SEGATRICE A NASTRO PER METALLI FERROSI BAND SAW FOR FERROUS METALS BANDSAEGEMASCHINE FÜR EISENMETALLE SCIE A RUBAN POUR METAUX FERREUX SIERRA DE CINTA PARA METALES FERROSOS ЛЕНТОЧНЫЙ РАСПИЛОВОЧНЫЙ СТАНОК ДЛЯ МЕТАЛЛОВ

MANUALE DI ISTRUZIONI PER L'USO - INSTRUCTION MANUAL FOR OPERATION BETRIEBSANLEITUNG - MANUEL D'INSTRUCTIONS POUR L'EMPLOI MANUAL DE INSTRUCCIONES DE USO РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ И ТЕХОБСЛУЖИВАНИЮ

## COSTRUTTORE:

MANUFACTURER:
ERBAUER:
CONSTRUCTEUR:
CONSTRUCTOR:
ИЗГОТОВИТЕЛЬ:

MODELLO:
MODEL:
MODELL:
MODELE:

## SPECIAL 280 CSO

MODELO:

```
MACC s.r.I. SCHIO(VI) - ITALY
```

МОДЕЛЬ:

## MATRICOLA:

SERIAL NUMBER:
KENNNUMMER:
MATRICULE:
MATRICULA:
СЕРИЙНЫЙ НОМЕР:

ANNO DI COSTRUZIONE:
YEAR OF CONSTRUCTION:
BAUJAHR:
ANNEE DE CONSTRUCTION:
AÑO DE COSTRUCCION:
ГОД ИЗГОТОВЛЕНИЯ:



> DICHIARAZIONE DI CONFORMITA' 'CE' CERTIFICATE OF CONFORMITY 'EEC' KONFORMITÄTSBESCHEINIGUNG 'EWG' DECLARATION DE CONFORMITE 'CE' DECLARACION DE CONFORMIDAD 'CE' ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ 'СЕ'

MACC Costruzioni Meccaniche s.r.I. - Via Lago di Albano, 10-36015 Schio (VI) Italy Tel.: 0445/575005 Fax: 0445/575006 Web site: www.macc.it E-mail: info@macc.it

- Dichiara, sotto la propria responsabilità, che la macchina nuova descritta in appresso:
- Declares, by its own undertaking, that the new machine described below:
- Erklärt auf eigene Verantwortung, daß die nachstehend beschriebene neue Maschine:
- Déclare sous sa propre responsabilité, que la machine neuve décrite de suite:
- Declara, bajo la propia responsabilidad, que la nueva màquina descripta a continuaciòn:
- Заявляет под личную ответственность, что описанная новая машина под названием:


# SEGATRICE A NASTRO PER METALLI <br> BAND SAW MACHINE FOR METALS <br> BANDSAEGEMASCHINE FÜR EISENMETALLE SCIE A RUBAN POUR METAUX SIERRA DE CINTA PARA METALES ЛЕНТОЧНЫЙ РАСПИЛОВОЧНЫЙ СТАНОК ДЛЯ МЕТАЛЛОВ 

TIPO - TYPE - TYP - TYPE - TIPO - ТИП

## SPECIAL 280 CSO

MATRICOLA - SERIAL NUMBER - KENNNUMMER - MATRICULE - MATRICULA - СЕРИЙНЫЙ НОМЕР

## ANNO DI COSTRUZIONE - YEAR OF CONSTRUCTION - BAUJAHR - ANNEE DE CONSTRUCTION AÑO DE COSTRUCCION - ГОД ИЗГОТОВЛЕНИЯ

- E' CONFORME ALLA DIRETTIVA MACCHINE 2006/42/CE, ALLA DIRETTIVA COMPATIBILITA' ELETTROMAGNETICA 2014/30/UE ED ALLA DIRETTIVA BASSA TENSIONE 2014/35/UE.
- IS IN COMPLIANCE WITH THE 2006/42/EEC MACHINERY DIRECTIVE, 2014/30/UE DIRECTIVE ON ELECTROMAGNETIC COMPATIBILITY, 2014/35/UE LOW VOLTAGE DIRECTIVE.
- DEN NORMEN BEZÜGLICH DER MASCHINEN-RICHTLINIE 2006/42/EWG, 2014/30/EWG RICHTLINIE ZUR ELEKTROMAGNETISCHEN KOMPATIBILITÄT, 2014/35/EWG RICHTLINIE FÜR NIEDERSPANNUNG ENTSPRICHT.
- EST CONFORME A LA DIRECTIVE MASCHINES 2006/42/CEE, 2014/30/CEE DIRECTIVE SUR LA COMPATIBILITÉ ÉLECTROMAGNÉTIQUE, 2014/35/CEE DIRECTIVE BASSE TENSION.
- HA SIDO FABRICADA CONFORME A LA DIRECTIVA MÁQUINAS 2006/42/CEE, 2014/30/CEE DIRECTIVA COMPATIBILIDAD ELECTROMAGNÉTICA, 2014/35/CEE DIRECTIVA BAJA TENSIÓN.
- ОТВЕЧАЕТ ТРЕБОВАНИЯМ ДИРЕКТИВЫ ПО МАШИНАМ 2006/42/СЕ, ДИРЕКТИВЫ ОБ ЭЛЕМКТРОМАГНИТНОЙ

СОВМЕСТИМОСТИ 2014/30/СЕ И ДИРЕКТИВЫ О НИЗКОМ НАПРЯЖЕНИИ 2014/35/СЕ.
Nome della persona autorizzata a costituire il 'Fascicolo Tecnico' - Name of the person authorized to represent the 'Technical File' - Name der Person, auf die "Technical File" vertreten - Nom de la personne autorisée à représenter le 'dossier technique' Nombre de la persona autorizada para representar a la "Ficha Técnica" - Фамилия, имя лица, уполномоченного составить техническую документацию
Macc Costruzioni Meccaniche s.r.I.
MACC Costruzioni Meccaniche s.r.I. - Via Lago di Albano, 10 - 36015 Schio (VI) Italy Tel.: 0445/575005 Fax: 0445/575006
Nome del Rappresentante Legale - Name of the Legal Representative - Name des Gesetzlichen Vertreters Nom du Représentant Légal - Apellido del Representante Legal - Фамилия, имя законного представителя:
Zanella Gianfranco
MACC Costruzioni Meccaniche s.r.I. - Via Lago di Albano, 10 - 36015 Schio (VI) Italy Tel.: 0445/575005 Fax: 0445/575006
Firma - Signature - Unterschrift - Signature - Firma - Подпись:



## E' SEVERAMENTE VIETATO UTILIZZARE LA MACCHINA SENZA LIQUIDO DI TAGLIO.

## IT IS STRICTLY FORBIDDEN TO USE THE MACHINE WITHOUT CUTTING FLUID.

## ES IST STRENG VERBOTEN, DIE MASCHINE OHNE SCHNEIDFLÜSSIGKEIT IN BETRIEB ZU NEHMEN.

IL EST SEVEREMENT INTERDIT D'UTILISER LA MACHINE SANS LIQUIDE DE COUPE.

SE PROHÍBE TERMINANTEMENTE UTILIZAR LA MÁQUINA SIN LÍQUIDO DE CORTE.

É SEVERAMENTE PROIBIDO UTILIZAR A MÁQUINA SEM LÍQUIDO DE CORTE.

