

# LINCOLN WELDING ARMS

For use with machine "K" Numbers: K1778-1, K1779-XX

## 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



**LINCOLN**<sup>®</sup>  
**ELECTRIC**

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- World's Leader in Welding and Cutting Products •
- Sales and Service through Subsidiaries and Distributors Worldwide •

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## WARNING

### CALIFORNIA PROPOSITION 65 WARNINGS

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

The Above For Diesel Engines

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

The Above For Gasoline Engines

**ARC WELDING CAN BE HAZARDOUS. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.**

Read and understand the following safety highlights. For additional safety information, it is strongly recommended that you purchase a copy of "Safety in Welding & Cutting - ANSI Standard Z49.1" from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2-1974. A Free copy of "Arc Welding Safety" booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

**BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.**



### FOR ENGINE powered equipment.

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



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



1.c. Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.

1.d. Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

1.e. In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.



1.f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

1.g. To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.



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



### ELECTRIC AND MAGNETIC FIELDS may be dangerous

2.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

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

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

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

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

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

2.d.3. Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.

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

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

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## ELECTRIC SHOCK can kill.

- 3.a. The electrode and work (or ground) circuits are electrically "hot" when the welder is on. Do not touch these "hot" parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.
- 3.b. Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.
- In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, gratings or scaffolds; when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:**
- Semiautomatic DC Constant Voltage (Wire) Welder.
  - DC Manual (Stick) Welder.
  - AC Welder with Reduced Voltage Control.
- 3.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically "hot".
- 3.d. Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.
- 3.e. Ground the work or metal to be welded to a good electrical (earth) ground.
- 3.f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
- 3.g. Never dip the electrode in water for cooling.
- 3.h. Never simultaneously touch electrically "hot" parts of electrode holders connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.
- 3.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.
- 3.j. Also see Items 6.c. and 8.



## ARC RAYS can burn.

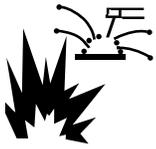
- 4.a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87.1 standards.
- 4.b. Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- 4.c. Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.



## FUMES AND GASES can be dangerous.

- 5.a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. **When welding 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.**
- 5.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.
- 5.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.
- 5.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.
- 5.e. Also see item 1.b.

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### WELDING SPARKS can cause fire or explosion.

6.a. Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire.

Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.

- 6.b. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to "Safety in Welding and Cutting" (ANSI Standard Z49.1) and the operating information for the equipment being used.
- 6.c. When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- 6.d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned". For information, purchase "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances", AWS F4.1 from the American Welding Society (see address above).
- 6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.
- 6.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.
- 6.g. Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.
- 6.h. Also see item 1.c.



### CYLINDER may explode if damaged.

7.a. Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.

- 7.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- 7.c. Cylinders should be located:
  - Away from areas where they may be struck or subjected to physical damage.
  - A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
- 7.d. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.
- 7.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- 7.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.
- 7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association 1235 Jefferson Davis Highway, Arlington, VA 22202.



### FOR ELECTRICALLY powered equipment.

- 8.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- 8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.
- 8.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

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## PRÉCAUTIONS DE SÛRETÉ

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

### Sûreté Pour Soudage A L'Arc

1. Protégez-vous contre la secousse électrique:
  - a. Les circuits à l'électrode et à la pièce 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 vêtements mouillés. Porter des gants secs et sans trous pour isoler les mains.
  - b. Faire très attention de bien s'isoler de la masse quand on soude dans des endroits humides, ou sur un plancher métallique ou des grilles métalliques, 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 de fonctionnement.
  - 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 précautions pour le porte-électrode s'appliquent 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 où 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 latéraux 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 un endroit isolé de la masse. Un court-circuit accidentel peut provoquer un échauffement et un risque d'incendie.
8. S'assurer que la masse est connectée le plus près 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 chaînes de levage, câbles de grue, ou autres circuits. Cela peut provoquer des risques d'incendie ou d'échauffement des chaînes et des câbles jusqu'à ce qu'ils se rompent.
9. Assurer une ventilation suffisante dans la zone de soudage. Ceci est particulièrement 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 phosgène (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 conformément au code de l'électricité et aux recommandations du fabricant. Le dispositif de montage ou la pièce 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 faire des travaux à l'intérieur de poste, la débrancher à l'interrupteur à la boîte de fusibles.
4. Garder tous les couvercles et dispositifs de sûreté à leur place.

Mar. '93

# 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.

Product \_\_\_\_\_

Model Number \_\_\_\_\_

Code Number or Date Code \_\_\_\_\_

Serial Number \_\_\_\_\_

Date Purchased \_\_\_\_\_

Where Purchased \_\_\_\_\_

Whenever you request replacement parts or information on this equipment, always supply the information you have recorded above. The code number is especially important when identifying the correct replacement parts.

## **On-Line Product Registration**

- Register your machine with Lincoln Electric either via fax or over the Internet.

- For faxing: Complete the form on the back of the warranty statement included in the literature packet accompanying this machine and fax the form per the instructions printed on it.
- For On-Line Registration: Go to our **WEB SITE at [www.lincolnelectric.com](http://www.lincolnelectric.com)**. Choose "Quick Links" and then "Product Registration". Please complete the form and submit your registration.

**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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## PRODUCT SUMMARY

### General Physical Description

The Lincoln Welding Arms create an organized work environment. The models available are:

- 6000 series Stanchion Mount for bolting to an appropriately prepared floor.

All welding arms are constructed with strong steel tubing. The design is light weight yet stiff, and provides for clever cable routing. When using optional vacuum equipment, the tubes provide a sleek path for fume and dust extraction.

For further flexibility, an optional lift truck platform is available, making it easy to transport the welding arm about the work site.

Order the optional mini-console for compressed air, electric and vacuum connections at the wire feeder.

### General Functional Description

The welding arms suspend the wire feeder and welding cables above the floor, allowing the work area to be fully devoted to fabrication. Control cables, electrode liners, electrode cables, shielding gas hoses, etc. are neatly routed through the tubing of the arm for protection.

6000 series arms feature counterbalance springs to equalize the weight of the feeder and to allow the operator to choose the working height. The operator simply glides the arm into position and begins to weld.

## RECOMMENDED PROCESSES AND EQUIPMENT

### RECOMMENDED PROCESSES

- GMAW (including GMAW-P, GMAW-STT if supported by the power source and wire feeder.)
- FCAW

### PROCESS LIMITATIONS

- The arms are not suitable for SAW because of the weight of a typical SAW system.

