

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

Australia free phone 1800 146 110

America free phone 1888 262 9476

NZ free phone 0800 SPIDAS or +64 7 579 5010

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



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2 Revision History

Rev B:

- Removed various typos throughout the document
- Updated electrical and pneumatic drawings
- Added software faults to Troubleshooting section
- Added more info to/updated various sections; including, but not limited to:
 - o Maintenance
 - o Troubleshooting

3 Overview

The Spida Auto Sheather is designed to automatically nail sheathing onto finished frames direct from the Spida Wall Extruder.

The Spida Auto Sheather 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 Spida Auto Sheather 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 Spida Auto Sheather are deemed competent and qualifies to operate the machine.

The Spida Auto Sheather 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 wiring 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 safely 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, Spida Auto Sheather Specifications

Overall Width	5475 mm
Overall Length	8380 mm
Overall Height	2150 mm
Working Height	932 mm
Weight	3765 kg
Max Frame Length	6000 mm
Max Frame Height	3660 mm
Frame Thickness	76 - 203 mm
Travel Speed – Pullers	1.5 m/s
Travel Speed – Wall Height	0.15 m/s
Travel Speed – Floating Guns x2	0.8 m/s
Power Requirement	15 Amp, Single Phase
Air Supply	12.5 L/fire or 0.275 CF fire at 10 Bar (100 PSI)
Nail Gun Capacity	Capacity differs between gun types. See chosen gun manufacturer for further information

Specifications may change without notice

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.
- 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 Spida Auto Sheather 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 9m x 6m area
- The Spida Auto Sheather 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 Spida Auto Sheather 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 Spida Auto Sheather 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 Spida Auto Sheather must be isolated from all sources of energy and locked out to prevent unexpected operation.

6.4 Training and Supervision of Spida Auto Sheather Operators

No person should be expected or allowed to operate the Spida Auto Sheather 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 Spida Auto Sheather works.
- Checks to perform prior to starting.
- How to recognise potential faults.
- Location of controls and how to Stop and Start the Spida Auto Sheather.

6.5 Responsibilities of Spida Auto Sheather Operators

Operators should:

- Check the Spida Auto Sheather 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 Spida Auto Sheather 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 Spida Auto Sheather should be maintained to prevent persons not directly involved with the operation of the machine from reaching any part of the machine.

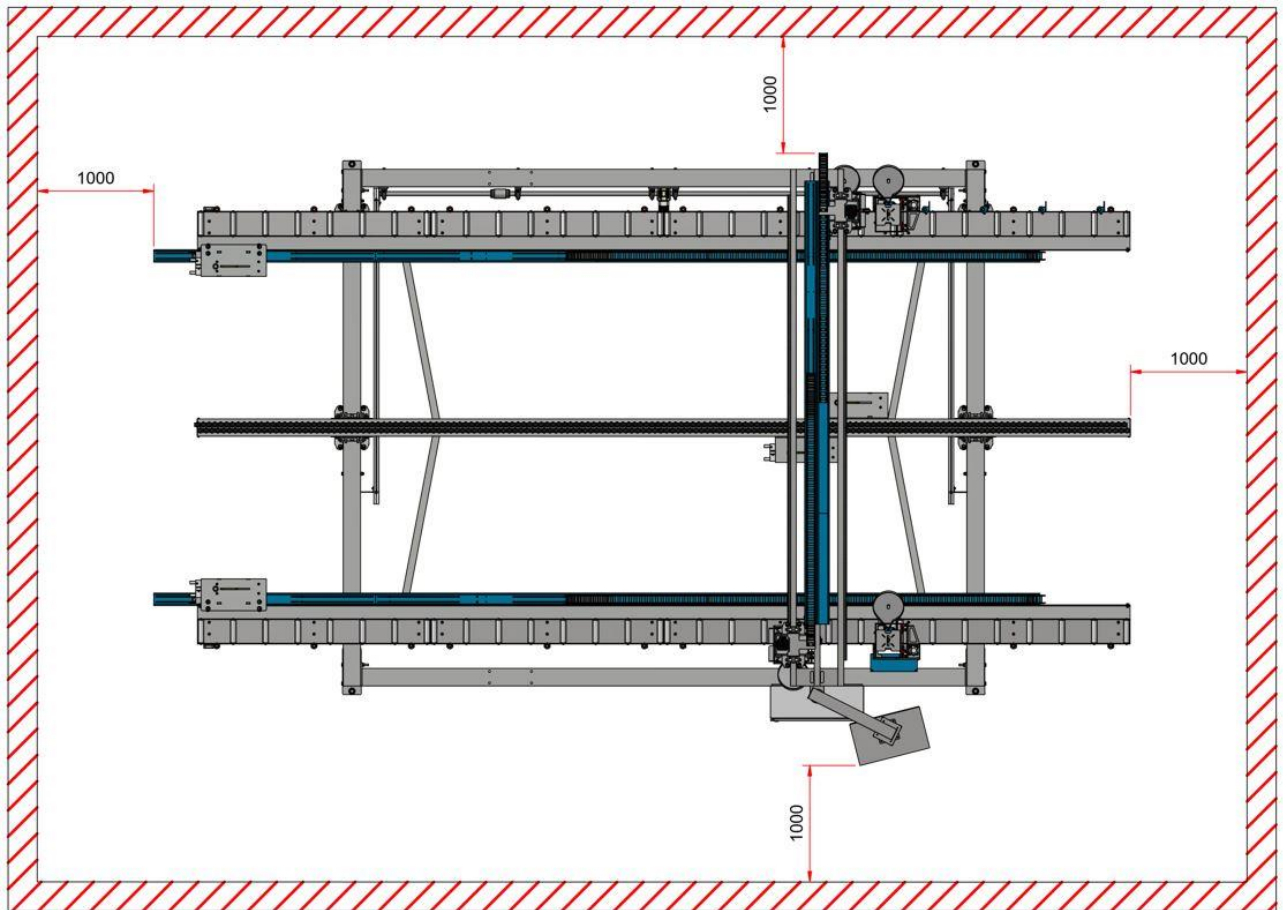


Figure 1, Recommended exclusion zone around the Spida Auto Sheather.

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 Spida Auto Sheather, 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 Spida Auto Sheather 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 Spida Auto Sheather 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 Spida Auto Sheather is to be operated in accordance with this manual. Deviation from this specified operation may result in incorrect transportation, nailing, 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.
- 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 nailing of sheathing material onto frames.
- 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 Spida Auto Sheather 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



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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 nail guns and moving parts. Make sure guards are in position and in good working order. Do not operate machine without guards.
Poor Housekeeping	Inspect Sheather 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 Spida Auto Sheather.



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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 their 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 nailing. Use only material that the machine has been designed to accommodate.
Operator Technique	Do not impede the movement of the Sheather 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 Sheather is in the home position and has come to a complete halt. Do not attempt to activate the Sheather before material is in place.
Hit by projectiles	The Spida Auto Sheather 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	Isolate power and air 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/blocked Gun	Isolate power and air before attempting maintenance on a stalled gun.
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 Spida Auto Sheather, familiarise yourself with the location and function of each of the controls detailed in this section.

Note:

This is a fully automated CNC machine. The competent operator is only required to move each new frame into position at the appropriate time, and then tell the machine to start.

Almost all main controls to be used by the operator (e.g. Start/Stop) are programmed into the machine software and are accessed via the computer touch screen.

For further information on the computer software please refer to the Wall Extruder Software User manual.

8.1 Monitor Controls

There is an emergency stop located on the monitor of the Sheather; within easy access of the operator in the case of an emergency.

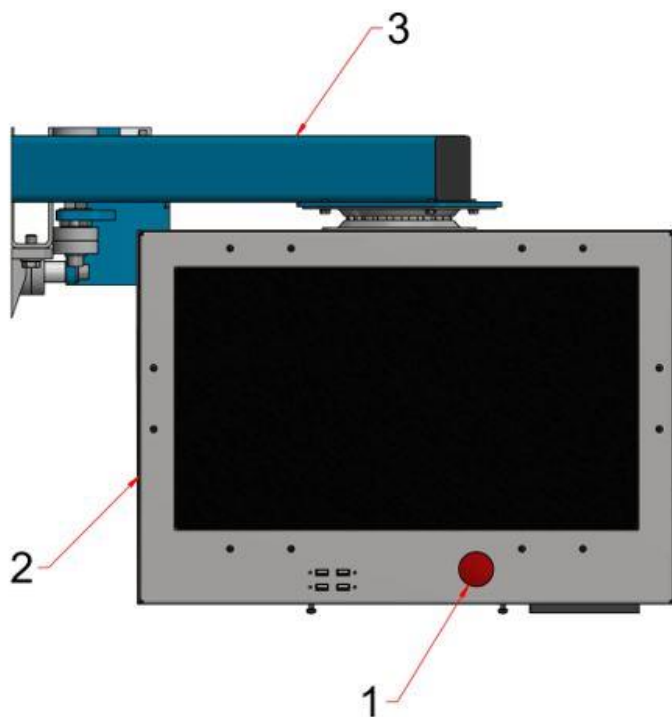


Figure 2, Emergency Stop location

Table 5, Control information (see Figure 2)

Control	Qty	Function	Description
1	1	Emergency Stop	Cuts all power to the machine in case of emergency. This must be deactivated before operations can recommence
2	1	Monitor	Holds all the machine hardware, and provides access to the touch screen where the user can input commands as required
3	1	Monitor Support	Holds the monitor at a user-friendly height, and is horizontally adjustable at both ends for easy location customisation

8.2 Sensors

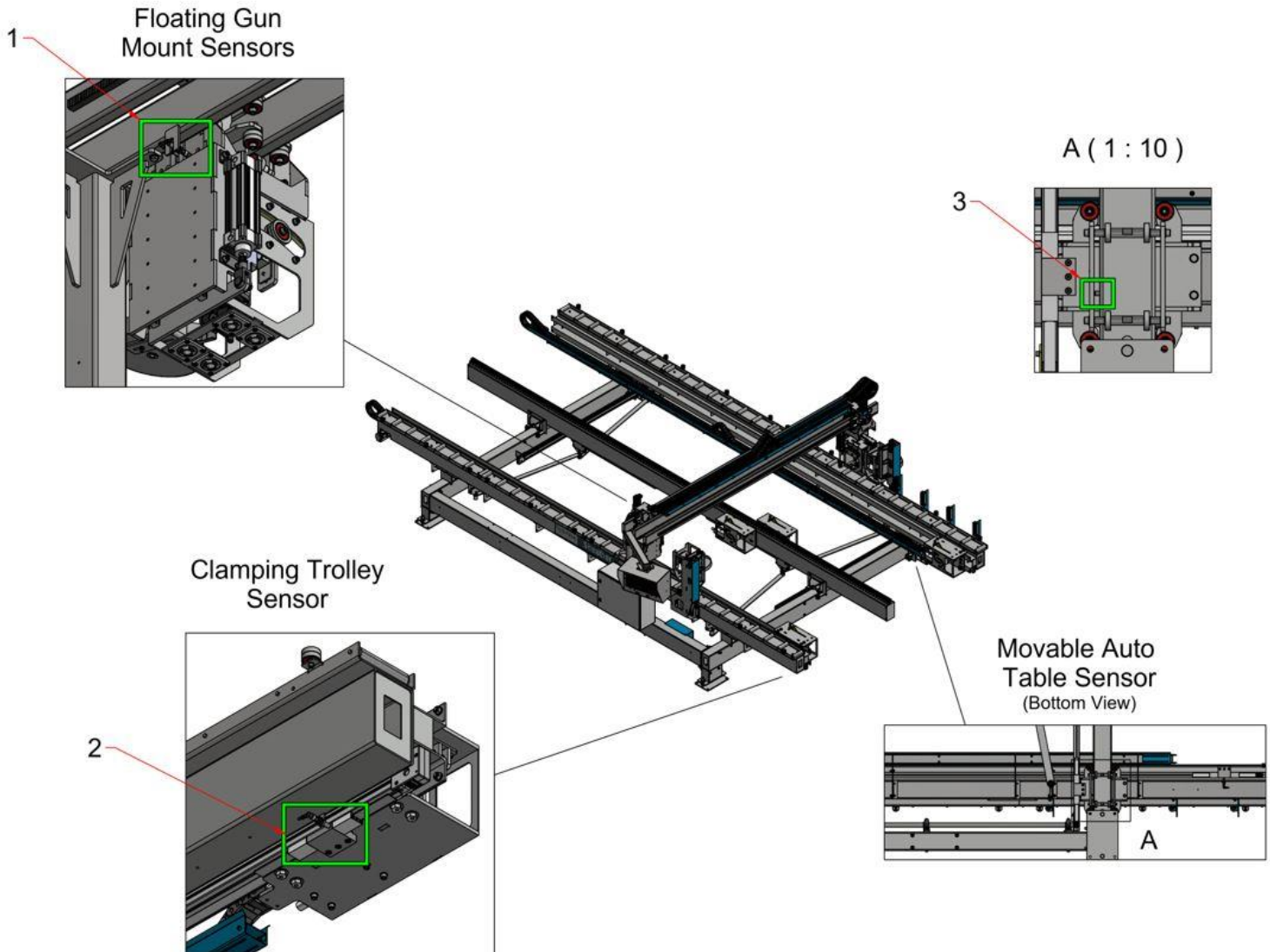


Figure 3, Spida Auto Sheather sensors

Table 6, Sensor Information (see Figure 3)

Sensor	Qty	Function	Location
1	2	Floating Gun Mount Sensor	Located on the left side of the Gun/Router beam
2	2	Clamping Trolley Sensor	Located on the front end of both Movable Tables
3	1	Movable Auto Table Sensor	Located on the inside front left end of the LHS Floating table rail



WARNING! Do not operate Spida Auto Sheather without the correct knowledge and function of each of the controls.

8.3 Pneumatic Controls

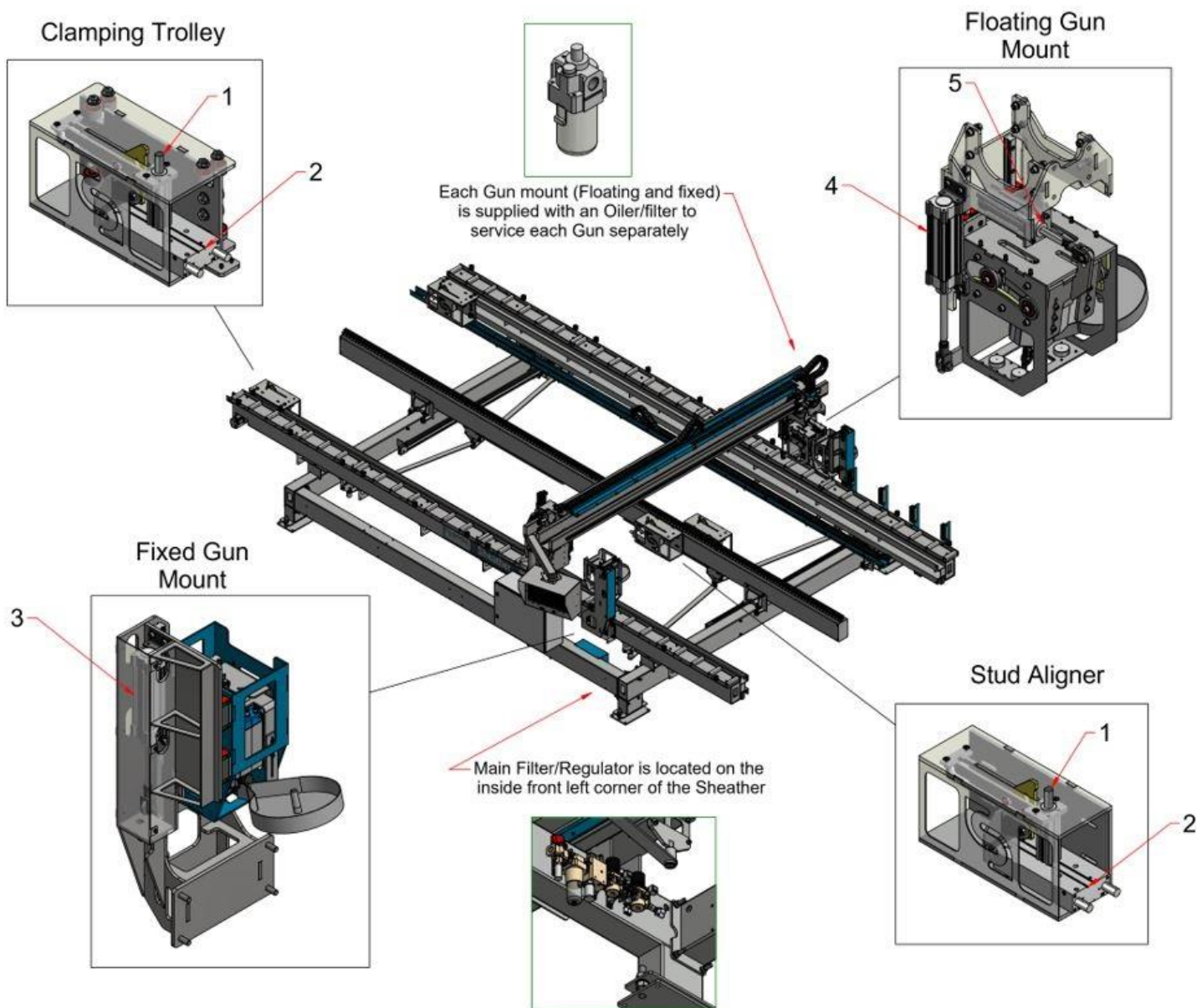


Figure 4, Wall Extruder pneumatic controls



WARNING! Do not operate Wall Extruder without the correct knowledge and function of each of the controls.

Table 7, Pneumatic Control functions (see Figure 4)

Control	Qty	Function	Description
1	4	Stud Pin	Moves vertically above/below the tops of the trolleys, to provide a guide for the frame/stud to be pushed against when required. Located on both Clamping trolleys (to locate frames) and both Stud aligners (to locate studs)
2	4	Horizontal Stud Clamp	Locks/releases stud horizontally, against the stud pin. Located on both Clamping trolleys, and both Stud aligners
3	2	Fixed Gun Extend	Moves the Gun vertically. Located on both Fixed Gun Mounts
4	2	Floating Gun Extend	Moves the Gun vertically. Located on both Floating Gun Mounts
5	2	Floating Gun Tilt	Tilts the Gun, in preparation for nailing joins. Guns on opposite floating mounts are tilted in opposite directions, to nail on both sides of the join. Tilts guns back to a vertical position once a join has been completed.



WARNING! Do not operate Wall Extruder without the correct knowledge and function of each of the controls.

8.4 Pneumatic filter/regulator/dump valve Assembly

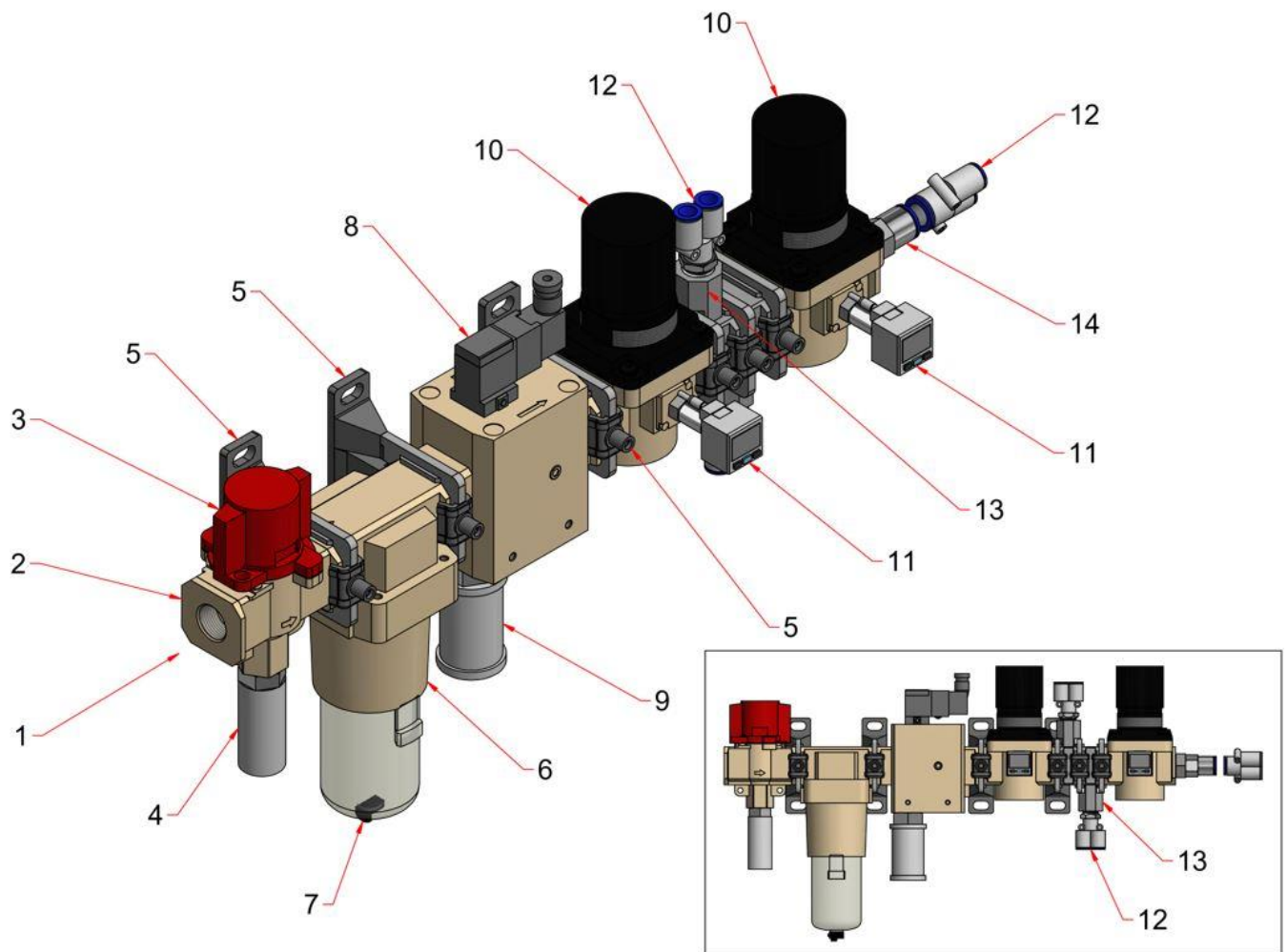


Figure 5, Valve/Filter/Regulator/Dump assembly

Table 8, Valve/Filter/Regulator/Dump parts (see Figure 5)

Control	Function
1	Air in
2	Pressure relief valve
3	Valve on/off
4	Silencer
5	Mounting bracket and spacer
6	Air Filter
7	Moisture release
8	Dump Valve
9	Silencer
10	Regulator Adjustment
11	Pressure gauge sensor
12	"Y" Union Air fitting
13	"T" shaped Spacer
14	Air to Sheather

9 Operation

NOTE: The Spida Auto Sheather 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 Spida Auto Sheather 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 Spida Auto Sheather and any adjacent machining area; or further down the framing line.
- Complete all safety checks required

Once the Sheather and the surrounding area are satisfactorily clear, the Spida Auto Sheather can be switched on.

9.2 General Operation

Once the machine has been turned on:

1. Wait until Clamping trolleys are in the home position, and have stopped moving
2. Move first frame into position behind the pins on the trolleys
3. If sheets have not already been pre-located, move sheets into position
4. Move to the computer and tell it to start operations.
5. Once the first frame has been finished, ensure trolleys are back in the home position, before moving the next frame into position.
6. Continue operations as required

Never get in the way of the Sheather while it is running. There should be no reason to enter the internal area of the Sheather.

- **Always keep hands clear of Nail guns, and Moving Frame path.**

9.3 Loading Frames and Sheets

When the frame comes in to be loaded into the Sheather, the sheathing sheets will either be pre-located, or will need to be put on once the frame is in place.

- If the sheets need to be put on, first make sure that frame is positioned ready to go, then place the sheets by laying them on top of the frame and pushing them up against the Fence bearing assemblies (See Figure 6). In doing this, the operator can be sure that the sheets are loaded straight and in line with the frame.

Before loading the frame onto the Sheather, ensure that the Clamping trolleys are in place within the starting area of the Sheather, and have come to a complete halt. The home position of the Clamping trolleys is at the end of the starting area (see Figure 6).

- The starting area reaches from the start of the Sheather, to just before the Fixed gun mount (see Figure 6). By having a larger area of the frame available, if the first couple of studs on the frame are not appropriate to be grabbed, then other stud options are still available for the Clamping trolleys to grab and move the frame with.

Once the trolleys are in place the pins on the trolleys pop up, and the frame can be moved along the rollers into position against the pins on both Clamping trolleys. **The frame can be moved from the side of the Sheather. There should be no reason to enter the starting area of the Sheather.**

Once the operator has the frame in position, they can go to the computer touch screen and tell the machine that the frame is ready to go.

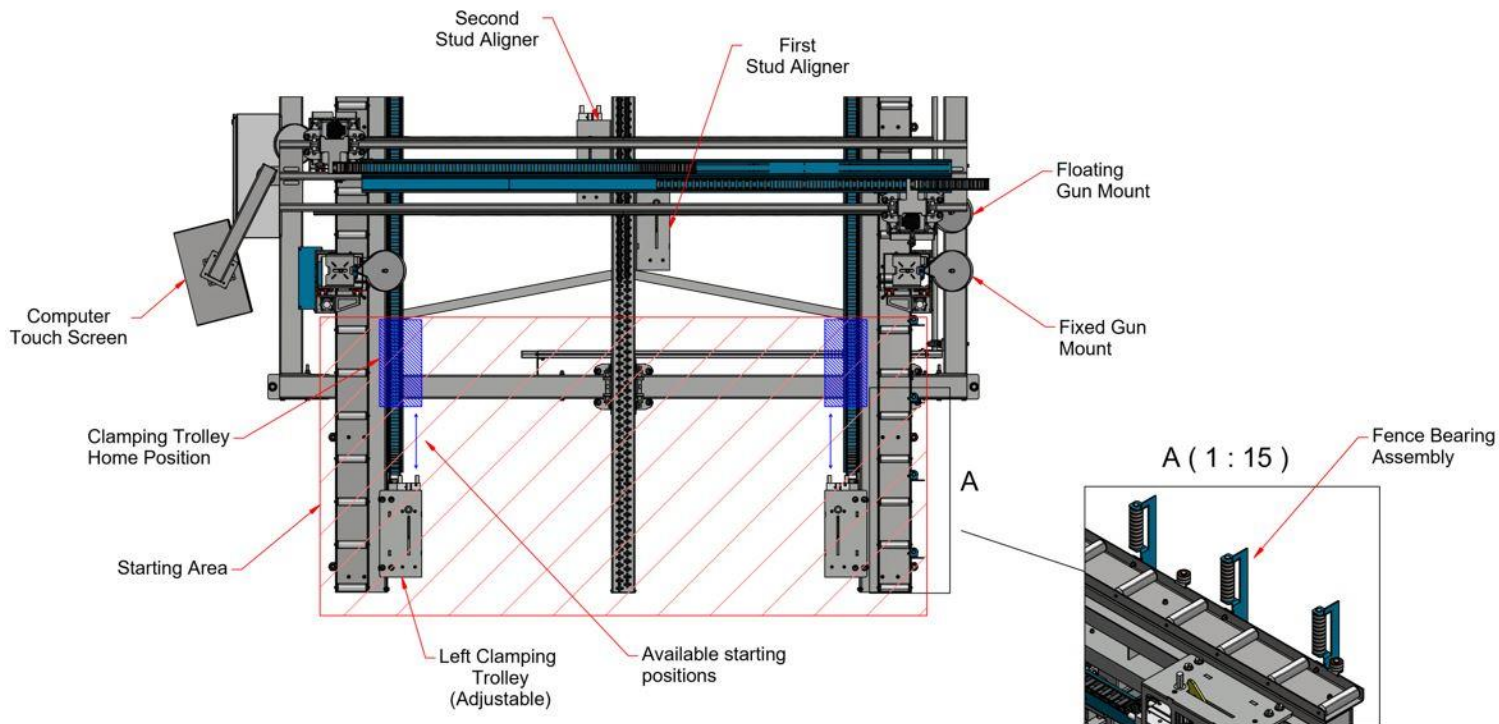


Figure 6, Clamping Trolley home position

Note: Operator must ensure they are familiar with their companies' individual loading/unloading procedures before nailing is commenced.

