

CE

MANUALE DI USO E MANUTENZIONE

I

USE AND MAINTENANCE MANUAL

GB

**INVERTERS
GENERATORS**

**GRUPPO ELETTROGENO
MPL 30 A
MPL 50 A**

POWERED BY

IVECO

REV.2 S.S. 28/07/2003

cod.42424

MASE GENERATORS s.p.A.

Sede legale ed Amm.: 47023 CESENA (FC) ITALY - Via Tortona, 345
C.F./P.I. 00687150409 Cap. Soc. milioni 1250 interamente versato
Registro Società Tribunale Forl' n. 6818 - CCIAA Forl' n.164063
c.c.p. n. 11541471 - EXPORT FO n. 006368



• SERIAL No. •

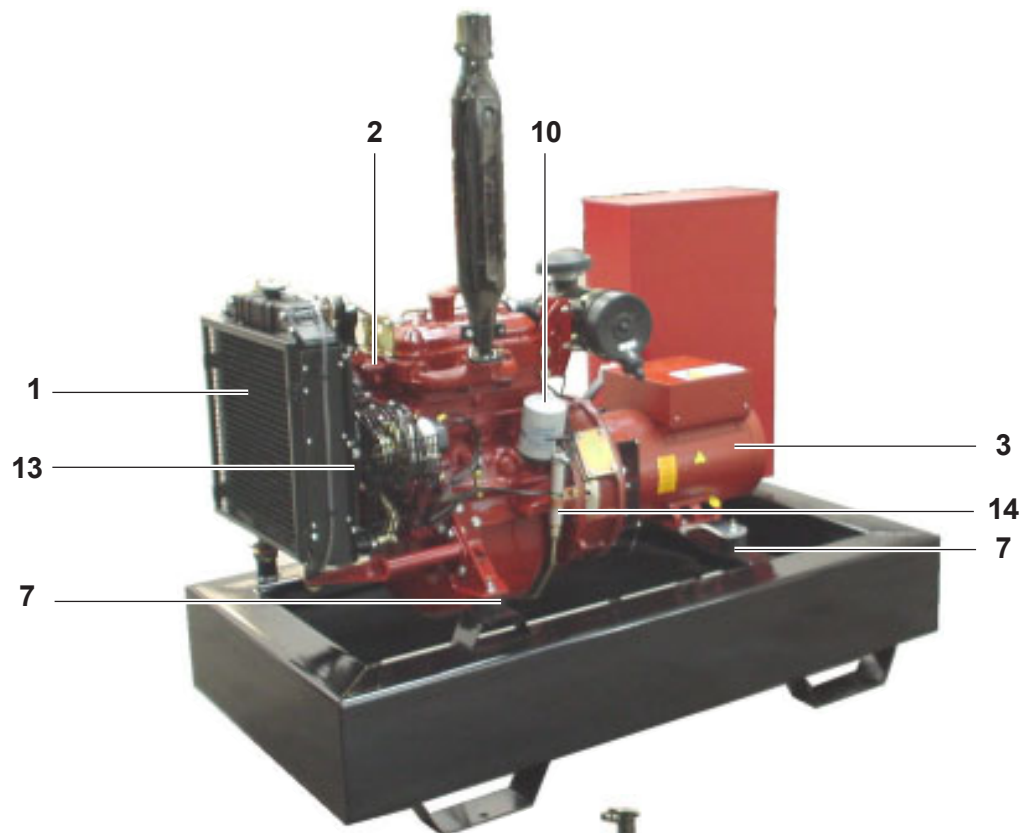
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2	Code	Serial n°	
4	Rated power	Cop	
5	Declared frequency ~	Hz	CE
6	Rated power factor	cos.φ	
7	Rated voltage	V	V
8	Rated current	A	A
9	Degree of protection	IP	
10	Class of insulation		
11	Temp.max. of use	°C	
12	Altitude max. of use	m	
13	Noise level	LWA	
14	Performance class		
15	Year of manufacture		

mase
GENERATORS

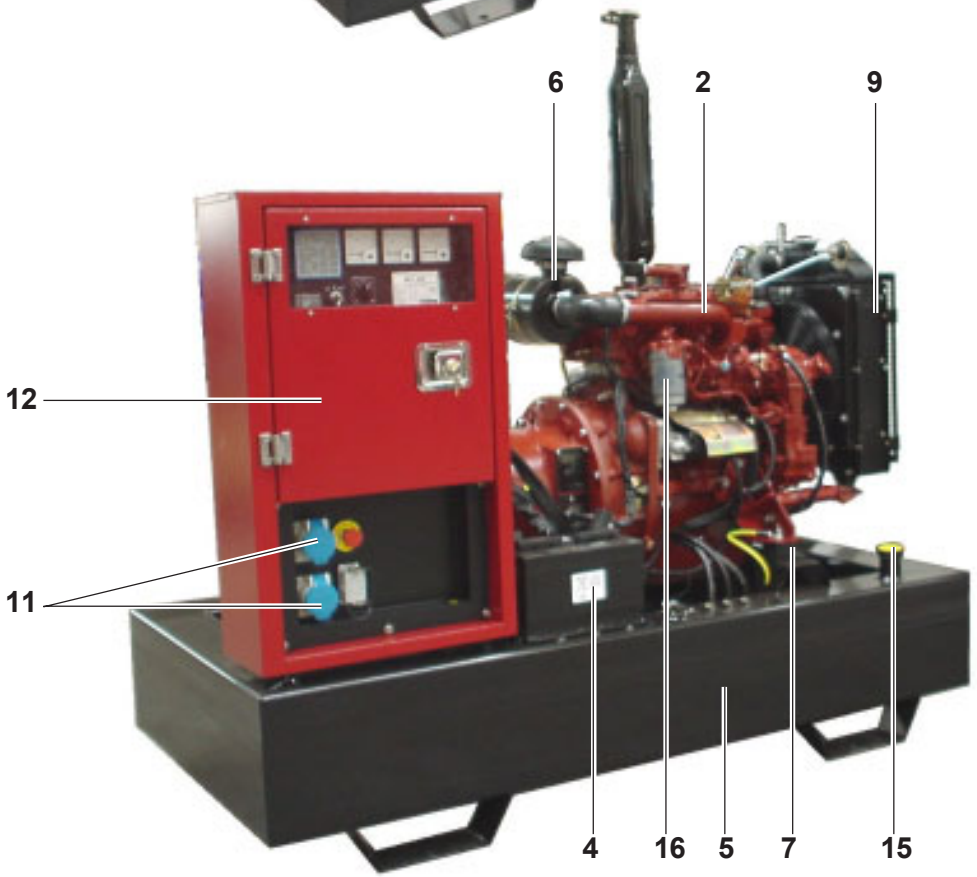
MASE GENERATORS s.p.a. - Via Tortona
47023 CESENA (FC) Italy
www.masegenerators.com
e-mail: mase@masegenerators.com

