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:

MODELO:

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MACC s.r.I. SCHIO(VI) - ITALY
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МОДЕЛЬ:

## MATRICOLA:

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

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

## 2023




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

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- 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 320 MS
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
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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 Machine Directive 2006/42/EEC . In this light, 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 , READTHE OPERATING INSTRUCTIONS CAREFULLY

## 2. INFORMATION ABOUT MAINTENANCE ASSISTANCE

### 2.1 GUARANTEE

MACC S.r.I. 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:
A. Date and number of purchasing document
B. Machine model
C. Serial number
D. 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.

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|  | Intended and unsuitable uses of the machine |
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| Cap 7 | Installation |
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## 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 ISO 12100 Safety of machinery . Basic concepts, general principles for design , basic methodology .
-EN ISO 16093 Safety of machinery. Basic concepts and general principles for design. Specifications and technical principles.
- EN ISO 13850
- EN ISO 4413-14
- EN 14118

Safety of machinery . Emergency stop devices, functional aspects - design principles .
Safety requirements related to systems and components for hydraulic and pneumatic transmissions.

- EN 14119

Isolation and energy dissipation. Prevention of unexpected start-up .
Interlocking devices associated with guards - Principles for design and selection .

- EN 60204-1 Safety of machinery. Electrical equipment of machines. General requirements .
- EN 13857 Safety distances to prevent danger zones being reached by the upper limbs .
- 2014/30/UE Directive on electromagnetic compatibility .

The following Standards apply :

- EN 55014-1
- EN 61000-3-2
- EN 61000-3-11
- EN 55032
- EN 61000-4-2
- EN 61000-4-4
- EN 61000-4-6

Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus .
Electromagnetic compatibility - Limits for harmonic current emissions .
Electromagnetic compatibility ( EMC ) - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems .
Electromagnetic compatibility of multimedia equipment - Emission requirements .
Electromagnetic compatibility (EMC ) Part 4 : Testing and measurement techniques Section 2 : Electrostatic discharge immunity test . EMC Base Publication .
Electromagnetic compatibility ( EMC ) Part 4-4 : Testing and measurement techniques Electrical fast transient/burst immunity test .
Electromagnetic compatibility (EMC ) Part 4 : Testing and measurement techniques .
Section 6 : Immunity to conducted disturbances, induced by radio-frequency fields .
2014/35/UE Low Voltage Directive .
Directive 2003/11/EC 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 $320 \mathrm{M} / \mathrm{S}$ band sawing machine produced by MACC has a sturdy frame made from welded and painted sheetsteel . The upper surface is designed to allow the complete draining away of the cutting fluid. The band support bow is made in cast iron, with a suitable dimension to provide the necessary stiffness and precision to the cutting unit . The vice unit is made of cast-iron and clamps the material to be cut securely. The numerical control device allows the required length to be preset and provides high repeated-cut precision. The coolant pump is fitted to the machine base. A electromechanical device with pressure switch for band tightening, prevents the band from advancing in the event of insufficient tension and moreover allows ideal operation conditions to be restored at any moment. The main switch is located on the front panel. The blade is protected by a guard with interlock which covers the upper area and the handwheels 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 and rod support .

### 4.3 INTENDED AND UNSUITABLE USES OF THE MACHINE

The SPECIAL $320 \mathrm{M} / \mathrm{S}$ 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 | $35-71 \mathrm{~m} / 1^{\prime}$ |


|  | Single phase power supply |
| :--- | ---: |
| Motor power | 1.1 kW |
| Motor revolutions | 1380 rpm |
| Cutting speed | $69 \mathrm{~m} / 1^{\prime}$ |


| Electric pump | 0.06 kW |
| :--- | ---: |
| Blade size ( length $\times$ width $\times$ thick ) | $2825 \times 27 \times 0.9 \mathrm{~mm}$ |
| Cutting thickness | $1,2 \mathrm{~mm}$ |
| Cutting angle | $60^{\circ} \mathrm{dx}$ |
| Material clamping vice max opening | 315 mm |
| Rapid clamping displacement | 5 mm |
| Jaws height | 120 mm |
| Jaws length | 170 mm |
| Bed height | 965 mm |
| Coolant tank capacity | 13 liters |
| Machine weight | $\sim 3820 \mathrm{~N}(390 \mathrm{~kg})$ |

## 6. HANDLING AND TRANSPORTATION

For safe handling and transportation use a lift truck for movement indoors also indicated on the Drawing 3 Encl. 2 . Keep the machine in its normal position and avoid turning it upside down. All the necessary measures should be taken to stop the machine from tipping over. If the machine is moved from its position, use a forklift as shown in the photograph below. To carry out this operation, remove the guard situated on the bottom at the front of the machine base by taking out the two screws indicated by the arrows. Insert the forks of the lifter and move the machine. Then re-fit the guard .

