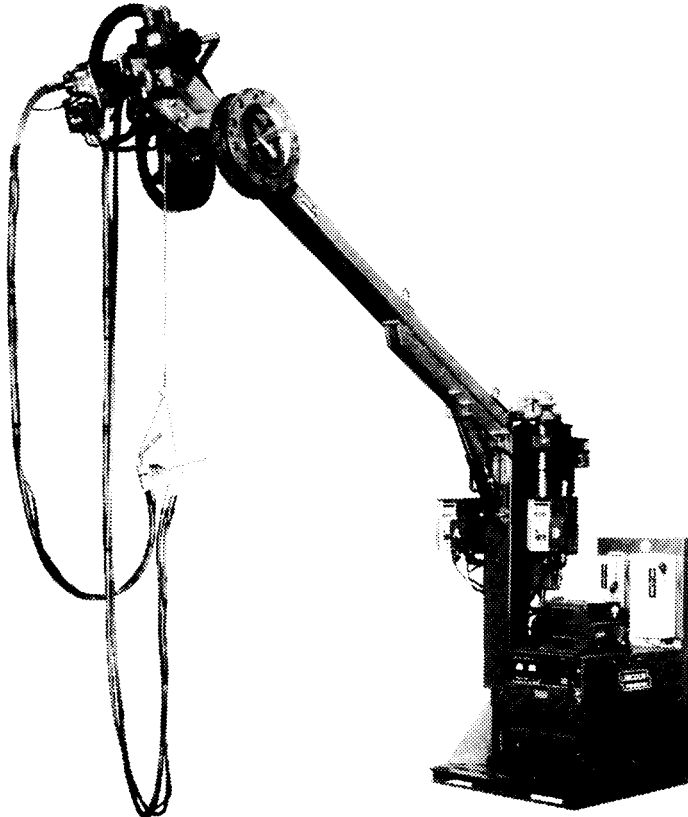


# OPERATING MANUAL

## THE LINCOLN WELDING STATION AND MAST-BOOM ASSEMBLY

IM295  
October 1987  
Welding Station Mast-Boom  
Assembly

7949; 7980; 8002; 8029; 8178;  
8179; 8180; 8181; 8389; 8420;  
8421; 8422; 8423; 8668; 8669;  
8670; 8671; 8770; 8771; 8990;  
8991; 9087; 9088; 9089; 9090;  
9131; 9134; 9756; 9842; 9958;  
9959; 10316; 10327; 8101;  
8115; 8117; 8118; 8132; 8133;  
8134; 8135; 8136; 8149; 8155;  
8156; 8160; 8162; 8163; 8194;  
8211; 8217; 8235; 8236; 8241;  
8242; 8255; 8256; 8263; 8264;  
8267; 8272; 8275; 8276; 8278;  
8287; 8291; 8292; 8296; 8314;  
8323; 8330; 8339; 8341; 8379;  
8415; 8460; 8510; 8519; 8537;  
8540; 8556; 8557; 8570; 8576;  
8577; 8578; 8580; 8616; 8630;  
8653; 8713; 8718; 8719; 8746;  
8775; 8828; 8948; 8980; 9016;  
9038; 9097



This manual covers equipment which is obsolete and no longer in production by The Lincoln Electric Co. Specifications and availability of optional features may have changed.

### DAMAGE CLAIMS

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

### SAFETY DEPENDS ON YOU

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

# Arc Welding Safety Precautions

**PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. READ AND UNDERSTAND BOTH THE SPECIFIC INFORMATION GIVEN IN THE OPERATING MANUAL FOR THE WELDER AND/OR OTHER EQUIPMENT TO BE USED AS WELL AS THE FOLLOWING GENERAL INFORMATION.**

1. HAVE ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR WORK performed only by qualified people.

2. ELECTRIC SHOCK can kill.

Protect yourself from possible dangerous electrical shock:

- a. The electrode and work (or ground) circuits are electrically "hot" when the welder is on. Never permit contact between "hot" parts of the circuits and bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.
  - b. Always insulate yourself from the work and ground by using dry insulation. When welding in damp locations, on metal floors, gratings or scaffolds, and when in positions such as sitting or lying, make certain the insulation is large enough to cover your full area of physical contact with work and ground.
  - c. 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.
  - d. Ground the work or metal to be welded to a good electrical ground.
  - e. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition.
  - f. Never dip the electrode in water for cooling.
  - g. 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.
  - h. If using the welder as a power source for mechanized welding, the above precautions also apply for the automatic electrode, electrode reel, welding head, nozzle or semiautomatic welding gun.
  - i. When working above floor level, protect yourself from a fall should you get a shock.
  - j. Also see Items 6c and 8.
3. FUMES AND GASES can be dangerous to your health.
- 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 on galvanized, lead or cadmium

plated steel and other metals which produce toxic fumes, even greater care must be taken.

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.

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.

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.

e. Also see item 9b.

4. ARC RAYS can injure eyes and burn skin.

a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87.1 standards.

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

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.

5. FIRE OR EXPLOSION can cause death or property damage.

a. Remove fire hazards well away from the 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. Have a fire extinguisher readily available.

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.

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.

- 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 F4.1-80 from the American Welding Society (see address below).
  - e. Vent hollow castings or containers before heating, cutting or welding. They may explode.
  - f. Also see items 6c and 9c.
6. For Welding in General.
- a. Droplets of molten slag and metal are thrown or fall from the welding arc. Protect yourself with 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 when in a welding area. Use glasses with side shields when near slag chipping operations.
  - b. 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.
  - c. Be sure the work cable is connected to the work as close to the welding area as practical. Work cables connected to the building framework or other locations some distance 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.
7. For Gas-Shielded Arc Welding.
- 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.
  - b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
  - 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.
  - d. Never allow the electrode, electrode holder, or any other electrically "hot" parts to touch a cylinder.
  - e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
  - f. Valve protection caps should always be in place and handtight except when the cylinder is in use or connected for use.
  - g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 "Precautions for Safe Handling of Compressed Gases in Cylinders" available from the Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.
8. For Electrically Powered Equipment.
- a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.
  - b. Make the electrical installation in accordance with the National Electrical Code, all local codes and the manufacturer's recommendations.
  - c. Properly ground the equipment in accordance with the National Electrical Code and the manufacturer's recommendations.
9. For Engine Powered Equipment.
- a. Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.
  - b. Operate the internal combustion engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.
  - c. Do not add the fuel near an open flame, welding arc or when the engine is running. Stop the engine and, if possible, allow it to cool when 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.
  - d. 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.
  - e. 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.
  - f. 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.
  - g. To avoid scalding, do not remove the radiator pressure cap when the engine is hot.
- For more detailed 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.



# TABLE OF CONTENTS

SECTION	TITLE
Part A	<b>INTRODUCTION</b>
	Damage Claims
	Safety Precautions
1.1	Product Description <ul style="list-style-type: none"><li>— K-329 Platform Assembly</li><li>— K-330 Welding Mast-Boom Assembly</li></ul>
1.2	Equipment Description
1.2.1	— K-329 Platform Assembly
1.2.2	— Pivot Shaft
1.2.3	— Mast
1.2.4	— Boom
1.2.5	— Hydraulic System
1.3	Equipment Options — A through T
Part B	<b>INSTALLATION, OPERATION AND MAINTENANCE</b>
2.	<b>INSTALLATION</b>
2.1	Facility Considerations
2.2	Assembly of K-329 and All K-330 Units <ul style="list-style-type: none"><li>— Uncrating the K-329 Platform Assembly</li><li>— Fastening Platform to the Floor</li><li>— Moving Crated Mast-Boom Assembly to Final Site</li><li>— Lifting Instructions</li><li>— Component Assembly</li><li>— Lowering Mast-Boom Assembly onto Platform Assembly Pivot Shaft</li></ul>
2.3	Installation of Assembled K-329 or K-330
2.3.1	— Secure to Floor at Site
2.3.2	— Flux Recovery Unit Assembly
2.4	K-329 Welding Station
2.4.1	— Mast-Boom Assembly Service Lines Connection
2.4.2	— Input Panel Connections
2.4.3	— Gun and Cable Connection
2.4.4	— Dual Procedure Kit
2.4.5	— Dual Process Kit
2.4.6	— Work Lead Connection <ul style="list-style-type: none"><li>A) For One LN-9F</li><li>B) For Two LN-9F Units</li></ul>
2.4.7	— Number 21 Lead Connection <ul style="list-style-type: none"><li>A) For One LN-9F</li><li>B) For Two LN-9F Units</li></ul>
2.4.8	— Wire Reel Assembly Installation
2.5	K-330 Welding Mast-Boom Assembly
2.5.1	— Input Service Line Connection
2.5.1-A	— Control Leads to Power Source Connections
2.5.1-B	— Electrode Lead to Power Source Connections
2.5.1-C	— Input Cable Assembly Connection to Mast-Boom Assembly
2.6	Component Connections
2.6.1	— Gun and Cable Connection <ul style="list-style-type: none"><li>A) Linconditioner Guns</li><li>B) Submerged Arc Guns</li><li>C) Gas Shielding Guns</li><li>D) K-319 Dual Procedure Kits</li></ul>
2.6.2	— Work Lead Connection

3.       **OPERATION**

- 3.1       Boom Positions
- 3.2       Power Source Operation
- 3.3       Wire Reel Loading
  - 3.3.1     — Boom Mounted Reels
  - 3.3.2     — Pedestal Mounted Reels
- 3.4       Flux Recovery Unit

4.       **MAINTENANCE**

- 4.1       Power Sources and Accessories
  - 4.1.1     — LN-9F Wire Feeders and Controls
  - 4.1.2     — DC-600 Power Source
  - 4.1.3     — Linconditioners
  - 4.1.4     — Continuous Flux Feeding System
- 4.2       Mast and Boom
- 4.3       Hydraulic System
- 4.4       Flux Recovery Unit

5.       **REPLACEMENT PARTS AND DIAGRAMS**

- 5.1       Replacement Parts
  - 5.1.1     — K-329 Welding Station and K-330 Welding Mast-Boom
  - 5.1.2     — Flux Recovery Unit
  - 5.1.3     — Wire Reel Assembly (Pedestal Mount)
- 5.2       Dimension Diagrams
  - 5.2.2     — K-329 Welding Platform Range of Motion
  - 5.2.3     — K-330 Mast-Boom Assembly Range of Motion
  - 5.2.4     — Welding Station Platform
    - Installation Specifications S-16588-1
  - 5.2.5     — Welding Mast-Boom Assembly Pedestal
    - Installation Specifications S-16588-2
- 5.3       Wiring Diagrams
  - Welding Station
    - 5.3.1     — For 460 or 230 Volt Input and One Wire Feeder L-6145
    - 5.3.2     — For 460 or 230 Volt Input and Two Wire Feeders L-6146
  - Welding Mast-Boom Assembly
    - 5.3.3     — For One Wire Feeder M-13847
    - 5.3.4     — For Two Wire Feeders M-13848

Guarantee

# PART A — INTRODUCTION

## 1.1 PRODUCT DESCRIPTION

The Lincoln "Welding Station" or ("Mast-Boom Assembly") was designed to offer the customer a broad range of welding processes available at a pre-determined location. This one station can be equipped to contain stick electrode, submerged arc, Innershield®, Outershield™, and other gas-shielded welding capability.

The basic Welding Station is designated as a K-329. This unit includes one DC-600 amp power source, one LN-9F wire feeder mounted on the left side of the mast and boom assembly, and a 100 ampere capacity fused safety disconnect switch all mounted on a steel platform equipped with a mast and hydraulically operated 11 foot boom. The Station is completely wired at the factory and is ready for operation after assembly of the boom-mast assembly to the platform and connection of 460/3/50 or 60 hertz input power.

A second more basic unit is also available and designated as a K-330. This unit is referred to as the Welding Mast-Boom Assembly. It has the same equipment as the K-329, less the DC-600, the steel platform, and the safety disconnect switch.

## 1.2 DESCRIPTION OF THE EQUIPMENT

### 1.2.1 K-329 Platform Assembly

The PLATFORM is a welded steel fabrication with a 3/8" thick deck plate and five 3" structural channels as stiffeners and supports. It is 43" wide, 46" deep, and 3-3/8" high.

The front and rear channel supports each have two openings which can be used as access holes for transporting the platform (less mast and boom assembly) with a fork lift truck.

Mounting pads are welded to this platform for mounting the DC-600, support panel mounting for the disconnect switch, and the pedestal pivot support.

Four two inch diameter holes are provided through the top deck plate for hold down purposes. (See installation instructions.)

### 1.2.2 K-329 Pivot Shaft

The PIVOT SHAFT is a high strength steel member firmly supported by the pedestal and locked into position with two set screws.

### 1.2.3 K-329 Mast

The MAST is a fabricated steel assembly which is basically a "U" shaped member. Additional members are welded to it so that it is structurally sound. The

mast sets on top of the pivot shaft and is capable of a 327° rotation. There is a mechanical stop which is welded on the mast, and a similar one welded to the pedestal top ring. The stops are set so the "dead" spot is in the back of the swing. The stop prevents the boom from being swung so far as to damage the electrical cables. The wire feeder controls and hydraulic pump system are also mounted to the mast. The boom hinge pivot and positioning rack are mounted at the top end of the mast.

### 1.2.4 K-329 Boom

The BOOM is made of a .120" wall 2.5 × 5.00" rectangular tube to which is welded a cable supporting raceway. This construction results in an open raceway along each side of the rectangular tubing so the control cables, wire conductor sheath, flux or gas hose are easily accessible. The hoses for the Linconditioner guns or the hose for the flux recovery unit can be run down through the opening of the large rectangular tubing or put in either of the open trays. The end of the boom is raised or lowered with a hand operated hydraulic system. There are four positions for the boom: 18° down, horizontal, 22° up, and 41° up.

### 1.2.5 K-329 Hydraulic System

The HYDRAULIC SYSTEM is a hand pump operated system rated at 3,000 psi and is used to raise and lower the boom to the position desired.

To position the boom into the desired angle, it is necessary to raise the boom beyond that point, which allows the spring loaded boom mast support to move into the next notch of the mast support; releasing the pump pressure will allow the boom to lower itself at a fixed rate (controlled by a flow valve) until the support bar comes to rest in that particular notch.

To lower the boom, it is necessary to raise the boom slightly so the mast supporting bar is free to be swung downward with the aid of the release lever. With the mast support bar momentarily held down and then releasing the pump pressure, the boom will come down to the next lower position. The boom should always be supported by the supporting bar except during the shifting of boom position. It is not recommended that the boom should rest on the pressurized hydraulic cylinder during the operation of the equipment.

## 1.3 EQUIPMENT OPTIONS

The following are the options that can be built into the Welding Station at the time of purchase:

**Option A** — (For use with K-329 only)

A second LN-9F wire feeder and control mounted on

the right side of the mast and boom, and a K-317 Dual Process Kit and all connecting cables for both feeders welding with the same polarity. Prior to late 1986, Option A included a K-318 Dual Process Contactor Kit in place of the K-317 Dual Process Kit.