Mass **kg**

Fig.2



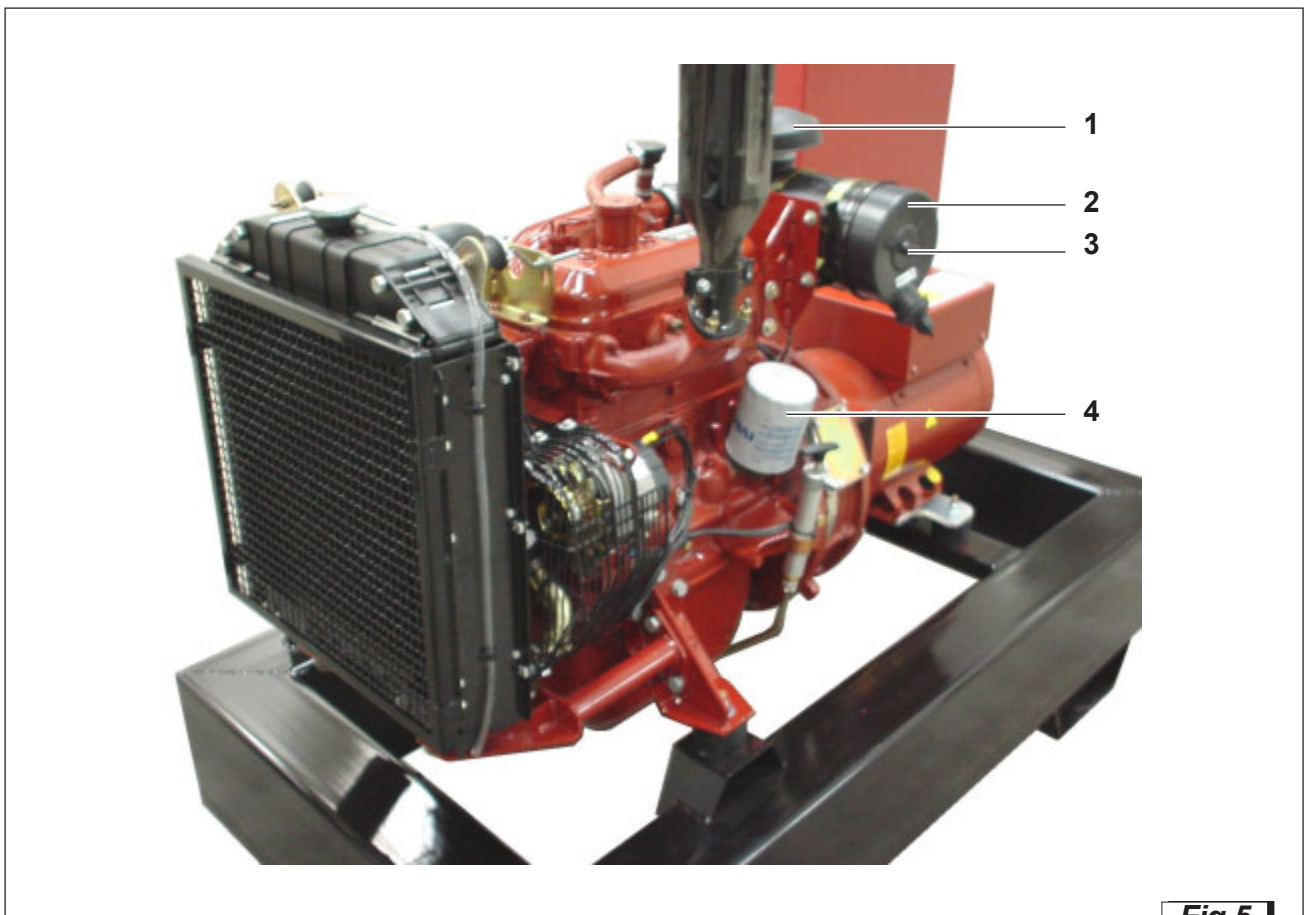
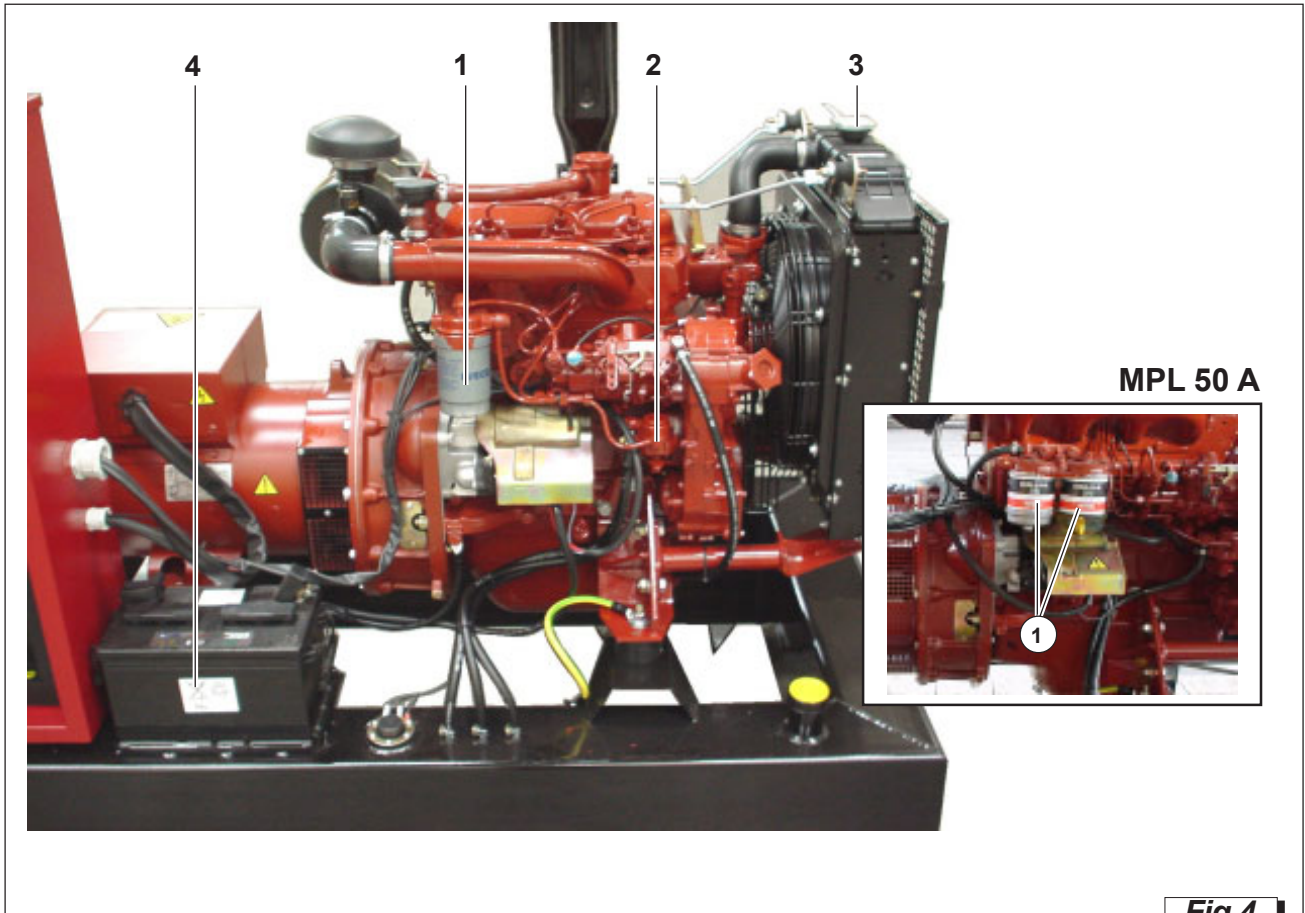
A



B

Fig.3

MPL 30 A



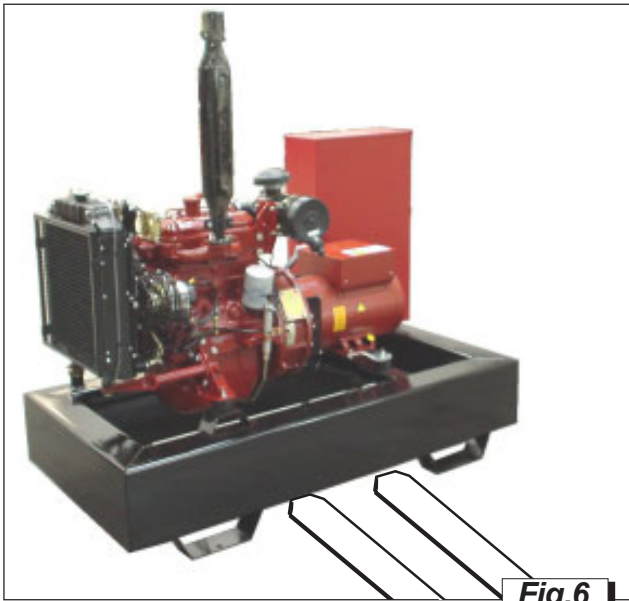


Fig.6

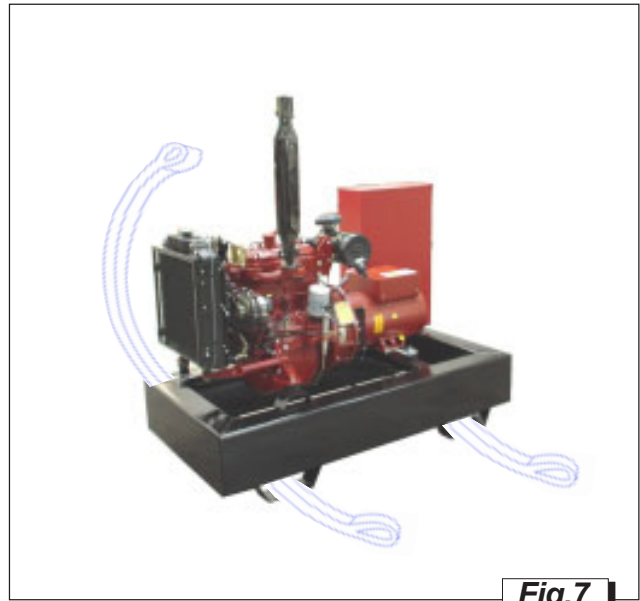


Fig.7

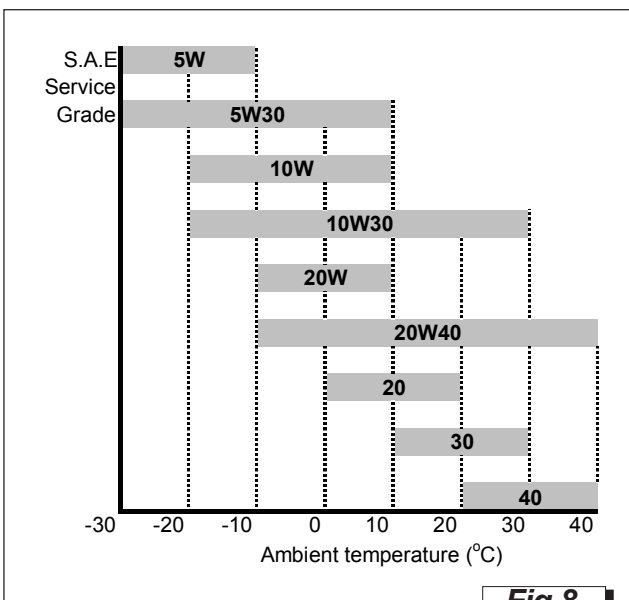
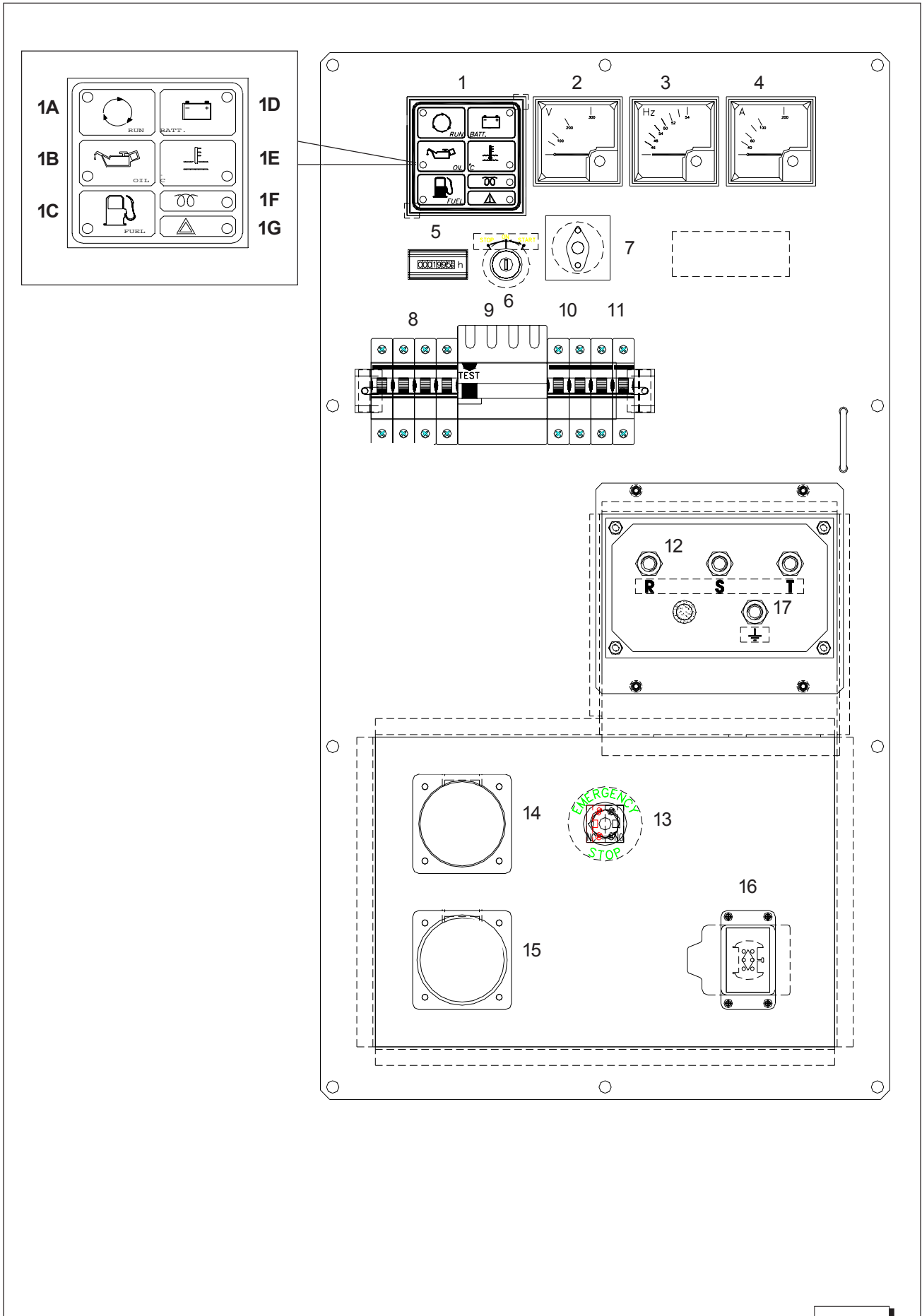


