

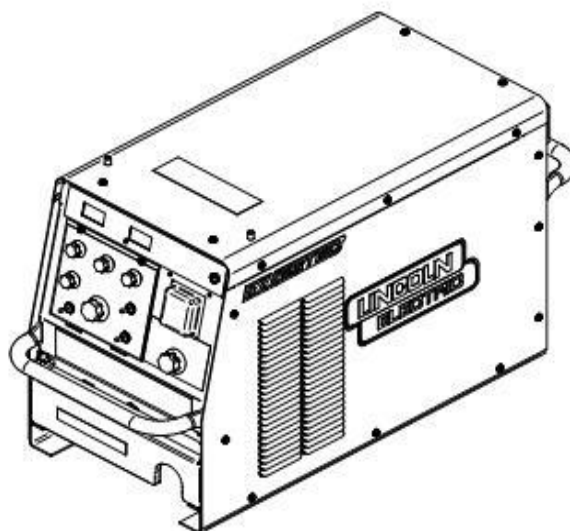
INVERTEC® CV/CC500

For use with machine Part Number K60051-1, Code 76072

Safety Depends on You

Lincoln arc welding and cutting equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation and thoughtful operation on your part. **DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT.**

And, most importantly, think before you act and be careful.



OPERATOR'S MANUAL



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• World's Leader in Welding and Cutting •
THE SHANGHAI LINCOLN ELECTRIC COMPANY
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www.lincolnelectric.com.cn

Thank you for selecting QUALITY Lincoln Electric products.

- Please examine the packaging and equipment for damage. Claims for material damaged in shipment must be notified immediately to the authorized dealer from whom you purchased the machine.
- For future reference, please record your equipment identification information in the table below. Model Name, Code & Serial Number can be found on the machine rating plate.

☐ Invertec® CV/CC500	Model Name
	Code & Serial number
	Date & Where Purchased
Authorized dealer's shop	

Declaration of conformity

THE SHANGHAI LINCOLN ELECTRIC COMPANY



Designed in conformance with the following norm:

GB15579.1
EN 60974-1

⚠ WARNING

ARC WELDING CAN BE HAZARDOUS. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.



ELECTRIC AND MAGNETIC FIELDS may be dangerous.

- 1.a Electric current flowing through any conductor causes localized Electric and Magnetic Field (EMF). Welding current creates EMF fields around welding cables and welding machines.
- 1.b EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.
- 1.c All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:
 - 1.c.1 Route the electrode and work cables together – Secure them with tape when possible.
 - 1.c.2 Never coil the electrode lead around your body.
 - 1.c.3 Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.
 - 1.c.4 Connect the work cable to the workpiece as close as possible to the area being welded.



ARC RAYS can burn.

- 2.a Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc. Headshield and filter lens should conform to ANSI Z87.1 standards.
- 2.b Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- 2.c Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.



ELECTRIC SHOCK can kill.

- 3.a The electrode and work (or ground) circuits are electrically “hot” when the welder is on. Do not touch these “hot” parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hand.
- 3.b Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, grating or scaffolds; when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:

- Semiautomatic DC Constant Voltage (Wire) Welder.
 - DC Manual (Stick) Welder.
 - AC Welder with Reduced Voltage Control.
- 3.c In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically “hot”.
 - 3.d Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.
 - 3.e Ground the work or metal to be welded to a good electrical (earth) ground.
 - 3.f Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
 - 3.g Never dip the electrode in water for cooling.
 - 3.h Never simultaneously touch electrically “hot” parts of electrode holder to two welders because voltage between the two can be total of the open circuit voltage of both welders.



FUMES AND GASES can be dangerous.

- 4.a Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. **When welding with electrodes which require special ventilation such as stainless or hard facing (see instructions on container or MSDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and below Threshold Limit Values (TLV) using local exhaust or mechanical ventilation. In confined spaces or in some circumstances, outdoors, a respirator may be required. Additional precautions are also required when welding on galvanized steel.**
- 4.b Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays or the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.
- 4.c Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.
- 4.d Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the material safety data sheet (MSDS) and follow your employer's safety practices. MSDS forms are available from your welding distributor or from the manufacturer.



FOR ELECTRICALLY powered equipment.

- 5.a Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- 5.b Install equipment in accordance with the national standard, all local standards and the manufacturer's recommendations.
- 5.c Ground the equipment in accordance with the national standards and the manufacturer's recommendations.



WELDING SPARKS can cause fire or explosion.

- 6.a Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.
- 6.b When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- 6.c Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned".
- 6.d Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair.



CYLINDER may explode if damaged.

- 7.a Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.
- 7.b Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- 7.c Cylinder should be located:
 - Away from areas where they may be struck or subjected to physical damage.
 - A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
- 7.d Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.
- 7.e Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- 7.f Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

TECHNICAL SPECIFICATIONS – INVERTEC® CV/CC500

INPUT – THREE PHASE ONLY			
Standard Voltage / Phase / Frequency		380V ~ 415V (±10%) / 3 / 50 or 60 Hz	
RATED OUTPUT – DC ONLY			
Max Input Power at Rated Output （SMAW ）		23 kVA @ 60% Duty Cycle	
Welding Mode	Duty Cycle	Amperes	Volts at Rated Amperes
GMAW	60% 100%	500A 390A	39V 33.5V
SMAW（STICK）	60% 100%	500A 390A	40V 35.6V
GTAW（TIG）	60% 100%	500A 390A	30V 25.6V
OUTPUT RANGE			
Welding Mode	Welding Current Range	Open Circuit Voltage	Welding Voltage Range
GMAW	50A ~ 500A	67V	16 V ~ 39V
SMAW（STICK）	30A ~ 500A	67V	21.2 V ~ 40V
GTAW（TIG）	5A ~ 500A	67V	10.2 V ~ 30V

RECOMMENDED INPUT WIRE AND FUSE SIZES						
INVERTEC® CV/CC500	Input Voltage/ Frequency (Hz)	Maximum Input Ampere	Maximum Effective Supply Current	60°C Copper Wire in Conduct Sizes	Fuse or Breaker Size (Super Lag)	Grounding Conductor Size
	342~456 V/ 50Hz or 60Hz	51A	40A	12mm ²	60A	10mm ²

PHYSICAL DIMENSIONS				
INVERTEC® CV/CC500	Height	Width	Depth	Weight
	480mm	350mm	840mm	56Kg

Temperature Range	
Operating Temperature Range	-10°C ~ +40°C
Storage Temperature Range	-25°C ~ +55°C

For any maintenance or repair operation it is recommended to contact the nearest technical service center or directly consult machine division of the Shanghai Lincoln Electric. Maintenance or repairs performed by unauthorized service center or personnel will void the manufacturer's warranty.

SAFETY PRECAUTIONS

Read the entire installation section before starting installation.

⚠ WARNING



ELECTRIC SHOCK can kill.

- Only qualified personnel should perform this installation.
- Turn the input power OFF at the main switch or fuse box

before working on this equipment. Turn off the input power to any other equipment connected to the welding system at the main switch or fuse box before working on the equipment.

- Do not touch electrically "Hot" parts.
- Always connect the INVERTEC® grounding lug (located at the rear of the case) to a proper safety (Earth) ground. INVERTEC® is for use on a 4 wire system with earthed neutral.

SELECT SUITABLE LOCATION

This power source should not be subjected to falling water, nor should any parts of it be submerged in water. Doing so may cause improper operation as well as pose a safety hazard. The best practice is to keep the machine in a dry, sheltered area.

⚠ CAUTION

The bottom of machine must always be placed on a firm, secure, level surface. There is a danger of the machine toppling over if this precaution is not taken.

Place the welder where clean cooling air can freely circulate in through the back louvers and out through the case sides. Water, dirt, dust or any foreign material that can be drawn into the welder should be kept to a minimum. Failure to observe these precautions can result in excessive operating temperatures and nuisance shutdowns.

Locate the INVERTEC® machine away from radio controlled machinery. Normal operation of the welder may adversely affect the operation of RF controlled equipment, which may result in bodily injury or damage to the equipment.

