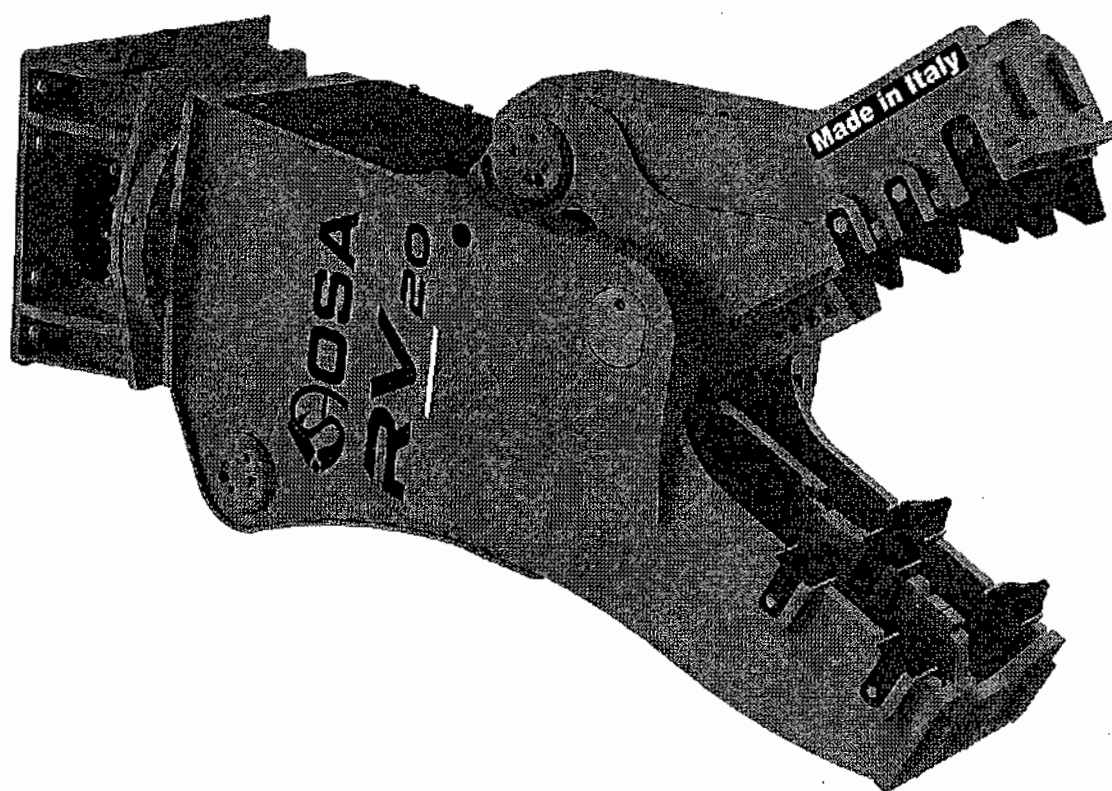


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INSTRUCTION MANUAL FOR MAINTENANCE AND SAFETY



ROTATING PULVERIZERS

RV

WWW.OSADEMOLITIONEQUIPMENT.COM

ORIGINAL INSTRUCTION

INDEX

The Instruction Manual Model is structured following the Guide to the application of the Machinery Directive 2006/42 / EC 2nd Ed. June 2010 All. VI.

-Machinery Directive 2006/42 / EC Annex I p. 1.7.4

- UNI 10653: Technical documentation - Quality of technical product documentation

- UNI 10893: Product technical documentation - Instructions for use - Articulation, and order of presentation of the content

- CEI EN 62079: Preparation of instructions - Structure, content, and presentation

Other documents

1. EC Declaration of Conformity IIA

2. Machinery Directive 2006/42 / EC

3. Legislative Decree 17/2010

4. Harmonized Technical Regulations 2011C Machine Directive 214-01 [20.07.2011]

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	2	1.0	2.0	3.0	4.0	5.0
	3	1.0	2.0	3.0	4.0	5.0
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	8	1.0	2.0	3.0	4.0	5.0
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0 INTRODUCTION

0-1. AIM OF THE MANUAL

This instruction manual is an integral part of this attachment and it has the aim to supply all the necessary information for :

- A correct awareness of the operators for safety problems;
- How to handle the attachment when it is either packed or unpacked and its transport in safety conditions;
- A correct installation of the attachment;
- A deep knowledge of its functioning and limits;
- A correct use in safe conditions;
- Make maintenance correctly and safely only if authorized in writing by a registered letter by **O.S.A. DEMOLITION EQUIPMENT S.R.L.** ;
- Disassemble the attachment in safe conditions respecting the law to protect the workers' health and environment



DO NOT USE THE ATTACHMENT BEFORE READING AND UNDERSTANDING THESE INSTRUCTIONS COMPLETELY. ALWAYS USE SAFETY NORMS TO PROTECT YOURSELF AND THE PEOPLE AROUND YOU.

Managers of the company departments, where this attachment will be installed, have the obligation, according to the laws in force, to read carefully this instruction manual together with the drivers and the operators in all its parts.

Time spent reading this instruction manual carefully will be rewarded by the correct function of the attachment and its use in safe conditions

This document states that safety and working hygienic norms should be respected.

Instructions, drawings, and documents of this Manual belong to **O.S.A. DEMOLITION EQUIPMENT S.R.L.** and cannot be reproduced. Every misuse will be punished following the current laws on copyright.

The customer also has the responsibility to ensure that, should this document be modified by **O.S.A. DEMOLITION EQUIPMENT S.R.L.** only the updated versions of this Manual are present at the points of use of the machine itself.

0-2. MANUAL READING INSTRUCTION

This Manual has been divided into chapters. Every chapter is addressed to a specific operator (INSTALLER, DRIVER, OR MAINTENANCE TECHNICIAN) who has the required skills in order to operate the attachments in safe conditions.

The sequence of these chapters responds to the logic behind the attachment's life cycle.

To better understand this manual, we use terms, abbreviations, and pictograms whose meanings are explained in paragraph 0.6.

The instruction and maintenance manual is composed of a cover, an index, and chapters (sections).

Each page heading bares the name of the attachment and its model. You can also find the manual version marked in red color. This is to help the reader to identify the attachment and its respective manual.

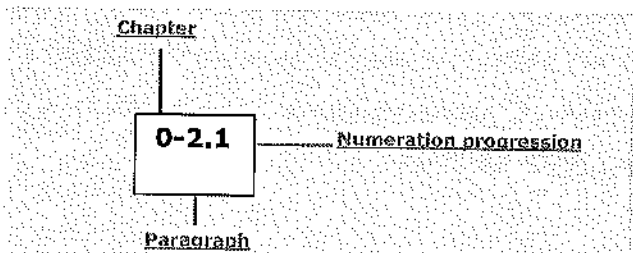
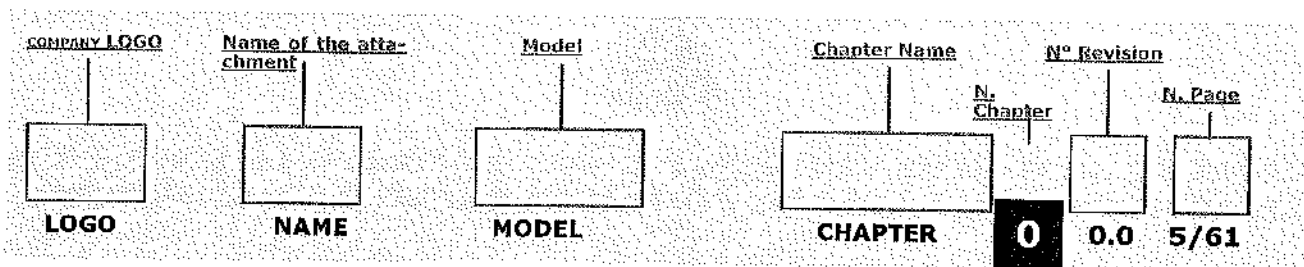
PAGE NUMBERING

PICTURES AND CHARTS NUMBERING.

Every picture has a progressive number: **0-2.1**.

Numbering restarts from number 1 every time the section changes

Numbering is composed as follows:



ABBREVIATIONS

- Sez. = Section
- Cap. = Chapter
- Par. = Paragraph
- Pag. = Page
- Pic. = Picture
- Tab. = Chart
- Mod. = Model

UNIT OF MEASUREMENT

The unit of measurement belongs to the INTERNATIONAL SYSTEM.

0-3. MANUAL STORAGE INSTRUCTION

The Instruction and Maintenance manual should be available at any time. That's why it should be stored with care and should always accompany the attachment namely when there's an ownership change. The manual should be stored carefully, preferably handled by clean hands. It should not be put on dirty surfaces. Pages should not be removed, torn off, or modified in any part. Manual should be stored in a safe environment i.e. protected from humidity or heat.

IF THE MANUAL IS DAMAGED OR LOST, CONTACT IMMEDIATELY THE AUTHORIZED DEALER O.S.A. DEMOLITION EQUIPMENT S.R.L. FOR A SUBSTITUTION. On user demand, O.S.A. DEMOLITION EQUIPMENT S.R.L. can supply further copies of this instruction manual.

0-4. UPDATING PROCEDURE OF THE MANUAL

O.S.A. DEMOLITION EQUIPMENT S.R.L. has the right to modify the project and to add improvements to the machines without communicating it to the Customers and without updating the Manual already delivered to the user. O.S.A. DEMOLITION EQUIPMENT S.R.L. has the right to stop manufacturing products at any time at its discretion. In case of modifications on attachments already installed at the customer's, the modification of one or more chapters of the Instruction Manual will be by the manufacturer since any modification must be previously agreed with him. The modified chapters will be sent by O.S.A. DEMOLITION EQUIPMENT S.R.L.. The manufacturer is responsible for the descriptions given in the Italian language. Any translation cannot be fully verified. If an inconsistency is detected, it will be necessary to refer to the Italian source and possibly contact our technical department which will make the change deemed appropriate.

0-5. MANUAL ADDRESSES

The Manual is addressed to the **INSTALLATOR**, to the **OPERATOR**, and to **SKILLED PEOPLE** who are authorized by registered letter by O.S.A. DEMOLITION EQUIPMENT S.R.L. for the attachment maintenance.

EXPOSED PERSON (Please refer to glossary 0-6.)

OPERATOR (Please refer to glossary 0-6.)

TRAINED PEOPLE: It is intended for all the people who have attended a specialization course or training etc. those who have experience concerning the installation, the actioning, maintenance, reparation, and transportation of the attachment.

QUALIFICATION OF THE ADDRESSEES (Please refer to glossary 0-6.)

This attachment is addressed to a professional and not general industrial use and it should be given to trained people, namely to those who:

- Have reached the age of majority;
- Are physically and psychologically able to make difficult technical jobs;
- Are well instructed for the use and the maintenance of the attachment;
- Have been judged adequate by their boss to make this kind of job;
- Can understand the whole manual;
- Understand and know the emergency procedures;
- Can activate the emergency procedures;
- Know the specific rules;
- Understand the operative procedures of **O.S.A. DEMOLITION EQUIPMENT S.R.L.**

0-6. GLOSSARY AND PICTOGRAMS KEYS

In this paragraph, there is a list of uncommon terms which have different meanings from common sense.

The abbreviations used and the meaning of the Pictograms to indicate the qualification of the operator and the status of the machine are explained below. Their use makes it possible to rapidly and unambiguously provide the information necessary for the correct use of the machine in safe conditions.

GLOSSARY (attached paragraph 1.1.1 Dir. 2006/42/CE)

DANGER: A POTENTIAL SOURCE OF INJURY OR DAMAGE TO HEALTH.

DANGEROUS AREA: EVERY AREA NEXT TO THE ATTACHMENT WHERE THE PRESENCE OF A PERSON REPRESENTS A RISK FOR THE SAFETY AND HEALTH OF THIS PERSON.

EXPOSED PERSON: ANY PERSON WHO IS TOTALLY OR PARTIALLY NEXT TO THE ATTACHMENT.

OPERATOR: THE PEOPLE WHO HAVE THE TASK TO ACTIVATE, REGULATE, CLEAN, AND MOVE THE ATTACHMENT, AND MAKE THE MAINTENANCE.

RISK: A COMBINATION OF THE GRAVITY OF A LESION OR DAMAGE TO HEALTH CAN OCCUR IN A DANGEROUS SITUATION.

SHELTER: AN ELEMENT OF THE ATTACHMENT IS USED TO WARRANTY PROTECTION WITH A BARRIER USE.

PROTECTION DEVICE: A DEVICE (DIFFERENT FROM A SHELTER) THAT REDUCES THE RISK.

FORESEEN USE: THE USE OF THE ATTACHMENT IS BASED ON THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

WRONG USE: USE OF THE ATTACHMENT IN A DIFFERENT WAY FROM THE ONE INDICATED IN THE INSTRUCTIONS FOR THE USE BUT WHICH CAN DERIVE FROM A FORESEEN USE.

INDIVIDUAL PROTECTION DEVICE: ANY DEVICE IS WORN BY THE WORKER TO PROTECT HIM AGAINST ONE OR MORE RISKS THAT CAN AFFECT HIS SAFETY OR HEALTH DURING THE JOB. (ART. 74, PARAGRAPH 1 DEL D.LGS. 9 APRIL 2008, N.81)

INTERACTION MAN-ATTACHMENT: EVERY SITUATION WHEN THE OPERATOR INTERACTS WITH ATTACHMENT IN ANY OPERATING PROCESS.

OPERATOR QUALIFICATION: MINIMAL LEVEL OF COMPETENCIES THAT THE OPERATOR SHOULD HAVE FOR THE DESCRIBED OPERATION.

DANGEROUS SUBSTANCES: DANGEROUS SUBSTANCES EMITTED BY THE MACHINE AND/OR ATTRIBUTABLE TO ITS INTENDED USE.

FREE CRYSTALLINE SILICA: THE INHALABLE DANGEROUS SUBSTANCE CONTAINED BY THE POWDERS GENERATED DURING THE PROCESSING OF STONE HANDWORK OR NATURAL ONE OR AN ARTIFICIAL ONE, LIKE REINFORCED CONCRETE AND/OR DERIVATIVES.

NUMBER OF OPERATORS: AN ADEQUATE NUMBER OF OPERATORS TO PERFORM THE DESCRIBED OPERATION OPTIMALLY AND DERIVING FROM A CAREFUL ANALYSIS CARRIED OUT BY O.S.A. DEMOLITION EQUIPMENT S.R.L.

THE USE OF A DIFFERENT NUMBER OF PEOPLE COULD PREVENT FROM OBTAINING THE EXPECTED RESULT OR ENDANGER THE SAFETY OF THE PERSONNEL INVOLVED.

ATTACHMENT CONDITIONS: ATTACHMENT CONDITIONS INCLUDE THE WAY OF FUNCTIONING, THE SAFETY CONDITIONS OF THE ATTACHMENTS, PROTECTION INCLUDED, AND EMERGENCY STOP.

RESIDUAL RISKS: PERMANENT RISKS LASTING EVEN THOUGH PROTECTION MEASURES HAVE BEEN TAKEN WHICH ARE AN INTEGRATION OF THE ATTACHMENT PROJECT AND THE COMPLEMENTARY PROTECTION DEVICES.

SAFETY PARTS:

PARTS:

- IT HAS A SAFETY FUNCTION;
- THE BREAKDOWN JEOPARDIZES PEOPLE'S SAFETY.

PRIMARY DEMOLITION: DEMOLISHING CONCRETE STRUCTURES ON THE GROUND.

SECONDARY DEMOLITION: REDUCING IN SMALL PARTS WHAT HAS BEEN DEMOLISHED AFTER A PRIMARY DEMOLITION OF CONCRETE OR STONE STRUCTURE.

CONCRETE BUILDINGS DEMOLITION: DEMOLISHING CONCRETE OR STONE STRUCTURES ON THE GROUND INCLUDING RE-BARS.

PICTOGRAMS

Descriptions showing the symbols displayed here below imply:

- **VERY IMPORTANT INFORMATION AND PRESCRIPTIONS NAMELY REGARDING SAFETY.**

A non-compliance brings to:

- **DANGERS FOR THE OPERATORS;**
- **LOSS OF THE WARRANTY;**
- **DECLINATION OF THE RESPONSIBILITY OF O.S.A. DEMOLITION EQUIPMENT S.R.L. .**

PICTOGRAMS RELATED TO THE OPERATOR'S QUALIFICATION:

Pictograms in a square frame or a triangular one contain information.

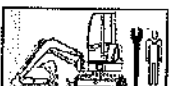
SYMBOL	DESCRIPTION OF THE OPERATOR'S SKILL
	GENERIC LABOURER: operator with no specific skills who to accomplish simple tasks based on instructions provided by qualified technicians.
	LIFTING AND HANDLING EQUIPMENT DRIVER: operator that can lift and handle equipment (following the manufacturer's instructions) in compliance with the rules in force in the country where the operator uses the machine.
	1° LEVEL EQUIPMENT DRIVER: operator with no specific skills that can accomplish simple tasks.
	2° LEVEL EQUIPMENT DRIVER: operator that can accomplish 1 level tasks. Moreover, he should be able to install the necessary hydraulic connections to set the attachment.
	MECHANICAL MAINTENANCE TECHNICIAN: a qualified technician who can drive equipment and operate them according to the foreseen use and make the necessary regulation, maintenance, and repairs. He should not intervene with high voltage electrical installation.
	EXCAVATOR HEAD OFFICE MECHANICAL MAINTENANCE TECHNICIAN OR AUTHORIZED CENTER: qualified technicians who can drive the equipment under ordinary conditions and to make it function according to the foreseen use, to make regulations maintenances and necessary repair. AUTHORIZED BY EXCAVATOR MANUFACTURER HEAD OFFICE OR BY AN AUTHORIZED CENTRE. He should not intervene with high voltage electrical installation.
	MECHANICAL OPERATOR AUTHORIZED BY THE MANUFACTURER: a qualified technician who can drive the machine under ordinary conditions, make it function according to the foreseen use, and able to make all the regulations, maintenance, and necessary repairs. He can be also a technician provided by the manufacturer. This operator can use the equipment only if provided with written authorization by O.S.A. DEMOLITION EQUIPMENT S.R.L. . He should not intervene with high voltage electrical installation.
	MANUFACTURER'S TECHNICIAN: a qualified technician who works with the manufacturer to make complex interventions in particular situations. Competencies can be of different kinds: mechanical/ electrical/electronic or software.

