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USE AND MAINTENANCE MANUAL
SPARE PARTS CATALOG

12/12/00 10804M00
preparato da UPT
approvato da DITE

IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

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

BCS S.p.A.

Head Office and Operative Unit: **Viale Mazzini, 161 - I-20081 Abbiategrasso (MI)**
(BCS – FERRARI – PASQUALI Trade Marks)
Operative Units
Via Valbrina, 17/19 - I-42045 Luzzara (RE) - (BCS – FERRARI – PASQUALI Trade Marks)
Viale Europa, 59 - I-20090 Cusago (MI) - (Mosa Trade Mark)

for the following field of activities

Design, production and servicing of tractors, agricultural and green maintenance machines.
Design, production and servicing of engine driven welders and generating sets.

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard

ISO 9001:2000

Issued on: **2006-03-06**
Validity date: **2009-03-05**
Registration Number: IT-3722

Fabio Roversi
President of IQNet

Gianrenzo Prati
President of CISQ

IQNet Partners*:
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CISQ is a member of IQNet

ICIM
www.icim.it

CERTIFICATO n. 0192/4
CERTIFICATE No.

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

BCS S.p.A.

UNITA' OPERATIVE
OPERATIVE UNITS

Sede e Unità Operativa
Viale Mazzini, 161 - 20081 Abbiategrasso (MI)
(marchi BCS – FERRARI – PASQUALI)
Unità Operative
Via Valbrina, 17/19 - 42045 Luzzara (RE)
(marchi BCS – FERRARI – PASQUALI)
Viale Europa, 59 - 20090 Cusago (MI)
(marchio MOSA)
Italia

E' CONFORME ALLA NORMA
IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2000

PER LE SEGUENTI ATTIVITA'
FOR THE FOLLOWING ACTIVITIES

EA: 18

Progettazione, produzione ed assistenza di trattori, macchine per agricoltura e manutenzione del verde. Progettazione, produzione ed assistenza di motosaldatrici e gruppi elettrogeni.

Design, production and servicing of tractors, agricultural and green maintenance machines. Design, production and servicing of engine driven welders and generating sets.

Riferirsi al Manuale della Qualità per l'applicabilità dei requisiti della Norma ISO 9001:2000.
Refer to Quality Manual for details of application to ISO 9001:2000 requirements.

Il presente certificato è soggetto al rispetto del regolamento per la certificazione dei sistemi di gestione per la qualità della azienda.
The use and the validity of this certificate shall satisfy the requirements of the rules for the certification of company quality management systems.

Data emissione *First issue*	Emissione corrente *Current issue*	Data di scadenza *Expiring date*
30/05/1994	06/03/2006	05/03/2009

ICIM S.p.A. – PIAZZA A. DIAZ, 2 – 20123 MILANO

SINCERT

CISQ is the Italian Federation of management system Certification Bodies

FEDERAZIONE CISQ

UNI EN ISO 9001 : 2000

ISO 9001:2000 - Cert. 0192

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

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

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

The advantages for MOSA clients are:

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

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

14/09/00 10804-GB

⚠ ATTENTION

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

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

MOSA

INFORMATION

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

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

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

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

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

NOTES ABOUT THE MANUAL

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

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

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

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

INFORMATION OF GENERAL TYPE

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

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

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

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

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

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

- to the directives
CEE 73/23 and 93/68 (low voltage)
CEE 89/336, 92/31 and 93/68 (electro-magnetic compatibility)

Norms of reference:
CEI EN 60439-1
CEI EN 50081-1
CEI EN 50082-1
CEI EN 50081-2
CEI EN 50082-2

Conformity::
EEC directives 73/23 and 93/68 (low voltage)
EEC directives 89/336, 92/31 and 93/68 (EMC)
Date of stamp apposition: 01/01/96

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

SYMBOLS IN THIS MANUAL

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

IMPORTANT ADVICE

- Advice to the User about the safety:

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

WARNING

Situations of danger - no harm to persons or things

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

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

SAFETY PRECAUTIONS

DANGEROUS

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

WARNING

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

CAUTION

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

IMPORTANT

NOTE

ATTENTION

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

SYMBOLS (for all MOSA models)

STOP - Read absolutely and be duly attentive

Read and pay due attention

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

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

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

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

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

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

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

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

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

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

ACCES FORBIDDEN *to non authorizad* peaple.

PROHIBITIONS No harm for persons

Use only with safety clothing -

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

Use only with safety clothing -

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

Use only with safety protections -

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

Use with only safety material -

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

Use only with non inserted voltage -

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

No smoking -

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

No welding -

It is forbidden to weld in rooms containing explosive gases.

ADVICE No harm for persons and things

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

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

Use only with safety protections, specifically suitable

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

Use only with safety protections -

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

Use only with safety protections -

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

Use only with safety protections -

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

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

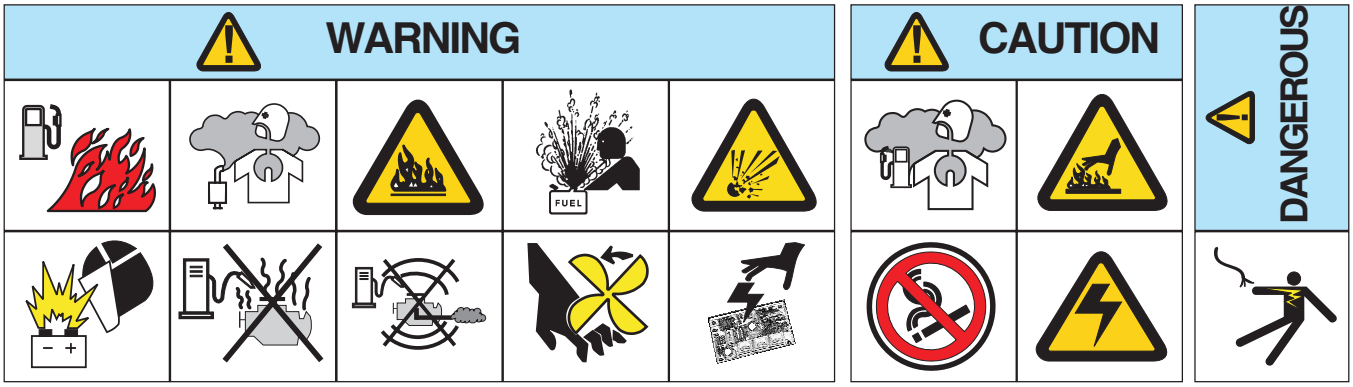
ENGINE	CHECKING BOARD
Stop engine when fueling	Do not touch electric devices if you are barefoot or with wet clothes.
Do not smoke, avoid flames, sparks or electric tools when fueling.	
Unscrew the cap slowly to let out the fuel vapours.	Always keep off leaning surfaces during work operations
Slowly 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.	Static electricity can demage the parts on the circuit.
Do not fill tank completely.	
Wipe up spilled fuel before starting engine.	An electric shock can kill
Shut off fuel of tank when moving machine (where it is assembled).	
Avoid spilling fuel on hot engine.	
Sparks may cause the explosion of battery vapours	

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

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

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

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



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

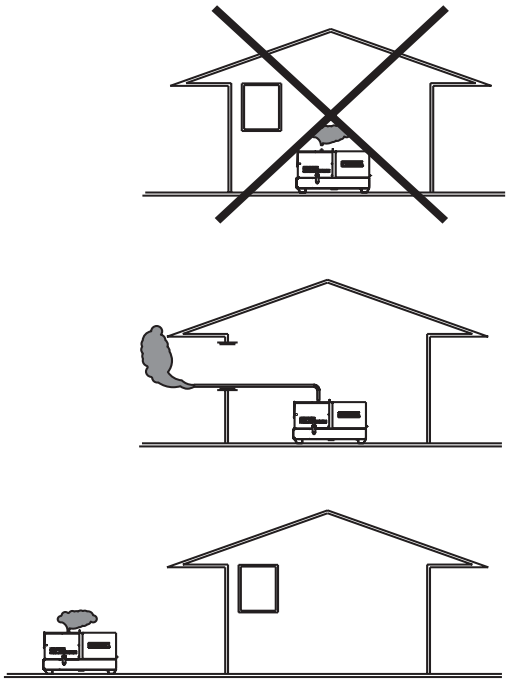
INSTALLATION AND ADVICE BEFORE USE

GASOLINE ENGINES

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

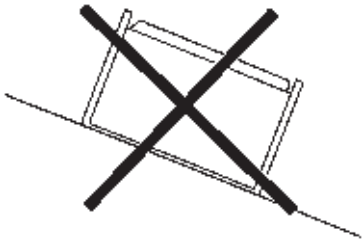
DIESEL ENGINES

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

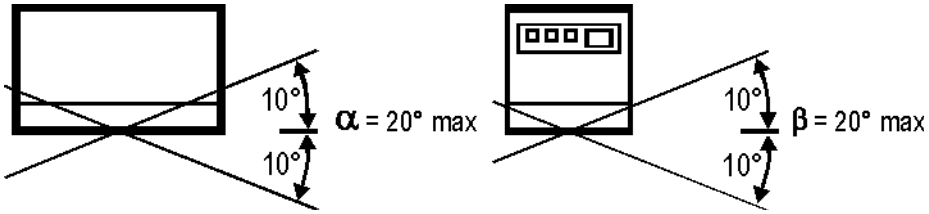


POSITION

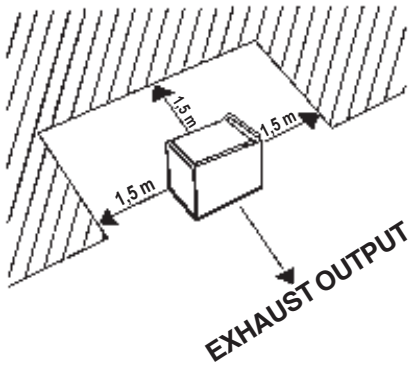
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



Maximum leaning of the machine (in case of dislevel)



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



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

MOVES OF THE MACHINE

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

PLACE OF THE MACHINE

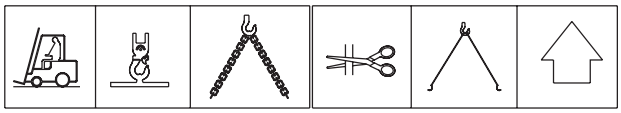
In spots where it often rains and/or there are flooded areas, do **not** put the machine:

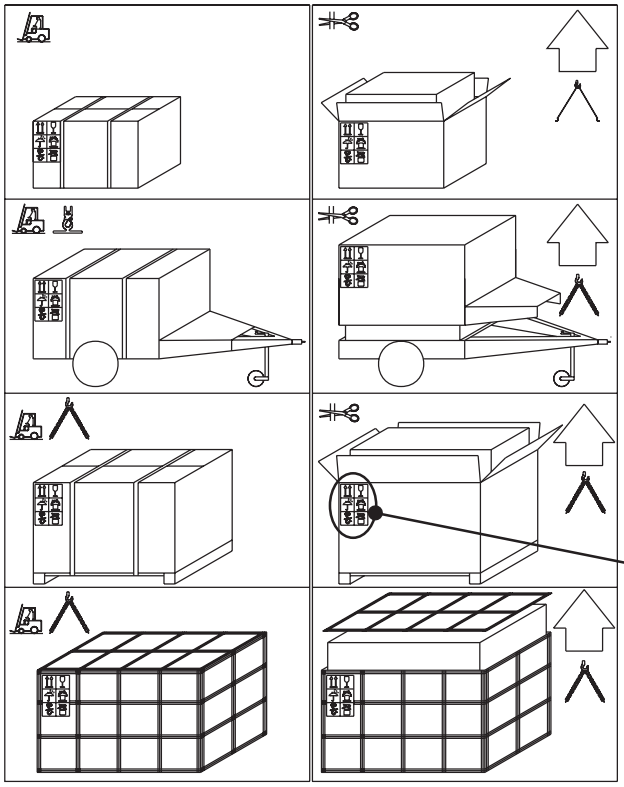
- *in the bad weather*
- *in flooded places.*

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

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

NOTE



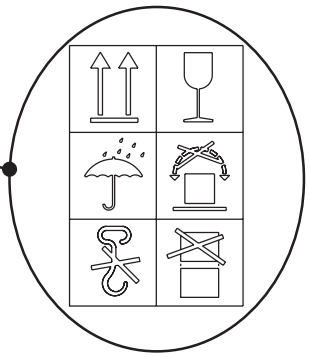


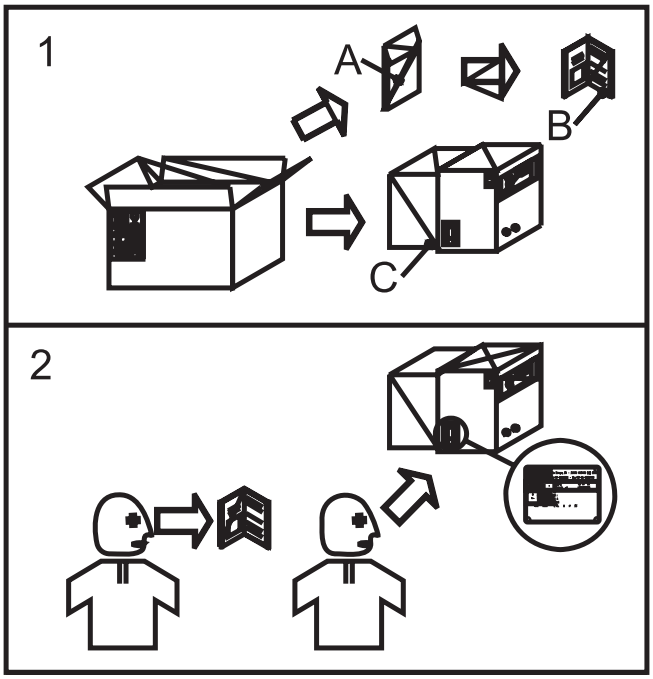
☞ Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conforms to local rules and regulations.

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

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

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





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

WARNING

- All operations concerning the installation, maintenance and trouble shooting must be carried out by skilled personnel in conformity with local norms and laws in force.
- For general advice on the machine installation refer to generating set manual - SEE PAGE M 2 and following -
- For presetting, starting, stopping the machine - SEE PAGE M 20 and following -
- For using the machine - SEE PAGE M 32 and following -
- For maintenance of the machine - SEE PAGE M 43 and following -

⇒ Any connection operation between mains and EAS Unit, and EAS Unit with generating set must be effected without any type of inserted voltage (also in DC).

- Use for the connections antiflame cables of suitable section which respect anyway the local installation regulations and/or laws in force.
- Supply cables must be sized and placed so that the cable does not attain to temperatues of 50°C over room temperature.
- It is necessary to check that no cables have loosened at the respective terminals and to remove any dust or other materials which have fouled the Unit during installation. The cleaning must be done by means of an exhauster, avoiding in any case blowing dust off the Unit with air.
- Connections to the terminal board must be done using a cable of correct section, respecting carefully the electric diagram.
- Position the unit in a well protected dry place, far from water, heat sources and risky areas (gas which in case of possible electric shocks can explode and/or others).

⇒ It is **compulsory** to connect the ground connection point (12) by means of a safe efficient cable (please keep to the installation local rules and/or regulations in force) to integrate or ensure the work of various electric protection devices referring to the several distribution systems TT/ TN/IT.

- Pay attention to the degree of protection of the unit in the choice of the installation position.

- Do not place the unit too near other electronic machines and/or devices able to generate strong electro-magnetic fields.

While placing the cables pay attention that the cables of the auxiliary circuits are kept well distinct from the power ones, avoiding that they could be in a same sheather and/or twisted between each other.

- For connections longer than the distance permitted by the standard cable, please see our Technical Service.
- Make sure that the battery cables are connected.
- It is advisable to install at mains entrance a GFI and a circuit breaker, anyway always in the observance of the local regulations and/or laws in force.
- To open the unit use the proper tool supplied with the unit for only skilled personnel (E.A.S. 3 22).

BATTERY

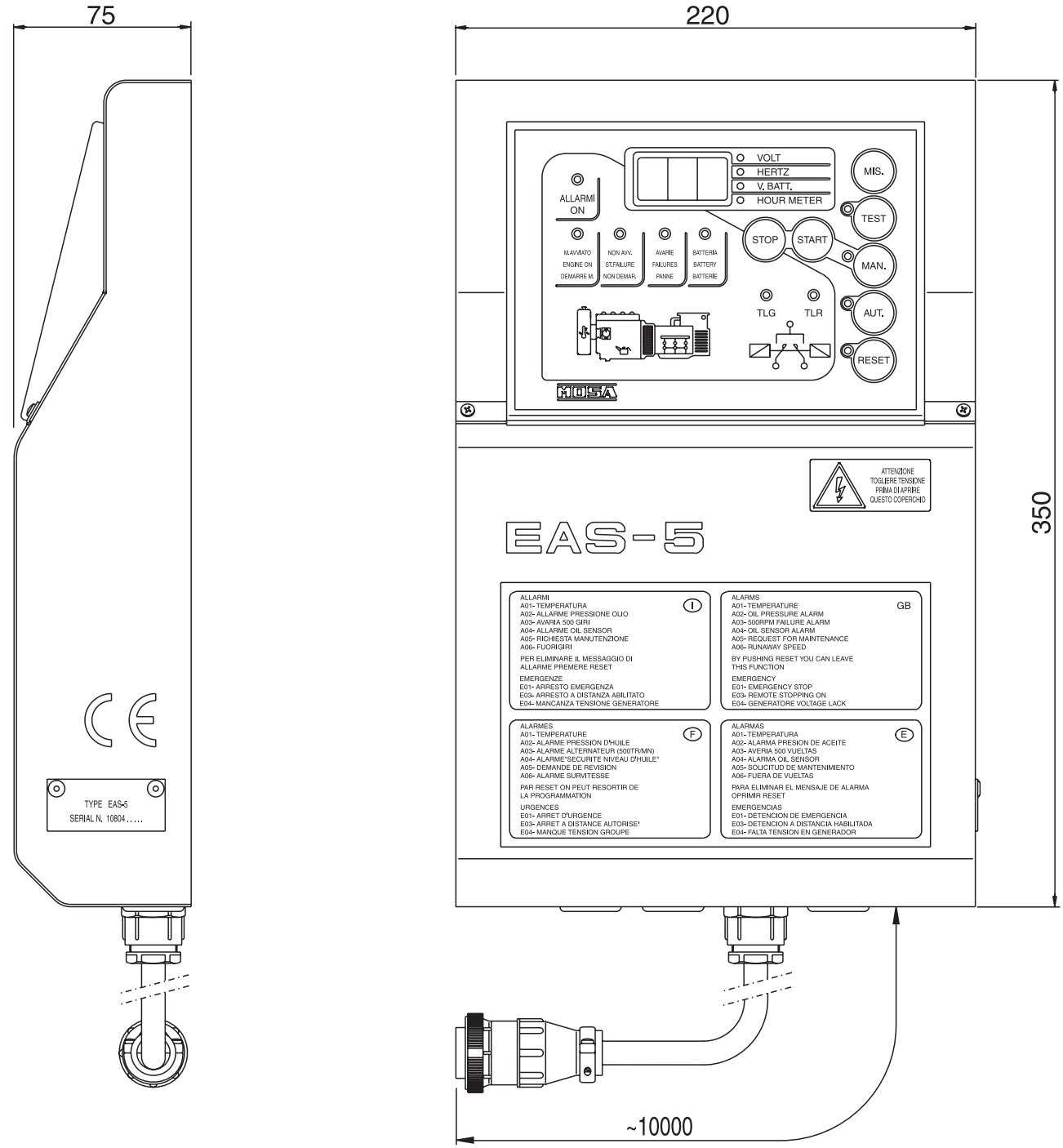
Fill the battery (S1) to the maximum level with electrolyte. Wait for about 30 minutes and top up with electrolyte.

