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Established 1930
Distributors of new & used workshop Equipment

# S797

# MRMS2550 x 190

# PLATE ROLLS

# PARTS MANUAL

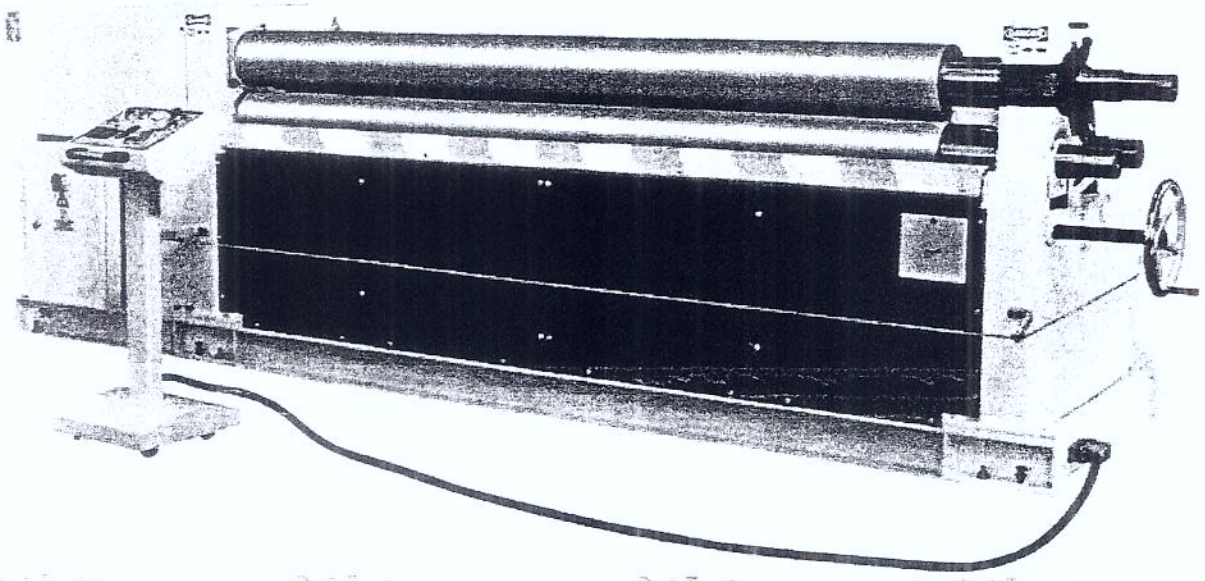
# 30/2/08

şahinler
METAL MAKİNE ENDÜSTRİ A.Ş.

# USER`S MANUAL

# MODEL MRM-S 190

# ASSYMETRICAL 3 ROLLS PLATE BENDING MACHINE

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# CE DECLARATION

We as

ŞAHİNLER METAL MAKİNE END. A.Ş.
İzmir Yolu 22.km
Mümin Gençoğlu Caddesi
Bursa / TÜRKİYE

confirm that the machine

**MRM-S 190**

Serial Number :
Production Year :

complies with

**EC MACHINES DIRECTIVE 98 / 37 / EWG / CEE**
**replaced with EC-Directives 91 / 368 / EWG and**
**93 / 44 / EWG and**
**93 / 68 / CEE**
**EC-Low Voltage 73 / 23 / EWG**
**EC - Noise Level Directives 86 / 188 / EWG**

and the machine also harmonized with the standards

DIN EN 60204 Part 1

Name : Mustafa PINARBAŞI
Position : Production Director

BURSA, on.....

ŞAHİNLER
METAL MAKİNE END. SANAYİ A.Ş.
İzmir Yolu 22.km Mümin Gençoğlu Cd.
Osmangazi - BURSA

**CONTENTS** **Page**

# GENERAL NOTES

## 1. Introduction

Thank you for choosing a Şahinler Sheet / Metal Working Machine. We are proud to have you in our long list of satisfied customers all over the world.

This User's Manual is absolutely for your safety and is essential for the machine to have a long production life. As long as you keep up with our Manual you will be able to run your machine smoothly and safely. Keep in mind that the machine is designed absolutely to perform maximum safety and for efficient working.

In this Manual you can find instructions and information about:

- Correct installations of the machine
- Description of the functional parts of the machine
- Set-up and start-up adjustments
- Correct standard and scheduled maintenance
- Simple safety regulations and accident prevention.

Therefore, as far as the user's safety is concerned, in this handbook the possible risks connected with machine operation are pointed out as follows:

**Attention:** Showing the risks of accident, if instructions are not followed.


**Warring:** Showing the probable damages to the machine or equipment, if the instructions are not strictly followed.

**Note:** It gives useful information.

It is certainly necessary that the operator should read and understand all the **Attention**, **Warring, Note** specified in this Manual before starting with operation of the machine and before any lubrication or maintenance intervention

On all steps of installation, operation and maintenance safety must be your first concern for the protection of yourself, other users and the service of the machine. In case of any failure please first refer to this Manual, and then if a solution cannot be found contact first of all the distributor where you purchased our product. Do not forget to refer to the drawings and the numbers for any spare part needed or to define any problem. Make sure you have the serial number and production year of the machine.

Our technical staff will make their best to help you in the most convenient way.

## 2. Transport

As soon as you receive the machine, check for any visible transport damages. Should there be any visible damages; report it straight away to the transporter company and of course Şahinler Metal Mak. End. A.Ş. or your supplier.

*Remove any protective crates around the machine and read the instructions on related chapters of this Manual carefully to set up the machine. If the machine is damaged while transport, **immediately take some photographs for insurance** claims.*

*Take precautions while loading / unloading or moving the machine to avoid any injuries. Refer also to related chapter of this Manual for the best way of handling the machine.*

### *3. Electrical Information*

*All necessary connection procedure can be found on this Manual. Do not try to connect the machine before reading these procedures and fully understanding the drawings. For any unclear matters get in touch with Şahinler Metal Mak. End. A.Ş. or any of the Şahinler distributors. Have the machine connected by a qualified electric technician. For, as we made clear in the "general conditions of guarantee", under no circumstances installing mistakes, including electrical connection mistake, can not be covered by guarantee agreement. Always turn off power before making any connections or disconnecting the machine.*

### *4. Maintenance*

*Your machine is designed and produced to work efficiently and smoothly. To achieve this you should also take care while operating the machine. Regard Maintenance sections to have the longest life from your machine. Try and use original spare parts where necessary and most importantly do not overload the machine or do not make any unauthorized modifications.*

### *5. Safety*

*Take all precautions possible to avoid any personal injury while using the machine. Keep in mind to protect the third party people around the machine. Refer to safety directives.*

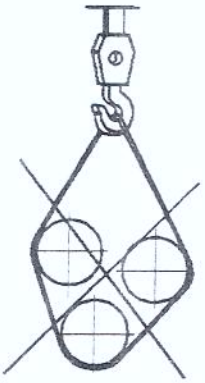
## GENERAL WARRANTY TERMS

- *Your machine is covered by manufacturer's guarantee for a period of 12 months from the date of purchase against manufacture defects. The warranty period does not exceed 18 months from the date of delivery from the manufacturer's factory.*
- *Warranty covers only manufacture defective parts and / or components that are reported as "defective" by a Sahinler Technician or the Agent Technician and must be reported to Sahinler in writing by fax or email.*
- *The manufacturer is responsible for the supply of free of charge spares only and cannot be held responsible for loss of work.*
- *Shipping and customs fees for the spare part must be paid by the end-user.*
- *If a technician travel is necessary Sahinler will not charge for labor and workmanship costs but the customer must pay traveling and accommodation charges.*
- *A Warranty claim does not relieve the Customer from payment obligations.*
- *The Customer can not ask or demand any reimbursement of damage nor the Customer will have the right to extend or delay payment obligations nor the cancellation of order and the refunding of damages as the guarantee is given for the defective parts of the machine and not for the job.*

***Note:*** *All warranty claims must be applied with the Model, Serial Number and the Manufacture Year of the machine.*

## TRANSPORT AND LIFTING OF THE MACHINE

*Use necessary cranes and lift as shown. Please take extra care during lifting and moving. If necessary consult with specialized companies for lifting.*



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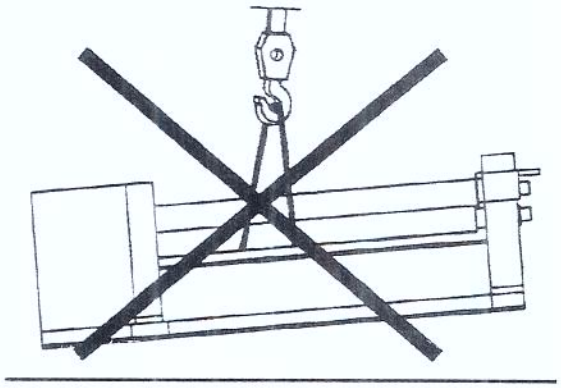

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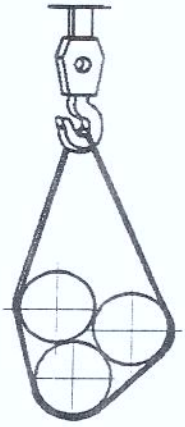

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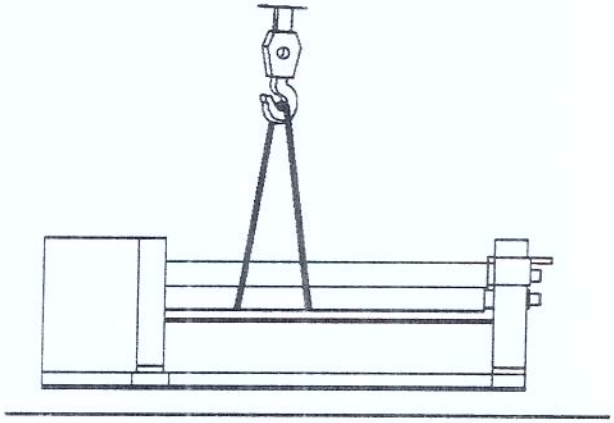


**TRUE**

***APPROX MACHINES WEİGHT;***

*MRM-S 1050x190 2450 kg*
*MRM-S 1550x190 2750 kg*
*MRM-S 2050x190 3100 kg*
*MRM-S 2550x190 3400 kg*
*MRM-S 3050x190 3750 kg*

## OPENING THE PACKAGE

*If any visible damage exist on the machine when you receive the machine immediately informs the dealer or manufacturer. Also never forget to state the visible damage on transport documents.*

*The packing material is completely safe and do not consist any environmentally dangerous articles. However they must be kept out reach of children as some nylon products in packing may cause suffocation if used as a toy etc.*

## TECHNICAL PROPERTIES

The MRM-S Model Mechanical Three Roll Benders have these specifications:

| Model | | MRM-S 1050x190 | MRM-S 1550x190 | MRM-S 2050x190 | MRM-S 2550x190 | MRM-S 3050x190 |
|---|---|---|---|---|---|---|
| Pre-bending | mm | 9 | 8 | 6 | 5 | 3 |
| Bending | mm | 10 | 9 | 7 | 6 | 4 |
| Roll Diameters | mm | 190 | 190 | 190 | 190 | 190 |
| Min. Internal Diameter | mm | 285 | 285 | 285 | 285 | 285 |
| Main Motor power | Kw | 4 | 4 | 4 | 4 | 4 |
| Back Roll Motor | Kw | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Useful length | mm | 1050 | 1550 | 2050 | 2550 | 3050 |
| Length | mm. | 3200 | 3700 | 4200 | 4700 | 5200 |
| Width | mm | 950 | 950 | 950 | 950 | 950 |
| Height | mm | 1300 | 1300 | 1300 | 1300 | 1300 |
| Weight | Kg | 2450 | 2750 | 3100 | 3400 | 3750 |

**Note :** Machine dimensions are approximate

### TECHNICAL SPECIFICATIONS AND STANDARD EQUIPMENTS

- Two rolls powered by a single chain or belt driven worm type gearbox and gear system
- SAE 1050 Quality certificated steel rolls with high tensile strength
- Steel welded main frames
- Mobile control panel
- Conical bending device
- Central lubrication
- Precision bending with brake motor
- Motorised adjustment of back roll
- Worldwide available components used in production ( Telemecanique, Siemens for electric )
- User manual book
- Built according to EC safety directives ( CE – Mark )

