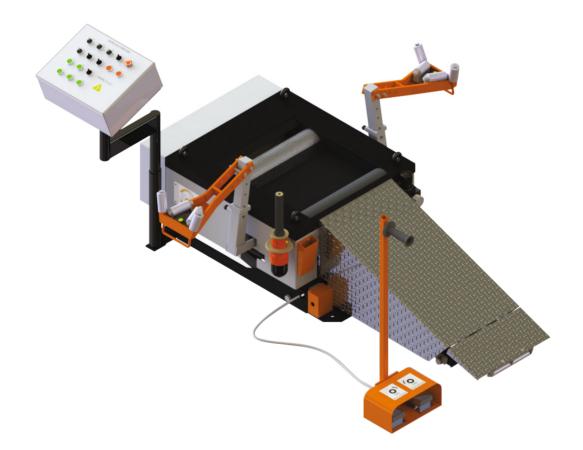




Inspection Spreader IS 6-3



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 Inspection Spreader IS 6-3 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.

A hand-held 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 body of the hand-held lamp for operator convenience. Foot switch rotation control (forward and reverse) is also included.

The spreader has pneumatically controlled spreading claws that have built in LED lighting 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.

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01 Description

The Inspection Spreader IS 6-3 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 6-3
Catalogue Number	MA05 63 - <mark>A</mark>
Tyre Range	6.50 - 14 to 12.00 - 24.5
Air Pressure Requirement (kPa / kg/cm)	800 / 8
Dimensions (L x W x H) (mm)	1600 x 670 x 450
A* in Cat. No. denotes power supply	<mark>A</mark> - 110/220 / 50/60 / 1
specifications (V / Hz / ph)	
Weight (kg)	~200
Installation	To be fixed to the floor

02 Specifications 5

03 Assembly and Commissioning Tools

Accessories

Standard	Installation kit
Optional	1. NDT system
	 Auto probe positioning
	2. NDT system
	- Manual probe positioning

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)	1⁄4 L
Multi-purpose grease	¼ kg
Electric cable 4 core, 1.5 sq.mm	Length as per
	installed position

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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.

Electrical and Pneumatic Connection

Connect the machine with the help of 2.5 sq.mm copper 4 core cable. From the nearest air point, draw a line using PU14 Pneumatic hose with quick connection fittings.

Air Line Setting

Set the regulator at 8 kg/cm by rotating the knob clockwise and then lock it.

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. Roll the tyre over the ramp and position it in-between the rollers.
- 2. Put the claws on the bead. Based on bead width, the claw height can be adjusted.
- Expand the claw by pressing the 'EXPAND / RELEASE' joystick on the operating panel.
- Lift the machine to operator convenient height by pressing 'UP / DOWN' joystick on the operating panel
- For claw lamp, engage the 'LIGHT ON' switch on the operating panel.
- Rotate the tyre by pressing the 'FORWARD / REVERSE' foot pedal on the operating panel or by using the 'FORWARD / REVERSE' switches on the hand-held lamp.
- 7. Press the 'ON' switch on the hand-held lamp.
- 8. Visual / Manual inspection can be done by following the usual inspection method.

NDT operation

- 9. For NDT, switch the claw lamp 'OFF'.
- 10. Choose the type of tyre, 'STEEL / FABRIC' by pushing the switch on the operating panel.

- 11. Choose the size of the tyre, 'LCV / TRUCK' by pushing the switch on the operating panel.
- 12. Press the 'RESET' button on the operating panel to clear the 'previous flaws pending' detected.
- 13. Press the 'PROBE IN' switch (observe the probe movement ensuring it is not obstructed).
- 14. Press the 'PROBE DOWN' switch.
- 15. Press the 'CYCLE START' button. The tyre rotation will start.

16. If Nail hole is found:

- a) The tyre rotation will stop and the FLAW lamp button will glow on the operating panel.
- b) Change the MODE to MANUAL on the operating panel.
- c) Now press the foot pedal and position the high spark area.
- d) Remove the NDT probe arm by choosing PROBE UP and OUT.
- e) Mark the spark notified area.
- f) Now, put the probe inside the tyre and start the cycle again.
- g) Repeat the above said process to complete the tyre cycle.

17. If Nail hole is not found:

- a) If there is no nail hole, the tyre will rotate fully and the timer complete light will glow.
- b) Switch OFF the NDT.
- c) Press the PROBE UP switch.
- d) Press the PROBE OUT switch.
- e) Switch OFF the claw lamp and remove the claw from the tyre.
- f) Roll the tyre off machine on ramp.

