IM7908-7
Sep, 2021
Rev. 04

POWERCRAFT® 191C

For use with machine Part Number
POWERCRAFT® 191C K69072-1, Code 76469

Safety Depends on You

PowerCRAFT machine 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

POWERCRAFT®

THE LINCOLN ELECTRIC COMPANY PTY LTD
35 Byrant Street Padstow NSW 2211
www.lincolnelectric.com.au

POWERCRAFT®

Thank you for selecting QUALITY POWERCRAFT® 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.

Declaration of conformity

THE SHANGHAI LINCOLN ELECTRIC COMPANY

Designed in conformance with the following norm:

AS 60974.1
AS/NZS CISPR 11
GB15579.1
IEC 60974-1
IEC 60974-10

POWERCRAFT®

SAFETY

⚠ WARNING

⚠ CALIFORNIA PROPOSITION 65 WARNINGS ⚠

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

The Above For Diesel Engines

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

The Above For Petrol Engines

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.

Read and understand the following safety highlights. For additional safety information, it is strongly recommended that you purchase a copy of "Safety in Welding & Cutting - ANSI Standard Z49.1" from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2-1974. A Free copy of "Arc Welding Safety" booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

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

FOR ENGINE powered equipment.

1.a. Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.

1.b. Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.

1.c. Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.

1.d. Keep all equipment safety guards, covers and devices in position and in good repair.Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

1.e. In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

1.f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

1.g. To prevent accidentally starting petrol engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.

1.h. To avoid scalding, do not remove the radiator pressure cap when the engine is hot.

ELECTRIC AND MAGNETIC FIELDS may be dangerous

2.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

2.b. EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.

2.c. Exposure to EMF fields in welding may have other health effects which are now not known.

2.d. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

2.d.1. Route the electrode and work cables together - Secure them with tape when possible.

2.d.2. Never coil the electrode lead around your body.

2.d.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.

2.d.4. Connect the work cable to the workpiece as close as possible to the area being welded.

2.d.5. Do not work next to welding power source.

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 hands.

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, gratings 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 holders connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.

3.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.

3.j. Also see Items 6.c. and 8.

ARC RAYS can burn.

4.a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87. I standards.

4.b. Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.

4.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.

FUMES AND GASES can be dangerous.

5.a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the 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 within applicable OSHA PEL and ACGIH TLV limits 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.**

5. b. The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

5.d. 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.

5.e. 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.

5.f. Also see item 1.b.

WELDING and CUTTING 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. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to "Safety in Welding and Cutting" (ANSI Standard Z49.1) and the operating information for the equipment being used.

6.c. 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.d. 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". For information, purchase "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances", AWS F4.1 from the American Welding Society (see address above).

6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.

6.f. 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. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.

6.g. Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.

6.h. Also see item 1.c.

6.I. Read and follow NFPA 51B " Standard for Fire Prevention During Welding, Cutting and Other Hot Work", available from NFPA, 1 Batterymarch Park, PO box 9101, Quincy, Ma 022690-9101.

6.j. Do not use a welding power source for pipe thawing.

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. Cylinders 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.

7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-I, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association 1235 Jefferson Davis Highway, Arlington, VA 22202.

FOR ELECTRICALLY powered equipment.

8.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.

8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.

8.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

Refer to **http://www.lincolnelectric.com/safety** for additional safety information.

Electromagnetic Compatibility (EMC)

Conformance
Products displaying the CE mark are in conformity with European Community Council Directive of 15 Dec 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility, 2004/108/EC. It was manufactured in conformity with a national standard that implements a harmonized standard: EN 60974-10 Electromagnetic Compatibility (EMC) Product Standard for Arc Welding Equipment. It is for use with other Lincoln Electric equipment. It is designed for industrial and professional use.

Introduction
All electrical equipment generates small amounts of electromagnetic emission. Electrical emission may be transmitted through power lines or radiated through space, similar to a radio transmitter. When emissions are received by other equipment, electrical interference may result. Electrical emissions may affect many kinds of electrical equipment; other nearby welding equipment, radio and TV reception, numerical controlled machines, telephone systems, computers, etc.
WARNING: This 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.

Installation and Use
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 (grounding) the welding circuit, see Note. In other cases it could involve construction of 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. Follow your local and national standards for installation and use. Changing the earthing arrangements should only be authorized by a person who is competent to assess whether the changes will 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, signaling 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) safety critical 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 day that welding or other activities are to be carried out.

Electromagnetic Compatibility (EMC)

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

Public Supply System
Welding equipment should be connected to the public supply system according to the manufacturer's recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering of the public supply system. 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 manufacturers 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 floor level.

Equipotential Bonding
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 may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of the workpiece increasing the risk of injury to users, or damage to other electrical equipment. Where necessary, the connection of 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 the entire welding installation may be considered for special applications[1].

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1 Portions of the preceding text are contained in EN 60974-10: "Electromagnetic Compatibility (EMC) product standard for arc welding equipment."

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

Please Examine Carton and Equipment For Damage Immediately

When this equipment is shipped, title passes to the purchaser upon receipt by the carrier. Consequently, Claims for material damaged in shipment must be made by the purchaser against the transportation company at the time the shipment is received.

Please record your equipment identification information below for future reference. This information can be found on your machine nameplate.

Product _____

Model Number _____

Code Number or Date Code _____

Serial Number _____

Date Purchased _____

Where Purchased _____

Whenever you request replacement parts or information on this equipment, always supply the information you have recorded above. The code number is especially important when identifying the correct replacement parts.

Read this Operators Manual completely before attempting to use this equipment. Save this manual and keep it handy for quick reference. Pay particular attention to the safety instructions we have provided for your protection. The level of seriousness to be applied to each is explained below:

⚠ WARNING

This statement appears where the information **must** be followed **exactly** to avoid **serious personal injury** or **loss of life**.

⚠ CAUTION

This statement appears where the information **must** be followed to avoid **minor personal injury** or **damage to this equipment**.

Master Table of Contents

POWERCRAFT® 191C is multi-purpose 3 in 1 welding power source. It is capable of MIG welding (both gas-shielded and gasless flux-cored welding), stick and TIG welding of mild and stainless steel materials. Its characteristics are high production efficiency, excellent welding output and easy to carry out all-position welding. The machine is light and portable which is very popular in DIY and semi-professional market.

The highlighted characteristics of POWERCRAFT® 191C Inverter MIG/MMA/TIG Welder:

- Featured with compact size and light weight, it is widely used in maintenance and field work.
- Provided with input voltage compensation covering ±15% variation and a control circuit reaction speed is less than 1mSec.
- Optimum arc characteristics are maintained over a broad range of operating conditions.
- High working efficiency. Automatic Wire Feeding can achieve high speed welding.
- Both solid and flux-cored wires can be used. The wire diameter range is between Φ0.6- Φ1.2mm.
- Convenient connection mode. Quick cable connection makes it quick, safe, simple and reliable.
- MMAW(stick welding) is available which can weld general purpose and cellulosic electrodes.
- TIG Lift-ARC welding, program control, easy arc start, anti-sticking torch. (Requires optional PRO26V TIG Torch part No. See the G-1)

Note: We reserve the right to update the manual without notification.

SAFETY PRECAUTIONS

⚠ 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.**
- **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.**

PLEASE SEE ADDITIONAL WARNING INFORMATION AT THE FRONT OF THIS OPERATOR'S MANUAL.

SELECT A SUITABLE LOCATION

This power source should not be subjected to rain, 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 front louvers and out through the rear louvers. 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 POWERCRAFT® 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

INPUT CONNECTIONS

ELECTRIC SHOCK can kill.

- Have a qualified electrician install and service this equipment.
- Disconnect input power by removing plug from receptacle before working inside machines. Allow machine to sit for 5 minutes minimum to allow the power capacitors to discharge before working inside this equipment.
- Do not touch electrically live parts.

INPUT POWER CONNECTION

Check the input voltage, phase, and frequency supplied to this machine before turning it on. The allowable input voltage is indicated in the technical specification section of this manual and on the rating plate of the machine. Be sure that the machine is earthed (grounded).

INPUT VOLTAGE

The POWERCRAFT® 191C machine is to be provided with a 240V±15% input voltage, 50/60Hz.

An output guide is provided in the technical specification section of this manual.

ENGINE DRIVEN GENERATOR

The machine is designed to operate on engine driven generators as long as the auxiliary can supply adequate voltage, frequency and power as indicated in the "Technical Specification" Installation Section of this manual. The auxiliary supply of the generator must also meet the following conditions:

Frequency: in the range of 50 and 60 Hz
RMS voltage of the AC waveform: 240V±15%
Peak voltage max. 380V
Generator Minimum 10kVA

It is important to check these conditions because many engine driven generators produce high voltage spikes. Operation of this machine with engine driven generators not conforming to these conditions is not recommend and may damage the machine and is NOT covered by warranty.

⚠ WARNING

Do not attempt to use this equipment until you have thoroughly read all operating and maintenance manuals supplied with your machine. They include important safety precautions, detailed operating and maintenance instructions and parts lists.

⚠ 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.**

Only qualified personnel should install, use or service this equipment.

