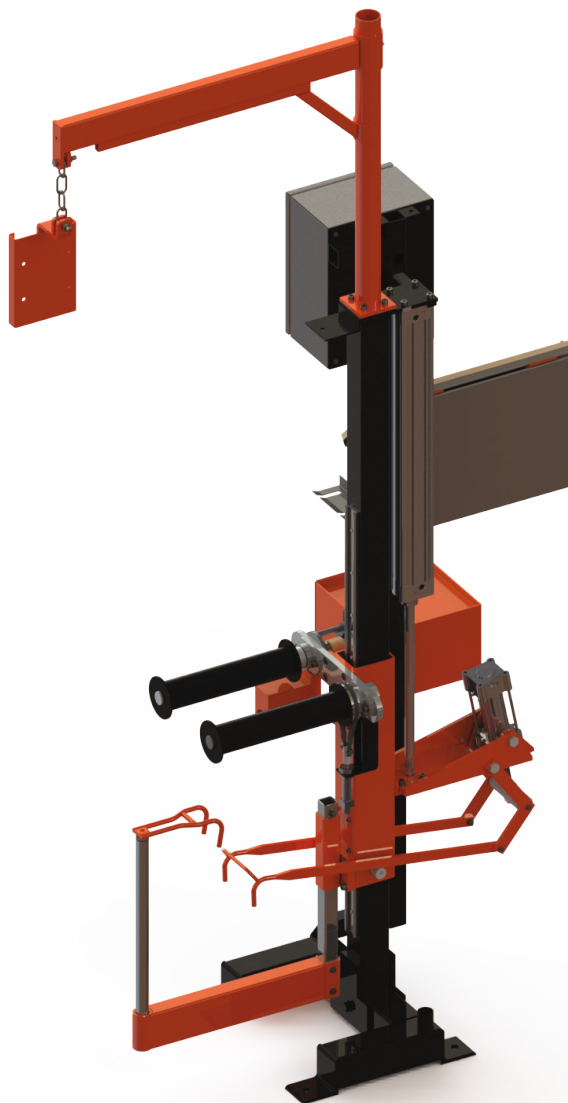




Skiving Station SK 1



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 Skiving station is used for Tyre repair purpose, It consists of various components Tyre lifting system, Pneumatic bead spreading system, Manual rotary rollers, Pneumatic braking system, Electric motor support (optional) with swivel arm, Control panel, Stop buttons and Emergency stop.

The machine is designed and manufactured for accurate and trouble free performance and can be operated by persons with little training. This instruction manual details installation, commissioning, operation and preventive maintenance procedures.

Contents

01 Description	4
02 Specifications	5
03 Assembly and Commissioning Tools	6
04 Installation and Commissioning	7
05 Pre-Operation Checks	8
06 Operation	9
07 Do's and Don'ts	10
08 Troubleshooting - Pneumatic	11
09 Troubleshooting - Electrical	12
10 Preventive Maintenance	14
11 Pneumatic Circuit	15
12 Parts List	16

01 Description

The Skiving station 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 roller in clockwise and anti-clockwise directions.

Pneumatic and Electrical controls

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

02 Specifications

Model	SK 1
Catalogue Number	MA16 1
Tyre Range	6.50 - 14 to 12.00 - 24.5
Air Pressure Requirement (kg/cm ²)	8
Tyre Lifting	Pneumatic
Loading capacity (kg)	160
Dimensions (L x W x H) (mm)	900 x 1785 x 2870
Installation	To be fixed to the floor

03 Assembly and Commissioning Tools

Accessories

Standard	Base plate provision for drive unit mounting Tool holding trays
Optional	Skiving tools including drive motors 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

Pneumatic Installation

- Installation air filter regulator fitted in the equipment. After installation open and rotate the regulator filter valve leaving it with a setting of 8 kg/cm² visibly on the regulator filter manometer.
- Activate the pneumatic valves to test the lifting height and the flank opening.
- Do not use the regulator filter for other purposes other than for the proper use of the equipment.

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 shutdown of the equipment) and the 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.

