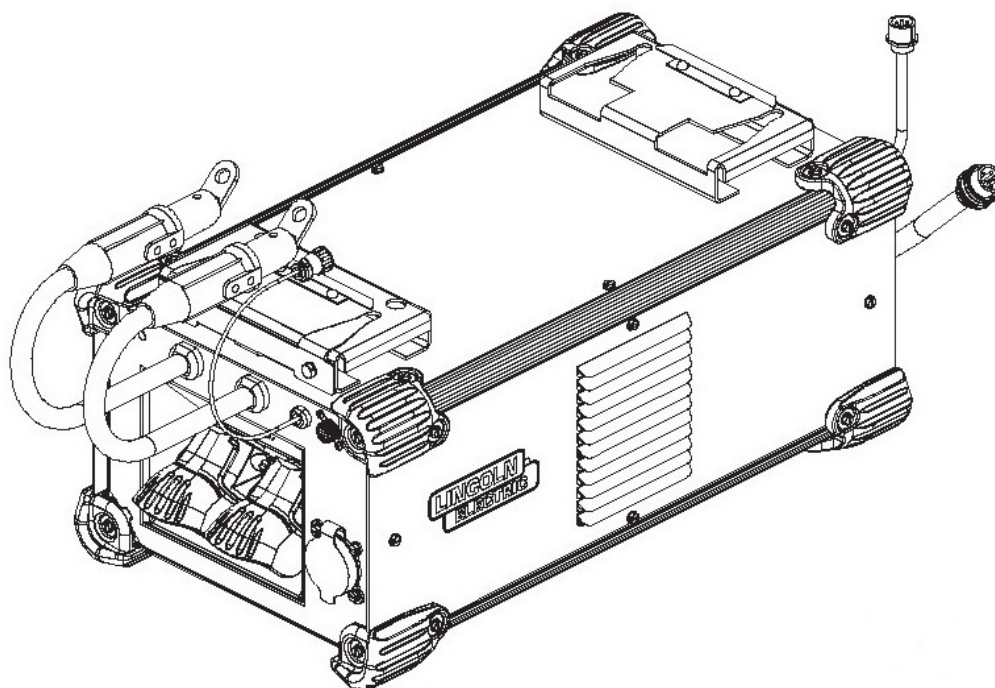


# POWER WAVE<sup>®</sup> ADVANCED MODULE

## OPERATOR'S MANUAL



ENGLISH



THE LINCOLN ELECTRIC COMPANY  
22801 St. Clair Ave., Cleveland Ohio 44117-1199 USA  
[www.lincolnelectric.eu](http://www.lincolnelectric.eu)

# 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 - 8<sup>0</sup> 2<sup>a</sup>  
08008 Barcelona SPAIN

Hereby declare that welding  
equipment:

Power Wave<sup>®</sup> Advanced Module

Product number:

K2912 (number may also contain prefixes and suffixes)

Is in conformity with Council  
Directives and amendments:

EMC Directive 2004/108/EC

Low Voltage Directive 2006/95/EC

Standards:

EN 60974-1, Arc Welding Equipment – Part 1: Welding  
Power Sources, 2005

EN 60974-3, Arc Welding Equipment – Part 3: Arc  
Striking and Stabilizing Devices, 2007

EN 60974-10 Arc Welding Equipment – Part 10:  
Electromagnetic compatibility (EMC) requirements, 2007

CE marking affixed in:

2014

A handwritten signature in black ink, appearing to read "Frank Stupczy", written over a horizontal line.

Frank Stupczy, Manufacturer

Compliance Engineering Manager

30 July 2014

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

Dario Gatti, European Community  
Representative  
European Engineering Director Machines

31 July 2014



12/05

**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 Specifications .....               | 1  |
| Electromagnetic Compatibility (EMC) .....    | 2  |
| Safety .....                                 | 3  |
| Installation and Operator Instructions ..... | 4  |
| WEEE .....                                   | 16 |
| Spare Parts .....                            | 16 |
| Electrical Schematic .....                   | 16 |
| Suggested Accessories .....                  | 16 |

# Technical Specifications

## POWER WAVE® ADVANCED MODULE (K2912-1)

| INPUT VOLTAGE AND CURRENT |               |                  |
|---------------------------|---------------|------------------|
| Voltage                   | Input Amperes | Notes            |
| 40Vdc                     | 3.0           |                  |
| *OUTPUT CURRENT CAPACITY  |               |                  |
| Duty Cycle                | Amperes       | Notes            |
| 100%                      | 300           | 600A Peak (Max.) |
| 40%                       | 350           |                  |

\* Defines capability of the output switch. the actual output current is supplied by host power source.

| PHYSICAL DIMENSIONS                                     |        |  |        |
|---|--------|--|--------|
| Height  | Width  | Depth  | Weight |
| 29.2 cm   | 35.4cm | 62.99cm  | 32.0kg |
| TEMPERATURE RANGE                                       |        |  |        |
| Operating Temperature Range                             |        | Storage Temperature Range                                |        |
| Environmentally Hardened: -4°F to 104°F (-20°C to 40°C) |        | Environmentally Hardened: -40°F to 185°F (-40°C to 85°C) |        |

**IP23 Insulation Class**

# Electromagnetic Compatibility (EMC)

11/04

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 it 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

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.

|  |  |
|--|--|
|  | <b>WARNING:</b> 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.   |
|  | <b>READ AND UNDERSTAND INSTRUCTIONS:</b> 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.  |
|  | <b>ELECTRIC SHOCK CAN KILL:</b> 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.  |
|  | <b>ELECTRICALLY POWERED EQUIPMENT:</b> 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.   |
|  | <b>ELECTRICALLY POWERED EQUIPMENT:</b> 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.   |
|  | <b>ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS:</b> 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.  |
|  | <b>CE COMPLIANCE:</b> This equipment complies with the European Community Directives.  |
|  | <b>FUMES AND GASES CAN BE DANGEROUS:</b> 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.  |
|  | <b>ARC RAYS CAN BURN:</b> 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.   |
|  | <b>WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION:</b> 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. |
|  | <b>WELDED MATERIALS CAN BURN:</b> 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.   |
|  | <b>SAFETY MARK:</b> This equipment is suitable for supplying power for welding operations carried out in an environment with increased hazard of electric shock.   |

|   |  |
|---|--|
|  | <b>CYLINDER MAY EXPLODE IF DAMAGED:</b> 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. |
|  | <b>NOISE APPEARES DURING WELDING CAN BE HARMFUL:</b> Welding arc can cause noise with high level of 85dB for 8-hour week day. Welders operating welding machines are obligated to wear the proper ear protectors /appendix No. 2 for the Decree of the Secretary of Labor and Social Policy from 17.06 1998 – Dz.U. No. 79 pos. 513/. According to the Decree the Secretary of Health and Social Welfare from 09.07.1996 /Dz.U. No. 68 pos. 194/, employers are obligated to carry examinations and measurements of health harmful factors.  |
|  | <b>MOVING PARTS ARE DANGEROUS:</b> 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.   |
|  | <b>EQUIPMENT WEIGHT OVER 30kg:</b> Move this equipment with care and with the help of another person. Lifting may be dangerous for your physical health.   |

## Installation and Operator Instructions

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

### General Description

The Power Wave Advanced Module is an accessory enabling compatible power sources to perform the DC+, DC-, AC, STT or any combination of these functions. It is intended for use with medium range “S” – series Power Wave power sources such as the S350 or S500. The Advanced Module will limit the output of an S500 (CE) or R500 to a maximum of 350 amps, regardless of process.

