

LINCOLN ELECTRIC

INSTRUCTION MANUAL:

V200T SINGLEPHASE

V260T THREEPHASE

V400T THREEPHASE



LINCOLN ELECTRIC ITALIA S.r.l.

Via degli Artigiani, 80 CELLE L. SV ITALY

June 1997

REV2.0

E

INDEX

SAFETY NORMS FOR THE OPERATOR.	.
INSTRUCTION NOTES.	.
TECHNICAL DATA, ELECTRIC DIAGRAMS.	.

WARNING!

THIS WELDING MACHINE MUST BE USED BY TRAINED OPERATORS ONLY.

**READ THIS MANUAL CAREFULLY BEFORE ATTEMPTING TO USE
THE WELDING MACHINE.**

INSTRUCTIONS FOR ELECTROMAGNETIC COMPATIBILITY

The user is responsible for installing and using the welding equipment according to the manufacturer's instructions. If electromagnetic disturbances are detected then it shall be the responsibility of the user of the welding equipment to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing the welding circuit. In other cases it could involve constructing an electromagnetic screen enclosing the power source and the work complete with associated input filters. In all cases electromagnetic disturbances must be reduced to the point where they are no longer troublesome.

Note - The welding circuit may or may not be earthed for safety reasons. Changing the earthing arrangements should only be authorised by a person who is competent to assess whether the changes increase the risk of injury, e.g. by allowing parallel welding current return paths which may damage the earth circuits of other equipment.

Assessment of area

Before installing welding equipment the user shall make an assessment of potential electromagnetic problems in the surrounding area. The following shall be taken into account:

- a) other supply cables, control cables, signalling and telephone cables; above, below and adjacent to the welding equipment;
- b) radio and television transmitters and receivers;
- c) computer and other control equipment;
- d) critical safety equipment, e.g. guarding of industrial equipment;
- e) the health of the people around, e.g. the use of pacemakers and hearing aids;
- f) equipment used for calibration or measurement;
- g) the immunity of other equipment in the environment. The user shall ensure that other equipment being used in the environment is compatible. This may require additional protection measures;
- h) the time of the day that welding or other activities are to be carried out.

The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

Methods of reducing emissions

Mains supply

Welding equipment should be connected to the mains supply according to the manufacturers recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering the mains supply. Consideration should be given to shielding the supply cable of permanently installed welding equipment, in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length. The shielding should be connected to the welding power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.

Maintenance of the welding equipment

The welding equipment should be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in the manufacturer's instructions. In particular, the spark gaps of arc striking and stabilizing devices should be adjusted and maintained according to the manufacturer's recommendations.

Welding cables

The welding cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

Earth bonding of installation

Bonding of all metallic components in the welding installation and adjacent to it should be considered. However, metallic components bonded to the work piece will increase the risk that the operator could receive a shock by touching these metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

Earthing of the workpiece

Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, e.g. ship's hull or building steelwork, a connection bonding the workpiece to earth should be made by a direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by suitable capacitance, selected according to national regulations.

Screening and shielding

Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening of entire welding installation may be considered for special applications.

INTRODUCTION

The welding machine you have purchased has been designed, manufactured and tested to comply with the latest European Community regulations.

The working frequency (30 kHz) eliminates the characteristic noise of older electronic power modules.

Variations of mains supplies within the working limits set forth in this manual will not cause any variation in the welding current.

As well as using tested quality components, LINCOLN ELECTRIC bench tests every power module, simulating particularly heavy working conditions. In this way it is possible to spot any potentially defective component.

LINCOLN ELECTRIC has compiled this manual with the intention to furnish the instructions for operation of the arc welding machines V200-T 2V, V260-T, V400-T.

The arc welding machine, if used correctly, can be operated in very safe conditions but if the prescribed safety norms are not observed it could cause serious damage to people and objects.

SAFETY NORMS FOR THE OPERATOR.

PREVENTION OF BURNS.

The electric arc is a source of intense visible light and heat emissions as well as very damaging invisible ultra red and ultraviolet radiation.

To avoid any possible damage, the operator must use adequate protective garments such as:

- 1) insulating gloves,
- 2) leather apron,
- 3) gaiters,
- 4) protective shoes,
- 5) welding mask provided with safety lenses of adequate DIN grade selected, capable of filtering the radiation and reducing the bright light intensity.

The safety lenses must always be kept clean and must be quickly replaced in case of damage.

Since incandescent spray products generated during the cutting or welding operations may be deposited on the safety lenses thus reducing the visual field, the use of a protective transparent lens in front of the safety lens is strongly recommended.

Never look at the electric arc without adequate protections for the eyes.

Protect the working area in order that other working people in the vicinity are not affected by the radiation from the electric arc.

Pay attention in handling the pieces being worked on, use adequate tools to avoid burns that can be caused by the overheating of the piece during the operations of welding and/or cutting.

