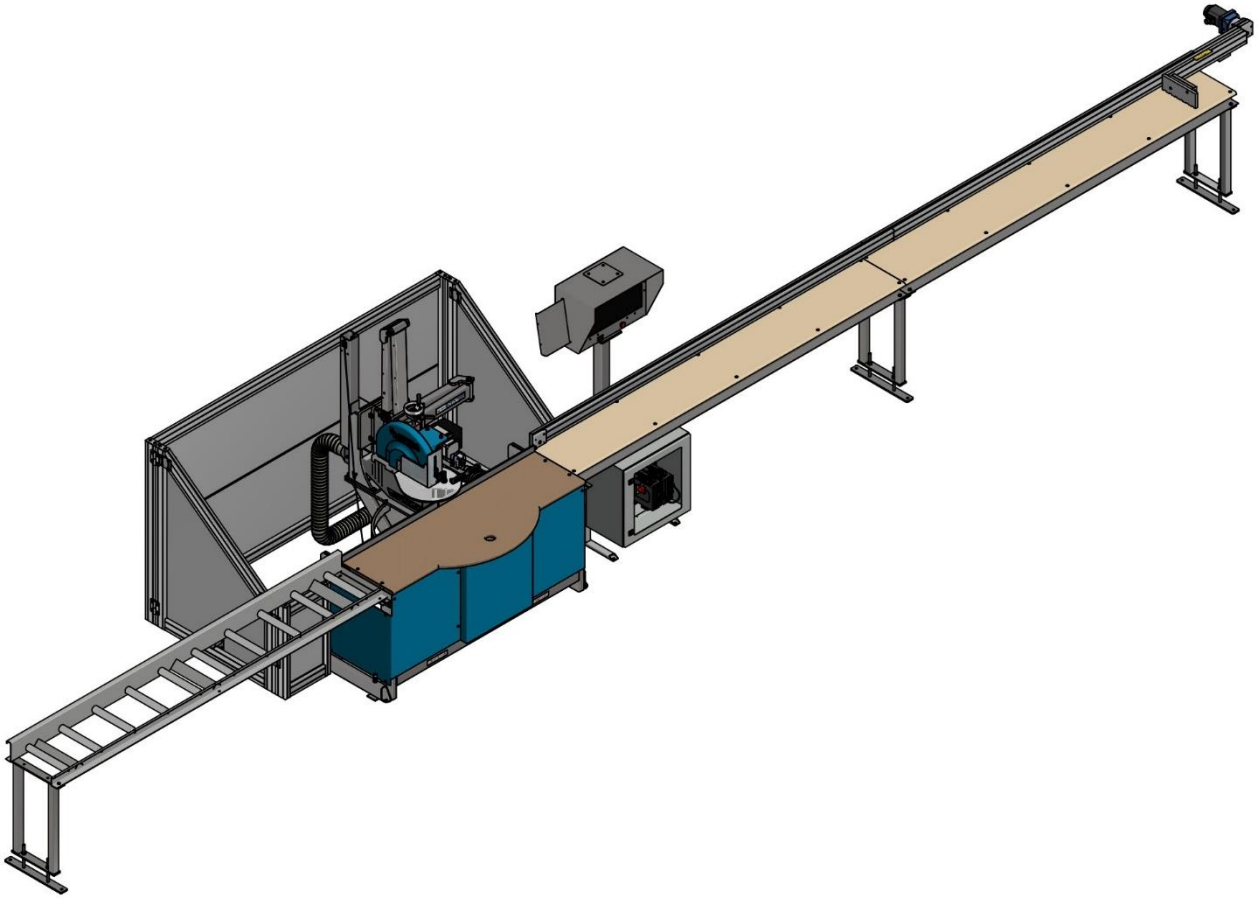
SPIDA MACHINERY

Apollo Gen10

Omron Control



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 and CE certification plate displayed on the back of the machine

1 Contents

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Figures

2 Revision History

Rev A:

- First issue
- 09/11/2021

3 Overview

The CSS Apollo Saw is designed to provide an automated and accurate method of measuring and cutting material components.

The CSS Apollo Saw 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 CSS Apollo Saw 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 CSS Apollo Saw are deemed competent and qualifies to operate the machine.

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

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

All electrical wires 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, CSS Apollo Saw Specifications

Specifications	NZ/AUS (mm)	US (Inches)
Overall Length, Width, Height (mm, ft)	10800, 1200, 1980	35, 4, 6
Max Timber Dimension (mm, in)	450 x 150	18, 5.9
Min/Max Feed Lengths (mm, ft)	0-6000	0-20
Min/Max Cut Lengths (mm, ft)	0-6000	0-20
Working Height (mm, in)	870	34.25
Machine Mass (kg, lb)	978	2156
Operational Db	90	90
Blade (Dia., Bore, #Teeth)	450, 35, 72	18, 1.37, 72
Blade Motor (kW, Hp)	5.5	7.4
Min/Max Radial Angle Cut(deg.)	9	9
Electrical Requirement (V, A, Phase)	440V, 10A, 3 Phase	220V, 20A, 3 Phase
Air Requirement (L/min @Bar, CFM @PSI)	20L/m @ 8Bar	0.7CFM @ 116PSI
Dust Extraction (L/min, CFM)	4200	150

Specifications may change without notice

Notes:

1. Saw can be assembled in left or right configurations
2. Overall measurements and weight based on CSS Apollo Saw with 3m Roller table and 6m Rapid Stop table.

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 CSS Apollo Saw 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 12m x 2m area
- The CSS Apollo Saw 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 CSS Apollo Saw 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 CSS Apollo Saw for the ease of loading and unloading material of varying sizes.

Check that all safety equipment is functioning properly.

5.3 Dust Extraction

Dust extraction port located side of rear guard, diameter of 100mm

Dust extraction required; 4200L/min

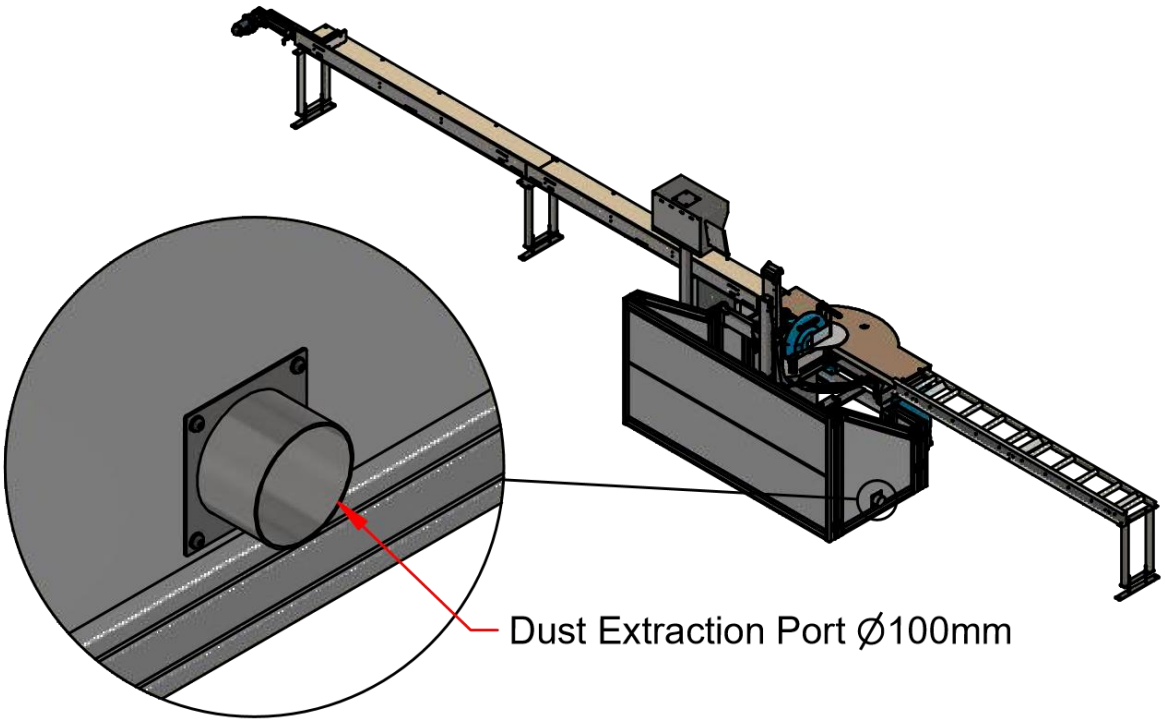

Figure 1, Dust extraction

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 Risk Assessment

6.2.1 Risk Assessment Process – Part A

Hazard Identification and Risk Assessment for Machinery/Equipment of plant

Identification of Plant or Machine			
Intended use of Plant or Machine			
Relevant standards to which plant design should comply	AS 4024.1 Safeguarding of machinery part 1	AS60204.1 Safety of machine Electrical equipment of machines	AS3000 Electrical installations (Australian/New Zealand wiring rules)

Date of Inspection		Name of person assessment		Risk assessment and action endorsed by worksite manager	

	Is Action needed to meet the following requirements	No	Yes	Action
A	Inspection testing and maintenance check sheets and records must be developed and available for all plant and equipment	X		
B	Safe Operating procedures must be developed and supplied	X		
C	Manufactures operation manual must be available	X		
D	Results of this assessment must be available to all users of plant and included in the manual	X		

Electrically Powered Machinery

Control System Category: _____

	Is action needed to meet the following requirements? For each YES carry out a risk assessment	No	Yes	Consequence	Exposure	Likelihood	Risk Rating	Action
A	All electricity powered plant must have a single point of isolation lockable in the off position only	X						
B	The machine must be fitted with a non-latching start button in any colour other than RED, recessed, or flush with the switch body and marked with “Start” or the symbol “I”	X						
C	The machine must be fitted with a stop button RED in colour, with a mushroom head or proud of the switch body and marked with “Stop or symbol “O”	X						
D	The control circuit must have a NO VOLT release in its design	X						
E	Stop controls at each operation position must always be within easy reach of the operator	X						
F	Operation of the E stop must isolate/discharge all hazardous energy within the machine	X						

	Is action needed to meet the following requirements? For each YES carry out a risk assessment	No	Yes	Consequence	Exposure	Likelihood	Risk Rating	Action
G	Are there any Belt & Pulley, Gears or Chain Drives that are not totally enclose by a guard? A _____ B _____ C		X	15	6	1	90	No need for operator to access this area of machine during Auto Operation
H	Are there any Pneumatic or Hydraulic or Electrical Rams that are not totally enclosed by a guard? A _____ B		X	5	2	1	10	a. Clamp only closes on activation of THNTD b. Timber loader is manually actuated by a pushbutton, Operator needs to keep hands clear dogs.
I	Are there any Guards that are not either interlocked, (with machine controls to prevent running if guard is opened or removed) or fixed requiring the use of a Tool or Key to remove? A _____ B	X						
J	Are there any cutter or blade that are not always totally enclosed by a guard? A _____ B	X						
K	Are the any exposed or unguarded moving parts? A _____ B		X	15	6	1	90	No need for operator to access this area of machine during Auto Operation
L	Are there any surfaces within reach or operator that could cause harm if touched? A _____ B	X						
M	Is there any potential for parts of the body or hair to become entangled or drawn into the plant? A _____ B	X						
N	Is there any potential for any person to become trapped or crushed in the machine or any moving parts other machine? A _____ B	X						
O	Is there any hazard regarding access and ingress of the machine? A _____ B	X						
P	Could workpieces or waste be ejected from	X						

	the machine and cause injury to any person? A _____ B							
Q	Could any of the materials or waste cause injury to the operator while handling A _____ B	X						
R	Could the workpiece snag or grab during operation? A _____ B	X						
S	Does the operator have to overreach, stretch, lift, carry or bend in such a way that it may cause body strain? A _____ B	X						
T	Is there potential for excessively high temperature leading to fire risk A _____ B	X						
U	Is there any hazard due to gas, Vapour, or liquid under pressure with this machine? A _____ B	X						
V	Is there potential for explosion by the operation of this machine A _____ B		X	25	1	1	25	Dust extract system must be properly managed
W	Is there potential hazard due to noise? (Level not to exceed 85dB(A) A _____ B	X						
X	Is there a potential hazard due to atmospheric dust or other atmospheric particles? A _____ B		X	25	10	1	250	Dust extraction must be fitted, and dust mask used if necessary
Y	Are there any hazards presented during the loading, setting or maintenance of the machine? A _____ B		X	15	2	1	30	Operator must be properly trained in manual handling / Provide mechanical assistance
Z	Other observation ii A _____ B							
Z1	Other observation iii							

Consequence	C	Exposure	E	Likelihood	L
Catastrophe: Multiple fatalities, permeant extensive environmental damage	100	Continuously or many times in a day	10	Almost Certain: The most likely outcome if the event occurs.	10
Disaster: Fatality, permanent local damage to the environment.	50	Frequently: Approximately once daily	6	Likely: Not Usual, perhaps a 50-50 chance	6
Very Serious: Permanent disability/ill health, non-permanent damage to the environment	25	Occasionally: Once a week to once a month	3	Unusual but possible: Perhaps a 1 in 10 chance	3
Serious: Non-permanent injury or ill heath, adverse effect on the environment.	15	Infrequent: Once a month to once a year	2	Remotely possible: A possible coincidence, perhaps a 1 in 100 chance	1
Important: Medical attention needed, offsite emission but no damage.	5	Rear: Has been known to occur	1	Conceivable: Has never happened in years of exposure but could happen.	0.5
Noticeable: Minor cuts and bruises or sickness, small loss of containment, no offsite consequences.	1	Very Rare: Not known to have occurred	0.5	Practically impossible: Not to knowledge ever happened anywhere <1 in 10,000.	0.1

Risk Score = C x E x L

Risk Score	Risk Rating
>600	Very High
300-599	High
90-299	Moderate
<90	Low

6.3 Long Hair and Loose clothing

Any long hair or loose clothing must be fully contained to eliminate the risk of entanglement with machinery. **Do not wear gloves when cutting.**

PROTECTIVE SAFETY CLOTHING AND EQUIPMENT MUST BE WORN, INCLUDING:

Eyewear

Hearing protection

Respirator or Dust mask

Protective Clothing

Safety footwear

6.4 Cleaning and Maintenance of Machinery

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

6.5 Training and Supervision of CSS Apollo Saw Operators

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

6.6 Responsibilities of CSS Apollo Saw Operators

Operators should:

- Check the CSS Apollo Saw 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.
- Ensure guards are in place and adjusted to correct position if required

6.7 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.

6.8 Machinery Stability and Location

The CSS Apollo Saw 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 CSS Apollo Saw should be maintained to prevent persons not directly involved with the operation of the machine from reaching any part of the machine.

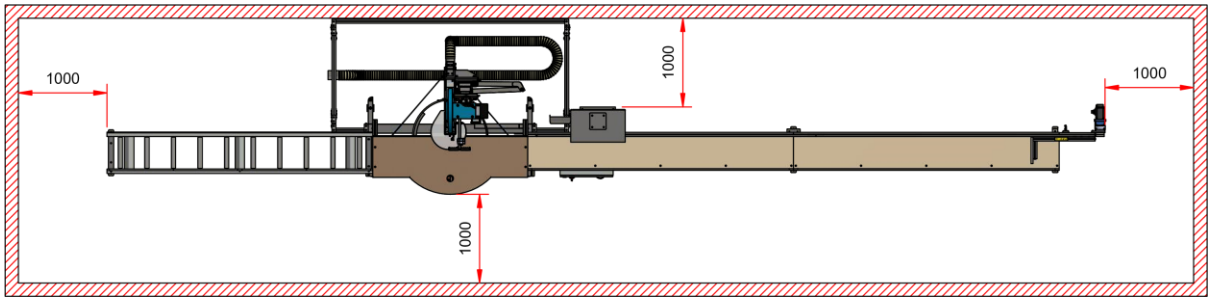

Figure 2, Recommended exclusion zone around the CSS Apollo Saw

6.9 Electrical Safety

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

6.10 Isolation, hold cards and lock out devices

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

6.11 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.

6.12 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.

6.13 Recommended Service Interval

It is recommended that for optimal performance, the CSS Apollo Saw 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 CSS Apollo Saw 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 CSS Apollo Saw is to be operated in accordance with this manual. Deviation from this specified operation may result in incorrect cutting, measuring or injury.

7.1 User Warnings

- All moveable parts of the machinery must be set so as not to allow its movement through the hazardous areas of adjacent machinery.
- All machine and components should be inspected upon delivery and at weekly intervals for looseness, fracture, bends, sharp edges or surfaces and any other condition that may contribute to a human mishap or further deterioration of the machine. We suggest a log be kept for this purpose.
- When broken, damaged, or loose parts (or any condition that may represent a hazard) are observed, corrective action should be taken immediately. Inadequate attention to maintain the machine can cause the premature failure of these parts. We suggest this information also be logged.
- The electrical boxes should always be locked to avoid casual entry by unauthorized persons, as touching live surfaces is hazardous.
- Never go behind the Fence when the Saw is running
- Split, broken, warped, twisted or material with excessive wane should be avoided or used with caution because of the greater possibility of the material not being held securely during manufacturing processes.
- The machine is not to be used for any other purpose than the cutting and measuring of material.
- Keep hands out of moving parts on the machine. Operators should be instructed not to extend fingers or limbs into or beyond the vicinity of the warning labels. The danger here is obvious – fingers in these areas will risk mutilation.
- Be sure the machine is completely free of foreign objects, and that all guards are in place before connection to electrical supply.
- The CSS Apollo Saw must be electrically isolated before performing any maintenance on the machine.
- 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 CSS Apollo Saw 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 saw blade and moving parts. Make sure guards are in position and in good working order. Do not operate machine without guards. Barrier guard should be adjusted to be 10mmm above timber being cut. Use wing nuts to adjust see Figure 3
Poor Housekeeping	Inspect Saw and surrounding areas for obstructions, hazards, and defects. Remove built-up debris from around machine, electrical leads, and power points.
Electrical Faults	Inspect electrical leads 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 CSS Apollo Saw.

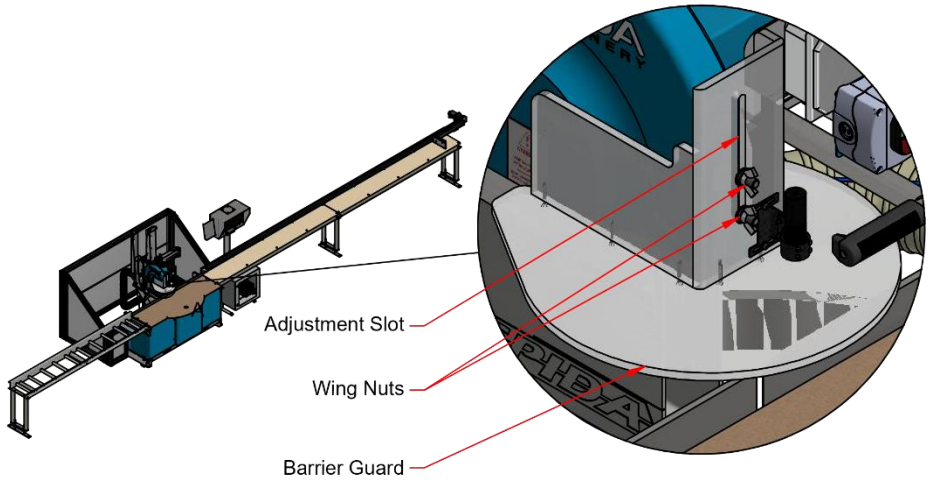


Figure 3, Barrier guard adjustment

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.

7.4 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 should be above head level or in the floor in such a way that they are not trip hazards. Floor areas should be level and non-slip. Clean up any spills immediately.
Workplace	Use good lighting so that the work piece and machine controls can be seen clearly. Position or shade light sources so they do not shine in the operators' eyes or cause glare and reflections. Ensure that the floor space around the equipment is sufficient to allow the operator to process his work without bumping into other staff or equipment. Keep the work area free of clutter, clean, well swept and well lit.
Housekeeping	Clean built-up debris from around the machine, electrical leads, 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, aluminium & plastic guards.
Improper Use	Only use the machine for what it has been designed for.
Material Defects	Inspect stock for nails or other foreign materials before sawing. Use only material that the machine has been designed to accommodate.
Operator Technique	Do not impede the movement of the Saw while in use. Ensure any body parts, clothing, or work tools do not get in the way of moving parts. Only place material once the Saw is in the home position and has come to a complete halt. Do not attempt to move the Saw before material has been removed.
Hit by projectiles	The CSS Apollo Saw must be electrically 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.

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.

7.5 Maintenance

Table 4, Maintenance Hazards

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

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.

7.6 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 eliminates 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 workspace 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 CSS Apollo Saw, familiarise yourself with the location and function of each control.

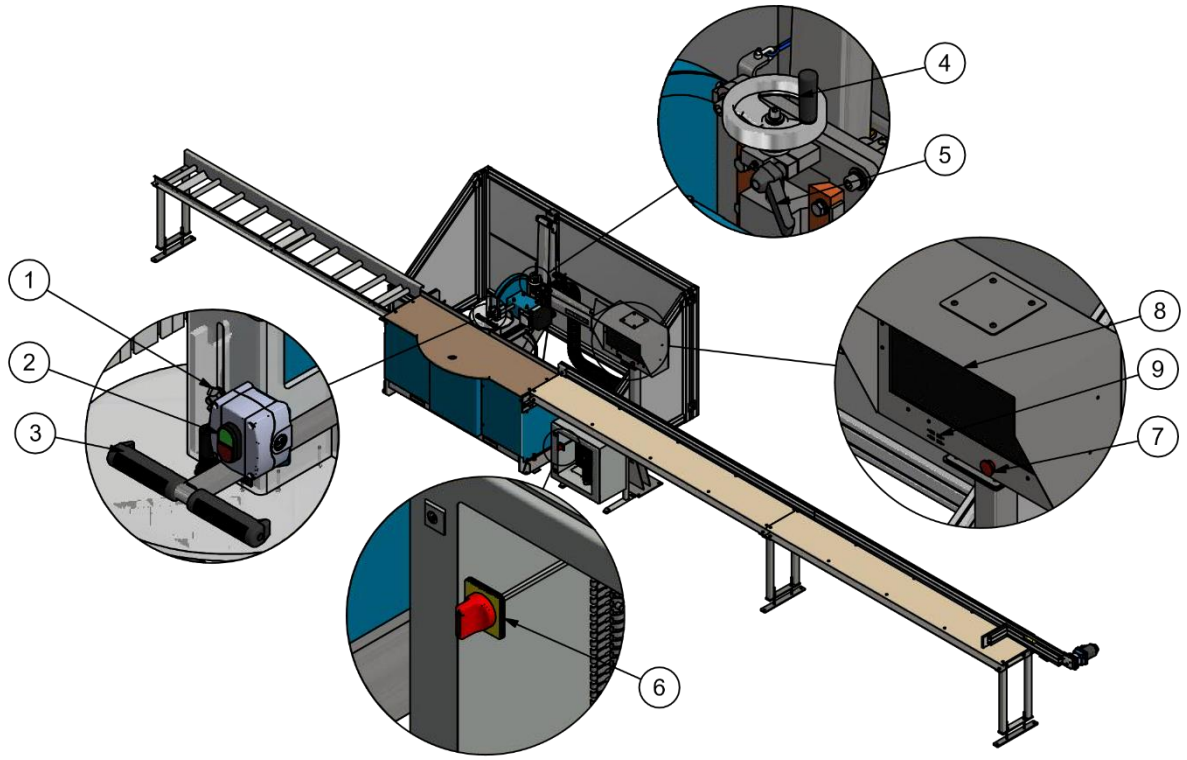


Figure 4, CSS Apollo Saw controls

Table 5, Control functions (see Figure 4)

Control	Function	Description
1	Barrier Guard adjustment	Allows for height adjustment of the barrier guard
2	Saw Blade start/stop button	Activates/Deactivates the Saw blade
3	Saw Handle	Allows the user to move the Saw blade to perform a cut
4	Height adjustment wheel	Allows for height adjustment of the blade assembly
5	Quick Clamp handle	Sets the height adjustment of the blade assembly
6	Apollo On/Off switch	Turns the power to the machine on/off as required
7	Emergency Stop	Cuts all power to the machine in case of emergency
8	Touch Screen	A touch screen to allow the user to input commands
9	USB Ports	Allows a USB connection to computer

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

9 Operation

NOTE: The CSS Apollo Saw 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 CSS Apollo Saw 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 CSS Apollo Saw and any adjacent machining area; or further down the framing line.
- Complete all safety checks required
- The automatic stroke limiter is set so that the saw will not exceed the maximum cut length, at any angle. Check the cables are secure and correctly positioned.
    - **Note:** The leading edge of the blade must be at least ~50mm back from the edge of the bench at the maximum cut length.

