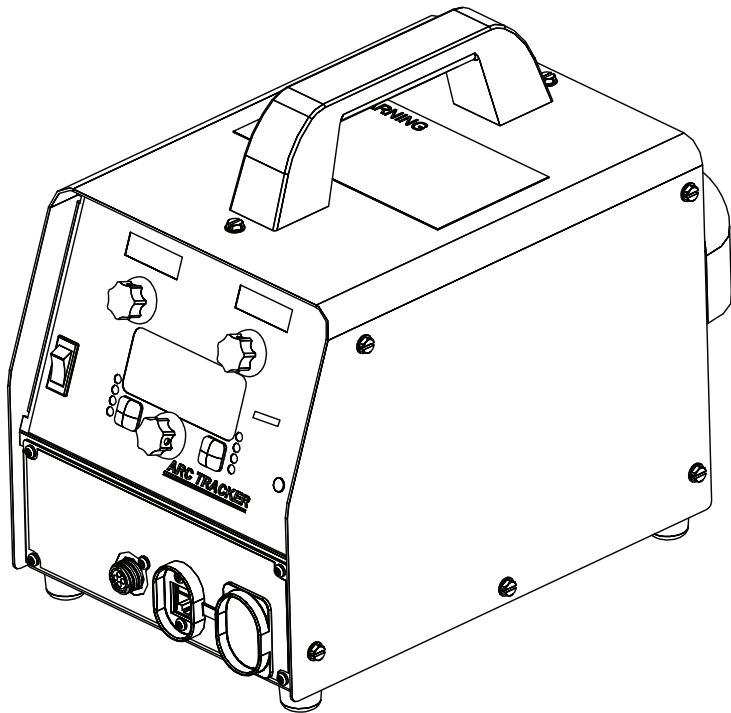




Operator's Manual

ARC TRACKER™



For use with machines having Code Numbers:
11742



Register your machine:
www.lincolnelectric.com/register
Authorized Service and Distributor Locator:
www.lincolnelectric.com/locator

Save for future reference

Date Purchased

Code: (ex: 10859)

Serial: (ex: U1060512345)

THANK YOU FOR SELECTING A QUALITY PRODUCT BY LINCOLN ELECTRIC.

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.

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.

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.



KEEP YOUR HEAD OUT OF THE FUMES.

DON'T get too close to the arc. Use corrective lenses if necessary to stay a reasonable distance away from the arc.

READ and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

USE ENOUGH VENTILATION or exhaust at the arc, or both, to keep the fumes and gases from your breathing zone and the general area.

IN A LARGE ROOM OR OUTDOORS, natural ventilation may be adequate if you keep your head out of the fumes (See below).

USE NATURAL DRAFTS or fans to keep the fumes away from your face.

If you develop unusual symptoms, see your supervisor. Perhaps the welding atmosphere and ventilation system should be checked.



WEAR CORRECT EYE, EAR & BODY PROTECTION

PROTECT your eyes and face with welding helmet properly fitted and with proper grade of filter plate (See ANSI Z49.1).

PROTECT your body from welding spatter and arc flash with protective clothing including woolen clothing, flame-proof apron and gloves, leather leggings, and high boots.

PROTECT others from splatter, flash, and glare with protective screens or barriers.

IN SOME AREAS, protection from noise may be appropriate.

BE SURE protective equipment is in good condition.

Also, wear safety glasses in work area
AT ALL TIMES.



SPECIAL SITUATIONS

DO NOT WELD OR CUT containers or materials which previously had been in contact with hazardous substances unless they are properly cleaned. This is extremely dangerous.

DO NOT WELD OR CUT painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.

Additional precautionary measures

PROTECT compressed gas cylinders from excessive heat, mechanical shocks, and arcs; fasten cylinders so they cannot fall.

BE SURE cylinders are never grounded or part of an electrical circuit.

REMOVE all potential fire hazards from welding area.

ALWAYS HAVE FIRE FIGHTING EQUIPMENT READY FOR IMMEDIATE USE AND KNOW HOW TO USE IT.



SECTION A: WARNINGS



CALIFORNIA PROPOSITION 65 WARNINGS



WARNING: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an exposed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to
www.P65warnings.ca.gov/diesel

WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code § 25249.5 *et seq.*)



WARNING: Cancer and Reproductive Harm
www.P65warnings.ca.gov

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 gasoline 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 Z87.1 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 hardfacing (see instructions on container or SDS) 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 unless exposure assessments indicate otherwise. In confined spaces or in some circumstances, outdoors, a respirator may also 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 Safety Data Sheet (SDS) and follow your employer's safety practices. SDS 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-1, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association, 14501 George Carter Way Chantilly, VA 20151.



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. Be aware that interference may result and extra precautions may be required when a welding power source is used in a domestic establishment.

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 according to national codes. 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

Mains Supply

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

Maintenance of the Welding Equipment

The welding equipment should be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in the 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, not connected to earth because of its size and position, e.g., ships 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 applications¹.

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

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TECHNICAL SPECIFICATIONS - ARC TRACKER™

INPUT VOLTAGE AND CURRENT				
Model	Input Voltage ± 10%		Input Amperes	
K3019-1	120-230 V AC, 50/60 Hz		0.8-0.5 A	
RATED OPERATING RANGE NEMA EW1				
Duty Cycle		Volts at Rated Amperes		Amperes
100%		44 V DC		1000 A DC
RATED OPERATING RANGE IEC60974-1				
Duty Cycle		Volts at Rated Amperes		Amperes
100%		44 V DC		1000 A DC
RECOMMENDED INPUT WIRE				
VOLTAGE 50/60 Hz	Input Amperes	REGION	INPUT CORD	PLUG
120	0.8 A	NORTH AMERICA	3 CONDUCTOR, #18 AWG TYPE S, SO, SOO, ST, STO, STOO OR EQUIVALENT EXTRA HARD USAGE CORD	NEMA 5-15P (INCLUDED)
230	0.5 A			ANY NEMA 250 V TYPE*
230	0.5 A	EUROPE	3 CONDUCTOR, 1.0 mm ² HAR	CEE 7/7

* All attachment plugs must comply with the Standard for Attachment Plugs and Receptacles, UL498.

METER ACCURACY (AS SHIPPED)				
VOLTMETER		± 2% + 0.1**		
AMMETER		± 2% + 2**		
ENERGY		± 5%		
PHYSICAL DIMENSIONS				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
K3019-1	12 in (305 mm)	9 in (220 mm)	15 in (380 mm)	20 lbs (9 kg)
TEMPERATURE RANGES				
OPERATING TEMPERATURE RANGE		14°F TO 104°F (-10°C TO 40°C)		
STORAGE TEMPERATURE RANGE		-40°F TO 185°F (-40°C TO 85°C)		


**Accuracy is expressed as +/- [Percentage of Reading + Digits].

For example: 10A = +/- 10A x 0.02 + 2 = 10A +/- 2.2, or 7.8A to 12.2A

ARC TRACKER™



SAFETY PRECAUTIONS


⚠ WARNING

ELECTRIC SHOCK can kill.

- **ONLY QUALIFIED PERSONNEL SHOULD PERFORM THIS INSTALLATION.**
- **TURN OFF INPUT POWER TO THE POWER SOURCE AT THE DISCONNECT 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 DISCONNECT SWITCH OR FUSE BOX BEFORE WORKING ON THE EQUIPMENT.**

- **DO NOT TOUCH ELECTRICALLY HOT PARTS.**
- **CONNECT THE ARC TRACKER™ TO AN OUTLET WITH PROPER SAFETY (EARTH) GROUND.**

SELECT SUITABLE LOCATION

UNIT IS IP23 RATED.

The ARC TRACKER™ will operate in harsh environments. Even so, it is important that simple preventative measures are followed in order to assure long life and reliable operation.

- Keep machine dry. Shelter from rain and snow. Do not place on wet ground or in puddles.

TILTING

Place the ARC TRACKER™ on a secure, level surface. The weight of the welding cables hanging from the connection terminals may cause the ARC TRACKER™ to topple. Secure the welding cables to an appropriate structure to reduce the hanging weight to stabilize the ARC TRACKER™

STACKING

The ARC TRACKER™ cannot be stacked.

GROUNDING AND INPUT CONNECTIONS

MACHINE GROUNDING

The frame of the ARC TRACKER™ must be grounded. By using the power cord shipped with the unit, or by using a cord per the specifications described here, the unit will be properly grounded if connected to a grounded receptacle. See your local and national electrical codes for proper receptacle grounding methods.



INPUT CONNECTIONS

Installation should be made in accordance with the appropriate National Electrical Code, all local codes

and the information in this manual.

The ARC TRACKER™ can be connected to 120 V AC or 230 V AC, 50 or 60 Hz. The power supply inside the unit can accept any single phase input voltage from 120 V AC to 230 V AC. The unit is shipped from the factory with a 6ft. (2m) detachable input cord with a NEMA 5-15P plug and an IEC 60320 plug receptacle. For the European market, it is suggested that an input cord with a CEE 7/7 plug and IEC 60320 plug receptacle be used. For all other regions, a cord should be used with a plug which provides between 120 V AC and 230 V AC, 50 or 60Hz, and has the IEC 60320 plug receptacle. Cord must provide proper ground per national electrical codes.

230 V INPUT

To change from 120 V to 230 V single phase input, the NEMA 5-15P plug can be replaced by any NEMA 250 V type plug (for example – type 6-30P).

ATTACHMENT PLUG

In all cases, the green or green/yellow grounding wire must be connected to the grounding pin of the plug, usually identified by a green screw. All attachment plugs must comply with the Standard for Attachment Plugs and Receptacles, UL498. The product is considered acceptable for use only when an attachment plug as specified is properly attached to the supply cord. The ARC TRACKER™ will auto reconnect to either 120 V or 230 V supplies.