9.4 Trolleys

Note: All operations from this point are either automated or controlled through the computer.

Once the machine is told to go, the Clamping trolleys move to the appropriate stud and the clamps pop up, effectively grabbing the stud.

- From the home position, the Clamping trolleys can move within the starting area to grab whichever stud on the frame is determined to be the most appropriate.
- The pre-programmed information in the software allows the machine to determine which stud is appropriate and what the starting position of the Clamping trolleys needs to be to grab the stud.

The Clamping trolleys then pull the frame forward evenly, up to the second Stud aligner (see Figure 6).

Once the first stud in the frame is in-between the pin and the clamp on the second Stud aligner, the clamp on the Stud aligner automatically pops up, locking the stud in place, and aligning it with the clamping trolleys on either end; effectively straightening the stud, ready to be nailed.

9.5 Nailing

9.5.1 Floating Gun Mounts

Both Floating Gun mounts can move the length of the Gun/Router beam, nailing a stud the full width of the required frame. Each Stud aligner is set in combo with a Floating Gun mount, so that the stud clamped in a Stud aligner will be nailed using the paired Gun mount. The Stud aligners, as well as the nail guns within the Floating gun mounts, are set 16" apart.

The frame is continuously moved and then stopped at each stud point to nail either one or two studs at a time:

- **If the studs are 16" apart**, the clamps on both Stud aligners activate together, holding both studs straight. Both floating nails guns move along the width of the frame, nailing the sheet onto both studs.
- **If studs are not 16" apart**, the next stud to be nailed will be moved to the second Stud aligner, and only the clamp for the second Stud aligner will come on. Then only the nailer paired with that Stud aligner will nail the sheet along the width of the frame.

Other considerations when nailing:

- **If a window is being nailed**, the Floating gun mounts move around the window so that the sheet can be nailed to both the studs and plates around the window. The window position is pre-programmed into the computer software, so that the Floating Gun mounts can nail around the window while continuing to nail around the rest of the frame. Figure 7 shows a basic example of how the Floating Gun mounts would nail the window. First the stud at the top of the window is nailed; then both gun mounts nail down the plates, one on either side; finally, the stud at the bottom of the window is nailed.

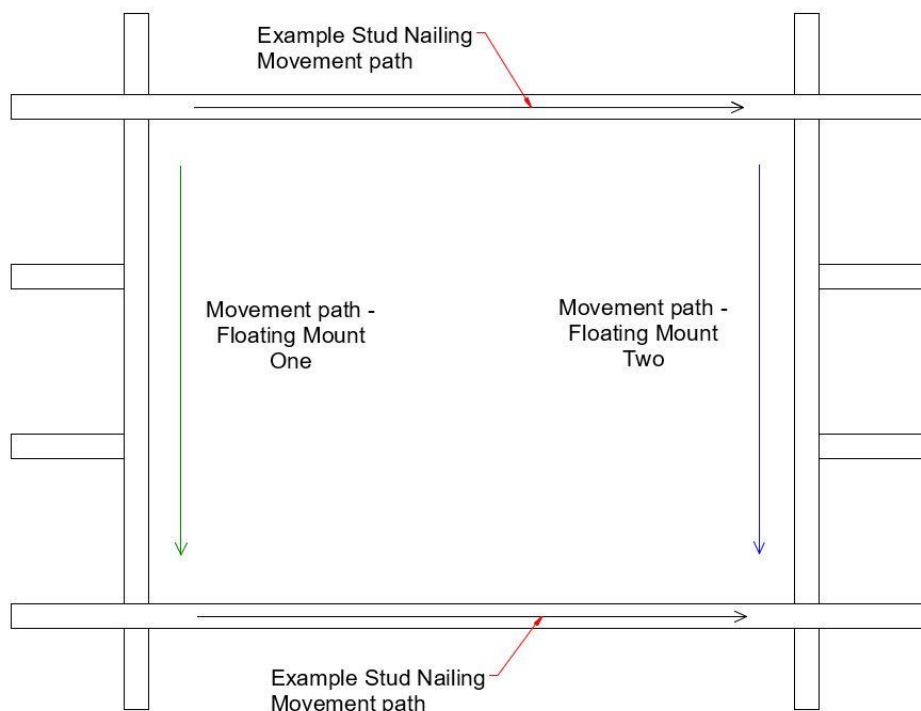


Figure 7, Example nailing of window

- **If there is a join**, the cylinders connected to the guns on the Floating mounts are activated (see Figure 4). This action tilts both guns in opposite directions towards the middle of the Gun/Router beam, nailing the sheets into the stud either side of the join (as seen in Figure 8).

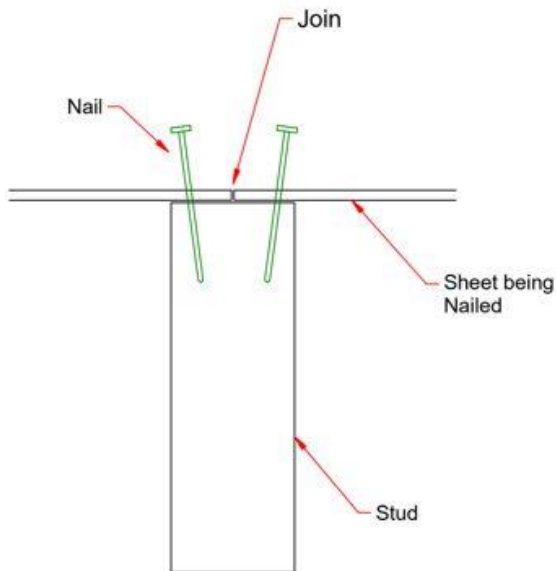


Figure 8, Nailing a sheet join

9.5.2 Fixed Gun Mounts

As the frame is moving down the line, the nail guns within the Fixed Gun mounts on either side automatically nail the sheets to the sides of the frames, in a pre-determined pattern.

This pattern is calculated by the software, and is determined for each frame based on where the nails need to be, how fast the frame is moving, how fast the guns can fire, etc.

9.5.3 General Nailing Information

The Floating Gun mounts are raised and lowered by cylinders on the side of the mounts (see Figure 4). The Gun mounts move up and down in between each frame, so that the frame can be easily moved in and out underneath.

On the approach of a new frame, the Gun mounts are raised and held above the level of the frame until the frame is underneath. The Gun mounts are then lowered onto the frame and sit on top of the sheet on roller balls.

These rollers allow the Gun mounts to:

- Be held in place without having to put air through the cylinders
- Roll with any contours/shapes of the sheet
- Stay in line with the stud.

As the end of the frame approaches, and stud nailing has finished, the Gun mounts are raised again to allow the frame to be removed.

9.6 Movable Auto tables

The left Auto table is movable, to allow for different frame sizes. This is automatically controlled by the software, which detects when a different frame size is needed and moves the Auto table to the required position.

- The movable auto beam has a fence pulley system on either end, which are both connected to the same shaft powered by a centralised motor. This allows for an even movement, as both ends are moved together.
- A Centering linkage connects both the outside Auto beams and the middle Support beam together. This ensures that the middle beam stays centred between both outside beams, no matter how close they get.

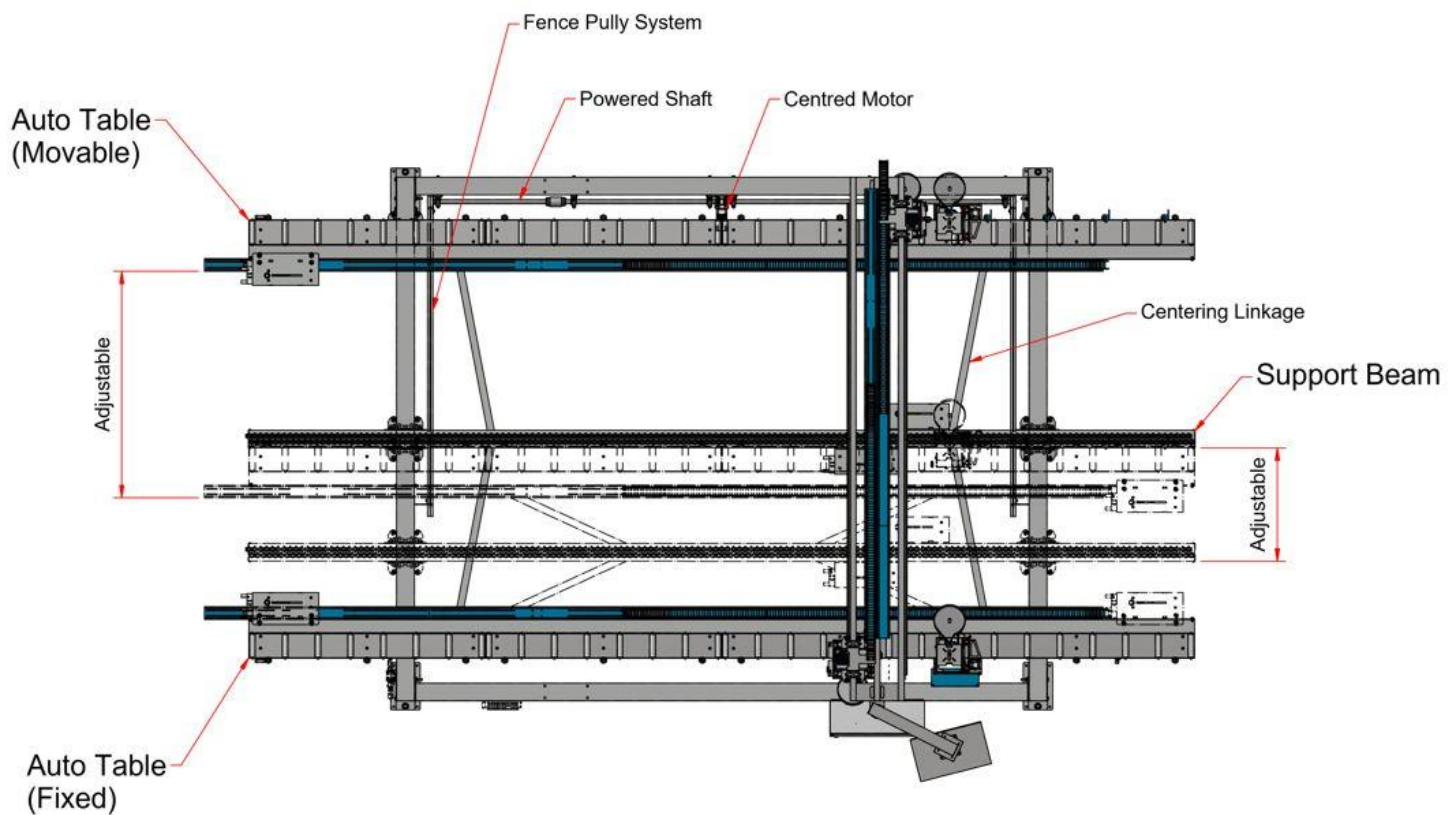


Figure 9, Moveable Auto Table

9.7 End of Sheather

Once the Clamping trolleys reach the end of the Sheather, one of two scenarios have occurred:

1. The frame is finished
2. The frame is longer than 4m

In both cases, the clamping trolleys move back along to the start, where they await the next stud to be clamped and moved along. Sensors on the front end of both Auto tables prevent the Trolleys from moving too far off either end of the Auto tables.

- If the frame is finished, the Clamping trolleys will move back to their home position and will wait until the next frame is in place, and the operator tells the machine to start again.
- If the same frame is still being completed, the Clamping trolleys move back down and grab the next/appropriate available stud. Once the appropriate stud is in place, the trolleys grab the stud, and continue moving the frame down the line as required.

When a frame is finished the Sheather will automatically move the frame off to the next appropriate area. As this is a fully automated machine, all the operator is required to do is load each frame as directed by the computer, and then tell the machine to start once the frame is in place.

9.8 Air Dump

In an emergency; when disconnecting the air supply; or when performing any maintenance, the air must be dumped from the system. Dump any air in the system using the dump valve (see Figure 5, item 8).

9.9 Machine Shut-down

Once operations are complete, ensure that the Spida Auto Sheather is switched off and any foreign tools/equipment are removed. The correct shut-down procedure is as follows:

- Exit Spida Machinery Software, then shut down computer from Windows start-menu
- When screen turns off, switch off main power to Spida Auto Sheather
- Lock main isolator if someone is conducting maintenance



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

10 Parts Identification

10.1 Top Level Assembly (1714000)

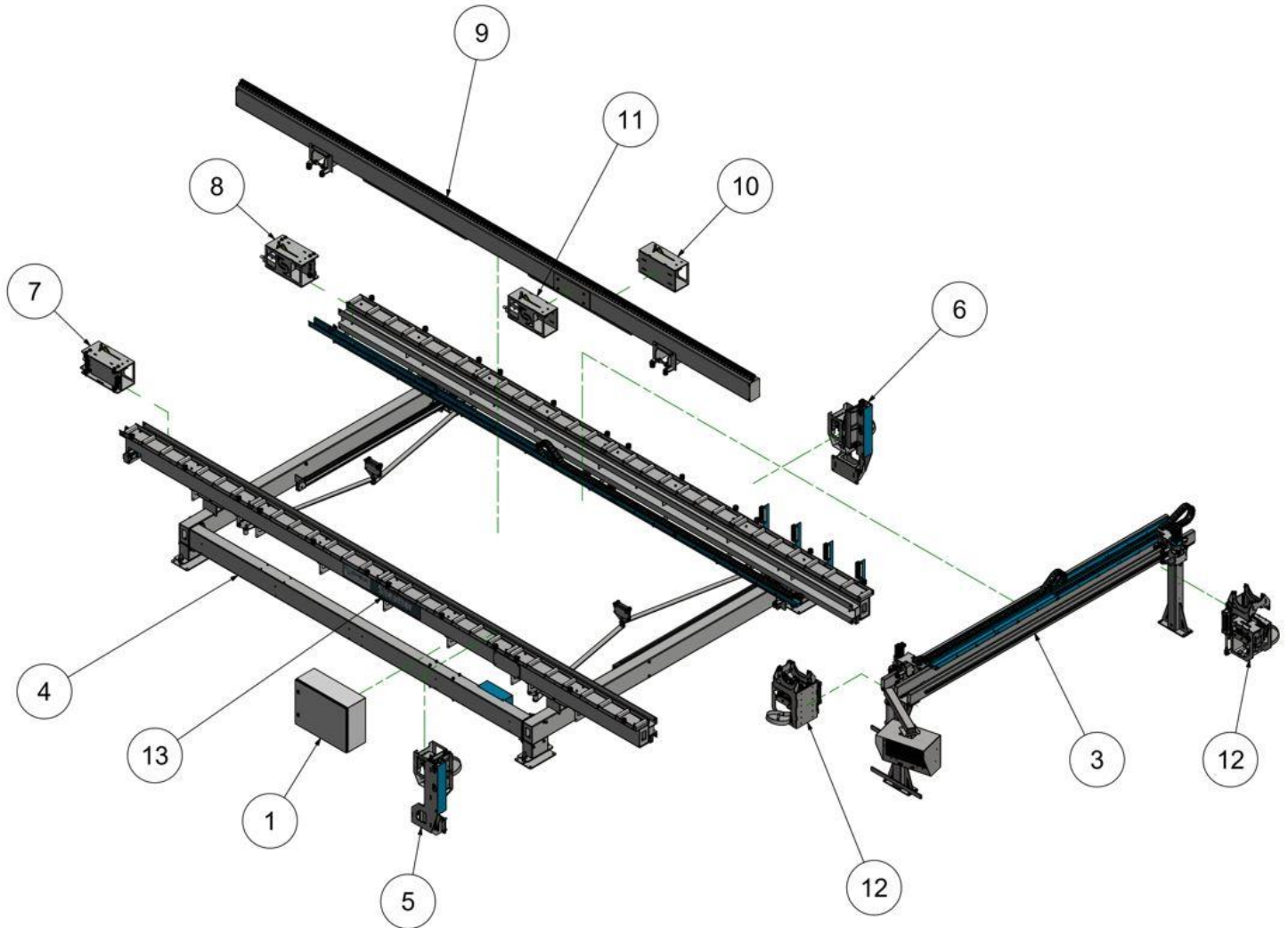


Figure 10, Spida Auto Sheather with guns

Table 9, Parts List – Spida Auto Sheather

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1714000 - EK	Sheather - Electrical Kit
2	1	1714000 - PK	Sheather - Pneumatic Kit
3	1	1714100	Sheather - Gun/Router Beam
4	1	1714200	Sheather - Auto Table
5	1	1714300 - L	Sheather - Fixed Gun Mount (LHS)
6	1	1714300 - R	Sheather - Fixed Gun Mount (RHS)
7	1	1714400 - L	Sheather - Clamping Trolley (RHS)
8	1	1714400 - R	Sheather - Clamping Trolley (LHS)
9	1	1714500	Sheather - Support Beam Assembly
10	1	1714700 - L	Sheather - Stud Aligner (LHS)
11	1	1714700 - R	Sheather - Stud Aligner (RHS)
12	2	1714800	Sheather - Floating Gun Mount
13	2	SMPDEC049	SMPDEC049 Sheather 1200x200 SPIDA

Depending on customer requirements, the Sheather can be supplied with different guns.

10.2 Sheather – Gun/Router Beam (1714100)

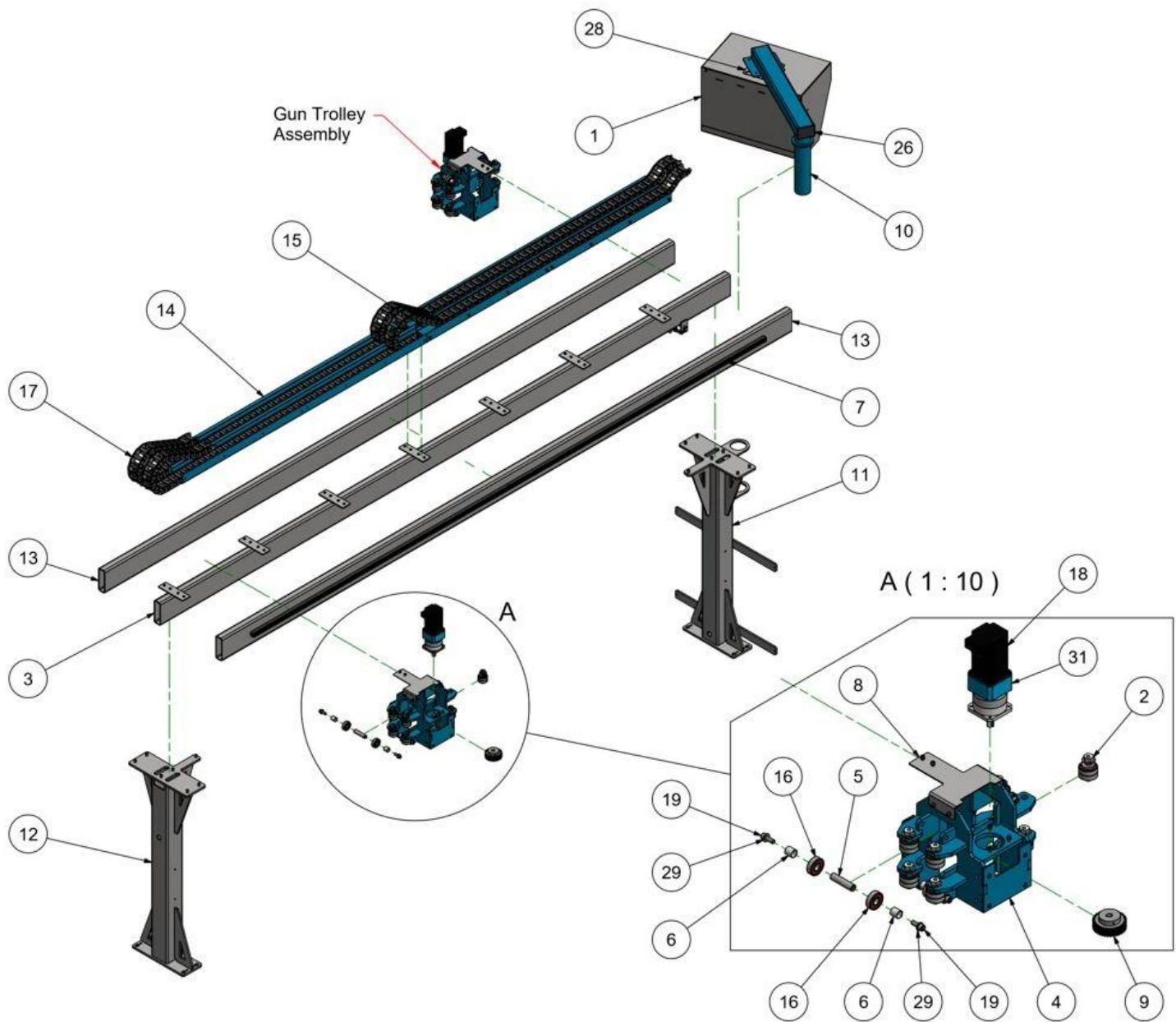


Figure 11, Gun/Router Beam

Table 10, Gun/Router Beam parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	0609000	Multi Monitor Assembly
2	16	1711400	Carriage Guide Wheel Assembly - Vertical
3	1	1714101	Gun Bridge - Energy Chain Rail (Welded Assembly)
4	2	1714102	Gun Carriage - Welded Assembly
5	8	1714103	Gun Carriage Shaft
6	16	1714104	Gun Carriage Spacer
7	4	1714105	Gun Trolley Rack - Mod 2.5
8	2	1714106	Energy Chain Bracket
9	2	1714107	Gun Trolley Pinion
10	1	1714108	Sheather - Monitor Support
11	1	1714109 - L	Gun Bridge - Leg Electrical (Welded Assembly)
12	1	1714109 - R	Gun Bridge - Leg (Welded Assembly)
13	2	1714110	Gun/Router Bridge - Rail
14	4	5005409	Energy Chain Tray
15	4	5005410	Energy Chain Tray Guide
16	16	BRG6304DD	Bearing 52 x 20 x 15
17	4.800 m	EEC-2500050750	Igus Energy Chain 2500 E2/000 30x60mm
18	2	EMBLY343160V5K	Motor BLY343D
19	16	HWCSM1230	Hex Socket Head Cap Screw M12x30
20	28	HWCSM612BH	Button Head Cap Screw M6x12
21	52	HWCSM620	Hex Socket Head Cap Screw M6x20
22	32	HWCSM825	Hex Socket Head Cap Screw M8x25
23	14	HWHBM1230	Hex bolt M12x30
24	4	HWHBM612	Hex bolt M6x12
25	32	HWNSM6	Nutsert M6
26	2	HWPPRHS10075	Rectangular Plastic Plug 100x75 #440
27	2	HWSNBM762	Snap Bushing - Panel hole Dia 76.2mm #279
28	1	HWSWM685	BLA Boat Seat Swivel #9029871
29	30	HWWFM12	Flat washer M12
30	84	HWWFM616	Washer - Flat - M6ZP
31	2	TRGB-0901-NS-010-12-16	Gearbox - 34 Motor - 12mm input 16mm output

10.3 Sheather – Auto Table (1714200)

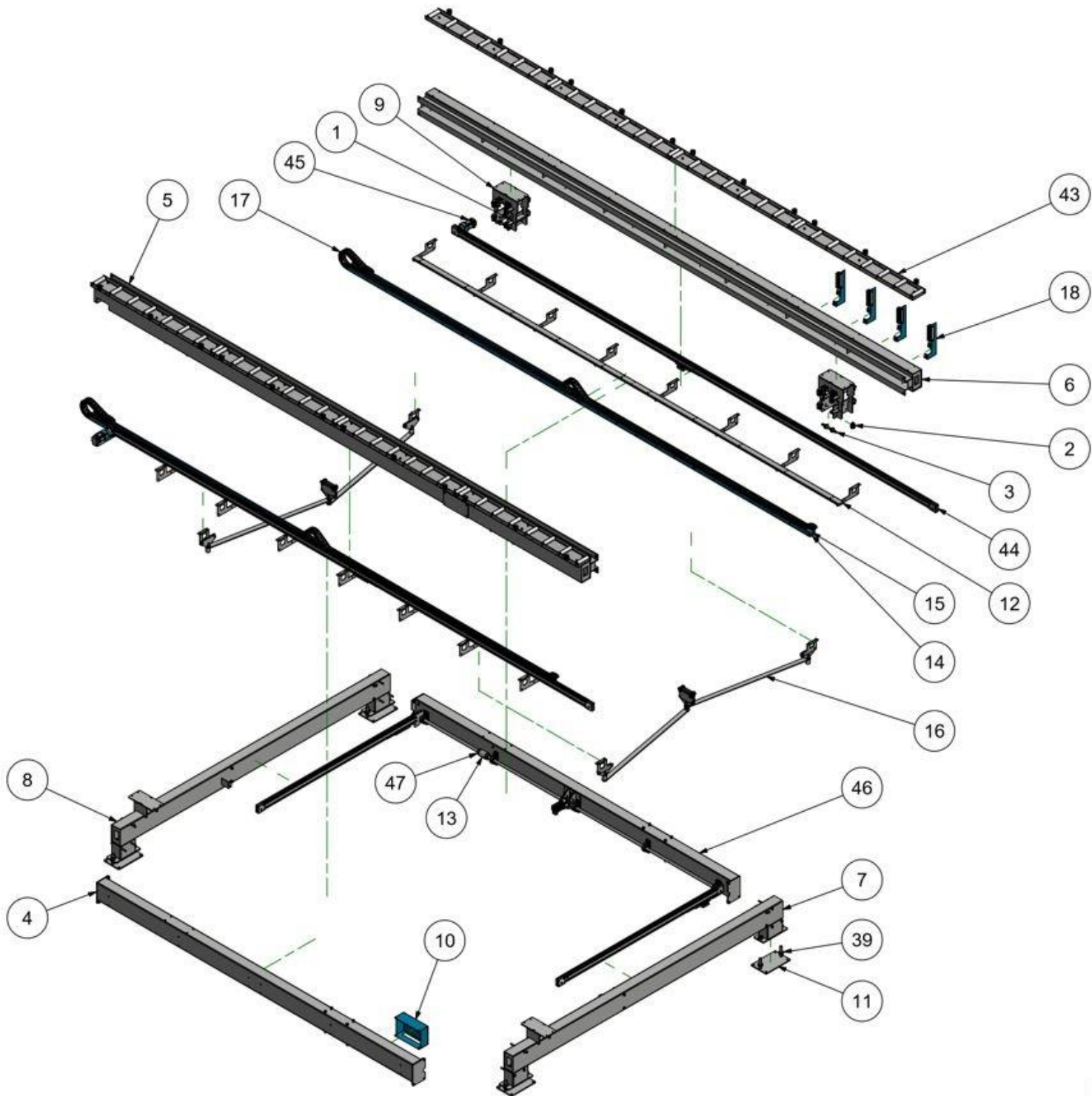


Figure 12, Auto Table

Table 11, Auto Table parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	1711306	Rack Support Shaft
2	16	1711400	Carriage Guide Wheel Assembly - Vertical
3	8	1711500	Carriage Guide Wheel Assembly- Horizontal
4	1	1714201	Spreader Rail -Welded Assembly
5	1	1714202 - L	Auto Table - LHS - Welded Assembly
6	1	1714202 - R	Auto Table - RHS - Welded Assembly
7	1	1714203 - L	Floating Table Rail (LHS) - Welded Assembly
8	1	1714203 - R	Floating Table Rail (RHS) - Welded Assembly
9	2	1714205	Floating Table Trolley - Welded Assembly
10	1	1714206	Sheather Pneumatic Cover
11	4	1714207	Sheather Foot
12	2	1714222	Energy Chain Support Rail (Welded Assembly)
13	1	1714224	Tapper Lock Boss
14	8	5005409	Energy Chain Tray
15	8	5005410	Energy Chain Tray Guide
16	2	Centering Linkage	See assembly breakdown below
17	12.200 m	EEC-2500050750	Igus Energy Chain 2500 E2/000 30x60mm
18	4	Fence Bearing Assembly	See assembly breakdown below
19	64	HWCSM610	Hex Socket Head Cap Screw M6x10
20	4	HWCSM620BH	Button Head Cap Screw M6x20
21	44	HWCSM640BH	Hex Socket Button Head Cap Screw - M6x40
22	20	HWCSM820	Hex Socket Head Cap Screw M8x20
23	12	HWHB16220	Hex Bolt M16x220
24	8	HWHB16300	Hex Bolt M16x300
25	2	HWHBM1030	Hex bolt M10x30
26	8	HWHBM1225	Hex bolt M12x25
27	16	HWHBM1230	Hex bolt M12x30
28	8	HWHBM16180	Hex Bolt - M16x180 HTZP
29	2	HWNHM10	Hex nut M10
30	8	HWNHM12	Hex nut M12
31	28	HWNHM16	Hex nut M16
32	16	HWNHM30	Hex Nut M30
33	44	HWNHM6	Hex nut M6
34	4	HWNNM6	M6 Nyloc Nut - Zinc
35	16	HWNSM6	Nutsert M6
36	4	HWWFM10	Washer Flat M10
37	32	HWWFM12	Flat washer M12
38	56	HWWFM16	Flat Washer M16
39	16	HWWFM30	Flat Washer M30
40	160	HWWFM616	Washer - Flat - M6ZP
41	20	HWWFM816	Flat Washer M8
42	20	MT21.1351/2	M8 Sq Nut - Posn Fixing
43	8	Rollcage Assembly	See assembly breakdown below

