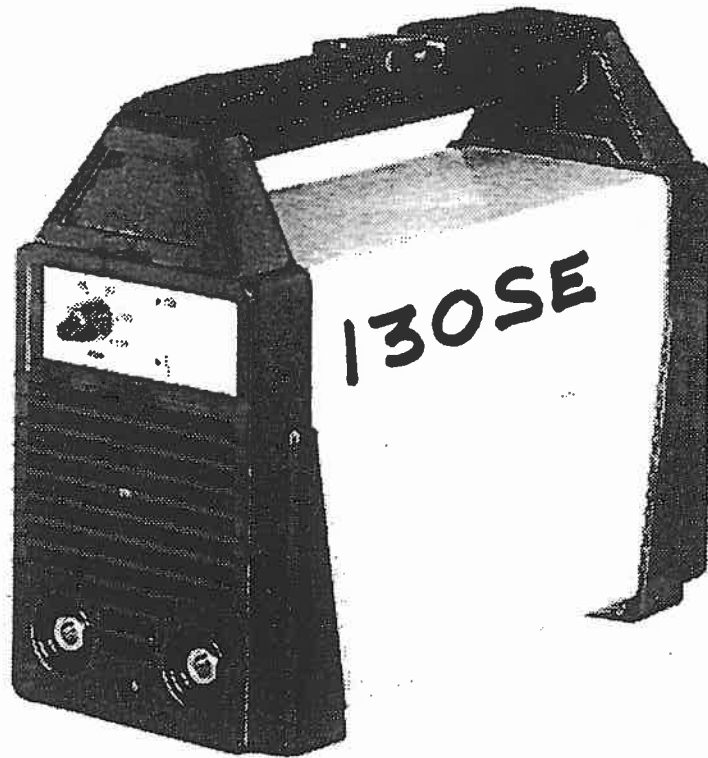


 **PowCon**



- PORTABLE CONSTANT CURRENT DC INVERTER -

OWNER'S MANUAL

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Read this manual completely before using the equipment. If you have any questions regarding equipment installation and use, contact the Manufacturer (After-sales assistance office). Carefully follow these instructions to ensure safe operation.

IMPORTANT

The use of welding equipment and welding itself involves potential hazards. It is essential for the operator to read, be familiar with and observe the safety precautions given below. Read and understand this entire instruction manual and your employer's safety practices before installing, operating, transporting, or servicing the equipment.

1.0 IMPORTANT SAFETY PRECAUTIONS

WARNING Operation and maintenance of arc welding equipment involves potential hazards. Operators and all others in the operating area should be alerted to possible hazards, and precautions should be taken to prevent possible injury.

- ▲ Read these safety precautions and the entire instruction manual before operating.
- ▲ Do not use this power supply to thaw frozen water pipes.
- ▲ This equipment must be installed, operated, and serviced by qualified personnel only.



GASES AND FUMES

produced during arc welding can be dangerous and hazardous to your health.

Keep all fumes and gases from the breathing area.

Different arc welding processes, electrodes, and fluxes can produce different fumes, gases and radiation levels. Consult Material Safety Data Sheets (MSDS's) and manufacturer's instructions for specific technical data and precautionary measures for all fluxes, electrodes, and materials used.

Severe discomfort, illness or death can result from fumes, vapors, heat, or oxygen enrichment or depletion that welding (or cutting) may produce. Ventilation must be adequate to remove gases and fumes during operation as described in ANSI Standard Z49.1.

Use a downdraft table or water table to capture fumes and gases.

Use an air-supplied respirator if ventilation is not adequate to remove all fumes and gases.

When working in confined spaces provide adequate ventilation or wear an air-supplied respirator if necessary.

Gas leaks in a confined space should be avoided. Leaked gas in large quantities can change oxygen concentration dangerously. Do not bring gas cylinders into a confined space.

When leaving confined space, shut off gas supply at source to prevent possible accumulation of gases if downstream valves are accidentally opened. Check that area is safe before re-entering.

Materials containing lead, cadmium, zinc, mercury, beryllium, and similar materials may produce harmful concentrations of toxic fumes when welded or cut. Adequate local exhaust ventilation must be used, or operators and others in the operating area must wear an air-supplied respirator. For beryllium, both must be used.

Metals coated with or containing materials that emit toxic fumes should not be heated unless coating is removed from work surface and work area is well ventilated. Wear an air-supplied respirator if necessary.



Vapors from chlorinated solvents can be decomposed by the heat of the arc or flame to form phosgene, a highly toxic gas, and other lung and eye irritating products. The ultraviolet radiant energy of the arc can also decompose trichloroethylene and perchloroethylene vapors to form phosgene. Do not weld or cut where solvent vapors may be drawn into the welding or cutting atmosphere or where radiant energy may penetrate to atmospheres containing even minute amounts of trichloroethylene or perchloroethylene. Solvents, degreasers, and potential sources of these vapors must be removed from the operating area.

Oil or grease in the presence of oxygen may ignite and burn violently. Keep cylinders, valves, couplings, regulators, hoses, and other apparatus clean and free from oil and grease. Oxygen cylinders and apparatus should not be handled with oily hands or gloves. Do not allow an oxygen stream to contact oily or greasy surfaces.

- ▲ Do not use oxygen as a substitute for compressed air.
- ▲ NEVER ventilate with oxygen.
- ▲ Generator engine exhaust must be vented to the outside air.
- ▲ Carbon monoxide can kill.



ARC RAYS can injure eyes and burn skin.

Never look at an electric arc without protection. Protect eyes from exposure to arc. Looking at an arc momentarily with unprotected eyes (particularly a high intensity gas-shielded arc) can cause permanent damage to vision.

Use a welding helmet or shield with proper filter (see chart on page 4). Place over face before striking arc.

Protect filter plate with a clear cover plate.

Do not use cracked or broken helmet or shield; radiation can pass through to cause burns.

Replace any cracked, broken or loose filter plates immediately. Replace clear cover plate when broken, pitted, or spattered.

Flash goggles with side shields must be worn under helmet to protect eyes in case helmet is not in position before arc is struck.

Wear proper protective clothing. Arc rays can penetrate lightweight clothing. Welding arc rays can reflect from

light-colored surfaces.

Make sure others in the operating area are protected from arc rays.

For production welding, use separate room or enclosed bay. In open areas, surround operation with low reflective non-combustible screens or panels. Make sure that screen flaps or bay doors are closed before welding. Allow for free air circulation, particularly at floor level.

Provide face shields for all others viewing the weld.

Make sure others in the operating area are wearing flash goggles.

Welding or Cutting Operation	Electrode Size Metal Thickness or Welding Current	Filter Shade Number
Torch soldering	-	2
Torch brazing	-	3 or 4
Oxygen Cutting		
Light	Under 1 in (25 mm)	3 or 4
Medium	1-6 in (25-150 mm)	4 or 5
Heavy	Over 6 in (150 mm)	5 or 6
Gas welding		
Light	Under 1/8 in (3 mm)	4 or 5
Medium	1/8-1/2 in (3-12 mm)	5 or 6
Heavy	Over 1/2 in (12 mm)	6 or 8
Shielded metal arc welding (stick) electrodes		
Light	Under 5/32 in (4mm)	10
Medium	5/32-1/4 in (4-6.4 mm)	12
Heavy	Over 1/4 in (6.4 mm)	14
Gas metal arc welding (MIG)		
Non-ferrous base metal	All	11
Ferrous base metal	All	12
Gas tungsten arc welding (TIG)	All	12
Atomic hydrogen welding	All	12
Carbon arc welding	All	12
Plasma arc welding	All	12
Carbon arc air gouging		
Light	-	12
Heavy	-	14
Plasma arc cutting		
Light	Under 300 amps	9
Medium	300-400 amps	12
Heavy	Over 400 amps	14

Recommended Eye Protection for Welding and Cutting
(Based on AWS A6.2-73)



ELECTRIC SHOCK can kill.