Fig.8

PANNELLO STRUMENTI



PANNELLO STRUMENTI

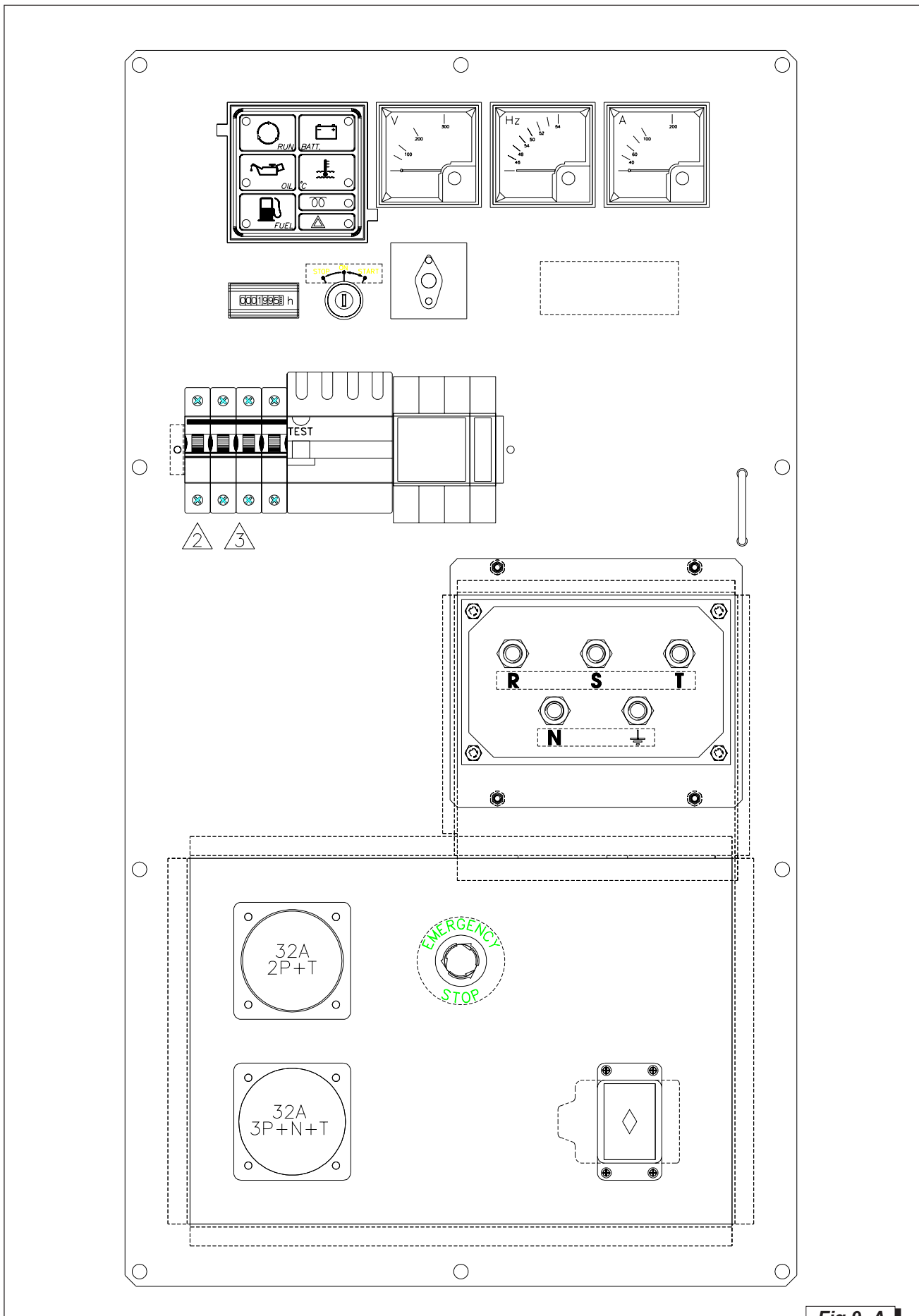


Fig.9_A

SCHEMA ELETTRICO "MARELLI" T.50 230

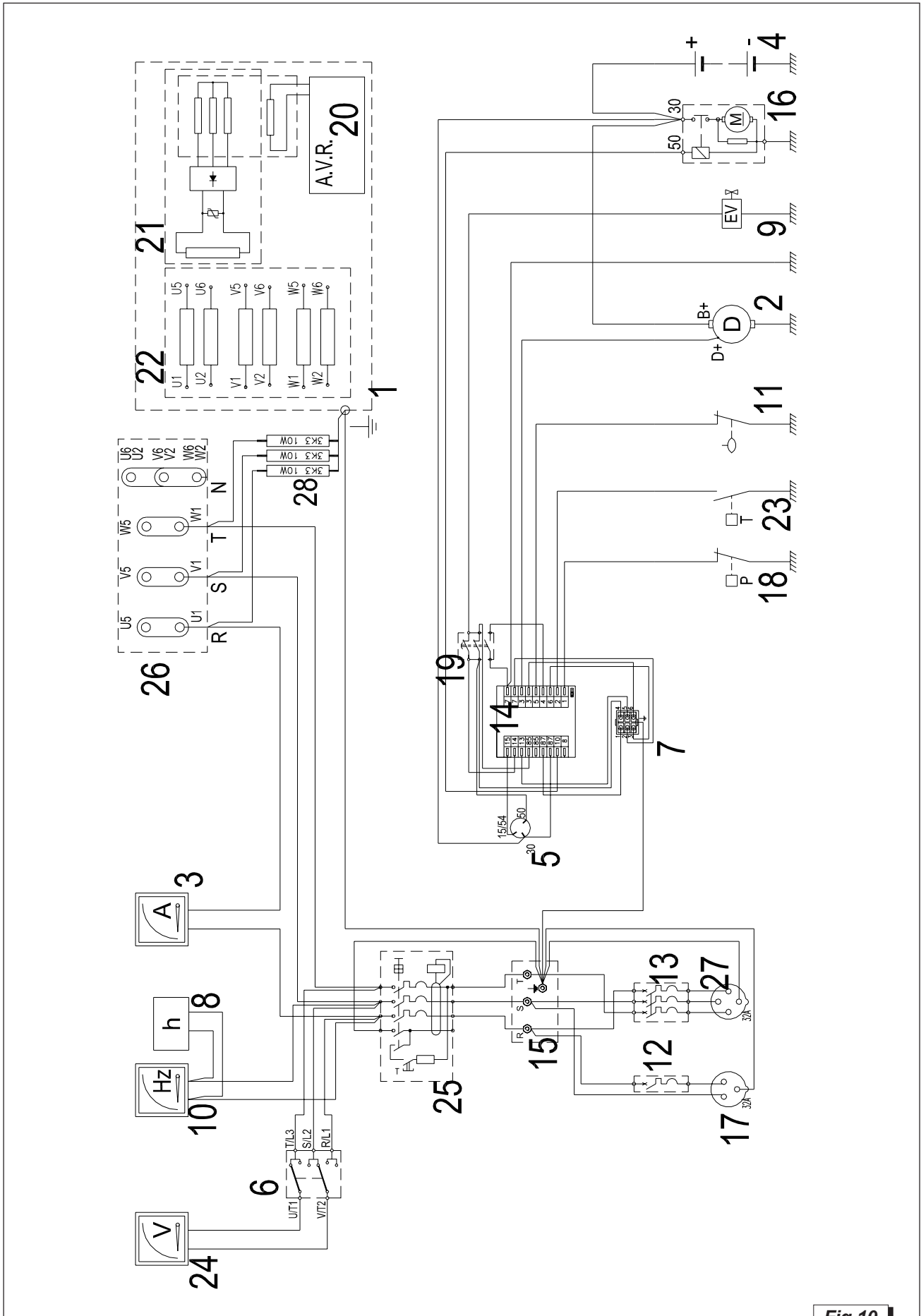


Fig.10

SCHEMA ELETTRICO "MECCALTE" T.50 230

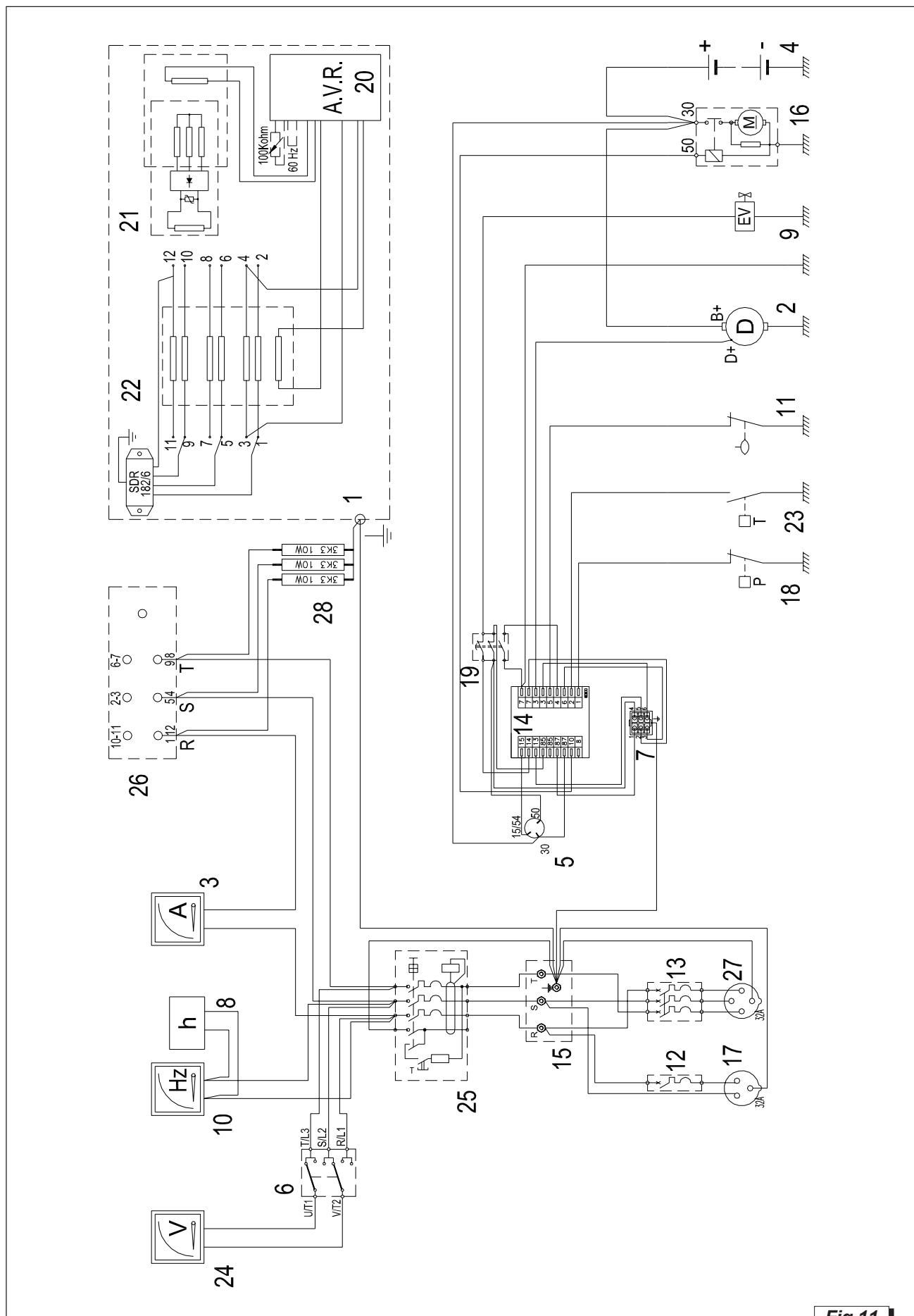


Fig.11

SCHEMA ELETTRICO "NUOVA SACCARDO" T50.400

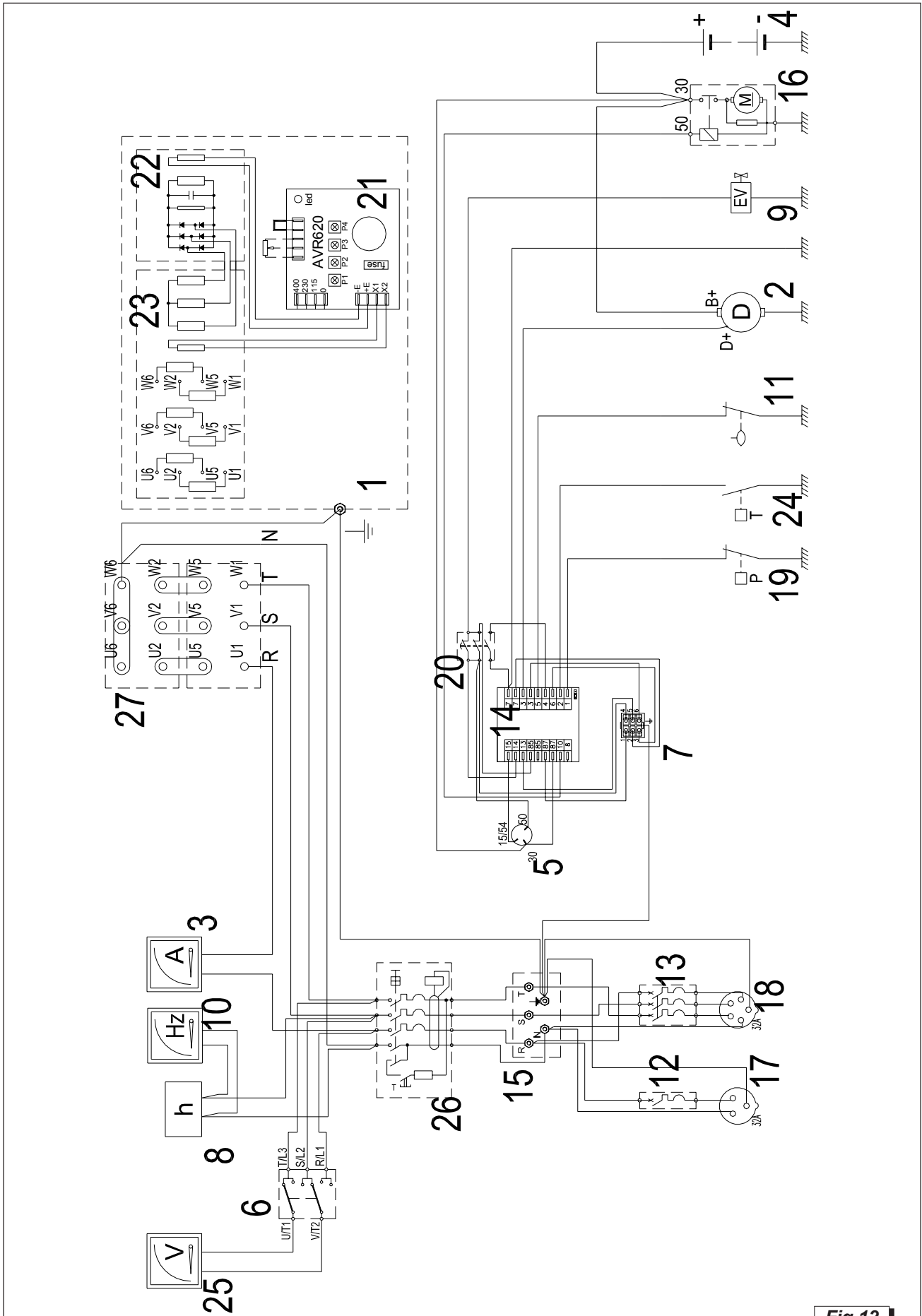


Fig.12

SCHEMA ELETTRICO "MARELLI" T50.400

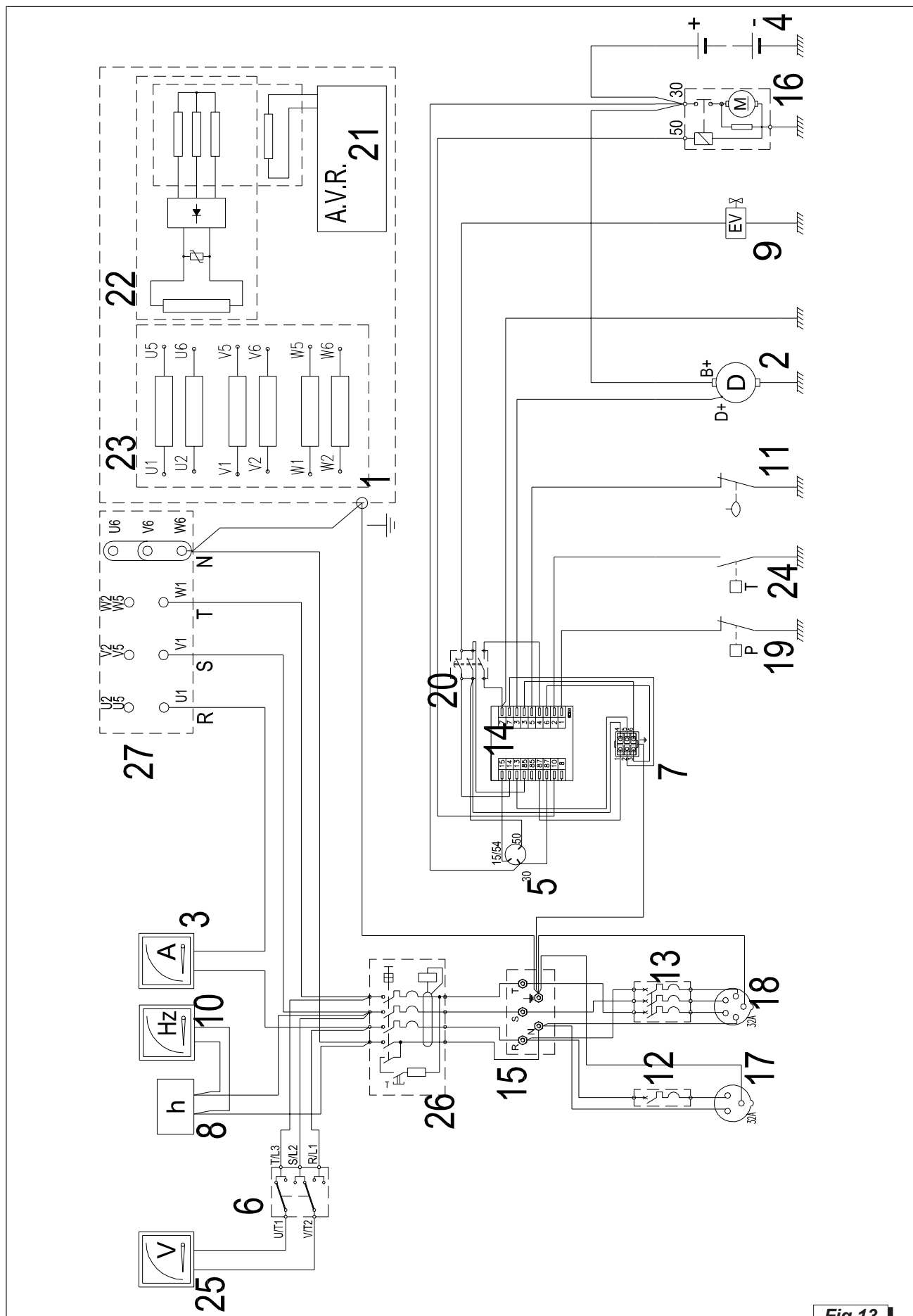


Fig.13

SCHEMA ELETTRICO "MECCALTE" T50.400

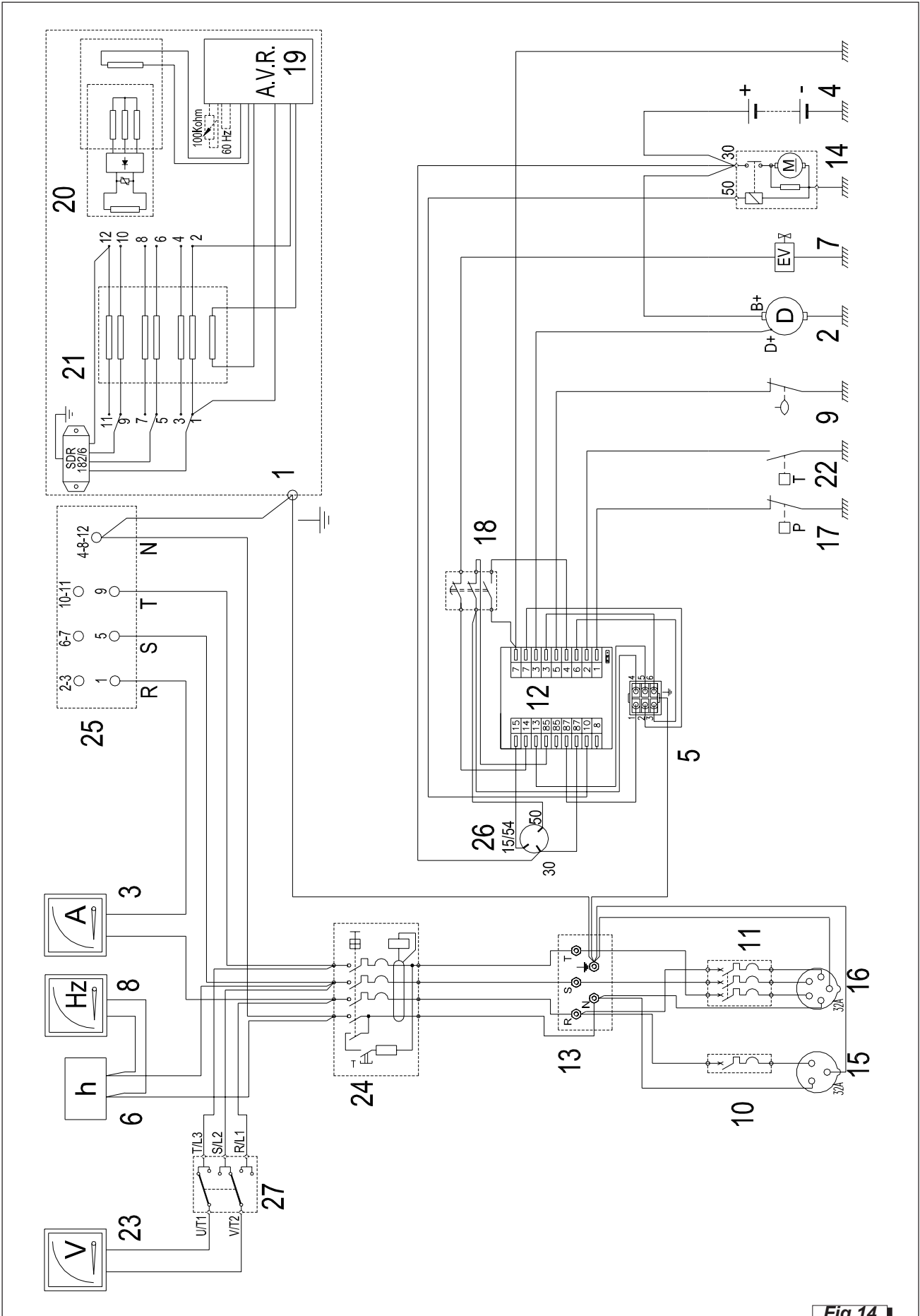


Fig.14

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1 GENERAL INFORMATION



Carefully consult this manual before proceeding with any operation on the generator.

FAILURE TO ADHERE TO THE INSTRUCTIONS AND SPECIFICATIONS CONTAINED IN THIS USE AND MAINTENANCE MANUAL WILL INVALIDATE THE PRODUCT GUARANTEE.

1.1 Purpose and field of application of the manual

Thank you for choosing a **MASE** product.

This manual has been drawn up by the manufacturer with the purpose of providing essential information and instructions for proper use and maintenance in conditions of safety and constitutes an integral part of the generator equipment. The manual must be kept safely, protected from any agent which might damage it, for the entire life of the generator and must accompany the generator if transferred to another user or owner.

The information contained in the manual is addressed to all those persons involved in the operating life cycle of the generator, and is necessary to inform both those who effectively carry out the different operations and those who coordinate the activities, arrange the necessary logistics and regulate access to the place where the generator will be installed and operated.

The manual defines the purpose for which the generator was constructed and contains all the information necessary to guarantee safe and proper use.

Constant observance of the instructions contained in this manual guarantees the safety of the operator, operating economy and a longer life of the generator.

It is warmly recommended to carefully read the contents of this manual and the reference documents; only thus can regular functioning and reliability of the generator be guaranteed over time, and protection against damage to persons or things.

