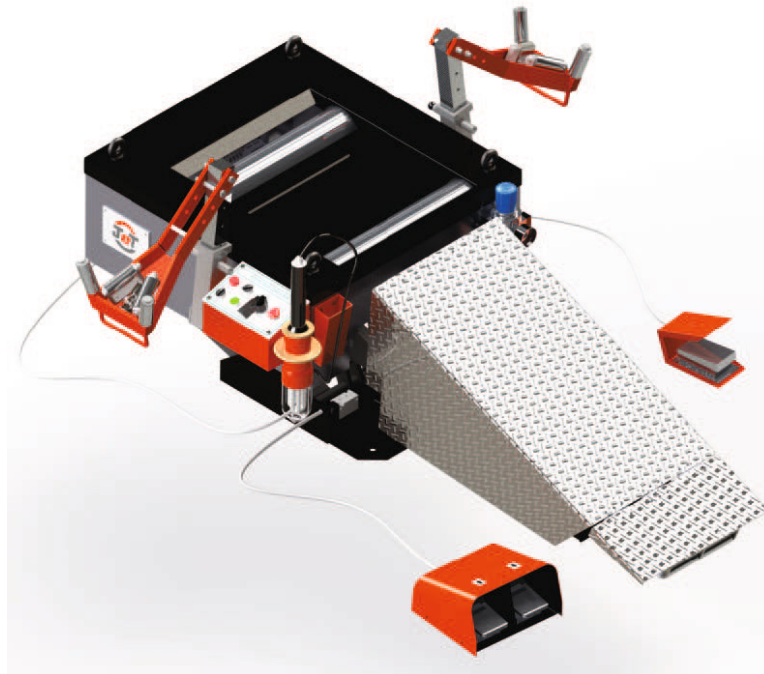




Inspection Spreader IS 5C



Instruction Manual

The company reserves the right to change equipment specifications and models without notice. Pictures are representative and may not be part of the standard equipment.

Elgi Rubber Company Limited

2000 Trichy Road • Coimbatore 641 005 • Tamil Nadu • India • +91 (422) 232 1000 • info@in.elgirubber.com • www.elgirubber.com

Foreword

The Inspection Spreader IS 5C is a simple and rugged, 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.

The inspection lamp enables the operator to view the inside of the casing and the injury clearly. Facility is provided for controlling the forward and reverse rotation.

Contents

01 Description	3
02 Specifications	4
03 Assembly and Commissioning Tools	5
04 Installation and Commissioning	6
05 Pre-Operation Checks	7
06 Operation	8
07 Do's and Don'ts	9
08 Troubleshooting	10
09 Preventive Maintenance	12
10 Electrical Drawings	13
11 Pneumatic Circuit	21
12 Parts List	22

01 Description

The Inspection Spreader IS 5C consists of the following major components:

Main Frame

The main frame houses all the main components of the machine with the lifting adjustment and the tyre operating table.

Table Lift

This helps the operator in lifting the table to the operator's convenient height. This is controlled pneumatically with the help of the pneumatic cylinder. There is a Joystick on the panel for up and down movement of the table.

Operating Table

The operating table holds the tyre at a convenient height for the operator. It consists of tyre expanding claws and rollers which are 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.

Foot Switch

The foot switch is for the forward and reverse rotation of the casing.

Air Line Assembly

This is provided with a shut off valve, filter cum regulator, solenoid valve and pneumatic cylinders.

Inspection Lamp

This facilitates the operator to control the forward and reverse movement and has a lamp for inspecting the tyre.

02 Specifications

Model	IS 5C
Catalogue Number	MA05 5C - X
Tyre Range	6.50 - 14 to 12.00 - 24.5
Air Pressure Requirement (kPa / kg/cm ²)	800 / 8
Dimensions (L x W x H) (mm)	1600 x 670 x 450
X* in Cat. No. denotes power supply specifications (V / Hz / ph)	O - 380 / 50 / 3 S - 380 / 60 / 3 P - 415 / 50 / 3 U - 440 / 60 / 3
Weight (kg)	~200
Installation	To be fixed to the floor

03 Assembly and Commissioning Tools

Accessories

Standard	Installation kit
Optional	Nil

Tools

Spanners	
Double end 10 - 22	1 Set
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 (mm)	1 Set
Combination plier - 8", 10"	1 No. each
Nylon hammer	1 No.
Circlip plier - 6" (internal and external)	1 No. each
Ball peen hammer (500 g)	1 No.

Materials

Lubricating oil (SAE 20)	¼ L
Multi-purpose grease	¼ kg
Electric cable 4 core, 1.5 sq.mm	Length as per installed position

04 Installation and Commissioning

Unloading

- Unload the machine only by using eye bolt / forklift option given in the machine.
- Remove the machine bed bolt and remove the wooden pallet.

Positioning

- The machine does not need any foundation. It is sufficient if it is fixed to the ground. 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.

Connection

- Connect the machine with the help of 1.5 sq.mm copper 4 core cable.
- From the nearest air point, draw a line using a 6 mm hose. Connect both ends with the help of air connector which fits into the coupler.

Setting

- Set the regulator at 8 kg/cm² by rotating the knob clockwise and then lock it.
- Fill the Gear Box with Gear Oil Servo Mesh SP 320 or ISO VG-Grade 320 or SAE 140 or SAE 90 to its level.
- Fill the lubricator with Servo 68 or SAE 40.

05 Pre-Operation Checks

- Remove the shipment clamps that are provided below the table, which are marked and painted red / orange (2 Nos. on either side)
- Check for free movement of all moving parts.
- Check if all nuts and 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, or crush in air line.
- Check the bulb wires, they should not be touching the body.
- Check for any earth (electrical grounding) leakage.
- Check for any air leakage on the pneumatic lines.

