GE 6000 - 6500 BS/GS
GE 6000 - 6500
DS-DES/GS

0101

256409003 - GB

MOSA
V.le Europa, 59 – 20090 CUSAGO (MI) Italy
tel. +39-02903521 – fax +39-0290390466
E-mail: info@mosa.it

MOSA

GE 6000 - 6500 BS/GS
GE 6000 - 6500
DS-DES/GS

0101

256409003 - GB

USE AND MAINTENANCE MANUAL
SPARE PARTS CATALOG

16/01/01 25640M00

preparato da UPT
approvato da SAT

IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and
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

Engine driven welders. Generating sets.

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard

ISO 9001

Issued on: **2000-03-09**
Validity date: **2003-03-08**
Registration Number: IT-3722

IQNet — *Catherine Neville*, *President of IQNet*

CISQ — *Gianrenzo Frati*, *President of CISQ*

Members of IQNet (registered associations):
AENOR *Spain* AFAQ *France* AIB-Vincotte International *Belgium* APCER *Portugal* CISQ *Italy*
CQS *Czech Republic* DQS *Germany* DS *Denmark* ELOT *Greece* FCAV *Brazil* HKQAA *Hong Kong*
ICONTEC *Colombia* IRAM *Argentina* JQA *Japan* KEMA *Netherlands* KSA-QA *Korea* MSZT *Hungary* NCS *Norway*
NSAI *Ireland* OQS *Austria* PCBC *Poland* PSB *Singapore* QAS *Australia* QMI *Canada* SFS *Finland*
SII *Israel* SIQ *Slovenia* SQS *Switzerland*

IQNet is represented in the USA by the following IQNet members: AFAQ, AIB-Vincotte International, CISQ, DQS, KEMA, NSAI and QMI

Federazione - Federation

CISQ

a member of IQNet

CISQ è la Federazione rappresentativa dei seguenti Enti di certificazione dei Sistemi di Gestione aziendali, costituiti ciascuno sulla base di propria competenza.

CISQ is a multi-sector, independent, Federation of Italian organizations for the certification of company Management Systems, each operating in its own sector of competency.

CERTIFICAZIONE ITALIANA DEI SISTEMI QUALITÀ AZIENDALI
ITALIAN CERTIFICATION OF COMPANY QUALITY SYSTEMS

ICIM

CERTIFICATO n. / *CERTIFICATE No* 0192/2

SI CERTIFICA CHE IL SISTEMA QUALITÀ DI / *WE HEREBY CERTIFY THAT THE QUALITY SYSTEM OPERATED BY*

MOSA
Divisione della BCS S.p.A.

UNITÀ OPERATIVA / *OPERATIVE UNIT*

Viale Europa, 59 - 20090 Cusago (MI)
Italia

È CONFORME ALLA NORMA / *IS IN COMPLIANCE WITH THE STANDARD* UNI EN ISO 9001:1994

PER LE SEGUENTI TIPOLOGIE DI PRODOTTI - PROCESSI - SERVIZI
CONCERNING THE FOLLOWING KINDS OF PRODUCTS - PROCESSES - SERVICES

Motosaldatrici.
Gruppi elettrogeni.
Engine driven welders.
Generating sets.

IL PRESENTE CERTIFICATO È SOGGETTO AL RISPETTO DEL REGOLAMENTO PER LA CERTIFICAZIONE DEI SISTEMI QUALITÀ DELLE AZIENDE.
THE USE AND THE VALIDITY OF THIS CERTIFICATE SHALL SATISFY THE REQUIREMENTS OF THE RULES FOR THE CERTIFICATION OF COMPANY QUALITY SYSTEMS.

Prima emissione / *First issue* 30/05/1994
Emissione corrente / *Current issue* 09/03/2000
Data di scadenza / *Expiring date* 08/03/2003

ICIM S.p.A. - PAULO E. STATO MILANO

SINCERT

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.

Request from:..... date:..... signature:.....

Please send use us following sapre parts for the machine below:

MOSA SPARE PARTS:

model type: .....

serial nr.: | | | | | | | | | | |

NEW TABLES			OLD TABLES	
table nr.	position	q.ty	code	q.ty

ENGINE SPRE PARTS:

engine model: ..... serial nr. engine:.....

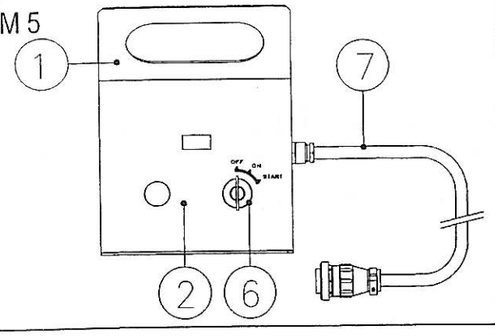
code and/or position	description and/or table	q.ty

SYNCHRONOUS ALTERNATOR SPARE PARTS:

model alternator:..... alternator serial nr.:.....

code and/or position	description and/or table	q.ty

TCM 5



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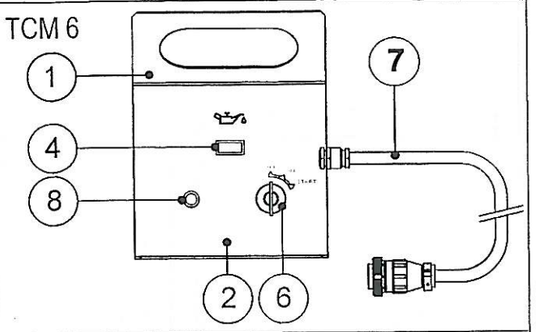

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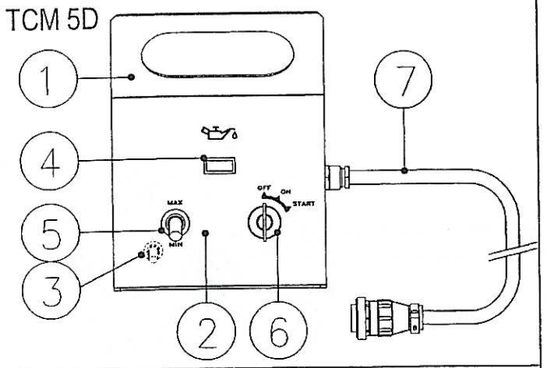
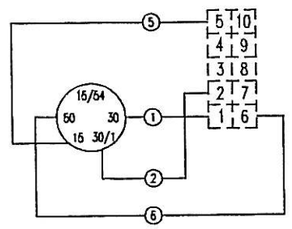


SCHEMA ELETTRICO
ELECTRICAL DIAGRAM
ELECTRIQUE SCHEMA
ELEKTRISCHES SCHEMA
ELECTRISCH GEDEELTE
ESQUEMA ELÉCTRICO

TCM 5



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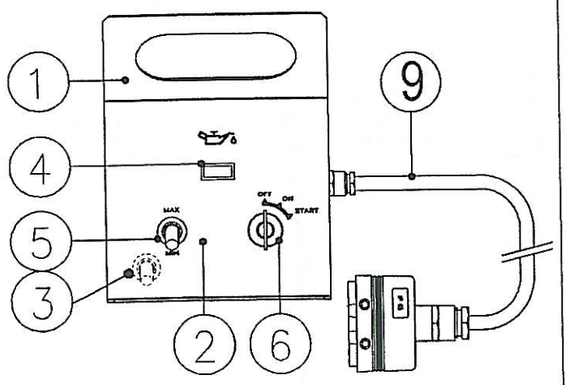

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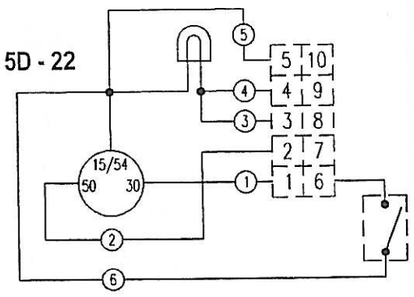

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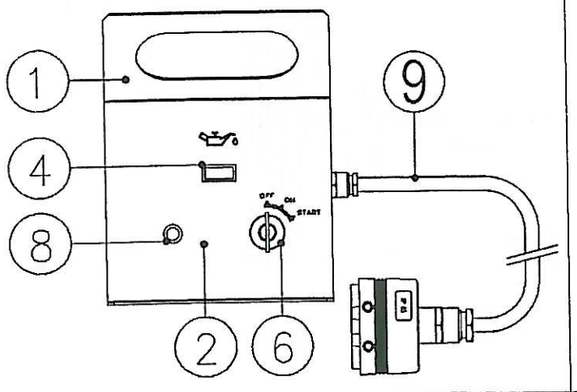

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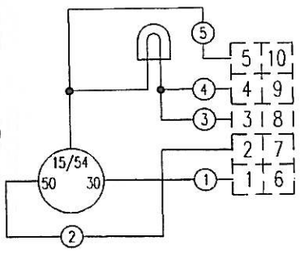


10/02/00 KD6

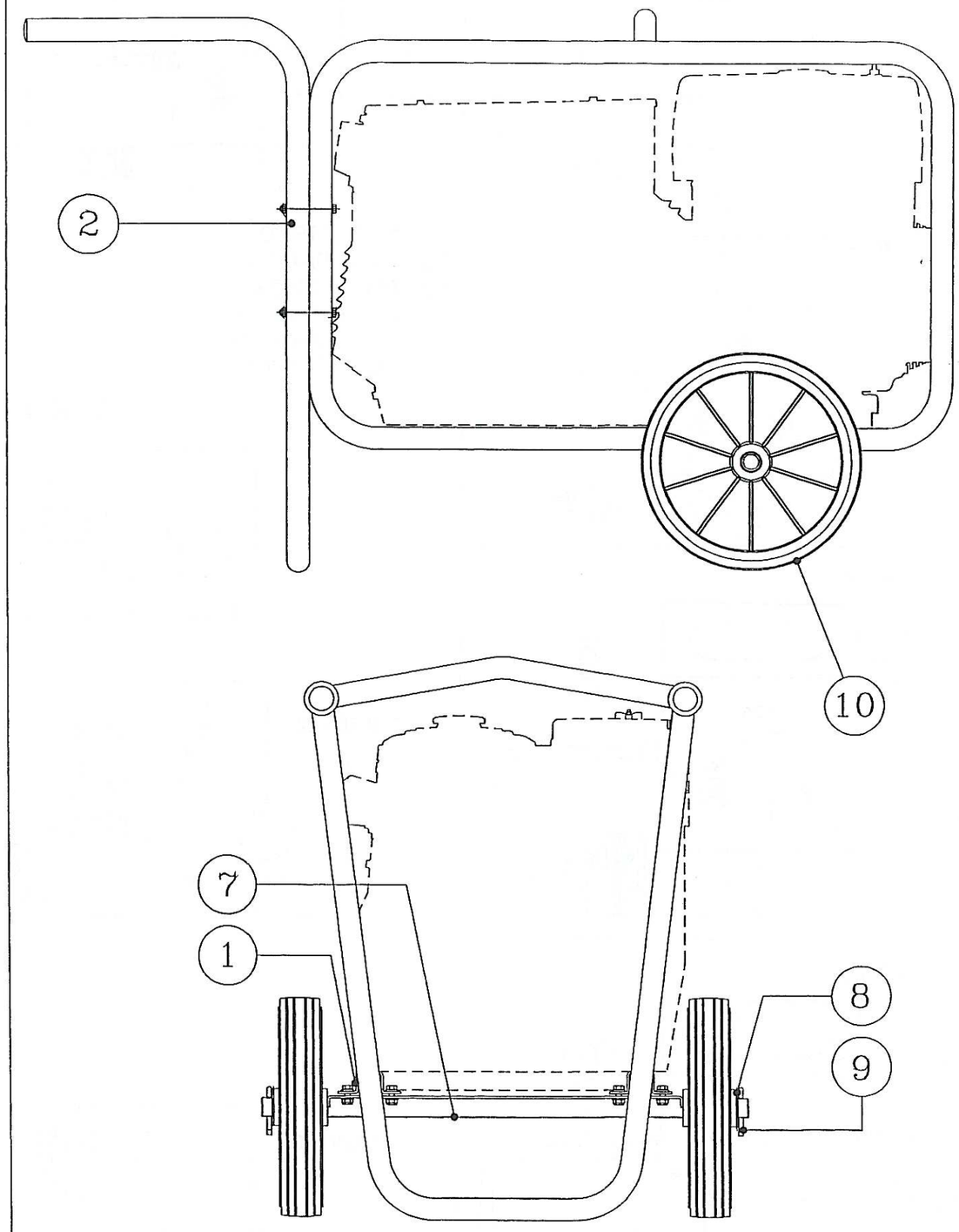
INDEX (for all MOSA models)

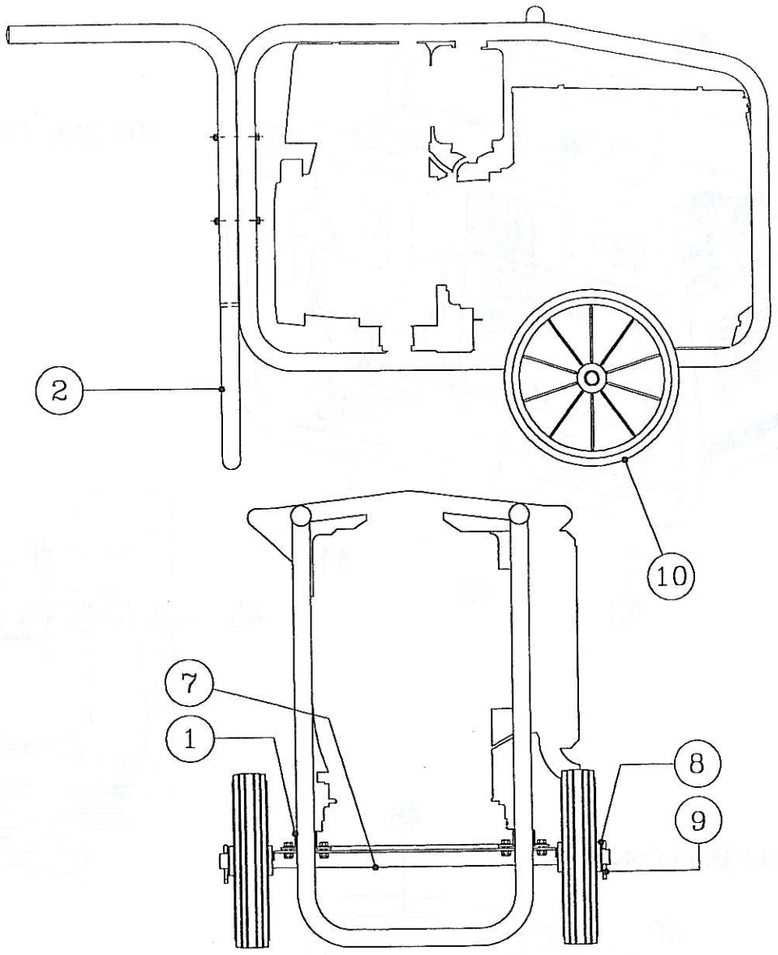
⚠ ATTENTION

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 (see page M1).

