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Building Machine BI 6-3

Instruction Manual

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Foreword

The Building Machine BI 6-3 is a compact and space efficient machine. It is designed to stitch the cushion gum and the tread on the prepared casing when it is in an inflated, road-running condition. The stitcher is capable of effectively stitching Wing treads, which will be more prevalent in the emerging market. It has the capability to mount 14” to 24.5” bead size tyres on same hub.

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

The Building Machine BI 6-3 consists of the following major components:

Main Frame

The main frame is a fabricated steel structure which houses all the major components.

Stitching Roller Unit

The stitching roller unit consists of a screw rod coupled with a motor, slide table, stitching arm with rollers etc. The spreading of the stitching arm and forward / backward movement of the stitching unit is motor driven. The stitching arm has the capability to operate in dual pressure and dual speed, which facilitates wing tread stitching.

Tyre Drive Unit

The Tyre drive has a 1.5 kW DC motor with gear box and an Expandable Hub on which the Expandable Rim for various sizes can be mounted. It rotates at two speeds - one to enable application and stitching of the cushion gum at a very low speed and the other for stitching the tread at higher speed. The tyre rotation is bi-directional. An airline is provided with individual regulators for the stitching pressure and for inflating the tyre.

Tread Cutter

A pneumatic tread cutter is an optional accessory for trimming the excess length of precured tread. This attachment is mounted on a swing arm, so that it can be retracted after use. The tread cutter holds and cuts the tread exactly at right angles to the length of tread.

Laser Unit

A laser unit is used to help position the precured tread in the appropriate position on tyre. The tread centre marking laser is a standard feature that comes with the machine. Tread edge marking lasers are optional.

Tread Pressing Roller

The tread pressing roller consists of a pneumatic cylinder, pressing roller and guide shafts. The pneumatic cylinder is mounted on the main frame at one end. The other end of the pneumatic cylinder is connected with an arm which holds the rollers. During the process, the roller automatically lowers onto the tread and this helps to provide proper bonding between the casing and pre-cured tread. The pressing roller can also be operated manually to stretch and hold the tread while building.

Electrical Panel

This is located on the column of the main frame. All electrical components are located inside the panel.

Pneumatic Panel

The pneumatic circuit is located below the electrical panel and is controlled at the operating panel.

02 Specifications

Model	BI 6-3
Catalogue Number	MA46 63 - **X***
Tyre Range	6.50 - 14 to 12.00 - 24.5
Air Pressure Requirement (kPa / kg/cm²)	800 / 8
Dimensions (L x W x H) (mm)	1200 x 1400 x 2150
X* in Cat. No. denotes power supply specifications (V / Hz / ph)	**R** - 220 / 60 / 3 **O** - 380 / 50 / 3 **S** - 380 / 60 / 3 **P** - 415 / 50 / 3 **U** - 440 / 60 / 3
Weight (kg)	~900
Installation	To be fixed to the floor

03 Assembly and Commissioning Tools

Accessories

Standard	Installation kit
	Tread centre marking laser
Optional	Tread cutter
	Cushion gum feeding unit
	Mechanical tread centering device
	Tread edge marking lasers
	Tread roll support stand 12 m (3.4 m unit standard)
	Tyre lift

Tools

Spanners	
Double end 6 - 26	1 Set
Ring end 12 - 19	1 Set
Adjustable spanner	1 Set
Allen keys 3 - 10 mm and 7/32”	1 No. each
Star screw driver	1 No.
Screw driver set	1 No.
Screw driver - 6” & 8”	1 No.
Circlip plier external 6”	1 No.
Cutting plier (medium)	1 No.
Line tester	1 No.
Nylon hammer	1 No.
Insulation tape	1 No.
Teflon tape	1 No.
M seal	1 No.
WD 40 rust removing spray	1 No.
Pipe wrench	1 No.

Materials

Lubricating oil (SAE 20)	¼ L
Multi-purpose grease	¼ kg
Electric cable 4 core, 6 sq.mm	Length as per installed position

04 Installation and Commissioning

Positioning

- The Building Machine BI 6-3 is to be fixed to the floor.
- Position the machine in the allocated area, leaving enough space all around for the work bench and operating space.

Connection

- Connect the pneumatic line from the nearest point to the inlet of the control panel.
- Connect the electrical line to the electrical panel from the nearest point.

Air Pressure Setting

Ensure the air pressure in the regulator:

- (R1) Main inlet pressure / Hub is 8 kg/cm^2
- (R2) Tyre pressure is 1.6 kg/cm^2
- (R3) Low stitching pressure is 1.2 kg /cm^2
- (R4) High stitching pressure is 3.6 kg/cm^2
- (R5) Tread pressing top roller pressure is 2.2 kg/cm^2

Expanding Rim Fixing

- Set the needed rim to the hub of the machine. The stem with / without lock should slide into the groove of the segments and should be locked.
- Connect the hose line of the rim into the quick coupler on the hub.

05 Pre-Operation Checks

- Check if the 6 bolts fastening the expandable hub to the shaft are tight.
- Check if the expandable rim segments are properly assembled and locked in position.
- Check if the safety valve fitted on the expandable rim functions properly, by slowly increasing the pressure to 2.5 kg/cm by operating the miniature air regulator.
- Mount a casing on the expandable hub. Expand the hub and check if the expansion and inflation of the casing are proper and that the pressure shown on the respective gauges are correct.
- Check the casing while rotating for any wobbling or eccentricity (face out or run out).
- Check for any air leak in the system.

06 Operation

1. Choose and fix appropriate expanding rim for the casing to be built.
2. Load the casing on the expanding rim from the monorail using the transfer hook.
3. Turn ‘HUB / TYRE’ inflation switch to inflate position.
4. Set the MODE to MANUAL.
5. If the tread and cushion rubber are prepared on the preparation table:
   a) Place the prepared tread rubber on the tread roller stand.
   b) Set the tyre drive speed to LOW
   c) Turn on the laser light and set it to the required width by adjusting its knob (if available).
   d) Place one end of the tread to the casing.
   e) Switch ON the top centre tension roller.
   f) Manually guide the tread by hand and rotate the casing (using foot switch). While placing the tread on the casing, simultaneously remove the poly from the cushion gum.
   g) Ensure that the tread ends join.
   h) Change the MODE to AUTO.
   i) Press the cycle start button. The stitching cycle will begin.
   j) After completion of cycle, remove the tyre.

6. If the cushion rubber and tread are applied separately on the machine:
   a) Set the MODE to MANUAL.
   b) Set the pressure to low.
   c) Set the tyre drive speed to LOW
   d) Feed the cushion rubber from the shaft to the casing and build it by rotating the casing (using foot switch).
   e) Set the MODE to AUTO. Press the cycle start button and the cushion rubber will be stitched.
   f) Remove the poly cover from the cushion gum.
   g) Set the MODE to MANUAL.
   h) Stick one end of the tread on the cushion gum.
   i) Manually guide the tread by hand and rotate the casing (using foot switch).
   j) Ensure that the tread ends join.
   k) Change the MODE to AUTO and set pressure to high.
   l) Press cycle start button. The stitching cycle will begin.
   m) After completion of cycle, remove the tyre.

07 Do’s and Don’ts

Do’s

- All moving parts should be cleaned and lubricated periodically.
- Air filter should be drained at regular intervals.
- Ensure that all gauges indicate correct reading.
- The silencer is to be cleaned regularly.
- Ensure that the locking arrangement on the rims are always good.
- Ensure that the correct pressure for the hub and tyre are maintained as per the recommendation.

Don’ts

- Never inflate the hub when there is no rim mounted.
- Do not use the tread cutter for cutting other materials.
- Do not release the air by pulling the safety valve of the expandable rim to deflate the tyre.
- Do not release the hub suddenly. This will cause the air inside the tyre to escape through the bead with a loud bang, dislocating the rim.

08 Troubleshooting

Symptoms / Problems	Possible Causes	Remedies
Machine does not run when switched on	1. Incoming supply failure 2. Fuse blown off 3. Improper connection 4. Faulty contactor	1. Check incoming supply 2. Check and replace fuse 3. Check and correct 4. Check contactor coil and rectify or replace
Tyre shows jerky movements while running	1. Loose connection in wiring 2. Improper connections	1. Clean terminals and tighten firmly 2. Correct as per circuit diagram
Tyre rotates only in one direction	1. Loose connection or damage in forward / reverse switch 2. 12 V relay not working 3. PCB failure	1. Correct connection and replace if needed 2. Replace relay 3. Check PCB and replace parts, if needed
Motor runs either at high or low speed only	1. Loose connections in auto transformer tappings 2. Loose connections in strip 3. Loose connections in control panel switch	1. Fasten connection tightly 2. Correct connections 3. Remove control lead check connections to the switch. Replace, if necessary.
PCB glass fuse blows off	1. PCB not inserted properly in holder 2. Short circuit in PCB 3. Diodes not functioning 4. Improper supply to PCB	1. Remove and insert properly 2. Rectify it and replace if necessary 3. Replace diodes 4. Check and rectify

Symptoms / Problems	Possible Causes	Remedies
Motors does not work though contactor functions	1. 12 V step down transformer not working 2. Faulty field reverse relay	1. Replace transformer 2. Check and repair
Inflation time increases	1. Leakage or blockage in hose	1. Check and correct joints
Stitching rollers do not traverse properly	1. Worn out gun metal bushes 2. Stitching arm not fitted on the screw rod properly 3. Screw rod worn out 4. Proximity sensor failure	1. Replace gun metal bushes 2. Adjust the arm properly 3. Replace screw rods 4. Check and replace the sensor
Tyre drive assembly is noisy	1. No oil in gear box 2. Gear box failure 3. Gear drive failure 4. Drive bearing failure	1. Fill with suitable lubricating up to level 2. Dismantle gear box. Check gears for any wear. Replace worn out gears. 3. Check gears for wear. Replace worn out gears. 4. Replace bearing

Symptoms / Problems	Possible Causes	Remedies
Inflation pressure is not attained in tyre	1. Air leakage in joints 2. Restricted air flow through air line 3. Tyre bead damage 4. Expandable rim rubber flap loose 5. Worm out locking stem 6. Worm out piston cum wedge	1. Check and rectify joints 2. Check hoses for any bend or twist and correct. 3. Temporally cover with cushion rubber to hold the air 4. Replace the rubber flap 5. Replace with new locking system 6. Replace with new piston cum wedge
Tension roller pressure cylinder shows jerky movement	1. Low air pressure 2. Air leakage in line 3. Improper tightening of tie rods	1. Correct air pressure 2. Check air lines and correct 3. Tighten all the tie rods uniformly
High pressure not attained	1. Air inflow not proper 2. Bend or twist in the air hose 3. Worn out seals and ‘O’ rings	1. Check air line and correct 2. Correct hoses and replace, if damaged 3. Dismantle cylinder. Change seals and ‘O’ rings.
Automation failure Stitching unit assembly not moving forward / backward	1. Failure of proximity sensor 2. Sensor stopper plate is dislocated 3. Motor is not running 4. Motor running but pinion is not rotating	1. Check and replace the sensor 2. Adjust the sensor stopper plate 3. Check and correct it 4. Check the key way of pinion. If damaged, replace the pinion.

