



GE 6000 SX/GS
GE 6000 SX/GS-AVR
GE 6500 SX/GS

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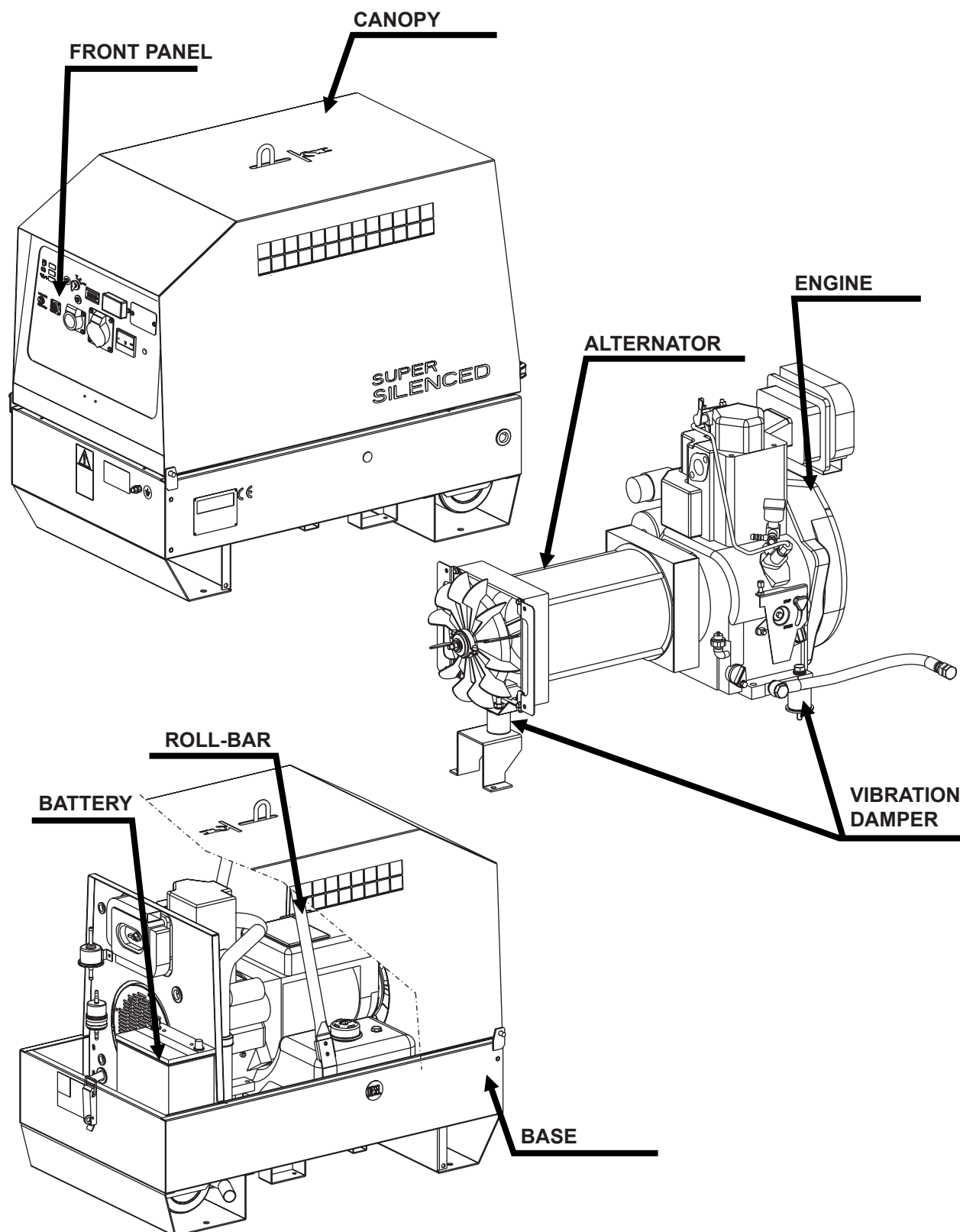
356409003 - GB

ENGLISH

The generating set GE 6000 / 6500 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

M 01	QUALITY SYSTEM
M 1.01	COPYRIGHT
M 1.1	NOTES
M 1.4	CE MARK
M 1.4.1	DECLARATION OF CONFORMITY
M 1.5	TECHNICAL DATA
M 2	SYMBOLS AND SAFETY PRECAUTIONS
M 2.1	SYMBOLS
M 2.5 -....	INSTALLATION AND ADVICE BEFORE USE
M 2.6	INSTALLATION AND ADVICE
M 2.7	INSTALLATION
M 2.7.1	DIMENSIONS
M 3	UNPACKING
M 4.1	TRANSPORT AND DISPLACEMENTS
M 6.9	ASSEMBLY: CTM 2
M 20	SET-UP FOR OPERATION
M 21	STARTING AND STOPPING THE ENGINE
M 30	CONTROLS LEGEND
M 31	CONTROLS
M 37	USE AS A GENERATOR
M 38.5	REMOTE CONTROL
M 39.4	ENGINE PROTECTION ES - EV
M 40.2	TROUBLE SHOOTING
M 43...	MAINTENANCE
M 45	STORAGE
M 46	CUST OFF
M 53	DIMENSIONS
M 60	ELECTRICAL SYSTEM LEGEND
M 61-.....	ELECTRICAL SYSTEM
R 1	SPARE PARTS TABLES
HP ...	SPARE PARTS



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:

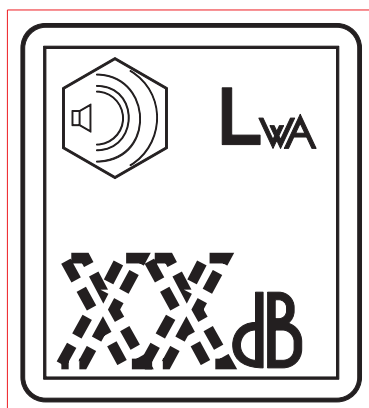


CE marking is clearly readable and unerasable and it can be either part of the data-plate.

 Made in UE-ITALY... TYPE... SERIAL N°...	
	X I ₂ (A) U ₂ (V)
	I ₂ (A) U ₂ (V)
	Hz P.F. kVA V (V) I (A)
	n ₁ RPM n ₂ 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 9001:2008 - 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:
 cumple 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 - Consigliere Delegato / COO; V.le Europa 59, 20090 Cusago (MI) – Italy

Cusago,

Ing. Benso Marelli
 Consigliere Delegato
 COO

<div><div>I</div><div>GB</div><div>F</div></div> <div>Technical data</div>		<div>GE 6000 SX/GS</div> <div>GE 6500 SX/GS</div>	<div>M</div> <div>1.5</div> <div>REV5-12/12</div>
Technical data		GE 6000 SX/GS	
		GE 6000 SX/GS-AVR	
			GE 6500 SX/GS
A.C. GENERATOR			
*Three-phase power Stand-by	-	6.5 kVA (5.2 kW) / 400 V / 9.4 A	
**Three-phase power PRP	-	5.7 kVA (4.6 kW) / 400 V / 8.2 A	
*Single-phase power Stand-by	5.7 kVA (5.1 kW) / 230 V / 24.8 A	-	
**Single-phase power PRP	5 kVA (4.5 kW) / 230 V / 21.7 A	4 kVA / 230 V / 17.4 A	
*Single-phase power Stand-by	5.7 kVA (6 kW) / 115 V / 49.6 A	-	
**Single-phase power PRP	5 kVA (5 kW) / 115 V / 43.5 A	-	
Frequency	50 Hz	50 Hz	
Power factor (cos φ)	0.9	0.8	
ALTERNATOR	self-excited, self-regulated, brushless	self-excited, self-regulated, with brush	
Type	Single-phase, synchronous	Three-phase, synchronous	
Insulating class	H	H	
ENGINE			
Mark / Model	YANMAR / L 100 N		
Type / Cooling system	Diesel 4-Stroke / Air		
Cylinders / Displacement	1 / 435 cm ³		
Net power Stand-by	6.5 kW (8.8 HP)		
Net power PRP	5.7 kW (7.7 HP)		
Speed	3000 rpm		
Fuel consumption	1.2l/h		
Engine oil capacity	1.6 l		
Starter	Electric		
GENERAL SPECIFICATIONS			
Fuel tank capacity	23 l		
Running time (75% of PRP)	19 h		
Protection	IP 23		
*Dimensions max. Lxwxh	1020x645x930		
*Weight (dry)	206 Kg		
Measured acoustic power LwA (LpA pression)	92 dB(A) (67 dB(A) @ 7 m)	206 Kg	91 dB(A) (66 dB(A) @ 7 m)
Guaranteed acoustic power LwA (LpA pression)	93 dB(A) (68 dB(A) @ 7 m)	92 dB(A) (67 dB(A) @ 7 m)	
* Dimensions and weight are inclusive of all parts.			

* 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 (L_{WA}) - 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 (L_p) - 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 (L_p) at different distances from a machine with Acoustic Noise Level (L_{WA}) of 95 dB(A)

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

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

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

L_p 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.

 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.		
	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 damage 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		






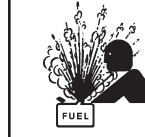

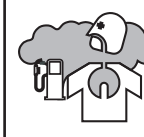


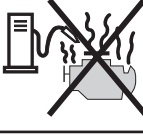
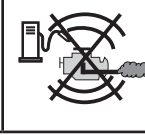

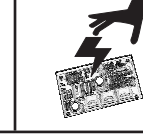

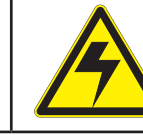

 **FIRST AID.** In case the operator should be sprayed by accident, from corrosive liquids a/o hot toxic gas or whatever event which may cause serious injuries or death, predispose the first aid in accordance with the ruling labour accident standards or of local instructions.

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
							
							

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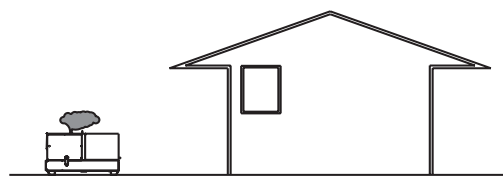
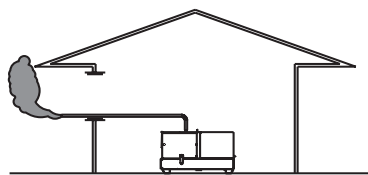
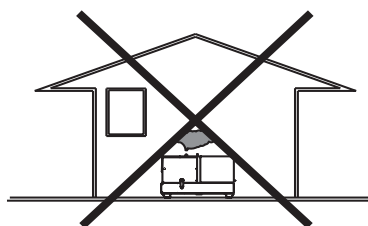
INSTALLATION AND ADVICE BEFORE USE

GASOLINE ENGINES

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

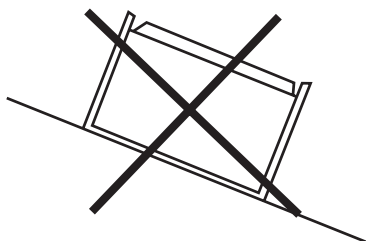
DIESEL ENGINES

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

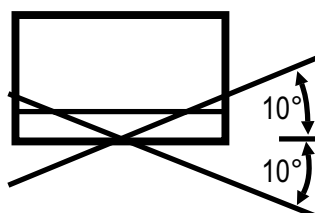


POSITION

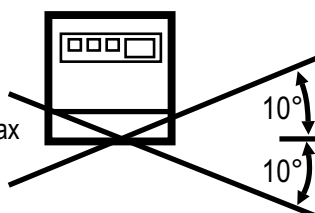
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



Maximum leaning of the machine (in case of dislevel)