### RECOMMENDED EQUIPMENT

The welding arms are compatible with the following wire feeders:

- Power Feed 10 and Power Feed 10M
- Power Feed 10 Dual and Power Feed 10M Dual
- LN-10
- DH-10
- LF-72

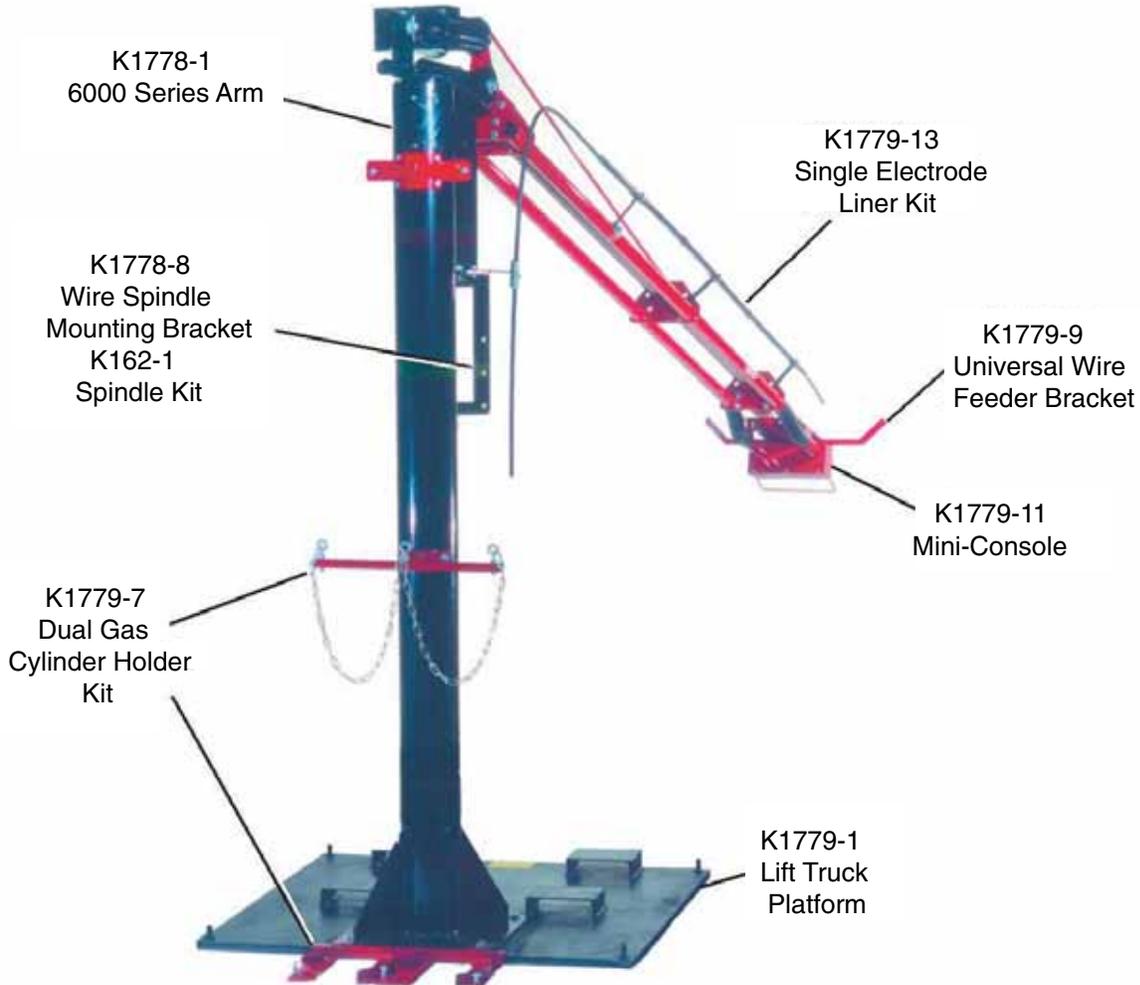
### EQUIPMENT LIMITATIONS

- The total weight of all equipment, guns and cables mounted to or hanging from the welding arm must not exceed 150 lb. (68kg).
- When using the optional K1779-1 platform, a minimum weight of 300lb (136kg) must be secured to the platform to prevent tipping.

## 6000 Series Stanchion Mount

(For Details and Assembly of Items Below, See Accessories Section)

ITEM	DESCRIPTION
K1778-1	6000 series arm with stanchion.
K1779-1	Lift Truck Platform
K1779-13	Single electrode liner kit.
K1779-7	Dual gas cylinder holder kit.
K1779-8	Wire spindle mounting bracket.
K162-1	Spindle Kit
K1779-11	Mini-Console
K1779-9	Universal feeder mounting bracket.



WELDING ARMS



**TEMPERATURE RANGES****OPERATING TEMPERATURE RANGE**

-20°C to +40°C (-04° to +104°F)

**STORAGE TEMPERATURE RANGE**

-40°C to +85°C (-40° to +185°F)

**DESIGN FEATURES**

- 360° rotation with the 6000 series stanchion secured directly to the floor.
- 180° rotation with the 6000 series stanchion mounted to the optional lift truck platform.
- Organized work areas for improved productivity.
- Longer life of cables, welding guns, hoses.
- Welding controls at an ergonomic position.
- Small footprint gives more room to work.
- Compressed air, vacuum and electrical connections at the wire feeder when using the optional mini-console.

## SAFETY PRECAUTIONS

### ⚠ WARNING

**ELECTRIC SHOCK can kill.**



- Turn the input power OFF at the welding power source before installation or changing drive rolls and/or guides.
- Do not touch electrically live parts.
- When inching with the gun trigger, electrode and drive mechanism are "hot" to work and ground and could remain energized several seconds after the gun trigger is released.

- Welding power source must be connected to system ground per the National Electrical Code or any applicable local codes.
- Only qualified personnel should perform maintenance work.

