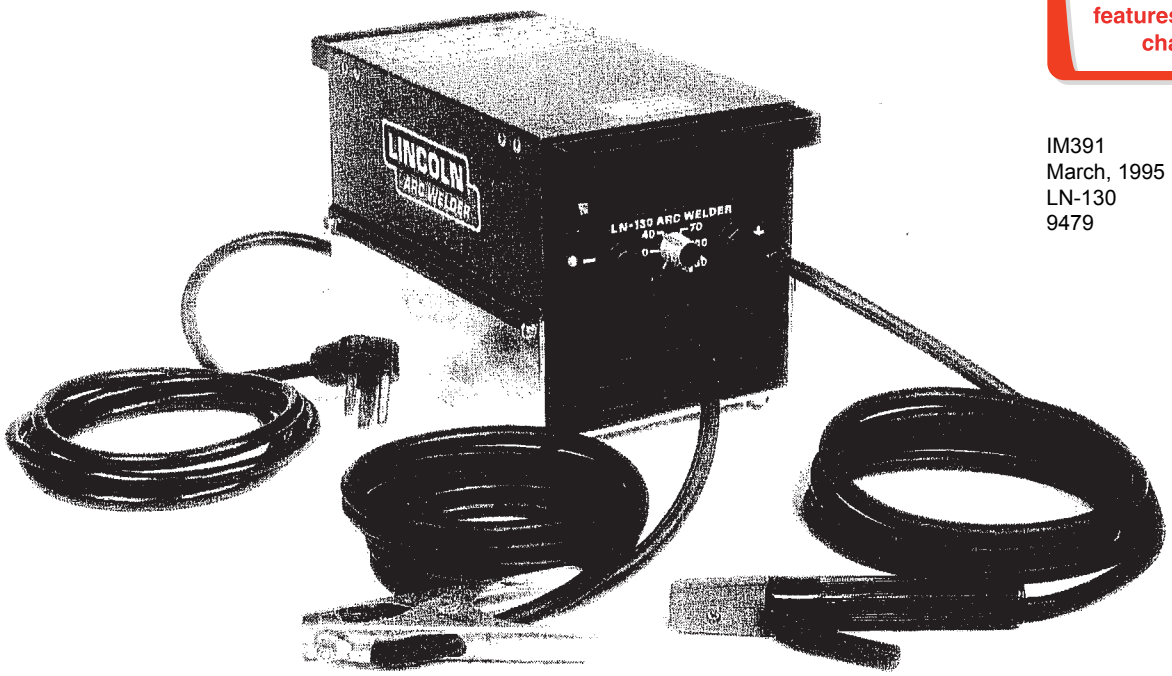
IM 391-A

March, 1995

LN-130

For use with machines having Code Numbers: **9479, 9479-S**

This manual covers equipment which is obsolete and no longer in production by The Lincoln Electric Co. Specifications and availability of optional features may have changed.



IM391
March, 1995
LN-130
9479

Safety Depends on You

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

OPERATOR'S MANUAL

World's Leader in Welding and Cutting Products

LINCOLN® ELECTRIC

Premier Manufacturer of Industrial Motors

Sales and Service through Subsidiaries and Distributors Worldwide

22801 St. Clair Ave. Cleveland, Ohio 44117-1199 U.S.A. Tel. (216) 481-8100

⚠ WARNING

ARC WELDING can be hazardous.

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

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.

ELECTRIC SHOCK can kill.

1.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.

1.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.**

1.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically "hot".

1.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.

1.e. Ground the work or metal to be welded to a good electrical (earth) ground.

1.f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.

1.g. Never dip the electrode in water for cooling.

1.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.

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

1.j. Also see Items 4.c. and 6.

ARC RAYS can burn.

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

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

2.c. Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.

FUMES AND GASES can be dangerous.

3.a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases.When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. **When welding with electrodes which require special ventilation such as stainless or hard facing (see instructions on container or MSDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and below Threshold Limit Values (TLV) using local exhaust or mechanical ventilation. In confined spaces or in some circumstances, outdoors, a respirator may be required. Additional precautions are also required when welding on galvanized steel.**

3.b. 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.

3.c. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.

3.d. Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the material safety data sheet (MSDS) and follow your employer's safety practices. MSDS forms are available from your welding distributor or from the manufacturer.

3.e. Also see item 7b.

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WELDING SPARKS can cause fire or explosion.

4.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.

4.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.

4.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.

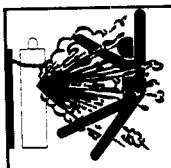
4.d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned". For information, purchase "Recommended Safe 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).

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

4.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.

4.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.

4.h. Also see item 7c.



CYLINDER may explode if damaged.

5.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.

5.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

5.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.

5.d. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.

5.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

5.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

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

FOR ELECTRICALLY powered equipment.

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

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

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

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FOR ENGINE powered equipment.

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

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

7.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.

7.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.

7.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.

7.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.

7.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.

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

ELECTRIC AND MAGNETIC FIELDS may be dangerous

8.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

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

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

8d. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

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

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

8.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.