STACKING

The INVERTEC® machine may be stacked 3 high. Be sure to locate the machines on a firm level surface and align the pins in the roofs of the lower unit with the holes in the base of the upper unit.

Two INVERTEC® CV /CC machines can be stacked together through the two holes (1.1) and the two pins (1.2). Please see **FIGURE A.1**.

The INVERTEC® CV/CC machine can be moved using the handles (1.3). Please see **FIGURE A.1**.

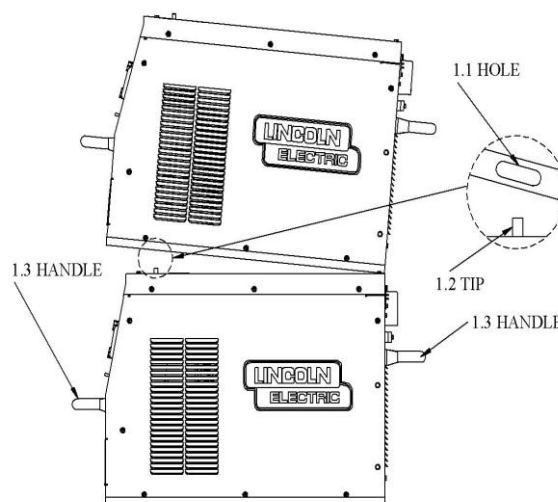


FIGURE A.1

INPUT POWER AND GROUNDING CONNECTION

⚠ WARNING

Only a qualified electrician should connect the input leads to the INVERTEC®. Connections should be made in accordance with the connection diagram. Failure to do so may result in bodily injury or death.

Open the input box on the rear of the case. Use a three-phase supply line, the three live wires should go through the three holes of the input wire holder and be securely clamped and fixed. Connect L1, L2, L3 and ground according to the Input Supply Connection Diagram decal, refer to Figure A.2 on this page.

Make sure the amount of power available from the input connection is adequate for normal operation of the machine. Refer to the Technical Specifications at the beginning of this Installation section for recommended fuse and wire sizes. Fuse the input circuit with the recommended super lag fuse or delay type breakers. Using fuses or circuit breakers smaller than recommended may result in "nuisance" shut-offs from welder inrush currents, even if the machine is not being used at high currents.

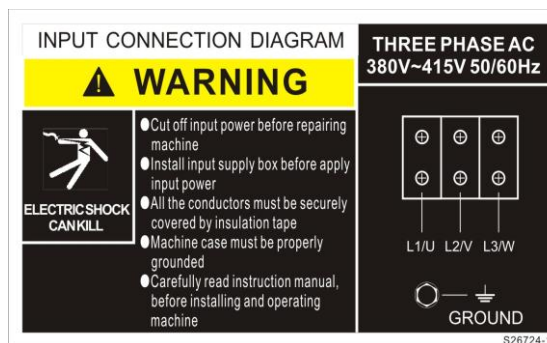


FIGURE A.2

PROCESS SELECTIONS AND CONNECTIONS

WARNING



ELECTRIC SHOCK can kill.

- Only qualified personnel should perform this installation.

- Turn the input power OFF at the main switch or fuse box before working on this equipment. Turn off the input power to any other equipment connected to the welding system at the main switch or fuse box before working on the equipment.

- Do not touch electrically "Hot" parts.

Always connect the INVERTEC[®] grounding lug (located at the rear of the case) to a proper safety (Earth) ground. INVERTEC[®] is for use on a 4 wire system with earthed neutral.

WORK CONNECTION

Connect a work lead of sufficient size between the proper output stud on the power source and the work. Be sure the connection to the work makes tight metal to

metal electrical contact. Poor work lead connections can result in poor welding performance.

To avoid interference problems with other equipment and to achieve the best possible operation, route all cables directly to the work and wire feeder. Avoid excessive lengths and do not coil excess cable.

Cable sizes are increased for greater lengths primarily for the purpose of minimizing cable drop.

Minimum work and electrode cable sizes are as follows:

TABLE A.1

Current (60% Duty Cycle)	Minimum Copper Work Cable Size
200A	Up To 30m Length
300A	30 mm ²
400A	50 mm ²
500A	70 mm ²
	95 mm ²

Note: The recommended cable size may need to change depending on its quality. When the rated current flow goes through, the total voltage drop on ground cable and electrode cable must not exceed 4 volts.