05 Pre-Operation Checks

- The floor must be levelled, if the equipment is installed in monorail systems, it should be placed below the mono rail junction.
- Proper seating of Monorail vs Skiving station for smooth movement of Tyre hooks.
- Ensure the steel structures are grouting properly and no shake while in operation.
- Vertical post to be aligned and ensure smooth movement of tyre hooks.
- All the nuts mentioned in the parts list are to be tightened properly.
- Safety grounding of main supply voltage, where ever applicable.
- Air leaks in pneumatic lines.

06 Operation

How to remove the Tyre from Monorail

- Open the air line and the valve (s) of the regulator filter (s).
- With the Tyre on the J hook, position it close to the machine's rotating rollers.
- Turn the pneumatic valve on again by raising the roller lift assembly to the centre of the Tyre by inserting it by moving the J hook, after raising the rollers to the point where the Tyre can get rid of the Tyre hook.
- Remove the Tyre hook from the Tyre and actuate the pneumatic valve to lower the lift assembly to the point that it is parked to perform the job.

How to put the Tyre on monorail

- Turn the pneumatic valve up by raising the roller set to the point where it moves past the J hook, insert the J hook, and lower the roller set to the point where the Tyre fits into the J hook free of the rollers and after releasing the lift assembly, lower it or insert another Tyre.

07 Do's and Don'ts

Do's

- Use the machine only for Tyre repair purposes.
- Use your pneumatic lever valve lift system to lift and place the Tyre on the hook.
- Use the bead opening system with pneumatic lever valve actuation to perform internal workings.
- Use the pneumatic pedal valve locking system to lock the rotating roller in the work execution.
- Use the swivelling motor system of the countersink for better working position.
- Use the tool holder box to accommodate the tools needed for Tyre repair.
- When operating the bead opening hook, the operator should not place his hands between the moving and fixed hooks.
- Operating shall not remain below the Tyre when the roller lift system is in the raised position.

Don'ts

- Do not use the machine if the main air line is leaking or the system is faulty.
- Do not use the machine if there are breaks in the welds or in the structure.
- Do not use the machine if it fails the electrical system (push buttons and control panel).

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"> • Check that the machine is properly connected. • Check that the compressed air inlet is open • Check that the regulator is correct.
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"> • Check that there are no hose bent or bent to prevent air from entering or leaving the pneumatic cylinder. • Check whether the flow regulators are open or require adjustment.
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"> • Check for dust accumulation in the sliding bushings or if the shafts are damaged, preventing the bushings from sliding freely. • Unscrew the cylinder axle nut for the system to run freely on the guides. • If any upper or lower locking is identified, unscrew the bolts, position the assembly on top, and tighten the bolts. • Repeat the same operation for the bottom, leaving the system working free.
Whole system is running, but the Tyre does not stand still.	Pneumatic system leakage.	<ul style="list-style-type: none"> • Check for leaks in hoses, fittings, valves, and cylinder.

Symptoms / Problems	Possible Causes	Remedies
<p>Whole system is working, there are no leaks and the Tyre does not remain open</p>	<p>Internal leakage in the cylinder.</p>	<ul style="list-style-type: none"> • Disconnect the return hoses from the cylinder, making sure that the leak is internal. • 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).
<p>Whole system is working, not leaks in the cylinders, but the Tyre does not remain open.</p>	<p>Leaking valve on lever or pedal.</p>	<ul style="list-style-type: none"> • Check that there is no leaking valve on the lever or pneumatic pedal. • If internal leakage of the valve is checked, call an authorized service technician for repair or replacement.

09 Troubleshooting - Electrical

Symptoms / Problems	Possible Causes	Remedies
<p>Circuit does not work</p>	<p>Energy is not reaching the device</p>	<ul style="list-style-type: none"> • Check that the machine is properly connected. • Check that the main switch is on. • Check that the power supply (v) is correct. • Check that all circuit breakers are connected.