Location and Ventilation

Whenever you use the POWERCRAFT® 191C inverter STICK / TIG / MIG Welder be sure that clean cooling air can flow around the front and rear louvres, (there should be 500mm clearance for good ventilation). Avoid dusty, dirty areas, particularly if conductive particles are present in the cooling air. Also keep the machine away from heat sources. If operation is to be outdoors protect from rain and do not sit in puddles or otherwise submerge it in water. Such practices pose safety hazards and cause improper operation and corrosion of parts.

Always operate the POWERCRAFT® 191C Inverter Welder with all panel work installed to enable correct cooling air flow and protect you from possible electric shock.

Storing

Store the machine in the permissible range of -25 ~ +55℃, in a dry place when it is not in use. Protect it from dust and dirt. Keep it where it cannot be accidentally damaged from construction activities, moving vehicles and other hazards.

Stacking

The POWERCRAFT® 191C Inverter Welder CANNOT be stacked.

Tilting

Place the POWERCRAFT® 191C Inverter Welder on a secure, level surface whenever you use it or store it. Any surfaces you place it on other than the ground must be firm, non-skid and structurally sound.

The POWERCRAFT® 191C Inverter Welder permissible environment:

The ambient temperature range:

- When welding: -10 ~ +40°C
- During transport or in storage: -25 ~ +55°C

Relative humidity:

- At 40°C: ≤50%
- At 20°C: ≤90%

Avoid excessive dust, acid and corrosive materials in the air as these will damage your machine.

Excessive vibration is not permissible.

Altitude – No more than 1000m.

500mm space about the welding machine, including from walls and other similar obstructions, is required to enable correct flow of cooling air.

Keep protected from rain and direct sun when in use outdoors.

The wind speed for all environment should be less than 1m/s;

The Main Input Voltage Requirement

The voltage wave form should be actual sine wave in shape with a maximum voltage variation of ±10% of the rated value; the frequency of the voltage wave form should not exceed a variation of ±10% of the rated value.

The Welding Machine Configuration

The POWERCRAFT® 191C welding machine consists of:-

The upper part of the front panel is equipped with a digital control panel featuring a mode select button, a wire type select button, a wire size select button as well as two adjustment knobs – One for Amps, material thickness and wire speed adjustments. The other volts, inductance, hot start and arc force adjustments. While the lower part is furnished with a Euro style torch quick connector, “+” & “-” quick connectors and polarity selection, The back side is installed with power switch, gas valve connection, cooling fan and input cable. On the top there is a handle for the convenient of easy transport. Internally there is the primary transformer, printed circuit board, output reactor, and the heatsink with power semiconductors.

The package consists of:

Order Number	Description	QTY
K69072-1	Power source	*1
IM7908-7	Instruct Manual	*1
K69022-15-3M	MIG Gun, LG 150C	*1
S28416-1	Gas hose clamp	*2
K69100-16-3M-C	Electrode lead	*1
K69100-16-3M-B	Work lead	*1
E4570	Gas hose	*3m
LE250-RG002	Regulator / Flowmeter	*1
KP69022-0608	Drive roll 0.6/0.8(solid)	*1
KP69022-0912R	Drive roll 0.9/1.2(cored)	*1

TECHNICAL SPECIFICATION

INPUT - SINGLE PHASE ONLY				
Machine	Standard Voltage/Phase/ Frequency	Generator required	Maximum Input Current	Rated Input Current
POWERCRAFT® 191C	240+/-15% / 1/50/60 Hz	≥10 kVA	20.5A	10. 0A

RATED OUTPUT – DC ONLY				
Machine	Mode	Duty Cycle(1)	Amperes	Volts at Rated Amperes
POWERCRAFT® 191C	GMAW	23% 60% 100%	180A 120A 90A	23V 20V 18.5V
	SMAW	18% 60% 100%	180A 110A 85A	27.2V 24.4V 23.4V
	GTAW	25% 60% 100%	180A 120A 90A	17.2V 14.8V 13.6V
The Duty Cycle Above is about 40°C				

OUTPU T RANGE				
Machine	Mode	Open Circuit Voltage	Welding Current Range	Welding Voltage Range
POWERCRAFT® 191C	GMAW	U_0 85V	30A ÷ 180A	15.5V ÷ 23V
	SMAW	U_0 88V U_r 11.5V	15A ÷ 180A	20.6V ÷ 27.2V
	GTAW	U_0 88V U_r 11.5V	15A ÷ 180A	10.6V ÷ 17.2V

OTHER PARAMETERS				
Machine	Power Factor	Efficiency	Protection Class	Insulation Class
POWERCRAFT® 191C	0.99	85%	IP21S	F

PHYSICAL DIMENSIONS				
Machine	Length	Width	Height	Weight
POWERCRAFT® 191C	470mm	220mm	340mm	13.75kg(2)

TEMPERATURE RANGE	
Operating Temperature Range	-10°C ~ +40°C(14°F ~ 104°F)
Storage Temperature Range	-25°C ~ +55°C(-13°F ~ 131°F)

(1) Based upon 10 minute time period(i.e., for 30% duty cycle, it is 3 minutes on and 7 minutes off)
(2) Power source only.

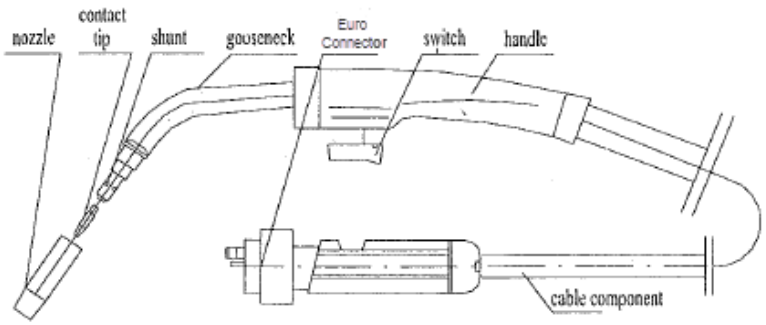
Note: The above parameters are subject to change with the improvement of machine.

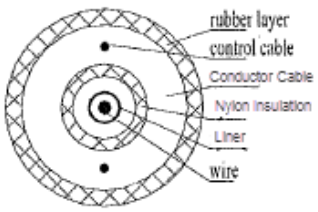
LG 150C MIG Torch (Gun) Illustration

The LG 150C MIG torch is composed of the Euro connector, connection cable and handle. There is a gooseneck installed in the handle of the torch. The gas diffuser distributes shielding gas in the nozzle to provide even shield for the welding arc. A switch on the handle controls the welding output.

⚠ CAUTION

* Turn off the power before assemble/disassemble or replacement of the torch components.
* The cable, nozzle and tip need to be replaced as required.





Graphics and their meanings

	Earth / Ground
	Descending
	MMAW – Manual Metal Arc Welding (Stick)
	SMAW – Stick Metal Arc Welding (Stick)
	GMAW – Gas Metal Arc Welding (MIG)
	GTAW – Gas Tungsten Arc Welding (TIG)
	FCAW-SS – Flux Cored Arc Welding-Self Shield
	Single-phase AC power source
1~	Single-phase inverter---transformer---rectifier
	DC Current
+ :	“+” Output connector
- :	“-“ Output connector
X :	Duty Cycle
I1 :	Rated Input Current
I2 :	Rated Welding Current
P1 :	Rated Input Power
U0 :	Rated Open Circuit Voltage
U1 :	Rated Input Voltage
U2 :	Rated Load V
~50/60 Hz :	AC, Rated frequency 50HZ, workable frequency 60HZ
V :	Voltage (V)
A :	Current (A)

kVA: Power (kVA)

%: Percentage

A/V ~ A/V: Output range. Rated min and rated max welding current and related load voltage.

Duty Cycle: The rated duty cycle of a Welding Power Source, is a statement of the time it may be operated at its rated welding current output without exceeding the temperature limits of the component parts.

IP21S: Case protection class. IP is the code of International Protection.

2 - Means preventing the user's finger from accessing dangerous parts; preventing solid material with the diameter no less than 12.5 mm entering into the cabinet.

1 – Means water dropping vertically remains harmless.

S – Means water protection test is conducted while the movable parts are at standstill.

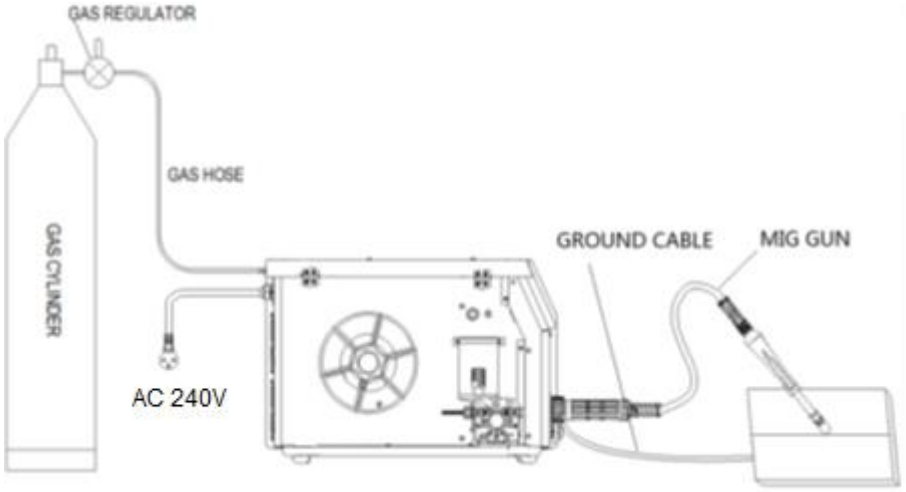
F: F insulation grade.

