



## USE AND MAINTENANCE MANUAL

Oil pressure power unit

# TP60-HDE



*THE USE MANUAL provided is not an accessory of the Machine; it is an **INTEGRAL PART** of the Machine and at the same time a **SAFETY PRESCRIPTION**.*

*For this reason, it is necessary to preserve its condition, to store it near the Machine and to transmit it to any subsequent user or owner, so that it is possible to obtain all the information necessary for which it has been realized and also because it can support the use of the equipment with the utmost **SAFETY**.*

*Any update shall be added to the Manual, as indicated by **MAUS ITALIA S.a.s.** . The Manual shall not be damaged, must be full (DO NOT tear off sheets) and must be kept far from humidity and heat. During use, avoid greasing it or damaging its readability.*

*To make the use of the manual easier, it has been divided in sections to address the needs of different users.*

***MAUS ITALIA S.a.s.** want to highlight **CAUTIONS, WARNINGS AND DANGERS** which concern the user.*

*For generalization reasons, some images in the manual, added to ease finding the described parts, may not be fully similar to the Machine you have purchased.*

*This instruction manual has been drafted according to Directive 2006/42/CE*



*Translation of the original instruction*

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## DECLARATION OF CONFORMITY



(prepared pursuant to paragraph A of Annex II of Directive 2006/42/EC and subsequent amendments and / or additions)

CORPORATE NAME	MAUS Italia F. Agostino & C. S.a.s
ADDRESS	SS. Paulese Km.30 26010 Bagnolo Cremasco (CR) (Italia)
TELEPHONE NUMBER	+39 0373 237001
FAX NUMBER	+39 0373 649560


as a manufacturer of the equipment hereafter:

TYPE	
SERIAL NUMBER	
YEAR OF MANUFACTURE	

### STATES UNDER THE RESPONSIBILITY THAT THE MACHINE, AS DESCRIBED IN THE DOCUMENTATION ATTACHED AND IN OUR ARCHIVES:

- It is a machine according to and on to the effects of Directive 2006/42/EC and subsequent amendments and / or additions and the same CE marking was affixed;
- It Conforms to the following European Directives and standards (normative references are to be applied also to any subsequent amendments and / or additions):
- Machinery Directive 2006/42/EC and European standards EN ISO 12100-1, EN ISO 12100-2, UNI EN ISO 13857th, UNI EN 349, UNI EN ISO 13850, UNI EN ISO 14121-1, UNI EN ISO 13849-1 and CEN 60204-1:2006.
- Directive 2004CEX108/CE - Electromagnetic Compatibility
- Directive 2006/95/EC - Low voltage and the European standard CEN 60204-1:2006.

The person authorized to represent the technical dossier is Eng. Stefano Agostino, as LEGAL REPRESENTATIVE of MAUS Italy Sas, domiciled at MAUS Italy Sas - SS. Paulese Km 30, 26010 Bagnolo Cremasco (CR).

NAME AND SURNAME	Ing. Stefano Agostino
JOB POSITION	Legal representative
Date	
Signature	

Mod. 503-r5\_uk

# 1 PRELIMINARY INFORMATION

MAUS ITALIA produces and markets hydraulic jacks for maintenance of thermal exchange equipment.

These jacks are operated by pressure oil power units produced in house. The size of power units and jacks depends on the tasks to be performed. The pair jack-power unit is defined EQUIPMENT, which can be used for EXTRACTION or CUT.

Hereinafter the following terms will have the meaning indicated below:  
 POWER UNIT/MACHINE: hydraulic power unit model TP60-HDE.  
 EQUIPMENT: pair JACK – TP60-HDE POWER UNIT

## 1.1 IDENTIFICATION OF THE PRODUCT

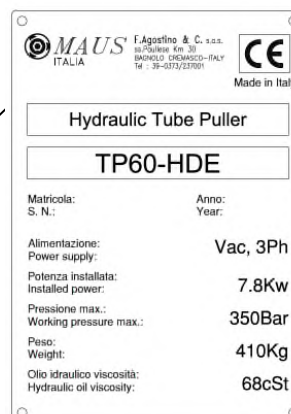
The serial number, the year of manufacturing and the model of the machine are indicated on the identification plate.

Take note of the serial number, the year of manufacturing and the model of the machine in a safe place, so as to be able to request a copy in case of loss.



### WARNING

*It is forbidden to remove the “CE MARKING” plate and/or to exchange it with other plates on the Machine.*



## **1.2 USE OF THE MANUAL**

### **1.2.1 TARGET AUDIENCE**

This Manual and, in general, the technical documents provided with the Machine are addressed to:

- the operators of the machine;
- the technicians in charge of maintenance tasks;
- the personnel in charge of machine management (that is organization of the production, maintenance scheduling, spare parts supply, etc.);
- the personnel in charge of commissioning and final disposal of the equipment;
- the owner;
- the technical manager;
- the safety manager.

### **1.2.2 PURPOSE OF THE MANUAL**

The purpose of this document is to enable a safe, effective use of the machine.

Notably, we want to provide the target audience with an useful tool:

- to identify the Machine;
- to know the safety provisions of the Machine, the behaviours to be observed to keep safety conditions, the residual risks (if any), the reference standards, etc.;
- to know the main parts of the machine, their reference terms and the functions performed;
- to perform correct handling and transport of the machine, during commissioning and final disposal;
- to know all the controls;
- to start, operate and manage the Machine;
- to identify the spare parts;
- to prepare a suitable maintenance plan;

### **1.2.3 HOW TO USE THE MANUAL**

This Manual concerning the “Machine” can be accompanied with different Manuals concerning “commercial parts” fitted on the Machine: for this reason, for the specific operations concerning these components, refer to the specific Manuals.



### **1.2.4 LIMIT OF USE OF THE MANUAL**

The Manual does not replace the remaining technical documentation; it completes it, linking it to the context of the machine.

Reading the Manual does not exempt the owner from the obligation of general training and coordination of the personnel concerning safety.

We assume that the audience of this document is provided with enough technical know-how to correctly understand the instructions, indication and illustrations contained in it.

The training provided by this Manual must be supported by a suitable competence and experience, to be gradually built on the field.

Even if full reading of the Use and Maintenance Manual may not be enough to know and operate the machine, it is necessary for the entire target audience to get the minimum training required to operate the machine in a suitable and safe way.



### **1.3 WARRANTY TERMS**

*For detailed information about warranty terms, refer to the indications in the sale contract.*

The warranty is automatically void in case of changes to the machine without previous consent by **MAUS ITALIA S.a.s.**, which shall not be liable in case of accidents, damages and injuries to persons and/or goods.

### **1.4 TEST**

All the machines produced by MAUS ITALIA have undergone a preventive, full test.

MAUS ITALIA issues a Test Certificate which guarantees the correct operation of the machine.

## 1.5 GENERAL PROVISIONS

The user shall notice the personnel in charge of machine operations about the following topics concerning safety provisions:

- risk of injuries;
- devices for operator safety;
- general accident prevention rules or rules provided by international directives and by the laws applicable in the Country where the Machine will be used.

The operator, the personnel in charge of maintenance and cleaning, etc., shall strictly meet the accident prevention rules of the Country where the Machine will be used.

### ATTENTION

The operator, before starting work, shall know the position and the operation of the controls and the features of the Machine and shall have fully read this Manual.

Instructions, warnings and general accident prevention rules contained in this Manual and in its annexes must be fully read.

## 1.6 REPRODUCTION LIMITS AND COPYRIGHT

All the rights are reserved to **MAUS ITALIA S.a.s.**

The structure and the content of this Manual cannot be reproduced, nor even partially, without explicit authorization by **MAUS ITALIA S.a.s.**

It is forbidden as well the storage on any media (magnetic, magneto-optical, optical, microfilm, photocopies, etc.) or transfer to third parties.

## 1.7 CHARACTERISTICS OF THE OPERATORS AND LANGUAGE USED

To understand the instructions (text and illustrations), the operators must be provided with (or acquire by means of suitable education and training) the following characteristics:

- general and technical know-how sufficient to read and understand the contents of the Manual in the parts which concern them and to correctly understand drawings and layouts;
- ability to understand the symbols and pictograms;
- knowledge of the main rules concerning hygiene, accident prevention and technology;
- overall knowledge of the machine;
- how to behave in case of emergency, where to find the suitable individual protection devices and how to use them correctly.

### ATTENTION:

Maintenance operators, besides the previous characteristics, shall have a good technical preparation and the specific and specialist (mechanic, electric, pneumatic and hydraulic) technical know how necessary for the activities indicated in the Manual.



## 1.8 STORAGE OF THE MANUAL

Store this manual in an easily accessible location, near the Machine, known to all users (operators and personnel in charge of maintenance).

Operators and maintenance technicians must be able to quickly find the manual and the annexes, in any situation.

### WARNING

The Manual is an integral part of the machine.

Therefore:

- it must be kept complete (in all its parts), without modifications to any page, such as corrections, erasures, abrasions or whatever else does not allow a clear reading of its contents;
- it must follow the machine until its demolition (even in case of relocation, sale, rent, lease, etc.);
- it must be kept up to date and indicate any change performed;
- it must be made available for whoever shall operate the Machine;
- it must be updated after structural changes performed after agreement with **MAUS ITALIA S.a.s.**

## 1.9 UPDATES OF THE MANUAL

The Use and Maintenance Manual represents the state of the art as of the date of release of the machine. The manufacturer reserves the right to perform changes to the Machine and, consequently, to the related Manuals, without being obliged to update the previous editions.

The user can ask for information and updates which, when released, are integral to the Use and Maintenance Manual.

We recommend the user, in case of sale of the machine, to transfer as well the Manual and notice **MAUS ITALIA S.a.s.** about the new owner so that the latter can obtain the later updates.



## 1.10 ARRANGEMENTS CARRIED OUT BY THE CUSTOMER

(with reference to the provisions of the contract).

The Customer (user) shall arrange the installation site and the works for auxiliary equipment necessary for machine operation, as listed below:

- arrangements of the areas;
- possible hoisting devices for machine handling;
- possible safety devices upstream and downstream the power supply lines (such as switches, differentials, grounding systems, safety valves, etc.) required by current laws;
- arrangement of electric, pneumatic and hydraulic systems, up to the supply points of the Machine according to the applicable standards;
- arrangement of the auxiliary systems, suitable for the requirements of the Machine;
- any tool and consumable necessary for assembly and installation.

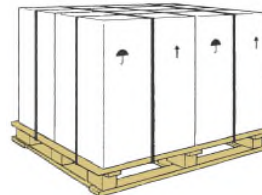
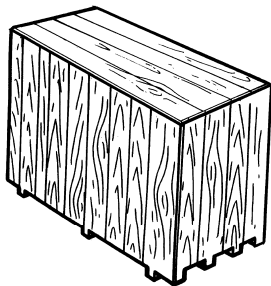
## 1.11 GENERAL NOTES ABOUT DELIVERY

The Machine can be shipped on pallet, packaged in a crate or without packing.

Verify that:

- the packing is undamaged;
- there are no damages to the Machine; control panel, etc.;
- the supply meets order specifications (see packing-list).

In case of damages or missing parts, immediately notice with details and/or pictures **MAUS ITALIA S.a.s.**, the carrier and its insurance company.



## 2 SAFETY REQUIREMENTS

### 2.2 CONVENTIONAL SYMBOLS AND THEIR DEFINITIONS

The Use and Maintenance Manual includes a few symbols: here is their meaning:



#### **GENERIC DANGER**

It warns the personnel that the operation, if not performed in compliance with the safety rules, is a source of possible injuries or damages to persons.



#### **DANGER OF ELECTRIC SHOCK**

It warns the personnel that the operation, if not performed in compliance with the safety rules, is a source of possible injuries or damages to persons due to electric shock.



#### **ATTENTION**

It provides the personnel with information whose non compliance may cause severe injuries to persons and/or severe damages to the Machine.



#### **WARNING**

It provides the personnel with information whose non compliance may cause light injuries to persons and/or incorrect operation of the Machine.



#### **INFORMATION**

Provides the personnel with information which give useful tips about use and maintenance of the machine.



#### **TIP**

It concerns a factory proven work mode, knowing that each operator will develop his operating method.



#### **MACHINE OPERATOR**

Identifies qualified, trained personnel, even by means of training course at MAUS ITALIA, that is provided with specific skills for the correct, safe use of the machine.

**It is strictly forbidden for the operator to perform the operations which are under the responsibility of the maintenance technician.**



#### **MECHANIC MAINTENANCE TECHNICIAN**

Qualified technician, able to intervene on mechanic parts to perform all the required adjustments, maintenance and repair interventions.



### **ELECTRIC MAINTENANCE TECHNICIAN OR SKILLED PERSON**

(See EN 60204-2006 para. 3.53)

Qualified technician, able to operate the machine in standard conditions, in charge of all adjustments, maintenance and repair interventions concerning the electric system.

He can operate even in case of live electric cabinets/panels and boxes.

He is not allowed to intervene on the mechanic parts of the Machine.



### **DEPARTMENT MANAGER OR SAFETY MANAGER**

See Law Decree no. 81/2008 of 9 April 2008.



### **MAINTENANCE TECHNICIAN OF MAUS ITALIA S.a.s. (Extraordinary maintenance)**

The Technician is authorized to perform extraordinary changes on the Machine, replacing components and instruments with others with different features. Performed changes shall be documented and copy of the documentation shall be released to the Customer.



### **MANDATORY READING OF THE MANUAL**

It is mandatory to read the Safety Prescriptions and notably the entire Instruction Manual.



### **EXTRAORDINARY INTERVENTIONS**

Any maintenance intervention highlighted by the nearby symbol must be requested to the manufacturer.









### **PORTABLE LAMPS**

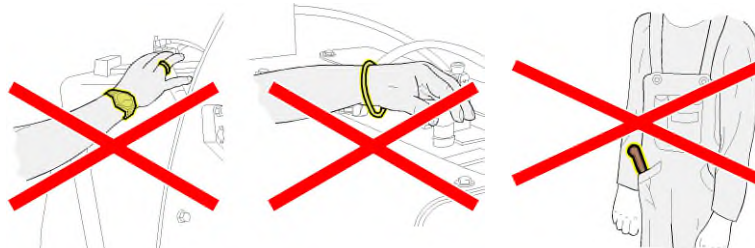
For cleaning, lubrication, maintenance operations in dark areas, we recommend to use portable lamps.

## 2.2 WEAR AND PERSONAL SAFETY DEVICES

The presence of a symbol among those indicated on the Machine or on the Manual **mandatorily** requires the use of personal safety devices by the operator, being the risk of accident implicit.

	OBLIGATION TO WEAR WORK GLOVES SUITABLE FOR THE TASKS TO BE PERFORMED	<ul style="list-style-type: none"> <li>• HANDLING</li> <li>• TUNING</li> <li>• CLEANING</li> <li>• LUBRICATION</li> <li>• MAINTENANCE</li> </ul>
	OBLIGATION TO WEAR WORK SHOES	<ul style="list-style-type: none"> <li>• OPERATORS</li> <li>• MAINTENANCE OPERATORS</li> </ul>
	OBLIGATION TO WEAR A SUIT CLOSED AT THE WRISTS AND/OR WITHOUT LOOSE PARTS	<ul style="list-style-type: none"> <li>• OPERATORS</li> <li>• MAINTENANCE OPERATORS</li> </ul>
	OBLIGATION TO WEAR PROTECTIVE HELMET	<ul style="list-style-type: none"> <li>• OPERATORS</li> <li>• MAINTENANCE OPERATORS</li> </ul>
	OBLIGATION TO WEAR ANTINOISE HEADPHONES	<ul style="list-style-type: none"> <li>• OPERATORS</li> <li>• MAINTENANCE OPERATORS</li> </ul>
	OBLIGATION TO WEAR MASKS TO PROTECT THE RESPIRATORY TRACT FOR ORGANIC, INORGANIC, ACID VAPOURS	<ul style="list-style-type: none"> <li>• MAINTENANCE OPERATORS</li> <li>• OPERATORS</li> </ul>
	OBLIGATION TO WEAR MASKS WITH SIDE PROTECTIONS FOR THE FACE AND SUITABLE PROTECTION FILTER	<ul style="list-style-type: none"> <li>• OPERATOR</li> <li>• MAINTENANCE OPERATORS</li> </ul>
	OBLIGATION TO WEAR PROTECTIVE GOGGLES	<ul style="list-style-type: none"> <li>• OPERATOR</li> <li>• MAINTENANCE OPERATOR</li> </ul>

Never wear loose and/or torn objects and/or clothes (necklaces, wristwatches, rings, bracelets, scarves, foulards, ties, etc.).