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

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

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PRÉCAUTIONS DE SÛRETÉ

Pour votre propre protection lire et observer toutes les instructions et les précautions de sûreté specifiques qui parraissent dans ce manuel aussi bien que les précautions de sûreté générales suivantes:

Sûreté Pour Soudage A L'Arc

1. Protegez-vous contre la secousse électrique:

   a. Les circuits à l'électrode et à la piéce sont sous tension quand la machine à souder est en marche. Eviter toujours tout contact entre les parties sous tension et la peau nue ou les vétements mouillés. Porter des gants secs et sans trous pour isoler les mains.
   b. Faire trés attention de bien s'isoler de la masse quand on soude dans des endroits humides, ou sur un plancher metallique ou des grilles metalliques, principalement dans les positions assis ou couché pour lesquelles une grande partie du corps peut être en contact avec la masse.
   c. Maintenir le porte-électrode, la pince de masse, le câble de soudage et la machine à souder en bon et sûr état defonctionnement.
   d. Ne jamais plonger le porte-électrode dans l'eau pour le refroidir.
   e. Ne jamais toucher simultanément les parties sous tension des porte-électrodes connectés à deux machines à souder parce que la tension entre les deux pinces peut être le total de la tension à vide des deux machines.
   f. Si on utilise la machine à souder comme une source de courant pour soudage semi-automatique, ces precautions pour le porte-électrode s'applicuent aussi au pistolet de soudage.

2. Dans le cas de travail au dessus du niveau du sol, se protéger contre les chutes dans le cas ou on recoit un choc. Ne jamais enrouler le câble-électrode autour de n'importe quelle partie du corps.

3. Un coup d'arc peut être plus sévère qu'un coup de soliel, donc:

   a. Utiliser un bon masque avec un verre filtrant approprié ainsi qu'un verre blanc afin de se protéger les yeux du rayonnement de l'arc et des projections quand on soude ou quand on regarde l'arc.
   b. Porter des vêtements convenables afin de protéger la peau de soudeur et des aides contre le rayonnement de l'arc.
   c. Protéger l'autre personnel travaillant à proximité au soudage à l'aide d'écrans appropriés et non-inflammables.

4. Des gouttes de laitier en fusion sont émises de l'arc de soudage. Se protéger avec des vêtements de protection libres de l'huile, tels que les gants en cuir, chemise épaisse, pantalons sans revers, et chaussures montantes.

5. Toujours porter des lunettes de sécurité dans la zone de soudage. Utiliser des lunettes avec écrans lateraux dans les zones où l'on pique le laitier.

6. Eloigner les matériaux inflammables ou les recouvrir afin de prévenir tout risque d'incendie dû aux étincelles.

7. Quand on ne soude pas, poser la pince à une endroit isolé de la masse. Un court-circuit accidental peut provoquer un échauffement et un risque d'incendie.

8. S'assurer que la masse est connectée le plus prés possible de la zone de travail qu'il est pratique de le faire. Si on place la masse sur la charpente de la construction ou d'autres endroits éloignés de la zone de travail, on augmente le risque de voir passer le courant de soudage par les chaines de levage, câbles de grue, ou autres circuits. Cela peut provoquer des risques d'incendie ou d'echauffement des chaines et des câbles jusqu'à ce qu'ils se rompent.

9. Assurer une ventilation suffisante dans la zone de soudage. Ceci est particuliérement important pour le soudage de tôles galvanisées plombées, ou cadmiées ou tout autre métal qui produit des fumeés toxiques.

10. Ne pas souder en présence de vapeurs de chlore provenant d'opérations de dégraissage, nettoyage ou pistolage. La chaleur ou les rayons de l'arc peuvent réagir avec les vapeurs du solvant pour produire du phosgéne (gas fortement toxique) ou autres produits irritants.

11. Pour obtenir de plus amples renseignements sur la sûreté, voir le code "Code for safety in welding and cutting" CSA Standard W 117.2-1974.

PRÉCAUTIONS DE SÛRETÉ POUR LES MACHINES À SOUDER À TRANSFORMATEUR ET À REDRESSEUR

1. Relier à la terre le chassis du poste conformement au code de l'électricité et aux recommendations du fabricant. Le dispositif de montage ou la piece à souder doit être branché à une bonne mise à la terre.

2. Autant que possible, l'installation et l'entretien du poste seront effectués par un électricien qualifié.

3. Avant de faires des travaux à l'interieur de poste, la debrancher à l'interrupteur à la boite de fusibles.

4. Garder tous les couvercles et dispositifs de sûreté à leur place.

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— *Thank You* —

for selecting a **QUALITY** product by Lincoln Electric. We want you to take pride in operating this Lincoln Electric Company product ••• as much pride as we have in bringing this product to you!

Please Examine Carton and Equipment For Damage Immediately

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

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

Model Name & Number _____

Code & Serial Number _____

Date of Purchase _____

Whenever you request replacement parts for or information on this equipment always supply the information you have recorded above.

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

⚠ WARNING

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

⚠ CAUTION

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

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Technical Specifications- LN130

INPUT			
Input Voltage[1]	**Input Current @ Duty Cycle**		
	@20%	@60%	@100%
230V, 1ø 60 Hz	28 A	17 A	13 A
115V, 1ø 60 Hz	56 A	34 A	26 A

OUTPUT		
DUTY CYCLE	**WELDING CURRENT**	**ARC VOLTAGE**
20%	130 A	25 V
60%	75 A	23 V
100%	60 A	22 V

OPERATING RANGE		
Output Current Range	**Open Circuit Voltage (MAX.)**	**Temperature**
5 - 130 Amps	42V	-20°C to 40°C Operating -40°C to 60°C Storage

INSULATION CLASS
CLASS H

INPUT SUPPLY RECOMMENDATIONS	
Input Line Cord	**Circuit Breakers or Fuse Slow Blow**
3.0m (10 ft) 12/3 AWG	30 A @ 230V 50 A[2] @ 115V

PHYSICAL DIMENSIONS			
HEIGHT	**WIDTH**	**DEPTH**	**WEIGHT**
228 mm 9 in	216 mm 8.5 in.	401 mm 15.8 in.	(Including Cables, Work Clamp and Electrode Holder) 30 kg 66 lbs.

