

INVERTEC® 175TP

For use with machines having code numbers: 50394



SERVICE MANUAL



LINCOLN ELECTRIC EUROPE
www.lincolnelectric.eu

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1.0 TECHNICAL DESCRIPTION

1.1 DESCRIPTION

The system consists of a modern direct current generator for the welding of metals, developed via application of the inverter. This special technology allows for the construction of compact light weight generators with high performance. It's adjust ability, efficiency and energy consumption make it an excellent work tool suitable for coated electrode and GTAW (TIG) welding.

1.2 TECHNICAL DATA

DATA PLATE

PRIMARY		
	MMA	TIG
Single phase supply	230 V	
Frequency	50/60 Hz	
Effective consumption	15 A	11 A
Maximum consumption	21 A	14 A
SECONDARY		
Open circuit voltage	50 V	
Peak voltage	10kV	
Welding current	5 A ÷ 175 A	
Duty cycle 25%	175 A	
Duty cycle 60%	140 A	
Duty cycle 100%	120 A	130 A
Protection class	IP 23	
Insulation class	H	
Weight	10.2 Kg	
Dimensions	210 x 330 x 480 mm	
European Standards	EN 60974.1 / EN 60974.3 / EN 60974.10	

The machine can be connected to a motor generator of power meeting the dataplate specifications and having the following characteristics:

- Output voltage between 185 and 275 Vac.
- Frequency between 50 and 60 Hz.

IMPORTANT: MAKE SURE THE POWER SOURCE MEETS THE ABOVE REQUISITES. EXCEEDING THE SPECIFIED VOLTAGE CAN DAMAGE THE- WELDING MACHINE AND INVALIDATE THE WARRANTY.

1.3 ACCESSORIES (OPTIONALS)

Consult the area agents or the dealer.

1.4 DUTY CYCLE AND OVERHEATING

Duty cycle is the percentage of 10 minutes at 40°C ambient temperature that the unit can weld at its rated output without overheating . If the unit overheats, the output stops and the over temperature light comes On. To correct the situation, wait fifteen minutes for unit to cool. Reduce amperage, voltage or duty cycle before starting to weld again (See page III).

1.5 VOLT - AMPERE CURVES

Volt-ampere curves show the maximum voltage and amperage output capabilities of the welding power source. Curves of other settings fall under curves shown (See page III).

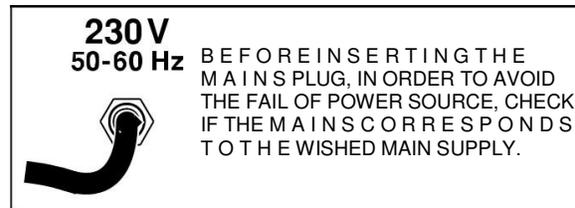
2.0 INSTALLATION

IMPORTANT: BEFORE CONNECTING, PREPARING OR USING EQUIPMENT, READ SAFETY PRECAUTIONS.

2.1 CONNECTING THE POWER SOURCE TO THE MAINS ELECTRICITY SUPPLY.

SERIOUS DAMAGE TO THE EQUIPMENT MAY RESULT IF THE POWER SOURCE IS SWITCHED OFF DURING WELDING OPERATIONS.

Check that the power socket is equipped with the fuse indicated in the features label on the power source. All power source models are designed to compensate power supply variations. For variations of + 15% a welding current variation of +- 0,2% is created.



ON - OFF SWITCH :

This switch has two positions: ON = I and OFF = O.



THIS CLASS A EQUIPMENT IS NOT INTENDED FOR USE IN RESIDENTIAL LOCATIONS WHERE THE ELECTRICAL POWER IS PROVIDED BY THE PUBLIC LOW-VOLTAGE SUPPLY SYSTEM. THERE MAY BE POTENTIAL DIFFICULTIES IN ENSURING ELECTROMAGNETIC COMPATIBILITY IN THOSE LOCATIONS, DUE TO CONDUCTED AS WELL AS RADIATED DISTURBANCES.

2.2 HANDLING AND TRANSPORTING THE POWER SOURCE

OPERATOR SAFETY: WELDER'S HELMET - GLOWES - SHOES WITH HIGH INSTEPS.

THE WELDING POWER SOURCE DO NOT WEIGHT MORE THAN 25 KG AND CAN BE HANDLED BY THE OPERATOR. READ WELL THE FOLLOWING PRECAUTIONS.

The machine is easy to lift, transport and handle, though the following procedures must always be observed:

1. The operations mentioned above can be operated by the handle on the power source.
2. Always disconnect the power source and accessories from main supply before lifting or handling operations.
3. Do not drag, pull or lift equipment by the cables.

2.3 CONNECTION AND PREPARATION OF EQUIPMENT FOR STICK WELDING.

• **TURN OFF WELDER BEFORE MAKING CONNECTIONS.**

Connect all welding accessories securely to prevent power loss. Carefully follow safety precautions described.

Fit the selected electrode to the electrode clamp.

4. Connect the ground cable quick connection to the negative (-) receptacle and locate the clamp near the welding zone.
5. Connect the electrode cable quick connection to the positive (+) receptacle.
6. Use the above connection for straight polarity welding; for re-verse polarity turn the connection.

- On the unit preset for coated electrode welding



(Ref.1 - Picture 1 Page 3.).

- Adjust welding current with ampere selector (Ref. 30 - Picture 1 Page 3.).
- Turn on the power source

2.4 CONNECTION AND PREPARATION OF EQUIPMENT FOR GAS TUNGSTEN ARC WELDING TIG.

• TURN OFF WELDER BEFORE MAKING CONNECTIONS.

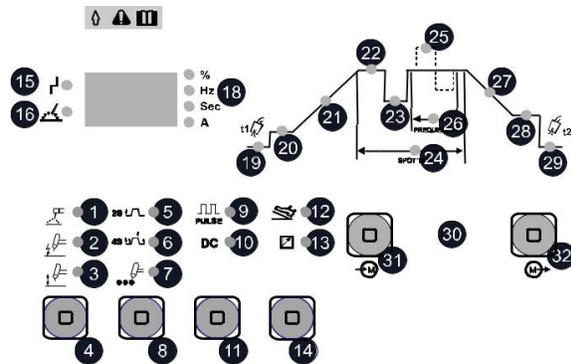
Connect all welding accessories securely to prevent power loss. Carefully follow safety precautions described.

- Position the welder in TIG LIFT and TIG HF mode.
- Fit the required electrode and nozzle to the electrode holder (Check the protrusion and state of the electrode tip).
- Connect the ground cable quick connection to the positive (+) receptacle and the clamp near the welding zone.
- Connect the torch power cable connector to the negative receptacle. (-).
- Connect the gas hose to the regulator located on the gas cylinder.
- Regulate the welding mode and the desired parameters (Section 5.0).
- Open the gas valve on the torch.
- Connection of relay command.
- When relay command is required connect the relay to the socket on the front panel. In this position regulation can be fractioned through the power gauge.
- Turn ON the power source.

3.0 FUNCTIONS

3.1 FRONT PANEL

Picture 1.