Категорчески запрещена эксплуатация машины без смазочноохлаждающей жидкости


SISTEMA DI MICROLUBRIFICAZIONE: SE INSTALLATO SULLA MACCHINA, È OBBLIGATORIO L'USO DI MASCHERINA PROTETTIVA DELLE VIE AEREE. SI CONSIGLIA DI MANTENERE AREATO IL LOCALE.

MICRO-LUBRICATION SYSTEM: IF INSTALLED ON THE MACHINE, THE USE OF PPE (AIRWAYS PROTECTION MASK) IS NECESSARY. KEEP THE PLACE AERATED.

## MIKRODOSIERGERÄT: FÜR MASCHINEN MIT

MIKRODOSIERGERÄT IST ES STRIKT ERFORDERLICH EINE ATEMMASKE ZUM SCHUTZ DER ATEMWEGE ZU TRAGEN. BITTE DAS GERÄT NUR IN GUT BELÜFTETEN RÄUMEN ANWENDEN.

SYSTÈME DE MICRO-LUBRIFICATION: SI LE SYSTĖME EST INSTALLÉ SUR LA MACHINE, IL EST IMPÉRATIF DE PORTER UN MASQUE DE PROTECTION POUR PROTÉGER LES VOIES RESPIRATOIRES. LES LOCAUX DOIVENT ÉGALEMENT ÊTRE VENTILÉS.

SISTEMA DE MICROLUBRICACIÓN: SI ESTÁ INSTALADO EN LA MÁQUINA, ES OBLIGATORIO EL USO DE UNA MÀSCARA PROTECTORA DE LAS VÍAS RESPIRATORIAS. ES ACONSEJABLE MANTENER LA SALA VENTILADA.

SISTEMA DE MICRO-LUBRIFICAÇÃO: SE INSTALADO NA MÁQUINA, O USO DE UMA MÁSCARA PROTETORA DAS VIAS AÉREAS É OBRIGATÓRIO. É ACONSELHÁVEL MANTER O LOCAL VENTILADO.

СИСТЕМА МИКРОСМАЗКИ: ЕСЛИ СИСТЕМА УСТАНОВЛЕНА, ОБЯЗАТЕЛЬНО ИСПОЛЬЗОВАТЬ ЗАЩИТНУЮ МАСКУ И ПРОВЕТРИВАТЬ ПОМЕЩЕНИЕ.



## 1. INTRODUCTION

This operation instruction manual conforms to the requirements of the 2006/42/EEC Machine Directives and subsequent amendments.
In the light of this, special attention has been given to safety aspects and accident prevention in the work-place for each stage in the machine's "life" . Information which could be of particular assistance to the operator has been highlighted .
The "Operating instructions" are an integral part of the machine and should be consulted before, during and after the start up of the machine and whenever else required. The content of these instructions should always be carefully observed.
The observance of the above is the only way to achieve the two fundamental aims of this manual :

- Optimization of machine performance


## - Prevent damage to the machine and injury to the operator

The index of the chapters and the index of the drawings, diagrams and tables is contained in chapter 3 and can be used to help the location of specific information

## CAUTION : BEFORE INSTALLING THE MACHINE , READ <br> THE OPERATING INSTRUCTIONS CAREFULLY

## 2. INFORMATION ABOUT MAINTENANCE ASSISTANCE

### 2.1 GUARANTEE

- MACC S.r.l. products are guaranteed against material and manufacturing defects for a period of 12 months from the date of delivery or, if the machine is installed by MACC employees, from the date of machine start up .
- The buyer is only entitled to the replacement of parts which are acknowledged as faulty : carriage and packing are at the buyer's expense. In the event of the above, the following information should be supplied :

1. Date and number of purchasing document
2. Machine model
3. Serial number
4. Code of any relevant drawings

- Requests for compensation for the inactivity of the machine will not be accepted .
- The guarantee does not cover uses which are not in line with these operating instructions which are an integral part of the machine. Nor is maintenance covered if the instructions supplied are not observed .
- The guarantee will not cover machines which have undergone unauthorized modifications .
- Modification or tampering with the safety devices is strictly forbidden .


## 3. INDEX

### 3.1 INDEX OF CHAPTERS

| Chap. 1 | Introduction <br> Chap. | 2 |
| :--- | :--- | :--- |
| Information about maintenance assistance |  |  |
| Chap. | 3 | Index of chapters, drawings, diagrams and tables <br> Chap. |
|  | 4 | Description of the machine <br> Safety standards complied with during the design and construction of the machine <br> Description of the machine and its components <br> Intended and unsuitable uses of the machine |
| Chap. | 5 | Main technical data |
| Chap. | 6 | Handling and transportation <br> Installation |
| Chap. | 7 | 8 | | Start up and operation |
| :--- |
| Chap. |

### 3.2 INDEX OF DRAWINGS , DIAGRAMS AND TABLES

| ENCL. TYPE | DESCRIPTION | ENCL. No. | CHAP. |
| :--- | :--- | :---: | :---: |
| Table | Cutting capacity - Selection of blade - Cutting speeds | 1 | 8.3 |
| Drawings | Handling and transportation - Installation plan | 2 | $6 / 7 \mathrm{~A} / 7 \mathrm{~B} / 8.1 / 9.3$ |
| Drawings | Blade guides - Blade guide bearings - Vice block | 3 | $7 \mathrm{C} / 8.3 / 9.3$ |
| Drawings | Vice block - Tensioning | 4 | $8.3 / 9.3$ |
| Drawings | Rotation block - Motor - Machine exploded view | 5 | 7 C |
| Drawings-Diagram | Plate with electrical components - Wiring diagram | 6 |  |
| Diagram | Hydraulic diagram | 7 |  |

## 4. DESCRIPTION OF THE MACHINE

### 4.1 SAFETY STANDARDS COMPLIED WITH DURING THE DESIGN AND CONSTRUCTION OF THE MACHINE

The machine produced by us is in compliance with :

- 2006/42/EEC Machinery Directive .

The following Standards apply :

- EN ISO12100 2010 Safety of machinery - Basic concepts and general principles for design . Basic terminology and methods .
- EN ISO 160932017 Safety of machinery. Basic concepts and general principles for design .

Specifications and technical principles
Safety of machinery . Emergency stop devices, functional aspects - design principles

- EN ISO 4413-14 2012 Safety requirements related to systems and components for hydraulics and pneumatic transmissions
- EN 10372008 Safety of machinery . Isolation and energy dissipation. Prevention of unexpected start-up .
- EN 141192013 Safety of machinery - Interlocking devices with and without guard - locking . General principles and provisions for design
- EN 60204-1 2018 Safety of machinery . Electrical equipment of machines. Part 1 : General requirements Sa .
- EN 13857 Safety of machinery. Safety distances to prevent danger zones being reached by the upper limbs.
- 2014/30/EU Directive on electromagnetic compatibility .

The following Standards apply :

- EN 55014-1 $2019 \quad$ Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus .
- EN 61000-3-2 2018 Electromagnetic compatibility ( EMC ) -- Part 3-2 : Limits - Limits for harmonic current
- EN 61000-3-11 2017 emissions .
Electromagnetic compatibility ( EMC ) -- Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
- EN 550322015 Electromagnetic compatibility of multimedia equipment - Emission requirements
- EN 61000-4-2 2008

Electromagnetic compatibility ( EMC ) -- Part 4-2 : Testing and measurement techniques Electrostatic discharge immunity test

- EN 61000-4-4 2012 Electromagnetic compatibility ( EMC ) -- Part 4-4 : Testing and measurement techniques - Electrical fast transient/burst immunity test
- EN 61000-4-6 2013 Electromagnetic compatibility ( EMC ) -- Part 4-6 : Testing and measurement techniques Immunity to conducted disturbances, induced by radio-frequency fields
- Low Voltage Directive 2014/35/UE .