HIGH FREQUENCY PROTECTION

The EMC classification of the ARC TRACKER™ is Industrial, Scientific and Medical (ISM) group 2, class A. The ARC TRACKER™ is for industrial use only. (See Electromagnetic Compatibility EMC Safety Section).

Harmonic Current Information:

Design complies with EN6100-3-2, -3.

Locate the ARC TRACKER™ away from radio controlled machinery. The normal operation of the ARC TRACKER™ may adversely affect the operation of RF controlled equipment, which may result in bodily injury or damage to the equipment.

RECOMMENDED ELECTRODE AND WORK CABLE SIZES FOR ARC WELDING

General Guidelines

The following recommendations apply to all output polarities and weld modes:

ARC TRACKER™



- Select the appropriate size cables per the "Output Cable Guidelines" Table A.1. Excessive voltage drops caused by undersized welding cables and poor connections often result in unsatisfactory welding performance. Always use the largest welding cables (electrode and work) that are practical, and be sure all connections are clean and tight.

Note: Excessive heat in the weld circuit indicates undersized cables and/or bad connections.

- Route all cables directly to the work and electrode, avoid excessive lengths and do not coil excess cable. Route the electrode and work cables in close proximity to one another to minimize the loop area and therefore the inductance of the weld circuit.
- Always weld in a direction away from the work con-

ELECTRODE CONNECTIONS

Electrode Positive (See Figure A.1)

Connect cable(s) of sufficient size and length (**Per Table A.1**) to the "ELECTRODE" terminals on the power source. Connect the other end of the electrode cable(s) to the contact tip, wire feeder, etc. Be sure the connection makes tight metal-to-metal electrical contact.

WORK CONNECTIONS

Electrode Positive (See Figure A.1)

Connect cable(s) of sufficient size and length (**Per Table A.1**) between the "WORK" terminals on the power source and the ARC TRACKER™ right side weld terminals (when viewed from the rear). Connect cable(s) of sufficient size and length from the ARC TRACKER™ left weld terminals to the work. Be sure the connection to the work makes tight metal-to-metal electrical contact.

REMOTE SENSE LEAD SPECIFICATIONS

(See Figure A.1)

In order to get an accurate measurement of the true energy going in to the weld, it is critical to get an accurate measurement of the arc voltage. The arc voltage sense leads are polarity specific – **RED** must be connected to the positive side of the arc and **BLACK** to the negative. The sense leads should be connected as close as possible to the arc, e.g. at the contact tip, wire feeder, etc and to the work.

PRODUCT SPECIFIC INSTRUCTIONS

Best Practices:

Place the ARC TRACKER™ in the work circuit. This will keep the ARC TRACKER™ at the same potential as the work piece.

The welding current **MUST** flow into the left side weld terminals (when viewing the ARC TRACKER™ from the rear) and out of the right side weld terminals. If the welding current does not flow through the ARC TRACKER™ in the right direction, the unit will not properly sense the welding current and nothing will be displayed on the unit during welding.

See the specific power source instruction manual for additional general guidelines on output cable connections.

SOFTWARE TOOLS

ARC TRACKER™ software tools and other documents related to the integration, configuration, and operation of the system are available at,

www.powerwavesoftware.com

An Ethernet connection gives the ARC TRACKER™ the ability to run Power Wave Manager and Production Monitoring™.

Power Wave Manager

- Ethernet setup and verification
- Calibration
- Production Monitoring Configuration
- User Interface Lockout

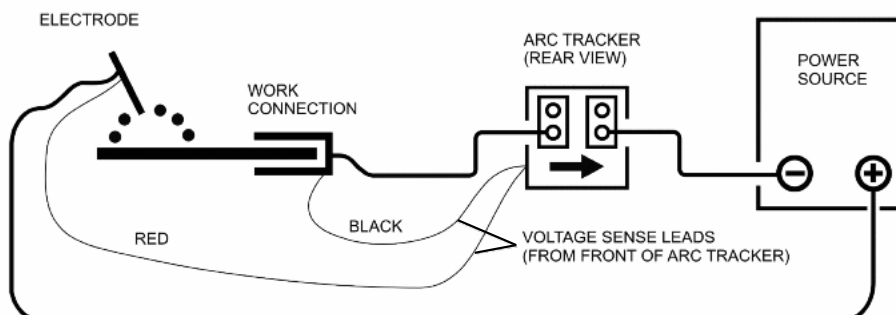
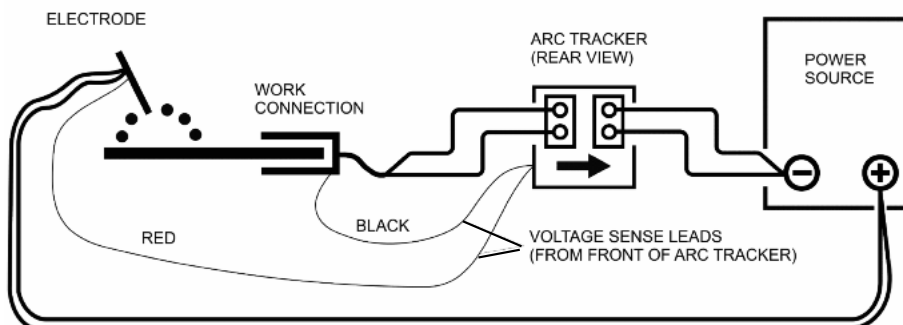
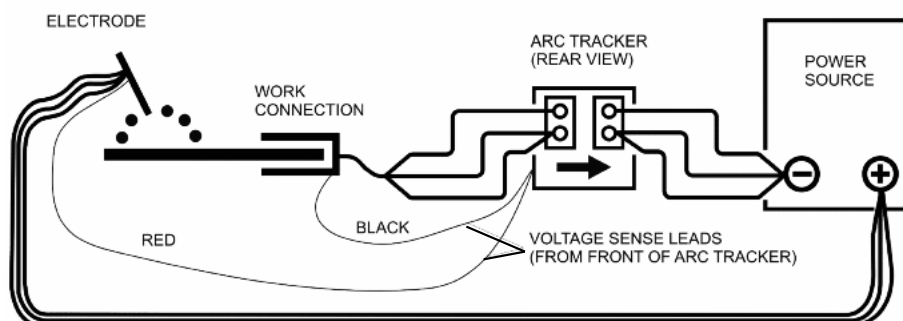
TABLE A.1 Output Cable Guidelines

Total Cable Length ft (m) Electrode and Work Combined	Current in Weld Circuit	Duty Cycle	Number of Cables (parallel if more than one)	Cable Size (copper) AWG
0 (0) to 250 (76.2)	0-500 Amps	100%	1	4/0 (120 mm ²)
	500-750 Amps		2	4/0 (120 mm ²)
	750-1000 Amps		3	3/0 (95 mm ²)

ARC TRACKER™



FIGURE A.1

CONNECTION DIAGRAM-ELECTRODE POSITIVE (0-500A)**CONNECTION DIAGRAM-ELECTRODE POSITIVE (500-750A)****CONNECTION DIAGRAM-ELECTRODE POSITIVE (750-1000A)****ARC TRACKER™****LINCOLN®
ELECTRIC**

SAFETY PRECAUTIONS

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

WARNING



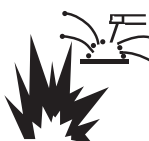
ELECTRIC SHOCK can kill.

- Unless using cold feed feature, when feeding with gun trigger, the electrode and drive mechanism are always electrically energized and could remain energized several seconds after the welding ceases.
- Do not touch electrically live parts or electrodes with your skin or wet clothing.
- Insulate yourself from the 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 containers that have held combustibles.



ARC RAYS can burn.

- Wear eye, ear, and body protection.

Observe additional guidelines detailed in the beginning of this manual.

GRAPHIC SYMBOLS THAT APPEAR ON THIS MACHINE OR IN THIS MANUAL



MACHINE STATUS



ON



OFF



ELECTRODE



READ INSTRUCTION MANUAL



PROPER DISPOSAL



POSITIVE OUTPUT



NEGATIVE OUTPUT

IP23

ENCLOSURE RATING



INPUT POWER

CAL

CALIBRATION

RANGE

WELD CURRENT

X

DUTY CYCLE



WORK CONNECTION

ARC TRACKER™



GRAPHIC SYMBOLS THAT APPEAR ON THIS MACHINE OR IN THIS MANUAL

A **WELD AMPERAGE**

U_1 **INPUT VOLTAGE**

V **WELD VOLTAGE**

I_1 **INPUT CURRENT**

I_2 **OUTPUT CURRENT**



**PROTECTIVE
GROUND**



WARNING or CAUTION



Explosion



Dangerous Voltage



Shock Hazard



SET UP MENU



**ETHERNET
CONNECTOR**

PRODUCT DESCRIPTION

General Functional Description

The ARC TRACKER™ is a high-performance, portable product designed to accurately measure the True Energy delivered into a weld from any welding machine (DC process only). The ARC TRACKER™ will accurately measure the welding parameters (arc voltage, arc current, and weld time) and provide a real-time calculation of the True Energy into the weld. While welding, the True Energy [in joules (J)] for the weld will be accurately displayed on the user interface.

The ARC TRACKER™ utilizes high-intensity LEDs and alpha-numeric displays that can easily be seen from a distance. The design uses advanced digital controls to sample the welding parameters at a very high rate of speed. The ARC TRACKER™ is compatible with any DC welding process.