09 Preventive Maintenance

Name of the Post	Tread Building
Name of the Equipment	Building Machine
Model No.	BI 6-3

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 tyre inflation pressure is 1.4 kg/cm²	Daily	Pressure in between - 1.4 ± 0.3 kg/cm²
4	Check expandable hub pressure is 8 kg/cm²	Daily	Pressure in between - 8 ± 0.5 kg/cm²
5	Check the stitching roller pressure low 1.4 kg/cm² and high pressure at 3.6 kg/cm²	Daily	Stitching roller low pressure should be 1.4 ± 0.2 kg/cm² and high pressure 3.6 ± 0.2 kg/cm²
6	Clean the roller head assembly	Daily	Dust free
7	Check the air line and fitting for any leakage	Daily	No leakage
8	Check the stem with locks / without locks replace if necessary	Daily	Expandable rim should be locked properly
9	Check the working of foot switch	Weekly	Proper working
10	Check the condition of ceiling wire for tyre lift arrangement	Daily	No damage
11	Check the expandable hub mounting bolts and tighten if necessary	Weekly	Bolt should be properly tight
12	Clean the exhaust air silencer	Weekly	Dust free
13	Check the expandable rim safety valve to operate at 2.2 kg/cm²	Monthly	Safety valve should be open if pressure is more then 2.2 kg/cm²
14	Clean and lubricate the tyre drive gears with multi-purpose grease	Monthly	Properly lubricate
15	Check and tighten the electrical connection	Monthly	No loose connection in electrical panel board
16	Check and replace the stitcher roller bush	Monthly	Smooth movement stitcher roller
17	Flush and replace gear box oil with SAE 90	Half yearly	Replace the oil
18	Lubricate the sliding bar of tyre lifter with graphite grease	Weekly	Properly lubricated and smooth movement of tyre lifter

10 Electrical Drawings

Elgi Rubber Company Limited

641005 Coimbatore
Phone. 9894510000

Project description	BUILDING MACHINE - 380-440 V / 50-60 HZ - 24V DC Control
Drawing number	211803010
Manufacturer (company)	
Path	
Item code & Description	03040410008027 CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL CONTROL SWITCH BOARD ASSEMBLY BI6/24V DC CONTROL
Created on	
Edit date	Number of pages 17

			DATE	20.11.15	DESCRIPTION : CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL	ELGI	TITLE PAGE	DRG. No. : 211803010	
2	20.01.17	SS	DRAWN	SS					
1	24.02.16	SS	CHKD.	SS				SHEET No. : 1 OF 17	A4
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027				

TECHNICAL INFORMATION

ALL DIEMENSIONS ARE IN MM

DOORS ARE ONLY AT FRONT SIDE

CONTROL PANEL CONSTRUCTION

PANEL MAKE	RITTAL
PART NO	AE 1076500
HEIGHT	760
WIDTH	600
DEPTH	210
DOOR	SINGLE DOOR

OPERATING BOX CONSTRUCTION

PANEL MAKE	RITTAL
PART NO	EB 1555500
HEIGHT	300
WIDTH	300
DEPTH	120
DOOR	SINGLE DOOR

OUTSIDE SURFACE	PAINT SHADE : PEBBEL GRAY
INSIDE SIDE SURFACE	PAINT SHADE : PEBBEL GRAY
INCOMING SUPPLY	415V AC
INCOMING CABLE	0.75 SQMM X 3 CORE
CONTROL VOLTAGE	24V DC
CONTROL CABLES	0.75 SQMM BLUE

EARTHING TO BE PROVIDED AS PER STANDARD

SHROUDING TO BE PROVIDED AS PER STANDARD

			DATE	20.11.15	DESCRIPTION : CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL	ELGI	DESIGN INSTRUCTION	DRG. No. : 211803010
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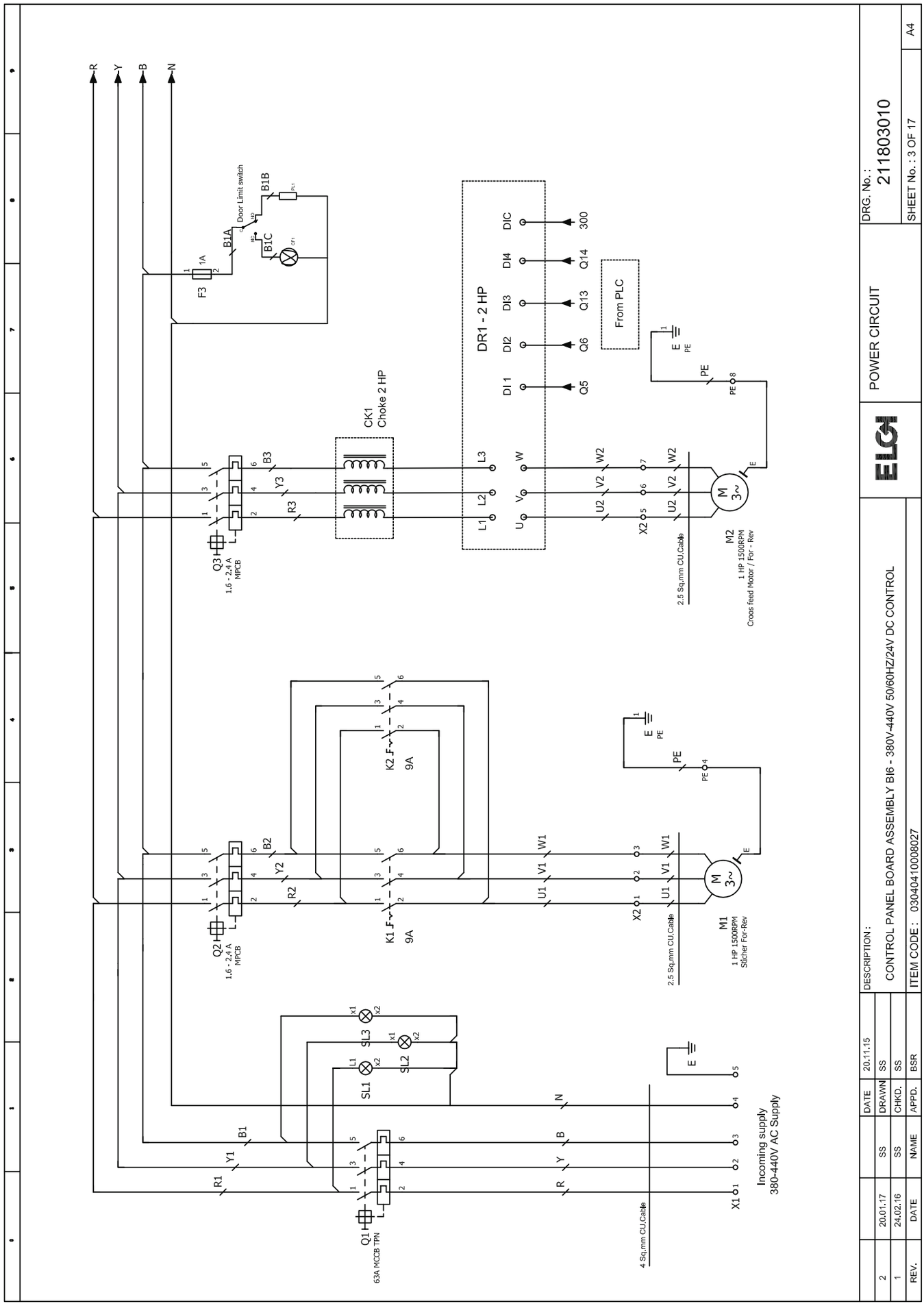
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027			



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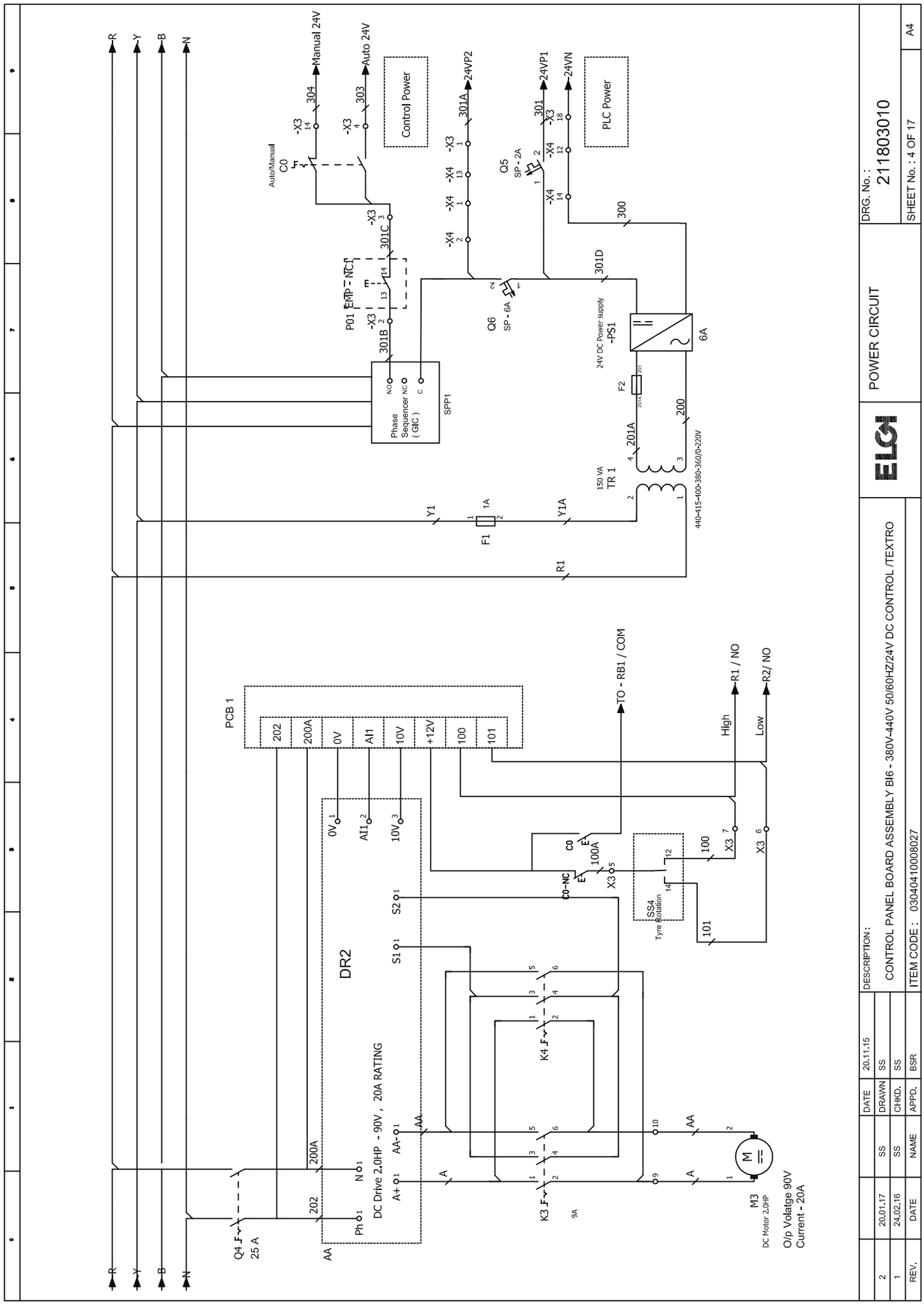
ITEM CODE : 03040410008027