Always keep buttons or hooks on the sleeves hooked, to avoid entangling.  
Always keep buttons or hooks on the sleeves hooked, to avoid entangling.

## 2.3 GENERAL SAFETY REQUIREMENTS

Here is a set of Safety requirements applicable to the Machine.

### DEFINITION OF DANGEROUS ZONE:

Zone inside and/or near the machine, where the presence of an exposed person is a risk or danger for the health and safety of the person (as described in Directive 2006/42/CE ann.1 par.1.1.1)

### DEFINITION OF DANGEROUS SITUATION:

Any situation in which a person is exposed to at least a danger (as described in Standard EN ISO 12100-1 para 3.9).

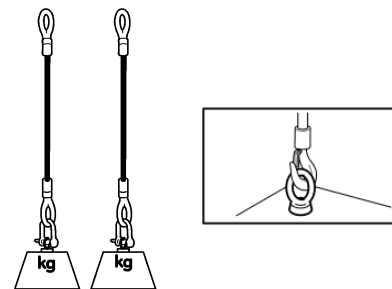
**IN ANY CASE, ONLY ONE OPERATOR CAN STAND IN FRONT OF A WORKPLACE.**

**DURING OPERATION, NOBODY ELSE CAN STAND NEAR THE MACHINE.**

The panel includes live terminals with the symbol: 

NEVER cause short circuits among live terminals, since, besides possible damages to the electric system, the sparks which may ensue, in presence of flammable substances or vapours, may generate a DANGER OF FIRE.

Use undamaged hoisting accessories, hooks provided with safety tab, chains and other accessories with suitable capacity.



DO NOT leave tools or objects resting on the machine and, notably, do not deposit or rest containers with fluids near electric parts (e.g. electric panel, control panel).







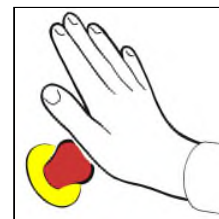
DO NOT pass below or near the handling area: DANGER OF FALL OF OBJECTS, MATERIALS or of the LOAD.



Remember the position of the EMERGENCY STOP buttons, to be able to reach them immediately in case of need.

Remember that pressing the **STOP-EMERGENCY** button:

all the moving parts of the Machine are stopped;



**When the machine is running, notably when it is operative, take care not to accidentally operate the stop switches or the emergencies.**



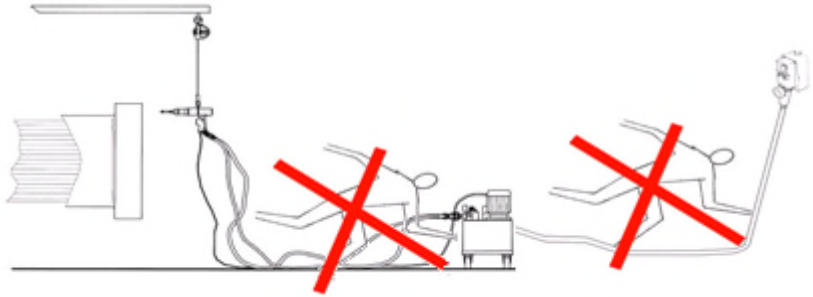
Adjustment, maintenance, and/or replacement operations or other interventions must always be performed only by the Maintenance operator, which shall always wear protective gloves and take the utmost care.



Always have the maintenance technician perform maintenance, adjustment operations or any operation outside the scope of the tasks commissioned by the manager.

**ATTENTION DANGER OF TRIPPING**

Pay close attention to the connecting cables.

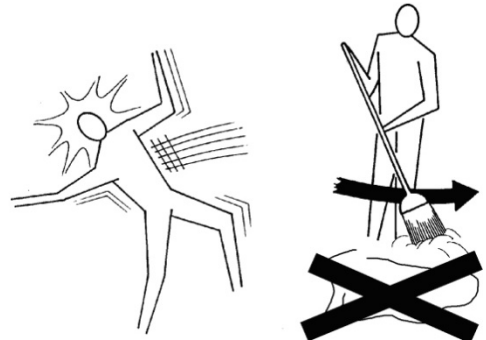


**ONLY ONE OPERATOR MAY STATIONED NEAR THE MACHINE**

**DURING OPERATION, NO OTHER PERSON SHOULD STAY NEAR THE MACHINE**



The operator shall take care that the space or the floor around the machine is clean so as to avoid slipping and consequently shocks and/or falls.



**THE FLOOR MUST BE KEPT CLEAN AND DRY.**



**Before performing any type of maintenance or cleaning, bring the Machine to energy state zero. (unless otherwise indicated).**

## 2.4 SAFETY REQUIREMENTS FOR THE USE OF TP60-HDE

Before starting any operation, make sure to have correctly read and understood this manual.

Do not perform changes or maintenance operation not described.

For any doubt or problem about the use of the machine, even if not described here, refer to qualified personnel or to MAUS Italia s.a.s

MAUS Italia shall not be liable for damages to persons or goods, occurred due to lack of care in reading or implementing whatever described in this manual.

Use the machine only for designed uses.

Do not operate the machine without having read this instruction manual.

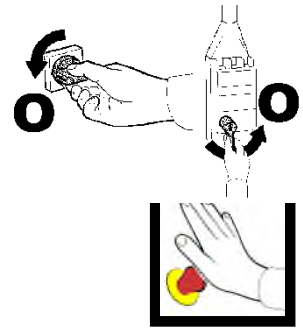
Not suitably trained personnel shall not use the machine.

It is forbidden to install the machine in an environment with potentially explosive atmosphere. Installation in this type of environment is to be considered improper use.

## 2.5 SAFETY REQUIREMENTS CONCERNING MAINTENANCE OPERATIONS



Before performing any maintenance intervention, bring the Machine to energy state zero.



The maintenance of the electric system must be exclusively performed by qualified personnel.

If it is necessary to replace the electric, hydraulic or pneumatic parts, only products with the same specifications as the original products shall be used.

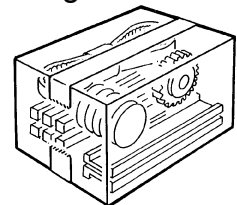


After cleaning, lubrication, maintenance operations, all safeties must be restored.

Always keep the machine clean and ready to be used.



Maintenance interventions must be carried out only by qualified personnel, according to the requirements of the documents sent with the machine, or according to the indications of the person in charge.



MAUS ITALIA recommends to have available a stock of spare parts and of components subject to wear.

Carefully read the section of this Manual concerning maintenance.

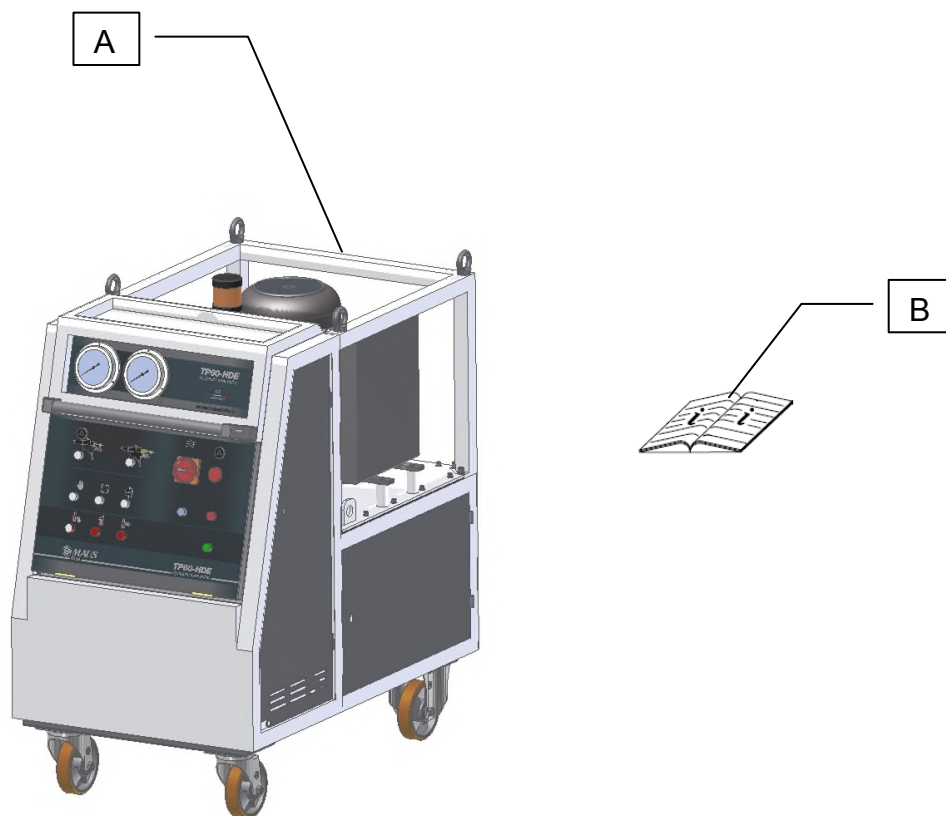
### 3 PRODUCT IDENTIFICATION DATA

<b>MACHINE</b>		
	HYDRAULIC POWER UNIT	
	Model:	TP60-HDE
	Serial number:	
	Year of manufacturing	
<b>Manufacturer</b>		
	MAUS Italia F. Agostino & C. S.a.s.	
	SS. Paullese Km. 30,	
	26010 Bagnolo Cremasco (CR)	
	ITALY	

## 4 STANDARD SUPPLY

The hydraulic power unit is provided with the supply cable already wired for connection to the mains.

The standard supply includes the following items:



POS.	DESCRIPTION
A	Hydraulic power unit TP60-HDE
B	Instruction manual

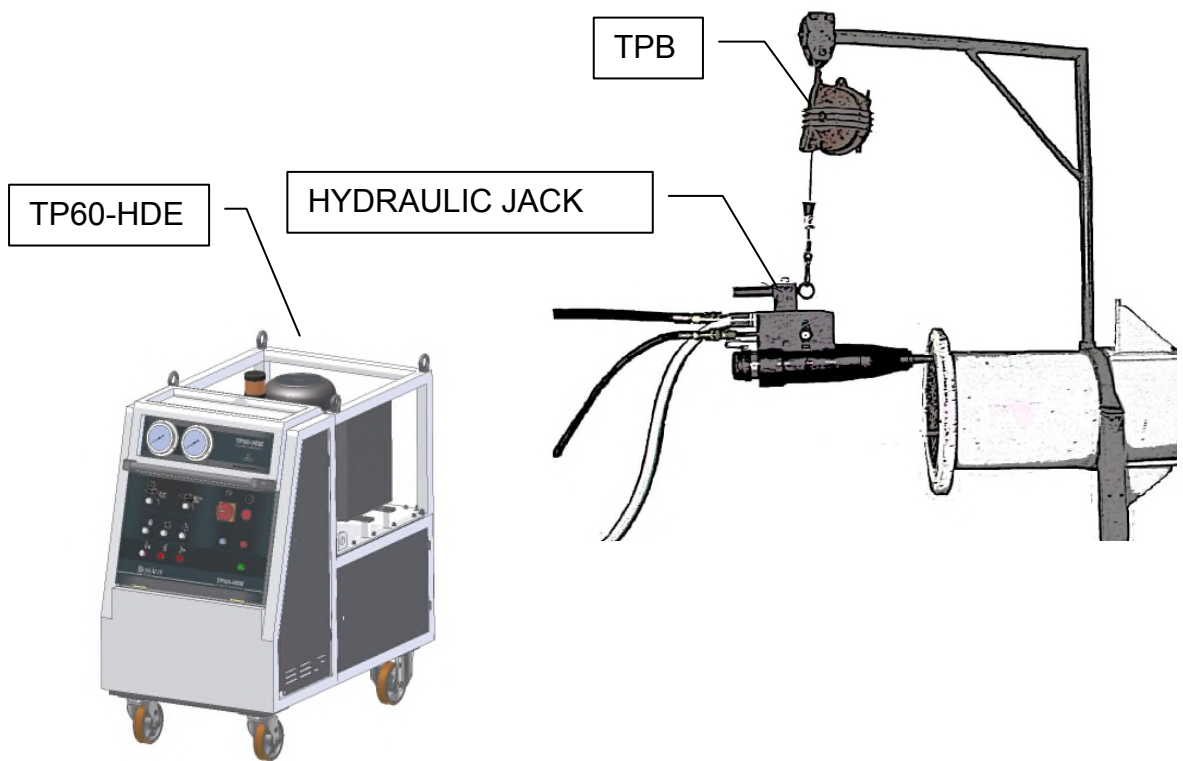
## 5 TECHNICAL FEATURES AND DESCRIPTIONS

### 5.1 DESCRIPTION OF THE SYSTEM

TP60-HDE hydraulic power unit has been designed and manufactured to activate hydraulic jacks of series RUNPUL, ONLYPUL, GRIPPUL. This power unit model is particularly suitable for heavy duties or requiring short operation time.

The equipment consists of::

- Hydraulic jack
- Hydraulic connection tubes
- Multi-pole electric connection cable
- TPB weight balancer
- Hydraulic power unit model TP60-HDE

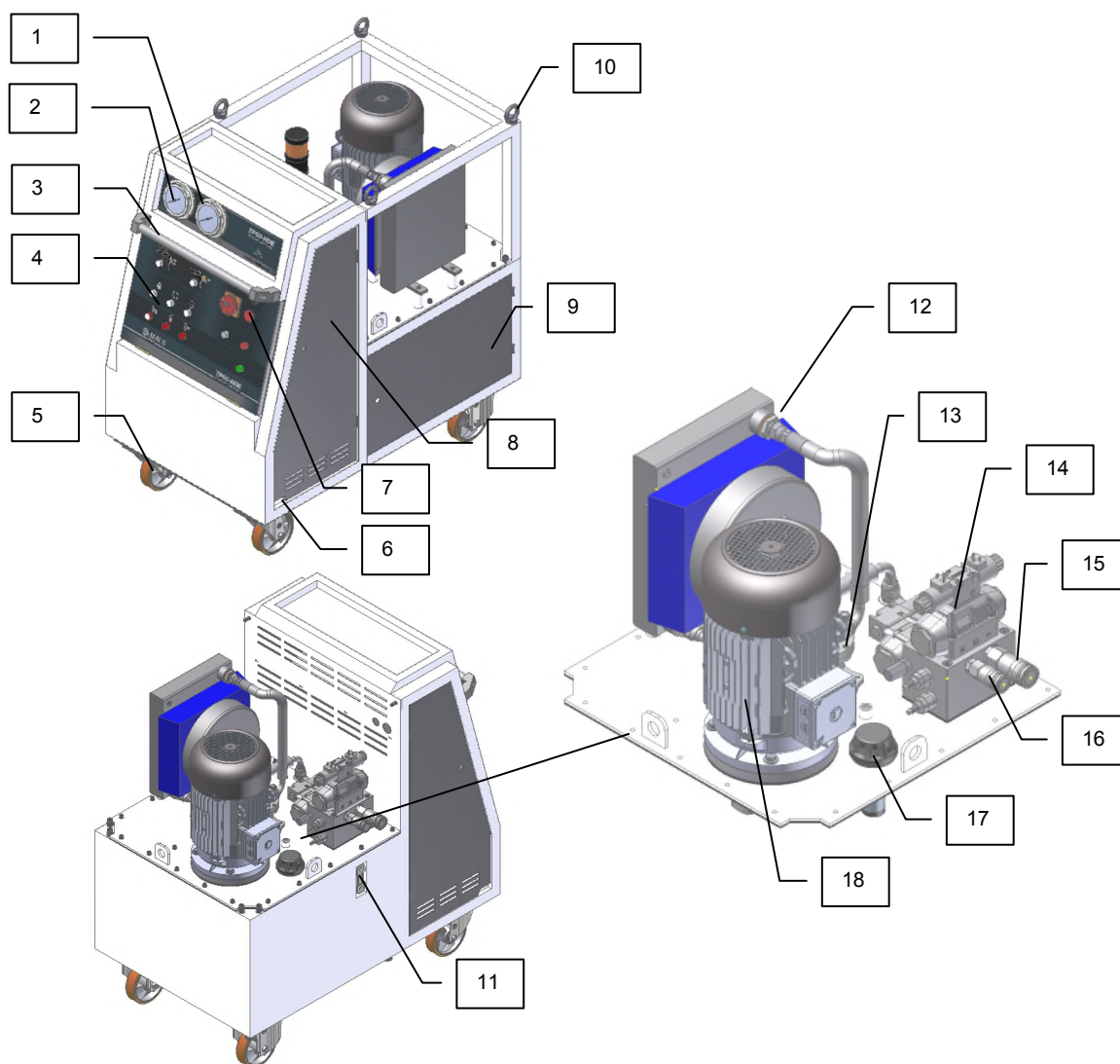


**As already indicated in Chapter 1, MAUS ITALIA produces and markets a wide range of hydraulic jacks.**

**For the detail of the technical features related to the jacks and to the equipping of the system, please read the specific manual.**

