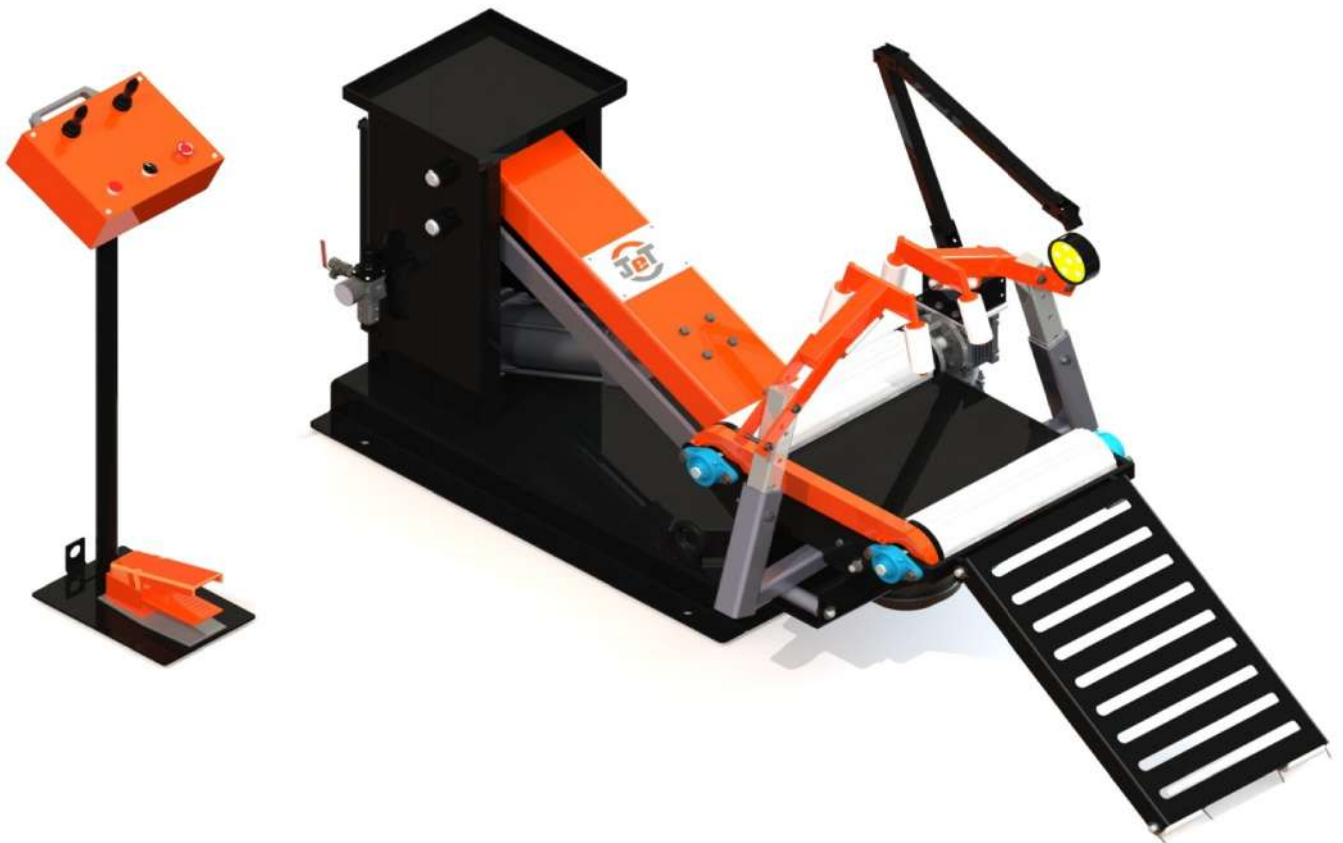




INSPECTION SPREADER IS 2E

INSTRUCTION MANUAL



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Foreword

The Inspection Spreader IS 2E is a simple and compact, pneumatically Operated machine which facilitates thorough inspection of tyres and can also serve as a repair station. Loading and unloading of tyres is done effortlessly with the help of a ramp. Rollers are provided for easy rotation of tyres.

360° inspection lamp enables the operator to view the inside of the casing and the injury clearly, as well as to inspect the sidewall for damages. Forward and reverse rotation buttons are incorporated in the Portable operator Panel for operator convenience. Foot switch rotation control (forward and reverse) is also included.

The machine pneumatically lifts the casing to individual operator height for easy, ergonomic operation.

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1.General Information / Introduction

Introduction

Elgi Rubber Company Limited is a pioneer in Tyre Retreading, providing one stop solutions for the Tyre Retreading Segment.

Thank you for purchasing our product Inspection Spreader Machine.

Company Profile:

ELGI Rubber Company Limited has its headquarters in India with subsidiaries in Australia, Brazil, Kenya, Netherlands, Sri Lanka and the United States of America. ELGI manufactures a comprehensive range of raw material, equipment, tools and accessories used in the 'Rubber Industry', predominantly in the 'Tyre sector'. With state of the art manufacturing facilities, testing laboratories and R&D centers around the world, ELGI is able to deliver products to the most demanding users.

ELGI's products are sold under the following brands:

Jet



Retread and Repair Systems

CRS



Expandable Rims & Hubs

Armonas



Retread Process Equipment

Pincott



Rasp Blades, Hubs & Spacers

Carbrasive



Brazed Carbide Tools

Midwest Rubber



Midwest Rubber
Gums, Adhesives & Sealants

Westernweld



Tyre & Tube Repair Products

Rubber Resources



Reclaim Rubber

1. General Information / Contact Information

Contact information

Our Head Office is located at Coimbatore, Tamil Nadu,

India. Address : ELGI Rubber Company Limited,
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Phone : (91)-422-2321000

E-Mail : info@in.elgirubber.com

Website : www.elgirubber.com



Say **Hi** to 
Whatsapp no **6380101000**

Technical Support

ERCL's Technical team will answer your technical queries regarding the installation, use, troubleshooting, and maintenance of our products. You may also email your queries to info@in.elgirubber.com

Reference materials

Upon email request to info@in.elgirubber.com, reference materials including Outline, Mounting drawings, Operator's Manuals, Technical Bulletins, Pneumatic schematics, Electrical schematics, Troubleshooting procedures and Spare parts details will be provided.

Warranty

Warranty of the equipment is applicable for a period of 6 months from the date of commissioning or 9 months from the date of Invoice whichever is earlier, against manufacturing defects only. Warranty for bought out Electrical Pneumatic items etc., will not be governed by the manufacturer's warranty.

1. General Information/Limitation of Liability

Limitation of Liability

The manufacturer assumes no liability for damage resulting from:

- Disregard / non-observance of the operating manual
- Intentional misuse
- Use other than as intended
- Operation by untrained personnel
- Operation by laypersons (to carry out maintenance work ,etc) Technical modifications to the

unit have not been agreed with the manufacturer Use of replacement parts that have not been approved by the manufacturer.

Responsibilities of the operator

The unit is used for commercial purposes. The operator of the unit is therefore subject to the statutory obligations relating to occupational safety. In addition to the safety instructions in this instruction manual, the regulations on safety, accident prevention and environmental protection that apply to the unit's field of use must be complied with.

In particular, the following apply:

- The operator must be familiar with the applicable occupational safety regulations.
- The operator must ensure that all employees who use the unit have read and understood this operating manual.
- The operator must also train personnel at regular intervals and inform them of the dangers that can arise when using the unit.
- The operator must provide personnel with the necessary protective equipment.
- The operator must have all safety devices checked regularly for operability and completeness.

Documentation

Content and structure

This instruction manual is an essential part of this unit. It contains instructions and information on how to use the unit safely and must be available to all users throughout the unit's service life. This instruction manual is intended for use by trained operating personnel.

2. Safety

Safety

The Inspection Spreader is a commercial machine, used in Tyre retreading facilities for inspection of tyres before retreading.

Requirements for personnel

Trained and qualified personnel who know how to use the unit and whose specialist training, skills, experience and knowledge of the relevant regulations enables them to carry out the tasks assigned to them independently and recognize and avoid potential hazards.

Hazard information

Hazard information includes terms, symbols, and instruction used in this manual or on the equipment to alert both operating and service personnel to the recommended precautions in the care, use and handling.

Labeling scheme for integrated text boxes and references

The following safety notices are used in this manual.

Certain terms are used throughout this manual or on the equipment labels. User need to familiarize with their definitions and significance.



Danger:

Imminent hazards which, if not avoided, will result in fatal or serious injury.



Warning:

Potential hazards which, if not avoided, could result in fatal or serious injury.



Caution:

Potential hazards or unsafe practices which, if not avoided, may result in minor or moderate injury.

Caution:

Potential hazards or unsafe practices which, if not avoided, may result in Product damage.

Important:

Important information or recommendation concerning the subject under discussion.

