## TRONCATRICE A DISCO PER METALLI FERROSI CUTTING-OFF MACHINE WITH CIRCULAR BLADE FOR FERROUS METALS <br> METALL-KREISSAEGE <br> TRONÇONNEUSE A DISQUE POUR METAUX FERREUX <br> CORTADORA DE DISCO PARA METALES FERROSOS <br> ДИСКОВЫЙ РАСПИЛОВОЧНЫЙ СТАНОК ДЛЯ ЧЕРНЫХ 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:
МОДЕЛЬ:

## NEW 350 EDV

## 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 CONFORMITÁ 'CE' CERTIFICATE OF CONFORMITY 'EEC' KONFORMITÄTSBESCHEINIGUNG 'EWG' DECLARATION DE CONFORMITE 'CE' DECLARACION DE CONFORMIDAD 'CE' ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ 'СЕ'

MACC Costruzioni Meccaniche s.r.l. - 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:


# TRONCATRICE A DISCO PER METALLI FERROSI <br> CUTTING-OFF MACHINE WITH CIRCULAR BLADE FOR FERROUS METALS <br> METALL-KREISSAEGE <br> TRONCONNEUSE A DISQUE POUR METAUX FERREUX CORTADORA DE DISCO PARA METALES FERROSOS ДИСКОВЫЙ РАСПИЛОВОЧНЫЙ СТАНОК ДЛЯ ЧЕРНЫХ МЕТАЛЛОВ 

TIPO - TYPE - TYP - TYPE - TIPO - ТИП<br>\section*{NEW 350 EDV}

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

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

## 2023

- É CONFORME ALLA DIRETTIVA MACCHINE 2006/42/CE , ALLA DIRETTIVA COMPATIBILITÁ ELETTROMAGNETICA 2014/30/UE ED ALLA DIRETTIVA BASSA TENSIONE 2014/35/CE .
- IS IN COMPLIANCE WITH THE 2006/42/EEC MACHINERY DIRECTIVE , 2014/30/EEC DIRECTIVE ON ELECTROMAGNETIC COMPATIBILITY, 2014/35/EEC 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/UE DIRECTIVE SUR LA COMPATIBILITÉ ÉLECTROMAGNÉTIQUE , 2014/35/UE DIRECTIVE BASSE TENSION .
- HA SIDO FABRICADA CONFORME A LA DIRECTIVA MÁQUINAS 2006/42/CEE , 2014/30/UE DIRECTIVA COMPATIBILIDAD ELECTROMAGNÉTICA , 2014/35/UE DIRECTIVA BAJA TENSIÓN
- ОТВЕЧАЕТ ТРЕБОВАНИЯМ ДИРЕКТИВЫ ПО МАШИНАМ 2006/42/СЕ, ДИРЕКТИВЫ ОБ ЭЛЕМКТРОМАГНИТНОЙ СОВМЕСТИМОСТИ 2014/30/UЕ И ДИРЕКТИВЫ О НИЗКОМ НАПРЯЖЕНИИ 2014/35/UE .

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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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 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 <br> Chap. 2 | Introduction <br> Information about maintenance assistance <br> Chap. | 3 |
| :--- | :--- | :--- |
| Chap. | 4 | Index of chapters, drawings, diagrams and tables <br> 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 <br> Chap. |
| Chap. | 8 | Start up and operation <br> Devices and their location <br> Tools supplied <br> Operation <br> Special safety checks <br> General safety rules <br> Measures to prevent residual risks <br> Safety, Guidance, Notice Labels on the Machine |
|  |  | Maintenance and repairs <br> General safety measures <br> Routine checks and maintenance <br> Description of routine maintenance <br> Information regarding environmental noise <br> Laying off and dismantling <br> List of spare parts |
| Chap. | 9 | 10 |

### 3.2 INDEX OF DRAWINGS , DIAGRAMS AND TABLES

| ENCL. TYPE | DESCRIPTION | ENCL No. | CHAP. |
| :--- | :--- | :---: | :---: |
| Table | Choice of circular blade | 1 | 8.3 |
| Drawings | Handling and transportation - Installation plan | 1 | $6 / 7 / 8$ |
| Drawing | Machine assembly | 2 | 8.3 |
| Drawings | Electrical details | 2 | 7 |
| Drawings | Motor - blade block | 3 | $7 / 8.3 / 9$ |
| Drawings | Base block and vice | 3 | $8.3 / 9.3$ |
| Diagram | Electrical installation |  |  |

## 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 and general principles for design . Basic terminology and methods .

