



USE AND MAINTENANCE MANUAL

POWER SOURCES FOR PLASMA CUTTING

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Genesis 30

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1.0 WARNINGS - PRECAUTIONS-GENERAL ADVICE

1.1 SAFETY

Prior to performing any operation on the machine, make sure that you have thoroughly read and understood the contents of this manual.

Do not perform modifications or maintenance operations which are not prescribed. For any doubt or problem regarding the use of the machine, even if not described herein, consult qualified personnel or SELCO s.r.l., which is always at your disposal.

SELCO s.r.l. cannot be held responsible for damage to persons or property caused by the operator's failure to read or apply the contents of this manual.

1.1.1 Symbols



Imminent danger of serious bodily harm and dangerous behaviours that may lead to serious bodily harm.



Important advice to be followed in order to avoid minor injuries or damage to property.



The notes preceded by this symbol are mainly technical and facilitate operations.

1.1.2 Operator and other persons' protection

The welding (cutting) process is a noxious source of radiations, noise, heat and gas emissions. The persons fitted with vital electronic devices (pacemakers) should consult a doctor before attending any arc welding or plasma arc cutting operation.

Personal protection:

- Do not wear contact lenses!!!
- Keep a first aid kit ready for use.



Do not underestimate any burning or injury.

- Wear protective clothing to protect your skin from the arc rays, sparks or incandescent metal, and a helmet or a welding cap.
- Wear masks with side face guards and suitable protection filter (at least NR10 or above) for the eyes.
- Use headphones if dangerous noise levels are reached during the welding.

Always wear safety goggles with side guards, especially during the manual or mechanical removal of welding (cutting) slags.

If you feel an electric shock, interrupt the welding (cutting) operations immediately.

Other persons' protection:

- Put up a fire-retardant partition to protect the surrounding area from rays, sparks and incandescent slags.
- Advise any person in the vicinity not to stare at the arc or at the incandescent metal and to get an adequate protection.
- If the noise level exceeds the limits prescribed by the law, delimit the work area and make sure that anyone getting near it is protected with headphones or earphones.

1.1.3 Fire/explosion prevention

The welding (cutting) process may cause fires and/or explosions.

- Compressed gas cylinders are dangerous; consult the supplier before handling them.
Protect them from:
 - direct exposure to sun rays;
 - flames;
 - sudden changes in temperature;
 - very low temperatures.

Compressed gas cylinders must be fixed to the walls or to other sup-

ports, in order to prevent them from falling.

- Clear the work area and the surrounding area from any inflammable or combustible materials or objects.
- Position a fire-fighting device or material near the work area.
- Do not perform welding or cutting operations on closed containers or pipes.
- If said containers or pipes have been opened, emptied and carefully cleaned, the welding (cutting) operation must in any case be performed with great care.
- Do not weld (cut) in places where explosive powders, gases or vapours are present.
- Do not perform welding (cutting) operations on or near containers under pressure.

1.1.4 Protection against fumes and gases

Fumes, gases and powders produced during the welding (cutting) process can be noxious for your health.



Important: do not use oxygen for the ventilation

- Provide for proper ventilation, either natural or forced, in the work area.
- In case of welding (cutting) in extremely small places the work of the operator carrying out the welding should be supervised by a colleague standing outside.
- Position gas cylinders outdoors or in places with good ventilation.
- Do not perform welding (cutting) operations near degreasing or painting stations.

Do not perform welding (cutting) operations on painted plates



1.1.5 Positioning the power source

Keep to the following rules:

- Easy access to the equipment controls and connections must be provided.
- Do not position the equipment in reduced spaces.
- Do not place the generator on surfaces with inclination exceeding 15° with respect to the horizontal plane.

1.1.6 Installing the apparatus

- Comply with the local safety regulations for the installation and carry out the maintenance service of the machine according to the constructor's directions.
- Any maintenance operation must be performed by qualified personnel only.
- The connection (series or parallel) of the SELCO generators is prohibited.
- Before operating inside the generator, disconnect the power supply.
- Carry out the routine maintenance on the equipment.
- Make sure that the supply mains and the earthing are sufficient and adequate.
- The earth cable must be connected as near as possible to the area of welding (cutting).
- Take the precautions relevant to the protection degree of the power source.
- Before welding (cutting), check the condition of the electric cables and of the torch, and if they are damaged repair or change them.
- Neither get on the material to be welded (cut), nor lean against it.



The operator must not touch two torches or two electrode holders at the same time.

1.1.7 Precautions against risks connected with the use of compressed air

Connect the air supply to the coupling provided, making sure pressure is at least 6 bars (0.6 MPa) with a minimum flow rate of 200 l/min. If the air supply comes from pressure reducer of a compressor or a central system, the reducer must be set to the maximum outlet pressure that must not, however, exceed 8 bars (0.8 MPa). If the air supply

comes from a compressed air canister it must be equipped with a pressure regulator.



A compressed air canister must never be directly coupled to the machine pressure reducer. Pressure might exceed the capacity of the reducer which might consequently explode.

1.2 ELECTROMAGNETIC COMPATIBILITY (EMC)

1.2.1 General information

This device is built in compliance with the indications contained in the harmonized standard EN50199, which the operator must refer to for the use of this apparatus.



Install and use the apparatus keeping to the instructions given in this manual.



This device must be used for professional application only, in industrial environments. It is important to remember that it may be difficult to ensure the electromagnetic compatibility in other environments.

1.2.2 Installation, use and area examination

- The user is responsible for the installation and use of the equipment according to the manufacturer's instructions.
If any electromagnetic disturbance is noticed, the user must solve the problem, if necessary with the manufacturer's technical assistance.
- In any case electromagnetic disturbances must be reduced until they are not a nuisance any longer.
- Before installing this apparatus, the user must evaluate the potential electromagnetic problems that may arise in the surrounding area, considering in particular the health conditions of the persons in the vicinity, for example of persons with pacemakers or hearing aids.

1.2.3 Emission reduction methods

MAINS POWER SUPPLY



This device must be connected to the supply mains according to the manufacture's instructions.

In case of interference, it may be necessary to take further precautions like the filtering of the mains power supply.

It is also necessary to consider the possibility to shield the power supply cable.

MAINTENANCE

This device needs routine maintenance according to the manufacturer's instructions.

When the equipment is working, all the access and operating doors and covers must be closed and fixed.

This device must not be modified in any way.

WELDING AND CUTTING CABLES

The welding (cutting) cables must be kept as short as possible, positioned near one another and laid at or approximately at ground level.

