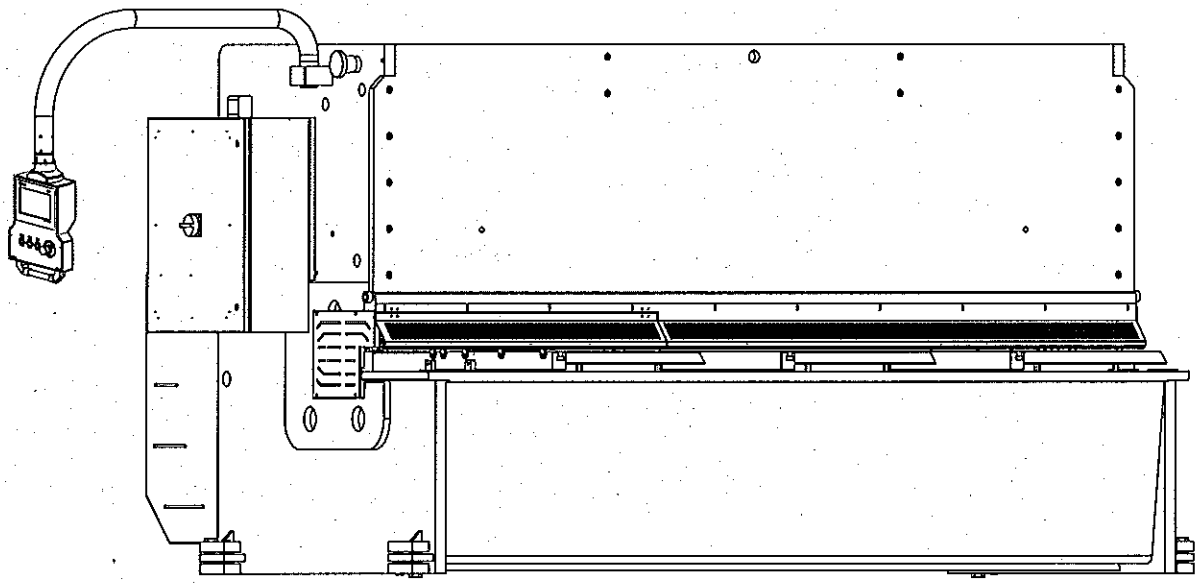
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ERMAKSAN



CNC HGD 3100 - 13
HYDRAULIC VARIABLE RAKE SHEAR
MANUAL INSTRUCTION

CERTIFICATE OF CONFORMITY

Certificate - No.: 16-PS-0376-TAT-17-MAD-0032

Applicant	:	ERMAKSAN MAKİNA SANAYİ TİCARET A.Ş. Organize Sanayi Bölgesi Lacivert Cad. No: 6 Nilüfer BURSA- TURKEY
Product	:	GUILLOTINE SHEARS
Type/Model(s)	:	CNC HVR Series, CNC HVR-B Series, CNC HGD Series, CNC HGD-B Series, HGD-B Series, HGD Series, CNC HGS Series, CNC HGS-A Series, HGS-A Series, HGS Series, CNC GMR Series, GMR Series, EKM Series, EGS Series, ECO SHEAR Series, HYBRID SHEAR Series.
Standard(s) / Certification Basis	:	2006/42/EC Machine Safety Directive 2014/35/EU Low Voltage Directive 2014/30/EU Electromagnetic Compatibility Directive EN ISO 12100:2010 EN 13985:2003+A1:2009 EN ISO 13849-1:2015 EN ISO 13855:2010 EN 60204-1.2006/AC:2010 EN 61000-6-2:2005/AC:2005 EN 61000-6-4:2007/A1:2011

This Certificate of Conformity is issued on a voluntary basis according to Machinery Directive 2006/42/EC. It conforms that the listed equipment complies with the essential safety requirements of the directive. It refers only to the sample and its technical file submitted for conformity assessment.

Test Report No	:	16-PS-0376-IR-04
Issue Date	:	06.02.2017
Expiry Date	:	06.02.2018

TÜV AUSTRIA TURK LTD. STI.
Approved By
Ali Osman Özyeren
Industrial Auditor
TÜV AUSTRIA

CE

After preparation of the necessary technical documentation as well as the declaration of conformity the required CE marking can be affixed on the product. Other relevant directives have to be observed.

This Certificate of Conformity has been granted to the applicant based on the results of testing performed by the applicant/manufacturer or an accepted laboratory and the consequent review of the test report by TÜV Austria Turk. Revisions to the referenced certification basis or any change of the design, materials, components or processing may require the repetition of all or some of the qualification tests in order for the test report and therefore this associated certificate to remain valid.

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ERMAKSAN
METAL FABRICATING MACHINERY
innovative technologies.

CE

EC DECLARATION OF CONFORMITY

THIS IS HEREBY DECLARED THAT FOLLOWING DESIGNATED PRODUCT COMPLIED WITH THE ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF MACHINERY DIRECTIVE 2006/42/EC, LOW VOLTAGE DIRECTIVE 2006/95/EC & ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2004/108/EC ON THE APPROXIMATION OF THE LAWS OF THE MEMBER STATES RELATING TO IT.

THE ITEM OF PRODUCTS WHICH IDENTIFIED BELOW HAS BEEN SUBJECT TO INTERNAL MANUFACTURING CHECKS WITH MONITORING OF THE FINAL ASSESMENT BY **ERMAKSAN MAKİNE SANAYİ TİCARET A.Ş.**

Manufacturer Information
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Product Information
Description of Product : GUILLOTINE SHEARS
Brand : ERMAKSAN
Model(s)/Type(s) :
Serial Number :

Notified Body Information
Name: TÜV AUSTRIA TURK (Certificate No: 16-PS-0376-TAT-11-MAD-0032)
Address: Ekinciler Cad. Ertürk Sokak Onat Plaza No: 4/13 KAVACIK / BEYKOZ / İSTANBUL / TURKEY
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Web / E-Mail : www.tr-tuv.com / info@tr-tuv.com

Applicable Directives
2006/42/EC Machine Safety Directive
2014/35/EU Low Voltage Directive
2014/30/EU Electromagnetic Compatibility Directive

Applicable Harmonised Standards
EN ISO 12100:2010, EN 13985:2003+A1:2009, EN ISO 13855:2010, EN ISO 13849-1:2015, EN 60204-1.2006/AC:2010, EN 61000-6-2:2005/AC:2005, EN 61000-6-4:2007/A1:2011

THIS DECLARATION APPLIES TO ALL SPECIMENS MANUFACTURED IDENTICAL TO THE MODEL SUBMITTED FOR TESTING /EVALUATION. ASSESSMENT OF COMPLIANCE OF THE PRODUCT WITH THE REQUIREMENTS RELATING TO SAFETY STANDARDS LISTED ABOVE WAS PERFORMED BY MANUFACTURER.

SIGNED ON BE HALF OF THE MANUFACTURER
Name / Surname: Ahmet ÖZKAYAN
Title : General Manager
Place / Date : Bursa / 06-02-2017
Signature :

ERMAK
SHEET METAL WORKING MACHINERY CO.

CUSTOMERS SATISFACTION INQUIRY

Customer :	
Agent :	
Date of sending of the inquiry :	

ATTRIBUTE	QUESTIONS	VALUATION			
		Deficient	Tolerable	Good	Very Good
1. Information prior to the order	1.1 What is your opinion about the content and presentation of the quotations ?	○	○	○	○
	1.2 Do you think that the manufacturer has understood your problem and given you the right solution ?	○	○	○	○
	1.3 How was the response speed to your enquiry ?	○	○	○	○
	1.4 What about the assistance of ERMAKSAN's staff ?	○	○	○	○
2. Product Quality	2.1 Does the machine satisfy your quality requirements ?	○	○	○	○
	2.2 Does the machine satisfy your releability requirements ?	○	○	○	○
	2.3 Has the machine an easy maintenance ?	○	○	○	○
	2.4 Does the machine comply with your security and ergonomy requirements ?	○	○	○	○
	2.5 Are you satisfy with the machine ?	○	○	○	○
3. Service	3.1 How was the delivery time of the machine ?	○	○	○	○
	3.2 Has ERMAKSAN provided to you information enough for the use and maintenance of the machine ?	○	○	○	○
	3.3 Has ERMAKSAN's staff adequately assisted you ?	○	○	○	○
4. Image	4.1 How do you value our technological capacity ?	○	○	○	○
	4.2 How do you value our commercial capacity ?	○	○	○	○
	4.3 What degree of trust do you have in our organization ?	○	○	○	○
GLOBAL VALUATION	Globaly the relation with ERMAKSAN satisfies you in a degree of :	○	○	○	○

Report filled in by	Signature	Function	Date

GUARANTEE CONDITIONS

1- All the parts of the machine are under guarantee regarding to workmanship and material defaults. (Exclusion of electricity materials).

2- Guarantee period is 1 year after delivery time.

3- If any part changed during guarantee period, that part has also 1 year guarantee form changing time.

EXCEPTIONS

1- Operating the machine before making the installation adjustments.

2- Not fixing the machine to the ground with anchorage bolts.

3- Feeding the machine with electricity voltage other than electricity voltage mentioned in Instruction Manual.

4- Not changing the parts that must be changed periodically such as oil and air filter.

5- Not lubricating the parts that are shown in Instruction Manual.

6- Operating the machine over max. pressure mentioned in Instruction Manual

7- Damages occured from wrong cutting.

8- Damages occured from compulsions.

ORIGINAL LANGUAGE IS TURKISH!!!

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	Hydraulic circuit schema	
	Main motor pump connection	
	Hydraulic cylinder	
	Pressure cylinder	
	Back gauge	
	Electricity panel	
	Electricity project	
	Electricity material list	
	Manual instruction for digital display	

TECHNICAL DATAS

1.1- Technical features

Model	: CNC HGD 3100 - 13
Cutting length	: 3100 mm.
Cutting capacity	: 13 mm. (45 kg/mm²)
Cutting angle	: 2°
Maximum pressure	: 280 bar
Number of hold downs	: 14
Stroke per minute	: 11
Table height	: 900 mm.
Back gauge stroke	: 1000 mm.
Main motor	: 22 kW
Back gauge motor	: 0.75 kW
IP	: 54
Maximum noise	: 70 dBA
Plant temperature	: 0 - 50 C°
Machine length	: 3990 mm.
Machine width	: 2240 mm.
Machine height	: 2345 mm.
Weight	: 12400 kg.
Oil volume	: 310 lt.

ELECTRICITY INFORMATION TABLE

Type	CNC HGD 3100 - 13
Current type	3 AC
Frequency	50 Hz
Operation voltage	415V
Command voltage	24 V
Nominal current	50A
Energy entrance cable	4x10mm²
Min. resistance isolation	1MΩ
Test voltage	415V

1.2- Standard materials

- Electricity motors
- Bottom and top blades
- Foot pedal command
- Front support
- Back gauge
- Oil indicator
- Rear guards
- Front guard fingers

1.3- Abrasion parts

- Bottom blade
- Top blade
- Cylinder seals
- Pressure buffers

1.4- Guide and special parts

- Radial guide (Back gauge)
- Spherical plain bearing (Eccentric system)
- Digital display (Back gauge)

2- UNLOADING AND TRANSPORTING THE MACHINE

Machine has to be unloaded and transported with an approriate lifting capacity crane. For the weight of the machine, see section 1.1.

To transport the machine , use lifting hooks that are located both side of the machine.

Lifting rope's diameter and length have to be appropriate. Be careful about the transportation of the machine.(not to turn over the machine)

When you receive the machine please check If the machine has any damage.

If you realize a damage , register it to transporter receipt and inform us.

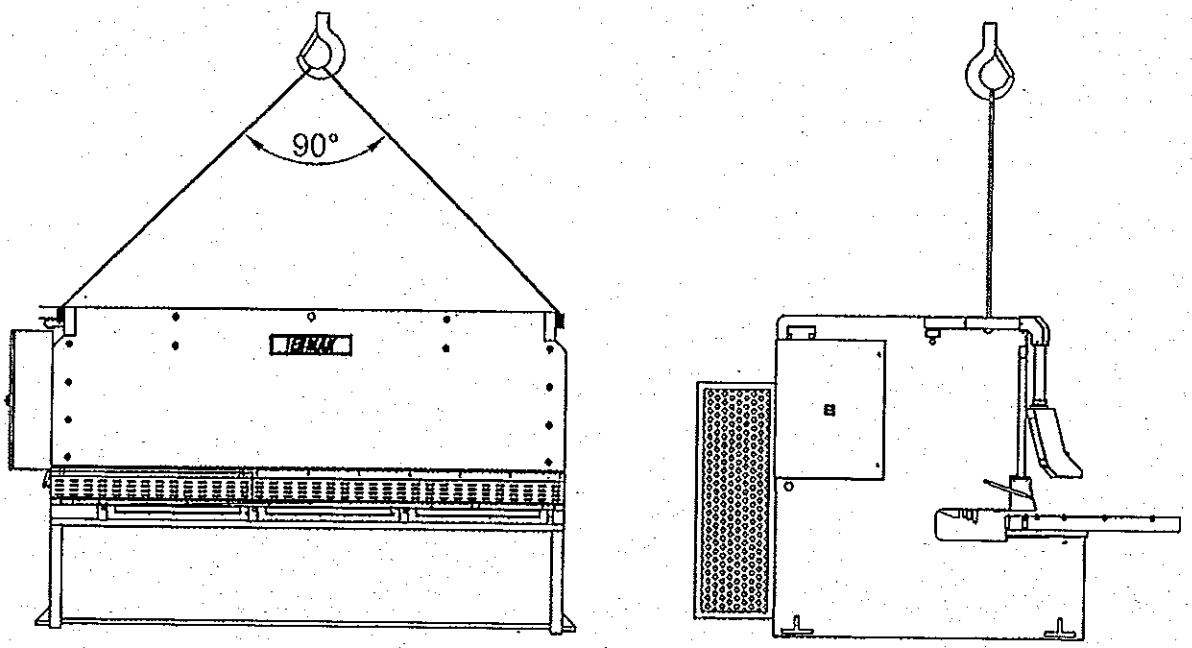


Figure : 1 - Transporting the machine

3 - ASSEMBLY

3.1 - Locating the machine

Before choosing the place of machine, be careful about the machine dimensions mentioned in Instruction Manual. Prepare the anchroge holes and foundation. (Figure : 2)
When the ground is ready, locate the machine on to its place. Put the adjustment plates , foundation bolts and nuts on to their places.

Fill the anchorage holes with concrete. After drying of concrete, locate a precise water scale on to the bottom tool table. Adjust the machine precisely with water scale and 4 numbered bolts. Tighten the 2 numbered foundation bolts.

I The machine has to be fixed to the ground perfectly.

3.2 - Electricity connection

The electricity connection of the machice to the network has to be made by a specialised person.Firstly check the current's approriateness.(For electricity value see page 1/1 and 1/2)
Electricity entrance cable cross section ; has to be chosen appropriate to the machine power (see page 1/2).
As you see in Figure: 3, pass the energy cable from the hole under the electricity panel
Connect the electricity cables to L1,L2,L3 clemenses.
Connect the foot pedal command jack to the jack box on the electricity panel.(Figure:3)

3.3 - First operation

Before operating the machine read and understand the instruction manual.
Check the oil level in the oil tank.Check the fixedness of guards and switches.
Get the main switch from position 0 to 1. By the way , inside the electricity panel 1F2 phase cutting and phase sequence control relay lamp have to be on. If not , change the phases of power entrance cable. Press reset button (4S15) on the electricity panel. With reset button (4S15) lamp also stop button lamp(10S5) have to be on. Press Start button (10S4). Get the position 1 (P123). Go down the top beam by pressing EL1 button. Go up by pressing EL2 button.