- EN ISO 116093 Safety of machinery. Basic concepts and general principles for design . Specifications and technical principles.
- EN ISO 13850 Safety of machinery . Emergency stop devices, functional aspects - design principles .
- EN ISO 4413-4414

Safety requirements related to systems and components for hydraulics and pneumatic transmissions.

- EN 14118 Safety of machinery . Prevention of unexpected start-up .
- EN 14119 Safety of machinery - Interlocking devices with and without guard - locking . General principles and provisions for design .
- EN 60204-1 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/UE Directive on electromagnetic compatibility .

The following Standards apply :

- EN 55014-1 Electromagnetic compatibility - Requirements for household appliances , electric tools and similar apparatus .
- EN 61000-3-2 Electromagnetic compatibility (EMC ) -- Part 3-2 : Limits - Limits for harmonic current emissions .
- EN 61000-3-11 Electromagnetic compatibility ( EMC ) -- Part 3-11 : Limits - Limitation of voltage changes , voltage fluctuations and flicker in public low-voltage supply systems.
- EN 55032 Electromagnetic compatibility of multimedia equipment - Emission requirements .
- EN 61000-4-2 Electromagnetic compatibility (EMC ) -- Part 4-2 : Testing and measurement techniques Electrostatic discharge immunity test
- EN 61000-4-4 Electromagnetic compatibility (EMC ) -- Part 4-4 : Testing and measurement techniques - Electrical fast transient/burst immunity test
- EN 61000-4-6 Electromagnetic compatibility (EMC) -- Part 4-6 : Testing and measurement techniques Immunity to conducted disturbances, induced by radio-frequency fields
- 2014/35/UE Low Voltage Directive .

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 NEW 350 EDV cutting-off machine with circular blade for ferrous metals produced by MACC is made from a solid casting, carefully processed and provided with holes for fastening to a bench or pedestal . The upper surface, designed to allow the complete draining away of the cutting fluid, has been processed using precision machinery to allow the attachment of a sturdy vice .
The bar-stop device allows the length required to be preset and a constant level of performance for repeated cuts .
The blade-holding head is firmly attached to a reduction unit in oil bath built onto the motor and to the base by means of a joint which provides $45^{\circ}$ rotation both to the left and right and the cutting movement with manual feed.
The machine is equipped with submersible motor-driven pump
The main switch is located above the motor block. Another switch is used to select motor rotation speed and therefore cutting speed. The control lever, fitted with an ergonomic hand-grip and blade activation button with safety release action, reduces fatigue during operation to a minimum. The blade is protected by a guard which in its turn protects 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 NEW 350 EDV cutting-off machine with circular blade 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 .

| MOTOR | three-phase |
| :--- | :--- |
| Motor Power | HP 2,5/3,3- kW 1,8/2,4 |
| Motor revolutions (two speeds ) | $1400-2800 \mathrm{rpm} \quad 700-1400 \mathrm{rpm}$ |
| CIRCULAR BLADE ( SAW ) | Number of teeth and feed holes according to table |
| Maximum diameter and thickness | Diameter : 350 mm $\quad$ Thickness : 3 |
| BLADE REVOLUTIONS per minute | $40-80 \mathrm{rpm} \quad 20-40 \mathrm{rpm}$ |
| CUTTING ANGLE | $45^{\circ}$ right -45 ${ }^{\circ}$ left |
| PIECE LOCKING VICE : MAX OPENING | 140 mm |
| COOLANT TANK CAPACITY | litres 3 |
| MACHINE WEIGHT | $210 \mathrm{~kg} \mathrm{-} \mathrm{2060} \mathrm{N}$ |

## 6. HANDLING AND TRANSPORTATION

For safe handling and transportation use a lift truck for movement indoors or a bridge crane ; in this case , also using cables fastened to the sling positions indicated on the Drawing 1 ENCL. 1 . 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 .