06 Operation

1. Set the claws to the required size of the tyre which is to be mounted.
2. Ensure that the claws are in the expanded position before loading the tyre.
3. Roll the tyre through the ramp on to the operating table and ensure that the tyre is seated and centred on the serrated roller.
4. Place the claws on beads of the tyre.
5. Lift the table to the operating position.
6. If the claws are not seating on the tyre properly, adjust the telescopic arm to next suitable position.
7. Switch on the Mains.
8. Mark a point on the tyre for inspection starting point.
9. Spread tyre beads to the required level of expansion. This could be done by expanding the lever valve. To inspect the tyre inner, you may use the lamp for viewing the tyre and may operate the switch provided on the lamp for forward and reverse rotation. This facility of operation is also provided on the control panel.
10. Refer to the inspection procedure in the retreader manual.
11. After the tyre is completely inspected, lower the operating table and release expanding claws on the beads, remove the claws out of the tyre and roll the tyre down the ramp.

07 Do's and Don'ts

Do's

- Place the machine in a quiet open space where there is ample light.
- Ensure that there is no leakage in the pneumatic valve and cylinder.
- Ensure that all working tools are always provided at the side of the operating table.
- Ensure that the locks are inserted properly in the telescopic arm.
- Locking nuts of the tyre claws are to be tightened firmly.

Don'ts

- Do not load the tyre without ensuring the claw nut and telescopic arm adjustments are proper.
- Do not operate the machine until the shipment locks are removed.

08 Troubleshooting

Symptoms / Problems	Possible Causes	Remedies
Working table not lifting	<ol style="list-style-type: none"> 1. Air pressure line not connected 2. Air pressure not sufficient 3. Leakage of air 4. Cylinder not connected or lines are damaged 	<ol style="list-style-type: none"> 1. Connect the line 2. Replace the damaged line 3. Check compressor line and set air pressure 4. Connect the line and repair lines
Claws not expanding	<ol style="list-style-type: none"> 1. Leakage of air 2. Cylinder not connected or hose is damaged 3. Improper tightening of the tie rods 	<ol style="list-style-type: none"> 1. Check and correct 2. Inspect, replace damaged seals or hose 3. Tighten the tie rods
Jerky movement of tyre lift cylinder	<ol style="list-style-type: none"> 1. Low air pressure 2. Leakage of air lines 3. Cylinder seal faulty 4. Improper tightening of the tie rods 	<ol style="list-style-type: none"> 1. Correct the air pressure to be between 6 kg/cm² to 8 kg/cm² 2. Check and correct 3. Inspect or replace damaged seals 4. Check and tighten tie rod
Air leakage from, the control panel	<ol style="list-style-type: none"> 1. Fittings are not tighten properly 2. Failure of inner 'O' rings and sealing parts in the valve 	<ol style="list-style-type: none"> 1. Check and correct 2. Inspect, replace if needed
Working table dropping suddenly	<ol style="list-style-type: none"> 1. Solenoid damaged 2. Valve seal damaged 	<ol style="list-style-type: none"> 1. Check and replace 2. Check and replace
Rollers rotating in opposite direction with respect to control switch	<ol style="list-style-type: none"> 1. Incoming lines are changed 	<ol style="list-style-type: none"> 1. Check the incoming and correct the phase sequence in the incoming main line. If it is correct, check the machine incoming line.

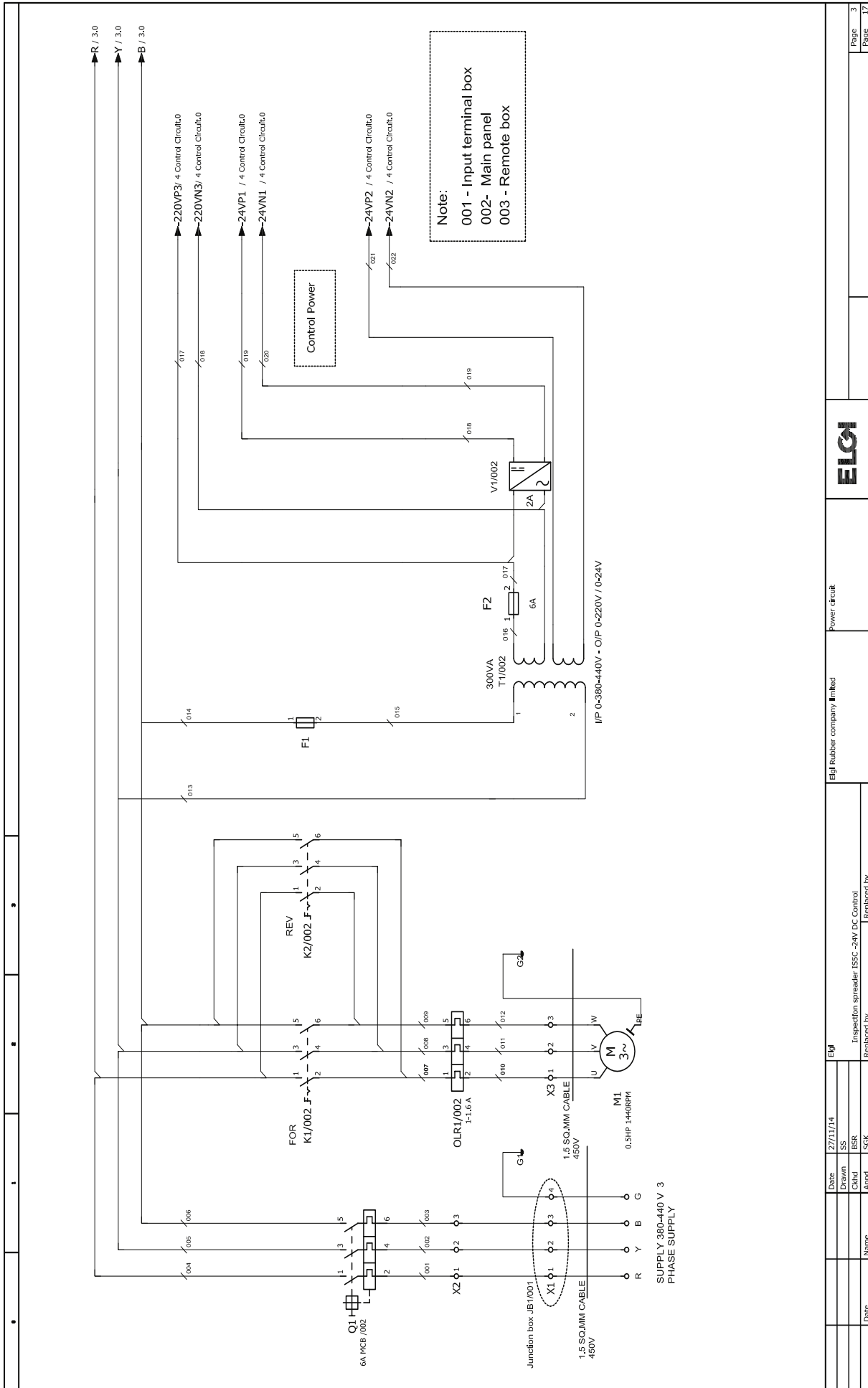
Symptoms / Problems	Possible Causes	Remedies
Lamp not working	<ol style="list-style-type: none"> 1. Bulb fused 2. Electrical line to bulb has loose connection 3. Control switch (on / off) loose connection 	<ol style="list-style-type: none"> 1. Replace the bulb 2. Check the connection and correct 3. Check the connection and correct
Motor not working	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Check and correct 2. Check and correct 3. Check the circuit and correct 4. Check the windings and replace if needed (rewind)
Foot switch not working	<ol style="list-style-type: none"> 1. Fault in electrical connections 	<ol style="list-style-type: none"> 1. Check and correct, if required replace
Body shock	<ol style="list-style-type: none"> 1. Grounding not connected 2. Loose connection 	<ol style="list-style-type: none"> 1. Check and correct 2. Check and correct
Motor tripping frequently	<ol style="list-style-type: none"> 1. Overload on Motor 2. Overload relay is faulty 3. Setting of amps in overload relay is less than specified 4. Fault in the motor winding 5. Fault in electric circuit 	<ol style="list-style-type: none"> 1. Check and correct the drive mechanism 2. Check and replace 3. Check and correct 4. Check the winding and replace (if needed, rewind) 5. Check with electrical drawings and correct it
Diagonal running of tyre	<ol style="list-style-type: none"> 1. Uneven wear 2. Claw not seated in proper position 	<ol style="list-style-type: none"> 1. Trim tyre if needed 2. Check and correct