Note:

Point of interest for more efficient or convenient equipment operation; additional information or explanation concerning the subject under discussion.

2.Safety / Symbols and Definitions

Symbols and Definitions



Earth / PE:

Earth or PE connection to be made to avoid the earth leaked shock



Warning:

Disconnect Power supply before Servicing or Cleaning



Warning:

No Loose Connection



Warning:

Foot Protection Required



Warning:

Crush Hazard - Keep feet clear



Warning:

Finger protection on rollers



Warning:

Electric Shock Hazard

Danger:

Electrical Shock or Burn Hazard

Turn off power supplying this equipment before working inside.

Warning:

Electric & Pneumatic power sources present. Disconnect electric power and compressed air supply

Danger:



Crush Hazard


Keep Hands Clear, Follow lockout procedure before servicing



2.Safety/General Hazards

General hazards

Following are description of general hazards and unsafe practices that could result in fatal, severe injury, or product damage. Specific warnings and cautions not appearing in this section are found throughout the manual.

 <p>Danger</p> <p>Serious personal injury</p> 	<p>This is Electrical Class 1 product which runs with 415 V AC, Three Phase, 50 Hz, AC source</p> <p>Do not allow or Direct or indirect contact with Electrical Parts without proper PPE and safe procedure.</p> <p>Direct or indirect contact with Electrical part inflicts severe corneal injuries leading to permanent disability or fatal accident.</p> <p>This product is not intended for use in explosive, or potentially explosive, atmospheres.</p>
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<p>Caution</p> <p>Minor or moderate injury</p> 	<p>This Machine has rotating shaft which run with product running speed</p> <p>Do not allow or Direct or Indirect contact with rotating shafts.</p> <p>Don't Try or alter the safety protection at rotating shaft section.</p> <p>Direct or indirect contact with rotating shaft may leading to minor or moderate injury.</p>
---	---

 <p>Warning</p> <p>Serious personal injury</p> 	<p>This Machine has Chain drive rotating parts which is operated by the motor drive.</p> <p>Do not allow or Direct or indirect contact with rotating shafts.</p> <p>Don't Try or alter the safety protection at belt drive rotating parts enclosure.</p> <p>Direct or indirect contact with belt drive rotating parts may leading to moderate or Serious injury.</p>
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2. Safety/Hazard Information

Hazard information

IS 2E should be installed and operated in manufacturing or laboratory facilities by trained personnel only. Due to the considerable risks and hazards associated with the installation and operational use of any equipment, the operator must follow product warning labels and instructions to the user regarding safety. To prevent exposure to direct or indirect hazards, following all safety precautions specified throughout this manual and exercise safe operating practices as per electrical safety standards.

Lock Out Tag Out(LOTO)

This Machine designed with LOTO concept as per OSHA standards. Whenever the machine undergoes any Electrical or Mechanical or Cleaning activity, turn OFF them a in ISOLATOR switch and follow LOTO procedure.

List of Hazards Associated with this Machine

- Electrical hazards.
- Pneumatic hazards.
- Sharp Edge hazards.
- Rotating and pinch point hazards.

Use standard safety procedure while working with respective Source and use proper recommended PPE's.

Grounding

This machine needs additional body protecting grounding or Earth, which needs to be connected with the Machine to Ground/ Earth with Copper wire or conductor or rod.

Other Hazards

The following hazards are typical for this product family when incorporated for intended use:

- a) Risk of injury when lifting or moving the unit;
- b) Risk of exposure to hazardous Electrical energy through unauthorized removal of access panels, doors or protective barriers;
- c) Risk of exposure to hazardous Electrical Energy and injury due to failure of personnel to use proper PPE while involving in maintenance or troubleshooting;
- d) Risk of exposure to hazardous or lethal voltage through unauthorized removal of cover, doors, or access panels;
- e) Risk of exposure to hazardous when connected with non-standards voltage source apart from mention specification in machine electrical nameplate.

Disposal

This product contains components that are considered hazardous industrial waste. If a situation occurs where the machine is non-functional and cannot be repaired, it may be returned to Elgi Rubber Company Limited who, for a fee ,will ensure adequate disassembly, recycling, and/or disposal of the product.

2. Safety/Personal Protecting Equipment

Personal Protecting Equipment

<p style="color: yellow; font-weight: bold; font-size: 1.2em;">Caution</p> <p style="font-size: 1.1em;">Serious personal injury</p>	<p>Personal Protecting Equipment listed below to be used wherever applicable.</p> <p>Failing to use may cause serious personal injury</p>
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Industrial Safety Shoes to be used to protect the foot from impact due to Tyre rolling on the foot. Electrical Safety Shoes to be used to protect from any Electrical Shock.

3. Getting started

Getting started

Chapter Overview

Use information in this chapter to prepare your INSPECTION SPREADER IS 2E for operation. The order of information presented in this chapter is the same as the order of task that you will need to perform. The best way to get your machine ready for operation is to start at unpacking and work your way through connection.

This chapter contains the following information:

- **Introduction**-Introduces the Inspection Spreader IS 2E, lists important features, and describes about machine function.
- **Unpacking**-Provides important information about unpacking the Inspection Spreader IS 2E.
- **Package Contents**- Displays and describes all components shipped with this machine may vary as per the optional features purchased.
- **Mounting**-Describes how to assemble the Inspection Spreader parts
- **Connections**- Explains how to connect power, control cables and pneumatic connections of this machine.

Introduction

The Introduction section includes sub section:

- About IS 2E
- Inspection Spreader Machine's nomenclature
- Unpacking
- Package Contents

About IS 2E

The Inspection Spreader is a simple and Compact, pneumatically operated machine which facilitates a thorough inspection of Tyres. Loading and Unloading of Tyres done in minimum effort with the help of the ramp. Rollers are provided for easy rotation of Tyres.

360° Adjustable LED Lamp enables the operator to view the inside of the casing and the injury clearly. Foot switch rotation control (forward and reverse) is also included.

The spreader has pneumatically controlled spreading claws that have built in nylon rollers to further enhance the inspection of the inside of the casing.

The machine pneumatically lifts the casing to individual operator height for easy, ergonomic operation.

3. Getting started/Inspection Spreader

Inspection Spreader - Nomenclature

Inspection Spreader IS 2E major sections

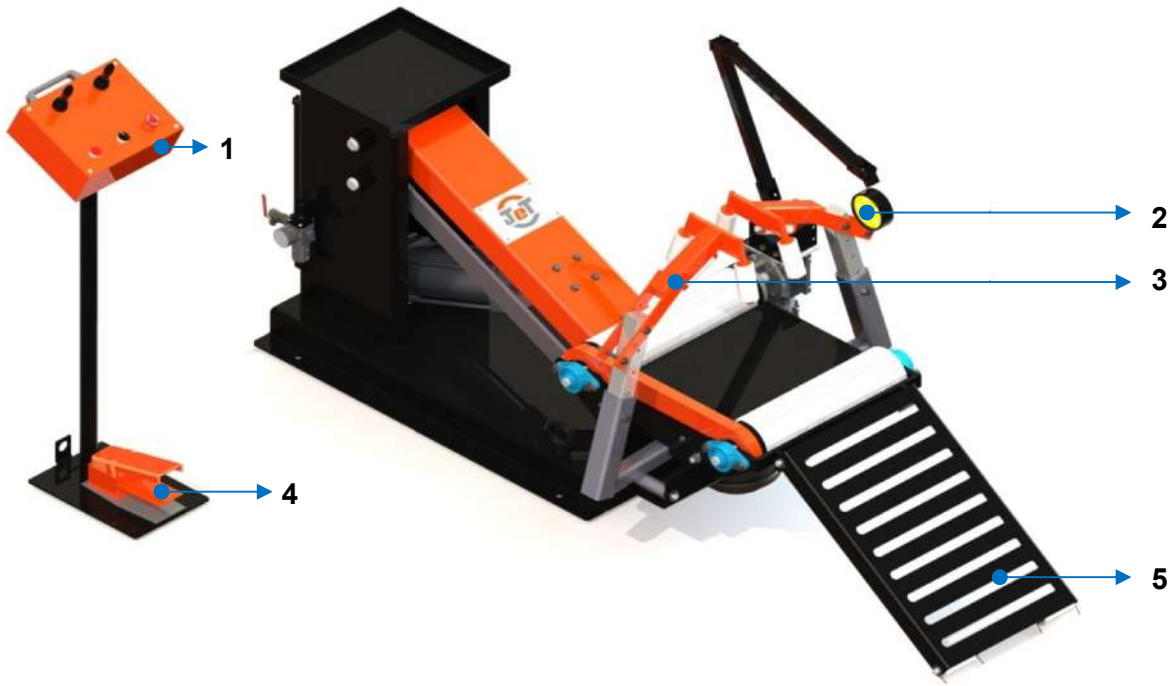


Figure 3-1 Inspection Spreader Machine

1	Operating Panel
2	360°LED Lamp
3	Claw Holder
4	Foot Switch
5	Ramp

Unpacking

The unpacking Section includes the below:

- Incoming inspection.
- Un-Packaging guidelines.