EQUIPOTENTIAL CONNECTION

The earth connection of all the metal components in the welding (cutting) installation and near it must be taken in consideration.

However, the metal components connected to the workpiece will increase the risk of electric shock for the operator, if he touches said metal components and the electrode at the same time.

Therefore, the operator must be insulated from all the earthed metal components.

The equipotential connection must be made according to the national regulations.

EARTHING THE WORKPIECE

When the workpiece is not earthed for electrical safety reasons or due to its size and position, the earthing of the workpiece may reduce the emissions. It is important to remember that the earthing of the workpiece should neither increase the risk of accidents for the operators, nor damage other electric equipment.

The earthing must be made according to the national regulations.

SHIELDING

The selective shielding of other cables and equipment present in the surrounding area may reduce the problems due to interference. The shielding of the entire welding (cutting) installation can be taken in consideration for special applications.

1.3 RISK ANALYSIS

Risks posed by the machine	Solutions adopted to prevent them
Risk of wrong installation.	A manual with the instructions for use has been produced for this purpose.
Electrical risks.	Application of the EN 60974-1, EN 50192, EN 50078 Standards.
Risks connected with electromagnetic disturbances produced by the welding power source and induced on the welding power source.	Application of the EN 50199 Standard.

2.0 INTRODUCTION

Genesis 30 is a user-friendly, compact generator for plasma cutting. Genesis 30 uses compressed air as its only gas source, which can be supplied from a normal compressor or from a suitably sized centralized plant. It is able to carry out, cheaply, cuts of a high quality up to a thickness of 10 mm in carbon steel, while still keeping its weight and size very limited.

This optimum performance-to-weight ratio is made possible thanks to the use, in common with all the Genesis range, of inverter technology. The current is thus stable, and unaffected by variations in the supply voltage, in the height of the cutting arc, in the progression speed and in the thickness of the metal to be cut. The Genesis 30 is equipped with an automatic circuit for the reignition of the pilot arc, that allows metal grill structures to be cut in the best way.

There are safety systems that cut off the power circuit when the operator comes into contact with live parts of the machine, as well as controls to reduce the wear on the electrode and nozzle at the moment of striking the cutting arc.


The ignition of the pilot arc takes place without the use of high frequency, with an increase in the working life of the parts of the torch subject to wear, and reduction in the mains interference.

The generator is equipped with:

- a torch, an earth (+) socket,
- front panel,
- rear control panel.

2.1 CONTROLS

2.1.1 Front control panel FP120 (Fig.1)

* **L1 : Voltage warning light**  **green led.**


Comes on with the start switch (Fig.2) "I1" in position "I" and indicates that the plant is on and there is voltage.

* **Power output light**  **red led.**


Comes on as soon as the cutting process starts, and goes off as soon as it is finished.

* **L3: torch cap alarm**  **red led.**

Means that the torch cap has not been properly tightened. The generator has no power output.

* **L4: compressed air alarm**  **red led.**

Means that the pressure of compressed air is below 3.5 bar, too low for proper functioning.
The generator has no power output.

* **L5: Thermal safety device warning light**  **yellow led.**

Indicates that the safety devices like thermal cutout.

With "L5" on, the power source remains connected to the supply mains, but does not supply output power. "L5" remains on until the fault has been removed and in any case until the inner temperatures are not within the normal values; in this case it is necessary to

leave the power source on to exploit the operating ventilator and reduce the time when it is not active.

*** P1: Potentiometer for setting the cutting current**

Allows you to continuously adjust the cutting current. This current stays unchanged during cutting when the supply and cutting conditions vary within the allowed ranges.

*** T1: gas test pushbutton.**

Allows impurities to be removed from the compressed air circuit and preliminary capacity and pressure settings to be made with no power output.

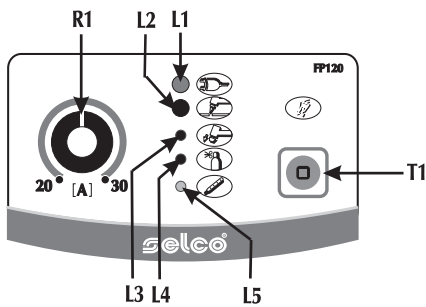


Fig. 1

2.1.2 Rear control panel (Fig. 2)

*** I1: Off/On switch**

Turns on the electric power to the machine. It has two positions, "O" off, and "I" on.



* When I1 is in the on "I" position, the generator is operational, but has voltage output only if L2 is on.



* The machine is connected to the mains supply even if the I1 switch is in the "O" position, and therefore there are electrically live parts inside it. Carefully follow the instructions given in this manual.

*** 1 : Supply cable.**

*** 2 : Ventilation slots. Never allow them to be obstructed.**

*** N : Serial number.**

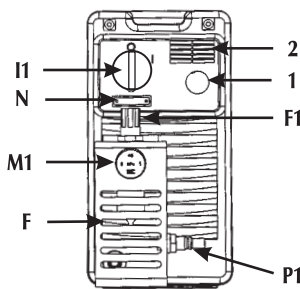


Fig. 2

3.0 TECHNICAL DATA

3.1 Identification

The data plate stamped on the metal structure, see ch. 10.0 complies with the IEC 974-1 and EN 60974-1 international standards and contains the following information:

- * Manufacturer's name and address.
- * SELCO trademark
- * (Type) Model
- * (N°) Serial number
- * () The power source for plasma cutting comprises a frequency converter followed by a transformer and rectifier that transforms input voltage into direct current.
- * (EN 60974-1, EN 50192) Safety standard applied.

- * (OUTPUT) Output current and voltage ranges available.
- * () Direct current.
- * (x) Duty factor, that is, 10 minute time percentage during which the welding can be carried out at a given current without any overheating.
- * (I2) Rated cut current.
- * (U2) Conventional load voltage.
- * (U0) Rated no-load voltage.
- * () Plasma cutting
- * () 1input phases.
- * (I.CL. H) Insulation class H.
- * (COOLING A. F) Forced ventilation cooling.
- * (IP 23) Casing protection degree in compliance with the EN 60529 Standard:
IP2X Casing protected against access to dangerous components with fingers and against the introduction of foreign matters with diameter 12,5 mm.
IPX3 Casing protected against rain falling at 60° on the vertical line.
- * (U1) Rated power supply voltage.
- * (50/60 Hz) Power supply rated frequency.
- * (I1) Rated power supply current.
- * () Generator suitable for installation in places where major risks of electric shocks are present.
- * () In compliance with the European regulations in force.

