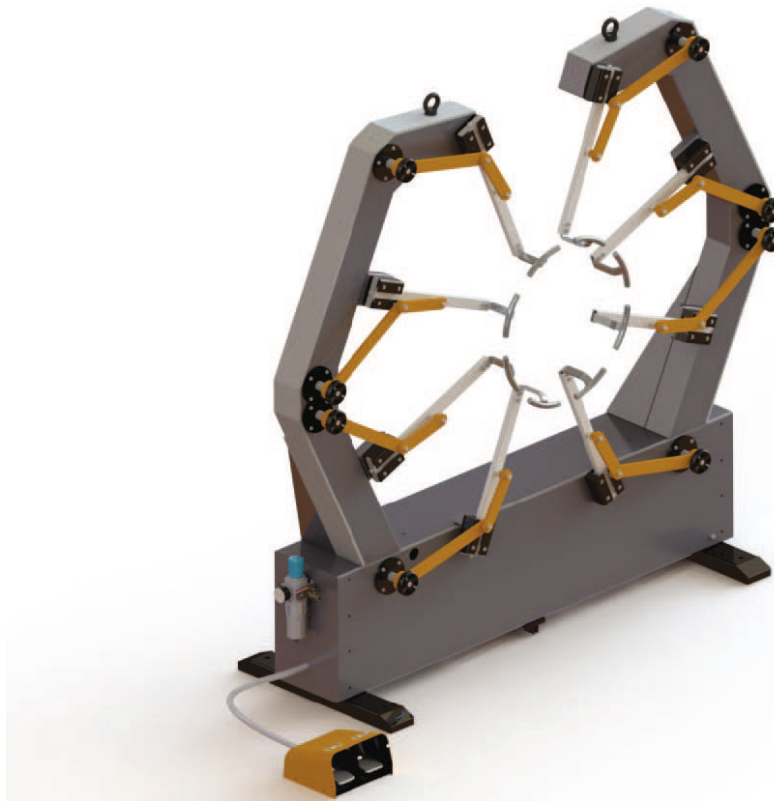




Envelope Spreader ES 5



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 Envelope Spreader ES 5 is a simple and unique machine which facilitates the operator to envelope and de-envelope the tyre easily. This machine functions pneumatically and ensures a uniform expansion of envelope. This extends the life of the envelope.

The machine is built to custom specifications and can be manufactured with a lifting arrangement or as a stand-alone.

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01 Description

The envelope spreader ES 5 consists of the following major components:

Main Frame

The main frame houses all the main components of the machine like, pneumatic and mechanical drive elements.

Lifting Arrangements

On the standard machine lifting arrangements are not provided, as this machine is used as a stand alone machine. On custom specified, this machine is provided with lifting arrangement, which enables the operator to accommodate various size of tyres.

Foot Switch

This is provided for easy access for the operator to operate the expansion and release of the laws.

Air Line Assembly

This is provided with a shut of valve, filter cum regulator and a lubricator for lubricating the air.

02 Specifications

Model	ES 5
Catalogue Number	MA51 5
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)	2080 x 750 x 1930 (without lift) 2080 x 700 x 1930 (with lift)
Weight (kg)	~375
Installation	To be fixed to the floor

03 Assembly and Commissioning Tools

Accessories

Standard	Installation kit
Optional	Type stand (TS-5) required only when ordered without lift

Tools

Spanners: Double end 10 - 32	1 Set each
Screw driver - 8"	1 No.
Allen keys (mm)	1 Set
Cutting plier - 8"	1 No.
Circlip plier - 6" (internal and external)	1 No. each
Nylon hammer	1 No.
Grease gun	1 No.
Adjustable spanner - 12"	1 No.

Materials

Lubricating oil (SAE 20)	¼ L
Multi purpose grease	¼ kg

04 Installation and Commissioning

Positioning

- The machine does not need a 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.
- Place the machine at one meter distance from the wall and ensure that machine has sufficient space around it (if used as stand alone).
- Place the machine below the in-house monorail if it comes with a lifting facility.

Connection

- From the nearest air point, draw a line using a 6mm hose. Connect both ends with the help of an 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 lubricator with SAE 20 oil to its level.

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 the free movement of all moving parts.
- Check if all nuts and bolts are properly tightened.
- Check if the insert locking of the claws is uniformly fitted.
- Check and ensure no twists, or crush in air line.
- Check for any air leakage on the pneumatic lines.