09 Preventive Maintenance

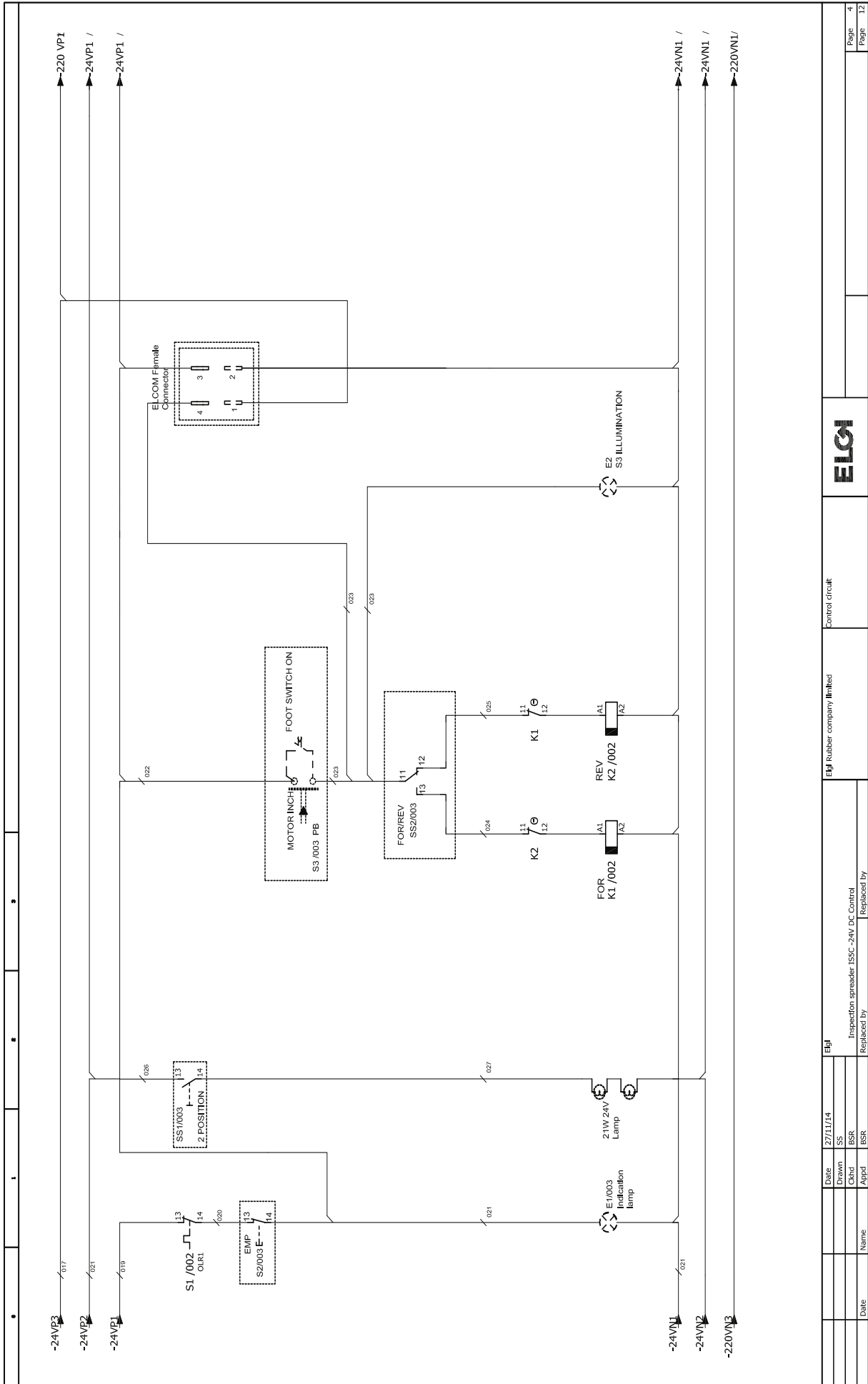
Name of the Post	Initial / Final Inspection
Name of the Equipment	Inspection Spreader
Model No.	IS 5C