Notice: The temperature rise test of the welding power source had been carried out in the room temperature. The rated duty cycle of 40℃ is obtained by simulation.

Power source Placement

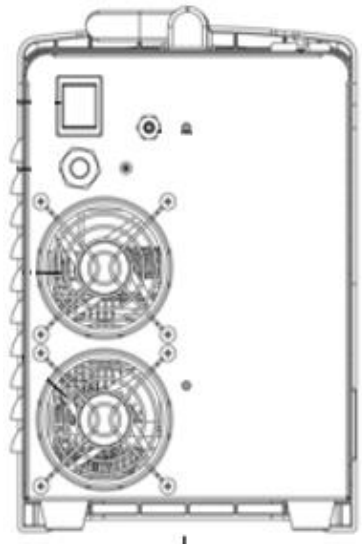
⚠ CAUTION

* Avoid excessive dust, acid and corrosive materials in the air.
* Keep protected from rain and direct sun when in use outdoors.
* There should be 500mm space about for the welding machine to have good ventilation.
* Use adequate ventilation when in confined areas.



Connection between Power Source and Input Power Supply

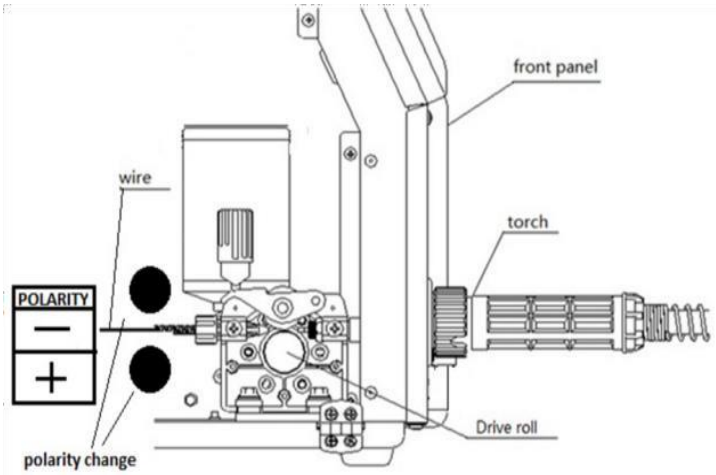
Connect the input cable, (located in the rear panel of the welder), into the single phase 240V voltage power receptacle of appropriate current capacity and with an appropriately sized circuit breaker.



Power supply configure of a welder:

Item	POWERCRAFT® 191C
Circuit breaker (A)	16A (D-Curve circuit breaker)
Power cord (mm2)	≥2.5

The installation and connection for MIG welding



* Select a suitable filler wire according to process being used (Lincoln Ultramag S6 for MIG and Innershield NR211MP for gasless flux cored welding). The wire diameter must be matched to the drive roll, the liner and contact tip.。

* Open the side panel of wire feeder and mount the wire spool on the spool post. The end of the wire must be at the bottom of the wire spool, adjacent to wire feeder inlet guide tube.

* The spool post is fitted with a brake; the wing nut in the center of the spool post adjusts the brake tension. Pull the wire from the reel by hand and adjust the tension to provide some drag - clockwise will increase the braking and anticlockwise reduces it.

* Release the wire tensioning device on the drive rolls, insert the filler wire end into the inlet guide tube of wire feeder, align wire with the drive roll groove and feed a short length into the torch connector so that it protrudes out of the front panel, then replace the tensioner over the wire. (The filler wire is feed through the torch cable once the input power is switched on.)

* **Connection between Power Source and Torch**

* Insert the torch connector over the protruding wire and into the Euro connector on the front panel of the welder and rotate the screw cap firmly.

Connection between Power Source and Work Piece

Insert the quick connector of work return cable into the current output (-) terminal on the lower section of the front panel and then screw in clockwise. The earth clamp is connected with work piece. The short welding power lead connected to the power source needs to be connected into (+) output terminal.

* For correct arc performance when using flux-cored gasless wire the polarity needs to be reversed, connect the (+) and (-) in the opposite way, that is the torch will be (-) and the work lead will be (+).

⚠ CAUTION

Connect the work lead clamp to the work piece as close to the weld as possible.

The installation and connection for stick welding.

a) Connection of electrode lead to the welder.

Connect the quick connector of electrode lead to the (+) output quick connect terminals on the front panel, turn clockwise and ensure the connection is tight.

b) Connection of the work return lead to the welder.

Connect the quick connector of work return lead to the (-) output quick connect terminals on the front panel, turn clockwise and ensure the connection is tight.

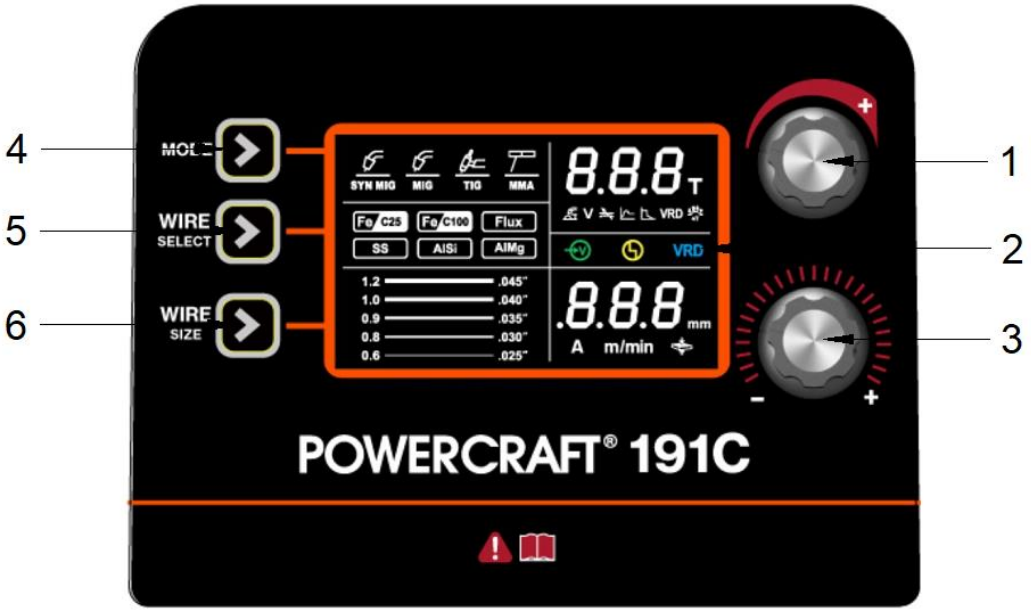
⚠ CAUTION

Connect the work lead clamp to the work piece as close to the weld as possible.

Front Panel

1. Control knob for: Amp / WFS / Thickness	5. Wire selection button
2. LCD display	6. Wire size selection button
3. Control knob for: Voltage compensation Voltage Inductance adjustment Hot start adjustment Arc force adjustment	7. Euro gun connector
	8. Spool gun control socket
	9. MIG Gun polarity switch plug
4. Welding mode selection button	10. Output terminal (-)
	11. Output terminal (+)
	12. Spool gun selection switch (located in wire spool cabinet)

Control Panel



1. Control Knob - Amp/WFS/Thickness

ALL	A	The welding current is displayed once this sign is on (also during welding).
GMAW	m/min	Wire feed speed WFS: Value in percentage of nominal value wire feed speed (m/min).
GMAW		Thickness: The thickness of the work piece could be adjusted once the sign is on.

2. Indicator lights

ALL		Power input
ALL		Error
SMAW	VRD	VRD (MMA only)

3. Control Knob

GMAW		Voltage compensation slightly adjust the welding voltage in the synergic MIG process.
GMAW	V	The welding load voltage could be controlled and displayed once the sign is on (also during welding).
GMAW		Inductance: Arc control is displayed once the sign is on. If the value is higher, the arc will be softer and during welding is less spatters.
SMAW (MMA)		Hot Start: A special feature for MMA welding where the machine delivers a peak of current when striking the arc.
SMAW (MMA)		ARC FORCE: The output current is temporarily increased to clear short circuit connections between the electrode and the work piece
SMAW (MMA)	VRD	VRD: It reduces the welding power source's open circuit voltage.