## NON-STANDARD SAFETY INFORMATION

- This equipment is not designed for and should not be used for lifting, supporting or transporting people.
- Always inspect the welding arm and accessories before use and before placing into storage.
- Ensure the travel path is clear before moving the welding arm.
- Never shock or side load the welding arm.
- Do not attempt to drag loads across the ground with the welding arm.
- Do not place ladders or climb on an unrestrained welding arm.
- Do not use platform arms as lift truck attachments.
- Do not move welding arms with the gas cylinders attached.
- The overall stability and safety of a welding arm depends on its foundation or supports. When erecting to an existing structure it is important that the superimposed forces are assessed by a qualified engineer and written approval obtained.
- Welding arms must be mounted onto a suitable foundation and a suitably qualified person should be consulted.
- Do not let the welding arm crash into any travel stops, objects or persons.
- Regularly inspect the welding arm, and in the event of the following defects, refer the welding arm to a Competent Person for thorough examination: structural defects, damage, distortion or cracked welds, loose or missing bolts, damaged or missing stops, difficulty in slewing or welding arm slews on it owns, any other visibly defects or operational difficulties.
- Springs are under pressure. Do not service or adjust the springs.

- Moving welding arm parts can cause serious personal injury. Keep hands away from pinch points and from the spring rod clevis and swivel plates.
- Falling welding arm can cause serious personal injury and equipment damage.
- Unbalanced welding arm can cause serious personal injury and equipment damage. Do not remove the wire feeder unless the tension clevis is fully retracted against the spring holder.
- A minimum weight of 300 lb. (136 kg) must be secured to the platform to prevent tipping. The platform must be level. Do not remove power source or weight from the platform unless the arm has been secured. The arm will tip over if the weight is removed from the platform.

## LOCATION

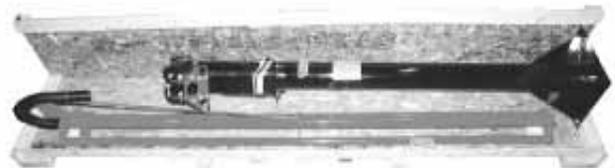
The Welding Arms are suitable for indoor environments only.

## PRODUCT SPECIFIC INSTALLATION INSTRUCTIONS.

### Erecting the Welding Arm

6000 series Stanchion Mount and Platform Mount.

1. Remove the top and sides from the crate.



2. Remove mounting block at rear of the arm.



3. Remove the mounting block at the front of the arm.



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4. Remove the red arm from the crate.



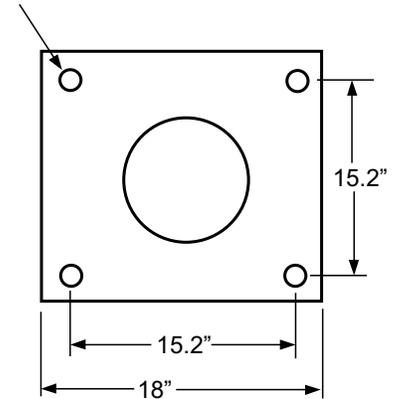
5. Remove the two 3/8" lag bolts from the base of the stanchion. Note: Do NOT remove the steel strap until the stanchion has been secured.



7. Lift the stanchion assembly off the ground and move to desired location.



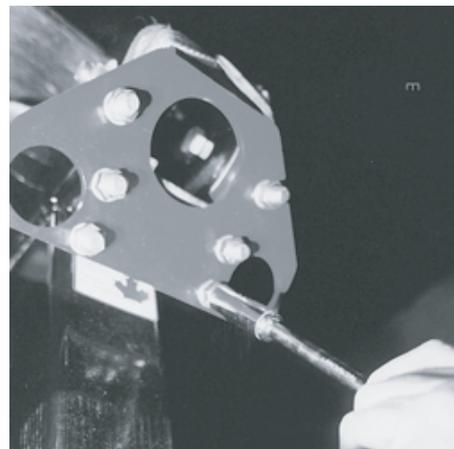
8. Secure the stanchion to the floor per qualified engineer specifications or secure the stanchion to the optional platform. If using the platform, level the platform before installing the stanchion. Install and secure at least 300# of weight onto the platform. A welding power source may be sufficient for this purpose. Verify the weight of the power source.



6. Secure an adequate nylon strap or rope to the top of the arm. Loop the strap behind the red mounting triangle where it attaches to the pivot clutches. Slowly lift the arm out of the crate.



9. Remove the six 1/2" x 1-1/4 bolts and lock washers from the rear of the arm.



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10. Install with arm section with the six 1/2" x 1-1/4 bolts and washers.



11. Raise the front of the arm with a forklift or hoist and attach to the appropriate hole in the clevis and arm triangle.



12. Install the cover plate at the top of the stanchion.
13. Install the optional K1779-9 Universal Wire Feeder Support Bracket.
14. Route the control cable, gas hose and electrode cable through the center tube.
15. Slip the 3' (0.9m) long, 2" (51 mm) diameter black hose over the assembled cables and hose at the rear of the arm.
16. Slip the 1' (0.3m) long, 2" (51 mm) diameter black hose over the assembled cables at the front of the arm.

17. Slip the 4" (102 mm) of PVC tube over the gas hose(s).

18. Secure the welding arm to prevent movement.

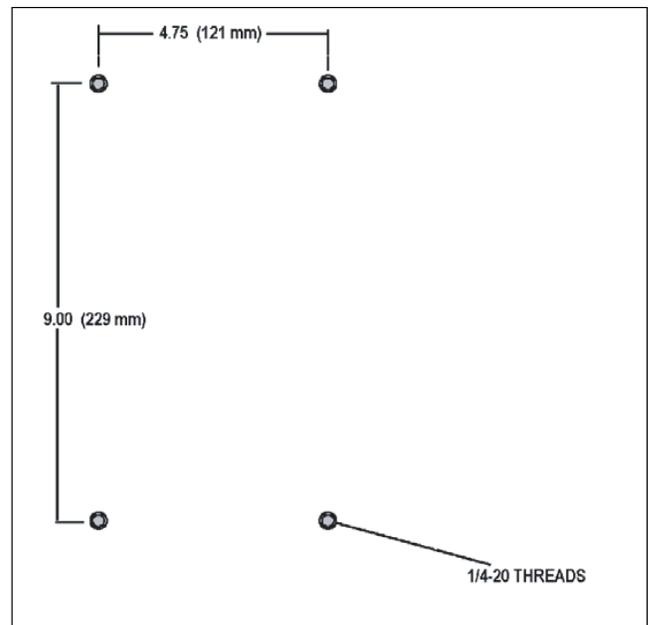
### **⚠ WARNING**

**Secure the welding arm to prevent movement before mounting wire feeder, cables, or any other accessory.**

The Universal Wire Feeder Mounting Bracket has holes for mounting:

- LF-72
- LN-10
- DH-10
- Power Feed 10 and Power Feed 10M
- Power Feed 10 Dual and Power Feed 10M Dual

19. Compare the mounting holes of the wire feeder to the mounting holes on the Universal Wire Drive Bracket. If necessary, drill holes in the bracket.