GMAW PROCESS (CV MODE) WIRE FEEDER CONNECTION

1. PWF WIRE FEEDER (FIGURE A.3)

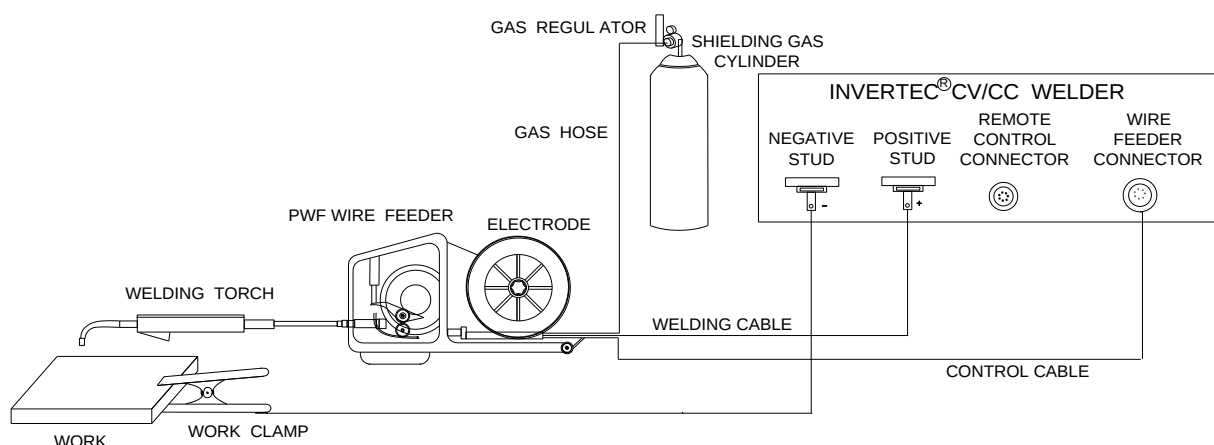


FIGURE A.3

2. LN-25 PRO FEEDER (FIGURE A.4)

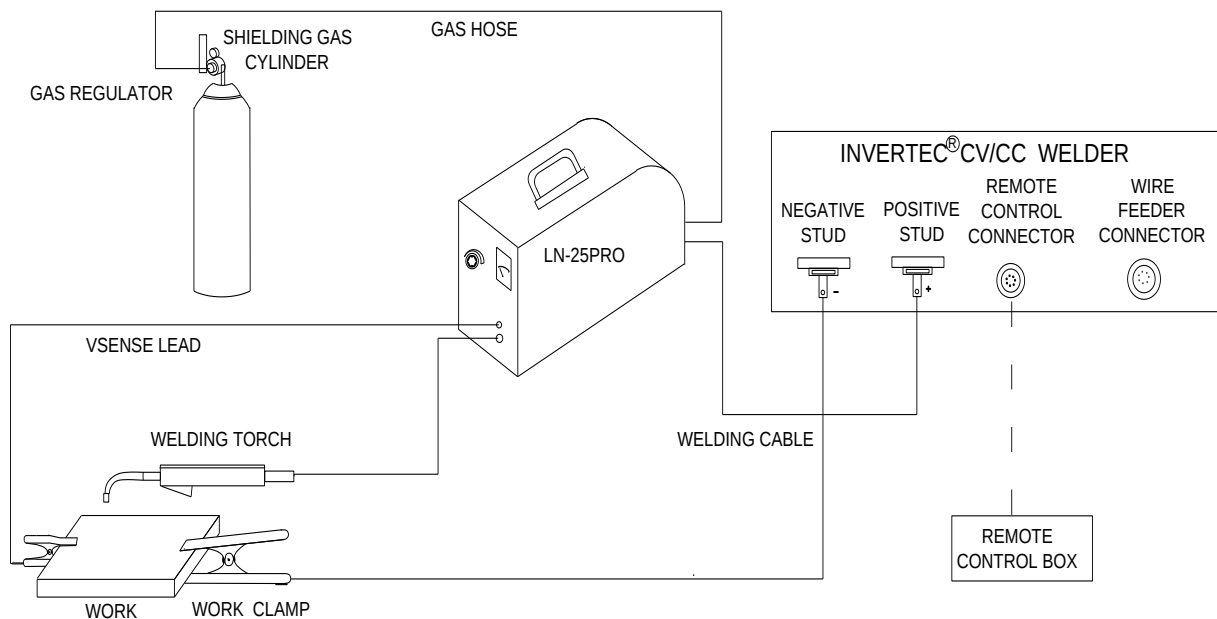


FIGURE A.4

3. GTAW PROCESS (CC MODE) CONNECTION (FIGURE A.5)

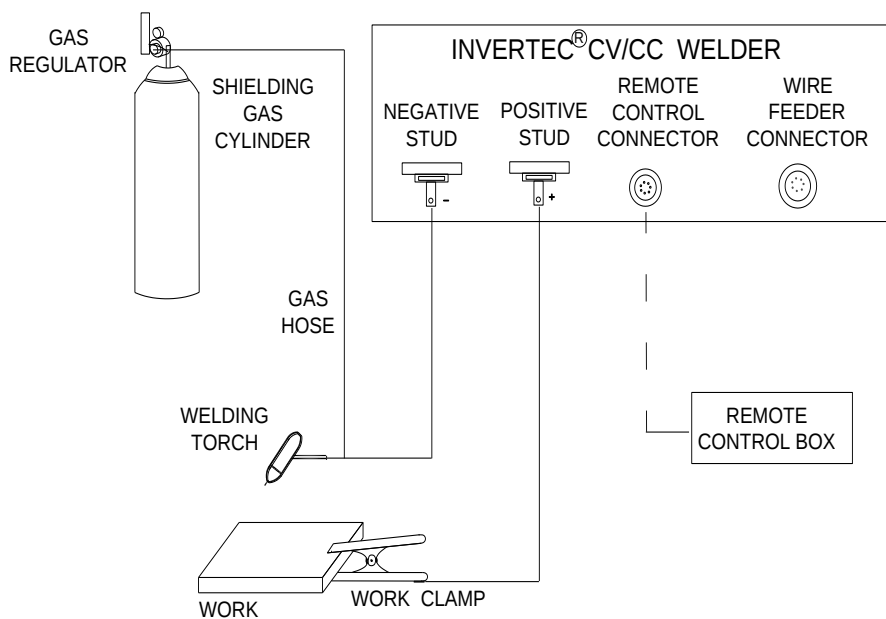


FIGURE A.5

4. SMAW PROCESS (CC MODE) CONNECTION (FIGURE A.6)

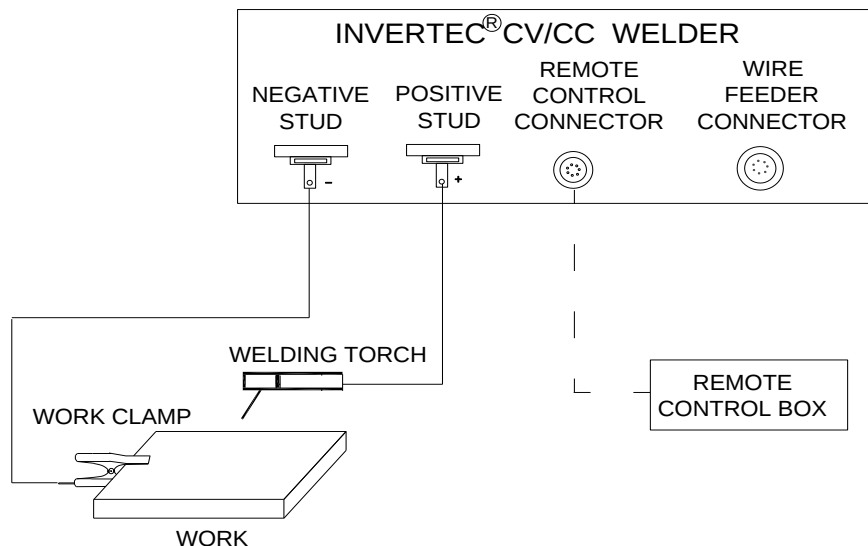


FIGURE A.6

CAUTION

For secure electrical connection, the screws connecting the output terminals and cables must be tightened. Damage may occur to the output stud or welding performance maybe compromised.

6-PIN PWF WIRE FEEDER CONNECTOR INSTRUCTION

Please see **FIGURE A.7** and **TABLE A.2** for more details.

6-PIN AMPHENOL CONNECTOR INSTRUCTION

Please see **FIGURE A.8** and **TABLE A.3** for more details.

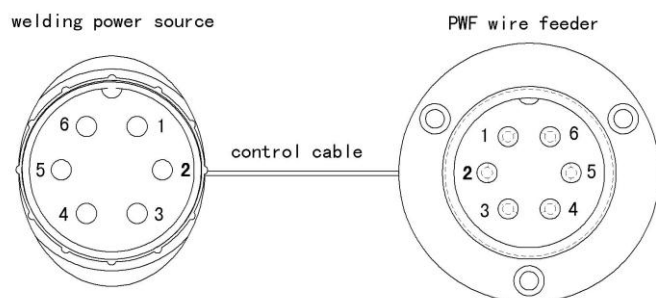


FIGURE A.7

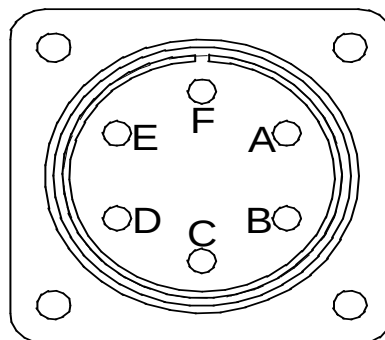


FIGURE A.8

TABLE A.2

Power Source		
Pin	Function	Lead #
1	" + " pulse signal for motor control.	91
2	" + " pulse signal for gas solenoid.	92
3	" + " control signal for gas purge, cold inch and trigger.	93
4	+/- 10V control signal for arc current and arc voltage.	94
5	GND for arc current, arc voltage, gas purge, cold inch and trigger control.	95
6	GND for gas solenoid and motor control.	96

Wire Feeder		
Pin	Function	Lead #
1	Positive terminal of motor.	91
2	Connected to one lead of gas solenoid.	92
3	Control signals output (gas purge, cold inch and trigger).	93
4	Control signals output (arc current and arc voltage).	94
5	Common GND.	95
6	Negative terminal of motor; and connected to another lead of gas solenoid.	96

TABLE A.3

Power Source		
Pin	Function	Lead #
A	Output control power +	77
B	Output control signal	76
C	Output control power -	75
D	Output control switch +	2
E	Output control switch -	4
F	Ground lead (case)	G2

Remote Controller		
Pin	Function	Lead #
A	Pot foot 1	77
B	Pot foot 2	76
C	Pot foot 3	75
D	Switch foot 1	2
E	Switch foot 2	4
F	Case	G2

SAFETY PRECAUTIONS

Read this entire section of operating instructions before operating the machine.

WARNING



ELECTRIC SHOCK can kill.

- Do not touch electrically live parts or electrode with skin or wet clothing.
- Insulate yourself from work and ground.

- Always wear dry insulating gloves.



FUMES AND GASES can be dangerous.

- Keep your head out of fumes.
- Use ventilation or exhaust to remove fumes from breathing zone.



WELDING SPARKS can cause fire or explosion.

- Keep flammable material away.
- Do not weld on closed containers.



ARC RAYS can burn eyes and skin.

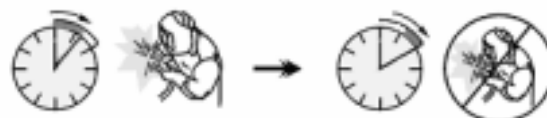
- Wear eye, ear and body protection.

INFORMATION AT THE FRONT OF THIS OPERATOR'S MANUAL.

DUTY CYCLE

The duty cycle of a welding machine is the percentage of time in a 10 minute cycle at which the welder can operate the machine at rated welding current.