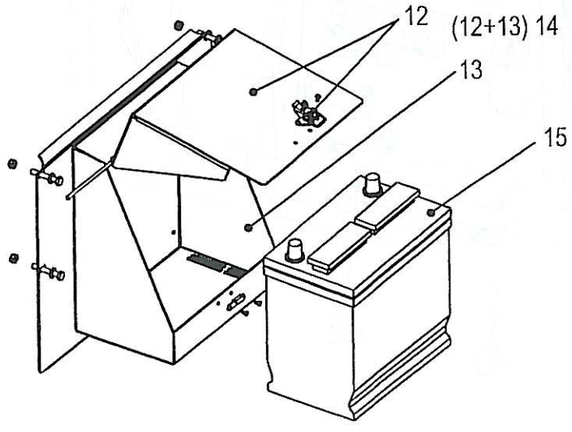
We advise you to pay attention to the pages concerning the security .

MOSA





PB 3
256020040
KG
3



21/04/97 KA3-KG3

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).

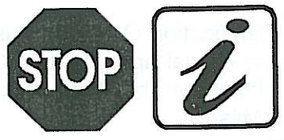
Our products have been designed for the use of generation for welding, electric and hydraulic system; ANY OTHER DIFFERENT USE NOT INCLUDED IN THE ONE INDICATED, relieves MOSA from the risks which could happen or, anyway, from that which was agreed when selling the machine; MOSA excludes any responsibility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



3/11/00 TSGEM11GB

DECLARATION OF CONFORMITY

MOSA
20090 CUSAGO (MI) - ITALY

DICHIARAZIONE DI CONFORMITA'

MOSA
V.le Europa, 59
20090 Cusago (Mi) Italia
Telefono: 0290352 1
Fax: 0290390466
E-mail: info@mosa.it

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 Maschine:
MOSA verklaard, onder haar eigen verantwoordelijkheid, dat de machine:
MOSA declara bajo su responsabilidad que la máquina:

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

N. di serie/Nr. de *série/Serial No./*Seriennr./Serienn*/In° de série:* _____

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 Directive** and related modifications:*
Mit den Vorschriften der Gemeinschaft und deren Ergänzungen übereinstimmt:
in overeenkomst is met de inhoud van gemeenschapsrichtlijnemen gerelateerde modificaties:
cumple con los requisitos de la Directiva Comunitaria y sus anexos:

CEE 89/392 (91/368 - 93/44 - 93/68)
CEE 73/23 (93/68)
CEE 89/336 (92/31 - 93/68)

per la verifica sono state considerate le seguenti norme armonizzate, direttive CEE, Norme nazionali e internazionali:
pour la vérification de la conformité ont été consultées les normes harmonisées suivantes, directives CEE, normes nationales et internationales:
to check the conformity, the following harmonized norms EEC directives, 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 EEG-richtlijnen, nationaal en internationaal, geconsulteerd:
para su verification se han tenido en cuenta las Normas armonizadas, Directiva CEE, Normas nacionales e internacionales:

Norme armonizzate - normes harmonisées - *harmonized norms* - übereinstimmende Normen - geharmoniseerde normen - *Normas armonizadas:*
EN 292-1 EN 292-2
EN 60974-1 - EN 60439-1 - EN 60204-1
EN 60974-1 - EN 500199 (Solo per modelli - Seulement pour les modèles - *Only for models* - nur für die Modelle - Alleen voor de modellen - *Sólo para modelos:* **MS / TS)**
EN 50081-2 - EN 50082-2

Altre norme - autres normes - *other normes* - andere Normen - andere normen - *otras normas:*
84/536/CEE (Solo per modelli - Seulement pour les modèles - *Only for model* - nur für die Modelle - Alleen voor de modellen - *Sólo para modelos:* **GE)**
84/535/CEE (Solo per modelli - Seulement pour les modèles - *Only for model* - nur für die Modelle - Alleen voor de modellen - *Sólo para modelos:* **MS / TS)**

Ing. Benso Marelli
Direttore Generale

Cusago, _____

CE The CE mark (European Community) certifies that the product complies with the requirements of the community directives foreseen for the specific product.

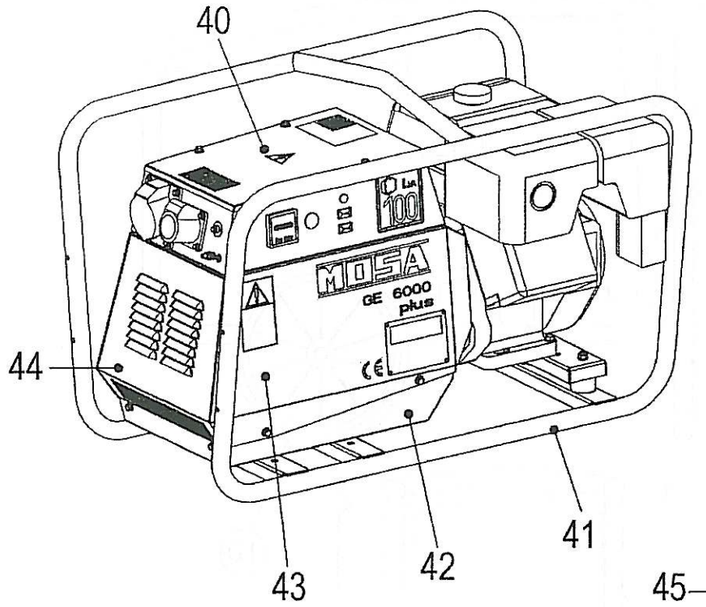
MOSA QUALITY SYSTEM

MOSA has obtained in 1994 the certification of its Quality System according to the UNI EN ISO 9002 norm; after two renewals, in March 2000 and thanks to the experience matured during six years of the Quality System management in conformity with ISO 9002, MOSA has renewed again and extended the certification according to the **UNI EN ISO 9001**, in order to ensure the quality in the **design**, development, production, installatkon and assistence for our engine driven welders and generating sets.
ICIM S.p.A., Industrial Certification Institute for Mechanics, a member of the CISQ Federation and therefore of the net of the International

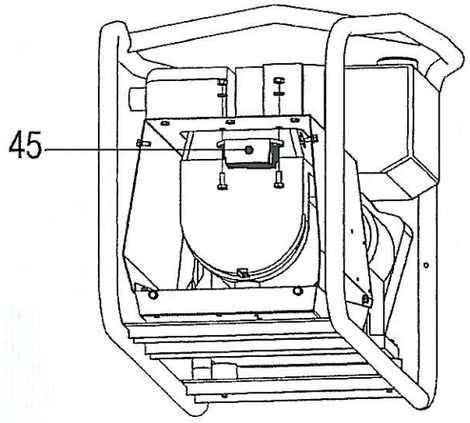
Certification Organisations **IQNet**, has awarded the official approval to MOSA for its operations effected at the Head Office and plant in Cusago - Milan.

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

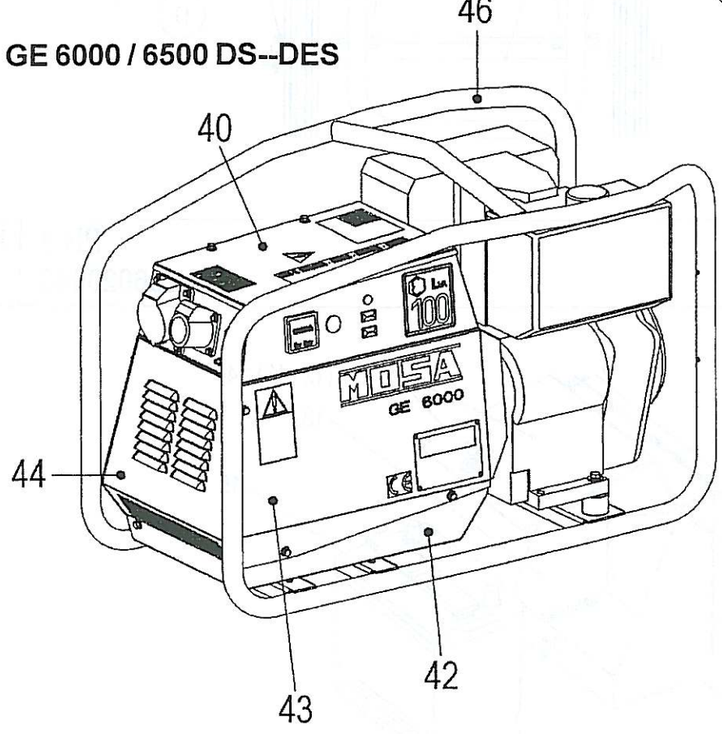
These advantages are guaranteed and proved by the Quality System Certificate ICIM n° 0192/2 and the International Certificate IQNet n° IT-3722.



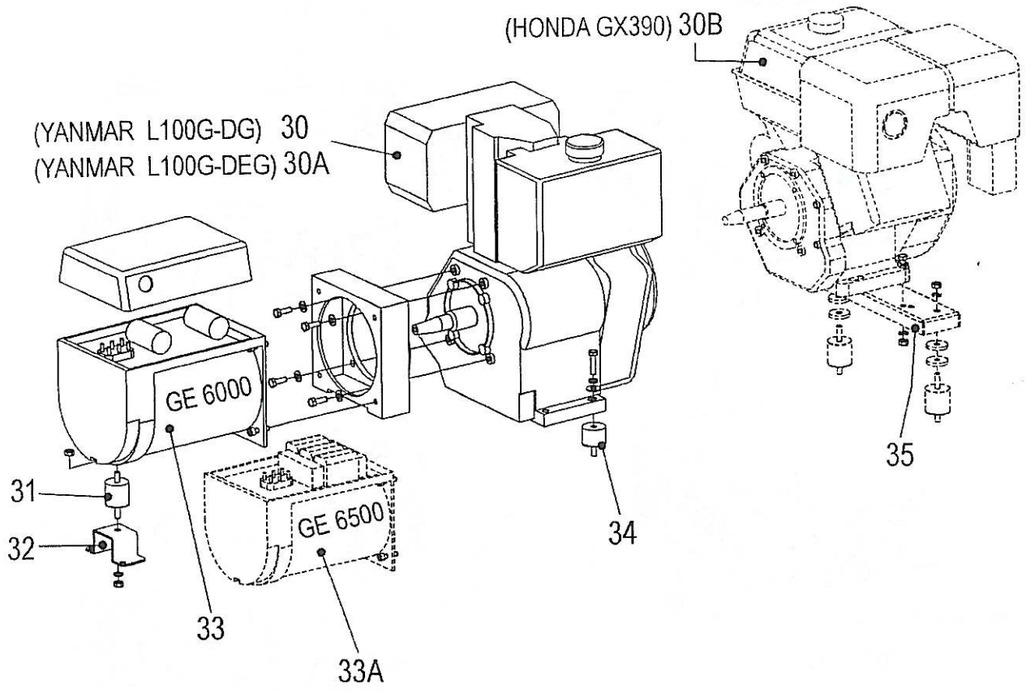
GE 6000 / 6500 BS



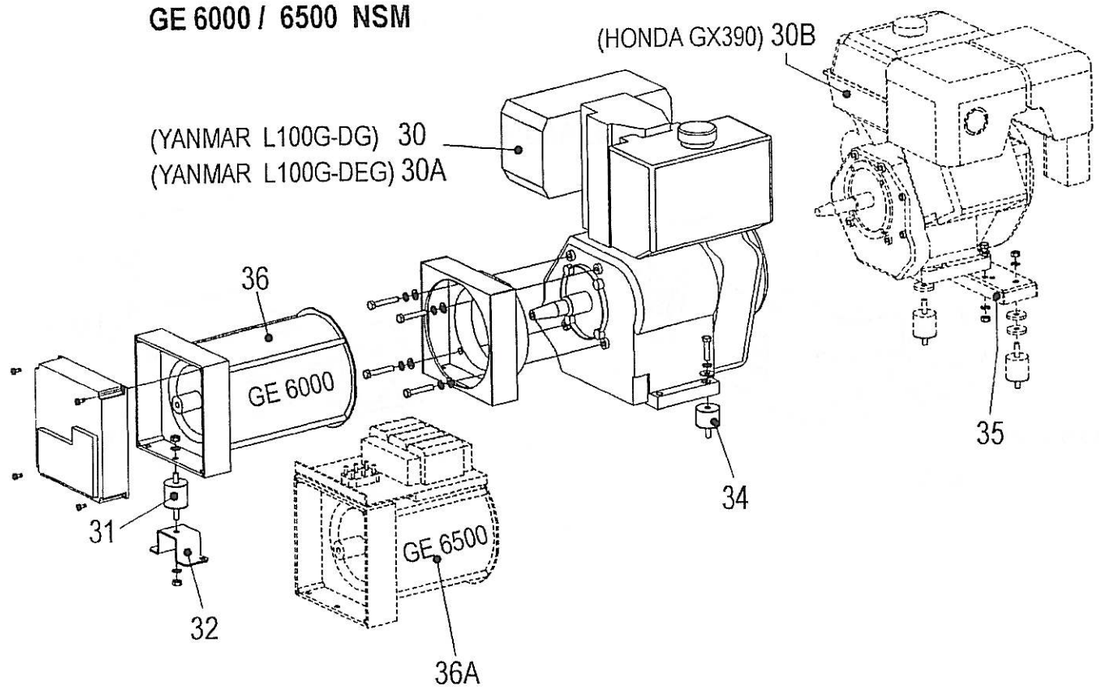
GE 6000 / 6500 DS--DES



GE 6000 / 6500 MECC ALTE



GE 6000 / 6500 NSM



28/08/00 GE6000BS_DS-GS

SYMBOLS IN THIS MANUAL

- The symbols contained in the manual have the purpose to draw the attention of the User to avoid inconveniences or dangers to the persons as well to the things or to the machine in possession.
  These symbols are besides to draw your attention to show a correct use and obtain a good working of the machine or of the used set.