The ARC TRACKER™ has an Ethernet connector to easily connect the product into a local network which enables the use of Lincoln's additional software tools.

DESIGN FEATURES

- Multiple process DC welding range: 10-1000 Amps, 100% duty cycle.
- Simple Plug-N-Play design – connect to welding circuit, attach voltage sense leads and the meter begins to function!
- Digital controls for highly accurate measurements.

RECOMMENDED PROCESSES AND EQUIPMENT

RECOMMENDED PROCESSES

- DC arc welding circuits only
- Any welding process
- Any welding equipment

PROCESS LIMITATIONS

- Cannot be used with AC arc welding circuits
- 1000 A, 120 V, (maximum)
- Not Recommended for HF TIG applications

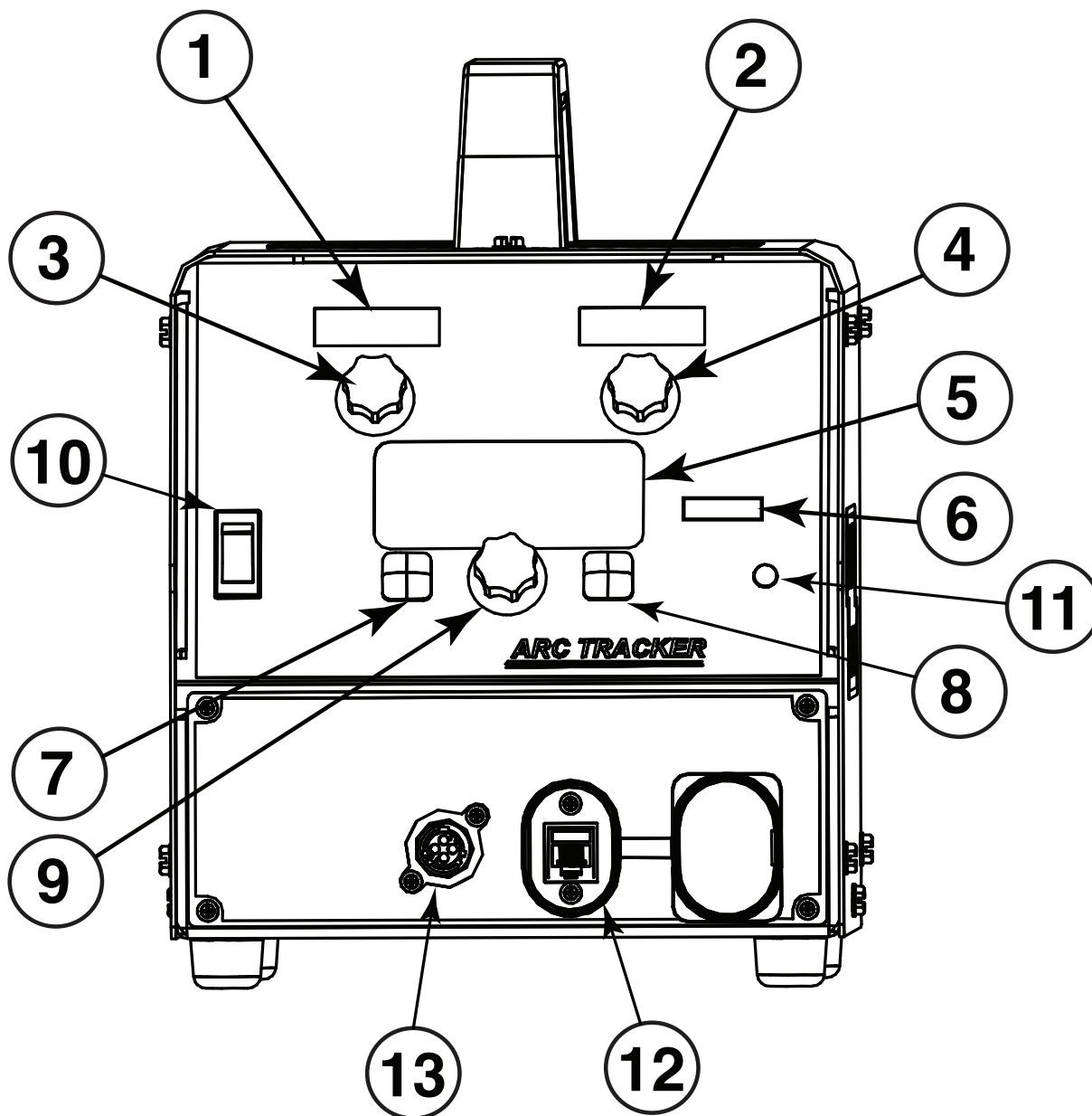
EQUIPMENT LIMITATIONS

- The weld terminals on the back of the ARC TRACKER™ have a maximum threshold of welding current which can flow through them. The correct number and size of welding conductors must be used for proper cooling. See the installation section for proper connectivity.
- The ARC TRACKER™ has been calibrated before being shipped from the factory. The Lincoln Electric Company recommends that end-users of its welding equipment evaluate the suitability of utilizing this product in their quality system, determine if periodic calibration is required and the calibration interval based upon the criticality of the welding application, the environment in which the equipment is located, the level of preventive maintenance and the actual conditions of use.
- The Ethernet connection gives the ARC TRACKER™ the ability to run Production Monitoring™ with certain function limitations, such as, no support for wire feed speed, deposition rate, consumable package tracking and weldscore.

CASE FRONT CONTROL DESCRIPTIONS

(See Figure B.1)

- | | |
|---------------------------|----------------------------------|
| 1. Amps Display | 8. Right Push button |
| 2. Volts Display | 9. Center Knob |
| 3. Amps Calibration Knob | 10. ON/OFF Switch |
| 4. Volts Calibration Knob | 11. Status LED |
| 5. Message Display | 12. Ethernet Connector |
| 6. Setup Mode LED | 13. Voltage Sense Lead Connector |
| 7. Left Push Button | |

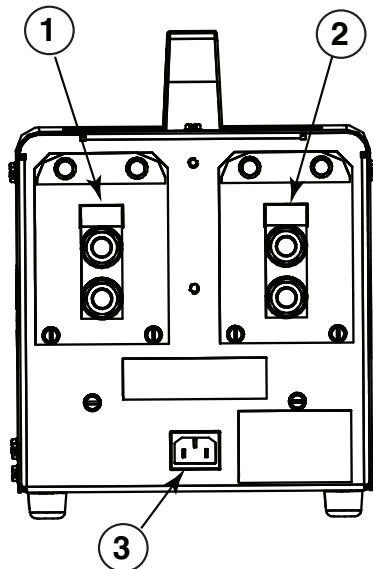
FIGURE B.1

CASE BACK (TERMINAL COVERS NOT SHOWN)

Case Back Descriptions (See Figure B.2)

1. Left weld terminals (weld current IN)
2. Right weld terminals (weld current OUT)
3. Input cord receptacle

FIGURE B.2



POWER-UP SEQUENCE

When power is applied to the ARC TRACKER™, the status light will flash green for up to 60 seconds. During this time the unit is performing a self test. The status light will also flash green as a result of a system reset or configuration change during operation. When the status light becomes steady green the system is ready for use.

If the status light does not become steady green consult the troubleshooting section of this manual for further instruction.

DUTY CYCLE

The ARC TRACKER™ is rated for 1000 A, 44 V DC, 100% duty cycle.

- Note: The correct number and size of welding conductors must be used for proper cooling. See the installation section for proper connectivity.

COMMON WELDING PROCEDURES

The ARC TRACKER™ can be used with any DC welding process.

SETUP MENU FEATURES

The Setup Menu gives access to the Setup Configuration. Stored in the setup configuration are user parameters that generally only need to be set at installation. The parameters are grouped as shown in the following table.

PARAMETER	DEFINITION
P.1 through P.99	Unsecured Parameters (always adjustable)
P.101 through P.199	Diagnostic Parameters (always read only)
P.501 through P.599	Secured Parameters (only accessible through a p.c. application)

SET-UP FEATURES MENU

(See Figure B.1)

1. To access the set-up menu, press the **Right** and **Left** buttons of the **Main Display** panel simultaneously. **Note** that the set-up menu cannot be accessed if there is a fault (The status **LED** is not solid green).

Change the value of the blinking parameter by rotating the **Center** knob.


2. After changing a parameter it is necessary to press the **Right** hand button to save the new setting. Pressing the **Left** button will cancel the change.
3. To exit the set-up menu at any time, press the **Right** and **Left** buttons of the Main Display panel simultaneously. Alternately, 1 minute of inactivity will also exit the set-up menu.

USER DEFINED PARAMETERS

Parameter	Definition
P.0	Exit Setup Menu This option is used to exit the setup menu. When P.0 is displayed, press the Left Button to exit the setup menu.
P.83	Calibration See Calibration Specification section for further details.
P.106	View Ethernet IP Address Used for viewing the IP address of Ethernet compatible equipment. Press the Right Button to read the IP Address. Press the Left Button to back out and exit this option. The IP address cannot be changed using this option.
P.505	Setup Menu Lock Determines if the setup parameters can be modified by the operator without entering a pass-code. No = The operator can change any set menu parameter without first entering the passcode even if the passcode is non-zero (default). Yes = The operator must enter the passcode (if the passcode is non-zero) in order to change any setup menu parameters. This parameter can only be accessed using Power Wave Manager software.
P.506	Set User Interface Passcode Prevents unauthorized changes to the equipment. The default passcode is zero which allows full access. A nonzero passcode will prevent unauthorized changes to setup parameters (if P.505 = Yes). This parameter can only be accessed using Power Wave Manager software.
P.509	UI Master Lockout Locks all user interface controls, preventing the operator from making any changes. This parameter can only be accessed using Power Wave Manager software.