44	2	SMPGPFA7740	Fence assembly
45	2	SMPGPGK1	Motor/gearbox kit - Straight box
46	1	Side Clamp Assembly	See assembly breakdown below
47	2	TRTLK110035X047	Tapper Lock Assembly

10.3.1 Fence Assembly (Example length - SMPGPFA6500)

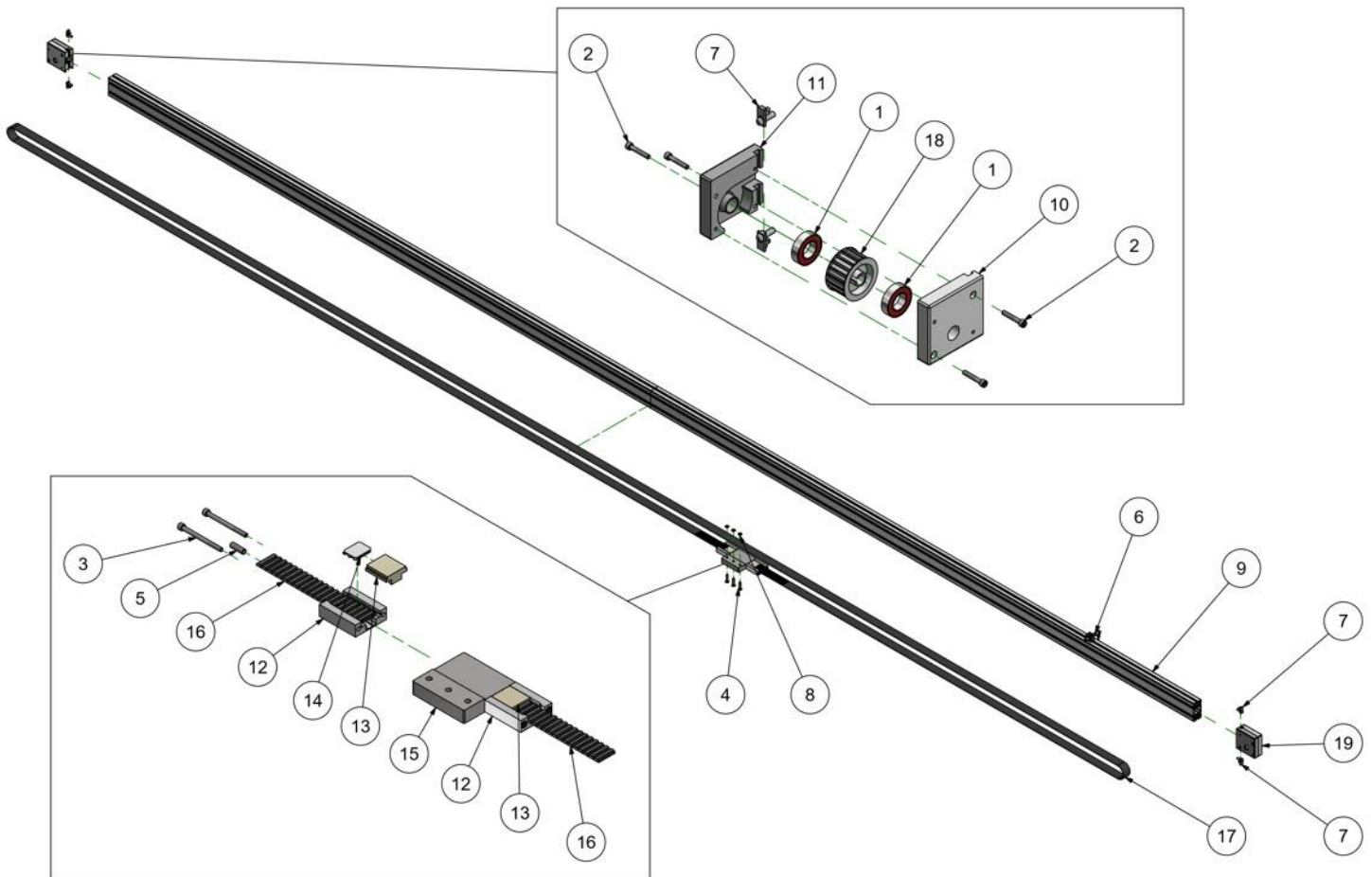


Figure 13, Fence Assembly

Note: SMPGPFA6500 has the same parts and configuration as SMPGPFA7740 and SMPGPFA2500; the only difference is the length

Table 12, Fence Assembly Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION	
1	4	BRG6005DD	Bearing 47x25x12	
2	8	HWCSM635	Hex Socket Head Cap Screw M6x35	
3	4	HWCSM675	Hex Socket Head Cap Screw M6x75	
4	3	HWCSM835CS	Hex Socket CSK Cap Screw M8x35	
5	2	HWSSM825	Hex socket set screw M8x25	
6	1	IME12-04BPSZCOS	SICK, Proximity Sensor	
7	4	MT21-1018	Power Lock Fasteners	
8	3	MT21-1351	M8 Sq Nut - Posn Fixing	
9	6500 mm	SMPGP9045	Guide Profile	
10	2	SMPGPPBa	Pulley Block part 1	
11	2	SMPGPPBb	Pulley Block part 2	
12	2	SMPGPTB - 01	Belt tensioner body	Part of Assembly SMPGPTB
13	2	SMPGPTB - 03	Tension block slider	
14	2	SMPGPTB-02	Tension block insert	
15	1	SMPGPTC	Tensioner connector	
16	2	TRTIB-AT10-32	Timing Belt AT 10/32	
17	1	TRTIB-AT10/32	Timing Belt AT10/32	
18	2	TRTIP19AT1032F-BF A	19 Tth Pulley AT10 x 32mm belt 16mm Bore bearings inset	
19	2	SMPGPPB45	Pulley Block assembled	

10.3.2 Guide Profile Gearbox Kit (SMPGPGK1)

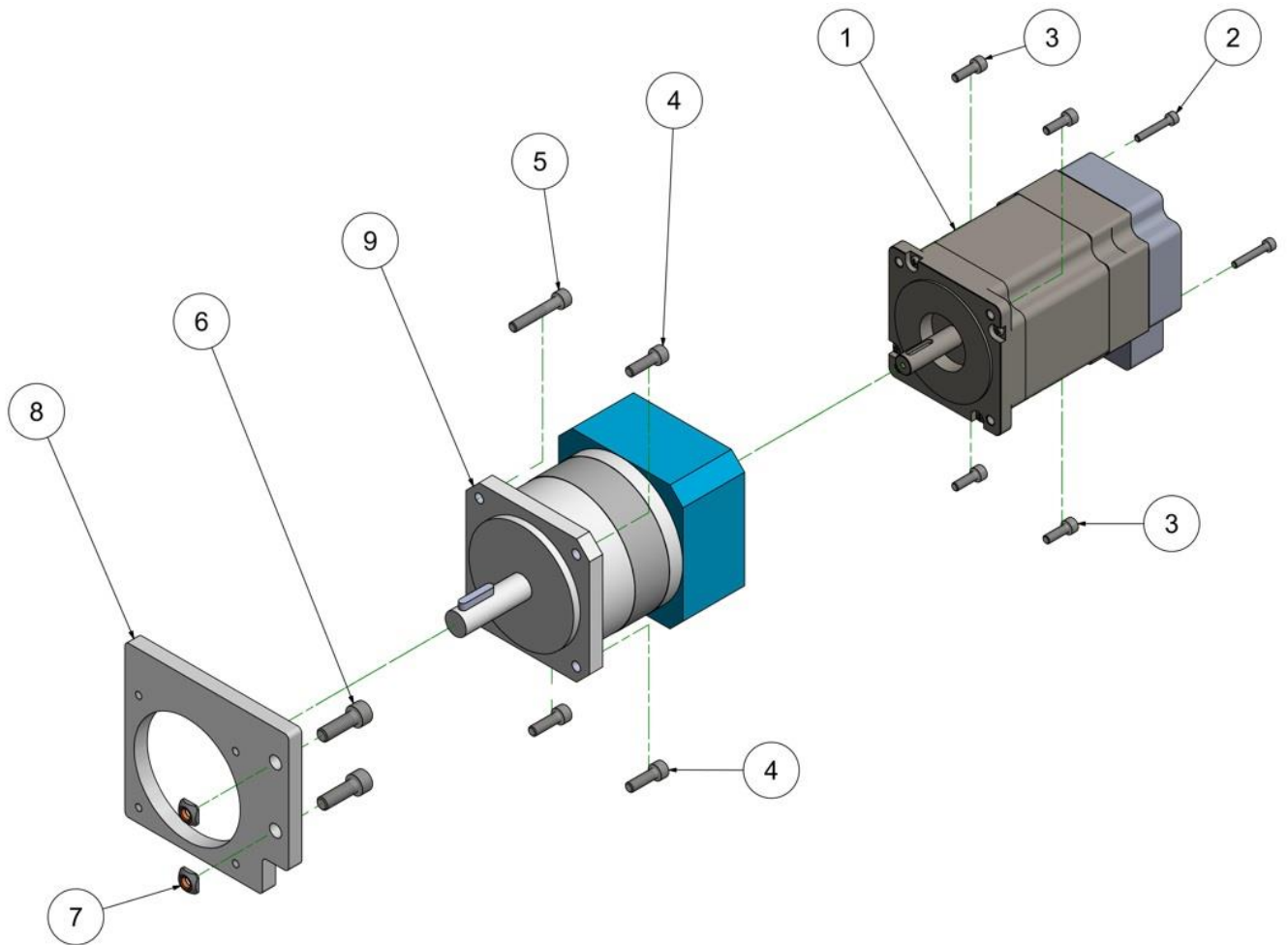


Figure 14, Gearbox Motor Assembly

Table 13, Gearbox Motor Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	EMBL343160V5K	BLY3473D Brushless 5000RPM 160VDC 440W Motor Complete
2	2	HWCSM425	Hex Socket Head Cap Screw M4x25
3	4	HWCSM516	Hex Socket Head Cap Screw M5x16
4	3	HWCSM620	Hex Socket Head Cap Screw M6x20
5	1	HWCSM635	Hex Socket Head Cap Screw M6x35
6	2	HWCSM825	Hex Socket Head Cap Screw M8x25
7	2	MT21-1351	M8 Sq Nut - Posn Fixing
8	1	SMPPLT20	Mount Plate GB to Guide Profile
9	1	TRGB0901-NS-010-12-16	Gearbox - 34 Motor - 12mm input 16mm output

10.3.3 Side Clamp Assembly

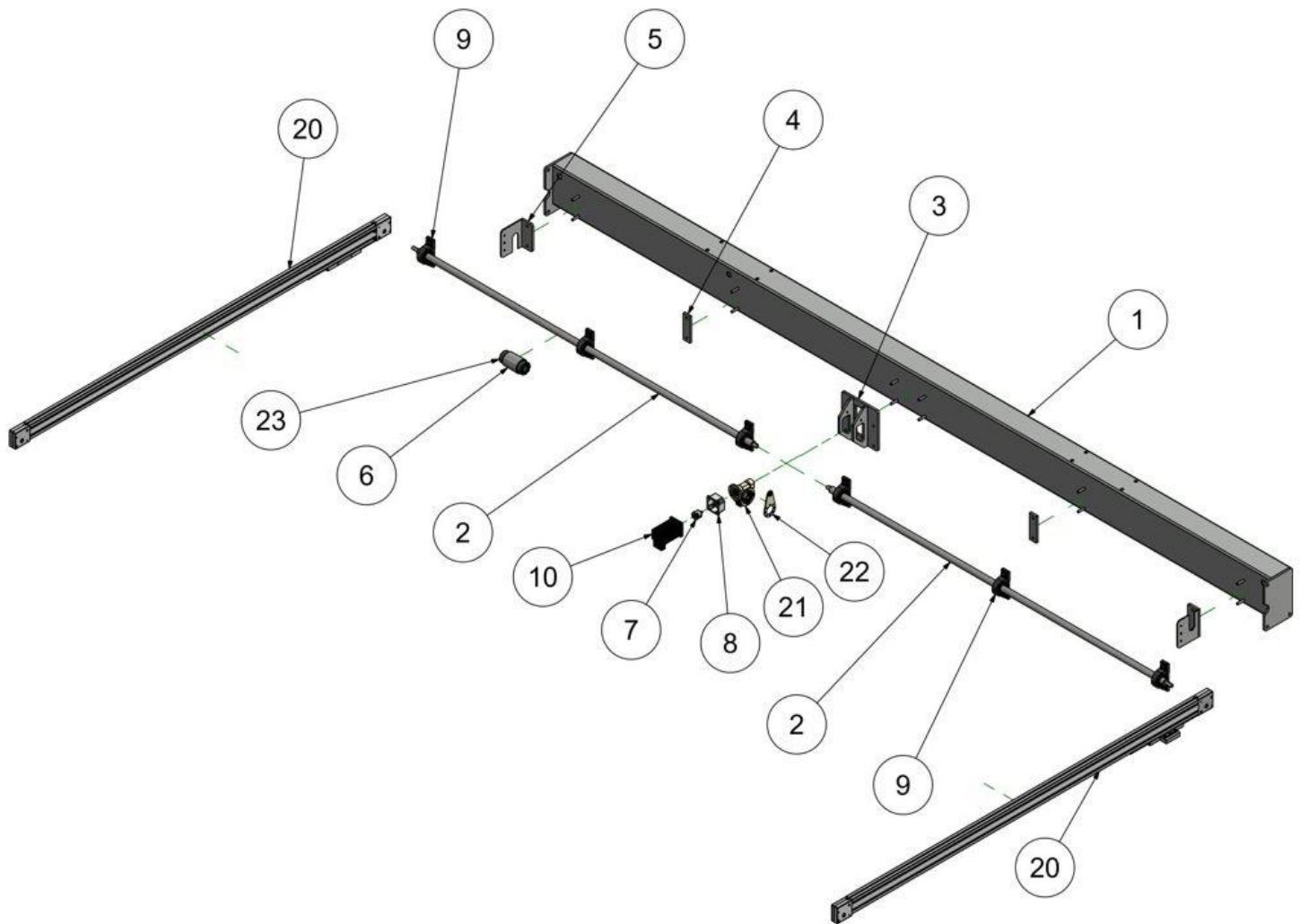


Figure 15, Side Clamp Assembly

Table 14, Side Clamp Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1714201	Spreader Rail -Welded Assembly
2	2	1714208	Clamping Shaft
3	1	1714210	Clamping Ram Mount - Welded Assembly
4	2	1714211	Pillow Block Spacer
5	2	1714212	Pinion Mount - Welded Assembly
6	1	1714224	Tapper Lock Boss
7	1	6402305	Gearbox to Motor Adapter Shaft
8	1	6402307	Gearbox to Motor Housing
9	6	BRGUCPL207	Pillow Block Bearing - UCPL207
10	1	EMBLY343160V5K	Motor BLY343D
11	2	HWCSM525	Hex Socket Head Cap Screw M5x25
12	4	HWCSM820	Hex Socket Head Cap Screw M8x20
13	12	HWHBM12200	Hex Bolt M12x200
14	12	HWNHM12	Hex nut M12
15	24	HWWFM12	Flat washer M12
16	4	HWWFM816	Flat Washer M8
17	4	MT21.1351/2	M8 Sq Nut - Posn Fixing
18	35.000 mm	RMSKM5	Key Steel M5
19	20.000 mm	RMSKM6	Key Steel M6
20	2	SMPGPFA2500	Fence assembly
21	1	TRGB-VF44-P1-100-P63-B14-B3	VF44 Gearbox 1:100
22	1	TRTAVF44	VF44 Gearbox Torque Arm
23	2	TRTLK110035X047	Tapper Lock Assembly

10.3.4 Rollcage Assembly

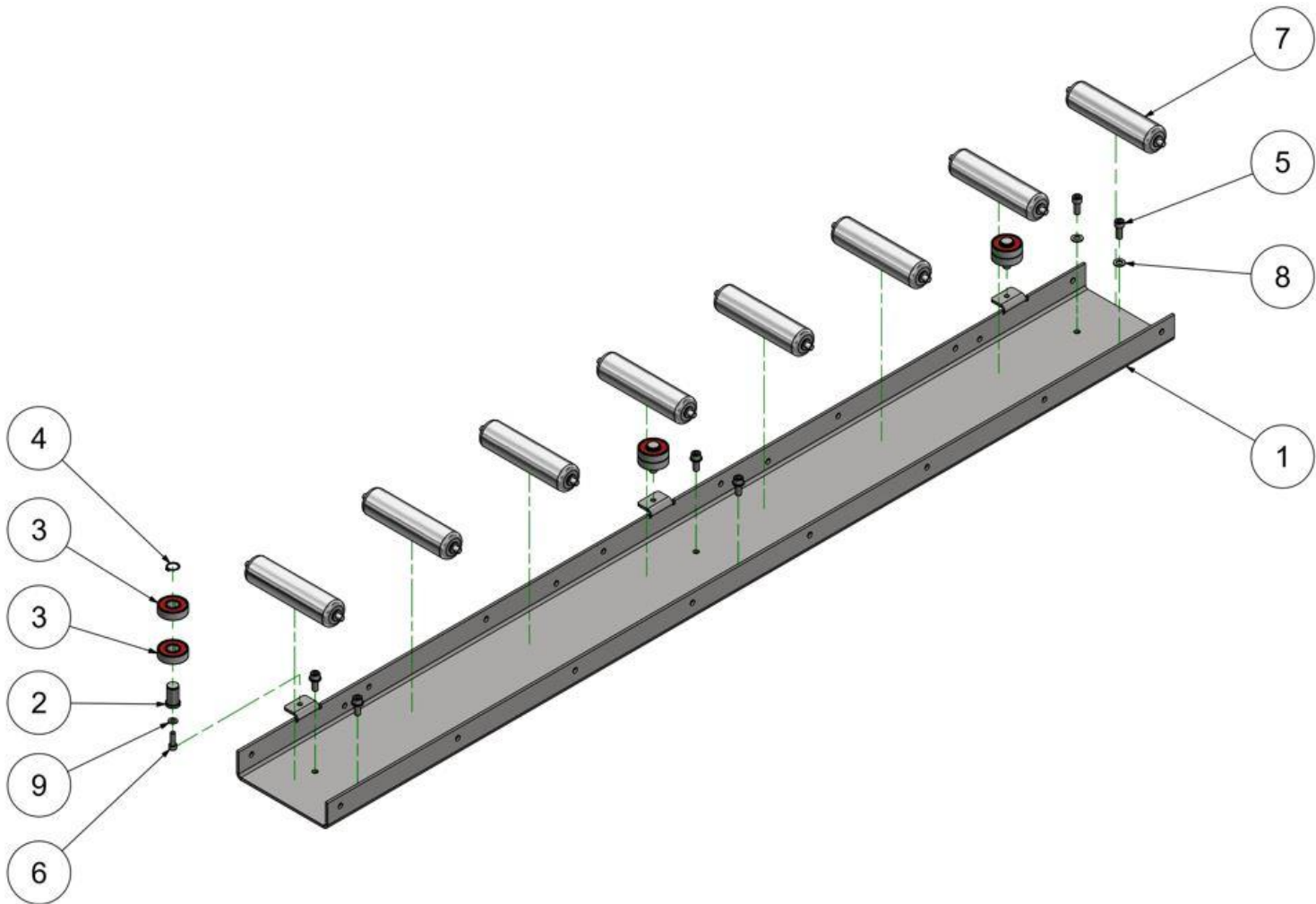


Figure 16, Rollcage Assembly

Table 15, Rollcage Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1714204	Roll Case - 5mm MS Folded Profile
2	3	1714221	Fence Bearing Shaft
3	6	BRG6304DD	Bearing 52 x 20 x 15
4	3	HWCCXM20	20mm External Circlip
5	6	HWCSM1025	Hex Socket Head Cap Screw M10x25
6	3	HWCSM825	Hex Socket Head Cap Screw M8x25
7	8	HWRSD50198	Roller - Steel 50x198
8	6	HWWFM10	Washer Flat M10
9	3	HWWFM816	Flat Washer M8

10.3.5 Fence Bearing Assembly

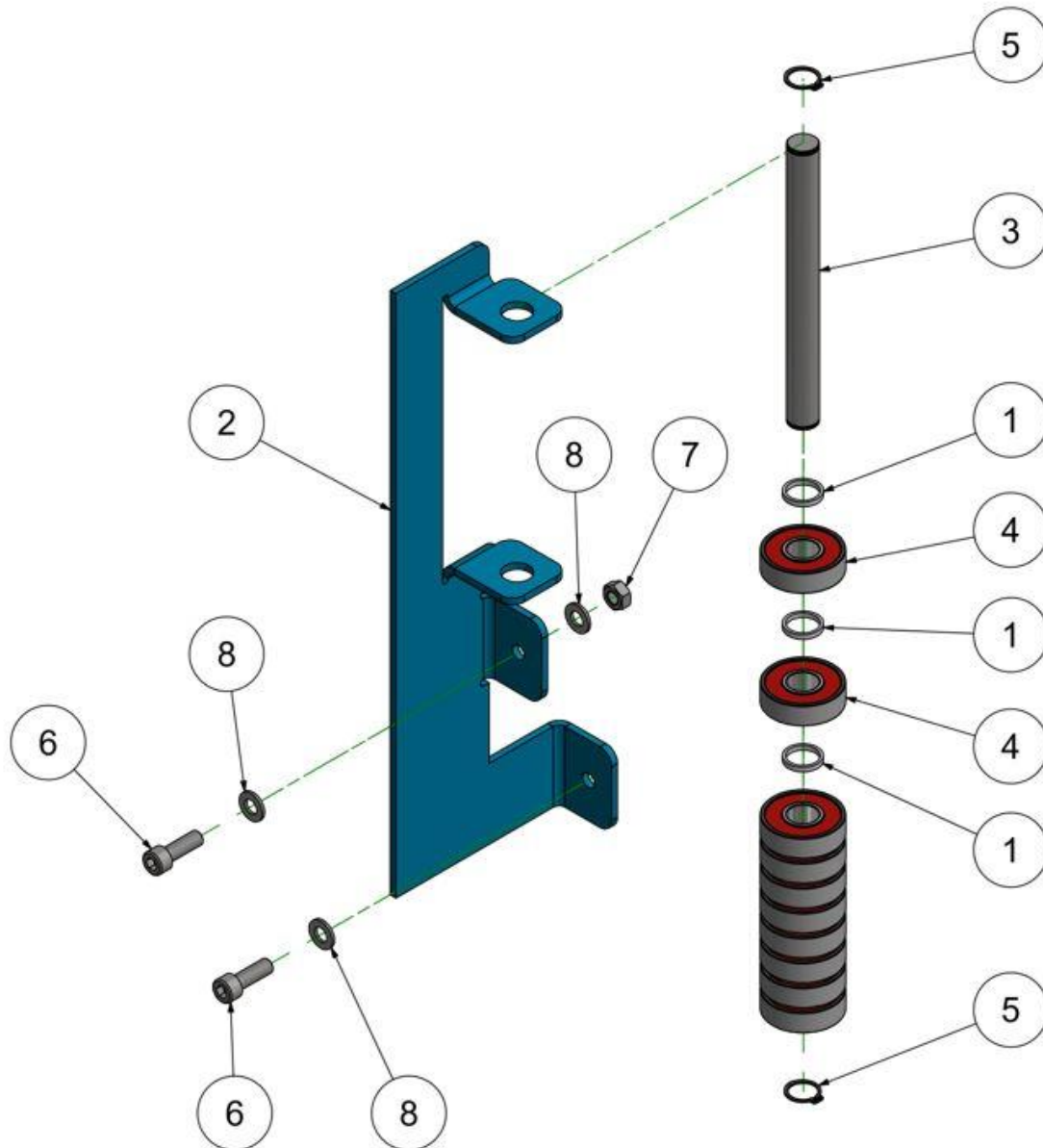


Figure 17, Fence Bearing Assembly

Table 16, Fence Bearing Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	11	1714216	Spacer - 20mm Shaft - 3.5mm
2	1	1714219	Fence Bearing Bracket
3	1	1714220	Fence Bearing Shaft
4	10	BRG6304DD	Bearing 52 x 20 x 15
5	2	HWCCXM20	20mm External Circlip
6	2	HWCSM1030	Hex Socket Head Cap Screw M10x30
7	1	HWNHM10	Hex nut M10
8	3	HWWFM10	Washer Flat M10