S. No.	Activity	Frequency	Acceptance Criteria
1	Clean the machine	Daily	Dust free
2	Drain water from the air filter	Daily	No water in the filter unit
3	Clean all pins and piston rod	Daily	Dust free and excess oil free
4	Check the condition of accessories of machine - eg, foot switch, ramp, platform, claws etc.	Daily	No damage
5	Check the condition of electric wire, hand-held lamp	Daily	No wear
6	Operating air pressure 8 kg/cm ²	Daily	Operating pressure to be at - 8 ± 0.5 kg/cm ²
7	Check the pneumatic fitting and lines for leak / wear	Weekly	No leakage / wear
8	Check all the electrical connections are tight	Weekly	No loose connection
9	Apply oil on all pins and piston rod with SAE - 40 oil	Weekly	Properly lubricated and no excess oil evident

10 Electrical Drawings



Date		27/11/14	ETJ	Elgi Rubber company limited		Power circuit		Page 3
Drawn	SS			Inspection spreader ISSC-24V DC Control				Page 17
Chkd	BSR			Replaced by				
Appd	SGK			Replaced by				
Date	Name							



Control circuit

Elgi Rubber company limited

Inspection spreader ISSC-24V D/C Control
Replaced by Replaced by

Elgi

27/11/14

Date

SS

Drawn

BSR

Checked

BSR

Applied

BSR

Name

Date

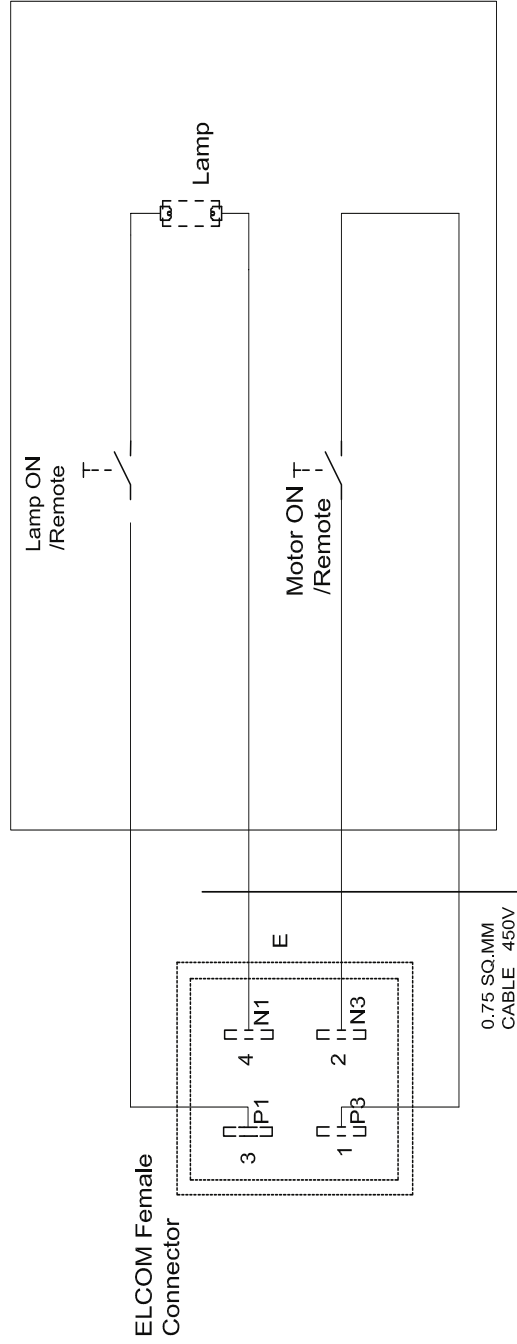
Page

4

Page

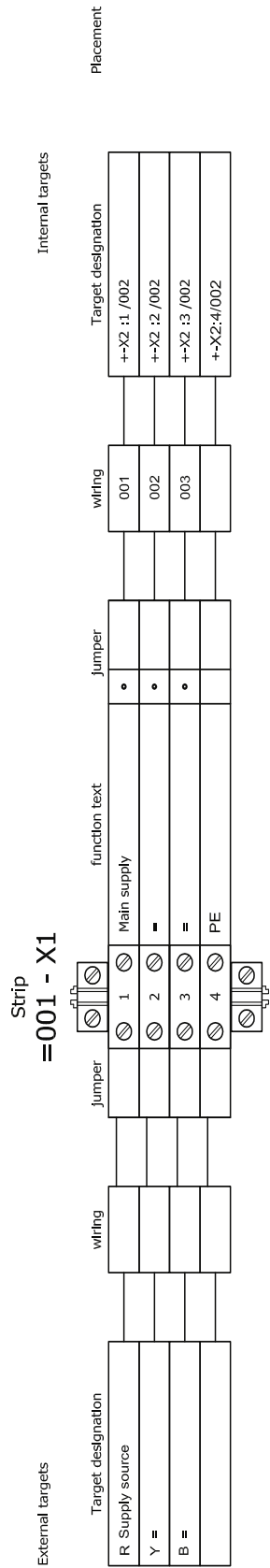
12

LAMP HOLDER ASSEMBLY CIRCUIT DIAGRAM



Date	27/11/14	ELJI	Inspection spreader ISSC-24V DC Control	ELJI Rubber company limited	Lamp control circuit	Page	5
Drawn	SS		Replaced by			Page	17
Chkd	BSR						
Appd	SGK						
Name							
Date							