POWER CIRCUIT

DRG. No. : 211803010

SHEET No. : 3 OF 17

A4


R
Y
B
N
Manual 24V
Auto 24V
Control Power
Auto/Manual
C0
-X3
304
303
301A
24VP2
301
24VP1
24VN
PLC Power
Q5
SP - 2A
-X4
300
301C
301B
301D
P01 EMP - NC1
Q6
SP - 6A
24V DC Power supply
-PS1
6A
F2
2A
200
201A
150 VA
TR 1
440-415-400-380-360/0-220V
Y1
1A
F1
Y1A
R1
PCB 1
202
200A
0V
AI1
10V
+12V
100
101
TO - RB1 / COM
High
Low
R1 / NO
R2/ NO
0V
AI1
10V
C0
100A
X3
SS4
Tyre Isolation
S2
S1
DR2
K4
K3
9A
DC Drive 2.0HP - 90V , 20A RATING
AA+
AA-
A+
A-
Ph
N
AA
A
M3
DC Motor 2.0HP
O/p Volatge 90V
Current - 20A
Q4
25 A
REV.
DATE
NAME
APPD.
BSR
CHKD.
SS
DRAWN
SS
20.01.17
24.02.16
20.11.15
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DRG. No. :
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SHEET No. : 4 OF 17
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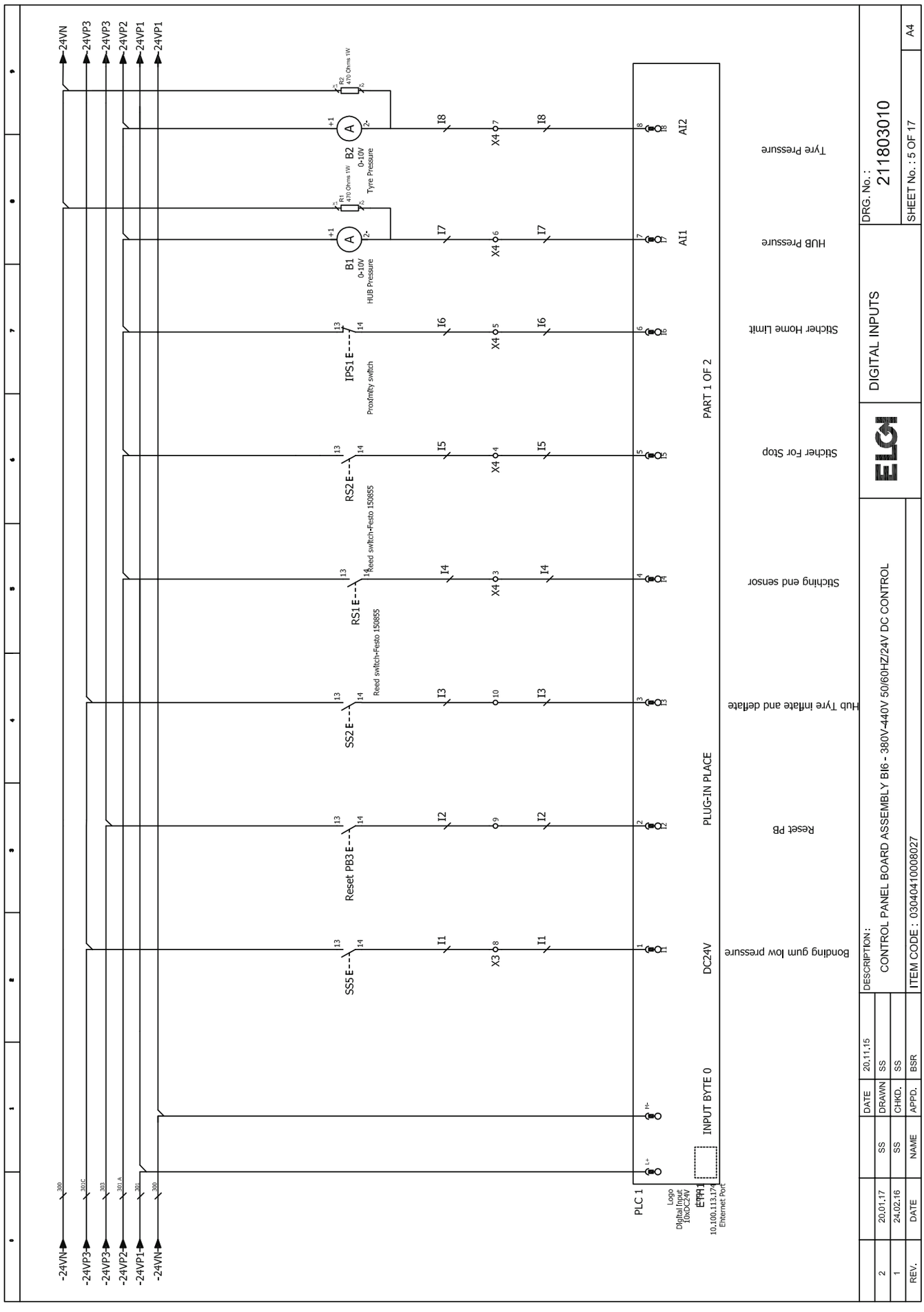
24VN
24VP3
24VP3
24VP2
24VP1
24VP1
R2
470 Ohms 1W
B2
0-10V
Tyre Pressure
R1
470 Ohms 1W
B1
0-10V
HUB Pressure
IPS1
Proximity switch
RS2
Reed switch-Festo 150855
RS1
Reed switch-Festo 150855
SS2
Reset PB3
SS5
PLC 1
Logo
Digital Input
10xDC24V
ETH1
10.100.113.174
Ethernet Port
INPUT BYTE 0
DC24V
PLUG-IN PLACE
PART 1 OF 2
AI2
AI1
Tyre Pressure
HUB Pressure
Stitcher Home Limit
Stitcher For Stop
Stitching end sensor
Hub Tyre inflate and deflate
Reset PB
Bonding gum low pressure
DIGITAL INPUTS
DRG. No. : 211803010
SHEET No. : 5 OF 17
A4
DESCRIPTION:
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DATE 24.02.16 20.01.17
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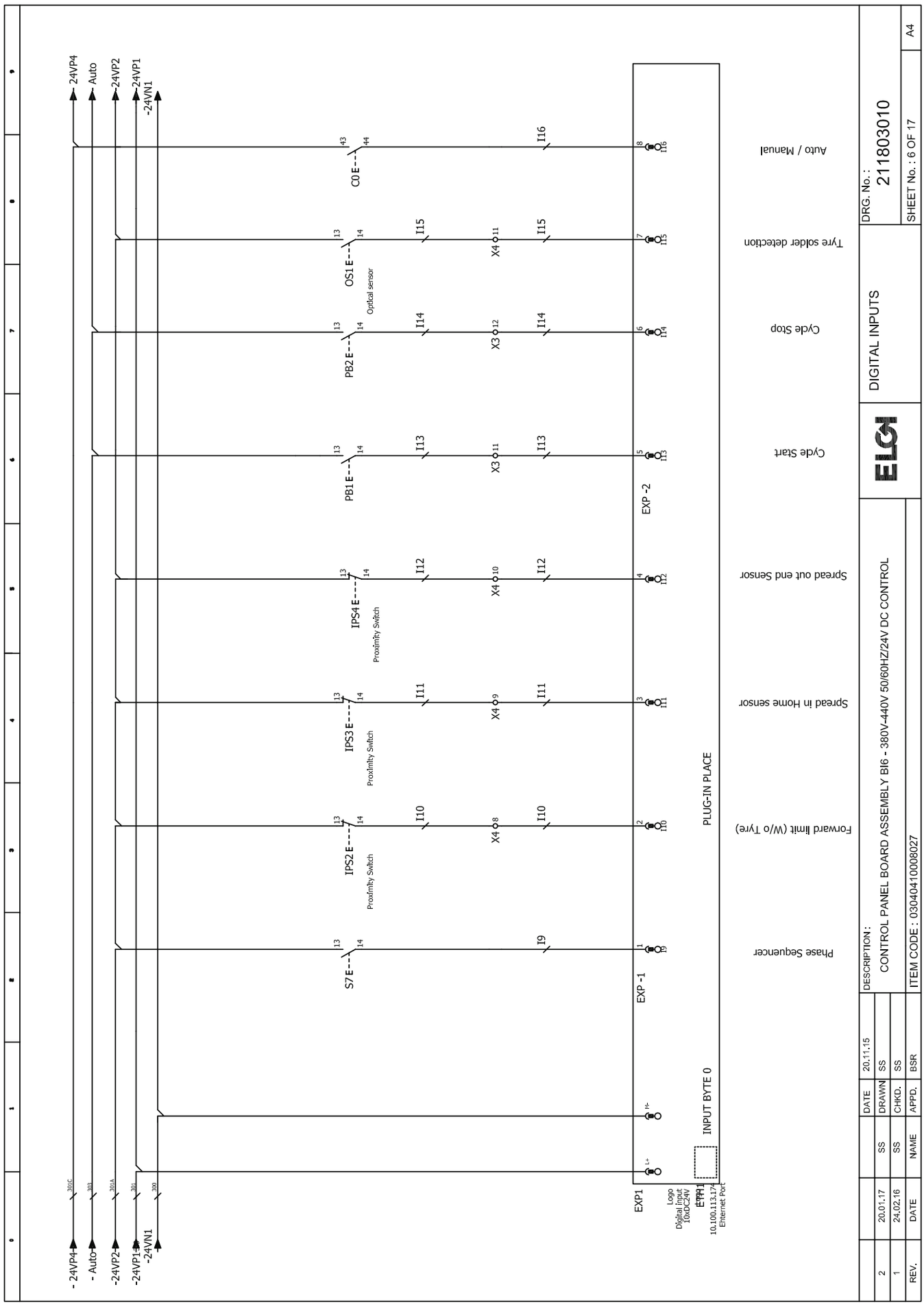
24VP4
Auto
24VP2
24VP1
-24VN1
Auto / Manual
Tyre solder detection
Cycle Stop
Cycle Start
Spread out end Sensor
Spread in Home sensor
Forward limit (W/o Tyre)
Phase Sequencer
S7 E
IPS2 E
IPS3 E
IPS4 E
PB1 E
PB2 E
OS1 E
COE
Proximity Switch
Optical sensor
EXP -1
EXP -2
PLUG-IN PLACE
INPUT BYTE 0
EXP1
Logo
Digital Input
10xDC24V
ETH1
10.100.113.174
Ethernet Port
DIGITAL INPUTS
DRG. No. : 211803010
SHEET No. : 6 OF 17
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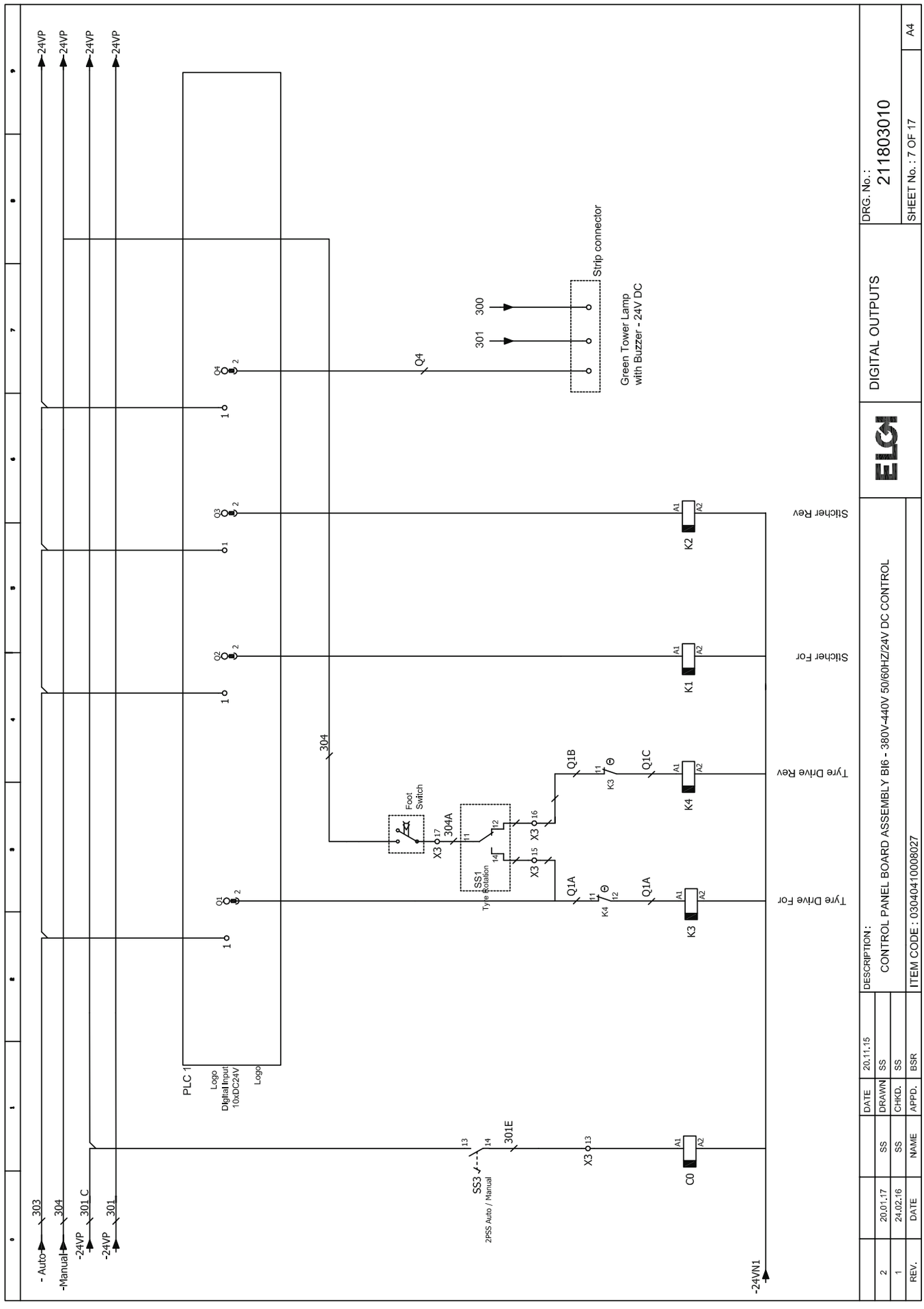
20.01.17 24.02.16


