



GE 4500 SX
GE 4500 SXE - EAS
GE 4500 SXE - AVR EAS

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354709003 - GB

USE AND MAINTENANCE MANUAL

SPARE PARTS CATALOG

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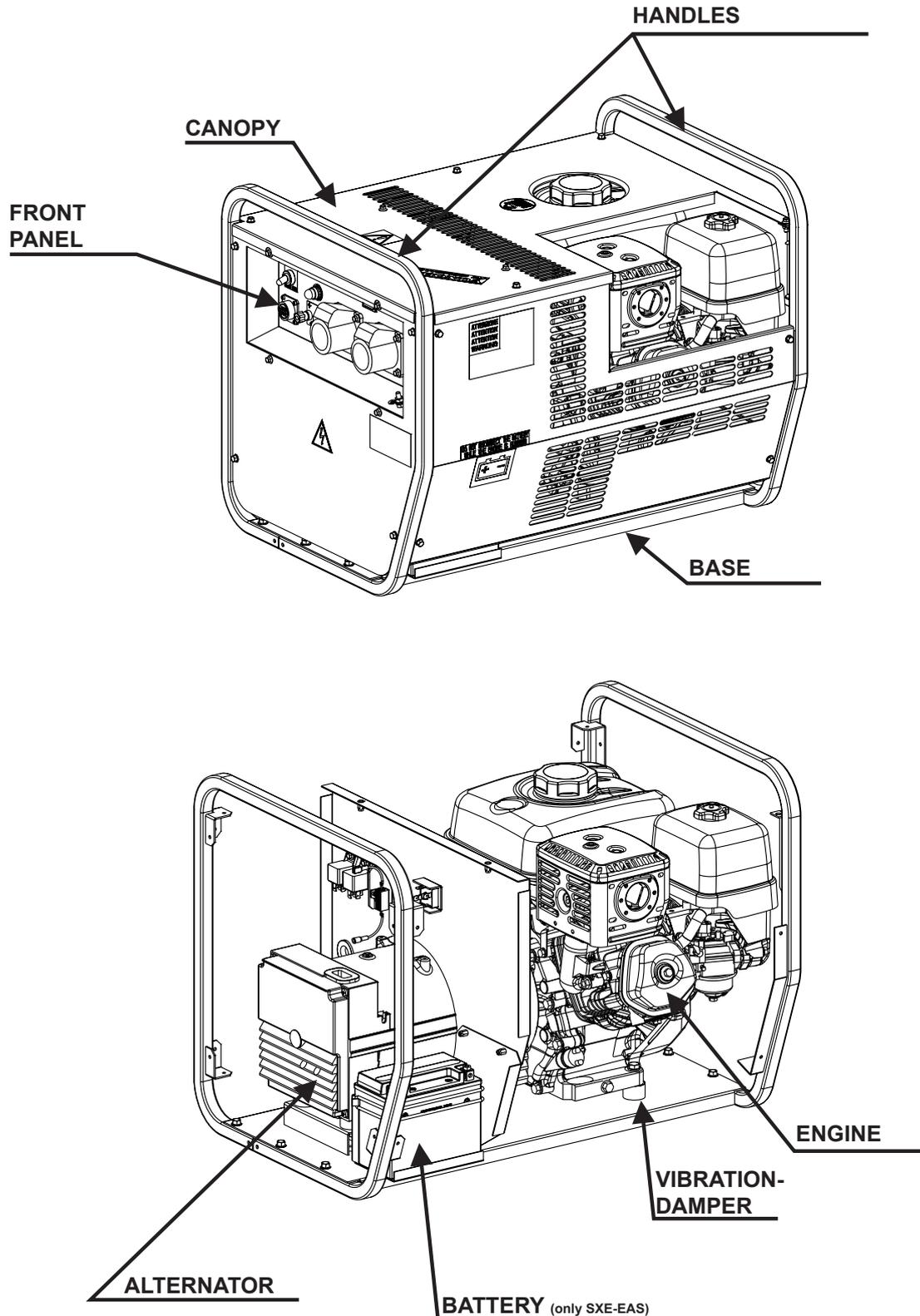
DESCRIPTION OF THE MACHINE

GE 4500 SX
GE 4500 SXE-EAS
GE 4500 SXE-AVR EAS

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REV.0-12/11

The generating set GE 4500 is a unit which transforms the mechanical energy, generated by endothermic engine, into electric energy, through an alternator.

Is meant for industrial and professional use, powered by an endothermic engine; it is composed of various main parts such as: engine, alternator, electric and electronic controls, the fairing or a protective structure. The assembling is made on a steel structure, on which are provided elastic support which must damp the vibrations and also eliminate sounds which would produce noise.





UNI EN ISO 9001 : 2008

ISO 9001:2008 - Cert. 0192

MOSA has certified its quality system according to UNI EN ISO 9001:2008 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 activities 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

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ATTENTION

This use and maintenance manual is an important part of the machines in question.

The assistance and maintenance personnel 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).



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INFORMATION

Dear Customer,
We wish to thank you for having bought 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 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.***

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 the manufacturer from the risks which could happen or, anyway, from that which was agreed when selling the machine. The manufacturer 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: 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 the manufacturer, 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.*



Any of our product is labelled with CE marking attesting its conformity to applicable directives and also the fulfillment of safety requirements of the product itself; the list of these directives is part of the declaration of conformity included in any machine standard equipment. Here below the adopted symbol:

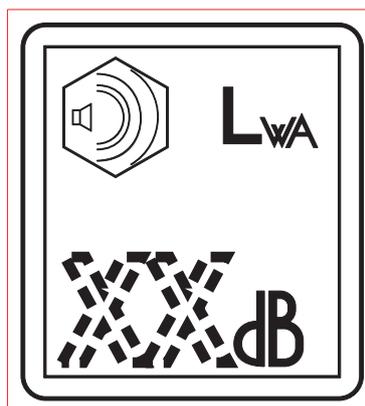


CE marking is clearly readable and unerasable and it can be either part of the data-plate.

		Made in UE-ITALY TYPE SERIAL N°	
	X		
	I ₂ (A)		
U ₀	U ₂ (V)		
	I ₂ (A)		
	U ₀	U ₂ (V)	
Hz	kVA		
P.F.	V (V)		
	I (A)		
	n	RPM	n ₁ RPM IP
	n ₀	RPM	P _{max} KW I. CL.

		Made in UE-ITALY TYPE Generating Set ISO 8528 SERIAL N°	
KVA			
V			
I			
Hz	P.F.	LTP POWER IN ACCORDANCE WITH ISO 8528	
RPM	I. CL.		IP
ALTIT. 100 m	TEMP. 25 °C		MASS

Furthermore, on each model it is shown the noise level value; the symbol used is the following:



The indication is shown in a clear, readable and indeleble way on a sticker.

BCS S.p.A.

Sede legale:
Via Marradi 1
20123 Milano - Italia

Stabilimento di Cusago, 20090 (MI) - Italia

V.le Europa 59
Tel.: +39 02 903521
Fax: +39 02 90390466



ISO 9001:2000 - Cert. 0192

DICHIARAZIONE DI CONFORMITA'



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

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

GRUPPO ELETTROGENO DI SALDATURA / WELDING GENERATOR

GRUPPO ELETTROGENO / POWER GENERATOR

Marchio / Brand : MOSA

Modello / Model : _____

Matricola / Serial number : _____

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

2006/42/CE - 2006/95/CE - 2004/108/CE

Nome e indirizzo della persona autorizzata a costituire il fascicolo tecnico :
Nom et adresse de la personne autorisée à composer le Dossier Technique :
Person authorized to compile the technical file and address :
Name und Adresse der zur Ausfüllung der technischen Akten ermächtigten Person :
Persoon bevoegd om het technische document , en bedrijf gegevens in te vullen
Nombre y dirección de la persona autorizada a componer el expediente técnico :

ing. Benso Marelli - Amministratore Delegato / CEO; V.le Europa 59, 20090 Cusago (MI) - Italy

Cusago,

Ing. Benso Marelli
Amministratore Delegato
CEO

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Technical data	GE 4500 SX	GE 4500 SXE -EAS / GE 4500 SXE -AVR EAS
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GENERATOR		
*Stand-by single-phase output	4.9 kVA (4.4 kW) / 230 V / 21.3 A	
*PRP single-phase output	4 kVA (3.6 kW) / 230 V / 17.4 A	
Frequency	50 Hz	
Cos φ	0.9	
Battery charger	12 Vc.c. - 10A	

* Output powers according to ISO 8528-1

ALTERNATOR		
Type	self-excited, self-regulated, brushless	
Insulating class	synchronous, single-phase H	

ENGINE		
Mark / Model	HONDA / GX 270	
Type / Cooling system	gasoline 4-Stroke OHV / air	
Cylinder / Displacement	1 / 270 cm ³	
*Stand-by net power	5.7 kW (7.7 HP)	
*PRP net power	4.6 kW (6.2 HP)	
Speed	3000 rpm	
Fuel consumption (75% of PRP)	1.6 l/h	
Engine oil capacity	1.1 l	
Starter	Recoil	Electric

* Powers according to SAE J1349

GENERAL SPECIFICATIONS		
Tank capacity	5.3 l	
Running time (75% of PRP)	3.3 h	
Protection	IP 23	
*Dimensions / max. Lxwxh (mm)	660x495x520	
*Weight (dry)	67 Kg	75 Kg
Measured acoustic power LwA (pressure LpA)	96 dB(A) (71 dB(A) @ 7 m)	
Guaranteed acoustic power LwA (pressure LpA)	97 dB(A) (72 dB(A) @ 7 m)	

* Dimensions and weight are inclusive of all parts.

OUTPUT

Declared power according to ISO 8528-1 (temperature 25°C, 30% relative humidity, altitude 100 m above sea level).
 (*Stand-by) = maximum available power for use at variable loads for a yearly number of hours limited at 500 h. No overload is admitted.

(**Prime power PRP) = maximum available power for use at variable loads for a yearly illimited number of hours. The average power to be taken during a period of 24 h must not be over 80% of the PRP.

It's admitted overload of 10% each hour every 12 h.

In an **approximative** way one reduces: of 1% every 100 m altitude and of 2.5% for every 5°C above 25°C.

ACOUSTIC POWER LEVEL

ATTENTION: The concrete risk due to the machine depends on the conditions in which it is used. Therefore, it is up to the end-user and under his direct responsibility to make a correct evaluation of the same risk and to adopt specific precautions (for instance, adopting a I.P.D. -Individual Protection Device)

Acoustic Noise Level (LWA) - Measure Unit dB(A): it stands for acoustic noise released in a certain delay of time. This is not submitted to the distance of measurement.

Acoustic Pressure (Lp) - Measure Unit dB(A): it measures the pressure originated by sound waves emission. Its value changes in proportion to the distance of measurement.

The here below table shows examples of acoustic pressure (Lp) at different distances from a machine with Acoustic Noise Level (LWA) of 95 dB(A)

Lp a 1 meter = 95 dB(A) - 8 dB(A) = 87 dB(A)

Lp a 7 meters = 95 dB(A) - 25 dB(A) = 70 dB(A)

Lp a 4 meters = 95 dB(A) - 20 dB(A) = 75 dB(A)

Lp a 10 meters = 95 dB(A) - 28 dB(A) = 67 dB(A)

PLEASE NOTE: the symbol  when with acoustic noise values, indicates that the device respects noise emission limits according to 2000/14/CE directive.

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 assist you in the correct use of the machine and/or accessories.

SYMBOLS



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 people.

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.



INSTALLATION AND ADVICE BEFORE USE

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

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



FIRST AID. In case the operator should 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 dioxide) 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 inflammability point is very low.