20. Place the wire feeder onto the Universal Wire Drive Bracket and attach with appropriate hardware. Use hardware that is vibration proof.

21. Adjust the length of the cables and hoses coming out of the front of the arm to permit connections to the feeder.
22. Secure the cables and hoses to the K1779-9 feeder support by tightening the hose clamp around the 1' (0.3m) long hose.
23. Secure the 3' (0.9m) long hose assembled in step 14 to the cable assemble where it exits the rear of the arm.
24. After installing K1779-11 Mini Console, verify proper connections to the electrical outlet (neutral, hot and ground circuits) by using a plug-in circuit tester.

### ⚠ CAUTION

Before tightening the hose clamp, make sure that the 4" (102 mm) PVC tube is around the gas hose where the clamp secures the assembly. This will prevent any restriction in the gas flow.



### WELD CABLE SIZES

See Table A.1 for recommended copper cable sizes, currents and duty cycles. Lengths provided are the distance from the welder to work and back to the welder again. Cable sizes are increased for greater lengths primarily for the purpose of minimizing cable drop.

TABLE A.1

RECOMMENDED CABLE SIZES (RUBBER COVERED COPPER - RATED 75°C)\*\*

Amperes	Percent Duty Cycle	CABLE SIZES FOR COMBINED LENGTHS OF ELECTRODE AND WORK CABLES				
		0 to 50 Ft.	50 to 100 Ft.	100 to 150 Ft.	150 to 200 Ft.	200 to 250 Ft.
200	60	2	2	2	1	1/0
200	100	2	2	2	1	1/0
225	20	4 or 5	3	2	1	1/0
225	40 & 30	3	3	2	1	1/0
250	30	3	3	2	1	1/0
250	40	2	2	1	1	1/0
250	60	1	1	1	1	1/0
250	100	1	1	1	1	1/0
300	60	1	1	1	1/0	2/0
325	100	2/0	2/0	2/0	2/0	3/0
350	60	1/0	1/0	2/0	2/0	3/0
400	60	2/0	2/0	2/0	3/0	4/0
400	100	3/0	3/0	3/0	3/0	4/0
500	60	2/0	2/0	3/0	3/0	4/0

\*\* Tabled values are for operation at ambient temperatures of 40°C and below. Applications above 40°C may require cables larger than recommended, or cables rated higher than 75°C

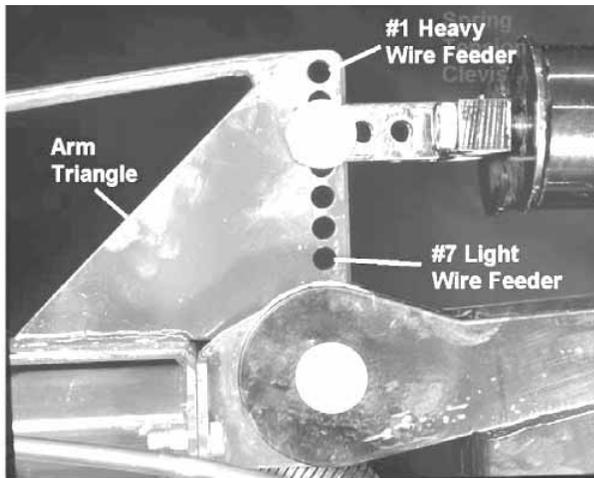
WELDING ARMS



## ADJUSTING FOR WIRE FEEDER WEIGHT

The holes in the arm triangle compensate for different wire feeder weights. The top position, #1 is used for heavy wire feeders. The bottom position, #7 is used for light wire feeders.

Wire Feeder	Arm triangle hole position
LF-72	#5
LN-10, Power Feed 10, Power Feed 10M	#4
DH-10, Power Feed 10 Dual, Power Feed 10M Dual	#3



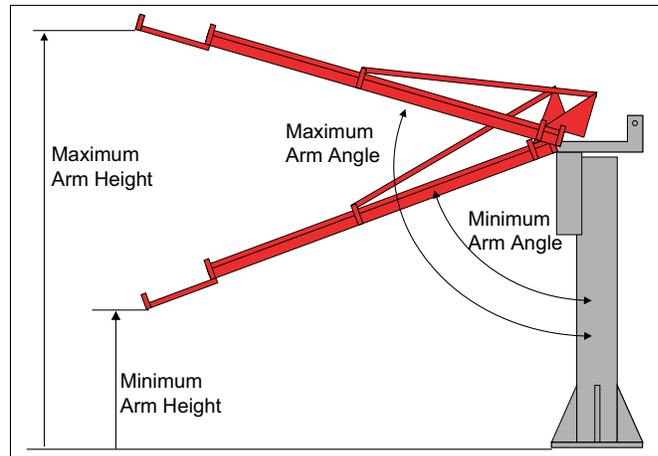
### To change the arm triangle position:

1. Turn off power at the welding power source.
2. Support the welding arm with a fork lift or hoist.
3. Remove the tension clevis bolt.
4. Raise or lower the arm until the desired tension clevis hole aligns with the desired arm triangle hole.
5. Replace the tension clevis bolt.
6. Remove the supporting equipment.

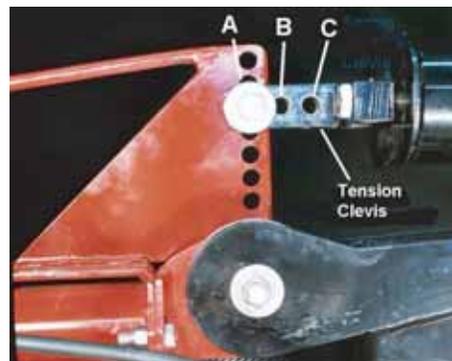
## ADJUSTING THE WELDING ARM TRAVEL

(See Table A.2)

The holes in the tension clevis adjust the welding arm travel range.



Most people prefer position A.



### To change the tension clevis position:

7. Turn off power at the welding power source.
8. Support the weld arm with a fork lift or hoist.
9. Remove the tension clevis bolt.
10. Raise or lower the arm until the desired tension clevis hole aligns with the desired arm triangle hole.
11. Replace the tension clevis bolt.
12. Remove the supporting equipment.