10.3.6 Centering Linkage

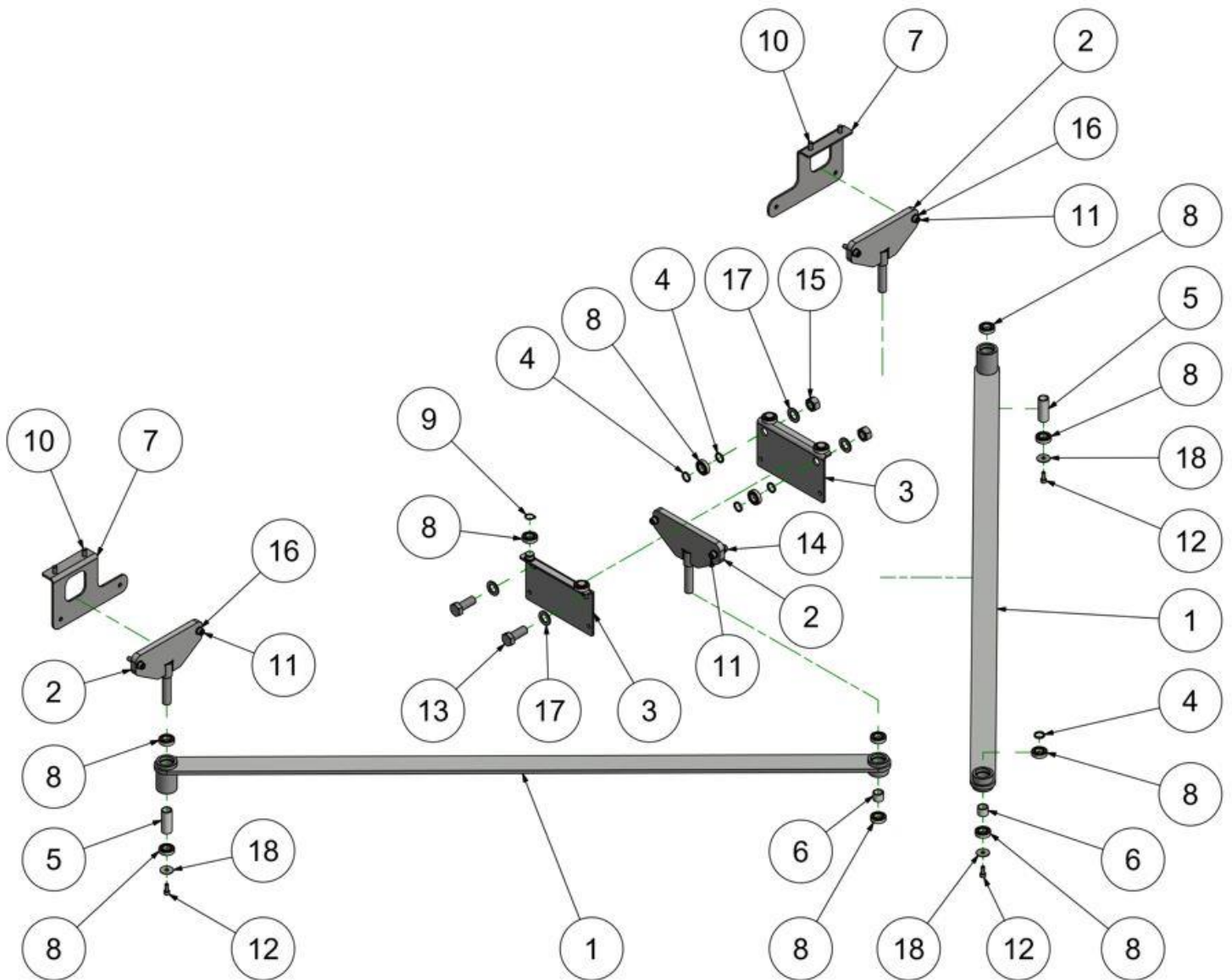


Figure 18, Centering Linkage

Table 17, Centering Linkage parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	1714213	Centering Linkage - Linkage (Welded Assembly)
2	3	1714214	Centering Linkage - Pin (Welded Assembly)
3	2	1714215	Centering Linkage - Trolley (Welded Assembly)
4	5	1714216	Spacer - 20mm Shaft - 3.5mm
5	2	1714217	Spacer - 20mm Shaft - 60mm
6	2	1714218	Spacer - 20mm Shaft - 20.25mm
7	2	1714223	Centering Linkage Bracket
8	14	BRG6904DDU	Bearing 37 x 20 x 9
9	4	HWCCXM20	20mm External Circlip
10	4	HWCSM1025	Hex Socket Head Cap Screw M10x25
11	6	HWCSM1040	Hex Socket Head Cap Screw M10x40
12	3	HWCSM820	Hex Socket Head Cap Screw M8x20
13	2	HWHBM2050	Hex Bolt - M20x50 HTZP
14	6	HWNHM10	Hex nut M10
15	2	HWNHM20	Hex Nut M20
16	16	HWWFM10	Washer Flat M10
17	4	HWWFM20	Plain Washer M20
18	3	HWWFM832	Washer M8x32 #WM10212

10.4 Sheather – Fixed Gun Mount (LHS and RHS) (1714300 L & R)

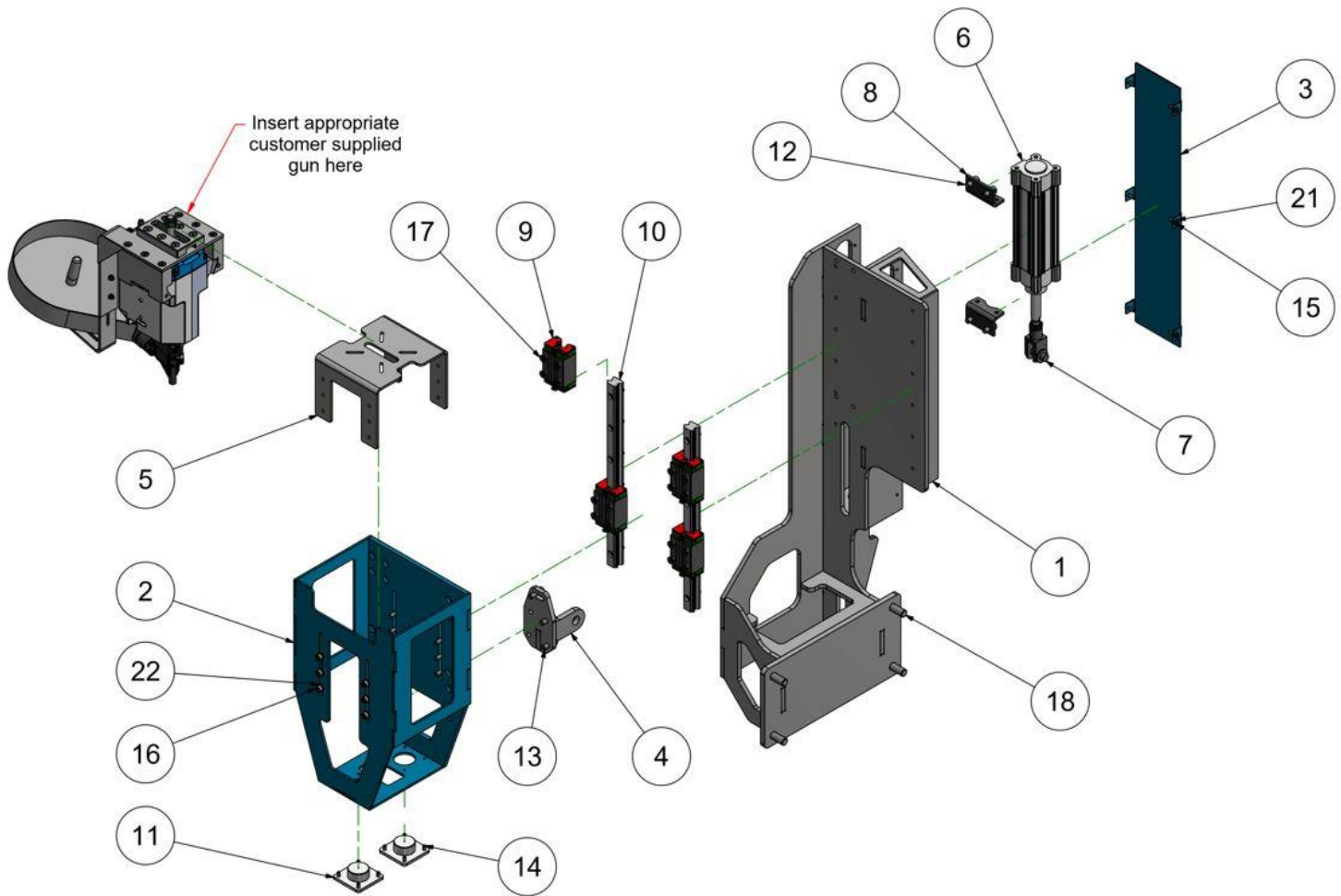


Figure 19, Fixed Gun Mount (LHS and RHS)

Note: The gun requirements for each machine will differ between customers; therefore, the guns used in this drawing are a placeholder only. For more information on the guns please refer to the manufacturers handbook.

Table 18, Fixed Gun Mount (LHS and RHS) parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1714301 - R	Fixed Gun Linear Bearing Mount - Welded Assembly (RHS)
2	1	1714302	Fix Gun Vertical Carriage - Welded Assembly
3	1	1714303	Fixed Gun Cover
4	1	1714304	Gun Mount Ram End
5	1	1714808	Gun Mounting Bracket
6	1	ACCP96SDB63-160C	CP96S_C/CP96SD_C-ISO Cylinder: Standard Double Acting
7	1	ACGKM16-32	CP96/C96_GKM-Rod Clevis
8	2	ACL5063	CP96/C96-L-Foot
9	4	BRGLB-HGH-30CA	HGH30CA Linear Bearing block
10	2	BRGLR-HGH30-460-30-80-30	HGH30CA Linear Bearing Rail
11	2	HWBCMS30	Ball Castor - Omnitrack MS30
12	4	HWCSM1020	Hex Socket Head Cap Screw M10x20
13	3	HWCSM1025	Hex Socket Head Cap Screw M10x25
14	8	HWCSM616CS	Hex Socket CSK Cap Screw M6x16
15	6	HWCSM620BH	Button Head Cap Screw M6x20
16	24	HWCSM825	Hex Socket Head Cap Screw M8x25
17	16	HWCSM830CS	Hex Socket CSK Cap Screw M8x30
18	4	HWHBM1650	Hex head Bolt M16x50
19	7	HWWFM10	Washer Flat M10
20	4	HWWFM16	Flat Washer M16
21	6	HWWFM616	Washer - Flat - M6ZP
22	12	HWWFM816	Flat Washer M8

10.5 Sheather – Clamping Trolley (LHS and RHS) (1714400 L & R)

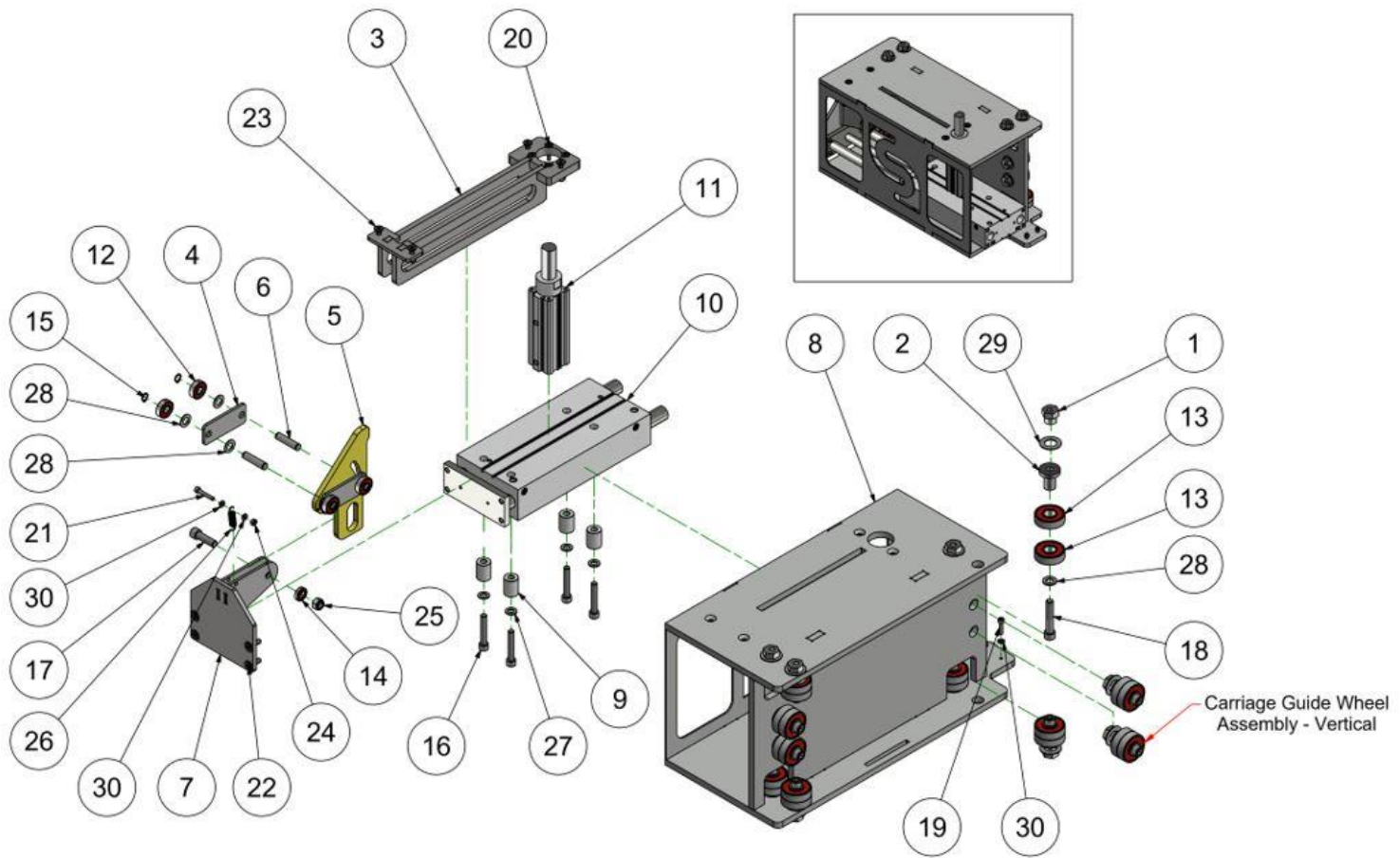


Figure 20, Clamping Trolley (LHS and RHS)

Table 19, Clamping Trolley (LHS and RHS) parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	12	1711401	Cam - Guide Wheel
2	12	1711402	Spacer
3	1	1711601	Clamp Guide
4	2	1711602	Dolly Side
5	1	1711603	Clamp Arm
6	2	1711604	Shaft
7	1	1711605	Ram End
8	1	1714401 - R	Trolley Frame (RHS) - Welded Assembly
9	4	1714402	Cylinder Spacer
10	1	ACMGPM50-250	MGP-Z - Compact Guide Cylinder
11	1	ACRSDQA40-60-DCQ9179Q	RSQ-Stopper Cylinder/Fixed Mounting Height
12	5	BRG6201	Bearing 32x12x10
13	24	BRG6304DD	Bearing 52 x 20 x 15
14	1	BRG6901DDU	Bearing 24 x 12 x 6
15	4	HWCCXM12	Circlip 12mm External
16	4	HWCSM1060	Hex Socket Head Cap Screw M10x60
17	1	HWCSM1240	Hex Socket Head Cap Screw M12x40
18	12	HWCSM1265	Hex Socket Head Cap Screw M12x65
19	2	HWCSM625	Hex Socket Head Cap Screw M6x25
20	4	HWCSM630CS	Countersunk Cap Screw M6x30
21	1	HWCSM635	Hex Socket Head Cap Screw M6x35
22	4	HWCSM825CS	Hex Socket CSK Cap Screw M8x25
23	4	HWCSM830CS	Hex Socket CSK Cap Screw M8x30
24	1	HWNHM6	Hex nut M6
25	5	HWNNM12	M12 Nyloc Nut - Zinc
26	1	HWSP-S-C033	Ext. Spring - Century #186-A
27	4	HWWFM10	Washer Flat M10
28	18	HWWFM12	Flat washer M12
29	12	HWWFM20	Plain Washer M20
30	4	HWWFM616	Washer - Flat - M6ZP

10.6 Sheather – Support Beam Assembly (1714500)

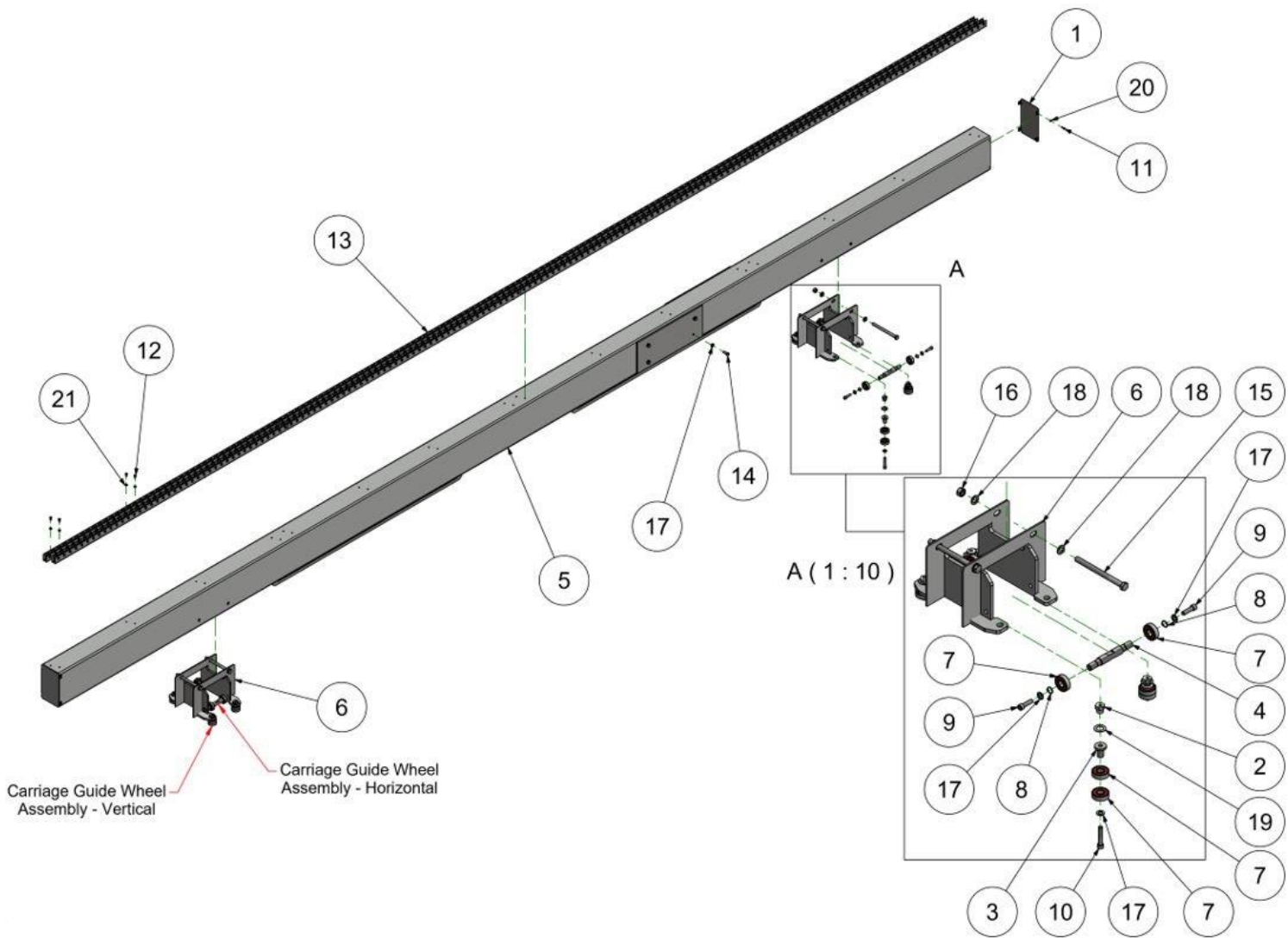


Figure 21, Support Beam Assembly

Table 20, Support Beam Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	1711105	Beam End Cap
2	8	1711401	Cam - Guide Wheel
3	8	1711402	Spacer
4	4	1711501	Shaft
5	1	1714501	Floating Support Beam - Welded Assembly
6	2	1714502	Floating Support Trolley (Welded Assembly)
7	24	BRG6304DD	Bearing 52 x 20 x 15
8	8	HWCCXM20	20mm External Circlip
9	8	HWCSM1240	Hex Socket Head Cap Screw M12x40
10	8	HWCSM1265	Hex Socket Head Cap Screw M12x65
11	8	HWCSM620BH	Button Head Cap Screw M6x20
12	32	HWCSM816BH	Button Head Cap Screw M8x16
13	16000.000 mm	HWFR32	Flow Rack - TLLT-38 (32mm wide 50mm centre)
14	8	HWHBM1230	Hex bolt M12x30
15	4	HWHBM16200	Hex Bolt - M16x200 HTZP
16	4	HWNHM16	Hex nut M16
17	24	HWWFM12	Flat washer M12
18	8	HWWFM16	Flat Washer M16
19	8	HWWFM20	Plain Washer M20
20	8	HWWFM616	Washer - Flat - M6ZP
21	32	HWWFM816	Flat Washer M8

10.7 Sheather – Stud Aligner (LHS and RHS) (1714700 L & R)

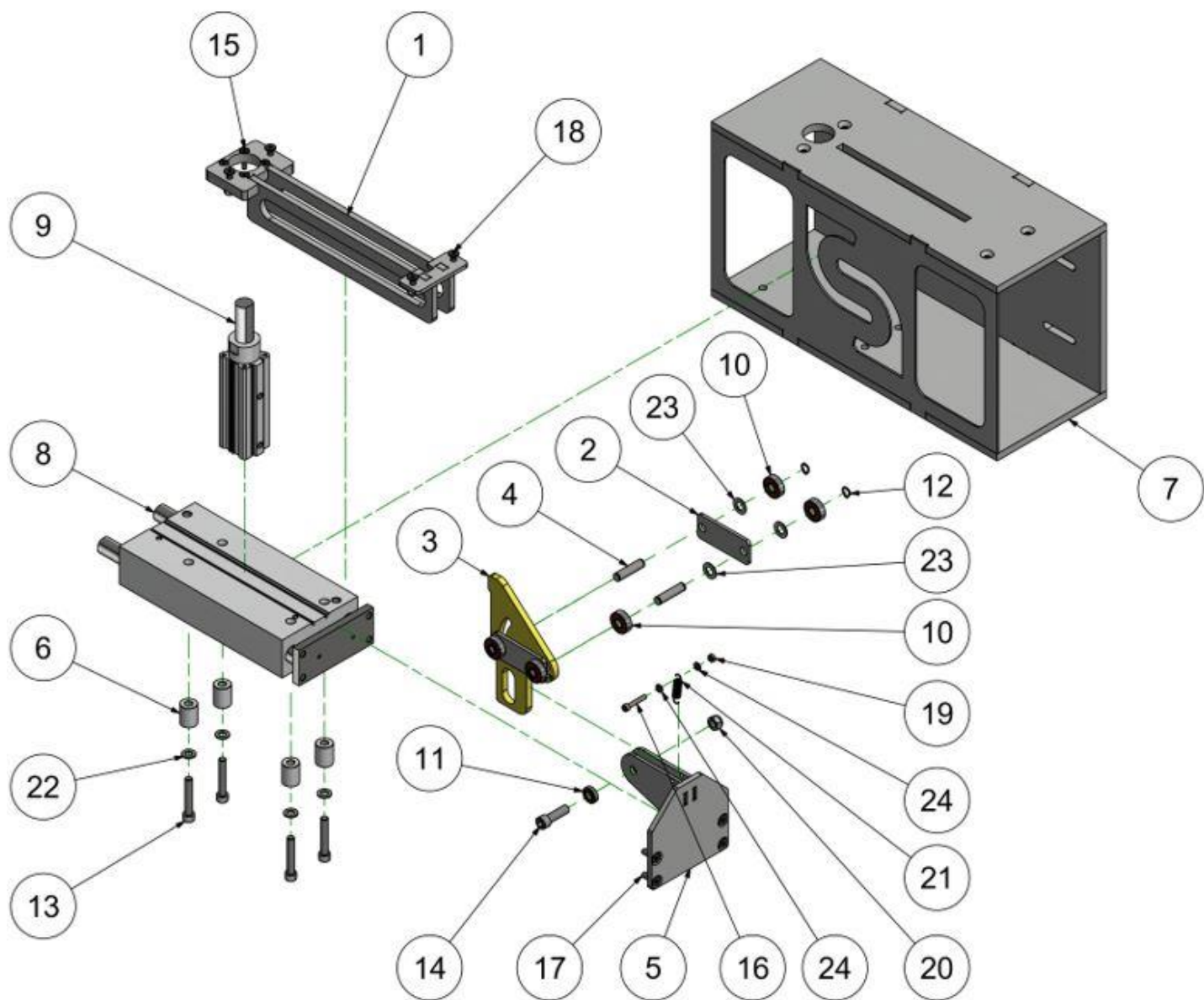


Figure 22, Stud Aligner (LHS and RHS)

Table 21, Stud Aligner (LHS and RHS) parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1711601	Clamp Guide
2	2	1711602	Dolly Side
3	1	1711603	Clamp Arm
4	2	1711604	Shaft
5	1	1711605	Ram End
6	4	1714402	Cylinder Spacer
7	1	1714701 - R	Aligner Frame (RHS) - Welded Assembly
8	1	ACMGPM50-250	MGP-Z - Compact Guide Cylinder
9	1	ACRSDQA40-60-DCQ9179Q	RSQ-Stopper Cylinder/Fixed Mounting Height
10	5	BRG6201	Bearing 32x12x10
11	1	BRG6901DDU	Bearing 24 x 12 x 6
12	4	HWCCXM12	Circlip 12mm External
13	4	HWCSM1060	Hex Socket Head Cap Screw M10x60
14	1	HWCSM1240	Hex Socket Head Cap Screw M12x40
15	4	HWCSM630CS	Countersunk Cap Screw M6x30
16	1	HWCSM635	Hex Socket Head Cap Screw M6x35
17	4	HWCSM825CS	Hex Socket CSK Cap Screw M8x25
18	4	HWCSM830CS	Hex Socket CSK Cap Screw M8x30
19	1	HWNHM6	Hex nut M6
20	5	HWNNM12	M12 Nyloc Nut - Zinc
21	1	HWSP-S-C033	Ext. Spring - Century #186-A
22	4	HWWFM10	Washer Flat M10
23	6	HWWFM12	Flat washer M12
24	2	HWWFM616	Washer - Flat - M6ZP

10.8 Sheather – Floating Gun Mount (1714800)

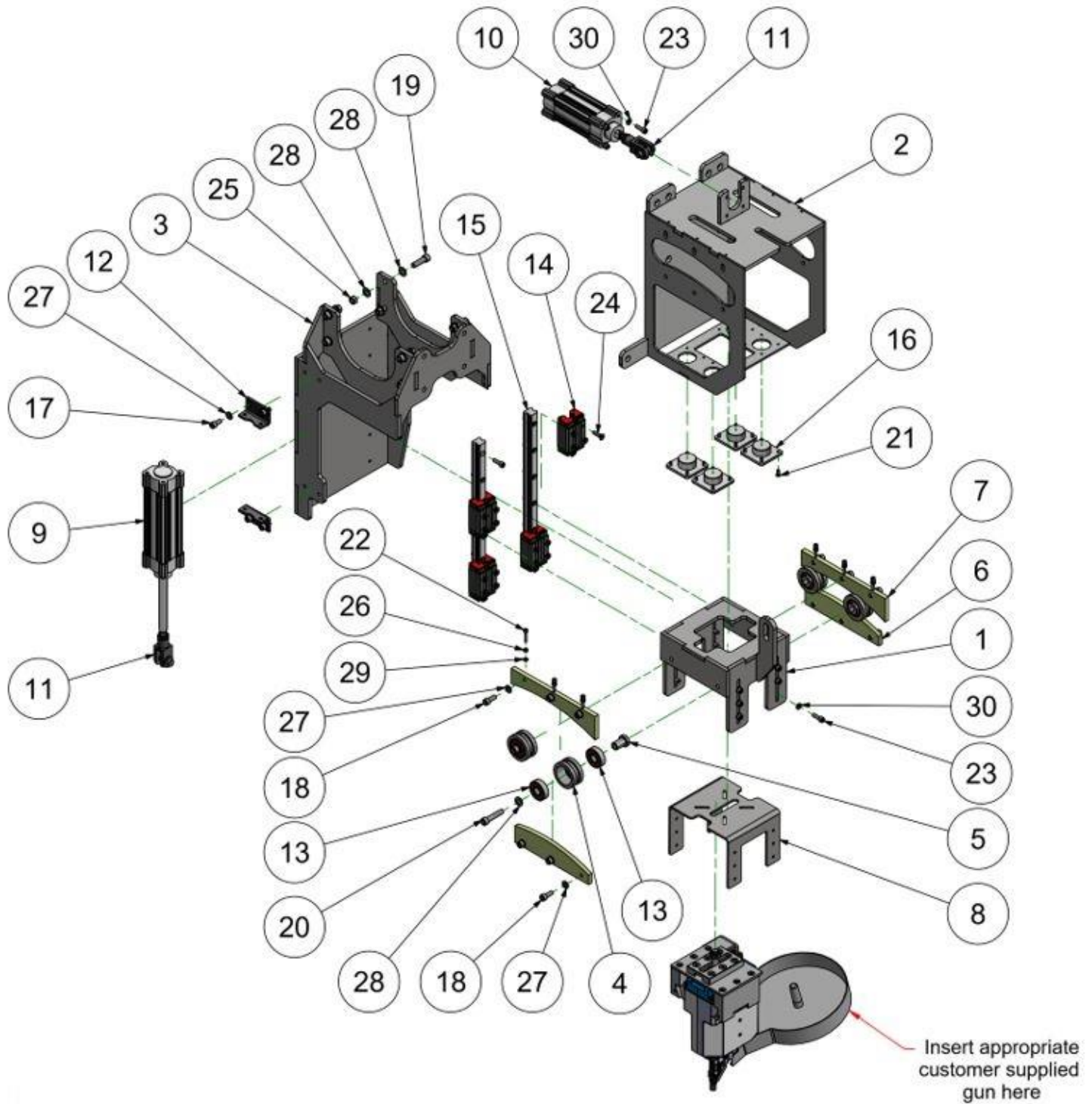


Figure 23, Floating Gun Mount

Note: The gun requirements for each machine will differ between customers; therefore, the guns used in this drawing are a placeholder only. For more information on the guns please refer to the manufacturers handbook.