3.2 Technical characteristics

TECHNICAL CHARACTERISTICS	GENESIS 30
Power supply voltage	1x230 V 50/60 Hz
Delayed fuse	16 A
Rated power	3.35 Kw
Cutting current (x=60%)	30 A
(x=100%)	25 A
Cutting voltage (x=60%)	92 V
No-load voltage	340 V
Pilot arc current	15 A
Operating pressure	5 bar
Flow rate	100 l/min
Protection class	IP 23
Insulation class	H
Construction regulations	EN 60974-1; EN 50199 EN 50078; EN 50192
Dimensions (LXPXH)	130x360x250 mm
Generator weight	8.4 Kg
Torch weight	1.2 Kg

Above data are referred to environment at 40°C

4.0 TRANSPORT - UNLOADING



Never underestimate the weight of the equipment, see 3.0 (TECHNICAL DATA).



Never make the cargo pass or leave it suspended over people or things.



Neither let the equipment or the single unit fall, nor put it down with force.

Once it has been removed from the packing, the power source is supplied with an extendible belt which can be used to move it in the hand or on the shoulder.

5.0 INSTALLATION

5.1 GENERAL RULES

Choose an adequate installation area by following the criteria provided in Section "1.0 WARNINGS-PRECAUTIONS-GENERAL ADVICE".

Do not position the power source and the equipment on surfaces with inclination exceeding 15° with respect to the horizontal plane. Protect the installation from heavy rain and sun. The machine protection degree (IP 23) is effective against water that falls down in a direction forming an angle up to 60° with the vertical line.

5.2 ELECTRIC CONNECTION TO THE SUPPLY MAINS

The equipment is provided with a single electric connection with a 2m cable positioned in the rear part of the power source.
Size table of the power source input cables and fuses:

Power source	GENESIS 30
Rated voltage	230 V \pm 15%
Voltage range	195.5 - 264.5 V
Delayed fuses*	16 A 250 V
Power supply cable	3x2.5 mm ²

*: Fuses with a 20A rating are required to make maximum use of the potential of the power source.



The electrical system must be made by skilled technicians with the specific professional and technical qualifications and in compliance with the regulations in force in the country where the equipment is installed.



The welding power source supply cable is provided with a yellow/green wire that must ALWAYS be earthed. This yellow/green wire must NEVER be used with other voltage conductors.

* **Verify the existence of the earthing in the used plant and the good condition of the socket/s**

* **Install only plugs that are homologated according to the safety regulations.**

5.3 CONNECTING THE EQUIPMENT COMPONENTS



Keep to the safety regulations contained in section 1.0 WARNINGS-PRECAUTIONS-GENERAL ADVICE.



Connect the component carefully, in order to avoid power losses.

5.4 SETTING UP

To set up the plant, follow these instructions:

- Place the generator in a dry, clean place with suitable ventilation.
- Connect up the compressed air supply with a 1/4 inch to the air inlet P1 in the filter unit F (Fig.2). The pressure must ensure at least 5 bars with a flow rate of at least 100 litres a minute.
- Position the earthing clamp onto the piece to be cut, ensuring that it makes a good electric connection (Fig. 3).
- Check that all the components of the torch are present and correctly fitted.
- Switch on the system, ensuring the LED's are working correctly.
If torch components are missing or have been assembled incorrectly, or the compressed air pressure is too low, or entirely lacking, leds L3 and L4 in figure 1 come on respectively to display the fault. The generator is shut down until the fault is put right. Press the gas test pushbutton (T1 in Fig 1) in order to remove residual impurities from the compressed air circuit, then lift and turn the knob to adjust the pressure (F1 Fig.2) until the manometer M1 shows a pressure reading of about 5 bars (carry out the operation keeping the gas test button pressed down, so as to make the adjustment with air circulating in the piping).
- Set the value of the cutting current with the potentiometer, keeping in mind the thickness to be dealt with.
- Press for a moment the torch button so as to generate the pilot arc; release the control, checking the machine is correctly operating with the display panel. It is advisable not to keep the arc lit to no purpose without making contact, so as to prevent wear on the electrode and the nozzle. If you continue to use it like this the apparatus itself will turn off the pilot light after about 6 seconds.

In the case where a fault is found during the above phases, check the display LED's, and if necessary consult the chapter "Possible electrical faults" in the manual.

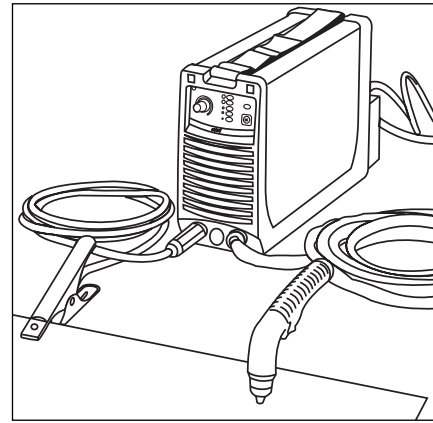


Fig. 3

6.0 PROBLEMS - CAUSES

6.1 POSSIBLE CUTTING DEFECTS

DEFECT	CAUSE
Insufficient penetration	- Cutting speed too high - Current set too low - Earth clamp with inefficient contact - Thickness of piece excessive
The cutting arc goes out	- Electrode, nozzle or diffuser worn - Air pressure too high - Cutting speed too low - Insufficient air flow - Defective pressure switch - Supply voltage too low
Substantial burr formation	- Inadequate air pressure - Cutting speed too low - Nozzle eroded
Nozzle overheating	- Electrode eroded - Insufficient air quantity

6.2 POSSIBLE ELECTRICAL FAULTS

DEFECT	CAUSE
Apparatus fails to come on (Yellow LED L1 off)	- Incorrect mains supply
Pilot arc fails to ignite (with yellow LED L1 on)	- Break in the contacts of the torch button (check the connection of the torch attachment is working after having cut off the power supply)
Pilot arc fails to ignite (with yellow LED L1 and red LED L3 on)	- Torch parts subject to wear out of action - Air pressure too high - Possible problems in control circuits
Fails to transfer from pilot arc to cutting arc	- Possible problems in control circuits - Arc sensors faulty (board 15.14.261)
Lack of power output	- Protective devices triggered (see chapter on "Functions of controls") - Possible problems in control circuits

If you have any doubts or problems, do not hesitate to consult your nearest Selco technical service centre.