TABLE A.2

Tension Clevis Hole Position	Minimum Arm Angle	Maximum Arm Angle	Minimum Arm Height	Maximum Arm Height
A	67°	95°	34" (0.86m)	102" (2.59m)
B	80°	107°	66" (1.68m)	131" (3.33m)
C	95°	117°	91" (2.31m)	159" (4.04m)

\* Dimension listed are for the arm triangle assembled in the #4 position. Dimensions slightly different for other positions.

WELDING ARMS



## SAFETY PRECAUTIONS

### SHIELDING GAS CONNECTION

#### WARNING



**CYLINDER may explode if damaged.**

• **Keep cylinder upright and chained to support.**

- **Keep cylinder away from areas where it may be damaged.**
- **Never lift welder with cylinder attached.**
- **Never allow welding electrode to touch cylinder.**
- **Keep cylinder away from welding or other live electrical circuits.**
- **BUILD UP OF SHIELDING GAS MAY HARM HEALTH OR KILL.**
- **Shut off shielding gas supply when not in use.**
- **See American National Standard Z-49.1, "Safety in Welding and Cutting" Published by the American Welding Society.**

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Maximum inlet pressure is 100 psi.(6.9bar)

Install the shielding gas supply as follows:

1. Secure the cylinder to prevent it from falling.
2. Remove the cylinder cap. Inspect the cylinder valves and regulator for damaged threads, dirt, dust, oil or grease. Remove dust and dirt with a clean cloth. **DO NOT ATTACH THE REGULATOR IF OIL, GREASE OR DAMAGE IS PRESENT!** Inform your gas supplier of this condition. Oil or grease in the presence of high pressure oxygen is explosive.
3. Stand to one side away from the outlet and open the cylinder valve for an instant. This blows away any dust or dirt which may have accumulated in the valve outlet.
4. Attach the flow regulator to the cylinder valve and tighten the union nut(s) securely with a wrench. Note: if connecting to 100% CO<sub>2</sub> cylinder, insert regulator adapter between regulator and cylinder valve. If adapter is equipped with a plastic washer, be sure it is seated for connection to the CO<sub>2</sub> cylinder.
5. Attach one end of the inlet hose to the outlet fitting of the flow regulator. Attach the other end to the welding system shielding gas inlet. Tighten the union nuts with a wrench.
6. Before opening the cylinder valve, turn the regulator adjusting knob counterclockwise until the adjusting spring pressure is released.

7. Standing to one side, open the cylinder valve slowly a fraction of a turn. When the cylinder pressure gage stops moving, open the valve fully.

8. The flow regulator is adjustable. Adjust it to the flow rate recommended for the procedure and process being used before making a weld.

## OPTIONS AND ACCESSORIES

### K1779-11 Mini Console

(See Figure C.1)

The mini console adds more useful functions to the welding arms. Included with the mini console are:

- 1/2" threaded female bulkhead fitting with 25ft. (7.6 m) of braided air hose for compressed air connections.
- Duplex receptacle with 25ft. (7.6 m) of 12/3 SJ cord and male plug, rated for 15 amps.
- Panel mounted vacuum inlet connector (female) and two flexible hoses.
- Welding gun hanger bracket.
- Mounting hardware.

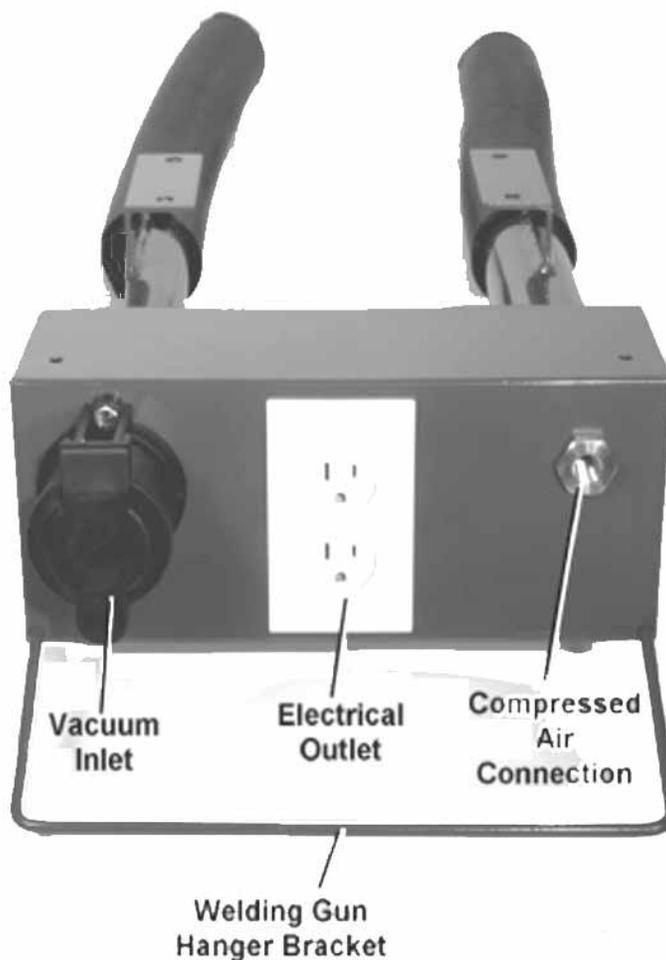
The mini console bolts to the underside of the Universal Wire Feeder bracket for quick installation.

## MINI CONSOLE ASSEMBLY INSTRUCTIONS

(See Figure C.2)

1. Assemble the vacuum inlet to the front of the Mini Console Body using the M6 nuts and bolts provided.
2. Install the 1/4" short anchor couplers to the front of the Mini Console Body.
3. Insert the 1/4" NPT male thread 3/8" hard hose connector into the rear of the anchor coupler using teflon tape to seal the threads.
4. Remove the rear lower knock out in the electrical box and install the romex connector.
5. Insert the two 1/4"-20 x 1-1/2" carriage bolts into the two holes at the front of the K1779-9 feeder support.
6. Mount the Mini Console Body to the bottom of the feeder support and secure with nut and washer inside the console.
7. Feed the electrical cable and 3/8" braided air hose through the 2" structural tube of the right side on the arm.