24VP
24VP
24VP
24VP
- Auto
-Manual
-24VP
-24VP
303
304
301 C
301
PLC 1
Logo
Digital Input
10xDC24V
Logo
Q1
Q2
Q3
Q4
304
Foot
Switch
X3 17
304A
SS1
Tyre Rotation
X3 15
X3 16
Q1A
Q1B
Q1C
K3
K4
K1
K2
K3
K4
Stitcher For
Stitcher Rev
Tyre Drive For
Tyre Drive Rev
Q4
300
301
Strip connector
Green Tower Lamp
with Buzzer - 24V DC
SS3
2PSS Auto / Manual
301E
X3 13
C0
-24VN1
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ITEM CODE : 0304041000827
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DRG. No.:
211803010
SHEET No. : 7 OF 17
A4
REV.
DATE
NAME
2
20.01.17
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24.02.16
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DATE
20.11.15
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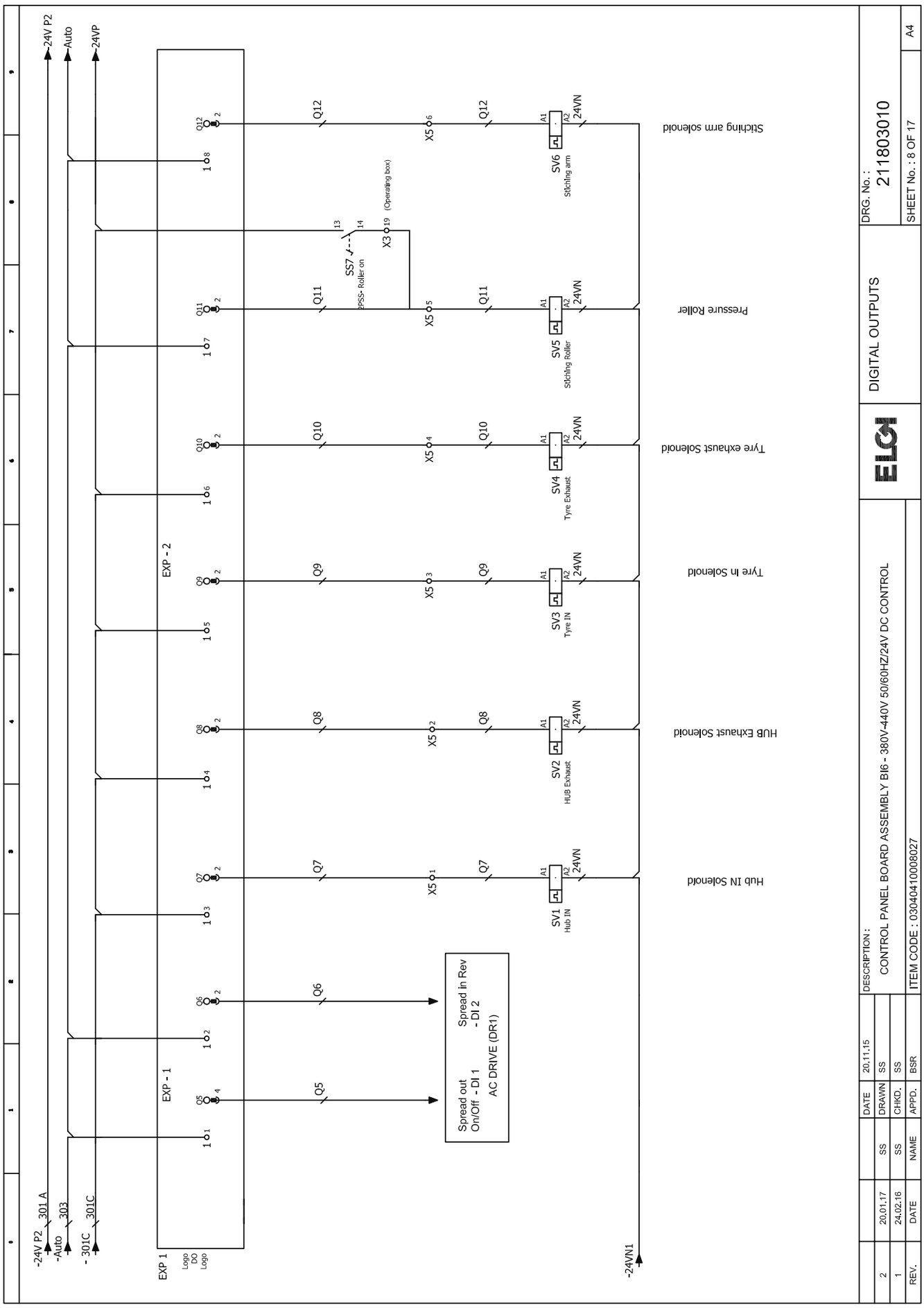
APPD.
BSR


24V P2
Auto
24VP
-24V P2
301 A
-Auto
303
- 301C
301C
EXP 1
Logo
DO
Logo
EXP - 1
EXP - 2
Spread out
On/Off - DI 1
Spread in Rev
- DI 2
AC DRIVE (DR1)
-24VN1
Stitching arm solenoid
Pressure Roller
Tyre exhaust Solenoid
Tyre In Solenoid
HUB Exhaust Solenoid
Hub IN Solenoid
SV6
Stitching arm
SV5
Stitching Roller
SV4
Tyre Exhaust
SV3
Tyre IN
SV2
HUB Exhaust
SV1
Hub IN
SS7
PSS- Roller on
(Operating box)
24VN
DIGITAL OUTPUTS
DRG. No. : 211803010
SHEET No. : 8 OF 17
A4
DESCRIPTION :
CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL
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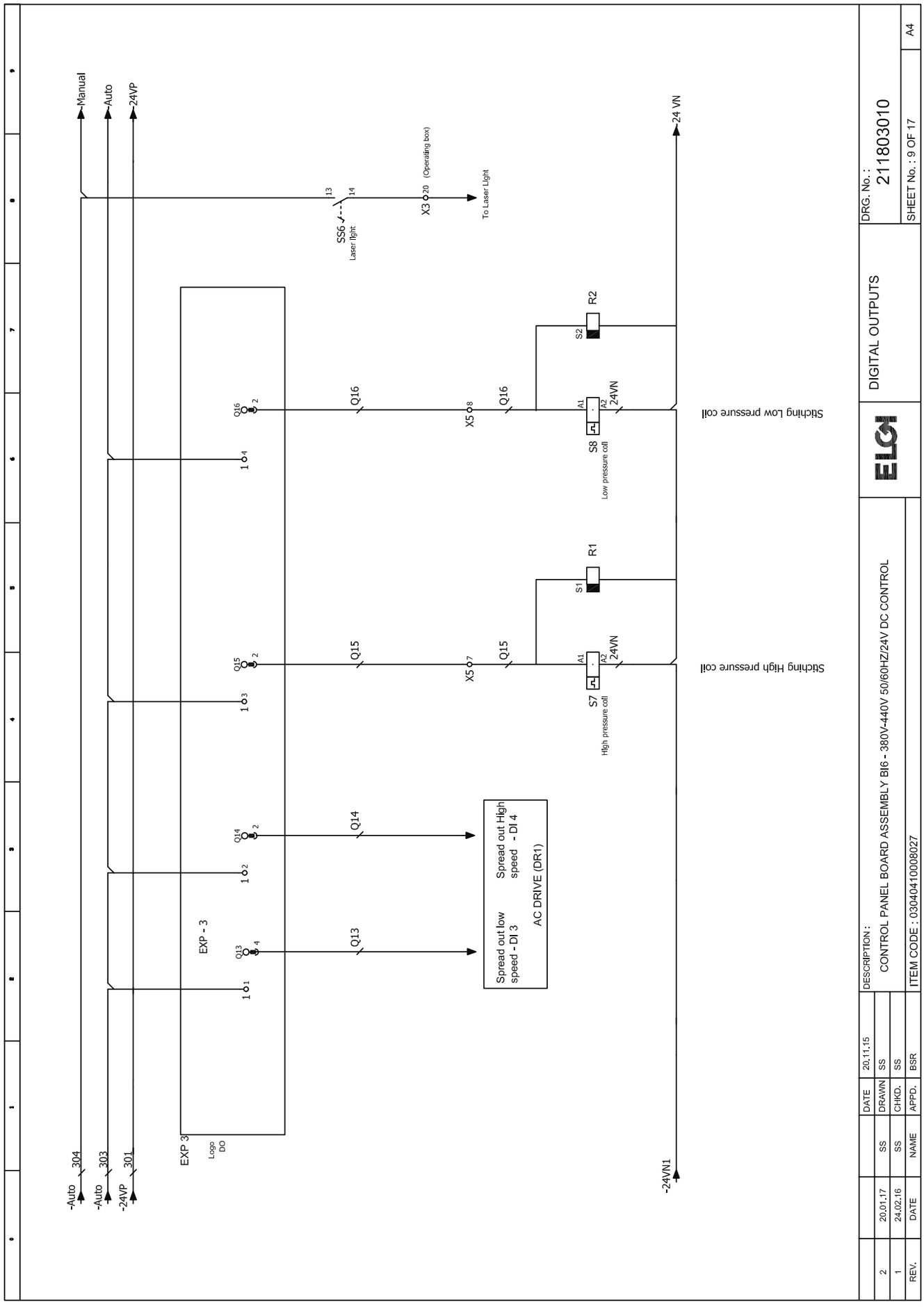
APPD. BSR
REV. DATE NAME
1 24.02.16 SS
2 20.01.17 SS


