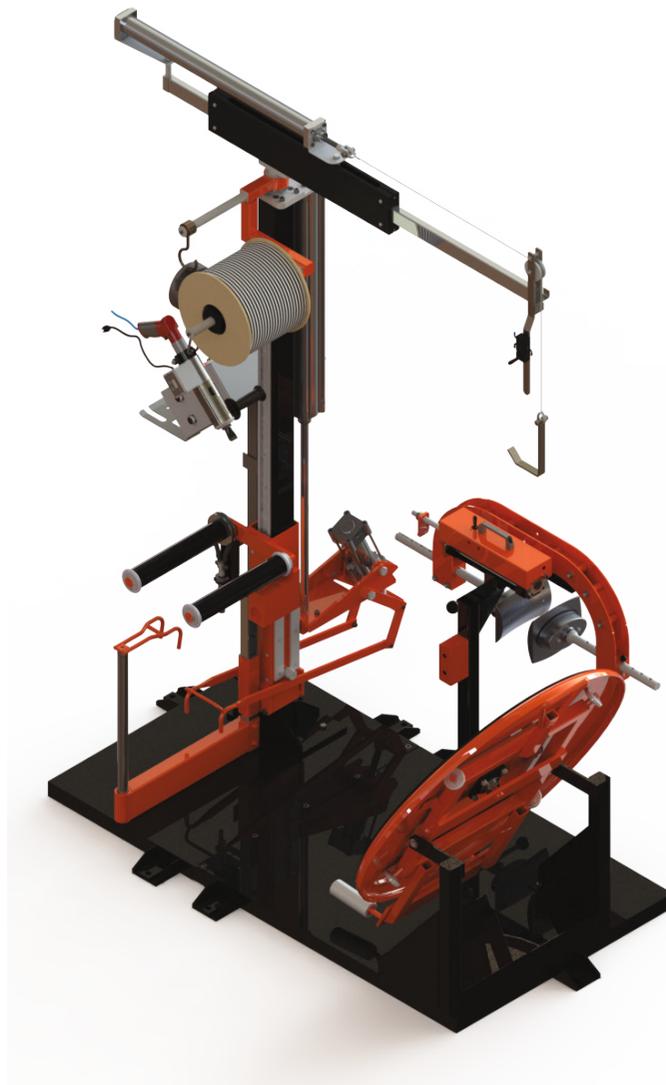




## Tyre Repair Station TR 6-3



### 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.

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# Foreword

The Tyre repair station is a versatile machine with combination of Repair stand, Spot Vulcanizer Tilt Table and Mini Extruder. It can be used in tyre collection points and tyre repair shops as stand alone machine with one operator to perform all the activities.

Tyre Repair Station normally recommended for outside of Retread shop. It is unique in construction and has multiple tools in single station, permit easy and efficient operations, by which the retreaders, dealers, fleet operators can 'Inspect and Repair' the injuries on bias and radial tyres for LCVs and Trucks.

Facilitate operator access for inspection outside and inside casing / repair preparation, filling with Mini Extruder / application of patch / repair / and vulcanization of the repair with built in 'spotter'. Everything integrated on one machine - for ease of complete inspection, repair and vulcanization by one man.

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# 01 Description

The Tyre Repair Station TR 6-3 consists of the following major components:

## Main frame

The main frame is a fabricated steel structure which houses all the main components such as Base Support Assembly, Linear Slider Tube Assembly, Pneumatic and Electrical controls.

## Base Support Assembly

The base support assembly is mounted at the bottom of the main frame. This houses the vertical post with linear slider tube assembly and its supportive components.

## Linear Slider Tube Assembly

The tyre drive unit consists of drive and driven shaft rollers mounted on linear slider tube, which is powered by a motor, where the motor converts electrical energy into rotary motion, which facilitates to drive the roller in clockwise and anti-clockwise direction.

## Rotary Disc Assembly

The rotary disc assembly is mounted on the main frame. This rotary disc helps us to place the tyre and insert the inner lobe and its supportive components.

## Pneumatic and Electrical controls

It consists of pneumatic drives which is powered by air and manually controlled by valves. This helps to lift and spread the tyre to the required width and height for easy repair for the operator. Electrical controls are used to control the motor rotation in clockwise or anti-clockwise directions.

## 02 Specifications

Model	TR 6-3
Catalogue Number	MA86 63 - A
Tyre Range	6.50 - 14 to 12.00 - 24.5
Air Pressure (kg/cm <sup>2</sup> )	8
Dimensions (L x W x H) (mm)	2000 x 1800 x 2500
Total installed power (W)	
Spot vulcaniser	300
Repair stand	30
Mini extruder	300
Power supply specifications (V / Hz / ph)	A - 110/220 / 50/60 / 1
Weight (kg)	~270
Installation	To be fixed to the floor

# 03 Assembly and Commissioning Tools

## Accessories

Standard	Digital Mini extruder with rear exhaust kit
	Spring balancer
	Rope rubber hanging unit
	Spot Vulcanizer
	Pneumatic lift for tyre loading & holding spotter
	3 Types of Wicking pad
	Hand lamp
	Tool holding trays
Optional	Monorails for Tyre handling

## Tools

Spanners	Double end 10 -11
	Double end 12 -13
	Double end 16 -17
	Double end 24 -27
	Double end 20 -22
	Double end 32 -36
Allen key	Allen key 3mm
	Allen key 4mm
	Allen key 5mm
	Allen key 6mm
	Allen key 7mm
	Allen key 8mm
Screw driver	Screw driver star end
	Screw driver minus end
Cir-clip plier	A Type Circlip Plier

## Materials

In coming cables up to machine
Pneumatic line up to machine
Lubricating oil SAE - 40 (for FRL Air line unit) : 250 ml

## 04 Installation and Commissioning

### Unloading

Machine has packed in 2 wooden pallets, one with Repair station.