Symptoms / Problems	Possible Causes	Remedies
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"> Remove the coupling from the button and check that it is locked or damaged. Both cases carry out the replacement of the same.
Circuit is in order, the 24v power does not reach the control buttons.	Copper wire rupture or poorly coupled to the fastening terminal.	<ul style="list-style-type: none"> Carry out a check with an appliance to identify the broken wire or to re-tighten the fixing terminals.
Circuit breaker is disarming.	Short circuit or amperage setting not correct.	<ul style="list-style-type: none"> Perform instrument check and then raise the motor circuit breaker amperage rating as specified on the electric motor rating plate.
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"> 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.
The electrical power does not reach the internal components of the control panel.	Damaged control or main switch	<ul style="list-style-type: none"> Carry out a check with the device to identify if the outputs of both parts are properly distributing the energy (v).
Circuit is in order, but the 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"> 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.

10 Preventive Maintenance

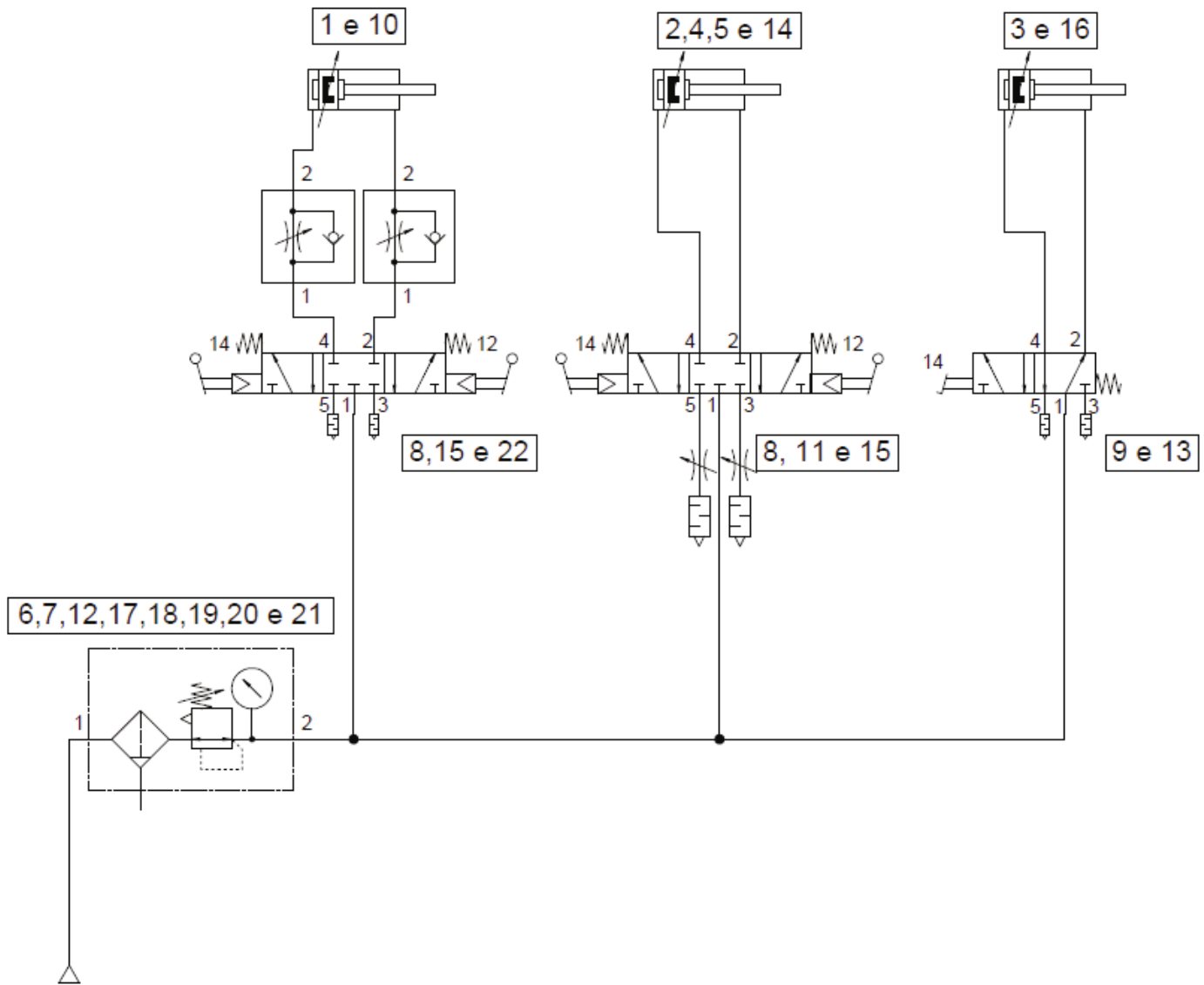
Daily maintenance

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

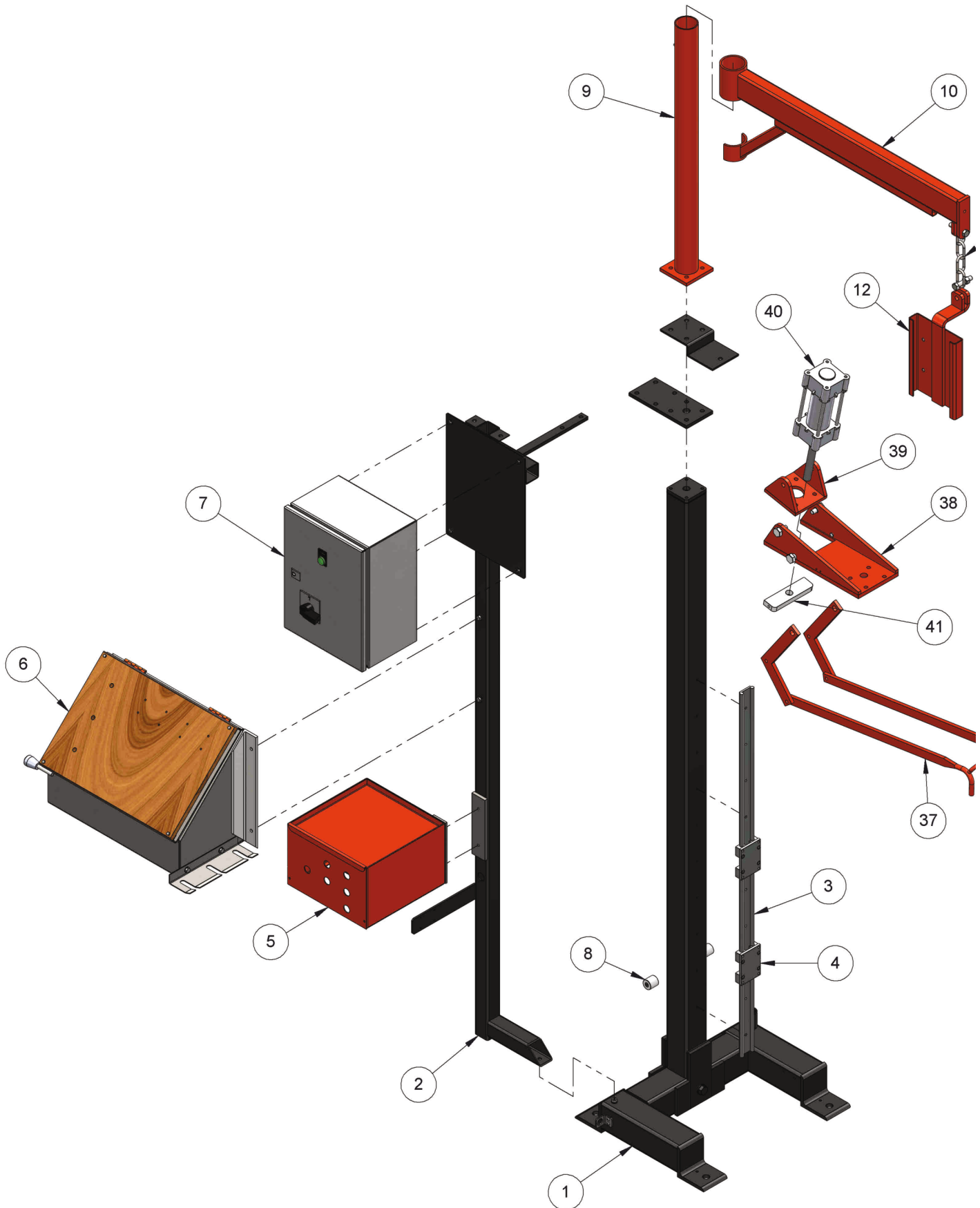
Weekly maintenance

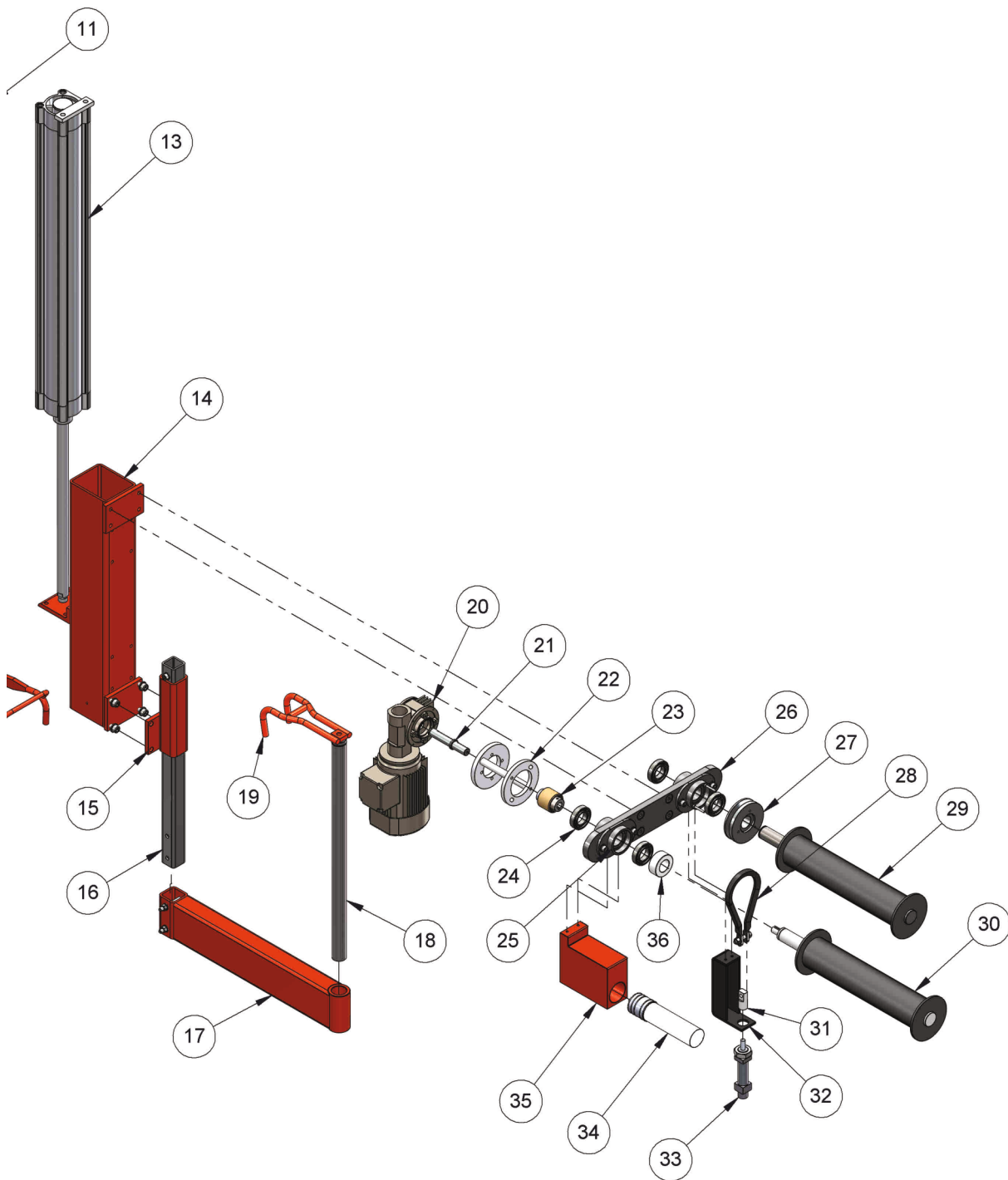
- Clean the equipment by removing any rubber residue.
- Check the general condition of the pneumatic assembly.
- Check the general condition of the electrical assembly.
- Lubricate the moving parts.
- Check that the screws are tight.