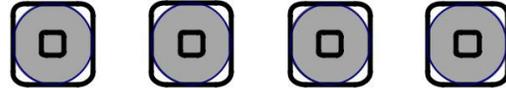


1	Covered Electrode Welding Indicator (MMA)	18	Digital Instrument mode
2	TIG DC Welding Indicator with High Freq. Start	19	Pre Gas Indicator
3	TIG DC Welding Indicator with Lift Start	20	Initial Current Indicator (Four Times mode)
4,8 11 14	Vertical Function Key	21	Ascent Slope Indicator
5	Welding Indicator (Two Times)	22	Nominal Current Welding indicator
6	Welding Indicator (Four Times)	23	Reduced Current Indic. (Four Times mode)
7	Spot Welding Indicator	24	Spot Time Indicator
9	TIG CD Pressed Indicator	25	Wave-Shaped Balance indicator
10	TIG CD Indicator	26	Pressed Frequency Indicator
12	Remote Control Indicator	27	Descent Slope Indicator
13	Remote Control Indicator	28	Final Current Indicator (Four Times mode)
15	Alarm Indicator	29	Post Gas Indicator
16	Current Supply Indicator	30	Regulation Knob
17	Digital Instrument	31	Left scrolling key/Memorized program recall
		32	Right scrolling key/Storage program

4.0 WELDING SET UP

4.1 FUNCTION KEYS.

If you press for at least a second the function keys On the panel as represented by the symbol.



It is possible to select the desired welding functions. With each function key pressed you are selecting a welding function.

IMPORTANT: VERTICAL FUNCTION KEYS DO NOT WORK DURING THE WELDING STAGE.

- Covered Electrode Welding MMA.



By pressing the function key 4 and taking the luminous indicator on symbol 1 - Picture 1 Page 4.) you can select the mode of electrode welding.

- TIG DC HF Welding.



By pressing the function key 4 - Picture 1 Page 4.) you can select the mode of TIG welding with high-voltage start until the luminous indicator reaches the position on symbol 2 - Picture 1 Page 3.) , If you press the torch button you will get a high-voltage discharge that allows the arc fusing.

- TIG DC Welding with Lift Start



By pressing the function key 4 - Picture 1 Page 4.) you can select the mode of TIG welding with lift start until the luminous indicator reaches the position on symbol 3 - Picture 1 Page 4.) .

In this mode the arc fusing occurs with the following sequence:

1. If the electrode points to the welding piece it provokes the short-circuit between the piece and the electrode.
2. Pressing the torch key the pre gas is set. The end of the pre gas is indicated by a long BEEP. If that operation is carried out starting from the post gas you get the long BEEP immediately as soon as you press the torch key.
3. During the BEEP it is possible to lift the electrode from the piece provoking the arc fuse.
4. Two Times Welding.
Active only in TIG mode.



By pressing the function key 8 - Picture 1 Page 4.) you can position the luminous indicator on symbol 5 - Picture 1 Page 4.) . In this mode you press the torch button to prime the welding current and it should be pressed whilst welding.

5. **Four Times Welding.**
Active only in TIG mode.



By pressing the function key 8 - Picture 1 Page 4.) you can position the luminous indicator on symbol 6 - Picture 1 Page 4.) . In this mode the torch button works in four times for an automatic weld. The gas flux is activated by first pressing the torch button. By releasing the button the welding arc is primed. The second pressing on the torch button interrupts the welding. By releasing the gas flux is deactivated.

6. **Spot Welding.**
Active only in TIG mode.



can position the luminous indicator on symbol 7 - Picture 1 Page 4.) . In this mode you obtain a spot welding timed with a set up timer as described on reference 24 - Spot time.

7. **TIG pressed.**



Once the TIG mode is selected (Lift or HF), press the function key 11 - Picture 1 Page 4.) until the luminous indicator reaches the position on symbol 9 - Picture 1 Page 4.) . In this mode the current pulsates between a maximum and a minimum value and can be set up as described on reference 22: Nominal Current Welding and e 23: Reduced Current respectively.

8. **TIG DC.**



Once the TIG (Lift or HF) mode is selected press the function key 11 - Picture 1 Page 4.) until the luminous indicator reaches the position on symbol 10 - Picture 1 Page 4.) .

9. **Remote.**



In order to connect the remote control press the function key 14 - Picture 1 Page 4.) until the luminous indicator reaches the position on symbol 12 - Picture 1 Page 4.) .

10. **Local.**



In order to connect the remote control press the function key 14 - Picture 1 Page 4.) until the luminous indicator reaches the position on symbol 13 - Picture 1 Page 4.) .

11. Alarm Indicator.



When one of the alarms goes off the indicator 15 - Picture 1 Page 4.) and the display 17 - Picture 1 Page 4.) The alarm, the relative indications and the instructions to follow to restore the generator are shown immediately:

DISPLAY	MEANING
---	Insufficient voltage entry, line switch open or lack of line, no V regulated.
LtF	Interface connector disconnected, absence of the 24V auxiliary voltage, other interface problems..
ThA	Power converter overheated. Restoration occurs when the alarm stops.
SCA	Short-circuit caused by: a) Generator's terminal output in short-circuit. b) Output stage failure. a) Eliminate the short-circuit. b) Call after-sales service.
PIF	The inverter stage does not work properly.

ATTENTION: WHENEVER ALL THE PANEL LUMINOUS INDICATORS REMAIN ON OR OFF SIMULTANEOUSLY FOR MORE THAN 40 SECONDS IT WILL BE NECESSARY TO CONTACT THE MANUFACTURER.

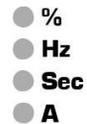
12. Current supply



The indicator 16 - Picture 1 Page 4.) lights up every time the generator is supplying a current.

13. **Led.**

Symbols that display the following; Duty Cycle, Frequency, Time, Amps) 18 - Picture 1 Page 4.)



5.0 WELDING PROCESS PROFILE

In this section of the panel you can set up all the parameters in order to improve the process previously selected.

5.1 FUNCTION KEYS.

Press the function keys 31 o 32 - Picture 1 Page 4.) for at least a second with the symbols



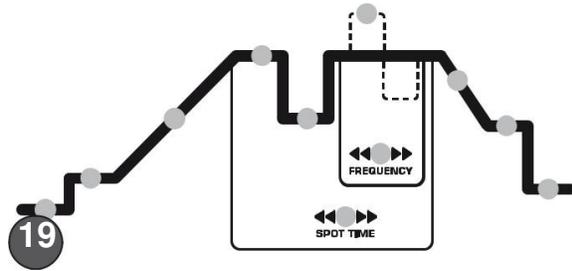
In order to select the welding parameters that you wish to modify. By pressing a function key you select the different welding modes.

Please note that during every single parameter the corresponding luminous indicator lights up. The display 17 - Picture 1 Page 4.) and the led 18 - Picture 1 Page 4.) indicate the parameter's value and unity measure respectively.

ATTENTION: THIS SECTION OF THE PANEL IS CHANGE-ABLE DURING WELDING.

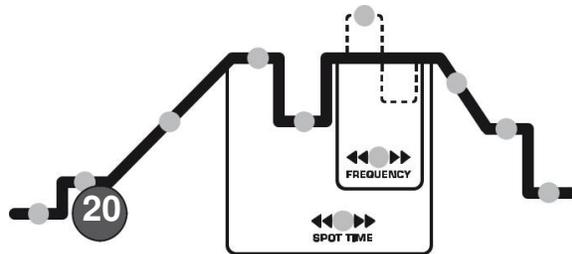
1. Pre gas.

By pressing function keys 31 e 32 the luminous indicator is position at 19 - Picture 1 Page 4.); then by activating the knob 30, the time length for the gas flux is set up in seconds. The value range is between 0,2 and 5 seconds.



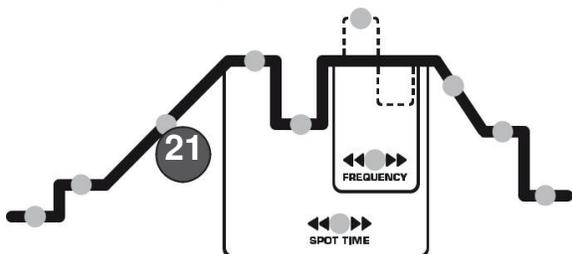
2. Initial Current

By pressing function keys 31 e 32 the luminous indicator is position at 20 - Picture 1 Page 4.) ; then by activating the knob 30, the value for the initial current on the mode TIG Four Times is set up. The value range is between I Min and the nominal current welding.