Incoming inspection

Upon arrival, inspect all shipping containers for singles of damage. If you discover shipping damages, document the damage (photographically if possible), then immediately notify the shipping carrier and Elgi Rubber Company Limited.

The shipping carrier is responsible for any damage occurring during transportation from Elgi Rubber Company Limited to your receiving dock.

Packing guidelines

Unpacking

- To prevent equipment damage or loss of small components, use care when removing packaging materials.
- After unpacking, review the Package Contents section and verify that all components are available (optional items would be available only if purchased).
- Lift the machine only at the indicated locations of the machine.
- Save all shipping containers and packaging materials, including cover and plugs. Use these specialized packing materials when shipping the machine to another location.

Packing

- When packing a machine for shipment, be sure to remove all access or items not originally attached to the machine including external electrical and pneumatic incoming connections.
- Refer to Inspection Spreader Machine packaging instruction drawings and image in the technical reference chapter for details on packaging the machine using Elgi Rubber Company Limited supplied shipping materials.
- When shipping machine, release the stored energy like pneumatic supply locked in cylinder. Ensure the proper fixing of shipment lock clamps before shipping.

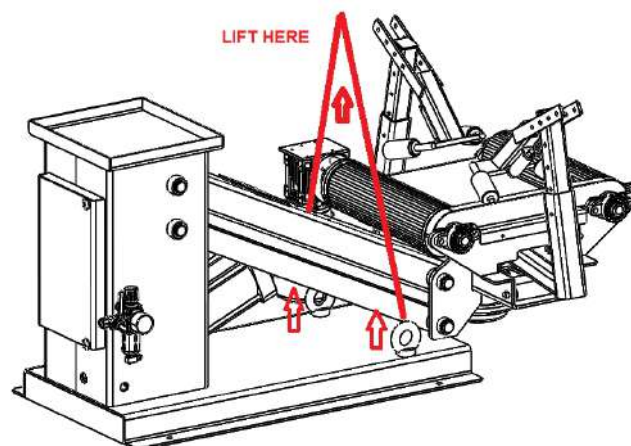


Figure 3-2 Lifting Point

3. Getting started/Package Contents

Package Contents

Table1

S.No	Shipping Pallet Box Contents	Qty
1	Inspection Spreader Assembly	1 No
2	Operating Panel Box	1 No

Contents description

Each item listed in Table1 is described below

1. Inspection Spreader Machine Assembly: A complete mechanical assembly of the Tyre inspection machine includes the geared motor for operation.
2. Operating Panel Box – Portable Operating Panel & Footswitch with Stand

3. Getting started/ Specifications of the Product

Specifications of the product:

Model	IS 2E
Power Requirement	~0.4KW
Inspection Lamp	Fixed with Flexible Arms 7.5W LED – Included
Hand Lamp	Not Applicable
Foot Switch and Fwd / Rev Direction Inspection	Included
Tyre drive Motor Voltage and Speed	AC - Single speed
NDT system	External – Optional
NDT system - auto probe positioning	Not Applicable
Vacuum cleaner	Not Applicable
Tyre Rotation Speed Control	Fixed Speed
Tyre RPM	~5RPM
Pneumatics	Janatics / Festo
Machine Dimension – LxWxH	~1950 x 1300 x 1030
Machine Weight	~200
Supply Voltage	110-440V 50/60Hz (Based on Customer requirement)
Control Voltage	220V AC
Air Pressure Requirement	7 to 8 Bar
Minimum Tyre Size	7.50 – 16
Maximum Tyre Size	12.00 – 24.5
Tyre lift	Not Applicable
Installation	Grouting Recommended

The Inspection Spreader IS 2E consists of the following major components:

1. **Mainframe:** The main frame houses all the main components of the machine with the lifting adjustment and the Tyre operating table.
2. **Table Lift:** This helps the operator in lifting the table to the operator's convenient height. This is controlled pneumatically with the help of pneumatic cylinder.
3. **Operating Table:** The operating table which holds the Tyre to the convenient height of operator. It consists of the Tyre expanding claws and rollers controlled by a motor. Spreading and releasing of the Tyre beads is done pneumatically and the spreading claws are outfitted with built in LED lights to further enhance casing inspection.
4. **Foot Switch:** This is moveable and can be brought to any position to the operator's convenience. This controls the up and down movement of the operator desired positions.
5. **Airline Assembly:** This is provided with a shut off valve, filter cum regulator.
6. **Inspection Lamp:** 360° Adjustable lamp for inspecting the Tyre.

3. Getting started / Assembly and Commissioning

Assembly and Commissioning Tools

1. Accessories

Optional	Nil
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2. Tools

Tools and materials required for erection and maintenance

- Spanners – Double End 10-22 - 1 Set
- Spanners - Ring End 16-19 - 1 Set
- Box bit 24" with Extn. Rod - 1 No
- Screw Driver - 6" & 8" - 1 No. Each
- Line tester - 1 No.
- Allen Keys - 3-10 mm - 1 Set
- Combination Pliers - 8", 10" - 1 No. Each
- Nylon Hammer - 1 No
- Cir-clip Pliers - Internal & External - 6" - 1 No Each
- Ball Peen Hammer (500Gr) - 1 No.
- Others - Insulation Tape, Teflon Tape, WD40 Rust removing Spray

3. Materials

- Air Lubricator oil ISO 68 or SAE 40 250 ml.
- 2.5 Sq.mm x 4 core flexible copper cable Length as per installed position
- PU8 Pneumatic Hose – 6 Mtr.

3. Getting started / Preparing Product for Use

Preparing Product for Use: Installation and Commissioning

Unloading

Unload the machine only by using eye bolt provision given in the machine. Remove the machine bed bolt & take out the wooden pallet.

Positioning

The machine does not need any foundation. Machine should be grouted to the floor, at the indicated anchoring points. Position the machine in the desired location on a level surface. The area where the machine is located should be well illuminated and free of noise.

- Rear side of the machine should be provided with the clearance of 05 m, to do maintenance and service on the panels (If not used Tyre Lift)
- Right side and left side of the machine should be provided with the clearance of 0.7m from the Handle.
- Front side of the machine should be provided with the clearance of 2 m to bring and load the Tyre on to the machine.