WARNING					CAUTION		DANGEROUS

WARNING	THE MACHINE <u>MUST NOT BE USED</u> IN AREAS WITH EXPLOSIVE ATMOSPHERE
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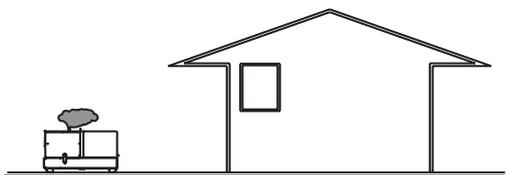
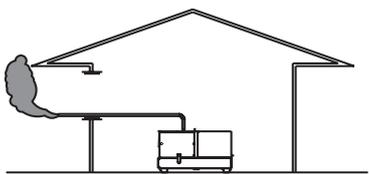
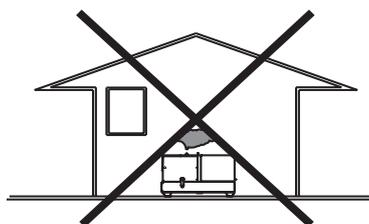
INSTALLATION AND ADVICE BEFORE USE

GASOLINE ENGINES

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

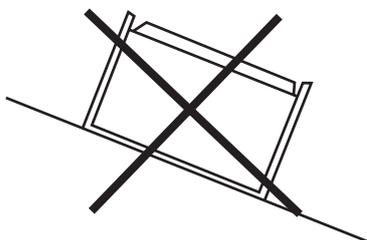
DIESEL ENGINES

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

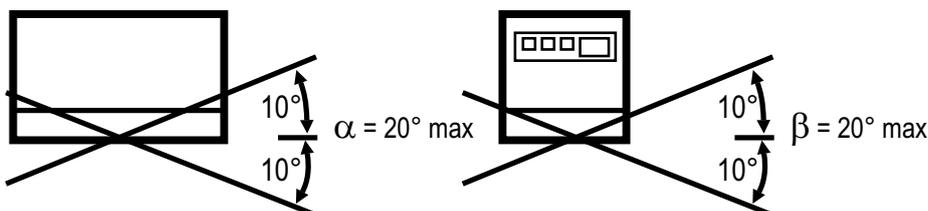


POSITION

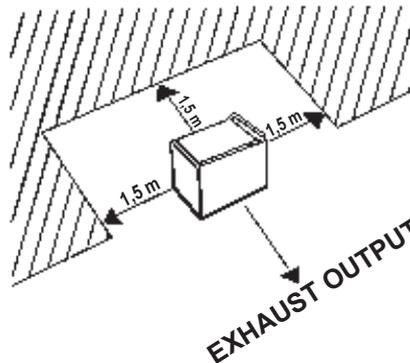
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



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

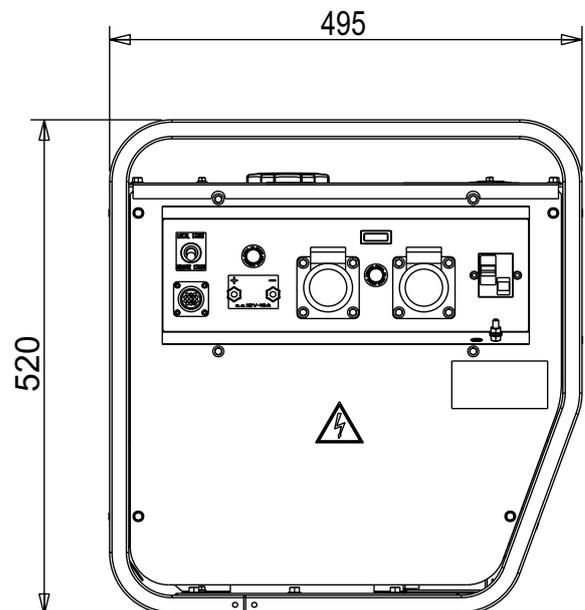
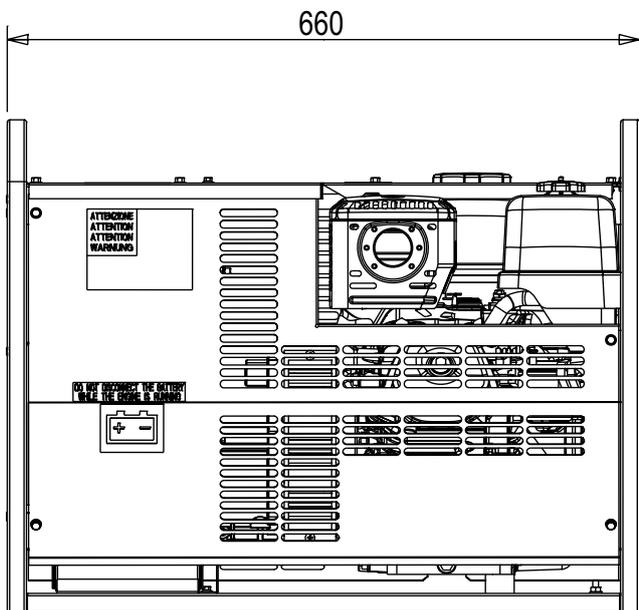
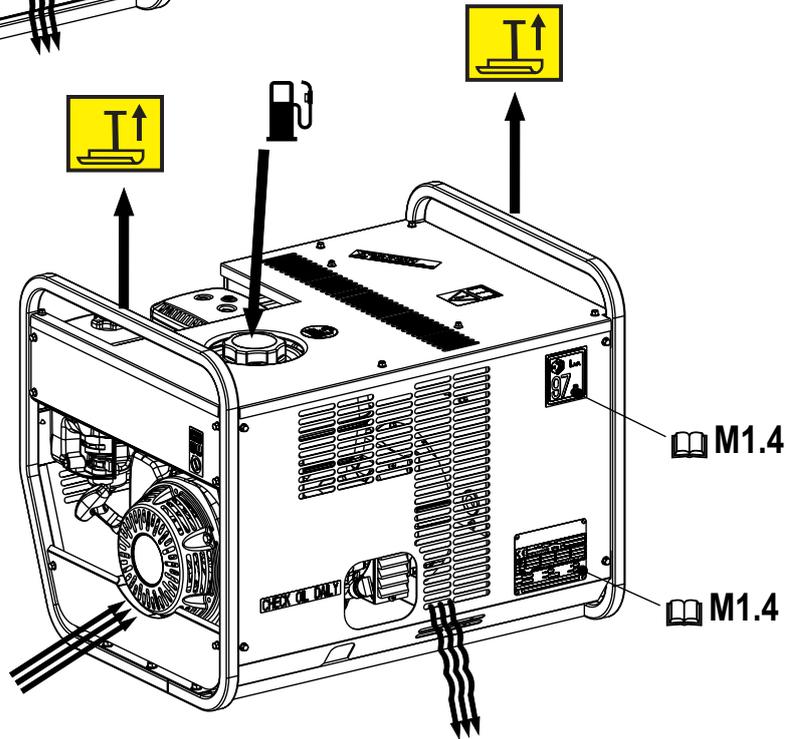
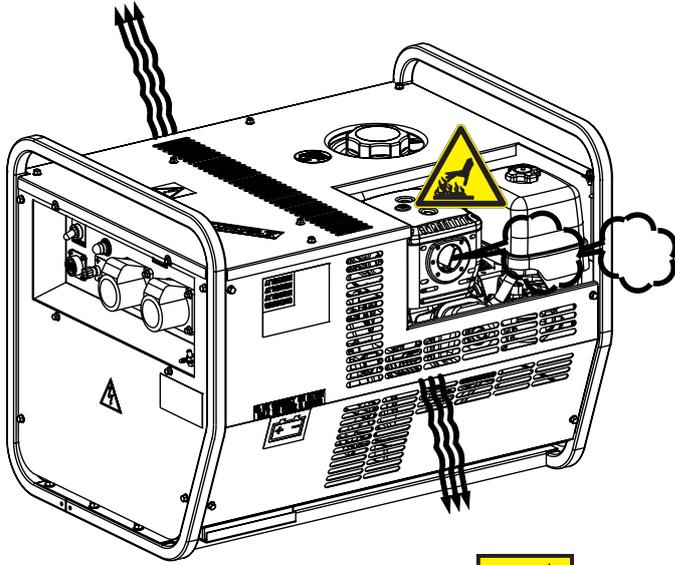


ATTENTION

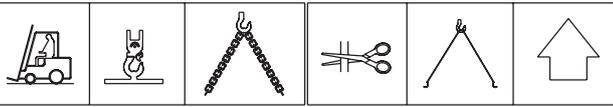


For a safer use from the operator **DO NOT** fit the machine in locations with high risk of flood.

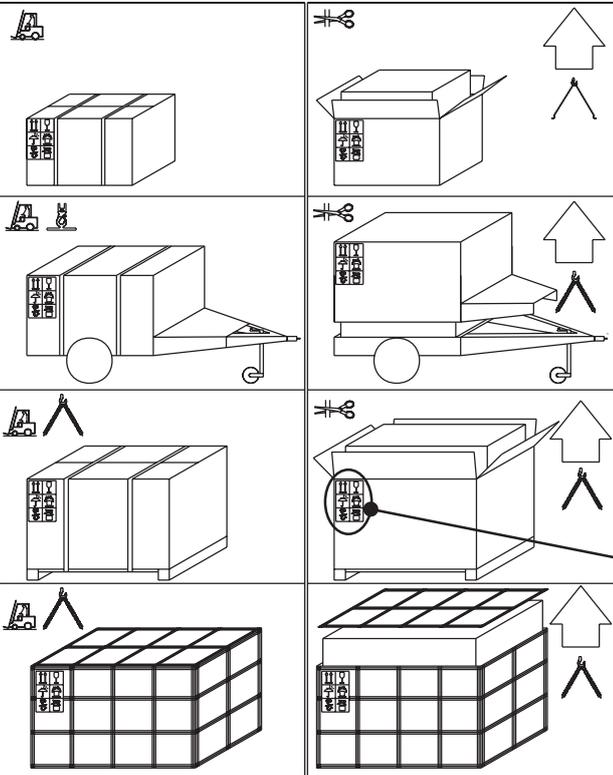
Please do not use the machine in weather conditions which are beyond IP protection shown both in the data plate and on page named "technical data" in this same manual.



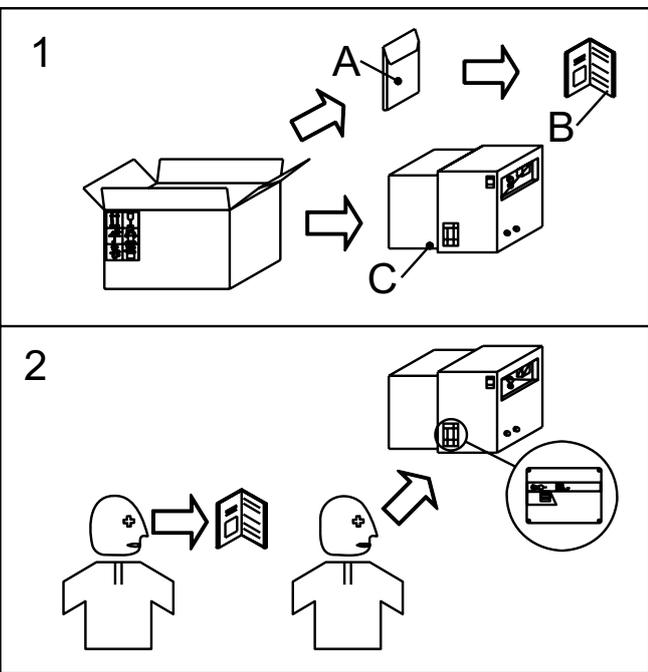
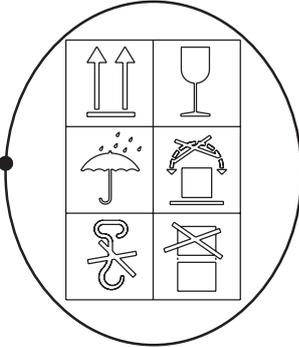
 **NOTE**



Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with its packaging, and conforms to local rules and regulations. When receiving the goods make sure that the product has not suffered damage during the transport, that there has not been rough handling or taking away of parts contained inside the packing or in the set. In case you find damages, rough handling or absence of parts (envelopes, manuals, etc.), we advise you to inform immediately our Technical Service.



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



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



NOTE

Transportation must always take place with the engine off, electrical cables and starting battery disconnected and fuel tank empty.

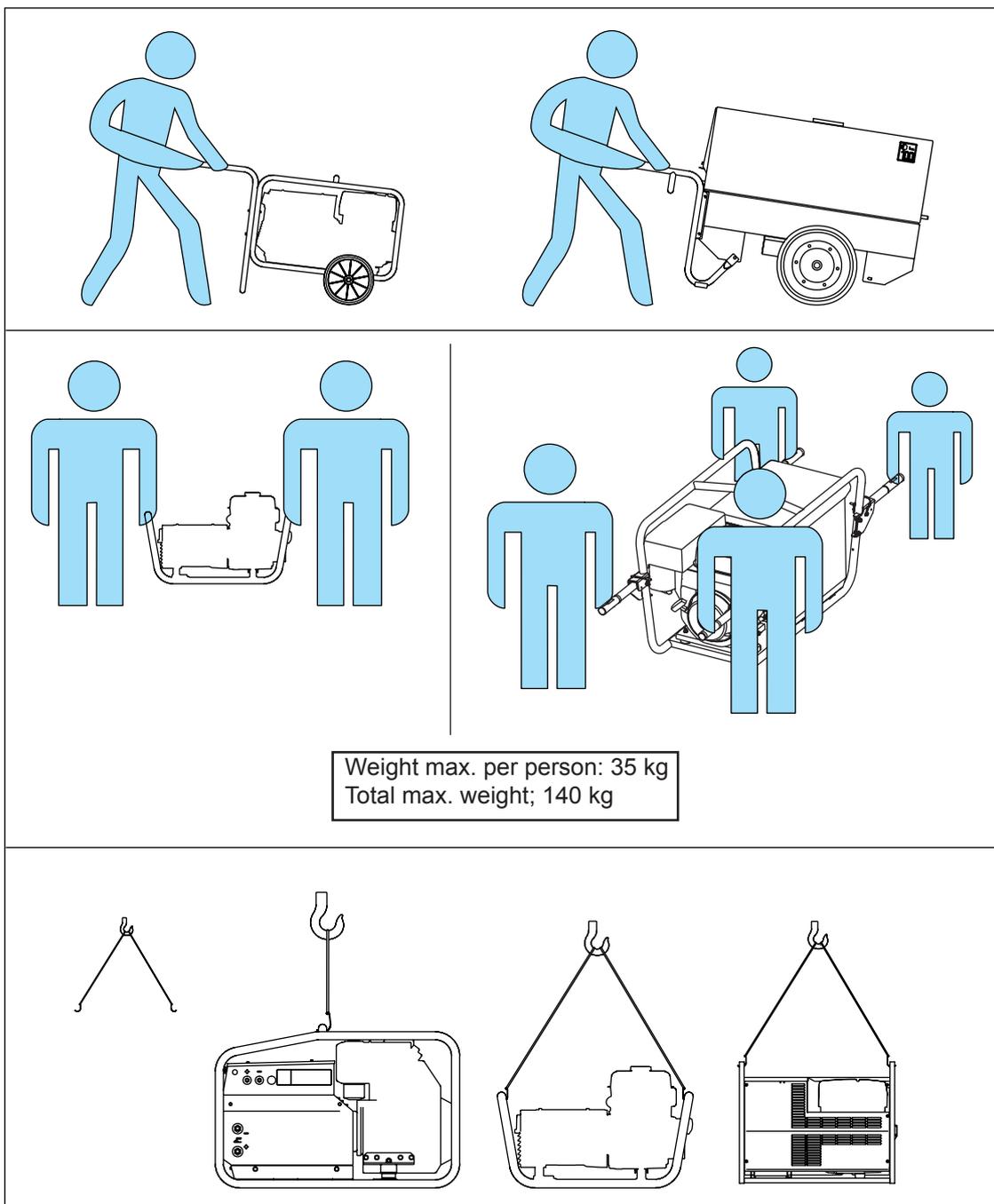
Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with its packaging, and conform to local rules and regulations.