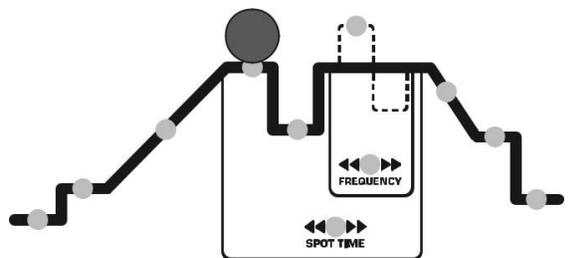
3. Ascent Slope.

By pressing function keys 31 e 32 the luminous indicator is position at 21 - Picture 1 Page 4.) ; then by activating the knob 30, the time to reach the nominal current welding in TIG modality is set up. The value range is between 0 and 10 seconds.



4. Nominal Current Welding.

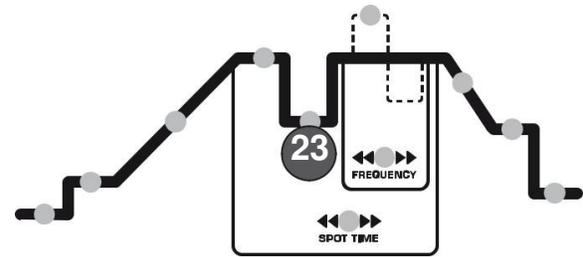
By pressing function keys 31 e 32 the luminous indicator is position at 22 - Picture 1 Page 4.) ; then by activating the knob 30, the value for the nominal current welding for all the available modalities is set up. The value range is between 5A and 220A in electrode mode; 5A and 220A.



5. Reduced Current/ Basic Current.

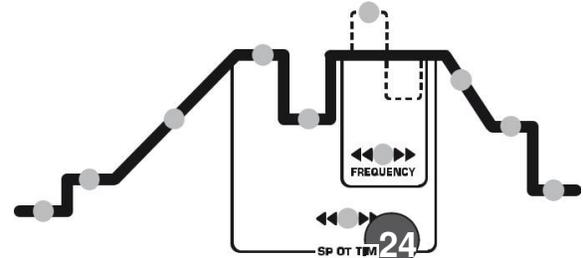
By pressing function keys 31 e 32 the luminous indicator is position at 23 - Picture 1 Page 4.) ; then by activating the knob 30, the value for the reduced current in the Four Times mode is set up.

If the TIG mode is pressed (either Two or Four Times) the pulsation of the basic current is set up. The value range is between the nominal current welding and the 10% of that same value.



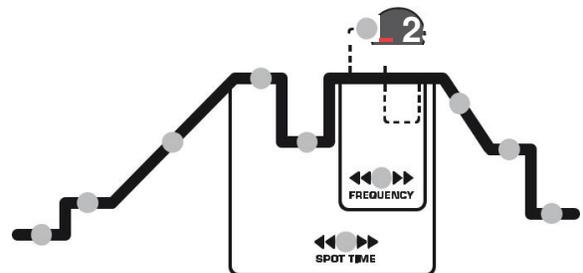
6. Spot Time.

By pressing function keys 31 e 32 the luminous indicator is position at 24 - Picture 1 Page 4.) ; then by activating the knob 30, the time length for the spot impulse is set up in seconds. TIG The value range is between 0,1 and 10 seconds.



7. Wave-shaped Balance.

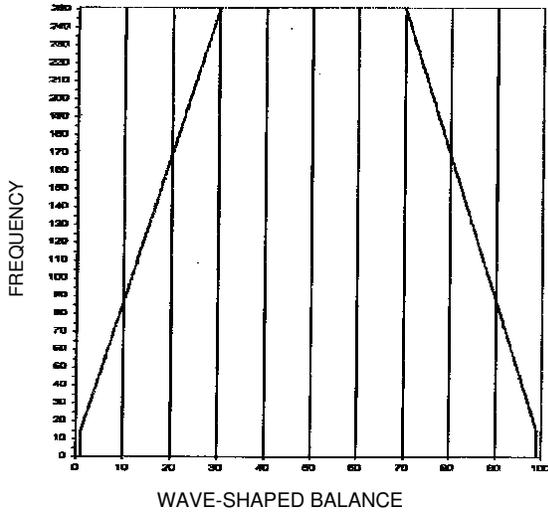
By pressing function keys 31 e 32 the luminous indicator is position at 25 - Picture 1 Page 4.) ; then by activating the knob 30, the balance of the different wave shapes pressed on TIG is set up.



The wave-shaped balance can be set up in a value ranging from 1 and 99 for frequencies between 0,3 Hz and 15 Hz. The range decreases linearly for higher frequencies (up to 250 Hz) up to range between 30 and 70 (See - Picture 2 Page 7.).

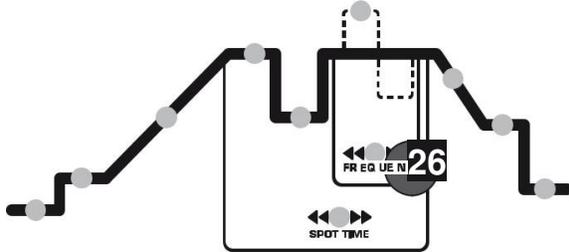
WAVE-SHAPED BALANCE

Picture 2.



8. DC Frequency Pressed.

By pressing function keys 31 e 32 the luminous indicator is position at 26 - Picture 1 Page 4.) ; then by activating the knob 30, the frequency for the DC TIG pressed is set up.



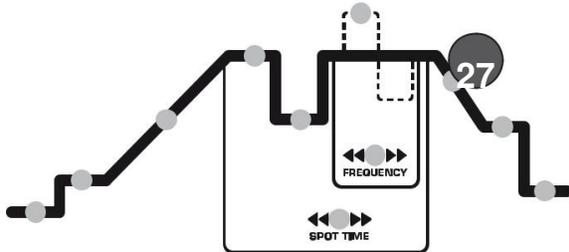
The frequency can be regulated between the following ranges:

- a) Between 0,3 Hz and 1Hz with a 0,1 Hz step.
- b) Between 1 Hz and 250Hz with a 1 Hz step.

9. Descent Slope.

By pressing function keys 31 e 32 the luminous indicator is position at 27 - Picture 1 Page 4.) ; then by activating the knob 30, the time is set up in seconds either to reach the final current welding in the Four Times mode, or to cancel the nominal current welding in the Two Times mode.

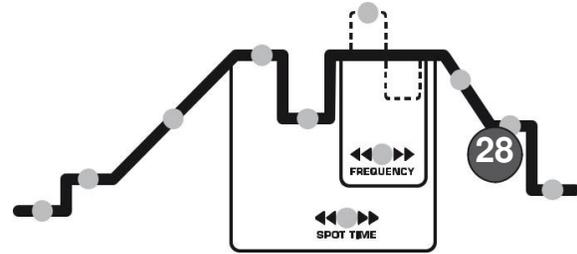
The value range is between 0 and 10 seconds.



10. Final Current

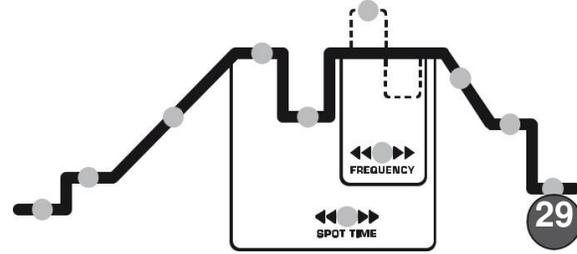
By pressing function keys 31 e 32 the luminous indicator is position at 28 - Picture 1 Page 4.) ; then by activating the knob 30, the

value for the final current on the TIG Four Times mode is set up. The value range is between 1 Min and the nominal current welding.