Directive 2003/11/EC Directive 2003/11/EC of the European Parliament and of the Council of 6 February 2003 amending for the 24th time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations ( pentabromodiphenyl ether, octabromodiphenyl ether )
Directive 2002/44/EC of the European Parliament and of the Council of 25 June 2002 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents ( vibration ) ( sixteenth individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC )

### 4.2 DESCRIPTION OF THE MACHINE AND ITS COMPONENTS

The SPECIAL 280 CSO band sawing machine produced by MACC has a sturdy frame made from welded and painted sheet-steel. The upper surface is designed to allow the complete draining away of the cutting fluid. The band holding bow is made of cast-iron and has generous dimensions, providing the cutting unit with the necessary strength and precision. The vice unit is made of cast-iron and clamps the material to be cut securely. The bar-stop device allows the length required to be present and a constant level of performance for repeated cuts. The blade-holding bow is firmly attached to a reduction unit built onto the motor and to the base by means of a joint which allows $60^{\circ}$ rotation to the right. This joint also allows the cutting movement to advance manually or by falling
The coolant pump is fitted to the machine base. The main switch is located on the front panel . The choice of one of the two motor rotation speeds and therefore cutting speed is carried out by the main switch. The front panel is also fitted with an emergency stop button and a START button. The control lever, fitted with an ergonomic hand-grip and activation button with safety release action, reduces fatigue during operation to a minimum . The blade is protected by a guard with interlock which covers the upper area and the hand-wheels and by two adjustable lower guards which protect the operator from ejected shavings and coolant. The machine is supplied with a set of service spanners

### 4.3 INTENDED AND UNSUITABLE USES OF THE MACHINE

The SPECIAL 280 CSO band sawing machine has been designed and built to cut bars, structural steel and ferrous metal pipes in accordance with the instructions contained in this manual. Therefore, the cutting of other materials is not permitted : if the above recommendations are not observed, the machine could be damaged and the health and safety of the operator put at risk. Cutting is not permitted, if the bar has not been first locked in the vice .

## 5. MAIN TECHNICAL DATA

Under no circumstances should the following data be altered , this is in order to protect the correct functioning of the machine and to avoid creating safety risks for the operator .

|  | Three phase power supply |
| :--- | ---: |
| Motor power | $0.75-1.1 \mathrm{~kW}$ |
| Motor revolutions | $700-1420 \mathrm{rpm}$ |
| Cutting speed | $32-66 \mathrm{~m} / 1^{\prime}$ |


|  | Single phase power supply |
| :--- | ---: |
| Motor power | 1.1 kW |
| Motor revolutions | 1380 rpm |
| Cutting speed | $64 \mathrm{~m} / 1^{\prime}$ |


| Electric pump | 0.06 kW |
| :--- | ---: |
| Blade size (length $\times$ width $x$ thick ) | $2450 \times 27 \times 0.9 \mathrm{~mm}$ |
| Cutting thickness | $1,2 \mathrm{~mm}$ |
| Cutting angle | $60^{\circ} \mathrm{dx}$ |
| Material clamping vice max opening | 250 mm |
| Rapid clamping displacement | 5 mm |
| Jaws height | 120 mm |
| Jaws length | 160 mm |
| Bed height | 930 mm |
| Clamping force | $3920 \mathrm{~N} \mathrm{(400} \mathrm{kg)}$ |
| Coolant tank capacity | 12 liters |
| Machine weight | $\sim 2255 \mathrm{~N}(230 \mathrm{~kg})$ |

## 6. HANDLING AND TRANSPORTATION

For safe handling and transportation use a lift truck for movement indoors also indicated on the DRAW. 3 ENCL. 2 . Keep the machine in its normal position and avoid turning it upside down. If the machine is fastened to the pedestal , stability will be greatly reduced and therefore all the necessary measures should be taken to stop the machine from tipping over.

All handling and transportation operations should be carried out by trained staff .

## A. MACHINE CHECK

## 7. MACHINE INSTALLATION

The machine should be checked to make sure that it has not been damaged during transportation and handling. If the machine appears to have been damaged, contact MACC immediately. Fit all the supplied accessories onto the machine such as the bar stop 118 and the roller arm 143 (DRAW. 4 ENCL. 2 ).

## B. FASTENING OF THE MACHINE

The machine will be able to operate in keeping with the technical parameters supplied by MACC if it is positioned correctly and fastened securely to the bench or the factory floor so that vibrations are minimal during operation. Consult drawing 4 SPECIAL 280 CSO Installation plan Encl. 2.

## C. BAND ASSEMBLY

Remove the bow guard 2 by unscrewing the screws 37 the washers 136 and the hand-wheels 124 ( DRAW.9-10 ENCL. 5 ). Fit the band by inserting it first between the bearings of the blade guide heads and then on the two pulleys, tighten the blade slightly by means of the hand wheel 28 and replace the bow guard. Check that the band is fitted with the correct direction of teeth, as shown in drawing 5 enclosed document 3 . Make sure that the band type (dimensions $2450 \times 27 \times 0.9$ ) and its teeth pitch are suited to the material to be cut .

## D. ELECTRICAL CONNECTION TO THE MAINS

## Install a differential thermomagnetic switch with characteristics suited to the mains .

Make sure that the power supply voltage corresponds to the voltage on the motor plate. Connect the cable to the power supply line observing the colour codes of the individual wires, pay particular attention to the earth wire . Connect the machine, make sure that the rotation of the circular blade is in the direction shown by the arrow on the guard .
E. CUTTING COOLANT

For the cooling of the circular blade, fill the tank with emulsion oil obtained from a mixture of water and WLADOIL EMULSOL SGA/NF oil with a percentage of 5-7\%

## 8. MACHINE START UP AND OPERATION

### 8.1 DEVICES AND THEIR LOCATION

( The location of the devices described is shown on the SPECIAL 280 CSO installation plan DRAW. 4 ENCL. 2 )
Code 203 CHANGE OVER SWITCH

| Code | 96 | START-STOP MICROSWITCH : situated inside the handle located at the end of the control <br> lever and has safety release action . <br> Code |
| :--- | :--- | :--- |
| Code | 105 | ELECTRIC PUMP |
| Code | 117 | CUTTING ANGLE DEVICE : to check that cutting inclination is as required |
| Code | 118 | LOCKING VICE |
| Code | 94 | BAR STOP |
| CONTROL LEVER WITH HANDLE |  |  |

### 8.2 TOOLS SUPPLIED

1 Allen wrench size 3
1 Allen wrench size 5
1 Allen wrench size 6
1 Allen wrench size 8
1 Allen wrench size 10

### 8.3 OPERATION

CHECKS TO CARRY OUT BEFORE EACH CUT
A Tension the band by rotating the hand-wheel 28 to the end of stroke ( mechanic stop ).
Remember at the end of the operation to loosen the hand wheel to avoid the slackening of the band .
B Check that the hand indicates the required cutting angle (vice scale).
C Make sure that the bow and the vice are locked by means of the lever 113 (DRAW. 6 ENCL. 3 ).
D With the motor off, lower the bow and check that at the end of stroke, the band does not touch the counter-vice 115. If the band does touch, adjust the screw 99 and nut 31 located on the bow .
E Make sure that the piece to be cut is properly secured in the vice .
F Make sure that the cooling liquid is circulating in the machine .