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

## 7. MACHINE INSTALLATION

## A. MACHINE CHECK

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 116 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 . Refer to drawing 4 Installation Plan SPECIAL 320 M/S All. 2 .

## C. BAND ASSEMBLY

Remove the bow guard 2 by unscrewing the screws (DRAW. 11 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 $2825 \times 27 \times 0.9$ ) 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 emulsible oil obtained from a mixture of water and WLADOIL EMULSOL SGA/NF oil with a percentage of $5-7 \%$

## F. SPRING TENSIONING ADJUSTMENT

Wind the spring by turning screw 49 up to 47 mm as shown in DRAW. 13 ENCL. 6 .

## 8. MACHINE START UP AND OPERATION

### 8.1 DEVICES AND THEIR LOCATION

( The location of the devices described is shown on the SPECIAL $320 \mathrm{M} / \mathrm{S}$ installation plan ENCL. 2 ) .
Cod. 228 CHANGE OVER SWITCH
Cod. 105 ELETRIC PUMP
Cod. 132 LOCKING VICE
Cod. 116 BAR STOP

### 8.2 TOOLS SUPPLIED

no. 1 hexagonal bar wrench (3)
no. 1 hexagonal bar wrench ( 5 )
no. 1 hexagonal bar wrench ( 6 )
no. 1 hexagonal bar wrench ( 8 )
no. 1 hexagonal bar wrench ( 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 ), (DRAW.5-6-7 ENCL. 3 ) . 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 rotating plate are locked by means of the hand wheel 113 (DRAW. 11 ENCL. 4 ).
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, If the band does touch, adjust the screw 225/95 located on the bow support 107 (DRAW.8-9 ENCL. 3 ) . By adjusting screw 225/95, the width of the working stroke can also be established.
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.
G. When starting the motor , make sure that the band rotates in the direction of the arrow shown in (DRAW.5-6-7 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.5-6-7 ENCL. 3 ) with handle 64 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.
Make sure the pressure gauge on the hydraulic unit indicates a pressure of about 30 bar otherwise place it on this value by the controller of the unit itself.

## 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 A ( DRAW. 11 ENCL. 4 ) and after correction, move it back to position D strongly .
B. Clamp the material to be cut after having positioned the vice $3-4 \mathrm{~mm}$ near the piece to be cut by the hand wheel 125 .

Then fix the clamp by turning lever 128 from B position to C (DRAW. 10 ALL. 4 ) .
C. SEMIAUTOMATIC cutting operation : turn on the machine using the main switch 228 and rotate the changeover switch 203 onto the required speed. The oil pump start-up is obtained by the RESET A key, press again the RESET key to bring the saw frame to the high position .
If the machine does not perform any movement whichever button is pressed, the two phases of the line cable must be inverted this inverts the direction the oil pump motor rotates in.
This instrument enables the top and bottom cutting limits to be programmed directly by means of the control keyboard. To memorize the top position limit, cutting starting point, bring the blade close to the material to be cut and position it at about 5 mm from it using keys C and F . To memorize the position, press key D (Start) . Each time the key D (Start) is pressed, automatically the cutting start point is memorized. To memorise the bottom cutting limit, bring the blade to the desired low point using the key F and hold the button E ( Memory ) pressed until it not flashes, indicating memorization is completed .
To perform a cut after memorising the selected top and bottom limit, start the cut cycle pressing the Start D button .
Before performing this last operation, make sure the descent regulator 120 is closed, in order to prevent the blade from descending too quickly onto the piece to be cut.
Position the part on a work surface. Press the button Start D to start a cut cycle. The blade starts to rotate, closes the vice and the bow starts to go down. By means of the adjuster 120 , it is possible to gradually change the descent speed until the desired one is reached.
Once the bottom limit programmed at the beginning has been reached, the arc returns to its starting position, the blade stops and opens the vice.
To stop the cutting cycle, press the RESET key A. In order for the bow to return to its cutting start position, press RESET key A another time .
To use the coolant, key B must be on .
If the machine remains idle for more than 3 mins, the oil pump automatically switches off. To switch it back on again, press RESET A push button.
After resolving the causes of the alarm , press key Reset A to remove the emergency from the control panel .
D. Manual cutting cycle ( optional ) :

Turn the main switch 228 and the changeover switch 203 into the desired speed. Switch on the hydraulic unit by pressing the RESET button of the keyborad MACC 8 , press again the RESET button to bring the bow at the desired up position, by means of the hand wheel 125 place the vice close ( $3-4 \mathrm{~mm}$ ) to the material to be cut, take hold of the handle 36 located at the end of head lever and press the button to start the manual cutting mode, press the button again to start the manual cutting operation . Press the button " $\uparrow$ " ( UPSTROKE ) to close the vice, press the button " $\downarrow$ " ( DOWNSTROKE ) to open the vice .
Press RESET to set the semi-automatic cutting cycle .
E. To cut in series, position the bar stop 116 in correspondence of the size required. Fix it into position by using the hand wheel 121 ( DRAW. 10 ENCL. 4 ).
F. To replace the band, carry out the same operations used to assemble the band ( chapter 7C ) .
G. 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