Unload the machine only by using eye bolt / forklift option given in the machine. Remove the machine bed bolt & taken out the wooden pallet.

### Positioning

The machine does not need any foundation. It is sufficient if it is grouted.

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.

### Electrical Installation

- Check the control panel if the main switch is turned to “OFF” and the internal components (circuit breakers and motor circuit breaker) are “OFF”.
- Verify that the three-phase voltage “V” of the mains supply is the same voltage as the one attached to the control panel door.
- Follow the electrical installation diagram, then activate the circuit-breakers and the general switch, turn it to the “ON” indication, a white led light on the control panel door will illuminate, indicating that the equipment is energized.
- Apply tests by pressing the green “ON”, red “OFF” buttons (Turning and stopping the counting motor), emergency button (General shut down of the equipment) and the 11W lamp ON / OFF switch.
- If the tests applied were satisfactory, the equipment is ready for use.
- Do not apply other forms of installation, this may cause damage to the electrical components, burnout of the countersink motor and loss of warranty.

## Setting

- Set the regulator at 8 kg/cm by rotating the knob clockwise and then lock it.
- Fill the lubricator with Servo 68 or SAE 40.
- Load the rope rubber spool in the holder and make sure it is feed it in to the mini extruder.
- This rope holder should freely rotate over spools and allow the rubber in to the extruder.
- Set the spring balance and allow the mini extruder in floating, so that operator can pull this to the required position in to the tyre and perform the rubber filling operation.
- Keep the important tools in the tool box, for easy access and quick repair operation.
- Set the lifting arm assembly with pneumatic cylinder connected with steel to carry the spotter Vulcanizer and connect the electrical cables.
- Set the pneumatic spreader for operation with pneumatic connection.
- Set the Spotter Vulcanizer and hanging through lift arm assembly, in such a way to allow to swing over the flip top table, where we have positioned the tyre for vulcanizing.
- Position the tyre on this table for vulcanizing, this can be tilted to 90 degree vertical, 45 degree inclined, 180 degree flat to perform tyre repairs on crown, shoulder and side wall respectively.
- Set the required temperature and time and allow the spotter to warm to do vulcanizing on the repair area.
- Set the required temperature in the mini extruder and allow warm rubber in to the repaired area in the tyre.

## 05 Pre-Operation Checks

- Remove the shipment clamps, bolts that are provided below the table,
- Remove the lock bolts that are used in the tilt table while shipments.
- Check for the free movement of all moving parts.
- Check if all nuts & bolts are properly tightened.
- Fit the Tyre lift and the rope stand as shown in the image
- Check if any pneumatic hoses are crushed.
- Check if the foot switch, cable is crushed.
- Check the bulb wires, they should not be touching the body.
- Check for any earth leakage.
- Check for any air leakage on the pneumatic lines.
- Ensure the steel structures are grouting properly and no shake while in operation.
- All the nuts mentioned in the parts list are to be tightened properly.
- Safety grounding of main supply voltage, where ever applicable.

## 06 Operation

- Move the tyre from floor to rotating rollers using ramp and position it, on the equipment.
- Mount the tyres on the 2 rollers fitted on the lift frame and allow to rotate to enable to perform the repair operation.
- Lift the tyre using pneumatic cylinder, fitted on the main frame to the operator convenient height to perform the repair operation.
- Rotate the tyre over the 2 rollers and look for outside repair and inspect/ mark the place, where we need to do repair.
- For inside repair, use front side claw, which is of fixed type. This will hold the tyre bead one side while the other one mounted on cylinder will pull and stretch the bead for inspection/repair and mark the repair area.
- Do Skiving, Extrusion filling, applying repairs as appropriate according repair size and nature of repair.
- Check and make sure all repairs are done, which was marked for repairs at the time of inspection.
- Bring down the tyre from the lift and move it to tilt table assembly.
- Tilt the tyre along with the table and spotter, either to horizontal or inclined in order to vulcanize the tyre at crown or shoulder or side wall.
- Use appropriate heating pads in the spotter, which suits to all tyre profile.
- Adjust heating pad distance through shafts according to the tyre size.
- Apply pressure to the repaired area on the tyre, using the screw rod which is mounted on one end of the shaft.
- Allow the cure time, which was pre set in the timer and complete the vulcanizing process on all the repairs then take the tyre out.
- Re inspect the tyre and release for use.

## 07 Do's and Don'ts

### Do's

- Use eye bolts only to lift the machine.
- Place the machine in a quiet open space where there is ample light and ventilation.
- Ensure that there is no leakage in the pneumatic valve and cylinder.
- Ensure correct pressure for cylinder as recommended are maintained.
- Ensure always working tools box are provided at the side of the operating table
- Use foot switch which provide flexibility to stand anywhere around the machine and rotate or lift the tyre for easy /efficient inspection and thus reduce fatigue.
- Handle the spotter using Lift arm, for a smooth up and down movement while in operation.
- Use safety Gloves while handling mini extruder and spotter vulcanizer, which are always in warm condition..
- Use Pneumatic brake, which is fitted on the rear side roller pulley, while perform repair operation and avoid free rotation of tyre.
- Once the operation is over, release the brake and rotate the roller/ tyre for next repair/next operation.