60% duty cycle:



Weld for 6 minutes

Break for 4 minutes

Excessive extension of the duty cycle will cause the thermal protection circuit to activate.

THERMAL PROTECTION

The INVERTEC® machine is equipped with a thermal protection device. When the machine has gone into thermal overload, the output will be turned off and the thermal indicator light will be turned "ON". When the machine has cooled to a safe temperature, the Thermal Indicator Light will go out and the machine may resume normal operation.

Note: For safety reasons the machine's welding output will not come on after a thermal shutdown until the output is disabled and re-enabled.

PLEASE SEE ADDITIONAL WARNING

INVERTEC® CV/CC500



OPERATIONAL FEATURES AND CONTROLS

FRONT PANEL (SEE FIGURE B.1)

1. ON/OFF POWER SWITCH

Switch up power on; Switch down power off.

2. THERMAL INDICATOR

This status light illuminates when the power source has been driven into thermal overload. The indicator light also momentarily turns on during start up.

3. WELDING MODE SELECTION

INVERTEC CV/CC500 includes 7 following modes:

- **FCAW-GS.**
It is for gas shielded flux cored wire arc welding.
- **GMAW STEEL CO₂.**
It is for gas shielded solid wire arc welding with 100% CO₂.
- **GMAW STEEL Ar/CO₂.**
It is for gas shielded solid wire arc welding with mixed gas.
- **GMAW AL.**
It is for gas shielded solid aluminum wire arc welding.
- **GMAW STAINLESS.**
It is for gas shielded stainless steel wire arc welding.
- **SMAW.**
It is for stick mode.
- **GTAW.**
It is for TIG mode. INVERTEC CV/CC500 must apply "touch start" for arc start.

4. DIGITAL INDICATION CURRENT METER

This meter displays the welding current value.

5. DIGITAL INDICATION VOLTAGE METER

This meter displays the welding voltage setting, the open circuit voltage or actual welding voltage. INVERTEC CV/CC500 can set output voltage from 10 to 45V.

6. CRATER CURRENT

This knob sets the value of output current (wire feeding speed) when INVERTEC[®] CV/CC machine works at crater time.

7. CRATER VOLTAGE

This knob sets the value of output voltage when INVERTEC[®] CV/CC 500 works at crater time.

8. HOT START

This knob can be used for setting the additional value of output voltage or current when INVERTEC[®] CV/CC 500 starts arc.

9. ARC CONTROL

This knob control the arc output characteristic. When it is turned clockwise, the arc is crisper. When it turned anti-clockwise, the arc is softer.

10. LOCAL OUTPUT CONTROL

When set item 11 into "LOCAL", The output voltage (CV mode) or output current (CC mode) will be

preset and adjusted by this knob.

11. CONTROL TYPE SELECTION

INVERTEC CV/CC500 includes 3 types following control methods:

- **LOCAL/LN-25PRO.**
It is for selecting local control output, please see item 10. Please take more attention on this position, INVERTEC CV/CC500 will have OCV output in CV mode just like there is also OCV output in SMAW mode.
- **PWF FEEDER.**
It is for welding in CV mode with PWF feeder.
- **REMOTE/LN-25PRO.**
It is for remote control output with a remote controller connected to item 16.

12. WIRE DIAMETER SELECTION

INVERTEC[®] CV/CC500 is designed for $\leq \Phi 1.0$, $\Phi 1.2$ -1.4 and $\geq \Phi 1.6$ wires.

13. 2-STEP AND 4-STEP SELECTION

This toggle switch enables the selection of 2-STEP or 4-STEP operation mode without or with crater function. 2-STEP mode - no crater output after user release the trigger. 4-STEP mode – crater function initiates when uses "Clicks" trigger again after releasing it. Please see **FIGURE B.3 and B.4** to know the more details of time sequence of INVERTEC[®] CV/CC 500.

CAUTION

Irregular welding performance will occur if item 13 is in the incorrect position.

14. NEGATIVE OUTPUT STUD

15. POSITIVE OUTPUT STUD

16. 6-PIN AMPHENOL CONNECTOR

Please see the **FIGURE A.8** for the details of the connection. Recommend the standard remote controller for GTAW mode is K870 (Foot amptrol); and standard remote controller for SMAW is K857 (Pot control).

17. 6-PIN PWF WIRE FEEDER CONNECTOR

Please see the **FIGURE A.7** for the details of the connection.

REAR PANEL (PLEASE SEE FIGURE B.2).

18. INPUT BOX

This insulation box is used to cover the input connections.

WARNING

This insulation box must be secure before turning on the main power supply.

19. INPUT CABLE HOLDING BRACKET

This bracket securely holds the three phase power

INVERTEC[®] CV/CC500



cables in place.

20. GROUND LEAD CONNECTION

Connect the ground lead to the paint-free location on the case back by securing its lug-end with the screw into the case hole.

21. AUX. VOLTAGE RECEPTACLE

Export type machine: This is a 220V 200W max. auxiliary power output socket, for plugging gas heater.

22. FUSE AND FUSE HOLDER

Export type machine: 250V 2A fuse is used to protect the auxiliary 220V power outlet

CAUTION

Only Plug the correct gas heater into this receptacle. DO NOT plug other electric devices into the receptacle, otherwise damage may occur to the INVERTEC® machine.

