adopted to transfer material
- Suggest use of trolleys or bench at required height and location to minimize handling and twisting
- Ensure required PPE is worn
- Ensure correct and appropriate lifting techniques are used
- Suggest the setup of a material supply via gravity roller transfer system
- Avoid twisting torso when moving components from one area to another
- Only lift components of weight which you assess to be within your limit
- Use machinery (forklift) for material decreed to be too heavy or ask for assistance from another worker

7.3 General

Table 2, General Hazards

POTENTIAL HAZARDS	SAFE WORK PROCEDURE
Safety	Ask questions if you have any doubts about doing the work safely. Check and adjust all safety devices daily.
Poor Guarding	Ensure all guards are fitted correctly and are adequately guarding the saw blade and moving parts. Make sure guards are in position and in good working order. Do not operate machine without guards.
Poor Housekeeping	Inspect Saw and surrounding areas for obstructions, hazards, and defects. Remove built-up debris from around machine, electrical leads, pneumatic lines, and power points.
Electrical / Air Supply Faults	Inspect electrical leads and/or pneumatic lines for damage.
Inoperable Safety Switches	Check that start/stop and emergency stop buttons operate effectively.
Incorrect Accessories	Use only the accessories designed for each specific application
Foreign Objects	Check that foreign objects and maintenance tools etc. are removed from the machine before using the machine.
Defective/Damaged parts	Any identified defects must be reported and actioned prior to use of the Snip Saw 600.

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7.4 Operation

Table 3, Operational Hazards

POTENTIAL HAZARDS	SAFE WORK PROCEDURE
Slip, Trip & Falls	Avoid awkward operations and hand positions where a sudden slip could cause your hand or part of your body to move into the sawing line. Electric power cords and pneumatic lines should be above head level or in the floor in such a way that they are not trip hazards. Floor areas should be level and non-slip. Clean up any spills immediately.
Workplace	Use good lighting so that the work piece and machine controls can be seen clearly. Position or shade light sources so they do not shine in the operators' eyes or cause glare and reflections. Ensure that the floor space around the equipment is sufficient to allow the operator to process his work without bumping into other staff or equipment. Keep the work area free of clutter, clean, well swept and well lit.
Housekeeping	Clean built up debris from around the machine, electrical leads, pneumatic lines, and power points
Defects	Report all defects to the supervisor
Personal Protection	Wear safety glasses or a face shield. Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the work area. Wear dust masks when required. Do not wear gloves when operating this machine. Do not wear loose clothing, work gloves, neckties, rings, bracelets or other jewellery that can become entangled with moving parts
Machine Guarding	Make sure all guards are fastened in position. The machine MUST NOT be operated with any of the guards removed. The machine is fitted with steel guards.
Improper Use	Only use the machine for what it has been designed for.
Material Defects	Inspect stock for nails or other foreign materials before sawing. Use only material that the machine has been designed to accommodate.
Operator Technique	Do not impede the movement of the Saw while in use. Ensure any body parts, clothing, or work tools do not get in the way of moving parts. Only place material once the Saw is in the home position and has come to a complete halt. Do not attempt to activate the Saw before material has been removed.
Hit by projectiles	The Snip Saw 600 must be electrically and pneumatically isolated before attempting to clear blockages or material jams. Any small off cut should be removed using a push stick which has been properly constructed. Do not use fingers to remove items which have become entangled in movable parts.

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7.5 Maintenance

Table 4, Maintenance Hazards

POTENTIAL HAZARDS	SAFE WORK PROCEDURE
Cleaning and maintenance preparation	Lock out (pneumatically isolate), and isolate power to the machine before inspecting, changing, cleaning, adjusting or repairing a machine. Do not use compressed air to remove sawdust etc. from machines or clothing.
Operational Buttons	Make sure that Operational buttons are in good working condition and within easy convenient reach of an operator. Buttons should be protected so that accidental contact will not upset the machine.
Emergency Stop Buttons	Make sure that Emergency Stop buttons are in good working condition and within easy convenient reach of an operator.
Incorrect electrical and pneumatic isolation of machine	Machine power must be switched off at the Main Power Switch, and the air locked out at the main isolator before maintenance or cleaning.
Incorrect tools	Use Correct tools for the job to minimise personal injury and damage to the machine
Stalled Blade	Isolate power and air before attempting to free a stalled blade
Guarding	Ensure Guards are fitted correctly, adjusted and in good working order.

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7.6 Recommendations

That the operator is trained, on induction of the dangers of accessing the machine operating area.

The electrical system is to be serviced, by a qualified electrician only.

That all operators are walked through the operators' manual and all potential hazards are identified.

That good housekeeping is always maintained to avoid the risk of slips, trips or falls.

That approved eye and hearing protection is always used when operating the machine.

That approved dust masks and safety footwear are always worn when operating the machine.

That if the machine is not operating as efficiently as specified, the operator notify their supervisor who in turn takes appropriate action and eliminate the problem if possible.

All guards and safety devices are not to be removed.

It is recommended that a visual exclusion zone be marked on the floor on a one metre (1000mm) perimeter surrounding the working area of the machine. To identify the work space to pedestrians.

WARNING! This machine must only be operated by personnel who have been properly instructed in all aspects of the machine's safe operation. They must also be wearing the recommended protective clothing and have thoroughly read and understood this operation and service manual.

8 Operating Controls

Before attempting to operate the Snip Saw 600, familiarise yourself with the location and function of each control.

8.1 Snip Saw 600 Controls

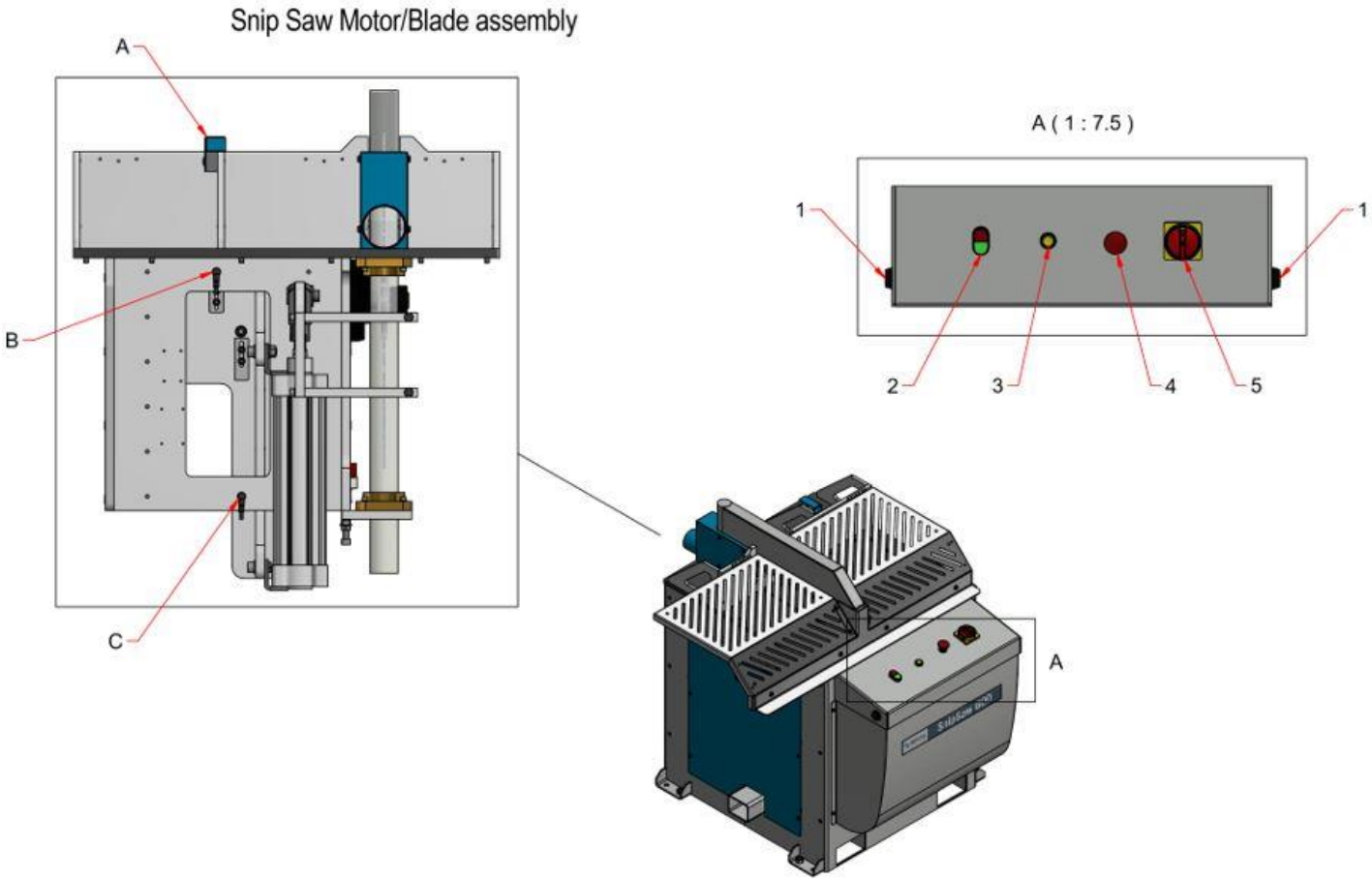


Figure 4, Snip Saw 600 controls

Table 5, Control functions (see Figure 4)

Control	Qty	Function	Description
Basic			
1	2 (1 pair)	Saw blade activation button (Two-Hand No-Tie Down)	Activates saw blade when **both** buttons are pressed at the same time.
2	1	Start/stop button	Starts/Stops the machine operation as required.
3	1	Reset button	Resets overload ***(if the saw is attached to a Simple stop)***
4	1	Emergency stop	Cuts all power to the machine in case of emergency. This must be deactivated before operations can recommence.
5	1	Power Control for Saw - On/Off switch	Turns the power to the machine on/off as required
Sensors			
A	1	Lid safety valve	Determines whether the lid is closed or open. Won't allow operations to commence until lid is closed.
B	1	Proximity sensor – Maximum height	Won't allow the saw blade assembly to go above this height
C	1	Proximity sensor – Minimum height	Won't allow the saw blade assembly to go below this height

WARNING! The Emergency stop button will disable the machine electrically not pneumatically

8.2 Snip Saw Speed Controls

The speed of various operations can be adjusted using the flow controllers as follows:

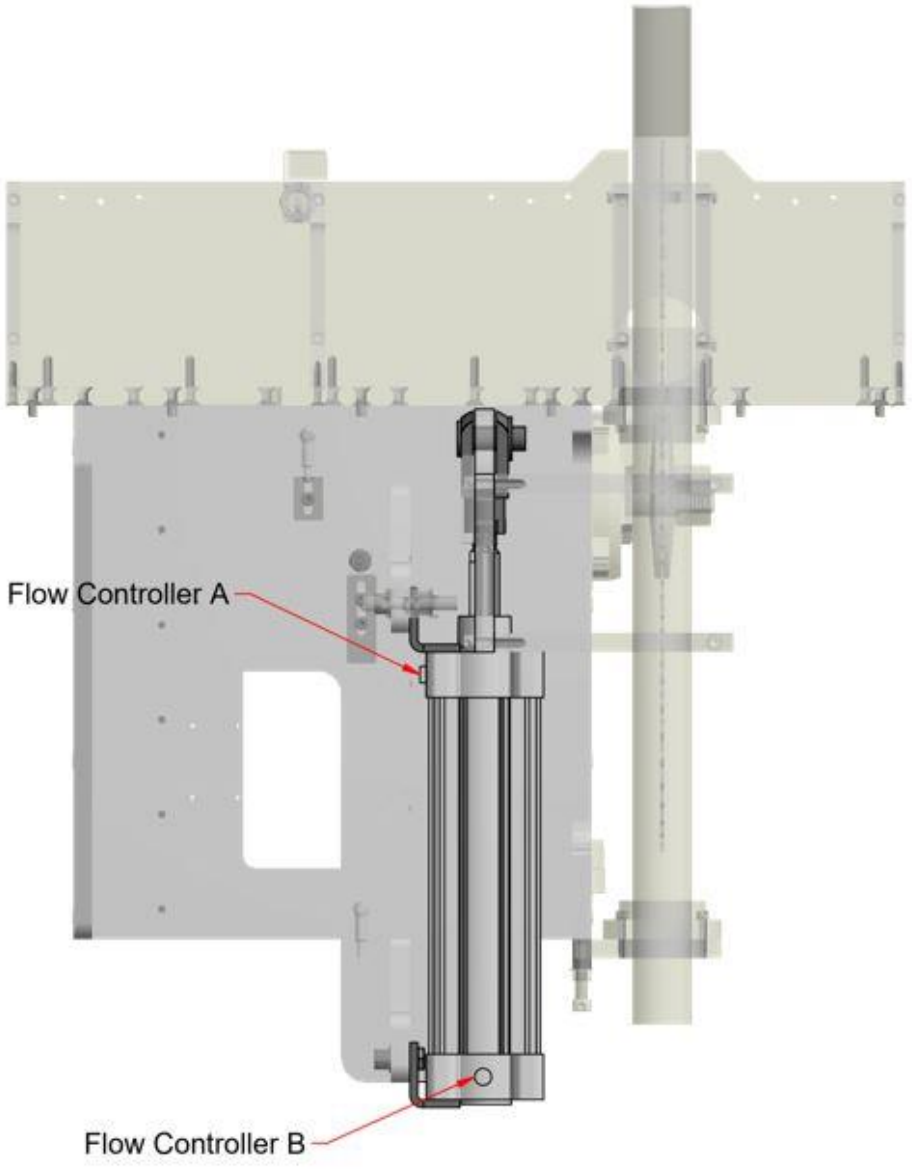


Figure 5, Flow Controllers

Table 6, Flow controller Functions

Flow Controller	Function	Adjustment effect
A	Adjusts Speed of motor going down/Clamp up	Opening flow controller increases the speed of both operations. Closing flow controller decreases the speed of both operations
B	Adjusts Cutting speed and Clamping	Opening flow controller increases the speed of both operations. Closing flow controller decreases the speed of both operations

8.3 Pneumatic filter/regulator

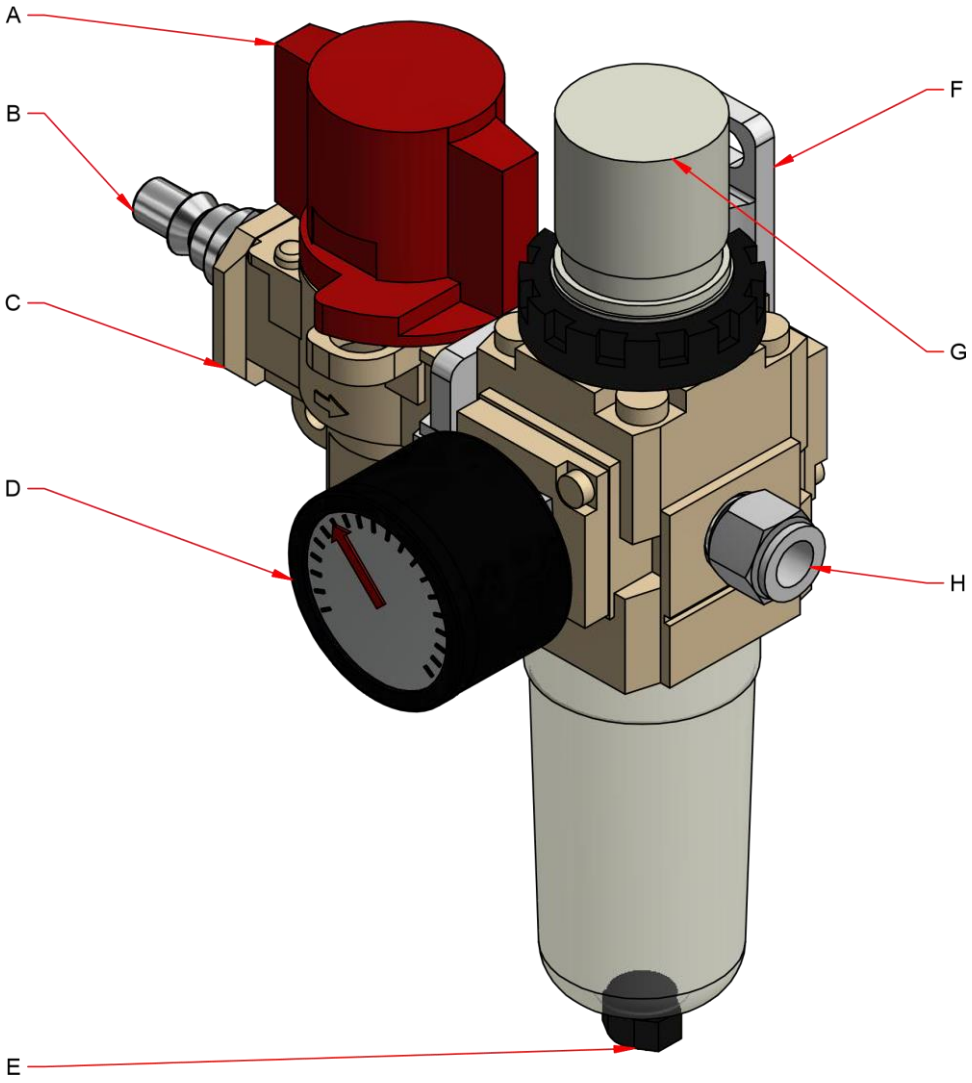


Figure 6, Valve/Filter/Regulator assembly

Table 7, Valve/Filter/Regulator parts

Control	Function
A	Valve on/off
B	Air in
C	Pressure relief valve
D	Pressure gauge
E	Moisture release
F	Mounting bracket
G	Regulator adjustment
H	Air to saw

WARNING! Do not operate Snip Saw 600 without the correct knowledge and function of each of the controls.

9 Operation

NOTE: The Snip Saw 600 is to be operated in accordance with this manual. Deviation from this specified operation may result in incorrect cutting or injury.

9.1 Machine Set-up

Before operations commence, the operator must ensure that the Snip Saw 600 has been set-up correctly.

To set-up the machine:

- Ensure that the safety guards are secured and correctly positioned.
- Complete a visual inspection of potential hazards near the proximity of the machine.
- Check that there are no obstructions either to any moving parts; between the Snip Saw 600 and any adjacent machining area; or further down the framing line.
- Complete all safety checks required

Once the Saw and the surrounding area are satisfactorily clear, the Snip Saw 600 can be switched on.