1. Input Voltage Allowable Variation: +/- 10%

2. Requires jumpers to be changed on a terminal strip inside the machine, and the installation of the appropriate 125 volt plug on the factory installed line cord. For maximum rated output, connect the LN-130 to a 115 volt, 50 amp branch circuit. The LN-130 may also be operated on a 30 amp branch circuit if the machine is derated to 75 amps output, and it may be used on a 20 amp branch circuit if the machine is derated to 60 amps output. The LN-130 is intended for use as a TIG welder (scratch start) at these reduced outputs.

Read this entire installation section before you start installation.

SAFETY PRECAUTIONS

⚠ WARNING

ELECTRIC SHOCK can kill.

- Do not touch electrically live parts such as output terminals or internal wiring.
- Only Qualified Personnel should perform this installation.
- Machine must be connected to system ground per the U.S. National Electrical code and any applicable local codes.

UNPACKING

Open the carton and remove the following items:

a) LN-130
b) Operating Manual
c) Work Clamp and Cable
d) Electrode Holder and Cable

LOCATION

Locate the welder in a dry location where there is free circulation of clean air into the louvers in the back and out the front. A location that minimizes the amount of smoke and dirt drawn into the rear louvers reduces the chance of dirt accumulation that can block air passages and cause overheating.

Do not drop the welder. Doing so may damage internal components.

ELECTRICAL INPUT CONNECTION

⚠ WARNING

- Do not operate with covers removed.
- Disconnect input power before servicing.
- Do not touch electrically live parts.
- Only qualified persons should install, use, or service this equipment.

INPUT POWER AND GROUNDING CONNECTIONS - 230 VOLT INPUT

A 12/3 AWG line cord with a 50 amp, 250 volt, three-prong plug (NEMA Type 6-50P) is factory installed. Connect this plug to a mating grounded 50 amp receptacle which is connected to a branch circuit with a nominal voltage rating of 230 volts, 60 hertz, AC only.

When the LN-130 is connected to the input power, and the switch is turned on, the fan will rotate and blow air out the front louvers.

INPUT POWER AND GROUNDING CONNECTIONS - 115 VOLT INPUT

⚠ WARNING

Be certain that the 115V supply is adequate for this use and that it is properly fused. 115V circuits found in the average home or small garage may only have enough capacity for operation of this welder at a reduced output.

A. Disconnect the input line cord from input power before removing the cover.

B. Remove the four screws that hold the cover in place using a 10 mm socket and remove the cover. Locate the 4-terminal reconnect terminal strip (See figure A.1) and loosen the screws that hold the jumpers in place. Position the jumpers for the 115V connection and tighten the screws. Replace the cover and install the 4 screws that were removed.

C. Cut the plug off the end of the line cord that is attached to the machine and install the appropriate 125 volt plug. For maximum rated output, connect the LN-130 to a 115 volt, 50 amp branch circuit. The LN-130 may also be operated on a 30 amp branch circuit if the machine is derated to 75 amps output and on a 20 amp branch circuit if the machine is derated to 60 amps output. The LN-130 is intended for use as a TIG welder (scratch start) at these reduced outputs.