**Option B** — (For use with K-330 only)

A second LN-9F wire feeder and control mounted on the right side of the mast and boom. The K-196 input cables and either the K-318 Dual Process Contactor Kit or K-317 Dual Process Kit must be ordered separately.

**Option C** — 8 foot Boom length.

**Option D** — 14 foot Boom length.

**Option E** — (For use with K-329 only)

Safety disconnect switch for 230 volt input. When this option is ordered, the Station will be wired and fused for 230/5/50 or 60 hertz. The option uses a fused disconnect switch rated 200 amps, 600 volts. It is possible to re-fuse and reconnect the safety disconnect switch for other voltages in the field.

**Option F** — Continuous Flux Feed Tank (For use with K-329 only)

Includes a K-320 type flux tank, input air connection and hose to the tank input, all mounted on the platform. Also included is the tank to the gun flux feeding hose of proper length installed on the boom, and a tank filling funnel.

**Option G** — Flux Recovery Unit

Includes vacuum unit with hopper, mounting bracket, pickup hose for boom length ordered, and an on-off switch which is fastened to the pickup end of the hose. The unit requires 1.5 KVA of 115 volt AC, 50 or 60 hertz power. Included in this option is a screen with an air vibrator attached to it, so that the recovered flux can be processed for re-use.

**Option H** — 115 Volt 3 KVA AC Supply (For use with K-329 only)

This option supplies the power requirements of Option G when it is ordered with the K-329. Includes four (4) 3 KVA 115 volt AC, 50 or 60 hertz supply with two independently fused receptacles.

**Option K** — Linconditioner Smoke Exhaust (For use with K-329 only)

Exhaust unit K-184 (Option K), for use with Inner-shield Linconditioner Gun and Cables. Wired for easy connection to pre-wired receptacle mounted on the Station panel. Includes separate fused disconnect switch for protection of the Linconditioner unit.

**Options L and N** — Wire Reel Assembly (Pedestal mounted)

(Not required if Option O is ordered)

**Option L** — For left side wire feeder. Includes one wire reel for 50-60 lb coils mounted in a semi-enclosed shroud, a wire reel shaft, brake and a conductor sheath to guide the wire from the wire reel to the wire feeder, plus a hand crank which can be used to load one or more sheaths.

**Option N** — For the right side feeder, Options A or B and L must be ordered. Same as Option L — but less the hand crank.

**Option M** — DC-600 power source with meters (For K-329 only)

**Option O** — Wire Reel Assembly (Boom mounted)

Not required if Option L or L and N are ordered. Includes a wire reel for 50-60 lb coils, a wire reel mounting and brake to be mounted to the boom. If two wire feeders are being used, an Option O will have to be installed for each of the wire feeders.

**Option P** — Dual Procedure Equipment

Includes one installed K-319 type Dual Procedure Kit and a K-302 cable of proper length for the boom length ordered.

**Option Q** — Burnback Equipment

Includes one installed K-202 type burnback kit.

**Option R** — Shielding Gas Solenoid includes one input gas connector, one solenoid, hose to solenoid, and required control wires for the boom length ordered.

**Option SP** — Multi-Process Switch equipment (For use with K-329 only)

Includes one installed K-804 Multi-Process Switch.

**Option T** — An LN-9FH model can be used for right and/or left side mounted feeder.



# PART B — INSTALLATION, OPERATION AND MAINTENANCE

## 2. INSTALLATION

**IMPORTANT:** Neither the Welding Station nor the pedestal mounted boom are “free standing”; either unit must be anchored to the floor.

**WARNING:** Have qualified personnel do all installation, maintenance and troubleshooting work. Turn the input power off at the fuse box before working inside the machine.

### 2.1 FACILITY CONSIDERATIONS

Be sure you have the proper access, capacity, and/or connections for each of the items listed below:

- Power input line
- Air Input line (if required)
- Gas Input line (if required)
- Ceiling height
- Overhead cranes or power lines
- See dimension information — (See Sec. 5.2)

### 2.2 ASSEMBLY OF DISASSEMBLED K-329 AND ALL K-330 UNITS

The K-329 may arrive at its destination either as a complete unit or as a disassembled unit.

For a K-329 that arrives disassembled and all K-330 units, proceed per Installation Section 2.2.

For a K-329 shipped assembled, see Installation Section 2.3.

- 1) Uncrate the K-329 platform assembly (or the K-330 pedestal assembly) and locate it in its final operating location. The platform assembly can be easily moved with a fork lift truck.
- 2) Fasten the assembly to the floor per the following prints:  
For K-329 platform assembly S-16588-1. (See Sec. 5.2.)  
For K-330 pedestal assembly S-16588-2. (See Sec. 5.2.)
- 3) Move the crated mast-boom assembly to a point near the installed platform (or pedestal).
- 4) The mast-boom assembly is shipped in a folded up configuration. In order to install this unit over the pivot shaft, a means of lifting this assembly and moving it into position over the pivot shaft is required. The maximum weight of the assembly is approximately 730 lbs, and it must be lifted to a height of 8 feet, 3 inches as shown in Figure 1.

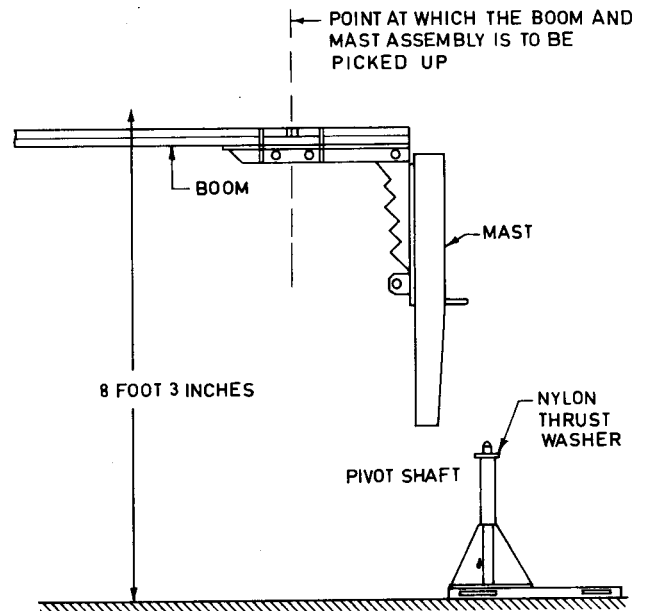


Figure 1

**WARNING:** The complete Lincoln Welding Station or, when used separately, the pedestal mounted Mast-Boom Assembly must be anchored to the floor. This equipment is not designed to be “free standing” or portable.

- 5) Remove the upper part of the mast-boom crate and attach a 1.00 inch rope sling at the pick up point. The wooden blocks with the “V” notches are banded to the boom so that the unit can be picked up at this point. Attach the rope sling as shown in Figure 2.

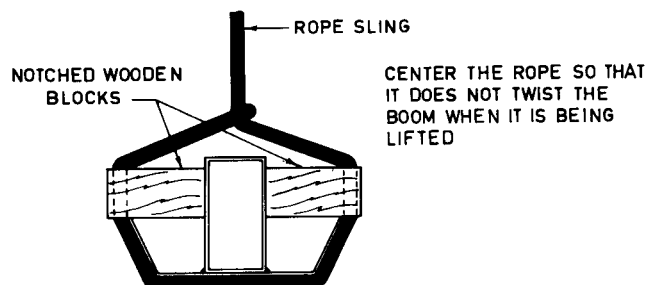


Figure 2

- 6) Raise the unit one foot or so, remove all crating and skids from the unit.
- 7) After all of the crating has been removed, raise the unit until the mast is hanging free and above the floor approximately one foot.
- 8) Remove the locking screws from one side of pivot pins A and B, and then remove both pivot pins from their respective holes. See Figure 3.
- 9) Remove the boom support bar which is taped to the boom in the upper cable raceway. Install the bar as shown, making sure the return spring is in the position shown and the tapped hole is facing to the left side of the assembly (when facing the LN-9F control box). After assembly of pivot pin "B", be certain to replace the cross locking bolt, lockwasher, and nut. Tighten securely.

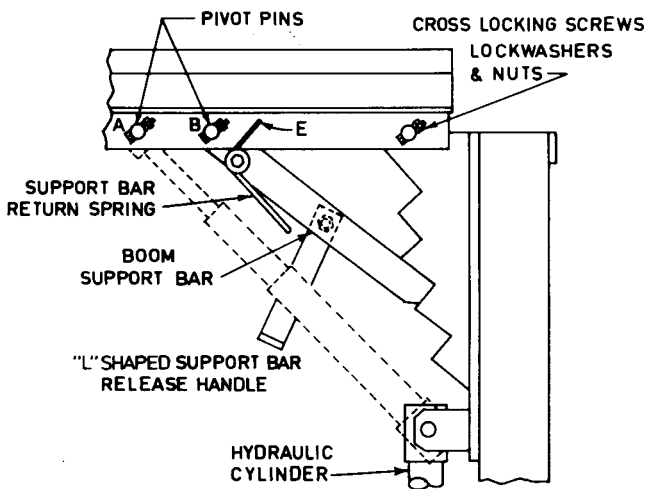
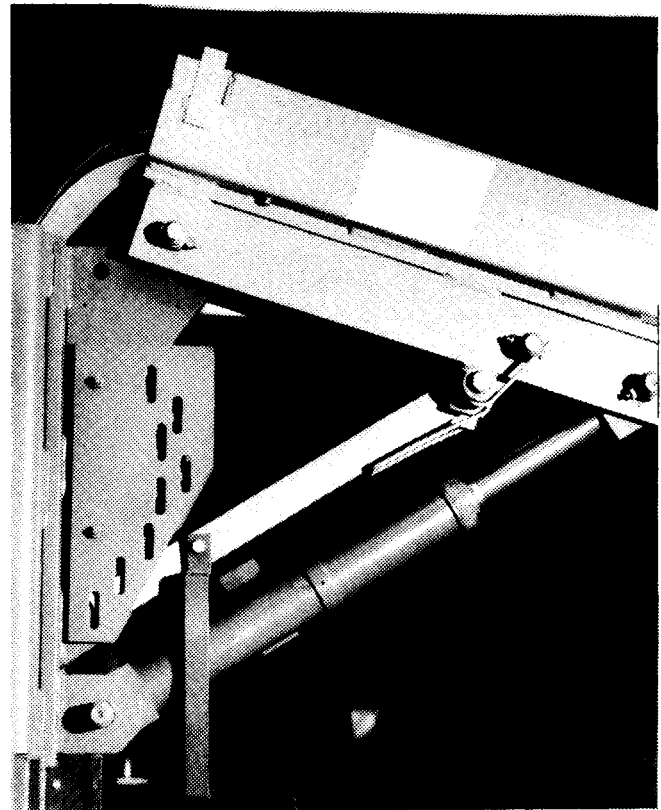


Figure 3

- 10) Standing on the right side of the mast-boom assembly and with the aid of a pair of pliers, grab the return spring at the point shown by E in Figure 3. Bend the spring counter clockwise until the end can be pushed over the left side of the pivot pin and into the locking slot in the pivot pin. Do the same on the other side except that the spring end has to be bent clockwise.
- 11) Push the bottom of the mast away from the boom until the boom support bar latches into the second step; this will set the boom and mast at a 90° position.
- 12) A) Swing the hydraulic cylinder and its upper mounting block up into position. Line up the holes and insert the pin A. Replace the cross locking screw, lockwasher, and nut. Tighten securely. (It may be necessary to use the hydraulic pump to raise or lower the cylinder block to get the holes to line up).



B) Fasten release handle to the boom support bar so that the "L" shaped portion of the handle is under the hydraulic cylinder. See Figure 3.

- 13) Remove the protective covering from the top of the pivot shaft which is mounted in the pedestal assembly. Make certain the nylon thrust washer is in its correct position on the top of the pivot pin. The shaft and thrust washer have been pre-lubricated and grease should appear on both sides of the thrust washer and on the outside diameter of the pivot pin. The lower end of the pivot shaft should have a layer of grease on the periphery in the area shown in Figure 4.

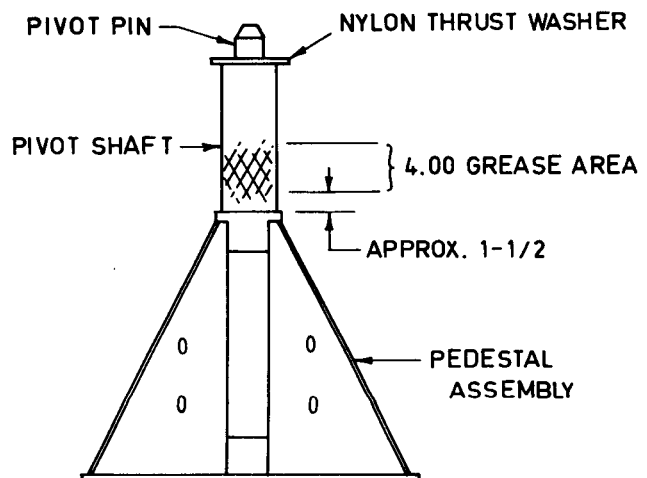


Figure 4

- 14) Lift the mast-boom assembly slightly off the floor and use the hydraulic pump to position the mast vertically (if necessary).
- 15) Lift the mast-boom assembly and **carefully** set it down over the pivot shaft until the pivot pin can be positioned in the pivot pin hole in the mast. Make certain the nylon thrust washer remains in place.
- 16) Remove rope sling and blocking from the boom.
- 17) Remove the solid pipe plug in the top surface of the hydraulic pump, replace it with the vented plug which is tied to it. Do not get any dirt into the pump reservoir.

CONTINUE INSTALLATION BY GOING TO SECTION 2.3.2.

## 2.3 INSTALLATION OF ASSEMBLED K-329 or K-330

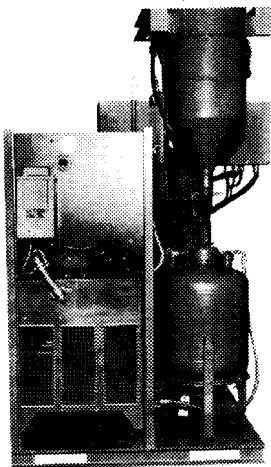
**WARNING:** Have qualified personnel do the installation maintenance, and troubleshooting work. Turn the input power off using the disconnect switch at the fuse box before working inside the machine.

### 2.3.1 Secure To Floor At Site

- 1) Using the fork lift truck, carefully move the entire unit to its designated position.
- 2) Prepare the mounting holes per S-16588-1. (See Sec 5.2.)
- 3) Place the unit into position and fasten it to the floor.
- 4) Remove the rotational stop clamp which is located at the lower end of the mast. Discard the clamp; its function was for shipping purposes only.

### 2.3.2 Flux Recovery Unit Assembly

If Option G Flux Recovery Unit has been ordered, assemble per the following:



- A) Uncrate and assemble the unit to the mast-boom assembly using the two 1/2" bolts, lockwashers, and nuts per Figure 5.
- B) Connect the short control lead from the vacuum unit to its mating connector on the control lead from the boom channel.
- C) Feed the input power lead for the vacuum unit down through the opening at the top of the mast and the "U" shaped cable support on the back of the mast assembly.
- D) Connect the flux recovery hose to the inlet on the flux recovery vacuum unit.