Note: In case of any malfunction, hit the emergency button on the operating panel and call for service technician.

06 Operation

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 correct pressure for cylinder as recommended is maintained.
- 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.
- Ensure the lift is at the bottom while loading and unloading the tyres.
- Only use ramp to load tyres on the machine.
- Locking nuts of the tyre claws are to be tightened firmly.
- After closing the claw holders, switch on the claw lights.
- Lubricate the chains weekly.
- Only use eye bolts to lift the machine.

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.
- Do not place foot under the working table while operating.

08 Trouble Shooting

Symptoms / Problems	Possible Causes	Remedies
Working table not lifting	 Air pressure line not connected Air pressure not sufficient Leakage of air Cylinder not connected or lines are damaged 	 Connect the line Replace the damaged line Check compressor line and set air pressure Connect the line and repair lines
Claws not expanding	 Leakage of air Cylinder not connected or hose is damaged Improper tightening of the tie rods 	 Check and correct Inspect, replace damaged seals or hose Tighten the tie rods
Jerky movement of tyre lift cylinder	 Low air pressure Leakage of air lines Cylinder seal faulty Improper tightening of the tie rods 	 Correct the air pressure to be between 6 kg/cm²to 8 kg/cm² Check and correct Inspect or replace damaged seals Check and tighten tie rod
Working table dropping suddenly	 Solenoid damaged Valve seal damaged 	 Check and replace Check and replace
Rollers rotating in opposite direction with respect to control switch	1. Incoming lines are changed	 Check the incoming and correct the phase sequence in the incoming main line. If it is correct, check the machine incoming line.
Lamp not working (claw lamp and hand-held lamp)	 Bulb fused Electrical line to bulb has loose connection Control switch (on / off) loose connection 	 Replace the bulb Check the connection and correct Check the connection and correct

Symptoms / Problems	Possible Causes	Remedies
Roller drive motor not working	 Electrical line not connected Loose connections in the motor terminals Wiring circuit of the motor has loose connection Coil inside motor is short circuited 	 Check and correct Check and correct Check the circuit and correct Check the windings and replace if
Foot switch not working	1. Fault in electrical connections	needed (rewind) 1. Check and correct, if required replace
Body shock	 Grounding not connected Loose connection 	 Check and correct Check and correct
Roller drive motor tripping frequently	 Overload on Motor Overload relay is faulty Setting of amps in overload relay is less than specified Fault in the motor winding Fault in electric circuit 	 Check and correct the drive mechanism Check and replace Check and correct Check the winding and replace (if needed, rewind) Check with electrical drawings and correct it
Tyre jerking during rotation	 Tyre not centred on the working table Claw not seated in proper position Uneven wear 	 Centre the tyre properly Check and correct Correct the tyre wear by lightly buffing

09 Preventive Maintenance

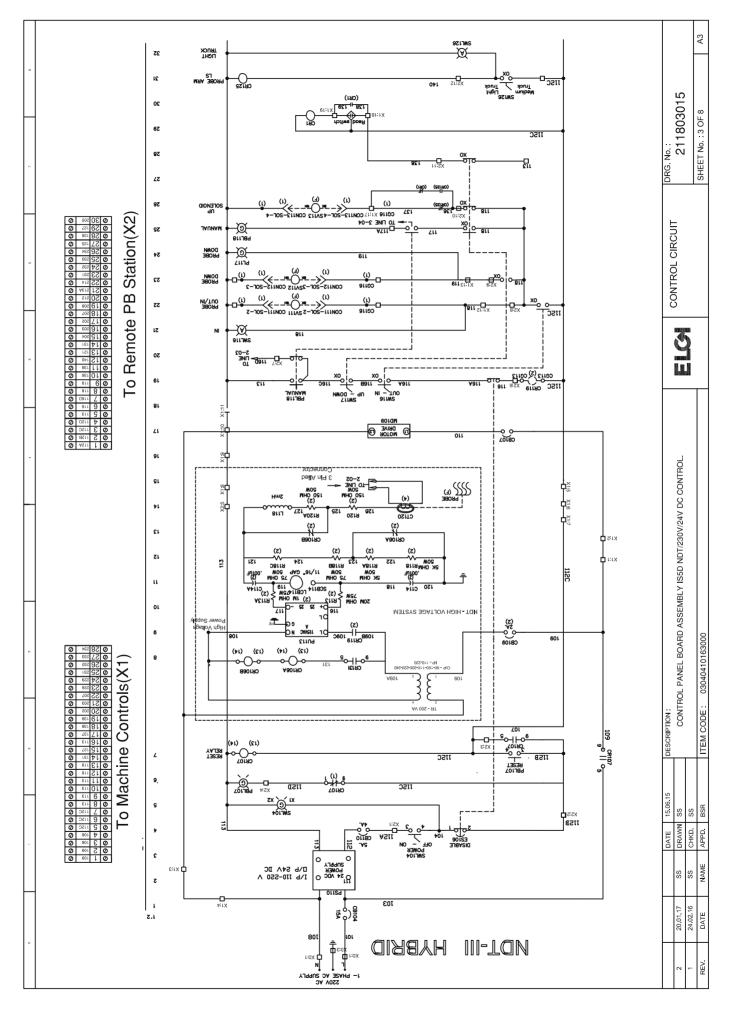
Name of the Post	Initial / Final Inspection
Name of the Equipment	Inspection Spreader
Model No.	IS 6-3

