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preparato da UPT
approvato da DITE

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 Roveri, President of IQNet*
CISQ — *Giuseppe Prati, President of CISQ*

IQNet partners*: AENOR Spain, AFAQ France, AIB-Vincotte International Belgium, APCER Portugal, CISQ Italy, COC China, CQM China, CQS Czech Republic, DQS Germany, DS Denmark, ELOT Greece, FCAV Brazil, FONDONORMA Venezuela, HKQAA Hong Kong, ICONTEC Colombia, IRAM Argentina, IQA Japan, KFQA Netherlands, KTQ Korea, MSZT 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
www.icim.it

CERTIFICATO n. 0192/3
CERTIFICATE No.

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITÀ DI
WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

MOSA Divisione della BCS S.p.A.

UNITÀ OPERATIVE
OPERATIVE UNITS

Viale Europa, 59 - 20090 Cusago (MI)
Italia

È CONFORME ALLA NORMA
IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2000

PER LE SEGUENTI ATTIVITÀ
FOR THE FOLLOWING ACTIVITIES

EA: 18

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

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

ICIM S.p.A. - PIAZZA 4, DAL 3 - 20123 MILANO

CISQ is a member of IQNet

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

INDEX (for all MOSA models)

⚠ 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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e-mail : info@mosa.it
www.mosa.it

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

ICIM CISE 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**

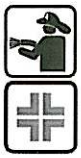
⚠ **NOTE**

⚠ **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~)

CE Conformity CE	LWA EEC Sound power conformity	S EN 60974-1 conformity	Y Triphase 3 ~	I Singlephase 1 ~			Users' manual	Information	Various news

Equipment and optional

Engine	Gasoline engine	Diesel engine	Air cooling	Water cooling	Manual recoil	Electric start	Battery 12 V			
Engine protection	EV Engine protection	ES Engine protection	EP2 Engine protection	EP1 Engine protection	EP4 Engine protection	EP5 Engine protection	Siren	Engine shut down (oil)	Engine speed	
Engine alarms	Oil level indicator	Battery charger indicator	Fuel level gauge/low fuel	Low fuel indicator	Oil temperature	Warning light for preheating glow plugs	Air filter blockage	Belt breakage	Over speed	Control unit QEA
Generation	GA Asynchronous alternator	GS Synchronous alternator	GHF Generator high frequency	V Voltmeter	Hz Frequency-meter	A Ammeter	Compound	V Voltmeter phase selector	RVT Electronic Voltage regulator	Switch
Electric protection	MTD Circuit breaker/ Ground fault interrupter	MT Circuit breaker	D Ground fault interrupter	T Thermal shut off	Fuse	R< Isolation monitoring				
Generation use	Terminal strip	3~ CEE Socket 400/230V EEC	1~ CEE Socket 230/110/48V EEC	1~ Schuko Socket 230V Schuko	Socket 48V EEC	Battery charger	Engine booster			
Welding control	Arc control	Welding with covered electrode	Welding current electr. regulation	Base current diode bridge	Polarity inverter	CC/CV selector				
Various devices	h Hour counter	Ready for TC	Ground connection point	Emergency stop button	Central lifting eye					
Various	Standard equipment	Options on request					D.C.	~ A.C.	+ Plus	- Minus	Maintenance Time
Optionals	Trolley	Site tow	Welding cables	Remote control						

⚠ 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

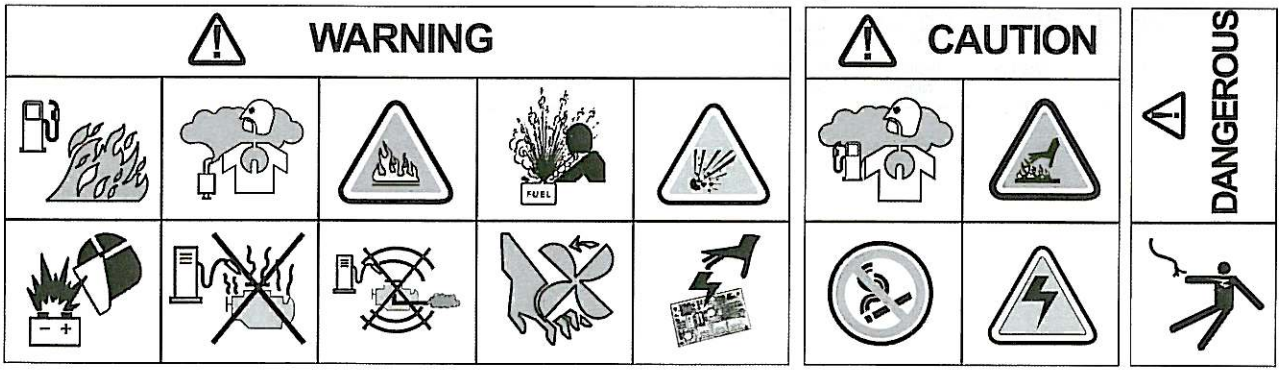
CHECKING BOARD
Do not touch electric devices if you are barefoot or with wet clothes.
Always keep off leaning surfaces during work operations
Static electricity can demage the parts on the circuit.
An electric shock can kill

☞ **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.

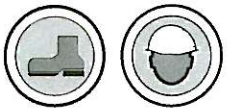
Skin contact	Wash with water and soap
Eyes contact	Irrigate with plenty of water, if the irritation persists contact a specialist
Ingestion	Do not induce vomit as to avoid the intake of vomit into the lungs, send for a doctor
Suction of liquids from lungs	If you suppose that vomit has entered the lungs (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.



⚠ WARNING — ***THE MACHINE MUST NOT BE USED IN AREAS WITH EXPLOSIVE ATMOSPHERE***



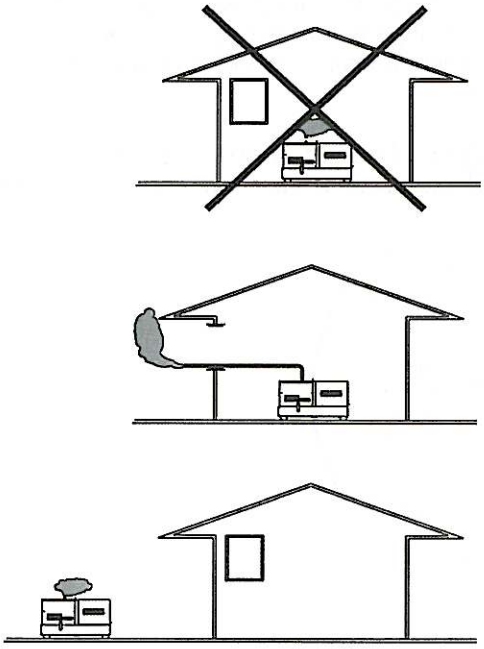
INSTALLATION AND ADVICE BEFORE USE

GASOLINE ENGINES

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

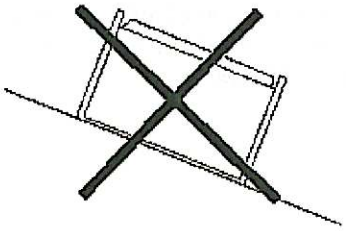
DIESEL ENGINES

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

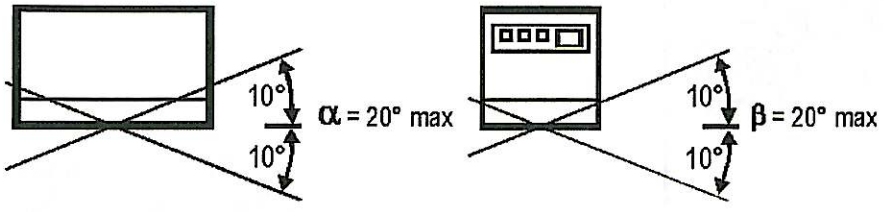


POSITION

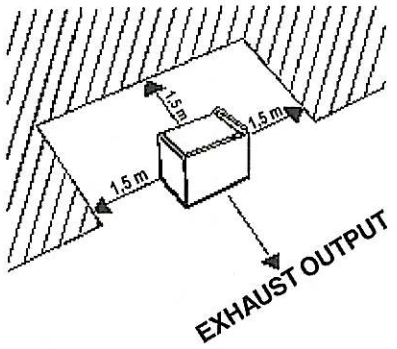
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



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

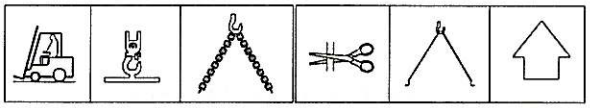
In spots where it often rains and/or there are flooded areas, do **not** put the machine:

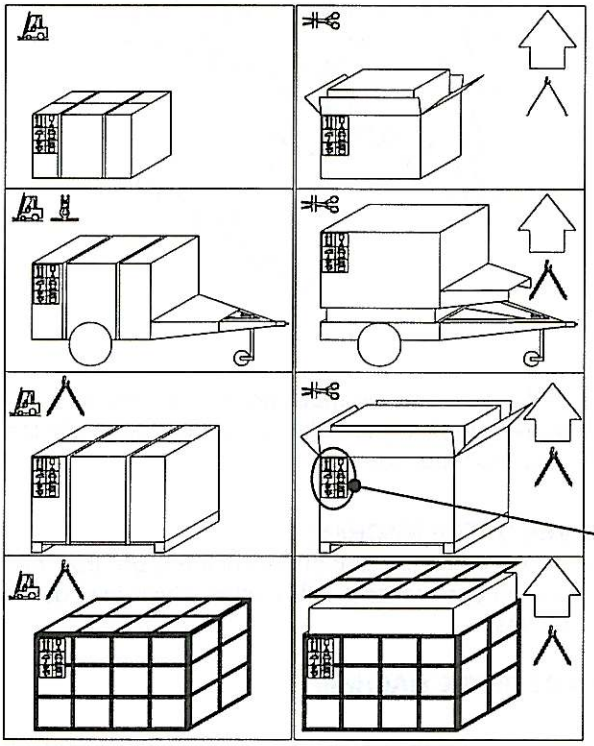
- *in the bad weather*
- *in flooded places.*

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".

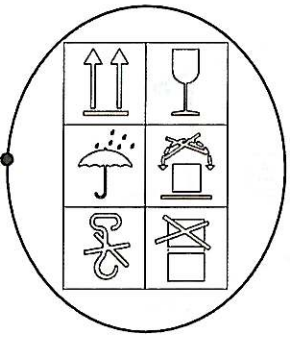
NOTE

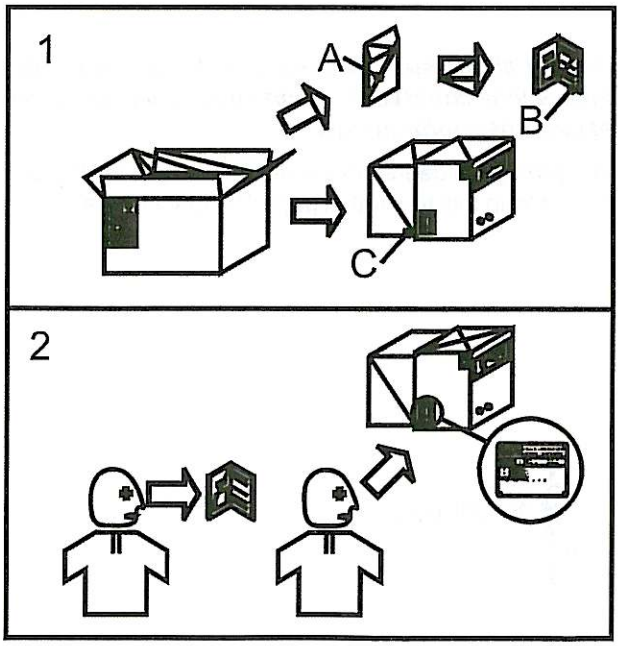




☞ Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conforms to local rules and regulations.
When receiving the goods make sure that the product has not suffered damage during the transport, that there has not been rough handling 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.



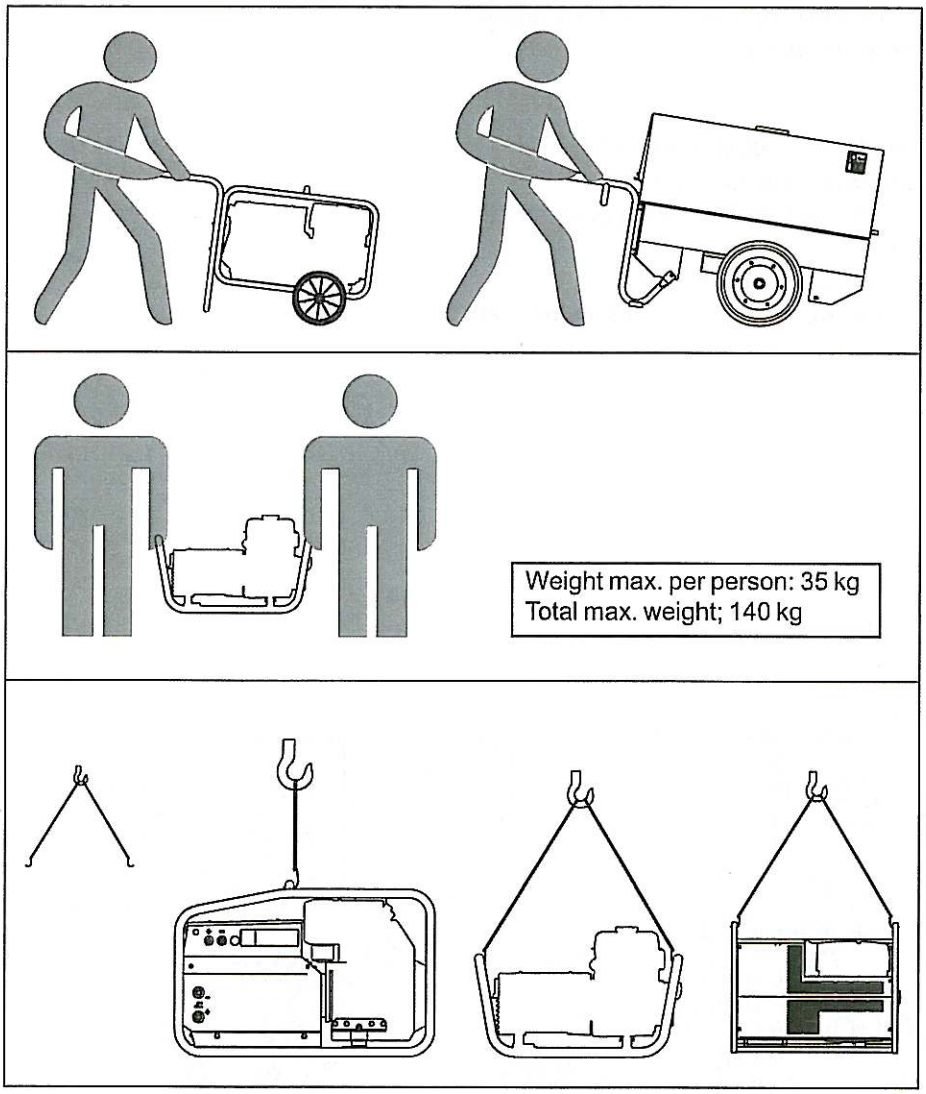


1) Take the machine (C) out of the shipment packing.
Take out of the envelope (A) the user's manual (B).
2) Read: the user's manual (B), the plates fixed on the machine, the data plate.

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.



The Kit, exhaust extension, has the aim to remove the exaust vapours of the penerating set from the work area; therefore we show the assembling process for the application of the Kit PS 4.5 (cod. n°. 306410062).

DISASSEMBLE:

a) the side cover, exhaust muffler side
b) the exhaust complete with manifold (1) unscrewing the nuts (2) which fix it to the engine head.

