MOSA

GE 7554 YSX-EAS

0 1 1 3

356499003 - GB

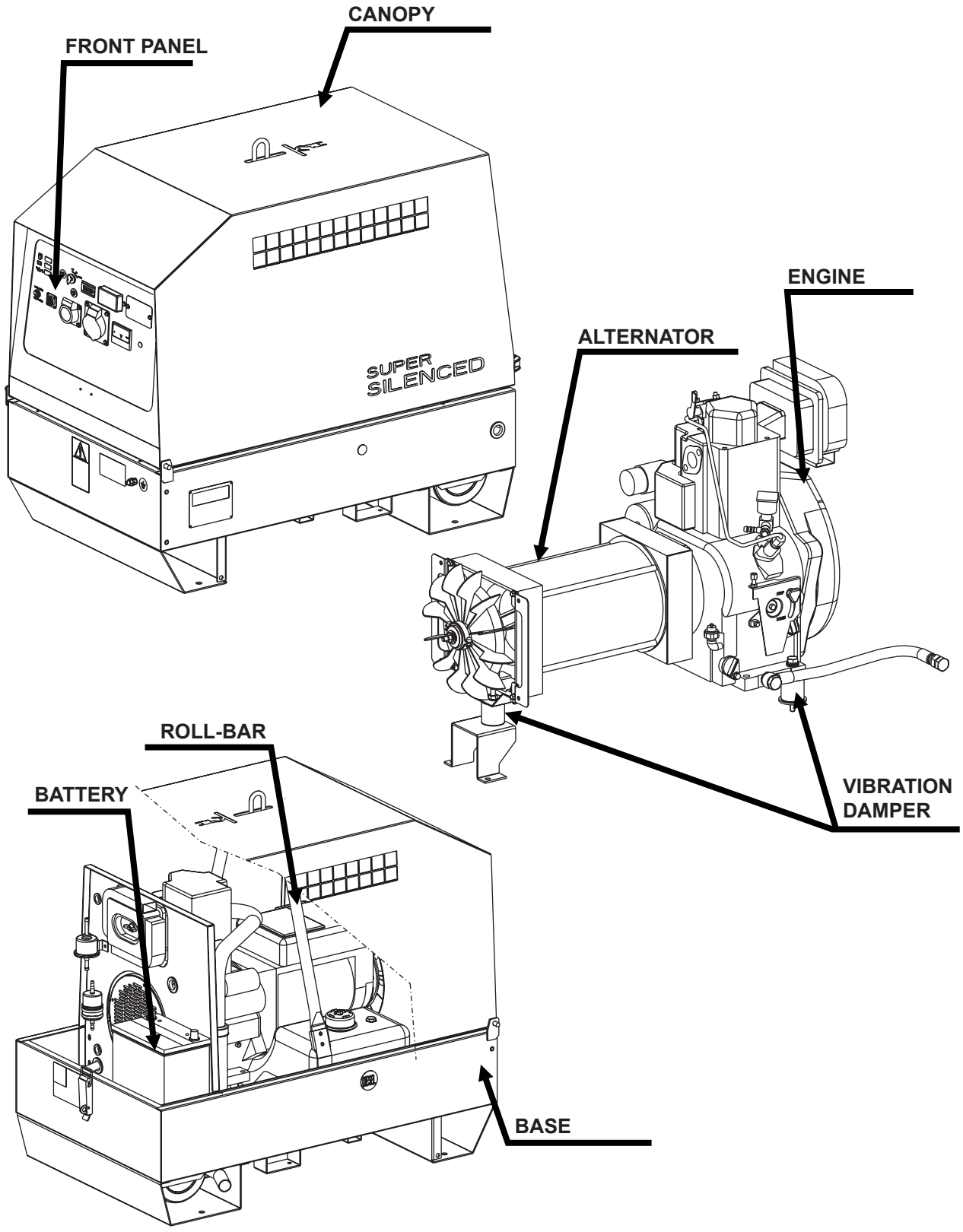
USE AND MAINTENANCE MANUAL

preparato da UPT
approvato da DITE

The generating set 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.



IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

CISQ/ICIM

hereby certify that the organization

BCS S.p.A.

Head Office and Operative Unit: Viale Mazzini, 161 - I-20081 Abbiategrasso (MI)
Operative Units:Via Valbrina, 17/19 - I-42045 Luzzara (RE)
Viale Europa, 59 - I-20090 Cusago (MI)

for the following field of activities

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

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard

ISO 9001:2008

Issued on: **2012-03-06**
Validity date: **2015-03-05**

Registration Number: IT-3722

IQNet — CISQ

Michael Drechsel
President of IQNET

Gianrenzo Prati
President of CISQ

IQNet Partners*:
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CISQ is a member of IQNet
www.iqnet-certification.com

IQNet, the association of the world's first class certification bodies, is the largest provider of management System Certification in the world. IQNet is composed of more than 30 bodies and counts over 150 subsidiaries all over the globe.

ICIM
www.icim.it

CERTIFICATO n. 0192/6
CERTIFICATE No.

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

BCS S.p.A.
UNITA' OPERATIVE
OPERATIVE UNITS

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

E' CONFORME ALLA NORMA
IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2008

PER LE SEGUENTI ATTIVITA'
FOR THE FOLLOWING ACTIVITIES

EA: 18

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

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

Riferirsi al Manuale della Qualità per l'applicabilità dei requisiti della norma di riferimento.
Refer to Quality Manual for details of application to reference standard requirements.
Il presente certificato è soggetto al rispetto del regolamento per la certificazione dei sistemi di gestione per la qualità delle aziende.
The use and the validity of this certificate shall satisfy the requirements of the rules for the certification of company quality management systems.

Data emissione *First issue*	Emissione corrente *Current issue*	Data di scadenza *Expiring date*
30/05/1994	06/03/2012	05/03/2015

ICIM S.p.A.
Piazza Don Enrico Mapelli, 75 – 20099 Sesto San Giovanni (MI)

CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale.
CISQ is the Italian Federation of management system Certification Bodies.

ACCREDIA
ENTE ITALIANO DI ACCREDITAMENTO

FEDERAZIONE CISQ
www.cisq.com

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

ICIM CISQ IQNet
ISO 9001:2008 - Cert. 0192

UNI EN ISO 9001 : 2008

MOSA has certified its quality system according to UNI EN ISO 9001:2008 to ensure a constant, highquality of its products. This certification covers thedesign, production and servicing of engine drivenwelders and generating sets.

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

This certification is not a point of arrival but a pledgeon the part of the entire company to maintain a levelof quality of both its products and services whichwill continue to satisfy the needs of its clients, aswell as to improve the transparency and thecommunications regarding all the company's activesin accordance with the official procedures and inharmony with the MOSA Manual of Quality.

The advantages for MOSA clients are:

·Constant quality of products and services at thehigh level which the client expects;

· Continuous efforts to improve the products andtheir performance at competitive conditions;

· Competent support in the solution of problems;

· Information and training in the correct applicationand use of the products to assure the security ofthe operator and protect the environment;

· Regular inspections by ICIM to confirm that therequirements of the company's quality systemand 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

ATTENTION

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

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

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 arts 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.

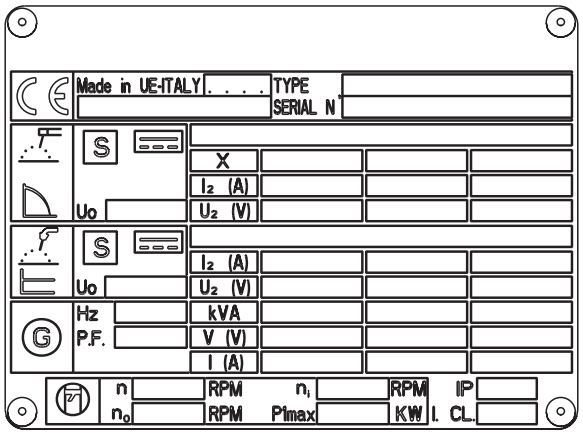
While working it is advisable to keep to the personal safety norms in force in the countries to which the product is destined (clothing, work tools, etc.).

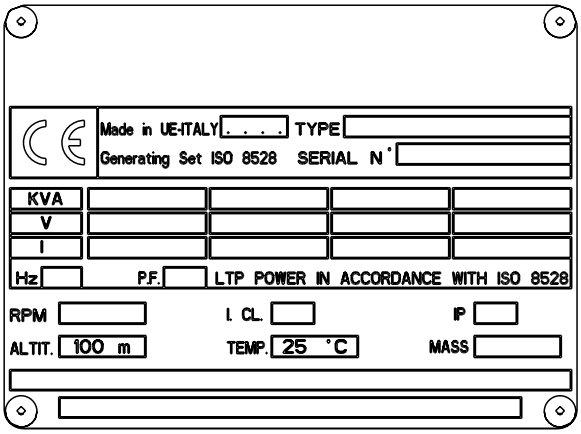
Do not modify for any motive parts of the machine (fastenings, holes, electric or mechanical devices, others..) if not duly authorized in writing: the responsibility coming from any potential intervention will fall on the executioner as in fact he becomes maker of the machine.