IMPORTANT ADVICE

- Advice to the User about the safety:

☞ NB: 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 remains understood, anyway, that the local dispositions and/or laws in force must be respected.

WARNING

⚠ **Situations of danger - no harm to persons or things**

Use only with safety installations

The non observance, the displacementy or the putting out of work of the installations, of the safety and control functions are prohibited.

Use only in perfect technical conditions

The machines or the sets must be used in perfect technical conditions. Defects, which can alter the safety, must be removed at once.
Do not install machines or sets near a heat source, in risky zones with danger of explosion or fire.
If possible repair the machines or sets in dry areas, far from water, protecting them besides from humidity.

SAFETY PRECAUTIONS

⚠ **DANGEROUS**

To this advice corresponds an immediate danger for persons as well for things: for the former danger of death or serious wounds, for the latter material danger; bring therefore the due precautions.

⚠ **WARNING**

To this advice can appear a danger for persons as well as for things: for the former danger of death or serious wounds, for the latter material danger; bring therefore the due precautions.

⚠ **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**

⚠ **MAKE SURE**

This information is given for the correct use of the machines and/or accessories in relation to these so as not to cause damage due to inadapted use.

23/04/97 TSGEM2G

SYMBOLS

STOP - Read absolutely and be duly attentive.

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.

PROHIBITIONS

<u>No harm for persons</u>

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.

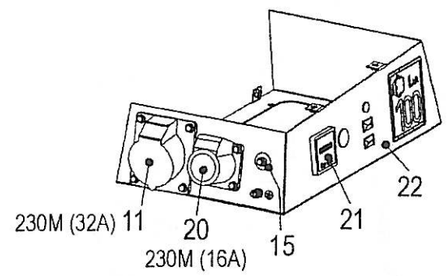
Use only with safety protections, specifically suitable -
It is advisable to use protections suitable for the different welding works.

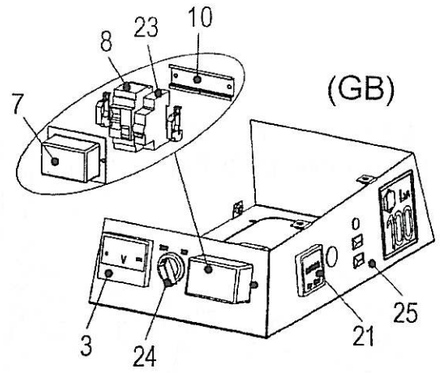
Use only with safety protections -
It is advisable to use protections suitable for the different daily checking works.

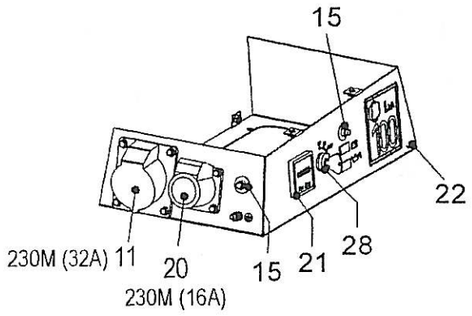
Use only with safety protections -
It is advisable to use all protections while shifting the machine.

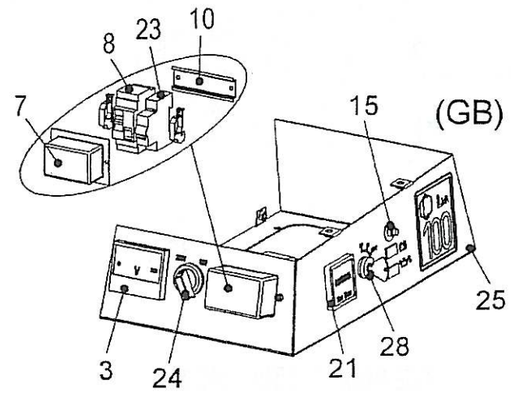
Use only with safety protections -
It is advisable to use protections suitable for the different daily checking works.

GE 6000

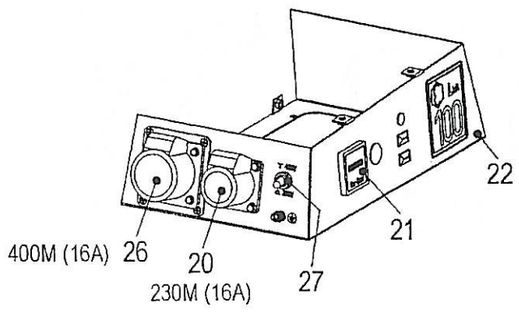


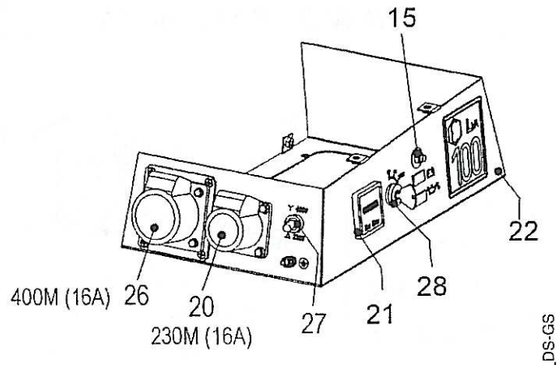






GE 6500





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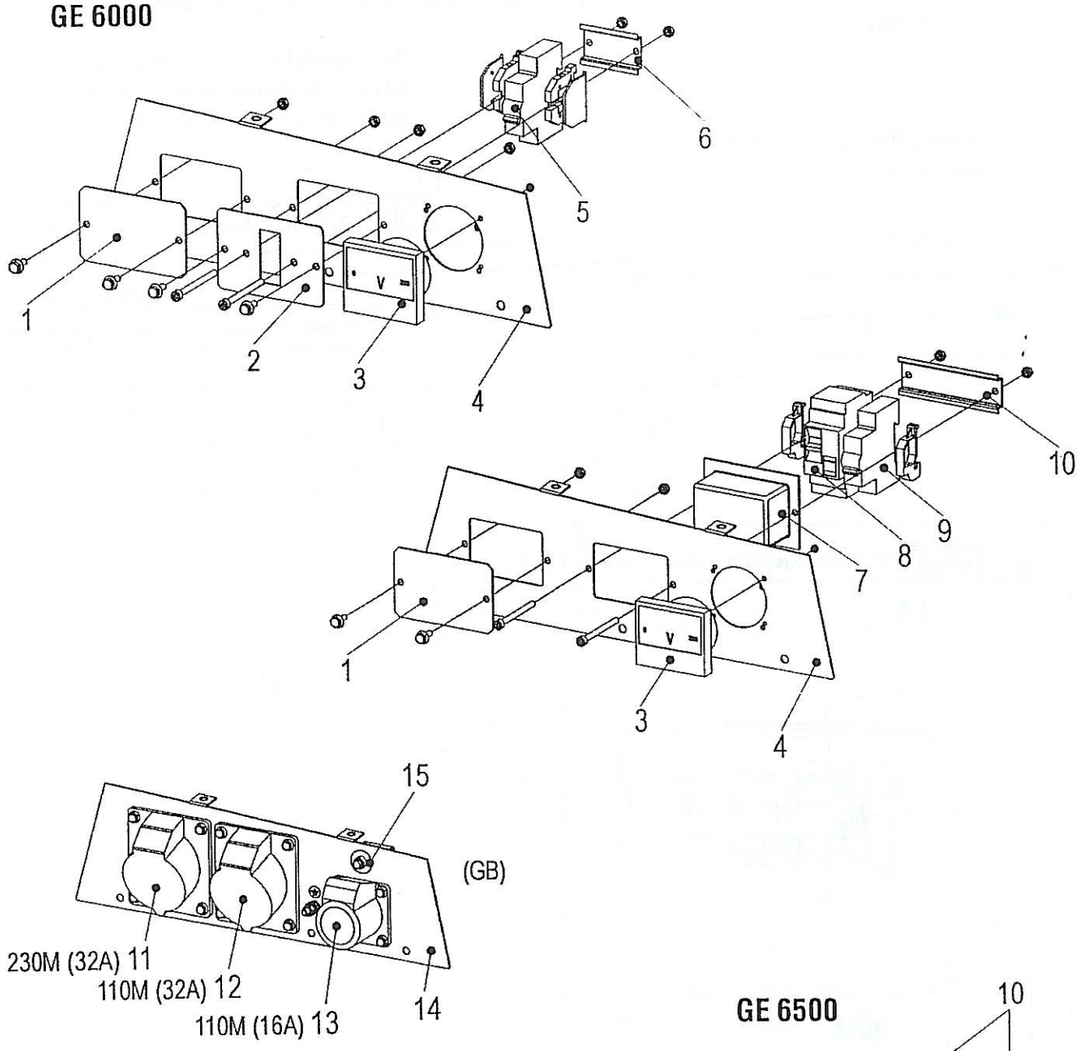

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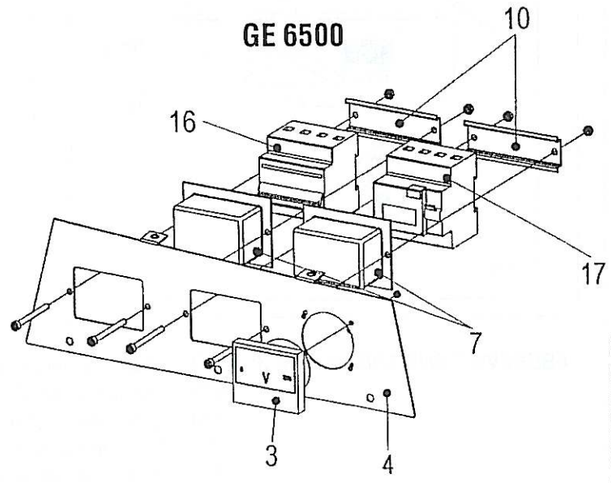


28/08/00 GE6000BS_DS-GS

°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~)

14/06/99 TSGEM2-3GB

SYMBOLS AND CURRENT DEFINITIONS

	CE Conformity	EEC Sound power conformity	EN 60974-1 Conformity	Triphase 3~	Singlephase 1~			Users' manual	Information	Various news
ENGINE	Gasoline engine	Diesel engine	Air cooling	Water cooling	Manual recoil	Electric starter	Battery 12V			
ENGINE PROTECTION	EV Engine protection	ES Engine protection	EP2 Engine protection	EP1 Engine protection	EP4 Engine protection	EP5 Engine protection	Siren	Arrêt moteur (huile)	Engine speed	
ENGINE ALARMS	Oil level indicator	Battery charger indicator	Fuel level gauge/low fuel	Oil temperature	Warning light for preheating glow plugs	Air filter blockage	Low fuel indicator	Belt breakage	Over speed	Control unit QEA
GENERATION	GA Asynchronous alternator	GS Synchronous alternator	GHF Generator high frequency	V Voltmeter	Hz Frequencymeter	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~ Socket 230V SCHUKO	Socket 48V	Battery charger	Engine booster			
WELDING CONTROL	Arc control	Welding with covered electrode	Welding current electr. regulation	Base current diode bridge	Polarity inverter					
VARIOUS DEVICES	h Hour counter	Ready for TCM	Ground connection point	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						

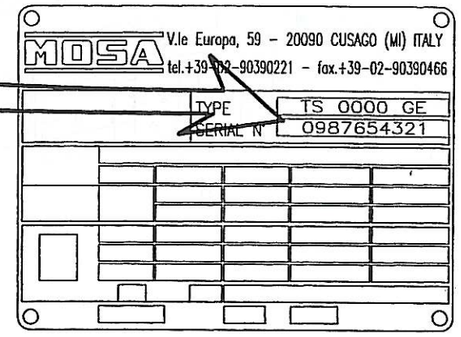
MOSA guarantees that any request for spare parts will be satisfied.

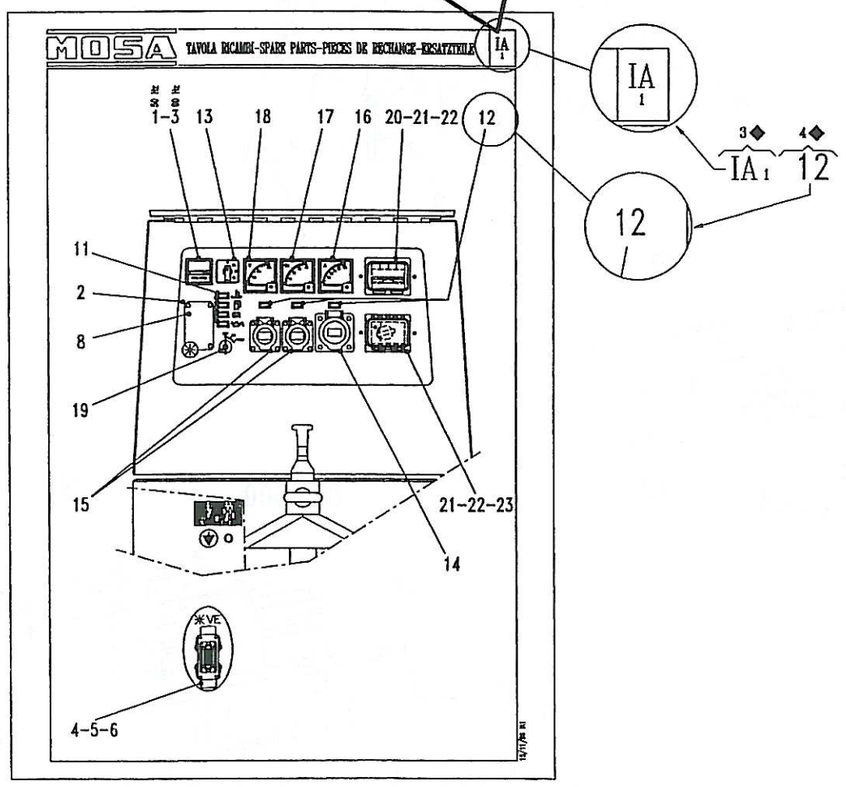
To keep the machine in full working order, when replacement of MOSA spare parts is required, always ask for genuine parts only.