Only authorized persons involved in the transport of the machine should be in the area of movement.

DO NOT LOAD OTHER PARTS WHICH CAN MODIFY WEIGHT AND BARICENTER POSITION.

IT IS STRICTLY FORBIDDEN TO DRAG THE MACHINE MANUALLY OR TOW IT BY ANY VEHICLE (model with no CTM accessory).

If you did not keep to the instructions, you could damage the structure of the machine.



The Kit, exhaust extension, has the aim to remove the exhaust vapours of the penetrating set from the work area; therefore we show the assembling process for the application of the Kit PS 4.5 (cod. n°. M306410062).

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

DISASSEMBLE:

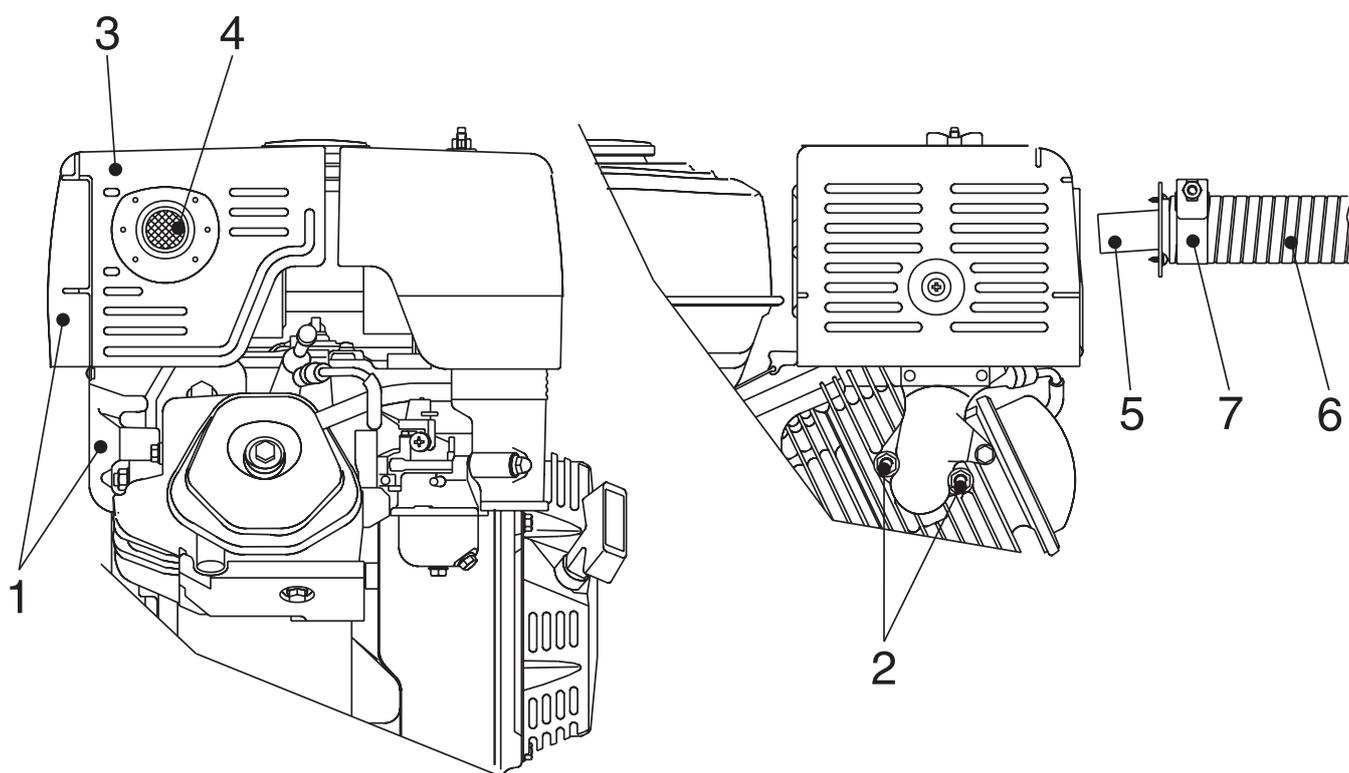
- a) the side cover, exhaust muffler side (where it is assembled)
- b) the exhaust complete with manifold (1) unscrewing the nuts (2) which fix it to the engine head.

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

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

ASSEMBLE:

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





SET-UP FOR OPERATION

GE 3200 SX
GE 4500 HBS / HBS AVR
GE 4500 SX / SXE-EAS / SXE-AVR EAS

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BATTERY WITHOUT MAINTENANCE

(where it is assembled)

The included battery must be activated.
To activate it (fill the included acid) please follow the instructions shown on the manual attached to the battery.
When battery is activated, **DON'T** add any other liquid.



LUBRICANT

Please refer to the motor operating manual for the recommended viscosity.

RECOMMENDED OIL

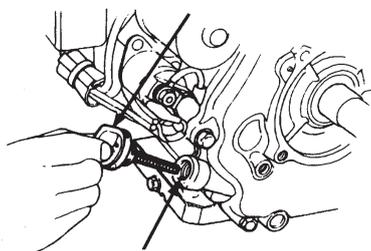
MOSA recommends selecting **AGIP** engine oil. Refer to the label on the motor for the recommended products.

 PRODOTTI RACCOMANDATI RECOMMENDED PRODUCTS	
AGIP SIGMA TURBO PLUS 15W/40 API CG4 - ACEA E3	OLIO MOTORE DIESEL DIESEL ENGINE OIL <input type="checkbox"/>
AGIP SUPERMOTOROIL 20W/50 API CC-SF	OLIO MOTORE BENZINA GASOLINE ENGINE OIL <input type="checkbox"/>
AGIP ANTIFREEZE EXTRA INIBITE ETHYLENE GLYCOL (50% + 50% + H ₂ O)	CIRCUITO DI RAFFREDDAMENTO COOLING CIRCUIT (CUNA NC 956-16 ED 97) <input type="checkbox"/>

To check the oil level:

1. Remove the oil-fill tap (24) and clean the dip-stick (23).
2. Insert the dip-stick into the oil filler without screwing it in.
3. If the oil level is low, fill with recommended oil up to the top of the oil filler

Oil fill tap / dip-stick



Upper oil level

MOTORS WITH OIL ALERT DEVICE

The "Oil Alert" system is designed to prevent damage to the motor due to an insufficient quantity of oil in the cup. This system automatically shuts off the motor before the oil level falls below the safety limit. If the motor does not start up again after shutting itself off, check the oil level.



AIR FILTER

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



FUEL



WARNING



Gasoline is highly flammable. Refuel with motor shut off in a flat surfaced well-ventilated area. Do not refuel in the presence of flames. Avoid spilling fuel.



Any eventual spilled fuel and fumes are flammable. Clean any dispersions of fuel before starting up the motor.

Fill the tank with gasoline for automobiles (preferably lead free or with low lead content in order to reduce deposits in the combustion chamber to a minimum).

For further details on the type of gasoline to use, see the motor operating manual supplied.

Do not fill the tank completely; leave a space of approx. 10 mm between the fuel level and the wall of the tank to allow for expansion.



GROUND CONNECTION

Proper grounding is obligatory for all models featuring a ground fault interruptor [G.F.I.] switch. This safety device functions correctly only if the machine is grounded.

Use a good quality grounding cable and connect it to the machine's ground terminal (12). Abide by local norms and/or laws concerning safety and electrical installations.

When these operations have been carried out, the unit can be started up for operation.





Check Daily

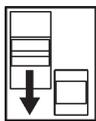
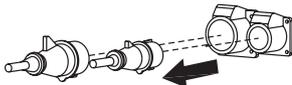
ELECTRIC STARTING



NOTE

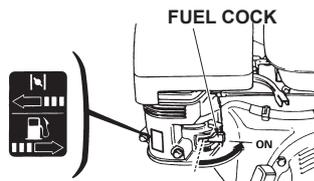
Do not alter the primary conditions of regulation and do not touch the sealed parts.

1. Position the LOCAL START / REMOTE START (I6) selector on LOCAL START;
2. make sure the load plugs are disconnected

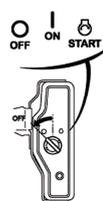


or the G.F.I. switch (D) is not inserted (intervention/insertion lever facing down), so as to ensure the motor's start-up without any loads inserted;

3. Open the gasoline tap (87) by turning it towards the inside;



4. Turn the start-up key (Q1) to the ON position;
5. Move the CHOKE control to close and simultaneously turn the key to the START position, holding it until the motor has started;
6. Leave the key in the ON position, then wait a few moments before releasing the choke control; if the motor tends to shut itself off move the choke control once again until the motor has properly started up.



- Do not use the CHOKE control if the motor is hot or if the ambient temperature is sufficiently high.
- In case of unsuccessful start-up, do not insist for longer than 5 seconds. Wait 10 seconds before attempting another start-up.**

REMOTE START

The unit can also be started by means of the remote TCM control device, or through the EAS automatic intervention panel.

1. Position the LOCAL START / REMOTE START (I6) selector on REMOTE START;
2. Connect to the EAS (B3) connector the TCM or the EAS panel.

Start-up with TCM

Use the controls located on the TCM in the same manner as described for start-up from the front panel.

Start-up with EAS

The EAS panel will automatically manage the start-up. See operating manual for EAS panel.

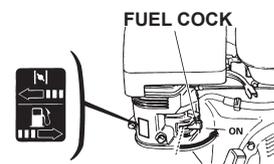
NB: it is necessary to unplug the EAS cable from its connector to allow the engine to start.



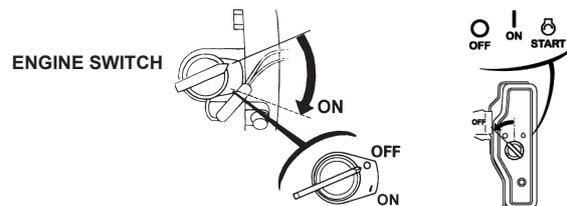
RECOIL STARTING

Procedure to be followed also in case of emergency start of electric start models.

1. Turn the fuel cock (87) to ON.
2. Switch the choke control (66) to CLOSE



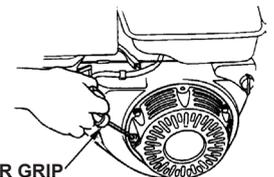
3. Turn the engine switch (28) to the ON position



4. Lightly pull the start-up knob (73) until meeting resistance, then pull decisively.

ATTENTION:

Allow the start-up knob to re-enter slowly, avoiding having it knock against the motor and thereby damaging the start-up system.



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



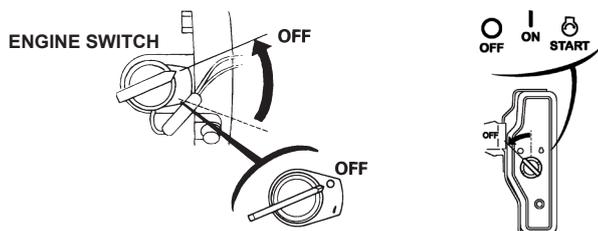
CAUTION

RUNNING-IN

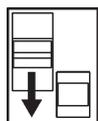
During the first 50 hours of operation, do not use more than 60% of the maximum output power of the unit and check the oil level frequently, in any case please stick to the rules given in the engine use manual.



For shut down the motor in case of emergency, turn the motor switch to OFF.

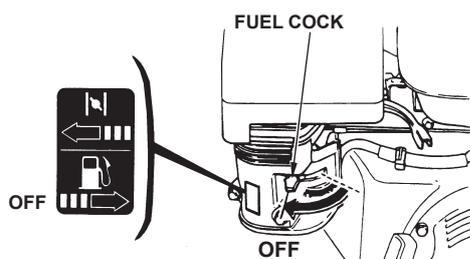


To stop the motor under normal conditions, proceed as follows:



- interrupt the power source, switching off all tools connected. If a tool does not feature a power switch, lower the G.F.I. switch lever (D);

- allow the motor to run without any load for a few minutes;
- turn the engine switch to OFF;
- turn the fuel valve to the OFF position.