SAFETY PRECAUTIONS

⚠ WARNING



ELECTRIC SHOCK can kill.

- Only Qualified personnel should perform this maintenance.
- Turn the input power OFF at the disconnect switch or fuse box before working on this equipment.
- Do not touch electrically hot parts.

See additional warning information throughout this Operator's Manual

CALIBRATION SPECIFICATION

The ARC TRACKER™ as shipped from the factory has +/-2% accuracy on the digital volts display and amps display. Due to the heat input calculation being a function of measured volts, amps, and arc on-time, the displayed energy value has an accuracy of +/-5%.

The Lincoln Electric Company recommends that end-users of its welding equipment evaluate the suitability of utilizing the ARC TRACKER™ in their quality system.

Determine if periodic calibration is required and the calibration interval based upon the criticality of the welding application, the environment in which the equipment is located, the level of preventive maintenance and the actual conditions of use.

Required equipment:

- Power source to provide welding current and voltage. The power source should be capable of producing the same level of welding current and voltage as the ARC TRACKER™ application. It is recommended to use the same power source used in the welding application for this calibration procedure.
- Calibrated reference volt meter, shunt and ammeter as in Figure D.1. The recommended accuracy must be at least four times the desired accuracy of the digital meters on the ARC TRACKER™ being calibrated. Example, to obtain +/-2% accuracy, the shunt accuracy and ammeter accuracy combination must be +/-0.5% accurate. The meters listed below have been verified to produce accurate results with inverter power sources. If other meters are used, the compatibility and accuracy with inverter power sources must be determined by the user.

Volt meter: Keithley 2701 Digital Multimeter

Ammeter: Keithley 2701 Digital Multimeter

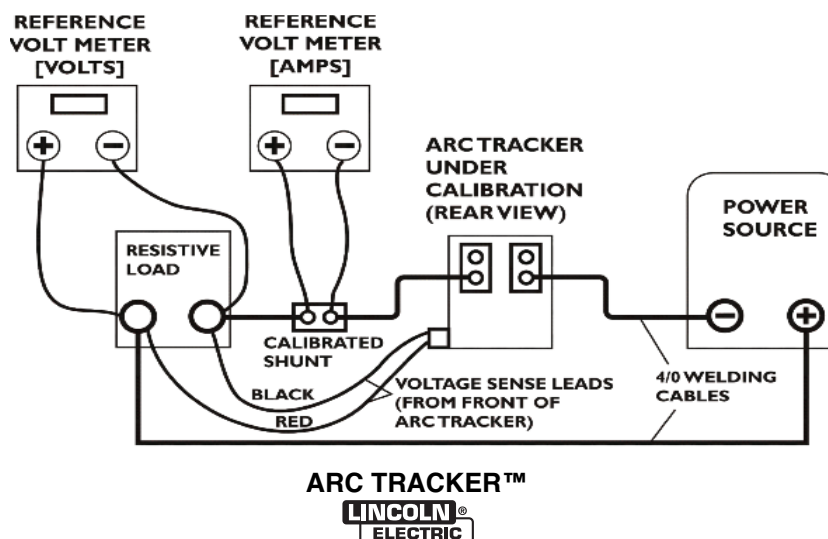
Shunt: GE 1000A/100mV Master Shunt

- Resistive Load, such as Lincoln Electric Master Load 750 (750 A max).
- ARC TRACKER™ being calibrated.
- 4/0 welding cables

Test Setup:

Connect equipment as shown in Figure D.1.

FIGURE D.1



CALIBRATION PROCEDURE

Allow a 5 minute “warm-up” period for all instruments and power source before applying a load.

Prior to performing the Calibration Procedure, the accuracy of the ARC TRACKER™ digital meters should be determined. In Table D.1 Measurement Results suggested nominal set points are listed. The power source and resistive load should be set approximately to these voltage and current set points, e.g. 28 V @ 200 A, 36 V @ 400 A, etc. The reference meter readings should be compared to the ARC TRACKER™ digital meters.

The reference meter readings should be entered into Table D.1 in the reference meter value column. The ARC TRACKER™ meter readings should be entered into Table 1 in the ARC TRACKER™ as found column.

The % deviation can be determined by calculation using the reference meter values and the as found values (see % Dev Equations). The - limits and + limits can be determined by multiplying the reference meter values by the desired accuracy of the ARC TRACKER™ meters (for example, +2% limit = 1.02 x reference meter value).

If the ARC TRACKER™ digital meters are within the desired limits, calibration adjustments are not necessary. As left and % deviation values should be entered into Table D.1. If calibration is required, then continue with the Adjustment Procedure.

% Dev Equations:

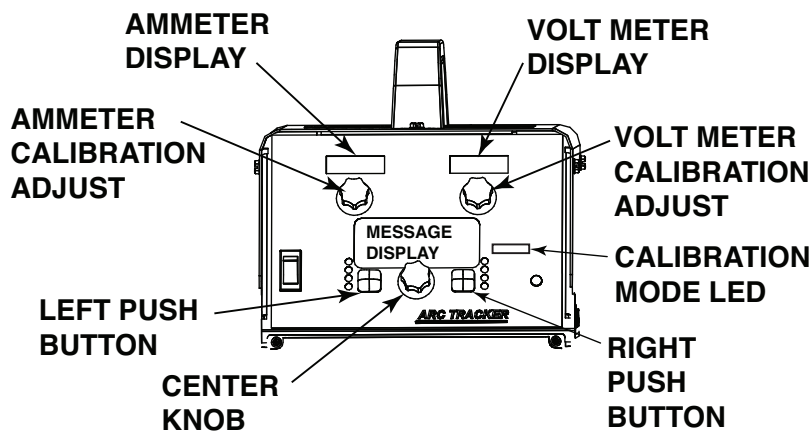
$$\% \text{ Dev (As Found)} = \left[\frac{\text{ARC TRACKER™ As Found} - \text{Reference Meter Value}}{\text{Reference Meter Value}} \right] \times 100\%$$

$$\% \text{ Dev (As Left)} = \left[\frac{\text{ARC TRACKER™ As Left} - \text{ARC TRACKER™ As Found}}{\text{Reference Meter Value}} \right] \times 100\%$$

TABLE D.1 MEASUREMENT RESULTS

Nominal Set Point	Reference Meter Value	Arc Tracker As Found	% Deviation As Found	Arc Tracker As Left	% Deviation As Left	(+) Limit	(-) Limit
DC Voltage							
28V							
35V							
44V							
44V							
44V							
DC Amperes							
200A							
400A							
600A							
800A							
1000A							

Adjustment Procedure:

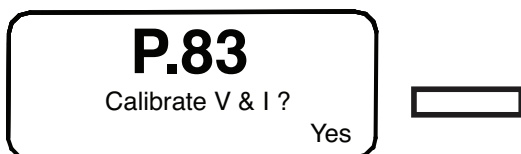
ARC TRACKER™ Front Panel
FIGURE D.2

1. With the power source off, connect the ARC TRACKER™ being calibrated to input power and turn the ARC TRACKER™ on.

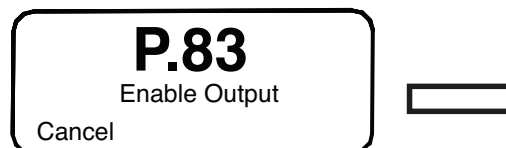
2. Enter into the calibration menu by pressing both the left and right push buttons on the ARC TRACKER™ user-interface. The Calibration Mode LED will illuminate and the message display will look like this:



3. Turn the center knob until parameter P.83 is reached. Press the right pushbutton to enter into Calibration mode.

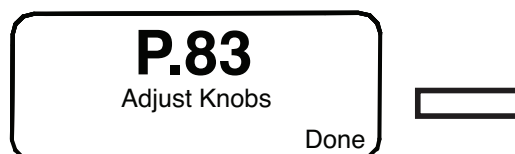


4. With the power source turned off, press the right pushbutton to zero the unit. The unit will take a few seconds to zero.



5. Turn on the power source to provide the maximum calibration current and voltage, e.g. 1000 A, 44 V. The ARC TRACKER™ will begin to display the voltage, amperage, & arc time, and will begin to calculate and display heat input.

6. Press the right push button to begin calibration of the volt meter and ammeter located on the ARC TRACKER™ under calibration.



7. Turn the Volt Meter Calibration Adjust knob located under the volt meter on the user-interface until it matches the reference volt meter.
8. Turn the Ammeter Calibration Adjust knob under the ammeter on the user-interface until it matches the reference ammeter.
9. When both the volts display and amps display on the unit being calibrated are dialed in, press the right pushbutton to accept the calibration values.
10. Turn the center knob until parameter P.0 is displayed. Press the left push button to EXIT.
11. Verify that the calibration was completed successfully by adjusting the power source to different set points for current and voltage comparing the volts display and amps display on the unit being calibrated to the reference volt meter and ammeter. See Table D.1.
12. As left values should be entered into Table D.1. Then the % deviation can be calculated by comparing the reference meter values to the ARC TRACKER™ as left values.

HOW TO USE TROUBLESHOOTING GUIDE

WARNING

Service and Repair should only be performed by Lincoln Electric Factory Trained Personnel. Unauthorized 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 Electrical 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 (SYMPTOMS)". 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 second 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, generally it states to contact your local Lincoln Authorized Field Service Facility.