## 7. MACHINE INSTALLATION <br> A. MACHINE CHECK AND CONTROL LEVER ASSEMBLY

The machine should be checked to make sure that it has not been damaged during transportation and handling Control lever assembly (DRAW.5-6 ENCL. 3 ) : Fit the supplied head lever 25 , into position 24 and fasten it by means of the nut 50 . To fit the handle, connect the electric cable terminals 220 to the micro-switch 218 and place it in the left second half of the handle as shown in Draw. 4 Encl. 2 . Complete the assembly using the screws 221 and then 219 . Make sure that the cable is inserted into the lever slot 25 , after having checked that there are no burrs or sharp edges in the slot.

## 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 2 NEW 350 EDV Installation plan ENCL. 1 .

## C. ASSEMBLY OF CIRCULAR BLADE

For the assembly of the circular blade, remove the screw No. 36 ( DRAW.5-6 ENCL. 3 ) , keeping the motor-blade block raised and rotate the mobile guard 31 backwards. Unscrew the screw 28 clockwise, withdraw the flange 29 , insert the circular blade, making sure that the teething faces the same direction as the arrow on the mobile guard . Then refit flange 29 and nut 28.

## 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 AGIP ULEX AQUAMET 700 EP 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 NEW 350 EDV installation plan ENCL. 1 )

Code 203
Code 218
Code 208
Code 62
Code 21
Code 77
Code 25

CHANGEOVER SWITCH
START-STOP MICROSWITCH : situated inside the handle located at the end of the control lever and has safety release action .
EMERGENCY STOP
CUTTING ANGLE DEVICE : to check that cutting inclination is as required LOCKING VICE
BAR-STOP
CONTROL LEVER WITH HANDLE

### 8.2 TOOLS SUPPLIED

## 1 Allen wrench size 3

1 Allen wrench size 4
1 Allen wrench size 5
1 Allen wrench size 6
1 Allen wrench size 12
1 Open end wrench size 42

### 8.3 OPERATION

## CHECKS TO CARRY OUT BEFORE EACH CUT

A. Make sure that the circular blade is fastened securely by means of screw 28 (DRAW.5-6 ENCL. 3 )
B. Check that the hand indicates the required cutting angle ( vice scale )
C. Make sure that the head and vice are locked by means of the lever 88 ( DRAW.7-8 ENCL. 3 )
D. With the motor off, lower the head and check that at the end of the stroke, the circular blade does not touch the counter-vice 75 . If the circular blade does touch, adjust the screw 109 located at the centre of the head support 4 ( DRAW.5-6 ENCL. 3 )
E. Make sure that the piece to be cut is adequately secured in the vice.
F. Make sure that the coolant is circulating in the machine .

## CUTTING OPERATION

A. Before each cutting operation, if the cutting inclination is not as required, correct or change the inclination by placing the bench lever 88 in position A( DRAW.7-8 ENCL. 3 ) and after correction, forcefully turn it to position B.
B. Clamp the piece to be cut by means of the handwheel 11 (DRAW.7-8 ENCL. 3 ) , turn the speed switch 203 to the position required ( we recommend No. 1 ) , take hold of the handle 26 located at the end of the head lever and press button 218 . The blade will now start turning .
C. 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. To make a series of cuts, position the bar-stop 77 at the size required. Fix it into position by using the knob 79 (DRAW. 3 ENCL. 2 ).
D. To replace the circular blade carry out the same operations used to assemble the circular blade . ( chapter 7c ). E. For the choice of most suitable blade consult the table 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 on the circular blade guard and the rotation levers of the circular blade mobile guard.
C. Check that the safety micro-switches and the emergency button are functioning correctly . Test them during a loadless 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


## 9. MAINTENANCE AND REPAIRS

### 9.1 GENERAL SAFETY MEASURES

A. Lockable main switch. Open the padlock in the event of machine failure or replacement of the circular blade . 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 | Replace the oil in the gear box with AGIP BLASIA oil ( 0.2 litres ) or equivalent . |
| 1000 | Lubrication of mobile parts in the piece locking vice (GREASE AGIP MU 2 ) |
| 50 | Cleaning of the coolant tank and filter check |
| if necessary | Check functioning of bench lever |

### 9.3 DESCRIPTION OF ROUTINE MAINTENANCE

## A. Replacement of gear box oil

Remove caps 95 and 22 ( Draw.5-6 Encl.3 ), let all the used oil flow out into a container which should have a label indicating the contents for the purposes of disposal. Replace cap 22 . Feed 0.2 litres of oil ( as specified above) into the oil feed hole located on the upper part of the gear box and then replace cap 95 .
B. Lubrication of mobile parts of piece locking vice

Remove the vice 21 completely by turning hand wheel 11 ( Draw.7-8 Encl. 3 ). Clean and grease the parts worked by the counter-vice 75 , the vice 21 and the vice gib 101 . Put a drop of oil in the oil feed hole 19 located behind the handwheel . C. Cleaning of the coolant tank : Filter check.