### Location, Environment and Mounting

(see Figure #1)

Mount the Advanced Module directly to the bottom of a compatible Power Wave® “S” series power source utilizing the quick lock mechanism as shown. The Advanced Module will operate in harsh environments and can be used outdoors. Even so, it is important that simple preventative measures are followed in order to assure long life and reliable operation.

- The machine must be located where there is free circulation of clean air such that movement into and out of the louvers will not be restricted.
- Dirt and dust that can be drawn into the machine should be kept to a minimum. The use of air filters on the air intake is not recommended because normal air flow may be restricted. Failure to observe these precautions can result in excessive operating temperatures and nuisance shutdown.
- Keep the machine dry. Shelter from rain and snow. Do not place on wet ground or in puddles.
- Do not mount the Power Wave® “S” series power source and Advanced Module combination over combustible surfaces. Where there is a combustible surface directly under stationary or fixed electrical equipment, that surface shall be covered with a steel plate at least 1.6mm thick, which shall extend not less than 150mm beyond the equipment on all sides.

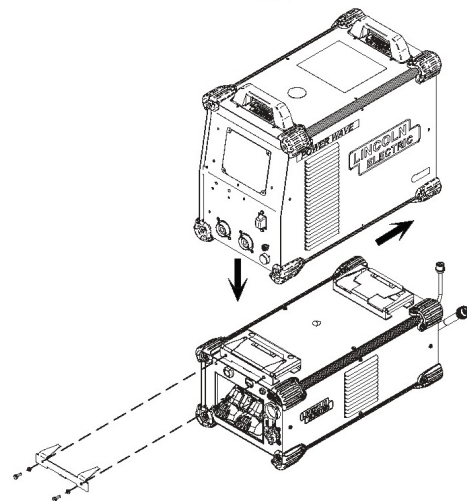


Figure #1

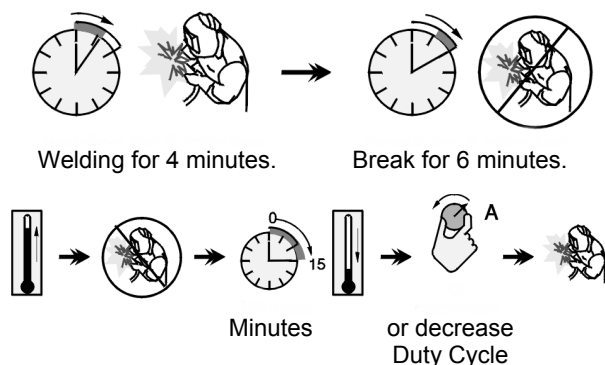
### Stacking

Stacking of the Power Wave® Advanced Module shall not exceed a power source above and one module below.

### Duty Cycle

The Advanced Module is rated at 300 amps at a 100% duty cycle. It is further rated to support 350 amps at 40% duty cycle. The duty cycle is based on 10 minute period

Example: 40% Duty Cycle:



## Control Cable Connections

### General guidelines

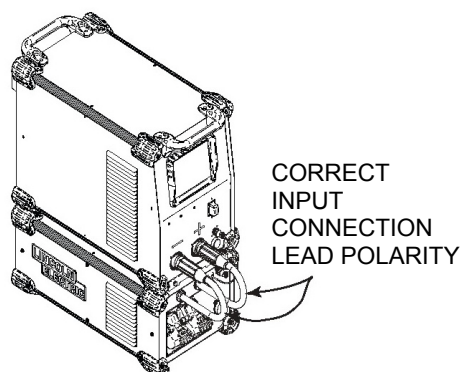
Genuine Lincoln control cables should be used at all times (except where noted otherwise). Generally, it is recommended that the total length not exceed 100 feet (30.5 m). The use of non-standard cables, especially in lengths greater than 25 feet, can lead to communication problems (system shutdowns), poor motor acceleration (poor arc starting), and low wire driving force (wire feeding problems). Always use the shortest length of control cable possible, and DO NOT coil excess cable.

### ⚠ WARNING

Regarding cable placement, best results will be obtained when control cables are routed separate from the weld cables. This minimizes the possibility of interference between the high currents flowing through the weld cables, and the low level signals in the control cables. These recommendations apply to all communication cables including ArcLink® connections.

## Special Instructions

A special ArcLink® and Differential I/O receptacle kit is provided with the Advanced Module for installation into the host power source. Follow the instructions provided with the kit.



## Connection between Advanced Module to ArcLink® wire feeders

The K2912-1 Advanced Module includes an ArcLink® output receptacle for connection to compatible wire feeders.

The control cable consists of two power leads, one twisted pair for digital communication, and one lead for electrode voltage sensing.

Best results will be obtained when control cables are routed separate from the weld cables, especially in long distance applications. The recommended combined length of the ArcLink® control cable network should not exceed 200ft.

S350 and S500 CE Power Source have an ArcLink output receptacle located on the case front. The ArcLink wire feeder can be attached to either the receptacle on the power source case front or Advanced Module case back.

## Output Polarity

The output polarity is automatically configured based on the selected weld mode. There is no need to reverse output cables.

Feeder should always be connected to GMAW electrode stud.

Workpiece should always be connected to the work stud.

### ⚠ WARNING

Never reverse the polarity at the input of the Advanced Module (DO NOT connect the negative stud of the power source to the positive input of the Advanced Module). This may result in damage to the Advanced Module! (see figure #2 for the correct polarity).