FIGURE C.1

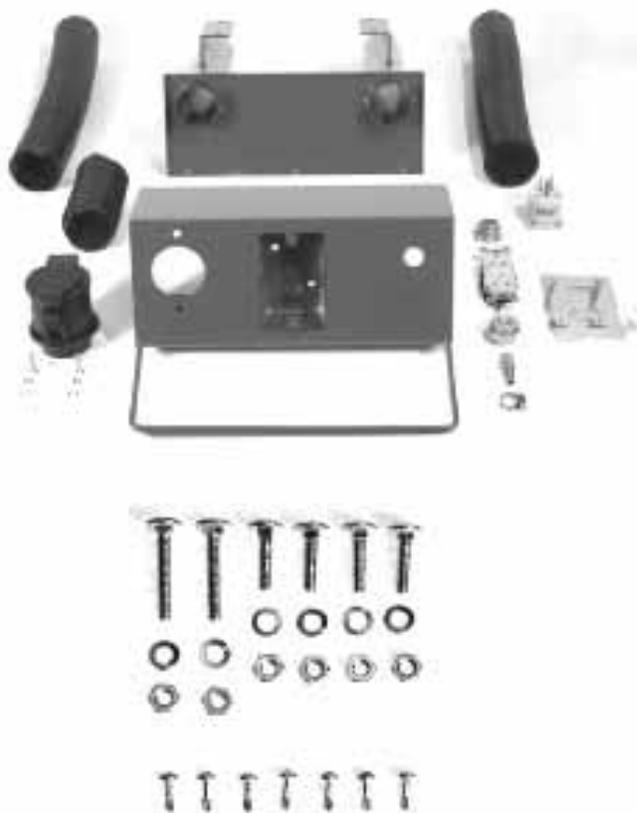


WELDING ARMS



8. Extend the hose and cable(s) out through the right front 2" tube about 32" and then feed them through one of the 15" long black 2" hoses. Feed the cables and black tube through the right tube of the back of the mini console. The back cover should be facing forward with the two pipes extending to the rear and the two mounting brackets facing up towards the universal feeder support.
9. Connect the 3/8" braided air hose and gear clamp to the hose connector mounted on the Mini Console Body.
10. Feed the electrical cable through the romex connector and attach the 120 VAC receptacle. Install the receptacle and cover plate.
11. Install a quick disconnect air fitting (not included) to the front of the short anchor coupler.
12. Verify all connections.
13. Slip the 5" piece of 2" spiral hose over the rear of the vacuum inlet.
14. Install the Mini Console Rear Cover, making sure the 5" long, 2" spiral hose slips over the left pipe of the rear cover and compresses as the panel is screwed into place. Install the two top outside #8 x 1/2" self drilling screws first and then pivot the rear cover to allow the three bottom screws to be installed. Tighten all five screws. Drill two 1/8" diameter holes through the prepunched bottom outside holes in the mini console into the back cover. Install and tighten two #8 - 1/2" long screws.
15. Secure the two brackets of the back cover to the four mounting holes in the universal feeder support using 1/4"-20 x 1" carriage bolts and lock washers.
16. Slide the two 15" long x 2" diameter black hoses over the rear of the back cover pipes.
17. Install the universal feeder support and mini console assembly to the arm making sure both 2" diameter hoses fit over the outer structural tubes of the arm.
18. Install a 20" long x 1-1/2" diameter hose over the electrical cable and air hose at the rear of the arm and slide it halfway into the tube to protect the cable and hose from wear. Secure the hose with an adhesive (not included.)
19. Make final electrical connections by installing a plug to the end of the electrical cable. Plug into an approved GFI outlet.
20. Install the appropriate air fitting to the end of the 3/8" braided air hose and connect to an air supply.
21. After installing K1779-11 Mini Console, verify proper connections to the electrical outlet (neutral, hot and ground circuits) by using a plug-in circuit tester.

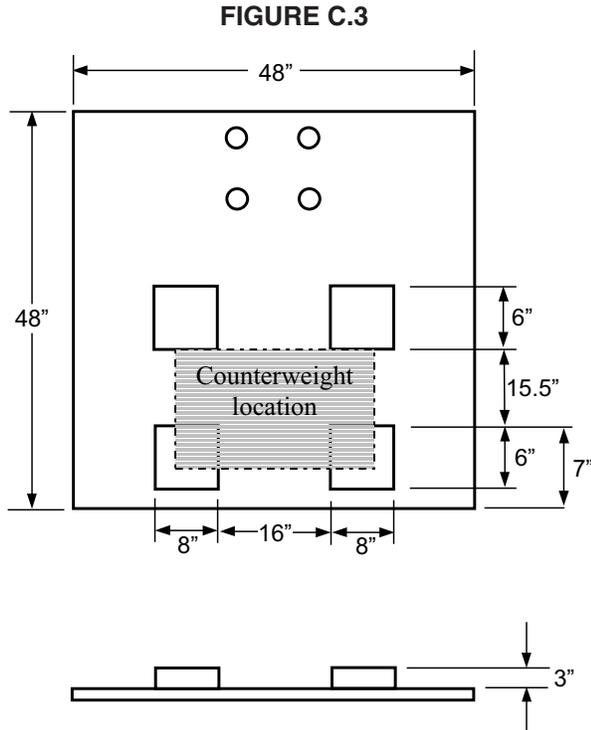
FIGURE C.2



**K1779-1 4' x 4' x 1" Lift Truck Platform.**

(See Figure C.3)

Platform for use with the 6000 series stanchion arm. Install and secure at least 300 lb (136kg) of weight onto the platform. A welding power source may be sufficient for this purpose. Verify the weight of the power source.

**K1779-13 Single Electrode Liner Kit**

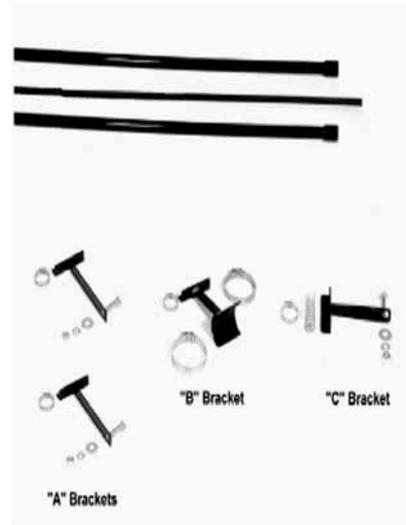
(See Figure C.4)

Includes liner, brackets and hardware for mounting to a 6000 series arm.

Note: If using a wire feeder with dual drives, two liner kits are required.