PANNELLO COMANDI "MACC 8.1" CONTROL PANEL "MACC 8.1"


| A. | RESET button |
| :--- | :--- |
| B. | motorized cooling pump ON-OFF button |
| C. | bow up button |
| D. | START button |
| E. | bow low limit memorization button |
| F. | bow down button |
| A1. | RESET button warning light |
| B1. | motorized cooling pump button warning light |
| D1. | START button warning light |
| E1. | bow bottom limit setting key warning light |
| 120 | Descent regulator |
| 203 | Change-over switch |
| 226 | emergency button |
| 228 | Main switch |

### 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 micros witches and the emergency button are functioning correctly. Test them during a loadless machine cycle .
D. 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 .
E. 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. Do not remove the guards .
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 microswitches or main switch .
G. Take the necessary precautions to avoid the machine being started by other people during loading, adjustment , piece changing or cleaning.


## 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 ) |  |
| :---: | :--- |
| 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 | Add hydraulic unit oil with ENI ARNICA 32 (Until the level ) |

### 9.3 DESCRIPTION OF ROUTINE MAINTENANCE

## A. Adjustment of the blade guide bearings

Loosen the screw 69-A , rotate the cams 72 , so that the blade guide bushings vertically position the blade in axis ( DRAW.5-67 ENCL. 3 ) . Tighten the dowels $67-A$ until the blade secured. Loosen the dowels slightly (about $1 / 10$ of a turn ).
The front blade guide must be positioned as near as 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 millimetre , 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 ( DIS. 10 ALL. 4 - DIS. 11 ALL. 4 ), withdraw vice 16 completely by turning the hand wheel 125 . Clean and grease the mobile parts of the vice 132 . In case of sliding difficulties or play the clamp guides carry out the following operations : loosen nut 57-A , adjust dowel 56-A and secure nut 57-A .

## C. Cleaning of the coolant tank .

The coolant tank can be cleaned by simply removing the crucible 104 (DRAW. 12 ENCL. 5 ). 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 123 (DRAW. 11 ENCL. 4 - DRAW. 12 ENCL. 5 ), tighten nut 114 and fasten grub screw 123 again . Make sure that with the bench lever in position D , arm 107-109 which supports the bow, can rotate freely .

## 10. INFORMATION REGARDING ENVIRONMENTAL NOISE

An environmental noise test carried out on the SPECIAL $320 \mathrm{M} / \mathrm{S}$ band saw machine, identical to the machine to which these operation instructions refer, has given the following results :

ACOUSTIC RADIATION PRESSURE

1. $L_{\text {Aeq }}=83,2 \mathrm{~dB}(A)$.
2. $L_{\text {peak }}=90,6 \mathrm{~dB}$ ( the maximum acceptable value is 140 dB ).
3. The level of background noise has no influence $=48,5-54,2 \mathrm{~dB}$ ( 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 the cooling liquid to avoid corrosion .
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, dry, 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 :

| Steels | Electric and electronic <br> components | Light alloy | Cast iron | Copper <br> bronze | Plastic and <br> rubber | Various |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Shafts , Flanges , <br> Pivots | Motor winding | Motor casing | Structural parts | Bushings | Seals |  |
| Rollers | Electronic panel | Cylinders |  |  | Hand wheels |  |
| Base |  |  |  |  | Handles |  |
| Springs |  |  |  |  |  |  |
| Tank |  |  |  | Cable support <br> chain |  |  |
| Plate with electrical <br> components | Push buttons and control <br> systems ( relays , <br> transformers, etc. ) |  |  |  |  |  |
| Guards |  |  |  |  |  |  |