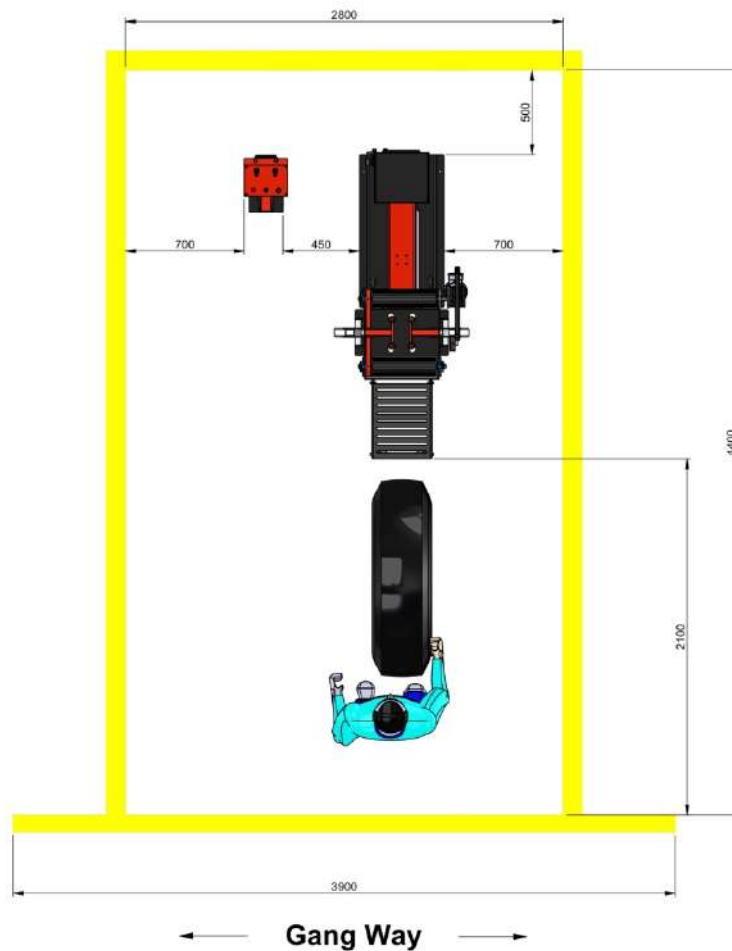


Figure3-3 Machine Footprint

3. Getting started/ Connection Layout

Connection Layout

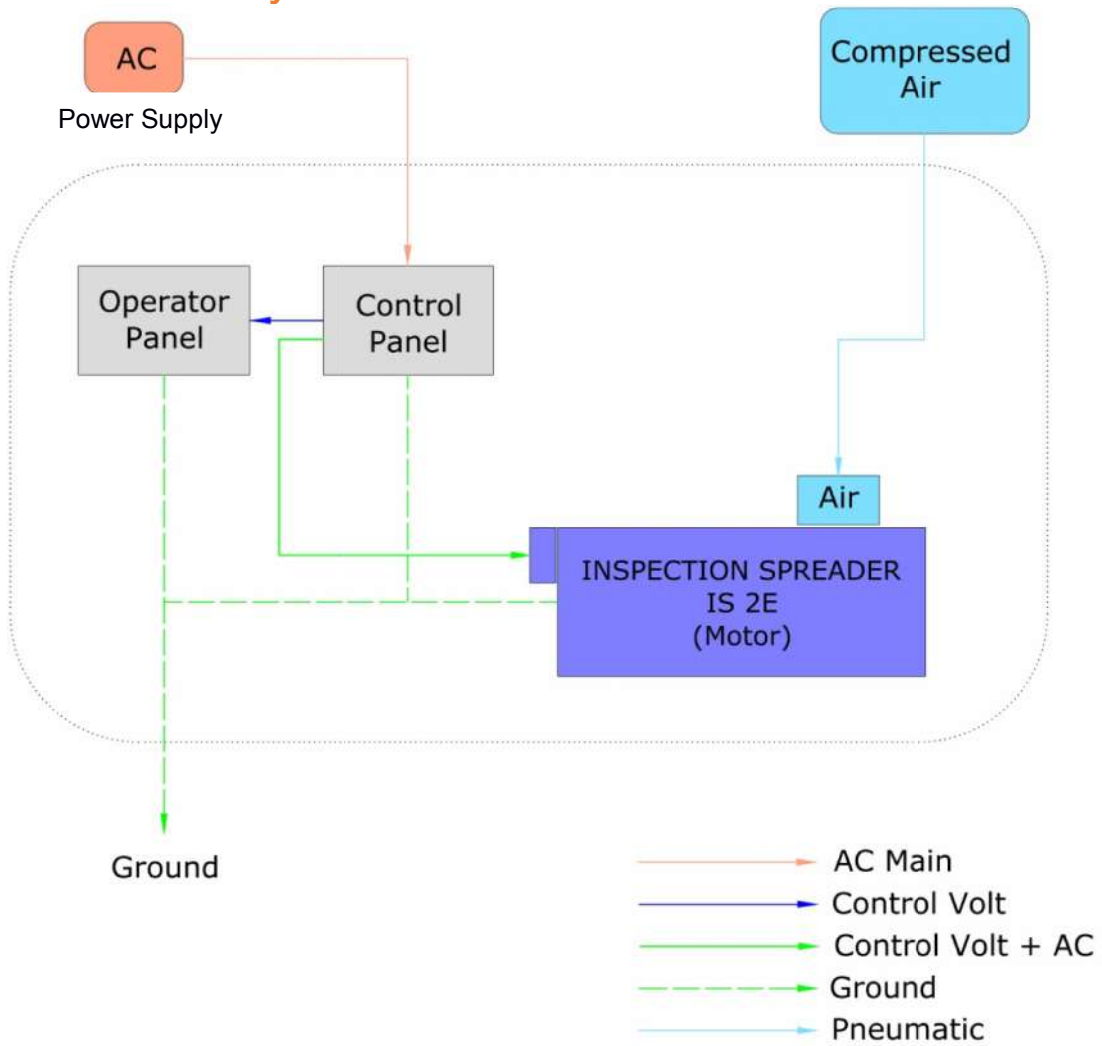



Figure3-4 Connection Layout



3. Getting started/ Connections

Connections

Connections section describes the below:

- Electrical Connection
- Grounding
- Pneumatic connection

 <h3 style="color: yellow;">Caution</h3> <p>Possible equipment damage</p>	<p>The Pneumatic connections and Electrical connections should be made after completion of mounting instruction.</p> <p>After the connection, don't turn on the energy sources until understand the Operation instructions.</p> <p>Failing of above caution will lead to machine damage or non-recoverable parts damage.</p>
--	--

 <h3 style="color: yellow;">Danger</h3> <p>Serious personal injury</p> 	<p>Electrical and Pneumatic source should be connected as specified in machine specification.</p> <p>Follow proper safety procedure.</p> <p>Don't Power on the machine until understand the machine operating Procedure.</p> <p>Failing of this may lead to serious personal injury.</p>
--	--

Electrical Connection

Follow the below instructions to establish power connection to this machine.

- Connect the machine with the help of 2.5 Sq-mm copper 3 core cable.
- From the nearest air point, draw a line using PU8 Pneumatic hose with quick connection fittings.

AC Power supply

1. Verify the input voltage before connecting the power cables to the machine terminals.
2. Recommended input voltage is 415 V AC, 50 Hz, 3 ϕ , 25 A

Important: To operating with <415 V AC, >50Hz contact Elgi Technical Support Team to set the configuration.

3. Getting started/ Connections

3. Connect the input supply as depicted in Fig3-5.

Important: The Earth cable (Yellow Green) of the AC input 3 core cables is internally connected to the machine Electrical panel and machine parts. Separate Ground connection to the machine body to be made as described in the Grounding section (Fig3-6).

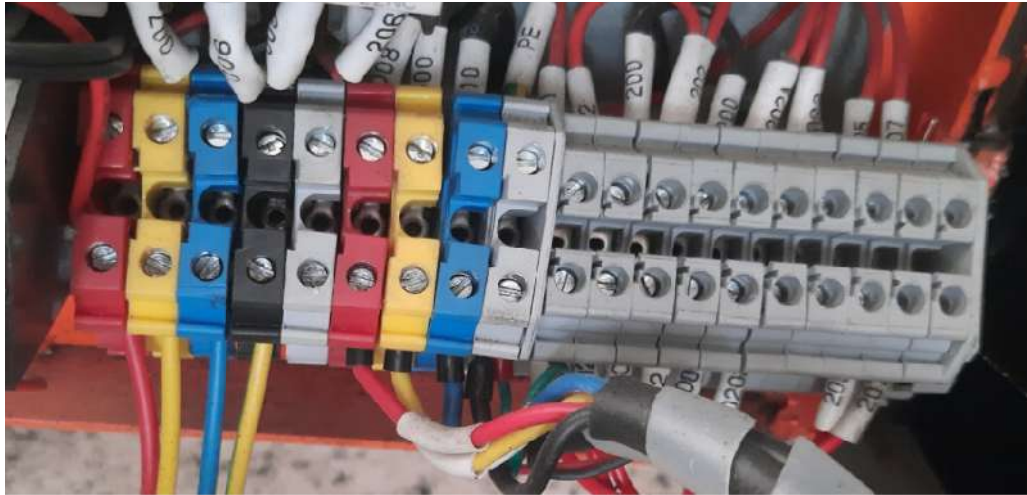


Figure3-5 Electrical Connection-AC main line input at Control Panel

<p>Caution</p> <p>Possible machine damage</p>	<p>Do not reverse the polarities when connecting the AC electrical power cables to our Inspection Spreader machine.</p> <p>Reversed AC supply connection will damage the electrical components.</p>
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<p>Caution</p> <p>Possible machine damage</p>	<p>When relocating the machine to another country, verify the input voltage rating configured in the machine with the Voltage specification of the country where the machine is to be installed and operated.</p> <p>Failing to verify and modifying the configuration may possibly damage the machine.</p>
--	---

3. Getting started/ Connections

Grounding

The Inspection Spreader Machine IS 2E metal body needs Ground/ Earth to be connected. Use suitable connector and copper wire to make ground connection.



Figure3-6PE/Ground connection on Panel and Machine

Pneumatic connection

Follow the below instructions to establish the pneumatic connection to this machine.

1. Connect PU-8 pneumatic tube to the quick connection port. Input pressure should be in the range of 8-12bar.
2. Set the regulator at 8bar by rotating the knob clockwise and then lock it.

Important: Incoming air pressure should be maintained at 8bar during machine operation. Impact - when the pressure goes less than 8 bar, it affects the next cycle of UP&DOWN movement of inspection base.