7.0 ROUTINE MAINTENANCE

Prevent metal powder from accumulating near the aeration fins and over them.



Disconnect the power supply before every operation!

Carry out the following periodic controls on the power source:

- * Clean the power source inside by means of low-pressure compressed air and soft bristle brushes.
- * Check the electric connections and all the connection cables.



For the maintenance or replacement of plasma torch components, and/or earth cables:

- * **Disconnect the power supply before every operation.**
- * **Check the temperature of the component and make sure that they are not overheated.**
- * **Always use gloves in compliance with the safety standards.**
- * **Use suitable spanners and tools.**
- * **For torch maintenance, keep carefully to the directions shown under instructions for use of the torch enclosed with this manual.**

Tighten the components with care, in order to avoid:

- heating;
- false contacts;
- gas leaks;
- mechanical damage.

Make sure that there is no dirt or metallic powder in the cooling pipes and in the contact joints.

8.0 THEORETICAL OUTLINE OF PLASMA CUTTING

A gas assumes the plasma state when it is brought to an extremely high temperature and ionizes wholly or partly, thus becoming electrically conductive.

Although the plasma exists in every electric arc, by the term "plasma arc" we refer specifically to a torch for welding or cutting that uses an electric arc, made to pass through the constricting neck of a suitable nozzle, to heat a gas coming out of this, so as to take it to the plasma state.

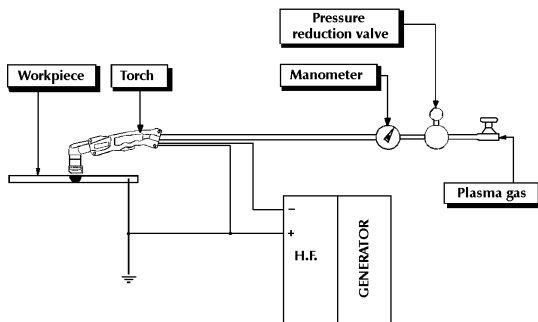


Fig. 4 Manual plasma cutting plant

8.1 Plasma cutting torch

Initially, for plasma cutting, a torch was used with a front end structure as in Fig.5 and two types of gas: a first one for the formation of the plasma (A) that passes between the electrode (1) and nozzle (2) and is forced to exit in an ionized form through the hole, and a second one (B), that acts to cool the torch and further thins out the dimensions of the plasma arc, which at its centre (C), easily manages to reach the temperature of 10.000°C.

With new types of torch and with medium-low power levels (processes that use less than 150A for cutting), today it is possible to use only compressed air as the cutting gas, as well as the cooling gas: the complete process thus becomes much cheaper (Fig.6).

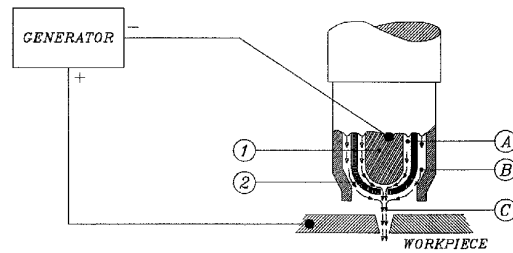


Fig. 5 Functional diagram of a first-generation torch

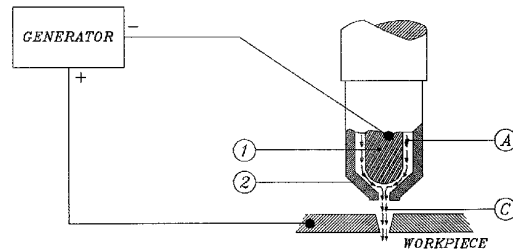


Fig. 6 Functional diagram of an up-to-date torch for small and medium power

8.1.1 Plasma cutting process

The cutting action is obtained when the plasma arc, made very hot and highly concentrated by the design of the torch, transfers onto the conductive piece to be cut, closing the electrical circuit with the generator. The material is first melted at a high temperature of the arc, and then removed by the high exit velocity of the ionized gas from the nozzle. The arc can have two different states: that of the transferred arc, when the current passes through the piece to be cut, that of the pilot arc or non-transferred arc, when this is sustained between the electrode and the nozzle.

8.1.2 Characteristics of a generator for plasma cutting

A generator for plasma cutting carries out the following operations:

- ignites the pilot arc (for this you can use either a discharge of high frequency between electrode and nozzle, or special torches with retractable electrode);
- supplies the current and voltage to the pilot arc necessary to sustain it;
- checks the transition from the pilot arc to the cutting arc;
- supplies the current required for cutting to the cutting arc;
- oversees all the operations and suitably controls the air valve and alarms.

The piece to be cut is connected to the positive pole of the cutting circuit, as is the nozzle, while the electrode is connected to the negative pole.

The above-mentioned process allows cutting of all conductive materials, and thus also the non-ferrous metals for which cutting by an oxy-acetylene process is impossible.

9.0 CUTTING SPECIFICATIONS

In plasma cutting, the thickness of the material to be cut, the speed of cutting and the current supplied by the generator have values which are related to each other; these depend on the type and quality of the material, type of torch as well as the type and condition of the electrode and nozzle, distance between nozzle and piece, pressure and impurity of the compressed air, cut quality required, temperature of the piece to be cut, etc.

In the diagrams as in Fig.7 and Fig.8, we can see that the thickness to be cut is inversely proportional to the cutting speed, and that both these values can be increased with an increase in current.

10.0 NOMINAL DATA

MILD STEEL

Thickness (mm)	Current (A)	Times (mm/min)
1	20	4500*
2	20	1550
3	20	1000
1	30	9600*
2	30	4500*
3	30	2200*
5	30	1800*
6.5	30	800
8	30	500
10	30	350






STAINLESS STEEL

Thickness (mm)	Current (A)	Times (mm/min)
1	20	3200*
2	20	1000
3	20	600
1	30	8700*
2	30	3200*
3	30	1800*
4	30	1200*
6.5	30	700
8	30	400

ALUMINIUM

Thickness (mm)	Current (A)	Times (mm/min)
1	20	4100*
2	20	1000
3	20	600
1	30	12000*
2	30	4000*
3	30	2400*
4	30	1500*
5	30	1300
6.5	30	850
8	30	700

* High quality cut

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Type GENESIS 30		N°	
		EN 60974-1 EN 50192	
20A/88V - 30A/92V			
	U ₀ V	X	60% 100%
	340	I ₂	30A 25A
		U ₂	92V 90V
	U ₁ V	I ₁	21.8A 17.5A
COOLING A.F.	230 50/60 Hz		3.35KW 2.64KW
I.C.L.	H IP 23	CE	