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

CAUTION

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

ARC TRACKER™



Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Ethernet		
Cannot Connect.	1. Physical connection.	1. Verify that the correct patch cable or cross over cable is being used (refer to local IT department for assistance). 1a. Verify the cables are fully inserted into the bulk head connector. 1b. The LED under the PC board ethernet connector will be lit when the machine is connected to another network device.
	2. IP address information.	2. Use the appropriate PC utility to verify the correct IP address information has been entered. 2a. Verify no duplicate IP addresses exist on the network.
	3. Ethernet Speed.	3. Verify that the network device connected to the Power Wave is either a 10-baseT device or a 10/100-baseT device.
Connection Drops while welding.	1. Cable Location.	1. Verify Network cable is not located next to current carrying conductors. This would include input power cables and welding output cables.
Does not display amps, volts, or energy while welding.	1. Weld circuit current flowing in wrong direction.	1. Weld cables must be connected so current flows into the left weld terminals and out the right weld terminals (viewed from rear).
Displays amps and energy, but not volts.	2. Sense leads not connected properly or broken.	1. Confirm continuity. 2. Red clip lead must be attached to "+" and black clip lead must be attached to "-".

CAUTION

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

ARC TRACKER™



USING THE STATUS LED TO TROUBLESHOOT SYSTEM PROBLEMS

Not all of the **Arc Tracker™** errors will be displayed on the user interface. If a problem occurs it is important to note the condition of the status lights. **Therefore, prior to cycling power to the system, check the power source status light for error sequences as noted below.**

Error conditions are indicated in the following Table E.1.

TABLE E.1

Light Condition	Meaning
Steady Green	System OK.
Blinking Green	Occurs during power up or a system reset. Normal for first 1-10 seconds after power is turned on, or if the system configuration is changed during operation.
Alternating Green and Red	Non-recoverable system fault. If the Status lights are flashing any combination of red and green, errors are present. Read the error code(s) before the machine is turned off.
	Error Code interpretation through the Status light. Individual code digits are flashed in red with a long pause between digits. If more than one code is present, the codes will be separated by a green light. Only active error conditions will be accessible through the Status Light.
	Error codes can also be retrieved with the Diagnostics Utility (included on the Service Navigator CD or available at www.power-wavesoftware.com). This is the preferred method, since it can access historical information contained in the error logs.
	To clear the active error(s), turn power source off, and back on to reset.

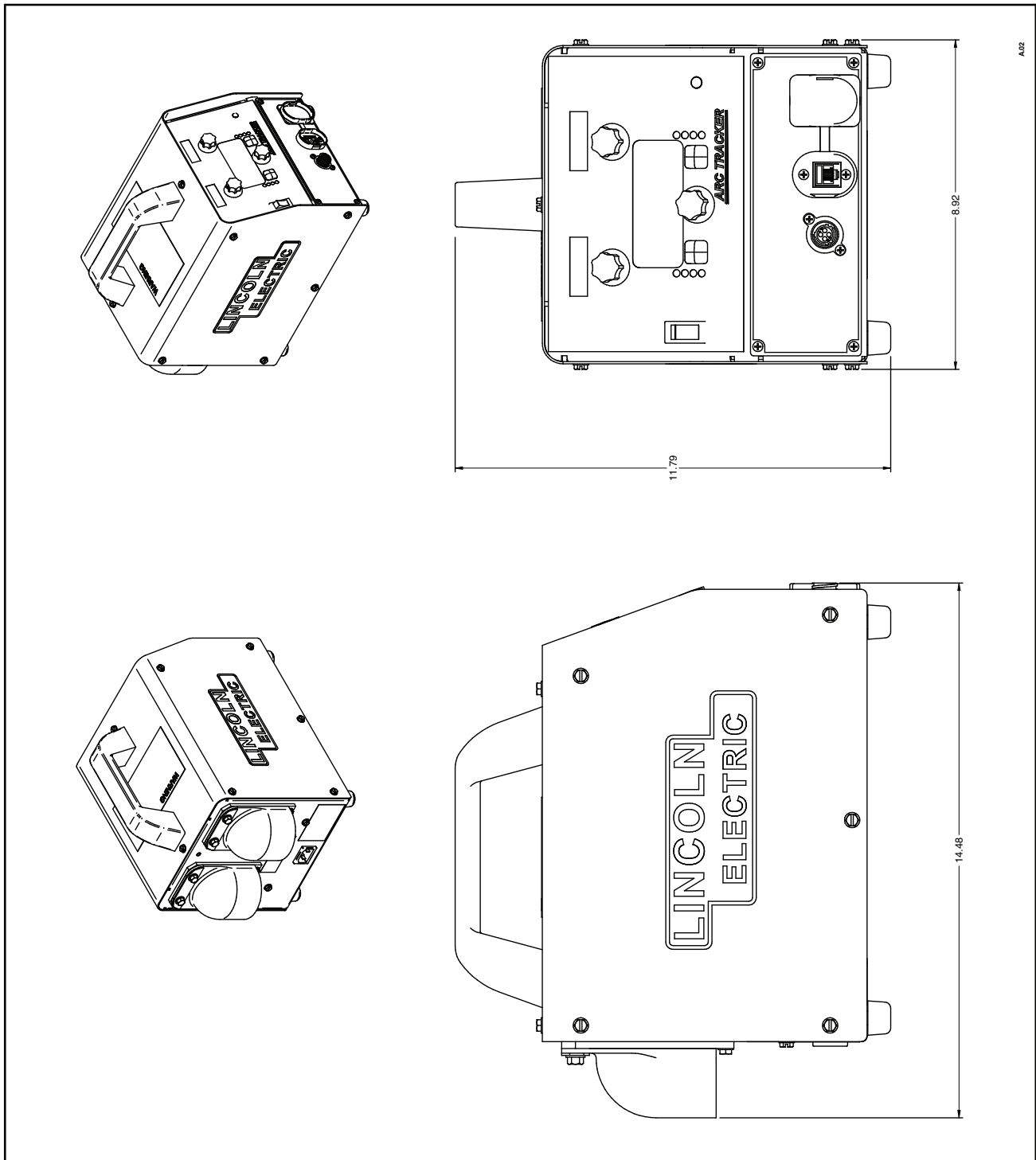


CAUTION

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

ARC TRACKER™







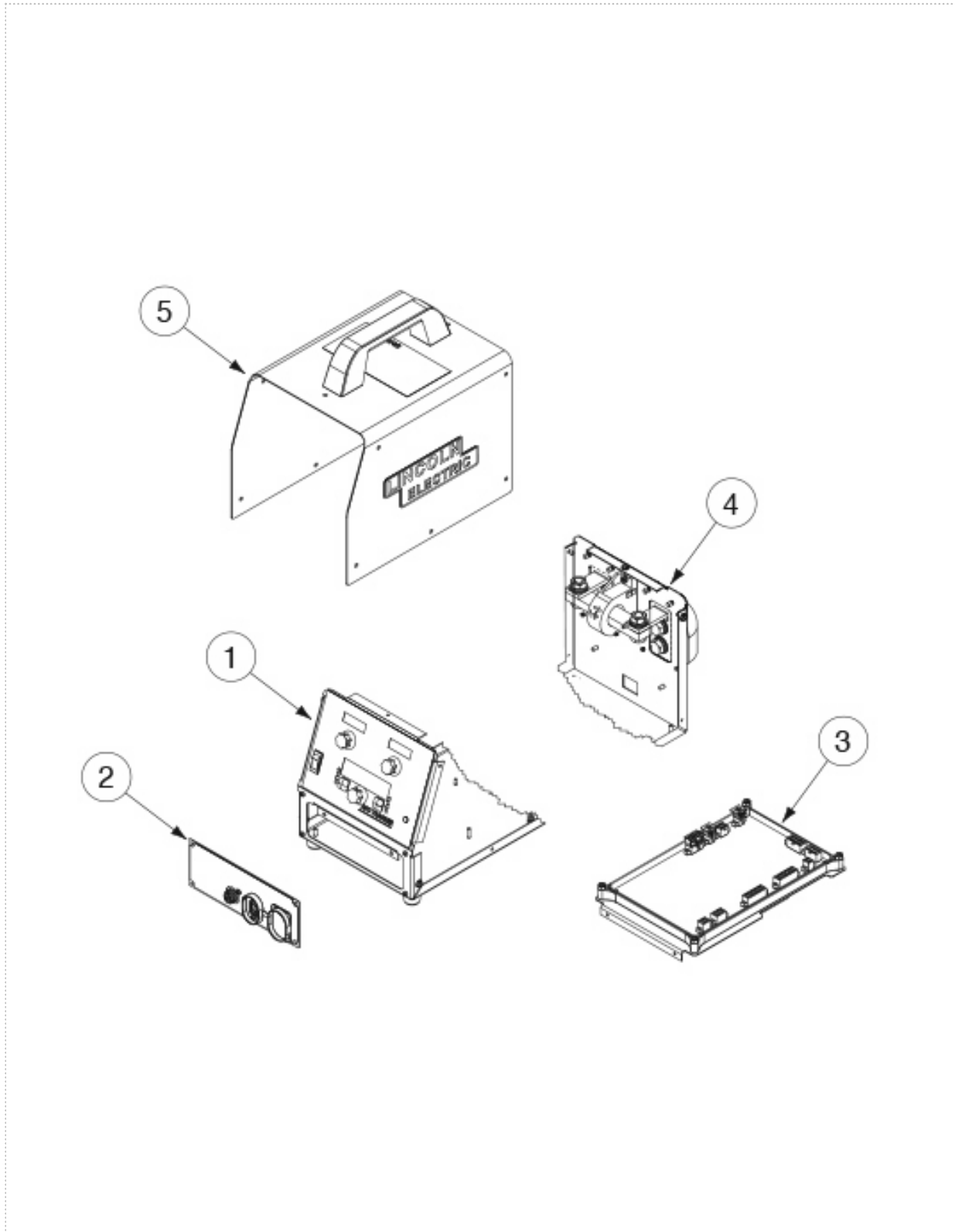
Service Navigator 2.0

Arc Tracker - 11742

Index of Sub Assemblies - 11742

KEY	PART NUMBER	DESCRIPTION	QTY
	P-675-A	INDEX OF SUB ASSEMBLIES	AR
	P-675-B.2	MISCELLANEOUS ITEMS	AR
1	P-675-C	BASE ASSEMBLY AND FRONT COMPONENTS	AR
2	P-675-D	COVER ASSEMBLY	AR
3	P-675-E	SHELF ASSEMBLY	AR
4	P-675-F	BASE ASBLY REAR COMPONENTS	AR
5	P-675-G	WRAPAROUND ASSEMBLY	AR

