

ARC TRACKER™

OPERATOR'S MANUAL



ENGLISH

THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Ave., Cleveland Ohio 44117-1199 USA
www.lincolnelectric.eu



THANKS! For having chosen the QUALITY of the Lincoln Electric products.

- Please Examine Package and Equipment for Damage. Claims for material damaged in shipment must be notified immediately to the dealer.
- For future reference record in the table below your equipment identification information. Model Name, Code & Serial Number can be found on the machine rating plate.

Model Name:	
.....	
Code & Serial number:	
.....
Date & Where Purchased:	
.....

ENGLISH INDEX

Technical Specification	3
Electromagnetic Compatibility (EMC)	5
Safety	6
Installation and Operator Instructions	7
WEEE	15
Spare Parts	15
Authorized Service Shops Location	15
Suggested Accessories	15
Electrical Schematic	16

Technical Specification

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				
100%	44 V DC	1000 A DC		
RATED OPERATING RANGE IEC60974-1				
Duty Cycle				
100%	44 V DC	1000 A DC		
RECOMMENDED INPUT WIRE				
VOLTAGE 50/60 Hz	Input [A]	REGION		
120	0.8A	NORTH AMERICA	3 CONDUCTOR, #18 AWG TYPE S, SO, SOO, ST, STO, STOO OR EQUIVALENT EXTRA HARD USAGE CORD	NEMA 5-15P (INCLUDED)
230	0.5A			ANY NEMA 250V TYPE*
230	0,5A	EUROPE	3 CONDUCTOR, 1.0 mm ² HAR	CEE 7/7

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

METER ACCURACY (AS SHIPPED)	
VOLTMETER	$\pm 2\% + 0.1^{**}$
AMMETER	$\pm 2\% + 2^{**}$
ENERGY	$\pm 5\%$
**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	

PHYSICAL DIMENSIONS				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
K3019-1	305 mm	220 mm	380 mm	9 kg
TEMPERATURE RANGES				
OPERATING TEMPERATURE RANGE			-10°C TO 40°C	
STORAGE TEMPERATURE RANGE			-40°C TO 85°C	

THE LINCOLN ELECTRIC COMPANY

EC DECLARATION OF CONFORMITY



Manufacturer and technical
documentation holder:

The Lincoln Electric Company

Address:

22801 St. Clair Ave.
Cleveland Ohio 44117-1199 USA

EC Company:

Lincoln Electric Europe S.L.

Address:

c/o Balmes, 89 - 8⁰ 2^a
08008 Barcelona SPAIN

Hereby declare that welding equipment:

Arc Tracker

Product number:

K3019 (number may also contain prefixes and suffixes)

Is in conformity with Council Directives
and amendments:

Electromagnetic Compatibility (EMC) Directive 2014/30/EU

Low Voltage Directive 2014/35/EU

Standards:

EN 60974-1: 2012 Arc Welding Equipment – Part 1:
Welding Power Sources

EN 60974-10: 2014 Arc Welding Equipment – Part 10:
Electromagnetic compatibility (EMC) requirements

CE marking affixed in 11

A handwritten signature in dark ink, appearing to read "Samir Farah", written over a horizontal line.

Samir Farah, Manufacturer
Compliance Engineering Manager
19 May 2017

A handwritten signature in dark ink, appearing to read "Dario Gatti", written over a horizontal line.

Dario Gatti, European Community Representative
European Engineering Director Machines
22 May 2017

MCD312c

Electromagnetic Compatibility (EMC)

01/11

This machine has been designed in accordance with all relevant directives and standards. However, it may still generate electromagnetic disturbances that can affect other systems like telecommunications (telephone, radio, and television) or other safety systems. These disturbances can cause safety problems in the affected systems. Read and understand this section to eliminate or reduce the amount of electromagnetic disturbance generated by this machine.



This machine has been designed to operate in an industrial area. To operate in a domestic area it is necessary to observe particular precautions to eliminate possible electromagnetic disturbances. The operator must install and operate this equipment as described in this manual. If any electromagnetic disturbances are detected the operator must put in place corrective actions to eliminate these disturbances with, if necessary, assistance from Lincoln Electric.

Before installing the machine, the operator must check the work area for any devices that may malfunction because of electromagnetic disturbances. Consider the following.

- Input and output cables, control cables, and telephone cables that are in or adjacent to the work area and the machine.
- Radio and/or television transmitters and receivers. Computers or computer controlled equipment.
- Safety and control equipment for industrial processes. Equipment for calibration and measurement.
- Personal medical devices like pacemakers and hearing aids.
- Check the electromagnetic immunity for equipment operating in or near the work area. The operator must be sure that all equipment in the area is compatible. This may require additional protection measures.
- The dimensions of the work area to consider will depend on the construction of the area and other activities that are taking place.

