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IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and its partner
CISQ/ICIM
hereby certify that the organization

MOSA Divisione della BCS S.p.A.

Viale Europa, 59
I-20090 CUSAGO (MI)

for the following field of activities

Design, production and servicing of engine driven welders and generating sets.

has implemented and maintains a
Quality Management System
which fulfills the requirements of the following standard

ISO 9001:2000

Issued on: 2003-03-06
Validity date: 2006-03-05
Registration Number: IT-3722

IQNet — *Fabio Roversi*, *President of IQNet*
CISQ — *Gianfranco Pratt*, *President of CISQ*

IQNet partners*:
AENOR Spain AFAQ France AIB-Vincotte International Belgium APCER Portugal CISQ Italy CQC China CQM China CQS Czech Republic DQS Germany DS Denmark ELOT Greece FCAV Brazil FONDONORMA Venezuela HKQAA Hong Kong ICONTEC Colombia IRAM Argentina JQA Japan KEMA Netherlands KFQ Korea MSET Hungary Nemko Certification Norway NSAI Ireland OQS Austria PCBC Poland PSB Certification Singapore QMI Canada SAI Global Australia SFS Finland SII Israel SIQ Slovenia SQS Switzerland SIRAC Romania TEST St Petersburg Russia
IQNet is represented in the USA by the following partners: AFAQ, AIB-Vincotte International, CISQ, DQS, KEMA, NSAI, QMI and SAI Global
*The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

ICIM

CERTIFICATO n. 0192/3
CERTIFICATE No.

MOSA Divisione della BCS S.p.A.

Viale Europa, 59 - 20090 Cusago (MI)
Italia

UNI EN ISO 9001:2000

EA: 18

Progettazione, produzione ed assistenza di motosaldatrici e gruppi elettrogeni
Design, production and servicing of engine driven welders and generating sets.

Data revisione *First issue*	Emissione corrente *Current issue*	Data di scadenza *Expiring date*
30/05/1994	06/03/2003	05/03/2006

ICIM S.p.A.

SINCERT

CISQ

ICIM CISQ IQNet
ISO 9001:2000 - Cert. 0192/3

UNI EN ISO 9001 : 2000

MOSA has certified its quality system according to UNI EN ISO 9001:2000 to ensure a constant, high quality of its products. This certification covers the design, production and servicing of engine driven welders and generating sets.

The certifying institute, ICIM, which is a member of the International Certification Network IQNet, awarded the official approval to MOSA after an examination of its operations at the head office and plant in Cusago (MI), Italy.

This certification is not a point of arrival but a pledge on the part of the entire company to maintain a level of quality of both its products and services which will continue to satisfy the needs of its clients, as well as to improve the transparency and the communications regarding all the company's actives in accordance with the official procedures and in harmony with the MOSA Manual of Quality.

The advantages for MOSA clients are:

- Constant quality of products and services at the high level which the client expects;
- Continuous efforts to improve the products and their performance at competitive conditions;
- Competent support in the solution of problems;
- Information and training in the correct application and use of the products to assure the security of the operator and protect the environment;
- Regular inspections by ICIM to confirm that the requirements of the company's quality system and ISO 9001 are being respected.

All these advantages are guaranteed by the CERTIFICATE OF QUALITY SYSTEM No.0192/3 issued by ICIM S.p.A. - Milano (Italy) - www.icim.it

⚠ ATTENTION

This use and maintenance manual is an important part of the machines in question.
The assistance and maintenance personel must keep said manual at disposal, as well as that for the engine and alternator (if the machine is synchronous) and all other documentation about the machine.

We advise you to pay attention to the pages concerning the security (see page M1.1).

MOSA

INFORMATION

Dear Customer,
We wish to thank you for having bought from MOSA a high quality set.

Our sections for Technical Service and Spare Parts will work at best to help you if it were necessary.

To this purpose we advise you, for all control and overhaul operations, to turn to the nearest authorized Service Centre, where you will obtain a prompt and specialized intervention.

☞ In case you do not profit on these Services and some parts are replaced, please ask and be sure that are used exclusively original MOSA parts; this to guarantee that the performances and the initial safety prescribed by the norms in force are re-established.

☞ *The use of* ***non original spare parts will cancel immediately*** *any guarantee and Technical Service obligation from MOSA.*

NOTES ABOUT THE MANUAL

Before actioning the machine please read this manual attentively. Follow the instructions contained in it, in this way you will avoid inconveniences due to negligence, mistakes or incorrect maintenance. The manual is for qualified personnel, who knows the rules: about safety and health, installation and use of sets movable as well as fixed.

You must remember that, in case you have difficulties for use or installation or others, our Technical Service is always at your disposal for explanations or interventions.

The manual for Use Maintenance and Spare Parts is an integrant part of the product. It must be kept with care during all the life of the product.
In case the machine and/or the set should be yielded to another user, this manual must also given to him.
Do not damage it, do not take parts away, do not tear pages and keep it in places protected from dampness and heat.

You must take into account that some figures contained in it want only to identify the described parts and therefore might not correspond to the machine in your possession.

INFORMATION OF GENERAL TYPE

In the envelope given together with the machine and/or set you will find: the manual for Use Maintenance and Spare Parts, the manual for use of the engine and the tools (if included in the equipment), the guarantee (in the countries where it is prescribed by law).

Our products have been designed for the use of generation for welding, electric and hydraulic system; ANY OTHER DIFFERENT USE NOT INCLUDED IN THE ONE INDICATED, relieves MOSA from the risks which could happen or, anyway, from that which was agreed when selling the machine; MOSA excludes any responsibility for damages to the machine, to the things or to persons in this case.

Our products are made in conformity with the safety norms in force, for which it is advisable to use all these devices or information so that the use does not bring damage to persons or things.

While working it is advisable to keep to the personal safety norms in force in the countries to which the product is destined (clothing, work tools, etc.).

Do not modify for any motive parts of the machine (fastenings, holes, electric or mechanical devices, others..) if not duly authorized in writing by MOSA: the responsibility coming from any potential intervention will fall on the executioner as in fact he becomes maker of the machine.

☞ ***Notice:*** *this manual does not engage MOSA, who keeps the faculty, apart the essential characteristics of the model here described and illustrated, to bring betterments and modifications to parts and accessories, without putting this manual uptodate immediately.*

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Fax: 02 - 90390466
e-mail : info@mosa.it
www.mosa.it

MOSA
Divisione della BCS S.p.A.
V.le Europa 59 - 20090 Cusago (Mi) - Italia

ICIM CSQ IQNet
ISO 9001:2000 - Cert. 0192/3

DICHIARAZIONE DI CONFORMITA'

CE

Déclaration de Conformité – Declaration of Conformity – Konformitätserklärung
Conformiteitsverklaring – Declaración de Conformidad

MOSA dichiara sotto la propria responsabilità che la macchina:
MOSA déclare, sous sa propre responsabilité, que la machine:
MOSA declares, under its own responsibility, that the machine:
MOSA erklärt, daß die Aggregate:
MOSA verklaard, onder haar eigen verantwoordelijkheid, dat de machine:
MOSA declara bajo su responsabilidad que la máquina:

Modello/Modèle/Model/Modell/Model/Modelo: _____

Codice/ Code/ Code/ Kode/ Code/ Codigo: _____

è conforme con quanto previsto dalle **Direttive Comunitarie** e relative modifiche:
est en conformité avec ce qui est prévu par les **Directives Communautaires** et relatives modifications:
conforms with the **Community Directives** and related modifications:
mit den Vorschriften der Gemeinschaft und deren Ergänzungen übereinstimmt:
in overeenkomst is met de inhoud van gemeenschapsrichtlijnemen gerelateerde modificaties:
comple con los requisitos de la **Directiva Comunitaria** y sus anexos:

98/37/CE - 73/23/CE - 89/336/CE - 2000/14/CE

per la verifica sono state considerate le seguenti norme armonizzate, Norme nazionali e internazionali:
pour la vérification de la conformité ont été consultées les normes harmonisées suivantes, normes nationales et internationales:
to check the conformity, the following harmonized norms, national and international norms, have been consulted:
zur Prüfung hat man die folgenden übereinstimmenden nationalen und internationalen Normen herangezogen:
ter verificatie van de overeenkomst, zijn de volgende geharmoniseerde normen, nationaal en internationaal, geconsulteerd:
para su verification se han tenido en cuenta las Normas armonizadas, Normas nacionales e internacionales:

Norme armonizzate - normes harmonisées - harmonized norms - übereinstimmende Normen geharmoniseerde normen - Normas armonizadas:
EN 292-1 EN 292-2
EN 60204-1
EN 50199 EN 60974-1 (Solo per modelli - Seulement pour les modèles - Only for models - nur für die Modelle - Alleen voor de modellen - Sólo para modelos: **TS**)
EN 50081-2 EN 50082-2

Altre norme - autres normes - other norms - andere Normen - andere normen - otras normas:
ISO 8528 (Solo per modelli - Seulement pour les modèles - Only for models - nur für die Modelle - Alleen voor de modellen - Sólo para modelos: **GE**)

Ing. Benso Marelli
Direttore Generale

Cusago, _____

MM 065.2.doc

CE The CE mark (European Community) certifies that the product complies with the essential safety requirements provided by the applicable COMMUNITY DIRECTIVES. In the Conformity Declaration are reported the HARMONIZED NORMS and not, used for the checking.

SYMBOLS IN THIS MANUAL

- The symbols used in this manual are designed to call your attention to important aspects of the operation of the machine as well as potential hazards and dangers for persons and things.

IMPORTANT ADVICE

- Advice to the User about the safety:

☞ N.B.: The information contained in the manual can be changed without notice.
Potential damages caused in relation to the use of these instructions will not be considered because these are only indicative.
Remember that the non observance of the indications reported by us might cause damage to persons or things.
It is understood, that local dispositions and/or laws must be respected.

WARNING

Situations of danger - no harm to persons or things

Do not use without protective devices provided
Removing or disabling protective devices on the machine is prohibited.

Do not use the machine if it is not in good technical condition
The machine must be in good working order before being used. Defects, especially those which regard the safety of the machine, must be repaired before using the machine.

SAFETY PRECAUTIONS

DANGEROUS

This heading warns of an immediate danger for persons as well for things. Not following the advice can result in serious injury or death.

WARNING

This heading warns of situations which could result in injury for persons or damage to things.

CAUTION

To this advice can appear a danger for persons as well as for things, for which can appear situations bringing material damage to things.

IMPORTANT

NOTE

ATTENTION

These headings refer to information which will assis you in the correct use of the machine and/or accessories.

SYMBOLS (for all MOSA models)

STOP - Read absolutely and be duly attentive

Read and pay due attention

GENERAL ADVICE - If the advice is not respected damage can happen to persons or things.

HIGH VOLTAGE - Attention High Voltage. There can be parts in voltage, dangerous to touch. The non observance of the advice implies life danger.

FIRE - Danger of flame or fire. If the advice is not respected fires can happen.