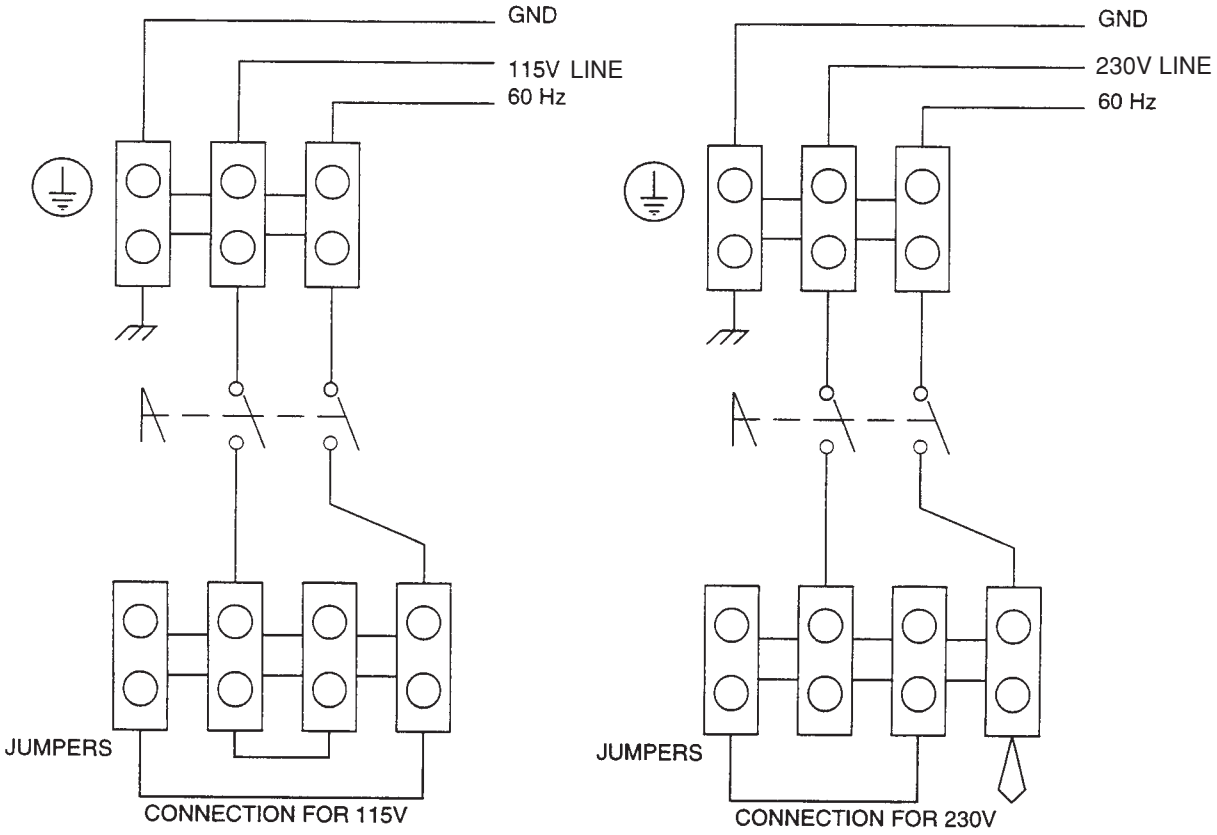


Figure A.1 Reconnect Terminal Strip

CODE REQUIREMENTS

The U.S. National Electrical Code (Article 630-B, 1987 Edition) provides standards for amperage handling capability of supply conductors based on duty cycle of the welding power source.

If there is any question about the installation meeting the U.S. National Electrical Code and local code requirements, consult a qualified electrician.

RECOMMENDED EXTENSION CORD

Use of an extension cord is not recommended when 115 volt input power is used.

If 230 volt input power is used and an extension cord is required, use one that is rated for the application and is #12 AWG 3 conductor. The recommended maximum length is 25 feet.

WELDING CABLES

Set the output control to the "MIN" setting. Connect the welding cables to the welder output terminals. Most stick welding (SMAW) procedures specify positive electrode polarity, and TIG welding usually requires negative electrode polarity. Make sure that the twist lock connectors are in a locked position (twist clockwise).

OPERATING INSTRUCTIONS

Read and understand entire section before operating machine.

SAFETY PRECAUTIONS

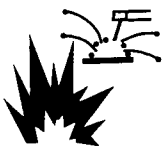
⚠ WARNING

ELECTRIC SHOCK can kill.

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

FUMES AND GASES can be dangerous.

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



WELDING SPARKS can cause fire or explosion

- Keep flammable material away.
- Do not weld on containers that have held combustibles.

ARC RAYS can burn.

- Wear eye, ear and body protection.

The electrode is always electrically energized when the LN-130 is connected to input power.

Observe additional Safety Guidelines detailed throughout this manual.

PRODUCT DESCRIPTION

The LN-130 is a single phase, thyristor controlled DC stick welder especially designed for welding with mild steel, low hydrogen and stainless steel electrodes. It may also be used for TIG applications using scratch start. The compact design and the light weight make it an ideal choice for repair and construction work in agriculture and industry.

The main components are the transformer, the choke, the control printed circuit board, and two thyristor modules. The transformer and choke are dipped in varnish and baked for long life and moisture protection.

A front mounted rheostat provides continuous current control from approximately 5A to 130A maximum output. A fan cools the system, and a thermostat protects it against overload. A convenient front-mounted power switch is also provided.

The choke smoothes the current before it is fed into the arc. The welding current is monitored by a feedback loop to provide favorable dynamic response.

As shipped, the LN-130 is connected for 230 volt AC input and includes an input line cord and plug. It may be reconnected for 115 volt AC input and is intended for TIG welding at a reduced output when operated on 115 volts. Also included is an insulated electrode holder, a heavy duty work clamp, and welding cables with twist-lock plugs. Front mounted twist-lock output terminals allow easy polarity changes.

DUTY CYCLE AND RATED OUTPUT

Duty Cycle[1]	Amps	Volts
20%	130	25
60%	75	23
100%	60	22

[1] Based upon 10-minute time period (i.e., for 20% duty cycle, it is 2 minutes on and 8 minutes off).

MAKING A WELD

1. Set the current setting control on the front of the machine to a position corresponding to the needed current. The scale is calibrated at nominal line voltage and at rated load voltage measured at the output terminals. Actual currents may differ, and the scale should only be regarded as a guide for an initial setting.

2. Connect work clamp to metal to be welded. Work clamp must make good electrical contact to the workpiece. The workpiece must also be grounded as stated in "Arc Welding Safety Precautions".

3. Place electrode in the electrode holder. Turn the power switch on. Lower welding helmet and initiate the arc.

OVERLOAD PROTECTION

⚠ CAUTION

EXCEEDING THE OUTPUT RATING CAN REDUCE THE LIFE OF THE MACHINE.

Thermostats protect the machine from excessive operating temperatures. Excessive temperatures may be caused by a lack of cooling air or operating the machine beyond the duty cycle and output rating. If excessive operating temperature should occur, the thermostats will prevent output voltage and current.

The thermostats are self-resetting once the machine cools sufficiently. If the thermostat shutdown was caused by excessive output or duty cycle and the fan is operating normally, the power may be left on and the reset should occur within a 15-minute period. If the fan is not running or the air intake louvers are obstructed, then the power must be turned off and the fan problem or air obstruction corrected.

ELECTRODE SELECTION

The following electrodes are recommended for use with the LN-130.