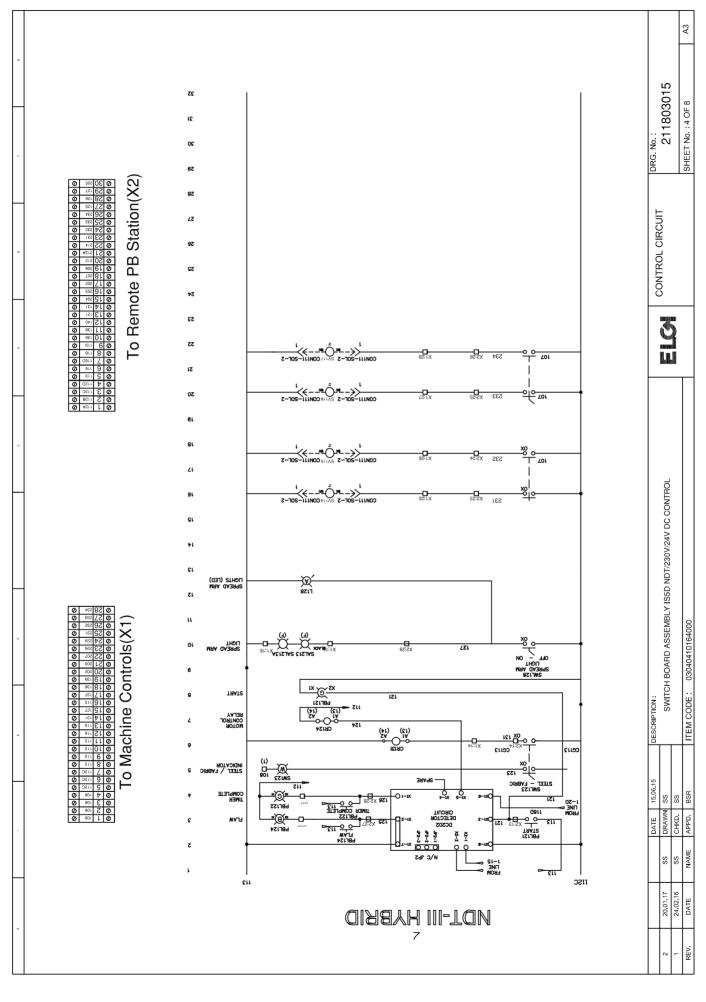
S. No.	Activity Frequer		Acceptance Criteria
1	Clean the machine	Daily	Dust free
2	Drain water from the air filter	Daily	No water in the filter unit
3	Clean all pins and piston rod	Daily	Dust free and excess oil free
4	Check the condition of accessories of machine - eg, foot switch, ramp, platform, claws 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 \pm 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 E	ectrical Di	awings		
				Number of pages 8	DRG. No. : 211803015 SHEET No. : 1 OF 8 A3
е		/ 1 PH /24V DC CONTROL	D NDT/230V/24V DC CONTROL. 30V/24V DC CONTROL		ELGA TITLE PAGE
~	any Limited	INSPECTION SPREADER WITH NDT - 230V / 1 PH /24V DC CONTROL 211803004	CONTROL PANEL BOARD ASSEMBLY IS5D NDT/230V/24V DC CONTROL. SWITCH BOARD ASSEMBLY IS5D NDT/230V/24V DC CONTROL		TION : CONTROL PANEL BOARD ASSEMBLY IS5D NDT/230V/24V DC CONTROL. ODE : 03040410163000
о к	Elgi Rubber Company Limited 641005 Coimbatore Phone. 9894510000	INSPECTION S 211803004 Floi	03040410163000 03040410164000	13.06.15	DESCRIPTION: CONTROL PANEL BOARD ASSI CONTROL PANEL BOARD ASSI
-		Company / customer Project description Drawing number	Item code & Description	te a	 DATE 15.06.15 SS DRAWN SS SS CHKD. SS NAME APPD. BSR
•		Comp Draw Draw	Item α	Created on Edit date	2 500114 10 Electrical Drawing:

10 Electrical Drawings

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	TECHNICA	TECHNICAL INFORMATION	
ALL DIEMENSIONS ARE IN MM	MM NI	HEIGHT	300
DOORS ARE ONLY AT FRONT SIDE	SONT SIDE		
CONTROL PANEL CONSTRUCTION	TRUCTION	WIDTH	380
PANEL MAKE	* FABRICATED BOX AS SAME AS	DEPTH	155
		DOOR	SINGLE DOOR
	* POWDER COATING - PEBBEL GRAY	OUTSIDE SURFACE	PAINT SHADE : PEBBEL GRAY
НЕІСНТ	280	INSIDE SIDE SURFACE	PAINT SHADE : PEBBEL GRAY
WIDTH	671		
DEPTH	150		2200 AC
DOOR	SINGLE DOOR	INCOMING CABLE	0.75 SQMM X 3 CORE
		CONTROL VOLTAGE	24V DC
OPERATING BOX CONSTRUCTION	IRUCTION	CONTROL CABLES	0.75 SQMM BLUE
PANEL MAKE	RITTAL		
PART NO	AE 1030500	EARTHING TO BE PROV	EARTHING TO BE PROVIDED AS PER STANDARD
		SHROUDING TO BE PRC	SHROUDING TO BE PROVIDED AS PER STANDARD
DATE	DESCRIPTION :		DESIGN INSTRUCTION DRG. No. :
	Å I	DC CONTROL	211803015
	ITEM CODE: 03040410163000		SHEET No. : 2 OF 8 A3