Figure3-7 Pneumatic Connection at Main frame machine assembly

4.Operation/Controls and Indicators

Operation

Chapter Overview

This chapter provides the information to start up and control the Inspection Spreader Machine IS2E

This chapter describes the following sections:

- **Controls and Indicators** - displays and describes exterior controls and indicators on Control Panel and Operating Panel
- **Initial Startup**- Explain show to start the Inspection Spreader and to verify the proper operation and running

Controls and Indicators

The Controls and indicators section describes the below:

Electrical Panel

Control Panel has Isolator/ LOTO switch



Figure4-1Isolator/LOTO switch

ISOLATOR/LOTO:

- ISOLATOR/LOTO is the main Electrical ISOLATOR for this machine to Power ON/OFF.
- It is a two position isolator Switch which has the indication mark ON/OFF.
- It's has the feature of LOTO (Lock Out & Tag Out), whenever the machine undergoes maintenance, the service personnel can use the safety padlock provision to isolate and lock the Electrical Energy of the machine for safety.

4.Operation/Controls and Indicators

Operating Panel Control



Figure 4-2 Operating Panel

Control Elements and Descriptions:

1. Emergency Stop

Emergency Stop - Mushroom Head push button provides machine halt function when it is pressed in emergency condition.

2. SPREAD / RELEASE

Moving the joystick towards SPREAD, moves the claw holders towards outside and spread the beads. When not moved, joystick stays in neutral position.

Moving the joystick towards RELEASE, moves the claw holders towards inside and release the beads. When not moved, joystick stays in neutral position.

3. UP / DOWN

Moving the joystick towards UP, moves the main frame of the machine towards UP direction. When not moved, joystick stays in neutral position.

Moving the joystick towards DOWN, moves the main frame of the machine towards DOWN direction. When not moved, joystick stays in neutral position.

4.Operation/Controls and Indicators

4.Power - Indicator

Indicate the incoming power Supply.

5. Tyre Drive Direction - Forward / Reverse

Forward - To rotate the tyre in forward direction

Reverse - To rotate the tyre in reverse direction

Caution

Serious
personal injury



The Emergency Stop Button is only for stopping the machine function during uncertainty situation.

It is not a regular Function Button to Stop the machine.



Do not use the Emergency Stop Button as a safety interlock. It will not protect from any accident during machine troubleshooting /operation/maintenance.

Use ISOLATOR/LOTO to isolate the electrical energy of machine.

Use LOTO while doing troubleshooting or maintenance.

4. Operation/Initial Startup

Initial Startup

 <p style="color: yellow; font-weight: bold; font-size: 1.2em;">Danger</p> <p style="color: white; font-weight: bold;">Serious personal injury</p> 	<p>Read and familiarize with all the instructions given in this manual.</p> <p>Do not by pass the safety and Operating Instruction which is given in this manual.</p> <p>Do not energize the machine with any out of specification source like over voltage or low- pressure air supply.</p> <p>Failing this will lead to serious personal injury.</p>
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Powering the Energy Sources of machine

The Inspection Spreader Machine IS 2E needs two type of energy sources.



1. Electrical Energy Source
2. Pneumatic Energy Source

1. Electrical Energy Source.

- Establish the electrical connection as per Fig3-5.
- Energize the Inspection Spreader with single Phase 415 V AC, 50 HZ AC supply.
- Refer the detailed instructions given in section 2-Getting Started / connections / Electrical connection.

2. Pneumatic Energy Source.

- Establish the pneumatic connection as per Fig3-7.
- Energize the Inspection Spreader Machine by providing 8 bar air pressure.
- Refer the detailed instructions given in section 3-Getting Started / connections / Pneumatic connection.

 <p style="color: yellow; font-weight: bold; font-size: 1.2em;">Danger</p> <p style="color: white; font-weight: bold;">Serious personal injury</p> 	<p>Before turning on the main ISOLATOR/LOTO, ensure that the main electrical panel door in the machine should be in closed condition and the Emergency Button should be in released condition.</p> <p>Failing of this will lead to Serious personal injury.</p>
---	---

4. Operation/Pre-Operation Checks

Pre-Operation Checks

- Remove the shipment clamps that are provided below the table, which are marked and painted red/orange (Refer to included drawings)
- When moved to new location where the supply voltage is different than the previous location, check with Elgi Technical Support to set up the system suitable for the new location.
- Check for the free movement of all the moving parts.
- Check that all nuts & bolts are properly tightened.
- Check if the inserting locks of the claws are uniformly fitted.
- Check if the roller is seated in place.
- Check and ensure no twists, crush in airline.
- Check the LED Lamp wires, they should not be touching the body.
- Check for any earth leakage (always maintain the Earth (PE) – Neutral (N) Voltage < 2 V, preferred <1 V)
- Check for any air leakage on the pneumatic lines.

Important: It is recommended to conduct the above safety checks weekly once and document it. This is to ensure that the human and machine safety functions are working properly. Practicing these safety checks will reduce accidents and these safety check documents can be used for safety audit and quality audit purposes.

4. Operation/Operating Instruction

Operating Instruction: Inspection Spreader

1. Roll the Tyre over the ramp & position it in between the rollers (i.e Tyre is rested on rollers only)
2. Put the claws on the bead. Based on bead width the claw height can be adjusted.
3. Expand the claw by 'SPREAD / RELEASE' joystick on the operating panel Box.
4. Lift the Machine to operate convenient height by operating the 'UP /DOWN' joystick on operating panel box.
5. Mark a point on the tyre for inspection starting point.
6. Rotate the Tyre By
 - pressing foot pedal to operate the Rollers
 - Changing of Roller Directions by using the FRD / REV Position Selector Switch on the Operating panel Box.
7. Spread the bead to the required level of expansion. This could be done by expanding the lever valve.
8. To inspect the tyre inner, you may use the Lamp for viewing the tyre .
9. After the tyre is completely inspected, lower the operating table and release the expanding claws on the beads, remove the claws out of the tyre and roll the tyre down the ramp.

Do's and Don'ts

Do's

- All moving parts should be cleaned and lubricated periodically.
- Place the machine in a quiet open space where there is ample light and ventilation.
- Use recommended personal protecting equipment
- Ensure that there is no leakage in the pneumatic valve and cylinder.
- Ensure correct pressure for cylinder as recommended are maintained.
- Ensure that the locks are inserted properly in the Claw holder arm.
- Locking nuts of the Tyre claws are to be tightened firmly.
- Ensure the lift is at the bottom while loading & unloading the Tyre.
- Use ramp only to load all type of Tyres on the machine.
- After closing the claw holders, switch on the LED Lamp
- Lubricate the chains weekly.
- Use eye bolts only to lift the machine.
- Adjust Chain tension when it loosen and creates noise.

Don'ts

- Do not load the Tyre without ensuring the claw nut and telescopic arm adjustments are proper
- Do not place fingers in between the claw arms
- Do not swap the Claw arms from left to right or right to left to avoid wire numbering mismatch.
- Do not place foot under the working table while operating.
- Do not operate the machine without wearing industrial safety shoes.

5. Maintenance & Troubleshooting

Maintenance & Troubleshooting

Chapter Overview

Use information in this chapter to perform maintenance or troubleshooting Inspection

Spreader Machine IS2E

This chapter contains the following information:

- Maintenance-describes typical Inspection Spreader machine maintenance procedures.
- Troubleshooting - explains how to troubleshoot the Inspection Spreader machine when problem occurs.

Maintenance

The Maintenance section includes the below:

- Disabling the Inspection Spreader Machine.
- Daily inspections.
- Cleaning Machine Parts.

Disabling the Inspection Spreader Machine

Before performing any maintenance on your Inspection Spreader, be sure to completely disconnect the machine by disconnecting electrical and pneumatic energy source from the machine.

Daily inspections

Perform the following steps daily to keep your Inspection Spreader machine in optimum operation condition. Except for the procedures described below, no other service is required or should be attempted.

<p>Caution</p> <p>Possible equipment damage</p>	<p>Operating the Inspection Spreader Machine without performing the daily check will lead to the possibility of machine parts getting damage or the life time of machine spare parts would reduce.</p>
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- Check the Machine Control Panel is In closed condition.
- Check any loose parts in Machine Control Panel (control and indicators).

Cleaning of Machine Parts

Perform the following steps daily to keep the Inspection Spreader Machine clean and healthy.

- Avoid keeping any unwanted objects/ irrelevant material closer to the Inspection Spreader Machine.
- Clean the machine with the help of clean cloth. If needed use cleaning agents like IPA for removing stains.

5.Maintenance& Troubleshooting/ Troubleshooting

Troubleshooting

Introduction

This section helps to isolate problems in electrical and electro pneumatics parts only. Problems in motor, gear box are outside the scope of this guide because they are not user-serviceable assemblies; do not attempt to repair them.

Contact Elgi authorized service person for repair/replacement information. For troubleshooting the Inspection Spreader, it is necessary to understand the sequence of events that must happen before turning the machine ON and operate.

Before you attempt to perform any service, we advise you to read the entire documents, troubleshooting guide and review the connection layout diagram, electrical schematics and pneumatic schematics. Symptoms and possible causes are highlighted by dark print and bullet points throughout this document. Information about each symptom and cause can be found in following paragraphs.