The coolant tank can be cleaned by simply removing the crucible 87 ( Draw.7-8 Encl. 3 ) . 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 91 (Draw.7-8 Encl. 3 ) , tighten nut 90 and fasten grub screw 91 again. Make sure that with the bench lever in position 2 , arm 4 which supports the blade-motor block can rotate freely .

## 10.INFORMATION REGARDING ENVIRONMENTAL NOISE

An environmental noise test carried out on the NEW 350 EDV cutting-off machine with circular blade, identical to the machine to which these operation instructions refer, has given the following results :

## ACOUSTIC RADIATION PRESSURE

1. $L_{\text {Aeq }}=82,6 \mathrm{~dB}(\mathrm{~A})$
2. $L_{\text {peak }}=90.6 \mathrm{~dB}$ ( the maximum acceptable value is 140 dB ).
3. The level of background noise has no influence $=48.5-54,2 \mathrm{~dB}(\mathrm{~A})$.

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 <br> 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 | Light alloy | Cast iron | Bronze <br> Copper | Plastic | Various |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Structure | Cylinders | Structural parts | Motors winding |  |  |
| Coil-holder shaft |  |  |  | Seals |  |
| Connecting rod and <br> cranks |  |  |  | Flexible pipes <br> Gaskets |  |
| Clutch-holder discs |  |  | Bushings |  | Friction items |

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 |
| :---: | :---: | :---: |
| 1 | Pedestal | 006/71 |
| 2 | Bench | 001/07 |
| 3 | O-Ring 134 | 068/04 |
| 4 | Rotating arm | 004/07 |
| 5 | Roller arm pin | 048/04 |
| 6 | Snap ring ø25 DIN-471 |  |
| 7 | Nut M10 DIN-934 |  |
| 8 | Screw HH M10x55 DIN-934 |  |
| 9 | Roller arm | 047/04 |
| 10 | Roller | 049/04 |
| 11 | Vice hand-wheel | 029/03 |
| 12 | Hexagon socket grub with cone point M8x10 DIN-914 |  |
| 13 | Vice spring | 021/31 |
| 14 |  |  |
| 15 | Vice bearing flange | 020/31 |
| 16 | Cage AxK 3047 | 060/31 |
| 17 | Fifth wheel AS 3047 | 061/31 |
| 18 | Flanged bushing with spiral | 018/34 BIS |
| 19 | Oiler ø6 |  |
| 20 | Vice lever | 007/31 |
| 21 | Vice | 029/07 |
| 22 | Oil dram plug ø $\varnothing 3 / 8{ }^{\prime \prime}$ |  |
| 23 | Oil lever plug ø3/8" |  |
| 24 | Head | 003/07 |
| 25 | Head lever | 024-A/07 |
| 26 | Head lever handle | 146/05 |
| 27 | Disk | 032/75 |
| 28 | Disk nut | 030/06 |
| 29 | Disk flange | 020/07 |
| 30 | Snap ring $\varnothing 45 \mathrm{E}$ |  |
| 31 | Disk movable guard | 012/07 |
| 32 | HSHC screw M6x14 DIN-912 |  |
| 33 | Divider | 026/07 |
| 34 |  |  |
| 35 | Disk guard | 011/07 |
| 36 | HSHC screw M6x16 DIN-912 |  |
| 37 | Movable blade cover rod | 016/04 |
| 38 | HSHC screw M8x20 DIN-912 |  |
| 39 | Fixed blade cover rod | 016/06 |
| 40 | Dowel M10x45 DIN-914 |  |
| 41 | Front motor flange | 182-Z/80 |
| 42 | Motor | 182-A/80 |
| 43 | Key 5x5x35 DIN-6604 |  |
| 44 | Bearing 62052 Z | 020/19 |
| 45 | Nut M6 DIN-934 |  |
| 46 | Belleville washer $\varnothing 6,2 / 15 \times 0,6$ |  |
| 47 | Bush | 017/04 |
| 48 |  |  |
| 49 |  |  |
| 50 | Hexagon lock nut M20 DIN-936 | 019/95 |
| 51 |  |  |
| 52 |  |  |
| 53 | Electric pump | 090/90 |
| 54 |  |  |
| 55 | No return valve | 035/96 |
| 56 | Fan guard |  |
| 57 | Fan |  |
| 58 | Rotor |  |
| 59 | Stator |  |
| 60 | HSFHC Screw M8x30 DIN-7991 |  |
| 61 | Wascher | 053/31 |
| 62 | Cutting angle device |  |
| 63 | Oil retainer 30-42-7 | 001-C/80 |
| 64 | Bearing 3205 | 065/04 |
| 65 | Bearing lid | 182-Z1/80 |
| 66 | Worm screw spacer | 018/07 |