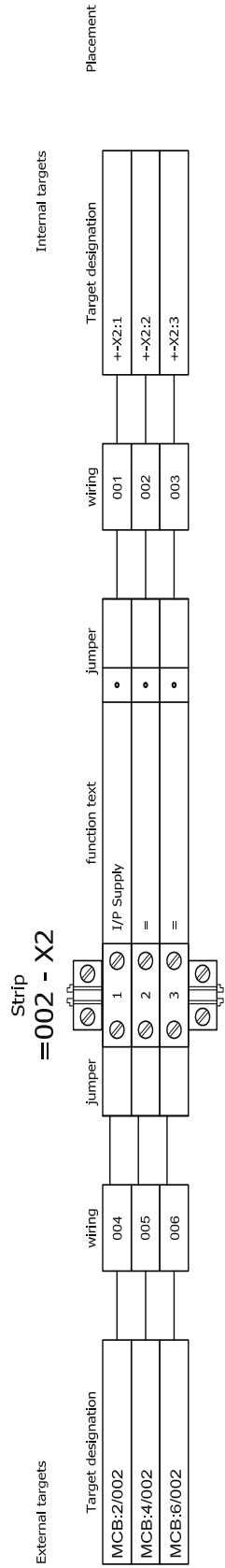
Terminal diagram



Date	27/11/14	ELGI	ELGI Rubber company limited	Terminal diagram-->X1	Page 6
Drawn	SS				Page 17
Checked	BSR				
Appr'd	SGK				
			Inspection spreader ISSC-24V DC Control		
			Replaced by		
			Replaced by		

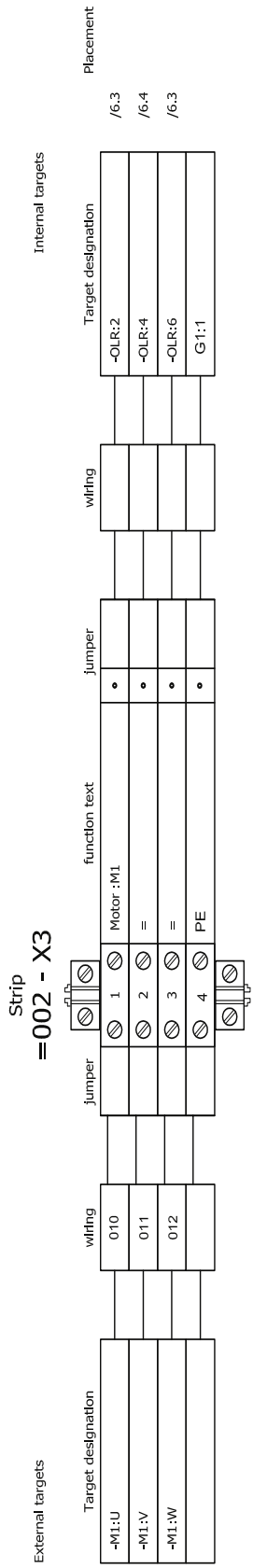


Terminal diagram



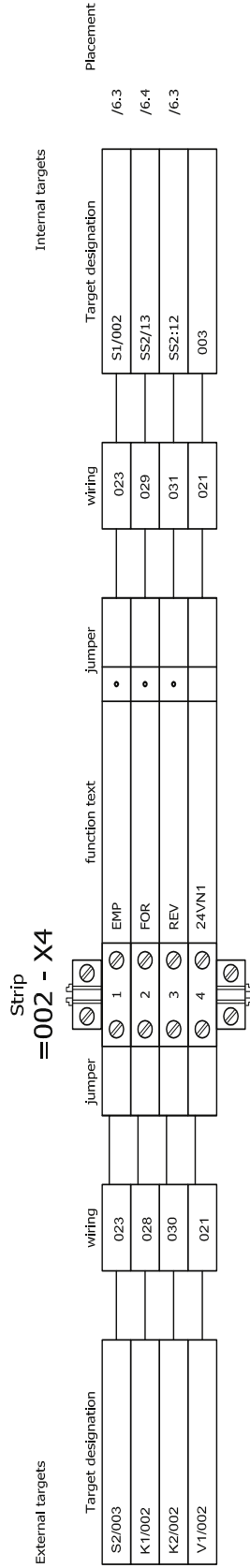
Date	27/11/14	ELPI	Terminal diagram=++X2	Page	7
Drawn	SS			Page	17
Chkd	BSR				
Appd	SGK				
Inspection spreader ISSC -24V DC Control		ELPI Rubber company limited		ELPI	
Replaced by		Replaced by			