Caution

Possible
equipment
damage

Attempting repair of Inspection Spreader Machine without the express authorization of Elgi Rubber Company Limited will void the product warranty.

If troubleshooting or service assistance is required, please contact Elgi Customer Service.

5.Maintenance & Troubleshooting/ Troubleshooting

Preventive maintenance

Preventive Maintenance Program – Envelope Spreader ES 2E																																	
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Sign	
January																																	
February																																	
March																																	
April																																	
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June																																	
July																																	
August																																	
September																																	
October																																	
November																																	
December																																	
Daily	<ul style="list-style-type: none"> Clean the Machine thoroughly. Drain the water from the filter at the inlet. Clean the drive and driven rollers. Check inlet Pressure 8 kg/cm² Check the condition of arm movements Check the Air leakages in pneumatic components. 										Weekly										Monthly												
											<ul style="list-style-type: none"> Drain the moisture in the air filter oil bowl. Lubricate the Chain Check chain tension and adjust Lubricate the hinge points 										<ul style="list-style-type: none"> Check the leakage's in pneumatic components Replace if required. <p>-----</p>												

5. Maintenance & Troubleshooting

Trouble Shooting

S.NO	SYMPTOMS / PROBLEMS	POSSIBLE CAUSES	REMEDIES
1	Working table not lifting	1. Air pressure line not connected. 2. Air pressure not sufficient. Leakage of Air 3. Cylinder not connected, or pneumatic lines are damaged	1. Connect the line 2. Replace the damaged line 3. Check compressor line & set air pressure
2	Claws not expanding	1. Leakage of air 2. Brake chamber not working, or hose is damaged.	1. Check and correct 2. Inspect, replace damaged seals.
3	Jerky movement of Tyre Lift cylinder	1. Low air pressure 2. Leakage of airlines 3. Cylinder seal faulty 4. Improper link arms	1. Correct the air pressure to be between 6kg/cm ² to 8kg/cm ² 2. Check and correct 3. Inspect replace damaged seals 4. Check and link arms
4	Working table dropping suddenly	1. Solenoid damaged 2. Valve seal damaged	1. Check and replace 2. Check and replace
5	Rollers rotating in opposite direction with respect to control switch	1. Incoming lines are Changed	1. Check the incoming and correct the phase sequence in the incoming main line. If it is correct, check the machine incoming line.
6	Lamp not working	1. Bulb fused 2. Electrical line to bulb has loose connection 3. Control switch (on/off) loose connection	1. Replace the bulb 2. Check the connection & correct 3. Check the connection & correct
7	Roller Drive Motor not working	1. Electrical line not connected 2. Loose connections in the motor terminals 3. Wiring circuit of the motor has loose connection 4. Coil inside motor is Short-Circuited	1. Check and correct 2. Check and correct 3. Check the circuit and correct 4. Check the windings and replace if needed (rewind)
8	Foot switch not working	1. Fault in electrical connections	1. Check and correct, if required replace
9	Body shock	1. Earthing not connected 2. Loose connection	1. Check and correct 2. Check and correct
10	Roller Drive Motor tripping frequently	1. Overload on Motor 2. Overload relay is faulty 3. Setting of amps in overload relay is less 4. Fault in electric circuit	1. Check & correct the drive mechanism 2. Check and replace 3. Check and correct 4. Check with electrical drawings & correct it.
11	Tyre jerking during rotation	1. Tyre not centred on the working table 2. Claw not seated in proper position	1. Centre the Tyre properly 2. Check telescoping arm position and correct

6. Technical Reference/Parts List

Technical Reference

Chapter Overview

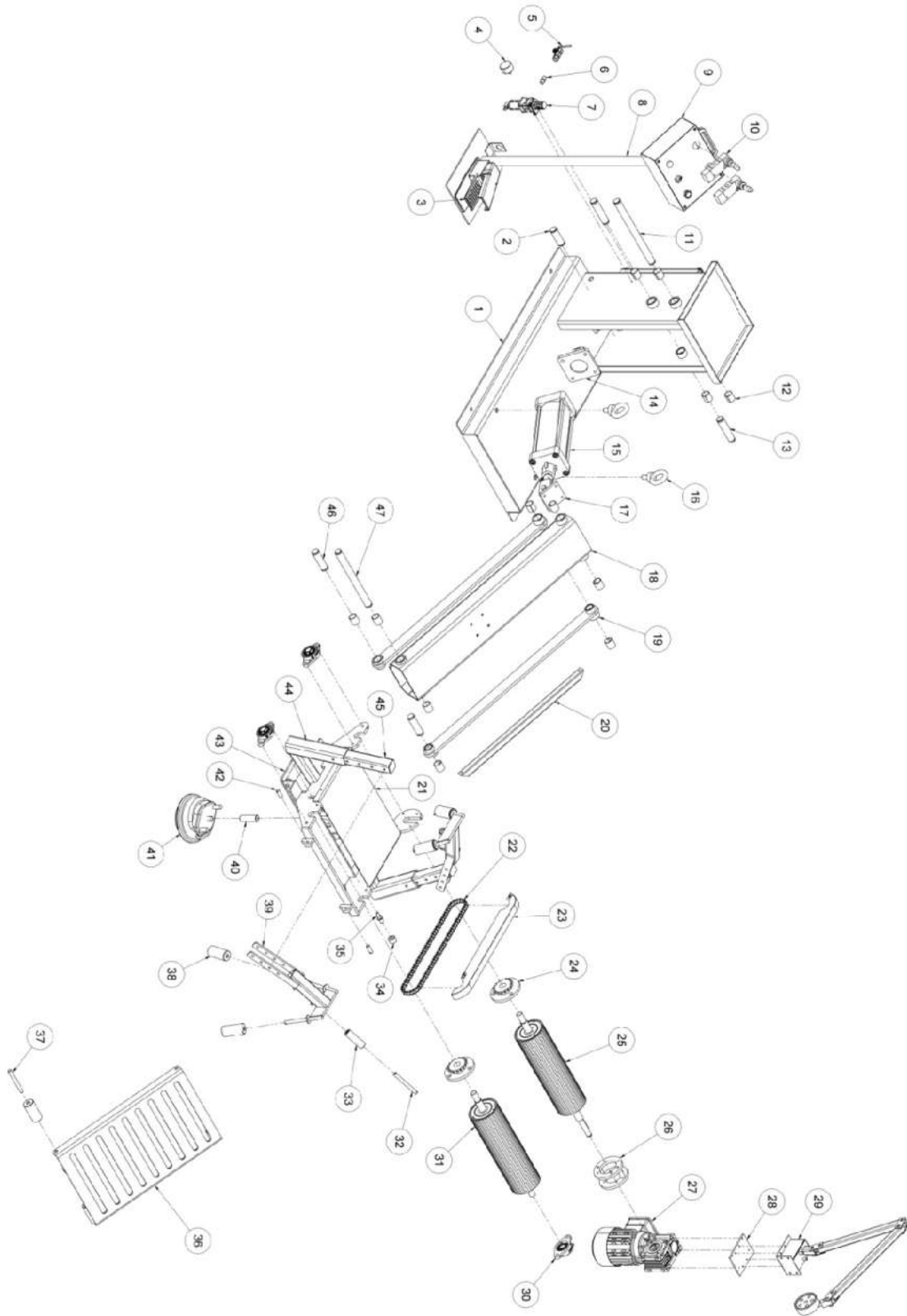
Information provided in this chapter are technical references of this Inspection Spreader Machine and will be useful in maintenance aspects for the technicians while troubleshooting.

This chapter contains the following information.