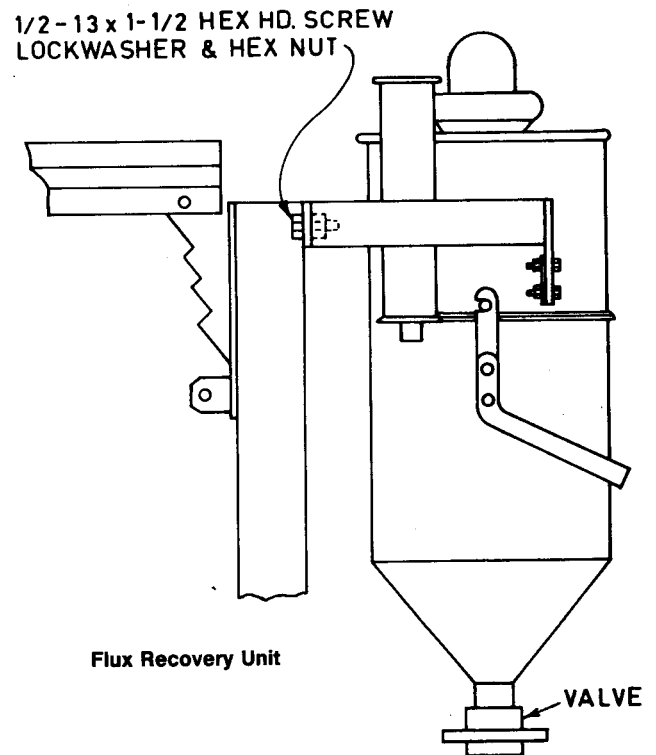


Figure 5

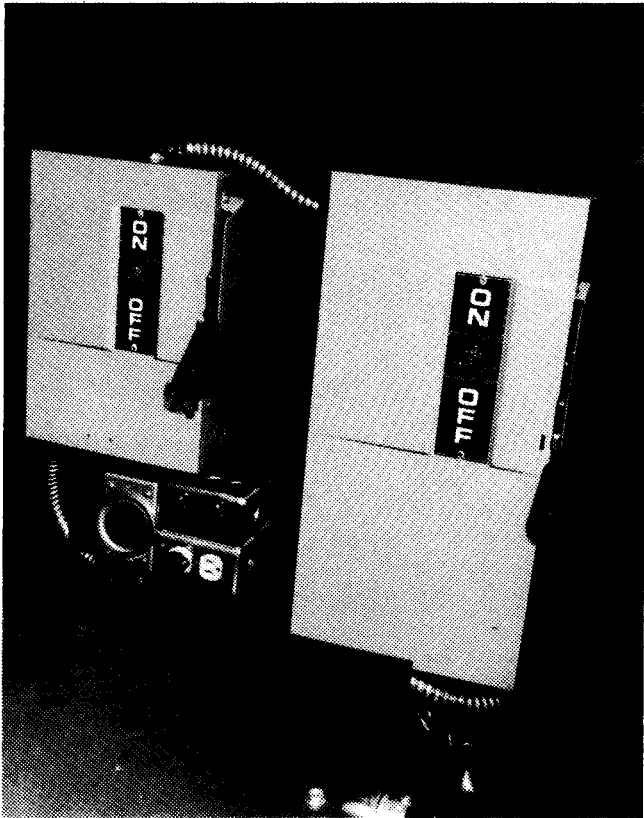
## 2.4 K-329 WELDING STATION

To complete the installation of the K-329 Welding Station, proceed as follows: (For the K-330 Welding Mast-Boom Assembly, see Section 2.5.)

**2.4.1 Mast-Boom Assembly Service Lines Connection**  
Connect the mast-boom assembly service lines to the platform as follows:

- 1) Bolt and tape the platform's electrode lead A to the mast electrode A. If equipped, do the same for electrode lead B. Leads are to be enclosed by "U" shaped bar.
- 2) Connect the platform's control cable amphenol marked A to the A LN-9F control box. If equipped, do the same for platform's control lead B. Leads are to be enclosed by "U" shaped bar.

- 3) If so equipped, plug the input power lead from the flux recovery unit into a 115 volt AC receptacle on the input panel assembly. String cord through support ring on welder. Allow slack for boom rotation.



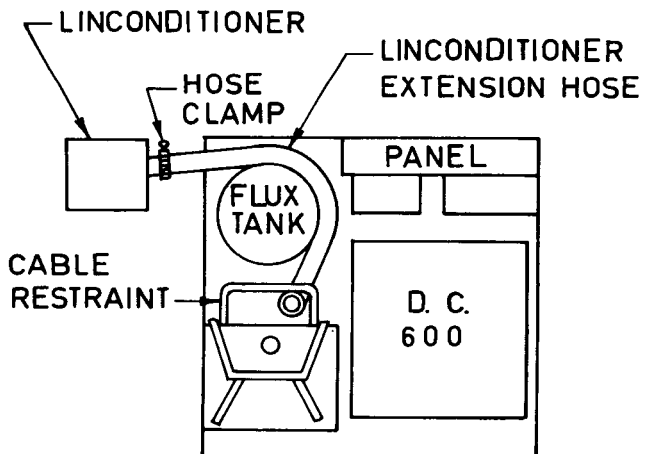
- 1) Have a qualified electrician connect 3 phase AC power which agrees with the voltage and frequency of the tag connected to the input panel. These connections must be in accordance with the National Electrical Code and all local codes.
- 2) A system grounding connection must be made to the grounding strap inside the disconnect panel. See the U.S. National Electrical Code for details on proper grounding methods.
- 3) If the Welding Station is equipped with a Smoke Exhaust unit, turn on the input power. Start the Smoke Exhaust unit and check its direction of rotation. If the rotation is wrong, interchange two of the 3 phase input leads to the Station.
- 4) If the Welding Station is equipped with a Continuous Flux Feed system, connect a source of 60 to 120 P.S.I. dry compressed air to the 1/4" pipe thread of the drop elbow on the lower left side of the input panel.
- 5) If the Welding Station is equipped with a gas solenoid, connect a pressure regulator(s) and a flow meter(s) to the 1/4" pipe thread of the drop elbow(s) on the upper left side of the input panel.

#### 2.4.3 Gun and Cable Connection

Install the desired gun(s) and cable(s) to the wire feeder(s).

- A) If using Lincoln smoke exhaust guns, the hose(s) can be located either in the boom tray(s) or through the I.D. of the boom tube. Set the Linconditioner(s) as shown in Figure 6 below.

- 4) If so equipped, connect the flux hose from the boom to the bottom of the flux tank using the hose clamp provided. The flux hose is to be confined by the "U" shaped bar. Allow excess to lay along side of welder toward welder front.
- 5) If so equipped, connect the shielding gas hose(s) to its connector(s) on the left side of the input panel assembly using the hose clamp(s) provided. String hose through "U" shaped bar on mast and through support ring on welder. Allow slack for boom rotation.
- 6) If so equipped, position the K-323 or K-184 Smoke Exhaust to the left side of the platform and plug its power cord into the receptacle on the input panel assembly. The short length of the 1-1/2" rubber hose supplied is to be connected to the steel tube on the Linconditioner unit. Use the hose clamp provided.



(TOP VIEW)

#### 2.4.2 Input Panel Connections

Connect the input service to the input panel assembly per the following:

Figure 6

Route the extension hose which is fastened to the Linconditioner around the flux tank (if used) and up through the "U" cable restraint and up the back side of the mast. Join the gun exhaust hose with the Linconditioner extension hose, fasten the gun hose securely with the hose clamp supplied.

- B) If the Weld Station is equipped with the gas solenoid option, install the desired gas gun(s) to the wire feeder(s). Connect the gun input gas to the output connection of the gas solenoid.
- C) If the Station is equipped with a continuous flux feeding system(s), the flux hose has been installed into the boom. Connect the hose to the gun end and clamp securely.
- D) If K-319 Dual Procedure Kit(s) are installed, mount the transfer switch to the gun(s) per the following Section 2.4.4.

#### 2.4.4 K-319 Dual Procedure Kit

##### A) Description

The dual procedure kit is a transfer device that enables an operator to choose one of two procedures with a selector switch that is attached to a semiautomatic gun handle. Simply changing the selector switch position will set the wire feed speed and voltage to the values chosen for each procedure. The unit can be used with an LN-9 or LN-9F wire feeder.

A small control box is attached to the wire feeder control box and is connected to the gun-mounted selector switch with a control cable. The switch can be attached to the side of the gun handle of a K-112, K-113, K-115, K-126, K-206, K-289, K-309, K-426, or K-427 gun and cable assembly. When used with an LN-9F unit, a K-302 (17 feet standard length) extension cable is required to extend the control cable to the LN-9F control box. The length required is the same length as the control box to the wire feeder cable.

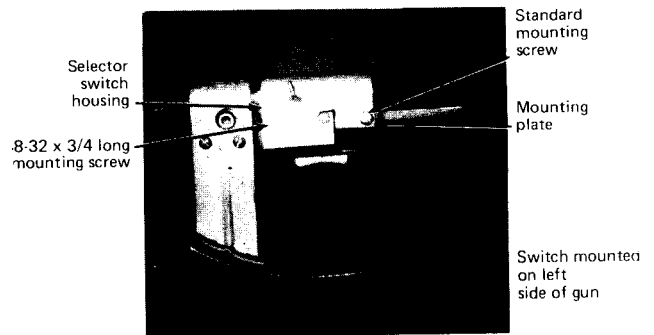
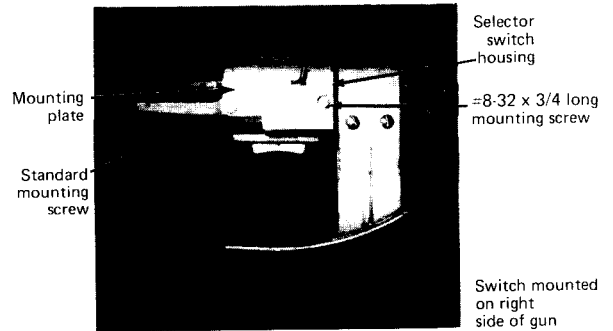
Maximum versatility is obtained when the wire feeder is connected to a DC-400 or DC-600 with solid-state remote field control. When used with a SAM or R3S power source, the voltage range between the two procedures required may be outside the range covered by the remote control. It would therefore be impossible to set the procedure without adjustment at the power source.

##### B) Installation of Gun-Mounted Selector Switch

###### 1. Innershield and Submerged Arc Guns

The selector switch can be mounted on either side of the gun handle. The unit is shipped for mounting on the left side of the gun and is best suited for operating the gun with the right hand. If required to mount switch on the right side of the gun, first remove the mounting plate from the switch housing and reassemble the mounting plate to the back side of the switch

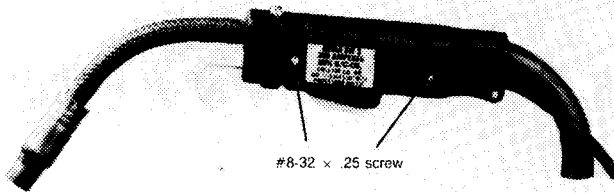
housing. To mount the unit on the gun, remove the two trigger mounting screws from side of gun trigger and fasten the gun, remove the two trigger mounting screws from side of gun trigger and fasten the selector switch to gun as shown on page 24. Use one of the standard screws and the #8-32 x 3/4 long screw provided as shown.



Tape selector switch control cable to gun cable is required. Check that the control cable is plugged into the dual procedure control box.

Remove the two handle screws shown below. Fasten the switch mounting plate, that is sent loose, to the gun handle using the #10-24 x 1.25 and #6-32 x 1.00 screws sent with the kit. The mounting plate can be mounted on either side of the gun handle.

Remove the switch mounting plate that is attached to the switch. Fasten the switch to the mounting plate that was added to gun handle using the #8-32 x .25 screw removed from the switch and an #8-32 x .25 screw sent with the kit.



### C) Operation

Set selector switch to position "1" and use "Procedure 1" dials on dual procedure kit to preset wire speed and voltage per standard LN-9 operation. Then set selector switch to position "2" and use "Procedure 2" dials on dual procedure kit to preset wire speed and voltage. Unit will now weld at settings for "Procedure 1" when switch is in position "1" or settings for "Procedure 2" when switch is in position "2".

## 2.4.5 K-317 Dual Process Kit

### A) Description

The Dual Process Kit is a transfer device that connects two wire feeders to a single power source and enables each wire feeder to weld at a different procedure without changing any dials. Simply actuating the circuit of the desired wire feeder turns the unit on and its controls set the complete procedure including the power source output level. When used with a DC-600, the wire feeders can be set for different modes — "CV Innershield" or "CV Submerged Arc". Both wire feeders will operate at the same polarity.

The unit is a small control box that mounts on the side of the power source and is connected to the welder terminal strip. Each wire feeder control cable is connected to the kit.

The electrode of the wire feeder not being used will be "hot" although, of course, there will be no wire feed. This usually is no problem since the unused gun or nozzle can be placed safely out of the way. If, however, it is desired to have the unused electrode "cold", use a K-318 Dual Process Contactor Kit connected for same polarity operation.

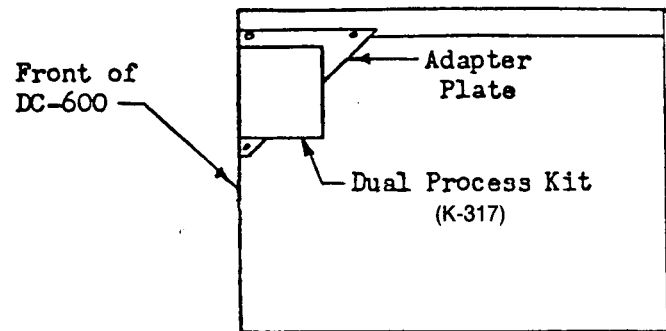
The Dual Process Kit consists of two transfer relays, two mode switches, and two terminal strips housed in a metal box. An adapter plate is fastened to the box so the unit can be mounted to a DC-600 using the side panel assembly screws. One relay connects the appropriate wire feeder output

control rheostat to the power source control circuit when the wire feeder circuit is energized. The other relay and mode switches set the power source control circuit for the required mode when the Kit is connected to a DC-600. The terminal strips are used to make the connections of both wire feeder control cables. The wiring diagram is M-13694 and the complete assembly is shown on M-13524.

### B) Installation

Refer to connection diagram M-13751 (supplied with kit) to connect the Dual Process Kit to the power source and LN-8 or LN-9 wire feeders.

On the DC-600, fasten the adapter plate of the Dual Process Kit to the control terminal side of the power source using two roof screws and one front panel screw.



On all other power sources, remove the adapter plate from the Kit and fasten Kit to the side of the power source or some convenient location so its control cable can be connected to the power source terminal strip. Use control box as a template to locate the four 5/32" diameter holes that must be drilled in the case side. Mount unit with the four #10 self-taping screws provided.