06 Operation

1. Before mounting the envelope on the claws, ensure that the claws are in released position.
2. Mount the appropriate envelope.
3. Expand the Envelope by operating the lever of the pneumatic valve.
4. Move the tyre to be enveloped by the in-house monorail to the enveloping side of the machine.
5. Release the switch to close position and allow the envelope to seat on the tyre.
6. Release the envelope from the claws.
7. Move the tyre out of the machine through the monorail or through the tyre stand to the next retreading operation.

07 Do's and Don'ts

Do's

- Place the machine in an open space where there is ample light and ventilation.
- Ensure that there is no leakage in the pneumatic valve and cylinder.
- All locking nuts are to be tightened firmly.
- Move the operator panel position to the operator's convenience. This ensures easy operation of electrical switches while holding the tyre / envelope.

Don'ts

- Do not operate the machine until the shipment locks are removed.
- Do not load the tyre without ensuring the claws are expanded.
- Do not select wrong envelope size. This may damage the envelope or if the expansion is not sufficient, it may not fit in the tyre.
- Do not select wrong lifting position when used with monorail. This may damage the claws / cylinders badly.
- Do not replace the parts which is not recommended by manufacturer.

08 Troubleshooting

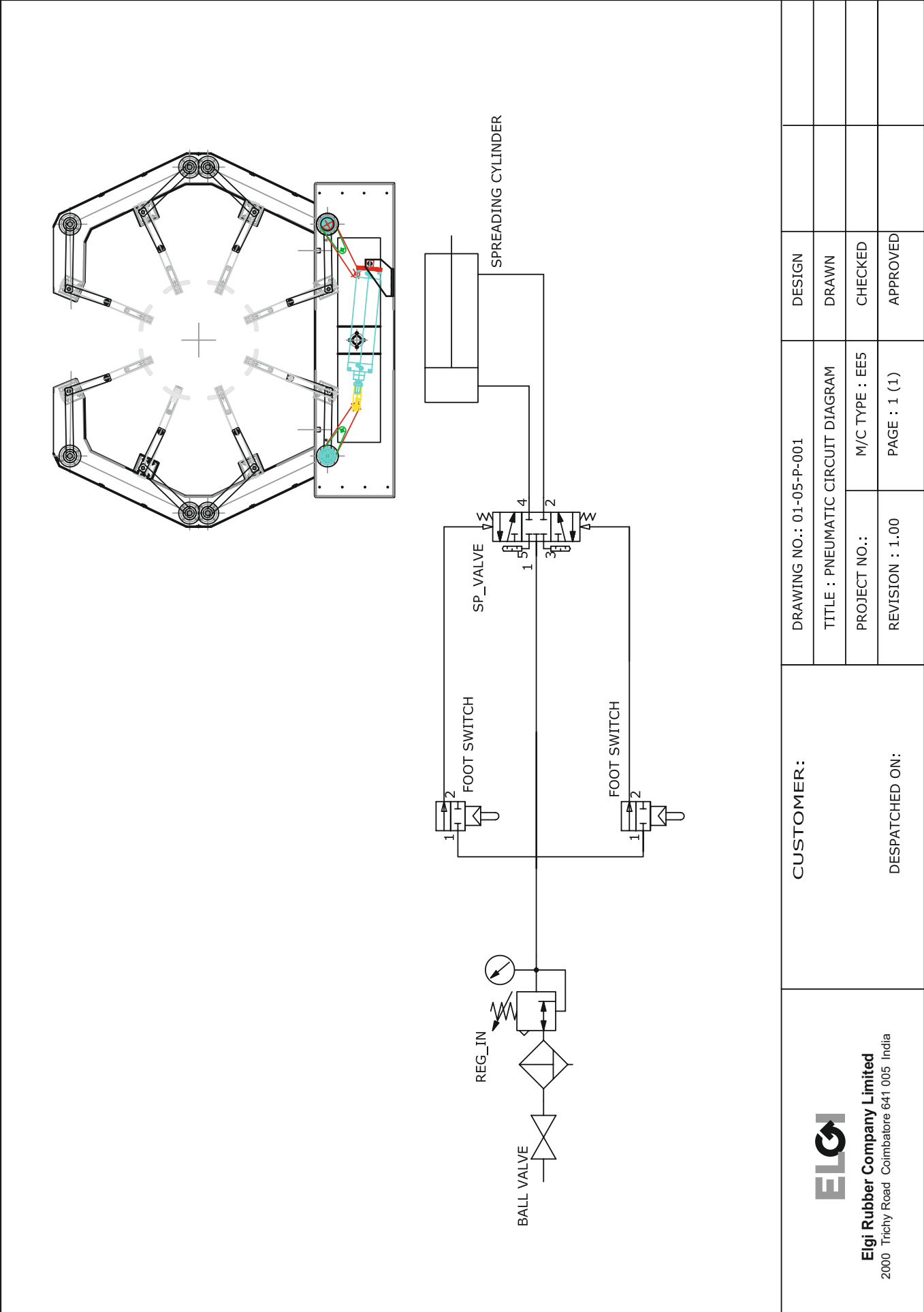
Symptoms / Problems	Possible Causes	Remedies