CHART 0-6-1

PICTOGRAMS RELATED TO THE EQUIPMENT CONDITIONS

SYMBOL	EQUIPMENT CONDITION
	DISCONNECTED EQUIPMENT: is mechanically disconnected from the excavator, with disconnected hydraulic feed with fixed and mobile protections closed (see chapter 6, paragraph 3).
	EQUIPMENT ON (STAND-BY): mechanically connected to the excavator by hydraulic feed and connected by safe stop; closed fixed and mobile protection.
	EQUIPMENT ON BLANK MOVEMENT: mechanically connected to the excavator, with hydraulic feed, and at a safe stop. Fixed and mobile protection closed.
	EQUIPMENT IN MOVEMENT AND WORKING: mechanically connected to the excavator by hydraulic feed in safe stop; fixed and mobile protections closed with full functioning.

Chart 0-6-2
PICTOGRAMS RELATED TO SAFETY

Pictograms contained in a triangle indicate **DANGER**.

Symbol	DANGER TYPE
	UPPER LIMBS CRUSHING
	ENTANGLEMENT
	DRAGGING
	GENERAL DANGER
	RISK OF TRIPPING
	HANGING LOADS
	FALLING MATERIAL
	HIGH VOLTAGE DANGER. KEEP A MINIMUM SAFETY DISTANCE OF 40M FROM LIVE CABLES.

Symbol	NAME DANGER INDICATION
	KEEP A MINIMUM SAFETY DISTANCE OF AT LEAST 40 METRES FROM THE EXCAVATOR.
	HIGH TEMPERATURE-BURNING RISK
	DANGER-HIGH PRESSURE MECHANICAL ELEMENTS

Pictograms contained in a circle impose a PROHIBITION/INDICATION

SYMBOL	NAME-PROHIBITION/OBLIGATION INDICATION
	DO NOT REMOVE SAFETY DEVICES
	PROHIBITION OF CLEANING, OILING, GREASING, OR ADJUSTING MOVING PARTS.
	CROSSING AND STANDING ARE FORBIDDEN WITHIN THE EXCAVATOR RANGE.
	HANGING POINT PROVIDED BY THE MANUFACTURER FOR ATTACHMENT MOVING.
	WEAR SAFETY GLASSES
	WEAR PROTECTION GLOVES
	WEAR SAFETY SHOES
	WEAR PROTECTION CLOTHES
	WEAR CRASH HELMET
	WEAR PROTECTIVE HEADSETS
	PROTECT YOUR FACE

Chart 0-6-3

SYMBOL	NAME-PROHIBITION/OBLIGATION INDICATION
	READ MANDATORILY INSTRUCTIONS MANUAL BEFORE OPERATING WITH THE MACHINE
	WEAR A MASK
	PROTECT THE RESPIRATORY TRACT
	MANDATORILY DUST SUPPRESSION SYSTEM INSTALLED ON THE MACHINE AND/OR ON BOARD

Chart 0-6-3

1 GENERAL INFORMATION

1-1. MANUFACTURER IDENTIFICATION

MANUFACTURER: O.S.A. DEMOLITION EQUIPMENT S.R.L.

MAIN OFFICE: Via degli Scalpellini 4 - 70056 - Molfetta (BA) - ITALY

AFTER SALES SERVICE AND SPARE PARTS: TEL. 0039-080-337 52 31

CONTACTS: www.osademolitionequipment.com

e-mail: info@osapinze.it

1-2. EC PLATE DATA

Every attachment has an EC PLATE where its reference data are written permanently.

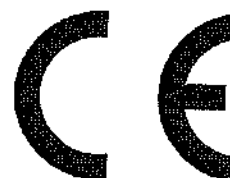
For all communication with the manufacturer or with the dealers, please always refer to these data.

O.S.A. Demolition Equipment S.r.l.

Via degli Scalpellini, 4 - 70056 MOLFETTA (BA) Italia

Tel. +39 080.3382421 Fax. +39 080.3382169

www.osademolitionequipment.com email: info@osapinze.it



MODEL _____	YEAR _____
SERIAL NR. _____	WEIGHT (Kg) _____

Tab. 1-2-1

1-3. MARK

The machine is made in compliance with the pertinent Community Directives and applicable when it is placed on the market, it is not included among those mentioned in Annex IV of Directive 2006/42 / EC



O.S.A. Demolition equipment s.r.l.
Via degli Scalpellini 4
<https://www.osademolitionequipment.com/>

Tel +39 080 3382421
info@osapinze.it
export@osapinze.it

Dichiarazione CE di conformità per macchine (EC Declaration of conformity)

Direttiva Macchine 2006/42/CE, Allegato II., parte A

(Directive Machine 2006/42/CE, All. II., part.A)

Azienda (Company):

O.S.A. Demolition Equipment S.r.l.

Nazione (Country):

ITALIA

Città (City):

MOLFETTA (BA)

Indirizzo (Address):

Via degli Scalpellini 4

CAP (Zip Code):

70056

Dichiara che la macchina è conforme alla Direttiva 2006/42/CE del Parlamento Europeo e del Consiglio del 17 maggio 2006 relativa alle macchine e che modifica la direttiva 95/16/CE. **Direttiva 2017/2398/CE valori limiti 17 gennaio 2020. OSHA DIRECTIVE 29 CFR 1926.1153.**

(Declares that the attachment is conform to Directive 2006/42/EC of the European Parliament and of the Council on machinery and amending the directive 95/16/EC. Directive 2017/2398/EC limit values 17th of January 2020. OSHA DIRECTIVE 29 CFR 1926.1153)

Norme Armonizzate (Harmonised Rules):

UNI EN ISO 13857:2008; UNI EN 349:2008 D.Lgs.81/2008 - Allegato V; ISO 14121-1:2007ISO/TR 14121-2:2007; UNI 10893:2000; EN 1032:2003+A1:2008; EN 1088:1995+A2:2008; EN 474-1:2006+A1:2009; EN 547-1:2009; EN 547-2:2009; EN 547-3:2009; EN 614-1:2006+A1:2009; EN 614-2:2000+A1:2008; EN 626-1:1994+A1:2008; EN 626-2:1996+A1:2008;EN 1037:1995+A1:2008; EN ISO 11688-1:2009; EN ISO 13857:2008; EN ISO 13855:2010; EN ISO 12100:2010; EN ISO 11203:2009; EN ISO 11200:2009; EN ISO 11161:2007/A1:2010; EN ISO 4871:2009; EN ISO 4413:2010; EN ISO 3457:2008; EN 981:1996+A1:2008; EN 953:1997+A1:2009; EN 842:1996+A1:2008

Macchina (Attachment):

Modello (Type):

Matricola (Serial Number):

Anno (Year):

Uso (Use):

Persona autorizzata a costituire il fascicolo tecnico (Person authorized to compile the technical file):

Nome (Name):

ROBERTO SALLUSTIO

Incarico (Position Company):

**RAPPRESENTANTE LEGALE (LEGAL
RAPPRESENTATIVE)**

Nazione (Country):

ITALIA

Città (City):

MOLFETTA (BA)

Indirizzo

Via Corrado De Iudicibus

(Address):

11

CAP (Zip Code):

70056

OSA Demolition Equipment S.r.l.

Via degli scalpellini 4

70056 - Molfetta (BA)

Molfetta Il, 31.08.2022

1-4. SAFETY RULES

The equipment has been manufactured in conformity to the **HARMONISED TECHNICAL TERMS OF CONDITIONS**.

1-5. TECHNICAL ASSISTANCE INFORMATION

WARRANTY

Equipment is covered by warranty as laid down in the general conditions of sale. If during the period of its validity, there will be proven device flaws or machine parts failures as indicated in the warranty text, **O.S.A. DEMOLITION EQUIPMENT S.R.L.** will repair and/or replace the defective parts after checking the equipment.

WE UNDERLINE THAT ALL THE MODIFICATIONS MADE ON THE ATTACHMENT BY THE USER, WITHOUT WRITTEN AUTHORIZATION BY O.S.A. DEMOLITION EQUIPMENT S.R.L. BY REGISTERED LETTER, EXEMPT THE MANUFACTURER FROM ALL RESPONSIBILITY AND INVALIDATE THE WARRANTY FOR DAMAGES CAUSED BY A DEFECTIVE PRODUCT.

This is valid not only, but also when these modifications are made on parts and safety devices causing problems to their efficiency and their ordinary working condition.

These considerations are also valid when non-genuine or inadequate spare parts, different from those explicitly indicated by the manufacturer in the spare parts list attached to this manual, are used. For all these reasons we advise our customers to keep in touch with our technical assistance.

The manufacturer guarantees the attachment for 12 months, as established by eu directive.

When the customer gets the equipment, he should fill out the **test and acceptance sheet completely**, It is in the instruction manual in the chapter:

- **ATTACHMENT Mod. 9.3**

Immediately after filling the test report along with the acceptance form, these should be sent by registered letter to **O.S.A. DEMOLITION EQUIPMENT S.R.L.** If **O.S.A. DEMOLITION EQUIPMENT S.R.L.** does not receive this document in 8 days, the aforementioned warranty will automatically expire.

An essential condition to start the warranty program is not the delivery of the machine but the receipt by **O.S.A. DEMOLITION EQUIPMENT S.R.L.** of the acceptance form filled by the customer.

BY THE TERM WARRANTY, IT IS INTENDED TO REPAIR OR REPLACE MACHINE COMPONENTS THAT WOULD NOT ENSURE THE PROPER FUNCTIONING OF THE MACHINE EXCLUDING ITS WHOLE REPLACEMENT, THE SALES AGREEMENT CANCELLATION, COST OR DAMAGES COMPENSATION.

All the disputes and/or observations should be proposed in writing.

The procedure of **WARRANTY REESTABLISHMENT** could be accepted and activated only after communication in writing of the first buyer, indicating functioning anomalies. Excluded from the warranty reestablishment program are renters, subcontracted users, and in any case, all subject and/or third parties unrelated to the signing of the sales contract.

If there are some functioning anomalies of every origin and kind, stop the equipment (procedure foreseen in this use and maintenance manual) and proceed to contact the manufacturer soon by 8 days.

In the case of anomaly, defectiveness, or unexpected breaks, the customer engages from this moment to give **O.S.A. DEMOLITION EQUIPMENT S.R.L.** the possibility to make any intervention on the equipment which is stopped and out of service.

In the event of an anomaly, flaw, or sudden failure, the customer allows **O.S.A. DEMOLITION EQUIPMENT S.R.L.** to intervene on the machine out of service as follows:

- Used Oil Analysis;
- Visual examinations and any further type of needed expertise by **O.S.A. DEMOLITION EQUIPMENT S.R.L.** technicians who can identify the causes that generated the anomaly.

O.S.A. DEMOLITION EQUIPMENT S.R.L. will start the procedure after verifying that the attachment is under warranty by checking the delivery date as also if the test report has been sent by registered letter within the above limit and completed in all its parts.

The repair and/or spare parts replacement should be done by **O.S.A. DEMOLITION EQUIPMENT S.R.L.**

The under warranty replaced component will be the property of the manufacturer.

The examination of defects in material, manufacturing, functioning, and probable connected causes to the component under guarantee, will always be carried out at the headquarters of **O.S.A. DEMOLITION EQUIPMENT S.R.L.** by authorized technicians.

Replacing a part does not imply a warranty renewal for the whole attachment.

Warranty does not include parts subjected to normal wear:

- Weldings;
- Seal kits;
- Blades;
- Teeth, Blades, and every wearing part in contact with demolition materials;
- Parts damaged by weathering;

Furthermore, damaged parts are not covered by the warranty due to:

- Improper use of the machine and/or equipment supplied;
- Improper installation or repair by unauthorized personnel;
- Execution of operations not compliant with the use and maintenance instructions.

WARRANTY IS ALSO EXCLUDED IN CASE OF DAMAGE, ALSO ACCIDENTAL, TO THE ATTACHMENT OR ITS PARTS WHILE TRANSPORTING IT. ALTERNATIVELY, THE CUSTOMER SHOULD ORGANIZE A TRANSPORT COVERED BY AN INSURANCE.

O.S.A. DEMOLITION EQUIPMENT S.R.L. does not recognize any type of repair carried out by operators and technicians who have not been previously authorized in writing by registered mail.

In this case, the Customer will lose the warranty on the product and the right to be refunded for the repair costs incurred as well as any further economic recognition.

IF O.S.A. DEMOLITION EQUIPMENT S.R.L. CANNOT INTERVENE PROMPTLY ON THE ATTACHMENT, IN THE CASE OF A REPAIR UNDER WARRANTY, IT SHOULD NOT BE CONSIDERED RESPONSIBLE FOR THE ECONOMIC DAMAGES OF THE CUSTOMER FOR THE ATTACHMENT STOPS. THE COMPLETE ATTACHMENT REPLACEMENT IS ALSO EXCLUDED BY THE MEANS OF ANOTHER ONE HAVING THE SAME TECHNICAL CHARACTERISTICS.

In no case, WARRANTY will be suspended or extended for equipment stop, even if it is due to a repair under warranty.

They are at the buyer/customer bear the following expenditure:

- EXPENSES RELATED TO THE MACHINE'S TRAVEL HOURS;
- ADDITIONAL TRANSPORT COSTS;
- TRANSFER OF TECHNICIANS;
- WORKFORCE;
- ANY COSTS RELATED TO REPAIRS OR REPLACEMENTS.

The manufacturer is always excluded from the obligation to reimburse damages that derive from a technical stop or other damages of the product's defective function, even if they are consequent to the repair under warranty.

The manufacturer is always exempt from any engagement that the buyer has with a third party and O.S.A. DEMOLITION EQUIPMENT S.R.L. is not involved.

While transporting the equipment from the manufacturer's company to the customer's, the responsibility related to the transport or for any damages caused by the equipment or to the equipment is of the customer; O.S.A. DEMOLITION EQUIPMENT S.R.L. is exempt from any reimbursement.

WARRANTY will not be valid if:

- THE CUSTOMER DOES NOT RESPECT THE PAYMENT TERMS;
- CUSTOMER IN 8 DAYS FROM THE EQUIPMENT RECEPTION, DOES NOT SEND TEST SHEET BY REGISTERED LETTER;
- THE CUSTOMER DOES NOT ACTIVATE THE PROCEDURE OF WARRANTY RESTORATION, IN 8 DAYS FROM THE DISCOVERY OF VICE OF SUITABILITY OR FUNCTIONING IN WARRANTY TERMS;
- THE BAD FUNCTIONING IS DUE TO IMPROPER EQUIPMENT OR SUPPLIED EQUIPMENT USE, TO AN INSTALLATION OR REPARATION MADE IMPROPERLY FROM A NOT AUTHORIZED STAFF, OR, ANYTIME OPERATION WHICH DOES NOT CONFORM TO THE USE AND MAINTENANCE INSTRUCTIONS WHICH ACCOMPANY THE EQUIPMENT;
- IN CASE OF SUBSTITUTION OF SPARE PARTS WHICH ARE NOT IDENTICAL TO THE ONES SUPPLIED OF ANOTHER KIND OR ANOTHER BRAND WITHOUT THE MANUFACTURER'S APPROVAL IN WRITING;

PLACE OF JURISDICTION

For any dispute related to the interpretation, application, and execution of the sale agreement and these warranty conditions, the COURT of TRANI is the exclusive competent.

1-6. CUSTOMERS' RESPONSIBILITIES

Without prejudice to eventual different agreements, the Customer should pay for:

- HYDRAULIC FEEDING CONNECTING SYSTEMS;
- HITCH/MOUNTING BRACKET FOR THE EXCAVATOR;
- ALL THAT IS NECESSARY FOR A GOOD CONNECTION AND FUNCTIONING OF THE MACHINE INSTALLED ON THE EXCAVATOR.

2 SAFETY

2-1. GENERAL WARNINGS



BEFORE MAKING THE EQUIPMENT OPERATIVE, READ CAREFULLY THE INSTRUCTION OF THIS MANUAL AND RESPECT ALL THE INFORMATION.

The manufacturer has been very precise and attentive in manufacturing this equipment to make it INHERENTLY SAFE.

Furthermore, he has provided it with all the safety devices which are considered necessary. He has also provided it with all the necessary information to allow safe and correct usage.

For this purpose, in every chapter when necessary, for every interaction man-equipment, all the following information is indicated:

- **MINIMAL QUALIFICATION OF THE OPERATOR IS REQUIRED;**
- **OPERATORS AMOUNT NEEDED;**
- **EQUIPMENT CONDITION;**
- **RESIDUAL RISKS;**
- **PERSONAL PROTECTION DEVICES TO BE USED;**
- **HUMAN MISTAKES PREVENTION;**
- **PROHIBITION OR OBLIGATION RELATED TO INCORRECT BEHAVIORS WHICH ARE REASONABLY PREDICTABLE.**



THIS INFORMATION MUST BE SCRUPULOUSLY RESPECTED.