11. Post gas.

By pressing function keys 31 e 32 the luminous indicator is position at 29 - Picture 1 Page 4.) then by activating the knob 30, the time length for the final gas flux is set up in seconds. The value range is between 0,2 and 20 seconds.



6.0 FOUR TIMES FUNCTIONALITY FOR TIG WELDING

The generator allows a management of the Four Times Intelligent mode. In fact, it is possible to modify the automatic sequence depending on how the torch button is used (See picture)

The current's descent slope is also possible from the reduced current.

Pressure without the torch button release.



Torch button release.

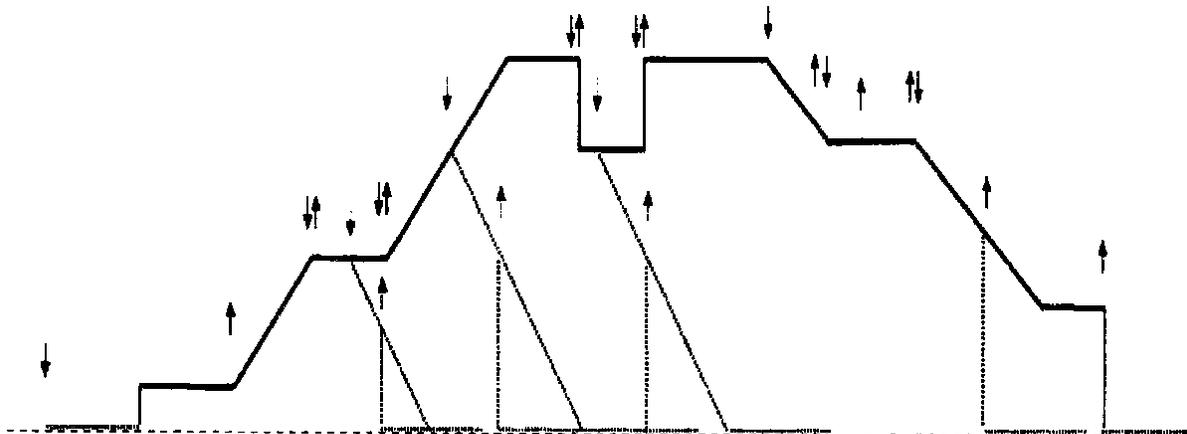


Pressure and immediate release of the torch button.



Release and immediate pressure of the torch button.
Release and immediate pressure of the torch button.





AUTOMATIC SEQUENCE

7.0 MEMORISE AND RECALL PROGRAM

The generator allows you to memorize and subsequently recall up 30 welding programs.

7.1 MEMORISE A PROGRAM

1. Set the process and the desired welding profile (as specified in § 4.0 and 5.0);
2. Press for more than three seconds the key 32 (entry in the memorize state is accompanied by long "beep" and the first memory location P01 on the display);
3. If you want to memorize the program in another memory location, turn the encoder to the right (increasing the number of memory location) to the memory location where you want to memorize the program;
4. Press for more than three seconds the key 32. At this point the program is stored in desired memory location (the memo-rise is accompanied by long "beep" and the text "MEM" on the display).

The exit from this state is possible in three ways:

- Memorize of program;
- Inactivity of key 32 and encoder (10 seconds);
- Short press of key 32.

NOTE: THE MEMORY LOCATIONS CAN BE OVERRITTEN. DURING THE MEMORISE STATE ALL KEYS (WITH THE EXCEPTION OF THE KEY 32 AND THE ENCODER) ARE DISABLED AND THEREFORE YOU CAN NOT CHANGE ANY PARAMETER.

7.2 MEMORIZED PROGRAM RECALL

1. Press for more than three seconds the key 31 (entry in the re-call program state is accompanied by long "beep" and the first memory location P01 on the display);
2. Turn the encoder to the right (increasing the number of memory location) to the program memory location that you want to recall;
3. Press for more than three seconds the key 31. At this point desired program is loaded (the recall is accompanied by long "beep").

The exit from this state is possible in three ways:

- Recalling a program;
- Inactivity of key 31 and encoder (10 seconds);
- Short press of key 31.

NOTE: DURING THE RECALL STATE ALL KEYS (WITH THE EXCEPTION OF THE KEY 31 AND THE ENCODER) ARE DIS-

ABLED AND THEREFORE YOU CAN NOT CHANGE ANY PARAMETER.

8.0 WELDING PROGRAMS MANAGEMENT

The welding and the relative parameters set up can be done manually through various commands.

When first switched on the generator is set up in a predefined state and with welding parameters value that allows to work immediately.

Moreover, the generator is provided with a memory that saves the set up configuration for each welding mode (MMA, TIG HF, TIG Lift) before it is turn off.

Therefore, the worker will be able to see the last set up when the generator is switched on again.

9.0 THE USE OF THE REMOTE CONTROL

The power source allows the use of the remote controls. After connecting the remote control to the female connector on the front of the machine you can choose whether to work in local or remote mode by means of vertical scroll key (Ref. 14 - Picture 1 Page 3.) .



CAUTION: PRESSING VERTICAL SCROLL KEY (REF. 14 - FIG. 1 PAGE 3) WHEN THE REMOTE CONTROL IS NOT CONNECTED HAS NO EFFECT.

In electrode welding mode, after activating the remote function you can adjust welding current continuously from minimum to maximum using the remote control. The display will show the current set with the control.



NOTE: IN ELECTRODE MODE YOU CAN SELECT MANUAL REMOTE CONTROL ONLY

In TIG welding mode you can select between two different remote controls:

1. Manual Remote Control:

this mode is especially useful in combination with remote controls or RC-type torches, i.e. equipped with a knob or slider to regulate current remotely. The welding current will be adjustable continuously from minimum to maximum. To use this peripheral device properly and comfortably selection of "four stroke" mode is recommended.

2. Pedal Operated Remote Control:

 this mode is especially useful in combination with pedals equipped with a micro switch with a trigger function. This selection involves inhibition of the up and down slopes. Welding current can be adjusted with the pedal between the minimum value and the panel setting.

The micro switch in the control pedal means you can start welding by simply pressing the pedal, i.e. without using the TIG torch but-ton. To use this peripheral device properly and comfortably selection of "four stroke" mode is recommended.

NOTE: IN THIS MODE, WHEN THE WELDING PROCESS IS NOT ACTIVE, USING THE REMOTE CONTROL (PEDAL) WILL PRODUCE NO CHANGE IN THE CURRENT INDICATED ON THE DISPLAY.

10.0 MAINTENANCE

IMPORTANT: DISCONNECT THE POWER PLUG AND WAIT AT LEAST 5 MINUTES BEFORE CARRYING OUT ANY MAINTENANCE.

MAINTENANCE MUST BE CARRIED OUT MORE FREQUENTLY IN HEAVY OPERATING CONDITIONS.

Carry out the following operations every three (3) months:

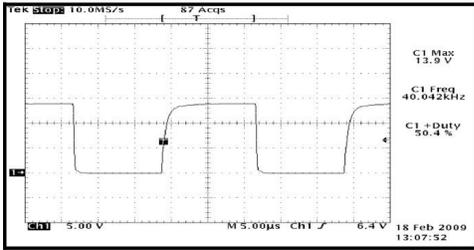
- Replace any illegible labels.
- Clean and tighten the welding terminals.
- Replace damaged gas tubing.
- Repair or replace damaged welding cables.
- Have specialized personnel replace the power cable if dam-aged.

Carry out the following operations every six (6) months:

- Remove any dust inside the generator using a jet of dry air.
- Carry out this operation more frequently when working in very dusty places.