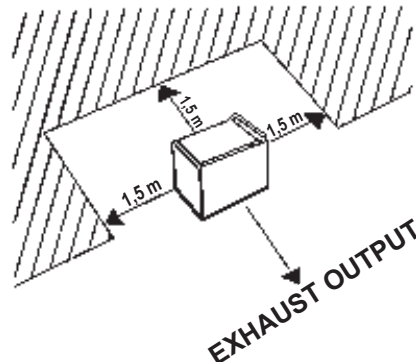


$\alpha = 20^\circ \text{ max}$



$\beta = 20^\circ \text{ max}$

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



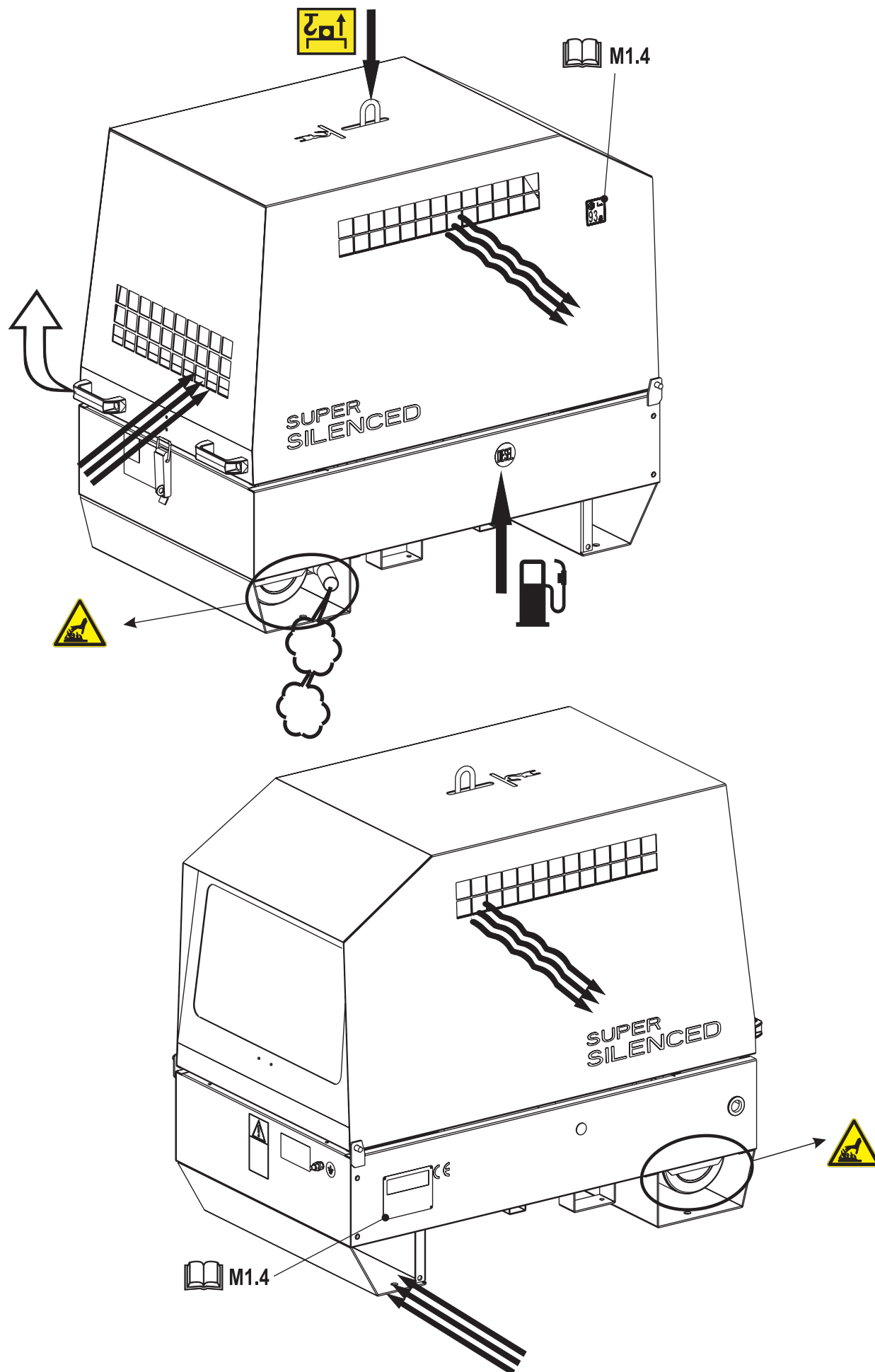
ATTENTION

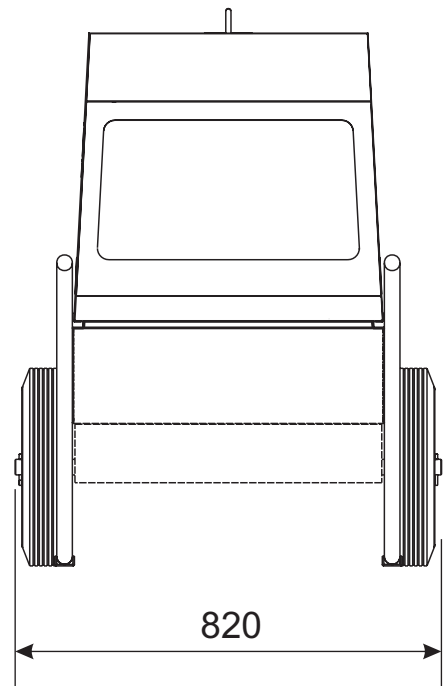
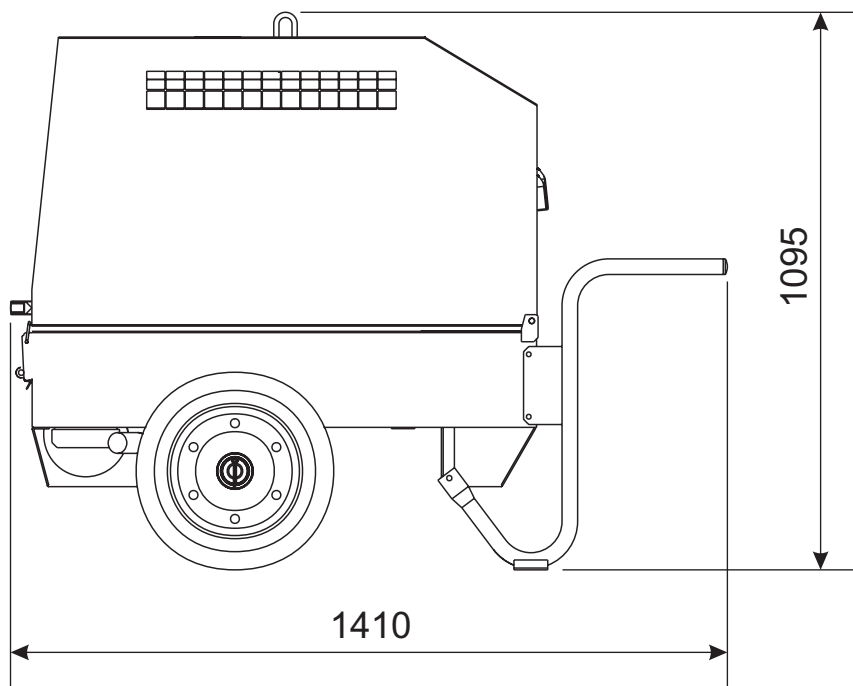
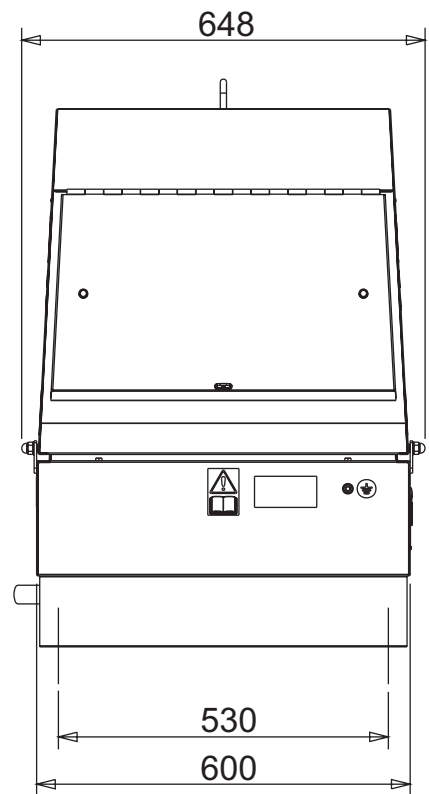
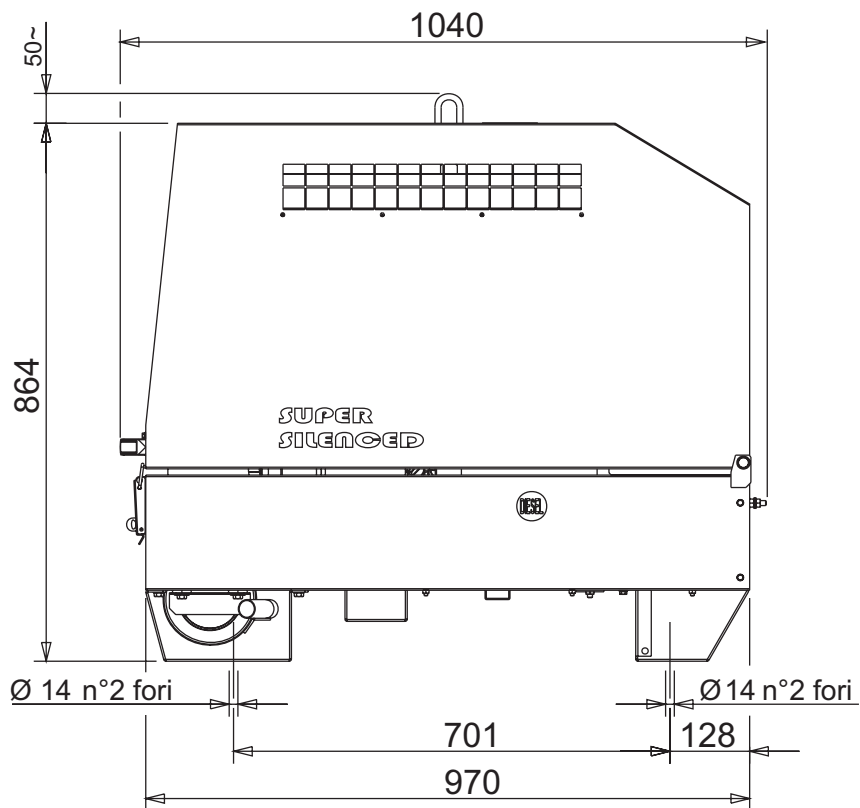


For a safer use from the operator **DO NOT** fit the machine in locations with high risk of flood.

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.

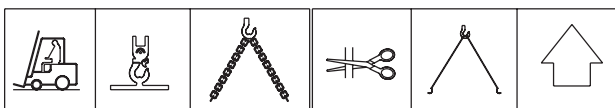






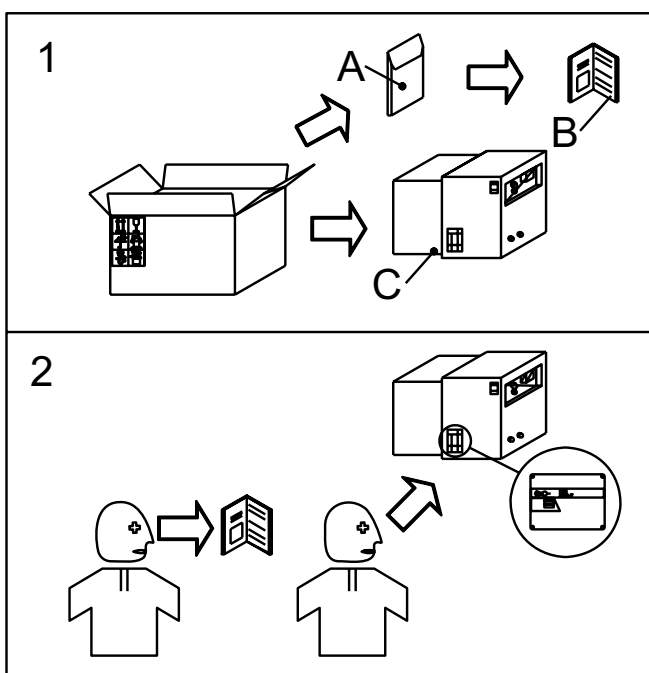
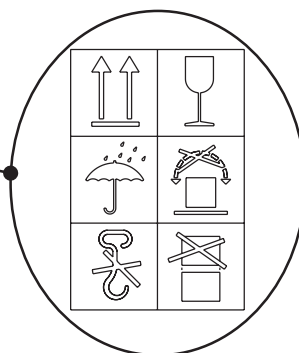
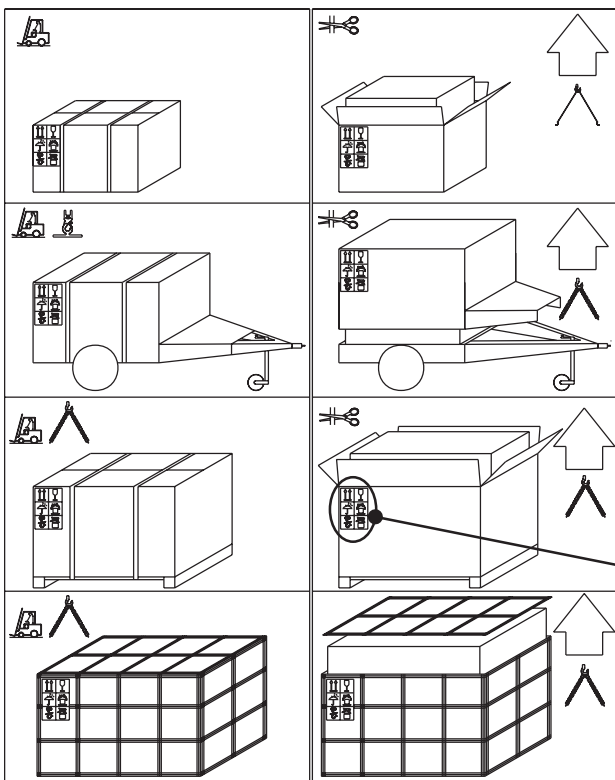


NOTE



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.

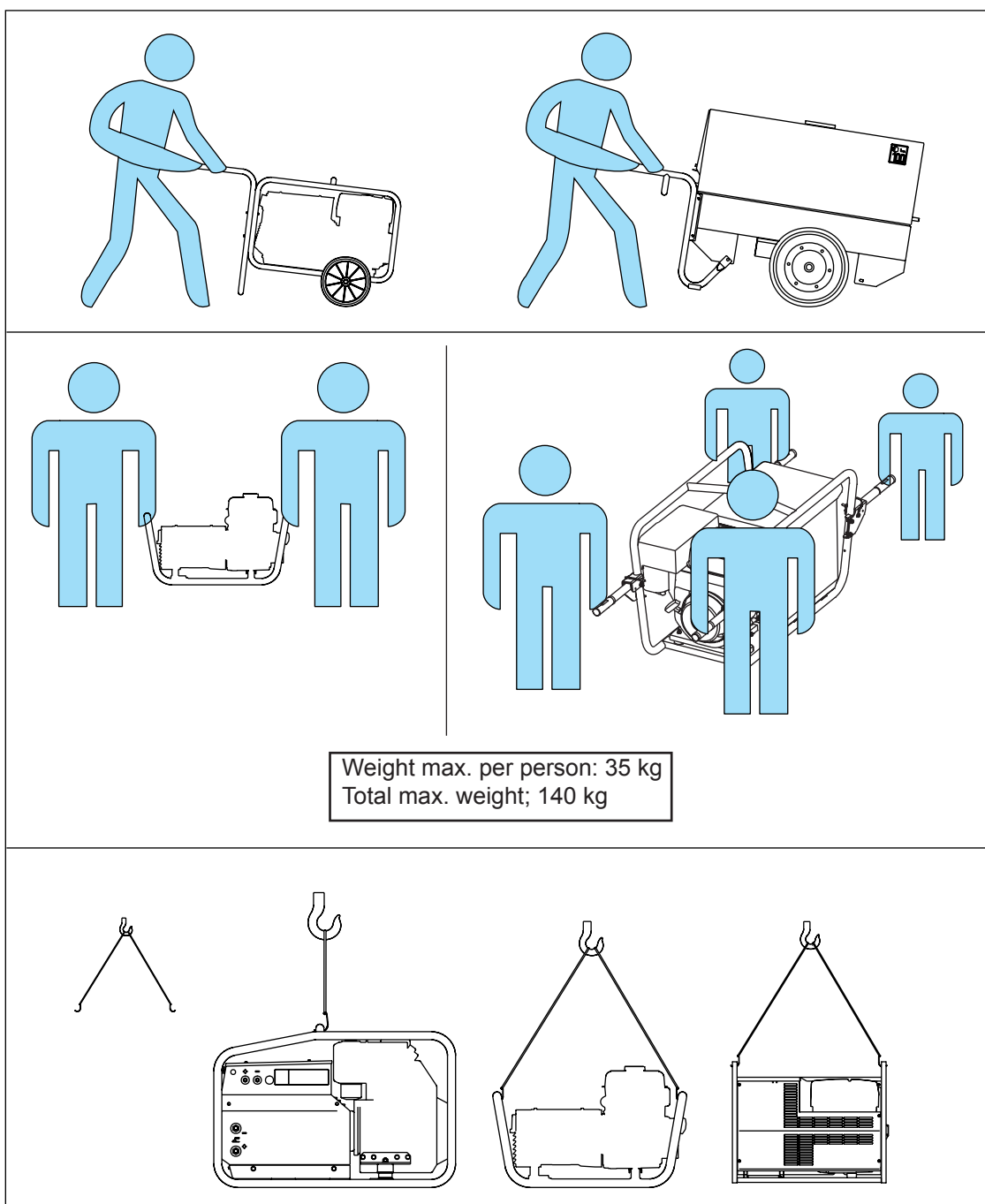
Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with its packaging, and conform to local rules and regulations.

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.