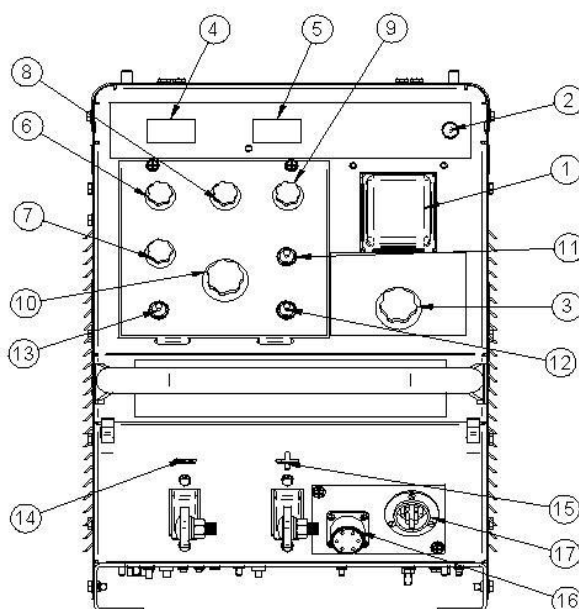


FIGURE B.1

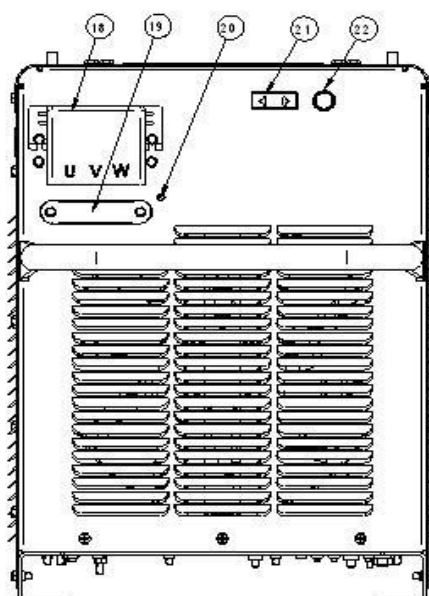


FIGURE B.2

INVERTEC® CV/CC500



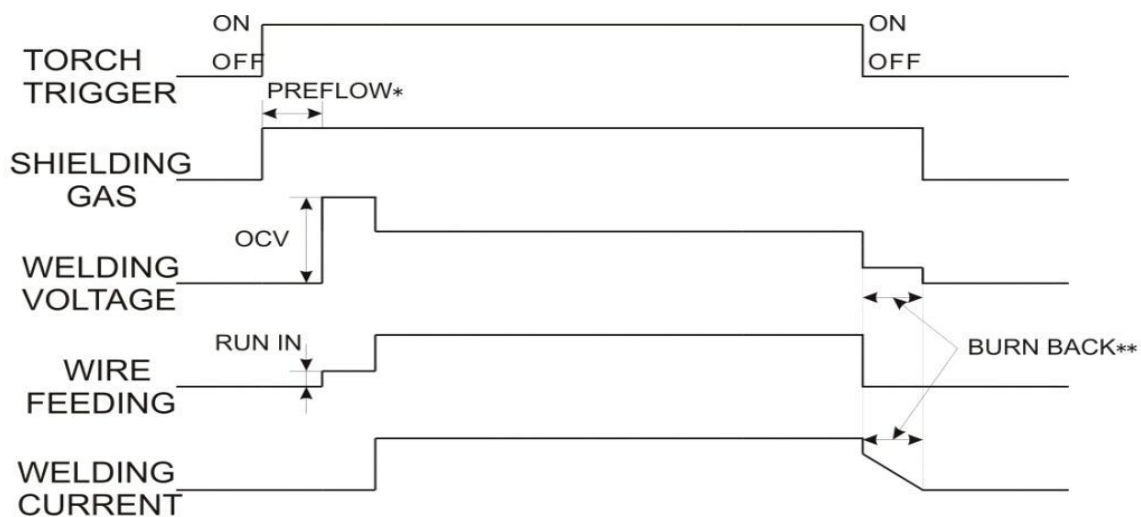


FIGURE B.3

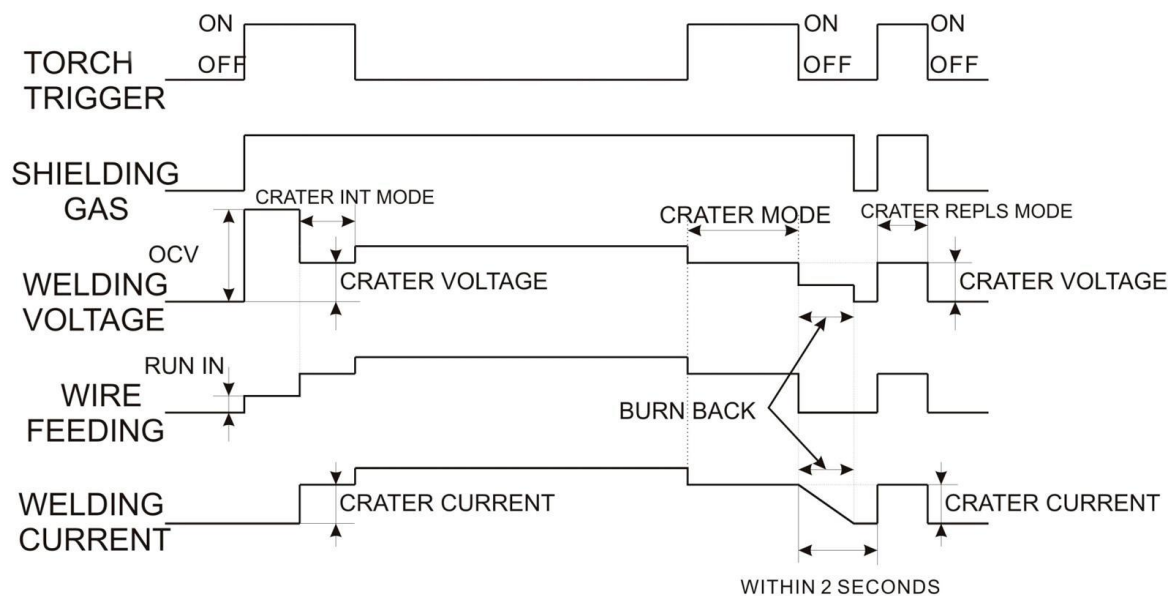


FIGURE B.4

DIP SWITCH DESCRIPTIONS

INVERTEC® CV/CC machine offers a DIP switch on the control board, which allows user to have additional features. There are 8 individual switches integrated into this DIP switch (Please see **FIGURE B.5** below). All the initial factory settings in the OFF position.

1. PREFLOW ON/OFF SWITCH

This switch enables preflow before turning on output voltage. Please see **FIGURE B.3** for detail.

2. CRATER INITIAL MODE SWITCH

It enables the crater output right after the arc is established. The initial crater output is a buffer between arc start and regular welding output. This function offers a smoother arc start. The welding of thin metal or spot welding can be enhanced using this function. Please see **FIGURE B.6** for detail.

3. CRATER REPLS MODE SWITCH

Should the operator find a visible crater appearing after releasing the trigger, and within 2 seconds, activating the trigger again the power source will continue output at crater voltage and current to fill this crater. For more details, please see **FIGURE B.6**.

4. TEST MODE SWITCH

It enables a test procedure to test the control knobs and the toggle switches, when the DIP switch 4 is **ON** and the other DIP switches are **OFF**. The DIP switch should be **OFF** when user prepares to weld.

5. RESERVED

6. RESERVED

7. CABLE DROP COMPENSATION ON/OFF SWITCH

Enables long welding and work cable drop voltage compensation. When the cables are longer than 20M, this function should be turned on.

8. WFS CALIBRATION SWITCH

WFS calibration can be achieved when DIP switch 2, 3 and 8 are **ON** and the other DIP switches are **OFF**. The DIP switch should be **OFF** when the user prepares to weld.