Index of Sub Assemblies - 11742



P-675-A.jpg

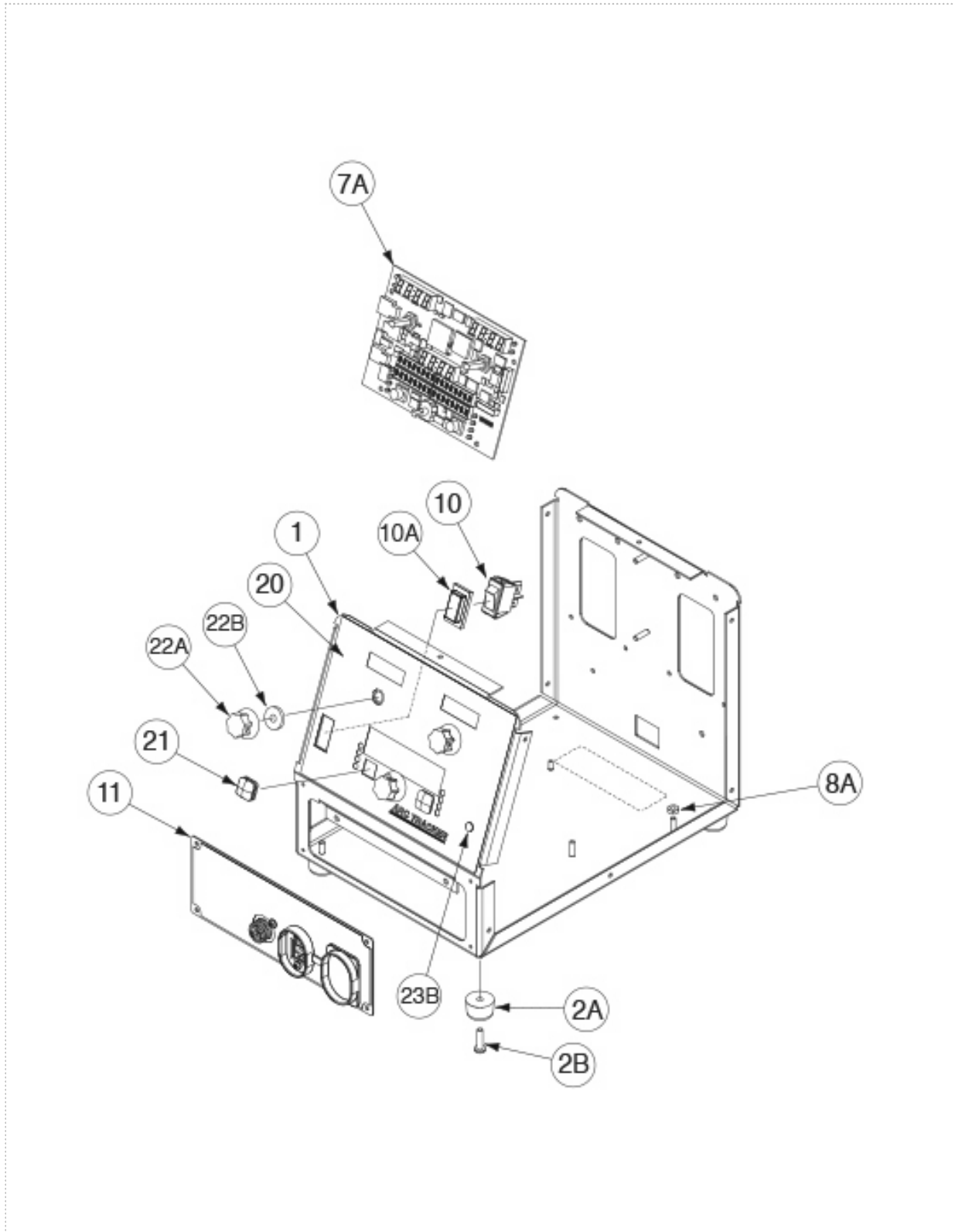
Miscellaneous Items

KEY	PART NUMBER	DESCRIPTION	QTY
	9SS28636	POWER CORD	1
	9SM17585-8	ARC SENSE LEADS	1
	9SM19969-10	ETHERNET PATCH CABLE ASBLY	1

Base Assembly and Front Components

KEY	PART NUMBER	DESCRIPTION	QTY
1	9SG5881	BASE ASBLY	1
2A	9ST14882-3	BUMPER	4
2B	9SS9225-36	THREAD FORMING SCREW (CUTTING)	4
	9SS9262-60	FLAT WASHER	4
	9ST9695-1	LOCKWASHER	4
7A	9SS28645-3	SOFTWARE USER INTERFACE PC BD	1
	9ST10082-12	SEMS SCREW	4
8A	9SCF000042	#8-32HN	2
	9ST9695-3	LOCKWASHER	1
10	9ST10800-58	SWITCH-DPST	1
10A	9SS28672-1	ROCKER SWITCH BOOT	1
11	9SM22710	COVER ASSEMBLY	1
20	9SM22622	DECAL	1
21	9SS23055-1	BUTTON COVER	2
22A	9ST13639-3	KNOB	3
22B	9ST14034-4	SHAFT SEAL	3
	9SS18250-988	PLUG AND LEAD ASBLY	1
	9SS23740-2	LED PANEL MOUNT ASSEMBLY	1
23B	9ST13657-7H24	LED-T-1 3/4BI-COLORRED/GREEN	1
	9SS23093-1	LED LENS CLEAR	1
	9SS23094-1	RETAINING O RING	1

Base Assembly and Front Components

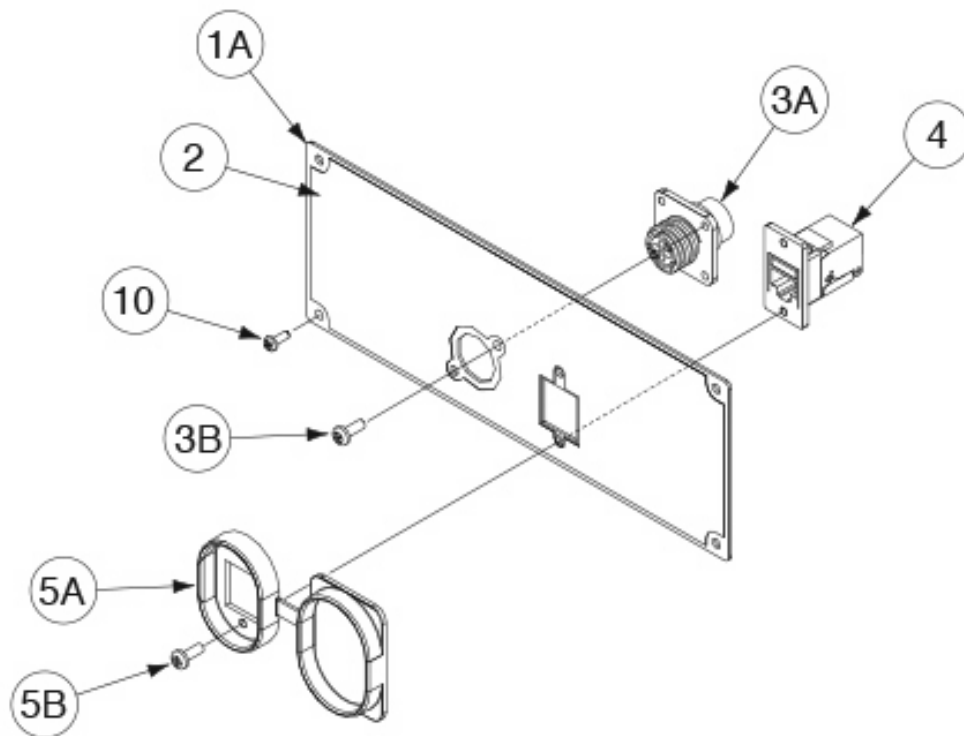


P-675-C.jpg

Cover Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
	9SM22710	COVER ASSEMBLY	1
1A	9SS28614	COVER PLATE	1
2	9SM22622	DECAL	1
	9SS18250-989	PLUG AND LEAD ASBLY	1
3A	9SS18657	SQUARE FLANGE FEMALE RECEPTACLE	1
3B	9SS8025-96	SELF TAPPING SCREW	2
4	9SM19969-14	ETHERNET RECEPTACLE	1
5A	9SM22444	ETHERNET COVER	1
5B	9SS8025-118	SELF TAPPING SCREW	2
10	9SS8025-96	SELF TAPPING SCREW	4