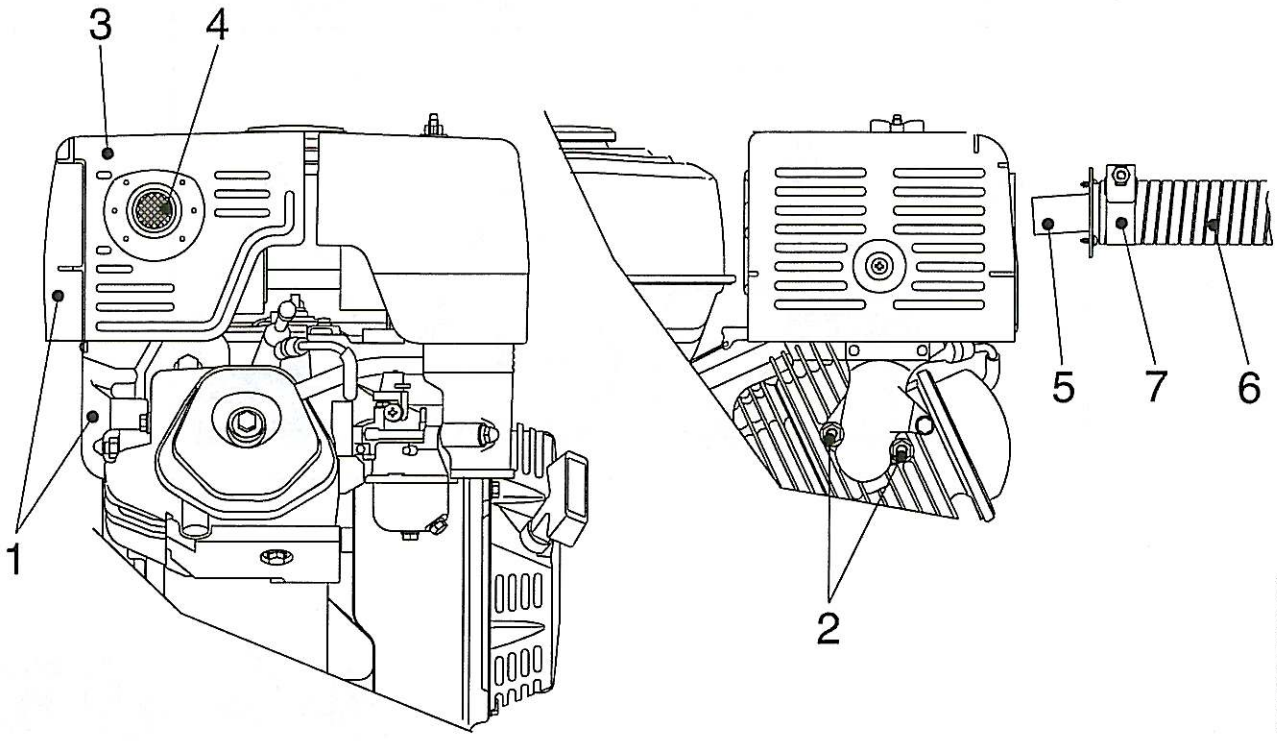
☞ **NB:** pay attention not to damage the gasket between the manifold and the head.

c) from the exhaust, the protection (3) and the flange with the flame stopper (4).

ASSEMBLE:

d) the protection of the exhaust muffler (3)
e) the small trunk (5) of the Kit PS 4.5
f) the complete exhaust muffler (1) (so modified) and the nuts (2)
g) the side cover, exhaust muffler side
h) the tube (6) of the Kit, fixing it with the clamp (7).

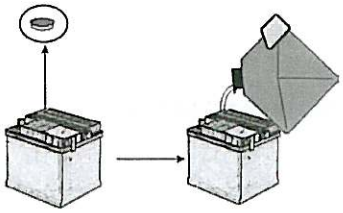
☞ **NB:** it is **ADVISABLE** the block the tube (6) at about 2 m from the generating set in a stiff and sure way.



20/03/04 35460-GB

BATTERY

Take up the battery out of the machine.



Fill the battery (S1) with electrolyte up to the maximum level. Wait for about 30 minutes and top up with electrolyte.

In case acid is spilled, rinse with much water before reassembling the battery, reconnect the cables.

WARNING

Sulfuric acid is corrosive. Protect hands, eyes and clothes.
Take the battery out of the machine for filling.
Warranty **VOIDED** for damages due to spilled acid.

LUBRICANT

Check the level of the engine oil using the (appropriate oil dipstick: the level should be between the minimum and maximum marks.

If necessary, add more oil through the appropriate inlet

Fill the air filter using the same oil up to the level indicated on the filter (machine with **oil bath** air filter).

OIL RECOMMENDED

MOSA advises to choose **AGIP** for the type of oil.

Please keep to the label put on the engine for the recommended products.

Agip MOSA motosaldatrici 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)

☞ ***NOTE**: before starting and switching off, see instructions in the engine ownerís manual herewith attached.*

FUEL

Check the level of fuel in the tank and, if necessary, add more standard gasoline of any type you can buy (e.g. 84-96 ON).

If during the filling of the tank some gasoline is accidentally spilled around the engine chassis, clean it immediately before starting up the engine.

ENGINE WITH OIL ALERT DEVICE

The OIL ALERT device will stop the engine in case of no oil or insufficient amount of oil in the engine.

In case one tries to start the engine with oil below the minimum level, the warning light (when assembled) will light and the device will not allow starting.

CLEANING OF DRY AIR FILTER

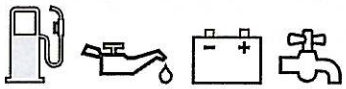
See page M43.

GROUND CONNECTION

☞ It is **obligatory** to connect the ground connection point (12) by means of a sure efficient cable (please follow the installation local rules and/or regulations in force) in order to integrate or ensure the working of various electric protection devices referring to the several distribution systems TN.

The unit can be started only when the above operations have been correctly performed.

Check daily



NOTE

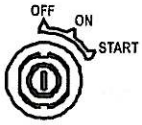
Do not alter the primary conditions of regulation and do not touch the sealed parts.

ENGINES WITH ELECTRIC START

IInsert the electric protection device (D-Z2-N2) lever towards above and, where mounted, check the isolation monitor (A3) see page M37 -

Check the battery connection with the respective terminals (+) (-).

Open the gosoline cock; use the starter if the engine is cold and the temperature is low.



Introduce the key (Q1), turn it clockwise completely, leaving it as soon as the engine starts and/or the push button (32) (models without key) leaving it as soon as the engine starts.

☞ **NB.: <u>for safety reason the key must be kept by qualified personel.</u>**

Once the engine is started, with the starter off, let it turn for a few minutes before drawing the load.

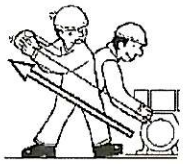
Accelerate the machine by means of the right lever (16), when it is assembled.

ENGINE WITH NO ELECTRIC START

Insert the electric protection device (D-Z2-N2) lever towards above and, where mounted, check the isolation monitor (A3) see page M37-

Open the gasoline cock; use the starter if the engine is cold and the temperature is low.

Hold the starting handle firmly.



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

Then returning it slowly.

Once the engine is started, with the starter off, let it turn for a few minutes before drawing the load.

Accelerate the machine by means of the right lever (16), when it is assembled.

EMERGENCY START
(wlth rope)

In the versions with electric start, in case of need, it is possible to start the engine with the rope.

CAUTION

If the engine fails to start, do not insist for at least 15 seconds.

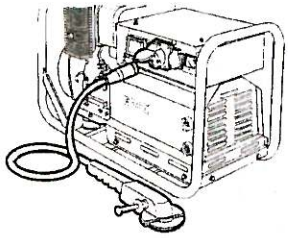
Space the further operations waiting for at least 4 minutes.

CAUTION

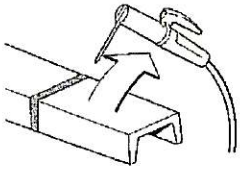
RUNNING-IN
During the first 50 hours of operation, do not use more than 60% of the maximum output power of the unit and check the oil level frequently., *in any case please stick to the rules given in the engine use manual.*

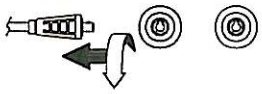
☞ Before stopping the engine **it is compulsory** to effect the following operations:

- stop to draw three/single-phase current from the auxiliary sockets.



- stop to draw power from the welding sockets (only for TS models).





ENGINES WITH ELECTRIC START

☞ Make sure that the machine is not under load.

Wait for a few minutes to allow the engine to cool down, anyway follow the instructions contained in the engine manual.

Shut the gasoline cock.

Take out the key (Q1), turning it counter clockwise (when assembled) or pressing the stop button (32) until the engine stops.

☞ **NB.: <u>for safety reason the key must be kept by qualified personel.</u>**

ENGINES WITHOUT ELECTRIC START

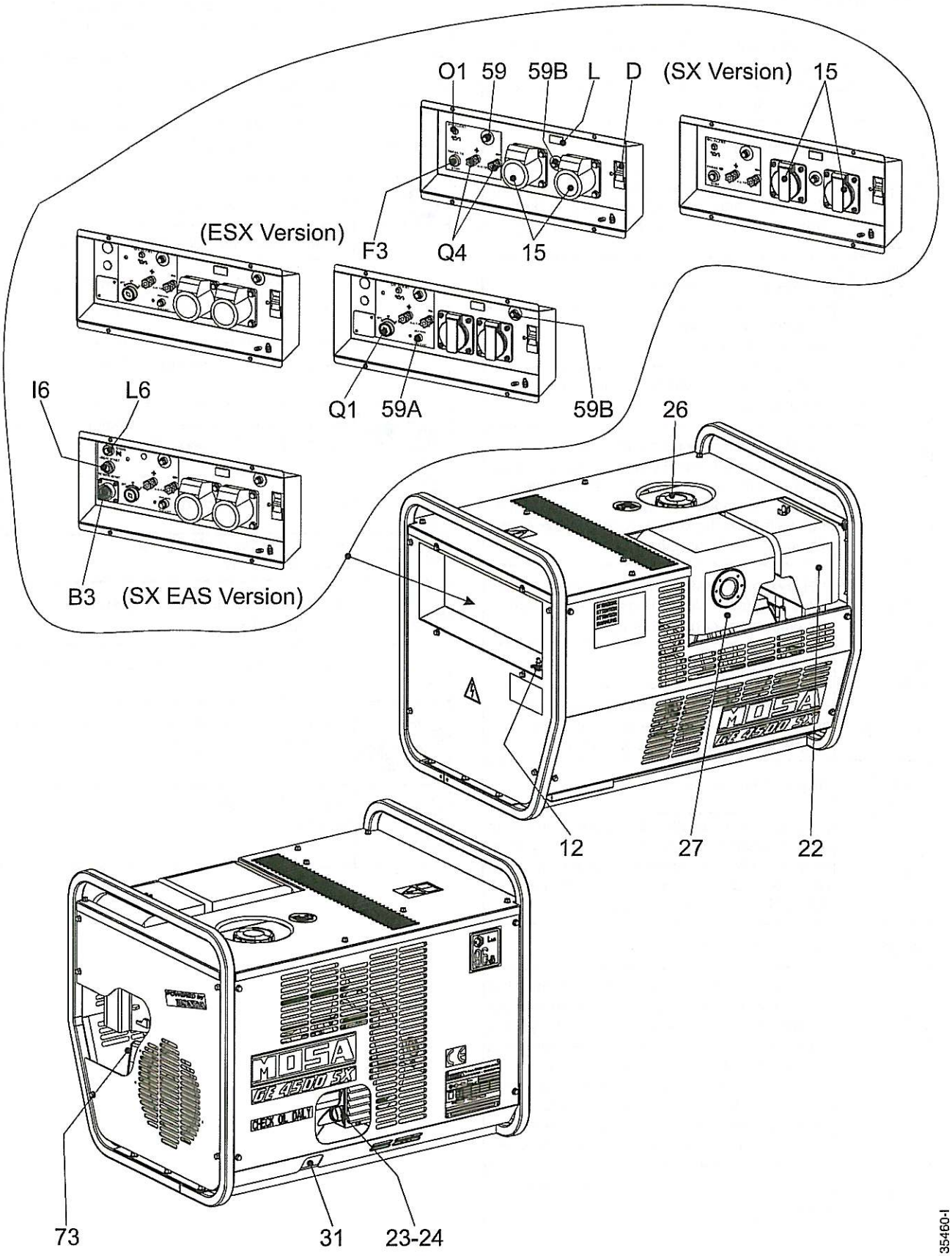
☞ Make sure that the machine is not under load.

Wait for a few minutes to allow the engine to cool down, take however into consideration the prescriptions given in the engine use manual.

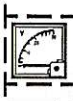
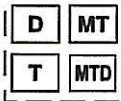
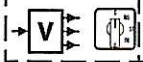
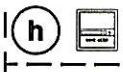
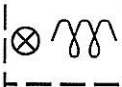
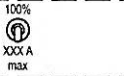
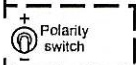
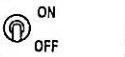
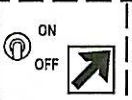
Shut the gasoline cock.

Set the engine switch (32) to the OFF position.

4A	Hydraulic oil level light
9	Welding socket (+)
10	Welding socket (-)
12	Earth terminal
15	A.C. socket
16	Accelerator lever
17	Feed pump
19	48V D.C. socket
22	Engine air filter
23	Oil level dipstick
24	Engine oil reservoir cap
24A	Hydraulic oil reservoir cap
24B	Water filling cap
25	Fuel prefilter
26	Fuel tank cap
27	Muffler
28	Stop control
29	Engine protection cover
30	Engine cooling/alternator fan belt
31	Oil drain tap
31A	Hydraulic oil drain tap
31B	Water drain tap
31C	Exhaust tap for tank fuel
32	Button
33	Start button
34	Booster socket 12V
34A	Booster socket 24V
35	Battery charge fuse
36	Space for remote control
37	Remote control
42	Space for E.A.S.
42A	Space for PAC
47	Fuel pump
49	Electric start socket
54	Reset button PTO HI
55	Quick coupling m. PTO HI
55A	Quick coupling f. PTO HI
56	Hydraulic oil filter
59	Battery charger thermal switch
59A	Engine thermal switch
59B	Aux current thermal switch
59C	Supply thermal switch wire feeder-42V
63	No load voltage control
66	Choke control
67A	Auxiliary / welding current control
68	Cellulosic electrodes control
69A	Voltmeter relay
70	Warning lights
71	Selecting knob
72	Load commut. push button
73	Starting push button
74	Operating mode selector
75	Power on' warning light
76	Display
79	Wire connection unit
86	Selector
86A	Setting confirmation
87	Fuel valve
A3	Insulation monitoring
A4	Button indicating light 30 I/1' PTO HI
B2	Engine control unit EP2
B3	E.A.S. connector
B4	Exclusion indicating light PTO HI
B5	Auxiliary current push button
C2	Fuel level light
C3	E.A.S. PCB
C6	Control unit for generating sets QEA
D	Ground fault interrupter (30 mA)
D1	Engine control unit and economiser EP1
D2	Ammeter
E2	Frequency meter
F	Fuse
F3	Stop switch
F5	Warning light, high temperature
F6	Arc-Force selector
G1	Fuel level transmitter
H2	Voltage commutator
H6	Fuel electro pump
I2	48V A.C. socket
I3	Welding scale switch
I4	Preheating indicator
I5	Y/s switch
I6	Start Local/Remote selector
L	A.C. output indicator
L5	Emergency button
L6	Choke button
M	Hour counter
M1	Warning level light
M2	Contactor
M5	Engine control unit EP5
M6	CC/CV switch
N	Voltmeter
N1	Battery charge warning light
N2	Thermal-magnetic circuit breaker/Ground fault interrupter
N5	Pre-heat push-button
N6	Connector – wire feader
O1	Oil pressure warning light/Oil alert
P	Welding arc regulator
Q1	Starter key
Q3	Derivation box
Q4	Battery charge sockets
R3	Siren
S	Welding ammeter
S1	Battery
S3	Engine control unit EP4
S6	Wire feeder supply switch
T	Welding current regulator
T4	Dirty air filter warning light/indicator
T5	Earth leakage relay
U	Current trasformer
U3	R.P.M. adjuster
U4	Polarity inverter remote control
U5	Relase coil
V	Welding voltage voltmeter
V4	Polarity inverter control
V5	Oil pressure indicator
W1	Remote control switch
W3	Selection push button 30 I/1' PTO HI
W5	Battery voltmeter
X1	Remote control socket
Y3	Button indicating light 20 I/1' PTO HI
Y5	Commutator/switch, serial/parallel
Z2	Thermal-magnetic circuit breaker
Z3	Selection push button 20 I/1' PTO HI
Z5	Water temperature indicator