AWS CLASSIFICATION	Lincoln Type	Polarity	Current Range		
			5/64 size	3/32 size	1/8 size
6011	Fleetweld 35 & Stable-Arc 6011	(+)	--	40-75	70-110
6013	Fleetweld 37	(+ or -)	45-75	--	--
6013	Fleetweld 37 & Stable-Arc 6013	(+ or -)	--	70-95	100-130
7018	Jetweld LH-70	(+)	--	70-100	90-130
7018	Stable-Arc 7018 & Jetweld LH-73	(+)	--	65-85	90-125
308-16	Stable-Arc 99 Ni	(+)	--	30-60	55-95
ENi-CI	Softweld 99 Ni	(+)	--	60-110	100-130
ABW	Abrasoweld	(+)	--	--	40-130

SAFETY PRECAUTIONS

⚠ WARNING

ELECTRIC SHOCK can kill.

- Do not touch electrically live parts such as output terminals or internal wiring.
- Only Qualified Personnel should perform maintenance.
- Turn input power off at fuse box before working on this equipment.

ROUTINE MAINTENANCE

GENERAL MAINTENANCE

In extremely dusty locations, dirt may clog the air passages causing the welder to run hot. Blow dirt out of the welder with low pressure air at regular intervals to eliminate excessive dirt and dust build-up on internal parts.

FAN MOTOR

Has lifetime lubrication - requires no maintenance.

VISUAL INSPECTION

Clean interior of machine with a low pressure airstream. Make a thorough inspection of all components. Look for signs of overheating, broken leads, or other obvious problems. Many problems can be uncovered with a good visual inspection.

REPLACEMENT OF THYRISTOR POWER MODULES

When mounting power modules, the heat sink and module mounting surface should be clean and free of burrs and foreign material. Apply an even coating of silicone joint compound (Dow Corning 340 or equivalent) to both the heat sink and module mounting surfaces. The joint compound should be very thin, ideally .002" per surface, to eliminate all air pockets. This may be verified by mounting and then removing the module. When removed, the compound on both surfaces will appear textured as if a vacuum had created vein-like ridges when the parts were separated. If the compound does not have this appearance, apply more joint compound and recheck. Tighten the mounting screws to 44 in. lbs. ±10% (5.0 Nm) torque. Retorque after 3 hours to allow for spread of compound. Tighten the terminal screws to 26 in. lbs. ±10% (3.0 Nm) torque.

⚠ WARNING

Do not damage or destroy the power block case because the beryllium oxide dust resulting from such action is hazardous if inhaled.

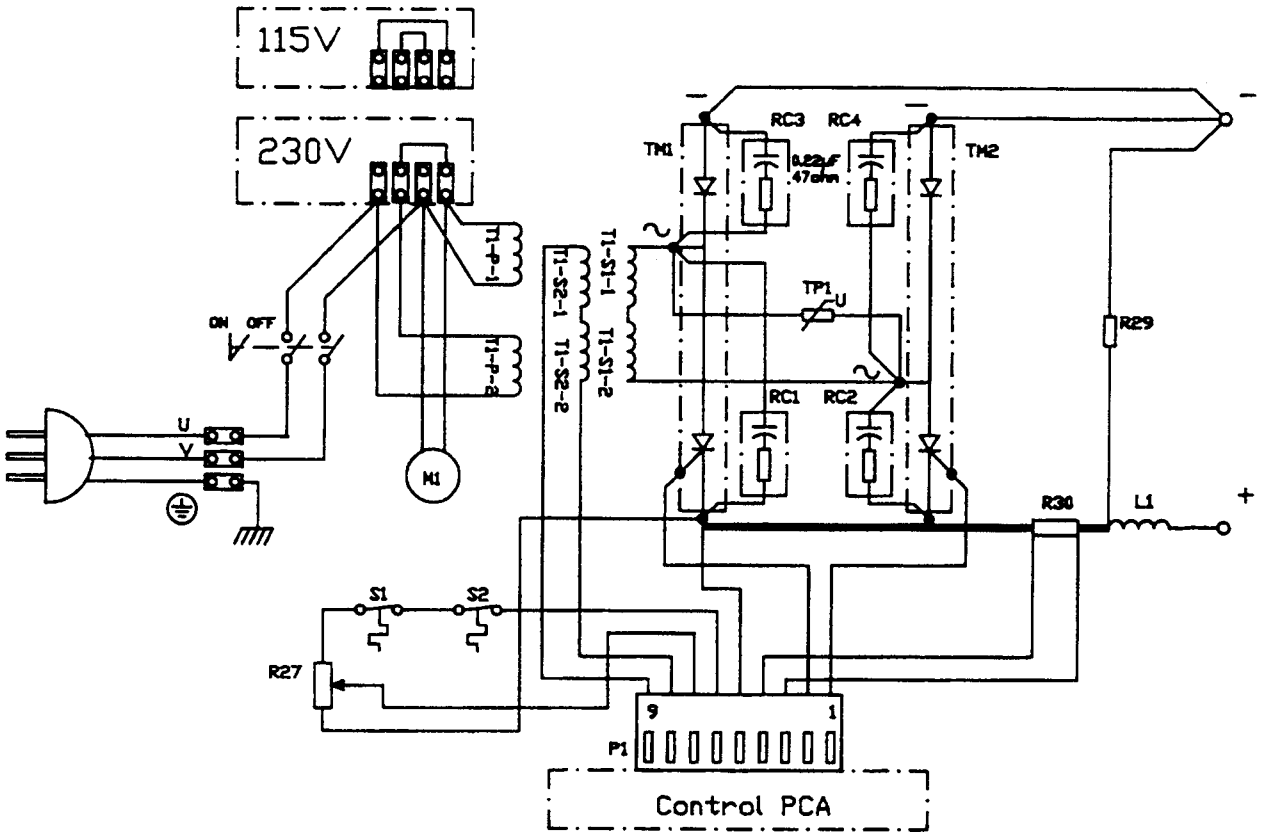
Observe all Safety Guidelines detailed througout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
PROBLEMS		
Circuit breaker or line fuses are blowing.	Circuit breaker or fuses smaller than recommended.	Change to correct size.
	Wrong fuse type.	Change to slow blow. Slow blow fuses are necessary because of the high inrush current that may occur.
	Faulty thyristor module.	Replace the thyristor module. See section MAINTENANCE SECTION for complete instructions.
No welding output. Fan is operating	Thermostat has tripped.	Current or duty cycle has been exceeded. Reduce current or duty cycle. Let the welder idle until the thermostat resets.
No welding output or reduced output. Fan is operating.	Loose gate leads.	Check and correct.
	Faulty control circuit.	Replace the PC Board (located on the back panel).
Only maximum or minimum current.	Faulty potentiometer (R27).	Check and replace. If the potentiometer is taken out of the circuit and measured with an ohmmeter, it shall read approximately 10 k .
	Faulty control circuit.	Replace the PC board (located on the back panel).
No welding current. Fan not operating.	Faulty Line Switch	Check and replace.
	Blown circuit breaker or line fuse.	Check and replace.
	Bad contact in the line plug.	Tighten the plug terminal screws.
	Broken lead near the plug.	Cut the cable at the break and reinstall the plug.