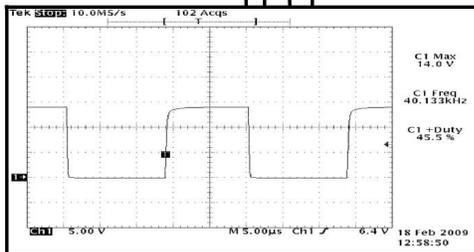
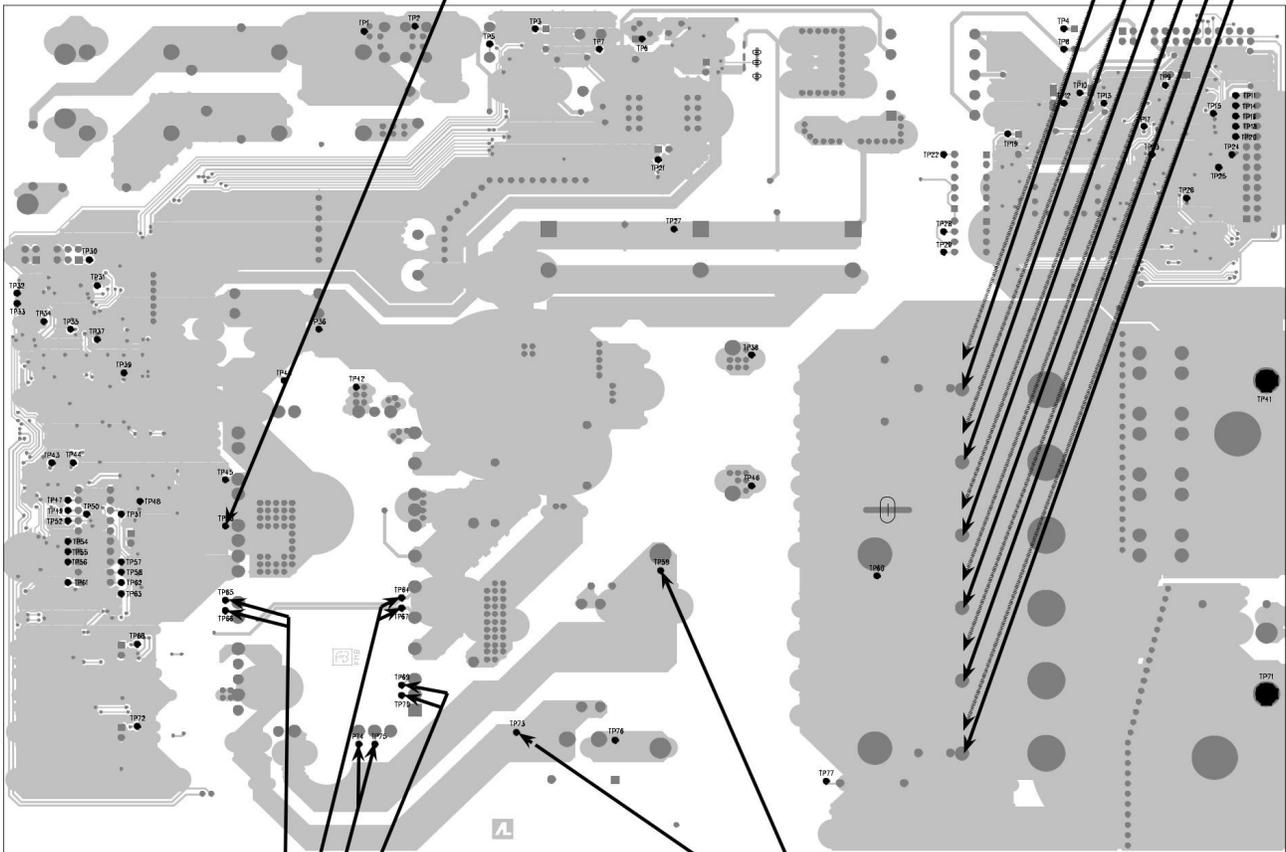
TYPES OF MALFUNCTIONING WELDING FAULTS		
The generator does not weld: the digital switch is not lit.	A) The main switch is off. B) The power lead is interrupted (lack of one or two phases). C) Other.	A) Switch on mains. B) Verify and repair. C) Ask for the intervention of the Assistance Centre.
During welding suddenly the outgoing current is interrupted, the orange led goes on.	Overheating has occurred and the automatic protection has come on. (See work cycles).	Keep generator switched on and wait till temperature has dropped again (10-15 minutes) to the point where the orange switch goes off again.
Welding power reduced.	Outgoing wires are not correctly attached. A phase is missing.	Check that wires are intact, that the pliers are sufficient and that they are applied to welding surface clean from rust, paint or oils.
Excessive jets.	Welding arch too long. Welding current too high.	Wrong torch polarity, lower the current values.
Craters.	Fast removal of the electrodes.	
Inclusions.	Inadequate cleaning and bad distribution of coating. Faulty movement of the electrodes.	
Inadequate penetration.	Forward speed too high. Welding current too low.	
Sticking.	Welding arch too short. Current too low.	Increase current values.
Blowing and porosity.	Damp electrodes. Arch too long. Wrong torch polarity.	
Jacks.	Currents too high. Dirty materials.	
The electrode fuses in TIG.	Wrong torch polarity. Type of gas not suitable.	

REPAIR PROCEDURE- MAIN TEST POINTS

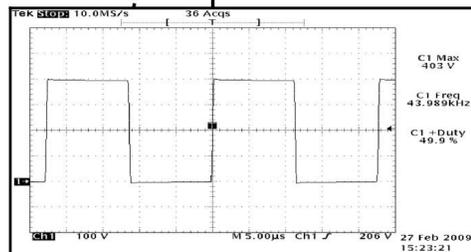


Gate waveform of PFC Power switches measured between TP45 (and TP53) and GND1

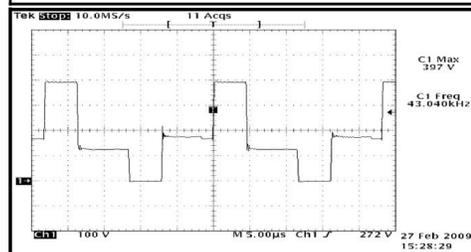
Check the output diodes
(with a Diodes test on the Tester - no short circuit)



Gate waveform of Bridge Power Switches measured between the below couples of TP:
TP64 with respect TP67
TP65 with respect TP66
TP70 with respect TP69
TP75 with respect TP74



No-Load Power Bridge output waveforms measured between TP59 (TP73) and GND1



Under-Load Power Bridge output waveforms measured between TP59 (TP73) and GND1

CALIBRATION

After change front panel PCB in this machine, you must make calibration.

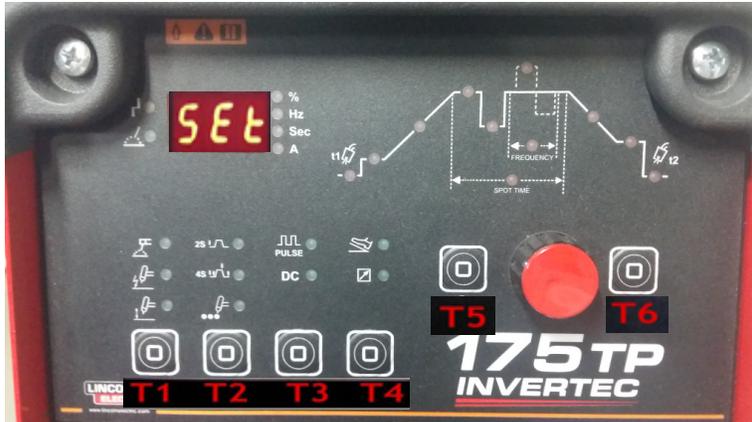
You need use tools:

Load 102 m Ohm (16.4 V/ 160 A) - for 160A version

Load 85 m Ohm (18.8 V/ 220 A) - for 220A version

Clamp A-meter with DC function

1. STEP: Connect machine on 230V/50Hz and turn ON. Display shows „SEt,,



2. STEP: Push button „T1“. Display shows „160“ or „220“ for 220A version. Connect machine on load (102 m ohm (16.4 V/ 160 A) or 85 m Ohm (18.8 V/ 220 A) - for 220A version.