## IT IS STRICTLY FORBIDDEN TO USE THE MACHINE WITHOUT CUTTING FLUID

G When starting the motor, make sure that the band rotates in the direction of the arrow shown in DRAW. 5 ENCL. 3
H To obtain maximum cutting accuracy, the unit must be located the nearest possible to the work piece. Clamp the work-piece with the vice. Release the blade guide arm 60 (DRAW. 5 ENCL. 3 ) with clamping lever 17 and move it near the vice jaw so that it doesn't touch it during the cutting operation, then secure it again. When carrying out this operation, make sure that the blade guide guard does not come out of the bow guard leaving a part of the blade exposed.

## CUTTING OPERATION

A Before cutting, check that the inclination is the one required. In order to correct or change the inclination, place the bench lever 113 in position C (DRAW. 6 ENCL. 3 ) and after correction, move it back to position D.
B Clamp the material to be cut with the hand-wheel 125 after having positioned the clamp near the piece to be cut by lowering the lever 136 from position A to position B allowing a fast displacement (DRAW. 6 ENCL. 3 ) with selector 229 in M position. Turn the main switch 203 to the position required, take hold of the handle 95 located at the end of head lever and press the button. The blade will now start turning, position the blade carefully on the piece to be cut . Then increase the pressure in order to accelerate the cutting operation without using excessive force .
C With selector 229 in CSO position. turn the main switch 203 to the position required. After having started the unit by pressing the START push button 208 , the blade starts to rotate. The down stroke of the bow can be adjusted by means of the appropriate regulator. Position the blade carefully on the piece to be cut. Then increase the pressure with the regulator in order to accelerate the cutting operation without using excessive force .
D To make a series of cuts, position the bar stop in correspondence of the size required. Fix it into position by using the hand-wheel 121 (DRAW. 7 ENCL. 4 ) .
E To replace the band, carry out the same operations used to assemble the band ( chapter 7c ).
F For the choice of blade see table DRAW. 1 ENCL. 1 .
We strongly discourage the use of blades with ruined or insufficiently sharp cutting edges

### 8.4 SPECIAL SAFETY CHECKS

A. Before using the machine, check carefully that the safety devices are in good working order, that the mobile parts are not blocked, that no parts are damaged and that all the components are installed correctly and are functioning properly.
B. Make sure, before operating the machine, that the screws of the guards and other protective devices are adequately secured, especially the screws of the bow guard.
C. Check that the safety micro-switches and the emergency button are functioning correctly. Test them during a load less machine cycle .
D. Make sure that the mobile guard does not leave uncovered an angle of more than $5^{\circ}$ in order to prevent fingers from entering.
E. Pay attention to environmental conditions. Do not expose the machine to rain ; to not use it in damp environments , position the machine on a clean dry floor that has no oil or grease stains.
F. Before using the machine, the operator should make sure that all tools and service spanners used for maintenance or adjustment have been removed .

### 8.5 GENERAL SAFETY RULES

A. Wear appropriate clothing . The operator's clothing should not be loose or dangling nor should it have parts which could easily get caught. Sleeves should contain elastic .
Belts, rings or chains should not be worn. Long hair should be kept in a net .
B. Avoid unstable operating positions. Find a safe and evenly balanced position to operate the machine .
C. Keep the work area tidy, untidiness increases the risk of accidents .
D. Do not use the power supply cable to disconnect the plug from the socket. Protect the cable from high temperatures , oil or sharp edges. For outdoor use, only use extension cables which are in line with current regulations .

### 8.6 MEASURES TO PREVENT RESIDUAL RISKS

A. The removal of guards and tampering with the safety devices is strictly forbidden.
B. Gloves and safety glasses should always be worn .
C. Standard work clothing should be used and kept closed and should not have flapping parts .
D. The machine should not be cleaned with liquids under pressure .
E. In the event of fire, extinguishers should not be used unless they are the powder type. The electric power supply to the machine should always be disconnected in these circumstances .
F. Do not insert foreign bodies into the motor cover and to not supply the machine with voltage by tampering with the safety micro-switches or main switch .
G. Take the necessary precautions to avoid the machine being started by other people during loading , adjustment, piece changing or cleaning.

Safety, Guidance, Notice Labels on the Machine


PUT TENSION ON THE BLADE BY ROTATING THE HANDWHEEL TO THE END OF STROKE - DAS SAGEBAND SPANNEN. INDEM DAS - Mettre en tension la lame en tournant le VOLANT JUSOUA LA FINDE COURSE. - TENSIONAR LA CINTA GIRANDO EL VOLANTE HASTA EL FINAL DE CARRERA.


COLLEGATO CONNECTED 400 VOLT

## 9. MAINTENANCE AND REPAIRS

### 9.1 GENERAL SAFETY MEASURES

A. Lockable main switch. Use the padlock in the event of machine failure or replacement of the band. The padlock key should be entrusted to a responsible person.
B. Before carrying out any work on electrical equipment, remove the power supply plug from the control panel ( disconnect voltage).
C. Only use cables to supply power, which have a cross-section suited to the power of the machine .
D. Opening key. The keys of the machine should be kept by authorized personnel. Do not leave the keys for doors which provide access to the hydraulic or electrical parts or keys to lockable switches in easy of reach of unauthorized personnel.
E. Repairs should only be carried out by authorized personnel. Only spare parts made by the original manufacturer should be used, otherwise these could cause damage or injury .
9.2 ROUTINE CHECKS AND MAINTENANCE

| FREQUENCY <br> working hours ) | OPERATION |
| :---: | :--- |
| 1000 hours | Adjustment blade guide bearings |
| 1000 | Lubrication of mobile parts in the piece locking vice ( ENI GREASE MU EP 2 ) |
| 50 | Cleaning of the coolant tank and filter check |
| if necessary | Check functioning of bench lever |

### 9.3 DESCRIPTION OF ROUTINE MAINTENANCE

## A. Adjustment of the blade guide bearings

Loosen the screws 69 , rotate the cams 72 , so that the blade guide bushings vertically position the blade in axis ( DRAW. 5 ENCL. 3 ) . Tighten the dowels 67 until the blade secured. Loosen the dowels 67 slightly (about 1/10 of a turn ) and secure the nuts again. The front blade guides must be positioned the nearest possible to the piece to be cut . Check every 3 months the existing tolerance between the blade guides, making sure that it does not exceed the blade thickness of one tenth of a millimeter, so as to avoid inexactnesses in the cut squaring. Periodically check with mounted blade that the blade guide bearings rotate freely.

## B. Lubrication of mobile parts of piece locking vice

Remove jaw 137 (DRAW. 7 ENCL. 4 ), withdraw vice 132 completely by lowering the lever 136 . Clean and grease the mobile parts of the counter-vice 115 and vice 132-133. In case of sliding difficulties or play the clamp guides carry out the following operations : adjust screw 140 .

## C. Cleaning of the coolant tank .

The coolant tank can be cleaned by simply removing the crucible 104 (DRAW. 4 ENCL. 2 ). Empty the coolant from the tank and collect the coolant in a container for future disposal. Clean away the shavings and the metallic powder, taking care not to scatter this over the machine especially around the motor and the box containing the electrical equipment . Fill the tank with the amount and liquid stated earlier .

## D Checking of bench lever functioning

Check regularly that the rotation release - locking lever is working properly. In the event of the lever not locking correctly, loosen grub screw 122 ( DRAW. 6 ENCL. 3 ) , tighten nut 114 and fasten grub screw 122 again. Make sure that with the bench lever in position C , arm 109 which supports the bow, can rotate freely .