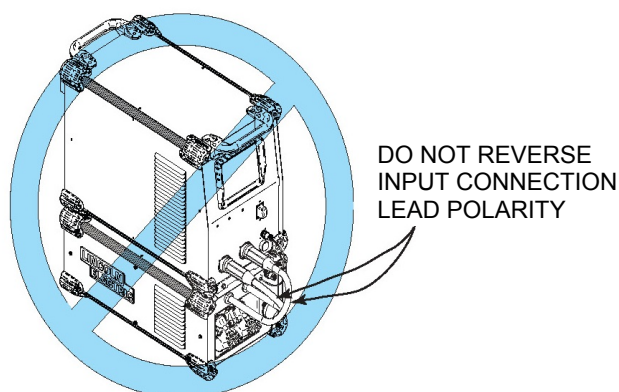


Figure #2: Correct Polarity



## Cable Inductance and its Effects on Welding

Excessive cable inductance will cause the welding performance to degrade. There are several factors that contribute to the overall inductance of the cabling system including cable size, and loop area. The loop area is defined by the separation distance between the electrode and work cables, and the overall welding loop length. The welding loop length is defined as the total of length of the electrode cable (A) + work cable (B) + work path (C) (see Figure #3 below). To minimize inductance always use the appropriate size cables, and whenever possible, run the electrode and work cables in close proximity to one another to minimize the loop area. Since the most significant factor in cable inductance is the welding loop length, avoid excessive lengths and do not coil excess cable. For long work piece lengths, a sliding ground should be considered to keep the total welding loop length as short as possible.

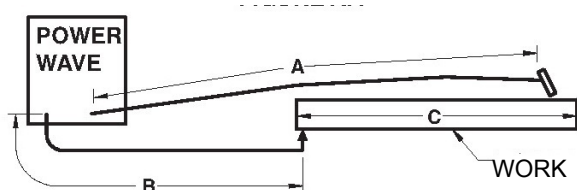


Figure #3

## Remote Sense Lead Connections

### Voltage Sensing Overview

Certain welding process requires the use of remote voltage sense leads to more accurately monitor the conditions of the arc. These leads originate in the power source, and are connected and configured through the Advanced Module. Consult the connection diagrams included in this manual for detailed information.

### Note:

Other processes run through the Advanced Module do not necessarily require sense leads, but will benefit from their use. Consult the power source instruction manual for recommendations.

### General Voltage Sensing Considerations for Multiple Arc Systems

Special care must be taken when more than one arc is welding simultaneously on a single part. The placement and configuration of remote work voltage sense leads is critical to the proper operation of multiple arc AC and STT® applications.

### Recommendations:

- **Position the sense leads out of the path of the weld current.** Especially any current paths common to adjacent arcs. Current from adjacent arcs can induce voltage into each others current paths that can be misinterpreted by the power sources, and result in arc interference.
- **For longitudinal applications,** connect all work leads at one end of the weldment, and all of the work voltage sense leads at the opposite end of the weldment. Perform welding in the direction away from the work leads and toward the sense leads. (See Figure #4).