Terminal diagram

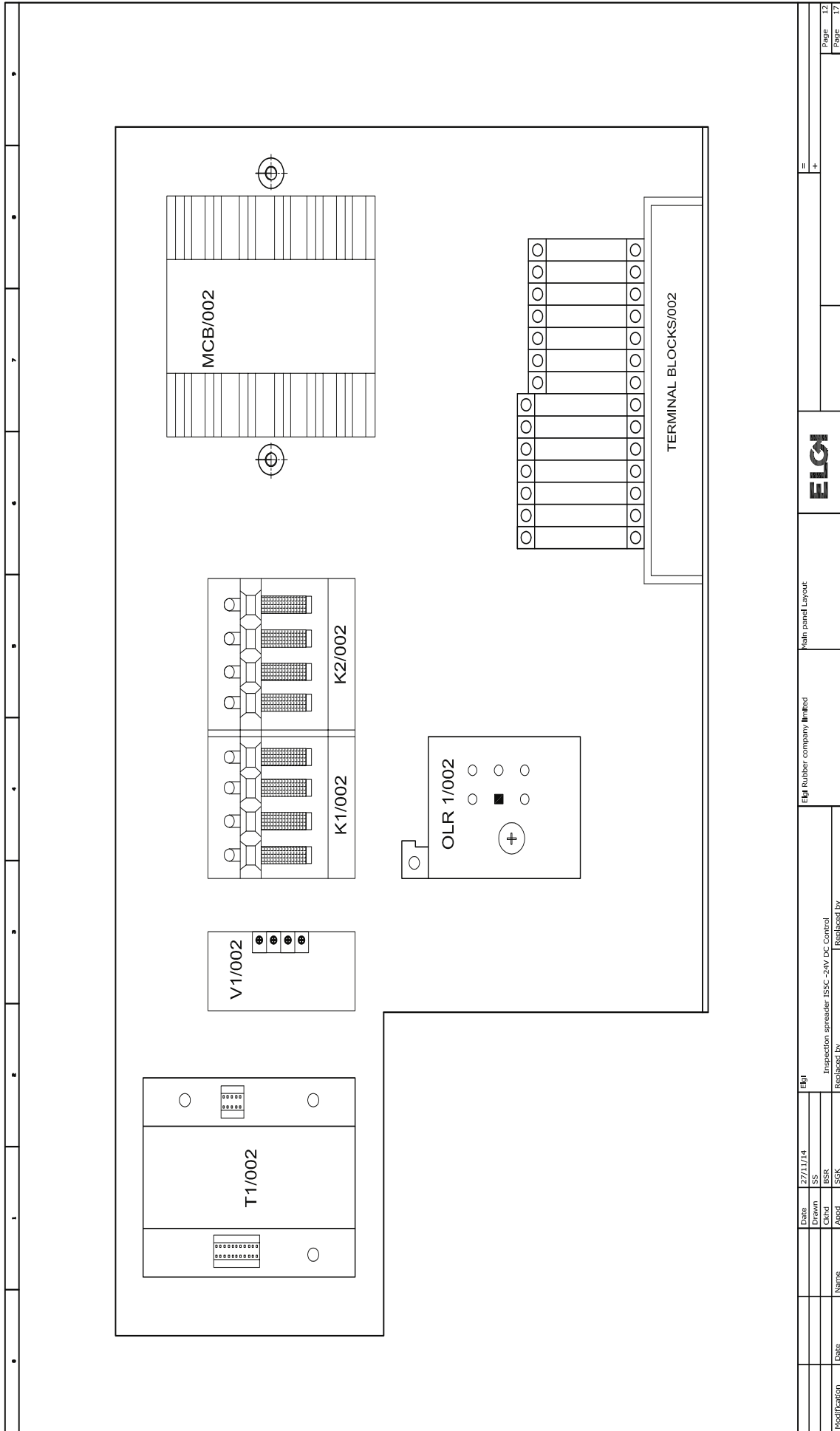


Date	27/11/14	ELGI	Terminal diagram=+X3	Page	8
Drawn	SS		ELGI Rubber company limited	Page	17
Chkd	BSR	Inspection spreader ISSC 24V DC Control			
Appd	SGK	Replaced by			