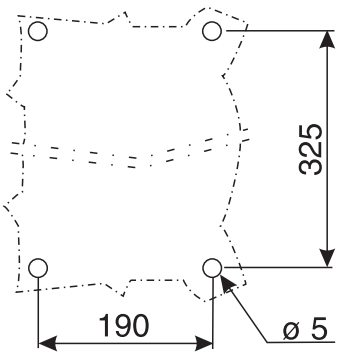
Sulfuric acid is corrosive.
Protect hands, eyes and *clothes,* ....

NB: the starting key (14) of the generating set, connected with the EAS Unit 5D-22-40-70-110, must remain in “OFF” position., for the EAS Unit 5 in “ON” position.

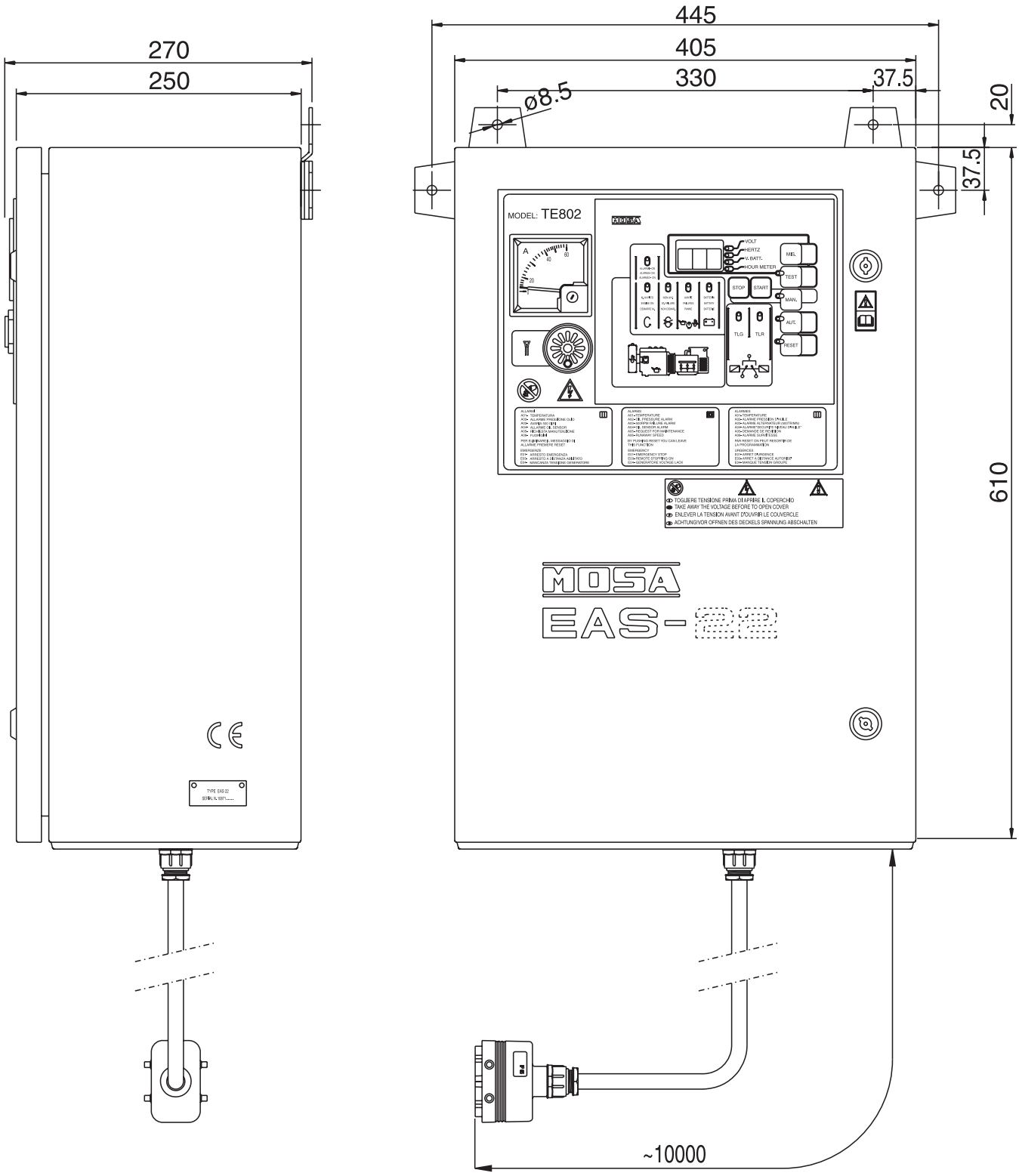
⇒ **NB:** check once a year all warnings and decals ; if they were illegible and/or missing, REPLACE THEM. Check periodically the state of the electric wires and their fixing.

⇒ **These sets have been manufactured to avoid radio-frequency which could jam domestic or industrial equipments.**





DIMA DI FORATURA
DRILLING JIG
REPERES DE PERCAGE
BOHRSCHABLONE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MODEL: TE802
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MIS.
TEST
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TLG
TLR
TOGLIERE TENSIONE PRIMA DI APRIRE IL COPERCHIO
TAKE AWAY THE VOLTAGE BEFORE TO OPEN COVER
ENLEVER LA TENSION AVANT D'OUVRIR LE COUVERCLE
ACHTUNG!VOR OFFNEN DES DECKELS SPANNUNG ABSCHALTEN
MOSA
EAS-
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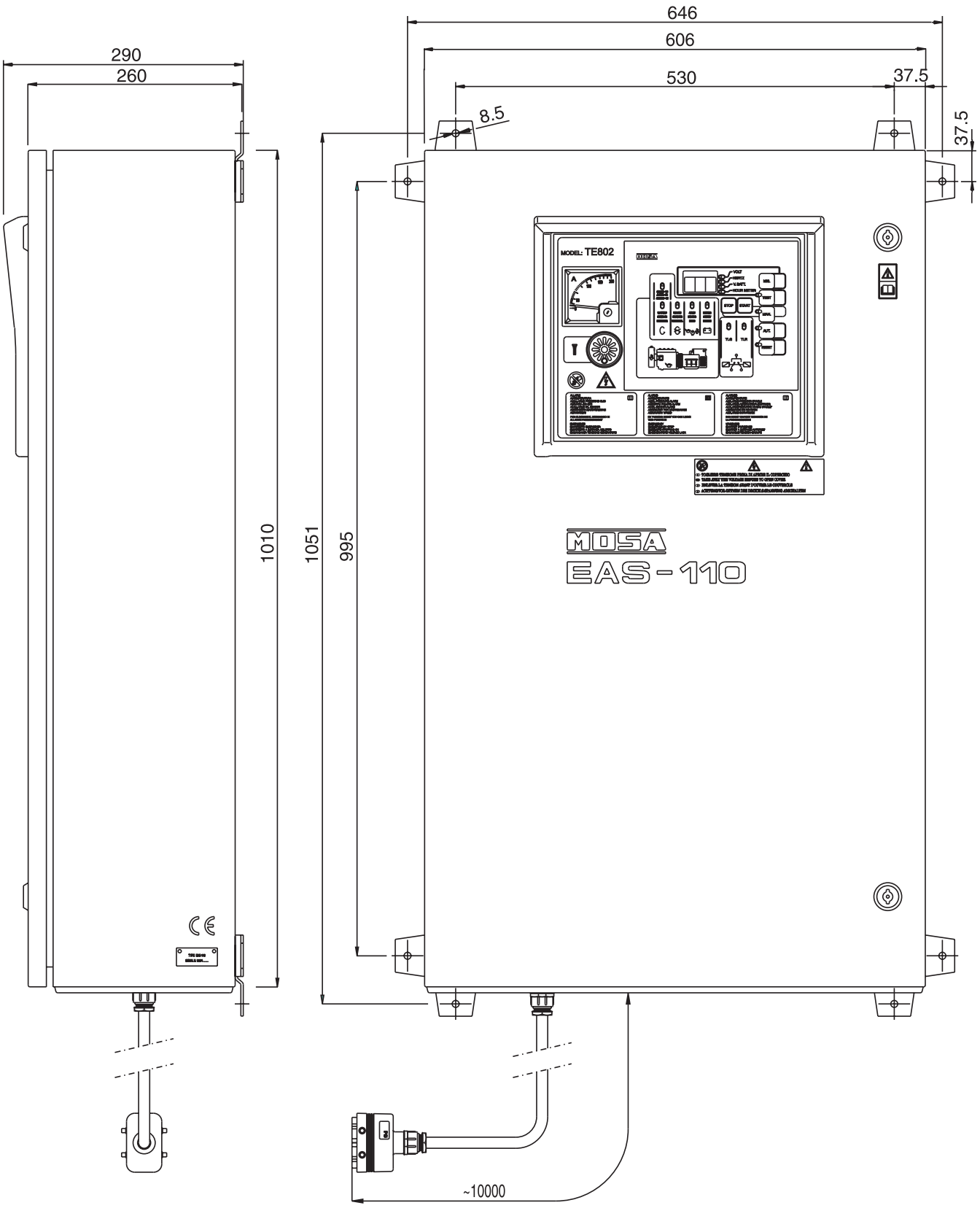
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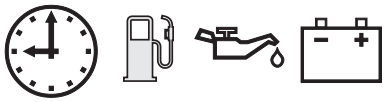
ATTENTION

For all operations concerning the generating set, see specific manual (check fuel, oil, battery, etc.).



- EAS UNIT/GENERATING SET
  Install the EAS Unit and the generating set, paying attention that the distance between them should be suitable for the length of the standard multipolar connection cable.

- EAS UNIT/GENERATING SET (checking)
  Connect the plug of the connection cable with the corresponding fixed receptacle (B3) placed on the generating set..

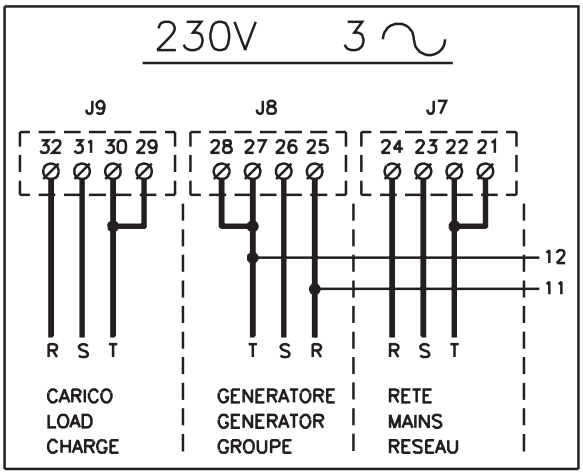
- EAS UNIT/GENERATING SET (power)
  Connect the generating set with the EAS Unit respecting the numbers of the wires with those of the terminals on the single phase, three phase sockets or on the terminals of the feed box.

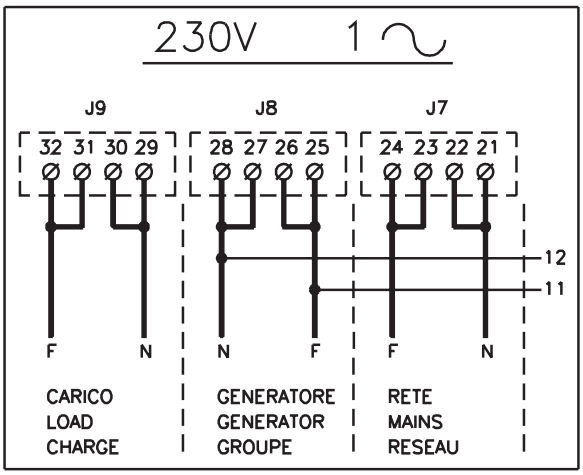
- EAS UNIT/MAINS
  Connect the mains with the terminal board of the EAS Unit, paying attention to the connections (phase, neuter, ground), respecting the numbers of the wires with those of the terminals. Use cables with a suitable section, keeping to the local installation regulations and/or laws in force.
  12/09/00 EASU5-10GB

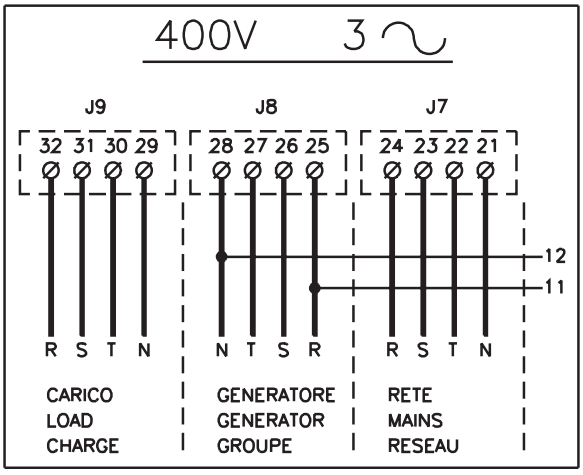
- EAS UNIT/LOAD
  Connect the mains with the terminal board of the EAS Unit, paying attention to the connections (phase, neuter, ground), respecting the numbers of the wires with those of the terminals.

☞ After having prepared the generating set and the EAS Unit, the system is ready for the next operations.

COLLEGAMENTI
CONNECTION
CONNEXION
ANSCHLUß
CONEXIÓN







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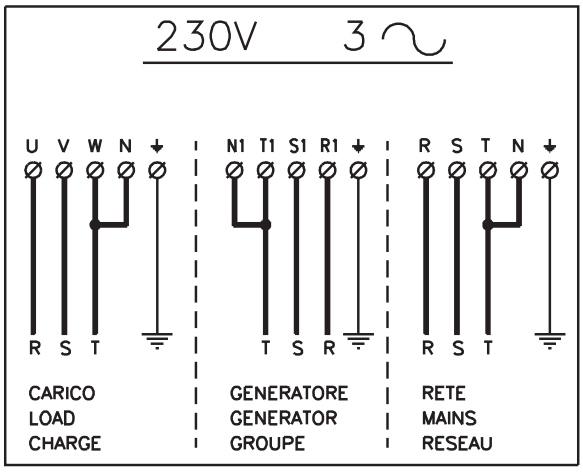
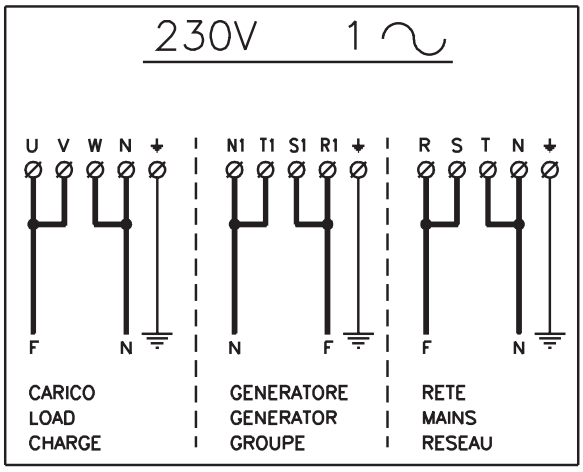
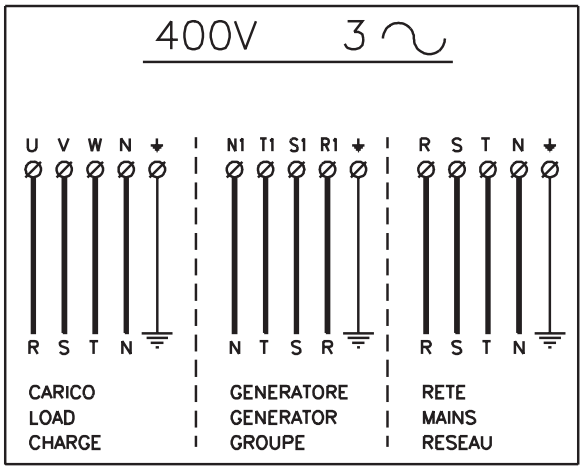
COLLEGAMENTI
CONNECTION
CONNEXION
ANSCHLUß
CONEXIÓN