☞ ***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.*

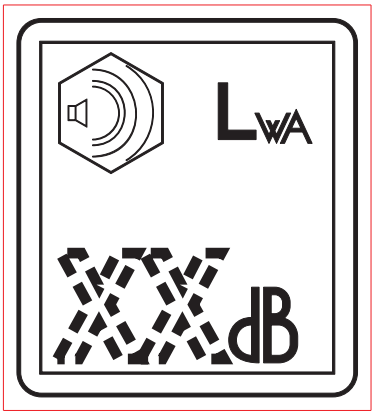
Any of our product is labelled with CE marking attesting its conformity to appliable directives and also the fulfillment of safety requirements of the product itself; the list of these directives is part of the declaration of conformity included in any machine standard equipment.
Here below the adopted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

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





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'

CE

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 gemeenschapsrichtlijnemen gerelateerde modificaties:
comple con los requisítos 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

Technical data	GE 7554 YSX
A.C. GENERATOR	
*Three-phase power Stand-by	7 kVA (5.6 kW) / 400 V / 10 A
**Three-phase power PRP	6 kVA (4.8 kW) / 400 V / 8.7 A
Single-phase power	5 kVA / 230 V / 21.7 A
Frequency	50 Hz
Power factor (cos φ)	0.8
ALTERNATOR	self-excited, self-regulated
Type	Three-phase, synchronous
Insulating class	H
ENGINE	
Mark / Model	YANMAR / L 100 N
Type / Cooling system	Diesel 4-Stroke / Air
Displacement / Cylinders	435 cm^3/1
Net power Stand-by	6.5 kW (8.8 HP)
Net power PRP	5.7 kW (7.7 HP)
Speed	3000 rpm
Engine oil capacity	1.6 l
Fuel consuption (75% of PRP)	1.2 l/h
Starter	Electric
GENERAL SPECIFICATIONS	
Battery	12V - 38Ah
Fuel tank capacity	23 l
Running time (75%)	19 h
Protection	IP 54
Dimensions max. Lxwxh *	1020x645x930
Weight (dry) *	245Kg
Measured acoustic power LwA (LpA pression)	91 dB(A) (66 dB(A) @ 7 m)
Guaranteed acoustic power LwA (LpA pression)	92 dB(A) (67 dB(A) @ 7 m)

* Dimensions and weight are inclusive of all parts without wheels and towbar.

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 (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 (L_{WA}) of 95 dB(A)

Lp a 1 meter = 95 dB(A) - 8 dB(A) = 87 dB(A)
Lp a 4 meters = 95 dB(A) - 20 dB(A) = 75 dB(A)
Lp a 7 meters = 95 dB(A) - 25 dB(A) = 70 dB(A)
Lp a 10 meters = 95 dB(A) - 28 dB(A) = 67 dB(A)

PLEASE NOTE: the symbol LWA 2000/14/CE 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 assis 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* peaple.

PROHIBITIONS No harm for persons

Use only with safety clothing -

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

Use only with safety clothing -

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

Use only with safety protections -

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

Use with only safety material -

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

Use only with non inserted voltage -

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

No smoking -

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

No welding -

It is forbidden to weld in rooms containing explosive gases.

ADVICE <u>No harm for persons and things</u>

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

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

Use only with safety protections, specifically suitable

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

Use only with safety protections -

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

Use only with safety protections -

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

Use only with safety protections -

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

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

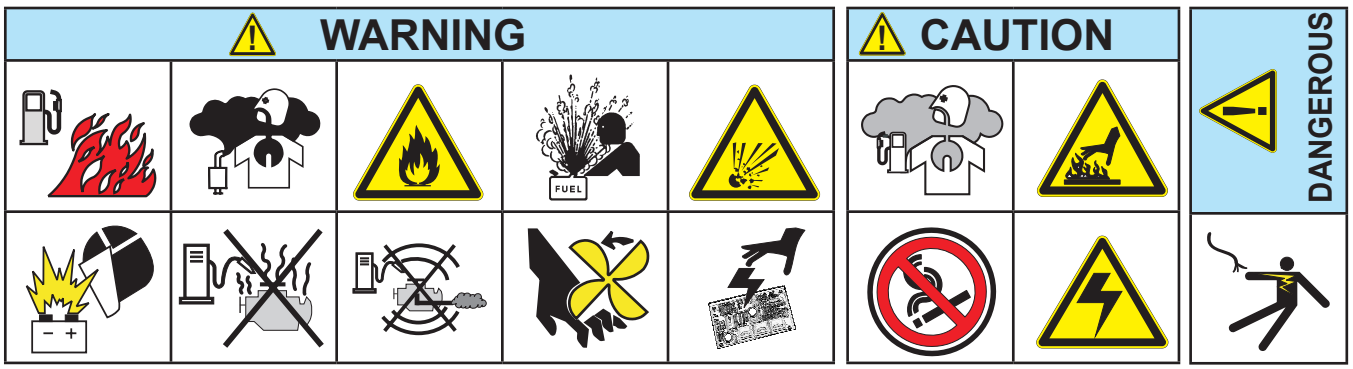
ENGINE	CHECKING BOARD
Stop engine when fueling	Do not touch electric devices if you are barefoot or with wet clothes.
Do not smoke, avoid flames, sparks or electric tools when fueling.	Always keep off leaning surfaces during work operations.
Unscrew the cap slowly to let out the fuel vapours.	Static electricity can demage 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 shold be sprayed by accident, from corrosive liquids a/o hot toxic gas or whatever event which may cause serious injuries or death, predispose the first aid in accordance with the ruling labour accident standards or of local instructions.

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

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

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



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

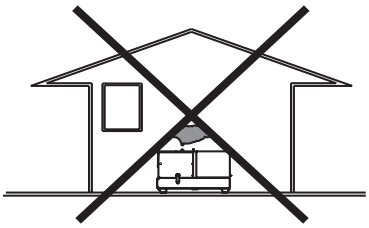
INSTALLATION AND ADVICE BEFORE USE

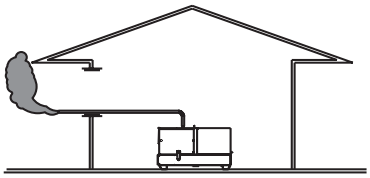
GASOLINE ENGINES

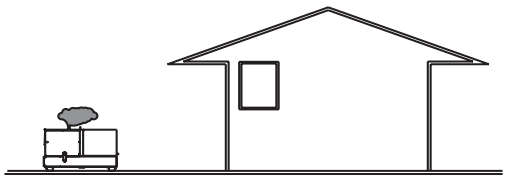
☞ Use in open space, air swept or vent exhaust gases, which contain the deathly carbone oxyde, far from the work area.

DIESEL ENGINES

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

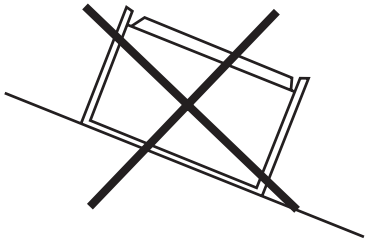




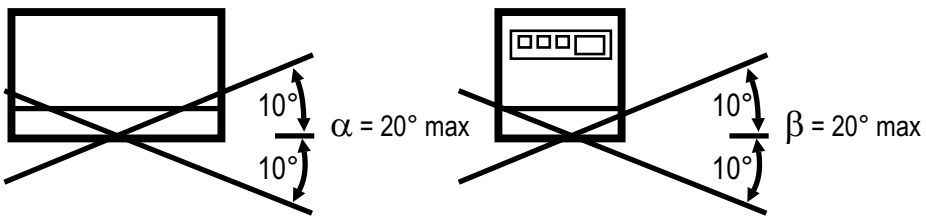


POSITION

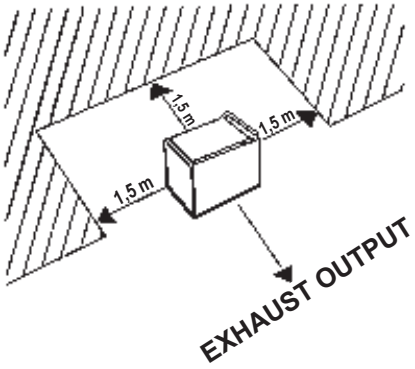
Place the machine on a level surface at a distance of at least 1,5 m from buildings or other plants.