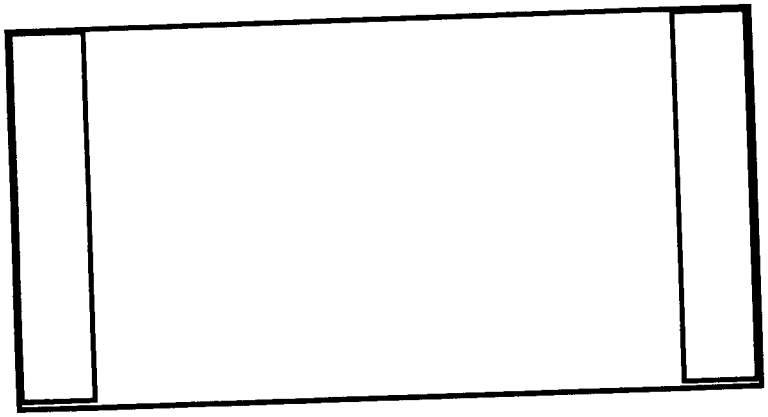
⚠ CAUTION

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.

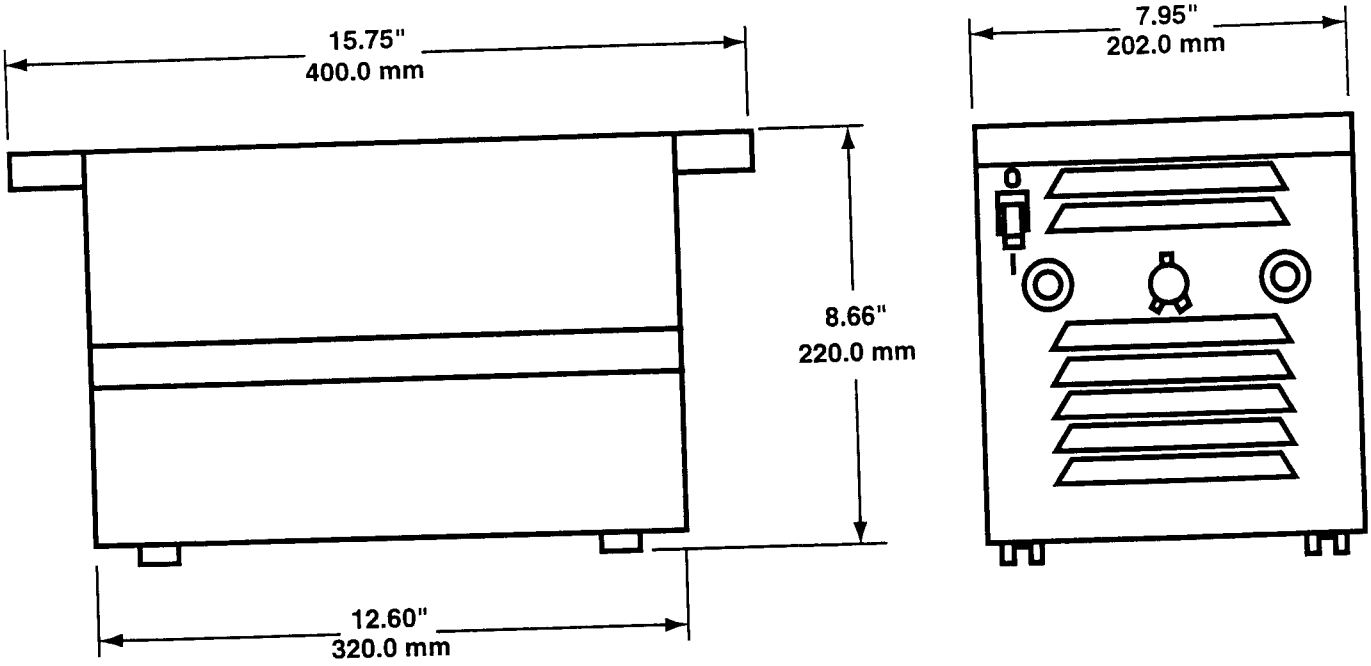
For Machine Code 9479-S



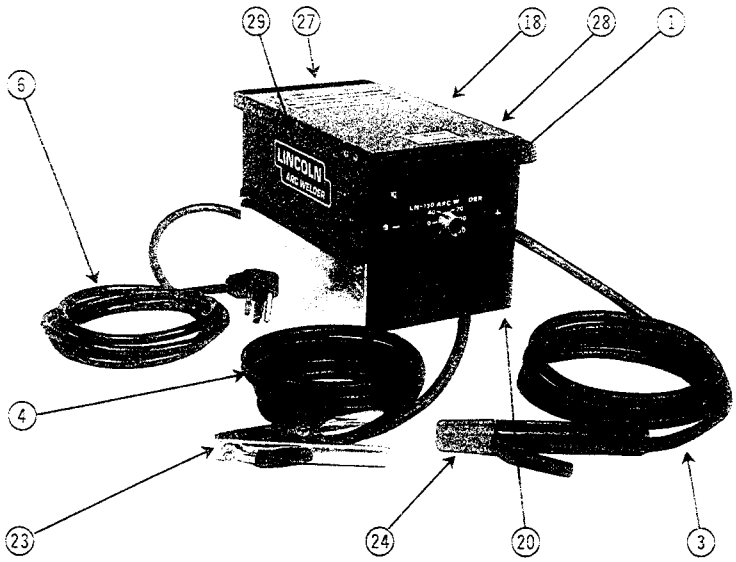
NOTE: This wiring diagram is for reference only. It may not be totally accurate for all machines. The specific wiring diagram for a particular code is pasted inside the machine on one of the enclosure panels.

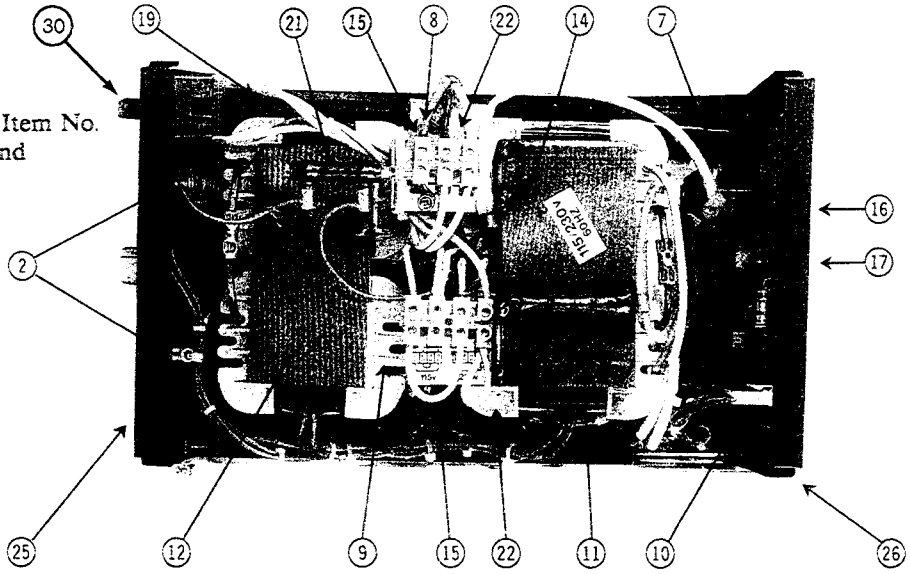


MODEL K1366-1



GENERAL ASSEMBLY





WHEN ORDERING GIVE: Item No. Part Name, Parts List No., and Welder Code.

ITEM	PART NAME & DESCRIPTION	NO. REQ'D
1	Potentiometer (10K)	1
	Knob	1
2	Output Receptacle	2
3	Electrode Output Cable, Includes:	1
	Twist Mate Plug	1
4	Work Output Cable, Includes:	1
	Twist Mate Plug	1
6	Input Cable Assembly (230 V)	1
7	Strain Relief (Input Cable)	1
8	Input Pressure Connection Block	1
9	Trans. Reconnect Pressure Connection Block	1
10	Control P.C. Board	1
11	Transformer (115V/230V)	1
12	Choke	1
14	Shunt and Buss Bar Assembly	1
15	SCR Module	2
16	Fan	1

ITEM	PART NAME & DESCRIPTION	NO. REQ'D
17	Fan Guard Screen	1
18	Roof and Handle Assembly	1
19	Base (Aluminum)	1
20	Base Foot	2
21	Resistor and Leads (100 Ohm, 15W)	1
22	RC Pack	2
23	Ground Clamp (Work)	1
24	Electrode Holder	1
25	Case Front	1
26	Case Back	1
27	Decal (Warning)	1
28	Decal (Warranty)	1
29	Decal (Logo)	2
30	Line Switch	1