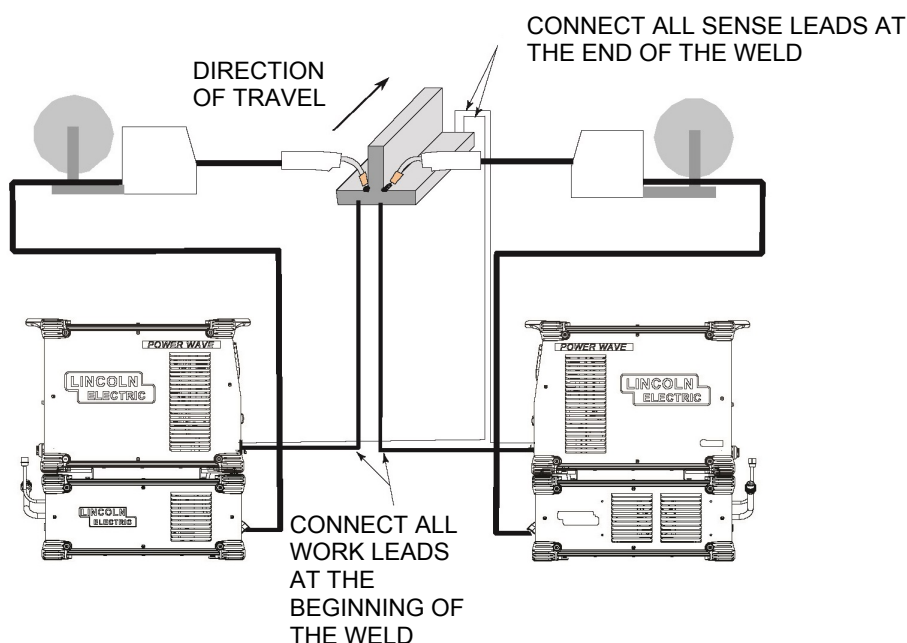


Figure #4

# **Power Wave® S350 CE or S500 CE GMAW Connection Diagrams** (see Figure #5)

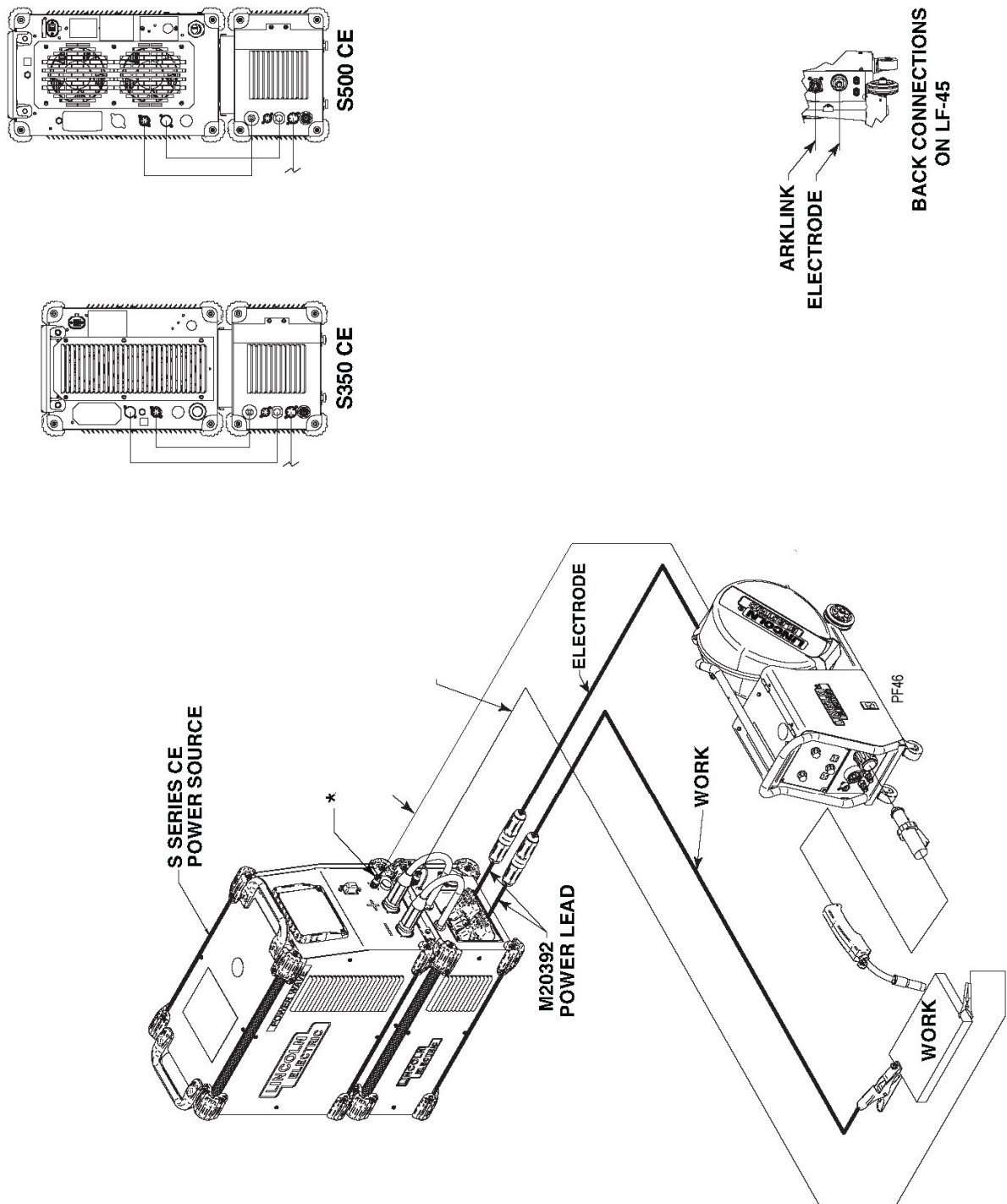


Figure #5

\* Note: the machine is shipped with cam lock plugs (M21433-1) installed. These must be changed to twist mate plugs (M15479) that are part of K3980-1 Advanced Module CE kit to properly attach to the power source.

(see Figure #6)



English

# Power Wave® S350 CE or S500 CE GTAW Connection Diagram

(see Figure #7)

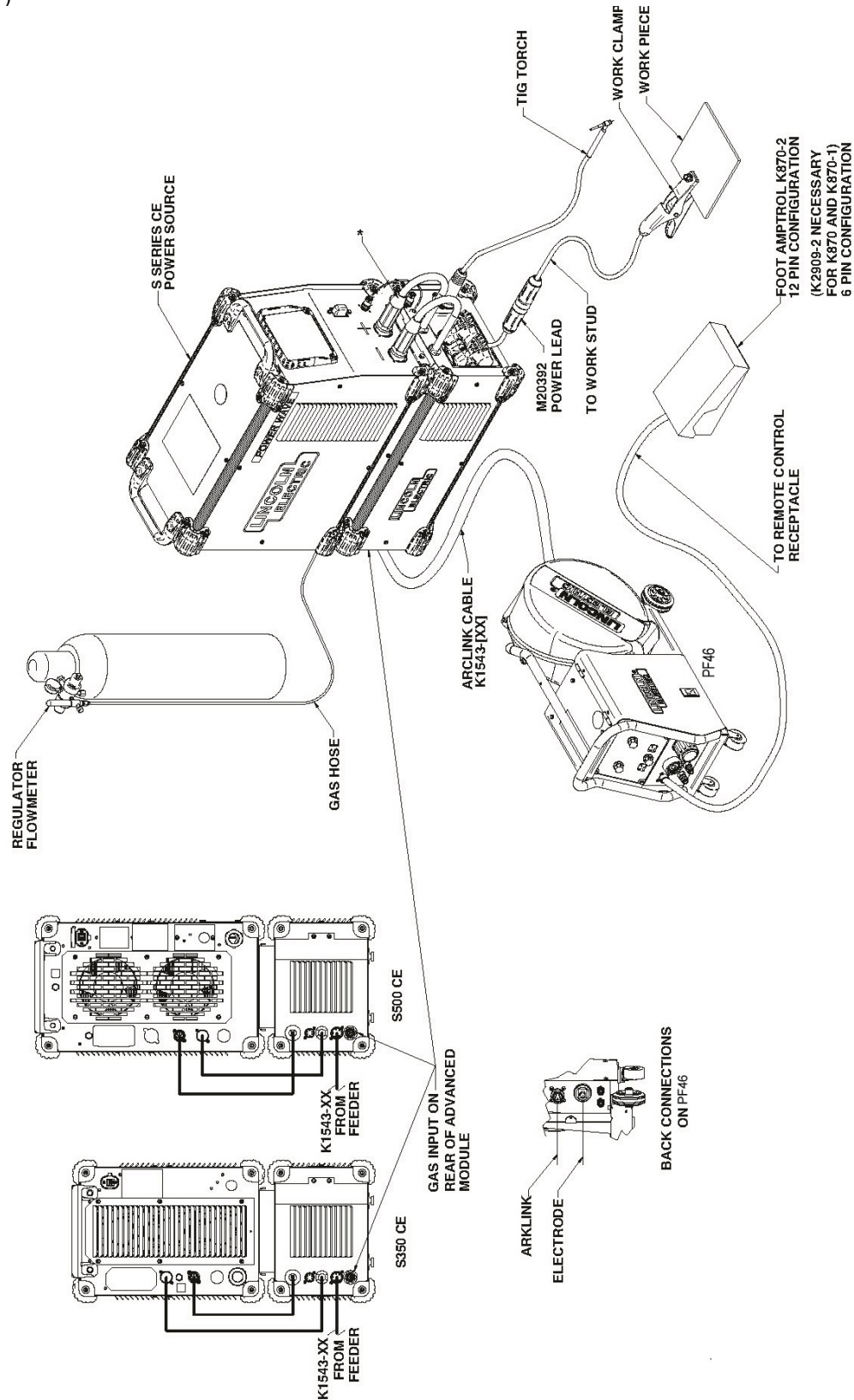


Figure #7

\*

Note: the machine is shipped with cam lock plugs (M21433-1) installed.

These must be changed to twist mate plugs (M15479) that are part of K3980-1 Advanced Module CE kit to properly attach to the power source.