### OPTIONAL ACCESSORIES

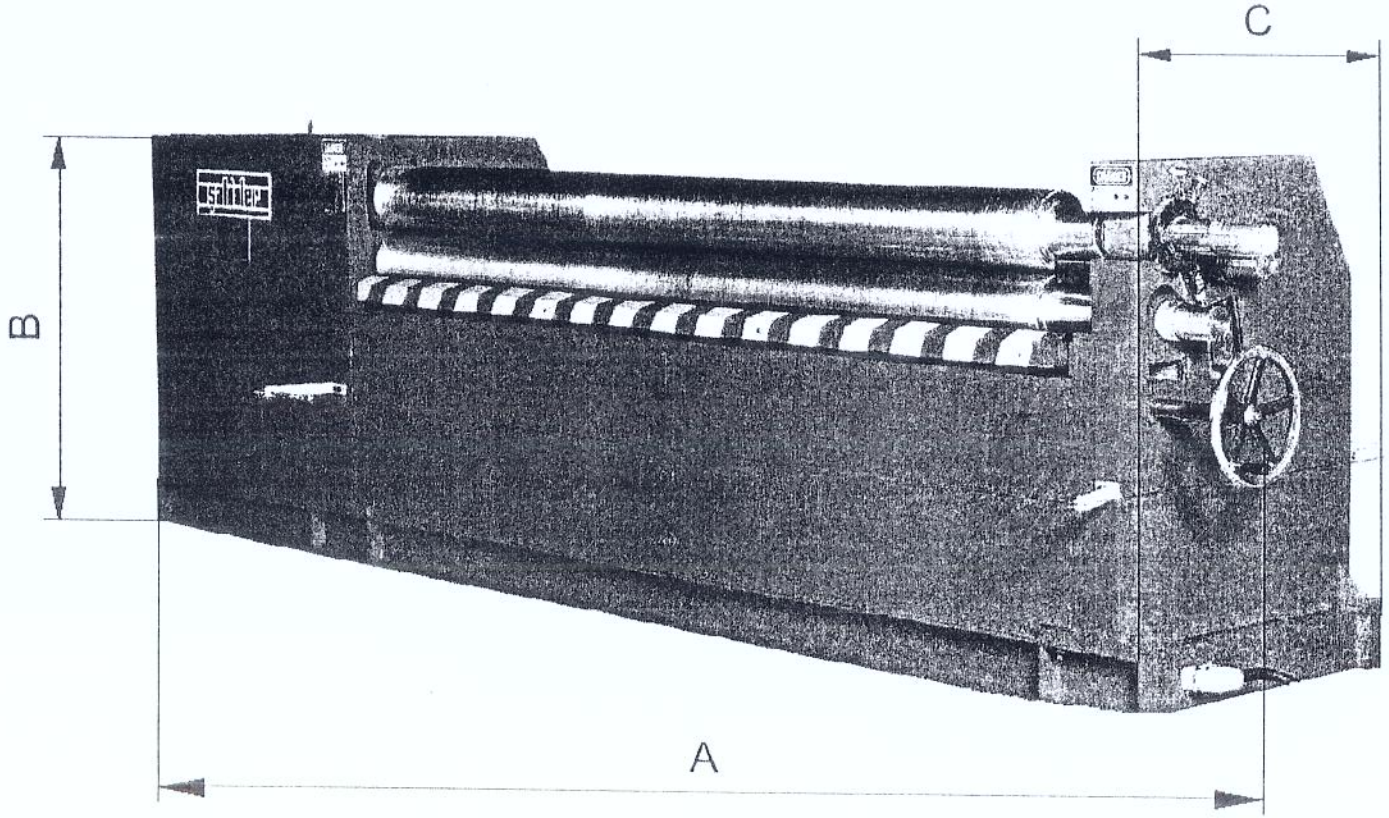
- Digital read-out for rear roll
- Induction hardened rolls
- Extended roll shafts for profile and pipe bending
- Profile and section bending rolls

STOP

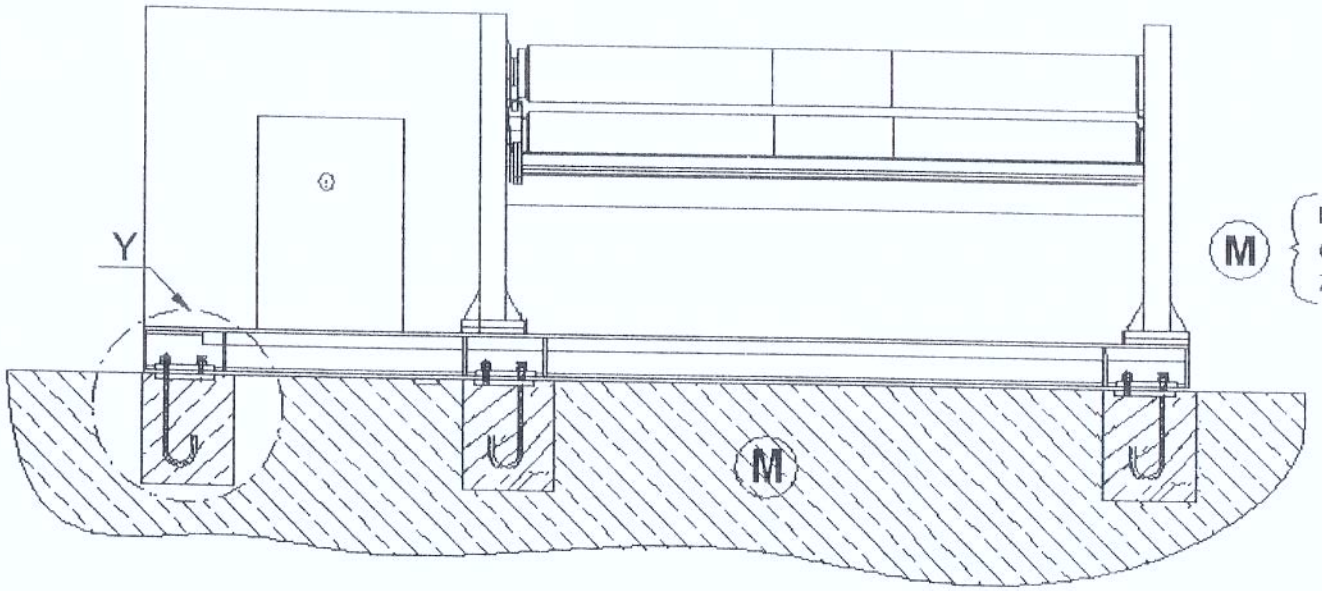
**Warning:** Do not feed profiles having a higher thickness than specified for the capacity of the machine. Do not feed more than one piece at a time. Do not use the machine for any other job the one for which it has been designed.

# MAIN DIEMENSION OF THE MACHINE

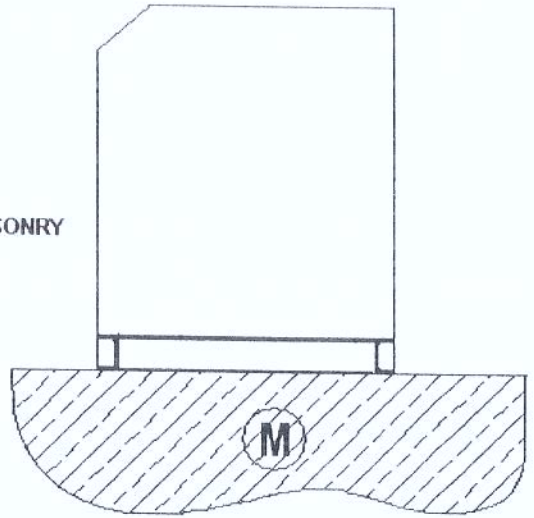
| Model | Useful Length | A mm. | B mm. | C mm. |
|---|---|---|---|---|
| MRM-S 1050x190 | 1000 | 3200 | 1300 | 950 |
| MRM-S 1550x190 | 1500 | 3700 | 1300 | 950 |
| MRM-S 2050x190 | 2000 | 4200 | 1300 | 950 |
| MRM-S 2550x190 | 2500 | 4700 | 1300 | 950 |
| MRM-S 3050x190 | 3000 | 5200 | 1300 | 950 |

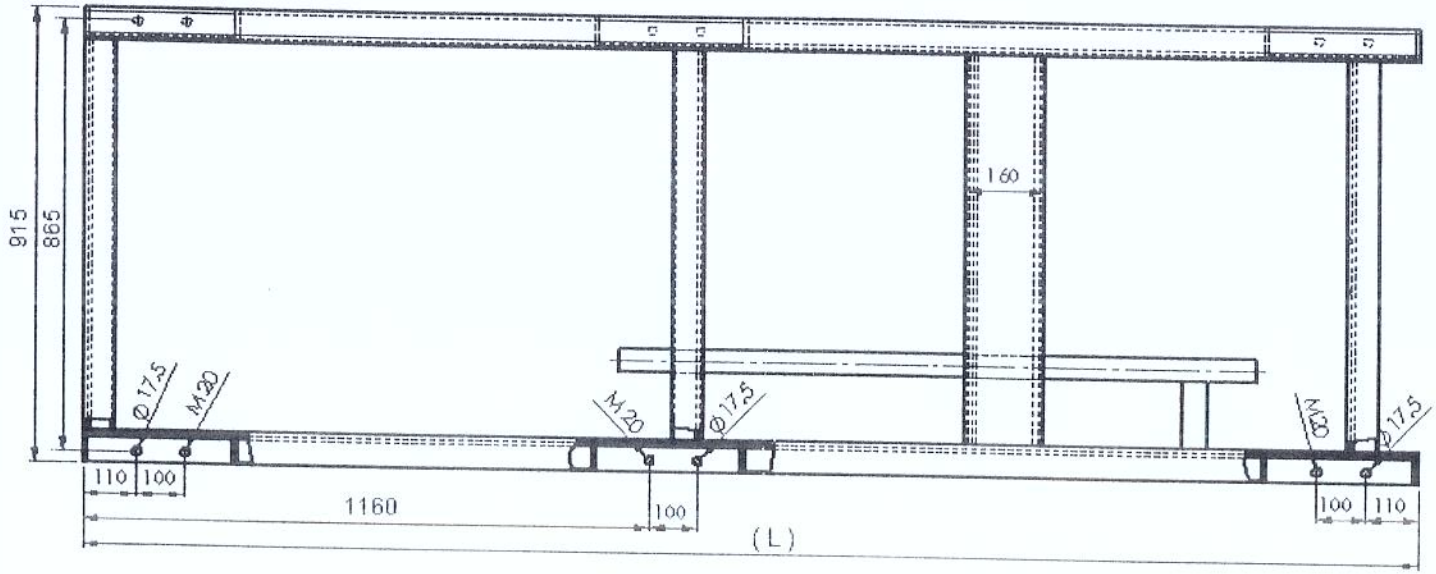


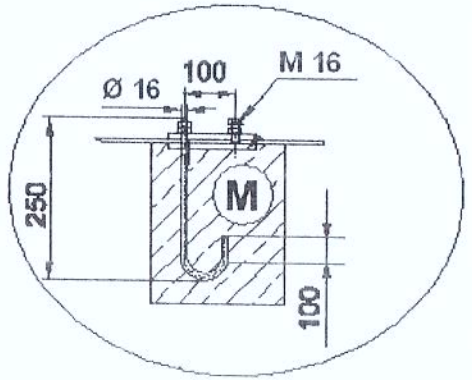
# MRM-S 190 FOUNDATION PLAN




M — BETON ZEMİN / CONCRETE MASONRY / ZEMEN BODEN



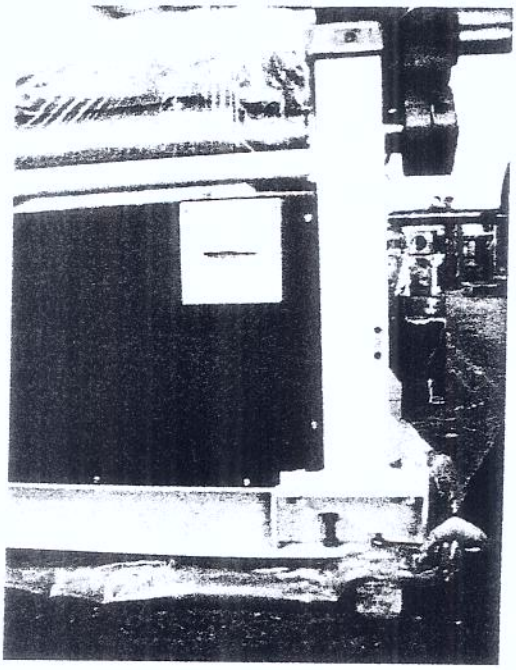

**Y DETAYI**
**Y DETAIL**

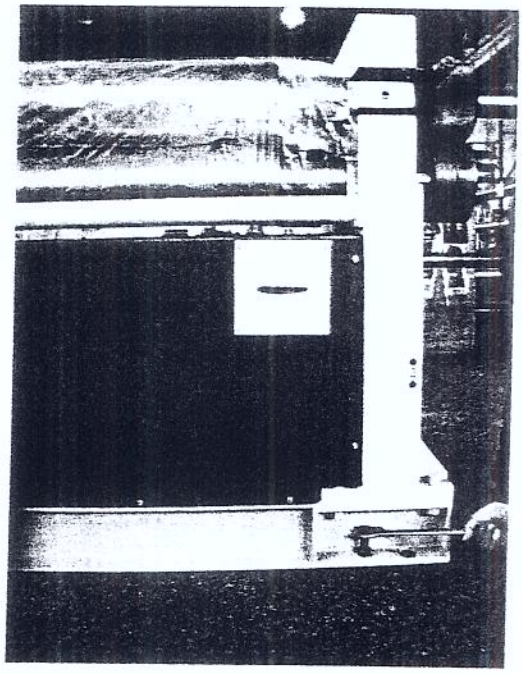
| MODEL | ( L ) |
|---|---|
| MRM-S 1050 x 190 | 2750 mm |
| MRM-S 1550 x 190 | 3250 mm |
| MRM-S 2050 x 190 | 3750 mm |
| MRM-S 2550 x 190 | 4250 mm |
| MRM-S 3050 x 190 | 4750 mm |