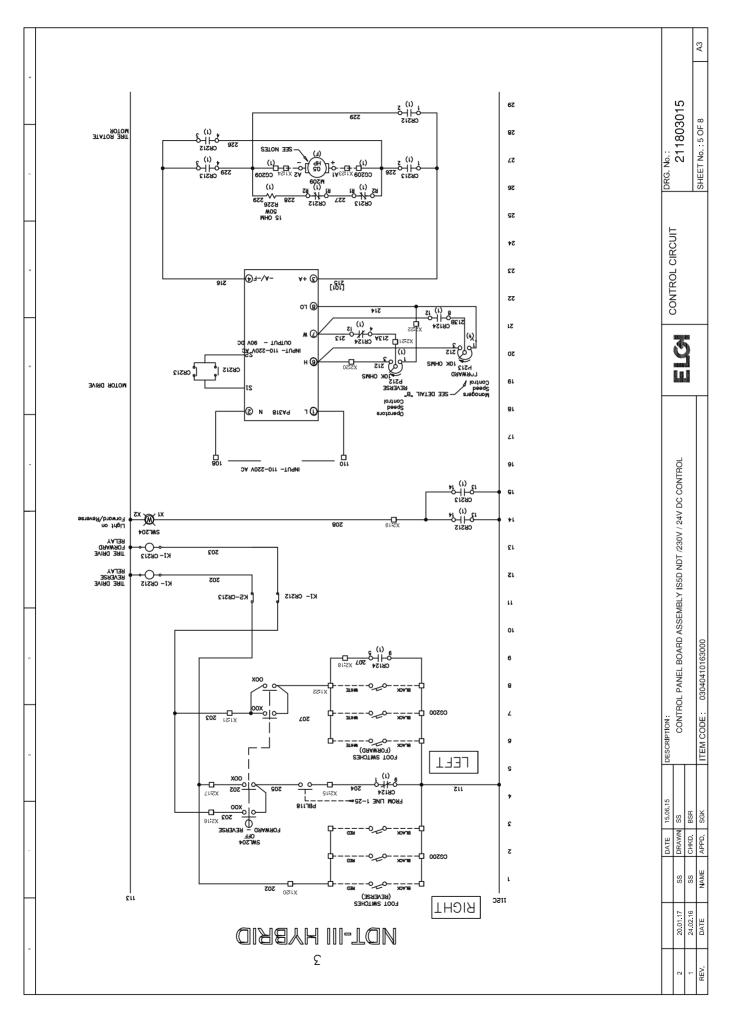


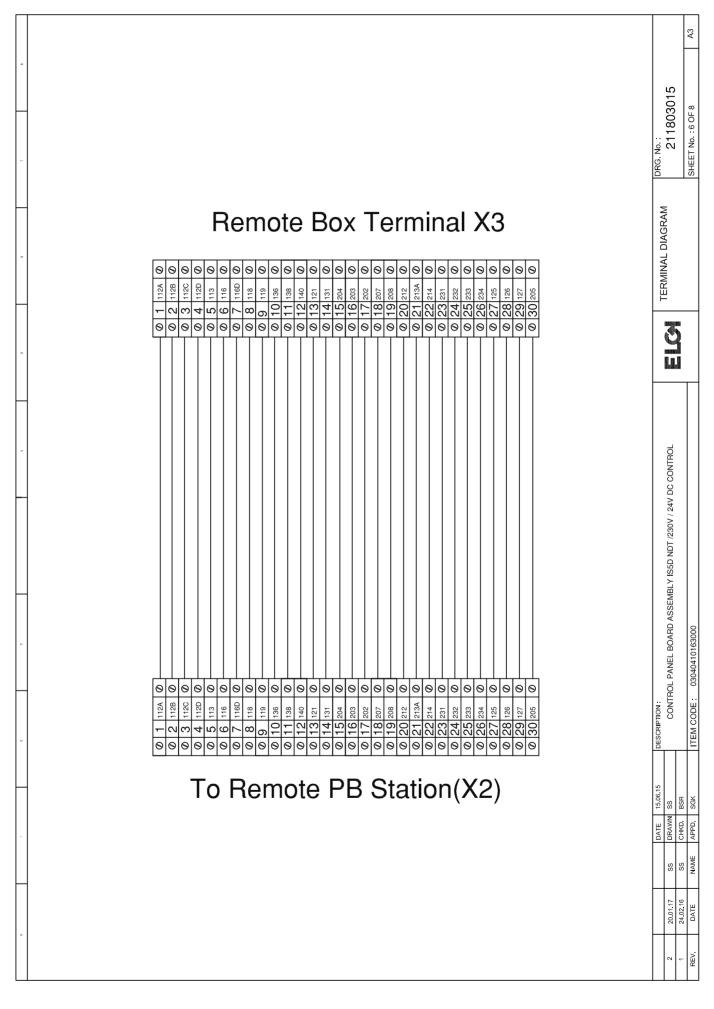


10 Electrical Drawings

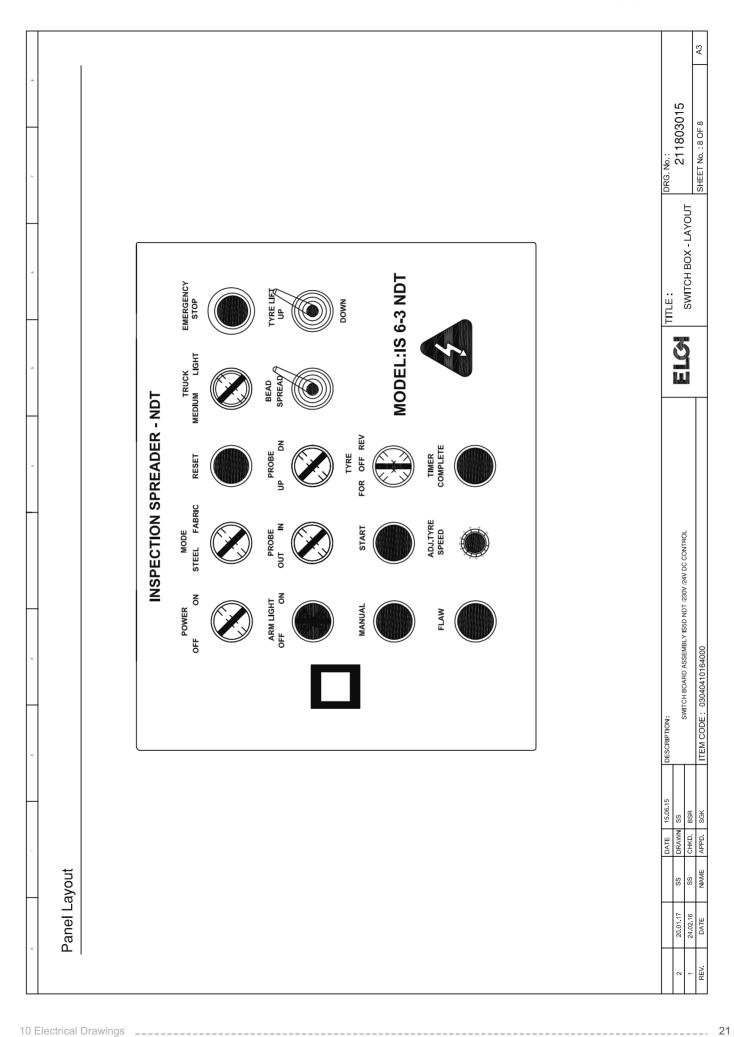
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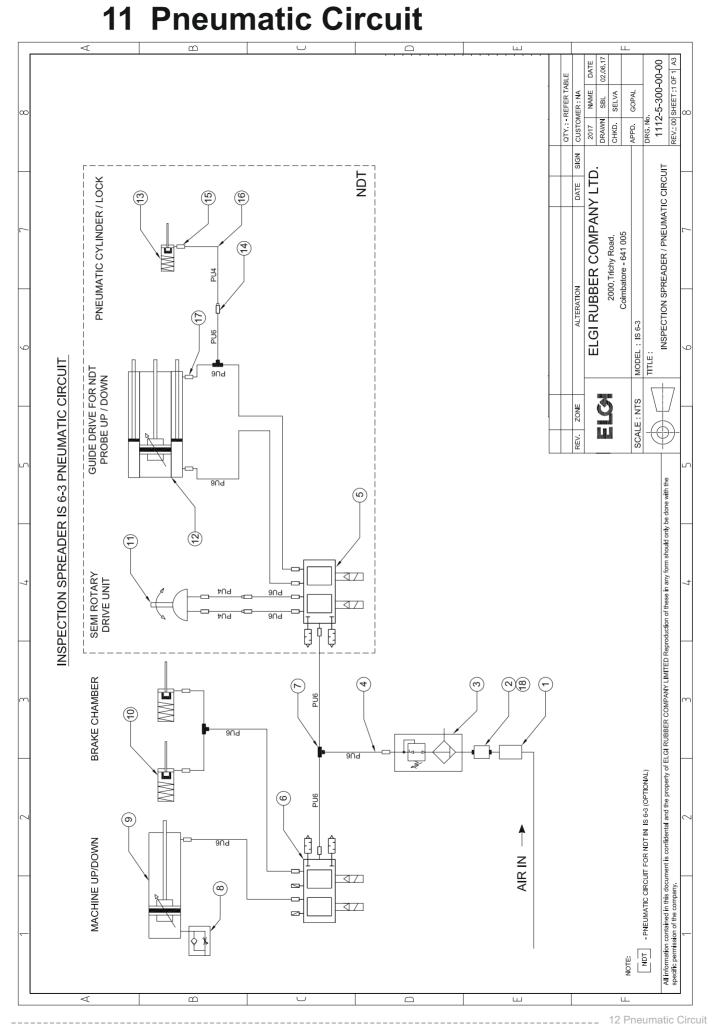