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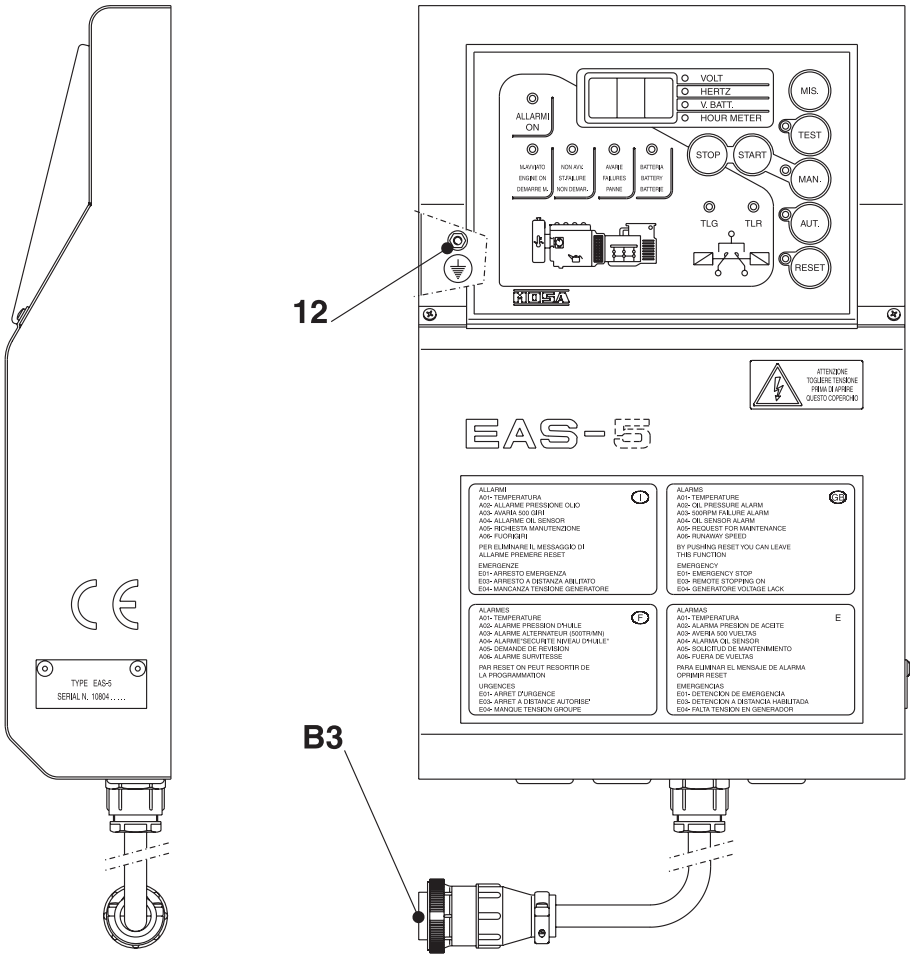
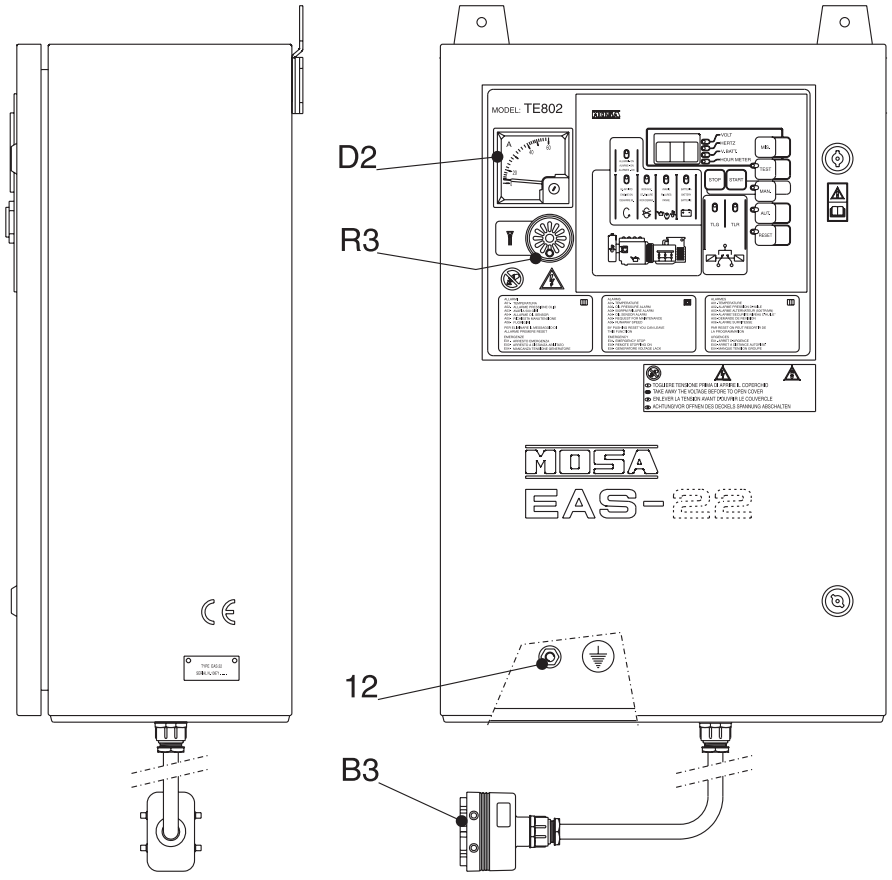
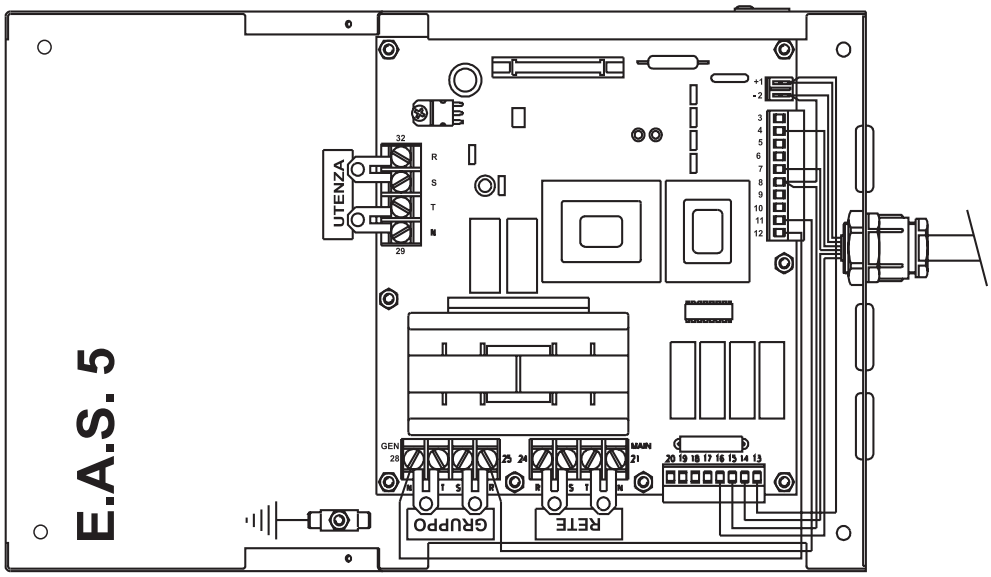
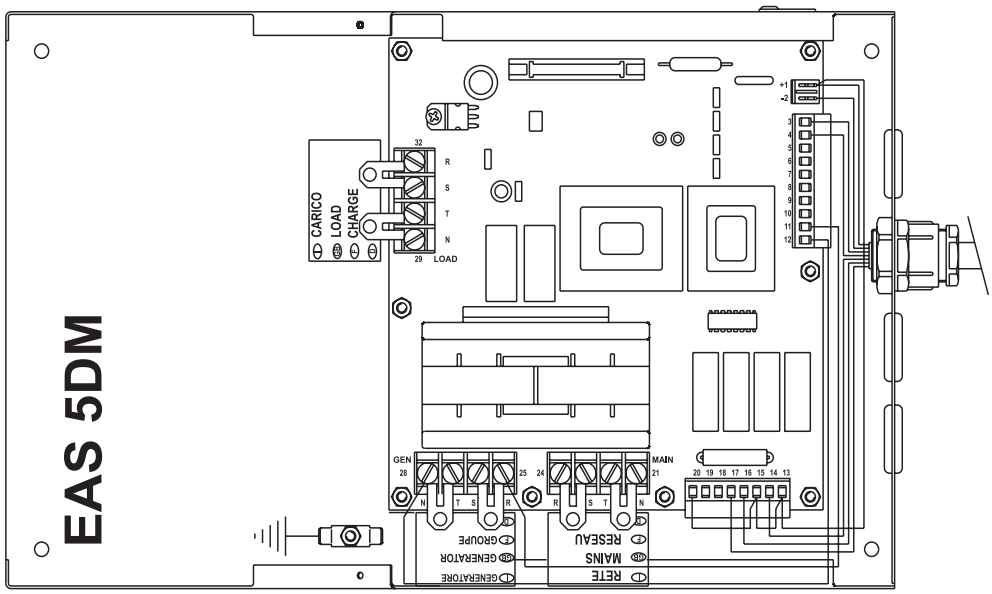


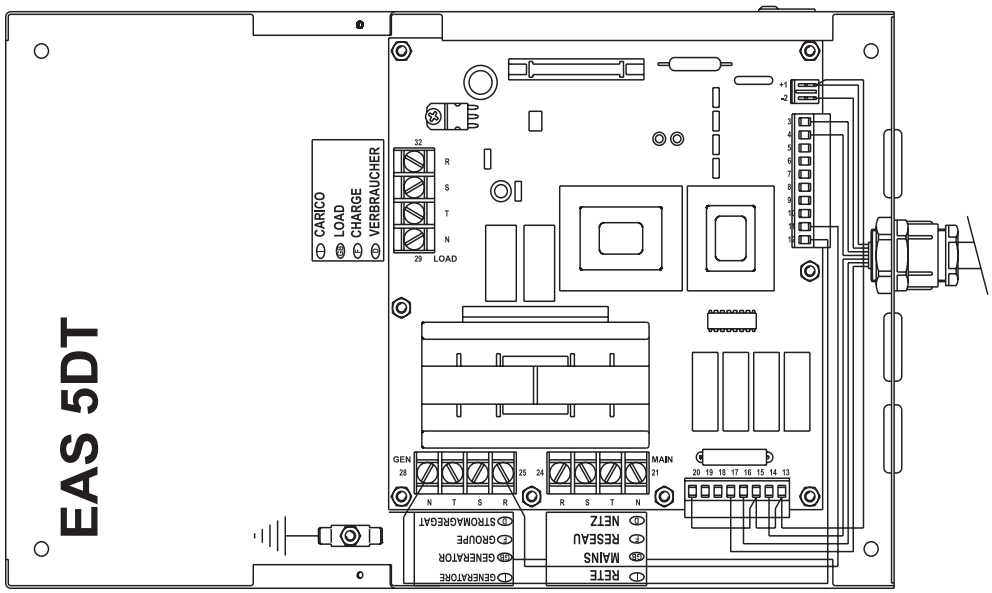
EAS 5 - 5DM - 5DT

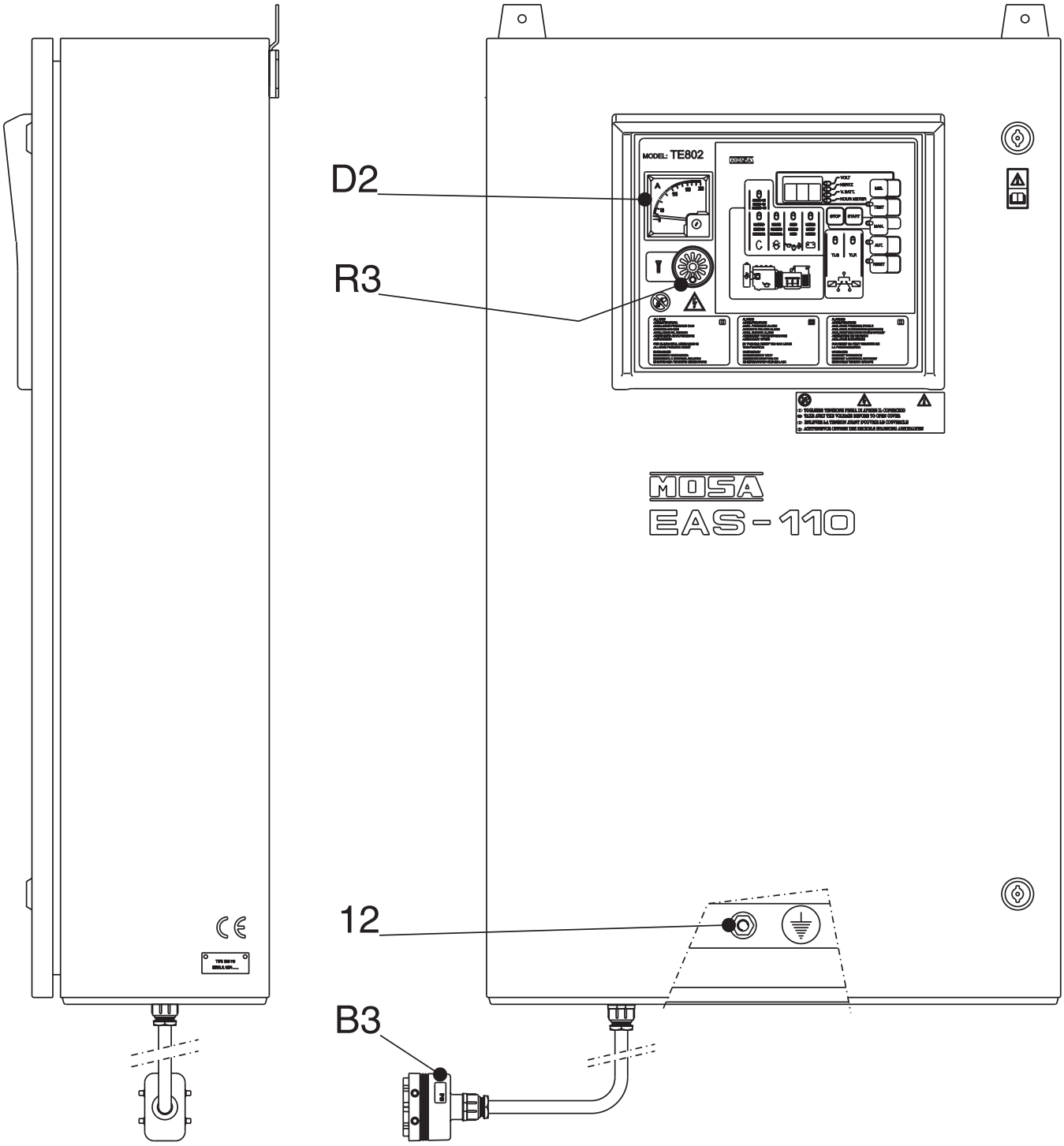


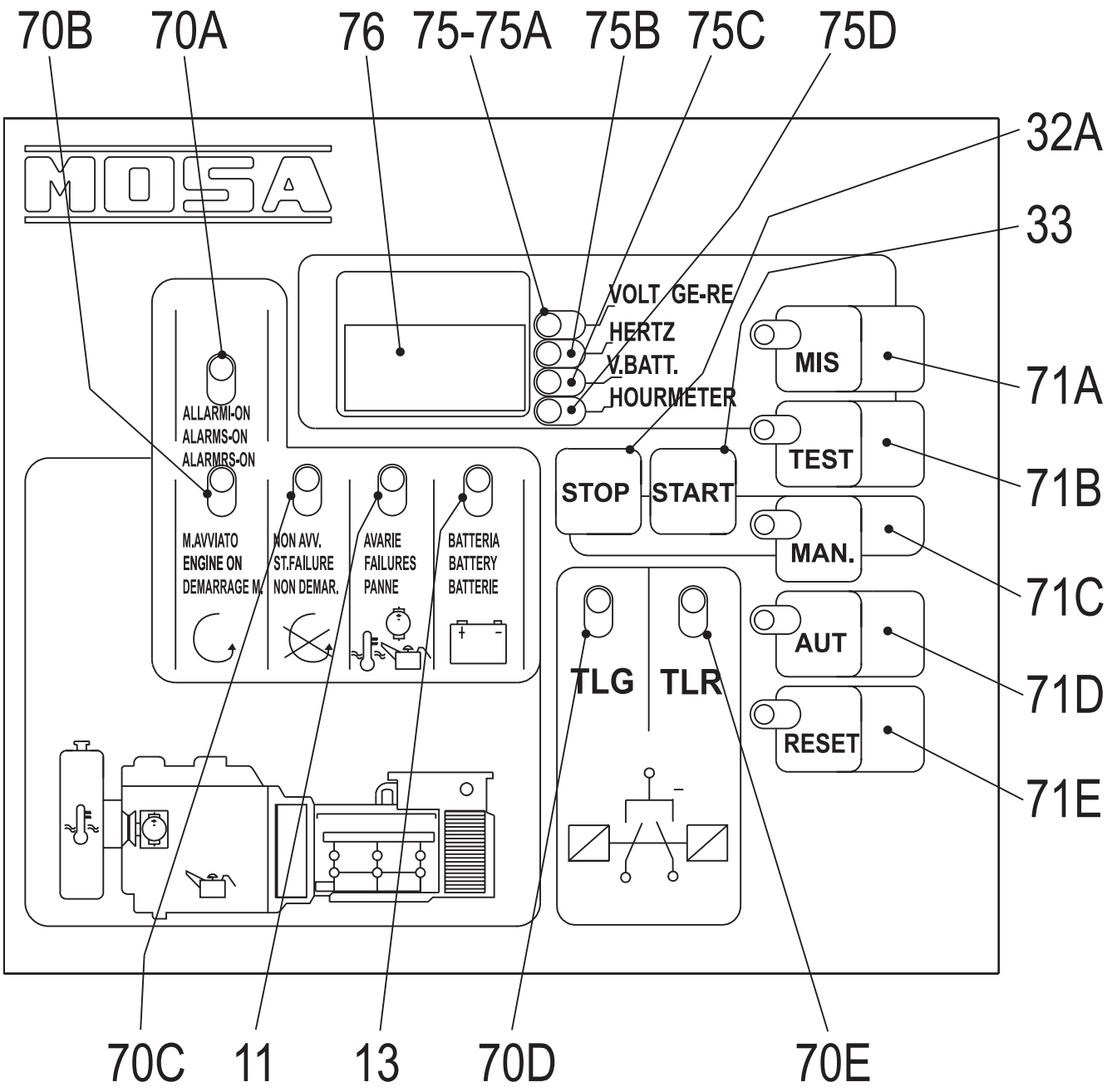
EAS 22 - 40 - 70


E.A.S. 5
UTENZA
GRUPPO
RETE


EAS 5DM
CARICO
LOAD
CHARGE
GROUPE
GENERATOR
RESEAU
MAINS
RETE


EAS 5DT
CARICO
LOAD
CHARGE
VERBRAUCHER
STROMAGREGAT
GROUPE
GENERATOR
RESEAU
MAINS
NETZ
RETE




70B
70A
76
75-75A
75B
75C
75D
32A
33
MOSA
VOLT GE-RE
HERTZ
V.BATT.
HOURMETER
ALLARMI-ON
ALARMS-ON
ALARMES-ON
M.AVVIATO
ENGINE ON
DEMARRAGE M.
NON AVV.
ST.FAILURE
NON DEMAR.
AVARIE
FAILURES
PANNE
BATTERIA
BATTERY
BATTERIE
STOP
START
MIS
TEST
MAN.
AUT
RESET
TLG
TLR
71A
71B
71C
71D
71E
70C
11
13
70D
70E