HEAT - Hot surfaces. If the advice is not respected burns or damage to things can be caused.

EXPLOSION - Explosive material or danger of explosion. in general. If the advice is not respected there can be explosions.

WATER - Danger of shortcircuit. If the advice is not respected fires or damage to persons can be caused.

SMOKING - The cigarette can cause fire or explosion. If the advice is not respected fires or explosions can be caused.

ACIDS - Danger of corrosion. If the advice is not respected the acids can cause corrosions with damage to persons or things.

WRENCH - Use of the tools. If the advice is not respected damage can be caused to things and even to persons.

PRESSION - Danger of burns caused by the expulsion of hot liquids under pressure.

ACCES FORBIDDEN *to non authorizad* peaple.

PROHIBITIONS No harm for persons

Use only with safety clothing -

It is compulsory to use the personal protection means given in equipment.

Use only with safety clothing -

It is compulsory to use the personal protection means given in equipment.

Use only with safety protections -

It is a must to use protection means suitable for the different welding works.

Use with only safety material -

It is prohibited to use water to quench fires on the electric machines.

Use only with non inserted voltage -

It is prohibited to make interventions before having disinserted the voltage.

No smoking -

It is prohibited to smoke while filling the tank with fuel.

No welding -

It is forbidden to weld in rooms containing explosive gases.

ADVICE <u>No harm for persons and things</u>

Use only with safety tools, adapted to the specific use -

It is advisable to use tools adapted to the various maintenance works.

Use only with safety protections, specifically suitable

It is advisable to use protections suitable for the different welding works.

Use only with safety protections -

It is advisable to use protections suitable for the different daily checking works.

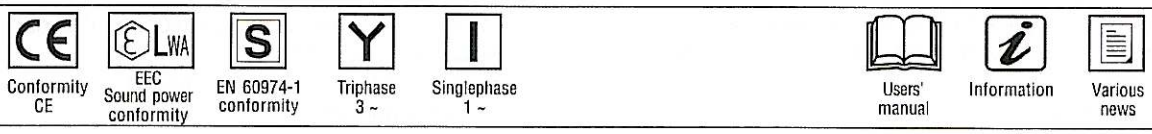
Use only with safety protections -

It is advisable to use all protections while shifting the machine.

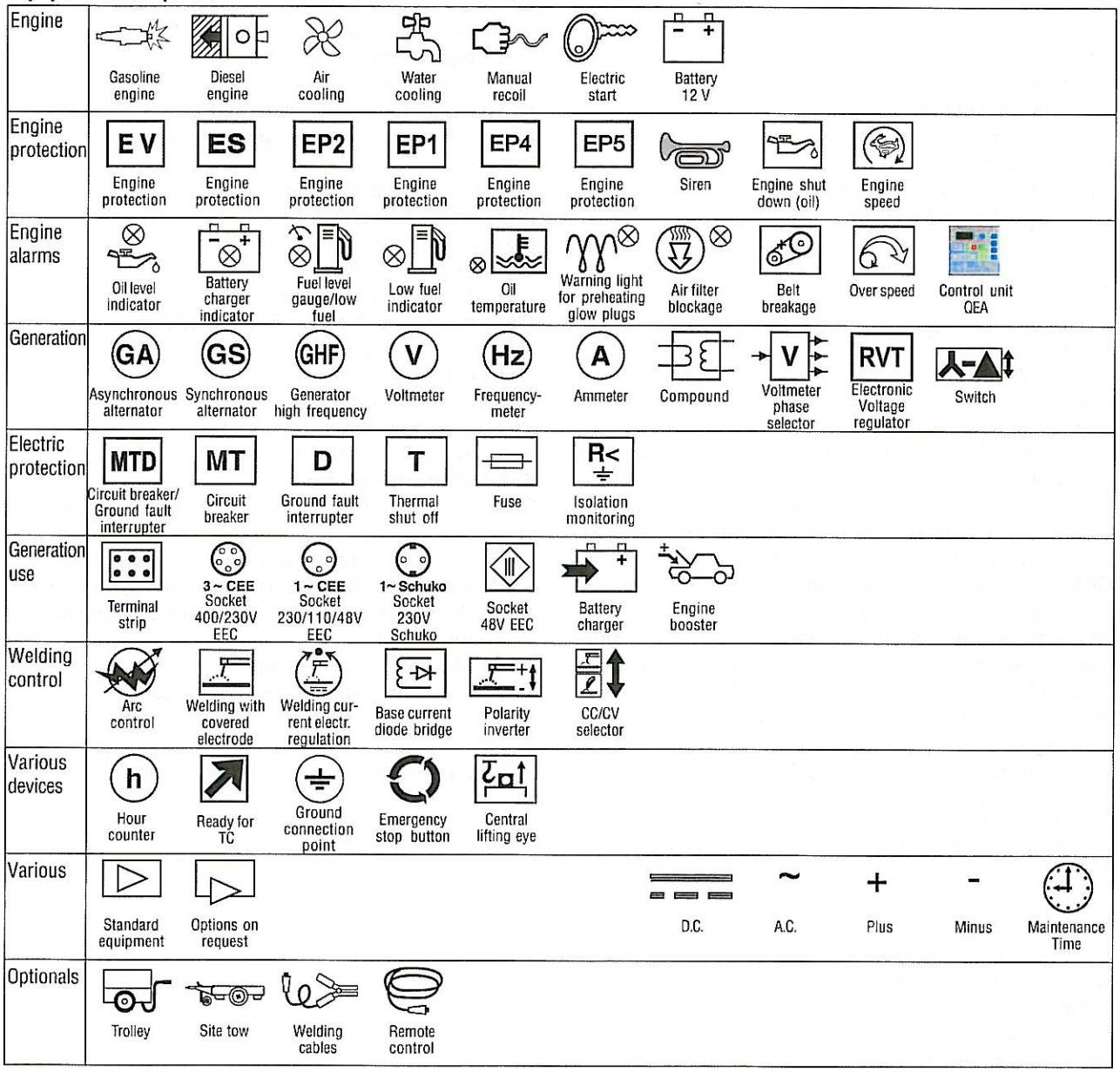
Use only with safety protections -

It is advisable to use protections suitable for the different daily checking works.and/or of maintenance.

°C: temperature Celsius grades
10:10 kVA synchronous (wording example)
10000:10 kVA asynchronous (wording example)
A: Ampere
A: ADIM engine
atm: pressure
B: pretrol
BAT: battery
BC: base current
C.A.(c.a.): alternating current
C.B.: battery charger
C.C.(c.c.): direct current
cc: cm^3 (volume)
CE: European norm conformity
CF: special for pipe welding
CTL: slow touring trolley
CTM CTV: fast touring trolley: hand touring trolley
D: diesel
D: GFI
D: Deutz engine
E: electric start
EAS: automatic intervention panel for generating sets for connection to the mains
EL: electronic regulation, allows to use welder and generating set simultaneausly
EP1: automatic accelerator according to requestedpower, engine protection, low oil pressure, high temperature with engine stop, troble warning lights
EP2: engine protection, low oil pressure, hight temperature with engine stop, trouble warning lights
EP4: engine protection, low oil pressure, high temperature with engine stop, no battery charge, belt broken, low fuel level with engine stop, trouble warning lights
EP5: engine protection, low oil pressure, high temperature with engine stop, no battery charge, belt broken, low fuel level with engine stop, everspeed, trouble warning lights
ES: oil/temperature engine protection device
EV: electrovalve
g/kwh: grams/kilowatt hour (engine consumption)
GA: asynchronous alternator
GE: generating set
GHF: high frequency alternator
GS: synchronous alternator
h: hour meter (symbol)
H: Hatz engine
H: Honda engine
HI: hydraulic central
Hz: frequency
I: single-phase auxiliary generation (symbol 1~)
IP: protection grads for electric devices against acess to dangerous parts according to the IEC 529 norm (Internal Protection)
kg: kilogram (mass)
K: welding cables set
kVA: kilovolt ampere
kW: kilowatt (engine power)
kWh: kilowatt hour (energy)
l: liters (capacity)
L: Lombardini engine
Lwa: maximum acoustic (power level) according to EEC norm 535/536
mm: millimeter (length) (measure)
m: meter (length)
mA: milliampere
MS-MSG: MOSA engine driven welder with high frequency alternator
MT: magnetothermic switch
MT: grounding kit
MTD: magnetothermic switch / GFI
OH: heater (engine oil) for generating sets
P: plus
PAC: power electric frame
PAR: device for double
PB: battery holder
PL: „pipe line" welding
PS: exhaust pipe extension
PW: welder for polyethylene and propylene pipes
QEA: automatic electric panel
QEM: manual electric panel
R: Ruggerini engine
RVT: voltage electronic regulator
S: symbol of EN 60974-1
S: Suzuki mengineotore
SKID: unit assembled on a base with no protection (no fairing)
S-SC: silenced (faired) - silenced compact (faired
SX-SXC: supersilenced (faired and sound prof) - supersilenced compact (faired and super sound prof)
T: thermic switch
TC-TCM-TCPL: remote control
TS: welder with asynchronous alternator
V: Volt
Y: Yanmar engine
Y: three-phase auxiliary generation (symbol 3~)



Equipment and optional



⚠ The installation and the general advice concerning the operations, are finalized to the correct use of the machine, in the place where it is used as generator group and/or welder.

ENGINE	Stop engine when fueling
	Do not smoke, avoid flames, sparks or electric tools when fueling.
	Unscrew the cap slowly to let out the fuel vapours.
	Slowly unscrew the cooling liquid tap if the liquid must be topped up.
	The vapor and the heated cooling liquid under pressure can burn face, eyes, skin.
	Do not fill tank completely.
	Wipe up spilled fuel before starting engine.
	Shut off fuel of tank when moving machine (where it is assembled).
	Avoid spilling fuel on hot engine.
	Sparks may cause the explosion of battery vapours

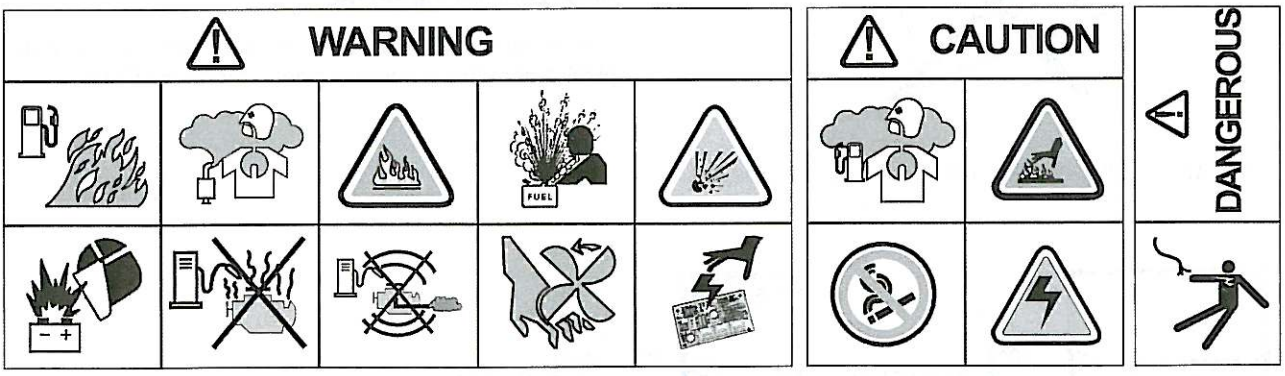
CHECKING BOARD	Do not touch electric devices if you are barefoot or with wet clothes.
	Always keep off leaning surfaces during work operations
	Static electricity can demage the parts on the circuit.
	An electric shock can kill

☞ **FIRST AID.** In case the operator shold be sprayed by accident, from corrosive liquids a/o hot toxic gas or whatever event which may cause serious injuries or death, predispose the first aid in accordance with the ruling labour accident standards or of local instructions.