FOR EAS VERSION

Position the LOCAL START /REMOTE START (I6) selector on LOCAL START;



WARNING

The start-up selector (I6) LOCAL START / REMOTE START enables the start-up and stop controls for the selected position.

From the REMOTE START position, the start-up key on the front panel is completely disabled; to stop the generator, use the controls on the TCM or EAS panel.

SHUT-DOWN FROM REMOTE

The unit can also be shut down by means of the TCM remote control or EAS panel.

- Check that the EAS (B3) connector is connected to the cable from the TCM or EAS panel.
- Verify or position the LOCAL START / REMOTE START (I6) selector on REMOTE START.

SHUT-DOWN with TCM

Follow the operating procedures for shut-down under normal or emergency conditions, as described in the paragraph SHUT-DOWN FROM FRONT PANEL, using the key (Q1) on the TCM .

SHUT-DOWN with EAS

Shut-down is controlled automatically. See operating manual for the EAS panel. At the end of each use of the generator, close the gasoline tap (87).

In case of an extended period of inactivity of the generator, switch off the motor by closing the gasoline tap (87); this precautionary measure serves to avoid probable deposits in the carburettor.

NB.: as a safety measure the start-up key must be entrusted to qualified personnel.

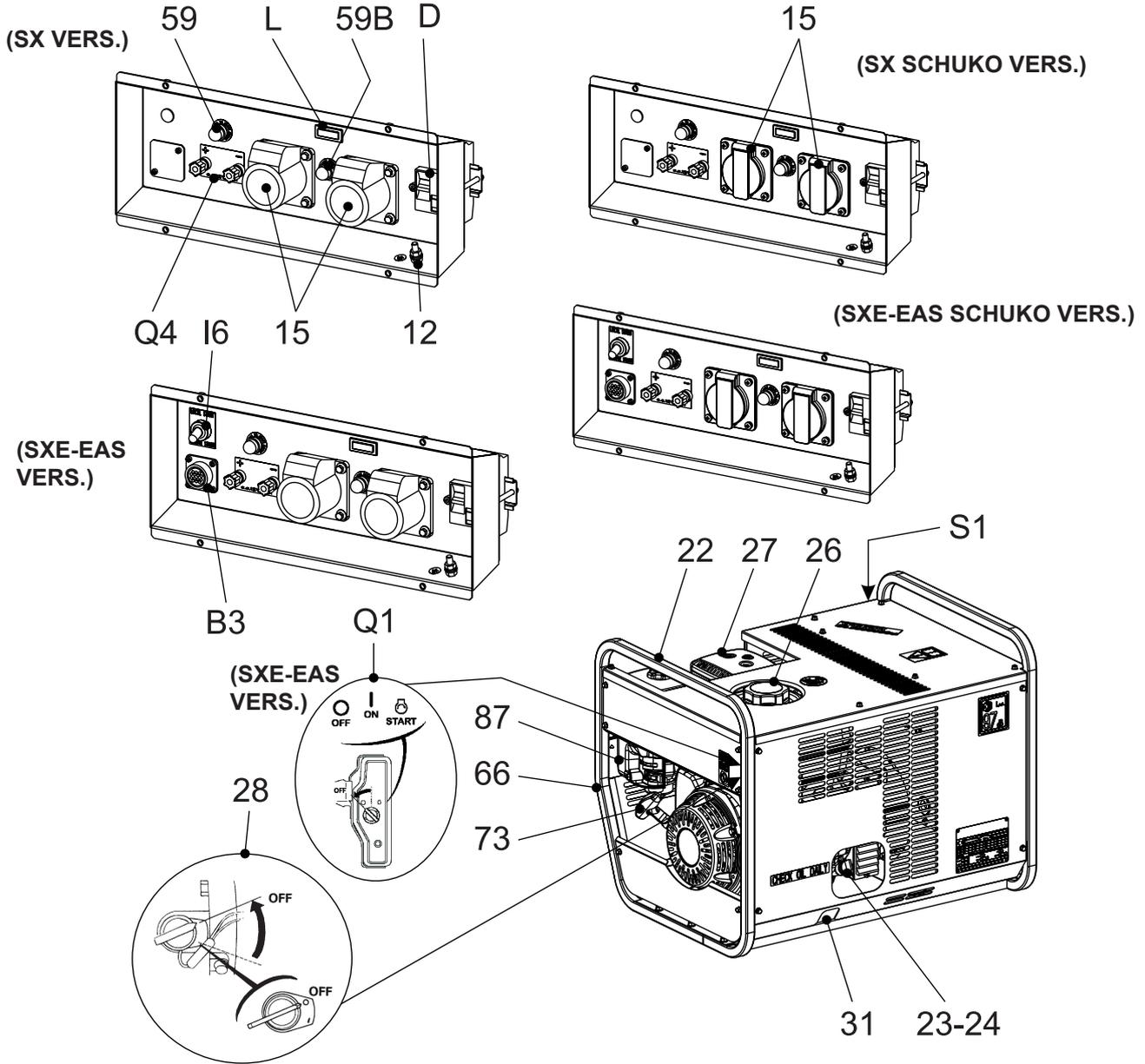


(I) Comandi
 (GB) Controls
 (F) Commandes

(D) Bedienelemente
 (E) Mandos
 (NL)

GE 4500 SX
 GE 4500 SXE-EAS
 GE 4500 SXE-AVR EAS

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Pos	Descrizione	Description	Description	Descripción
12	Presa di messa a terra	Earth terminal	Prise de mise à terre	Toma de puesta a tierra
15	Presa di corrente in c.a.	A.C. socket	Prises de courant en c.a.	Toma de corriente en c.a
22	Filtro aria motore	Engine air filter	Filtre air moteur	Filtro aire motor
23	Asta livello olio motore	Oil level dipstick	Jauge niveau huile moteur	Aguja nivel aceite motor
24	Tappo caricamento olio motore	Engine oil reservoir cap	Bouchon remplissage huile moteur	Tapón llenado aceite motor
26	Tappo serbatoio	Fuel tank cap	Bouchon réservoir	Tapón depósito
27	Silenziatore di scarico	Muffler	Silencieux d'échappement	Silenciador de descarga
28	Comando Stop	Stop control	Commande stop	Mando stop
31	Tappo scarico olio motore	Oil drain tap	Bouchon décharge huile moteur	Tapón vaciado aceite motor
59	Protezione termica c.b	Battery charger thermal switch	Protection thermique c.b.	Protección térmica c.b..
59B	Protezione termica corrente aux	Aux current thermal switch	Protection thermique courant aux.	Protección térmica corr. aux
66	Comando CHOKE	CHOKE button	Bouton CHOKE	Pulsador CHOKE
73	Comando manuale avviamento	Starting push button	Commande manuelle démarrage	Mando manual arranque
87	Rubinetto carburante	Fuel cock	Robinet de l'essence	Grifo de combustible
88	Siringa olio	Oil syringe	Siringue huile	Jeringa aceite
B3	Connettore E.A.S.	E.A.S. connector	Connecteur E.A.S.	Conector E.A.S.
D	Interruttore differenziale (30mA)	G.F.I.	Interrupteur différentiel	Interruptor diferencial (30 mA)
I6	Selettore Start Local/Remote	Start Local/Remote selector	Selecteur Start Local/Remote	Selector Start Local/Remote
L	Spia luminosa corrente alta	A.C. output indicator	Voyants tension alternative	Indicadores luminosos corriente alterna
Q1	Chiave di avviamento	Starter key	Clé de démarrage	Llave de arranque
Q4	Prese carica batteria	Battery charge sockets	Prises charge batterie	Toma carga batería
S1	Batteria	Battery	Batterie	Batería



DANGEROUS

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



Access forbidden to area adjacent to electricity-generating group for all non-authorized personnel.

The electricity-generating groups are to be considered electrical energy producing stations.

The dangers of electrical energy must be considered together with those related to the presence of chemical substances (fuels, oils, etc.), rotating parts and waste products (fumes, discharge gases, heat, etc.).

GENERATION IN AC (ALTERNATING CURRENT)

Make certain of the efficiency of the ground connection (12).

- See page M25.

230V version

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

☞ Tension is now immediately available to the A.C sockets.

Check that the GREEN lamp over AUX socket is ON (where present).

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

☞ Verify that the electrical characteristics of the tension/frequency/power device are compatible with those of the generator.

Low frequency and/or voltage can damage some electrical devices irreparably.

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

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

THERMOPROTECTION

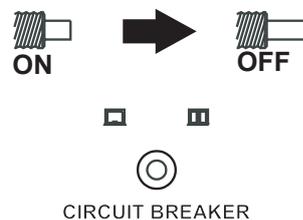
The generator is protected against overloads by the thermoprotection (59B).

When current is exceeded, the protection feature intervenes to cut off tension to the AC sockets.

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

In case of intervention by the protection feature, verify that the total power for the loads connected

does not exceed the declared rating; decrease if necessary. Disconnect the loads and wait a few minutes to allow the thermo-protection to cool down.



Reset the protection feature by pressing the central pole, then connect the load once again.

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

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

GROUND FAULT INTERRUPTOR SWITCH

The high-sensitivity ground fault interruptor switch [G.F.I.] (30mA) (D), guarantees protection against indirect contacts due to faulty ground currents .

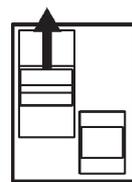
When the G.F.I. switch picks up a faulty ground current that is higher than 30mA, it intervenes by immediately cutting off tension to the AC sockets.

In case of intervention by this protection feature, reset the G.F.I. switch, bringing the lever to the ON position.

In case of another intervention, verify that no faulty tools are connected, or replace the G.F.I. switch with another of matching specifications and/or contact the Service Department.

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

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





USE AS A GENERATING SET

GE 4500 SX
GE 4500 SXE - EAS
GE 4500 SXE-AVR EAS

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GENERATION IN C.C. (Continuous Current)

Maximum power in c.c.:

$$P = 120W - V= 12V AC$$

$$I = 10A$$

Generation in c.c. is mainly used to recharge lead batteries.

- Verify that the battery to be charged is not a dry battery, and that it is 12V c.c.
- Position the generator and battery on a flat surface and distant from one another.
- Connect the battery recharge cables one at a time, avoiding accidental contacts between them.

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

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

THERMOPROTECTION

The 12V c.c. output is protected against overloads by the thermoprotection device (59).

When current is exceeded, the protection feature intervenes to cut off tension to the c.c. terminals (Q4).

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

In case of intervention by the protection feature, verify that:

- the c.c. terminal /battery connections respect the polarities;
- the battery is not faulty or has a short-circuited element;
- the battery level is not too low, with the consequent recharge current being too high.

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

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



ATTENTION

The batteries produce explosive gas; sparks, flames, cigarettes, are to be kept far from them. Make sure that when they are being recharged there is adequate ventilation around the battery.

The battery contains sulphuric acid (electrolyte). The contact with eyes and skin may cause severe lesions. Wear protective garments and eye protections.
If the electrolyte comes in contact with the skin, wash with plenty of water.
If the electrolyte comes in contact with the skin, wash with plenty of water. If it comes in contact with the eyes wash with fluent water for at least 15 minutes and rush for a doctor.

The electrolyte is poisonous.
If swallowed drink plenty of water or milk, then milk of magnesia or vegetable oil and call for a doctor.
Keep away from children.





MAKE SURE

When the TCM 15 - 6 is used, it is not possible to connect the E.A.S automatic intervention unit.

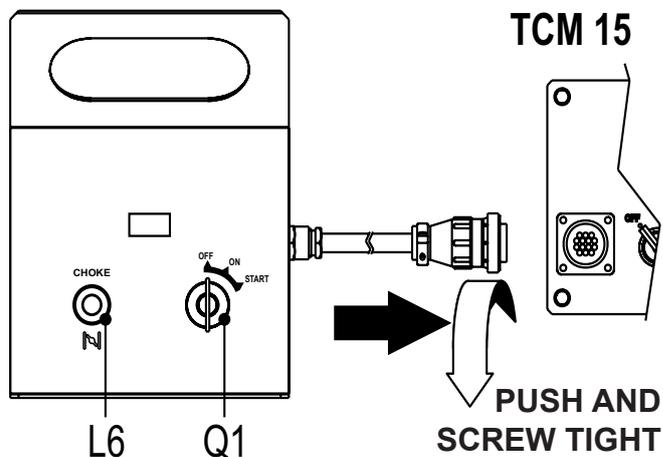
USE OF THE REMOTE CONTROL TCM 15

The coupling of the TCM 15 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 15 assures the following fonctions:

- starting (starting key Q1)
- stop (starting key Q1)
- choke control (L6)



USE OF THE REMOTE CONTROL TCM 6

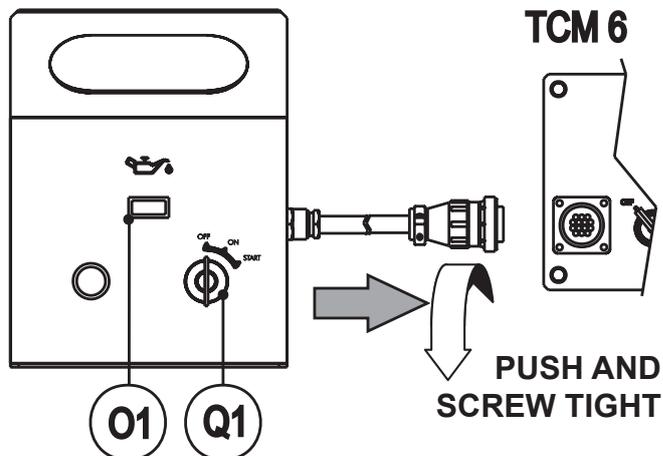
The coupling of the TCM 6 with the generating set, ready for remot starting, permits to work far from the set itself.