### Don'ts

- Do not operate the machine until the shipment locks are removed.
- Do not place foot under the working table while operation.
- Do not down the pneumatic lift, when bead claw is on engaged.
- Do not Run the mini extruder with cured rubber and blocked nozzle.
- Do not handle the spotter heating pads without hand gloves.

## 08 Troubleshooting - Pneumatic

Symptoms / Problems	Possible Causes	Remedies
Pneumatic system does not work	Air is not reaching the equipment	<ul style="list-style-type: none"> <li>• Check that the machine is properly connected</li> <li>• Check that the compressed air inlet is open</li> <li>• Check that the regulator is correct</li> </ul>
Pneumatic system is in order, the air reaches the system, but the cylinders do not work	Mechanical locking of hoses	<ul style="list-style-type: none"> <li>• Check that there are no hose bent or bent to prevent air from entering or leaving the pneumatic cylinder</li> <li>• Check whether the flow regulators are open or require adjustment</li> </ul>
Pneumatic system, hoses, and flow regulators are in operation, but the cylinders are unable to actuate the equipment or lock at some point	Mechanical locking of equipment	<ul style="list-style-type: none"> <li>• Check for dust accumulation in the sliding bushings or if the shafts are damaged, preventing the bushings from sliding freely</li> <li>• Unscrew the cylinder axle nut for the system to run freely on the guides</li> <li>• If any upper or lower locking is identified, unscrew the bolts, position the assembly on top, and tighten the bolts</li> <li>• Repeat the same operation for the bottom, leaving the system working free</li> </ul>

Symptoms / Problems	Possible Causes	Remedies
Whole system is running, but the tyre does not stand still	Pneumatic system leakage	<ul style="list-style-type: none"> <li>• Check for leaks in hoses, fittings, valves, and cylinder</li> </ul>
Whole system is working, there are no leaks and the tyre does not remain open	Internal leakage in the cylinder	<ul style="list-style-type: none"> <li>• Disconnect the return hoses from the cylinder, making sure that the leak is internal</li> <li>• If the internal leakage of the cylinder is verified, call for an authorized repair technician (Note: Pneumatic equipment is under warranty, ask a technician from the distributor or manufacturer of the pneumatic equipment)</li> </ul>
Whole system is working, not leaks in the cylinders, but the tyre does not remain open	Leaking valve on lever or pedal	<ul style="list-style-type: none"> <li>• Check that there is no leaking valve on the lever or pneumatic pedal</li> <li>• If internal leakage of the valve is checked, call an authorized service technician for repair or replacement</li> </ul>

## 09 Troubleshooting - Electrical

Symptoms / Problems	Possible Causes	Remedies
Circuit does not work	Energy is not reaching the device	<ul style="list-style-type: none"> <li>• Check that the machine is properly connected</li> <li>• Check that the main switch is ON</li> <li>• Check that the power supply (v) is correct</li> <li>• Check that all circuit breakers are connected</li> </ul>
Electric circuit is in order, 24V power arrives at the controls, but does not operate	Locking or burning in 1NO or 1NA contacts	<ul style="list-style-type: none"> <li>• Remove the coupling from the button and check that it is locked or damaged. Both cases carry out the replacement of the same.</li> </ul>
Circuit is in order, the 24V power does not reach the control buttons	Copper wire or poorly coupled to the fastening terminal	<ul style="list-style-type: none"> <li>• Carry out a check with an appliance to identify the broken wire or to re-tighten the fixing terminals</li> </ul>
Circuit breaker is disarming	Short circuit or amperage setting not correct	<ul style="list-style-type: none"> <li>• Perform instrument check and then raise the motor circuit breaker amperage rating as specified on the electric motor rating plate</li> </ul>

Symptoms / Problems	Possible Causes	Remedies
Circuit is in order, but the buttons do not fire	The contactor is not assembled or wires poorly coupled to the clamping terminal	<ul style="list-style-type: none"> <li>Carry out a check with a device to identify if the electric current is vcc, if not, replace the part or add a rectifying bridge and tighten the fastening terminal</li> </ul>
The electrical power does not reach the internal components of the control panel	Damaged control or main switch	<ul style="list-style-type: none"> <li>Carry out a check with the device to identify if the outputs of both parts are properly distributing the energy (v)</li> </ul>
Circuit is in order, but the 11W lamp does not light up	Locking or burning of 1NA contact, phase failure or 220v power supply, non-arming contactor and lamp burning.	<ul style="list-style-type: none"> <li>Check with the instrument to determine if the energy at the output of the contactor is 220v, check for phase loss (N), check the contactor according to the above information, remove the coupling according to the above information, tighten the clamping terminal or replace the part.</li> </ul>

# 10 Preventive Maintenance

## Daily maintenance

- Check for air leakage in the pneumatic assembly.
- Deplete the humidity of the air regulator filter.

## Weekly maintenance

- Clean the equipment by removing any rubber residue.
- Check the general condition of the pneumatic assembly.
- Check the general condition of the electrical assembly.
- Lubricate the moving parts.
- Check that the screws are tight.