The user can integrate all the information given by the manufacturer with supplementary working instructions, which should be not in contrast with the ones indicated in this manual, to contribute to a the safe use of the equipment.

For example, you should pay close attention to the clothing that everyone who intervenes on the equipment is wearing:

- **AVOID THE USE OF CLOTHES THAT CAN GET ENTANGLED;**
- **DO NOT USE NECKTIES OR OTHER SWIRLING CLOTHES;**
- **DO NOT WEAR CUMBERSOME JEWELS WHICH CAN GET ENTANGLED WITH THE EQUIPMENT.**

If it is necessary, in the instruction manual other recommendations will be given on :

- **THE PREVENTION MEASURES;**
- **THE PERSONAL PROTECTION DEVICES;**
- **THE INFORMATION NECESSARY TO PREVENT HUMAN MISTAKES;**
- **THE PROHIBITION RELATED TO NOT PERMITTED BEHAVIORS.**

It is necessary to follow these instructions diligently:



IT IS ABSOLUTELY PROHIBITED TO INHIBIT THE SAFETY DEVICES INSTALLED ON THE EQUIPMENT.

DO NOT MODIFY FOR ANY REASON THE EQUIPMENT PARTS; IN CASE OF MALFUNCTION, DUE TO A LACK OF RESPECT FOR THE ABOVE-MENTIONED INSTRUCTION, THE MANUFACTURER IS NOT RESPONSIBLE FOR THE CONSEQUENCES. WE ADVISE YOU TO ASK FOR POSSIBLE MODIFICATIONS FROM THE MANUFACTURER DIRECTLY.

PUT THE EQUIPMENT AS ESTABLISHED IN THE ORDER, ACCORDING TO THE SCHEMES SUPPLIED BY THE MANUFACTURER. ON THE CONTRARY, WE ARE NOT RESPONSIBLE FOR POSSIBLE INCONVENIENCE.



IMPORTANT

The manufacturer is not responsible for damages caused by the equipment to people, animals, or things in case of:

- **USE OF THE EQUIPMENT BY NOT INSTRUCTED PEOPLE;**
- **USE OF THE EQUIPMENT BY A MINOR;**
- **AN IMPROPER USE OF THE EQUIPMENT;**
- **HYDRAULIC FEEDING DEFECTS, DUE TO A MALFUNCTION OR POOR MAINTENANCE OF THE EXCAVATOR HYDRAULIC INSTALLATION;**
- **NOT CORRECT INSTALLATION;**
- **LACKS IN MAINTENANCE;**
- **NOT AUTHORIZED MODIFICATION OR INTERVENTION;**
- **NOT ORIGINAL AND NOT SPECIFIC SPARE PARTS USE;**
- **TOTAL OR PARTIAL NON-OBSERVANCE OF THE RULES;**
- **CONTRARY USE TO NATIONAL AND SPECIFIC LAW ON THE JOB PLACE;**
- **NATURAL DISASTERS.**

GENERAL PRESCRIPTION

Mobile elements should be always used according to the manufacturer's prescription, as indicated in this Manual, which should be always at disposal at the job place.

All the safety and signal devices put on the mobile elements to avoid accidents and guarantee safety cannot be modified or removed, but they should be protected.

The user should inform the employer or superior about possible defects or anomalies presented by the mobile elements.

CONTROLS AND CHECKS

The checks on the machines and parts of them must always be carried out as indicated in chapter 2 of this Instruction Manual.

If the worn or defective parts are not promptly replaced, the manufacturer is not responsible for damages caused by accidents that can derive from them.

PRELIMINARY CHECKING BEFORE WORKING

Preliminary checking should be made by specialized people as indicated in the following chart; they should be of a visual and functional kind to guarantee the equipment's safety. This kind of check should be made before starting the equipment and before connecting it mechanically and hydraulically to the excavator.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	2 (TWO)			
		1(ONE)				
						
						
						

Chart 2-1-1

N.B. THE PRESENCE OF THE KIND OF PEOPLE INDICATED IN THE CHART SHOULD BE CONTEMPORARY. THE MANUFACTURER HAS NO RESPONSIBILITY FOR DAMAGES CAUSED BY NOT RESPECTING THE ABOVE MENTIONED PRESCRIPTION.

Preliminary checks include:

- **CHECK ALL THE MAIN STRUCTURES. THEY SHOULD NOT HAVE ANY BREAK, WEAR, TEAR OR TRACE OF DAMAGE;**
- **CHECK IF THERE ARE DEFORMATIONS, CORROSION, WEAR, OR ALTERATION IN COMPARISON TO THE ORIGINAL CHARACTERISTICS;**
- **CHECK ALL THE MECHANICAL PARTS;**
- **CHECK ALL SAFETY FEATURES INSTALLED ON THE EQUIPMENT (FIXED AND MOBILE SHELTERS);**
- **CHECK THE BOLTS ARE PROPERLY TIGHTENED;**
- **CHECK THE CORRECT TIGHTENING OF ALL THE HYDRAULIC CONNECTIONS;**
- **CHECK IF THE ATTACHMENT WORKS THROUGH A FUNCTIONAL TEST;**
- **CHECK THE EQUIPMENT CONDITION;**
- **CHECK THE EFFICIENCY AND THE LEAK PROOF OF THE HYDRAULIC SYSTEM INSTALLATION (CHECK THE CONTAMINATION LEVEL OF THE OIL IN COMPLIANCE WITH ISO 4406 AS 15-12-10);**
- **CHECK THAT THE RELIEF VALVE OF THE EXCAVATOR'S HYDRAULIC SYSTEM IS ADJUSTED ACCORDING TO ITS SPECIFICATIONS;**
- **CHECK THE CORRECT PULVERIZER/EXCAVATOR COMPATIBILITY;**
- **CHECK THE WEAR STATUS OF BLADES;**
- **CHECK THE WEAR STATUS OF TEETH.**

Before starting to work, the results of this check SHOULD BE REPORTED AND SIGNED ON A WRITTEN TEST SHEET (ENCLOSED TO THIS MANUAL IN THE ATTACHMENTS CHAPTER, Annex Model 9.4.) by THE PERSON RESPONSIBLE FOR THE PRELIMINARY CHECK.



WARNING!

If anomalies are detected, they should be solved before using the equipment. The trained person in charge who makes the check should write the reparation on the sheet, demonstrating in this way that the equipment can be used again.

The operator who makes the check, if he finds some breaks or dangerous anomalies SHOULD IMMEDIATELY ALERT THE EQUIPMENT MANUFACTURER.

Put the equipment out of service. If there are some functioning anomalies make the right checking or reparations.

Make sure that among the equipment parts there are no objects that could prevent the regular functioning of the equipment.

Check that after any maintenance intervention no object is left among the moving parts (tools, wrenches, screwdriver...).



To guarantee the maximum safety in moving the machine, it **IS FORBIDDEN** to:

- Tamper any part of the equipment;
- Leave the equipment unattended;
- Use the equipment when it is not completely efficient;
- Modify the equipment to change its original use, without any explicit authorization by O.S.A. DEMOLITION EQUIPMENT S.R.L. or without any complete responsibility assumption (imposed by the Equipment Directive 2006/42/CE) by the trained person in charge who made the modifications.

2-2. FORESEEN USE

DEMOLITION OF REINFORCED CONCRETE, STONES, AND ROCKS

CAREFULLY CONSIDER THE ORIGIN OF THE MATERIAL THAT YOU SHOULD BREAK BEFORE STARTING WITH DEMOLITION.

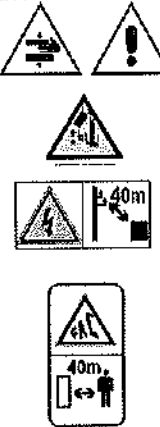
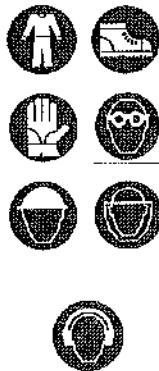
Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	1(ONE)			

Chart 2-2-1

NOTE: THE PRESENCE OF MEN'S QUALIFICATIONS IN THE CHART IS CONTEMPORARY, I.E. ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER HAS NO RESPONSIBILITY FOR DAMAGES CAUSED TO PEOPLE, THINGS, OR ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.



THE USE OF PRODUCTS OR MATERIALS OTHER THAN THOSE SPECIFIED BY THE MANUFACTURER, WHICH CAN CAUSE DAMAGES TO THE EQUIPMENT AND CAN LEAD TO DANGEROUS SITUATIONS FOR THE OPERATOR AND/OR PEOPLE CLOSE TO THE EQUIPMENT, IS CONSIDERED INCORRECT AND IMPROPER.

2-3. USAGE RESTRICTION

The equipment **SHOULD NOT** be used as follows:

- FOR USAGES OTHER THAN THOSE SHOWN IN CHAPTER 2 PARAGRAPH 2 AND FOR DIFFERENT USES OR NOT MENTIONED IN THIS MANUAL
- IN AN EXPLOSIVE OR CORROSIVE ATMOSPHERE, WITH DUST OR OILY SUBSTANCES HIGH CONCENTRATION ATMOSPHERE;
- IN A DANGER OF EXPLOSION OR RISK OF FIRE ATMOSPHERE ;
- EXPOSED TO BAD WEATHER (I.E. ELEMENTS);
- WITH SAFETY DEVICES AND/OR FIXED OR MOBILE SHELTERS WHICH ARE NOT PRESENT;
- WITH SAFETY DEVICES EXCLUDED OR NOT FUNCTIONING;
- WITH HYDRAULIC BRIDGES OR MECHANICAL MEANS WHICH EXCLUDE PARTS OF THE EXCAVATORS;
- WHEN IN THE RANGE OF ACTION OF THE ATTACHMENT, THERE ARE PEOPLE AT A DISTANCE WHICH IS INFERIOR TO 40 METRES. (SEE PIC. 2-4-1);
- WHEN THE TEMPERATURE IS SUPERIOR TO 60° C OR INFERIOR TO 10°C;
- TO MAKE THE MACHINE SWING DURING THE GRANULATION;
- WHEN THE OIL CONTAMINATION LEVEL IS OUT OF THE INTERVAL ISO 15-12-10 ((ISO4406);
- WHEN THE OIL TEMPERATURE IS NOT INCLUDED IN THE FOLLOWING INTERVAL: 10°C AND 70°C;
- TO LEVERAGE AND FACILITATE THE EXCAVATOR MOVEMENTS;
- WITH AN EXCAVATOR WITHOUT A CABIN OR SAFETY GRID AND/OR PROTECTION SYSTEM OF THE DRIVER.

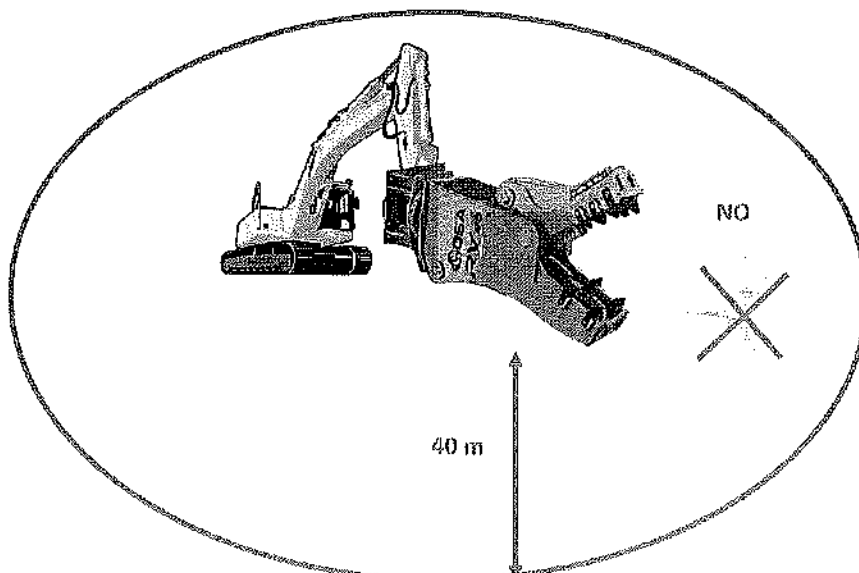
The equipment **SHOULD NOT** make the following operations:

- PUSH OR PULL OR LIFT LOADS;
- IMPACT THE EQUIPMENT WITH VIOLENCE;
- ROTATE LOAD

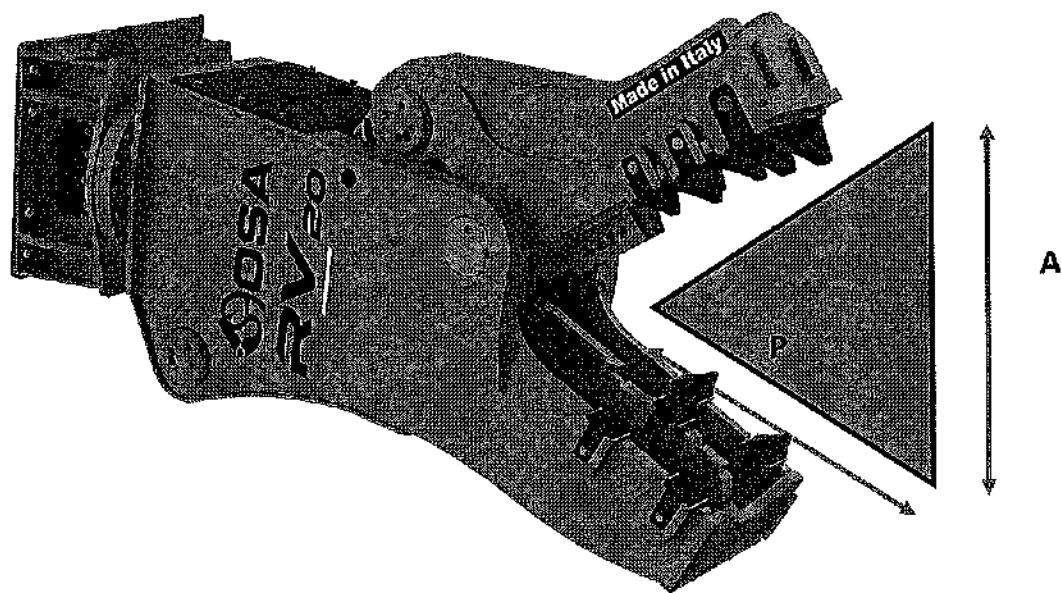
2-4. DANGEROUS AREAS

While using the equipment, the following should be in the working area:

- n° 1 (ONE) A 2° LEVEL DRIVER;
- n° 1 (ONE) EXCAVATOR.



Pic. 2-4-1



Pic. 2-4-1



WHILE USING THE EQUIPMENT IT IS FORBIDDEN TO OPERATE IN THE AREA MARKED IN RED.

FOR ANY KIND OF INTERVENTION BOTH FOR MAINTENANCE AND REPAIR AND/OR SUBSTITUTION OF SPARE PARTS, BEFORE WORKING IT IS NECESSARY:

- **DISCONNECT BOTH MECHANICALLY AND HYDRAULICALLY THE ATTACHMENT FROM THE EXCAVATOR;**
- **PUT THE ATTACHMENT ON THE GROUND WHILE NEVER EXCEEDING 5° OF INCLINATION ;**
- **FOLLOWING THE ADVICE OF THE MANUFACTURER FOR THE NECESSARY OPERATIONS.**

WE UNDERLINE THAT THE BLADES' SUBSTITUTION SHOULD ALWAYS BE DONE IN CONFORMITY TO WHAT WAS ADVISED BY THE MANUFACTURER, KEEPING IN MIND THAT VIOLATING THEM WILL MEAN BEING IN DANGER. IN THIS CASE, THE MANUFACTURER DISCLAIMS ANY RESPONSIBILITY FOR DAMAGES CAUSED TO PEOPLE, THINGS, AND ANIMALS.



IT IS FORBIDDEN WHILE USING THE CRUSHER ON THE JOB-SITE TO WALK IN THE EXCAVATOR WORKING AREA, RESPECT THE SAFETY DISTANCE OF 40 METERS.

DURING THE USE OF THE MACHINE ON-SITE, IT IS FORBIDDEN TO OPERATE AT A SAFETY DISTANCE LESSER THAN FORTY (40 M) METERS IN THE PRESENCE OF HIGH VOLTAGE AERIAL CABLES.

IT IS FORBIDDEN TO OPERATE WITH THE MACHINE IN THE PRESENCE OF UNDERGROUND ELECTRICAL CABLES AND/OR PRESSURIZED SYSTEMS.

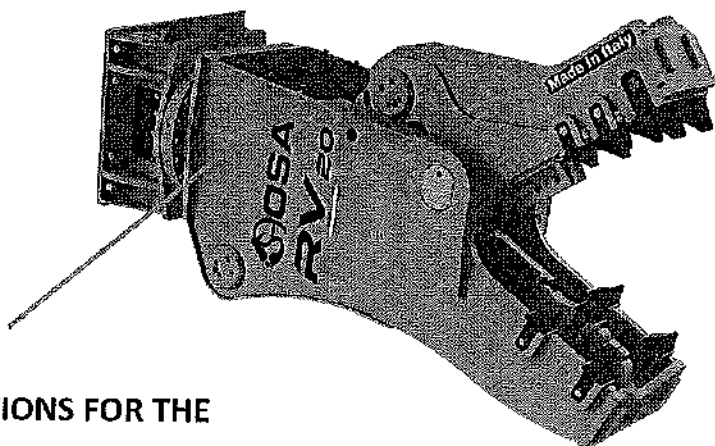
IT IS FORBIDDEN TO MAKE ANY KIND OF MAINTENANCE JOB AND/OR ASSEMBLY OR DISASSEMBLY IN THE RED MARKED AREA REPORTING DANGER SIGNALS OF HIGH PRESSURE. IF THIS PRESCRIPTION IS NOT RESPECTED, THE MANUFACTURER WILL NOT BE HELD RESPONSIBLE FOR DAMAGE CAUSED TO PEOPLE, THINGS, OR ANIMALS.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	1(ONE)	 		
				 		
				 		
				 		
					 	

Chart. 2-4-1



IT'S FORBIDDEN TO REMOVE THE FIXED REPAIRS INDICATED IN THE FOLLOWING PICTURE WHEN THE ATTACHMENT IS CONNECTED BOTH MECHANICALLY AND HYDRAULICALLY TO THE EXCAVATOR.