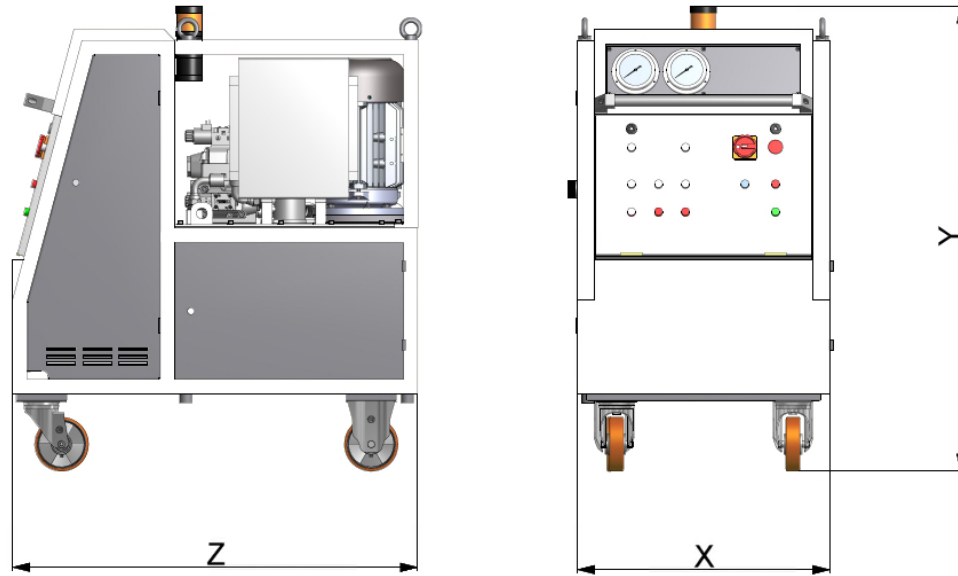
## 5.2 TECHNICAL SPECIFICATIONS

The main parts of the hydraulic unit TP60-HDE are:



Pos.	Description	Pos.	Description
1	Extraction pressure manometer	10	Lifting eyebolts
2	Return pressure manometer	11	Oil level indicator
3	Handle	12	Oil cooling fan
4	Control panel	13	Filter
5	Wheel (front, with stop, rear, free)	14	Distribution unit
6	Equipotential circuit coupling	15	Delivery joint
7	Emergency stop button	16	Return joint
8	Cable-holding compartment	17	Plug for oil tank
9	Jack-holding compartment	18	Electric motor





### TECHNICAL SPECIFICATION

Drained power		7,5 KW	
Supply voltage		220/380 440/480 Vac-3 phase	
Frequency		50-60 Hz	
Supply cable	Number of poles	4 (3ph+ground)	
	Section	2.5 mm <sup>2</sup>	
	Length	6 m	
Hydraulic oil		H68	
Tank capacity		90 litres	19.8 gallons
High flow rate		60 l/min	13.2 gallons/min
Low flow rate		9.3 l/min	2 gallons/min
Low pressure value		40 bar	4 Mpa 580 Psi
High pressure value		350 bar	35 Mpa 5075 Psi
X		700 mm	Inch 27.5
Y		1290 mm	Inch 50.8
Z		1125 mm	Inch 44.3
Weight (with oil)		410 Kg	Lbs 903
Operator position sound pressure level		< 70db (A)	

## 6 TECHNICAL SERVICE INFORMATION

For further information or any other technical service need, contact **MAUS ITALIA S.a.s.**



<b>COMPANY NAME</b>	<b>MAUS Italia F. Agostino &amp; C. S.a.s.</b>
<b>ADDRESS</b>	<b>SS. Paullese Km. 30, 26010 Bagnolo Cremasco (CR) ITALY</b>
<b>PHONE</b>	<b>(+39) 0373.237001</b>
<b>FAX</b>	<b>(+39) 0373.649560</b>
<b>e-mail</b>	<b>info@mausitalia.it expo@mausitalia.it</b>
<b>Internet site</b>	<b>www.mausitalia.it</b>

## 7 SCOPE OF APPLICATION

Maus Italia has designed and realized the hydraulic power unit TP60-HDE, for the safe use of the hydraulic jacks (Kattex, Grippul, Onlypul, etc.) produced by the Company.

WE REMIND THAT READING THIS MANUAL DOES NOT NON EXONERATE FROM COMPLIANCE WITH APPLICABLE LAWS CONCERNING SAFETY AND ACCIDENT PREVENTION RULES APPLICABLE IN THE COUNTRY WHERE THE MACHINE HAS BEEN INSTALLED AND USED.



With reference to the indications in this Instruction Manual, **MAUS Italia S.a.s.** shall not be responsible for damages to goods or persons due to:

- improper use of the Machine;
- defects of mains voltage;
- wrong connection to the mains;
- unauthorized changes to the Machine;
- non compliance with applicable safety and accident prevention standards;
- non compliance with the prescriptions of this Manual.

### ATTENTION !!

**If the Machine DOES NOT comply with the indications of this Instruction Manual, any responsibility and type of warranty by the Manufacturer is void.**



**Before using the Machine, read and understand the indications of this Use and Maintenance Manual.**

## 8 DISPOSAL

### 8.1 DISPOSAL OF THE MACHINE

Once the Machine has reached the end of its lifecycle, it must be decommissioned, so that it cannot be used for purposes different from the designed ones, making possible the reuse of the parts and materials with which it had been manufactured.

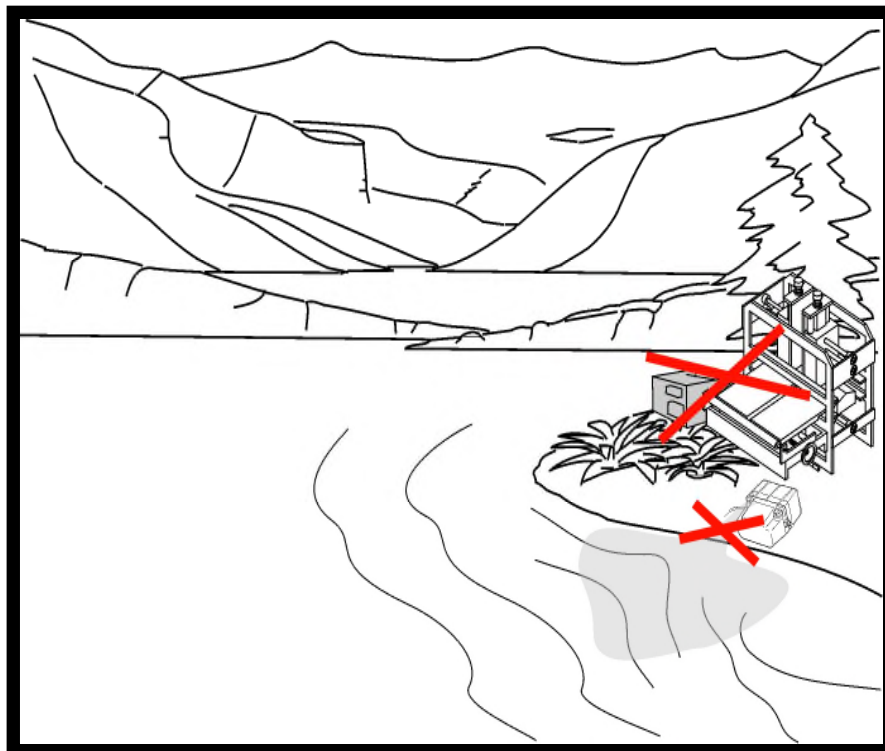
**MAUS ITALIA S.a.s.** shall not be liable for damages to goods and persons ensuing from the reuse of the parts of the machine for purposes different from the designed ones.

#### WARNING

Before starting disposal operations, the personnel shall have read and understood the Safety Prescriptions at the beginning of this Manual and shall wear the Personal Protection Devices (work gloves, accident prevention shoes, work overalls, protective goggles, etc.).



**DO NOT DISPOSE OF POLLUTING MATERIAL SUCH AS OILS, DIESEL OIL, GREASES, PRODUCTION RESIDUALS, RESIDUALS OF RAW MATERIALS, ETC., INTO THE ENVIRONMENT. .**



**DURING DISPOSAL OPERATIONS, SORT THE DIFFERENT TYPES OF MATERIAL.**



If you don't want to use the control unit any longer and you want to dispose of it, here are a few recommendations:

- Empty the tank from the hydraulic oil and dispose of it according to the applicable standards.
- Fully disassemble all the parts, to remove the details in plastic or rubber such as seals or enclosures of electric parts; then proceed with the disposal of the different materials which constitute the machine.

There are no dangerous substances in the **TP60-HDE control unit**.



**ALL THE COMPONENTS MUST BE DISPOSED OF BY AUTHORIZED COMPANIES, SPECIFIC FOR EACH ITEM, AND IN COMPLIANCE WITH THE APPLICABLE LAWS.**

**The Machine identification plate shall be returned to MAUS ITALIA S.a.s..**

## 9 TRANSPORT AND HANDLING

### ATTENTION !!

#### DANGER OF SHOCK, ABRASION AND CUT

The personnel in charge of Machine handling must have read and understood the Safety Prescriptions at the beginning of this manual and shall wear work overalls and gloves, injury prevention shoes, helmet and goggles.



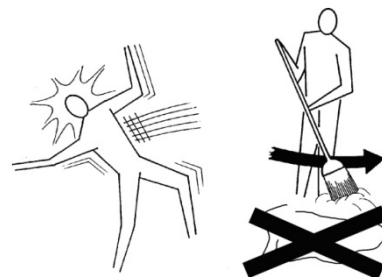
### WARNING

The handling of the machine and of its detached parts (if any) shall be performed exclusively as indicated in this section, never slinging it on overhanging parts.

The Machine is designed for Oil industry work environments; consequently, the environmental conditions for its operation must comply with the applicable laws.

Lifting, handling and unpacking operations related to the unit shall be performed exclusively by trained personnel for this type of operations (lift truck or crane operators).

Clean the zone near the area where the Machine will be installed, so as to avoid slipping, stumbling, or falls.



## 9.1 HANDLING OF THE PACKAGED MACHINE



### NOTE:

**IF NOT IMMEDIATELY UNPACKAGED, STORE THE MACHINE PACKAGED, IN DRY, COVERED ENVIRONMENT.**

**USUALLY, WHEN THE MACHINE IS PACKAGED IN A CRATE, OUTSIDE THE PACKING THERE ARE ALL THE INDICATIONS REQUIRED FOR ITS HANDLING.**

### 9.1.2 HANDLING OF CRATES WITH FORKLIFT

When crates are handled by means of a forklift, proceed as indicated below:

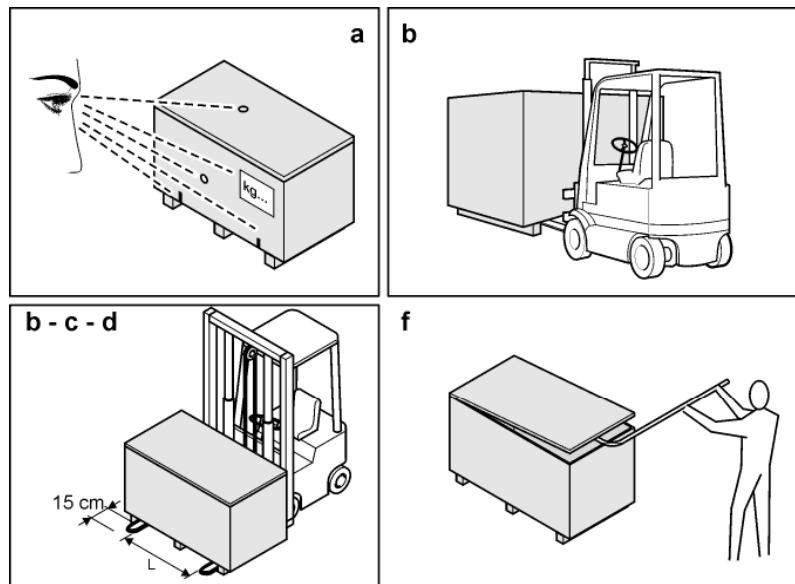
a) observe the indications on the crate (notably the position of the forks and the barycentre): note that the position of the forks is the largest possible (L);

b-c-d) equip yourself with a forklift of suitable capacity; the forks must stick out of the crate by at least 10 cm.;

b-c-d) handle the crate slowly, at a low distance from ground (max. 20 cm.), aided by another person, if the view is blocked;

b-c-d) slowly rest on ground;

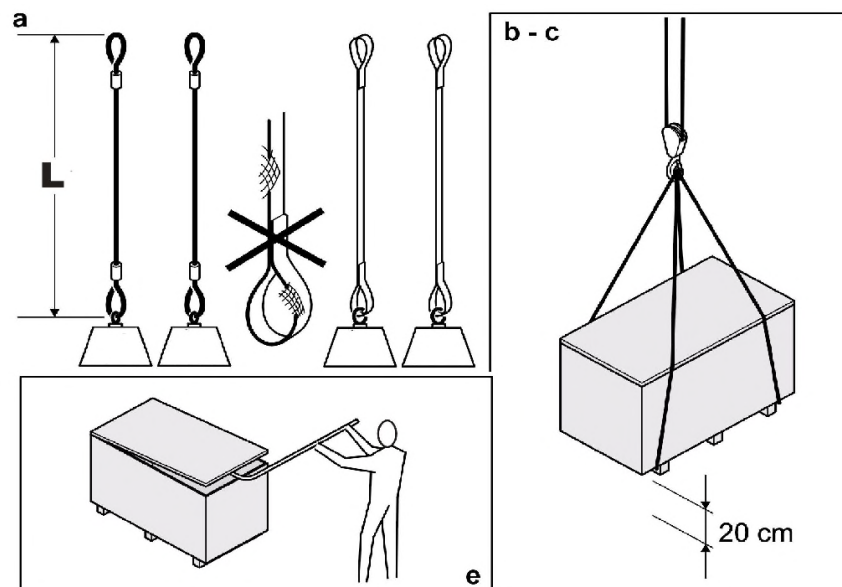
f) to open the crate, use suitable means (such as a jemmy), starting from the cover.



### 9.1.3 HANDLING OF CRATES WITH GANTRY CRANE AND ROPES

When the crate is handled with gantry crane and ropes, proceed as indicated below:

- a) equip yourself with two ropes or belts:
  - with minimum capacity **2000 kg.** each;
  - with a length **L** such as to be able to lift the crate in safety conditions (see sheet on exterior packing);
  - with eyelets at the ends and not worn;
- a) sling the crate observing the indications on the crate (position of the ropes, barycentre and weight);
- b-c) handle the crate slowly, at a low distance from ground (max. 20 cm.), aided by another person, if the view is blocked;
- d) slowly rest on ground;
- e) to open the crate, use suitable means (such as a jemmy), starting from the cover.