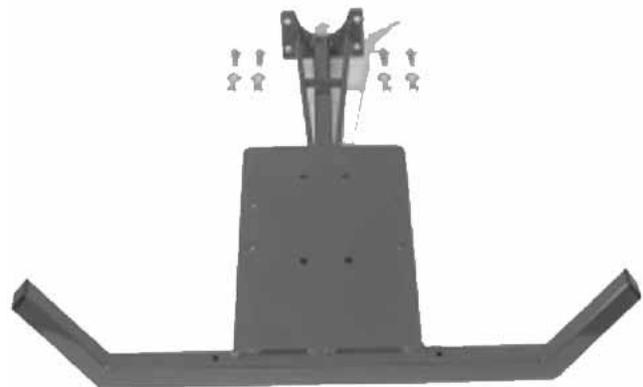
1. Mount the two "A" brackets and one "B" bracket to the arm. Mount the brackets on either the right or left side of the arm to match the wire drive location on the wire feeder. The "A" brackets mount at the front and middle of the arm. The "B" bracket mounts towards the rear.
2. Assemble the three pieces of PVC tubing by firmly inserting the plain ends into the expanded ends.

3. Secure the assembled PVC tubing to the "A" and "B" brackets using the gear clamps.
4. If a Spindle Mounting Kit is used, mount the "C" bracket to the spindle. Align the bracket as necessary for proper wire alignment.
5. Slide the liner conduit through the PVC tubing. Secure the liner conduit to the "C" bracket with the split nylon sleeve and gear clamp.

**FIGURE C.4****K1779-9 Universal Wire Feeder Bracket**

(See Figure C.5)

Bracket for holding the wire feeder at the end of the arm. Includes bracket and mounting hardware.

**FIGURE C.5**

**K1779-7 Dual Gas Cylinder Holder Kit**

(See Figure C.6)

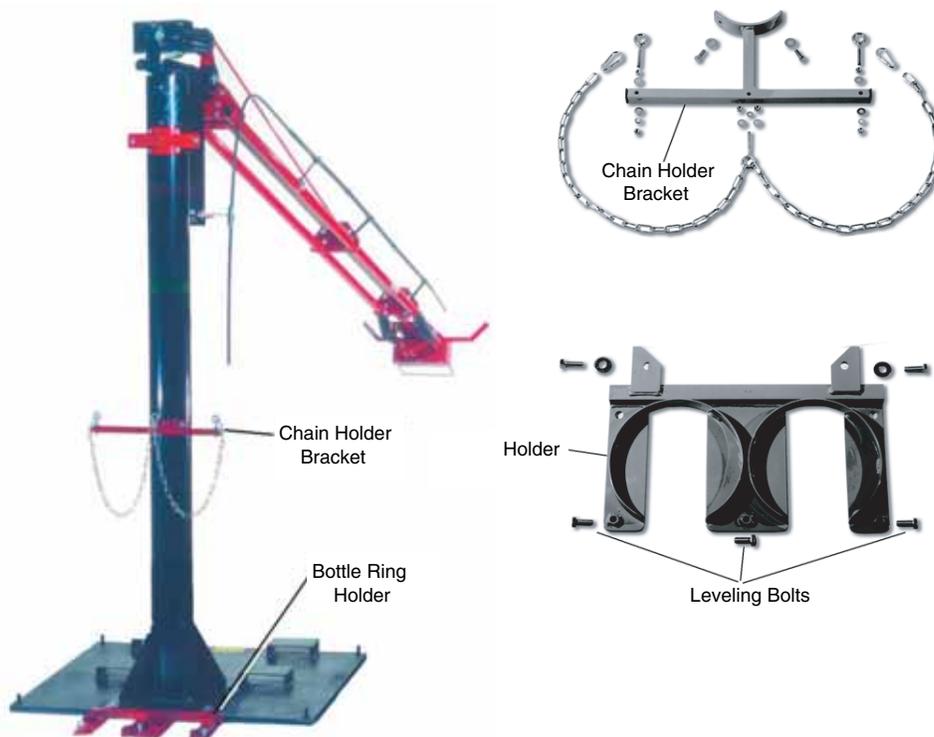
Mounts directly to the stanchion. Includes bracket, chains and hardware.

### ⚠ WARNING

- If the Dual Gas Cylinder Holder Kit is installed to a Lift Truck Platform, the gas bottles must be removed before the platform is lifted or moved.
- Do not remove the 180° travel stops from the arm if both the Dual Gas Cylinder Holder Kit and the Wire Spindle Mounting Kit are mounted to the arm. If the travel stops are removed, the wire spools may impact the gas cylinders.

1. Mount the chain holder bracket to the welding arm stanchion.
2. Secure the bottle ring holder to either the lift truck platform (if present) or directly to the floor.
3. Use the leveling bolts as necessary to correct for uneven floors.

FIGURE C.6

**K1779-8 Wire Spindle Mounting Bracket**

(See Figure C.7)

Bracket for mounting the mast and spindle at a lower, more convenient height.

Includes bracket and mounting hardware for mounting the mast and spindle from a bench feeder or K1524-1 Universal Wire Reel stand. Mast and spindle not included with K1779-8 Wire Spindle Mounting Bracket.

### ⚠ WARNING

- Do not remove the 180° travel stops from the arm if both the dual gas cylinder kit and the wire spindle mounting kit are mounted to the arm. If the travel stops are removed, the wire spools may impact the gas cylinders.

FIGURE C.7)