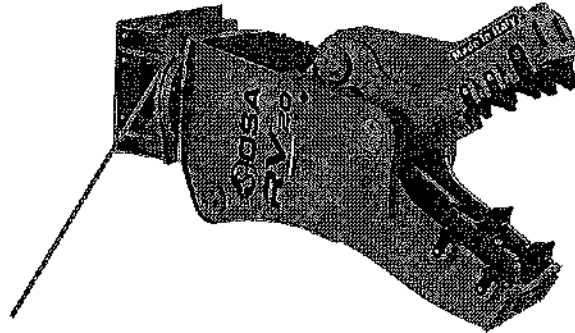
Pic. 2-4-3

**FIXED PROTECTIONS FOR THE
HOSES UNDER PRESSURE**

2-5. SAFETY DEVICES

The following safety devices are installed on the machine:

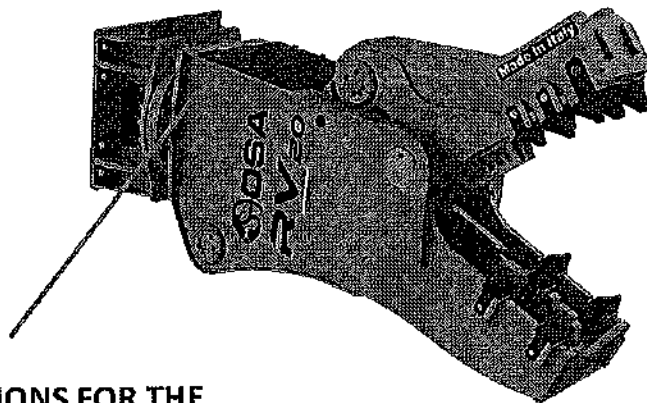
1. HIGH PRESSURE VALVE:



Pic. 2-5-1

RELIEF VALVE

2. CARTER FOR HIGH PRESSURE HOSES:

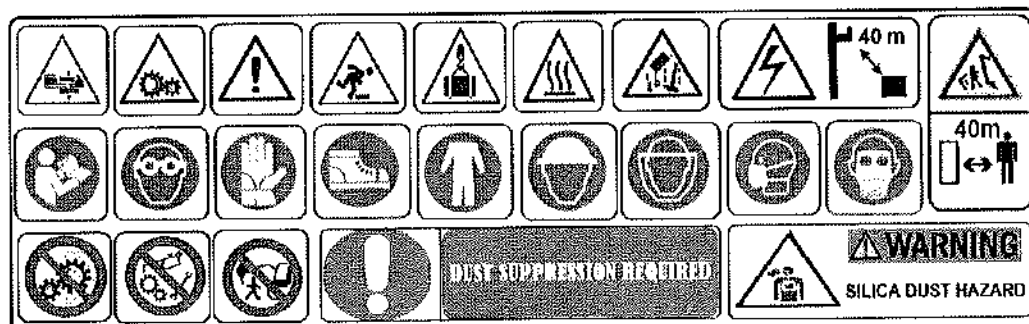


Pic. 2-5-2

**FIXED PROTECTIONS FOR THE
HOSES UNDER PRESSURE**

2-6. SIGNALS

The signs plate is installed on every equipment manufactured by O.S.A. DEMOLITION EQUIPMENT S.R.L. and positioned on it as in the following image:



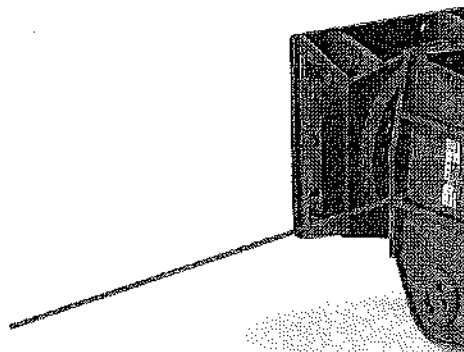
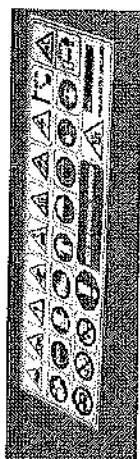
Pic. 2-6-1



It's prohibited to use the equipment without a safety signs plate, the signs plate can be required directly to the manufacturer who will give it to the customer.

It's prohibited to use the equipment on a job site that does not expose the right safety signs, foreseen by the law in force in the field of safety, on the basis of the country where it is used.

The signs plate is installed on every piece of equipment manufactured by O.S.A. DEMOLITION EQUIPMENT S.R.L. put on it as in the following image:



SAFETY SIGNS

Pic. 2-6-2

2-7. RESIDUAL RISKS

Risks evaluation has been done in compliance with the hybrid method according to ISO/TR14121-2 A.7., It is necessary to pay attention to the attached charts which indicate all the operations that should be done during the equipment life.

These charts indicate all the operations that should be done by the operator, who is obliged to follow them. When this doesn't happen, the user is exposed to dangers that can bring to the death of some people in some situations or to permanent and bad damage.

The equipment design has been done, according to its foreseen use, to decrease as much as possible the dangerous situations.

When the dangerous situation subsists, the manufacturer indicates in the prescription charts, enclosed to every operation, the obligations to follow with extreme precision.

The hybrid method used for the assessment of risks and residuals is shown below:

Stima del rischio iniziale

(Singolo individuo)

$Se(4) \mid Fr(5) + Pr(3) + Av(1) = CI(9)$: Safety measures required

Consequences / Severity (Se)	Class CI (Fr+Pr+Av)					Frequency (Fr)	Probability (Pr)	Avoidance (Av)
	3-4	5-7	8-10	11-13	14-15			
Death, loss of eye or arm						< 1h	Very high	
Permanent injury, loss of finger						> 1h to < 24h	Likely	
Reversible injury, medical att.						> 24h to < 2w	Possible	Impossible
Reversible injury, first aid						> 2w to < 1y	Rarely	Possible
						> 1y	Negligible	Likely

Provvedimenti

La Macchina è stata progettata e realizzata in modo da eliminare i rischi ragionevolmente prevedibili durante il suo

Stima del rischio finale/residuo

(Singolo individuo)

$Se(2) \mid Fr(3) + Pr(1) + Av(1) = CI(5)$: OK

Consequences / Severity (Se)	Class CI (Fr+Pr+Av)					Frequency (Fr)	Probability (Pr)	Avoidance (Av)
	3-4	5-7	8-10	11-13	14-15			
Death, loss of eye or arm						< 1h	Very high	
Permanent injury, loss of finger						> 1h to < 24h	Likely	
Reversible injury, medical att.						> 24h to < 2w	Possible	Impossible
Reversible injury, first aid						> 2w to < 1y	Rarely	Possible
						> 1y	Negligible	Likely

3 INSTALLATION

3-1. TRANSPORT AND HANDLING

The attachment can be carried by normal means of transport which can carry its weight and dimensions: since it is supplied fully assembled, it should be simply positioned in the place of use and connected to the excavator both mechanically and hydraulically.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	2(TWO)			 
		1(ONE)				
						
						
						
						

Chart. 3-1-1

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.



IT IS MANDATORY TO LIFT THE EQUIPMENT USING THE SLINGING POINTS MARKED BY THE SIGNALS BELOW MENTIONED:

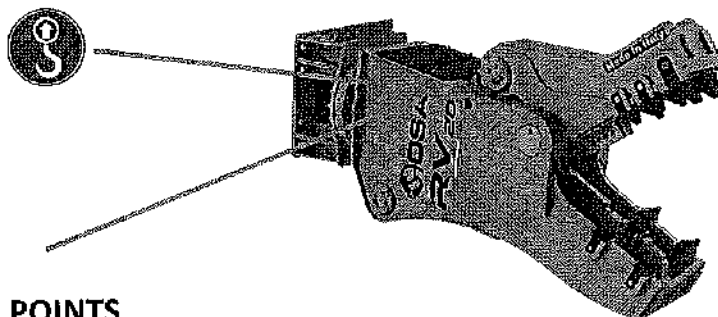


Pic. 3-1-1

We indicate in the following picture the slinging points where the signals are indicated for lifting the equipment.

IT'S MANDATORY TO SECURE THE EQUIPMENT ONLY AT THE INDICATED POINTS.

The Failure to comply with the prescribed instructions or a different slinging of the machine exempts the manufacturer of any responsibility for damage caused to people, things, or animals.



SLINGING POINTS

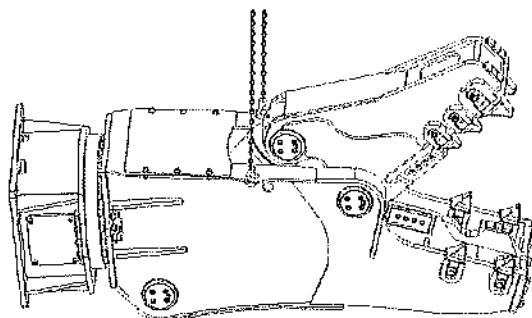
Fig. 3-1-2

Always check the good balancing of the equipment weight when it is transported to prevent its unexpected fall.

We always recommend using means which can bear the weight (SEE THE CE MARK ON THE EQUIPMENT) and the equipment dimensions to avoid damage to people, things and animals nearby.

The Equipment can be moved, to the job site, only if it is bent in the parts as indicated in the following picture by the manufacturer, using chains with adequate characteristics of resistance (according to the law in force in the country where the equipment is used).

For movements within the construction site the machine must be harnessed only and exclusively at the points indicated (Pic. 3-1-3).



Pic. 3-1-3

Use chains or slings (**not supplied**) with suitable characteristics of resistance (**following the regulations in force in the country where the machine is used**) according to the weight of the machine.

N.B.: THE MANUFACTURER IS NOT LIABLE FOR DAMAGE CAUSED TO PERSONS, THINGS, OR ANIMALS DUE TO THE LIFTING AND HANDLING OF THE MACHINE IN A MANNER DIFFERENT FROM THAT DESCRIBED ABOVE.

3-2. STORAGE

In the event of inactivity, the machine must be stored by taking the following precautions:

- STORE THE MACHINE IN A CLOSED PLACE THAT IS NOT ACCESSIBLE TO UNAUTHORIZED PERSONNEL, PROPERLY FENCED;
- GREASE THE UNPAINTED PARTS;
- PROTECT THE EQUIPMENT FROM CRASHES, SHOCKS, AND STRESSES;
- PROTECT THE EQUIPMENT FROM HUMIDITY AND HIGH TEMPERATURE RANGE;
- PREVENT THE MACHINE FROM COMING INTO CONTACT WITH CORROSIVE SUBSTANCES

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	2(TWO)			
		1(ONE)				
						

Chart. 3-2-1

Put the equipment in the same way as indicated in chapters 2-4, assure jaws mechanically and avoid an accidental jaws closing. Equipment should not be used by not authorized people.

3-3. PRESETS

For the installation, it is necessary to arrange a good manoeuvring area suitable both to the equipment dimensions and to the selected lifting means.

Equipment arrangement should be carried out in such a way as to optimize the ergonomics and safety in the workplace: Keep enough space around the equipment to permit easy use operations, movements, and regulation operations.

Each assembly operation is described minutely in the following pages, starting from the placement until correct installation and commissioning.

NOTE: THE COMPANY IS NOT RESPONSIBLE FOR DAMAGE TO THINGS, PEOPLE, AND/OR ANIMALS CAUSED BY NON-COMPLIANCE WITH THIS PROVISION.

3-4. INSTALLATION AND MATCHING

Before proceeding with the installation, check the compatibility of the excavator model with the corresponding crusher.

CRUSHERS can be installed on the excavator in the following position:

BUCKET PLACE (in the final part of the boom where the bucket is commonly mounted);

THE CUSTOMER IS OBLIGED TO SUBMIT THE COMPATIBILITY CHECK OF THE EQUIPMENT TO THE EXCAVATOR TO THE MANUFACTURER OF THE EXCAVATOR OR ITS AUTHORIZED TECHNICAL CENTER AND TO REQUEST AN AUTHORIZATION IN WRITING WHICH IS SUPPLIED HERE AS INDICATED IN THE FOLLOWING CHART (ADVISED VALUES) WHOSE VALUES ARE MERELY INDICATIVE AND DO NOT SUBSTITUTE THE TRUE VALUES PROVIDED BY THE EXCAVATOR MANUFACTURER.

NOTE: THE MACHINE MUST BE CONNECTED MECHANICALLY AND HYDRAULICALLY. THE MACHINE HAS TO BE PLACED IN THE BEST WAYS TO FACILITATE THESE OPERATIONS BY FINDING A WELL-LEVELED AND SAFE PLACE IN THE WORKING SITE ;

Operator qualification	Equipment condition	Number of operators	Total number of operators	Dangers	P.P.E	Obligations
		1(ONE)	3(THREE)	 	 	
		1(ONE)		 	 	
		1(ONE)		 	 	

Chart 3-4-2

NOTE: THE PRESENCE OF MEN'S QUALIFICATIONS IN THE CHART IS CONTEMPORARY, I.E. ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER HAS NO RESPONSIBILITY FOR DAMAGES CAUSED TO PEOPLE, THINGS, OR ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

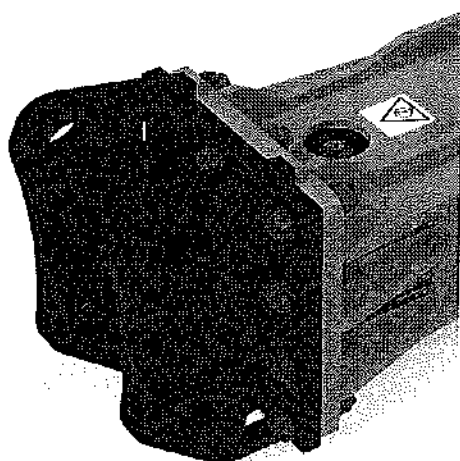
INSTALLING THE CRUSHER AT THE BUCKET PLACE

The equipment should be installed as a common bucket. If there is a quick coupler, you should read its installation manual.

If you have a normal hitch, you should follow the following indications:

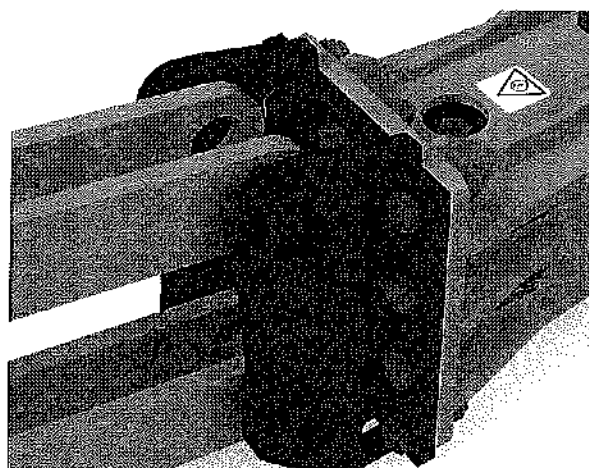
PHASE 1

PUT THE EXCAVATOR ARM BETWEEN THE TWO BRACKETS OF THE HITCH WHICH ARE PROVIDED FOR THE CONNECTION.



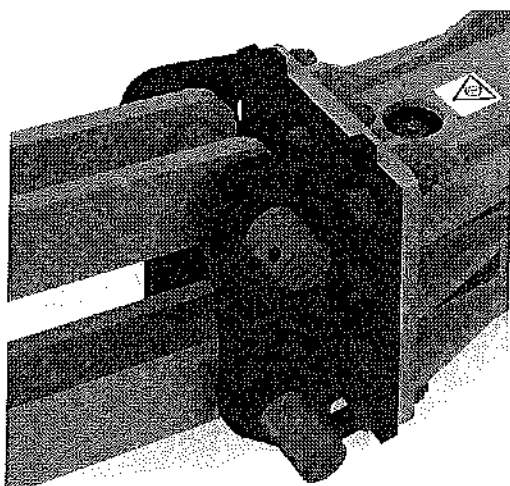
PHASE 2

ALIGN THE HOSES OF THE EXCAVATOR ARM END WITH THE CONNECTION BRACKETS' HOLES.



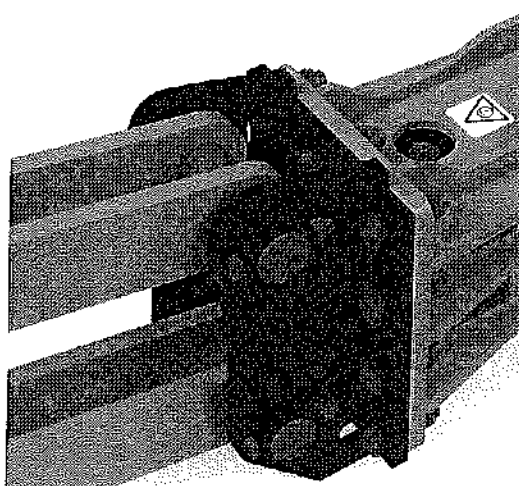
PHASE 3

INSERT IN THE ALIGNED HOLES THE METALLIC PIN USUALLY SUPPLIED WITH THE EXCAVATOR.



PHASE 4

BLOCK PINS WITH THE SAFETY PINS TO AVOID THE ACCIDENTAL EXTRACTION.