4. Mode selection Button -

GMAW	SYN MIG	Synergic MIG
GMAW	MIG	MIG

GTAW		Lift TIG
MMA		STICK

5. Wire selection Button -

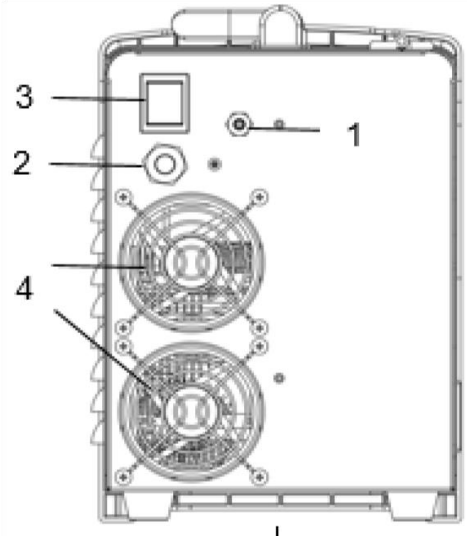
GMAW	**Fe C25**	Gas: 25% CO_2 + 75% Ar
GMAW	**Fe C100**	Gas 100% CO_2
GMAW	**SS**	Gas: 25% CO_2 + 75% Ar
FCAW	**Flux**	No Gas
GMAW	**AlSi (4043)**	When Spool Gun is connected; 100% Ar
GMAW	**AlMg(5356)**	When Spool Gun is connected; 100% Ar

6. Wire size selection Button -

Note:

- The 'Error indicator light' will come on if the duty cycle is exceeded. It shows that the inner temperature is over the permitted level, the machine should be stopped being used to allow it cool down. Welding can continue after the 'protection indicator light' is off.
- The power source should be switched off when not in use.
- Welders should wear protective clothing and welding helmet to prevent injury from arc and thermal radiation.
- Care should be taken so as not to expose others to the welding arc. Use of screening is recommended.
- Do not weld near Inflammable or explosive materials.

Rear Panel



1. Gas connector
2. Input power cord
3. Power switch
4. Fans

Welding Getting started

Work piece clean before welding

The joint to be welded must be clean, remove existing rust, greasy dirt, water and paint etc.

MIG welding steps

Loading the Electrode Wire

- Turn the machine off.
- Open the side cover of the machine.
- Unscrew the locking nut of the spool post.
- Load the spool with the wire on the spool post such that the spool turns anticlockwise when the wire is fed into the wire feeder.
- Make sure that the spool locating pin goes into the fitting hole on the spool.
- Screw in the fastening cap of the spool post.
- Put on the drive roll using the correct groove corresponding to the wire diameter.
- Free the end of the wire and cut off the bent end making sure it has no burr.

⚠ WARNING

Sharp end of the wire can injure.

- Rotate the wire spool anticlockwise and thread the end of the wire into the wire feeder as far as the Euro socket.
- Adjust force of pressure roll of the wire feeder properly.

Adjustments of Brake Torque of spool post

To avoid spontaneous unrolling of the welding wire the spool post is fitted with a brake.

Adjustment is carried by rotation of its Allen screw M8, which is placed inside of the spool post frame after unscrewing the fastening cap of the spool post.

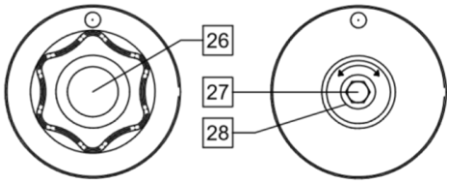


Figure 5

26. Fastening cap.
27. Adjusting Allen screw M8.
28. Compression spring.

Turning the Allen screw M8 clockwise increases the spring tension and you can increase the brake torque

Turning the Allen screw M8 anticlockwise decreases the spring tension and you can decrease the brake torque.

After finishing of adjustment, you should screw in the fastening cap again.

Adjusting of Force of Pressure Roll Force

The pressure arm controls the amount of force the drive rolls exert on the wire.

Pressure force is adjusted by turning the adjustment nut clockwise to increase force, counterclockwise to decrease force. Proper adjustment of pressure arm gives the best welding performance.

⚠ WARNING

If the roll pressure is too low the roll will slide on the wire If the roll pressure is set too high the wire may be deformed, which will cause feeding problems in the welding gun. The pressure force should be set properly. Decrease the pressure force slowly until the wire just begins to slide on the drive roll and then increase the force slightly by turning of the adjustment nut by one turn.

Inserting Electrode Wire into Welding Torch

- Turn the welding machine off.
- Depending on welding process, connect the proper gun to the euro socket, the rated parameters of the gun and of the welding machine should be matched.
- Remove the nozzle from the gun and contact tip. Next, lay the gun out flat and straight.
- Turn the welding machine on.
- Depress the gun trigger to feed the wire through the gun liner until the wire comes out of the threaded end.
- When trigger is released spool of wire should not unwind.
- Adjust wire spool brake accordingly.
- Turn the welding machine off.
- Install a proper contact tip to match wire diameter.
- Install the nozzle.

⚠WARNING

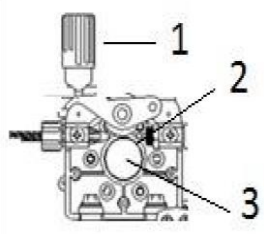
Take precaution to keep eyes and hands away from the end of the gun while the wire is being driven out of the threaded end.

Changing Driving Rolls

⚠WARNING

Turn the input power off of the welding power source before installation or changing drive rolls.

POWERCRAFT® 191C MIG is equipped with drive roll V0.6/V0.8 for steel wire. For other wire sizes, different drive roll kits are available (see "Accessories" chapter) and follow instructions:



- Turn the welding machine off.
- Release the pressure roll lever [1].
- Unscrew the fastening cap [3].
- Change the drive roll [2] with the compatible ones corresponding to the wire used.
- Screw fastening cap back in place [3].

Gas Connection

A gas cylinder must be installed with a proper flow regulator. Once a gas cylinder with a flow regulator has been securely installed, connect the gas hose from the regulator to the machine gas inlet connector. Refer to point [1] of the Figure 3.

⚠WARNING

The welding machine supports all suitable shielding gases including carbon dioxide, argon and helium at a maximum pressure of 5,0 bars.

Note: When using the GTAW lift process, connect the gas hose from the GTAW torch to the gas regulator on the shielding gas cylinder.

Welding GMAW, FCAW-SS Process

POWERCRAFT® 191C MIG can weld both GMAW and FCAW-SS process.

Preparation the Machine for Welding GMAW and FCAW-SS Process.

Procedure of begin welding of GMAW or FCAW-SS process:

- Determine the wire polarity for the wire to be used. Consult the wire data for this information.
- Connect output the gas-cooled gun to GMAW / FCAW-SS process to Euro Socket.
- Depending on the wire polarity being used, connect the work lead to the appropriate output socket.
- Connect the work lead to the welding piece with the work clamp as close to the weld as possible.
- Install the proper wire.
- Install the proper drive roll.
- Make a sure, if it is needed (GMAW process), that the shielding gas has been connected.
- Turn the machine on.
- Push the gun trigger to feed the wire through the gun liner until the wire comes out of the threaded end.
- Install a proper contact tip.
- Install the nozzle.
- Close the left side panel.
- Set welding mode to GMAW /SYN GMAW. The welding machine is now ready to weld.
- Follow all safety and warning statements incorporated in this instruction manual and all local Health and Safety requirements. Also ensure the correct PPE (personal protection equipment) is used.

Welding GMAW, FCAW-SS Process in SYNERGIC Mode

In POWERCRAFT® 191C can be set:

POWERCRAFT® 191C
Wire selection
Wire size
Thickness of the work piece
WFS
Welding current
Voltage compensation (Fine tuning)
Inductance

Welding GMAW, FCAW-SS Process in Normal Mode

In POWERCRAFT® 191C MIG can be set:

POWERCRAFT® 191C
Voltage
WFS
Welding current

Welding SMAW (MMA) Process

Procedure of begin welding of SMAW process:

- First turn the machine off.
- Determine the electrode polarity for the electrode to be used. Consult the electrode data for this information.
- Depending on the polarity of electrode, connect the work lead and the electrode holder leads to output sockets [10] or [11] (Figure 2.1) and lock them. See the Table 1.

Table 1.

			Output socket	
POLARITY	DC(+)	The electrode holder with lead to SMAW	[11]	+
		Work lead	[10]	−
	DC(-)	The electrode holder with lead to SMAW	[10]	−
		Work lead	[11]	+

- .
- Connect the work lead to the welding piece with the work clamp.
- Install the proper electrode in the electrode holder.
- Turn the welding machine on.
- Set welding mode to MMA
- Set the welding parameters.
- The welding machine is now ready to weld.
- Wear appropriate PPE and follow local occupational health and safety procedures.

User can set functions:

POWERCRAFT® 191C
Welding current
Hot Start
Arc Force
VRD

Welding GTAW Process

POWERCRAFT® 191C can be used for the GTAW process with DC (-). Arc ignition can be achieved by lift TIG method (contact and lift ignition). POWERCRAFT® 191C does not include the torch to GTAW welding, but the one can be purchased separately. See "Accessories" chapter.

The POWERCRAFT® 191C can be set:

POWERCRAFT® 191C
Welding current

Procedure of begin welding of GTAW process:

- First turn the machine off.
- Connect GTAW torch to [10] output socket.
- Connect the work lead to [11] output socket.
- Connect the work lead to the welding piece with the work clamp.
- Install the proper tungsten electrode in the GTAW torch.
- Turn the machine on.
- Set up welding mode to GTAW. Set the welding parameters.
- The welding machine is now ready to weld.
- Wear appropriate PPE and follow local occupational health and safety procedures.