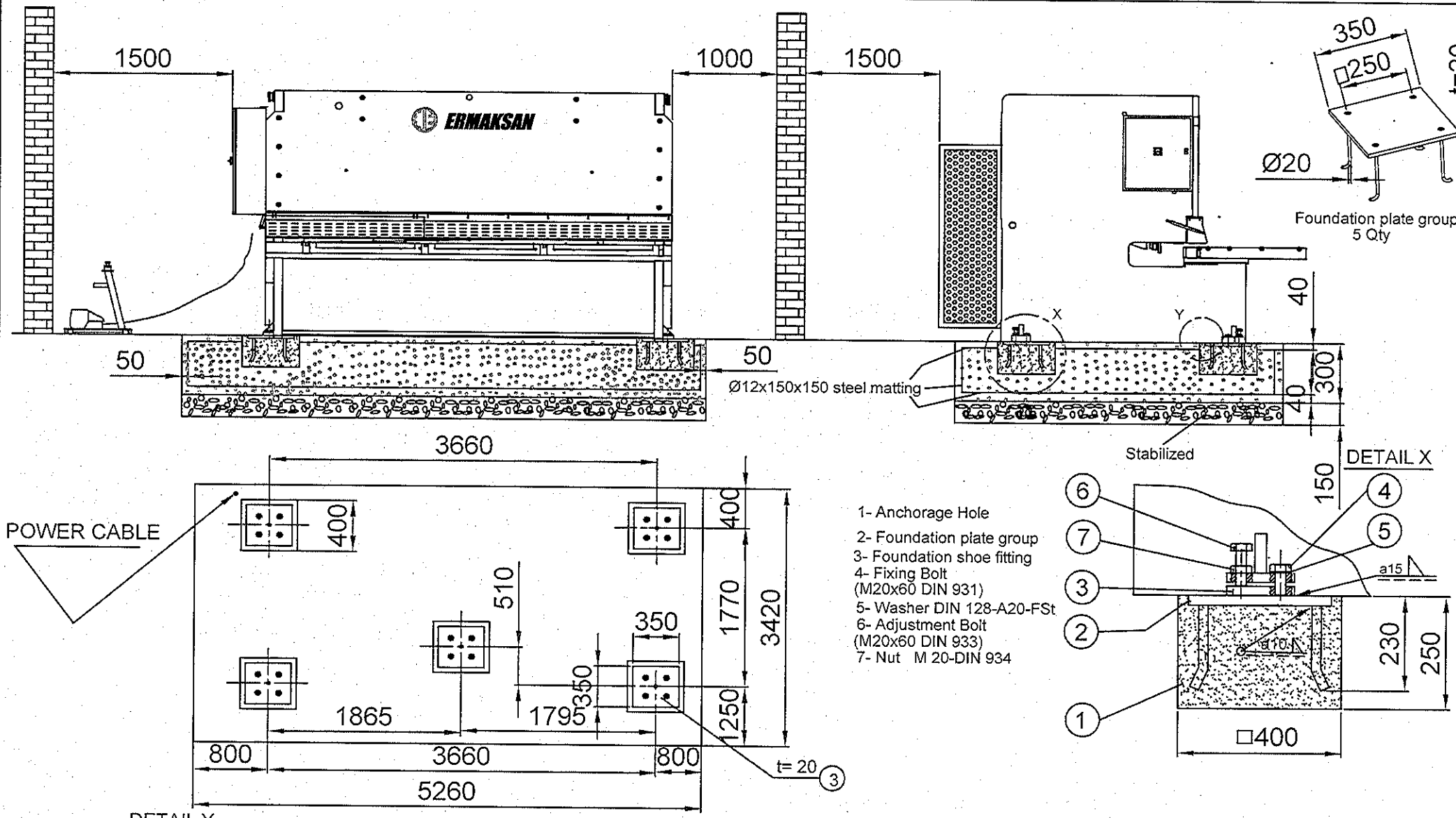


Figure: 2 - Assembly Plan

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MODEL : CNC HGD 3100 - 13

BÖLÜM : 3

SAYFA : 3/2

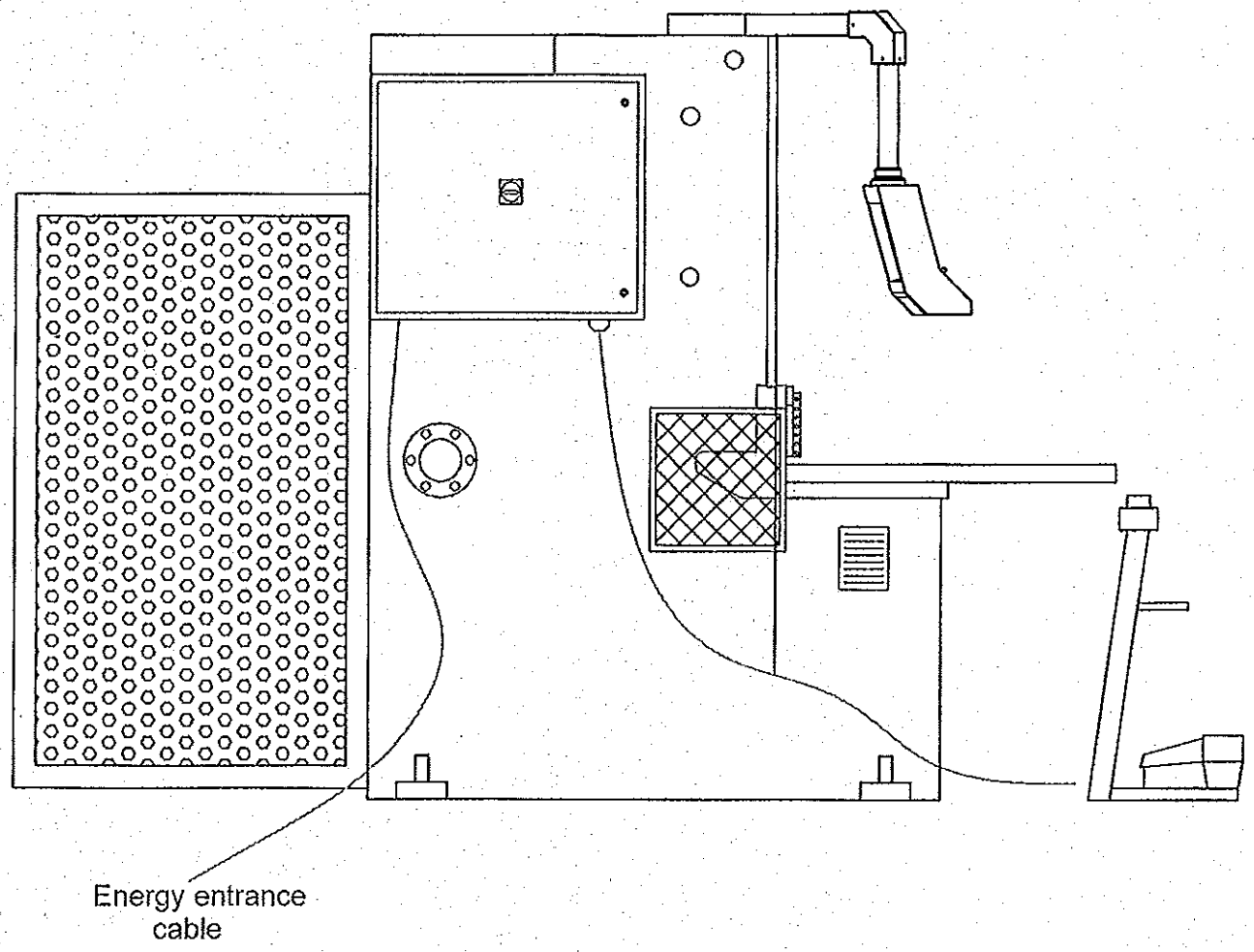


Figure: 3 - Electricity Connection

4 - OPERATION

4.1 - Forbidden operation

Hydraulic Swing Beam Shear has to be used in the following conditions:

- If any part of protection is not assemblied or out of order.

- If any foreign material exists between the top and bottom blade.

- If the material is not superficial (bar, tube etc.)

- So hardened material for cutting.

- Cutting of materials transform from glass or ceramic.

I Manufacturer has no responsibility for above forbiddens operations.

4.2 - Incorrect operation

1 - Cutting materials which contains much silicium and oxide.
Result: Blades become blunt.

2 - Cutting material which worked by gas cutter.
Result: Blades become blunt or broken.

3 - Cutting without making blade gap adjustment
Small cutting gap ;
Result: Bad surface on the material.
Blades become blunt or broken.
Big cutting gap ;
Result: Tracks on the sheet.
Sheet may be squeezed between the blades.
Blades become blunt or broken.

4 - If the material exceeds the capacity of the machine.
Result: Cutting is impossible.

5 - If the width of the material is less than 15 times of its thickness.
Result: Material wrapps around.

6 - Cutting 2 or 3 sheet one on another.
Result: One of the sheets may be squeezed between the blades.
Appropriate cutting is not possible.
Blades become blunt or broken.

! WHEN MAKING CUT IN ALL SHEARS , BACKGAUGE RETRACK FEATURE MUST BE TURNED ON.

4.4 - Operation

The machine has to be used by a specialist person. Before the machine has delivered, its all adjustments is made in factory.
Before cutting, lubricate the blades. Choose the appropriate position and make the cutting after required adjustments are made.

NOTE : 4S14 switch is a security switch which stops the pump and the command when there is a problem on directional valve. When top beam goes down until touchign the 4S14 switch , 4S14 switch stops the pump. To restart the pump , leave the 4S14 switch from the buffer and press reset button.

4.4.1 - Positions

Position 1- Operated by hand buttons. Top beam goes down when EL1 button is pressed. Goes up when EL2 button is pressed. This position is also used for the blade adjustment.

Position 2- This position is used for short cuttings. Top beam goes down when pressing the foot pedal. When you stop pressing the foot pedal , top beam goes up. Keep on pressing the foot pedal , beam goes down and when time relay (7K7) closes , it goes up.

Position 3- Top beam goes down when pressing the foot pedal. When you stop pressing the foot pedal , top beam goes up. Keep on pressing the foot pedal and when it touches to limit switch , it goes up.

4.4.2 - Blade gap adjustment

Blade gap adjustment is automatically made when the cutting thickness is input on the controller for best quality.

Blade gap value according to thickness is given below. These values have been input the controller beforehand and cannot be changed by end onusers.

Thickness of the sheet	Gap between the blades
2 mm	0.2 mm
4 mm	0.4 mm
6 mm	0.6 mm
8 mm	0.8 mm
10 mm	1 mm
12 mm	1.2 mm
16 mm	1.6 mm

4.4.3 - Cutting length adjustment

This operation can only be applied in position 2. Cutting length adjustment is made by the help of time relay (7K7) on the electricity panel.

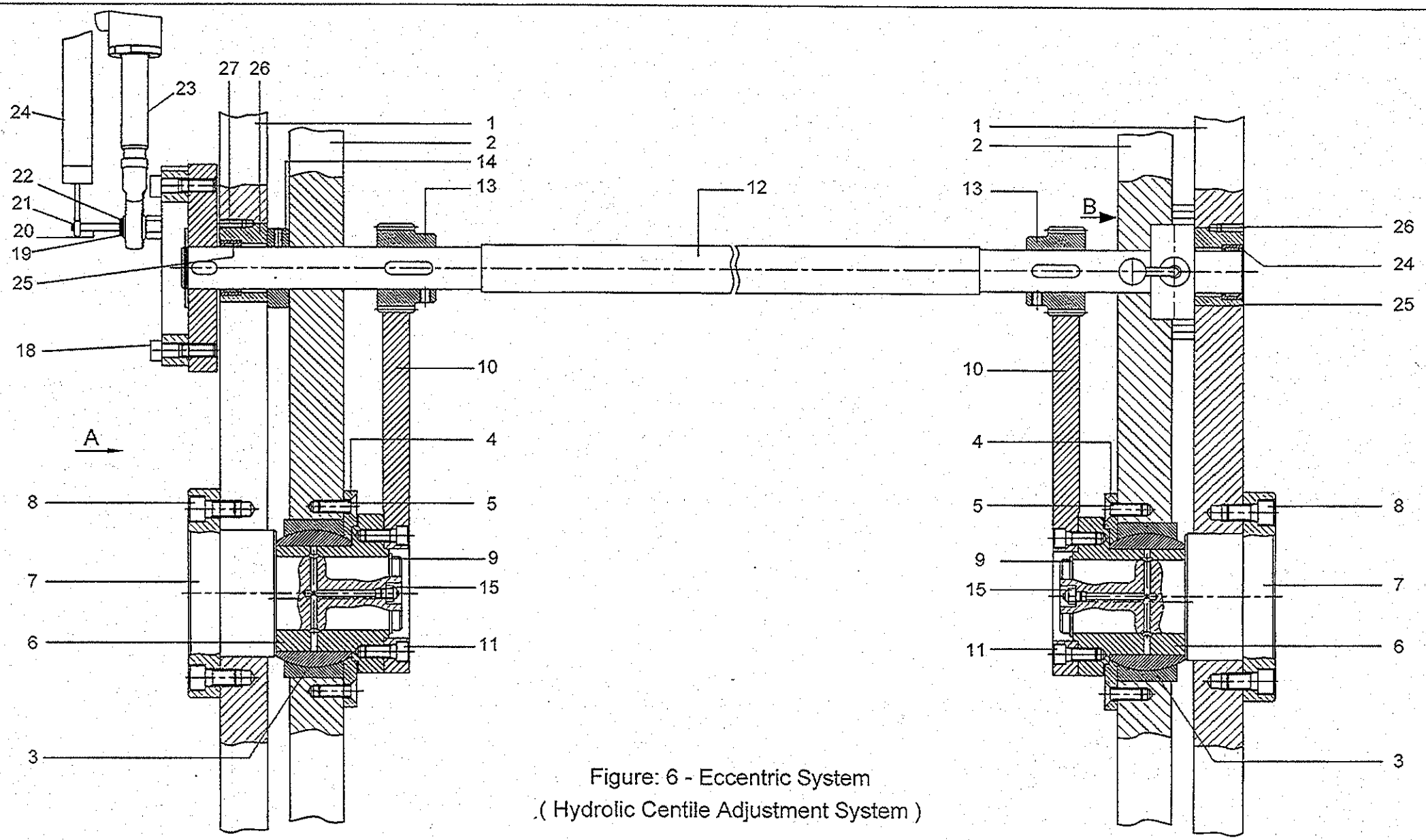
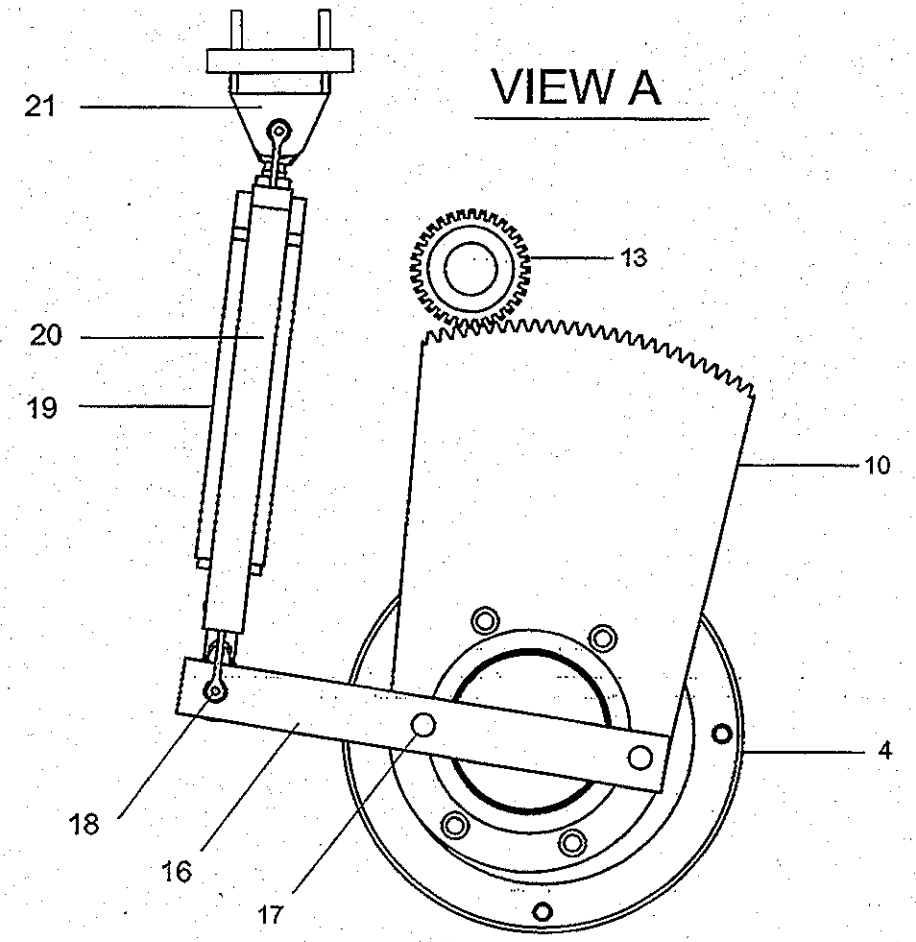


Figure: 6 - Eccentric System
.(Hydrolic Centile Adjustment System)



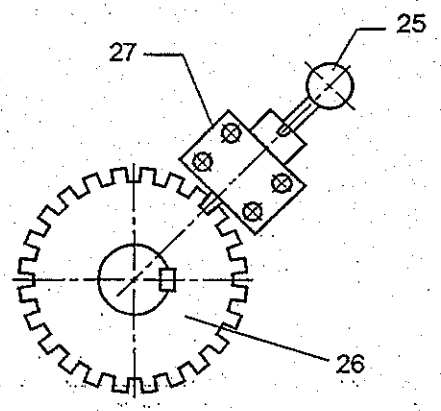


Figure: 6 - Eccentric System
(Hydrolic Centile Adjustment System)

ECCENTRIC SYSTEM ELEMENTS

NO.	PART NAME	PIECES	DESCRIPTION
1	FOOT	2	
2	TOP BEAM	1	
3	BEARING	2	
4	BEARING COVER	2	
5	BOLT	16	
6	ECCENTRIC GUIDE	2	
7	PEG	2	
8	BOLT	12	
9	SEGMENT	2	
10	FLAG GEAR	2	
11	BOLT	8	
12	SHAFT	1	
13	PINION GEAR	2	
14	FLANGE	2	
15	LUBRICATION BOX	2	
16	TURNING PART	1	
17	BOLT	2	
18	JOINT AXLE	2	
19	CENTIL ADJUSTMENT CYLINDER	1	
20	LINEER MEASURE	1	
21	CYLINDER JOINT	1	
22	BEARING	2	
23	ECCENTRIC BUSH	2	
24	NUT	2	
25	TURNING CLAMP	1	
26	TURNING GEAR	1	
27	FIXING SYSTEM	1	

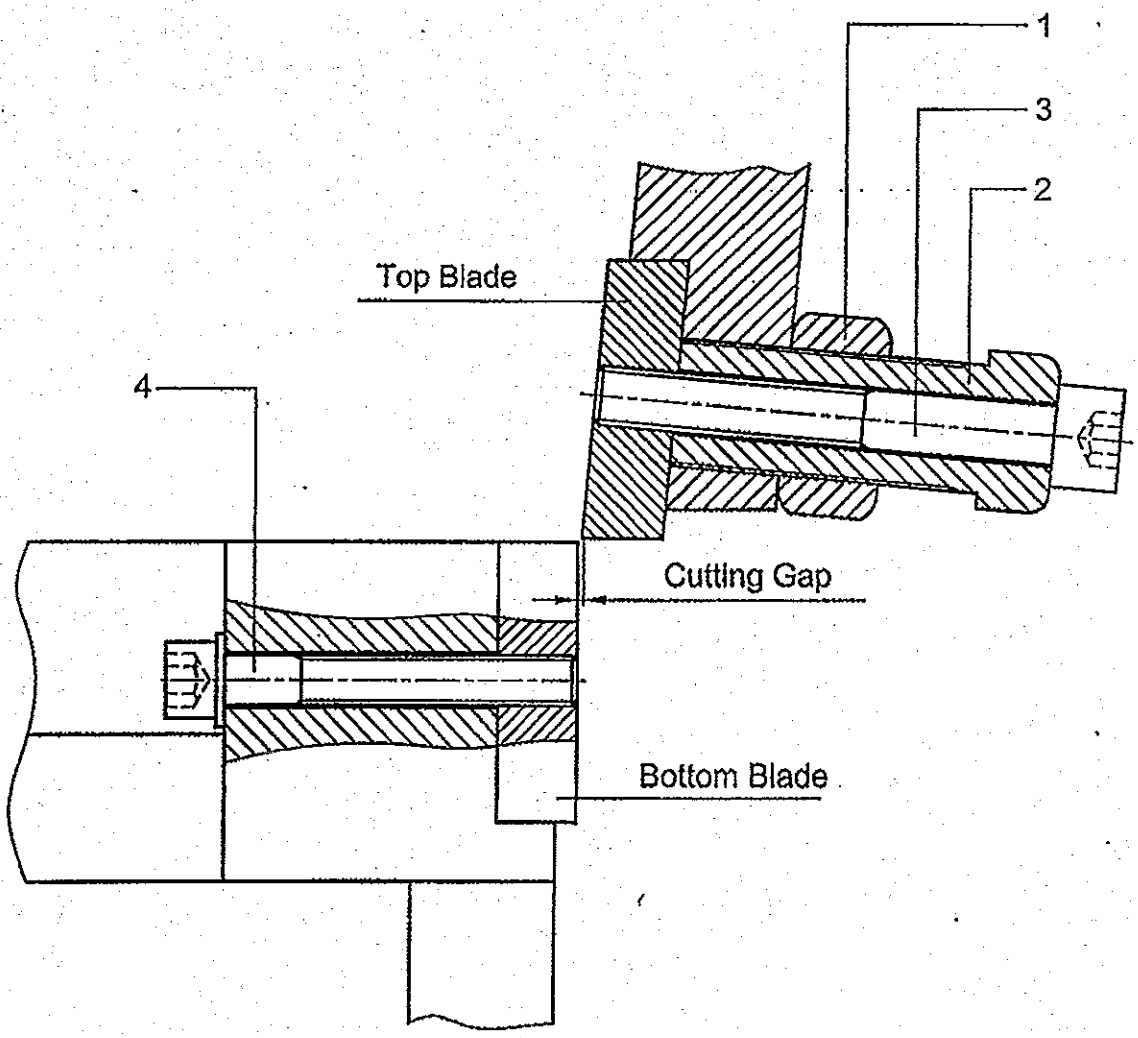


Figure: 8 - Cutting Gap

4.4.4- Back gauge adjustment

Back gauge group works with motor. Sheet leaning distance adjusted by 10S12 and 10S14 buttons on the electricity panel.