The remote control is connected to the front plate, and/or rear plate, with a multiple connector.

The TCM 6 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".



N.B.: the position of the selector LOCAL START/ REMOTE START (I6) on the generating sets must be on the position "REMOTE START".

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Trouble shooting

F

GE 4500 HSX

GE 4500 SX / GE 4500 SXE - EAS

GE 4500 SXE-AVR EAS

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Problem	Possible cause	Solution
The motor does not start up, or starts up and then stops immediately	<ol style="list-style-type: none"> 1) Key/engine switch and start-up selector in the wrong positions 2) Lack of or insufficient oil in the motor 3) Faulty motor stopping device (oil-alert) 4) Lack of fuel in tank or fuel tap closed 5) Dirty or faulty spark plug 6) Battery not activated, low or faulty 7) Faulty start relay 8) Cold motor 9) Other causes 	<ol style="list-style-type: none"> 1) Verify start-up procedure in the Operating Manual 2) Refill or top off 3) Replace 4) Refill the tank. Open the fuel tap 5) Clean or check and eventually replace 6) Activate, recharge, or replace the battery 7) Replace 8) Hold the CHOKE control, after start-up, for a longer period of time 9) Consult the motor Operating Manual.
Lack of tension to the AC sockets	<ol style="list-style-type: none"> 1) G.F.I. switch in the OFF position 2) Intervention of G.F.I. switch due to faulty ground current 3) Faulty G.F.I. switch 4) Intervention of circuit breaker (thermo-protection) 5) Faulty thermoprotection 6) Faulty alternator 7) AVR fuse blown 8) Faulty AVR 	<ol style="list-style-type: none"> 1) Position to ON 2) Disconnect load from AC sockets. Position the G.F.I. switch to ON; if the switch intervenes once again, the fault is on board the machine. Contrarily, the cause of the G.F.I. switch intervention is due to a faulty ground current in the load or connection cable. Find and remove the fault. 3) Replace 4) Check total power supplied by generator; if greater than the power reported on the specification nameplate, decrease the load 5) Replace 6) Check rotating diode windings, alternator excitation capacitor. See specific alternator manual. 7) Check and replace 8) Check and replace
(Only AVR Vers.)		
No-load output voltage too low or too high	<ol style="list-style-type: none"> 1) Incorrect motor speed 2) Faulty alternator 3) AVR out of calibration or fault 	<ol style="list-style-type: none"> 1) Set the motor's no-load speed 2) Check rotating diode windings, alternator excitation capacitor. See specific alternator manual. 3) Adjust VOLT potentiometer of the AVR replace
(Only AVR Vers.)		
No-load voltage OK, too low with load	<ol style="list-style-type: none"> 1) Faulty alternator 2) Overload 3) Number of motor rpm too low 4) Faulty AVR 	<ol style="list-style-type: none"> 1) Replace rotating diodes 2) Check total load and eventually decrease 3) Check the fuel supply circuit. See Motor Operating manual. 4) Check and replace
(Only AVR Vers.)		
Lack of tension to the c.c. terminals	<ol style="list-style-type: none"> 1) Thermoprotection intervention 2) Faulty thermoprotection 3) Faulty diode bridge rectifier 4) Faulty alternator winding 	<ol style="list-style-type: none"> 1) Check the load current and eventually decrease it. 2) Replace 3) Replace 4) Replace
The battery discharges itself frequently	<ol style="list-style-type: none"> 1) Intervention of battery charge thermo-protection 2) Faulty battery charge circuit 3) If connected to EAS automatic panel. 	<ol style="list-style-type: none"> 1) Reset thermoprotection circuit breaker. In case of new intervention, check battery. 2) Check: battery charge winding, battery charge diode, T1 and M3 respectively on electrical diagram. Replace. 3) Replace panel (faulty battery charge circuit on EAS panel).

 WARNING		
	<ul style="list-style-type: none"> • 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. <p>- See pag. M1.1 -</p>	
MOVING PARTS can injure		HOT surface can hurt you

NOTE

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.

Maintenance operations also include machine cleaning operations when carried out on a periodic basis outside of the normal work cycle.

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

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

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.

maintenance intervals and specific checks for each model: it is necessary to consult the specific engine or alternator USER AND MAINTENANCE manual.

VENTILATION

Make certain there are no obstructions (rags, leaves or other) in the air inlet and outlet openings on the machine, alternator and motor.

ELECTRICAL PANELS

Check condition of cables and connections daily. Clean periodically using a vacuum cleaner, **DO NOT USE COMPRESSED AIR.**

DECALS AND LABELS

All warning and decals should be checked once a year and **replaced** if missing or unreadable.

STRENUOUS OPERATING CONDITIONS

Under extreme operating conditions (frequent stops and starts, dusty environment, cold weather, extended periods of no load operation, fuel with over 0.5% sulphur content) do maintenance more frequently.

BATTERY WITHOUT MAINTENANCE DO NOT OPEN THE BATTERY

The battery is charged automatically from the battery charger circuit supplied with the engine.

Check the state of the battery from the colour of the warning light which is in the upper part.

- Green colour: battery OK
- Black colour: battery to be recharged
- White colour: battery to be replaced

 IMPORTANT
<div style="display: flex;"> <div style="flex: 1; text-align: center;"></div> <div style="flex: 2;"> <p>In the maintenance operations avoid that polluting substances, liquids, exhausted oils, etc. bring damage to people or things or can cause negative effects to surroundings, health or safety respecting completely the laws and/or dispositions in force in the place.</p> </div> </div>

ENGINE and ALTERNATOR

PLEASE REFER TO THE SPECIFIC MANUALS PROVIDED.

Every engine and alternator manufacturer has



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



ATTENTION

- Maintenance operations on the electricity-generating group prearranged for automatic operation must be carried out with the panel in RESET mode.
- Maintenance operations on the installation's electrical panels must be carried out in complete safety by cutting off all external power sources: ELECTRICAL POWER, GROUP and BATTERY.

For the electricity-generating groups prearranged for automatic operation, in addition to carrying out all periodic maintenance operations foreseen for normal usage, various operations must be carried out that are necessary in relation to the specific type of use. The electricity-generating group in fact must be continuously prepared for operation, even after prolonged periods of inactivity.

MAINTENANCE GENERATING SET WITH AUTOMATIC BOARD

	EVERY WEEK	EVERY MONTH AND/OR AFTER INTERVENTION ON LOAD	EVERY YEAR
1. TEST or AUTOMATIC TEST cycle to keep the generating set constantly operative	NO-LOAD X	WITH LOAD X	
2. Check all levels: engine oil, fuel level, battery electrolyte., if necessary top it up.	X	X	
3. Control of electrical connections and cleaning of control panel		X	X

- **Carry out motor oil change at least once a year, even if the requested number of hours has not been attained.**

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

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

GASOLINE ENGINE

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

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

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

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

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

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

Protect the machine with a plastic hood and store it in a 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 blocking of the injection system.

For long periods of inactivity, turn to the after sales 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 surroundings, health or safety respecting completely the laws and/or dispositions in force in the place.



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

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

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 entrusted 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 inflammable 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

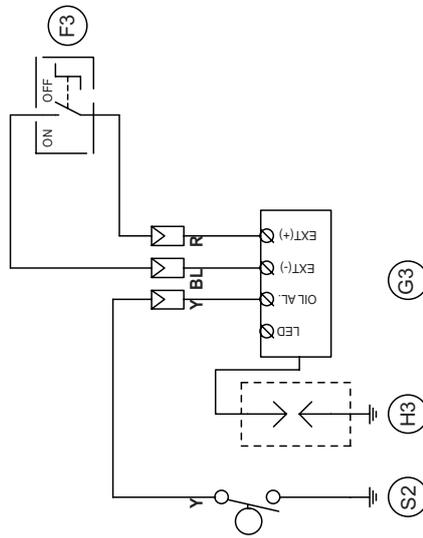
NOTE: BCS is involved with custing off the machine **only** for the second hand ones, when not reparable. This, of course, after authorization.

 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 surroundings, health or safety respecting completely the laws and/or dispositions in force in the place.

A	: Alternator	F3	: Stop push-button	L6	: Choke button
B	: Wire connection unit	G3	: Ignition coil	M6	: Switch CC/CV
C	: Capacitor	H3	: Spark plug	N6	: Connector – wire feeder
D	: G.F.I.	I3	: Range switch	O6	: 420V/110V 3-phase transformer
E	: Welding PCB transformer	L3	: Oil shut-down button	P6	: Switch IDLE/RUN
F	: Fuse	M3	: Battery charge diode	Q6	: Hz/V/A analogic instrument
G	: 400V 3-phase socket	N3	: Relay	R6	: EMC filter
H	: 230V 1phase socket	O3	: Resistor	S6	: Wire feeder supply switch
I	: 110V 1-phase socket	P3	: Sparkler reactor	T6	: Wire feeder socket
L	: Socket warning light	Q3	: Output power unit	U6	: DSP chopper PCB
M	: Hour-counter	R3	: Electric siren	V6	: Power chopper supply PCB
N	: Voltmeter	S3	: E.P.4 engine protection	Z6	: Switch and leds PCB
P	: Welding arc regulator	T3	: Engine control PCB	W6	: Hall sensor
Q	: 230V 3-phase socket	U3	: R.P.M. electronic regulator	X6	: Water heater indicator
R	: Welding control PCB	V3	: PTO HI control PCB	Y6	: Battery charge indicator
S	: Welding current ammeter	Z3	: PTO HI 20 l/min push-button	A7	: Transfer pump selector AUT-0-MAN
T	: Welding current regulator	W3	: PTO HI 30 l/min push-button	B7	: Fuel transfer pump
U	: Current transformer	X3	: PTO HI reset push-button	C7	: "GECO" generating set test
V	: Welding voltage voltmeter	Y3	: PTO HI 20 l/min indicator	D7	: Flooting with level switches
Z	: Welding sockets	A4	: PTO HI 30 l/min indicator	E7	: Voltmeter regulator
X	: Shunt	B4	: PTO HI reset indicator	F7	: WELD/AUX switch
W	: D.C. inductor	C4	: PTO HI 20 l/min solenoid valve	G7	: Reactor, 3-phase
Y	: Welding diode bridge	D4	: PTO HI 30 l/min solenoid valve	H7	: Switch disconnecter
A1	: Arc striking resistor	E4	: Hydraulic oil pressure switch	I7	: Solenoid stop timer
B1	: Arc striking circuit	F4	: Hydraulic oil level gauge	L7	: "VODIA" connector
C1	: 110V D.C./48V D.C. diode bridge	G4	: Preheating glow plugs	M7	: "F" EDC4 connector
D1	: E.P.1 engine protection	H4	: Preheating gearbox	N7	: OFF-ON-DIAGN. selector
E1	: Engine stop solenoid	I4	: Preheating indicator	O7	: DIAGNOSTIC push-button
F1	: Acceleration solenoid	L4	: R.C. filter	P7	: DIAGNOSTIC indicator
G1	: Fuel level transmitter	M4	: Heater with thermostat	Q7	: Welding selector mode
H1	: Oil or water thermostat	N4	: Choke solenoid	R7	: VRD load
I1	: 48V D.C. socket	O4	: Step relay	S7	: 230V 1-phase plug
L1	: Oil pressure switch	P4	: Circuit breaker	T7	: V/Hz analogic instrument
M1	: Fuel warning light	Q4	: Battery charge sockets	U7	: Engine protection EP6
N1	: Battery charge warning light	R4	: Sensor, cooling liquid temperature	V7	: G.F.I. relay supply switch
O1	: Oil pressure warning light	S4	: Sensor, air filter clogging	Z7	: Radio remote control receiver
P1	: Fuse	T4	: Warning light, air filter clogging	W7	: Radio remote control transmitter
Q1	: Starter key	U4	: Polarity inverter remote control	X7	: Isometer test push-button
R1	: Starter motor	V4	: Polarity inverter switch	Y7	: Remote start socket
S1	: Battery	Z4	: Transformer 230/48V	A8	: Transfer fuel pump control
T1	: Battery charge alternator	W4	: Diode bridge, polarity change	B8	: Ammeter selector switch
U1	: Battery charge voltage regulator	X4	: Base current diode bridge	C8	: 400V/230V/115V commutator
V1	: Solenoid valve control PCBT	Y4	: PCB control unit, polarity inverter	D8	: 50/60 Hz switch
Z1	: Solenoid valve	A5	: Base current switch	E8	: Cold start advance with temp. switch
W1	: Remote control switch	B5	: Auxiliary push-button ON/OFF	F8	: START/STOP switch
X1	: Remote control and/or wire feeder socket	C5	: Accelerator electronic control	G8	: Polarity inverter two way switch
Y1	: Remote control plug	D5	: Actuator	H8	: Engine protection EP7
A2	: Remote control welding regulator	E5	: Pick-up	I8	: AUTOIDLE switch
B2	: E.P.2 engine protection	F5	: Warning light, high temperature	L8	: AUTOIDLE PCB
C2	: Fuel level gauge	G5	: Commutator auxiliary power	M8	: A4E2 ECM engine PCB
D2	: Ammeter	H5	: 24V diode bridge	N8	: Remote emergency stop connector
E2	: Frequency meter	I5	: Y/▲ commutator	O8	: V/A digital instruments and led VRD PCB
F2	: Battery charge transformer	L5	: Emergency stop button	P8	: Water in fuel
G2	: Battery charge PCB	M5	: Engine protection EP5	Q8	: Battery disconnect switch
H2	: Voltage selector switch	N5	: Pre-heat push-button	R8	: Inverter
I2	: 48V a.c. socket	O5	: Accelerator solenoid PCB	S8	: Overload led
L2	: Thermal relay	P5	: Oil pressure switch	T8	: Main IT/TN selector
M2	: Contactor	Q5	: Water temperature switch	U8	: NATO socket 12V
N2	: G.F.I. and circuit breaker	R5	: Water heater	V8	: Diesel pressure switch
O2	: 42V EEC socket	S5	: Engine connector 24 poles	Z8	: Remote control PCB
P2	: G.F.I. resistor	T5	: Electronic GFI relais	W8	: Pressure turbo protection
Q2	: T.E.P. engine protection	U5	: Release coil, circuit breaker	X8	: Water in fuel sender
R2	: Solenoid control PCBT	V5	: Oil pressure indicator	Y8	: EDC7-UC31 engine PCB
S2	: Oil level transmitter	Z5	: Water temperature indicator	A9	: Low water level sender
T2	: Engine stop push-button T.C.1	W5	: Battery voltmeter	B9	: Interface card
U2	: Engine start push-button T.C.1	X5	: Contactor, polarity change	C9	: Limit switch
V2	: 24V c.a. socket	Y5	: Commutator/switch, series/parallel	D9	: Starter timing card
Z2	: Thermal magnetic circuit breaker	A6	: Commutator/switch	E9	: Liquid pouring level float
W2	: S.C.R. protection unit	B6	: Key switch, on/off	F9	: Under voltage coil
X2	: Remote control socket	C6	: QEA control unit	G9	: Low water level warning light
Y2	: Remote control plug	D6	: Connector, PAC	H9	: Chopper driver PCB
A3	: Insulation monitoring	E6	: Frequency rpm regulator	I9	:
B3	: E.A.S. connector	F6	: Arc-Force selector	L9	:
C3	: E.A.S. PCB	G6	: Device starting motor		
D3	: Booster socket	H6	: Fuel electro pump 12V c.c.		
E3	: Open circuit voltage switch	I6	: Start Local/Remote selector		