POWERCRAFT®

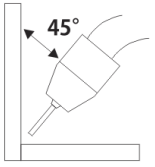
Suggested settings for welding with POWERCRAFT® 191C

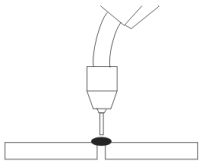
Material Thickness	STEEL						STAINLESS			INNERSHIELD				ALSI (4043)	ALMG (5356)
	DC(+)									DC(-)				DC(+)	
	Solid									Cored					
	75% Argon 25% CO_2			100% Co_2			75% Argon 25% CO_2			NO GAS				100% Argon	
	0.8mm	0.9mm	1.0mm	0.8mm	0.9mm	1.0mm	0.8mm	0.9mm	1.0mm	0.8mm	0.9mm	1.0mm	1.2mm	1.0mm	1.0mm
	V	÷													
0.8mm	14.5 2.2	N\A	N\A	14.8 2.2	N\A	N\A	15.0 2.5	N\A	N\A	13.5 2.2	N\A	N\A	N\A	N\A	N\A
1.0mm	15.0 2.5	14.8 2.0	N\A	15.0 2.5	15.5 2.0	N\A	15.5 3.2	14.5 2.8	N\A	14.2 3.0	14.0 2.2	N\A	N\A	N\A	N\A
1.2mm	15.5 2.8	15.0 2.2	15.0 2.0	15.5 2.8	16.0 2.2	16.0 2.0	16.0 4.0	14.8 3.0	15.0 2.7	14.3 3.3	14.3 2.4	13.3 2.1	N\A	N\A	N\A
1.6mm	15.8 3.4	15.5 2.7	15.3 2.2	15.8 3.2	16.2 2.5	16.3 2.1	15.5 5.3	15.3 3.8	16.0 3.1	14.5 4.5	14.8 2.7	13.6 2.4	N\A	N\A	N\A
2.0mm	16.0 3.9	16.0 3.0	15.6 2.5	16.0 3.7	16.5 3.0	16.8 2.3	17.0 6.0	16.0 4.6	17.8 4.0	15.5 5.0	16.0 3.0	14.0 2.7	N\A	N\A	N\A
3.0mm	18.5 6.8	18.0 4.8	17.5 3.5	18.8 6.8	19.0 5.2	18.8 3.8	18.3 9.0	18.3 6.8	19.5 6.0	16.7 7.2	18.0 4.5	16.0 3.8	16.0 2.3	21.0 5.0	19.0 10.0
5.0mm	21.1 10.0	20.5 7.4	19.5 5.0	21.2 9.5	21.8 7.3	21.0 5.2	20.3 12.5	19.8 9.8	21.0 7.8	18.0 9.5	19.0 7.1	18.0 5.5	16.4 2.9	23.0 6.8	21.3 12.0
6.0mm	21.5 11.2	20.8 7.6	20.0 6.0	23.2 11.2	22.3 8.5	21.8 6.3	20.5 12.8	20.0 10.5	23.5 10.0	18.5 10.0	19.2 7.7	18.2 6.0	16.8 3.2	23.5 8.6	21.8 12.8
8.0mm	22.5 12.8	21.5 9.3	20.8 6.8	24.5 12.8	23.0 9.3	22.8 7.2	22.0 13.0	21.5 12.3	24.5 11.0	19.2 11.8	19.4 8.8	19.0 7.0	17.8 3.5	24.8 9.5	23.0 14.0
10.0mm	N\A	22.5 10.5	22.0 8.0	N\A	24.8 10.8	24.0 8.5	N\A	22.5 12.8	26.0 11.5	N\A	20.0 10.5	20.0 8.0	19.0 4.3	25.5 12.0	24.0 15.0

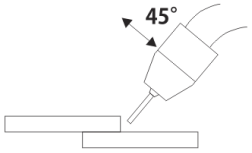
CONSUMABLE PARTS

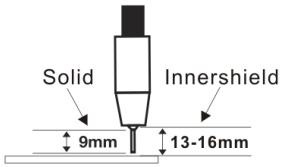
LINC Gun LG150C	Part No
Contact Tip M6 0.6mm	KP10440-06
Contact Tip M6 0.8mm	KP10440-08
Contact Tip M6 0.9mm	KP10440-09
Contact Tip M6 1.2mm	KP10440-12
Liner 0.8-1.0mm 4M	KP10413-4M
Nozzle 12mm	KP10461-1
Nozzle Support Spring	KP10400-1

DRIVE ROLLS		
Wire Type	Size	Part No
Solid	0.6/0.8/0.9mm	KP69022-0608
Solid	1.0/1.2mm	KP69022-1012
Aluminum	0.8/0.9/1.2mm	KP69022-0912A
Cored	0.8/0.9/1.2mm	KP69022-0912R









LINCOLN® ELECTRIC
THE WELDING EXPERTS®

MAINTENANCE

In order to guarantee the arc welding machine works efficiently and safely, it must be maintained regularly. Refer to the maintenance items in the following table.

● **Warning:** For safety while maintaining the machine, please disconnect the supply power and wait for 5 minutes, until capacitor voltage drops to safe voltage.

All service work should be conducted by an authorized Lincoln Electric field service agent.

	Maintenance items
Daily examination	Check operation of the panel knob's and switch's on the front and at the back of arc welding machine are operational and operate correctly. If the switch is not operational, replace immediately. Check the function of the LED display. If it doesn't work, maintain or replace the display PCB. Check fan is operating normally. If the fan is damaged, change immediately. If the fan does not rotate after the arc welding machine is overheated, check if something blocking the fan blade, if it is blocked, remove the obstruction. If the fan still does not rotate, try to spin the blade in the direction of rotation of fan. If the fan rotates normally, the start capacitor should be replaced; If not, change the fan. Check the output terminals for overheating, if so change output terminals. Ensure welding lead plugs are connected tightly. Check welding leads for damage. If damaged replace leads.
Monthly examination	Using dry compressed air to clear the inside of arc welding machine. Especially remove dust from heat sinks, main voltage transformer, inductance, IGBT module, the fast recover diode and PCB, etc.
Yearly examination	Have a Lincoln Field service shop perform an insulation resistance test.

HOW TO USE TROUBLESHOOTING GUIDE

⚠ WARNING

Before arc welding machines are dispatched from the factory, they have already been tested. Therefore no unauthorised modifications are allowed.

Unauthorised repairs performed on this equipment may result in danger to the technician and machine operator and will invalidate your factory warranty. For your safety and to avoid Electric Shock, please observe all safety notes and precautions detailed throughout this manual.

This Troubleshooting Guide is provided to help you locate and repair possible machine malfunctions. Simply follow the three-step procedure listed below.

Step 1: LOCATE PROBLEM (SYMPTOM).

Look under the column labeled “PROBLEM (SYMPTOM)”. This column describes possible symptoms that the machine may exhibit. Find the listing that best describes the symptom that the machine is exhibiting.

Step 2: POSSIBLE CAUSE

The third column labeled “POSSIBLE CAUSE” lists the obvious external possibilities that may contribute to the machine symptom.

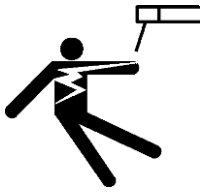
Step 3. RECOMMENDED COURSE OF ACTION

This column provides a course of action for the Possible Cause.

If you do not understand or are unable to perform the Recommended Course of Action safely, contact your local Lincoln Authorized Field Service Facility.

This Troubleshooting Guide is provided to help you locate and repair possible machine malfunctions. Simply follow the three-step procedure listed below.

⚠ WARNING



ELECTRIC SHOCK can kill

1. Have an electrician install and service this equipment
2. Turn the input power off at the fuse box before working on equipment.
3. Do not touch electrically not parts.