9.2 Operation

Note: The clamping and sawing operations use a Two Hand No Tie Down (THNTD) pneumatic initiating system, which ensures both hands of the operator are clear of the clamping operation and the saw blade operation.

1. Activate attached tables as required
2. Start Saw blade
3. Load timber to be cut onto in-feed bench
4. When timber is in place, place both hands on saw blade activation buttons, and hold down both at the same time to activate both the clamp and the saw blade
5. Make the cut/s on the leading end of the timber
6. Move the timber along to the Stop
7. Make the required cut/s on the trailing end
8. Remove and stack finished member
9. Continue cutting required cut list

The lid guard should not need to be raised during operation.
If the lid guard is lifted for any reason while the saw is running it will immediately either lower the saw blade beneath the table top or prevent the saw blade from rising.

Never go behind the fence line when the Saw is running.

Always keep hands clear of Saw Blade, and Saw Blade path

9.3 Speed adjustment

The speed of various operations can be changed by adjusting the flow controllers attached to the main up/down cylinder on the Rotation Assembly.

If the cutting, clamping, or motor adjustment speeds are not correct, then increase/decrease the air flow using the flow controllers as required. See Section 8, Figure 5 for adjustment details.

If cutting large pieces of material, e.g. Lintels, it is advised to decrease the clamping and cutting speed by closing flow controller B.

In general, it should not be necessary to adjust flow controller A

NOTE: Ensure that the machine is locked out pneumatically and electrically before any adjustments are made; and be sure that any components/guards removed are then replaced correctly.

9.4 Machine Shut-down

Once operations are complete, ensure that the Snip Saw 600 is switched off and any foreign tools/equipment are removed.

WARNING! Do not stack finished members on the out-feed bench

10 Parts Identification

10.1 Top Level Assembly

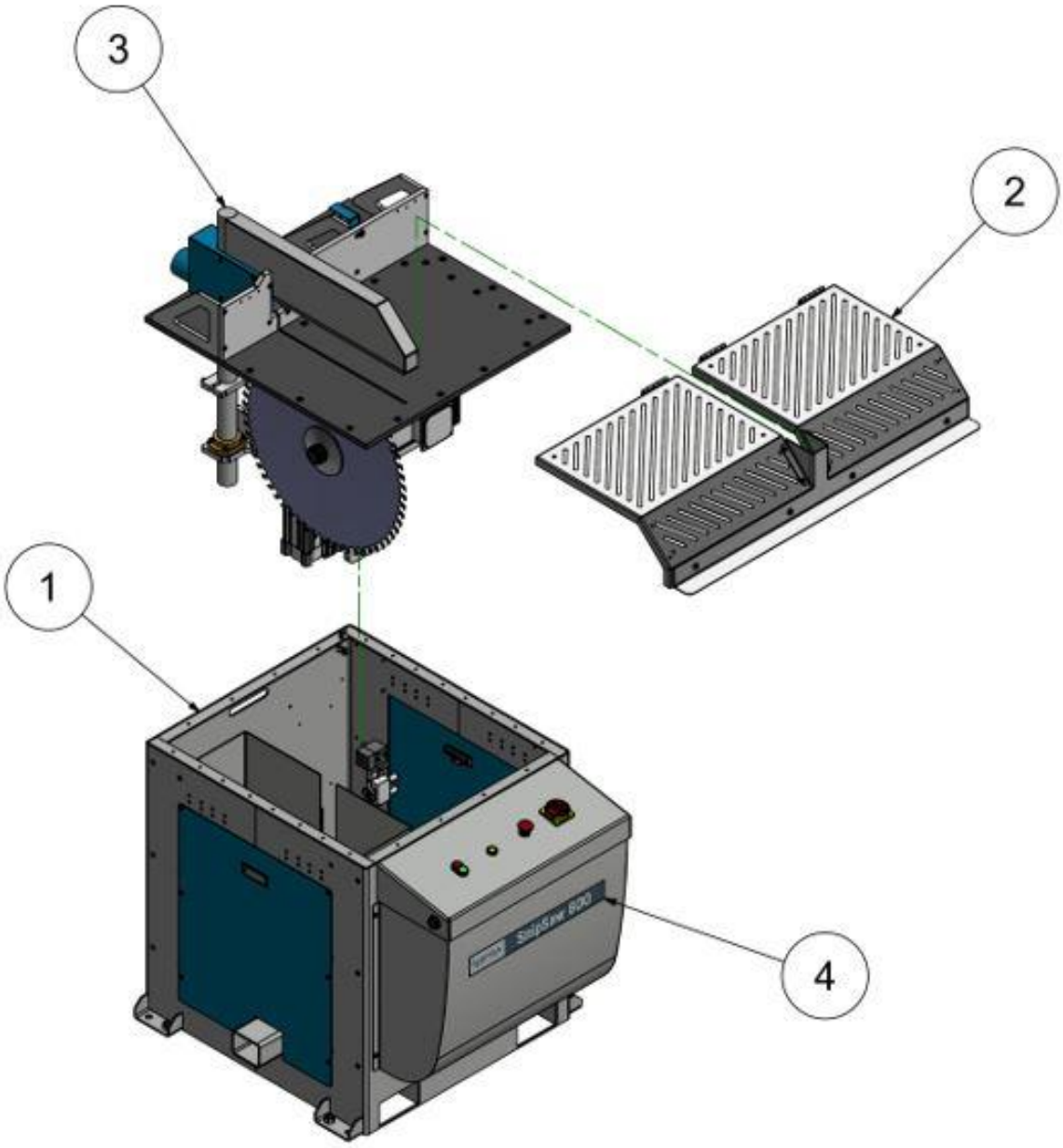


Figure 7, Snip Saw 600

Table 8, Parts List – Snip Saw 600

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3407100	Snip Saw Base Assembly
2	1	3407200	Snip Saw Guard Assembly
3	1	3407300	Snip Saw Motor/Blade Assembly
4	1	SMPDEC029	SMPDEC029 SnipSaw600 500x60 SPIDA

10.2 Snip Saw Base Assembly (3407100)

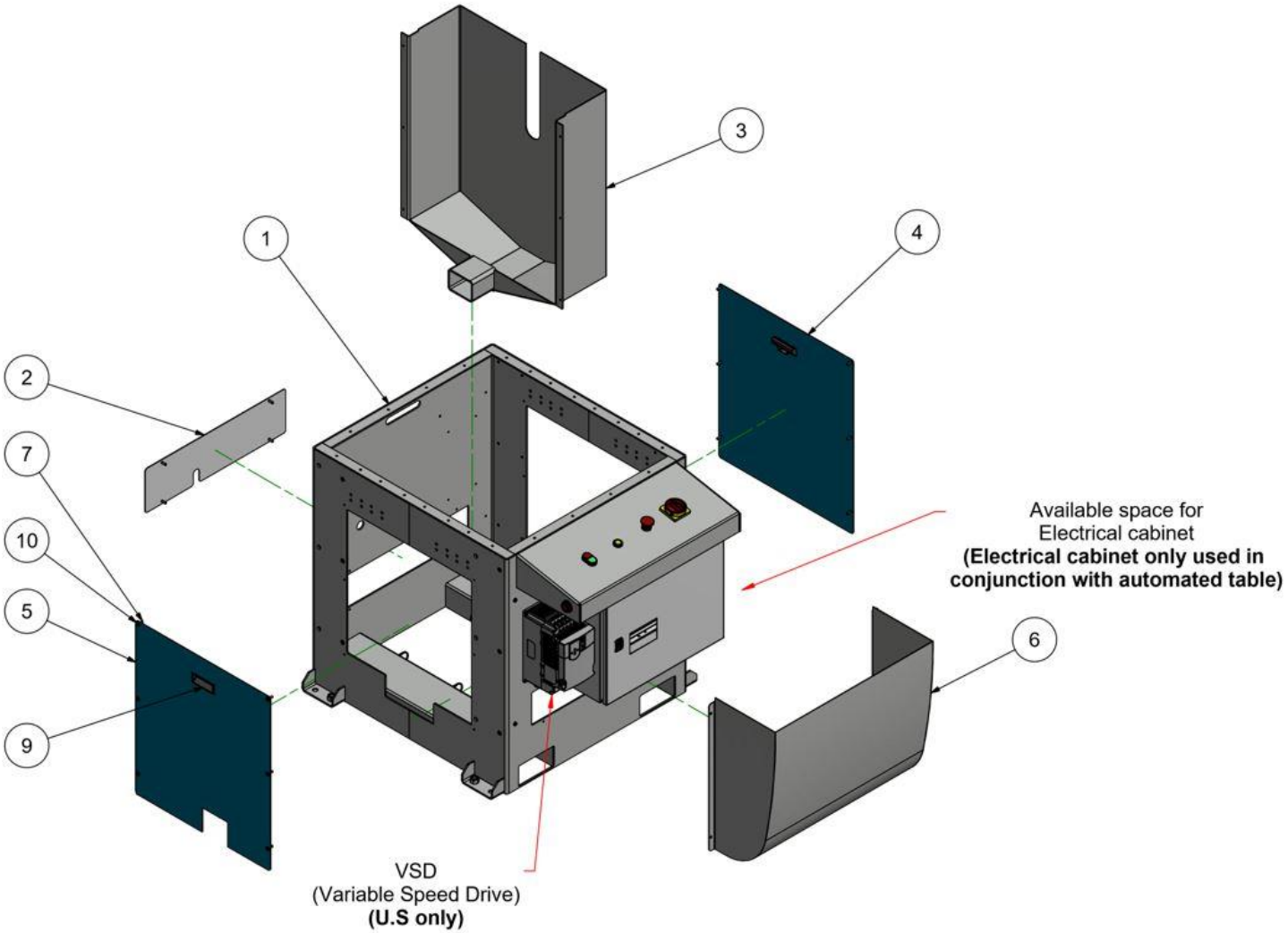


Figure 8, Snip Saw Base Assembly

Table 9, Snip Saw Base Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3407101	Snip Saw Base
2	1	3407102	Rear Guard
3	1	3407103	Blade Guard
4	1	3407104	Side Guard
5	1	3407105	Side Guard - Extraction
6	1	3407106	Electrical Cabinet Cover
7	20	HWCSM620BH	Button Head Cap Screw M6x20
8	6	HWCSM620CS	Hex Socket CSK Cap Screw M6x20
9	2	HWFP1875	Flush Pull Handle Part#1875
10	20	HWWFM616	Washer - Flat - M6ZP

10.3 Snip Saw Guard Assembly (3407200)

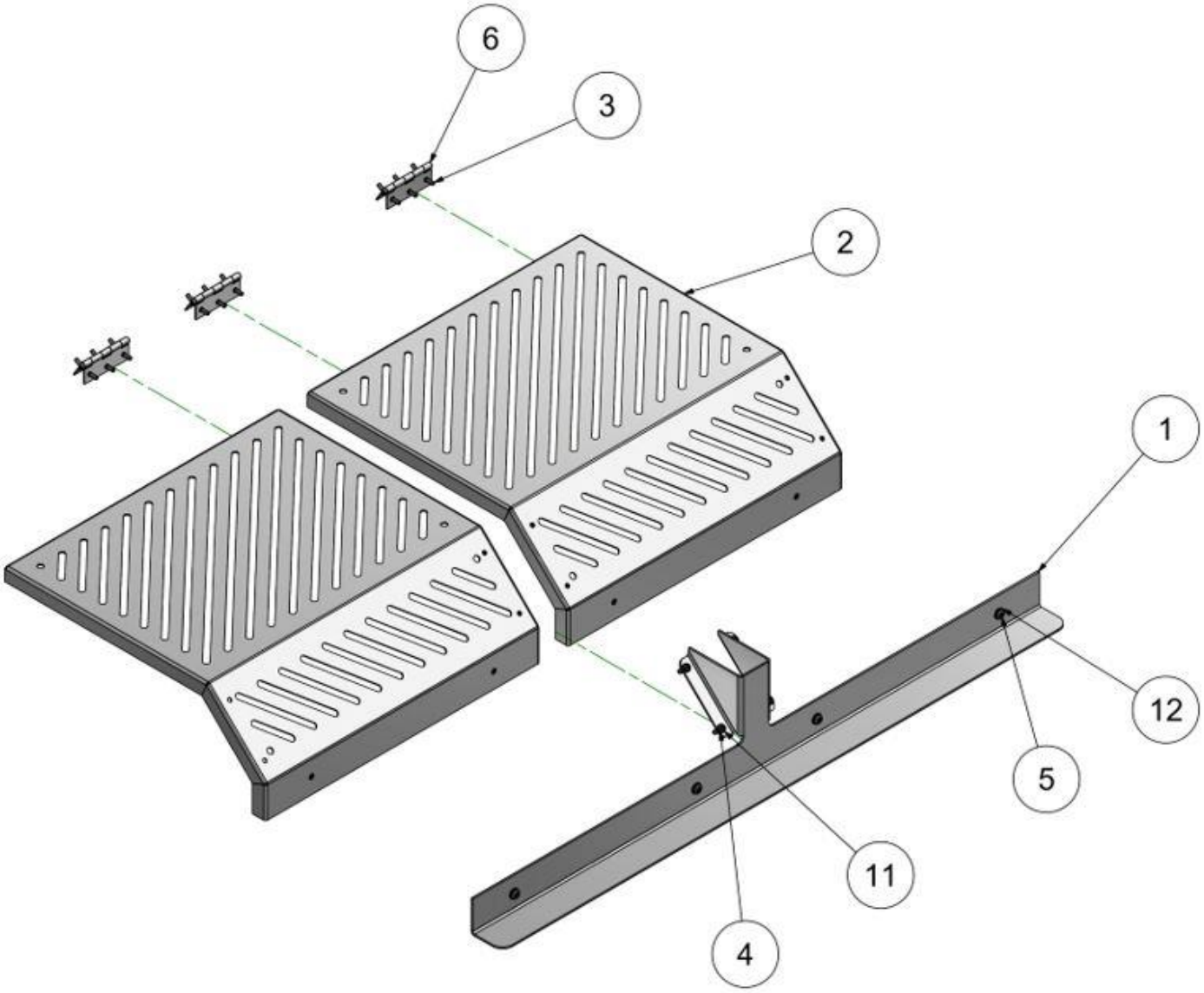


Figure 9, Snip Saw Guard Assembly

Table 10, Snip Saw Guard Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3407201	Guard Handle
2	2	3407202	Guard
3	18	HWCSM516CS	Hex Socket CSK Cap Screw M5x16
4	4	HWCSM620BH	Button Head Cap Screw M6x20
5	4	HWCSM820BH	Button Head Screw M8x20
6	3	HWHB856016	Butt Hinge
7	9	HWNHM5	Hex nut M5
8	4	HWNHM6	Hex nut M6
9	4	HWNHM8	Hex nut M8
10	9	HWWFM5	Flat Washer M5
11	8	HWWFM616	Washer - Flat - M6ZP
12	8	HWWFM816	Flat Washer M8