Manual
Auto
24VP
24 VN
-24VN1
-Auto 304
-Auto 303
-24VP 301
EXP 3
Logo DO
EXP - 3
Q13
Q14
Q15
Q16
SS6
Laser light
13
14
X3 20 (Operating box)
To Laser Light
Spread out low speed - DI 3
Spread out High speed - DI 4
AC DRIVE (DR1)
X5 7
X5 8
S7
High pressure coil
S8
Low pressure coil
A1
A2
24VN
S1
S2
R1
R2
Stiching High pressure coil
Stiching Low pressure coil
DIGITAL OUTPUTS
DESCRIPTION :
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211803010
SHEET No. : 9 OF 17
A4
REV.
DATE
NAME
2
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DATE
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DRAWN
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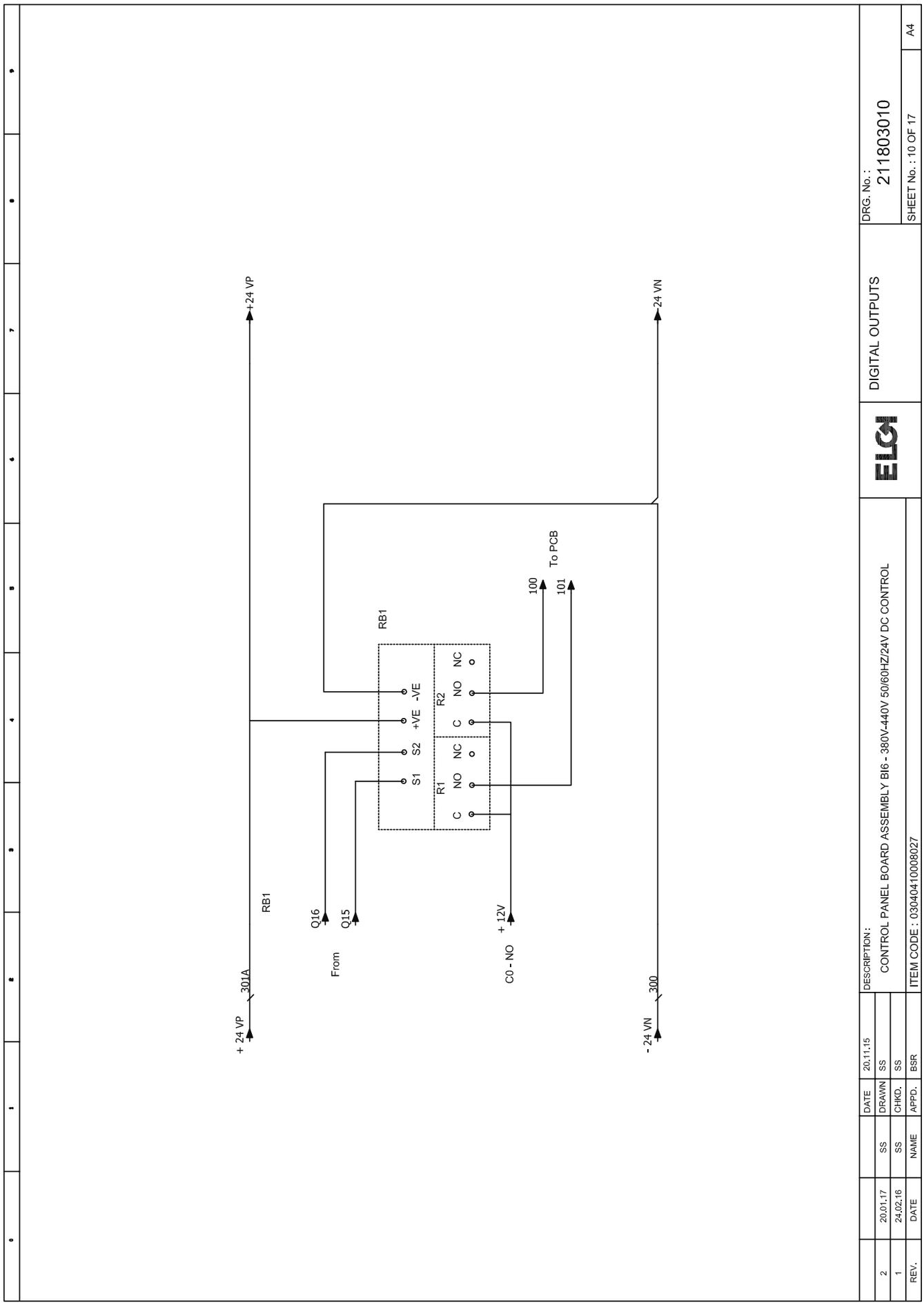
CHKD.
SS
APPD.
BSR


+ 24 VP
301A
RB1
Q16
Q15
From
+ 12V
C0 - NO
RB1
S1
S2
+VE
-VE
R1
R2
C
NO
NC
100
101
To PCB
24 VN
300
- 24 VN
REV.
DATE
NAME
APPD.
CHKD.
DRAWN
2
1
20.01.17
24.02.16
SS
SS
BSR
SS
SS
20.11.15
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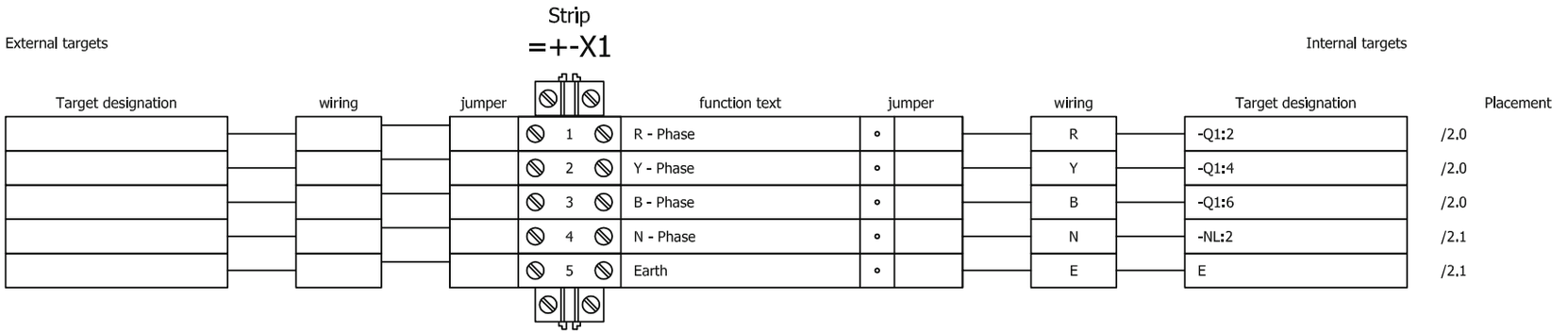
DIGITAL OUTPUTS
DRG. No. :
211803010
SHEET No. : 10 OF 17
A4

Terminal diagram



			DATE	20.11.15	DESCRIPTION :	ELGI	TERMINAL DIAGRAM =+-X1	DRG. No. : 211803010
2	20.01.17	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL			
1	24.02.16	SS	CHKD.	SS				
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027			SHEET No. : 11 OF 17 / A4

Terminal diagram

Strip
=+-X2

External targets

Internal targets

Target designation	wiring	jumper		function text	jumper		wiring	Target designation	Placement
-M1:U1	U1		1	Stiching Motor 1 - U Phase	∘		U1	-K1:2	
-M1:V1	V1		2	V Phase	∘		V1	-K1:4	
-M1:W1	W1		3	W Phase	∘		W1	-K1:6	
-M1 :E	PE		4	PE	∘		PE	-E:1	
-M2:U2	U2		5	Croos feed Motor M2 : U Phase			U2	-DR1:U	
-M2:V2	V2		6	V Phase	∘		V2	-DR1:V	
-M3:W2	W2		7	W Phase	∘		W2	-DR1:W	
-M3:E	PE		8	PE	∘		PE	-E:1	
-M3:A	A		9	+ Armature	∘		A	-K3:2	
-M3:AA	AA		10	- Armature	∘		AA	-K3:6	

			DATE	20.11.15	DESCRIPTION : CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL	TERMINAL DIAGRAM=+-X2	DRG. No. : 211803010
2	20.01.17	SS	DRAWN	SS			
1	24.02.16	SS	CHKD.	SS			
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027		SHEET No. : 12 OF 17 — A4

Terminal diagram

Strip
=+-X3

External targets

Internal targets

Target designation	wiring	jumper		function text	jumper	wiring	Target designation	Placement
-S0:13	301A		1	EMP PB	∘	301A	-S1:13	/3.4
-MCB1	301B		2	=	∘	301B	-S0:14	/3.3
-K0:A1	301C		3	To Auto	∘	301C	-S1:14	/3.4
-MCB1	303		4	Auto	∘	303	-S0:14	/3.3
-K0:A1	100A		5	=	∘	100A	-S1:14	/3.4
-Q1:14	100		6	Tyre Forward Selection	∘	100	-P01-2PSS:14	/3.5
-P01-2PSS:11	101		7	Low Pressure	∘	101	-S14:11	/3.5
-K1:11	I1		8	Reset	∘	I1	-P01-2PSS:12	/3.5
-CPU1:1	I2		9	Hub Inflation	∘	I2	-S2:14	/4.2
-CPU1:2	I3		10	Cycle Start	∘	I3	-S3:14	/4.3
-CPU1:3	I13		11	Cycle Stop	∘	I13	-2PSS1:14	/4.4
-CPU1:4	114		12	Tyre Rotation Pulse	∘	114	-S4:14	/4.5
-CPU1:5	301E		13	=	∘	301E	-S5:14	/4.6
-CPU1:6	304		14	Manual	∘	304	-S6:14	/4.7
-CPU1:7	Q1A		15	Tyre Forward	∘	Q1A	-B1:2-	/4.8
-CPU1:8	Q1B		16	Tyre Reverse	∘	Q1B	-B2:2-	/4.9
-CPU1:6	304A		17	=		304A	-S6:14	/4.7
-CPU1:7	300		18	=	∘	300	-B1:2-	/4.8

			DATE	20.11.15
2	20.01.17	SS	DRAWN	SS
1	24.02.16	SS	CHKD.	SS
REV.	DATE	NAME	APPD.	BSR

DESCRIPTION :
CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL

ITEM CODE : 03040410008027

ELGI

TERMINAL DIAGRAM=+-X3

DRG. No. : 211803010

SHEET No. : 13 OF 17

A4

Terminal diagram

Strip
=+-X4

External targets

Internal targets

Target designation	wiring	jumper		function text	jumper	wiring	Target designation	Placement
-S4 : 14	301A		1	=		301A	-CPU1-1:4	
=	301A		2			301A	=	
-S6 : 14	I4		3	Stichine End Sensor		I4	-CPU1-1:6	
-B1 : 2	I5		4	Sticher For Stop		I5	-CPU1-1:7	
-B2 : 2	I6		5	Sticher Home Limit		I6	-CPU1-1:8	
-S8 : 14	I7		6	Hub Pressure		I7	-CPU1-1:9	
-S9 : 14	I8		7	Tyre Pressure		I8	-CPU1-1:10	
-S10 : 14	I10		8	Forward without Tyre		I10	-CPU1-1:15	
-S11 : 14	I11		9	Spread in home sensor		I11	-CPU1-1:16	
-B2 : 2	I12		10	Spread out end sensor		I12	-CPU1-1:8	
-S8 : 14	I15		11	Tyre solder detection		I15	-CPU1-1:9	
-S9 : 14	300		12	=		300	-CPU1-1:10	
-S10 : 14	301A		13	=		301A	-CPU1-1:15	
-S11 : 14	300		14	=		300	-CPU1-1:16	