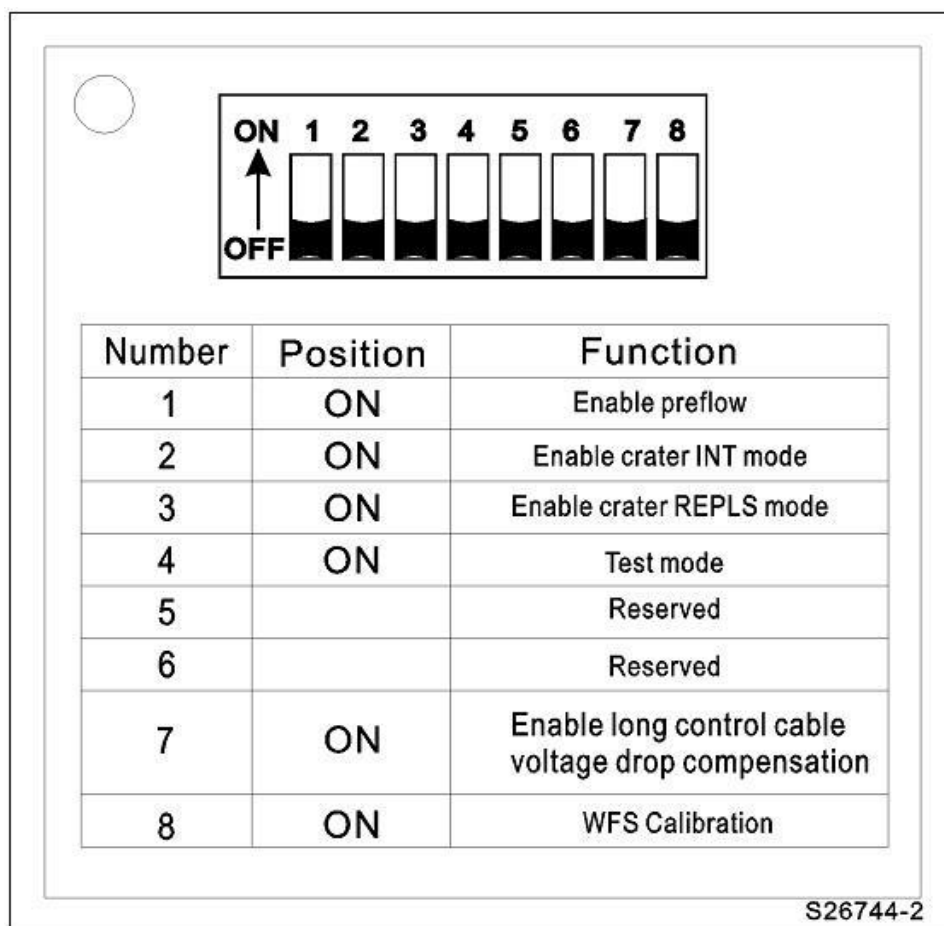


FIGURE B.5

INVERTEC® CV/CC500



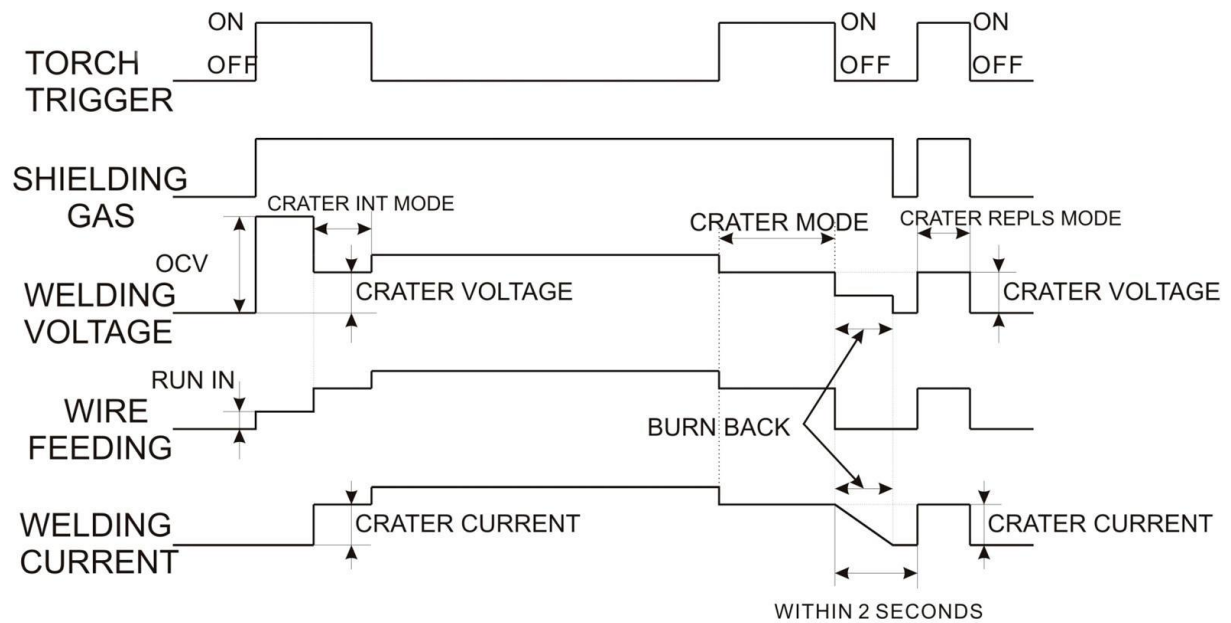


FIGURE B.6

**CAUTION**

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your local authorized Lincoln Electric Field Service Facility for technical assistance.

Observe all Safety Guidelines detailed in the beginning and throughout this manual.

Problems (Symptoms)	Possible Areas of Misadjustment(s)	Recommended Course of Action
Output Problems		
Major physical or electrical damage is evident when the sheet metal covers are removed.	None	Contact your local authorized Lincoln Electric Field Service facility for technical assistance.
Input fuses keep blowing, or input breaker keeps tripping	1. Make certain that fuses or breakers are properly sized. See Installation section of this manual for recommended fuse and breaker sizes. 2. Welding procedure is drawing too much output current, or duty cycle is too high. Reduce output current, duty cycle, or both. 3. There is internal damage to the power source.	If there is internal damage, contact an authorized Lincoln Electric Service facility for technical assistance.
Machine will not power up (no lights, no fan, etc.)	1. Make certain that the power to the INVERTEC® CV/CC500 is energized and is within the INVERTEC® CV/CC500's operating range. 2. 4 amp fuse on the front may have opened circuited.	In a typical installation the main power switch on the controller is the power switch. The 4 amp fuse protects the wire feed motor circuit and controls. Check for excessive loads.
Thermal LED is lit.	1. Check for proper fan operation. (Fan should run whenever output power is on.) Check for material blocking intake or exhaust louvers, or for excessive dirt clogging cooling channels in machine. 2. Machine may have been operated above it's duty cycle..	Clear obstruction or repair fan After machine has cooled, reduce load, duty cycle, or both
Machine won't weld, can't get any output.	1. Input voltage is too low or too high. Make certain that input voltage is proper, according to the Rating Plate. 2. If the Thermal LED is also lit, see Thermal LED is Lit section. 3. If an error code is also present.	Contact your local authorized Lincoln Electric Field Service facility for technical assistance.
Machine won't produce full output.	1. Input voltage may be too low, limiting output capability of the power source. Make certain that the input voltage is proper, according to the Rating Plate. 2. Secondary current or voltage is not properly calibrated.	Correct input voltage level. Contact your local authorized Lincoln Electric Field Service facility for technical assistance.
Machine often "noodle" welds (output is limited to approximately 100 amps)	Secondary current limit has been exceeded, and the machine has phased back to protect itself.	Adjust procedure or reduce load to lower current draw from the machine.
General degradation of the weld performance	1. Check for feeding problems, bad connections, excessive loops in cabling, etc. 2. Verify weld mode is correct for processes. 3. The power source may require	If the machine need calibration, contact an authorized Lincoln Electric Service facility for technical assistance.

INVERTEC® CV/CC500



**CAUTION**

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your local authorized Lincoln Electric Field Service Facility for technical assistance.

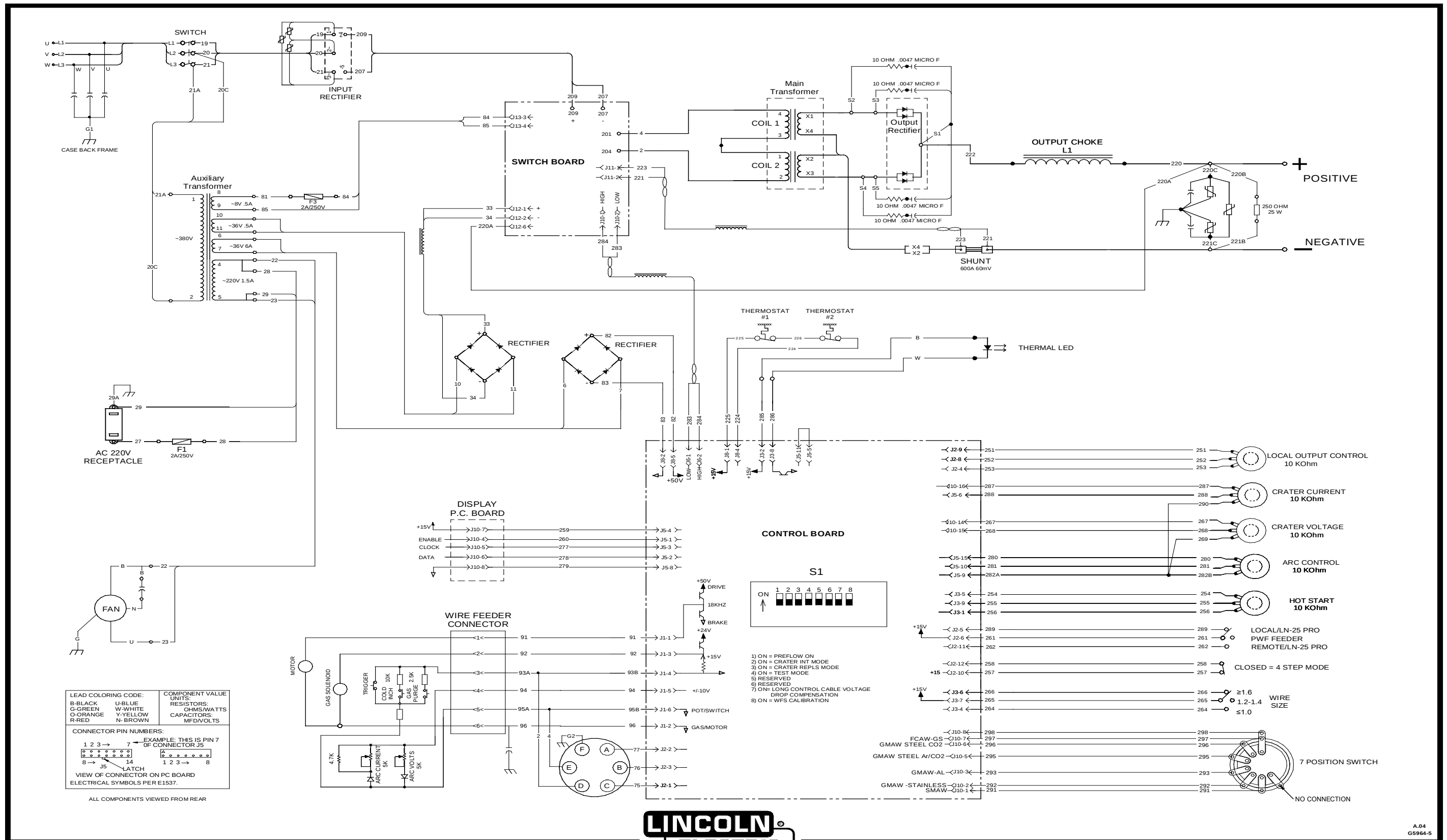
Observe all Safety Guidelines detailed in the beginning and throughout this manual.