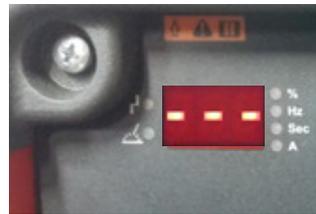
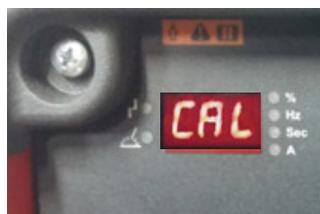
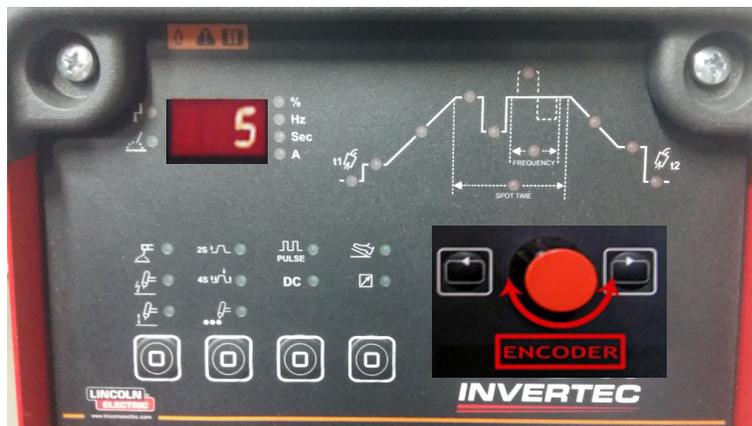


CALIBRATION

3. STEP: Setting max. current: Push button „T6“. Connect Clamp A-meter on DC function and adjust with „ENCODER„ on value 160 AMP or 220 AMP on the clamp A-meter. If you have right value then push „T6“ button. Max. current is set.



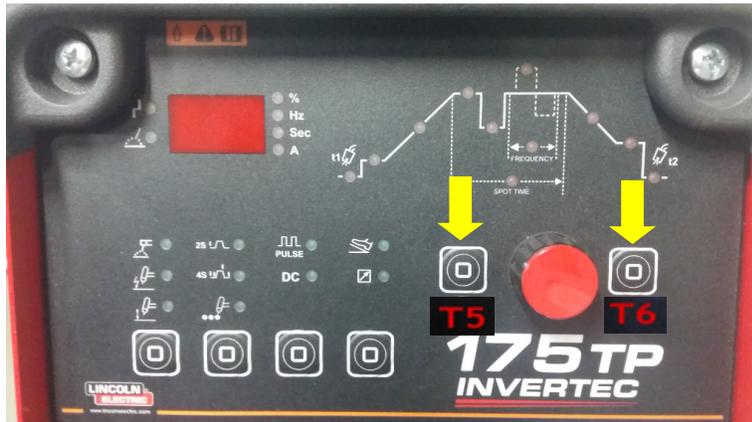
4. STEP: Setting min. current: Adjust with „ENCODER„ on value 4,3 AMP (+0.5 -0) on the clamp A-meter. If you have right value then push and hold „T6“ button till will be beep. Display shows „CAL„ and after „- - -“. For finish push „T1“ button. Min. current is set.



5. STEP: Calibration is finished. Make machine to original condition.

FRONT PANEL RESET

If is your calibration wrong, you can do RESET: Machine must be OFF. You must push and hold T5 and T6 buttons after that you turn ON machine. You still hold buttons till display show „rES“ Machine is un-calibrated.



RETEST AFTER REPAIR

Should a machine under test be rejected for any reason requiring the removal of any mechanical part that could affect the machine's electrical characteristics, or if any electrical components are repaired or replaced, the machine must be retested.

Machine input and output

INVERTEC 175TP

Input Voltage	Input Current	Rated Output
230Vac/1ph/50Hz	21A max	175A@25%

Output current range SMAW	5 – 175 Amps
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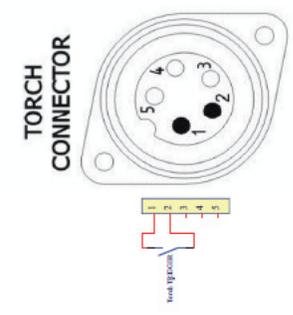
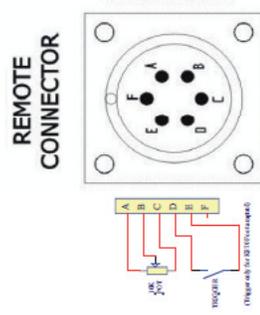
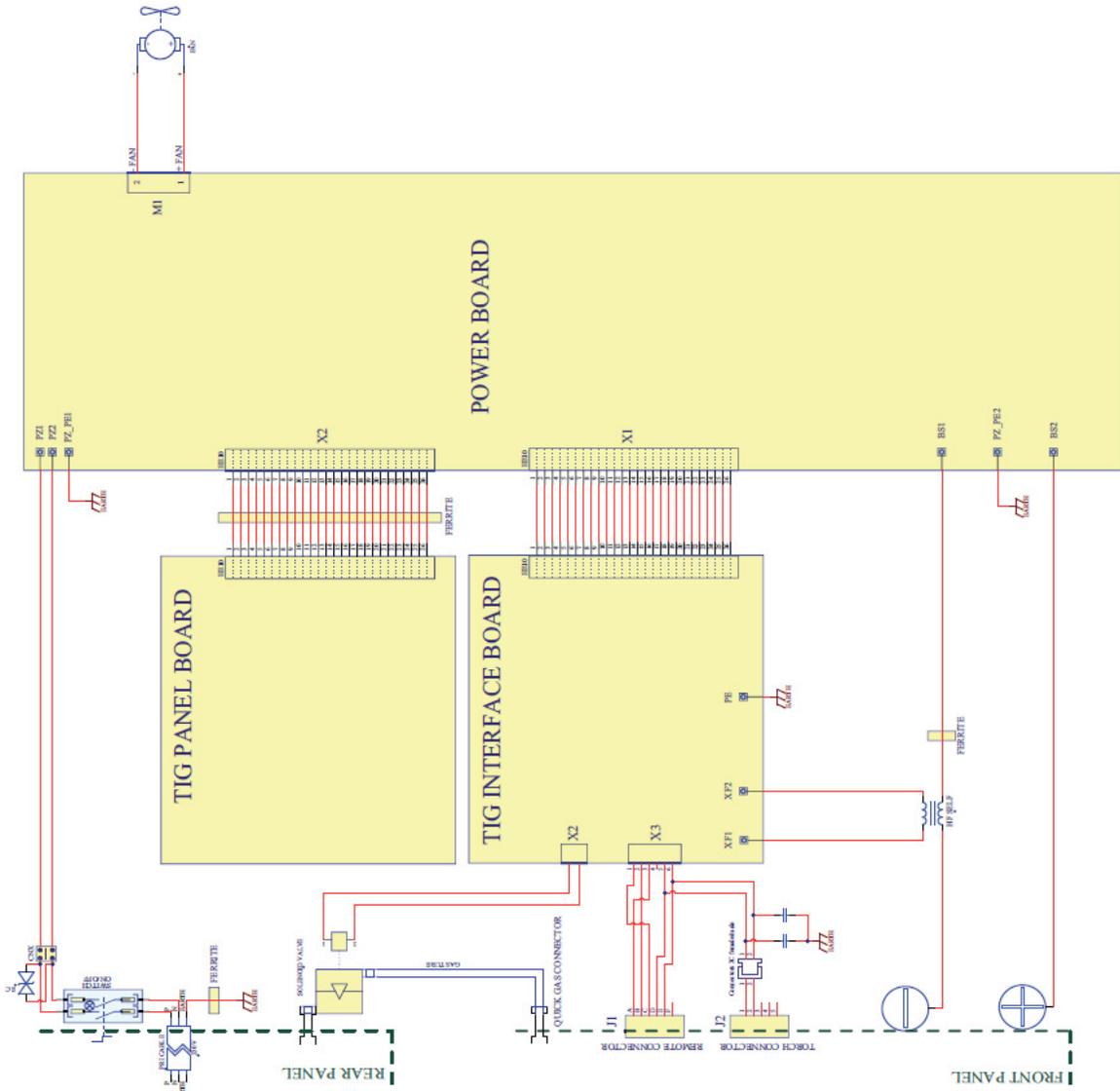
Maximum Open Circuit Voltage	50 Vdc
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IMPORTANT !