Consider the following guidelines to reduce electromagnetic emissions from the machine.

- Connect the machine to the input supply according to this manual. If disturbances occur if may be necessary to take additional precautions such as filtering the input supply.
- The output cables should be kept as short as possible and should be positioned together. If possible connect the work piece to ground in order to reduce the electromagnetic emissions. The operator must check that connecting the work piece to ground does not cause problems or unsafe operating conditions for personnel and equipment.
- Shielding of cables in the work area can reduce electromagnetic emissions. This may be necessary for special applications.

WARNING

EMC classification of this product is class A in accordance with electromagnetic compatibility standard EN 60974-10 and therefore the product is designed to be used in an industrial environment only.

WARNING

The Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There can be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radio-frequency disturbances.


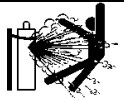





WARNING

This equipment must be used by qualified personnel. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified person. Read and understand this manual before operating this equipment. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment. Read and understand the following explanations of the warning symbols. Lincoln Electric is not responsible for damages caused by improper installation, improper care or abnormal operation.

	WARNING: This symbol indicates that instructions must be followed to avoid serious personal injury, loss of life, or damage to this equipment. Protect yourself and others from possible serious injury or death.
	READ AND UNDERSTAND INSTRUCTIONS: Read and understand this manual before operating this equipment. Arc welding can be hazardous. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment.
	ELECTRIC SHOCK CAN KILL: Welding equipment generates high voltages. Do not touch the electrode, work clamp, or connected work pieces when this equipment is on. Insulate yourself from the electrode, work clamp, and connected work pieces.
	ELECTRICALLY POWERED EQUIPMENT: Turn off input power using the disconnect switch at the fuse box before working on this equipment. Ground this equipment in accordance with local electrical regulations.
	ELECTRICALLY POWERED EQUIPMENT: Regularly inspect the input, electrode, and work clamp cables. If any insulation damage exists replace the cable immediately. Do not place the electrode holder directly on the welding table or any other surface in contact with the work clamp to avoid the risk of accidental arc ignition.
	ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS: Electric current flowing through any conductor creates electric and magnetic fields (EMF). EMF fields may interfere with some pacemakers, and welders having a pacemaker shall consult their physician before operating this equipment.
	CE COMPLIANCE: This equipment complies with the European Community Directives.
	ARTIFICIAL OPTICAL RADIATION: According with the requirements in 2006/25/EC Directive and EN 12198 Standard, the equipment is a category 2. It makes mandatory the adoption of Personal Protective Equipments (PPE) having filter with a protection degree up to a maximum of 15, as required by EN169 Standard.
	FUMES AND GASES CAN BE DANGEROUS: Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. To avoid these dangers the operator must use enough ventilation or exhaust to keep fumes and gases away from the breathing zone.
	ARC RAYS CAN BURN: 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. Use suitable clothing made from durable flame-resistant material to protect you skin and that of your helpers. Protect other nearby personnel with suitable, non-flammable screening and warn them not to watch the arc nor expose themselves to the arc.
	WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION: Remove fire hazards from the welding area and have a fire extinguisher readily available. Welding sparks and hot materials from the welding process can easily go through small cracks and openings to adjacent areas. Do not weld on any tanks, drums, containers, or material until the proper steps have been taken to insure that no flammable or toxic vapors will be present. Never operate this equipment when flammable gases, vapors or liquid combustibles are present.
	WELDED MATERIALS CAN BURN: Welding generates a large amount of heat. Hot surfaces and materials in work area can cause serious burns. Use gloves and pliers when touching or moving materials in the work area.

	SAFETY MARK: This equipment is suitable for supplying power for welding operations carried out in an environment with increased hazard of electric shock.
	CYLINDER MAY EXPLODE IF DAMAGED: 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. Always keep cylinders in an upright position securely chained to a fixed support. Do not move or transport gas cylinders with the protection cap removed. Do not allow the electrode, electrode holder, work clamp or any other electrically live part to touch a gas cylinder. Gas cylinders must be located away from areas where they may be subjected to physical damage or the welding process including sparks and heat sources.
	MOVING PARTS ARE DANGEROUS: There are moving mechanical parts in this machine, which can cause serious injury. Keep your hands, body and clothing away from those parts during machine starting, operating and servicing.

The manufacturer reserves the right to make changes and/or improvements in design without upgrade at the same time the operator's manual.

Installation and Operator Instructions

Read this entire section before installation or operation of the machine.

General 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 [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.