Do not contact electrically live parts.

Install equipment according to safety precautions, instruction manual, and all applicable codes.

Keep all panels, covers, and guards in place. Disconnect all primary power before installing or servicing this equipment.

Insulate operator and others from work and ground.

Replace any cracked or damaged insulating parts.

Shut down welding power source before touching electrode, wire drive assembly, welding wire, wire reel or any metal parts in contact with the welding wire.

Exposed hot conductors or other bare metal in the welding circuit or in ungrounded, electrically hot equipment can cause potentially fatal electric shock. Do not contact a wet surface when welding without suitable protection.

Wear dry insulating gloves and body protection. Keep body and clothing dry. Never work in damp area without adequate insulation against electrical shock. Stay on a dry duckboard, or rubber mat when dampness or sweat cannot be avoided. Sweat, seawater, or moisture between body and an electrically hot part or grounded metal reduces electrical resistance and could cause potentially fatal electric shock.

A voltage will exist between the electrode and any conducting object in the work circuit. Examples of conducting objects include, but are not limited to, buildings, electrical tools, work benches, welding power source cases, workpieces, etc. Never touch electrode to any metal object unless the welding power source is off.

Arc welding equipment must be grounded according to the National Electrical Code, and the work must be grounded according to ANSI Z49.1 "Safety in Welding and Cutting."

When installing, connect the frames of each unit such as welding power source, control, work table and water circulator to the building ground. Conductors must be adequate to carry ground currents safely. Equipment made electrically hot by stray current may cause potentially fatal electric shock. Do not ground to electrical conduit or to pipe carrying any gas or flammable liquid such as oil or fuel.

Check phase requirements before installing. If only three-phase power is available, connect single-phase equipment to only two wires of the three-phase line. Do not connect the equipment ground lead to the third (live) wire, or the equipment will become electrically hot - a dangerous condition that may cause potentially fatal electric shock.

Before welding, check ground for continuity. Be sure conductors are touching bare metal of equipment frames at connections.

If a line cord with a ground lead is provided with the equipment for connection to a switchbox, connect the ground lead to the grounded switchbox. If a three-prong plug is added for connection to a grounded mating receptacle, the ground lead must be connected to the ground prong only. If the line cord comes with a three-prong plug, connect to a grounded mating receptacle.

Never remove the ground prong from a plug, or use a plug with a broken off ground plug.

Fully insulated electrode holders should be used. Do not use holders with protruding screws.

Fully insulated lock-type connectors should be used to join welding cable lengths.

Frequently inspect cables for wear, cracks and damage. Replace those with excessively worn or damaged insulation to avoid potentially fatal electric shock from bared cable. Cables with damaged areas may be taped to give resistance equivalent to original cable.

Keep cables dry, free of oil and grease, and protected from hot metal and sparks.

Terminals and other exposed parts of electrical units should have insulating covers secured before operation.

Electrode

For equipment with output ON/OFF control (contactor): Welding power sources for use with gas metal arc welding (GMAW), gas tungsten arc welding (GTAW) and similar processes normally are equipped with devices that permit ON-OFF control of the welding power output. When so equipped the electrode wire becomes electrically hot when the power source switch is ON and welding gun switch is closed. Never touch electrode wire or any conducting object in contact with electrode circuit unless the welding power source is OFF.

For equipment without output ON/OFF control (no contactor): Welding power sources used with shielded metal arc welding (SMAW) and similar processes may not be equipped with welding power output ON-OFF control devices. With such equipment the electrode is electrically hot when the power switch is turned ON. Never touch the electrode unless the welding power source is off.

Safety devices such as interlocks and circuit breakers should never be disconnected or shunted out.

Before installing, inspecting, or servicing equipment, disconnect primary power and remove line fuses (or lock or red-tag switches) to prevent accidental electric shock. Disconnect all cables from welding power source and pull all 115V line-cord plugs.

Do not open power circuit or change polarity while welding. If it must be disconnected in an emergency, guard against shock burns and flash from switch arcing.

Always shut off and disconnect all primary power when leaving equipment unattended.

Primary power disconnect switch must be available near the welding power source.



FIRE AND EXPLOSION can be caused by hot slag, spatter, sparks, extreme heat, misuse of compressed gases and cylinders, and electrical short circuits.

Remove all combustibles from working area or provide a fire watch. Avoid paint spray rooms, dip tanks, storage areas, ventilators. Move work to an area free of combustibles if possible. If work cannot be moved, move combusti-

bles at least 35 ft (10.7 m) away from sparks and heat or protect against ignition with suitable and snug-fitting, fire-resistant covers or shields.

Walls having combustibles on opposite sides should not be welded on or cut. Walls, ceilings, and floor near work should be protected by heat-resistant covers or shields.

A fire watch with suitable fire extinguishing equipment must be provided during and after welding or cutting if combustibles (including building construction) are within 35 ft (10.7 m), if combustibles are further than 35 ft but may be ignited by flying sparks, or if openings (concealed or visible) in floors or walls within 35 ft may expose combustibles to sparks.

Combustibles adjacent to walls, ceilings, roofs, or metal partitions can be ignited by radiant or conducted heat.

A hot work permit should be obtained before operation to ensure supervisor's approval that adequate precautions have been taken.

Do not weld or cut an empty container that has held combustibles, or that can produce flammable or toxic vapors when heated, unless container has first been cleaned as described in AWS Standard A6.0. This includes a thorough steam or caustic cleaning (or a solvent or water washing, depending on the combustible's solubility) followed by purging and inerting with nitrogen or carbon dioxide, and using protective equipment as recommended in A6.0. Waterfilling just below working level may substitute for inerting.

A container with unknown contents should be cleaned (see preceding paragraph). Do not depend on smell or sight to determine if it is safe to weld or cut.

Hollow castings or containers must be vented before welding or cutting to prevent explosion.

Never weld or cut in potentially explosive atmospheres containing flammable dust, gas, or liquid vapor (such as gasoline).

Do not mount this equipment over combustible surfaces.

Flying sparks or falling slag can fly up to 35 ft (10.7 m) and pass through cracks, along pipes, through windows or doors, and through wall or floor openings, out of sight of the operator.

Keep equipment clean and operable, free of oil, grease, and metallic particles that can cause short circuits in electrical parts.

Overloading arc welding equipment beyond rated capacity may overheat cables and cause fire.

Loose cable connections may overheat or flash and cause fire.

Never strike an arc on a cylinder or other pressure vessel. It creates a brittle area that can cause a violent rupture or

lead to rupture under rough handling.

After work is done, check that area is free of sparks, glowing embers, and flames.