4.4.5- Narrow sheet cutting - Cracking

Shear's side throat depth; maintains cracking of sheet tape. In this operation, place the sheet from side. Placed tape's width is limited with the width of throat.

To do this operation:
- Open the side guards
- Get the main switch to position 1.
- Get the position switch to position 2 (P123)
- According to maintained cracking length, make the adjustment from potansiometer (7k7)
- Place the sheet from side and do the cracking by pressing foot pedal.

4.4.6- Sharpening the blades

In time the blades may become blunt. Regularly check the sharpness of the blades. Top blade has angle and can make cutting by its two corners. Bottom blade has no angle and 4 corners can be used. Sharpen the two corners of the top blade and 4 corners of the bottom blade. In small quantity usages sharpen the wide surfaces, in many quantity usages, sharpen the narrow surfaces. Gaps arrises after sharpening have to be feeded. Otherwise blade and bolts may have damages. Figure: 9 Feeding part has to be steel and has to be in same measures with blade. After sharpening and assemblying of the blades, check the blade gap adjustment.

4.4.7- Take off and replacement of the blade

For security reasons, replacement of the blades has to be done at least two persons. There is a possibility to have injured from hands and fingers during changing. For this reason, wear gloves.

4.4.7.1- Replacement of the top blade and precise adjustment

To do this, get the position switch (P123) to position 1. get the top blade to uppest position by pressing EL2 button. Remove the back gauge buffer from blades. Turn off the main switch. Take off the front finger guards and shadow line. Machine operator and his assistant have to work in rear of the machine. Take off the bolts (3) by leaving two bolts loosen on two sides of the top blade. Figure:8. Do not loosen the bolts on points so much, they can cause an accident if top blade falls.
While operator and his assistant are taking off the blade, they will hold the blade by one hand and taking off the bolts by the other hand.
Top blade; assembled by reverse action. If the adjustmet of the top blade spoils, to make the adjustment apply the followings:

To do this, position switch has to be in position 1. and top blade has to be in uppest position. Locate the pin to up canal by turning up 23 numbered turning clamp 90°. Get the 2 numbered value in indicator by turning 27 numbered turning arm. Place the pin to the depth canal by turning up 23 numbered arm 90°. So the gap between top and bottom blade has to be 0.15 mm. Go down the top blade as to come corner to corner with bottom blade from left side of the machine (Front view).
Check the gap between the blades by a centile. If the gap bigger than 0.15 mm, Loosen the 3 numbered blade fixing bolt and 1 numbered nut. Tighten the precise adjustment bolts (2) as to have 0.15mm gap.
If the gap is smaller than 0.15 mm, loosen 1 numbered nut and 2 numbered precise adjustment bolt. (Until having 0.15 mm gap)
After adjustment tighten 1 numbered nuts and 3 numbered bolts. Repeat the above application to all bolts on top blade from left to right. By cutting 2 mm sheet, check the roughness of cutting places. In roughness places repeat the adjustment process. During top blade's precise adjustment, do not overlap top blade to bottom blade.

4.4.6.2- Changing of bottom blade

Get the position switch (P123) to position 1. Get the top blade to the uppest position by pressing EL2 button. Remove the back gauge buffer from blades.
Get 1Q3 main switch from position 1 to 0. Take off front guard fingers and shadow line. Bottom blade is in 3 pieces. Take off the blades by dismantling bolts (4). Assembly them by reverse action.
! Before assemblying the blade, clean the assembly places.

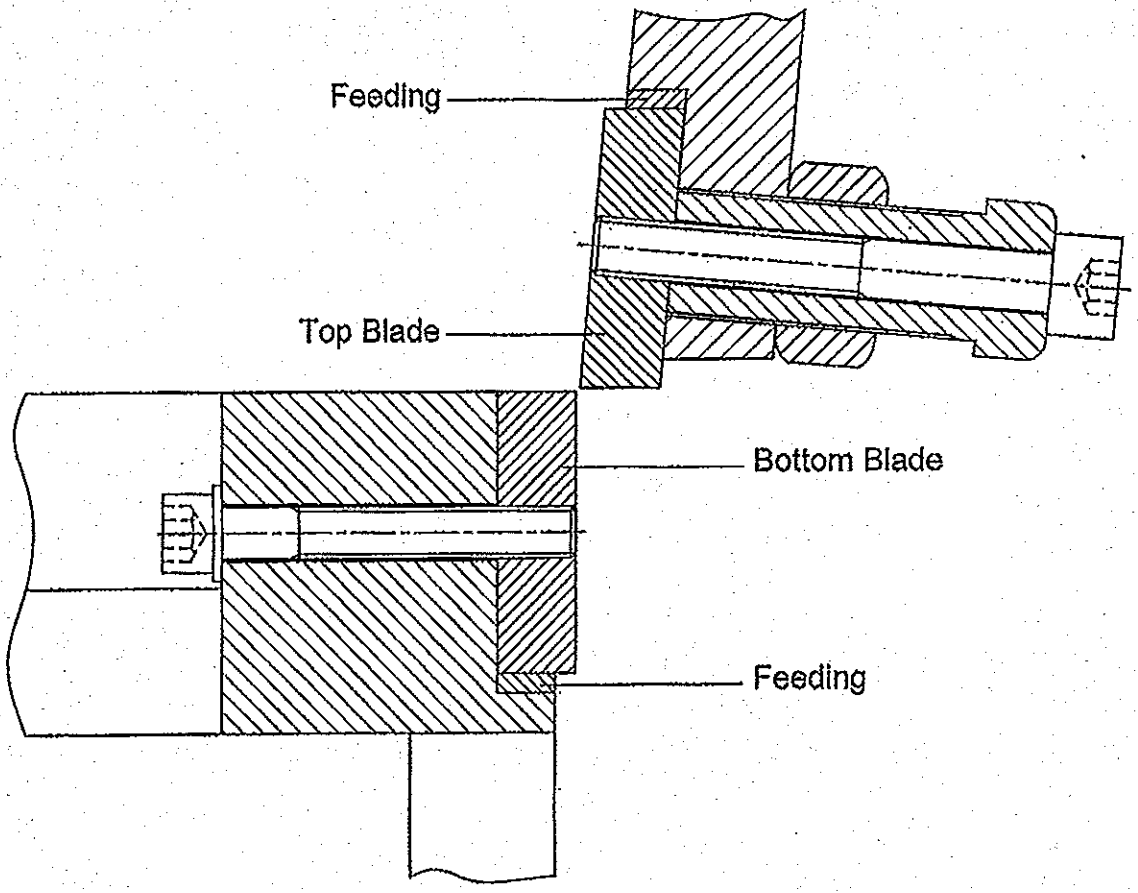


Figure: 9 - Assembly of blades after grinding

THICKNESS	CARBON STEEL			STAINLESS STEEL			MILD ALUMINIUM	ALUMINIUM ALLOY			COPPER AND COPPER ALLOY (BRASS)		
	330 ÷ 370	370 ÷ 500	500 ÷ 700	450 ÷ 660	600 ÷ 800	800 ÷ 950	90 ÷ 110	110 ÷ 250	250 ÷ 350	350 ÷ 510	210 ÷ 350	350 ÷ 550	550 ÷ 710
	350 N/mm²	450 N/mm²	600 N/mm²	550 N/mm²	700 N/mm²	850 N/mm²	100 N/mm²	200 N/mm²	300 N/mm²	450 N/mm²	300 N/mm²	450 N/mm²	650 N/mm²
	SAE 1005	SAE 1015	SAE 1040	430	316	301	Al 99.0	AlMn1Cu	AlMg3	AlZn6MgCu	Cu-ETP	CuAg 0.1(P)	CuSn8
	St 33	St 37	St 60	304	305	431	Al 99.5	AlMg1	AlMg4	AlCu4SiMg	Cu-DLP	CuCr1	CuAl8
0.25	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.02
0.50	0.03	0.03	0.04	0.04	0.04	0.05	0.02	0.02	0.03	0.03	0.03	0.03	0.04
0.80	0.05	0.05	0.06	0.06	0.07	0.07	0.02	0.04	0.04	0.05	0.04	0.05	0.06
1.00	0.06	0.07	0.08	0.07	0.08	0.10	0.03	0.05	0.06	0.07	0.06	0.07	0.08
1.50	0.09	0.10	0.12	0.11	0.13	0.14	0.05	0.07	0.08	0.10	0.08	0.10	0.12
1.80	0.11	0.12	0.14	0.13	0.15	0.16	0.06	0.08	0.10	0.12	0.10	0.12	0.14
2.00	0.12	0.13	0.16	0.15	0.17	0.18	0.06	0.09	0.11	0.13	0.11	0.13	0.16
2.50	0.15	0.17	0.19	0.19	0.21	0.23	0.08	0.11	0.14	0.17	0.14	0.17	0.20
3.00	0.18	0.20	0.23	0.22	0.25	0.25	0.10	0.13	0.16	0.20	0.16	0.20	0.24
4.00	0.30	0.34	0.39	0.37	0.42	0.47	0.16	0.22	0.27	0.34	0.27	0.34	0.40
5.00	0.42	0.47	0.54	0.52	0.58	0.59	0.22	0.31	0.38	0.47	0.38	0.47	0.59
6.00	0.53	0.60	0.70	0.65	0.75	0.85	0.28	0.40	0.49	0.60	0.49	0.60	0.75
7.00	0.65	0.74	0.85	0.81	0.92	1.03	0.35	0.49	0.60	0.74	0.60	0.74	0.92
8.00	0.78	0.87	1.01	0.95	1.10	1.25	0.41	0.58	0.71	0.87	0.71	0.87	1.16
9.00	0.90	1.01	1.16	1.10	1.25	1.40	0.48	0.67	0.82	1.01	0.82	1.01	1.29
10.00	1.00	1.14	1.32	1.25	1.42	1.59	0.54	0.76	0.93	1.14	0.93	1.14	1.42
12.00	1.24	1.41	1.63	1.55	1.76	1.97	0.66	0.94	1.15	1.41	1.15	1.41	1.69
13.00	1.44	1.65	1.85	1.70	1.95	2.20	0.78	1.12	1.37	1.68	1.37	1.68	1.96
15.00	1.60	1.81	2.10	1.95	2.26	2.57	0.85	1.21	1.48	1.81	1.48	1.81	2.18
18.00	1.95	2.21	2.56	2.40	2.76	3.12	1.04	1.47	1.81	2.21	1.81	2.21	2.66
20.00	2.20	2.50	2.87	2.70	3.10	3.50	1.17	1.65	2.03	2.48	2.03	2.48	2.98

Table : 1 - Cutting Blade Gap Chart

5 - MAINTENANCE

5.1 - General Maintenance

CONTROL	FREQUENCY	RESPONSIBLE
-Greasing	See section 5.5	Machine Operator
-Lubrication of blades	Daily	Machine Operator
-Damage control of guards	Daily	Machine Operator
-Oil leakage of cylinders	Daily	Machine Operator
-Hydraulic oil level	Weekly	Machine Operator
-Leakage of hydraulic elements and connections	Weekly	Machine Operator
-Looseness of cylinder connection bolts	Weekly	Machine Operator
-Looseness of blade connection bolts	Weekly	Machine Operator
-Looseness of limit switches	Weekly	Machine Operator
-Electricity connection	Annualy	Electrician

5.2 -Hydraulic System

Check the hydraulic oil level regularly.Clean the hydraulic circuit materials. During the control period, dust and dirt have not to go through the hydraulic system. Change fuse seals,damaged and abrasion parts.

5.3 - Oil changing

First changing of the oil in the tank has to be done after 1000 hours operation. Further changings have to be done after 2500 hours operation.
In time hydraulic oil may be dirty and worn out. In this condition, it has to be changed. Sedimentary, blurred oil has to be changed.
For oil changing, turn off the machine. Take off the cover by taking of its bolts (under the bottom table) Unload the oil by a pot or pump. After unloading the oil, clean the tank. Load new oil and close its cover. Prevent the entrance of dust and dirt during oil changing.

5.4 - Equivalance Hydraulic oil

AMBIENT TEMPERATURE		
	0° C / + 20° C	+ 20° C / + 40° C
CASTROL	HYSPIN AWS 32	HYSPIN AWS 46
MOBIL	DTE 24	DTE 25
PETROL OFISI	SUPER HYDRO OIL HD 32	SUPER HYDRO OIL HD 46
	SUPER HYDRO OIL HD 37	
SHELL	TELLUS 32	TELLUS 46
	TELLUS 37	

5.5 - Greasing

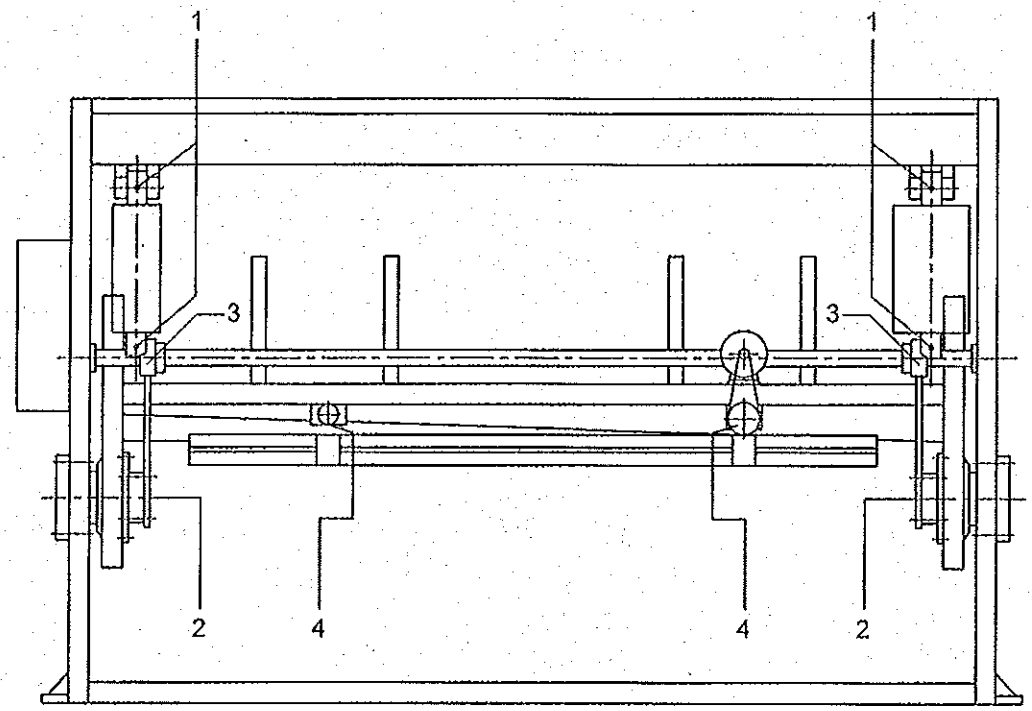


Figure : 10 - Greasing Schema

NO	PIECES	PLACE IN THE MACHINE	TIME PERIOD	OIL TYPE
1	4	Cylinder arms	Once in a month	Mobil Special
2	2	Eccentric system peg	" "	" "
3	2	Pinion gear - Flag gear	" "	" "
4	2	Backgauge screwed shaft	" "	" "

6-ELIMINATING THE DEFECTS

PROBLEM	REASONS	SOLUTION
Bad surface on cutted sheet	-Inappropriate centile adjustment	-Make centile adjustment
	-Blunt in blade	-Sharpen the blades
Beam does not go down (no or low pressure in cylinder)	-Pump is defective	-Find defectiveness or change the pump
	-Emmision filter is blocked	-Clean the filter
	-Pressure security valve is blocked	-Clean the valve
	-Pressure security valve is defective	-Change the valve
	-Direction valve is blocked	-Clean the valve
	-Direction valve bobbin is burnt out	-Change the bobbin
	-Leakage in tube lines or in cylinder	-Find the leakage and solve it
Oil leakage under the cylinder	-Cylinder seals are defective	-Change the seals
Oil leakage in hydraulic connection parts	-Looseness in connection parts	-Tighten them.
Oil leakage from pressure cylinders	-Pressure seals are defective	-Change the seals
	-O-ring in throat is defective	-Change the O-ring
Compulsion in top beam	-Cylinders are unbalanced	-Balance the cylinders, see subject 6.1

6.1- Interfilling -Releasing Process

6.1.1 Conditions which stipulate to apply Inter filling -releasing operation

1.Case-At the initial machine installation process while machine is commissioning apply the Inter filling -releasing operatin

2.Case-In case one or/and more equipments belonging to hydraulic system(pump,bloc,valve,pipe,hose,connection element) , is/are replaced ,apply Inter filling -releasing operation

3.Case-The oil leaks or air can be occured in the hydraulic system during operation of the machine that can cause unbalanced loadind of cylinders, twist of the beam and crust to upper beam welding.In order to eliminate such kind of conditions apply th

a-indicator(monometer) of inter filling-relesing line exceeds 40 bar. (figure 1)

when looking back side of the machine

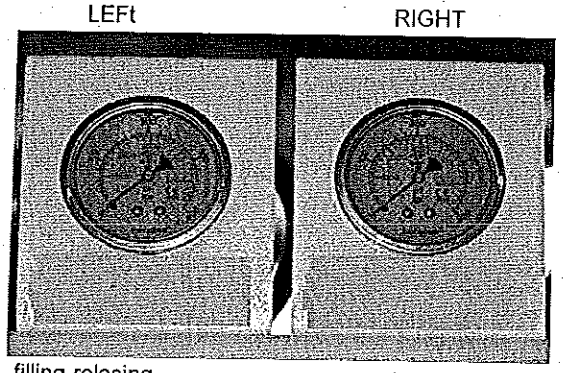


Figure 1

b-Centile adjustment arm squeeze(becomes hard to move -change the blade gape) while centile adjustment implementing manually

6.1.2 Implementing inter filling-releasing procedure

1 -Press to inter filling button for 1 - 2 sec. (b5) (Figure : 3) monometer pressure must be 40 bar.

2 - Press to inter release button. (b6) (Figure : 3) monometer pressure must be 40 bar.