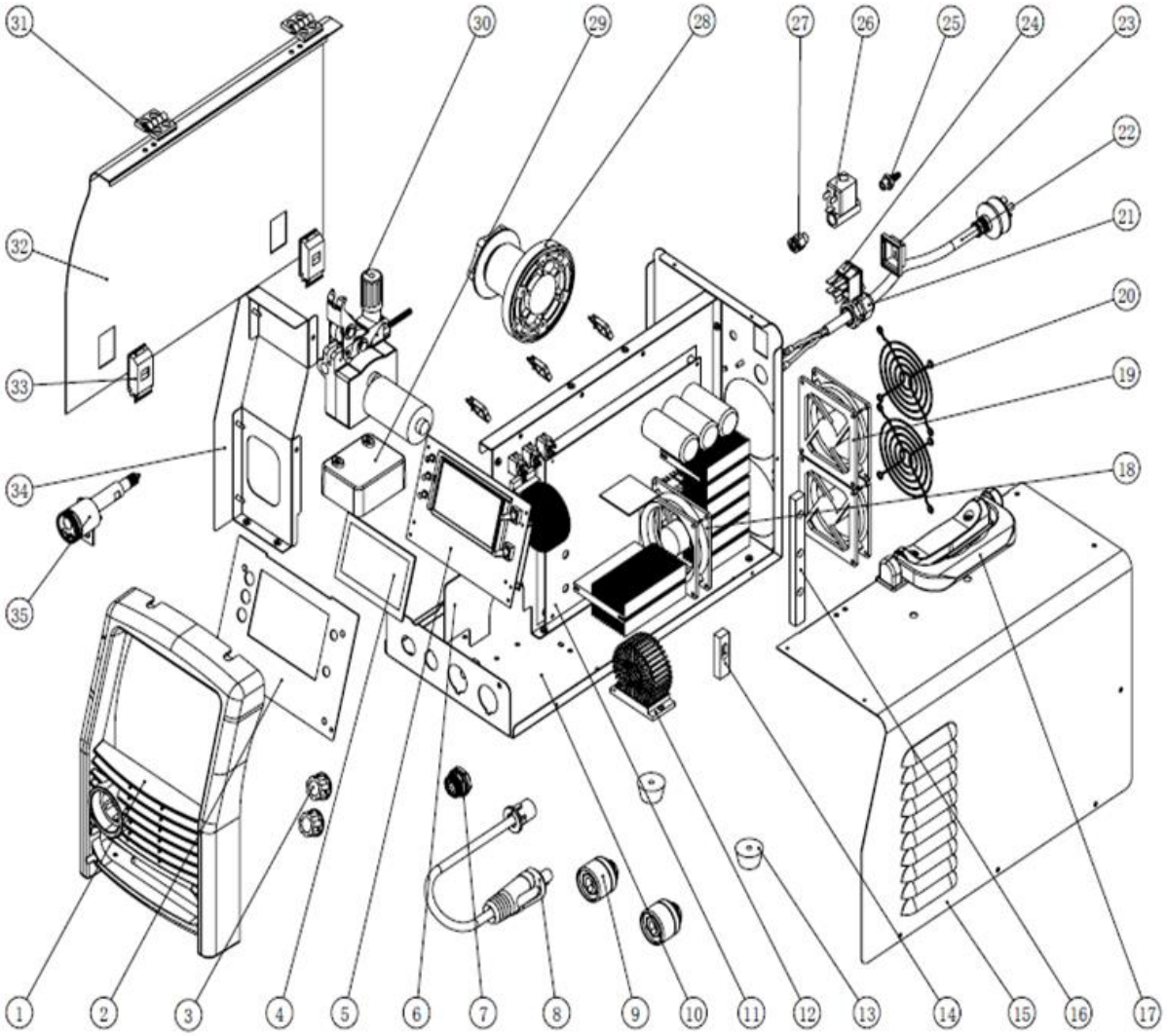
⚠ WARNING

If for any reason you do not understand the test procedure or are unable to perform the tests/repairs safely, contact your Local Authorized Field Service Facility for technical troubleshooting assistance before you proceed.

Troubleshooting

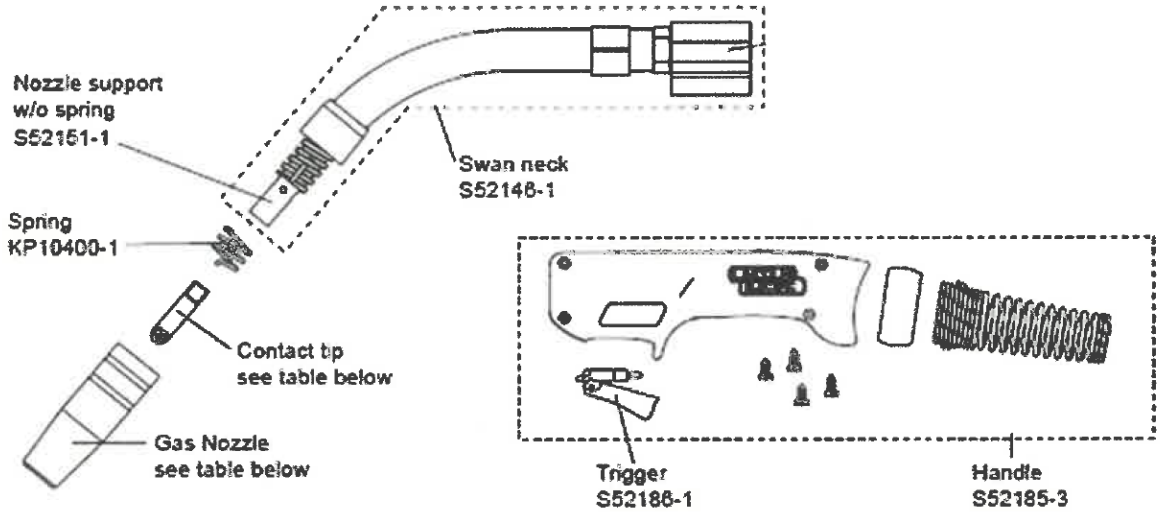
No.	Problem	Possible Cause	What to do
1	Yellow Thermal Indicator is on	Input voltage is too high (≥15%)	Switch off power source; Check the main supply. Restart welder when power recovers to normal state.
		Input voltage is too low (≤15%)	Switch off power source; Check the main supply. Restart welder when power recovers to normal state.
		Insufficient ventilation.	Improve the ventilation.
		Ambient temperature is too high.	It will automatically recover when the temperature reduces.
		Exceeding the rated duty-cycle.	It will automatically recover when the temperature reduces.
2	Wire feeding motor not working	Potentiometer faulty	Change potentiometer
		Contact tip is blocked.	Change nozzle
		Drive roll is loose.	Increase tension on drive roll
3	Cooling Fan not working or turning very slowly	Switch broken	Replace the switch
		Fan broken	Replace or repair the fan
		Wire broken or disconnected	Check the connection
4	Arc is not stable and high spatter levels	Too large contact tip makes the current unsteady	Change to proper contact tip and / or drive roll.
		Power cable cross sectional area too small.	Change the power cable.
		Too low input voltage	Correct the input voltage.
		Wire feeding resistance is too large	Clean or replace the liner and keep the gun cable straight.
5	Arc will not start	Work cable broken	Connect / repair work cable
		Work piece has greasy, dirty, rusty or painted	Clean work piece, ensure good electrical contact between work clamp and job.
6	No shielding gas	Torch is not connected properly.	Re-connect the torch.
		Gas pipe is crimped or blocked.	Check gas system.
		Gas hose damaged.	Repair or replace
7	Others		Please contact our Field Service Shop.

POWERCRAFT® 191C - Spare Parts



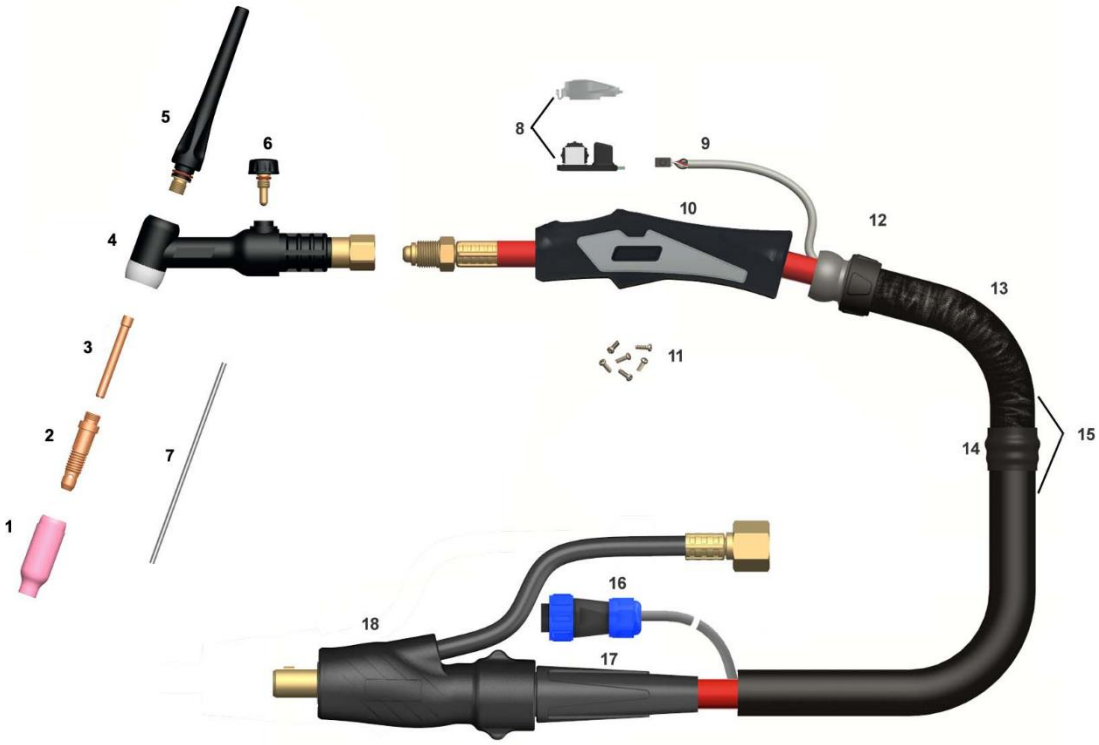
POWERCRAFT® 191C - Spare Parts			
Item	Part Number	Description	Required
1	S33563-1	Front panel (Plastic)	1
2	S33563-2	Control panel (Metal)	1
3	S33563-3	Knob	2
4	S33563-4	Transparent shield cover	1
5	S33563-5	Display board	1
6	S33563-6	median plate	1
7	S33563-7	9pin socket	1
8	S33563-8	Lead Assembly	1
9	S33563-9	quick connector	2
10	S33563-10	bottom plate	1
11	S33563-11	Main PCB (without DC FAN)	1
12	S33563-12	Inductance	1
13	S33563-13	Rubber Foot	2
14	S33563-14	Heatsink support	1
15	S33563-15	Side plate (without handle)	1
16	S33563-16	Heatsink support	1
17	S33563-17	Handle	1
18	S33563-18	DC Fan	1
19	S33563-19	DC Fan	2
20	S33563-20	Fan hood	2
21	S33563-21	Cable clip	1
22	S33563-22	Input cord with 10A plug	1
23	S33563-23	power switch cover	1
24	S33563-24	power switch	1
25	S33563-25	gas valve connector	1
26	S33563-26	gas valve	1
27	S33563-27	gas valve connector	1
28	S33563-28	wire spool shaft	1
29	S33563-29	insulation block	1
30	S33563-30	wire feeder assembly	1
31	S33563-31	Hinges	2
32	S33563-32	Side plate (without locks)	1
33	S33563-33	Lock	2
34	S33563-34	division plate	1
35	S33563-35	Gun connector	1