Burn Prevention - Wear protective clothing including gauntlet welding gloves, hat, and high safety toe shoes. Button shirt collar to protect chest and neck, button pocket flaps, and wear cuffless trousers to avoid entry of sparks and slag. Wear dark colored, substantial long-sleeve clothing (particularly for gas-shielded arc). As necessary, use additional protective clothing such as leather jacket or sleeves, flame-proof apron, and fire-resistant leggings. Avoid outer garments of untreated cotton.

Wear helmet with safety goggles and glasses with side shields underneath, appropriate filter lenses or plates (protected by clear cover glass) for welding or cutting (and chipping) to protect the eyes from radiant energy and flying metal. Replace cover glass when broken, pitted, or spattered.

Avoid oily or greasy clothing which may be ignited by sparks.

Do not handle hot metal such as electrode stubs and workpieces without gloves.

Medical first aid and eye treatment facilities and personnel should be available for each shift unless medical facilities are close by for immediate treatment of flash burns of the eyes and skin burns.

Flammable hair preparations should not be used by persons intending to weld or cut.

Allow work and equipment to cool before handling.

NOISE can cause permanent hearing loss.



Wear proper protective ear muffs or plugs. Make sure others in the operating area are protected from noise.



High Pressure Gas Cylinders

Comply with the precautions in this manual and those detailed in CGA Standard P-1, SAFE HANDLING OF COMPRESSED

GASES IN CYLINDERS.

Pressure Regulators:

Regulator relief valve is designed to protect only the regulator from overpressure and not intended to protect any downstream equipment. Provide such protection with one or more relief devices.

Never connect a regulator to a cylinder containing gas other than that for which the regulator was designed.

Remove faulty regulator from service immediately for repair (first close cylinder valve) if gas leaks externally, if delivery pressure continues to rise with downstream valve closed, or if gauge pointer does not move off stop pin

when pressurized, not returns to stop pin after pressure release.

Do not attempt to repair faulty regulators. Send to manufacturer's authorized repair center where special techniques and tools are used by trained personnel.

Cylinders must be handled carefully to prevent leaks and damage to walls, valves, or safety devices.

Contact with electrical circuits including third rails, electrical wires, or welding circuits can product short circuit arcs that may lead to a serious accident.

ICC or DOT markings must be on each cylinder as an assurance of safety when the cylinder is properly handled.

Use only cylinders with name of gas clearly marked on them; do not rely on color to identify gas content. Notify supplier if unmarked. Never deface or alter name, number or other markings on a cylinder.

Keep valves closed on empty cylinders, replace caps securely, mark MT, keep separate from full cylinders and return promptly.

Never use a cylinder or contents for other than intended use.

Never use as a support or roller.

Locate or secure cylinders so they cannot be knocked over.

Keep cylinders clear of passageways and work areas where they may be struck.

To transport cylinders with a crane, use a secure support such as a platform or cradle. Do not lift cylinders by valves or caps, or by chains, slings, or magnets.

Do not expose cylinders to excessive heat, sparks, slag, or flame which may cause rupture. Do not allow contents to exceed 1300°F. Cool with water spray where such exposure exists.

Protect cylinders and valves from bumps, falls, falling objects, and weather. Replace caps securely when moving cylinders.

Do not use hammer or wrench to open a cylinder lock valve which cannot be opened by hand. Notify supplier.

Never mix gases in a cylinder.

Never refill any cylinder.

Do not modify or exchange cylinder fittings.

Hose

Never use hose unless appropriate for specified gas. General hose identification is: red for fuel gas, green for oxygen, and black for inert gases.

Use ferrules or clamps designed for hose (not ordinary wire or other substitute) as a binding to connect hoses to fittings.

Do not use copper tubing splices. Use only standard brass fittings to splice hose.

Avoid long runs to prevent kinks and abuse. Coil excess hose to prevent kinks and tangles. Suspend hose off ground to protect from damage. Protect hose from damage by sharp edges, sparks, slag, excessive heat, and open flame.

Examine hose regularly for leaks, wear, and loose connections. Immerse pressured hose in soapy water; bubbles indicate leaks.

Repair leaky or worn hose by cutting area out and splicing. Do not tape.

Proper Connections

Keep cylinder valve outlet free of impurities which may clog orifices and damage seats before connecting regulator. Except for hydrogen, crack valve momentarily and point outlet away from people and sources of ignition. Wipe clean with a lintless cloth.

Match regulator to cylinder. Before connecting, check that regulator label and cylinder marking area match and that regulator inlet and cylinder outlet match. Never connect a regulator designed for one type of gas to a cylinder containing another gas.

When assembling threaded connections, clean and smooth seats where necessary before tightening. If connection leaks, disassemble, clean, and retighten using properly fitting wrench.

Use a CGA adapter (available from supplier) between cylinder and regulator, if required. Use two wrenches to tighten adapter marked RIGHT and LEFT HAND threads.

Regulator outlet (or hose) connections may be identified by right hand threads for oxygen and left hand threads (with grooved hex on nut or shank) for fuel gas.

Pressurizing Steps

Drain regulator of residual gas through suitable vent before opening cylinder (or manifold valve) by turning adjusting screw clockwise. Draining prevents excessive compression heat at high pressure seat by allowing seat to open on pressurization. Leave adjusting screw engaged slightly on single-stage regulators.

Do not stand in front of regulator while opening cylinder valve.

Open cylinder valve slowly so that regulator pressure increases slowly. When gauge is pressurized (gauge reaches regulator maximum) open cylinder valve fully to seal stem against possible leak when using oxygen and inert gases. For fuel gas, open less than one turn to permit quick emergency shutoff.

Use pressure charts (available from supplier) for safe and efficient, recommended pressure settings on regulators.

Check for leaks on first pressurization and regularly thereafter. Brush with soapy solution (one capful of liquid detergent per gallon of water); bubbles indicate leak. Clean off soapy water after test; dried soap is combustible.

Remove leaky or defective equipment immediately for repair.

Close gas supply at source and drain gas when leaving equipment unattended.

Do not use rope staging support for welding or cutting operation; rope may burn.

Electronic Life Support Devices (Pacemakers)

Magnetic fields from high currents can affect pacemaker operation. Persons wearing electronic life support equipment (pacemakers) should consult with doctor before going near arc welding, gouging, or spot welding operations.