Remove cover from Kit and connect wire feeder control cables to the terminal strips in the Kit. Connect the Kit control cable to the power source terminal strip per the appropriate connection diagram. Replace cover on Kit and unit is ready to operate.

### C) Operation

For DC-600, set the mode switch on the front of the power source to "CV Innershield" and set the mode switches on the Dual Process Kit to the position required by the process used on the wire feeder. On all other power sources the mode switches have no effect.

To set procedures, weld with "A" wire feeder and set procedure with its control dials. Then weld with "B" wire feeder and set the procedure with

its control dials. Each unit will now weld at its required procedure when the gun trigger is actuated. **Do not weld with both units simultaneously** because the procedures will not be correct and the power source may be overloaded. Place unused gun so electrode does not touch work because both electrodes become electrically hot when either gun trigger is pulled.

#### 2.4.6 Work lead connection

##### A) For Welding Stations with one LN-9F:

If the electrode polarity is not to be negative, transfer electrode lead to mast from the negative terminal to the positive terminal of the DC-600. Connect a 3/0 work lead to the unused terminal and connect the other end to the work. Be sure the connections make tight metal to metal contact. Set LN-9F polarity switch to positive.

- B) Unit is shipped connected for "A" feeder and "B" feeder positive polarity. Both feeders must use same polarity, but if negative polarity is desired, transfer electrode lead to mast from the positive terminal to the negative terminal of the DC-600. Connect a 3/0 work lead to the unused terminal of the DC-600 and connect the other end to the work. Be sure the connections make tight metal to metal contact. Set both LN-9F polarity switches to negative.

#### 2.4.7 Number 21 lead connection

##### A) For Welding Stations with one LN-9F:

The number 21 lead of the control cable from the LN-9F to the DC-600 is not connected to the terminal strip. This lead is to be extended using a user-supplied #14 or larger insulated wire physically suitable for the installation and connected directly to the work piece, keeping it separate from the welding work lead circuit and connection.

##### B) For Welding Stations with two LN-9F's:

The number 21 lead of the control cable from the K-317 to the DC-600 is not connected to the terminal strip. This lead is to be extended using a user-supplied #14 or larger insulated wire physically suitable for the installation and connected directly to the work piece, keeping it separate from the welding work lead circuit and connection.

#### 2.4.8 Wire Reel Assembly Installation

If Option L, or L and N Wire Reel Assembly (Pedestal Mounted) have been ordered, assemble the wire reel mountings as follows:

- A) Option L reel for left hand wire feeder (Side A). Fasten the mounting bar with the two 1/2-13 x 2-1/2 hex head bolts, lockwashers, and nuts supplied as shown in Figure 7 below. Tighten the bolts securely.

The hand crank can be stored in the position shown when it is not in use.

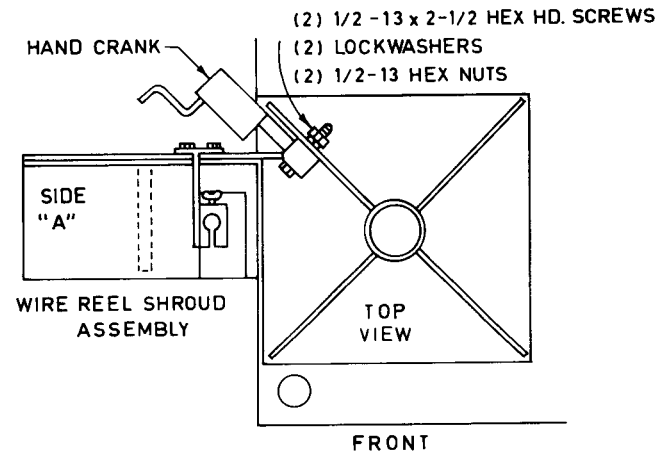


Figure 7

- B) Option N reel for right hand wire feeder (Side B). Fasten the mounting bar with the two 1/2-13 x 2-1/2 hex head bolts, lockwasher, and nuts supplied as shown in Figure 8 below. Tighten the bolts securely.

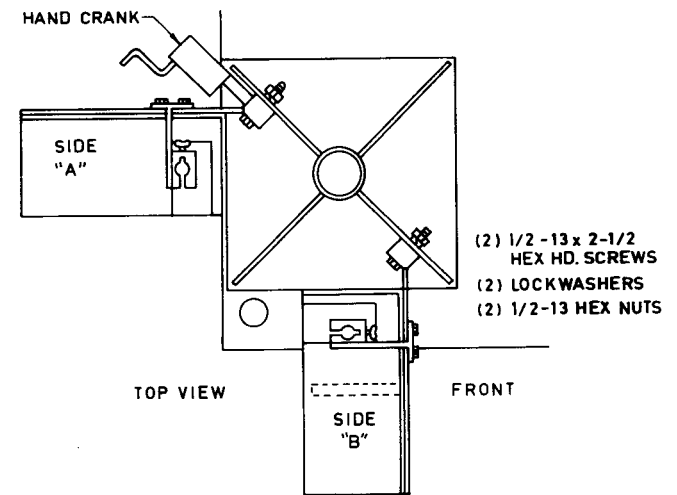


Figure 8

## 2.5 K-330 WELDING MAST-BOOM ASSEMBLY

To complete the installation of the K-330 Welding Mast-Boom Assembly, proceed as follows (for the K-329 Welding Station, see Section 2.4):

### 2.5.1 Connection of input service lines.

**IMPORTANT:** At the lower end of the rotating mast, allow enough slack in all cables and hoses to prevent any damage from occurring during mast rotation.

- Refer to LN-9 Operating Manual IM-294 for appropriate wiring diagram showing the connection of the LN-9 to the power source to be used.
- Wiring diagrams M-13847 (one LN-9) and M-13848 (two LN-9's) are shipped with the unit for wiring the boom.

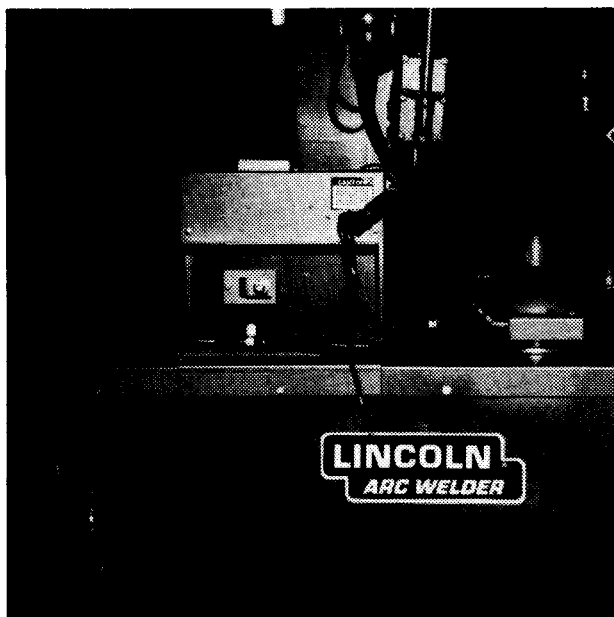
### 2.5.1-A Control leads to power source connections.

#### 1) **Boom with one or two wire feeders and a like number of power sources.**

At the welder, connect the K-196 control leads to the terminal strip per the proper diagram for the power source being used. These instructions are included in the LN-9 instruction manual IM-294.

#### 2) **Boom with two wire feeders and K-318 or K-317 Dual Process Kit.**

Install either K-318 Dual Process Contactor Kit or the K-317 Dual Process Kit to the power source per instructions supplied with the kit.



Connect each of the K-196 control cable leads to their respective terminal strips at the Dual Process Kit per the kit instructions.

### 2.5.1-B Electrode lead to power source connections.

#### 1) **Boom with one LN-9F.**

Connect the electrode lead of the K-196 cable assembly to the power source terminal choosing the polarity desired.

#### 2) **Boom with two LN-9Fs' and two power sources.** Connect the electrode lead of each K-196 cable assembly to their respective power source terminals.

**WARNING:** Both units should be operated on the same polarity. If on opposite polarity, the voltage between the two electrodes will be the sum of the open circuit voltage of each machine and can become a shock hazard.

#### 3) **Boom with two LN-9F's, one power source, and a K-318 Dual Process Contactor Kit.**

Connect the electrode leads per the proper K-318 connection diagram for either same polarity or opposite polarity operation.

#### 4) **Boom with two LN-9F's, one power source, and a K-317 Dual Process Kit.**

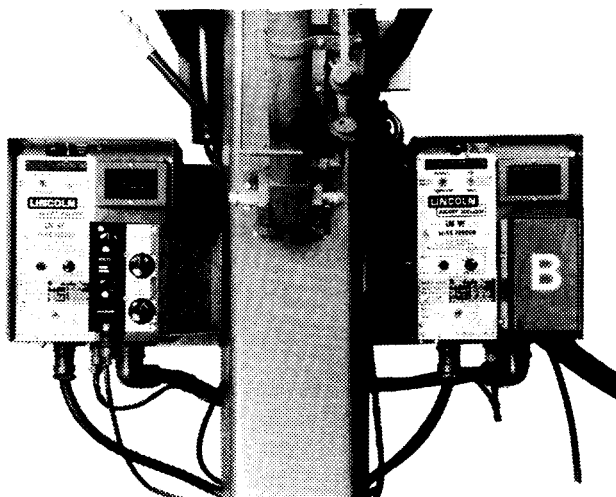
Connect the electrode leads per the proper K-317 connection diagram.

### 2.5.1-C Input Cable assembly connection to Mast-Boom Assembly.

#### 1) Pass the other end(s) of the K-196(s) cable assembly up through the "U" shaped cable retainer which is on the back side of the mast.

#### 2) Securely fasten and insulate the electrode lead of the cable assembly to the mast electrode lead tagged "Electrode A". If so equipped, do the same for "Electrode B" connection of the second cable assembly.

#### 3) Connect the K-196 control cable amphenol to the "A" amphenol of the LN-9 control box. If so equipped, connect amphenol of the second cable assembly to the "B" amphenol on the "B" LN-9F.



## 2.6 COMPONENT CONNECTIONS

### 2.6.1 Install the desired gun(s) and cable(s) to the wire feeders.

#### A) If using Lincoln smoke gun(s), route the exhaust hose(s) up along the gun cable and either through the I.D. of the rectangular tube or in the cable raceway on either side of the boom and then down the back side of the mast. Either the K-184 or K-179 Linconditioner smoke exhaust units may be used.



The Linconditioner(s) can be placed anywhere within a 10 foot radius from the mast. It is recommended that any hose extension that is required should be kept under 20 feet long. Extensions longer than 20 feet will greatly reduce the smoke removal capabilities of the Linconditioner unit. The user will have to supply the necessary length of extension hose and hardware to suit the installation. If the Linconditioner(s) is placed in close proximity to the mast, the following hose lengths are available: For 14' Boom, T-14399-3; for 11' Boom, T-14399-2; and for the 8' Boom, T-14399-1. A 20 foot length of hose is also available (S-14297-3) and this can be cut to suit the installation. A hose splicing tube (S-10153-49) and two hose clamps (S-10888-16) will also be required.

- B) If using Lincoln submerged arc gun(s) and cable(s) with a K-320 Continuous Flux Feed System(s), install the K-320(s) per IM-294. Use a flux hose(s) T-10642-82 and cut it to the required length for the installation. Connect the gun end(s) of the flux hose(s) with the hose clamp(s) supplied. Run the flux hose(s) up along the gun cable(s) and through the wire feed mounting channel, then along the cable raceway, down the back of the mast, through the "U" shaped cable restraint, and over to the bottom of the tank(s). Connect the hose(s) to the tank outlet using the hose clamp(s) supplied. After the flux tank is filled with flux, set the pressure regulator to 40 psi for 30 to 38 ft hose lengths.

Allow enough slack in the hose length so that there is no damage or kinking taking place when the boom is swung through its maximum rotation.

If the installation has a flux recovery unit mounted, the flux tank(s) can be placed so that they are approximately 20" from the mast pivot point. Recovery discharge will be directly over the flux tank fill funnel.

The use of a K-58 Magnetic Separator and a K-310 Screen with an air vibrator are recommended for the processing of recovered flux for re-use in the continuous flux feeding system.

If a "Flux Recovery Unit" is to be used, a fused (15 amp), 115 volt, single phase 50 or 60 hertz grounded type power supply (1.5 KVA) is required for the operation. Connect an extension from the supply to the input plug of the flux recovery unit. The cord should be run through the "U" cable restraint.

- C) If the boom is equipped with the gas solenoid(s) option, install the gas gun(s) and cable(s) to the wire feeders. Fasten the gun gas hose(s) to the output of the gas solenoid(s). The tagged "Shield Gas Hose(s)" should be run down the back of the mast and through the "U" cable restraint. The length

of hose supplied terminates approximately five feet from the mast. The end of the hose(s) should be connected to a regulated flow controlled shielding gas supply suitable for the welding application.

- D) K-319 Dual Procedure Kits are installed, mount the gun switches per instructions in Section 2.4.4.

#### 2.6.2 Work lead connection.

- A) **For unit with one LN-9F or when using two LN-9F's and the K-317 Dual Process Kit.**  
Connect a 3/0 work lead to the work terminal of the power source and the other end directly to the work piece.
- B) **For a boom unit with two LN-9F's (two power sources).**  
Connect a 3/0 work lead to each of the power source work terminals depending on polarity chosen. Connect the other ends directly to the work piece.
- C) **For a boom unit with two LN-9F's and one power source using a K-317 Dual Process Kit.**  
Connect a 3/0 work lead to the single terminal side of the K-317 Dual Process Kit and the other end directly to the work piece. Be sure to make tight metal to metal contact.

### 3. OPERATION

#### 3.1 POSITIONING OF THE BOOM

There are four positions for the boom:

- 18° down
- Horizontal
- 22° up
- 41° up

A hand operated hydraulic system is used to raise and lower the boom to the desired position. To move the boom to a higher position, close the valve on the pump assembly and operate the pump handle until the mast support bar snaps into the notch for the desired height. Then open the valve and allow the boom to lower until boom weight is on the mast support. The pump valve should then be closed.

To move the boom to a lower position, close the pump valve and operate the pump handle until the pressure is removed from the mast support bar. While pulling the mast support bar down with the release lever, open the pump valve. When the mast support bar has cleared the end of the notch just above the desired position, release the release lever so the safety bar can move into its proper position.

**CAUTION:** The boom should always be supported by the mast support bar except during the shifting of boom position. For longest life of the hydraulic system, it is not recommended that the boom should rest on the pressurized hydraulic cylinder during the operation of the equipment.

#### 3.2 OPERATION OF THE WELDING EQUIPMENT

See the respective operating manuals or instruction sheets for the LN-9F (IM-294), DC-600 (IM-306-A), and their optional features.

#### 3.3 WIRE REEL LOADING

##### 3.3.1 Boom mounted reels (Option O):

Left hand reel (A side) is loaded so wire pays off in a CLOCKWISE direction.