10.4 Snip Saw Motor/Blade Assembly (3407300)

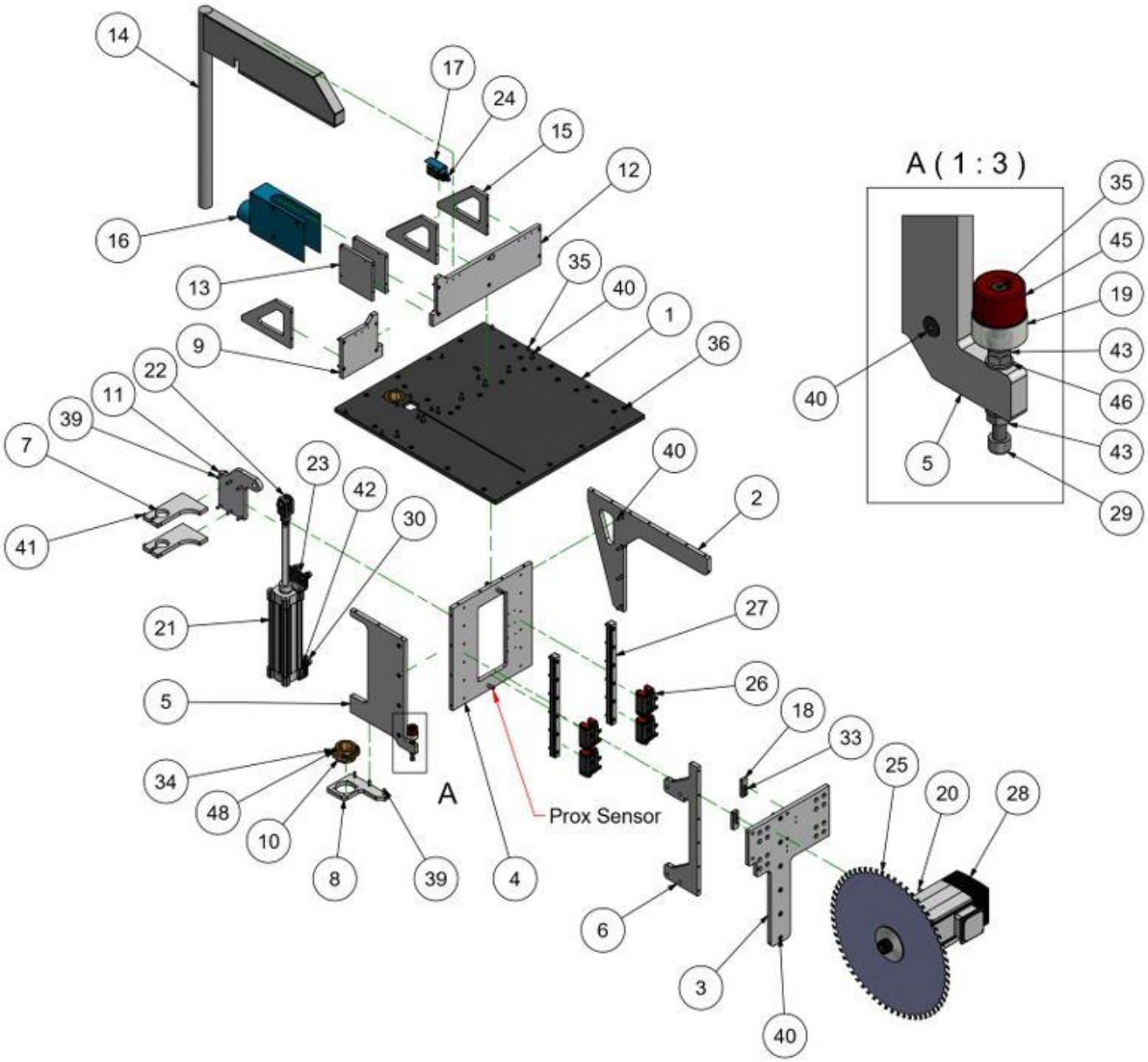


Figure 10, Snip Saw Motor/Blade Assembly

Table 11, Snip Saw Motor/Blade Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	3407301	Table Top
2	1	3407302	Gusset (Motor)
3	1	3407303	Motor Plate
4	1	3407304	Linear Bearing Plate
5	1	3407305	Gusset (Blade)
6	1	3407306	Ram Plate
7	2	3407307	Clamp to Ram Plate
8	1	3407308	Clamp - Arm
9	1	3407309	Fence - Short
10	2	3407310	Clamp Bush
11	1	3407311	Ram End
12	1	3407312	Fence - Long
13	2	3407313	Dust Guard
14	1	3407314	Clamp Arm
15	3	3407315	Gusset - Fence
16	1	3407316	Dust Extraction Shroud (Welded Assembly)
17	1	3407317	Valve Cover
18	2	3407318	Sensor Plate
19	1	3407319	Bump Stop
20	4	8530408	T-bolt M10x32
21	1	ACCP96SDB80-250C	CP96SD ISO Cylinder: Standard Double Acting
22	1	ACGKM2040	CP96/C96_GKM-Rod Clevis
23	2	ACL5080	CP96/C96-L-Foot
24	1	AVVM430-01-06S	VM400-3 Port Mechanical Valve
25	1	BL6003584-3500	Blade - 600mm x 35mm Bore x 84tt - 3500 RPM
26	4	BRGLB-HGH-30CA	HGH30CA Linear Bearing block
27	2	BRGLRHGH30CA-440-20-80-20	HGH30CA Linear Bearing Rail - 440 Long
28	1	EM5.5LMULTI	CEG Motor 5.5 kW
29	1	HWCSM10100	Hex Socket Head Cap Screw M10x100
30	2	HWCSM1230	Hex Socket Head Cap Screw M12x30
31	2	HWCSM1240	Hex Socket Head Cap Screw M12x40
32	6	HWCSM612BH	Button Head Cap Screw M6x12
33	4	HWCSM625	Hex Socket Head Cap Screw M6x25
34	8	HWCSM630	Hex Socket Head Cap Screw M6x30
35	21	HWCSM630CS	Countersunk Cap Screw M6x30
36	16	HWCSM825CS	Hex Socket CSK Cap Screw M8x25
37	12	HWCSM830	Hex Socket Head Cap Screw M8x30
38	16	HWCSM830CS	Hex Socket CSK Cap Screw M8x30
39	9	HWCSM840	Hex Socket Head Cap Screw M8x40
40	35	HWCSM840CS	Hex Socket CSK cap screw M8x40
41	2	HWCSM870	Hex Socket Head Cap Screw M8x70
42	2	HWNHHNM12	Half Hex Nut M12
43	7	HWNHM10	Hex nut M10

44	2	HWNHM12	Hex nut M12
45	1	HWRS3830M6	Rubber Stopper 38mm Dia.
46	7	HWWFM10	Washer Flat M10
47	6	HWWFM12	Flat washer M12
48	18	HWWFM616	Washer - Flat - M6ZP
49	11	HWWFM816	Flat Washer M8

11 Maintenance

If a part is damaged substantially, or if anything covered in this maintenance section cannot be fixed by general maintenance; then do not use the Snip Saw 600 and contact a supervisor, maintenance engineer, or Spida Machinery.

Table 12, Maintenance intervals

Check	Day	Week	Month	½ Year
Guards in place	x			
Work area is clear	x			
Cylinder operation	x			
Linear Rail and Bearings operation	x			
Motor Brake operation	x			
Dust Chute Clear	x			
Sensors	x			
Clean Saw of any build up	x			
Noises or Vibrations	x			
Clean aluminium extrusion slots	x			
Emergency stop working	x			
Drain moisture from air reservoir		x		
Air supply pressure		x		
Pneumatic Filter		x		
Base assembly in good condition			x	
Guard assembly in good condition			x	
Motor/Blade assembly in good condition			x	
Motor running smoothly			x	
For loose or damaged bolts			x	
Blow out Brake/Back cover			x	
Floor bolts for tightness				x
Table top				x
Maintain Snip Saw 600				x

Failure to perform these checks as per schedule indicated in Table 12 may result in severe damage or a serious accident.

WARNING! Electrical power and Pneumatic Air supply must be isolated from machinery and appropriate danger tagging in place whenever any maintenance is being performed on machinery. Any defects, which are found on inspection, should be rectified immediately and reported to the supervisor for appropriate action.

11.1 Maintenance Items

11.1.1 Guards

Check Guards are in place, and they are tight, with no loose bolts. Guards should always be operational.

11.1.2 Keep work area clear

Ensure that the area surrounding the Snip Saw 600 is free of trip hazards, unnecessary tools, or other debris. There should be no reason for passers-by to approach or pass near the Snip Saw 600 while it is in use.

11.1.3 Inspect Cylinder

The pneumatic cylinder should slide freely, push and pull evenly, and there should be no excessive wear visible on shafts. Check for loose fastenings or damage to the air cylinder.

Test the cylinder before work commences each day.

- The clamp should hold the material tightly, and without misalignment. Test the clamp for tightness before work commences each day. Using a spare piece of wood, activate the clamp and test the rigidity of the wood to ensure that the clamp is still holding as required.
- The Motor should activate/deactivate smoothly. It should hold the saw blade up high enough to make the required cut, and should hold the saw blade down below the level of the table when not required.
- The clamp and the motor are both driven by the same cylinder, and activate at the same time and in opposite directions. E.g. when the motor is brought upward, the clamp comes down.

Do not use the Snip Saw 600 if any of the cylinders are not activating properly or as described above.

11.1.1 Inspect Linear bearings and Rails

All linear bearings should move freely and evenly, and there should be no excessive wear visible on bearings, linear rails, and/or connection points. Check for loose fastenings or damage to the bearings, linear rails and/or connection points, and clean out any built-up debris or dust

Do not use the Snip Saw 600 if the bearings are not moving as required, or if there is any major damage to the bearings, linear rails and/or connection points.

11.1.2 Motor Brake operation

The Motor brake should stop the saw blade within 6-8 seconds when the Saw has been switched off or the emergency stop has been applied. Do not use the saw if the time for the blade to stop is too long. This test should be performed before using the machine, at least once a day.

The magnetic friction brake can be adjusted by setting the correct clearance between the friction plate and the coil using the cap screw located in the centre of the brake shaft.

NOTE for the brake to function efficiently, the gap between the brake pad and plate should be set between 8 – 10 thou, approximately 5/8th of a turn.

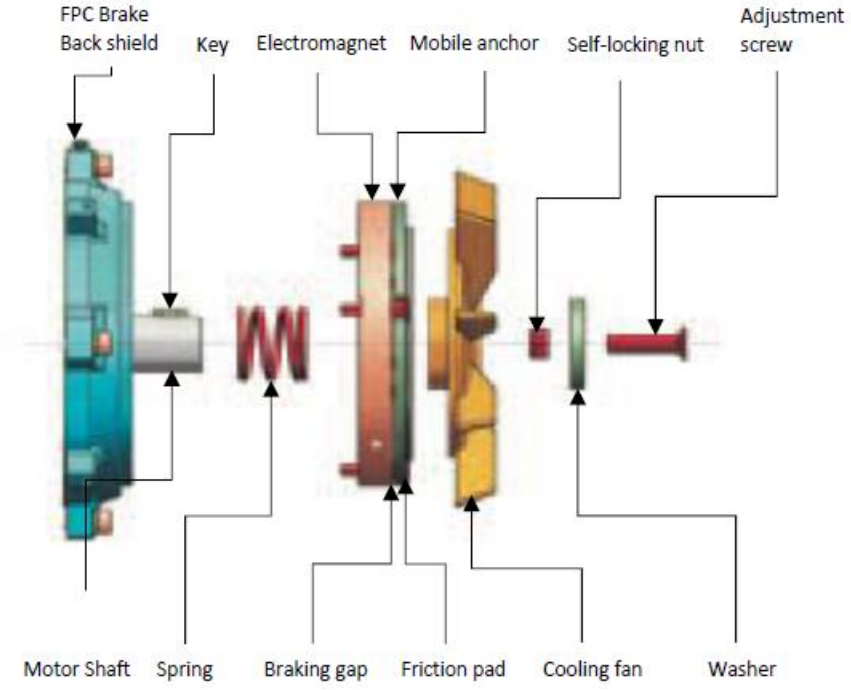


Figure 11, Motor brake assembly

11.1.3 Dust Chute Clear

Once a day the dust chute should be checked for any obstructions or build-up of saw dust. If any large obstruction is found, isolate the power to the Saw and remove the blade cover before attempting to remove said obstruction.

11.1.1 Sensors

Check Lid safety valve (see Figure 4), is free and clear of any build-up of dust and securely fastened; sensor malfunctions will prevent the Snip Saw 600 from working correctly.

As the other sensors are below the level of the table top, check the condition of sensors and clear any built-up dust and debris when cleaning the rest of the saw of any build up.

If any of the sensors are loose, check the sensors are still located correctly and that there is a 1.5 – 2.5mm gap between the sensor and appropriate sensor plate; then tighten any screws/parts as required.

Sensor positions will need to be reset whenever a sensor, lead or bracket is replaced.

11.1.2 Clean Saw of any build up

Keep the Saw free of any build-up of debris. Moving parts should not be obstructed, and the Saw should be usable without any hindrance. Remove and replace components as required to clean out any built-up debris or dust; ensure that any components removed are then replaced correctly. This may involve removing the side panel and cleaning the interior or the saw around the motor and air cylinder.

Ensure there are no offcuts or any sawdust blocking the saw. If there are any obstructions that prevent the saw blade from moving freely, then only attempt to free the blade once the saw has been electrically isolated.

11.1.3 Noises or vibrations

Take note of any unusual noises or vibrations. Do not operate the Saw if the cause of any vibrations or unusual noises cannot be found.

11.1.4 Clean aluminium extrusion slots

Keep aluminium slots in Saw and fence clean and free of any dust or obstructions.

11.1.5 Emergency Stop Button

Check the Emergency Stop is working and that it stops the machine when activated. This test should be performed before using the machine, at least once a day.

Check operational controls are working, and that they function as designed. Inspect these other controls at regular intervals.

11.1.6 Dry Air Supply

For best results, clean dry air is essential. A drain valve is provided on the air reservoir and this should be opened weekly to drain any condensation; or when moisture is seen in the reservoir prior to commencing work.

11.1.7 Air Supply

Air pressure should be maintained at 600-800 kPa; this can be checked at the filter regulator (see Figure 6), located on the rear of the Saw. Take measures to ensure air quality; such as by installing an aftercooler, air dryer, or water separator. Do not use compressed air that contains chemicals; synthetic oils, including organic solvents; or salt or corrosive gases, etc., as it can cause either damage or a malfunction. If synthetic oil is used for the compressor oil, depending on the type of synthetic oil used, or on the conditions of use, there may be adverse effects on the resin of the pneumatic equipment or on the seals if the oil is flowed out to the outlet side; so, the mounting of a main line filter is recommended.

11.1.8 Check Filter/Regulator

Periodically check the filter and regulator for any cracks or damage. If condensation in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensation to enter the compressed air lines. Water can cause malfunction of pneumatic equipment. The filter and regulator are located on the rear of the Saw. See Figure 6 for regulator parts

Also, be sure to check the pneumatic lines at the same time for possible kinks, air leaks, or other damage.

11.1.9 Base Assembly

The base assembly should house and protect the saw blade, while allowing for the removal of saw dust and debris; it should also allow the saw blade to spin and cut easily while protecting the user from the saw blade.

This assembly should be maintained every month to:

- Ensure the dust chute is free from obstructions
- Check the guards are still in place and are in good working order
- Check on the condition of the controls and electrical components
- Ensure the saw blade is still protected, and that the user is protected from it.

All assembly components should also be checked to ensure there is no damage or wear that will affect the performance of the assembly. Ensure that there are no loose, damaged, or missing bolts, and replace or tighten as necessary.

Do not use the Saw if the saw blade is no longer protected; if any moving parts are exposed to the user; if dust and debris is not being expelled correctly from the machine; or if any of the controls are not functioning as designed; and if any of the above cannot be fixed by general maintenance.

11.1.10 Guard assembly

The Guard assembly should protect the user from the saw blade while the saw blade is in motion. The saw blade will not activate unless the lid is completely closed, and if the lid is lifted during a cut the saw blade will immediately drop beneath the level of the table top.

Note: it should not be required to lift the lid during the general operation of the machine.

This assembly should be maintained every month to:

- Check the lid can fully open and close without problems
- Check the lid is still aligned correctly and not fatally damaged
- Ensure the lid is still covering both the blade and material when closed
- Ensure that all moving parts are moving correctly, and are free to move

All assembly components should also be checked to ensure there is no damage or wear that will affect the performance of the assemblies. Ensure that there are no loose, damaged, or missing bolts, and replace or tighten as necessary.

Do not use the Saw if the guard assembly is no longer protecting the user from the blade or from flying debris; if the lid cannot easily open and/or close; or if the lid is badly damaged and/or misaligned; and if any of the above cannot be fixed by general maintenance.

11.1.11 Motor/Blade assembly

The motor/blade assembly should allow the blade and clamp arm to move up and down as required and should also allow the saw blade to spin and cut easily.

This assembly should be maintained every month to:

- Ensure that the clamp arm comes down whenever the saw blade comes up, and vice versa
- Check the saw blade is still cutting material correctly and easily
- Check the clamp arm is still clamping material firmly and correctly
- Check on the condition of the saw blade
- Ensure that material can easily move in and out of the assembly
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure that the motor is still working correctly.

All assembly components should also be checked to ensure there is no damage or wear that will affect the performance of the assemblies. Ensure that there are no loose, damaged, or missing bolts, and replace or tighten as necessary.

Do not use the Saw if the saw blade is damaged and/or not moving correctly; if the clamp arm is not clamping correctly and/or not moving correctly; if material is not being cut correctly; if the motor is sputtering or stalling; or if any moving parts do not have fluid motion and/or are sticking; and if any of the above cannot be fixed by general maintenance.

If the blade is replaced, then be sure to check the alignment of the new blade and check it is still able to correctly move up and down through the table top. Also, be sure to confirm the new blade thickness matches the settings in the computer software.

11.1.12 Motor

The motor should stop and start with no issues and should easily either turn the saw blade. Clean the motor regularly by blowing out dust and other debris with dry compressed air.

- Check blade condition
- Check the brakes
- Check condition of the motor

Do not use the Saw if there are any substantial or unfixable issues with either of the motors.

11.1.13 Loose Fasteners and Fixings

Check for loose, missing, or damaged bolts especially on guards, cover and floor fixing. Tighten or replace where necessary.

11.1.14 Table top

Check the table top for excessive wear or damage and replace if necessary. If the blade is interfering with the table top, check that the blade assembly is located correctly. This should be checked every six months, or when a new saw blade is installed.

11.1.15 Maintain Snip Saw 600

Check all major operating components for wear, fatigue, and alignment. Adjust, tighten, or replace components as required.

Do not use the Saw if it is damaged significantly or if it is not working correctly, and all other mentioned maintenance is not applicable.

11.2 Blade Replacement

Tools required:

- 13mm spanner
- 46mm spanner (supplied)

Item	Description
1	Snip Saw base
2	Inner flange
3	Blade
4	Outer flange
5	Lock nut
6	Side Guard - Extraction
7	M6 Washer
8	M6x20 Button head Cap screw

Table 13, Blade replacement parts

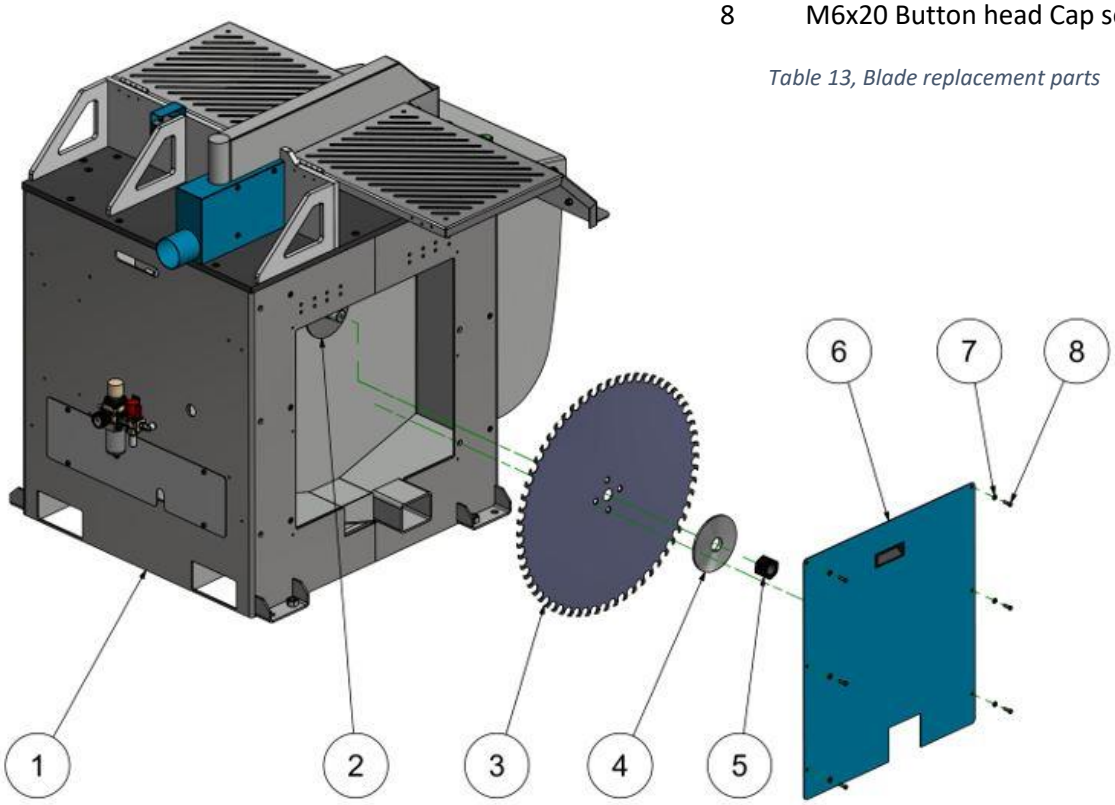


Figure 12, Blade Removal

Replacement blades, 600mm Dia. 35mm bore, 84 teeth, Spida part number BL6003584-3500. Contact Spida Machinery for replacement blades.