The drawings are provided by way of example. Even if the generator in your possession differs considerably from the illustrations contained in this manual, the safety of the generator and the information provided are nevertheless guaranteed.

To facilitate consultation, it has been divided into sections identifying the main concepts; for a quick look at the topics, consult the index.

Note: the information contained in this publication is correct at the time of printing. The manufacturer in his pursuit of a policy of constant development and upgrading of the product reserves the right to make modifications without prior notice.

1.2 Symbols

Those parts of the text not to be ignored are highlighted in bold type preceded by a symbol, as illustrated and defined below.



DANGER

Indicates that particular attention must be paid in order to prevent running into serious danger which could lead to death or possible hazards to the health of personnel.



WARNING

A condition which may occur during the lifetime of a product, system or plant considered at risk regarding damage to persons, property, the environment or economic loss.



CAUTION

Indicates that particular attention must be paid in order to prevent serious consequences which could result in damage to tangible goods, such as the resources or the product.



INFORMATION

Instructions of particular importance.

1.3 Reference documents

The instructions for use provided with each generator are made up of a collection of documents of which this manual represents the General Part.

Normally, the following documents are provided:

- a - CE declaration of conformity.
- b - Instruction manual for use of the generators (this manual)
- c - Wiring diagrams of the control panels and power board.
- d - Engine use and maintenance manual
- e - Use and maintenance manual issued by the alternator manufacturer.
- f - Any other manuals for the optional accessories issued by the respective manufacturers.
- g - List of Mase Service Centres

1.4 Facsimile of CE declaration of conformity

The generators constructed by MASE, intended for countries in the European Community, are in conformity with the applicable EEC Directives (see 1.5) and are furnished with an EC declaration of conformity (Fig. 1).