Operator qualification	Equipment condition	Number of operators	Total number of operators	Dangers	P.P.E.	Obligations
		1(ONE)	2(TWO)	 	 	
		1(ONE)		 	 	
				 	 	

Chart 3-4-4

NOTE: THE PRESENCE OF MEN'S QUALIFICATIONS IN THE CHART IS CONTEMPORARY, I.E. ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER HAS NO RESPONSIBILITY FOR DAMAGES CAUSED TO PEOPLE, THINGS, OR ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

3-5. HYDRAULIC AND MECHANICAL CONNECTIONS

EXCAVATOR CHARACTERISTICS:

The excavator must be equipped with the following systems (separated from each other):

- Low pressure system, which will supply oil to the crusher's rotation system;
- High pressure system, which will supply oil to the hydraulic cylinder to open and close the jaw;

THESE SYSTEMS MUST COMPLY WITH THE DOUBLE EFFECT PRINCIPLE, THEREFORE THEY MUST ALLOW BOTH THE DELIVERY AND THE RETURN OF THE EXCAVATOR OIL TO THE CRUSHER AND VICE VERSA THROUGH THE SAME PIPES.

The hydraulic scheme is shown in Annexes 9.1 with the same name.

IT IS RECOMMENDED THAT THE HIGH PRESSURE SYSTEM (HYDRAULIC CYLINDER FEED FOR OPENING AND CLOSING OF THE JAW) FORESEES THE DOUBLING OF THE FLOW RATE. THIS CONDITION INCREASES THE PERFORMANCE OF THE MACHINE BUT IS NOT ESSENTIAL FOR ITS OPERATION.

3-6. SETTINGS

The CRUSHER is set directly by the manufacturer. The user is obliged to guarantee the following operating parameters under penalty of malfunctioning.

The operating parameters must be adjusted on the excavator following the instructions of the excavator manufacturer.

All parameter setting operations are charged to the customer and must be carried out and authorized only by the excavator manufacturer.

WORKING PARAMETERS

The operating parameters of the CRUSHER are shown in the TECHNICAL DATA SHEET of the crusher in question and consist of OIL PRESSURE and OIL FLOW.

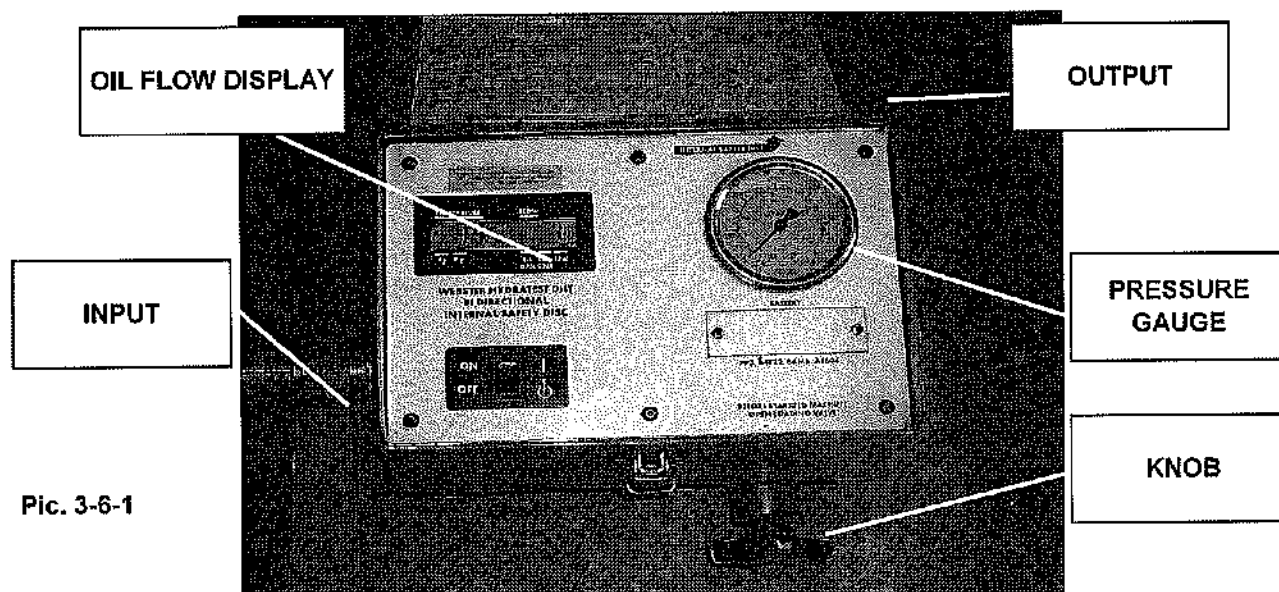
NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.P.E.	Obligations
		1(ONE)	2(TWO)			
		1(ONE)				
						
						
						
						

Chart. 3-6-1

WORKING PARAMETERS SETTING

All the following operations aimed at parameter setting are at the customer's charge and should be carried out and authorized only by the excavator manufacturing company.



Pic. 3-6-1

To set the parameters on the excavator, you should follow the following operating instructions:

- Connect the **FLOWMETER** hydraulically (See pic.3-6-1) to the excavator;
- Tighten the knob until it is completely screwed up;
- By the means of the excavator lever pump oil into the input hose then check the flow on the display;
- Increase or decrease the oil flow until it reaches the desired value (See Parameters in Annexes 9.1); meanwhile the pressure gauge will show a null pressure value.

Example: (Flow = 200 l/min). The flowmeter will show:

- - 200 l/min on the display
- - 0 bar on the pressure gauge
- Keep pumping oil, meanwhile rotate the knob clockwise;
- Check the value on the flowmeter for the decreasing flow value and the rising pressure value;
- When the knob is completely tight, the meter will show 0 l/min and the maximum pressure given by the excavator pump;
- Increase or decrease the value of the excavator relief valve looping the procedure until the meter will show the desired pressure;

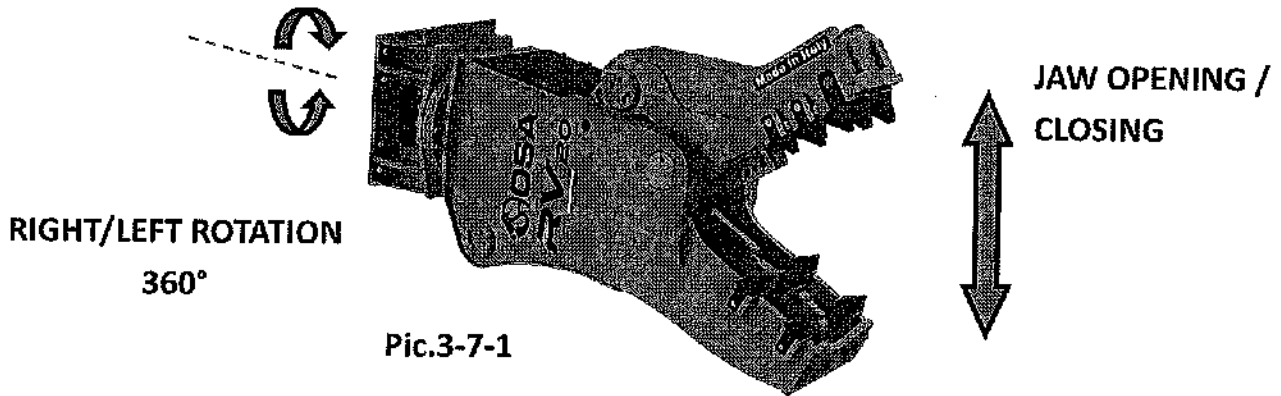
Example: (Pressure = 310 bar). The flowmeter will show:

- 0 l/min oil flow display
- 310 bar pressure gauge
- Repeat the procedure for the low pressure (rotation) hydraulic system. In this case, check that will be shown both the desired values at the same time.

3-7. UNLADEN TESTS

Before carrying out the operations, carry out unladen tests for at least ten minutes to check for any anomalies, noise, or unforeseen vibrations.

The first unladen test consists of opening and closing the jaw, and the second (no less important) is to check the crusher rotation.



Pic.3-7-1

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	2(TWO)			
		1(ONE)				
						
						
						

Chart 3-7-1

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

Whatever anomaly would be detected, it is mandatory to put the machine out of service and register the anomaly in the test report sheet attached to this manual. Promptly contact the manufacturer to make the needed checks in agreement with the customer.

 **FAILURE TO COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS WILL RESULT IN THE LOSS OF ALL RESPONSIBILITY IN THE EVENT OF DAMAGE TO PERSONS, PROPERTY, OR ANIMALS.**

4 ATTACHMENT DESCRIPTION

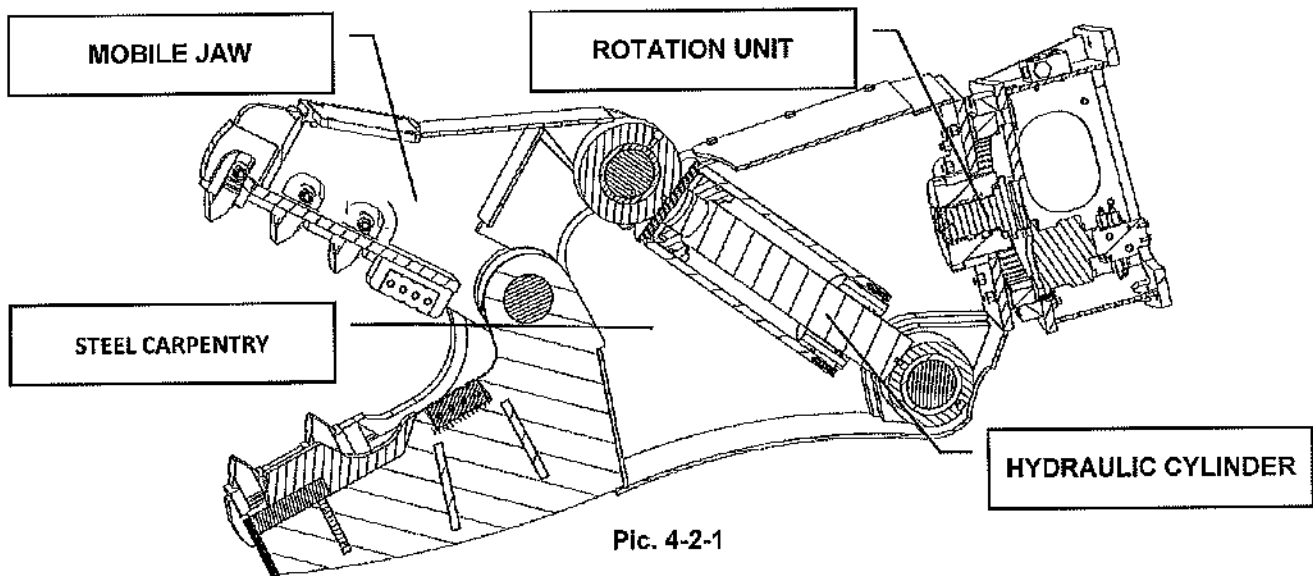
4-1. OPERATION PRINCIPLES

THE RV SERIES IS A HYDRAULIC DEMOLITION CRUSHER BUILT TO PERFORM THE FUNCTION OF BREAKING REINFORCED CONCRETE, STONE, AND ROCK STRUCTURES.

The crusher is to be considered as interchangeable equipment for earth-moving machines and is designed in such a way that the material between jaws is reduced in size. This task is carried out by moving the hydraulic cylinder which closes the mobile jaw. The machine can rotate 360° around its longitudinal axis for the only purpose of positioning the machine itself.

4-2. MAIN PARTS

This crusher is composed of A **FIXED WELDED STEEL CARPENTRY** to which a **HYDRAULIC CYLINDER** is connected. This one is connected to a **MOBILE JAW**. In the upper part, there is the **ROTATION UNIT** which guarantees a continuous and 360° rotation of the machine to facilitate positioning.



Pic. 4-2-1

4-3. SIZE

For each model, the main machine dimensions are mapped at Annexes 9.1.

4-4. LIGHTING

The equipment has no independent light sources. It is necessary that the working environment is equipped with general lighting such as to guarantee values between 200 and 300 lux on every spot of the equipment.

It is forbidden to operate the machine in low light conditions.

4-5. ENVIRONMENTAL CONDITIONS

Be aware that the equipment cannot work in environments as:



- WITH AN EXPLOSIVE ATMOSPHERE (ATEX REGULATION IS NOT ENFORCEABLE);
- CORROSIVE;
- AT FIRE RISK;
- IN AREAS WHERE THERE IS A HIGH ENVIRONMENTAL TEMPERATURE;
- IN AREAS WHERE THERE IS A LOW ENVIRONMENTAL TEMPERATURE.

Oil must have an operating temperature between -10 ° C and 70 ° C.

Oil must not have a contamination level higher than ISO 15-12-10 as prescribed by ISO 4406.

Equipment is suitable for operating in environments that are:

- ALTITUDE NOT EXCEEDING 1500 M ABOVE SEA LEVEL;
- TEMPERATURE BETWEEN - 10° AND + 40°C;
- RELATIVE HUMIDITY BETWEEN 30 AND 95%.

4-6. VIBRATIONS

In conditions of use conforming to the indications of correct use, the vibrations are not such as to cause dangerous situations for the operator aboard the excavator.

4-7. NOISE EMISSIONS

The continuous weighted equivalent sound-pressure level and the instantaneous one in job site isn't enough to be dangerous for operator.

4-8. TECHNICAL DATA

The main technical specifications relating to the equipment in question are given in the machine's **TECHNICAL SHEET** (Annexes 9.1).

4-9. TOOLS

The equipment has interchangeable tools.

These tools should be considered wear materials and then replaced based on the wear and tear found before each processing.

O.S.A. DEMOLITION EQUIPMENT S.R.L. strongly recommends replacing these tools since working with damaged tools can provoke bad functioning and bad performance of the equipment while working.



IT IS MANDATORY THAT THE REPLACEMENT OF THE TOOLS MUST TAKE PLACE ONLY WHEN THE CRUSHER IS DISCONNECTED HYDRAULICALLY AND MECHANICALLY FROM THE EXCAVATOR.

THE CRUSHER MUST ALSO BE PLACED HORIZONTALLY ON WOODEN BLOCKS. THIS REPLACEMENT MUST NEVER TAKE PLACE IMMEDIATELY AFTER THE MACHINE HAS WORKED OTHERWISE THE TOOL BEING AT A VERY HIGH TEMPERATURE COULD CAUSE SERIOUS BURNS.

4-10. SWITCHBOARDS

For the control panel, read the instruction manual supplied by the excavator manufacturer and/or the authorized installer who has made the auxiliary hydraulic installation on the excavator.

4-11. STANDARD SUPPLY

The equipment is always supplied with the following material:

- Instruction manual;
- CE conformity mark;
- Plate with CE mark;
- Safety signposting plate;
- Lifting points signposting plate;
- Stickers.

4-12. ELECTROMAGNETIC ENVIRONMENT

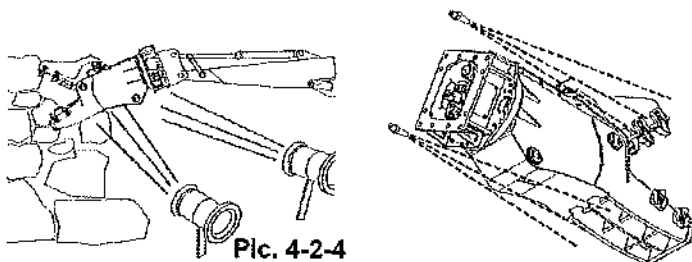
The machine is not equipped with an electrical system and is not subject to any restrictions for electromagnetic compatibility.

4-13. DANGEROUS SUBSTANCES

The machine idling doesn't contain any dangerous substances. The machine works with hydraulic oil that is inside the excavator on which it is installed. Any dripping and leaking of hydraulic oil, after disconnecting the excavator, could be detrimental to the environment. Please refer to the law in force in the country on environmental matters.

CRYSTALLINE SILICA: the machine, according to the intended use, can crush and/or demolish stone material of mineral origin and/or as reinforced concrete in smaller pieces. The crystalline silica (powder), released by this process, in the normal use of the equipment, constitutes a danger for workers in the areas surrounding the working area (construction site). The employer is obliged to provide for the use of free silica dust reduction devices, generated by the use of the equipment, through systems that equip the excavator or complementary systems that work concurrently with the excavator. There are maximum inhalable limits allowed by the European directive 2017/2398/EC and by the OSHA directive 29 CFR 1926.1153. The permitted limit values are mentioned in the respective directives previously expressed. If the country in which you operate has different limits and/or different reference directives, the employer must refer to the current limit values. The employer also should measure if there is no certainty of the limits, the values of free silica inside the powders produced during a test process using an appropriate meter.

The obligation to wear masks to protect the respiratory tract is to be considered extended to anyone that is on-site within 100 meters.



Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.P.E.	Obligations
		1(one)	1(one)	 	 	
				 	 	
				 	 	
				 		
						
				  		

Chart 4-13-1

5 ATTACHMENT USAGE

5-1. CONTROL PANEL

The machine is not supplied with a control panel. Controls are integrated into the excavator operator panel to which the machine will be connected. Refer to the use and maintenance manual supplied by the excavator manufacturer.

5-2. STARTING UP

After making the mechanical and hydraulic connections of the machine to the excavator, as required by the manufacturer's instructions, turn on the excavator to put the CRUSHER in stand-by mode and keep it ready for operation. Before starting to work with the CRUSHER, close the excavator cabin windscreen or splinter shield. This permits you to protect yourself from rock parts that can jump into the cabin while you are working with the CRUSHER.