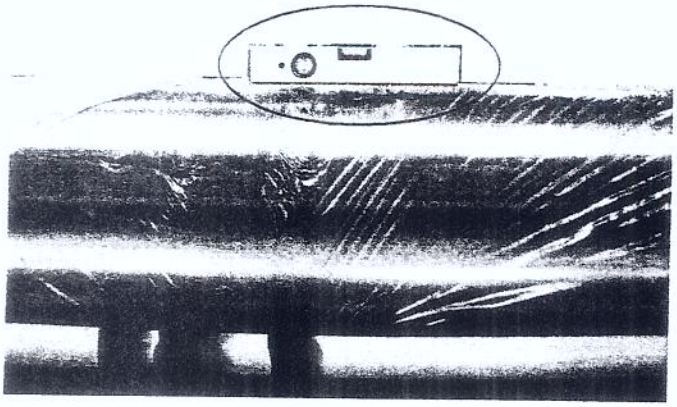
## EXPLANATION OF FOUNDATION PLAN

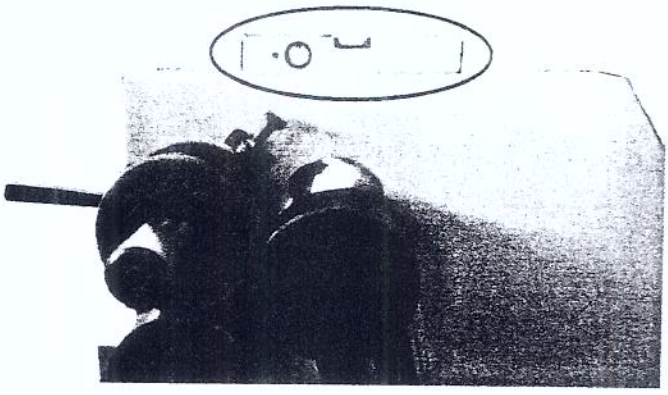
*On attached pages you can find foundation plan of the machine. For operation the machine must be placed in a pit as shown and must be bolted to the ground. For bolting refer to front page.*

*After placing the machine make sure all areas of the machine is flat and check parallelism of the machine periodically by a water gauge.*









## SAFETY DIRECTIVES

The ŞAHİNLER A.Ş. three-roll plate bending machine is supplied with necessary guards to protect from injuries by worm-type gearbox and other gears. The only other area which needs to carefully monitored during use is the rotational area of the rolls.

**Also abuses and misuses risk the following:**

- Serious injury of the user
- Serious damage to the machine

All persons who is in of the machine should carefully read and fully understand this manual for the of benefit themselves.

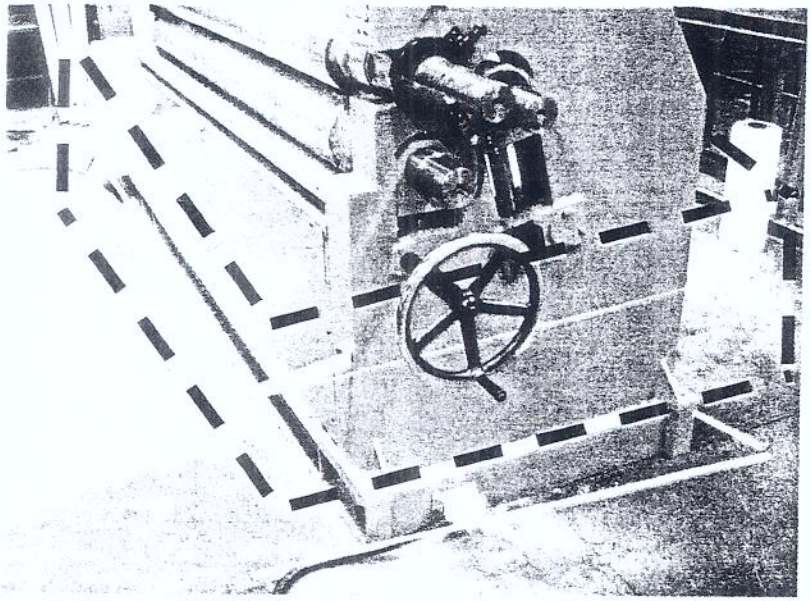
**This is for your safety !**

**Attention:**

- Never try to bend very hard or fragile material on the machine (e.g. hard steel, glass)
- Any modification on the machine without written confirmation from the manufacturer is strictly forbidden as such changes in the machine can cause unintended damages and injuries.
- All orders and advises in this machine should be strictly obeyed for a safe working environment.

### DANGER ZONES

The below shown danger zones must be kept clear during operation



NOISE: The noise of the machine is about <70 dB.

## EXPLANATION FOR OPERATOR

*Operator under age of 16 years to operate the machine is strictly forbidden (EC-Directive). The operator of the machine should carefully read this manual and understand the danger he might be in if he misuses or abuses the machine. If any part of this manual is unreadable or illegible please contact to the dealer and manufacturer*

*The owner of the machine should be responsible for operating the machine with qualified personnel.*

## PERSONAL PROTECTION

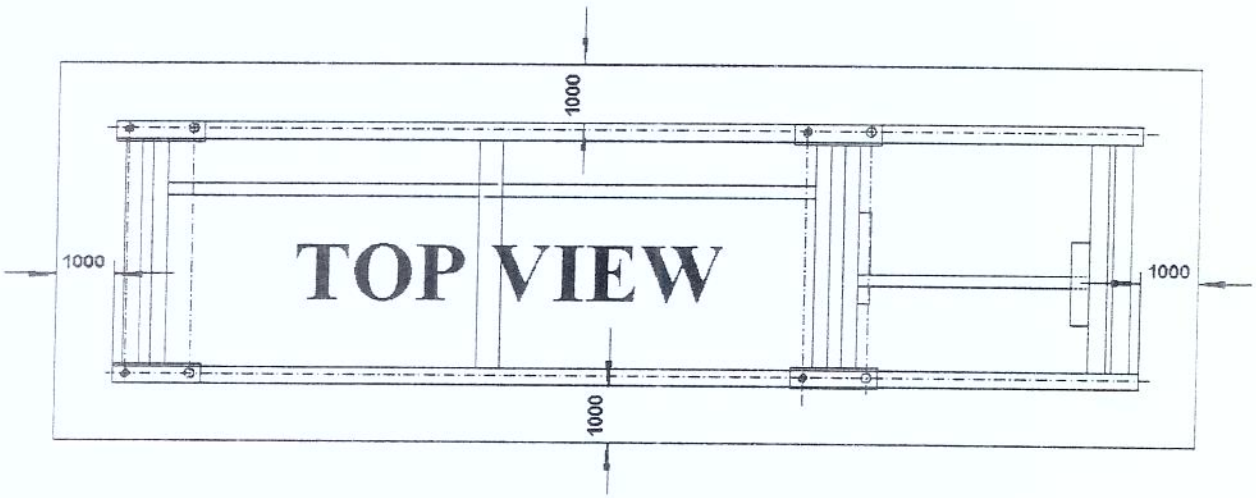
*Gloves and safety glasses and safety cap are recommended during operator.*

***Attention:***

- *No material should be fed if the machine is running.*
- *All emergency stop must be easily accessible.*
- *The user must be careful for third persons entering the operation area of the machine.*

***Note :*** *If any labels are lost or unreadable contact the manufacturer for new supplies.*

## WORKING AREA OF THE MACHINE




***Attention:*** *Before the first use of the machine always check this list carefully for a safe start.*

1. *Check the emergency stop button on the command panel*
2. *Make sure that the security wire around the machine is free*
3. *Check for visible oil leak*
4. *Control of the buttons on the command panel*

## SAFETY AND ACCIDENT PREVENTION INSTRUCTIONS

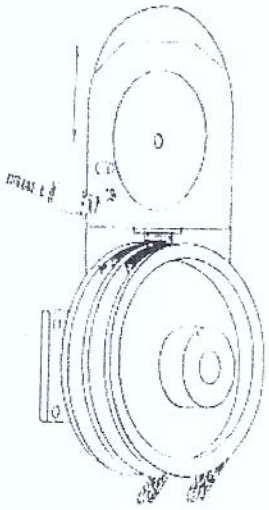
### General Safety Instructions

*Following instructions are meant for the operator of the machine and it is the End-User's responsibility to make sure the operator reads and understands the following and the User's Manual for safe operation.*

- *Read the User's manual before operating the machine.*
- *Never touch rotating or moving parts.*
- *Always inform electric faults to electric technicians.*
- *Keep your working dress or long hair or necklace etc away from rotating parts.*
- *Make sure you know the position of Emergency Stop Buttons on the machine.*
- *Switch off the machine when **NOT** working.*
- *Work with necessary safety clothes if necessary (safety shoes, glasses , earplugs etc).*
- *Control the Safety features before working and ensure they are working properly.*
- *See and understand Safety Labels on the machine.*
- *Perform periodic maintenance.*
- ***DO NOT** overload the machine.*
- *If you see abnormal behavior of the machine. stop the machine and inform your supervisor immediately.*
- *Be careful of other people around the machine during operation.*
- *Never modify electric unit.*
- *Never remove any mechanic or electronic safety features from the machine.*
- *Be extremely careful during transport or re-placement of the machine and follow transport instructions in the manual to safety handle the machine.*

### MOTORISED BACKROLL SAFETY SWITCH

*The motorized back roll has a safety switch. When the roll is at its lowest point the switch will stop the motor.*



## EXPLANATION FOR SAFETY SWITCH

*The machine has been equipped with a security switch and wire for the operators safety When the safety wire is pushed it pulls the below shown ring this act as emergency stop and stops all machine activity*
*To restart pull the blue knob (shown by ① in fig.1) while pulling the safety wire when engaged you should see green (shown by ② in fig.2) line under the blue knob. Now you can restart the machine from control panel*

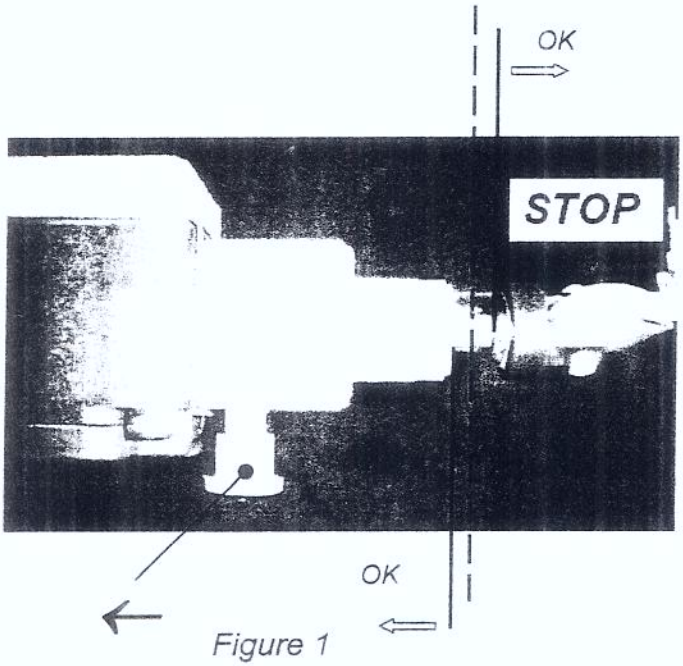
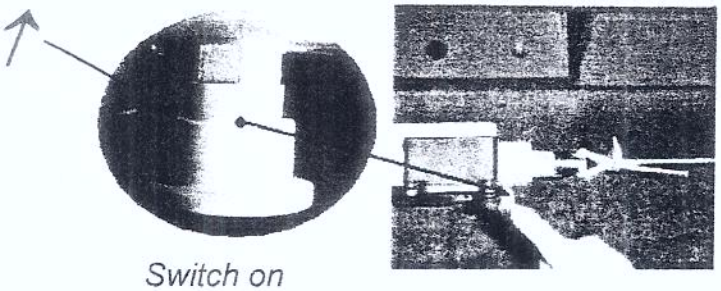