Arms not spreading	<ol style="list-style-type: none"> 1. No air supply 2. Air pressure less 3. Kinked hoses 4. Claw spread chain cut 5. Seals damaged in claw spreading cylinder 	<ol style="list-style-type: none"> 1. Check main air line and correct if required 2. Check the input air line and set it to 8 kg/cm² 3. Check and replace 4. Connect with chain-link or replace it 5. Check and replace
Arm spreading but unevenly	<ol style="list-style-type: none"> 1. Leakage of air / less supply 2. Chain tension loose 3. Guide rollers damaged 	<ol style="list-style-type: none"> 1. Rectify the leakage and set the air pressure to 8 kg/cm² 2. Check and adjust 3. Check and replace
Foot switch not functioning	<ol style="list-style-type: none"> 1. Button valve not getting actuated by foot pedal 	<ol style="list-style-type: none"> 1. Remove the cover and check incoming line to pilot valve
Only operates in one direction	<ol style="list-style-type: none"> 1. Button valve not getting actuated 2. No air supply at direction control valve (spool valve) 	<ol style="list-style-type: none"> 1. Check and correct 2. Check the line from foot switch to valve and replace if needed
Machine does not lift	<ol style="list-style-type: none"> 1. No air supply to the hand operated valve 2. Kinked hoses 3. Seals damaged in lifting cylinder 4. Machine lift chain cut 	<ol style="list-style-type: none"> 1. Check the input air line and set it to 8 kg/cm² 2. Check and replace 3. Check and replace 4. Connect with chain link or replace