Skin contact	Wash with water and soap
Eyes contact	Irrigate with plenty of water, if the irritation persists contact a specialist
Ingestion	Do not induce vomit as to avoid the intake of vomit into the lungs, send for a doctor
Suction of liquids from lungs	If you suppose that vomit has entered the lungs (as in case of spontaneous vomit) take the subject to the hospital with the utmost urgency
Inhalation	In case of exposure to high concentration of vapours take immediately to a non polluted zone the person involved

☞ **FIRE PREVENTION.** In case the working zone,for whatsoever cause goes on fire with flames liable to cause severe wounds or death, follow the first aid as described by the ruling norms or local ones.

EXTINCTION MEANS	
Appropriated	Carbonate anhydride (or carbon dioxyde) powder, foam, nebulized water
Not to be used	Avoid the use of water jets
Other indications	Cover eventual shedding not on fire with foam or sand, use water jets to cool off the surfaces close to the fire
Particular protection	Wear an autorespiratory mask when heavy smoke is present
Useful warnings	Avoid, by appropriate means to have oil sprays over metallic hot surfaces or over electric contacts (switches,plugs,etc.). In case of oil sprinkling from pressure circuits, keep in mind that the inflamability point is very low.



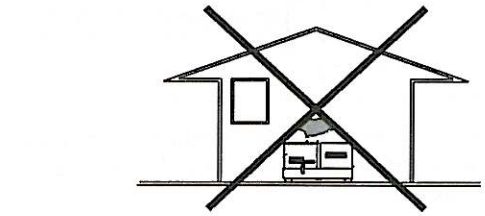
INSTALLATION AND ADVICE BEFORE USE

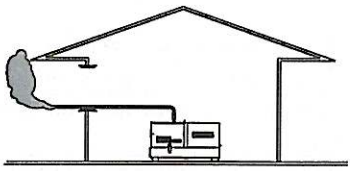
GASOLINE ENGINES

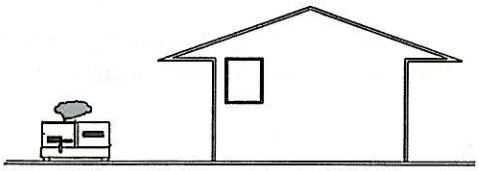
- Use in open space, air swept or vent exhaust gases, which contain the deathly carbone oxyde, far from the work area.

DIESEL ENGINES

- Use in open space, air swept or vent exhaust gases far from the work area.

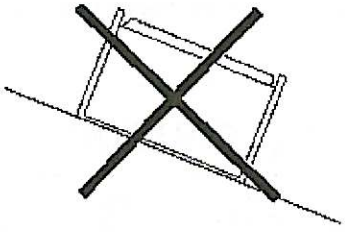




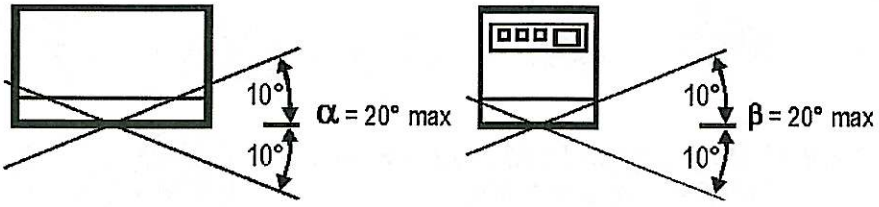


POSITION

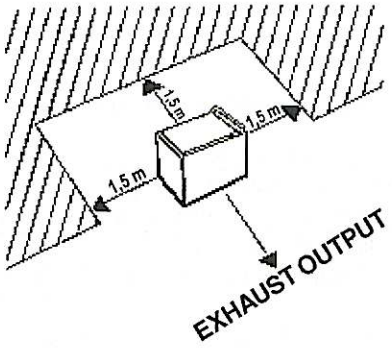
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



Maximum leaning of the machine (in case of dislevel)



Check that the air gets changed completely and the hot air sent out does not come back inside the set so as to cause a dangerous increase of the temperature.



☞ Make sure that the machine does not move during the work: **block** it possibly with tools and/or devices made to this purpose.

MOVES OF THE MACHINE

☞ At any move check that the engine is **off**, that there are no connections with cables which impede the moves.

PLACE OF THE MACHINE

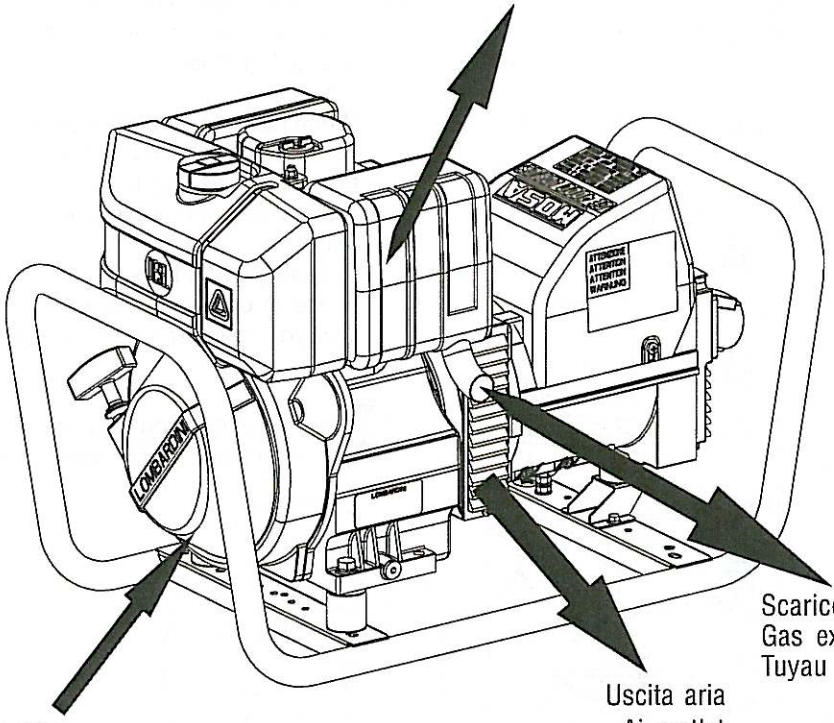
In spots where it often rains and/or there are flooded areas, do **not** put the machine:

- *in the bad weather*
- *in flooded places.*

Protect all the electric parts at risk, because water infiltrations could cause short circuits with damages at persons and/or things.

The protection degree of the machine is put on the data plate and in this manual at page "Technical Data".