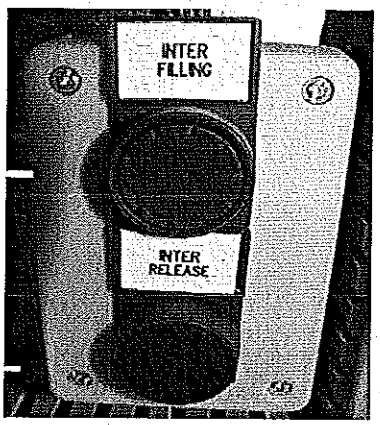
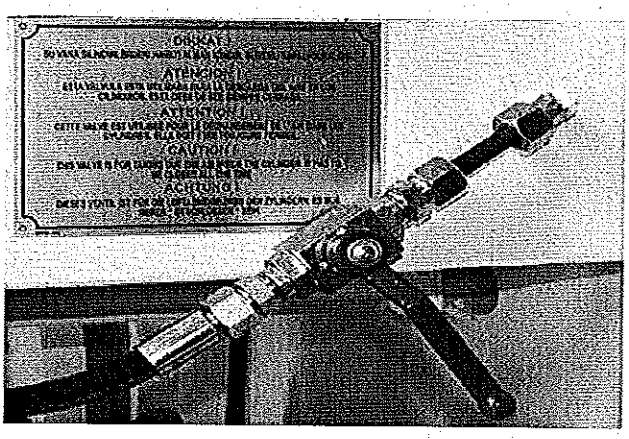


Figure 3

3 - Repeat the 3. ve 4. steps several time.

After finishing inter filling -releasing procedure manometer(inter filling-release manometer) pressure have to be "0" bar

4 - On the 1. and 2.conditions which stipluate to apply inter filling -releasing process, keep valve A(Figure 11) open for 1-2 seconds then close it after first five clause have been implemented.Complete the inter filling -relesing process by implem



On the 3.condition which stipluate to apply inter filling -releasing process after implementing first five clause check the Conditions again.If these conditions still exists keep valve A(Figure 11) open for 1-2 seconds then close it.Complete the i

WARNING:Valve A have to be closed position consistently while machine is working.

5-Do not start the cutting before checking conditions which stitulate to apply inter fillin-releasing operation.

6.1 - Interfilling and Releasing process

! During transportation, cylinders may get air inside. While installing the machine make the interfilling process.
! After changing pipe or hose of hydraulic system, air can be seen inside the system. This effects the working of the cylinders negatively. To prevent this, the interfilling process must be done.
! During the running of the shear, air can go inside the system. This causes the cylinders to run unbalanced and the top beam to jam. To prevent this, open the valve -A (Figure-11) for 2-5 seconds once in a week.
! Attention that the A valve (Figure : 11) beside the right cylinder must be closed all the time

The Way Of The Process

1 - Take the position switch to position 1.
2 - Take down the top beam until the middle way.
3 - Press interfilling button (inside the electrical panel). (Figure : 4)
4 - Press interreleasing button.
5 - Repeat third and fourth steps for a few times.
6 - After the above processes, operate the machine.

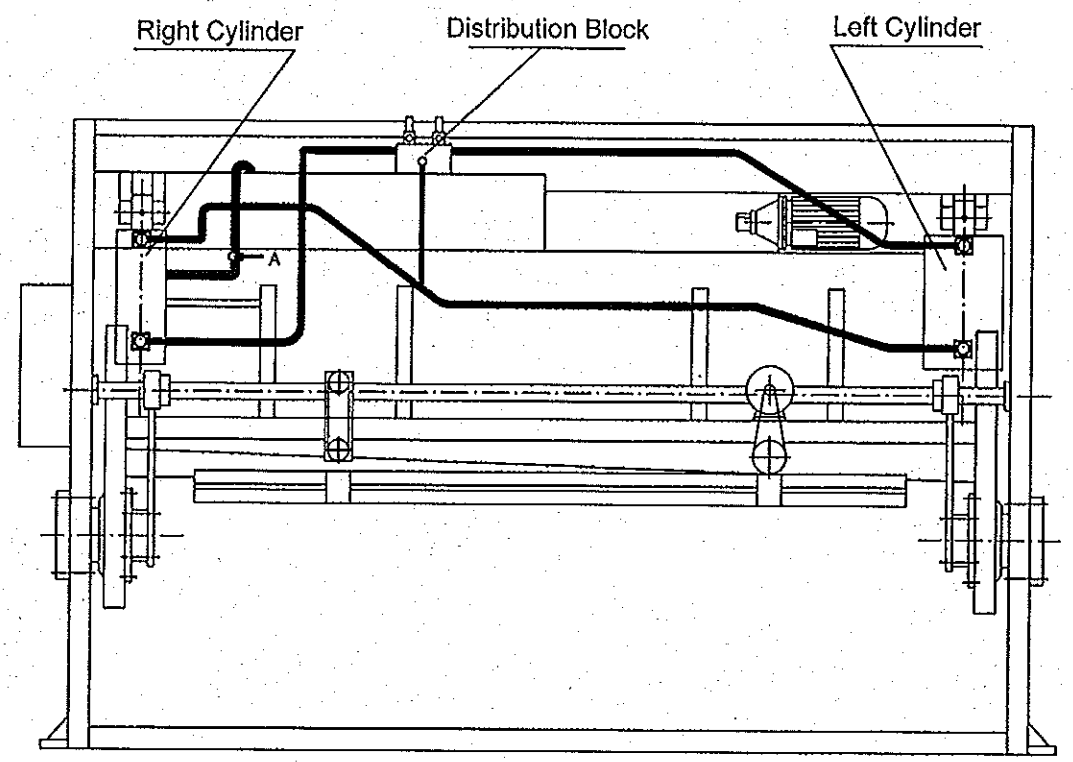
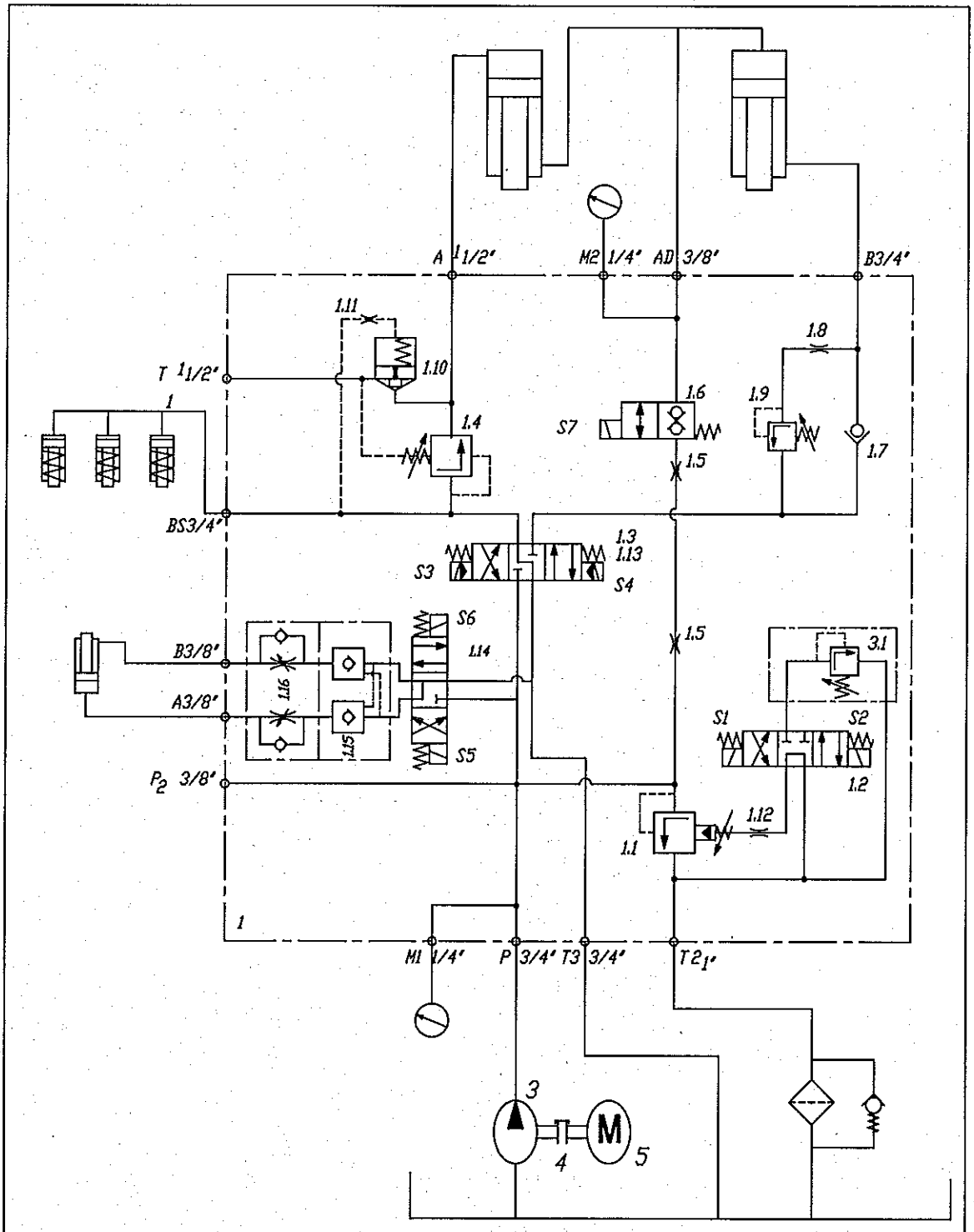


Figure: 11 - Diagram of cylinder hydraulic connection

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	İSİM	TARİH	İMZA	MALZEME
ÇİZEN	HAKAN UZUNER	25.02.2014	-	-
KONTROL	ERDEM ATSAN	25.02.2014	-	ADET
ONAY	CEM KAPSAL	25.02.2014	-	1
ÖLÇEK	BHB 4064/2014			BLOK NO
-	6-8-10-13 MM CNC HGD SHEAR			BH 541

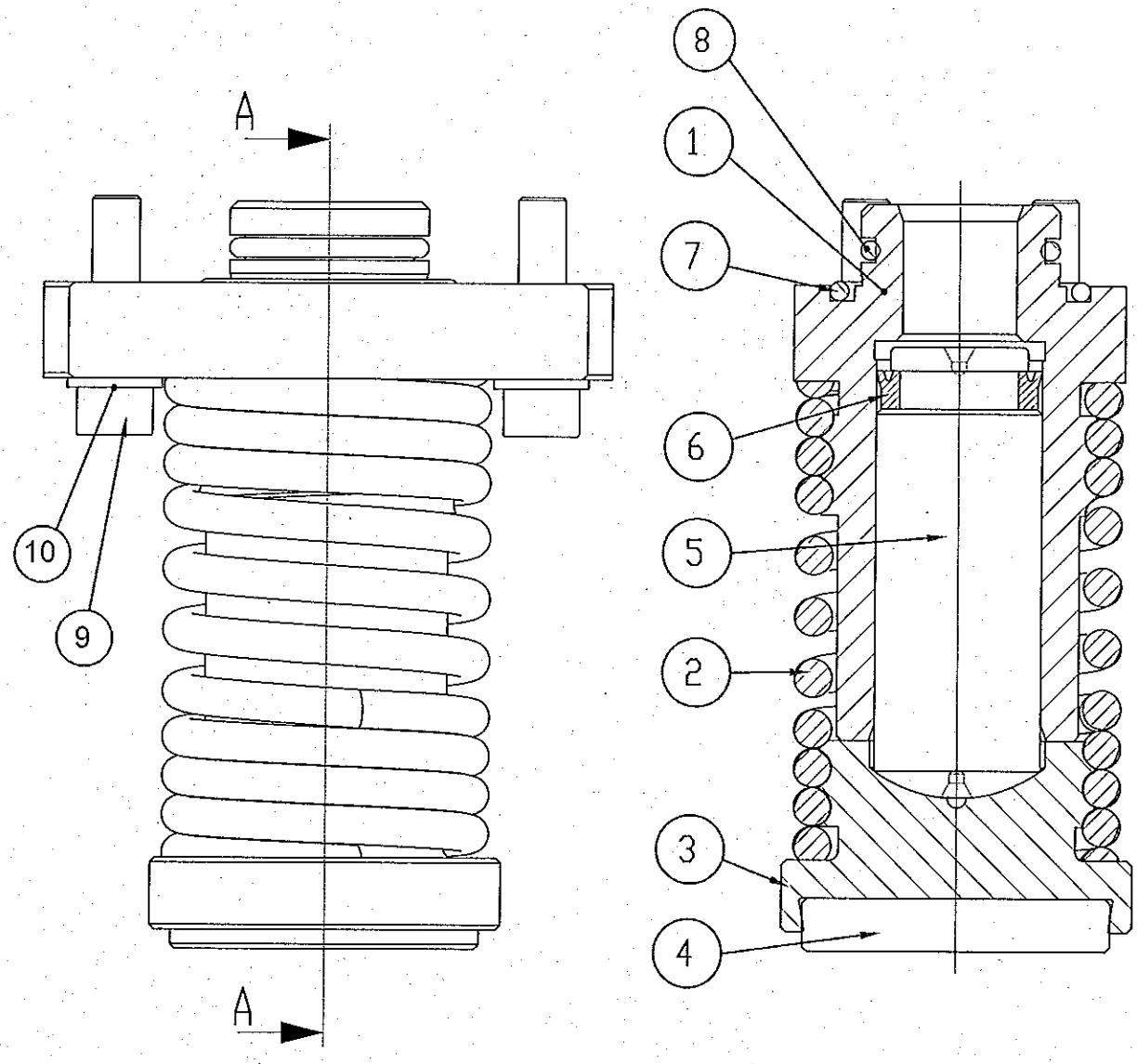
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PART LIST

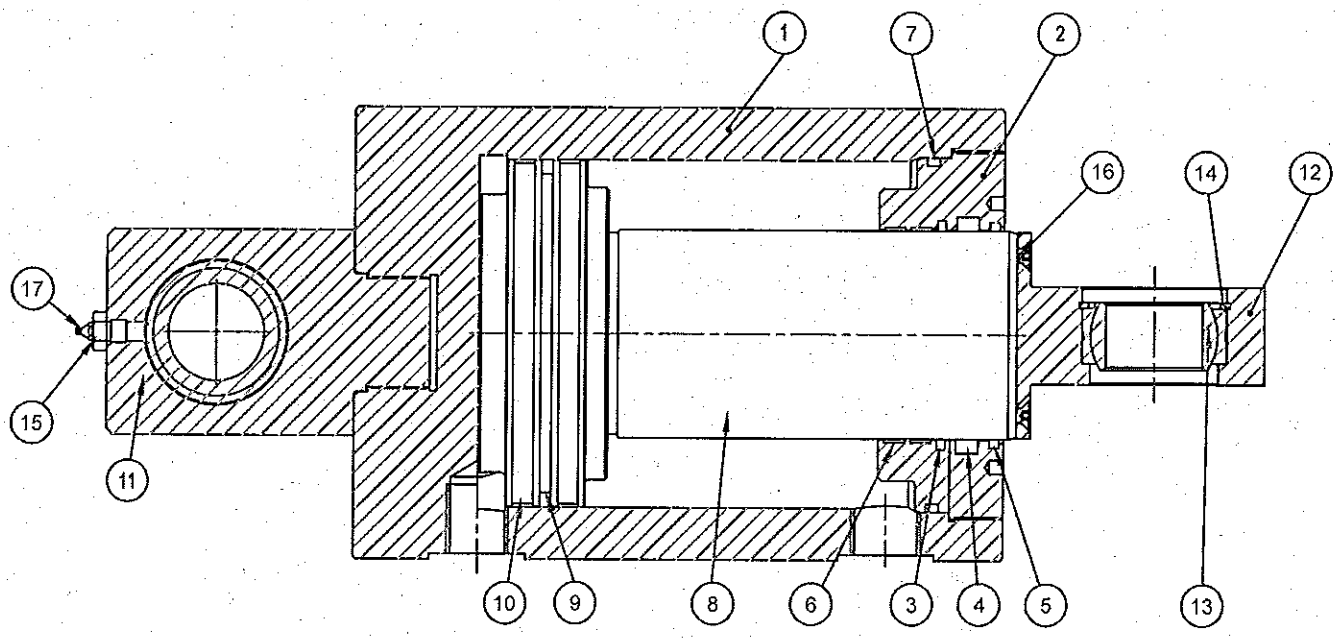
POS.	PCS.	MATERIAL PROPERTIES	CODE	MANUFACTURER
	1	CNC HGD 6-8-10-13 mm		BTC
1,00	1	CONTROL BLOCK	BHB.4064 / 14	BTC
1,1	1	PRESSURE RELIEF VALVE	RV.2A.30.C.L	HOERBIGER
1,2	1	NG6 DIRECTION VALVE	TCM370PC06P	HOERBIGER
1,3	1	NG 16 DIRECTION VALVE A-T	DG07-2CT-10	OCEAN
1,4	1	PRESSURE VALVE RANKING	SP.11.A.30.A.L	WINNER
1,5	1	ORİFİS	Ø=1,5 mm	BTC
1,6	1	POPPET VALVE	SVN225BE08PD	HOERBIGER
1,7	1	CHECK VALVE	CV.10W.20.17.N	WINNER
1,8	1	ORİFİS	Ø=2,5 mm	BTC
1,9	1	COUNTER BALANCE VALVE	RD.10W.2A.W.L	WINNER
1,10	1	NG32 LOGIC VALVE	CVSE32A10A	HOERBIGER
1,11	1	ORİFİS	Ø=1 mm	BTC
1,12	1	ORİFİS	Ø=1 mm	BTC
1,13	1	NG16 DIRECTION VALVE PILOT	TCM380PC06P	HOERBIGER
1,14	1	NG6 DIRECTION VALVE	TCM380PC06P	HOERBIGER
1,15	1	MODULAR TWIN LOCK	DGMPC-03-W	OCEAN
1,16	1	MODULAR TWIN ATT	DGMTC-03-W	OCEAN
3.0	1	CONTROL BLOCK	BHB.3117.14	BTC
3.1	1	PRESSURE RELIEF VALVE	VDBE.06.E.350	HOERBIGER