Publications

Refer to the following standards or their latest revisions for more information:

1. ANSI Standard Z49.1, SAFETY IN WELDING AND CUTTING, obtainable from the American Welding Society, 550 N.W. LeJeune Rd, Miami FL 33126
2. NIOSH, SAFETY AND HEALTH IN ARC WELDING AND GAS WELDING AND CUTTING, obtainable from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402
3. OSHA, SAFETY AND HEALTH STANDARDS, 29CFR 1910, obtainable from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402
4. ANSI Standard Z87.1, SAFE PRACTICES FOR OCCUPATION AND EDUCATIONAL EYE AND FACE PROTECTION, obtainable from American National Standards Institute, 1430 Broadway, New York, NY 10018
5. ANSI Standard Z41.1, STANDARD FOR MEN'S SAFETY TOE FOOTWEAR, obtainable from the American National Standards Institute, 1430 Broadway, New York, NY 10018
6. ANSI Standard Z49.2, FIRE PREVENTION IN THE USE OF CUTTING AND WELDING PROCESSES, obtainable from American National Standards Institute, 1430 Broadway, New York, NY 10018
7. AWS Standard A6.0, WELDING AND CUTTING CONTAINERS WHICH HAVE HELD COMBUSTIBLES, obtainable from American Welding Society, 550 N.W. LeJeune Rd, Miami, FL 33126
8. NFPA Standard 51, OXYGEN-FUEL GAS SYSTEMS FOR WELDING, CUTTING AND ALLIED PROCESSES,

obtainable from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

9. NFPA Standard 70, NATIONAL ELECTRICAL CODE, obtainable from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

10. NFPA Standard 51B, CUTTING AND WELDING PROCESSES, obtainable from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

11. CGA Pamphlet P-1, SAFE HANDLING OF COMPRESSED GASES IN CYLINDERS, obtainable from the Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202

2. CSA Standard W117.2, CODE FOR SAFETY IN WELDING AND CUTTING, obtainable from the Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3

13. NWSA booklet, WELDING SAFETY BIBLIOGRAPHY obtainable from the National Welding Supply Association, 1900 Arch Street, Philadelphia, PA 19103

14. American Welding Society Standard AWSF4.1, RECOMMENDED SAFE PRACTICES FOR THE PREPARATION FOR WELDING AND CUTTING OF CONTAINERS AND PIPING THAT HAVE HELD HAZARDOUS SUBSTANCES, obtainable from the American Welding Society, 550 N.W. LeJeune Rd, Miami FL 33126

15. ANSI Standard Z88.2, PRACTICE FOR RESPIRATORY PROTECTION, obtainable from American National Standards Institute, 1430 Broadway, New York, NY 10018

1.1 INSTALLING THE EQUIPMENT

It is important to observe the following precautions:

Installation - maintenance: Safety

- The equipment must be installed and serviced in compliance with local safety regulations.

- Check the connection socket and plug wires for wear and replace if damaged. Periodically service the system. Use cables with a suitable cross-section.

- Connect the earth cable as near as possible to the work area. Earth clamps connected to structural parts of the building or points a long way from the work area reduce efficiency and increase the risk of electrical discharges. Do not run the cables through or position them near lifting chains, crane cables or other electrical lines.

Presence of water

- Never use the equipment in the presence of water. Ensure that the work area, all items in it and the equipment itself are dry. Repair any water leaks promptly. Do not spray the equipment with water or other liquids which could put safety at risk.

- Never allow live metal parts to come into direct contact

with your skin or wet clothing. Check that gloves and protective clothing are dry!

- Wear insulating gloves and shoes (with rubber soles) when working in damp conditions or when standing on metal surfaces.

Stopping work

- Switch the equipment off whenever you stop work and also in the event of a power failure. Accidental discharge to earth can cause overheating and the risk of fire. Do not leave the equipment unattended while running.

1.2 POSITIONING THE POWER SUPPLY

Positioning the equipment must be positioned in compliance with the following:

- The operator must have easy access to the controls and connections.

- Do not position the equipment in confined spaces; ventilation of the power supply is very important. Avoid very dusty or dirty places where dust or other material may be pulled in by the system.

- The equipment (including cables) must not obstruct the passage or work of other people in the area.

Falling - Overturning

- The power supply must be safely positioned so that it cannot fall or overturn.

- Whenever the equipment is positioned above ground level, unit falling is a potential hazard.

1.3 TRANSPORTING THE POWER SUPPLY

The equipment has been designed to be lifted and transported. Transport is simple but the following recommendations must be observed:

Method

- The power supply can be lifted and transported by means of the handle or a suitably sized rope or nylon sling.

- Disconnect the power supply and all attachments from the mains before lifting or moving.

- The equipment must not be lifted, dragged or pulled by the cables.

2.0 INTRODUCTION

The system consists of a modern direct current power supply for the welding of metals, developed via application of the inverter. This special technology allows for the construction of compact lightweight power supply with high performance. Its adjustability, efficiency and energy consumption make it an excellent work tool suitable for coated electrode SMAW and GTAW (TIG) welding.

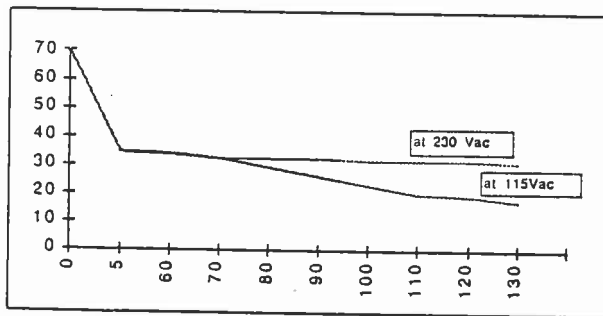
3.0 TECHNICAL SPECIFICATIONS

MODEL	130SE	
Input	115 and 230Vac	
Phase	1	
Max Input Draw at 115 Vac	33 A	
Max Input Draw at 230 Vac	25 A	
Current Range	5 - 130 A	
No Load Volt	70 V	
Rated Current	130 A	
Rated Duty Cycle	40%	
Protection Class	IP 23	
Insulation Class	H	
Dimensions	Height	8.4"
	Depth	14.3"
	Width	5.4"
	Weight	16.5 lbs

3.1 VOLT-AMPERE CURVES

RATED OUTPUT The volt-ampere curves show the voltage and amperage output capabilities of the welding power source. Curves of other settings will fall between the curves shown. With the use of the Volt-Ampere Curves, it is possible to determine the weld amperage at any particular load voltage.

Chart 3-1 Volt-Ampere curves



3.2 DUTY CYCLE

The duty cycle of a welding power source is the percentage of a ten minute period that a welding power source can be operated at a given output without causing overheating and shutdown of the unit. This model is rated at 40 percent duty cycle when operated at 90 amperes. This means that the unit can be operated at 90 amperes for four consecutive minutes, but it must operate at no load for the remaining six minutes to allow proper cooling. If the welding amperes decrease, the duty cycle increases. For 130 ampere is rated at 100 percent duty cycle when

operated at 80 amperes.

This means that the unit can be operated at rated load continuously. If the welding amperes are increased beyond rated output, the duty cycle will decrease.

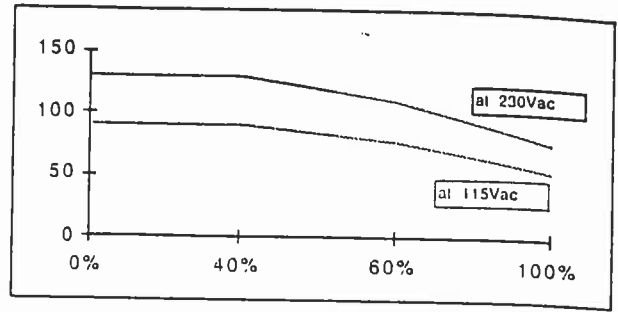


Chart 3-2 enables the operator to determine the output of the welding power source at various duty cycles.