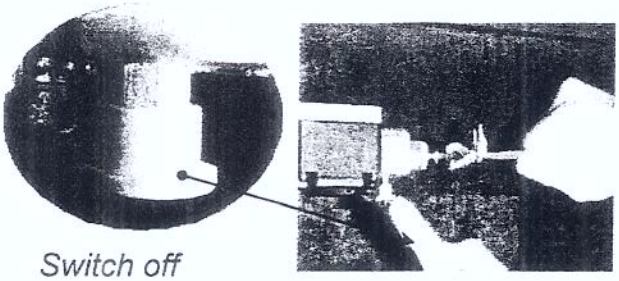

Figure 1

*Safety switch's on and off positions as given below.*



Switch on position

Figure 2



Switch off position

Figure 3

*The safety wire comes unassembled for packing reasons and must be assembled by the customer as shown above to completely surround the machine*

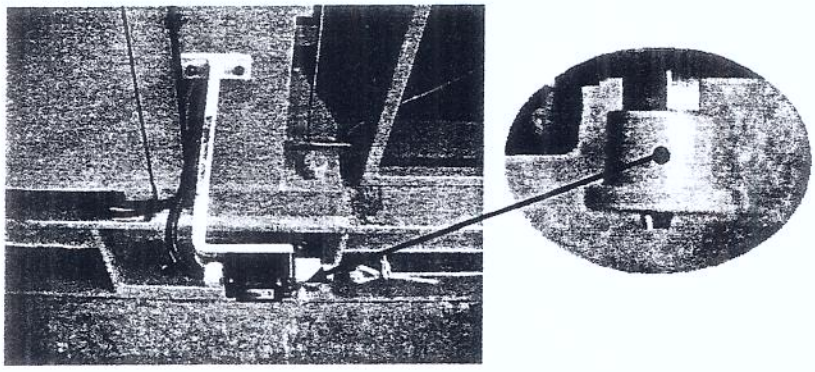


*Figure 4*

***Attention:***

*The safety wire is an important safety measure and must never be removed while the machine is setup. It should be only removed for transport purposes.*

*While assembling it is important to fit the wire to the safety switch lock securely as shown below.*

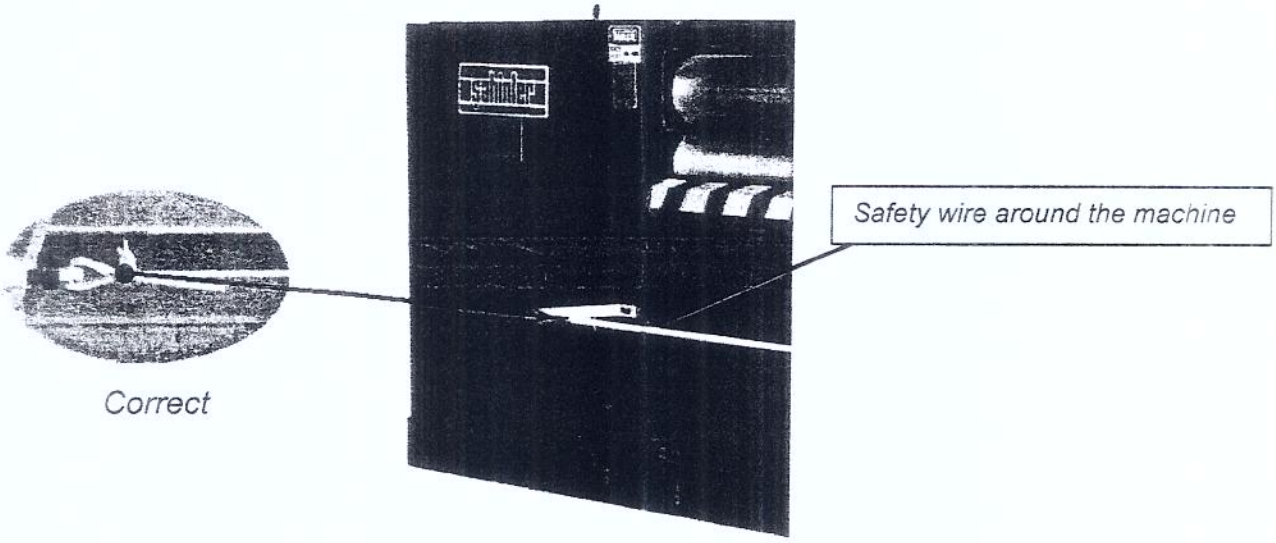



*Figure 5*

# ELECTRICAL CONNECTIONS

STOP **Warning :**

*All electrical connections must be performed and completed by a qualified electric technician in order to minimize chance of personnel injury or damage caused by wrong connection.*

*The cable must be directly connected to the machine. No intermediates should be used. The following pages contain the necessary diagram of electrical connections.*

*Ensure that the Electric Net is capable of loading up to V.Double-check the grounding for a safe operation. ( look at electricity plan )*

## ROTATION OF MOTOR

*After all the electrics have been completed, start the machine as below and check the rotationary axis of the motor.*

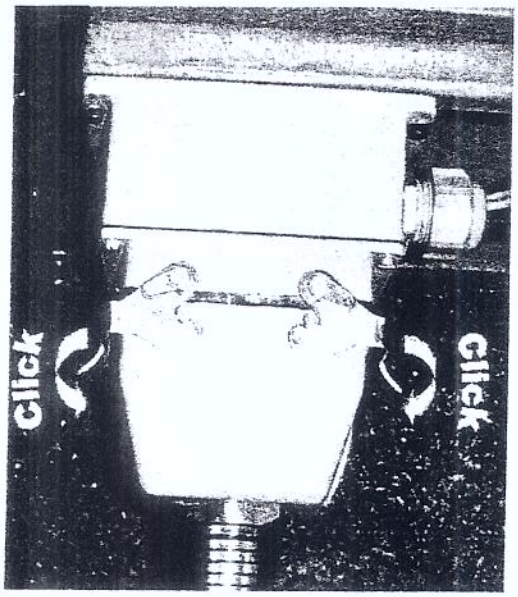
- *Bring Main Switch to Pos 1*
- *Bring Key Switch to Pos 1*
- *Push the foot pedal*
- *Check the rotation direction axis of the motor*

*Reverse connect the electrics by qualified electric technician to achieve right rotation direction.*

**Note :** *When you push the button of up the roll on the commander control panel, if rolls are moving up ( moving reverse position ) this means that motor is moving the reverse position. We advise to change the electric cable connecting points.*

## INSTALLATION FIGURE

**Connection of operation plug to machine;**



# OPERATING INSTRUCTIONS

*First Start-Up*

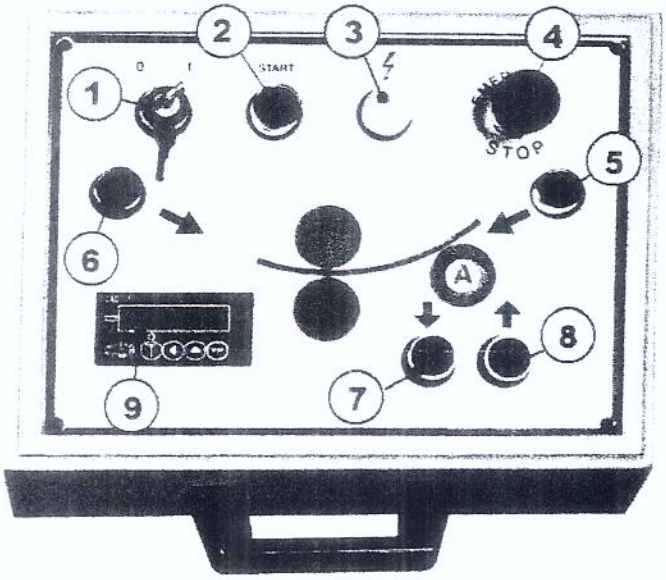
- *When you see the Power On Indicator press the Start Button. The motor should start up and after a few seconds you should hear the machine running*
- *Test the movements of the machine by pressing rotation and up-down buttons*

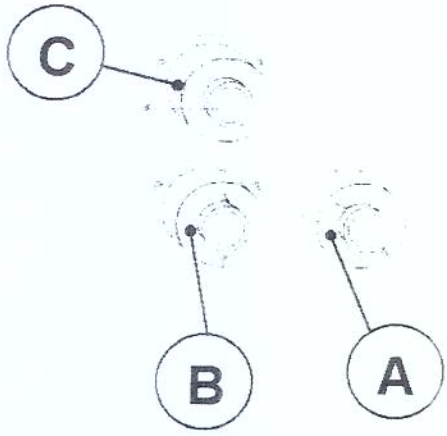
*Normal Operation*

*Before starting to operate the machine, when you must to read electric panel's explanation.*

***A diagram of the Operator's Panel is given below;***

1. *Power On Key Switch – Safety Key Switch. When the machine is not in use please remove the key to avoid unauthorized operation*
2. *Start button – To start main motor*
3. *Power on indicator – When on this indicates the machine Main Power Switch is on and ready to start*
4. *Emergency stop*
5. *Rolls rotation – Right*
6. *Rolls rotation – Left*
7. *Back roll – Down*
8. *Back roll – Up*
9. *Digital display ( optional )*




**A.** *Back Roll ( Bend Roll )*
**B.** *Lower Roll ( Pinch Roll )*
**C.** *Top Roll*

# BENDING OPERATIONS

## 3 ROLL BENDING PRINCIPLES

*Because of the heavy materials involved in bending, it must be done by qualified personnel who have experience on such machines. Each step of the bending and pre-bending or conical bending must be done very carefully. Remember that you can always make the radius tighter by bending a little more but once you bend it too much there is no way of turning back.*

***Note:*** *Before operating the machine, be sure that this manual is thoroughly read and understood by the personnel who will directly operate the machine and others concerned with it.*

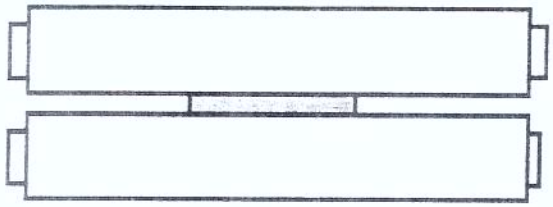
## PRE-BENDING OPERATION

*Pre-bending is the operation where the edges of the material is bent to the same radius of the end radius. This is used to get best results in full circle bending ( i.e. pipe making )or in operations where there must not be any flat edges. According to the final radius to make the finished material very good.*

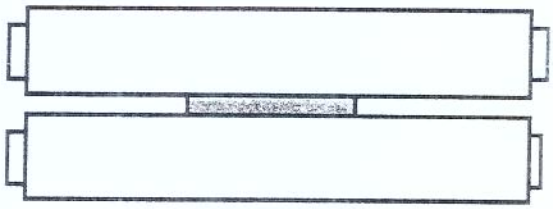
*The pre-bending process is also different compared to 3 roll bending machines. The following steps must be taken to make a pre-bending.*

***Before operation:***

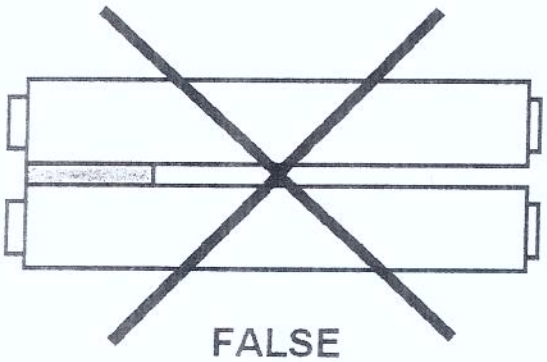
1. *Clean the material and the rolls from dust, or grease*
2. *Make sure there are no chips or flame cutting left-over on the edges of the material*
3. *Keep in mind that if the material is cut by flame that side will be harder than the other side*
4. *Check the surface of the material carefully make sure its flat*
5. *It's a good idea to have template of the required radius when making a bend. To make a template cut a hard cardboard or cartoon piece with the necessary radius*
6. *Always work in the center of the rolls as shown below.*