**DESIGN INSTRUCTION**

**ALL DIEMENSIONS ARE IN MM  
DOORS ARE ONLY AT FRONT SIDE**

**PANELS CONSTRUCTION**

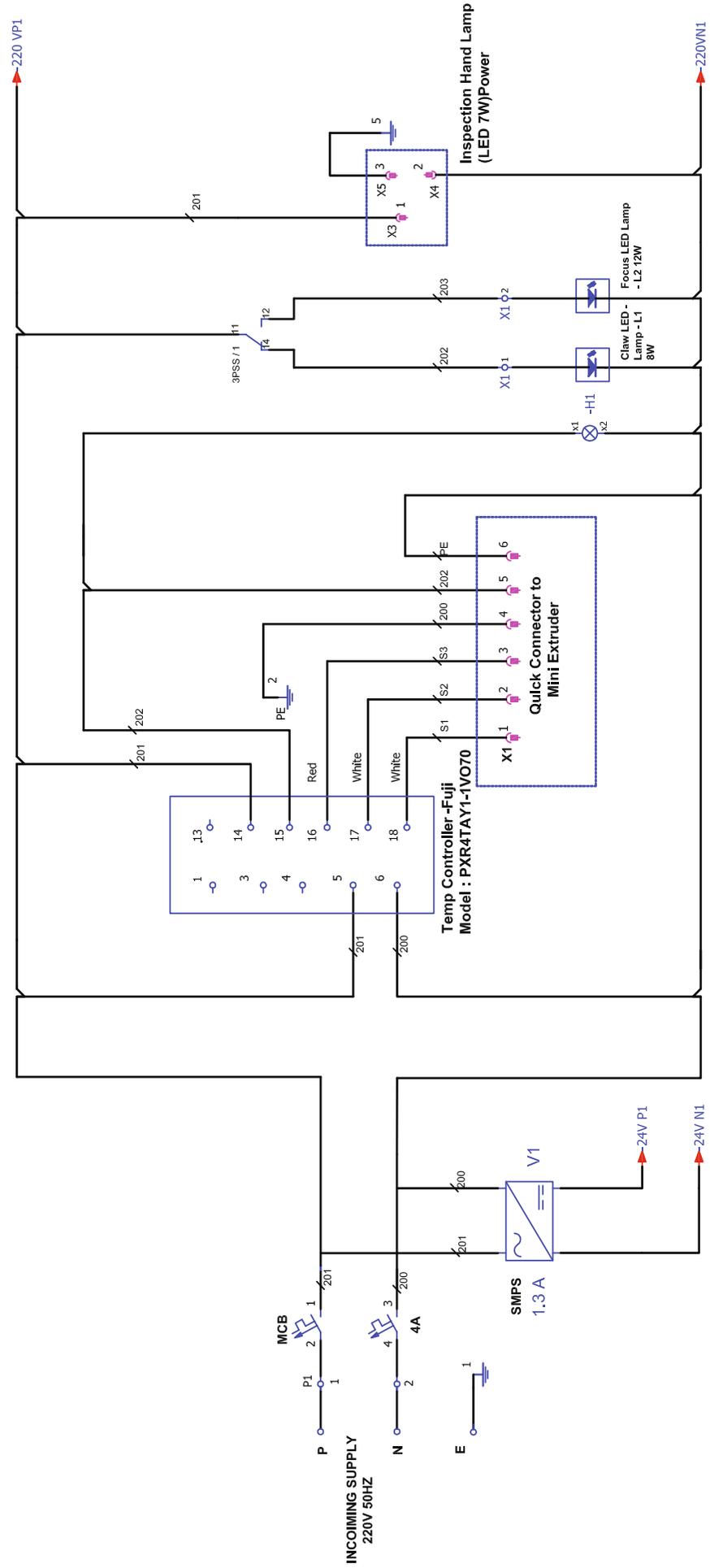
<b>PANEL MAKE</b>	<b>RITTAL</b>
<b>PART NO</b>	<b>AE 1030500</b>
<b>WIDTH</b>	<b>380</b>
<b>HEIGHT</b>	<b>300</b>
<b>DEPTH</b>	<b>155</b>
<b>DOOR</b>	<b>SINGLE DOOR</b>

<b>OUTSIDE SURFACE</b>	<b>PAINT SHADE : PEBBEL GRAY</b>
<b>INSIDE SIDE SURFACE</b>	<b>PAINT SHADE : PEBBEL GRAY</b>
<b>INCOMING SUPPLY</b>	<b>230V AC</b>
<b>INCOMING CABLE</b>	<b>0.75 SQMM X 3 CORE</b>
<b>CONTROL VOLTAGE</b>	<b>230V AC &amp; 24V DC</b>
<b>CONTROL CABLES</b>	<b>0.75 SQMM RED &amp; BLUE</b>

**EARTHING TO BE PROVIDED AS PER STANDARD  
SHROUDDING TO BE PROVIDED AS PER STANDARD**

REV.	DATE	NAME	APPD.	DATE	26.07.15	DRG. No. :	211803005
1	29.01.16	SS	BSR	DRAWN	SS	DESIGN INSTRUCTION	
				CHKD.	BSR		
				APPD.	SGK		SHEET No. : 2 OF 8
				DESCRIPTION :			A4
				CONTROL PANEL BOARD ASSEMBLY REPAIR STATION 110-220V 50-60HZ			
				ITEM CODE : 03040410172000			