Once the Saw and the surrounding area are satisfactorily clear, the CSS Apollo Saw can be switched on.

9.2 Operation

1. Select and load cutting file
2. Select and load member in cutting file.
3. Start Saw blade
4. Load material to be cut onto in-feed bench
5. Make the cut/s on the leading end of the material
6. Move the material along to the Stop
7. Make the required cut on the material
8. Remove the cut piece, and select the next required cut
    a. The computer will automatically move the saw to the required angle, and the Stop to the required length
9. Move the remaining material along to the Stop
10. Continue steps 7 – 9 until the member is finished
11. Make the required cut/s on the trailing end
12. Remove and stack finished member
13. Continue cutting required cut list

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

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

9.3 Machine Shutdown

Once operations are complete, ensure that the CSS Apollo Saw 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 CSS Apollo Saw

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

10 Parts Identification

10.1 Top Level Assembly

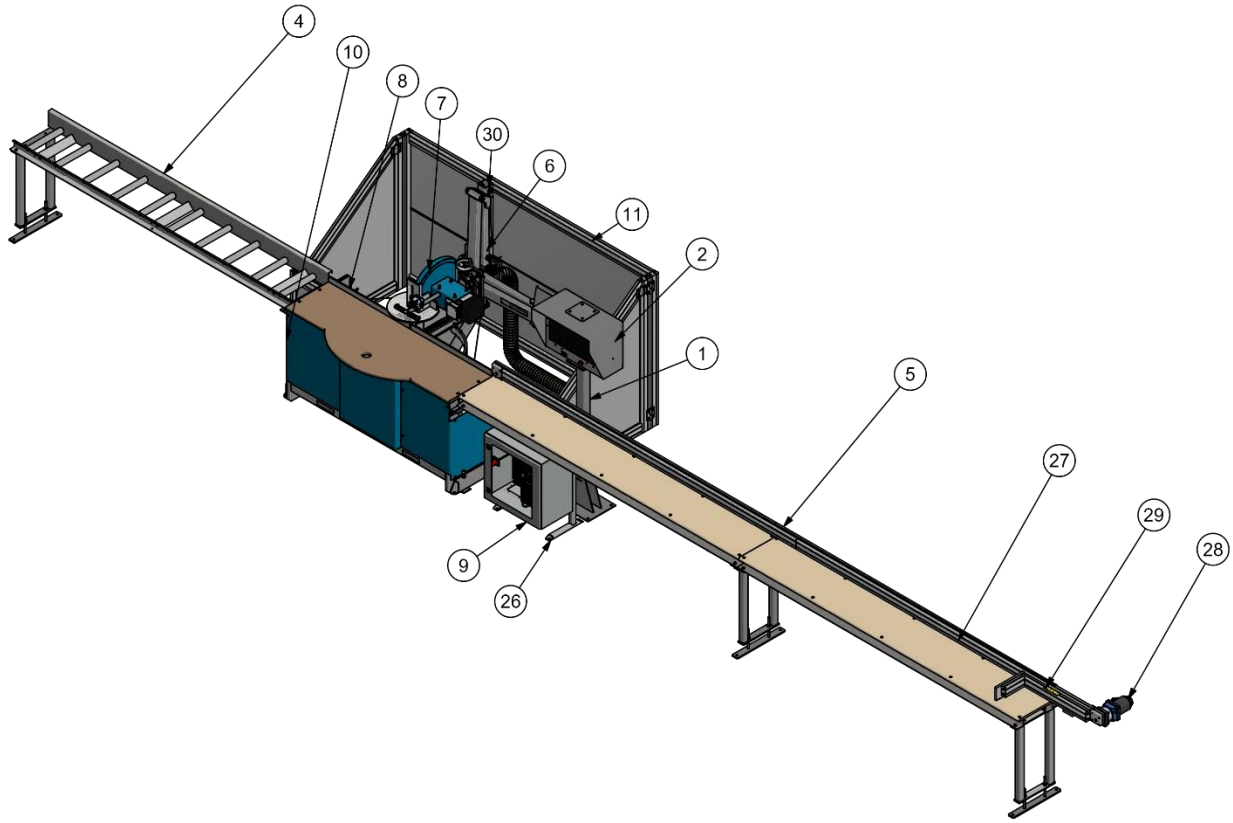


Figure 5, CSS Apollo Saw

Table 6, Parts List – CSS Apollo Saw

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	0605220	Monitor Stand Assembly
2	1	0609000	Multi Monitor Assembly
3	1	0609000FA	Multi Monitor Stand 24" Wide Screen final assembly
4	1	1110000	Roller Table - 3m
5	1	1213000 - 06	Guide Profile Flat Table assembly 6m (20')
6	1	8830300	Arm Assembly - Apollo
7	1	8831400	Apollo Saw Motor Group
8	1	8832100	Apollo saw base to column post Assembly
9	1	9804000 - EK	Apollo - Electrical Kit (Gen 9)
10	1	9804200	Automation parts for C-Type - CSS XL saw
11	1	9804400	Apollo – Rear
12	1	EKLASER	Guide Laser
13	1	EKML2.5-5M	Motor Loom Wiring Kit - 2.5mm dia. 5M Length
14	1	ESCSS	CSS Automation Kit - NZ/AUD
15	1	ESCSSUS	CSS Automation Kit - US
16	4	HWCSM1240	Hex Socket Head Cap Screw M12x40
17	4	HWCSM1250	Hex Socket Head Cap Screw M12x50
18	2	HWGSM830	Grub Screw - M8 x 30
19	2	HWNHM8	Hex nut M8
20	12	HWWFM1228	Flat washer M12 - Heavy
21	8	HWWSM12	Washer - Spring - M12 ZP
22	1	NAMEPLATE	SM2012 Ltd Name / Serial No. P
23	1	PSIME1204BPSZC0S	SICK - Proximity Sensor
24	1	SMPBKT01	Sensor Bracket
25	1	SMPBKT19	Motor bracket for transport
26	2	SMPBKT59	Computer box bracket (Omron)(Welded Assembly)
27	1	SMPGPFA6300	Fence assembly
28	1	SMPGPGK5	GB Kit - 1:5 Straight 1500W
29	1	SMPGPTK1	Trolley/Stop
30	1	SMPSL01	Stroke Limiter

10.2 Automatic Stroke Limiter Assembly (SMPSL01)

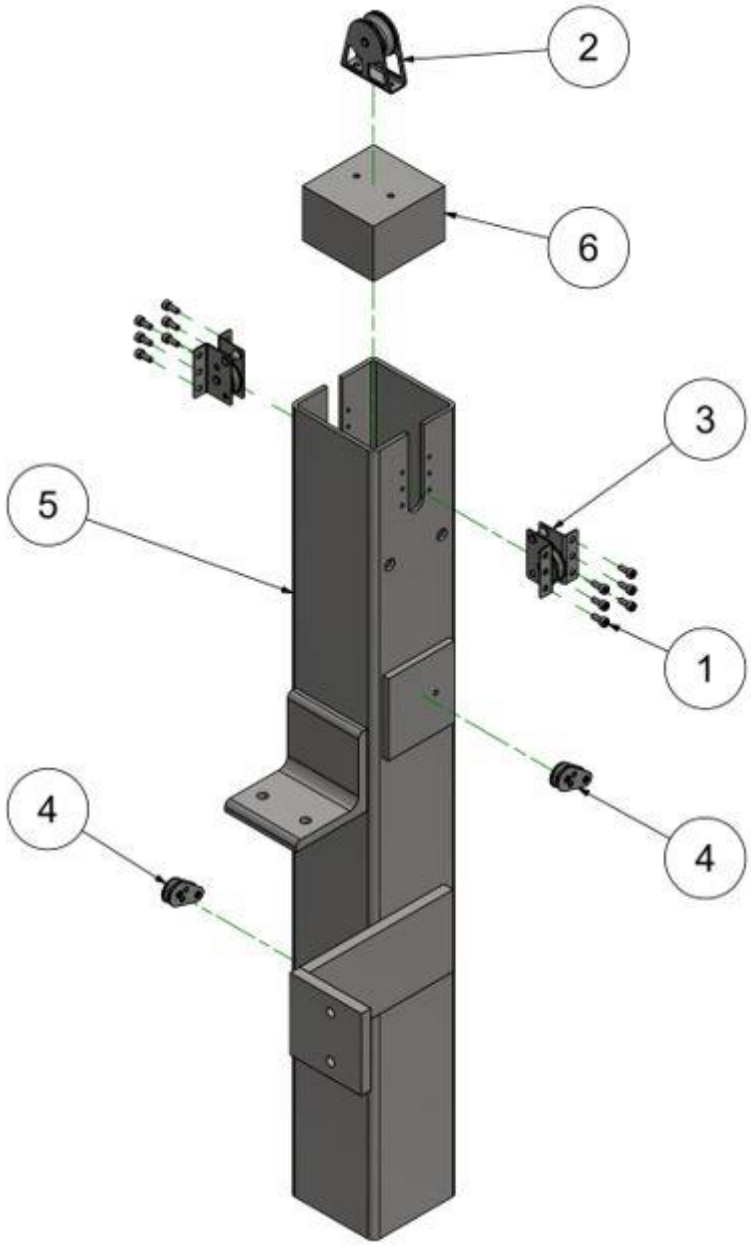


Figure 6, Automatic Stroke Limiter Assembly

Table 7, Automatic Stroke Limiter Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	12	HWCSM410	Hex Socket Head Cap Screw M4x10
2	1	HWHA0448	Fixed lead block
3	2	HWRF31712	Exit block
4	2	HWRF661	Pulley
5	1	SMPSL01-01	Stroke limiter main post
6	1	SMPSL01-02	Counterweight

10.3 Monitor Stand Assembly (0605220)

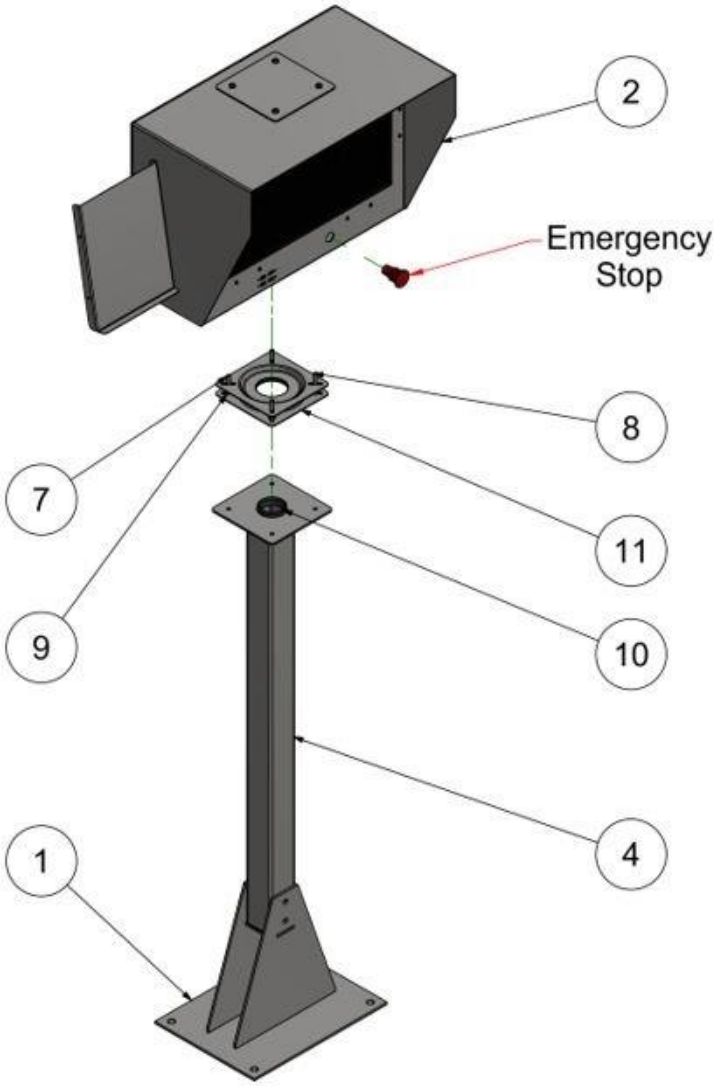


Figure 7, Monitor Stand Assembly

Table 8, Monitor Stand Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	0605221	Monitor Stand Base Assembly
2	1	0609000	Multi Monitor Assembly
3	1	0609000FA	Multi Monitor Stand 24" Wide Screen final assembly bits
4	1	0609003	Monitor Post welded assembly
5	16	HWCSM816	Hex Socket Head Cap Screw M8x16
6	4	HWHBM816	Hex Bolt M8x16
7	3	HWHBM825	Hex Bolt M8 x 25
8	1	HWHBM860	Hex bolt M8x60
9	4	HWNHM8	Hex nut M8
10	1	HWSNBM635	Snap Bushing - Panel hole Dia 63.5mm #278
11	1	HWSWM685	BLA Boat Seat Swivel #9029871
12	6	HWWFM616	Washer - Flat - M6ZP

10.4 Multi Monitor Assembly (0609000)

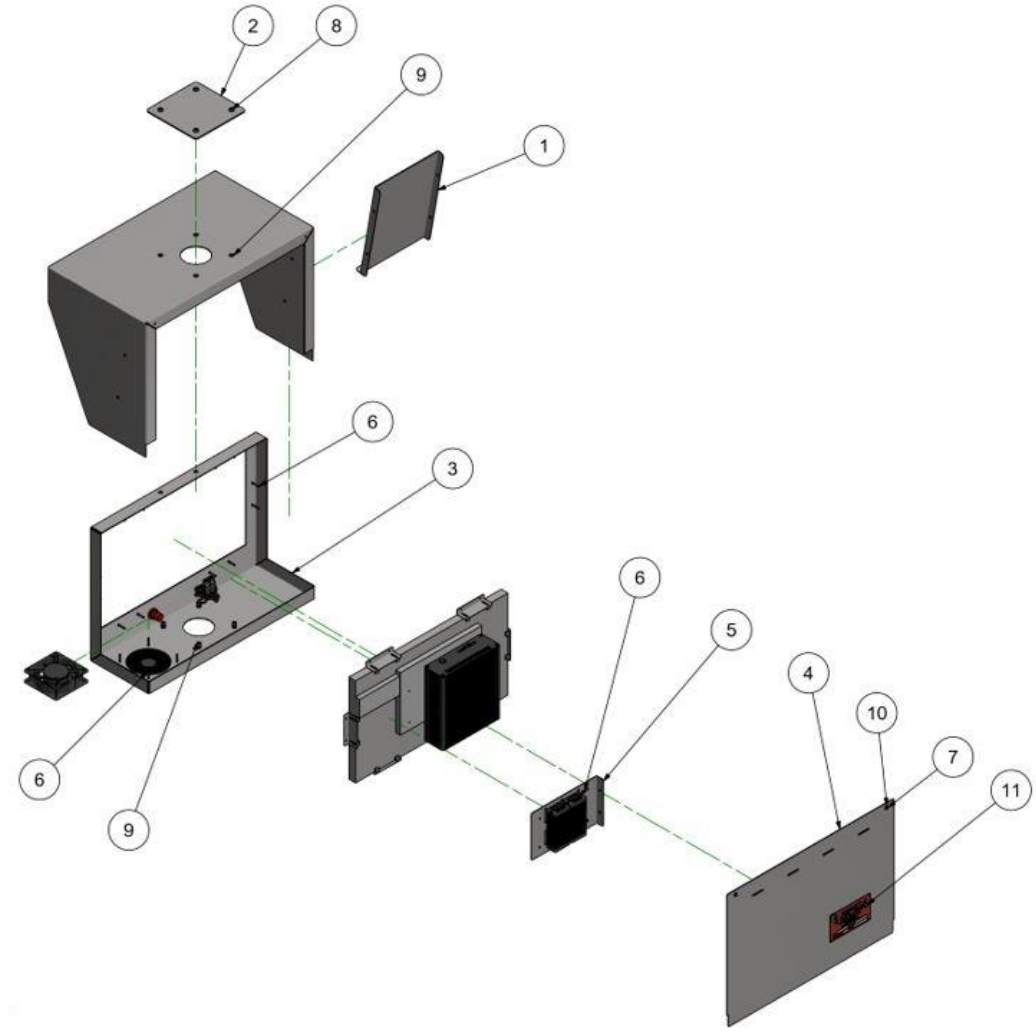


Figure 8, Multi Monitor Assembly

Note: The illustration above shows minimal wires for clarity, the actual Monitor Box will contain more wires. Component locations are subject to change.

Table 9, Multi Monitor Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	0605701L	Clip board holder
2	1	0609001	Monitor Assembly - Blank plate
3	1	0609102	Monitor Cover Assembly
4	1	0609103	Backplate with Vent Holes
5	1	0609104	Component Mounting Bracket
6	18	HWCSM425BH	Button Head Cap Screw M4x25
7	2	HWCSM512BH	Button Head Screw M5x12
8	4	HWCSM820BH	Button Head Screw M8x20
9	8	HWNSM8	Nutsert M8
10	2	HWWFM5	Flat Washer M5
11	1	NAMEPLATE	SM2012 Ltd Name / Serial No. P

10.5 Roller Table Assembly (1110000 – 3000)

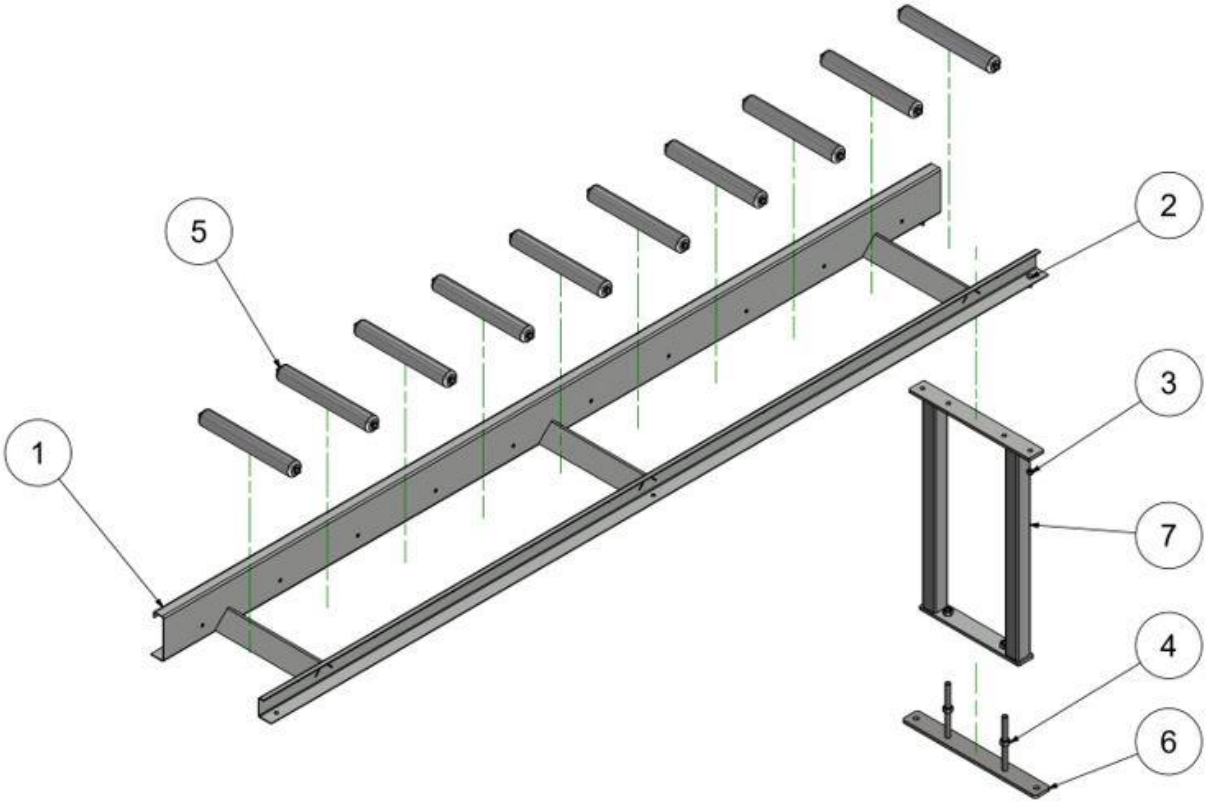


Figure 9, Roller Table Assembly

Table 10, Roller Table Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	1110001	Roller Table Frame - Fence Type V2
2	2	HWHBM1030	Hex bolt M10x30
3	2	HWNHM10	Hex nut M10
4	4	HWNHM16	Hex nut M16
5	10	HWRSD50355	Roller - Steel 50x355
6	1	SMPTBF01	SMP - Foot v.1
7	1	SMPTBL02	SMP - Leg v.2