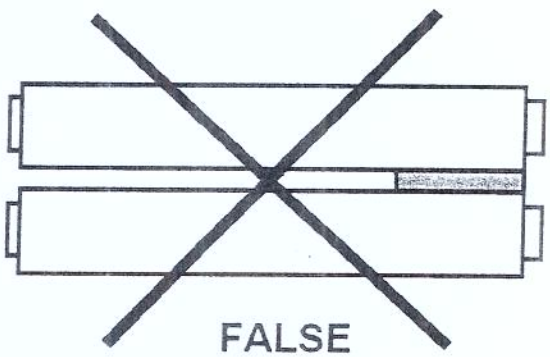
TRUE



TRUE



FALSE



FALSE

## Sheet Bending Position

*Figure 1*

*Top roll and lower roll in a flat position.*

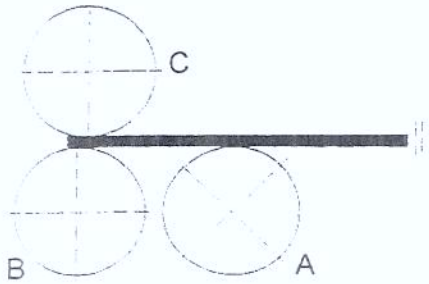



**Figure 1**

*Figure 2*

*Move the back roll up to complete the pre-bending*

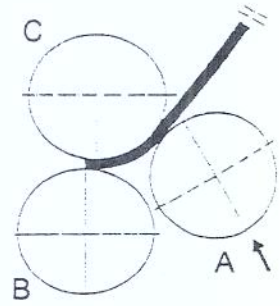



**Figure 2**

*Figure 3*

*Reverse the sheet and place for second pre-bending.*

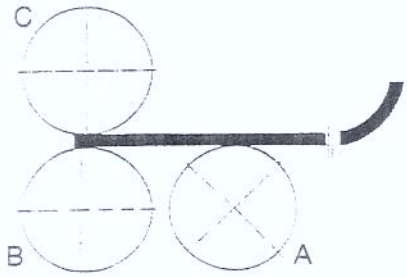



**Figure 3**

*Figure 4*

*Move the back roll up to complete Pre-bending*

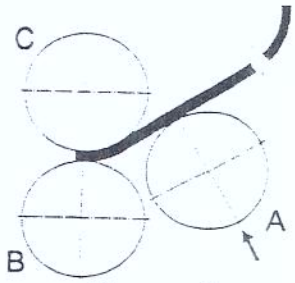



**Figure 4**

*Figure 5*

*Roll until required diameter is achieved.*

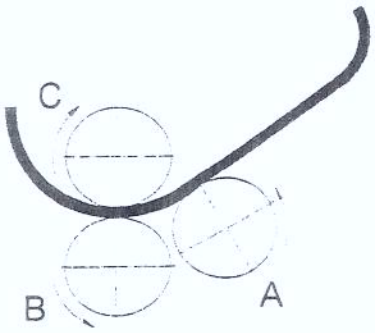



**Figure 5**

*Figure 6*

*The finish operation shown as below figure 6*

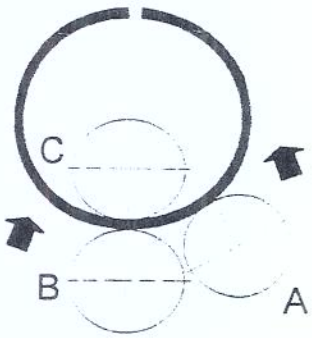



**Figure 6**

**Note:** *That the material will progressively harden with each pass.*

**Note:** *If you are working with stainless steel it is important to finish the job in a few passes. Because the work hardens and it progressively harden after each pass.*

### *CONICAL BENDING*

*To make the conic bending operation in the machine, the down roll must oblique position. Please follow these instructions step by step.*

- *Down roll must be bottom position*
- *At behind the machine, near the roll there must be a cover in it, please takeoff this cover.*
- *Roll must be oblique position*
- *Opening roll must be oblique position too to make this roll must be up position*
- *To adjust this roll please take off the connections under the cover and it must be get into oblique position ( like down rollers )*
- *Now two rolls are oblique position and machine is ready for conic bending*

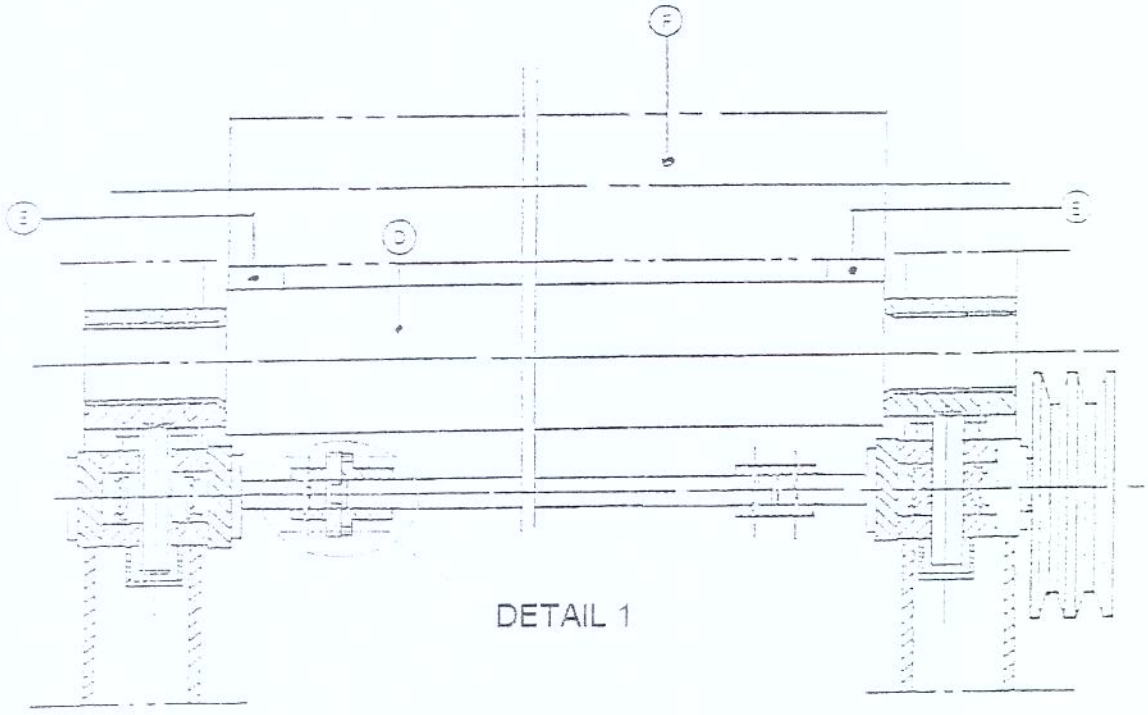
*Please replace the sheet this ready ( for conic bending ) machine and replace the conic support bars behind the sheet now you can make conical bending.*

***Attention :*** *Be sure to clean any oil or grease put on the rolls before operation. If don't work lubrication or lubrication deficiency we don't responsible for lubrication deficiency or don't work damages at last.*

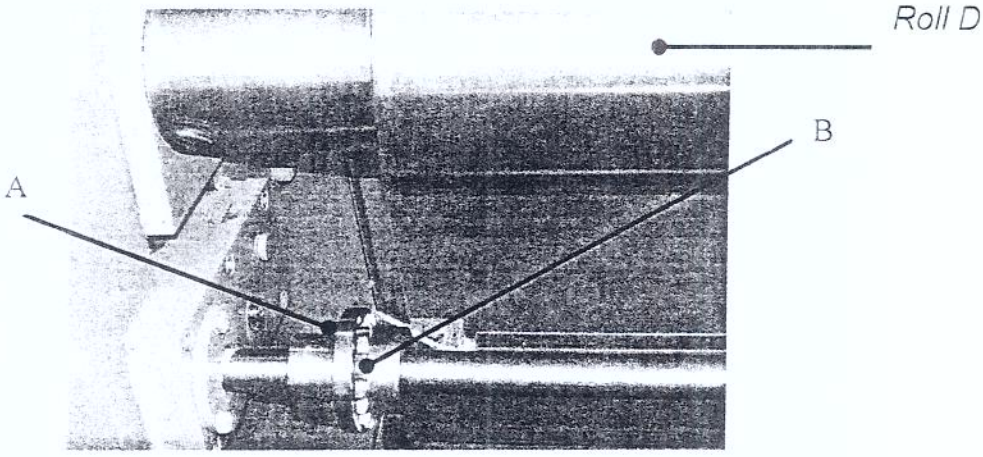
**Note:** *When bending conical the overall max. thickness capacity decreases by 25 %*

**Note:** *When cone bending, the thickness and width capacities of the machine are reduced. Check with the distributor or manufacturer for your requirements.*

*Because of the extra resistance forces on the rolls while making conical bending the capacity of the machine must be accepted half as usual therefore the max. bending thickness must be reduced to half in conical bends. The conical bending is done by using the attachment on right side of the machine and the tilting of the roll. Please refer to the drawing for a better idea of a conical bend.*




DETAIL 1




DETAIL 1

- *Loosen bolts A*
- *Detach B connection*
- *Use the lift motor to tilt the bending roll D*

***Straightening the D Roll***

*To straighten the roll D after conical bending you must put straight materials ( E ) between rolls F and D and reversing the operation above*

## OPENING THE TOP ROLL

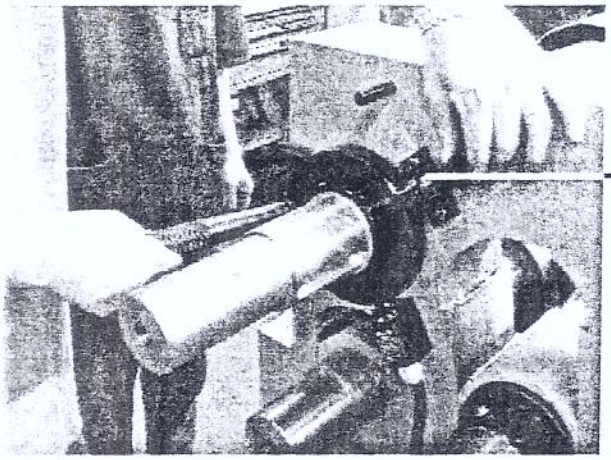



Figure – 1

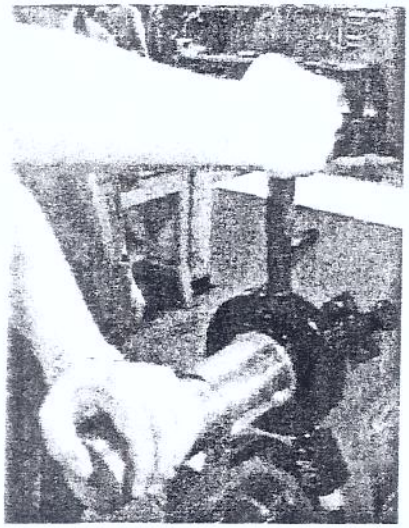


Figure – 2

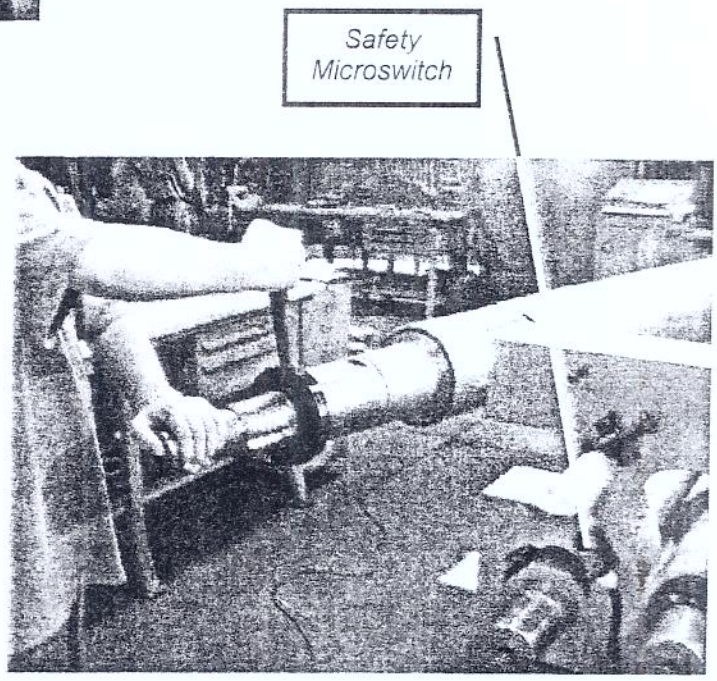



Figure – 3

Opening the top roll is easy and safe. Once the top roll is open the machine will not function. There is a safety microswitch (Figure – 3) that prevents the machine from operating while the top roll is open.