FRONT PANEL

On the front plate of the electronic card there are the following devices:

⇒ MISURE push button (71A)
·*To select display visualisation (76), led "on".*
⇒ TEST push button (71B)
·*To select display modality, press to effect test, led "on".*
⇒ MAN push button (71C)
·*To select display modality, press to effect manual function, led "on".*
⇒ AUT push button (71D)
·*To select display modality, press to effect automatic function, led "on".*
⇒ RESET push button (71E)
·*To select display modality, press to block the generating set or to effect RESET of possible alarms, led "on".*
⇒ STOP push button (32A)
·*To stop the generating set.*
⇒ START push button (33)
·*To start the generating set.*
⇒ VOLT GE LED (75)
·*If "on" shows selected measure*
⇒ VOLT RE LED (75A)
·*If "on" shows selected measure*
⇒ HERTZ LED (75B)
·*If "on" shows selected measure*
⇒ V.BATT. LED (75C)
·*If "on" shows selected measure and state of battery charger.*
⇒ HOUR METER LED (75D)
·*If "on" shows selected measure*
⇒ ALARM LED ON (70A)
·*If "on" shows that the generating set has been put under control and therefore all alarms are active.*
⇒ STARTED GENERATING SET (70B)
·*If "on" shows that the generating set is regularly started.*
⇒ NOT STARTED GENERATING SET (70C)
·*If "on" shows that the generating set is not started.*
⇒ TLR LED (70D)
·*State of mains contactor, if led "on" shows that mains contactor is shut.*
⇒ TLG LED (70E)
·*State of mains contactor, if led "on" shows that the generating set contactor is shut.*
⇒ FAILURE LED (76)
·*Fault/alarm signal.*
⇒ 3 DIGITS DISPLAY (76)
visualization of measures, alarms, etc.

TECHNICAL TERM DEFINITION

Reading this manual you will meet with terms largely described below. Refer to the following definitions whenever these terms are mentioned in the manual:

SET UP - OPTION

All parameters which incide on the system work **SET UP -OPTION** are set up according to the type of generating set (engine, voltage, frequency, etc.). If you want to change the above said parameters, please turn to the Authorized Technical Service or directly to MOSA.

STARTING CYCLE

Procedure for starting the generating set. Following operations are to be executed:
- starting through electrically controlled device of fuel.
- starting attempts (adjustable duration) spaced by intervals (also adjustable).

If the engine starts, starting attempts are stopped immediately.
If the maximum number of starting attempts is reached (pre-adjusted) and the engine is not started, enter in action:
- acoustic alarm (when assembled) for 20 secs.
- led "on" for failed starting.

To restore press RESET button.(71E).

STOPPING CYCLE

Procedure for stopping the generating set.
The generating set contactor is opened and the engine runs for a definite time (cooling off) after which the electrically controlled device of fuel drops out and the relay of the stop magnet trips..
The magnet remains energized until the started generating set signal stops and for a further adjustable time.
If an emergency stop is necessary, this procedure will be executed without considering the cooling time.

ENGINE ON

The engine is considered "on" when the signal of **500 rpm** or the voltage of the alternator exceed the threshold fixed in the set up phase.
As an emergency signal, working in parallel to one or the other signals, a threshold on the alternator frequency is used. The engine on signal is shown by its LED (70B).

ALARMS ON
Oil pressure and high temperature alarms are connected after a certain delay in respect of the engine-ON signal.
To stress this condition the alarm LED-on (70A) lights up. During the stopping cycle the alarms are disconnected simultaneously to the closing of the solenoid valve.

ALARM OPERATING TIME
When one or more alarm signale occur, they immediately cause the alternator contactor to open, the set to stop successively and the acoustic signal to ring when assembled.

MAINS OFF
MAINS off signal occurs when the mains voltage becomes lower than the minimum fixed threshold and remains in this condition for a while. That causes the mains contactor to cut off.

MAINS ON
In the same way the mains ON signal occurs when for a certain time the voltage exceeds the fixed threshold. The contactor shutting depends on the selected operating procedure of the set.

ALTERNATOR ON
Alternator ON signal works as the mains ON signal described above. The delay time is independent. On the contrary the alternator is OFF when voltage becomes lower than the fixed threshold.

MAINS/ALTERNATOR AND ALTERNATOR/ MAINS SWITCHING
Between mains and alternator contactors (besides the mechanical interblock) a delay time happens to avoid their overlap.

MEASURE DISPLAY
Following measures can be seen on the display:

- Mains/alternator voltage (Volt)
- Alternator frequency signal (Hertz)
- Battery voltage (V. Batt.)
- Working hours of generating set (Hour Meter)

The displayed measure is indicated by the lighting of the corresponding LED (TENS-FREQ-BATT-HOUR) (75-A-B-C-D).
To pass from a measure to another press the MI-SURE button (71A).
When the voltage measure is selected, the displayed value refers to the mains voltage if the generating set is off (STARTING LED OFF) or to the voltage supplied by the generating set if it works (STARTING LED ON).
The mains/generating set voltage is displayed with a precision of 1 Volt, the frequency of 0,1 Hz, the battery voltage of 0,1 Volt and the working hours of one hour .

OPERATING PROCEDURES
The card operates in four different procedures which are:

- RESET
- MANUAL
- AUTOMATIC
- TEST

Each of these procedures is connected with a button and a signaling LED (71A-B-C-D-E). To select a procedure push the respective button. It is possible at any time topass from an operating procedure to another . Let us see now more in detail each function:

RESET
When the card is in RESET the generating set stops, if it was working, and it is not possible to carry out any operation. Selecting RESET procedure all alarms are set to zero, unless some are still displayed (see Alarms and failure messages).
Also outside controls (outside start, EJP function) are forbidden. The battery charger works normally and it is possible to select and see the measures on the display.

MANUAL
In MANUAL procedure the generating set can be started or stopped using the START and STOP buttons (33-32A).The START button (33) is used only to begin the starting cycle which is anyway carried out by the card with the automatic starting procedure.
In the same way the STOP button (32A) begins the stopping cycle in the usual modality (cooling, electrovalve, magnet).
The remote starting signal is forbidden.
Alarms work as usual (see paragraph ALARMS).
In manual procedure the automatic exchange of the contactors does not take place, but each one is still controlled singularly.
If for instance you pass in manual procedure with the mains contactor inserted, it will be energized and de-energized in function of the mains voltage, but generator contactor will never be energized (the same if you pass in manual procedure with TLG inserted).

CONTACTOR FORCED SWITCHING
(in manual procedure)
Holding the MAN (71C) button pressed it is possible to force the contactor switching.

AUTOMATIC
When the mains voltage fails and the corresponding contactor has been opened, the generating set starts in **automatic** procedure.
Once the generating set is started and its voltage is in the imposed limits, the generating set contactor is shut.
The generating set works on until the mains comes back, after which the contactors are exchanged and the generating set carries out the stopping cycle.
When the generating set works it can be stopped in emergence through the STOP button (32A) or by means of the outside stop signal.
When in automatic procedure, the entrance of outside start as well as the execution of the automatic test are active (see specific paragraph).

TEST
Positioning the system in TEST procedure (71B) the generating set is started.
The engine remains running all the time this function is kept.
The load passes to the generating set only if the mains fail. In this case the re-switching occurs when the TEST modality goes out. (passage into automatic).
Also in this case it is possible to stop immediately the generating set through the STOP button (32A).

AUTOMATIC TEST
The automatic test is a periodical check which is carried out at fixed terms (ntervals can be fixed during option) if the set is in automatic procedure and if the function has been activated.
After starting the generating set works for a given period, after which it stops. Before starting the acoustic signal rings to mark the beginning of the procedure.

AUTOMATIC TEST CONNECTION/ DISCONNECTION
To connect or disconnect the automatic test function, please turn to the Authorized Assistance Centre or directly to MOSA.

REMOTE STARTING
When the card is in automatic procedure, it is possible to start the generating set by means ofremote starting terminal. As in automatic test, the execution of the starting cycle is preceded by 5 seconds a coustic signal and 3 seconds interval. Switching off the connecting terminal, the stopping cycle is carried out.
While the generating set works under this function, in case the mains fail, he load passes on to the generating set.
If the mains come back however, the exchange does not occur until the generating set stops (connecting terminal cutoff, failure, emergency stop).

REMOTE STOPPING
The remote stop connecting terminal stops the generating set at once in any operating procedure and forbids its starting.
The display (76) will show the corresponding code (E03).
The connecting terminal cutoff will restore the function.

EJP FUNCTION

The EJP function can be activated through set up. When it is activated the remote starting connecting terminal conforms to EJP Start and the stopping connecting terminal to EJP switching consense.
When Start is ON a time delay occurs, after which the starting cycle is carried out.
Then, when the switching consense signal arrives, the exchange between mains and generating set takes place. The load comes back on the mains at the switching consense cutoff and the generating set carries out the stopping cycle at the starting connecting terminal cutoff.
The EJP function is connected only if the set is in automatic procedure. Protections and alarms work as usual..

SCR FUNCTION

The SCR function can be activated through set up and therefore only and exclusively by the manufacturer.
It allows to start the generating set through an outside consense, also in presence of mains and to effect the exchange of the contactor of mains and generating set.
The function is carried out shutting simultaneously towards ground the terminals 5 and 6, the generating set is started and the exchange between mains and generating set occurs after a pre-established time. When the terminals 5 and 6 are re-opened, the exchange between the contactor of the generating set and that of the mains occurs, after the cooling time the generating set is stopped.

WORKING HOUR CALCULATION

20/12/00 EASU32-4GB
When the generating set is started, the working time is counted.

Read mode until 99.999 hours
The time display ad goes until 99.999 hours.
When the counter exceeds 999 hours, with 3 digits and ½ available, the read mode will be as following:

Working hours	Read mode
999	999
1.234	1 . (blinking point) 23
12.324	12 . (blinking point) 3

This calculation, expressed in hours, can be seen on the display (76);

☞ **NB**.: This calculation is kept also if the feeding is disconnected and it cannot **be cancelled** by the user.

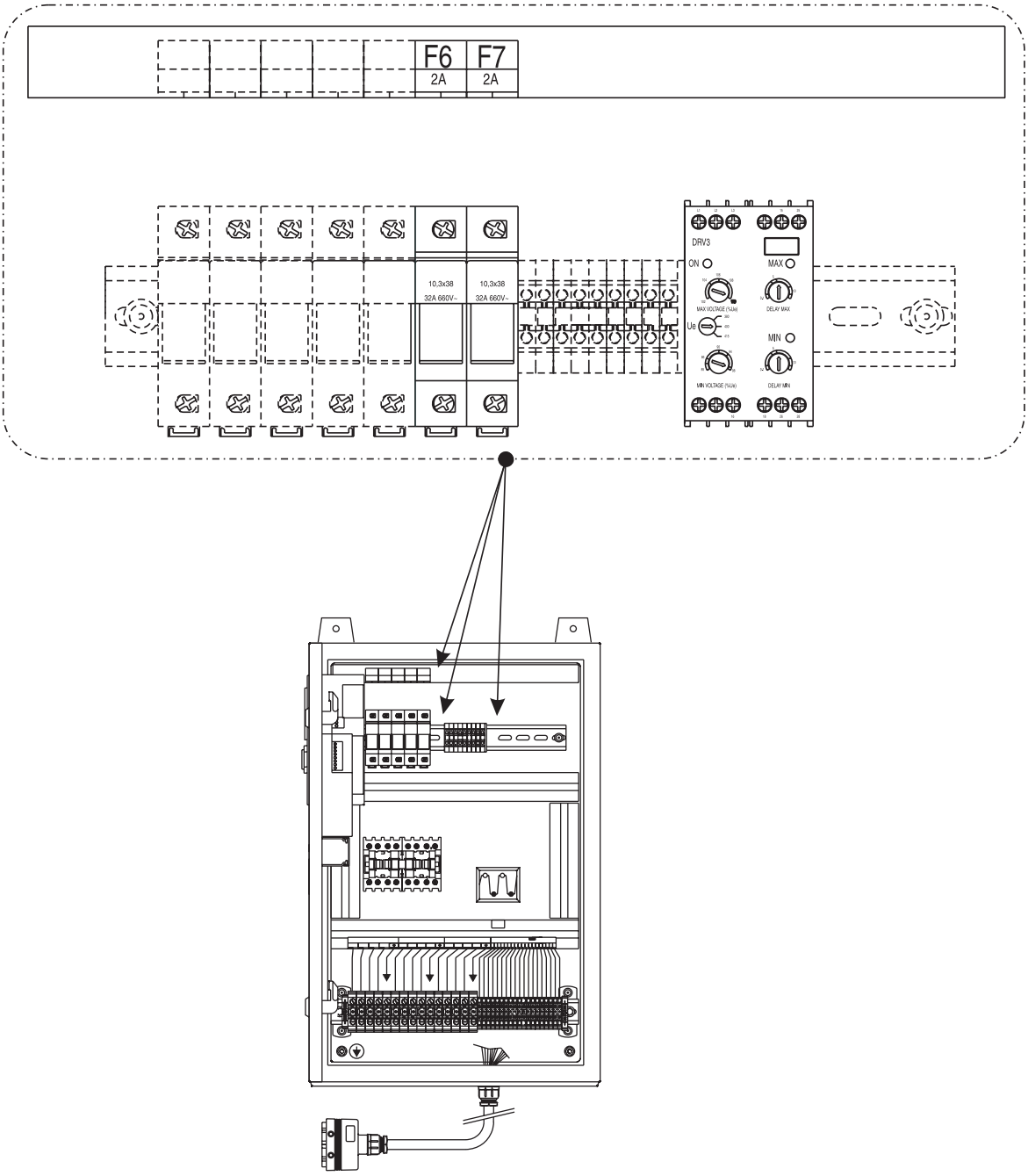
ROUTINE MAINTENANCE INTERVAL

A routine maintenance interval expressed in hours is set by means of SET UP.
When the working time reaches the calculation, on the display (76) the code for maintenance request is shown.
The set works on regularly. Pressing RESET (71E) the calculation is put back to zero and the message is cancelled.

If you want to use the generating set independently from the EAS Unit, proceed as described below:

☞ Disconnect the connection cables between EAS UNIT/GENERATING SET (control - power) EAS UNIT/MAINS and EAS UNIT/LOAD (see page
U 5.10) and use the generating set keeping to the advice contained in the specific manual (installation, start, stop,...).

Re-using the generating set with the EAS Unit, reset the above-said connections and operate for the testing, automatic and/or manual mode according to the procedures indicated in the previous pages.



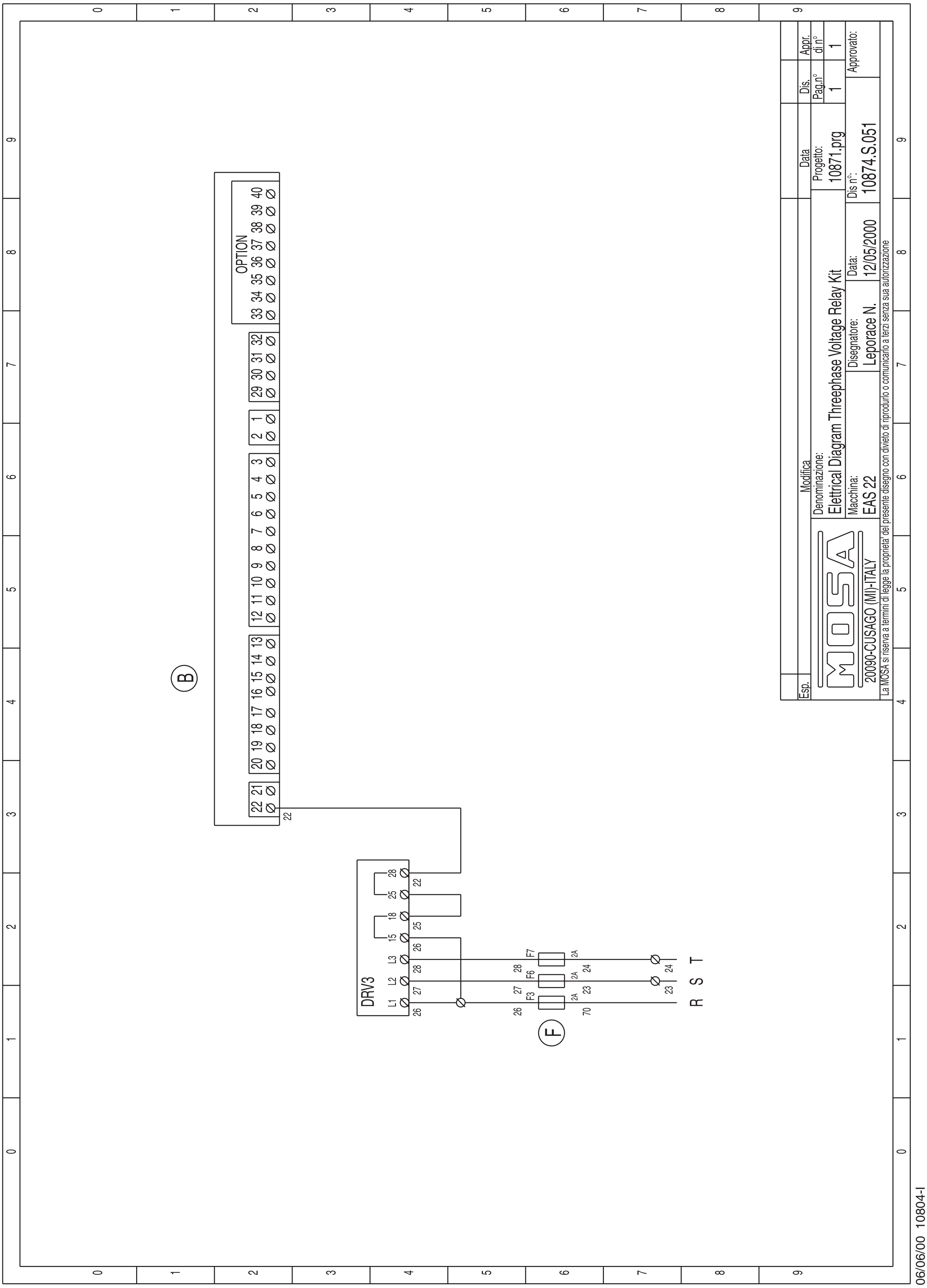
➠ Per il montaggio del Kit seguire le indicazioni riportate nel disegno, per i collegamenti elettrici attenersi agli schemi a pag. M 38.3.1 ed M 61.1.