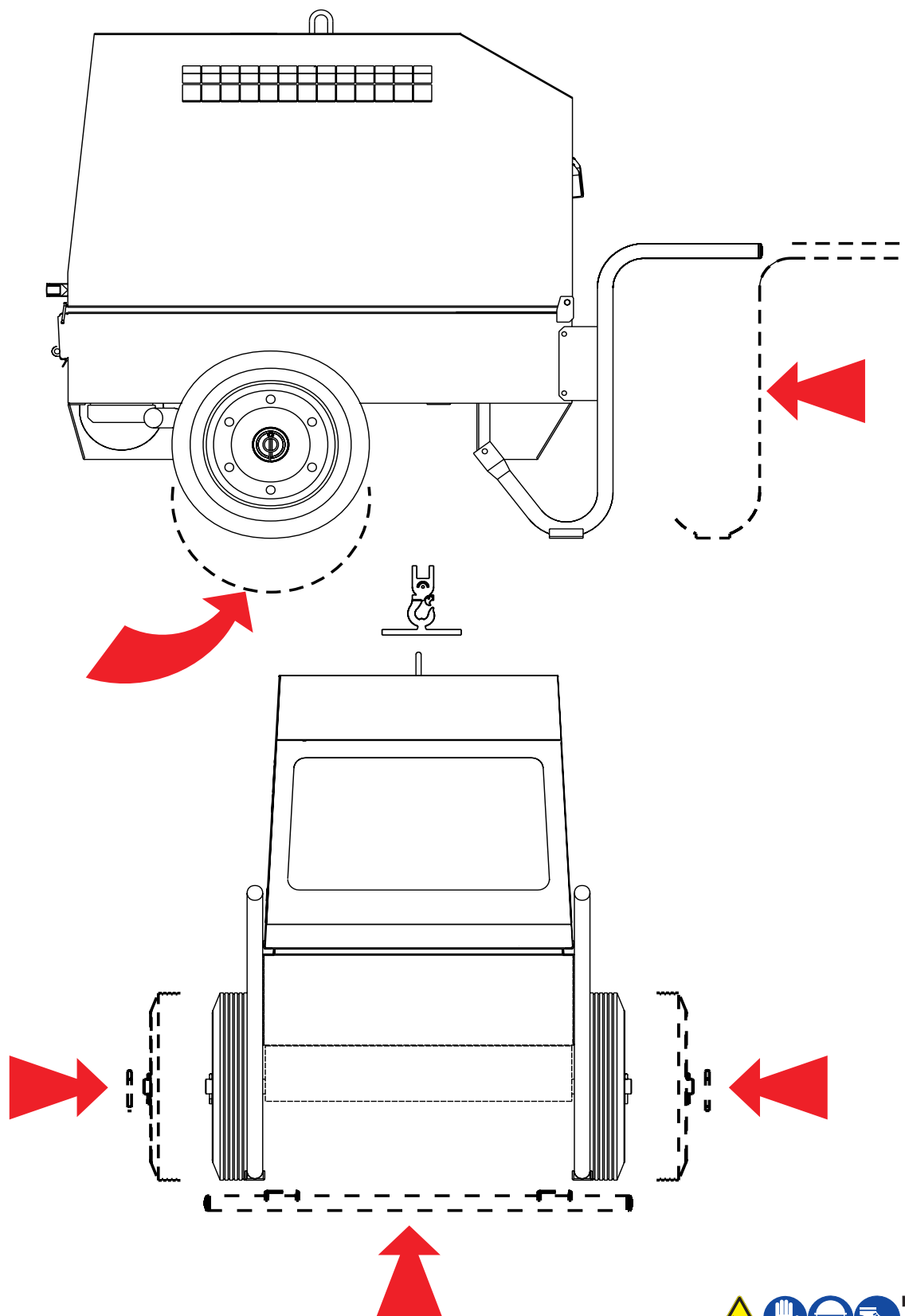




ATTENTION

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

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





BATTERY WITHOUT MAINTENANCE



Connect the cable + (positive) to the pole + (positive) of the battery (after having taken away the protection), by properly tightening the clamp.

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

DO NOT OPEN THE BATTERY.



LUBRICANT

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"/>

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

REFUELLING AND CONTROL:

Carry out refuelling and controls with motor at level position.

1. Remove the oil-fill tap (24)
2. Pour oil and replace the tap
3. Check the oil level using the dipstick (23); the oil level must be comprised between the minimum and maximum indicators.



ATTENTION

It is dangerous to fill the motor with too much oil, as its combustion can provoke a sudden increase in rotation speed.



DRY 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.



OIL BATH AIR FILTER

Fill the air filter using the same engine oil up to the level indicated on the filter.



FUEL



ATTENTION



Do not smoke or use open flames during refuelling operations, in order to avoid explosions or fire hazards.

Fuel fumes are highly toxic; carry out operations outdoors only, or in a well-ventilated environment.



Avoid accidentally spilling fuel. Clean any eventual leaks before starting up motor.

Refill the tank with good quality diesel fuel, such as automobile type diesel fuel, for example.

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

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

In rigid environmental temperature conditions, use special winterized diesel fuels or specific additives in order to avoid the formation of paraffin.



GROUNDING CONNECTION

The grounding connection to an earthed installation **is obligatory** for all models equipped with a differential switch (circuit breaker). In these groups the generator star point is generally connected to the machine's earthing; by employing the TN or TT distribution system, the differential switch guarantees protection against indirect contacts.

In the case of powering complex installations requiring or employing additional electrical protection devices, the coordination between the protection devices must be verified.

For the grounding connection, use the terminal (12); comply to local and/or current regulations in force for electrical installations and safety.





Check daily

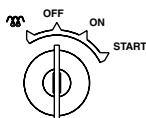


NOTE

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

STARTING THE ENGINE

Insert the electric protection device (D) lever towards above, see page M37 –



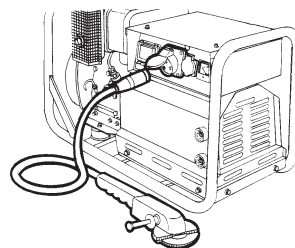
Introduce the key (Q1), turn it clockwise completely, leaving it as soon as the engine starts.

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

STOPPING THE ENGINE

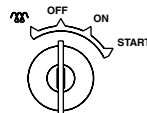
Before stopping the engine **it is compulsory** to effect the following operations:

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



Make sure that the unit is not supplying any power.

Disconnect the electrical protection device (D) lever downward.



Stop the engine turning the key (Q1) it counter clockwise, OFF position, then take it out.

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



CAUTION

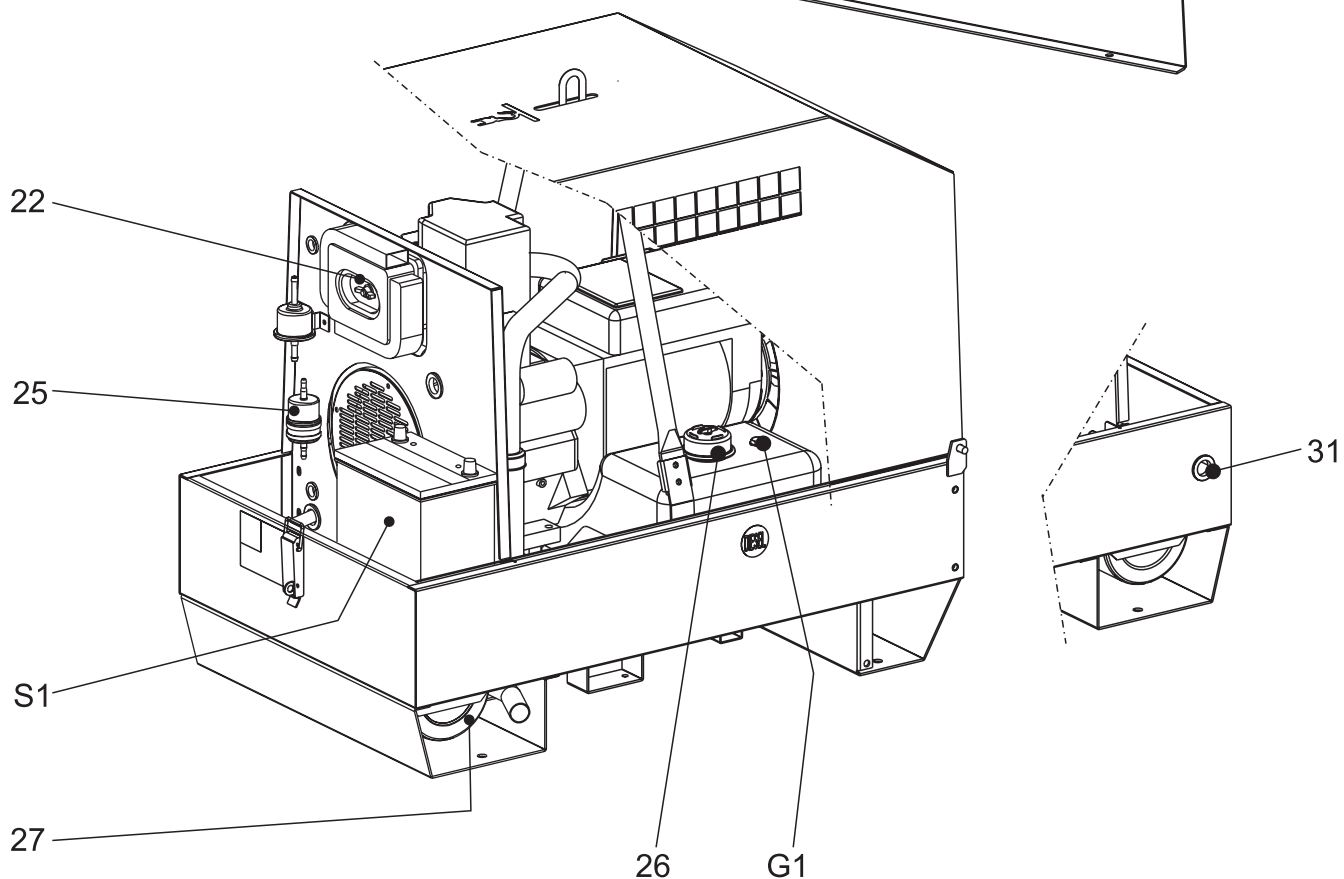
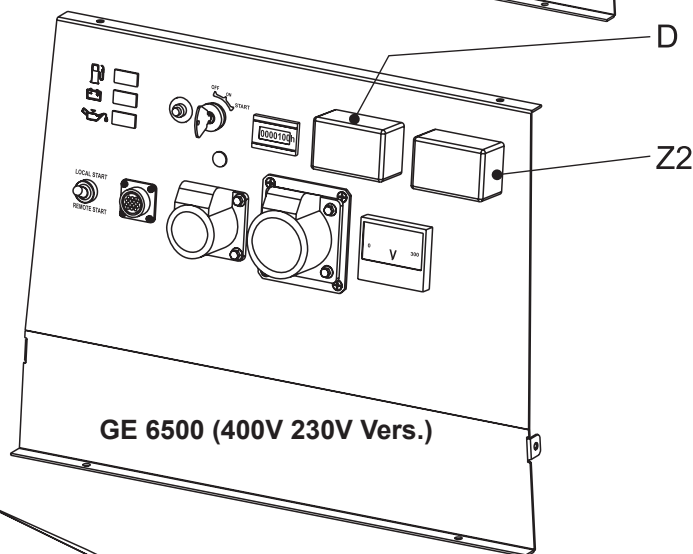
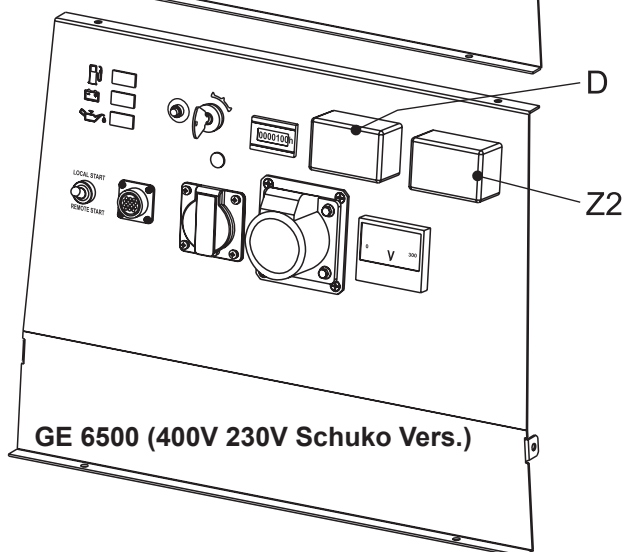
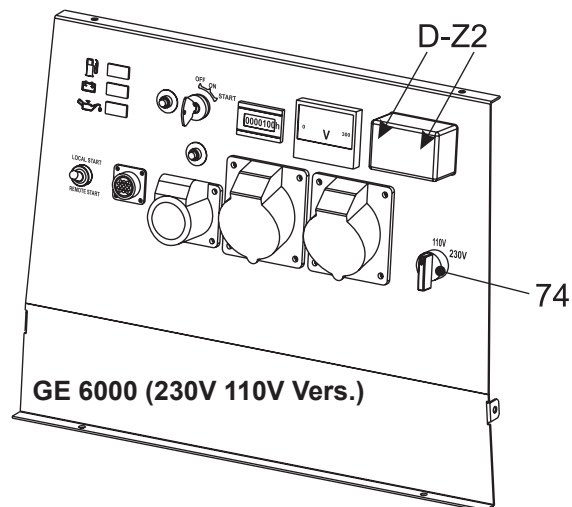
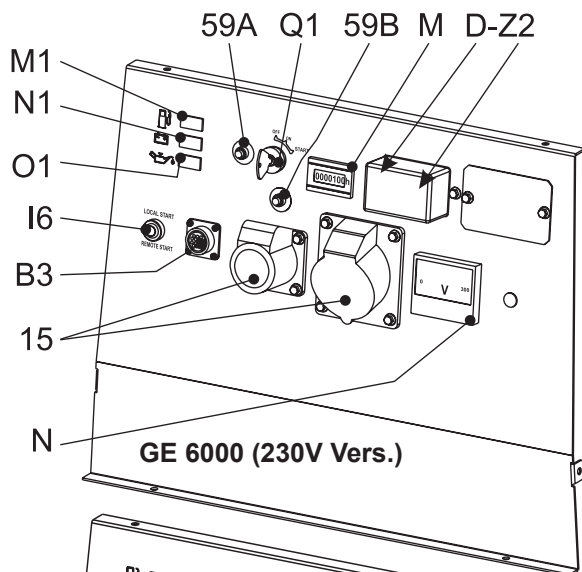
If the engine fails to start, do not insist for at least 15 seconds.
Space the further operations waiting for at least 4 minutes.