**Power Wave® S500 CE (Only) with User Interface kit Cool Arc 50 and water cooled torch GTAW Connection Diagram**  
(see Figure #8)

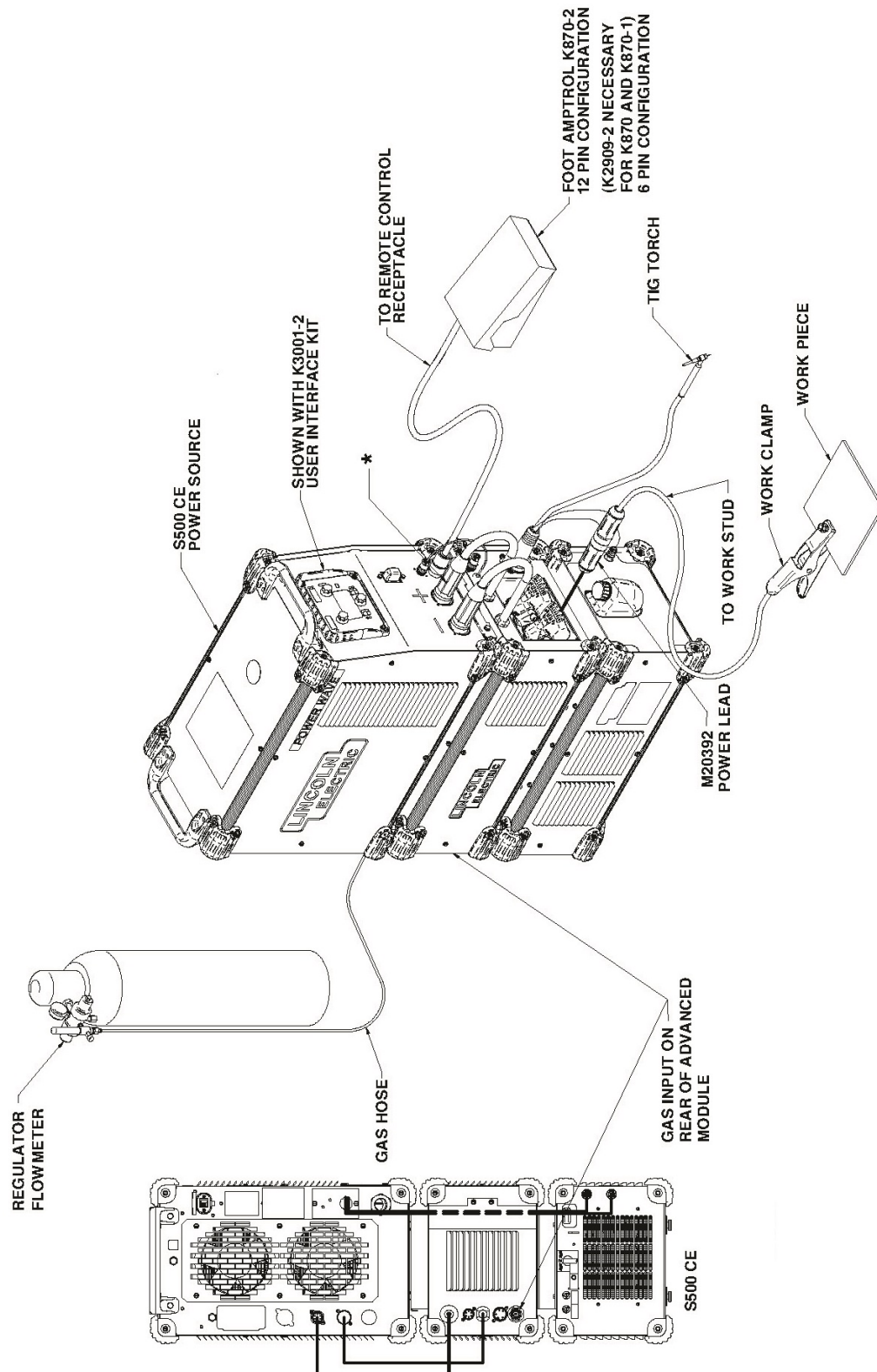


Figure #8

\* Note: the machine is shipped with cam lock plugs (M21433-1) installed. These must be changed to twist mate plugs (M15479) that are part of K3980-1 Advanced Module CE kit to properly attach to the power source.