PREVENTION OF ELECTRIC SHOCK

The electric arc welding machine is a power source of high intensity current and therefore special care must be taken when operating or maintaining this welding machine.

Mains cables:

Connect the mains cable to a plug equipped with a fused switch.
Verify the conditions of the mains cable and replace if damaged.

Earthing:

Make sure that the mains supply line is adequately earthed and check that all connections are firmly made in order to avoid poor contacts and overheating.

Work station:

The earth from the power supply must be connected to the part being welded making sure of a good contact; the working bench must also be adequately earthed.

Operator protection:

The clothes of the operator must be dry.

Do not climb or lean on the parts being worked on when the power supply is in use.

In order to prevent electric shocks do not work in damp or wet environments unless protective clothing is worn.

Check the welding cables and the mains cable and replace them immediately if any bare wires are found.

Disconnect the mains before carrying out any work on the torch, on the power supply or on the welding cables.

In order to avoid any risk of accidental short-circuit or ignition of the arc, do not place the welding electrode holder or the torch directly on the working bench or any metallic surface connected to the earth of the power supply.

WARNING: the electromagnetic fields generated by the high welding currents could cause malfunctions of vital electronic apparatus.

PREVENTION OF TOXIC FUMES.

These precautions must be adopted in order to prevent exposure of the operator or other people to the toxic fumes generated during the welding process.

Avoid to perform welding operations on painted or oily or greasy surfaces.

Some chlorinated solvents can break down during welding and generate harmful gases such as phosgene gas.

It is therefore important to make sure that such solvents are not present on the parts being worked on and if they are present it is necessary to remove them before the operating the welding machine.

It is furthermore necessary to make sure that such solvents or other degrading agents are not in the immediate proximity of the working area.

Metal parts coated with or containing lead, graphite, cadmium, zinc, mercury beryllium and chrome could cause harmful concentrations of toxic fumes and must not be subjected to welding operations unless:

- 1) the coating is removed before starting to weld,
- 2) the working area is adequately ventilated.
- 3) the operator uses an adequate fume filtering system.

Don't work in a space without adequate ventilation.

PREVENTING FIRE.

During the welding process metal gets overheated and sparks and slag may fly around. Adequate precautions must be taken in order to prevent fires and/or explosions.

Avoid operating in areas where there are containers of flammable substances.

All fuels and/or combustible products must be kept away from the working area.

Fireproof devices must be in the immediate proximity..

Particular precautions must be taken when welding on barrels that have contained inflammable substances or inside metallic containers or places with poor ventilation.

These operations must always be performed in the presence of qualified personnel that could lend necessary assistance if required.

DO NOT ever operate in an environment whose atmosphere is filled with flammable gases, vapours or combustible liquids (such as gasoline or its vapours).

USE OF INERT GAS CYLINDERS.

When compressed air systems or gas cylinders are used it is necessary to comply with all the prescribed requirements.

Pressure regulators.

All pressure regulators used in the equipment must be in good working conditions. These devices, if not kept in optimal conditions, could cause damages to the welding machine or to the operator. In case of damage replace the device immediately.
NEVER use regulators intended for a gas different from the one used with the welding machine.
NEVER use regulators that are visibly damaged.
Do not lubricate the regulators with oil or grease.

Gas cylinders:

Cylinders containing compressed gas are to be used according to the relevant regulations. Never use a cylinder that is broken or visibly damaged..
Do not use cylinders that are not firmly fixed.
Do not move or transport a cylinder without the prescribed protection.
Do not use the gas if the cylinders for applications differ from that originally intended.
Do not lubricate the valves of the cylinders with oil or grease.
Do not allow electric contact between the cylinders and the welding machine.
NEVER expose the cylinders to excessive heat, sparks, slag or flames ever.
NEVER try to repair a defective cylinder but send it back to the gas supplier.

Pipelines

The pipelines used for the various gases have the following colour codes:
Blue = Oxygen
Black = Inert gas and Air
NEVER use green pipes for gases other than oxygen.
REPLACE any pipe that is damaged by cuts or that shows scorch marks.
Do not allow any creases or folds that could reduce the pressure on the delivery of the line.
Examine periodically the pipelines looking for possible leaks, wearing or defective connections.

PROTECTION FROM NOISE

On the subject of noise the prescriptions of the directive n86/ 188/ C.E.E. are to be applied. In normal conditions the electronic apparatuses used in electric arc welding do not cause noise levels above 80 db. In connection with the working procedure being used (TIG welding in continuous or pulsed conditions) and with the relative conditions of use (values of the welding parameters or distance between piece to be welded and torch, closed or open environment) could be verified noise levels higher than this limit. It is therefore necessary for the operator to apply the precautions prescribed by the relevant regulations..