CAUTION

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

4A	Hydraulic oil level light	B4	Exclusion indicating light PTO HI	W5	Battery voltmeter
9	Welding socket (+)	B5	Auxiliary current push button	X1	Remote control socket
10	Welding socket (-)	C2	Fuel level light	Y3	Button indicating light 20 l/1' PTO HI
12	Earth terminal	C3	E.A.S. PCB	Y5	Commutator/switch, serial/parallel
15	A.C. socket	C6	Control unit for generating sets QEA	Z2	Thermal-magnetic circuit breaker
16	Accelerator lever	D	Ground fault interrupter (30 mA)	Z3	Selection push button 20 l/1' PTO HI
17	Feed pump	D1	Engine control unit and economiser EP1	Z5	Water temperature indicator
19	48V D.C. socket				
22	Engine air filter	D2	Ammeter		
23	Oil level dipstick	E2	Frequency meter		
24	Engine oil reservoir cap	E6	Frequency rpm regulator		
24A	Hydraulic oil reservoir cap	E7	Voltmeter regulator		
24B	Water filling cap	F	Fuse		
25	Fuel prefilter	F3	Stop switch		
26	Fuel tank cap	F5	Warning light, high temperature		
27	Muffler	F6	Arc-Force selector		
28	Stop control	G1	Fuel level transmitter		
29	Engine protection cover	H2	Voltage commutator		
30	Engine cooling/alternator fan belt	H6	Fuel electro pump		
31	Oil drain tap	H8	Engine control unit EP7		
31A	Hydraulic oil drain tap	I2	48V A.C. socket		
31B	Water drain tap	I3	Welding scale switch		
31C	Exhaust tap for tank fuel	I4	Preheating indicator		
32	Button	I5	Y/▲ switch		
33	Start button	I6	Start Local/Remote selector		
34	Booster socket 12V	I8	AUTOIDLE switch		
34A	Booster socket 24V	L	A.C. output indicator		
35	Battery charge fuse	L5	Emergency button		
36	Space for remote control	L6	Choke button		
37	Remote control	M	Hour counter		
42	Space for E.A.S.	M1	Warning level light		
42A	Space for PAC	M2	Contactora		
47	Fuel pump	M5	Engine control unit EP5		
49	Electric start socket	M6	CC/CV switch		
54	Reset button PTO HI	N	Voltmeter		
55	Quick coupling m. PTO HI	N1	Battery charge warning light		
55A	Quick coupling f. PTO HI	N2	Thermal-magnetic circuit breaker/		
56	Hydraulic oil filter		Ground fault interrupter		
59	Battery charger thermal switch	N5	Pre-heat push-button		
59A	Engine thermal switch	N6	Connector - wire feeder		
59B	Aux current thermal switch	O1	Oil pressure warning light/Oil alert		
59C	Supply thermal switch wire feeder-42V	P	Welding arc regulator		
59D	Pre-heater (spark plug) thermal switch	P8	Water in fuel		
59E	Supply thermal switch oil/water heater	Q1	Starter key		
59F	Electropump thermal switch	Q3	Derivation box		
63	No load voltage control	Q4	Battery charge sockets		
66	Choke control	Q7	Welding selector mode		
67A	Auxiliary / welding current control	R3	Siren		
68	Cellulosic electrodes control	S	Welding ammeter		
69A	Voltmeter relay	S1	Battery		
70	Warning lights	S3	Engine control unit EP4		
71	Selecting knob	S6	Wire feeder supply switch		
72	Load commut. push button	S7	Plug 230V singlephase		
73	Starting push button	T	Welding current regulator		
74	Operating mode selector	T4	Dirty air filter warning light/indicator		
75	Power on warning light	T5	Earth leakage relay		
76	Display	T7	Analogic instrument V/Hz		
79	Wire connection unit	U	Current transformer		
86	Selector	U3	R.P.M. adjuster		
86A	Setting confirmation	U4	Polarity inverter remote control		
87	Fuel valve	U5	Release coil		
88	Oil syringe	U7	Engine control unit EP6		
A3	Insulation monitoring	V	Welding voltage voltmeter		
A4	Button indicating light 30 l/1' PTO HI	V4	Polarity inverter control		
B2	Engine control unit EP2	V5	Oil pressure indicator		
B3	E.A.S. connector	W1	Remote control switch		
		W3	Selection push button 30 l/1' PTO HI		



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



WARNING

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



WARNING

The areas, **access** of which is forbidden to unqualified personel, are:

- the control switchboard (front), the exhaust of the endothermic engine.

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

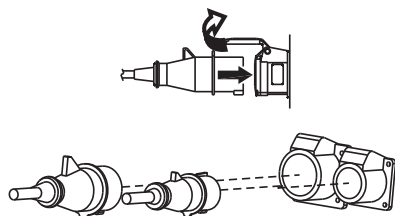
Make sure that the ground connection (12) is efficient (keep to installation local rules and/or to national laws), in order to integrate or ensure the working of various electric protection devices referring to the several distribution system TT/TN/IT, operation unnecessary for machine with isometer.

- See page M 20-21.

Check the voltmeter (N) shows the voltage three or single-phase has to be drawn.

Nominal voltage	Indicative no-load voltage
230V	+10%
400V	+10%

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



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

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

THERMOPROTECTION

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

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



CIRCUIT BREAKER

Reset the thermoprotection pressing the central pole.

When reset, connect the loads again.

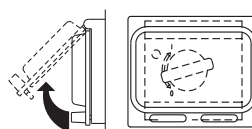
In case the protection should act furtherly, check: the connections, the wires or others, and if necessary call the Assistance Service.



Avoid to hold the central pole of the thermoprotection pressed for a long time.

Otherwise, in case of trouble, it will not click, **damaging** the generating set.

GROUND FAULT INTERRUPTER (GFI)



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

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





MAKE SURE

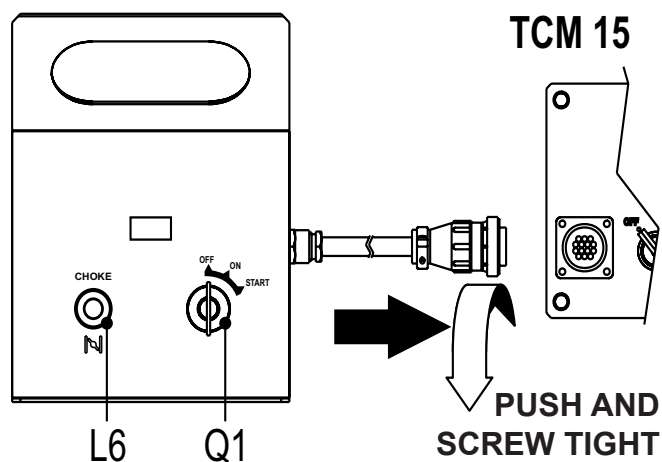
When the TCM 15 - 6 is used, it is not possible to connect the E.A.S automatic intervention unit.

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 functions:

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



USE OF THE REMOTE CONTROL TCM 6

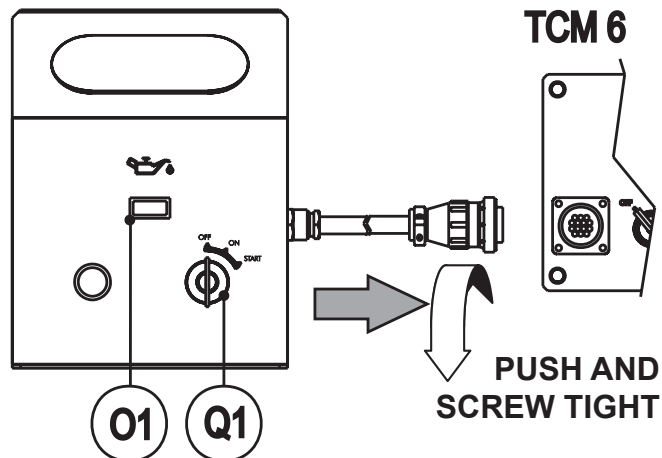
The coupling of the TCM 6 with the generating set, ready for remot starting, permits to work far from the set itself.

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

The TCM 6 assures the following functions:

- 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".

ENGINE PROTECTION (ES - EV)

The devices ES or EV ensure the protection of the engine in case of low oil pressure or engine high temperature.

The system consist of electronic card of control and check, and of an engine stop device: solenoid (**ElettroStop**), electrovalve (**ElettroValvola**)

The device enter in operation when the engine starts and, in case of low oil pressure and high temperature, will stop the machine and show the cause of the stop with the warning light of high temperature or low oil pressure.

In case of low oil pressure, check the level and if it is correct, call the Service Station. In case of high temperature, make sure that there are no leaves and/or pieces of material obstructing the air ducts.

N.B.: if the unit is used as a generator in hot climates and with loads near to the maximum, the protection device can be triggered off, please reduce the load of the engine.

Once the cause of the problem is removed, to reset the protection, it is enough to report the ignition key (Q1) on "OFF" position and start the engine again.



High temperature



Low oil pressure






NOTE

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

I GB F	Troubleshooting	Diesel engine	M 40.2 REV.3-07/06
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<i>Problem</i>	<i>Possible cause</i>	<i>Solution</i>
ENGINE		
The motor does not start up	1) Start-up switch (I6) (where it is assembled) in incorrect position 2) Emergency button (L5) pressed 3) Preheating (where it is assembled) 4) Engine control unit or starting key faulty. 5) Battery low 6) Battery cable terminals loose or corroded 7) Start-up motor defective 8) No fuel or air in feed circuit 9) Malfunction on feed circuit: defective pump, injector blocked, etc. 10) Air filter or fuel filter clogged 11) Air in the gasoil filter. 12) Motor stopping device defective 13) Malfunction on electrical power circuit on generator control panel	1) Check position 2) Unblock 3) Lacking or insufficient preheating phase for sparkplugs. Malfunction in circuit: repair. 4) Replace 5) Recharge or replace. Check the battery charge circuit on motor and automatic panel. 6) Tighten and clean. Replace if corroded. 7) Repair or replace. 8) Refill tank, un-aerate the circuit. 9) Ask for intervention of Service Department. 10) Clean or replace 11) Take the air out filling the filter with gasoil. 12) Replace. 13) Check and repair.
The motor does not accelerate. Inconstant speed.	1) Air filter or fuel filter clogged. 2) Malfunction on feed circuit: defective pump, injector blocked, etc. 3) Oil level too high. 4) Motor speed regulator defective.	1) Clean or replace. 2) Ask for intervention of Service Department. 3) Eliminate excess oil. 4) Ask for intervention of Service Department
Black smoke	1) Air filter clogged. 2) Overload. 3) Injectors defective. Injection pump requires calibration.	1) Clean or replace 2) Check the load connected and diminish. 3) Ask for intervention of Service Department.
White smoke	1) Oil level too high. 2) Motor cold or in prolonged operation with little or no load. 3) Segments and/or cylinders worn out.	1) Eliminate excess oil. 2) Insert load only with motor sufficiently hot 3) Ask for intervention of Service Department.
Too little power provided by motor.	1) Air filter clogged. 2) Insufficient fuel distribution, impurities or water in feed circuit. 3) Injectors dirty or defective.	1) Clean or replace. 2) Check the feed circuit, clean and refill once again. 3) Ask for intervention of Service Department.
Low oil pressure	1) Oil level insufficient 2) Air filter clogged. 3) Oil pump defective. 4) Alarm malfunction.	1) Reset level. Check for leaks. 2) Replace filter. 3) Ask for intervention of Service Department. 4) Check the sensor and electrical circuit.
High temperature	1) Overload 2) Insufficient ventilation. 3) Insufficient coolant liquid (Only for water cooled motors) 4) Water radiator or oil clogged (where it is assembled) 5) Water circulating pump defective (Only for water cooled motors) 6) Injectors defective. Injection pump requires calibration 7) Alarm malfunction	1) Check the load connected and diminish. 2) Check the cooling vent and relative transmission belts 3) Restore level. Check for leaks or breakage in the entire cooling circuit, pipes, couplings, etc. 4) Clean cooling fins on radiator 5) Ask for intervention of Service Department 6) Ask for intervention of Service Department 7) Check the sensor and electrical circuit

<i>Problem</i>	<i>Possible cause</i>	<i>Solution</i>
GENERATOR		
Absence of output voltage	1) Voltage switch in position 0 2) Voltage switch faulty 3) Protection tripped due to overload 4) Differential protection device tripped. (Differential switch, differential relay) 5) Protection devices defective 6) Alternator not sparked 7) Alternator defective	1) Check position 2) Check connections and working of the switch, repair or replace 3) Check the load connected and diminish 4) Check on the entire installation: cables, connections, utilities connected have no defective sheathing which may cause incorrect currents to ground 5) Replace 6) Carry out external spark test as indicated in alternator manual. Ask for intervention of Service Department 7) Check winding, diodes, etc. on alternator (Refer to alternator manual) Repair or replace. Ask for intervention of Service Department
No-load voltage too low or too high	1) Incorrect motor running speed 2) Voltage regulating device (where it is assembled) defective or requires calibration 3) Alternator defective	1) Regulate speed to its nominal no-load value 2) Adjust regulator device as indicated in alternator manual, or replace. For generators with double voltage control AVR and COMPOUND, act on the excitation circuit as shown in the alternator manual. 3) Check winding, diodes, etc. on alternator (Refer to alternator manual) Repair or replace Ask for intervention of Service Department
Corrected no-load voltage too low with load	1) Incorrect motor running speed due to overload 2) Load with $\cos \varphi$ less than 0.8 3) Alternator defective	1) Check the load connected and diminish 2) Reduce or rephase load 3) Check winding, diodes, etc. on alternator (Refer to alternator manual) Repair or replace Ask for intervention of Service Department
Unstable tension	1) Contacts malfunctioning 2) Irregular rotation of motor 3) Alternator defective	1) Check electrical connections and tighten 2) Ask for intervention of Service Department 3) Check winding, diodes, etc. on alternator (Refer to alternator manual) Repair or replace Ask for intervention of Service Department

 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.

 IMPORTANT	
	<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 surroindings, health or safety respecting completely the laws and/or dispositions in force in the place.</p>

ENGINE and ALTERNATOR

PLEASE REFER TO THE SPECIFIC MANUALS PROVIDED.

Every engine and alternator manufacturer has



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

 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 encharged to the cust off or to the storage office, etc.

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

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

The getting rid of the various components of the machine must be made accordingly to rules in force of law a/o local rules.

Particular attention must be paid when getting rid of:

lubricating oils, battery electrolyte, and 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.

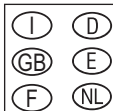


IMPORTANT



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.





GE 6000/6500 SX/GS
GE 7000 SX/GA

M
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REV.0-10/04

Legenda schema elettrico

A : Alternatore
B : Supporto connessione cavi
D : Interruttore differenziale
F : Fusibile
G : Presa 400V trifase
H : Presa 230V monofase
I : Presa 110V monofase
M : Contatore
N : Voltmetro
G1 : Trasmettitore livello carburante
L1 : Pressostato
M1 : Spia riserva carburante
N1 : Spia carica batteria
O1 : Spia pressostato
R1 : Motorino avviamento
S1 : Batteria
U1 : Regolatore tensione batteria
V1 : Unità controllo elettrovalvola
Z1 : Elettrovalvola
Z2 : Interruttore magnetotermico
B3 : Connettore E.A.S.
N3 : Relè
P4 : Protezione termica
Y5 : Commutatore Serie/Parallelo
H6 : Elettropompa carburante 12V c.c.
I6 : Selettore Start Local/Remote

Electrical system legende

A: Alternator
B: Wire connection unit
D: G.F.I.
F: Fuse
G: 400V 3-phase socket
H: 230V 1phase socket
I: 110V 1-phase socket
M: Hour-counter
N: Voltmeter
G1: Fuel level transmitter
L1: Oil pressure switch
M1: Fuel warning light
N1: Battery charge warning light
O1: Oil pressure warning light
R1: Starter motor
S1: Battery
U1: Battery charge voltage regulator
V1: Solenoid valve control PCBT
Z1: Solenoid valve
Z2: Thermal magnetic circuit breaker
B3: E.A.S. connector
N3: Relay
P4: Circuit breaker
Y5: Commutator/switch, series/parallel
H6: Fuel electro pump 12V c.c.
I6: Start Local/Remote selector