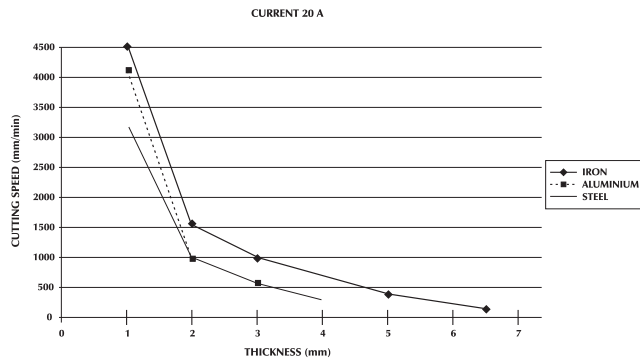


fig. 7

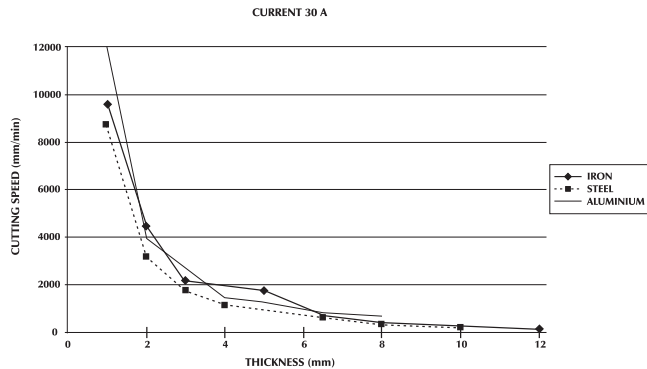


fig. 8

S30 TORCH

1.0 TECHNICAL DETAILS

Principle of operation	Pilot arc ignition without high frequency.
Version	Single air
Protection device	"External nozzle not screwed" signal
Current (x = 100%)	30A
Cutting voltage	90V
Pilot arc current	15A
Pilot arc voltage	120÷130V
Pressure	5 bars
Setting the pressure switch	≥ 3.5 bar
Air quantity	100 litres/min
Plasma gas capacity (suction with 0.8 hole)	10-12 litres/min

2.0 INSTALLATION



The generator is fitted with a welding torch. The instructions below refer to replacing a faulty torch and should be carried out only by qualified personnel.



Switch off the power source.

3.0 SETTING UP FOR USE

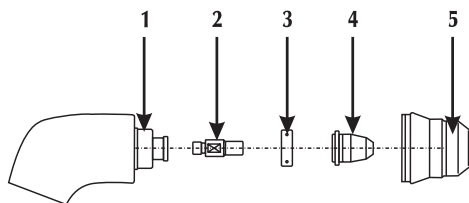


Fig.1 Assemblaggio corpo torcia

Before starting work, it is necessary to carry out the following checks and work:

- 1) Check that the generator is turned off.
- 2) Check that all the parts of the torch are working. For the various parts that make up the torch body (Fig.1), the sequence of correct assembly is 1-2-3-4-5.
- 3) To fit the electrode (No.2), use the key, taking care to avoid excessive tightening that could damage the thread of the components. The electrode must be unscrewed only after the post-cutting air flow is finished, and therefore with the electrode itself cooled.
- 4) Check that the air diffuser, or "swirl-bush" (No.3) is working correctly, which must always show access holes free of obstruction; the use of a defective air diffuser would cause overheating, with consequent damage to the components of the torch body.
- 5) With the spare parts assembled, check that by screwing the outer nozzle (No. 5) to the torch body the corresponding alarm on the generator is cut off; finally check that by unscrewing the nozzle the alarm is triggered; these checks should be carried out with the generator on, taking care not to press the torch button.
- 6) The compressed air used must be filtered and maintained at a high level of purity; humid air, oil and other contaminative agents must be removed, by making use of suitable driers and anti-oil filters. Thus the torch is set up for the cutting operation. In any case it is necessary to also follow what is shown in the instruction manual for the generator, above all in the paragraphs "General precautions", "Connecting up" and "Normal maintenance".

4.0 USING THE TORCH

4.1 Inclination and speed of the torch during cutting

The torch is generally held perpendicular to the workpiece during all the cutting phases; obviously, whenever it is required to carry out chamfering or inclined cutting, the torch must be tilted to a suitable inclination.

The speed must be adjusted so that the outflow of the arc below the workpiece is perpendicular (5-10 degrees of slope are acceptable).



A slow speed start is advisable to prevent spray of material which could damage the tip.

4.1.1 Puncturing

In some cases it is necessary to puncture a hole in the material using plasma cutting. In this way, the wear on the parts which are subject to deterioration will be increased, and it becomes very important to try to work to avoid the return of spray, which can be dangerous, especially with sheet metal over 5 mm. thick.



We suggest starting with the torch inclined sideways, so as to point the spray outside the cutting area, avoiding damage and overheating of the torch body.



Immediately remove any material accumulated on the tip or on the ceramic hood.



Caution: plasma cutting is a process with a high thermal element, which takes both the piece to be cut and the end parts of the torch to extremely high temperatures.

4.1.2 Circular cutting

For the preparation of flanges and opening holes, it is possible to use a pair of compasses, equipped with rotating heads and movement on wheels.

4.1.3 Practical advice

We advise igniting the pilot arc away from the workpiece, and then moving near until the cutting arc is struck; striking a cutting arc repeatedly and directly by contact with the workpiece creates an increase in temperature of the torch body.



Avoid turning off the generator before the end of the post-cut cooling flow, to avoid overheating of the components of the torch.

5.0 MAINTENANCE AND INSPECTION

With the S30 torch, the ignition of the pilot arc takes place by pneumatic distancing of the electrode from the tip; during the operation, oxidized areas are created on the two components, that can give ignition problems.

The efficiency of the electrode is therefore not only determined by the cutting time, but also by the number of starts of the pilot arc that are made.

It is advisable to replace the electrode before the tungsten insert in the point is completely worn out.

The tip has an average life similar to that of an electrode, and is replaced when an irregular hole is present which is larger than the nominal one (this can cause slanted cuts of poor quality).

Electrode and tip are replaced simultaneously to prolong their active life. Working with electrode and tip which are too spoiled can cause damage to the torch body.

It is important to pay special attention to the fitting of the electrode and tip in order not to irreparably damage the torch.