10.6 Rapid Stop Table (1213000)

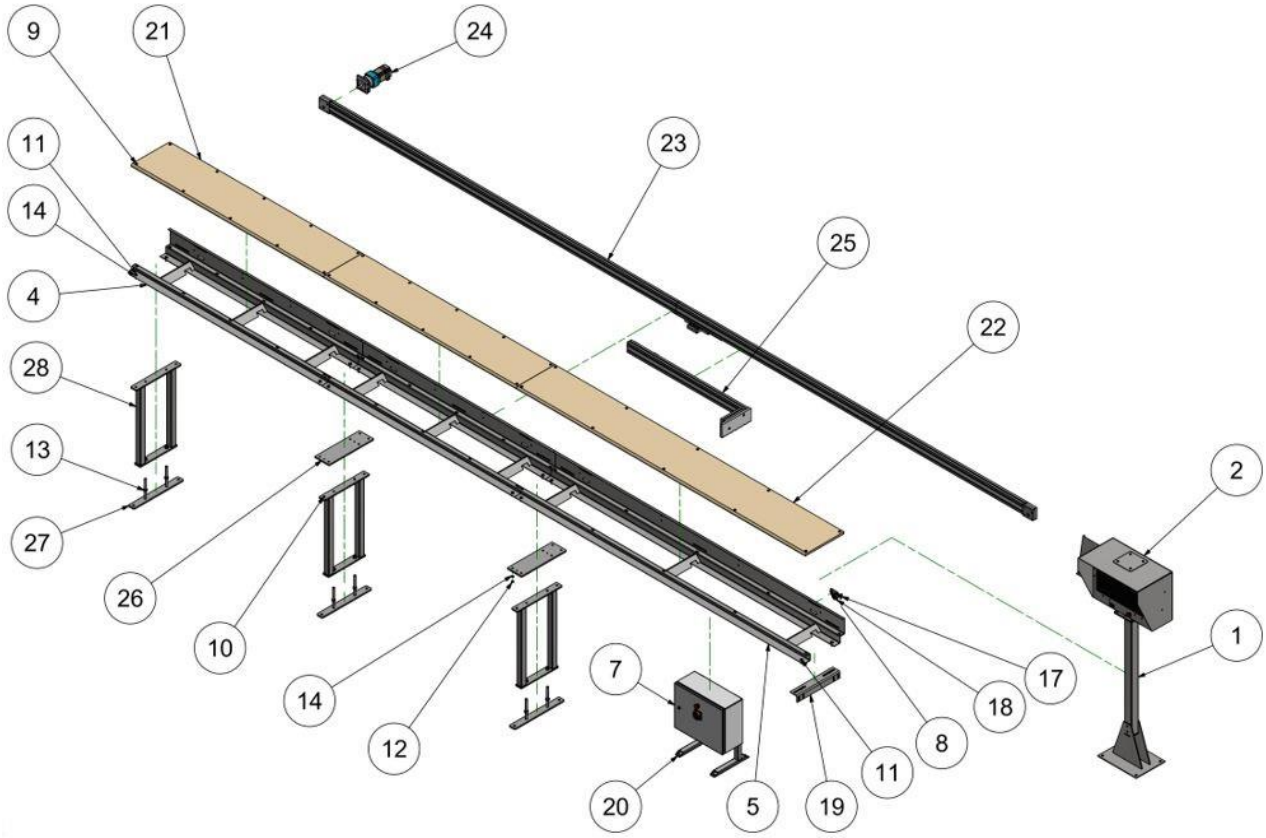


Figure 10, Rapid Stop Table

Table 11, Rapid Stop Table - Parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	0605220	Monitor Stand Assembly
2	1	0609000	Multi Monitor Assembly
3	1	0609000FA	Multi Monitor Stand 24" Wide Screen final assembly bits
4	2	1213001 - 2000	Rapid Stop Table 2000 - Folded
5	1	1213001 - 3000	Rapid Stop Table 3000 - Folded
6	1	ECOM-WES7G5	Computer Load with Spida software
7	1	EKRSLS	Electrical kit
8	2	HWCSM620	Hex Socket Head Cap Screw M6x20
9	30	HWCSM825CS	Hex Socket CSK Cap Screw M8x25
10	4	HWHBM1020	Hex bolt M10x20
11	12	HWHBM1030	Hex bolt M10x30
12	12	HWNHM10	Hex nut M10
13	12	HWNHM16	Hex nut M16
14	28	HWWFM10	Washer Flat M10
15	2	HWWFM616	Washer - Flat - M6ZP
16	2	MT21.1351/2	M8 Sq. Nut - Posn Fixing
17	1	PSIME1204BPSZC0S	SICK - Proximity Sensor
18	1	SMPBKT01	Sensor Bracket
19	1	SMPBKT11	Saw Connector Brkt
20	2	SMPBKT13	Computer box bracket
21	2	SMPBT2000-400-18-P	Bench Top 2000x400x18
22	1	SMPBT3000-400-18-P	Bench top 3000x400x18
23	1	SMPGPFA7200	Fence assembly
24	1	SMPGPGK5	Motor/gearbox kit - Straight box
25	1	SMPGPTK13	Trolley/Stop - 5502-RSIJM-1214
26	2	SMPPLT08	Table Connection Plate - Long ver.
27	3	SMPTBF01	SMP - Foot v.1
28	3	SMPTBL02	SMP - Leg v.2

10.6.1 Fence Assembly (SMPGPFA6300)

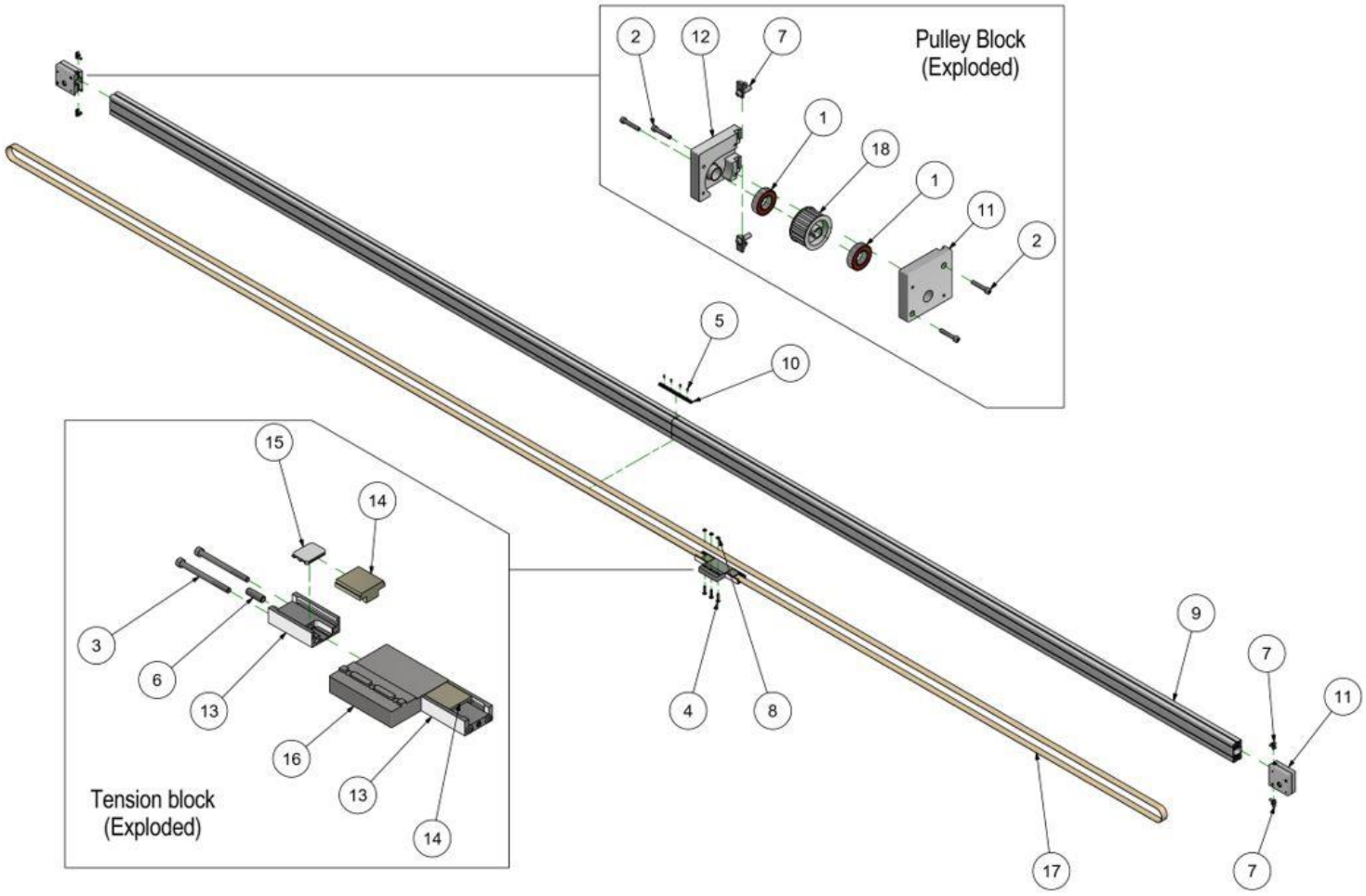


Figure 11, Fence Assembly

Table 12, Fence Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION	
1	4	BRG6005ZZ	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	8	HWGSM610	Hex socket grub screw M6x10	
6	2	HWGSM825	Hex socket grub screw M8x25	
7	4	MT21.1018	Power Lock Fasteners	
8	19	MT21.1351/2	M8 Sq. Nut - Posn Fixing	
9	6300 mm	SMPGP9045	Guide Profile	
10	2	SMPGPJB81	T-slot bar 180	
11	2	SMPGPPBA	Pulley Block part 1	
12	2	SMPGPPBB	Pulley Block part 2	
13	2	SMPGPTB - 01	Belt tensioner body	Part of Assembly SMPGPTB
14	2	SMPGPTB - 03	Tension block slider	
15	2	SMPGPTB - 02	Tension block insert	
16	1	SMPGPTC	Tensioner connector	
17	13100 mm	TRTIB-AT10/32	Timing Belt AT10/32. Open 32mm.	
18	2	TRTIP19AT1032F-BF	Timing Pulley - 19T 10P 32W 16 Bore	

10.6.2 Guide Profile Gearbox Kit (SMPGPGK5)

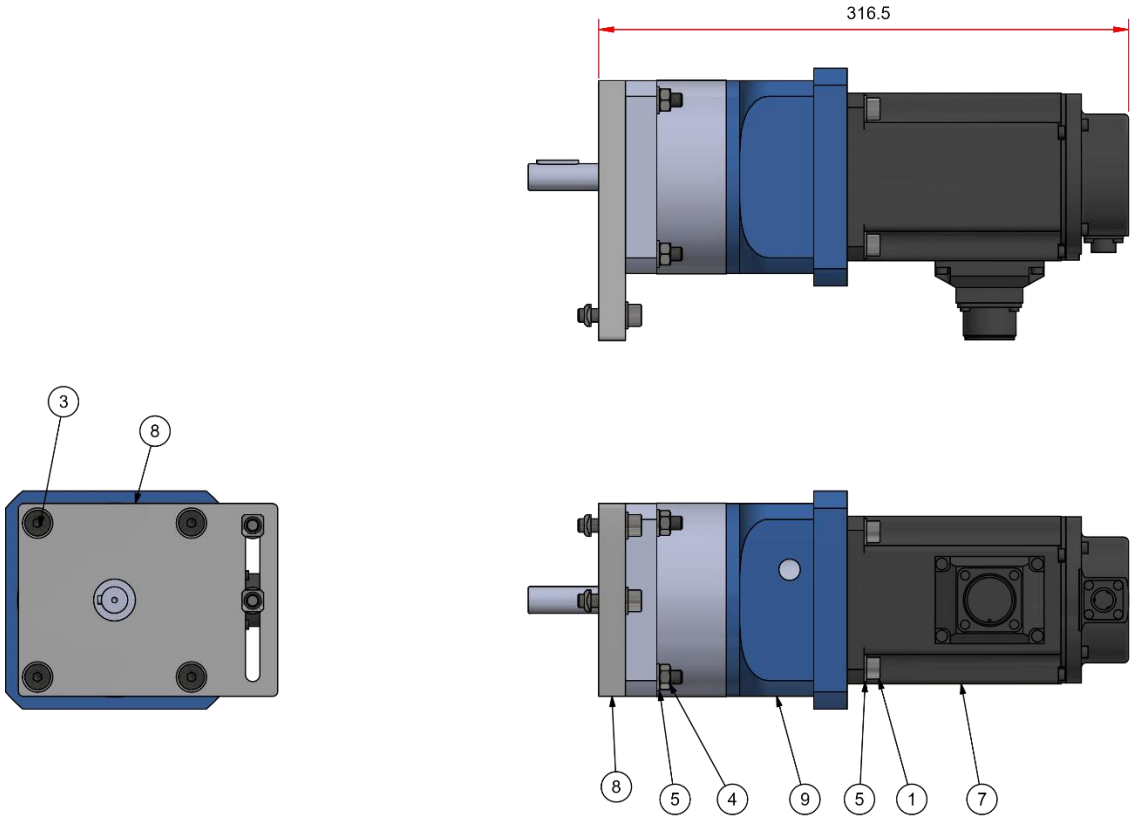


Figure 12, Gearbox Motor Assembly

Table 13, Gearbox Motor Assembly - Parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	HWCSM416	Cap Screw - M4x16 ZP
2	4	HWCSM525	Hex Socket Head Cap Screw M5x25
3	4	HWCSM630CS	Countersunk Cap Screw M6x30
4	4	HWCSM830CS	Hex Socket CSK Cap Screw M8x30
5	2	HWCSM835	Hex Socket Head Cap Screw M8x35
6	4	HWWFM5	Flat Washer M5
7	2	HWWFM816	Flat Washer M8
8	2	MT21.1351/2	M8 Sq. Nut - Posn Fixing
9	1	OM-R88M-1L75030C-S2	750W 1S Servo Motor. 3000 RPM. 400VAC.
10	1	SMPPLT69	Gearbox mount plate - Custom 1.5kW GB
11	1	SMPPLT71	750W Motor to 1500W GB Adapter Plate
12	1	SMPSH10	Gearbox to Motor Adapter Shaft
13	1	TRGB-090-L1-005-09-16	Varitron GB - Bevel - 1:5 - 19mm Input - 16 Output

10.6.3 Guide Profile Trolley Kit (SMPGPTK1)

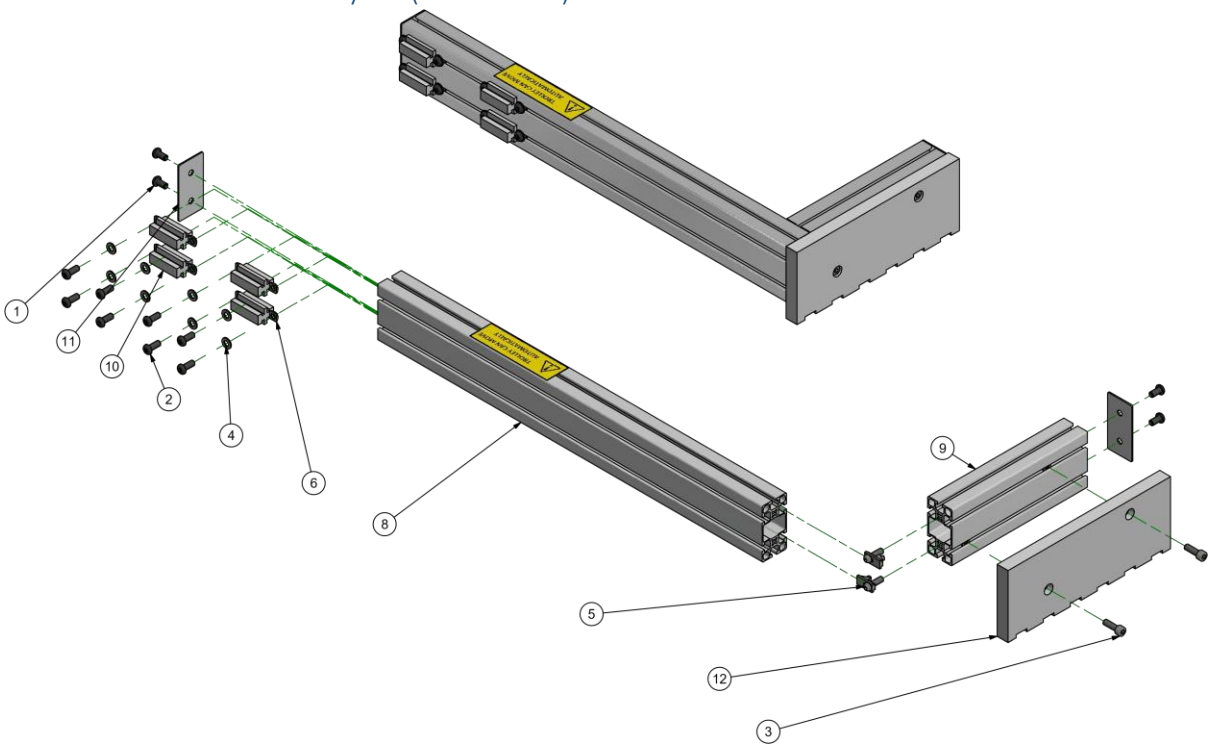


Figure 13, Guide Profile Trolley Assembly

Table 14, Guide Profile Trolley Assembly parts list

ITEM	QTY	LENGTH	PART NUMBER	DESCRIPTION
1	4	1	HWCSM816BH	Button Head Cap Screw M8x16
2	8	1	HWCSM820BH	Button Head Screw M8x20
3	2	1	HWCSM825	Hex Socket Head Cap Screw M8x25
4	8	1	HWWFM816	Flat Washer M8
5	2	1	MT21.1018	Power lock fasteners
6	10	1	MT21.1351/2	M8 Sq Nut - Posn Fixing
7	1	1	SMPDEC059	Decal - Warning, Trolley can move automatically
8	1	710 mm	SMPGP9045	Guide Profile
9	1	250 mm	SMPGP9045	Guide Profile
10	4	50 mm	SMPGPDS	Slider for GP
11	2	1	SMPGPEP	Guide profile end cap
12	1	1	SMPGPPP1	Pusher Block

10.7 Arm Assembly – Apollo (8830300)

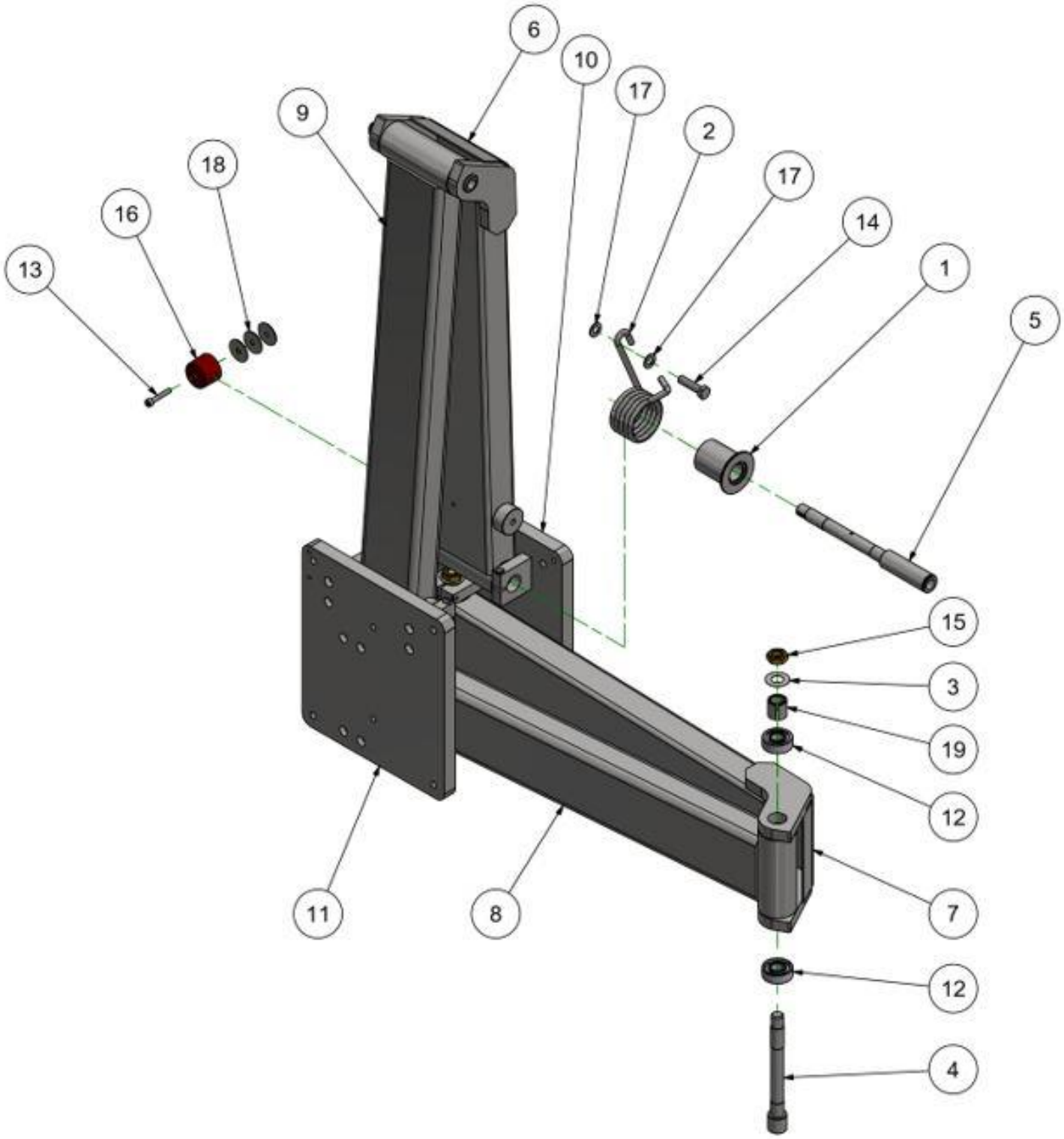


Figure 14, Arm Assembly

Table 15, Arm Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	8530310	Spring Boss
2	1	8530311	Return Spring - CXM "C" Type
3	6	8530314	Lock Washer - 5/8
4	5	8830315	Metric Arm Pin
5	1	8830316	Arm set long pin
6	1	8830321	Rear Top Arm - Apollo
7	1	8830322	Rear Side Arm - Apollo
8	1	8830323	Front Side Arm - Apollo
9	1	8830324	Front Top Arm - Apollo
10	1	8830331	Base Mount Plate Assy
11	1	8830332	Saw Support Plate Assy
12	12	BRG30203	Arm Assy Bearing 30203
13	1	HWCSM635	Hex Socket Head Cap Screw M6x35
14	1	HWHBM1040	Hex Bolt M10x40
15	6	HWNPM16F	Half Nut - Pressed - M16 x 1.5 Fine. Steel lock nut. Metric fine
16	1	HWRS3830M6	Rubber stops
17	2	HWWFM10	Washer Flat M10
18	3	HWWFM6	Washer - Flat - M6ZP
19	6	SMPSBM251724	24mm Split Bush