09 Preventive Maintenance

Name of the Post	Enveloping / De-enveloping
Name of the Equipment	Envelope Spreader
Model No.	ES 5

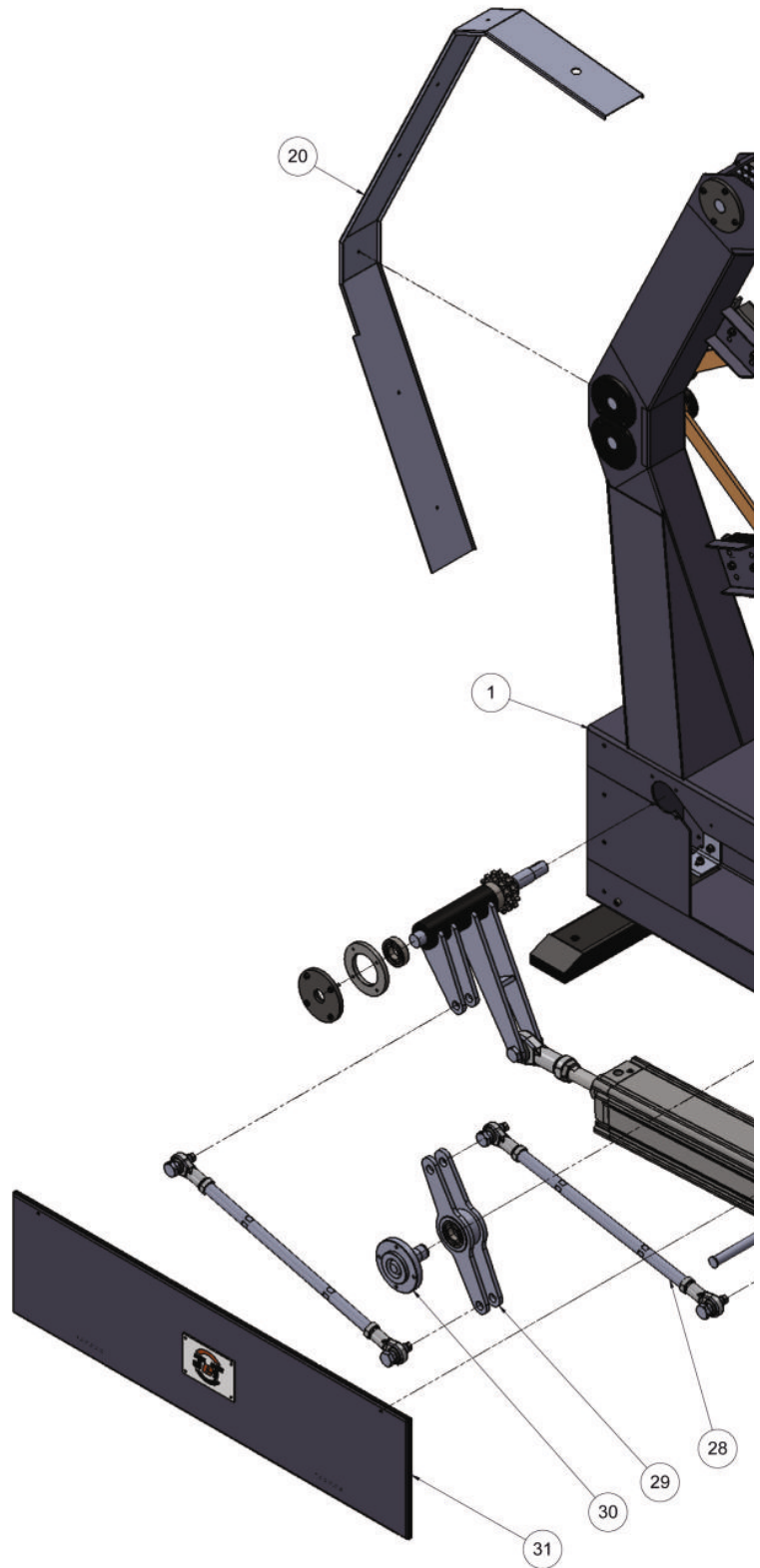
S. No.	Activity	Frequency	Acceptance Criteria
1	Clean the machine	Daily	Dust free
2	Drain the water from the air filter	Daily	No water in the filter unit
3	Check air pressure is 8 kg/cm ²	Daily	Pressure in-between 8 ± 0.5 kg / cm ²
4	Check air line and fitting for any leakage	Daily	No leakage
5	Check arm bushes	Monthly	No damage / wear / tear
6	Grease the chain and bearings	Monthly	Smooth movement of spacer device