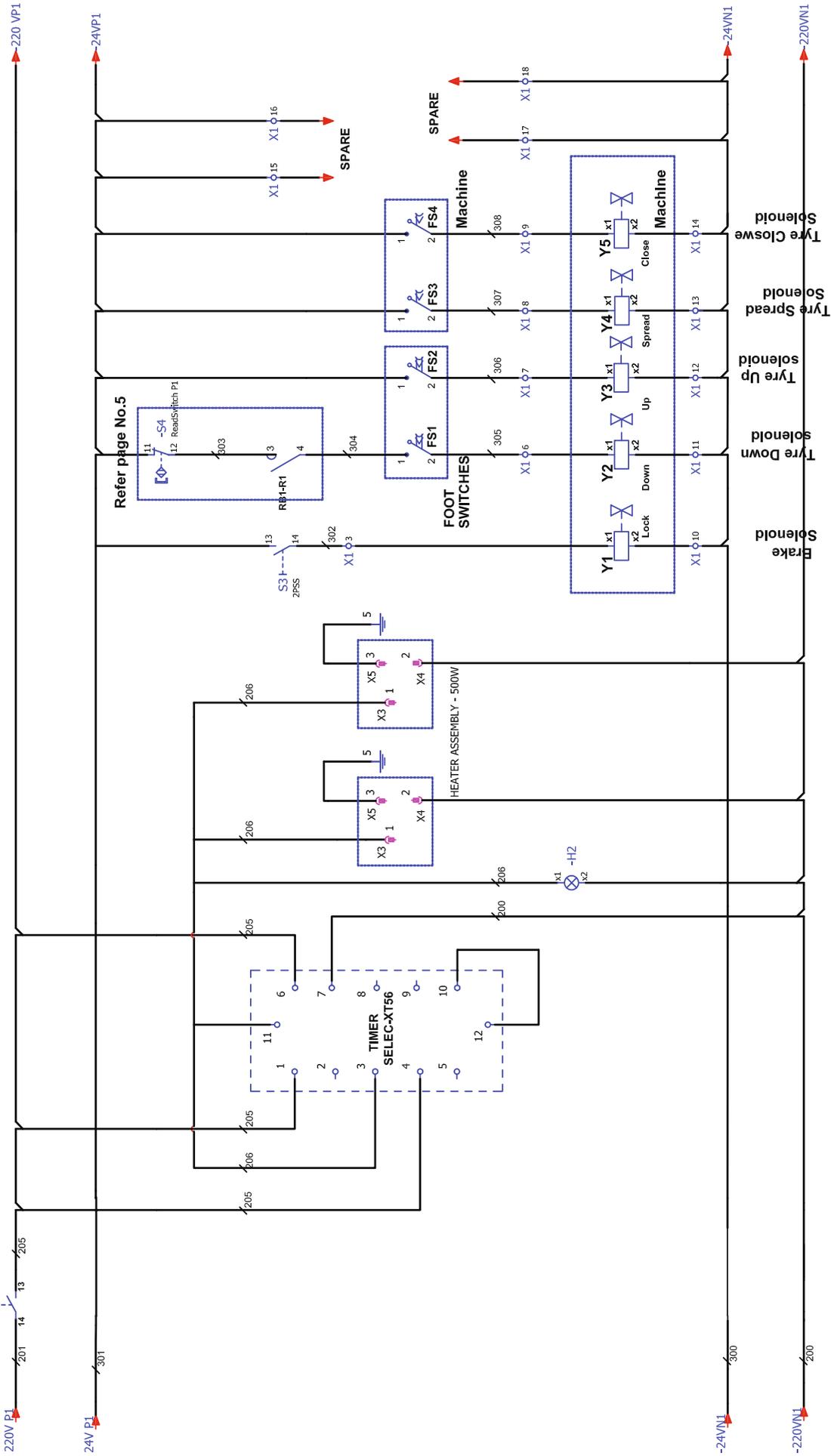
# TYRE REPAIR STATION CONTROL



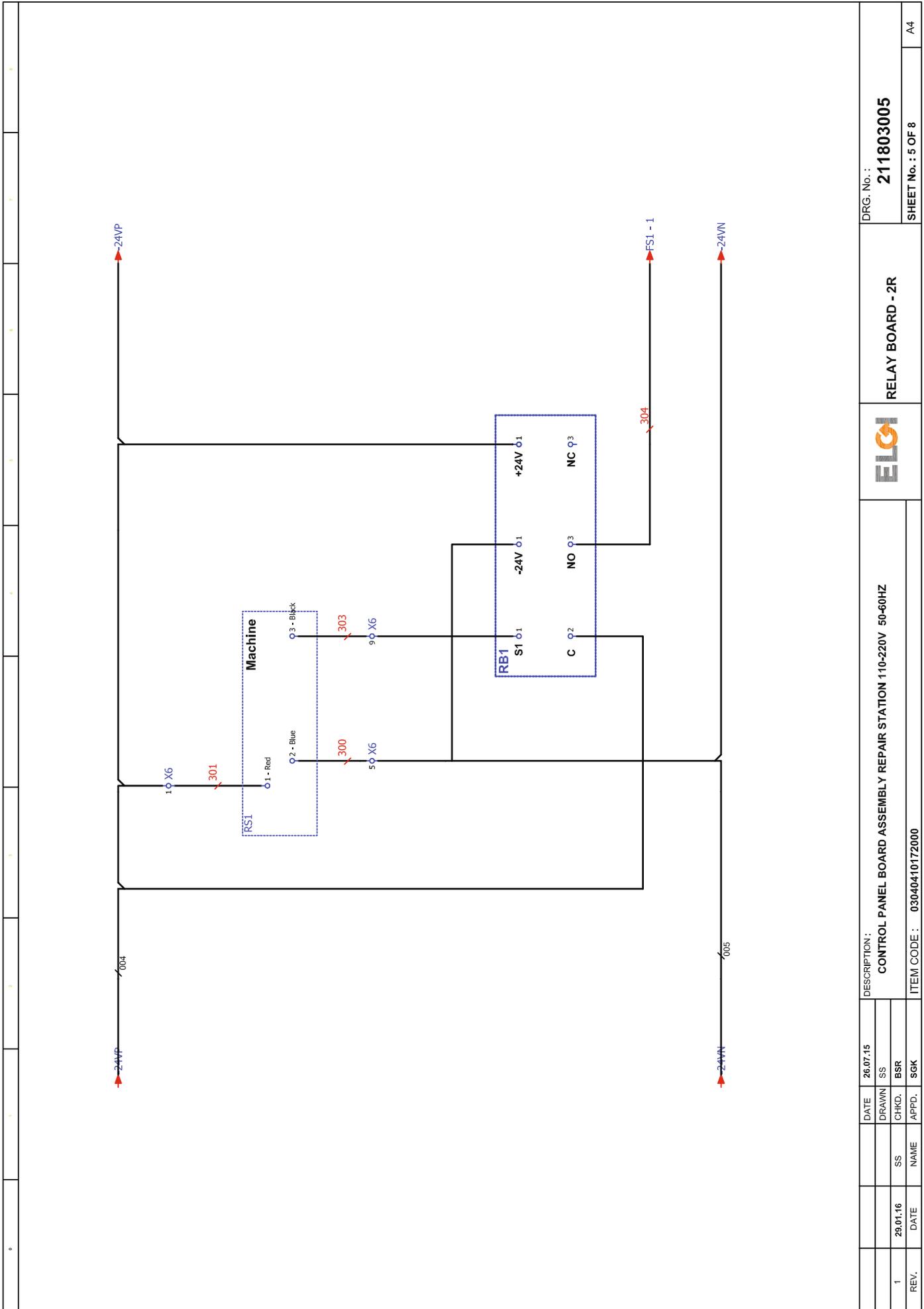
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	DRAWN	SS		
	CHKD.	BSR		
	APPD.	SGK	ITEM CODE :	03040410172000
REV.	DATE	NAME		
1	29.01.16	SS		
			DRG. No. :	211803005
			SHEET No. :	3 OF 8