Right hand reel (B side) is loaded so wire pays off in a COUNTERCLOCKWISE direction.

##### 3.3.2 Pedestal mounted reels (Option L and N):

To load wire, proceed as follows:

- Side "A" — Load the wire onto the reel so that it pays off in a COUNTERCLOCKWISE direction. Cut all tie wires except the one which fastens the start end of the coil.
- Place loaded reel into its respective housing.

- Loosen the wing screw and remove the wire conductor sheath from its socket.
- Install the hand crank into the socket as shown in Figure 9, and tighten the wing screw.

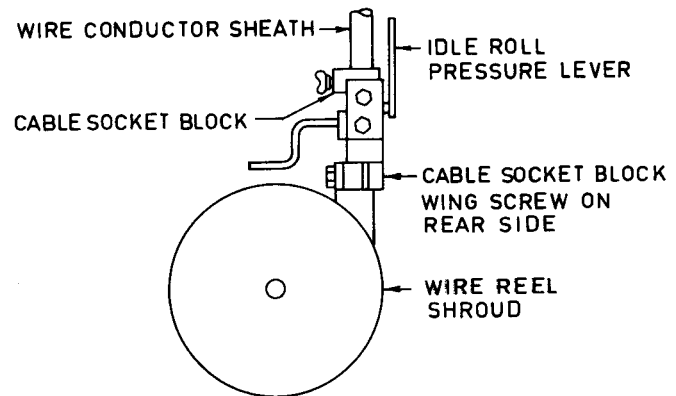


Figure 9

- Grasp the start end of the coil-cut and remove the last tie wire. Cut off any sharp bends or kinks that might be in the lead end of the coil. Straighten approximately the first ten inches of wire. Push the end of the wire up into the wire conductor sheath. Route the wire into the slots in the hand crank, slip the wire conductor brass connector into the socket of the hand crank, and tighten the wing screw.
- Make sure that the wire is lined up with the groove in the idle roll, and then with your left hand actuate the pressure lever that traps the wire between the rolls. Maintain the pressure on this lever and start cranking in a COUNTERCLOCKWISE direction to feed the wire into the sheath. Continue to feed wire until the wire hits the wire drive feed rolls and then actuate the gun trigger switch so that the wire drive unit will start feeding the wire.
- After the wire has started in the wire feeder, remove the hand crank from the system. Insert the wire conduit brass connector into its socket above the wire reel housing and tighten the wing screw.
- Inch the wire through the system.
- Side "B" — If a second wire feeder and "Option N" is being used, load in the same manner except place the coil on the reel to pay off in a CLOCKWISE manner.
- After the second side has been loaded, remove the hand crank from the system and store it in the socket provided for it.

#### 3.4 FLUX RECOVERY UNIT

The vacuum motor is turned on by pressing the trigger switch attached to the flux pickup hose.

## 4. MAINTENANCE

**WARNING:** Have qualified personnel do all installation, maintenance and troubleshooting work. Turn the input power off at the fuse box before working inside the machine.

### 4.1 POWER SOURCE, WIRE FEEDERS AND ACCESSORIES

**4.1.1 LN-9F Wire Feeders and Controls**  
See IM-294.

**4.1.2 DC-600 Power Source**  
See IM-291.

**4.1.3 Linconditioners**  
See IM-273 (K-184)

#### 4.1.4 Continuous Flux Feeding System

**NOTE:** Pressure regulator should be set to 40 psi for good flux feeding with 32 to 38 foot hoses used on Welding Station.

The only maintenance required on the flux feeding system is cleaning the water and sludge trap sump. Do every six months or whenever air no longer escapes from the coiled tube under the flux tank.

To clean: Turn off the incoming air and release the tank pressure; remove the coiled aluminum tubing from the bottom of the filter unit. Remove the pinched copper end piece from the end of the aluminum tube. Wash all the material out of the aluminum tube. Clean out the short pinched section; this should have a gap of between .005-.050 to allow a small amount of air to escape when the equipment is being used. If this end piece is badly corroded, replace it with a new end piece.

Loosen the collar on the 2-1/8 inch steel filter tube and take the filter tube off the machine. Wash out completely. Fit steel tube back into its bracket and attach the aluminum tube to its bottom. Fill steel tube to within two inches of the top with any clean Lincoln submerged arc welding flux.

Raise the steel tube into place and tighten the collar. When the air pressure is turned on again, part of the flux in the steel tube will be forced into the coiled tube. Be certain a small amount of air is escaping from the pinched end of the copper tube.

#### 4.1.5 Wire Reel Shafts

To prolong its life, periodically coat the reel shaft with a thin layer of grease. No maintenance on the brake assembly is required. If the brake shoe wears through the metal, replace the brake assembly.

### 4.2 MAST AND BOOM

- a) Every 30 days, add a few drops of a good grade machine oil (SAE 40) to the periphery of the stub pivot shaft.
- b) Every 30 days, smear the lower bearing surface of the mast pivot with a layer of grease (Lincoln E-2322). This can be done through the bottom open end of the mast.

### 4.3 HYDRAULIC SYSTEM

See manufacturer's information which is included as part of this literature package.

### 4.4 FLUX RECOVERY UNIT

- a) Check motor brushes after 100 hours; if brushes are 1/4" or shorter, replace.
- b) After every 200 to 300 pounds of flux have been recovered or when the suction is no longer great enough to pick up the flux, the filter bag should be cleaned.

To clean, proceed as follows:

- 1) Empty the flux pickup hopper.
- 2) Detach hopper from the suction unit. Discard all of the fused flux and foreign material which has been trapped by the screen.
- 3) The fine dust that has gathered on the filter bag will have to be removed. To prevent this fine dust from falling on the man and equipment, it is recommended that a large opening plastic bag (one similar to a refuse bag) be placed over the bottom opening of the suction canister. With one hand holding the plastic bag tightly sealed around the bottom opening, use the other hand to push the remainder of the plastic bag up into the suction chamber far enough so that the bottom of the cloth filter bag can be grasped. Holding the bottoms of the two bags securely, shake up and down and side to side vigorously. This action will dislodge the dust from the cloth filter bag and deposit it into the plastic bag. Remove the plastic bag from the unit. If additional cleaning is required, a 2" wide bristle paint brush can be used to brush the upper portions of the filter bag free of the fine particles.
- 4) Re-assemble unit.

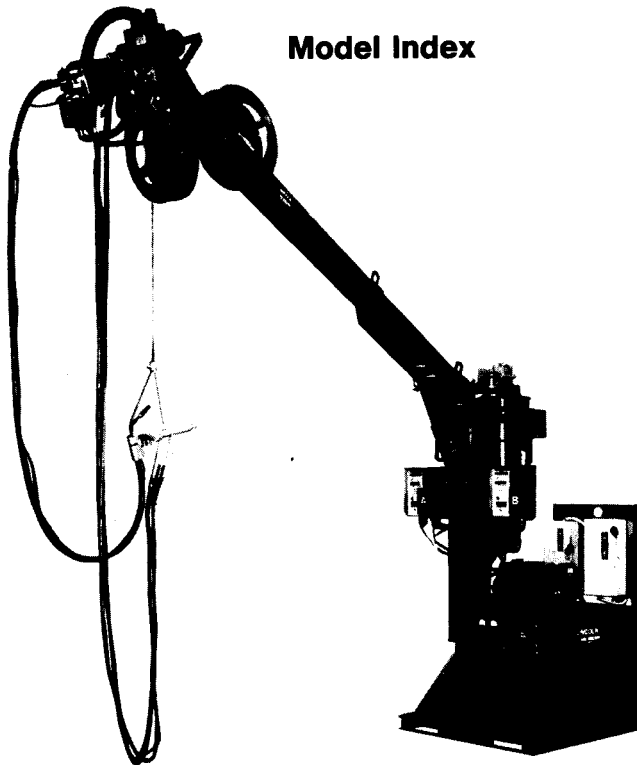


## 5. REPLACEMENT PARTS AND DIAGRAMS

### 5.1 REPLACEMENT PARTS

#### 5.1.1

### K-329 WELDING STATION AND K-330 WELDING MAST-BOOM



Model Index

This parts list covers machines thru Code 9097. For Codes above 9097 contact the Service Department.

#### Basic Welding Station and Mast-Boom Components:

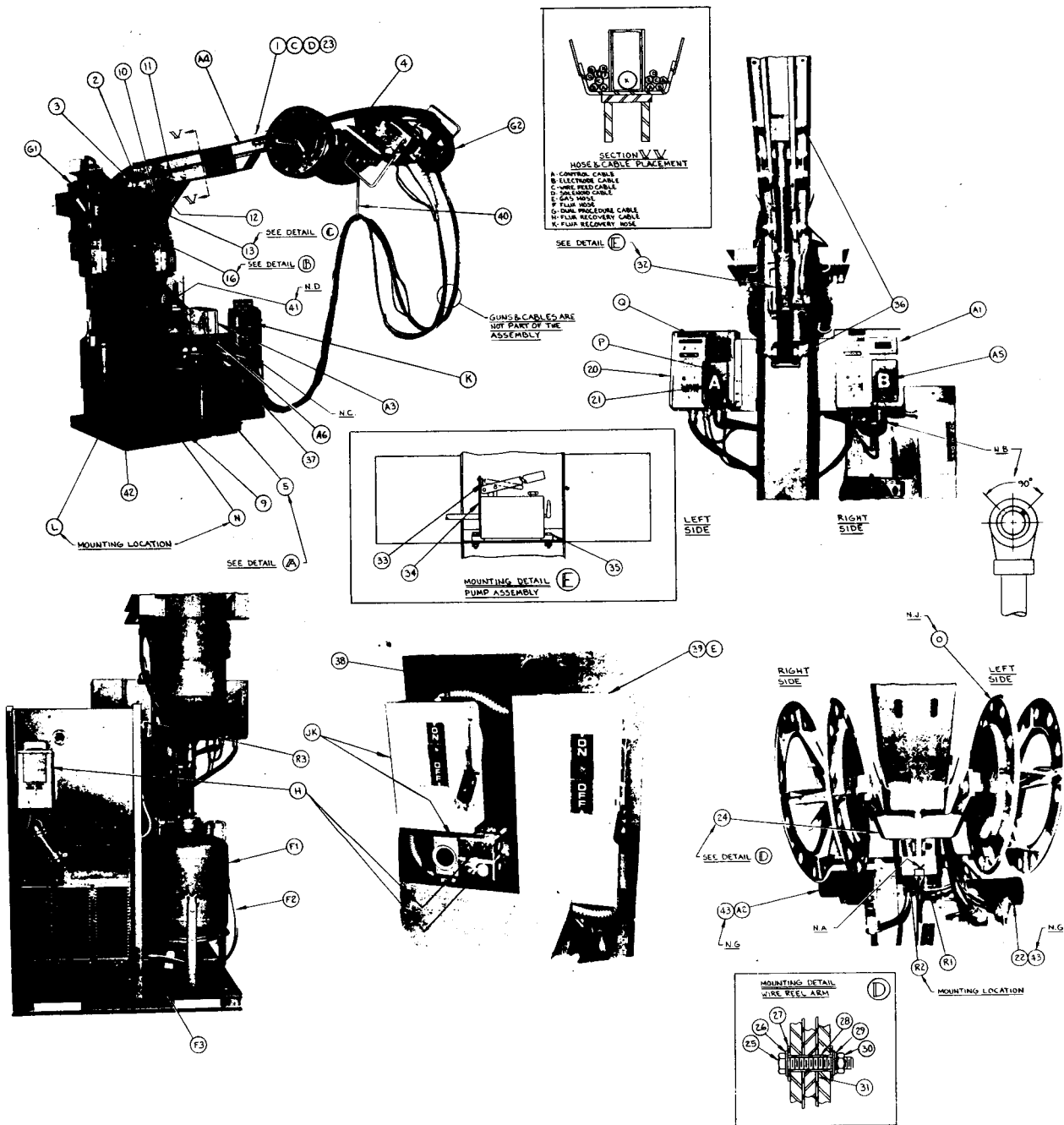
#### Parts List No.

K-329 Welding Station Assembly & K-330 Welding Mast-Boom Assembly . . . .	P-133-C
LN-9F or 9FH Squirt Welder . . . . .	P-127
Idealarc DC-600 Power Source . . . . .	P-126
Squirtgun and Cable Assemblies . . . . .	See P-103 Series

#### Miscellaneous Options:

K-329 Optional Disconnect Switch . . . . .	P-133-C	
K-329 Continuous Flux Feed Tank . . . . .	P-107-S and P-133-C	
Flux Recovery Unit . . . . .	P-133-E	
115 Volt AC Power Supply for Flux Recovery Unit . . . . .	P-133-C	
Linconditioner K-184-B (Option K) . . . . .	P-112	
Linconditioner K-323 (Option J) (Obsolete) . . . . .	P-134	
Wire Reel Assembly (Pedestal Mount) . . . . .	P-133-H	
Wire Reel Assembly (Boom Mount) . . . . .	P-133-C	
Dual Process Kit (K-317) . . . . .	P-127-L	#
Dual Process Contactor Kit (K-318) . . . . .	P-127-M	#
Dual Procedure Kit (K-319) . . . . .	P-127-N	#
Burn Back Kit . . . . .	Order K-202	
Shielding Gas Solenoid . . . . .	P-133-C	

# K-329 WELDING STATION ASSEMBLY & K-330 WELDING MAST-BOOM ASSEMBLY



## PARTS LIST P-133-C

ITEM	PART NAME & DESCRIPTION	NO. REQ'D
1	Boom Assembly (Std. - 11 Foot) (See Items C & D for Other Lengths)	1
2	Pivot Pin Hex Head Screw Lock Washer	1 2 2
3	Hex Nut	2
4	Cable Protector	1
	Round Head Screw	4
	Plain Washer	4
	Lock Washer	4
5	Hex Nut	4
6	Mast and Pivot Assembly	1
	Thrust Washer	1
7	Pivot	1
8	Pivot Locking Screw	2
9	Base Welded Assembly	1
10	Safety Latch Assembly	1
11	Pivot Pin	1
	Hex Head Screw	2
	Lock Washer	2
	Hex Nut	2
12	Latch Spring	1
	Spacer	2
	Hex Head Screw	2
	Lock Washer	2
13	Plain Washer	2
14	Safety Latch Shield	2
	Spacer	2
15	Hex Head Screw	2
	Lock Washer	2
	Hex Nut	2
16	Latch Release Handle	1
17	Hex Head Screw	1
18	Hex Nut	1
19	Lock Washer	1
20	LN-9F Control Box	1
	Hex Head Screw	3
	Lock Washer	3
	Hex Nut	3
21	Decal	1
22	Wire Feed Unit (LN-9F)	1
	Hex Head Screw	3
	Lock Washer	3
23	Hex Nut	3
24	Control Cable	1
	Wire Reel Mounting Arm (For Boom Mounted Reels Only)	1 or 2
25	Hex Head Screw	2
26	Plain Washer	4
27	Insulating Washer	4
28	Insulating Tube	2
29	Lock Washer	2
30	Hex Nut	2
31	Insulation	2
32	Hydraulic Cylinder and Pump	
	Assembly, Includes: Cylinder	1
	Flow Control Valve	1
	Pump	1
	Hose Assembly	1
	Cylinder Extension	1
33	Mounting Block	2
	Pump Handle Spring	1
34	Spring Mounting Plate	1