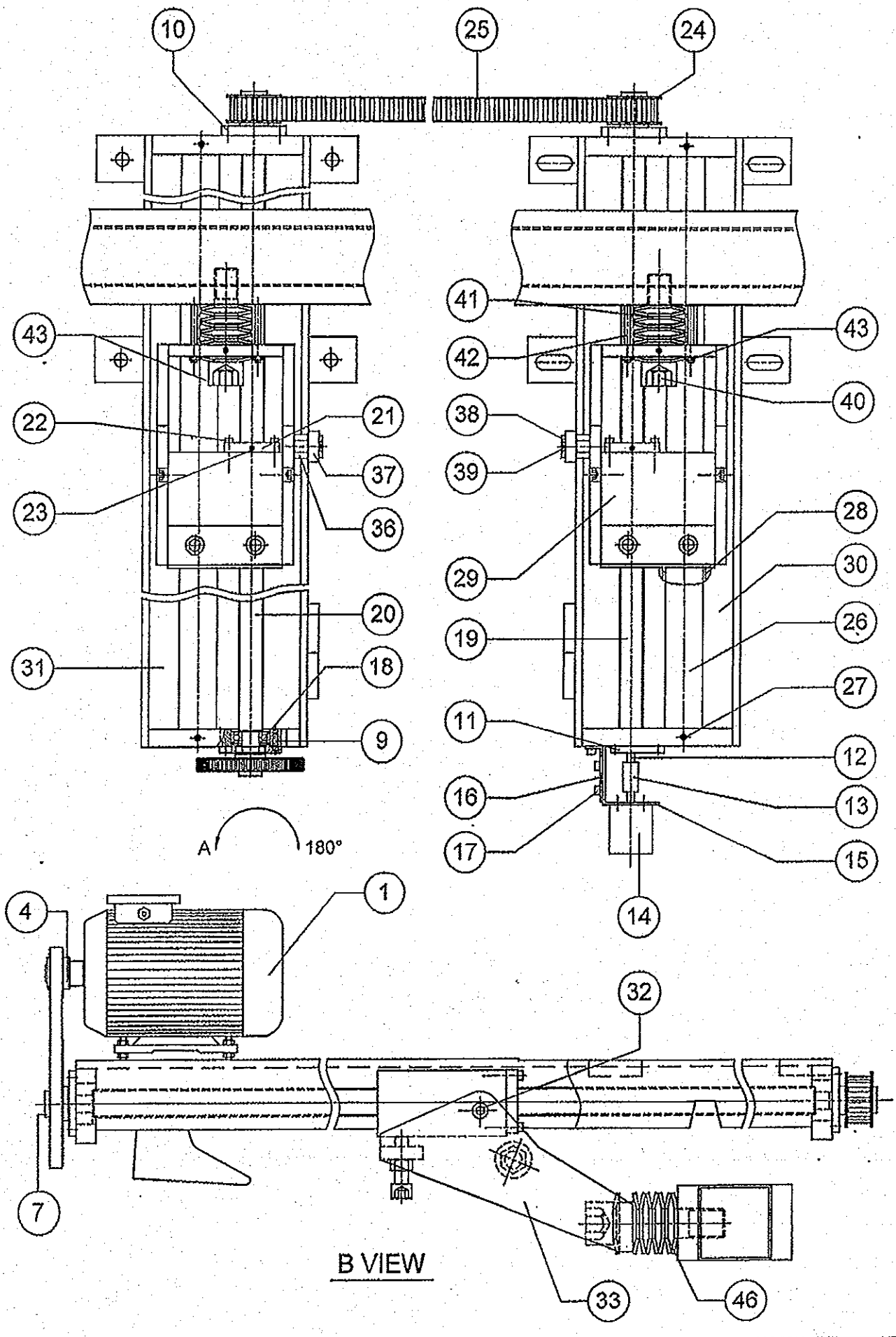
10	4	M10 RONDELA	DIN 128-A 12-FSt	-	5010103830
9	4	M10x40 BOLT	DIN 912	8,8	5010100600
8	1	O ring Ø34xØ4	KASTAŞ - KO-0340040İ	NBR	5010111944
7	1	O ring Ø47xØ4	KASTAŞ - KO-0470040İ	NBR	5010111945
6	1	U CUP Ø35xØ25x8	KASTAŞ K 21-025/5PU	POLİÜRETAN	5010111946
5	1	PRESSURE CYLINDER PIST	2231.03.03.05	Ç 1040	4012350181
4	1	PRESSURE BUFFER	2231.03.03.04	VULKOLEN	4012350173
3	1	PRESSURE SHOES	2231.03.03.03	Ç 1040	4012350165
2	1	PRESSURE ABSORBER	2231.03.03.02	55 Sİ 7 C KALİTE	4012350161
1	1	PRESSURE CYLINDER BAD	2231.03.03.01-FT	Ç 1040	4109000058
POZ NO	PIECE	MATERIAL NAME	PICTURE NO/STANDARD NO	GEREÇ	STOKNO

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HGD / CNC HVR 10-13 mm. PRESSURE CYLINDER

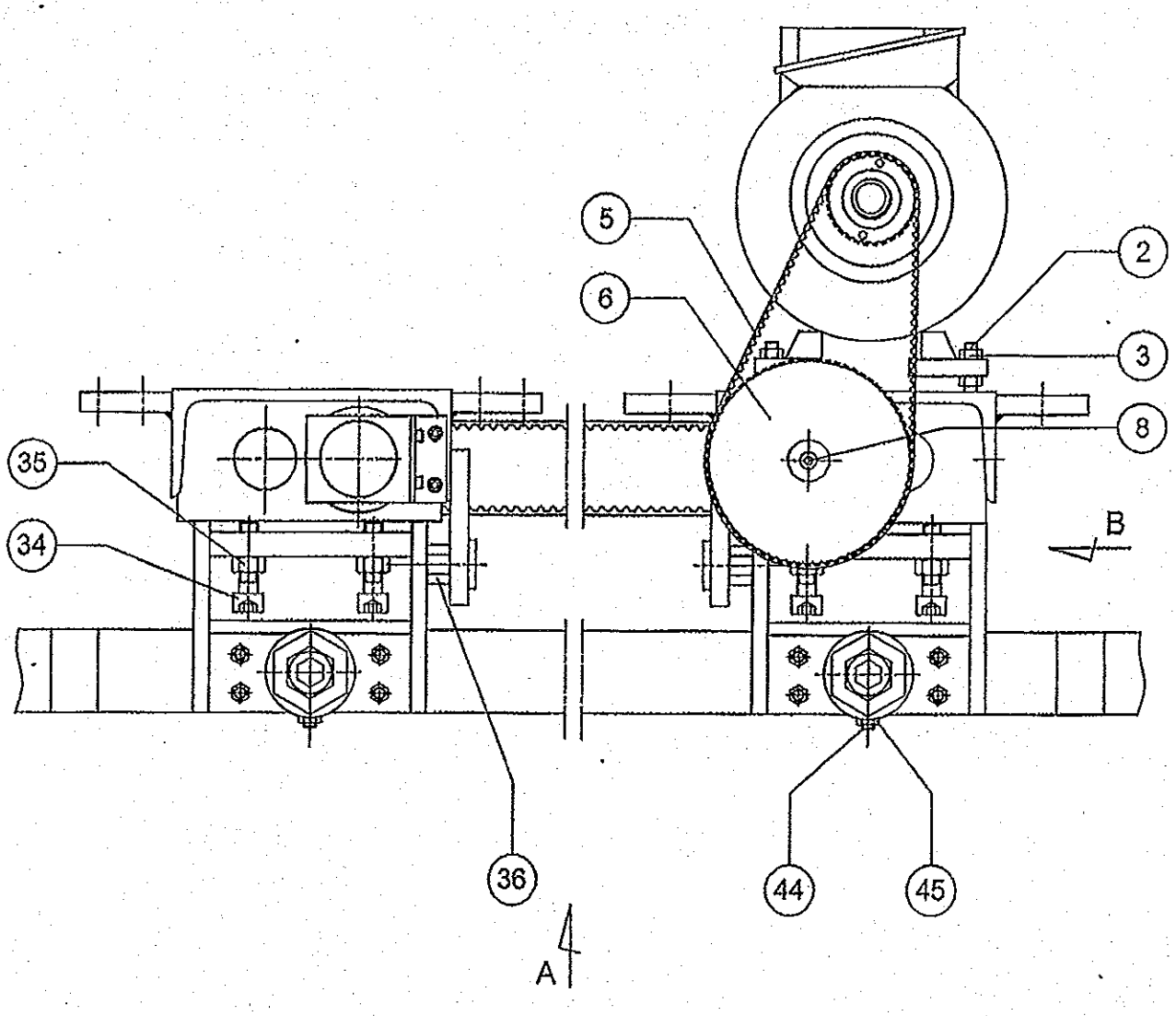


NO.	PART NAME	PIECE	EXPLANATION	
			RIGHT CYLINDER	LEFT CYLINDER
1.	Cylinder Body	1	2341.03.02.01	2341.03.01.01
2.	Cylinder Nut	1	2340.03.02.02	2340.03.01.02
3.	Omegat (Throat Seal)	1	Ø 120x Ø 135.1 x 6.3	
4.	U - Cup (Throat Seal)	1	Ø 120 x Ø135x 9.5	
5.	Dust Seal	1	Ø 120 x Ø 132 x 5.5/10	
6.	Bearing Band	2	K 70 POM	
7.	O - Ring	1	Ø 6.99 x Ø 151.77	Ø 6.99 x Ø 193.7
8.	Piston	1	2341.03.02.02	2341.03.01.02
9.	Omegat (Piston Seal)	1	Ø 160 x Ø 139x 8.1	Ø 200 x Ø 179x 8.1
10.	Bearing Band	2	K 70 POM	K 70 POM
11.	Cylinder Ankle	1	2340.03.00.01	
12.	Piston Ankle	1	2340.03.00.02	
13.	Bearing	2	GE 60 ES	
14.	Segment (Ø 90 x 3)	1	DIN 472	
15.	Special Bolt	1	2331.03.00.06	
16.	Bolt	4	DIN 7991	
17.	Grease Nipple	1	3/8" 24 UNF	



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BACK GAUGE



BACK VIEW

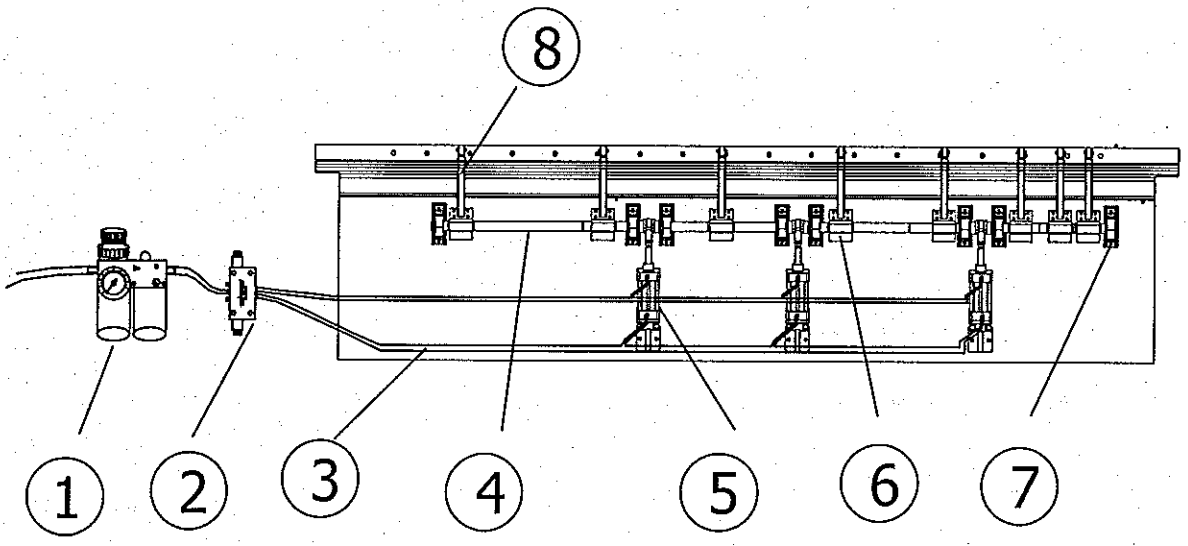
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BACK GAUGE

NO	PART NAME	PIECE	EXPLANATION
1	Motor 80M	1	0.75 kW-1500 d/d
2	Setskur M8x35	4	
3	Nut M8	8	
4	Motor Pulley Group	1	1/5" , Z=30
5	Synchronize Belt	1	210 XL , b=16 mm
6	Entrance Pulley	1	1/5" , Z=68
7	Plake	3	
8	Bolt M8X30	3	
9	Bolt M6X30	16	
10	Cover	3	
11	Encoder Connection Cover	1	
12	Encoder Extension Shaft	1	
13	Couplin	1	
14	Encoder	1	
15	Encoder Connection Foot	1	
16	Encoder Connection Sheet	1	
17	Bolt M4x10	9	
18	Bearing	4	6204.2Z
19	Screwed Shaft (Right)	1	
20	Screwed Shaft (Left)	1	
21	Flanges Nut	1	FEM-E-S
22	Bolt M6x30	12	
23	Fitting	1	A 3/8"-24 UNF
24	Transmission Pulley Group	2	1/2" , Z=14
25	Synchronize Belt (2100mm-900H-100 , 2600mm-1100H-100,3100/4100 mm -1400H-100)	1	
26	Guide Shaft	2	
27	Setskur M8x20	4	
28	Bushing Ø40xØ44x40	4	
29	Travelling Bearing Frame	2	
30	Driven Frame	1	
31	Motor Driven Frame	1	
32	Bolt M12x30	4	
33	Carrier Arm Group	2	
34	Bolt M12x50	4	
35	Nut M12	4	
36	Bearing Shaft	2	
37	Nut M12	2	
38	Bearing	2	6004.2Z
39	Plake	2	
40	Bolt M8x20	2	
41	Bolt M20x120	1	
42	Disc Spring	8	
43	Setskur M10x80	4	
44	Nut M10	4	
45	Setskur M8x20	2	
46	Nut M8	2	
47	Buffer	1	

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BACK GAUGE MATERIAL LIST



1	FİLTER
2	VALF
3	AİR HOSE
4	CARRİER SHAFT
5	PNEUMOTIC PISTON
6	CARRIER ARM CONNECTION BODY
7	BED WİTH BEARİNG
8	CARRIER ARM

FLOW RATES ARE FOR ALL PNEUMATIC SYSTEMS ON SHEARING MACHINES

CNC HVR

NO	MACHINE	COMPRESSOR FLOW (m³/hour)
1	CNC HVR 3100-6mm	23.5
2	CNC HVR 3100-10mm	27.0
3	CNC HVR 3100-13mm	24.5
4	CNC HVR 3100-16mm	19.6
5	CNC HVR 3100-20mm	16.0
6	CNC HVR 3100-25mm	15.8
7	CNC HVR 4100-6mm	21.5
8	CNC HVR 4100-10mm	35.8
9	CNC HVR 4100-13mm	31.6
10	CNC HVR 4100-16mm	27.3
11	CNC HVR 4100-20mm	23.1
12	CNC HVR 4100-25mm	18.9
13	CNC HVR 6100-6mm	47.3
14	CNC HVR 6100-10mm	41.0
15	CNC HVR 6100-13mm	34.7
16	CNC HVR 6100-16mm	37.9
17	CNC HVR 6100-20mm	29.4
18	CNC HVR 6100-25mm	21.0

CNC HGD

NO	MACHINE	COMPRESSOR FLOW (m³/hour)
1	CNC HGD 3100-6mm	15.7
2	CNC HGD 3100-8mm	13.7
3	CNC HGD 3100-10mm	16.0
4	CNC HGD 3100-13mm	13.5
5	CNC HGD 3100-16mm	12.3
6	CNC HGD 3100-20mm	9.8
7	CNC HGD 4100-6mm	13.7
8	CNC HGD 4100-8mm	11.7
9	CNC HGD 4100-10mm	21.0
10	CNC HGD 4100-13mm	18.9
11	CNC HGD 4100-16mm	16.8
12	CNC HGD 4100-20mm	14.7

CNC HGS

NO	MACHINE	COMPRESSOR FLOW (m³/hour)
	CNC HGS 2100-6mm	9.1
	CNC HGS 2600-6mm	15.7
	CNC HGS 3100-6mm	19.6
	CNC HGS 4100-6mm	14.7
	CNC HGS 2100-8mm	6.5
	CNC HGS 2600-8mm	11.7
	CNC HGS 3100-8mm	15.7
	CNC HGS 4100-8mm	15.7

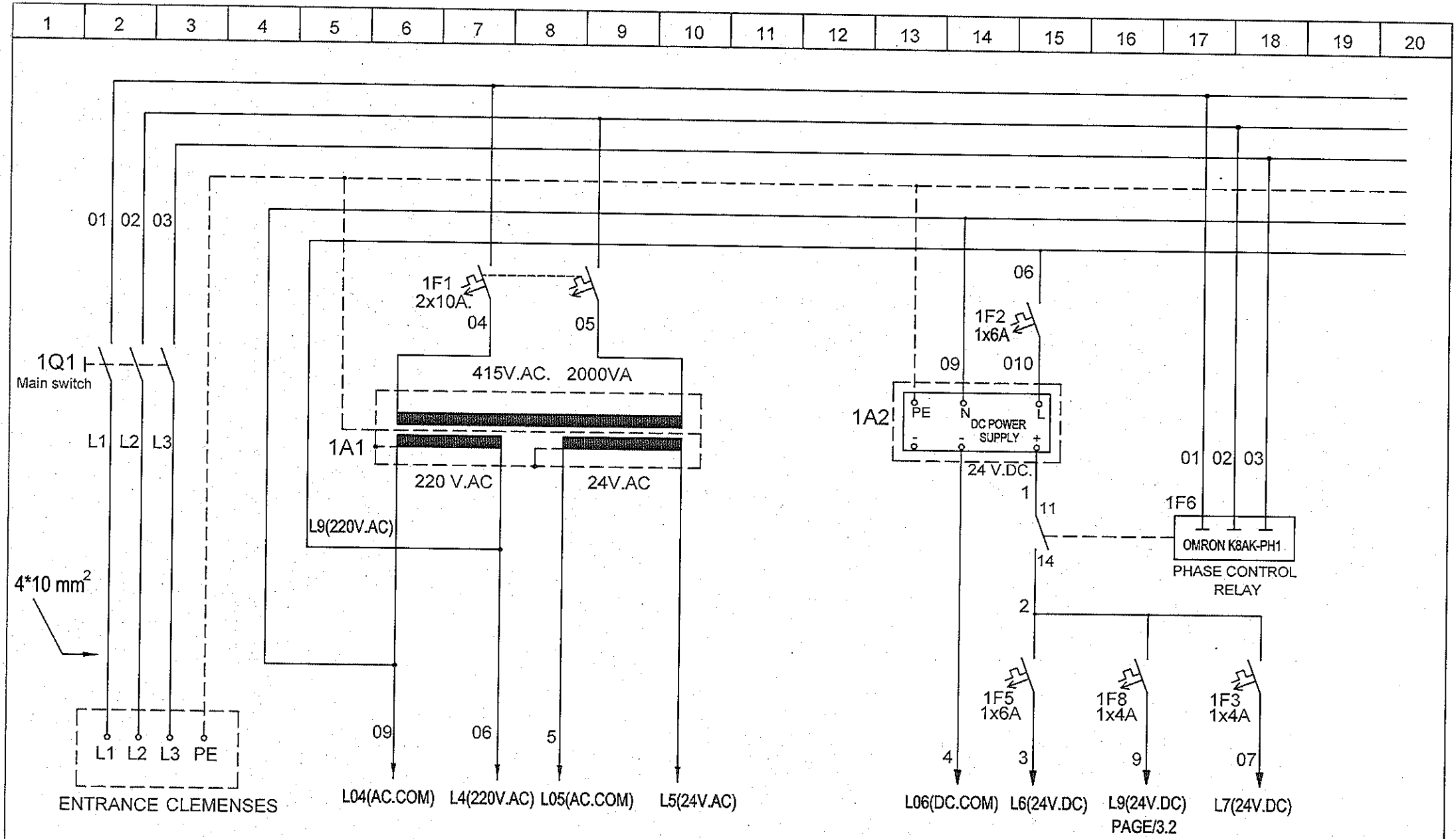
GMR

NO	MACHINE	COMPRESSOR FLOW (m³/hour)
1	GMR 1400-3mm	11.1
2	GMR 2100-3mm	11.1
3	GMR 1500-4mm	13.0
4	GMR 2100-4mm	13.0
5	GMR 2600-4mm	26.1
6	GMR 3100-4mm	39.1

NOTE: These information is for standard arm type pneumatic systems on shearing machines!