- Technical Overview-briefly describes the basic concept.
- Parts List
 - Exploded View
 - Ordering Information
 - Pneumatic Circuit

6. Technical Reference/Parts List

Exploded View



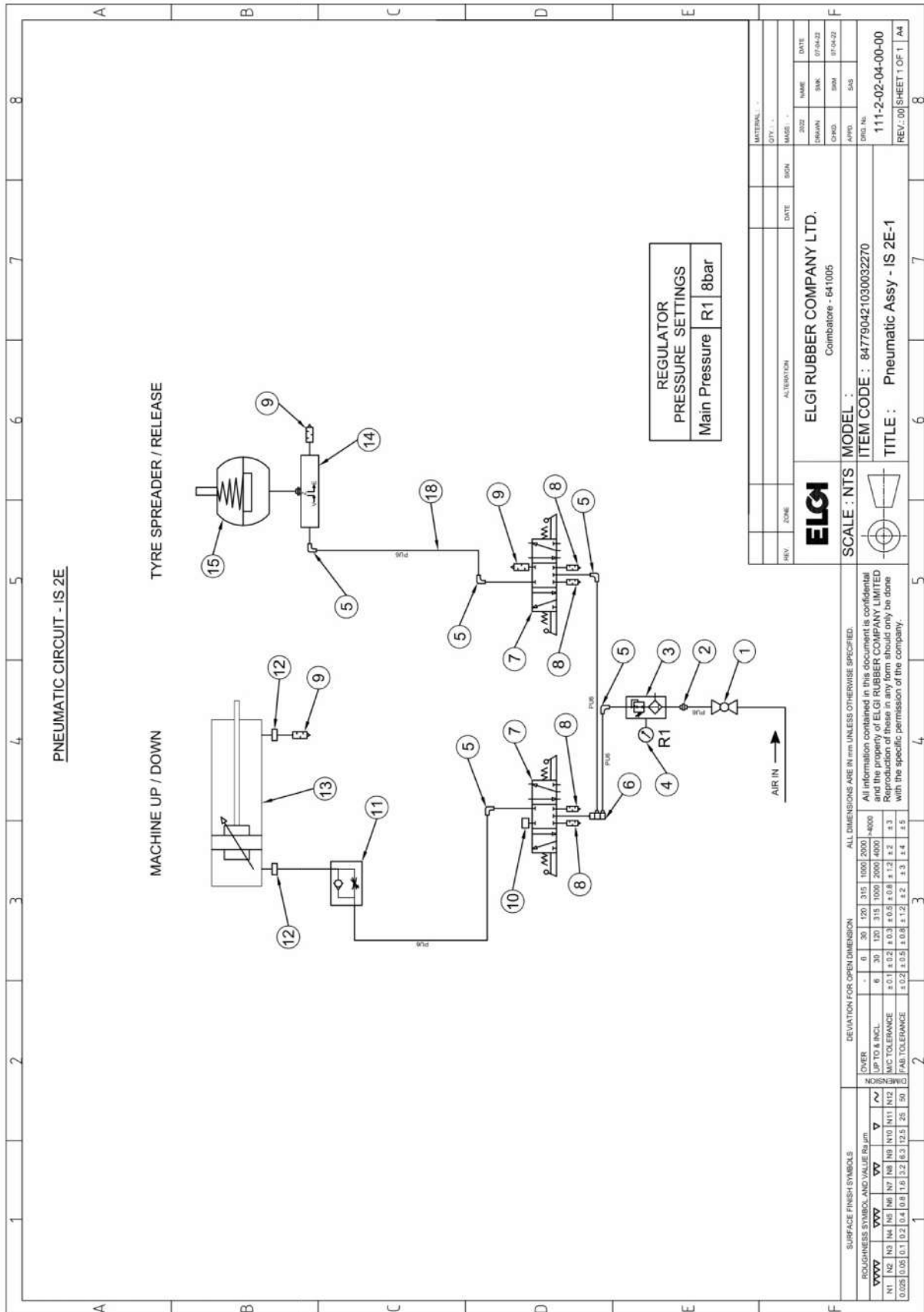
6. Technical Reference/Parts List

Order Information

S.No	ORDERCODE	DESCRIPTION	UOM	QTY
1	847790421100072070	Frame - IS 2E - Base	NOS	1
2	847790421260212070	Cylinder Hinge rear Pin - IS 2E	NOS	1
3	853650903805011003	Switch - Foot - 1NO / 1NC - IDFS302	NOS	1
4	902620907821510015	Pressure Gauge - Back Entry - 42 mm Dial - 0 - 10 Bar - A2G02	NOS	1
5	848180902001023001	Valve - Ball - Brass - 1/4"	NOS	1
6	741220917940020300	Nipple - Hex - Cone Seating - Brass - 1/4"	NOS	1
7	841290930901024006	Air Filter Cum Regulator - 1/4" - FRC 136134	NOS	1
8	847790421100012070	Operator Panel Frame - IS 2E	NOS	1
9	847790421030042070	Assembly - IS 2E - Operator Panel Switch Box	NOS	1
10	848180902007062404	Valve - Hand Lever - DS265HC61	NOS	2
11	847790421310022070	Shaft - IS 2E - Post	NOS	2
12	732690501110620110	DU Bush-25 Dx30 L -PSSHL -120467030	NOS	16
13	847790421260232070	Link Pin A - IS2E	NOS	2
14	847790421190012070	Mount - IS 2E - Cylinder Rear	NOS	1
15	841231909321711035	Pneumatic Cylinder - A28 100 200 O	NOS	1
16	731815900606005480	Bolt - Eye - Mild Steel - M16 x 1.5 x 50 mm	NOS	2
17	847790421440012070	Block - IS 2E - Cylinder Lift	NOS	1
18	847790421020022070	Arm - IS 2E - Swing	NOS	1
19	847790421400012070	Link Flat - IS 2E - A	NOS	2
20	847790421460012070	Tube - IS 2E - Cable Routing	NOS	1
21	847790421080122070	Cover - IS 2E - Top	NOS	1
22	731511916503010211	Chain -Ind -1/2" x 5/16" - R1278	NOS	1
23	847790421450012070	Guard - IS 2E - Chain	NOS	1
24	847790421320910270	Sprocket - IS 2E - Wheel - 17 Teeth	NOS	2
25	847790421300252070	Roller - IS 2E - Drive	NOS	1
26	847790421040022070	Bracket - IS 2E - Motor Mounting	NOS	1
27	850151915111379906	Motor - Geared - Flange Mount - 1440 RPM / 0.5 Hp - 0.37 KW - 415 V / 50 HZ / 3 Ph - TW40U25F71B14+TM71B4	NOS	1
28	847790421270012070	Plate - IS 2E - Spot Light Mounting	NOS	1
29	853650930648050001	Lamp - LED - White - 7.5 W - 6 Arm / Spot Light	NOS	1
30	848320900141696510	Flanged Pillow Block Brg -UCFL 204	NOS	3
31	847790421300281070	Driven Roller - IS 2E	NOS	1
32	847790421410002070	Tyre Claw Roller Pin - IS 2E	NOS	2
33	847790421300012070	Roller - IS 2E - Tyre Claw - Delrin	NOS	2
34	847790421300022070	Roller - IS 2E - Chain Tensioner - Delrin	NOS	1
35	847790421260152070	Chain Tens Pin - IS 2E	NOS	1
36	847790421290002070	Ramp - IS 2E	NOS	1
37	847790421260262070	Pin - IS 2E - Ramp Roller	NOS	2
38	847790421300011670	Roller -IS 6-3 -Tyre Claw -Delrin	NOS	6
39	847790421120162070	Claw Holder - IS 2E	NOS	2
40	847790421260892070	Centre Guide Arm Adopter Pin - IS 2E	NOS	1
41	841231909350402137	Brake Chamber - Linear Drive - P20 - 60 x 16 - BI / IS	NOS	1
42	847790421260262070	Pin - IS 2E - Ramp Roller	NOS	2
43	847790421100672070	Roller Frame - IS 2E	NOS	1
44	847790421020032070	Arm - IS 2E - Swivel	NOS	2
45	847790421020792070	Arm - IS 2E - Telescopic	NOS	2
46	847790421260242070	Link Pin B - IS2E	NOS	2
47	847790421310012070	Shaft - IS 2E - Link	NOS	1