Cover Assembly

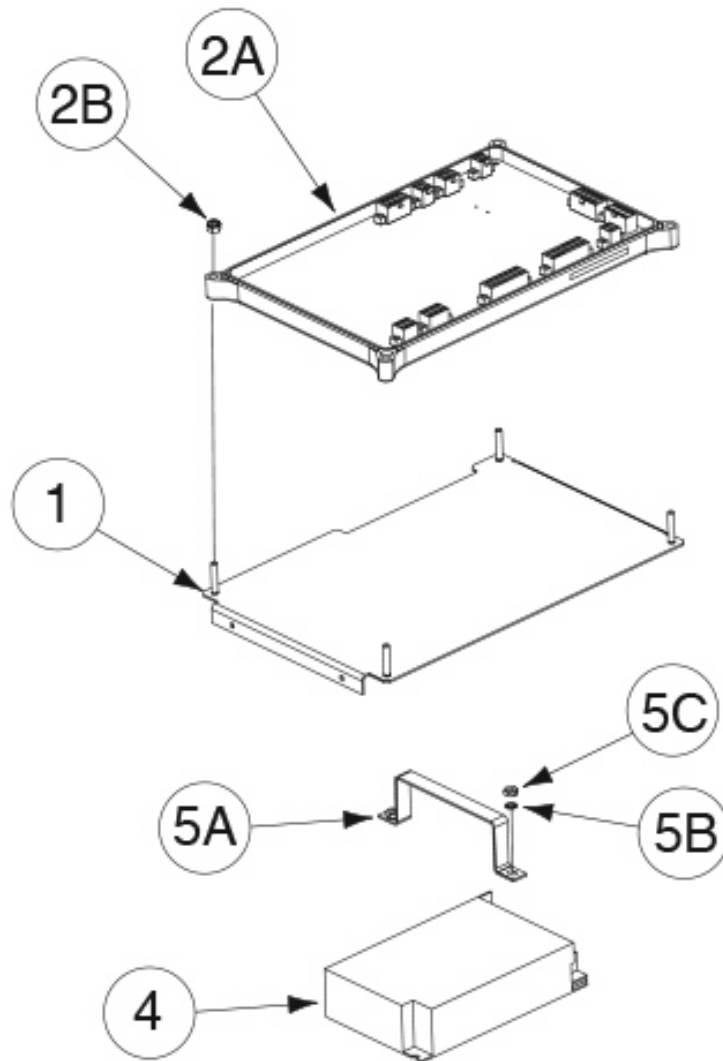


P-675-D.jpg

Shelf Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
1	9SS28528	CONTROL BOARD SHELF	1
2A	9SS28631-5	SOFTWARE CONTROL BOARD	1
2B	9ST9187-13	#10-24HLN-1817/1-NYLON INSERT	4
	9SS18250-990	PLUG & LEAD ASSEMBLY	1
4	9SM22623	POWER SUPPLY	1
5A	9SS28538	POWER SUPPLY STRAP	1
5B	9ST9695-3	LOCKWASHER	2
5C	9SCF000042	#8-32HN	2
	9SS18250-992	PLUG & LEAD ASBLY	1
	9SS8025-92	SELF TAPPING SCREW	4

Shelf Assembly

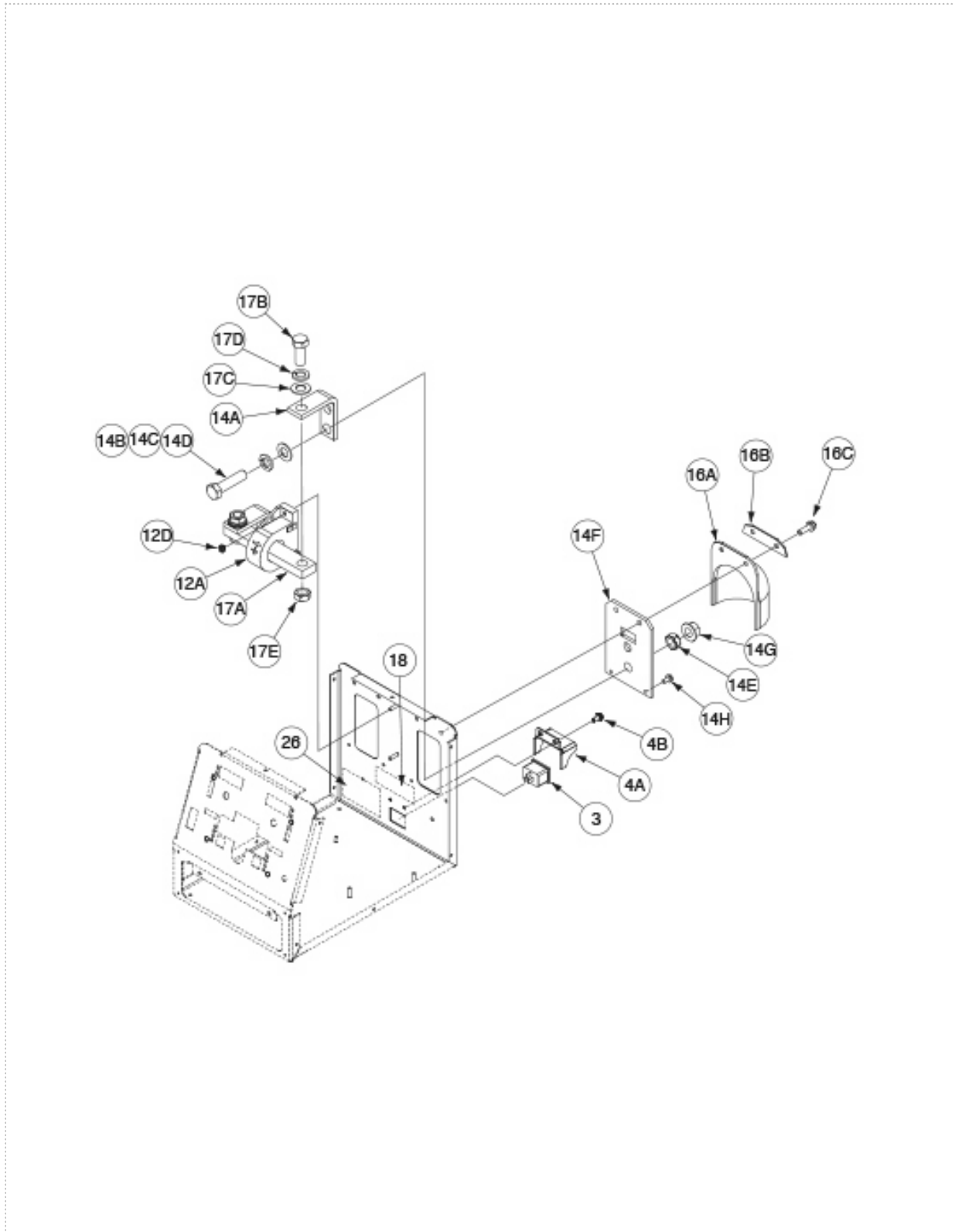


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Base Asbly Rear Components

KEY	PART NUMBER	DESCRIPTION	QTY
3	9SS28594	POWER ENTRY CONNECTOR	1
4A	9SS29308	POWER ENTRY COVER	1
4B	9SS8025-92	SELF TAPPING SCREW	2
12A	9SS18504-9	CURRENT TRANSDUCER	1
	9SS18250-991	PLUG AND LEAD ASBLY	1
	9ST9695-3	LOCKWASHER	2
12D	9SCF000042	#8-32HN	2
	9SM22761	OUTPUT STUD INSULATION ASBLY	1
14A	9SS28715	CONNECTION STRAP	2
14B	9SCF000388	1/2-13 X 2.00 HHCS	4
14C	9SS9262-1	PLAIN WASHER	4
14D	9SE106A-15	LOCKWASHER	4
14E	9ST10114	1/2-13BR-HJN	4
14F	9SS28716	INSULATION	2
14G	9ST3960	FLANGE NUT	4
14H	9SS8025-92	SELF TAPPING SCREW	4
16A	9SM20007	OUTPUT STUD COVER	2
16B	9SS25669	OUTPUT STUD COVER PLATE	2
16C	9SS9225-66	SELF TAPPING SCREW	4
17A	9SS26945	BUS BAR	1
17B	9SCF000030	1/2-13X1.25HHCS	2
17C	9SS9262-1	PLAIN WASHER	2
17D	9SE106A-15	LOCKWASHER	2
17E	9SCF000054	1/2-13HJN	2
18	9SM22622	DECAL	1
26	9SM22622	DECAL	1