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 | 044/38 | 1 |
| 2 | Bow guard | 045-A/38 | 1 |
| 3 | Bow drip tray | 034/38 | 1 |
| 4 | Washer as drawing $\varnothing 45$ foro12,5 sp. 6 | 040/06 | 1 |
|  | Washer as drawing ø45 foro12,5 sp. 6 | 040-A/06 | 1 |
| 5 | Band 2825x27x0,9 | MAR2450270958 | 1 |
| 6 | Bow cylinder bracket bushing | 070/38 | 2 |
| 7 | Idle pulley spacer | 048/32 | 1 |
| 8 | Bearing 6207 2RS | 103/32 | 2 |
| 9 | Idle pulley | 036/32 | 1 |
| 10 | Blade tightener pin | 037/38 | 1 |
| 11 |  |  | 2 |
| 12 |  |  | 6 |
| 13 | Blade tightener guide plate | 046/32 | 2 |
| 14 |  |  | 2 |
| 15 | Blade tightener screw | 039/32 | 1 |
| 16 |  |  |  |
| 17 |  |  |  |
| 18 | Mobile blade guide fastening plate | 018/38 | 1 |
| 19 | Rear Guard | 042/38 | 1 |
| 20 | Micro switch ERSCE E 10000 BI | 023/90 | 1 |
| 21 | Vice cylinder | 059/36 | 1 |
| 22 | Vice cylinder fastening flange | 020/39 | 1 |
| 23 | Blade tightener bushing | 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 | 18 |
| 27 |  |  |  |
| 28 | Blade tightener handwheel | 058/35 | 1 |
| 29 | Eye tie rod M12x50 | 035/38 | 2 |
| 30 |  |  |  |
| 31 |  |  |  |
| 32 |  |  |  |
| 33 |  |  |  |
| 34 | Micro switch stop washer | 094/32 | 1 |
| 35 |  |  |  |
| 36 |  |  |  |
| 37 |  |  |  |
| 38 | Reduction unit MV 63 FC 1/19 | 021/38 | 1 |
| 39 | Motor M90L V.400/50 8/4P kW 0,75/1,1 | 122/80 | 1 |
| 40 | OR ring 4900 | 024/34 | 1 |
| 41 |  |  |  |
| 42 |  |  |  |
|  |  |  |  |
| 44 |  |  |  |
| 45 |  |  |  |
| 46 | Micro ERSCE E-100-00-AI | 022/90 | 1 |
| 47 |  |  |  |
| 48 | Bearing 6208 2RS | 016/38 | 1 |
| 49 |  |  |  |
| 50 |  |  |  |
| 51 |  |  |  |
| 52 |  |  |  |
| 53 |  |  |  |
| 54 |  |  |  |
| 55 | Motor pulley | 045/32 | 1 |
| 56 | Vice screw washer | 053/31 | 1 |
| 57 |  |  |  |
| 58 |  |  |  |
| 59 |  |  |  |
| 60 | Blade guide mobile rod | 023/35 | 1 |
| 61 | Clamping lever M12x45 | 037/32 | 1 |
| 62 |  |  |  |
| 63 | Mobile front blade guide cover | 071/38 | 1 |
| 64 | Spring anchoring bracket | 032/38 | 4 |
| 65 | Blade guide tap $\varnothing 1 / 8^{\prime \prime}$ | 030/96 | 2 |
| 66 | Front blade guide | 026/35 | 1 |


| 67 |  |  |  |
| :---: | :---: | :---: | :---: |
| 68 | Blade guide plate | 044/35 | 2+2 |
| 69 |  |  |  |
| 70 |  |  |  |
| 71 | Bearing 608 2RS | 055/35 | 2+2 |
| 72 | Guide blade eccentric bushing | 027/35 | 4 |
| 73 |  |  |  |
| 74 | Rear blade guide | 025/35 | 1 |
| 75 | Fixed guide blade rod | 41/40 | 1 |
| 76 |  |  |  |
| 77 | Rotation pin | 108/38 | 1 |
| 78 | Bearing 32008 XA | 072/20 | 2 |
| 79 | Rotation pin nut | 027/38 | 1 |
| 80 | Potentiometer fixing bush | 044-A/41 | 1 |
| 81 | Potentiometer support | 115/38 | 1 |
| 82 | Bow potentiometer | 099/90 | 1 |
| 83 | Guard potenziometer | 018/42 | 1 |
| 84 |  |  |  |
| 85 |  |  |  |
| 86 | Positioning pin | 002-B/35 | 1 |
| 87 | Sphere ø30 F.M. 10 | 082/14 | 1 |
| 88 | Spring anchoring bracket | 030/38 | 1 |
| 89 | Return spring | 031/38 | 1 |
| 90 | Spring pin | 017/32 | 1 |
| 91 |  |  | 1 |
| 92 | Fixed blade guide guard | 071-C/38 | 1 |
| 93 | Counter vice fastening bracket | 057/35 | 1 |
| 94 | Handle rod | 035/32 | 1 |
| 95 | Handle | 146/05 | 1 |
| 96 | Micro | 328/90 | 1 |
| 97 | Antigrease ring | 020/35 | 1 |
| 98 | Mobile blade guide guard | 071-A/38 | 1 |
| 99 |  |  | 1 |
| 100 | Hub flange | 003/34 | 1 |
| 101 | Base | 110/38 | 1 |
| 102 | Door | 111/38 | 1 |
| 103 | Tank | 119/38 | 1 |
| 104 | Crucible | 025-A/38 | 1 |
| 105 | Coolant pump SA/85 | 090/90 | 1 |
| 106 | Valve EUROPA ø3/8" | 035/96 | 1 |
| 107 | Bow support | 114/38 | 1 |
| 108 | Cylinder bracket | 061/38 | 1 |
| 109 | Rotating arm | 113/38 | 1 |
| 110 | Door hinge | 156/50 | 2 |
| 111 | Countervice pin | 031/35 | 1 |
| 112 | Joint fork M10x1,25 ø25/35 | 040/39 | 1 |
| 113 | Bench lever | 062/32 | 1 |
| 114 | Bench lever nut | 027/04 | 1 |
| 115 | Countervice | 004/35 | 1 |
| 116 | Millimetric rod | 077/32 | 1 |
| 117 | Metric rule | 080/32 | 1 |
| 118 | Stopping rod | 078/32 | 1 |
| 119 | Stopping rod support | 079/32 | 1 |
| 120 | Regulator | 100/38 | 1 |
| 121 | Hand wheel ø40 4L M8x20 | 077/25 | 2 |
| 122 | Degrees index | 128/36 | 1 |
| 123 | Control panel | 053-C/38 | 1 |
| 124 | Bow protection hinge | 025/32 | 1+1 |
| 125 | Vice hand wheel | 072/36 |  |
| 126 |  |  |  |
| 127 | Vice screw | 059-1/36 | 1 |
| 128 |  |  |  |
| 129 |  |  |  |
| 130 |  |  |  |
| 131 |  |  |  |
| 132 | Vice | 005/35 | 1 |
| 133 |  |  |  |
| 134 |  |  |  |
| 135 | Rear female hinge S40/41+pin | 041/39 | 1 |