Maximum leaning of the machine (in case of dislevel)



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



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

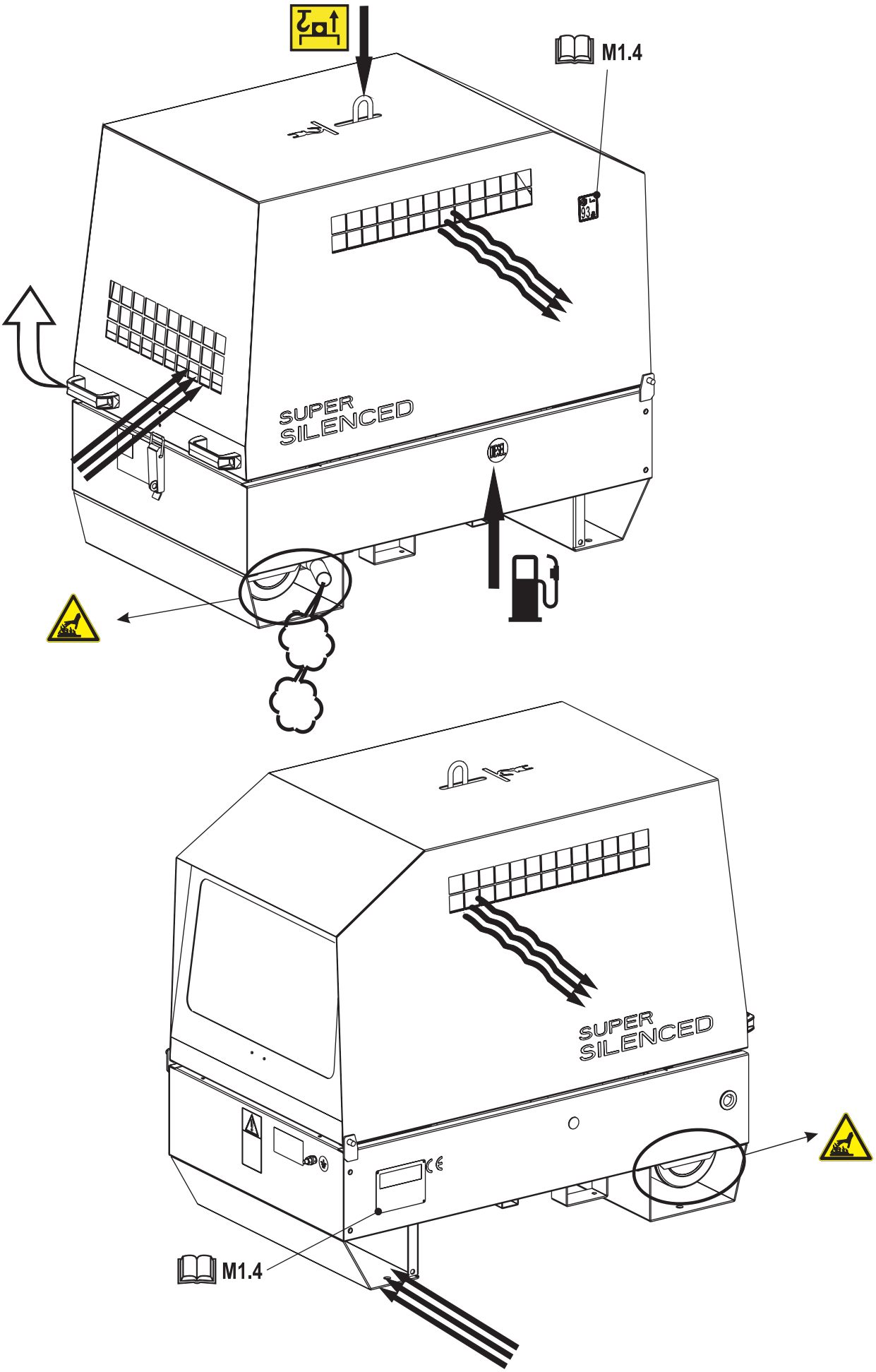
MOVES OF THE MACHINE

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

PLACE OF THE MACHINE

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.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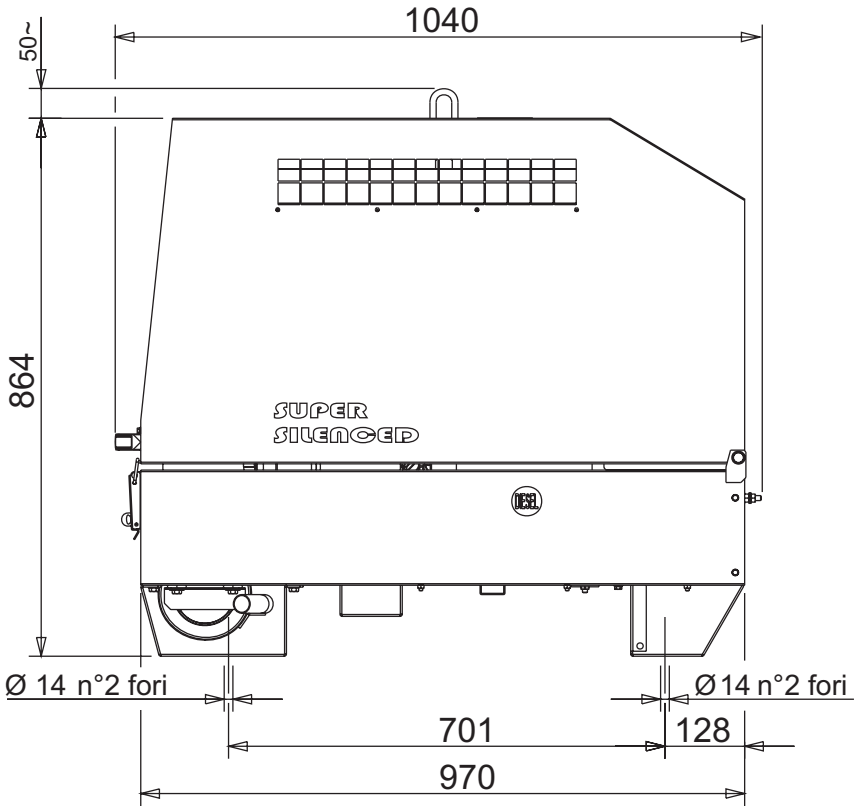
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864
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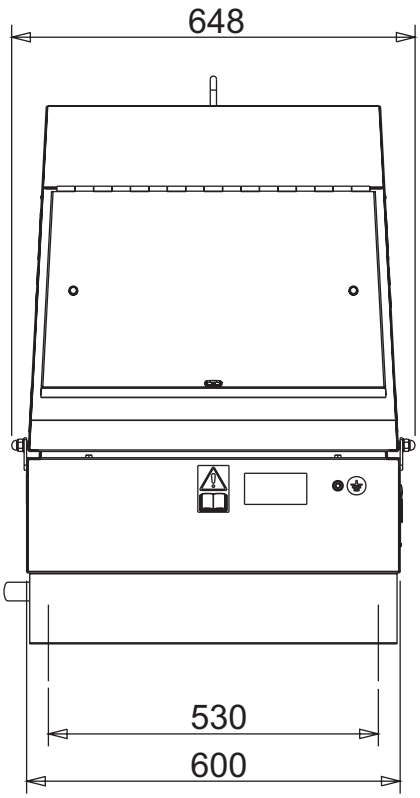
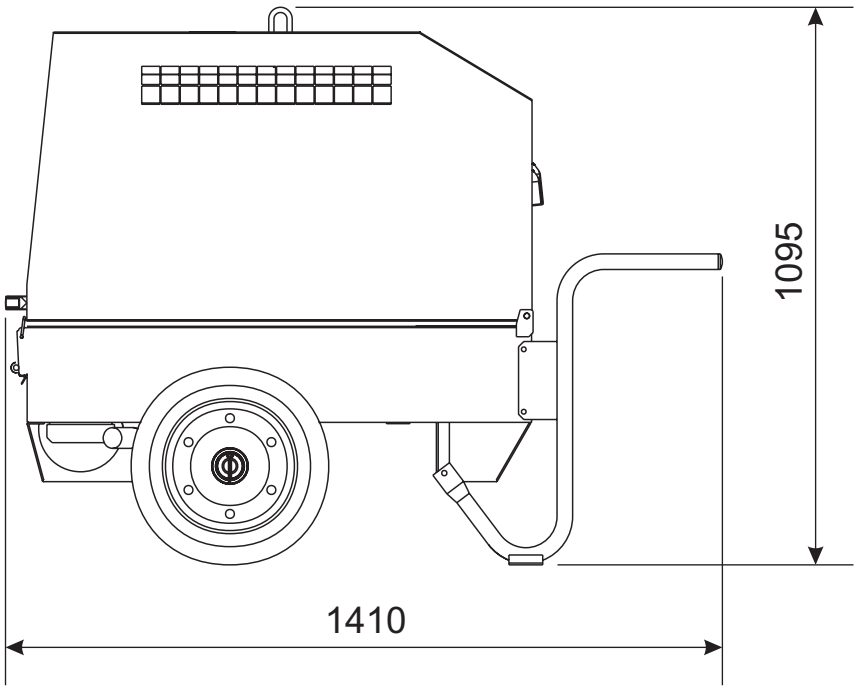
701
128
970