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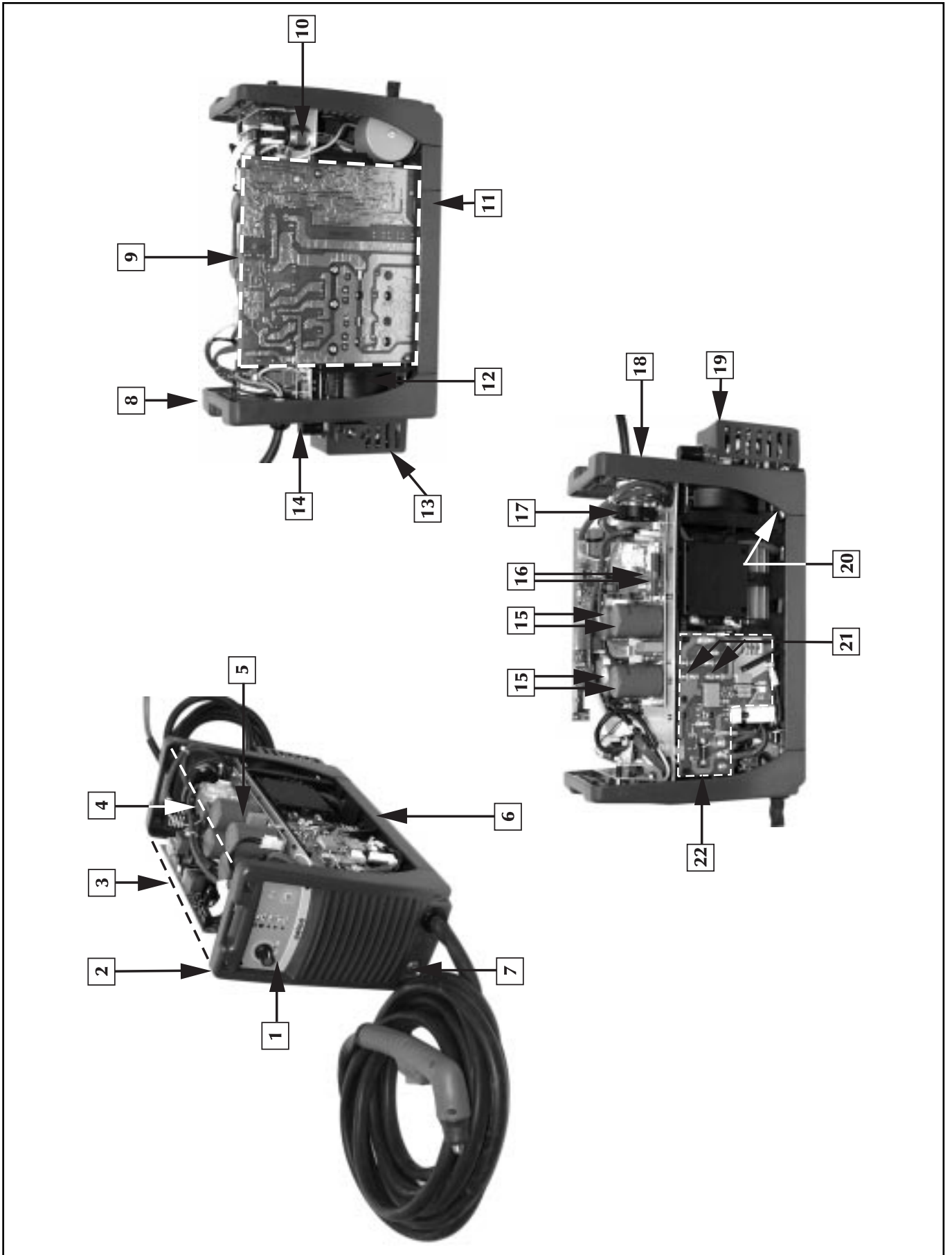
SPARE PARTS TABLES

ERSATZTEILTAFELN

VUES DES PIÈCES DÉTACHÉES

TABLAS DES REPUESTOS

Genesis 30



ITALIANO

POS.DESCRIZIONE	CODICE
1 Pannello comandi FP120	15.22.120
2 Pannello plastico frontale	01.04.25610
3 Cofano serigrafato	03.07.058
4 Varistore	11.26.001
5 Scheda ingresso	15.14.225
6 Fondo plastico	06.37.097
7 Presa fissa 25mm2	10.13.010
8 Pannello posteriore	01.04.257
9 Kit scheda logica-potenza	15.18.016
10 Pressostato	09.08.003
11 Fondo plastico asportabile	06.37.093
12 Ventilatore	07.10.016
13 Supporto per filtro	01.14.22601
14 Filtro regolatore	24.02.011
15 Condensatore elettrolitico	12.06.101
16 Ponte diodi	14.10.150
17 Interruttore	09.01.005
18 Manopola	09.11.009
19 Manometro	24.02.004
20 Elettrovalvola	09.05.004
21 Diodo	14.05.079
22 Kit scheda arco pilota	15.18.015
23 Cinghia	21.06.004

ENGLISH

POS.DESCRPTION	CODE
1 Control panel FP120	15.22.120
2 Plastic front panel	01.04.25610
3 Silk-screen panel	03.07.058
4 Varistor	11.26.001
5 Inlet board	15.14.225
6 Bottom	06.37.097
7 Fixed socket 25mm2	10.13.010
8 Back panel	01.04.257
9 Logic-power board Kit	15.18.016
10 Pressure switch	09.08.003
11 Moving bottom	06.37.093
12 Fan	07.10.016
13 Filter holder	01.14.22601
14 Filter regulator	24.02.011
15 Condenser	12.06.101
16 Diode jumper	14.10.150
17 Switch	09.01.005
18 Knob	09.11.009
19 Manometer	24.02.004
20 Solenoid valve	09.05.004
21 Diode	14.05.079
22 Pilot arc p.c. board kit	15.18.015
23 Belt	21.06.004

DEUTSCH

POS.BESCHREIBUNG	CODE
1 Bediennungsfeld FP120	15.22.120
2 Stirnseitiges Plastikpaneel	01.04.25610
3 Siebdruck seitenteil	03.07.058
4 Varistor	11.26.001
5 Eingangsplatine	15.14.225
6 Bodenteil	06.37.097
7 Fixen Griff 25mm2	10.13.010
8 Hinterteil	01.04.257
9 Kit logik/Leistungskarte	15.18.016
10 Druckschalter	09.08.003
11 Abnehmbares bodenteil	06.37.093
12 Ventilator	07.10.016
13 Filter-holder	01.14.22601
14 Filterregler	24.02.011
15 Kondensator	12.06.101
16 Diodenbrüche	14.10.150
17 Schalter	09.01.005
18 Ballengriff	09.11.009
19 Manometer	24.02.004
20 Elektroventil	09.05.004
21 Diode	14.05.079
22 Kit Platine arc pilote	15.18.015
23 Riemen	21.06.004