➠ Pour le montage du Kit suivre les indications reportées sur le dessin, pour les liaisons électriques s'en tenir aux schémas à la pag. M 38.3.1 et M 61.1.

➠ For the assembling of the Kit follow the indications shown on the drawing, for the electrical connections keep to the lay-out at the pag. M 38.3.1 and M 61.1.

Ⓘ KIT RELE' VOLTMETRICO Ⓓ
ⒼⒷ VOLTMETER RELAY Ⓔ
Ⓔ RELAIS VOLMETRE ⓃⓁ

EAS 22-40-70-110 (OPTIONAL)



INFORMATION AND ALARM CODES
(for all E..A. S . models)

On the display (76) you can see some codes to point out alarm conditions or particular situations.
The message disappears only after that the alarm conditions do not exist any more and the operator has pressed the RESET button (71E).
The scheduled codes are as follows:

A01 TEMPERATURE ALARM
It appears when, with the engine running and alarms on, there is an intervention of the sensor connected to the temperature terminal. In this case the alternator contactor is open and the generating set stops immediately.

A02 OIL PRESSURE ALARM
It operates like the previous one, referred to the sensor of insufficient oil pressure.

A03 500 rpm FAILURE ALARM
It appears when, with the generating set running, fails the signal of battery charger alternator (500 rpm), but remains the alternator voltage.. The generating set stops.

A04 MECHANICAL ALARM
It shows that the engine is off for causes independent from the electric panel; check the cause controlling the engine itself (for instance on the small generating sets the OIL SENSOR and/or ALERT device might have interfered, which is normally assembled by the engine manufacturer).

A05 MAINTENANCE REQUEST
It appears when the interval for maintenance fixed in respect of the first setting in voltage or of the previous maintenance. The system works on regularly.

A06 OVERSPEED ALARM
It appears when the frequency (therefore the engine revolutions) exceed the value fixed by SET UP, In this case the alternator contactor is opened and the generating set stops immediately.

A07 FUEL ALARM - OPTION
(only for models ³ E.A.S.40)
It shows the low level of fuel. It is fixed by the manufacturer: it can either only signal or stop the engine.

A08 FREE ALARM - OPTION
(only for models ³ E.A.S.40)
On customer's request MOSA can set the alarm on one of the following modalities:
1.only signals;
2.signal with stopping the engine;
3.signal with stopping the engine after a delay from 0 to 180 seconds.

A09 FREE ALARM - OPTION
(only for models ³ E.A.S.40)
On customer's request MOSA can set the alarm on one of the following modalities:
1. only signals;
2. signal with stopping the engine.

E01 EMERGENCY STOP
This message is displayed when the generating set is stopped by the operator pressing the STOP button (F3) in automatic or test procedure.

E03 REMOTE STOPPING ON
It appears when the remote stopping connecting terminal is on.It stops immediately the generating set and forbids its starting. Unlike the other alarms, it resets automatically (no need of RESET) when the connecting terminal contact opens.

E04 ALTERNATOR VOLTAGE FAILURE
It appears when, with engine running, the alternator voltage does not exceed the threshold fixed within a definite time.

ERROR / ALARM SIGNAL SUMMARY	
ERR	**DESCRIPTION**
A01	TEMPERATURE ALARM
A02	OIL PRESSURE ALARM
A03	500 rpm FAILURE ALARM
A04	MECHANICAL ALARM
A05	MAINTENANCE REQUEST
A06	OVERSPEED ALARM
A07	FUEL ALARM - OPTION (only for models E.A.S.40)
A08	FREE ALARM - OPTION (only for models E.A.S.40)
A09	FREE ALARM - OPTION (only for models E.A.S.40)
E01	EMERGENCY STOP
E03	REMOTE STOPPING ON
E04	ALTERNATOR VOLTAGE FAILURE

ROUTINE MAINTENANCE

	EVERYWEEK	EVERY ONTH AND/OR AFTER INTERVENTION ON LOAD	EVERY YEAR AND/OR AT PRESCRIBED TIMES
1. TEST or AUTOMATIC TEST cycle to keep the generating set constantly operative	○		
2. Check all levels: engine oil, fuel level, battery electrolyte,, if necessary top it up.		○	
3. Keep to the advice given in manuals: engine, alternator, and machine specific one.			○

WARNING

☞ Before any intervention on the generating set, KEEP TO FOLLOWING:

- Preset the unit so as to execute the maintenance of the set.
- Disconnect the three phase, single phase plugs and/or the wires to the feed box
- Disconnect the plug of the connection cable to the EAS unit and/or to PAC 150..

☞ After having effected the routine checks, reset all electric connections and follow the indications for a new working cycle

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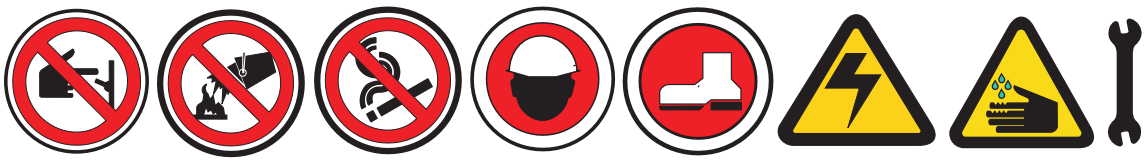


ELECTRONIC CARD

Feeding voltage	12Vcc	
Operating field	6,5-16,5Vcc	
Stand-by input	100 mA	
Battery charger voltage	13,8 Vcc	
Charging current	500 mA	
Mains voltage control	160÷440 VAC	
Generating set voltage control	160÷440 VAC	
Insulation voltage	2,5kV	
E.A.S. 5-5D unit max current of power part	16A x 400+N	27A x 230V single phase
Max voltage on inlets	15Vdc (V.Battery)	
Max current	10mA	
START/STOP ev/STOP magn. sirene contact capacity	5A 125Vac 30Vdc	
Outlet contact capacity for contactor coils	5A 250Vac	
Min. and max temperature	0÷40°C	

MAIN FEATURES

- Control based on 11 Mhz Intel 80c552 microprocessor.
- 32Kbyte EPROM (Electrically Programmable Read-Only Memory) program memory
- 32Kbyte RAM (Random Access Memory) static data memory
- 256 word EEPROM (Electrically Erasable Programmable Read-Only Memory) involatile data memory
- Measure visualization through 3 digit LED display
- Function/state/alarm visualisation through 15 LED
- Diaphragm button strip with 7 mechanical effect buttons
- Voltage measures in Real Value (RMS)
- All setups accessible from the front plate without dipswitch (by software, in permanent memory)
- Setups protected by set up admittance key
- “Intelligent” modulation battery charger control in voltage and current

CONSTRUCTION FEATURES

E.A.S. ³ 22: Leakage protection IP54
E.A.S. 5-5D: Leakage protection IP40

WEIGHT

Unit series 110	60kg
Unit series 70	30kg
Unit series 40	27kg
Unit series 22	25kg
Unit series 5D	4kg
Unit series 5	4kg

12/12/00 10804-GB

SET UP PARAMETERS

Cod.	Description	Value/Range
-01	Alternator rated frequency	0(50 Hz)-1(60 Hz)
-02	Acoustic signal connection before starting	0(disc)-1(con)
-03	EJP - SCR - EJP/T Normal Function	0(nor)-1(ejp)-2(scr)-3(ejp/t)
-04	Intervention exclusion when mains fail (for motor pumps)	0(nor)-1(mtp)-2(mtp no alarm)-3(mtp with alarm)
-05	500 rpm signal choice (alternator or battery charger alternator)	0(alt)-1(gen/set)
-06	Alternator voltage threshold at engine running	6-60V
-07	Generating set voltage threshold at engine running	0-200V
-08	Alarm operating time delay	1-60 sec.
-09	Stopping time	1-30 sec.
-10	Number of possible starting attempts	1-10
-11	Starting attempt duration	1-30 sec.
-12	Time interval between starting attempts	1-20 sec.
-13	Delay between failed attempts and following ones	2-5 sec.
-14	500 rpm failure operating time delay	2-5 sec.
-15	Mains and generating set contactor closing delay	0-10 tenths of second
-16	Routine maintenance intervals	10-250 h
-17	Electromagnet/accelerator/preheating glow plugs outlet function	0(norm)-1(acc)-2(spk)
-18	Decelerated operating time	1-180 sec.
-19	Glow plugs preheating time	1-60 sec.
-20	Automatic test connection also in presence of utside STOP	0(disc)-1(con)
-21	AUT and TEST mode disconnection (the card works only in MAN or in RESET)	0(nor)-1(disc)-2(dis.+commut. TLG)
-22	A07 outside alarm (disconnected/only signal/ signal+generating set stop)	0(disc)-1(sign)-2(stop)
-23	A08 outside alarm (disconnected/only signal/ signal+generating set stop)	0(disc)-1(sign)-2(stop)
-24	A09 outside alarm (disconnected/only signal/ signal+generating set stop /disconnected, inlet for RS485)	0(disc)-1(sign)-2(stop)-3(RS485)
-25	Norm.Closed outside stop inlet instead of Norm.Open	0(NO)-1(NC)
-26	Added delay for A08 alarms (time starts from inserted alarms)	0-120 sec
-27	Direction for series communication	01-32
-28	Relay function program 2: EV fuel/choke/air	0(EV fuel)-1(choke)-2(air)
-29	Relay function program 3: total alarm/ EV gas	0(all.)-1(gas)
-30	Delay Excitation EV gas (after start)	1-5 sec.
-31	Choke time duration	1-10 sec.
-32	Air time duration	1-10 sec.
-33	Disconnect air threshold	0-200V
-34	Disconnect frequency alarm (A06)	0(abi)-1(dis)
-35	Disconnect lack of generator voltage alarm(E04)	0(abi)-1(dis)
-36	Block switching to mains in case of alarm during EJP	0(nor)-1(blk)
-37	Line single phase - three phase	0(mono)-1(tri)
-38	Intervention alarm time (E04) (generator failure)	15-240 sec.

OPTION PARAMETERS

Cod.	Description	Range
OP.1	Minimum mains voltage threshold	280-400V / 160-230V
OP.2	Maximum mains voltage threshold	440-600V / 253-345V
OP.3	Mains voltage failure delay	0-120 sec.
OP.4	Mains voltage presence delay	0-240 sec.
OP.5	Minimum generator voltage threshold	280-400V / 160-230V
OP.6	Maximum generator voltage threshold	440-600V / 253-345V
OP.7	Generator voltage lack delay	1-180 sec.
OP.8	Generator voltage presence delay (generator contactor	0-180 sec. closing delay)
OP.9	Cooling time	1-300 sec.
OP.10	Acoustic signal time	0-60 sec.
OP.11	Automatic test interval time	1-7 days
OP.12	Automatic test duration	1-30 min.
OP.13	Engine starting delay after start -EJP	0-99 min.
OP.14	EJP/T switching delay (1 wire)	0-30 min.

NOTE:
The OP.13 is dispayed only if the EJP function has been connected in SET UP phase

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

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

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

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

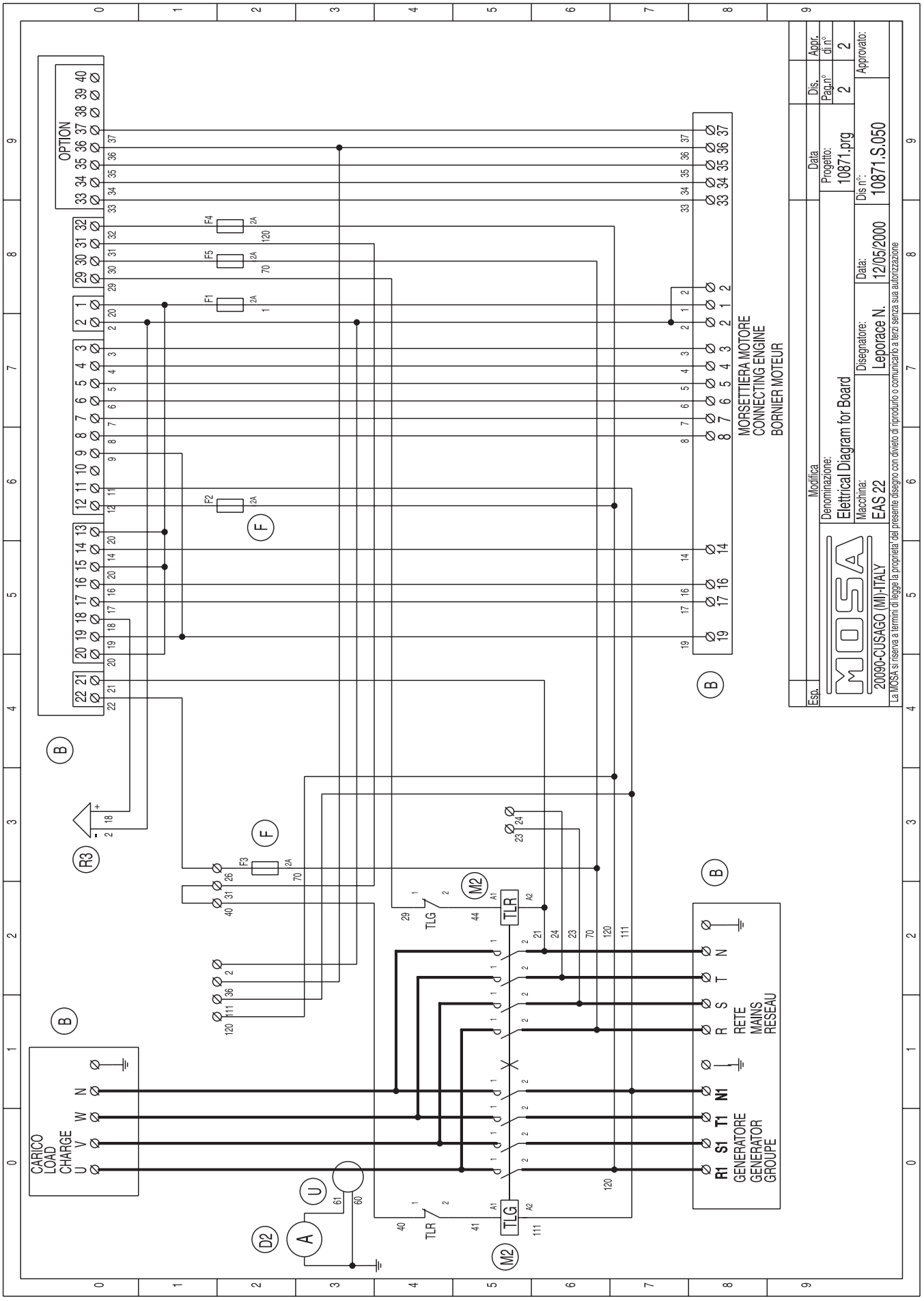
A4: PTO HI 30 l/min indicator
B4: PTO HI reset indicator
C4: PTO HI 20 l/min solenoid valve
D4: PTO HI 30 l/ min solenoid valve
E4: Hydraulic oil pressure switch
F4: Hycraulic oil level gauge
G4: Preheating glow plugs
H4: Preheating gearbox
I4: Preheating indicator
L4: R.C. filter
M4: Heater with thermostat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