648
530
600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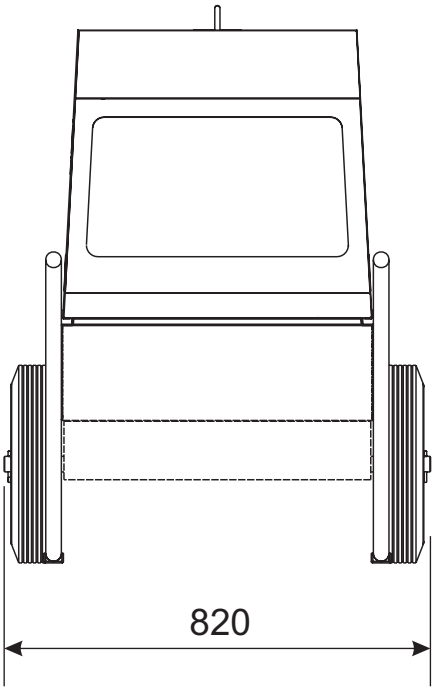
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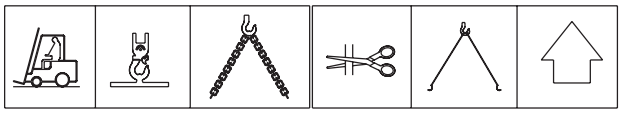
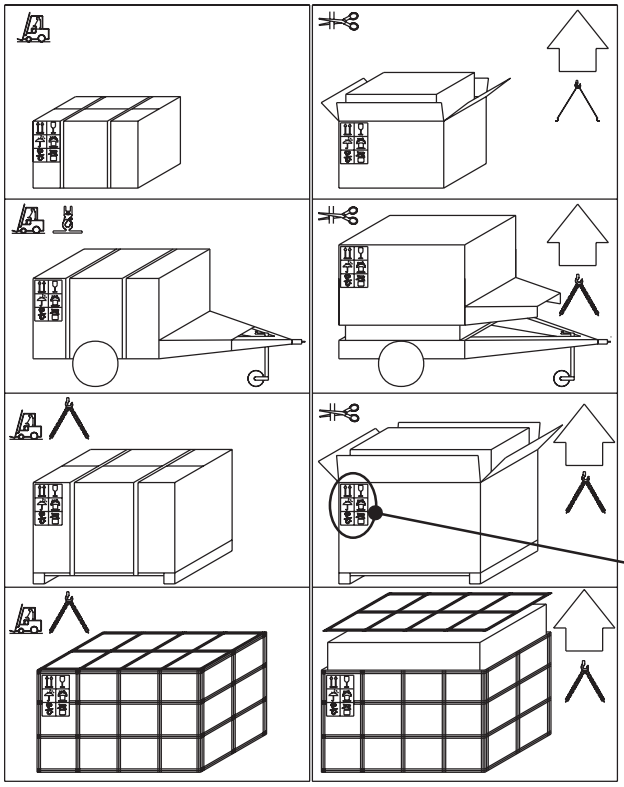
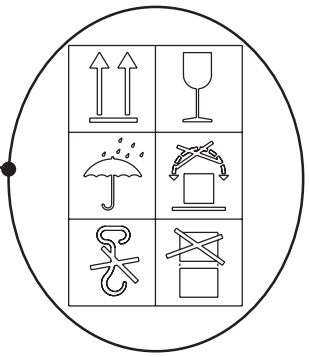
NOTE

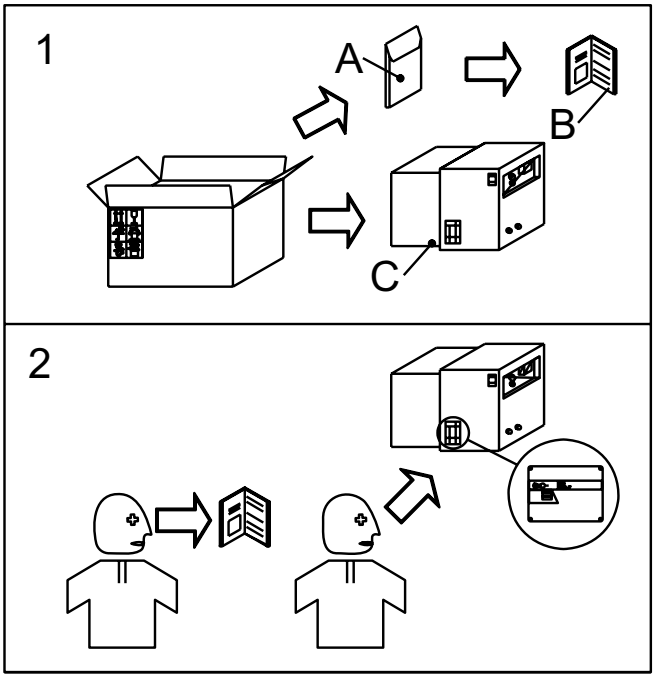




☞ Be sure that the lifting devices are: correctly mounted, adequate for the weight of the machine with it's packaging, and conforms to local rules and regulations.
When receiving the goods make sure that the product has not suffered damage during the transport, that there has not been rough handling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

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



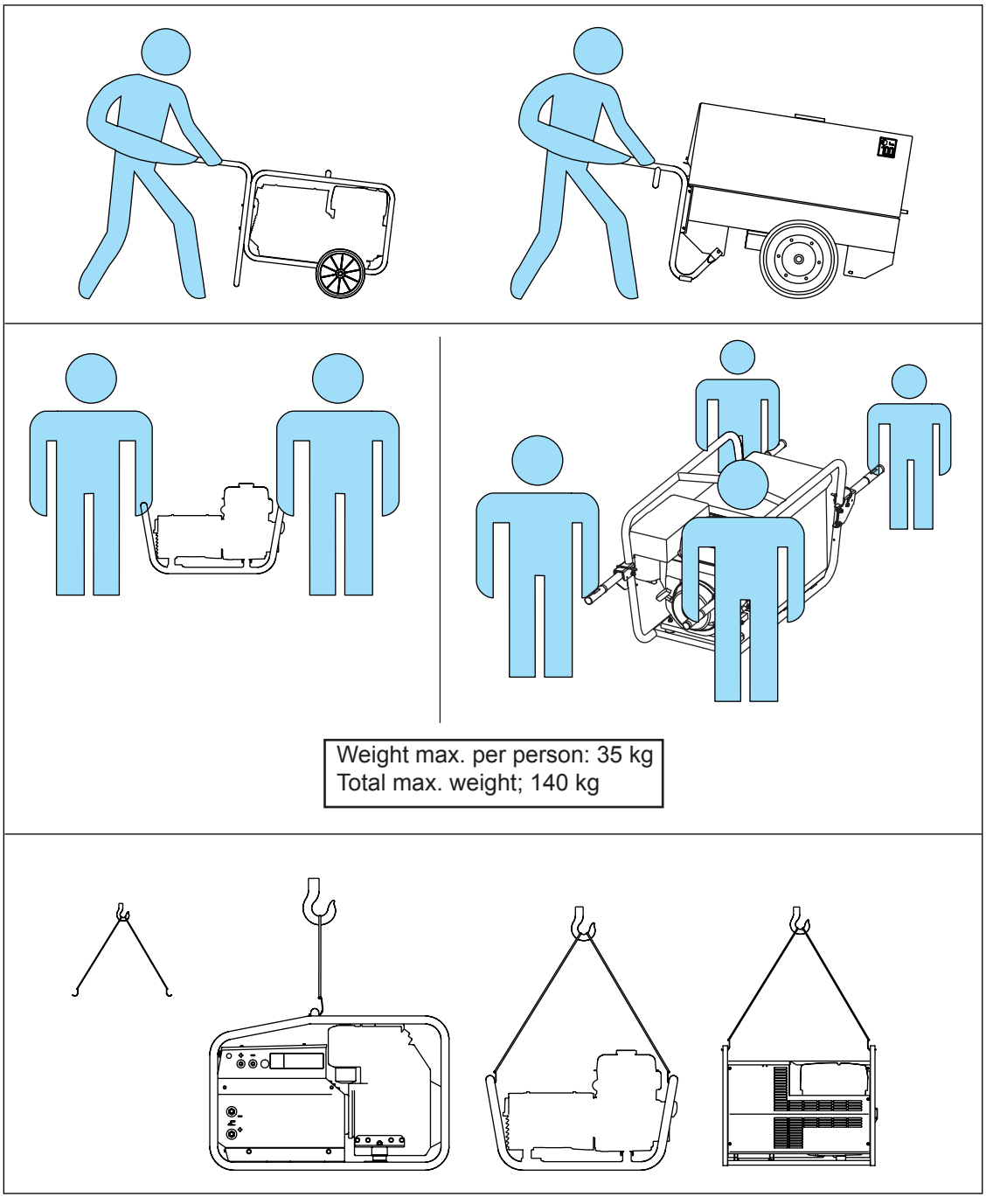


1) Take the machine (C) out of the shipment packing. Take out of the envelope (A) the user's manual (B).
2) Read: the user's manual (B), the plates fixed on the machine, the data plate.

NOTE

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 it's packaging, and conform to local rules and regulations.
Only authorized persons involved in the transport of the machine should be in the area of movement.