10.8 Apollo saw Base to Column Post Assembly (8832100)

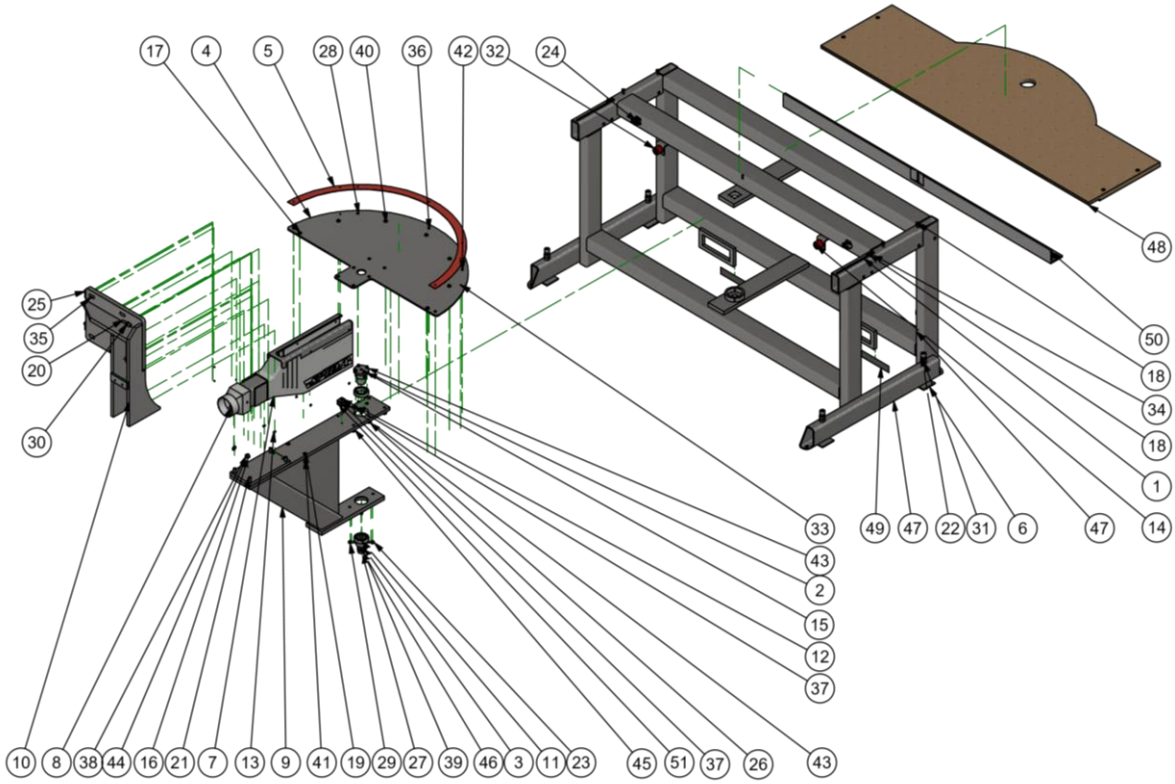


Figure 15, Base to Column post Assembly

Table 16, Base to Column post Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	8530104	Fence Locating Bracket
2	1	8530115	Top Bearing Pin. 70mm Dia. BCQ
3	1	8530116	Bottom Pin
4	1	8530124	Radial Plate
5	1	8530128	Radial Degree Scale
6	4	8530134	Jacking Plate
7	1	8530350	Dust Chute - CSS - Grey RAL7035
8	1	8530352	Chute Adaptor
9	1	8830123	Column Support Assembly - Apollo
10	1	8830340	Column Post - Apollo
11	2	BRG6008	Bearing - 6008-2RS
12	1	HWBHM616	Hex Bolt M6x16
13	4	HWCSM410BH	Button Head Cap Screw M4x10
14	2	HWCSM620	Hex Socket Head Cap Screw M6x20
15	4	HWCSM630	Hex Socket Head Cap Screw M6x30
16	4	HWCSM812	Hex Socket Head Cap Screw M8x12
17	7	HWCSM820BH	Button Head Screw M8x20
18	8	HWCSM835CS	Hex Socket CSK Cap Screw M8x35
19	2	HWCSM850CS	Hex Socket CSK Cap Screw M8x50
20	2	HWCSM1040	Hex Socket Head Cap Screw M10x40
21	4	HWCSM1240	Hex Socket Head Cap Screw M12x40
22	4	HWCSM16150	Cap Screw - M16x150 ZP
23	4	HWGSM830	Grub Screw - M8 x 30
24	2	HWHA0243	Stand-up Micro block
25	2	HWHBM835	Hex Bolt - M8x35 HTZP
26	6	HWHBM1225	Hex bolt M12x25
27	1	HWHBM2050	Hex Bolt - M20x50 HTZP
28	5	HWMSM410PP	Mach Screw - M4x10 Pan Head
29	6	HWNHM8	Hex nut M8
30	2	HWNHM10	Hex nut M10
31	4	HWNHM16	Hex nut M16
32	2	HWRS3830M6	Rubber stops
33	2	HWTPM312	Tension Pin - M3x12mm
34	7	HWTPM520	Tension Pin - M5x20mm
35	2	HWTPM530	Tension Pin - M5x30mm
36	5	HWWFM4	Flat Washer M4
37	5	HWWFM6	Washer - Flat - M6ZP
38	4	HWWFM8	Flat Washer M8
39	2	HWWFM20	Plain Washer M20
40	7	HWWFM816	Flat Washer M8
41	4	HWWHM8	Washer - Heavy - M8ZP
42	5	HWWSM4	Washer - Spring - Curved - M4 ZP
43	5	HWWSM6	Washer - Spring - Curved - M6 ZP

44	4	HWWSM8	Washer - Spring - Curved - M8 ZP
45	10	HWWSM12	Washer - Spring - Curved - M12 ZP
46	1	HWWSM20	Washer - Spring - M20 ZP
47	1	SMPBF301	Base 1750 Wide
48	1	SMPBT1750-460-25	Bench Top 25mm MDF 1750mm long with radius front
49	2	SMPDEC005	Forklift here - Decal
50	1	SMPFE04	Fence CXL/CSS XL/Apollo 75mm high 1800mm
51	1	SMPMB8530	Mounting block for Dust Chute
52	1	SMPSPM46	Spanner - 46mm (C-Type) 6mm SS

10.9 Apollo saw Motor Group (8831400)

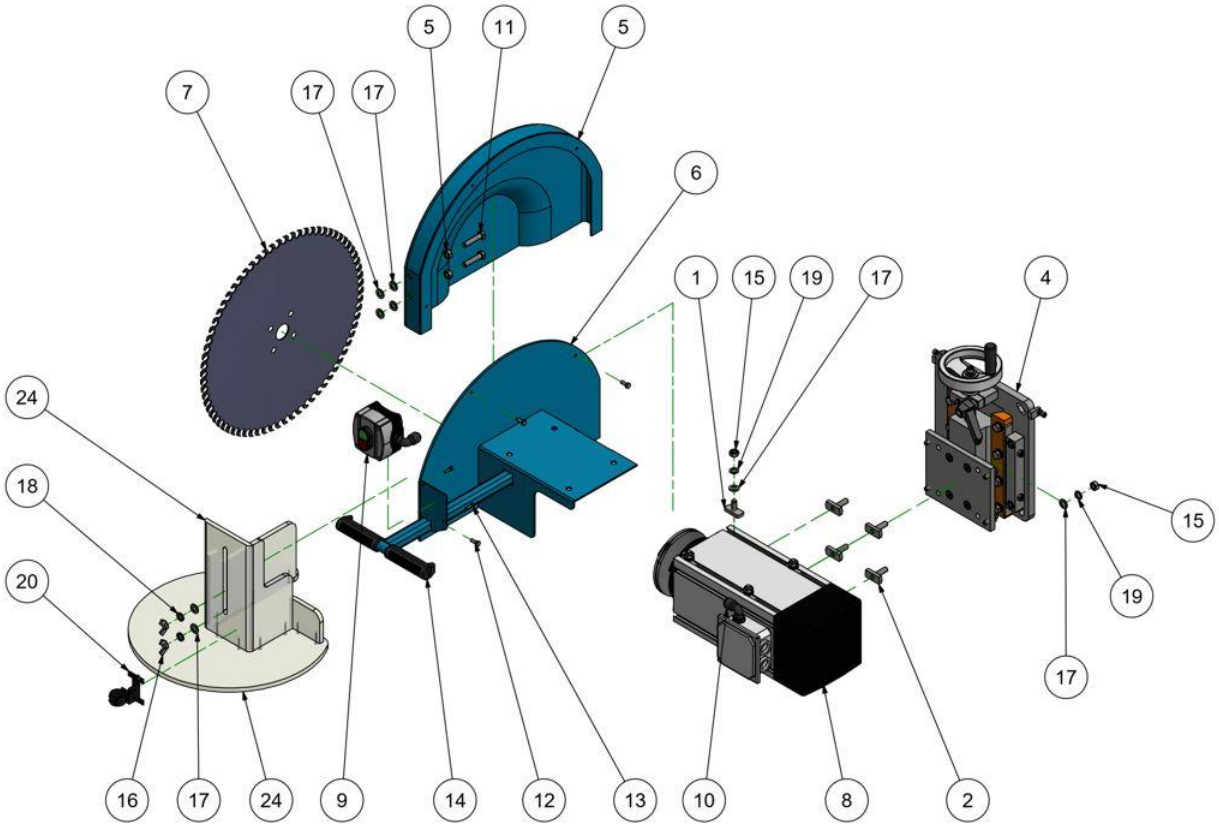


Figure 16, Motor Group Assembly

Table 17, Motor Group Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	8530407	T-bolt M10x22
2	4	8530408	T-bolt M10x32
3	2	8530414	Motor Jacking Pads
4	1	8532400 - K1	Height Adjust Assembly - Vector
5	1	8532404	Guard Door
6	1	8532405	Motor Guard
7	1	BL4503566	Blade - 450mm x 35mm Bore x 72tt (CSS)
8	1	EM5.5LMULTI	CEG Motor - EM80M,5.5Kw, Multi Left Hand
9	1	ESS RHS	Stop/Start Switch CW operator
10	1	ETFAFM16	Techno flex 90 Angle Fitting - M16
11	2	HWBHM1045	Hex bolt M10x45
12	3	HWBHM616	Hex Bolt M6x16
13	2	HWCSM416	Cap Screw - M4x16 ZP
14	2	HWHGRM19	Handgrip - Rubber 19mm Handle #02382
15	8	HWNHM10	Hex nut M10
16	2	HWNWM10	Nut - Wing - M10ZP
17	14	HWWFM10	Washer Flat M10
18	2	HWWSM10	Washer - Spring - M10 ZP
19	8	HWWSM10 - Curved	Washer - Spring - Curved - M10 ZP
20	1	Laser	Laser Bracket - Part of EK Laser
21	1	SMPDEC001W Small	Spida Decal - White - Smyl
22	1	SMPDEC002 small	Decal - Rotation
23	1	SMPDEC003	Decal - Warning Hands
24	1	SMPGD01	Barrier Guard

10.9.1 Height Adjust Assembly (8532400 – K1)

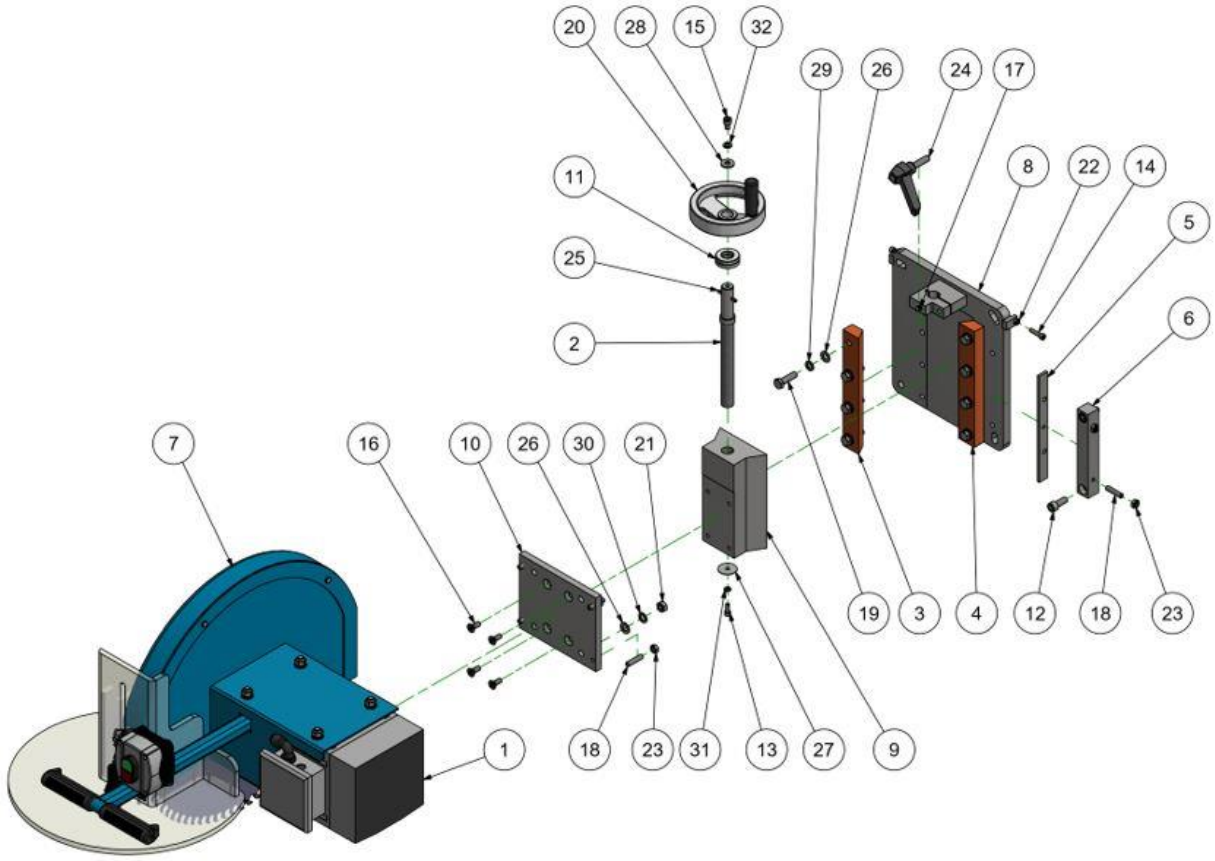


Figure 17, Height Adjust Assembly

Table 18, Height Adjust Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	8831400 - K4	CXM Motor Kit
2	1	8530401	Height Adj Shaft
3	1	8530403	Slide MMB - Drilled
4	1	8530404	Slide MMB -Slotted
5	1	8530405	Pressure Plate
6	1	8530406	Pressure Bar
7	1	8532400 - K2	Blade Guard Assy - 450
8	1	8532401	Motor Mount Pivot Plate Assy - Vector
9	1	8532402	Dove Tail
10	1	8532403	Height adj motor Mount
11	1	BRG51204	Thrust Brg - 20mm H/A Shaft
12	2	HWCSM1025	Hex Socket Head Cap Screw M10x25
13	1	HWCSM616	Hex Socket Head Cap Screw M6x16
14	2	HWCSM625	Hex Socket Head Cap Screw M6x25
15	1	HWCSM812	Hex Socket Head Cap Screw M8x12
16	4	HWCSM820CS	Hex Socket CSK cap Screw M8x20
17	1	HWGNM6	Grease Nipple - 6mm straight
18	6	HWGSM835	Grub Screw - M8 x 35
19	8	HWHBM1035	Hex bolt M10x35
20	1	HWHWM125-20 Handwheel	Handwheel - Dia 125mm bore 20mm Part # D-3120-125-B12
21	8	HWNHM10	Hex nut M10
22	2	HWNHM6	Hex nut M6
23	6	HWNHM8	Hex nut M8
24	1	HWQCM10M40	Co-Mac #2764 - Quick clamp handle M10 x 40mm
25	1	HWTPM540	Tension Pin - M5x40mm
26	17	HWWFM10	Washer Flat M10
27	1	HWWFM632	Washer M6x32
28	1	HWWHM8	Washer - Heavy - M8ZP
29	8	HWWSM10	Washer - Spring - M10 ZP
30	8	HWWSM10 - Curved	Washer - Spring - Curved - M10 ZP
31	1	HWWSM6	Washer - Spring - M6 ZP
32	1	HWWSM8	Washer - Spring - M8 ZP

10.10 Automation Parts for C type – CSS XL saw (9804200)

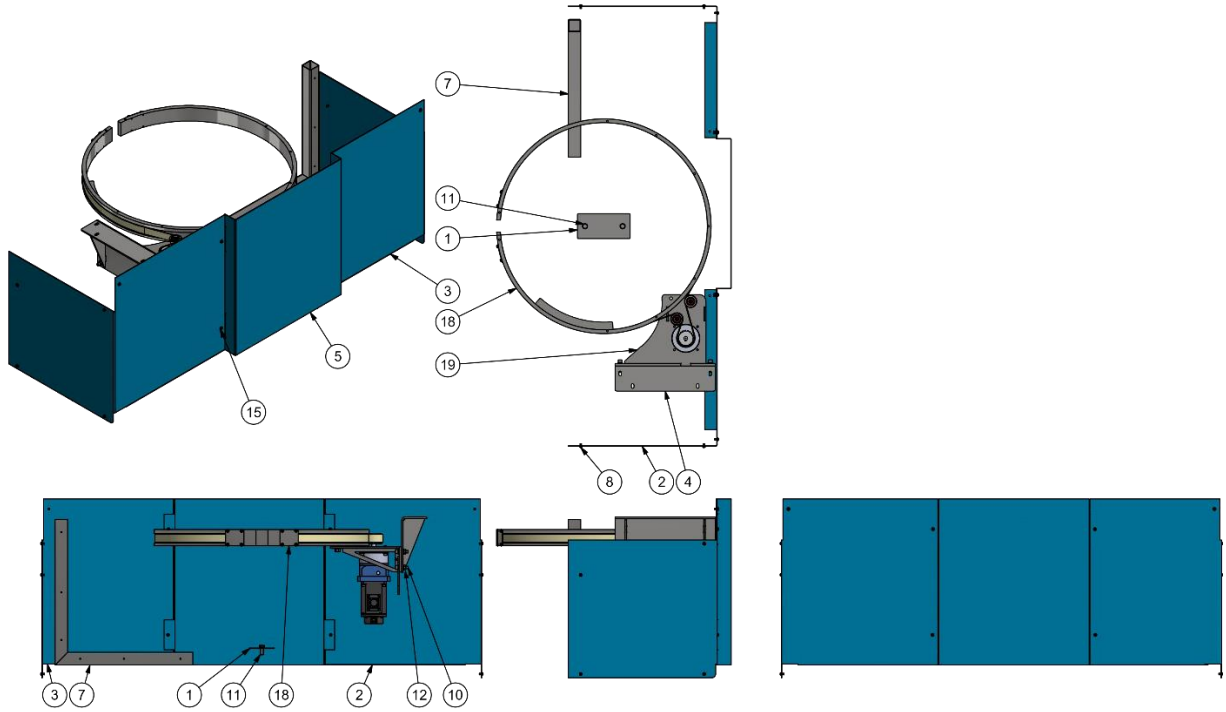


Figure 18, Automation Assembly

Table 19, Automation Assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	9103603	Column Support Cover (SS 2mm)
2	1	9801616	Front Guard Left - CSS XL (MS 2mm)
3	1	9801617	Front Guard Right - CSS XL (MS 2mm)
4	1	9801620	CSS XL Rotation Gearbox Bracket adapter
5	1	9804201	Front Guard Middle - CSS (MS 2mm)
6	1	EKML2.5-5M	Motor Loom Wiring Kit - 2.5mm dia 5mtr length
7	1	ELT5050	Trunking (50x50)
8	10	HWCSM612BH	Button Head Cap Screw M6x12
9	4	HWCSM616BH	Button Head Cap Screw M6x16
10	4	HWCSM1040	Hex Socket Head Cap Screw M10x40
11	2	HWHBM1230	Hex bolt M12x30
12	4	HWNHM10	Hex nut M10
13	4	HWNSM6	Nutsert M6
14	8	HWWFM10	Washer Flat M10
15	14	HWWFM616	Washer - Flat - M6ZP
16	4	HWWSM10	Washer - Spring - M10 ZP
17	2	HWWSM12	Washer - Spring - M12 ZP
18	1	SMPRB05	Rotation Ring 65mm deep - Assembly
19	1	TRRAK7	Rot Motor Assy (Apollo Gen 10)

10.10.1 Rotation Assembly (TRRAK7)

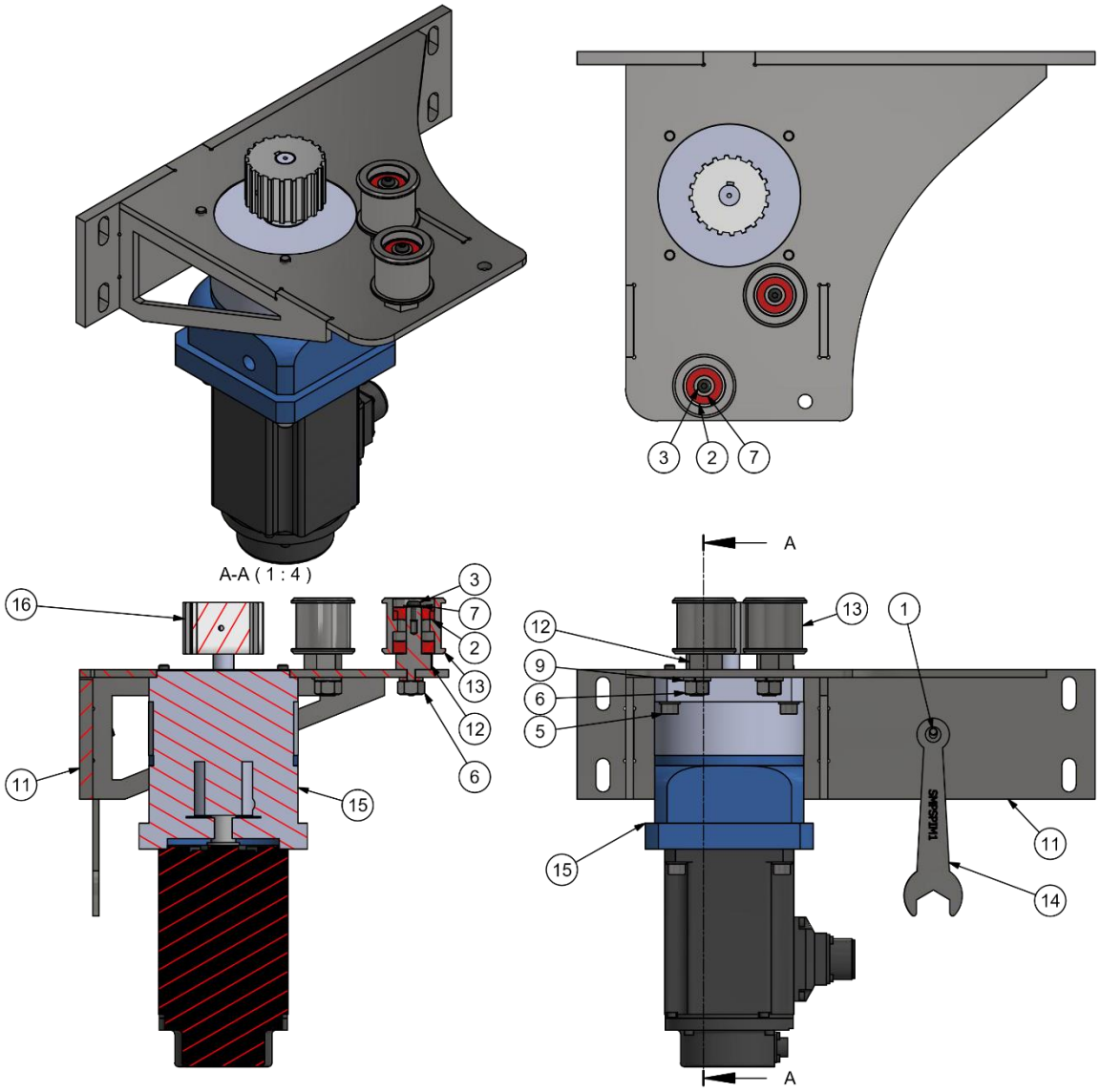


Figure 19, Rotation assembly

Table 20, Rotation assembly parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	8530105	Spanner locating pin
2	4	BRG6201	Bearing 32x12x10
3	2	HWCSM612BH	Button Head Cap Screw M6x12
4	4	HWCSM820	Hex Socket Head Cap Screw M8x20
5	4	HWCSM830	Hex Socket Head Cap Screw M8x30
6	2	HWNHM12	Hex nut M12
7	2	HWWFM616	Washer - Flat - M6ZP
8	8	HWWFM816	Flat Washer M8
9	2	HWWSM12	Washer - Spring - M12 ZP
10	1	OM-R88M-1L1K530T-S2	1.5KW 1S Servo Motor. 3000 RPM. 200VAC.
11	1	SMPBKT58	CSS Rotation Gearbox Bracket (Gen 10)(Welded Assembly)
12	2	SMPRB03	Belt Tensioner Eccentric
13	2	SMPRB04	Belt Tension Roller Mark II
14	1	SMPSPIM1	Spanner - Imp.1"
15	1	TRGB-120-L1-005-19-16	Varitron GB - Bevel - 1:5 - 19mm Input - 16 Output
16	1	TRTIP20AT1032	Timing Pulley 20 Tooth 16 Bore