# **Power Wave® S350 CE or S500 CE with Autodrive 19 Robotic Connection Diagram** (see Figure #9)

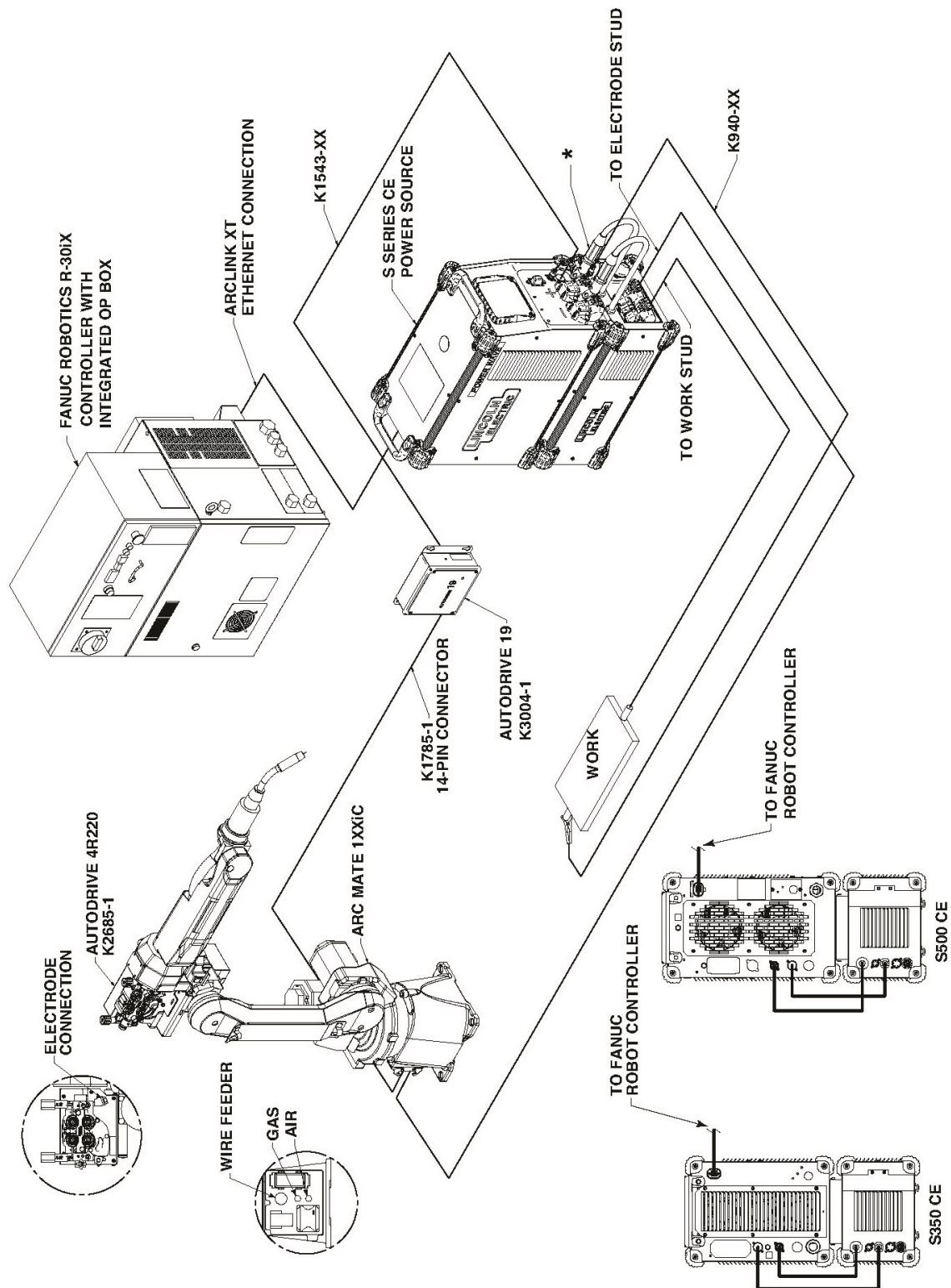


Figure #9

\* Note: the machine is shipped with cam lock plugs (M21433-1) installed. These must be changed to twist mate plugs (M15479) that are part of K3980-1 Advanced Module CE kit to properly attach to the power source.

# **Power Wave® S500 CE (Only) with User Interface kit SMAW Connection Diagram** (see Figure #10)

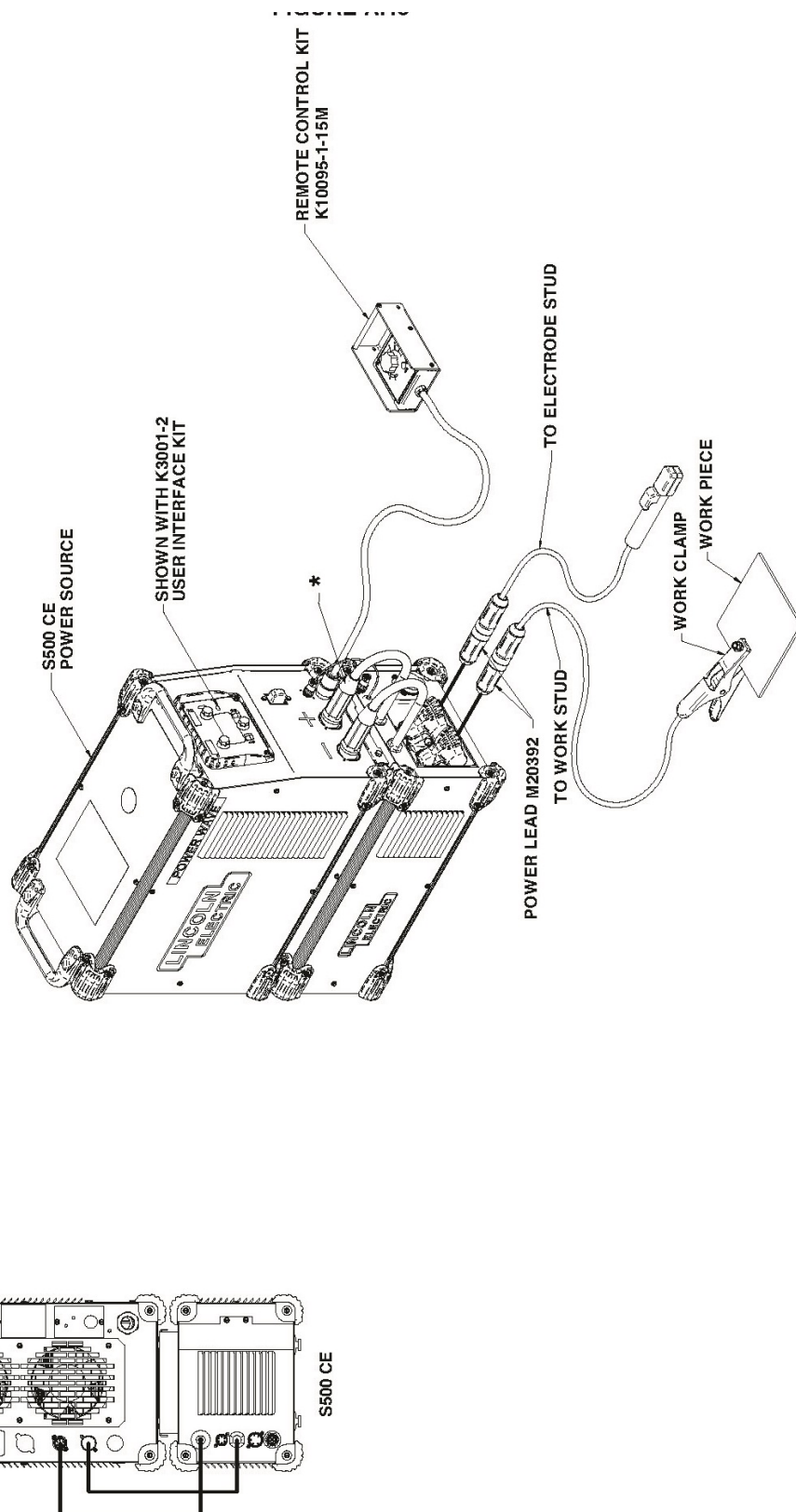


Figure #10

\* Note: the machine is shipped with cam lock plugs (M21433-1) installed. These must be changed to twist mate plugs (M15479) that are part of K3980-1 Advanced Module CE kit to properly attach to the power source.