SUPERFICIE CALDA
HOT SURFACE
SURFACE TRES CHAUDE

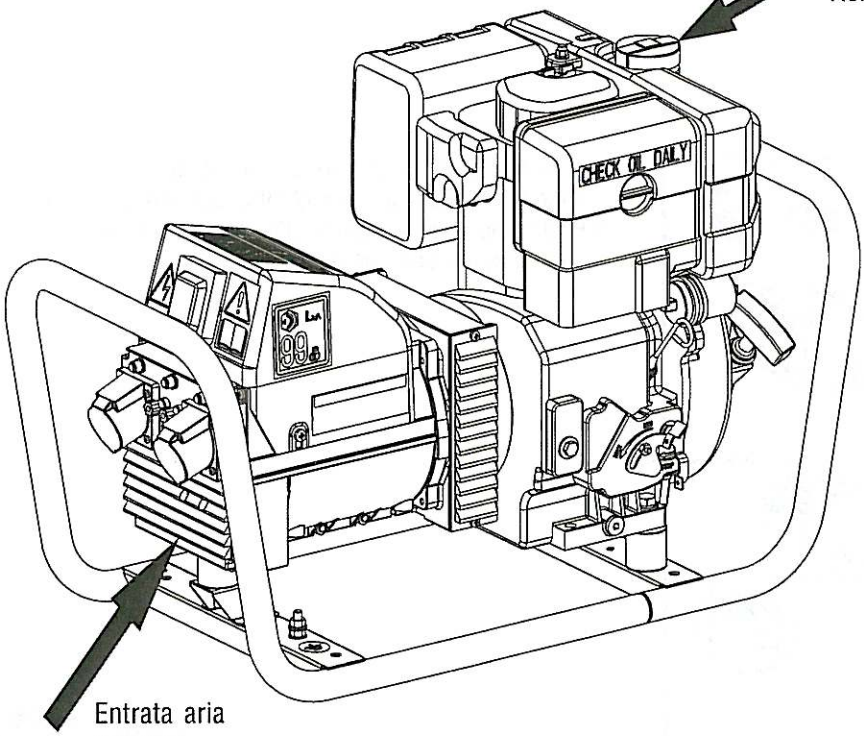


Scarico silenziatore motore
Gas exhaust pipe
Tuyau d'échappement gaz

Uscita aria
Air outlet
Expulsion air

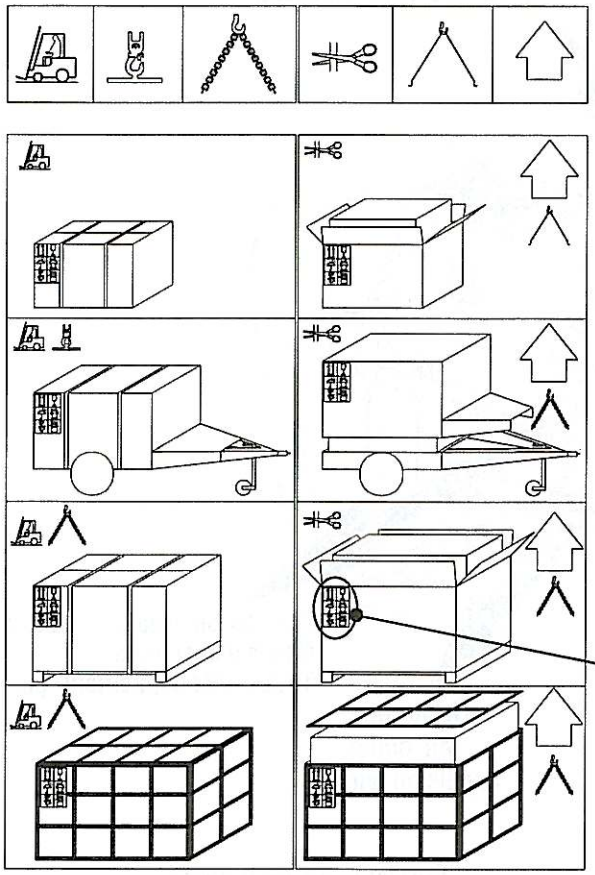
Entrata aria
Air inlet
Entrée air

Caricamento carburante
Fuel filling
Remplissage carburant



Entrata aria
Air inlet
Entrée air

NOTE

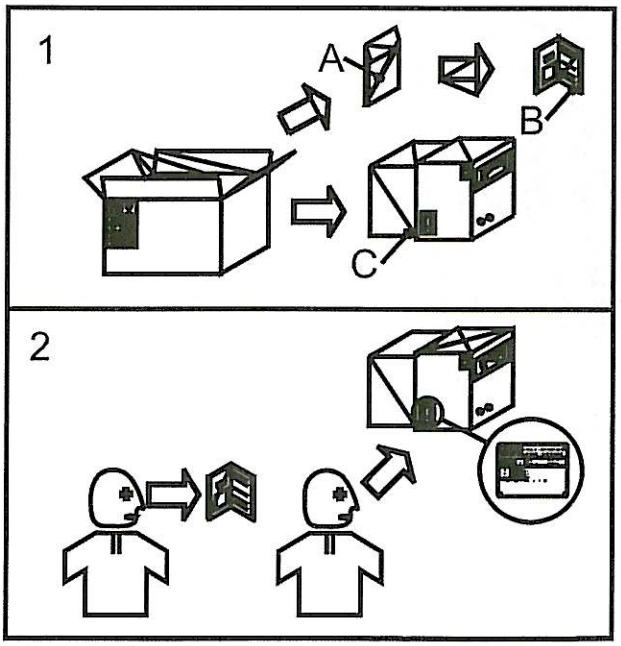


☞ Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conforms to local rules and regulations.

When receiving the goods make sure that the product has not suffered damage during the transport, that there has not been rough handling or taking away of parts contained inside the packing or in the set.

In case you find damages, rough handling or absence of parts (envelopes, manuals, etc.), we advise you to inform immediately our Technical Service.

For eliminating the packing materials, the User must keep to the norms in force in his country.

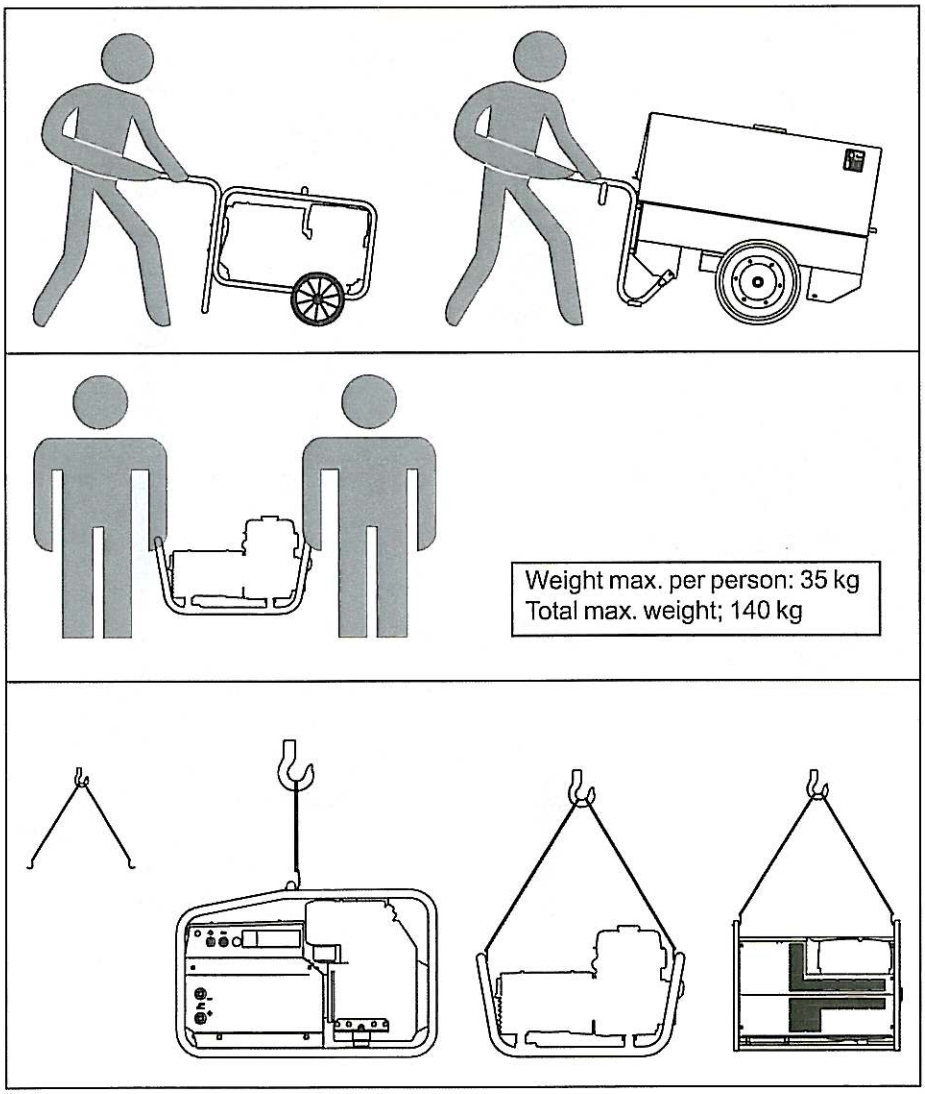


1) Take the machine (C) out of the shipment packing. Take out of the envelope (A) the user's manual (B).
2) Read: the user's manual (B), the plates fixed on the machine, the data plate.

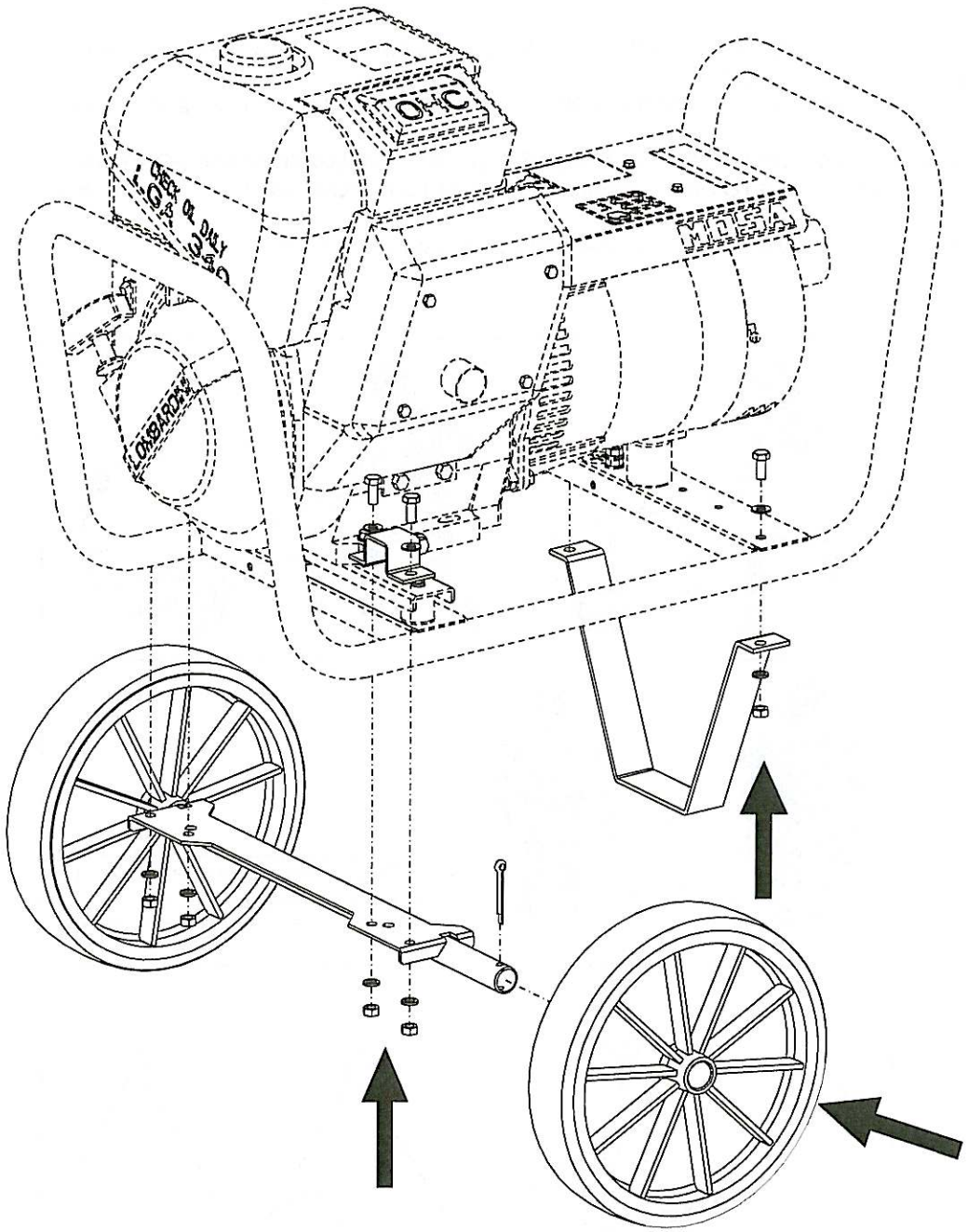
NOTE

In case you should transport or move the machine, keep to the instructions as per the figures.
Make the transportation when the machine has **no** petrol in its tank, **no** oil in the engine and and electrolyte in the battery.
Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conform to local rules and regulations.
Only authorized persons involved in the transport of the machine should be in the area of movement.

DO NOT LOAD OTHER PARTS WHICH CAN MODIFY WEIGHT AND BARICENTER POSITION.
IT IS STRICTLY FORBIDDEN TO DRAG THE MACHINE MANUALLY OR TOW IT BY ANY VEHICLE (model with no CTM accessory).
If you did not keep to the instructions, you could damage the structure of the machine.



***Note*:** Lift the machine and assemble the parts as shown in the drawing



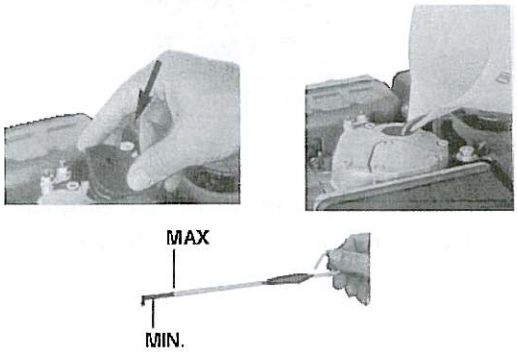
ATTENTION

The CTM accessory cannot be removed from the machine and used separately (actioned manually or following vehicles) for the transport of loads or anyway for used different from the machine movements.