10.11 Apollo – Rear Guard Assembly (9804400)

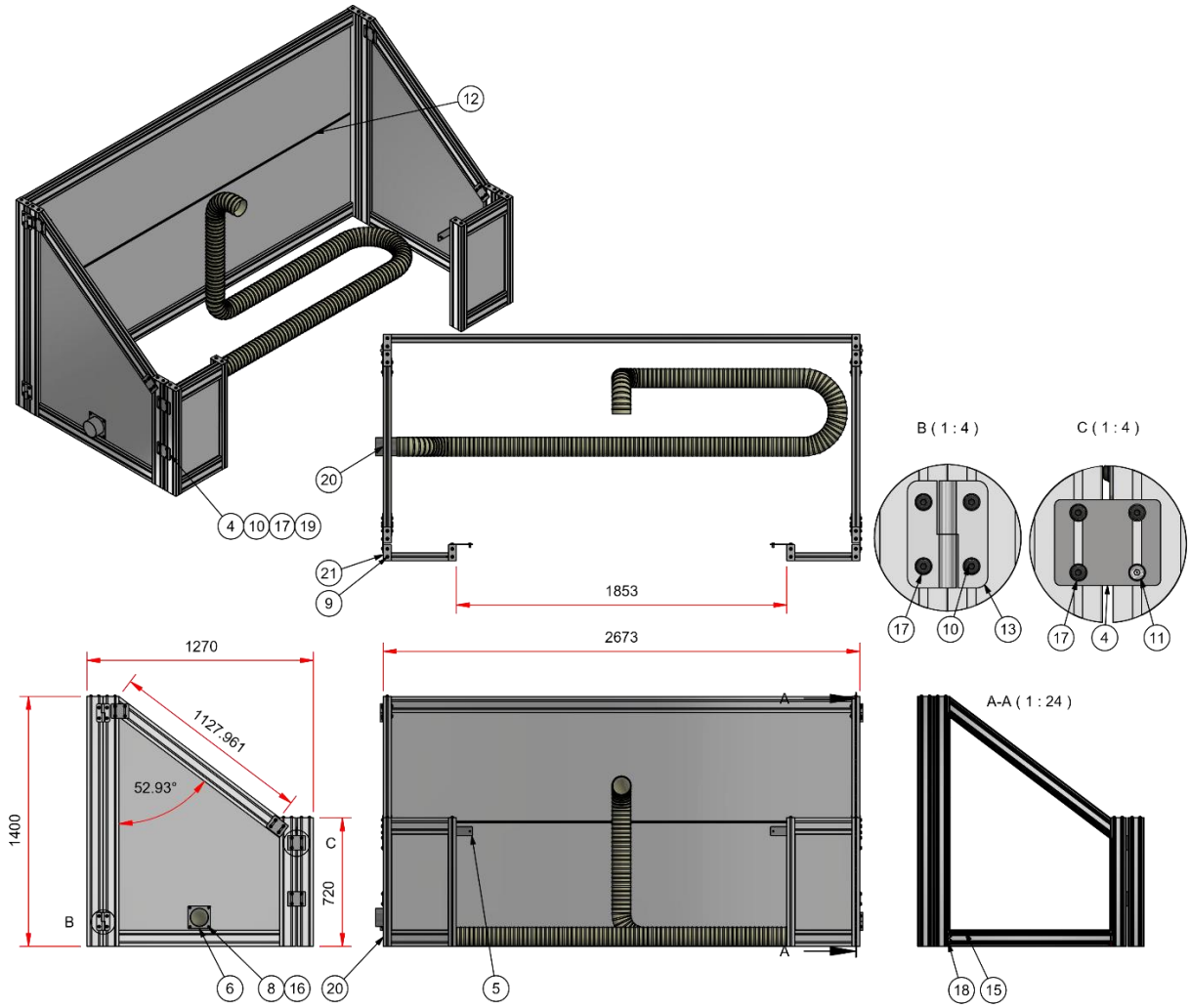


Figure 20, Rear guard assembly

Table 21, Rear guard parts list

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	9804401	Apollo Guard - Rear Infill - 2583x621 (4mm ACM Board)
2	2	9804402	Apollo Guard - Front Infill - 338x557 (4mm ACM Board)
3	2	9804403	Apollo Guard - Door Infill - 918x1213(Angle) (4mm ACM Board)
4	12	9804404	Apollo Guard - Joiner Plate (3mm SS Profile)
5	2	9804405	Apollo Guard - Mounting Plate (3mm SS Profile)
6	1	9804406	Dust Hose Connection Flange (Welded Assembly)
7	3 m	DCHOSE100	Dust Collector Hose 100mm
8	4	HWCSM616BH	Button Head Cap Screw M6x16
9	20	HWCSM812BH	Hex Socket BH cap Screw M8x12
10	66	HWCSM820BH	Button Head Screw M8x20
11	2	HWCSM820SCR	Button Head Security Screw M8x20
12	2583 mm	HWJSACM4	Joiner Strip - 4mm (ACM)
13	4	HWLOH2165	Stainless Steel Lift Off Hinge (LHS) #2165
14	4	HWNHM6	Hex nut M6
15	18574 mm	HWRS3927	Glazing Stip (Comac #3927)
16	8	HWWFM616	Washer - Flat - M6ZP
17	88	HWWFM816	Flat Washer M8
18	32	MT21.1018	Power lock fasteners
19	66	MT21.1351/2	M8 Sq Nut - Posn Fixing
20	20666 mm	SMPGP4590	Guide Profile
21	10	SMPGPEP	Guide profile end cap

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 CSS Apollo Saw and contact a supervisor, maintenance engineer, or Spida Machinery.

Table 22, Maintenance intervals

Check	Day	Week	Month	½ Year
Guards in place	x			
Work area is clear	x			
Motor Brake operation	x			
Dust Chute Clear	x			
Sensors	x			
Clean Saw of any build up	x			
Noises or Vibrations	x			
Clean aluminium extrusion slots	x			
Emergency stop working	x			
Arm assembly in good condition			x	
Height adjusts and Blade Guard assemblies in good condition			x	
Rotation assemblies in good condition			x	
Motors running smoothly			x	
Inspect Timing Belt (Rapid Stop)			x	
For loose or damaged bolts			x	
Blow out Brake/Back cover			x	
Floor bolts for tightness				x
Inspect Rotation Belt				x
Grease Arm Joints				x
Inspect Automatic Stroke Limiter				x
Trolley Slides				x
Fence Gap				x
Bench Top				x
Maintain CSS Apollo Saw				x

Failure to perform these checks as per schedule indicated in Table 22 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 Keep work area clear

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

11.1.3 Motor Brake operation

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

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

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

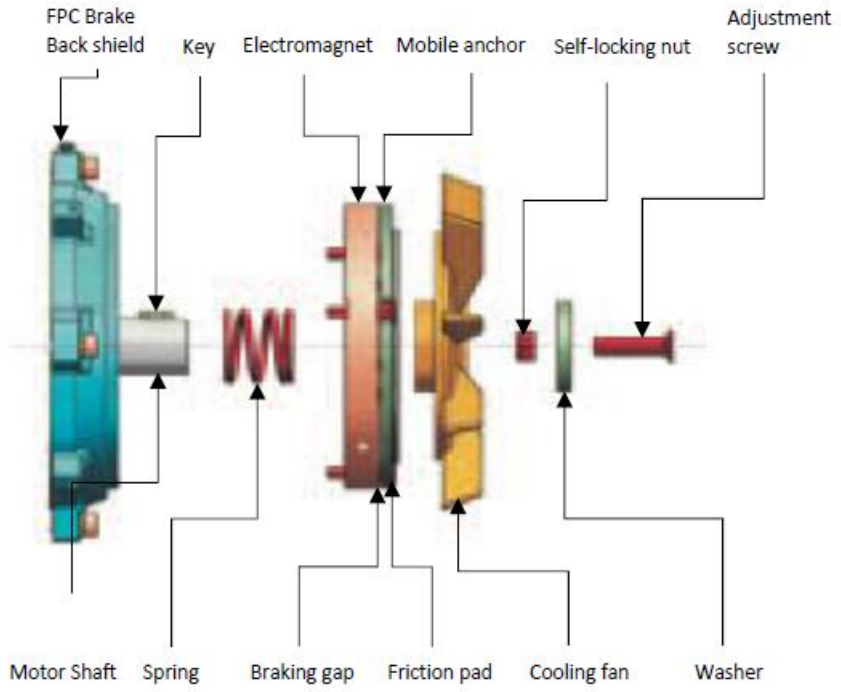


Figure 21, Motor brake assembly

11.1.4 Dust Chute Clear

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

11.1.5 Sensors

Check the three proximity sensors (on the Rapid Stop, Rotation ring, and on the back of the arms), are clear of any build-up of dust and securely fastened; sensor malfunctions will prevent the CSS Apollo Saw 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. If the position is incorrect, then set proximity position as per Section 11.3 as required.

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

11.1.6 Clean Saw of any build up

Keep the Saw free of any build-up of debris. Moving parts should not be obstructed, and the Saw should be usable without any hindrance. Remove and replace components as required to clean out any built-up debris or dust; ensure that any components removed are then replaced correctly.

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

11.1.7 Noises or vibrations

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

11.1.8 Clean aluminium extrusion slots

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

11.1.9 Emergency Stop Buttons

Check the emergency stop is working and that it stops the machine when activated. This test should be performed before using the machine, at least once a day. Whenever the Emergency Stops are used, ensure that the Servo motors are reset and homed. This will ensure that the motors will continue working as required, and that accurate measurements are retained.

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

11.1.10 Arm Assembly

The arm assembly should allow the user to smoothly pull the saw blade through the placed material to perform a cut; and should then allow the user to easily return the blade back into position behind the guard and hold it there until the next cut is required.
The arm assembly should be maintained every month to:

- Check on the condition of the bearings and other moving parts.

All assembly components should also be checked to ensure there is no damage or wear that will affect the performance of the assembly. Ensure that there are no loose, damaged, or missing bolts, and replace or tighten as necessary.
Do not use the Saw if any of the moving parts do not have fluid motion; if the saw blade is moving without any external force being applied; or if the blade is stuck in a certain position; and if any of the above cannot be fixed by general maintenance.

11.1.11 Height adjusts and Blade Guard Assemblies

The height adjust assembly should move the saw blade up and down easily as required, and the blade guard assembly should allow the saw blade to spin and cut easily while protecting the user from the saw blade.

Both assemblies should be maintained every month to:

- Check on the condition of the saw blade
- Ensure all moving parts are moving correctly and are free to move.
- Ensure that the motor is still working correctly.

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

Do not use the Saw if the saw blade is not up to full speed; if the motor is sputtering or stalling; or if any moving parts do not have fluid motion or are sticking; and if any of the above cannot be fixed by general maintenance.

If the blade is replaced, then be sure to check the height of the new blade. Also, be sure to confirm the new blade thickness matches the settings in the computer software.

11.1.12 Rotation assemblies

The rotation assemblies should allow the rotation ring and radial plate to easily move around the CSS Base, and set-up at the angles required by the cutting program.

These assemblies should be maintained every month to:

- Check the calibration of the assembly to ensure that the rotation ring is being moved to the correct angles
- Check that the rotation ring is still sitting square on the CSS Base
- Ensure that all moving parts are moving correctly, and are free to move
- Ensure that the motor is still working correctly.

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

Do not use the Saw if the rotation ring is not easily moving around the CSS base or is stuck; if the motor is sputtering or stalling; or if any moving parts do not have fluid motion or are sticking; and if any of the above cannot be fixed by general maintenance.

11.1.13 Motors

The motors should stop and start with no issues and should easily either turn the saw blade (Arbor motor); move the rotation ring around the CSS base (Servo motor); or move the Trolley stop (Servo motor). Clean the motors regularly by blowing out dust and other debris with dry compressed air.

Arbor Motor:

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

Servo motor:

- 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 Saw if there are any substantial or unfixable issues with either of the motors.

11.1.14 Inspect Timing Belt (Rapid Stop)

The timing belt should move smoothly and easily, and there should be no visible wear on either the timing belt or the guide profile. Check for damage on the timing belt, and repair or replace as required. Do not use the CSS Apollo Saw if the timing belt is damaged significantly or is unable to be repaired.

11.1.15 Loose Fasteners and Fixings

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

11.1.16 Inspect Rotation Belt

The belt used to rotate the rotation ring around the CSS Base should be checked every 6 months for any heat damage or excessive wear and replaced if required.

11.1.17 Automatic Stroke Limiter

The Stroke Limiter prevents the saw blade from exceeding the maximum cut length at any angle of cut. The cables should run through all pulleys easily and should not be twisted; Realign onto pulleys or untwist as required. Check the cable, pulleys, and other components for excessive wear; repair/replace as required, or alternatively contact Spida Machinery.

11.1.18 Trolley Slides

The sliders on the Rapid Stop Trolley should allow the trolley to move up and down the Fence smoothly and easily. Check the slides for excessive play and/or wear and tighten/replace if necessary. Use the guide in section 11.4 to replace the sliders, or alternatively contact Spida Machinery.

11.1.19 Fence Gap

The gap in the fence should allow the blade to pass through without interference. If interference is occurring, check the fence for any deformities and/or check that the height assembly is adjusted to the correct height. Repair, replace, or adjust parts as required. This should be checked every six months, or when a new saw blade is installed.

11.1.20 Bench Top

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

11.1.21 Maintain CSS Apollo Saw

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

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

11.2 Replace Saw blade

Tools required:

- 13mm spanner
- 46mm spanner (supplied)

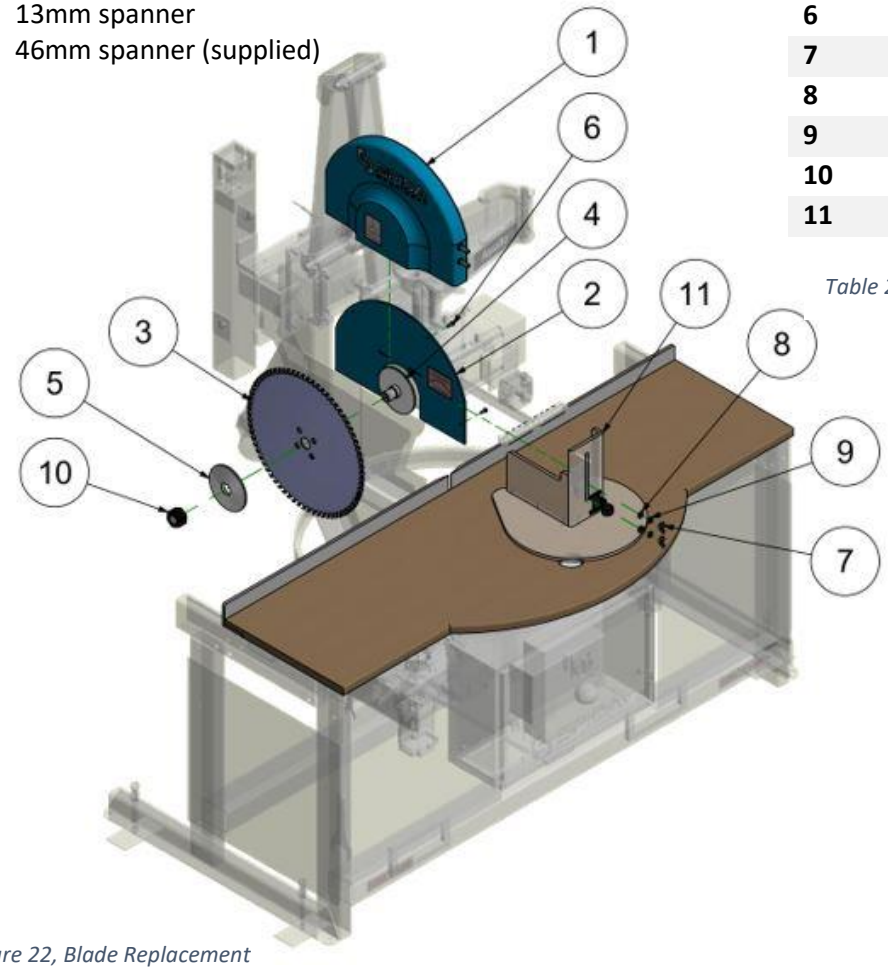


Figure 22, Blade Replacement

ITEM	DESCRIPTION
1	Guard Door
2	Motor Guard
3	Blade
4	Motor Inner Flange
5	Motor Outer Flange
6	Hex Bolt M6x16
7	Nut - Wing - M10ZP
8	Washer Flat M10
9	Washer - Spring - M10 ZP
10	Lock Nut
11	Barrier Guard

Table 23, Blade Replacement parts

Replacement blades, 450mm Dia. 35mm bore 72 teeth Spida Machinery part number BL4503566. Contact Spida Machinery for replacement blades.

Before starting make sure machine is isolated electrically.

To replace the blade in saw:

- Pull the blade assembly forward so that the guard is clear of the column support assembly
- Remove the M10 wing nuts and washers holding the Perspex barrier guard, and then remove the guard itself.
- Undo the three M6 bolts holding the two sides of the Blade Guard together, using the 13mm spanner, and lift the guard door up off the motor guard
- Remove the lock nut on the motor shaft using the 46mm spanner supplied. The lock nut will be left-hand thread.
- Once the lock nut has been removed, the outer flange will slide off the motor shaft, enabling the blade to be removed.

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

11.3 Set Proximity position

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

Tools Required (for all 3 configurations): 2x 17mm Spanners (to tighten sensors)

11.3.1 Rapid Stop Proximity Sensor Configuration

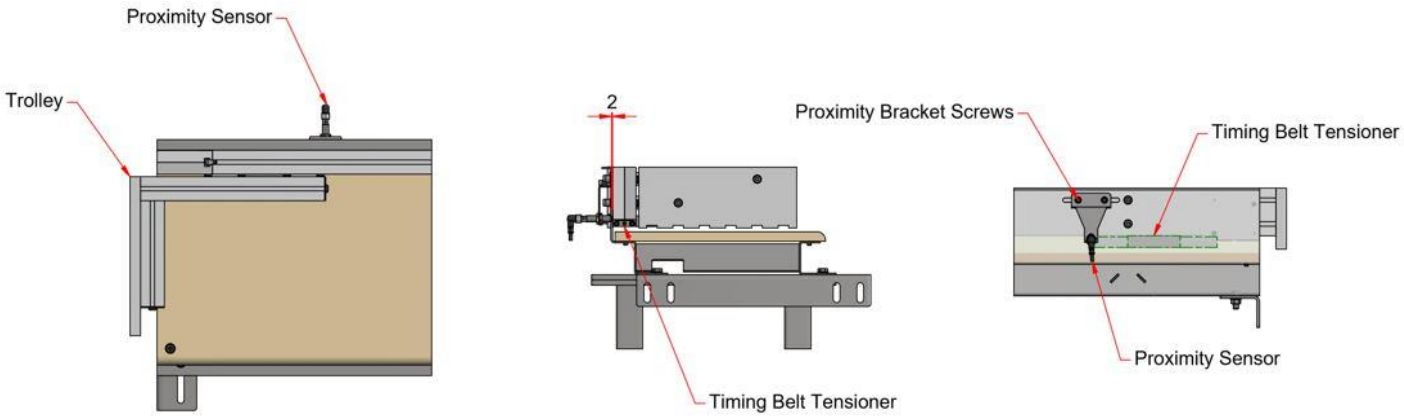


Figure 23, Rapid Stop proximity sensor configuration

- Power off Saw and Rapid Stop.
- Push the trolley to the minimum position (closest to Saw).
- Loosen proximity bracket screws.
- Position the proximity sensor to the rear of the timing belt tensioner as shown in Figure 23.
- Tighten proximity bracket screws.
- Ensure there is a 1.5 – 2.5mm gap between face of sensor and sensor bar.
- Check home position is correct, if not alter in set up screen.
- Reset enable home trolley.
- Send out to 6 metres, and check.
- If incorrect recalibrate trolley as normal.