Problems (Symptoms)	Possible Areas of Misadjustment(s)	Recommended Course of Action
	calibration.	
The 4-step mode is not available	1. Verify the CRATER ON/OFF toggle switch on the front panel of machine is at ON position. 2. Verify the parameter of crater current and voltage are set properly. 3. PC board in machine possibly at fault.	If PC board in machine is at fault, contact an authorized Lincoln Electric Service facility for technical assistance.
The welding arc is not stable and soft.	1. Verify the proper polarity is being used for the weld procedure. 2. Check all electrode and work connections. 3. Verify the parameters of wire feeding speed, output voltage and shielding gas are proper for the welding procedure. 4. PC board in machine possibly at fault.	If PC board in machine is at fault, contact an authorized Lincoln Electric Service facility for technical assistance.
Starting arc is difficult.	1. Verify the proper polarity is being used for the weld procedure. 2. Check all electrode and work connections. 3. Verify the parameters of wire feeding speed, output voltage and shielding gas are proper for the welding procedure. 4. PC board in machine possibly at fault.	If PC board in machine is at fault, contact an authorized Lincoln Electric Service facility for technical assistance.
The meter displays ERR 031	Primary over current from switchboard.	Contact your local authorized Lincoln Electric Field Service facility for technical assistance.
The meter displays ERR 032	Low input line voltage error from control board.	Contact your local authorized Lincoln Electric Field Service facility for technical assistance.
The meter displays ERR 035	Input voltage out of range.	Make certain that input voltage is proper, according to the Rating Plate.
The meter displays ERR 036	Thermostat Trip.	Clear obstruction or repair fan; After machine has cooled, reduce load, duty cycle, or both.
The meter displays ERR 041	Secondary over current from switchboard	Contact your local authorized Lincoln Electric Field Service facility for technical assistance.
The meter displays ERR 081	Motor overload.	Please reduce the welding duty cycle of machine.
The meter displays ERR 124	Invalid weld mode.	Please check if all the welding procedures are correct.
The meter displays ERR 213	CAN communication error.	Contact your local authorized Lincoln Electric Field Service facility for technical assistance.

DIAGRAM

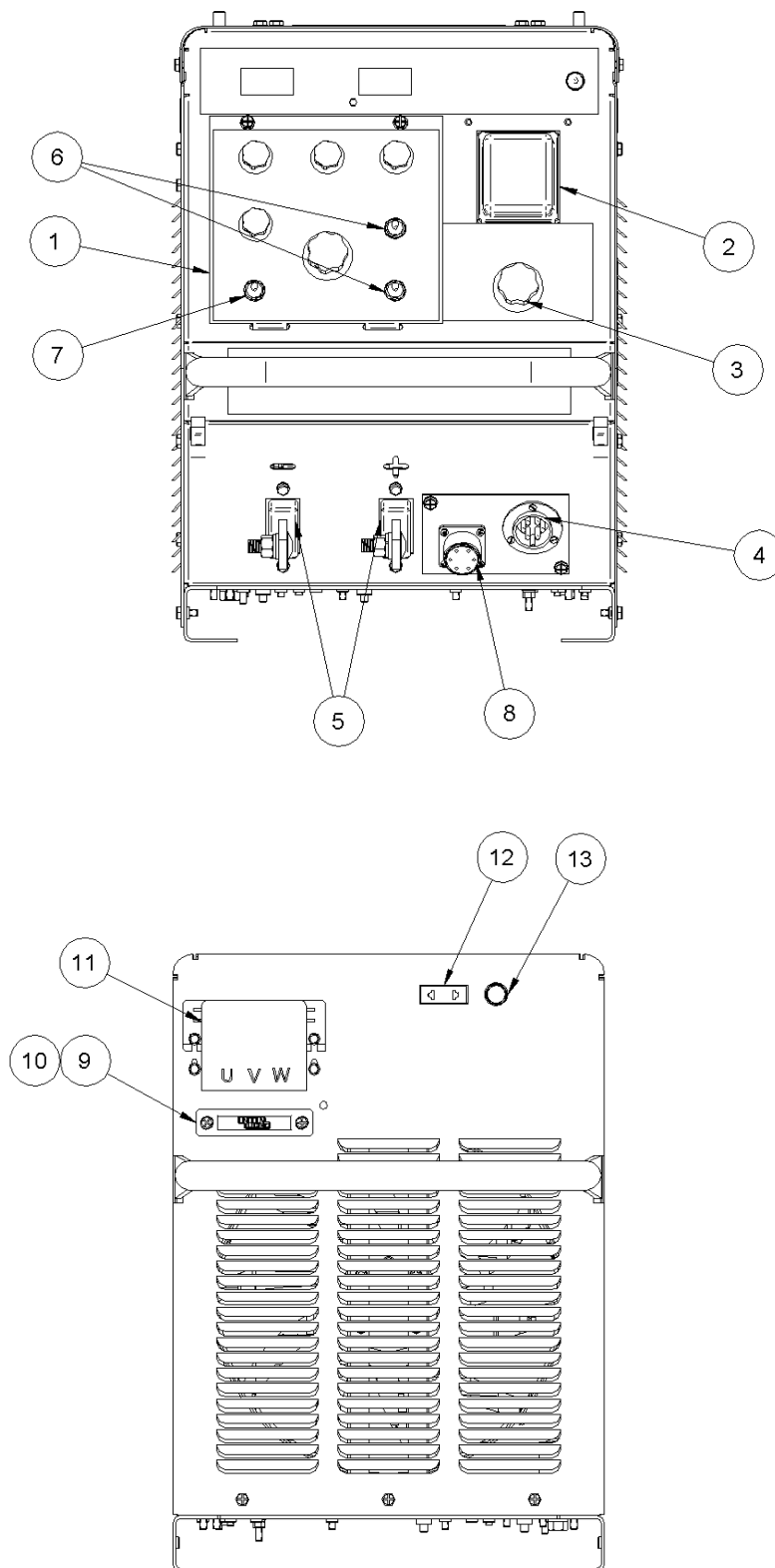
WIRING DIAGRAM FOR INVERTEC® CV/CC500 (EXPORT) CODE 76072