☞ The requested data are to be found on the data plate located on the machine structure, quite visible and easy to consult. ✹

When ordering the spare parts, it is recommended to indicate:

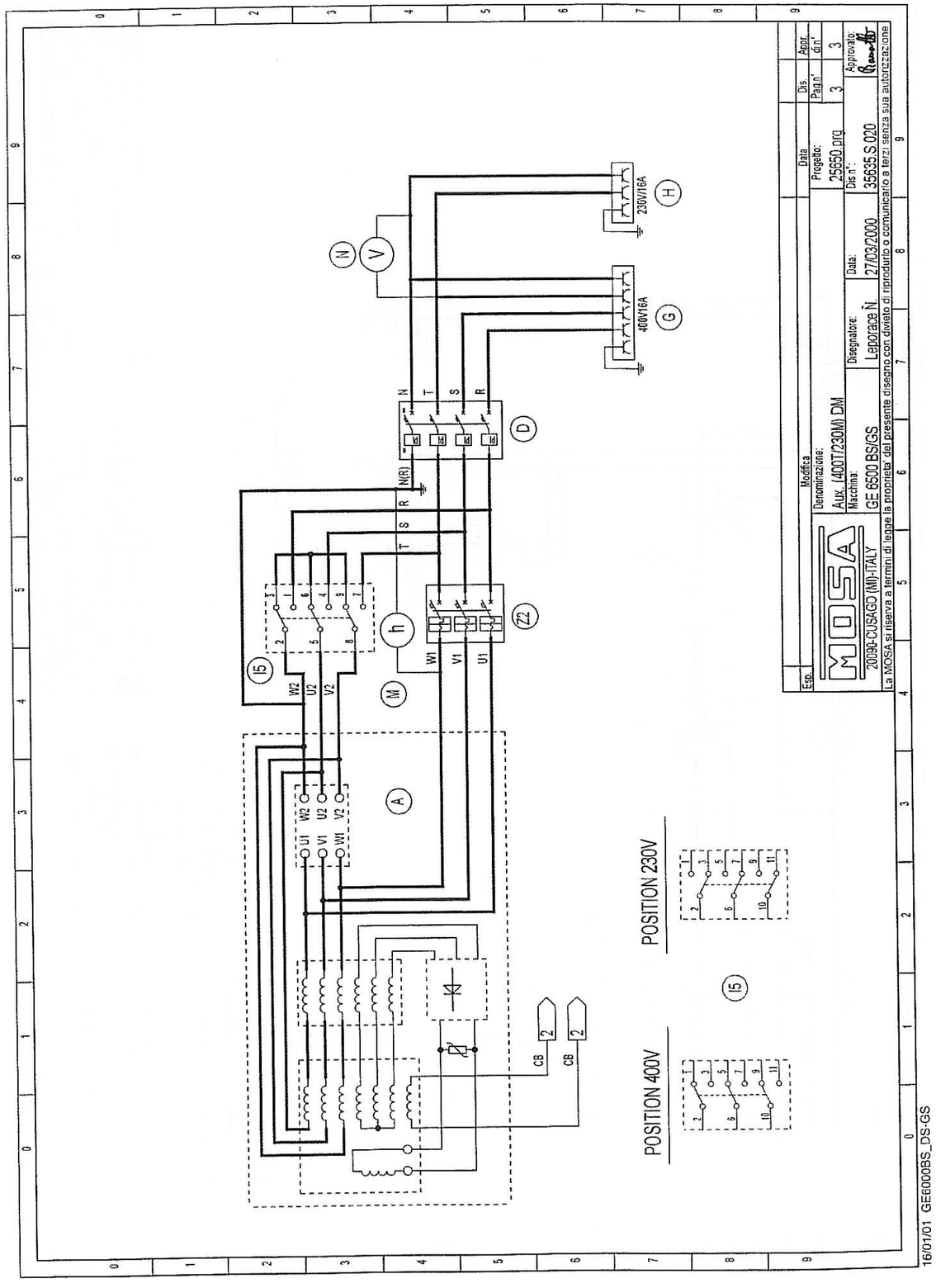
1) ✹ serial number
2) ✹ model of welder and/or generating set
3) ◆ n. table
4) ◆ n. position
5) quantity





ABBREVIATIONS AND SYMBOLS:

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



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.

MOTOR

⇒ 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.
⇒ Static electricity can demage the parts on the circuit.
⇒ Sparks may cause the explosion of battery vapours

☞ **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.

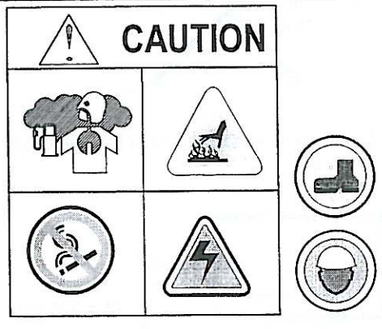
Skin contact	Wash with water and soap
Eyes contact	Irrigate with plenty of water, if the irritation persists contact a specialist
Ingestion	Do not induce vomit as to avoid the intake of vomit into the lungs, send for a doctor
Suction of liquids from lungs	If you suppose that vomit has entered the lungs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

CAUTION



WARNING *THE MACHINE MUST NOT BE USED IN AMBIENTS WITH EXPLOSIVE ATMOSPHERE*

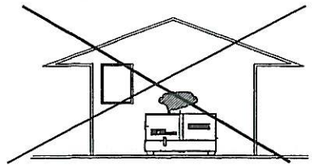
INSTALLATION AND ADVICE BEFORE USE

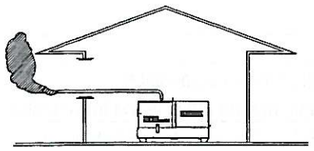
GASOLINE ENGINES

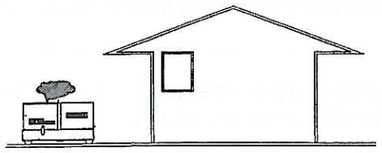
- Use in open space, air swept or vent exhaust gases, which contain the deathly carbone oxyde, far from the work area.

GASOIL ENGINES

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

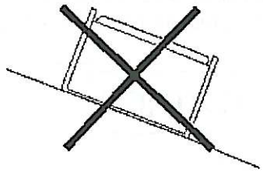




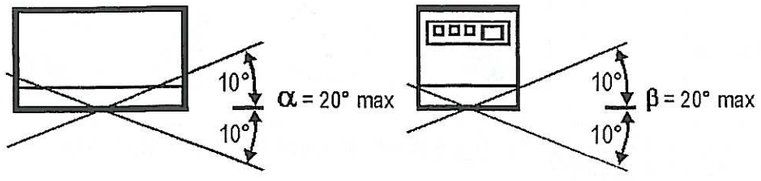


POSITION

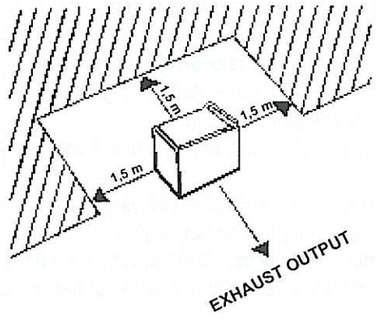
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



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.

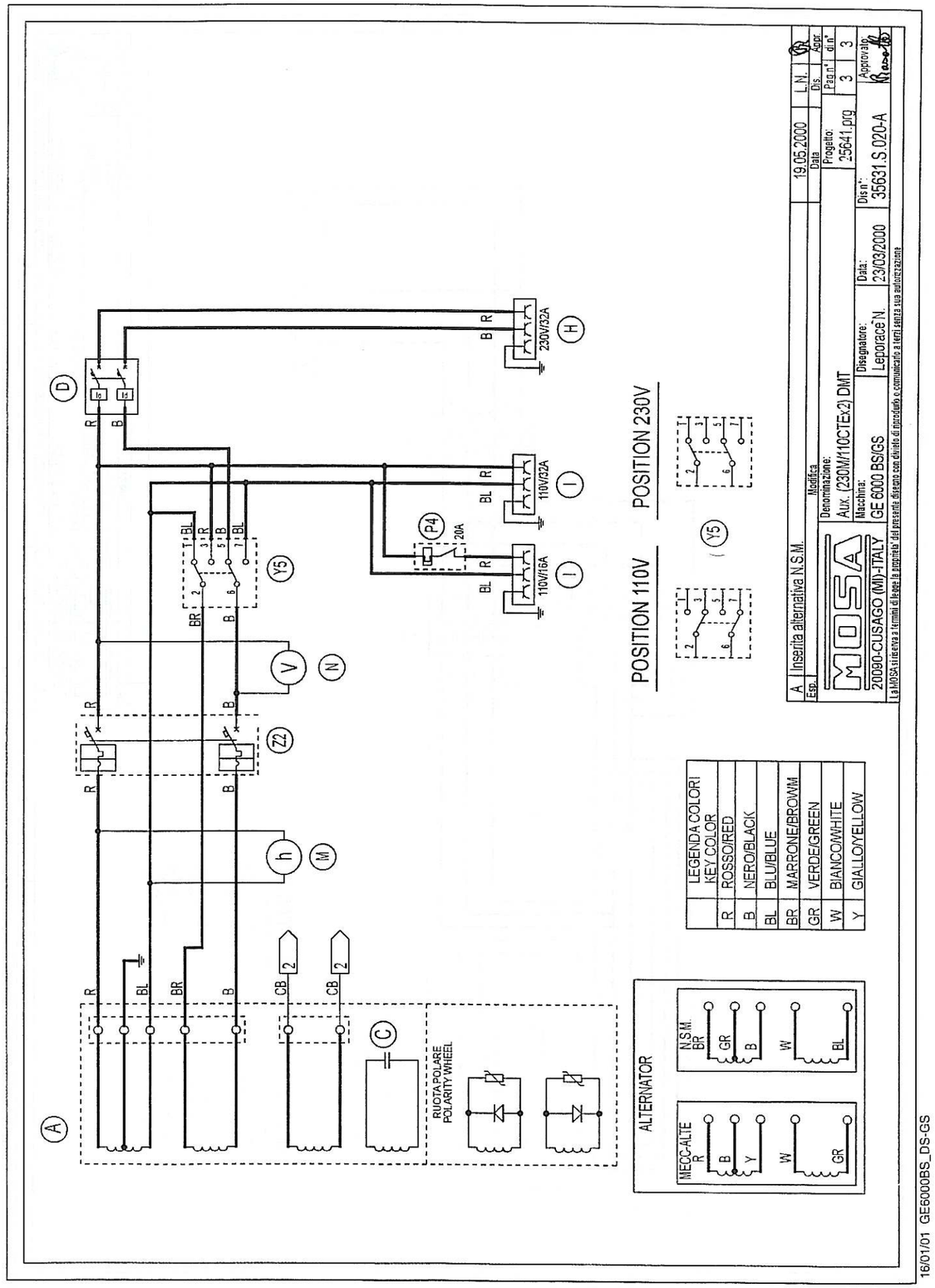
PLACE OF THE MACHINE

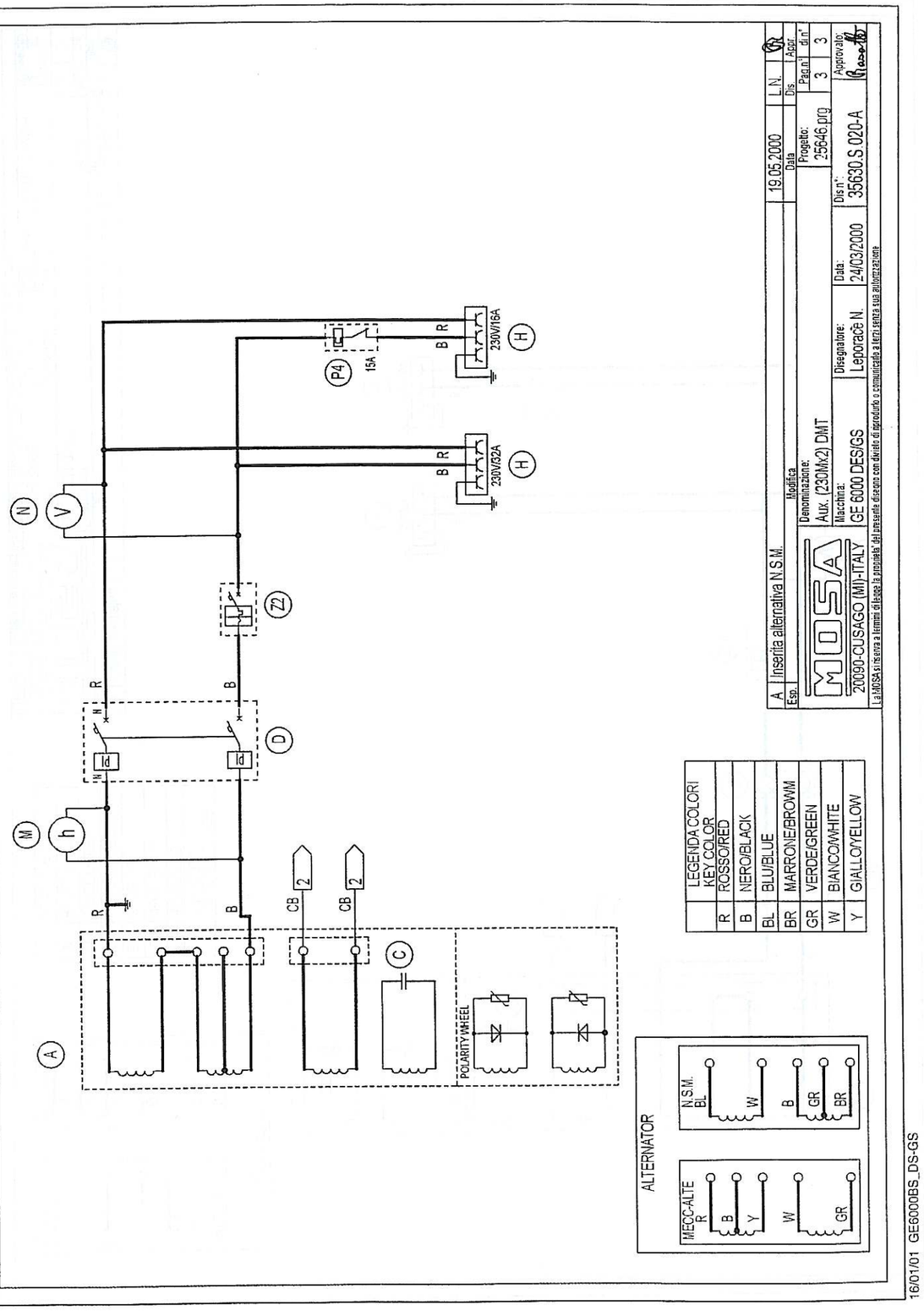
In spots where it often rains and/or there are flooded areas, do **not** put the machine:

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

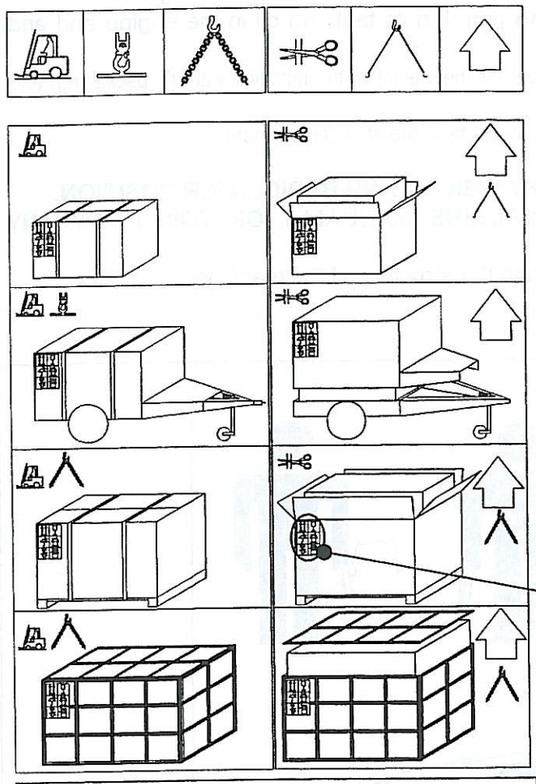
Protect all the electric parts at risk, because water infiltrations could cause short circuits with damages at persons and/or things.

The protection degree "IP...." (IEC 529) of the machine is put on the data plate and in this manual at page "Technical Data".





NOTE

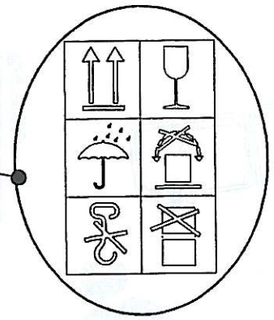


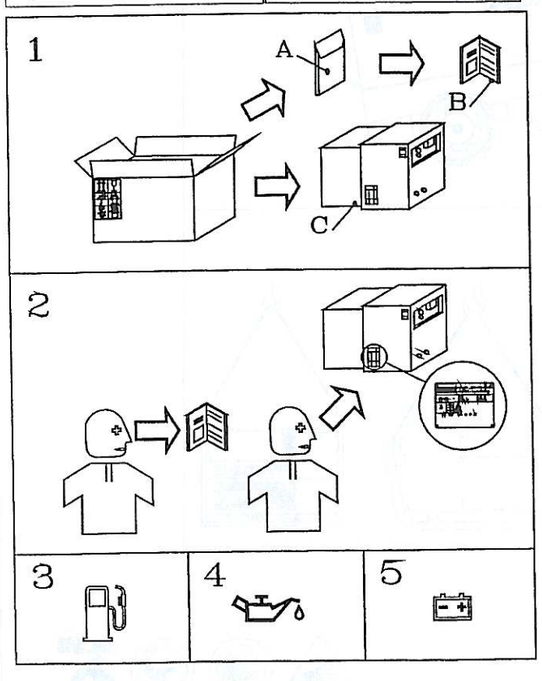
☞ Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conforms to local rules and regulations.

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.
3) Fill the tank with fuel.
4) Introduce the engine oil (see engine manual).
5) Activate the battery (when assembled).

NB.: for points 3)-4)-5) keep to the instructions page M20 and/or M26.

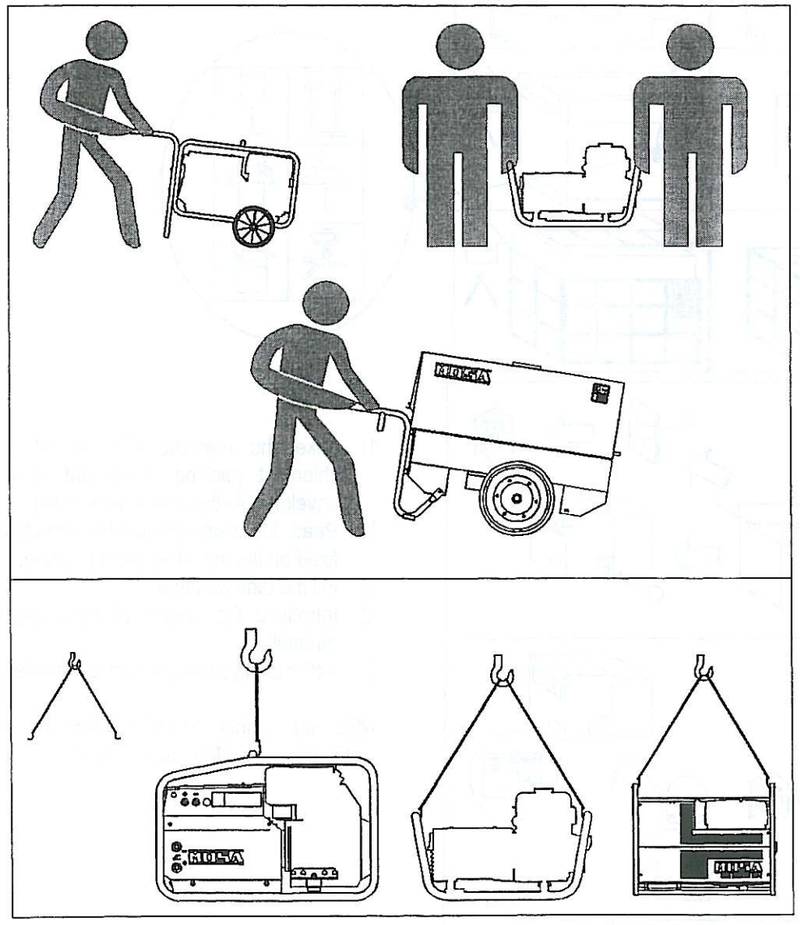
NOTE

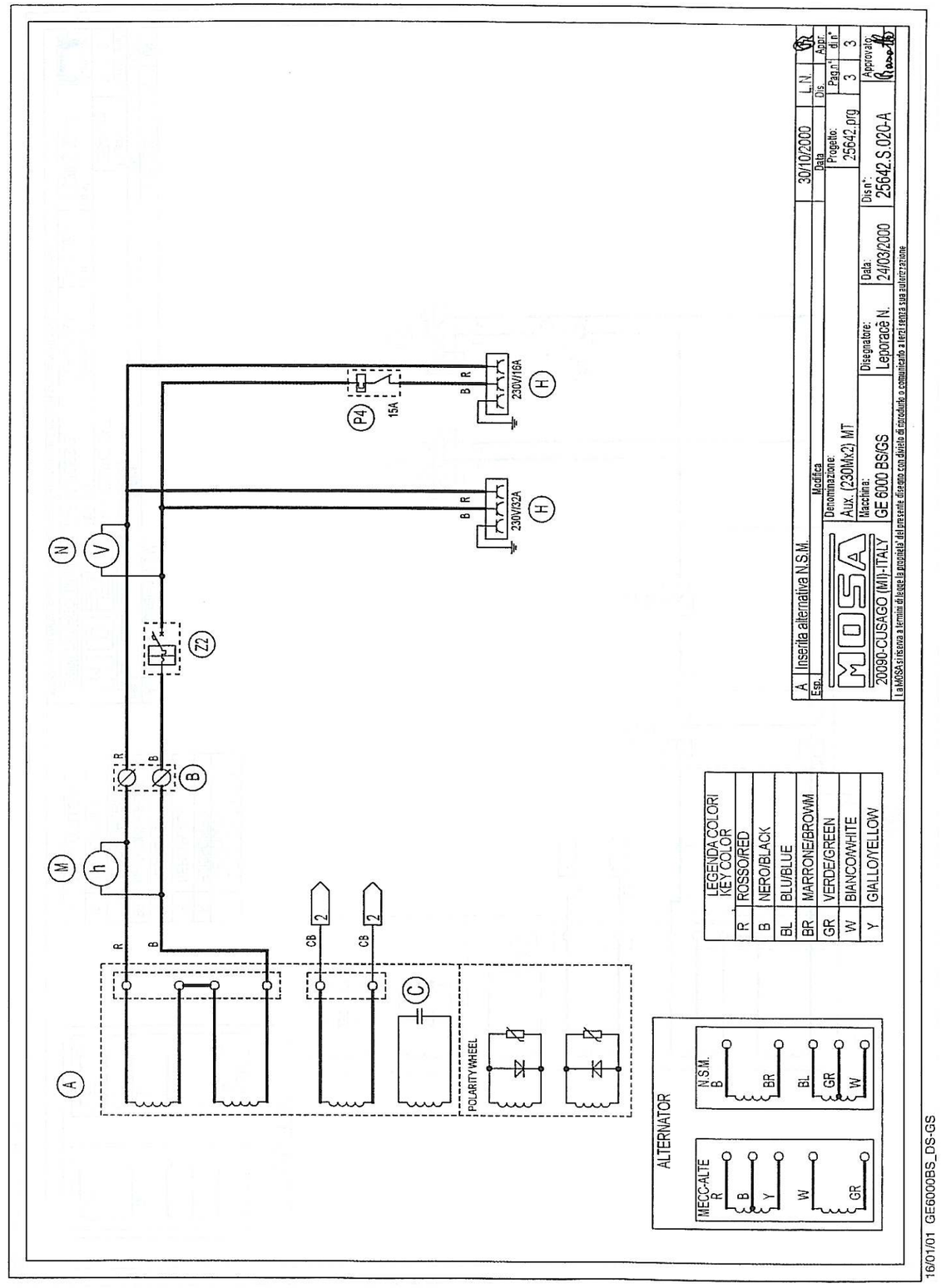
In case you should transport or move the machine, keep to the instructions as per the figures.

- 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.

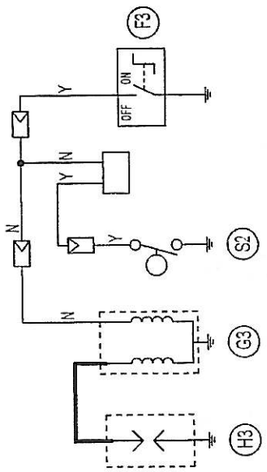
DO NOT LOAD OTHER PARTS WHICH CAN MODIFY WEIGHT AND BARICENTER POSITION.
IT IS STRICTLY FORBIDDEN TO DRAG THE MACHINE MANUALLY OR TOW IT BY ANY VEHICLE (model with no CTM accessory).
If you did not keep to the instructions, you could damage the structure of the machine.





MOTORI HONDA
HONDA ENGINES

AVVIAMENTO A STRAPPO
MANUAL RECOIL STARTER



	LEGENDA COLORI KEY COLOR
B	NERO/BLACK
Y	GIALLO/YELLOW

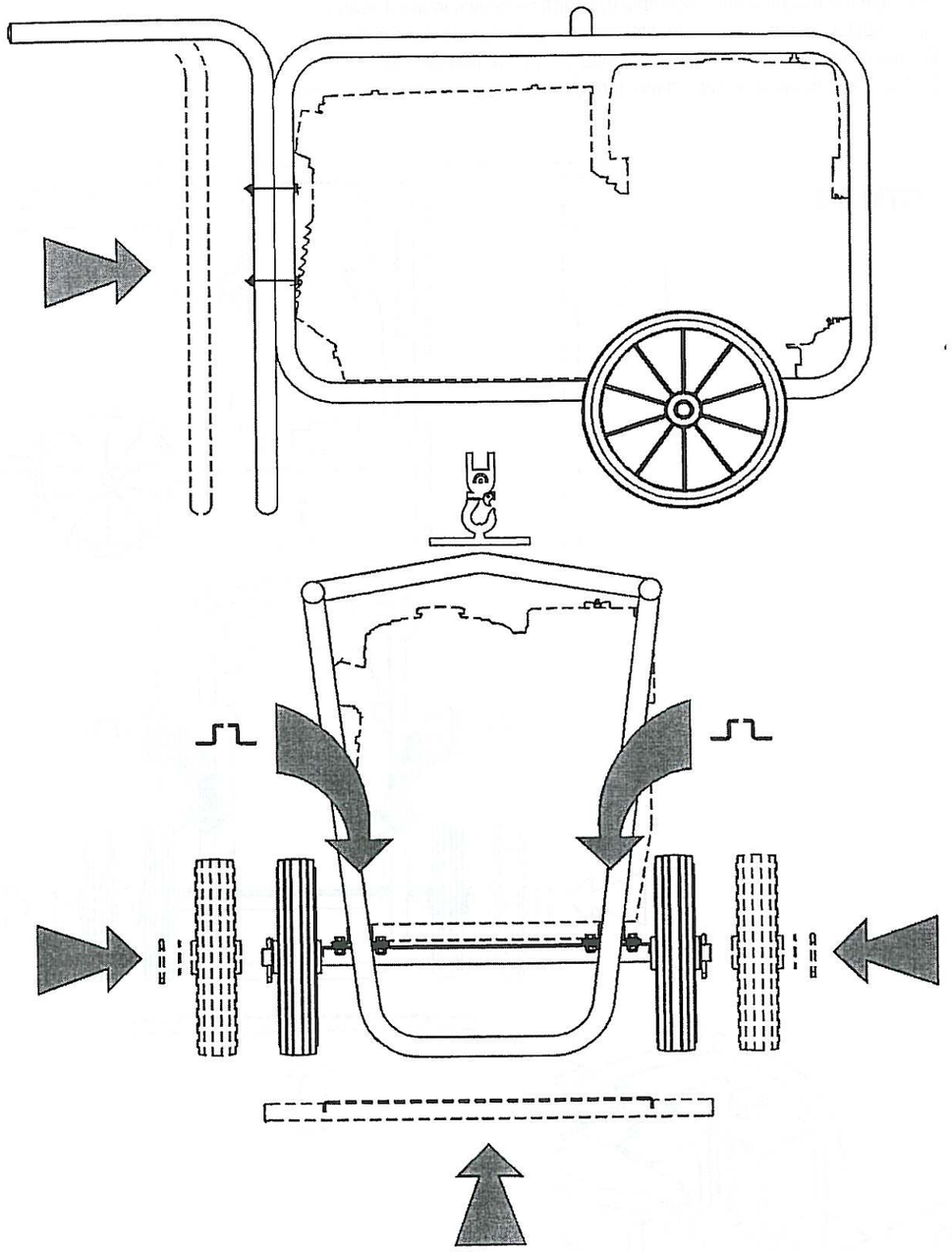
Modifica

Denominazione: Engine Honda (manual recoil starter-oil alert)
Macchina: --
Disegnatore: Leporace N.
Data: 20/12/2000
Dis n°: 23212.S.010
Progetto: 23212.prg
Pag.n°: 2
Dis. Approv. Data Esp. Appr. di n. -
Approvato