Terminal diagram

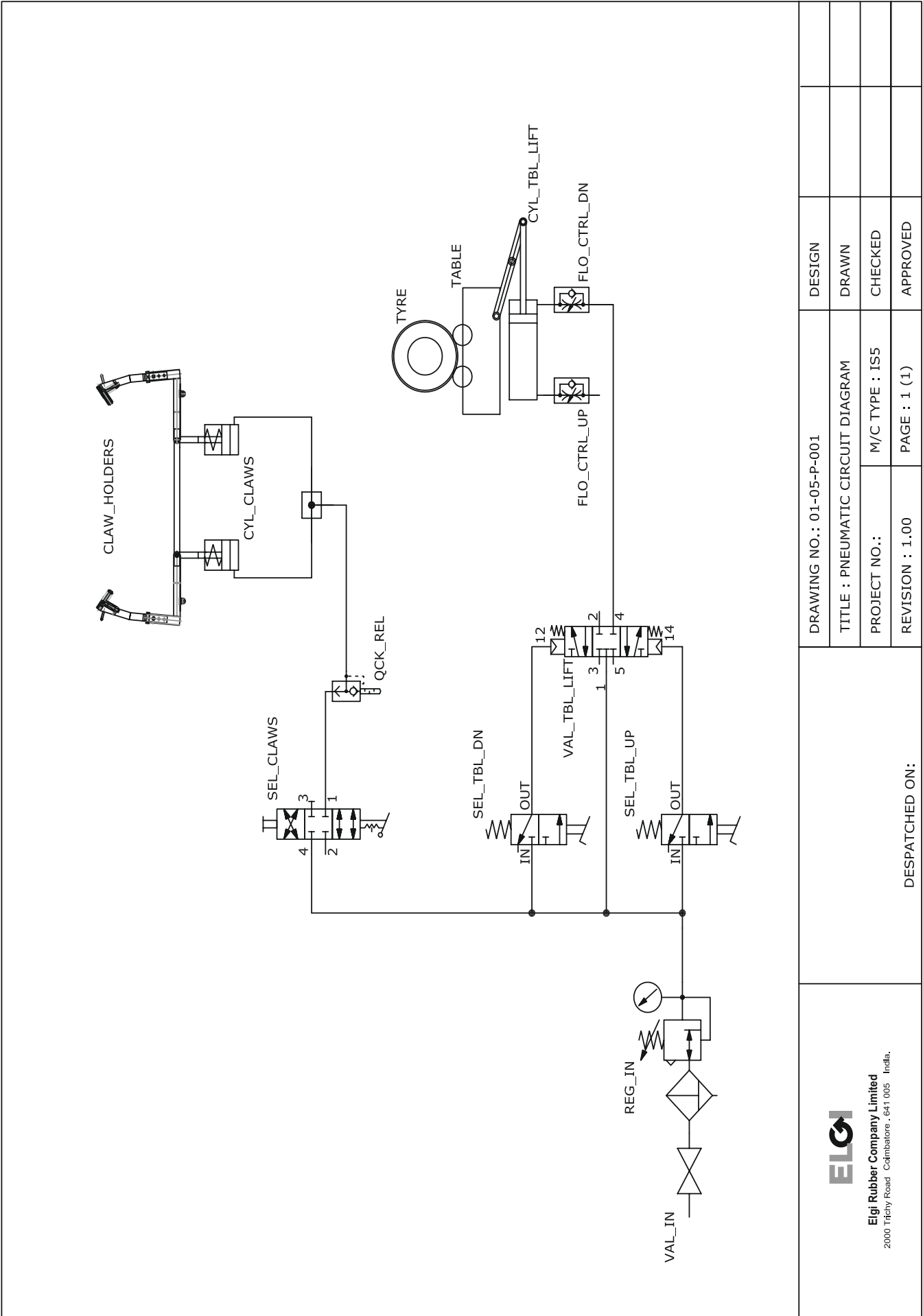


Date	27/11/14	ELPI	ELPI Rubber company limited	Terminal diagram=X4	ELPI		Page 9
Drawn	SS	Inspection spreader ISSC-24V DC Control					Page 17
Chkd	BSR	Replaced by					
SS	SGK						



EJL Rubber company limited		EJL		27/11/14		EJL	
Main panel Layout		Inspection spreader ISSC -24V DC Control		Drawn SS		Date	
EJL		Replaced by		BSR		Checked	
=		+		SGK		Appd	
Page 12		Page 17		Name		Date	