Base Asbly Rear Components

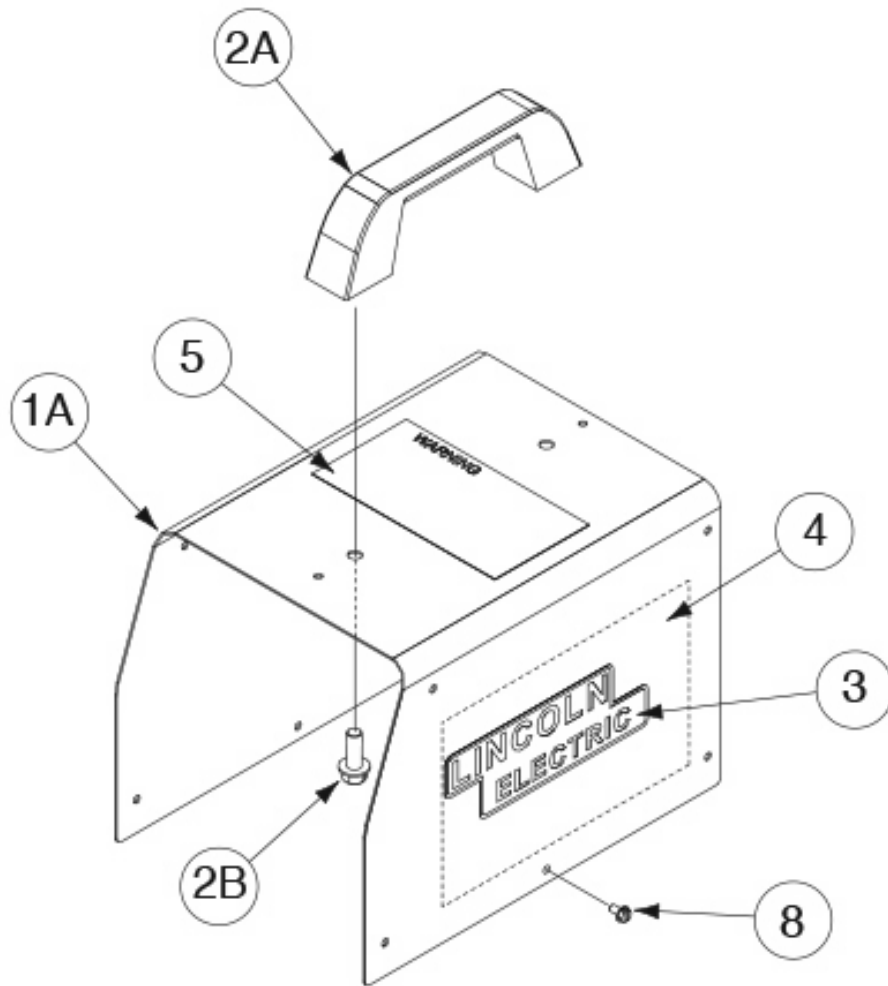


P-675-F.jpg

Wraparound Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
	9SL13161	WRAPAROUND ASBLY	1
1A	9SM21346	WRAPAROUND	1
2A	9SM15446	HANDLE	1
2B	9SS9225-53	THREAD FORMING SCREW	2
3	9SS27368-2	DECAL - 7IN LINCOLN LOGO	2
4	9SL16006	WIRING DIAGRAM	1
5	9SM16196	DECAL-WARNING	1
8	9SS8025-92	SELF TAPPING SCREW	12

Wraparound Assembly



P-675-G.jpg

			
WARNING	<ul style="list-style-type: none"> Do not touch electrically live parts or electrode with skin or wet clothing. Insulate yourself from work and ground. 	<ul style="list-style-type: none"> Keep flammable materials away. 	<ul style="list-style-type: none"> Wear eye, ear and body protection.
Spanish AVISO DE PRECAUCION	<ul style="list-style-type: none"> No toque las partes o los electrodos bajo carga con la piel o ropa mojada. Aislese del trabajo y de la tierra. 	<ul style="list-style-type: none"> Mantenga el material combustible fuera del área de trabajo. 	<ul style="list-style-type: none"> Protéjase los ojos, los oídos y el cuerpo.
French ATTENTION	<ul style="list-style-type: none"> Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension. Isolez-vous du travail et de la terre. 	<ul style="list-style-type: none"> Gardez à l'écart de tout matériel inflammable. 	<ul style="list-style-type: none"> Protégez vos yeux, vos oreilles et votre corps.
German WARNUNG	<ul style="list-style-type: none"> Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung! Isolieren Sie sich von den Elektroden und dem Erdboden! 	<ul style="list-style-type: none"> Entfernen Sie brennbares Material! 	<ul style="list-style-type: none"> Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese ATENÇÃO	<ul style="list-style-type: none"> Não toque partes elétricas e electrodos com a pele ou roupa molhada. Isole-se da peça e terra. 	<ul style="list-style-type: none"> Mantenha inflamáveis bem guardados. 	<ul style="list-style-type: none"> Use proteção para a vista, ouvido e corpo.
Japanese 注意事項	<ul style="list-style-type: none"> ● 通電中の電気部品、又は溶材にヒフやぬれた布で触れないこと。 ● 施工物やアースから身体が絶縁されている様にして下さい。 	<ul style="list-style-type: none"> ● 燃えやすいものの側での溶接作業は絶対にしてはなりません。 	<ul style="list-style-type: none"> ● 目、耳及び身体に保護具をして下さい。
Chinese 警告	<ul style="list-style-type: none"> ● 皮肤或湿衣物切勿接触带电部件及焊條。 ● 使你自已與地面和工件絕緣。 	<ul style="list-style-type: none"> ● 把一切易燃物品移離工作場所。 	<ul style="list-style-type: none"> ● 佩戴眼、耳及身體勞動保護用具。
Korean 위험	<ul style="list-style-type: none"> ● 전도체나 용접봉을 젖은 헝겊 또는 피부로 절대 접촉하지 마십시오. ● 모재와 접지를 접촉하지 마십시오. 	<ul style="list-style-type: none"> ● 인화성 물질을 접근시키지 마십시오. 	<ul style="list-style-type: none"> ● 눈, 귀와 몸에 보호장구를 착용하십시오.
Arabic تحذير	<ul style="list-style-type: none"> ● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الألكترود بجلد الجسم أو بالملايس المبللة بالماء. ● ضع عازلا على جسمك خلال العمل. 	<ul style="list-style-type: none"> ● ضع المواد القابلة للاشتعال في مكان بعيد. 	<ul style="list-style-type: none"> ● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION FOR THIS EQUIPMENT AND THE CONSUMABLES TO BE USED AND FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.

SE RECOMIENDA LEER Y ENTENDER LAS INSTRUCCIONES DEL FABRICANTE PARA EL USO DE ESTE EQUIPO Y LOS CONSUMIBLES QUE VA A UTILIZAR, SIGA LAS MEDIDAS DE SEGURIDAD DE SU SUPERVISOR.

LISEZ ET COMPRENEZ LES INSTRUCTIONS DU FABRICANT EN CE QUI REGARDE CET EQUIPMENT ET LES PRODUITS A ETRE EMPLOYES ET SUIVEZ LES PROCEDURES DE SECURITE DE VOTRE EMPLOYEUR.

LESEN SIE UND BEFOLGEN SIE DIE BETRIEBSANLEITUNG DER ANLAGE UND DEN ELEKTRODENEINSATZ DES HERSTELLERS. DIE UNFALLVERHÜTUNGSVORSCHRIFTEN DES ARBEITGEBERS SIND EBENFALLS ZU BEACHTEN.

			
<ul style="list-style-type: none"> • Keep your head out of fumes. • Use ventilation or exhaust to remove fumes from breathing zone. 	<ul style="list-style-type: none"> • Turn power off before servicing. 	<ul style="list-style-type: none"> • Do not operate with panel open or guards off. 	WARNING
<ul style="list-style-type: none"> • Los humos fuera de la zona de respiración. • Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases. 	<ul style="list-style-type: none"> • Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio. 	<ul style="list-style-type: none"> • No operar con panel abierto o guardas quitadas. 	Spanish AVISO DE PRECAUCION
<ul style="list-style-type: none"> • Gardez la tête à l'écart des fumées. • Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail. 	<ul style="list-style-type: none"> • Débranchez le courant avant l'entretien. 	<ul style="list-style-type: none"> • N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés. 	French ATTENTION
<ul style="list-style-type: none"> • Vermeiden Sie das Einatmen von Schweißrauch! • Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes! 	<ul style="list-style-type: none"> • Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!) 	<ul style="list-style-type: none"> • Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen! 	German WARNUNG
<ul style="list-style-type: none"> • Mantenha seu rosto da fumaça. • Use ventilação e exaustão para remover fumo da zona respiratória. 	<ul style="list-style-type: none"> • Não opere com as tampas removidas. • Desligue a corrente antes de fazer serviço. • Não toque as partes elétricas nuas. 	<ul style="list-style-type: none"> • Mantenha-se afastado das partes moventes. • Não opere com os painéis abertos ou guardas removidas. 	Portuguese ATENÇÃO
<ul style="list-style-type: none"> ● ヒュームから頭を離すようにして下さい。 ● 換気や排煙に十分留意して下さい。 	<ul style="list-style-type: none"> ● メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切して下さい。 	<ul style="list-style-type: none"> ● パネルやカバーを取り外したまま機械操作をしないで下さい。 	Japanese 注意事項
<ul style="list-style-type: none"> ● 頭部遠離煙霧。 ● 在呼吸區使用通風或排風器除煙。 	<ul style="list-style-type: none"> ● 維修前切斷電源。 	<ul style="list-style-type: none"> ● 儀表板打開或沒有安全罩時不準作業。 	Chinese 警告
<ul style="list-style-type: none"> ● 얼굴로부터 용접가스를 멀리하십시오. ● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시오. 	<ul style="list-style-type: none"> ● 보수전에 전원을 차단하십시오. 	<ul style="list-style-type: none"> ● 관널이 열린 상태로 작동치 마십시오. 	Korean 위험
<ul style="list-style-type: none"> ● ابعد رأسك بعيداً عن الدخان. ● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها. 	<ul style="list-style-type: none"> ● اقطع التيار الكهربائي قبل القيام بأية صيانة. 	<ul style="list-style-type: none"> ● لا تشغيل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه. 	Arabic تحذير

LEIA E COMPREENDA AS INSTRUÇÕES DO FABRICANTE PARA ESTE EQUIPAMENTO E AS PARTES DE USO, E SIGA AS PRÁTICAS DE SEGURANÇA DO EMPREGADOR.

使う機械や溶材のメーカーの指示書をよく読み、まず理解して下さい。そして貴社の安全規定に従って下さい。

請詳細閱讀並理解製造廠提供的說明以及應該使用的銀焊材料，並請遵守貴方的有關勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتمعن وافهم تعليمات المصنع المنتج لهذه المعدات والمواد قبل استعمالها واتبع تعليمات الوقاية لصاحب العمل.

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