6. Technical Reference / Part List

Pneumatic Circuit Diagram

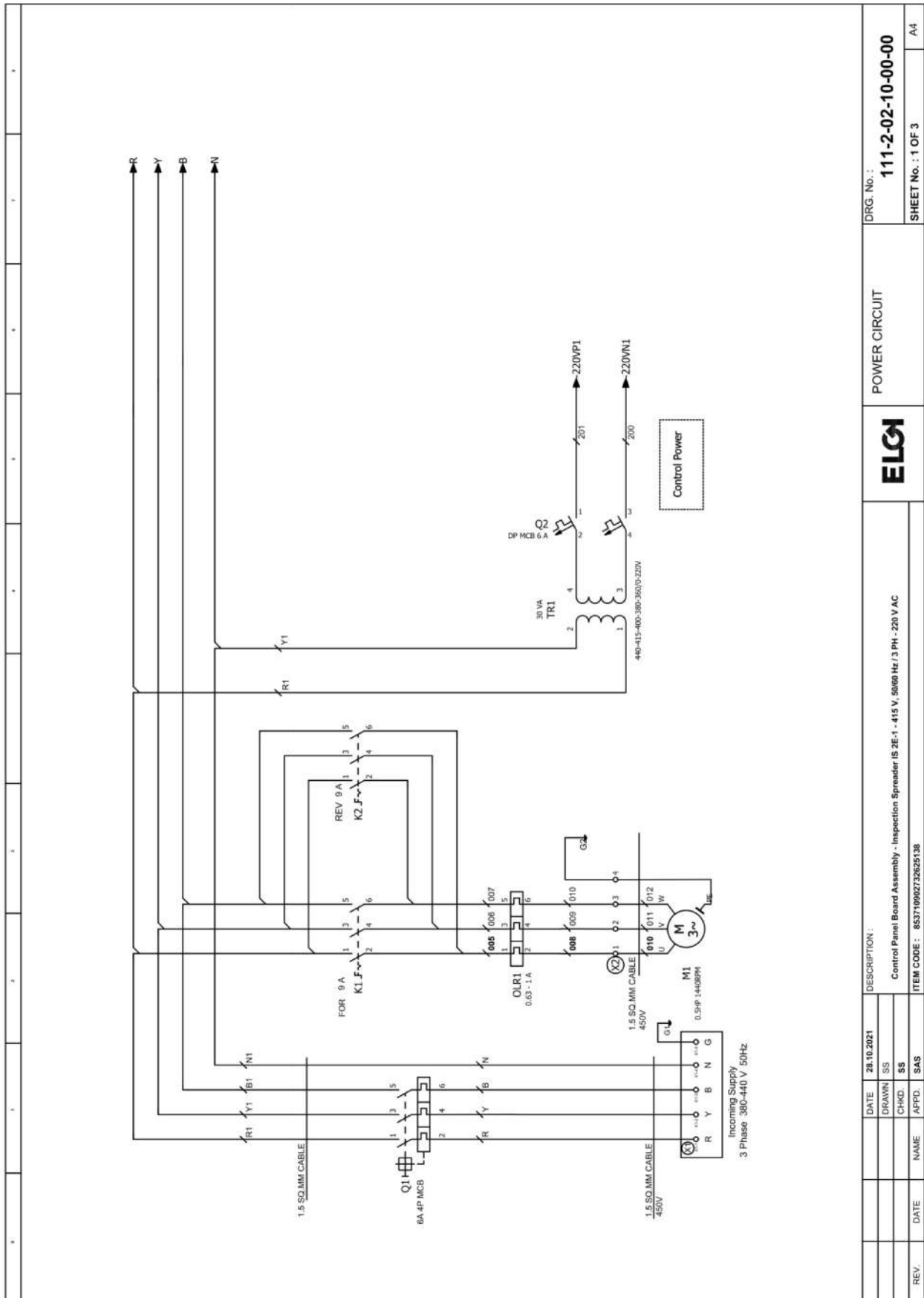


6. Technical Reference/Part List

PARTS LIST - PNEUMATIC ITEMS				
S.No	ORDER CODE	DESCRIPTION	UOM	QTY
1	848180902001023001	Valve - Ball - Brass - 1/4"	1	NO
2	741220917940020300	Nipple - Hex -Cone -Brass -1/4"	1	NO
3	841290930901024006	Air Filter Cum Regulator - 1/4" - FRC 136134	1	NO
4	902620907821510015	Pressure Gauge - 42 mm Dial - 0 - 10 Bar - A2G02	1	NO
5	848790910220302015	Elbow - Male - 6 mm D x 1/4" - WP2210651	5	NO
6	841290910230302034	Elbow - Swivel - WS0120651 - 2 Port	1	NO
7	848180902007062404	Valve - Hand Lever - DS265HC61	2	NO
8	841290911010201019	Silencer - Button - 1/8" - ASB0160	4	NO
9	841290911010202020	Silencer - 1/4" - ASB0161	3	NO
10	853890912001023001	Port Plug - 1/4" BSP - WAP061	1	NO
11	848180902005109308	Valve - Flow Control - 6D x 1/4" - GR5105106	1	NO
12	741533900902013019	Bush Nut - Brass - 1/2" x 1/4"	2	NO
13	841231909321711035	Pneumatic Cylinder - A28 100 200 O	1	NO
14	848140902010030009	Valve - Pressure Relief - Rapid - 1/4" - C185	1	NO
15	841231909350402137	Brake Chamber - P20 - 60 x 16 - BI / IS	1	NO
16	841290909999030001	Rod End Fork - AF020	1	NO
17	841239904208050221	Clamp - MS - Regulator - 1/4" - A2C01	1	NO
18	391729901902092021	Polyurethane Tubing - WH00B06	14	M

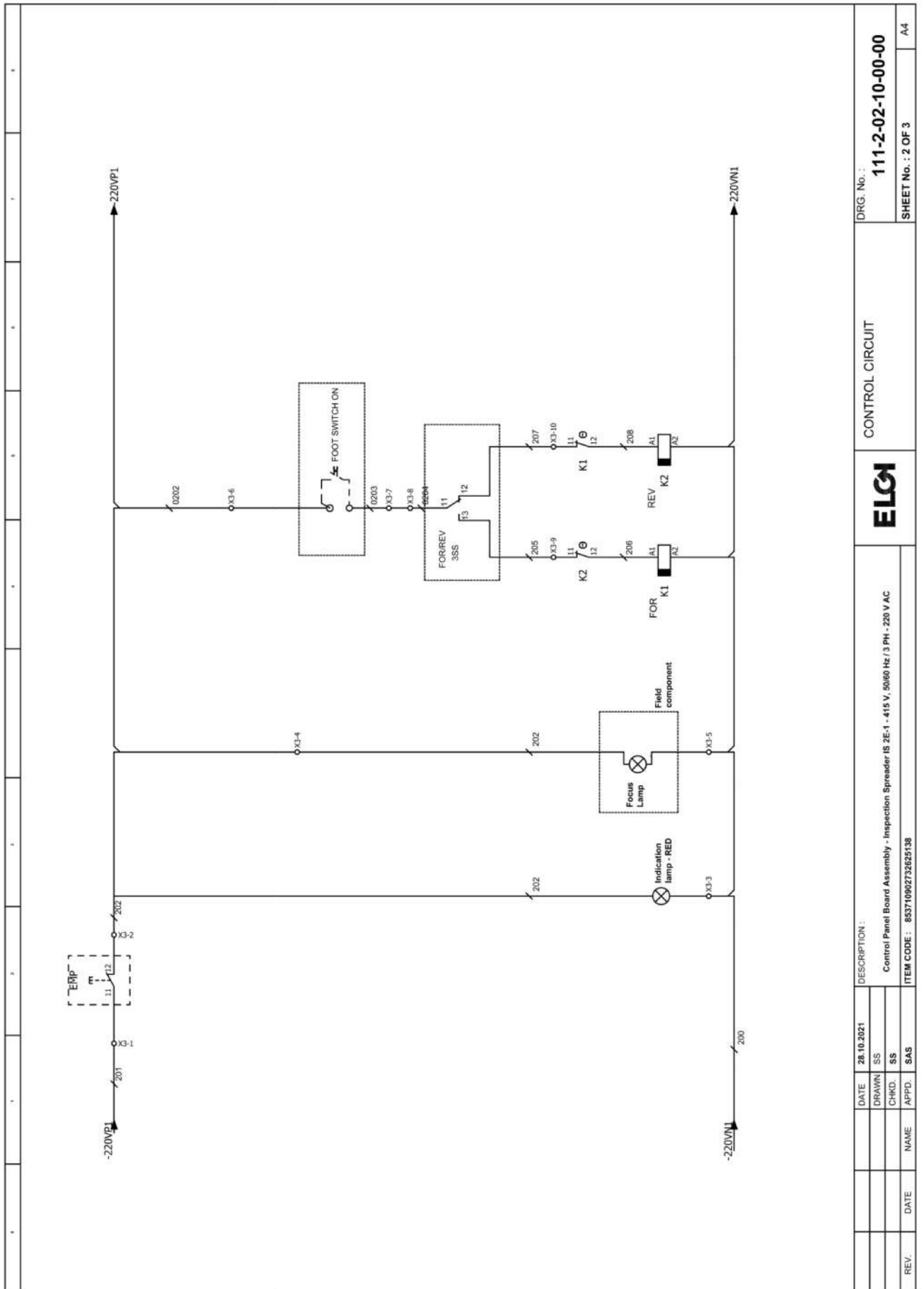
6. Technical Reference/ Circuit Diagram

Electrical Circuit Diagram



DRG. No. :	111-2-02-10-00-00
SHEET No. : 1 OF 3	A4
POWER CIRCUIT	ELGI
DESCRIPTION :	Control Panel Board Assembly - Inspection Spreader IS 2E-1 - 415 V, 50/60 Hz / 3 PH - 220 V AC
DATE	20.10.2021
DRAWN	SS
CHKD	SS
DATE	
NAME	SAS
APPD	
REV.	
ITEM CODE :	853710902732625138

6. Technical Reference / Circuit Diagram



DATE		28.10.2021	DESCRIPTION :	CONTROL CIRCUIT		DRG. No. :	111-2-02-10-00-00
REV.	DATE	NAME	APPD.	SAS	ITEM CODE :	85371002732625138	
					CONTROL PANEL BOARD ASSEMBLY - INSPECTION SPREADER IS 2E-1 - 415 V, 50/60 Hz / 3 PH - 220 V AC		SHEET No. : 2 OF 3
					ELGI		A4

ELGI Retreading Machinery - Model Plant