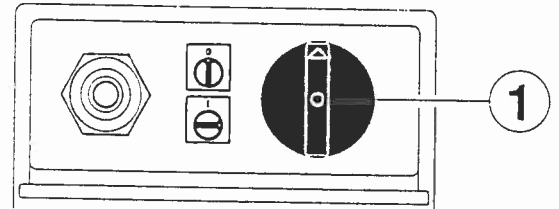
CAUTION: EXCEEDING DUTY CYCLE RATINGS can cause the welding power source to shut down for a cooling period thereby interrupting the welding process.

- Do not exceed indicated duty cycles.

4.0 CONTROLS: POSITION AND FUNCTION

4.1 REAR PANEL

ON - OFF switch (Ref.1): in single power models this switch has two positions: ON and OFF. Before inserting the power supply plug, to avoid damaging the power supply check that the switch corresponds to the required power supply.



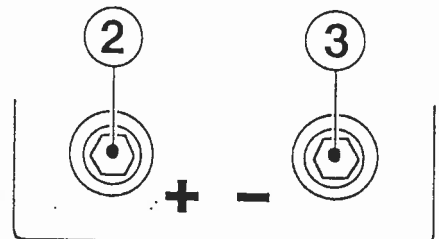
4.2 FRONT PANEL

Positive quick-connection terminal (+) (Ref.2)

Positive output of units.

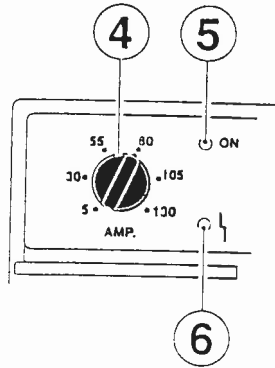
Negative quick-connection terminal (-) (Ref.3)

Negative output of units.



Faulty tightening of these two connections can cause power losses and overheating.

Amperage selector (Ref.4): Selects the intensity of current required for welding.



ON indicator light (Ref.5): This comes on when the power supply is ready to weld.

Overheating warning light (Ref.6) This light will come on if the equipment is overheating caused by an excessively heavy work cycle. In this case stop welding but leave the power supply on; the light will go out when the temperature has returned to normal. Check in the meantime that the air intakes on the front panel are not obstructed and that air can flow freely into them.

5.0 INSTALLATION

IMPORTANT Before connecting, setting up or using the equipment, carefully read section 1.0 IMPORTANT SAFETY PRECAUTIONS.

5.1 CONNECTING THE POWER SUPPLY TO THE MAINS

System protection ensure that the power supply socket is provided with the fuse specified in the table on the power supply.

The power supply 130SE include the automatic selection of the correct supply voltage from the two possible input voltages. It is enough to connect to the input wires the right plug for the given voltage supply. In any case, the nominal values indicated in the table should not be exceeded.

Do not install the equipment in confined spaces: ventilation of power supply is very important. Avoid dusty or dirty places where dust or other material could be taken in by the system. All the power supply models are provided with compensation for variations in the mains. If there is a variation of 10% the welding current will be adjusted by 0,2%. Ensure that the air intakes on the front panel are not obstructed and that they cannot be obstructed during operation to avoid the equipment overheating.

5.2 CONNECTION AND SET-UP OF EQUIPMENT FOR WELDING WITH COATED ELECTRODE

Carefully connect the welding attachments to avoid power losses. The safety precautions in chapter 1.0 must be strictly observed.

Fitting the electrode

- Fit the required electrode on the electrode clamp .

Connecting cables for welding

- Connect the earth cable connector to the negative quick- connection terminal (—) and the terminal clamp near the area to be welded.
- Connect the electrode clamp connector to the positive quick-connection terminal (+).

Selecting the welding polarity

CAUTION: Connection as above will result in reverse welding polarity. For straight polarity welding, invert the connection: connect the earth cable connector to the positive quick-connection terminal (+) and the electrode clamp connector to the negative terminal (-).

Power supply setting

- Adjust the welding current amperage via the amperage selector.
- Switch the power supply on by turning the handwheel (Ref. 1); check that the power indicator light is on.

The unit is now ready for use.

N.B.: Switching the power supply off during welding can seriously damage the equipment.

N.B.: When welding With coated electrodes, to cut off the torch power supply the power supply must be switched off.

5.3 CONNECTION AND SET-UP OF EQUIPMENT FOR GTAW (TIG) WELDING

Carefully connect the welding attachments to avoid power losses or dangerous gas leaks. Strictly observe safety precautions in Chapter 1.0.

Fitting the electrode - gas nozzle

- Fit the required electrode and (check projection and condition of the electrode tip) on the electrode torch.

Connecting the welding cables

- Connect the earth cable connector to the positive quick-connection terminal (+) and the terminal clamp (Ref. 2) near the area to be welded.

- Connect the electrode torch power cable connector to the negative quick-connection terminal.

Setting the gas for welding

- Connect the torch gas hose to the cylinder gas outlet fitting.
- Switch the power supply on by turning the start-stop switch (Ref. 1).

condition of the electrode tip) on the electrode torch.

Connecting the welding cables

- Connect the earth cable connector to the positive quick-connection terminal (+) and the terminal clamp (Ref. 2) near the area to be welded.

- Connect the electrode torch power cable connector to the negative quick-connection terminal.

Setting the gas for welding

- Connect the torch gas hose to the cylinder gas outlet fitting.

- Switch the power supply on by turning the start-stop switch (Ref. 1).

- Check that power indicator light is on.

- Check that there are no gas leaks.

Setting the welding current

- Regulate the welding current amperage by means of the amperage selector (Ref. 4).

Regulating gas flow

- Check the gas outlet and regulate the flow by means of the cylinder tap.

N.B.: The electric arc is switched on by momentarily touching the piece to be welded with the electrode (contact start).


Switching off

N.B.: Switching power supply off during welding can seriously damage the equipment.


Gusts of wind

CAUTION: When working outdoors shield yourself from gusts of wind which can divert the flow of inert gases.