1. Release the mechanical lock to move the handle on top roll (Figure – 1)
2. Move the handle as far as you can and see that the roll can move in the housing (Figure – 2)
3. Pull the top roll out (Figure – 3)
4. Reverse above steps to close the top roll and make sure the mechanical lock is secure.

STOP

***Warning:***

*Do **NOT** modify this safety device. **NEVER** operate any function of the machine while the top roll is open.*

# MAINTENANCE

## PERIODIC CONTROLS

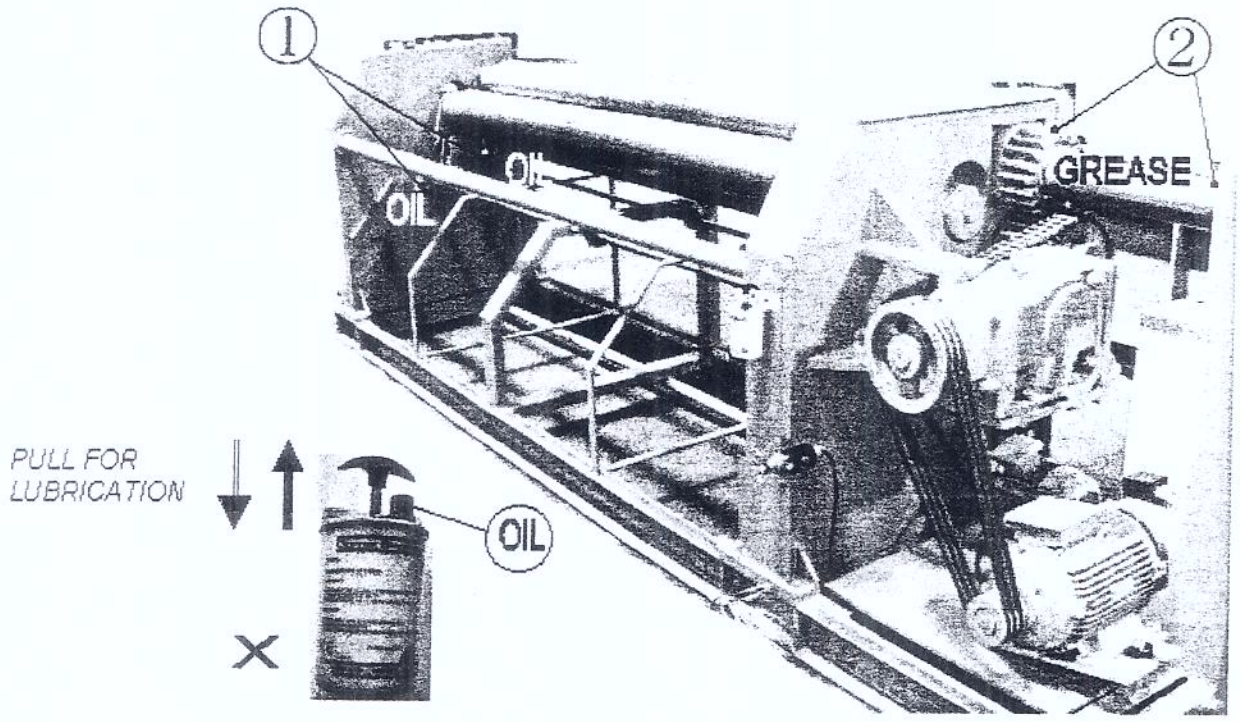
*The rolls of the machine must **NEVER** be greased or lubricated. Because, then the rolls will slip the material and will not bend. Always keep the rolls clean and free from grease or any lubricant. Also make sure that the material is free from grease and dirt.*

*These points must be greased periodically at least once a month or more if daily usage exceeds 8 hours a day. Note that some of these points are actually inside the machine cover and the front cover must be removed in order to reach them. Any standard commercial grease can be used for lubrication.*

| NUMBER | PERIOD | WHAT TO DO |
|---|---|---|
| 1- Gear system | Once a month | Grease |
| 2- Gearbox | Once a year | Oil |

## REDUCTION GEARBOX MAINTENANCE

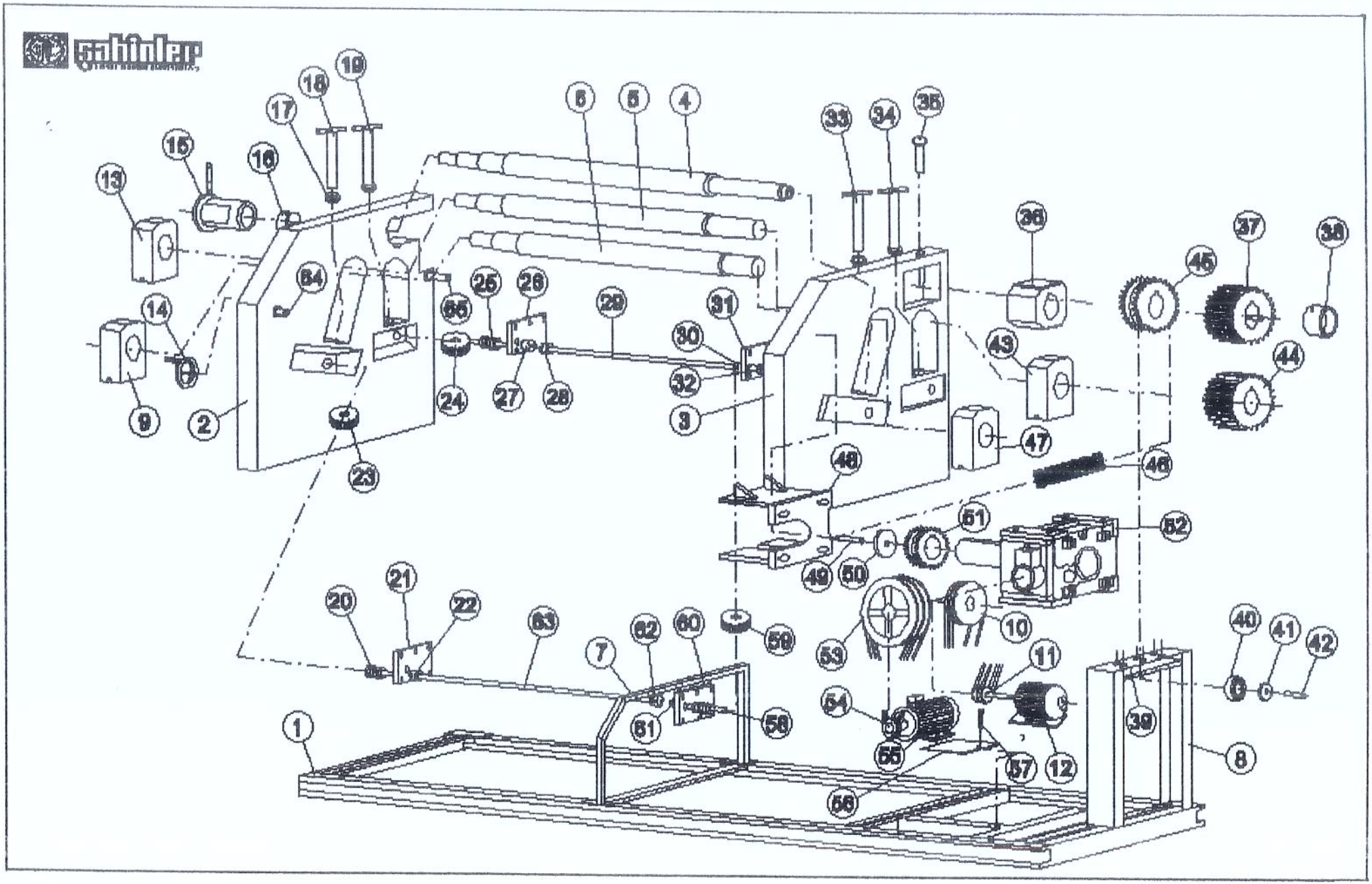
*The reduction gearbox of the machine is inside the front cover and is maintenance free. Only you should control it periodically and tighten the bolts fixing it to motor and to the frame, if necessary.*




## LUBRICATION PLAN

*For efficient working with the machine the above marked ( 1 and 2 ) parts must be greased at least once a week. Also the ( x ) marked lubrication pump oil level must be controlled and re-filled if necessary. We recommend Mobil Vectra 2.*

*The lever on this pump should be pulled up once and it will go down slowly by itself to lubricate. Then it must be pulled up again.*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## LISTS OF THE PARTS

| Assembly No | Part Identification | Assembly No | Part Identification |
|---|---|---|---|
| 1 | Lower Frame | 33 | Lifting Shaft |
| 2 | Motor side Frame | 34 | Lifting Shaft |
| 3 | Drop end Frame | 35 | Top Roll Joint |
| 4 | Top roll | 36 | Top roll Bushing |
| 5 | Pinch roll | 37 | Top roll Gear |
| 6 | Back roll | 38 | Top Roll Gear Flange |
| 7 | Main Profile | 39 | Top roll Tensioning |
| 8 | Tension Profile | 40 | Top roll Bearing |
| 9 | Back Roll Bushing | 41 | Bearing Flange |
| 10 | V-Belt Flywheel | 42 | Bolt |
| 11 | Front roll motor pulley | 43 | Bottom Roll Bushing |
| 12 | Back roll motor | 44 | Bottom roll Power Gear |
| 13 | Bottom roll Bushing | 45 | Bottom roll Chain Gear |
| 14 | Bottom roll lifting wheel | 46 | Double line Chain |
| 15 | Top roll Bushing | 47 | Idle Roll Bushing |
| 16 | Top Roll Chrome Bushing | 48 | Reduction Gearbox Tensioning |
| 17 | Flange | 49 | Bolt |
| 18 | Lifting Shaft | 50 | Front Cover |
| 19 | Lifting Shaft | 51 | Chain Gear |
| 20 | Gear | 52 | Reduction Gearbox |
| 21 | Gear Box Cover | 53 | V-Belt Flywheel |
| 22 | Spacer | 54 | Power Motor Pulley |
| 23 | Gear Wheel | 55 | Power motor |
| 24 | Gear Wheel | 56 | Motor plate |
| 25 | Gear | 57 | Tensioning Bolt |
| 26 | Gear Box Cover | 58 | Universal Gear |
| 27 | Coupling | 59 | Equivalent gear |
| 28 | Coupling | 60 | Gear Box Cover |
| 29 | Coupling Shaft | 61 | Coupling |
| 30 | Coupling | 62 | Coupling |
| 31 | Gear Box Cover | 63 | Coupling Shaft |
| 32 | Universal Gear | | |