| 67 | Worm screw | 020/04 |
| :---: | :---: | :---: |
| 68 | Self-locking ring-nut M20x1 |  |
| 69 | Bearing 6302 | 044/03 |
| 70 | Helical gear | 015/07 |
| 71 | Self-locking ring-nut M35x1,5 |  |
| 72 | HSFHC Screw M10x25 DIN-7991 |  |
| 73 | Washer | 067/31 |
| 74 | Counter-vice right jaw | 052/04 |
| 75 | Counter-vice | 028/07 |
| 76 | Nut M16 DIN-936 |  |
| 77 | Bar stop | 004/05 |
| 78 | Bar stopping rod | 031/05 |
| 79 | Bar stoppin hand-wheel | 077/25 |
| 80 |  |  |
| 81 |  |  |
| 82 |  |  |
| 83 |  |  |
| 84 |  |  |
| 85 |  |  |
| 86 |  |  |
| 87 | Crucible | 002-A/07 |
| 88 | Bench lever | 002/06 |
| 89 |  |  |
| 90 | Selflocking ring nut M $32 \times 1.5$ |  |
| 91 |  |  |
| 92 | Key 10x8x28 DIN-6604 |  |
| 93 | Disk shaft | 019/07 |
| 94 | Oil retainer 50/65x8 | 025/07 |
| 95 | Oil filling cap $\varnothing 3 / 8$ " |  |
| 96 | Left vice jaw | 055/04 |
| 97 | Right vice jaw | 054/04 |
| 98 | Left countervice jaw | 053/04 |
| 99 | Dowel M8x25 DIN-914 |  |
| 100 | Nut M8 DIN-934 |  |
| 101 | Vice gib | 031/03 |
| 102 | Fast clamping vice screw | 035/07 |
| 103 | Support plate of low voltage control | 048/21 |
| 104 |  |  |
| 105 |  |  |
| 106 |  |  |
| 107 |  |  |
| 108 | Nut M12 DIN-936 |  |
| 109 | HH screw M12x30 DIN-933 |  |
| 110 | Hexagon socket grub screw M8x10 DIN-914 |  |
| 111 | Head gasket | 024/19 |
| 112 |  |  |
| 113 | Lower disc protection | 013/07 |
| 114 | Countervice pin | 022/07 |
| 115 | Rotating plate | 007/19 |
| 116 | Head pin | 057/07 |
| 117 | Oiler ø6 |  |
| 118 | HSHC screw M6x60 DIN-912 |  |
| 119 | HSCH screw M8x20 DIN-912 |  |
| 120 | Washer | 040/06 |
| 121 | HSHC screw M10x20 DIN-912 |  |
| 122 | Rear motor flange | 182-B/80 |
| 123 | Washer |  |
| 124 | Countervice fastening bracket | 031/19 |
| 125 | Handle Jaccard M8x20 | 025/21 |
| 126 | Sphere ø30 FM10 | 082/14 |
| 127 | Positioning pin | 022/21 |
| 128 | Hexagon lock nut M10 DIN-936 |  |
| 129 |  |  |
| 130 | HH screw M12x80 DIN-933 |  |
| 131 |  |  |
| 132 |  |  |
| 133 | Stake $\varnothing 9 \times 18$ | 055-C/20 |
| 134 |  |  |
| 135 | Vice bush | 032/07 |