Table 22, Floating Gun Mount parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1714801	Rolling Gun Mount Carriage
2	1	1714802	Vertical Gun Mount Carriage
3	1	1714803	Horizontal Gun Mount Carriage
4	4	1714804	Gun Mount Roller
5	4	1714805	Gun Mount Shaft
6	2	1714806	Gun Mount Lower Bearing Track
7	2	1714807	Gun Mount Upper Bearing Track
8	1	1714808	Gun Mounting Bracket
9	1	ACCP96SDB63-160C	CP96S_C/CP96SD_C-ISO Cylinder:Standard Double Acting
10	1	ACCP96SDB63-80C	CP96S_C/CP96SD_C-ISO Cylinder:Standard Double Acting
11	2	ACGKM16-32	CP96/C96_GKM-Rod Clevis
12	2	ACL5063	CP96/C96-L-Foot
13	8	BRG6304DD	Bearing 52 x 20 x 15
14	4	BRGLB-HGH-30CA	HGH30CA Linear Bearing block
15	2	BRGLR-HGH30-460-30-80-30	HGH30CA Linear Bearing Rail
16	4	HWBCMS30	Ball Castor - Omnitrac MS30
17	4	HWCSM1020	Hex Socket Head Cap Screw M10x20
18	12	HWCSM1025	Hex Socket Head Cap Screw M10x25
19	8	HWCSM1240	Hex Socket Head Cap Screw M12x40
20	4	HWCSM1255	Hex Socket Head Cap Screw M12x55
21	16	HWCSM616CS	Hex Socket CSK Cap Screw M6x16
22	6	HWCSM630	Hex Socket Head Cap Screw M6x30
23	28	HWCSM825	Hex Socket Head Cap Screw M8x25
24	16	HWCSM830CS	Hex Socket CSK Cap Screw M8x30
25	8	HWNHM12	Hex nut M12
26	6	HWNHM6	Hex nut M6
27	16	HWWFM10	Washer Flat M10
28	20	HWWFM12	Flat washer M12
29	6	HWWFM616	Washer - Flat - M6ZP
30	16	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 Spida Auto Sheather and contact a supervisor, maintenance engineer, or Spida Machinery.

Table 23, Maintenance intervals

Check	Day	Week	Month	½ Year
Guards in place	x			
Oil level in lubricators	x			
Work area is clear	x			
Cylinder operation	x			
Flow Rail operation	x			
Linear Rail and Bearings operation	x			
Roller operation	x			
Non-enclosed Bearings	x			
Sensors	x			
Clean Sheather of any build up	x			
Noises or Vibrations	x			
Clean energy chain tray	x			
Emergency stop working	x			
Drain moisture from air reservoir		x		
Air supply pressure		x		
Pneumatic Filter		x		
Pulley block assemblies in good condition			x	
Gun/Router Beam assembly in good condition			x	
Auto Table assembly in good condition			x	
Support Beam assembly in good condition			x	
Fixed Gun Mount assemblies in good condition			x	
Floating Gun Mount assemblies in good condition			x	
Clamping Trolley assemblies in good condition			x	
Stud Aligner assemblies in good condition			x	
Motors running smoothly			x	
Inspect Timing Belts			x	
Inspect Energy chain			x	
Inspect rack and pinions			x	
For loose or damaged bolts			x	
Floor bolts for tightness				x
Maintain Spida Auto Sheather				x
Maintain Nail Guns				x
(or as required)				



Failure to perform these checks as per schedule indicated in Table 23 may result in severe damage or a serious accident.

WARNING! Electrical power 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 Air Line Lubrication

To enable the Nail guns to operate effectively and accurately they require compressed and lubricated air between 600-800 kPa. The machine is fitted with an automatic lubricator with a Filter and Pressure Regulator. The Competent Operator is required to check the level of the oil prior to commencement of work and top up with the air tool oil. Any pneumatic control valves and cylinders do not require lubricated air.

11.1.3 Keep work area clear

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

11.1.4 Inspect Cylinders

All pneumatic cylinders 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 all cylinders before work commences each day. See Figure 4 for location of cylinders.

- The Stud pins should activate/deactivate at the correct times, and should not interfere with the movement of the frame. The pins should allow the frame/studs to be positioned correctly before clamping, and should allow the frame/studs to be clamped tightly and without misalignment.
- The clamps on both the Clamping Trolleys and Stud aligners should hold the frame/studs tightly, and without misalignment. Test the clamps for tightness before work commences each day. Using a spare piece of wood, activate the clamps and test the rigidity of the wood to ensure that the clamps are still holding as required.
- The lifter cylinders on the Fixed Gun Mounts should activate/deactivate at the same time; they should also hold the Gun Mounts above the level of the frame when the frame is moving in and out of the gun mount area, and hold them above the frame at the correct firing distance when the frame is below.
- The lifter cylinders on the Floating Gun Mounts should activate/deactivate at the same time; they should hold the Gun Mounts above the level of the frame when the frame is moving in and out of the gun mount area; and they should gently lower the Gun Mounts onto the frame and then release them, when the frame is below.
- The tilting cylinders on the Floating Gun Mounts should activate/deactivate at the same time; they should always tilt the guns to the correct angle before a join; and should always tilt the guns back to a vertical position after a join is complete.

Do not use the Spida Auto Sheather if any of the cylinders are not activating properly or as described above.

11.1.5 Inspect Flow Rail

All lengths of flow rail should roll freely, move evenly, and there should be no excessive wear visible on wheels, fasteners, and/or connection points. Check for loose fastenings or damage to the wheels and/or connection points.

Do not use the Spida Auto Sheather if the flow rail is not moving as required, or if there is any major damage to the wheels and/or connection points.

11.1.6 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 Spida Auto Sheather if the bearings are not moving as required, or if there is any major damage to the bearings, linear rails and/or connection points.

11.1.7 Inspect Rollers

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

Do not use the Spida Auto Sheather if the rollers are not moving as required, or if there is any major damage to the rollers and/or bearings.

11.1.8 Non-enclosed Bearings

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

Do not use the Spida Auto Sheather if the bearings are not moving as required, or if there is any major damage to the bearings and/or connection points.

11.1.9 Sensors

Check Floating Gun Mount sensors; Clamping Trolley sensors; and Movable Auto Tables sensors (see Figure 3), are free and clear of any build-up of dust and securely fastened; sensor malfunctions will prevent the Sheather from working correctly.

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.

11.1.10 Clean Sheather of any build up

Keep the Sheather free of any build-up of debris. Moving parts should not be obstructed, and the Sheather 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.

Ensure there are no offcuts or any sawdust blocking the Sheather. If there are any obstructions that prevent the any parts from moving freely, then only attempt to clear obstructions once the Sheather has been electrically and pneumatically isolated.

11.1.11 Noises or vibrations

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

11.1.12 Clean Energy chain tray

Keep Energy chain trays clean and free of any dust or obstructions.

11.1.13 Emergency Stop Buttons

Check emergency stops are working and that they stop the machine when activated. This test should be performed before using the machine, at least once a day.

11.1.14 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.

11.1.15 Air Supply

Air pressure should be maintained at 600-800 kPa; this can be checked at the filter regulator (see Figure 5) located on the inside front left corner of the Spida Auto Sheather, behind the on/off valves. 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.

11.1.16 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 (see Figure 5) are located on the inside front left corner of the Spida Auto Sheather, behind the on/off valves.

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

11.1.17 Inspect Pulley Block Assemblies

For a fence assembly, the timing belt should move easily around the pulleys within the pulley block assemblies while the motor is running. All pulley block assemblies should be maintained regularly to check on the condition of the pulley and bearings. However, if a timing belt is catching or not moving smoothly; or there are unusual vibrations or noises within any of the Pulley assemblies; then it may be necessary to remove the outer covers of the assemblies to check on the condition of the pulley, bearings, and timing belt.

If any teeth of the pulley are chipped or broken, then replace the pulley as required. Do not use the Spida Auto Sheather if any of the pulleys are not turning, and cannot be fixed, or if any of the above is unfixable.

Ensure there are no loose, damaged, or missing bolts, and replace or tighten as necessary.

11.1.18 Gun/Router Beam Assembly

The Gun/Router assembly should allow both Floating Gun mounts to move easily along the full length of the beam and stop firmly only when required. The assembly should also prevent the mounts from moving when the guns are firing.

The Gun/Router Beam assembly should be maintained every month to:

- Check on the condition of the sensors
- Check on the condition of the energy chain
- Check on the condition of the electrical connections
- Check on the condition of the rack and pinions
- Check on the condition of the bearings and any other moving parts.
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure that the pinions are still correctly positioned on the racks
- Ensure all parts are still square and/or aligned correctly
- Ensure that the motors are 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 assembly. Ensure that there are no loose, damaged, or missing bolts, and replace or tighten as necessary.

Do not use the Sheather if:

- The Floating Gun Mounts are not moving correctly along the Auto table and/or stall/freeze during movement
- The Floating Gun Mounts are running off the ends of the Gun/Router Beam
- The Floating Gun Mounts are stopping in the incorrect place
- The Floating Gun Mounts are causing damage to Sheather parts
- The Floating Gun Mounts are misaligned
- The Guns are not firing at the correct angle/are misaligned
- The motors are not activating correctly/are not activating at all
- The energy chain is not moving correctly with the Gun Mounts and/or is interfering with/damaging electrical connections
- Any material is not being nailed accurately
- Any of the above cannot be fixed by general maintenance.

11.1.19 Auto Table Assembly

The Movable Auto Table should move easily along the Floating table rail at the same time as the Support Beam assembly and should stop firmly at pre-set points to fit the required frame sizes. The two Clamping Trolleys should also sit square on the Auto tables and move easily from end to end. The frame to be nailed should also move easily along the Auto Table assembly, without obstruction or hinderance.

The Auto Table assembly should be maintained every month to:

- Check on the condition of the sensors
- Check on the condition of the energy chain
- Check on the condition of the electrical connections
- Check on the condition of the guide wheel assemblies
- Check on the condition of the rollers
- Check on the condition of the fence assemblies
- Check on the condition of the Side Clamp sub-assembly
- Check on the condition of the Centering Linkage sub-assembly

- Check on the condition of the Clamping Trolley assemblies (see below for further information)
- Check on the condition of the bearings and any other moving parts.
- Ensure that the Support Beam centering parts are still performing correctly
- Ensure that the Movable Auto table parts are still performing correctly
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure all parts are still square and/or aligned correctly
- Ensure that the motors are 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 Sheather if:

- The Movable Auto table is not moving correctly along the Floating table rail and/or stalls/freezes during movement.
- The Clamping Trolleys are not moving correctly along the Auto tables and/or stall/freezes during movement.
- The Movable Auto table is running into the Support Beam assembly/Spreader Rail
- The Movable Auto table is stopping incorrectly
- The Movable Auto table is causing damage to the frames and/or Sheather parts
- The Centering Linkage sub-assembly is not allowing the movement of the Support Beam assembly and/or the Movable Auto table
- The Support Beam assembly is not centering correctly between the two Auto tables
- The Side Clamp sub-assembly is not activating correctly
- The Moveable Auto table is not moving evenly/one end is moving at a different pace than the other
- The Movable Auto table/Support Frame assembly is misaligned
- The frame is misaligned
- The frame is moving incorrectly down the line
- Any material is not sitting square, or being nailed accurately
- The motors are not activating correctly/are not activating at all
- The energy chain is not moving correctly with the Clamping Trolleys and/or is interfering with/damaging electrical connections
- Any of the above cannot be fixed by general maintenance.

11.1.20 Support Beam Assembly

The Support Beam assembly should move easily along the Floating table rail at the same time as the adjustable Auto table, and at the correct rate to keep the Support table centered between the two Auto tables. The two Stud aligners should also sit square on the Support Beam assembly and should never move. The frame to be nailed should also move easily along the support beam, without obstruction or hinderance.

The Support Beam assembly should be maintained every month to:

- Check on the condition of the guide wheel assemblies
- Check on the condition of the Flow rail
- Check on the condition of the Stud Aligner assemblies (see below for further information)
- Ensure that the Support Beam centering parts are still performing correctly
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure all parts are still square and/or aligned 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 Sheather if:

- The Support Beam assembly is not moving correctly along the Floating table rail and/or stalls/freezes during movement
- The Support Beam assembly is not centering correctly between the two Auto tables
- The Support Beam assembly is running into either of the Auto tables
- The Support Beam assembly is stopping incorrectly
- The Support Beam assembly is causing damage to the frames and/or Sheather parts
- The Support Frame assembly/Movable Auto table is misaligned
- The frame is misaligned
- The frame is moving incorrectly down the line
- Any material is not sitting square, or being nailed accurately
- Any of the above cannot be fixed by general maintenance.

11.1.21 Fixed Gun Mount Assemblies

The Fixed Gun Mounts should hold the guns in place over the wall frame and should not move while the guns are firing. The guns should move up and down easily and should not move whilst firing.

Both Floating Gun Mounts should be generally maintained every month to:

- Check on the condition of the cylinders
- Check on the condition of the linear bearings and rails
- Check on the condition of the Nail guns
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure all parts are still square and/or aligned correctly
- Ensure that the gun mounts are still correctly positioned.
- Ensure that the guns are still firing straight down into the frame

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 Sheather if:

- The cylinders are not activating correctly/are not activating at all
- The Guns are not moving up/down as required
- The linear bearings and/or rails are not moving correctly/are broken
- The Guns are not firing straight down/are misaligned
- The wall frame to be nailed cannot move into or out of the gun mount area, or cannot move underneath the Fixed Gun Mounts
- Any material is not sitting square, or being nailed accurately
- Any of the above cannot be fixed by general maintenance

11.1.22 Floating Gun Mount Assemblies

The Floating Gun Mounts should move easily along the Gun/Router beam (and over the wall frame when the mounts are down) and should not move while the guns are firing. The guns should move up and down, and tilt easily, and should not move whilst firing.

Both Floating Gun Mounts should be generally maintained every month to:

- Check on the condition of the guide wheel assemblies
- Check on the condition of the cylinders
- Check on the condition of the linear bearings and rails
- Check on the condition of the ball castors
- Check on the condition of the Nail guns
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure all parts are still square and/or aligned correctly
- Ensure that the gun mounts are still correctly positioned
- Ensure that the guns are still firing at the correct angles

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 Sheather if:

- The Floating Gun Mount is not adjusting correctly along the Gun/Router beam and/or stalls/freezes during movement
- The Floating Gun Mount is not moving smoothly over the frame
- The movement of the frame is affecting the accuracy of the guns
- The ball castors are not moving correctly/are broken
- The cylinders are not activating correctly/are not activating at all
- The Guns are not moving up/down/tilting as required
- The linear bearings and/or rails are not moving correctly/are broken
- The Guns are not firing at the correct angle/are misaligned
- The wall frame to be nailed cannot move into or out of the gun mount area, or cannot move underneath the Floating Gun Mounts
- Any material is not sitting square, or being nailed accurately
- Any of the above cannot be fixed by general maintenance

11.1.23 Clamping Trolley Assemblies

The Clamping Trolley Assemblies should move easily along each Auto table and should not move while the guns are firing. The clamping trolleys should easily pull the frames down the line, without causing incorrect nailing or damage to the frame and/or Sheather parts. The Clamping Trolley Assemblies should be able to move easily underneath the frame without causing damage to the frame and/or Sheather parts.

Both Clamping Trolley Assemblies should be generally maintained every month to:

- Check on the condition of the guide wheel assemblies
- Check on the condition of the cylinders
- Check on the condition of the clamps
- Check on the condition of the stud pins
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure all parts are still square and/or aligned correctly
- Ensure that the clamps and stud pins are still correctly positioned

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 Sheather if:

- The clamping trolleys are not moving correctly along the Auto table and/or stall/freeze during movement
- The clamping trolleys are running off the end of the Auto tables
- The clamping trolleys are not moving underneath the frame correctly
- The clamping trolleys are stopping in the incorrect place
- The cylinders/attached parts are not activating correctly/are not activating at all
- The clamping trolleys are not clamping frames/studs correctly
- The clamps and/or stud pins are activating at the incorrect time
- The clamps and/or stud pins are bent/misaligned
- The frame is misaligned
- The frame is being pulled incorrectly
- The sheets are not being nailed accurately to studs
- The clamping trolleys are not pulling the frame correctly
- The clamping trolleys are causing damage to the frames and/or Sheather parts
- Any material is not sitting square, or being nailed accurately
- Any of the above cannot be fixed by general maintenance.

11.1.24 Stud Aligner Assemblies

The Stud Aligner Assemblies should sit square on the Support Beam assembly and should remain fixed. The stud aligners should clamp onto the appropriate studs at the correct time and hold them steady and straight, without causing incorrect nailing or damage to the frame and/or Sheather parts.

Both Stud Aligner Assemblies should be generally maintained every month to:

- Check on the condition of the cylinders
- Check on the condition of the clamps
- Check on the condition of the stud pins
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure all parts are still square and/or aligned correctly
- Ensure that the clamps and stud pins are still correctly positioned

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 Sheather if:

- The cylinders/attached parts are not activating correctly/are not activating at all
- The clamps and/or stud pins are activating at the incorrect time
- The clamps and/or stud pins are bent/misaligned
- The stud aligners are not clamping studs correctly
- The frames are stopping in the incorrect place
- The sheets are not being nailed accurately to studs
- The stud aligners are causing damage to the frames and/or Sheather parts
- Any material is not sitting square, or being nailed accurately
- Any of the above cannot be fixed by general maintenance.

11.1.25 Motors

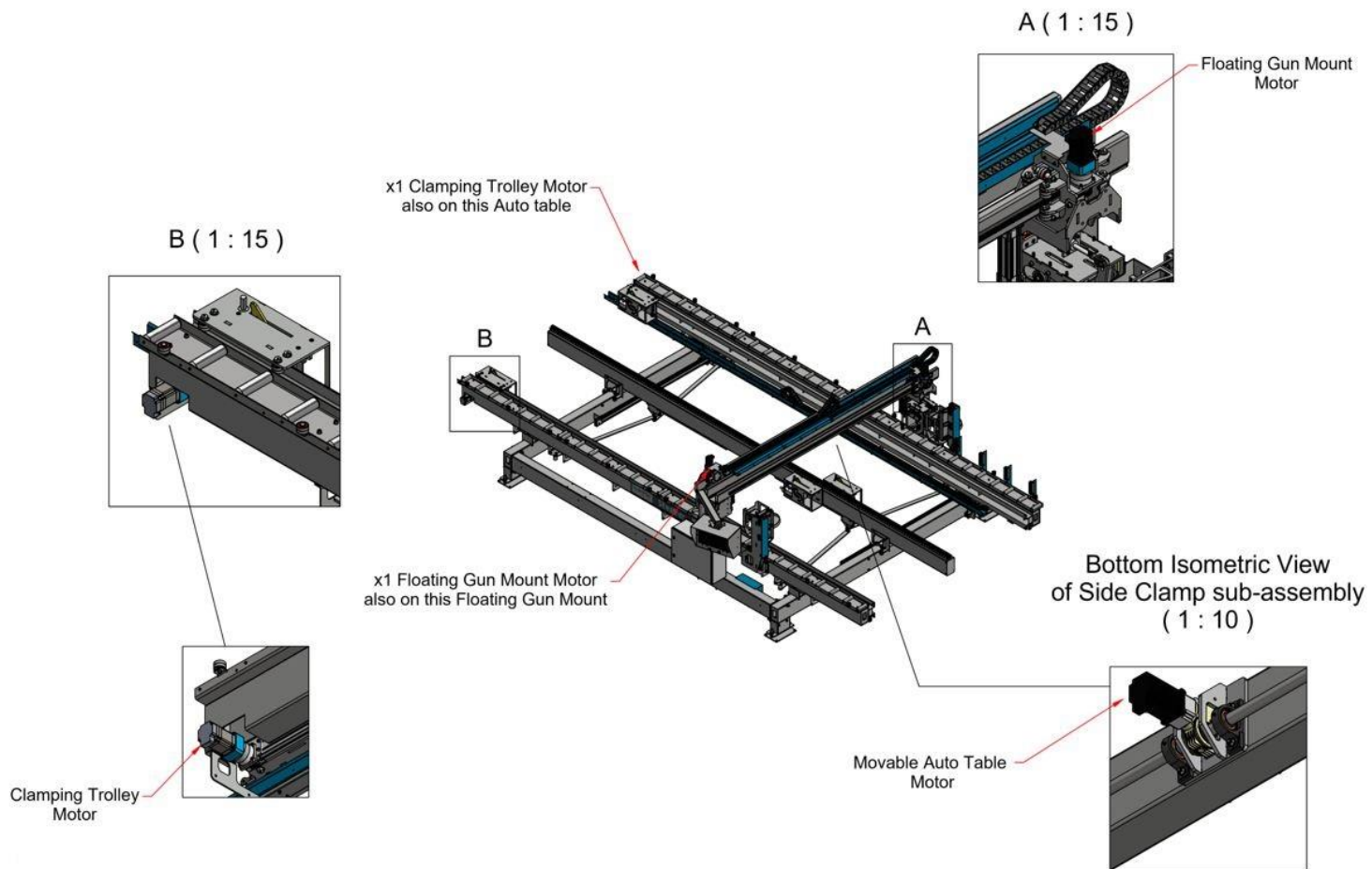


Figure 24, Sheather Motor Locations

The motors (see Figure 24) should stop and start with no issues and should move/stop the appropriate components without difficulty. Clean the motors regularly by blowing out dust and other debris with dry compressed air.

- Check the point where the motor joins the gearbox (Screws, mount connection, etc)
- Check the shaft locks (this shaft should not be loose)
- Check condition of the motor

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

11.1.26 Inspect Timing Belts

Each timing belt should move around the corresponding guide profile smoothly and easily, and there should be no visible wear on either the timing belt or the guide profile. Check for damage on each timing belt, and repair or replace as required. Do not use the Spida Auto Sheather if any of the timing belts are unable to be repaired or are damaged significantly.

11.1.27 Energy Chain

The chain should move within the tray smoothly and easily; it should not interfere with the electrical cables and should allow them to move with the appropriate components without losing connection; and there should be no visible wear on either the chain, the tray, or the wires. Check for loose or damaged links, and repair as required. Do not use the Spida Auto Sheather if the chain is unable to be repaired, is damaged significantly, or is causing damage to any electrical wires.

11.1.28 Rack and pinion

The pinion should be aligned with the rack, and should move the components along the rack smoothly and easily. Both the rack and pinion should be sitting straight on the Gun/Router beam, and there should be no visible wear or sag on either the rack or the pinion. Check for damage on both the racks and pinions, and repair or replace as required. Do not use the Spida Auto Sheather if either of the racks and/or pinions are unable to be repaired or are damaged significantly.

11.1.29 Loose Fasteners and Fixings

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

11.1.30 Maintain Spida Auto Sheather

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

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

11.1.31 Nail Guns

Nail guns have been fitted to the Spida Auto Sheather to provide accurate and reliable nailing. All maintenance/servicing that is required, should be carried out as specified by the gun supplier's handbook.

Periodically check the location of the guns, to ensure that the correct nailing distance is maintained. If any shift has occurred, then adjust guns as required.

Also, be sure to check the gun mount assemblies for potential damage. Do not use the Spida Auto Sheather if any major damage is apparent and it cannot be fixed by general maintenance.

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 24, Common misuse issues

MISUSE	SYMPTOM	RECTIFICATION REQUIRED
Lack of cleaning	Spida Auto Sheather not moving correctly	<ul style="list-style-type: none"> - Clean Sheather, especially major assemblies, bearings, rollers, linear rail and bearings, cylinders, and flow rail - Remove any large pieces of debris and clean out any dirt. - Clean and check motors - Clean air lines, and service filter/regulator - Check all pneumatic cylinders, clean and service as required.
	Moving assemblies blocked/moving incorrectly/failing	
	Machine overheating	
	Rollers/bearings/flow rail/linear rails and bearings/cylinders failing	
	Frames moving incorrectly down the line/being clamped incorrectly	
	Unusual amount of noise while parts are moving	
	Motors tripping out or overloaded	
Lack of care	Spida Auto Sheather not moving correctly	<ul style="list-style-type: none"> - 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
	Frames moving incorrectly down the line/being clamped incorrectly	
	Foreign objects in Main assembly/obstructing moving parts	
	Broken, damaged, or misaligned parts	
	Bent or stuck pneumatic cylinders	
	Cylinders failing/activating incorrectly	
	Bent/stuck/misaligned rollers/bearings/flow rail/linear rails and bearings	
	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	
	No operation or loss of control data	

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

13 Trouble Shooting

The following sections detail potential problems, along with possible causes and solutions. If any of the corrections cited do not solve the issue, then do not use the Sheather and contact a supervisor, maintenance engineer, or Spida Machinery.

13.1 Mechanical Faults

13.1.1 Main Assemblies

Table 25, Troubleshooting – Main Assemblies

Floating Gun Mount assemblies not activating	Frame jammed	Lock out air and power to the machine. Extricate frame from parts. Check parts for damage and repair/replace parts as required.
	Trolleys/ Linear rails and/or bearings/ Tilt bearing track parts/ Rack and pinion/ Ball rollers - jammed/damaged	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required.
	Damaged/misaligned Gun/Router beam	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Floating Gun Mount/s stuck on Gun/Router beam	Leverage parts back into alignment. Repair/replace damaged parts
	Cylinders/attached components jammed	Check for obstructions. Repair/replace parts/remove obstructions as required.
	Motor not working	Check electrical leads. Ensure motor is clean, dry, and free of debris. Turn the machine off and on again.
	No air to cylinders	Check air supply to cylinders.
Floating Gun Mount assemblies activating incorrectly	Each cylinder is supplied by different air pressures	Clean air lines and ensure regulated pressure to each cylinder is the same.
	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. Ensure leads have not been caught within energy chain. Contact Spida Machinery if there is a major issue.
	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.
	Trolleys/ Linear rails and/or bearings/ Tilt bearing track parts/ Rack and pinion/	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as

	Ball rollers/ frame - damaged/obstructed	required. Ensure frame is moving correctly down the line.
	Trolleys/ Linear rails and/or bearings/ Tilt bearing track parts/ Rack and pinion/ Ball rollers/ frame - misaligned	Check alignments of relevant assemblies, and re-align parts as necessary. Ensure Floating Gun Mounts are not interfering with standard movement paths of other assemblies. Ensure frame is moving correctly down the line.
	Damaged Gun/Router beam	Repair/replace parts as required.
	Bent Gun/Router beam and/or rack and pinions	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Floating Gun Mounts not sitting correctly on Gun/Router beam	Re-align Floating Gun Mounts, and repair/replace parts as required
	One or both Floating Gun Mounts have come off the end of the Rack and pinion track	Repair/replace damaged parts. Re-position gun mounts onto track if possible. Check condition of sensors. Contact Spida Machinery if there is a major issue.
Fixed Gun Mount assemblies not activating	Frame jammed	Lock out air and power to the machine. Extricate frame from parts. Check parts for damage and repair/replace parts as required.
	Linear rails and/or bearings jammed/damaged	Check Linear rails and bearings for damage/obstructions. Repair/replace parts/remove obstructions as required.
	Ball rollers jammed/damaged	Check ball rollers for damage/obstructions. Repair/replace parts/remove obstructions as required.
	Cylinders/attached components jammed	Check for obstructions. Repair/replace parts/remove obstructions as required.
	No air to cylinders	Check air supply to cylinders.
Fixed Gun Mount assemblies activating incorrectly	Each cylinder is supplied by different air pressures	Clean air lines and ensure regulated pressure to each cylinder is the same.
	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.
	Damaged cylinders/attached components	Repair/replace parts as required.