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

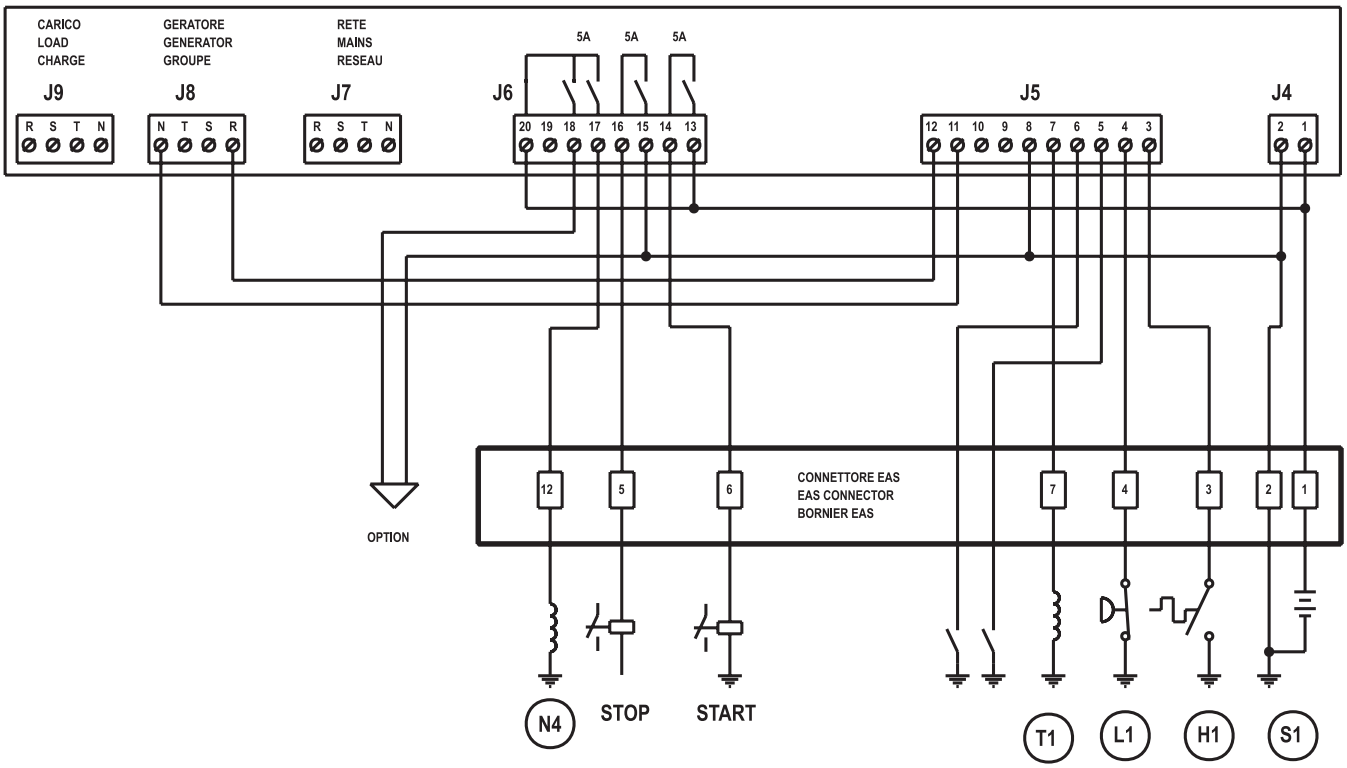
A6: Commutator/switch
B6: Key switch, on/off
C6: QEA control unit
D6: Connector, PAC
E6: Frequency rpm regulator
F6: Arc-Force selector
G6: Device starting motor
H6: Fuel electro pump 12V c.c.
I6: Start Local/Remote selector
L6: Choke button
M6: Switch CC/CV
N6: Connector – wire feeder
O6: 420V/110V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

A7: Transfer pump selector AUT-0-MAN
B7: Fuel transfer pump
C7: „GECO“ generating set test
D7: Flooting with level switches
E7: Voltmeter regulator
F7: WELD/AUX switch
G7: Reactor, 3-phase
H7: Switch disconnector
I7: Solenoid stop timer
L7: "VODIA" connector
M7: "F" EDC4 connector
N7: OFF-ON-DIAGN. selector
O7: DIAGNOSTIC push-button
P7: DIAGNOSTIC indicator
Q7: Welding selector mode
R7: R.C. net
S7: 230V 1-phase plug
T7: V/Hz analogic instrument
U7: Engine protection EP6
V7: G.F.I. relay supply switch
Z7: Radio remote control receiver
W7: Radio remote control trasnsmitter
X7: Isometer test push-button
Y7: Remote start socket

A8: Transfer fuel pump control
B8: Ammeter selector switch
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:


OPTION
MORSETTIERA MOTORE
CONNECTING ENGINE
BORNIER MOTEUR
Modifica
Esp.
Data
Dis.
Appr.
Pag.n°
di n°
2
2
Approvato:
Progetto:
10871.prg
Dis n°:
10871.S.050
Denominazione:
Elettrical Diagram for Board
Macchina:
EAS 22
Disegnatore:
Leporace N.
Data:
12/05/2000
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
CARICO
LOAD
CHARGE
GENERATORE
GENERATOR
GROUPE
RETE
MAINS
RESEAU
TLR
TLG
M2
R3
D2
A
U
F1
F2
F3
F4
F5

MORSETTIERA MOTORE CONNECTING ENGINE BORNIER MOTEUR	CONNETTORE EAS EAS CONNECTOR BORNIER EAS	Ⓘ	ⒼⒷ	Ⓕ	Ⓓ
1	1	+ BATTERIA	+ BATTERY	+ BATTERIE	+ BATTERIE
2	2	- BATTERIA	- BATTERY	- BATTERIE	- BATTERIE
3	3	TEMPERATURA	TEMPERATURE	TEMPERATURE	TEMPERATUR
4	4	OIL ALERT	OIL ALERT	ALARM D'HUILE	ÖLDRUCK
16	5	STOP	STOP	STOP	STOPPUNG
14	6	AVVIAMENTO	STARTING	DEMARRAGE	ANLASSUNG
7	7	ALTERNATORE C.B.	C.B. ALTERNATOR	ALTERNATEUR C.B.	WECHSELSTROMGENERATOR



CAUTELA - CAUTION - ATTENTION - ACHTUNG

IL COLLEGAMENTO AI MORSETTI 19 OPPURE 7/8 E'
FUNZIONE DEL SISTEMA CARICA BATTERIA MOTORE

PER MOTORE CON COLLEGAMENTO 7/8 ACCERTARSI CHE IL
FILO 19 SIA SCOLLEGATO DALLA MORSETTIERA

THE CONNECTIONS TO TERMINALS 19 OR 7/8 ARE CHOSEN IN ACCORDANCE WITH THE ENGINE BATTERY CHARGING SYSTEM

FOR ENGINES WITH 7/8 CONNECTION, MAKE SURE THAT WIRE 19 IS DISCONNECTED FROM THE CARD TERMINAL BOARD

LE BRANCHEMENT AUX BORNES 19 OU 7/8 SE CHOISIT EN FONCTION DU SYSTEME DE CHARGEMENT DE LA BATTERIE PREVU SUR LE MOTEUR

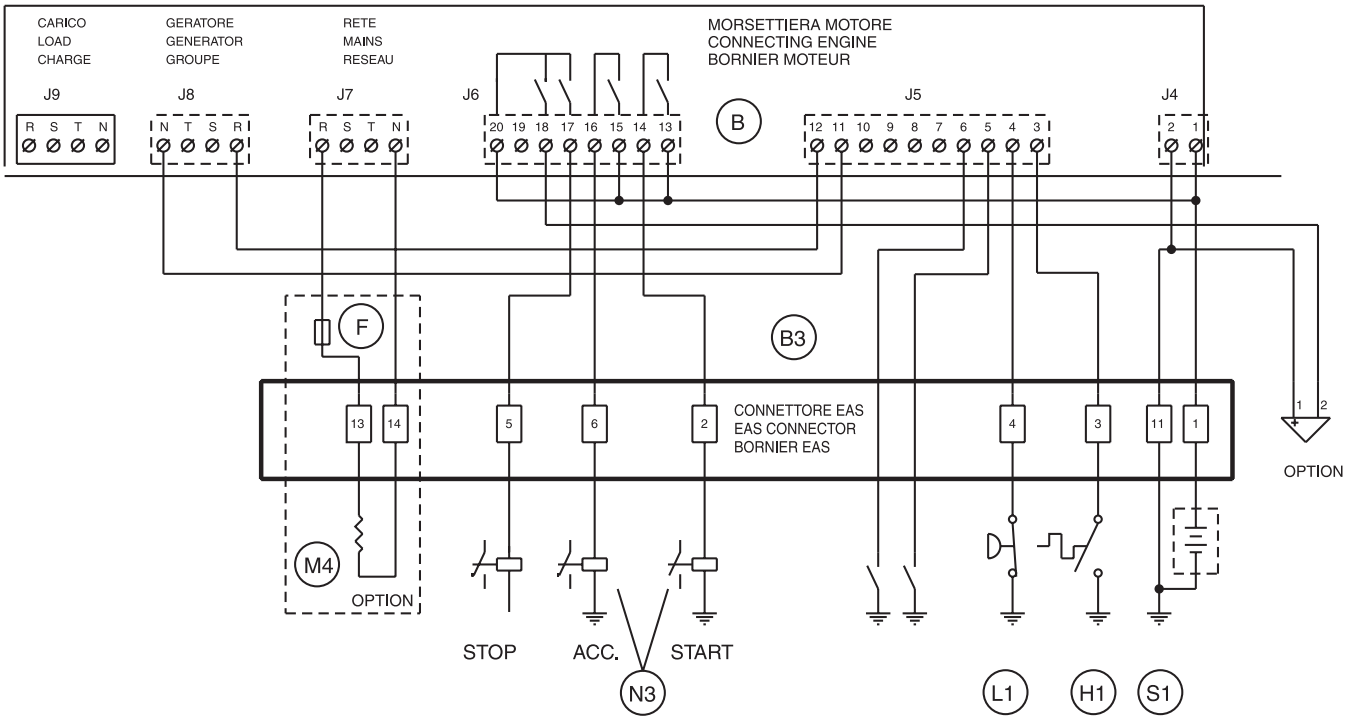
SI ON UTILISE LE BRANCHEMENT 7/8 VERIFIER QUE LE FIL 19 EST DECONNECTE DU BORNIER DE LA CARTE

DER ANSCHLUSS AN DIE KLEMMEN 19 ODER 7/8 IST VON DEM AM MOTOR VERHANDENEN BATTERIELADESYSTEM ABHÄNGIG

BEI VERWENDUNG DES ANSCHLUSSES 7/8 SICHERSTELLEN,

DASS DER LEITER 19 VOM KLEMMENBRETT DER KARTE ABGEKLEMMT IST

MORSETTIERA MOTORE CONNECTING ENGINE BORNIER MOTEUR	CONNETTORE EAS EAS CONNECTOR BORNIER EAS	Ⓘ	Ⓖ	Ⓕ	Ⓓ
1	1	+ BATTERIA	+ BATTERY	+ BATTERIE	+ BATTERIE
2	11	- BATTERIA	- BATTERY	- BATTERIE	- BATTERIE
14	2	AVVIAMENTO	STARTING	DEMARRAGE	ANLASSUNG
16	6	ACCELERATORE	ENGINE RUN	ACCELERATEUR	STOP ABREGUNG
3	3	TEMPERATURA	TEMPERATURE	TEMPERATURE	TEMPERATUR
4	4	PRESSIONE OLIO	OIL PRESSURE	PRESSION D'HUILE	ÖLDRUCK
5	*	STOP A DISTANZA(SCAMBIO RETE/GE IN EJP)	REMOTE STOP (EXCHANGE MAINS/GE FUNCTION/EJP)	STOP A DISTANCE (ASSERVIMENT POUR EJP)	FERNSTOPPUNG (VECHSEL NETZ GA IN EJP-FUNKTION)
6	*	AVVIAMENTO A DISTANZA (PREAVVISO AVVIAM. IN EJP)	REMOTE STARTING (START EJP)	DEMARRAGE A DISTANCE (PREAVIS EJP)	FERNANLASSUNG (EJP-STARTANKÜNDIGUNGS-SIGNAL)
R (J7)	13	PRERISCALDO 230V	230V PREHEATING	PRECHAUFFEUR 230V	VORWÄRMEN 230V
N (J7)	14	PRERISCALDO 230V	230V PREHEATING	PRECHAUFFEUR 230V	VORWÄRMEN 230V

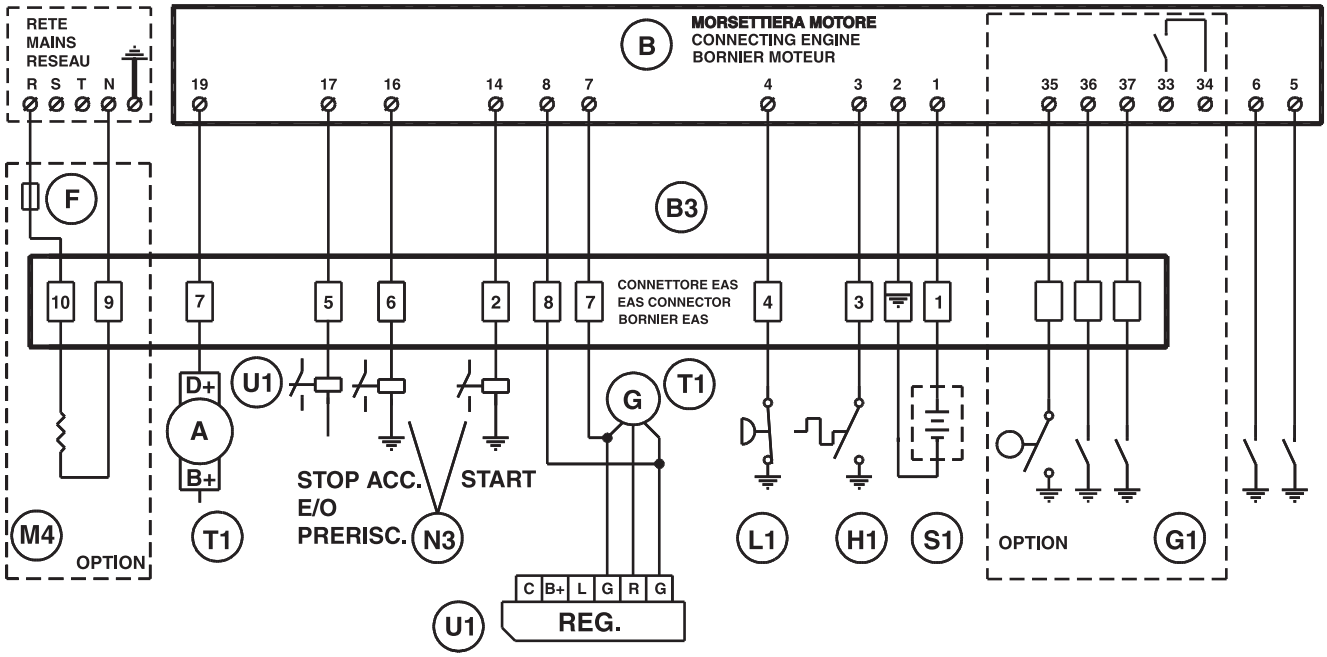


CAUTELA - CAUTION - ATTENTION - ACHTUNG

IL COLLEGAMENTO AI MORSETTI 19 OPPURE 7/8 E' FUNZIONE DEL SISTEMA CARICA BATTERIA MOTORE PER MOTORE CON COLLEGAMENTO 7/8 ACCERTARSI CHE IL FILO 19 SIA SCOLLEGATO DALLA MORSETTIERA	THE CONNECTIONS TO TERMINALS 19 OR 7/8 ARE CHOSEN IN ACCORDANCE WITH THE ENGINE BATTERY CHARGING SYSTEM FOR ENGINES WITH 7/8 CONNECTION, MAKE SURE THAT WIRE 19 IS DISCONNECTED FROM THE CARD TERMINAL BOARD
LE BRANCHEMENT AUX BORNES 19 OU 7/8 SE CHOISIT EN FONCTION DU SYSTEME DE CHARGEMENT DE LA BATTERIE PREVU SUR LE MOTEUR SI ON UTILISE LE BRANCHEMENT 7/8 VERIFIER QUE LE FIL 19 EST DECONNECTE DU BORNIER DE LA CARTE	DER ANSCHLUSS AN DIE KLEMMEN 19 ODER 7/8 IST VON DEM AM MOTOR VERHANDENEN BATTERIELADESYSTEM ABHÄNGIG BEI VERWENDUNG DES ANSCHLUSSES 7/8 SICHERSTELLEN, DASS DER LEITER 19 VOM KLEMMENBRETT DER KARTE ABGEKLEMMT IST

06/06/00 10804-I

MORSETTIERA MOTORE CONNECTING ENGINE BORNIER MOTEUR	CONNETTORE EAS EAS CONNECTOR BORNIER EAS	Ⓘ	ⒼⒷ	Ⓕ	Ⓓ
1	1	+ BATTERIA	+ BATTERY	+ BATTERIE	+ BATTERIE
2		- BATTERIA	- BATTERY	- BATTERIE	- BATTERIE
14	2	AVVIAMENTO	STARTING	DEMARRAGE	ANLASSUNG
17	5	STOP IN DISECCITAZIONE	STOP DE-ENERGIZING	STOP COUPURE	STOP ERREGUNG
16	6	ACCELERATORE / PRERI-SCALDO	ENGINE RUN / PREHEATING	ACCELERATEUR/PRECHAUF	STOP ABREGUNG / VORWÄRMEN
3	3	TEMPERATURA	TEMPERATURE	TEMPERATURE	TEMPERATUR
4	4	PRESSIONE OLIO	OIL PRESSURE	PRESSION D'HUILE	ÖLDRUCK
19	7	D+ ALTERNATORE C.B.	C.B. ALTERNATOR D+	D+ ALTERNATEUR C.B.	D+ WECHSELSTROMGENERATOR
7	7	FILO GIALLO REGOLATORE C.B.	YELLOW WIRE C.B. REGULATOR	FIL JAUNE REGULATEUR C.B.	REGLER GELB
8	8	FILO GIALLO REGOLATORE C.B.	YELLOW WIRE C.B. REGULATOR	FIL JAUNE REGULATEUR C.B.	REGLER GELB
5	*	STOP A DISTANZA (SCAMBIO RETE/GE IN EJP)	REMOTE STOP (EXCHANGE MAINS/GE FUNCTION/EJP)	STOP A DISTANCE (ASSERVIMENT POUR EJP)	FERNSTOPPUNG (VECHSEL NETZ GA IN EJP-FUNKTION)
6	*	AVVIAMENTO A DISTANZA (PREAVVISO AVVIAM. IN EJP)	REMOTE STARTING (START EJP)	DEMARRAGE A DISTANCE (PREAVIS EJP)	FERNANLASSUNG (EJP- STARTANKÜNDIGUNGS-SIGNAL)
*	9	SCALDIGLIA 230V	230V HEATING	CHAUFFEUR 230V	HEIZUNG 230V
*	10	SCALDIGLIA 230V	230V HEATING	CHAUFFEUR 230V	HEIZUNG 230V
35	*	RISERVA CARBURANTE	FUEL	CARBURANT	KRAFTSTOFF
36	*	ALLARME LIBERO	FREE ALARM	ALARME LIBERE	FREIER ALARM
37	*	ALLARME LIBERO	FREE ALARM	ALARME LIBERE	FREIER ALARM
33-34	*-*	CONTATTO ALLARME CUMULATIVO	CUMULATIVE ALARM CONTACT	CONTACT ALARME CUMULATIF	GESAMTALARMKONTAKT