Legende des schemas electriques

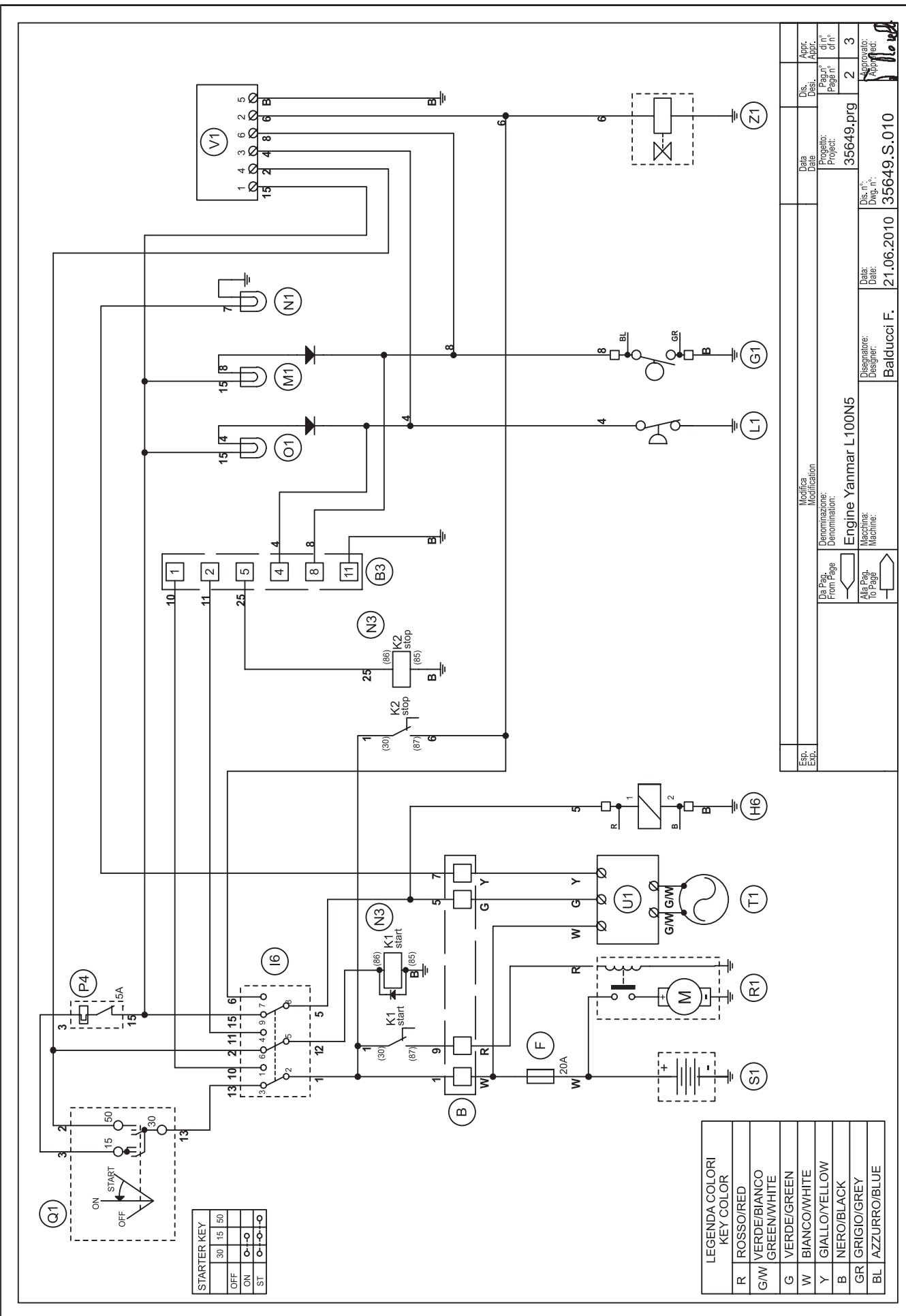
A : Alternateur
B : Connexion câbles
D : Interrupteur différentiel
F : Fusible
G : Prise 400V triphasé
H : Prise 230V monophasé
I : Prise 110V monophasé
M : Compte-heures
N : Voltmètre
G1 : Niveau carburant
L1 : Pressostat huile
M1 : Voyant réserve carburant
N1 : Voyant charge batterie
O1 : Voyant pressostat
R1 : Moteur de démarrage
S1 : Batterie
U1 : Régulateur tension batterie
V1 : Unité de contrôle électrosoupape
Z1 : Electrosoupape
Z2 : Interrupteur magnétothermique
B3 : Connecteur E.A.S.
N3 : Relais
P4 : Protection thermique
Y5 : Commutateur Série/Parallèle
H6 : Electropompe carburant
I6 : Selecteur Start Local/Remote

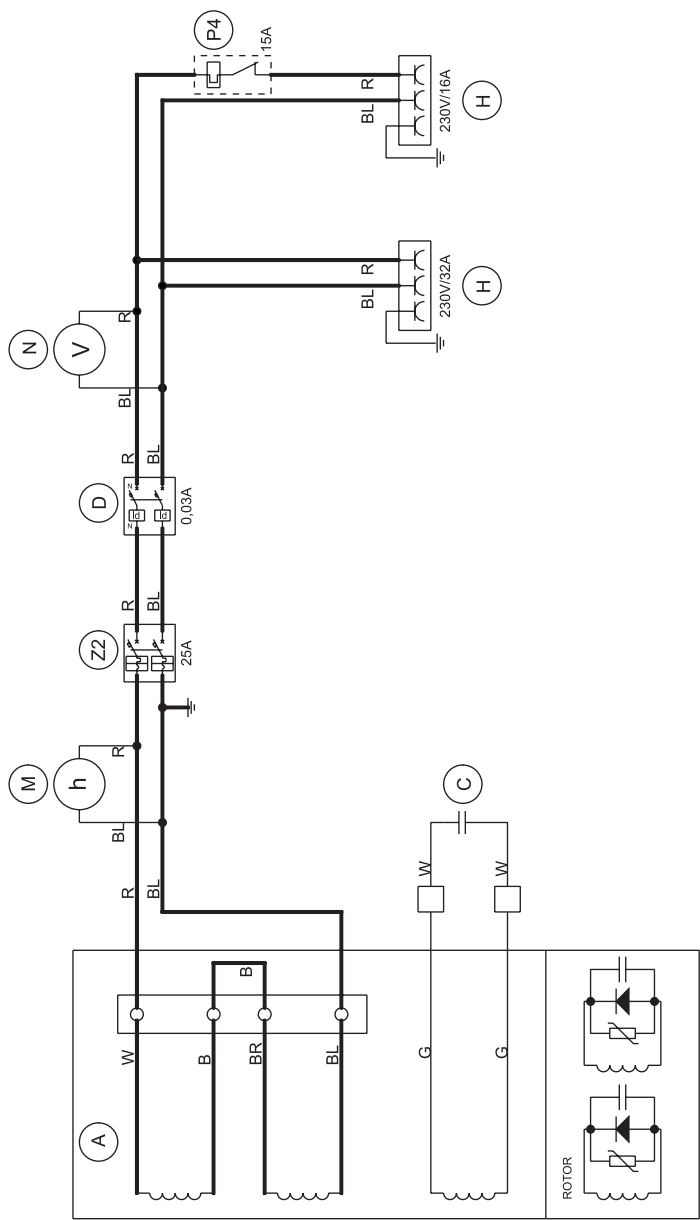
Stromlaufplan-Referenzliste

A Generator
B Klemmleiste
D FI-Schalter (GFI)
F Sicherung
G Steckdose 400V 3-phasig
H Steckdose 230V 1-phasig
I Steckdose 110V 1-phasig
M Stundenzähler
N Voltmeter
G1 Füllstandssensor Kraftstoff
L1 Öldruckschalter
M1 Warnleuchte Kraftstoff
N1 Warnleuchte Batterieladung
O1 Warnleuchte Öldruck
R1 Anlasser
S1 Batterie
U1 Laderegler Batterie
V1 Steuereinheit Magnetventil
Z1 Magnetventil
Z2 Thermomagnetschalter (Si-Automat)
B3 Steckdose EAS/Fernstart
N3 Relais
P4 Thermosicherung
Y5 Anzeige Wassertemperatur
H6 Kraftstoffpumpe 12V
I6 Umschalter Fernstart



Leyenda esquema eléctrico

A : Alternador
B : Soporte conexión cables
D : Interruptor diferencial
F : Fusible
G : Toma 400V trifásica
H : Toma 230V monofásica
I : Toma 110V monofásica
M : Cuentahoras
N : Voltímetro
G1 : Captador nivel carburante
L1 : Presostato
M1 : Piloto reserva carburante
N1 : Piloto carga batería
O1 : Piloto presostato
R1 : Motor arranque
S1 : Batería
U1 : Regulador tensión batería
V1 : Unidad control electroválvula
Z1 : Electroválvula
Z2 : Interruptor magnetotérmico
B3 : Conector E.A.S.
N3 : Relé
P4 : Protección térmica
Y5 : Contactador Serie/Paralelo
H6 : Electrobomba carburante 12 V c.c.
I6 : Selector Start Local/Remote





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

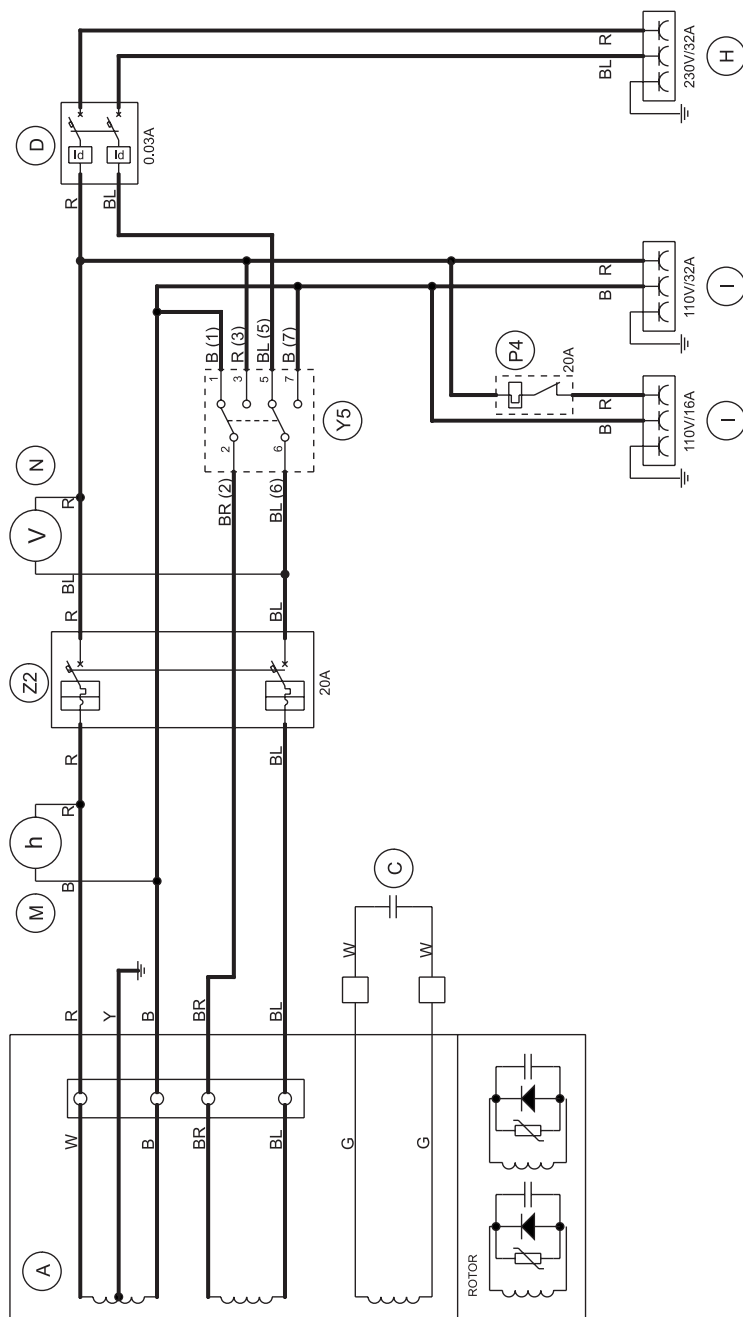
A. Eliminato avvolgimento carica batteria.		23.02.2006		N.L.	
Modifica Modification		Dis. Date		Dis. Appr.	
Esp. Exp.	Denominazione: Denomination:		Progetto: Project:	Page n° di n° of n°	3
Da Pag. From Page		AUX. (230mx2) DMT		35640.prg	3
Alta Pag. To Page		Macchina: Machine:		Dis. n° Draw. n°:	3
		Disegnatore: Designer:		Data: Date:	Approvato: Approved:
		Leporace N.		12.12.2003	35640.S.020-A
					

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

GE 6000 SX/GS
(230M110M vers.)

M
61.3

REV.1-09/06

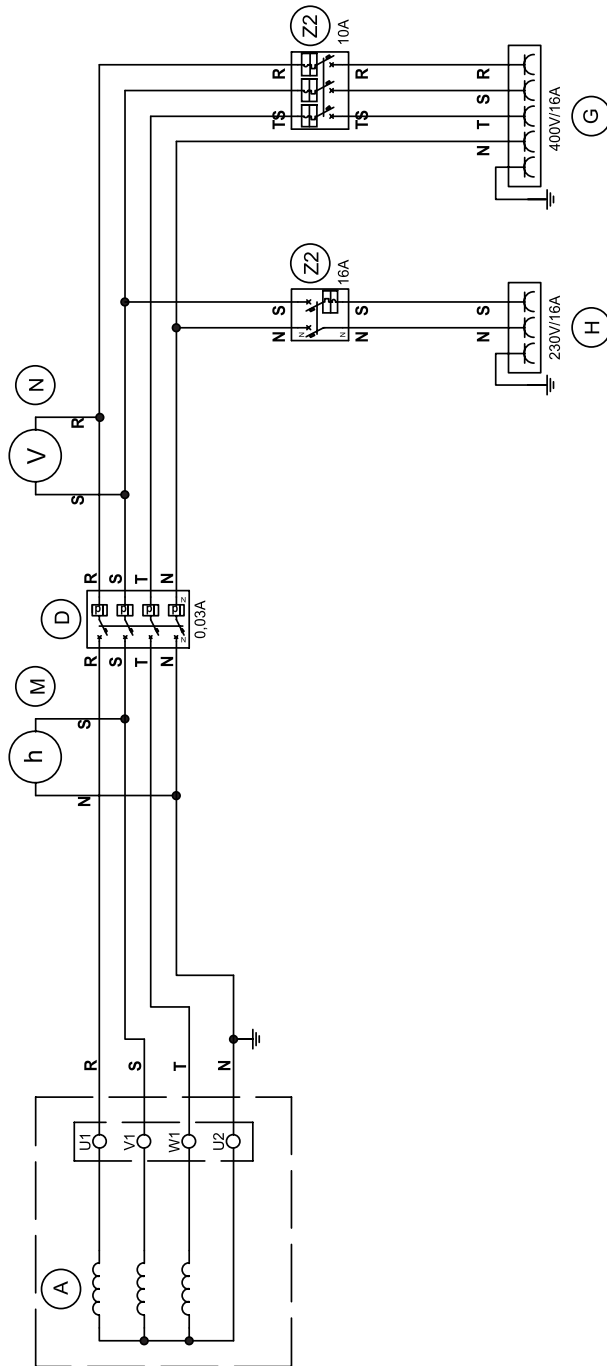


110V POSITION 230V POSITION



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

[illegible]