IMPORTANT: AFTER THE FIRST 40 (FORTY) WORKING HOURS OF THE CRUSHER IT IS MANDATORY TO CHECK ALL THE HYDRAULIC AND MECHANICAL TIGHTENINGS SINCE THE CRUSHER COULD HAVE SPONTANEOUS ADJUSTMENTS AT THE FIRST START-UP. THESE CHECKS ARE CHARGED TO THE CUSTOMER AND MUST BE PERFORMED EXCLUSIVELY BY TECHNICAL PERSONNEL AUTHORIZED BY THE MANUFACTURER.

NOTE: FAILURE TO COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS WILL RESULT IN THE LOSS OF ALL RESPONSIBILITY IN THE EVENT OF DAMAGE TO PERSONS, PROPERTY, OR ANIMALS.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	1(ONE)			

Chart. 5-2-1

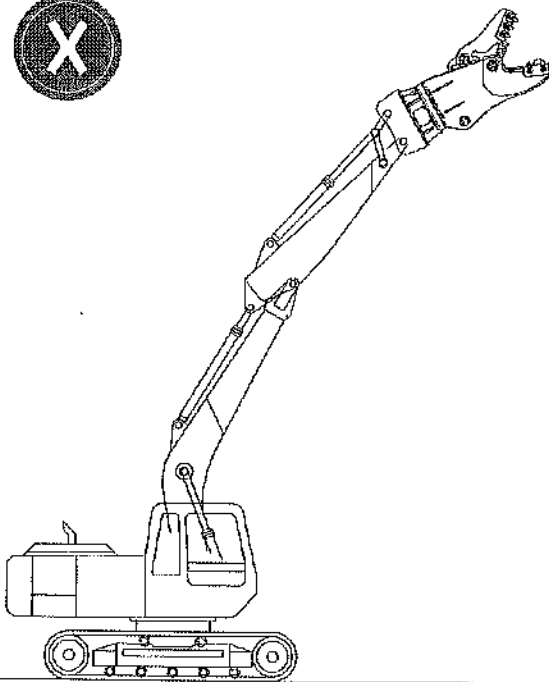
5-3. OPERATING MODES

The machine has a rotation mechanism that can turn continuously the machine (360°); is not allowed to enable this mechanism during cutting and pulverizing procedures to facilitate them. The rotation mechanism has to be used only for positioning the machine before working. The deep knowledge of the material involved in the demolition operation is fundamental as the CRUSHER has been designed to demolish reinforced concrete structures and stone materials. Therefore all that is foreign to the above-mentioned material could cause damage or malfunction to the attachment itself.

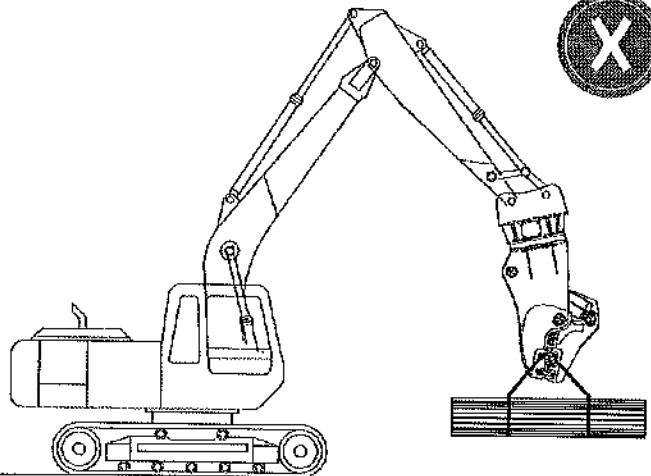
It is also essential to know what type of demolition is being carried out.

The following are the permitted and non-permitted modes of operation:

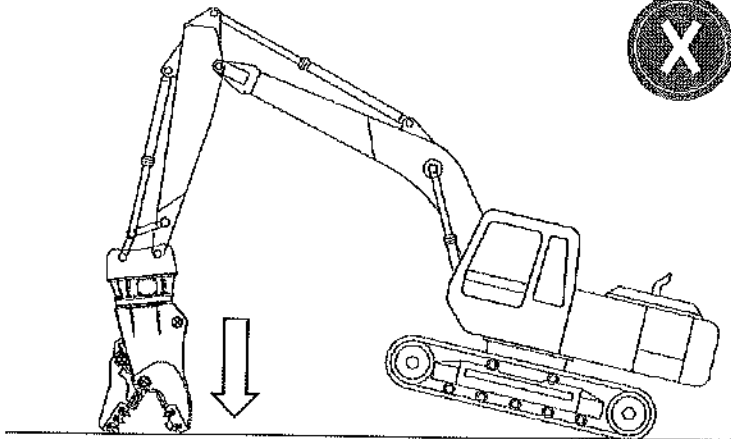
INCORRECT USE



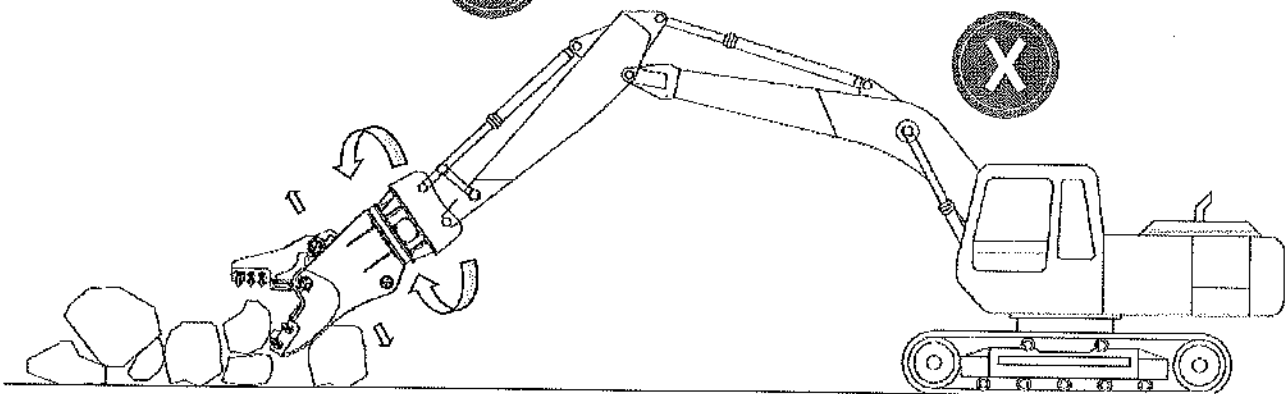
IT IS FORBIDDEN TO WORK WITH THE
CRUSHER VERTICALLY



IT IS FORBIDDEN TO TRANSPORT GOODS

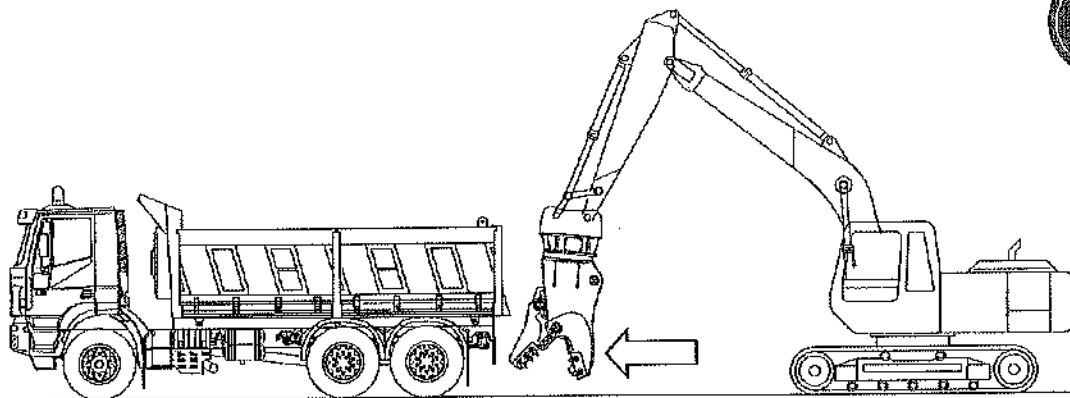


IT IS FORBIDDEN TO LEVERAGE ON THE MACHINE

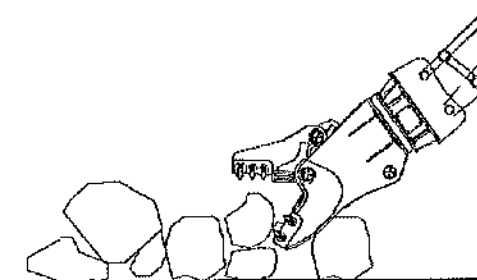
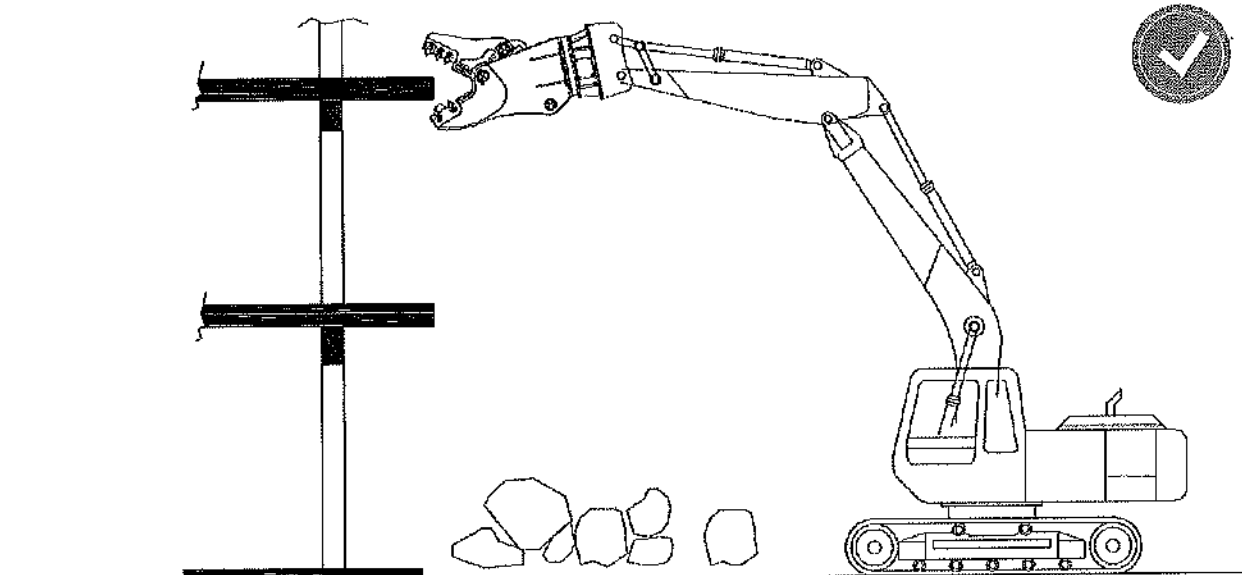


IT IS FORBIDDEN TO SWING AND TILT THE MACHINE DURING THE CUT





IT'S FORBIDDEN TO PUSH,PULL OR EXPOSE THE MACHINE TO SHOCKS



MAINTAIN A SUITABLE SAFETY DISTANCE

Pic. 5-3-1

5-4. STANDARD STOP

The machine's standard arrest operation is performed by intervening from the excavator operator panel to which the machine is connected

5-5. EMERGENCY STOP

The machine's emergency arrest operation is performed by intervening from the excavator operator panel to which the machine is connected.

Refer to the use and maintenance manual supplied by the excavator manufacturer.

5-6. REESTABLISHMENT

After blocking the equipment, the excavator operator panel to which the equipment is connected can be normally restarted according to the right procedure. Refer to the instruction manual supplied by the excavator manufacturer.

5-7. WORKING PROCESSING CHANGE



ON THIS CRUSHER MODEL, NO USES OTHER THAN THAT INDICATED IN THE "REQUIRED USAGE" CHAPTER ARE FORESEEN. THEREFORE THE EQUIPMENT IN QUESTION CANNOT, NOR MUST IT CARRY OUT A PROCESSING CHANGE.

5-8. SERVICE INTERRUPTION

At the end of the work shift, when processing is suspended to be resumed the next day it is mandatory to lay the machine on the ground. It is also mandatory to close the jaw and make the excavator's parking area inaccessible to non-experts.

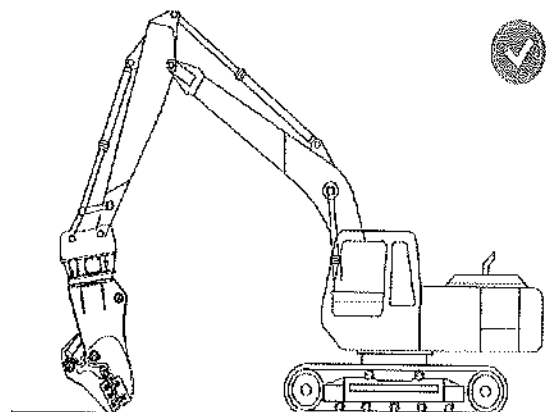
NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	3(THREE)	 	 	
		1(ONE)		 	 	
		1(ONE)		 	 	

Chart. 5-8-1

5-9. WORKS STOP

When processing must be suspended at the end of the work shift and resumed the following day, it is mandatory to lay the machine on the ground steadily, keeping the tool as close as possible to the wagon and making the excavator's parking area inaccessible to those not in charge of works. (See Pic. 5-9-1)



Pic. 5-9-1

6 MAINTENANCE

6.1 ORDINARY MAINTENANCE

Make always the preliminary checks before starting to work with the attachment, only after filling the preliminary daily inspection sheet. Check that the maintenance program is well respected as stated by the manufacturer.

On the contrary, the manufacturer is not responsible for damages caused to people, things, and animals. The CRUSHER has been designed to minimize routine maintenance. It is up to the operator to judge its state and its suitability for use.

Visually check the condition of each part making up the machine. Check that there are no alterations due to sagging or deformation.

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	2(TWO)			
		1(ONE)				
						
				 		
					 	

Chart. 6-1-1

6.2 SCHEDULED MAINTENANCE

The described operation should be done according to the indicated timing. Failure to comply with this request exonerates the manufacturer from any liability for the guarantee. These operations, although simple, must be performed by Qualified Personnel with specialization indicated in the following table (See Table 6-2-1).

Scheduled routine maintenance includes inspections, checks, and interventions that, if done systematically, serve to prevent machine downtime and/or breakdowns. They are:

- Equipment lubrication;
- Parts wear and tear.

Check N°	Description	FREQUENCY CONTROLS				
		Everyday (Before start working)	3h	40h	200h	800h
1	Check the main structure	⊗				
2	Check all the mechanic parts	⊗				
3	Check all the links with pins and bolts	⊗				
4	Check the machine functionality	⊗				
5	Check all the safety features on the machine (Carters).	⊗				
6	Check machine status; it must be consistent with processing operation.	⊗				
7	Check the tightness and the efficiency of the hydraulic system and the level of oil contamination as required in ISO 15-12-10.	⊗				
8	Check the compatibility between the machine and the excavator.	⊗				
9	Check the cylinder input pressure.	⊗				
10	Check the rotation input pressure.	⊗				
11	Check the cylinder flow.	⊗				
12	Check the rotation flow.	⊗				
13	Grease the pins		⊗			
14	Grease the thrust bearing (through both the greasing point)			⊗		
15	Flip the blade or replace it if the previous operation was already done.			⊗		
16	Anti-wear insert and weld bead.				⊗	
17	Replace all the bolts of the thrust bearing.				⊗	
18	Replace all the seals and the spacer, THIS OPERATION CAN ONLY BE PERFORMED BY A O.S.A. DEMOLITION EQUIPMENT S.R.L. OPERATOR.					⊗

Chart 6-2-1

6.3 EXTRAORDINARY MAINTENANCE

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	3(THREE)			
		1(ONE)				
		1(ONE)				
						
						

Chart 6-3-1

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.



EXTRAORDINARY MAINTENANCE IS TO BE CONSIDERED AS ANY OTHER INTERVENTION NOT SPECIFIED OR DULY DESCRIBED IN THE FOLLOWING PARAGRAPHS:

- FROM N.4 TO N.10 IN CHAPTER 6 CONCERNING THE MACHINE MAINTENANCE.

All that concerns the replacement, repair, and/or reconstitution of a component not mentioned in the paragraphs above (from No. 4 to No. 10), is to be considered extraordinary maintenance.



THESE INTERVENTIONS COULD BE MADE ON THE EQUIPMENT IF PREVIOUSLY AUTHORIZED IN WRITING BY A REGISTERED LETTER BY O.S.A. DEMOLITION EQUIPMENT S.R.L. .

6-4. ATTACHMENT MAINTENANCE

Maintenance operations MUST BE CARRIED OUT WITH THE MACHINE UNDER THE CONDITIONS DESCRIBED IN THE CHARTS, INDICATED IN THE TABLES, AND IN THE SINGLE OPERATIONS OBSERVING THE NUMBER OF PEOPLE AND THEIR QUALIFICATIONS OF EACH FOR THE REGULAR PERFORMANCE OF THE OPERATION ITSELF to safeguard people, things, and animals.

NOTE: FAILURE TO COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS WILL RESULT IN THE LOSS OF ALL LIABILITY IN THE EVENT OF DAMAGE TO PERSONS, PROPERTY OR ANIMALS.