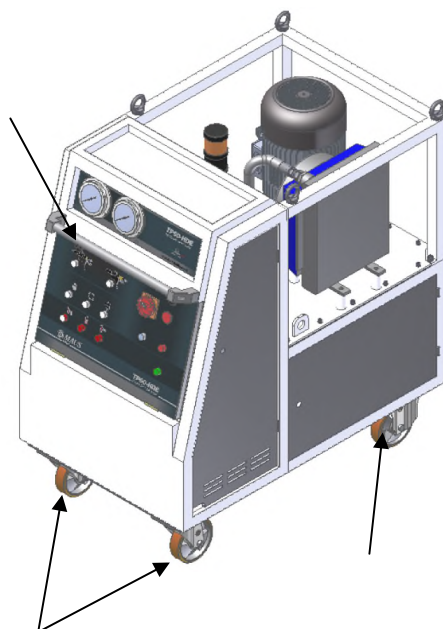
## 9.2 HANDLING OF THE UNPACKAGED MACHINE

The handling of the unpackaged machine can be performed in two ways:

- by means of wheels (manually);
- by means of gantry crane;

### 9.2.1 HANDLING OF THE MACHINE BY WHEELS

To ease handling in the work area, TP60-HDE is provided with swivelling wheels and a handle . This enables to move the machine with ease, positioning the control unit in front of the work to be performed



### 9.2.2 HANDLING OF THE MACHINE BY MEANS OF GANTRY CRANE

When the machine is handled with gantry crane and ropes, proceed as indicated below:

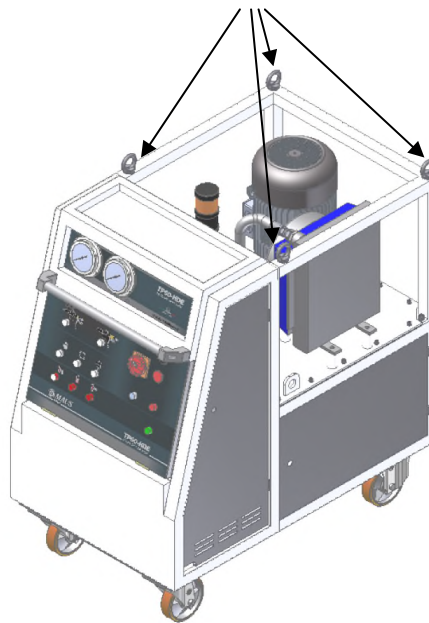
equip yourself with two ropes or belts:

- with minimum capacity **1000 kg.** each;
- with a length **L** such as to be able to lift the machine in safety conditions;
- with eyelets at the ends and not worn;

sling the machine taking care of the position of the ropes, barycentre and weight;

handle the machine slowly, at a low distance from ground (max. 20 cm.), aided by another person, if the view is blocked;

slowly rest on ground;



## 10 INSTALLATION

### ATTENTION

#### GENERIC DANGERS AND DANGER OF ELECTRIC SHOCK

**These operations must be carefully performed by Technicians of MAUS ITALIA S.a.s. or by Technicians of the Customer, after suitable preparation.**



The Technician must have read and understood the entire section “Safety requirements” at the beginning of this Manual.

Besides, he shall make sure that, during connection operations, there are no persons in the area near the Machine and the energy sources.

The personnel in charge of installation shall wear work overalls and gloves, accident prevention shoes and goggles.



## 10.1 REFILLING OF HYDRAULIC OIL



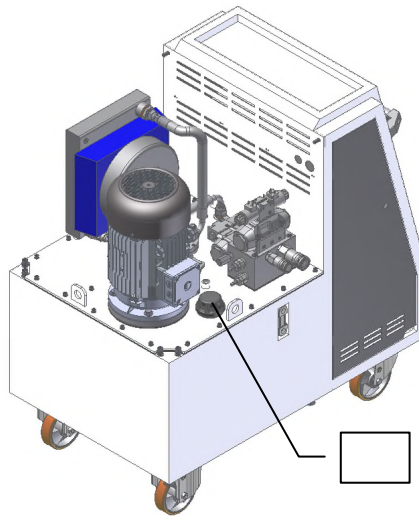
### ATTENTION, MACHINE WITHOUT HYDRAULIC OIL!

Do not start the control unit without having filled the oil tank, such operation may damage the oil pump.

The hydraulic power unit TP60-HDE is shipped or delivered with oil tank empty.

**Do not start the control unit without having filled the oil tank.**

To fill the tank of the control unit, follow the procedure below:

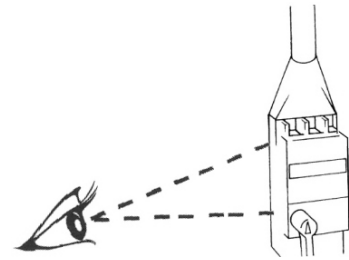


- Remove the cap “17”
- Fill the tank (capacity 90 liters) with hydraulic oil.



## 10.2 ELECTRIC CONNECTIONS

Always check for the correct supply voltage.  
Make sure that electric cables and connections are always in good state and efficient.



Perform the electric connections of all the electric components of the systems as follows:

- Connect, by means of the multi-pole electric cable, the jack to the TP60-HDE control unit
- Then, connect the power cable of the control unit TP60-HDE to the mains.
- Connect the cable to the circuit bonding.



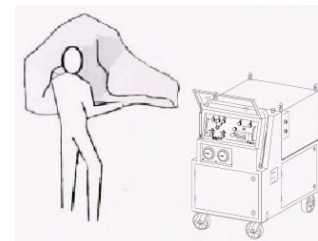
## 10.3 HYDRAULIC CONNECTIONS

**FOR THE DETAIL OF THE OPERATIVE STAGES OF THE HYDRAULIC CONNECTIONS OF THE JACK, REFER TO THE SPECIFIC MANUAL .**

## 10.4 DISASSEMBLY AND DEPOSIT OF THE MACHINE

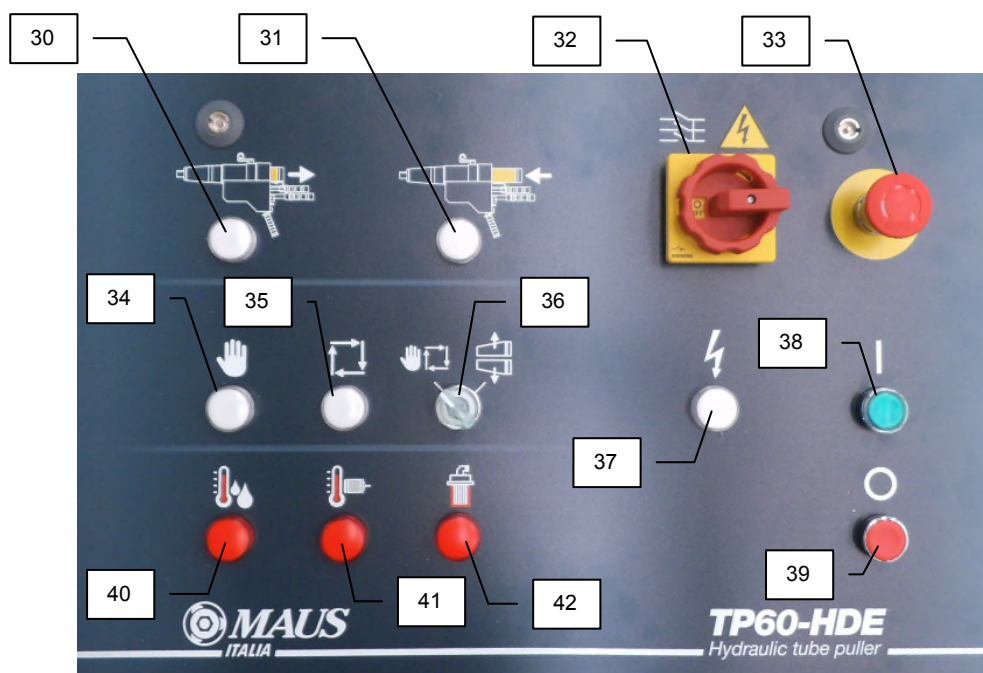
When the equipment is no longer used, operate as follows:



- Press the "Expansion" or "Return" button of the jack so as to bring the "piston" to rest position, which is located at approx.. half of its run, so as to fully remove pressure from both hydraulic tubes.
- Stop the hydraulic power unit.
- Disconnect the hydraulic power unit from the mains.
- Disconnect the hydraulic tubes which connect the hydraulic power unit to the jack, taking care of the position of the index on the quick joints.
- Disconnect the multipole cable for electric connection between the hydraulic power unit and the jack.
- If the machine is not used for a long period, store it in a dry place far from sources of excessive heat, magnetic fields, excessive humidity, dusty environments, etc.. We recommend to cover it with cellophane



## 11 CONTROL PANEL AND OPERATING MODE

### 11.1 CONTROL PANEL



Pos.	Description
30	Extraction phase pilot light
31	Return phase pilot light
32	On/off switch
33	Emergency stop button
34	Manual work cycle pilot light
35	Automatic work cycle pilot light
36	Manual/automatic cycle selector  , pliers release 
37	Voltage indicator (24 Volt)
38	Control unit start button
39	Control unit stop button
40	Oil temperature alarm pilot light
41	Motor overheating indicator
42	Filter clogging alarm pilot light



## 11.2 STARTUP

**BEWARE, MACHINE WITHOUT HYDRAULIC OIL!**

**Do not start the control unit without having filled the oil tank, such operation may damage the oil pump.**

## 11.3 CHECK OF MOTOR ROTATION DIRECTION

Before starting work, verify that the rotation direction of the motor is correct.

To verify the correct rotation direction of the motor fan act as follows:

- Connect the multi-pole connector to the jack.
- Switch on the control unit rotating the switch 32 bringing it to “ON” position.
- Operating the start button 38 and the stop button 39, provide pulses and verify the direction of rotation of the control unit motor.
- The motor fan must rotate clockwise; otherwise, switch it off immediately and power off the control unit by rotating switch 32 to “OFF”.
- Reverse two phases of power supply cable plug, then try again.

## 11.4 SELECTION OF THE WORK CYCLE

After performing all hydraulic and electrical connections and checking rotation direction, the system is ready to work.



Switch on the control unit rotating the switch 32 bringing it to "ON" position and press the start button 39.

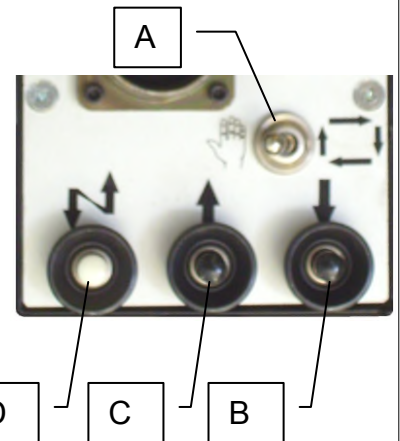
Using the Runpul series jacks, the control unit allows to perform manual or automatic cycles. In the manual cycle, each phase (extraction, return) depends on pressing the relevant button installed on the jack. When the automatic cycle is started, the Runpul jack continuously performs extraction and return phases.



Using the onlypul or grippul series jacks, always the manual cycles is used.

### 11.4.1 MANUAL CYCLE

To perform the work cycle in manual mode, act as follows:

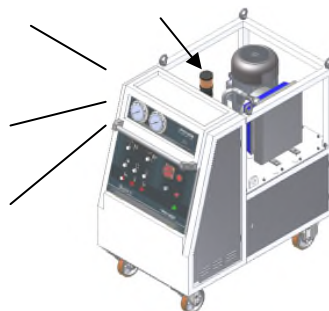
- Bring selector "36" of the TP60-HDE to position . From the control panel of the Runpul jack, bring selector "A" to the manual cycle position marked by the symbol .



- To perform the extraction phase, press and hold the button "B" marked by the symbol .
- To perform the return phase, press and hold the button "C" marked by the symbol .



The control unit is provided with a pressure detection system during extraction. In the manual cycle, when this limit is exceeded, the piston slows down and two warnings are issued: a visual one by means of the turret positioned on the control unit and an audible one.





### 11.4.2 AUTOMATIC CYCLE

The automatic cycle can be performed in two ways:






1-Slow extraction, quick return.

2-Quick extraction, quick return.

#### **AUTOMATIC CYCLE WITH SLOW EXTRACTION, QUICK RETURN**

*NOTE: THE FIRST 3 CYCLES ARE PERFORMED AT REDUCED SPEED*









To perform the automatic cycle with slow extraction and quick return, act as follows:

- Bring selector “36” of the TP60-HDE to position . From the control panel of the Runpul jack, bring the selector “A” to the automatic cycle position marked by the symbol .
- To start the automatic cycle with slow extraction and quick return from the control panel of the Runpul jack, press once the button “D” marked by symbol .
- To stop the cycle, press the button “D” or turn the selector “A” to the manual position .
- To resume the automatic cycle, bring the selector “A” to the position marked by the symbol  and press the button “D”.


#### **AUTOMATIC CYCLE WITH QUICK EXTRACTION, QUICK RETURN**

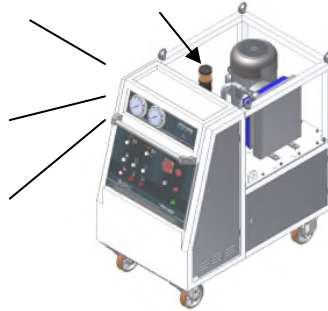
*NOTE: THE FIRST 3 CYCLES ARE PERFORMED AT REDUCED SPEED.*

To perform the automatic cycle with quick extraction and quick return, act as follows:

- Bring selector “36” of the TP60-HDE to position . From the control panel of the Runpul jack, bring the selector “A” to the automatic cycle position marked by the symbol .
- Start the automatic cycle with quick extraction and quick return from the control panel of the Runpul jack, by pressing at first the button “D” marked by symbol  and once the extraction button marked by symbol .
- To return to slow extraction and quick return mode from the control panel of the Runpul jack, press once the button . To return to the quick extraction and quick return cycle, press again the extraction button marked by the symbol .
- To stop the cycle, press the button  or turn the selector “A” to the manual position .

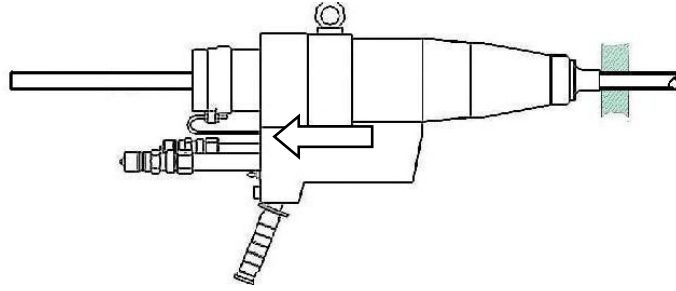


The control unit is provided with a pressure detection system during extraction. In the automatic cycle, when this limit is exceeded, the piston stops and two warnings are issued: a visual warning by means of the turret positioned on the control unit and an audible warning. To resume the cycle, from the control panel of the Rumpul jack, press the button "D" marked by the symbol .




## PLIERS RELEASE


Pliers release is a special cycle to be performed when the jack must be taken out of the pipe not completely extracted from bundle yet.



NOTE: the jack cannot be extracted from the pipe if pliers release is not performed.

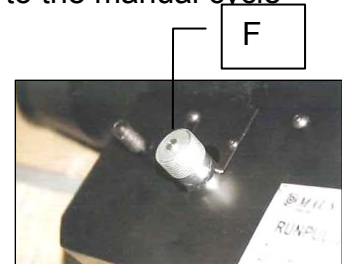
To release the pliers, act as follows:

- Place selector "36" of the control panel of the control unit TP60-HDE on the position marked by the symbol 

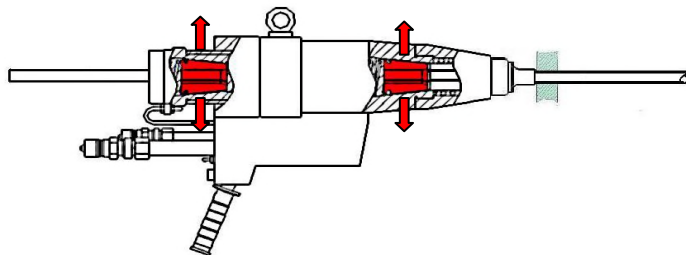
- Place selector "A" of the control panel of the jack to the manual cycle position 

- Open cock "F" of the Runpul jack rotating it anticlockwise.

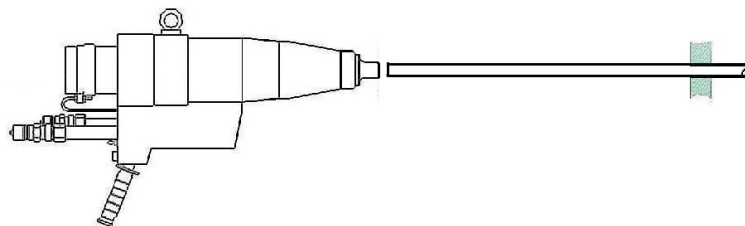
- Press and hold the return button until a pressure of approx. 200-250 bar is achieved, so as to obtain pliers release. If pliers are not released at the first attempt, try again up to achieving a complete release.



- 



- Extract the jack from the pipe.