| 136 | Grub screw M10x50 |  |
| :---: | :---: | :---: |
| 137 | Washer for M10 |  |
| 138 | Self locking nut M10 |  |
| 139 | Nut M10 DIN-934 |  |
| 140 | Eye tie rod M10x50 | 043/31 |
| 141 | Eye tie rod M12x50 | 035/38 |
| 142 | Nut M12 DIN-934 |  |
| 143 | Return spring | 030/07 |
|  |  |  |
|  |  |  |
| 199 | Cover box Box gasket | $\begin{gathered} 067 / 90 \\ 067-\mathrm{A} / 90 \\ \hline \end{gathered}$ |
| 200 | Box | 066/90 |
| 201 | Plate | 069/90 |
| 202 | Omega raceway | 046/90 |
| 203 | Changeover switch | 011/90 |
| 204 | RH screw M4x14 DIN-84-A | 291/95 |
| 205 | HSHC screw M4x6 DIN-912 | 120/95 |
| 206 | Fuse blok PCH $3 \times 38$ | 092/90 |
| 207 |  |  |
| 208 | Emergency button | 085/90 |
| 209 | TBEI screw M4x6 ISO-7380 | 280/95 |
| 210 | Remote controlled switch | 032/90 |
| 211 | Thermal relay | 053/90 |
| 212 | Main switch | 002/90 |
| 213 | Earth connection bar | 050/90 |
| 214 | RH screw M4,2x13 DIN-7981 | 291/95 |
| 215 | Fuse blok PCH $2 \times 38$ | 094/90 |
| 216 | Fuse blok PCH 1x38 | 093/90 |
| 217 | Transformer $30 \mathrm{VA} 0-230-400 \mathrm{~V} 50 \mathrm{~Hz}$ | 045/90 |
| 218 | Micro switch of handle | 328/90 |
| 219 | HSFHC screw M4x8 DIN-7991 | 255/90 |
| 220 | Electrical cable $2 \times 1$ |  |
| 221 | RH screw M2,9x13 DIN-7981 | 294/95 |
| 222 |  |  |
| 223 | Fuse 10x38 AM 10A | 202/90 |
| 224 | Fuse $10 \times 38 \mathrm{gG}$ 1A | 206/90 |
| 225 | Fuse $10 \times 38 \mathrm{gG}$ 2A | 203/90 |

## SCELTA DEL DISCO - BLADE SELECTION

| Diametro - Diameter Diametre - Durchmesser |  | 200 | 225 | 250 | 275 | 300 | 315 | 350 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Spessore - Thickness Epaisseur - Dicke |  | 1.8 | 1.8 | 2 | 2.5 | 2.5 | 2.5 | 3 |
| $\begin{gathered} \mathrm{b}=10-80 \\ \mathrm{~g}=<2 \end{gathered}$ | $\dagger$ | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
|  | Z | 200 | 230 | 250 | 280 | 300 | 320 | 350 |
| $\begin{gathered} b=10-80 \\ g=2-4 \\ d=10-18 \end{gathered}$ | $\dagger$ | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
|  | Z | 130 | 140 | 160 | 170 | 190 | 200 | 220 |
| $\begin{gathered} b=20-80 \\ g=4-10 \\ d=18-30 \end{gathered}$ | $\dagger$ | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
|  | Z | 80 | 90 | 100 | 110 | 120 | 120 | 140 |
| $d=30-40$ | $\dagger$ | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|  | z | 60 | 70 | 80 | 90 | 90 | 100 | 110 |
| d>40 | $\dagger$ | 1 | 1 | / | 12 | 12 | 12 | 12 |
|  | Z | 1 | 1 | 1 | 70 | 80 | 80 | 90 |



Si garantisce il funzionamento ottimale della vite-corona utilizzando dischi con fori di trascinamento.
Best performance of worm screw worm wheel gearing is guaranteed when circular saw blades with drawing-holes are used.
Nous garantissons le bon fonctionnement de la vis et couronne seulement si l'on emploie des fraise-scies avec trous d'entrainement.
Die verwendung von Sageblattern mit Mitnehmerlochern sichern den guten Betrieb der Schnecke und des Scheckenkranzes.
b= diametro estermo/altezza (tubi) - outside diameter/height (pipe) diametre extérieur/hauteur
d= diametro/altezza (pieni) - diameter/height (solid)
diamètre/hauter (plein) - durchmesserthohe (voll)
$g=$ spessore del tubo - pipe thickness
epaisseur du tube - rohrdicke
$t=$ passo dentatura - toothing pitch pas denture - entfermung verzahnung
z= numero di denti - number of teeth numero de dents - zahnпummer