| 136 | Hydraulic cylinder | 059/38 | 1 |
| :---: | :---: | :---: | :---: |
| 137 | Vice jaw | 032/35 | 1 |
| 139 | Vice gib | 031/03 | 1 |
| 140 |  |  |  |
| 141 |  |  |  |
| 142 | Roller | 076/32 | 1 |
| 143 | Roller carrier arm | 075/35 | 1 |
| 144 | Big counter vice jaw | 066/35 | 1 |
| 145 | Small counter vice jaw | 065/35 | 1 |
| 146 | Hydraulic unit | 074/90 | 1 |
| 147 | Motor M71 4P 3F kW 0,55 B5 | 199/80 | 1 |
| 148 | Bow lowering solenoid valve | 351/90 | 1 |
| 149 | Vice solenoid valve | 350/90 | 1 |
| 150 | Block solenoid valve | 074-C/90 | 1 |
| 160 | Cutting angle device | A | 1 |
|  |  |  |  |
|  |  |  |  |
| 200 | Plate with electrical components | $\begin{gathered} \hline 054-\mathrm{C} / 38 \\ 131 / 38 \end{gathered}$ | 1 |
| 201 | Control panel | $\begin{aligned} & 053-E / 38 \\ & 053-G / 38 \end{aligned}$ | 1 |
| 202 | Fuse $10 \times 38 \mathrm{gG}$ 4A | 204/90 | 2 |
| 203 | Changeover switch VEMER CA0120000R03 | 018/90 | 1 |
| 204 |  |  |  |
| 205 | Transformer 100VA 0-230-400V 0-24V | 044/90 | 1 |
| 206 |  |  |  |
| 207 |  |  |  |
| 208 | Fuse 10x38 aM 10A | 206/90 | 3 |
| 209 | Fuse carrier WEBER PCH3x38 | 092/90 | 1 |
| 210 | Omega holed bar | 048/90 | 1 |
| 211 | Omega holed bar | 047/90 | 1 |
| 212 | Terminal CABUR CBD. 2 | 222/90 | 13/15 |
| 213 |  |  |  |
| 214 |  |  |  |
| 215 | Remote control switch LC1-D12 | 032/90 | 3 |
| 216 |  |  |  |
| 217 |  |  |  |
| 218 | Thermal relay LR2-D1308/10/12 | 053/90 | 2 |
| 219 | Fuse carrier WEBER PCH1 $\times 38$ | 093/90 | 1 |
| 220 | Fuse carrier WEBER PCH2x38 | 094/90 | 2 |
| 221 | Fuse 10x38 aM 6A | 205/90 | 1 |
| 222 |  |  |  |
| 223 |  |  |  |
| 224 | Button march TCQZB4BA2 | 086/90 | 2 |
| 225 |  |  |  |
| 226 | Emergency button | 085/90 | 1 |
| 227 |  |  |  |
| 228 | Main switch VEMER CA0120003207+G595 Yellow terminal cover G3228 | $\begin{aligned} & \hline 002 / 90 \\ & 065 / 90 \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & \hline \end{aligned}$ |
| 229 | Earth connection bar | 050/90 | 1 |
| 230 | Control panel seal | 054/38 | 1 |
| 231 | Fuse 10x38 aM 2A | 356/90 | 2 |
| 232 | Board SMD 200 | 357/90 | 1 |
| 233 | Luminous button march | 087/90 | 4 |
| 234 | Filter RC400 for single phase pump | 354/90 | 1 |
|  |  |  |  |
|  |  |  |  |