NOTES

			
WARNING	● Do not touch electrically live parts or electrode with skin or wet clothing. ● Insulate yourself from work and ground.	● Keep flammable materials away.	● Wear eye, ear and body protection.
Spanish **AVISO DE PRECAUCION**	● No toque las partes o los electrodos bajo carga con la piel o ropa mojada. ● Aislese del trabajo y de la tierra.	● Mantenga el material combustible fuera del área de trabajo.	● Protéjase los ojos, los oídos y el cuerpo.
French **ATTENTION**	● 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.	● Gardez à l'écart de tout matériel inflammable.	● Protégez vos yeux, vos oreilles et votre corps.
German **WARNUNG**	● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung! ● Isolieren Sie sich von den Elektroden und dem Erdboden!	● Entfernen Sie brennbarres Material!	● Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese **ATENÇÃO**	● Não toque partes elétricas e electrodos com a pele ou roupa molhada. ● Isole-se da peça e terra.	● Mantenha inflamáveis bem guardados.	● Use proteção para a vista, ouvido e corpo.
Japanese **注意事項**	● 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。	● 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。	● 目、耳及び身体に保護具をして下さい。
Chinese **警 告**	● 皮肤或濕衣物切勿接觸帶電部件及銲條。 ● 使你自己與地面和工件絕緣。	● 把一切易燃物品移離工作場所。	● 佩戴眼、耳及身體勞動保護用具。
Korean **위 험**	● 전도체나 용접봉을 젖은 헝겁 또는 피부로 절대 접촉치 마십시요. ● 모재와 접지를 접촉치 마십시요.	● 인화성 물질을 접근 시키지 마시요.	● 눈, 귀와 몸에 보호장구를 착용하십시요.
Arabic **تحذير**	● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الالكترود بجلد الجسم أو بالملابس المبللة بالماء. ● ضع عازلا على جسمك خلال العمل.	● ضع المواد القابلة للاشتعال في مكان بعيد.	● 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.

			
● Keep your head out of fumes. ● Use ventilation or exhaust to remove fumes from breathing zone.	● Turn power off before servicing.	● Do not operate with panel open or guards off.	**WARNING**
● Los humos fuera de la zona de respiración. ● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.	● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.	● No operar con panel abierto o guardas quitadas.	Spanish **AVISO DE PRECAUCION**
● Gardez la tête à l'écart des fumées. ● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.	● Débranchez le courant avant l'entretien.	● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés.	French **ATTENTION**
● Vermeiden Sie das Einatmen von Schweibrauch! ● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!	● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)	● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen!	German **WARNUNG**
● Mantenha seu rosto da fumaça. ● Use ventilação e exhaustão para remover fumo da zona respiratória.	● Não opere com as tampas removidas. ● Desligue a corrente antes de fazer serviço. ● Não toque as partes elétricas nuas.	● Mantenha-se afastado das partes moventes. ● Não opere com os paineis abertos ou guardas removidas.	Portuguese **ATENÇÃO**
● 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。	● 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って下さい。	● パネルやカバーを取り外したままで機械操作をしないで下さい。	Japanese **注意事項**
● 頭部遠離煙霧。 ● 在呼吸區使用通風或排風器除煙。	● 維修前切斷電源。	● 儀表板打開或沒有安全罩時不準作業。	Chinese **警 告**
● 얼굴로부터 용접가스를 멀리하십시요. ● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시요.	● 보수전에 전원을 차단하십시요.	● 판넬이 열린 상태로 작동치 마십시요.	Korean **위 험**
● ابعد رأسك بعيداً عن الدخان. ● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.	● اقطع التيار الكهربائي قبل القيام بأية صيانة.	● لا تشغل 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説明以及應該使用的銀焊材料，並請遵守貴方的有関勞動保護規定。

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.

PERFORMANCE PLUS PROTECTION

3 YEAR WARRANTY PARTS & LABOR

LINCOLN® ELECTRIC

LIMITED WARRANTY

STATEMENT OF WARRANTY:

The Lincoln Electric Company (Lincoln) warrants to the original purchaser (end-user) of new equipment that it will be free of defects in workmanship and material.

This warranty is void if Lincoln finds that the equipment has been subjected to improper care or abnormal operation.

WARRANTY PERIOD:

All warranty periods date from the date of shipment to the original purchaser and are as follows:

Three Years:

Transformer Welders
Motor-generator Welders
Inverter Welders
Automatic Wire Feeders
Semiautomatic Wire Feeders
Plasma-cutting Power Source
Engine Driven Welders (except engine and engine accessories) with operating speed under 2,000 RPM

Two Years:

Engine Driven Welders (except engine, engine accessories and Power-Arc generator/welders) with operating speed over 2,000 RPM

All engine and engine accessories are warranted by the engine or engine accessory manufacturer and are not covered by this warranty.

One Year:

Equipment not listed above such as gun and cable assemblies, water coolers, FAS TRAK or MIG-TRAK equipment, Power-Arc generator/welders, Wire Feed Module (Factory Installed) and field-installed optional equipment.

TO OBTAIN WARRANTY COVERAGE:

You are required to notify Lincoln Electric, your Lincoln Distributor, Lincoln Service Center or Field Service Shop of any defect within the warranty period. Written notification is recommended.

WARRANTY REPAIR:

If Lincoln's inspection of the equipment confirms the existence of a defect covered by this warranty, the defect will be corrected by repair or replacement at Lincoln's option.

WARRANTY COSTS:

You must bear the cost of shipping the equipment to a Lincoln Service Center or Field Service Shop as well as return shipment to you from that location.

IMPORTANT WARRANTY LIMITATIONS:

- Lincoln will not accept responsibility for repairs made without its authorization.
- Lincoln shall not be liable for consequential damages (such as loss of business, etc.) caused by the defect or reasonable delay in correcting the defect.
- Lincoln's liability under this warranty shall not exceed the cost of correcting the defect.
- This written warranty is the only express warranty provided by Lincoln with respect to its products. Warranties implied by law such as the Warranty of Merchantability are limited to the duration of this limited warranty for the equipment involved.

August, '94