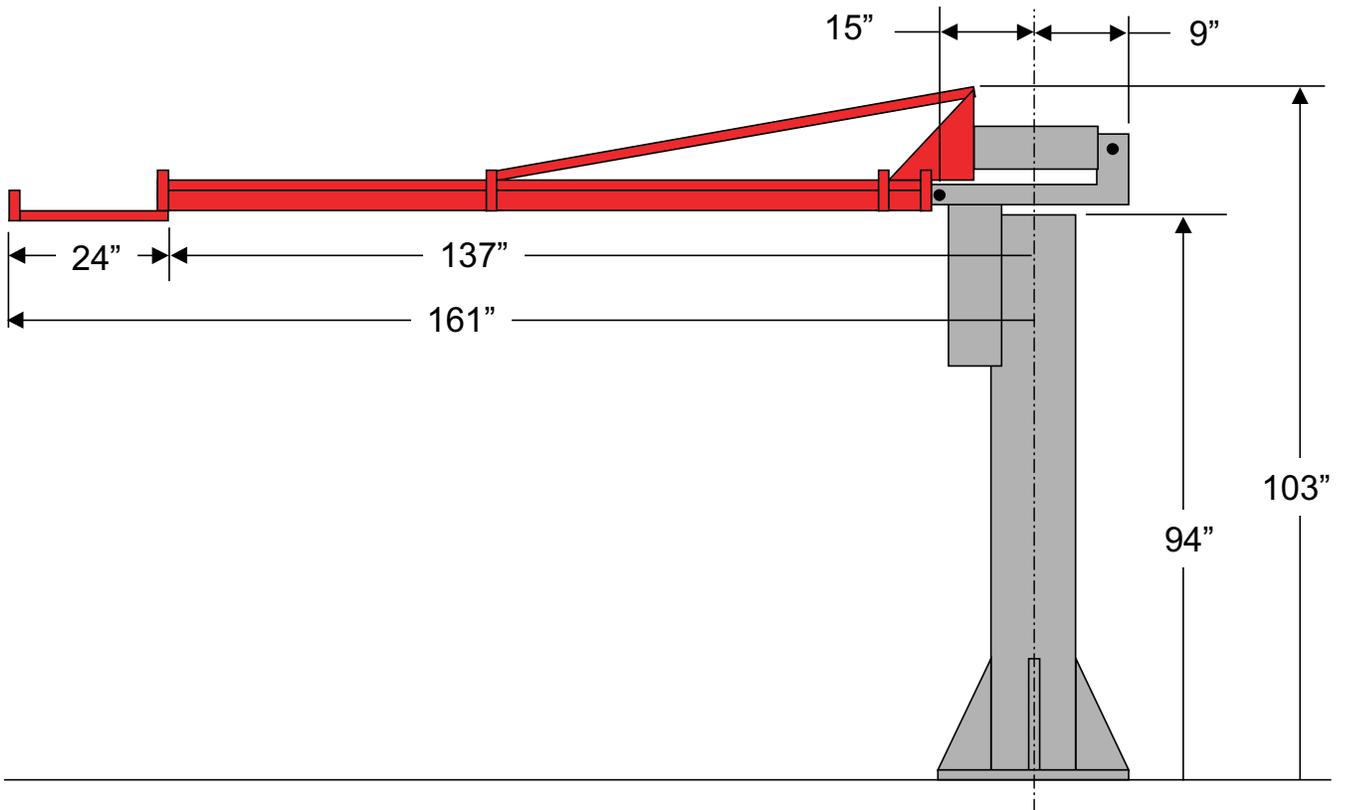


WELDING ARMS

**LINCOLN**<sup>®</sup>  
ELECTRIC

**ROUTINE MAINTENANCE**

- Every 6 months, grease the pivot arm pivot point. The grease fitting is located at the top of the stanchion behind the cover plate.
- Inspect clutches at pivot point.
- Inspect condition of stops.



WELDING ARMS



# NOTES

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WELDING ARMS



# NOTES

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WELDING ARMS



# NOTES

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WELDING ARMS



			
<b>WARNING</b>	<ul style="list-style-type: none"> <li>● Do not touch electrically live parts or electrode with skin or wet clothing.</li> <li>● Insulate yourself from work and ground.</li> </ul>	<ul style="list-style-type: none"> <li>● Keep flammable materials away.</li> </ul>	<ul style="list-style-type: none"> <li>● Wear eye, ear and body protection.</li> </ul>
Spanish <b>AVISO DE PRECAUCION</b>	<ul style="list-style-type: none"> <li>● No toque las partes o los electrodos bajo carga con la piel o ropa mojada.</li> <li>● Aislese del trabajo y de la tierra.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenga el material combustible fuera del área de trabajo.</li> </ul>	<ul style="list-style-type: none"> <li>● Protéjase los ojos, los oídos y el cuerpo.</li> </ul>
French <b>ATTENTION</b>	<ul style="list-style-type: none"> <li>● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension.</li> <li>● Isolez-vous du travail et de la terre.</li> </ul>	<ul style="list-style-type: none"> <li>● Gardez à l'écart de tout matériel inflammable.</li> </ul>	<ul style="list-style-type: none"> <li>● Protégez vos yeux, vos oreilles et votre corps.</li> </ul>
German <b>WARNUNG</b>	<ul style="list-style-type: none"> <li>● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung!</li> <li>● Isolieren Sie sich von den Elektroden und dem Erdboden!</li> </ul>	<ul style="list-style-type: none"> <li>● Entfernen Sie brennbares Material!</li> </ul>	<ul style="list-style-type: none"> <li>● Tragen Sie Augen-, Ohren- und Körperschutz!</li> </ul>
Portuguese <b>ATENÇÃO</b>	<ul style="list-style-type: none"> <li>● Não toque partes elétricas e electrodos com a pele ou roupa molhada.</li> <li>● Isole-se da peça e terra.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenha inflamáveis bem guardados.</li> </ul>	<ul style="list-style-type: none"> <li>● Use proteção para a vista, ouvido e corpo.</li> </ul>
Japanese <b>注意事項</b>	<ul style="list-style-type: none"> <li>● 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。</li> <li>● 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。</li> </ul>	<ul style="list-style-type: none"> <li>● 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。</li> </ul>	<ul style="list-style-type: none"> <li>● 目、耳及び身体に保護具をして下さい。</li> </ul>
Chinese <b>警告</b>	<ul style="list-style-type: none"> <li>● 皮肤或湿衣物切勿接觸帶電部件及鐸條。</li> <li>● 使你自已與地面和工件絕緣。</li> </ul>	<ul style="list-style-type: none"> <li>● 把一切易燃物品移離工作場所。</li> </ul>	<ul style="list-style-type: none"> <li>● 佩戴眼、耳及身體勞動保護用具。</li> </ul>
Korean <b>위험</b>	<ul style="list-style-type: none"> <li>● 전도체나 용접봉을 젖은 헝겍 또는 피부로 절대 접촉치 마십시오.</li> <li>● 모재와 접지를 접촉치 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 인화성 물질을 접근 시키지 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 눈, 귀와 몸에 보호장구를 착용하십시오.</li> </ul>
Arabic <b>تحذير</b>	<ul style="list-style-type: none"> <li>● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الإلكترود بجلد الجسم أو بالملايس المبللة بالماء.</li> <li>● وضع عازلا على جسمك خلال العمل.</li> </ul>	<ul style="list-style-type: none"> <li>● ضع المواد القابلة للاشتعال في مكان بعيد.</li> </ul>	<ul style="list-style-type: none"> <li>● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.</li> </ul>

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

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

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

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

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

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

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

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

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

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