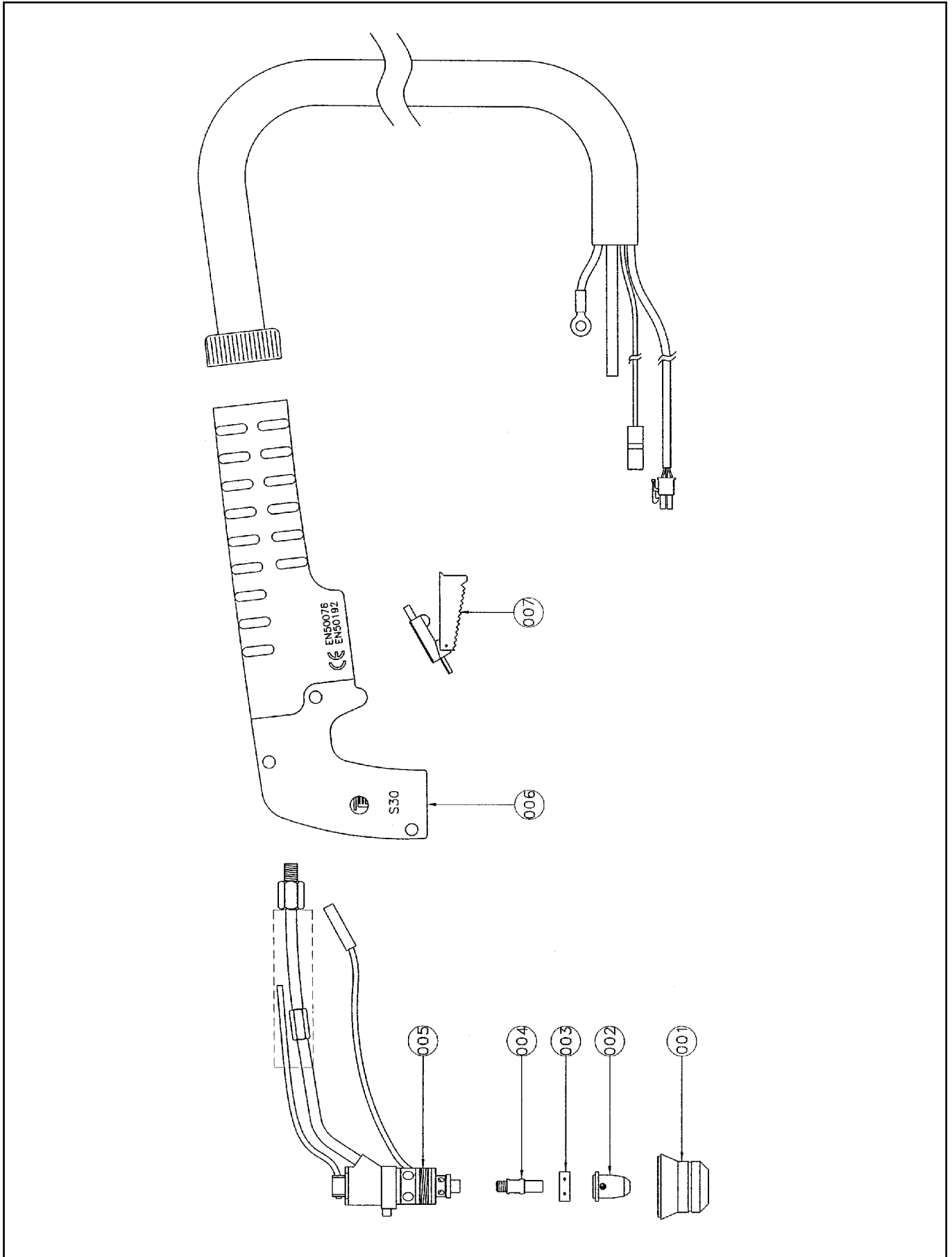
FRANÇAIS

POS. DESCRIPTION	CODE
1 Panneau de reglage FP120	15.22.120
2 Panneau avant plastique	01.04.25610
3 Panneau avec serigraphie	03.07.058
4 Varistance	11.26.001
5 Platine entree	15.14.225
6 Fond	06.37.097
7 Prise inamovible 25mm2	10.13.010
8 Panneau arriere	01.04.257
9 Kit carte logique-puissance	15.18.016
10 Pressostat	09.08.003
11 Fond amovible	06.37.093
12 Ventilateur	07.10.016
13 Supporto filtre	01.14.22601
14 Filtre regulateur	24.02.011
15 Condensateur	12.06.101
16 Pontet diodes	14.10.150
17 Interrupteur	09.01.005
18 Bouton	09.11.009
19 Manometre	24.02.004
20 Soupape electrique	09.05.004
21 Diode	14.05.079
22 Kit Pilotbogenplatine	15.18.015
23 Courroie	21.06.004

ESPAÑOL

POS.DESCRIPCION	CODIGO
1 Panel de control FP120	15.22.120
2 Panel frontal plástico	01.04.25610
3 Panel con serigrafia	03.07.058
4 Varistor	11.26.001
5 Tarjeta ingreso	15.14.225
6 Fondo	06.37.097
7 Enchufe fijo 25mm2	10.13.010
8 Panel posterior	01.04.257
9 Kit tarjeta potencia-logica	15.18.016
10 Presostato	09.08.003
11 Fondo movable	06.37.093
12 Ventilador	07.10.016
13 Soporte filtro	01.14.22601
14 Filtro regulador	24.02.011
15 Condensador	12.06.101
16 Puente diodos	14.10.150
17 Interruptor	09.01.005
18 Botón	09.11.009
19 Manometro	24.02.004
20 Electrovalvula	09.05.004
21 Diodo	14.05.079
22 Kit tarjeta arco piloto	15.18.015
23 Correa	21.06.004





ITALIANO

POS.DESCRIZIONE	CODICE
000 Torcia plasma S30 PA0148 6mt.	82.20.038
001 Ugello PC0116	82.23.097
002 Ugello cappa media	82.23.061
003 Diffusore aria	82.23.085
004 Elettrodo medio	82.23.059
005 Corpo torcia	82.23.020
006 Impugnatura completa	82.23.135
007 Pulsante S30	82.23.146