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~ ~	To Remote PB Station (X2)		DESCRIPTION : SWITCH BOARD ASSEMBLY IS5D NDT /230V /24V DC CONTROL		ITEM CODE: 03040410164000
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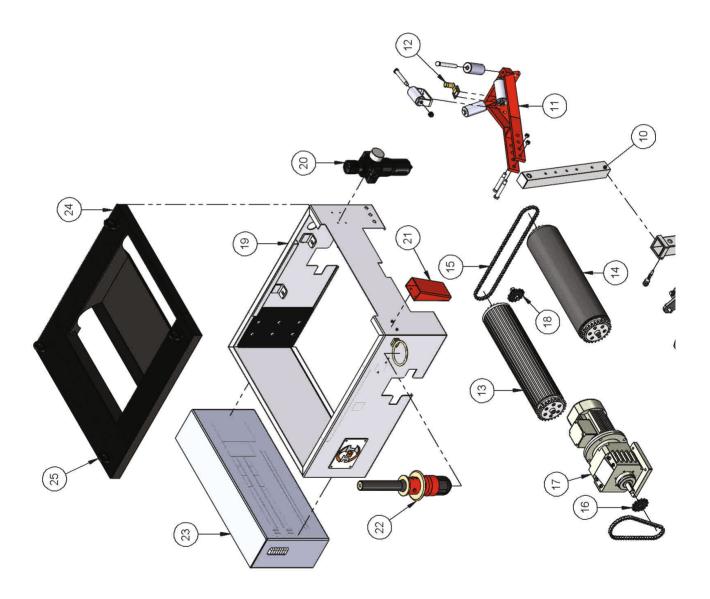