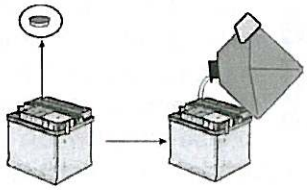

O1 59 59B L D (SX Version) 15
(ESX Version)
F3 Q4 15
I6 L6
Q1 59A 59B
26
B3 (SX EAS Version)
12 27 22
73 31 23-24

According to the version of the machine on the front panel there are assembled some instruments:

	warning lights (L) corresponding to the current sockets on the front panel, indicate that the current can be drawn from the sockets when they are lit (15);
	voltmeter (N);
	GFI (D), Thermal magnetic circuit breaker (Z2) (TS...PL: : one for each auxiliary socket) or Thermal magnetic circuit breaker/GFI (N2);
	voltage selector switch (H2);
	insulation monitoring (A3)- See page M 39.10 -;
	hour-counter (M), which indicates the hours of effective operation of the unit;
	fuse (F), which protects the electric circuit of the engine, replacement of which, in case it breaks, must be effected absolutely with the machine stopped. Remove the mechanical protection, then shift down the small lever of the fuse holder placed on the front panel;
	fuel level gauge (M1): when the quantity of fuel in the tank falls below 5 litres a worning light on the instrument panel lights up;
	fuel level indicator (C2);
	preheating glow plugs warning light (I4) for the preheating (for diesel engines it shows the intervention time of the glow plugs);
	dirty air filter warning light (T4);
	ammeter (D2) indicates the drown current. In case current is drawn simultaneously from several sockets, it shows the current sum. (DO NOT GO OVER THE MAX. CURRENT INDICATED ON THE LABEL);
	star/ triangle switch (I5);
	frequency meter (E2), that indicates the frequency generated and therefore the number of revolutions of the engine: the frequency should be of 52 Hz» or 62 Hz» when the unit is idle and about 50 Hz or 60 Hz at full load (in cose that the found volue is different make sure that the engine is completely accelerated), (do never use the unit with a frequency lower than 49 Hz or 59 Hz, in this case decrease the load);
	tone horn (R3)) indicates the defects in the engine;
	engine protections: EV - EP1 (D1) (for engine at 3000/3600 rpm.), EP2 (B2 for engine at 1500/1800 rpm), EP4 – EP5 (M5)- See pag. M39 .... - ;
	starter key (Q1) and engine stop;
	welding socket (gouging, when assembled, - 9+ - 10-) - See pag. M 34 -;
	Emergency button (L5);
	Control switch for accelerator (only for engine at 3000/3600 rpm) - ☞ WE ADVISE TO USE THE SWITCH ONLY IF THE EP1 DEVICE IS BROKEN);
	auxiliary current push button (B5);
	welding current regulator (T) and/or „arc force" selector (F6) - See pag. M34 -1;
	welding scale switch (I3);
	polarity inverter control (V4);- See pag M34 -1;
	cellulosic electrodes control (68);- See pag M34 -1;
	Protection fuse for welding PCB, welding ammeter (S);
	remote control switch (W1) and remote control socket (X1) - See pag M38 .... -;
	switch CC/CV (M6)- See pag M34 -1;-

PROCEDURE FOR RECHARGING A BATTERY

Keep to the advice indicated page – M 21 , 26 -



Take off the breather caps of the battery.

Check the electrolyte level in all the elements of the battery.

If necessary, add up distilled water to have the liquid at the recommended level.

Put back the breather caps of the battery.

CAUTION

Sulfuric acid is corrosive. Protect hands, eyes and clothes...

Use a densimeter to determine the charge state of the battery.

SPECIFIC WEIGHT	CHARGE PERCENTAGE
1.265 -1.280	100%
1.230	75%
1.200	50%
1.170	25%
1.110	0

ENGINES WITH ACCELERATOR LEVER

Connect with the right cable the battery clips and the machine taps respecting the polarities (+) and (-).

Operate the accelerator lever bringing the engine to MAXIMUM speed.

Start the engine.

ENGINE WITHOUT ACCELERATOR LEVER

Connect with the right cable the battery clips and the machine taps respecting the polarities (+) and (-).

CAUTION

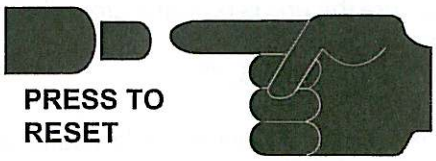
Do not recharge dry batteries or 6V batteries.

It is possible to draw at the same time direct current as battery charger and alternating current (auxiliary).

MACHINE WITH THERMIC PROTECTION

If the thermic protection is released, disconnect the cable from the machine.

Reset the thermic protection pressing the central pole.



Then connect again the cable with the machine.

In case the thermic protection should still intervene, check the battery.

If the trouble persists, please turn to your Service Station.

☞ **It is strictly forbidden to connect the group to the public mains a/o to another source of electric power.**

⚠ WARNING

Sockets are not self-locked: tension is avaible immediately after starting also with no plug.

⚠ WARNING

The areas, **access** of which is forbidden to unqualified personel, are:
- the control switchboard (front), the exhaust of the endothermic engine.

☞ At the beginning of every work, check the electric parameters and/or the controls placed on the front.

Make sure the unit is properly grounded (12) (where it is assembled).
- See page M 25, 26, 27.

The voltmeter (N) (where it is assembled) shows the single-phase voltage.

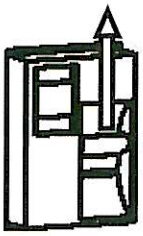
Nominal voltage	Indicative no-load voltage
110V	±10%
230V	±10%
400V	±10%

Connect up the machine, using proper plugs and cables in good condition to the AC socket (15) to draw single.

Using several sockets at tha same time, the maximum power possible is that indicated on the data plate.

The max. continuous power of the generating set or theload current must not be exceeded.

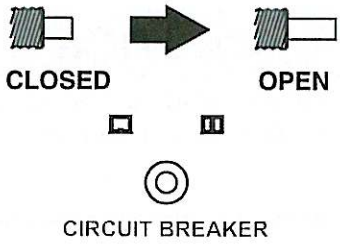
UNIT FITTED WITH GROUND FAULT INTERRUPTER SWITCH (GFI)



Turn on the GFI safety-switch (D) bring the lever upwards.
The GFI is a safety device which protects the circuit in the event of a malfunction. In this case the switch disconnects the three and single-phase circuit when in any part of the electric connections a current leakage of more than 30 mA occurs.

MACHINE WITH THERMOPROTECTION

If you overload the genset the thermoprotection will automatically switch off.
If the thermoprotection is released, disconnect all the connected loads.



Reset the thermoprotection pressing the central pole.
When reset, connect the loads again.
In case the protection should act furtherly, check: the connections, the wires or others, and if necessary call the Assistance Service.

Avold to hold the central pole of the thermoprotection pressed for a long time.
Otherwise, in case of trouble, it will not click, **damaging** the generating set.

⚠ MAKE SURE

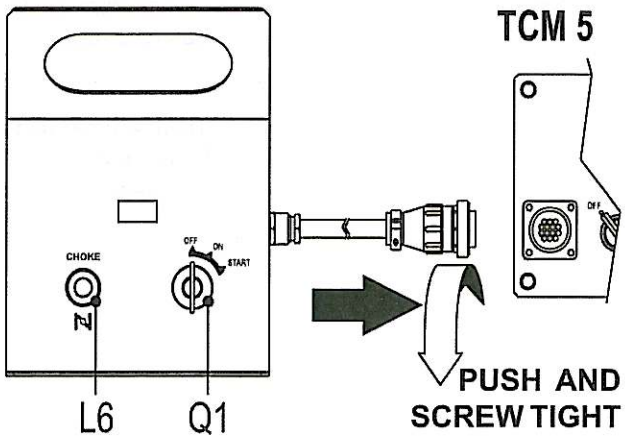
When the TCM 5 5D-6 is used, it is not possible to connect the E.A.S automatic intervention unit.

USE OF THE REMOTE CONTROL TCM 5

The coupling of the TCM 5 with the generating set, permits to work far from the set itself.
The remote control is connected to the front plate, with a multiple connector.

The TCM 5 assures the following fonctions:
- starting (starting key Q1)
- stop (starting key Q1)
- choke control (L6)

1) the position of the selector LOCAL START/REMOTE START (I6) on the generating sets GE 4500 HSX and GE 4500 SX-EAS must be on the position "REMOTE START".
2) The position of the key (Q1) on the generating set GE 4500 SX-EAS must be on the position "ON"

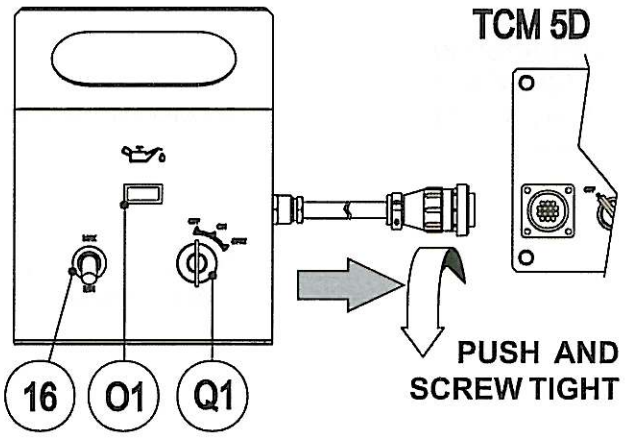


USE OF THE REMOTE CONTROL TCM 5D

The coupling of the TCM 5D with the generating set, ready for remot starting, permits to work far from the set itself.
The remote control is connected to the front plate, and/or rear plate, with a multiple connector.

The TCM 5D assures the following fonctions:
- starting (starting key Q1)
- acceleration (selector 16)
- stop (starting key Q1)
- indication of oil low pressure (warning light O1)

To stop the set, move the accelerator lever (16) to the minimum position, them turn the key to "OFF" position.



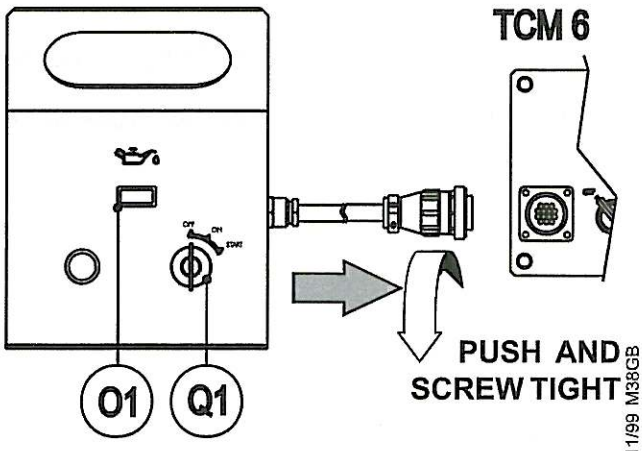
USE OF THE REMOTE CONTROL TCM 6

The coupling of the TCM 5D with the generating set, ready for remot starting, permits to work far from the set itself.
The remote control is connected to the front plate, and/or rear plate, with a multiple connector.

The TCM 5D assures the following fonctions:
- starting (starting key Q1)
- stop (starting key Q1)
- indication of oil low pressure (warning light O1)

To stop the set turn the key to the position."OFF". O1)

Per l'arresto del motore portare la chiave sulla posizione "OFF".



PROBLEM	POSSIBLE CAUSE	WHAT TO DO
ASYNCHRONOUS ALTERNATORS		
No output	1) GFI or Isometer (if installed) have been activated	1) Reset GFI or Isometer. If they are activated again check the cables and tools attached to the auxiliary sockets for short circuits or grounded leads
	2) Thermal protection activated or fuse burned out	2) Reset the thermal protection and check the fuses of the single phase sockets.
	3) Overload	3) Disconnect the load and see if the voltage is normal. If so the load caused the generator to lose its excitation. This can occur when the kWatt of the load is larger than that of the generator or, in the case of inductive loads (motors), when the device has a high starting current. In both cases the solution is a larger genset.
	4) Bad condenser or stator burned out	4) Disconnect all leads from the stator except for those going to the condenser boxIf there is no output from the auxiliary leads check the condenser box. If it is OK replace the stator.
SYNCHRONOUS ALTERNATORS		
No outputMechanical damage	1) Overload - circuit breaker activated	1) Remove the load and insert the circuit breaker. Reconnect the load. If it activates again check the rating of the load and the wiring between load and generator.
	2) GFI or Isometer (if installed) have been activated	2) Remove the load and reset Isometer or GFI. Check without the load. If they activate there is an isolation fault or leakage to ground in the generator or internal wiring. If not, reconnect the load. If they are activated with the load attached there is an isolation fault or leakage to ground in the load or related cables.
	3) Fuse burned out	3) Check the fuses of the single phase sockets.
	4) Stator burned out	4) Disconnect the load and see if the voltage is normal. If there is not output replace the alternator.
	5) Carbon brushes worn out	5) Chek the condition of the brushes (if mounted) and their position.
Mechanical damage	6) Carbon brushes worn out	6) Worn out brushes can damage the brush holder and/or collector.

⚠ WARNING

- 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 -

MOVING PARTS can injure

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.

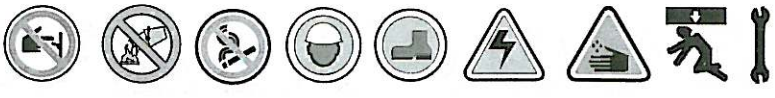
The replacement of tires (for machines equipped with trolleys) must be considered as repair since it is not delivered as standard equipment any lifting system.

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.



UNITS WITH ELECTRIC STARTER

Check periodically the electrolyte level in the battery, especially after long periods of inactivity.

☞ **ATTENTION**: the battery must have all its elements in good condition and must be filled with electrolyte.

The battery is automatically charged while the engine is running at speed.

☞ **N.B.:** In the models with safety protections, in case the battery is not reloaded, check the thermic protection (59A) reload it if it is the caseas well as the fuse (35).

PROCEDURE FOR RECHARGING A BATTERY

Keep to the advice indicated page - M36 -
Take off the breather caps of the battery.
Check the electrolyte level in all the elements of the battery.
If necessary, add up **distilled water** to have the liquid at the recommended level.
Put back the breather caps of the battery.
Use a densimeter to determine the charge state of the battery.

SPECIFIC WEIGHT	CHARGE PERCENTAGE
1.265	100%
1.230	75%
1.200	50%
1.170	25%

MODELS WITH DRY AIR FILTER (CLEANING)

Replace the air filter cartridge every 200 hours when using the unit in a clean environment.

In a dusty environment, the filter cartridge must be replaced every 100 hours.

ALTERNATOR (brushless)

No other further periodical maintenance is necessary, as the alternator has no brushes or slip tings, and the output regulation is entirely electronic.

ALTERNATOR (with brushless)

Control the wear and the position of the carbon brushes at regular intervals (refer to the alternator manual supplied with the machine for details).