CAUTELA - CAUTION - ATTENTION - ACHTUNG

IL COLLEGAMENTO AI MORSETTI 19 OPPURE 7/8 E' FUNZIONE DEL SISTEMA CARICA BATTERIA MOTORE

PER MOTORE CON COLLEGAMENTO 7/8 ACCERTARSI CHE IL FILO 19 SIA SCOLLEGATO DALLA MORSETTIERA

THE CONNECTIONS TO TERMINALS 19 OR 7/8 ARE CHOSEN IN ACCORDANCE WITH THE ENGINE BATTERY CHARGING SYSTEM

FOR ENGINES WITH 7/8 CONNECTION, MAKE SURE THAT WIRE 19 IS DISCONNECTED FROM THE CARD TERMINAL BOARD

LE BRANCHEMENT AUX BORNES 19 OU 7/8 SE CHOISIT EN FONCTION DU SYSTEME DE CHARGEMENT DE LA BATTERIE PREVU SUR LE MOTEUR

SI ON UTILISE LE BRANCHEMENT 7/8 VERIFIER QUE LE FIL 19 EST DECONNECTE DU BORNIER DE LA CARTE

DER ANSCHLUSS AN DIE KLEMMEN 19 ODER 7/8 IST VON DEM AM MOTOR VERHANDENEN BATTERIELADESYSTEM ABHÄNGIG

BEI VERWENDUNG DES ANSCHLUSSES 7/8 SICHERSTELLEN, DASS DER LEITER 19 VOM KLEMMENBRETT DER KARTE ABGEKLEMMT IST

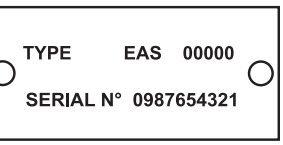
4A	Hydraulic oil level light
9	Welding socket (+)
10	Welding socket (-)
12	Earth terminal
15	A.C. socket
16	Accelerator lever
17	Feed pump
19	48V D.C. socket
22	Engine air filter
23	Oil level dipstick
24	Engine oil reservoir cap
24A	Hydraulic oil reservoir cap
24B	Water filling cap
25	Fuel prefilter
26	Fuel tank cap
27	Muffler
28	Stop control
29	Engine protection cover
30	Engine cooling/alternator fan belt
31	Oil drain tap
31A	Hydraulic oil drain tap
31B	Water drain tap
31C	Exhaust tap for tank fuel
32	Button
33	Start button
34	Booster socket 12V
34A	Booster socket 24V
35	Battery charge fuse
36	Space for remote control
37	Remote control
42	Space for E.A.S.
42A	Space for PAC
47	Fuel pump
49	Electric start socket
54	Reset button PTO HI
55	Quick coupling m. PTO HI
55A	Quick coupling f. PTO HI
56	Hydraulic oil filter
59	Battery charger thermal switch
59A	Engine thermal switch
59B	Aux current thermal switch
59C	Supply thermal switch wire feeder-42V
59D	Pre-heater (spark plug) thermal switch
59E	Supply thermal switch oil/water heather
59F	Electropump thermal switch
63	No load voltage control
66	Choke control
67A	Auxiliary / welding current control
68	Cellulosic electrodes control
69A	Voltmeter relay
70	Warning lights
71	Selecting knob
72	Load commut. push button
73	Starting push button
74	Operating mode selector
75	Power on warning light
76	Display
79	Wire connection unit
86	Selector
86A	Setting confirmation
87	Fuel valve
88	Oil syringe
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
G1	Fuel level transmitter
H2	Voltage commutator
H6	Fuel electro pump
I2	48V A.C. socket
I3	Welding scale switch
I4	Preheating indicator
I5	Y/▲ switch
I6	Start Local/Remote selector
L	A.C. output indicator
L5	Emergency button
L6	Choke button
M	Hour counter
M1	Warning level light
M2	Contactor
M5	Engine control unit EP5
M6	CC/CV switch
N	Voltmeter
N1	Battery charge warning light
N2	Thermal-magnetic circuit breaker/Ground fault interrupter
N5	Pre-heat push-button
N6	Connector - wire feader
O1	Oil pressure warning light/Oil alert
P	Welding arc regulator
Q1	Starter key
Q3	Derivation box
Q4	Battery charge sockets
Q7	Welding selector mode
R3	Siren
S	Welding ammeter
S1	Battery
S3	Engine control unit EP4
S6	Wire feeder supply switch
S7	Plug 230V singlephase
T	Welding current regulator
T4	Dirty air filter warning light/indicator
T5	Earth leakage relay
T7	Analogic instrument V/Hz
U	Current trasformer
U3	R.P.M. adjuster
U4	Polarity inverter remote control
U5	Relase coil
U7	Engine control unit EP6
V	Welding voltage voltmeter
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
Y5	Commutator/switch, serial/parallel
Z2	Thermal-magnetic circuit breaker
Z3	Selection push button 20 l/1' PTO HI
Z5	Water temperature indicator

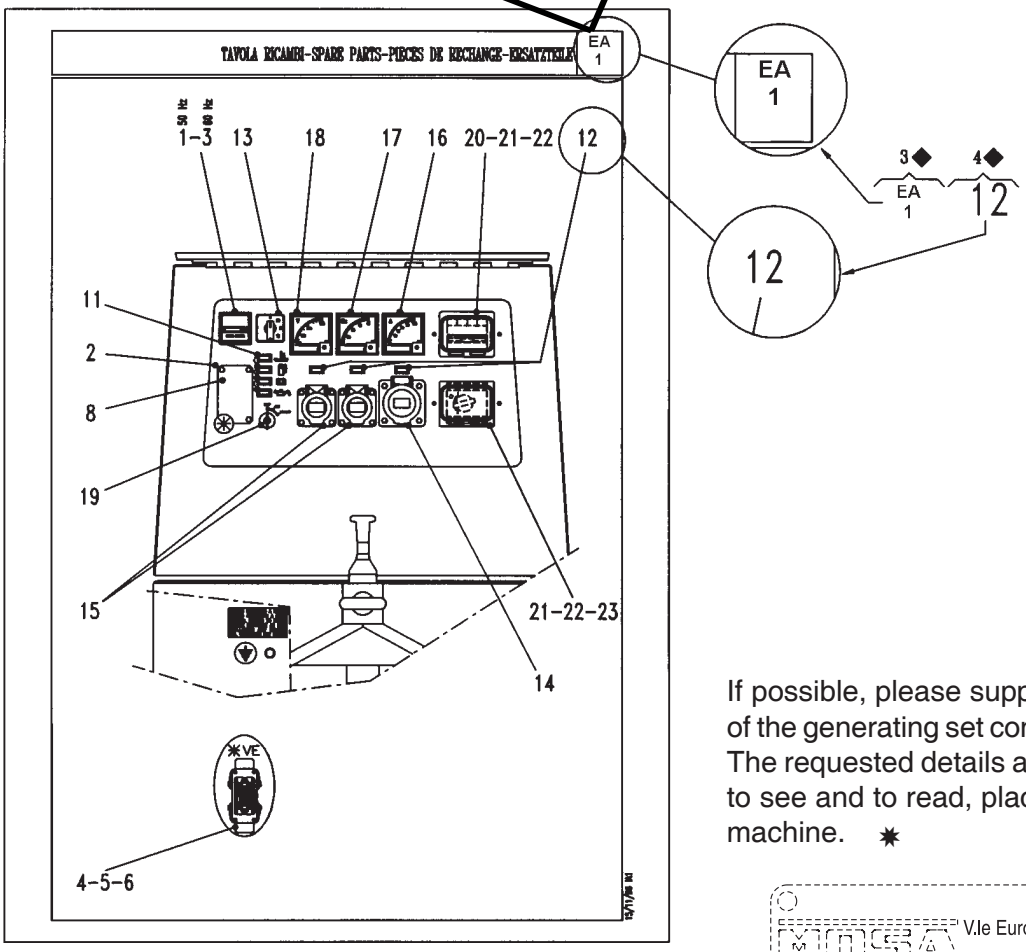
MOSA guarantees that any request for spare parts will be satisfied.
To keep the machine in full working order, when replacement of MOSA spare parts is required, always ask for genuine parts only.

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

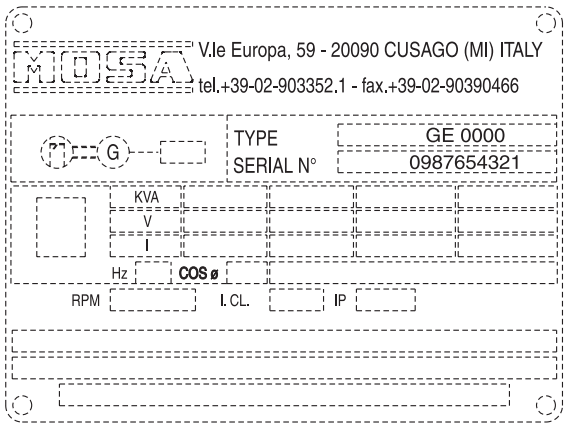
1) ✹ serial number
2) ✹ model of welder and/or generating set
3) ◆ n. table
4) ◆ n. position
5) quantity

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

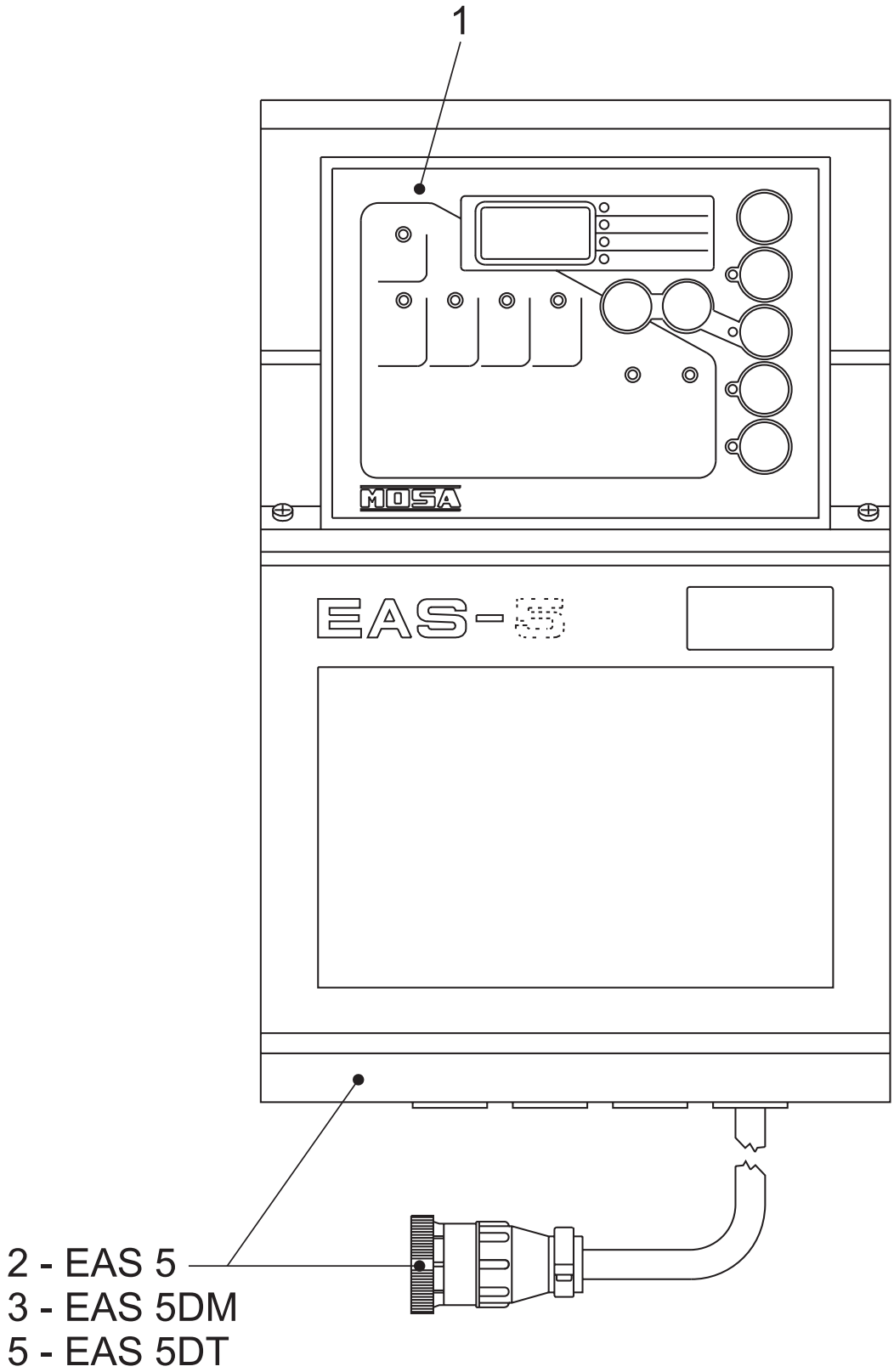




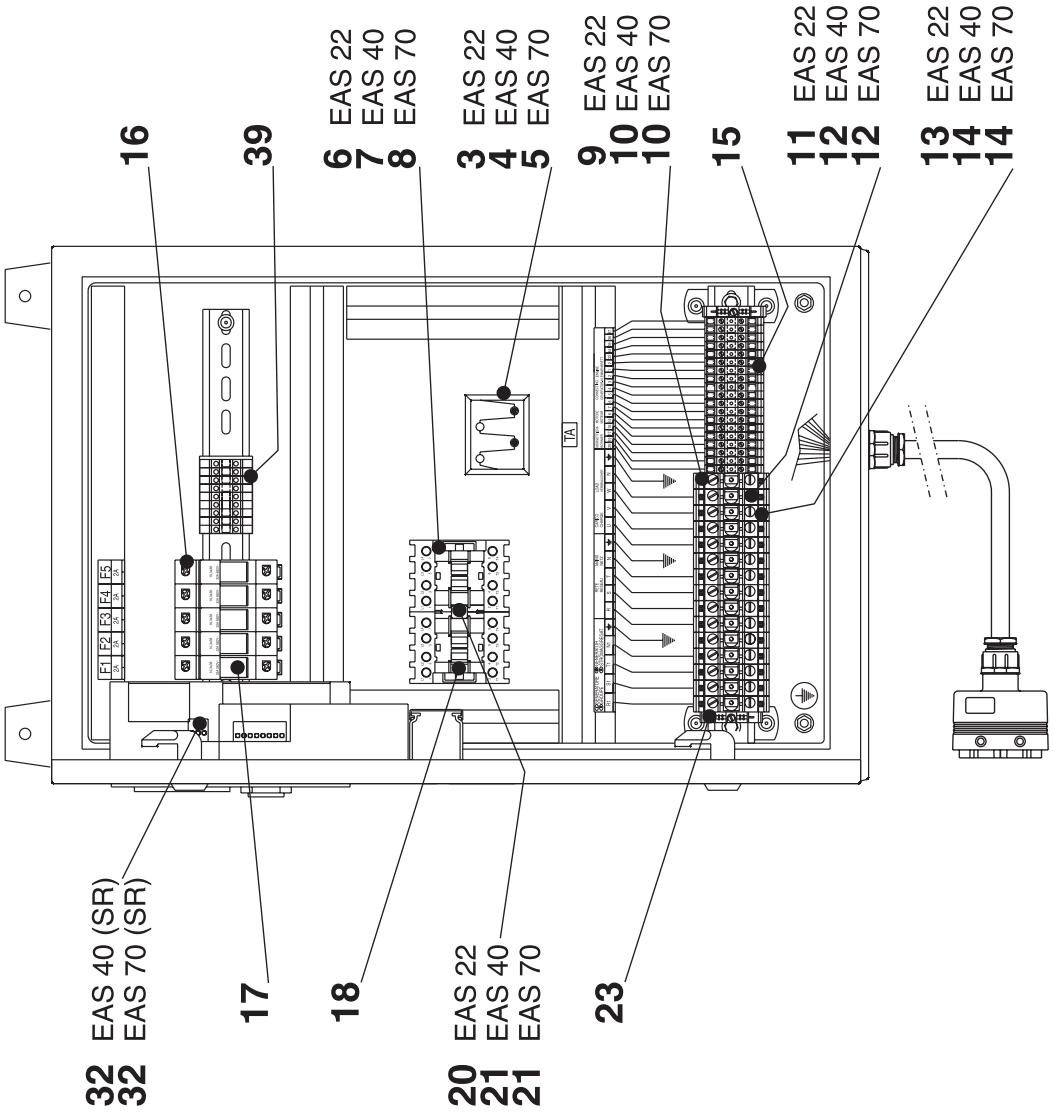
If possible, please supply also the serial number of the generating set connected to the EAS board. The requested details are on the data plate, easy to see and to read, placed on the housing of the machine. ✹