LUBRICANT

Please refer to the motor operating manual for the recommended viscosity.
Oil filling and level ispections must be carried out with the engine on a flat surface:

1. Remove oil filler cap (24);
2. Pour the oil in and reassemble oil cap;
3. Check the oil level using the dipstick (23); the oil level must be comprised between the minimum and maximum indicators.



RECOMMENDED OIL

MOSA recommends selecting **AGIP** engine oil. Refer to the label on the motor for the recommended products.

Agip MOSA motoaeratori gruppi elettrogeni

PRODOTTI RACCOMANDATI RECOMMENDED PRODUCTS	
AGIP SUPERDIESEL 15W/40 API CF4-SG	OLIO MOTORE DIESEL DIESEL ENGINE OIL
AGIP SUPERMOTOROIL 20W/50 API CC-SF	OLIO MOTORE BENZINA GASOLINE ENGINE OIL
AGIP ANTIFREEZE EXTRA INIBITE ETHYLENE GLYCOL (50% + 50% H_2O)	CIRCUITO DI RAFFREDDAMENTO COOLING CIRCUIT (CUNA NC 956-16 ED 97)

ATTENTION

It is dangerous to supply too much lube oil to the engine because a sudden increase in engine rpm could be caused by its combustion.

AIR FILTER

Check that the dry air filter is correctly installed and that there are no leaks around the filter which could lead to infiltrations of non-filtered air to the inside of the motor.

FUEL

ATTENTION

Do not smoke or use open flames during refuelling operations, in order to avoid explosions or fire hazards.
Fuel fumes are highly toxic; carry out operations outdoors only, or in a well-ventilated environment.
Avoid accidentally spilling fuel. Clean any eventual leaks before starting up motor.

Fill the tank with diesel for automobiles.
For further details on the type of diesel to use, see the motor operating manual supplied.
Do not fill the tank completely; leave a space of approx. 10 mm between the fuel level and the wall of the tank to allow for expansion.

In rigid environmental temperature conditions (-10° C), use special winterized diesel fuels or specific additives in order to avoid the formation of paraffin.

GROUND CONNECTION

Proper grounding is obligatory for all models featuring a ground fault interruptor [G.F.I.] switch. This safety device functions correctly only if the machine is grounded.
☞ Use a good quality grounding cable and connect it to the machine's ground terminal (12). Abide by local norms and/or laws concerning safety and electrical installations.
When these operations have been carried out, the unit can be started up for operation.

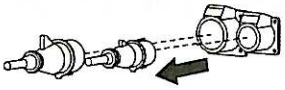
Check daily

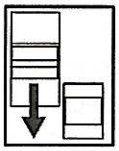
NOTE

Do not alter the primary conditions of regulation and do not touch the sealed parts.

RECOIL START

1. make sure the load plugs are disconnected



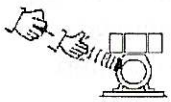


or the G.F.I. switch (D) is not inserted (intervention/insertion lever facing down), so as to ensure the motor's start-up without any loads inserted;

2. Accelerator at 50% speed

3. Hold the starting handle firmly.

4. Pull the rope hard and fast. Pull it all the way out. Use two hands if necessary.



5.Then return it slowly.

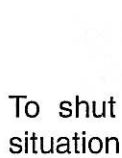
6. After starting bring at idle speed for a few minutes according to table.

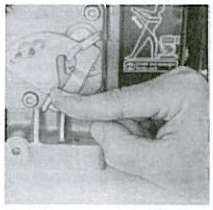
Temperature	Time
≤ - 20° C	5'
- 20° C / - 10° C	2'
- 10° C / - 5° C	1'
≥ - 5° C	20"

STOPPING

To stop the engine in normal conditions attend the following process:

- interrupt the power source, switching off all tools connected. If a tool does not feature a power switch, lower the G.F.I. switch lever (D);
- let the engine idle for a few minutes,
- Pull the stop lever (28) until the engine stops



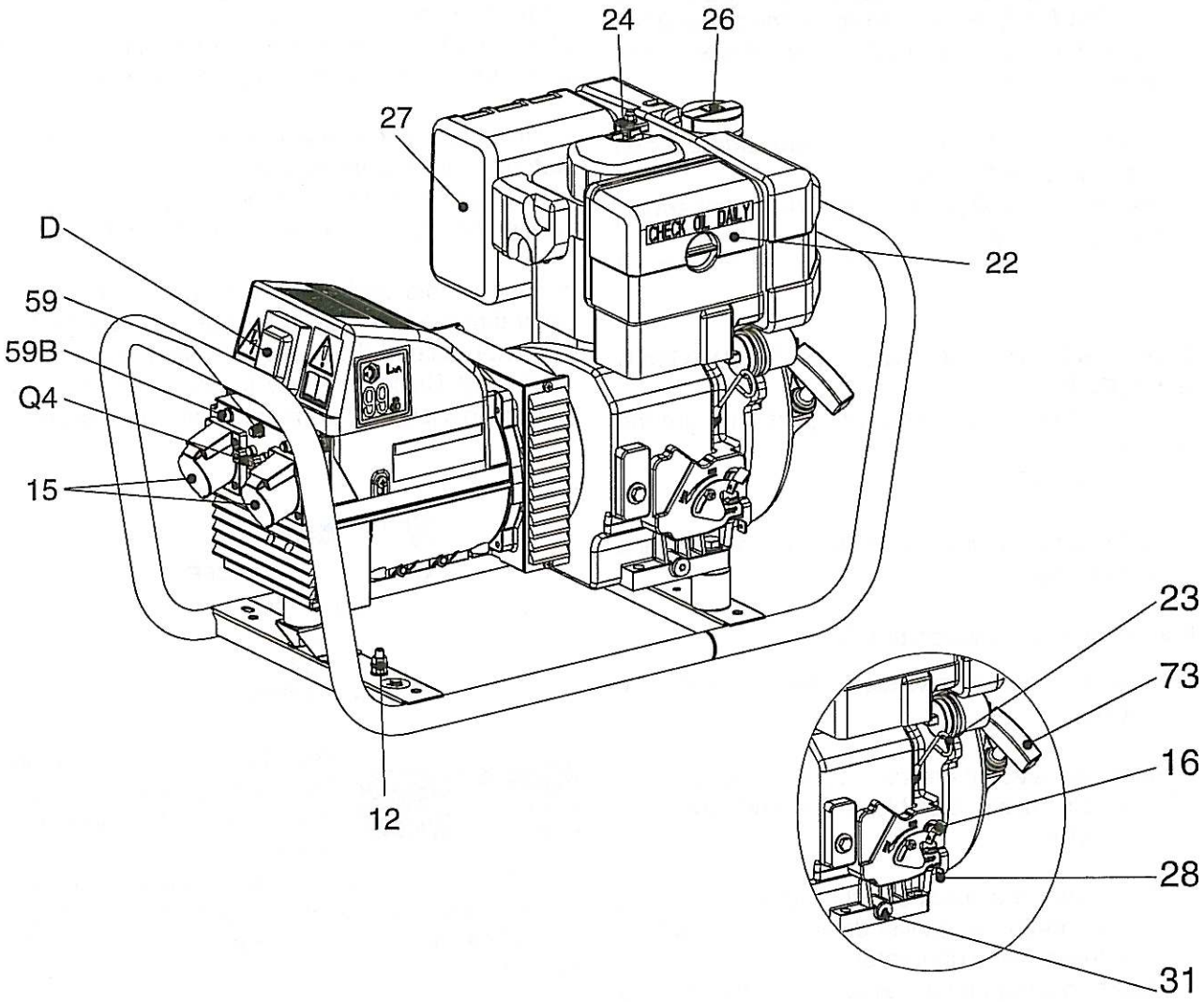


To shut down the motor in an emergency situation act immediately on the stop lever (28).

CAUTION

RUNNING-IN

During the first 50 hours of operation, do not use more than 60% of the maximum output power of the unit and check the oil level frequently, in any case please stick to the rules given in the engine use manual.



Pos.	Descrizione	Description	Description	Referenzliste
12	Presa di messa a terra	Earth terminal	Prise de mise à terre	Erdanschluss
15	Presa di corrente in c.a.	A.C. socket	Prises de courant en c.a.	Steckdose AC
16	Comando Acceleratore	Accelerator lever	Commande accélérateur	Beschleuniger
22	Filtro aria motore	Engine air filter	Filtre air moteur	Luftfilter Motor
23	Asta livello olio motore	Oil level dipstick	Jauge niveau huile moteur	Ölmess-Stab
24	Tappo caricamento olio motore	Engine oil reservoir cap	Bouchon remplissage huile moteur	Füllverschluss Motoröl
26	Tappo serbatoio	Fuel tank cap	Bouchon réservoir	Füllverschluss Kraftstofftank
27	Silenziatore di scarico	Muffler	Silencieux d'échappement	Auspufftopf
28	Comando Stop	Stop Control	Commande stop	Stopp-Hebel
31	Tappo scarico olio motore	Oil drain tap	Bouchon décharge huile moteur	Ablassöffnung Motoröl
59	Protezione termica c.b	Battery charger thermal switch	Protection thermique c.b.	Thermoschutz Batterielader
59B	Protezione termica corrente aux	Aux current thermal switch	Protection thermique courant aux.	Thermoschutz Hilfsstrom
73	Comando manuale avviamento	Starting recoil	Commande manuelle démarrage	Reversierstart
D	Interruttore differenziale (30mA)	G.F.I.	Interrupteur différentiel	FI-Schalter (GFI)
Q4	Prese carica batteria	Battery charge sockets	Prises charge batterie	Steckdose Batterielader

03/10/02 25400-I

⚠ WARNING

It is absolutely forbidden to connect the unit to the public mains and/or another electrical power source .

Areas for which access by non-authorized personnel is **forbidden** are:
- the control panel (at the front) - the endothermic motor discharge.

GENERATION IN AC (ALTERNATING CURRENT)

Make certain of the efficiency of the ground connection (12).
- See page M25.

Move the accelerator lever (16) and reach the engine maximum speed.

Position the G.F.I. switch to ON.

☞ Tension is now immediately available to the c.c sockets.

Connect the electric devices to be powered to the AC sockets, using suitable plugs and cables in prime condition.

☞ Verify that the electrical characteristics of the tension/frequency/power device are compatible with those of the generator.
Low frequency and/or voltage can damage some electrical devices irreparably.

Verify that the ground terminal for the plug is properly grounded and connected to the electrical appliance/ tool to be powered.

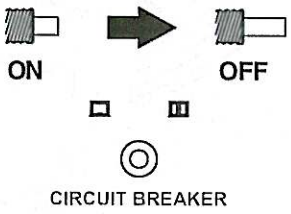
☞ For double insulation devices with the symbol ⧈ , the plug's ground terminal must not be grounded.

THERMOPROTECTION

The generator is protected against overloads by the thermoprotection (59B).
When current is exceeded, the protection feature intervenes to cut off tension to the AC sockets.