LG (MB) 150C MIG Torch



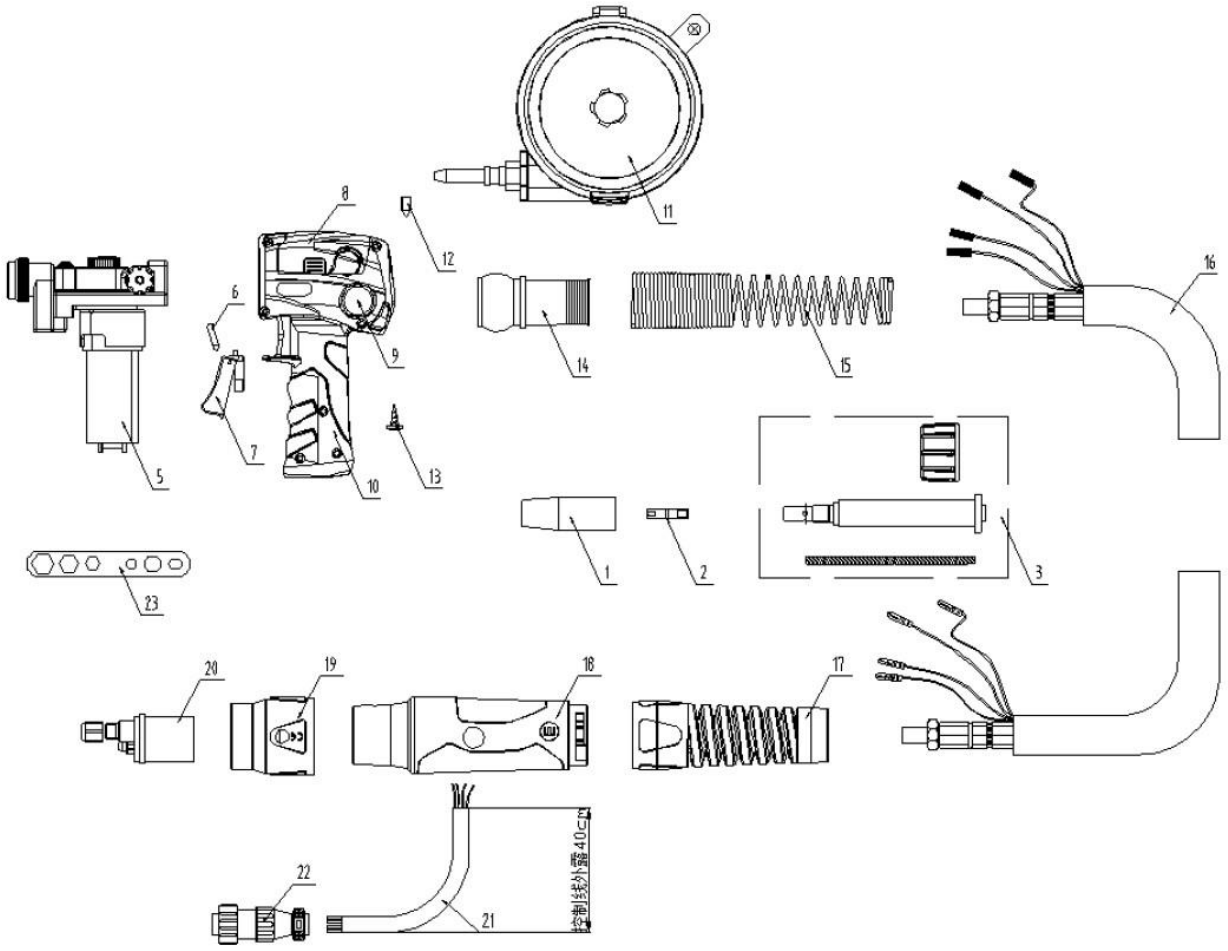
150C MIG Torch - Spare Parts	
Part Number	Description
K60082-15-3M	LINC Gun 150G-3.0m-150A 60%-Euro connection
KP10461-1	Gas nozzle diam.12mm(Pack of 10 pcs)
KP10440-06	Contact tip M6*0.6mm(25mm)(Pack of 10 pcs)
KP10440-08	Contact tip M6*0.8mm(25mm)(Pack of 10 pcs)
KP10440-09	Contact tip M6*0.9mm(25mm)(Pack of 10 pcs)
KP10440-12	Contact tip M6*1.2mm(25mm)(Pack of 10 pcs)
KP10400-1	Spring nozzle support
KP10413-4M	Liner with insulation(4.4m) for wire 0.8-1.0mm

PRO26V Optional TIG Torch



PRO26V Optional TIG Torch				
NO.	SLE part number	Description	Unit	Qty
1	S33564-1	Ceramic cup 11mm	PCS	1
2	S33564-2	Collet body 2.4mm	PCS	1
3	S33564-3	Collet 2.4mm	PCS	1
4	S33564-4	Torch Body	PCS	1
5	S33564-5	Back Cap Long	PCS	1
6	S33564-8	Gas valve	PCS	1
7	S33564-6	Tungsten	PCS	1
8	S33564-7	Switch Assy	PCS	1
9	S33564-11	Switch Lead 12.5ft	PCS	1
	S33564-19	Switch Lead 25ft		
10	S33564-10	Handle	PCS	1
11	S33564-12	Screw Pack	PCS	1
12	S33564-13	Knuckle joint	PCS	1
13	S33564-14	Leather Sheath	PCS	1
14	S33564-9	Cover Connection	PCS	1
15	S33564-18	Cover Assy 12.5ft	PCS	1
	S33564-20	Cover Assy 25ft		
16	S33564-16	9-Pin control plug	PCS	1
17	S33564-15	Cable Assy 12.5ft	PCS	1
	S33564-21	Cable Assy 25ft		
18	S33564-17	Torch Terminal	PCS	1

OPTIONAL – LBT150 SPOOL GUN
(K69083-1)



OPTIONAL LBT150 SPOOL GUN				
NO.	Part Number	Description	Unit	Qty
1	S33562-1	Nozzle	PCS	1
2	S33562-2	Tip Φ0.8mm	PCS	1
3	S33562-3	Gun Neck	PCS	1

Drive Rolls

0.6~0.8~0.9mm	Solid	KP69022-0608
1.0~1.2mm	Solid	KP69022-1012
0.9~1.2MM	Cored	KP69022-0912R
0.9~1.2MM	Alum	KP69022-0912A