SAYFA NO 01

MRM-S

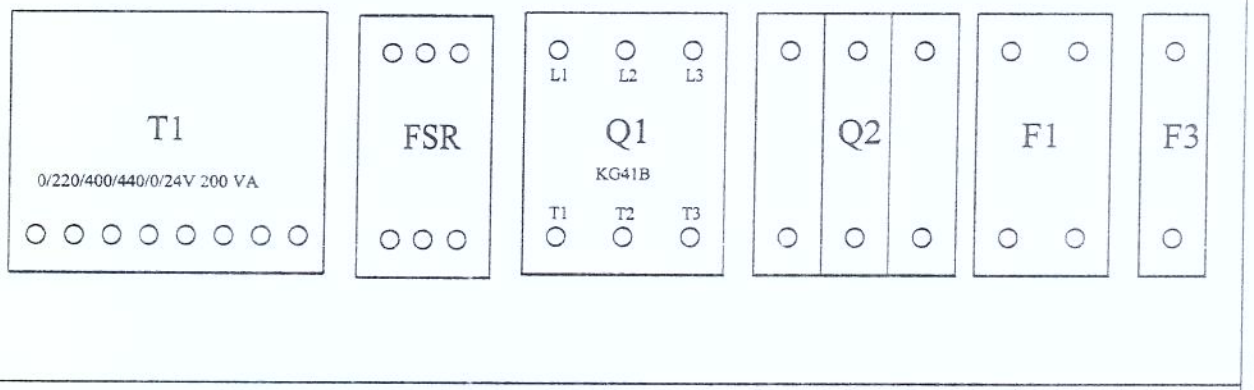
CABINET DESIGN

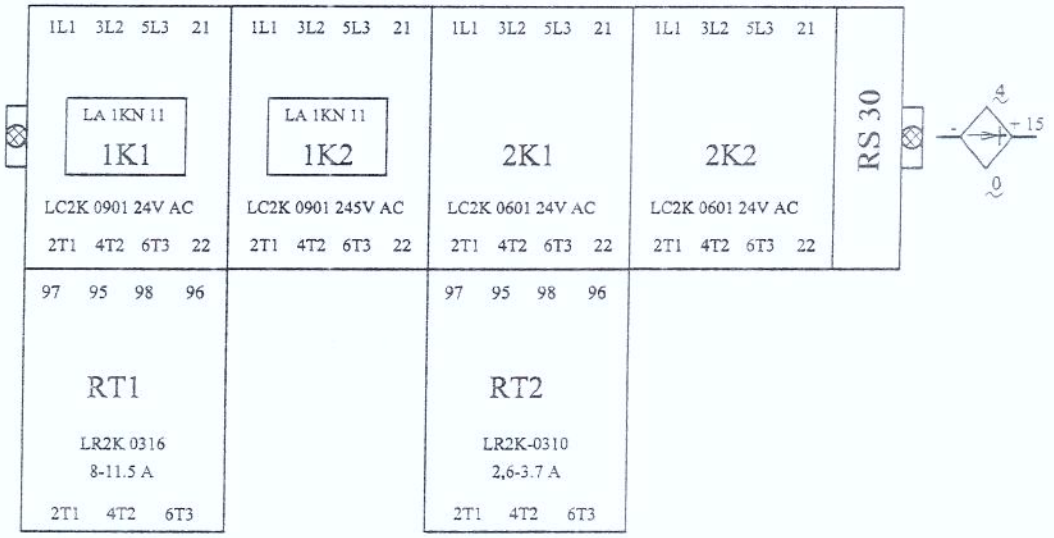
TARIH 08/08/2005

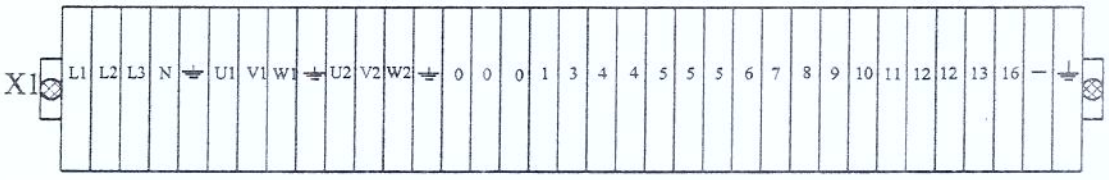
PLAN NO

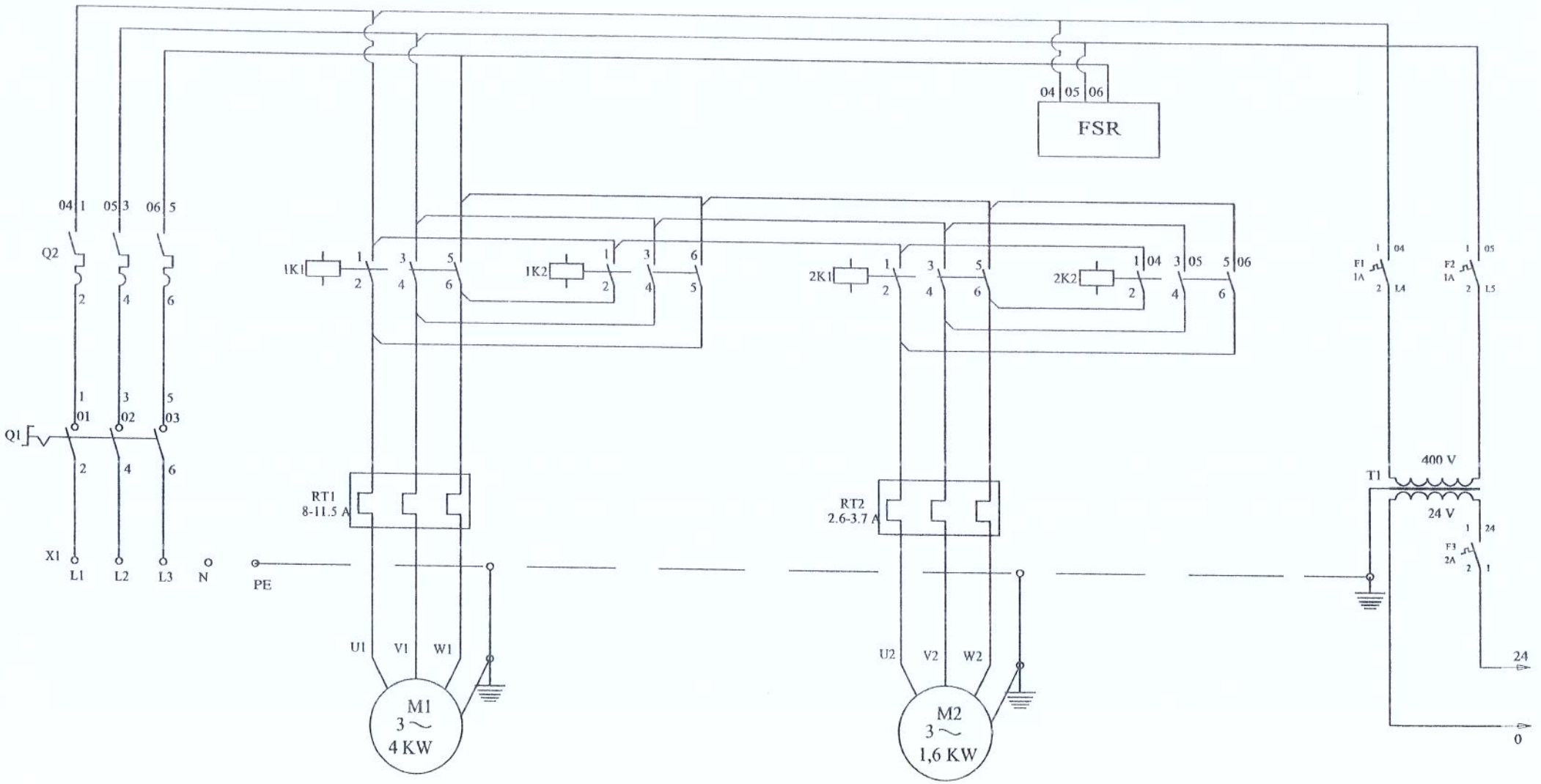
DOSYA ADI MRMS

SAHINLER METAL MAKINA SANAYI AS

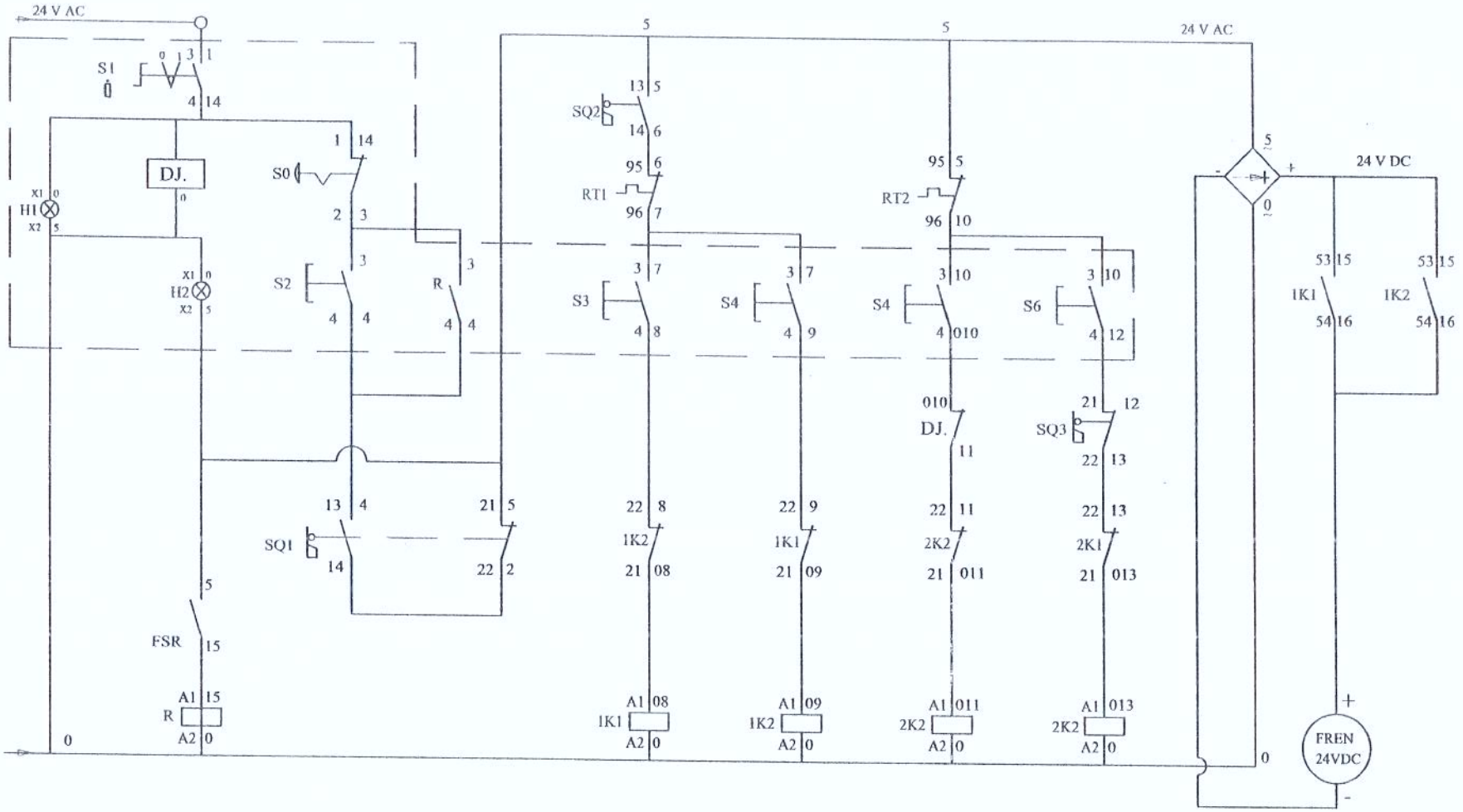


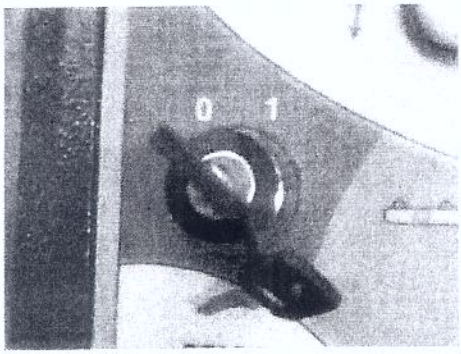



| SAYFA NO | | | TARIH | PLAN NO | DOSYA ADI | |
|---|---|---|---|---|---|---|
| 02 | MRM-S | MAIN MOTOR SCHEMA | 08/08/2005 | | MRM-S | SAHINLER METAL MAKINA SANAYI AS |

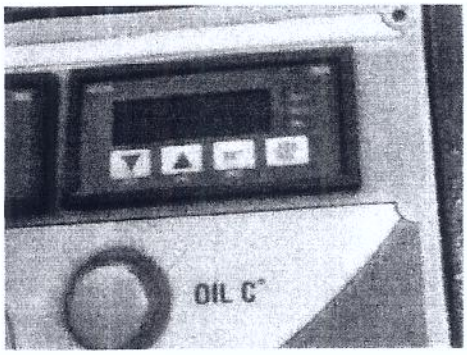



| SAYFA NO | | CONTROL PANEL WITH DIGITAL | TARIH | PLAN NO | DOSYA ADI | SAHINLER METAL MAKINA SANAYI AS |
|---|---|---|---|---|---|---|
| 03 | MRM-S | | 08/08/2005 | | MRM-S | |