☞ Notes: the intervention of the thermoprotection feature is not instantaneous, but reacts according to an overcurrent/time characteristic, whereby the greater the overcurrent the quicker the intervention.

In case of intervention by the protection feature, verify that the total power for the loads connected does not exceed the declared rating; decrease if necessary. Disconnect the loads and wait a few minutes to allow the thermo-protection to cool down.

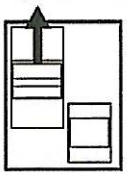


Reset the protection feature by pressing the central pole, then connect the load once again.
If the protection should intervene once more, replace it with another one with matching intervention current specifications and/or contact the Service Department.

☞ Note: do not forcibly press the central pole on the thermoprotection to inhibit its intervention, as this could **damage** the unit's alternator irreparably.

GROUND FAULT INTERRUPTOR SWITCH

The high-sensitivity ground fault interruptor switch [G.F.I.] (30mA) (D), guarantees protection against indirect contacts due to faulty ground currents .
When the G.F.I. switch picks up a faulty ground current that is higher than 30mA, it intervenes by immediately cutting off tension to the AC sockets.



In case of intervention by this protection feature, reset the G.F.I. switch, bringing the lever to the ON position.
In case of another intervention, verify that no faulty tools are connected, or replace the G.F.I. switch with another of matching specifications and/or contact the Service Department.

☞ Notes: verify the operation of the G.F.I. switch at least once a month by pressing the TEST button.
The generator must be running and the differential lever in the ON position.

GENERATION IN C.C. (Continuous Current)

Maximum power in c.c.:
P = 120W - V= 12V AC
I = 10A

Generation in c.c. is mainly used to recharge lead batteries.
- Verify that the battery to be charged is not a dry battery, and that it is 12V c.c.
- Position the generator and battery on a flat surface and distant from one another.

⚠ WARNING

It is dangerous to handle a lead battery; follow the procedures outlined on page M 25.

- Connect the battery recharge cables one at a time, avoiding accidental contacts between them.

☞ Note: use cables with a minimum section of 6 mm².

- Start the motor.
- Once recharging is complete, proceed in opposite sequence, switching off the motor and disconnecting the cables, etc.

THERMOPROTECTION

The 12V c.c. output is protected against overloads by the thermoprotection device (59). When current is exceeded, the protection feature intervenes to cut off tension to the c.c. terminals (Q4).

☞ Notes: the intervention of the thermoprotection feature is not instantaneous, but reacts according to an overcurrent/time characteristic, whereby the greater the overcurrent the quicker the intervention.

In case of intervention by the protection feature, verify that:
- the c.c. terminal /battery connections respect the polarities;
- the battery is not faulty or has a short-circuited element;
- the battery level is not too low, with the consequent recharge current being too high.

Eliminate the cause and wait a few minutes to allow the thermoprotection to cool down.

Reset the protection feature by pressing the central pole. If the protection should intervene once more, replace it with another one with matching intervention current specifications and/or contact the Service Department.

Problem	Possible cause	Solution
The motor does not start up, or starts up and then stops immediately	1) Lack of fuel in tank 2) Fuel filter clogged 3) Air leaks in fuel system 4) Other causes	1) Refill the tank 2) Replace 3) Check the feeding circuit 4) Consult the motor Operating Manual.
The engine does not accelerate Non constant speed	1) Air or fuel filter clogged 2) Overload	1) Clean and/or replace 2) Check the connected loads and if recessary reduce
Other problems or inconveniences on the engine	Consult the motor Operating Manual.	
Lack of tension to the AC sockets	1) G.F.I. switch in the OFF position 2) Intervention of G.F.I. switch due to faulty ground current 3) Faulty G.F.I. switch	1) Position to ON 2) Disconnect load from AC sockets. Position the G.F.I. switch to ON; if the switch intervenes once again, the fault is on board the machine. Contrarily, the cause of the G.F.I. switch intervention is due to a faulty ground current in the load or connection cable. Find and remove the fault. 3) Replace
Lack of tension to the AC sockets	1) Intervention of circuit breaker (thermoprotection) 2) Faulty thermoprotection 3) Faulty alternator	1) Check total power supplied by generator; if greater than the power reported on the specification nameplate, decrease the load 2) Replace 3) Check rotating diode windings, alternator excitation capacitor. See specifc alternator manual.
No-load output voltage too low or too high	1) Incorrect motor speed 2) Faulty alternator	1) Set the motor's no-load speed 2) Check rotating diode windings, alternator excitation capacitor. See specifc alternator manual.
No-load voltage OK, too low with load	1) Faulty alternator 2) Overload 3) Number of motor rpm too low	1) Replace rotating diodes 2) Check total load and eventually decrease 3) Check the fuel supply circuit. See Motor Operating manual.
Lack of tension to the c.c. terminals	1) Thermoprotection intervention 2) Faulty thermoprotection 3) Faulty diode bridge rectifier 4) Faulty alternator winding	1) Check the load current and eventually decrease it. 2) Replace 3) Replace 4) Replace

⚠ WARNING

MOVING PARTS can injure

- Have **qualified** personnel do maintenance and troubleshooting work.
- Stop the engine before doing any work inside the machine. If for any reason the machine must be operated while working inside, **pay attention** moving parts, hot parts (exhaust manifold and muffler, etc.) electrical parts which may be unprotected when the machine is open.
- Remove guards only when necessary to perform maintenance, and replace them when the maintenance requiring their removal is complete.
- Use suitable tools and clothes.
- Do not modify the components if not authorized.

- See pag. M1.1 -

HOT surface can hurt you

By maintenance at care of the utilizer we intend all the operatios concerning the verification of mechanical parts, electrical parts and of the fluids subject to use or consumption during the normal operation of the machine.

For what concerns the fluids we must consider as maintenance even the periodical change and or the refills eventually necessary.

The routine cleaning of the machine is also considered maintenance.

The repairs **cannot be considered** among the maintenance activities, i.e. the replacement of parts subject to occasional damages and the replacement of electric and mechanic components consumed in normal use, by the Assistance Authorized Center as well as by MOSA.

The replacement of tires (for machines equipped with trolleys) must be considered as repair since it is not delivered as standard equipment any lifting system.

For the maintenance of the gasoline or Diesel engine please refer to the specific manual supplied with the unit.
The periodic maintenance should be performed according to the schedule shown in the engine manual. An optional hour counter (M) is available to simplify the determination of the working hours.

Every day check the oil level in the engine and in the air filter (if at oil bath). Make sure that these are no obstructions in the aspiration/exhaust ducts of the alternator, in the engine or in the cover (pieces of material, leaves or other).
See page M21 and M26.

⚠ NOTE

THE ENGINE PROTECTION DO NOT WORK WHEN THE OIL IS OF LOW QUALITY BECAUSE NOT CHARGED REGULARLY AT INTERVALS AS PRESCRIBED IN THE OWNER'S ENGINE MANUAL.

In case the machine should not be used for more than 30 days, make sure that the room in which it is stored presents a suitable shelter from heat sources, weather changes or anything which can cause rust, corrosion or damages to the machine.

☞ Have **qualified** personnel prepare the machine for storage.

GASOLINE ENGINE

Start the engine: It will run until it stops due to the lack of fuel.

Drain the oil from the engine sump and fill it with new oil (see page M25).

Pour about 10 cc of oil into the spark plug hole and screw the spark plug, after having rotated the crankshaft several times.

Rotate the crankshaft slowly until you feel a certain compression, then leave it.

In case the battery, for the electric start, is assembled, disconnect it.

Clean the covers and all the other parts of the machine carefully.

Protect the machine with a plastic hood and store it in o dry place.

DIESEL ENGINE

For short periods of time it is advisable, about every 10 days, to make the machine work with load for 15-30 minutes, for a correct distribution of the lubricant, to recharge the battery and to prevent any possible bloking of the injection system.

For long periods of inactivity, turn to the after soles service of the engine manufacturer.

Clean the covers and all the other parts of the machine carefully.

Protect the machine with a plastic hood and store it in a dry place.

In case of necessity for first aid and of fire prevention, see page. M2.5.

IMPORTANT

In the storage operations avoid that polluting substances, liquids, exhausted oils, etc. bring damage to people or things or can cause negative effects to surroindings, health or safety respecting completely the laws and/or dispositions in force in the place.

☞ Have **qualified** personnel disassemble the machine and dispose of the parts, including the oil, fuel, etc., in a correct manner when it is to be taken out of service.

As cust off we intend all operations to be made,at utilizer's care,at the end of the use of the machine. This comprises the dismantling of the machine, the subdivision of the several components for a further reutilization or for getting rid of them, the eventual packing and transportation of the eliminated parts up to their delivery to the store, or to the bureau encharged to the cust off or to the storage office, etc.

The several operations concerning the cust off, involve the manipulation of fluids potentially dangerous such as: lubricating oil and battery electrolyte.

The dismantling of metallic parts liable to cause injuries or wounds, must be made wearing heavy gloves and using suitable tools.

The getting rid of the various components of the machine must be made accordingly to rules in force of law a/o local rules.
Particular attention must be paid when getting rid of:
lubricating oils, battery electrolyte, and inflamable liquids such as fuel, cooling liquid.

The machine user is responsible for the observance of the norms concerning the environment conditions with regard to the elimination of the machine being cust off and of all its components.

In case the machine should be cust off without any previous disassembly it is however compulsory to remove:
- tank fuel
- engine lubricating oil
- cooling liquid from the engine
- battery

NOTE: MOSA is involved with custing off the machine **only** for the second hand ones, when not reparable.
This, of course, after authorization.

In case of necessity for first aid and fire prevention, see page M2.5.

IMPORTANT

In the cust-off operations avoid that polluting substances, liquids, exhausted oils, etc. bring damage to people or things or can cause negative effects to surroindings, health or safety respecting completely the laws and/or dispositions in force in the place.

The generating set GE 4000 is a unit which transforms the mechanical energy, generated by endothermic engine, into electric energy, through an alternator.

Is meant for industrial and professional use, powered by an endothermic engine; it is composed of various main parts such as: engine, alternator, electric and electronic controls, the fairing or a protective structure.

The assembling is made on a steel structure, on which are provided elastic support which must damp the vibrations and also eliminate sounds which would produce noise.

Technical data	GE 4000 LDS/GS
GENERATOR	
Single-phase output	3.6 kW / 230 V / 15.7 A
Frequency	50 Hz
Duty cycle	100%
Cos φ	1
ALTERNATOR	self-excited, self-regulated, brushless
Type	synchronous, single-phase
Insulating class	H
ENGINE	
Mark	Lombardini
Model	15 LD 350
Type	4-Stroke
Displacement	349 cm^3
Cylinders	1
Output max *	4,6 kW (6,3 HP)
Speed	3000 rpm
Fuel consumption	260 g/kWh
Cooling system	air
Engine oil capacity	1.2 l
Starter	manual recoil
Fuel	Diesel
* Maximum output according to ISO 3046/1	
GENERAL SPECIFICATIONS	
Battery charger d.c.	12V - 10A
Tank capacity	4.3 l
Running time (75%)	4.2 h
Protection	IP 23
Dimensions / max. Lxwxh (mm) *	785 x 410 x 515
Weight (dry) *	64 Kg
Noise level	99 LWA (74 dB(A) - 7 m)
* Dimensions and weight are inclusive of all parts	

OUTPUT

Declared powers at the following ambient conditions: temperature 20°C, relative humidity 30% altitude 100 m above sea level.
In an **approximative** way one reduces: of 1% every 100 m altitude and of 2.5% for every 5°C above 25°C.
For possible modifications or changes to be brought on the engines, with climate conditions different from those above mentioned, please call our Assistance Authorized Centers.