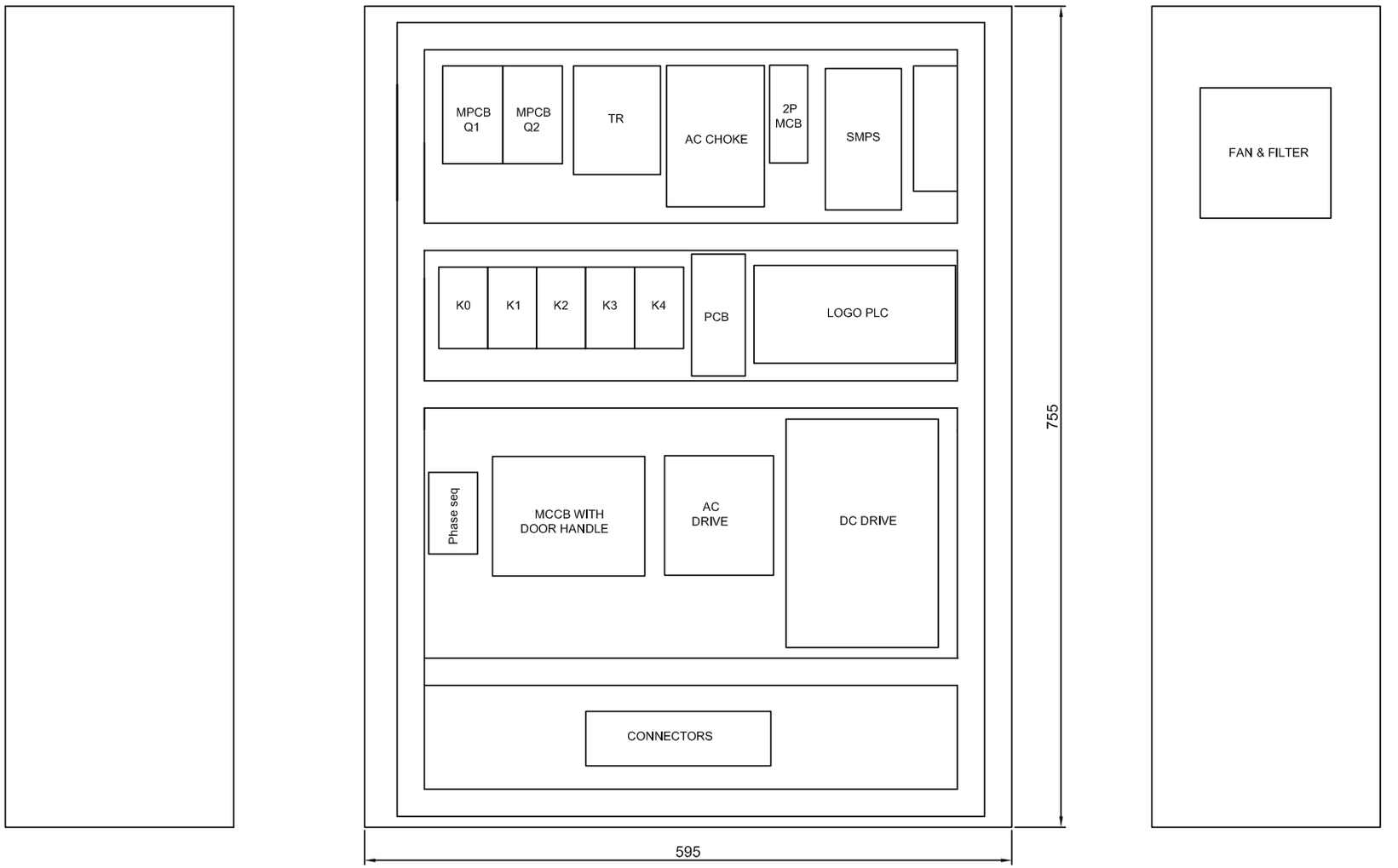
			DATE	20.11.15	DESCRIPTION :	TERMINAL DIAGRAM=-X4	DRG. No. : 211803010
2	20.01.17	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL		
1	24.02.16	SS	CHKD.	SS			
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027		SHEET No. : 14 OF 17 — A4

Terminal diagram

Strip
=+-X5

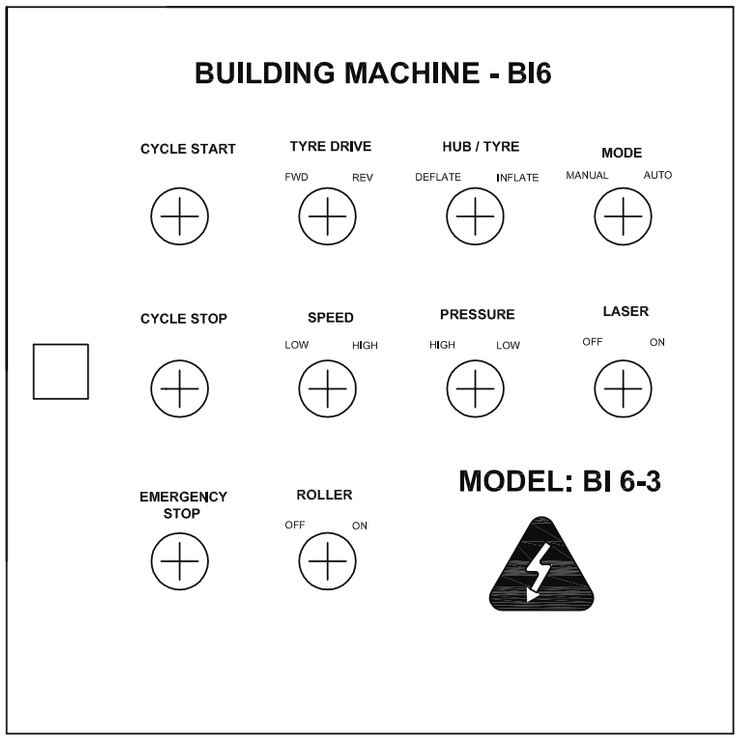
External targets						Internal targets	
Target designation	wiring	jumper		function text	jumper	wiring	Target designation	Placement
-S1:A1	Q7		1	Hub Inflation Solenoid		Q7	-CPU1-2:7	
-S2:A1	Q8		2	Hub exhaust Solenoid		Q8	-CPU1-2:8	
-S3:A1	Q9		3	Tyre IN Solenoid		Q9	-CPU1-2:9	
-S4:A1	Q10		4	Tyre exhaust Solenoid		Q10	-CPU1-2:10	
-S5:A1	Q11		5	Stiching arm Solenoid		Q11	-CPU1-2:11	
-S6:A1	Q12		6	Pressure roller Solenoid		Q12	-CPU1-2:12	
-S7:A1	Q15		7	Stiching High pressure		Q15	-CPU1-2:15	
-S8:A1	Q16		8	Stiching Low pressure		Q16	-CPU1-2:16	
-S11 : 14	300		9	=		300	-CPU1-1:16	

			DATE	20.11.15	DESCRIPTION : CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL	TERMINAL DIAGRAM=-X4	DRG. No. : 211803010
			DRAWN	SS			
			CHKD.	SS			
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027		SHEET No. : 15 OF 17 A4



NOTE : RITTAL P.NO - AE 1076500 (600x760x210)

			DATE	20.11.15	DESCRIPTION : CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL	ELGI	CONTROL PANEL LAYOUT	DRG. No. : 211803010
2	20.01.17	SS	DRAWN	SS				
1	24.02.16	SS	CHKD.	SS				
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027			SHEET No. : 16 OF 17 / A3



NOTE : ALU 1.2 MM THK - THIS NAME PLATE HAS TO BE SUPPLY

			DATE	20.11.15	DESCRIPTION :	ELGI	REMOTE PANEL LAYOUT	DRG. No. : 211803010
2	20.01.17	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BI6 - 380V-440V 50/60HZ/24V DC CONTROL			
1	24.02.16	SS	CHKD.	SS				SHEET No. : 17 OF 17 — A4
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410008027			

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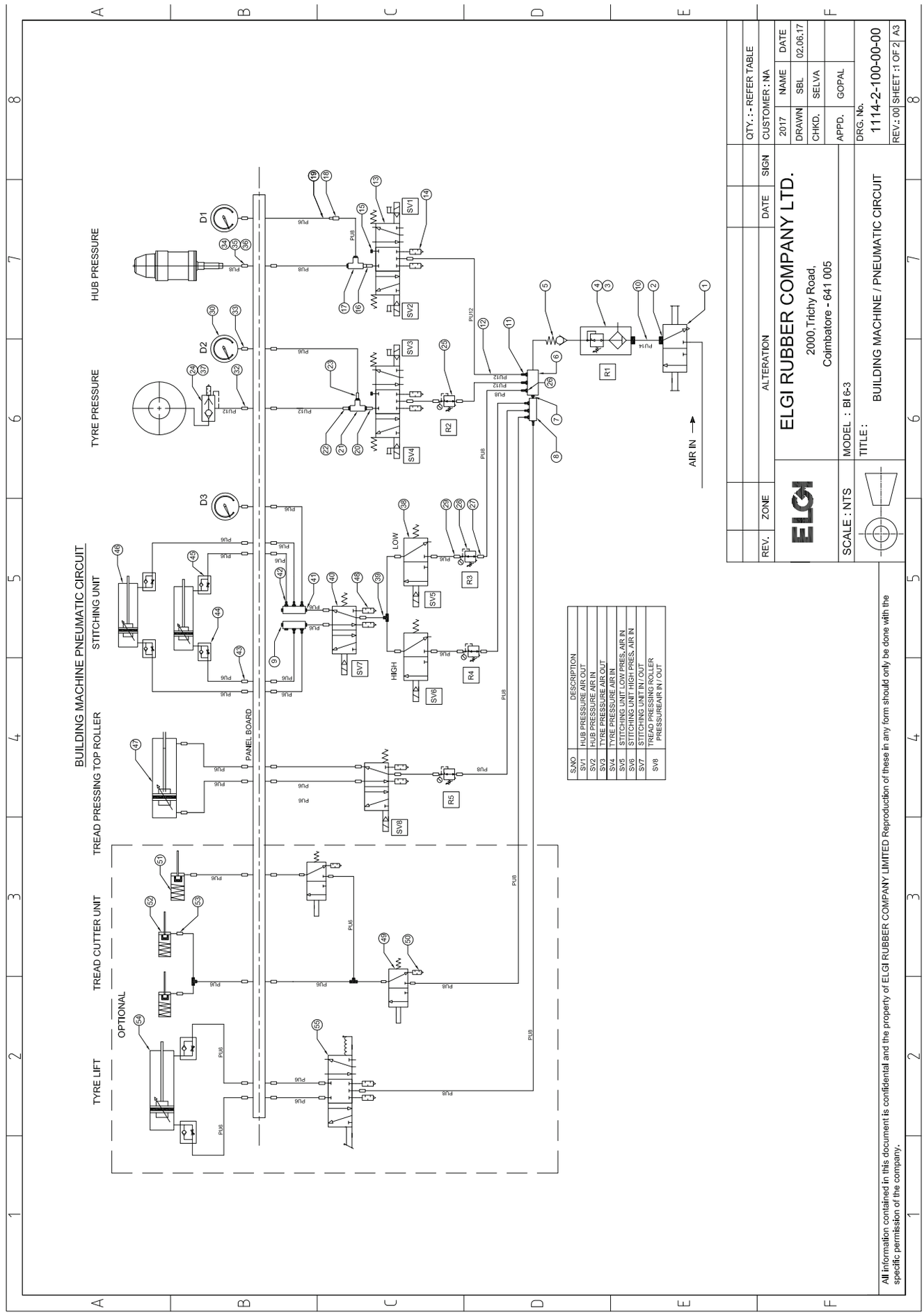
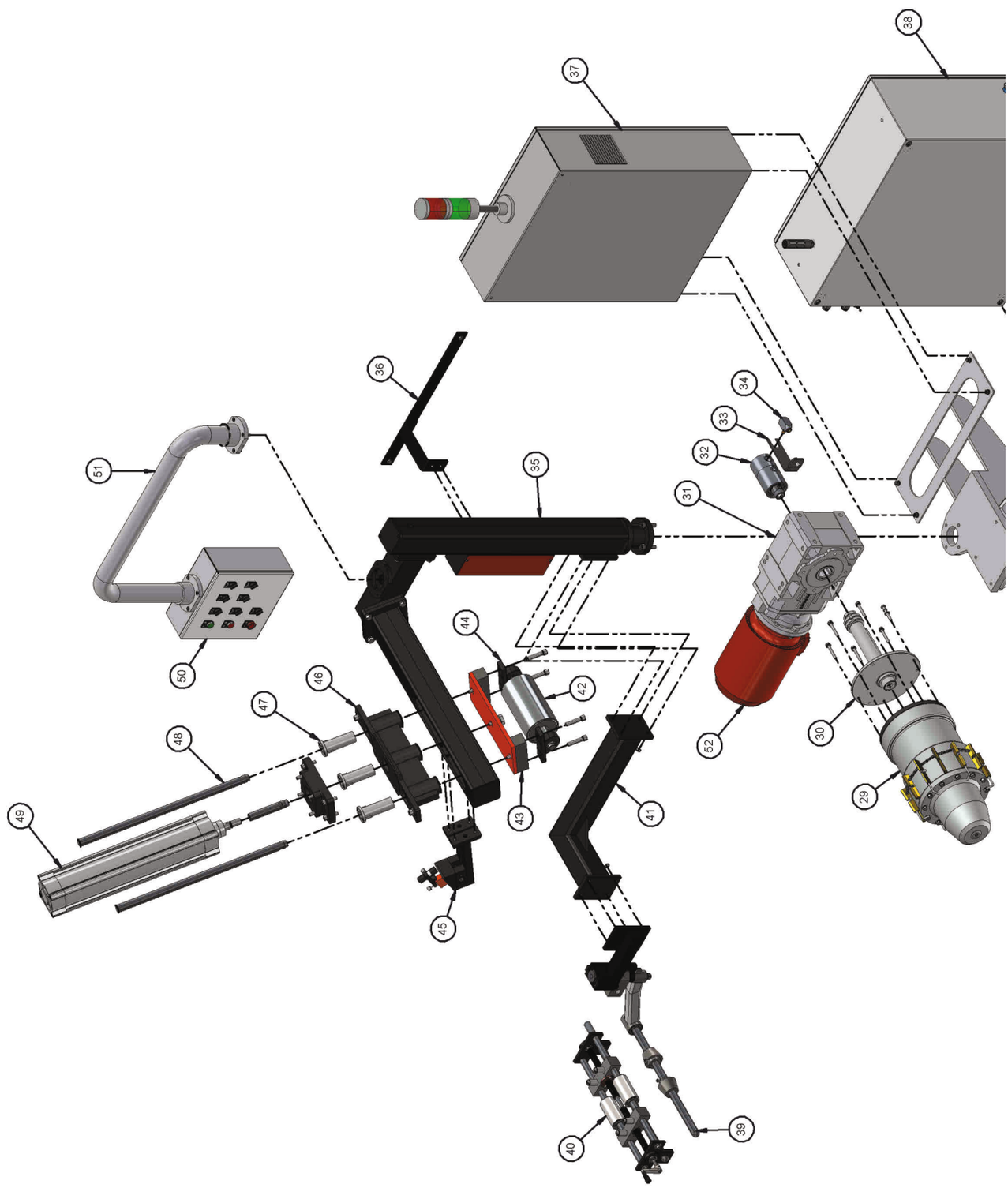
11 Pneumatic Circuit