1.5 Reference regulations and legislative provisions

All the MASE diesel generators are designed and manufactured in compliance with the legislation in force. The generator and its components are constructed in accordance with the following applicable regulations and directives:

EN 292-1/2: Machine safety regulations.
General design principles.

EN 294: Machine safety regulations.
Safety distances to prevent contact of dangerous parts with the upper limbs.

ISO 3046: Alternate internal-combustion engines.

IEC 34-1: Rotary electric machines.

ISO 8528-1: Alternate current generators driven by alternate internal-combustion engines.

EN 60204-1 (CEI 44-5):

- Machine safety.
- Electrical equipment of machines.

EN 60439-1 (CEI 17-13/1): Assembled protection and manoeuvring equipment for low voltage (low-voltage panels).

EN 50081-1/2 (Electromagnetic compatibility): General regulation on emission

- Part 1: Residential, commercial and light-industry environments.
- Part 2: Industrial environment.

EN 50082-1/2 (Electromagnetic compatibility): General regulation on immunity.

- Part 1: Residential, commercial and light-industry environments.
- Part 2: Industrial environment.

89/392/EEC and subsequent amendments contained in the Directives **91/368/EEC**, **93/44/EEC** and **93/68/EEC**: Essential machine requirements for safety and health protection ("Machine" directive).

73/23/EEC and subsequent amendments contained in the Directive **93/68/EEC**: Guarantee of safety of electrical material intended for use within certain voltage limits ("Low Voltage" directives).

1.6 Marking

The generator identification plate carries all the identification data in conformity with ISO 8528 and in accordance with the provisions for CE marking for those cases where required. Below is a facsimile of the identification plate fixed on the control panel of each generator (Fig.2)

1.7 Machine identification

See Fig.2

- 1 - Machine code
- 2 - Year of construction
- 3 - Power factor
- 4 - Declared frequency
- 5 - Continuous power
- 6 - Rated voltage
- 7 - Rated current
- 8 - Weight
- 9 - Serial number

The machine code number, the serial number and the year of construction must always be quoted when contacting the manufacturer for information, requests for spare parts, etc.