ITEM	PART NAME & DESCRIPTION	NO. REQ'D
35	Hex Head Screw Lock Washer	4 4
36	Hex Nut Pivot Pin Hex Head Screw	4 2 4
	Lock Washer	4
37	Hex Nut Idealarc DC-600 Power Source	4 1
	Hex Head Screw	4
	Lock Washer	4
	Hex Nut	4
38	Nameplate (K-329 Only)	1
39	Self Tapping Screw Disconnect Switch (100 amp) (See Item E for Optional 200A Box)	2
	Fuse	3
40	Gun Hanger and Rope	1
41	Contactor Kit Mounting Bracket	1
42	Hold Down Washers	4 or 8
43	Incoming Wire Guide (Replaces Standard Guide) Includes: Guide Sheath	1 or 2 1 or 2 1 or 2
	Clamp	1 or 2
	<b>Parts Not Illustrated</b>	
	Decal - Right Side of Power Source	1
	Pedestal Base Plate	1
	Nameplate (K-330 Only) (Mounts to Boom Pivot)	1
	Drive Screw - Nameplate Mounting	2
A1 or B1	LN-9F Control Box Hex Head Screw	1 3
	Plain Washer Lock Washer Hex Nut	6 3 3
A2 or B2	LN-9F Wire Feed Unit	1
A3	Dual Process Contactor Kit	1
A4 or B4	Control Cable	1
A5 or B5	Decal	1
C	Boom Assembly (Optional 8 Foot Boom) (Replaces Item 1)	1
D	Boom Assembly (Optional 14 Foot Boom) (Replaces Item 1)	1
E	200 Amp Disconnect Switch (Replaces Item 39) Includes: Fuses	1 3
F1	Flux Tank Assembly, Includes: Flux Tank Parts Mounting Bracket Hex Head Screw	1 3 3
	Lock Washer Hex Nut	3 3
F2	Flux Tank Air Hose	1

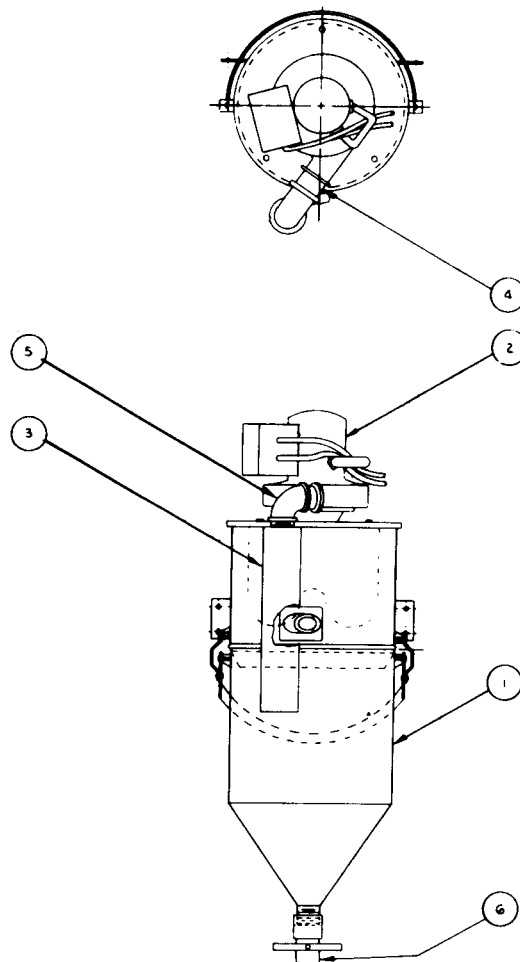
**PARTS LIST P-133-C**

<b>ITEM</b>	<b>PART NAME &amp; DESCRIPTION</b>	<b>NO. REQ'D</b>
F3	Air Input Assembly Round Head Screw	1 2
	Lock Washer Hex Nut Flux Funnel (Not Illustrated)	2 2 1
G1	Flux Recovery Unit Flux Recovery Unit Parts Unit Mounting Bracket	1 1
	Hex Head Screw Plain Washer Lock Washer	2 2 2
G2	Hex Nut Flux Recovery Hose Includes: Control Cable Assembly	2 1 1
	Flux Hose - Band 11 Foot Boom Flux Hose - 14 Foot Boom Flux Hose Metal End Tube	1 1 1
	Switch Clamp and Hanger Flux Screen with Vibrator, Includes: (Not Illustrated)	1 1
H	Vibrator Flux Funnel 115V A.C. Supply, Includes:	1 1 1
	Transformer Receptacle Fuse Holder	1 1 3
	Fuse (For Receptacles) Fuse (For Transformer) (100 Amp) Fuse (For Transformer) (200 Amp)	2 1 1
J K JK	K-323 Linconditioner K-184-B Linconditioner Switch and Receptacle, Includes:	1 or 2 1 or 2 1
	Disconnect Switch Fuses Receptacle	1 3 1 or 2
L and N O	Exhaust Hose Assembly Wire Reel Assembly (Pedestal Mount) Wire Reel Shaft Assembly, Includes:	1 or 2 1 or 2 1 or 2
P	Wire Reel Shaft Parts Wire Reel K-319 Dual Procedure Kit	1 or 2 1 or 2
Q R1 R2	Burnback Kit Left Gas Valve Assembly Right Gas Valve Assembly	1 or 2 1 1
R3	Gas Valve Control Cable Gas Inlet Assembly Gas Hose	1 or 2 1 or 2 1 or 2



5.1.2

**FLUX RECOVERY UNIT**



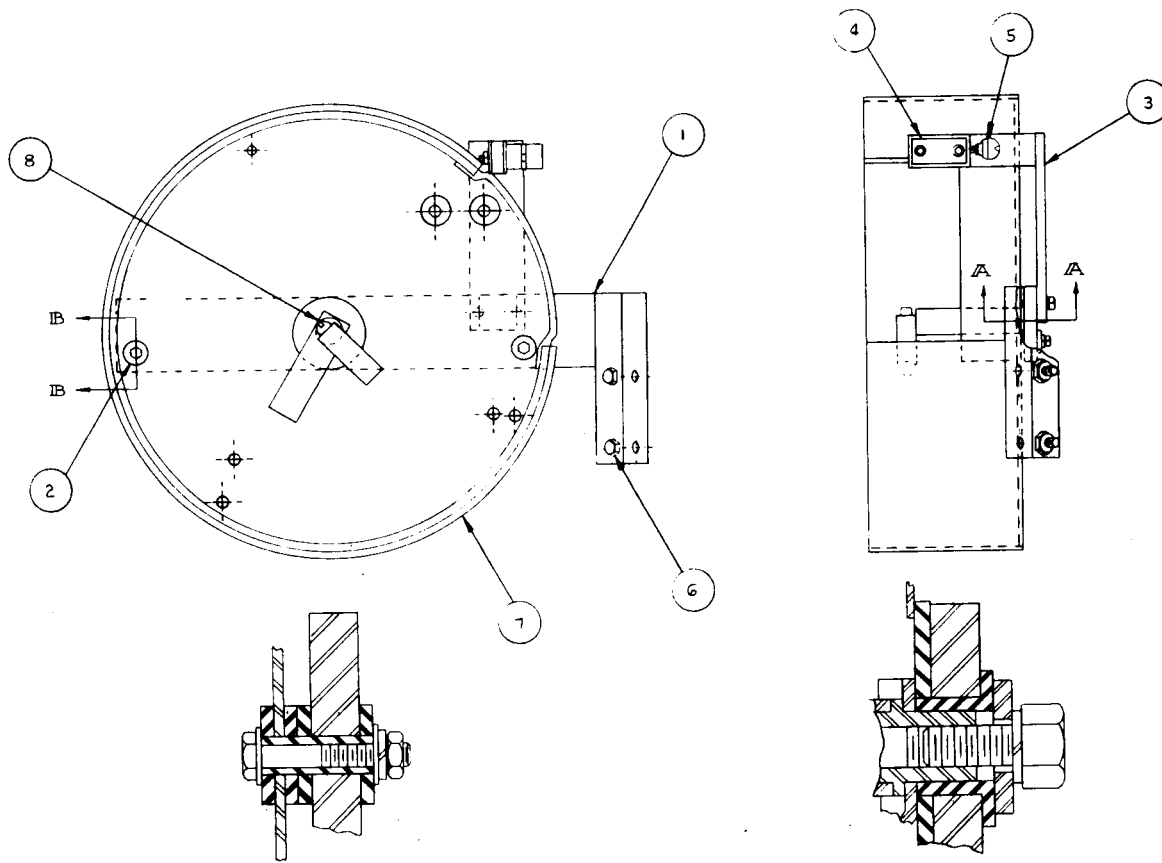
L-6159  
 9-21-79Q

**PARTS LIST P-133-E**

ITEM	PART NAME & DESCRIPTION	NO. REQ'D
1	Canister	1
2	Motor	1
3	Muffler	1
4	Coupling	1
5	Elbow	1
6	Flux Valve	1

1-13-82

# WIRE REEL ASSEMBLY (PEDESTAL MOUNT)



M-13841-1  
3-16-79

SECTION B B

SECTION A A

**PARTS LIST P-133-H**

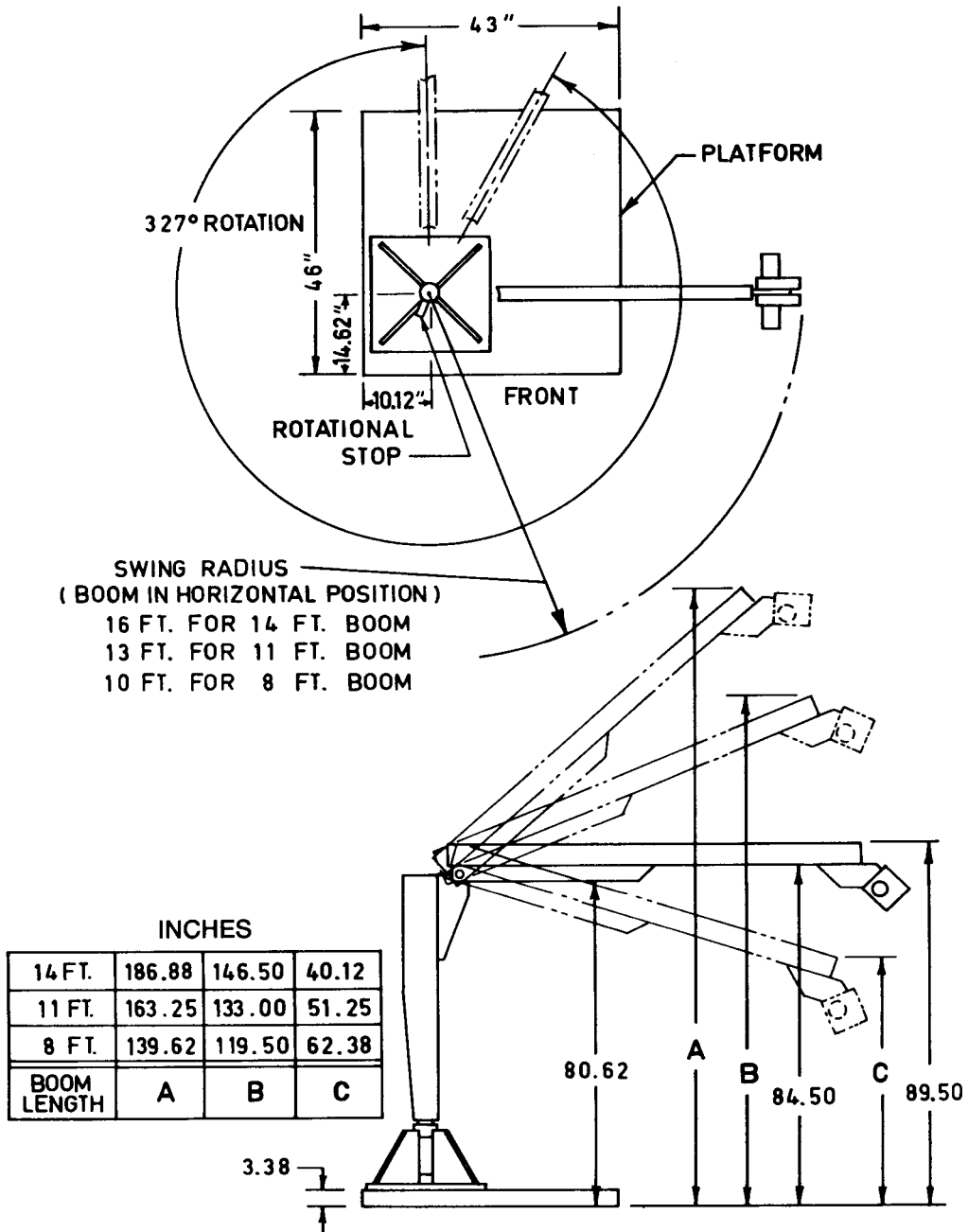
ITEM	PART NAME & DESCRIPTION	NO. REQ'D
	Pedestal Mount Wire Reel Assembly - Left Side, Includes:	1
1	Pedestal Mount Wire Reel Assembly - Right Side, Includes: Wire Reel Bracket Assembly	1 1
2	Hex Head Screw Insulating Tube Insulating Washer	2 2 8
	Plain Washer Lock Washer Hex Nut	4 2 2
3	Guide Block Mounting Assembly Hex Head Screw Lock Washer	1 2 2
4	Guide Block Socket Head Screw Insulating Tube	1 2 2

ITEM	PART NAME & DESCRIPTION	NO. REQ'D
	Insulating Plate Plain Washer	2 2
5	Lock Washer Hex Nut Thumb Screw	2 2 1
6	Hex Head Screw Lock Washer Hex Nut	2 2 2
7	Wire Reel Housing - Left Side	1
7	Wire Reel Housing - Right Side	1
8	Wire Reel Shaft Assembly, Includes:	1
	Wire Reel Shaft Parts	
	<b>Parts Not Illustrated:</b>	
	Wire Reel Conductor Cable Hand Crank	1 or 2 1 or 2 1