## 10.INFORMATION REGARDING ENVIRONMENTAL NOISE

An environmental noise test carried out on the SPECIAL 280 CSO band saw machine, identical to the machine to which these operation instructions refer, has given the following results :

## ACOUSTIC RADIATION PRESSURE

1. $L_{\text {Aeq }}=83,2 \mathrm{~dB}(\mathrm{~A})$
2. $\quad L_{\text {peak }}=90,6 \mathrm{~dB}$ ( the maximum acceptable value is 140 dB ).
3. The level of background noise has no influence $=48.5-54.2 \mathrm{~dB}(\mathrm{~A})$.

The considerable data are the result of tests made under the D. Igs. 277/1991 in the implementation of the directives nr. 80/1107/CEE , nr. 82/605/CEE , nr. 84/477/CEE , and 88/642/CEE .

## 11. LAYING OFF AND DISMANTLING

### 11.1 LAYING OFF

If the machine is to be laid off or left idle for a long period, the following operations must be carried out :

1. Disconnect the machine from the electricity mains .
2. Empty oil from the gear box and cooling liquid from its tank
3. Clean carefully the machine by getting rid of all traces of grease, especially on the worked parts that must be protected with anti-oxidants .
4. Cover the machine with a sheet, preferably not plastic as it can cause rust due to the humidity condensation .
5. Store the machine in a closed, dust-free place .

### 11.2 DISMANTLING

If the machine must be definitively dismantled, its components must be sub-divided for the purpose of a possible recycle of the materials and for the environment safety. The following table is given for your guidance :

| Steel | Electrical Components | Light alloy | Cast iron | Bronze <br> Copper | Plastic and <br> rubber | Various |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Rollers | Motors winding | Gear boxes | Structural <br> parts |  | Seals |  |
| Spring | Push button and Control systeby <br> (relais - Cransformer) | Cylinder |  |  | Handle with <br> push-button |  |
| Flange, pin | Electronic panel |  |  |  | Hand-wheel |  |
| Base |  |  |  |  |  |  |
| Tank |  |  |  |  |  |  |
| Plate with electrical <br> components |  |  |  |  |  |  |
| Guard |  |  |  |  |  |  |

Used oil and materials must be disposed of according to 87/101/EEC Directives and to country specific
regulations.
The disposal of electrical components is provided for by European Directives UE 2015/863 .
12. LIST OF SPARE PARTS

| POS. | DESCRIPTION | CODE | Q.TY |
| :---: | :---: | :---: | :---: |
| 1 | Bow | 006-A/35 | 1 |
| 2 | Bow guard | 084/35 | 1 |
| 3 | HH screw M12x25 DIN-933 | 239/95 | 1+1 |
| 4 | Washer as drawing $\varnothing 45 \times 12,5 \times 6$ | 040/06 | 2 |
| 5 | Snap ring ø72 I DIN-472 | 426/95 | 1 |
| 6 | Cylinder bracket bushing | 070/38 | 1+1 |
| 7 | Idle pulley spacer | 022/35 | 1 |
| 8 | Bearing 6207 2RS | 103/32 | 2 |
| 9 | Idle pulley | 009/35 | 1 |
| 10 | Blade tightener pin | 037/35 | 1 |
| 11 | Grub screw M6x12 DIN-913 | 052/95 | 2 |
| 12 | HSHC screw M8x16 DIN-912 | 151/95 | 6 |
| 13 | Blade tightener guide plate | 046/32 | 2 |
| 14 | HSHC screw M4x30 DIN-912 | 126/95 | 2 |
| 15 | Blade tightener screw | 039/32 | 1 |
| 16 | Washer $\varnothing 10$ DIN-125/A | 005/95 | 1 |
| 17 | Clamping lever M10x40 | 061/35 | 1 |
| 18 | Mobile saw-blade guide fastening plate | 018/35 | 1 |
| 19 | Rear guard | 042/38 | 1 |
| 20 | Micro ERSCE E 10001 S5I | 030/90 | 1 |
| 21 | Bearing vice flange | 020/31 | 1 |
| 22 | End stroke plate | 083/35 | 1 |
| 23 | Blade tightener bush | 041/38 | 1 |
| 24 | Casing AXK 2035 | 109/32 | 1 |
| 25 | Thrust bearing AS 2035 | 108/32 | 2 |
| 26 | Belleville washer $40 \times 20,4 \times 1,5$ DIN-2093 | 458/95 | 17 |
| 27 | Spring pin ø8x36 DIN-1481 | 330/95 | 1 |
| 28 | Blade tightener hand-wheel | 058/35 | 1 |
| 29 | Eye tie rod M12x50 | 035/38 | 2 |
| 30 | Cover plate | 085/35 | 1 |
| 31 | Medium nut M8 DIN-934 | 014/95 | 1+1 |
| 32 | Band M42 2450x27x0.9 Z5/8 | MAR2450270958 | 1 |
| 33 | Rotating pin nut | 027/38 | 1 |
| 34 | Push micro plate | 072/35 | 1 |
| 35 | HH screw M12x25 DIN-933 | 239/95 | 1+1 |
| 36 |  |  |  |
| 37 | HSHC screw M6x12 DIN-912 | 137/95 | 2+2 |
| 38 | Reduction unit MV 63 FC 1/19 | 021/38 | 1 |
| 39 | Motor M90L V400/50 8/4P HP1/1,5 | 122/80 | 1 |
| 40 |  |  |  |
| 41 |  |  |  |
| 42 | HH screw M6x25 DIN-933 | 142/95 | 3 |
| 43 | Washer ø6 UNI-7064 | 611/95 | 3 |
| 44 | Washer ø6 DIN-125/A | 003/95 | 2+2 |
| 45 | Medium nut M6 DIN-934 | 011/95 | 3 |
| 46 | Micro-switch E-100-00 BI | 023/90 | 1 |
| 47 | HH screw M8x14 DIN-933 | 211/95 | 1+1 |
| 48 | Bearing 6208 2RS | 016/38 | 1 |
| 49 | Washer $\varnothing 10$ DIN-125/A | 005/95 | 4 |
| 50 | Medium nut M10 DIN-934 | 017/95 | 4 |
| 51 | HSHC screw M8x14 DIN-912 | 153/95 | 1+1 |
| 52 | HH screw M10x25 DIN-933 | 225/95 | 4 |
| 53 | Micro-switch E-100-00-AI | 022/90 | 1 |
| 54 | Key 10x8x20 DIN-6885A | 377/95 | 1 |
| 55 | Motor pulley | 008/35 | 1 |
| 56 | Washer | 053/31 | 1 |
| 57 | HSHC screw M8x16 DIN-912 | 155/95 | 2 |
| 58 | HSFHC screw M8x20 DIN-7991 | 259/95 | 2 |
| 59 | HSHC screw M8x25 DIN-912 | 158/95 | 3 |
| 60 | Mobile blade guide rod | 023/35 | 1 |
| 61 | HSFHC screw M8x20 DIN-7991 | 259/95 | 1 |
| 62 |  |  |  |
| 63 | Front blade-guide guard | 071/38 | 1 |
| 64 | HH screw M8x25 DIN-933 | 214/95 | 4 |
| 65 | Blade guide tap | 030/96 | 1 |
| 66 | Front blade guide | 026/35 | 1 |
| 67 | Grub screw M8x16 DIN-913 | 056/95 | 1+1 |