**ATTENTION: WHEN THE JACK IS EXTRACTED, IT IS MANDATORY TO RESTORE THE INITIAL WORKING CONDITIONS TO PREVENT ANY DAMAGE TO THE RECALL SPRING OF THE PISTON USED FOR PLIERS RELEASE.**

To bring the Runpul jack to the initial working condition, act as follows:

- Press the jack extraction button until the mechanical stroke-end is reached, ensuring that the pressure reaches a value of about 300-350 bars Repeat the operation at least twice.
- **IMPORTANT: SECURELY CLOSE COCK “F”.**



Now the Runpul jack is ready to work.

- **IMPORTANT: bring selector “36” to position 1.**

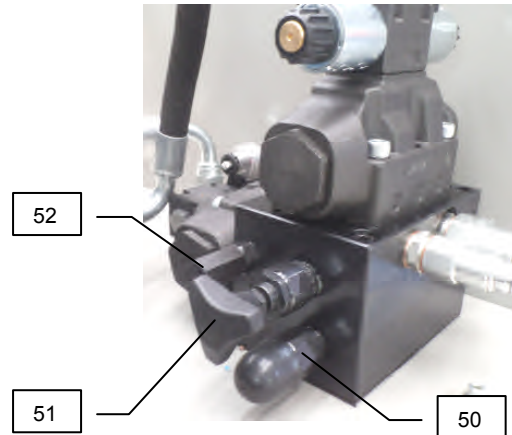


**NOTE: the TP60-HDE control unit can also be used with the jacks of the series Grippul and Onlypul with the following limitations:  
Only manual cycle is allowed.**

## 11.5 ADJUSTMENT OF WORKING PRESSURE AND OIL FLOW RATE

The hydraulic power units of MAUS Italia are provided already tested and calibrated at our workshops.

On the distribution block there are three valves.



Pos.	Description
50	Maximum pressure valve
51	Working pressure adjustment valve
52	Flow control valve

### Maximum pressure valve



This device prevents hydraulic oil pressure from exceeding machine parts capacity during work. This valve is calibrated by MAUS ITALIA.

**NEVER ADJUST THE PRESSURE BY MEANS OF THIS VALVE.  
MAUS ITALIA SHALL NOT BE LIABLE FOR DAMAGE TO PROPERTY  
OR INJURIES DUE TO EQUIPMENT MALFUNCTION CAUSED BY  
TAMPERING WITH THE MAXIMUM PRESSURE VALVE**

### Working pressure adjustment valve

By means of this valve "51", it is possible to adjust the maximum work pressure depending on the equipment used. To increase the work pressure, rotate the valve handle clockwise, to decrease the work pressure, rotate the valve handle anticlockwise.

To check the set pressure value, operate as follows:

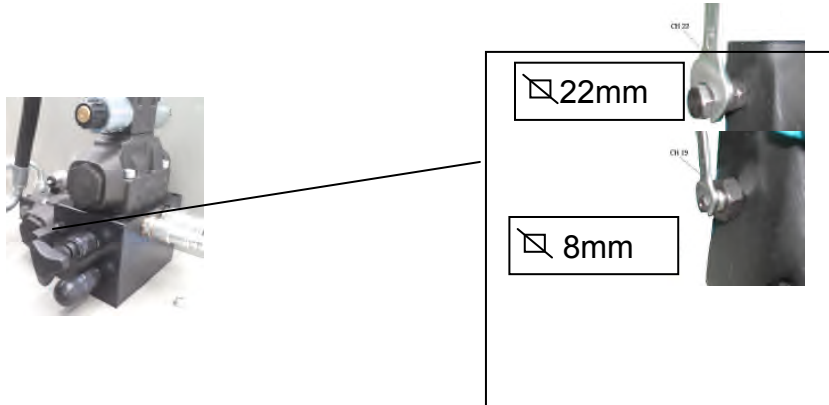
- Place selector "36" of the control panel of the control unit TP60-HDE on the position marked by the symbol 
- Hold and press the jack return button marked by the symbol  verifying on the related pressure gauge the pressure reached.

**ONCE THE PRESSURE HAS BEEN ADJUSTED, PLACE SELECTOR "36" OF THE PANEL OF THE CONTROL UNIT TP60-HDE TO THE POSITION MARKED BY THE SYMBOL .**

### Flow control valve

This device adjusts the oil flow rate to the jack during the manual extraction phase; the device is not activated when the automatic cycle is off.

If it is necessary to adjust the flow rate, operate as shown in the figure:



## 12 FAULTS OR MALFUNCTIONS, CAUSES AND REMEDIES

To ease troubleshooting, here is a list of possible malfunctions. Anyway, refer to instructions on the relevant jack.

### **The power unit does not start.**

- Check for voltage in mains power supply line panel.
- Verify that the emergency is not activated.
- Verify the fuses of the electric system.

### **The temperature of the oil in the tank remains at high values. ( 60° C.)**

- Stop the operations for a few minutes to let the oil in the tank cool.
- Verify the correct operation of the exchanger.
- Contact Maus Italia.

### **The power unit is started, yet the piston in the jack does not move.**

-Immediately power off the power unit and verify the direction of rotation of the motor.

-Verify the electric circuit of the jack in use.

Check the multipole cable for connection between the power unit and the jack.

-Check solenoid valve solenoids: use a tester and press jack activation buttons to ensure they are powered at **24Vac**. Replace it if necessary

-Solenoid valves or distributor are faulty.

In case of doubt or problems contact MAUS ITALIA.

### **The automatic cycle does not start**

-Verify that the selector "36" is in position "1"

-Verify the correct operation of the selector "A" on jack.

### **In manual mode, pressure during extraction and return phases reaches a value between 300 and 350 bars, also after the first jerk is performed.**

Work is in progress with selector "36" in pliers release position "2".

In pliers release phases, the microswitches of jack stroke-end are excluded, then, in any phase, the action kept on extraction or return button when the mechanical stroke-end is reached provokes a pressure increase in circuit, even if the jack is not really working.

**Jack in return phase pushes pipe inside the bundle.** Restoration step has not been properly performed after pliers release or cock has not been properly closed.

### **The jack does not suitably grasp the pipe to be extracted or TPM.**

Check wear and cleaning on jack pliers and TPM

To check and replace pliers, refer to relevant jack manual.

## 12.1 ALARMS LIST

### **Oil temperature alarm**

When oil temperature exceeds 70°C the manual or automatic movements are disabled and the oil pump and cooling fan remain active. In this alarm condition, the “oil alarm” light on the front panel starts flashing. The alarm goes off when oil temperature falls below 65°C.

### **Fan thermal safety alarm**

When the fan thermal safety trips, the oil pump is as well stopped, until the safety resets. This alarm condition is reported by the steady lighting of the corresponding light on the front panel. After reset and when the light is off, to restart the machine it is necessary to press the start button (green).

### **Motor thermal safety alarm**

When the oil pump thermal safety trips, the machine stops up to safety reset. The thermal safety trip is indicated by the corresponding steady light on the front panel. After reset and when the light is off, to restart the machine it is necessary to press the start button (green).

### **Oil filter alarm**

When the oil filter alarm activates, the corresponding light on the front panel lights up.

### **High pressure alarm**

This alarm activates when the pressure on the extraction ducts exceeds a preset limit; once the limit is exceeded, an audible alarm is issued, which stops when the pressure falls below the limit, and the orange light turns on on the turret.



## 13 MAINTENANCE

The personnel in charge of the maintenance of the Machine shall have carefully read the entire section of the Safety Prescriptions.



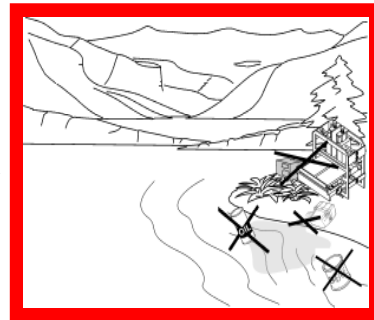
Any operation of maintenance, lubrication and cleaning **must** be performed with the Machine at ENERGY STATE ZERO (unless otherwise indicated), wearing the personal safety devices.



Maintenance, cleaning and lubrication operations described below, reflect the behaviour of the Technician of **MAUS ITALIA S.a.s.**, stage by stage. It is necessary to follow these procedures in case of future tuning or maintenance operations.



**DO NOT DISPOSE OF OIL, GREASE, DECOMMISSIONED EQUIPMENT, AIR FILTERS IN THE ENVIRONMENT. CONTACT AUTHORIZED FIRMS.**



IF THE MACHINE IS ALWAYS KEPT ADJUSTED, CLEAN AND LUBRICATED, ONLY THE FOLLOWING MAINTENANCE OPERATIONS ARE NECESSARY.

**ANY MAINTENANCE, REPAIR OR REPLACEMENT OPERATION NOT DESCRIBED IN THIS MANUAL, MUST BE PERFORMED ONLY BY THE MAINTENANCE TECHNICIAN OF THE CUSTOMER OR BY THE TECHNICIAN OF MAUS ITALIA S.A.S..**

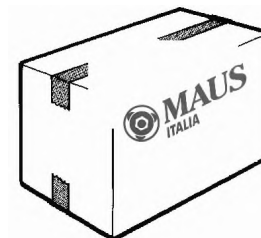
### ATTENTION GENERIC DANGERS

Each of these operations must be performed by **A SINGLE**, professionally qualified Technician (unless otherwise indicated), **NOT BY MULTIPLE PERSONS.**



Verify that no type of energy is present on the machine.

- Use only tools suitable for maintenance operations.
- Respect intervention frequencies and modes indicated in this Manual.
- Always use the electric, pneumatic, hydraulic layouts annexed to this Manual.
- In case of requests of spare changes, use only genuine spare parts.



- If necessary, contact **MAUS ITALIA S.a.s.** .



**IMPORTANT:**

Extraordinary maintenance operations are to be considered as interventions which can be carried out only by Technicians of MAUS ITALIA S.a.s.

### 13.1 MAINTENANCE OF TP60-HDE

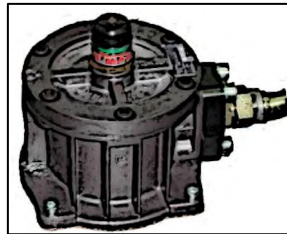
The frequent and systematic cleaning of the power unit TP60-HDE prevents faults and keeps its efficiency over time. We recommend a periodic check of the equipment to prevent unwanted faults or machine stops.

Any cleaning or maintenance intervention shall mandatorily be performed with the machine stopped and disconnected from the mains.

**Periodically check the oil level in the tank**, by means of the visual indicator and if necessary fill it up.



**Always check the colour of the oil filter clogging indicator** which must always be Green. If the colour is Red, proceed with the replacement of the cartridge inside it. In this case, replace as well the oil in the tank.



**Replace the hydraulic oil every 3 years or 1000 hours of operation.**

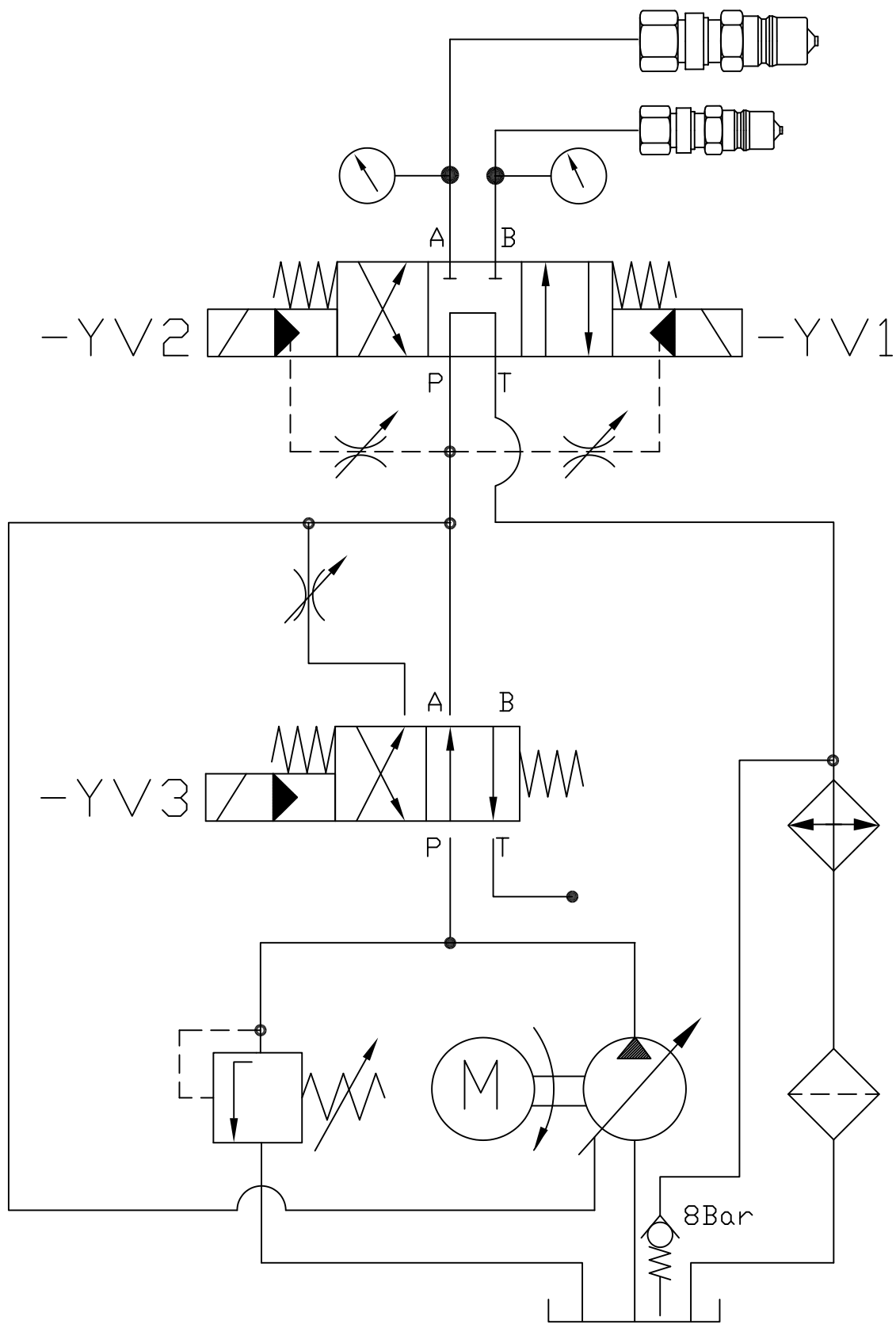
Proceed as follows:

- Lift the safety power unit and remove two plugs under the base.
- Pour the hydraulic oil of the tank in a suitable container and dispose of it according to the applicable laws.
- Clean the tank with a suitable solvent.
- Open the cap and fill the tank with new oil.

Lack of suitable maintenance or improper use of the equipment exonerate MAUS Italia from liabilities for damages to goods or persons.