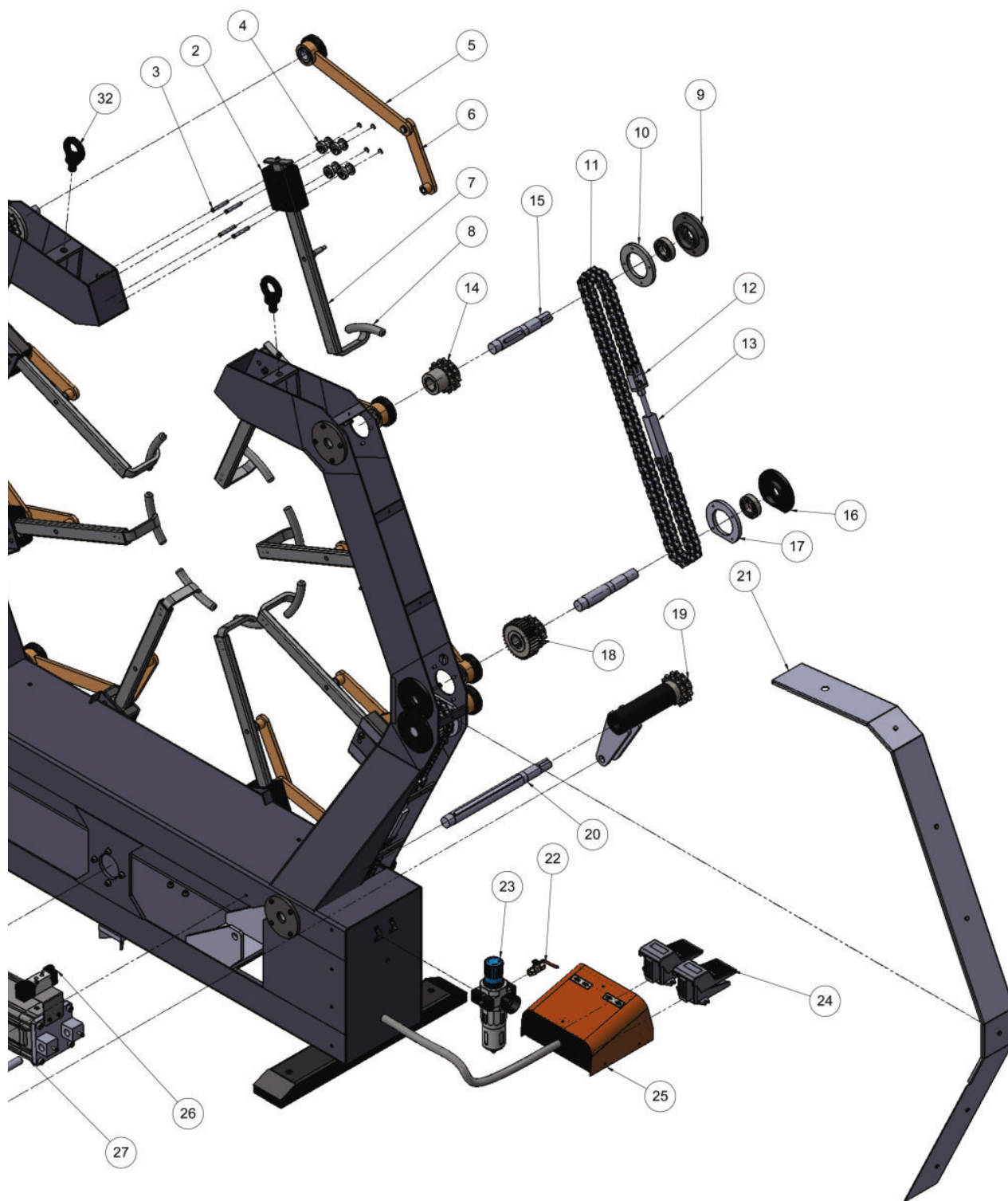
10 Pneumatic Circuit



<p>CUSTOMER:</p> <p>DESPATCHED ON:</p>	DRAWING NO.: 01-05-P-001	DESIGN		
	TITLE : PNEUMATIC CIRCUIT DIAGRAM	DRAWN		
	PROJECT NO.:	M/C TYPE : EE5	CHECKED	
	REVISION : 1.00	PAGE : 1 (1)	APPROVED	
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11 Parts List





Parts List - BOM

S. No.	Order Code	Description	UOM	Qty.
1	MA515/1	Main Frame	Nos	1
2	MA515/2	Slide Bracket	Nos	8
3	MA515/3	Pin - Guide Roller	Nos	32
4	MA515/4	Guide Roller For Sliding Arm	Nos	32
5	MA515/5	Taper Bush Arm	Nos	8
6	MA515/6	Bush Link Arm	Nos	8
7	MA515/7	Sliding Arm	Nos	8
8	MA515/8	Claw Holder	Nos	8
9	MA515/9	Bearing Flange - A	Nos	8
10	MA515/10	Lock Flange - A	Nos	8
11	MA515/11	Chain Duplex 3/4" X 7/16" - Dr1911 / Rollon	Mtr	6.1
12	MA515/12	Chain Tensioner Male	Nos	4
13	MA515/13	Chain Tensioner Female	Nos	4
14	MA515/14	Driven Sprocket	Nos	6
15	MA515/15	Driven Shaft	Nos	6
16	MA515/16	Bearing Flange - B	Nos	8
17	MA515/17	Lock Flange - B	Nos	8
18	MA515/18	Gear With Spracket	Nos	4
19	MA515/19	Drive Sprocket	Nos	2
20	MA515/20	Drive Shaft	Nos	2
21	MA515/21	Cover Side Arm	Nos	2
22	MA515/22	Ball Valve 1/4"	Nos	1
23	MA515/23	Air Filter Cum Regulator	Nos	1
24	MA515/24	Foot Operated Valve	Nos	2
25	MA515/25	Housing Foot Switch	Nos	1
26	MA515/26	Spool Valve	Nos	1
27	MA515/27	Pneumatic Cylinder	Nos	1
28	MA515/28	Equalizer Rod	Nos	2
29	MA515/29	Balancer Centre Arm	Nos	1
30	MA515/30	Equalisher Bearing Pin	Nos	1
31	MA515/31	Cover Bottom	Nos	1
32	MA515/32	Eye Bolt M20	Nost	2