Tig Torch

Tig Torch	PRO26V-12	12.5ft	K69082-1
Tig Torch	PRO26V-25	25ft	K69082-2

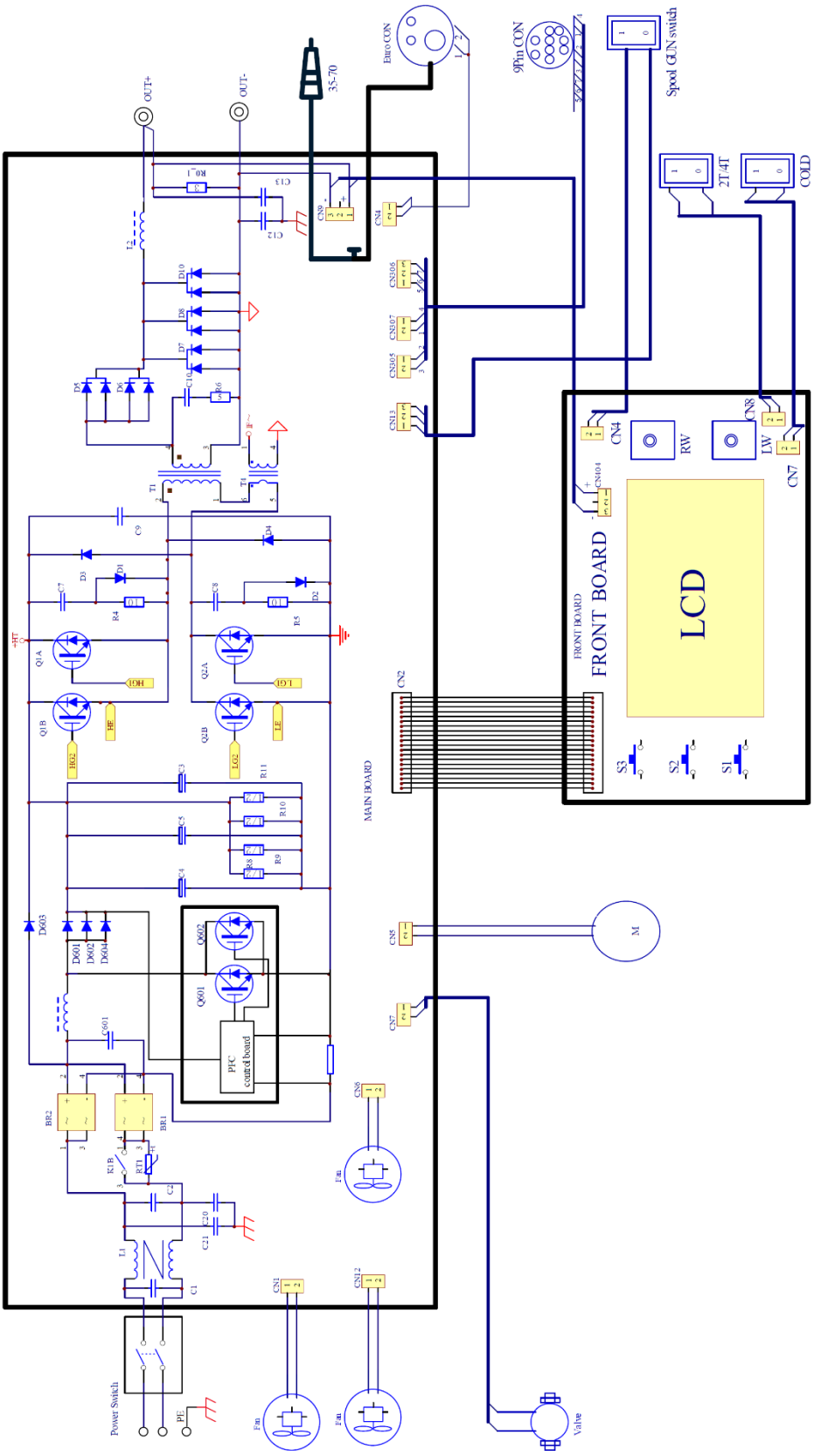
Mig Gun

Linc Gun	150G,3m,150A@60%	Euro connector	K60082-15-3M

Spool Gun

Spool gun	LBT150	K69083-1
Drive Roll	0.8/1.0U	KP69023-0810A

Schematic Wiring Diagram



Limited Warranty

STATEMENT OF LIMITED WARRANTY

This warranty is given by The Lincoln Electric Company (Australia) Pty Ltd ("Lincoln Electric"), 35 Bryant St, Padstow NSW 2211, Tel: 1300 LINCOLN (1300 546 265).

Under this warranty, Lincoln Electric® warrants all new machinery and equipment ("goods") manufactured by Lincoln Electric® against defects in workmanship and material subject to certain limitations hereinafter provided.

The benefits to the purchaser given by this warranty are in addition to other rights and remedies of the purchaser under a law in relation to the goods. **Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.**

This warranty is void if Lincoln Electric or Lincoln Electric's Authorised Service Facility finds that the equipment has been subjected to improper installation, improper care or abnormal operations. Further, this warranty does not apply to:

- cable wear and consequential damage resulting from cable wear due to flexing and abrasion. The purchaser is responsible for routine inspection of cables for possible wear and to remedy the issue prior to cable failure;
- engines and engine accessories;
- any batteries supplied with the goods;
- repairs done to the goods and undertaken by the purchaser outside Lincoln Electric's premises without written authority from Lincoln Electric obtained prior to any such repair; or
- any damage or failure of the goods as a result of normal wear and tear or the neglect misuse abuse or failure to properly service goods by any purchaser.

PERIOD OF WARRANTY "LINCOLN ELECTRIC BRANDED GOODS"

Lincoln Electric will assume both the parts and labour expense of correcting defects during this warranty period. All warranty periods under this warranty start from the date of purchase from a Lincoln Electric Authorised Distributor or Lincoln Electric Authorised Service Facility to the original end user or from the date of manufacture if proof of purchase is not available and are as follows:

Three Years

- All Lincoln Electric® welding machines, wire feeders and plasma cutting machines unless listed in 1 Year or Two Years

Two Years

- All Invertec®, Tomahawk® Welders & Plasmas machines unless listed below (exclude V350, TPX, TX, SX & ASPECT Models which are 3 years)
- VIKING™ Helmets (Electronic ADF Lens Only).

One Year

- VRTEX™ 360 Virtual Reality Welder Trainer (not including items listed under 90 day warranty)
- Kjellberg Plasma Cutting Equipment.
- Fanuc Robotic Equipment.
- Genesis Systems Group Equipment.
- Torchmate Cutting Systems
- Weld Engineering Flux Recovery Equipment.
- Binzel Robotic Cleaning Stations & Associated Equipment.
- PCA Profile Cutting Machines.
- All water coolers (internal and external).
- Arc welding and cutting robots and robotic controllers

- All stick electrodes, welding wires and fluxes.
- All Environmental Systems equipment, including portable units, central units and accessories. (Does not include consumable items listed under 30-day warranty).
- All welding and cutting accessories including wire feed modules, undercarriages, field installed options that are sold separately, unattached options, welding supplies, standard accessory sets, replacement parts. (Does not include expendable parts and guns/ torches listed under 90 and 30 day warranties).

90 Days

- All Gun and Cable Assemblies (manufactured by Lincoln Electric®) and Spool guns.
- All MIG, TIG and Plasma Torches.
- All "Pro Torch" TIG Torches.
- VRTEX™ 360 Guns and VR Helmet

30 Days

- All consumable items that may be used with the environmental systems described above. This includes hoses, filters, belts and hose adapters.
- Expendable Parts - Lincoln Electric® is not responsible for the replacement of any expendable part that is required due to normal wear.

PERIOD OF WARRANTY "POWERCRAFT® BRANDED GOODS"

Lincoln Electric will assume both the parts and labour expense of correcting defects during this warranty period. All warranty periods under this warranty start from the date of purchase from a Lincoln Electric Authorised Distributor or Lincoln Electric® Authorised Service Facility to the original end user or from the date of manufacture if proof of purchase is not available and are as follows:

Three Year Limited Warranty*

- All POWERCRAFT® welding power sources, wire feeders and plasma cutting machines with a Code number 76205 or higher.

*

POWERCRAFT® welding power sources	Parts	Labour
Original main transformer, inductors, rectifiers	3 year	2 year
Original printed circuit boards	2 year	1 year
All other circuits and components including, but not limited to relays, switches, contactors, solenoids, fans and electric motors	1 year	1 year

One Year

- All POWERCRAFT® Welding power sources with a Code number lower than 76205.
- All welding and cutting accessories including wire feed modules, undercarriages, field installed options that are sold separately, unattached options, welding supplies, standard accessory sets, replacement parts. (Does not include expendable parts and guns/ torches listed under 90 and 30 day warranties).
- POWERCRAFT® Welding Helmet (Electronic ADF Lens Only).

90 Days

- All MIG, TIG and Plasma Torches.

30 Days

- Expendable Parts - Lincoln Electric® is not responsible for the replacement of any expendable part that is required due to normal wear.

WARRANTY CLAIM PROCESS

The purchaser must contact Lincoln Electric® (see contact details above) within the applicable warranty period about any defect claimed under this warranty. Lincoln Electric® may direct the purchaser to one of Lincoln Electric's Authorised Service Facilities. Determination of warranty on welding and cutting equipment will be made by Lincoln Electric® or one of Lincoln Electric's Authorised Service Facilities as directed by Lincoln Electric®. At Lincoln Electric's request, the purchaser must return, to Lincoln Electric® or Lincoln Electric's Authorised Service Facility, at the purchaser's cost, any goods claimed defective under this warranty, or permit Lincoln Electric® or Lincoln Electric's Authorised Service Facility to inspect the goods at the purchaser's premises.

Lincoln Electric® may at its absolute discretion repair or replace the goods at its own premises or at such other premises as Lincoln Electric® may designate provided that all freight charges to and from Lincoln Electric's premises or such other premises as Lincoln Electric® may designate shall be paid by the purchaser.

If Lincoln Electric® or Lincoln Electric's Authorised Service Facility confirms the existence of a defect covered by this warranty; the defect will be corrected by repair or replacement at Lincoln Electric's option.

CUSTOMER ASSISTANCE POLICY

Lincoln Electric® business is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric® for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric® is not in a position to warrant or guarantee such advice and to the extent permitted by law assumes no liability, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given. The provision of information or advice does not create, expand or alter this warranty.

Lincoln Electric® is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric® is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric® affect the results obtained in applying this type of fabrication methods and service requirements.