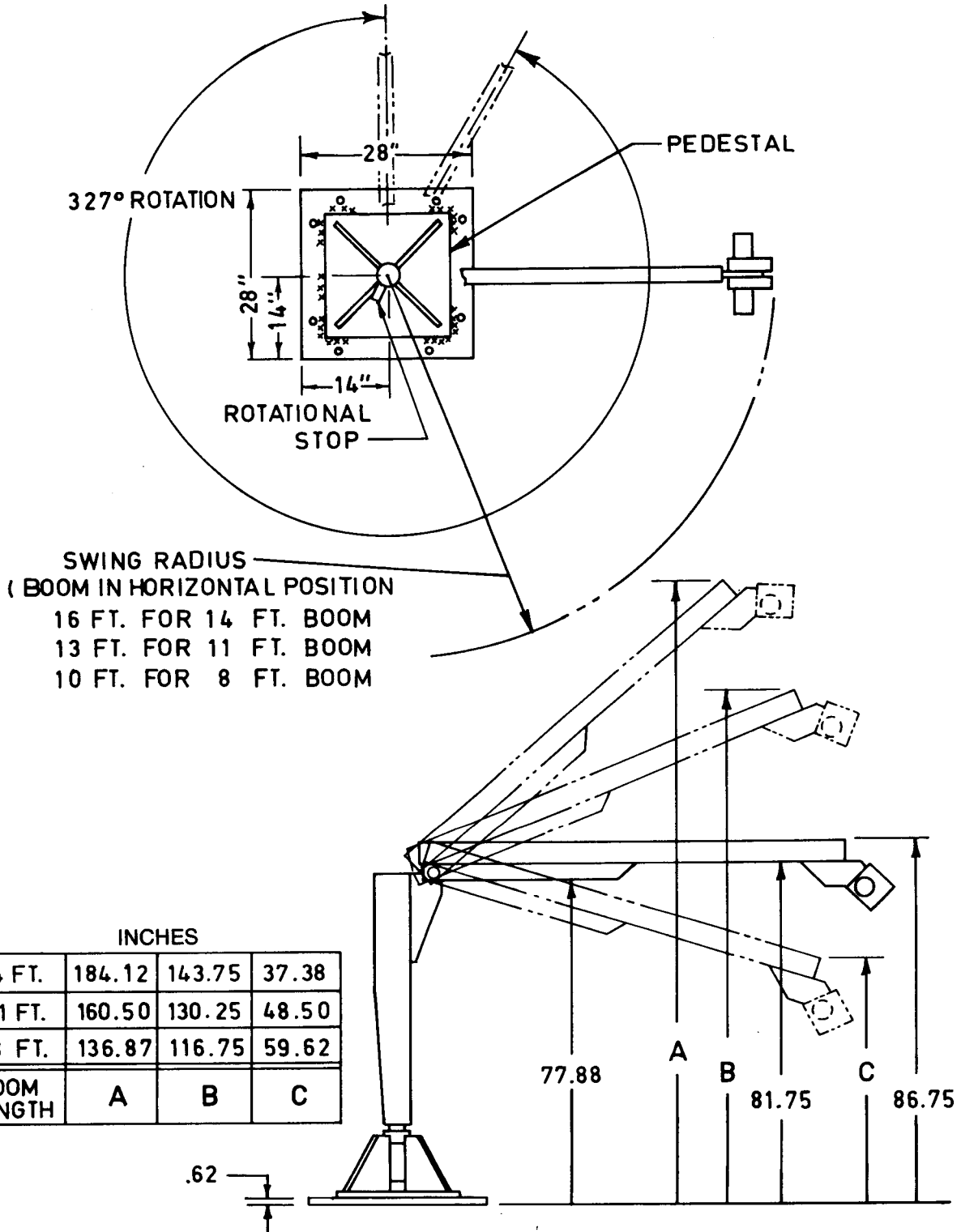
## 5.2 DIMENSION DIAGRAMS

### 5.2.2

### K-329 WELDING PLATFORM RANGE OF MOTION

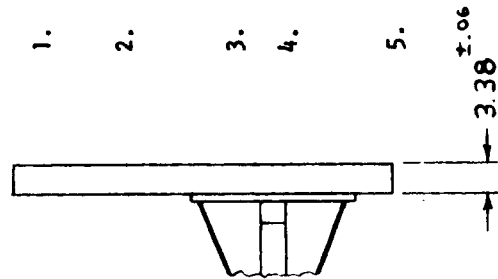
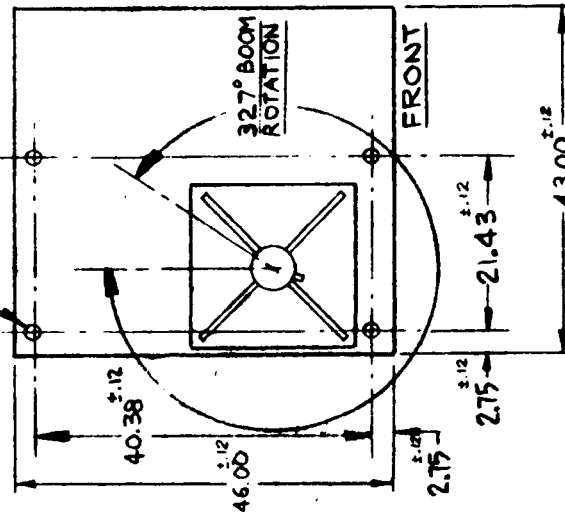


### K-330 MAST-BOOM ASSEMBLY RANGE OF MOTION



# WELDING STATION PLATFORM INSTALLATION SPECIFICATIONS

Four 2.00 Dia. mounting holes for lagging platform to floor.

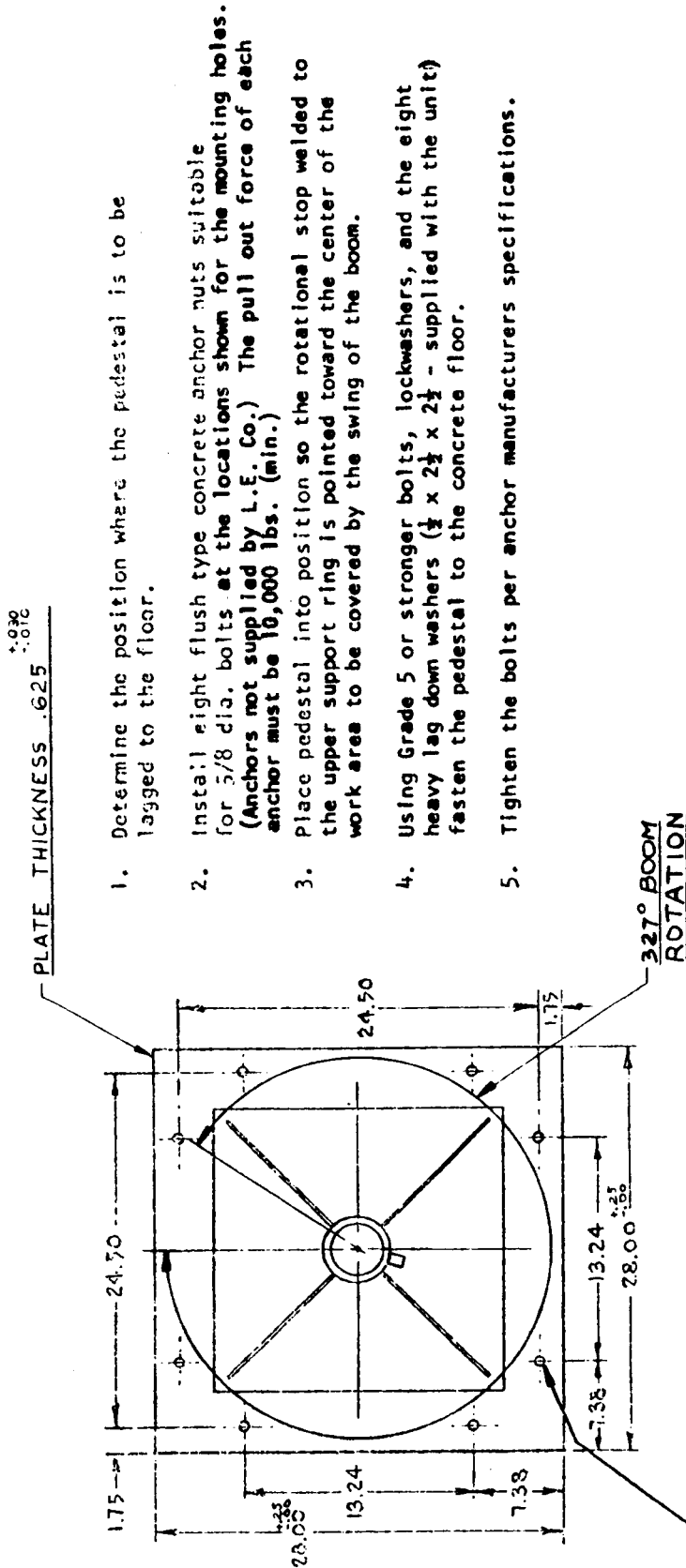


1. Determine the position where the platform is to be lagged to the floor.
2. Install four flush type concrete anchor nuts suitable for 5/8 dia. bolts at the locations shown for the mounting holes. (Anchors not supplied by E. Co.) The pull out force of each anchor must be 10,000 lbs. (min.)
3. Place platform into position.
4. Using Grade 5 or stronger bolts, lockwashers, and the four heavy lag down washers (1/2 x 2 1/2 - supplied with the unit) fasten the platform to the concrete floor.
5. Tighten the bolts per anchor manufacturers specifications.

**WARNING:** The Lincoln Welding Station is not designed to be "free standing" or portable, its platform must be anchored to the floor.

## WELDING MAST-BOOM ASSEMBLY PEDESTAL INSTALLATION SPECIFICATIONS

S-16588-2  
4-18-80E



1. Determine the position where the pedestal is to be lagged to the floor.
2. Install eight flush type concrete anchor nuts suitable for 5/8 dia. bolts at the locations shown for the mounting holes. (Anchors not supplied by L.E. Co.) The pull out force of each anchor must be 10,000 lbs. (min.)
3. Place pedestal into position so the rotational stop welded to the upper support ring is pointed toward the center of the work area to be covered by the swing of the boom.
4. Using Grade 5 or stronger bolts, lockwashers, and the eight heavy lag down washers ( $\frac{1}{2}$  x  $2\frac{1}{2}$  x  $2\frac{1}{2}$  - supplied with the unit) fasten the pedestal to the concrete floor.
5. Tighten the bolts per anchor manufacturers specifications.

**WARNING:** The Mast Boom Assembly is not designed to be "Free standing" or portable. Its pedestal must be anchored to the floor.

## 5.3 WIRING DIAGRAMS

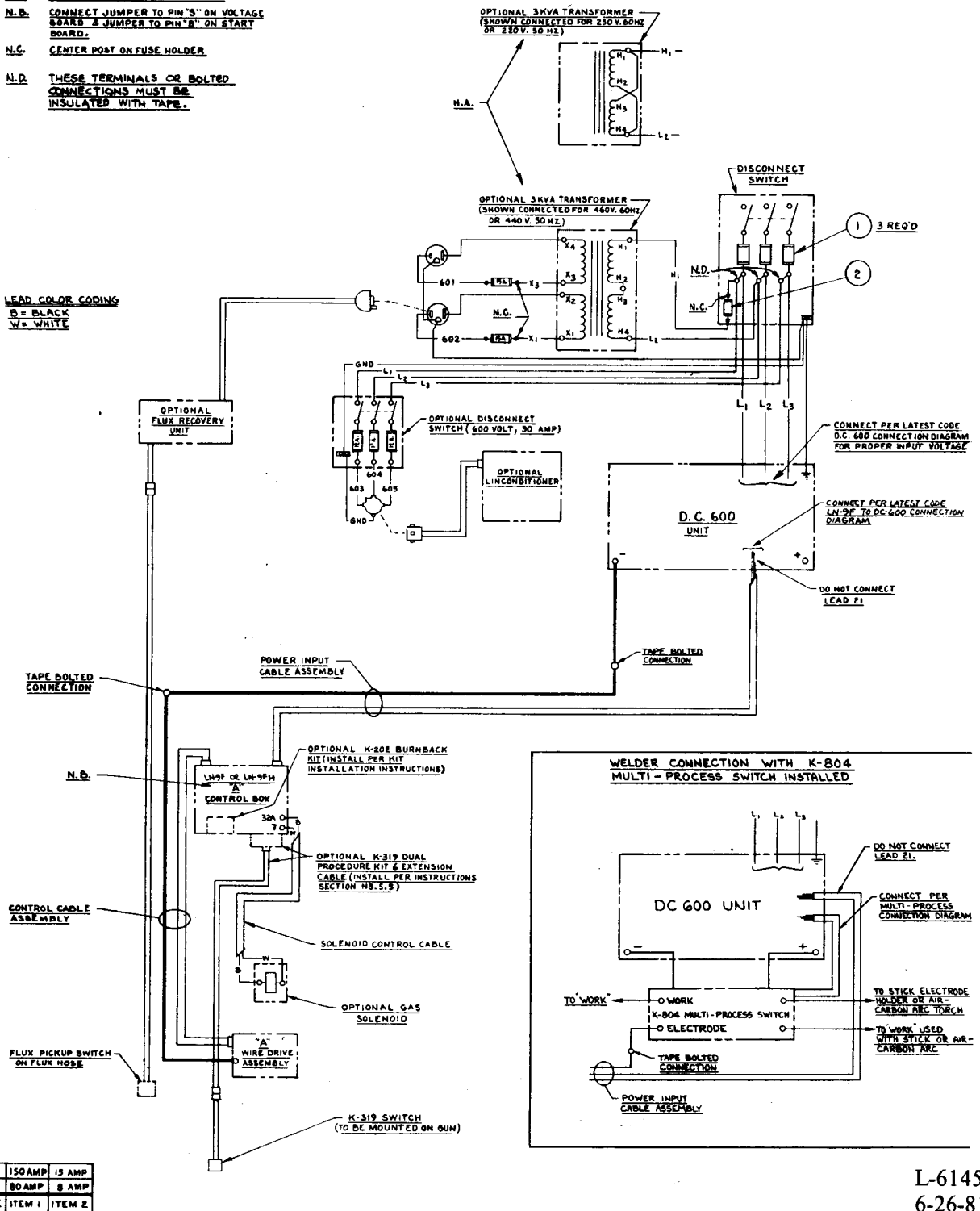
### 5.3.1

# WELDING STATION WIRING DIAGRAM 460 OR 230 VOLT INPUT AND ONE WIRE FEEDER

**NOTES:**

- N.A. SEE TABLE FOR PROPER FUSES.
- N.B. CONNECT JUMPER TO PIN "S" ON VOLTAGE BOARD & JUMPER TO PIN "B" ON START BOARD.
- N.C. CENTER POST ON FUSE HOLDER.
- N.D. THESE TERMINALS OR BOLTED CONNECTIONS MUST BE INSULATED WITH TAPE.