MOSA 20090-CUSAGO (MI)-ITALY
La MOSA si riserva a termini di legge la proprietà del presente disegno con divieto di riprodurlo o comunicarlo a terzi senza sua autorizzazione

16/01/01 GE6000BS_DS-GS

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

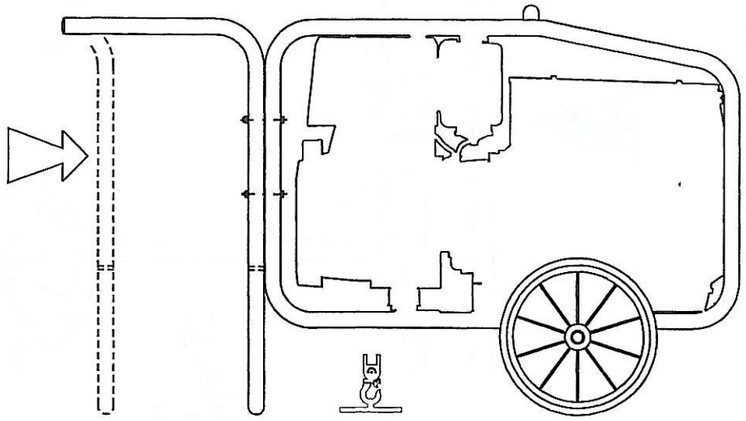


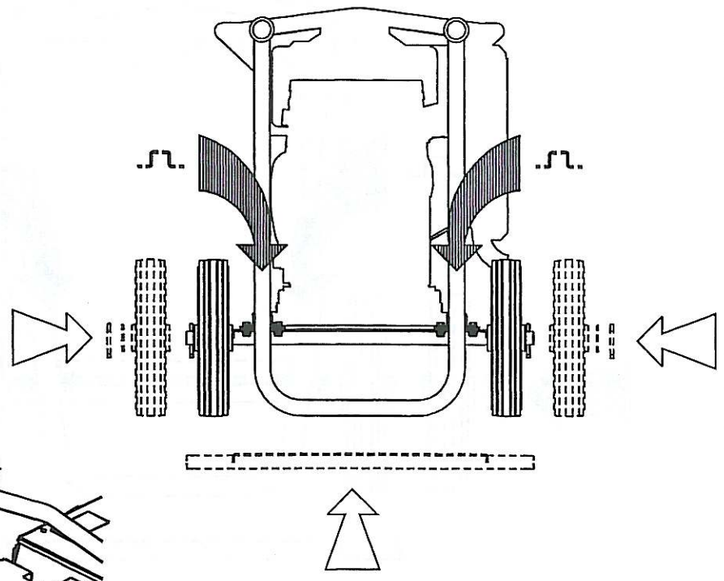
ATTENTION

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

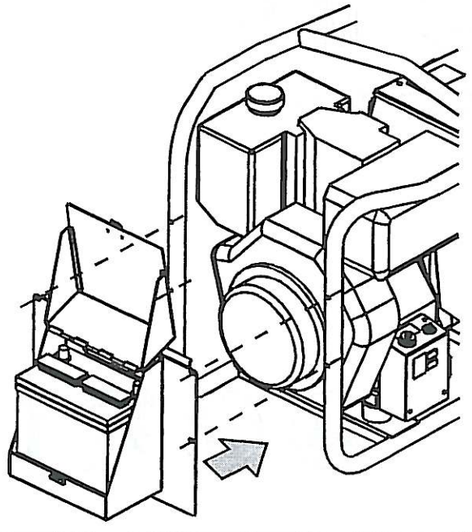
Nota: Sollevare la macchina e montare i particolari indicati in figura
Note: Lift the machine and assemble the parts as shown in the drawing
Note: Soulever la machine et monter les pièces indiquées dans la figure
Die Maschine heben und die Teile montieren, wie im Bild gezeigt
LET OP: Hijs de machine op en monteer de onderdelen zoals aangegeven.

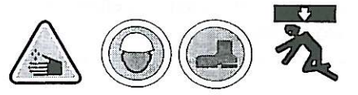
CTM 6/2

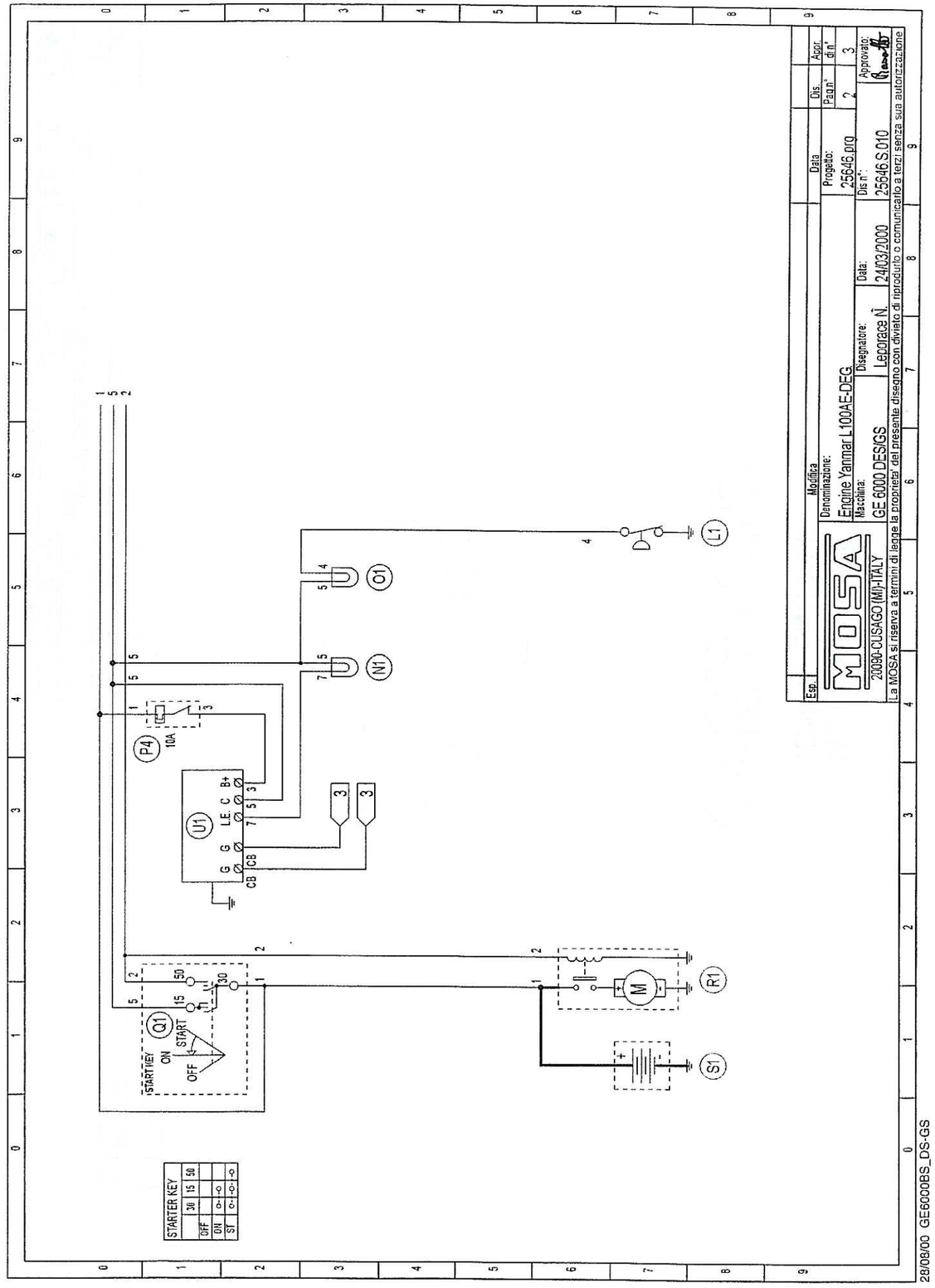




PB3







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

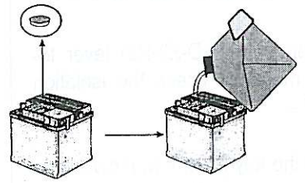
A5 : Base current switch
B5 : Auxiliary push-button ON/OFF
C5 : Accelerator electronic control
D5 : Actuator
E5 : Pick-up
F5 : Warning light, high temperature
G5 : Commutator auxiliary power
H5 : 24V diode bridge
I5 : Y/▲ commutator
L5 : Emergency stop button
M5 : Engine protection EP5
N5 : Pre-heat 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 feader
O6 :
P6 :
Q6 :
R6 :
S6 :
T6 :
U6 :
V6 :
Z6 :
W6:
X6
Y6 :

A7 :
B7 :
C7 :
D7 :
E7 :
F7 :
G7 : Reactor, 3-phase
H7 :
I7 :
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 :

BATTERY



Take the battery out of the machine.

Fill the battery (S1) to the maximum level with electrolyte. Wait for about 30 minutes and top up with electrolyte.
In case of spilled acid, rinse with water before putting the battery back into the machine and reconnecting 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.

LUBRIFICANT

Check the level of the engine oil using the oil dipstick. The level should be between the minimum and maximum marks. If necessary, add more oil.

If the air filter is of the oil bath type, fill it with the same oil up to the level indicated on the filter.

RECOMMENDED SAE VISCOSITY GRADES

For the type and viscosity of oil refer to owner's manual for the engine (supplied with the machine).

☞ ***NOTE:*** *Before starting the engine read the instructions in the owner's manual for the engine*

FUEL

Fill the tank with good quality diesel fuel.

☞ ATTENTION: Diesel fuel is highly inflammable; before filling the tank, stop the engine. Do not fuel in the presence of open flames.

If fuel is spilled on the engine, clean it immediately before starting up the engine.

COOLING LIQUID (Water-cooled engines only)

Pour the cooling liquid through the hole (24B) at the top of the radiator until it reaches the opening.
For the type of cooling liquid to be used and for maintenance of the cooling system, refer to the engine manual..

CLEANING OF DRY AIR FILTER

See page M43.

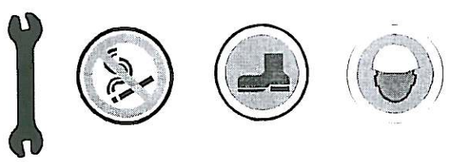
GROUND CONNECTION

A good ground is obligatory for all models with GFI (ground fault interrupter) / ELCB (earth leakage circuit breaker). These protective devices will not protect the operator unless there is a good ground.

☞ Use a good quality ground cable and connect it to the grounding point of the machine (12). Follow all local rules and/or regulations in force.

Machines with Isometer protection do not need to be grounded.

Once the above operations have been completed, the machine can be used.



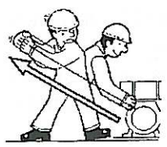
Check daily

NOTE

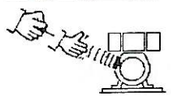
Do not alter the primary conditions of regulation and do not touch the sealed parts.

ENGINES WITH MANUAL RECOIL

Hold the starting handle firmly.



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

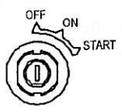


Then returning it slowly.

ENGINES WITH ACCELERATOR LEVER

Make sure that the accelerator lever or the switch (16) is at its minimum setting.

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



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.

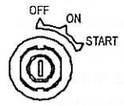
☞ NB.: **for safety reason the key must be kept by qualified personel.**

Once the engine has started leave it running at a reduced speed for some minutes.

Accelerate the engine at max., set lever on maximum position and then take up load.

ENGINES WITHOUT ACCELERATOR LEVER

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



Introduce the key (Q1), turn it clockwise completely, leaving it as soon as the engine starts.

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

Let the engine run for some minutes before drawing the load.

Open the fuel cock (where it is assembled).

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.

NOTE

The machines with E.P.1 engine protection device (D1), use the accelerator lever ONLY IN EMERCENCY when the engine protection does not work. In this case turn immediately to our Authorized Assistance Centers.

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 : 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 socket
Y1 : Remote control plug

A2 : Remote control welding regulator
B2 : E.P.2 engine protection
I2 : 48V a.c. socket
C2 : Fuel level gauge
D2 : Ammeter
E2 : Frequency meter
F2 : Battery charge trasformer
G2 : Battery charge PCB
H2 : Voltage selector switch
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

ENGINE WITH PREHEATING GLOW PLUGS

Turn the starter key (Q1) on the position "preheating glow plugs" (the glow plugs light will be on I4), when the light is off, turn the starter key completely clockwise until the engine begins to fire.
Let the engine run for some minutes before drawing the lood.

ENGINES WITH R.P.M. ELECTRONIC ADJUSTER (ONLY FOR GENERATING SET)

Turn the starter key (Q1) completely clockwise until the engine begins to fire.