## 14 HYDRAULIC LAYOUT



	Emissione	Rev.1	Rev.2	Rev.3	Modello: TP/60-E
Data	03.05.96				Descrizione:
Disegnato	F. Paladin				SCHEMA IDRAULICO
Approvato	F. Paladin				HYDRAULIC LAYOUT

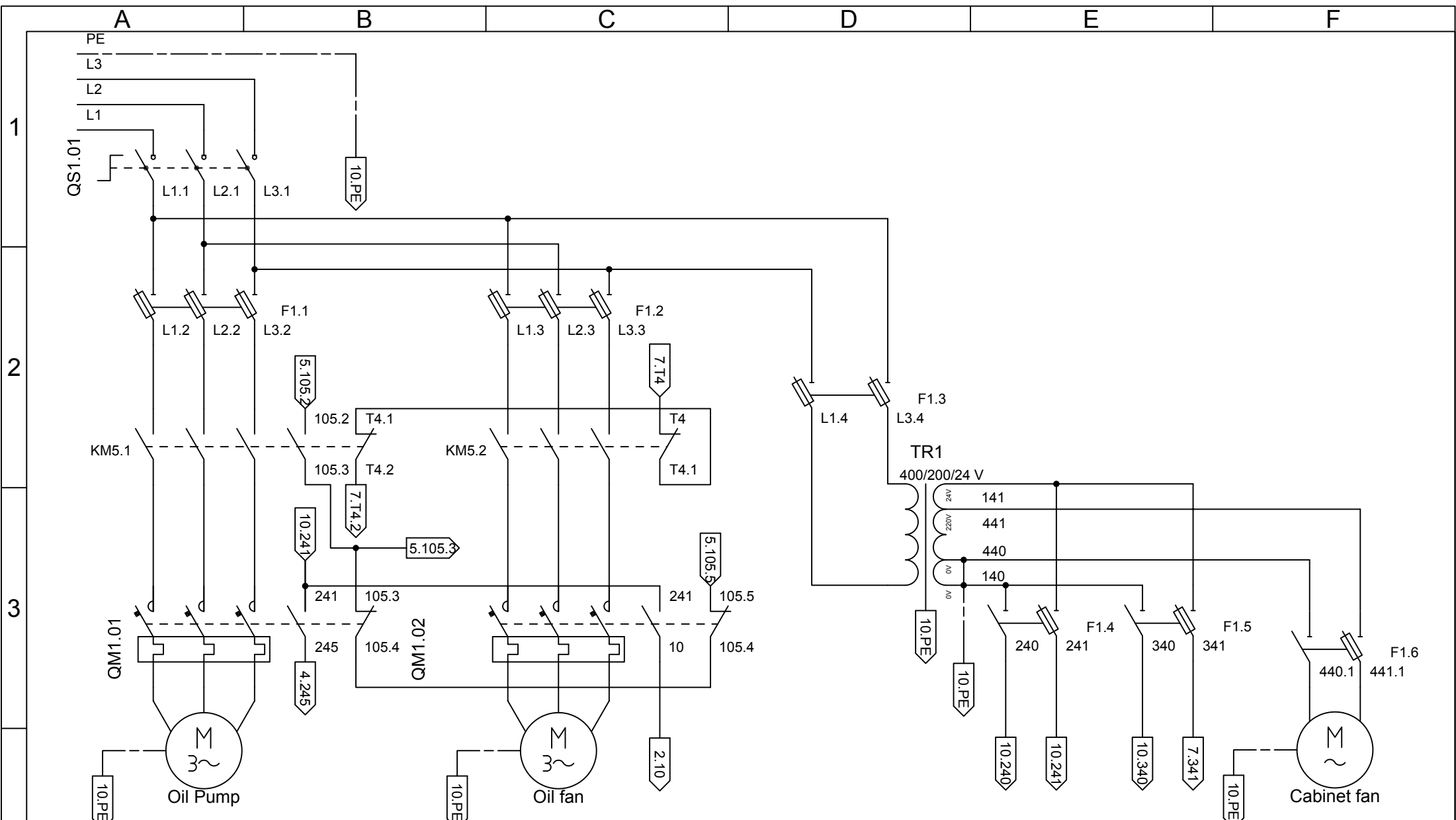


F.Agostino & C. s.a.s.  
BAGNOLO CREMASCO -ITALY

Mod. 401.0

Cod.Mag. -			Quote senza Tolleranze
Dir: \TP60\Disegni\	File: TP60E-II_r0.dwg		Js13
Sost.Dis.N°	Part.	Rev.	SCALA: -
N° Dis. 4927	Part. ---	Rev. 0	

## 15 ELECTRIC SCHEME



Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Traffamento termico olio superisolante
Disegnati	L.Genevini						Cliente:
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranze: Vedere Tabelle Qualità. Descrizione: TP60HDE Diagram 400V and 200V Cabinet TOLLERANZE DI LAVORAZIONE: A PRESSIONE D'OLIO (NELLE CASERIE) DIMENSIONI DELLE PULVITATURE: ASSIEME OLIO DI TRASFERIMENTO							
Simulati non quotati: 0.2-0.3x45"							
Rugosità: 3.2							
File: w:\disegni\manuali\centraline idrauliche\tp60hd\schema_elettrico							
<b>MAUS</b> ITALIA PULVITATURE PER CENTRALINE IDRAULICHE							
schema TP60HDE ENG							Coz Mag
N. Dis: 13317							Parti: 0
Data: 02/2015							Scala: 1:1
Mod:							Fo

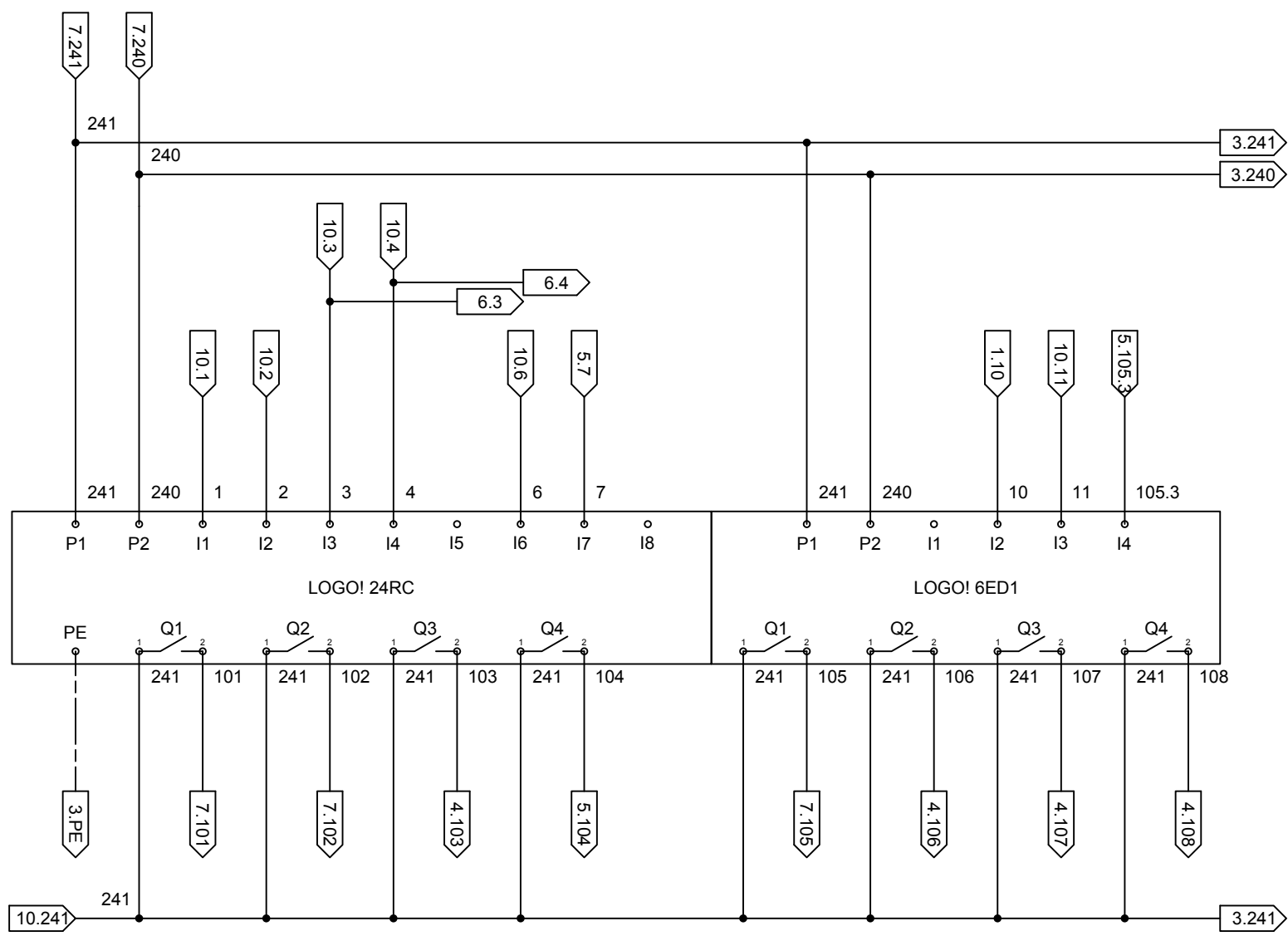
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Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Traffamento termico elo superficiale
Disegnati	L.Genevini						Cliente
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranza: Vedere Tabelle Qualità Tolleranze di lavorazione: LARGHEZZA CAVI (NELLE GAMBE) DIMENSIONI DELLE PULVITATURE-ARRIANGI CLASSE DI TRASFORMAZIONE							Descrizione
Simboli non quotati: 0.2-0.3x45°							TP60HDE Diagram 400V and 200V Cabinet
Rugosità: 3.2 							
							Dir: w:\disegni\manual\centraline idrauliche\tp60hde\schema_elettrico schema TP60HDE ENG
N. Dis.		Parti		Rev.		Scala: 1:1	
13317		02/2015		0			



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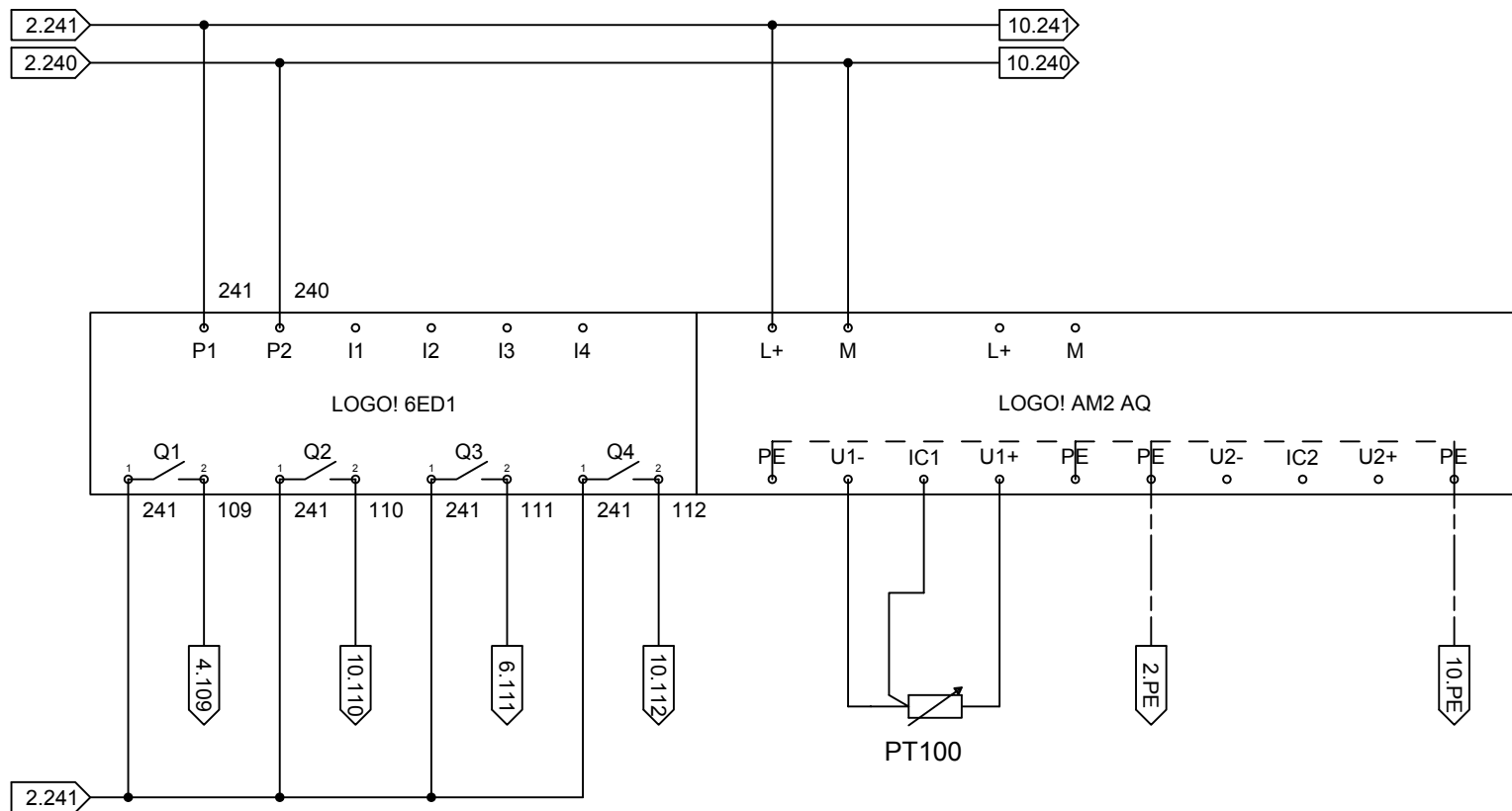
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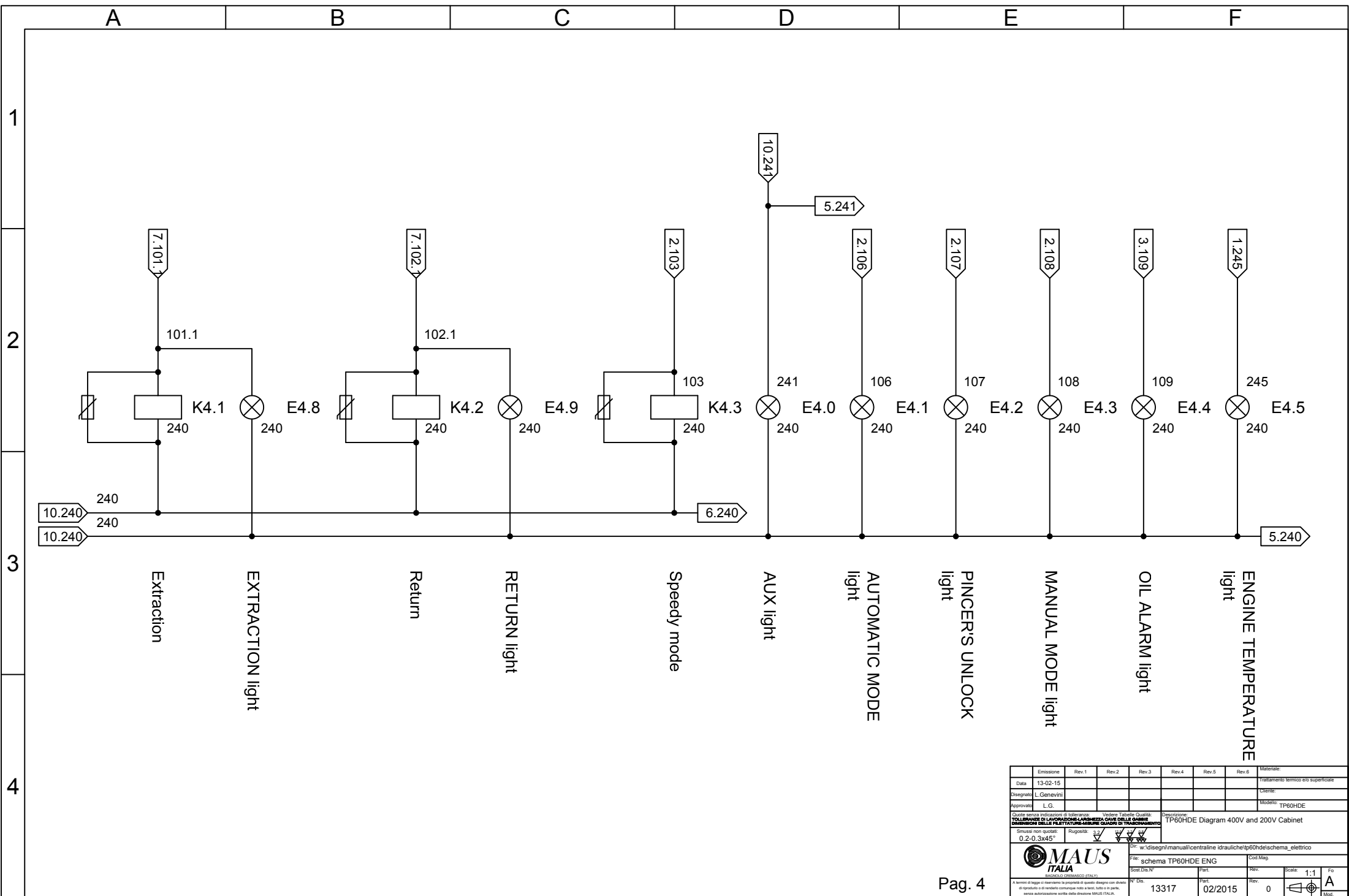
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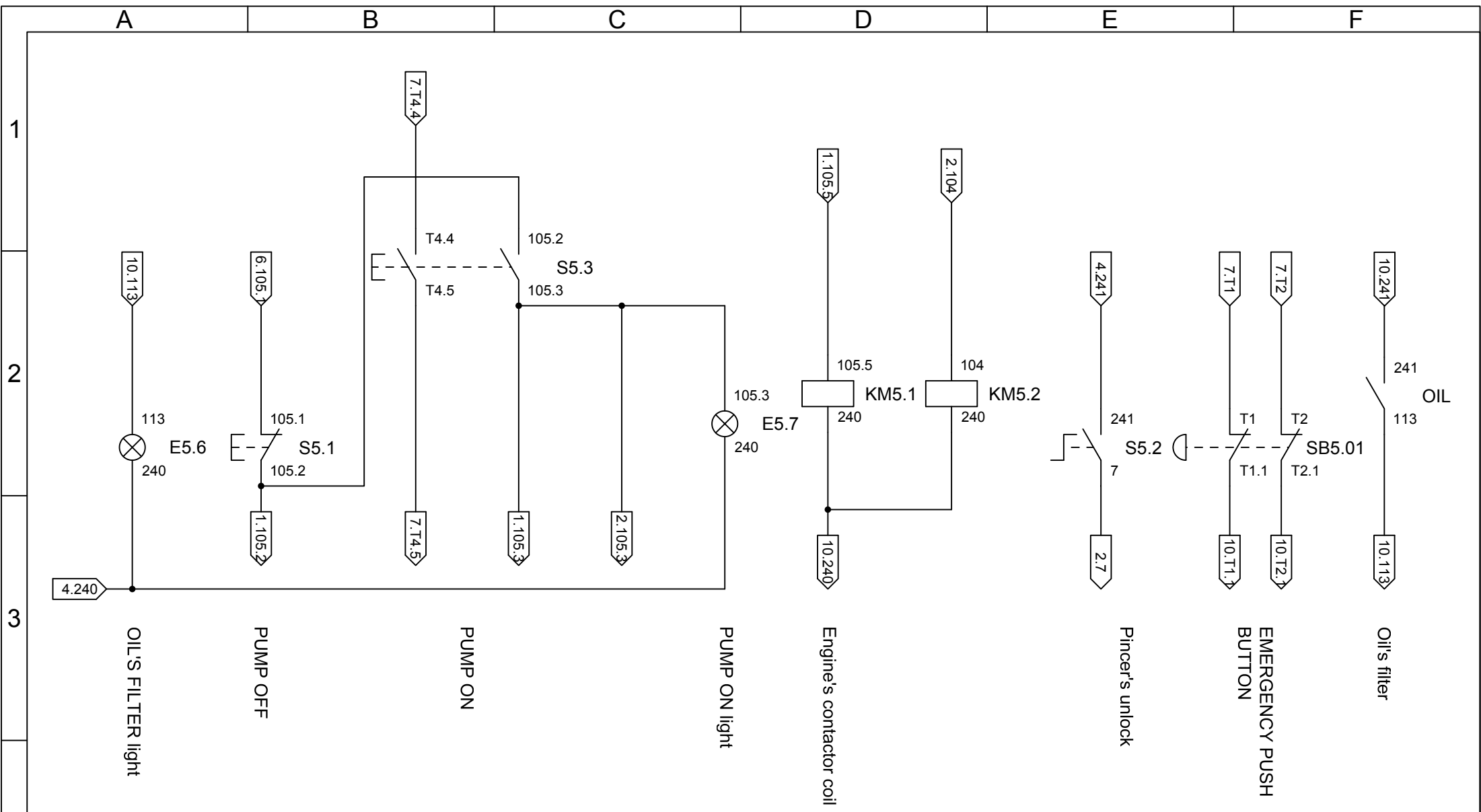
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Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Trattamento termico: olio superficiale
Disegnati	L.Genevini						Cliente:
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranze: Vedere Tabelle Qualità. Descrizione: TP60HDE Diagram 400V and 200V Cabinet TOLLERANZE DI LAVORAZIONE: LAVORAZIONE IN ACCIAIO DIMENSIONI NELLE PRELATURE: ASSIEME CLASSI DI TRASFORMAZIONE							
Simboli non quotati:	Rugosità:	3.2	1.6	0.8	0.4	0.2	
0.2-0.3x45°							
		Dir: w:\disegni\manuali\centraline idrauliche\tp60hde\schema_elettrico					
schema TP60HDE ENG		Parti:		Coz Mag:			
N. Dis:	13317	Parti:	02/2015	Rev:	0	Scala:	1:1
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Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Trattamento termico: olio superficiale
Disegnati	L. Genevini						Cliente:
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranze: Vedere Tabelle Qualità TOLLERANZE DI LAVORAZIONE A FREQUENZA QUOTE DELLE GAMBE DIMENSIONI NELLE PRELATURE ASSIEME CLASSI DI TRASFORMAZIONE							Descrizione
Simboli non quotati: 0.2-0.3x45°							TP60HDE Diagram 400V and 200V Cabinet
Simboli non quotati: Rugosità: 3.2							
							P: w:\disegni\manuali\centraline idrauliche\tp60hde\schema_elettrico schema TP60HDE ENG
N. Dis: 13317							Part: 02/2015 Rev: 0 Scala: 1:1 Fo: A



Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Trattamento termico olio superficiale
Disegnati	L. Genevini						Cliente
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranza: Vedere Tabelle Qualità Tolleranze di lavorazione: ARNESI, OMBRE, FILETTI, CAVI DIMENSIONI DELLE FILETTATURE: ARNESI, CLASSI DI TRASFORMAZIONE							Descrizione
Simboli non quotati: 0.2-0.3x45°							TP60HDE Diagram 400V and 200V Cabinet
Riferimento: w:\disegni\manuali\centraline idrauliche\tp60hde\schema_elettrico							
<b>MAUS</b> ITALIA PULVERI (CORIMBACCI) ITALY							
schema TP60HDE ENG							Coz Mag
Part. 13317							Scala: 1:1
Part. 02/2015							Mod. A
Rev. 0							

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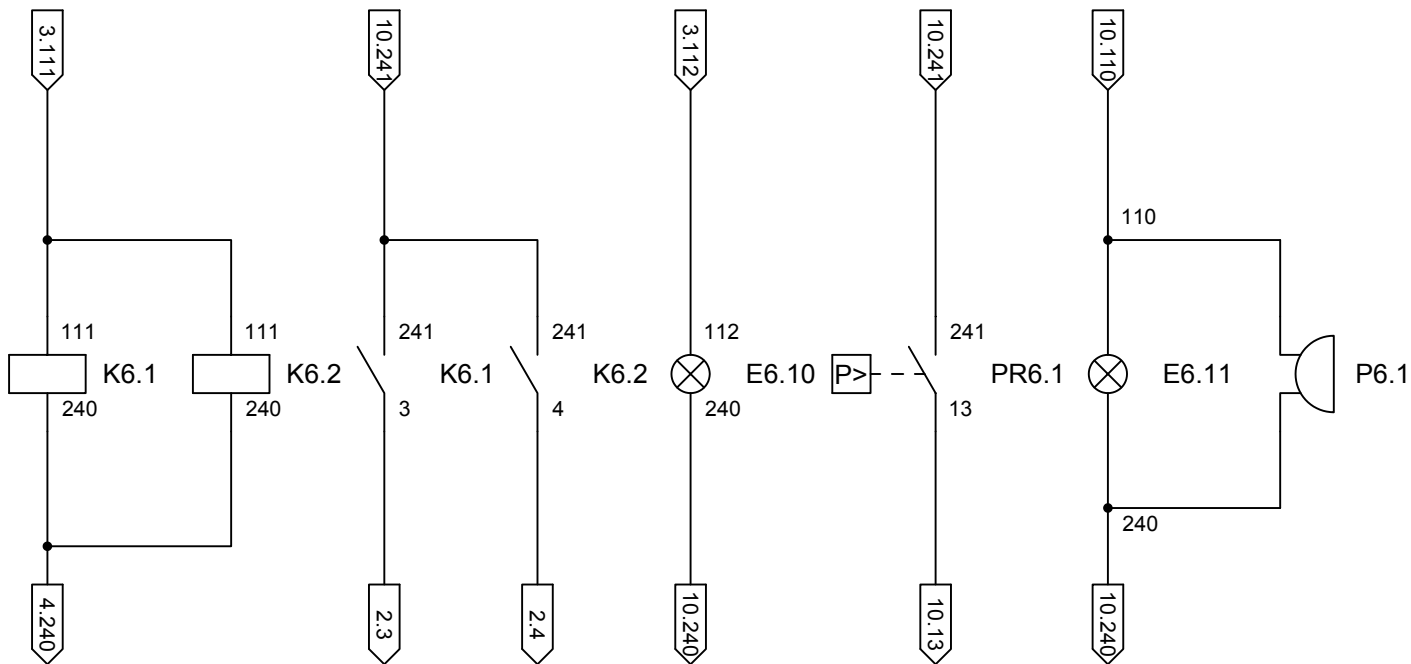
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Pincer's unlock

White column's light

Extraction's pressure switch

Orange column's light

Ringing column's warning

Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Traffamento termico: elo superficiale
Disegnati	L.Genevini						Cliento:
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranze: Vedere Tabelle Qualita' Tolleranze di lavorazione: <b>ALFABETICO</b> (Dove nelle Tabelle Qualita') <b>Dimensioni delle filettature: ASSIEME CLASSI DI TRASCINAMENTO</b>							Descrizione: TP60HDE Diagram 400V and 200V Cabinet
Simboli non quotati: 0.2-0.3x45°		Rugosità: 3.2					
File: w:\disegni\manuali\centraline idrauliche\tp60hde\schema_elettrico schema TP60HDE ENG							
N. Dis. 13317		Parti: 02/2015		Rev. 0		Coz Mag Scala: 1:1 Fo: A Mod:	



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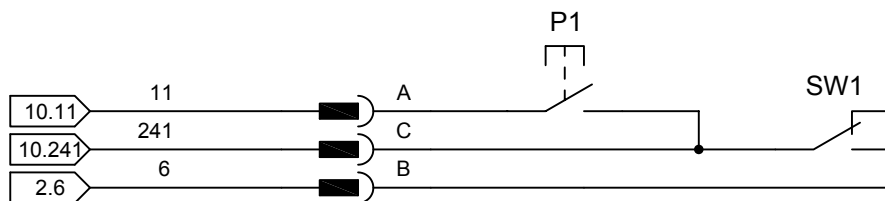
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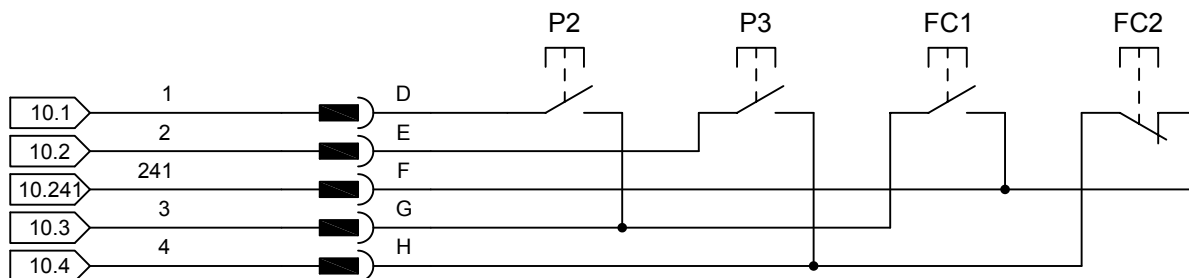
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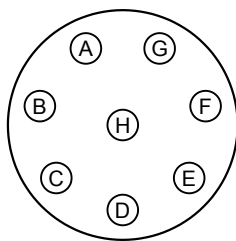
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Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Traffamento termico: olio superficiale
Disegnati	L.Genevini						Cliente:
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranze: Vedere Tabelle Qualità. Descrizione: TP60HDE Diagram 400V and 200V Cabinet TOLLERANZE DI LAVORAZIONE: LAVORAZIONE A FREQUENZA: CAVI E CAVI DI TERMOISOLAMENTO DIMENSIONI DELLE FILETTATURE: ASSIEME CAVI DI TRASMISSIONE							
Simulati non quotati:		Rugosità:	3.2	1.6	0.8	0.4	
0.2-0.3x45°							
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N. Dis:		13317		Parti:		Coz Mag	
N. Dis:		02/2015		Rev:		Scala: 1:1	
N. Dis:		0		Rev:		Fo	
N. Dis:		0		Rev:		Mod:	

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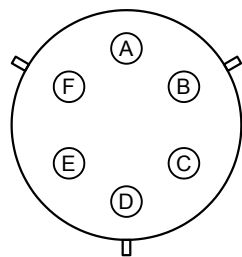
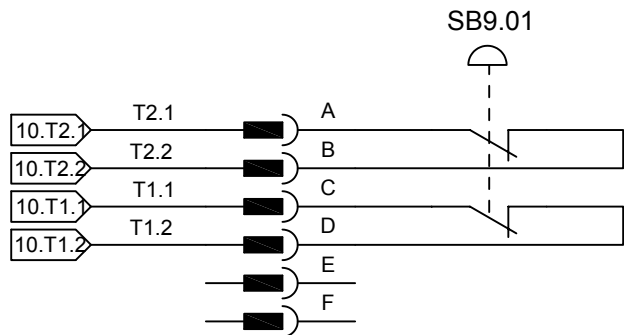
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Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Traffamento termico: elo superficiale
Disegnati	L.Genevini						Cliente:
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranze:		Vedere Tabelle Qualità:		Descrizione:			
TOLLERANZE DI LAVORAZIONE LAVORAZIONE CAVITÀ DELLE CAVITÀ		TOLLERANZE DELLE FILETTATURE-ARRUOTE CLASSI DI TRASCINAMENTO		TP60HDE Diagram 400V and 200V Cabinet			
Simulati non quotati:	Rugosità:	3.2	1.6	0.8	0.4	0.2	
0.2-0.3x45°							
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schema TP60HDE ENG		Part:		Rev:		Scala: 1:1 Fo	
N. Dis:		Part:		Rev:		Mod:	
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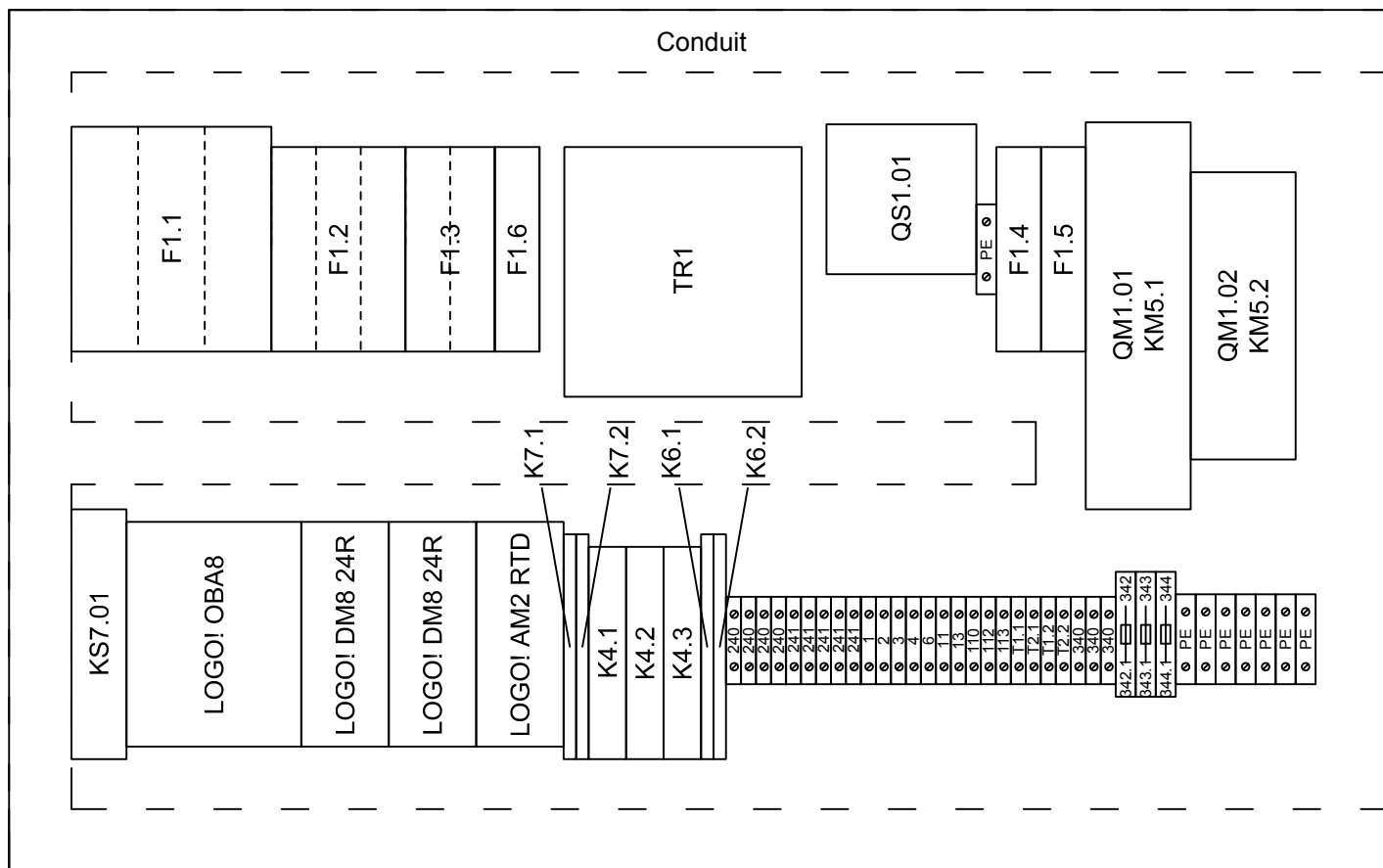
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
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Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Traffamento termico: elo superficiale
Disegnato	L. Genevini						Cliente:
Approvato	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranze: Vedere Tabelle Qualità. Tolleranze di lavorazione: ARROTONDO, CHIAVE DELLE CHIAVIB. DIMENSIONI DELLE PRELATURE: ASSIURIZI CLASSI DI TRASFORMAZIONE							Descrizione: TP60HDE Diagram 400V and 200V Cabinet
Simulati non quotati: Rugosità: 3.2 0.2-0.3x45°							File: w:\disegni\manuali\centraline idrauliche\tp60hde\schema_elettrico schema TP60HDE ENG Coz Mag
							Part: 13317 Rev: 02/2015 Mod: 0
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	A	B	C	D	E	F
	Sigla	Caratteristiche	Q.ta			
1		CABINET + BOTTOM PLATE 600x400x200	1			
	F1.1	FUSE BOX 14x51	1			
		FUSE 14x51 32A	3			
F1.2		FUSE BOX 10.3x38	1			
		FUSE 10.3x38 2A aM	3			
F1.3		FUSE BOX 10.3x38	1			
		FUSE 10.3x38 1A aM	1			
F1.4		FUSE BOX 10.3x38	1			
		FUSE 10.3x38 2A	1			
F1.5		FUSE BOX 10.3x38	1			
		FUSE 10.3x38 6A aM	1			
F1.6		FUSE BOX 10.3x38	1			
		FUSE 10.3x38 1A	1			
TR1		SINGLE PHASE TRANSFORMER 200VA 400/220V-24V	1			
QS1.01		ROTATING BREAKER 63A	1			
QM1.01		CONTACTOR WITH THERMAL SWITCH	1			
			1			
QM1.02		CONTACTOR WITH THERMAL SWITCH	1			
			1			
KS7.01		AUXILIARY CONTACT	1			
			1			
K4.1, K4.2, K4.3		RELAY BOX	3			
			3			
K4.1, K4.2, K4.3		24V RELAY	3			
			3			
K4.1, K4.2, K4.3		CAPACITOR 1,5µF	3			
			3			
K4.1, K4.2, K4.3		VARISTOR WITH LED	3			
			3			