MOTORI HONDA
HONDA ENGINES

AVVIAMENTO A STRAPPO
 MANUAL RECOIL STARTER



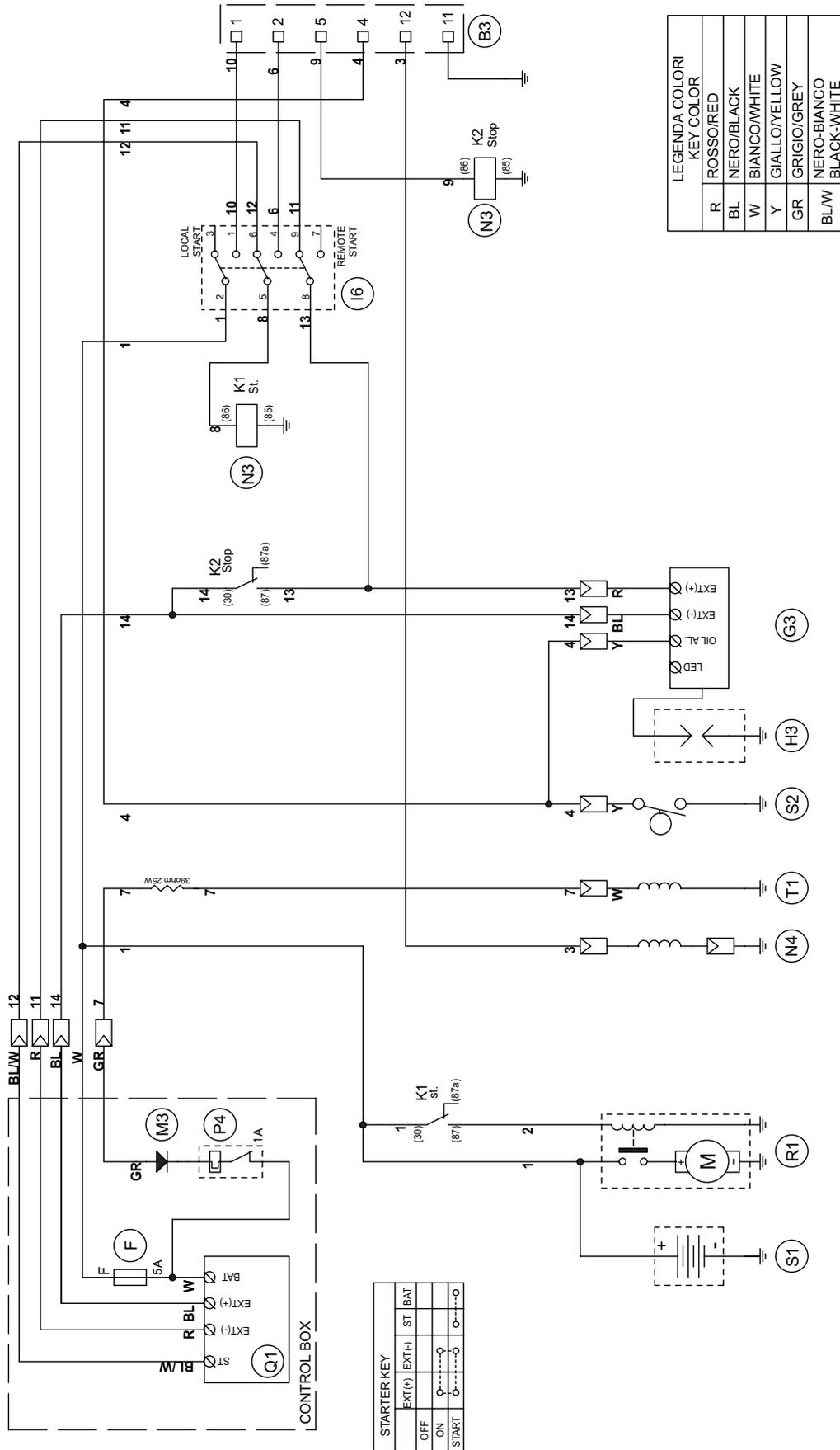
LEGENDA COLORI KEY COLOR	
R	ROSSO/RED
BL	NERO/BLACK
Y	GIALLO/YELLOW

Esp. Eqp.	Modifica Modification	Data Date	Dis. Appr. Des. Appr.
Da Pag. From Page	Denominazione: Denomination:	Progetto: Project:	Pag. n° di n° Page n° of n°
Ala Pag. to Page	Macchina: Machine:	Data: Date:	Dis. n°: Dwg. n°:
	Balducci F.	17.06.2011	25460.S.010
			25460.prg
			2
			3
			Approvato: Appr.

- (I) Schema elettrico
- (GB) Electric diagram
- (F) Schemas électriques

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GE 4500 SXE - AVR EAS

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STARTER KEY	
EXT(+)	EXT(-) ST /BAT
OFF	○
ON	○
START	○

Modifica	Data	Dis.	Appr.
Modification	Date	Desi.	Appr.
Da Pag. From Page	Denominazione: Denomination:	Proprietà: Project:	Dis. n° Page n°
Alta Pag. To Page	Engine GX 270-UT2 (electric starter-oil alert)	35475.prg	2 3
	Disegnatore: Designer:	Data: Date:	Approvato: Appr.
	Balducci F.	15.09.2011	35475.S.010

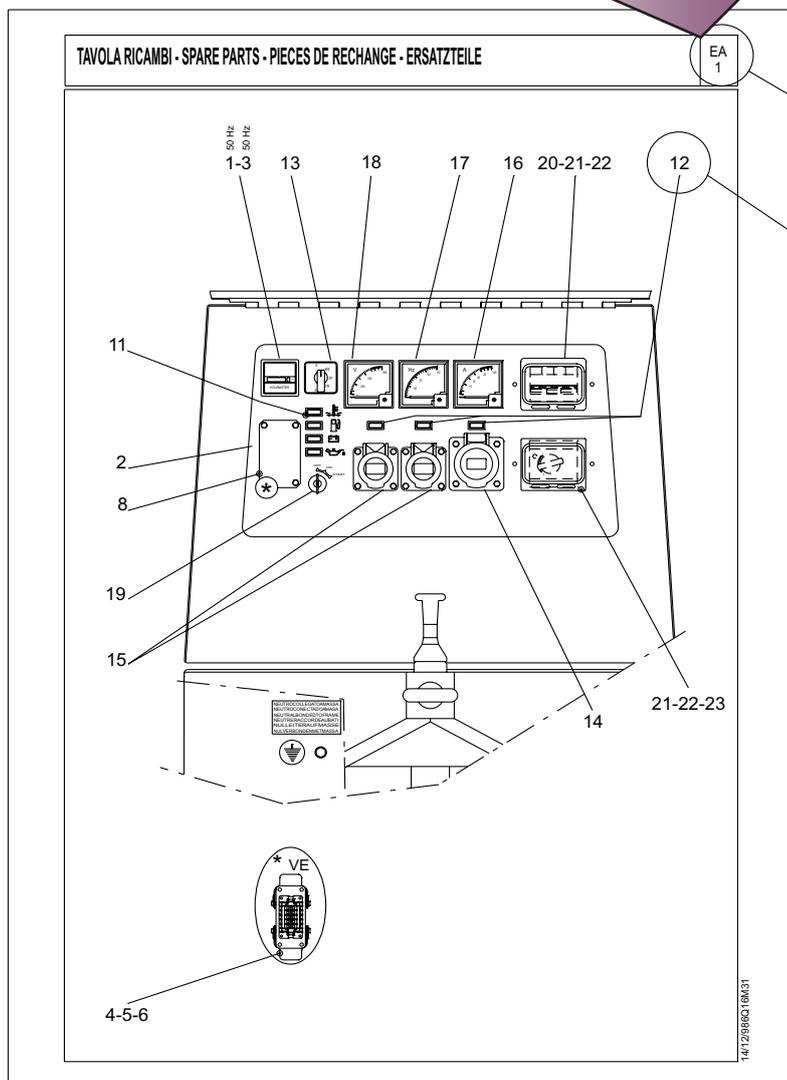
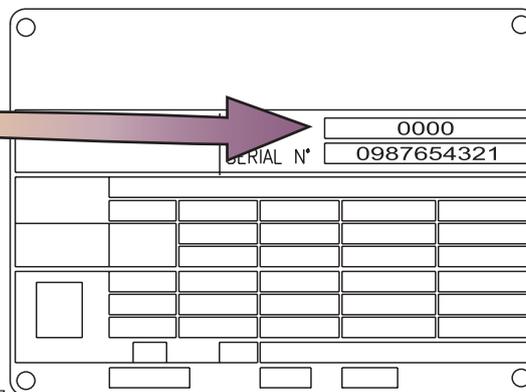
The manufacturer guarantees that any request for spare parts will be satisfied.