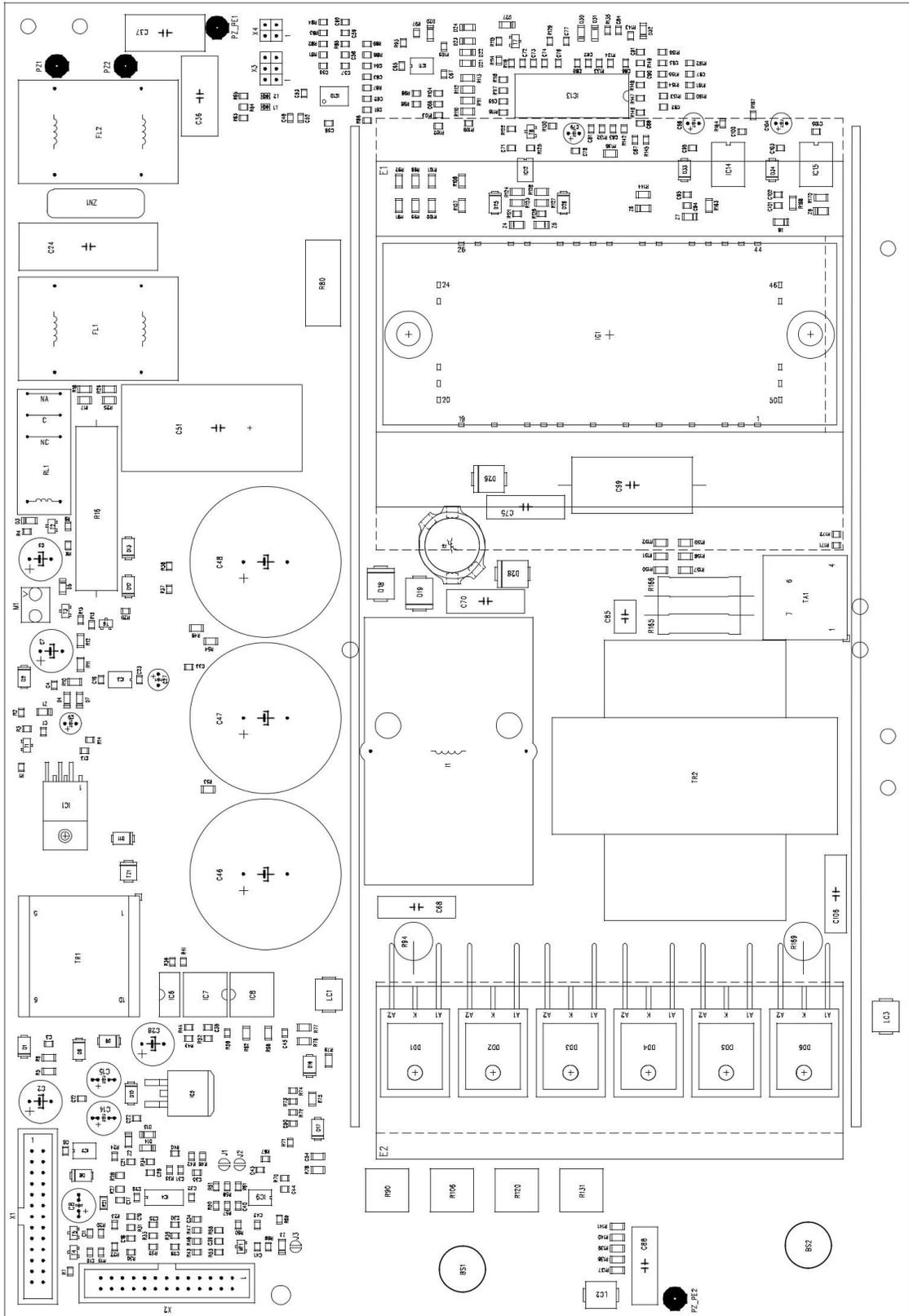
After the repair the unit has to be tested accordingly to the norm **EN60974-4**
Arc welding equipment “In-service inspection and testing”

ELECTRICAL SCHEMATICS

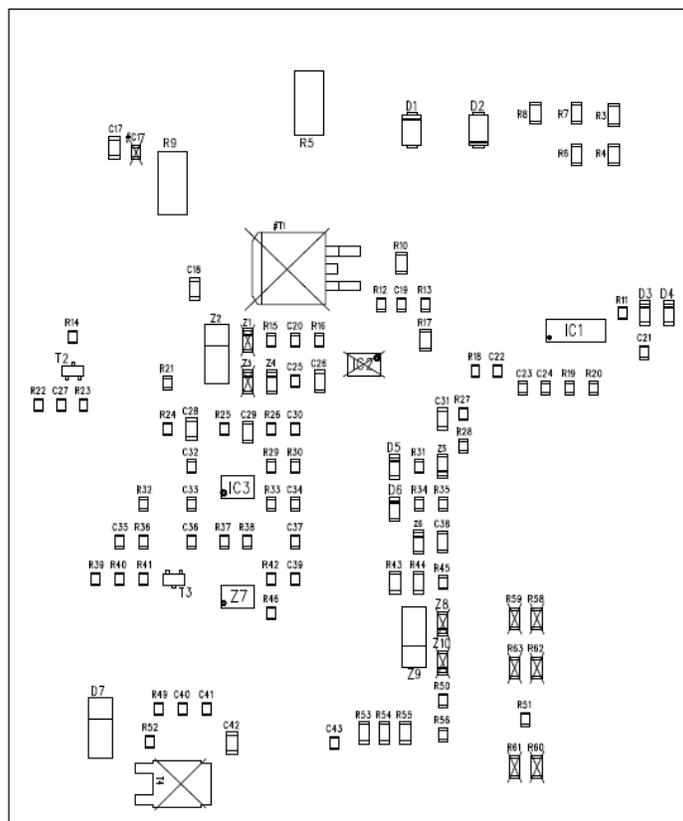
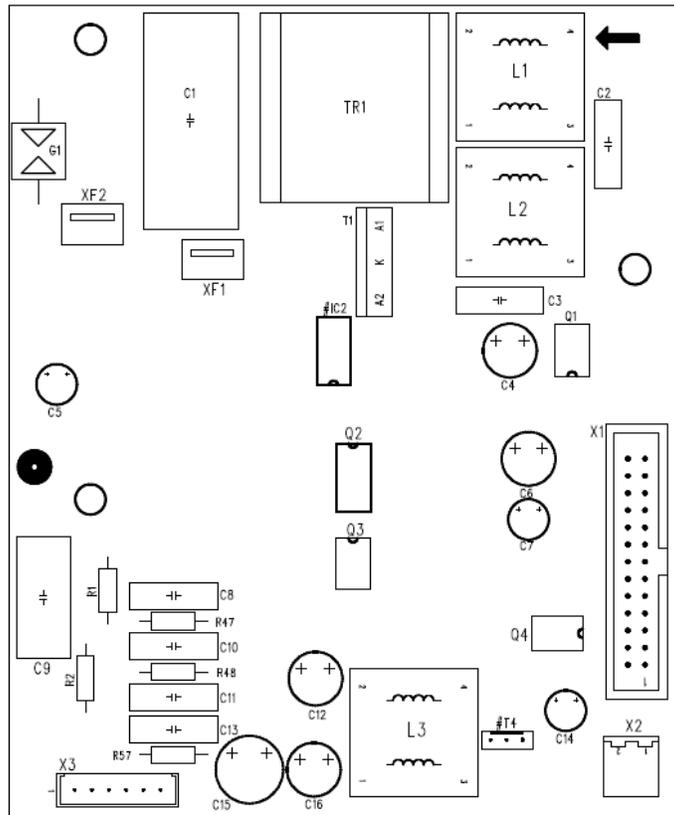
Block Diagram