MODEL WITH COOLING LIQUID

Every day check the cooling liquid level.
Verify each day freezing liquid and check periodically the radiator state (losses obstructions for air circulation etc.)

☞ ***N.B.:*** *all warning and decals should be checked once a year and* ***replaced*** *if missing or unreadable.*

Check periodically the condition of the cables and tighten the connections.

In case the machine should not be used for more than 30 days, make shure 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.
See page M45.

In the maintenance 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.

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

⚠ IMPORTANT

In the maintenance 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.

	BEFORE USE AND EVERY DAY	EVERY 20 HOURS	EVERY 50 HOURS	EVERY 100 HOURS	EVERY 500 HOURS
1. Check, engine oil level	X				
2. Change, engine oil		X Only the 1ª time		X	
3. Cleaning, air filter			X 1)		
4. Replacement, air filter		See page M 43.1			
5. Cleaning, fuel filter			X		
6. Replacement, spark plug					X 3)
7. Regulation, valve controls					X 2)

1) If the engine is used in particulary dusty areas, clean the filter once a day or every 10 work hours.

2) Turn to your Sevice Station.

3) Remove the spark plug from the cylinder head, using a wrench for spark plugs and reset the new for spark plug with gasket. Recommended spark plug NGK BPR 6ES or similor.

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 4500 is a unit which transforms the mechanical energy, generated by endothermic engine, into electric energy, through an alternator.
Is meant for semi-professional use, powered by an endothermic engine and 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 supports which must damp the vibrations and also eliminate sounds which would produce noise.

Technical data	GE 4500 SX	GE 4500 ESX - SX EAS
GENERATOR		
Single-phase generation	4 kVA (3.6 kW) / 230 V / 17.4 A	
Frequency	50 Hz	
Power factor (cos φ)	0.9	
ALTERNATOR	self-excited, self-regulated, brushless	
Type	synchronous, single-phase	
Insulating class	H	
ENGINE		
Mark	HONDA	
Model	GX 270 VXB	GX 270 VXEB
Type	4-stroke	
Displacement	270 cm^3	
Cylinders	1	
Output	5.9 kW (8 HP)	
Speed	3000 rpm	
Fuel consumption	313 g/kWh	
Cooling system	Aria	
Engine oil capacity	1.1 l	
Starter	recoil	electric
Fuel	Gasoline	
GENERAL SPECIFICATION		
Battery charge	-	12 V - 10A
Tank capacity	6 l	
Running time (75%)	3.5 h	
Protection	IP 23	
*Dimensions / max. Lxwxh (mm) **	660x495x525	
*Weight (dry) **	73 Kg	78 Kg
Noise level	96 LWA (71 dB(A) - 7 m)	

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

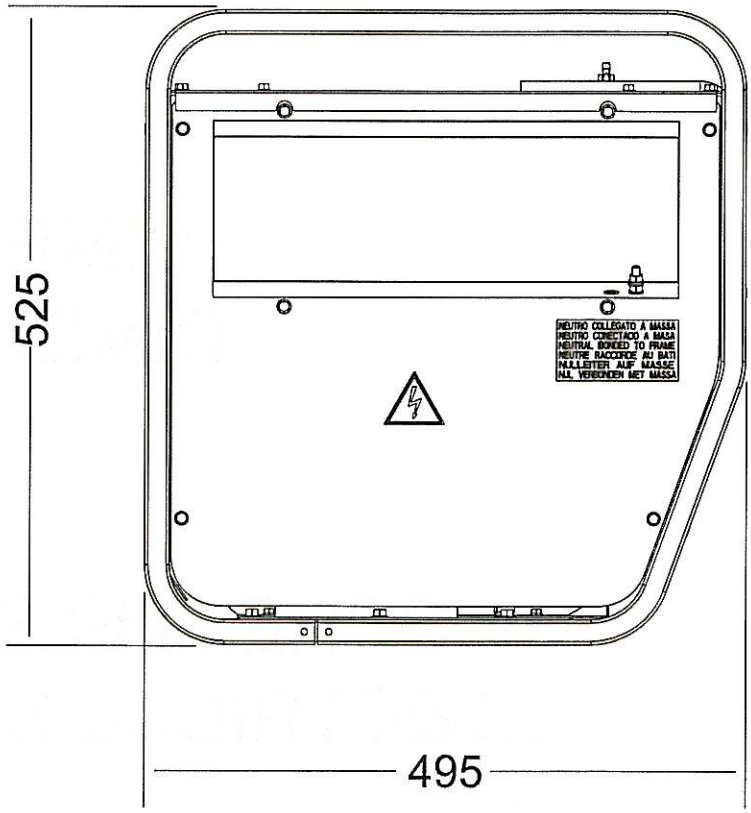
The machine respects the noise limits, expressed in sound power, given in the a.m. directives.
These limits can be used to judge the sound level produced on site.
For example: the sound power level of 100 LWA.
The sound pressure (noise produced) at 7 meters distance is about 75dBA (the limit value less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

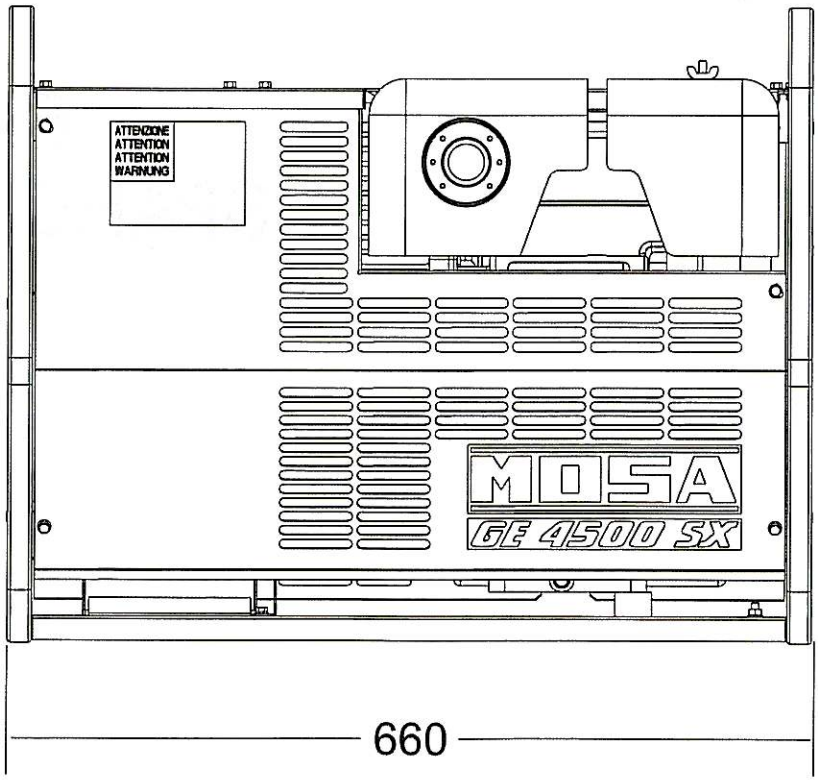
$$dBA_X = dBA_Y + 10 \log \frac{ry^2}{rx^2}$$ At 4 meters the noise level becomes: 75 dBA + 10 log $\frac{7^2}{4^2}$ = 80 dBA

DIMENSIONI
DIMENSIONS

SCHEMI ELETTRICI
ELECTRICAL SYSTEM

RICAMBI
SPARE PARTS


525
495
NEUTRO COLLEGATO A MASSA
NEUTRO CONECTADO A MASA
NEUTRAL BONDED TO FRAME
NEUTRE RACCORDE AU BATI
NULLEITER AUF MASSE
NUL VERBONDEN MET MASSA


ATTENZIONE
ATTENTION
ATTENTION
WARNUNG
MOSA
GE 4500 SX
660

MOSA (I) (GB) (F)

LEGENDA SCHEMA ELETTRICO

GE_, MS_, TS_

M 60

A : Alternatore
B : Supporto connessione cavi
C : Condensatore
D : Interruttore differenziale
E : Trasformatore alimentaz. scheda sald.
F : Fusibile
G : Presa 400V trifase
H : Presa 230V monofase
I : Presa 110V monofase
L : Spia per presa
M : Contaore
N : Voltmetro
P : Regolatore arco saldatura
Q : Presa 230V trifase
R : Unità controllo saldatura
S : Amperometro corrente saldatura
T : Regolatore corrente saldatura
U : Trasformatore amperometrico
V : Voltmetro tensione saldatura
Z : Prese di saldatura
X : Shunt di misura
W : Reattore c.c.
Y : Ponte diodi saldatura

A1 : Resistenza scintillatore
B1 : Unità scintillatore
C1 : Ponte diodi 48V c.c./110V c.c.
D1 : Protezione motore E.P.1
E1 : Elettromagnete arresto motore
F1 : Elettromagnete acceleratore
G1 : Trasmettitore livello carburante
H1 : Termostato
I1 : Presa 48V c.c.
L1 : Pressostato
M1: Spia riserva carburante
N1 : Spia carica batteria
O1 : Spia pressostato
P1 : Fusibile a lama
Q1 : Chiave avviamento
R1 : Motorino avviamento
S1 : Batteria
T1 : Alternatore carica batteria
U1 : Regolatore tensione batteria
V1 : Unità controllo elettrovalvola
Z1 : Elettrovalvola
W1 : Commutatore TC
X1 : Presa comando a distanza
Y1 : Spina comando a distanza

A2 : Regolat. corrente sald. a dist.
B2 : Protezione motore E.P.2
C2 : Indicatore livello carburante
D2 : Amperometro di linea
E2 : Frequenzimetro
F2 : Trasformatore carica batteria
G2 : Scheda carica batteria
H2 : Commutatore voltmetrico
I2 : Presa 48V c.a.
L2 : Relè termico
M2 : Contattore
N2 : Interruttore magnet. diff.
O2 : Presa 42V norme CEE
P2 : Resistenza differenziale
Q2 : Protezione motore TEP
R2 : Unità controllo solenoidi
S2 : Trasmettitore livello olio
T2 : Pulsante stop motore TC1
U2 : Pulsante avviamento motore TC1
V2 : Presa 24V c.a.
Z2 : Interruttore magnetotermico
W2 : Unità di protezione S.C.R.
X2 : Presa jack per TC
Y2 : Spina jack per TC

A3 : Sorvegliatore d'isolamento

B3 : Connettore E.A.S.
C3 : Scheda E.A.S.
D3 : Prese avviatori motore
E3 : Deviatore tensione a vuoto
F3 : Pulsante stop
G3 : Bobina accensione
H3 : Candela accensione
I3 : Commutatore di scala
L3 : Pulsante esclusione pressostato
M3 : Diodo carica batteria
N3 : Relè
O3 : Resistore
P3 : Reattanza scintillatore
Q3 : Morsettiera prelievo potenza
R3 : Sirena
S3 : Protezione motore E.P.4
T3 : Scheda gestione motore
U3 : Regolatore elettronico giri
V3 : Scheda controllo PTO HI
Z3 : Pulsante 20 l/1' PTO HI
W3 : Pulsante 30 l/1' PTO HI
X3 : Pulsante esclusione PTO HI
Y3 : Spia 20 l/1' PTO HI

A4 : Spia 30 l/1' PTO HI
B4 : Spia esclusione PTO HI
C4 : Elettrovalvola 20 l/1' PTO HI
D4 : Elettrovalvola 30 l/1' PTO HI
E4 : Pressostato olio idraulico
F4 : Trasmettitore livello olio idraulico
G4 : Candelette di preriscaldo
H4 : Centralina di preriscaldo
I4 : Spia di preriscaldo
L4 : Filtro R.C.
M4 : Scaldiglia con termostato
N4 : Elettromagnete aria
O4 : Relè passo-passo
P4 : Protezione termica
Q4 : Prese carica batteria
R4 : Sensore temp. liquido di raffr.
S4 : Sensore intasamento filtro aria
T4 : Spia intasamento filtro aria
U4 : Comando invert. polarità a dist.
V4 : Comando invertitore polarità
Z4 : Trasformatore 230/48V
W4 : Invertitore polarità (ponte diodi)
X4 : Ponte diodi di base
Y4 : Unità controllo invert. polarità

A5 : Comando ponte diodi di base
B5 : Pulsante abilitaz. generazione
C5 : Comando elettr. acceleratore
D5 : Attuatore
E5 : Pick-up
F5 : Spia alta temperatura
G5 : Commutatore potenza ausiliaria
H5 : Ponte diodi 24V
I5 : Commutatore Y/s
L5 : Pulsante stop emergenza
M5 : Protezione motore EP 5
N5 : Pulsante preriscaldo
O5 : Unità comando solenoide
P5 : Trasmettitore pressione olio
Q5 : Trasmettitore temperatura acqua
R5 : Riscaldatore acqua
S5 : Connettore motore 24 poli
T5 : Relè differenziale elettronico
U5 : Bobina a lancio di corrente
V5 : Indicatore pressione olio
Z5 : Indicatore temperatura acqua
W5 : Voltmetro batteria
X5 : Contattore invertitore polarità
Y5 : Commutatore Serie/Parallelo

A6 : Interruttore

B6 : Interruttore alimentazione quadro
C6 : Unità logica QEA
D6 : Connettore PAC
E6 : Potenziometro regolatore di giri/frequenza
F6 : Selettore Arc-Force
G6 : Dispositivo spunto motore
H6 : Elettropompa carburante 12V c.c.
I6 : Selettore Start Local/Remote
L6 : Pulsante CHOKE
M6 : Selettore modalità saldatura CC/CV
N6 : Connettore alimentazione traino filo
O6 : Trasformatore trifase 420V/110V
P6 : Selettore IDLE/RUN
Q6 : Strumento analogico Hz/V/A
R6 : Filtro EMC
S6 : Selettore alimentazione trainafilo
T6 : Connettore per trainafilo
U6 : Scheda DSP CHOPPER
V6 : Scheda driver/alimentazione CHOPPER
Z6 : Scheda pulsanti / led
W6 : Sensore di hall
X6 : Spia riscaldatore acqua
Y6 : Indicatore carica batteria

A7 : Selettore travaso pompa AUT-0-MAN
B7 : Pompa travaso carburante
C7 : Controllo gruppo elettrogeno "GECO"
D7 : Galleggiante con interruttori di livello
E7 : Potenziometro regolatore di tensione
F7 : Commutatore SALD./GEN.
G7 : Reattore trifase
H7 : Sezionatore
I7 : Timer per solenoide stop
L7 :
M7 :
N7 :
O7 :
P7 :
Q7 :
R7 :
S7 :
T7 :
U7 :
V7 :
Z7 :
W7 :
X7 :
Y7 :

A8 :
B8 :
C8 :
D8 :
E8 :
F8 :
G8 : Commut. invert. polarità a due scale
H8 :
I8 :
L8 :
M8 :
N8 :
O8 :
P8 :
Q8 :
R8 :
S8 :
T8 :
U8 :
V8 :
Z8 :
W8 :
X8 :
Y8 :

04/09/02 M60I

ELECTRICAL SYSTEM LEGENDE

GE_, MS_, TS_

A: Alternator
B: Wire connection unit
C: Capacitor
D: G.F.I.
E: Welding PCB transformer
F: Fuse
G: 400V 3-phase socket
H: 230V 1phase socket
I: 110V 1-phase socket
L: Socket warning light
M: Hour-counter
N: Voltmeter
P: Welding arc regulator
Q: 230V 3-phase socket
R: Welding control PCB
S: Welding current ammeter
T: Welding current regulator
U: Current transformer
V: Welding voltage voltmeter
Z: Welding sockets
X: Shunt
W: D.C. inductor
Y: Welding diode bridge