To keep the machine in full working order, when replacement 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

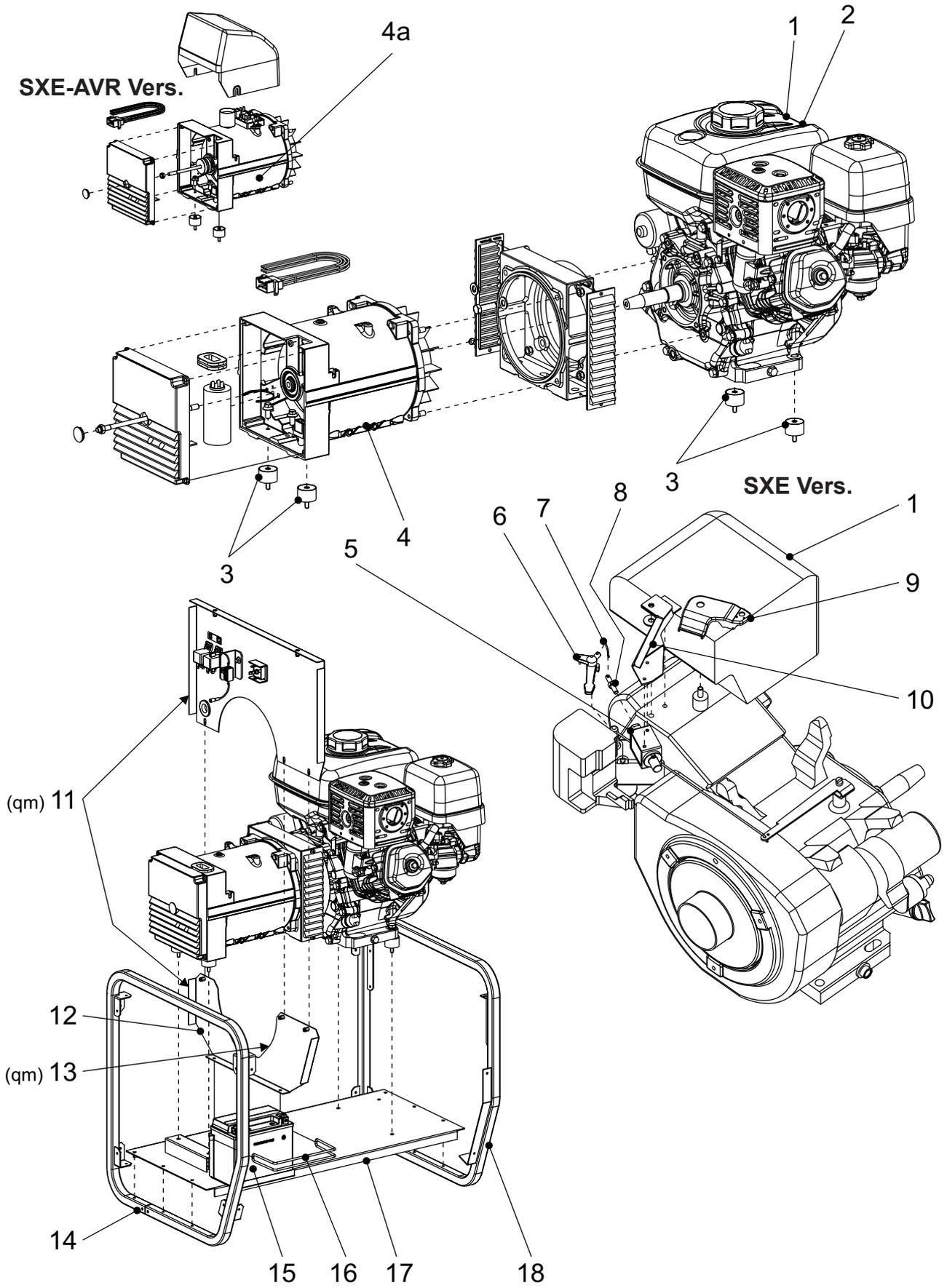
(SR) By request only

(I) Ricambi
 (GB) Spare parts
 (F) Pièces de rechange

(D) Ersatzteile
 (E) Tabla de recambios
 (NL)

GE 4500 SX
 GE 4500 SXE-EAS

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Ⓡ Ricambi	Ⓛ Ersatzteile	GE 4500 SX GE 4500 SXE-EAS	GA
Ⓜ Spare parts	Ⓜ Tabla de recambios		15.1
Ⓛ Pièces de rechange	Ⓛ		REV.0-12/11

Pos.	Cod.	Descr.	Note
1	M354752200	MOTORE HONDA GX270	SXE Vers.
2	M354612200	MOTORE HONDA GX270	SX Vers.
3	M306411035	SUPPORTO ELASTICO	
4	M254003100	ALTERNATORE	
4a	M354853100	ALTERNATORE	SXE-R Vers.
5	M306479071	ELETTROMAGNETE COMANDO CHOKE	SXE Vers.
6	M354509111	LEVA CHOKE	SXE Vers.
7	M306479056	TIRANTE	SXE Vers.
8	M306479108	PERNO	SXE Vers.
9	M354509105	LEVA ACCELERATORE (modificata)	SXE Vers.
10	M306479101	STAFFA SUPPORTO SOLENOIDE	SXE Vers.
11	M105112270	GUARNIZIONE (L=MT.1)	qm
12	M354708218	PARATIA INFERIORE ALTERNATORE	
13	M102302280	GUARNIZIONE (L=MT.1)	qm
14	M306411145	TELAIO LATO FRONTALE	
15	M354659150	BATTERIA 12V	SXE Vers.
16	M306469282	ELASTICO FISSAGGIO BATTERIA	SXE Vers.
17	M354701050	BASE SUPPORTO MOTORE/ALTERNATORE	
18	M354701146	TUBO CURVATO LATO MOTORE	

Pos.	Cod.	Descr.	Note
1	M354752200	HONDA ENGINE GX270	SXE Vers.
2	M354612200	HONDA ENGINE GX270	SX Vers.
3	M306411035	SUPPORT, ELASTIC	
4	M254003100	SINCRO ALTERNATOR	
4a	M354853100	SINCRO ALTERNATOR	SXE-R Vers.
5	M306479071	ELECTROMAGNET CHOKE CONTROL	SXE Vers.
6	M354509111	LEVER	SXE Vers.
7	M306479056	TIE-ROD	SXE Vers.
8	M306479108	PIN	SXE Vers.
9	M354509105	ACCELERATOR LEVER (Modified)	SXE Vers.
10	M306479101	BRACKET ECONOMIZER HOLDER	SXE Vers.
11	M105112270	STRIP, SEALING (L=MT.1)	qm
12	M354708218	ALTERNATOR UNDERWALL	
13	M102302280	GASKET (L=MT.1)	qm
14	M306411145	FRAME, FRONT PLATE	
15	M354659150	BATTERY 12V	SXE Vers.
16	M306469282	ELASTIC, FIXING BATTERY	SXE Vers.
17	M354701050	BASE	
18	M354701146	FRAME, ENGINE SIDE	

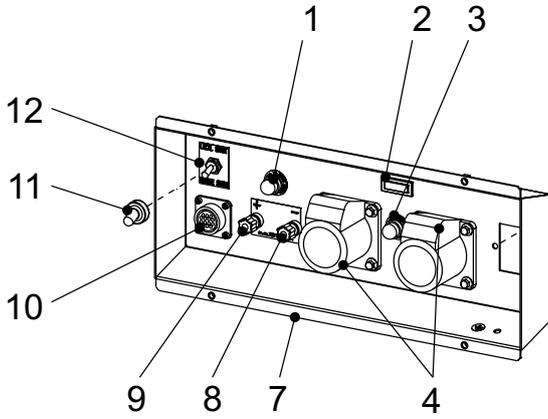
- (I) Ricambi
- (GB) Spare parts
- (F) Pièces de rechange

- (D) Ersatzteile
- (E) Tabla de recambios
- (NL)

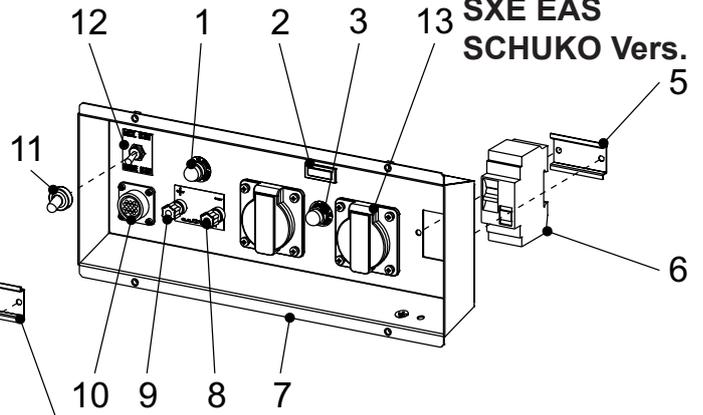
GE 4500 SX
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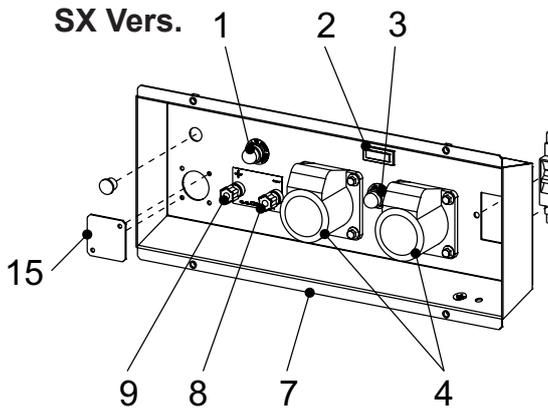
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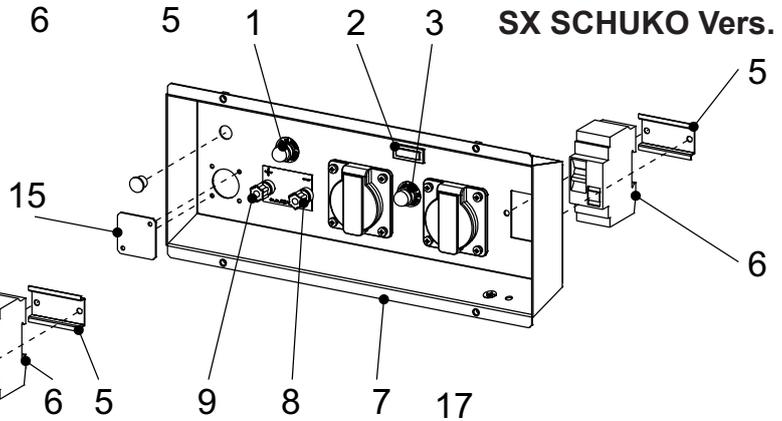
**SXE EAS
SCHUKO Vers.**



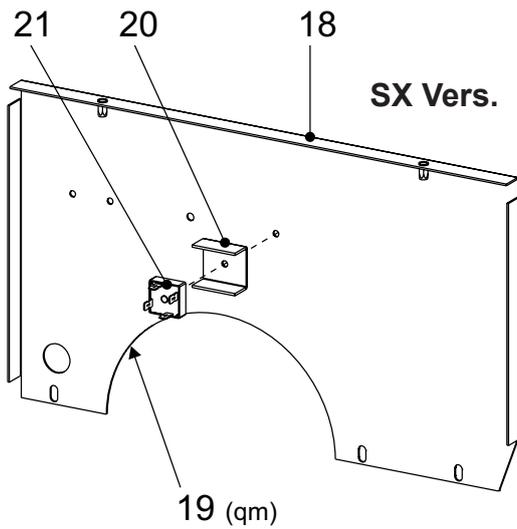
SX Vers.



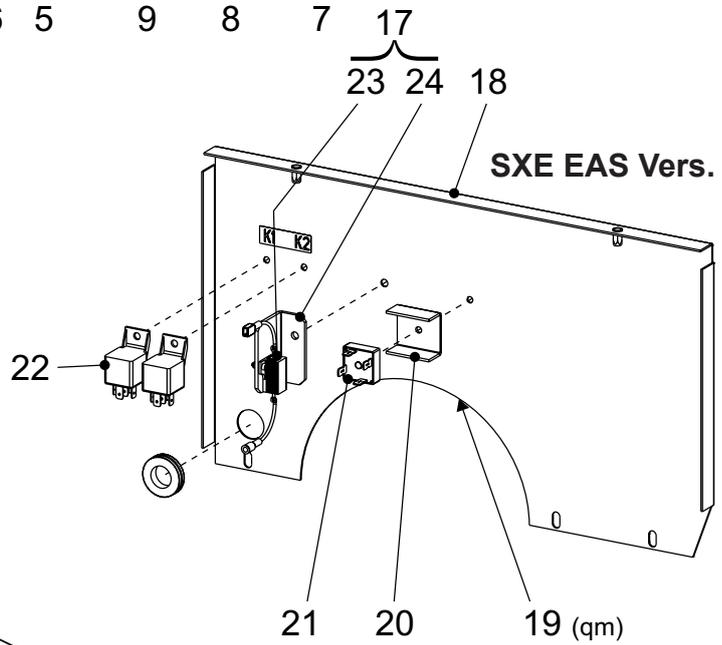
SX SCHUKO Vers.



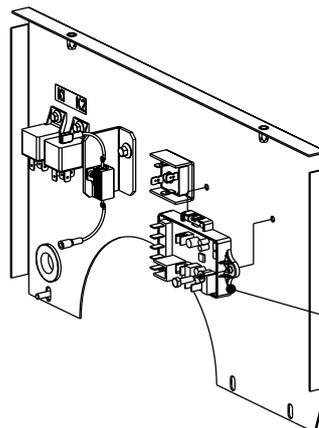
SX Vers.



SXE EAS Vers.