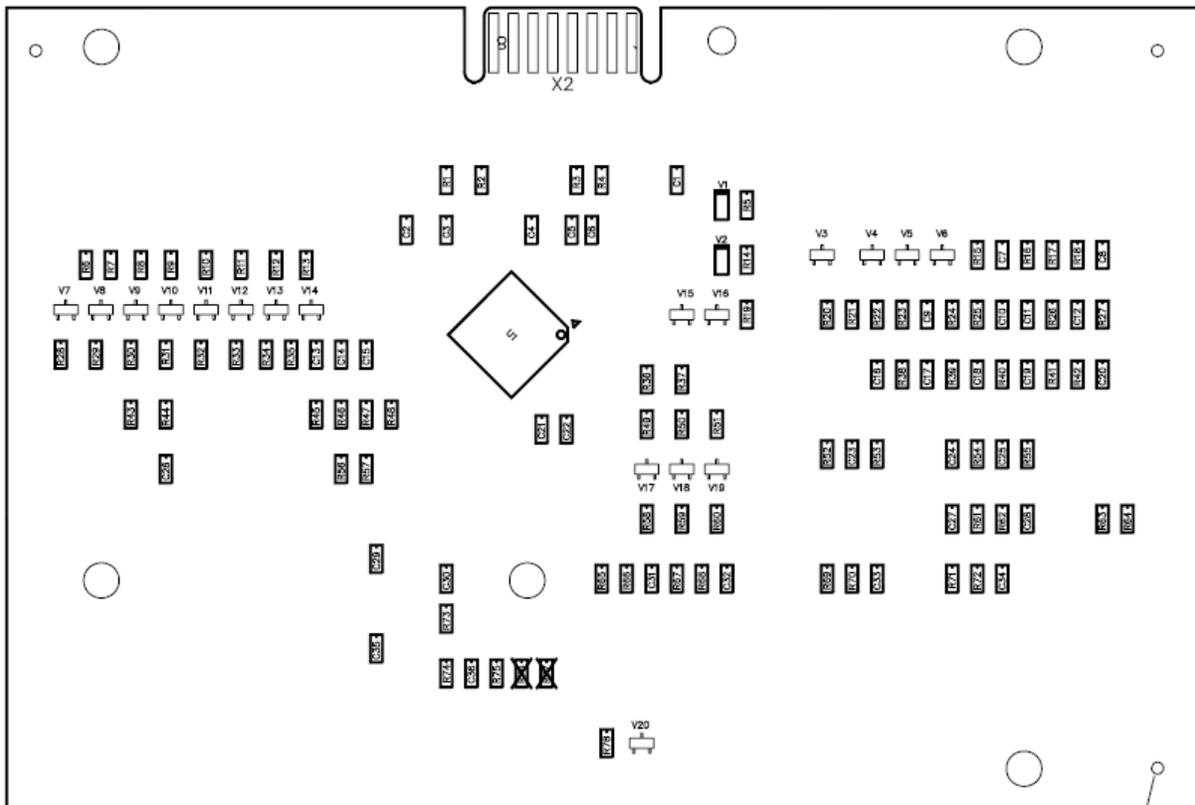
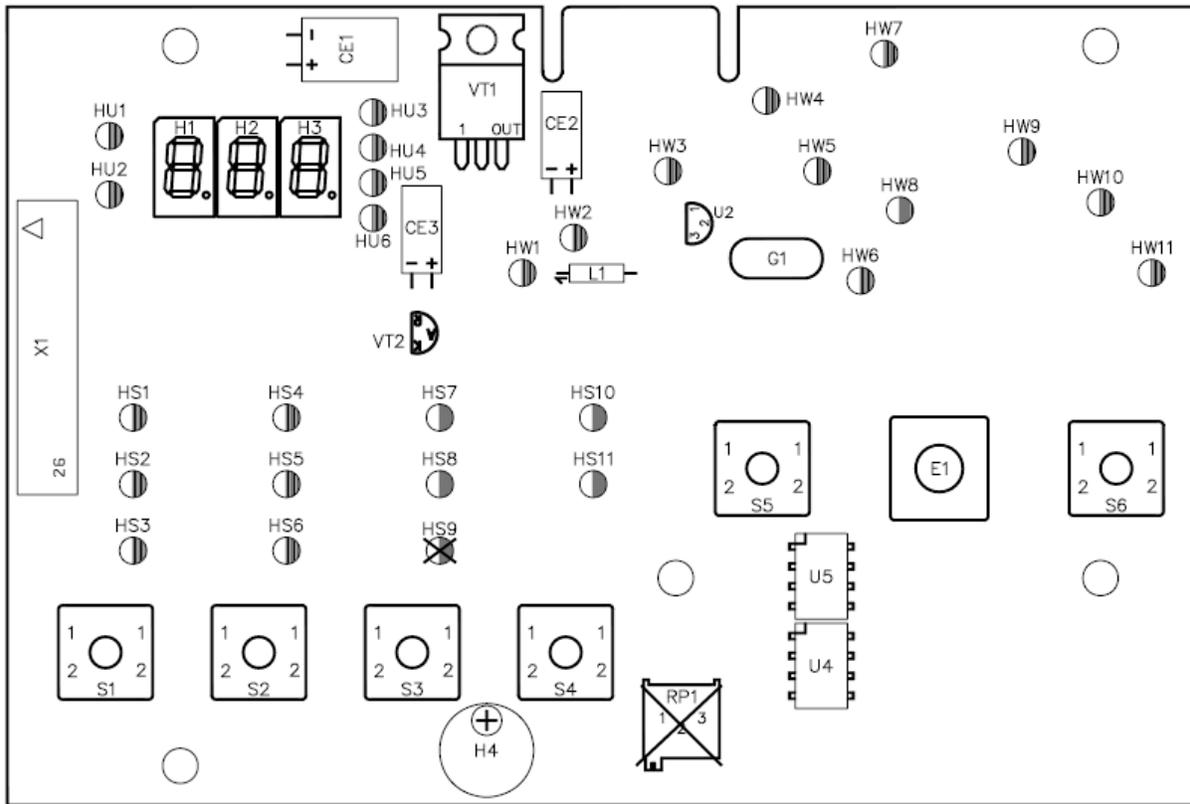
POWER CIRCUIT BOARD CE 22727



CIRCUIT BOARD CE 22728



CIRCUIT BOARD CE 22738



NOTE