11 Pneumatic Circuit

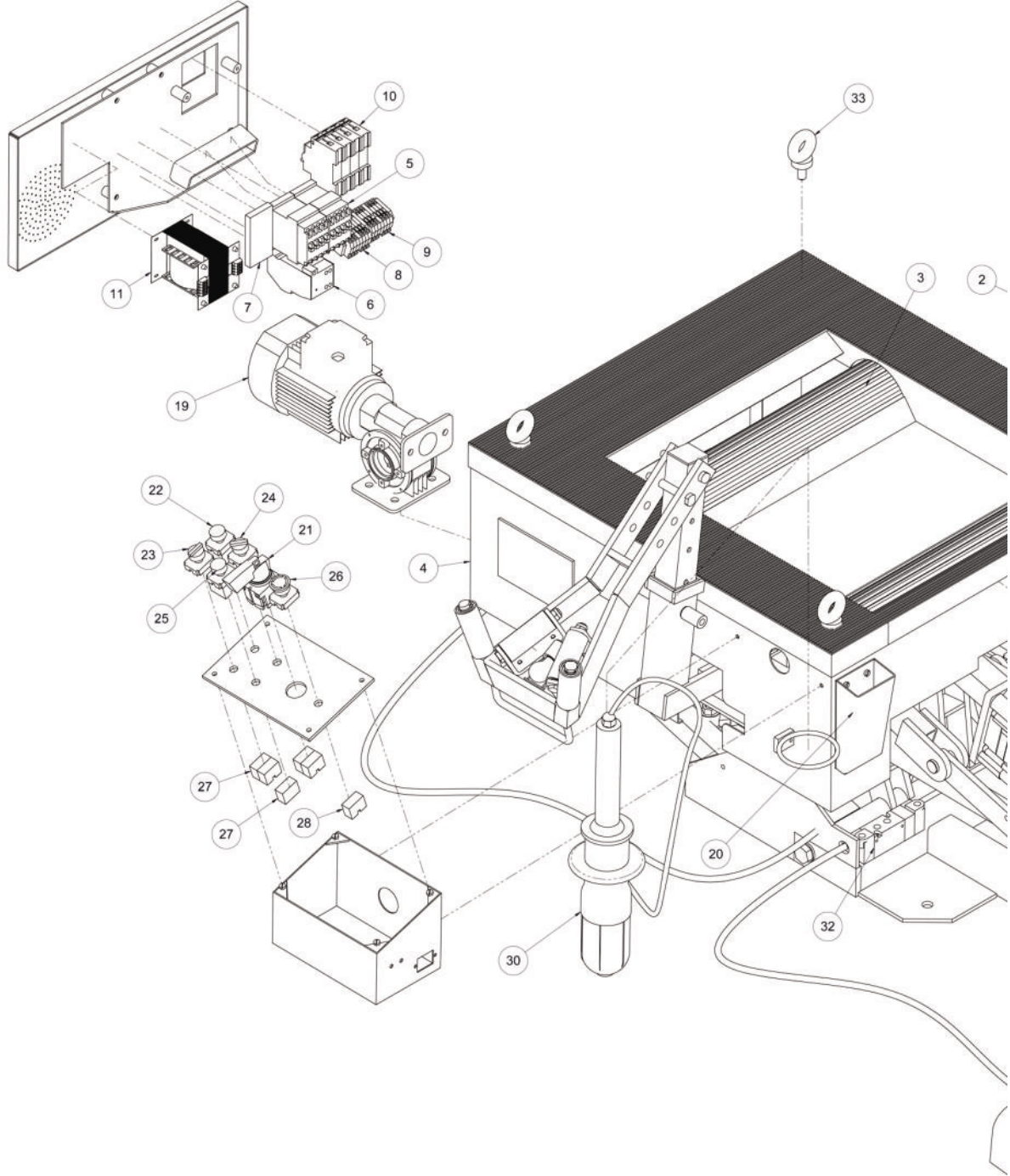


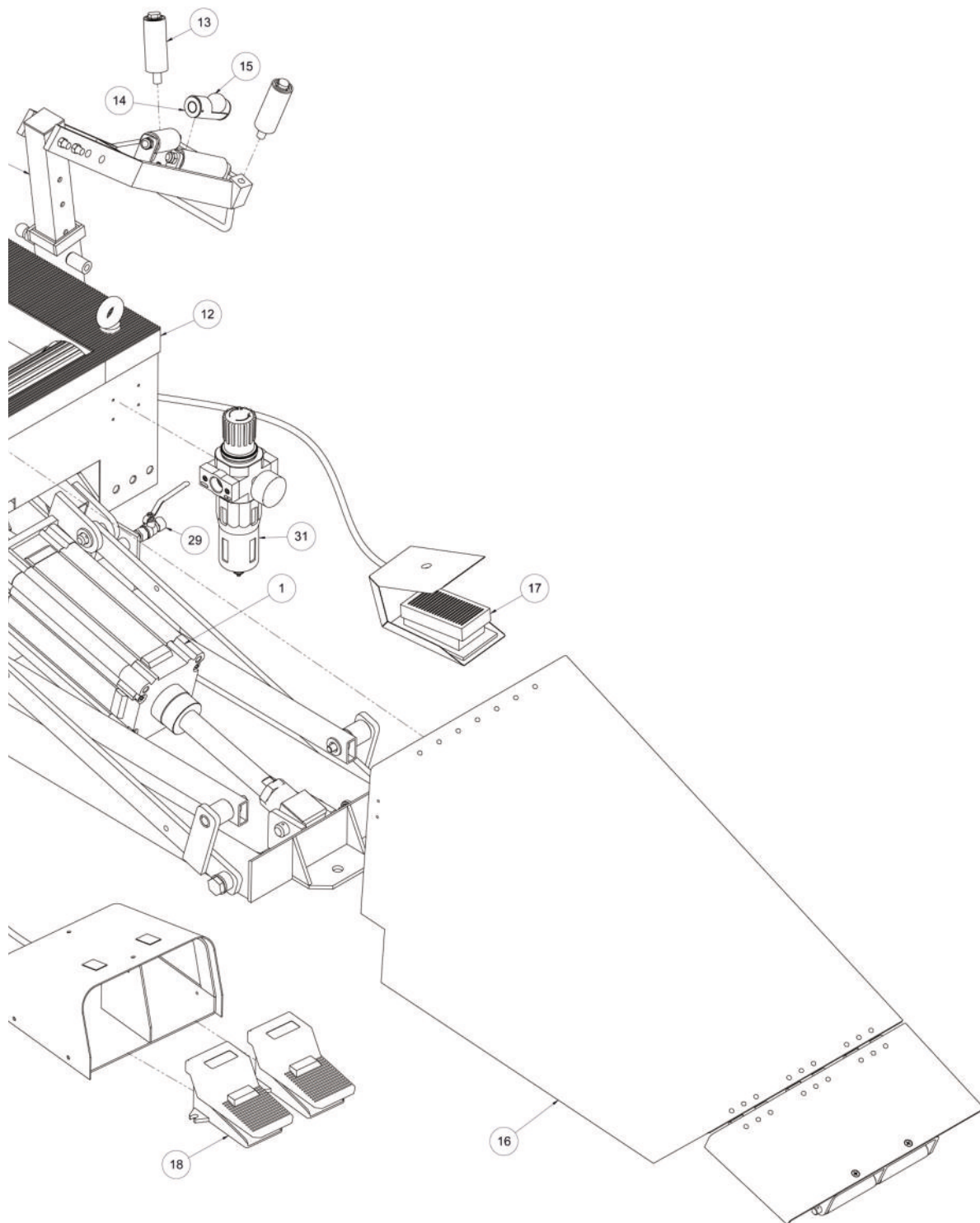
<p style="text-align: center;">DESPATCHED ON:</p>		DRAWING NO.: 01-05-P-001		DESIGN	
		TITLE : PNEUMATIC CIRCUIT DIAGRAM		DRAWN	
		PROJECT NO.:		M/C TYPE : IS5	CHECKED
		REVISION : 1.00		PAGE : 1 (1)	APPROVED



Elgi Rubber Company Limited
 2000 Trichy Road Coimbatore - 641 005 India.

12 Parts List





Parts List - BOM

S. No.	Order Code	Description	UOM	Qty.
1	MA055C/1	Pneumatic Cylinder	Nos	1
2	MA055C/2	Telescopic Arm	Nos	2
3	MA055C/3	Drive Roller	Nos	2
4	MA055C/4	Main Frame Cabinet	Nos	1
5	MA055C/5	Contractor 9a 415V / Coil Voltage 24V	Nos	2
6	MA055C/6	O/I Relay 1-1.6A	Nos	1
7	MA055C/7	SMPS I/P 220V O/P 0-24V DC 2A	Nos	1
8	MA055C/8	Connector 4 SQMM	Nos	1
9	MA055C/9	Connector 2.5 SQMM	Nos	1
10	MA055C/10	MCB 63A 415V AC	Nos	1
11	MA055C/11	Transformer-100VA	Mtr	1
12	MA055C/12	Cover Main Frame Cabinet	Nos	1
13	MA055C/13	Tyre Claw Roller	Nos	4
14	MA055C/14	Claw Holding Lamp	Nos	1
15	MA055C/15	Induction Lamp 24V / 21W	Nos	1
16	MA055C/16	Ramp AI	Nos	1
17	MA055C/17	Foot Switch	Nos	1
18	MA055C/18	Foot Operated Valve	Nos	2
19	MA055C/19	Motor 0.5hp /4 Pole	Nos	1
20	MA055C/20	Tools Box	Nos	1
21	MA055C/21	Hand Lever Valve	Nos	1
22	MA055C/22	Pilot Lamp	Nos	1
23	MA055C/23	Selector Actuator	Nos	1
24	MA055C/24	Illumination Push Button	Nos	1
25	MA055C/25	Emergency Push Button Switch	Nos	1
26	MA055C/26	Contact Element (NC) Type	Nos	2
27	MA055C/27	Ball Valve 1/4"	Nos	1
28	MA055C/28	Inspection Lamp Holder	Nos	1
29	MA055C/29	Air Filter Cum Regulator	Nos	1
30	MA055C/30	Spool Valve	Nos	1
31	MA055C/31	Eye Bolt	Nos	4