	Linear rails and/or bearings/ Ball rollers/ frame - damaged/obstructed	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required. Ensure frame is moving correctly down the line.
	Linear rails and/or bearings/ Ball rollers/ frame - misaligned	Check alignments of relevant assemblies, and re-align parts as necessary. Ensure Fixed Gun Mounts are not interfering with standard movement paths of other assemblies. Ensure frame is moving correctly down the line.
Support table assembly not activating	Frame jammed	Lock out air and power to the machine. Extricate frame from parts. Check parts for damage and repair/replace parts as required. Ensure frame is moving correctly down the line.
	Trolleys/ Wheel assemblies/ Bearings/ Flow rail/ Centering Linkage - jammed/damaged	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required. Ensure frame is moving correctly down the line.
	Damaged/misaligned Floating Table rail	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Support table stuck on Floating table rail and/or Auto table/s	Leverage parts back into alignment. Check on condition of Centering Linkage and re-attach/repair as required. Check condition of sensors. Repair/replace damaged parts.
	Motor not working	Check electrical leads. Ensure motor is clean, dry, and free of debris. Turn the machine off and on again.
	Damaged electrical leads	Check for bent or broken leads, and replace as required. Contact Spida Machinery if there is a major issue.
Support table assembly not adjusting correctly	Motor is damaged/not receiving power correctly	Repair/replace motor as required. Check electrical supply to motor. Test voltage.
	Trolleys/ Wheel assemblies/ Bearings/ Flow rail/ Centering Linkage/ frame - damaged/obstructed	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required. Ensure frame is moving correctly down the line.

	Trolleys/ Wheel assemblies/ Bearings/ Flow rail/ Centering Linkage/ frame - misaligned	Check alignments of relevant assemblies, and re-align parts as necessary. Ensure Support Table assembly parts are not interfering with standard movement paths of other assemblies. Ensure frame is moving correctly down the line.
	Centering Linkage has detached from Support table and/or Auto table/s	Repair/replace damaged parts. Re-attach Centering Linkage if possible. Contact Spida Machinery if there is a major issue.
	Support table has run into the frame/one of the Auto tables	Re-align/repair/replace damaged parts. Check on condition of Centering Linkage and re-attach/repair as required. Check condition of sensors. Contact Spida Machinery if there is a major issue.
	Damaged Floating Table rail	Repair/replace parts as required.
	Bent Floating Table rail	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Support table not sitting correctly on Floating Table rail	Re-align Support table, and repair/replace parts as required.
	See possible corrections above.	
Auto table assembly not activating correctly	Movable Auto table not activating/not adjusting correctly	
	Movable Table/ Rollers/ Bearings/ Side Clamp assembly parts/ Centering Linkage - jammed/damaged/misaligned	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required.
	Damaged electrical leads	Check for bent or broken leads, and replace as required. Ensure leads have not been caught within energy chain. Contact Spida Machinery if there is a major issue.
Clamping trolley not moving	Motor not working	Check electrical leads. Ensure motor is clean, dry, and free of debris. Turn the machine off and on again.
	Damaged electrical leads	Check for bent or broken leads, and replace as required. Ensure leads have not been caught within energy chain. Contact Spida Machinery if there is a major issue.

	Trolleys/ Wheel assemblies/ Bearings - jammed/damaged	Check applicable parts for damage/obstructions. Re-align/repair/replace parts/remove obstructions as required.
	Frame jammed	Lock out air and power to the machine. Extricate frame from parts. Ensure frame is moving correctly down the line. Check parts for damage and repair/replace parts as required.
	Damaged/bent Auto table/s	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Clamping Trolley stuck on Auto table/s	Leverage parts back into alignment. Repair/replace damaged parts.
	Misalignment	Ensure that all parts of the Trolley are aligned correctly with the fence and table
Clamping trolley not adjusting correctly	Damaged electrical leads	Check for bent or broken leads, and replace as required. Ensure leads have not been caught within energy chain. Contact Spida Machinery if there is a major issue.
	Motor is damaged/not receiving power correctly	Repair/replace motor as required. Check electrical supply to motor. Test voltage.
	Trolleys/ Wheel assemblies/ Bearings/ Frame - damaged/obstructed	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required. Ensure frame is moving correctly down the line.
	Trolleys/ Wheel assemblies/ Bearings/ Frame - misaligned	Check alignments of relevant assemblies, and re-align parts as necessary. Ensure the Clamping trolley is not interfering with standard movement paths of other assemblies. Ensure frame is moving correctly down the line.
	One or both Clamping trolleys have come off the end of the Auto table/s	Repair/replace damaged parts. Re-position Clamping trolleys onto Auto table/s if possible. Check condition of sensors. Contact Spida Machinery if there is a major issue.
	Clamping trolley has run into the frame/auto table assembly	Re-align/repair/replace damaged parts. Contact Spida Machinery if there is a major issue.
	Damaged Auto table/s	Repair/replace parts as required.

	Bent Auto table/s	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Clamping trolley/s not sitting correctly on Auto table/s	Re-align Clamping trolley/s, and repair/replace parts as required.

13.1.2 Sub-assemblies

Table 26, Troubleshooting – Sub-Assemblies

Movable table not activating	Frame jammed	Lock out air and power to the machine. Extricate frame from parts. Check parts for damage and repair/replace parts as required. Ensure frame is moving correctly down the line.
	Trolleys/ Wheel assemblies/ Bearings/ Fence assemblies/ Side Clamp assembly parts/ Centering Linkage - jammed/damaged	Check applicable parts for damage/obstructions. Re-align/repair/replace parts/remove obstructions as required.
	Damaged/misaligned Floating Table rail	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Movable Auto table stuck on Floating table rail and/or Support table	Leverage parts back into alignment. Check on condition of Centering Linkage and re-attach/repair as required. Check condition of sensors. Repair/replace damaged parts.
	Motor not working	Check electrical leads. Ensure motor is clean, dry, and free of debris. Turn the machine off and on again.
Movable table not adjusting correctly	Damaged electrical leads	Check for bent or broken leads, and replace as required. Contact Spida Machinery if there is a major issue.
	Motor is damaged/not receiving power correctly	Repair/replace motor as required. Check electrical supply to motor. Test voltage.
	Trolleys/ Wheel assemblies/ Bearings/ Fence assemblies/ Side Clamp assembly parts/ Centering Linkage/ frame - damaged/obstructed	Check applicable parts for damage/obstructions. Repair/replace parts/remove obstructions as required. Ensure frame is moving correctly down the line.
	Trolleys/ Wheel assemblies/ Bearings/ Fence assemblies/ Side Clamp assembly parts/ Centering Linkage/ frame - misaligned	Check alignments of relevant assemblies, and re-align parts as necessary. Ensure the Movable table is not interfering with standard movement paths of other assemblies. Ensure frame is moving correctly down the line.

	Centering Linkage has detached from Movable Auto table and/or Support table	Repair/replace damaged parts. Re-attach Centering Linkage if possible. Contact Spida Machinery if there is a major issue.
	Movable Auto table has run into the frame/support table assembly	Re-align/repair/replace damaged parts. Check on condition of Centering Linkage and re-attach/repair as required. Check condition of sensors. Contact Spida Machinery if there is a major issue.
	Damaged Floating Table rail	Repair/replace parts as required.
	Bent Floating Table rail	Repair/replace parts as required. Contact Spida Machinery if there is a major issue.
	Movable Auto table not sitting correctly on Floating Table rail	Re-align Movable Auto table, and repair/replace parts as required.
Centering Linkage not adjusting correctly	Linkage arms damaged/obstructed/jammed	Check Linkage parts for damage/obstructions. Re-align/repair/replace parts/remove obstructions as required.
	Bearings damaged/obstructed/misaligned	Check bearings for damage/obstructions. Re-align/repair/replace parts/remove obstructions as required
	Support table/Auto table/s adjusting incorrectly	See possible corrections above.
	Incorrect connections to Support table/Auto table/s	Re-align/repair/replace damaged parts. Re-attach linkage to tables as required. Contact Spida Machinery if there is a major issue.
	Damaged electrical leads	Check for bent or broken leads, and replace as required. Contact Spida Machinery if there is a major issue.
Side clamp sub-assembly not adjusting correctly	Motor Shaft/ Fence assemblies/ Bearings/ - damaged/obstructed/jammed	Check applicable parts for damage/obstructions. Re-align/repair/replace parts/remove obstructions as required.
	Movable Auto table damaged/obstructed/misaligned	Check Movable Auto table for damage/obstructions. See further possible corrections above.
	Movable Auto table adjusting incorrectly	See possible corrections above.
	Incorrect connections to Movable Auto table	Re-align/repair/replace damaged parts. Re-attach fence assemblies to Movable Auto table as required. Contact Spida Machinery if there is a major issue.
	Damaged electrical leads	Check for bent or broken leads, and replace as required. Contact Spida Machinery if there is a major issue.

Fence assemblies not moving correctly	Motor not working	Check electrical leads. Ensure motor is clean, dry, and free of debris. Turn machine off and on again.
	Obstruction	Clear obstructions around belt, pulley block, and belt tensioner
	Misalignment	Ensure that all parts of the fence assembly are aligned correctly with associated parts.
	Missing or damaged parts/parts moving incorrectly	Repair or replace parts as required.
Rack and Pinion assemblies not moving correctly	Motor not working	Check electrical leads. Ensure motor is clean, dry, and free of debris. Turn machine off and on again.
	Obstruction	Clear obstructions around rack and pinions, gun mount trolleys, and bearings.
	Misalignment	Ensure that the pinion is correctly aligned on the rack, and the gun mount trolley is correctly aligned on the Gun/Router beam.
	Missing or damaged parts/parts moving incorrectly	Repair or replace parts as required.

13.1.3 Motors

Table 27, Troubleshooting – Motors

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
Motors tripping out	Moving parts obstructed	Clear obstruction
	Motor vents blocked	Clean motor
	Motor is damaged	Repair/replace motor

13.1.4 Pneumatics

Table 28, Troubleshooting – Pneumatics

Pneumatic cylinders ineffective/inadequately performing	Blocked air lines	Check for blockages. Flush system if required.
	Damaged air lines	Check for bent, broken, or leaking air lines, and replace as required.
	Loose, damaged, or missing parts	Inspect cylinder parts. Repair or replace items as required.
Stopper Pins not activating	Pins jammed/broken	Check for obstructions. Repair/replace parts/remove obstructions as required
	Cylinders/attached components jammed	Check for obstructions. Repair/replace parts/remove obstructions as required
	Air supply	Replace any broken air lines
Stopper Pins activating incorrectly	Each cylinder is supplied by different air pressures	Clean air lines and ensure regulated pressure to each cylinder is the same.
	Damaged air lines	Check for bent, broken, or leaking air lines, and replace as required.
	Damaged cylinders/attached components	Repair/replace parts as required.
	Parts misaligned	Re-align parts as necessary. Ensure other assembly items are not interfering with pin movement.
	Parts obstructed	Remove obstructions as required
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

13.1.5 Guns

Table 29, Troubleshooting – Guns

Guns not firing	Triggers not activating	Pneumatic trigger may be faulty – replace if necessary
	No air to gun	Check air supply to gun
	Trigger jammed	Contact gun supplier
	Gun Mount location incorrect, or possible malfunction	Check gun location and condition and adjust/repair as required. Check Gun mounts for obstructions/damage and remove obstructions/repair/replace as required
Guns firing incorrectly	Each gun is supplied by different air pressures	Clean air lines and ensure regulated pressure to each gun is the same.
	Damaged air lines	Check for bent or leaking air lines and replace as required.
	Guns incorrectly angled/have mismatching angles	Adjust angle between nail guns as required, and ensure they are locked into position.
	Guns not isolating correctly when required	Check switches have turned correctly. Check connection between switches and guns, and replace lines as required.

13.1.6 Frames and Nailing

Table 30, Troubleshooting – Frames and Nailing

Nails being punched too far into the material	Excessive air pressure	Adjust the regulator to the correct pressure
Nail heads protruding from the material	Low air pressure	Adjust the regulator to the correct pressure
Misaligned frames/studs	Damaged/misaligned Clamping trolleys/Stud aligners	Re-align/repair/replace parts as required. See further possible corrections above.
	Damaged/misaligned Auto tables/Support table	Re-align/repair/replace parts as required. See further possible corrections above.
	Damaged/misaligned bearing assemblies	Re-align/repair/replace parts as required
	Damaged/misaligned rollers/flow rail/	Re-align/repair/replace parts as required
	Fixed/Floating Gun Mounts not moving on/off frame correctly	See possible corrections above.
	Clamps/pins not sitting below level of Clamping trolleys/Stud aligners	See possible corrections above.
	Clamps/Stud pins not activating correctly	See possible corrections above.
	Clamping trolley/s not moving below the level of the frame	Check Clamping trolley/s are correctly aligned on the Auto table/s. See further possible corrections above for “Clamping trolley not adjusting correctly”.
	Obstruction	Clear obstruction
	Fixed/Floating Gun Mounts not lifting above frame correctly	See possible corrections above.
Unable to remove Wall frame assemblies	Clamps/Stud pins not de-activating correctly	See possible corrections above.
	Clamping trolleys not adjusting correctly	See possible corrections above.
	Rollers/flow rail broken/damaged/misaligned	Re-align/repair/replace parts as required.
	Obstruction/frame jammed	Lock out air and power to the machine. Extricate frame from parts and/or clear obstruction. Check parts for damage and repair/replace parts as required.
	Sensor Malfunction	Repair/replace the sensor/s as required. Re-calibrate Clamping trolleys/Floating Gun Mounts/Movable Auto table.
Inaccurate Nailing/Measurements	Framing Surfaces damaged/misaligned	Repair/re-align/replace parts as required.

	Guns damaged/misaligned	Repair/re-align/replace guns as required. See above for further maintenance info.
	Clamps damaged/misaligned	Repair/re-align/replace clamps as required. See above for further maintenance info.
	Auto table assembly parts damaged/misaligned	Repair/re-align/replace parts as required.
	Clamping trolley/s Floating Gun Mount/s Movable Auto table - pushed out of place	Re-calibrate Clamping trolley/Floating Gun Mount/Movable Auto table.
	Clamping trolley/s Floating Gun Mount/s Movable Auto table - bent or misaligned	Repair or replace parts as required, re-calibrate Clamping trolley/Floating Gun Mount/Movable Auto table.
	Missing or damaged parts/parts moving incorrectly	Repair or replace parts as required. Re-calibrate Clamping trolley/Floating Gun Mount/Movable Auto table as required.
	Software malfunction	Turn machine off and on again. Otherwise contact supplier for further information. Software malfunction could be for several reasons.

13.1.7 Computer Interface

Table 31, Troubleshooting – Computer Interface

Computer touch screen not working	Screen malfunction	Turn machine off and on again.
	Screen not turning on	Check input cables. Turn machine off and on again.
	Touch capability not working – Unable to utilise screen	Clear screen of any dust or debris. Check input cables. Turn machine off and on again.

If any of the above corrections do not solve the issue, then do not use the Sheather 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 it's also possible for this to happen if the motor output is 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: _____

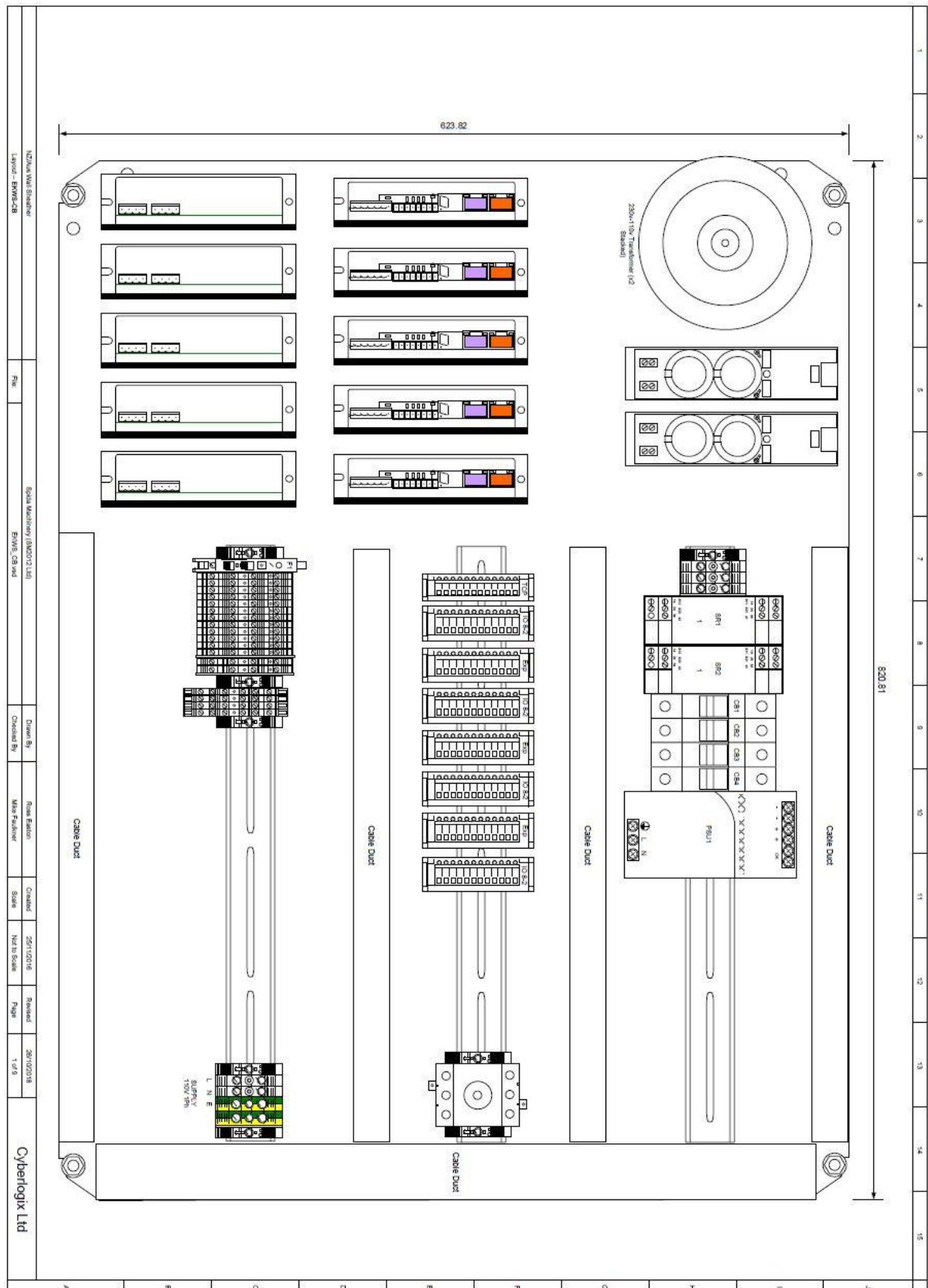
Name: _____

Company: _____

Position: _____

Date: _____

16 Electrical Drawings – NZ/AU



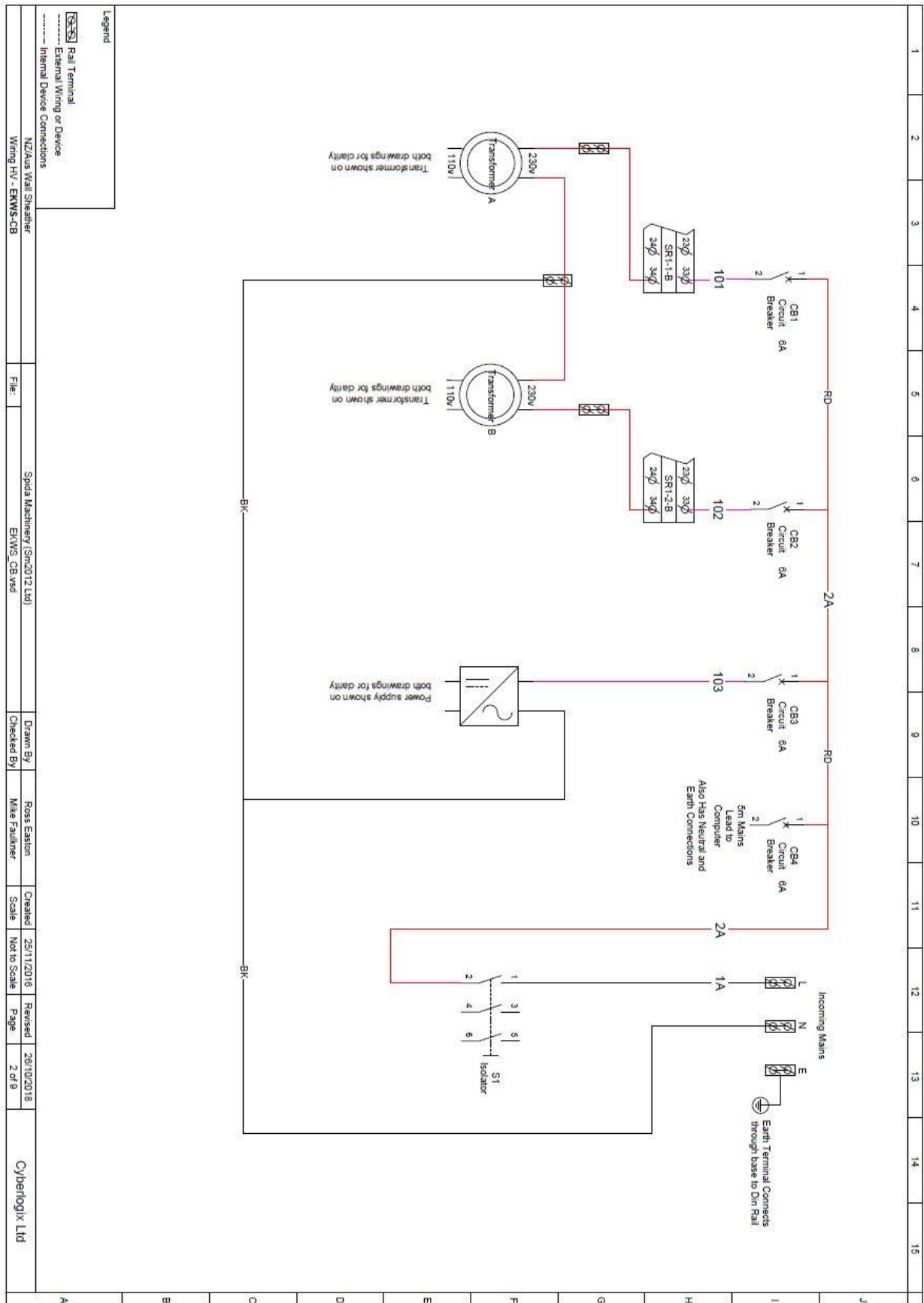
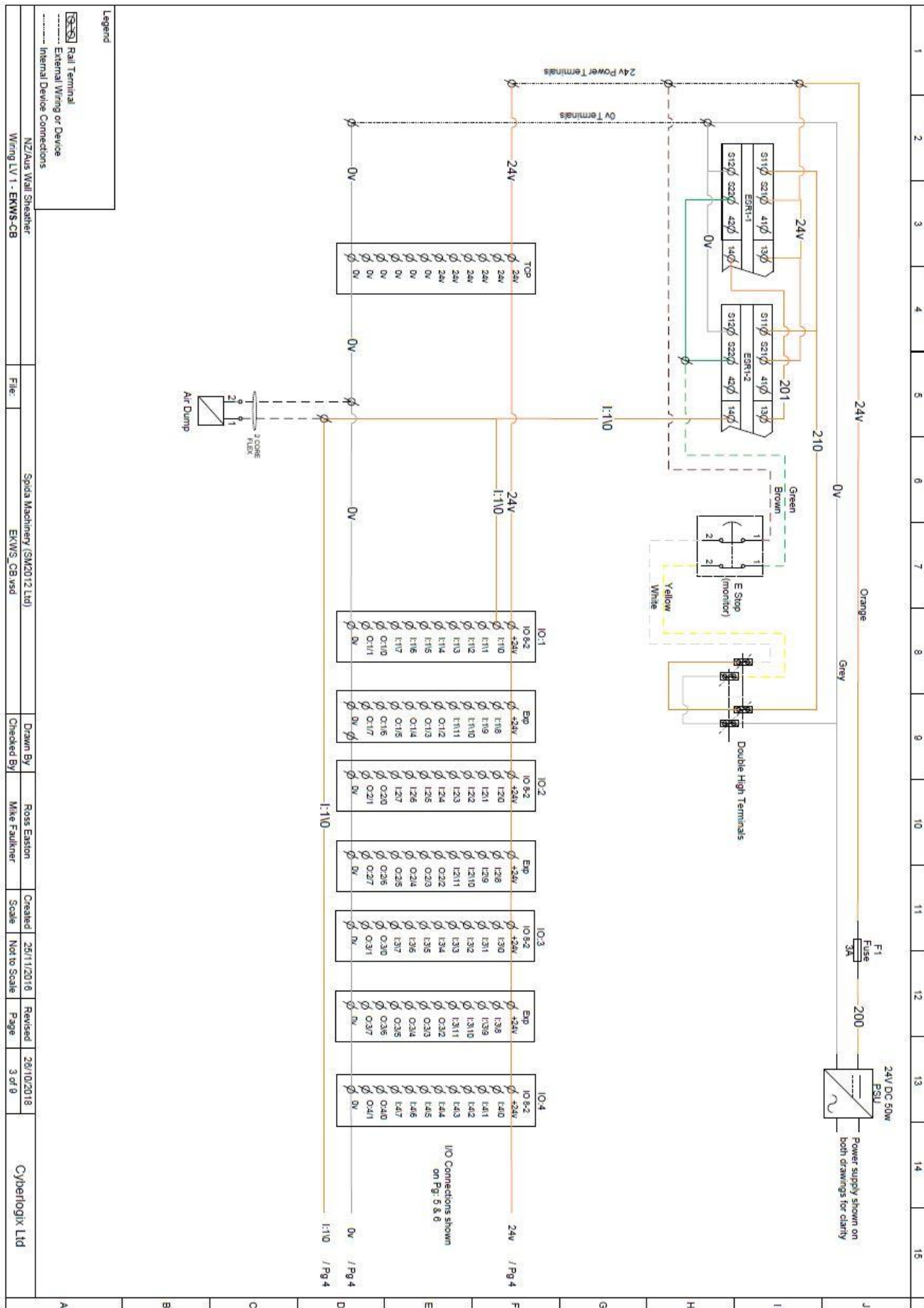