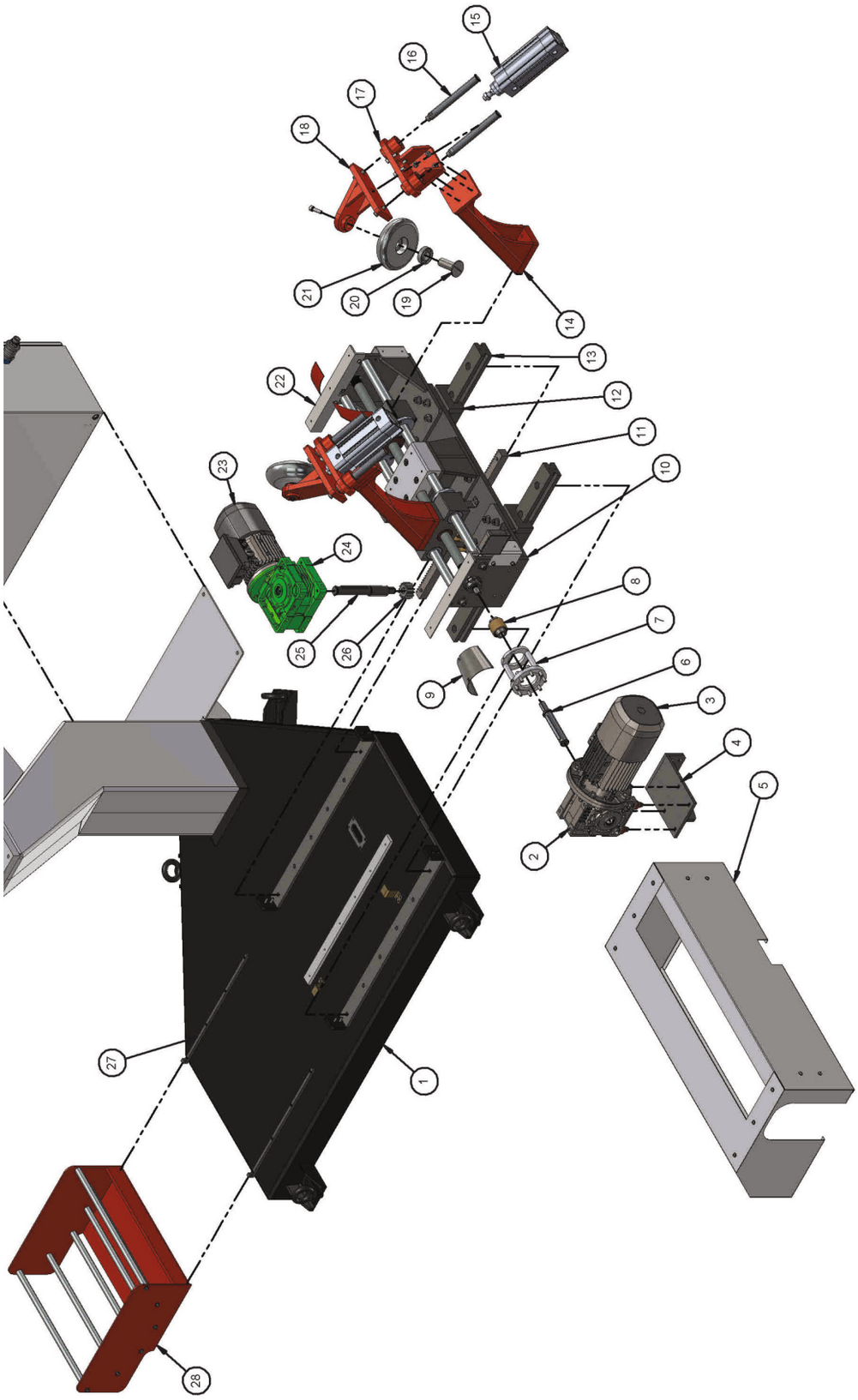


Pneumatic Circuit - BOM

S. No.	Description	UOM	Qty.	
1	HAND SLIDE VALVE 1/2” / P.NO:2342 / FESTO	Nos	1	
2	BULK HEAD FEMALE CON. 1/2” x PU14 P.NO : WP2521463 / JANATICS	Nos	1	
3	MALE CONNECTOR-1/2” x PU14 / P.NO :WP2111453 / JANATICS	Nos	1	
4	AIR FILTER CUM REGULATOR-1/2” / P.NO : 159585 / FESTO	Nos	1	
5	NRV 1/2” / P.NO :11691 / FESTO	Nos	1	R1
6	JUNCTION BOX / P.NO:WJ02036362 / JANATICS	Nos	1	
7	REDUCER NIPPLE 1/2” x 3/8”	Nos	1	
8	JUNCTION BOX / P.NO:WJ02036261 / JANATICS	Nos	3	
9	PORT PLUG 3/8” / P.NO : WAP062 /JANATICS	Nos	2	
10	POLYURETHANE TUBE PU14 / P.NO : 570390 / FESTO	Meter	-	
11	MALE ELBOW 3/8” x PU12 / P.NO : WP2211052 / JANATICS	Nos	4	
12	POLYURETHANE TUBE PU12 / P.NO : WH00B12 / JANATICS	Nos	-	
13	SOLENOID OPERATED VALVE 5/3 x 1/2” / P.NO: DS267SC63/JANATICS	Nos	2	
14	SILENCER (BUTTON) / P.NO :ASB0163 / JANATICS	Nos	4	
15	PORT PLUG 1/2” / P.NO : WAP063 /JANATICS	Nos	2	
16	BUSH NUT 1/2” x 1/4”	Nos	2	
17	MALE RUN TEE 1/4” x PU8 / P.NO: WP2330851/ JANATICS	Nos	1	
18	DIFFERENT DIA STRAIGHT UNION / P.NO: WP2140608 / JANATICS	Nos	1	
19	POLYURETHANE TUBE PU6 / P.NO : 159664 / FESTO	Meter	-	
20	BUSH NUT 1/2” x 3/8”	Nos	1	
21	TEE JOINT – 3/8”	Nos	1	
22	MALE ELBOW 3/8” x PU12 / P.NO : WP2211252 /JANATICS	Nos	1	
23	MALE CONNECTOR 3/8” x PU6 / P.NO : WP2110652 / JANATICS	Nos	1	
24	QUICK EXHAUST VALVE 1/2” / P.NO : GQ0153 /JANATICS	Nos	1	
25	REGULATOR - 3/8” x PU12 / P.NO :159580 / FESTO	Nos	1	R2
26	MALE ELBOW 3/8” x PU8 / P.NO : WP2210852 /JANATICS	Nos	1	
27	MALE ELBOW 1/4” x PU8 / P.NO : WP2210851 /JANATICS	Nos	10	
28	REGULATOR -1/4”/ P.NO : 159625 / FESTO	Nos	3	R3
29	MALE ELBOW 1/4” x PU6 / P.NO : WP2210651 / JANATICS	Nos	11	
30	PANEL MOUNTING PRESSURE GAUGE 1/4” / EN837-1 / MICRO	Nos	3	R4
31	BULK HEAD UNION PU8 / P.NO : WP2500808 / JANATICS	Nos	1	R5
32	BULK HEAD UNION PU12 / P.NO : WP2501212 / JANATICS	Nos	1	
33	FEMALE ELBOW 1/4” x PU6 / P.NO:WP2220661/JANATICS	Nos	3	
34	MALE CONNECTOR 1/4” x PU6 / P.NO : WP2110651 / JANATICS	Nos	1	
35	TEE JOINT – 1/2”	Nos	2	
36	NIPPLE – 1/2”	Nos	4	
37	QUICK COUPLER -1/4”	Nos	1	
38	SOLENOID VALVE 3 / 2 x 1/4” / P.NO:DS245SR61 / JANATICS	Nos	2	
39	UNION TEE PU6 / P.NO : WP2300606 / JANATICS	Nos	3	
40	SOLENOID VALVE 5/2 x 1/4” / P.NO:DS254SR60 / JANATICS	Nos	2	
41	MALE CONNECTOR PU6 x 3/8” / P.NO : WP2110652 / JANATICS	Nos	2	
42	MALE ELBOW PU6 x 1/4” / P.NO :WP2210651 / JANATICS	Nos	10	
43	BULK HEAD UNION PU6 / P.NO : WP2500606 / JANATICS	Nos	12	
44	FLOW CONTROL VALVE 1/4”/GR1 02 51 06/JANATICS	Nos	2	
45	FLOW CONTROL VALVE 1/4”/GR5 02 51 06/JANATICS	Nos	2	
46	PNEUMATIC CYLINDER - DSBC - 63 -100 - PPVA - N3 / P.NO : 1383582 / FESTO	Nos	2	
47	PNEUMATIC CYLINDER - DNC 100 -500 - PPV / P.NO : 163490 / FESTO	Nos	1	
48	SILENCER 1 / 4” / P.NO :165004 / FESTO	Nos	6	
49	PANEL MOUNTING VALVE 1/8 / FLUSH HEAD / P.NO : DS244P60-FH1A / JANATICS	Nos	2	
50	SILENCER 1 / 8” / P.NO :6841 / FESTO	Nos	2	
51	BRAKE CHAMBER	Nos	1	
52	PNEUMATIC CYLINDER - DSNU - 25 - 25 -P-A /P.NO :19219 / FESTO	Nos	2	
53	MALE ELBOW 1/8” / P.NO : WP2210650 / JANATICS	Nos	7	
54	PNEUMATIC CYLINDER - A12 - 50 - 700 / JANATICS	Nos	1	
55	HAND LEVER VALVE - 5/3 x 1/4” / P.NO:DS265SC61 / JANATICS	Nos	1	