6-5. ATTACHMENT INSULATION

BEFORE PROCEEDING WITH DEMOLITION WORK, IT IS MANDATORY TO CHECK THAT THERE ARE NO LIVE ELECTRIC CABLES BURIED IN THE WORK AREA. If there are overhead electrical cables, it is mandatory to keep the equipment at a safe distance of forty meters (40m)



Pic. 6-5-1

6-6. SPECIAL PRECAUTIONS

When carrying out maintenance work you should apply the following instructions:

- Before starting work, display an "EQUIPMENT ON MAINTENANCE" sign in a clearly visible position;
- Do not use solvent or flammable materials;
- Be very careful not to disperse lubricant-coolant liquids into the environment;
- To reach the highest parts of the equipment, use suitable means for the kind of operations to be done;
- Do not stand on the equipment parts, as they have not been designed to support people;
- At the end of the operation, reestablish and fix in the best way all the protections or the open repairs;
- Make sure that all the threaded connections have been restored and tightened correctly.



NOTE: THE MANUFACTURER WILL NOT BE HELD RESPONSIBLE FOR THE NON-OBSERVANCE OF THE LISTED RECOMMENDATIONS AND FOR DIFFERENT USES NOT MENTIONED IN THESE INDICATIONS.

6-7. ATTACHMENT CLEANING

THE CRUSHER MUST BE CLEANED ONLY AND EXCLUSIVELY WHEN IT IS BOTH MECHANICALLY AND HYDRAULICALLY DISCONNECTED FROM THE EXCAVATOR.

Use a high pressure cleaner for removing dirt from the CRUSHER.

NOTE: both the hydraulic oil and the grease for the tools are dangerous for the environment and they should not penetrate the ground and in the groundwater:

- Collect the water used for cleaning if it has been contaminated with the hydraulic oil and grease.
- Eliminate water in accordance with all applicable regulations to avoid environmental hazards.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1 (ONE)	3 (THREE)	     	     	 
		1 (ONE)				
		1 (ONE)				

Chart 6-7-2

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

6-8. LUBRICATION

Lubricate and grease periodically the mechanical parts which contribute to the movement of the CRUSHER mobile parts.

The Scheduled Maintenance Program described (See Chart 6-8-1) must in any case be implemented to keep the CRUSHER efficient.

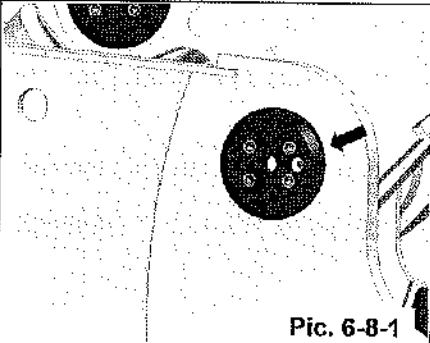
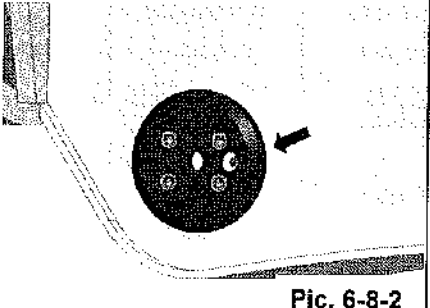
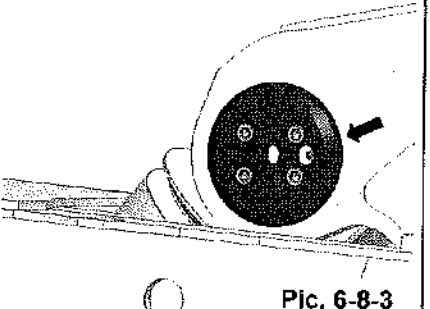
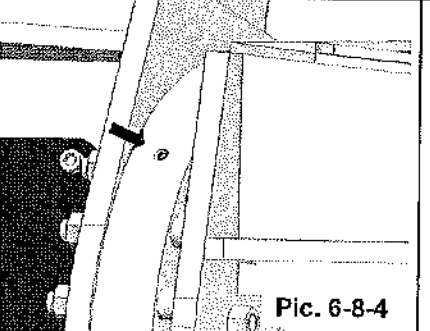
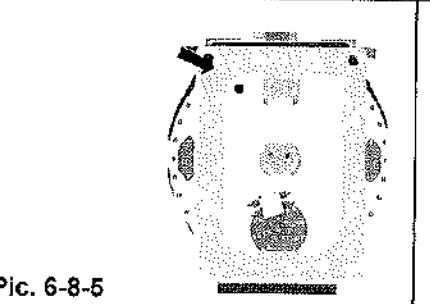
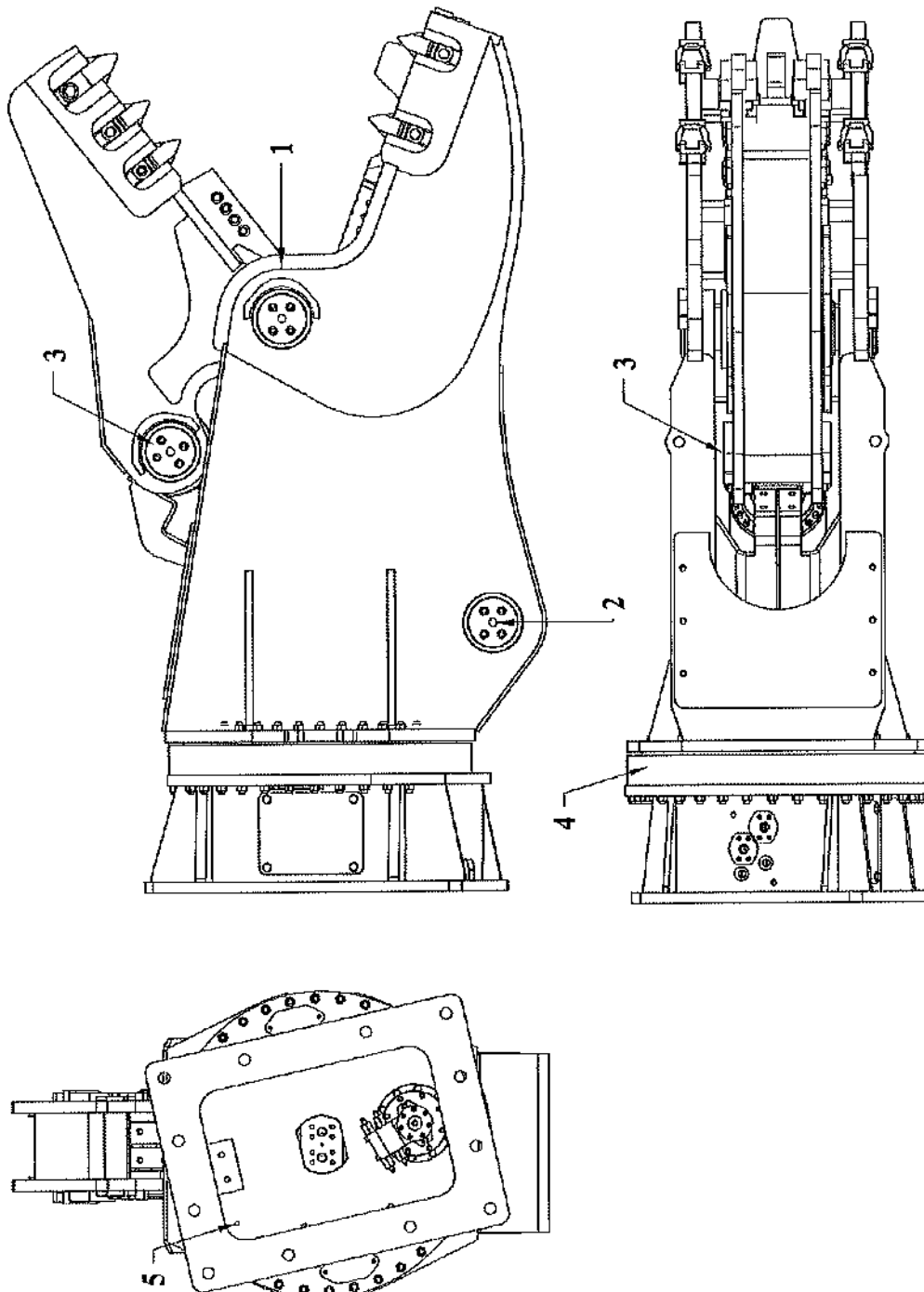
REF.	DESCRIPTION	DETAIL VIEW	EVERY 3 h OF WORKS	EVERY 40 h OF WORKS
1	PIN JAW / BODY	 Pic. 6-8-1		
2	PIN CYL. / BODY	 Pic. 6-8-2		
3	PIN CYL. / JAW	 Pic. 6-8-3		
4	THRUST BEARING	 Pic. 6-8-4		
5	MOTOR SPROCKET	 Pic. 6-8-5		

Chart 6-8-1

GREASING POINT



Pic. 6-8-4

Grease points 1 and 2 ,3 after 3 working hours;points 4-5 every 40 working hours;
Point three must be greased in each side of the pin.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	1(ONE)			
						
						
				 		
				 40m 	 	

Chart 6-8-2

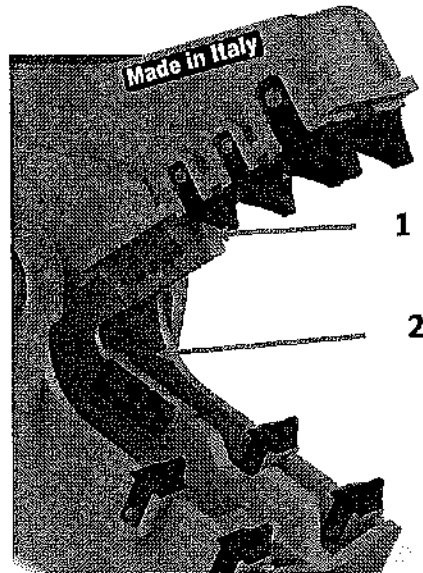
NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.



REMEMBER THAT LUBRICATION AND GREASING HAVE THE TASK OF REDUCING FRICTION AND PROTECTING AGAINST CORROSION, SO THEY MUST BE CARRIED OUT IN SUCH A WAY THAT THE GREASE COMES OUT OF THE COUPLING AREAS BETWEEN THE MOVING AND FIXED COMPONENTS OF THE CRUSHER.

6-9. BLADES SUBSTITUTION

The blades (Pic. 6-9-1) are secured by the machine through **SHS** screws (cylindrical head with hexagonal socket) resistance class 12.9 which can be dismantled and reassembled simply with an Allen Key (Pic. 6-9-2).



Pic. 6-9-1

Blades 1 and 2 are of equal size, therefore before their final replacement with new ones, it is recommended to exchange and rotate them to use all 4 cutting edges on it. All tightenings must comply with the indications in the tightening force table. After completing the four reuse cycles of the blades it is mandatory to replace those with a new blade kit.

During the performance of these operations, always place the machine horizontally across the ground, to avoid accidental closure of the jaw. It is also mandatory to bind it as described above



N.B.: WHEN REASSEMBLING THE BLADES ALWAYS USE THE AMOUNT OF THREAD LOCK RECOMMENDED BY THE MANUFACTURER OF THE SAME

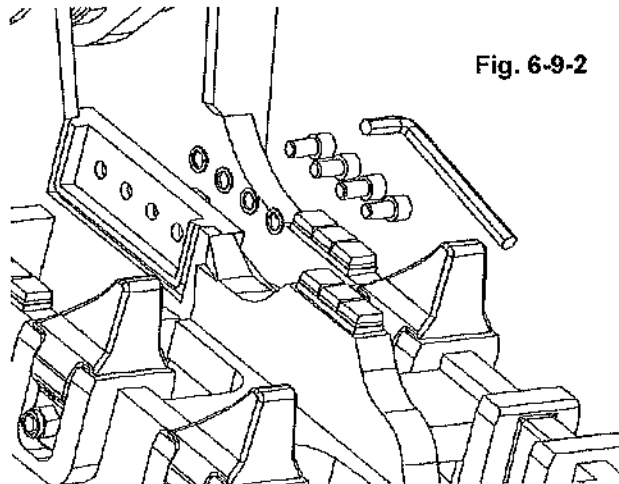


Fig. 6-9-2

Operator Qualification	Equipment Conditions	Necessary Operator Number 1(ONE)	Necessary Operator Total Number 1(ONE)	Dangers	P.E.E.	Obligations
		1(ONE)	1(ONE)	 		
				 		
				 		
						
						
				 		

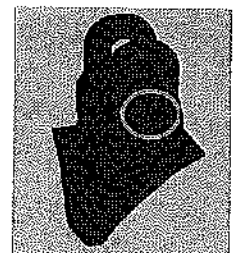
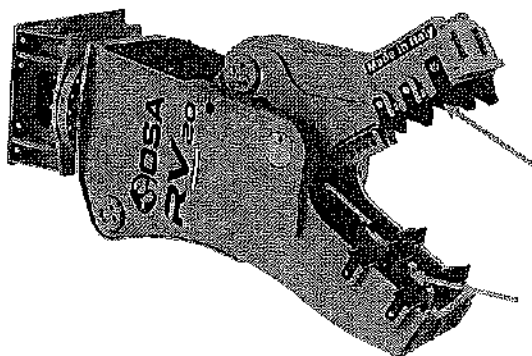
Chart 6-9-1

6-10. TEETH SUBSTITUTION

Crushers' capsules are of three types and their identification is printed on the side (Pic. 6-10-1):

- Small New - Type 1A;
- Medium New - Type 2A;
- Large New - Type 3A;

They are secured to the machine through TE screws(hexagonal head) resistance class 10.9 and lock-nut. The specifications of bolts and nuts are shown in attachment 9.2


Pic. 6-10-1

Type 2A
Type 1A

Operator Qualification	Equipment Conditions	Necessary Operator Number 1(ONE)	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(ONE)	1(ONE)	 		
				 		
				 		
						
						
				 		
				 		

Chart 6-10-1

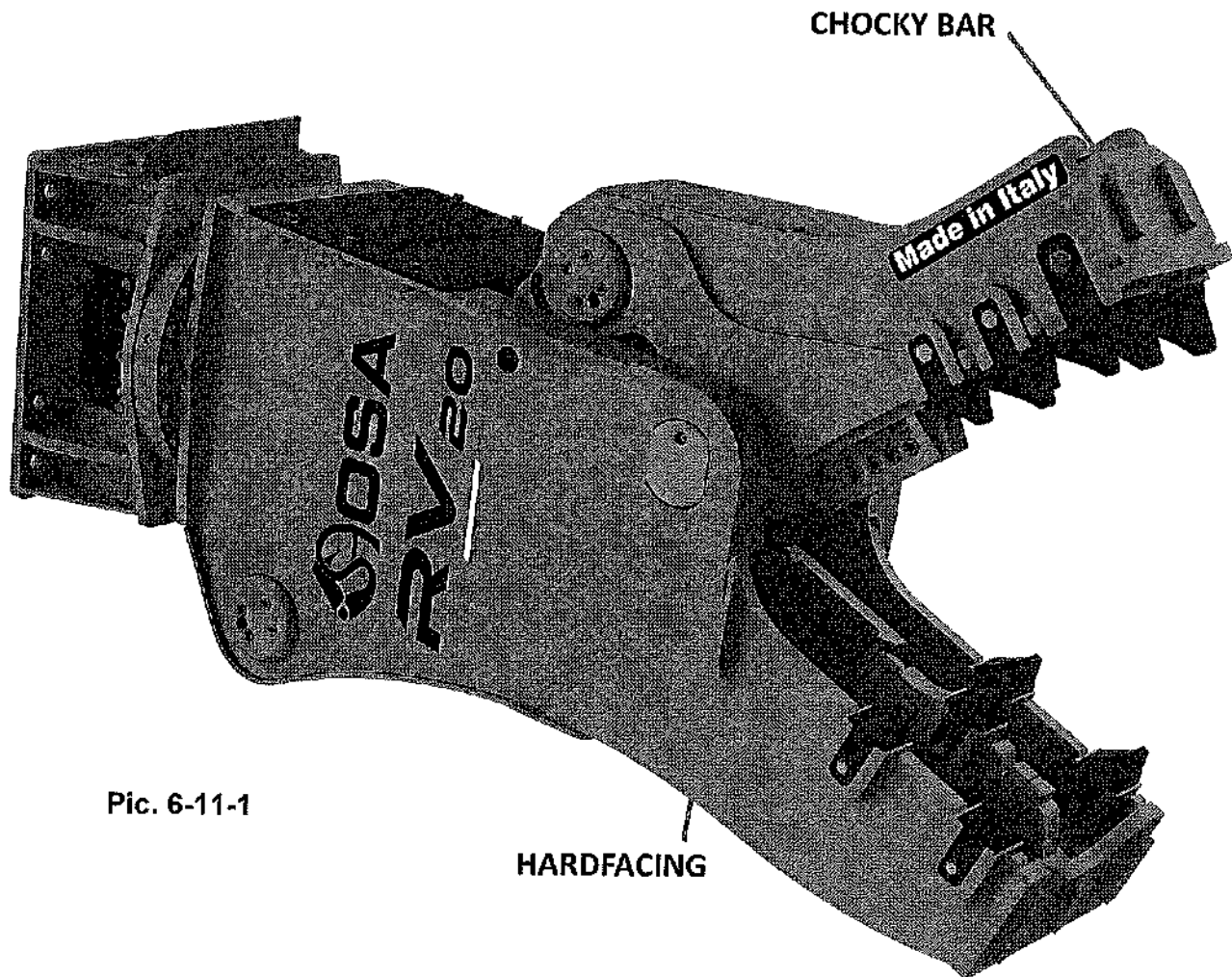
6-11. ANTI-WEAR PART REBUILD

The crusher has reinforced areas made up of a series of manganese filler welding beads. It is also equipped with anti-wear parts(chocky bar) as additional protection against abrasion (Pic 6-11-1).

The inserts must be rebuilt after about 200 hours of crusher work while the anti-wear parts must be replaced.

Use manganese welding wire or manganese electrodes with 600HB hardness characteristics to carry out the fillings while we recommend the use of standard welding wire to fix the chocky bars.