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



130 SE




EN 60974.1

	5A / 20V		130A / 25,2V		
	Uo V	I2	35%	60%	100%
	70	U2	130A	100A	80A
			25,2V	24V	23,2V
	U1 230V	I1A	25	20	14

	5A / 10V		130A / 15,2V		
	Uo V	I2	40%	60%	100%
	70	U2	130A	100A	80A
			15,2V	14V	13,2V
	U1 115V	I1A	32	23	18

	5A / 20V		90A / 23,6V		
	Uo V	I2	40%	60%	100%
	70	U2	90A	75A	55A
			23,6V	23V	22,2V
	U1 115V	I1A	33	27	19

 1 - Hz 50/60 ISOL. KL. H IP 23 S

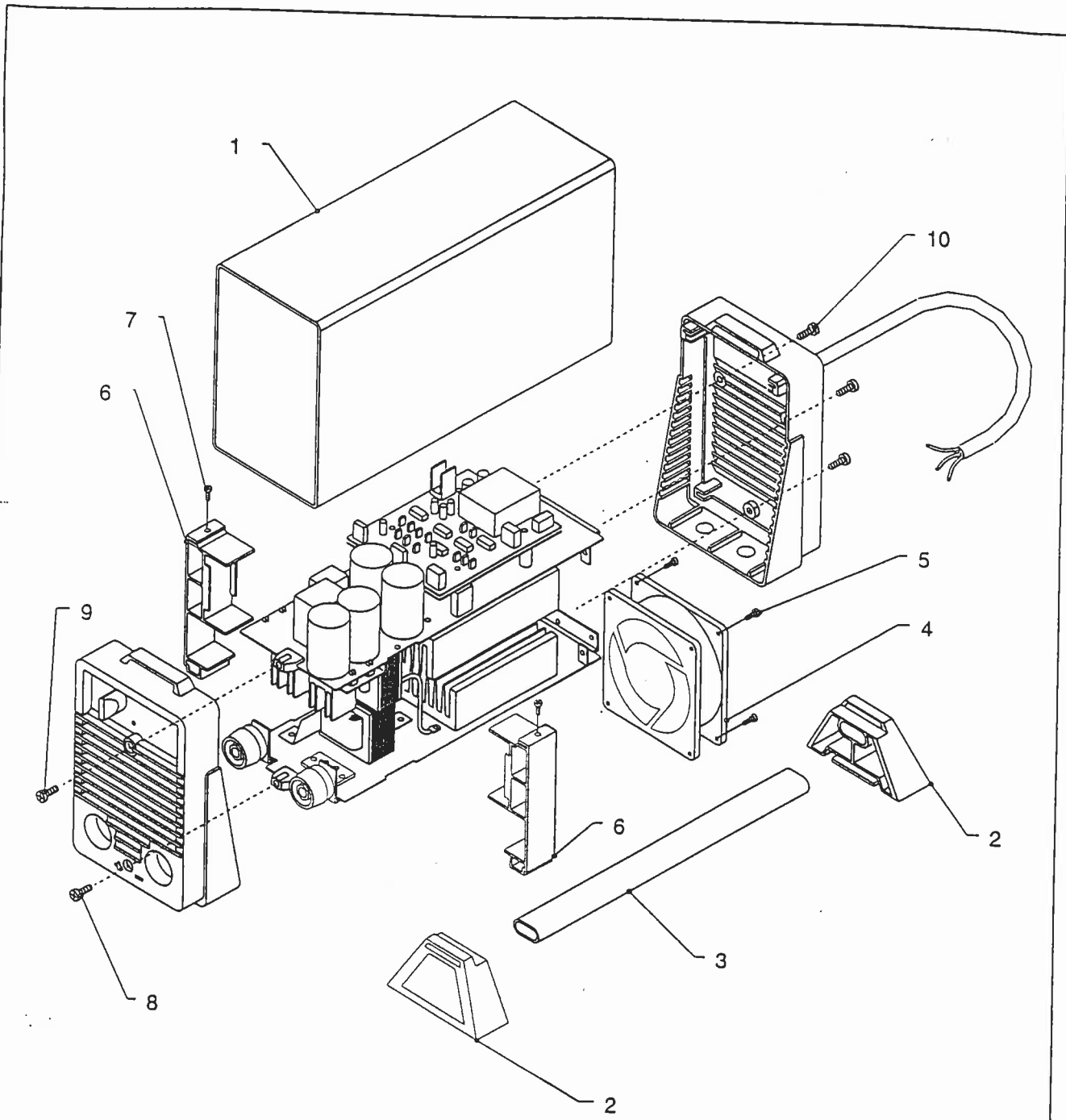
MADE IN ITALY

RATED WELDING CURRENT	PRIMARY INPUT	RECOMENDED FUSE SIZE
65A - 22.6V	115V	20
90A - 13.6V	115V	20
90A - 23.6V	115V	30
130A - 25.2 V	230V	30