A1: Arc striking resistor
B1: Arc striking circuit
C1: 110V D.C./48V D.C. diode bridge
D1: E.P.1 engine protection
E1: Engine stop solenoid
F1: Acceleration solenoid
G1: Fuel level transmitter
H1: Oil or water thermostat
I1: 48V D.C. socket
L1: Oil pressure switch
M1: Fuel warning light
N1: Battery charge warning light
O1: Oil pressure warning light
P1: Fuse
Q1: Starter key
R1: Starter motor
S1: Battery
T1: Battery charge alternator
U1: Battery charge voltage regulator
V1: Solenoid valve control PCBT
Z1: Solenoid valve
W1: Remote control switch
X1: Remote control and/or wire feeder socket
Y1: Remote control plug

A2: Remote control welding regulator
B2: E.P.2 engine protection
C2: Fuel level gauge
D2: Ammeter
E2: Frequency meter
F2: Battery charge trasformer
G2: Battery charge PCB
H2: Voltage selector switch
I2: 48V a.c. socket
L2: Thermal relay
M2: Contactor
N2: G.F.I. and circuit breaker
O2: 42V EEC socket
P2: G.F.I. resistor
Q2: T.E.P. engine protection
R2: Solenoid control PCBT
S2: Oil level transmitter
T2: Engine stop push-button T.C.1
U2: Engine start push-buttonT.C.1
V2: 24V c.a. socket
Z2: Thermal magnetic circuit breaker
W2: S.C.R. protection unit
X2: Remote control socket
Y2: Remote control plug

A3: Insulation moitoring
B3: E.A.S. connector
C3: E.A.S. PCB
D3: Booster socket
E3: Open circuit voltage switch
F3: Stop push-button
G3: Ignition coil
H3: Spark plug
I3: Range switch
L3: Oil shut-down button
M3: Battery charge diode
N3: Relay
O3: Resistor
P3: Sparkler reactor
Q3: Output power unit
R3: Electric siren
S3: E.P.4 engine protection
T3: Engine control PCB
U3: R.P.M. electronic regulator
V3: PTO HI control PCB
Z3: PTO HI 20 l/min push-button
W3: PTO HI 30 l/min push-button
X3: PTO HI reset push-button
Y3: PTO HI 20 l/min indicator

A4: PTO HI 30 l/min indicator
B4: PTO HI reset indicator
C4: PTO HI 20 l/min solenoid valve
D4: PTO HI 30 l/ min solenoid valve
E4: Hydraulic oil pressure switch
F4: Hycraulic oil level gauge
G4: Preheating glow plugs
H4: Preheating gearbox
I4: Preheating indicator
L4: R.C. filter
M4: Heater with thermostat
N4: Choke solenoid
O4: Step relay
P4: Circuit breaker
Q4: Battery charge sockets
R4: Sensor, cooling liquid temperature
S4: Sensor, air filter clogging
T4: Warning light, air filter clogging
U4: Polarity inverter remote control
V4: Polarity inverter switch
Z4: Transformer 230/48V
W4: Diode bridge, polarity change
X4: Base current diode bridge
Y4: PCB control unit, polarity inverter

A5: Base current switch
B5: Auxiliary push-button ON/OFF
C5: Accelerator electronic control
D5: Actuator
E5: Pick-up
F5: Warning light, high temperature
G5: Commutator auxiliary power
H5: 24V diode bridge
I5: Y/s commutator
L5: Emergency stop button
M5: Engine protection EP5
N5: Pre-heat push-button
O5: Accelerator solenoid PCB
P5: Oil pressure switch
Q5: Water temperature switch
R5: Water heater
S5: Engine connector 24 poles
T5: Electronic GFI relais
U5: Release coil, circuit breaker
V5: Oil pressure indicator
Z5: Water temperature indicator
W5: Battery voltmeter
X5: Contactor, polarity change
Y5: Commutator/switch, series/parallel

A6: Commutator/switch
B6: Key switch, on/off
C6: QEA control unit
D6: Connector, PAC
E6: Frequency rpm regulator
F6: Arc-Force selector
G6: Device starting motor
H6: Fuel electro pump 12V c.c.
I6: Start Local/Remote selector
L6: Choke button
M6: Switch CC/CV
N6: Connector – wire feeder
O6: 420V/110V 3-phase transformer
P6: Switch IDLE/RUN
Q6: Hz/V/A analogic instrument
R6: EMC filter
S6: Wire feeder supply switch
T6: Wire feeder socket
U6: DSP chopper PCB
V6: Power chopper supply PCB
Z6: Switch and leds PCB
W6: Hall sensor
X6: Water heather indicator
Y6: Battery charge indicator

A7: Transfer pump selector AUT-0-MAN
B7: Fuel transfer pump
C7: „GECO" generating set test
D7: Flooting with level switches
E7: Voltmeter regulator
F7: WELD/AUX switch
G7: Reactor, 3-phase
H7: Switch disconnector
I7: Solenoid stop timer
L7:
M7:
N7:
O7:
P7:
Q7:
R7:
S7:
T7:
U7:
V7:
Z7:
W7:
X7:
Y7:

A8:
B8:
C8:
D8:
E8:
F8:
G8: Polarity inverter two way switch
H8:
I8:
L8:
M8:
N8:
O8:
P8:
Q8:
R8:
S8:
T8:
U8:
V8:
Z8:
W8:
X8:
Y8:

Esp.
Esp.

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Modifica
Modification

Denominazione:
Denomination:

Engine GX 270 (manual recoil starter-oil al

Macchina:
Machine:

GE 4500 SX

Disegnatore:
Designer:

Data:
Date:

Dis. n°:
Dwg n°:

Data
Date

Progetto:
Project:

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Q1
ON
START
OFF
F
5A
P4
1A
OIL
ALERT
RELAY
CON
T1
S2
H3
G3

LEGENDA COLORI
KEY COLOR

NERO/BLACK
BIANCO/WHITE
GIALLO/YELLOW
GRIGIO/GREY

Esp.
Esp.
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Modifica
Modification
Denominazione:
Denomination:
Engine:Honda GX 270 (electric starter-oil alert)
Macchina:
Machine:
GE 4500 ESX
Disegnatore:
Designer
Leporace N.
Data:
Date:
09.01.2004
Dis. n°:
Dwg n°:
35465.S.010
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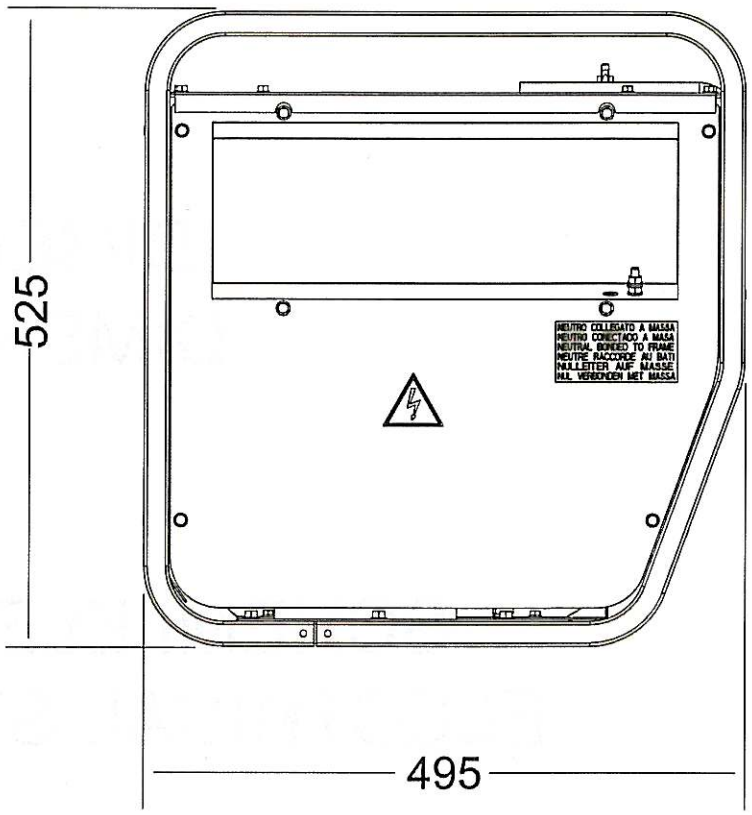
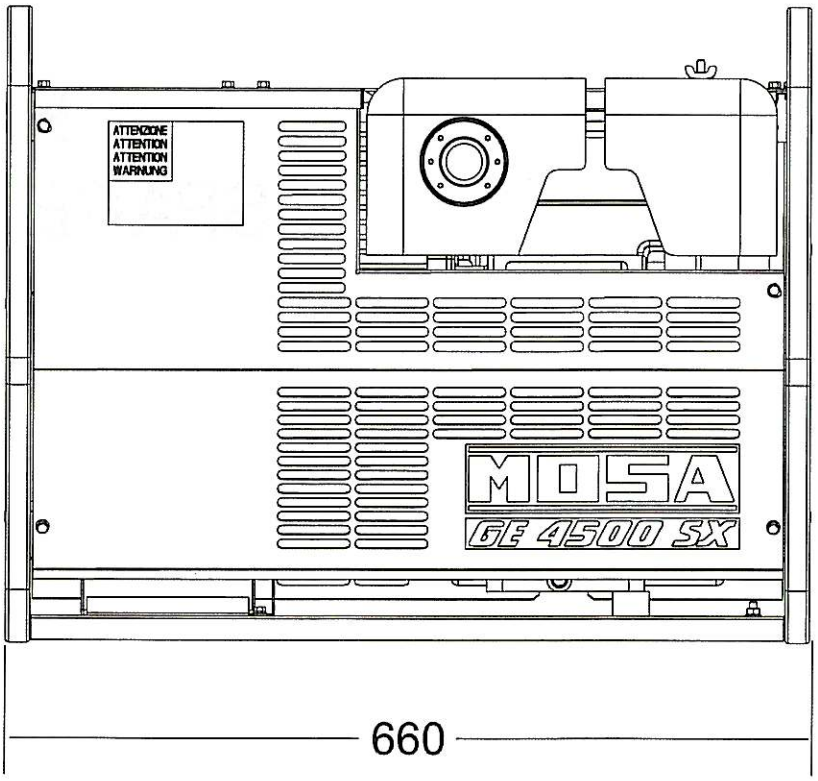
DIMENSIONI
DIMENSIONS

SCHEMI ELETTRICI
ELECTRICAL SYSTEM

RICAMBI
SPARE PARTS





20/03/04 35460-I

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LEGENDA SCHEMA ELETTRICO

GE_, MS_, TS_

M 60

A : Alternatore
B : Supporto connessione cavi
C : Condensatore
D : Interruttore differenziale
E : Trasformatore alimentaz. scheda sald.
F : Fusibile
G : Presa 400V trifase
H : Presa 230V monofase
I : Presa 110V monofase
L : Spia per presa
M : Contaore
N : Voltmetro
P : Regolatore arco saldatura
Q : Presa 230V trifase
R : Unità controllo saldatura
S : Amperometro corrente saldatura
T : Regolatore corrente saldatura
U : Trasformatore amperometrico
V : Voltmetro tensione saldatura
Z : Prese di saldatura
X : Shunt di misura
W : Reattore c.c.
Y : Ponte diodi saldatura

A1 : Resistenza scintillatore
B1 : Unità scintillatore
C1 : Ponte diodi 48V c.c./110V c.c.
D1 : Protezione motore E.P.1
E1 : Elettromagnete arresto motore
F1 : Elettromagnete acceleratore
G1 : Trasmettitore livello carburante
H1 : Termostato
I1 : Presa 48V c.c.
L1 : Pressostato
M1: Spia riserva carburante
N1 : Spia carica batteria
O1 : Spia pressostato
P1 : Fusibile a lama
Q1 : Chiave avviamento
R1 : Motorino avviamento
S1 : Batteria
T1 : Alternatore carica batteria
U1 : Regolatore tensione batteria
V1 : Unità controllo elettrovalvola
Z1 : Elettrovalvola
W1 : Commutatore TC
X1 : Presa comando a distanza
Y1 : Spina comando a distanza

A2 : Regolat. corrente sald. a dist.
B2 : Protezione motore E.P.2
C2 : Indicatore livello carburante
D2 : Amperometro di linea
E2 : Frequenzimetro
F2 : Trasformatore carica batteria
G2 : Scheda carica batteria
H2 : Commutatore voltmetrico
I2 : Presa 48V c.a.
L2 : Relè termico
M2 : Contattore
N2 : Interruttore magnet. diff.
O2 : Presa 42V norme CEE
P2 : Resistenza differenziale
Q2 : Protezione motore TEP
R2 : Unità controllo solenoidi
S2 : Trasmettitore livello olio
T2 : Pulsante stop motore TC1
U2 : Pulsante avviamento motore TC1
V2 : Presa 24V c.a.
Z2 : Interruttore magnetotermico
W2 : Unità di protezione S.C.R.
X2 : Presa jack per TC
Y2 : Spina jack per TC

A3 : Sorvegliatore d'isolamento

B3 : Connettore E.A.S.
C3 : Scheda E.A.S.
D3 : Prese avviatori motore
E3 : Deviatore tensione a vuoto
F3 : Pulsante stop
G3 : Bobina accensione
H3 : Candela accensione
I3 : Commutatore di scala
L3 : Pulsante esclusione pressostato
M3 : Diodo carica batteria
N3 : Relè
O3 : Resistore
P3 : Reattanza scintillatore
Q3 : Morsettiera prelievo potenza
R3 : Sirena
S3 : Protezione motore E.P.4
T3 : Scheda gestione motore
U3 : Regolatore elettronico giri
V3 : Scheda controllo PTO HI
Z3 : Pulsante 20 l/1' PTO HI
W3 : Pulsante 30 l/1' PTO HI
X3 : Pulsante esclusione PTO HI
Y3 : Spia 20 l/1' PTO HI

A4 : Spia 30 l/1' PTO HI
B4 : Spia esclusione PTO HI
C4 : Elettrovalvola 20 l/1' PTO HI
D4 : Elettrovalvola 30 l/1' PTO HI
E4 : Pressostato olio idraulico
F4 : Trasmettitore livello olio idraulico
G4 : Candelette di preriscaldo
H4 : Centralina di preriscaldo
I4 : Spia di preriscaldo
L4 : Filtro R.C.
M4 : Scaldiglia con termostato
N4 : Elettromagnete aria
O4 : Relè passo-passo
P4 : Protezione termica
Q4 : Prese carica batteria
R4 : Sensore temp. liquido di raffr.
S4 : Sensore intasamento filtro aria
T4 : Spia intasamento filtro aria
U4 : Comando invert. polarità a dist.
V4 : Comando invertitore polarità
Z4 : Trasformatore 230/48V
W4 : Invertitore polarità (ponte diodi)
X4 : Ponte diodi di base
Y4 : Unità controllo invert. polarità

A5 : Comando ponte diodi di base
B5 : Pulsante abilitaz. generazione
C5 : Comando elettr. acceleratore
D5 : Attuatore
E5 : Pick-up
F5 : Spia alta temperatura
G5 : Commutatore potenza ausiliaria
H5 : Ponte diodi 24V
I5 : Commutatore Y/s
L5 : Pulsante stop emergenza
M5 : Protezione motore EP 5
N5 : Pulsante preriscaldo
O5 : Unità comando solenoide
P5 : Trasmettitore pressione olio
Q5 : Trasmettitore temperatura acqua
R5 : Riscaldatore acqua
S5 : Connettore motore 24 poli
T5 : Relè differenziale elettronico
U5 : Bobina a lancio di corrente
V5 : Indicatore pressione olio
Z5 : Indicatore temperatura acqua
W5 : Voltmetro batteria
X5 : Contattore invertitore polarità
Y5 : Commutatore Serie/Parallelo