ENGLISH

POS.DESCRPTION	CODE
000 Plasma torch S30 PA0148 6mt.	82.20.038
001 Nozzle PC0116	82.23.097
002 Nozzle	82.23.061
003 Nozzle	82.23.085
004 Medium electrode	82.23.059
005 Body	82.23.020
006 Handgrip	82.23.135
007 Push button S30	82.23.146

DEUTSCH

POS.BESCHREIBUNG	CODE
000 Plasma-brenner S30 PA0148 6mt.	82.20.038
001 Duese PC0116	82.23.097
002 Duese	82.23.061
003 Duese	82.23.085
004 Elektrode medio	82.23.059
005 Koerper	82.23.020
006 Griff	82.23.135
007 Druckknopf S30	82.23.146

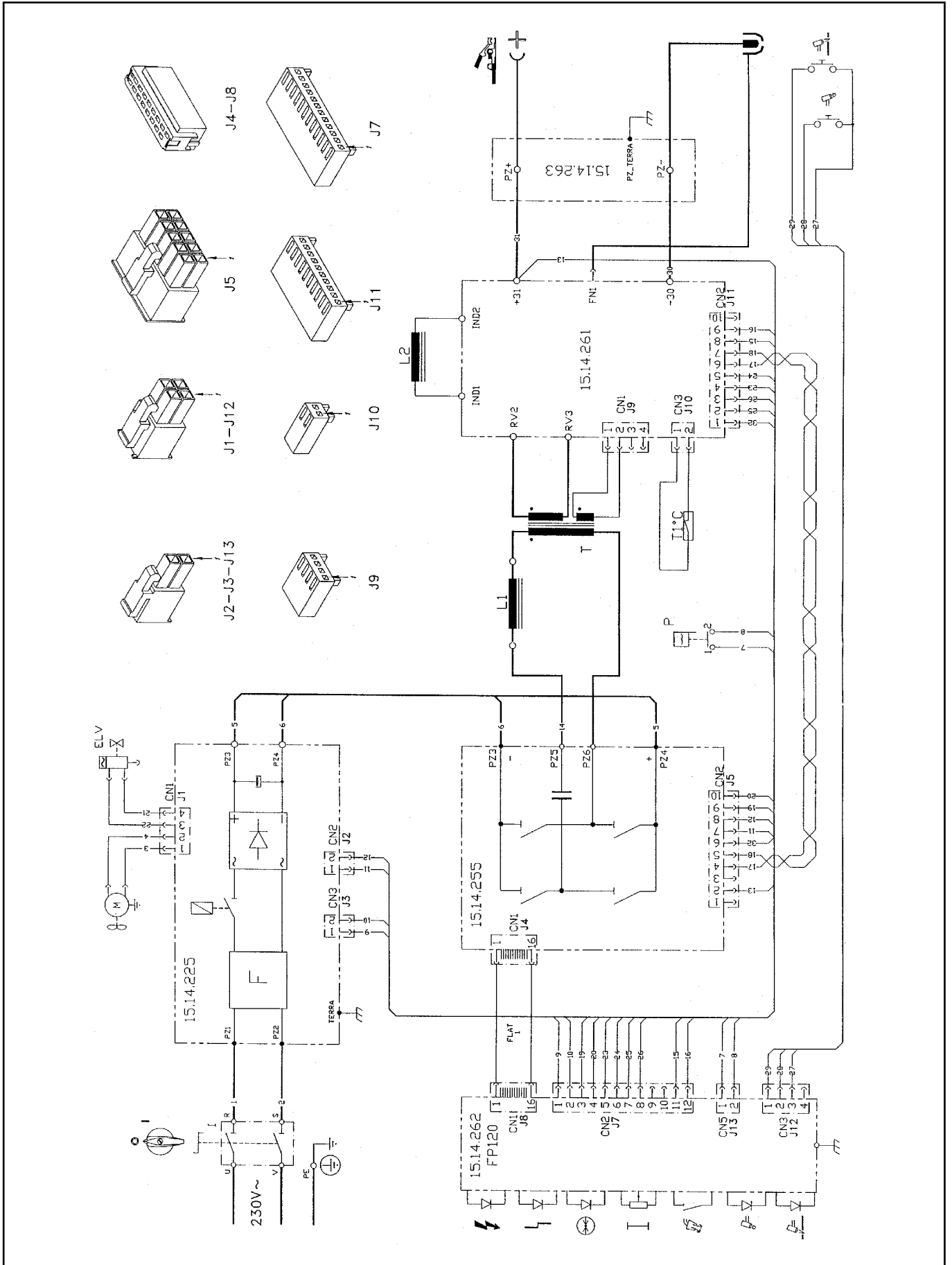
FRANÇAIS

POS. DESCRIPTION	CODE
000 Torche plasma S30 PA0148 6mt.	82.20.038
001 Injecteur PC0116	82.23.097
002 Injecteur	82.23.061
003 Injecteur	82.23.085
004 Electrode medio	82.23.059
005 Corps	82.23.020
006 Poignee	82.23.135
007 Bouton poussoir S30	82.23.146

ESPAÑOL

POS.DESCRIPCION	CODIGO
000 Antorcha plasma S30 PA0148 6mt.	82.20.038
001 Inyector PC0116	82.23.097
002 Inyector	82.23.061
003 Inyector	82.23.085
004 Electrodo medio	82.23.059
005 Cuerpo	82.23.020
006 Empunadura	82.23.135
007 Pulsador S30	82.23.146





DICHIARAZIONE DI CONFORMITÀ
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KONFORMITÄTSERKLÄRUNG
DECLARATION DE CONFORMITE
DECLARACIÓN DE CONFORMIDAD

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declara que el aparato tipo

Genesis 30 S/N.....

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conforms to the standards:
den folgenden Richtlinien entspricht:
est conforme aux directives:
es conforme a las directivas:

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89/336/CEE
92/31/CEE
93/68/CEE

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and that the regulations have been duly applied:
und daß folgende Normen angewendet wurden:
et que les normes ci-contre ont été appliquées:
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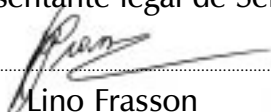
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Selco's legal representative
Rechtlicher Vertreter von Selco
Représentant légal Selco
Representante legal de Selco


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Lino Frasson