## CAPACITA' DI TAGLIO - Special 320 M/S

| CAPACITA' DI TAGLIO <br> CUTTING CAPACITY - CAPACITE DE COUPE <br> SCHNITTKAPAZITAET - CAPACIDAD DE CORTE |  |  |  |
| :---: | :---: | :---: | :---: |
| $90^{\circ}$ | 230 | 220 | $300 \times 170$ |
| $45^{\circ}$ Destra - right - droite - rechts | 210 | 210 | $210 \times 210$ |
| $60^{\circ}$ Destra - right - droite - rechts | 135 | 105 | $130 \times 105$ |

## 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 |


|  | $S \mathrm{~mm}$ |  |  |
| :---: | :---: | :---: | :---: |
|  | $\leqq 1,5$ | 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 |  | $35-71 \mathrm{~m} / 1^{\prime}$ |
| :---: | :---: | :---: |
| Cutting machine <br> The machine is equipped with two cutting speeds |  | $35-71 \mathrm{~m} / 1^{\prime}$ |
| Vitesse de coupe <br> La machine est dotée de deux vitesses de coupe |  | 35-71 m/1' |
| Schnittgeschwindigkeit <br> Die maschine ist mit zwei Schnittgeschwindigkeiten ausgetattet |  | 35-71 m/1' |
| Velocidad de corte <br> La maquina esta dotata de dos velocidades de corte |  | 35-71 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 <br> Volles Material <br> Pies |
|  | $\begin{aligned} & F e 37+F e 42 \\ & F e 37+F e 42 \end{aligned}$ | Profilati   <br> Stractural steel  <br> Srofiles 71  <br> Profile   <br> Perfiles   |
| Acciai da costruzione Fe50+Fe70 <br> Structural steel Fe50+Fe70 <br> Aciers de costruction Fe50+Fe70 <br> Baustahl Fe50+Fe70 <br> Acero de costruccion Fe50+Fe70 |  | 71 |
| 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 |  | 71 |
| Acciai legati Alloyed steel Aciers allié Legierter Stahl Acero aleado |  | 35 |
| Acciai inox <br> Stainless steel Aciers inoxydables Rostfreier Stahl Acero inoxidable |  | 35 |
| Ghisa grigia Grey cast iron Fonte grise Grauguß Fundiciòn gris |  | 71 |
| Leghe d'alluminio Alluminium alloys Allieges d'aluminium Legierungen aus Aluminium Aleaciòn de Aluminio |  | 71 |
| Bronzi <br> Bronze <br> Bronze <br> Bronze <br> Bronces |  | 71 |

## MOVIMENTAZIONE E TRASPORTO

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


Allegato / Encl. 2 - Dis. / Draw. 3

## 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. 5-6-7


Allegato / Encl. 3 - Dis. / Draw. 8-9



Allegato / Encl. 4 - Dis. / Draw. 11






Allegato / Encl. 7 - Dis. / Draw. 16

## PANNELLO COMANDI SPECIAL 320-330-411 S

 CONTROL PANEL SPECIAL 320-330-411 S95 (146/05)

$\begin{array}{ccccc}233 & 224 & 226 & 203 & 228 \\ (087 / 90) & (086 / 90) & (085 / 90) & (018 / 90) & (002 / 90)\end{array}$




| 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 WIEDERGEWINNUNG KÜHLMITTELPUMPE |
| ZENTRALHYDRAULIKMOTOR |
| SÄGEBLATTMOTOR |
| KÜHLMITTELPUMPE MOTOR |
| SPAENEAUSLASSVORRICHTUNG MOTOR |
| DREHUNGS KOPF MOTOR |
| FÜHRUNGSSTÜCK MOTOR |

H3 SPIA START CICLO
thaliano


RELE' TERMICO MOTORE LAMA | FR2 | RELE' TERMICO MOTORE LAMA |
| ---: | :--- |
| FR3 | RELE' TERMICO MOTORE REFRIGERANTE |
| FR4 | RELE' TERMICO MOTORE ESTRATTORE TRUCIOLI |
| FR5 | RELE' TERMICO MOTORE GUIDA PEZZO |
| FTC | FOTOCELLULA PRESENZA MATERIALE |
| FU1 | FUSIBILI PROTEZIONE TRASFORMATORE |
| FU2 | FUSIBILI PROTEZIONE MOTORI |
| FU3 | FUSIBILI PROTEZIONE POMPA REFRIGERANTE |
| FU4 | FUSIBILI PROTEZIONE ALIMENTATORE |
| FU5 | FUSIBILI PROTEZIONE 24 $V$ dc |
| FU6 | FUSIBILI PROTEZIONE 24 V ac |
| FU7 | FUSIBILE PROTEZIONE MOTORE INVERTER |
| G | GALLEGGIANTE |
| H1 | SPIA PRESENZA LINEA |
| H2 | SPIA LAMA IN TENSIONE |
| H3 | SPIA START CICLO |
| K | TELERUTTORE TERMORESISTENZA |
| KMO | TRU | KMO TELERUTTORE ALIMENT. INVERTER KM1 TELERUTTORE MOTORE POMPA OLIO KM2 TELERUTTORE MOTORE LAMA