Figure 26, Spida Auto Sheather Electrical Drawings NZ/AU part 2



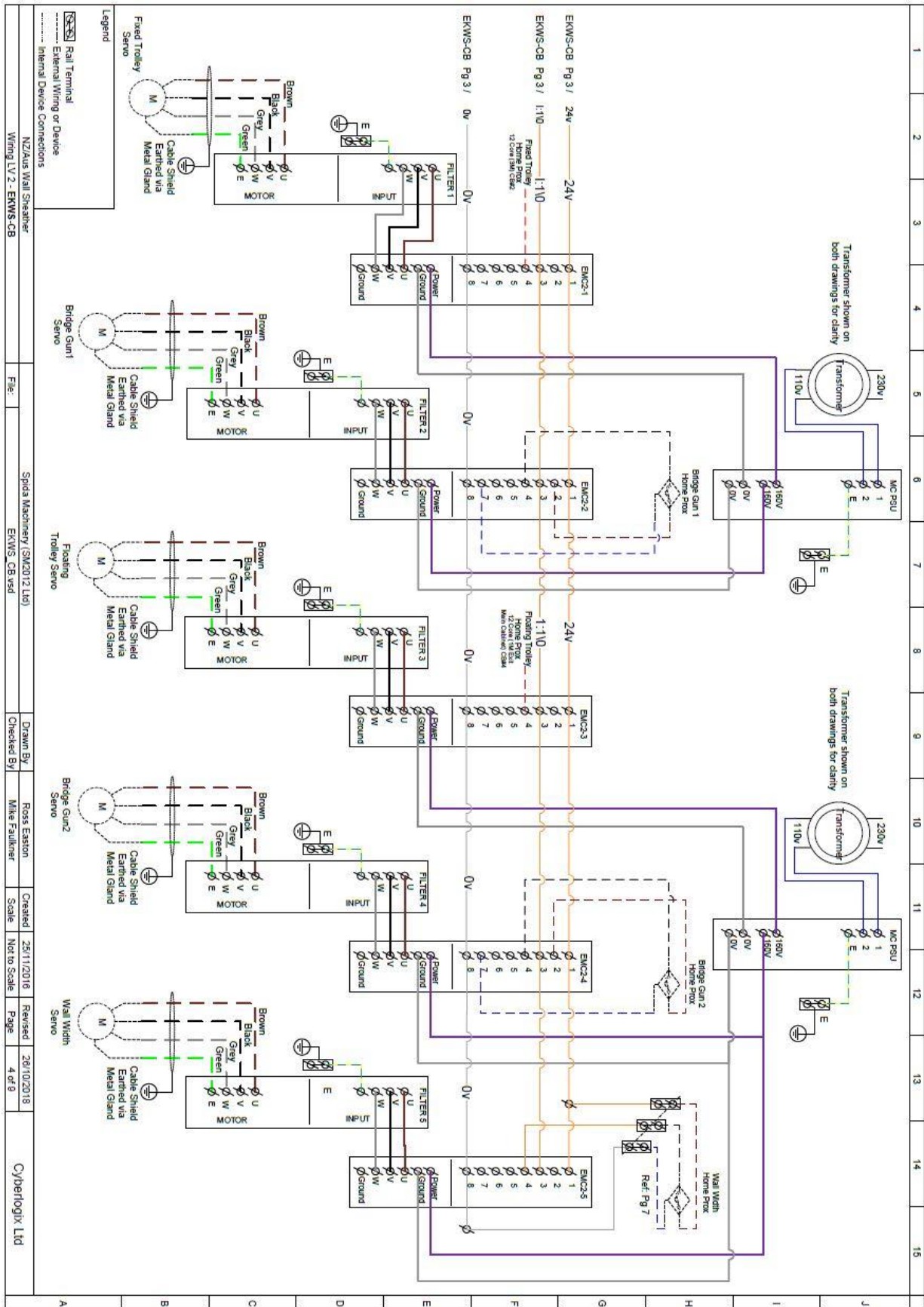


Figure 28, Spida Auto Sheather Electrical Drawings NZ/AU part 4

96

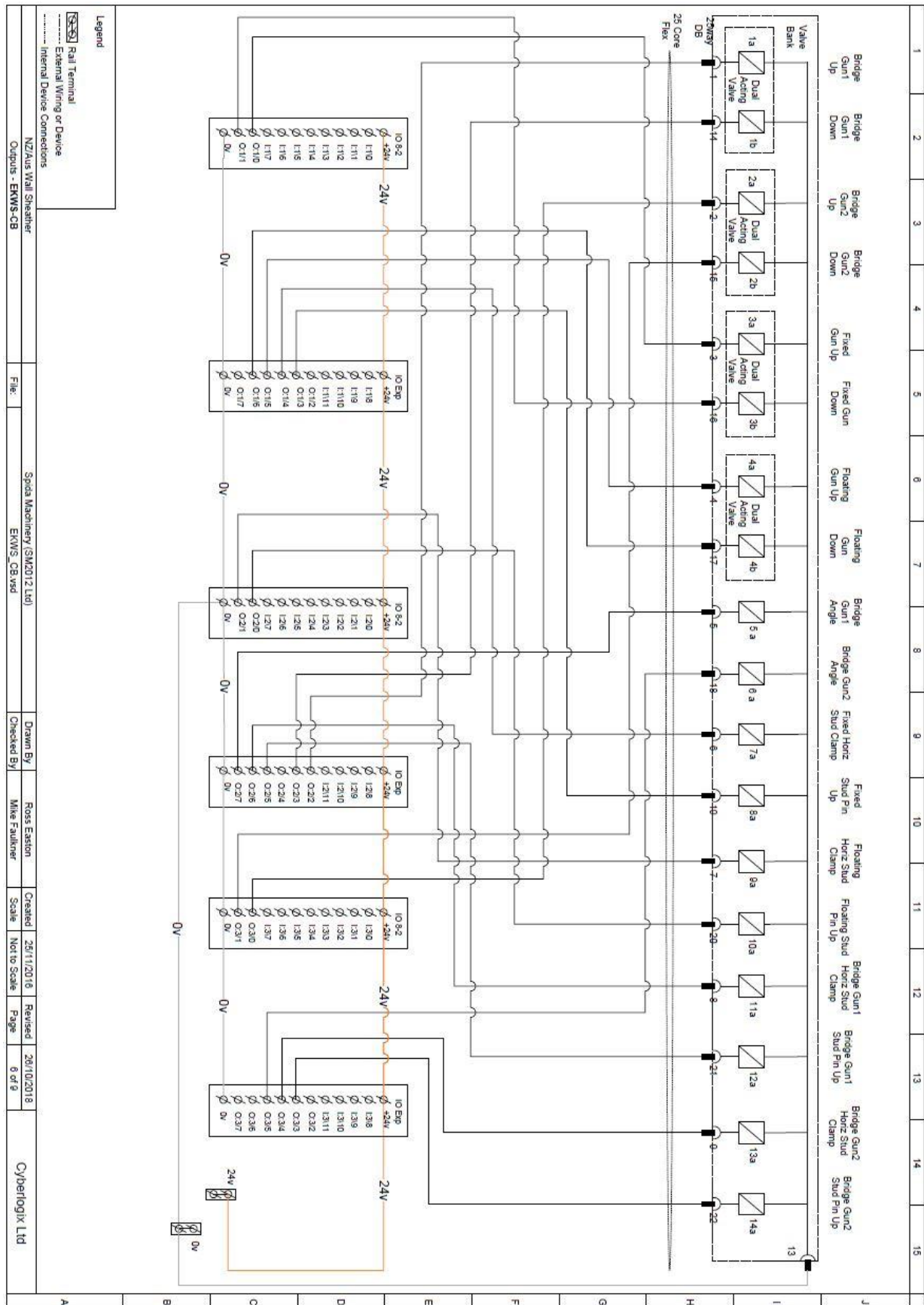


Figure 30, Spida Auto Sheather Electrical Drawings NZ/AU part 6

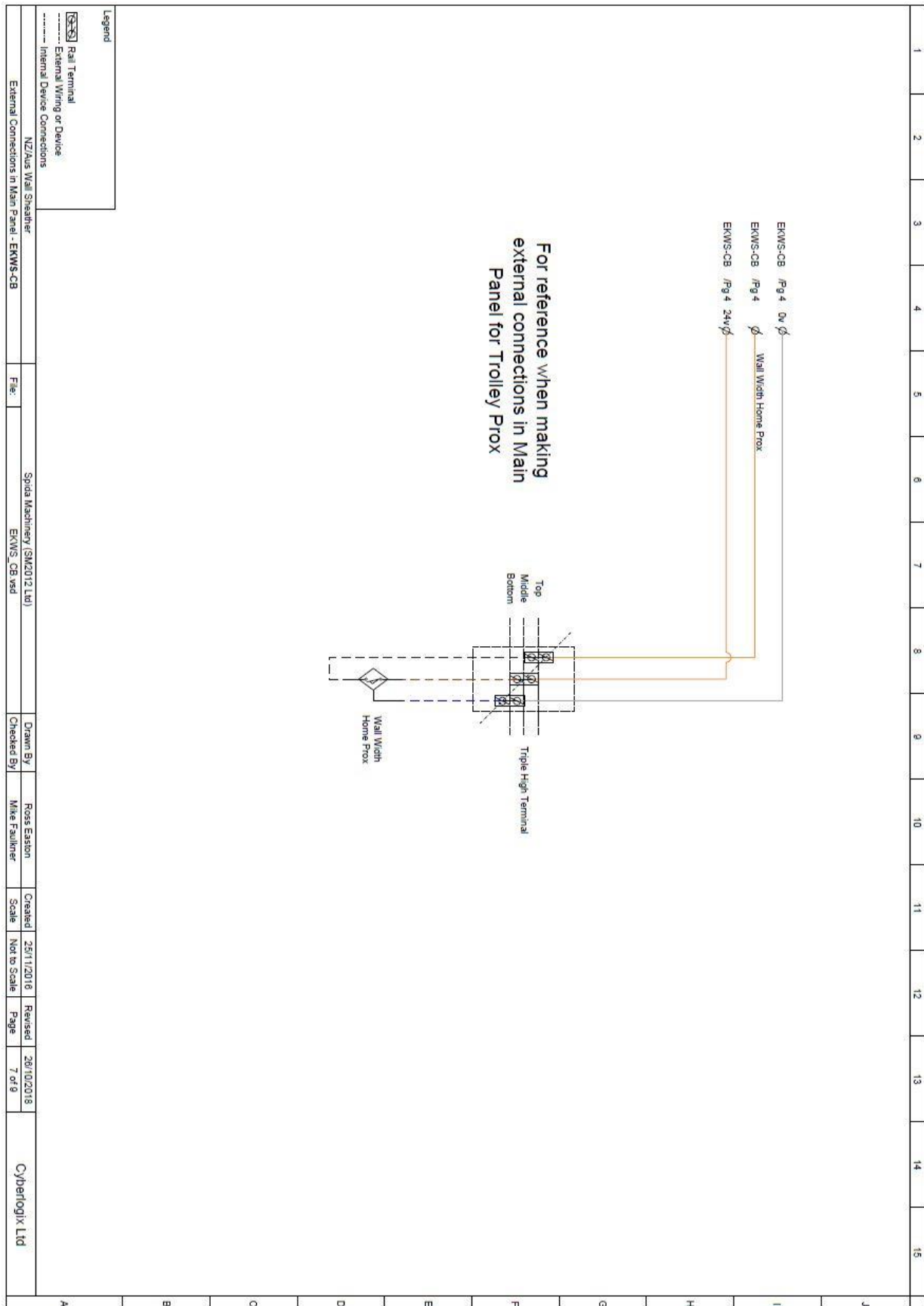


Figure 31, Spida Auto Sheather Electrical Drawings NZ/AU part 7

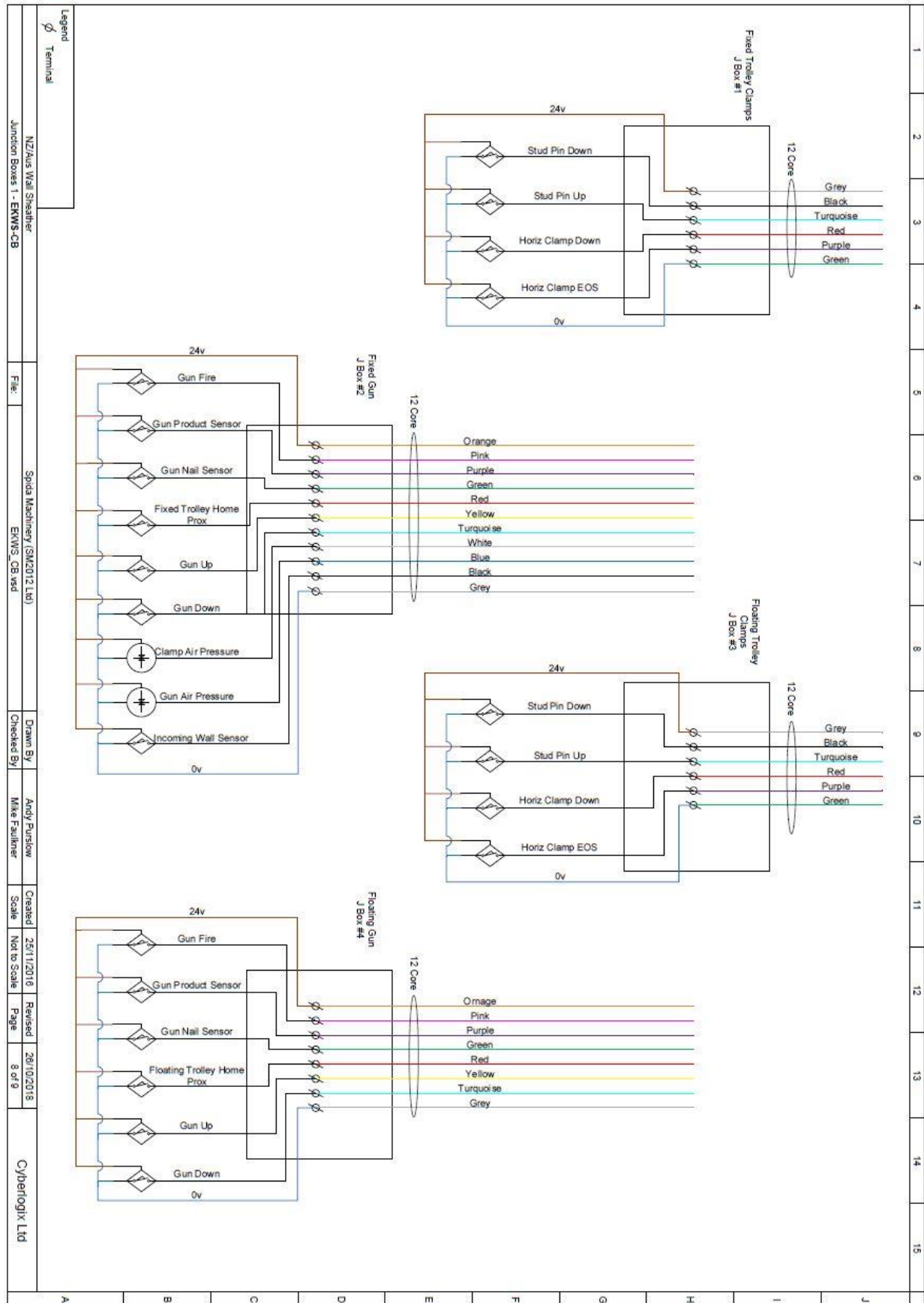


Figure 32, Spida Auto Sheather Electrical Drawings NZ/AU part 8

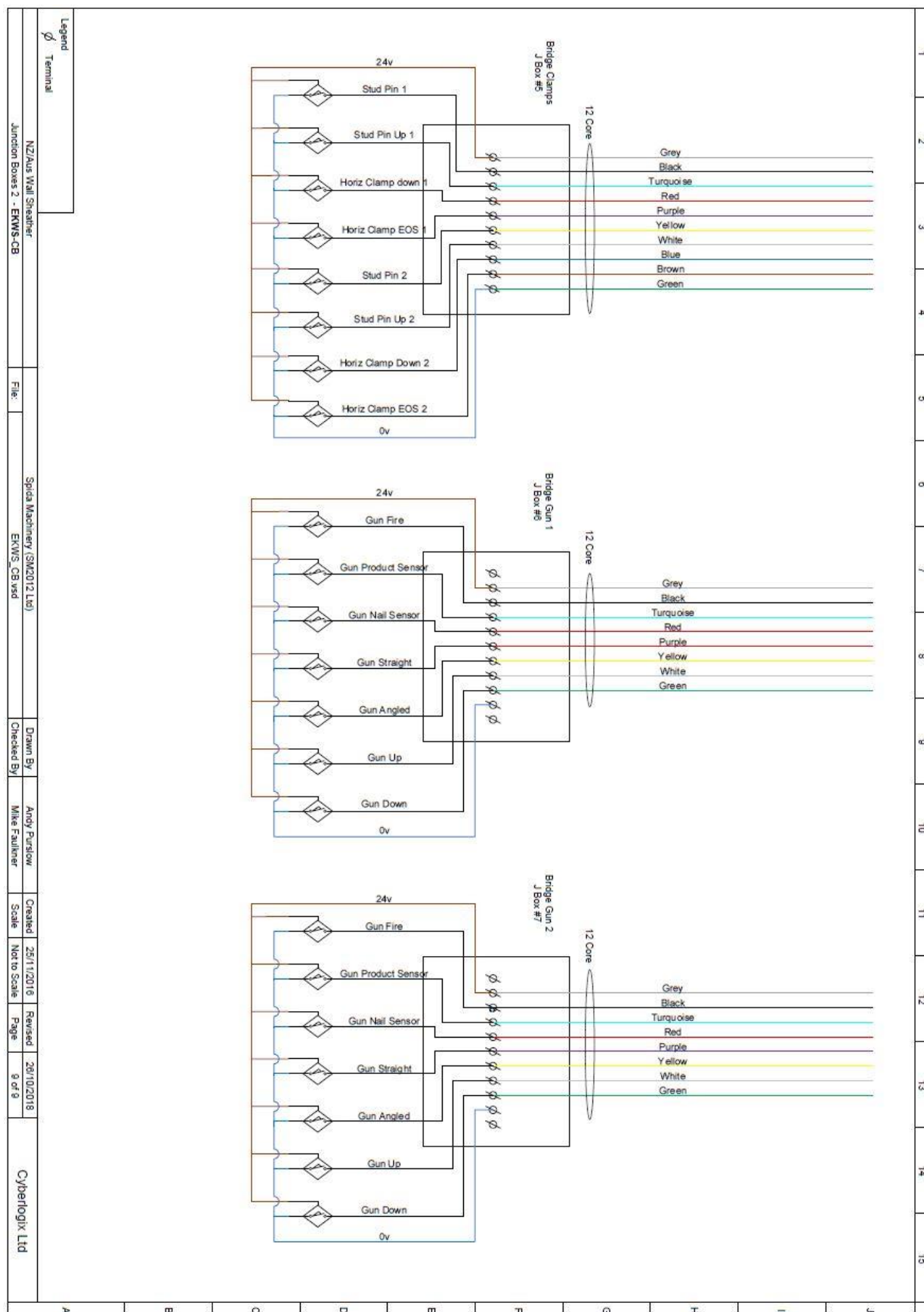


Figure 33, Spida Auto Sheather Electrical Drawings NZ/AU part 9

17 Electrical Drawings – US/Canada

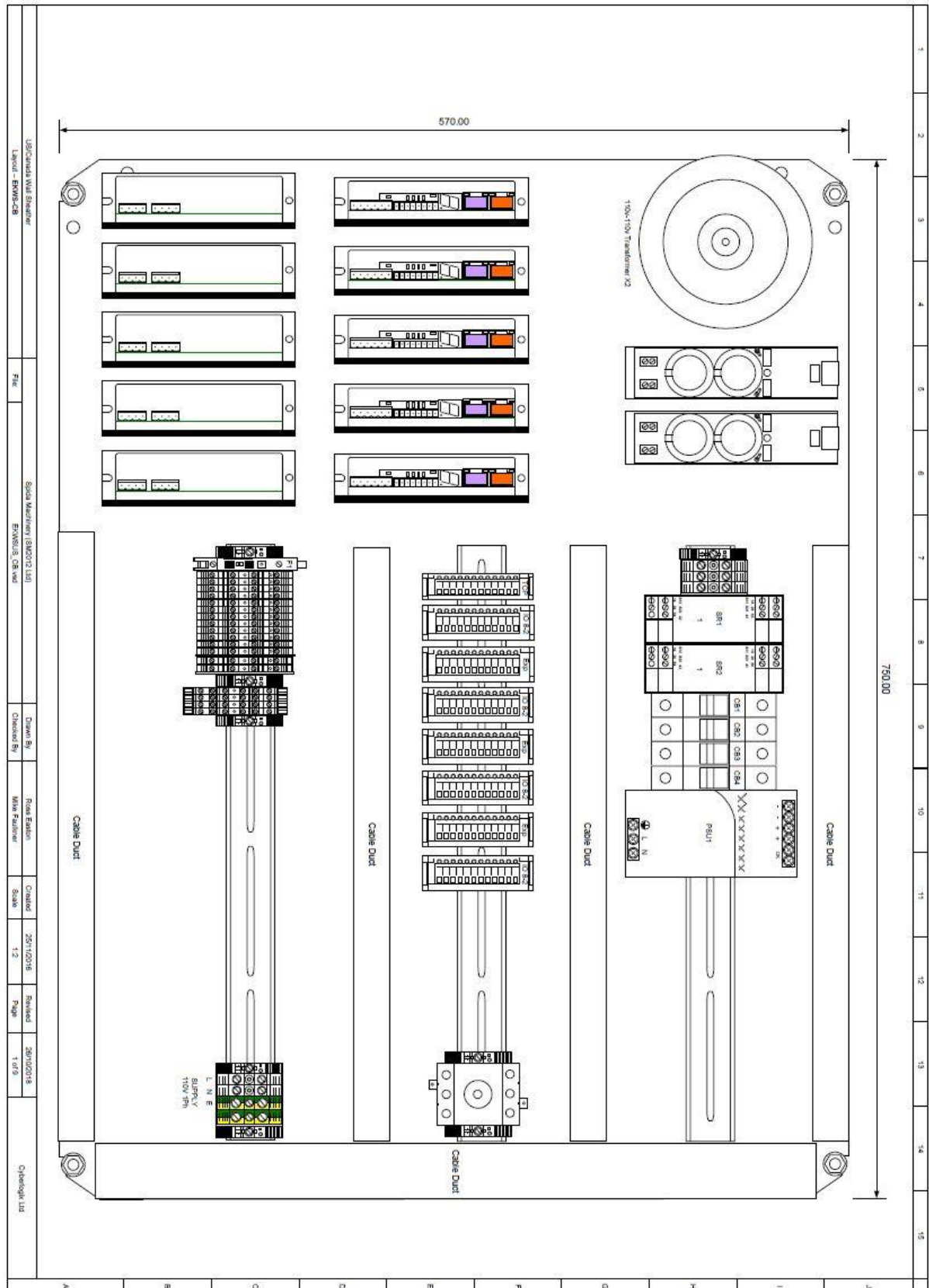


Figure 34, Spida Auto Sheather Electrical Drawings US/Canada part 1

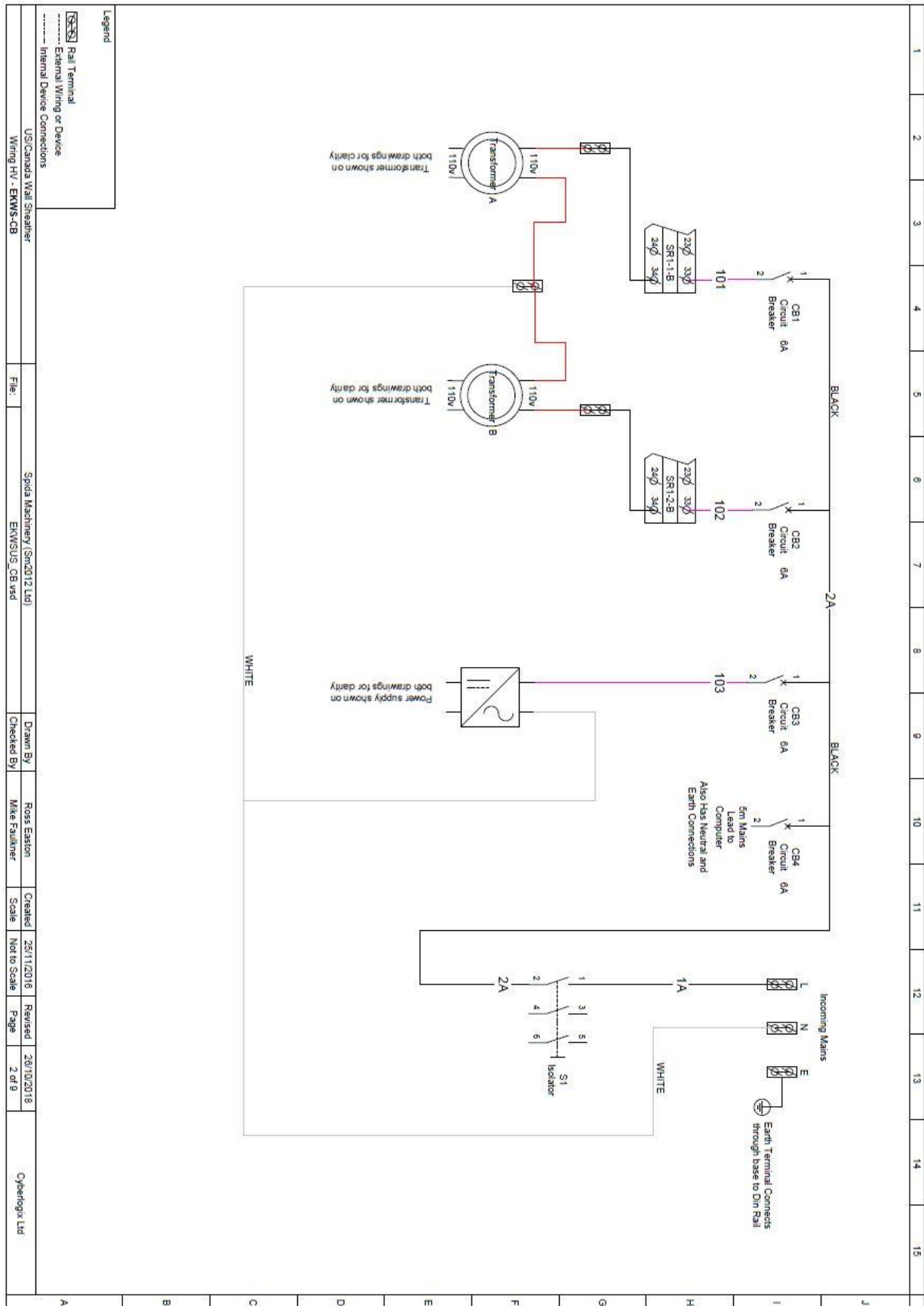


Figure 35, Spida Auto Sheather Electrical Drawings US/Canada part 2

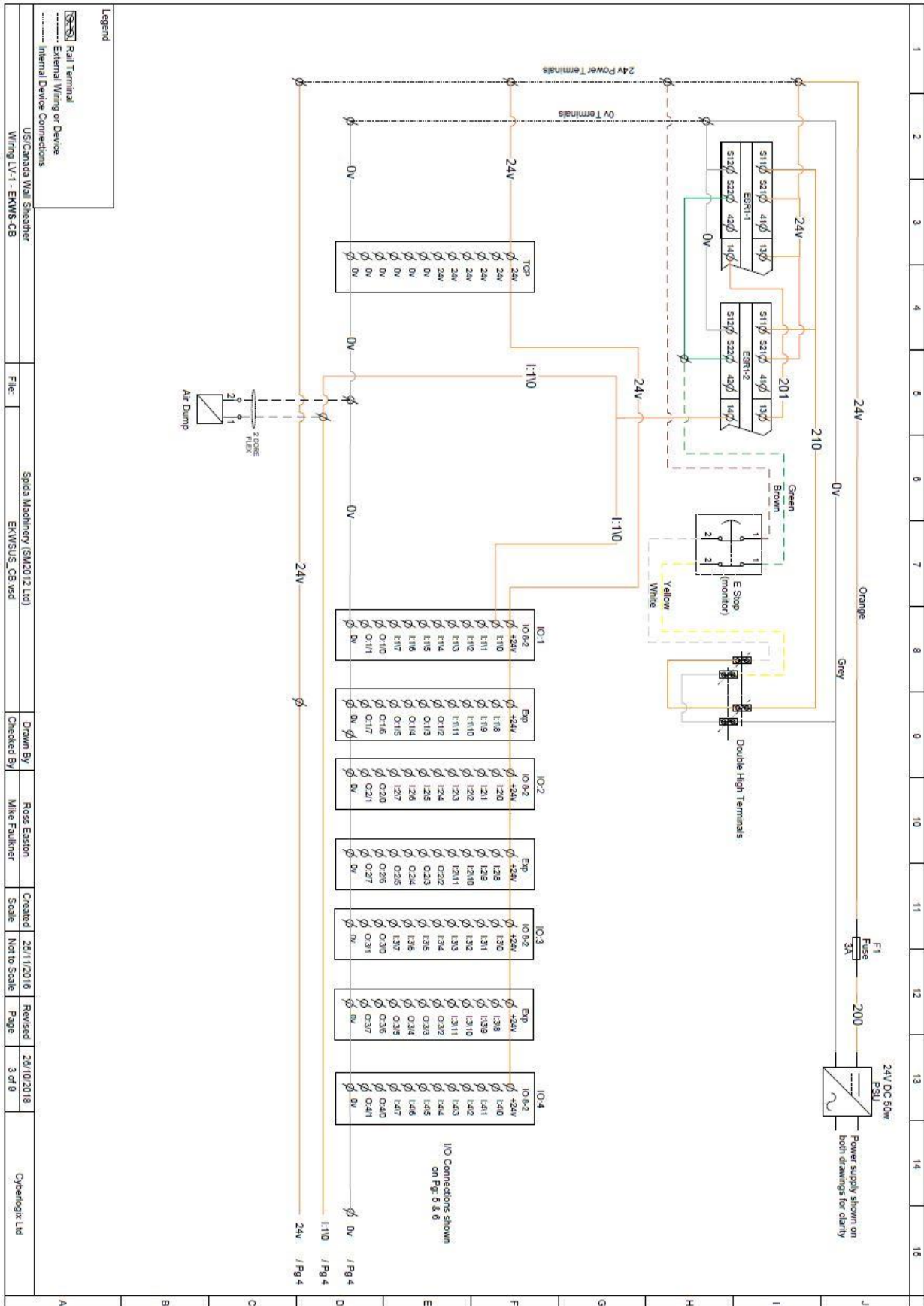