**LEAD COLOR CODING**  
B = BLACK  
W = WHITE



L-6145  
6-26-81N

**NOTE:** This diagram is for reference only. It is not accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the

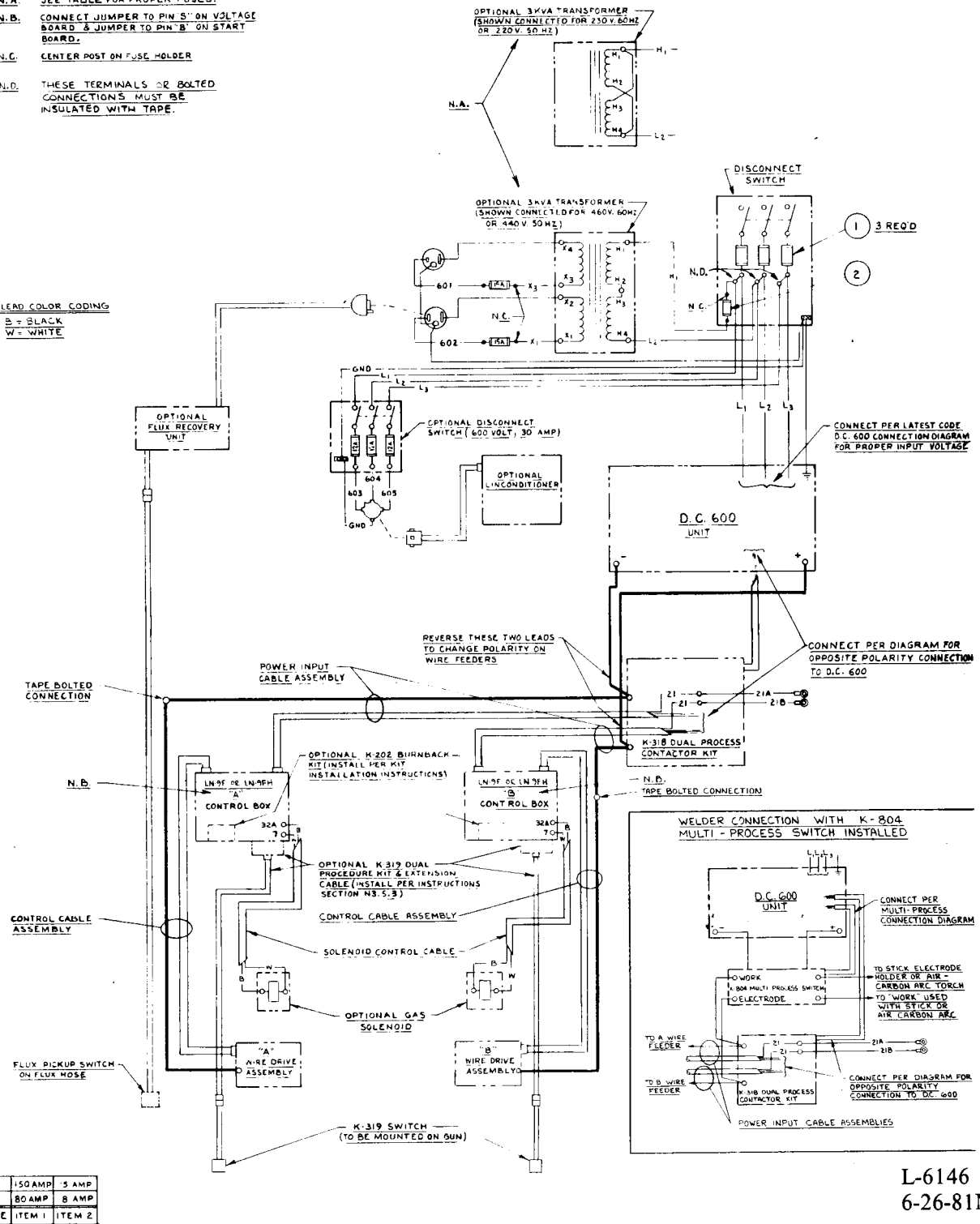
enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the welder code number.

# WELDING STATION WIRING DIAGRAM 460 OR 230 VOLT INPUT AND TWO WIRE FEEDERS

**NOTES:**

- N.A. SEE TABLE FOR PROPER FUSES.
- N.B. CONNECT JUMPER TO PIN 'S' ON VOLTAGE BOARD & JUMPER TO PIN 'B' ON START BOARD.
- N.C. CENTER POST ON FUSE HOLDER
- N.D. THESE TERMINALS OR BOLTED CONNECTIONS MUST BE INSULATED WITH TAPE.

LEAD COLOR CODING  
B = BLACK  
W = WHITE



230 V	150 AMP	3 AMP
460 V	80 AMP	8 AMP
VOLTAGE	ITEM 1	ITEM 2

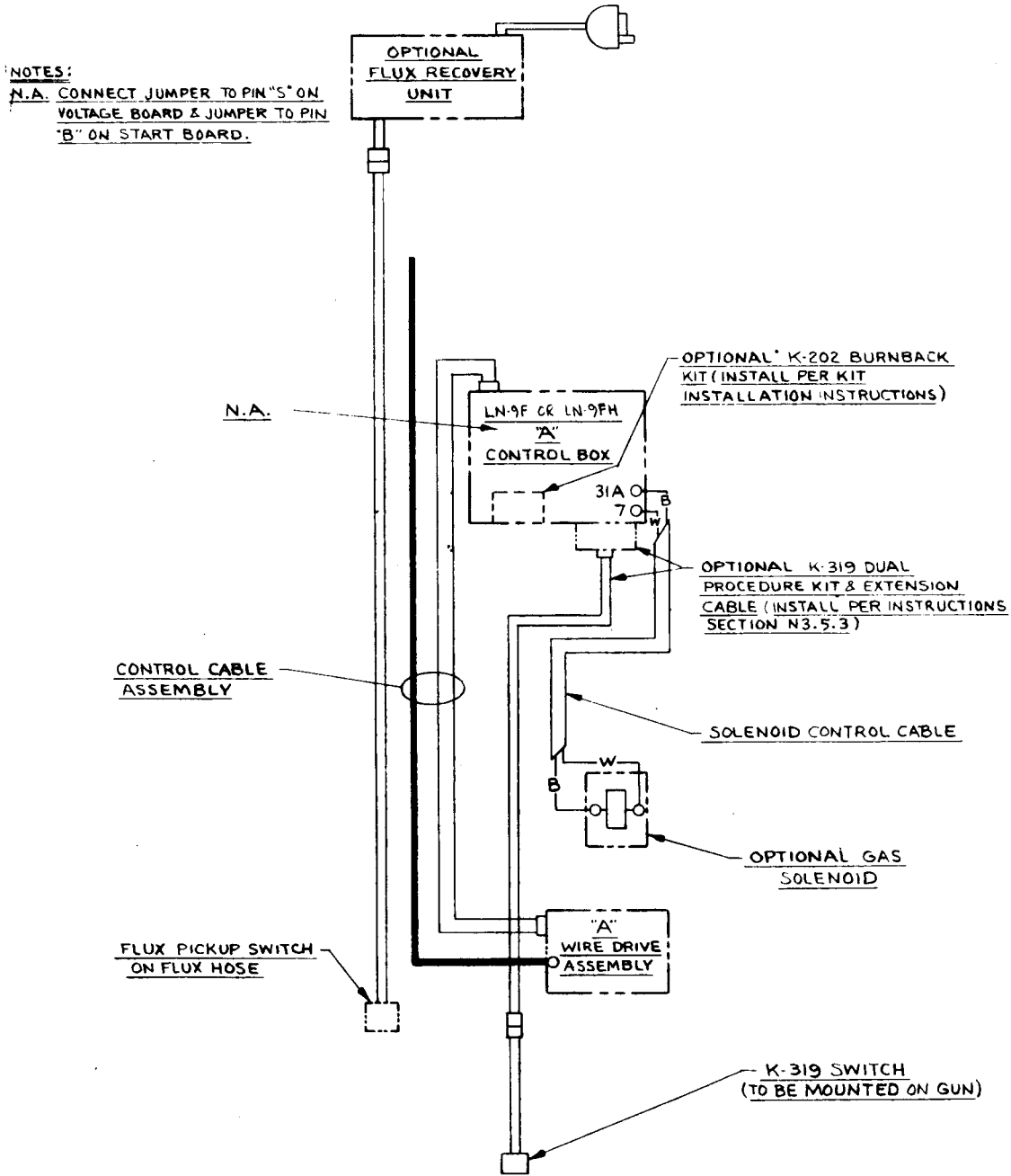
L-6146  
6-26-81N

**NOTE:** This diagram is for reference only. It is not accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the

enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the welder code number.



# WELDING MAST-BOOM ASSEMBLY WIRING DIAGRAM FOR ONE WIRE FEEDER



LEAD COLOR CODING  
 B = BLACK  
 W = WHITE

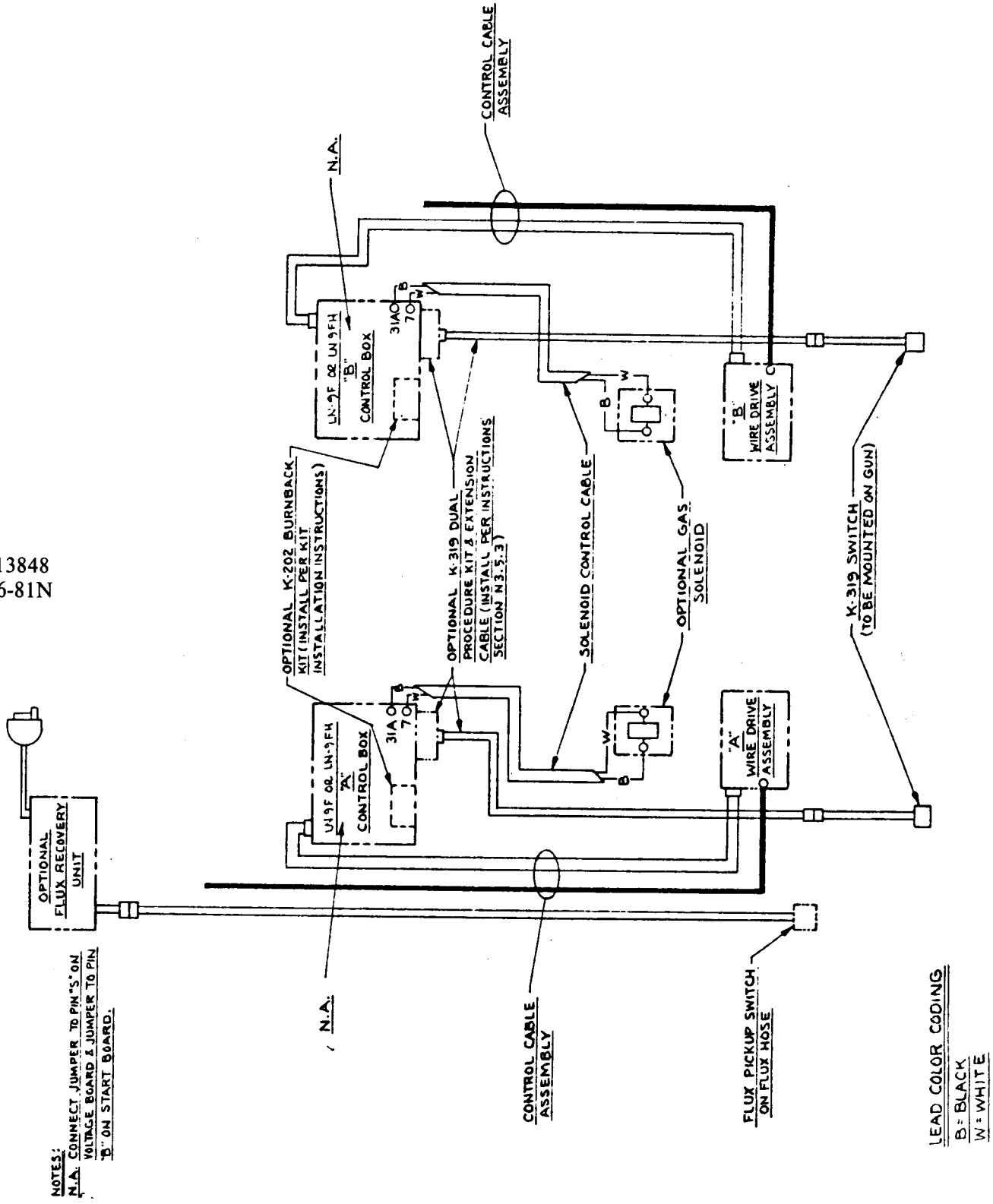
M-13847  
 6-26-81N

**NOTE:** This diagram is for reference only. It is not accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the

enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the welder code number.

# WELDING MAST-BOOM ASSEMBLY WIRING DIAGRAM FOR TWO WIRE FEEDERS

M-13848  
6-26-81N



**NOTES:**  
 N.A. CONNECT JUMPER TO PIN "S" ON VOLTAGE BOARD & JUMPER TO PIN "D" ON START BOARD.

**NOTE:** This diagram is for reference only. It is not accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the

enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the welder code number.

### **Need Welding Training?**

The Lincoln Electric Company operates the oldest and most respected Arc Welding School in the United States at its corporate headquarters in Cleveland, Ohio. Over 60,000 students have graduated. Tuition is low and the training is "hands on".

For details write: Lincoln Welding School  
22801 St. Clair Ave.  
Cleveland, Ohio 44117-1199

and ask for bulletin ED-80 or call 216-481-8100 and ask for the Welding School Registrar.

## HOW TO ORDER REPLACEMENT PARTS

Order parts only from Lincoln offices or from the Authorized Field Service Shops listed in the "Service Directory". Give the following information:

- (a) From the nameplate — machine model, code and serial numbers.
- (b) From this manual — complete part name and description,

item number, quantity required and the number of the list used to get this information.

Any items indented in the "Parts Name" column are included in the assembly under which they are listed. The indented items may be ordered separately. If the entire assembly is needed, do **not** order the indented parts.

## GUARANTEE

The Lincoln Electric Company, the Seller, warrants all new equipment except engines and accessories thereof against defects in workmanship and material for a period of one year from date of shipment, provided the equipment has been properly cared for, and operated under normal conditions. Engines and engine accessories are warranted free from defects for a period of ninety days from the date of shipment.

If the Buyer gives the Seller written notice of any defects in equipment or electrode or flux within any period of warranty and the Seller's inspection confirms the existence of such defects, then the Seller shall correct the defect or defects at its option, either by repair or replacement, at its own factory or other place as designated by the Seller. The remedy provided Buyer herein for breach of Seller's warranty shall be exclusive.

No expense, liability or responsibility will be assumed by the Seller for repairs made outside of the Seller's factory without

written authority from the Seller.

The Seller shall not be liable for any consequential damages in case of any failure to meet the conditions of any warranty. The liability of the Seller arising out of the supplying of said equipment or electrode or its use by the Buyer, whether on warranties or otherwise, shall not in any case exceed the cost of correcting defects in the equipment or replacing defective electrode in accordance with the above guarantee. Upon the expiration of any period of warranty, all such liability shall terminate.

The foregoing guarantees and remedies are exclusive and except as above set forth. There are no guarantees or warranties with respect to engines, accessories, equipment, electrodes, or flux, either express or arising by operation of law or trade usage or otherwise implied, including without limitation the warranty of merchantability, all such warranties being waived by the Buyer.

## THE LINCOLN ELECTRIC COMPANY



World's Largest Manufacturer of Arc Welding Products • Manufacturer of Industrial Motors  
Sales and Service Worldwide  
Toronto M4G 2B9 - Canada • Sydney 2211 - Australia • Rouen 76120 - France  
Cleveland, Ohio 44117-1199 U.S.A.