## ITALIANO

 KMO TELERUTTORE ALIMENT. INVERTER KM3 TELERUTTORE POMPA REFRIGERANTE KM4 TELERUTTORE ESTRATTORE TRUCIOLI KM5 TELERUTTORE MOTORE GUIDA PEZZO KM6 TELERUTTORE POMPA RECUPERO REFRIGERANTE M1 MOTORE POMPA OLIO MOTORE LAMAMOTORE POMPA REFRIGERANTE MOTORE ESTRATTORE TRUCIOLI motore rotazione testa M50 MOTORE GUIDA PEZZO
10
RELE' TERMICO MOTORE REFRIGERANTE
RELE' TERMICO MOTORE ESTRATTORE TR
RELE TERMICO MOTORE GUIDA PEZZO
OTOCELLULA PRESENZA MATERIALE
FUSIBILI PROTEZIONE MOTORI

ENTATOR

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 CHIP EXTRACTOR MOTOR SAWHEAD ROTATION MOTOR GUIDA-PIECE MOTOR
ENGLISH THERMAL RELAY OIL PUMP MOTOR THERMAL RELAY BLADE MOTOR THERMAL RELAY COOLANT MOTOR RELAY THERMAL CHIPS EXTRACTOR THERMAL RELAY GUIDA-PIECE MOTOR RELAY THERMAL CHIPS EXTRACTOR MOTOR MATERIAL PRESENCE PHOTOELECTRIC CELL FUSE TRANSFORMER PROTECTION FUSE MOTOR PROTECTION

FUSE COOLANT PUMP PROTECTION FUSE COOLANT PUMP PROTECTION FUSE FEEDER PROTECTION

FUSE 24 V dc PROTECTION FUSE 24 V dc PROTECTION \begin{tabular}{l}
FUSE 24 V ac PROTECTION <br>
FUSE INVERTER PROTECTION <br>
\hline

 

FUSE 24 V ac PROTECTION <br>
FUSE INVERTER PROTECTION <br>
\hline
\end{tabular} FLOAT $\qquad$ SPY BLADE IN TENSION SPY CYCLE START THERMO-RESISTANCE CONTROL SWITCH

 OIL PUMP MOTOR REMOTE CONTROL SWITCH
BLADE MOTOR REMOTE CONTROL SWITCH OIL PUMP MOTOR REMOTE CONTROL SWITCH
BLADE MOTOR REMOTE CONTROL SWITCH COOLANT PUMP REMOTE CONTROL SWITCH CHIP EXTRACTOR CONTROL SWITCH OOLANT

COOLANT PUMP MOTOR
THERMAL RELAY OIL PUMP MOTOR
THERMAL RELAY BLADE MOTOR
THERMAL RELAY COOLANT MOTOR
MERMAL RELAY GUIDA-PIECE MOTOR
MUSERIAL PRESENCE PHOTOELECTRIC CELL
URANSFORMER PROTECTION
FUSE FEEDER PROTECTION
USE 24 V dc PROTECTION
FUSE 24 V ac PROTECTION
FUSE INVERTER PROTECTION
FLOAT
SPY LINE PRESENCE
TENSION
cycle Start
H
BLADE MOTOR REMOTE CONTROL SWITCH
COOLANT PUMP REMOTE CONTROL SWITCH SWITCH RMAL RELAY

$\longrightarrow \longrightarrow$
$\square$ $\rightarrow$

-OIAnt
THFRMO-RESISTA
$\square$
$\square$


ㅅyOWヨW ヨINVS7nd 6as
感
品感怱
䁅 $\stackrel{\infty}{\stackrel{m}{N}}$
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 VWV7 OIqWVO ヨyOIヨ7ヨs NO ONISSヨyd ヨyОㅍヨ7ヨS SELETTORE FUNZIONE RELE＇COMANDO TERMOSTATO RELE＇COMANDO MICROLUBRIFICAZIONE
 RELE＇COMANDO TELERUTTORE POMPA OLIO VWV7 ヨNOIZVIOY シIOY甘W OONVWOO．ヨาヨコ INTERRUTTORE／COMMUTATORE DI VELOCITA
INTERRUTTORE POMPA REFRIGERANTE
 POTENZIOMETRO VELOCITA＇LAMA
SENSORE ROTAZIONE LAMA INVERTER MOTORE AVANZAMENTO MATERIALE INVERTER MOTORE LAMA
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 REFRIGERANTE BUTTON＂ON＂ BUTTON DOWN BUTTON UP
 LOCK VICE 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
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MEMORY TASTER
 HINTEN TASTER
 SPANNSOCH SCHLIEß TASTER ZYKLUS START TASTER
RESETTASTER SAEGEBLAT SPANNSCHALTER SAEGEBLATT ENSPANNSCHALTER NOT AUS TASTER SAEGEBLATT WAEHLSCHALTER GESCHWINDIGKEITUMRICHTER WAEHLER ON FUNKTION WÄHLER SAEGEBLATT ABSTIG RELE THERMOSTATSTEUER RELAIS ZEITGEBER RELE MIKROSPRÜHEINRICHTUNGSTEUER RELAIS RELAIS BLATT FERNSCHALTER SENKRECHT SCHRAUBSTOCK RELE RELAIS OIL PUMPE FERNSCHALTER SÄGEBLATT UMDREHUNG POTENZIOMETER KÜHLMITTELPUMPE SCHALTER SCHALTER／GESCHWINDIGKEIT UMSCHALTER HAUPTSCHALTER BLATT UMDREHUNGSSENSOR SÄGEBLATT－GESCHWINDIGKEIT POTENZIOMETER SÄGEBLATT－STENUNG POTENZIOMETER VORSCHUBMATERIAL MOTOR WECHSELRICHTER SÄGEBLATTMOTOR WECHSELRICHTER VORSCHUBMATERIAL MOTOR