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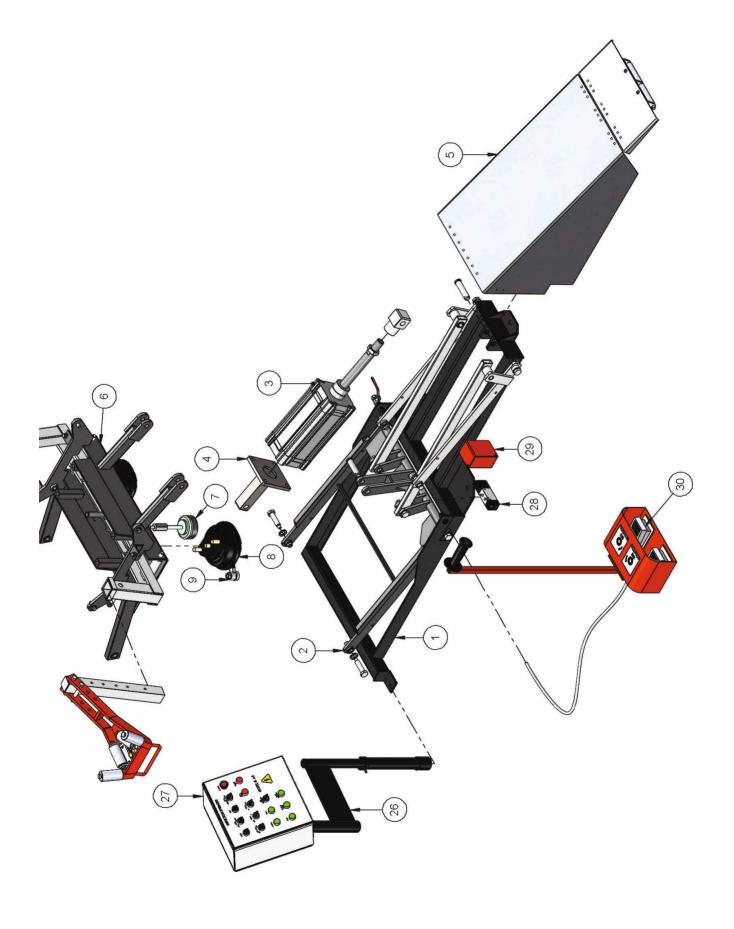
Pneumatic Circuit - BOM

S. No.	Description		Qty.
1	QUICK COUPLER 1/4" BSP		1
2	BALL VALVE 1/4"		
3	AIR FILTER CUM REGULATOR LFR-1/4"-D-MINI / P.NO:159631/ FESTO	Nos	1
4	POLYURETHANE TUBING PUN-6	Meter	-
5	MANIFOLD ASSEMBLY VTUG-14-SS2-B1H-Q8L-UL-T145-GM+HS3/ P.NO:572230/FESTO	Nos	1
6	MANIFOLD ASSEMBLY VTUG-14-SS2-B1 H-Q8L-UL-Q6S-GG+HS3/P .NO:572230/FESTO	Nos	1
7	UNION TEE 1/4" 6MM/P.NO.WP2300606/JANATICS	Nos	3
8	FLOW CONTROL VALVE 1/4 X 6 GRS	Nos	3
9	PNEUMATIC CYLINDER- DNC125X160 PPV/P.NO.163517/FESTO	Nos	1
10	BRAKE CHAMBER	Nos	2
11	SEMI ROTARY DRIVE UNIT DRQD-B-20-180-PPVJ-A-AR-FW/P.NO:563354/FESTO	Nos	1
12	GUIDE DRIVE DFM-32-300-B-PPV-A-GF/ P.NO:532318 / FESTO	Nos	1
13	PNEUMATIC CYLINDER AEVUZ-20-1 0-A-P-A/P.NO:157263/FESTO	Nos	1
14	PUSH-IN CONNECTOR QSM 6-4 /P.NO:153327/ FESTO	Nos	3
15	STRAIGHT UNION MS x PU4	Nos	1
16	POLYURETHANE TUBING PU-4	Meter	-
17	SWIVEL ELBOW LCK-1/4-PK-6/P.NO.4472	Nos	6
18	HEX NIPPLE (BRASS) 1/4"	Nos	2