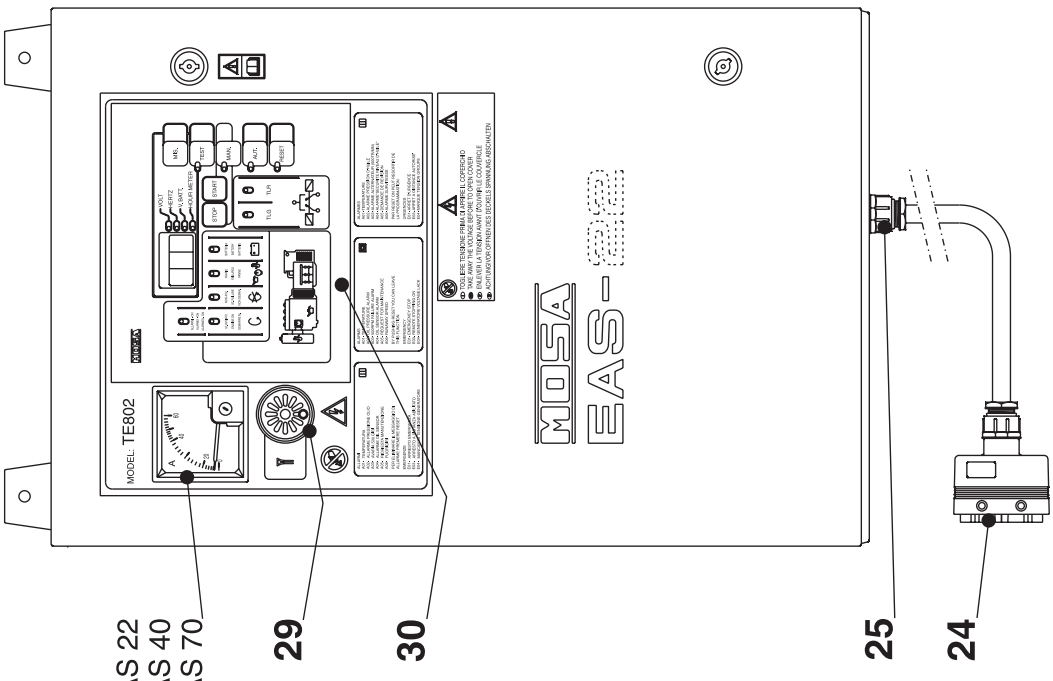


ABBREVIATIONS AND SYMBOLS: *(QM) When ordering, specify the length in meters*
(VS) Special version only
(SR) By request only

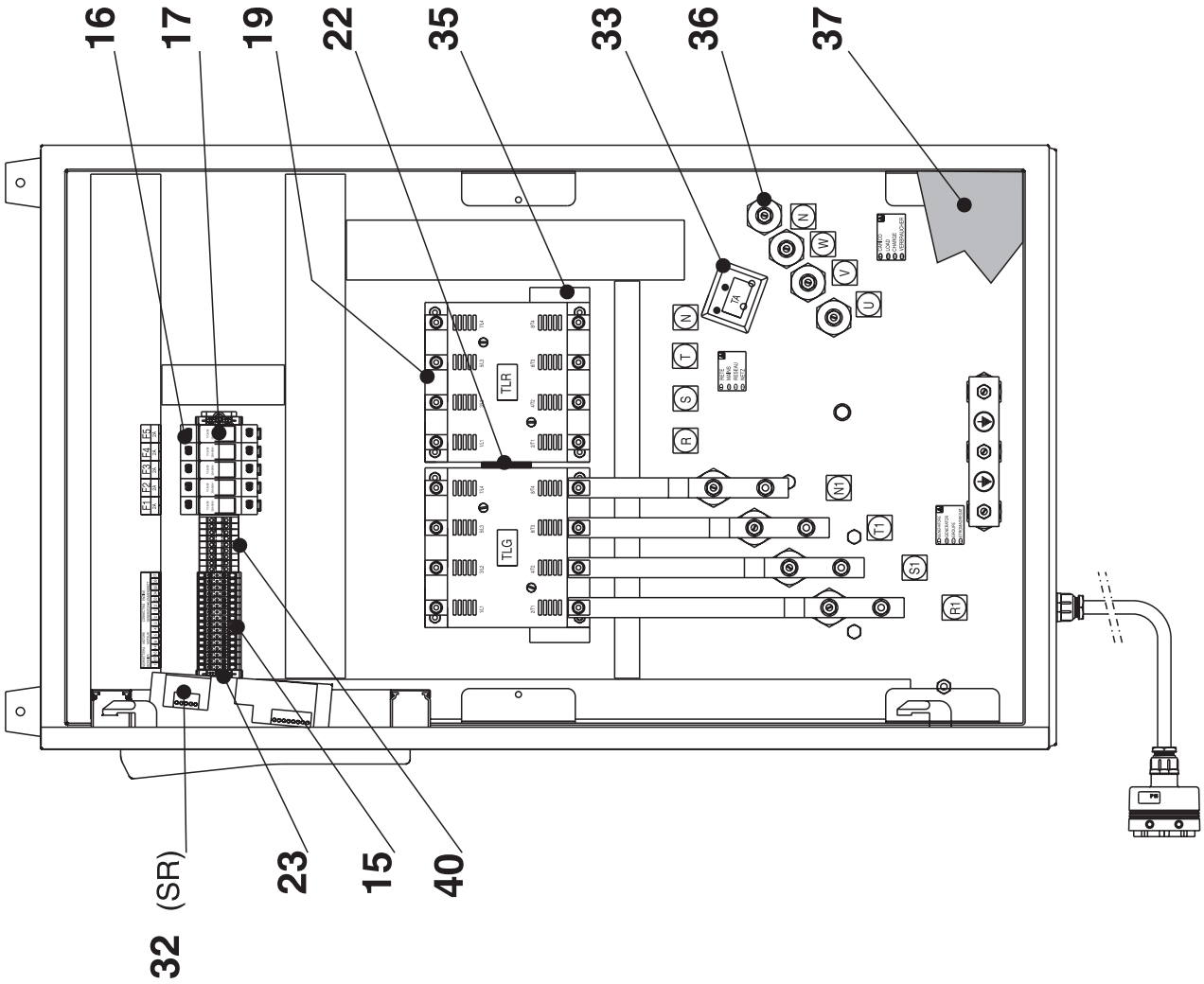


Pos.	*Rev.*	*Cod.*	*Descr.*	*Note*
1	A	E31RGAM22012	***Manca la descrizione aggiuntiva***	vers. MOSA
2		108040000	EAS5 QUADRO INTERV.AUT.4P	vers. MOSA
3	B	933300000	***Manca la descrizione aggiuntiva***	EAS 5DM (era 108050000)
5	B	933310000	***Manca la descrizione aggiuntiva***	EAS 5DT


16
39
6 EAS 22
7 EAS 40
8 EAS 70
3 EAS 22
4 EAS 40
5 EAS 70
9 EAS 22
10 EAS 40
10 EAS 70
15
11 EAS 22
12 EAS 40
12 EAS 70
13 EAS 22
14 EAS 40
14 EAS 70
TA
F1
F2
F3
F4
F5
32 EAS 40 (SR)
32 EAS 70 (SR)
17
18
20 EAS 22
21 EAS 40
21 EAS 70
23


MODEL: TE802
MOSA
EAS-
26 EAS 22
27 EAS 40
28 EAS 70
29
30
25
24

Pos.	Rev.	Cod.	Descr.	Note
3	B	ETAD2605A	*Manca la descrizione aggiuntiva*	EAS 22
4		ETAD21005A	TRASFORMATORE AMPEROMETRICO	EAS 40
5	B	ETAD21505A	*Manca la descrizione aggiuntiva*	EAS 70
6	B	EBF2540220	CONTATTORE	
7		EBF3840220	CONTATTORE	
8	B	EBF6540220	CONTATTORE (EAS70)	
9	C	E230P16	*Manca la descrizione aggiuntiva*	EAS 22-40
10	C	E230P35	*Manca la descrizione aggiuntiva*	EAS 70
11	C	E230PN16	*Manca la descrizione aggiuntiva*	EAS 22-40
12	C	E230PN35	*Manca la descrizione aggiuntiva*	neutro EAS 70
13	C	E230PT16	*Manca la descrizione aggiuntiva*	EAS 22-40
14	C	E230PT35	*Manca la descrizione aggiuntiva*	terra EAS 70
15	C	E230P04	*Manca la descrizione aggiuntiva*	EAS 22-40
16		107509045	PORTAFUSIBILE	
17		1291190	FUSIBILE	2A 10,3x38
18		EG218	BLOCCO CONTATTI AUX	
20	B	EG223	BLOCCHETTO CONTATTI AUX.	EAS 22
21	C	EG2692	*Manca la descrizione aggiuntiva*	EAS 40-70
23	C	E230PF00	*Manca la descrizione aggiuntiva*	
24		108719575	CAVO COMANDO COMPLETO	
25		1297080	PRESSACAVI	
26	C	E202071	*Manca la descrizione aggiuntiva*	60 A
27	C	E202071	*Manca la descrizione aggiuntiva*	100 A
28		E202071	*Manca la descrizione aggiuntiva*	150 A
29	C	E213006	*Manca la descrizione aggiuntiva*	12Vcc
30		ETE80212M	SCHEDA LOG.COMPL.(EAS22/70)	vers. MOSA
32		108730161	KIT ALLARMI SUPPLEMENTARI	SR
39		E230061	*Manca la descrizione aggiuntiva*	


16
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37
TLR
TLG
32 (SR)
23
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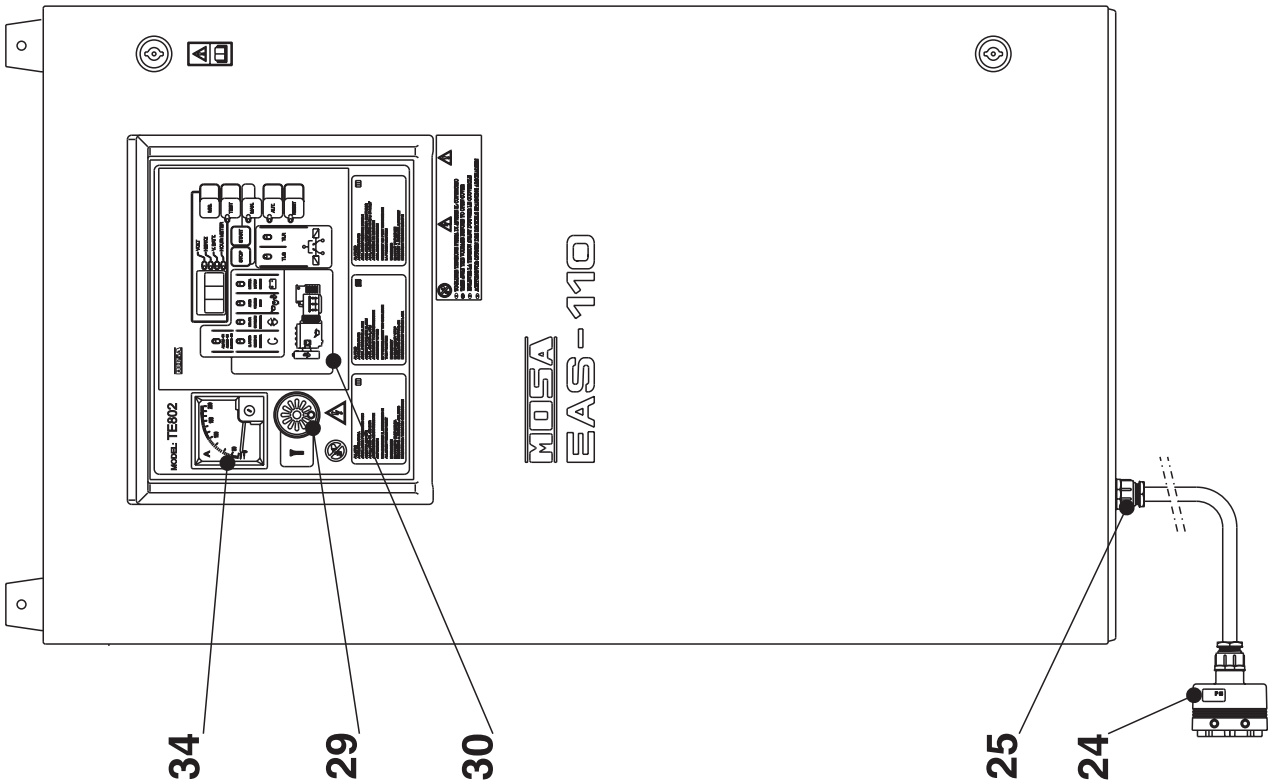
MOSA
EAS-110
MODEL TE802
34
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30
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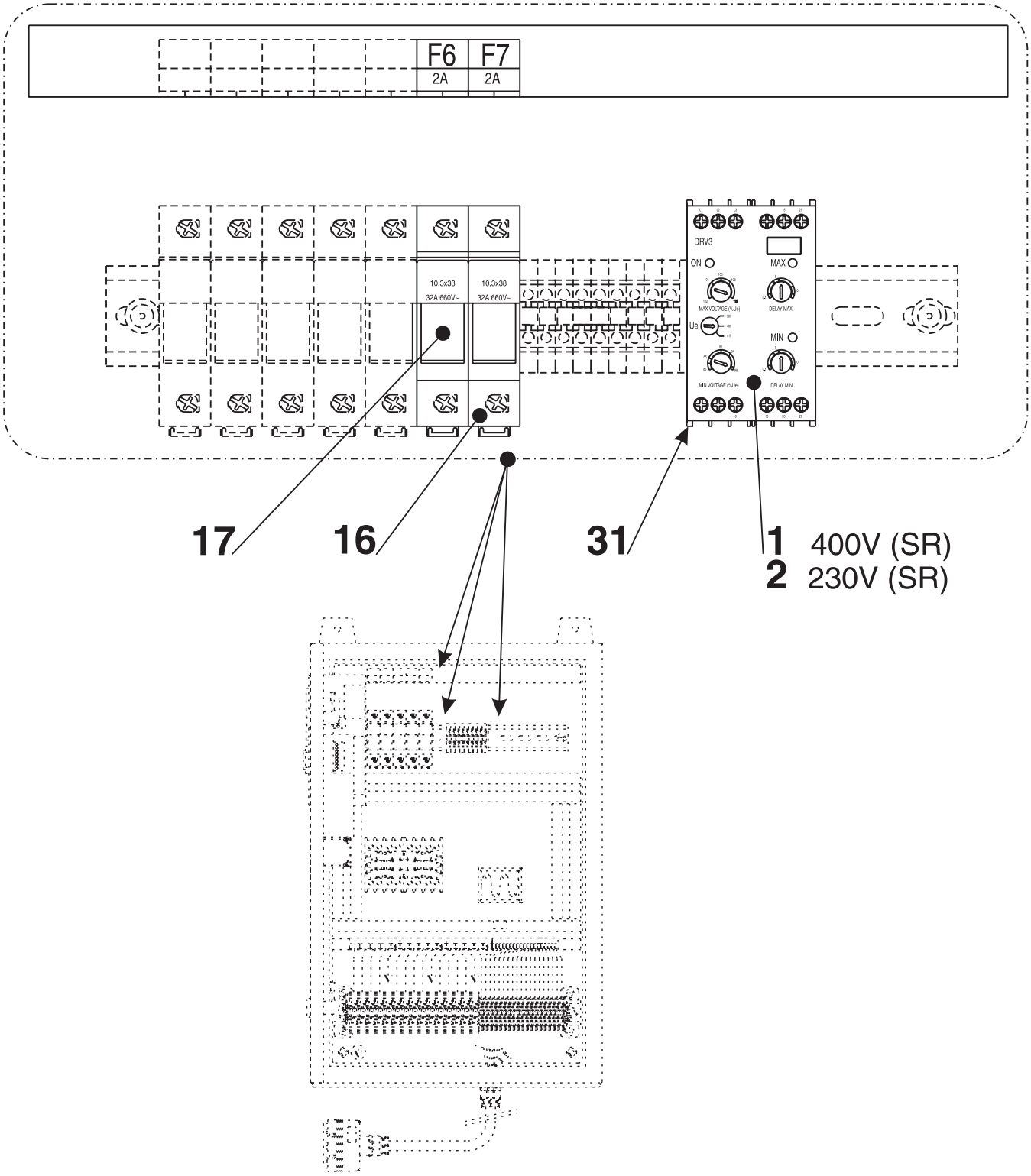
24

Pos.	Rev.	Cod.	Descr.	Note
15	B	E230P04	*Manca la descrizione aggiuntiva*	
16		107509045	PORTAFUSIBILE	
17		1291190	FUSIBILE	2A 10,3x38
19	C	EB115400220	CONTATTORE QUADRIPOLARE	
22		EG355	BLOCCO MECCANICO CONTATTORE	
23	B	E230PF00	*Manca la descrizione aggiuntiva*	
24		108719575	CAVO COMANDO COMPLETO	
25		1297080	PRESSACAVI	
29	B	E213006	*Manca la descrizione aggiuntiva*	12Vcc
30		ETE80212M	SCHEDA LOG.COMPL.(EAS22/70)	vers. MOSA
32		108730161	KIT ALLARMI SUPPLEMENTARI	SR
33		ETAD2005A	TRASFORMATORE AMPEROMETRICO	
34	B	E202071	*Manca la descrizione aggiuntiva*	200 A
35		EG350	CONTATTO AUX	
36	B	EERDB34P10MA	*Manca la descrizione aggiuntiva*	30x30x8 ff
37	B	E257161	*Manca la descrizione aggiuntiva*	
40		E230061	*Manca la descrizione aggiuntiva*	



Pos.	Rev.	Cod.	Descr.	Note
1		108749199	*Manca la descrizione aggiuntiva*	
2			*Manca la descrizione aggiuntiva*	SR
16		107509045	PORTAFUSIBILE	
17		1291190	FUSIBILE	
31		E211002	*Manca la descrizione aggiuntiva*	

MOSA (I) (GB) (F)

REQUEST FOR ORDER SPARE PARTS

R
1.1

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		
table nr.	position	q.ty

OLD TABLES	
code	q.ty

ENGINE SPARE PARTS:

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

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

SYNCHRONOUS ALTERNATOR SPARE PARTS:

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

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