SAFETY DEVICES

The power supplies are equipped with appropriate safety devices to prevent damage to the welding machine and the operator.
Never tamper with the safety devices by short circuiting or opening the connecting terminals. Never try to use the power supply without the protection circuits and/or devices installed and in perfect working conditions as this could be extremely risky for the operator and any person nearby.
All electric connections must be shielded by the appropriate insulating material.
WARNING: The safety devices must be checked periodically and whenever found defective must be replaced immediately.

DANGER SIGNALS

Inside or outside the power supply are danger warning signs against possible risks. This are described as follows:



CAREFULLY READ THE INSTRUCTIONS MANUAL.



GENERAL WARNING: this symbol points out a danger of any nature that could cause damage to people or property.



WARNING!: in this spot contact wounds could occur (such as electric shock).



DANGER Of DEATH: maximum attention must be paid whenever this signal is shown!

Never touch, for any reason whatsoever, the area so labelled as there exists a serious risk of death.



DANGER Of FIRE: where this sign is shown there exists a risk of fire.



EXPLOSIVE SUBSTANCES Or DANGER Of EXPLOSION.



RADIATION DANGER: when this signal is shown, safety lenses must be worn to avoid serious eye damage.

INSTRUCTION NOTES.

This part of the manual is important for a correct use of the of the arc welding power supply; it does not contain particular instructions for maintenance as these power supply do not require any maintenance.

The unique precautions to be taken are those typical for any electric welding machine with metallic frame and cover.

It is recommended to avoid hitting, banging and in any way exposing the welding machine to dropping, sources of excessive heat, or other such situations.

In case of transportation and/ or storage the welding machine should not be exposed to a temperature outside the range of: -25 to + 55 °C

If extraordinary maintenance is required, and only if the necessary technical expertise and tools are available, it is possible to follow the instructions provided by the relevant technical service manual, otherwise it is recommended to approach the nearest technical service centre or directly the manufacturer.

Maintenance or repairs performed by technical service centres not authorized by LINCOLN ELECTRIC will immediately render null and void manufacturer warranty.

START-UP PROCEDURE.

CAREFULLY READ THE INSTRUCTION MANUAL BEFORE ATTEMPTING TO CONNECT THE POWER UNIT TO THE LINE AND TO USE IT.

By following these instructions you will avoid damage due to incorret intallation.

The damage caused by incorrect use of the power unit is not covered by manufacturer warranty.

This arc welding welding machine is a power unit designed for professional applications and must only be used by trained personnel.

The power unit can perform in environments where conditions are particularly harsh and with outside temperature between - 20 and +40 °C with a humidity level:

max 50% up to +40° C
max 90% up to +20° C

1. Do not place the unit close to walls or in positions where the flow of air through the cooling air slots is obstructed or limited in any way do not cover the power supply with rags, sheets of paper, plastic covers, etc.
2. Make sure that the room temperature is lower than 40° C and that the working area is not subject to any damaging pollution, such as:
 - a) damp air with dust mixed with acids or salts.
 - b) air with high concentrations of iron or metallic dust.
3. Verify that the value of the main line voltage conforms to the value indicated for the power supply
4. Verify that the value of the available main line power is adequate for the requirements of the power unit. If in doubt, consult the table under the heading TECHNICAL DATA.
5. The protection class for the machine is IP 23, which means that the cover of the power unit protects it from external bodies having a diameter larger than 12 mm and from water spray up to 60 degrees from the vertical. Therefore do not:
 - dip the power unit in liquid of any kind.
 - place it on muddy and damp surfaces.
 - Insert foreign bodies in or around the cooling air slots.
6. Don't use the power unit without its cover; this could prove to be harmful for the welding machine and for the operator.

DESCRIPTION OF FRONT PANEL (foto 1)

- LED 1: This LED has two functions:
 - a) it will go on when the main line voltage is not within the limits pre-set for a correct operation.
 - b) it will go on in case of overheating.
- LED 2: indicates voltage at the welding terminals.
- LED 3: indicates gas supply.

Controls which the operator can regulate

- S1: Switch to choose the welding process to be performed: T.I.G. (2/ 4 step) or stick electrode.
- S2: Three way switch to select the T.I.G. process to be performed:
 - I. pulsed T.I.G.: position 1 or "PULSER"
 - II. continuous T.I.G : OFF position
 - III. spot T.I.G.: position 2 or "SPOT"
- M1: To set the value of the required welding current, the value selected is shown on the display.
- M2: To adjust the value of START CURRENT and of CRATER CURRENT.
- M3-M4: To set the time of slope-up and slope-down of the welding current, respectively.
- M5: To adjust the time of post-gas flow during the T.I.G. process.
- M6-M7-M8 : To adjust the parameters of the pulsed T.I.G. process (with S2 in position "PULSER"), PERIOD, DUTY CYCLE, AMPLITUDE; with S2 in position "TIG SPOT," M6 regulates the time interval for spot welding while the other two controls, M6-M7, are disabled.
- CN1: Connector for the remote control.