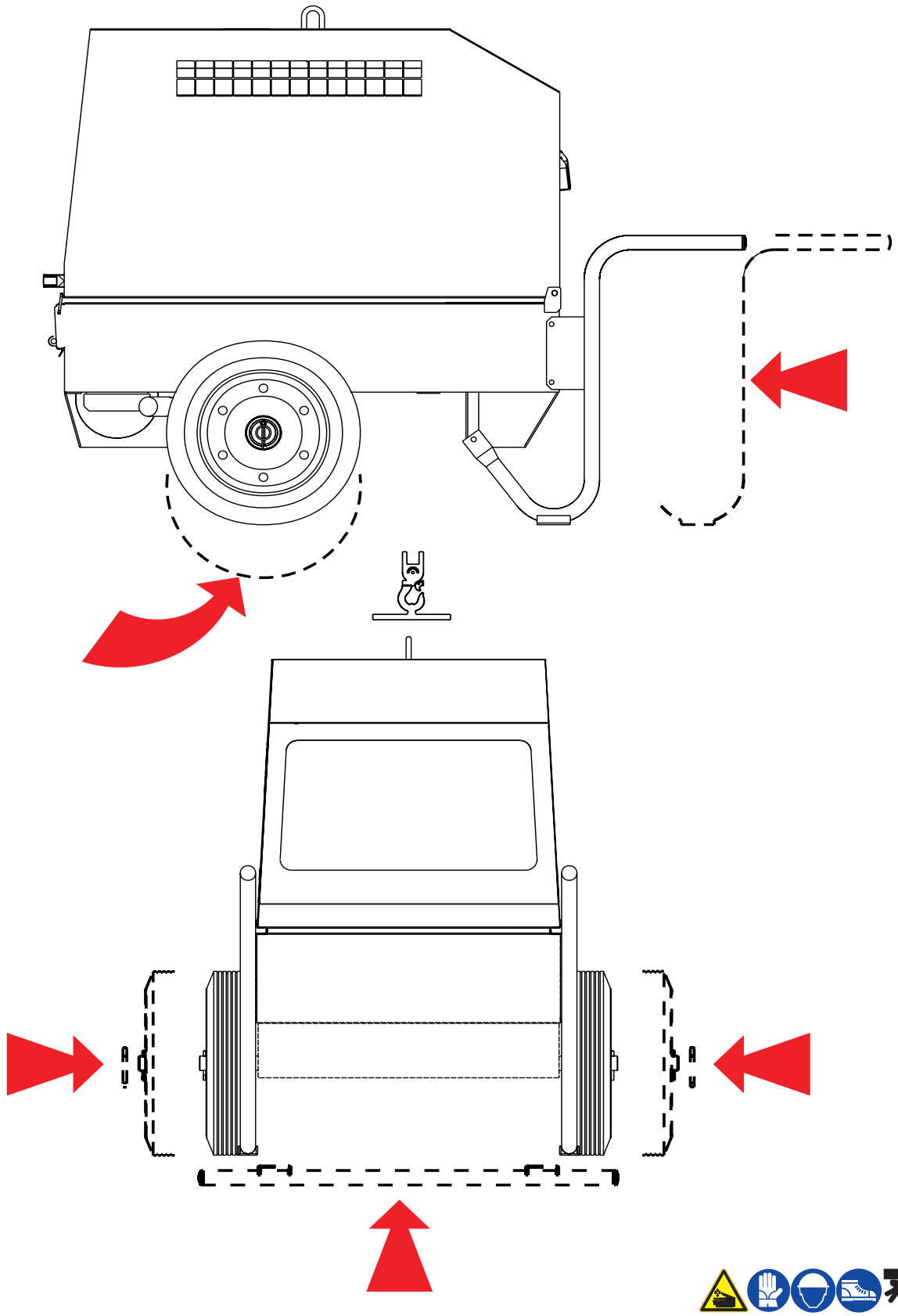
DO NOT LOAD OTHER PARTS WHICH CAN MODIFY WEIGHT AND BARICENTER POSITION.
IT IS STRICTLY FORBIDDEN TO DRAG THE MACHINE MANUALLY OR TOW IT BY ANY VEHICLE (model with no CTM accessory).
If you did not keep to the instructions, you could damage the structure of the machine.



⚠ 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

The manufacturer recommends selecting AGIP engine oil. Refer to the label on the motor for the recommended products.
Please refer to the motor operating manual for the recommended viscosity.

PRODOTTI RACCOMANDATI RECOMMENDED PRODUCTS	
AGIP SIGMA TURBO PLUS 15W/40 API CG4 - ACEA E3	OLIO MOTORE DIESEL DIESEL ENGINE OIL
AGIP SUPERMOTOROIL 20W/50 API CC-SF	OLIO MOTORE BENZINA GASOLINE ENGINE OIL
AGIP ANTIFREEZE EXTRA INIBITE ETHYLENE GLYCOL (50% + 50% + H_2O)	CIRCUITO DI RAFFREDDAMENTO COOLING CIRCUIT (CUNA NC 956-16 ED 97)

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

☞ Machines equipped with insulation resistance monitor allow intentionally not to connect the ground terminal PE (12) to an earthing system.
Located on the front of the machine the insulation resistance monitor has the function of continuously monitoring the ground insulation of live parts.
If the insulation resistance falls below the pre-set fault value, the insulation resistance monitor will interrupt the supply of the connected equipment.
It is important that the power cords of the devices are provided with the green-yellow circuit protective conductor, so as to ensure the bonding among all the grounds of the equipment and the ground of the machine; the latter provision does not apply to equipment with double insulation or reinforced insulation.

NOTE: it is possible to connect the PE terminal (12) to an own ground connection. In this case an IT earthing system is accomplished, this means with the active parts isolated from earth and the equipment cases grounded.
In this case, the insulation resistance monitor checks the insulation resistance of the active parts both towards case and ground, for example, the insulation towards ground of the power cables.

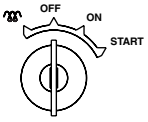
Check daily

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 –



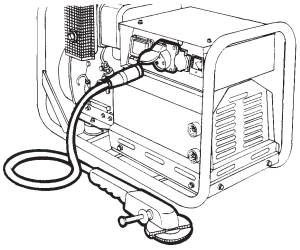
Introduce the key (Q1), turn it clock-wise completely, leaving it as soon as the engine starts.

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

STOPPING THE ENGINE

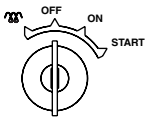
☞ Before stopping the engine **it is compulsory** to effect the following operations:

- 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.**

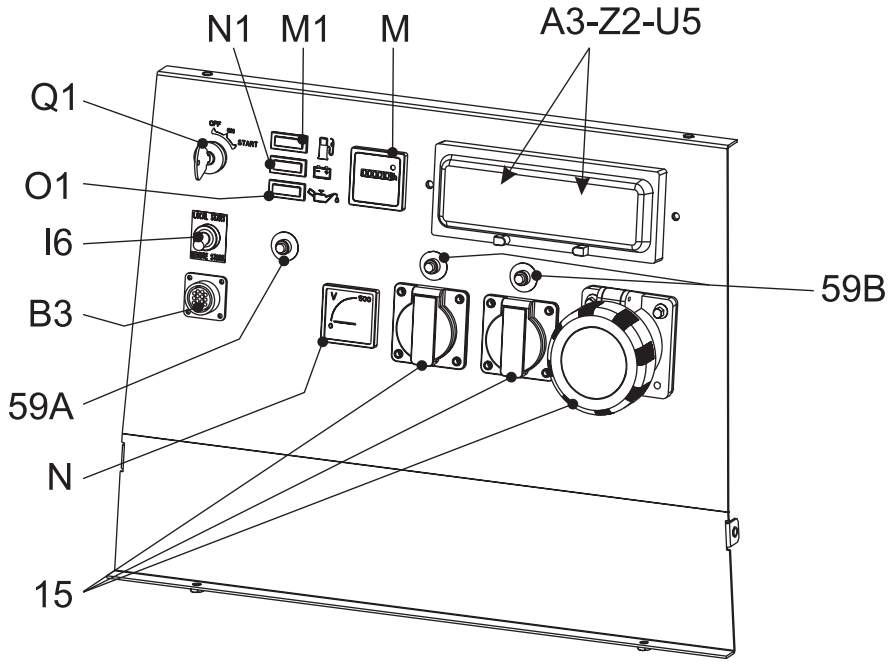
CAUTION

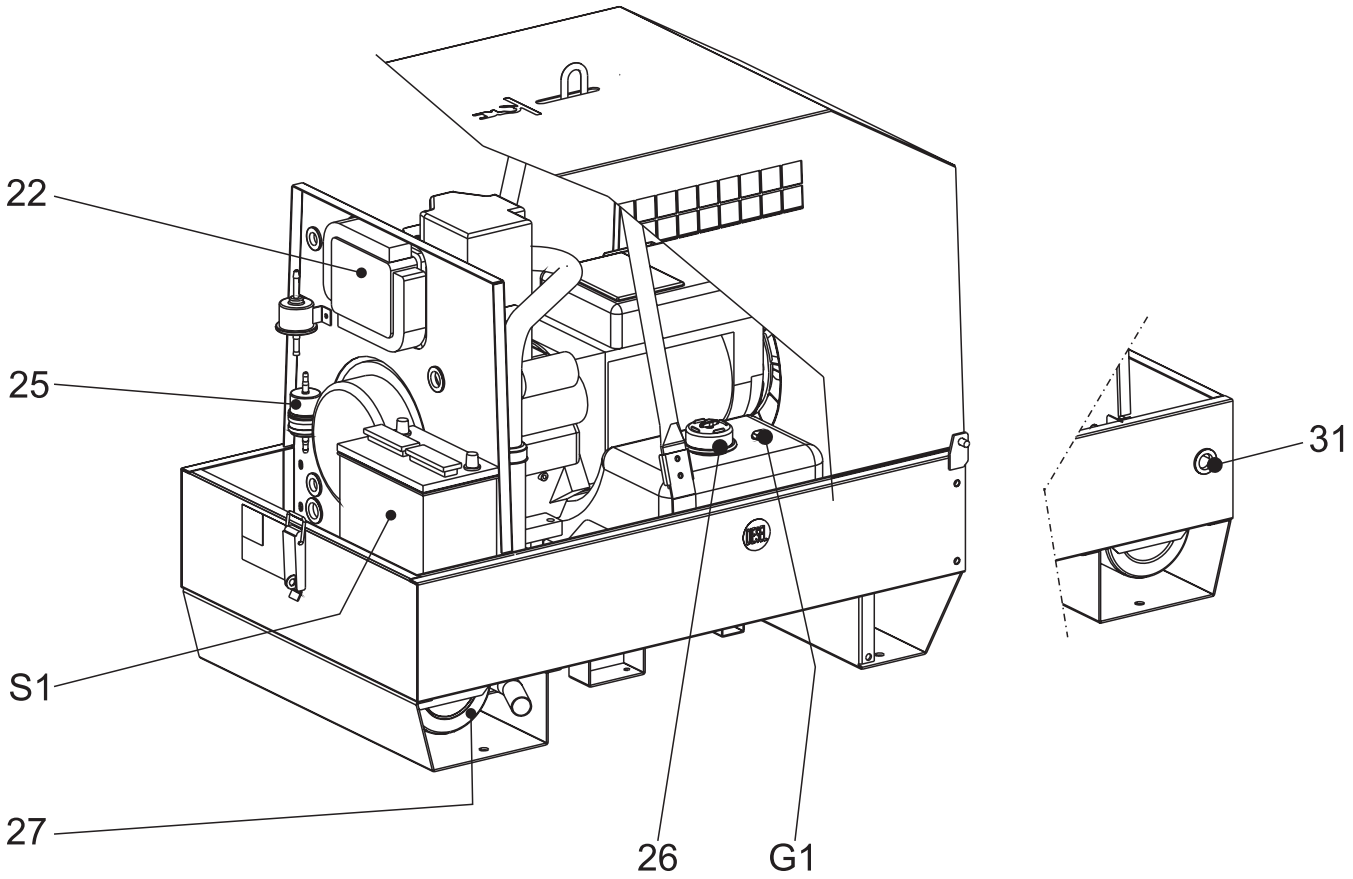
If the engine fails to start, do not insist for at least 15 seconds.
Space the further operations waiting for at least 4 minutes.

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


N1
M1
M
A3-Z2-U5
Q1
O1
I6
B3
59A
N
15
59B


22
25
S1
27
26
G1
31

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

WARNING

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

WARNING

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

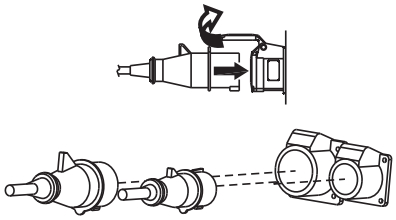
☞ At the beginning of every work, check the electric parameters and/or the controls placed on the front.

Make sure that the ground connection (12) is efficent (keep to installation local rules and/or to national laws), in order to integrate or ensure the working of varius 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%

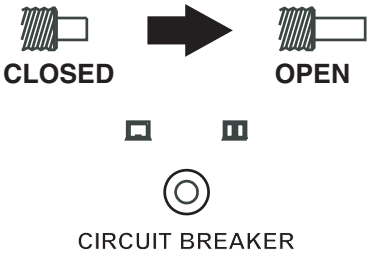
Connect up the machine, using proper plugs and cables in good condition to the AC socket (15) to draw single or three-phase power, or, by cables with adeguate section, to the terminal board, placed inside the derivation box (Q3).



Using several sockets at tha same time, the maximum power possible is that indicated on the data plate.
The max. continuous power of the generating set or the load current must not be exceeded.

THERMOPROTECTION

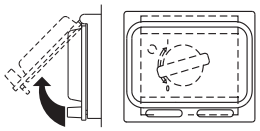
If you overload the genset the thermoprotection will automatically switch off.
If the thermoprotection is released, disconnect all the connected loads.



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

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

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.

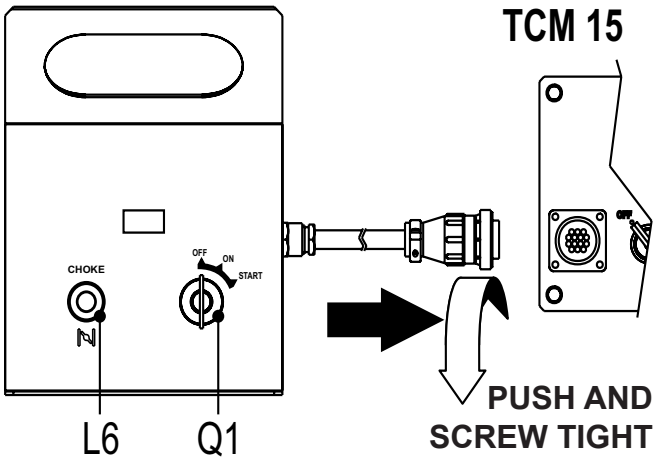
MAKE SURE

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

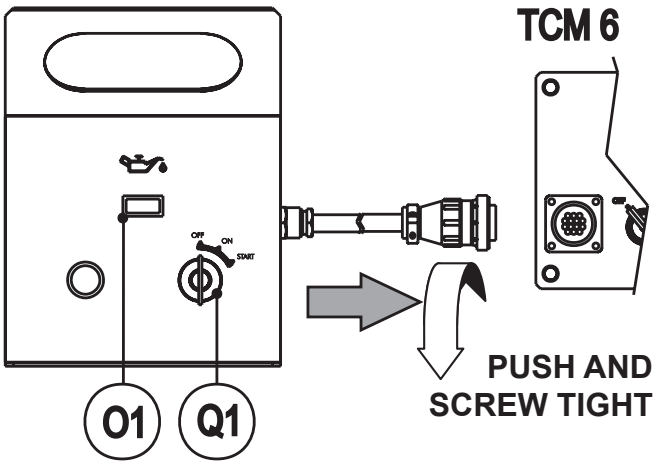


USE OF THE REMOTE CONTROL TCM 6

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".

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 (**E**lettro**S**top), electrovalve (**E**lettro**V**alvola)

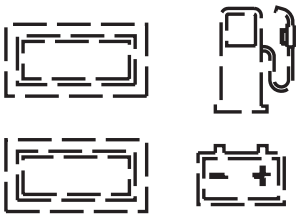
The device enter in operation when the engine starts and, in case of low oil pressure and high temperature, will stop the machine and show the cause of the stop with the warning light of high temperature or low oil pressure.

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.

NOTE

Don not intervene on the setting of the protection switch. Before using the machine check the ON warning lamp lighting.

USE AS TROUBLE INDICATOR:

Placed on the front panel, the insulation monitor (A3) is a relay which controls continuously the insulation of the generation a.c. circuits towards the ground.

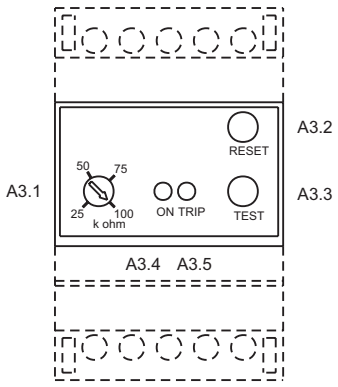
The device generates internally a continuous 12V voltage which is applied between the circuit under control and the ground.

USE AS TROUBLE INDICATOR AND INTERVENTION:

The insulation monitor controls a device (release coil, contactor, etc.) which opens the whole circuit, lifting voltage in the whole part of the machine a.c. generation.

USE OF RI – R22M MODEL:

- To vary the regulation call our Technical Assistance Department
- The LED ON shows that the device is fed.
- Check that it works correctly pressing the TEST push button
- The LED TRIP will simulate on intervention or anyway will show the real intervention in case the insulation fails.
- Reset the circuit pressing the RESET push button after having checked the plant and removed the problem cause.