ACOUSTIC POWER LEVEL

The machine respects the noise limits, expressed in sound power, given in the a.m. directives.
These limits can be used to judge the sound level produced on site.
For example: the sound power level of 100 LWA.
The sound pressure (noise produced) at 7 meters distance is about 75dBA (the limit value less 25).
To calculate the sound level at other distances use this formula:

$$dBA_x = dBA_y + 10 \log \frac{ry^2}{rx^2}$$

At 4 meters the noise level becomes:

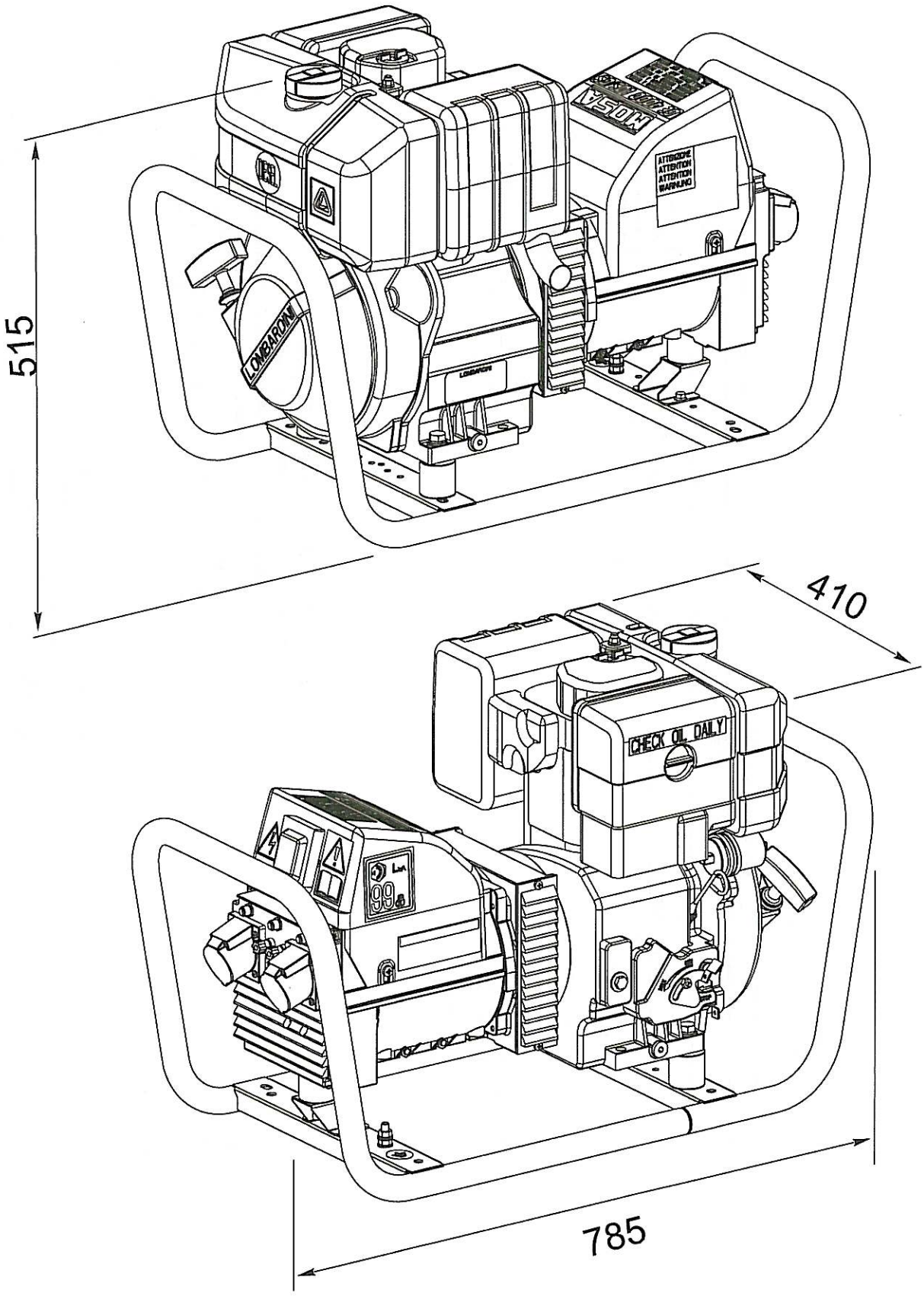
$$75 \text{ dBA} + 10 \log \frac{7^2}{4^2} = 80 \text{ dBA}$$

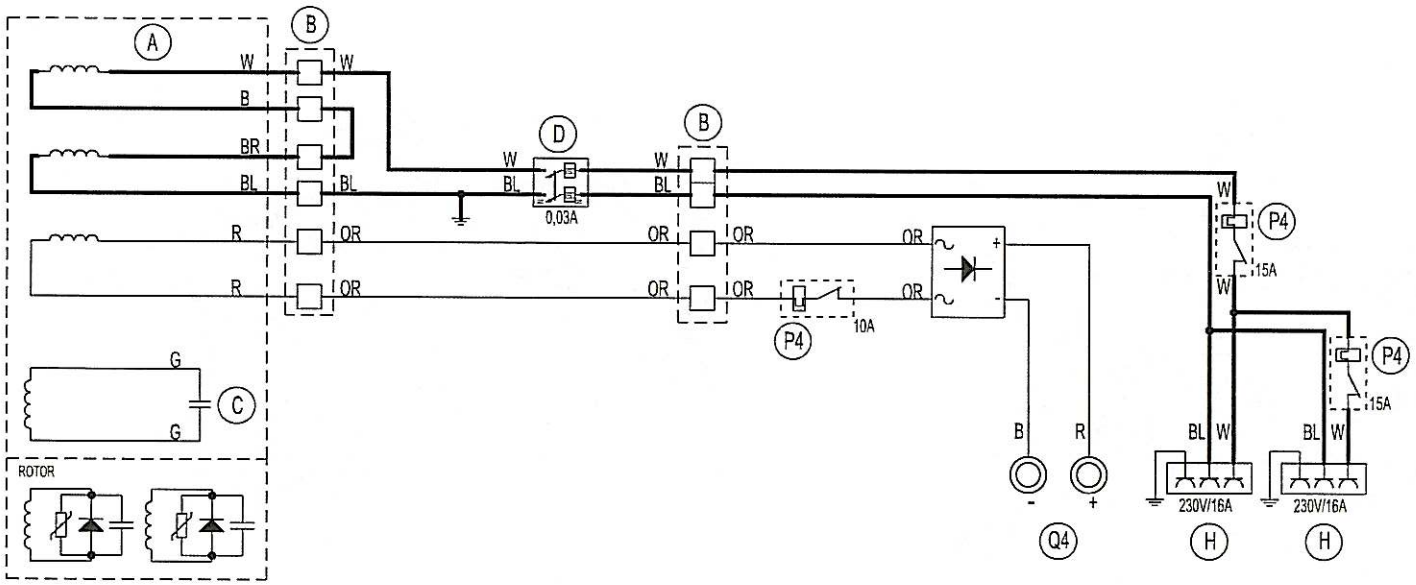
DIMENSIONI
DIMENSIONS

SCHEMI ELETTRICI
ELECTRICAL SYSTEM

RICAMBI
SPARE PARTS

08/04/04 M56


515
410
785
LOMBARDINI
CHECK OIL DAILY



LEGENDA COLORI KEY COLOR	
R	ROSSO/RED
B	NERO/BLACK
BL	BLU/BLUE
BR	MARRONE/BROWM
G	GRIGIO/GREY
W	BIANCO/WHITE
OR	ARANCIONE/ORANGE

LEGENDA / LEGEND / LEGENDE / REFERENZLISTE

A : Alternatore / Alternator / Alternateur / Generator
B : Supporto connessione cavi / Wire connection unit / Connexion câbles / Klemmleiste
C : Condensatore / Capacitor / Condensateurs / Kondensatorbox
D : Interruttore differenziale / G.F.I. / Interrupteur différentiel / FI-Schalter (GFI)
H : Presa 230V monofase / 230V 1phase socket / Prise 230V monophasé / Steckdose 230V 1-phasig
P4 : Protezione termica / Circuit breaker / Protection thermique / Thermosicherung
Q4 : Prese carica batteria / Battery charge sockets / Prises charge batterie / Steckdose Batterielader

Esp. Exp.	Modifica Modification	Data Date	Dis. Desi.	Appr. Appr.

MOSA
20090-CUSAGO (MI)-ITALY
http://www.mosa.it

Da Pag. From Page:
Alla Pag. To Page:

Denominazione: Denomination: Aux. (230Mx2/12Vdc) DT
Progetto: Project: 25460.prg
Pag.n° Page n°: 3
di n° of n°: 3
Macchina: Machine: GE 4500 HBS
Disegnatore: Designer: Leporace N.
Data: Date: 24.10.2003
Dis. n°: Drwg. n°: 25460.S.020
Approvato: Approved:

MOSA

I Schema elettrico

GE 4000 LDS/GS

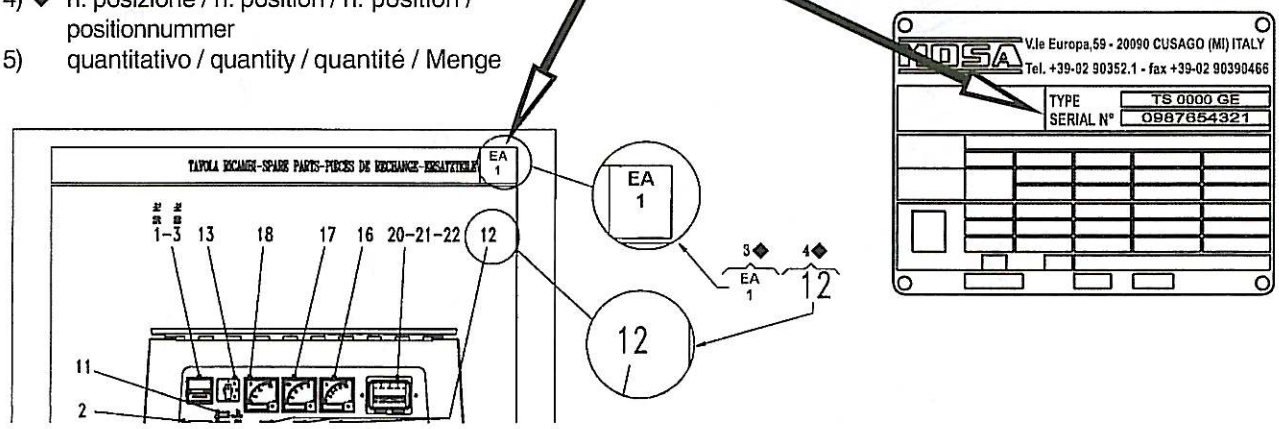
M 61

La MOSA è in grado di soddisfare ogni richiesta di pezzi di ricambio.
Se si desidera mantenere in efficienza la macchina, sempre nel caso di riparazione che comportino sostituzioni di pezzi MOSA, si deve pretendere che vengano usati solo parti di ricambio originali.
MOSA guarantees that any request for spare parts will be satisfied.
To keep the machine in full working order, when replacement of MOSA spare parts is required, always ask for genuine parts only.
MOSA est en mesure de satisfaire toute demande de pièces de rechange.
Si l'ont veut garder l'appareil en bonne condition de fonctionnement, dans le cas de réparations qui comportent le replacement de pièces, on doit exiger que soient employées des pièces d'origine MOSA.
MOSA kann jedes Verlangen von Ersatzteilen befriedigen.
Wenn man die Maschine arbeitsfaehig halten will, im Falle von Reparaturen, die den Ersatz von MOSA-Teilen benoetigen, muss man immer originale MOSA Ersatzteile fordern.