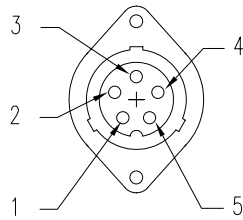
PIN	Function	Description	Value	Note
1	INPUT	Weld. Current Reg.	0..5Vdc (0..10Vdc)	active connecting pin5 to GND
2	OUTPUT	Supply	12Vdc @20mA	
3	GND	Ground	0V	
4	INPUT	Start welding	active connecting to GND	active connecting pin5 to GND
5	INPUT	Remote	active connecting to GND	

CONNECTIONS ON THE FRONT PANEL

Also located on the front panel are:

- The electrode holder and earth clamp plugs,
- The gas connection,
- The female plug for the connection of the TIG torch switch.

FRONT VIEW



pin 1: torch switch.
pin 2: torch switch.
pin 3,4,5 : n.c.

CONNECTION TO THE MAINS SUPPLY

Three phase model.

Before connecting to the mains supply make sure that the supply voltage is between 340 and 460 VAC. In case of voltage higher than this limit the power unit turns into “blocked conditions”; while with voltages up to 460 VAC the power unit will not be damaged; higher values could cause damage to the rectifier block and/or to the mains supply filter.

2V model.

Before connecting to the mains supply make sure that the supply voltage is between 200 and 255 VAC. with the voltage selector positioned on 230 VAC. With a voltage of 255 VAC the power supply turns into “blocked conditions”; higher values could damage the rectifier block and/ or the mains supply filter.

If the power unit is used with the voltage selector positioned on 400 VAC then the mains supply voltage must be between 340 and 460 VAC.

IT IS COMPULSORY TO HAVE AN EARTH CONNECTION.

PROTECTION

The power unit has a range of internal protection that always assures correct operation:

- Protection for the maximum value of the mains voltage,
- Protections against overheating,
- Internal fuse.

Maximum value of main supply voltage.

The power unit is protected against irregularities of voltage that could be caused by anomalies in the mains supply; in this case the power unit will turn into “blocked conditions” and this situation will be indicated by LED2, on the front panel.

It will remain in this state until the mains supply voltage goes back within the pre-set values after which the unlocking will be automatic.

Overheating protection.

If the temperature climbs above the pre-set value or if the duty cycle goes beyond the expected limits, appropriate heat sensors, placed inside the power unit, would stop the operation with consequent lighting of LED 2 indicator; as soon as the conditions return to those expected, the power unit will resume functioning.

Internal fuse

The power unit is provided with an internal fuse for the protection of some circuits.

Before replacing a broken fuse please seek LINCOLN ELECTRIC.

WARNING: If the power unit connected to the mains supply and in “ON” position is not used for a period of time longer than 5 minutes, it will turn itself into "STANDBY" conditions and it will be turned “ON”, automatically, when the electrode touches the work piece. In the TIG process, the restoration will occur upon pressing of the torch switch. This feature reduces the power consumption of the welding equipment with low frequency of use.

DEVICE TO CONTROL THE SHORT CIRCUIT DYNAMIC CURRENT:

The power unit has been designed with a device that allows the adjustment of the current during the phase of "drop transfer": through the knob M2 (see front panel) it is possible to set the amplitude of the of the peak current necessary for the transfer of the optimal droplet. This device is effective when using basic electrodes traditionally difficult to use. It is easy to cause spatter of welding material if the set current is excessively high or sticking of the electrode if the current is too low. Thanks to this circuit it is always possible to have the optimum value of the welding current required for the working conditions.

OPERATING INSTRUCTIONS.

Start-up

Rotate the mains supply switch on the back of the power unit to the position "I" or on the value of the mains supply voltage selected, depending upon the power unit being used; the LED indicator "POWER" (LED 1) placed on the front panel will turn on.

One second after the switching on of the power unit a "click" from the starter relay will be heard, after which the unit will be ready to operate.

Regulation and reading of the welding current.

The regulation of the welding current is effected with the knob M1 having a range of 0-200 Amp for V200-T, of 260 Amp for V260-T or 0-400 Amp for V400-T. The set welding current is directly legible on the scale on the front panel.

Hot start.

A system of "HOT START" has been built within the welding current control in order to have, when striking the arc, an higher current to help the ignition of the arc.

OPERATING INSTRUCTIONS

Regulation and reading of the welding current.

The welding current regulated with the knob M1.

The set welding current is directly legible on the display on the front panel.

Pre-gas and post-gas.

The power units of the "TC" line, have a fixed pre-set time for pre-gas of 0.5 sec . and an adjustable post-gas time, through M5 knob, from 3 to 60 sec. starting from the extinction of the arc.

Functions of the torch switch (fig.1).