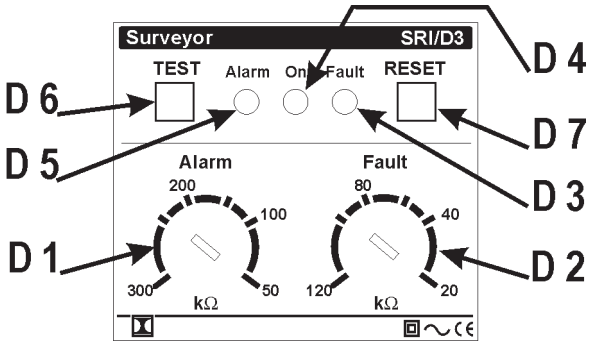


LEGEND:

A3.1 - Adjustment potentiometer insulation resistance
A3.2 - Manual reset push button
A3.3 - Test push button
A3.4 - Auxiliary fedding presence LED
A3.5 - TRIP LED

USE OF SRI/D3 MODEL

- To vary the regulation call our Technical Assistance Department
- The warning light ON shows that the device is fed.-
- Pressing a long time the Test push-button, the Fault led lights and the Alarm led twinkles;
- Leaving it, the Alarm led goes off while the Fault led remains lit. The pressure on the Reset key brings the device back to initial conditions.
- If the insulation resistance goes down below the fixed alarm value, the Alarm led twinkles, at the same time the Alarm contact switches; if the insulation resistance goes down furtherly and becomes inferior to the fixed value for the Fault, the Fault led lights and at the same time both exchange contacts switch putting the Fault in activity and the Alarm at rest.
- After having checked the device and removed the cause of the problem, re-establish the circuit pressing the push-button RESET.



LEGEND:

D1 Regulation of Alarm threshold
D2 Regulation of Fault threshold
D3 Led, fault indication
D4 Led feeding indication
D5 Led Alarm indication
D6 Test push-button
D7 Reset push-button

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

Problem	Possible cause	Solution
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 φ 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

MOVING PARTS can injure

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

- See pag. M1.1 -

HOT surface can hurt you

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

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.

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 suppplied 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

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.

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 o dry place.

DIESEL ENGINE

For short periods of time it is advisable, about every 10 days, to make the machine work with load for 15-30 minutes, for a correct distribution of the lubricant, to recharge the battery and to prevent any possible bloking of the injection system.

For long periods of inactivity, turn to the after soles service of the engine manufacturer.

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

Protect the machine with a plastic hood and store it in a dry place.

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

IMPORTANT

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

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

As cust off we intend all operations to be made, at utilizer's care, at the end of the use of the machine. This comprises the dismantling of the machine, the subdivision of the several components for a further reutilization or for getting rid of them, the eventual packing and transportation of the eliminated parts up to their delivery to the store, or to the bureau encharged to the cust off or to the storage office, etc.

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

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

The getting rid of the various components of the machine must be made accordingly to rules in force of law a/o local rules.
Particular attention must be paid when getting rid of:
lubricating oils, battery electrolyte, and 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.

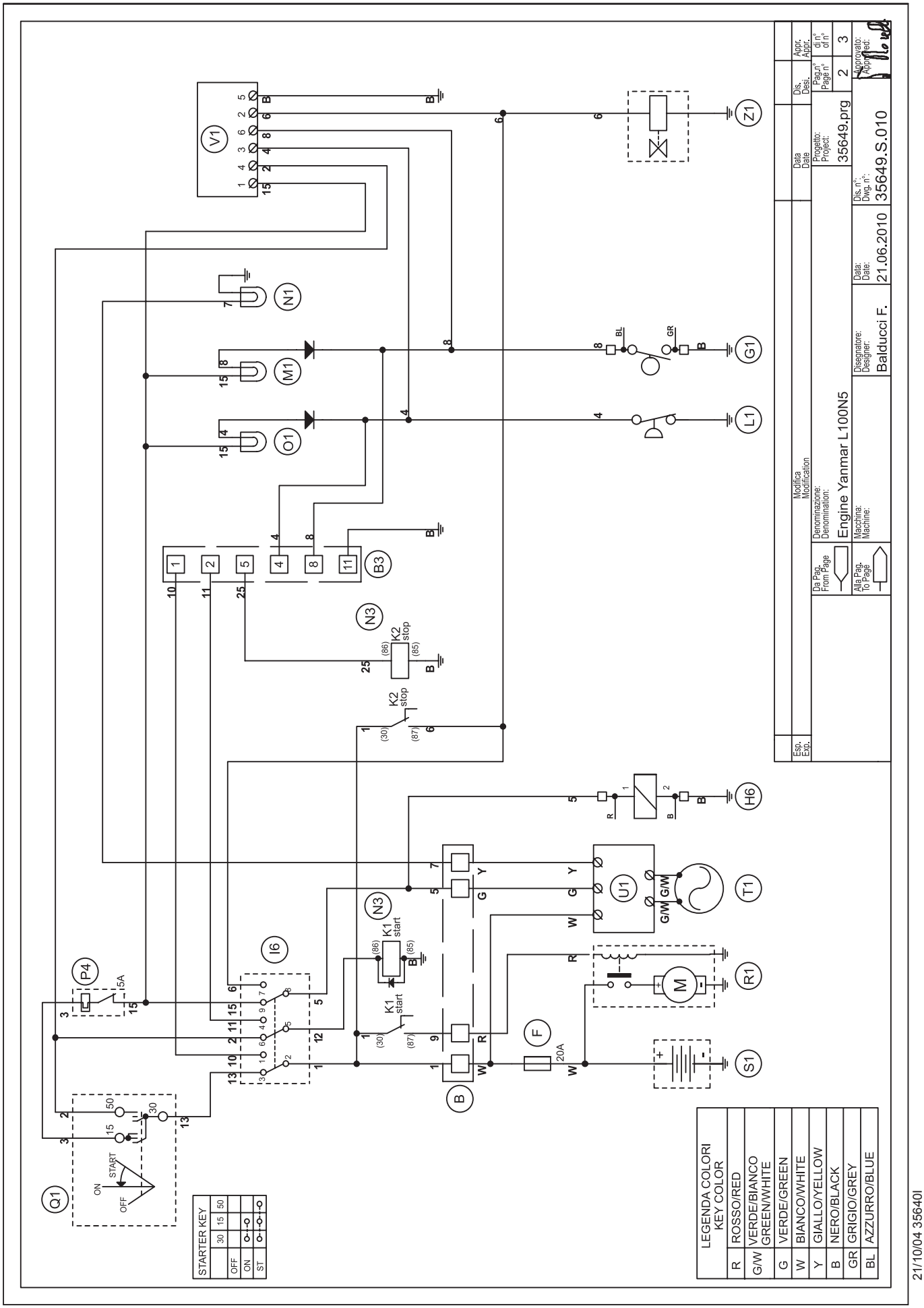
In case of necessity for first aid and fire prevention, see page M2.5.