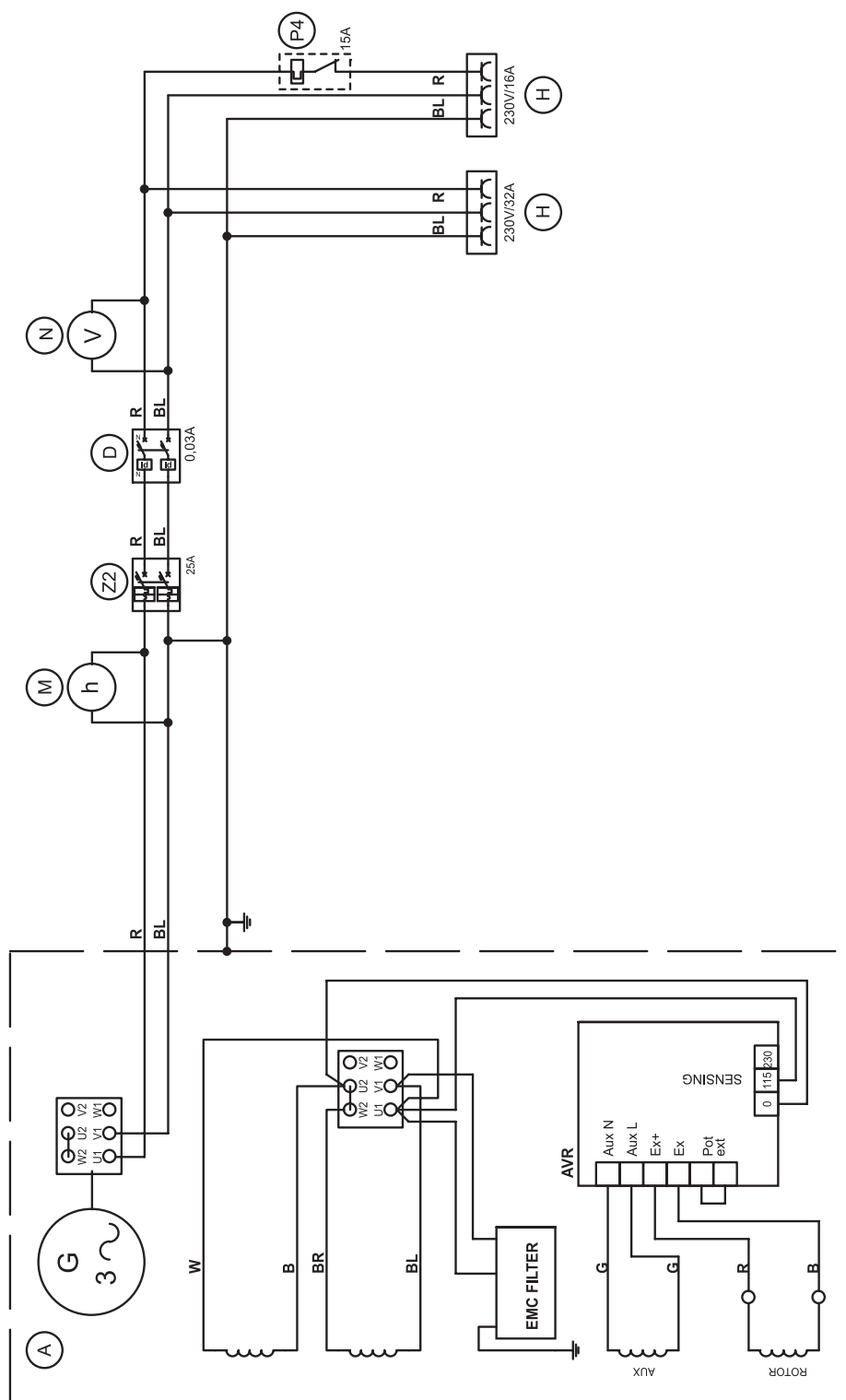
Esq. Exp.	Modifica Modification	Data Date	Dis. Desi.	Appr. Appr.
	Denominazione: Denomination:	Progetto: Project:	Dis. Page n°	Appr. Page n°
	Aux. (400T/230M) DM	35645.prg	3	3
	Macchina: Machine:	Dis. n°: Dwg. n°:	Dis. n°: Dwg. n°:	Appr. n°: Appr. n°:
	Leporace N.	23.02.2006	35645.S.020	025810

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

GE 6000 SX/GS-AVR
(230M vers.)

M
61.5

REV.0-12/12



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

[illegible]

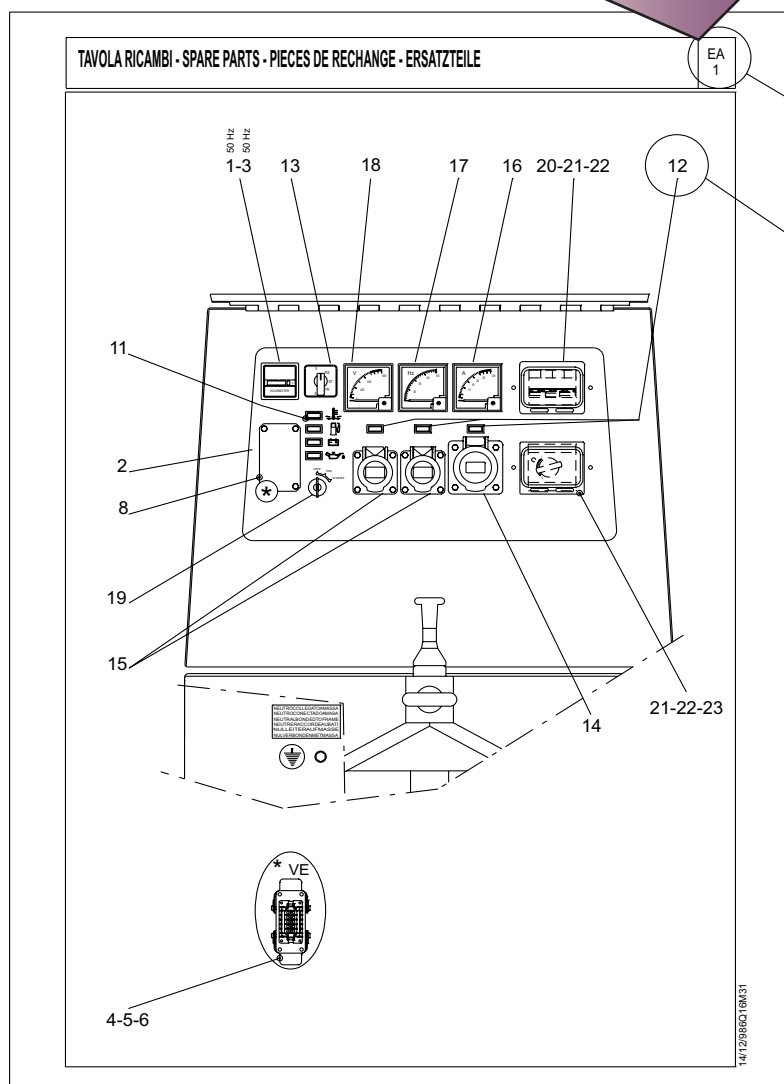
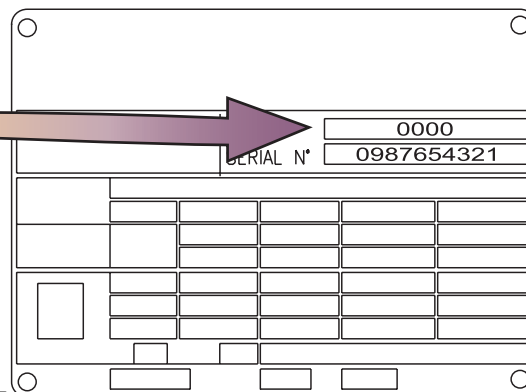
The manufacturer guarantees that any request for spare parts will be satisfied.

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. *

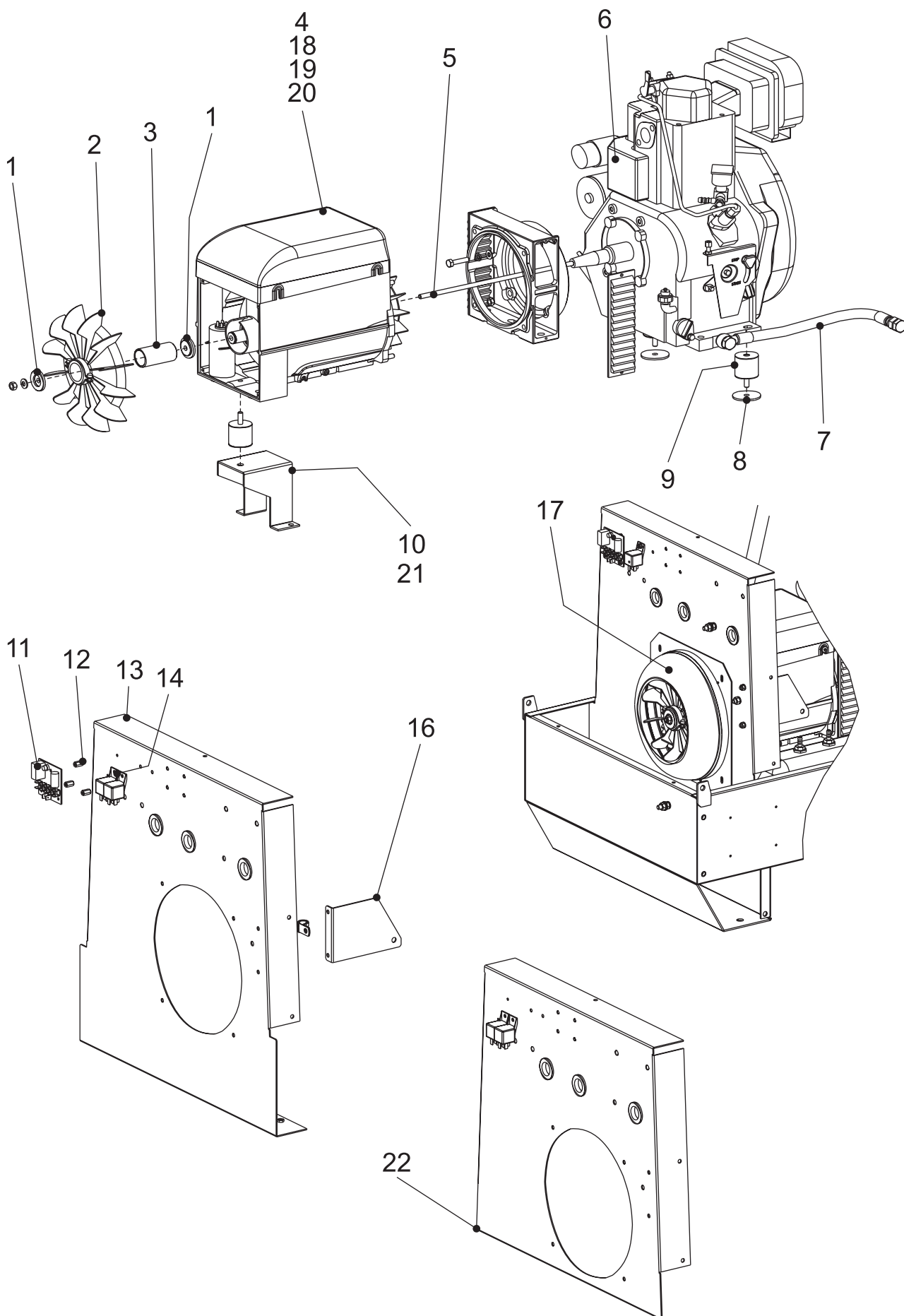
When ordering the spare parts, it is recommended to indicate:

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



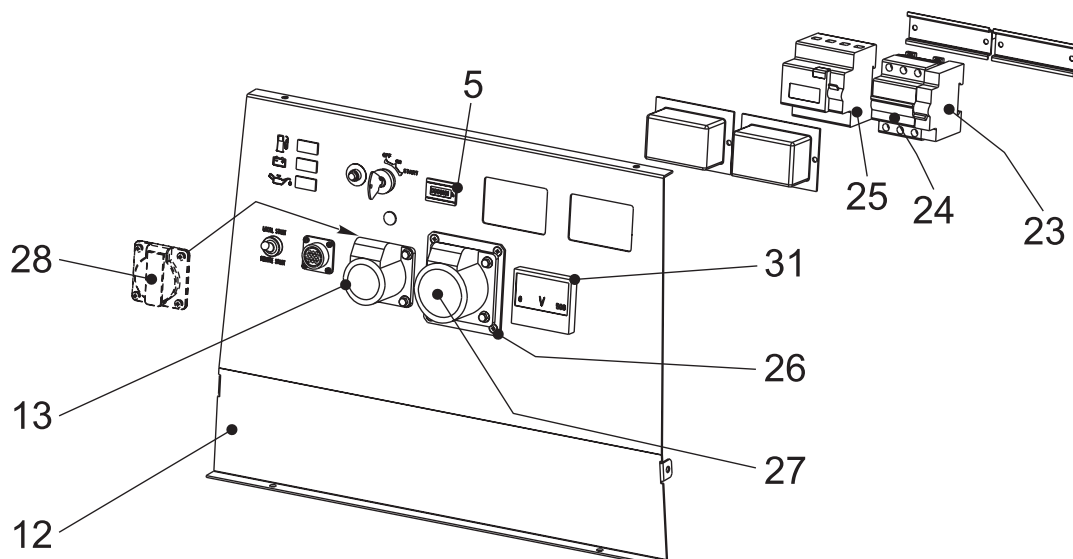
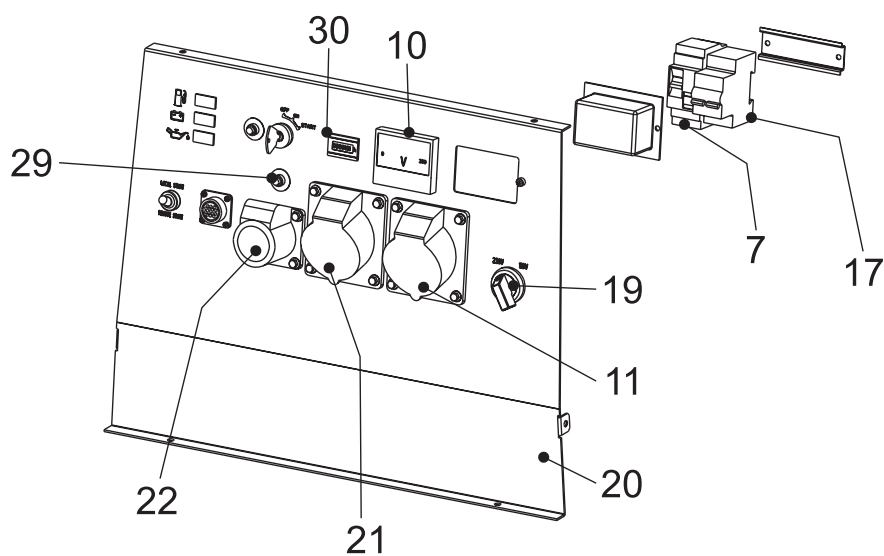
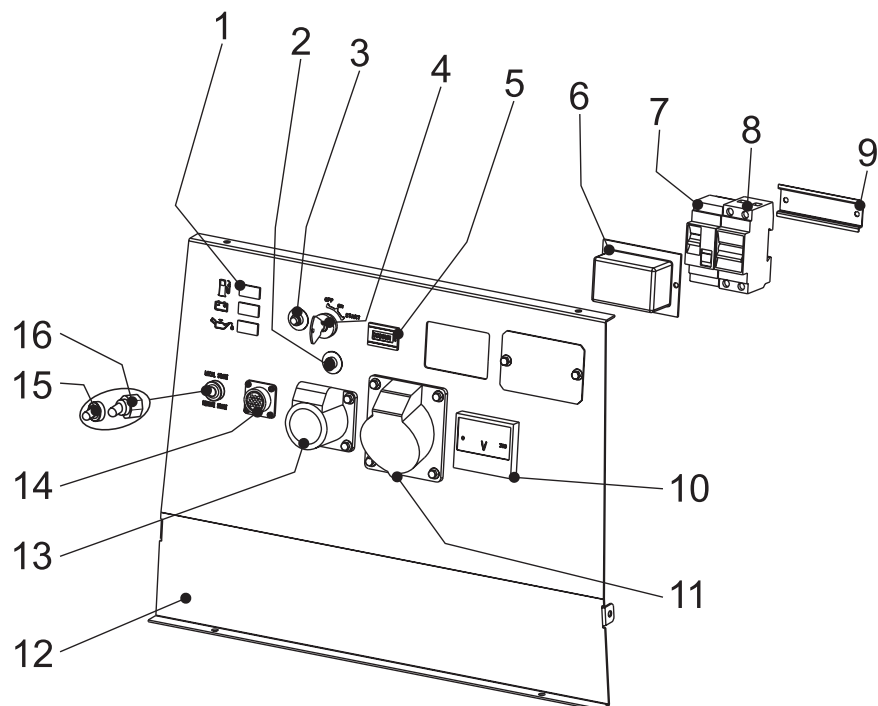
ABBREVIATIONS AND SYMBOLS:

- (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



Ⓘ Ricambi	Ⓓ Ersatzteile	GE 6000 SX/GS	HP
ⒼB Spare parts	Ⓔ Tabla de recambios	GE 6500 SX/GS	42.1
Ⓕ Pièces de rechange	Ⓖ NL		REV.3-12/12

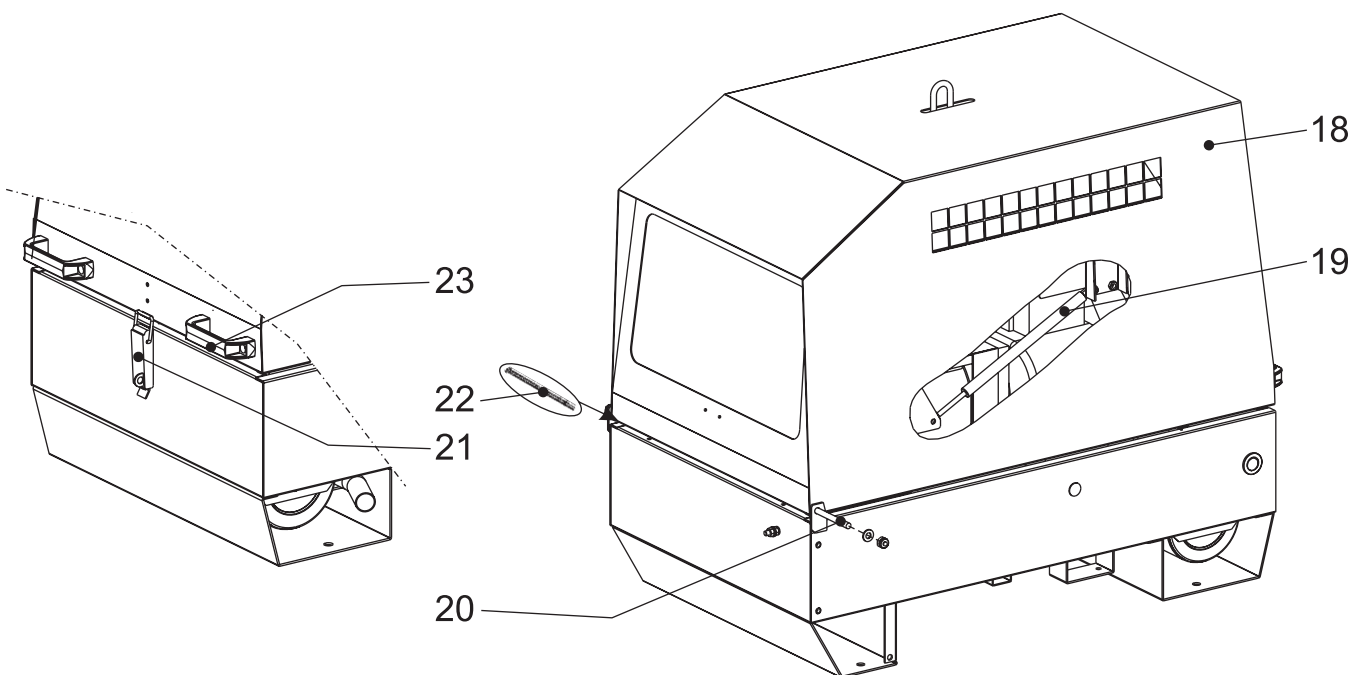
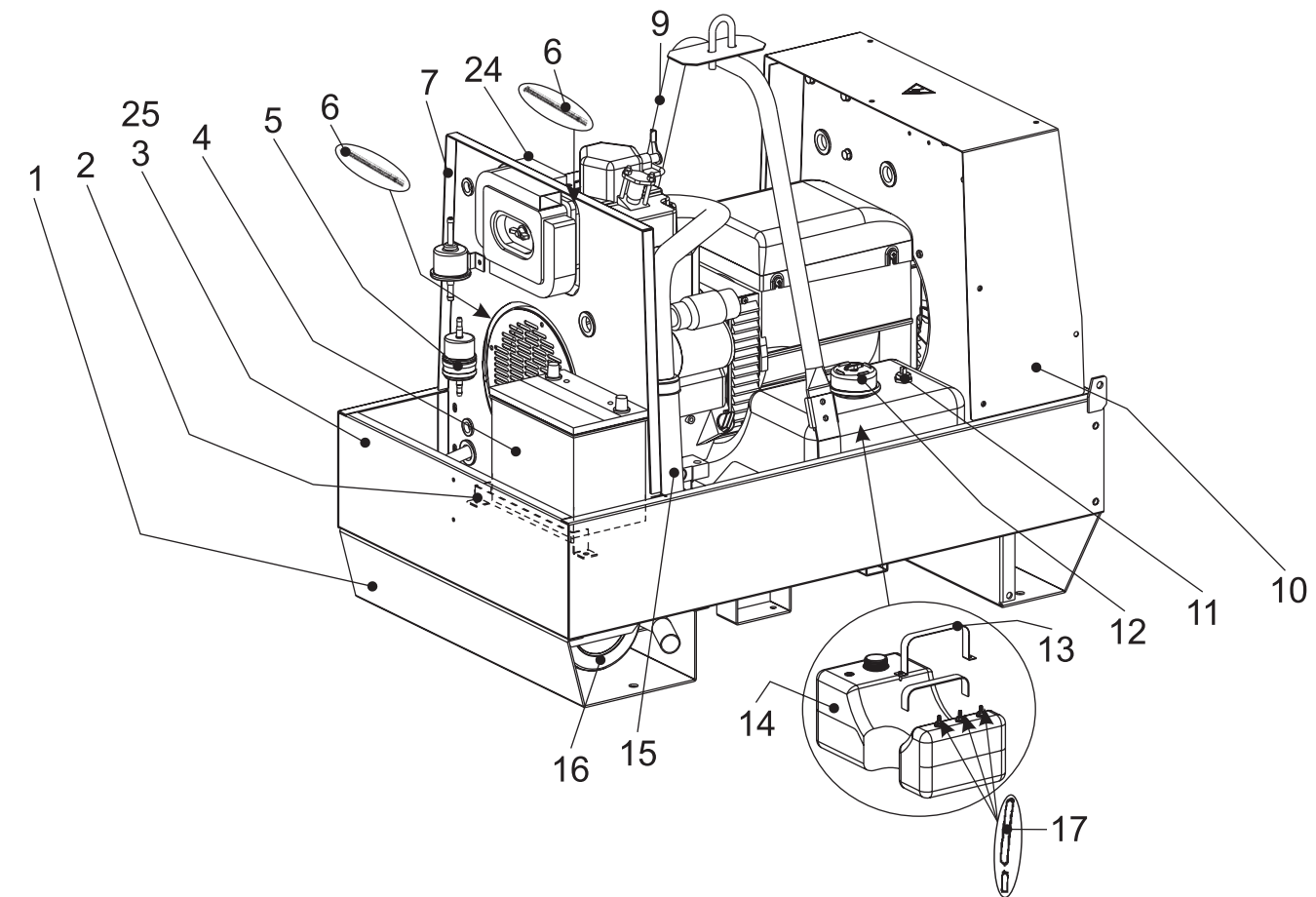
Pos.	Cod.	Descr.	Note
1	M356403038	RONDELLA DI SICUREZZA	
2	M105111290	VENTOLA CON FASCETTA	
3	M356323039	DISTANZIALE FISS. VENTOLA	
4	M256703100	ALTERNATORE	fino a REV.10/04 Del.26/06 - 01/03/06
4	M356403100	ALTERNATORE	GE 6000 230Mx2 - da REV.1-09/06 Del.26/06 - 01/03/06
5	M356403036	TIRANTE	
6	M356402200	MOTORE YANMAR L100N	da REV.2-01/09 Del.44/08 - 25/2/08
6	MHP0152200	MOTORE YANMAR L100AE-DEG	da REV.1-09/06 Del.26/06 - 01/03/06
			fino a REV.1-09/06 Del.44/08 - 25/2/08
6	M372802200	MOTORE YANMAR L100AE-DEG	fino a REV.0-10/04 Del.26/06 - 01/03/06
7	M372802212	TUBO SCARICO OLIO	
8	M372802038	RONDELLA DI BLOCCAGGIO	
9	M356321035	ANTIVIBRANTE	
10	M356403101	SUPPORTO ALTERNATORE	
11	M209719850	SCHEDA EV/ES	
12	M282009807	DISTANZ. ISOLANTE PER SCHEDE	
13	M356408218	PARATIA ALTERNATORE	
14	M306479199	RELE' AVV. ELETTRICO	
15	M256022275	REGOLATORE DI TENSIONE	fino a REV.0-10/04 Del.26/06 - 01/03/06
16	M356401105	STAFFA FISSAGGIO MOLLA A GAS	
17	M356746010	CONVOGLIATORE ARIA	
18	M356413100	ALTERNATORE	GE 6000 230M 110M - da REV.1-09/06 Del.26/06 - 01/03/06
19	M356453100	ALTERNATORE	GE 6500 400T 230M - da REV.1-09/06 Del.26/06 - 01/03/06
20	M356503100	ALTERNATORE	GE 6000 AVR 230Mx2 - da REV.3-12/12 Del.137/12 - 03/12/12
21	M356503101	STAFFA SUPP. ALTERNATORE	GE 6000 AVR 230Mx2 - da REV.3-12/12 Del.137/12 - 03/12/12
22	M356508218	PARATIA ALTERNATORE	GE 6000 AVR 230Mx2 - da REV.3-12/12 Del.137/12 - 03/12/12
Pos.	Cod.	Descr.	Note
1	M356403038	LOCKING WASHER	
2	M105111290	FAN	
3	M356323039	FIXING FAN SPACER	
4	M256703100	ALTERNATOR	up to REV.0-10/04 Del.26/06 - 01/03/06
4	M356403100	ALTERNATOR	GE 6000 230Mx2 - from REV.1-09/06 Del.26/06 - 01/03/06
5	M356403036	TIE-ROD	
6	M356402200	YANMAR ENGINE L100N	from REV.2-01/09 Del.44/08-25/2/08
6	MHP0152200	YANMAR ENGINE L100AE-DEG	from REV.1-09/06 Del.26/06 - 01/03/06
			up to REV.1-09/06 Del.44/08-25/2/08
6	M372802200	YANMAR ENGINE L100AE-DEG	up to REV.0-10/04 Del.26/06 - 01/03/06
7	M372802212	OIL EXHAUST PIPE	
8	M372802038	STOP WASHER	
9	M356321035	VIBRATION DAMPER	
10	M356403101	ALTERNATOR SUPPORT	
11	M209719850	PCB EV/ES	
12	M282009807	SPACER	
13	M356408218	ALTERNATOR WALL	
14	M306479199	RELAY, ELECTRIC START	
15	M256022275	VOLTAGE REGULATOR	up to REV.0-10/04 Del.26/06 - 01/03/06
16	M356401105	SPRING BRACKET	
17	M356746010	SHROUD FOR FAN	
18	M356413100	ALTERNATOR	GE 6000 230M 110M - from REV.1-09/06 Del.26/06 - 01/03/06
19	M356453100	ALTERNATOR	GE 6500 400T 230M - from REV.1-09/06 Del.26/06 - 01/03/06
20	M356503100	ALTERNATOR	GE 6000 AVR 230Mx2 - from REV.3-12/12 Del.137/12 - 03/12/12
21	M356503101	ALTERNATOR SUPPORT	GE 6000 AVR 230Mx2 - from REV.3-12/12 Del.137/12 - 03/12/12
22	M356508218	ALTERNATOR WALL	GE 6000 AVR 230Mx2 - from REV.3-12/12 Del.137/12 - 03/12/12



Ⓘ Ricambi	Ⓓ Ersatzteile	GE 6000 SX/GS	HP
ⒼB Spare parts	Ⓔ Tabla de recambios	GE 6500 SX/GS	43.1
Ⓕ Pièces de rechange	Ⓖ NL		REV.4-12/12

Pos.	Cod.	Descr.	Note
1	M1302040	SPIA ROSSA 12V	Fino a REV.1-09/06-Del.287-11/01/08
1	M1302500	SPIA ROSSA 12V	Da REV.2-02/08-Del.287-11/01/08
2	M155307107	DISGIUNTORE TERMICO 15A-250V	
3	M352007109	PROTEZIONE TERMICA 5A	
4	M107302460	STARTER A CHIAVE	
5	M105511810	CONTAORE 230V 50Hz IP65	
6	M232027130	CAPPUCCIO PROTEZIONE I.D.	
7	M220237105	Vedi Cod.256007105	GE 6000
8	M256707325	INT.MAGNETOTERMICO 2P 25A-B	GE 6000 230 Version
9	M232027036	GUIDA	
10	M103011310	VOLTMETRO FONDO SCALA 300V	
11	M105111520	PRESA CEE 220V MONOF. 2P+T	
12	M356407020	FRONTALE	
13	M307017240	PRESA 220V 16A	
14	M35640C030	GR. CAVI EAS	Fino a REV.2-02/08 Del.39/11-29/3/11
14	M35649C030	GR. CAVI EAS	Da REV.3-11/11-Del.39/11-29/3/11
15	M102042740	CAPPUCCIO	
16	M102013290	COMMUTATORE	Fino a REV.2-02/08 Del.39/11-29/3/11
16	M107509902	COMMUTATORE TRIPOLARE	Da REV.3-11/11-Del.39/11-29/3/11
17	M256127325	INTERRUT.MAGNETOTERMICO 2P 20A	GE 6000 230/110V Version
19	M256417315	COMMUTATORE DI LINEA	GE 6000 230/110V Version
20	M356417020	FRONTALE	GE 6000 230/110V Version
21	M105111530	PRESA CEE 32A 110V 2 P+T	GE 6000 230/110V Version
22	M307047250	PRESA CEE 110V 16A 2 P+T	GE 6000 230/110V Version
23	M734507325	INTER.MAGNETOTERMICO 16A 1P+N	
24	M256557325	INTERRUT.MAGNETOTERM. 3P 10A	
25	M105111540	Vedi Cod.219937105	
26	M734517032	PIASTRINA RIDUZIONE	
27	M305907270	PRESA CEE 16A 400V 3P+N+T	
28	M259107241	PRESA SCHUKO 16A 230V - 2P+T	GE 6500 Schuko Version
29	M306467107	DISGIUNT. TERMICO 20AMP 250V	GE 6000 230/110V Version
30	M356317330	CONTAORE 110V 50Hz	GE 6000 230/110V Version
31	M105111550	VOLTMETRO FS 500V	