A6 : Interruttore

B6 : Interruttore alimentazione quadro
C6 : Unità logica QEA
D6 : Connettore PAC
E6 : Potenziometro regolatore di giri/frequenza
F6 : Selettore Arc-Force
G6 : Dispositivo spunto motore
H6 : Elettropompa carburante 12V c.c.
I6 : Selettore Start Local/Remote
L6 : Pulsante CHOKE
M6 : Selettore modalità saldatura CC/CV
N6 : Connettore alimentazione traino filo
O6 : Trasformatore trifase 420V/110V
P6 : Selettore IDLE/RUN
Q6 : Strumento analogico Hz/V/A
R6 : Filtro EMC
S6 : Selettore alimentazione trainafilo
T6 : Connettore per trainafilo
U6 : Scheda DSP CHOPPER
V6 : Scheda driver/alimentazione CHOPPER
Z6 : Scheda pulsanti / led
W6 : Sensore di hall
X6 : Spia riscaldatore acqua
Y6 : Indicatore carica batteria

A7 : Selettore travaso pompa AUT-0-MAN
B7 : Pompa travaso carburante
C7 : Controllo gruppo elettrogeno "GECO"
D7 : Galleggiante con interruttori di livello
E7 : Potenziometro regolatore di tensione
F7 : Commutatore SALD./GEN.
G7 : Reattore trifase
H7 : Sezionatore
I7 : Timer per solenoide stop
L7 :
M7 :
N7 :
O7 :
P7 :
Q7 :
R7 :
S7 :
T7 :
U7 :
V7 :
Z7 :
W7 :
X7 :
Y7 :

A8 :
B8 :
C8 :
D8 :
E8 :
F8 :
G8 : Commut. invert. polarità a due scale
H8 :
I8 :
L8 :
M8 :
N8 :
O8 :
P8 :
Q8 :
R8 :
S8 :
T8 :
U8 :
V8 :
Z8 :
W8 :
X8 :
Y8 :

04/09/02 M601

ELECTRICAL SYSTEM LEGENDE

GE_, MS_, TS_

A: Alternator
B: Wire connection unit
C: Capacitor
D: G.F.I.
E: Welding PCB transformer
F: Fuse
G: 400V 3-phase socket
H: 230V 1phase socket
I: 110V 1-phase socket
L: Socket warning light
M: Hour-counter
N: Voltmeter
P: Welding arc regulator
Q: 230V 3-phase socket
R: Welding control PCB
S: Welding current ammeter
T: Welding current regulator
U: Current transformer
V: Welding voltage voltmeter
Z: Welding sockets
X: Shunt
W: D.C. inductor
Y: Welding diode bridge

A1: Arc striking resistor
B1: Arc striking circuit
C1: 110V D.C./48V D.C. diode bridge
D1: E.P.1 engine protection
E1: Engine stop solenoid
F1: Acceleration solenoid
G1: Fuel level transmitter
H1: Oil or water thermostat
I1: 48V D.C. socket
L1: Oil pressure switch
M1: Fuel warning light
N1: Battery charge warning light
O1: Oil pressure warning light
P1: Fuse
Q1: Starter key
R1: Starter motor
S1: Battery
T1: Battery charge alternator
U1: Battery charge voltage regulator
V1: Solenoid valve control PCBT
Z1: Solenoid valve
W1: Remote control switch
X1: Remote control and/or wire feeder socket
Y1: Remote control plug

A2: Remote control welding regulator
B2: E.P.2 engine protection
C2: Fuel level gauge
D2: Ammeter
E2: Frequency meter
F2: Battery charge trasformer
G2: Battery charge PCB
H2: Voltage selector switch
I2: 48V a.c. socket
L2: Thermal relay
M2: Contactor
N2: G.F.I. and circuit breaker
O2: 42V EEC socket
P2: G.F.I. resistor
Q2: T.E.P. engine protection
R2: Solenoid control PCBT
S2: Oil level transmitter
T2: Engine stop push-button T.C.1
U2: Engine start push-buttonT.C.1
V2: 24V c.a. socket
Z2: Thermal magnetic circuit breaker
W2: S.C.R. protection unit
X2: Remote control socket
Y2: Remote control plug

A3: Insulation moitoring
B3: E.A.S. connector
C3: E.A.S. PCB
D3: Booster socket
E3: Open circuit voltage switch
F3: Stop push-button
G3: Ignition coil
H3: Spark plug
I3: Range switch
L3: Oil shut-down button
M3: Battery charge diode
N3: Relay
O3: Resistor
P3: Sparkler reactor
Q3: Output power unit
R3: Electric siren
S3: E.P.4 engine protection
T3: Engine control PCB
U3: R.P.M. electronic regulator
V3: PTO HI control PCB
Z3: PTO HI 20 l/min push-button
W3: PTO HI 30 l/min push-button
X3: PTO HI reset push-button
Y3: PTO HI 20 l/min indicator

A4: PTO HI 30 l/min indicator
B4: PTO HI reset indicator
C4: PTO HI 20 l/min solenoid valve
D4: PTO HI 30 l/ min solenoid valve
E4: Hydraulic oil pressure switch
F4: Hycraulic oil level gauge
G4: Preheating glow plugs
H4: Preheating gearbox
I4: Preheating indicator
L4: R.C. filter
M4: Heater with thermostat
N4: Choke solenoid
O4: Step relay
P4: Circuit breaker
Q4: Battery charge sockets
R4: Sensor, cooling liquid temperature
S4: Sensor, air filter clogging
T4: Warning light, air filter clogging
U4: Polarity inverter remote control
V4: Polarity inverter switch
Z4: Transformer 230/48V
W4: Diode bridge, polarity change
X4: Base current diode bridge
Y4: PCB control unit, polarity inverter

A5: Base current switch
B5: Auxiliary push-button ON/OFF
C5: Accelerator electronic control
D5: Actuator
E5: Pick-up
F5: Warning light, high temperature
G5: Commutator auxiliary power
H5: 24V diode bridge
I5: Y/s commutator
L5: Emergency stop button
M5: Engine protection EP5
N5: Pre-heat push-button
O5: Accelerator solenoid PCB
P5: Oil pressure switch
Q5: Water temperature switch
R5: Water heater
S5: Engine connector 24 poles
T5: Electronic GFI relais
U5: Release coil, circuit breaker
V5: Oil pressure indicator
Z5: Water temperature indicator
W5: Battery voltmeter
X5: Contactor, polarity change
Y5: Commutator/switch, series/parallel

A6: Commutator/switch
B6: Key switch, on/off
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G6: Device starting motor
H6: Fuel electro pump 12V c.c.
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N6: Connector – wire feeder
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Q6: Hz/V/A analogic instrument
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U6: DSP chopper PCB
V6: Power chopper supply PCB
Z6: Switch and leds PCB
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Y6: Battery charge indicator

A7: Transfer pump selector AUT-0-MAN
B7: Fuel transfer pump
C7: „GECO" generating set test
D7: Flooting with level switches
E7: Voltmeter regulator
F7: WELD/AUX switch
G7: Reactor, 3-phase
H7: Switch disconnector
I7: Solenoid stop timer
L7:
M7:
N7:
O7:
P7:
Q7:
R7:
S7:
T7:
U7:
V7:
Z7:
W7:
X7:
Y7:

A8:
B8:
C8:
D8:
E8:
F8:
G8: Polarity inverter two way switch
H8:
I8:
L8:
M8:
N8:
O8:
P8:
Q8:
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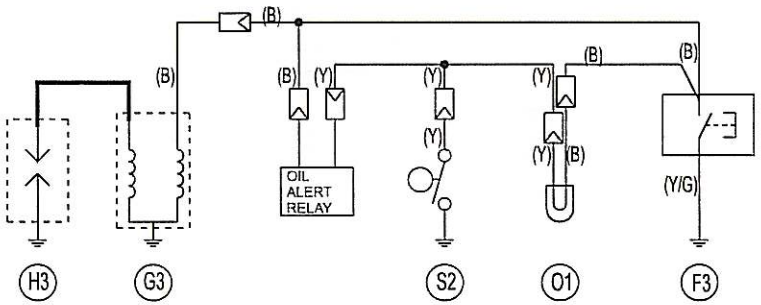

	LEGENDA COLORI KEY COLOR
(B)	NERO/BLACK
(Y)	GIALLO/YELLOW
(Y/G)	GIALLO-VERDE YELLOW-GREEN

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

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Denominazione / Denomination: Engine GX 270 (manual recoil starter-oil alert)

Progetto / Project: 35460.prg

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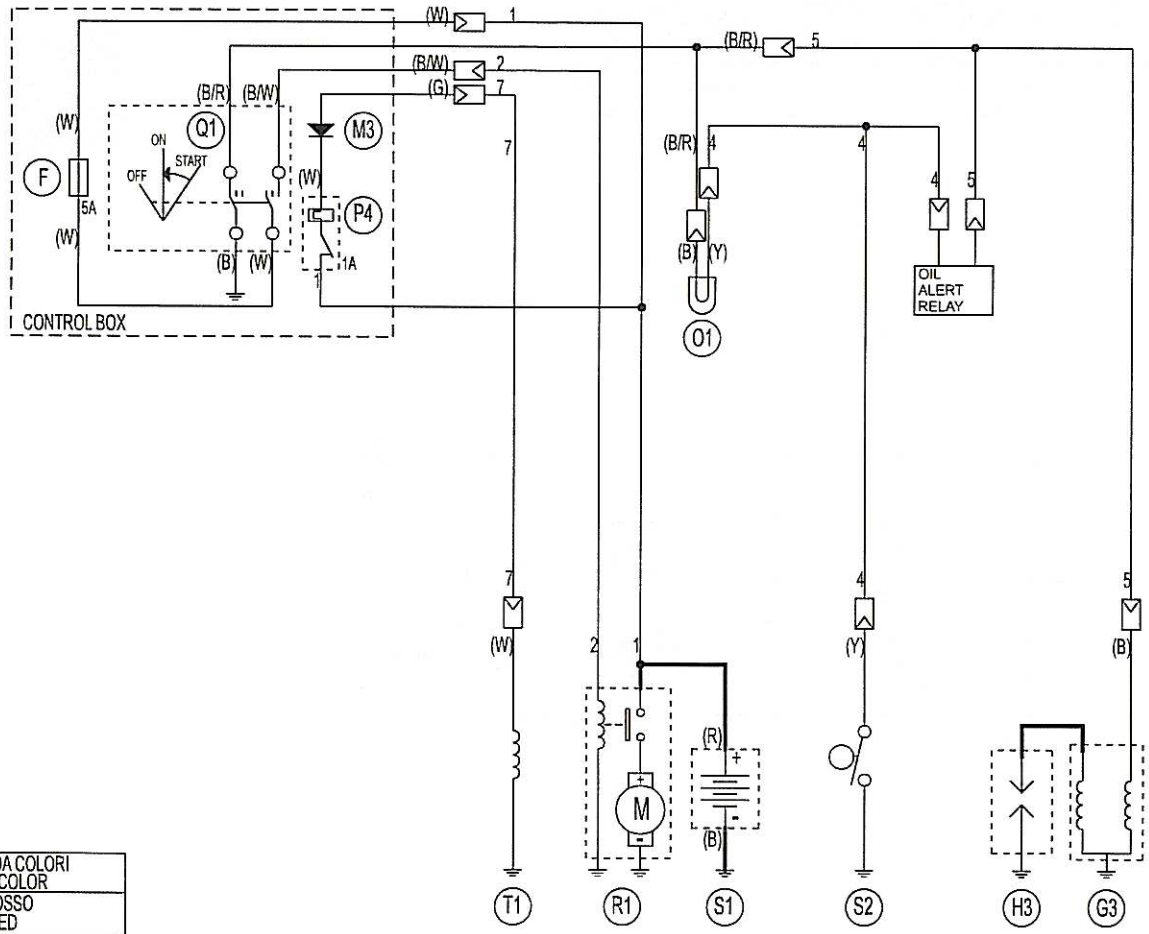
Macchina / Machine:	Disegnatore / Designer:	Data / Date:	Dis. n° / Drwg. n°:	Approvato / Approved:
GE 4500 SX	Leporace N.	07.01.2004	35460.S.010	



LEGENDA COLORI KEY COLOR	
(B/R)	NERO-ROSSO BLACK-RED
(B)	NERO/BLACK
(W)	BIANCO/WHITE
(Y)	GIALLO/YELLOW
(G)	GRIGIO/GREY
(B/W)	NERO-BIANCO BLACK-WHITE
(R)	ROSSO/RED

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

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Denominazione: Denomination: Engine:Honda GX 270 (electric starter-oil alert)

Progetto: Project: 35465.prg

Pag.n° Page n° 2

di n° of n° 3

Macchina: Machine: GE 4500 ESX

Disegnatore: Designer: Leporace N.

Data: Date: 09.01.2004

Dis. n°: Dwg. n°: 35465.S.010

Approvato: Approved:

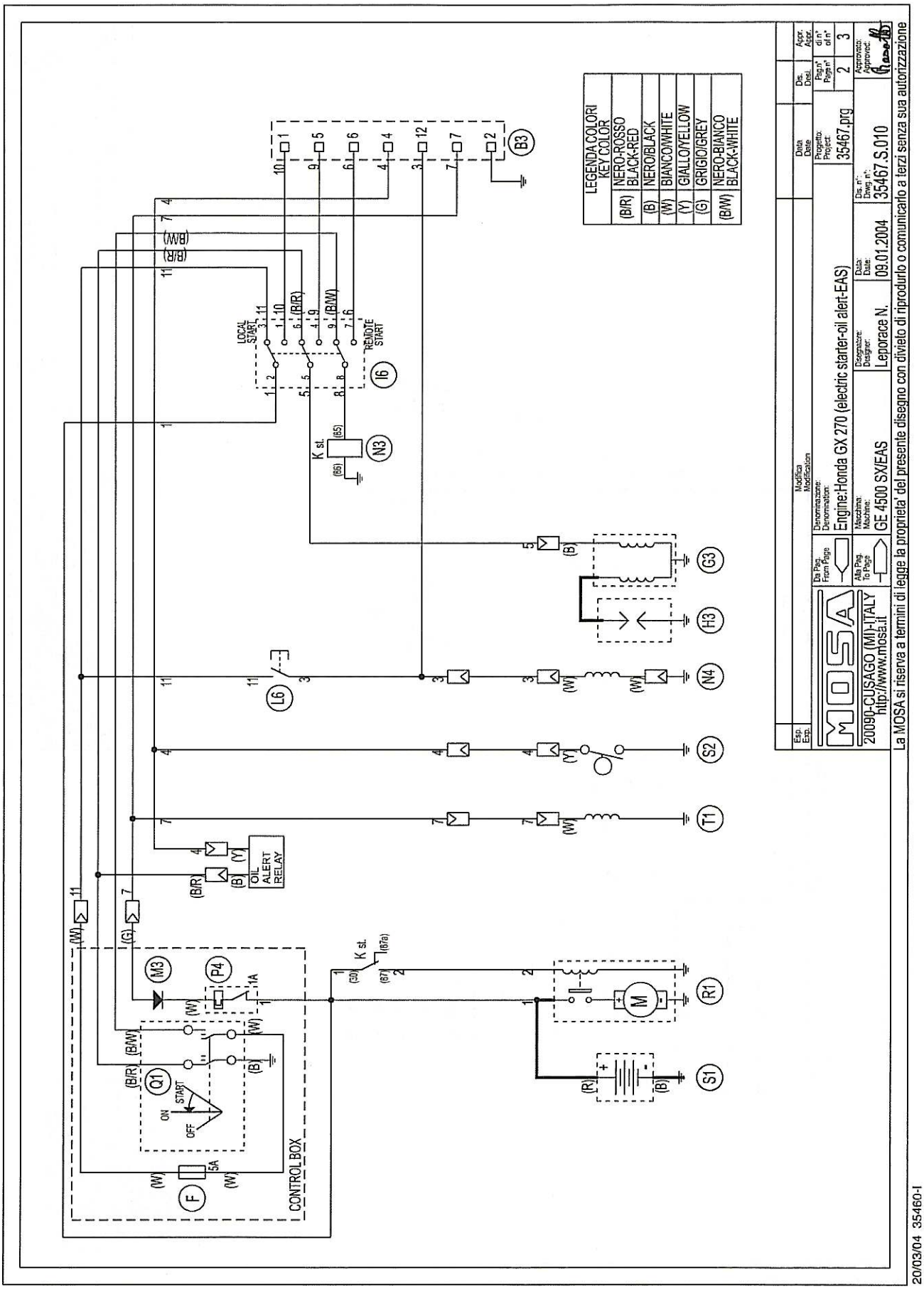
MOSA

(I) Schema elettrico
(GB) Electric diagram
(F) Schemas electriques

GE 4500 ESX

M 61.1

20/03/04 35460-I


LEGENDA COLORI
KEY COLOR
(B/R) NERO-ROSSO BLACK-RED
(B) NERO/BLACK
(W) BIANCO/WHITE
(Y) GIALLO/YELLOW
(G) GRIGIO/GREY
(B/W) NERO-BIANCO BLACK-WHITE
CONTROL BOX
OIL ALERT RELAY
LOCAL START
REMOTE START
K st.
START
ON
OFF
Engine:Honda GX 270 (electric starter-oil alert-EAS)
GE 4500 SX/EAS
35467.prg
35467.S.010
09.01.2004
20090-CUSAGO (MI)-ITALY
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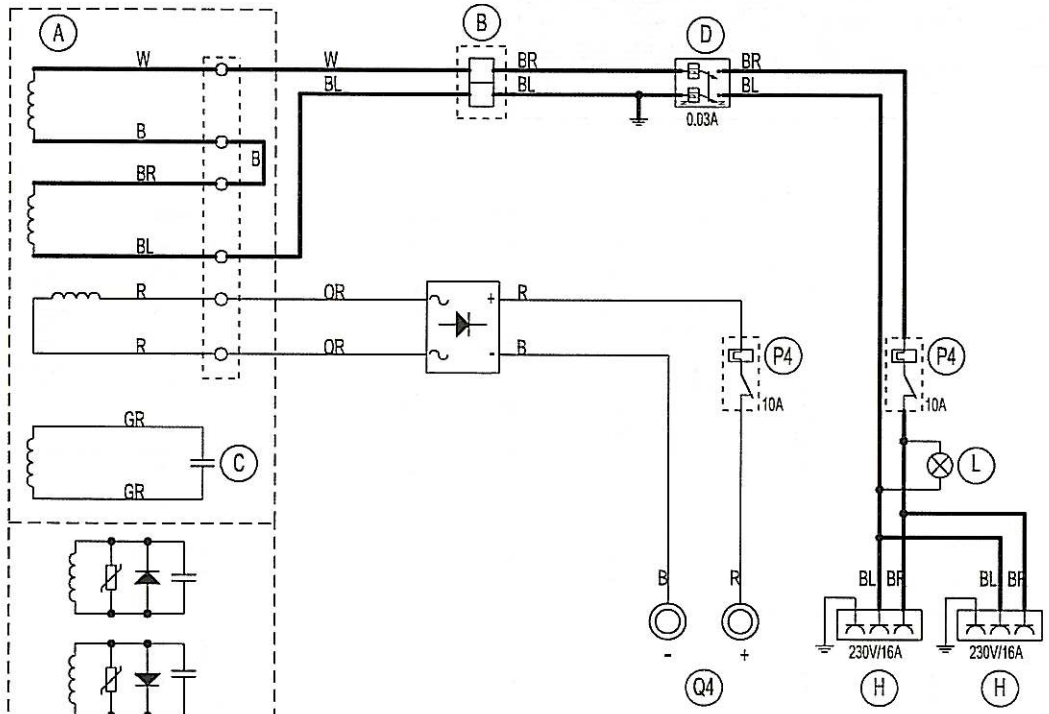

LEGENDA COLORI KEY COLOR	
R	ROSSO/RED
B	NERO/BLACK
BL	BLU/BLUE
BR	MARRONE/BROWN
W	BIANCO/WHITE
GR	GRIGIO/GREY
OR	ARANCIONE/ORANGE

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

MOSA A

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Denominazione / Denomination: Aux. (230Mx2/12Vdc) DT

Progetto / Project: 35460.prg

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Macchina / Machine:	Disegnatore / Designer:	Data / Date:	Dis. n° / Drwg. n°:	Approvato / Approved:
GE 4500 SX	Leporace N.	07.01.2004	30622.S.020	

Ⓘ Schema elettrico
ⒼⒷ Electric diagram
Ⓕ Schemas electriques

GE 4500 SX - ESX - SX EAS

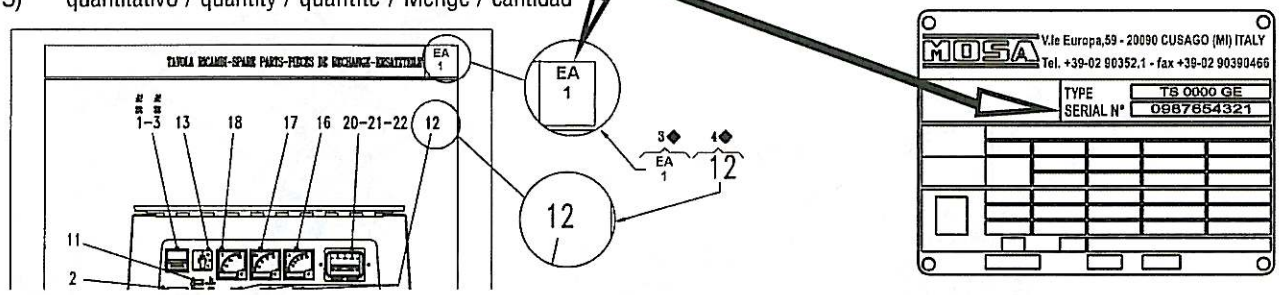
M 61.3

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.
MOSA está capacitada para satisfacer cualquier pedido de piezas de recambio.
Si se desea mantener la máquina en un funcionamiento eficaz, se debe usar siempre recambios originales, cuando es preciso sustituir piezas MOSA.

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 - Para hacer un pedido de piezas de recambio indicar:

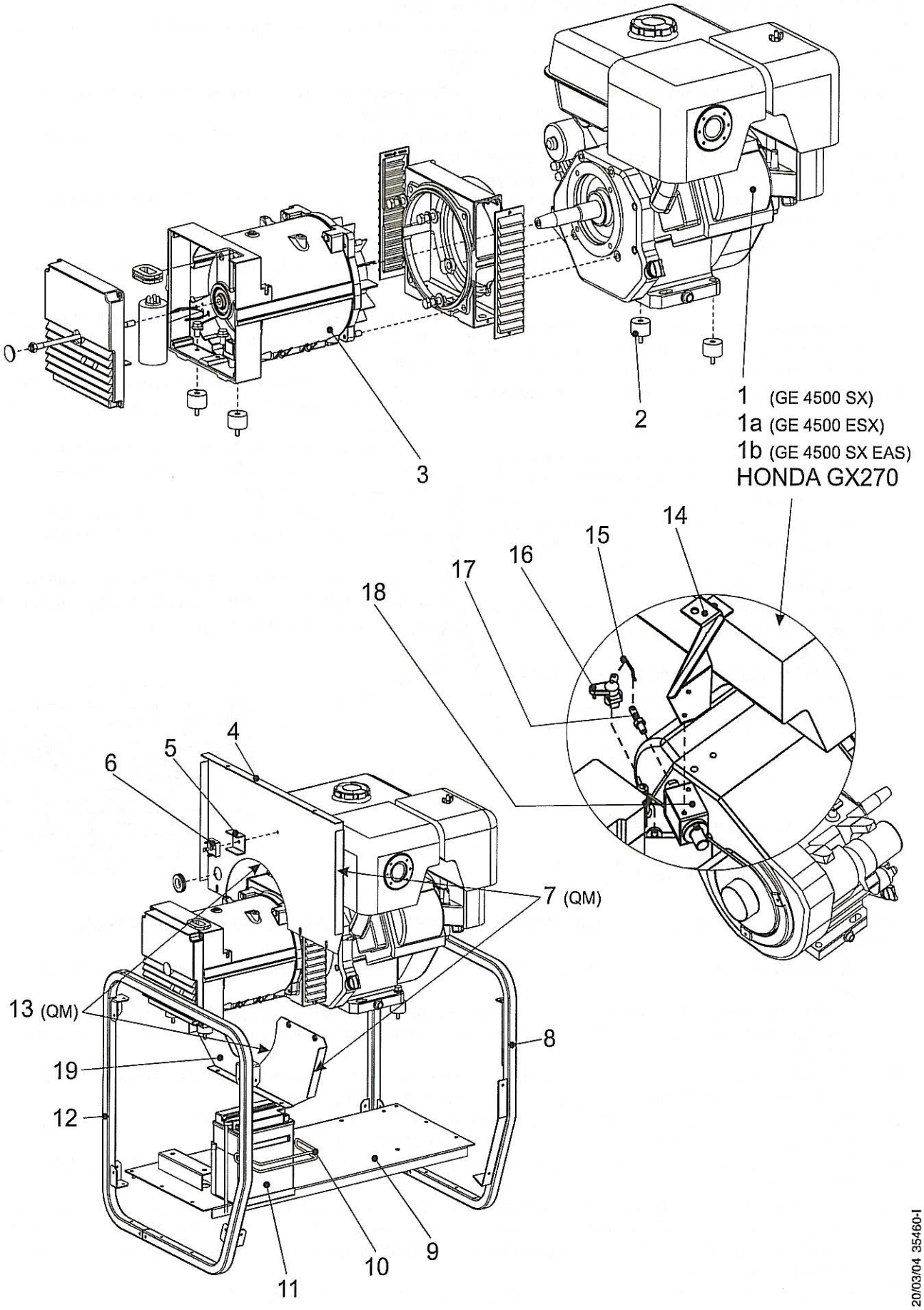
1) ✳ n. di matricola / serial number / matricule de la machine / Seriennummer / n. de matrícula
2) ✳ tipo motosaldatrice e/o gruppo elettrogeno / model of welder and/or generating set / type de motosoudeuse et/ou groupe électrogène / Typ des Schweissgeraets und/oder Stromerzeugers / tipo motosoldadora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

☞ 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.
☞ Los datos solicitados se hallan en la placa de datos situada en la estructura de la máquina en un lugar visible y de fácil consulta. ✳



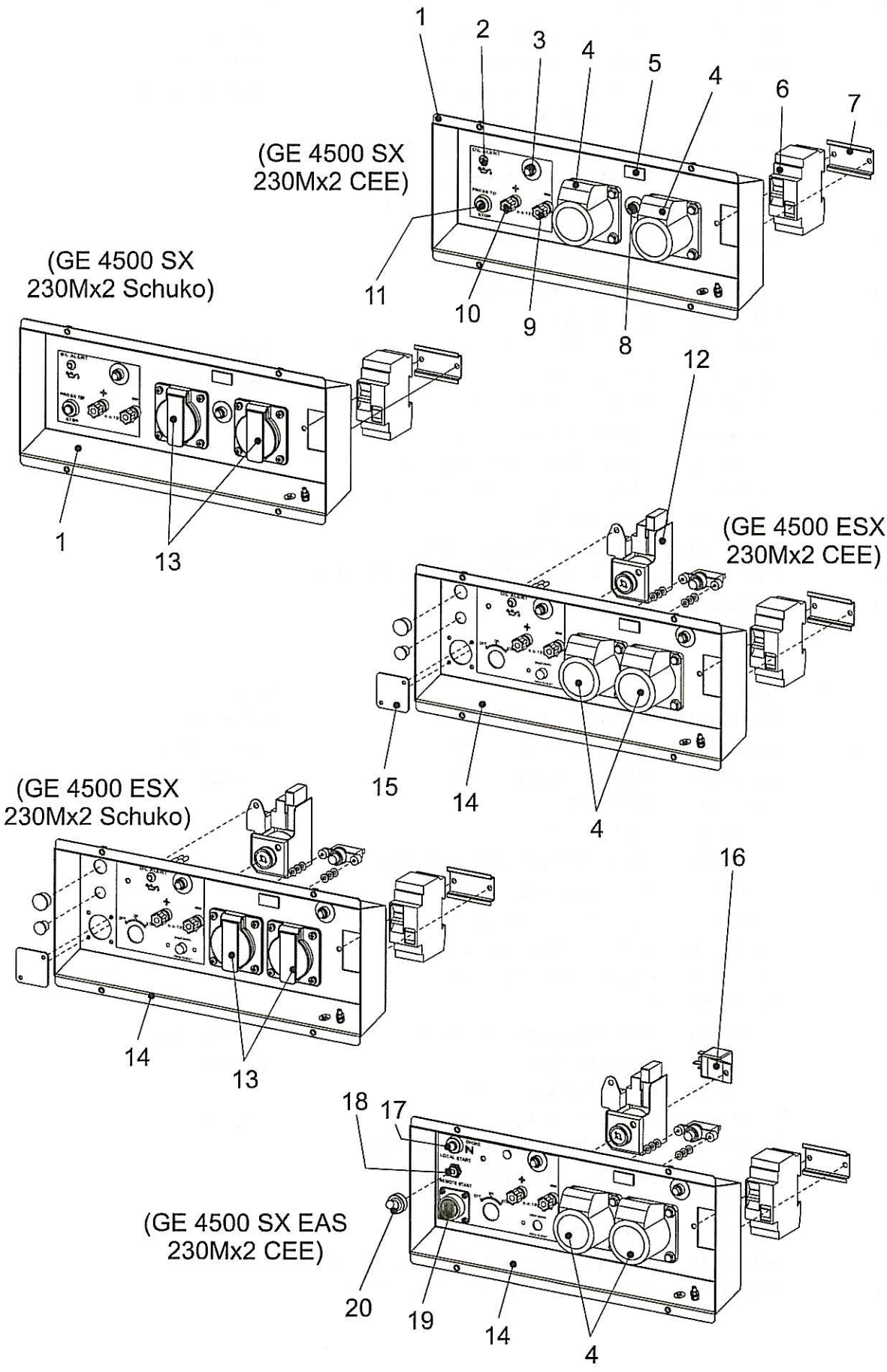
LEGENDA NOTE - ABBREVIATIONS AND SYMBOLS - LEGENDE DES NOTES - NOTENERKLAERUNG - *LEYENDA NOTAS:*

(EV) Specificare all'ordine il tipo di motorizzazione e le tensioni ausiliarie - When ordering, specify the engine type and
the auxiliary voltage - Type de moteur et/ou tensions auxiliaires doivent être spécifiés à la commande - Motortyp und Hilfspannungen beim Auftrag angeben - Especificar en el pedido el tipo de motor y las tensiones auxiliares
(ER) Solo motore con avviamento a strappo - Engine with recoil starter only - Moteur avec démarrage à cordelette seulement - Nur bei Motor mit Reversierstart - Sólo motor con arranque por tirón
(ES) Solo motore con avviamento elettrico - Engine with electric starter only - Moteur avec démarrage électrique seulement - Nur bei Motor mit Elektrostart - Sólo motor con arranque eléctrico
(VE) Solo versione E.A.S. - E.A.S version only - Version E.A.S. seulement - Nur bei E.A.S Ausfuehrung - Sólo versión E.A.S.
(QM) Specificare all'ordine la quantità in m - When ordering, specify the length in meters - A la commande spécifier la longueur en mètres - Beim Auftrag die Laenge in Metern angeben - Especificar en el pedido la cantidad en m
(VS) Solo versioni speciali - Special version only - Versions spéciales seulement - Nur bei Sonderausfuehrungen - Sólo versiones especiales
(SR) Solo a richiesta - By request only - Sur demande seulement - Nur auf Wunsch - Sólo bajo pedido