**SXE AVR EAS
Vers.**



Ⓡ Ricambi	Ⓛ Ersatzteile	GE 4500 SX GE 4500 SXE-EAS	GA
Ⓜ Spare parts	Ⓜ Tabla de recambios		16.1
Ⓧ Pièces de rechange	Ⓝ		REV.1-10/08

Pos.	Cod.	Descr.	Note
1	M306467109	PROTEZIONE TERMICA (C.B.)	
2	M1302530	SEGNALATORE RETT.220V AC VERDE	
3	M155307107	DISGIUNTORE TERMICO 15A-250V	
4	M307017240	PRESA 220V 16A	
5	M306417036	GUIDA FISSAGGIO INTERRUTTORE	
6	M220237105	Vedi Cod.256007105	
7	M354757020	PANNELLO FRONTALE	
8	M306417318	PRESA C.B. NERA (-)	
9	M306417316	PRESA C.B. ROSSA (+)	
10	M35475C020	CONNETTORE COMPLETO	
11	M102042740	CAPPUCCIO	
12	M107509902	COMMUTATORE TRIPOLARE	
13	M259107241	PRESA SCHUKO 16A 230V - 2P+T	
15	M306467032	COPERCHIETTO DI CHIUSURA	
17	M000035456A725	ASSIEME RESISTORE CABLATO	
18	M354708217	PARATIA SUPERIORE ALTERNATORE	
19	M102302280	PROFILATO GOMMA	qm
20	M306225030	DISSIPATORE PER PONTE DIODI	
21	M1270070	PONTE DIODI	
22	M306479199	RELE' AVV. ELETTRICO	
23	M354569895	RESISTORE CABLATO	
24	M354569847	DISSIPATORE	

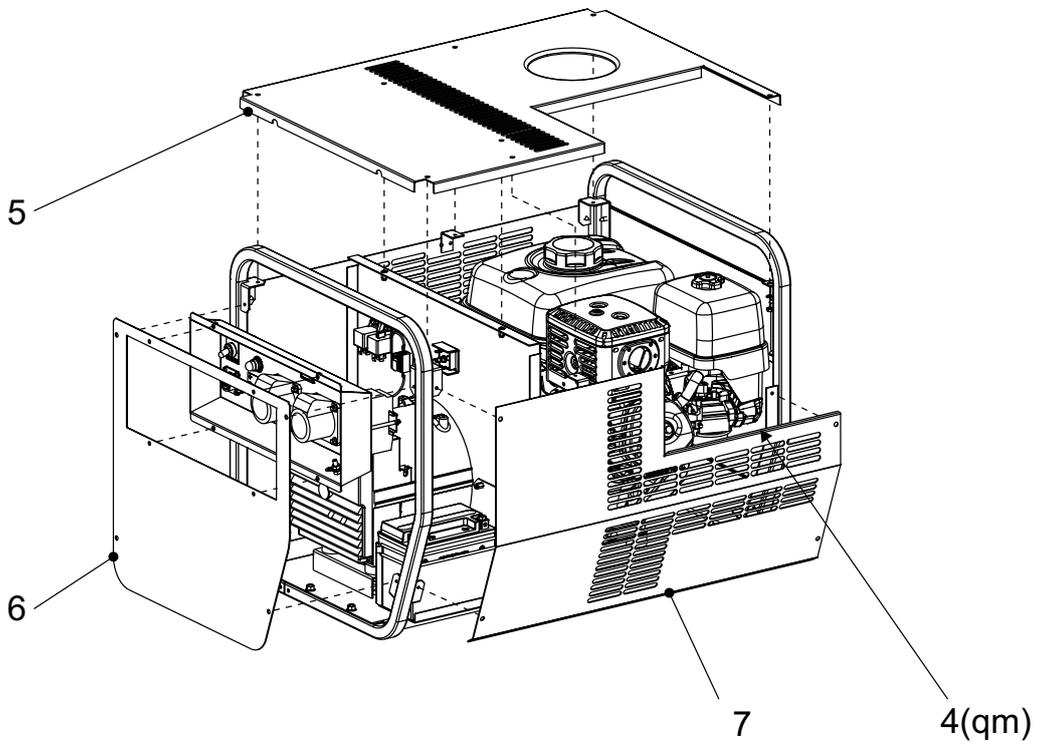
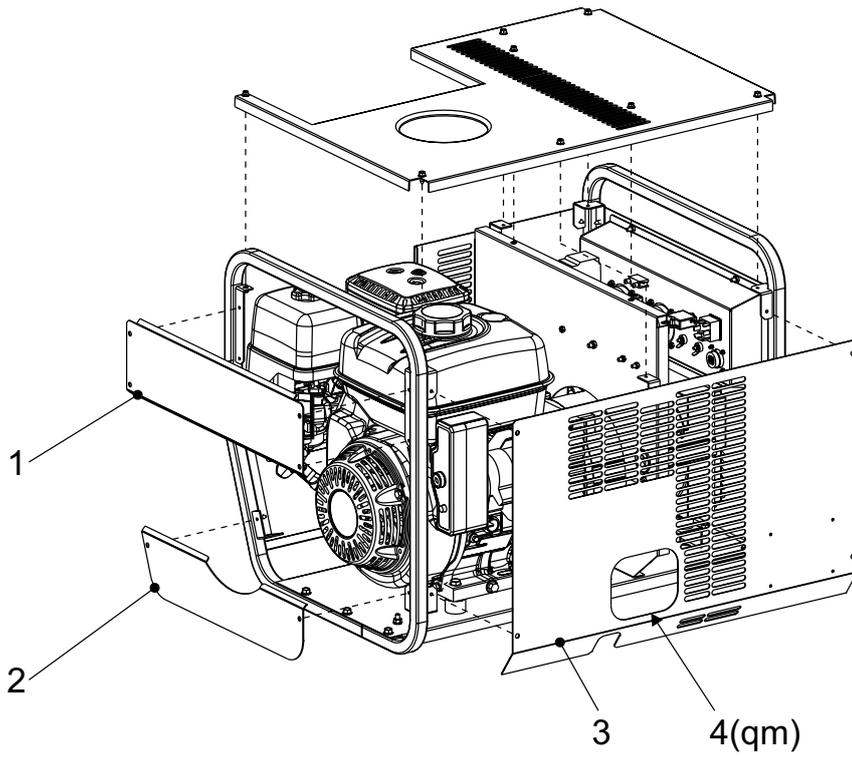
Pos.	Cod.	Descr.	Note
1	M306467109	THERMOPROTECTION (B.C.)	
2	M1302530	WARNING LIGHT	
3	M155307107	THERMAL SWITCH 15A-250V	
4	M307017240	EEC SOCKET 16A, 220V 2P+T	
5	M306417036	FIXING GUIDE INTERRUPTOR	
6	M220237105	See Part n°256007105	
7	M354757020	FRONT PANEL	
8	M306417318	BLACK B.C. SOCKET (-)	
9	M306417316	RED BATTERY CHARGER SOCKET (+)	
10	M35475C020	CONNECTOR COMPLETE	
11	M102042740	CAP	
12	M107509902	TRIPLES SWITCH	
13	M259107241	SOCKET SCHUKO 16A 230V 2P+T	
15	M306467032	CLOSING COVER	
17	M000035456A725	WIRED RESISTOR ASSY	
18	M354708217	ALTERNATOR TOP BULKHEAD	
19	M102302280	RUBBER PROTECTION	qm
20	M306225030	DIODE BRIDGE, DISSIPATOR	
21	M1270070	DIODE BRIDGE	
22	M306479199	RELAY, ELECTRIC START	
23	M354569895	WIRED RESISTOR	
24	M354569847	HEAT SINK	

Ⓡ Ricambi
Ⓢ Spare parts
Ⓣ Pièces de rechange

Ⓛ Ersatzteile
Ⓜ Tabla de recambios
Ⓝ

GE 4500 SX
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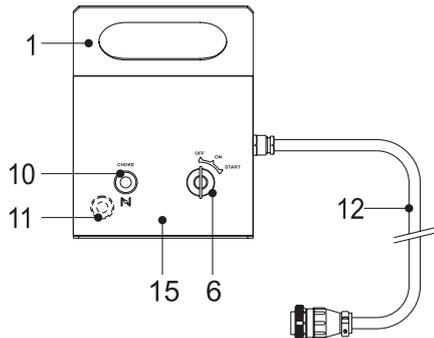
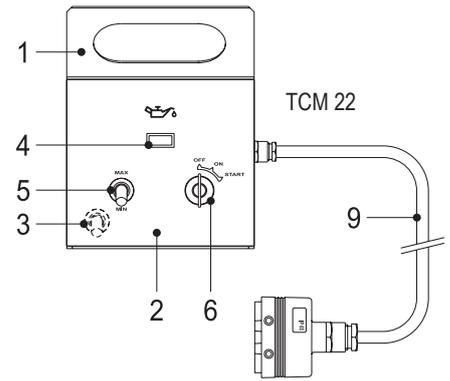
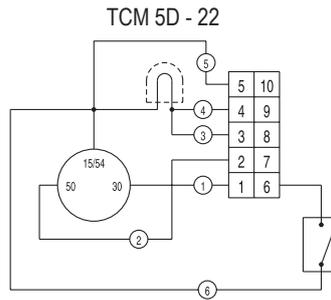
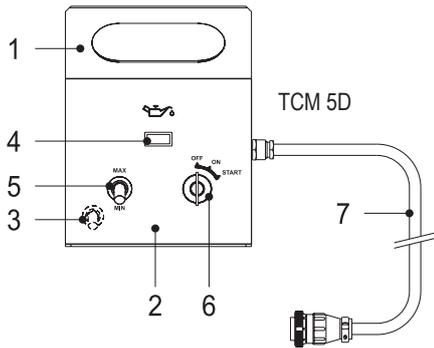
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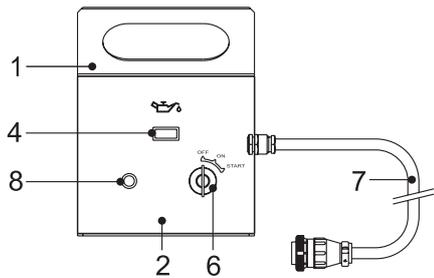
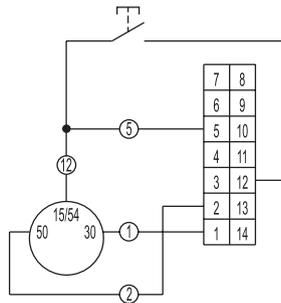
Ⓡ Ricambi	Ⓛ Ersatzteile	GE 4500 SX GE 4500 SXE-EAS	GA
Ⓚ Spare parts	Ⓜ Tabla de recambios		17.1
Ⓝ Pièces de rechange	Ⓝ		REV.0-12/11

<i>Pos.</i>	<i>Cod.</i>	<i>Descr.</i>	<i>Note</i>
1	M354708015	PANNELLO SUPERIORE LATO MOTORE	
2	M354708025	PANNELLO INFERIORE LATO MOTORE	
3	M306418005	CARENATURA LATO SERBATOIO	
4	M306418310	GUARNIZIONE (L=MT.1)	qm
5	M354708021	PANNELLO SUPERIORE	
6	M354608020	PANNELLO	
7	M354708010	PANNELLO LATO SILENZIATORE	

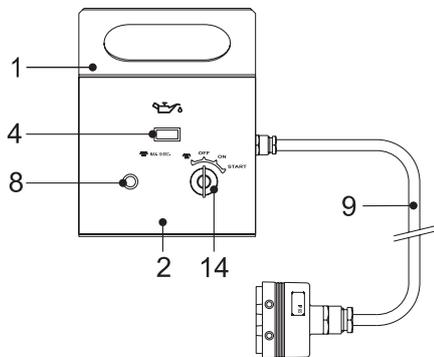
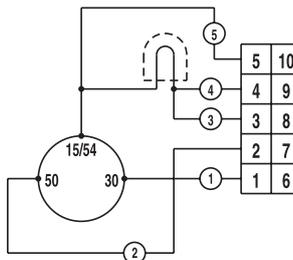
<i>Pos.</i>	<i>Cod.</i>	<i>Descr.</i>	<i>Note</i>
1	M354708015	TOP PANEL ENGINE SIDE	
2	M354708025	LOWER PANEL ENGINE SIDE	
3	M306418005	COVER, TANK SIDE	
4	M306418310	PROTECTION GASKET (L=MT.1)	qm
5	M354708021	TOP PANEL	
6	M354608020	PANEL	
7	M354708010	PLATE MUFFLER SIDE	



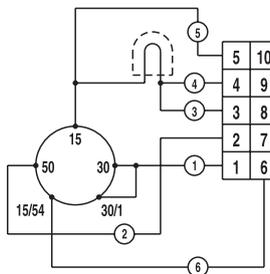
TCM 15



TCM 6



TCM 40



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

Pos.	Rev.	Cod.	Descr.	Descr.	Note
1		M107509900	SCATOLA	CASE, BOTTOM HALF	
2		M330109901	COPERCHIO PER SCATOLA TCM	TCM COVER	
3		M102042740	CAPPUCCIO	CAP	
4		M1302040	SPIA 12V	WARNING LIGHT 12V	
5		M102013290	COMMUTATORE	COMMUTATOR	
6		M107302460	STARTER A CHIAVE	STARTER KEY	
7		M33010C060	GRUPPO CAVI TC	TC CABLE KIT	TCM5D-6
8		M6062050	TAPPO	CAP	
9		M33020C060	GR.CAVI TCM	TCM CABLE KIT	TCM22-40
10	A	M101091830	PULSANTE DI STOP	BUTTON, STOP	TCM15
11	A	M101091840	CAPPUCCIO	CAP	TCM15
12	A	M93016C060	GRUPPO CAVI TCM	TCM CABLE KIT	TCM15
14	A	M307457055	INTERRUTT. ACCENSIONE A CHIAVE	STARTER SWITCH	TCM40
15	A	M930159901	COPERCHIO PER SCATOLA TCM	TCM COVER	TCM15

MOSA

GRUPPI ELETTROGENI

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