ATTENTION

1- The working pressure must be maksimum 6,5bar, minimum 5,5bar.
2- The air must be filtered and lubricated.
3- The ambient temperature must be nominal conditions.
4- The air flow must be in the values specified above.

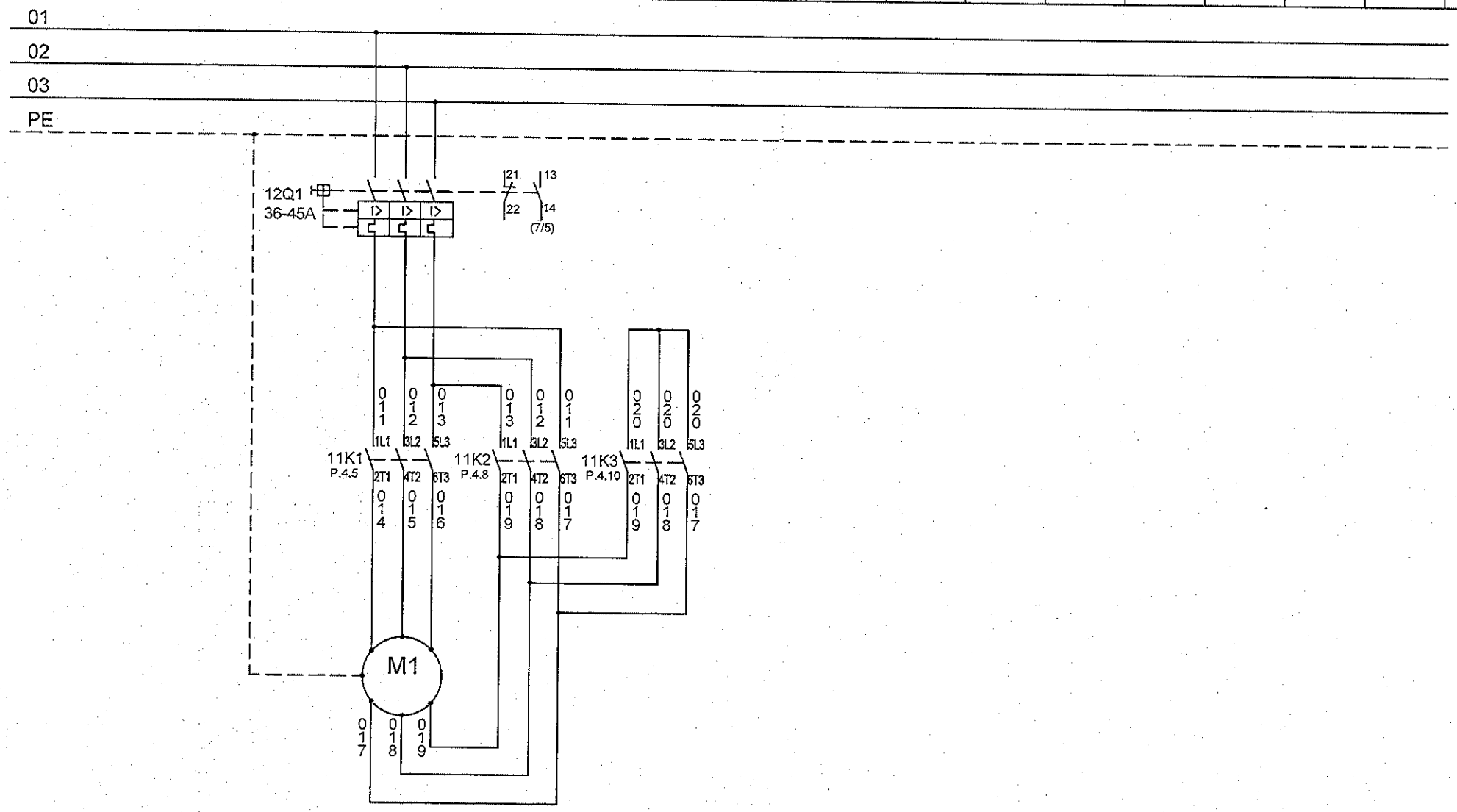


SUPPLY: 415V 50Hz 3Ph PE
NOMINAL CURRENT: 50A
ENTRANCE CABLE: 4*10mm^2

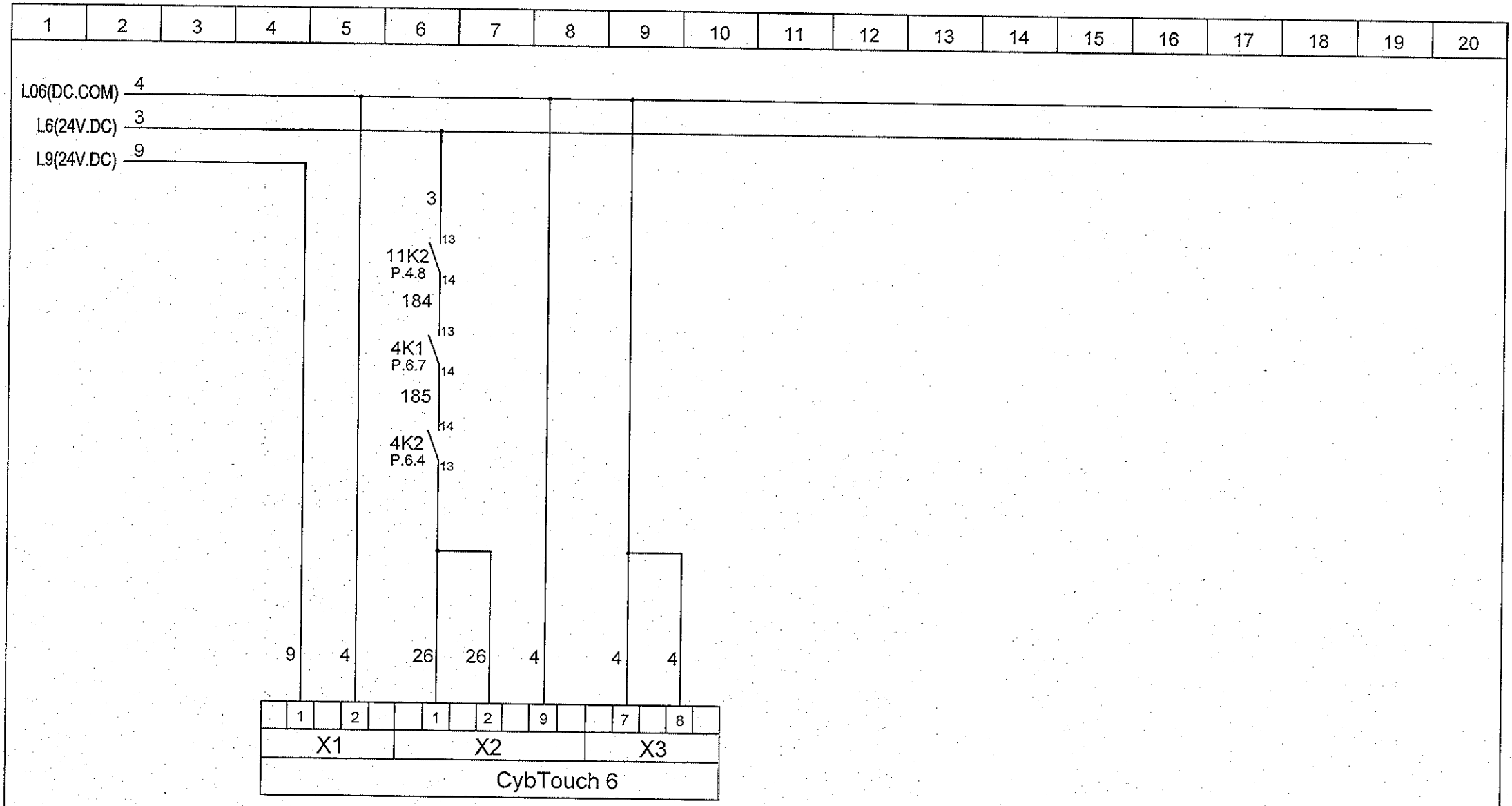
Black Cable : 415V
Black Cable : 220V

Red Cable : 24V.AC
Blue Cable : 24V.DC

PAGE	MACHINE TYPE	REV	DATE	26.04.2017	SIGNATURE
1	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME			ERMAK METAL FABRICATING MACHINERY		
POWER CIRCUIT					



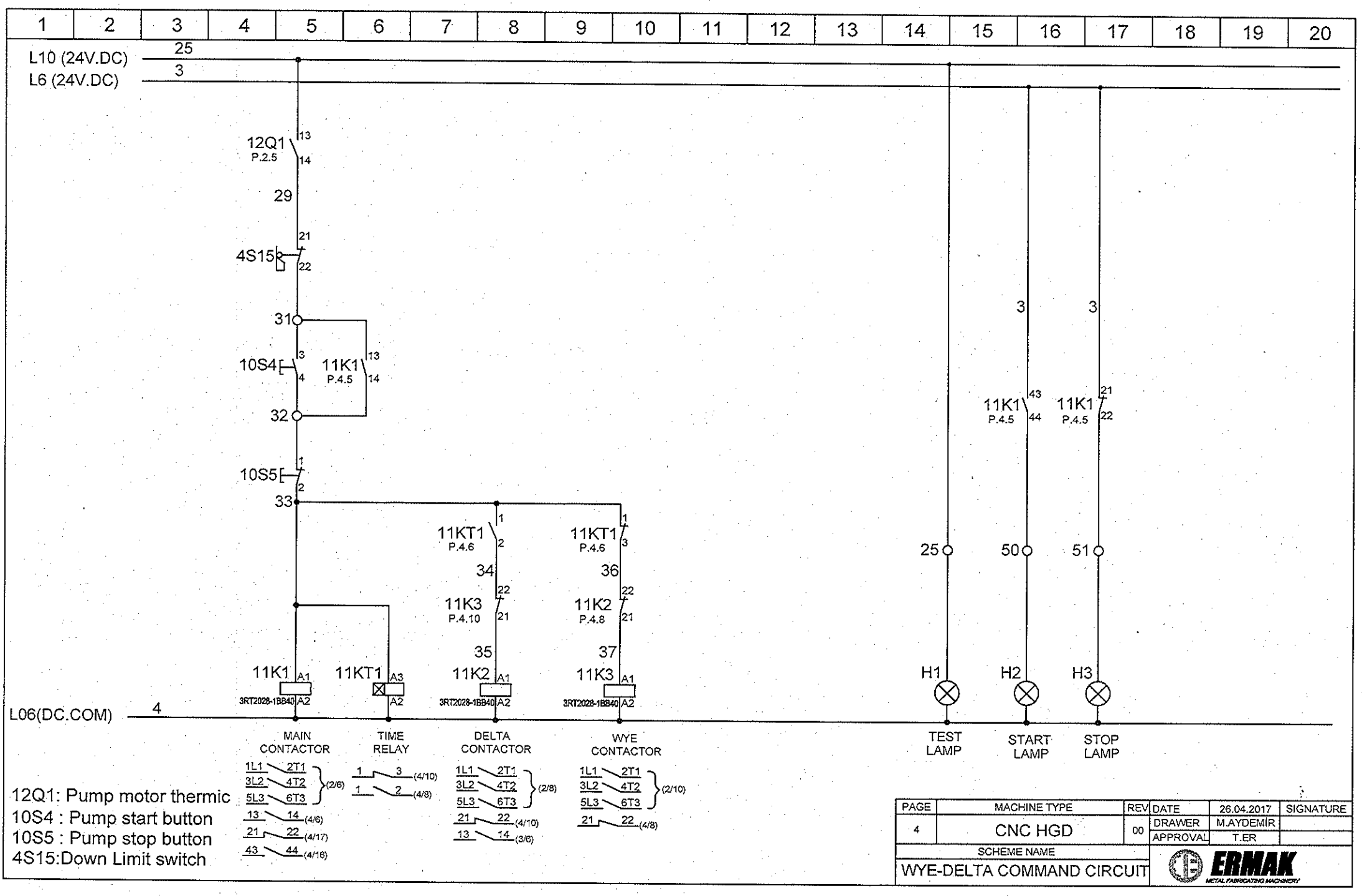
PAGE	MACHINE TYPE	REV	DATE	03.06.2015	SIGNATURE
2	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME					
MOTOR POWER CIRCUIT			ERMAK METAL FABRICATING MACHINERY		

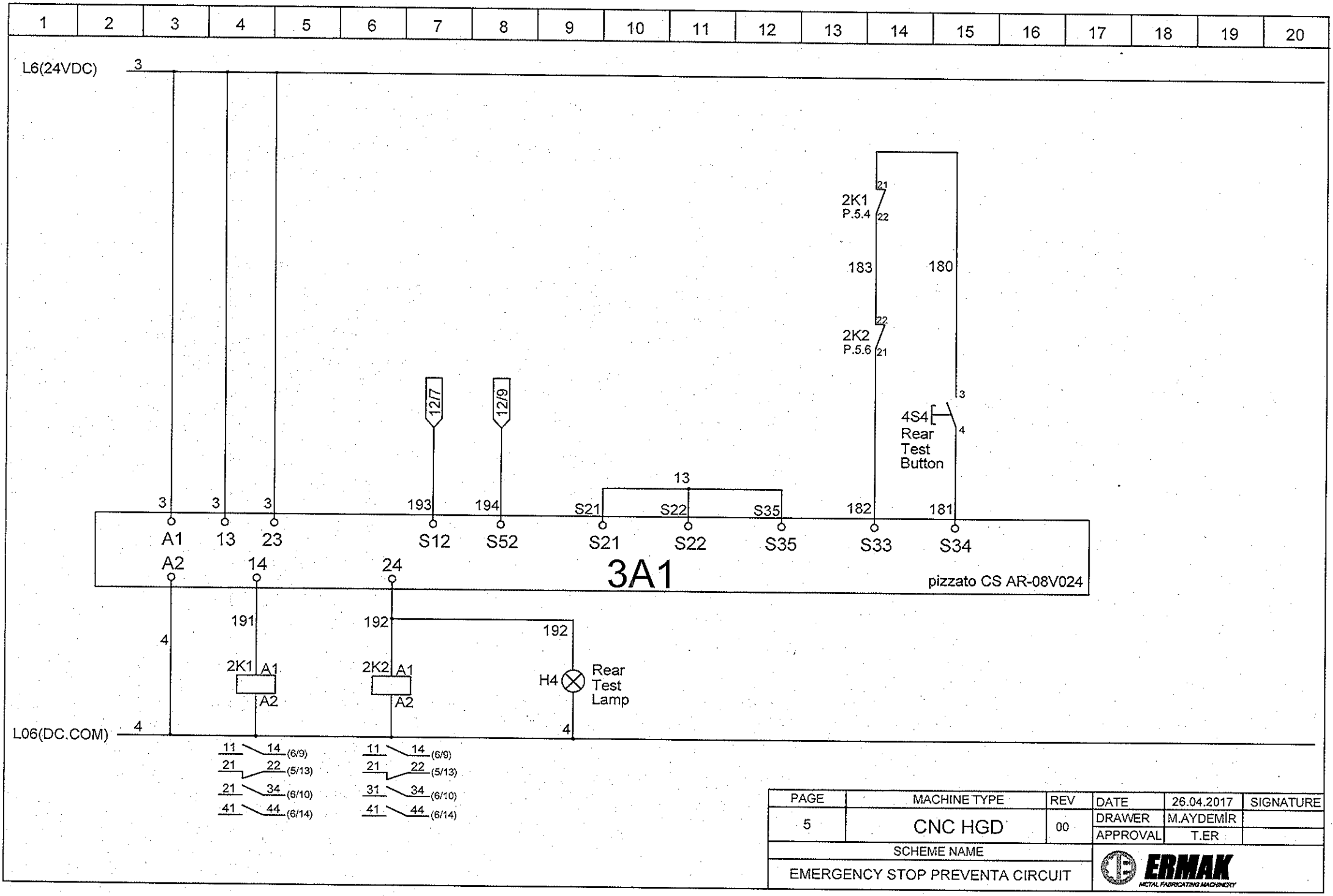


CONTROLLER
24V DC
POWER SUPPLY

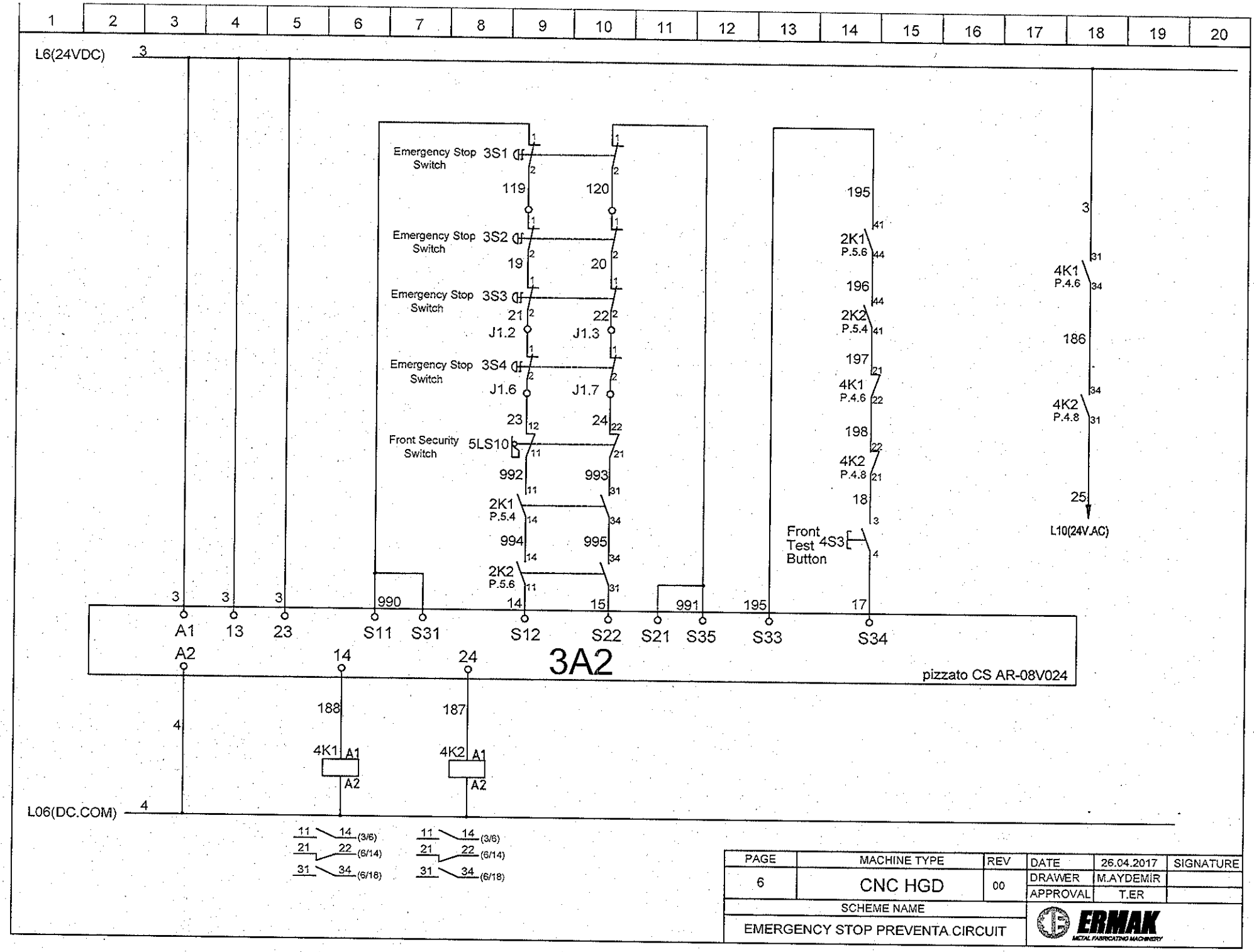
I / O
24V DC
POWER SUPPLY

PAGE	MACHINE TYPE	REV	DATE	06.10.2015	SIGNATURE
3	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME					
CYBTOUCH6 FEEDING CIRCUIT			ERMAK METAL FABRICATING MACHINERY		