The functions of the torch switch are differentiated whether the 2 STEP or the 4 STEP mode is used.

2 STEP

The welding cycle begins with pressure on the torch switch and finishes when pressure is released.

4 STEP

The welding cycle begins with an instantaneous pressure on the torch switch and finishes with a second instantaneous pressure of the same.

The phase of pre-gas is followed by a phase of increase of the welding current from the level of "START-CURRENT," set with M2, to the value visualised on the display and set with M1. The speed of this increase is determined by the setting of the knob "UP-SLOPE" (M3).

The phase of turning off of the arc, as indicated, begins with the release of the torch switch in the " 2 STEP" mode or with a second pressure in the " 4 STEP" mode.

During this phase, the welding current falls from the nominal value to the value of CRATER-CURRENT (M2). The speed at which the welding current decreases is determined by the setting of the knob "DOWN-SLOPE" (M4).

The power supply comes equipped with RESTART. The pre-setting without RESTART must be performed by specialised personnel or by authorised service centres.

In the TIG-SPOT mode (S2) the UP/ DOWN-SLOPE controls and the possible function "PULSER." are disabled.

The welding cycle takes an "ON-OFF" type shape with the welding current jumping very rapidly from 0 to the nominal value.

“PULSER” function.

It can be selected with S2 and enables the superimposition to the welding current of an impulsive current with frequency, duty-cycle and varying amplitude adjusted by means of the respective knobs M6 M7 M8.

Remote control.

The remote is connected through the CN1 plug on the front panel. It is used for the control of the welding current from a remote position through a foot operated or other external regulator. The setting of the power supply in remote control mode happens automatically upon insertion of the remote control connector.

The insertion of the connector modifies the following functions:

- current control is moved from the front panel knob to the remote control knob
- the torch switch becomes inactive and it is replaced by the foot pedal
- the up-slope and down-slope functions control is transferred from the front panel to the foot pedal
- the 4 stroke mode is eliminated.

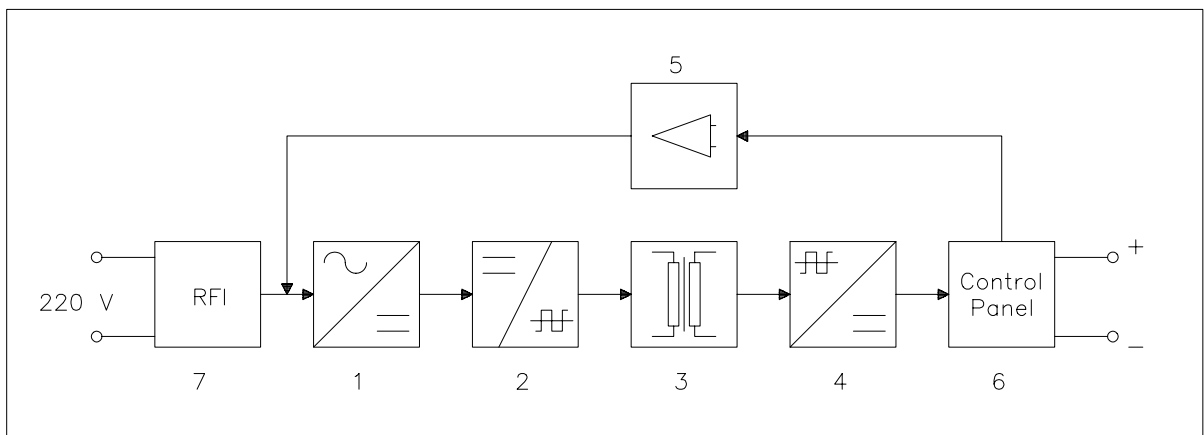
TECHNICAL DATA, SPARE PARTS LIST ELECTRIC DIAGRAMS.

BLOCK DIAGRAM.

Before describing the block diagram, we would like to introduce some general concepts upon which the construction of our generator is based. The equipment “heart”, the most technically advanced part is the inverter, is built using top quality electronic components, in order to obtain high reliability during heavy-duty operation.

The inverter is a particular oscillating circuit which, fed by a DC source, supplies an AC voltage at the desired frequency. Advantages can be obtained by increasing the frequency, e.g.:

- It is possible to use smaller and lighter transformers and obtain the same transferred power.
- It is possible to have instantaneous output variation (welding current). This allows the current to be adjusted continuously, thereby adapting it to the requirements of the process.
- The application of such frequencies eliminates well-known and troublesome noises that are generally met when using electro-mechanical equipment.