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 VAC or 230 VAC, 50 or 60 Hz. The power supply inside the unit can accept any single phase input voltage from 120 VAC to 230 VAC. 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 VAC and 230 VAC, 50 or 60Hz, and has the IEC 60320 plug receptacle. Cord must provide proper ground per national electrical codes.

230V 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:

- Select the appropriate size cables per the "Output Cable Guidelines" Table 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 connection.

Electrode Connections

Electrode Positive (See Figure 1 "Connection Diagram-electrode positive")

Connect cable(s) of sufficient size and length (Per Table1) 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 Table1) 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 side 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 1 "Connection Diagram-electrode positive") 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™.

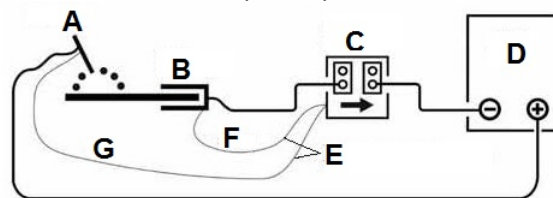
Power Wave Manager

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

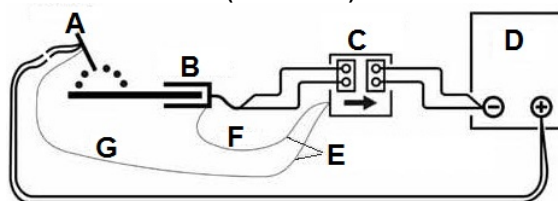
TABLE 1 Output Cable Guidelines

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

CONNECTION DIAGRAM-ELECTRODE POSITIVE (0-500A)



CONNECTION DIAGRAM-ELECTRODE POSITIVE (500A-750A)



CONNECTION DIAGRAM-ELECTRODE POSITIVE (750A-1000A)

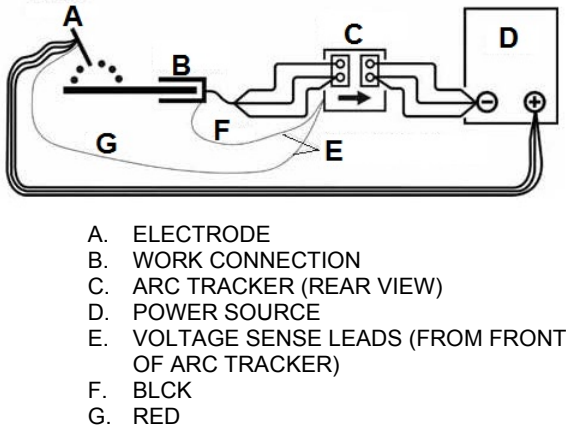


Figure 1: Connection Diagram-electrode positive

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, (maximums)

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

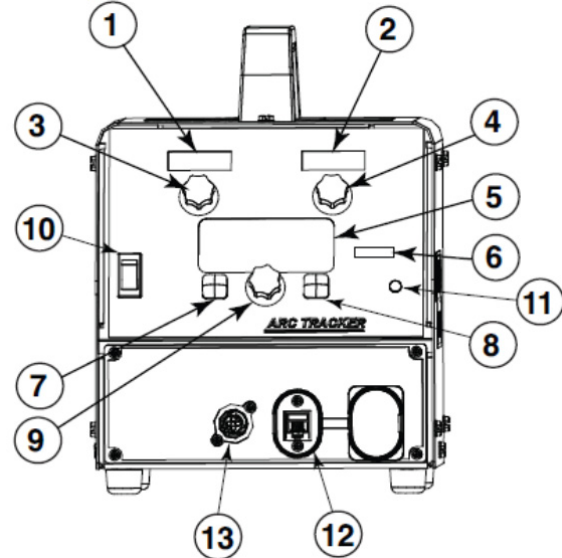


Figure B.1

Case Back Descriptions (Terminal Covers not Shown)

(See Figure B.2)

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

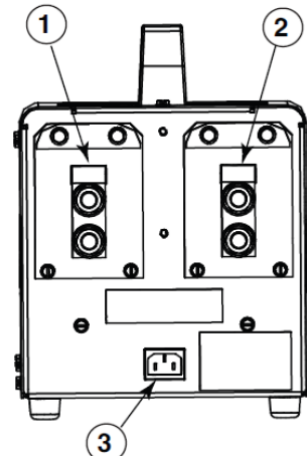


Figure B.2

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.

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)

- 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.
- 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.
- 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 passcode. 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.

Maintenance



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 $\pm 2\%$ 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 $\pm 5\%$.