Figure 36, Spida Auto Sheather Electrical Drawings US/Canada part 3

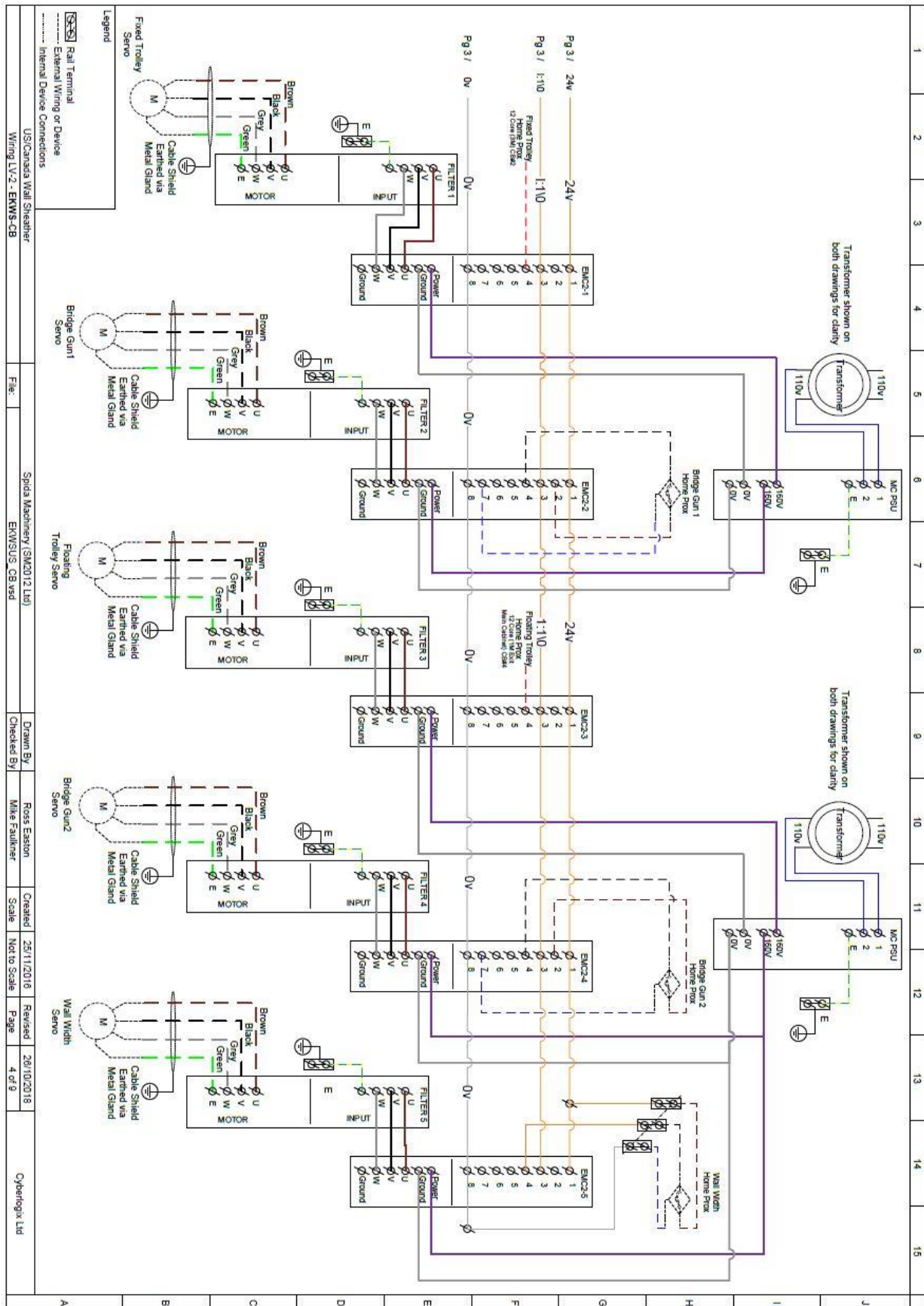


Figure 37, Spida Auto Sheather Electrical Drawings US/Canada part 4

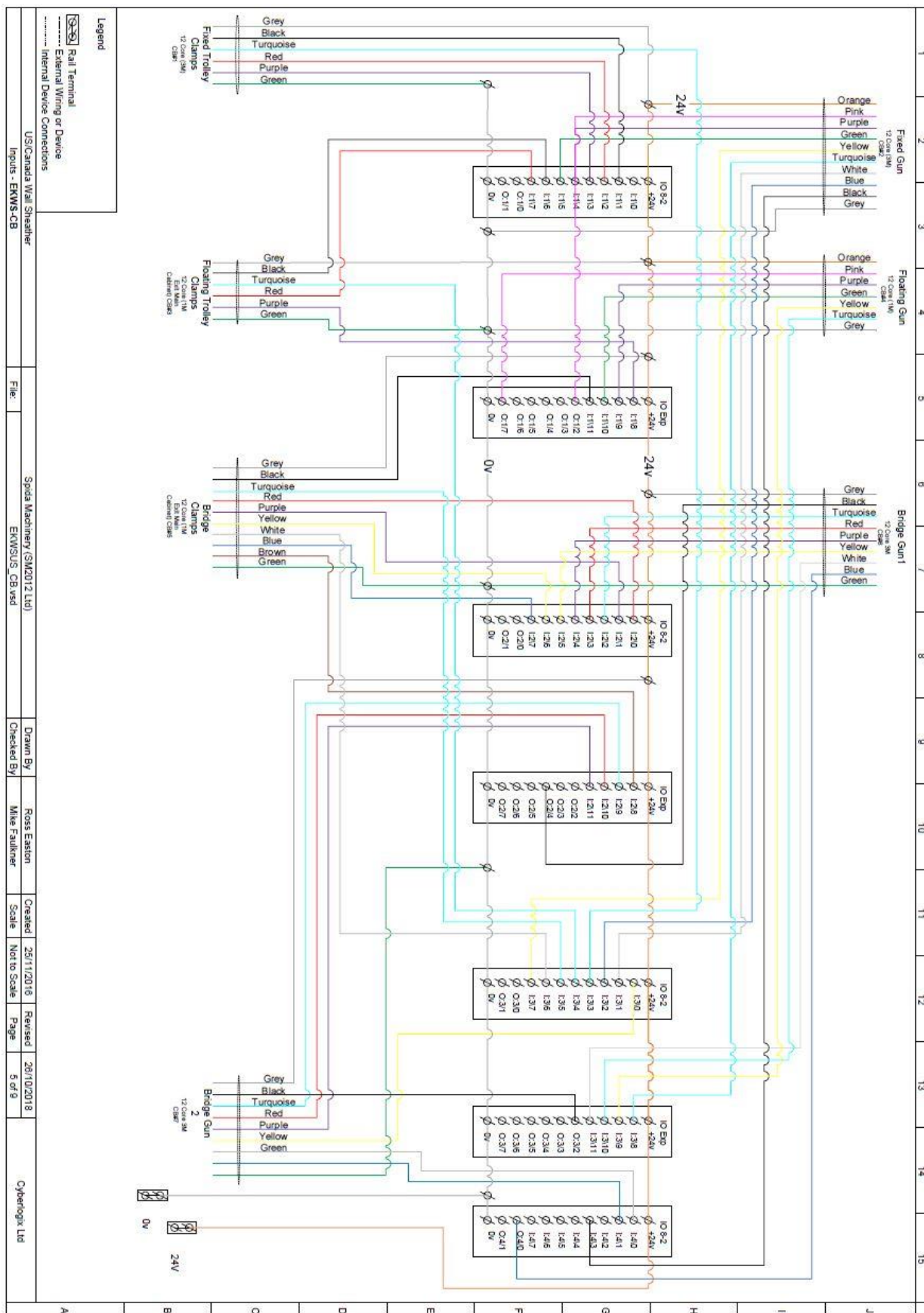


Figure 38, Spida Auto Sheather Electrical Drawings US/Canada part 5

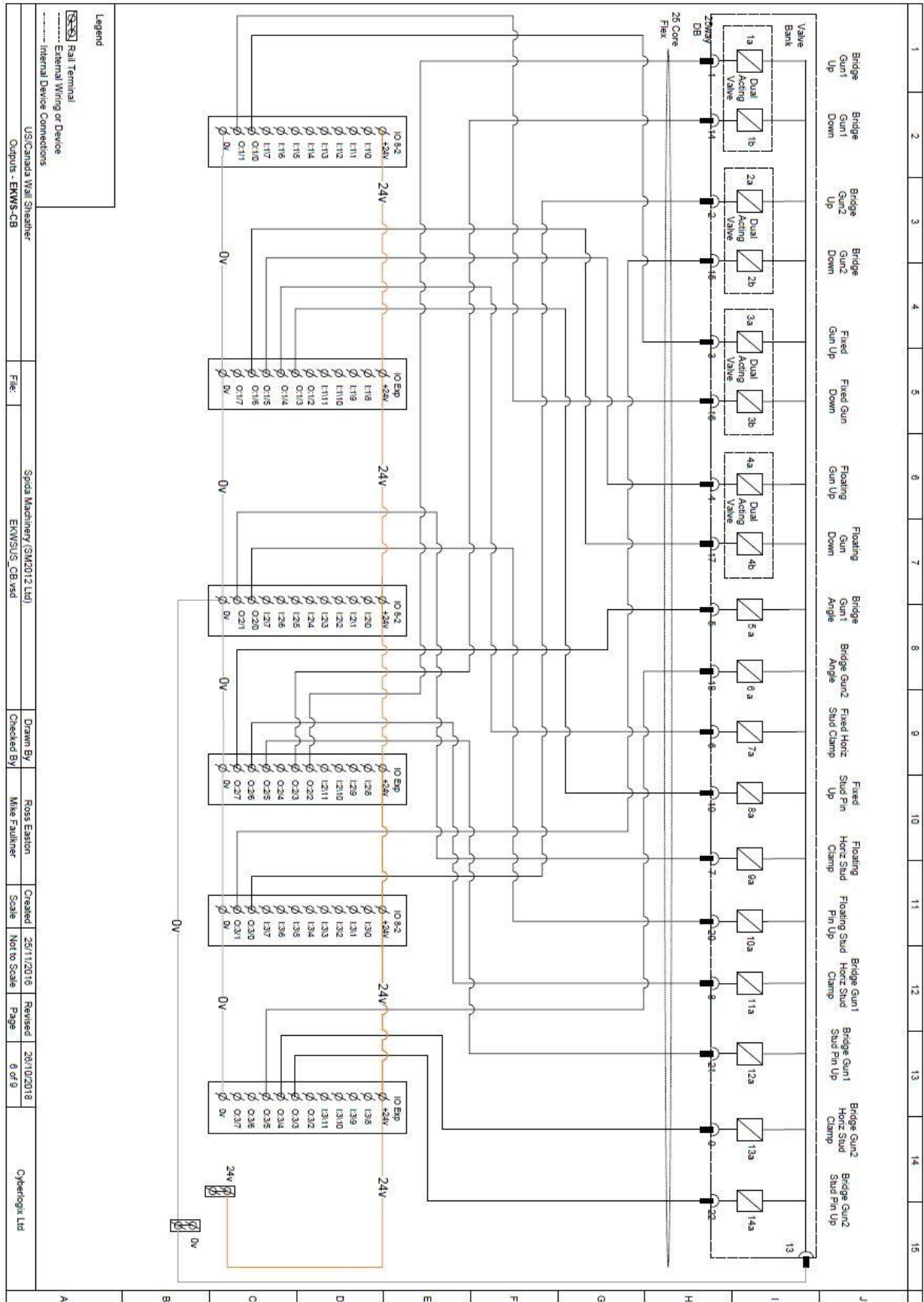


Figure 39, Spida Auto Sheather Electrical Drawings US/Canada part 6

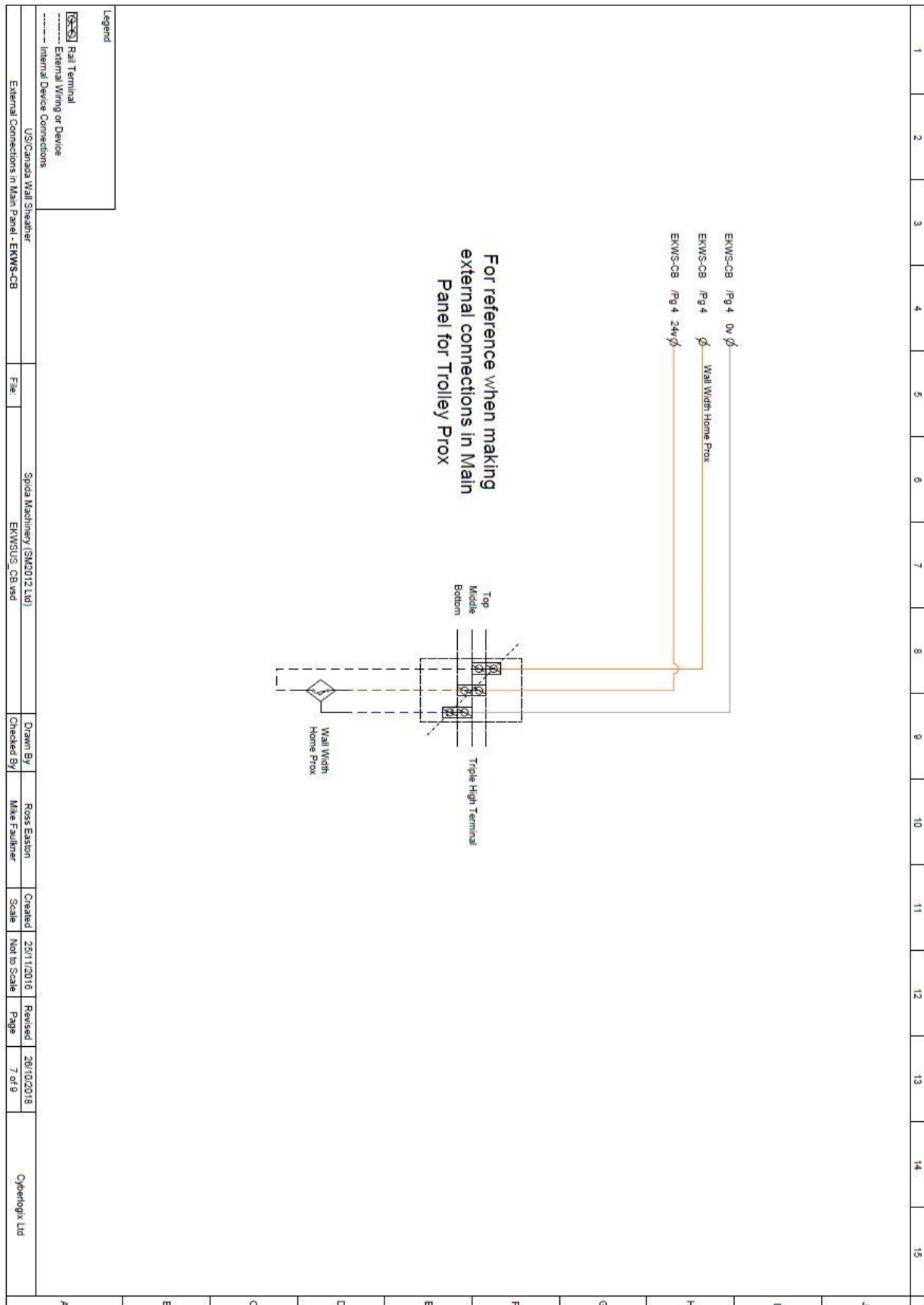


Figure 40, Spida Auto Sheather Electrical Drawings US/Canada part 7

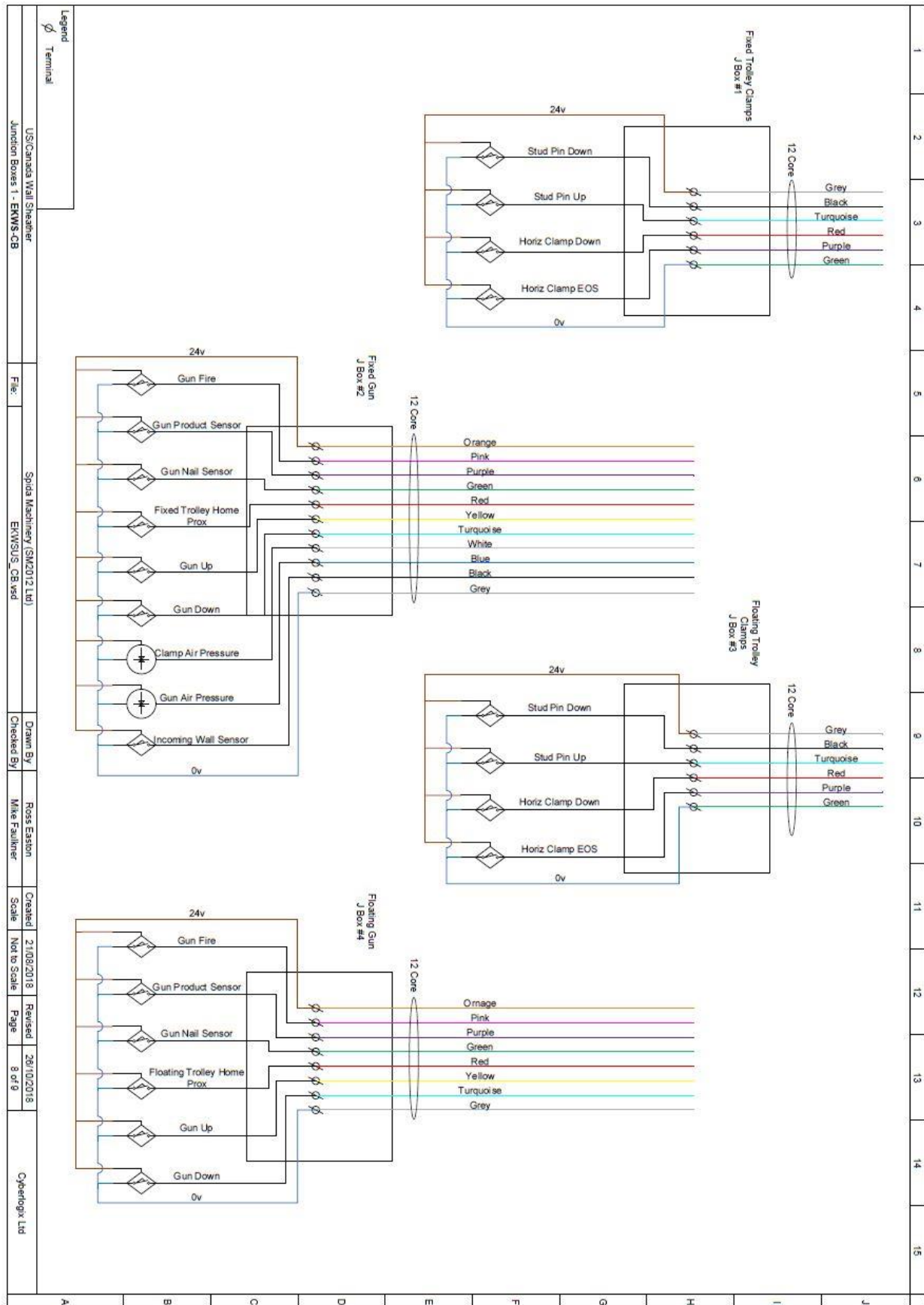


Figure 41, Spida Auto Sheather Electrical Drawings US/Canada part 8

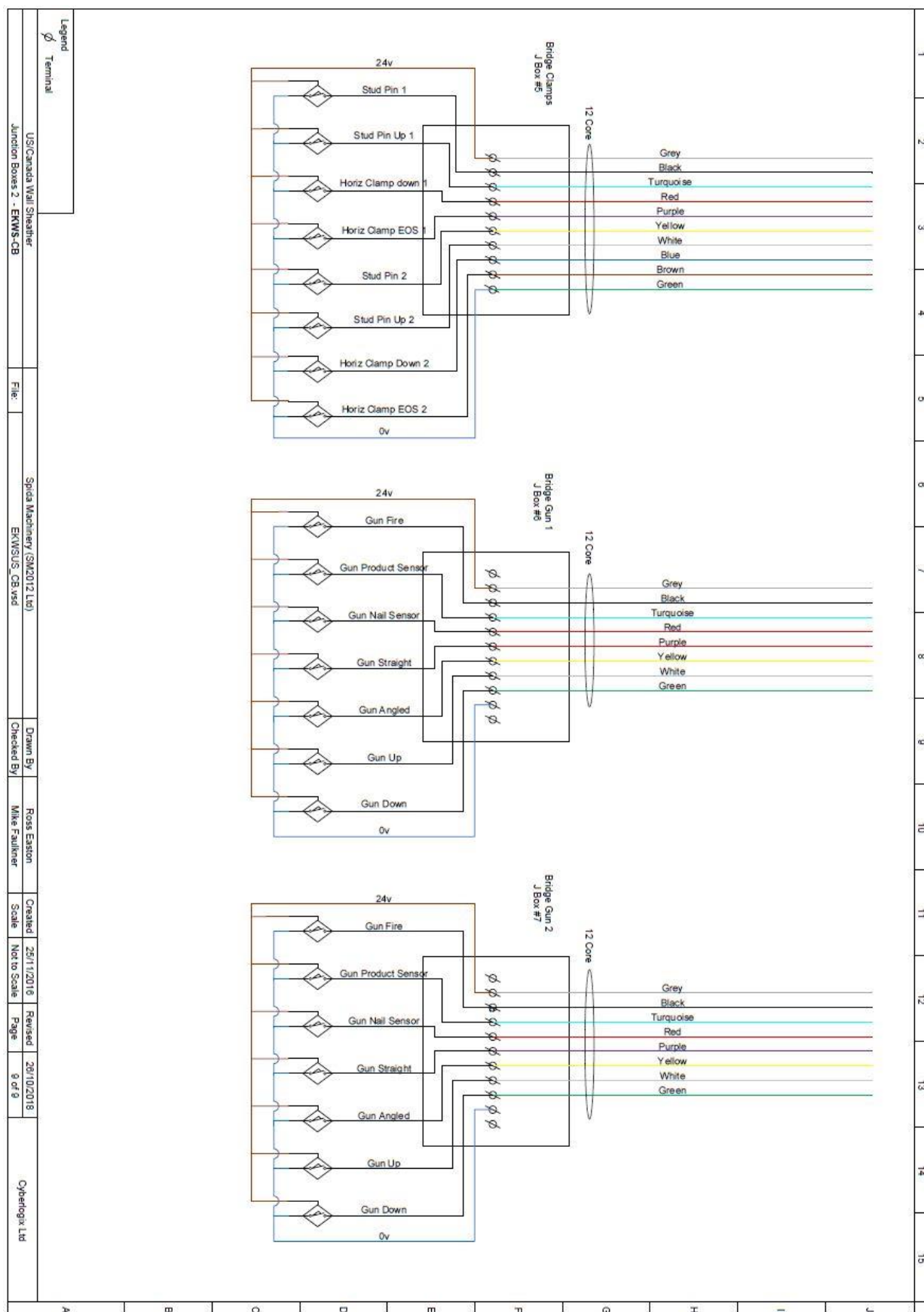


Figure 42, Spida Auto Sheather Electrical Drawings US/Canada part 9

18 Pneumatic Diagrams

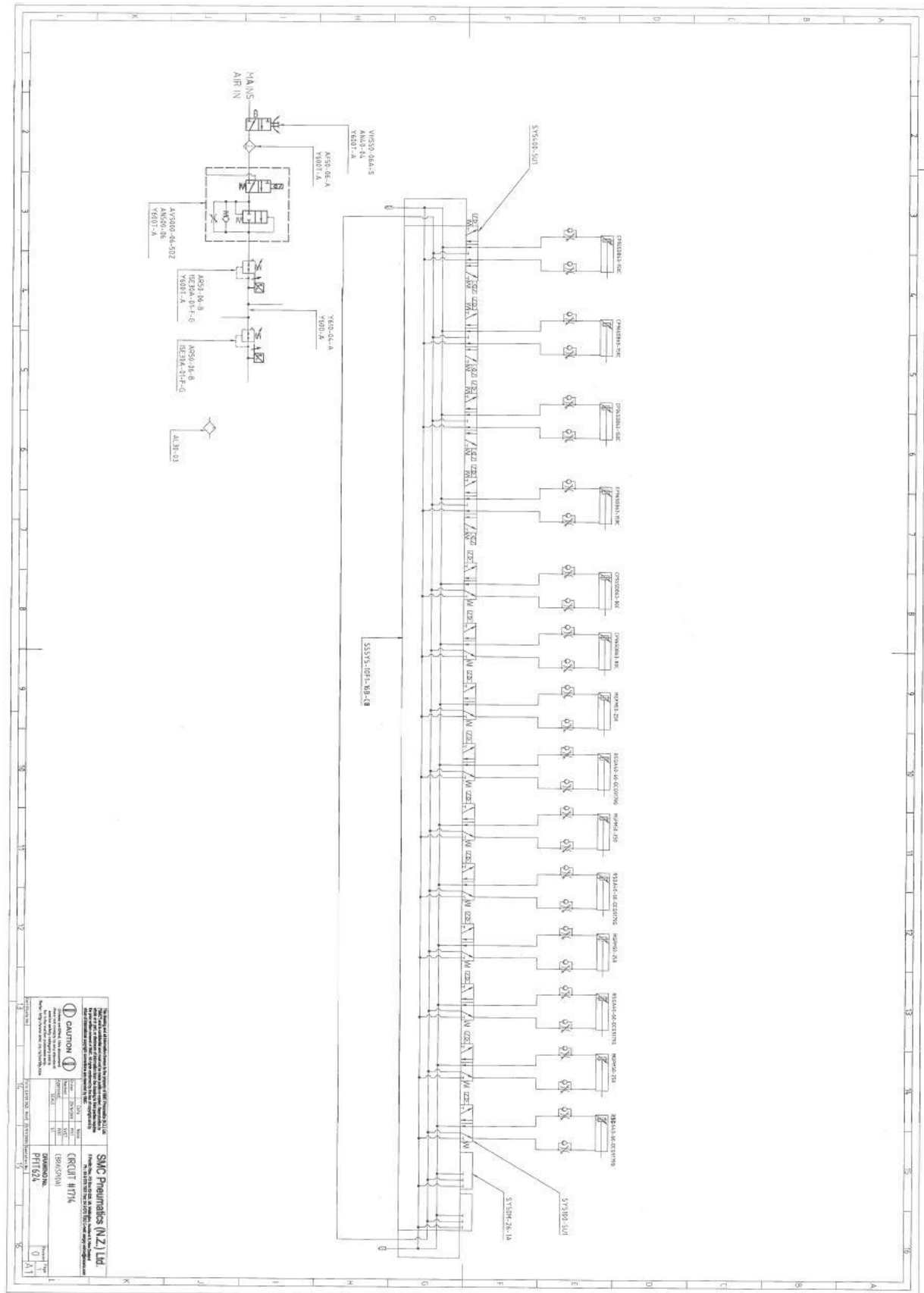


Figure 43, Spida Auto Sheather Pneumatic Diagram

19 Training Certificate – Spida Auto Sheather

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: _____