12 Parts List

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Parts List - BOM

S. No.	Order Code	Description	UOM	Qty
1	MA4663/1	MAIN FRAME - BI6	NOS	1
2	MA4663/2	GEAR BOX / W63U30P80B5B3 / BONFIGLIOLI	NOS	1
3	MA4663/3	MOTOR 1HP - 1440RPM (4P) BN80B4B5 / FLANGED MOUNTED / BONFIGLIOLI	NOS	1
4	MA4663/4	MOTOR MOUNTING BRACKET - BI6	NOS	1
5	MA4663/5	STITCHING ROLLER UNIT COVER ASSEMBLY - BI6	NOS	1
6	MA4663/6	GEARBOX OUTPUT SHAFT / W63 - BF6/BI6	NOS	1
7	MA4663/7	MOTOR MOUNTING BRACKET - CF - BF6	NOS	1
8	MA4663/8	GEAR COUPLING-M19 MACHINED	NOS	1
9	MA4663/9	GEAR COUPLING COVER - BF6	NOS	1
10	MA4663/10	STITCHING UNIT ASSEMBLY / ELEC. DRIVE - BI6-3	NOS	1
11	MA4663/11	RACK STITCHING UNIT - 3M x 600 Lg - BI6	NOS	1
12	MA4663/12	RAIL CARRIAGE / PNo: MSA 55 LS / SUPER SLIDE	NOS	2
13	MA4663/13	LM RAIL BEARING / SUPER SLIDE / PNo: MSA 55 +R700 L	NOS	2
14	MA4663/14	SPREADING ARM ELEC. DRIVE - BI6	NOS	2
15	MA4663/15	PNEUMATIC CYLINDER- DSBC-63-100-PPVA-N3/P.No.1383582/FESTO	NOS	2
16	MA4663/16	STITCHING ROLLER GUIDE SHAFT - BI6	NOS	4
17	MA4663/17	GUIDE BLOCK CYLINDER MOUNTING	NOS	2
18	MA4663/18	ROLLER HOLDING UNIT - BI6	NOS	2
19	MA4663/19	ROLLER CONNECTING PIN - BI6	NOS	2
20	MA4663/20	RADIAL BALL BEARING SKF 6205	NOS	2
21	MA4663/21	STEEL STITCHING ROLLER - BI6	NOS	2
22	MA4663/22	STITCHING UNIT COVER MOUNTING BRACKETS - BI6	SET	1
23	MA4663/23	MOTOR 1HP - 1440RPM (4P) BN71B4B5 / FLANGED MOUNTED / BONFIGLIOLI	NOS	1
24	MA4663/24	GEAR BOX / W63U100P71B5B3 / BONFIGLIOLI	NOS	1
25	MA4663/25	STITCHING UNIT PINION SHAFT - BI6	NOS	1
26	MA4663/26	PINION STITCHING UNIT - 3M x 14T - BI6	NOS	1
27	MA4663/27	TREAD CARRIER RAIL - BI6	NOS	2
28	MA4663/28	TREAD CARRIER ASSEMBLY	NOS	1
29	MA4663/29	EXPANDING HUB – EH-5	NOS	1
30	MA4663/30	MAIN SHAFT - BF6/BI6	NOS	1
31	MA4663/31	GEAR BOX /1:35.9/A412UH4535.9P90B3/BONFIGLIOLI	NOS	1
32	MA4663/32	ROTARY SEAL COUPLING (DUAL PR) - BF6	NOS	1
33	MA4663/33	LOCKING CLAMP – ROTARY SEAL COUPLING BF6 / BI6	NOS	1
34	MA4663/34	RAPTID RELIF VALVE	NOS	1
35	MA4663/35	VERTICAL POST - BI6	NOS	1
36	MA4663/36	PANEL BOARD SUPPORT BRACKET - BI6	NOS	1
37	MA4663/37	ELECTRICAL PANEL BOARD - BI6	NOS	1
38	MA4663/38	PNEUMATIC PANEL BOARD - BI6	NOS	1
39	MA4663/39	TREAD CUTTER SWING SHAFT ASSEMBLY	NOS	1
40	MA4663/40	TREAD CENTERING UNIT ASSEMBLY - BI6	NOS	1
41	MA4663/41	TREAD CUTTER SUPPORT TUBE ASSEMBLY - BI6	NOS	1
42	MA4663/42	TREAD PRESSING ROLLER - BI6	NOS	1
43	MA4663/43	TREAD PRESSING ROLLER MOUNTING PLATE - BI6	NOS	1
44	MA4663/44	BEARING PILLOW BLOCK UCP205D1 / NTN	NOS	2
45	MA4663/45	TREAD CENTER MARKING LASER-SINGLE	NOS	1
46	MA4663/46	HOUSING ROLLER HEAD GUIDE	NOS	1
47	MA4663/47	BUSH ROLLER HEAD GUIDE ROD	NOS	3
48	MA4663/48	TREAD PRESSING ROLLER GUIDE ROD - BI6	SET	1
49	MA4663/49	PNEUMATIC CYLINDER- DSBC-100-450-PPVA-N3/P.No.1463558/FESTO	NOS	1
50	MA4663/50	CONTROL SWITCH BOARD ASSEMBLY BI6/24V DC CONTROL	NOS	1
51	MA4663/51	SWIVELING ARM FOR HMI PANEL - BI6	NOS	1
52	MA4663/52	PMDC MOTOR 2HP / 90V / 1000RPM / FLANGE MOUNTING / BHARATH	NOS	1

13 Essential Spares List

S. No.	Order Code	Description	UOM	Qty
1	MA4663/ES/1	Seal Kit for Pneumatic Cylinder DSBC-63-100-PPVA-N3 / Festo	Nos	2
2	MA4663/ES/2	Seal Kit for Pneumatic Cylinder DNC-100-500-PPV / Festo	Nos	1
3	MA4663/ES/3	Seal Kit for Pneumatic Cylinder DSNU -25-25-P-A / Festo	Nos	2
4	MA4663/ES/4	Seal Kit for Pneumatic Cylinder A12 -50 -700 /Janatics	Nos	1
5	MA4663/ES/5	Gear Coupling	Nos	2
6	MA4663/ES/6	Pinion 3M x 14T x 25W – BI 6-3	Nos	1
7	MA4663/ES/7	Pressure Transmitter S-10/0-6 BAR/4-20MA/DC 10-30V/P-9013539 / Wika - B2	Nos	1
8	MA4663/ES/8	Seal Kit for Solenoid Operated Valve 5/3 / Janatics	Nos	2
9	MA4663/ES/9	Seal Kit for Solenoid Operated valve 3/2 /Janatics	Nos	1
10	MA4663/ES/10	Seal Kit for Solenoid operated Valve 5/2 /Janatics	Nos	1
11	MA4663/ES/11	Power Supply 24VDC 6.2A / 6EP1333-1LD00 / Siemens - PS1	Nos	1
12	MA4663/ES/12	MCCB 63A / 3VT1706-2DC36-0AA0 / Siemens - Q1	Nos	1
13	MA4663/ES/13	Handle Set / 3VT9100-3HQ00 / Siemens - Q1	Nos	1
14	MA4663/ES/14	MCB SP 2A / 5SL4102-7RC / Siemens - Q5	Nos	1
15	MA4663/ES/15	MCB SP 6A / 5SL4106-7RC / Siemens - Q6	Nos	1
16	MA4663/ES/16	MCB DP 25A / 5SL4225-7RC / Siemens - Q4	Nos	1
17	MA4663/ES/17	Power Contactor 9A / 3RT2016-1BB41/ Siemens - K3,K4	Nos	1
18	MA4663/ES/18	Control Contactor 10A, 2NO+2NC / 3RH21 22-1BB40 / Siemens - CO	Nos	1
19	MA4663/ES/19	MPCB 1.6-2.4 A / 3VU13 40-1MH00 / Siemens - Q2, Q3	Nos	1
20	MA4663/ES/20	Addon Block 2NO+2NC / 3RH29 11-1HA22 / Siemens - CO	Nos	1
21	MA4663/ES/21	Addon Block / 3RH29 11-1HA01 Siemens - K3	Nos	1
22	MA4663/ES/22	Indication Lamp Red 220V AC / 3SB52 85-6HC03 / Siemens - SL1	Nos	1
23	MA4663/ES/23	Indication Lamp Yellow 220V AC / 3SB52 85-6HD03 / Siemens - SL2	Nos	1
24	MA4663/ES/24	Indication Lamp Blue 220V AC / 3SB52 85-6HF03 / Siemens - SL3	Nos	1
25	MA4663/ES/25	Transformer / 150VA,415V/220V / Procon - TR1	Nos	1
26	MA4663/ES/26	Input Line Choke / 2HP 3phase / Procon - CK1	Nos	1
27	MA4663/ES/27	Single Phase Preventer / SM301 L&T - SPP1	Nos	1
28	MA4663/ES/28	DC Drive / 2HP,1Phase,20 A,O/P-90V / Textro - DR2	Nos	1
29	MA4663/ES/29	Potentio Meter (Speed Control PCB Board) / Single Phase 10 to 20 rpm	Nos	1
30	MA4663/ES/30	Fuse Terminal With Glass Fuse / Connectwell - F1	Nos	1
31	MA4663/ES/31	Door Limit Switch 1NO+1NC / Reputed	Nos	1
32	MA4663/ES/32	Tower Lamp Green Color With Buzzer / Ideal - TL1	Nos	1
33	MA4663/ES/33	Emergency Stop + NC / 3SB5203-0UC01 / Siemens - EMP	Nos	1
34	MA4663/ES/34	3 Position Selector Switch / 3SB5000-2AB01 / Siemens 2 - SS1	Nos	2
35	MA4663/ES/35	Position Selector Switch / 3SB5000-2AB01 / Siemens - 2SS2	Nos	5
36	MA4663/ES/36	Push Button Green / 3SB50 00-0AE01 / Siemens - PB1	Nos	1
37	MA4663/ES/37	Push Button Red / 3SB50 00-0AC01 / Siemens - PB2	Nos	1
38	MA4663/ES/38	No Element / 3SB54 00-0C / Siemens - PB1	Nos	1
39	MA4663/ES/39	Inductive Proximity Sensor / Model.IME18-05BPPZC0S / Sick - PS1-9	Nos	2
40	MA4663/ES/40	Inductive Proximity Connector / Model.DOS-1204-W / Sick - PS1-9	Nos	2