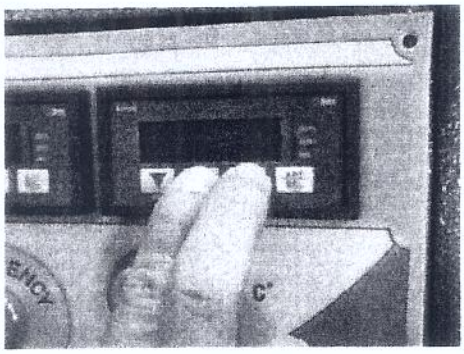
# CALIBRATION



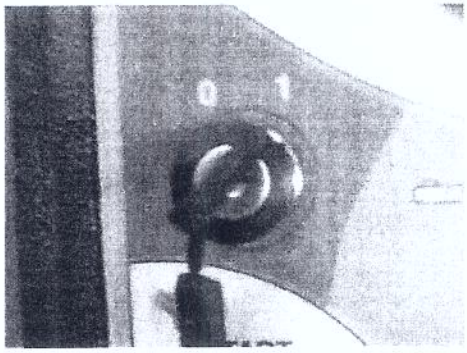

CLOSE THE MACHINE



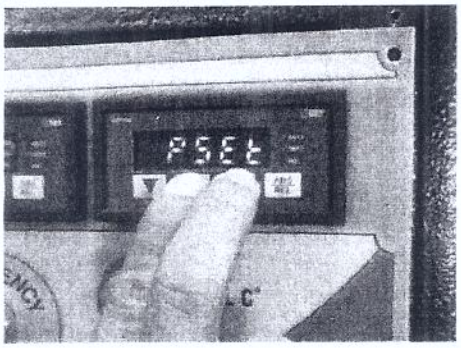

DIGITAL MUST BE CLOSED TOO

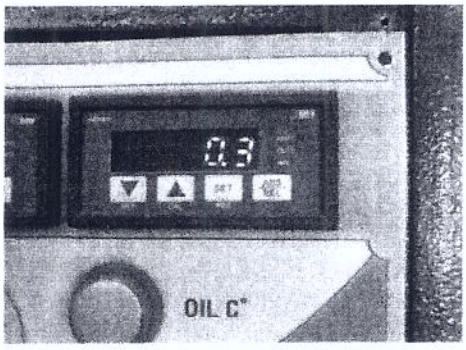


PRESS THE "CAL" AND "PRG" BUTTONS AND HOLD DOWN

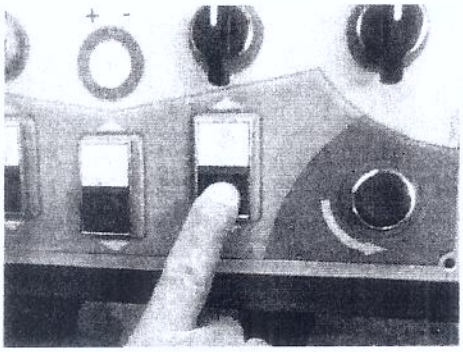



AT THE SAME TIME OPEN THE MACHINE

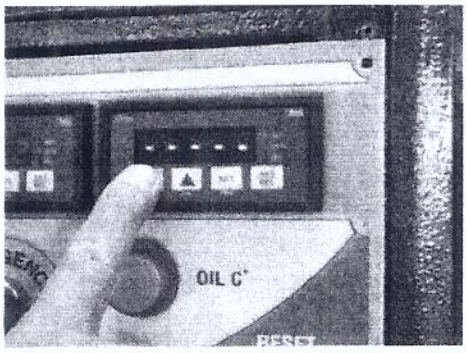


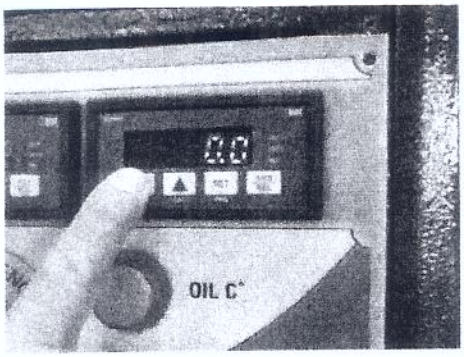

WHEN MACHINE OPEN STOP HOLDING DOWN



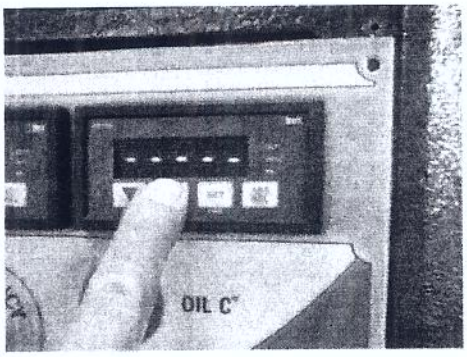
TAKE DOWN THE ROLL TO MIN LEVEL (THE ROLL WHICH YOU MAKE THE DIGITAL SETTINGS)



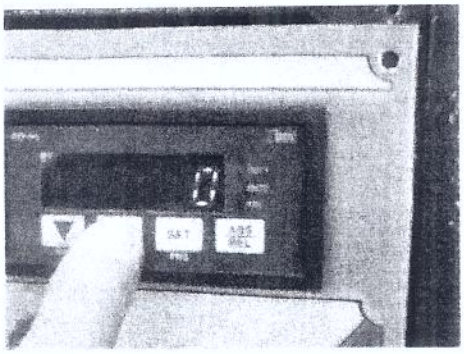

PRESS THE RESET BUTTON



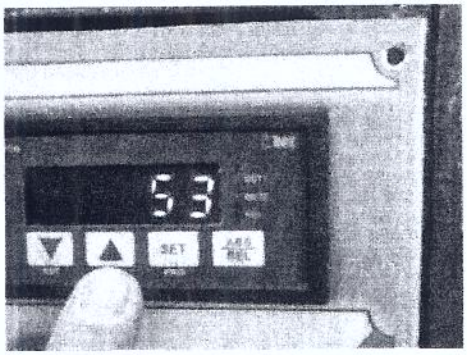

TILL THE VALUE BE ZERO



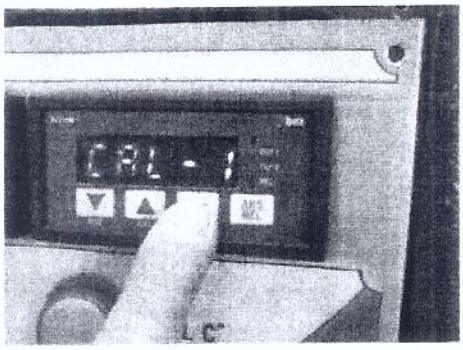

THEN PRESS THE "CAL" BUTTON



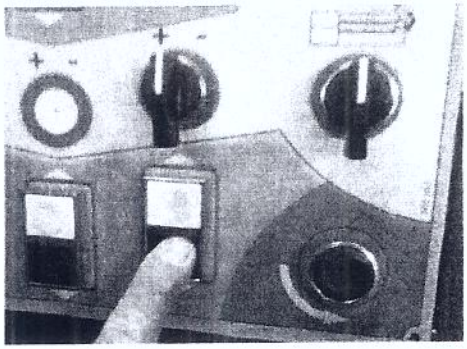

FOR ENTERING THE PASSWORD
USE UP&DOWN BUTTONS



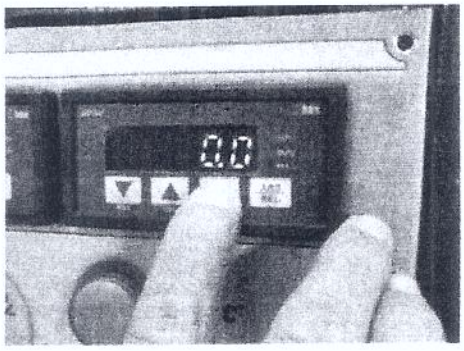

WRITE "53"



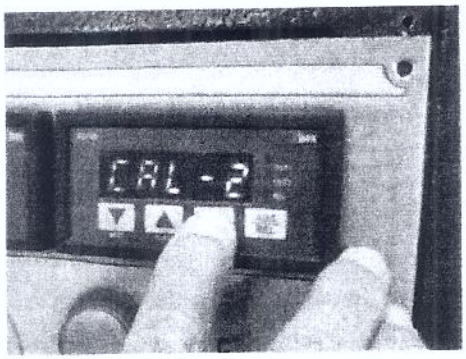

PRESS "PRG" BUTTON ON THE
SCREEN YOU WILL SEE " CAL-1 "



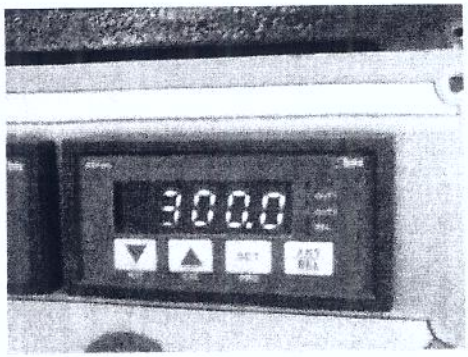
CHECK AGAIN THAT THE ROLL IS IN
THE LOWER MOST



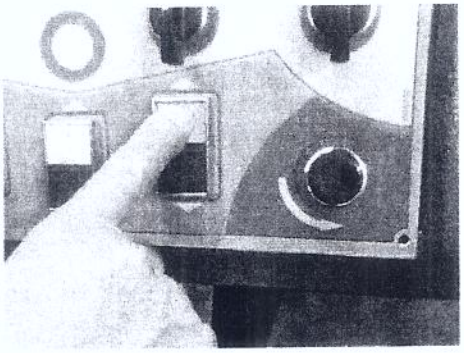

PRESS "PRG" BUTTON



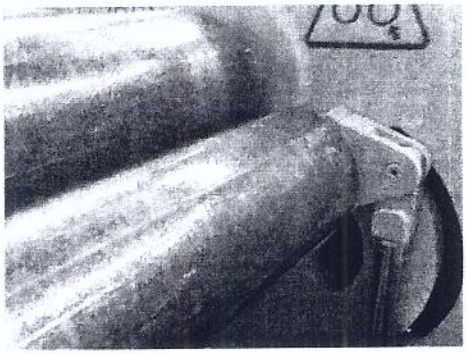

SCREEN YOU WILL SEE " CAL-2 "

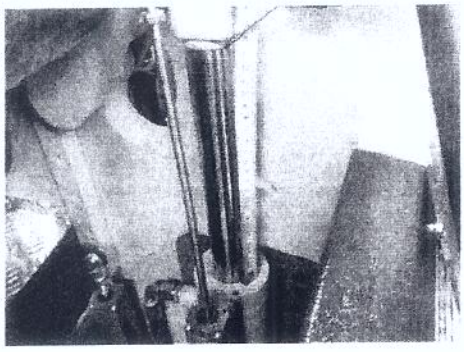



WHEN VALUE IS "300" LIFT THE ROLL TO THE MAX LEVEL

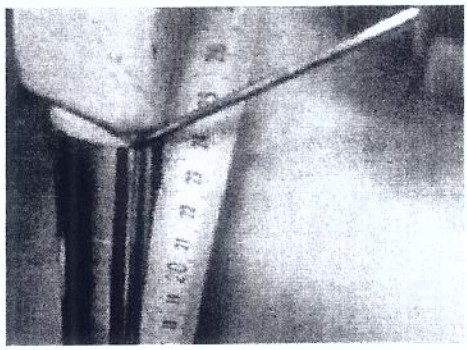


CHECK THAT THE ROLL IS ON THE MAX LEVEL

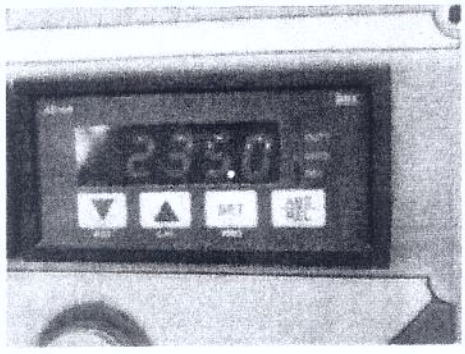




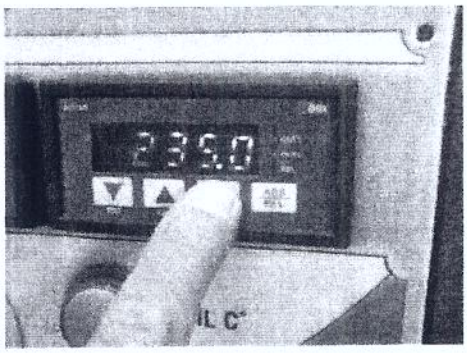
CALCULATE THE PİSTONS MAX mm LEVEL



CALCULATE IT FROM THE WHITE COLOURED PLACE




ENTER THE VALUE THAT YOU MEASURE ex IF YOU MEASURE 235 mm THEN ENTER 235 ON DIGITAL




PRESS "PRG" BUTTON