				A4



# SPOT VULGANISER CONTROL

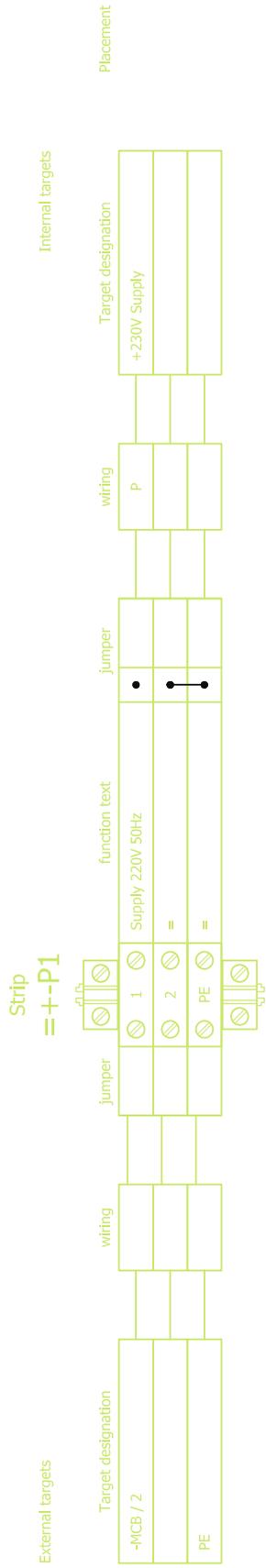


DATE		26.07.15	DESCRIPTION :		CONTROL PANEL BOARD ASSEMBLY REPAIR STATION 110-220V 50-60HZ	
1	29.01.16	SS	CHKD.	BSR	DRG. No. : 211803005	
REV.	DATE	NAME	APPD.	SGK	SHEET No. : 4 OF 8	
				ITEM CODE : 03040410172000		A4