## Power Wave® S500 CE or S500 CE MIG Connection Diagram (see Figure #11)

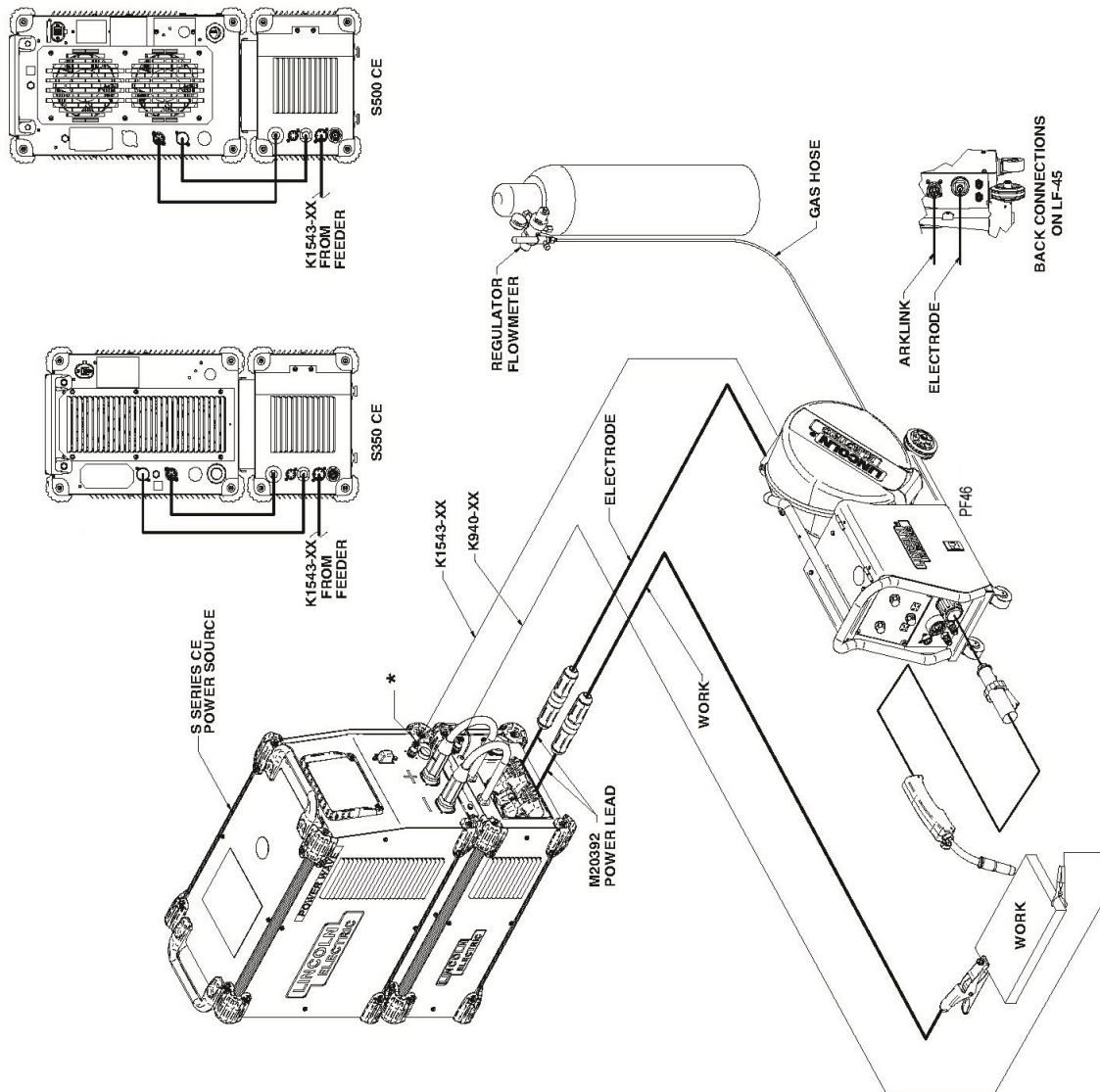


Figure #11

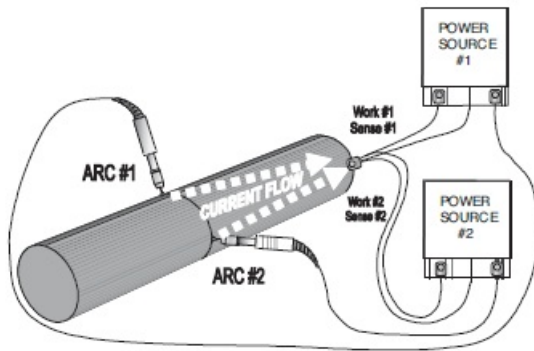
\*

Note: the machine is shipped with cam lock plugs (M21433-1) installed.

These must be changed to twist mate plugs (M15479) that are part of K3980-1 Advanced Module CE kit to properly attach to the power source.

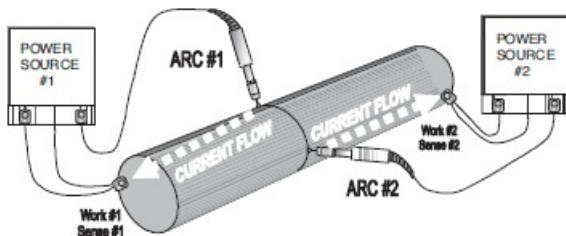


## Bad connection



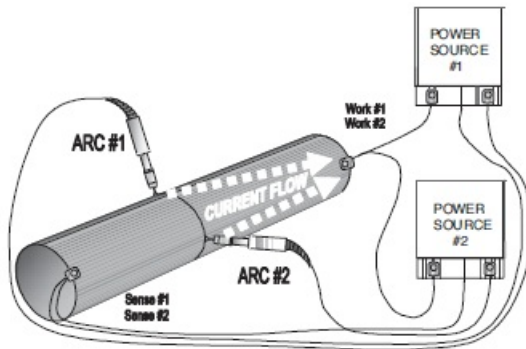
- Current flow from **Arc#1** affects **Sense lead #2**.
- Current flow from **Arc#2** affects **Sense lead #1**.
- Neither sense lead picks up the correct work voltage, causing starting and welding arc instability.

## Better connection



- **Sense lead #1** is only affected by current flow from **Arc#1**.
- **Sense lead #2** is only affected by current flow from **Arc#2**.
- Due to voltage drops across workpiece, Arc voltage may be low, causing need for deviation from standard procedures.

## Best connection



- Both **Sense** leads are out of the current paths.
- Both **Sense** leads detect arc voltage accurately.
- No voltage drop between **Arc** and **Sense** leads.
- Best start, best arcs, most reliable results.
- **For circumferential applications**, connect all work leads on one side of the weld joint, and all of the work voltage sense leads on the opposite side, such that they are out of the current path.

## Power-up Sequence

The Advanced Module will be powered up at the same time as the power source. The status light will blink green for about a minute while the system is configuring. After this time, the status lights will turn a steady green indicating the machine is ready.

The fan in the Advanced Module will run when the output is enabled and for 5 minutes after the output is disabled. The speed of the fan is dependent upon the work point. The speed of the fan prior to the output being disabled will be maintained for the 5 minutes.

## Common Welding Procedures

### Making a weld

Select the weld mode that best matches the desired welding process. The standard weld set shipped with the host power source encompasses a wide range of common processes that will meet most needs. Certain welding processes require a reversed output polarity. The Advanced Module will recognize the specific weld modes and automatically reconfigure the output polarity. **No change needs to be made to output cable connections.**

For a more detailed descriptor, and specific operating instructions, consult the power source and or feeder instruction manual.

## Product Description

The Power Wave® Advanced Module is recommended for all process supported by the host power source including, but not limited to SMAW, GMAW, GMAW-P, GMAW-STT, GTAW.