WIEDERGEWINNUNG KÜHLMITTELPUMPE MOTOR

| AUSLOESER TASTE |
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| ENDSCHALTER BLATT GEBROCHEN |
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| FußSCHALTER SPENNSTOCK SCHLIEßEN MIKROSCHALTER |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH VORNE |
| ENDSCHALTER FÜHRUNGSSTÜCK NACH HINTEN |
| HEBEWERK NACH OBEN ENDSCHALTER |
| ENDSCHALTER SCHUTZGEHÄUSE |
| SCHUTZ GEÖFFNET ENDSCHALTER |
| SPANNDRUCK TASTE |
| ENDSCHALTER WAGEN VORNE |
| $-45^{\circ} ~ U M D R E H U N G ~ E N D S C H A L T E R ~$ |
| 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 |
| $E L E K T R O V E N T I L ~ Z A U N ~ N A C H ~ V O R N E ~$ |

MICROSWITCH BLADE FAILURE PEDAL MICROSWITCH START PEDAL VICE CLOSING MICROSWITCH MICROSWITCH GUIDE-PIECE FORWARD MICROSWITCH GUIDE-PIECE BACKWARD MICROSWITCH LIFT UP POSITION MICROSWITCH PROTECTION CASE COVER OPEN MICROSWITCH VICE PRESSURE SWITCH MICROSWITCH CARRIAGE FORWARD MICROSWITCH - $45^{\circ}$ ROTATION MICROSWITCH CARRIAGE BACK MICROSWITCH HEAD / BOW UP MICROSWITCH HEAD / BOW DOWN MICROSWITCH BAR END MICROSWITCH PIECE PRESENCE MICROSWITCH HANDLE
MICROSWITCH MANUAL START TIMER TRANSFORMER THERMOSTAT

## THERMO-RESISTANCE

CARRIAGE SLOW FORWARD MOTION SOLENOID VALVE MANUAL UNLOCKING SOLENOID VALVE UNTIGHTNING BLADE SOLENOID VALVE BLADE DETENSIONING SOLENOID VALVE TIGHTNING BLADE SOLENOID VALVE BLADE TENSIONING SOLENOID VALVE LOADER LIFT SOLENOID VALVE LOADER VICE SOLENIOID VALVE GUIDE-PIECE FORWARD VALVE
PULSANTE DI SBLOCCO
11 MICROINTERRUTTORE CHIUSURA MORSA A PEDALE
の
SQ1 MICROINTERRUTTORE ROTTURA LAMA SQ10 MICROINTERRUTTORE START A PEDALE SQ15 FINECORSA GUIDA PEZZO AVANTI SQ16 FINECORSA GUIDA PEZZO INDIETRO SQ18 FINECORSA SOLLEVATORE ALTO SQ2 MICROINTERRUTTORE CARTER APERTO 1 SQ02 MICROINTERRUTTORE CARTER APERTO 2 SQ20 PRESSOSTATO CHIUSURA MORSA SQ3 FINECORSA CARRO AVANTI SQ30 FINECORSA ROTAZIONE -45 SQ4 FINECORSA CARRO INDIETRO SQ5 FINECORSA TESTA ALTA FINECORSA TESTA BASSA SQ8 MICROINTERRUTTORE MANIGLIONE (CARICO) SQ9 MICROINTERRUTTORE START MANUALE TEMPORIZZATORE TC1 TRASFORMATORE TERMOSTATO
TERMORESISTENZA
YV1 ELETTROVALVOLA CARRO AVANTI LENTO
 YV11 ELETTROVALVOLA DETENSIONAMENTO LAMA YV11 ELETTROVALVOLA DETENSIONAMENTO LAMA YV12 ELETTROVALVOLA TENSIONAMENTO LAMA YV12 ELETTROVALVOLA TENSIONAMENTO LAMA YV15 ELETTROVALVOLA SOLLEVATORE CARICATORE YV16 ELETTROVALVOLA MORSA CARICATORE YV18 ELETTROVALVOLA GIUDA PEZZO AVANTI

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