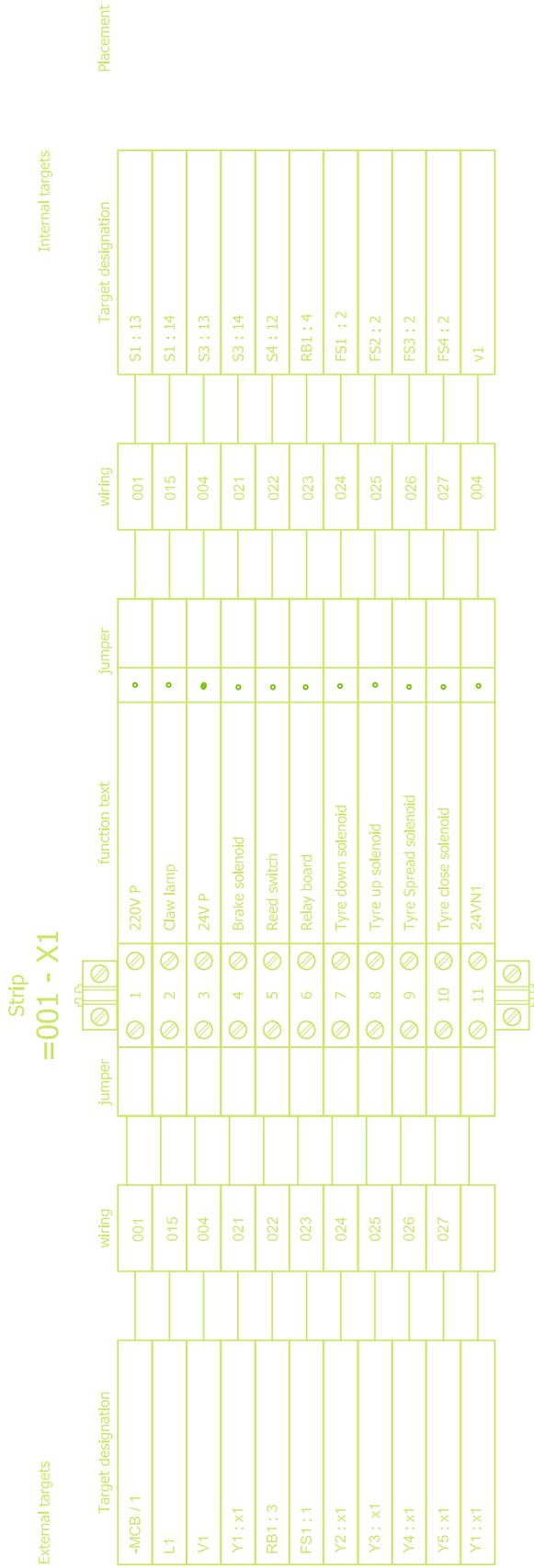
DATE		26.07.15	DESCRIPTION :		DRG. No. :		211803005	
DRAWN		SS	CONTROL PANEL BOARD ASSEMBLY REPAIR STATION 110-220V 50-60HZ		RELAY BOARD - 2R		SHEET No. : 5 OF 8	
CHKD.		BSR	ITEM CODE : 03040410172000		ELGI		A4	
REV.	DATE	NAME	APPD.	SGK				
1	29.01.16	SS						

# Terminal diagram



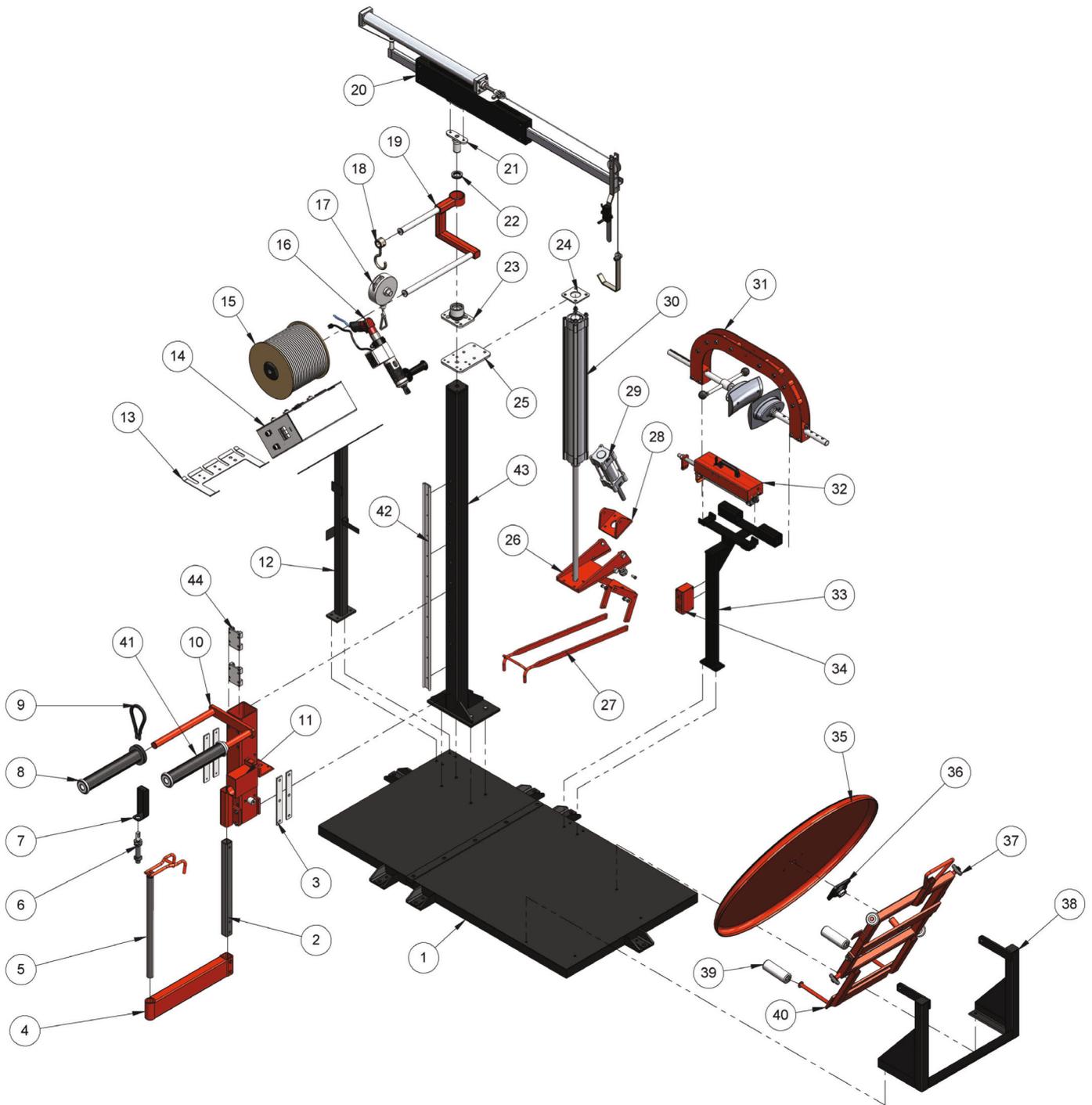
DATE	26.07.15	DESCRIPTION :	DRG. No. :	211803005
DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY REPAIR STATION 110-220V 50-60HZ		
CHKD.	BSR			
APPD.	SGK	ITEM CODE : 03040410172000		
REV.	DATE	NAME	TERMINAL DIAGRAM -# X1	
1	29.01.16		SHEET No. : 6 OF 8	
			A4	