IMPORTANT

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

ELECTRICAL SYSTEM LEGENDE

A : Alternator
B : Wire connection unit
C : Capacitor
D : G.F.I.
E : Welding PCB transformer
F : Fuse
G : 400V 3-phase socket
H : 230V 1phase socket
I : 110V 1-phase socket
L : Socket warning light
M : Hour-counter
N : Voltmeter
P : Welding arc regulator
Q : 230V 3-phase socket
R : Welding control PCB
S : Welding current ammeter
T : Welding current regulator
U : Current transformer
V : Welding voltage voltmeter
Z : Welding sockets
X : Shunt
W : D.C. inductor
Y : Welding diode bridge
A1 : Arc striking resistor
B1 : Arc striking circuit
C1 : 110V D.C./48V D.C. diode bridge
D1 : E.P.1 engine protection
E1 : Engine stop solenoid
F1 : Acceleration solenoid
G1 : Fuel level transmitter
H1 : Oil or water thermostat
I1 : 48V D.C. socket
L1 : Oil pressure switch
M1 : Fuel warning light
N1 : Battery charge warning light
O1 : Oil pressure warning light
P1 : Fuse
Q1 : Starter key
R1 : Starter motor
S1 : Battery
T1 : Battery charge alternator
U1 : Battery charge voltage regulator
V1 : Solenoid valve control PCBT
Z1 : Solenoid valve
W1 : Remote control switch
X1 : Remote control and/or wire feeder socket
Y1 : Remote control plug
A2 : Remote control welding regulator
B2 : E.P.2 engine protection
C2 : Fuel level gauge
D2 : Ammeter
E2 : Frequency meter
F2 : Battery charge trasformer
G2 : Battery charge PCB
H2 : Voltage selector switch
I2 : 48V a.c. socket
L2 : Thermal relay
M2 : Contactor
N2 : G.F.I. and circuit breaker
O2 : 42V EEC socket
P2 : G.F.I. resistor
Q2 : T.E.P. engine protection
R2 : Solenoid control PCBT
S2 : Oil level transmitter
T2 : Engine stop push-button T.C.1
U2 : Engine start push-buttonT.C.1
V2 : 24V c.a. socket
Z2 : Thermal magnetic circuit breaker
W2 : S.C.R. protection unit
X2 : Remote control socket
Y2 : Remote control plug
A3 : Insulation moitoring
B3 : E.A.S. connector
C3 : E.A.S. PCB
D3 : Booster socket
E3 : Open circuit voltage switch
F3 : Stop push-button
G3 : Ignition coil
H3 : Spark plug
I3 : Range switch
L3 : Oil shut-down button
M3 : Battery charge diode
N3 : Relay
O3 : Resistor
P3 : Sparkler reactor
Q3 : Output power unit
R3 : Electric siren
S3 : E.P.4 engine protection
T3 : Engine control PCB
U3 : R.P.M. electronic regulator
V3 : PTO HI control PCB
Z3 : PTO HI 20 l/min push-button
W3 : PTO HI 30 l/min push-button
X3 : PTO HI reset push-button
Y3 : PTO HI 20 l/min indicator
A4 : PTO HI 30 l/min indicator
B4 : PTO HI reset indicator
C4 : PTO HI 20 l/min solenoid valve
D4 : PTO HI 30 l/ min solenoid valve
E4 : Hydraulic oil pressure switch
F4 : Hycraulic oil level gauge
G4 : Preheating glow plugs
H4 : Preheating gearbox
I4 : Preheating indicator
L4 : R.C. filter
M4 : Heater with thermostat
N4 : Choke solenoid
O4 : Step relay
P4 : Circuit breaker
Q4 : Battery charge sockets
R4 : Sensor, cooling liquid temperature
S4 : Sensor, air filter clogging
T4 : Warning light, air filter clogging
U4 : Polarity inverter remote control
V4 : Polarity inverter switch
Z4 : Transformer 230/48V
W4 : Diode bridge, polarity change
X4 : Base current diode bridge
Y4 : PCB control unit, polarity inverter
A5 : Base current switch
B5 : Auxiliary push-button ON/OFF
C5 : Accelerator electronic control
D5 : Actuator
E5 : Pick-up
F5 : Warning light, high temperature
G5 : Commutator auxiliary power
H5 : 24V diode bridge
I5 : Y/▲ commutator
L5 : Emergency stop button
M5 : Engine protection EP5
N5 : Pre-heat push-button
O5 : Accelerator solenoid PCB
P5 : Oil pressure switch
Q5 : Water temperature switch
R5 : Water heater
S5 : Engine connector 24 poles
T5 : Electronic GFI relais
U5 : Release coil, circuit breaker
V5 : Oil pressure indicator
Z5 : Water temperature indicator
W5 : Battery voltmeter
X5 : Contactor, polarity change
Y5 : Commutator/switch, series/parallel
A6 : Commutator/switch
B6 : Key switch, on/off
C6 : QEA control unit
D6 : Connector, PAC
E6 : Frequency rpm regulator
F6 : Arc-Force selector
G6 : Device starting motor
H6 : Fuel electro pump 12V c.c.
I6 : Start Local/Remote selector
L6 : Choke button
M6 : Switch CC/CV
N6 : Connector – wire feeder
O6 : 420V/110V 3-phase transformer
P6 : Switch IDLE/RUN
Q6 : Hz/V/A analogic instrument
R6 : EMC filter
S6 : Wire feeder supply switch
T6 : Wire feeder socket
U6 : DSP chopper PCB
V6 : Power chopper supply PCB
Z6 : Switch and leds PCB
W6 : Hall sensor
X6 : Water heather indicator
Y6 : Battery charge indicator
A7 : Transfer pump selector AUT-0-MAN
B7 : Fuel transfer pump
C7 : "GECO" generating set test
D7 : Flooting with level switches
E7 : Voltmeter regulator
F7 : WELD/AUX switch
G7 : Reactor, 3-phase
H7 : Switch disconnector
I7 : Solenoid stop timer
L7 : "VODIA" connector
M7 : "F" EDC4 connector
N7 : OFF-ON-DIAGN. selector
O7 : DIAGNOSTIC push-button
P7 : DIAGNOSTIC indicator
Q7 : Welding selector mode
R7 : VRD load
S7 : 230V 1-phase plug
T7 : V/Hz analogic instrument
U7 : Engine protection EP6
V7 : G.F.I. relay supply switch
Z7 : Radio remote control receiver
W7 : Radio remote control trasnsmitter
X7 : Isometer test push-button
Y7 : Remote start socket
A8 : Transfer fuel pump control
B8 : Ammeter selector switch
C8 : 400V/230V/115V commutator
D8 : 50/60 Hz switch
E8 : Cold start advance with temp. switch
F8 : START/STOP switch
G8 : Polarity inverter two way switch
H8 : Engine protection EP7
I8 : AUTOIDLE switch
L8 : AUTOIDLE PCB
M8 : A4E2 ECM engine PCB
N8 : Remote emergency stop connector
O8 : V/A digital instruments and led VRD PCB
P8 : Water in fuel
Q8 : Battery disconnect switch
R8 : Inverter
S8 : Overload led
T8 : Main IT/TN selector
U8 : NATO socket 12V
V8 : Diesel pressure switch
Z8 : Remote control PCB
W8 : Pressure turbo protection
X8 : Water in fuel sender
Y8 : EDC7-UC31 engine PCB
A9 : Low water level sender
B9 : Interface card
C9 : Limit switch
D9 : Starter timing card
E9 : Luquid pouring level float
F9 : Under voltage coil
G9 : Low water level warning light
H9 : Chopper driver PCB
I9 :
L9 :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R ROSSO/RED
G/W VERDE/BIANCO GREEN/WHITE
G VERDE/GREEN
W BIANCO/WHITE
Y GIALLO/YELLOW
B NERO/BLACK
GR GRIGIO/GREY
BL AZZURRO/BLUE
STARTER KEY
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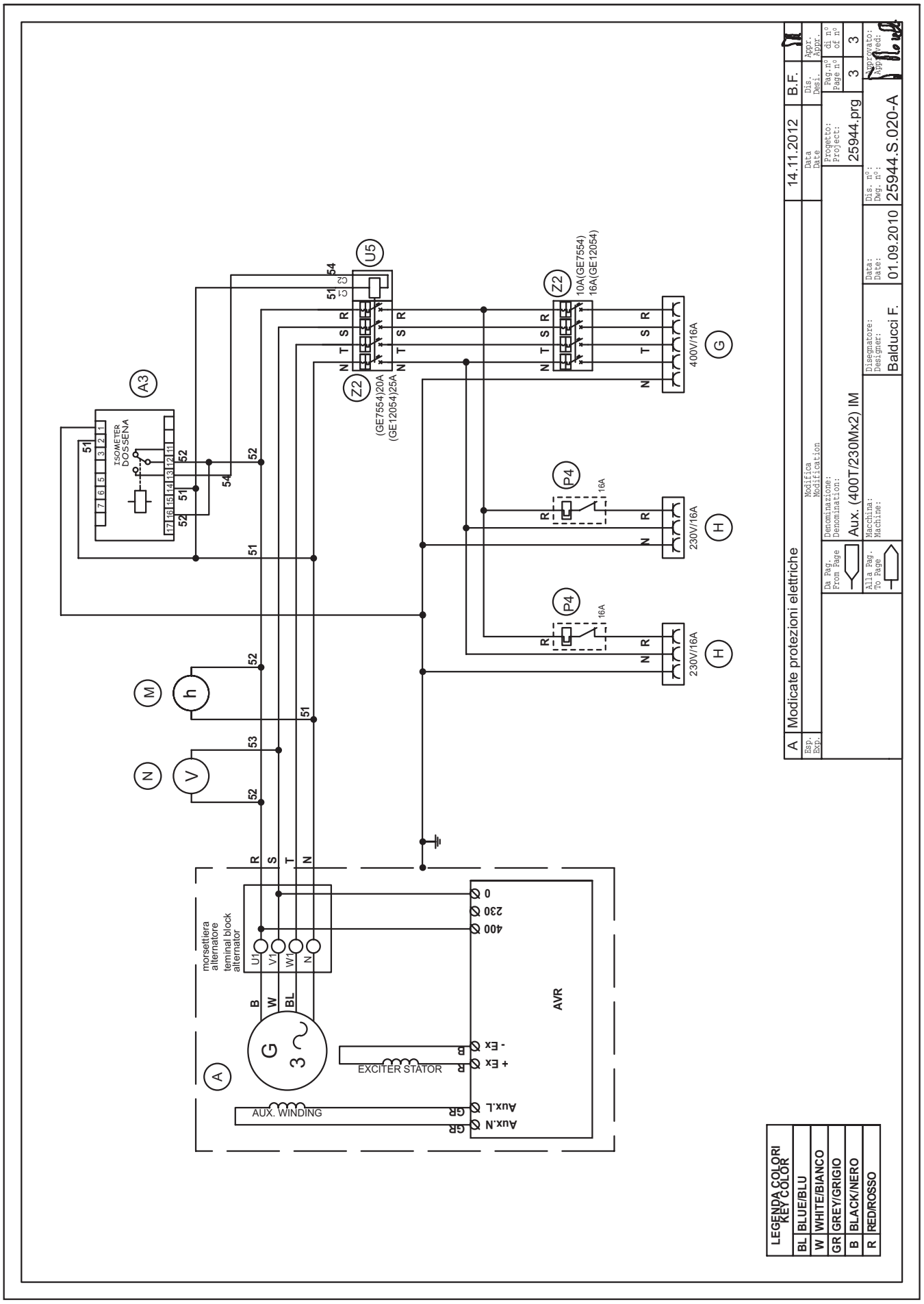
(I) Schema elettrico (GB) Electric diagram (F) Schemas electriques	(D) Stromlaufplan (E) Esquema eléctrico (NL)	GE 7554 HBS / HBS-L GE 7554 YDE-L GE 12054 LD	M 61.2 REV.1-01/13



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