DIMENSIONE D'INGOMBRO E INSTALLAZIONE
Overall dimensions and installation
Dimensions hors-tout et installation
Aussenabmessungenund installation Dimensiones maximas extremas e instalacion


Allegato / Encl. 1 - Dis. / Draw. 2



Cassetta Impianto elettrico Electric Box
Boîte Elecfŕique
Schaltkasten
Caja Electŕica


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


Allegato / Encl. 3 - Dis. / Draw. 5-6


Allegato / Encl. 3 - Dis. / Draw. 7-8




| 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 |

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 |
| KM | IL | KMO TELERUTTORE ALIMENT. INVERTER kM1 TELERUTTORE MOTORE POMPA OLIO KM2 TELERUTTORE MOTORE LAMA

\section*{ITALIANO} , KM4 TELERUTTORE ESTRATTORE TRUCIOLI (COCLEA) KM3 TELERUTTORE POMPA REFRIGERANTE ELERUTTORE MOTORE GUIDA PEZZO KM6 TELERUTTORE POMPA RECUPERO REFRIGERANTE | KM6 | TELERUTTORE POMPA RECUPERO REFRIGERANTE |
| :---: | :--- |
| M1 | MOTORE POMPA OLIO | M2 MOTORE LAMA

M3 MOTORE POMPA REFRIGERANTE MOTORE ESTRATTORE TRUCIOLI motore rotazione testa
10
RELE' TERMICO MOTORE REFRIGERANT
RELE' TERMICO MOTORE GUIDA PEZZO
H3 SPIA START CICLO M50 MOTORE GUIDA PEZZO
RELE' TERMICO MOTORE ESTRATTORE TR

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
ENGLISH THERMAL RELAY OIL PUMP MOTOR THERMAL RELAY BLADE MOTOR THERMAL RELAY COOLANT MOTOR ELAY THERMAL CHIPS EXTRACTOR THERMAL RELAY GUIDA-PIECE MOTOR RELAY THERMAL CHIPS EXTRACTOR MOTOR FUSE TRANSFORMER PROTECTION FUSE MOTOR PROTECTION

FUSE COOLANT PUMP PROTECTION
FUSE COOLANT PUMP PROTECTION FUSE 24 V dc PROTECTION FUSE 24 V ac PROTECTION FUSE INVERTER PROTECTION FLOAT $\qquad$ SPY BLADE IN TENSION SPY CYCLE START THERMO-RESISTANCE CONTROL SWITCH INVERTER FEEDING CONTROL SWITCH OIL PUMP MOTOR REMOTE CONTROL SWITCH BLADE MOTOR REMOTE CONTROL SWITCH COOLANT PUMP REMOTE CONTROL SWITCH CHIP EXTRACTOR CONTROL SWITCH


> MATERIAL PRESENCE PHOTOELECTRIC CELL FUSE MOTOR PROTECTION

FUSE TRANSFORMER PROTECTIONN

## FUSE FEEDER PROTECTION FUSE 24 V dc PROTECTION

N AT SPY NE PRESENCE TCH $\square$ COOLANT PUMP REMOTE CONTROL SWITCH Y

[^0]
GUIDA-PIECE MOTOR
SAWHEAD ROTATION MOTOR

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 $\frac{刃}{6}$ ग 刀 刀 刀忍 $刀_{0}$男 $\square$卫刀 Q 웅 우 문 N －ス〕 ふ 형 VIITVS IO ヨINVSTก』 $\forall$ SYOW VYחㄴyヨdy $\exists$ INVSTnd $\forall$ SYOW $\forall$ Ynsniro ヨunvsind PUSANTE DI RESET OTOI $\perp \forall \forall \perp S$ ヨiNVS7nd VWV7 OLNヨWVNOISNヨL ヨINVS7nd

 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
 MOTORE RECUPERO REFRIGERANTE里
 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
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 MOTOR INVERTER BLADE MOTOR INVERTER MATERIAL FEEDING MOTOR COOLANT RECYCLE MOTOR

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 |
| :--- |
| ENDSCHALTER BLATT GEBROCHEN |
| PEDALS MIKROSCHALTER |
| 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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