| 68 | Blade guide plate | 044/35 | 2+2 |
| :---: | :---: | :---: | :---: |
| 69 | HSHC screw M6x25 DIN-912 | 128/95 | 2 |
| 70 | Washer $\varnothing 6$ DIN-125/A | 003/95 | 1+1 |
| 71 | Bearing 608 2RS | 055/35 | 1+1 |
| 72 | Blade guide eccentric bush | 027/35 | 1+1 |
| 73 | Micro-switch holder | 015/34 | 1 |
| 74 | Rear blade guide | 025/35 | 1 |
| 75 | HSHC screw M10x20 DIN-912 | 175/95 | 2 |
| 76 |  |  |  |
| 77 | Rotation pin | 021/34 | 1 |
| 78 | Bearing 32008 XA | 072/20 | 2 |
| 79 | Nut M12 DIN-936 | 019/95 | 1 |
| 80 | HH screw M10x120 DIN-933 | 237/95 | 1 |
| 81 | Stop micro-switch bush | 047/38 | 1 |
| 82 | Cover box | 202/34 | 1 |
| 83 | Seeger ring ø40 DIN-471 | 412/95 | 2 |
| 84 | Control box | 201/34 | 2 |
| 85 | Control box support bracket | 105/34 | 1 |
| 86 | Positioning pin | 002-B/35 | 1 |
| 87 | Sphere $\varnothing 30$ F.M. 10 | 082/14 | 1 |
| 88 | Anchor spring bracket | 014/34 | 1 |
| 89 | Return spring | 019/33 | 1 |
| 90 | Spring pin | 068/38 | 1 |
| 91 | HSFHC screw M6x8 DIN-7991 | 252/95 | 2 |
| 92 | Fixed blade-guide guard | 071-D/38 | 1 |
| 93 | Fixing counter-vice bracket | 011/34 | 1 |
| 94 | Knob rod | 035/32 | 1 |
| 95 | Knob | 146/05 | 1 |
| 96 | Micro-switch | 028/90 | 1 |
| 97 | Anti-grease ring | 020/35 | 1 |
| 98 | Rear movable blade-guide guard | 071-A/38 | 1 |
| 99 | HH screw M8x30 DIN-933 | 215/95 | 1 |
| 100 | Hub flange | 003/34 | 1 |
| 101 | Base | 001/34 | 1 |
| 102 | Washer $\varnothing 6$ DIN-125/A | 003/95 | 2 |
| 103 | Hub | 200/34 | 1 |
| 104 | Crucible | 002-A/34 | 1 |
| 105 | Motor pump SC/85 | 090/90 | 1 |
| 106 | Regulator box | 099/14 | 1 |
| 107 | Bow support | 005/34 | 1 |
| 108 | Cylinder bracket | 061/38 | 1 |
| 109 | Rotating arm | 004/34 | 1 |
| 110 | HSHC screw M8x20 DIN-912 | 157/95 | 2 |
| 111 | Counter vice pin | 010/34 | 1 |
| 112 | Hinge + pin | 041/39 | 1 |
| 113 | Bench lever | 062/32 | 1 |
| 114 | Bench lever nut | 027/04 | 1 |
| 115 | Counter-vice | 006/34 | 1 |
| 116 | Bar stop rod | 031/05 | 1 |
| 117 | Cutting angle device | A | 1 |
| 118 | Bar stop | 004/05 | 1 |
| 119 | Nut M16 DIN-936 | 025/95 | 1 |
| 120 |  |  |  |
| 121 | Hand-wheel $\varnothing 40$ 4L M8x20 | 077/25 | 2 |
| 122 | Hexagon socket grub screw M8x10 DIN-914 | 085/95 | 1+1 |
| 123 | HSHC screw M8x25 DIN-912 | 158/95 | 2+2 |
| 124 | Hand-wheel $\varnothing 30$ 4L M6x10 | 062/35 | 2 |
| 125 | Vice hand-wheel | 056/35 | 1 |
| 126 | Hex. socket grub screw M6x10 DIN-914 | 081/95 | 1+4+4 |
| 127 | Vice screw | 067/35 | 1 |
| 128 | Washer ø8 DIN-125/A | 004/95 | 1+1+4 |
| 129 | Vice spring | 021/31 | 1 |
| 130 | Fifth wheel AS 3047 | 061/31 | 2 |
| 131 | Cage AxK 3047 | 060/31 | 1 |
| 132 | Vice | 005/33 | 1 |
| 133 | Bush | 018/34-BIS | 1 |
| 134 | Oiler ø6 | 490/95 | 1 |
| 135 | Vice lever | 007/31 | 1 |
| 136 | Hydraulic cylinder CSO | 017/34 | 1 |
| 137 | Vice jaw | 009/34 | 1 |


| 138 | HH screw M8x40 DIN-933 | 216/95 | 1 |
| :---: | :---: | :---: | :---: |
| 139 |  |  |  |
| 140 | HSHC screw M6x85 DIN-912 | 154/95 | 1 |
| 141 |  |  |  |
| 142 | Roller | 076/32 | 1 |
| 143 | Roller arm | 075/35 | 1 |
| 144 | Counter-vice big jaw | 007/34 | 1 |
| 145 | Counter-vice small jaw | 008/34 | 1 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| 200 | Plate with electrical components | 204/34 | 1 |
| 201 | Control panel | 206/34 | 1 |
| 202 | Fuse $10 \times 38 \mathrm{gG} 2 \mathrm{~A}$ | 203/90 | 1 |
| 203 | Change over switch | 018/90 | 1 |
| 204 | HSHC screw M4x6 DIN-912 | 120/95 | 2+2 |
| 205 | Transformer 30VA 0-230-400V 0-24V | 045/90 | 1 |
| 206 | Fitting Pg 11 | 214/90 | 1 |
| 207 | Fitting Pg 13,5 | 215/90 | 4 |
| 208 | On switch | 086/90 | 1 |
| 209 | HSHC screw M4x12 DIN-912 | 122/95 | 3 |
| 210 | OMEGA raceway ( cm.15) | 046/90 | 1 |
| 211 | OMEGA raceway ( cm .17 ) | 047/90 | 1 |
| 212 | Terminal CABUR CBD. 2 | 222/90 | 21 |
| 213 | Earth terminal TE.6/0 | 223/90 | 2 |
| 214 | Screw TBEI M4x6 ISO-7380 | 280/95 | 2+2 |
| 215 | Remote controlled switch | 032/90 |  |
| 216 | HSHC screw M5x8 DIN-912 | 128/95 | 3 |
| 217 | Earth connection bar with 5 holes | 050/90 | 1 |
| 218 | Thermal relay LR2-D1308/10/12 | 053/90 | 1 |
| 219 | Fuse block PCH 1x38 | 093/90 | 1 |
| 220 | Fuse block PCH $2 \times 38$ | 094/90 | 1 |
| 221 | Fuse $10 \times 38 \mathrm{gG} 1 \mathrm{~A}$ | 202/90 | 2 |
| 222 | Electrical cable 2X1 | 003/77 | 1 |
| 223 | Screw TCTCR M2,9x13 DIN-7981 | 294/95 | 6 |
| 224 |  |  |  |
| 225 | HSFHC screw M4x8 DIN-7991 | 255/95 | 1 |
| 226 | Emergency button | 085/90 | 1 |
| 227 | Green warning light 24V | 267/90 | 1 |
| 228 | Fitting Pg 9 | 213/90 | 7 |
| 229 | Selector XB2-BD21 | 100/90 | 1 |
| 230 | Switch VEMER CA0120003807+G595 | 002/90 | 1 |
| 231 | Fuse 10x38gG 10A | 206/90 | 3 |
| 232 | Fuse block PCH 10x38 | 092/90 | 1 |