11.3.2 Arm Assembly Proximity Sensor Configuration

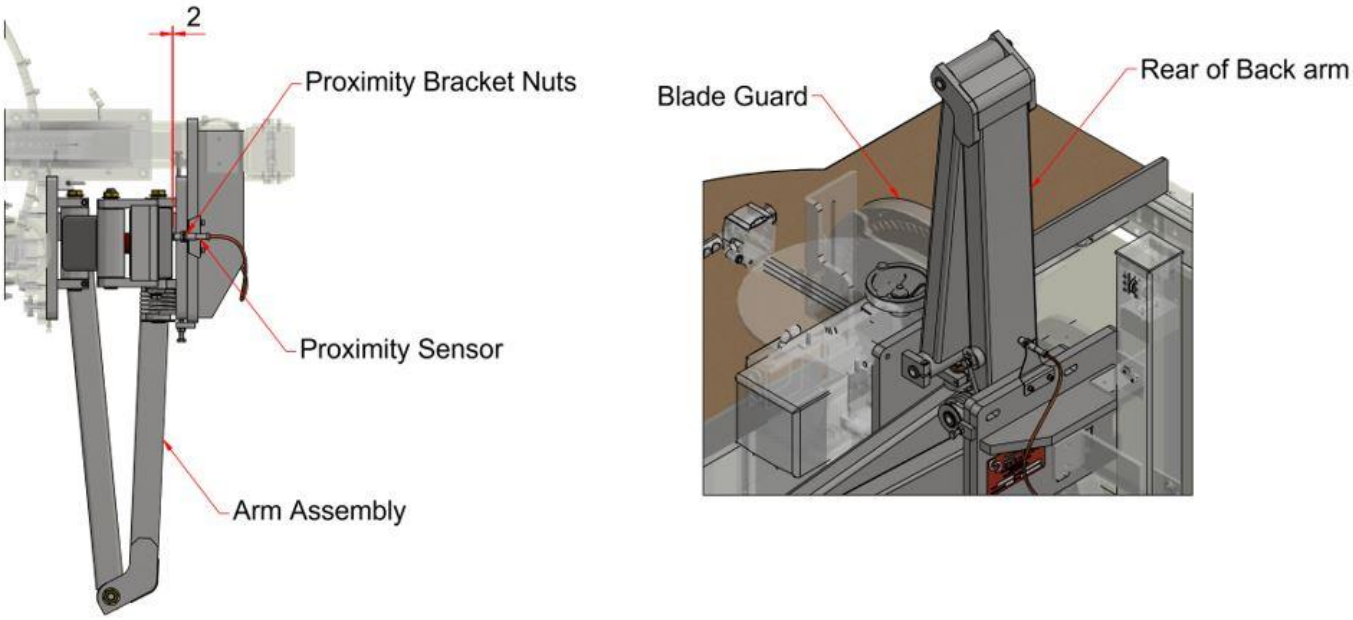


Figure 24, Arm Assembly proximity sensor configuration

- Power off Saw and Rapid Stop.
- Push the Blade guard back until the arm assembly is as close together as possible.
- Ensure that the proximity sensor is in the middle of the back arm as shown in Figure 24.
- Loosen proximity bracket nuts.
- Position the proximity sensor so there is a 1.5 – 2.5mm gap between face of sensor and the rear of the back arm.
- Tighten proximity bracket nuts.

11.3.3 Rotation Ring Proximity Sensor Configuration

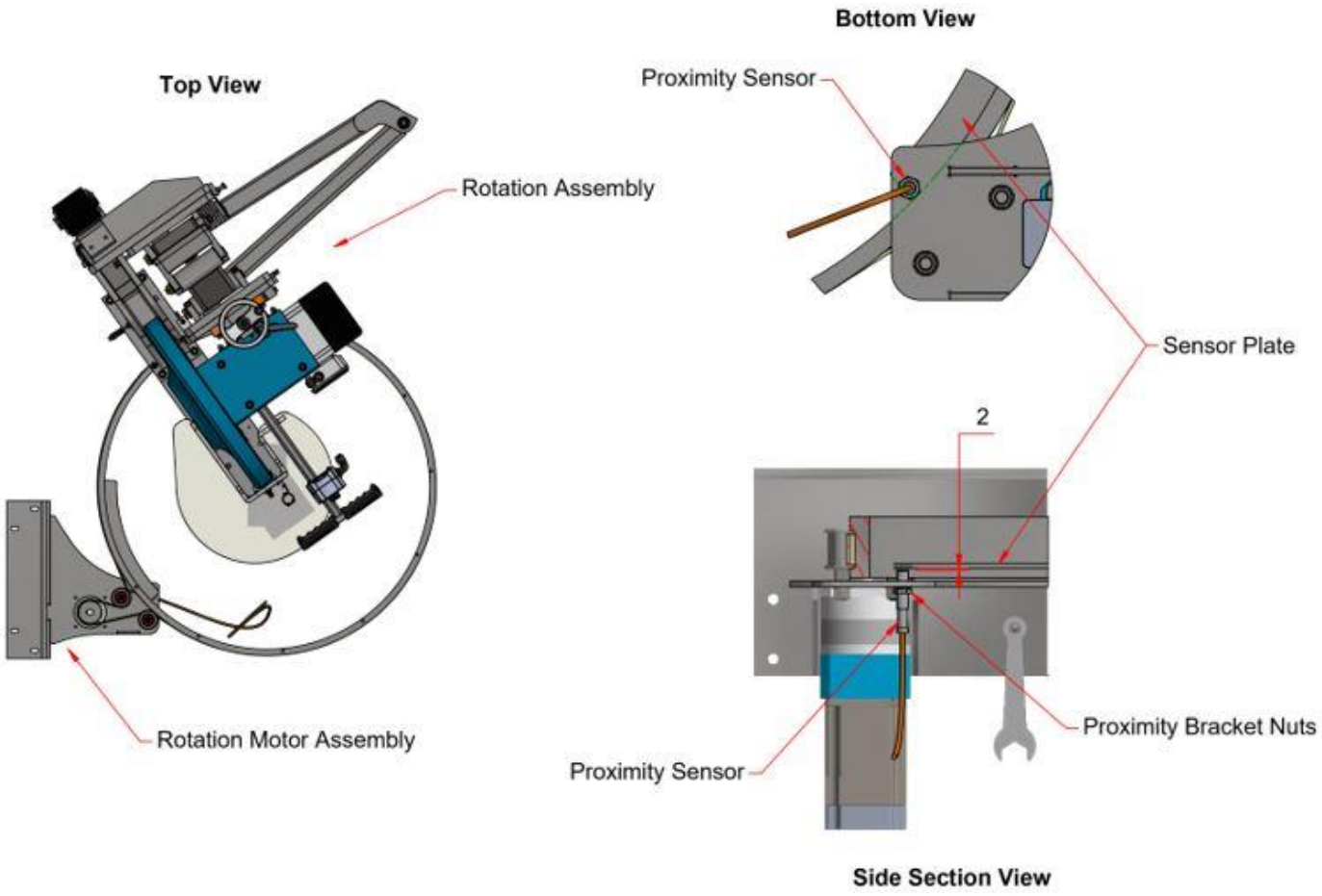


Figure 25, Rotation Ring proximity sensor configuration

- Power off Saw and Rapid Stop.
- Push the Rotation assembly over until the sensor plate is above the proximity sensor on the rotation motor assembly. See Figure 25.
- Ensure that the edge of the sensor plate is directly above the proximity sensor, as shown in Figure 25; this should be within the home position. The home position for Left-hand saws is any angle above 100°, and the home position for Right-hand saws is any angle less than 80°.
- Loosen proximity bracket nuts.
- Position the proximity sensor so there is a 1.5 – 2.5mm gap between face of sensor and bottom of sensor plate.
- Tighten proximity bracket nuts.

11.4 Replacing Trolley Slides

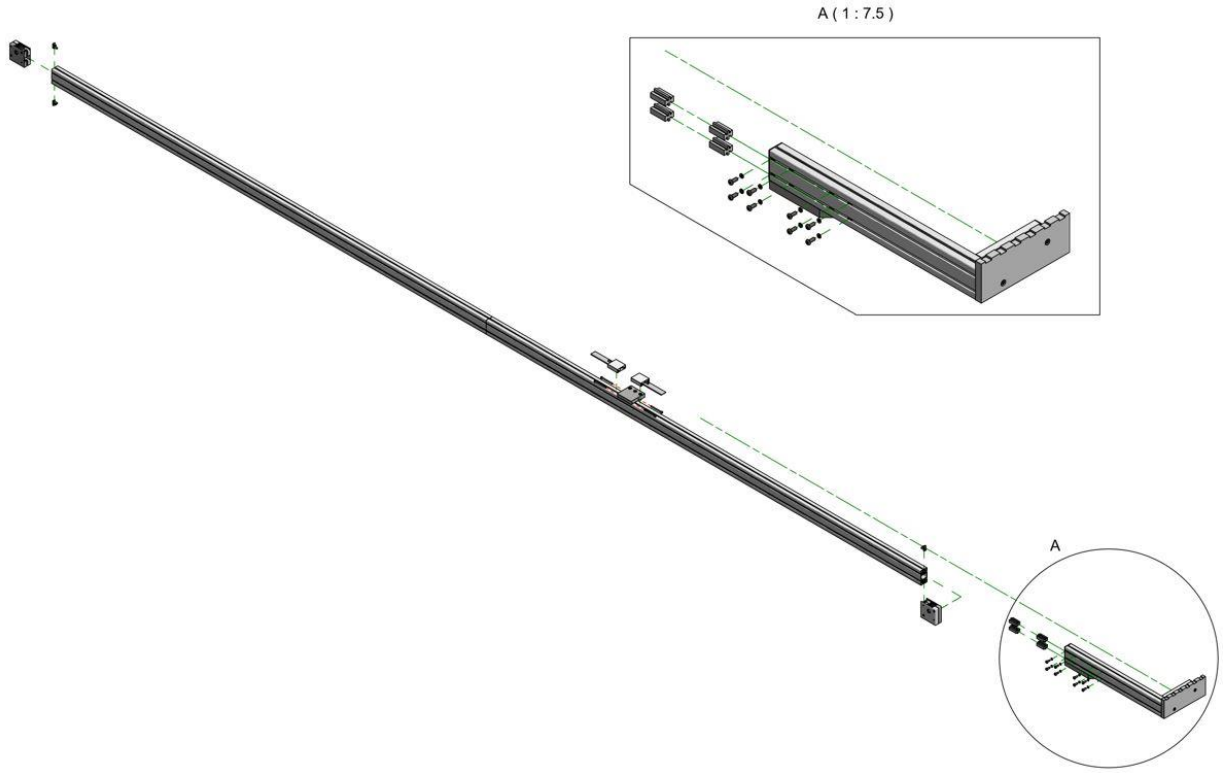


Figure 26, Trolley slide replacement

Tools required: Set of Allan keys

- Disconnect power.
- Disconnect lead and remove home sensor.
- Disconnect leads from and remove motor.
- Undo 16 cap screws holding fence assy.
- Turn upside down, and release belt tension. (Grub screw in centre of tensioner)
- Remove tensioners, (outside screws.)
- Undo pulley blocks from each end, grub screw top and bottom.
- Slide trolley out at one end.
- Undo grub screws either side of slides, remove, replace.
- Blow out the aluminium extrusion, and pulley blocks.
- Reassemble, tension belt (put most tension at the front, leaving adjustment at rear if more tension is needed later.
- Bolt fence back up.
- Fit motor and leads.
- Fit home sensor and lead.
- Start up, enable home trolley.
- Check home position is correct, if not alter in set up screen.
- Reset enable home trolley.
- Send out to 6 metres, and check.
- If incorrect recalibrate trolley as normal.

11.4.1 Reference Distances for Trolley sliders

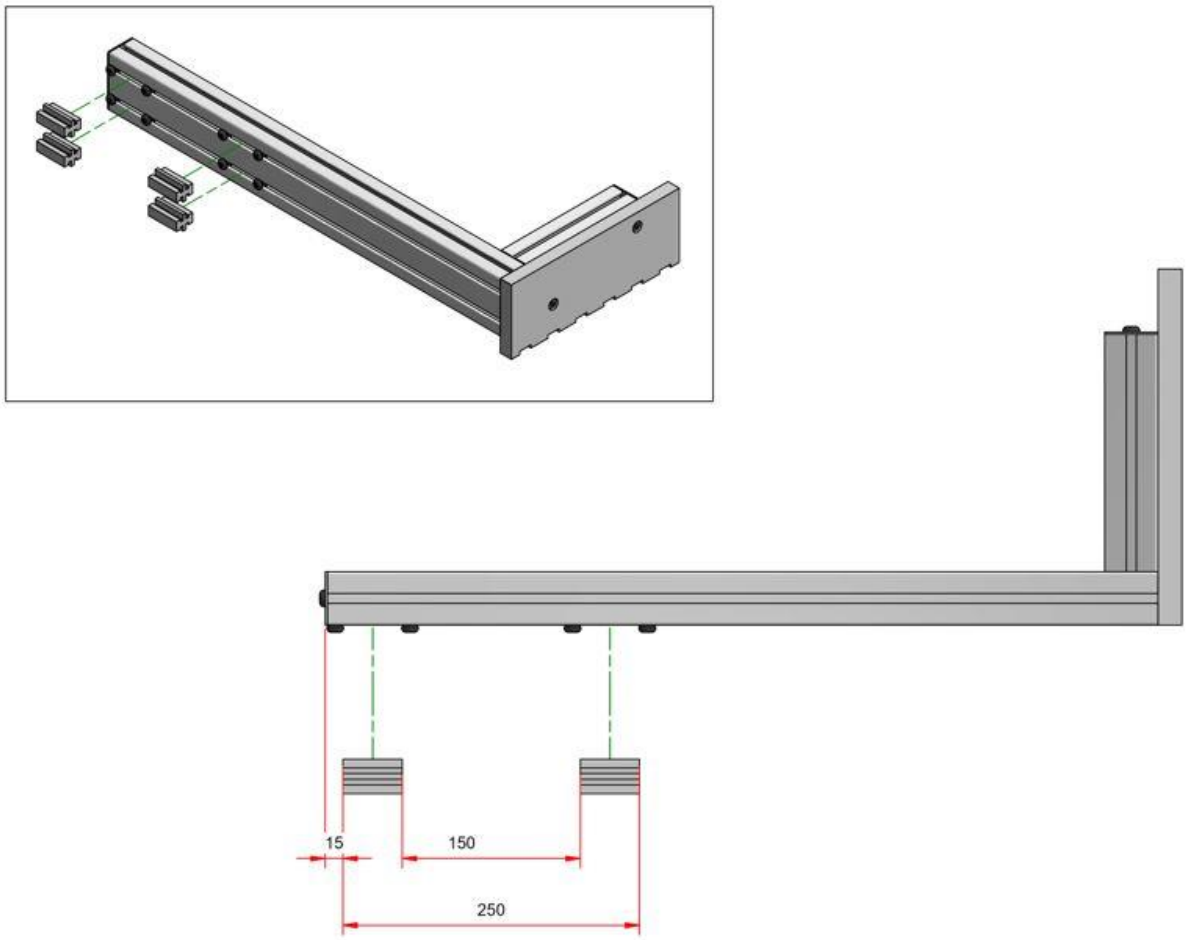


Figure 27, Stop Slider distances

The above figure shows the required distances in mm between the sliders, and between the slider and the end of the Stop. Use these distances when the sliders need to be removed for maintenance.

11.5 Replace Rotation Belt

Tools required:

- Set of Allan keys
- 1” Spanner (supplied)
- 19mm Spanner

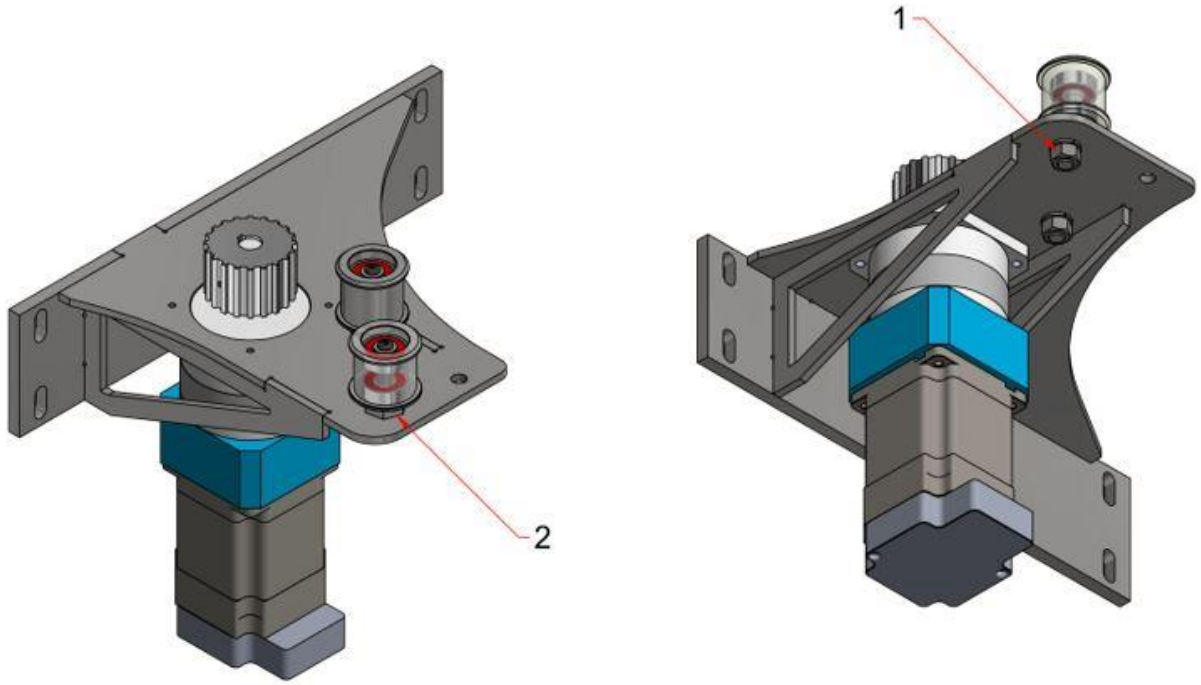


Figure 28, Rotation Motor Assembly

- Remove saw tabletop and blue guard plate in front of gearbox.
- Rotate saw to the left until the gearbox and belt adjusting rollers are accessible from the top.
- Loosen off the securing nut (1) using spanner provided, on both rollers. Turn eccentric nut (2) on both rollers until minimum tension is achieved and belt is loose.
- There are two plates securing ends of rotation belt. Remove each of these plates by taking out the four bolts holding them on.
- Remove the old belt.
- Starting with the end of the new belt, secure it to the left-hand side (one nearest the rotation gearbox) using one of the plates from the 4th step.
- Weave the new belt around the pulleys and secure the other end in place (remove as much “slack” as you can by hand).
- Loosen securing nut on the pulley nearest the front of the saw and turn the eccentric nut until the maximum adjustment is achieved. Tighten the securing nut. (Amount of adjustment by this pulley is minimal).
- Final tensioning of belt is achieved by adjusting the second tensioning roller.
- Check the tension of the belt between the rollers on top of the gearbox. When tensioned correctly, the belt should be tight to the touch (i.e., very little movement).

11.6 Replace Motor Brake

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

11.6.1 FPC Brake

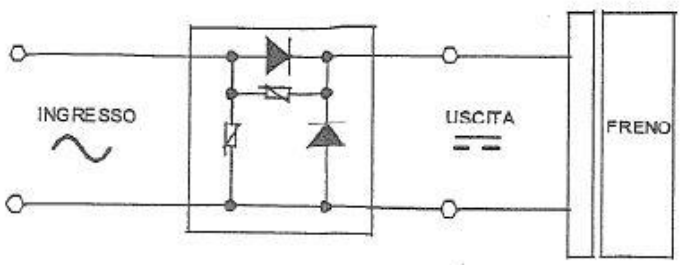


Figure 29, Connection Diagram for FPC Brake

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

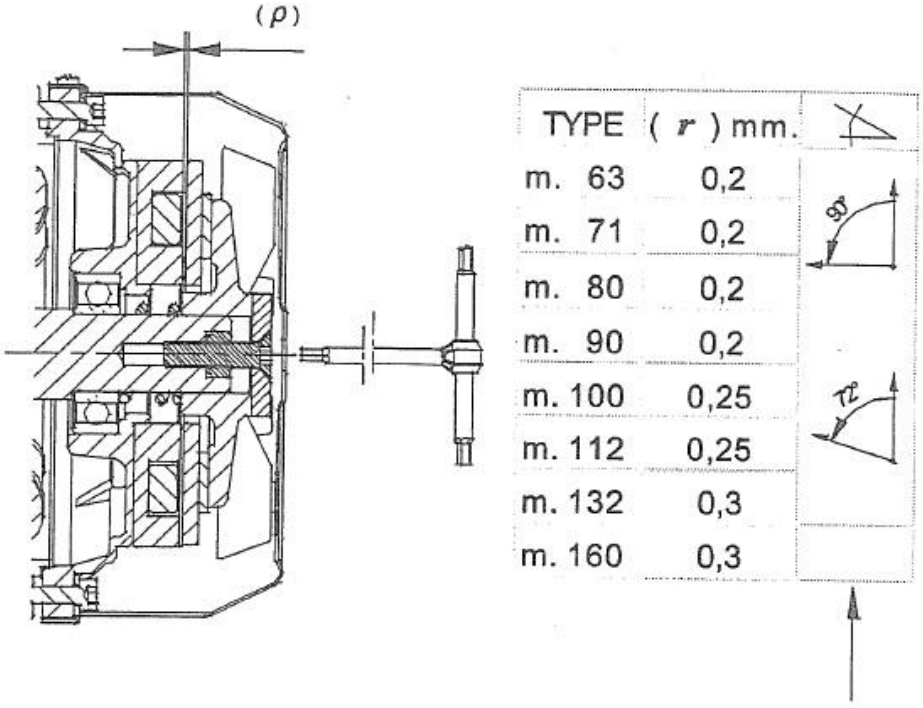


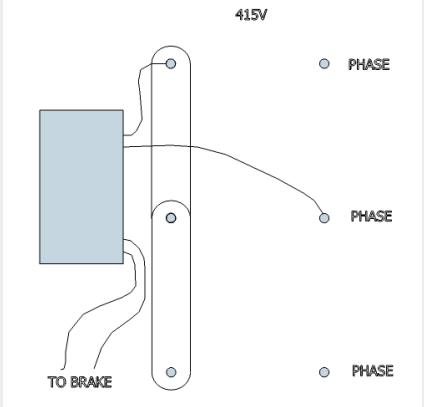
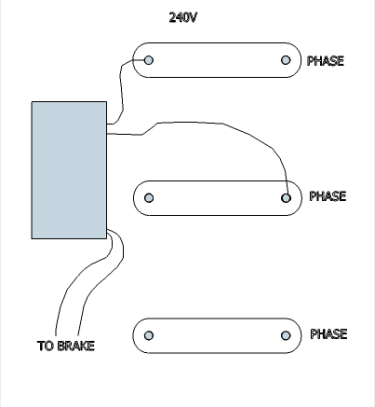
Figure 30, Brake Adjustment

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

11.6.2 100V Brakes

Connecting 100V Brakes on CEG Motors

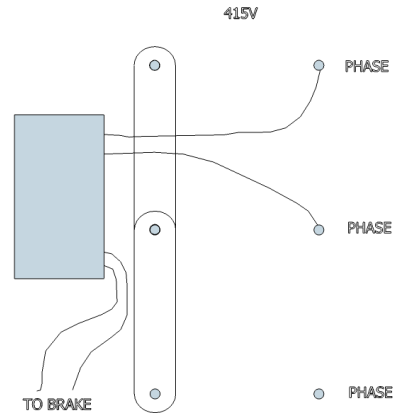
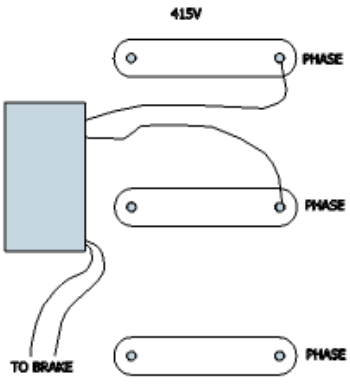
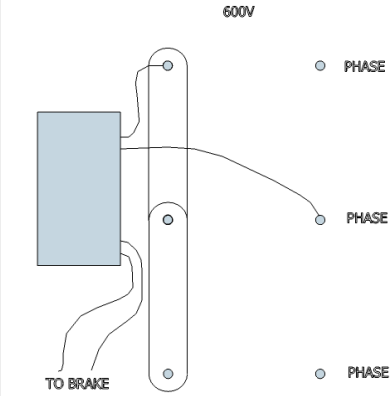
- It is vitally important to ensure you have the correct connection of the motor brake to prevent damage to the brake.
- The Rectifier supplied is suitable for any mains Voltage supplied, it approximately halves the supply Alternating Voltage to DC (240V AC becomes ~100VDC and 415V AC becomes ~ 190VDC)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

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

11.6.3 190V Brakes

Connecting 190V Brakes on CEG Motors

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

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

11.7 Test Cuts (If required)

If a test cut is required by Spida Machinery, the following steps must be carried out. If there are any other issues with the CSS Vector/Apollo Saw, then contact Spida Machinery accordingly.