1.8 description of the car

- 1 - radiator (Fig.3B-5 Rif. 17)
- 2 - motor (Fig.3A-2 Rif. 2)
- 3 - alternator (Fig.3A-3 Rif. 3)
- 4 - batteries (Fig.4-3B Rif. 4)
- 5 - loom I support group (Fig.3A-5 Rif. 5)
- 6 - filter air (Fig.4-5-6 Rif. 6)
- 7 - bracket (Fig.3A-5-6 Rif. 7)
- 8 - auction level oil (Fig.4 Rif. 8)
- 9 - cork rabbocco oil (Fig.3B-5 Rif. 9)
- 10 - filter oil (Fig.3A-6 rif.10)
- 11 - taken of service (Fig.2 Rif. 10)
- 12 - picture commands (Fig.5-2 rif.11)
- 13 - alternator loads battery (Fig.3A-6 Rif. 12)
- 15 - cork combustibile load (Fig.2 rif. 12)
- 16 - filters combustibile (Fig.4-5 Rif. 16)

1.9 Machine description

FIG.9/9_A Legend

Each electrogen group is provided of an instrument panel for the comands and the controls on which are situated the following components:

- 1 - Engine protection module
- 2 - Voltmeter
- 3 - Frequencymeter
- 4 - Ammeter
- 5 - Hour counter
- 6 - Ignition key
- 7 - Voltmeter switch
- 8 - Magnetothermal switch 4P 40A
- 9 - Differential magnetothermal switch 4P 63A
- 10 - Magnetothermal switch 3P 32A
- 11 - Magnetothermal switch 1P 16A
- 12 - Power clamp
- 13 - Emergency stop button
- 14 - Three-phase CEE socket 32A 230V 2P + T
- 15 - Three-phase CEE socket 32A 400V 3P + N + T
- * 15a - picked up trios phase CEE 32 Á. 400 V 3p + n + t
- 16 - Control panel connect
- 17 - Connecting to hearth
- 18 - Fuel level

*** 400 V 3 phases version see fig. 9_A**

2 GENERAL INFORMATION

The generator was designed, constructed and tested to meet the current European and national regulations and to reduce the electrical risks to a minimum in compliance with the following regulations:

EEC 73/23 directive: low voltage
EEC 89/392 machine directive

2.1 Reference documents

The instructions for use provided with each generator are made up of a set of documents of which this manual represents the General Part. Normally, the following documents are provided.

- a CE Declaration of Conformity.
- b Instruction manual for use and maintenance of the generators (this manual).
- c Engine use and maintenance manual.
- d Alternator use and maintenance manual (in case of alternators not manufactured by Mase).
- e List of **Mase** Service Centres.
- f Mase **Warranty certificate**.
- g Warranty card.

2.2 Facsimile of CE declaration of conformity

The generators constructed by **Mase**, intended for countries in the European Community, are in conformity with the applicable **EEC** Directives and are furnished with an **EC** Declaration of Conformity (Fig.B).

2.3 Marking

The generator identification plate carries all the identification data in conformity in accordance with the provisions for **CE** Marking for those cases where required. Below is a facsimile of the identification plate fixed on the control panel of each generator (Fig. A).

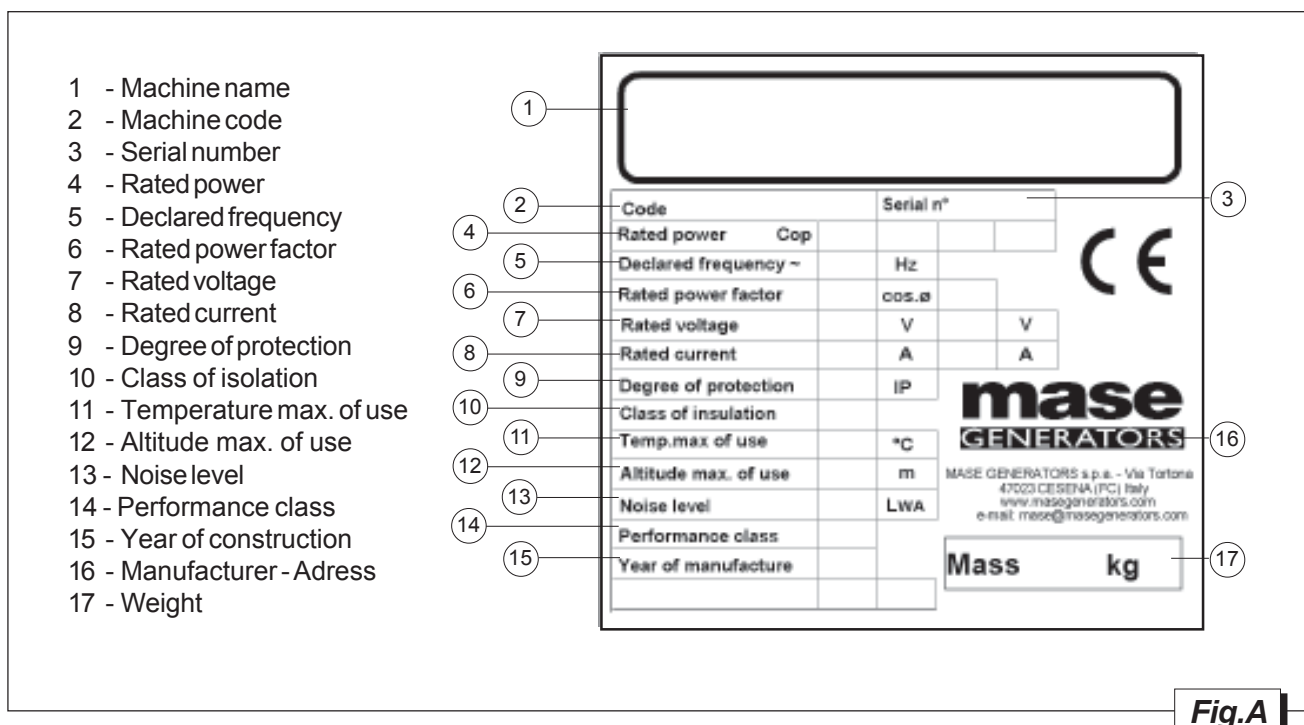


Fig.A

NR.000000



mase GENERATORS S.p.A.
Tel. +39 (0) 547 354311
Fax +39 (0) 547 317555

**DICHIARAZIONE CE DI CONFORMITÀ
EC DECLARATION OF CONFORMITY**

Fabbricante/Manufacturer: **mase** GENERATORS S.p.A.

Indirizzo /Address : Via Tortona 345, Pievesestina (FC)

Il sottoscritto Luigi Foresti in qualità di direttore tecnico della **mase** GENERATORS S.p.A., dichiara sotto la propria responsabilità che il gruppo elettrogeno modello :

The undersigned Luigi Foresti as **mase** GENERATORS S.p.A. technical manager declares, under his sole responsibility, that the generator model.....:

Codice / Code	Descrizione / Model	Matricola / Serial N.
<input type="text"/>	_____	<input type="text"/>

è conforme alle disposizioni delle Direttive di seguito elencate:

- 98/37 CE** (come emendata delle Direttive **98/79 CE**)
- 73/23 CEE** modificata da **CEE 93/68**.
- 89/336 CEE** direttiva sulla compatibilità elettromagnetica

corresponds to the requirements of the following EEC Directives:

- 98/37/EEC** (as amended by the Directive **98/79/EEC**)
- 73/23/EEC** as amended by **93/68/EEC**.
- 89/336 EEC** directive on the electromagnetic compatibility

Cesena, / /

Direttore Tecnico
Technical Director

3. CHARACTERISTICS

3.1 General characteristics

The **MPL - A** generators series has been designed for use in the industrial field, using highly reliable 1500 rpm water-cooled diesel engines. Particular attention has been paid to the degree of protection against external agents, engine protection and protection of the electrical parts against overload or overheating, adopting automatic systems able to stop the generator in the event of malfunctioning.

The alternators used are the synchronous, self-excited, self-regulating type able to deliver extremely high pickup current with voltage stability lower than 5%.

3.2 Table of technical characteristics MPL. 30-A, MPL. 50-A

MODEL	MPL 30 A		MPL 50 A	
ALTERNATOR	selfexcited selfregulated			
Type	synchronous three phase			
Continuous power	31 kVA		40 kVA	
Voltage	400 V	230 V	400 V	230 V
Frequency	50 Hz			
Current	44,7 A	77,8 A	57,7 A	100,4 A
Power factor (Cos Ø)	0,8			
Degree of Protection	IP 23			
ENGINE	IVECO AIFO 4 tempi			
Model	8031 i 06		8041 i 06	
Cilinders	3		4	
Fuel	Diesel			
Power	43 Hp		56 Hp	
Capacity	2900		3900	
Air Intake	inhaled			
RPM	1500 Giri / min			
Consumption (3/4 loaded)	11 h		9 h	
Electric plant	12V			
Noisiness	99 Lwa		99 Lwa	
Tank capacity	68 lt.			
Dimension of standard model	1850 X 900 X 1690 mm.			
Weight of standard model	665 kg		810 kg	

4 SAFETY REGULATIONS

4.1 General precautions

Before starting the generator and before starting any lubrication or maintenance operation, it is indispensable for the staff responsible to read and understand all the WARNINGS and all the CAUTION and DANGER indications listed in this manual and in the supplementary documentation furnished. Nevertheless, the manufacturer cannot foresee all the possible circumstances which may lead to potential risks in the effective conditions of use of the generator.

Any operations and/or procedures for maintenance not expressly recommended or indicated in the user manuals must always be notified to and approved by the Manufacturer. In the event that a procedure not specifically recommended needs to be applied, the user is responsible for assuring that such procedure is safe and does not cause harm to persons or things.

The manufacturer declines all responsibility for damage to persons or things deriving from inobservance of the safety regulations.

Carefully examine the safety warning plates on the machine and respect the relevant instructions.

- Do not permit incompetent persons or without adequate training to use the generator.
- Do not permit children or animals to approach the generator when it is in operation.
- Do not access the generator with wet hands, since it is a potential source of electric shock if improperly used.
- Any inspections of the generator must be carried out with the engine off. Inspections with the engine on are to be carried out by specialised personnel only.



When the generator is connected to an automatic start-up panel, before any tests or maintenance can be performed, it must be locked out - by selecting the BLOCK function - or disconnected - by disengaging the connector.

- Exhaust gas contains carbon monoxide and other noxious residues. Never operate the generator in inadequately ventilated places.
- Do not operate the generator near places with a danger of explosion or fire.
- Refuelling must be carried out exclusively with the engine off.
- The generator must be connected to earth using a copper wire of suitable cross-section.