Before starting make sure machine is isolated electrically and pneumatically.

To replace the blade in saw:

- Remove the M6x10 cap screws holding the blade cover.
- Remove the lock nut on the motor shaft using the 46mm spanner supplied.
    - The lock nut will be left-hand thread for a saw with the blade on the right and right-hand thread for a saw with the blade on the left.
- Once the lock nut has been removed, the outer flange will slide off the motor shaft, enabling the blade to be removed.

When installing a new blade make sure blade is seated flat against inner and outer flanges and flanges are seated straight on motor shaft before tightening lock nut. Be sure to check the height of the new blade; to ensure that the correct measurements are retained.

11.3 Replace Motor Brake

When replacing the Motor brake on the Arbor motor, be sure to follow the instructions provided below depending on the type of brake being used:

11.3.1 FPC Brake

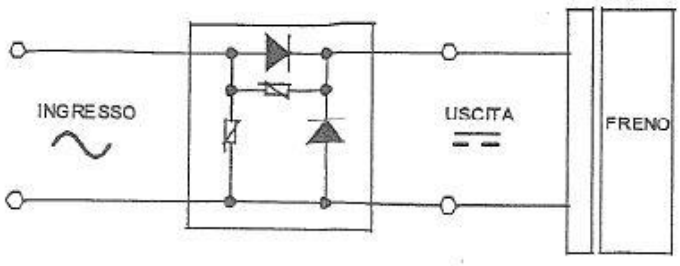


Figure 13, Connection Diagram for FPC Brake

Brake adjustment (or braking gap adjustment – r)
Adjust the screw until you achieve braking gap value listed on the table below.

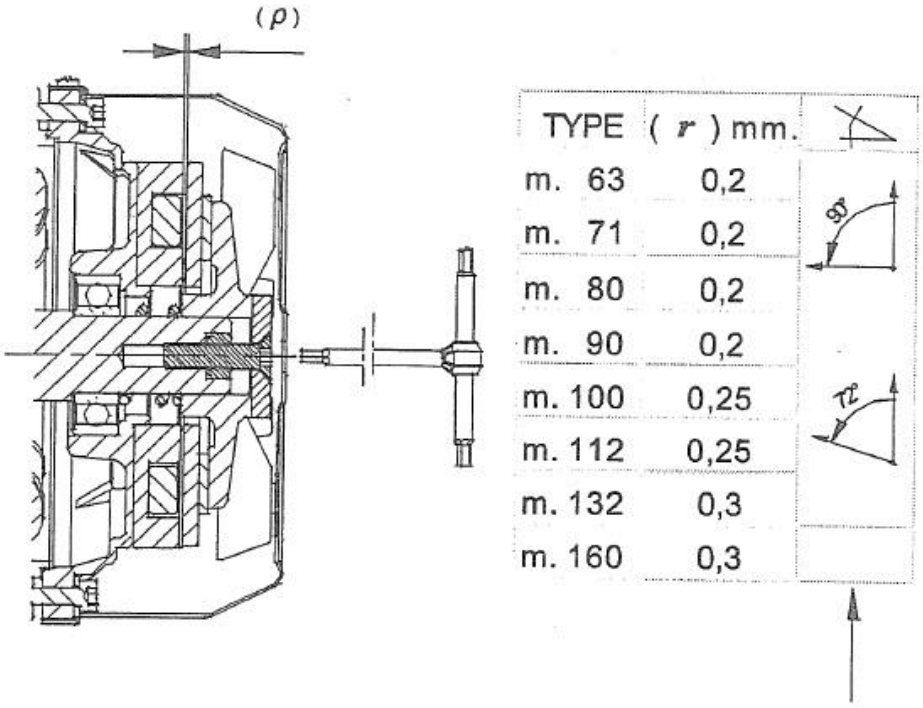


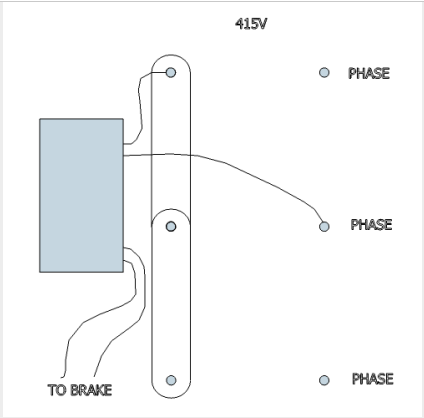
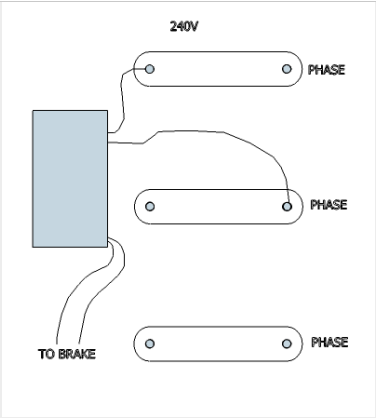
Figure 14, Brake Adjustment

Note: For a quicker but more approximate adjustment, first tighten the adjustment screw clockwise until it reaches the bottom; then loosen it, turning it anti-clockwise (see values listed on the table above).

11.3.2 100V Brakes

Connecting 100V Brakes on CEG Motors

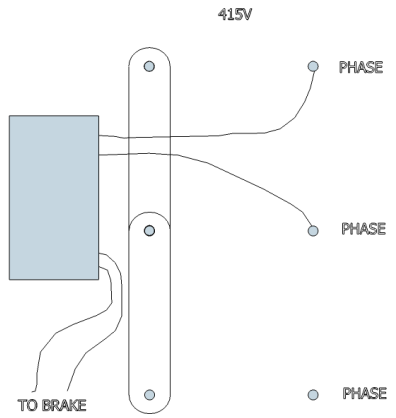
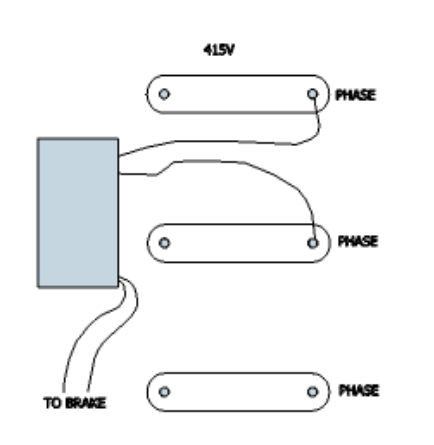
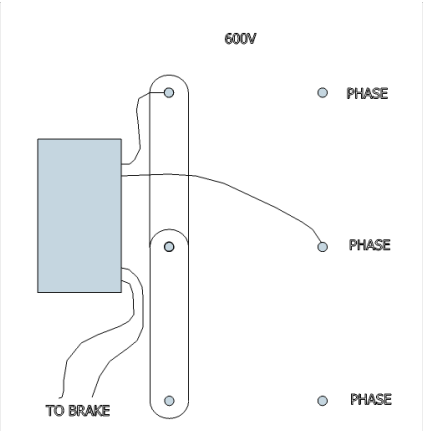
- It is vitally important to ensure you have the correct connection of the motor brake to prevent damage to the brake.
- The Rectifier supplied is suitable for any mains Voltage supplied, it approximately halves the supply Alternating Voltage to DC (240V AC becomes ~100VDC and 415V AC becomes ~ 190VDC)
- Identify the Voltage of the brake fitted to the motor, usually it is 100V, however some units have 190V brakes. Check!
- To set correct gap on brake, fully tighten centre bolt and then undo ¾ of a turn. When energised it should “click”. During running there should be no smell of burning or heat and the blade should stop in ~ 8 seconds after powering off.

100V Brakes	100V Brakes
415V Power supply	**240V Power supply**
The Motor must be connected in STAR as per diagram	The Motor must be connected in DELTA as per diagram
	

11.3.3 190V Brakes

Connecting 190V Brakes on CEG Motors

- It is vitally important to ensure you have the correct connection of the motor brake to prevent damage to the brake.
- The Rectifier supplied is suitable for any mains Voltage supplied, it approximately halves the supply Alternating Voltage to DC (240V AC becomes ~100VDC and 415V AC becomes ~ 190VDC)
- Identify the Voltage of the brake fitted to the motor, usually it is 100V, however some units have 190V brakes. Check!
- To set correct gap on brake, fully tighten centre bolt and then undo ¾ of a turn. When energised it should “click”. During running there should be no smell of burning or heat and the blade should stop in ~ 8 seconds after powering off.

190V Brakes	190V Brakes
415V Power supply	**600V Power supply**
	The Motor must be connected in DELTA as per diagram
	

12 Foreseeable Misuse

Through experience, Spida Machinery's technical staff have listed (in order of occurrence) the most common misuses of the machinery by operators, the symptoms that result and the rectification required to address the misuse and return the machine to optimal working order.

Table 14, Common misuse issues

MISUSE	SYMPTOM	RECTIFICATION REQUIRED
Lack of cleaning	Snip saw not moving correctly	- Clean Saw, especially major assemblies, linear rail and bearings, cylinders, cutting surfaces, dust chute, around saw blade, and fence. - Remove any large pieces of debris and clean out any dirt. - Clean and check motors, and service saw blade. - Check the angles and calibration of the blade and re-align if required. - Check sharpness of blade and replace if required. - Clean air lines, and service filter/regulator - Check all pneumatic cylinders, clean and service as required.
	Moving assemblies blocked/moving incorrectly/failing	
	Saw blade not returning to position	
	Saw blade cutting incorrectly	
	Machine overheating	
	Saw blade failing to cut	
	Clamps/Linear rails and bearings failing	
	Unusual amount of noise while parts are moving	
	Motor tripping out or overloaded	
Lack of care	Snip saw not moving correctly	- Repair or replace any damaged, loose, or missing parts. - Check for bent, broken, or leaking air lines, and replace as required. - Remove any loose or unnecessary objects. - Re-calibrate parts as required. - Note, if possible, how each part was mistreated, and train operators to prevent additional misuse of these and other parts. - Contact Spida Machinery in the event of a major crash
	Broken, damaged, or misaligned parts	
	Foreign objects in Main assemblies/obstructing moving parts	
	Bent or stuck pneumatic cylinders	
	Bent or stuck saw blade	
	Cylinders failing/activating incorrectly	
	Misaligned or incorrect cutting	
	Saw cutting incorrectly	
	All/some sub-assemblies not sitting/working together correctly	
	Main assemblies activating incorrectly/failing	
	Parts not working as designed	
	Unusual amount of noise while parts are moving	

Any other misuse and resultant damage of the machine is deemed non-foreseeable as its occurrence is not consistent.

13 Trouble Shooting

13.1 Mechanical Faults

Table 15, Trouble shooting

Trouble	Probable Causes	Correction
Starting Saw blade failed	Factory power abnormal	Check power supply
	Start switch damaged	Replaced damaged switch
	Power wire damaged	Replace damaged wires
	Brake stuck on	Check brake parts, and repair and replace as required. Remove any obstructions. Contact Spida Machinery if there is a major issue.
	Overload tripped	Check overload setting. Reset overload
Poor cutting quality	Saw blade dulled	Sharpen blade
	Clamps holding piece incorrectly	See possible corrections below
	Inaccurate fence alignment	Refer to Spida Machinery
Workpiece burnt	Saw blade dulled	Sharpen blade
	Blade damaged	Replace blade
	Clamps holding piece incorrectly	See possible corrections below
Saw blade slows down during cutting	Saw blade dulled	Sharpen blade
	Motor tripping out/stalled	Clean motor and test voltage. Repair/replace as necessary
	Blade damaged	Replace blade
Saw blade doesn't come up	Air Supply	Replace any broken air lines
	Blade location incorrect, or possible malfunction	Check blade location and condition and adjust/repair as required. Check blade mounts for obstructions/damage and remove obstructions/repair/replace as required
	Obstruction	Clear obstruction
Guard assembly not moving	Hinge/s damaged/worn/caught	Check hinge/s for damage/obstruction. Free any moving parts that have become stuck. Repair/replace parts as required
	Material jammed	Lock out air and power to the machine. Extricate material from parts. Ensure material is moving correctly down the line. Check parts for damage and repair/replace parts as required.
	Damaged/bent/misaligned/stuck guard	Repair/replace/re-align parts as required. Contact Spida Machinery if there is a major issue.

Guard assembly not adjusting correctly	Damaged/bent/misaligned/obstructed guard	Check guard for damage/obstructions. Repair/replace/re-align parts/remove obstructions as required. Ensure material is moving correctly down the line.
	Guard has come off hinge/s	Repair/replace damaged parts. Re-position guard onto hinges if possible. Contact Spida Machinery if there is a major issue.
	Guard not sitting correctly on hinges/table top	Re-align guard, and repair/replace parts as required.
Saw blade assembly not moving	Damaged electrical leads	Check for bent or broken leads, and replace as required. Contact Spida Machinery if there is a major issue.
	Material jammed	Lock out air and power to the machine. Extricate material from parts. Ensure material is moving correctly down the line. Check parts for damage and repair/replace parts as required.
	Motor is damaged/not receiving power correctly	Repair/replace motor as required. Check electrical supply to motor. Test voltage.
	Blade/ Clamp arm/ Linear rails and/or bearings - jammed/damaged	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required.
	Guard assembly raised	Lower guard assembly, and ensure it is closed completely before continuing operations
	Cylinders/attached components jammed	Check for obstructions. Repair/replace parts/remove obstructions as required.
	No air to cylinders	Check air supply to cylinders.
Saw blade assembly not adjusting correctly	Damaged air lines	Check for bent, broken, or leaking air lines, and replace as required.
	Damaged electrical leads	Check for bent or broken leads, and replace as required. Contact Spida Machinery if there is a major issue.
	Material jammed	Lock out air and power to the machine. Extricate material from parts. Ensure material is moving correctly down the line. Check parts for damage and repair/replace parts as required.
	Damaged cylinders/attached components	Repair/replace parts as required.

	Motor is damaged/not receiving power correctly	Repair/replace motor as required. Check electrical supply to motor. Test voltage.
	Blade/ Clamp arm/ Linear rails and/or bearings - damaged/obstructed/misaligned	Check alignments of relevant assemblies, and re-align parts as necessary. Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required. Ensure material is moving correctly down the line.
	Obstruction	Clear obstruction
Clamps not activating	Air supply	Replace any broken air lines
	Damaged Clamp guide	Repair Clamp guide if possible. Contact Spida Machinery if there is a major issue.
	Obstruction	Clear obstruction
Clamps ineffective/inadequately clamping	Lack of lubrication	Lubricate moving parts
	Damaged air lines	Check for bent or leaking air lines and replace as required
	Loose, damaged, or missing parts	Inspect clamp parts. Repair or replace items as required
Pneumatic cylinders ineffective/inadequately performing	Blocked air lines	Check for blockages. Flush system if required
	Damaged air lines	Check for bent or leaking air lines and replace as required
	Loose, damaged, or missing parts	Inspect cylinder parts. Repair or replace items as required
Motor not running smoothly	Excessive noise or vibration	Tighten any loose bolts. Make sure motor is tightly secured.
	Motor not switching on	Check electrical leads for faults.
	Drive shaft not turning	Remove any debris that may be blocking movement. Tighten the coupling if necessary. Ensure both keyway and sprocket are correctly located.
	Drive shaft not turning uniformly	Tighten any loose bolts, ensure the shafts and sprockets are located correctly in both the Drive and Idler assemblies, check condition of internal motor bearings.
	Overheating	Blow out any debris with dry compressed air, ensure motor ventilation passages are unclogged, make sure there is nothing to obstruct the free circulation of air or dissipation of heat around the motor.
	Motor is damaged	Repair/replace motor
	Motor is tripping	Turn machine off and on again

Motor does not run at full speed	Power voltage too low	Test voltage
Motor tripping out	Moving parts obstructed	Clear obstruction
	Motor vents blocked	Clean motor
	Motor is damaged	Repair/replace motor
Inaccurate cutting/ Measurements	Sensor Malfunction	Repair/replace the sensor/s as required. Re-calibrate the trolley
	Cutting Surfaces damaged/misaligned	Repair/re-align/replace parts as required
	Fence/aluminium extrusion/guards damaged/misaligned	Repair/re-align/replace parts as required
	Clamps damaged/misaligned	Repair/re-align/replace clamps as required. See above for further maintenance info
	Saw blade damaged/misaligned	Repair/re-align/replace saw blade as required. See above for further maintenance info
	Missing or damaged parts/parts moving incorrectly	Repair or replace parts as required. Re-calibrate the trolley as required
	Control malfunction	Turn machine off and on again. Otherwise contact supplier for further information.
Unable to remove material	Clamps/Stud pins not de-activating correctly	See possible corrections above.
	Saw blade broken/damaged/misaligned	Lock out air and power to the machine. Re-align/repair/replace parts as required.
	Obstruction/material jammed	Lock out air and power to the machine. Extricate material from parts and/or clear obstruction. Check parts for damage and repair/replace parts as required.
Controls not working	Button malfunction	Turn machine off and on again. Check buttons are not obstructed, and clear out any surrounding dust and debris. Check input cables.
	Machine not turning on/off	Check input cables. Turn machine off and on again at power supply.

If any of the above corrections do not solve the issue, then do not use the Saw and contact a supervisor, maintenance engineer, or Spida Machinery.