☞ Wait for the AUTOMATIC preheating time before drawing the load

OCCASIONAL USE OF THE ENGINE

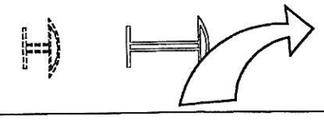
Using the engine in special conditions which need an immediate intervention, such as emergency plants, etc., use advise to use our Engine Assistance Centres for specific interventions or our Technical Assistance Service.

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

MACHINE WITH EMERGENCY BUTTON
Before starting the engine, make sure that the emergency button (32B) is off (turn the button clockwise for this operation).



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, *please follow the instructions on the engine use and maintenance manual..*

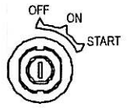
ENGINES WITH ACCELERATOR LEVER

☞ Make sure that the unit Is not supplying any power.

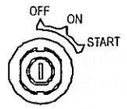
Disconnect the electrical protection device (2-43-43A) lever downward.

Set the accelerator lever or the switch (16) to minimum position and wait for a few minutes to allow the engine to cool, anyway follow the instructions contained in the engine manual.

Pull the stop lever (28) until the engine stops (where it is assembled).



Switch off the engine turning the starter key counterclockwise (14), "OFF" position.

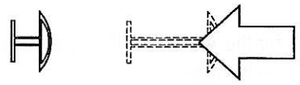


Switch off the engine turning the starter key counterclockwise (14), "OFF" position.

CAUTION

MACHINE WITH EMERGENCY BUTTON

Pressing it, it allows to stop the engine in any condition (32B) (when assembled).
To re-establish it, see page M21.



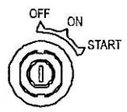
ENGINES WITHOUT ACCELERATOR LEVER

Make sure that the unit is not supplying any power.

Disconnect the electrical protection device (2-43-43A) lever downward.

Let the engine idle for a few minutes.

Press the pushbutton (32A) until the engine stops (where it is assembled).



Switch off the engine turning the starter key counterclockwise (14), "OFF" position.

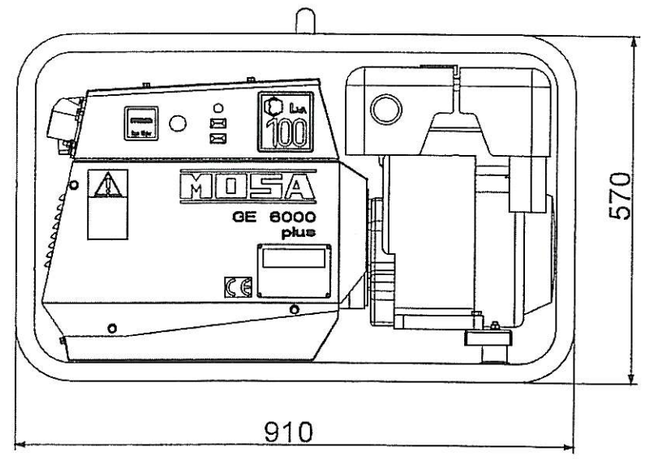
ENGINES WITH R.P.M. ELECTRONIC ADJUSTER (ONLY FOR GENERATING SET)

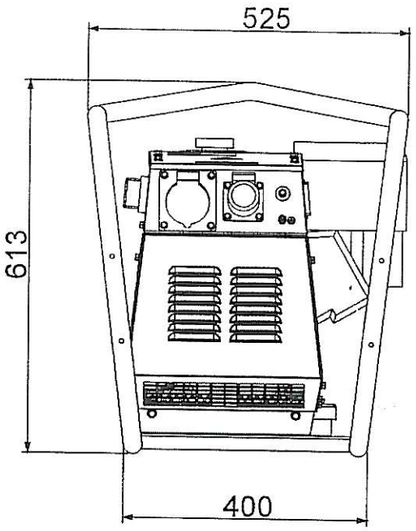
Make sure that the unit is not supplying any power.

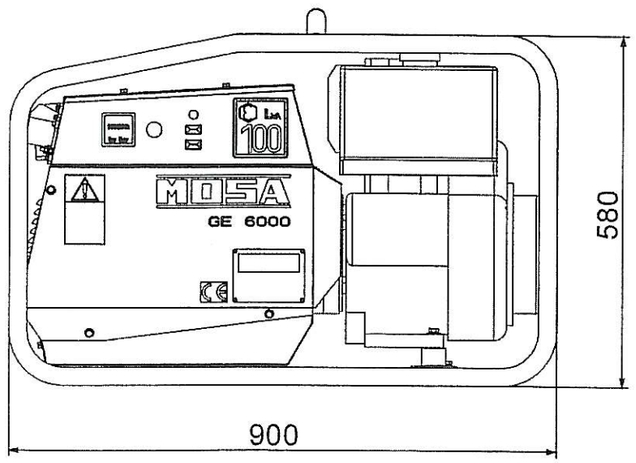
Disconnect the electrical protection device (2-43-43A) lever downward.

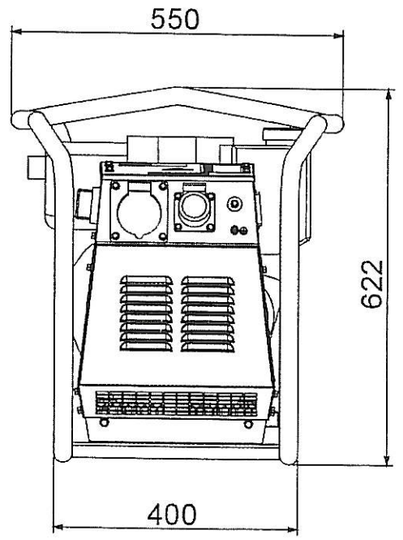
Let the engine idle for a few minutes.

Press the pushbutton (32A) until the engine stops (where it is assembled).









The generating sets GE 6000 - 6500 are units which transform the mechanical energy, generated by endothermic engine, into electric energy, through an alternator.

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

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

Technical data	GE 6000 DS-DES/GS	GE 6500 DS-DES/GS
A.C. GENERATOR	Self-excited, self-regulated, brushless	Autoeccitato, autoregolato, senza spazzole
Type	single-phase, synchronous	three-phase, synchronous
Frequency	50 Hz	50 Hz
Three-phase generation *	–	6,5 kVA / 400 V / 9,4 A
Single-phase generation	6,0 kVA / 230 V / 26 A **(32A)**	4,0 kVA / 230 V / 17,4 A (▲)
Single-phase generation	3,7 kVA / 230V / 16 A **(16A)**	2,0 kVA / 230 V / 8,7 A (**Y**)
Single-phase generation (Option)	6,0 kVA / 110 V(c.t.e.) / 54,5 A	-
Power factor (Cos φ) / Duty cycle	0,9 / 100 %	0,9 / 100 %
Insulating class	H	H
On request other voltages and frequences (60 Hz). * 1 hour every 12 hours.		
ENGINE	Diesel, 4-Stroke, air cooled	Diesel, 4-Stroke, air cooled
Type DS	Yanmar L100AE-DG	Yanmar L100AE-DG
DES	Yanmar L100AE-DEG	Yanmar L100AE-DEG
Output*(Δ)	6,5 kW (8,8 HP)	6,5 kW (8,8 HP)
Speed	3000 rpm	3000 rpm
Displacement	406 cm³	406 cm³
Cylinders	1	1
Fuel consumption	245 g/kWh	245 g/kWh
Engine oil capacity	1,6 l	1,6 l
* Maximum output according to ISO 3046/1.		
GENERAL SPECIFICATIONS		
Tank capacity	5,5 l	5,5 l
Running time	4,5 h	4,5 h
Protection	IP 23	IP 23
Dimensions / max. Lxwxh (mm) *	900x547x622	900x547x622
Weight DS	103 Kg	107 Kg
DES	104 Kg	108 Kg
Noise level**	100 LWA (75 dB(A))	100 LWA (75 dB(A))

* Dimensions and weight are inclusive of all parts without wheels and towbar. ** LWA conforms to EEC directives 536 (dB(A) at 7 m)

OUTPUT

The powers are guaranteed at 20°C and 1 bar pressure.
They are reduced in an **approximature** way:
of 1% every 100 m of altitude and of 2% for every 5°C above 20°C.
Up to an altitude of 1000 - 1300 m and in optimum climatic conditions (temperature, humidity, etc.), there are no notable setting variations. In particular climatic conditions for possible modifications or adjustments to be brought on the engined, please contact our Technical Assistance Centers.

ACOUSTIC POWER LEVEL

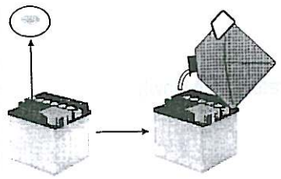
The machine respects the noise limits, expressed in sound power, given in the a.m. directives.
These limits can be used to judge the sound level produced on site.
For example: the sound power level of 100 LWA.
The sound pressure (noise produced) at 7 meters distance is about 75dBA (the limit value less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

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

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).

RECOMMENDED SAE GRADES OF VISCOSITY

For the oil type and the maintenance of the engine, see owner's manual attached.

☞ ***NOTE:*** *before starting and switching off, see instructions in the engine owner's 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.

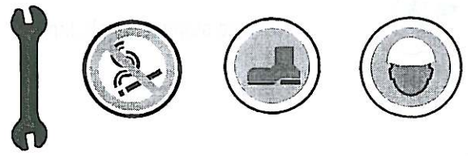
CLEANING OF DRY AIR FILTER

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 TT/TN/IT.

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



Check daily

NOTE

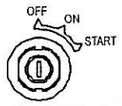
Do not alter the primary conditions of regulation and do not touch the sealed parts.

ENGINES WITH ELECTRIC START

Insert 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.

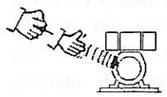
ENGINE WITH NO ELECTRIC START

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

(with 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.*

The generating sets GE 6000 - 6500 are units which transform the mechanical energy, generated by endothermic engine, into electric energy, through an alternator.

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

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

Technical data	GE 6000 BS/GS	GE 6500 BS/GS
A.C. GENERATOR	Self-excited, self-regulated, brushless	Self-excited, self-regulated, brushless
Type	single-phase, synchronous	three-phase, synchronous
Frequency	50 Hz	50 Hz
Three-phase generation *	–	6,5 kVA / 400 V / 9,4 A
Single-phase generation	6,0 kVA / 230 V / 26 A **(32A)**	4,0 kVA / 230 V / 17,4 A (▲)
Single-phase generation	3,7 kVA / 230V / 16 A **(16A)**	2,0 kVA / 230 V / 8,7 A (Y)
Single-phase generation (Option)	6,0 kVA / 110 V(c.t.e.) / 54,5 A	-
Power factor (Cos φ) / Duty cycle	0,9 / 100 %	0,9 / 100 %
Insulating class	H	H
On request other voltages and frequences (60 Hz). * 1 hour every 12 hours.		
ENGINE	Gasoline, 4-Stroke, air cooled	Gasoline, 4-Stroke, air cooled
Type	Honda GX 390	Honda GX 390
Output* (Δ)	8,4 kW (11,4 HP)	8,4 kW (11,4 HP)
Speed	3000 rpm	3000 rpm
Displacement	389 cm³	389 cm³
Cylinders	1	1
Fuel consumption	313 g/kWh	313 g/kWh
Engine oil capacity	1,1 l	1,1 l
* Maximum output according to ISO 3046/1.		
GENERAL SPECIFICATIONS		
Tank capacity	6,5 l	6,5 l
Running time	3 h	3 h
Protection	IP 23	IP 23
Dimensions / max. Lxwxh (mm) *	910x525x613	910x525x613
Weight	85 kg	88 kg
Noise level **	99 LWA (73 dB(A))	99 LWA (73 dB(A))

* Dimensions and weight are inclusive of all parts without wheels and towbar. ** LWA conforms to EEC directives 536 (dB(A) at 7 m)

OUTPUT

The powers are guaranteed at 20°C and 1 bar pressure.
They are reduced in an **approximature** way:
of 1% every 100 m of altitude and of 2% for every 5°C above 20°C.
Up to an altitude of 1000 - 1300 m and in optimum climatic conditions (temperature, humidity, etc.), there are no notable setting variations. In particular climatic conditions for possible modifications or adjustments to be brought on the engined, please contact our Technical Assistance Centers.

ACOUSTIC POWER LEVEL

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

$$dBA_X = dBA_Y + 10 \log \frac{ry^2}{rx^2}$$

At 4 meters the noise level becomes:

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

☞ 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

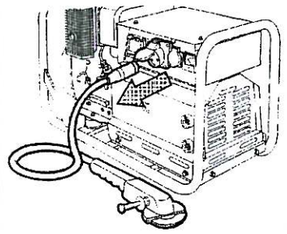
NOTE: MOSA is involved with custing off the machine **only** for the second hand ones, when not reparable.
This, of course, after authorization.

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

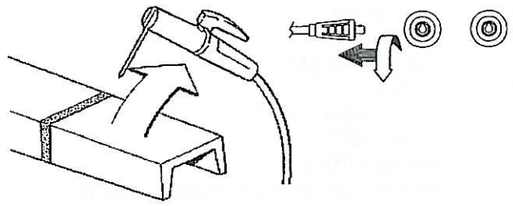
IMPORTANT

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.

☞ 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).

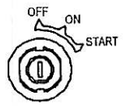


ENGINES WITH ELECTRIC START

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.: **for safety reason the key must be kept by qualified personel.**

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
13	Battery charge warning light
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
32B	Emergency stop
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 circuit breaker
59A	Engine circuit breaker
59B	Aux current circuit breaker
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
82	Pre-heat push-button
86	Selector
87	Fuel valve
A3	Insulation monitoring
A4	Button indicating light 30 l/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
H2	Voltage commutator
H6	Fuel electro pump
I2	48V A.C. socket
I3	Welding scale switch
I4	Preheating indicator
I5	Switch Y/▲
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	Switch CC/CV
N	Voltmeter 300V A.C.
N2	Thermal-magnetic circuit breaker/Ground fault interrupter
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
T	Welding current regulator
T4	Dirty air filter warning light
T5	Earth leakage relay
U	Current trasformer
U3	R.P.M. adjuster
U4	Polarity inverter remote control
U5	Relase coil
V4	Polarity inverter control
V5	Oil pressure indicator
W1	Remote control switch
W3	Selection push button 30 l/1' PTO HI
W5	Battery voltmeter
X1	Remote control socket
Y3	Button indicating light 20 l/1' PTO HI
Z2	Thermal-magnetic circuit breaker
Z3	Selection push button 20 l/1' PTO HI
Z5	Water temperature indicator

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.