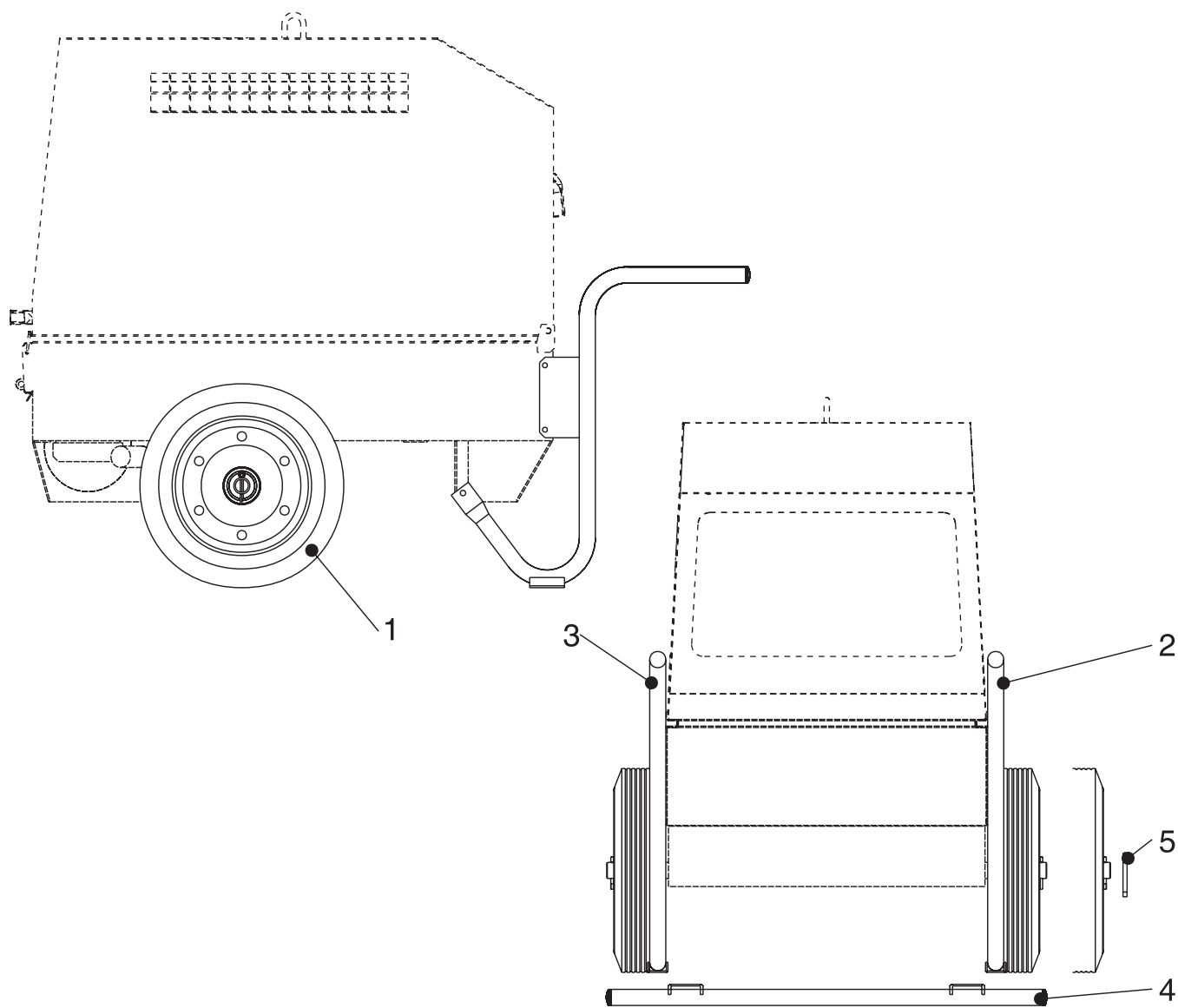
Pos.	Cod.	Descr.	Note
1	M1302040	RED WARNING LIGHT 12V	Up to REV.1-09/06-Del.287-11/01/08
1	M1302500	RED WARNING LIGHT 12V	From REV.2-02/08-Del.287-11/01/08
2	M155307107	THERMAL SWITCH 15A-250V	
3	M352007109	THERMOPROTECTION	
4	M107302460	STARTER KEY	
5	M105511810	HOURLMETER 230V 50Hz IP65	
6	M232027130	CAP	
7	M220237105	See Part n°256007105	
8	M256707325	CIRCUIT BREAKER 2 P 25AMP	GE 6000 230V
9	M232027036	FIXING GUIDE	
10	M103011310	VOLTMETER 300V	
11	M105111520	EEC SOCKET SINGLE-PH.220V 2P+T	
12	M356407020	FRONT PANEL	
13	M307017240	EEC SOCKET 16A, 220V 2P+T	
14	M35640C030	EAS CABLES SET	
14	M35649C030	EAS CABLES SET	From REV.3-11/11-Del.39/11-29/3/11
15	M102042740	CAP	
16	M102013290	COMMUTATOR	
16	M107509902	COMMUTATOR THREE-P	From REV.3-11/11-Del.39/11-29/3/11
17	M256127325	CIRCUIT BREAKER 2P-20A	GE 6000 230/110V
19	M256417315	COMMUTATOR SWITCH 25A 2P	GE 6000 230/110V
20	M356417020	FRONT PANEL	GE 6000 230/110V
21	M105111530	EEC SOCKET 32A 110V 2 P+N	GE 6000 230/110V
22	M307047250	EEC SOCKET 110V 16A 2 P+N	GE 6000 230/110V
23	M734507325	CIRCUIT BREAKER 16A 1P+N	
24	M256557325	CIRCUIT BREAKER 3POLES 10 AMP	
25	M105111540	See part no. 219937105	
26	M734517032	REDUCTION FOR SOCKET 32A/16A	
27	M305907270	EEC SOCKET 16A 400V 3P+N+T	
28	M259107241	SOCKET SCHUKO 16A 230V 2P+T	GE 6500 Schuko
29	M306467107	THERMOPROTECTION 20AMP 250 V	GE 6000 230/110V
30	M356317330	HOURLMETER 110V 50Hz	GE 6000 230/110V
31	M105111550	VOLTMETER	



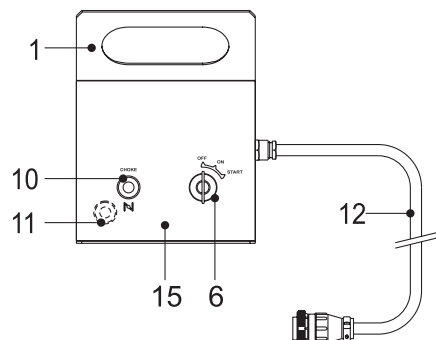
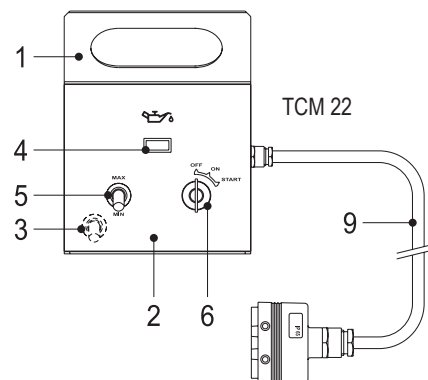
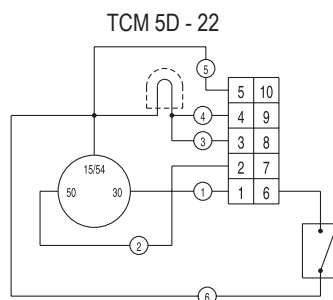
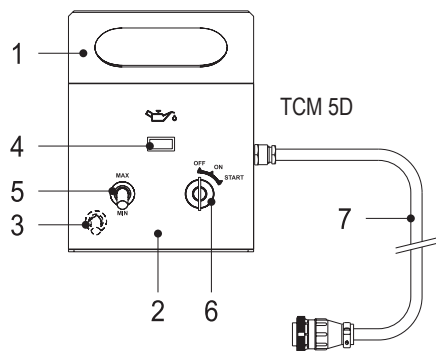
Ⓘ Ricambi	Ⓓ Ersatzteile	GE 6000 SX/GS	HP
ⒼB Spare parts	Ⓔ Tabla de recambios	GE 6500 SX/GS	44.1
Ⓕ Pièces de rechange	Ⓖ NL		REV.4-12/12

Pos.	Cod.	Descr.	Note
1	M372801082	TRAVERSA PROTEZIONE SIL. SCAR.	
2	M259109154	STAFFA FISSAGGIO BATTERIA	
3	M372801050	BASAMENTO	
4	M209509150	BATTERIA 45 AH	fino a REV.10/04 Del. 74/05 -15/7/05
4	M372859150	BATTERIA 12V 45Ah	da REV.09/06 Del. 74/05 -15/7/05
5	M256602228	FILTRO GASOLIO	
6	M105112270	GUARNIZIONE (L=MT.1)	(QM)
7	M356721046	PARATIA	fino a REV.1-09/06 Del.44/08-25/2/08
7	MHP0211046	PARATIA	da REV.2-01/09 Del.44/08-25/2/08
8	M6096010	PROFILATO GOMMA"U"(alett.vert)	(QM) fino a REV.2-01/09 Del.44/08-25/2/08
9	M356721100	ROLL-BAR	
10	M372808121	COPERTURA SCATOLA ELETTRICA	
11	M372809875	INDICATORE RISERVA CARBURANTE	
12	M372802026	TAPPO SERBATOIO CARBURANTE	
13	M372802139	FASCIA FISSAGGIO SERBATOIO	
14	M372822020	SERBATOIO CARBURANTE	
15	M356722070	TUBO SCARICO	fino a REV. 1-09/06 Del.44/08-25/2/08
15	MHP0212070	TUBO SCARICO	da REV.2-01/09 Del.44/08-25/2/08
16	M356722050	SILENZIATORE SCARICO	
17	M6095060	TUBO GOMMA NERA	(QM)
18	M357028005	CARENATURA	
19	M372808115	MOLLA A GAS	
20	M307018024	TIRANTE	
21	M107300180	CHIUSURA COMPL.A LEVA	
22	M309509005	GUARNIZIONE	(QM)
23	M343339601	MANIGLIA	
24	MHP0211242	CORNICE FISS. PROFILATO GOMMA	da REV.2-01/09 Del.44/08-25/2/08
25	M356501050	BASAMENTO	GE 6000 AVR 230Mx2 - da REV.4-12/12 Del.137/12-03/12/12

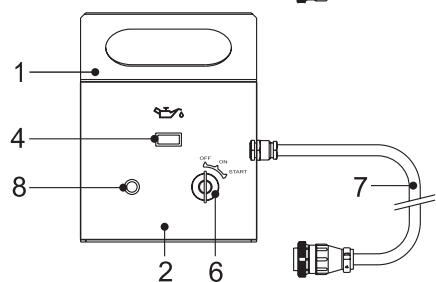
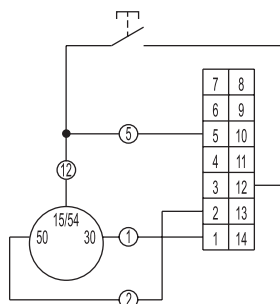
Pos.	Cod.	Descr.	Note
1	M372801082	PROTECTIO BRACKET EXHAUST MUFFLER	
2	M259109154	BATTERY BRACKET	
3	M372801050	BASE	
4	M209509150	BATTERY	Up to REV.10/04 Del. 74/05 -15/7/05
4	M372859150	battery 12v 45Ah	From REV.09/06 Del. 74/05 -15/7/05
5	M256602228	FUEL FILTER	
6	M105112270	STRIP, SEALING (L=MT.1)	(QM)
7	M356721046	INTAKE CHAMBER BULKHEAD	Up to REV.1-09/06 Del.44/08-25/2/08
7	MHP0211046	INTAKE CHAMBER BULKHEAD	From REV.2-01/09 Del.44/08-25/2/08
8	M6096010	GASKET "U"(alett.vert)	(QM) Up to REV.2-01/09 Del.44/08-25/2/08
9	M356721100	ROLL-BAR	
10	M372808121	COVER FOR ELECTRICAL BOX	
11	M372809875	FUEL LEVEL FLOAT	
12	M372802026	FUEL TANK, CAP	
13	M372802139	FIXING TANK, BAND	
14	M372822020	FUEL TANK	
15	M356722070	EXHAUST PIPE	Up to REV.1-09/06 Del. 44/08-25/2/08
15	MHP0212070	EXHAUST PIPE	From REV. 2-01/09 Del.44/08-25/2/08
16	M356722050	EXHAUST MUFFLER	
17	M6095060	PIPE BLACK RUBBER	(QM)
18	M357028005	COVER, HOUSING	
19	M372808115	GAS SPRING	
20	M307018024	TIE-ROD FOR COVER	
21	M107300180	LATCH	
22	M309509005	GASKET	(QM)
23	M343339601	KNOB	
24	MHP0211242	RUBBER HOLDER	From REV.2-01/09 Del.44/08-25/2/08
25	M356501050	BASAMENTO	GE 6000 AVR 230Mx2-from REV.4-12/12 Del.137/12-03/12/12



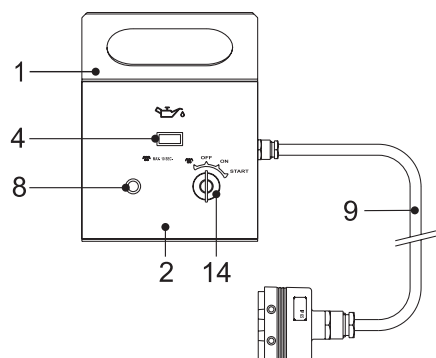
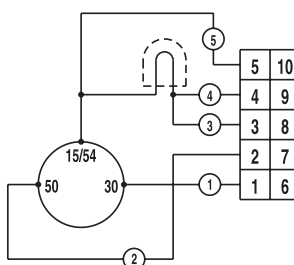
Pos.	Rev.	Cod.	Descr.	Descr.	Note
1		M102042490	RUOTA	WHEEL	
2		M372801234	MANIGLIA DX DI STAZIONAMENTO	STANDING KNOB	
3		M372801235	MANIGLIA SX DI STAZIONAMENTO	STANDING KNOB (LEFT)	
4		M372801160	ASSALE	AXLE	
5		M6075020	COPIGLIA	PIN, SPLIT	



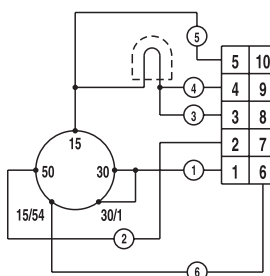
TCM 15



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



GRUPPI ELETTROGENI

MOTOSALDATRICI

WWW.MOSA.IT

MOSA div. della BCS S.p.A.
Stabilimento di Viale Europa, 59
20090 Cusago (MI) Italia

Tel. + 39 - 0290352.1
Fax + 39 - 0290390466



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