Functional description of Block Diagram

- a) The main supply voltage is rectified and filtered by rectification and filtering block (1)
- b) The obtained DC voltage is converted by the inverter (2) to AC high frequency voltage.
- c) AC voltage is then applied to the transformer's (3) primary which lowers it to a value suitable for the welding process and galvanically insulates the main supply connectors.
- d) The output of the transformer provides a high frequency low voltage which is rectified and filtered by block (4).
- e) The control board (5) provides:
 - a) Welding current regulation.
 - b) Dynamic current trimming.
- f) The control panel (6) allows the "TC" equipments users to choose the type of welding process:
 - a) Stick electrode
 - b) TIG

The "TC" equipment is provided with an HF board to ignite the arc in TIG mode. This board ensures the arc striking and avoids direct contact between electrode and the piece to be welded up to a distance of about 5 mm. This board works automatically.

TECHNICAL DATA:

Main Power Supply:

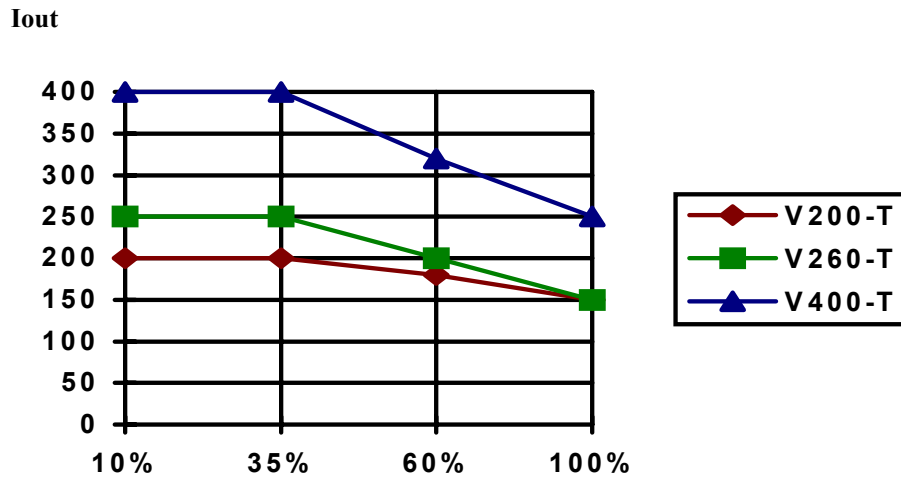
	V200-T 2V	V260-T	V400-T
Main Supply voltage	230/400V 1 phase	400 V 3 phases	400 V. 3 phases
Frequency	50/60 Hz	50/60 Hz	50/60 Hz

Max primary current	33/19 A	14 A	28.5 A
Max absorbed power	7.6 KVA	9.7 KVA	18.8 KVA
Power factor (I1)	0,9	0,9	0,9
Efficiency	0.75	0.75	0.85

Welding:

	V200-T 2V	V260-T	V400-T
Max no-load Voltage	80 V	80 V	80 V
Welding current regulation	1/200 A	1/260 A	0/400 A
Current with Duty-Cycle 35%	200 A	250 A	400 A
Current with Duty-Cycle 60%	180 A	200 A	320 A
Current with Duty-Cycle 100%	150 A	150 A	250 A
Dimensions (d x l x h)	44 x 19 x 25.5 cm	44 x 19 x 25.5 cm.	55.5 x 23.5 x 33 cm
Weight	14/16Kg	14/16Kg	24/28 Kg
Protection class	IP23	IP23	IP23

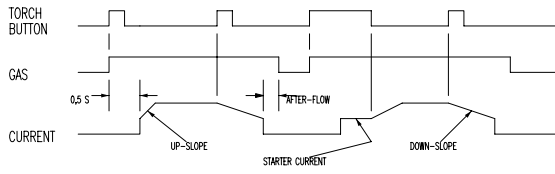
DUTY CYCLE:



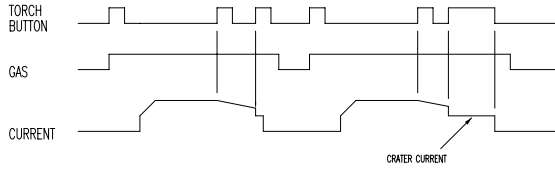
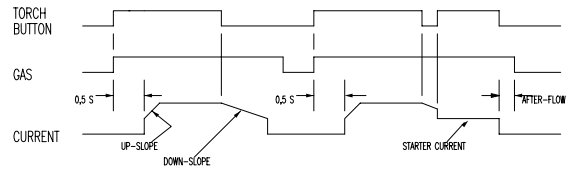
The graph shows the welding current (in Amps.) on the Y axis and the percentage of working time calculated on a total time of ten minutes on X axis.