This operation is to be considered a SCHEDULED AND EXTRAORDINARY MAINTENANCE operation and can therefore be carried out only by qualified personnel authorized by O.S.A. DEMOLITION EQUIPMENT S.R.L. .



Pic. 6-11-1

6-12. CYLINDER AND JOINT SUBSTITUTION

After about 800 working hours of the crusher, completely replace the cylinder seals and the joint.

This operation is to be considered a PROGRAMMED AND EXTRAORDINARY MAINTENANCE operation, therefore it can be carried out only and exclusively by qualified operators authorized by O.S.A. DEMOLITION EQUIPMENT S.R.L. .

6-13. DIAGNOSTICS AND TROUBLESHOOTING



FOR ALL FLAWS OR CRUSHER MALFUNCTIONS NOT DESCRIBED IN THIS INSTRUCTION MANUAL, CONTACT THE MANUFACTURER.

This chapter has been prepared to assist maintenance personnel and facilitate the diagnosis of the most common problems.

This list has been simplified to cases that can be solved with ordinary means.

THE CRUSHER DOES NOT START

DRAWBACKS	PROBABLE CAUSES	REMEDIES
JAW DANGLING DETECTION	THE SPACERS BETWEEN MACHINE BODY AND THE MOVING PARTS ARE WORN	SPACERS SUBSTITUTION
HIGH BEARING CLEARANCE OF THE BASE BEARING	THERE IS A DECREASE IN THE BOLT TENSIONING FORCE; THERE IS BEARING WEAR;	TIGHT THE BOLTS WITH THE CROSSTECHNIQUE AND TIGHTEN TORQUE 387NM; REPLACE THE BEARING
CRUSHER DOESN'T ROTATE OR ROTATES SLOWLY	THERE IS A DECREASE IN THE TENSIONING FORCE OF THE GEARMOTOR'S CLAMPING PINS; PARAMETERS ARE INCORRECT: MISSING OIL IN THE GEARMOTOR	TIGHT THE BOLTS WITH TIGHTENING TORQUE 4.97KGM; VERIFY EXCAVATOR PARAMETERS; MAKE SURE THERE ARE NO LOSSES FROM THE GEARMOTOR
SLOW HYDRAULIC CYLINDER	PRESSURE AND FLOW PARAMETERS ARE INCORRECT	REGULATE PRESSURE AND FLOW PARAMETERS ACCORDING TO THE BUILDER
HYDRAULIC CYLINDER LEAKS	THE SEALS ARE DAMAGED	REPLACE THE SEALS KIT
THE CYLINDER HASN'T ENOUGH FORCE	WRONG WORKING PARAMETERS	SET THE PARAMETERS
	PISTON SEALS ARE WORN	REPLACE THE SEALS KIT
	THE CARTRIDGE ARE MISCALIBRATED	CALIBRATE THE VALVE
	THE SPEED VALVE IS BLOCKED BY DIRT	REPLACE THE SPEED VALVE

Chart 6-13-1

7 SPARE PART SUBSTITUTION

7-1. SERVICING

For any type of information regarding the use, maintenance, and installation of the machine, the Manufacturer is always considered available.

On the client's part, it is advisable to put the questions in clear terms, with references to this Manual and the instructions listed.

7-2. SPARE PARTS

For any spare parts, please contact O.S.A. DEMOLITION EQUIPMENT S.R.L. .



NOTE: IT'S IMPORTANT TO USE ORIGINAL SPARE PARTS

THE SPARE PARTS LIST WITH NAME AND CODE IS IN THIS INSTRUCTION MANUAL IN THE ANNEXES CHAPTER. THE MANUFACTURER IS NOT RESPONSIBLE FOR BREAKS, MALFUNCTIONING, OR DAMAGES TO PERSONS OR THINGS THAT DERIVE FROM THE USE OF NON-ORIGINAL PARTS.

For spare parts management, an order form (Form 7-3-1) is presented below which the customer, having identified the parts to be ordered (see attachments) must complete, stamp, sign, and send to O.S.A. DEMOLITION EQUIPMENT S.R.L. .

Using non-original spare parts is **FORBIDDEN**. If this happens, the warranty will expire and the manufacturer will not be responsible for damages to people or things.

We recommend reproducing the following form carefully (including photocopying) to avoid any sort of error.

To interact more effectively with our technicians when ordering spare parts, please follow the procedure below:

- Call the spare parts service and describe the kind of problem;
- Describe the kind of part that doesn't work;
- Detect it on the CRUSHER;
- Order the item using the Order Form on the next page.

PAINT

All the equipment is painted with **FAST DRYING ALKYD VINYL SYNTHETIC ENAMEL**.



COD. ORDER: SM. ALKYD VYNIL AV INVERAMA
CAT 02 GIALLO CATERPILLAR ECOL. N.12



COD. ORDER SM. ALKYD VYNIL AV INVERAMA
NERO

7-3. SPARE PARTS APPLICATION FORM

Company Name: _____

Address: _____

ZIP CODE: _____ City: _____

Country : _____

C.F./VAT NUMBER. _____

Telephone: _____

Fax: _____

e.mail(@):

PURCHASE ORDER

N° _____ Date _____

COMPANY NAME: _____

Address: _____

ZIP CODE: _____ City: _____

Country: _____

C.F./VAT NUMBER. _____

Address: _____

Zip Code: _____ City: _____

country: _____

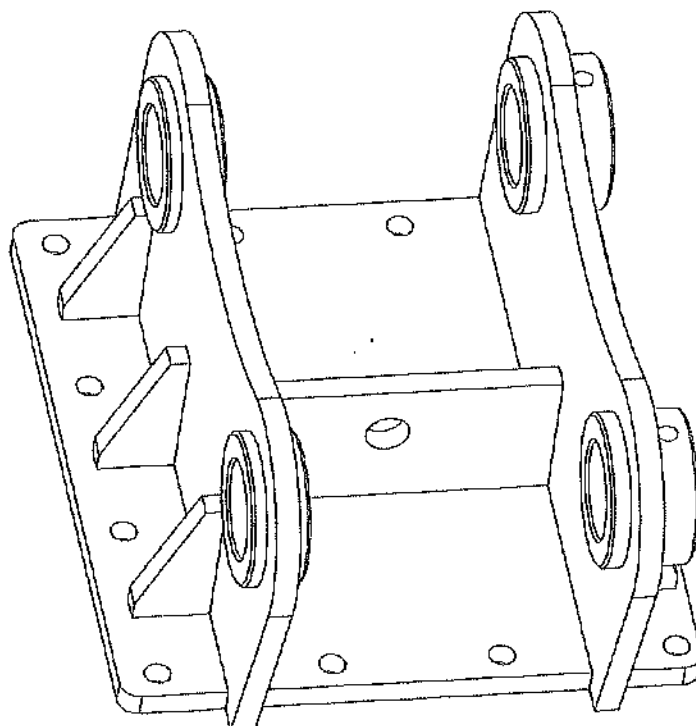
[illegible]

STAMP & SIGNATURE:

7-4. OPTIONAL

These accessories are to be considered normally excluded from the standard supply and therefore charged to the customer, except for different contractual conditions:

- Hitch (See Pic. 7-4-1);
- Connection fittings and high pressure pipes;

**Pic. 7-4-1**

8 SUPPLEMENTARY INSTRUCTIONS

8-1. WASTE DISPOSAL

The user, in compliance with the law in force in his country, should check the correct waste disposal that the equipment produces while working.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(UNO)	3(THREE)			
		1(UNO)				
		1(UNO)				
						
						
						

Chart 8-1-1

The disposal of oil lubricants and replaced parts must be carried out in compliance with the regulations in force in the country of use of the machine.

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.

8-2. DECOMMISSIONING AND DISMANTLING

While dismantling, it is necessary to separate oil and grease remaining, metal parts from rubber, that must be sent to differentiated collections in compliance with the legislation in force in the country where the machine operates.

As regards the metal mass of the machine, the subdivision between the ferrous parts and those in other metals or alloys is sufficient, for a correct sending to the recycling by fusion.

Operator Qualification	Equipment Conditions	Necessary Operator Number	Necessary Operator Total Number	Dangers	P.E.E.	Obligations
		1(UNO)				
		1(UNO)				
		1(UNO)	3(THREE)			
						
				 	 	

CHART 8-2-1

NOTE: THE PRESENCE OF THE MAN TYPOLOGIES INDICATED IN THE TABLE IS CONTEMPORARY, ONE DOES NOT EXCLUDE THE OTHER. THE MANUFACTURER IS EXEMPT FROM ANY RESPONSIBILITY FOR DAMAGE CAUSED TO PEOPLE, THINGS, AND ANIMALS DUE TO NON-COMPLIANCE WITH THE ABOVE PRESCRIPTION.



IT IS ABSOLUTELY FORBIDDEN TO USE THE MACHINE TO BE DISMANTLED AS A MACHINE FROM WHICH TO DRAW SPARE PARTS FOR MACHINES OF THE SAME MODEL AND TYPE OR OTHER SIMILAR ONES, THE COMPONENTS IN QUESTION COULD BE DANGEROUSLY DAMAGED AND THEREFORE CAUSE DAMAGE TO PEOPLE, THINGS, OR ANIMALS.

IF THE CUSTOMER DOESN'T COMPLY WITH THIS RULE, O.S.A. DEMOLITION EQUIPMENT S.R.L. IS RAISED BY ALL RESPONDENTS.

8-3. SAFE WORKING PROCEDURES

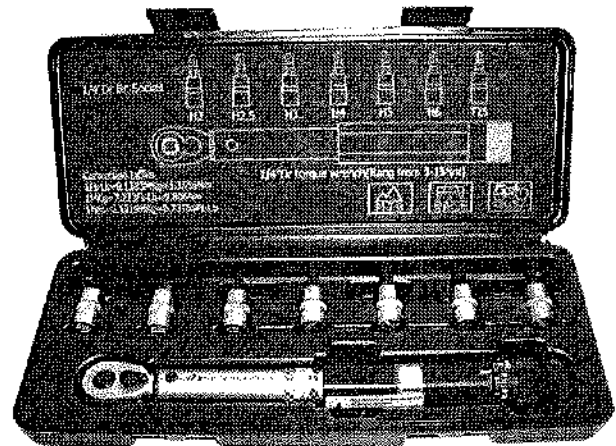
Strictly follow the procedures and specifications in this Instruction, Use, Maintenance, and Safety manual.

9 ANNEXES

9-2. BOLTS TIGHTENING FORCE

To tighten all the bolts of the pulverizer, use the cross technique using always a good torque wrench (See Pic. 9-6-1).

See the following chart (see Chart 9-6-1) where you will find tightening forces:


PIC. 9-6-1

SCREWING COUPLES / TIGHTENING TORQUE Nm										
Filettatura mm		Coppia / Torque								
Thread		Classe di Resistenza / Resistance grade								
		8.8			10.9			12.9		
		0.10	0.15	0.20	0.10	0.15	0.20	0.10	0.15	0.20
M 3	5.5	0.95	1.21	1.41	1.4	1.79	2.07	1.64	2.09	2.43
M 4	7	2.2	2.78	3.22	3.23	4.09	4.74	3.78	4.79	5.5
M 5	8	4.34	5.5	6.4	6.3	8.1	9.4	7.4	9.5	11
M 6	10	7.5	9.5	11.1	11	14	16.3	12.9	16.4	19.1
M 8	13	18.2	23	27	26	34	39	31	40	46
M 10	16	36	46	53	52	67	78	61	79	92
M 12	18	62	79	92	91	116	136	106	136	159
M 14	21	99	127	140	145	187	218	170	219	255
M 16	24	153	198	232	225	291	341	263	341	399
M 18	27	220	283	330	313	402	489	366	471	649
M 20	30	311	402	471	440	570	687	515	667	781
M 22	34	424	552	648	602	783	920	704	917	1077
M 24	36	534	691	809	758	981	1148	887	1148	1343
M 27	41	784	1022	1201	1114	1452	1706	1304	1700	1997
M 30	46	1067	1387	1628	1515	1969	2311	1773	2305	2704
M 33	50	1442	1884	2216	2048	2676	3148	2397	3132	3684
M 36	55	1855	2418	2840	2636	3435	4036	3085	4020	4723
M 39	60	2399	3139	3697	3410	4463	5255	3990	5223	6150
M 42	65	2965	3872	4554	4223	5515	6486	4941	6453	7690
M 45	70	3698	4847	5712	5267	6903	8136	6164	8079	9620
M 48	75	4470	5849	6887	6367	8330	9809	7450	9748	11476
M 52	80	5737	7535	8889	8171	10731	12661	9562	12558	14816
M 56	85	7181	9394	11075	10199	13379	15773	11935	15656	18458
M 60	90	8871	11673	13785	12634	16625	19634	14785	19455	22976
M 64	95	10683	14041	16572	15215	19996	23603	17805	23402	27620

CHART. 9-1-1

9-3. TEST SHEET
TEST SHEET

We remember that it is necessary to send a copy to the manufacturer in 8 days. On the contrary warranty will not be valid and the manufacturer cannot be considered responsible.

CUSTOMER DATA:

Company name: _____

Address: _____

ZIP CODE: City: _____

Country: _____

C.F./VAT NUMBER. _____

Telephone: _____

Fax: _____

e.mail(@): _____

TESTER DATA:

Company Name: _____

Address: _____

Zip code: _____ City: _____

Country: _____

C.F./VAT NUMBER. _____

Technician Name and Surname: _____

Attachment DATA:

SERIAL NUMBER	SERIES	MODEL	YEAR
	RV		

EXCAVATOR DATA:

SERIAL NUMBER	SERIES	MODEL	YEAR

The installer declares under his responsibility that he has made the installation following the instructions of this manual and that he has not found any anomaly during the tests

RESULT _____

NOTES _____

Date of the test _____

Stamp &
signature:

9-4. PRELIMINARY VERIFICATION REPORT:

PRELIMINARY VERIFICATION REPORT

(To fill in at every crusher use)

Company name: _____

Operator Name and Surname: _____

Address _____

Zip code: _____ City _____

Country _____

C.F./Zip Code. _____

NOTE: Tick the box corresponding to the actual outcome of the preliminary checks carried out on the machine with a simple "X" before proceeding to work on-site with it. With the presence of even a single **NEGATIVE OUTCOME**, IT IS FORBIDDEN TO WORK WITH THE CRUSHER ON THE SITE.

CHECK	DESCRIPTION	CONTROL		RESULT	
1	Check all the supporting structures	☐ YES	☐ NO	POSITIVE	NEGATIVE
2	Check all the mechanic organs	☐ YES	☐ NO	POSITIVE	NEGATIVE
3	Check of connections with pins and screws	☐ YES	☐ NO	POSITIVE	NEGATIVE
4	Functional check of the machine	☐ YES	☐ NO	POSITIVE	NEGATIVE
5	Check every safety equipment installed on the machine	☐ YES	☐ NO	POSITIVE	NEGATIVE
6	Check the status of the machine following with the prescriptions for the operation to be performed	☐ YES	☐ NO	POSITIVE	NEGATIVE
7	Check the tightness and efficiency of the hydraulic system (level of oil contamination control)	☐ YES	☐ NO	POSITIVE	NEGATIVE
8	Machine model compatibility with excavator model	☐ YES	☐ NO	POSITIVE	NEGATIVE
9	Cylinder feed pressure control	☐ YES	☐ NO	POSITIVE	NEGATIVE
10	Rotation group feed pressure control	☐ YES	☐ NO	POSITIVE	NEGATIVE
11	Cylinder and rotation group feeding range control	☐ YES	☐ NO	POSITIVE	NEGATIVE

SHEET n° _____ from _____

Stamp and signature: _____



NOTES:

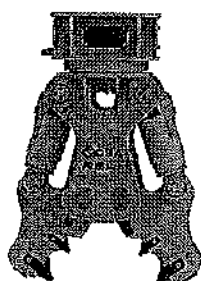
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THE RIGHT SOLUTION

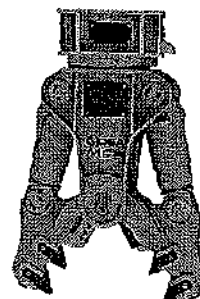
SERIE HB



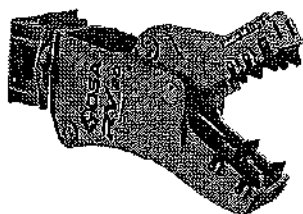
SERIE RS



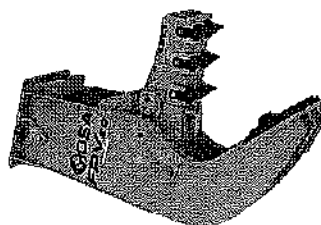
SERIE MC



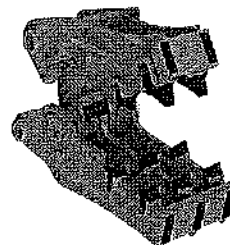
SERIE RV



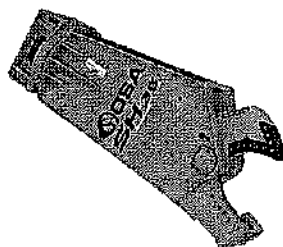
SERIE FPV



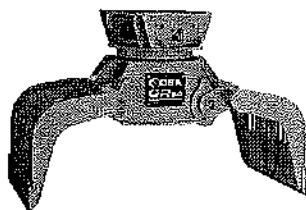
SERIE FM



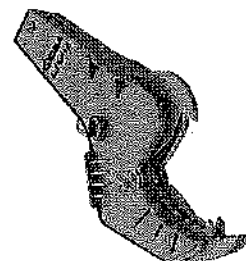
SERIE SH



SERIE GR



SERIE LIV



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