Per ordinare le parti di ricambio indicare -
When ordering the spare parts, it is recommended to indicate:
Pour commander les pièces de rechange, indiquer:
Zur Bestellung der Teile muss man:

1) ✷ n. di matricola / serial number / matricule de la machine / Seriennummer
2) ✷ tipo motosaldatrice e/o gruppo elettrogeno / model of welder and/or generating set / type de motosoudeuse et/ou groupe électrogène / Typ des Schweissgeraets und/oder Stromerzeugers
3) ◆ n. tavola / n. table / n. table / taflenummer
4) ◆ n. posizione / n. position / n. position / positionnummer
5) quantitativo / quantity / quantité / Menge

☞ Il dati richiesti si trovano sulla targa dati situata sulla struttura della macchina ben visibile e di facile consultazione. ✷
☞ The requested data are to be found on the data plate located on the machine structure, quite visible and easy to consult. ✷
☞ Les données demandées se trouvent sur la plaque des données, située sur la structure de la machine, bien visible et facile à consulter. ✷
☞ Die verlangten Daten sind auf der Datenplatte, die sichtbar und leicht zu verstehen an der Maschinestruktur gehoert. ✷

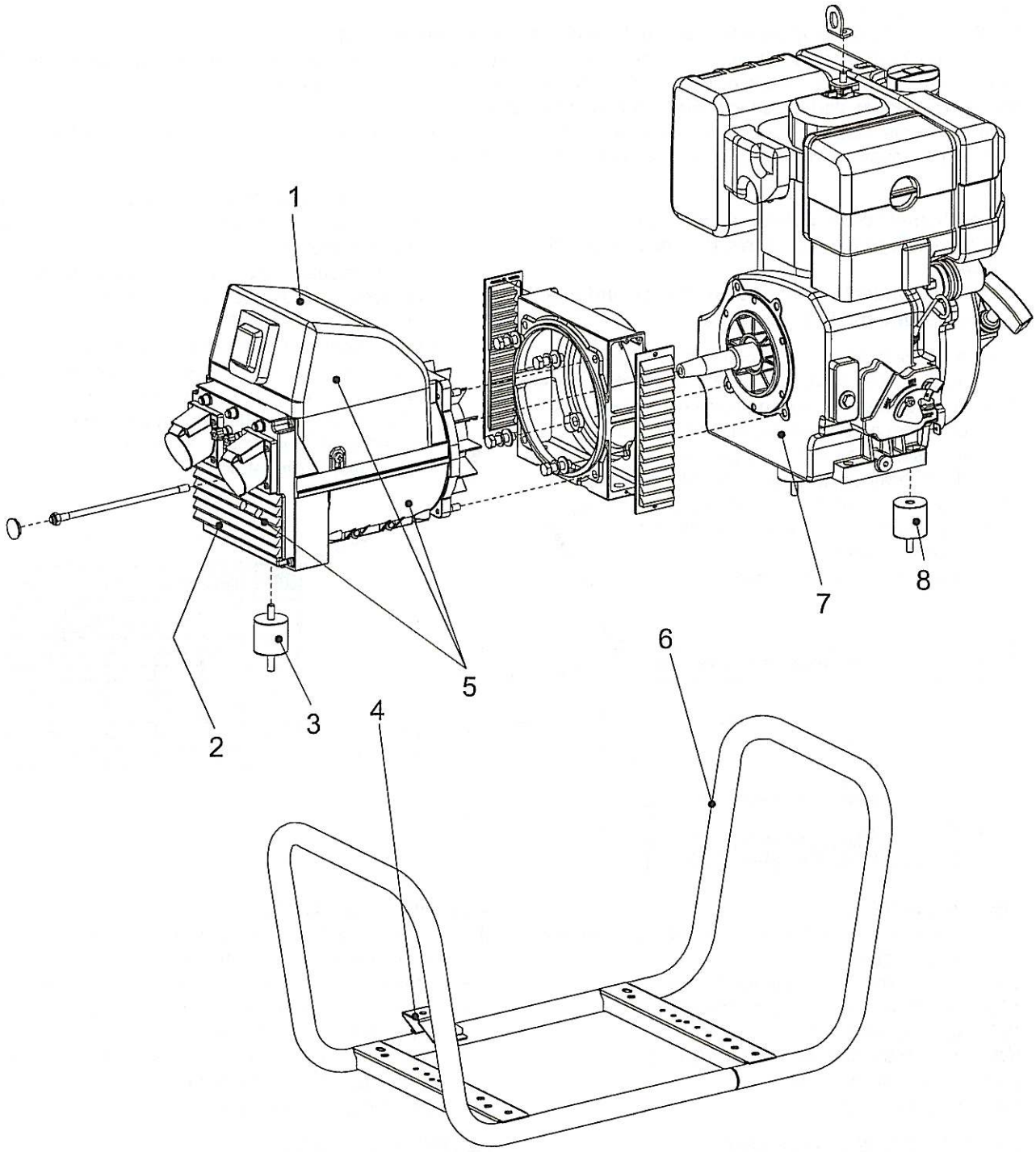


LEGENDA NOTE:
(EV) Specificare all'ordine il tipo di motorizzazione e le tensioni ausiliarie
(ER) Solo motore con avviamento a strappo
(ES) Solo motore con avviamento elettrico
(VE) Solo versione E.A.S.
(QM) Specificare all'ordine la quantità in m
(VS) Solo versioni speciali
(SR) Solo a richiesta

LEGENDE DES NOTES:
(EV) Type de moteur et/ou tensions auxiliaires doivent être spécifiés à la commande
(ER) Moteur avec démarrage à cordelette seulement
(ES) Moteur avec démarrage électrique seulement
(VE) Version E.A.S. seulement
(QM) A la commande spécifier la longueur en mètres
(VS) Versions spéciales seulement
(SR) Sur demande seulement

ABBREVIATIONS AND SYMBOLS:
(EV) When ordering, specify the engine type and the auxiliary voltage
(ER) Engine with recoil starter only
(ES) Engine with electric starter only
(VE) E.A.S version only.
(QM) When ordering, specify the length in meters
(VS) Special version only
(SR) By request only

NOTENERKLAERUNG:
(EV) Motortyp und Hilfspannungen beim Auftrag angeben
(ER) Nur bei Motor mit Reversierstart
(ES) Nur bei Motor mit Elektrostart
(VE) Nur bei E.A.S Ausfuehrung
(QM) Beim Auftrag die Laenge in Metern angeben
(VS) Nur bei Sonderausfuehrungen
(SR) Nur auf Wunsch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Pos.	Rev.	Cod.	Descr.	Note
1	A	254003097	CUFFIA SUP.ALTERNATORE"SINCRO"DIFF. 2 POLI	(X RIC.)
2	A	254003098	CUFFIA ANT.ALTERNATORE"SINCRO"2 PR.SCHUKO	(X RIC.)
3		102041250	ANTIVIBRANTE	
4		254501064	CAVALLOTTO SUPPORTO ALTERNAT.	
5	A	254603100	ALTERNATORE	era 254003100 del. 93/03 del 17/10/03
6	A	254601050	BARELLA	era 254501050 del. 87/03 del 25/09/03
7		254002200	MOTORE LOMBARDINI 15LD350	
8		356321035	ANTIVIBRANTE	

Pos.	Rev.	Cod.	Descr.	Note
1	A	254003097	ALTERNATOR UPPER COVER	(X RIC.)
2	A	254003098	ALTERNATOR FORMER COVER	(X RIC.)
3		102041250	VIBRATION-DAMPER	
4		254501064	ALTERNATOR HING.LINK	
5	A	254603100	ALTERNATOR	era 254003100 del. 93/03 del 17/10/03
6	A	254601050	PROTECTIVE FRAME	era 254501050 del. 87/03 del 25/09/03
7		254002200	LOMBARDINI ENGINE 15LD350	
8		356321035	VIBRATION DAMPER	

MOSA

Ⓘ **MODULO PER L'ORDINAZIONE DEI RICAMBI**
ⒼⒷ **REQUEST FOR ORDER SPARE PARTS**
Ⓕ

 1.0-03/04

R 1.1

Gentile cliente, potrà inviarci la richiesta per l'ordinazione di ricambi originali MOSA compilando questo modulo sia con le nuove tavole ricambi che con le vecchie, a mezzo FAX o per posta.

Dear Customer, You can send us the request for order of MOSA original spare parts, filling in this form, with the new spare parts tables as well as with the old ones, by FAX or mail.

Richiesta da/*Request from*:..... **data/*date*:**.....

firma/*signature*:.....

Inviateci i seguenti ricambi della sotto elencata macchina /*Please send use us following sapre parts for the machine below:*

RICAMBI MOSA / *MOSA SPARE PARTS:*

modello tipo / *model type*: .....

nr. matricola / *serial nr:*

NUOVE TAVOLE/NEW TABLES		
tavola nr. table nr.	posizione position	q.tà q.ty

VECCHIE TAVOLE OLD TABLE	
codice / code	q.tà/q.ty

RICAMBI MOTORE / *ENGINE SPARE PARTS:*

modello motore / *engine model*: .....

matricola motore / engine serial nr.:.....

codice e/o posizione code and/or position	descrizione e/o tavola description and/or table	q.tà q.ty

RICAMBI ALTERNATORE SINCRONO / *SYNCHRONOUS ALTERNATOR SPARE PARTS:*

modello alternatore / *alternator model*:.....

matricola alternatore / *alternator serial nr.*:.....

codice e/o posizione code and/or position	descrizione e/o tavola description and/or table	q.tà q.ty