11 Pneumatic Circuit



12 Parts List





Parts List - BOM

S. No.	Order Code	Description	UOM	Qty.
1	MA161/1	BASE SUPPORT ASSY	Nos	1
2	MA161/2	SUPPORT TOOL MOUNT ASSY	Nos	1
3	MA161/3	SLIDING RAIL / IGUS	Nos	1
4	MA161/4	LINEAR GUIDE CARRIER ASSEMBLY – IGUS	Nos	2
5	MA161/5	OPERATING PANEL BOX - SKIVING STAND	Nos	1
6	MA161/6	SKIVING STATION TOOL BOX	Nos	1
7	MA161/7	INDUSTRIAL CONTROL PANEL ENCLOSURE / RITTAL	Nos	1
8	MA161/8	STOPPER BUSH	Nos	2
9	MA161/9	ARM BRIDGE SUPPORT TUBE ASSY	Nos	1
10	MA161/10	ARM BRIDGE ASSEMBLY SKYVING	Nos	1
11	MA161/11	CHAIN - 1/4" - 4 LINKS	Nos	1
12	MA161/12	MOTOR MOUNTING PLATE ASSEMBLY	Nos	1
13	MA161/13	PNEUMATIC CYLINDER DSBC-80-700-PPVA-N3/P. No. 1463504/FESTO	Nos	1
14	MA161/14	LINEAR SLIDER TUBE ASSEMBLY	Nos	1
15	MA161/15	BOTTOM GUIDE SUPPORT ASSY	Nos	1
16	MA161/16	BOTTOM SUPPORT GUIDE TUBE	Nos	1
17	MA161/17	CLAW HOLDER ASSY	Nos	1
18	MA161/18	VERTICAL CLAW TUBE	Nos	1
19	MA161/19	CLAW	Nos	1
20	MA161/20	0.25HP GEARED MOTOR - BONFIGLIOLI	Nos	1
21	MA161/21	SINGLE OUTPUT SHAFT	Nos	1
22	MA161/22	MOTOR MOUNTING BRACKET	Nos	1
23	MA161/23	GEAR COUPLING	Nos	1
24	MA161/24	BALL BEARING - SKF 6006	Nos	4
25	MA161/25	BEARING HUB ASSEMBLY	Nos	2
26	MA161/26	ROLLER MOUNT PLATE	Nos	1
27	MA161/27	NYLON PULLEY	Nos	1
28	MA161/28	V BELT 12.2 x 420mm Lg	Nos	1
29	MA161/29	DRIVEN ROLLER	Nos	1
30	MA161/30	DRIVE ROLLER	Nos	1
31	MA161/31	BRAKE CYLINDER ADAPTER ROD	Nos	1
32	MA161/32	ROLLER BRAKE BRACKET	Nos	1
33	MA161/33	CYLINDER 25mm x RM 8025 / m / 25	Nos	1
34	MA161/34	LAMP - SKIVING	Nos	1
35	MA161/35	LAMP COVER ASSEMBLY	Nos	1
36	MA161/36	NYLON SPACER	Nos	1
37	MA161/37	TYRE CLAW	Nos	1
38	MA161/38	CLAW HOLDER ACTING FRAME	Nos	1
39	MA161/39	CY.HOLDER PLATE	Nos	1
40	MA161/40	PNEUMATIC CYLINDER DSBC-80-100-PPVA-N3/P No. 1383337	Nos	1
41	MA161/41	CLAW MOUNTING PLATE	Nos	1