- ***Do not allow access to persons wearing a pacemaker because of possible electromagnetic interference with the device.***
- ***In the event of fire, use a homologated fire extinguisher and never use water.***



When using the generator always bear in mind that in wet or very humid places and in confined conduction spaces it is obligatory to comply with articles 313 and 318 of Presidential Decree No. 547 27/04/55, as well as Chap. 11 Section IV of the CEI 64-8 regulation.

4.2 Prescriptions for safety during installation and setup



- ***The personnel in charge of installation and starting of the generator must always wear a protective helmet; wear safety shoes and overalls.***
- ***Immediately change wet overalls.***
- ***Use protective gloves.***
- ***Do not leave disassembled parts, tools or anything else not forming part of the system on or near the engine.***
- ***Never leave inflammable liquids or cloths soaked in inflammable liquids in proximity of the generator, near electric equipment (including lamps) or parts of the electrical system.***
- ***Take the necessary precautions to prevent the danger of electrocution.***
- ***Check that the earthing system has been installed and constructed in accordance with regulations.***

4.3 Connection to earth

For the safety of the users, the earth connection of the generator must always be carried out paying particular attention to the cable cross-section used that depending on the generator power.

For the connection of the earth cable use the dedicated copper terminal on the front panel (fig.8, ref.18) and connect it to the earth pole.

The manufacturer is not responsible for any damage caused by failure to earth the system.

5. USING THE GENERATOR

5.1 Preliminary checks

Before beginning with any starting procedure, it is extremely important to become "familiar" with the generator and its controls. Furthermore, a visual inspection must be carried out on the machine and the installation.

Any source of potential or real danger must be eliminated before proceeding.

- Identify the position of the emergency stop buttons, switches and other emergency systems on the generator.
- Learn the special emergency procedures relative to the installation in question.
- Identify the position of the fire extinguisher or other protection and emergency devices and learn their functioning.
- Identify any sources of danger such as fuel, engine oil or acid solution leaks, condensate in the drip caps, high voltage, high pressure.
- Ensure that the generator is clean and that the surrounding areas are clean and free of obstacles.
- Check that there are no obstructions in the inlets and ventilation ducts.
- Check that the exhaust pipe is not oriented against obstacles, or make sure that these are at least two metres away.
- Check that the earth connection has been carried out properly.

At first starting of the generator, after having done any type of maintenance work, it is always good practice to check:

- the oil level by means of the dipstick;
- that all the electrical utilities are off so that the generator is not started on load;
- that the fuel pipes are undamaged and properly connected;
- that there are no electrical connections in a bad state.

5.2 Refuelling

Refuelling must be carried out with extreme care, ensuring that fuel does not overflow from the engine tank and respecting the maximum level.

When refuelling has been completed, carefully close the filler cap (Fig.2 Ref. 12)



Fuel is toxic and inflammable and must therefore be kept in special airtight containers and stored in inaccessible places.



- Refuelling must always be carried out with the engine off.

- **Do not smoke and do not use open flames during refuelling.**
- **Refuel in well-ventilated places.**
- **Avoid contact of fuel with the skin and do not inhale the fumes.**

5.3 Start-up

Before starting up the generator, make certain that all devices are off so as to prevent forcing the engine when it is cold. Proceed with start-up by rotating the START key (fig.6 ref.6) clockwise one click. All the LEDs (fig.6, ref.1) will light up for approximately 2 seconds as the self-check is performed. The battery recharge LED (fig.6 ref.1D) and the low oil pressure LED (fig.6 ref.1B) will then remain on.

Start up the unit by turning the ignition key clockwise all the way; only release it when the engine has cut in. However, in no case should the key be held down for more than 5 seconds in an attempt to start up the engine.

All protections cut in 5 sec. after the unit is started up and, in case of malfunction, the unit will shut down and a warning light will go on indicating the malfunction.

5.4 Using the generator

Before powering any utility, leave the engine to run without applied load for at least five minutes so that it gradually reaches the operating temperature. This will guarantee longer life of the engine and eliminate the risk of seizures.

Each generator T50.230 is equipped with the following outlets:

- a three-phase outlet, EEC 32A 230V 3P+GND
- a three-phase outlet, EEC 32A 230V 2P+GND
- a Terminal strip of power 4 poles + GND

Each generator T50.400 is equipped with the following outlets:

- a three-phase outlet, EEC 32A 400V 3P+N+GND
- a three-phase outlet, EEC 32A 230V 2P+GND
- a Terminal strip of power 4 poles + GND

The available power is as indicated on the adhesive label carrying the technical characteristics (Fig.2 Ref.5).



The sum of absorption of all the utilities connected to the generator must never exceed the continuous power value of the generator.

5.5 Shut down

The unit is shut down by turning the ignition key (fig.5 ref. 7) all the way counter-clockwise. Before shutting down the unit, it is advisable to let it run for a few minutes without any load thus lowering the temperature inside the engine and the alternator.

5.6 Hook up to the automatic control panel

The series MPL units are prepared for connection to an automatic control panel able to automatically start up the generator, to switch lines when line power cuts out and switch back when the line voltage is returned.

In addition, the automatic control panel maintains the charge in the generator start-up battery, even when the generator is off.

The unit is hooked up to the automatic control panel through the 6-pin connector found on the unit instrument panel (fig.5 ref. 14) and a power supply plug inserted in the outlet located on the generator instrument panel (fig.5 ref.11).


6. PROTECTIONS AND WARNING - SIGNALS

The generators of the MPL series are fitted with a series of protections and warning signals which protect them from improper use and faults which may compromise integrity.

An engine protection module (Fig.6,Ref.1) controls the warning signals and a part of the protections, stopping the engine in case of a fault and indicating the fault by means of the relevant LED:

- **Warning light (Fig.8, Ref.1A) -"RUN"**
When on (green) it signals proper functioning of the generator and that no fault has been detected.
- **Warning light (Fig.8, Ref.1D) - "BATT"**
When on (red) it signals a fault on the battery charger alternator.
The generator may only be restarted after having identified and removed the cause of the fault.
- **Warning light (Fig.8, Ref.1F)**
When on (yellow) it signals that the pre-heating glow plugs have been activated.
The glow plugs are turned on before starting by turning the ignition key from the STOP to the ON position; once the operating temperature has been reached, they automatically go off and the engine can be started.
- **Warning light (Fig.8, Ref.1G)**
When on (red) it signals that the emergency stop button has been pressed (Fig.8, Ref.9).
Turn it to reset it.


- **Warning light (Fig.8, Ref.1C) - FUEL**
When on (red) it signals that the fuel is running low. Refuel as soon as possible following the instructions in paragraph 4.3.
- **Warning light (Fig.8, Ref.1E) - "°C"**
High engine temperature protection
When on (red) it signals high engine temperature. The generator may only be restarted after having identified and removed the cause of the fault.
- **Warning light (Fig.8, Ref.1B) - OIL**
Low oil pressure protection
When on it signals insufficient engine oil pressure. Generally, it suffices to fill up with oil in order to restart the generator..

 **WARNING** *The low oil pressure protection does not give an indication of the oil level. The oil level must periodically be checked in order to prevent damage to the engine.*

- **Protection against short-circuit and overload**
For protection against short-circuits and overloads, the generators have been fitted with magnetothermal and differential switches which trip, cutting the power, if there is an overload condition on the alternator or a short-circuit.
Before restoring the power by returning the differential or magnetothermal switch lever to the ON position (FIG.8 REF 8-9-10-11), remove the cause of the fault. They are used for this purpose:
 - A main differential magnetothermal switch with the task of cutting the power to all the outlets in the event of a short-circuit, overload and current leakage to earth.
 - Four protection magnetothermal switches at the low voltage outlets able to break the circuit if a current higher than the rated current is drawn from the outlets.

7. MAINTENANCE

7.1 Preamble

 **CAUTION** *Any maintenance to the power unit must be done by authorised personnel, with the motor off and after leaving it to cool down.*

It is recommended to scrupulously follow the instructions in the manual provided by the engine manufacturer with each generator.

It is important to regularly inspect and carry out maintenance on the generator. The frequency of maintenance should be decided on the basis of the number of hours of operation.

7.2 Ordinary motor maintenance

Periodical maintenance operations to the motor are indicated on the table point. 6.9. For more detailed information, read the manual supplied by the motor manufacturer which is attached to each power unit.



WARNING

Check the level of the oil by means of the dipstick. The oil level must always be between the MAX and MIN indicated on the dipstick.

7.3 Motor oil change

The engine is provided with diesel motor oil SAE 15W/40



INFORMATION

Always check correct viscosity of the engine oil in relation to the range of ambient temperatures in which the generator operates as indicated in the table in Fig.7.

Top-up and fill through the hole indicated in fig. 3B ref. 9 - fig.5 ref. 17. For more detailed information, consult the motor use and maintenance manual attached to the machine.

To replace the motor oil, remove the lower door of the soundproof casing and the cap on the oil sump and let the oil run out after placing a container under the frame. (fig.3 ref. 14 - fig.6 ref. 14). It is advisable to run the oil out when this is still warm as it flows better.



WARNING

Dispose of the used oil in an appropriate manner, since it is a polluting product. Take the used engine oil to special collection centres for disposal.



CAUTION

- **Protect hands from contact with oil by wearing gloves. In the event of accidental contact with engine oil, thoroughly wash the affected part with soap and water.**
- **During oil top-up and refuelling, respect the maximum level indication. An excessive quantity of engine oil may cause damage to the engine.**

7.4 Deaeration of fuel system

The presence of air bubbles in the fuel system causes irregular motor operation or prevents the motor reaching the rated rpm. Air can get into the fuel system through a badly sealed joint (pipes, filters, tank) or when the fuel in the tank is at lowest level. To eliminate air bubbles inside the fuel system, the cause of the infiltration must first of all be removed before proceeding as follows:

- 1 - Turn the starting key one click clockwise so as to trigger the stop solenoid valve Fig. 4 Rif. 1.
- 2 - Loosen the bleed screws on the fuel filter and injection pump Fig. 4 Rif. 2 (see motor use and maintenance manual).
- 3 - Manually operate the lever of the AC fuel pump (SC-suction compression) until all the air inside the fuel system has exited through the bleed screws.
- 4 - Tighten the bleed screws and start the motor.
- 5 - Repeat the above operations if the motor continues to run irregularly.