13.2 Software Faults

CyberLogix MC2 Motion Controller

This describes the Ports and Indicators of the MC2 Motion controller

Version 12

The MC2 Motion controller is a network driven servo motor controller capable of driving brushed or brushless motors

Specs:
Motor supply voltage: 20 to 180V DC
Current: 10 amps continuous 30 amps peak

Status LED Display

Green LED flashes to indicate motion CPU is ok

See Below for LED status messages. Decimal Point indicates Drive Enabled

Green Control wiring Plug Connections Top to Bottom and Indicators

Number	Description	LED indication (if applicable)
1	24V Control Power Input (positive supply)	Green LED indicates 24V Supply OK
2	24V Control Power, internally connected to the terminal above (can be used for inputs below)	N/A
3	Drive Enable Input	Green LED indicates Enable Input is OK
4	Drive Home Sensor Input	Green LED indicates Home sensor is ON
5	Drive hardwired High limit, input is Fail safe so power to this terminal means its ok to move in positive direction (remember to enable limit switches in software)	Green LED indicates High Limit switch is OK (if limit inputs enabled in settings)
6	Drive hardwired Low limit, input is Fail safe so power to this terminal means its ok to move in positive direction (remember to enable limit switches in software)	Green LED indicates Low Limit switch is OK (if limit inputs enabled in settings)
7	0v Return control power, internally connected to the terminal below (can be used for sensors for inputs above)	N/A
8	0v Return control power supply (Negative return)	N/A

Motor Plug

Number	Description	LED indication (if applicable)
1	High voltage motor supply (Positive supply)	Green LED indicates Motor power is OK (Very dim if motor volts is 24v)
2	High voltage motor supply return (Negative return)	N/A
3	U connection to motor (or in brush systems + to Motor)	N/A
4	V connection to motor (or in brush systems – to Motor)	N/A
5	W connection to motor (no connection in brush motors)	N/A
6	Motor ground (connected internally to Negative return and also alloy case)	N/A

Front View of Motion Controller

Green indicators on front from top to bottom next to control wiring plug

- 24v control power indicator
- Drive Enabled input
- Drive home sensor input
- Drive hardwired low limit input (remember to enable limit switches in software)
- Drive hardwired High limit input (remember to enable limit switches in software)

- Drive Motor Supply LED (Will be very dim on 24v Motor supply and very bright on 180v motor supply!)

Encoder Plug and Indicators (Orange Lead connects to this port)

- Red LED indicates Encoder wiring Error
- Green LED indicates motion move complete

Hall Plug and Indicators (Purple Lead connects to this port)

- Red LED indicates Hall wiring error or incorrect brush/brushless setting in software
- Red flashing indicates Firmware update mode

Motor Wiring Plug and LED

Status LED Display

- Display will scroll around in a circle if all is OK
- Or flash a 3 alphanumeric code for status or fault

Status

Code	Meaning	Description
SLL	Software Low Limit	The drive is at a software limit and will only respond to higher position setpoints
SHL	Software High Limit	The drive is at a software limit and will only respond to lower position setpoints
HLL	Hardware Low Limit	The Low Limit switch is off and drive will only respond to forward motion
HHL	Hardware High Limit	The High Limit switch is off, and drive will only respond to Reverse motion

Faults

Code	Meaning	Description
F01	Invalid hall state on Hall inputs	Check hall wiring or motor hall sensors or that controller is set in correct brush/brushless mode
F02	Encoder Wiring Fault	Check encoder wiring or encoder on motor
F03	Encoder Power Fault	Internal auto reset fuse has tripped due to over current on encoder supply Check encoder wiring or encoder on motor
F04	Position Error limit exceeded	Check for jam on machine and that motor can turn freely, check if trying to drive motor too fast. Check for under voltage on motor or faulty motor or encoder, check current limiting and output limiting in drive
F05	Motor Over current fault	Peak current limit has been reached on servo drive check for faulty wiring or motor or overloaded
F06	Motor Power Fault	The motor supply voltage is either too high or low
F07	Temperature Fault	The drive is overheating ensure adequate ventilation, overloading etc fan force cooling if required
F08	Amp Disabled	Massive over current detected by Drive Amp, check for a short circuit on the motor or wiring or its also possible for this to happen if the motor output us hard stopped very suddenly
F09	Enable Lost	While the drive was enabled and holding position or moving it lost its enable (Emergency stop) input
F10	Motor Stalled	The motor is not moving while it has full permissible power applied check as per F04
F11		Call Cyberlogix if you see this fault
F12		Call Cyberlogix if you see this fault
F13		Call Cyberlogix if you see this fault
F14	Comms Fail (in software)	Host device communications has timed out (Drive must have host comms every 3 secs, this can be adjusted
F15	Drive Not Setup	Drive has not been setup, send setup message to drive (normally by a reset button in software)
F16	No Address	Drive has not been configured by host device, check communication cables and host device
F99	CPU Not Running	Call Cyberlogix – Unit is in Flash update mode or the CPU has failed

14 Distributor & Repairer Contacts

14.1 Agent/Distributor

Company Name: _____

Address: _____

Contact Person: _____

Ph.: _____ Fax: _____

Mobile: _____ Email: _____

14.2 Automation Repairs

Company Name: _____

Address: _____

Contact Person: _____

Ph.: _____ Fax: _____

Mobile: _____ Email: _____

14.3 Mechanical Repairs

Company Name: _____

Address: _____

Contact Person: _____

Ph.: _____ Fax: _____

Mobile: _____ Email: _____

15 Warranty

SM2012 Ltd, SPIDA Machinery, Tauranga, New Zealand, warrants the equipment listed below to the initial purchaser of the equipment only against defective workmanship and materials only, for a period of twelve (12) months from the date of shipment from SPIDA's factory, subject to the following conditions:

1. SPIDA extends the original manufacturer's warranty to SPIDA on buy-in items such as motors, saw blades and air cylinders or other such buy-in items but does not add its warranty herein described to such items.
2. This warranty only applies if:
   a. The attached copy of this warranty is signed by the initial purchaser and returned to SPIDA's address shown above within 14 days of shipment of the goods from SPIDA's factory.
   b. The equipment is installed by SPIDA or its licensed installer.
   c. Regular routine maintenance has been carried out on equipment in accordance with instructions in manual provided by SPIDA and proper housing and shelter provided for the equipment.
   d. The equipment is operated by competent personnel in accordance with the operating instructions set out in the manual provided by SPIDA and not otherwise.
   e. The equipment has not been subjected to alterations or repairs or dismantling without prior written approval of SPIDA. Any parts returned to SPIDA either for repair or consideration of a warranty claim consequent to an authorisation to dismantle must be shipped prepaid.
   f. SPIDA may, at its option, either repair or replace the defective part upon inspection at the site of the equipment where originally installed. The warranty does not cover the cost of freight, Labour or traveling for the removal or replacement of the defective parts.
   g. This warranty does not apply to any deterioration due to average wear and tear or normal use or exposure.
   h. In all warranty matters, including any question of whether this warranty applies to any claim, the decision of SPIDA is final.

This warranty is the only warranty made by SPIDA as the manufacturer and is expressly in lieu of and excludes all other warranties, conditions, representations and terms expressed or implied, statutory or otherwise, except any implied by law and which by law cannot be excluded. Neither SPIDA or its agents or servants will be liable in any way for any consequential loss, damage or injury including any loss of use, profits or contracts.

The law applicable to this warranty shall be the law of New Zealand and the parties hereto submit to the exclusive jurisdiction of the Courts of New Zealand.

Machinery/Equipment

The item bearing the following serial plate:

_____

Date of Shipment: _____

Signed by: _____

Name: _____

Position: _____

Acceptance of Warranty

I acknowledge and accept the contents of this warranty.