# Terminal diagram



DATE	26.07.15	DESCRIPTION:	CONTROL PANEL BOARD ASSEMBLY REPAIR STATION 110-220V 50-60HZ	
DRAWN	SS		ELGI	
CHKD.	BSR		TERMINAL DIAGRAM -# X2	
DATE	29.01.16	ITEM CODE :	03040410172000	
NAME			DRG. No. : 211803005	
APPD.	SGK		SHEET No. : 7 OF 8	
REV.	1		A4	

# 12 Parts List



## Parts List - BOM

S. no.	Order Code	Description	UOM	Qty
1	MA8663/1	BASE FRAME ASSEMBLY	Nos	1
2	MA8663/2	BOTTOM SUPPORT GUIDE TUBE	Nos	1
3	MA8663/3	NYLON FLAT	Nos	4
4	MA8663/4	CLAW HOLDER ASSY	Nos	1
5	MA8663/5	CLAW FRONT ASSY	Nos	1
6	MA8663/6	CYLINDER 25mm x RM 8025 / m / 25	Nos	1
7	MA8663/7	ROLLER BRAKE BRACKET	Nos	1
8	MA8663/8	ROLLER TUBE WITH PULLEY ASSEMBLY	Nos	1
9	MA8663/9	V BELT 12.2 x 420mm Lg	Nos	1
10	MA8663/10	LINEAR SLIDER TUBE ASSEMBLY	Nos	1
11	MA8663/11	LAMP COVER ASSEMBLY	Nos	1
12	MA8663/12	PANNEL BOX MOUNTING FRAME	Nos	1
13	MA8663/13	REPAIR TOOLS TRAY - REPAIR STATION	Nos	1
14	MA8663/14	PANNEL BOX	Nos	1
15	MA8663/15	RUBBER ROPE HOLDER	Nos	1
16	MA8663/16	MINI EXTRUDER ASSY	Nos	1
17	MA8663/17	SPRING BALANCER	Nos	1
18	MA8663/18	COUNTER BALENCE HANGING HOOK	Nos	1
19	MA8663/19	SPOOL ROLE MOUNTING BRACKET	Nos	1
20	MA8663/20	TYRE LIFT ASSEMBLY	Nos	1
21	MA8663/21	SWIVEL SHAFT ASSEMBLY	Nos	1
22	MA8663/22	THRUST BALL BEARING SKF - 51107	Nos	1
23	MA8663/23	BEARING HUB ASSY - SWIVEL	Nos	1
24	MA8663/24	CYL SUPPORT PLATE	Nos	1
25	MA8663/25	TOP SUPPORT PLATE - REPAIR STATATION	Nos	1
26	MA8663/26	CLAW HOLDER ACTING FRAME ASSY.	Nos	1
27	MA8663/27	TYRE CLAW	Nos	1
28	MA8663/28	CYLINDER HOLDER PLATE	Nos	1
29	MA8663/29	PNUEMATIC CYLINDER DSBC-80-100-PPVA-N3/P No. 1383337	Nos	1
30	MA8663/30	PNUEMATIC CYLINDER DSBC-80-700-PPVA-N3/P. No. 1463504/FESTO	Nos	1
31	MA8663/31	SPOTTER - TYPE 1	Nos	1
32	MA8663/32	PNEUMATIC BEAD SPREADER	Nos	1
33	MA8663/33	SPOTTER FRAME	Nos	1
34	MA8663/34	HEATER TERMINAL BOX	Nos	1
35	MA8663/35	DISC TABLE ASSEMBLY	Nos	1
36	MA8663/36	SQUARE FLANGED UNIT UCF206D1	Nos	1
37	MA8663/37	NYLON ROLLER CORNER	Nos	4
38	MA8663/38	SWIVAL DISC MAIN FRAME ASSY	Nos	1
39	MA8663/39	NYLON ROLLER FRONT	Nos	2
40	MA8663/40	SWIVAL FRAME ASSEMBLY	Nos	1
41	MA8663/41	ROLLER TUBE ASSEMBLY	Nos	1
42	MA8663/42	LINEAR GUIDE IGUS	Nos	1
43	MA8663/43	MAIN FRAME REPAIR STATION	Nos	1
44	MA8663/44	LINEAR GUIDE CARRIAGE IGUS	Nos	2