INFORMATION

For more detailed information about the fuel system, read the motor use and maintenance manual.

7.5 Replacement of filters

7.5.1 Replacement of air filter

To ensure correct operation and long life of the motor, periodically replace the air filter Fig. 5 Rif. 1. A dirty filter can affect motor power and produce excess fumes from the exhaust.

To replace the air filter cartridge, proceed as follows:

- remove the plastic cover of the air filter (fig.5, ref.2) after removing the fastening screws Fig. 5 Rif. 3.
- replace the filter cartridge and correctly position the new one.
- refit the cover and tighten up the screws.



WARNING

Replace the air filter every 200 hours of operation. This interval should be shortened if the unit operates in particularly dusty environments.

7.5.2 Replacement of oil and fuel filters

To guarantee proper functioning and a long life of the engine, it is important to periodically replace the oil filters (Fig.5, Ref.4) and fuel filter and prefilter (Fig.4, Ref.1) see point 6.9 *Scheduled maintenance table*.

7.6 Topping up the coolant

Periodically check the level of the coolant in the exchanger.

To top up use a mixture of 50% water and 50% antifreeze (AGIP ANTIFREEZE) through the filler cap. (Fig.2, ref.10). through the cork Fig. 4 Ref. 3

7.7 Battery check

The battery only needs to be checked periodically for electrolyte level and, if necessary, topped up with distilled water. Normally, the acid level must be within the level lines shown on the battery body.

When the MIN level is reached, top up the cells with distilled water, taking care not to exceed the MAX level indicated on the battery case (fig.4, rif.4).



DANGER *Battery fluid is a corrosive acid, extremely harmful to the skin.*

Always wear protective gloves and be extremely careful to avoid spillage when pouring the acid.



WARNING

- *Do not disconnect the battery when the generator is running; the battery charger alternator and the electronic equipment may irreparably be damaged.*
- *Respect +/- polarity when connecting; failing this will cause a short-circuit when starting, which will irreparably damage the electronic equipment.*
- *Dispose of the acid can in an appropriate manner.*



DANGER *Do not cause short-circuits by placing keys or tools on the batteries or on the cable fittings.*

7.8 Period of inactivity

If the power unit remains inactive for a long period, proceed as follows:

- replace the oil in the sump
- replace the fuel filter
- remove the injector and put a few drops of oil inside the combustion chamber. Manually turn the driving shaft a couple of times. Refit the injector and close the intake and exhaust.

7.9 Scheduled maintenance table

OPERATION	HOURS
Check oil level	8
Check coolant	8
Clean air filter	200
check belt tension	200
Replace carter oil	250
Replace oil filter	250
Check cooling system coupling	250
Replace air filter	400
Replace fuel filter	400
Replace coolant	1000
Rocker lever adjusting	2000
Calibrate and clean the injectors	2000

7.10 Troubleshooting

The starter motor turns over but the main motor fails to start

- Make sure there is fuel in the tank. (Replenish)
- Check the stop solenoid valve is powered (Consult Service Centre)
- Check fuel pump operation (Consult Service Centre)

The control panel does not switch on after turning the starter key

- Check the condition of the cutout fuses (Replace)
- Check the connection lead and all power connections. (Reconnect)
- Check the condition of the battery (Recharge or replace)

The power unit stops during operation

- Check a cutout has not been triggered with lighting up of relative indicator. (Remove cause and try to start the unit again)
- Make sure there is fuel in the tank. (Replenish)

The engine runs irregularly.

- Check fuel filters (Replace)
- Check operation of the fuel pump (Replace)
- Check the setting of the injectors (Consult Service)

8. TRANSPORT AND HANDLING

The group MPL 30A can be enlivened through any type of transpallet or I dolly elevator you see Fig. 7 for the lifting you/they must be used some common bands making to pass through her feet I support loom I see Fig. 8.



DANGER

- *Hooking the generator at points different from that indicated may cause damage to the generator or be dangerous to the operators.*
- *During lifting all personnel must keep a safe distance and the operators must wear protective helmets.*

9. SCRAPPING

At the end of its lifetime the generator must be taken to official scrapyards.

INFORMATION *Do not dispose of the generator at household refuse disposal sites, as many of its parts are polluting.*

10 WIRING DIAGRAM LIST

Wiring diagram list Marelli See Fig. 10

- 1 ALTERNATOR
- 2 BATTERY CHARGER ALTERNATOR
- 3 AMMETER
- 4 BATTERY
- 5 IGNITION KEY
- 6 VOLTMETER SWITCH
- 7 AUTOMATIC PANEL CONNECTION
- 8 HOUR COUNTER
- 9 STOP SOLENOID VALVE
- 10 FREQUENCY METER
- 11 RESERVE FLOAT
- 12 MAGNETOTHERMAL SWITCH 1P
- 13 MAGNETOTHERMAL SWITCH 3P
- 14 ENGINE PROTECTION MODULE
- 15 POWER TERMINAL BOARD
- 16 STARTER MOTOR
- 17 OUTLET 2P+GND 32A
- 18 OIL PRESSURE SWITCH
- 19 EMERGENCY STOP BUTTON
- 20 ELECTRONIC VOLTAGE REGULATOR
- 21 ROTOR
- 22 STATOR
- 23 ENGINE THERMOSTAT
- 24 VOLTMETER
- 25 DIFFERENTIAL MAGNETOTHERMAL SWITCH 4P
- 26 ALTERNATOR TERMINAL BOARD
- 27 OUTLET 3P+GND 32A
- 28 RESISTOR

Wiring diagram list Meccalte See Fig. 11

- 1 ALTERNATOR
- 2 BATTERY CHARGER ALTERNATOR
- 3 AMMETER
- 4 BATTERY
- 5 IGNITION KEY
- 6 VOLTMETER SWITCH
- 7 AUTOMATIC PANEL CONNECTION
- 8 HOUR COUNTER
- 9 STOP SOLENOID VALVE
- 10 FREQUENCY METER
- 11 RESERVE FLOAT
- 12 MAGNETOTHERMAL SWITCH 1P
- 13 MAGNETOTHERMAL SWITCH 3P
- 14 ENGINE PROTECTION MODULE
- 15 POWER TERMINAL BOARD
- 16 STARTER MOTOR
- 17 OUTLET 2P+GND 32A

- 18 OIL PRESSURE SWITCH
- 19 EMERGENCY STOP BUTTON
- 20 ELECTRONIC VOLTAGE REGULATOR
- 21 ROTOR
- 22 STATOR
- 23 ENGINE THERMOSTAT
- 24 VOLTMETER
- 25 DIFFERENTIAL MAGNETOTHERMAL SWITCH 4P
- 26 ALTERNATOR TERMINAL BOARD
- 27 OUTLET 3P+GND 32A
- 28 RESISTOR

Wiring diagram list Nuova Saccardo See Fig. 12

- 1 ALTERNATOR
- 2 BATTERY CHARGER ALTERNATOR
- 3 AMMETER
- 4 BATTERY
- 5 IGNITION KEY
- 6 VOLTMETER SWITCH
- 7 AUTOMATIC PANEL CONNECTION
- 8 HOUR COUNTER
- 9 STOP SOLENOID VALVE
- 10 FREQUENCY METER
- 11 RESERVE FLOAT
- 12 MAGNETOTHERMAL SWITCH 1P
- 13 MAGNETOTHERMAL SWITCH 3P
- 14 ENGINE PROTECTION MODULE
- 15 POWER TERMINAL BOARD
- 16 STARTER MOTOR
- 17 OUTLET 2P+GND 32A
- 18 OUTLET 3P+N+GND 32A
- 19 OIL PRESSURE SWITCH
- 20 EMERGENCY STOP BUTTON
- 21 ELECTRONIC VOLTAGE REGULATOR
- 22 ROTOR
- 23 STATOR
- 24 ENGINE THERMOSTAT
- 25 VOLTMETER
- 26 DIFFERENTIAL MAGNETOTHERMAL SWITCH 4P
- 27 ALTERNATOR TERMINAL BOARD

Wiring diagram list Marelli See Fig. 13

- 1 ALTERNATOR
- 2 BATTERY CHARGER ALTERNATOR
- 3 AMMETER
- 4 BATTERY
- 5 IGNITION KEY
- 6 VOLTMETER SWITCH
- 7 AUTOMATIC PANEL CONNECTION
- 8 HOUR COUNTER
- 9 STOP SOLENOID VALVE
- 10 FREQUENCY METER
- 11 RESERVE FLOAT
- 12 MAGNETOTHERMAL SWITCH 1P
- 13 MAGNETOTHERMAL SWITCH 3P
- 14 ENGINE PROTECTION MODULE
- 15 POWER TERMINAL BOARD
- 16 STARTER MOTOR
- 17 OUTLET 2P+GND 32A

- 18 OUTLET 3P+N+GND 32A
- 19 OIL PRESSURE SWITCH
- 20 EMERGENCY STOP BUTTON
- 21 ELECTRONIC VOLTAGE REGULATOR
- 22 ROTOR
- 23 STATOR
- 24 ENGINE THERMOSTAT
- 25 VOLTMETER
- 26 DIFFERENTIAL MAGNETOTHERMAL SWITCH 4P
- 27 ALTERNATOR TERMINAL BOARD

Wiring diagram list Meccalte See Fig. 14

- 1 ALTERNATOR
- 2 BATTERY CHARGER ALTERNATOR
- 3 AMMETER
- 4 BATTERY
- 5 AUTOMATIC PANEL CONNECTION
- 6 HOUR COUNTER
- 7 STOP SOLENOID VALVE
- 8 FREQUENCY METER
- 9 RESERVE FLOAT
- 10 MAGNETOTHERMAL SWITCH 1P
- 11 MAGNETOTHERMAL SWITCH 3P
- 12 ENGINE PROTECTION MODULE
- 13 POWER TERMINAL BOARD
- 14 STARTER MOTOR
- 15 OUTLET 2P+GND 32A
- 16 OUTLET 3P+N+GND 32A
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- 26 IGNITION KEY
- 27 VOLTMETER SWITCH