Testing the Cut Accuracy

To ensure the machine is cutting accurately, it is necessary to check that the right-hand side of the blade, the front face of the fence, and the centre of the top pin are aligned.
It may also be necessary to check the motor alignment, especially if the motor has been moved or jostled in some way.

If both the fence and motor alignments are correct, you can be sure that the machine is at the optimum cutting accuracy.

NOTE:
If either alignment is way off, please contact Spida Machinery for further information. It is not recommended to make large adjustments to the motor or to the fence without an experienced Spida engineer on hand.

11.7.1 Fence Alignment

To check this, perform the following:

1. Check that the blade is square to the fence and in a vertical plane (90°).
2. Place an off cut of timber on the table, ensuring it is against the fence (**Must be clamped**).
3. Set the height of the blade so that the cut will be around 5mm deep.
4. With the radial degree setting at 90°, cut the timber part way through.
5. Without moving the timber reset the angle to 45° on the left and make a second cut part way through.
6. Reset the angle to 45° on the right and make a third cut part way through.
7. Check the alignment of the cuts. The points of intersection should all be at the same point at the rear face of the timber, as shown in Figure 31.

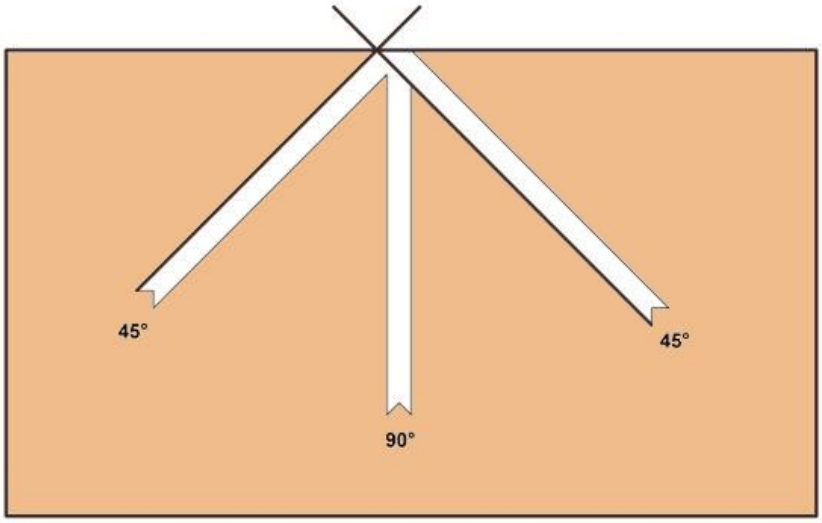


Figure 31, Example of a correct fence alignment test cut

NOTE:
The Left side of the saw cuts should align, irrespective of the side the outfeed is located.

8. If the point of intersection is too far back or forward, adjustment can be made at the fence. To adjust the fence, loosen the 8mm Countersunk Cap screws holding the fence to the base frame, on either side of the fence.

   NOTE:
   If the intersection point is too far **forward** (Figure 32), move the fence **forward**.
   If the intersection point is too far **back** (Figure 33), move the fence **back**.

9. Only make minor adjustments at a time, and make sure the Cap screws are tightened before rechecking.

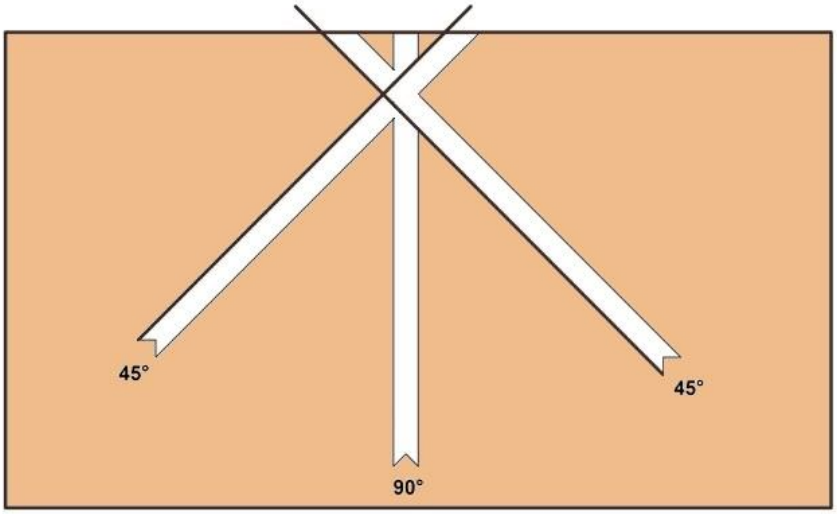


Figure 32, Fence too far back

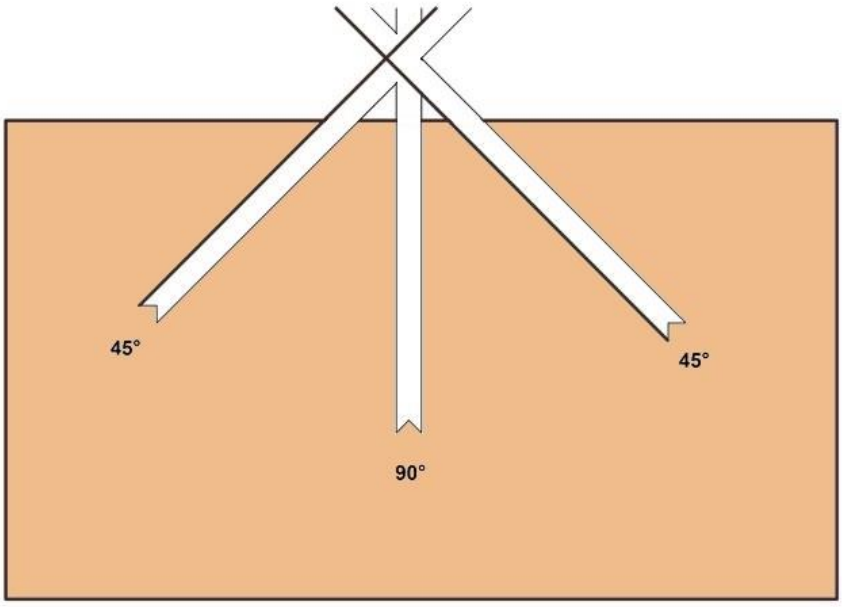


Figure 33, Fence too far forward

11.7.2 Motor Alignment

Perform the test cut as shown in Figure 34, following the previous steps but setting the extra angles as required.

1. Check that the blade is square to the motor and in a vertical plane (90°).
2. Place an off cut of timber on the table, ensuring it is against the fence (**Must be clamped**).
3. Set the height of the blade so that the cut will be around 5mm deep.
4. With the radial degree setting at 90°, cut the timber part way through.
5. Without moving the timber reset the angle to 45° on the left and make a second cut part way through.
6. Reset the angle to 10° on the left and make a third cut part way through.
7. Reset the angle to 45° on the right and make a fourth cut part way through.
8. Reset the angle to 10° on the right and make a fifth cut part way through
9. Check the alignment of the cuts. The points of intersection should all be at the same point at the rear face of the timber, as shown in Figure 34.

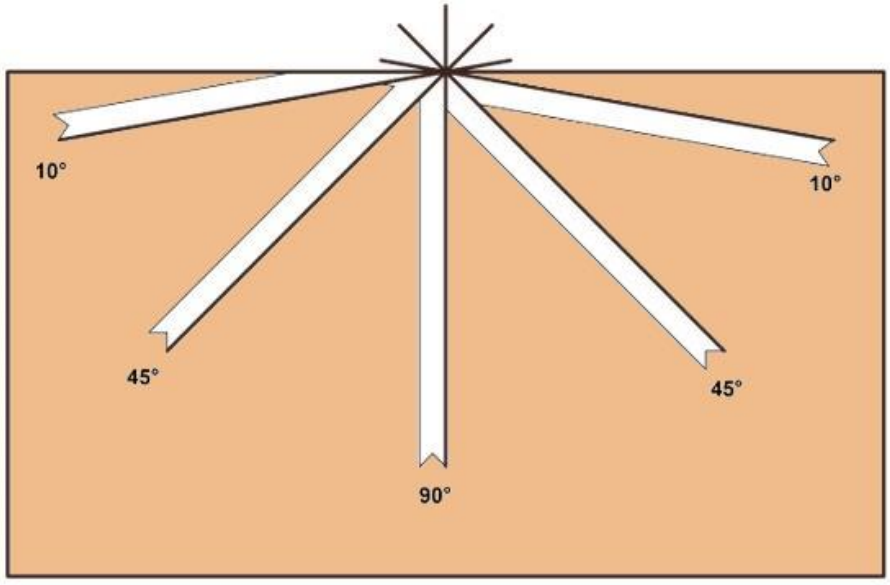


Figure 34, Example of a correct motor alignment test cut

NOTE:
The Right side of the saw cuts should intersect, irrespective of the side the outfeed is located.

If the cuts are not correct, please contact Spida Machinery for further information. It is not recommended to attempt to adjust the motor alignment without guidance

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	Saw blade not returning to position	- Clean Saw, especially cutting surfaces, dust chute, around saw blade, motor, fence, and dusting around return spring. - Remove any large pieces of debris and clean out any dirt. - Clean and check motors, and service saw blade. - Check the angles and calibration of the blade and re-align if required. - Check sharpness of blade and replace if required.
	Saw blade cutting incorrectly	
	Assemblies blocked/moving incorrectly/failing	
	Machine overheating	
	Saw blade failing to cut	
	Unusual amount of noise while parts are moving	
	Motor tripping out or overloaded	
Lack of care	Saw and saw assemblies not moving correctly	- Repair or replace any damaged, loose, or missing parts. - Re-tension belt and check angles, as they may have changed slightly - Remove any loose or unnecessary objects. - Re-calibrate parts as required. - Note, if possible, how each part was mistreated, and train operators to prevent additional misuse of these and other parts. - Contact Spida Machinery in the event of a major crash
	Broken, damaged, or misaligned parts/assemblies	
	Foreign objects in Main assemblies/obstructing moving parts	
	Bent fences or Stopper plates	
	Bent or stuck saw blade	
	Misaligned or incorrect cutting angles	
	Saw cutting incorrectly	
	Rotation Belt loose	
	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

13.1 Mechanical Faults

Table 25, Trouble shooting

Trouble	Probable Causes	Correction
Starting Saw blade failed	Factory power abnormal	Check power supply
	Start switch damaged	Replaced damaged switch
	Power wire damaged	Replace damaged wires
	Brake stuck	Lock out air and power to the machine. Check brake and attached parts, and repair and replace as required. Remove any obstructions. Contact Spida Machinery if there is a major issue.
	Overload tripped	Check overload setting. Reset overload
Poor cutting quality	Saw blade dulled	Sharpen blade
	Piece held incorrectly	Ensure piece is held firmly against the fence. Keeping hands well out of the way of the blade
	Inaccurate fence alignment	Refer to Spida Machinery
Workpiece burnt	Saw blade dulled	Sharpen blade
	Piece held incorrectly	Ensure piece is held firmly against the fence. Keeping hands well out of the way of the blade
	Blade damaged	Replace blade
Saw blade slows down during cutting	Saw blade dulled	Sharpen blade
	Motor tripping out/stalled	Clean motor and test voltage. Repair/replace as necessary
	Blade damaged	Replace blade
Saw blade cutting at an incorrect angle	Rotation not correctly calibrated	Re-calibrate as required
Saw blade assembly not moving easily/getting stuck	Arm assembly joints damaged/worn/caught	Check return spring. Free any moving parts that have become stuck. Repair/replace parts as required
	Obstruction	Clear obstruction
	Automatic stroke assembly damaged/caught	Check all parts for damage. Ensure cables are sitting correctly on pulleys. Free any moving parts that have become stuck. Repair/replace parts as required
Saw blade assembly not adjusting height correctly/easily, or not staying at the correct height	Height adjust shaft misaligned/damaged	Re-align/repair/or replace as required
	Adjusting wheel misaligned/damaged	Re-align/repair/or replace as required
	Other moving parts damaged/worn	Check all moving parts and repair/replace as required
	Obstruction	Clear obstruction
	Quick clamp handle stuck/not tightening correctly	Ensure handle is correctly attached and lubricated. Otherwise, repair/replace as required
Rotation ring not moving/not adjusting correctly	Rotation ring misaligned	Ensure rotation ring is sitting square with CSS Apollo Saw base
	Rotation Belt misaligned/damaged	Ensure belt is sitting square on rotation ring and around rollers/pulley, and replace if damaged or excessively worn
	Rotation rollers or pulleys misaligned/damaged	Ensure rollers and pulleys are sitting square on rotation gearbox bracket; replace if damaged or excessively worn
	Automatic stroke assembly damaged/caught	Check all parts for damage. Ensure cables are sitting correctly on pulleys. Free any moving parts that have become stuck. Repair/replace parts as required
	Material jammed	Extricate material from parts. Ensure material is moving correctly down the line. Check parts for damage and repair/replace parts as required.
	Other obstruction	Clear obstruction
	Sensors or sensor cable damaged	Repair/replace sensors or sensor cables as required
	Damaged electrical leads	Check for bent or broken leads and replace as required. Contact Spida Machinery if there is a major issue.
	Servo motor/s tripping out/stalled	Check fault number on motion controller (look through Perspex on control box). Clean motor and test voltage. Repair/replace as necessary
Rotation ring not stopping correctly during homing	Sensor or sensor cable damaged	Repair/replace sensor or sensor cables as required
	Electrical supply compromised	Find and replace damaged lines/parts as required
	Obstruction	Clear obstruction
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. See below for further maintenance info.
Motor does not run at full speed	Power voltage too low	Test voltage
Motor tripping out	Motor vents blocked	Clean motor
	Moving parts obstructed	Clear obstruction
	Motor is damaged	Repair/replace motor
Saw blade moving beyond maximum cut length	Automatic stroke assembly damaged/parts loose/cable undone or severed	Check cable for damage and ensure it is connected correctly. Check all parts for damage/tightness. Repair/re-adjust/replace parts as required
Rapid Stop 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.
	Obstruction	Clear any obstructions around the pusher, sliders, or belt tensioners.
	Misalignment	Ensure that all parts of the Stop are aligned correctly with the fence and table.
Inaccurate cutting/ measurements	Sensor Malfunction	Repair/replace the sensor/s as required. Re-calibrate the trolley
	Cutting Surfaces damaged/misaligned	Repair/re-align/replace parts as required
	Fence/Guards damaged/misaligned	Repair/re-align/replace parts as required
	Saw blade damaged/misaligned	Repair/re-align/replace saw blade as required. See above for further maintenance info
	Missing or damaged parts/parts moving incorrectly	Repair or replace parts as required. Re-calibrate the trolley as required
	Obstruction	Clear obstruction
	Control malfunction	Turn machine off and on again. Otherwise contact supplier for further information.
Unable to remove material	Blade stuck	Lock out power to the machine. Extricate material from blade. Check parts for damage and repair/replace parts as required.
	Saw blade broken/damaged/misaligned	Lock out power to the machine. Re-align/repair/replace parts as required.
	Obstruction/material jammed	Lock out power to the machine. Extricate material from parts and/or clear obstruction. Check parts for damage and repair/replace parts as required.
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.
Controls not working	Button malfunction	Turn machine off and on again. Check buttons are not obstructed and clear out any surrounding dust and debris. Check input cables.