BUTTON TORCH FUNCTIONS

4 STROKE MODE WITHOUT RESTART



2 STROKE MODE



4 STROKE MODE WITH RESTART

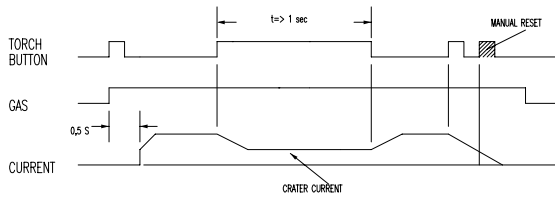


Fig. 1

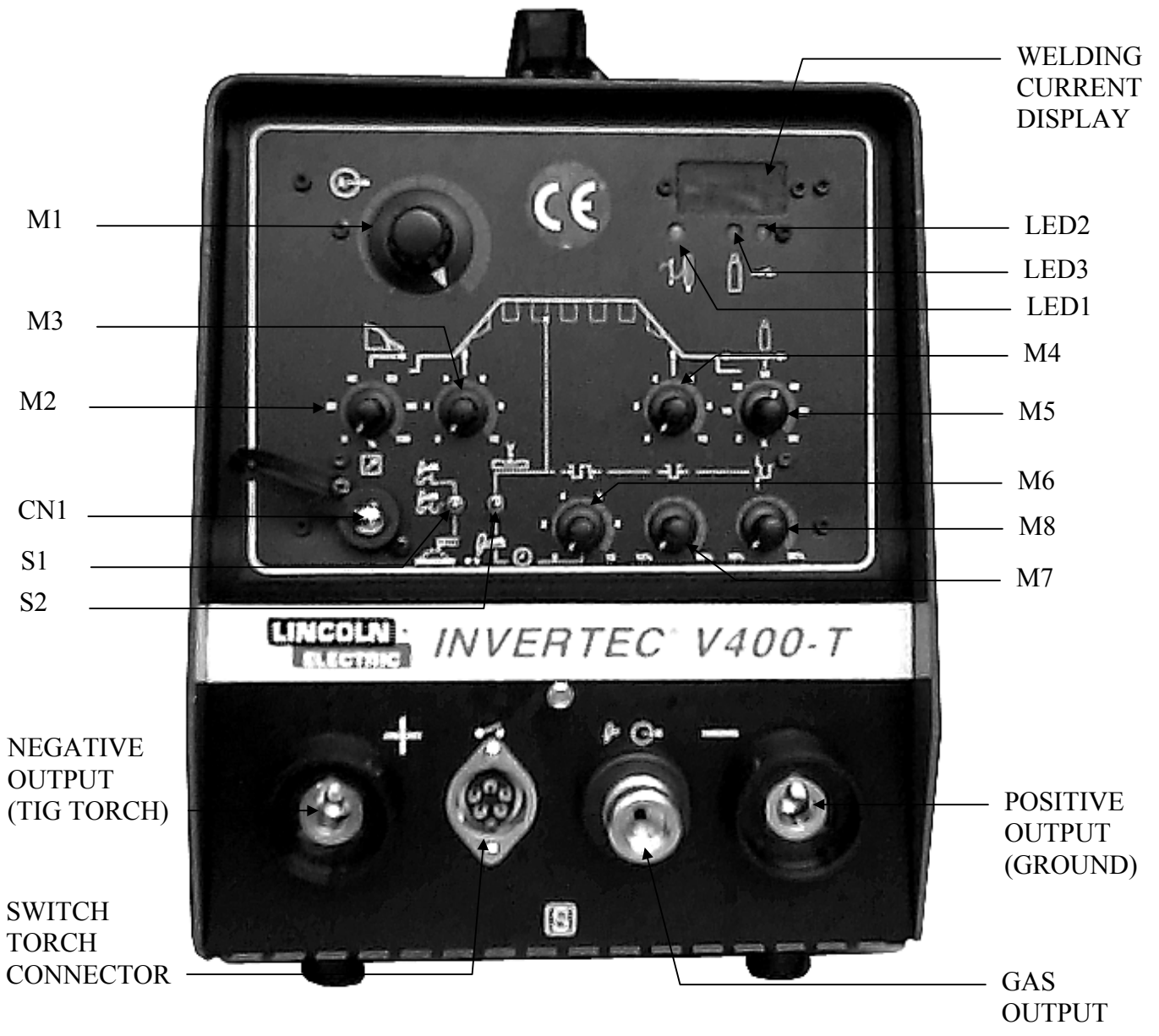
SPARE PARTS LIST

REF	CODE	DESCRIPTION	
V200-T			
1	W5994115	ELECTROVALVE correct is W8500004R	1
2	W050091B	BOARD H.F. HF91(trimmed 0.3mm)	1
3	W5994115	H.F. TRANSFORMER	1
4	W1820504	RESISTOR 50 OHM 80W	2
5	W8700003	KNOB	1
5	W8700004		1
6	W8700002	KNOB	7
7	W90A4087	FRONT PANEL	1
8	W9314014	FAN GRID	1
9	W7501601	VOLTAGE SELECTOR & SWITCH 20A-600V	1
10	W9600090	MICROTHERMOSTAT 90 D. C. N.O.	1
11	W0594149	INPUT BOARD PI200-2V(tested)	1
12	W4006040	DIODE MUR 6040	8
13	W0513001	BOARD SU 261	1
14	W9200003	BLACK SHOULDER-STRAP	1
15	W9200050	FIXED HANDLE WITH NUT	1
16	W05620T1	CONTROL BOARD SCW94T(tested & trimmed for 200A)	1
17	W5994043	OUTPUT TRANSFORMER dis.94043	1
18	W0514C32	INVERTER EW 9002(assembled & tested)	1
19	W7200004	FAN 120x38 SUNON	1
22	W8400044	PLASTIC PINS 24X24mm	4
23	W7690250	OUTPUT SOCKET TBE 50(CX31)	2
24	W7815209	MAIN POWER CABLE	1
25	W9396381	BACK PANEL	1
27	W9396380	ALUMINIUM SHELL	1
28	W9316444	FRONT PANEL	1
29	W5894042	OUTPUT INDUCTOR dis.94042	1
30	W0518400	RFI BOARD FILT-2(35A-400V)	1
V260-T			
1	W5994115	ELECTROVALVE correct is W8500004R	1
2	W050091B	BOARD H.F. HF91(trimmed 0.3mm)	1
3	W5994115	HF TRANSFORMER	1
4	W1820504	RESISTOR 50 OHM 80W	2
5	W8700003	KNOB	1
5	W8700004		1
6	W8700002	KNOB	7
7	W90A4087	FRONT PANEL	1
8	W9314014	FAN GRID	1
9	W7500203	TRIPOLAR SWITCH 10A 400V	1
10	W9600090	MICROTHERMOSTAT 90 D. C. N.O.	1
11	W0594034	INPUT BOARD PI200-400V (tested)	1
12	W4006040	DIODE MUR 6040	10
13	W0513001	BOARD SU 261	1