1 (GE 4500 SX)
1a (GE 4500 ESX)
1b (GE 4500 SX EAS)
HONDA GX270
2
3
4
5
6
7 (QM)
8
9
10
11
12
13 (QM)
14
15
16
17
18
19
20/03/04 35460-I

Pos.	Rev.	Cod.	Descr.	Note
1		306412200	MOTORE HONDA GX270	GE 4500 SX
1 a		354652200	MOTORE HONDA GX270	GE 4500 ESX
1 b		354672200	MOTORE HONDA GX270	GE 4500 SX EAS
2		306411035	SUPPORTO ELASTICO	
3		254003100	ALTERNATORE "SINCRO" ER2CAT4,2KVA-230V	
4		354608217	PARATIA SUPP. ALTERNATORE	
5		306225030	DISSIPATORE X PONTE DIODI	
6		1270070	PONTE DIODI 120A	
7		105112270	GUARNIZIONE (L=MT.1)	(qm)
8		306411146	TELAIO LATO MOTORE	
9		354601050	BASAMENTO	
10		306469282	ELASTICO FISSAGGIO BATTERIA	(ESX Version)
11		306469150	BATTERIA 60A	(ESX Version)
12		306411145	TELAIO LATO FRONTALE	
13		102302280	GUARNIZIONE (L=MT.1)	(qm)
14		306479101	STAFFA SUPPORTO SOLENOIDE	
15		306479056	TIRANTE PER ELETTROMAGNETE	
16		354509111	LEVA CHOKE	
17		306479108	PERNO ACCELERATORE	
18		306479071	ELETTROMAGNETE COMANDO CHOKE	
19		354608218	PARATIA INF. ALTERNATORE	

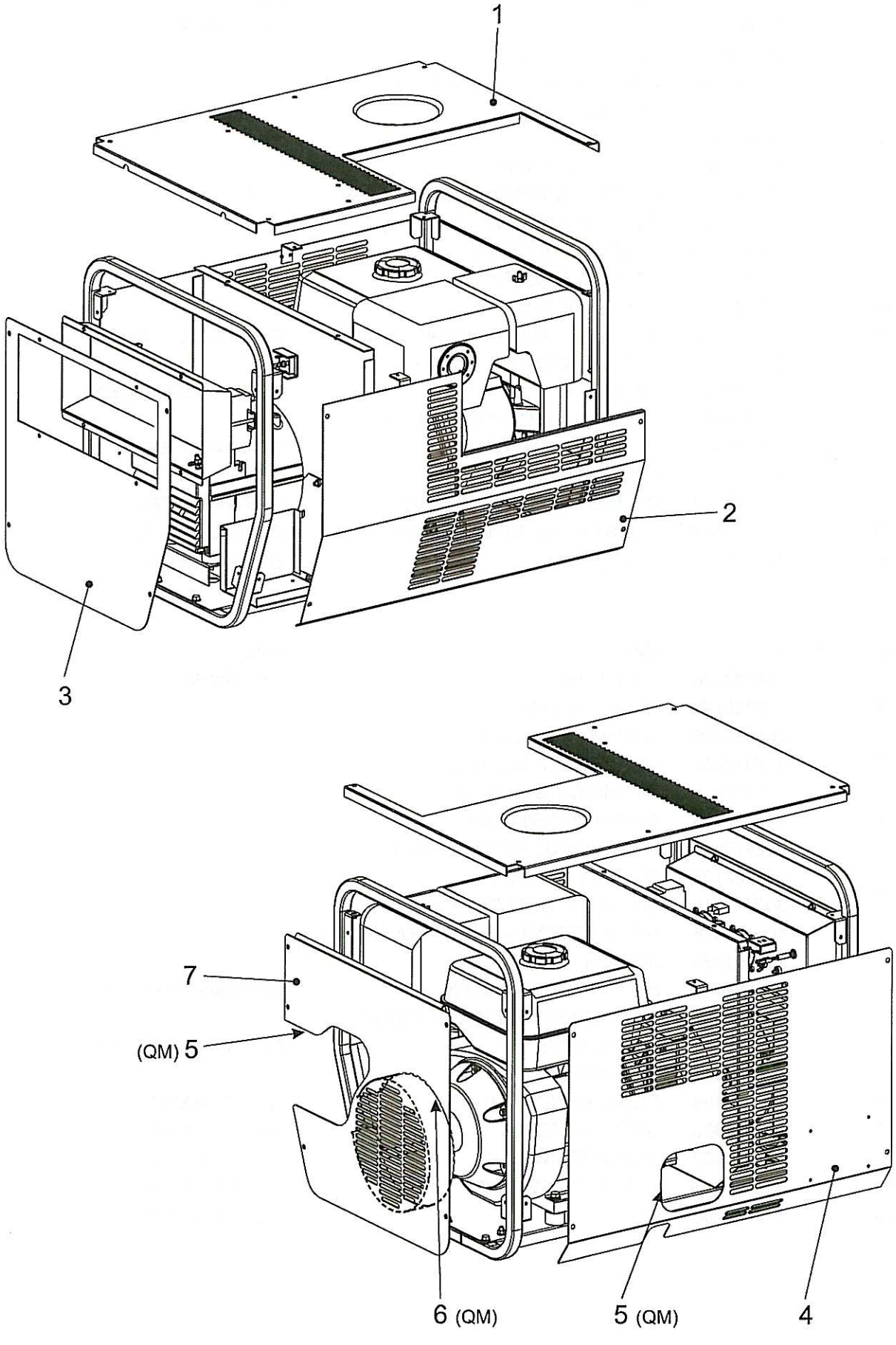
Pos.	Rev.	Cod.	Descr.	Note
1		306412200	HONDA ENGINE GX270	GE 4500 SX
1 a		354652200	HONDA ENGINE GX270	GE 4500 ESX
1 b		354672200	HONDA ENGINE GX270	GE 4500 SX EAS
2		306411035	SUPPORT, ELASTIC	
3		254003100	ALTERNATOR	
4		354608217	TOP PARTITION, ALTERNATOR	
5		306225030	DIODE BRIDGE, DISSIPATOR	
6		1270070	DIODE BRIDGE 120A	
7		105112270	STRIP, SEALING (L=MT.1)	(qm)
8		306411146	FRAME, ENDINE SIDE	
9		354601050	BASE	
10		306469282	ELASTIC, FIXING BATTERY	(ESX Version)
11		306469150	BATTERY 60A	(ESX Version)
12		306411145	FRAME, FRONT PLATE	
13		102302280	GASKET (L=MT.1)	(qm)
14		306479101	BRACKET ECONOMIZER HOLDER	
15		306479056	ROD FOR ELECTRO MAGNET	
16		354509111	CHOKE LEVER	
17		306479108	ACCELERATOR PIN	
18		306479071	ELECTRO MAGNET CHOKE CONTROL	
19		354608218	LOWER PARTITION, ALTERNATOR	



20/03/04 35460-I

Pos.	Rev.	Cod.	Descr.	Note
1		354607020	FRONTALE	GE 4500 SX
2		30622C026	SPIA OIL ALERT	
3		306467109	PROTEZIONE TERMICA (C.B.)	
4		307017240	PRESA 220V 16A	
5		1302220	SPIA 220V	
6		220237105	Vedi Cod.256007105	
7		306417036	GUIDA FISSAGGIO INTERRUTTORE	(qm)
8		155307107	DISGIUNTORE TERMICO	
9		306417318	PRESA C.B. NERA (-)	
10		306417316	PRESA C.B. ROSSA (+)	
11		101091830	PULSANTE DI STOP	
12		35450A902	VARIANTE CAVI CHIAVE AVVIAMEN.	GE 4500 ESX - SX EAS
13		259107241	PRESA SCHUKO 16A 230V - 2P+T	
14		354677020	FRONTALE	GE 4500 ESX - SX EAS
15		306467032	COPERCHIETTO DI CHIUSURA	
16		306479199	RELE' AVV. ELETTRICO	GE 4500 SX EAS
17		101091830	PULSANTE DI STOP	GE 4500 SX EAS
18		107509902	COMMUTATORE TRIPOLARE	GE 4500 SX EAS
19		35467C020	CONNETTORE COMPL. DI CAVI	GE 4500 SX EAS
20		102042740	CAPPUCCIO	GE 4500 SX EAS

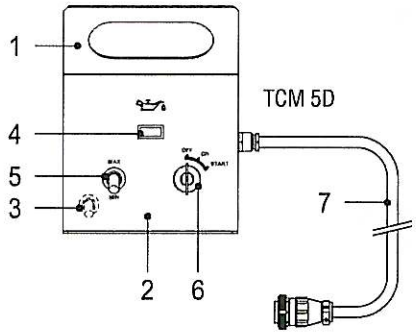
Pos.	Rev.	Cod.	Descr.	Note
1		354607020	FRONT PANEL	GE 4500 SX
2		30622C026	OIL ALERT LED	
3		306467109	THERMOPROTECTION (B.C.)	
4		307017240	EEC SOCKET 16A, 220V 2P+T	
5		1302220	WARNING LIGHT 220V	
6		220237105	See Part n°256007105	
7		306417036	FIXING GUIDE INTERRUPTOR	(qm)
8		155307107	THERMAL SWITCH	
9		306417318	BLACK B.C. SOCKET (-)	
10		306417316	RED BATTERY CHARGER SOCKET (+)	
11		101091830	BUTTON, STOP	
12		35450A902	STARTING KEY CABLING	GE 4500 ESX - SX EAS
13		259107241	SOCKET SCHUKO 16A 230V 2P+T	
14		354677020	FRONT PANEL	GE 4500 ESX - SX EAS
15		306467032	CLOSING COVER	
16		306479199	RELAY, ELECTRIC START	GE 4500 SX/EAS
17		101091830	BUTTON, STOP	GE 4500 SX/EAS
18		107509902	TRIPOLES SWITCH	GE 4500 SX/EAS
19		35467C020	COMPLETE FEMALE PLUG	GE 4500 SX/EAS
20		102042740	CAP	GE 4500 SX/EAS


1
2
3
7
(QM) 5
6 (QM)
5 (QM)
4
20/03/04 35460-I

Pos.	Rev.	Cod.	Descr.	Note
1		306418021	CARENATURA SUPERIORE	
2		306418010	CARENATURA LATO SILENZ.SCARICO	
3		354608020	PANNELLO LATO ALTERNATORE	
4		306418005	CARENATURA LATO SERBATOIO	
5		306418310	GUARNIZIONE (L=MT.1)	(qm)
6		102302280	GUARNIZIONE (L=MT.1)	(qm)
7		306418015	CARENATURA LATO MOTORE	

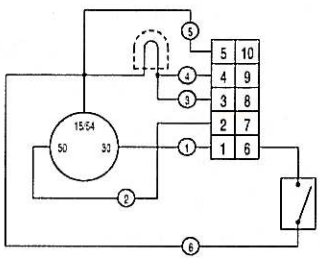
Pos.	Rev.	Cod.	Descr.	Note
1		306418021	TOP COVER	
2		306418010	COVER, MUFFLER SIDE	
3		354608020	PLATE ALTERNATOR SIDE	
4		306418005	COVER, TANK SIDE	
5		306418310	PROTECTION GASKET (L=MT.1)	(qm)
6		102302280	GASKET (L=MT.1)	(qm)
7		306418015	COVER, ENGINE SIDE	

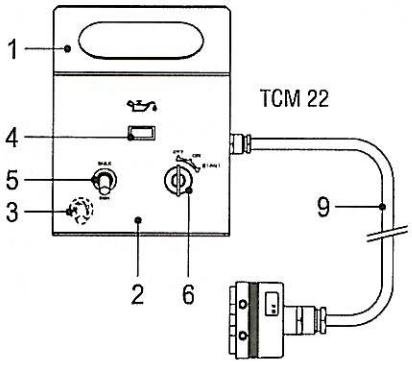
TCM 5 5D - 6 - 22 - 40
930150000 - 330100000 - 930300000 - 330200000 - 330400000



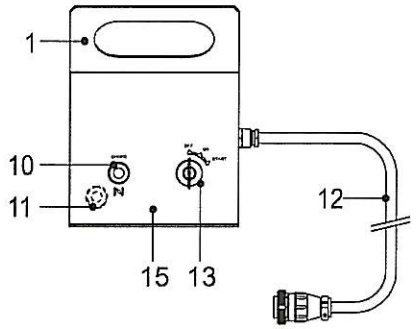
TCM 5D

TCM 5D - 22

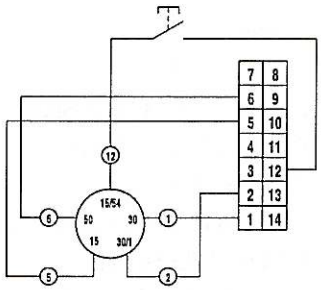


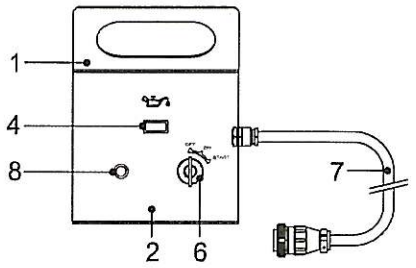


TCM 22

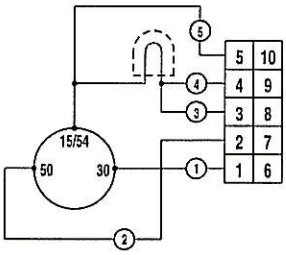


TCM 5

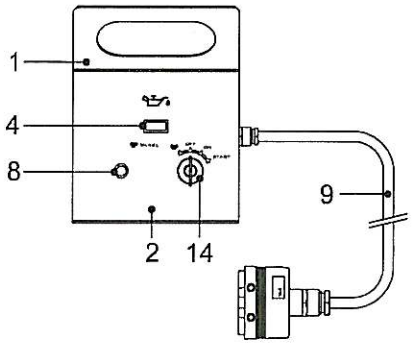




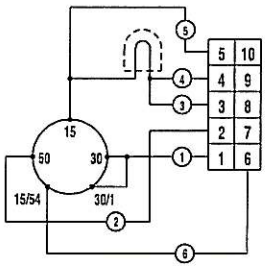
TCM 6



SCHEMA ELETTRICO
ELECTRICAL DIAGRAM
ELECTRIQUE SCHEMA
ELEKTRISCHES SCHEMA
ELECTRISCH GEDEELTE
ESQUEMA ELÉCTRICO



TCM 40



Pos.	Rev.	Cod.	Descr.	Descr.	Note
1		107509900	SCATOLA	CASE, BOTTOM HALF	
2		330109901	COPERCHIO PER SCATOLA TCM	TCM COVER	
3		102042740	CAPPUCCIO	CAP	
4		1302040	SPIA 12V	WARNING LIGHT 12V	
5		102013290	COMMUTATORE	COMMUTATOR	
6		107302460	STARTER A CHIAVE	STARTER KEY	
7		33010C060	GRUPPO CAVI TC	TC CABLE KIT	TCM5D-6
8		6062050	TAPPO	CAP	
9		33020C060	GR.CAVI TCM	TCM CABLE KIT	TCM22-40
10	A	101091830	PULSANTE DI STOP	BUTTON, STOP	TCM5
11	A	101091840	CAPPUCCIO	CAP	TCM5
12	A	93015C060	GRUPPO CAVI TCM	TCM CABLE KIT	TCM5
13	A	259107055	STARTER A CHIAVE	KEY STARTER	TCM5
14	A	307457055	INTERRUTT.ACCENSIONE A CHIAVE	STARTER SWITCH	TCM40
15	A	930159901	COPERCHIO PER SCATOLA TCM	TCM COVER	TCM5

MOSA

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

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