## CAPACITA' DI TAGLIO - Special 280 M-CSO

| CAPACITA' DI TAGLIO <br> CUTTING CAPACITY - CAPACITE DE COUPE SCHNITTKAPAZITAET - CAPACIDAD DE CORTE | $\bigcirc$ | $\square$ | a $\square$ |
| :---: | :---: | :---: | :---: |
| $0$ | 220 | 215 | $155 \times 250$ |
| $D_{45^{\circ}}$ | 160 | 150 | $110 \times 160$ |
| $60^{\circ}$ | 100 | 85 | $80 \times 95$ |

## SCELTA DELLA LAMA

SCELTA DELLA LAMA SELECTION OF BLADE CHOIX DE LA LAME WAHL DES SAEGEBLATTS SELECCION DE LA HOJA

|  | L mm |  |  |
| :---: | :---: | :---: | :---: |
|  | $\leqq 40$ | 8 | 6/10 |
|  | $>30<80$ | 6 | 5/8 |
|  | $>60<90$ | 4 | 4/6 |
|  | $\leqq 100$ | 3 | 3/4 |


|  | $S \mathrm{~mm}$ |  |  |
| :---: | :---: | :---: | :---: |
|  | §1,5 | 14 | - |
|  | $>1<2$ | 10 | 10/14 |
|  | $>2<4$ | 8 | 8/12 |
|  | $>4<8$ | 6 | 6/10 |
|  | >6<12 | 6 | 5/8 |
|  | $\leqq 12$ | 4 | 4/6 |

Allegato / Encl. 1 - Dis. / Draw. 1

| Velocita di taglio <br> La macchina è dotata di due velocità di taglio |  | 32-66 m/1' |
| :---: | :---: | :---: |
| Cutting machine <br> The machine is equipped with two cutting speeds |  | 32-66 m/1' |
| Vitesse de coupe <br> La machine est dotée de deux vitesses de coupe |  | 32-66 m/1' |
| Schnittgeschwindigkeit <br> Die maschine ist mit zwei Schnittgeschwindigkeiten ausgetattet |  | 32-66 m/1' |
| Velocidad de corte <br> La maquina esta dotata de dos velocidades de corte |  | 32-66 m/1' |
| Materiale Material Materiel Material Material |  | Velocità di taglio m/1 Cutting machine m/1 Vitesse de coupe m/1 Schnittgeschwindigkeir $/ 1 / 1$ Velocidad de corte $\mathrm{m} / 1$ |
| Acciai da costruzione <br> Structural steel <br> Aciers de costruction <br> Baustahl <br> Acero de costruccion | $\begin{aligned} & \text { Fe } 37+F e 42 \\ & F e 37+F e 42 \end{aligned}$ | Pieni <br> Solid <br> Pleins 66 <br> Volles Material <br> Pies |
|  | $\begin{aligned} & F e 37+F e 42 \\ & F e 37+F e 42 \end{aligned}$ | Profilati   <br> Structural steel  <br> Profiles 66  <br> Profile 66  <br> Perfiles   |
| Acciai da costruzione Fe50+Fe70 <br> Structural steel Fe50Fe70 <br> Aciers de costruction Fe50+Fe70 <br> Baustahl Fe50+F770 <br> Acero de costruccion Fe50+Fe70 |  | 66 |
| Acciai al carbonio C40+C60 <br> Carbon steel C40+C60 <br> Aciers au carbone C40+C60 <br> Kohlenstoffstahl C40+C60 <br> Acero de carbono C40+C60 |  | 66 |
| Acciai legati Alloyed steel Aciers allié Legierter Stahl Acero aleado |  | 32 |
| Acciai inox <br> Stainless steel Aciers inoxydables Rostfreier Stahl Acero inoxidable |  | 32 |
| Ghisa grigia Grey cast iron Fonte grise Grauguß Fundiciòn gris |  | 66 |
| Leghe d'alluminio Alluminium alloys Allieges d'aluminium Legierungen aus Aluminium Aleaciòn de Aluminio |  | 66 |
| Bronzi <br> Bronze <br> Bronze <br> Bronze <br> Bronces |  | 66 |

## MOVIMENTAZIONE E TRASPORTO

Handling and transportation
Manutention et transport
Handhabung und Transpor† Movilización y transporte


## DIMENSIONI D'INGOMBRO ED INSTALLAZIONE

Overall dimensions and installation
Dimensions hors-tout et installation
Aussenabmessungen und installation
Dimensiones máximas extremas e instalación


Allegato / Encl. 2 - Dis. / Draw. 4



Allegato / Encl. 3 - Dis. / Draw. 6



Allegato / Encl. 4 - Dis. / Draw. 8



Allegato / Encl. 5 - Dis. / Draw. 10


Allegato / Encl. 6 - Dis. / Draw. 11


SCHEMA IDRAULICO
IDRAULIC DIAGRAM


Allegato / Encl. 7 - Dis. / Draw. 12

| DEUTSCH |
| :--- |
| THERMISCHES RELAIS OIL PUMPE MOTOR |
| THERMISCHES RELAIS SÄGEBLATTMOTOR |
| THERMISCHES RELAIS ÜHLMITTELMOTOR |
| THERMISCHES RELAIS CHIP EXTRACTORMOTOR |
| THERMISCHES RELAIS Motor Führungsstück |
| Photozelle Werkstoff Anwesenheit. |
| SICHERUNG TRAFO SCHUTZ |
| SICHERUNG MOTOR SCHUTZ |
| SICHERUNG KÜHLMITTELPOMPE SCHUTZ |
| SICHERUNG ZUFÜHRER SCHUTZ |
| SICHERUNG 24 V dc SCHUTZ |
| SICHERUNG 24 V ac SCHUTZ |
| GESCHWINDIGKEITUMRICHTER SICHERUNGSDRAHT |
| SCHWIMMER |
| LINE PRÄSENZ LAMPE |
| BLATT TENSION LAMPE |
| ZYKLUS START LAMPE |
| KONTAKTGEBER WIDERSTANDSTHERMOMETER |
| Fernschalter Frequenzumrichter Versorgung |
| KONTAKTGEBER ZENTRALHYDRAULIK MOTOR |
| KONTAKTGEBER SÄGEBLATTMOTOR |
| KONTAKTGEBER KÜHLMITTELPUMPE |
| KONTAKTGEBER SPÄNE AUSZIEHER |
| KONTAKTGEBER Motor Führungsstück |
| KONTAKTGEBER KUEHLMITELPUMPE |
| ZENTRALHYDRAULIKMOTOR |
| SÄGEBLATTMOTOR |
| KÜHLMITTELPUMPE MOTOR |
| SPAENEAUSLASSVORRICHTUNG MOTOR |
| DREHUNGS KOPF MOTOR |
| FÜHRUNGSSTÜCK MOTOR |

thaliano

RELE' TERMICO MOTORE LAMA
RELE' TERMICO MOTORE REFRIGERANTE
 RELE' TERMICO MOTORE GUIDA PEZZO FOTOCELLULA PRESENZA MATERIALE
 FUSIBILI PROTEZIONE MOTORI

FUSE MOTOR PROTECTION FUSE FEEDER PROTECTION FUSE 24 V dc PROTECTION FUSE 24 V ac PROTECTION FUSE INVERTER PROTECTION FUSE INVERTER PROTECTION
FLOAT SPY BLADE IN TENSION INVERTER FEEDING CONTROL SWITCH BLADE MOTOR REMOTE CONTROL SWITCH COOLANT PUMP REMOTE CONTROL SWITCH
CHIP EXTRACTOR CONTROL SWITCH CHIP EXTRACTOR CONTROL SWITCH