## Process Limitations

The Advanced Module is rated for 300 amps, 32 volts at a 100% duty cycle and 350 amps, 34 volts at a 40% duty cycle rating. When connected to an S500 (CE) power source, the power source will acknowledge that the Advanced module is connected and reduce the output capability to match that of the S350(CE).

## Equipment Limitations

The Power Wave® Advanced Module is intended for use with compatible medium range “S” – series Power Wave power sources such as the S350 and S500

## Case Front Descriptions

(see Figure #11)

1. **Negative:** Connects to Negative output of power source.
2. **Positive:** Connects to Positive output of power source.
3. **Voltage Sense Pigtail:** Provides voltage feedback to the power source from the module.

### WARNING

Must be connected to provide accurate voltage feedback, even when sensing from the studs.

4. **Power source mounting bracket:** Provides a quick and reliable union between power source and module.
5. **Status led:** Provides ArcLink® status of Power Wave® Advanced Module.
6. **Sense lead output:** Provides voltage feedback for remote electrode and work sense leads.  
**Note:** The 67 pin in 4 pin connector, located on power source case front is disconnected internally on the S350 CE.
7. **Work:** Connects to workpiece, regardless of process.
8. **GMAW electrode:** Connects to feeder for GMAW welding, regardless of process.
9. **GTAW/SAW electrode:** Connected internally to GMAW ELECTRODE, but also provides high frequency capability for TIG starting, provides solenoid controlled gas pass through.
10. **Power source mounting feet:** Provides a quick and reliable union between the module and a cooler or cart

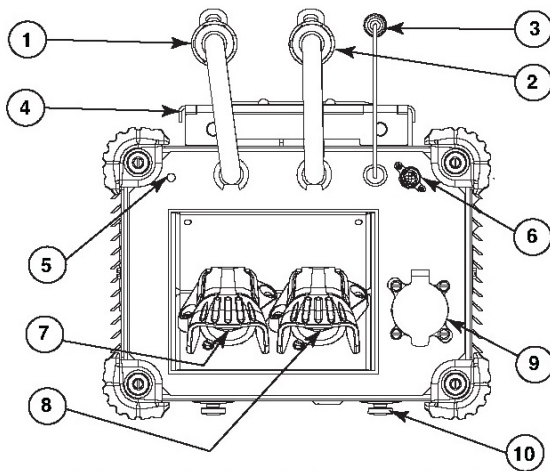


Figure #11

## Case Back Descriptions

(see Figure #12)

1. **Differential I/O Pigtail:** Connects directly to the Differential I/O output receptacle on the rear of the power source.
2. **ArcLink® Pigtail:** Connects directly to the ArcLink® Out receptacle on the rear of the power source.
3. **Differential I/O (Sync Tandem) output:** Supports Synchronized Tandem MIG Welding with other compatible power sources.
4. **ArcLink® (out):** Provides an ArcLink® pass through connection for all compatible ArcLink® wire feeders.
5. **Gas input:** Provides a solenoid controlled gas feed to TIG ELECTRODE on Case Front.

6. **Water cooler pass through:** Provides a channel to conceal and protect the power and control leads for the optional integrally mounted CE Water Cooler.

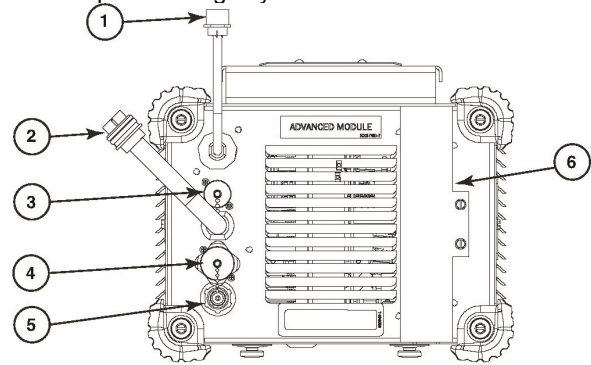


Figure #12

## Calibration Specification

Due to the nature of its operation, calibration of the Advanced Module is not required. From a system perspective, the output calibration of the power source and wire feeder should be performed as directed in their respective instruction manuals.

## Maintenance

### WARNING

For any maintenance or repair operations it is recommended to contact the nearest technical service center or Lincoln Electric. Maintenance or repairs performed by unauthorized service centers or personnel will null and void the manufacturer's warranty.

The frequency of the maintenance operations may vary in accordance with the working environment. Any noticeable damage should be reported immediately.

- Check cables and connections integrity. Replace, if necessary.
- Keep clean the machine. Use a soft dry cloth to clean the external case, especially the airflow inlet / outlet louvers.

### WARNING

Do not open this machine and do not introduce anything into its openings. Power supply must be disconnected from the machine before each maintenance and service. After each repair, perform proper tests to ensure safety.

## WEEE

07/06

English



Do not dispose of electrical equipment together with normal waste!

In observance of European Directive 2002/96/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

### Part List reading instructions

- Do not use this part list for a machine if its code number is not listed. Contact the Lincoln Electric Service Department for any code number not listed.
- Use the illustration of assembly page and the table below to determine where the part is located for your particular code machine.
- Use only the parts marked "X" in the column under the heading number called for in the assembly page (# indicate a change in this printing).

First, read the Part List reading instructions above, then refer to the "Spare Part" manual supplied with the machine, that contains a picture-descriptive part number cross-reference.

## Electrical Schematic

Refer to the "Spare Part" manual supplied with the machine.

## Suggested Accessories

| Basic Package (CE)    |   |
|-----------------------|---|
| Item number           | Description   |
| K2912-1               | Power Wave <sup>®</sup> Advanced Module CE                      |
| K2823-2               | Power Wave <sup>®</sup> S350 CE                                 |
| K14109-1              | PF46  |
| K14050-1              | Coolarc-50  |
| K14085-1              | CART PW S CE  |
| K10349-PGW-3M         | Interconnecting Cable   |
| K3980-1               | Advanced Module CE KIT-1  |
| Options               |   |
| K3168-1               | Power Wave <sup>®</sup> S500 CE                                 |
| K10349-PGW-XM         | X=5, 10, 15m Water cooled                                       |
| K10349-PG-XM          | X=5, 10, 15m Air cooled   |
| Suggested Accessories |   |
| K870                  | Foot Amptrol  |
| K2909-1               | 6-pin (F) to 12-Pin (M) CE Adapter for RemoteApplications -0.5m |
| K14144-1              | Adapter tig   |
| GRD-400A-70-5M        | Ground Cable  |
| K10413-360GC-4M       | LG360GC 4 meter with cross switch                               |
| K10413-420GC-XM       | LG420GC 3,4,6 meters with cross switch                          |
| K10513-18-4           | LT 18 W 4 mtr Ergo  |
| K3001-1               | Kit Optional components (UI, 12-pins socket)                    |