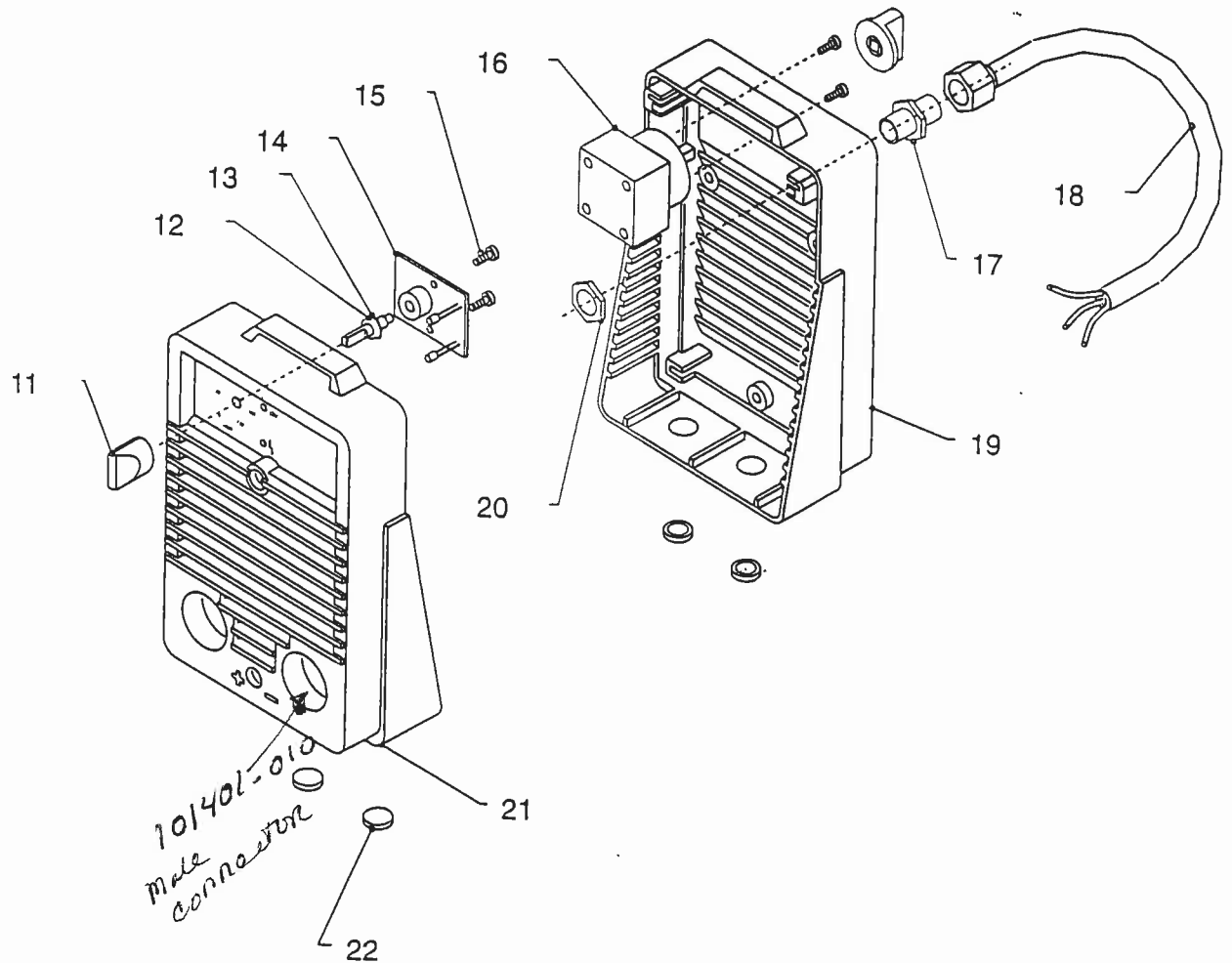
TABLE REFER TO 5.1

6.0 MAINTENANCE

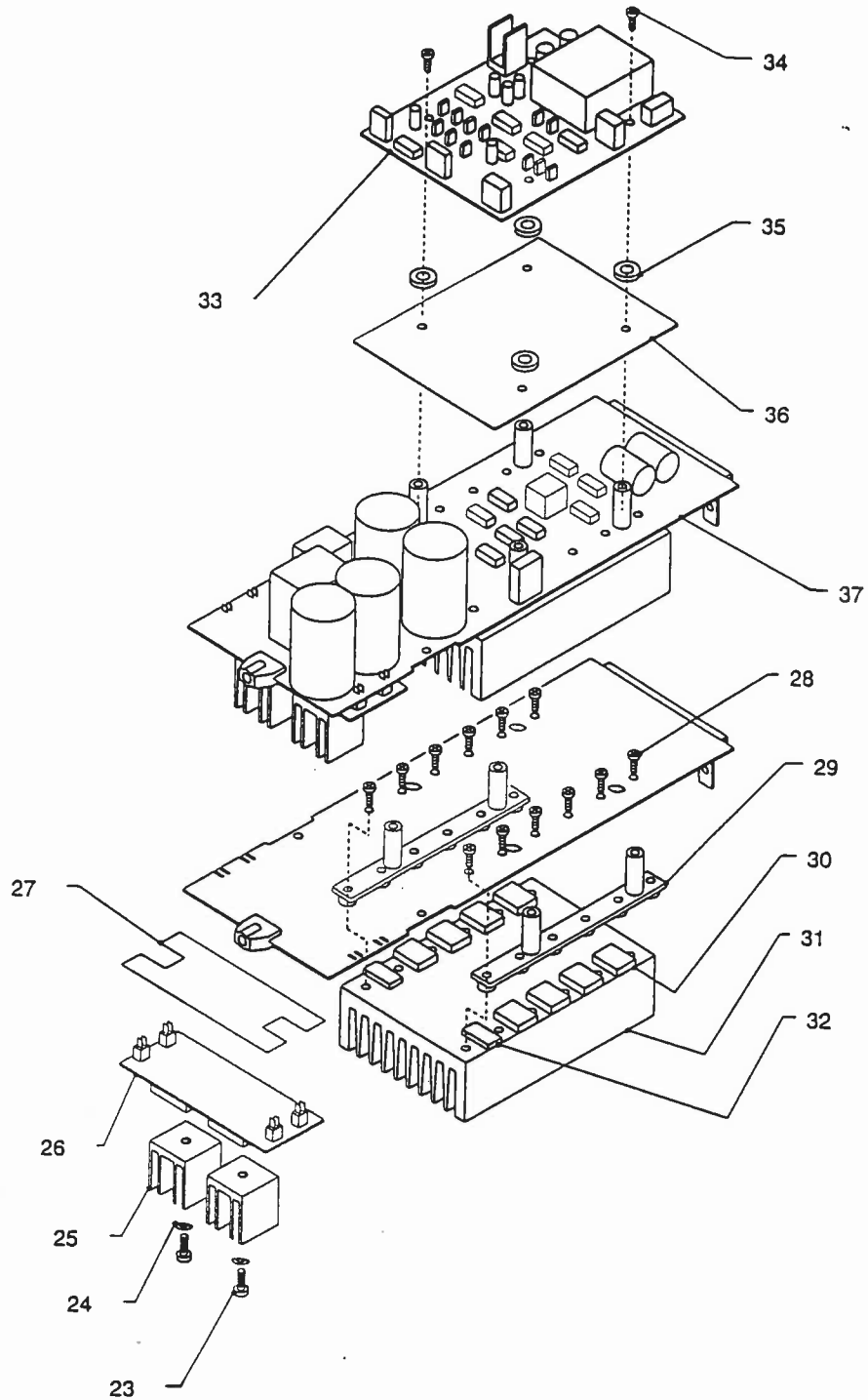
The only maintenance required is cleaning (at least once a year) of the inside of the power source by blowing compressed air through the grille. This should be carried out more frequently if you are working in dusty or dirty environments.



Ref.	Code	Description	Qty
1	101402-011	Cover	01
2	101402-012	Bracket,handle	02
3	101402-013	Handle	01
4	101402-014	Fan assembly	01
5	-	Screw 3,9x13	04
6	101402-015	Bracket, support plastic	02
7	-	Screw 4,5x19 (Rapid fix)	02
8	-	Screw Fe T.C.CR M5x10	01
9	-	Screw Fe T.C.CR M5x20	01
10	-	Screw 4,8X16	03