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.

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 brushes)

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.*

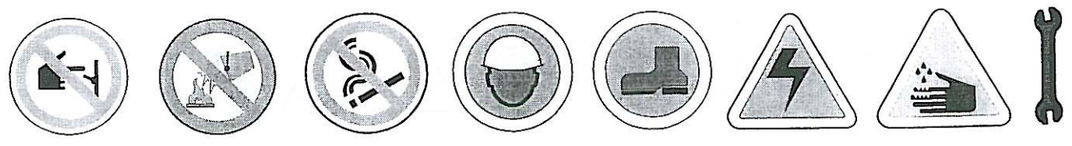
Check periodically the condition of the cables and tighten the connections.

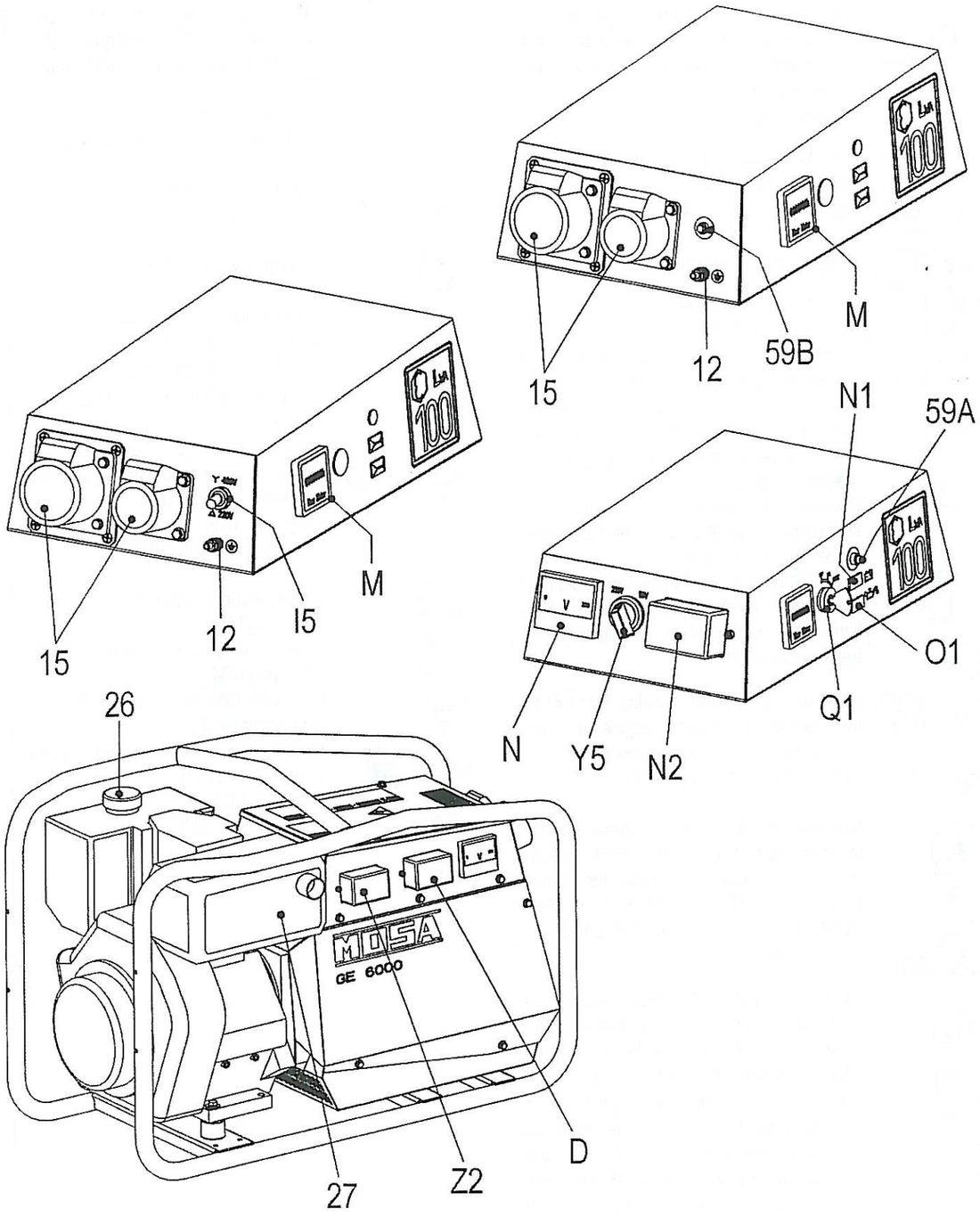
In case the machine should not be used for more than 30 days, make shure that the room in which it is stored presents a suitable shelter from heat sources, weather changes or anything which can cause rust, corrosion or damages to the machine.
See page M45.

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

IMPORTANT

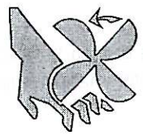
In the maintenance operations avoid that polluting substances, liquids, exhausted oils, etc. bring damage to people or things or can cause negative effects to surroindings, health or safety respecting completely the laws and/or dispositions in force in the place.





According to the version of the machine on the front panel there are assembled some instruments:	
3~ CEE 1~ CEE	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);
D MT T MTD	GFI (D), Thermal magnetic circuit breaker (Z2) (TS...PL: : one for each auxiliary socket) or Thermal magnetic circuit breaker/GFI (N2);
V	voltage selector switch (H2);
R<	insulation monitoring (A3) - See page M 39.10 -;
h	hour-counter (M), which indicates the hours of effective operation of the unit;
FUSE	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);
A	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);
Hz	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;
ONLY GOUGING	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);
ARC FORCE	welding current regulator (T) and/or "arc force" selector (F6) - See pag. M34 -1;
100% XXX A min	welding scale switch (I3);
Polarity switch	polarity inverter control (V4); - See pag M34 -1;
ON OFF	cellulosic electrodes control (68); - See pag M34 -1;
FUSE	Protection fuse for welding PCB, welding ammeter (S);
ON OFF	remote control switch (7) and remote control socket (X1) - See pag M38 .... -;
CC CV	switch CC/CV (M6) - See pag M34 -1; -

WARNING



MOVING PARTS can injure

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

- See pag. M1.1 -

HOT surface can hurt you

MAINTENANCE OF THE MACHINE

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 repair of the machine, the substitution of defective parts and the substitution of parts, which have been consumed in normal use, are not considered maintenance.

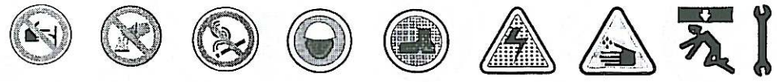
The substitution of tires is considered a repair rather than maintenance since the machine is not supplied with the necessary tools to change the tire.

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 OF THE "EP-ES-PM" TYPE DO NOT WORK WHEN THE OIL IS OF LOW QUALITY BECAUSE NOT CHARGED REGULARLY AT INTERVALS AS PRESCRIBED IN THE OWNER'S ENGINE MANUAL.



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 box If there is no output from the auxiliary leads check the condenser box. If it is OK replace the stator.
SYNCHRONOUS ALTERNATORS		
No output	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) Balais usés	6) Worn out brushes can damage the brush holder and/or collector.

☞ ***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

*Keep out from exhaust system: temperature is **very** high and it may burn.*

☞ 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 M20, 21, 22, 25, 26, 27 -.

Move the accelerator lever (16) and reach the engine maximum speed, except for the engines with constant rpm; the voltmeter (N) (where it is assembled) shows the single-phase voltage whether three or single-phase current has to be drawn.

Nominal voltage	Indicative no-load voltage	
	asynchronous	synchronous (*)
110V	±10%	±5%
230V	±10%	±5%
230V	±10%	±5%
400V	±10%	±5%

*N.B.: with electronic tens. regul. RVT ±1%

Connect up the machine, using proper plugs and cables in good condition to the AC socket (15) to draw single or three-phase power, or, by cables with adeguate section, to the terminal board, placed inside the derivation box (Q3).

The warning light (L), located near the current socket, lights up when the unit can supply alternated current, on condition that the engine is at the maximum rpm.

☞ N.B.: if the warning light does not flash, check the accelerator which must bebat its maximum, or the fuse of the relevant socket. (single-phase) or the thermoprotection.

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

To draw power simultaneously in the TS welder version see page M52.

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

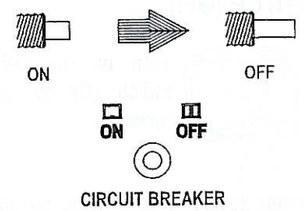
⚠ CAUTION

The replacement of the fuse must absolutely, be done with the engine off (remove the mechanical protection, then shift down the small lever of the fuse holder placed on the front panel).

MACHINE WITH THERMOPROTECTION

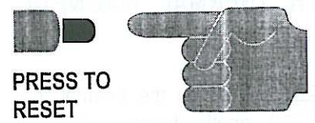
If you overload the genset the thermoprotection will automatically switch off.

If the thermoprotection is released, disconnect all the connected loads.



CIRCUIT BREAKER

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.

TS ... PL VERSION

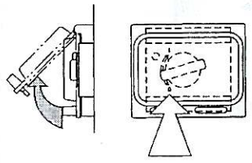
Start the machine and wait for the end of the preheating time imposed by the EP1, EP2, EP5 engine protection device. - See pages M39... -
Press the "generation possibility" push button (B5) placed on the font side of machine.
The voltmeter will show the auxiliary voltage which, for machines at 1500/1800 RPM, must. be approx. ≈230V ± 10% and for machines at 3000/3600 RPM (engine idling) must. be approx. ≈180V ± 10%.

Push upwards the lever of magnetothermic switch reffering to the socket from which load is to be drawn.

MACHINE WITHOUT PROTECTIVE DEVICE

In case machine is not equipped with protective device of indirect contacts, by means of automatic breaking of supply, it **is necessary** to put between the load and the generation a differential switch or a similar equipment capable, in any case, to observe the regulations in force CEI 64/8 (and/or successive) Part 4 Par. 4.13.1 and harmonzed by directive Nr. 72/23/EEC.

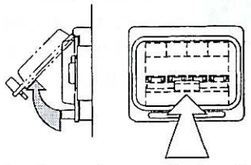
UNIT FITTED WITH GROUND FAULT INTERRUPTER SWITCH (GFI)



Turn on the GFI safety-switch (D) by pushing it 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.

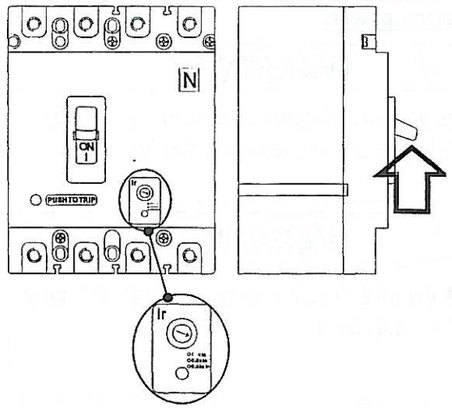
UNIT FITTED WITH THERMAL MAGNETIC BREAKER



Turn on the thermal magnetic breaker (Z2) by pushing it to the ON position.

The thermal-magnetic breaker 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 short circuit or a current absorption occurs above the data specified on the label of the unit.
In the model with setting DO NOT INTERVENE on the setting itself. To modify it, please contact our Technical Assistance Service.

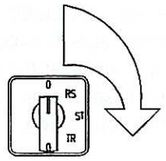
UNIT FITTED WITH GFI SWITCH THERMAL MAGNETIC BREAKER



This switch includes the characteristics of both types of breakers (N2).

UNIT WITH VOLTMETRIC COMMUTATOR (ONLY FOR GENERATING SET)

☞ **WARNING:** the possible single-phase loads must be correctly divided in the three phases, in order to avoid any possible voltage fall on one phase that results excessively loaded.
Check the voltages on the various phases with the switch located on the front (H2) and check, reading on the voltmeter (N) about the same voltage value

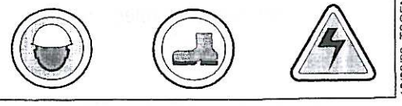


Controllare le tensioni sulle varie fasi selezionate con il commutatore posto sul frontale (H2) e controllare leggendo sul voltmetro (N), circa, lo stesso valore di tensione.

☞ N.B.: in case of overload, it is possible that the engine lowers its speed and the voltage is reduced remarkably. In this case, it is necessary to reduce immediately the load.

CAUTION

For machines at 3000/3600 RPM the EP1 safety device will automatically provide to accelerate engine when load is drawn.
- See page M39.1 -



MAKE SURE

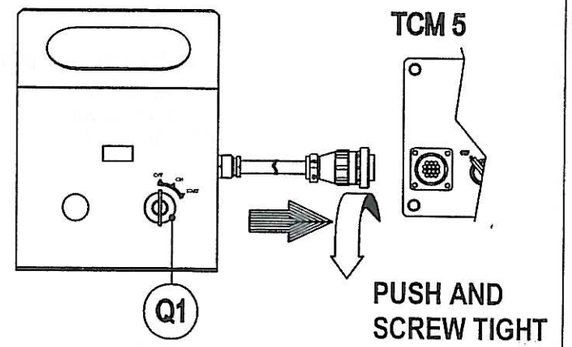
When the TCM 5-5D-6 is used, it is not possible to connect the E.A.S automatic intervention unit.

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)

N.B.: To stop the set, you have to turn the key to "ON" position.

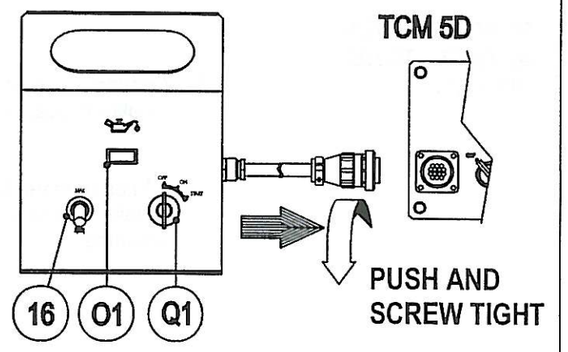


USE OF THE REMOTE CONTROL TCM 5D

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".