Signed by: _____

Name: _____

Company: _____

Position: _____

Date: _____

16 Electrical Drawings

16.1 NZ Electrical Drawings

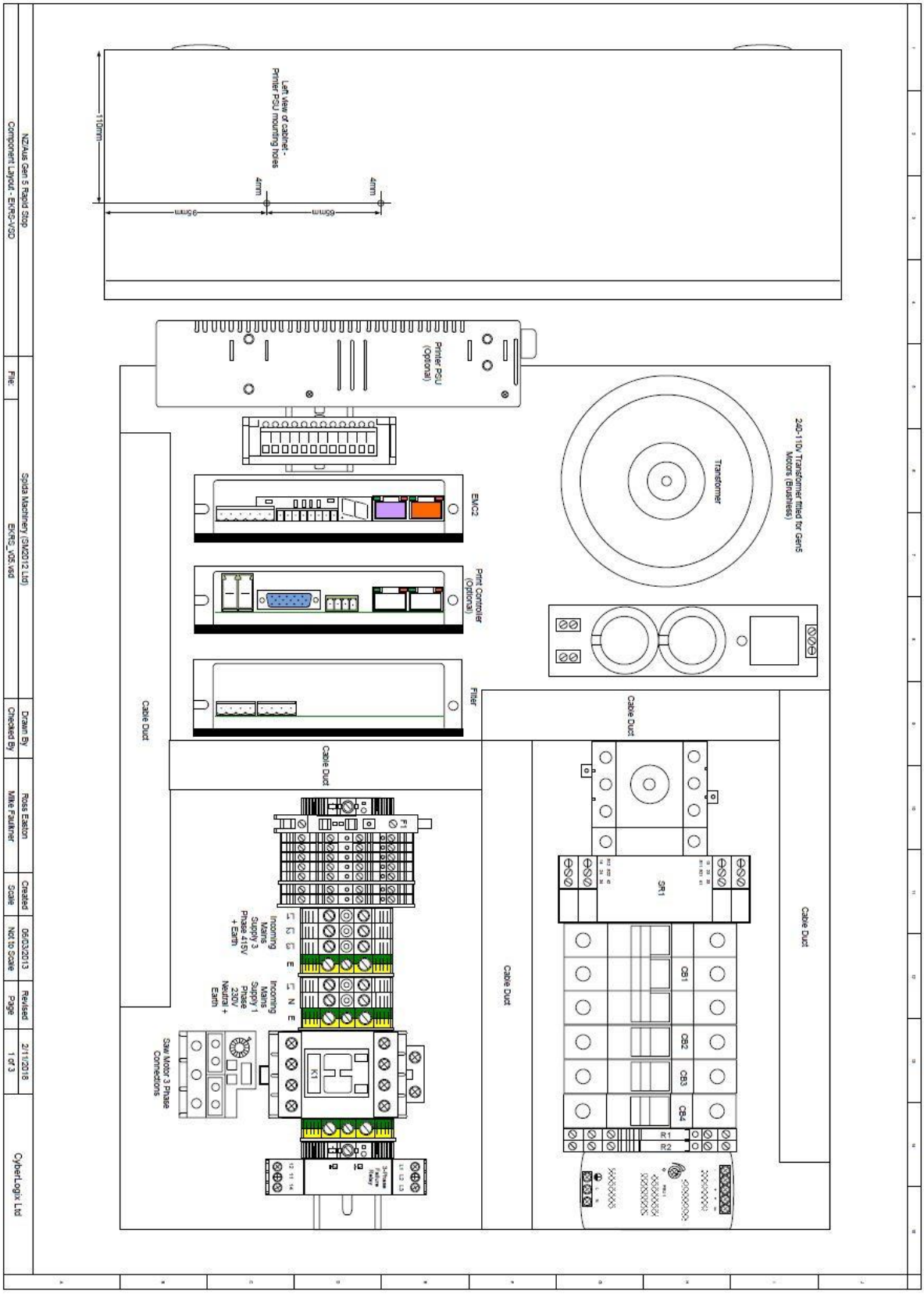


Figure 15, NZ Electrical drawings p1

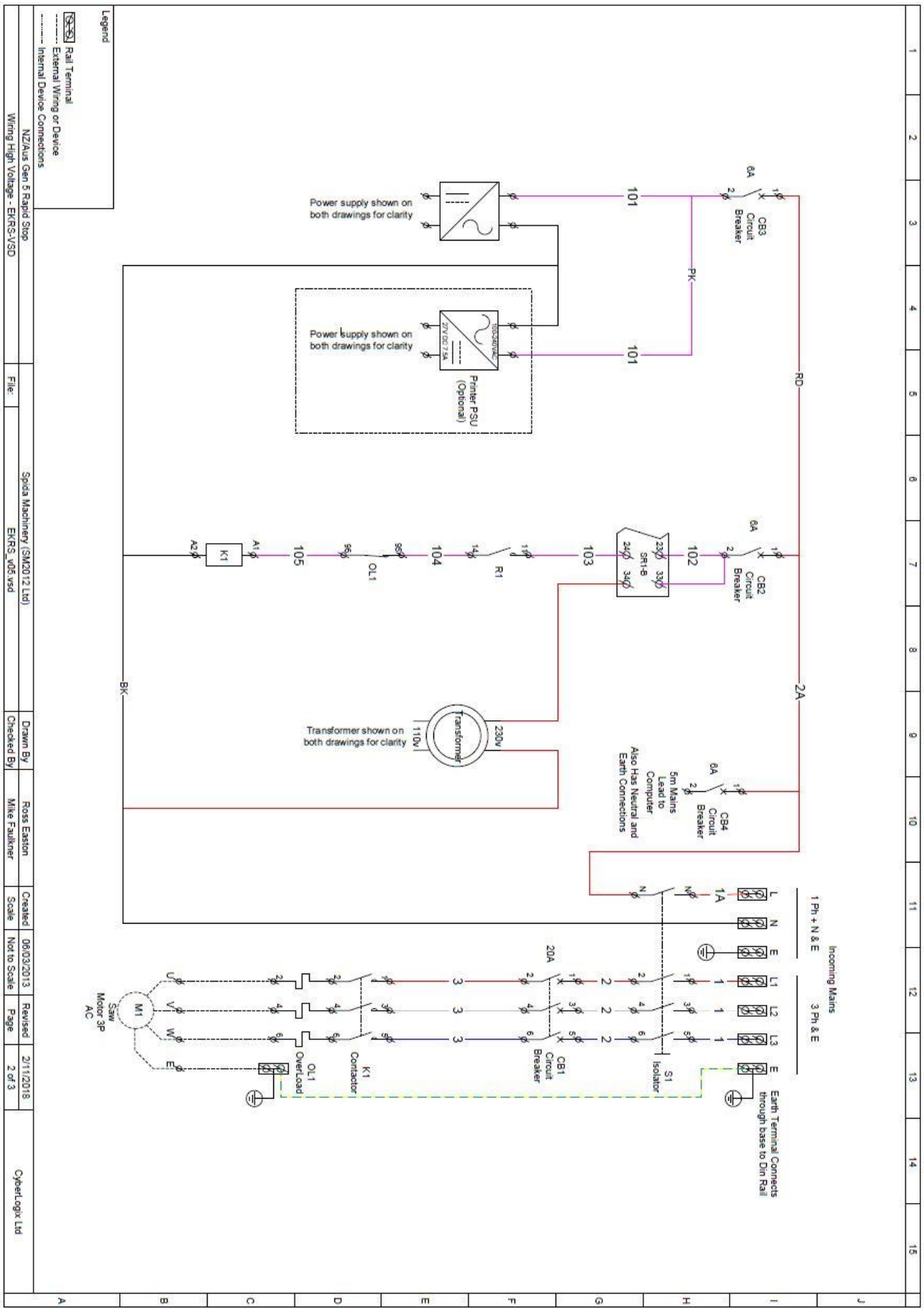


Figure 16, NZ Electrical drawings p2

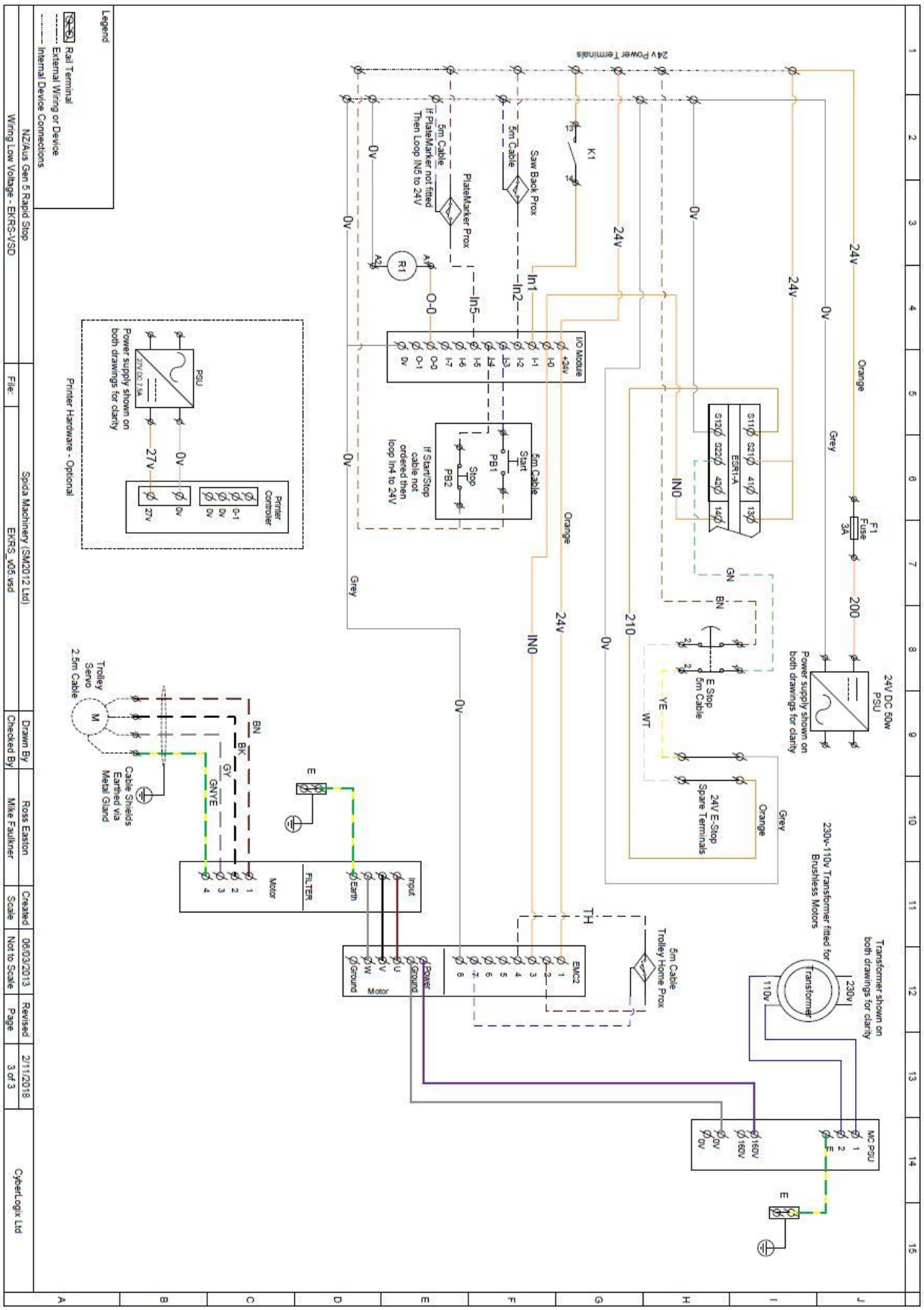


Figure 17, NZ Electrical drawings p3

16.2 NZ Electrical Drawings – With VSD

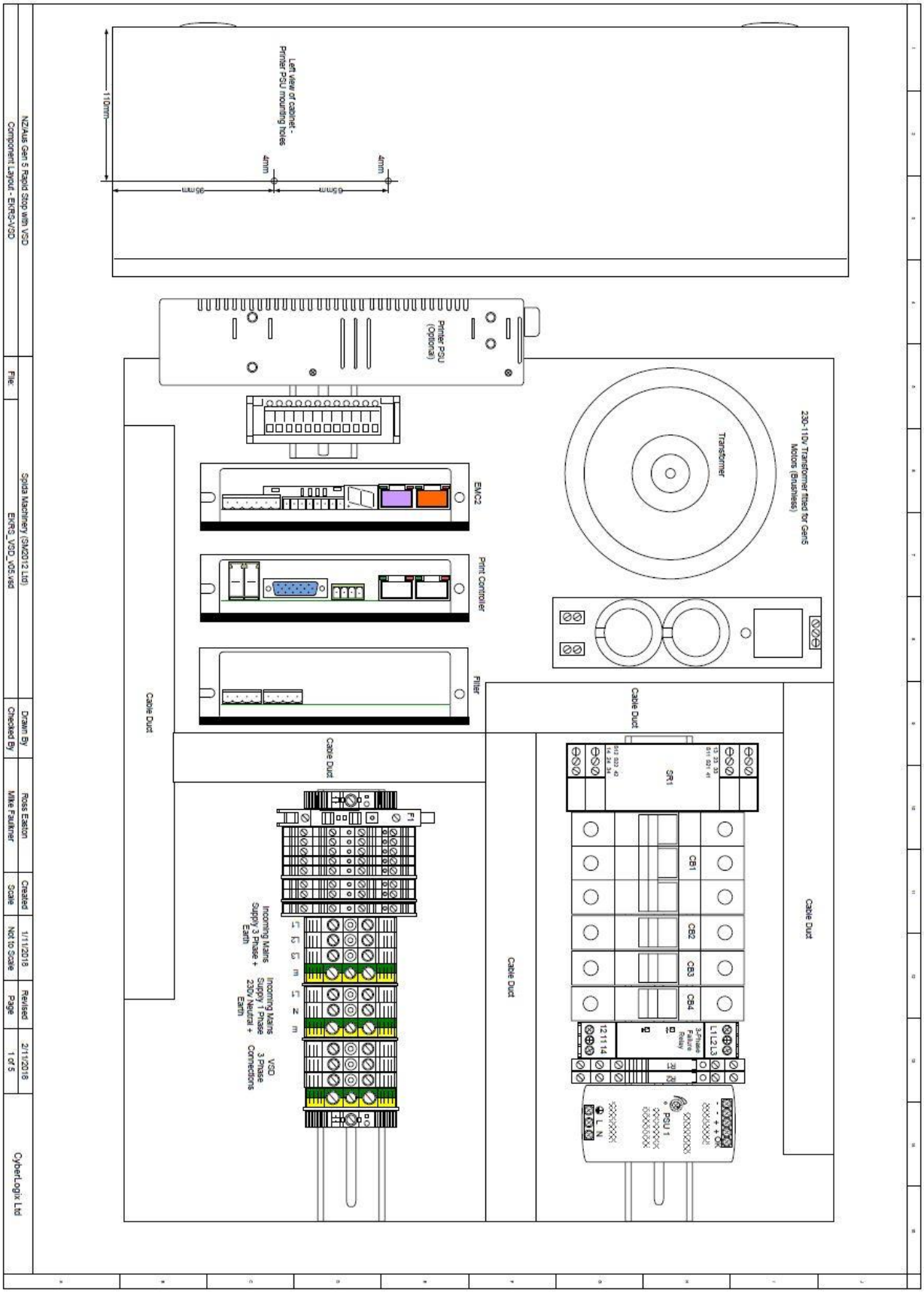


Figure 18, NZ Electrical drawings with VSD p1

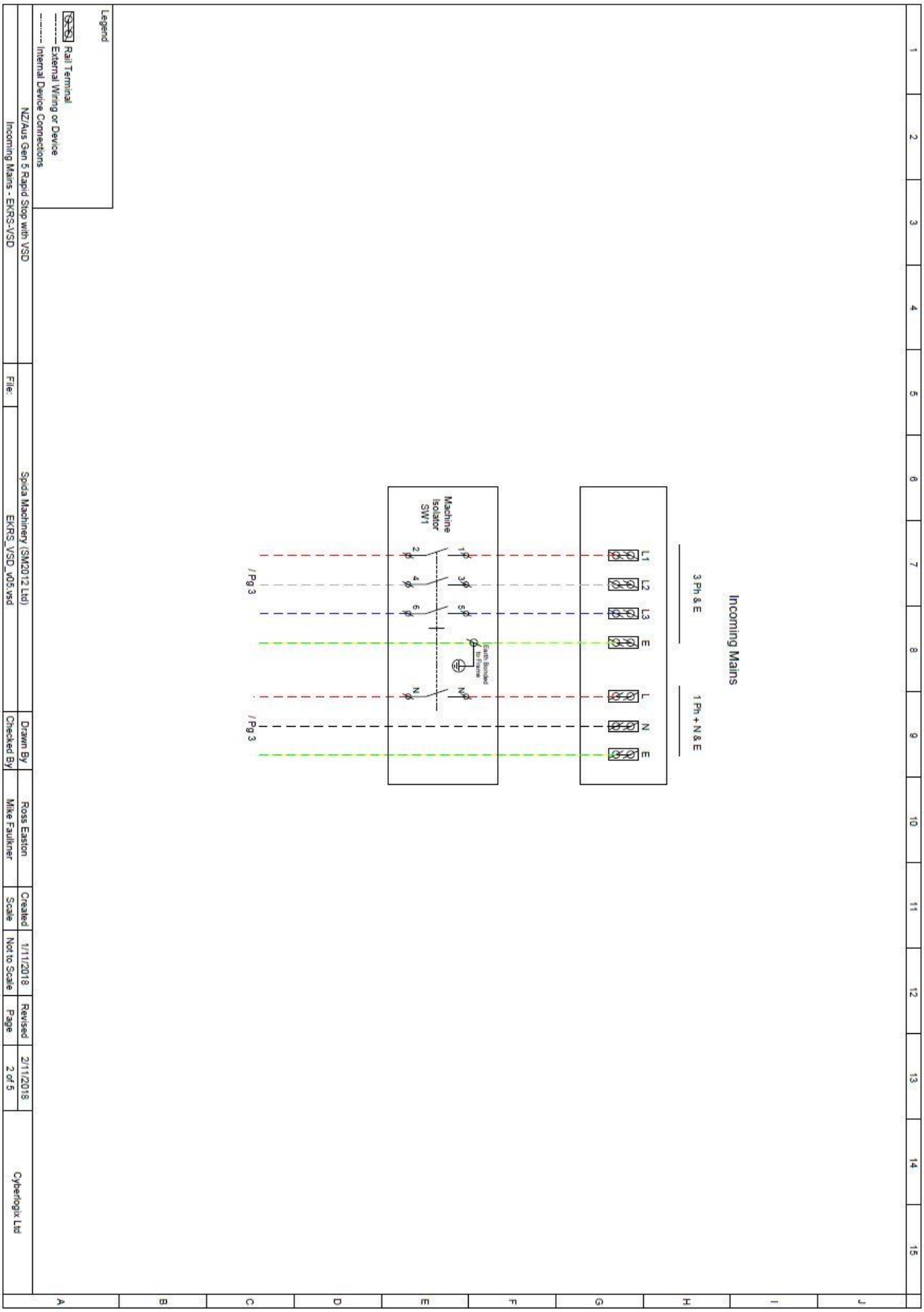


Figure 19, NZ Electrical drawings with VSD p2

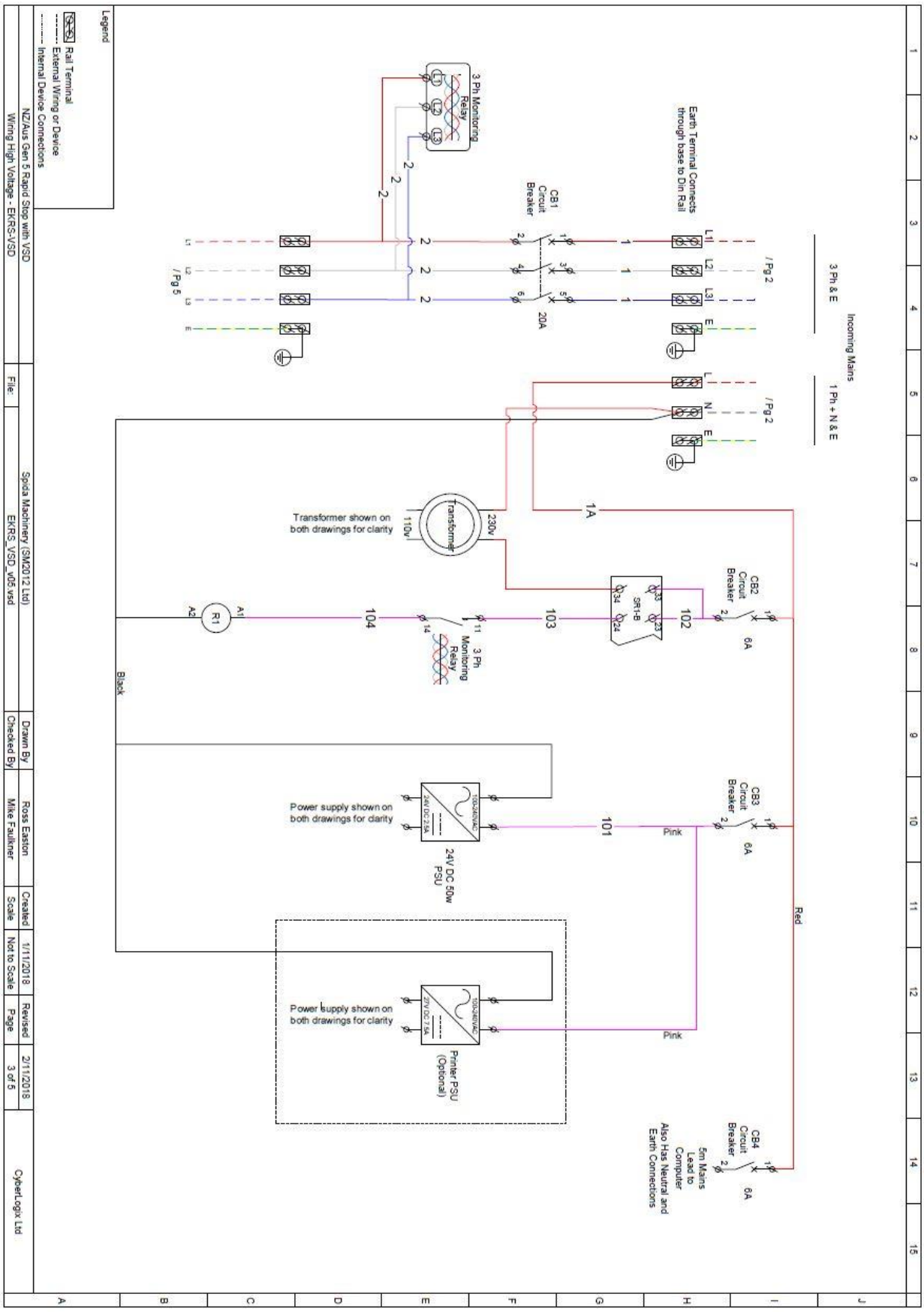


Figure 20, NZ Electrical drawings with VSD p3

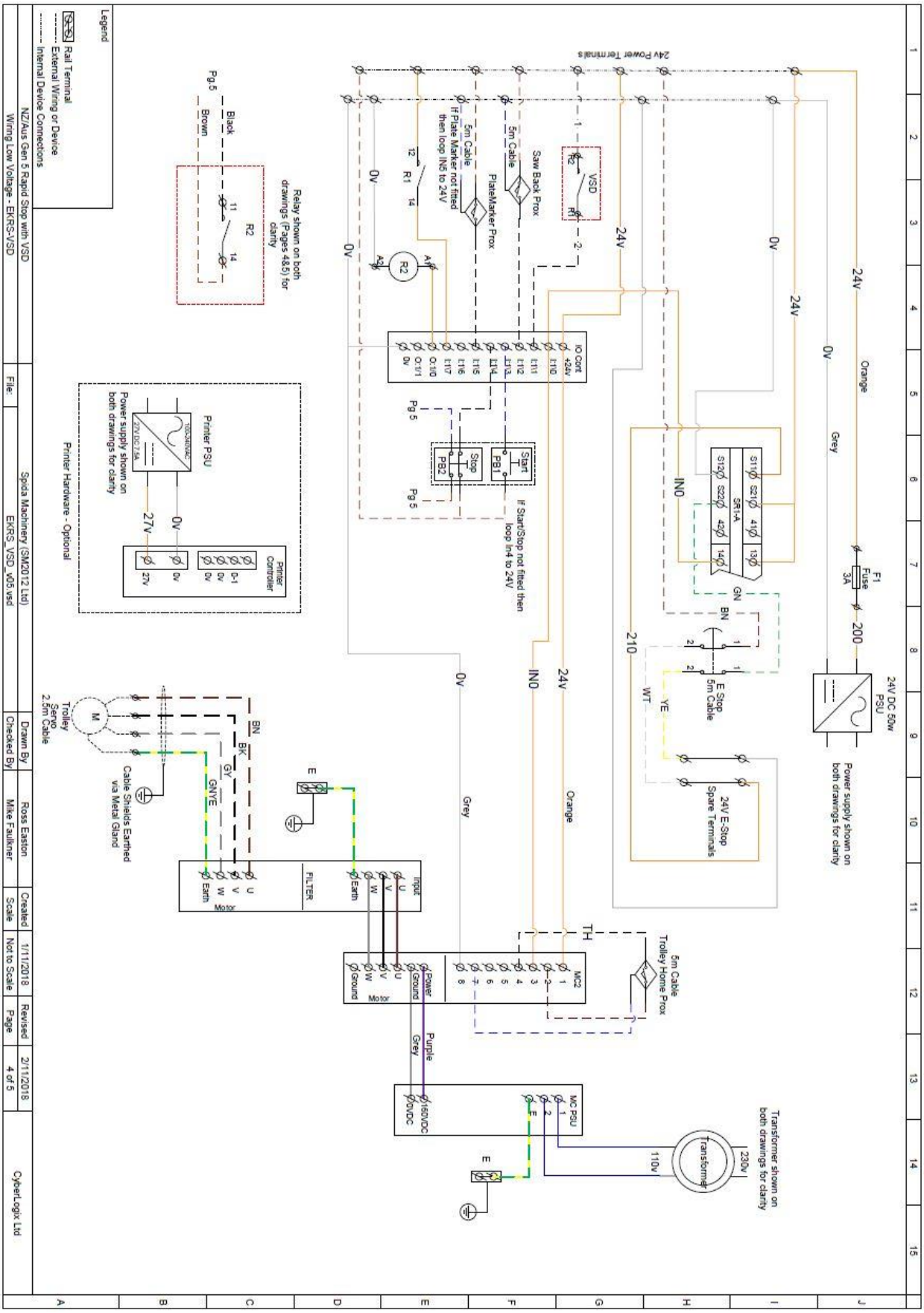


Figure 21, NZ Electrical drawings with VSD p4

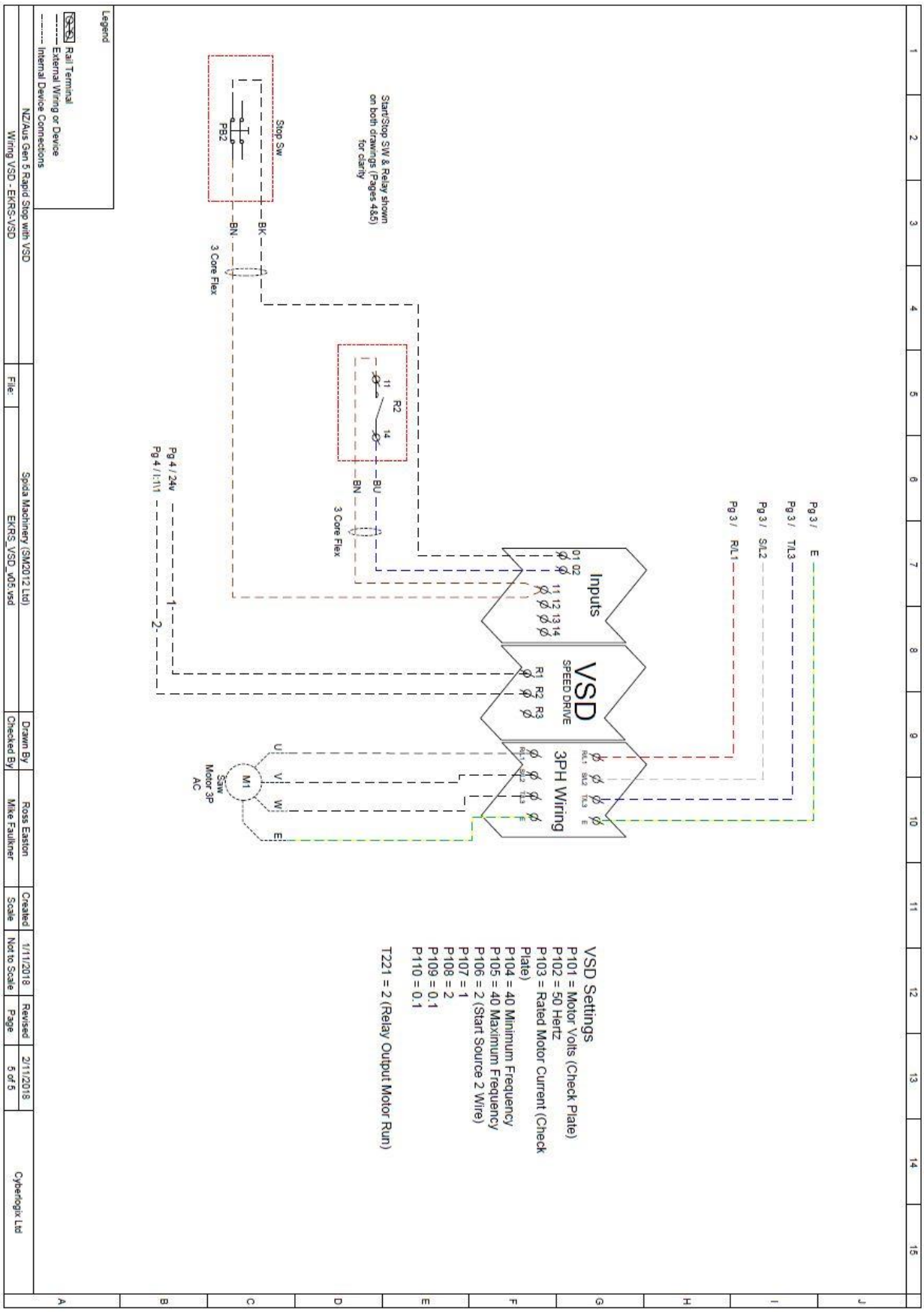


Figure 22, NZ Electrical drawings with VSD p5

16.3 US Electrical Drawings

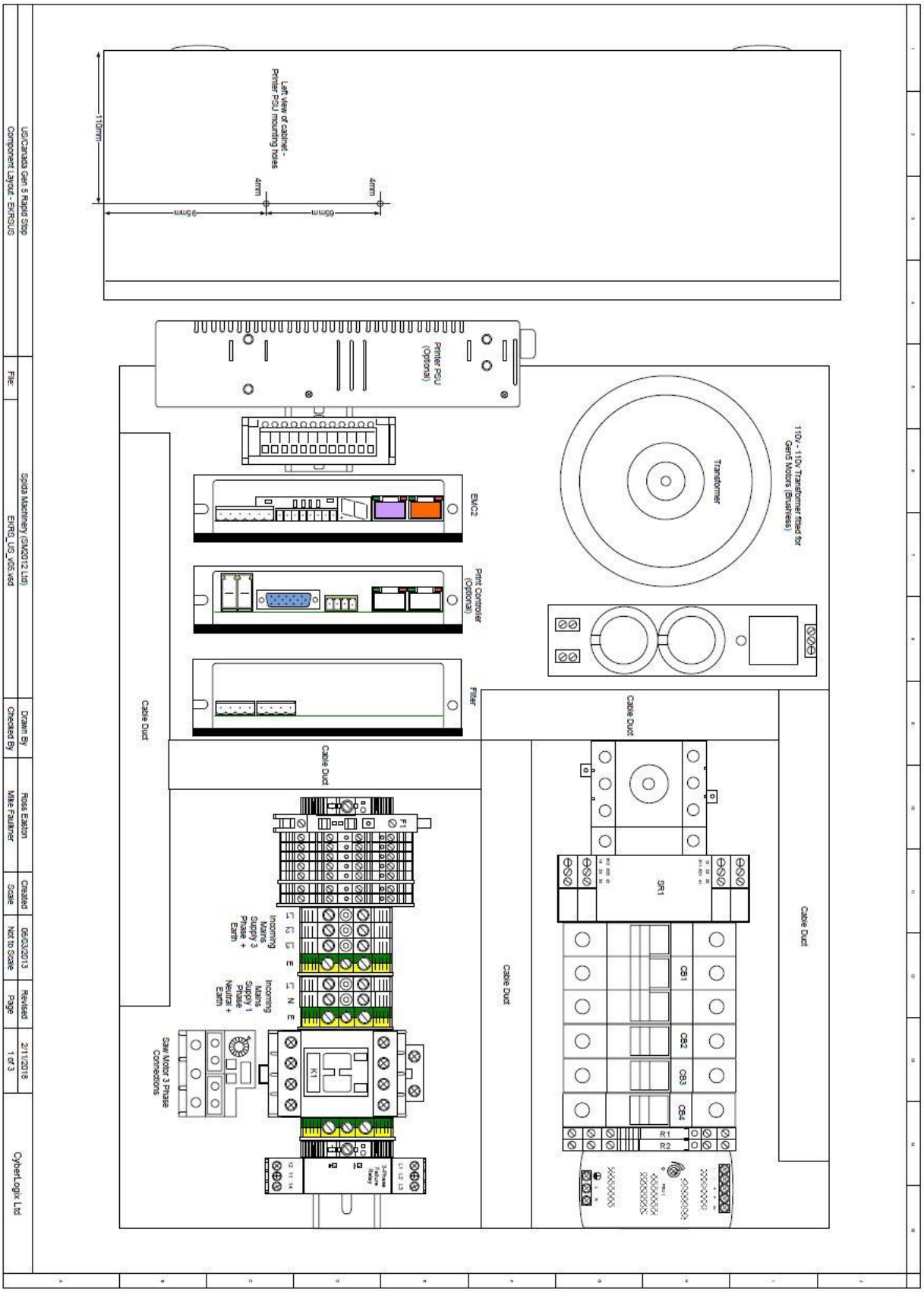


Figure 23, US Electrical drawings p1

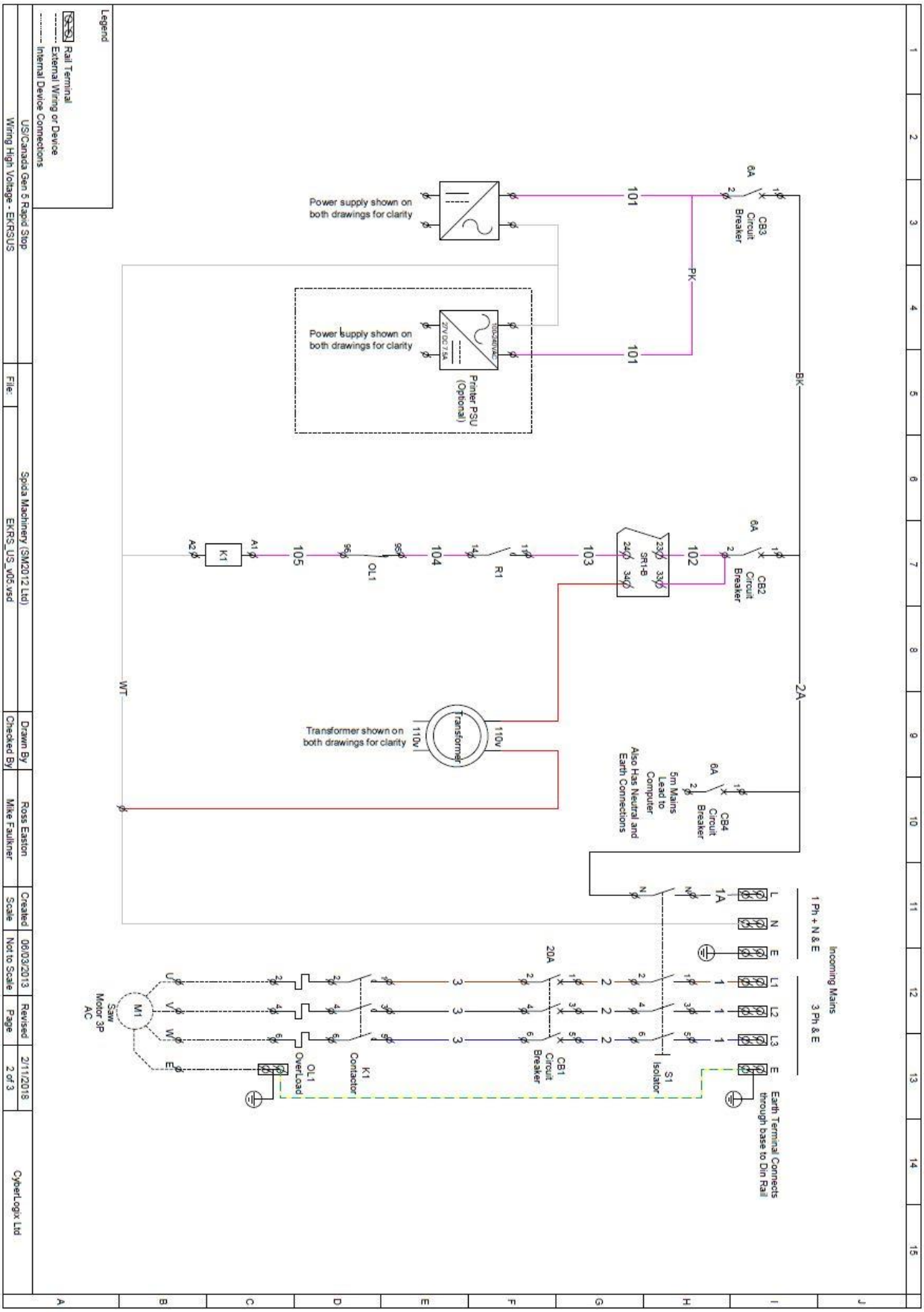


Figure 24, US Electrical drawings p2

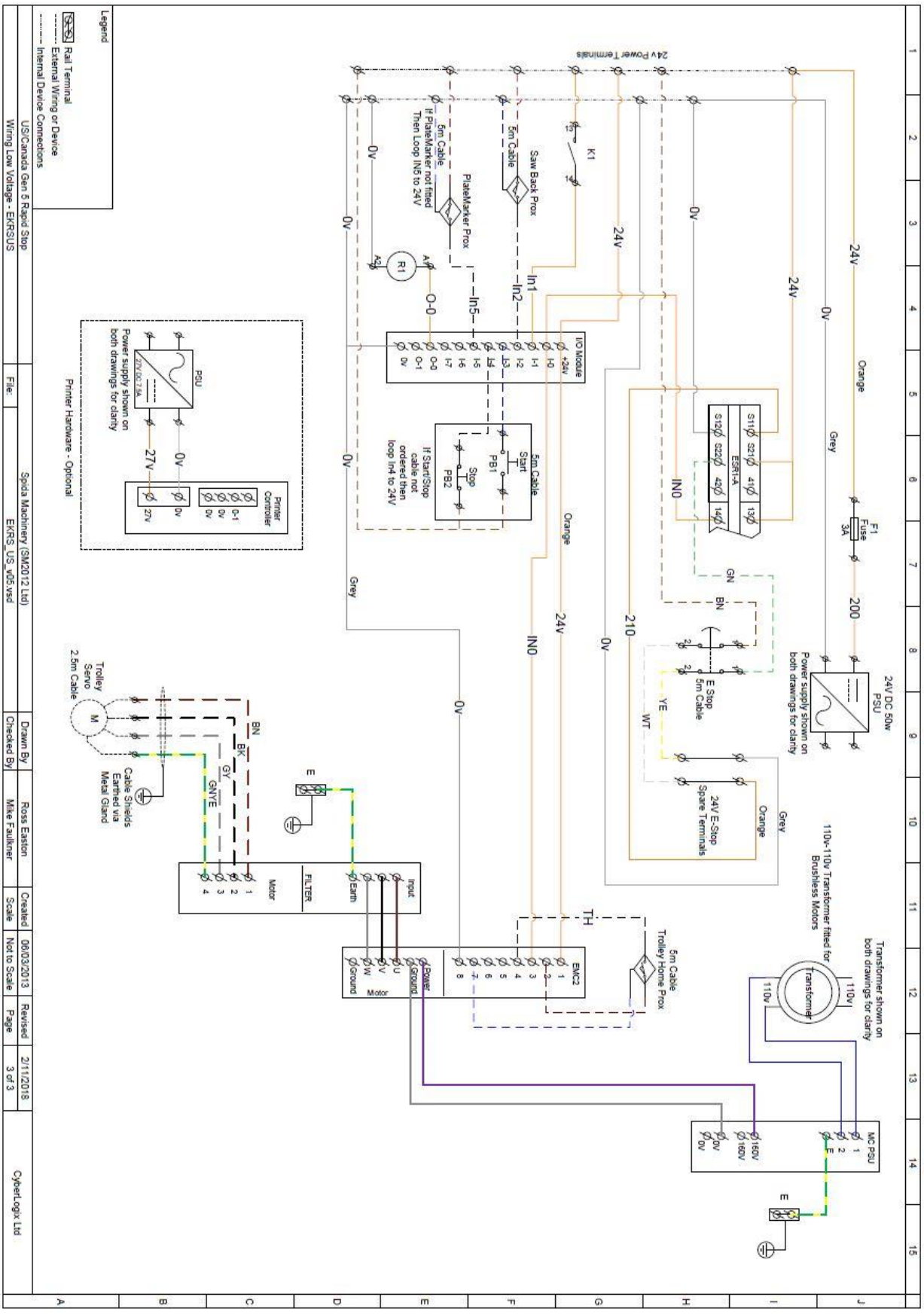


Figure 25, US Electrical drawings p3

16.4 US Electrical Drawings – With VSD

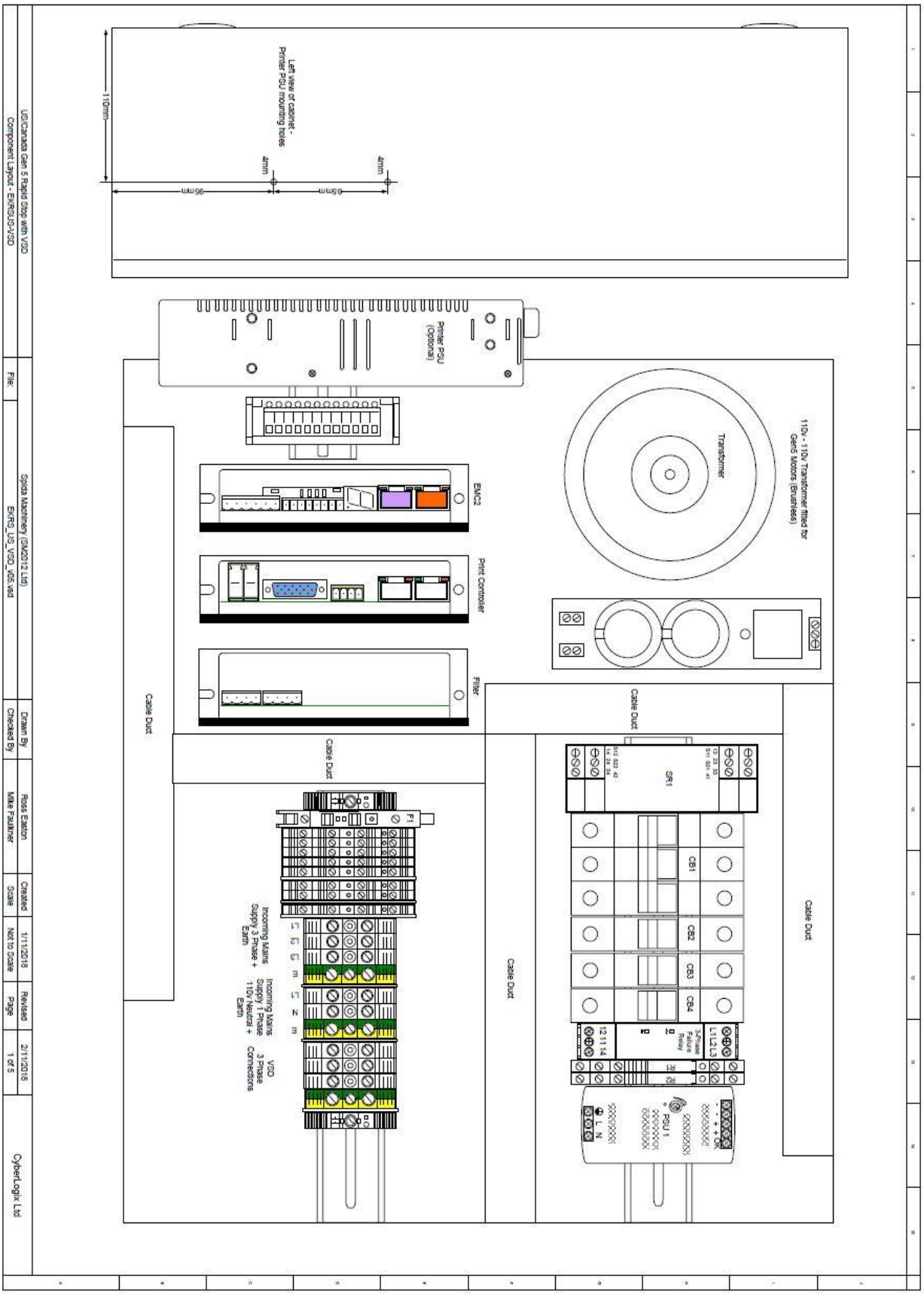


Figure 26, US Electrical drawings with VSD p1