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

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

M2012 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

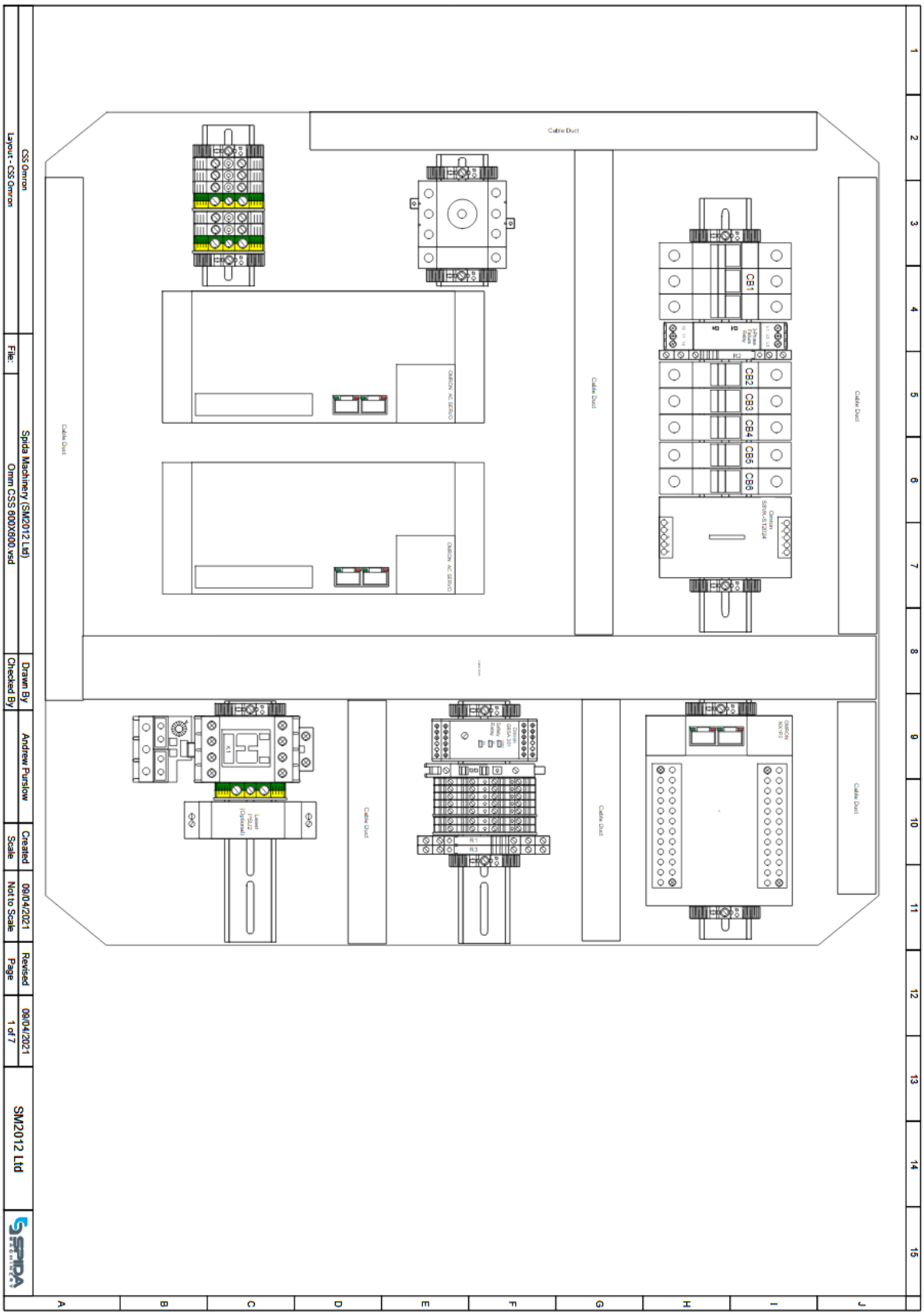


Figure 35, Apollo Electrical Drawings NZ/AU part 1

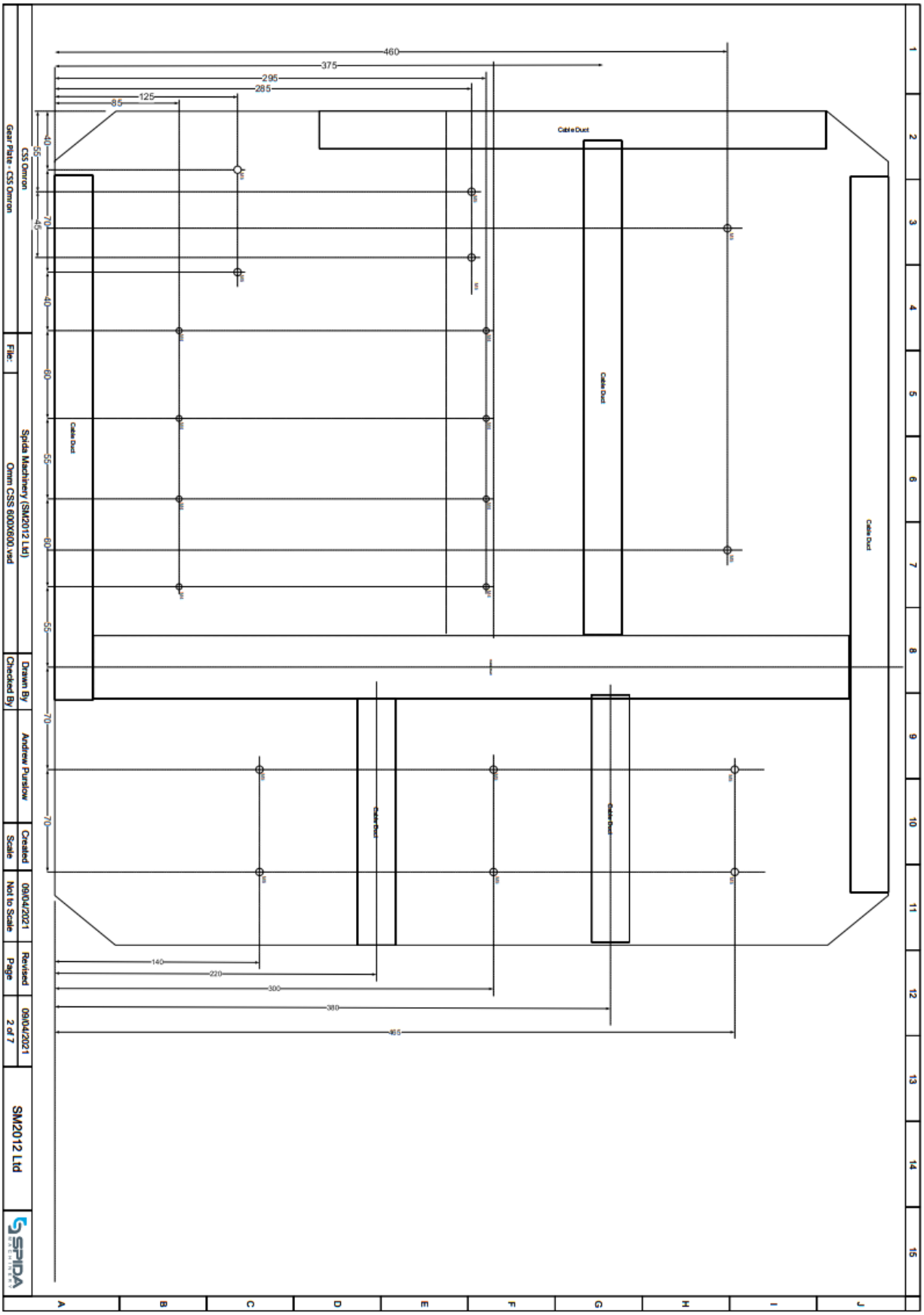


Figure 36, Apollo Electrical Drawings NZ/AU part 2

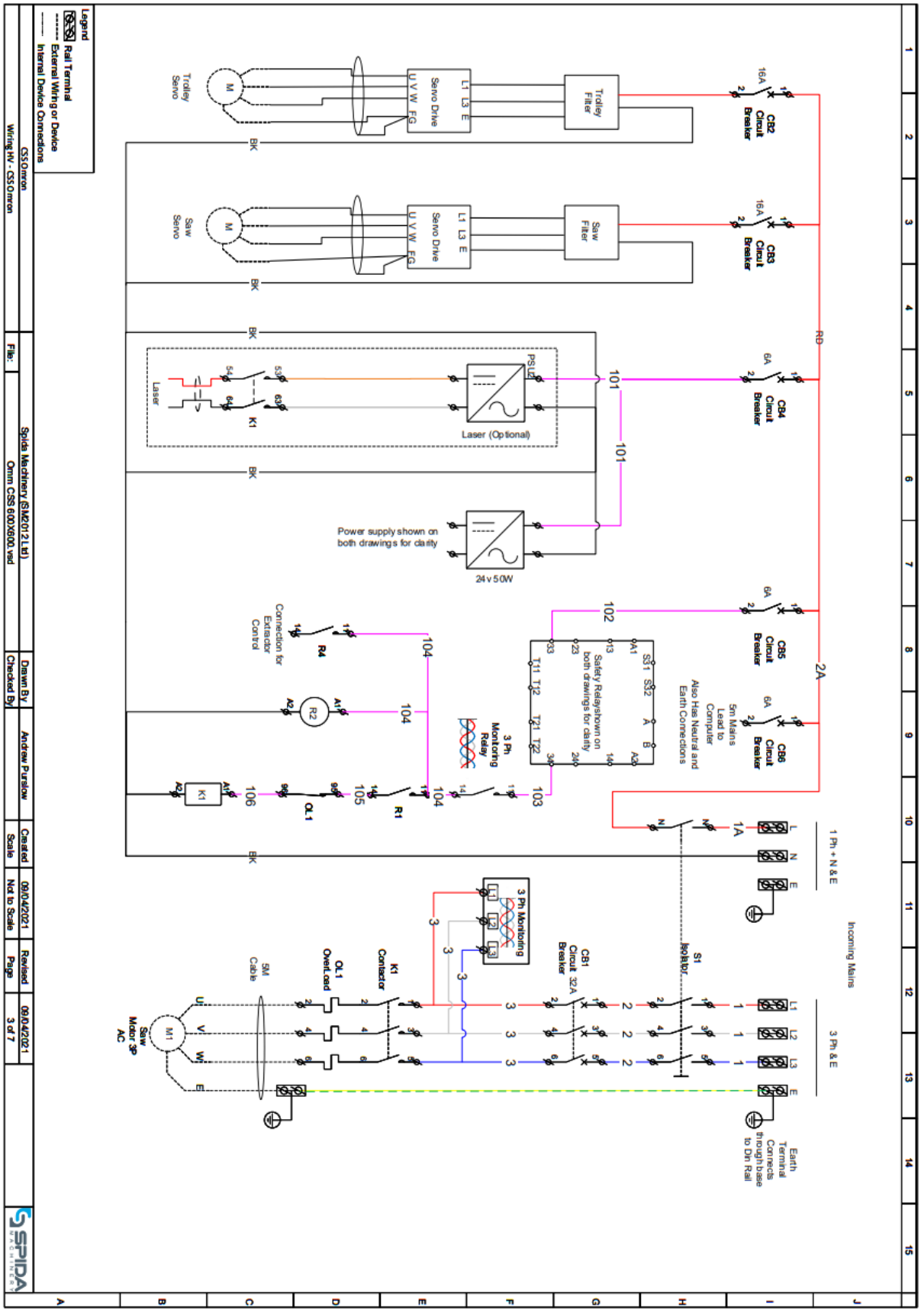


Figure 37, Apollo Electrical Drawings NZ/AU part 3

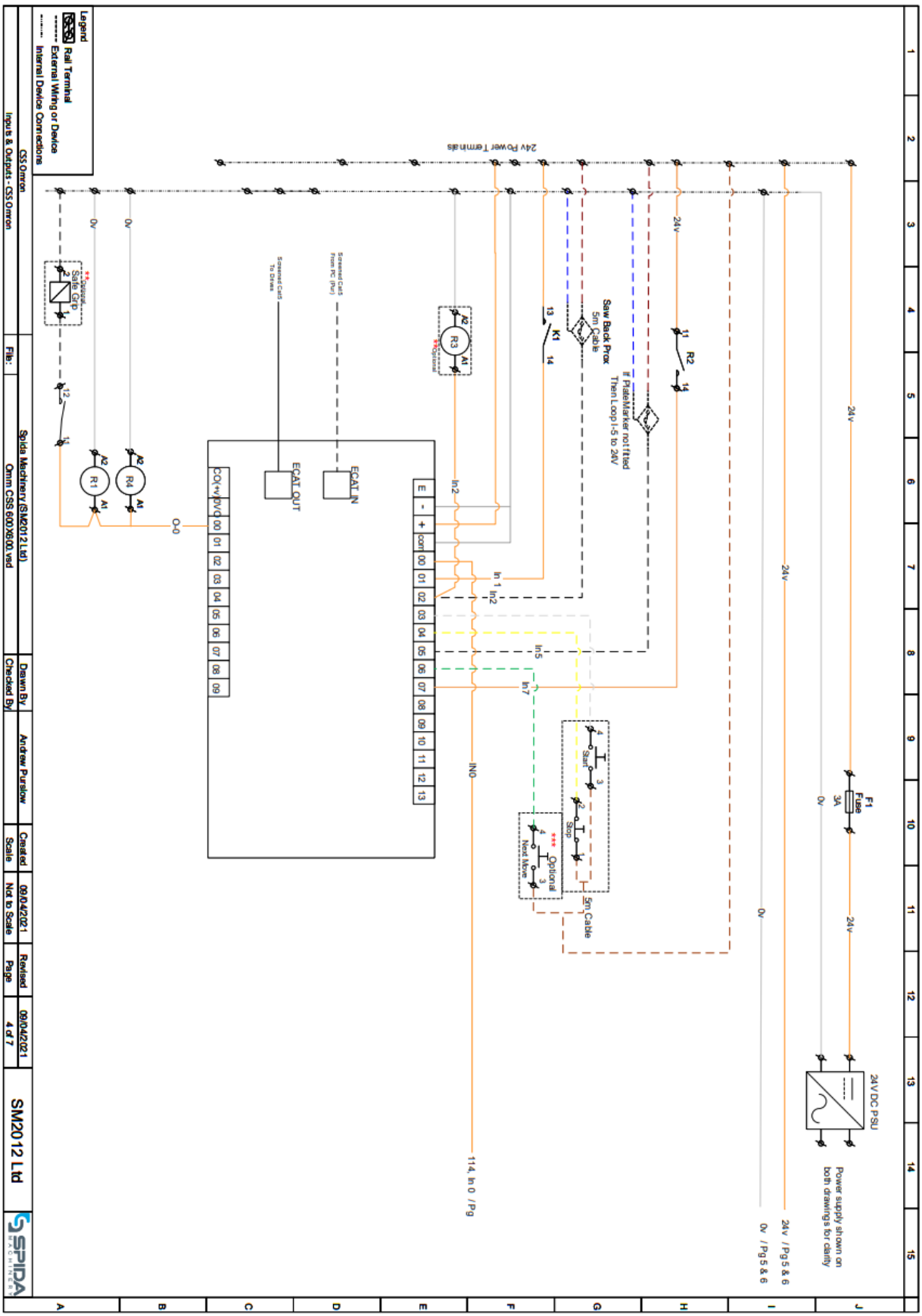


Figure 38, Apollo Electrical Drawings NZ/AU part 4

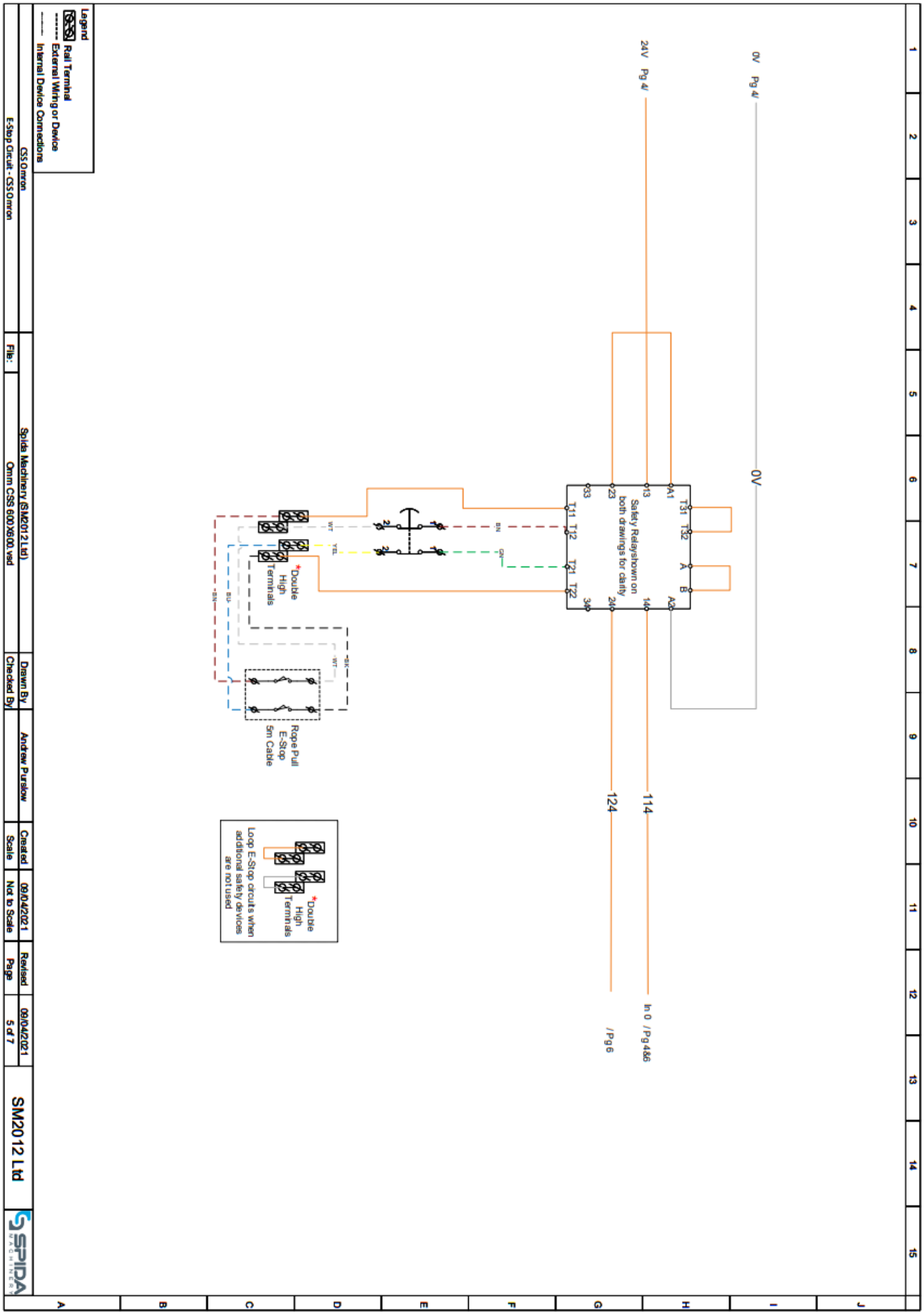


Figure 39, Apollo Electrical Drawings NZ/AU part 5

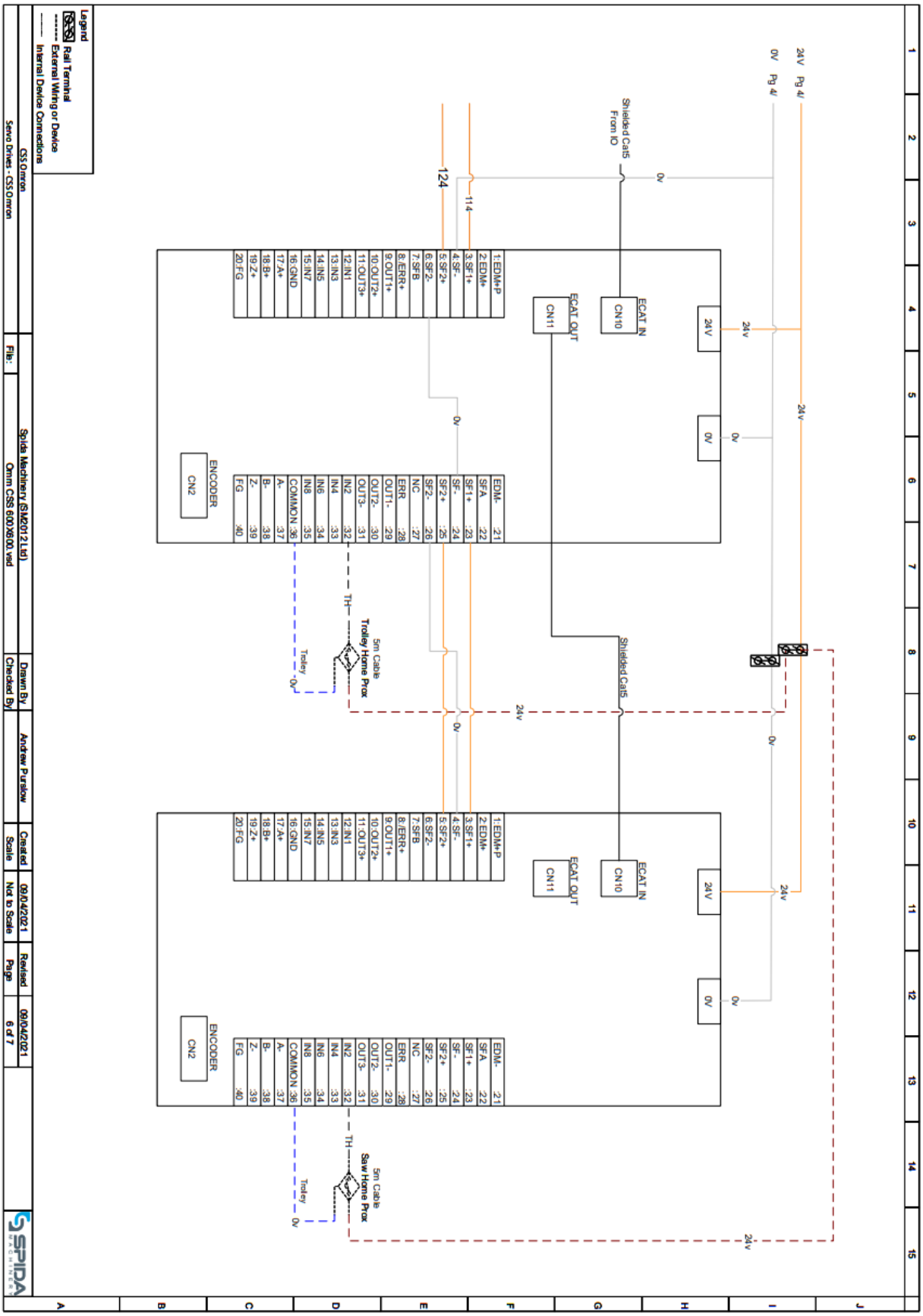


Figure 40, Apollo Electrical Drawings NZ0AU part 6

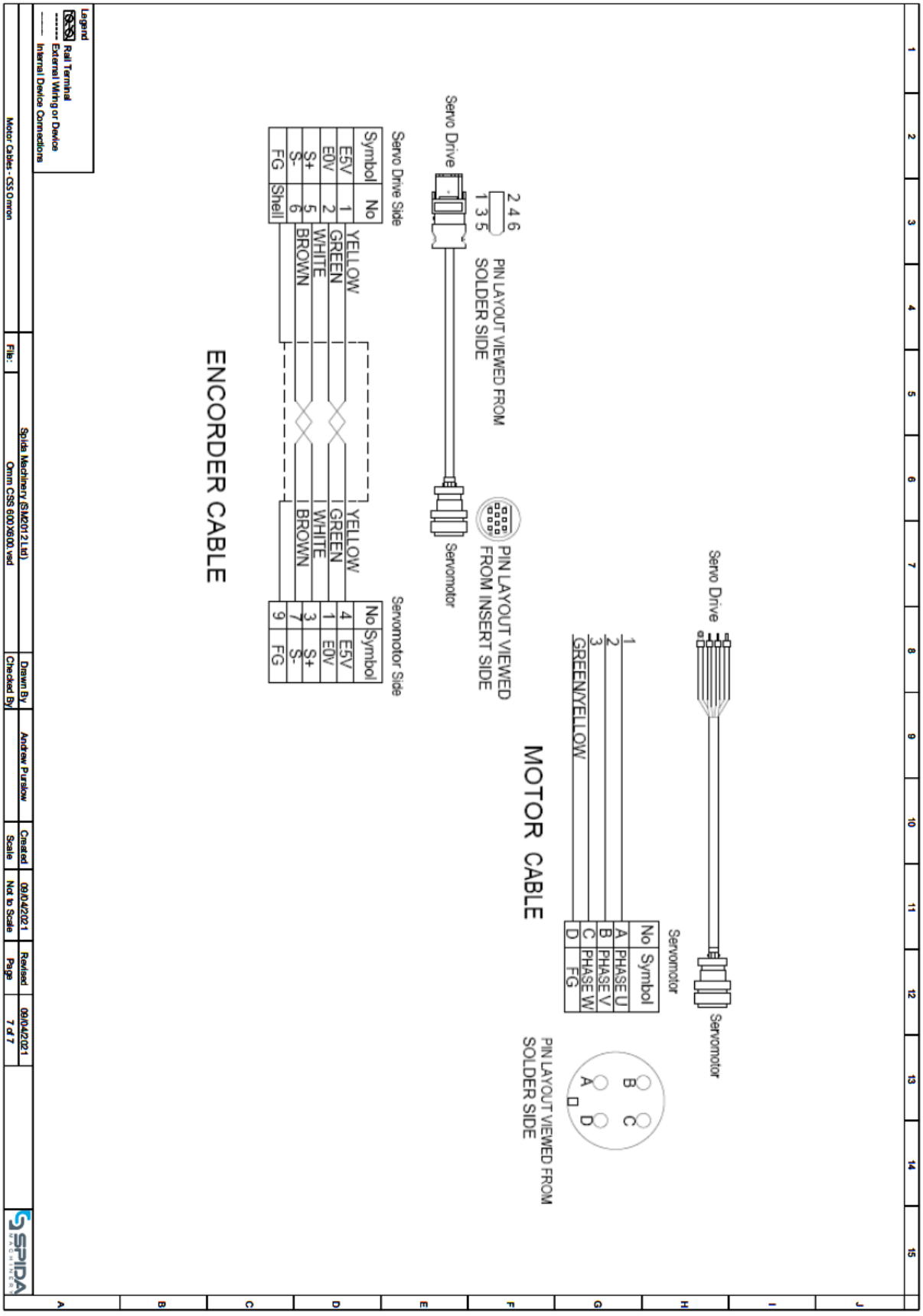


Figure 41, Apollo Electrical Drawings NZ/AU part 7

17 CE Declaration of Conformity

EC Declaration of Conformity

Manufacturer: SM2012 Limited (Trading as Spida Machinery)

Address: 164 Taurikura Drive, Tauriko, Tauranga, New Zealand

The machinery specified below fulfills all the relevant provisions of the following EC (EU) DIRECTIVES and REGULATIONS

- 2006/42/EC - Machinery Directive
- 89/336/ECE– Electromagnetic Compatibility (EMC) Directive
- 2014/35/EC - Low Voltage Directive

The following harmonized standards were used:

- EN ISO12100 , Safety of machinery - General principles for design
- EN ISO 13849 , Safety of machinery - Safety-related parts of control systems
- EN ISO 13850 , Safety of machinery - Emergency stop
- EN 60204-1 , Safety of machinery - Electrical equipment of machines
- EN ISO 13857 , Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
- EN ISO 13854 , Safety of machinery – Minimum gaps to avoid crushing of parts of the human body.

EN Applicable product standards

- EN 1870-5:2002+A2:2012 Safety of woodworking machines - Circular sawing machines - Part 5: Circular saw benches/up-cutting cross-cut sawing machines
- EN 1870-10:2003+A1:2009 Safety of woodworking machines - Circular sawing machines - Part 10: Single blade automatic and semi-automatic up-cutting cross-cut sawing machines

The standards mentioned above refer to the version applicable at the date of issue of this declaration.

Hereby declare that:

Equipment: Apollo Saw Gen VIII

In conformity to the applicable requirements of the following documents:

Ref No	Title	Edition
CE Risk Assessment BS EN ISO 12100	CSS Apollo Saw Gen VIII	Rev1
Operations Manual	CSS Apollo Saw Gen VIII Manual	RevC

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives. The Technical File for Apollo Saw Gen VIII is maintained at the above address.

Signed: _____
Name: Bevan Lines
Position: CEO
Company: SM2012 Limited
Date: 03 November 2021

CE

Doc Ref: N:\Products\Manuals\CE Certification Documents\CE DoC CSS Apollo Saw Gen VIII Rev1.docx Page 1 of 1

Figure 42, CE Declaration of conformity.

18 Training Certificate – Apollo Saw

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 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: _____