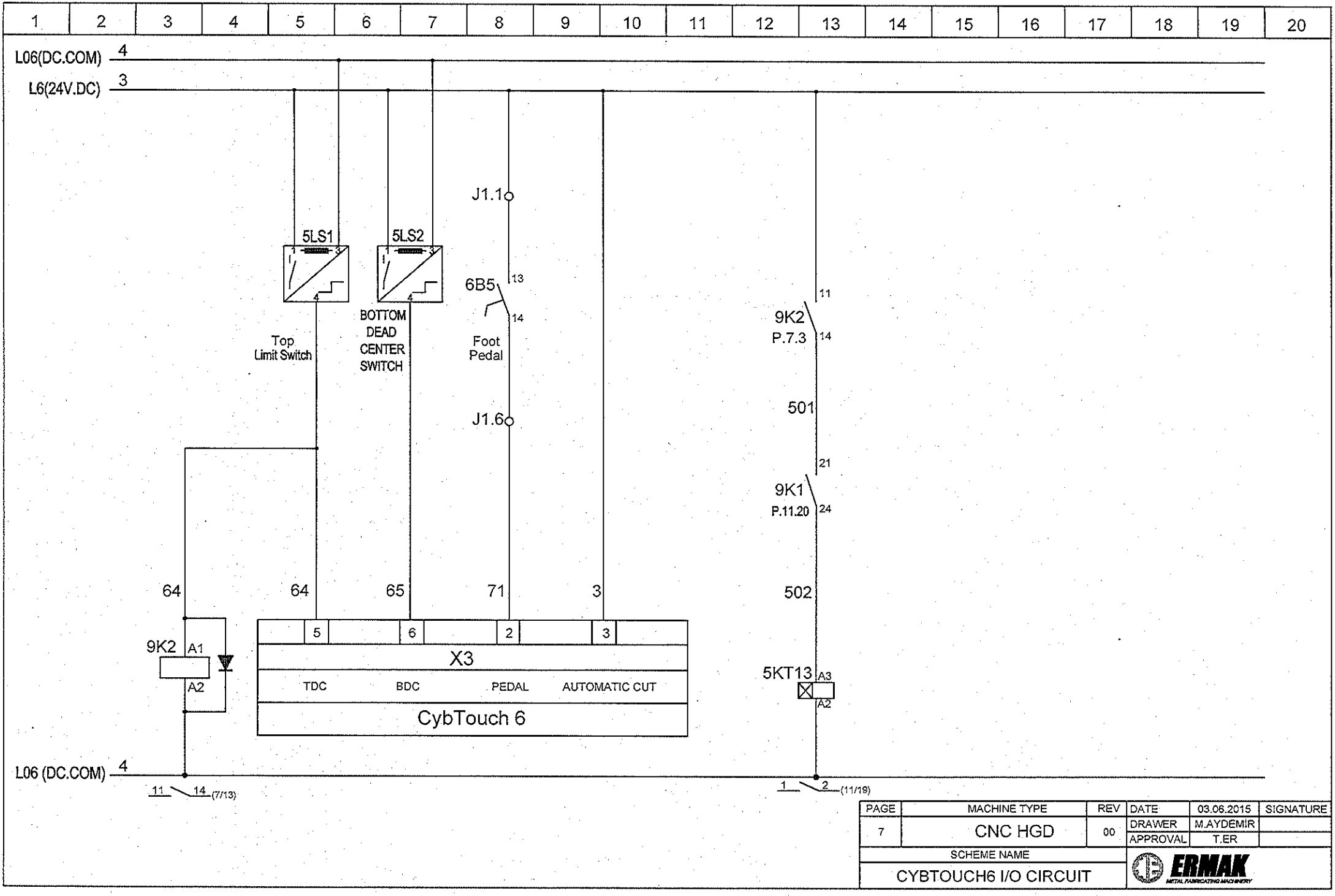

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
L10 (24V.DC)
L6 (24V.DC)
L06(DC.COM)
12Q1 P.2.5
4S15
10S4
11K1 P.4.5
10S5
11KT1 P.4.6
11K3 P.4.10
11K2 P.4.8
3RT2028-1BB40
MAIN CONTACTOR
TIME RELAY
DELTA CONTACTOR
WYE CONTACTOR
TEST LAMP
START LAMP
STOP LAMP
H1
H2
H3
12Q1: Pump motor thermic
10S4 : Pump start button
10S5 : Pump stop button
4S15:Down Limit switch
PAGE
MACHINE TYPE
REV
DATE
26.04.2017
SIGNATURE
4
CNC HGD
00
DRAWER
M.AYDEMİR
APPROVAL
T.ER
SCHEME NAME
WYE-DELTA COMMAND CIRCUIT
ERMAK
METAL FABRICATING MACHINERY

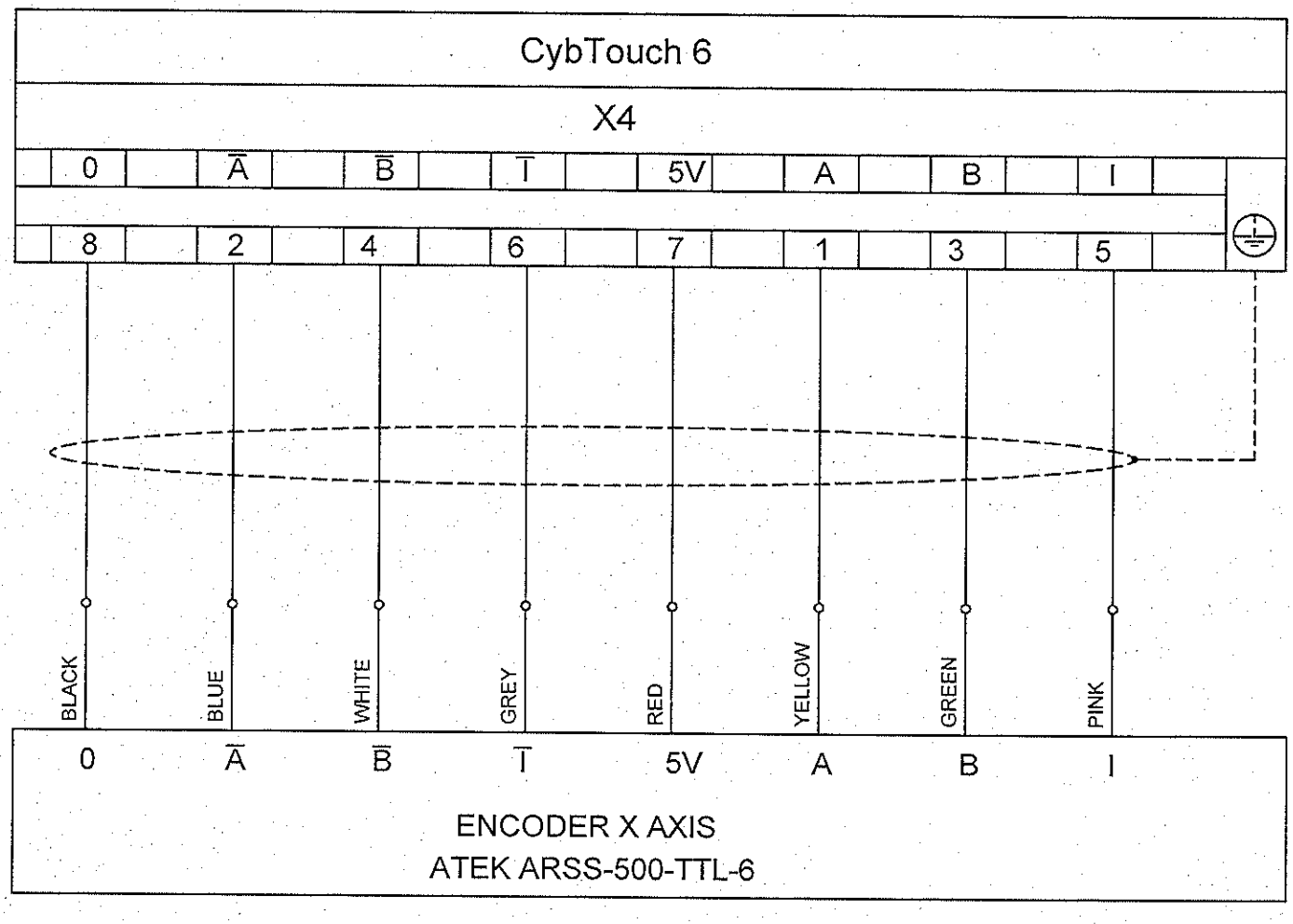


PAGE	MACHINE TYPE	REV	DATE	26.04.2017	SIGNATURE
5	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME					
EMERGENCY STOP PREVENTA CIRCUIT			ERMAK METAL FABRICATING MACHINERY		

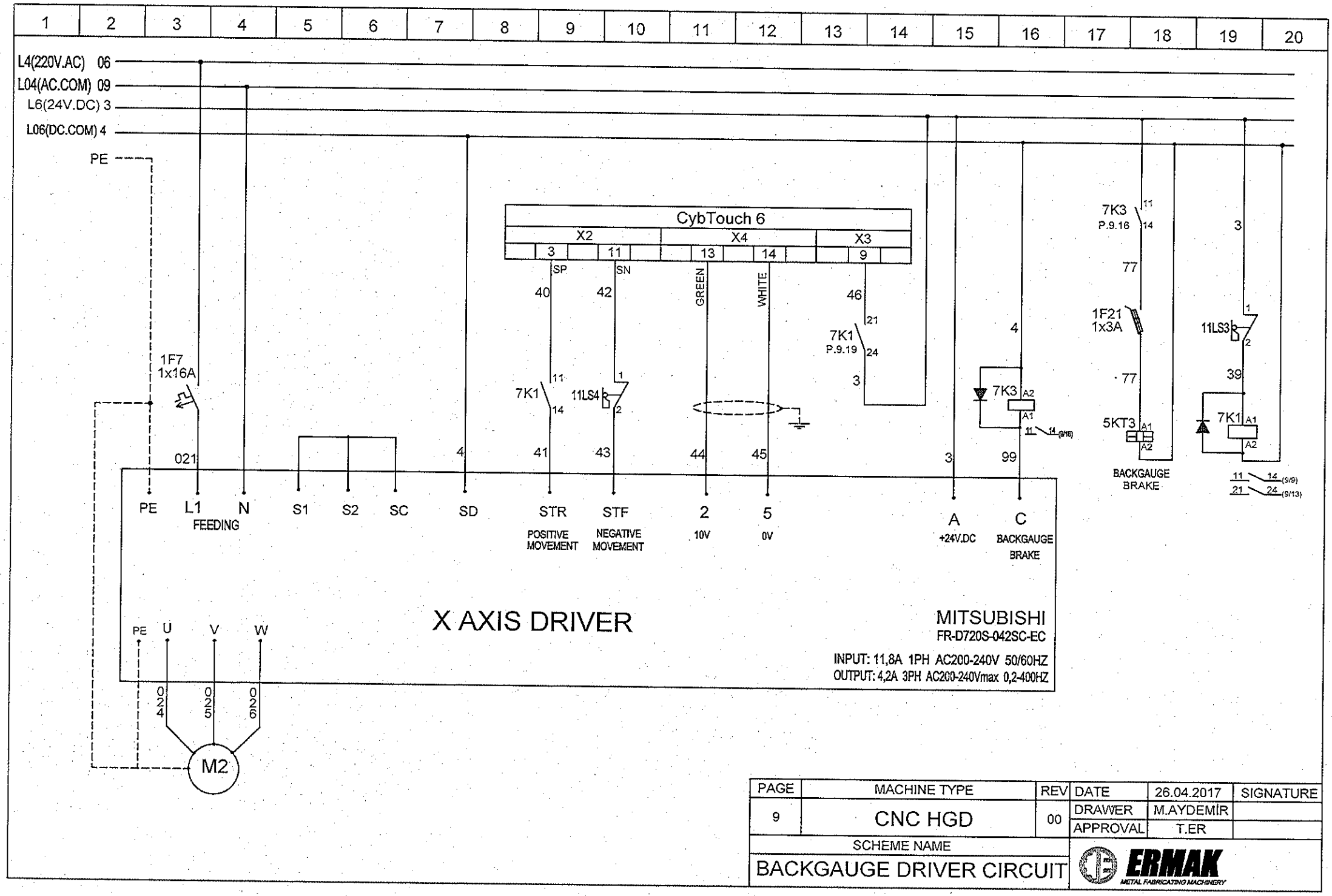


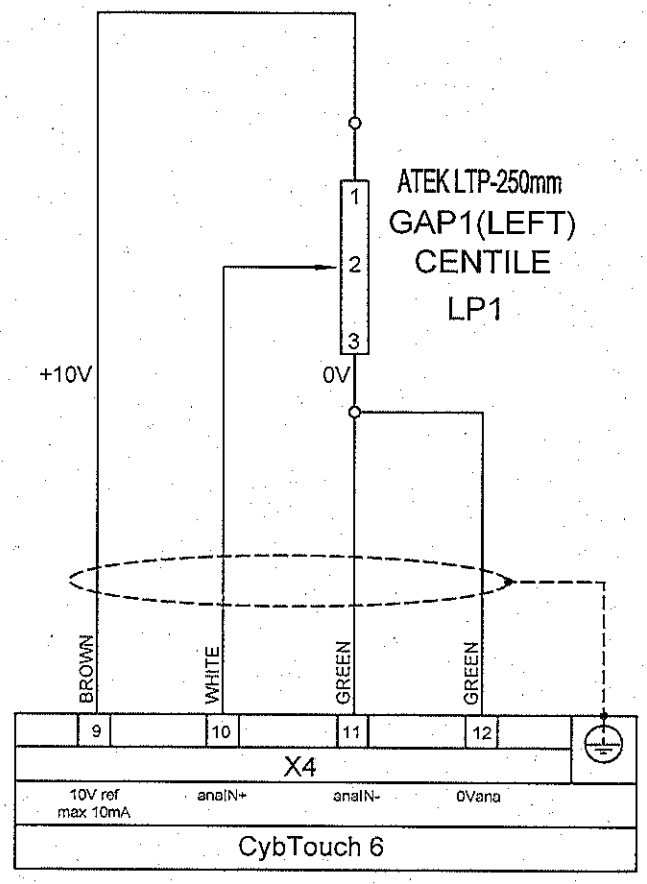
PAGE	MACHINE TYPE	REV	DATE	26.04.2017	SIGNATURE
6	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME			ERMAK METAL FABRICATING MACHINERY		
EMERGENCY STOP PREVENTA CIRCUIT					


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
L06(DC.COM) 4
L6(24V.DC) 3
5LS1
5LS2
Top Limit Switch
BOTTOM DEAD CENTER SWITCH
J1.1
6B5
13
14
Foot Pedal
J1.6
9K2
P.7.3
11
14
501
21
9K1
P.11.20
24
502
64
64
65
71
3
9K2 A1
A2
5
6
2
3
X3
TDC
BDC
PEDAL
AUTOMATIC CUT
CybTouch 6
5KT13 A3
A2
L06 (DC.COM) 4
11 14 (7/13)
1 2 (11/19)
PAGE 7
MACHINE TYPE CNC HGD
REV 00
DATE 03.06.2015
DRAWER M.AYDEMİR
APPROVAL T.ER
SIGNATURE
SCHEME NAME
CYBTOUCH6 I/O CIRCUIT
ERMAK
METAL FABRICATING MACHINERY

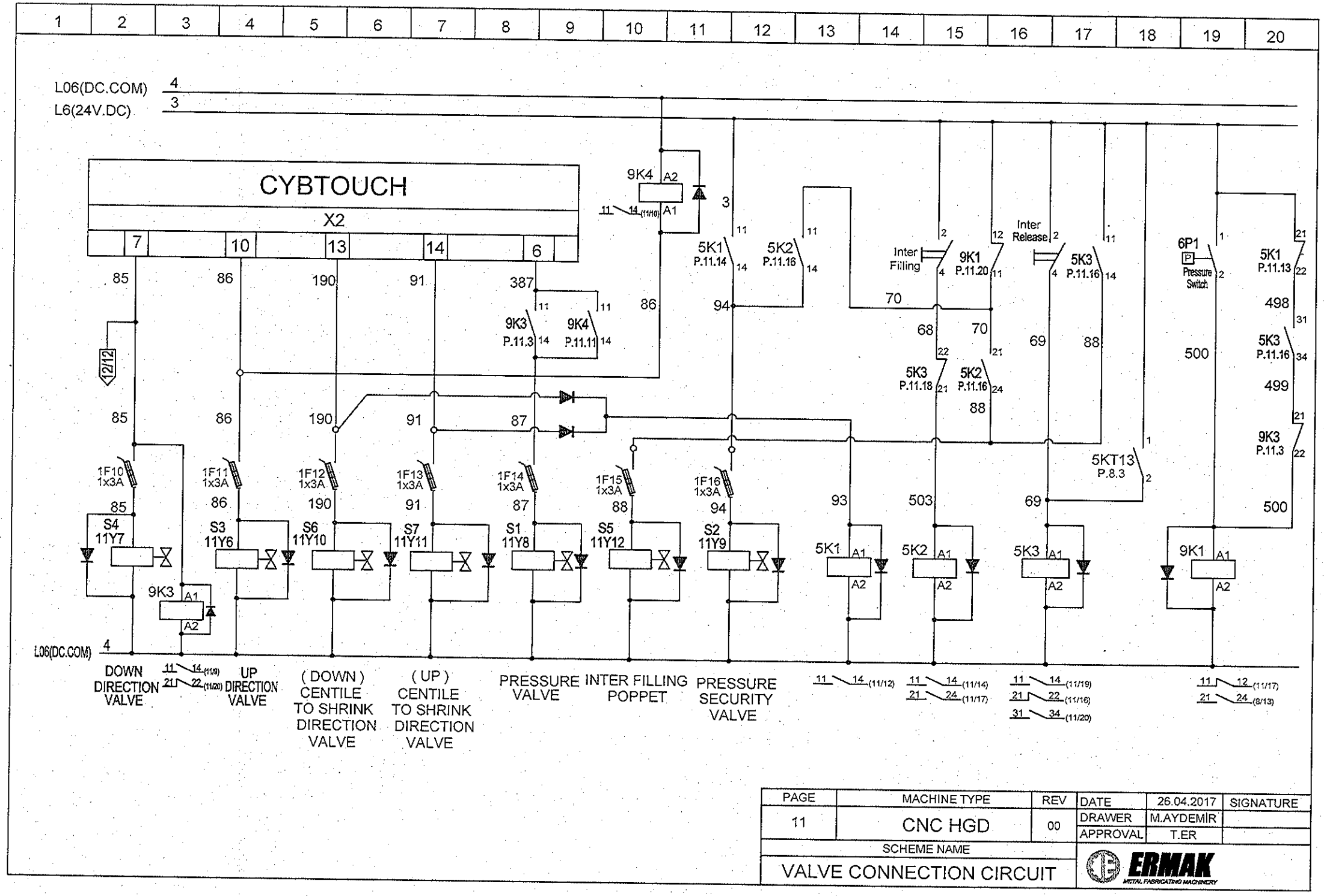


PAGE	MACHINE TYPE	REV	DATE	03.06.2015	SIGNATURE
8	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME			ERMAK METAL FABRICATING MACHINERY		
CYBTOUCH6 ENCODER INPUT CIRCUIT					