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 $\pm 2\%$ accuracy, the shunt accuracy and ammeter accuracy combination must be $\pm 0.5\%$ 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

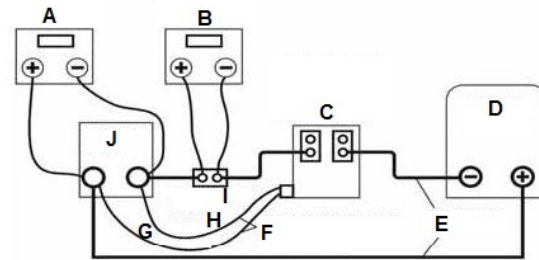
Ammeter: Keithley 2701 Digital Multimeter

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.



- A. REFERENCE VOLT METER (VOLTS)
- B. REFERENCE VOLT METER (AMPS)
- C. ARC TRACKER UNDER CALIBRATION (REAR VIEW)
- D. POWER SOURCE
- E. 4/0 WELDING CABLES
- F. VOLTAGE SENSE LEADS (FROM FRONT OF ARC TRACKER)
- G. RED
- H. BLACK
- I. CALIBRATED SHUNT
- J. RESISTIVE LOAD

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:

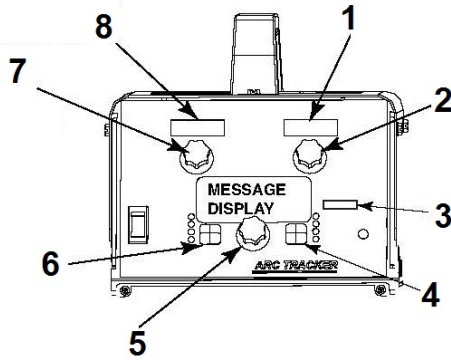
$$\%Dev \text{ (As Found)} = \frac{\text{ARC TRACKER As Found} - \text{Reference Meter Value}}{\text{Reference Meter Value}} \times 100\%$$

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

Table D.1

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							

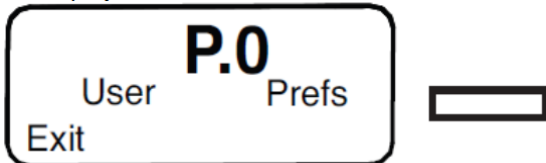
Adjustment Procedure:



1. Volt meter Display
2. Volt Meter Calibration Adjust
3. Calibration
4. Right Push Button
5. Center Knob
6. Left Push Button
7. Ammeter Calibration Adjust
8. Ammeter Display

Figure D.2: Front Panel

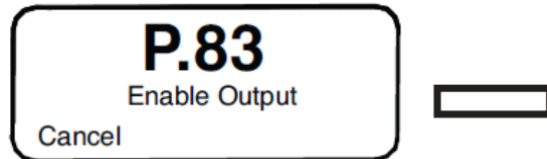
- A. With the power source off, connect the ARC TRACKER™ being calibrated to input power and turn the ARC TRACKER™ on.
- B. Enter into the calibration menu by pressing both the left and right push buttons on the ARC TRACKER™ user-interface. The Calibration Mode LED will illuminate and the message display will look like this:



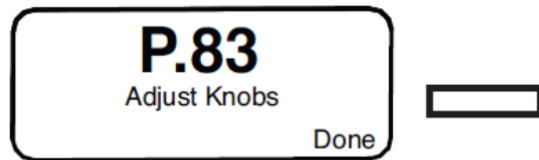
- C. Turn the center knob until parameter P.83 is reached. Press the right pushbutton to enter into Calibration mode.



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



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



- G. 7. Turn the Volt Meter Calibration Adjust knob located under the volt meter on the user-interface until it matches the reference volt meter.
- H. Turn the Ammeter Calibration Adjust knob under the ammeter on the user-interface until it matches the reference ammeter.
- I. 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.
- J. Turn the center knob until parameter P.0 is displayed. Press the left push button to EXIT.
- K. 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.
- L. 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.

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.

WEEE

07/06

English



Do not dispose of electrical equipment together with normal waste!

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative.

By applying this European Directive you will protect the environment and human health!

Spare Parts

12/05

For Spare Parts references visit the Web page: <https://www.lincolnelectric.com/LEExtranet/EPC/>

Authorized Service Shops Location

09/16

- The purchaser must contact a Lincoln Authorized Service Facility (LASF) about any defect claimed under Lincoln's warranty period.
- Contact your local Lincoln Sales Representative for assistance in locating a LASF or go to www.lincolnelectric.com/en-gb/Support/Locator.

Suggested Accessories

K10376

Terminal / twist-mate adapter (2 pieces necessary)

WIRING DIAGRAM