THERMAL RELAY GUIDA-PIECE MOTOR CONTROL SWITCH COOLANT RECYCLE PUMP THERMAL RELAY \begin{tabular}{l}
OIL PUMP MOTOR <br>
BLADE MOTOR <br>
\hline

 

OIL PUMP MOTOR <br>
BLADE MOTOR <br>
\hline
\end{tabular}

COOLANT PUMP MOTOR THERMAL RELAY OIL PUMP MOTOR THERMAL RELAY BLADE MOTOR THERMAL RELAY COOLANT MOTOR RELAY THERMAL CHIPS EXTRACTOR THERMAL RELAY GUIDA-PIECE MOTOR MATERIAL PRESENCE PHOTOELECTRIC CELL FUSE TRANSFORMER PROTECTION FUSE MOTOR PROTECTION
FUSE COOLANT PUMP PROTECTION
SPY LINE PRESENCE
SPY BLADE IN TENSION
SPY CYCLE START SPY CYCLE START
ENGLISH
THERMO-RESISTANCE CONTROL SWITCH
INVERTER FEEDING CONTROL SWITCH
OIL PUMP MOTOR REMOTE CONTROL SWITCH COOLANT RECYCLE PUMP THERMAL RELAY

> CHIP EXTRACTOR MOTOR SAWHEAD ROTATION MOTOR GUIDA-PIECE MOTOR
 ettore cambio Lama NO ONISS $\exists$ yd $\exists$ ㅂOㄴ $1 \exists 7 \exists \mathrm{~S}$ 01S S SELETTORE FUNZIONE RYV5 RELE＇DISCESA LAMA ग刀 忍刃 $\xrightarrow{\text { ग }}$ $\square$ Oֻ 올 $\square$ N $\square$ るる RELE COMANDO TELERUTIORE LAMA RELE＇COMANDO TELERUTTORE POMPA OLIO
RELE＇PRESSINO ON

REIE＇COMANDO | INTERRUTTORE／COMMUTATORE DI VELOCITA |
| :--- |
| INTERRUTTORE POMPA REFRIGERANTE |
| RELE＇COMANDO MARCIA ROTAZIONE LAMA |

 SENSORE ROTAZIONE LAMA POTENZIOMETRO VELOCITA＇LAMA POTENZIOMETRO POSIZIONAMENTO LAMA MOTORE AVANZAMENTO MATERIALE


COVER OPEN MICROSWITCH RELEASE BUTTON MEMORY BUTTON REFRIGERANTE BUTTON＂ON＂ BUTTON DOWN BUTTON UP OPEN VICE BUTTON LOCK VICE BUTTON RESET BUTTON CYCLE START BUTTON BLADE TENSIONING BUTTON BLADE DETENSIONING BUTTON EMERGENCY PUSH BUTTON BLADE RELACEMENT CHANGEOVER SWITCH VERTICAL VICE ON CHANGEOVER SWITCH FUNCTION SELECTOR BADE DESCENT RELAY THERMOSTAT COMMAND RELAY MICROLUBRICATION COMMAND RELAY
TIMER RELAY BLADE REMOTE CONTROL SWITCH COMMAND RELAY VERTICAL VICE RELAY OIL PUMP REMOTE CONTROL SWITCH COMMAND RELAY ROTATING BLADE COMMAND RELAY COOLANT PUMP SWITCH SWITCH／SPEED CHANGE OVERSWITCH MAIN ON／OFF SWITCH BLADE ROTATION SENSOR BLADE SPEED POTENTIOMETER BLADE POSITIONING POTENTIOMETER MATERIAL FEEDING OTOR

| PEDALS MIKROSCHALTER |
| :--- |
| FußSCHALTER SPENNSTOCK SCHLIEßEN MIKROSCHALTER |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH VORNE |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH HINTEN |
| HEBEWERK NACH OBEN ENDSCHALTER |
| ENDSCHALTER SCHUTZGEHÄUSE |
| SPANNDRUCK TASTE |
| ENDSCHALTER WAGEN VORNE |
| $-45^{\circ}$ UMDREHUNG ENDSCHALTER |
| ENDSCHALTER WAGEN ZURÜCK |
| ENDSCHALTER BÜGEL NACH OBEN |
| ENDSCHALTER BÜGEL NACH UNTEN |
| ENDSCHALTER STANGENENDE |
| STÜCKANWESENDHEIT ENDSCHALTER |
| ENDSCHALTER GRIFF |
| ENDCSHALTER MANUELL START |
| ZEITGEBER |
| TRANSFORMATOR |
| THERMOSTAT |
| THERMO-WIDERSTAND |
| ELEKTROVENTIL WAGEN LANGSAM VORNE |
| ELEKTROVENTIL MANUELL AUFHEBUNG |
| SAEGEBLATT ENTSPANNUNG MAGNETVENTIL |
| ELETRISCHESVETIL SAEGEBLATT ENSPANNUNG |
| SAEGEBLATT SPANNUNG MAGNETVENTIL |
| ELETRISCHESVENTIL SAEGEBLATT SPANNUNG |
| LADEMAGAZIN HEBEWERK ELEKTROVENTIL |
| LADEMAGAZINSPANNSTOCK ELEKTROVENTIL |
| $E L E K T R O V E N T I L ~ Z A U N ~ N A C H ~ V O R N E ~$ |
| $E L E K T R O V E N T I L ~ H I N T E R E N ~ Z A U N ~$ |
| ELEKTROVENTIL WAGEN LANGSAM ZURÜCK |
| UMDREHUNG LOSMACHEN |


|  |  | ヨNOIZVOIIIy ${ }^{\text {a }}$（ | 06＾＾ |
| :---: | :---: | :---: | :---: |
|  | Э＾7४ |  | $6 \wedge \Lambda$ |
| YOṄy |  |  | $8 \wedge \lambda$ |
|  | Э＾7V＾OIONヨ7OS HSny |  | 0＜A |
|  |  |  | L＾A |
|  | dWnd ר10 ONOOヨS |  | 2914 |
| 7ILNヨ＾O甘 | ヨ＾7V＾HSnษ8 | $\forall 70 Z Z \forall d S ~ \forall 70 \wedge 7 \forall \wedge O บ \perp \perp \exists\urcorner \exists ~$ | 1914 |
|  |  | OSSİ ONISS $\ddagger$ ¢d $\forall 70 \wedge 7 \forall \wedge$ OपІ | d09＾1 |
| NヨSSヨITHOS YOOLSNNVdS पヨ1S |  |  | 09＾1 |
|  |  |  | $9 \wedge \Lambda$ |
|  |  |  | 0s 11 |
|  |  |  | s＾1 |
|  |  |  | เ＾＾ |
|  | ヨ＾7४ |  | $88 \wedge 1$ |
|  | ヨ＾7४＾OIONヨרOS SQצ甘M |  | Lع＾＾ |
|  | ヨ＾7V＾OIONヨרOS NOILVIOY MO8 MOTS |  | เعイ＾ |
|  |  |  | d08 $\Lambda$ |
|  |  |  | 0عл＾ |
|  |  |  | $\varepsilon \wedge \Lambda$ |




| CONTROLLATO IL: |  |
| :--- | :--- |
| DA: |  |
| REV.: | 01 |