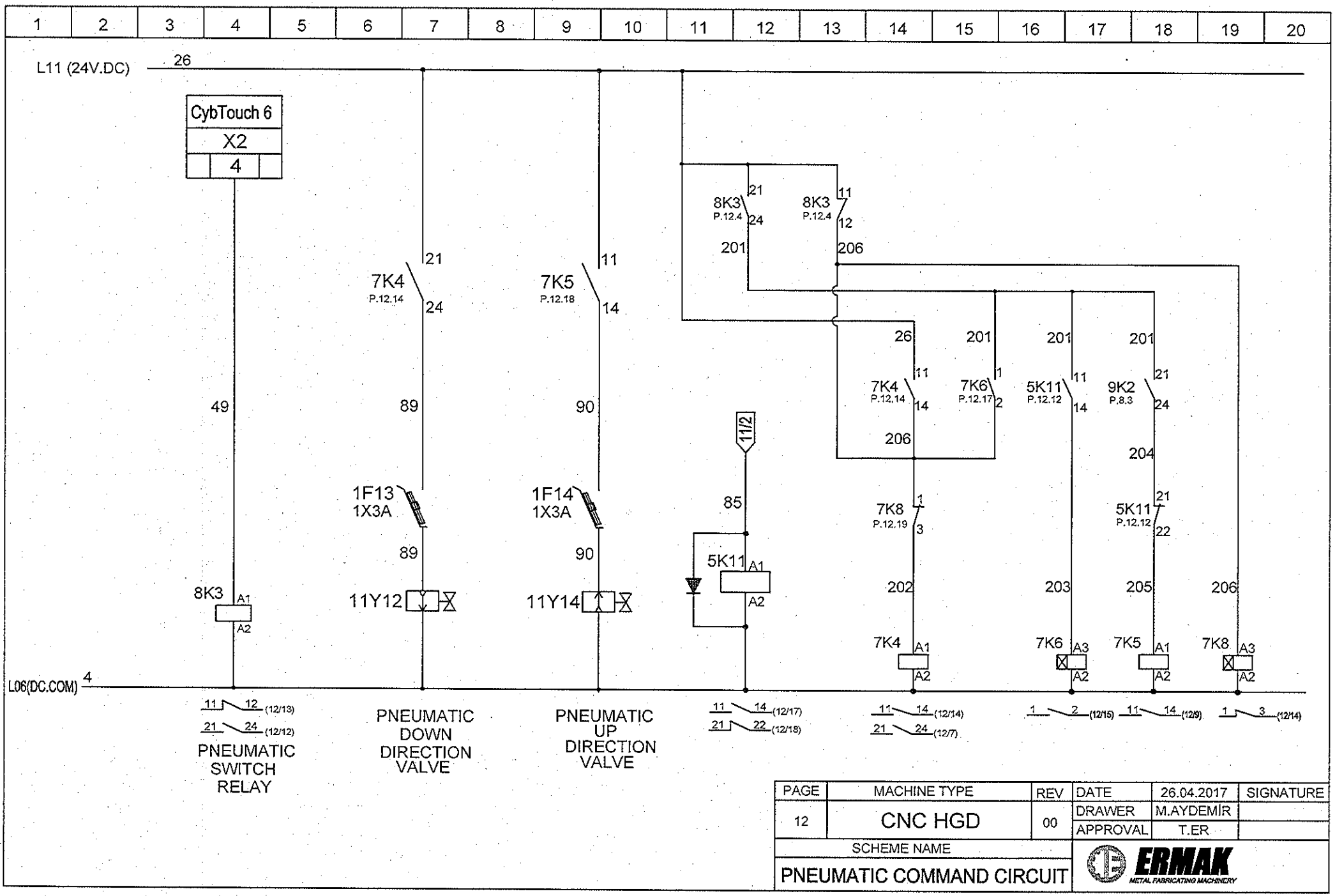

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
L4(220V.AC) 06
L04(AC.COM) 09
L6(24V.DC) 3
L06(DC.COM) 4
PE
1F7
1x16A
021
CybTouch 6
X2
X4
X3
3
11
13
14
9
SP
SN
GREEN
WHITE
40
42
46
7K1
P.9.19
21
24
3
7K1
11
14
11LS4
1
2
41
43
44
45
4
7K3
P.9.16
11
14
77
1F21
1x3A
77
5KT3
A1
A2
11LS3
1
2
39
7K1
A1
A2
BACKGAUGE
BRAKE
11 14 (9/9)
21 24 (9/13)
7K3
A2
A1
11 14 (9/16)
99
3
PE
L1
N
S1
S2
SC
SD
STR
STF
2
5
A
C
FEEDING
POSITIVE MOVEMENT
NEGATIVE MOVEMENT
10V
0V
+24V.DC
BACKGAUGE BRAKE
X AXIS DRIVER
MITSUBISHI
FR-D720S-042SC-EC
INPUT: 11,8A 1PH AC200-240V 50/60HZ
OUTPUT: 4,2A 3PH AC200-240Vmax 0,2-400HZ
PE
U
V
W
024
025
026
M2
PAGE
9
MACHINE TYPE
CNC HGD
REV
00
DATE
26.04.2017
SIGNATURE
DRAWER
M.AYDEMİR
APPROVAL
T.ER
SCHEME NAME
BACKGAUGE DRIVER CIRCUIT
ERMAK
METAL FABRICATING MACHINERY

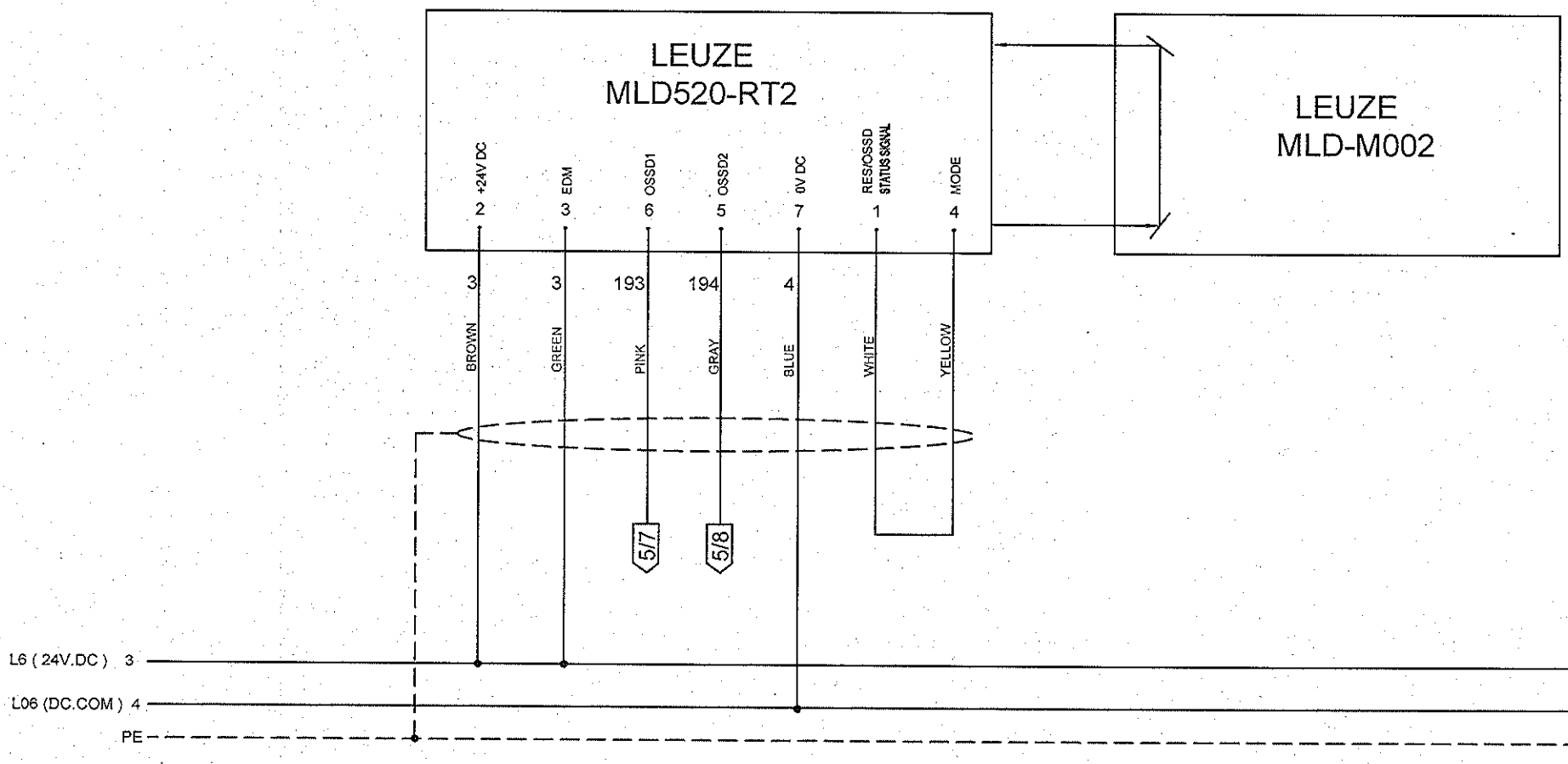


PAGE	MACHINE TYPE	REV	DATE	03.06.2015	SIGNATURE
10	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME					
CYBTOUCH ANALOG OUTPUTS CIRCUIT			ERMAK METAL FABRICATING MACHINERY		



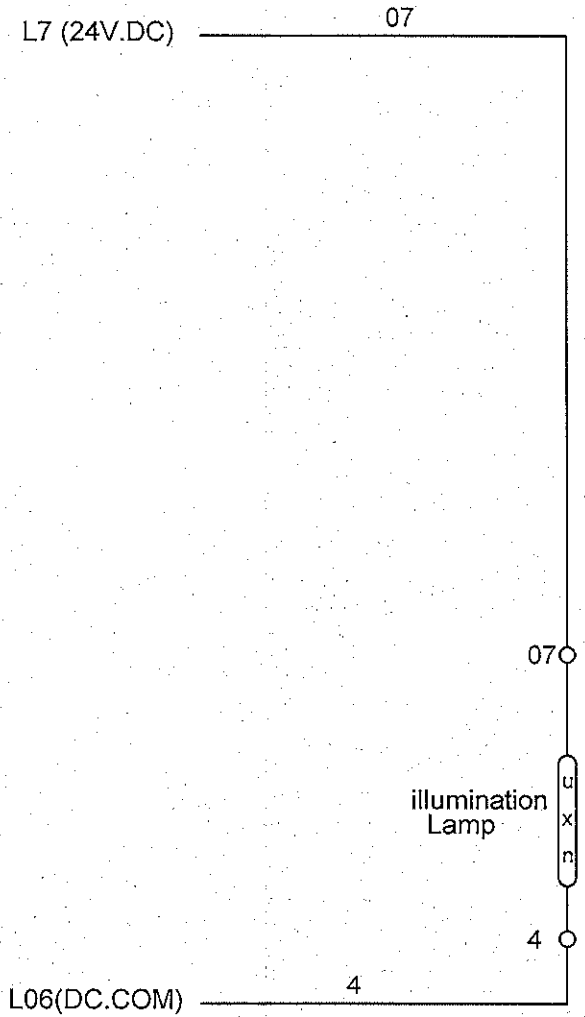
PAGE	MACHINE TYPE	REV	DATE	26.04.2017	SIGNATURE
11	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME			ERMAK METAL FABRICATING MACHINERY		
VALVE CONNECTION CIRCUIT					


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
L11 (24V.DC)
26
CybTouch 6
X2
4
8K3 P.12.4
21
24
201
8K3 P.12.4
11
12
206
7K4 P.12.14
21
24
7K5 P.12.18
11
14
49
89
90
1F13
1X3A
1F14
1X3A
11/2
85
5K11
A1
A2
8K3
A1
A2
11Y12
11Y14
26
11
14
206
7K4 P.12.14
7K6 P.12.17
1
2
201
5K11 P.12.12
11
14
9K2 P.8.3
21
24
204
7K8 P.12.19
1
3
5K11 P.12.12
21
22
202
203
205
206
7K4
A1
A2
7K6
A3
A2
7K5
A1
A2
7K8
A3
A2
L06(DC.COM)
4
11 12 (12/13)
21 24 (12/12)
PNEUMATIC SWITCH RELAY
PNEUMATIC DOWN DIRECTION VALVE
PNEUMATIC UP DIRECTION VALVE
11 14 (12/17)
21 22 (12/18)
11 14 (12/14)
21 24 (12/7)
1 2 (12/15)
11 14 (12/9)
1 3 (12/14)
PAGE
12
MACHINE TYPE
CNC HGD
REV
00
DATE
26.04.2017
SIGNATURE
DRAWER
M.AYDEMİR
APPROVAL
T.ER
SCHEME NAME
PNEUMATIC COMMAND CIRCUIT
ERMAK
METAL FABRICATING MACHINERY

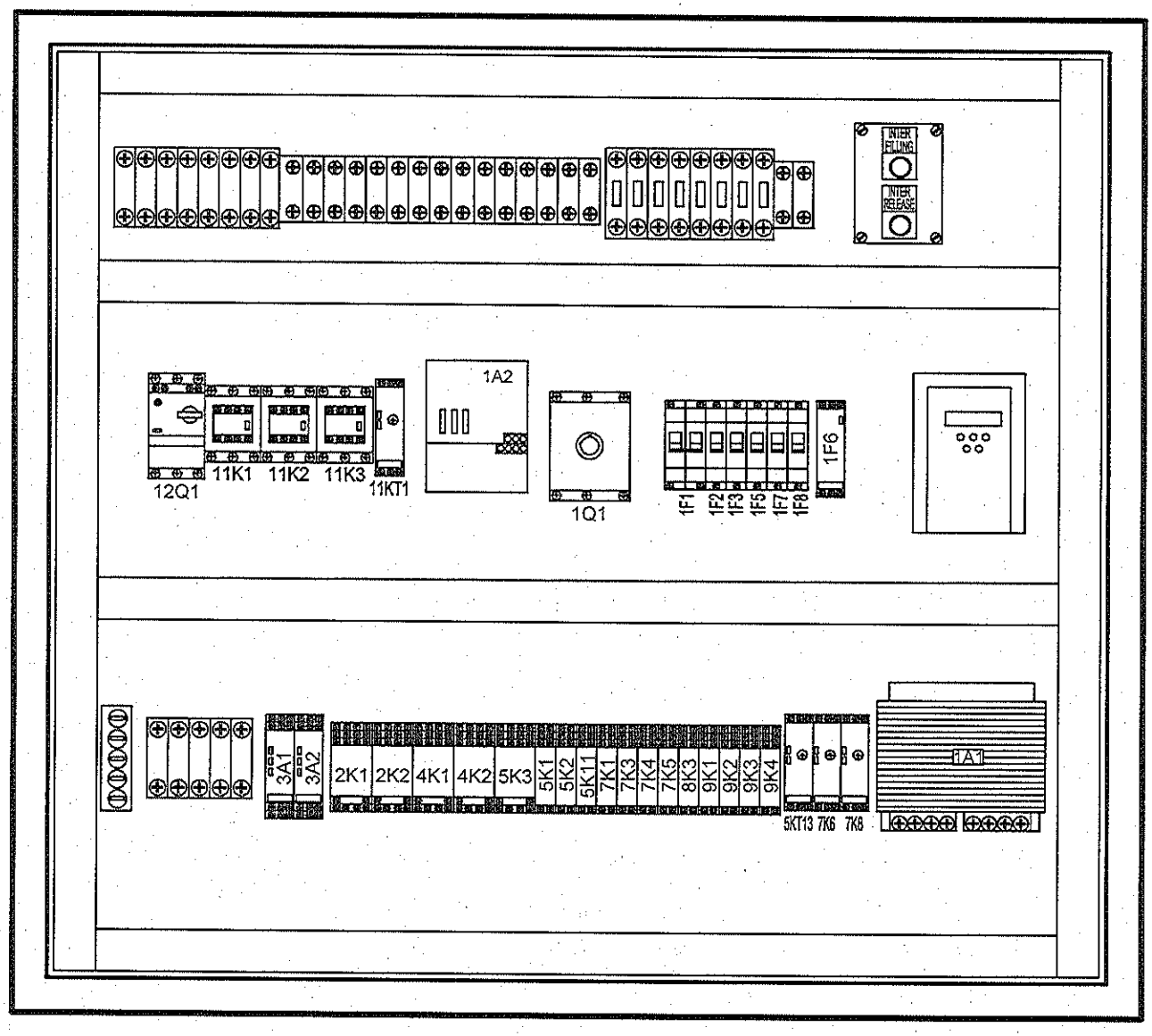


PAGE	MACHINE TYPE	REV	DATE	19.10.2015	SIGNATURE
13	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME					
LEUZE CONNECTION CIRCUIT			ERMAK METAL FABRICATING MACHINERY		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20



PAGE	MACHINE TYPE	REV	DATE	26.04.2017	SIGNATURE
14	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME			ERMAK METAL FABRICATING MACHINERY		
LAMP CIRCUIT					



PAGE	MACHINE TYPE	REV	DATE	26.04.2017	SIGNATURE
15	CNC HGD	00	DRAWER	M.AYDEMİR	
			APPROVAL	T.ER	
SCHEME NAME					
PANEL DESIGN DIAGRAM			ERMAK METAL FABRICATING MACHINERY		