Emissione	Rev.1	Rev.2	Rev.3	Rev.4	Rev.5	Rev.6	Materiale
Data	13-02-15						Traffamento termico: elo superficiale
Disegnati	L.Genevini						Clienti:
Approvati	L.G.						Modello TP60HDE
Quote senza indicazioni di tolleranza: Vedere Tabelle Qualità. Descrizione: TP60HDE Diagram 400V and 200V Cabinet Tolleranze di lavorazione: L.PRESA CAVE DELLE GAMBE DIMENSIONI DELLE FILETTATURE: ASSIEME CILINDRI DI TRASCIAMANTO							
Simboli non quotati:	Rugosità:	3.2	✓	✓	✓	✓	
0.2-0.3x45°							
 DIR: w:\disegni\manual\centraline idrauliche\tp60hd\schema_elettrico FILE: schema TP60HDE ENG COZ Mag							
N. Dis.	13317	Part.	02/2015	Rev.	0	Scala:	1:1
A meno di legge o altrimenti la proprietà di questo disegno con diritti di riproduzione o di ristampa comunque nella loro interezza, è riservata a MAUS ITALIA.							Mod. 



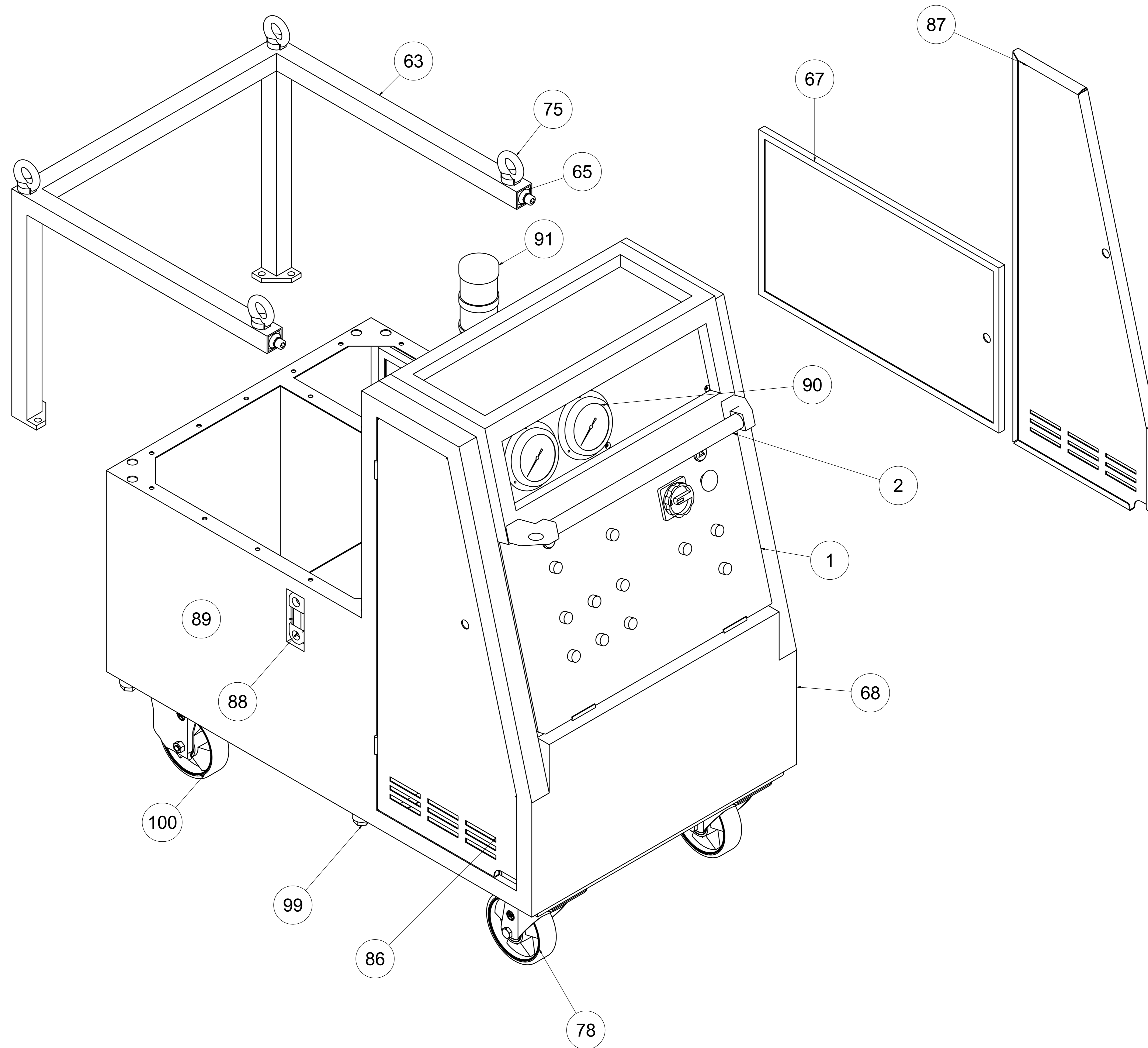
## 16 SPARE PARTS LIST

AL FINE DI UNA CORRETTA INDIVIDUAZIONE DELLE PARTI DI RICAMBIO IN FASE D'ORDINE E' NECESSARIO SPECIFICARE IL RELATIVO "CODE". INOLTRE PER AGEVOLARNE L'INDIVIDUAZIONE SI PREGA DI SPECIFICARE IL NUMERO DI MATRICOLA DELLA MACCHINA.

*IN ORDER TO STATE THE CORRECT SPARE PARTS AT THE TIME OF THE ORDER, IT IS NECESSARY TO SPECIFY THE RELATIVE "CODE". MOREOVER, FOR HELPING IN FINDING THEM, PLEASE SPECIFY THE SERIAL NUMBER OF THE MACHINE WHICH THE PARTS ARE REFERRING TO.*

POS	CODE	DESCRIZIONE	DESCRIPTION	QT.	SUPPLEMENTARY IDENTIFICATION CODE
1	061TP0611000###	QUADRO ELETTRICO 220/400	ELECTRIC BOARD 220/400	1	016
2	01AKM0301043700	MANIGLIA	HANDLE	1	
3	061TP0610040000	PIANALE CENTRALINA	PLATFORM	1	
4	061TP0600006000	MANICOTTO LINEA SCARICO OLIO	SLEEVE LINE DRAIN	1	006
7	061TP0610110000	GUARNIZIONE MONOBLOCCO DISTRIBUTORI	DISTRIBUTOR MONOBLOCK GASKET	1	011
8	061TP0610150000	GUARNIZIONE LANTERNA MOTORE	MOTOR SPIDER GASKET	1	015
9	061TP0600017010	MONOBLOCCO DISTRIBUTORI	DISTRIBUTOR MONOBLOCK	1	017
13	171RO0340000000	RONDELLA IN RAME	COPPER WASHER	7	3/4
14	171RO0120000000	RONDELLA IN RAME	COPPER WASHER	2	1/2
15	171RO0140000000	RONDELLA IN RAME	COPPER WASHER	3	1/4
16	061TP0600004001	VITE REGOLATORE PORTATA	FLOW REGULATOR SCREW	1	04A
17	061TP0600004002	CONTRODADO REGOLATORE	COUNTERNUT FLOW REGULATOR	1	04B
18	061TP0600004003	TAPPO REGOLATORE	FLOW REGULATOR PLUG	1	04C
21	171LA0020101000	LANTERNA MOTORE	MOTOR SPIDER	1	
22	061TP0600030015	FLANGIA POMPA IDRAULICA	HYDRAULIC PUMP FLANGE	1	
24	171DS0160000011	DISTRIBUTORE 2 POSIZIONI	2 WAYS DISTRIBUTOR	1	
25	171DS0160000111	DISTRIBUTORE 3 POSIZIONI	3 WAYS DISTRIBUTOR	1	
27	171RO0380000000	RONDELLA IN RAME	COPPER WASHER	1	3/4
28	171TM0200034000	RACCORDO	ADAPTER	3	3/4-20
29	171TM0120003800	RACCORDO	ADAPTER	1	3/8-12
33	171TM0200034091	RACCORDO	ADAPTER	1	3/4-20-90
34	150ME0000075014	MOTORE ELETTRICO 7.5 KW	ELECTRIC MOTOR 7.5 KW	1	
35	061TP0600018000	TUBO DI SCARICO PER VALVOLA MAX PRESSIONE	MAX PRESSURE EXHAUST TUBE	1	018
36	061TP0600028000	TUBO DI RITORNO	EXHAUST TUBE	1	028
37	061TP0600027000	TUBO MANDATA	DELIVERY TUBE	1	057
38	171FFF340034034	RACCORDO A T	T SHAPED PIPE FITTING	1	3/4-3/4-T
42	171MM0340012000	RACCORDO	ADAPTER	1	1/2-3/4
43	171VA0200000000	VALVOLA DI NON RITORNO	BY PASS	1	
49	171VM060000401	VALVOLA DI MASSIMA PRESSIONE	MAX PRESSURE VALVE	2	
50	171SG08600----	SEMIGIUNTO (00000 LATO POMPA/99000 LATO MOTORE)	SEMI-JOINT (00000PUMP SIDE/99000 MOTOR SIDE)	1	
51	171TA0000000100	TAPPO DI CARICA	OIL PLUG	1	
52	171RO1000000000	RONDELLA IN RAME	COPPER WASHER	3	1
53	171MM1000034000	RACCORDO	ADAPTER	3	1-3/4
55	171FG0340000090	RACCORDO	ADAPTER	3	3/4-3/4-90
56	171FI1000000002	FILTRO	FILTER	1	
57	171TU0340000000	TUBO IDRAULICO	HYDRAULIC HOSE	1	
58	171SC0120000055	SCAMBIATORE	HEAT EXCHANGER	1	
59	061TP0610090000	GUARNIZIONE PIANALE	PLATFORM GASKET	1	009
60	061TP0610170000	SUPPORTO SCAMBIATORE	HEAT EXCHANGER SUPPORT	4	017
61	171PO0450000011	POMPA IDRAULICA	HYDRAULIC PUMP	1	
62	171TU0340000000	TUBO IDRAULICO	HYDRAULIC HOSE	1	
63	061TP0610050000	ROLLBAR	ROLLBAR	1	005
65	061TP0610060000	BUSSOLA PER FISSAGGIO ROLLBAR	BUSCH	2	006
67	061TP0610080000	ANTA VANO POSTERIORE	REAR DOOR	1	008
68	061TP0610010000	TELAIO CENTRALINA	FRAME	1	001
69	061TP0610020000	STAFFA PORTA RUOTE	BRACKET	2	002
71	061TP0610030000	BUSSOLA PER FISSAGGIO ROLLBAR	BUSH	4	003
76	061TP0610100010	PANNELLO MANOMETRI	MANOMETER PANEL	1	010
78	153RU1507304000	RUOTA GIREVOLE	SWIVEL	2	
86	061TP0610190000	ANTA LATERALE SINISTRA	LEFT SIDE DOOR	1	019
87	061TP0610070000	ANTA LATERALE DESTRA	RIGHT SIDE DOOR	1	007
88	171LO1100000000	LIVELLO OLIO	OIL LEVEL	1	
89	171LO1100000000	LIVELLO OLIO	OIL LEVEL	1	
90	171MA6300000000	MANOMETRO	MANOMETER	2	
91	150LA0210007000	COLONNA LUMINOSA	LUMINOUS COLUMN	1	
93	13EOR0000105000	GUARNIZIONE	GASKET	1	
94	13EOR0000116000	GUARNIZIONE	GASKET	2	
95	13EOR0000137000	GUARNIZIONE	GASKET	1	
96	171MM0340034000	RACCORDO	ADAPTER	3	3/4-3/4-M-M
98	171TA0140000003	TAPPO	PLUG	1	1/4
99	171TA0340000000	TAPPO	PLUG	2	3/4
100	153RU1508104000	RUOTA	WHEEL	2	
101	171IR0340000350	INNESTO RAPIDO	QUICK MALE FITTING	1	3/4
102	171IR0120000350	INNESTO RAPIDO	QUICK MALE FITTING	1	1/2





Emmissione	Rev. 1	Rev. 2	Rev. 3	Rev. 4	Rev. 5	Rev. 6	Materiale
Data	02/04/2015						Trattamento termico oro superfacciale
Disegnato	A. Bettinelli						Cliente:
Approvato	L.P.						Modello: TP60-HDE
Quota senza indicazioni di tolleranza: Vedere Tabelle Qualità Tolleranze di lavorazione: ANGOLAZIONE: ANGOLI 45° E 90° DIMENSIONI DELLE FILETTATURE: METRICE: QUADRO DI TRASQUADRAMENTO "Spessore non quotato" Rappresentato con $\frac{3}{4}$ e $\frac{1}{2}$							Descrizione: ASSEMBLE ASSEMBLY DRAWING
0,2-0,3x45° Rappresentato con $\frac{3}{4}$ e $\frac{1}{2}$							Dr.: C:\WORK\A0\Assemp\caricaw\TP60HDE\TP60HDE_00.rvt
<b>MAUS</b> ITALIA <small>BRACCIOLO CERMESICO ITALY</small>		File: TP60HDE_r00.kdw Sost. Dis. N°:	Part.	Rev.	Cod. Mod. 051 TP0610000-000/400 Scala:	Foglio <b>A0</b>	13317 Rev. 0