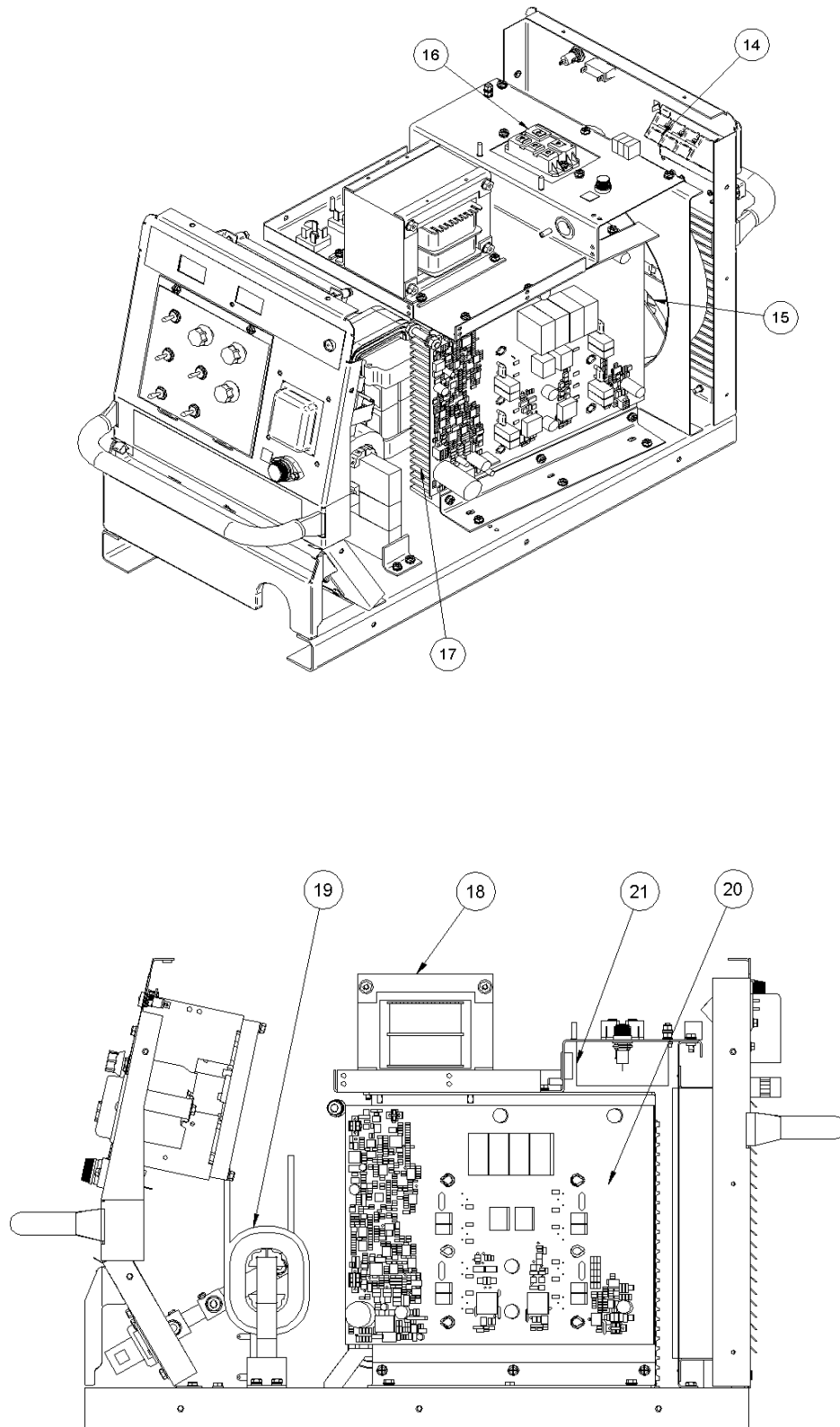
INVERTEC CV/CC500 WIRING SCHEMATIC

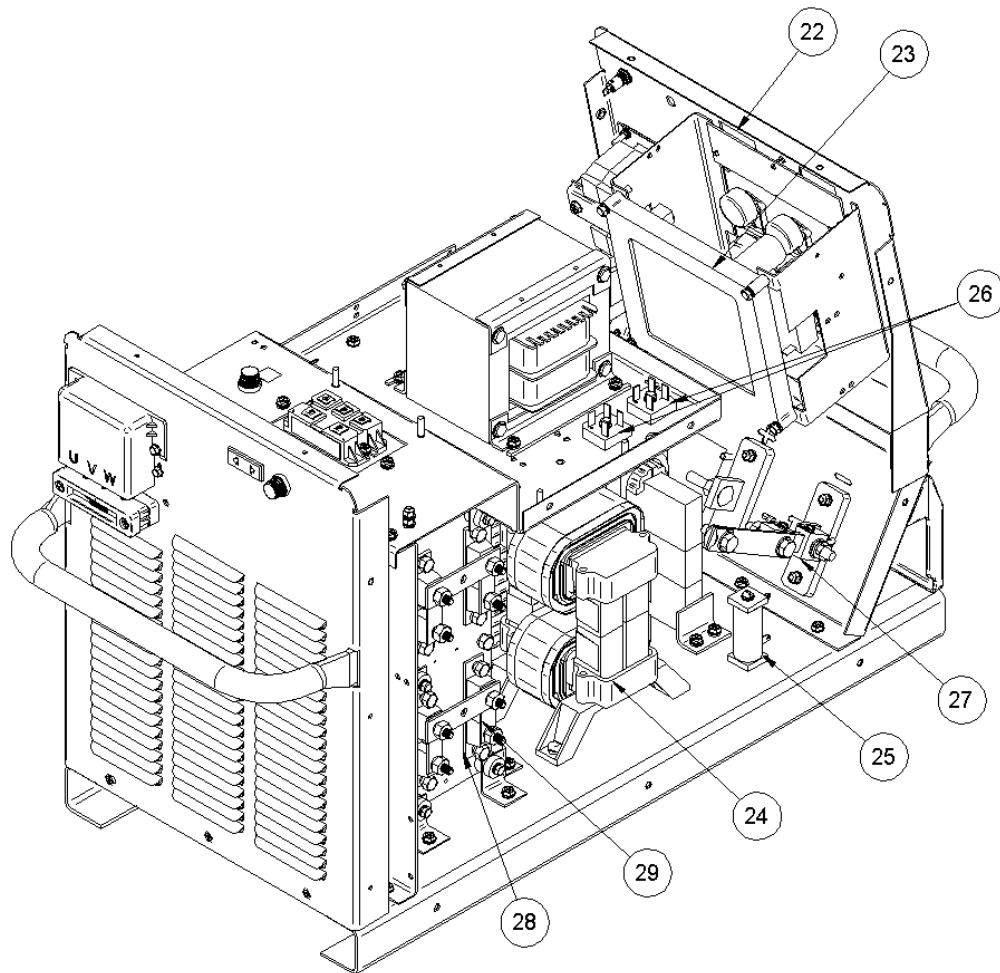


NOTE: This diagram is for reference only. It may not be accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosure panels. If the diagram is illegible, contact the Lincoln Electric Service Department for a replacement

INVERTEC® CV/CC500
LINCOLN ELECTRIC







K60051-1**INVERTEC CV/CC 500 Parts List**

ITEM	Part Number	Description
1	L13183-2	CONTROL PANEL
2	S27281	SWITCH COVER
	S27016	LINE SWITCH
3	T16670-15	7 POSITION SWITCH
	T10491	KNOB
4	S26179	CONTROL SOCKET(SIX PINS)
5	M20710-1	OUTPUT STUD
6	T10800-23	SWITCH;TOGGLE
7	T10800-4	SWITCH;TOGGLE, SPST,15A,125V
8	S28574	BOX RECEPTACLE
9	M20720-4	CABLE HOLDER A
10	M20720-5	CABLE HOLDER B
11	M20720-2	INPUT SUPPLY BOX
12	S26506-2	RECEPTACLE
13	T12386-6	FUSE HOLDER
	T10728-20	FUSE,2A
14	M20720-6	INPUT CABLE BRACKET
15	M20737-1	FAN AND MOTOR ASSEMBLY
16	M15454-14	INPUT RECTIFIER
17	M16733-4	HEATSINK
18	M21437-2	AUXILIARY TRANSFORMER - EXPORT
19	L13166	CHOKE ASSEMBLY 500
20	S28118	SWITCHBOARD PC BD
21	M20787-1	INPUT HEATSINK
22	L10952-1	DISPLAY PC BOARD ASBLY
23	S28265	CONTROL PC BD
24	G5883	TRANSFORMER ASSEMBLY 500
25	S27175	RESISTOR ASSEMBLY
26	T13637-6	DIODE-BRIDGE,35A,400V,F-W,1-PH
27	S26194-1	SHUNT
28	M19349-3	OUTPUT RECTIFIER HEATSINK
29	S25520-3	OUTPUT DIODE MODULE ASSEMBLY

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INVERTEC® CV/CC500