14	W9200003	BLACK SHOULDER-STRAP	1
15	W9200050	FIXED HANDLE WITH NUT	1
16	W05620T2	CONTROL BOARD SCW94T (tested & trimmed for 260A)	1
17	W5994043	OUTPUT TRANSFORMER dis.94043	1

18	W0594C32	INVERTER EW 9001(assembled & tested)	1
19	W7200004	FAN 120x38 SUNON	1
22	W8400044	PLASTIC PINS 24X24mm	4
23	W7690250	OUTPUT SOCKET TBE 50(CX31)	2
24	W7815212	MAIN POWER CABLE	1
25	W9396381	FRONT PANEL	1
26	W8500005	ELECTROVALVE TYPE 5538 12Vdc	1
27	W9396380	ALUMINIUM SHELL	1
28	W9396444	FRONT PANEL	1
29	W5894042	OUTPUT INDUCTOR dis.94042	1
30	W0518500	RFI BOARD FILT-3(10A-400V)	1

V400-T

1	W7200006	FAN 150mm COMMONWEALTH	1
2	W1820504	RESISTOR 50 OHM 80W	2
3	W9096481	FRONT PANEL	1
4	W8700003	KNOB	1
4	W8700004		1
5	W9200226	FIXED HANDLE WITH NUT	1
6	W0527900	INPUT BOARD PI400	1
7	W5994234	OUTPUT TRANSFORMER	1
8	W9200003	BLACK SHOULDER-STRAP	1
9	W8400044	PLASTIC PINS 24X24mm	4
10	W9600090	MICROTHERMOSTAT 90 D. C. N.O.	1
11	W7501703	TRIPOLAR SWITCH 20A	1
12	W8500004	ELECTROVALVE TYPE 5536 12Vdc	1
14	W050091B	BOARD H.F. HF91(trimmed 0.3mm)	1
14	W9396430	FRAME	1
15	W05620T3	CONTROL BOARD SCW94T(tested & trimmed for 400A)	1
16	W5894230	OUTPUT INDUCTOR	1
17	W4006040	DIODE MUR 6040	18
18	W5994288	TRANSFORMER H. F.	1
19	W8700002	KNOB	7
20	W0518600	RFI BOARD FILT-4(20A-400V)	1
21	W051831R	EW 18001(complete+tested+package)	1
22	W7690250	OUTPUT SOCKET TBE 50(CX31)	2
23	W0527400	OUTPUT DIODES BOARD SU400(TC)	1
25	W9396383	ALUMINIUM SHELL	1
26	W7815192	MAIN POWER CABLE	1
27	W9396433	FRAME	1



M1
M3
M2
CN1
S1
S2

WELDING
CURRENT
DISPLAY
LED2
LED3
LED1
M4
M5
M6
M8
M7

NEGATIVE
OUTPUT
(TIG TORCH)

SWITCH
TORCH
CONNECTOR

POSITIVE
OUTPUT
(GROUND)

GAS
OUTPUT

LINCOLN
ELECTRIC *INVERTEC V400-T*