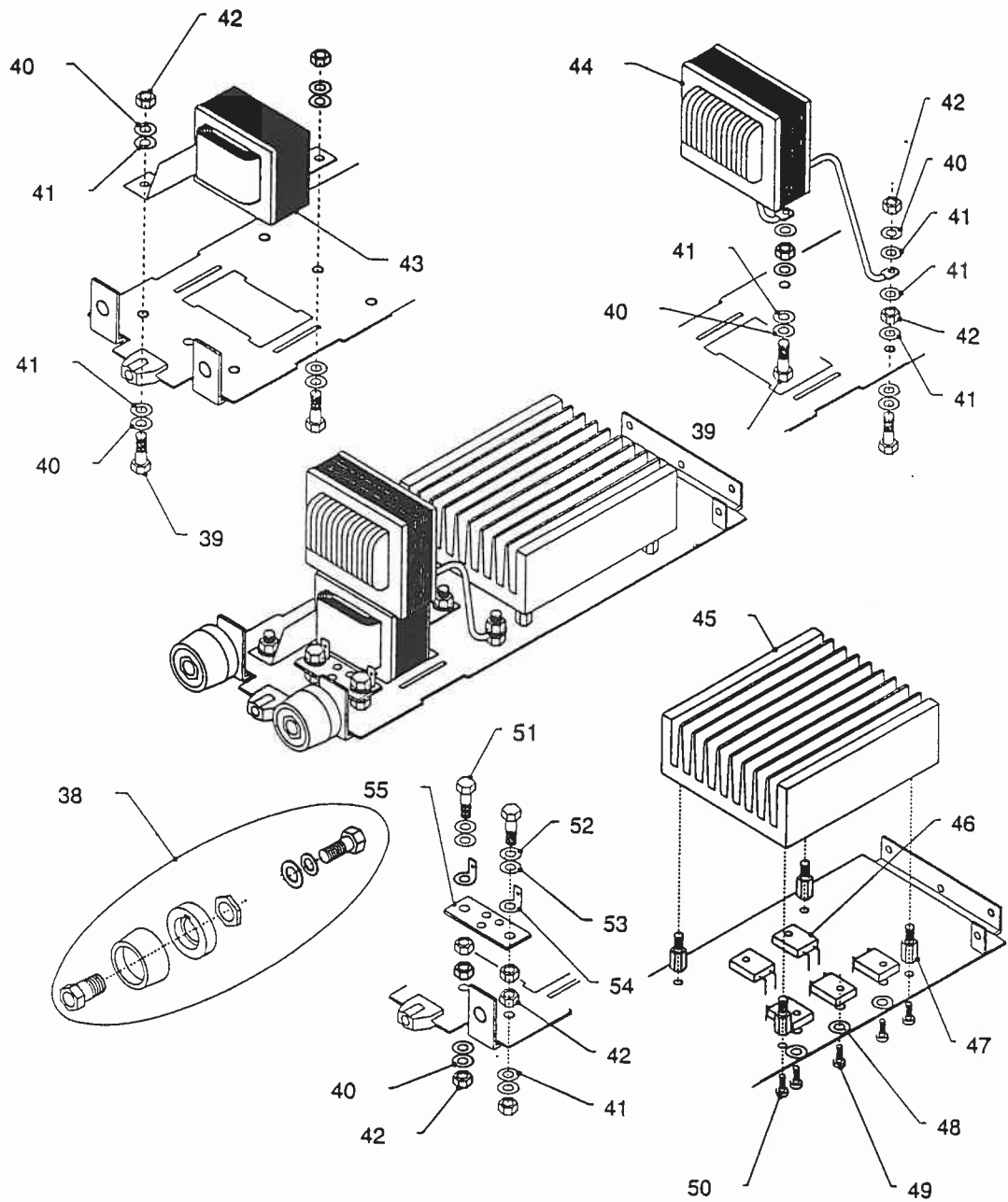


Ref.	Code	Description	Qty
11	101402-016	Knob, current	01
12	101402-017	Spindle, potentiometer	01
13	101402-018	Felt, potentiometer	01
14	101402-019	PWB, potentiometer	01
15	-	Screw 3x9,5 (Rapid fix)	02
✓ 16	101402-020	Switch, power	01
17	101402-021	Cable clamp	01
18	101402-022	Cable power	01
✓ 19	101402-023	Panel, rear	01
20	101402-024	Nut, nylon cable clamp	01
✓ 21	101402-025	Panel, front	01
22	101402-026	Foot, rubber	04



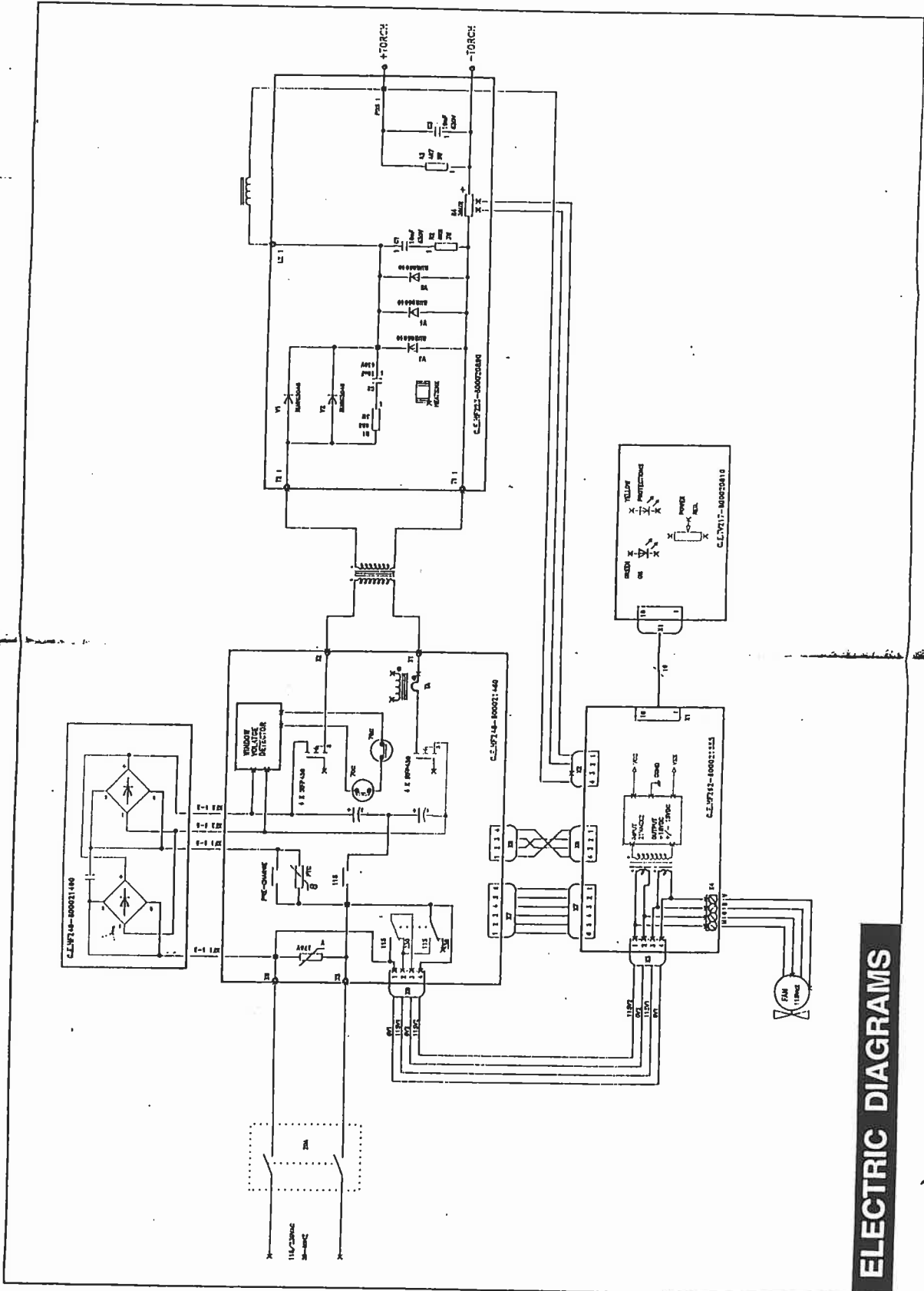
Ref.	Code	Description	Qty
23	-	Screw TCEI M5x16	02
24	-	Washer ϕ 5	02
25	101402-027	Heatsink, input br.	02
26	101402-028	PWB, input br.	01
27	101402-029	Insulator, input br.	01
28	-	Screw TC.CR M3x14	12
29	101402-030	Pressure bar	02
30	101402-031	Mosfet	08

Ref.	Code	Description	Qty
31	101402-032	Heatsink, primary assy	02
32	101402-033	Diode	02
33	-	Control board	01
34	-	Screw 3.9x18 (Rapid fix)	04
35	-	Washer ϕ 8x14 sp.3	04
36	101402-035	Shield, conductive	01
37	101402-036	PWB, primary	01
	101402-045	PWB, secondary	01



Ref.	Code	Description	Qty
38	101402-037	Connector, output	02
39	-	Screw OT. M8x16	04
40	-	Washer OT. ø 6,4x12	10
41	-	Washer ø 6	12
42	-	Nut OT. M8	10
43	101402-038	Choke assy	01
44	101402-039	Transformer	01
45	101402-040	Heatsink, output	01
46	101402-041	Diode, output	05
47	101402-042	Spacer hex M4,4 12	04

Ref.	Code	Description	Qty
48	-	Washer ø 3	05
49	-	Screw FeTC M3x16	05
50	-	Screw FeTC M3x16	04
51	-	Screw OT M8x20	02
52	-	Washer ø 6	02
53	-	Washer OT ø 6,4x12	02
54	101402-043	Lug, faston	02
55	101402-044	Shunt	01
**	101402-001	130-SE	01



ELECTRIC DIAGRAMS