12 Parts List



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Parts List - BOM

S. No.	Order Code	Description	UOM	Qty
1	MA0563/1	BASE FRAME - IS5	Nos	1
2	MA0563/2	LIFTING LEVER	Nos	1
3	MA0563/3	PNEUMATIC CYLINDER / 163517 DNC-125-160-PPV	Nos	1
4	MA0563/4	CYLINDER REAR MOUNT ASSEMBLY - IS5	Nos	1
5	MA0563/5	RAMP AL - IS5	Nos	1
6	MA0563/6	ROLLER FRAME - IS5	Nos	1
7	MA0563/7	VIBRO MOUNT ASSEMBLY	Nos	1
8	MA0563/8	BRAKE CHAMBER	Nos	2
9	MA0563/9	QUICK EXHAUST VALVE	Nos	2
10	MA0563/10	TELESCOPIC ARM - IS5	Nos	2
11	MA0563/11	CLAW HOLDER ASSEMBLY - IS5	Nos	2
12	MA0563/12	INDUCTION LAMP 24V/21W	Nos	2
13	MA0563/13	DRIVE ROLLER - IS5	Nos	1
14	MA0563/14	DRIVE ROLLER - (RUBBERIZED)	Nos	1
15	MA0563/15	INDUSTRIAL CHAIN 1/2" x 5/16" - ROLLON	Meter	2
16	MA0563/16	SPROCKET 1/2" PITCH 14 TEETH	Nos	1
17	MA0563/17	PDMC MOTOR 1HP/180V/1500RPM/FLANGE MOUNT	Nos	1
18	MA0563/18	IDLER SPROCKET 14 TEETH	Nos	1
19	MA0563/19	MAIN FRAME CABINET - IS5	Nos	1
20	MA0563/20	AIR FILTER CUM REGULATOR LFR-1/4-D-MINI/P.NO:159631/FESTO	Nos	1
21	MA0563/21	TOOLS BOX - IS5	Nos	1
22	MA0563/22	INSPECTION LAMP HOLDER – IS6	Nos	1
23	MA0563/23	ELECTRICAL BOX ASSEMBLY	Nos	1
24	MA0563/24	COVER MAIN FRAME CABINET - IS5	Nos	1
25	MA0563/25	EYE BOLT M12	Nos	4
26	MA0563/26	OPERAITNG PANNEL BOX STAND	Nos	1
27	MA0563/27	OPERAITNG PANNEL BOX ASSEMBLY	Nos	1
28	MA0563/28	SPOOL VALVE	Nos	1
29	MA0563/29	TERMINAL BOX COVER ASSEMBLY	Nos	1
30	MA0563/30	FOOT OPERATED VALVE	Nos	2

13 Essential Spares List

S. No.	Order Code	Description	UOM	Qty.
1	MA0561/ES/1	Seal Kit for Pneumatic Cylinder DNC125 x 160 PPV / Festo	Nos	1
2	MA0561/ES/2	Brake Chamber	Nos	1
3	MA0561/ES/3	Manifold Assembly VTUG-14-SS2-B1H-Q8L-UL-Q6S-GG+HS3 / Festo	Nos	1
4	MA0561/ES/4	MCB SP 16A / 5SL6116-7RC / Siemens - CB104	Nos	1
5	MA0561/ES/5	MCB SP 6A / 5SL6106-7RC / Siemens - CB107	Nos	1
6	MA0561/ES/6	MCB SP 4A /5SL6104-7RC/ Siemens - CB110	Nos	1
7	MA0561/ES/7	MCB SP 2A / 5SL6102-7RC/ Siemens - CB109	Nos	1
8	MA0561/ES/8	Power Contactor 9A 24VDC / 3RT2016-1BB40 / Siemens - CR213	Nos	1
9	MA0561/ES/9	Addon Block 1NO+1NC / 3RH29 11-1HA11/ Siemens - CR212	Nos	1
10	MA0561/ES/10	Control Relay / 3C/O 24VDC / Omron - CR107	Nos	1
11	MA0561/ES/11	Power Supply 3A / 230VAC/24VDC / Meanwell - PS110	Nos	1
12	MA0561/ES/12	Emergency Stop + NC / Teknic - ES106	Nos	1
13	MA0561/ES/13	2 Position Selector Switch With Illumination / 24VDC / Teknic - PB1118	Nos	1
14	MA0561/ES/14	Push Button Green With Illumination 24VDC / Teknic - PB2107	Nos	1
15	MA0561/ES/15	No Element / Teknic - ES106	Nos	1
16	MA0561/ES/16	Nc Element / Teknic - ES106	Nos	1
17	MA0561/ES/17	Joy Stick - 2 Position 2NO / Reputed - SW117	Nos	1