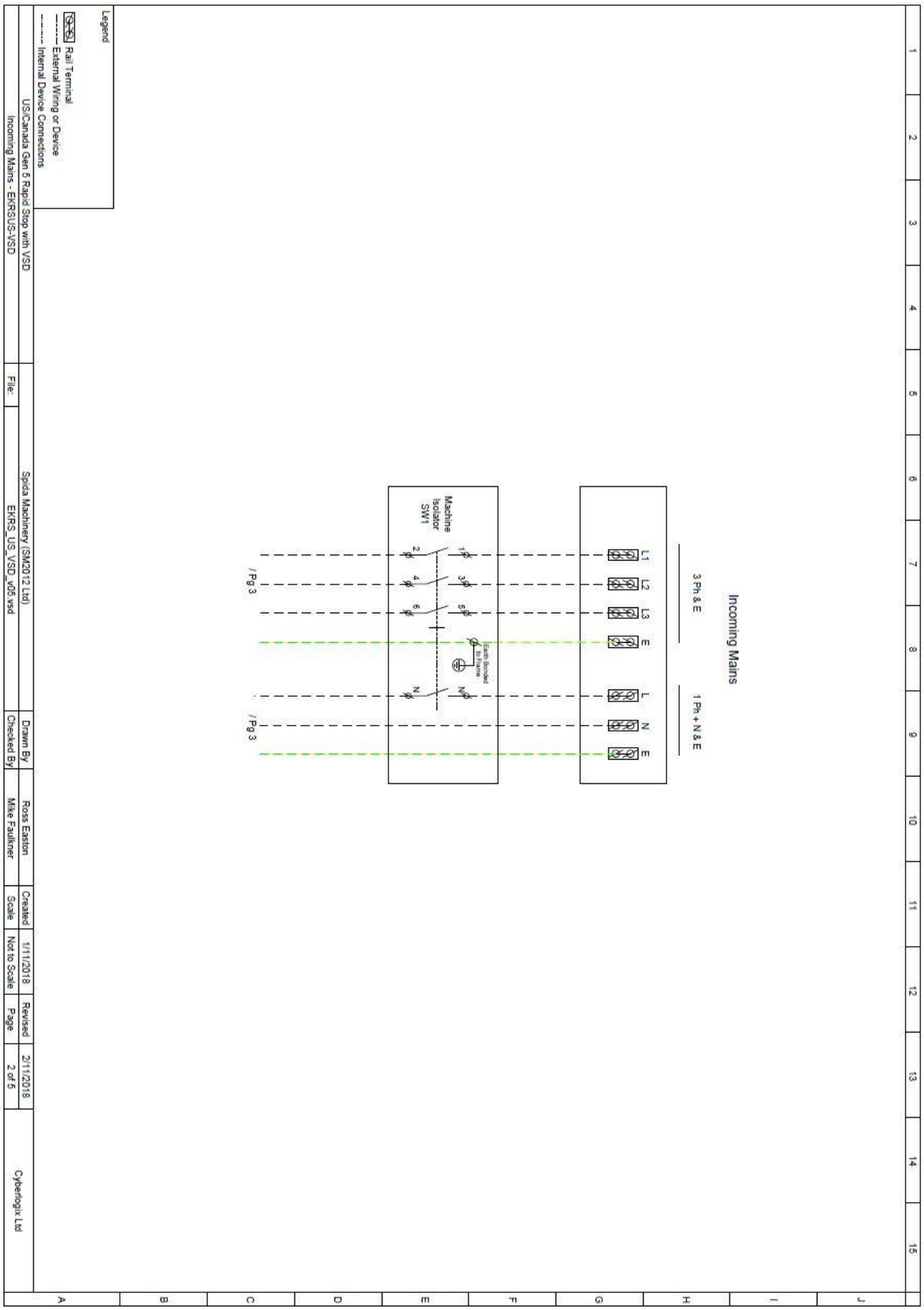


Figure 27, US Electrical drawings with VSD p2

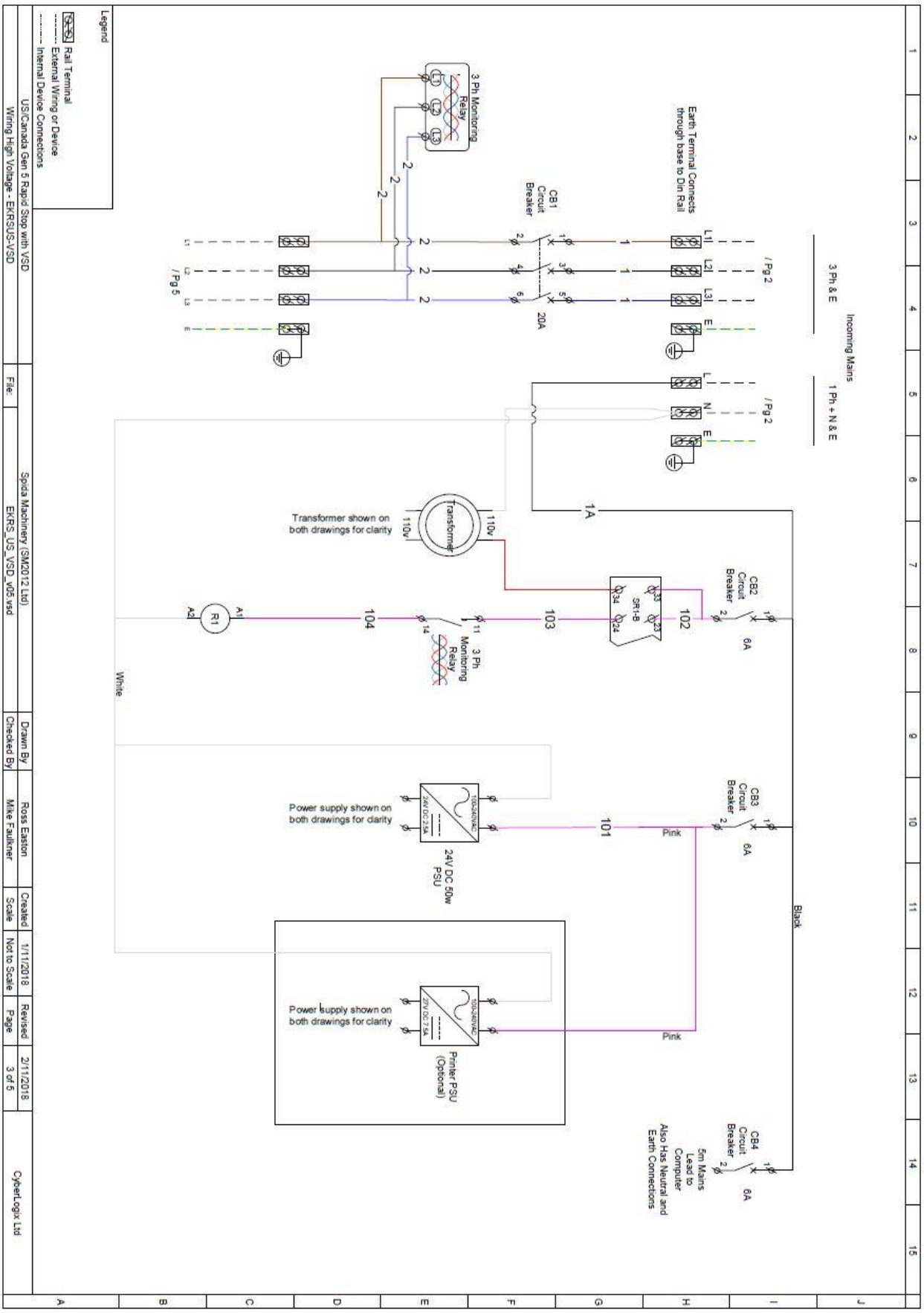


Figure 28, US Electrical drawings with VSD p3

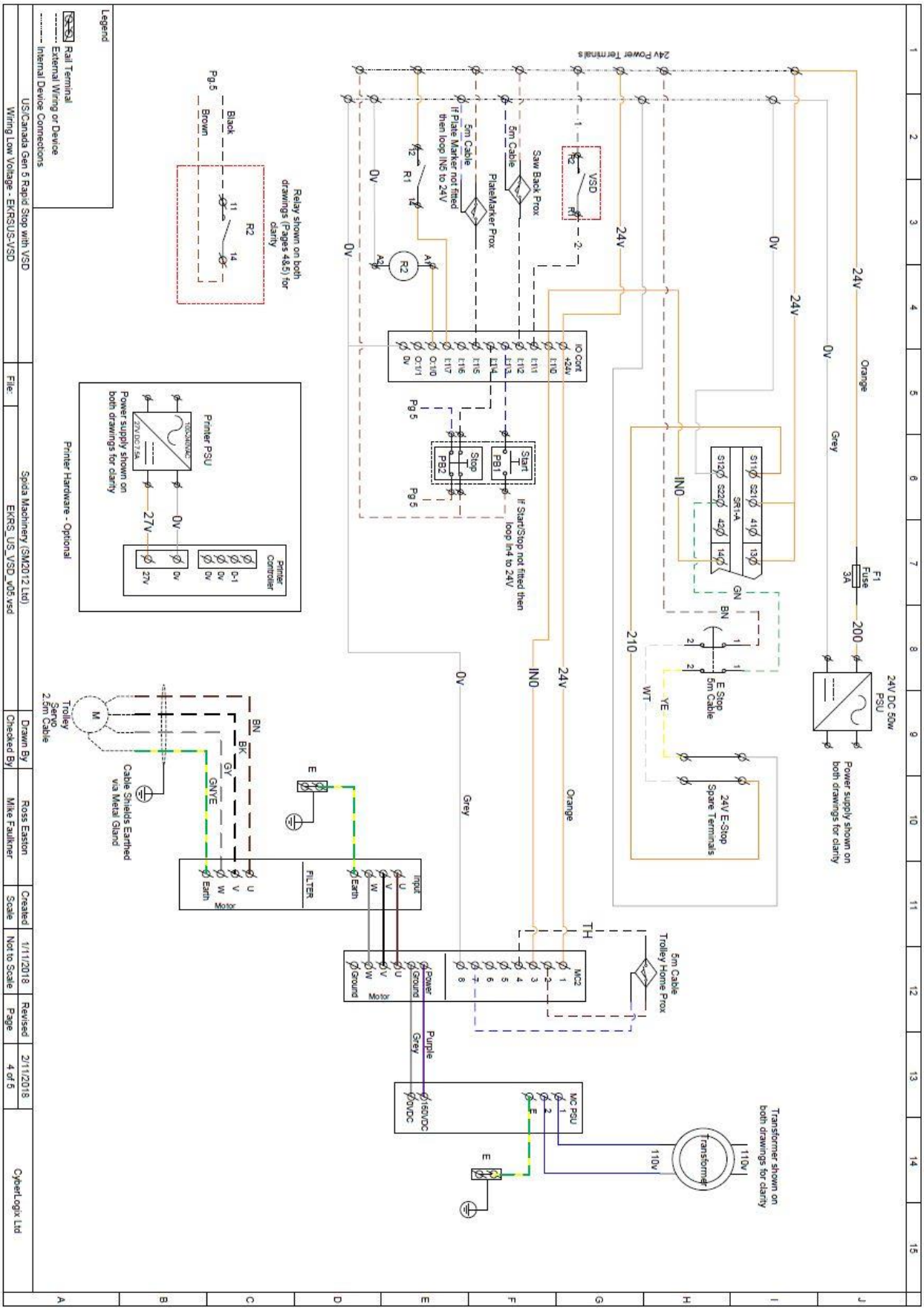


Figure 29, US Electrical drawings with VSD p4

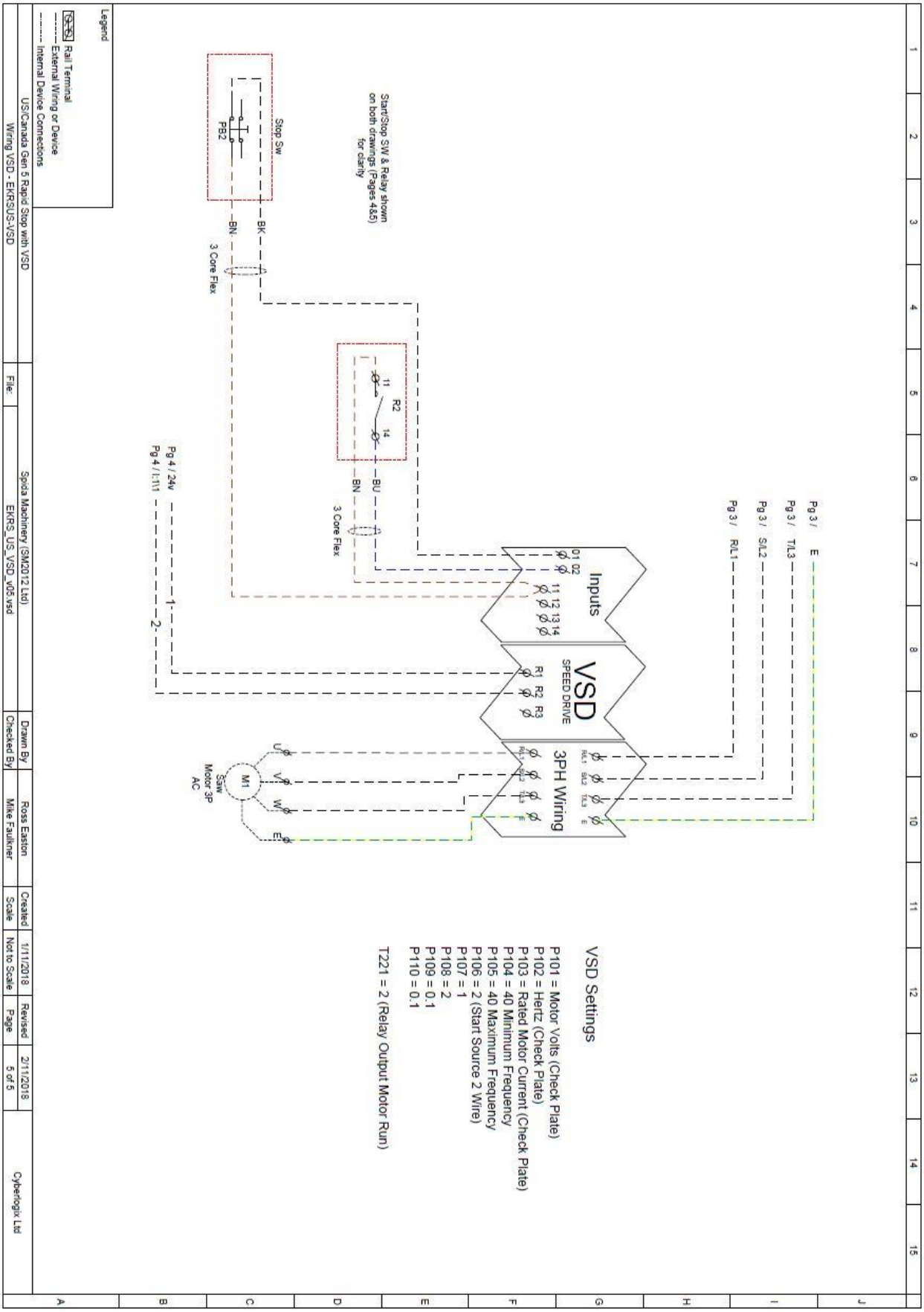
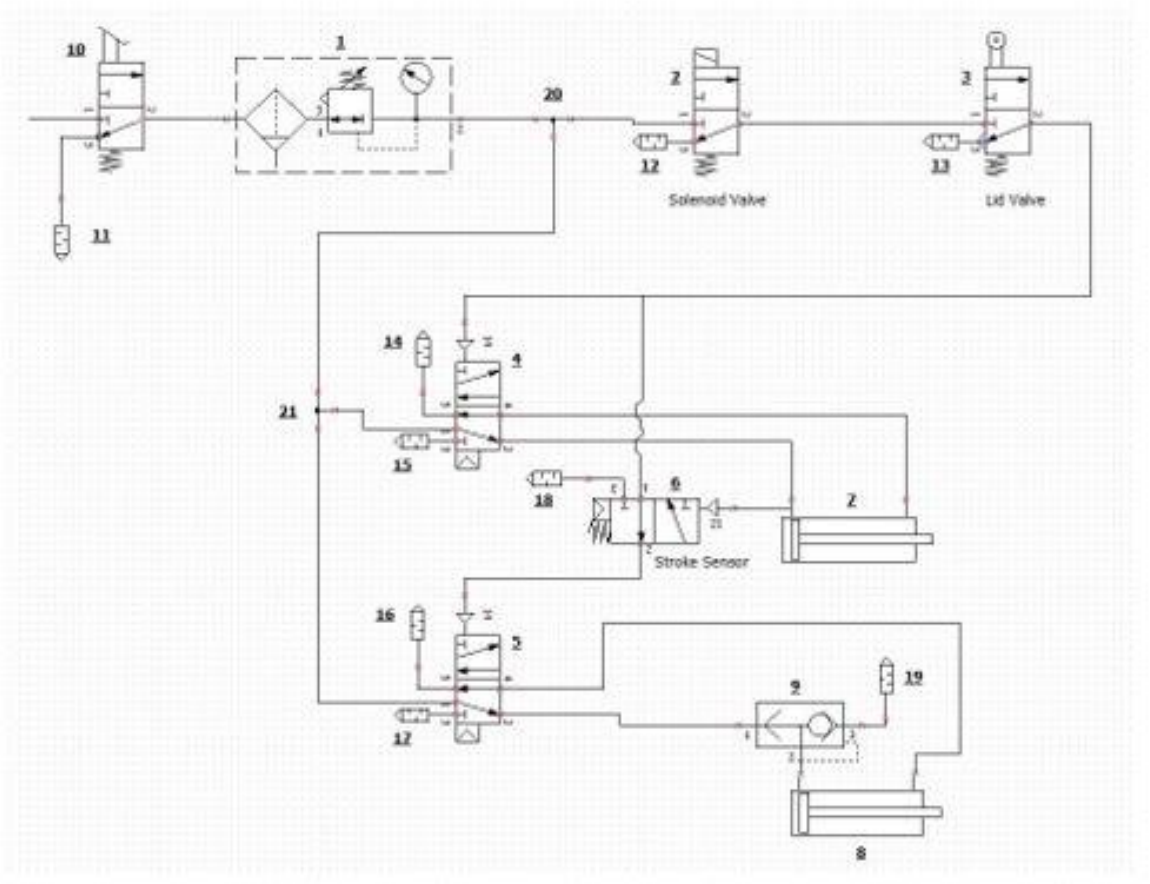


Figure 30, US Electrical drawings with VSD p5

17 Pneumatic Drawings



Position	Part Name	Product Code	Quantity	Unit
1	AW40-04DH Filter Regulator 1/2"BSP AD P/nut 10bar	AFAW40-04	1	pcs
2	Base mount 5/2 solenoid valve 24Vdc	AVSY7140-5DZ	1	pcs
3	3Way Mech Valve NO/NC Steel roller plunger	AVVM430-01-06S	1	pcs
4	Valve 5/2 Single Air Pilot	AVSYA7140	1	pcs
5	Valve 5/2 Single Air Pilot	AVSYA7140	1	pcs
6	Pneumatic End of Stroke Sensor	AFPWS-P111	1	pcs
7	CP96 Cyl - 80-250 D/A Mag	ACCP96SDB80-250C	1	pcs
8	CP96 Cyl - 80-250 D/A Mag	ACCP96SDB80-250C	1	pcs
9	Quick exhaust valve	AQ240F-04-04	1	pcs
10	VHS40-04 Valve 3/2 1/2BSP Pressure Relief	AVVHS40-04	1	pcs
11	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
12	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
13	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
14	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
15	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
16	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
17	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
18	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
19	Silencer - Compact - 1/4 (AN20-02)	AFAN203-02	1	pcs
20	Union Tee M10	AFKQ2T10-00	1	pcs
21	Union Tee M10	AFKQ2T10-00	1	pcs

Figure 31, Pneumatic schematic

18 Training Certificate – Snip Saw 600

Instructor: _____

Company: _____

I declare that:

- I have trained the person names below ("the trainee") in the safe operation of the machinery/equipment detailed in the training manual.
- The trainee has demonstrated an understanding of the safe operation of the machinery/equipment.
- The trainee has indicated the he/she has read and understood this training manual.

Signed: _____

Date: _____

Trainee: _____

Company: _____

Position: _____

I declare that:

- I have received instruction from the person named above ("the instructor") for the safe operation of the machinery/equipment detailed in this training manual.
- All information in this training manual was demonstrated and explained by the instructor.
- I have thoroughly read and understood this training manual.

Signed: _____

Date: _____

Witnessed by:

Name: _____

Company: _____

Signed: _____

Date: _____